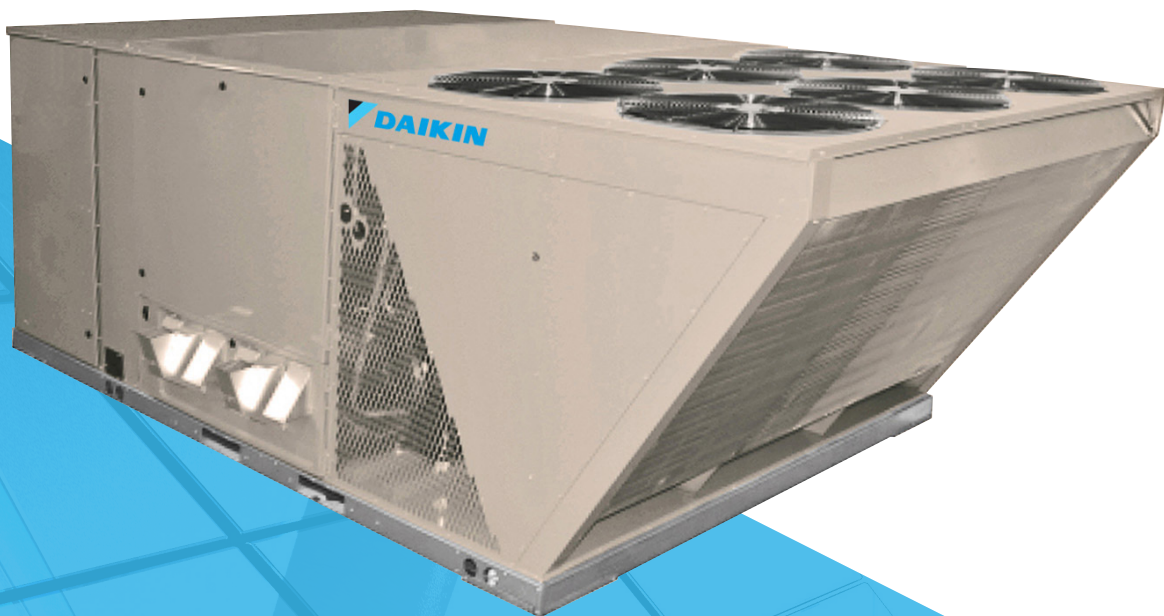


MAVERICK® I

COMMERCIAL PACKAGED ROOFTOP SYSTEMS



- HEATING AND COOLING
- MODELS MPS015B THRU MPS025B
- 15 TO 25 TONS
- R-410A REFRIGERANT

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Introduction

General

This manual contains the installation and operating instructions for your packaged rooftop system. There are some precautions that should be taken to derive maximum satisfaction from it. Improper installation can result in unsatisfactory operation or dangerous conditions. Read this manual and any instructions packaged with separate equipment prior to installation. Give this manual to the owner and explain its provisions. The owner should retain this manual for future reference.

Hazardous Information Messages



CAUTION

Cautions indicate potentially hazardous situations, which can result in personal injury or equipment damage if not avoided.



WARNING

Warnings indicate potentially hazardous situations, which can result in property damage, severe personal injury, or death if not avoided.



DANGER

Dangers indicate a hazardous electrical situation which will result in death or serious injury if not avoided.



DANGER

Dangers indicate a hazardous gas situation which will result in death or serious injury if not avoided.

NOTICE

Notices give important information concerning a process, procedure, special handling or equipment attributes.

Safety Information

NOTICE

The manufacturer's warranty does not cover any damage or defect to the air conditioner caused by the attachment or use of any components, accessories or devices (other than those authorized by the manufacturer) into, onto, or in conjunction with the air conditioner. You should be aware that the use of unauthorized components, accessories or devices may adversely affect the operation of the air conditioner and may also endanger life and property. The manufacturer disclaims any responsibility for such loss or injury resulting from the use of such unauthorized components, accessories or devices.



WARNING

Install this unit only in a location and position as specified in the Mechanical Installation section of these instructions. Provide adequate combustion and ventilation air to the unit space as specified in the venting section of these instructions.



DANGER

Provide adequate combustion and ventilation air to the unit space as specified in the combustion and ventilation air section of these instructions.

Combustion products must be discharged outdoors. Connect this unit to an approved vent system only, as specified in Mechanical Installation section of these instructions.

Use only with type of gas approved for this unit. Refer to the unit rating plate.

Never test for gas leaks with an open flame. It can cause an explosion or fire resulting in property damage, personal injury or death. Use a commercially available soap solution made specifically for the detection of leaks to check all connections, as specified in the Mechanical Installation section of these instructions.

Always install unit to operate within the unit's intended temperature-rise range with a duct system which has an external static pressure within the allowable range, as specified in the Mechanical Installation section of these instructions. See also unit rating plate.



WARNING

Units are not design certified to be installed inside the structure. Doing so can cause inadequate unit performance as well as property damage and carbon monoxide poisoning resulting in personal injury or death.

Mechanical Installation

Checking Product Received

NOTICE

Check the unit model number, heating size, electrical characteristics, and accessories to determine if they are correct.

Upon receiving the unit, inspect it for any damage from shipment. Claims for damage, either shipping or concealed, should be filed immediately with the shipping company.

Major Components

The unit includes a hermetically-sealed refrigerating system consisting of a scroll compressor, condenser coil, evaporator coil with capillary tube assembly, a supply air fan, a condenser fan, a heat exchanger assembly, gas burner and control assembly, combustion air motors and fan, and all necessary internal electrical wiring. The cooling system of these units is factory-evacuated, charged and performance tested. Refrigerant amount and type are indicated on rating plate.

The unit is available in 250,000 AND 350,000 BTUH heating input with nominal cooling capacity of 15 tons. 300,000 and 400,000 BTUH heating inputs are available in nominal cooling capacity of 20 and 25 tons. Units are convertible from bottom supply and return to side supply and return by relocation of supply and return air cover panels.

The units are weatherized for mounting outside of the building.

General

NOTICE

When a unit is installed so that supply ducts carry air circulated by the unit to areas outside the space containing the unit, the return air shall also be handled by duct(s) sealed to the unit casing and terminating outside the space containing the unit.

Install this unit in accordance with The American National Standard Z223.1-latest edition manual entitled "National Fuel Gas Code," and the requirements or codes of the local utility or other authority having jurisdiction.

Additional helpful publications available from the "National Fire Protection Association" are: NFPA-90A - Installation of Air Conditioning and Ventilating Systems 1985 or latest edition. NFPA-90B - Warm Air Heating and Air Conditioning Systems 1984.

These publications are available from:
National Fire Protection Association, Inc.
Batterymarch Park
Quincy, MA 02269

Pre-Installation Check-Points



WARNING

This unit may be used to heat the building or structure during construction if the following installation requirements are met. Installation must comply with all installation instructions including:

- Proper vent installation
- Furnace operating under thermostatic control
- Return air duct sealed to the furnace
- Air filters in place
- Set furnace input rate and temperature rise per rating plate marking
- Means of providing outdoor air required for combustion
- Return air temperature maintained between 55°F (13°C) and 80°F (27°C)
- Installation of exhaust and combustion air inlet hoods completed
- Clean furnace, duct work and components upon substantial completion of the construction process, and verify furnace operating conditions including ignition, input rate, temperature rise and venting, according to the instructions

NOTICE

Before operating unit, remove compressor shipping supports from the compressor base. Failure to remove supports will cause noise and vibration.

1. Before attempting any installation, carefully consider the following points:
 - a. Structural strength of supporting members (rooftop installation)
 - b. Clearances and provision for servicing power supply and wiring
 - c. Gas supply and piping
 - d. Air duct connections and sizing
 - e. Drain facilities and connections
 - f. Location for minimum noise and vibration - away from bedroom windows

Filter Replacement

This unit is provided with 3-18" x 18" x 2" and 3-18" x 24" x 2" disposable filters. When replacing filters, ensure they are inserted fully to the back to prevent bypass.

Recommended supplier of this filter is AAF International:

- Part #: 54-42541-01 (18" x 18" x 2")
- Part #: 54-42541-03 (18" x 24" x 2")

Location Considerations

The metal parts of this unit may be subject to rust or deterioration in adverse environmental conditions. This oxidation could shorten the equipment's useful life. Salt spray, fog or mist in seacoast areas, sulphur or chlorine from lawn watering systems, and various chemical contaminants from industries such as paper mills and petroleum refineries are especially corrosive.

If the unit is to be installed in an area where contaminants are likely to be a problem, give special attention to the equipment location and exposure.

1. Avoid having lawn sprinkler heads spray directly on the unit cabinet.
2. In coastal areas, locate the unit on the side of the building away from the waterfront.
3. Shielding by a fence or shrubs may give some protection.
4. Frequent washing of the cabinet, fan blade and coil with fresh water will remove most of the salt or other contaminants that build up on the unit.
5. Regular cleaning and waxing of the cabinet with a good automobile polish will provide some protection.
6. A good liquid cleaner may be used several times a year to remove matter that will not wash off with water.

Several different types of protective coatings are offered in some areas. These coatings may provide some benefit, but the effectiveness of such coating materials cannot be verified by the equipment manufacturer.

The best protection is frequent cleaning, maintenance, and minimal exposure to contaminants.

Clearances

The minimum clearances shown in Figure 3 on page 6 must be observed for proper unit performance and serviceability.

Horizontal Conversion Procedure

Outside Slab Installation

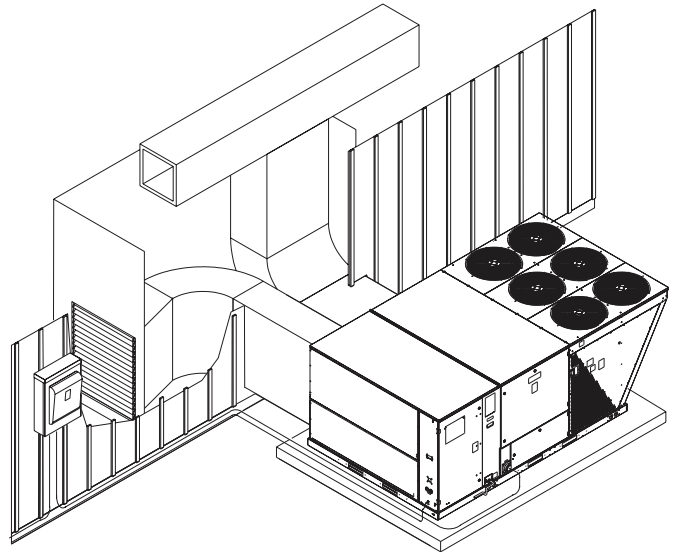
NOTICE

These units are designed certified for outdoor installation only. Installation inside any part of a structure can result in inadequate unit performance as well as property damage. Installation inside can also cause recirculation of flue products into the conditioned space resulting in personal injury or death.

Typical outdoor slab installation is shown in Figure 1.

1. Select a location where external water drainage cannot collect around unit.
2. Provide a level slab sufficiently high enough above grade to prevent surface water from entering the unit
3. Locate the unit to provide proper access for inspection and servicing as shown in Figure 3.
4. Locate unit where operating sounds will not disturb owner or neighbors.
5. Locate unit so roof runoff water does not pour directly on the unit. Provide gutter or other shielding at roof level. Do not locate unit in an area where excessive snow drifting may occur or accumulate.
6. Where snowfall is anticipated, the height of the unit above the ground level must be considered. Mount unit high enough to be above anticipated maximum area snowfall and to allow combustion air to enter the combustion air inlet.
7. Select an area which will keep the areas of the vent, air intake, and A/C condenser fins free and clear of obstructions such as weeds, shrubs, vines, snow, etc. Inform the user accordingly.

Figure 1: Outside Slab Construction



Downflow to Horizontal

1. Remove the screws and covers from the outside of the supply and return sections. Also remove and discard the cover plate.
2. Install the covers over the bottom supply and return openings, painted side up, inserting the leading flange under the bracket provided. Place the back flange to top of the front bracket provided. See [Figure 1](#) and [Figure 2](#).
3. Secure the return and supply cover to front bracket with two (2) screws.

Figure 2: Horizontal Conversion Detail

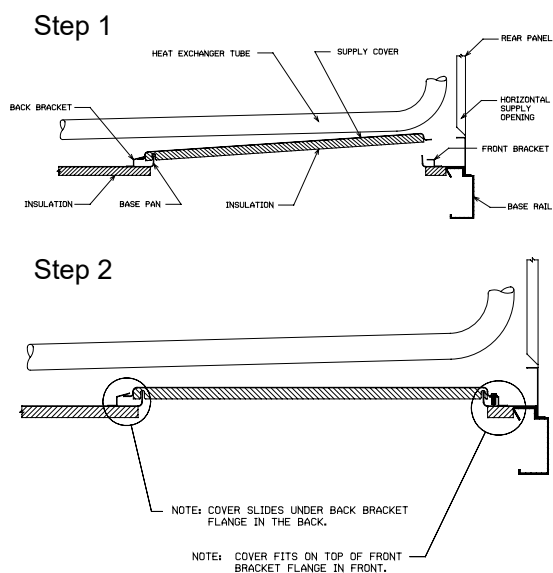
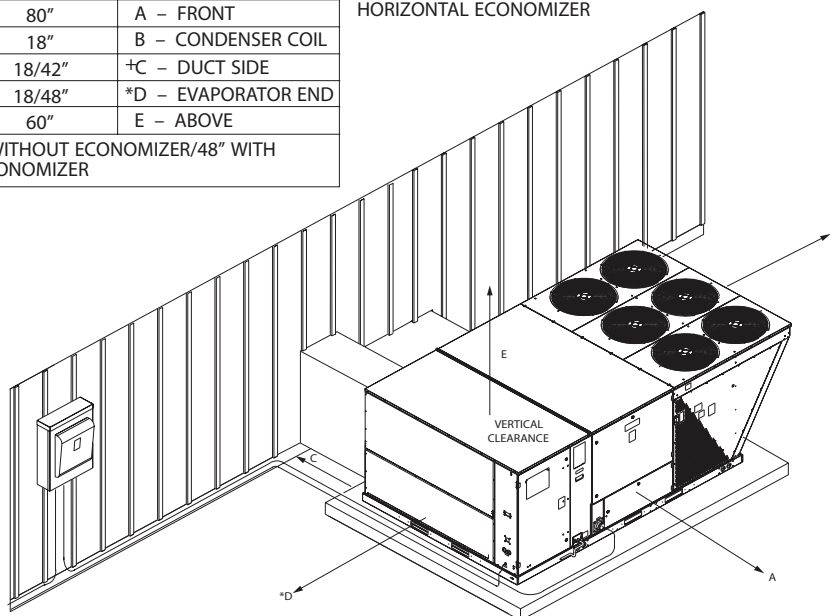


Figure 3: Clearances

RECOMMENDED CLEARANCE	LOCATION
80"	A – FRONT
18"	B – CONDENSER COIL
18/42"	+C – DUCT SIDE
18/48"	*D – EVAPORATOR END
60"	E – ABOVE
* WITHOUT ECONOMIZER/48" WITH ECONOMIZER	

+ WITHOUT HORIZONTAL ECONOMIZER/ 42" WITH HORIZONTAL ECONOMIZER



Attaching Exhaust and Combustion Air Inlet Hoods

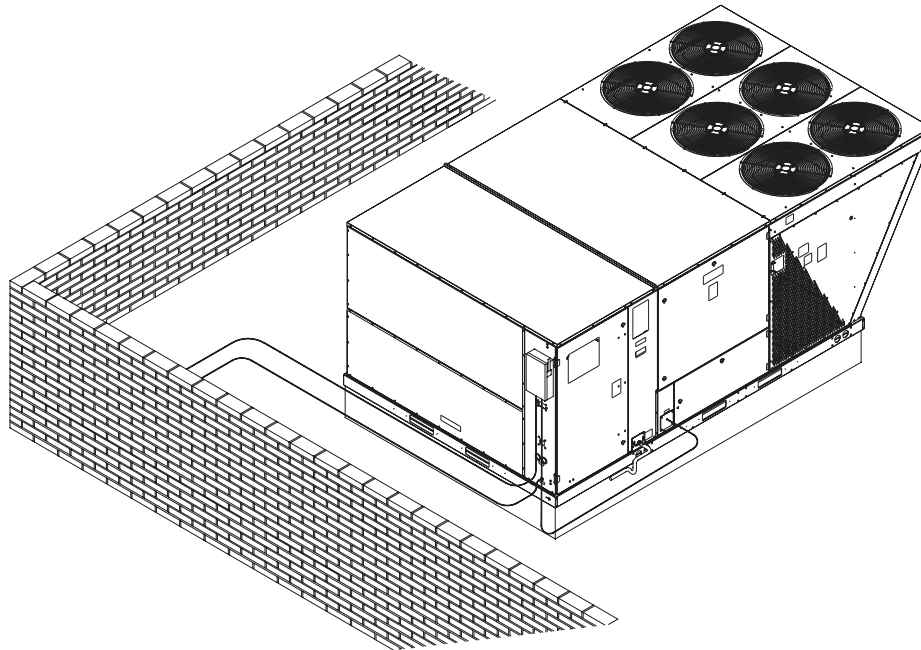
NOTICE

Do not operate this unit without the exhaust/ combustion air inlet hood properly installed.

The hood ships in a carton in the blower compartment inside the unit and must be attached when the unit is installed.

To attach exhaust/combustion air inlet hood:

1. Remove screws securing blower access panel and remove access panel. For location of blower access panel.
2. Remove exhaust/combustion air inlet hood from the carton, located inside the blower compartment.
3. Attach blower access panel.
4. Attach the combustion air inlet/exhaust hood with screws. Screws are in carton with the hood.
5. Vent the unit using the flue exhaust hood, as supplied from the factory, without alteration or addition. The only exception is with factory approved additions.

Figure 4: Unit Mounted on Roofcurb

Rooftop Installation

NOTICE

If unit will not be put into service immediately, block off supply and return air openings to prevent excessive condensation.

1. Before locating the unit on the roof, make sure that the roof structure is adequate to support the weight involved. (See "Wiring Diagrams" & "Physical Data" in this manual.) **THIS IS VERY IMPORTANT AND THE INSTALLER'S RESPONSIBILITY.**
2. Remove shipping boards.
3. For rigging and roof curb details, see [Figure 5](#) and [Figure 6](#).
4. The location of the unit on the roof should be such as to provide proper access for inspection and servicing.

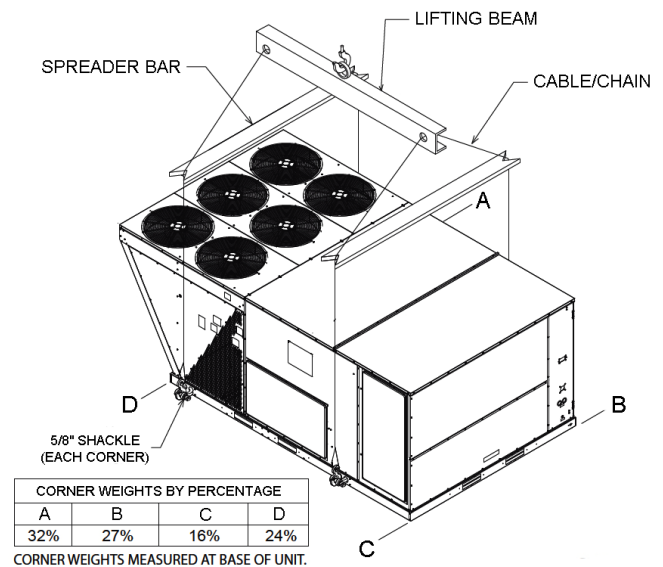
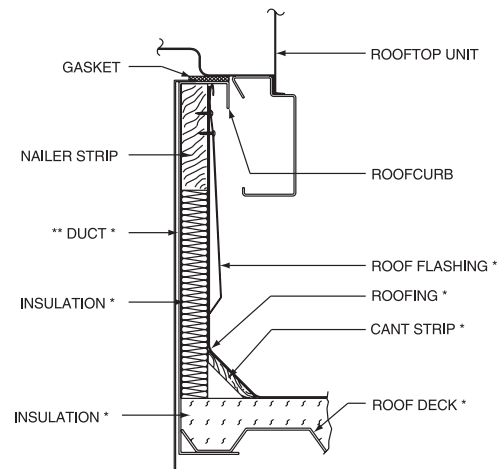
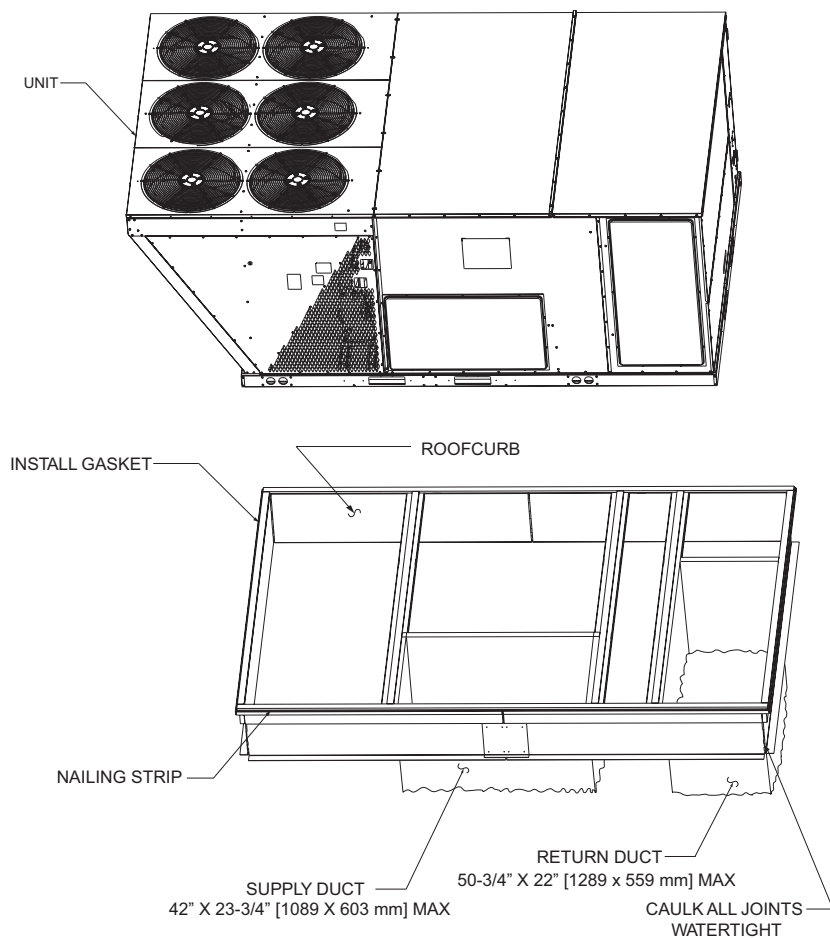
Figure 5: Lifting Detail

Figure 6: Roof Curb

* BY CONTRACTOR

** FOR INSTALLATION OF DUCT AS SHOWN, USE RECOMMENDED DUCT SIZES FROM ROOFCURB INSTALLATION INSTRUCTIONS. FOR DUCT FLANGE ATTACHMENT TO UNIT, SEE UNIT INSTALLATION INSTRUCTIONS FOR RECOMMENDED DUCT SIZES.

Ducting

DANGER

Never connect return ductwork to any other heat producing device such as fireplace insert, stove, etc. Unauthorized use of such devices may result in fire, carbon monoxide poisoning, explosion, personal injury, property damage or death.

NOTICE

In the event that the return air ducts must be run through an "unconfined" space containing other fuel burning equipment, it is imperative that the user be informed against future changes in construction which might change this to a "confined space." Also, caution the user against any future installation of additional equipment (such as power ventilators), within the existing unconfined and/or confined space which might create a negative pressure within the vicinity of other solid, liquid, or gas fueled units.

The installing contractor should fabricate ductwork in accordance with local codes. Use industry manuals as a guide when sizing and designing the duct system. Contact Air Conditioning Contractors of America, 1513 16th St. N.W., Washington, D.C. 20036.

Place the unit as close to the conditioned space as possible allowing clearances as indicated. Run ducts as directly as possible to supply and return outlets. Use of non-flammable weatherproof flexible connectors on both supply and return connections at unit to reduce noise transmission is recommended.

On ductwork exposed to outside temperature and humidity, use a minimum of 2" of insulation and a vapor barrier. Distribution system in attic, furred space or crawl space should be insulated with at least 2" of insulation. Half-inch to 1" thick insulation is usually sufficient for ductwork inside the air conditioned space.

Provide balancing dampers for each branch duct in the supply system. Properly support ductwork from the structure.

Return Air

DANGER

Never allow products of combustion or the flue products to enter the return air ductwork, or the circulating air supply. All return ductwork must be adequately sealed and secured to the furnace with sheet metal screws and joints must be taped. All other duct joints must be secured with approved connections and sealed airtight.

