

# INSTALLATION INSTRUCTIONS FOR P7TQ MODELS

**PACKAGED ROOFTOP AC UNIT WITH OPTIONAL ELECTRIC HEAT,  
UNIT SIZES 072 (6-TON), 090 (7.5-TON), 120 (10-TON), AND 150 (12.5-TON)**



## IMPORTANT

### ATTENTION INSTALLERS:

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

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

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

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## IMPORTANT SAFETY INFORMATION

Please read all instructions before servicing this equipment. Pay attention to all safety warnings and any other special notes highlighted in the manual. Safety markings are used frequently throughout this manual to designate a degree or level of seriousness and should not be ignored.

**WARNING** indicates a potentially hazardous situation that if not avoided, could result in personal injury or death.

**CAUTION** indicates a potentially hazardous situation that if not avoided, may result in minor or moderate injury or property damage.

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### **WARNING:**

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

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### **WARNING:**

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Do not place combustible material on or against the unit cabinet. Do not place combustible materials, including gasoline and any other flammable vapors and liquids, in the vicinity of the unit.

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### **WARNING:**

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**PROPOSITION 65 WARNING:** This product contains fiberglass insulation. Disturbing the insulation of this product during installation, maintenance, or repair may expose you to fiberglass insulation.

- Breathing this material may cause respiratory irritations.
- Fiberglass insulation may also cause eye irritation, skin sensitization, or other allergic responses in susceptible individuals.
- Always wear goggles, disposable gloves, long sleeved shirt, and appropriate breathing protection when working near this insulation. If contact with skin occurs, wash immediately with soap and water. In case of contact with eyes, flush immediately with water for at least 15 minutes. Contact a physician if needed.

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### **WARNING:**

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Rooftop installations with vertical ducts must be provided with a 90 degree elbow installed in the supply duct to comply with U.L. (Underwriters Laboratories) codes for use with electric heat so the elements are not directly over a supply grille.

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### **WARNING:**

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

- This equipment contains liquid and gaseous refrigerant under high pressure. Installation or servicing should only be performed by qualified trained personnel thoroughly familiar with this type equipment.
- Before beginning the installation, verify that the unit model is correct for the job. The unit model number is printed on the data label.
- Follow all precautions in the literature, on tags, and on labels provided with the equipment. Read and thoroughly understand the instructions provided with the equipment prior to performing the installation and operational checkout of the equipment.
- This unit is designed only for outdoor installations and should be located with consideration of minimizing the length of the supply and return ducts.
- The installer should become familiar with the unit's wiring diagram before making any electrical connections to the unit. See the unit wiring label or [Figure 15 \(page 31\)](#), [Figure 16 \(page 33\)](#), [Figure 17 \(page 35\)](#), [Figure 18 \(page 37\)](#), [Figure 19 \(page 39\)](#), [Figure 20 \(page 41\)](#), [Figure 21 \(page 43\)](#), [Figure 22 \(page 45\)](#), [Figure 23 \(page 47\)](#), and [Figure 24 \(page 49\)](#).
- Use caution when handling this appliance or removing components. Personal injury can occur from sharp metal edges present in all sheet metal constructed equipment.

## REQUIREMENTS AND CODES

- **This equipment must be installed in accordance with instructions outlined in this manual and all applicable local building codes.**
- All electrical wiring must be completed in accordance with local, state and national codes and regulations and with the National Electric Code (ANSI/NFPA 70) or in Canada the Canadian Electric Code Part 1 CSA C.22.1.
- The installer must comply with all local codes and regulations which govern the installation of this type of equipment. Local codes and regulations take precedence over any recommendations contained in these instructions. Consult local building codes and the National Electrical Code (ANSI CI) for special installation requirements.
- Air Ducts must be installed in accordance with the standards of the National Fire Protection Association “Standards for Installation of Air Conditioning and Ventilation Systems” (NFPA 90A), “Standard for Installation of Residence Type Warm Air Heating and Air Conditioning Systems” (NFPA 90B), these instructions, and all applicable local codes.
- Consult [Table 2 \(page 11\)](#), and the rating plate for the proper circulating air flow and temperature rise. It is important that the duct system be designed to provide the correct flow rates and external pressure rise. An improperly designed duct system can result in nuisance shutdowns, and comfort or noise issues.
- This unit is designed for outdoor installations only and should be located as described on [page 4](#).
- The information listed below is for reference purposes only and does not necessarily have jurisdiction over local or state codes. Always consult with local authorities before installing this appliance.

### Duct Systems

- US and CANADA: Air Conditioning Contractors Association (ACCA) Manual D, Sheet Metal and Air Conditioning Contractors National Association (SMACNA), or American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Fundamentals Handbook

### Electrical Connections

- US: National Electrical Code (NEC) ANSI/NFPA 70
- CANADA: Canadian Electrical Code CSA C22.1

### General Installation

- US: Current edition of the NFPA 90B. For copies, contact the National Fire Protection Association Inc., Batterymarch Park, Quincy, MA 02269; or American Gas Association, 400 N. Capitol, N.W., Washington DC 20001 or [www.NFPA.org](#)
- CANADA: NSCNGPIC. For a copy, contact Standard Sales, CSA International, 178 Rexdale Boulevard, Etobicoke (Toronto), Ontario, M9W 1R3 Canada

### Safety

- US: (NFGC) NFPA 54–1999/ANSI Z223.1 and the Installation Standards, Warm Air Heating and Air Conditioning Systems ANSI/NFPA 90B.
- CANADA: CAN/CSA-B149.1 and .2–M00 National Standard of Canada. (NSCNGPIC)

## GENERAL INFORMATION

### About the Rooftop Unit

Single Package Electric Cooling Rooftop Units are designed only for outdoor rooftop or ground level installations and can be readily connected to the duct system of a building.

This unit has been tested for capacity and efficiency in accordance with AHRI Standards and will provide many years of safe and dependable comfort, providing it is properly installed and maintained. With regular maintenance, this unit will operate satisfactorily year after year. Abuse, improper use, and/or improper maintenance can shorten the life of the appliance and create unsafe hazards.

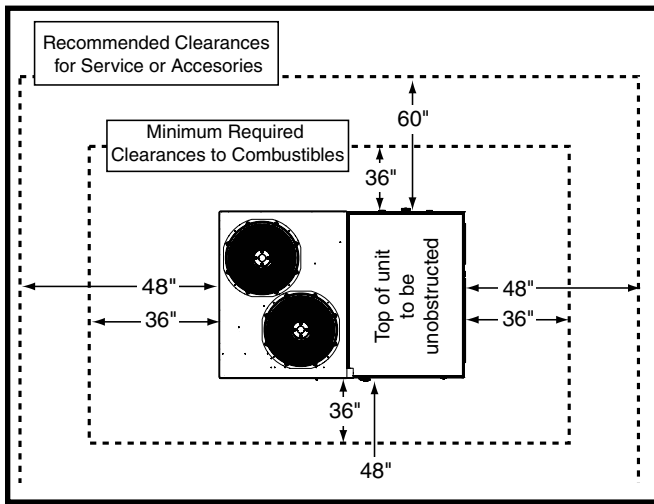
To achieve optimum performance and minimize equipment failure, it is recommended that periodic maintenance be performed on this unit. The ability to properly perform maintenance on this equipment requires certain tools and mechanical skills.

### Before You Install this Equipment

- ✓ The cooling load of the area to be conditioned must be calculated and a system of the proper capacity selected. It is recommended that the area to be conditioned be completely insulated and vapor sealed.
- ✓ Check the electrical supply and verify the power supply is adequate for unit operation. Consideration should be given to availability of electric power, service access, noise, and shade. If there is any question concerning the power supply, contact the local power company.
- ✓ All units are securely packed at the time of shipment and upon arrival should be carefully inspected for damage prior to installing the equipment at the job site. Verify coil fins are straight. If necessary, comb fins to remove flattened or bent fins. Claims for damage (apparent or concealed) should be filed immediately with the carrier.
- ✓ Please consult your dealer for maintenance information and availability of maintenance contracts. Read all instructions before installing the unit.

### Locating the Unit

- Survey the job site to determine the best location for the packaged unit. The unit should be located with consideration of minimizing the length of the supply and return ducts. If practical, place the equipment and its ducts in an area where they will be shaded from the afternoon sun, when the heat load is greatest.
- For Horizontal installations: select a solid, level position, preferably on a concrete slab, slightly above the grade level, and parallel to the building.
- Overhead obstructions, poorly ventilated areas, and areas subject to accumulation of debris should be avoided. Do not place the unit in a confined space or recessed area where discharge air from the unit could re-circulate back through the condenser coil.
- Sufficient clearance for unobstructed airflow through the louvered control access panel and outdoor coil must be maintained in order to achieve rated performance. See [Figure 1 \(page 5\)](#) for minimum clearance requirements.
- **If minimum clearances to combustibles are greater than recommended serviceability clearances, then clearances to combustibles must take precedence.**



**Figure 1. Unit Clearance Requirements**

### Heating Load

This unit should be sized to provide the design heating load requirement. Heating load estimates can be made using approved methods available from Air Conditioning Contractors of America (Manual N); American Society of Heating, Refrigerating, and Air Conditioning Engineers; or other approved engineering methods.

### CIRCULATING AIR SUPPLY

## **⚠ WARNING:**

**Do not allow combustion products from other equipment or building vents to enter the return air ductwork or the circulating air supply. 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.**

**All return ductwork must be adequately sealed, all joints must be taped, and the ductwork must be secured to the unit with sheet metal screws. When return air is provided through the bottom of the unit, the joint between the unit and the return air plenum must be air tight.**

**The roof curb or cement pad that the unit is mounted to must provide sound physical support of the unit with no gaps, cracks, or sagging between the unit and pad.**

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

This unit is designed only for use with a supply and return duct. Air ducts should be installed in accordance with the standards of the National Fire Protection Association "Standard for Installation of Air Conditioning Systems" (NFPA

90A), "Standard for Installation of Residence Type Warm Air Heating and Air Conditioning Systems" (NFPA 90B), and all applicable local codes. NFPA publications are available by writing to: National Fire Protection Association, Batterymarch Park, Quincy, ME 02269 or visit their website: [www.nfpa.org](http://www.nfpa.org).

- Design the duct work according to Manual Q by the Air Conditioning Contractors of America (ACCA) or similar commercial methods.
- If roof curb is installed, the ducts must be attached to the curb hangers, not the unit.
- Duct work should be attached directly to the unit end panel for horizontal applications.
- If a combination of indoor and outdoor air is used, the ducts and damper system must be designed so that the return air supply to the furnace is equal to the return air supply under normal, indoor return air applications.
- This unit is shipped ready for vertical duct connections and is easily converted for horizontal duct connections.