Failure to prevent products of combustion from being circulated into the living space can create potentially hazardous conditions, including carbon monoxide poisoning that could result in personal injury or death.

Gas Supply, Condensate Drain

Gas Connection

NOTICE

Connect this unit only to gas supplied by a commercial utility.

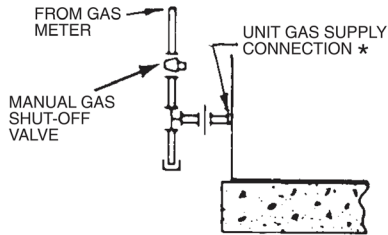
DANGER

Never test for gas leaks with an open flame. It can cause an explosion or fire resulting in property damage, personal injury or death. Use a commercially available soap solution made specifically for the detection of leaks to check all connections as specified in the "Mechanical Installation" section of these instructions.

1. Install gas piping in accordance with local codes and regulations of the local utility company. In the absence of local codes, the installation must conform to the specifications of the National Fuel Gas Code, ANSI Z223.1 - latest edition.

NOTE: The use of flexible gas connectors is not permitted.

2. Connect the gas line to the gas valve supplied with unit. Routing can be through the gas pipe opening shown in [Figure 7](#) or through the base as shown in [Figure 15 on page 14](#).
3. Size the gas line to the furnace adequate enough to prevent undue pressure drop and never less than 1/2".
4. Install a drip leg or sediment trap in the gas supply line as close to the unit as possible.
5. Install an outside ground joint union to connect the gas supply to the control assembly at the burner tray.
6. Gas valves have been factory installed. Install a manual gas valve where local codes specify a shut-off valve outside the unit casing ([Figure 7](#)).
7. Make sure piping is tight. A pipe compound resistant to the action of liquefied petroleum gases must be used at all threaded pipe connections.
8. **IMPORTANT:** Any additions, changes or conversions required for the furnace to satisfactorily meet the application should be made by a qualified installer, service agency or the gas supplier, using factory specified or approved parts. In the commonwealth of Massachusetts, installation must be performed by a licensed plumber or gas fitter for appropriate fuel.

Figure 7: Suggested Gas Piping**ROOF OR GROUND LEVEL INSTALLATION**

*Factory supplied grommet must be utilized.

IMPORTANT: Disconnect the furnace and its individual shutoff valve from the gas supply piping during any pressure testing of that system at test pressures in excess of 1/2 pound per square inch gauge or isolate the system from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of this gas supply system at pressures equal to or less than 1/2 PSIG.

IMPORTANT: Check the rating plate to make certain the unit is equipped to burn the type of gas supplied. Care should be taken after installation of this equipment that the gas control valve not be subjected to high gas supply line pressure. In making gas connections, avoid strains as they may cause noise and damage the controls. A backup wrench is required to be used on the valve to avoid damage.

The capacities of gas pipe of different diameters and lengths in cu.ft. per hr. with pressure drop of 0.3 in. and specific gravity of 0.60 (natural gas) are shown in [Table 1](#).

After determining the pipe length, select the pipe size which will provide the minimum cubic feet per hour required for the gas input rating of the furnace. By formula:

$$\text{Cu. Ft. per Hr. Required} = \frac{\text{Gas Input of Furnace (BTU/Hr)}}{\text{Heating Value of Gas (BTU/Ft}^3\text{)}}$$

The gas input of the furnace is marked on the furnace rating plate. The heating value of the gas (BTU/Ft³) may be determined by consulting the local natural gas utility or the LP gas supplier.

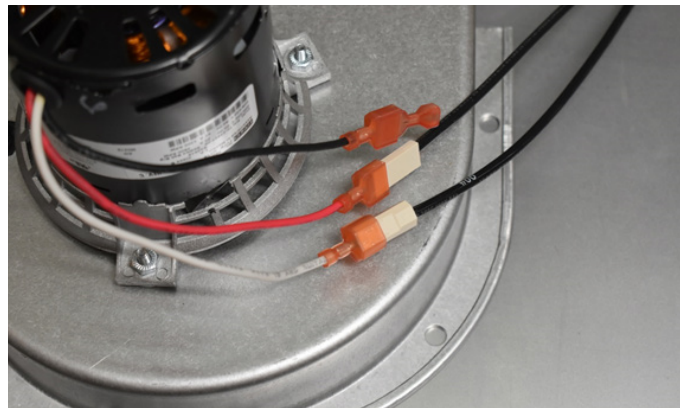
Table 1: Gas Pipe Capacity Table (Cu. Ft./Hr.)

Nominal Iron Pipe Size	Equivalent Length of Pipe, Feet							
	10	20	30	40	50	60	70	80
1/2"	132	92	73	63	56	50	46	43
3/4"	278	190	152	130	115	105	96	90
1"	520	350	285	245	215	195	180	170
1-1/4"	1,050	730	590	500	440	400	370	350
1-1/2"	1,600	1,100	890	760	670	610	560	530

Dual Voltage Inducer 208 – 230 Volt Models

Models with gas heat feature a dual voltage draft inducer in the furnace section. In installations where the supply voltage to the equipment is 208 VAC, as measured using a volt meter, the voltage tap on the furnace inducer must be changed to ensure proper operation. This is similar to changing the tap on the 24VAC transformer.

1. Disconnect all power to the equipment.
2. Remove the control access, compressor access, and furnace shield panels.
3. Locate the two black power wires with white connectors going to the furnace inducer. Those will be connected to a white wire and a black wire coming from the inducer motor housing.
4. Disconnect the black power wire from the black inducer wire, remove the protective cap from the red inducer wire.
5. Connect the black power wire to the red inducer wire, install the protective cap on the black inducer wire.
6. Reinstall the covers removed, Furnace, compressor access, and control access.
7. Proceed to "Adjusting or Checking Furnace Input" on page 11.

Figure 8: Factory Installed Inducer Motor Wiring**Figure 9: Recommended Field Wiring of Inducer Motor**

LP Conversion

DANGER

This unit is equipped at the factory for use with natural gas only. Conversion to LP gas requires a special kit supplied by the distributor or manufacturer. Mailing addresses are listed on the furnace rating plate, parts list and warranty. Failure to use the proper conversion kit can cause fire, carbon monoxide poisoning, explosion, personal injury, property damage, or death.

Convert the unit to use liquefied petroleum (LP) gas by replacing with the gas valve supplied in the conversion kit. The LP gas valve maintains the proper manifold pressure for LP gas. The correct burner LP orifices are included in the kit. See Figure 8 for component locations.

IMPORTANT: To remove the natural gas valve, remove the four screws securing the manifold pipe to the burner tray. Remove the manifold pipe with gas valve attached.

NOTE: Order the correct LP conversion kit from the furnace manufacturer. See Conversion Kit Index shipped with unit for proper LP kit number. Furnace conversion to LP gas must be performed by a qualified technician.

Adjusting or Checking Furnace Input

- Natural Gas Line Pressure: 5"–10.5" W.C.
- LP Gas Line Pressure: 11"–13" W.C.
- Natural Gas Manifold Pressure: 3.5" W.C.
- LP Gas Manifold Pressure: -10" W.C.

Supply and manifold pressure taps are located on the gas valve body 1/8" N.P.T. and on the manifold (see Figure 9).

Use a properly calibrated manometer gauge for accurate gas pressure readings.

Only small variations in the gas flow should be made by means of the pressure regulator adjustment. Furnaces functioning on LP gas must be set by means of the tank or branch supply regulators. The furnace manifold pressure should be set at 10" W.C. at the gas control valve.

To adjust the pressure regulator, remove the regulator vent cover and turn the adjustment screw clockwise to increase pressure or counterclockwise to decrease pressure (Figure 11). **Then replace the regulator vent cover securely.**

Any necessary major changes in the gas flow rate should be made by changing the size of the burner orifices. To change orifice spuds, shut off the manual main gas valve and remove the gas manifold.

For elevations up to 2,000 feet, rating plate input ratings apply. For high altitudes (elevations over 2,000 ft.), contact Daikin Parts.

Check of input is important to prevent over-firing of the furnace beyond its design-rated input. NEVER SET INPUT ABOVE THAT SHOWN ON THE RATING PLATE. Use the following table or formula to determine input rate.

$$\text{Cu. Ft./Hr. Required} = \frac{\text{Heating Value of Gas (BTU/CuFt)} \times 3600}{\text{Time in Seconds for 1 Cu. Ft. of Gas}}$$

Start the furnace and measure the time required to burn one cubic foot of gas. Prior to checking the furnace input, make certain that all other gas units are shut off, with the exception of pilot burners. Time the meter with only the furnace in operation.

IMPORTANT NOTE FOR ALTITUDES ABOVE 2,000 FEET (610 METERS): The main burner orifices in your furnace and in these kits are sized for the nameplate input and intended for installations at elevations up to 2,000 feet in the USA or Canada, or for elevations of 2,000 - 4,500 feet (610 - 1,373 meters) in Canada if the unit has been derated at the factory. For elevations above 2,000 feet (610 meters) **IN THE USA ONLY** (see ANSI Z223.1), the burner orifices must be sized to reduce the input 4% for each 1,000 feet (305 meters) above sea level.

NOTICE: Derating of the heating input for high altitude in the field is unlawful in Canada (refer to CAN/CGA 2.17). Units installed in altitudes greater than 2,000 feet (610 meters) must be shipped from the factory or from a factory authorized conversion station with the heating input derated by 10% so as to operate properly in altitudes from 2,000 - 4,500 feet (610 - 1,373 meters).

Figure 10: Heat Exchanger Component Identification

BTUH	NO. OF INDUCERS	NO. OF PRESSURE SWITCHES	NO. OF TUBES	NO. OF BURNERS
250,000	2	2	10	10
300,000	3	3	12	12
350,000	3	3	14	14
400,000	4	4	14	14

400,000 BTUH SHOWN

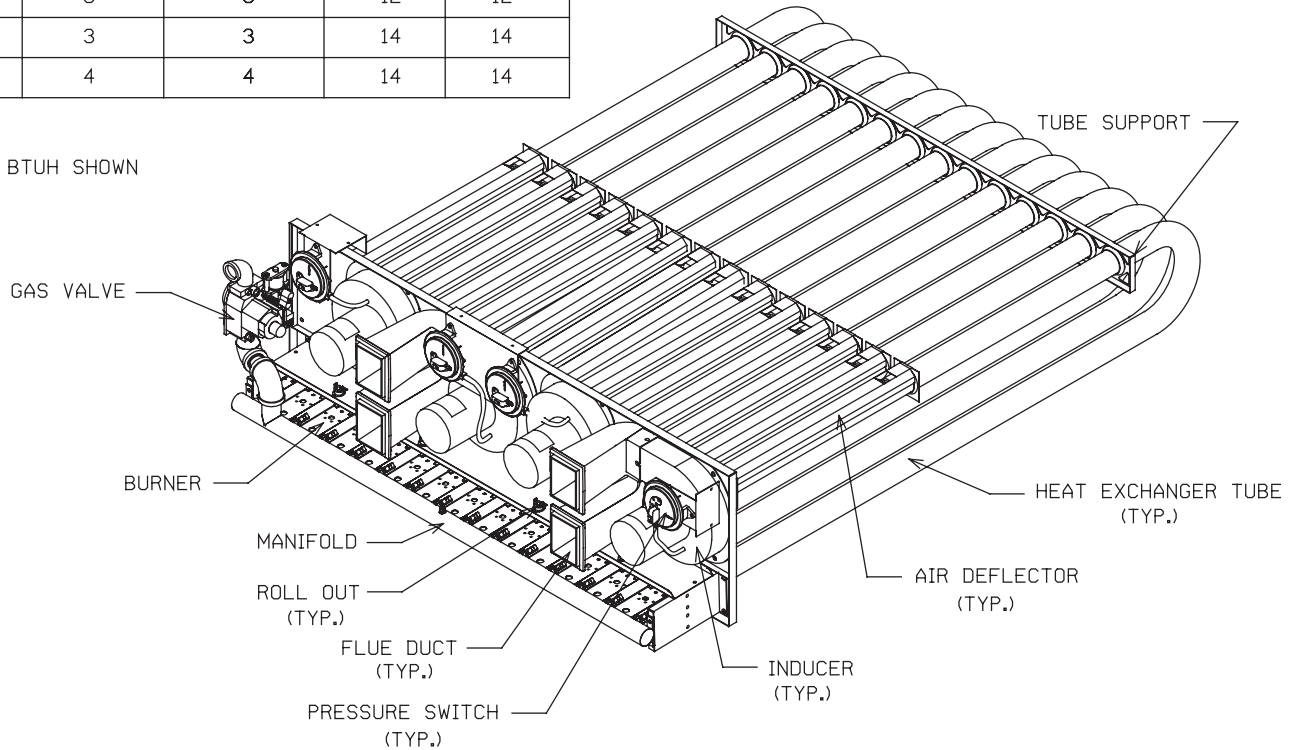
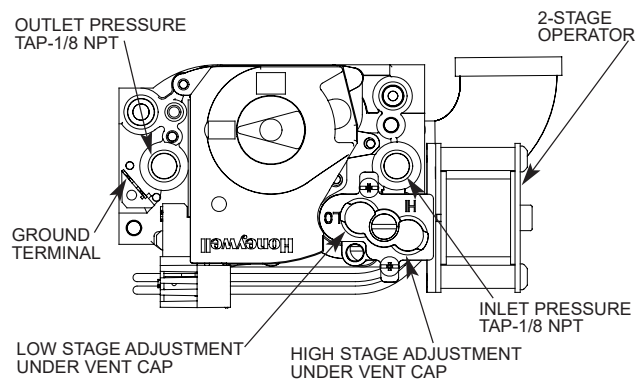
**Figure 11: Honeywell VR8305Q4120 Two Stage Gas Valve**

Table 2: Meter Time in Minutes and Seconds for Normal Input Rating of Furnaces Using Natural or LP Gas

Input Btu/hr	Meter Size Cu. Ft.	Heating Value Of Gas Btu Per Cu. Ft.									
		900		1000		1040		1100		2500	
		Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.
40,000	One	1	21	1	30	1	34	1	39	3	45
	Ten	13	30	15	0	15	36	16	30	37	30
60,000	One	0	54	1	0	1	3	1	6	2	30
	Ten	9	0	10	0	10	24	11	0	25	0
80,000	One	0	41	0	45	0	47	0	50	1	53
	Ten	6	45	7	30	7	48	8	15	18	45
100,000	One	0	33	0	36	0	38	0	40	1	30
	Ten	5	24	6	0	6	15	6	36	15	0

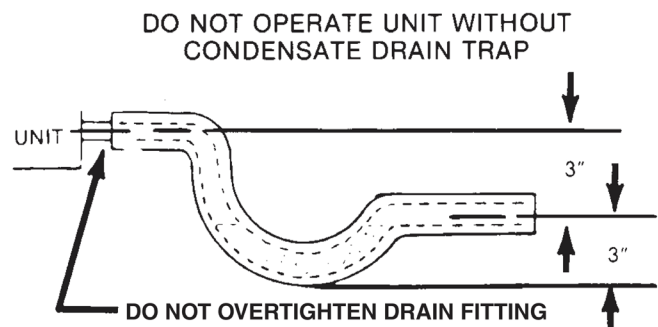
Table 3: LP Gas Pipe Capacity (Cubic feet per hour)

Nominal Iron Pipe Size, Inches	Length of Pipe, Feet									
	10	20	30	40	50	60	70	80	90	100
1/2	275	189	152	129	114	103	96	89	83	78
3/4	567	393	315	267	237	217	196	182	173	162
1	1,071	732	590	504	448	409	378	346	322	307
1-1/4	2,205	1,496	1,212	1,039	913	834	771	724	677	630
1-1/2	3,307	2,299	1,858	1,559	1,417	1,275	1,181	1,086	1,023	976
2	6,221	4,331	3,465	2,992	2,646	2,394	2,205	2,047	1,921	1,811

Condensate Drain

The condensate drain connection of the evaporator is threaded 1" nominal iron pipe.

IMPORTANT: Install a condensate trap to ensure proper condensate drainage (Figure 12).

Figure 12: Condensate Drain

Electrical Installation

Wiring

Power Supply

⚠ DANGER

Power supply to the unit must be disconnected before making field connections. To avoid electrical shock, personal injury or death, be sure to rigorously adhere to field wiring procedures regarding proper lockout and tagout of components.

1. All wiring should be made in accordance with the [National Electrical Code](#). Consult the local power company to determine the availability of sufficient power to operate the unit. Check the voltage at power supply to make sure it corresponds to the unit's **RATED VOLTAGE REQUIREMENT**. Install a branch circuit disconnect near the rooftop, in accordance with the N.E.C., C.E.C. or local codes.
2. It is important that proper electrical power is available at the unit. Voltage should not vary more than 10% from that stamped on the unit nameplate. On three phase units, phases must be balanced within 3%.
3. For branch circuit wiring (main power supply to unit disconnect), the minimum wire size for the length of run can be determined from [Table 4](#) using the circuit ampacity found on the unit rating plate. Use the smallest wire size allowable from the unit disconnect to the unit. Wire size based on 75°C rated wire insulation for 1% voltage drop.
4. For more than 3 conductors in a raceway or cable, see the N.E.C. (C.E.C. in Canada) for derating the ampacity of each conductor.
5. For through-the-base wiring entry, reference [Figure 15](#). All fittings and conduit are field-supplied for this application. Reference [Table 5](#) for proper hole and conduit size.

IMPORTANT: This unit is approved for use with copper conductors only connected to unit contactor. Warranty will be voided if aluminum wire is connected to unit contactor.

Figure 13: Recommended Branch Circuit Disconnect Location

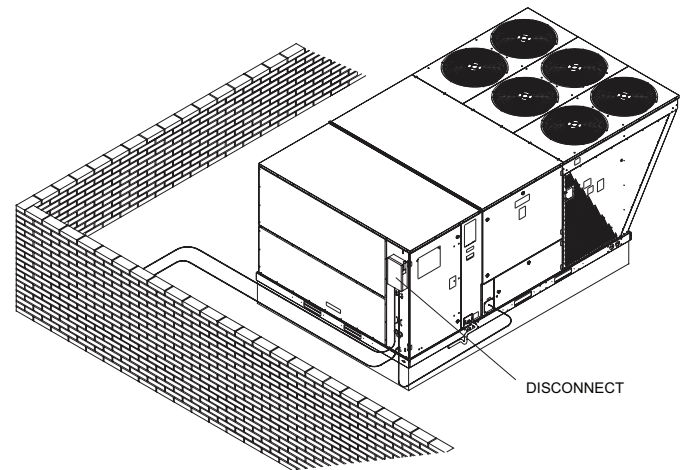


Figure 14: Base Entry Locations (Cooling Only)

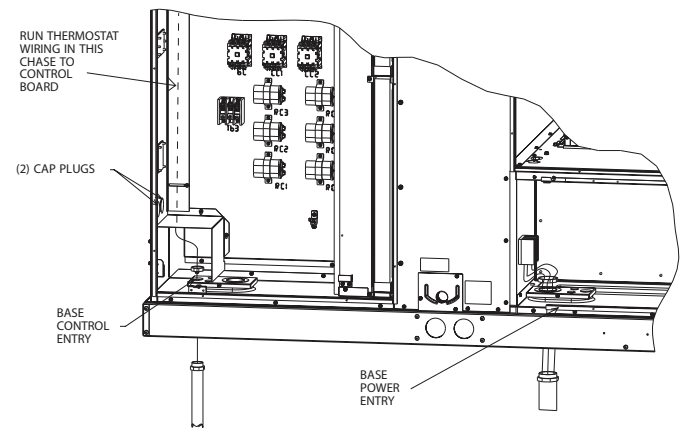


Figure 15: Base Entry Locations (Gas Heat)

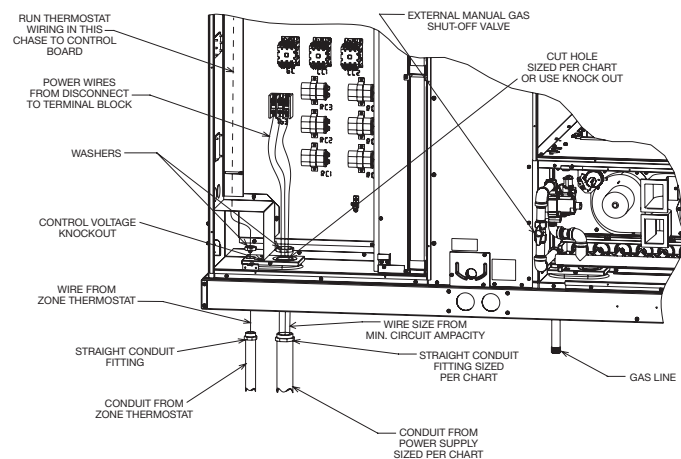


Table 4: Minimum Wire Sizes for Given Wire Length

Unit MCA	Supply Wire Length in Feet					
	50	100	150	200	250	300
20	10	8	6	4	4	4
25	10	8	6	4	4	3
30	8	6	4	4	3	2
35	8	6	4	3	2	1
40	8	6	4	3	2	1
45	8	4	3	2	1	1/0
50	6	4	3	2	1	1/0
60	6	4	2	1	1/0	2/0
70	4	3	2	1/0	2/0	3/0
80	4	3	1	1/0	2/0	3/0
90	3	2	1/0	2/0	3/0	4/0
100	3	2	1/0	2/0	3/0	4/0
110	2	1	2/0	3/0	4/0	250
125	1	1	2/0	3/0	4/0	25

Table 5: Recommended Wire Sizes for Given Conduit and Hole Size

Wire Size, AWG	14	12	10	8	6	4	3	2	1	0	00	000
Conduit Size	1/2"	1/2"	1/2"	3/4"	1"	1"	1-1/4"	1-1/4"	1-1/2"	1-1/2"	2"	2"
Hole Size	7/8"	7/8"	7/8"	1-31/32"	1-23/64"	1-23/64"	1-23/32"	1-23/32"	1-31/32"	1-31/32"	2-15/32"	2-15/32"

Hook-Up

To wire unit, refer to [Figure 23 on page 27](#) for location of wiring entrances. Wiring to be done in the field between the unit and devices not attached to the unit, or between separate devices which are field installed and located, shall conform with the temperature limitation for Type T wire [63°F rise (35°C)] when installed in accordance with the manufacturer's instructions.

Internal Wiring

A diagram of the internal wiring of this unit is located on the inside of control access panel and in this manual. If any of the original wire as supplied with the unit must be replaced, the wire gauge and insulation must be same as original wiring.

208 Volt Applications

Transformer is factory wired for 230 volts on 208/230 volt models and must be changed for 208 volt applications. See unit wiring diagram for 208 volt wiring.

Customer Supplied Thermostat

The customer supplied room thermostat must be compatible with the spark ignition control on the unit. Generally, all thermostats that are not of the “current robbing” type are compatible with the integrated furnace control. The low voltage wiring should be sized as shown in [Table 6](#).

Install the room thermostat in accordance with the instruction sheet packed in the box with the thermostat.

[Figure 17 on page 17](#) for an example of a typical customer supplied wiring diagram.

Table 6: Field Wire Size for 24 Volt Thermostat

Thermostat Load Amps	Solid Copper Wire, AWG						
	3.0	16	14	12	10	10	10
	2.5	16	14	12	12	10	10
	2.0	18	16	14	12	12	10
	Length of Run – Feet (1)						
		50	100	150	200	250	300

NOTE: (1) The total wire length is the distance from the furnace to the thermostat and back to the furnace. DO NOT USE CONTROL WIRING SMALLER THAN NO. 18 AWG.

Optional Factory Supplied Thermostat

The optional factory supplied T-170 commercial setback digital thermostat ([Figure 16](#)) uses microcomputer technology to provide precise time and temperature control. This thermostat offers the flexibility to design heating and cooling programs that fit building needs (refer to [Table 7](#)). [Figure 18](#) for an optional factory supplied thermostat wiring diagram.

Figure 16: Optional T-170 Thermostat



Table 7: Optional Factory Supplied Thermostat Specifications

Electrical Rating Single Stage:	mV to 30 V (ac), NEC Class II, 50/60 Hz or DC
Electrical Rating Staging:	20 to 30 V (ac), NEC Class II
Terminal Load:	5 A per terminal, 2.5 A max. combined
Setpoint Range:	45° to 99°F (7° to 37°C)
Anticipation, Heating:	Adjustable
Anticipation, Cooling:	Adjustable
Rated Differential Single Stage:	Heat 0.5° to .5°F, Cool 0.8° to 2.2°F
Rated Differential Staging:	Heat 0.5° to .5°F, Cool 0.5° to 2.2°F
Operating Ambient:	32° to +0°F (0° to +43°C) Operating Humidity 90% non-condensing max.
Shipping Temperature Range:	-4° to 50°F (-20° to 65°C)
Dimensions (H × W × D):	4-1/8" × 6-7/8" × 1-3/8"

Wiring Diagrams

Figure 17: Typical Customer Supplied Thermostat Wiring Diagram

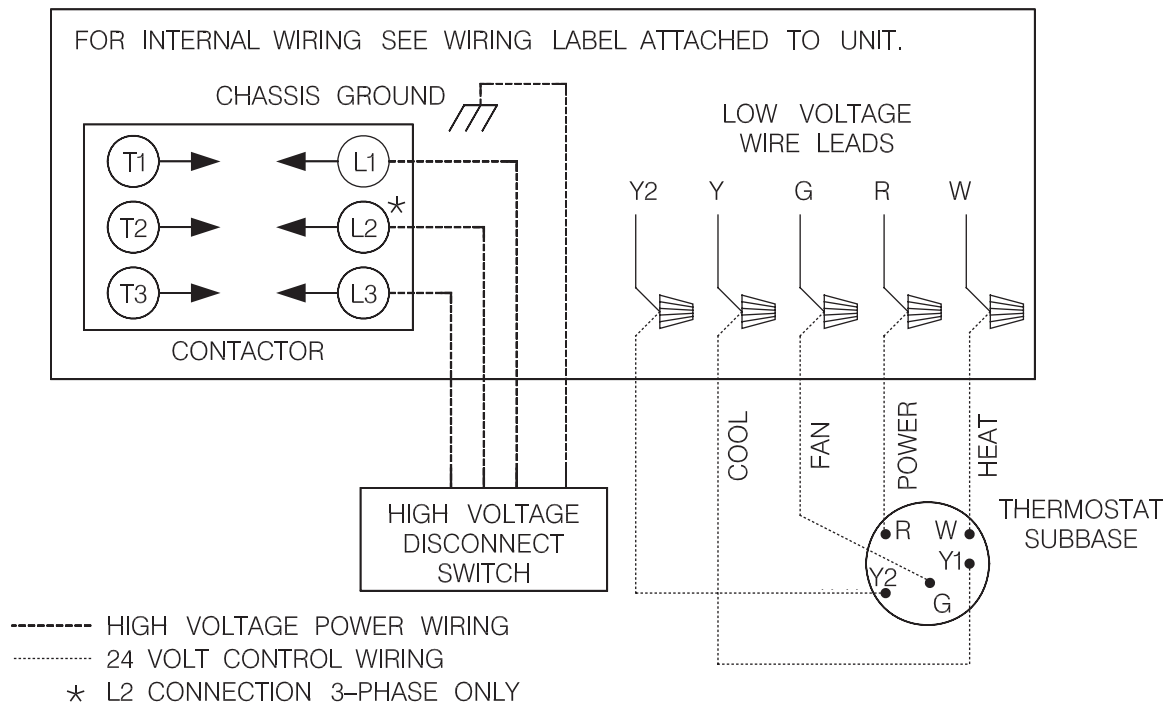


Figure 18: Optional Factory Supplied T-170 Thermostat Wiring Diagram

Thermostat Terminals (Upper)						
L	PH	D	SA	SB	SC	OT
Malfunction Light	X-10 Module Input	Not Used	Remote Sense A	Remote Sense B	Remote Sense C	Outdoor Sensor

Thermostat Terminals (Lower)												
System	E	C	R	W3/A1	W2	E2/P	W1	Y2	Y1	B	O	G
Multi-Stage	No Function	24 Volt (Common)	24 Volt (Hot)	Heat Mode 3rd Stage	Heat Mode 2nd Stage	No Function	Heat Mode 1st Stage	Cool Mode 2nd Stage	Cool Mode 1st Stage	Energized in Heat and Off Mode	Energized in Cool Mode	Blower/Fan Energized on call for Cool (and heat if configured to Electric Heat)
	Br	R	Bk	Bl	G	Y1	Y2	O	Y			G
	C	R	W1	W2	G	Y1	Y2					
Terminal Block												

Figure 19: Wiring Diagram: MPS 015B – 025B, 208-230/460 V (Gas Heat)

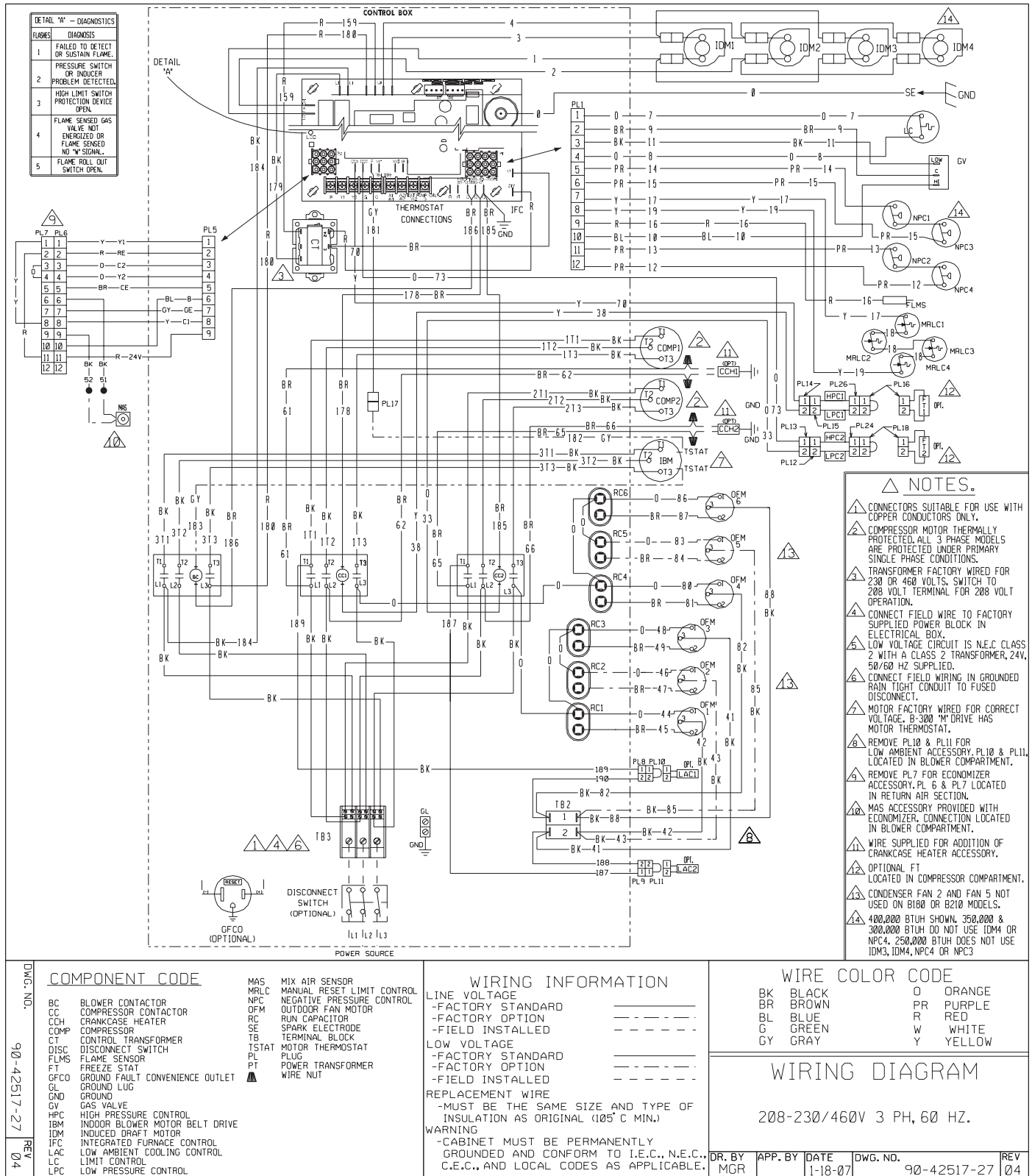


Figure 20: Wiring Diagram: MPS 015B – 025B, 208-230/460 V (Cooling Only)

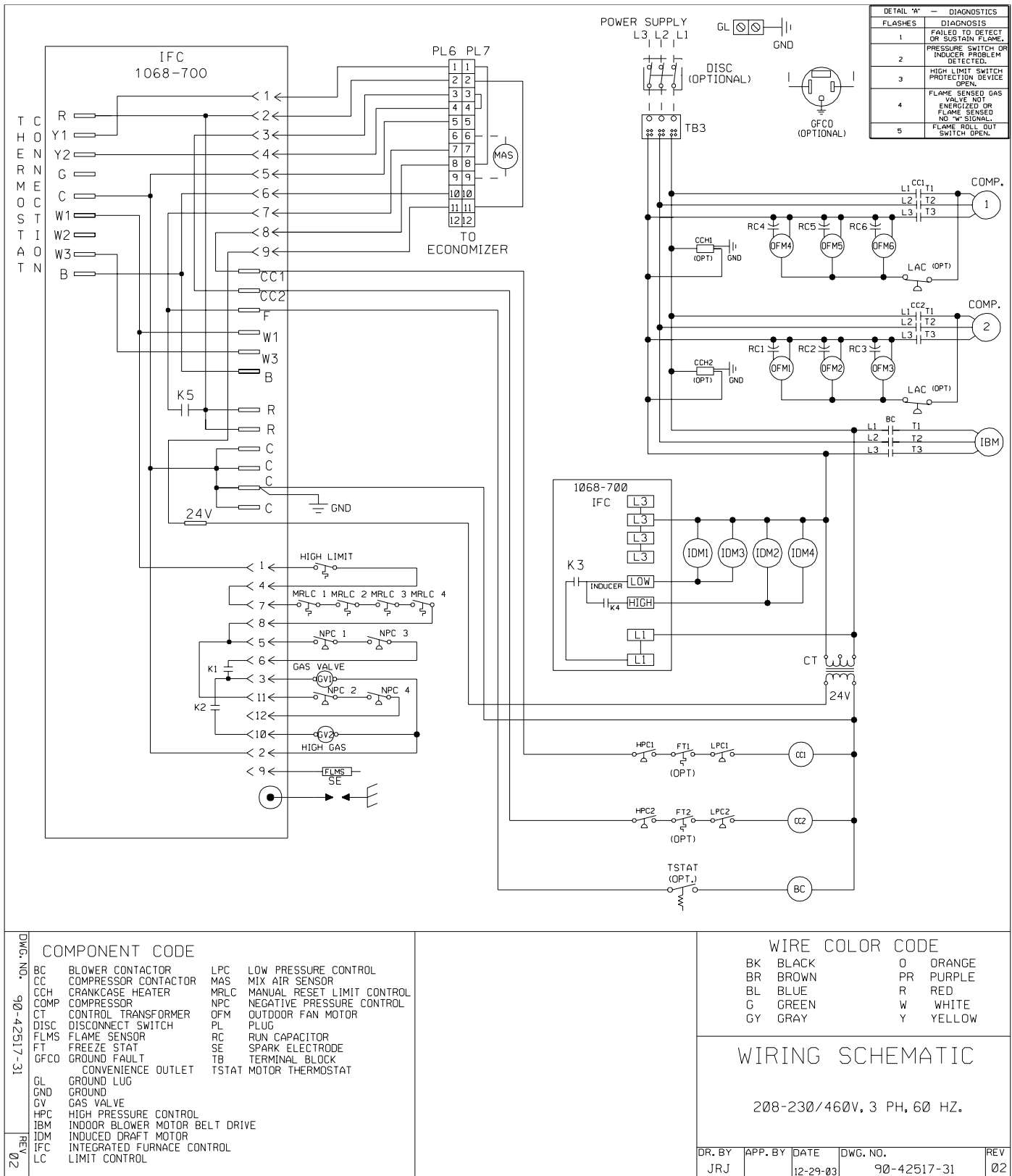


Figure 21: Wiring Diagram: MPS 015B – 025B, 575V (Gas Heat)

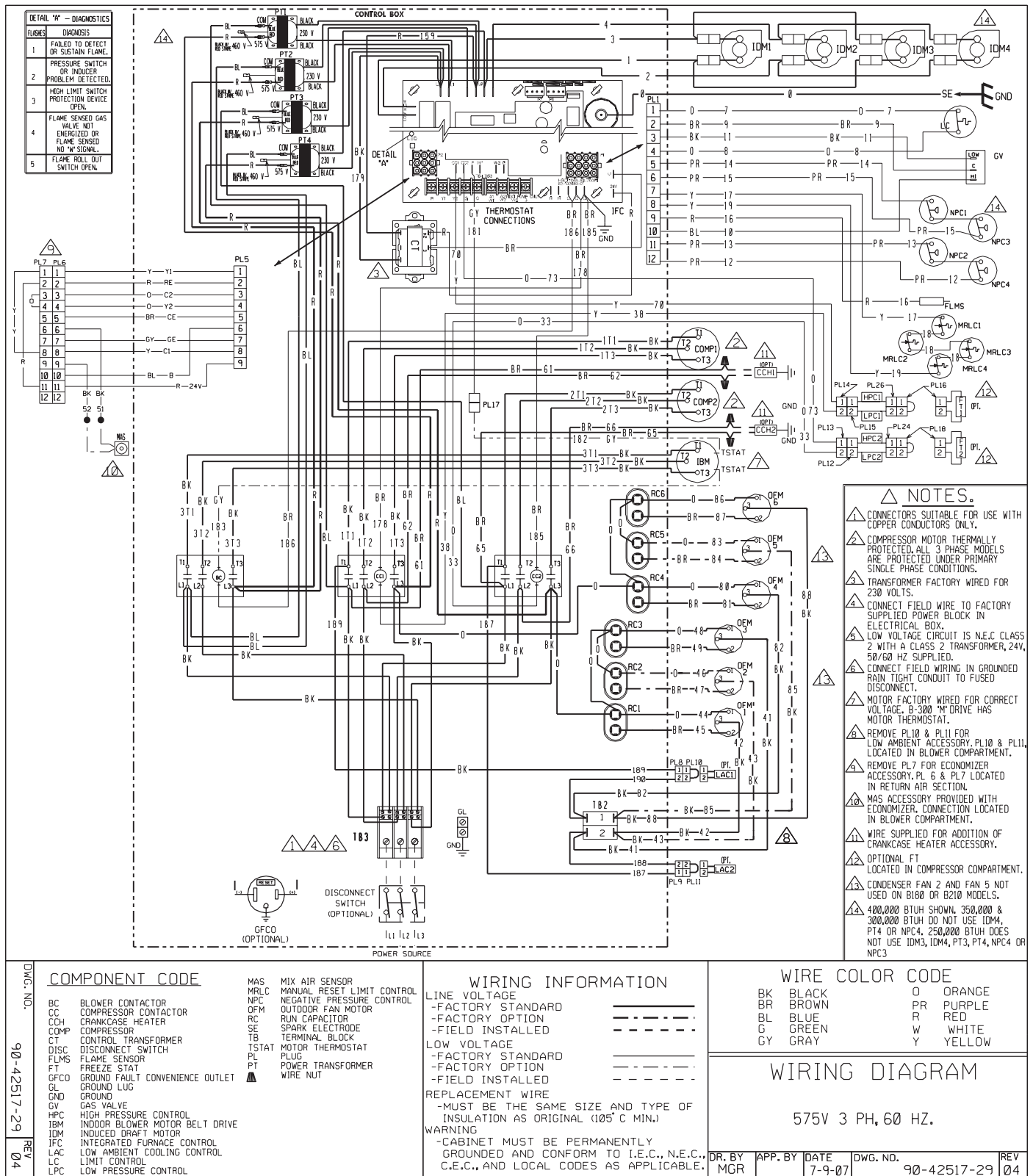
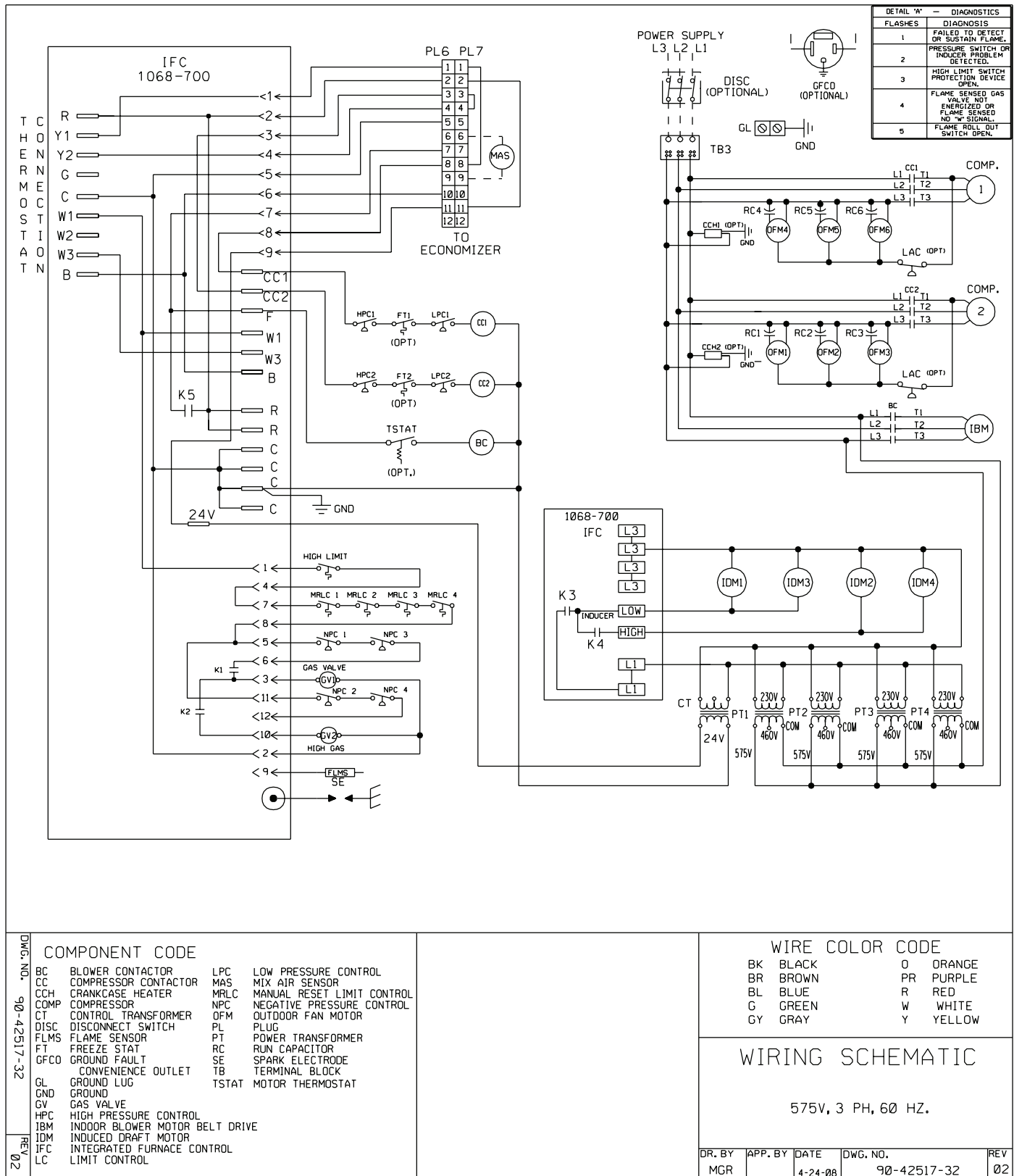


Figure 22: Wiring Diagram: MPS 015B – 025B, 575V (Cooling Only)



Physical Data

Unit Capacity and Physical Data

Table 8: MPS 015B – 025B

Model	MPS		
	015B	020B	025B
Cooling Performance¹			
Gross cooling BTU [kW]	188,000 [55.08]	244,000 [71.49]	312,000 [91.42]
EER/SEER ²	11.1/NA	11.1/NA	10/NA
Nominal airflow/ARI airflow (cfm) [L/s]	6000/5900 [2831/2784]	8000/7725 [3775/3645]	10000/9475 [4719/4471]
Net cooling BTU [kW]	182,000 [53.33]	234,000 [68.56]	294,000 [86.14]
Net sensible BTU [kW]	135,700 [39.76]	171,600 [50.28]	214,100 [62.73]
Net latent BTU [kW]	46,300 [13.57]	62,400 [18.28]	79,900 [23.41]
Net system power kW	16.35	21.04	29.39
Compressor(s)			
Type/number	Scroll/2	Scroll/2	Scroll/2
Gas Heating Performance³			
AFUE %	80	80	80
Steady stage efficiency %	81	81	81
No. stages	2	2	2
Gas connection size	1/2" – 3/4"	3/4"	3/4"
Heating input (BtuH)	250,000 / 350,000	300,000 / 400,000	300,000 / 400,000
Heating output (BtuH)	203,000 / 284,000	243,000 / 324,000	243,000 / 324,000
Temperature rise °F	15 – 60	15 – 55	10 – 45
Sound⁴			
Outdoor rating (dB)	91	91	92
Outdoor Coil			
Fin type	Louvered	Louvered	Louvered
Tube type	Rifled	Rifled	Rifled
Tube size OD (in.) [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face area (sq.ft.) [sq.m.]	53.3 [4.95]	53.3 [4.95]	53.3 [4.95]
Rows (fpi) [fpcm]	1/22 [9]	2/22 [9]	2/22 [9]
Indoor Coil			
Fin type	Louvered	Louvered	Louvered
Tube type	Rifled	Rifled	Rifled
Tube size OD (in.) [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face area (sq.ft.) [sq.m.]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]
Rows (fpi) [fpcm]	2/18 [7]	3/13 [5]	4/15 [6]
Refrigerant control	TX valves	TX valves	TX valves
Drain connection (in.) [mm]	1" [25.4]	1" [25.4]	1" [25.4]
Condenser Fan			
Type	Propeller	Propeller	Propeller
No. used/diameter (in.) [mm]	4/24 [609.6]	6/24 [609.6]	6/24 [609.6]
Drive type/No. of speeds	Direct/1	Direct/1	Direct/1
CFM [L/s]	16000 [7550]	19800 [9344]	19800 [9344]
Motor hp	4 at 1/3 HP	6 at 1/3 HP	6 at 1/3 HP
Motor rpm	1075	1075	1075
Indoor Fan			
Type	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. used/diameter (in.) [mm]	2/18×9 [457×229]	2/18×9 [457×229]	2/18×9 [457×229]
No. motors	1	1	1
Motor hp (low static, high static)	3, 5	5, 7-1/2	7-1/2, 10
Motor rpm	1725	1725	1725
Filter			
Fin type	Disposable	Disposable	Disposable
Furnished	Yes	Yes	Yes
No. size (in.) [mm]	(8) 2×25×20 [51×635×508]	(8) 2×25×20 [51×635×508]	(8) 2×25×20 [51×635×508]
Refrigerant			
Charge oz. [g]	205/211 [5812/5982]	402/331 [11397/9384]	339/357 [9611/10121]
Weight			
Net weight lbs. [kg]	2000 [907]	2341 [1062]	2433 [1104]
Shipping weight lbs. [kg]	2100 [953]	2441 [1107]	2533 [1149]

1. Cooling Performance is rated at 95°F ambient, 80°F entering dry bulb, 67°F entering wet bulb. Gross capacity does not include the effect of fan motor heat. AHRI capacity is net and includes the effect of fan motor heat. Units are suitable for operation to 20% of nominal cfm. Units are certified in accordance with the Unitary Air Conditioner Equipment certification program, which is based on AHRI Standard 210/240 or 360.

2. EER is rated at AHRI conditions and in accordance with DOE test procedures.

3. Heating Performance limit settings and rating data were established and approved under laboratory test conditions using ANSI standards.

4. Ratings shown are for elevations up to 2000 feet. For elevations above 2000 feet, ratings should be reduced at the rate of 4% for each 1000 feet above sea level. Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.