### Unconditioned Spaces

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

### Acoustical Ductwork

Certain installations may require the use of acoustical lining inside the supply duct work.

- Acoustical insulation must be in accordance with the current revision of the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) application standard for duct liners.
- Duct lining must be UL classified batts or blankets with a fire hazard classification of FHC-25/50 or less.
- Fiber duct work may be used in place of internal duct liners if the fiber duct work is in accordance with the current revision of the SMACNA construction standard on fibrous glass ducts. Fibrous duct work and internal acoustical lining must be NFPA Class 1 air ducts when tested per UL Standard 181 for Class 1 ducts.

### Air Filter Requirements

## **⚠ WARNING:**

**Never operate the unit without a filter in place. Dust and lint could accumulate on internal parts, resulting in loss of efficiency, equipment damage and possible fire.**

All return air must pass through the filters before entering the unit. It is important that all filters be kept clean and replaced frequently to ensure proper operation of unit. Dirty or clogged filters will reduce the efficiency of the unit and result in unit shutdowns. Air filter pressure drop must not exceed 0.08 inches WC. When replacing the air filters, a suitable air filter must be installed ahead of the evaporator coil of the return air system. Refer to [Table 1](#) for recommended filter sizes.

UNIT	FACTORY FILTER SIZE	QTY
P7TQ-072, 090, 120	20 × 20 × 2	4
P7TQ-150	20 × 25 × 2	4

**Table 1. Filter Sizes and Quantities**

## UNIT INSTALLATION

### Packaging Removal

All units have been securely packaged at the point of shipment. After unpacking the unit, carefully inspect for apparent and concealed damage. Claims for damage should be filed with the carrier by the consignee.

1. Remove any shipping brackets. **DO NOT remove base rails from unit.**
2. Inspect unit thoroughly for shipping damage.
3. Carefully lower and position unit to its permanent location.

### Rigging and Hoisting

#### **WARNING:**

To avoid the risk of property damage, personal injury, or death, it is the rigger's responsibility to ensure that whatever means are used to hoist the unit are safe and adequate:

- The lifting equipment must be adequate for the load. Refer to [Table 4 \(page 18\)](#) for unit weights.
- The unit must be lifted from the holes in the base rails using cables or chains.
- Spreader bars are required to protect the unit and ensure even loading. See [Figure 2](#).
- Keep the unit in an upright position at all times. The rigging must be located outside the unit's center of gravity. Refer to [Table 4 \(page 18\)](#) for locating the center of gravity.
- All panels must be securely in place during rigging and hoisting.

### Minimum Clearance Requirements

P7TQ units are certified as combination heating and cooling equipment for outdoor installation only. [Figure 1 \(page 5\)](#) displays the minimum clearances to combustible materials for both Downflow and Horizontal discharge.

P7TQ units may be installed on non-combustible surfaces when used with bottom supply and return air ducts. Units may be installed on wood flooring or on Class A, B, or C roof covering material as long as the following requirements are met:

- If using side supply with return air ducts, the unit must be converted for horizontal connections. Refer to Vertical to Horizontal section below. **NOTE:** This must be converted prior to unit installation.
- If using vertical discharge and return air ducts a roof curb must be installed prior to unit installation. See Rigging and Hoisting section ([page 6](#)) for setting of the unit.

### Vertical to Horizontal Conversion

The unit is shipped ready for downflow duct connections. If horizontal ducts are required, the unit must be converted prior to attaching duct work to unit.

1. Remove both return and supply horizontal duct covers. Do not discard the screws or covers. They will be used to cover the openings in the bottom of the unit. See [Figure 3](#).
2. Cut both return and supply openings following along the tabbed cutouts. **NOTE:** There are tabs on the inside and the outside of the panels. Discard the cut sections when done. These will not be needed. [Figure 4](#).

### IMPORTANT NOTE:

Use caution when cutting left vertical side of return air panel. The filter rack is in close proximity to opening

3. Install the duct covers (removed in step 1) over the openings in the bottom of the unit. **NOTE:** Apply adhesive around the perimeter of both openings before setting the duct covers into position.
4. Align the predrilled locating holes and secure the duct covers with screws removed in step 1.

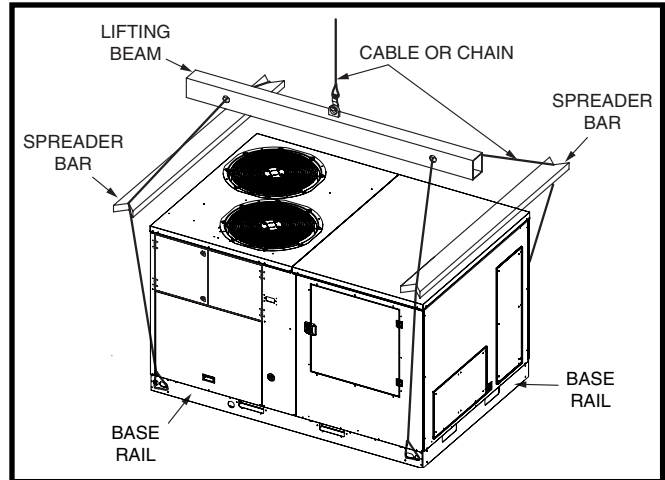


Figure 2. Rigging and Hoisting

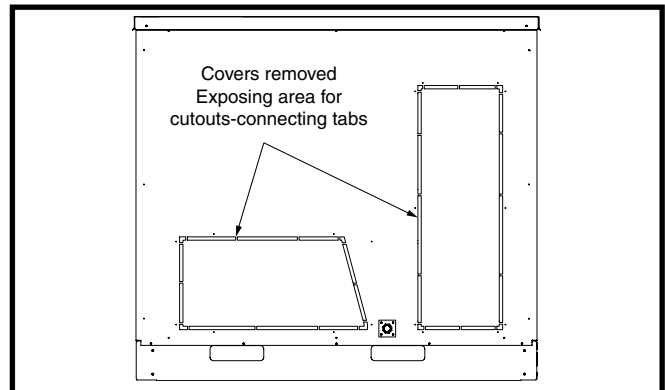


Figure 3. Vertical to Horizontal Conversion (Right-Side View)

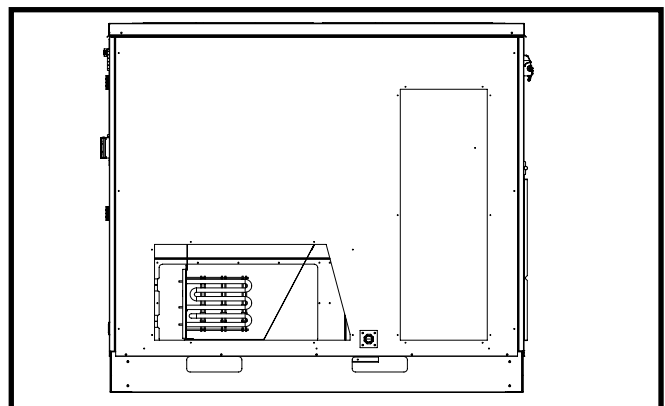


Figure 4. Cutouts removed (Right Side view)

## Roftop Mounting

Roftop installations must be located according to local building codes or ordinances and these requirements:

- The roof must be capable of handling the weight of the unit. For unit weights, see [Table 4 \(page 18\)](#). Reinforce the roof if necessary.
- The appropriate accessory roof curb ([Figure 5](#)) must be installed prior to unit installation. See available roof curb height offering in the Technical Sales Literature. The roof curb must be square and level to ensure proper condensate drainage. **Please follow all instructions provided with the kit.**

## WARNING:

**Never drill or punch holes in unit base when installing downflow units. Leakage may occur if bottom pan is punctured.**

- On bottom discharge applications, the supply and return air ducts must be attached to the roof curb duct supports, not the unit. Install all ductwork before setting unit on curb or frame.
- Frame support must be constructed using noncombustible materials. Full perimeter support is required under the unit. Supports must be made of steel or weather resistant wooden materials. The unit must be square and level to ensure proper condensate drainage.
- The frame must be high enough to ensure prevention of any moisture from entering the unit. Recommended height to unit base is 8" for both downflow and horizontal installations.
- Secure roof curb or frame to roof using acceptable mechanical methods per local codes.

## Ground Level

Ground level installations must be located according to local building codes or ordinances and these requirements:

- Clearances must be in accordance with those shown in [Figure 1 \(page 5\)](#).
- A mounting pad [Figure 6](#) must be provided and separate from the building foundation. The pad must be level to ensure proper condensate disposal and strong enough to support the unit's weight. Slab height must be a minimum of 3" (8 cm) above grade and with adequate drainage.
- When using horizontal supply with return air ducts, the unit must be converted for horizontal connections prior to unit installation. Refer to the Vertical to Horizontal Conversion section on [page 6](#).

## Condensate Drain

The method for disposing of condensate varies according to local codes. Consult your local code or authority having jurisdiction.

Condensate is drained from the unit through a 1" (25 mm) PVC pipe located on end of the unit ([Figure 7](#)). For proper drainage, install a 3" (8 cm) minimum trap between the drain line and an open vent of the same size. Avoid areas where condensate drainage may cause problems.

The condensate drain line must be J-trapped using field supplied parts and may be combined with other drain lines when routed to the drain.

When connecting rigid drain line, hold any fittings with a wrench to prevent twisting. **Do not overtighten!**

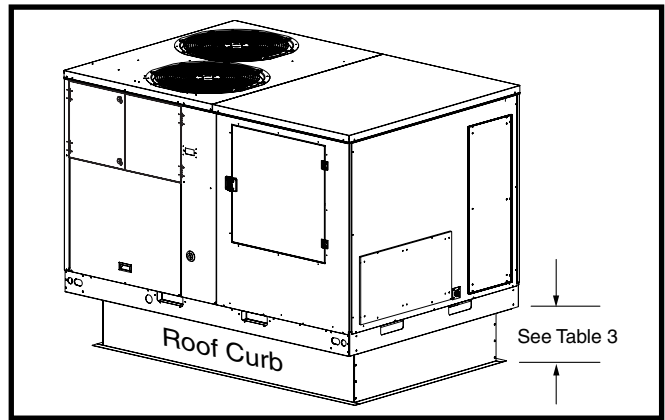


Figure 5. Roof Curb

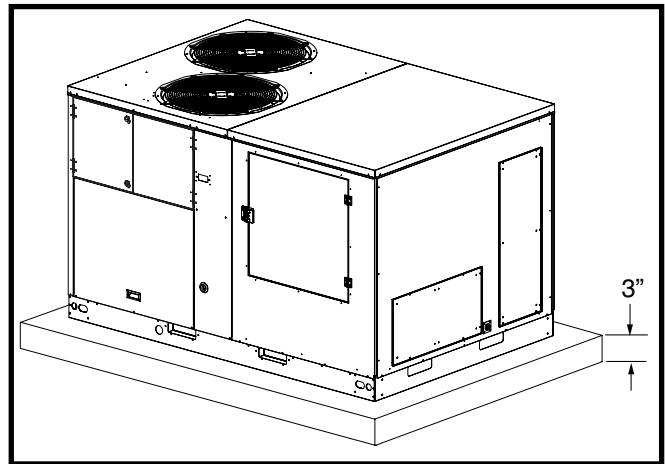


Figure 6. Mounting Pad

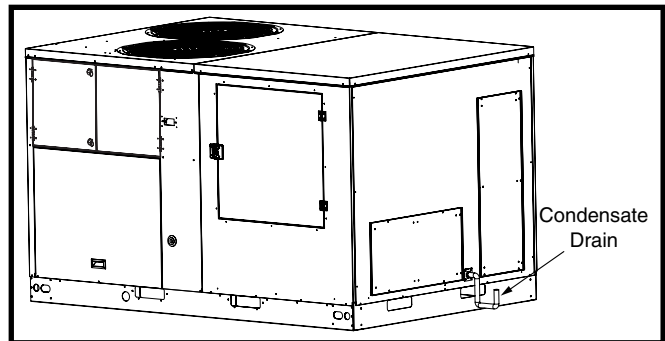


Figure 7. Condensate Drain

## ELECTRICAL WIRING

### **WARNING:**

#### **ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD**

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

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

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

#### **Pre-Electrical Checklist**

- ✓ Verify that the voltage, frequency, and phase of the supply source match the specifications on the unit rating plate.
- ✓ Verify that the service provided by the utility is sufficient to handle the additional load imposed by this equipment. For proper MCA/MOP data see the unit wiring label or [Table 17 \(page 51\)](#) or [Table 18 \(page 52\)](#).
- ✓ Verify factory wiring is in accordance with the unit wiring diagram. Inspect for loose connections.
- ✓ For 3 phase units always check the phase balance. See [page 8](#).

#### **Line Voltage**

- Electrical connections must be in compliance with all applicable local codes and ordinances, and with the current revision of the National Electric Code (ANSI/NFPA 70). For Canadian installations the electrical connections and grounding shall comply with the current Canadian Electrical Code (CSA C22.1 and/or local codes).
- Provide power supply for the unit in accordance with the unit wiring diagram and the unit rating plate. The line voltage to the unit should be supplied from a dedicated branch circuit containing the correct fuse or circuit breaker for the unit.
- **An electrical disconnect must be located within sight of and readily accessible to the unit.** This switch shall be capable of electrically de-energizing the outdoor unit. See unit data label for proper incoming field wiring. Any other wiring methods must be acceptable to authority having jurisdiction.
- A wiring diagram is located on the inside cover of the control access panel of the outdoor unit. The installer should become familiar with the wiring diagrams before making any electrical connections to the outdoor unit. See [Figure 15 \(page 31\)](#), [Figure 16 \(page 33\)](#), [Figure 17 \(page 35\)](#), [Figure 18 \(page 37\)](#), [Figure 19 \(page 39\)](#), [Figure 20 \(page 41\)](#), [Figure 21 \(page 43\)](#), [Figure 22 \(page 45\)](#), [Figure 23 \(page 47\)](#), and [Figure 24 \(page 49\)](#).
- If any of the original wires supplied with the unit must be replaced, they must be replaced with material of the same voltage, gauge, and temperature rating.
- Connect the line-voltage leads to the terminals on the 3-pole terminal block (inside the control compartment).
- Use only copper wire for the line voltage power supply to this unit. Use proper code agency listed conduit and

connector for connecting the supply wires. Use of rain tight conduit is recommended.

- Units are shipped from the factory-wired for 230 or 460 volt operation. On 208-230V units being placed into 208 volt operation, remove the lead from the transformer terminal marked 240V and connect it to the terminal marked 208V.
- Overcurrent protection must be provided at the branch circuit distribution panel and sized as shown on the unit rating label and according to the National Electric Code and applicable local codes. **NOTE:** See the unit rating plate for maximum circuit ampacity and maximum overcurrent protection limits.

#### **Grounding**

### **WARNING:**

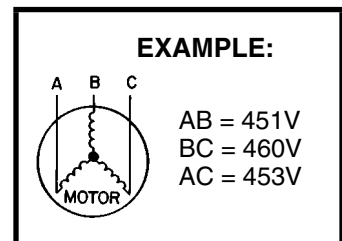
**The unit cabinet must have an uninterrupted or unbroken electrical ground to minimize personal injury if an electrical fault should occur. Do not use gas piping as an electrical ground!**

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

#### **Unbalanced 3-Phase Supply Voltage**

Voltage unbalance occurs when the voltages of all phases of a 3-phase power supply are no longer equal. This unbalance reduces motor efficiency and performance. Some underlying causes of voltage unbalance may include: Lack of symmetry in transmission lines, large single-phase loads, and unbalanced or overloaded transformers. A motor should never be operated when a phase imbalance in supply is greater than 2%. Perform the following steps to determine the percentage of voltage imbalance:

1. Measure the line voltages of your 3-phase power supply where it enters the building and at a location that will only be dedicated to the unit installation. (at the units circuit protection or disconnect).



2. Determine the average voltage in the power supply.

In this example, the measured line voltages were 451, 460, and 453. The average would be 454 volts ( $451 + 460 + 453 = 1,364 / 3 = 454$ ).

3. Determine the maximum deviation:

#### **EXAMPLE**

From the values given in step 1, the BC voltage (460V) is the greatest difference in value from the average:

$$\begin{aligned}460 - 454 &= 6 \\454 - 451 &= 3 \\454 - 453 &= 1\end{aligned}$$



4. Determine percent of voltage imbalance by using the results from steps 2 and 3 in the following equation.

<p><b>EXAMPLE</b></p> $100 \times \frac{6}{454} = 1.32\%$
-----------------------------------------------------------

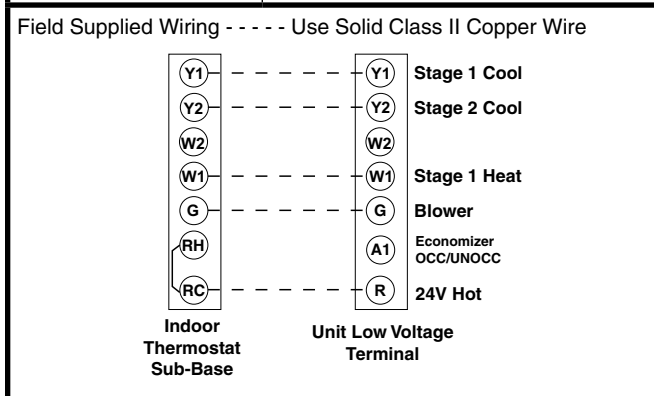
$$\% \text{ Voltage Imbalance} = 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

The amount of phase imbalance (1.32%) is satisfactory since the amount is lower than the maximum allowable 2%. Please contact your local electric utility company if your voltage imbalance is more than 2%.

**Thermostat/Low Voltage Connections**

- Single Package Electric Heating/Electric Cooling Rooftop Units are designed to operate with a 24VAC Class II control circuit. The control circuit wiring must comply with the current provisions of the NEC (ANSI/NFPA 70) and with applicable local codes having jurisdiction. Thermostat connections should be made in accordance with the instructions supplied with the thermostat.
- A two-stage cooling thermostat is required for P7TQ series units. Select a thermostat which operates in conjunction with the installed accessories. See Figure 10 for proper wire gauge and their recommended lengths for typical thermostat connections.
- The low voltage wires must be properly connected to the units low voltage terminal block. Route 24V control wires through the side of the unit. Recommended wire gauge and wire lengths for typical thermostat connections are shown in Figure 8.
- The thermostat should be mounted about 5 feet above the floor on an inside wall. DO NOT install the thermostat on an outside wall or any other location where its operation may be adversely affected by radiant heat from fireplaces, sunlight, or lighting fixtures, and convective heat from warm air registers or electrical appliances. Refer to the

T-Stat Wire Gauge	Recommended T-Stat Wire Length - Ft. (Unit to T-Stat)
20	60
18	150
16	250
14	350



**Figure 8. Typical 2 - Stage Heat/Cool Thermostat Connection**

thermostat manufacturer's instruction sheet for detailed mounting information.

**Heat Anticipator**

Verify if the thermostat being used for the installation has a heat anticipator setting. This function allows the thermostat to anticipate the space heating rate and time the burner to shutoff accordingly. Always refer to the thermostat manufacturer's instructions for the correct settings.

**Blower Speed**

The blower speed is preset at the factory but must be verified at each installation. For optimum system performance and comfort, it may be necessary to change the factory-set speed. Refer to Table 5 (page 20), Table 6 (page 21), Table 7 (page 22), Table 8 (page 23), Table 9 (page 24), Table 10 (page 25), Table 11 (page 26), Table 12 (page 26), Table 13 (page 27), Table 14 (page 28), Table 15 (page 29), and Table 16 (page 30) for proper blower performance data. Always ensure drive belt is secure and tensioned properly. Also inspect variable pitch sheaves for proper tightness of the set screws

**CAUTION:**

**To avoid personal injury or property damage, make certain that the motor leads do not make contact with any uninsulated metal components of the unit.**

To change blower speed on 2- and 3-HP 2-Speed Motors:

1. **Disconnect all electrical power to the unit** and open the blower access door.
2. Loosen the motor mounting nuts and mounting plate adjustment bolt to allow removal of the blower belt from the motor sheave.
3. Loosen top set screw on motor sheave and turn clockwise to close (increases blower speed), or counterclockwise to open (decreases blower speed).
4. Replace belt on pulleys and position motor mounting plate to correct position for proper belt tension.
5. Tighten motor nuts.

**3-HP/5-Speed HSD Motor Speed Change (6T-10T Option)**

Locate motor controller 10-pin plug. Speed taps 1 and 3 are suitable for most applications. Refer to High Static Drive airflow Tables 11 or 12 for additional speed tap selections to meet your specific application if required.

**Low-Speed Taps 1 and 2: Fan On "G" or Stage 1 Cooling call.**

- Relocate low voltage Violet wire from Tap #1 to tap 2.

**High-Speed Taps 3, 4, and 5: Stage 2 Cooling call.**

- Relocate low voltage (Orange wire) from Tap #3 to tap 4 or 5.

**NOTE:** Blower operates at the same heating and cooling speed.

With a Fan On or Stage 1 Cooling call from the thermostat, the blower will energize and run on low speed. When thermostat calls for Stage 2 cooling, the motor will ramp to high speed.