Compressor and Condenser Motor

Table 9: Compressor and Condenser Motor Data – 208/230 Volt

Data	Electrical Data (208/230 V)*		
	MPS 015B	MPS 020B	MPS 025B
Compressor Motor			
Number	2		
Phase	3		
RPM	3450		
HP, Compressor 1	7-1/2	10	11-1/2
Amps (RLA), Comp. 1	25	33.3	48.1
Amps (LRA), Comp. 1	164	239	245
HP, Compressor 2	7-1/2	7-1/2	11-1/2
Amps (RLA), Comp. 2	25	33.3	48.1
Amps (LRA), Comp. 2	164	239	245
Condenser Motor			
Number	4	6	
Phase	1		
HP	1/3		
Amps (FLA, each)	1.2		
Amps (LRA, each)	4.7		

NOTE: *Unit operating voltage range is 187 – 253

Table 10: Compressor and Condenser Motor Data – 460 Volt

Data	Electrical Data (460 V)*		
	MPS 015B	MPS 020B	MPS 025B
Compressor Motor			
Number	2		
Phase	3		
RPM	3450		
HP, Compressor 1	7-1/2	10	11-1/2
Amps (RLA), Comp. 1	12.2	17.9	18.6
Amps (LRA), Comp. 1	100	125	125
HP, Compressor 2	7-1/2	7-1/2	11-1/2
Amps (RLA), Comp. 2	12.2	14.7	18.6
Amps (LRA), Comp. 2	100	95	125
Condenser Motor			
Number	4	6	
Phase	1		
HP	1/3		
Amps (FLA, each)	0.7		
Amps (LRA, each)	2.4		

NOTE: *Unit operating voltage range is 414 - 506

Table 11: Compressor and Condenser Motor Data – 575 Volt

Data	Electrical Data (575 V)*		
	MPS 015B	MPS 020B	MPS 025B
Compressor Motor			
Number	2		
Phase	3		
RPM	3450		
HP, Compressor 1	7-1/2	10	11-1/2
Amps (RLA), Comp. 1	9.0	12.8	14.7
Amps (LRA), Comp. 1	78	80	100
HP, Compressor 2	7-1/2	7-1/2	11-1/2
Amps (RLA), Comp. 2	9.0	12.2	14.7
Amps (LRA), Comp. 2	78	80	100
Condenser Motor			
Number	4	6	
Phase	1		
HP	1/3		
Amps (FLA, each)	0.5		
Amps (LRA, each)	1.5		

NOTE: *Unit operating voltage range is 518 - 632

MCA and MCOP

Table 12: Unit MCA and MCOP Data

MPS Model		Voltage					
		208/230		460		575	
		Low Static Fan Drive	High Static Fan Drive	Low Static Fan Drive	High Static Fan Drive	Low Static Fan Drive	High Static Fan Drive
015	MCA	78.0	81.0	38.0	40.0	28.0	30.0
	MCOP	100.0	100.0	45.0	50.0	35.0	35.0
020	MCA	101.0	109.0	52.0	56.0	40.0	42.0
	MCOP	125.0	125.0	60.0	70.0	50.0	50.0
025	MCA	147.0	149.0	60.0	63.0	47.0	50.0
	MCOP	175.0	175.0	70.0	80.0	60.0	60.0

Auxiliary Heater Kit Performance

Table 13: Auxiliary Heater Kits Characteristics and Application: 208/240V — 3 Phase

Unit Model Number MPS	Heater Kit Model No. RXJJ	Heater Kw @ 208/240 V/3 Phase	Heater Kit Fla	Unit Min. Ckt. Ampacity	Max. Fuse or Ckt. Bkr. Size (Ckt. Bkr. Must Be HACR Type For USA)
015 Low Static Drive	NONE	—	—	78/78	100/100
	CE20C	14.4/19.2	40.0/46.2	78/78	100/100
	CE40C	28.8/38.3	79.9/92.2	115/130	125/150
	CE60C	43.2/57.5	119.9/138.3	165/188	175/200
	CE75C	54/71.9	149.8/172.8	202/231	225/250
015 High Static Drive	NONE	—	—	81/81	100/100
	CE20C	14.4/19.2	40.0/46.2	81/81	100/100
	CE40C	28.8/38.3	79.9/92.2	119/134	125/150
	CE60C	43.2/57.5	119.9/138.3	169/192	175/200
	CE75C	54/71.9	149.8/172.8	206/235	225/250
020 Low Static Drive	NONE	—	—	101/101	125/125
	CE20C	14.4/19.2	40.0/46.2	101/101	125/125
	CE40C	28.8/38.3	79.9/92.2	119/134	125/150
	CE60C	43.2/57.5	119.9/138.3	169/192	175/200
	CE75C	54/71.9	149.8/172.8	206/235	225/250
020 High Static Drive	NONE	—	—	109/109	125/125
	CE20C	14.4/19.2	40.0/46.2	109/109	125/125
	CE40C	28.8/38.3	79.9/92.2	129/145	150/150
	CE60C	43.2/57.5	119.9/138.3	179/202	200/225
	CE75C	54/71.9	149.8/172.8	217/245	225/250
025 Low Static Drive	NONE	—	—	147/147	175/175
	CE20C	14.4/19.2	40.0/46.2	147/147	175/175
	CE40C	28.8/38.3	79.9/92.2	147/147	175/175
	CE60C	43.2/57.5	119.9/138.3	181/204	200/225
	CE75C	54/71.9	149.8/172.8	218/247	225/250
025 High Static Drive	NONE	—	—	149/149	175/175
	CE20C	14.4/19.2	40.0/46.2	149/149	175/175
	CE40C	28.8/38.3	79.9/92.2	149/151	175/175
	CE60C	43.2/57.5	119.9/138.3	186/209	200/225
	CE75C	54/71.9	149.8/172.8	223/252	225/300

Table 14: Auxiliary Heater Kits Characteristics and Application: 480V — 3 Phase

Unit Model Number MPS	Heater Kit Model No. RXJJ	Heater Kw @ 480V	Heater Kit Fla	Unit Min. Ckt. Ampacity	Max. Fuse or Ckt. Bkr. Size (Ckt. Bkr. Must Be HACR Type For USA)
015 Low Static Drive	NONE	—	—	38	45
	CE20D	19.2	23.1	38	45
	CE40D	38.4	46.2	64	70
	CE60D	57.6	69.3	93	100
	CE75D	72	86.6	114	125
015 High Static Drive	NONE	—	—	40	50
	CE20D	19.2	23.1	40	50
	CE40D	38.4	46.2	67	70
	CE60D	57.6	69.3	95	100
	CE75D	72	86.6	117	125
020 Low Static Drive	NONE	—	—	52	60
	CE20D	19.2	23.1	52	60
	CE40D	38.4	46.2	67	70
	CE60D	57.6	69.3	95	100
	CE75D	72	86.6	117	125
020 High Static Drive	NONE	—	—	56	70
	CE20D	19.2	23.1	56	70
	CE40D	38.4	46.2	70	70
	CE60D	57.6	69.3	99	100
	CE75D	72	86.6	121	125
025 Low Static Drive	NONE	—	—	60	70
	CE20D	19.2	23.1	60	70
	CE40D	38.4	46.2	70	70
	CE60D	57.6	69.3	99	100
	CE75D	72	86.6	121	125
025 High Static Drive	NONE	—	—	63	80
	CE20D	19.2	23.1	63	80
	CE40D	38.4	46.2	74	80
	CE60D	57.6	69.3	103	110
	CE75D	72	86.6	124	125

Table 15: Auxiliary Heater Kits Characteristics and Application: 600V — 3 Phase

Unit Model Number MPS	Heater Kit Model No. RXJJ	Heater Kw @ 600V	Heater Kit Fla	Unit Min. Ckt. Ampacity	Max. Fuse or Ckt. Bkr. Size (Ckt. Bkr. Must Be HACR Type For USA)
015 Low Static Drive	NONE	—	—	28	35
	CE20Y	19.2	18.5	28	35
	CE40Y	38.4	37	51	60
	CE60Y	57.6	55.4	74	80
	CE75Y	72	69.3	92	100
015 High Static Drive	NONE	—	—	30	35
	CE20Y	19.2	18.5	30	35
	CE40Y	38.4	37	53	60
	CE60Y	57.6	55.4	76	80
	CE75Y	72	69.3	94	100
020 Low Static Drive	NONE	—	—	40	50
	CE20Y	19.2	18.5	40	50
	CE40Y	38.4	37	53	60
	CE60Y	57.6	55.4	76	80
	CE75Y	72	69.3	94	100
020 High Static Drive	NONE	—	—	42	50
	CE20Y	19.2	18.5	42	50
	CE40Y	38.4	37	56	60
	CE60Y	57.6	55.4	80	80
	CE75Y	72	69.3	97	100
025 Low Static Drive	NONE	—	—	47	60
	CE20Y	19.2	18.5	47	60
	CE40Y	38.4	37	53	60
	CE60Y	57.6	55.4	76	80
	CE75Y	72	69.3	94	100
025 High Static Drive	NONE	—	—	50	60
	CE20Y	19.2	18.5	50	60
	CE40Y	38.4	37	59	60
	CE60Y	57.6	55.4	82	90
	CE75Y	72	69.3	100	100

Dimensional Data

Unit Dimensions MPS 015B – 025B

Figure 23: MPS 015B – 025B Dimensions (Cooling Only)

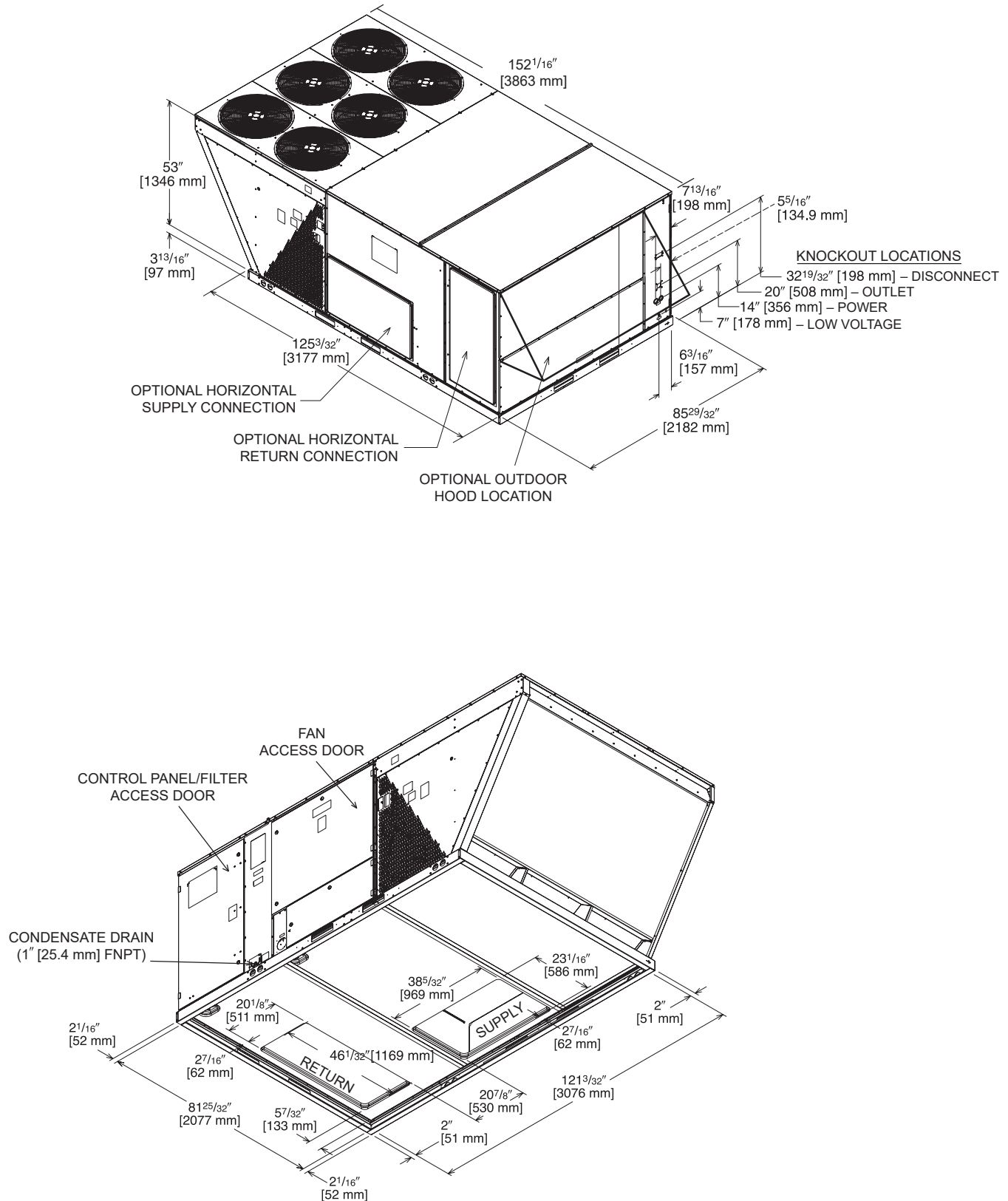
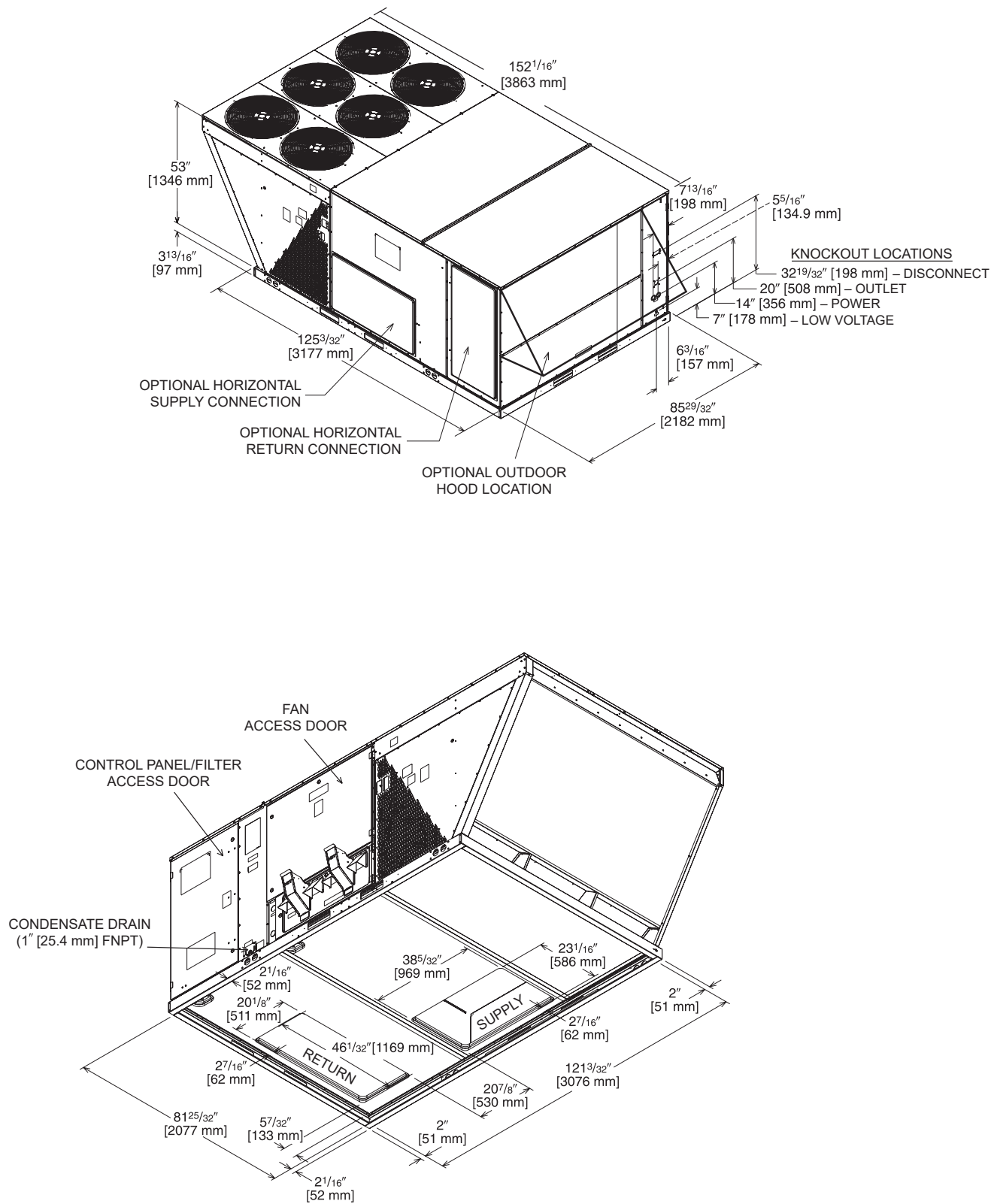
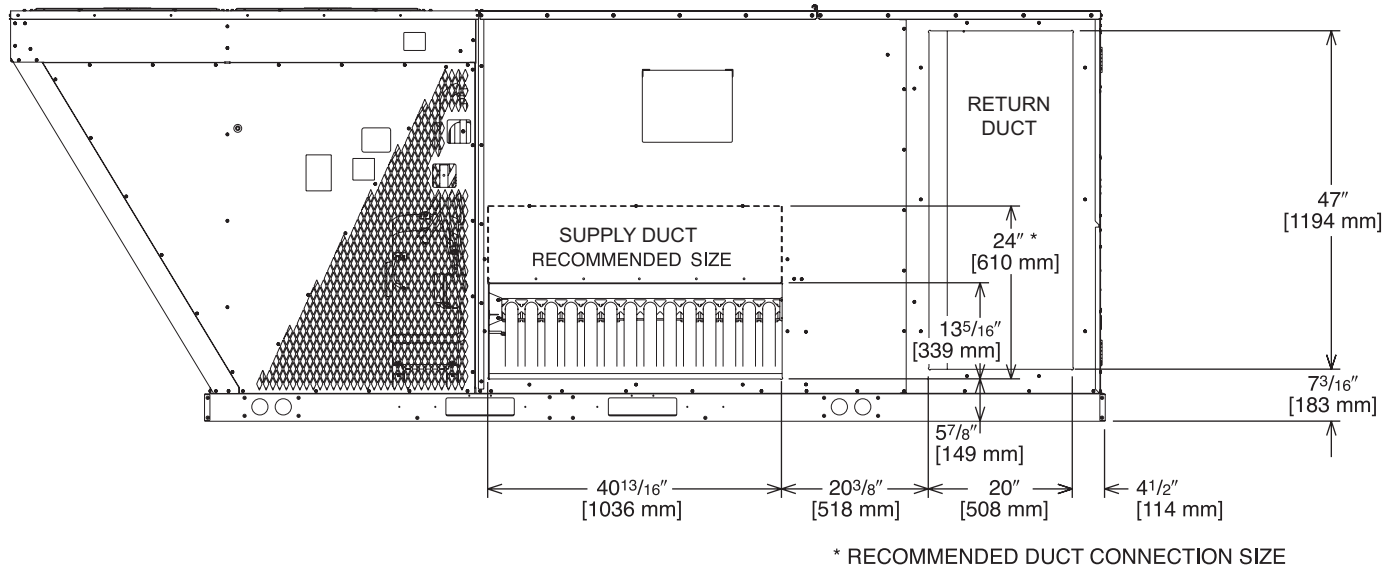


Figure 24: MPS 0015B – 025B Dimensions (Gas Heat)



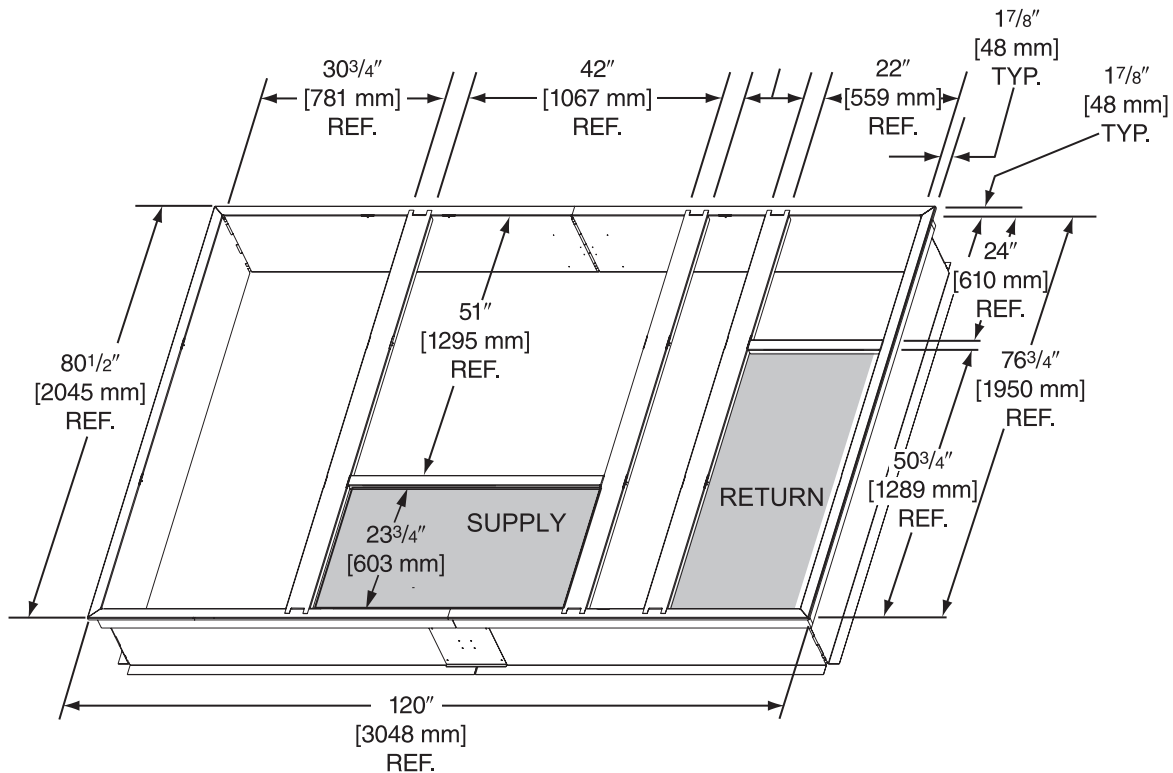
Horizontal Duct Dimensions

Figure 25: MPS 015B – 025B Horizontal Duct Dimensions



Curb Dimensions

Figure 26: MPS 015B – 025 Curb Dimensions



Performance Data

Figure 27: Airflow Performance—MPS 015B

Airflow CFM [L/s]	Model MPS 015																																									
	Voltage 208/230, 460, 575 — 3 Phase																																									
	External Static Pressure — Inches of Water [kPa]																																									
	0.1 [0.02]		0.2 [0.05]		0.3 [0.07]		0.4 [0.10]		0.5 [0.12]		0.6 [0.15]		0.7 [0.17]		0.8 [0.20]		0.9 [0.22]		1.0 [0.25]		1.1 [0.27]		1.2 [0.30]		1.3 [0.32]		1.4 [0.35]		1.5 [0.37]		1.6 [0.40]		1.7 [0.42]		1.8 [0.45]		1.9 [0.47]		2.0 [0.50]			
	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W
4800 [2265]	—	—	—	—	—	—	—	—	—	—	583	1393	608	1508	632	1621	656	1732	679	1841	701	1947	723	2052	744	2154	764	2254	785	2326	805	2430	825	2537	844	2647	863	2761	881	2878	899	2995
5000 [2359]	—	—	—	—	—	—	—	—	—	—	591	1476	616	1593	640	1707	663	1820	686	1930	708	2038	729	2145	750	2248	771	2350	791	2420	811	2528	830	2640	850	2755	868	2873	887	2995		
5200 [2454]	—	—	—	—	—	—	—	—	—	575	1442	600	1562	624	1681	648	1797	671	1911	693	2023	715	2133	736	2241	757	2346	777	2410	797	2520	817	2633	836	2749	855	2869	874	2992	892	3118	
5400 [2548]	—	—	—	—	—	—	—	—	—	583	1530	608	1652	632	1772	655	1890	678	2005	701	2119	722	2231	743	2340	764	2447	784	2512	804	2626	823	2744	842	2865	861	2989	879	3117	897	3248	
5600 [2643]	—	—	—	—	—	—	—	—	—	592	1621	616	1745	640	1866	663	1986	686	2103	708	2218	729	2331	750	2442	770	2551	791	2620	810	2739	830	2861	849	2987	867	3116	885	3248	903	3384	
5800 [2737]	—	—	—	—	—	—	576	1588	601	1715	625	1840	649	1964	672	2085	694	2204	716	2321	737	2436	757	2548	778	2614	798	2735	817	2858	836	2985	855	3116	873	3249	891	3386	909	3527		
6000 [2831]	—	—	—	—	—	585	1683	610	1813	634	1940	657	2065	680	2187	702	2308	724	2426	744	2543	765	2657	785	2731	805	2856	824	2984	843	3116	861	3251	879	3389	897	3531	914	3676			
6200 [2926]	—	—	—	—	570	1650	595	1783	619	1913	643	2042	666	2169	688	2293	710	2415	731	2535	752	2653	773	2728	792	2854	812	2984	831	3116	850	3253	868	3392	886	3535	903	3682	920	3832		
6400 [3020]	—	—	—	579	1750	604	1885	628	2017	652	2148	674	2276	697	2402	718	2526	739	2648	760	2767	780	2852	800	2983	819	3118	838	3255	856	3396	875	3541	892	3688	909	3839	926	3994			
6600 [3114]	—	—	—	—	589	1854	614	1991	637	2125	661	2257	683	2386	705	2514	727	2640	748	2763	768	2884	788	2984	808	3119	827	3258	845	3400	863	3546	881	3695	899	3847	916	4003	—	—		
6800 [3209]	—	—	574	1822	599	1961	623	2099	647	2235	670	2369	692	2500	714	2629	735	2756	756	2882	776	2984	796	3121	815	3262	834	3405	853	3552	871	3702	888	3856	905	4013	922	4173	—	—		
7000 [3303]	—	—	—	584	1930	609	2072	633	2211	656	2349	679	2484	701	2617	723	2748	744	2877	764	3003	785	3124	804	3265	823	3410	842	3559	860	3710	878	3865	895	4024	912	4185	929	4350	—	—	
7200 [3398]	570	1897	595	2042	619	2185	643	2327	666	2466	689	2602	711	2737	732	2870	753	3000	773	3127	793	3270	812	3416	831	3566	849	3719	868	3875	885	4035	902	4198	919	4364	—	—	—	—		

NOTE: L-Drive left of bold line, M-Drive right of bold line.