## STARTUP AND ADJUSTMENTS

### Pre-Start Checklist

- √ Verify unit is properly supported.
- √ Verify unit is level for proper condensate drainage.
- √ Verify all clearance requirements are met. Airflow to and from the outdoor coil must be unrestricted.
- √ Verify the ductwork is adequately sealed to prevent air leakage. Insulate if necessary.
- √ Verify the line voltage power leads are securely connected and the unit is properly grounded.
- √ Verify low voltage wires are securely connected to the correct leads in the low voltage area of the control box.
- √ Verify the indoor blower is properly set for the installation.
- √ Verify the outdoor fan turns freely.
- √ Verify the power supply branch circuit overcurrent protection is properly sized.
- √ Verify all exterior panels have been reinstalled and securely fastened.
- √ Verify the thermostat is wired correctly and preset for initial operation. Set the thermostat system switch to OFF and the fan switch to AUTO.

### Startup Procedures

---

## WARNING:

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**This unit is equipped with crankcase heaters. Allow 24 hrs for heating of the refrigerant compressor crankcase prior to start up and anytime the power has been removed for more than 12 hrs. Failure to comply may result in damage or cause premature failure of the system.**

---

#### IMPORTANT NOTE:

**Failure to follow the crankcase heater instructions for units equipped with microchannel coils may lead to a discharge pressure spikes which could cause the unit high pressure switch to trip. If this occurs, wait for unit pressures to equalize before depressing the manual reset switch and re-start the unit again.**

- Check all electrical wiring for loose connections and tighten as required.
- Check unit for return air filters and condensate trap.
- Close all electrical disconnects to energize the system.

### Air Circulation

1. Set thermostat system switch to OFF and the fan switch to ON.
2. Verify the blower motor runs continuously. Check for air delivery at the register(s). Ensure that there are no obstructions at the registers or in the ductwork.
3. Set thermostat fan switch to AUTO and verify the blower shuts down immediately.

**NOTE:** If blower is turning opposite of arrow direction, shut off main power to the unit and switch any two field wires at the disconnect. **DO NOT alter unit wiring.**

### System Cooling

1. Set the thermostat system switch to COOL and the fan switch to AUTO.
2. Lower the thermostat temperature switch below room temperature and observe that the blower, both compressors

- and fans) energize.
3. Verify blower is turning in direction indicated by arrow and air discharged at the register is cooler than room temperature.
4. Verify HI and LO refrigerant pressures.

**NOTE:** If refrigerant pressures are abnormal and blower is rotating in the opposite direction of the arrow, shut off main power to the unit and switch any two field wires at the disconnect. Ensure proper rotation of the blower. **DO NOT** alter unit wiring. Listen for any unusual noises. Locate the source and correct as needed.

5. Allow the unit to run for several minutes. Set the temperature selector above room temperature and verify that the fan, blower, and compressors cycle off with the thermostat.

### System Heating - Field Installed Electric Heat

This packaged air conditioner is designed to allow an optional electric heat kit to be field installed as required by the building's particular heating load. The options available for each unit are shown in the heater kit installation instructions or unit's Technical Service Literature. Install the heater kits as directed by the instruction manual provided with the heater kit. Follow all cautions and warnings as directed. Use only factory-authorized heater kits.

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## WARNING:

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**Uninsulated live components are exposed when control access panel is removed.**

---

1. Set the thermostat to above room temperature.
2. Verify that the compressor and outdoor fan motor are not energized and the electric heat is energized.
3. After the unit has run for approximately five minutes, set the thermostat below room temperature and verify that the electric heat has de-energized.

### Verifying Temperature Rise

1. Place thermometers in the return and supply air stream as close to the unit as possible. The thermometer on the supply air side must be shielded against direct radiation from the electric heat elements to avoid false readings.
2. Adjust all registers and duct dampers to the desired position. Run the unit for 10 to 15 minutes before taking any temperature readings. The temperature rise is the difference between the supply and return air temperatures.

**NOTE:** For typical duct systems, the temperature rise will fall near the value specified in the temperature rise table (with the blower speed at the factory-recommended setting). See [Table 2 \(page 11\)](#). If the measured temperature rise falls outside the specified rise, it may be necessary to change the blower speed. Lowering the blower speed increases the temperature rise and a higher speed decreases the temperature rise.

### Verifying Operation of Over-Temperature Limit Control (Field Installed Electric Heat)

To verify operation of the over-temperature limit control, make sure the louvered control access panel is in place and that there is power to the unit.

1. Block the return airflow to the unit by installing a close-off plate in place of or upstream of the filter.
2. Set the thermostat above room temperature and verify the unit operates with the correct sequence of operation. See Operating Sequence ([page 11](#)).

MODEL NUMBER	NOMINAL RATED CFM	TEMPERATURE RISE °F (°C)*			
		9 KW	18 KW	30 KW	35 KW
P7TQ072-*	2,550	11°F (6°C)	22°F (12°C)	37°F (21°C)	43°F (24°C)
P7TQ090-*	3,150	9°F (5°C)	18°F (10°C)	30°F (17°C)	35°F (19°C)
P7TQ120-*	3,450	8°F (4°C)	16°F (9°C)	27°F (15°C)	32°F (18°C)
P7TQ150-*	4,300	7°F (4°C)	13°F (7°C)	22°F (12°C)	26°F (14°C)

\*Temperature rise calculation = rise (°F) = (kW\*3413) / 1.08 / nominal CFM.

**NOTE:** For 208–230V electric heat kits operating @ 208 Volts, the kW rating is derated 25%, therefore temperature rise will be lower than the values in the table.

**Table 2. Heat Rise and Range**

**NOTE:** The over-temperature limit control should function to turn off the electric heat within approximately 1-2 minutes (exact time depends on the efficiency of the close-off when blocking the return air). The circulating air blowers should continue to run when the over-temperature limit control switch opens.

- Remove the close-off plate immediately after the over-temperature limit control opens. If the unit operates for more than four minutes with no return air, set the thermostat below room temperature, shut off power to the unit, and replace the over-temperature limit control.

### OPERATING SEQUENCE

The operating sequences for the heating, cooling, and fan modes are described below. Refer to the wiring diagrams: [Figure 15 \(page 31\)](#), [Figure 16 \(page 33\)](#), [Figure 17 \(page 35\)](#), [Figure 18 \(page 37\)](#), [Figure 19 \(page 39\)](#), [Figure 20 \(page 41\)](#), [Figure 21 \(page 43\)](#), [Figure 22 \(page 45\)](#), [Figure 23 \(page 47\)](#), and [Figure 24 \(page 49\)](#).

#### Cooling Mode

- On a call for cooling the thermostat closes, applying 24VAC to **Y1**, **G**, and **Y2** if Stage 2 cooling is calling.
- G** applies 24VAC to the main circulating blower circuit.
- Y1** and **Y2** apply 24VAC through all safety switches before energizing their respective contactors.
- When the thermostat is satisfied the contactors are de-energized.
- The circulating blower motor de-energizes immediately.

#### Heating Mode (Optional Electric Heat)

- On a call for heat, the thermostat closes, applying 24VAC to the **W1** terminal and the circulating blower circuit.
- When the thermostat is satisfied the contactors are de-energized.
- The circulating blower motor de-energizes immediately.

#### Blower Mode

- On a call for fan operation, the thermostat applies 24VAC directly to the blower contactor.
- The circulating blower is energized immediately.

#### Unit Fails to Operate

If the unit does not operate properly in either the heating or cooling mode, be certain to check the following:

- The thermostat is operating properly.
- Electrical power to the unit is turned on.
- All safety switches are closed.
- The service doors are in place.
- Transformer circuit breaker is reset.

### TROUBLESHOOTING

If the unit does not operate properly in the cooling mode, check the following:

- The thermostat is operating properly.
- Electrical power to the unit is turned on.
- All safety switches are closed.
- The service doors are in place.
- Transformer circuit breaker is reset.

If the unit does not operate properly in the heating mode, check the following:

- The thermostat is operating properly.
- Electrical power to the unit is turned on.
- All safety switches are closed.
- The service doors are in place.
- Transformer circuit breaker is reset.

### REFRIGERANT CHARGING

## WARNING:

**If repairs make it necessary for evacuation and charging, it should only be done by qualified, trained personnel thoroughly familiar with this equipment. Some local codes require licensed installation/service personnel to service this type of equipment. Under no circumstances should the owner attempt to install and/or service this equipment.**

**Failure to comply with this warning could result in property damage, personal injury, or death.**

The P7TQ Series packaged electric units are fully charged at the factory and when installed accordingly, no charging is required. The refrigerant charge can be checked and adjusted through the service ports provided on the units. Use only gauge lines which have a “Schrader” depression device present to actuate the valve.

Refrigerant charging must be done by qualified personnel familiar with safe and environmentally responsible refrigerant handling procedures. See Unit Rating Plate for the proper type and amount of refrigerant.

## Charging Charts and Application Notes

This equipment's cooling systems contain refrigerant under high pressure, always use safe practices when servicing the unit. Always review the factory literature and safety warnings prior to servicing.

All P7TQ units are shipped from the factory with the proper amount and type of refrigerant. Always inspect the unit rating label to determine the unit's information prior to working on the system. Do not mix different refrigerants or charge the unit with a refrigerant not listed on the unit rating label.

The charging charts are valid for a variety of indoor, return air conditions and are most highly influenced by the outdoor ambient temperature, outdoor fan operation and the unit operating voltage. Before referencing the charts, always ensure that all compressor circuits are energized and have stable operation. As can be seen in the charging charts, the ideal system sub-cooling can vary over the range of operation. Always reference the charts to determine the ideal amount of sub-cooling for a given liquid pressure. See [Figure 9](#), [Figure 10](#), [Figure 11 \(page 13\)](#), and [Figure 12 \(page 14\)](#). Units charged to other values will not perform at the rated unit efficiency (EER). See [Table 3](#).

To inspect a systems operation, using quality instruments, match the measured liquid temperature to the units chart. The measured liquid pressure reading should be within 3% of the value shown for most installations. For two stage systems, the charts are valid for both compressor stages.

**Do not** utilize the charts for two stage systems operating only under a single stage call for cooling.

**Do not** utilize the charts in systems that do not have all the outdoor fans energized, or have the fans cycling under a low-ambient control. Refer to the low-ambient kit instructions for more information, if applicable.

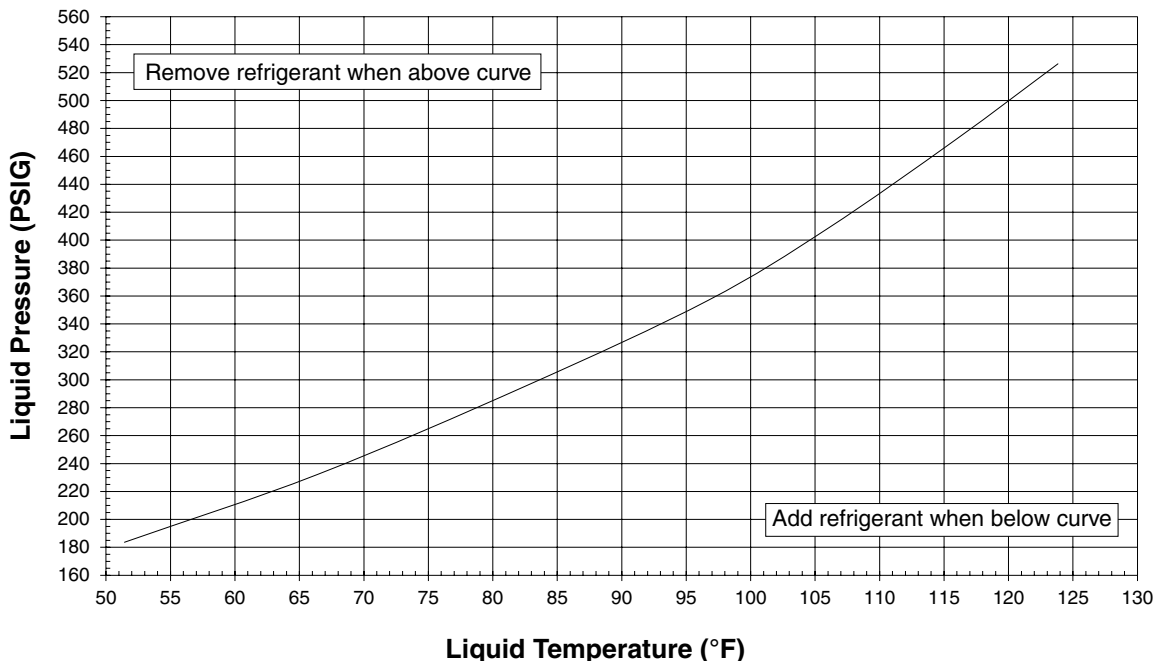
For systems that are operating with more than a 5% deviation, inspect the unit for leaks first and see Note in [Table 3](#). Always use safe and environmentally sound methods for refrigerant handling. When repairing system leakages, always utilize a nitrogen (inert) gas to protect the refrigerant system and pressure check the repair before re-charging. Always replace the filter-dryers when performing any repair to the refrigeration system. After completing the repairs, evacuate the system to 350-500 microns and weight in the refrigerant to the amount specified on the unit rating label.

NOMINAL TONNAGE	STAGE 1 CHARGE LEVEL	STAGE 2 CHARGE LEVEL
6	126 Oz.	N/A
7 1/2	93 Oz.	94 Oz.
10	97 Oz.	94 Oz.
12 1/2	112 Oz.	114 Oz.

**NOTE:** If unit is unable to operate within above guidelines and equipped with an adjustable TXV, the TXV can be adjusted (not recommended) by turning CW to close (increase sub-cooling) and CCW to open (lower sub-cooling).

**Table 3. Refrigerant Charge Table**

### P7TQ-072 Charging Chart - Cooling (compressor operating at full load)



**Figure 9. P7TQ-072 Charging Chart (6-Ton)**

### P7TQ-090 Charging Chart - Cooling (both stages operating)

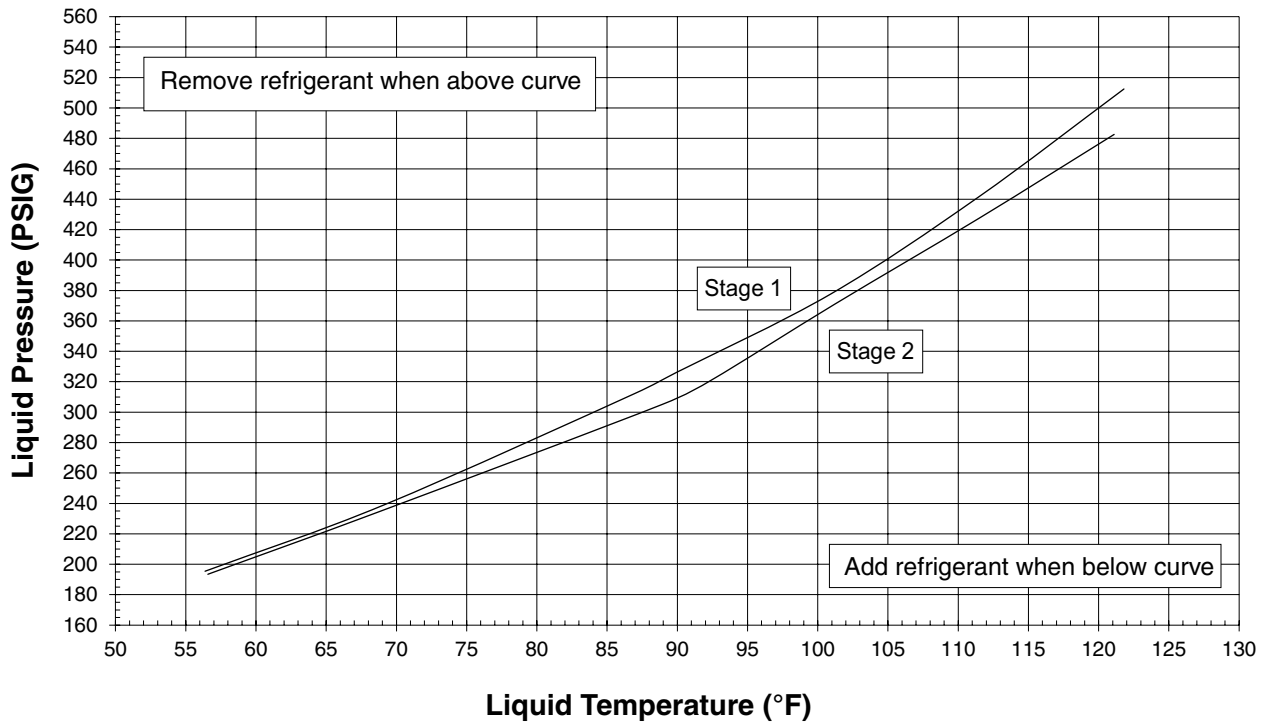


Figure 10. P7TQ-090 Charging Chart (7.5-Ton)

### P7TQ-120 Charging Chart - Cooling (both stages operating)

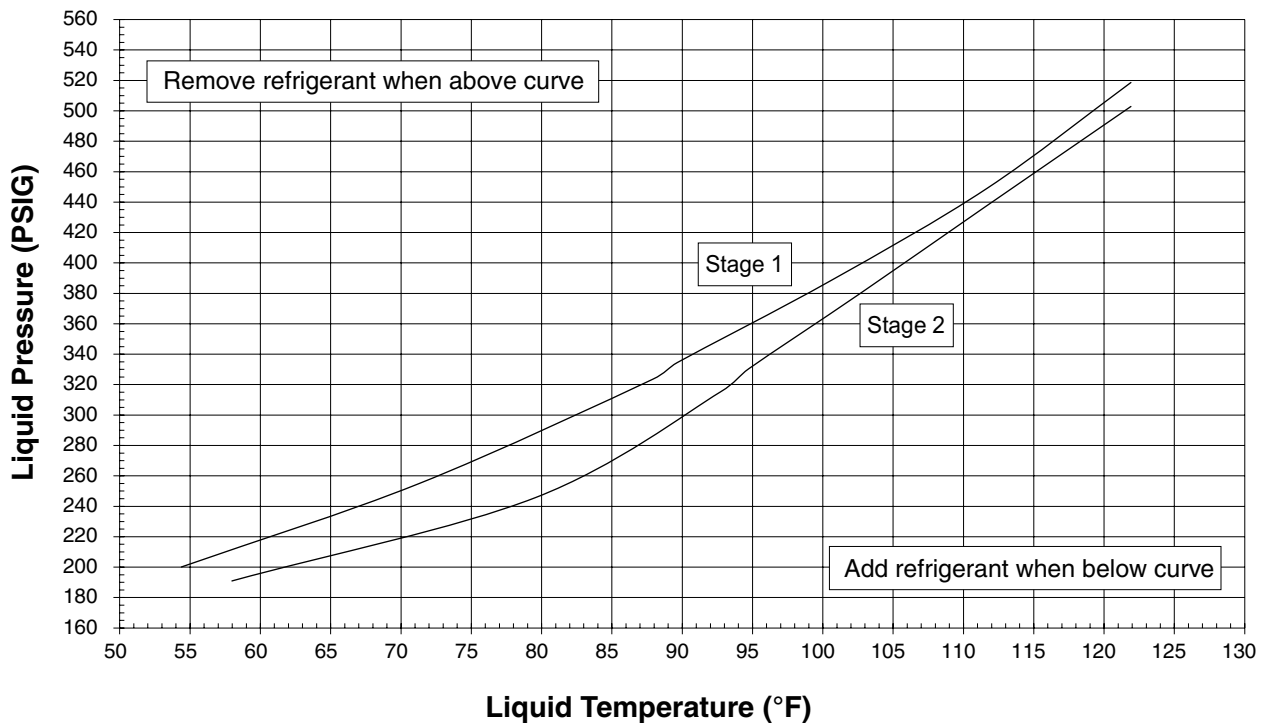
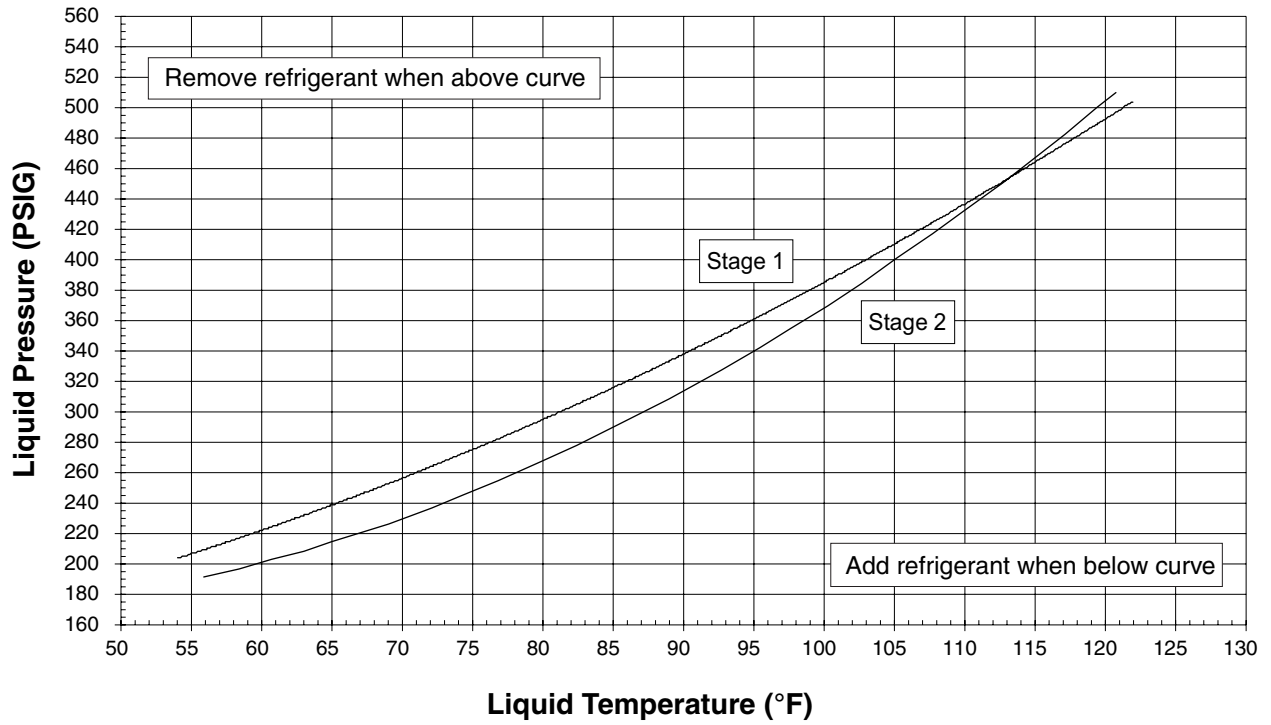