NOTE: L-Drive left of bold line, M-Drive right of bold line.

Drive Package	L						M					
Motor H.P. [W]	3 [2237.1]						5 [3728.5]					
Blower Sheave	BK105H						BK105 H					
Motor Sheave	1VL-44						1VP-56					
Turns Open	1	2	3	4	5	6	1	2	3	4	5	6
RPM	733	701	669	640	605	572	927	903	873	840	808	775

NOTES:

1. Factory sheave settings are shown in bold type.
2. Do not set motor sheave below minimum turns open shown.
3. Readjustment of sheave required to achieve rated airflow at AHRI minimum external static pressure.
4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total external static pressure.

Component Airflow Resistance 15 Ton [52.7kW]

CFM [L/s]	4800 [2265]	5000 [2359]	5200 [2454]	5400 [2548]	5600 [2643]	5800 [2737]	6000 [2831]	6200 [2926]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]
	Resistance Inches of Water [kPa]												
WetCoil	0.03 [.01]	0.04 [.01]	0.05 [.01]	0.06 [.01]	0.06 [.01]	0.07 [.02]	0.08 [.02]	0.09 [.02]	0.10 [.02]	0.10 [.02]	0.11 [.03]	0.12 [.03]	0.13 [.03]
Downflow	0.05 [.01]	0.05 [.01]	0.05 [.01]	0.05 [.01]	0.05 [.01]	0.05 [.01]	0.05 [.01]	0.06 [.01]	0.06 [.01]	0.06 [.01]	0.07 [.02]	0.08 [.02]	0.08 [.02]
Downflow Economizer RA Damper Open	0.09 [.02]	0.10 [.02]	0.10 [.02]	0.11 [.03]	0.12 [.03]	0.13 [.03]	0.13 [.03]	0.14 [.03]	0.15 [.04]	0.16 [.04]	0.16 [.04]	0.17 [.04]	0.18 [.04]
Horizontal Economizer RA Damper Open	0.00 [.00]	0.01 [.00]	0.01 [.00]	0.02 [.00]	0.02 [.00]	0.03 [.01]	0.03 [.01]	0.04 [.01]	0.04 [.01]	0.05 [.01]	0.05 [.01]	0.06 [.01]	0.06 [.01]

Airflow Correction Factors 15 Ton [52.7kW]

CFM [L/s]	4800 [2265]	5000 [2359]	5200 [2454]	5400 [2548]	5600 [2643]	5800 [2737]	6000 [2831]	6200 [2926]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]
Total MBH	0.97	0.97	0.98	0.98	0.99	1.00	1.00	1.01	1.02	1.02	1.03	1.03	1.04
Sensible MBH	0.87	0.90	0.92	0.94	0.97	0.99	1.02	1.04	1.06	1.09	1.11	1.14	1.16
Power kW	0.98	0.98	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01	1.02	1.02

NOTE: Multiply correction factor times gross performance data resulting sensible capacity cannot exceed total capacity.

[] Designates Metric Conversions

Figure 28: Airflow Performance—MPS 020B

Airflow CFM [L/s]	Model MPS 020																																								
	Voltage 208/230, 460, 575 — 3 Phase																																								
	External Static Pressure — Inches of Water [kPa]																																								
	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]		
	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	
6400 [3020]	—	—	—	—	—	—	—	—	—	632	2007	654	2111	676	2218	698	2328	719	2439	741	2553	763	2670	785	2789	810	3065	830	3203	850	3342	869	3481	888	3621	906	3761	923	3902	937	4121
6600 [3114]	—	—	—	—	—	—	—	—	—	642	2106	664	2217	686	2330	707	2446	729	2564	751	2685	773	2808	798	3060	819	3201	838	3342	857	3484	876	3626	894	3769	912	3912	930	4056	944	4271
6800 [3209]	—	—	—	—	—	—	—	630	2100	652	2215	674	2332	696	2452	718	2574	739	2699	761	2826	783	2955	807	3202	827	3346	846	3490	865	3634	884	3780	901	3926	919	4072	933	4283	950	4432
7000 [3303]	—	—	—	—	—	—	—	641	2213	663	2334	684	2458	706	2585	728	2713	750	2844	772	2977	796	3207	816	3352	835	3499	854	3646	873	3794	891	3942	909	4091	926	4240	940	4448	957	4603
7200 [3398]	—	—	—	—	630	2211	651	2336	673	2464	695	2594	717	2727	739	2862	761	2999	783	3139	805	3362	825	3511	844	3661	863	3811	881	3961	898	4112	916	4264	932	4417	947	4624	964	4784	
7400 [3492]	—	—	—	—	641	2338	663	2470	684	2604	706	2741	728	2880	750	3021	772	3165	795	3375	815	3526	834	3678	853	3831	871	3984	889	4137	906	4292	923	4447	938	4650	954	4810	971	4976	
7600 [3586]	—	—	630	2339	652	2475	674	2613	696	2754	718	2897	740	3043	761	3190	783	3341	805	3545	824	3699	843	3854	862	4009	879	4165	897	4322	914	4479	930	4637	945	4841	962	5007	978	5179	
7800 [3681]	—	—	642	2480	664	2622	686	2767	707	2914	729	3064	751	3216	773	3370	795	3567	815	3723	834	3880	852	4038	870	4197	888	4356	905	4515	922	4675	936	4878	953	5043	969	5214	986	5392	
8000 [3775]	632	2485	654	2631	676	2780	698	2931	719	3085	741	3241	763	3399	785	3559	806	3750	825	3910	844	4070	862	4231	880	4392	897	4554	914	4717	930	4880	944	5084	961	5255	977	5432	993	5616	
8200 [3869]	644	2640	666	2793	688	2948	710	3105	732	3265	754	3427	776	3592	797	3780	816	3942	835	4105	854	4268	871	4432	889	4596	906	4761	922	4927	936	5130	952	5300	969	5477	985	5660	1001	5850	
8400 [3964]	657	2805	679	2964	701	3126	723	3290	745	3456	767	3625	789	3796	808	3978	827	4143	846	4309	864	4475	881	4642	898	4809	915	4977	931	5146	944	5352	961	5528	977	5710	993	5899	1008	6094	
8600 [4058]	670	2980	692	3146	714	3314	736	3484	758	3657	780	3832	800	4017	819	4184	838	4352	856	4521	874	4690	891	4860	907	5030	924	5201	937	5408	953	5584	969	5765	985	5954	1001	6148	—	—	
8800 [4153]	683	3166	705	3338	727	3512	749	3689	771	3868	793	4059	812	4229	831	4399	849	4570	867	4742	884	4914	901	5087	917	5260	933	5434	946	5645	962	5826	978	6013	993	6208	1009	6408	—	—	
9000 [4247]	697	3361	719	3540	741	3721	763	3904	785	4089	805	4276	824	4449	842	4622	860	4796	877	4971	894	5146	911	5322	927	5498	939	5712	955	5892	971	6079	986	6272	1002	6472	—	—	—	—	
9200 [4341]	711	3567	733	3752	755	3939	777	4129	798	4327	817	4502	835	4678	853	4854	871	5031	888	5209	905	5387	921	5565	933	5784	949	5963	964	6149	980	6342	995	6541	1010	6747	—	—	—	—	
9400 [4436]	725	3783	747	3975	769	4168	792	4381	811	4558	829	4736	847	4915	865	5094	882	5274	899	5455	915	5636	931	5818	942	6040	958	6225	973	6418	989	6616	1004	6821	—	—	—	—	—	—	
9600 [4530]	739	4010	762	4207	784	4407	805	4617	823	4798	842	4979	859	5161	877	5343	894	5526	910	5709	926	5894	937	6122	952	6307	968	6498	983	6696	998	6901	—	—	—	—	—	—	—	—	

NOTE: L-Drive left of bold line, M-Drive middle of bold lines.

Drive Package	L						M					
Blower Sheave	BK130H						BK130H					
Motor H.P. [W]	5 [3728.5]						7.5 [5592.7]					
Motor Sheave	1VP-56						1VP-71					
Turns Open	1	2	3	4	5	6	1	2	3	4	5	6
RPM	756	734	709	683	658	631	928	902	874	847	820	793

NOTES:

1. Factory sheave settings are shown in bold type.
2. Do not set motor sheave below minimum turns open shown.
3. Readjustment of sheave required to achieve rated airflow at AHRI minimum external static pressure.
4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total external static pressure.

Component Airflow Resistance 20 Ton [70.3kW]

CFM [L/s]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]	7400 [3492]	7600 [3586]	7800 [3681]	8000 [3775]	8200 [3869]	8400 [3964]	8600 [4058]	8800 [4153]	9000 [4247]	9200 [4341]	9400 [4436]	9600 [4530]
Resistance Inches of Water [kPa]																	
Wet Coil	0.00 [.00]	0.00 [.00]	0.00 [.00]	0.01 [.00]	0.01 [.00]	0.02 [.00]	0.02 [.00]	0.03 [.01]	0.03 [.01]	0.04 [.01]	0.04 [.01]	0.05 [.01]	0.05 [.01]	0.06 [.01]	0.06 [.01]	0.07 [.02]	0.07 [.02]
Downflow	0.06 [.01]	0.06 [.01]	0.07 [.02]	0.08 [.02]	0.08 [.02]	0.09 [.02]	0.10 [.02]	0.11 [.03]	0.12 [.03]	0.13 [.03]	0.14 [.03]	0.15 [.04]	0.16 [.04]	0.18 [.04]	0.19 [.05]	0.20 [.05]	0.22 [.05]
Downflow Economizer RA Damper Open	0.15 [.04]	0.16 [.04]	0.16 [.04]	0.17 [.04]	0.18 [.04]	0.19 [.05]	0.20 [.05]	0.21 [.05]	0.22 [.05]	0.23 [.06]	0.24 [.06]	0.25 [.06]	0.26 [.06]	0.27 [.07]	0.28 [.07]	0.29 [.07]	0.30 [.07]
Horizontal Economizer RA Damper Open	0.04 [.01]	0.05 [.01]	0.05 [.01]	0.06 [.01]	0.06 [.01]	0.07 [.02]	0.07 [.02]	0.08 [.02]	0.09 [.02]	0.09 [.02]	0.10 [.02]	0.10 [.02]	0.11 [.03]	0.11 [.03]	0.12 [.03]	0.12 [.03]	0.13 [.03]

Airflow Correction Factors 20 Ton [70.3kW]

CFM [L/s]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]	7400 [3492]	7600 [3586]	7800 [3681]	8000 [3775]	8200 [3869]	8400 [3964]	8600 [4058]	8800 [4153]	9000 [4247]	9200 [4341]	9400 [4436]	9600 [4530]
Total MBH	0.97	0.97	0.98	0.98	0.99	0.99	1.00	1.00	1.01	1.01	1.02	1.02	1.03	1.03	1.03	1.04	1.05
Sensible MBH	0.88	0.90	0.92	0.94	0.96	0.97	0.99	1.01	1.03	1.05	1.07	1.09	1.10	1.12	1.14	1.16	1.18
Power kW	0.98	0.99	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.02	1.02	1.02

NOTE: Multiply correction factor times gross performance data resulting sensible capacity cannot exceed total capacity.

[] Designates Metric Conversions

Figure 29: Airflow Performance—MPS 025B

AirFlow CFM [L/s]	Model MPS 025																																											
	Voltage 208/230, 460, 575 — 3 phase																																											
	External Static Pressure Inches of Water [kPa]																																											
	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]					
RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W			
8000 [3775]	—	—	—	—	—	—	—	—	—	—	—	—	—	794	3720	814	3870	833	4024	851	4182	869	4344	886	4510	903	4680	920	4854	948	5256	963	5410	979	5565	994	5720	1009	5877	—	—			
8200 [3869]	—	—	—	—	—	—	—	—	—	—	—	—	—	807	3908	826	4065	845	4226	863	4392	880	4561	897	4735	914	4912	943	5296	958	5455	973	5614	988	5774	1003	5935	1018	6097	—	—			
8400 [3964]	—	—	—	—	—	—	—	—	—	—	—	—	801	3947	820	4108	838	4273	856	4442	874	4614	891	4791	908	4972	924	5157	952	5503	967	5667	982	5832	997	5997	1012	6164	1028	6331	—	—		
8600 [4058]	—	—	—	—	—	—	—	—	—	—	—	—	794	3989	813	4153	832	4321	850	4493	868	4670	886	4850	902	5034	919	5223	947	5557	962	5725	977	5894	992	6064	1007	6235	1022	6407	1037	6579	—	—
8800 [4153]	—	—	—	—	—	—	—	—	—	—	807	4200	826	4371	845	4547	862	4727	880	4910	897	5098	913	5290	942	5614	957	5787	972	5960	987	6134	1002	6310	1017	6486	1032	6663	1047	6841	—	—		
9000 [4247]	—	—	—	—	—	—	—	—	801	4249	820	4424	839	4603	857	4786	874	4973	892	5164	908	5359	924	5558	952	5853	967	6031	982	6209	997	6389	1012	6570	1027	6752	1042	6934	1057	7118	—	—		
9200 [4341]	—	—	—	—	—	—	795	4300	815	4478	833	4660	851	4847	869	5037	886	5232	903	5430	919	5633	947	5923	962	6105	977	6289	992	6473	1007	6658	1022	6844	1037	7031	1052	7219	1068	7408	—	—		
9400 [4436]	—	—	—	—	790	4352	809	4534	828	4720	846	4910	864	5104	881	5302	898	5504	915	5710	943	5997	958	6184	972	6372	987	6561	1002	6750	1017	6941	1032	7132	1048	7325	1063	7518	—	—				
9600 [4530]	—	—	—	—	804	4592	823	4781	841	4975	859	5172	876	5373	893	5579	910	5788	926	6002	953	6267	968	6460	983	6653	998	6847	1013	7042	1028	7238	1043	7434	1058	7632	—	—	—	—				
9800 [4624]	—	—	798	4652	817	4845	836	5042	854	5242	872	5447	889	5656	905	5869	922	6085	949	6355	964	6551	979	6749	994	6947	1009	7147	1024	7347	1039	7548	1054	7751	1069	7954	—	—	—	—				
10000 [4719]	793	4714	813	4910	831	5110	849	5315	867	5523	884	5735	901	5951	917	6171	945	6446	960	6647	975	6849	990	7052	1005	7256	1019	7461	1034	7667	1050	7873	1065	8081	—	—	—	—	—	—	—			
10200 [4813]	808	4978	827	5181	845	5389	863	5600	880	5816	897	6035	913	6259	941	6542	956	6748	971	6954	986	7162	1001	7370	1016	7579	1031	7789	1046	8000	1061	8212	—	—	—	—	—	—	—	—				
10400 [4908]	822	5254	840	5465	858	5680	876	5899	893	6122	909	6349	926	6580	953	6852	967	7063	982	7275	997	7488	1012	7701	1027	7916	1042	8131	1057	8348	1072	8565	—	—	—	—	—	—	—	—				
10600 [5002]	836	5543	854	5761	872	5984	889	6210	906	6441	922	6675	949	6961	964	7176	979	7393	993	7610	1008	7828	1023	8047	1038	8267	1053	8488	1068	8710	—	—	—	—	—	—	—	—	—	—				
10800 [5096]	850	5845	868	6071	885	6301	902	6534	918	6772	946	7074	961	7294	975	7514	990	7736	1005	7959	1020	8182	1035	8407	1050	8632	1065	8858	—	—	—	—	—	—	—	—	—	—	—	—				
11000 [5191]	864	6160	882	6393	899	6630	915	6871	943	7191	958	7415	972	7640	987	7867	1002	8094	1017	8321	1032	8550	1046	8780	1061	9011	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
11200 [5285]	878	6487	895	6728	912	6972	940	7313	955	7541	969	7771	984	8001	999	8233	1014	8465	1029	8698	1043	8933	1058	9168	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
11400 [5379]	892	6827	909	7075	925	7328	952	7671	967	7905	981	8140	996	8376	1011	8613	1026	8851	1041	9089	1055	9329	1070	9570	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
11600 [5474]	906	7180	922	7436	950	7806	964	8044	979	8283	994	8524	1008	8765	1023	9007	1038	9250	1053	9494	1068	9739	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
11800 [5568]	920	7546	948	7944	962	8187	977	8431	991	8676	1006	8921	1021	9168	1035	9416	1050	9664	1065	9913	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
12000 [5663]	946	8087	960	8334	975	8583	989	8832	1004	9082	1019	9333	1033	9585	1048	9838	1063	10092	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			

NOTE: L - Drive left of bold line, M - Drive right of bold line.

Drive Package	L						M					
Motor H.P. [W]	7.5 [5592.7]						10 [7457.0]					
Motor Sheave	1VP-71						1VP-75					
Blower Sheave	BK130H						BK120H					
Turns Open	1	2	3	4	5	6	1	2	3	4	5	6
RPM	919	894	869	844	817	790	1067	1039	1012	982	953	925

NOTES: 1. Factory sheave settings are shown in bold type.

2. Do not set motor sheave below minimum turns open shown.

3. Readjustment of sheave required to achieve rated airflow at AHRI minimum external static pressure.

4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total external static pressure.

Component Airflow Resistance 25 Ton [87.9kW]

CFM [L/s]	8000 [3775]	8400 [3964]	8800 [4153]	9200 [4341]	9600 [4530]	10000 [4719]	10400 [4908]	10800 [5096]	11200 [5285]	11600 [5474]	12000 [5663]
Resistance Inches of Water [kPa]											
Wet Coil	0.07 [.02]	0.09 [.02]	0.10 [.02]	0.12 [.03]	0.13 [.03]	0.15 [.04]	0.16 [.04]	0.18 [.04]	0.19 [.05]	0.21 [.05]	0.22 [.05]
Downflow	0.12 [.03]	0.14 [.03]	0.16 [.04]	0.19 [.05]	0.22 [.05]	0.25 [.06]	0.29 [.07]	0.33 [.08]	0.37 [.09]	0.42 [.10]	0.46 [.11]
Downflow Economizer RA Damper Open	0.22 [.05]	0.24 [.06]	0.26 [.06]	0.28 [.07]	0.30 [.07]	0.32 [.08]	0.34 [.08]	0.37 [.09]	0.39 [.10]	0.41 [.10]	0.44 [.11]
Horizontal Economizer RA Damper Open	0.09 [.02]	0.10 [.02]	0.11 [.03]	0.12 [.03]	0.13 [.03]	0.14 [.03]	0.15 [.04]	0.16 [.04]	0.17 [.04]	0.18 [.04]	0.19 [.05]

Airflow Correction Factors 25 Ton [87.9kW]

CFM [L/s]	8000 [3775]	8400 [3964]	8800 [4153]	9200 [4341]	9600 [4530]	10000 [4719]	10400 [4908]	10800 [5096]	11200 [5285]	11600 [5474]	12000 [5663]
Total MBH	0.97	0.98	0.99	0.99	1.00	1.01	1.02	1.03	1.03	1.04	1.05
Sensible MBH	0.89	0.92	0.95	0.98	1.01	1.04	1.08	1.11	1.14	1.17	1.20
Power kW	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01	1.02	1.02	1.02

NOTE: Multiply correction factor times gross performance data resulting sensible capacity cannot exceed total capacity.

[] Designates Metric Conversions

Accessories

Economizers

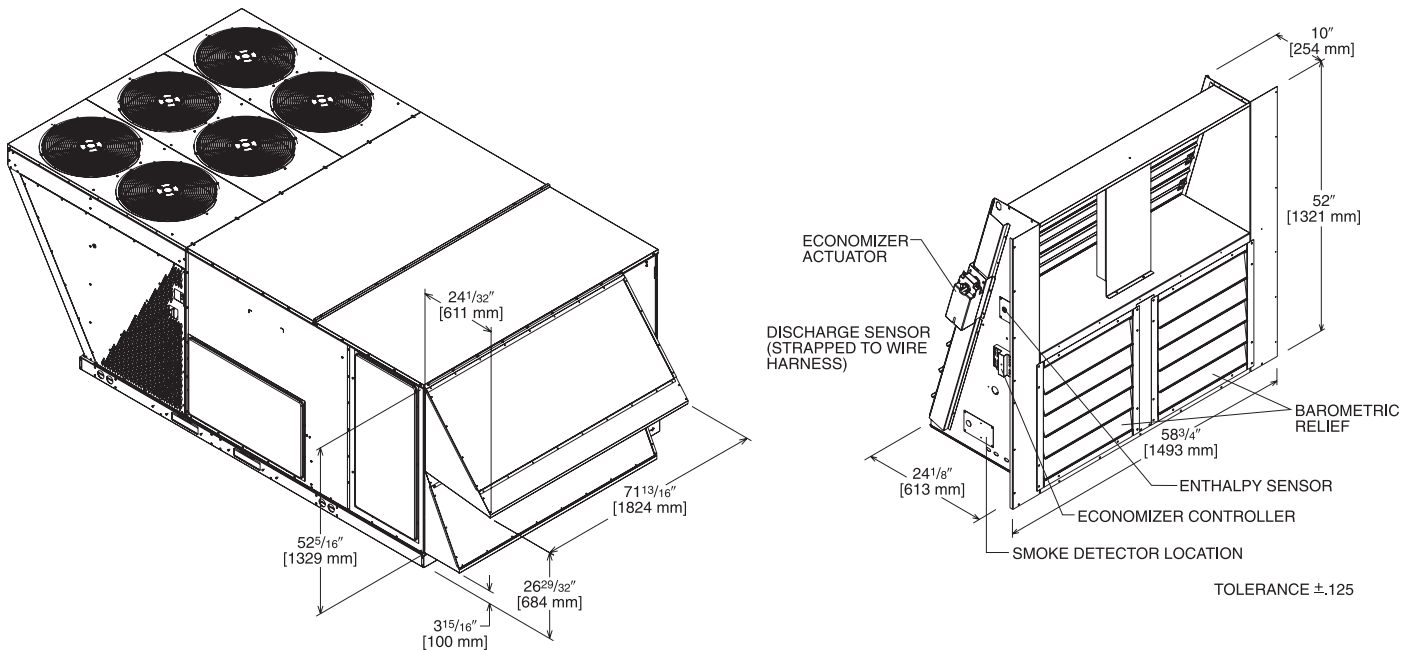
MXRD-PGCM3—15 & 25 Ton [52.8 kW & 87.9 kW] Models Single Enthalpy (Outdoor)

RXRX-AV02—Dual Enthalpy Upgrade Kit

RXRX-AR02—Optional Wall-Mounted CO₂ Sensor

- Features economizer controller
- Available factory installed or field accessory
- Gear driven direct drive actuator
- Fully modulating (0-100%)
- Low leakage dampers
- Slip-in design for easy installation
- Plug-in polarized electrical connections
- Pre-configured—no field adjustments necessary
- Standard barometric relief damper
- Single enthalpy with dual enthalpy upgrade kit available
- CO₂ input sensor available
- Field assembled hood ships with economizer
- Economizer ships complete for downflow duct application
- Field installed power exhaust available