Figure 11. P7TQ-120 Charging Chart (10-Ton)

## P7TQ-150 Charging Chart - Cooling (both stages operating)



**Figure 12. P7TQ-150 Charging Chart (12.5-Ton)**

## UNIT MAINTENANCE

### **WARNING:**

#### **ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD**

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

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

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

**NOTE:** These maintenance instructions are primarily intended to assist qualified technicians experienced in the proper maintenance and operation of this appliance.

To achieve optimum performance from the air conditioner and minimize equipment failure, it is recommended that periodic maintenance be performed on this unit. The ability to properly perform maintenance on this equipment requires certain mechanical skills and tools. Please consult your dealer for maintenance information and availability of maintenance contracts.

#### **Routine Maintenance**

Please consult your dealer for maintenance information and availability of maintenance contracts. At a minimum, routine maintenance should include the following items:

### **CAUTION:**

**Use care when removing parts from this unit. Personal injury can result from sharp metal edges present in all equipment of sheet metal construction.**

#### Air Filters

### **WARNING:**

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

It is recommended that the air filters be inspected and cleaned or replaced every three to four weeks using filters of like size and kind. [Table 1 \(page 5\)](#) lists the factory-installed filter sizes and quantities for each unit. **NOTE:** P7TQ units are equipped with 2" pleated disposable filters.

#### Blower Compartment

Buildup of dirt and lint on the blower and motor can create excessive loads on the motor resulting in higher than normal operating temperatures and possible shortened service life. It is recommended that the blower compartment be cleaned monthly during heating and cooling seasons to remove any dirt and lint that may have accumulated in the compartment or on the blower and motor. Inspect the blower drive belt for cracks, excessive wear and proper tension after cleaning the compartment.

#### Condensate Drain and Outdoor Coil

Inspect the condensate drain and outdoor coil at the beginning of each cooling season. Remove any debris. Clean the outdoor coil and hail guard louvers (optional) as necessary using a mild detergent and water. Rinse thoroughly with water.

#### Electrical

### **WARNING:**

**This unit may have more than one electrical supply. To avoid risk of electrical shock, personal injury, or death, disconnect all electrical power to the unit before performing any maintenance or service.**

### **CAUTION:**

**Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.**

Inspect the electrical connections for tightness at the beginning of each heating and cooling season. Service as necessary.

#### Motor/Bearing Lubrication

### **WARNING:**

**Lubrication of the motors in this unit is not required. Do not lubricate any motor in this product.**

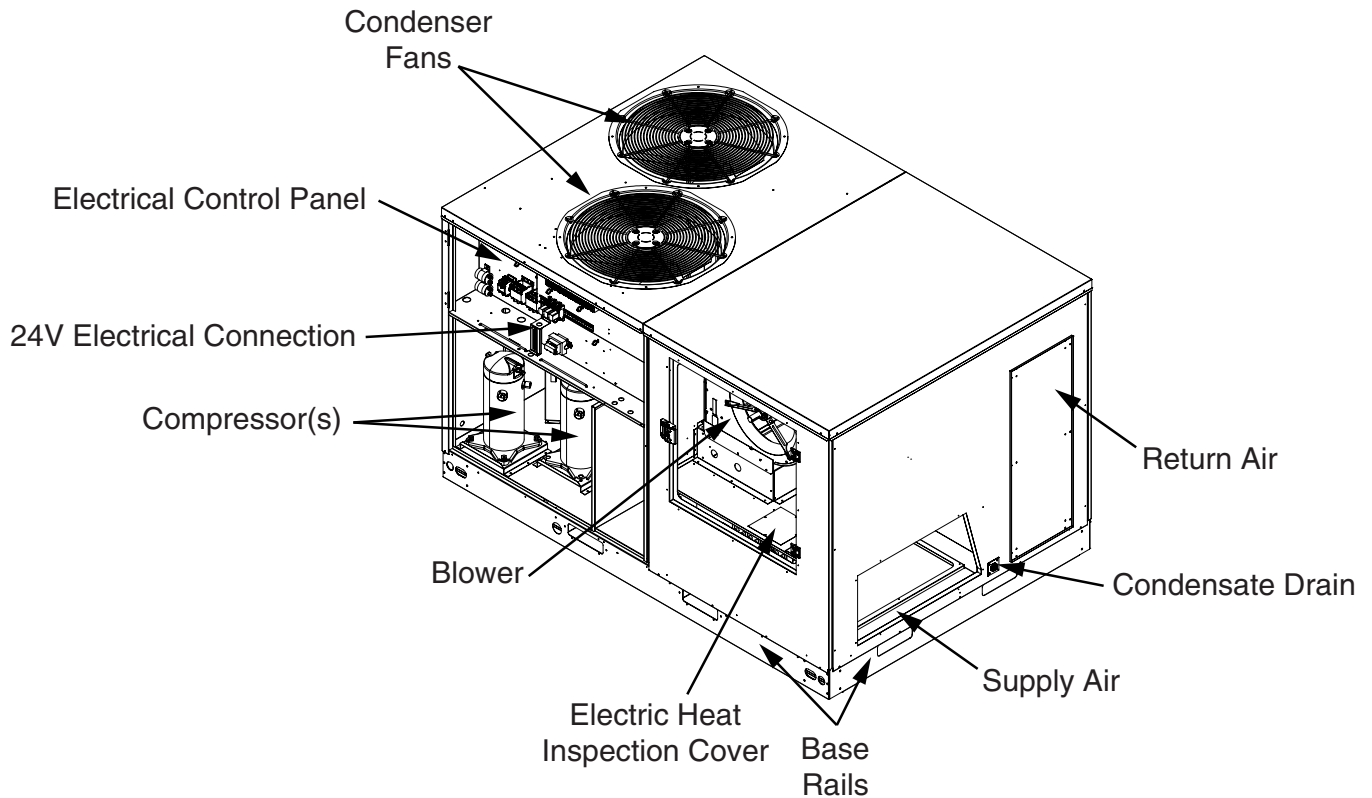
- The blower assembly in this unit is equipped with two support bearings. The support bearings are sealed cartridge units and require no further lubrication.
- The indoor blower motor is pre-lubricated at the factory and does not require additional lubrication.
- The outdoor fan motors are equipped with pre-lubricated sealed ball bearings. No further oiling is required for the life of this product.

## COMPONENT FUNCTIONS

The descriptions below are various functional components that affect the operation and shutting down of this unit. Some of these components and their locations are shown in [Figure 13](#). If any component on this unit must be replaced, use only factory-authorized replacement parts specified in the Replacement Parts List provided online.

**High Pressure Switch** - This factory-installed switch is designed to de-energize the unit when excessive pressure occurs due to abnormal conditions. Under normal conditions, the switch is closed. If the discharge pressure rises above 650 psig, then the switch will open and de-energize the outdoor unit. The switch is a manually reset type and will remain open until the button on top of the switch is depressed.

**Over-Temperature Limit Control** (Optional Electric Heat)-The over-temperature limit control acts to prevent the air temperature leaving the unit from exceeding the maximum outlet air temperature. If the limit opens, the blower limit relay will energize. The circulating air blower will continue to operate if the over-temperature limit control opens.