Figure 30: Economizer: MPS 015B – 025B



Horizontal Duct Installation

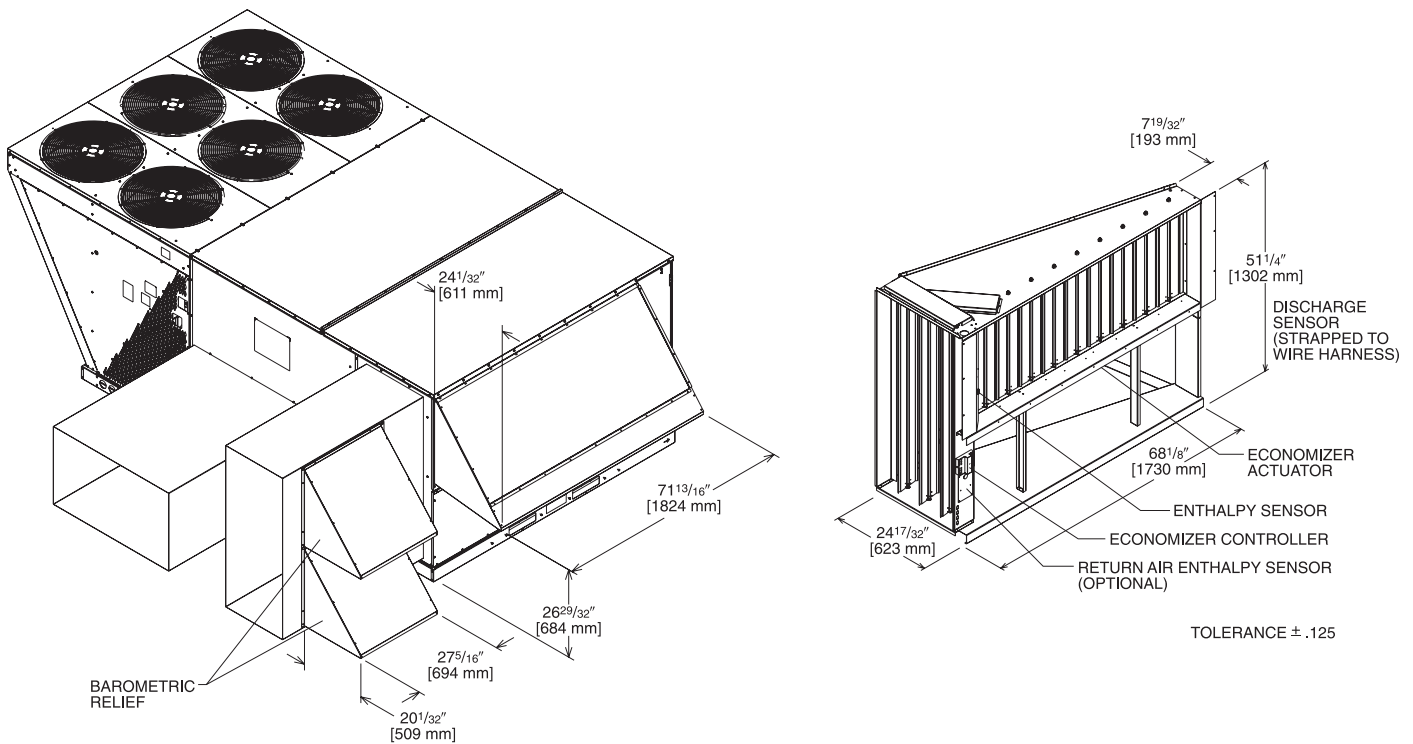
MXRD-RGCM3—15 & 25 Ton [52.8 kW & 87.9 kW] Models Single Enthalpy (Outdoor)

RXXR-AV02—Dual Enthalpy Upgrade Kit

RXXR-AR02—Wall-Mounted CO₂ Sensor

- Features economizer controller
- Available factory installed or field accessory
- Gear driven direct drive actuator
- Fully modulating (0-100%)
- Low leakage dampers
- Slip-in design for easy installation
- Plug-in polarized 12 pin electrical connections
- Pre-configured—no field adjustments necessary
- Standard barometric relief damper
- Single enthalpy with dual enthalpy upgrade kit available
- CO₂ input sensor available
- Field assembled hood ships with economizer
- Economizer ships complete for downflow duct application
- Field installed power exhaust available

Figure 31: Economizer: MPS 015B – 025B



Fresh Air Dampers and Power Exhaust

Power Exhaust Kit For Economizers: 15–25 Tons [52.8–87.9 kW]

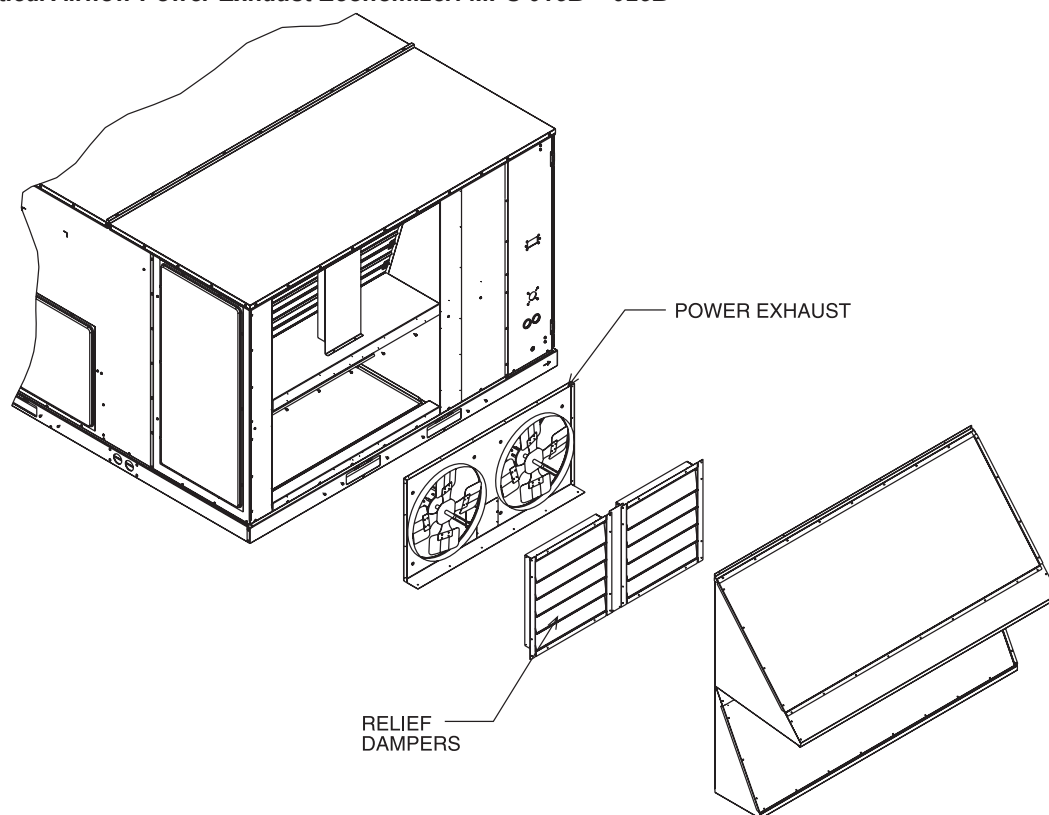
RXXR-BGF05 (C,D,Y Voltages) for MPS-015B-025B

Table 16: Air Damper and Exhaust Accessories

Daikin Model Number	Description
RXXR-CFF02C	Power exhaust, 208/230 volt for MPS-006B through -025B
RXXR-CFF02D	Power exhaust, 460 volt for MPS-006B through -025B
RXXR-CFF02Y	Power exhaust, 575 volt for MPS-006B through -025B

- For economizer controller
- Requires separate power supply with disconnect
- Adjustable switch on economizer, factory preset to energize
- power exhaust at 95% outside air position
- Polarized plug connects power exhaust relay to economizer

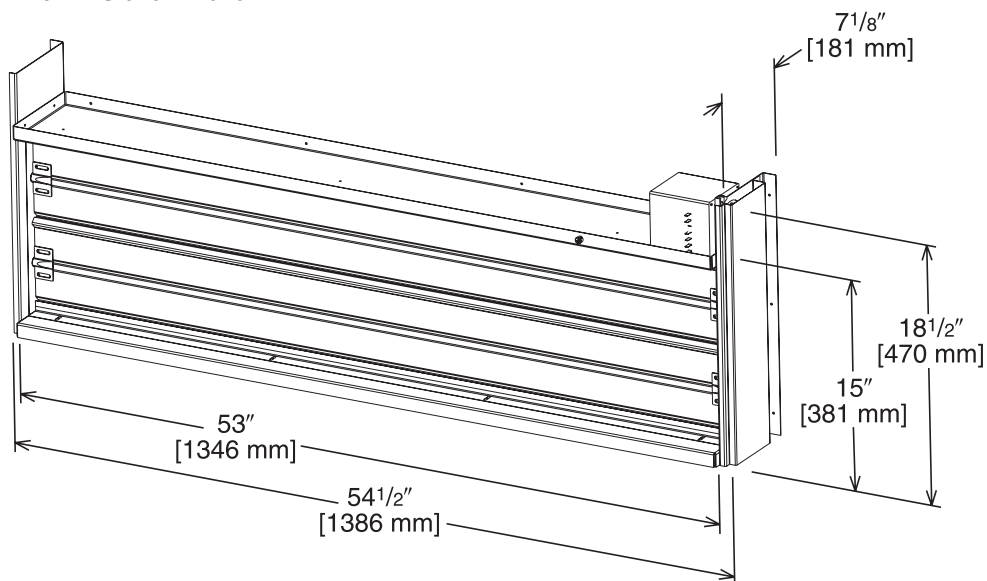
Figure 32: Vertical Airflow Power Exhaust Economizer: MPS 015B – 025B



Motorized Damper Kit

Fresh Air Damper Kit for 15–25 Ton [52.8–87.9 Kw] Units
RXXRX-AWO3 (Motor Kit for MXRF-HEA1)

Figure 33: Damper Kit: MPS 015B – 025B



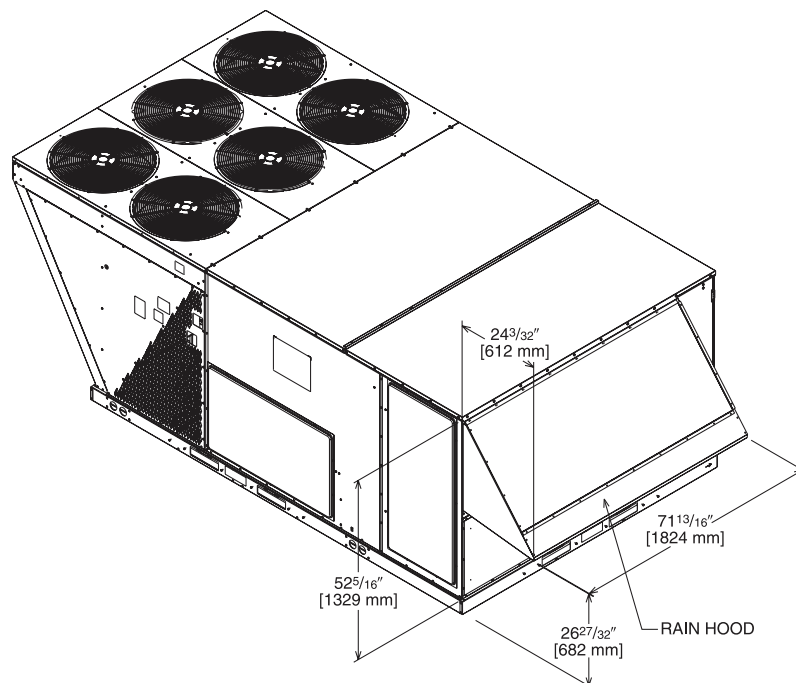
NOTE: Outdoor air hood must also be ordered with this kit

Outdoor Air Hood

MXRF-KFA1 (Manual)

RXRS-ATO1 (Motorized Damper Kit for Manual Fresh Air Damper)

Figure 34: Outdoor Air Hood: MPS 015B – 025B



Roofcurbs

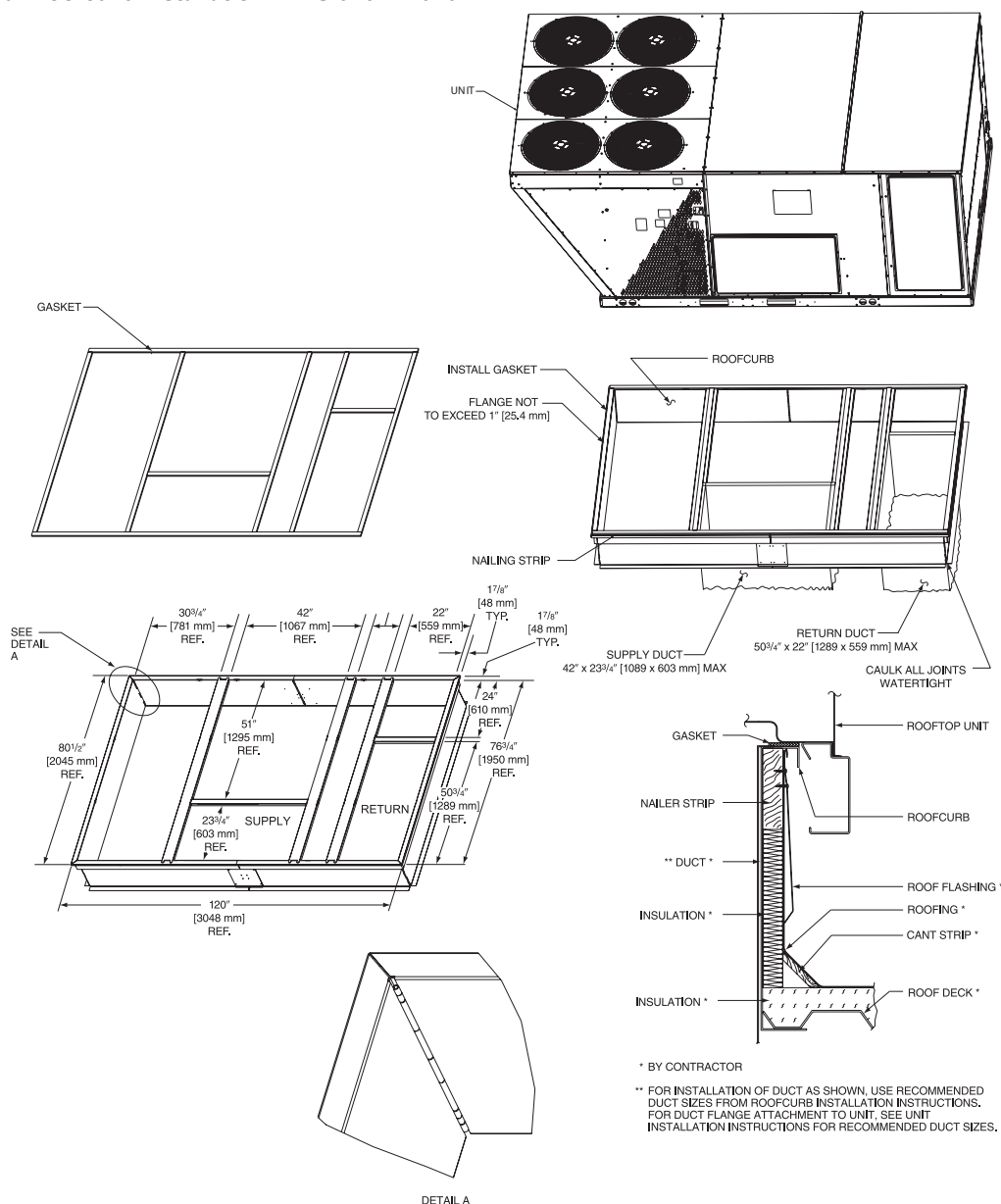
Roofcurbs (Full Perimeter): 15–25 Tons [52.8–70.3 kW]

Table 17: Roofcurb Accessories

Daikin Model Number	Description
RXKG-CBH14	MPS-015B through -025B

- One available height (14") [356 mm] for all models
- Quick assembly corners for easy installation
- 1" [25 mm] × 4" [102 mm] nailer provided
- Insulating panels not required because of insulated outdoor base pan
- Sealing gasket (28" [711 mm]) provided with roofcurb
- 18 gauge galvanized steel

Figure 35: Typical Roofcurb Installation: MPS 015B – 020B



Controls and Operation

Furnace Section Controls and Ignition System

Normal Furnace Operating Sequence

This unit has a two stage gas furnace which employs an integrated furnace control with self diagnostics located in the control box. The furnace is composed of induced draft blowers, negative pressures switches, two stage gas valve, manifold orifices, in-shot burners, direct spark ignitor, remote flame sense, tubular heat exchanger, high limit switch and rollout switches. See Figure 34.

Normal Heat Mode

Call For First Stage (low fire) Only:

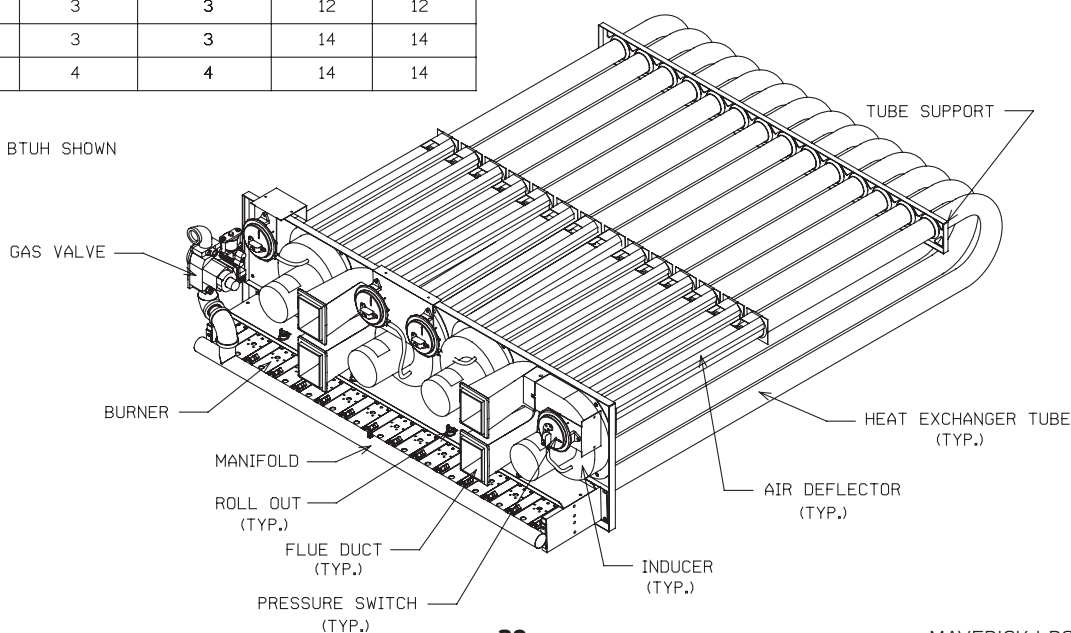
1. Zone thermostat contacts close, a call for first stage (low fire) heat is initiated.
2. Control runs self check.
3. Control checks the high-limit switch for normally closed contacts, each pressure switch for normally open contacts, and all flame rollout switches for continuity.
4. Control energizes each low-fire inducer.
5. Control checks each low-fire pressure switch for closure.
6. If each pressure switch is closed, the control starts a 30 second prepurge and energizes W2. If any pressure switch is still open, the inducers will continue to be energized until closure.

7. After prepurge timeout, control energizes W1 and continues to energize W2, initiates spark for two seconds minimum (seven second maximum) ignition trial, and initiates a 120 second - second stage (high fire) warm up timing.
8. Control detects flame, de-energizes spark and initiates 45 second delay on blower timing.
9. After a fixed 45 seconds indoor blower delay on, the control energizes the indoor blower.
10. After a fixed 120 seconds second stage warm-up period control checks thermostat input. If only W1 is called for, W2 is de-energized and the control starts a 30 second off delay on the W2 inducer(s).
11. After fixed 30 seconds the W2 inducer is de-energized.
12. Control enters normal operating loop where all inputs are continuously checked.
13. Zone thermostat is satisfied.
14. Control de-energizes gas valve.
15. Control senses loss of flame.
16. Control initiates five second inducer post-purge and 90 second indoor blower delay off.
17. Control de-energizes inducer blower(s).
18. Control de-energizes indoor blower.
19. Control in the stand by mode with solid red LED.

Figure 36: Heat Exchanger Component Identification

BTUH	NO. OF INDUCERS	NO. OF PRESSURE SWITCHES	NO. OF TUBES	NO. OF BURNERS
250,000	2	2	10	10
300,000	3	3	12	12
350,000	3	3	14	14
400,000	4	4	14	14

400,000 BTUH SHOWN



Call For Second Stage, After First Stage Established; Starting from A.11:

1. If a call for second stage (high fire) is initiated after a call for first stage heat is established, the control energizes the W2 inducers and energizes the second stage of the gas valve.
2. Control enters normal operating loop where all inputs are continuously checked.

Second Stage Satisfied; First Stage Still Called For; Starting From B.3:

1. Once the call for second stage is satisfied, the control starts a 30 second off delay on W2 inducers and reduces the gas valve to first stage.
2. Control enters normal operating loop where all inputs are continuously checked.

First Stage Satisfied:

1. Zone thermostat is satisfied.
2. Control de-energizes gas valve.
3. Control senses loss of flame.
4. Control initiates five second inducer post-purge and 90 second indoor blower delay off.
5. Control de-energizes inducer blower.
6. Control de-energizes indoor blower.
7. Control in the standby mode with solid red LED.

First Stage and Second Stage Called Simultaneously:

1. Zone thermostat contacts close. A call for first stage (low fire) and second stage (high fire) heat is initiated.
2. Control runs self check.
3. Control checks the high-limit switch for normally closed contacts, each pressure switch for normally open contacts, and all flame rollout switches for continuity.
4. Control energizes each low-fire inducer.
5. Control checks each pressure switch for closure.
6. If each pressure switch is closed, the control starts a 30 second prepurge and energizes W2. If either switch is still open, the inducers will continue to be energized until closure.
7. After prepurge time-out, control energizes W1 and continues to energize W2, initiates spark for 2 seconds minimum, 7 second maximum ignition trial, and initiates 120 second stage warm up timing.
8. Control detects flame, de-energizes spark and starts a 45 second indoor blower delay on timing.

9. After a fixed 45 seconds indoor blower delay on, the control energizes the indoor blower.
10. After a fixed 120 seconds second stage warm-up period control checks the thermostat input. If W1 and W2 are present, control enters normal operating loop where all inputs are continuously checked.

First Stage and Second Stage Removed Simultaneously:

1. Upon a loss of W1 and W2 the gas valve is de-energized.
2. Upon a loss of flame, each inducer will complete a 5 second post-purge and the indoor blower will complete a 90 second delay off.
3. Control in the stand by mode with solid red LED.

The integrated control is a three ignition system.

After a total of three cycles without sensing main burner flame, the system goes into a 100% lockout mode. After one hour, the ignition control repeats the prepurge and ignition cycles for 3 tries and then goes into 100% lockout mode again. It continues this sequence of cycles and lockout each hour until ignition is successful or power is interrupted. During the lockout mode, neither the ignitor or gas valve will be energized until the system is reset by turning the thermostat to the "OFF" position or interrupting the electrical power to the unit for 3 seconds or longer.

The circulating air blower will start and run on the heating speed if the thermostat fan switch is in the "ON" position.

The integrated furnace control is equipped with diagnostic LED. The LED is lit continuously when there is power to the control, with or without a call for heat. If the LED is not lit, there is either no power to the control or there is an internal component failure within the control, and the control should be replaced.

If the control detects the following failures, the LED will flash on for approximately 1/4 second, then off for 3/4 second for designated failure detections.

1. Flash: Failed to detect flame within the four tries for ignition.
2. Flash: Pressure switch or induced draft blower problem detected.
3. Flash: High limit or auxiliary limit open.
4. Flash: Flame sensed and gas valve not energized or flame sensed with no "W" signal.
5. Flash: Overtemperature switch open.

Operating Instructions

DANGER

Never test for gas leaks with an open flame. It can cause an explosion or fire resulting in property damage, personal injury or death. Use a commercially available soap solution made specifically for the detection of leaks to check all connections as specified in the Mechanical Installation section of these instructions.

DANGER

The spark ignitor and ignition lead from the ignition control are high voltage. Keep hands or tools away to prevent electrical shock. Shut off electrical power before servicing any of the controls. Failure to adhere to this warning can result in personal injury or death.

DANGER

Should overheating occur or the gas supply fail to shut off, shut off the manual gas valve to the unit before shutting off the electrical supply. Failure to do so can result in an explosion or fire causing property damage, severe personal injury or death!

This unit is equipped with integrated furnace control. This device lights the main burners each time the room thermostat (closes) calls for heat. See operating instructions on the back of the furnace/controls access panel.

To Start The Furnace

1. Set the thermostat to its lowest setting.
2. Turn OFF all electric power to the unit.
3. This unit does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
4. Remove control door.
5. Move control knob to the "OFF" position. Turn the knob by hand only, do not use any kind of tool.
6. Wait five minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow B in the safety information on the Operating Instructions located on the back of the controls/access panel. If you don't smell gas, go to the next step.
7. Move the gas control knob from "OFF" position to "ON" position. Operate this unit with the gas control knob in the "ON" position only. Do not use the gas control knob as a means for throttling the burner input rate.
8. Replace the control door.
9. Turn ON all electric power to the unit.
10. Set the thermostat to the desired setting.
11. If the unit will not operate, follow the instructions below on how to shut down the furnace.

The initial start-up on a new installation may require the control system to be energized for some time until air has bled through the system and fuel gas is available at the burners.

To Shut Down Furnace

1. Set the thermostat to the lowest setting.
2. Turn OFF all electric power to the unit if service is to be performed.
3. Remove control door.
4. Move control knob to the "OFF" position.
5. Replace control door.

Burners

Burners for these units have been designed so that field adjustment is not required. Burners are tray-mounted and accessible for easy cleaning when required.