**Figure 13. Location of Unit Components**



# FIGURES AND TABLES

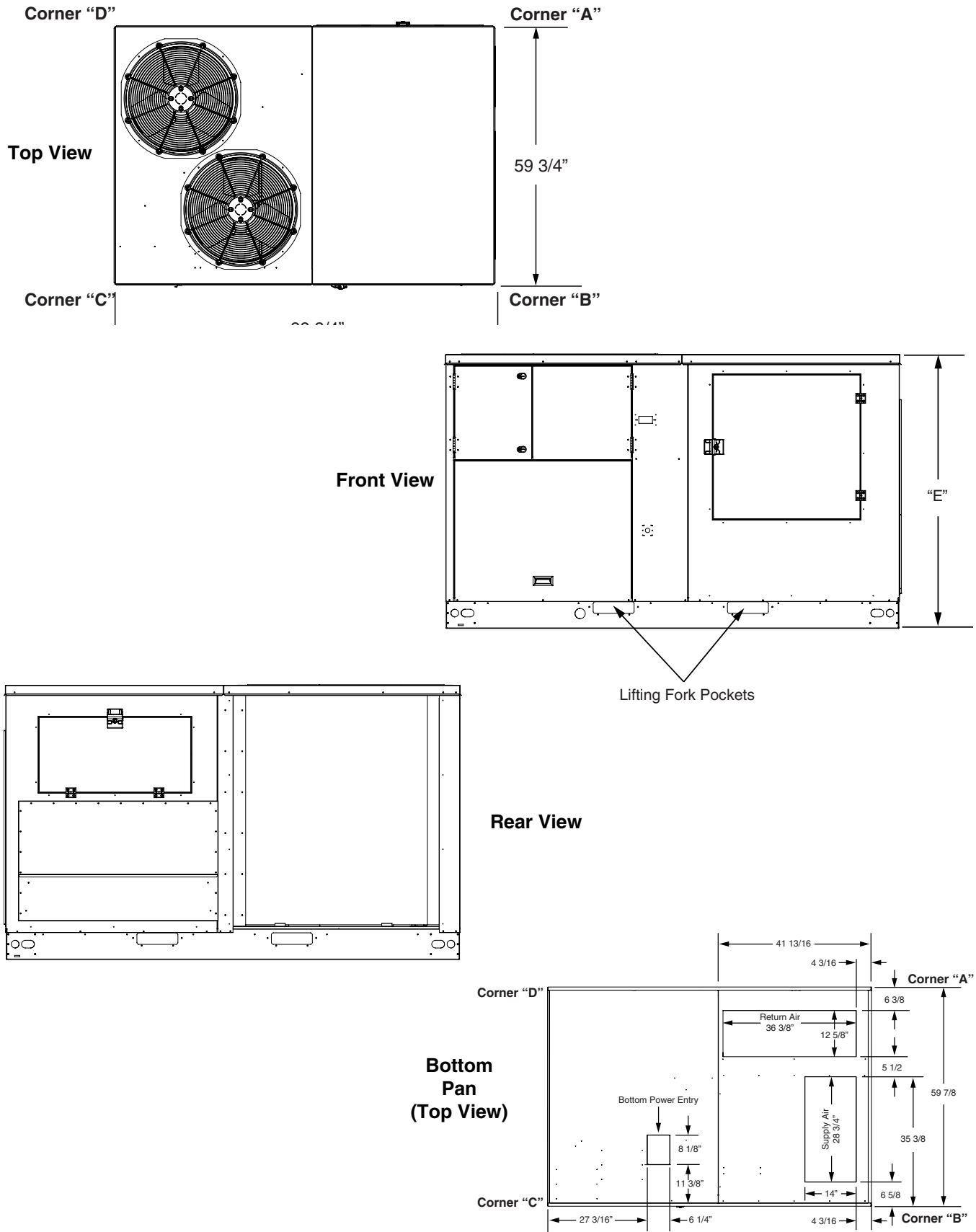


Figure 14. Physical Dimensions for P7TQ Units

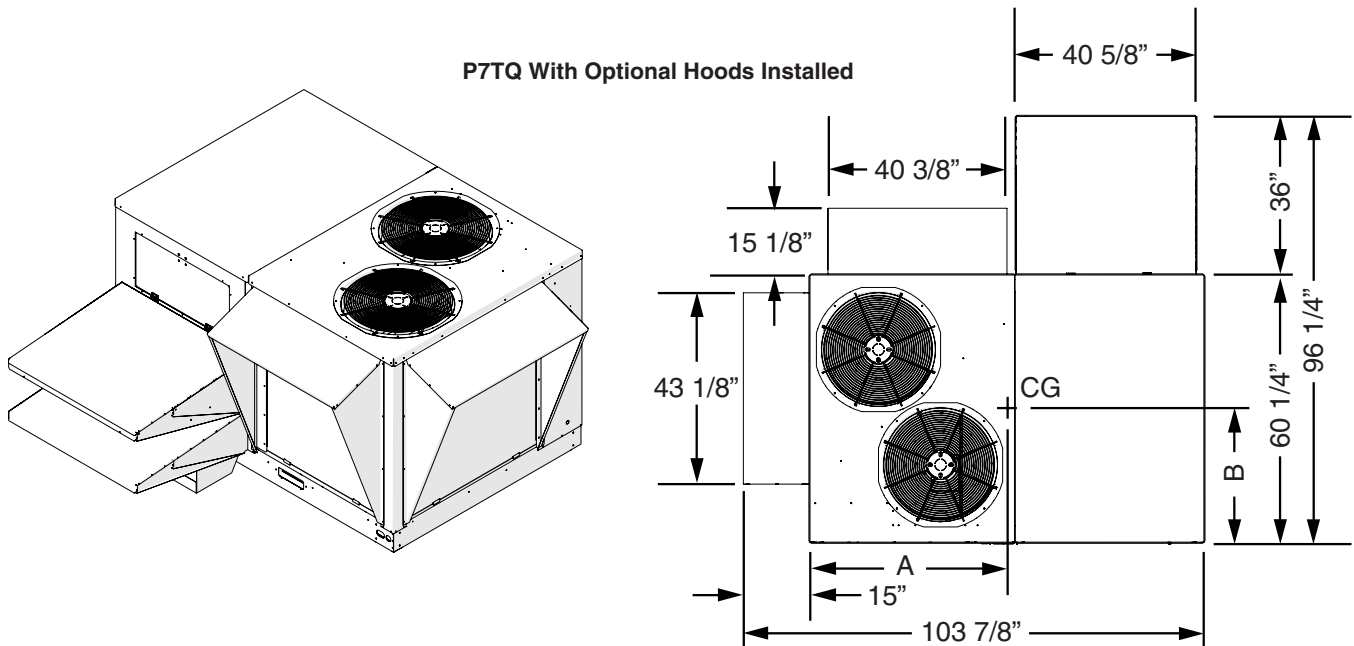
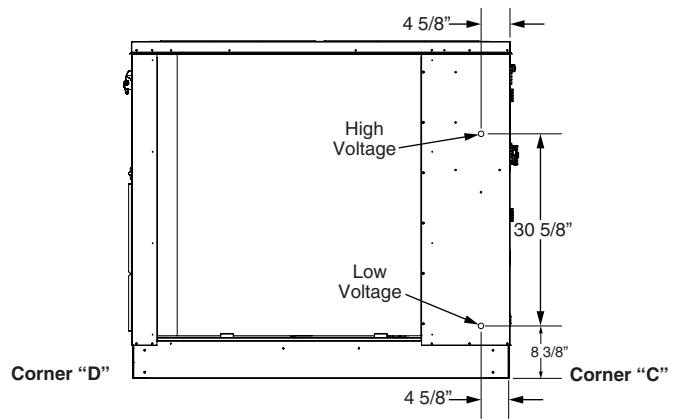
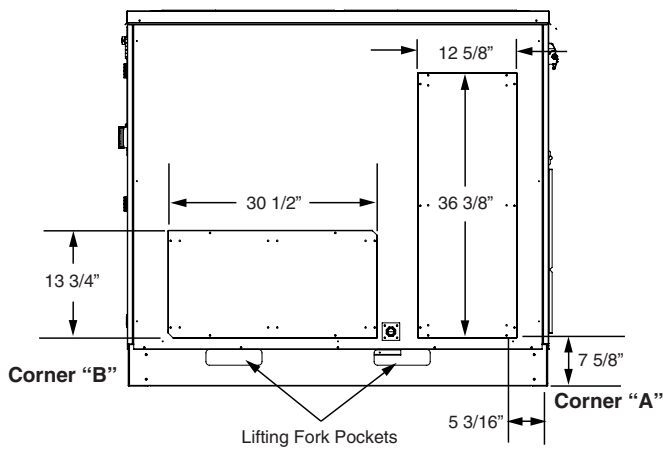


Figure 14. Continued

MODEL NUMBER	UNIT WEIGHT*		SHIPPING WEIGHT		CENTER OF GRAVITY (INCHES (MM))		CORNER WEIGHTS								UNIT HEIGHT (E) (INCHES (MM))**	
	LB	KG	LB	KG	A	B	A		B		C		D		HORIZONTAL DUCT APPLICATIONS	VERTICAL DUCT APPLICATIONS
							LB	KG	LB	KG	LB	KG	LB	KG		
P7TQ-072	1017	462	1139	517	50.5 (1283)	27.0 (686)	232	105	362	164	302	137	199	90		
P7TQ-090	1141	518	1263	574	46.5 (1181)	24.5 (622)	291	132	346	157	298	135	249	113	54 (1372)	48.5 (1232)
P7TQ-120	1155	525	1277	580		24 (610)	275	125	347	157	319	145	246	112		
P7TQ-150	1288	585	1410	641	46 (1168)	27.5 (699)	306	139	362	164	336	153	284	129	64 (1626)	58.5 (1486)

\*Unit weight without packaging or field installed accessories.

\*\*Baseraills are not intended to be removed. Information provided is total unit height for horizontal duct applications or height dimension added to selected roof curb height for vertical duct applications.

Table 4. Center of Gravity and Unit Shipping Weights

## Blower Performance Data

This equipment is outfitted with a belt driven blower assembly in order to accommodate a large variety of duct configurations and airflow selections. The blower has been factory-inspected for proper alignment, operation and rotational direction prior to the drive motor being situated in the shipping position. The blower drive belt is located with these instructions and must be installed by the service technician.

The factory standard drive installed in these units has been set to deliver 350-400 Cfm/ton at an External Static Pressure (ESP) of 0.25-0.30 in-Wg. [Table 5 \(page 20\)](#), [Table 6 \(page 21\)](#), [Table 7 \(page 22\)](#), [Table 8 \(page 23\)](#), [Table 9 \(page 24\)](#), [Table 10 \(page 25\)](#), [Table 11 \(page 26\)](#), [Table 12 \(page 26\)](#), [Table 13 \(page 27\)](#), [Table 14 \(page 28\)](#), [Table 15 \(page 29\)](#), and [Table 16 \(page 30\)](#) show the full blower curves of these drive configurations and can be utilized to easily set the adjustable motor sheave for alternate configurations. Refer to the Legend below for a description of the table information. After a sheave setting has been made, always inspect the blower amp draw to ensure that it is less than the service factor amps listed on the motor.

For units being placed into service configured for horizontal flow operation, make sure to note any required blower drive belt or pulley changes.