Manual Reset Over-Temperature Control

DANGER

DO NOT JUMPER THIS DEVICE! Doing so can cause a fire or explosion resulting in property damage, personal injury or death. DO NOT reset the over-temperature control without taking corrective action to assure that an adequate supply of combustion air is maintained under all conditions of operation. Failure to do so can result in carbon monoxide poisoning or death. Replace this control only with the identical replacement part.

Four manual reset overtemperature controls are located on the burner shield. These devices sense blockage in the heat exchanger or insufficient combustion air. This shuts off the main burners if excessive temperatures occur in the burner compartment.

Operation of this control indicates an abnormal condition. Therefore, the unit should be examined by a qualified installer, service agency, or the gas supplier before being placed back into operation.

Pressure Switch

This furnace has four pressure switches for sensing a blocked exhaust or a failed induced draft blower. They are normally open and close when the induced draft blower starts, indicating air flow through the combustion chamber.

Limit Control

The supply air high temperature limit cut-off is set at the factory and cannot be adjusted. It is calibrated to prevent the air temperature leaving the furnace from exceeding the maximum outlet air temperature.

Cooling Section Operation

Cooling Mode

Call for first stage cooling

1. Zone thermostat contacts close and a call for cooling is initiated.
2. Inputs Y1 and G to the control are energized.
3. Control senses Y1 and G. After 1 sec. delay, control energizes indoor blower and first stage compressor.
4. Control enters normal operating loop where all inputs are continuously checked.
5. Zone thermostat is satisfied.
6. Control de-energizes indoor blower relay after 80 second indoor blower delay off.
7. Control in the stand by mode with solid red LED.

Call for second stage cooling. After first stage cooling established: starting from A4.

1. If a call for second stage cooling is initiated after a call for first stage cooling is established, the control energizes Y2 and energizes the second stage compressor.
2. Control enters normal operating loop where all inputs are continuously checked.

Second stage satisfied: first stage still called for: starting from B2.

1. Y2 is de-energized and second stage compressor is deenergized.

First stage and second stage called simultaneously.

1. Zone thermostat contacts close, a call for first and second stage cooling is initiated.
2. Inputs Y1, Y2 and G to the control are energized.
3. Control senses Y1, Y2 and G, after 1 second delay, control energizes indoor blower, first and second stage compressor are energized.

First stage and second stage removed simultaneously.

1. Upon a loss of Y1 and Y2 each compressor is deenergized. Control either de-energizes indoor blower relay after 80 second indoor blower delay off.
2. Control in the stand by mode with solid red LED.

Continuous Fan Mode

G input only indicates a zone thermostat call for continuous indoor blower operation.

Maintenance

Advise the Customer

1. Change the air filters regularly. The heating system operates better, more efficiently and more economically.
2. Except for the mounting platform, keep all combustible articles three feet from the unit and exhaust system.
3. **IMPORTANT:** Replace all blower doors and compartment cover after servicing the unit. Do not operate the unit without all panels and doors securely in place.
4. Do not allow snow or other debris to accumulate in the vicinity of the unit.

Unit Maintenance

Furnace Section

DANGER

Power supply to unit must be disconnected before making field connections. To avoid electrical shock, personal injury or death, be sure to rigorously adhere to field wiring procedures regarding proper lockout and tagout of components.

DANGER

Label all wires prior to disconnection when servicing controls. wiring errors can cause improper and dangerous operation resulting in fire, electrical shock, property damage, personal injury or death.

DANGER

Holes in the exhaust transition or heat exchanger can cause toxic fumes to enter the home. The exhaust transition or heat exchanger must be replaced if they have holes or cracks in them. Failure to do so can cause carbon monoxide poisoning resulting in personal injury or death.

The unit's furnace should operate for many years without excessive scale build-up in flue passageways. However, it is recommended that a qualified installer, service agency, or the gas supplier annually inspect the flue passageways, the exhaust system and the burners for continued safe operation, paying particular attention to deterioration from corrosion or other sources.

If during inspection the flue passageways and exhaust system are determined to require cleaning, the following procedures should be followed (by a qualified installer, service agency, or gas supplier):

1. Turn OFF the electrical power to the unit and set the thermostat to the lowest temperature.
2. Shut OFF the gas supply to the unit either at the meter or at manual valve in the supply piping.
3. Remove the furnace controls access panel and the control box cover.
4. Disconnect the gas supply piping from the gas valve.
5. Disconnect the wiring to the induced draft blower motor, gas valve, flame sensor, and flame roll-out control, and ignitor cable. Mark all wires disconnected for proper reconnection.
6. Remove the screws (4) connecting the burner tray to the heat exchanger mounting panel.
7. Remove the burner tray and the manifold assembly from the unit.
8. Remove the screws (10) connecting the two induced draft blowers to the collector box and screws (12) connecting the inducer mounting plate to the heat exchanger center panel. Remove the induced draft blower and the collector box from the unit.
9. Remove the turbulators from inside the heat exchangers by inserting the blade of a screwdriver under the locking tabs. Pop the tabs out of the expanded grooves of the heat exchanger. Slide the turbulators out of the heat exchangers.
10. Direct a water hose into the outlet of the heat exchanger top. Flush the inside of each heat exchanger tube with water. Blow out each tube with air to remove excessive moisture.
11. Reassemble (steps 1 through 9 in reverse order). **Be careful not to strip out the screw holes used to mount the collector box and inducer blower. Replace inducer blower gasket and collector box gasket with factory replacements if damaged.**

The manufacturer recommends that a qualified installer, service agency or the gas supplier visually inspect the burner flames for the desired flame appearance at the beginning of the heating season and approximately midway in heating season.

The manufacturer also recommends that a qualified installer, service agency or the gas supplier clean the flame sensor with steel wool at the beginning of the heating season.

Lubrication

IMPORTANT: DO NOT attempt to lubricate the bearings on the blower motor or the induced draft blower motor. Addition of lubricants can reduce the motor life and void the warranty.

The blower motor and induced draft blower motor are prelubricated by the manufacturer and do not require further attention.

A qualified installer, service agency or the gas supplier must periodically clean the motors to prevent the possibility of overheating due to an accumulation of dust and dirt on the windings or on the motor exterior. And, as suggested elsewhere in these instructions, the air filters should be kept clean because dirty filters can restrict air flow and the motor depends upon sufficient air flowing across and through it to prevent overheating.

Cooling Section

DANGER

Power supply to unit must be disconnected before making field connections. To avoid electrical shock, personal injury or death, be sure to rigorously adhere to field wiring procedures regarding proper lockout and tagout of components.

DANGER

Label all wires prior to disconnection when servicing the unit. Wiring errors can cause improper and dangerous operation resulting in fire, electrical shock, property damage, severe personal injury or death.

It is recommended that at the beginning of each cooling season a qualified installer or service agency inspect and clean the cooling section of this unit. The following areas should be addressed: evaporator coil, condenser coil, condenser fan motor and venturi area.

To Inspect the Evaporator Coil

1. Open the control/filter access panel and remove filters. Also, remove blower access panel. In downflow applications remove the horizontal return to gain access.
2. Shine a flashlight on the evaporator coil (both sides) and inspect for accumulation of lint, insulation, etc.
3. If coil requires cleaning, follow the steps shown below.

Cleaning Evaporator Coil

1. The coil should be cleaned when it is dry. If the coil is coated with dirt or lint, vacuum it with a soft brush attachment. Be careful not to bend the coil fins.
2. If the coil is coated with oil or grease, clean it with a mild detergent-and-water solution. Rinse the coil thoroughly with water.

IMPORTANT: Do not use excessive water pressure. Excessive water pressure can bend the fins and tubing of the coil and lead to inadequate unit performance. Be careful not to splash water excessively into unit.

3. Inspect the drain pan and condensate drain at the same time the evaporator coil is checked. Clean the drain pan by flushing with water and removing any matters of obstructions which may be present.
4. Go to next section for cleaning the condenser coil.

Cleaning Condenser Coil, Condenser Fan, Circulation Air Blower and Venturi

1. Remove the compressor access panel and/or compressor access louver panel. Disconnect the wires to the condenser fan motor in the control box (see wiring diagram).
 2. The coil should be cleaned when it is dry. If the coil is coated with dirt or lint, vacuum it with a soft brush attachment. Be careful not to bend the coil fins.
 3. If the coil is coated with oil or grease, clean it with a mild detergent-and-water solution. Rinse the coil thoroughly with water.
- IMPORTANT:** Do not use excessive water pressure. Excessive water pressure can bend the fins and tubing of the coil and lead to inadequate unit performance. Be careful not to splash water excessively into unit.
4. The venturi should also be inspected for items of obstruction such as collections of grass, dirt or spider webs. Remove any that are present.
 5. Inspect the circulating air blower wheel and motor for accumulation of lint, dirt or other obstruction and clean it necessary. Inspect the blower motor mounts and the blower housing for loose mounts or other damage. Repair or replace if necessary.

Re-Assembly

1. Reconnect fan motor wires per the wiring diagram attached to the back of the cover.
2. Replace the control box cover.
3. Close the filter/control access panel and replace the blower/evaporator coil access panels.
4. Restore electrical power to the unit and check for proper operation, especially the condenser fan motor.

System Charge Charts

Figure 37: System Charging Chart: MPS 015B

SYSTEM CHARGE CHART - REFRIGERANT 410A 15 TON, CIRCUITS 1 & 2

- CAUTION: 1. BOTH COMPRESSORS MUST BE OPERATING BEFORE CHECKING REFRIGERANT CHARGE.
2. RETURN AIR TEMPERATURE MUST BE WITHIN COMFORT CONDITIONS BEFORE FINAL REFRIGERANT CHECK!

- INSTRUCTIONS: 1. MEASURE PRESSURE AT COMPRESSOR SUCTION AND DISCHARGE.
2. MEASURE OUTDOOR AMBIENT TO UNIT.
3. PLACE (X) ON CHART WHERE SUCTION AND DISCHARGE INTERSECT.
4. IF (X) IS BELOW OUTDOOR AMBIENT LINE, ADD CHARGE AND REPEAT STEPS 1-3.
5. IF (X) IS ABOVE OUTDOOR AMBIENT LINE, RECOVER EXCESS CHARGE AND REPEAT STEPS 1-3.

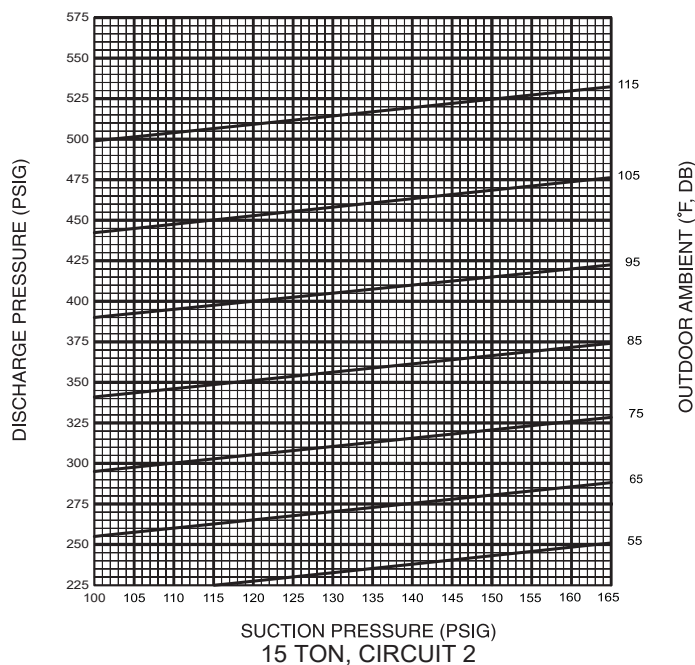
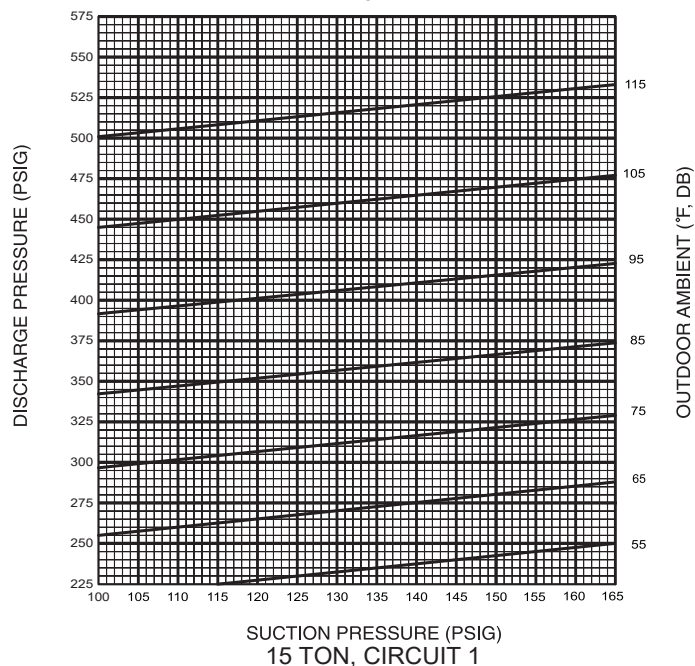


Figure 38: System Charging Chart: MPS 020B

SYSTEM CHARGE CHART - REFRIGERANT 410A
20 TON, CIRCUITS 1 & 2

CAUTION: 1. BOTH COMPRESSORS MUST BE OPERATING BEFORE THE REFRIGERANT CHARGE.

2. RETURN AIR TEMPERATURE MUST BE WITHIN COMFORT RANGE BEFORE FINAL REFRIGERANT CHECK!

INSTRUCTIONS: MEASURE PRESSURE AT COMPRESSOR SUCTION AND DISCHARGE.

2. MEASURE OUTDOOR AMBIENT TO UNIT.

3. PLACE (X) ON CHART WHERE SUCTION AND DISCHARGE PRESSURES INTERSECT.

4. IF (X) IS BELOW OUTDOOR AMBIENT LINE, ADD CHARGE AND REPEAT STEPS 1-3.

5. IF (X) IS ABOVE OUTDOOR AMBIENT LINE, RECOVER EXCESS REFRIGERANT AND REPEAT STEPS 1-3.

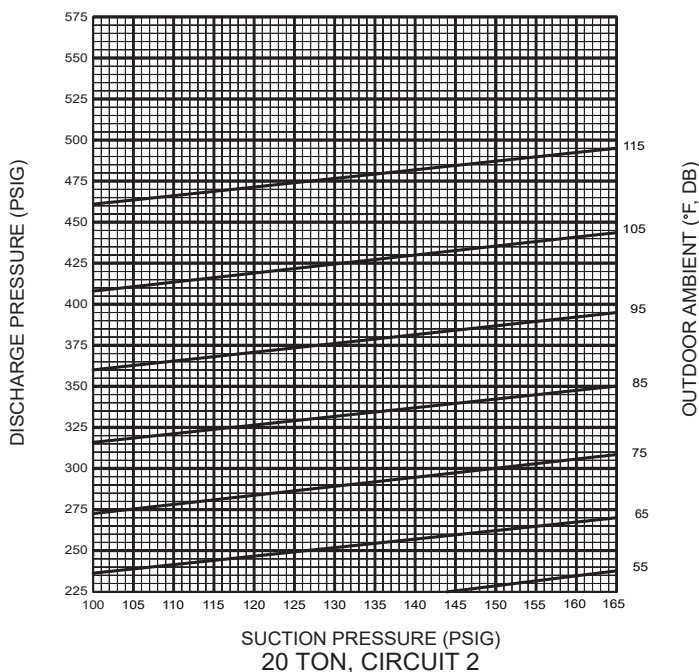
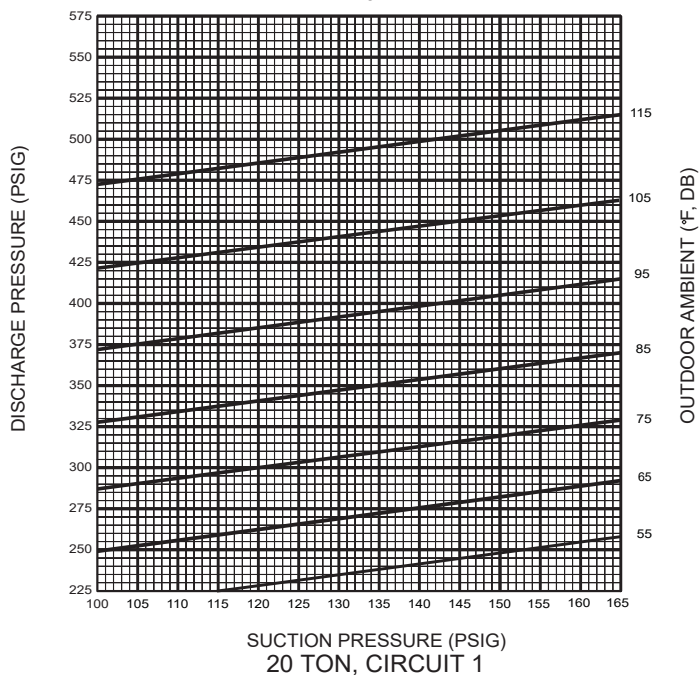


Figure 39: System Charging Chart: MPS 025B

SYSTEM CHARGE CHART - REFRIGERANT 410A
25 TON, CIRCUITS 1 & 2

CAUTION: 1. BOTH COMPRESSORS MUST BE OPERATING BEFORE THE REFRIGERANT CHARGE.

2. RETURN AIR TEMPERATURE MUST BE WITHIN COMFORT C BEFORE FINAL REFRIGERANT CHECK!

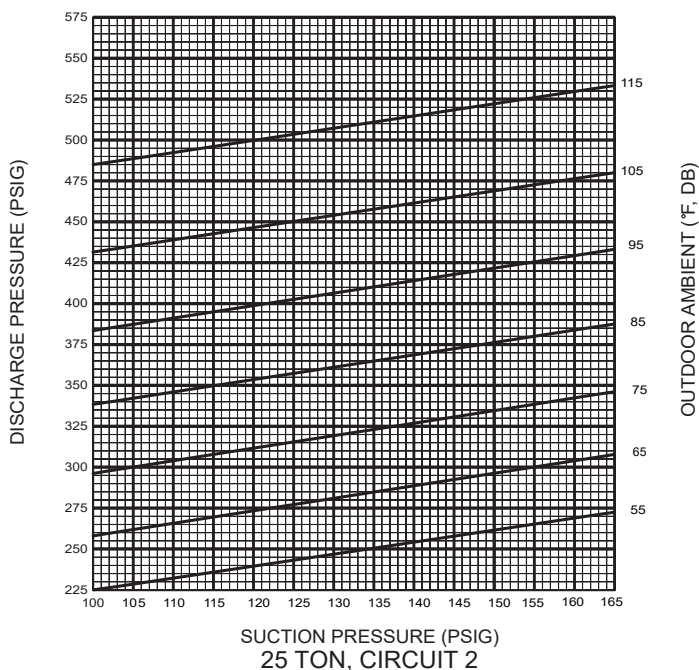
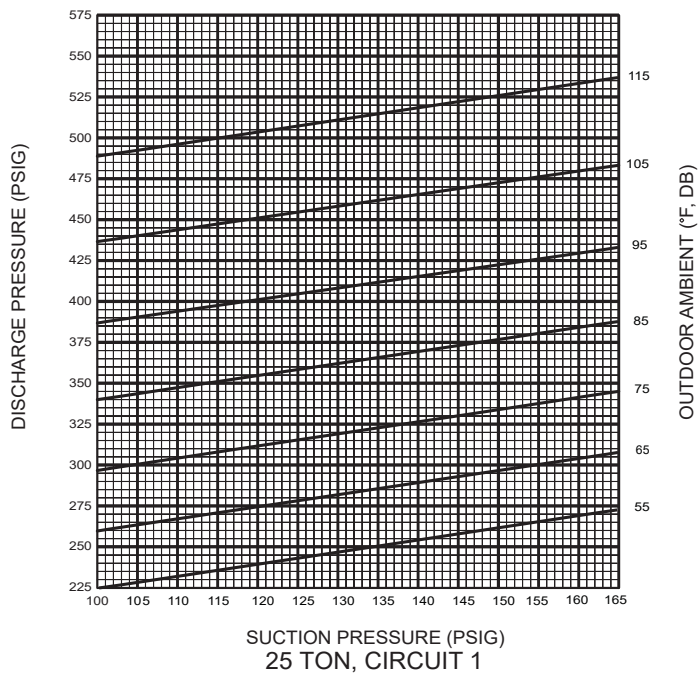
INSTRUCTIONS: 1. MEASURE PRESSURE AT COMPRESSOR SUCTION AND DISCHARGE.

2. MEASURE OUTDOOR AMBIENT TO UNIT.

3. PLACE (X) ON CHART WHERE SUCTION AND DISCHARGE PRESSURES INTERSECT.

4. IF (X) IS BELOW OUTDOOR AMBIENT LINE, ADD CHARGE AND REPEAT STEPS 1-3.

5. IF (X) IS ABOVE OUTDOOR AMBIENT LINE, RECOVER EXCESS REFRIGERANT AND REPEAT STEPS 1-3.



Troubleshooting



DANGER

Disconnect all power to unit before servicing. Contactor may break only one side. Failure to shut off power can cause electrical shock resulting in personal injury or death.

Table 18: Cooling Troubleshooting Chart

Symptom	Possible Cause	Remedy
Unit will not run	Power OFF or loose electrical connection	Check for correct voltage at compressor contactor in control box
	Thermostat out of calibration-set too high	Reset
	Failed contactor	Check for 24 volts at contactor coil replace if contacts are open
	Blown fuses	Replace fuses
	Transformer defective	Check wiring-replace transformer
	High pressure control open (if provided)	Reset-also see High Head Pressure Remedy-The high pressure control opens at 450 PSIG
	Interconnecting low voltage wiring damaged	Replace thermostat wiring
Condenser fan runs, compressor doesn't	Loose connection	Check for correct voltage at compressor check & tighten all connections
	Compressor stuck, grounded or open motor winding, open internal overload.	Wait at least 2 hours for overload to reset. If still open, replace the compressor.
	Low voltage condition	At compressor terminals, voltage must be within 10% of rating plate volts when unit is operating
	Low voltage condition	Add start kit components
Insufficient cooling	Improperly sized unit	Recalculate load
	Improper airflow	Check should be approximately 400 CFM per ton.
	Incorrect refrigerant charge	Charge per procedure attached to unit service panel
	Air, non-condensable or moisture in system	Recover refrigerant, evacuate & recharge, add filter drier
	Incorrect voltage	At compressor terminals, voltage must be within 10% of rating plate volts when unit is operating.
Compressor short cycles	Incorrect voltage	At compressor terminals, voltage must be $\pm 10\%$ of nameplate marking when unit is operating.
	Defective overload protector	Replace check for correct voltage
	Refrigerant undercharge	Add refrigerant
Registers sweat	Low evaporator airflow	Increase speed of blower or reduce restriction replace air filter
High head-low vapor pressures	Restriction in liquid line, expansion device or filter drier	Remove or replace defective component
	Flow check piston size too small	Change to correct size piston
	Incorrect capillary tubes	Change coil assembly
High head-high or normal vapor pressure Cooling mode	Dirty condenser coil	Clean coil
	Refrigerant overcharge	Correct system charge
	Condenser fan not running	Repair or replace
	Air or non-condensable in system	Recover refrigerant, evacuate & recharge
Low vapor - cool compressor iced evaporator coil	Defective compressor valves	Replace compressor
	Incorrect capillary tubes	Replace coil assembly
Low vapor cool evaporator coil	Low evaporator airflow	Increase speed of blower or reduce restriction replace air filter
	Operating below 65°F outdoors	Add Low Ambient Kit
	Moisture in system	Recover refrigerant evacuate & recharge add filter drier
High vapor pressure	Excessive load	Recheck load calculation
	Defective compressor	Replace
Fluctuating head & vapor	Air or non-condensate in system	Recover refrigerant, evacuate & recharge
Gurgle or pulsing noise at expansion device or liquid line	Air or non-condensable in system	Recover refrigerant, evacuate & recharge

Figure 40: Furnace Troubleshooting Chart

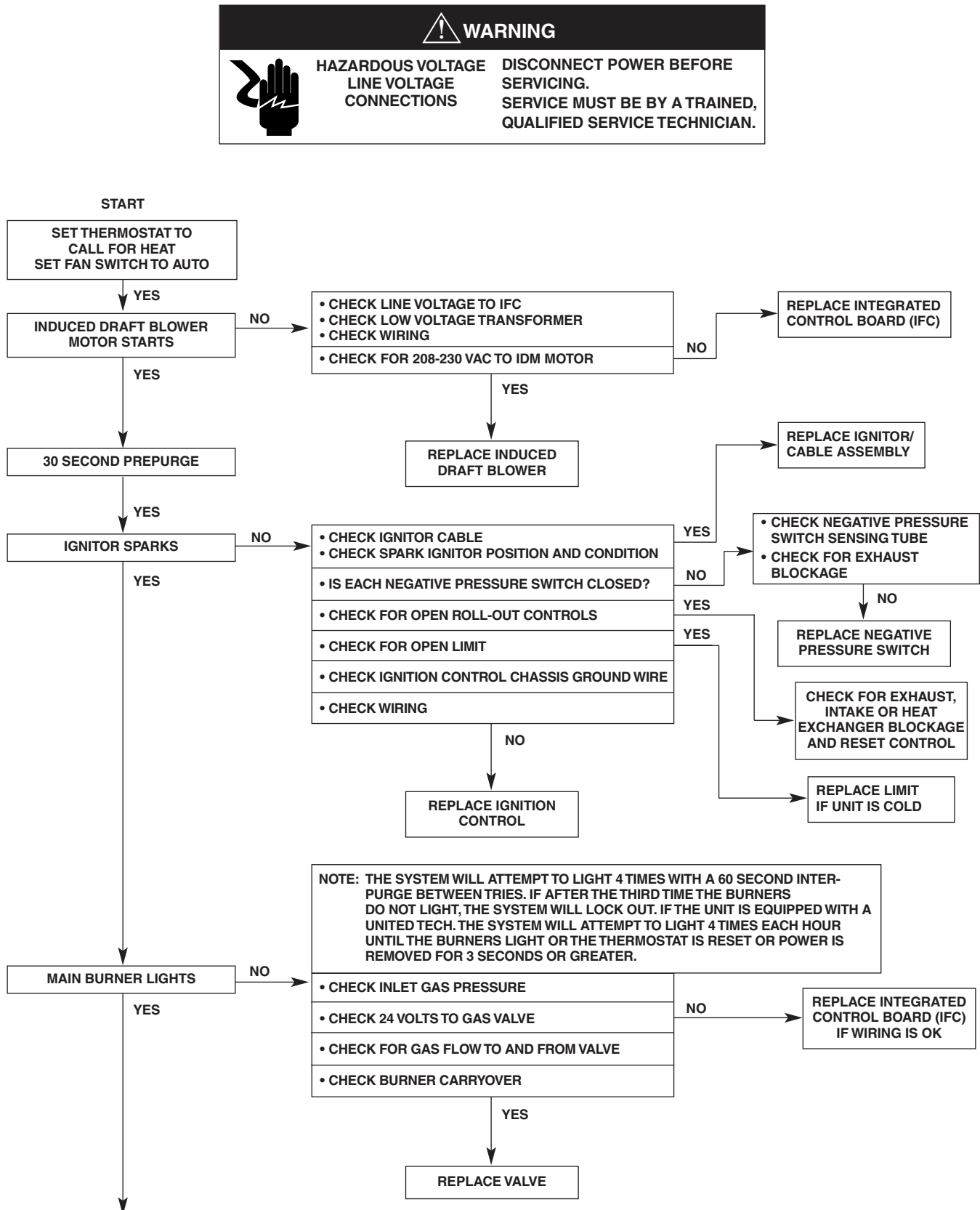
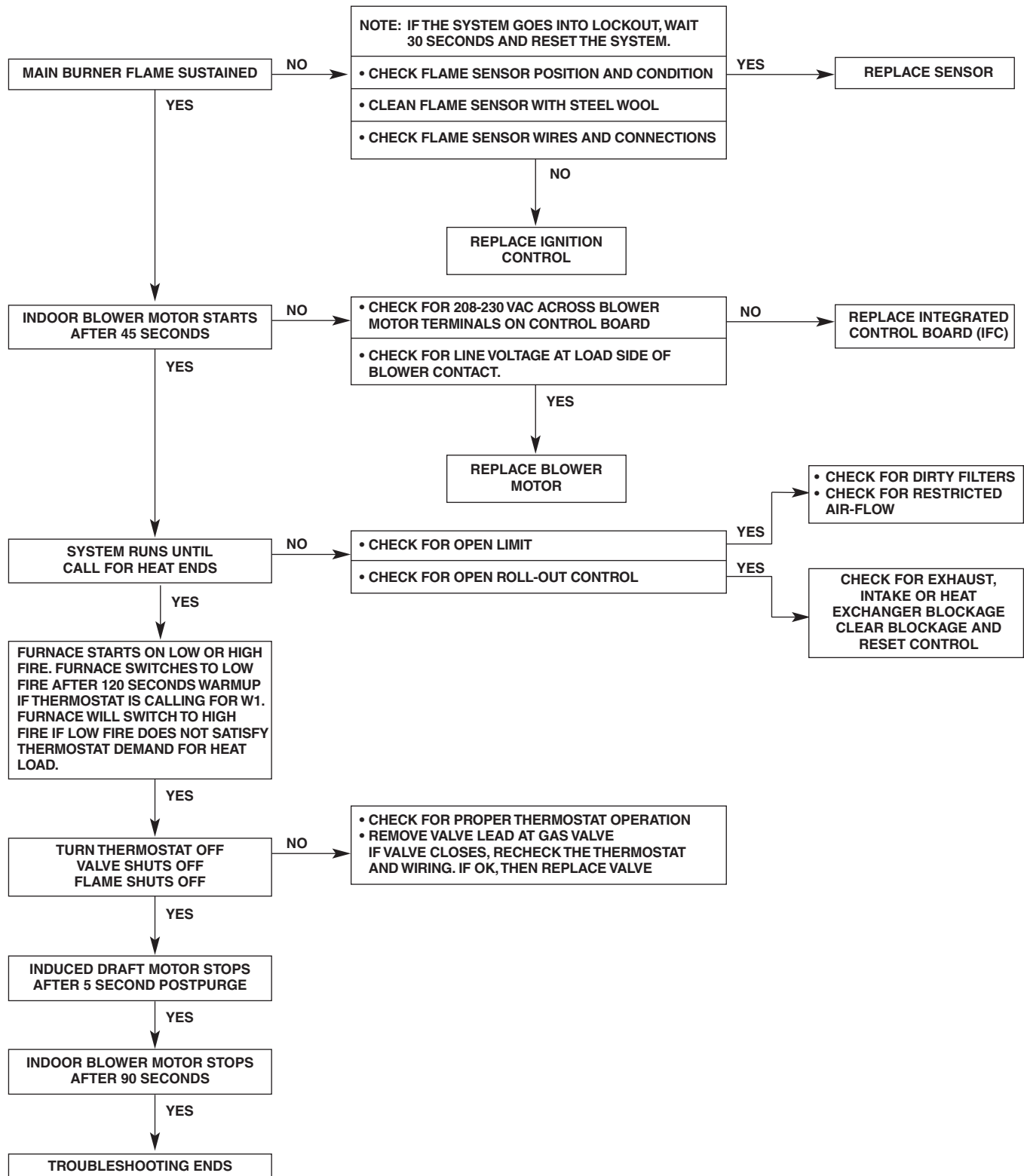


Figure 40 continued: Furnace Troubleshooting Chart



REPEAT PROCEDURE UNTIL TROUBLE FREE OPERATION IS OBTAINED.

Warranty

Replacement Parts

To find your local Daikin Certified Parts Distributor, go to www.DaikinApplied.com and select Parts Locator.

Limited Product Warranty



**DAIKIN APPLIED AMERICAS INC.
LIMITED PRODUCT WARRANTY
(United States and Canada)**

WARRANTY

Daikin Applied Americas Inc. dba Daikin Applied ("Company") warrants to contractor, purchaser and any owner of the product (collectively "Owner") that, subject to the exclusions set forth below Company, at its option, will repair or replace defective parts in the event any product manufactured by Company, including products sold under the brand name Daikin and used in the United States or Canada, proves defective in material or workmanship within twelve (12) months from initial startup or eighteen (18) months from the date shipped by Company, whichever occurs first. Authorized replacement parts are warranted for the remainder of the original warranty. All shipments of such parts will be made FOB factory, freight prepaid and allowed. Company reserves the right to select carrier and method of shipment. In addition, Company provides labor to repair or replace warranty parts during Company normal working hours on products with rotary screw compressors or centrifugal compressors. Warranty labor is not provided for any other products.

Company must receive the Registration and Startup Forms for products containing motor compressors and/or furnaces within ten (10) days of original product startup, or the ship date and the startup date will be deemed the same for determining the commencement of the warranty period and this warranty shall expire twelve (12) months from that date. For additional consideration, Company will provide an extended warranty(ies) on certain products or components thereof. The terms of the extended warranty(ies) are shown on a separate extended warranty statement.

No person (including any agent, sales representative, dealer or distributor) has the authority to expand the Company's obligation beyond the terms of this express warranty or to state that the performance of the product is other than that published by Company.

EXCLUSIONS

1. If free warranty labor is available as set forth above, such free labor does not include diagnostic visits, inspections, travel time and related expenses, or unusual access time or costs required by product location.
2. Refrigerants, fluids, oils and expendable items such as filters are not covered by this warranty.
3. This warranty shall not apply to products or parts : (a) that have been opened, disassembled, repaired, or altered, in each case by anyone other than Company or its authorized service representative; (b) that have been subjected to misuse, abuse, negligence, accidents, damage, or abnormal use or service; (c) that have not been properly maintained; (d) that have been operated or installed, or have had startup performed, in each case in a manner contrary to Company's printed instructions; (e) that have been exposed, directly or indirectly, to a corrosive atmosphere or material such as, but not limited to, chlorine, fluorine, fertilizers, waste water, urine, rust, salt, sulfur, ozone, or other chemicals, contaminants, minerals, or corrosive agents; (f) that were manufactured or furnished by others and/or are not an integral part of a product manufactured by Company; or (g) for which Company has not been paid in full.
4. This warranty shall not apply to products with rotary screw compressors or centrifugal compressors if such products have not been started, or if such startup has not been performed, by a Daikin Applied or Company authorized service representative.

SOLE REMEDY AND LIMITATION OF LIABILITY

THIS WARRANTY CONSTITUTES THE SOLE WARRANTY MADE BY COMPANY. COMPANY'S LIABILITY TO OWNER AND OWNER'S SOLE REMEDY UNDER THIS WARRANTY SHALL NOT EXCEED THE LESSER OF: (i) THE COST OF REPAIRING OR REPLACING DEFECTIVE PRODUCTS; AND (ii) THE ORIGINAL PURCHASE PRICE ACTUALLY PAID FOR THE PRODUCTS. COMPANY MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, REGARDING PREVENTION OF MOLD/MOULD, FUNGUS, BACTERIA, MICROBIAL GROWTH, OR ANY OTHER CONTAMINATES. THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT AND UNDER NO CIRCUMSTANCE SHALL COMPANY BE LIABLE TO OWNER OR ANY THIRD PARTY FOR INCIDENTAL, INDIRECT, SPECIAL, CONTINGENT, CONSEQUENTIAL, DELAY OR LIQUIDATED DAMAGES FOR ANY REASON, ARISING FROM ANY CAUSE WHATSOEVER, WHETHER THE THEORY FOR RECOVERY IS BASED IN LAW OR IN EQUITY, OR IS UNDER A THEORY OF BREACH CONTRACT OR WARRANTY, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE. THE TERM "CONSEQUENTIAL DAMAGE" INCLUDES, WITHOUT LIMITATION, THOSE DAMAGES ARISING FROM BUSINESS INTERRUPTION OR ECONOMIC LOSS, SUCH AS LOSS OF ANTICIPATED PROFITS, REVENUE, PRODUCTION, USE, REPUTATION, DATA OR CROPS.

ASSISTANCE

To obtain assistance or information regarding this warranty, please contact your local sales representative or a Daikin Applied office.

Form No. 933-430285Y-01-A (11/2023)
Part No. 043028500 Rev.0F



Rooftop Equipment Warranty Registration Form

To comply with the terms of Daikin Applied Warranty, complete and return this form within 10 days to the Warranty Department of Daikin Applied.

Check, test, and start procedure for Rooftop roof mounted air conditioners with or without heat recovery and roof mounted air handlers.

GENERAL INFORMATION

Job Name: _____ Unit No.: _____
 SOI No.: _____
 Installation address: _____
 City: _____ State: _____
 Purchasing contractor: _____
 City: _____ State: _____
 Name of person doing start-up: _____
 Company name: _____
 Address: _____
 City/State/Zip: _____

UNIT INFORMATION

Unit model number: _____	Unit serial number: _____
Compressor 1 model number: _____	Serial number: _____
Compressor 2 model number: _____	Serial number: _____
Compressor 3 model number: _____	Serial number: _____
Compressor 4 model number: _____	Serial number: _____
Compressor 5 model number: _____	Serial number: _____
Compressor 6 model number: _____	Serial number: _____



Rooftop Equipment Warranty Registration Form (continued)

Select Yes or No. If not applicable to the type of unit, select N/A.

I. INITIAL CHECK

- A. Is any shipping damage visible? ☐ Yes ☐ No ☐ N/A
- B. Are fan drives properly aligned and belts properly adjusted? ☐ Yes ☐ No ☐ N/A
- C. Tightened all setscrews on pulleys, bearings and fans? ☐ Yes ☐ No ☐ N/A
- D. Have the hold-down bolts been backed off on spring mounted fan isolators? ☐ Yes ☐ No ☐ N/A
- E. Do fans turn freely? ☐ Yes ☐ No ☐ N/A
- F. Has the discharge static pressure reference line been properly located within the building? ☐ Yes ☐ No ☐ N/A
- G. Electrical service corresponds to unit nameplate? ☐ Yes ☐ No ☐ N/A
- G1. Voltage at Terminal Block | Disconnect 1-2 _____ V 2-3 _____ V 1-3 _____ V
- H. Is the main disconnect adequately fused and are fuses installed? ☐ Yes ☐ No ☐ N/A
- I. Are crankcase heaters operating, and have they been operating 24 hours prior to start-up? ☐ Yes ☐ No ☐ N/A
- J. Are all electrical power connections tight? (Check compressor electrical box.) ☐ Yes ☐ No ☐ N/A
- K. Is the condensate drain trapped? ☐ Yes ☐ No ☐ N/A

II. FAN DATA

- A. Check rotation of supply fan? ☐ Yes ☐ No ☐ N/A
- B. Voltage at supply fan motor: 1-2 _____ V 2-3 _____ V 1-3 _____ V
- C. Supply fan motor amp draw per phase: L1 _____ L2 _____ L3 _____
- D. Fuse sizes: _____
- E. What is the supply fan rpm? _____
- F. Check rotation of return fan? ☐ Yes ☐ No ☐ N/A
- G. Voltage at return fan motor: 1-2 _____ V 2-3 _____ V 1-3 _____ V
- H. Return fan motor amp draw per phase: L1 _____ L2 _____ L3 _____
- I. Fuse sizes: _____
- J. What is the return fan rpm? _____
- K. Record supply static pressure at unit in inches of H₂O: _____
- L. Record return static pressure at unit (with outside air dampers closed) in inches of H₂O: _____



Rooftop Equipment Warranty Registration Form (continued)

Select Yes or No. If not applicable to the type of unit, select N/A.

III. START-UP COMPRESSOR OPERATION

A. Do compressors have holding charges?

Circuit #1. ☐ Yes ☐ No ☐ N/A

Circuit #2. ☐ Yes ☐ No ☐ N/A

B. Are compressors rotating in the right direction? ☐ Yes ☐ No ☐ N/A

C. Do condenser fans rotate in the right direction? ☐ Yes ☐ No ☐ N/A

D. Ambient temperature (°F): _____

E. Does unit start up and perform per sequence of operation? ☐ Yes ☐ No ☐ N/A

IV. PERFORMANCE DATA

A. Compressor voltage across each phase: 1-2 _____ V 2-3 _____ V 1-3 _____ V

B. Compressor amperage of fully loaded compressor: Compressor #1 — Phase 1 _____ Phase 2 _____ Phase 3 _____

Compressor #2 — Phase 1 _____ Phase 2 _____ Phase 3 _____

Compressor #3 — Phase 1 _____ Phase 2 _____ Phase 3 _____

Compressor #4 — Phase 1 _____ Phase 2 _____ Phase 3 _____

Compressor #5 — Phase 1 _____ Phase 2 _____ Phase 3 _____

Compressor #6 — Phase 1 _____ Phase 2 _____ Phase 3 _____

C. Low pressure cut-out: Circuit 1 _____ psig Circuit 2 _____ psig

D. Low pressure cut-in: Circuit 1 _____ psig Circuit 2 _____ psig

E. High pressure cut-out: Circuit 1 _____ psig Circuit 2 _____ psig

F. Discharge pressure, one compressor: Circuit 1 _____ psig Circuit 2 _____ psig

G. Discharge pressure, fully loaded, 2-3 compressors: Circuit 1 _____ psig Circuit 2 _____ psig

H. Suction pressure, one compressor: Circuit 1 _____ psig Circuit 2 _____ psig

I. Suction pressure, fully loaded, 2-3 compressors: Circuit 1 _____ psig Circuit 2 _____ psig

J. Liquid press, fully loaded, 2-3 compressors (at liquid line shutoff valve): . . . Circuit 1 _____ psig Circuit 2 _____ psig

K. Liquid temperature, fully loaded, 2-3 compressors: Circuit 1 _____ psig Circuit 2 _____ psig

L. Suction line temperature: _____ °F _____ °F

M. Superheat: _____ °F _____ °F

N. Subcooling: _____ °F _____ °F

O. Is the liquid in the line sightglass clear and dry? ☐ Yes ☐ No ☐ N/A

P. Does the hot gas bypass valve function properly? ☐ Yes ☐ No ☐ N/A



Rooftop Equipment Warranty Registration Form (continued)

Select Yes or No. If not applicable to the type of unit, select N/A.

Q. At what suction pressure does the hot gas bypass valve open? Circuit 1 _____ psig Circuit 2 _____ psig

R. Record discharge air temperature at discharge of unit: _____ °F

S. Are all control lines secure to prevent excessive vibration and wear? ☐ Yes ☐ No ☐ N/A

T. Are all gauges shut off and valve caps and packings tight after start-up? ☐ Yes ☐ No ☐ N/A

V. ELECTRIC HEAT CHECK, TEST & START

A. Electrical heat service corresponds to unit nameplate? ☐ Yes ☐ No ☐ N/A

Volts _____ Hertz _____ Phase _____

B. Are there any signs of physical damage to the electric heat coils? ☐ Yes ☐ No ☐ N/A

C. Have all electrical terminals been tightened? ☐ Yes ☐ No ☐ N/A

D. Does sequence controller stage contactors properly? ☐ Yes ☐ No ☐ N/A

E. Electric heater voltage across each phase: _____ L1 _____ L2 _____ L3

F. Amp draw across each phase at each heating stage:

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Phase L1:	_____	_____	_____	_____	_____	_____
Phase L2:	_____	_____	_____	_____	_____	_____
Phase L3:	_____	_____	_____	_____	_____	_____

G. FLA: L1 _____ L2 _____ L3 _____

H. Operate electric heat with fans off. Electric heat must cycle on high limit control ☐ Yes ☐ No ☐ N/A

VI. GAS BURNER CHECK, TEST, & START

Specifications:

For gas, see **Forced Draft Gas Burner Installation and Maintenance Bulletin**. (IM 684 and IM 685)

A. Gas Furnace: Model no. _____

B. Gas Burner: Model no. _____ Serial no. _____

C. Gas Rated firing rate (MBH input): _____

D. Gas Altitude (ft. above sea level): _____

E. Input (CFH): _____

F. Gas pressure at burner (inches w.c.): _____

G. CO₂ (%): _____

H. CO₂ (%): _____

I. Pilot flame only in microamps (steady at low fire): _____

J. Pilot Tap-gas pressure (inches w.c.): _____

K. Motor only/burner FLA running amps: _____

L. High limit control OK? ☐ Yes ☐ No ☐ N/A

M. Flame safeguard (microamps): _____



Rooftop Equipment Warranty Registration Form (continued)

Select Yes or No. If not applicable to the type of unit, select N/A.

N. Flame failure shutoff (seconds): _____

O. Airswitch OK? ☐ Yes ☐ No ☐ N/A

P. High Gas Pressure Switch OK? ☐ Yes ☐ No ☐ N/A

Q. Low Gas Pressure Switch OK? ☐ Yes ☐ No ☐ N/A

R. Main Gas Valve Close-off OK? ☐ Yes ☐ No ☐ N/A

S. Modulation Gas Heat Performance

Gas Pressure

Mod. Valve

Reg. Valve

25% _____ in Wc. 25% _____ in Wc.

50% _____ in Wc. 50% _____ in Wc.

75% _____ in Wc. 75% _____ in Wc.

100% _____ in Wc. 100% _____ in Wc.

VII. Hot Water Coil

A. Pressure test OK? ☐ Yes ☐ No ☐ N/A

VIII. Heat Recovery

A. Heat wheel rotates freely? ☐ Yes ☐ No ☐ N/A

B. Heat wheel VFD operates properly? ☐ Yes ☐ No ☐ N/A

C. Heat wheel VFD Model No. _____ Serial No. _____

D. Check for air bypass around heat wheel. ☐ Yes ☐ No ☐ N/A

IX. Design Flow Calibration

A. Verify power is supplied to the MicroTech III unit controller ☐ Yes ☐ No ☐ N/A

B. Verify that the shipping screws have been removed from the measuring station vane ☐ Yes ☐ No ☐ N/A

C. Examine station for damage ☐ Yes ☐ No ☐ N/A

D. Record Level Position after calibration

• LH Level Position _____

• RH Level Position _____

NOTE: This is viewed in the MicroTech III controller, in the Min OA setup menu.



Rooftop Equipment Warranty Registration Form (continued)

Select Yes or No. If not applicable to the type of unit, select N/A.

- X. Have all electronic or electrical controls been checked, adjusted, and tested for proper operation per the installation and maintenance bulletins?

..... ☐ Yes ☐ No ☐ N/A

XI. MAINTAINING MICROTECH CONTROL PARAMETER RECORDS

After the unit is checked, tested, and started and the final control parameters are set, record the final settings. Keep these records on file and update whenever changes to the control parameters are made. Keeping a record facilitates any required analysis and troubleshooting of the system operation and facilitates restoration after a controller replacement.

Thank you for completing this form. Please sign and date below.

Signature _____ Startup date: _____

Return completed form by mail to:

Daikin Warranty Department, 13600 Industrial Park Boulevard, Minneapolis, MN 55441

or by email to: AAH.Wty_WAR_forms@daikinapplied.com

Please fill out the Daikin Applied "Quality Assurance Survey Report" and list any additional comments that could affect the operation of this unit; e.g., shipping damage, failed components, adverse installation applications, etc. If additional comment space is needed, write the comment(s) on a separate sheet, attach it to the Survey Report and return it to the Warranty Department of Daikin Applied with the completed Equipment Warranty Registration form.

Submit Form

Clear Form



Quality Assurance Survey Report

To whom it may concern:

Please review the items below upon receiving and installing our product. Select N/A on any item that does not apply to the product.

Job Name: _____ **Daikin Applied S.O. No.** _____

Installation address: _____

City: _____ **State:** _____

Purchasing contractor: _____

City: _____ **State:** _____

Name of person doing start-up (print): _____

Company name: _____

Address: _____

City/State/Zip: _____

Unit model number: _____ **Unit serial number:** _____

1. Is there any shipping damage visible? Yes ☐ No ☐ N/A ☐

Location on unit _____

2. How would you rate the overall appearance of the product; i.e., paint, fin damage, etc.? Excellent ☐ Good ☐ Fair ☐ Poor ☐

3. Did all sections of the unit fit together properly? Yes ☐ No ☐ N/A ☐

4. Did the cabinet have any air leakage? Yes ☐ No ☐ N/A ☐

Location on unit _____

5. Were there any refrigerant leaks? Yes ☐ No ☐ N/A ☐

From where did it occur? Shipping ☐ Workmanship ☐ Design ☐

6. Does the refrigerant piping have excessive vibration? Yes ☐ No ☐ N/A ☐

Location on unit _____

7. Did all of the electrical controls function at start-up? Yes ☐ No ☐ N/A ☐

Comments _____

8. Did the labeling and schematics provide adequate information? Yes ☐ No ☐ N/A ☐

9. How would you rate the serviceability of the product? Excellent ☐ Good ☐ Fair ☐ Poor ☐

10. How would you rate the overall quality of the product? Excellent ☐ Good ☐ Fair ☐ Poor ☐

11. How does the quality of Daikin Applied products rank in relation to competitive products? Excellent ☐ Good ☐ Fair ☐ Poor ☐

Comments _____

Please list any additional comments which could affect the operation of this unit; i.e., shipping damage, failed components, adverse installation applications, etc. If additional comment space is needed, write the comment(s) on a separate sheet, attach the sheet to this completed Quality Assurance Survey Report, and return it to the Warranty Department with the completed preceding "Equipment Warranty Registration Form".

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UNIT HEATERS | FAN COILS | AIR PURIFIERS | WATER SOURCE HEAT PUMPS
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