3493
1017
2.07

**Factory Low Static Setting:** Recommended operational point

<b>3862</b>
<b>1159</b>
<b>3.03</b>

**Optional Drive:** Recommended operational point

<i>2946</i>
<i>741</i>
<i>0.85</i>

*Italic font* Indicates an allowable setting that is not recommended for unit operation. These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

**P7TQ072-C/D/N SERIES**

**2-HP, 2-SPEED DOWNFLOW BLOWER DATA**  
Factory Standard and Medium Static Drive

HIGH-SPEED OPERATION												
EXTERNAL UNIT STATIC (IN WC)	OPERATING @ 230V, 460V, OR 575V	ADJUSTABLE MOTOR SHEAVE SETTING										
		FULLY CLOSED	0.5 TURN OPEN	1 TURN OPEN	1.5 TURNS OPEN	2 TURNS OPEN*	2.5 TURNS OPEN	3 TURNS OPEN	3.5 TURNS OPEN	4 TURNS OPEN	4.5 TURNS OPEN	5 TURNS OPEN
0.1	CFM					2780	2703	2626	2538	2460	2455	2450
	RPM					887	866	845	821	869	848	826
	kW					1.27	1.17	1.07	1.08	1.31	1.15	0.98
0.2	CFM				2728	2640	2545	2450	<b>2555</b>	<b>2330</b>	<b>2310</b>	<b>2290</b>
	RPM				907	888	867	846	<b>895</b>	<b>870</b>	<b>849</b>	<b>827</b>
	kW				1.40	1.27	1.20	1.14	<b>1.20</b>	<b>1.19</b>	<b>1.13</b>	<b>1.07</b>
0.3	CFM	2720	2670	2620	2535	2450	2380	2310	<b>2420</b>	<b>2170</b>	<b>2145</b>	<b>2120</b>
	RPM	978	952	926	908	889	868	847	<b>896</b>	<b>871</b>	<b>850</b>	<b>828</b>
	kW	1.39	1.38	1.36	1.29	1.23	1.17	1.11	<b>1.26</b>	<b>1.20</b>	<b>1.09</b>	<b>0.98</b>
0.4	CFM	2560	2525	2490	2390	2290	2230	<b>2460</b>	<b>2300</b>			
	RPM	980	954	927	909	890	869	<b>921</b>	<b>897</b>			
	kW	1.32	1.31	1.30	1.24	1.19	1.12	<b>1.15</b>	<b>1.14</b>			
0.5	CFM	2460	2355	2250	2236	<b>2570</b>	<b>2460</b>	<b>2350</b>				
	RPM	982	955	928	910	<b>966</b>	<b>945</b>	<b>924</b>				
	kW	1.25	1.22	1.21	1.21	<b>1.33</b>	<b>1.26</b>	<b>1.19</b>				
0.6	CFM	2260	<b>2670</b>	<b>2575</b>	<b>2488</b>	<b>2400</b>	<b>2300</b>	<b>2200</b>				
	RPM	963	<b>1026</b>	<b>1005</b>	<b>987</b>	<b>968</b>	<b>947</b>	<b>925</b>				
	kW	1.23	<b>1.52</b>	<b>1.46</b>	<b>1.33</b>	<b>1.21</b>	<b>1.11</b>	<b>1.01</b>				
0.7	CFM	<b>2620</b>	<b>2530</b>	<b>2440</b>	<b>2335</b>	<b>2230</b>	<b>2120</b>	<b>2010</b>				
	RPM	<b>1048</b>	<b>1027</b>	<b>1006</b>	<b>988</b>	<b>969</b>	<b>948</b>	<b>926</b>				
	kW	<b>1.48</b>	<b>1.47</b>	<b>1.45</b>	<b>1.33</b>	<b>1.20</b>	<b>1.10</b>	<b>0.99</b>				
0.8	CFM	<b>2510</b>	<b>2400</b>	<b>2290</b>	<b>2185</b>	<b>2080</b>						
	RPM	<b>1049</b>	<b>1028</b>	<b>1007</b>	<b>989</b>	<b>970</b>						
	kW	<b>1.42</b>	<b>1.36</b>	<b>1.29</b>	<b>1.20</b>	<b>1.11</b>						
0.9	CFM	<b>2310</b>	<b>2225</b>	<b>2140</b>								
	RPM	<b>1051</b>	<b>1030</b>	<b>1008</b>								
	kW	<b>1.41</b>	<b>1.34</b>	<b>1.28</b>								
1.0	CFM	<b>2210</b>										
	RPM	<b>1052</b>										
	kW	<b>1.40</b>										

LOW-SPEED OPERATION - FOR REFERENCE ONLY													
Low Static	0.1	CFM	1915	1828	1740	1715	1690	1619	1548	1486			
		RPM	657	639	620	585	550	556	561	547			
		kW	0.59	0.59	0.58	0.56	0.55	0.51	0.47	0.47			
	0.2	CFM	1680	1605	1530	1480	1430	1366	1302				
		RPM	658	640	621	589	556	559	562				
		kW	0.53	0.58	0.63	0.57	0.51	0.48	0.46				
	0.3	CFM	1440										
		RPM	659										
		kW	0.48										
Medium Static	0.2	CFM					<b>1920</b>	<b>1855</b>	<b>1790</b>	<b>1670</b>	<b>1550</b>	<b>1500</b>	<b>1450</b>
		RPM					<b>647</b>	<b>632</b>	<b>616</b>	<b>599</b>	<b>582</b>	<b>566.5</b>	<b>551</b>
		kW					<b>0.53</b>	<b>0.49</b>	<b>0.45</b>	<b>0.49</b>	<b>0.53</b>	<b>0.51</b>	<b>0.50</b>
	0.3	CFM	<b>1910</b>	<b>1855</b>	<b>1800</b>	<b>1780</b>	<b>1760</b>	<b>1660</b>	<b>1560</b>				
		RPM	<b>701</b>	<b>687</b>	<b>672</b>	<b>660</b>	<b>648</b>	<b>633</b>	<b>617</b>				
		kW	<b>0.65</b>	<b>0.63</b>	<b>0.61</b>	<b>0.56</b>	<b>0.51</b>	<b>0.52</b>	<b>0.53</b>				
	0.4	CFM	<b>1705</b>	<b>1653</b>	<b>1600</b>	<b>1560</b>	<b>1520</b>						
		RPM	<b>703</b>	<b>689</b>	<b>675</b>	<b>663</b>	<b>650</b>						
		kW	<b>0.59</b>	<b>0.59</b>	<b>0.58</b>	<b>0.53</b>	<b>0.49</b>						
	0.5	CFM	<b>1510</b>										
		RPM	<b>705</b>										
		kW	<b>0.58</b>										

**NOTES:**

- \* Denotes Recommended Sheave Setting.
- Boldface type indicates factory-recommended blower operating range.
- Values include losses for 2" standard air filters, unit casing, and dry evaporator coil.
- For 208V operation deduct approximately 0.5% from CFM shown.
- See Accessory Performance Data table for additional static pressure information.

**FACTORY DRIVE CONSISTS OF:**

12" x 12" FC Blower, 2-HP/2-Speed Motor  
1VP40 Sheave, BK77 Pulley Belt, and B57 Belt

**OPTIONAL DRIVE CONSISTS OF:**

Same except uses 1VP44 Motor Sheave.

**Table 5. P7TQ-072 C/D/N Series - Downflow Models**

**P7TQ-072C/D/N SERIES**

**2-HP, 2-SPEED, HORIZONTAL BLOWER DATA**  
Factory Standard and Medium Static Drive

HIGH-SPEED OPERATION												
EXTERNAL UNIT STATIC (IN WC)	OPERATING @ 230V, 460V, OR 575V	ADJUSTABLE MOTOR SHEAVE SETTING										
		FULLY CLOSED	0.5 TURN OPEN	1 TURN OPEN	1.5 TURNS OPEN	2 TURNS OPEN	2.5 TURNS OPEN	3 TURNS OPEN	3.5 TURNS OPEN	4 TURNS OPEN	4.5 TURNS OPEN*	5 TURNS OPEN
0.1	CFM											
	RPM											
	kW											
0.2	CFM											2800
	RPM											740
	kW											0.81
0.3	CFM									2700	2650	2600
	RPM									765	754	742
	kW									0.85	0.84	0.82
0.4	CFM								2735	2520	2460	2400
	RPM								802	767	756	744
	kW								0.88	0.86	0.85	0.83
0.5	CFM							2780	2525	2270	2205	2140
	RPM							838	804	769	758	746
	kW							0.90	0.89	0.87	0.86	0.84
0.6	CFM					2830	2685	2540	2255	1970	1880	1790
	RPM					880	860	839	804.5	770	759	747
	kW					0.89	0.90	0.91	0.89	0.87	0.86	0.85
0.7	CFM				2735	2600	2435	2270				
	RPM				904	882	862	841				
	kW				0.91	0.89	0.90	0.91				
0.8	CFM		2805	2680	2505	2330	2140	1950				
	RPM		945	931	908	884	865	845				
	kW		0.90	0.92	0.91	0.90	0.90	0.90				
0.9	CFM	2680	2545	2410	2220	2030						
	RPM	963	948	932	910	887						
	kW	0.87	0.91	0.94	0.93	0.91						
1.0	CFM	2410	2265	2120								
	RPM	963	949	934								
	kW	0.87	0.91	0.95								
LOW-SPEED OPERATION (FOR REFERENCE ONLY)												
0.1	CFM	2460	2405	2350	2278	2205	2133	2060	1955	1850	1825	1800
	RPM	639	629	618	604	589	575	560	537	514	509	503
	kW	0.70	0.74	0.78	0.77	0.76	0.75	0.74	0.73	0.71	0.73	0.75
0.2	CFM	2240	2200	2160	2070	1980	1890	1800	1675	1550	1500	1450
	RPM	637	628	619	605	591	576	562	538	514	510	505
	kW	0.71	0.74	0.78	0.77	0.76	0.75	0.75	0.73	0.72	0.74	0.76
0.3	CFM	2000	1940	1880	1775	1670	1565	1460	1318	1175		
	RPM	639	630	621	607	592	578	563	539	515		
	kW	0.72	0.74	0.76	0.76	0.76	0.75	0.75	0.74	0.73		
0.4	CFM	1690	1610	1530								
	RPM	643	633	623								
	kW	0.72	0.74	0.77								

**NOTES:**

- Boldface type indicates factory-recommended blower operating range.
- Values include losses for 2" standard air filters, unit casing, and dry evaporator coil.
- For 208V operation deduct approximately 0.5% from CFM shown.
- See Accessory Performance Data table for additional static pressure information.

**FACTORY DRIVE CONSISTS OF:**

12" x 12" FC Blower, 2-HP/2-Speed Motor  
1VP40 Sheave, BK77 Pulley, and B57 Belt.

**Table 6. P7TQ-072 C/D/N Series - Horizontal Models**

**P7TQ-090C/D/N SERIES**

**2-HP, 2-SPEED, DOWNFLOW BLOWER DATA**  
Factory Standard Static Drive

HIGH-SPEED OPERATION												
EXTERNAL UNIT STATIC (IN WC)	OPERATING @ 230V, 460V OR 575V	ADJUSTABLE MOTOR SHEAVE SETTING										
		FULLY CLOSED	0.5 TURN OPEN	1 TURN OPEN	1.5 TURNS OPEN	2 TURNS OPEN	2.5 TURNS OPEN	3 TURNS OPEN	3.5 TURNS OPEN*	4 TURN OPEN	4.5 TURNS OPEN	5 TURNS OPEN
0.1	CFM						3625	3520	3420	3320	3205	3090
	RPM						762	742	722	702	683	663
	kW						1.42	1.34	1.24	1.14	1.07	1.00
0.2	CFM				3700	3570	3495	3420	3275	3130	2985	2840
	RPM				803	783	763	743	723	703	684	664
	kW				1.52	1.40	1.33	1.25	1.16	1.06	1.00	0.94
0.3	CFM		3725	3650	3525	3400	3300	3200	3085	2970	2815	2660
	RPM		838	823	804	785	765	744	724	704	685	665
	kW		1.70	1.60	1.49	1.38	1.30	1.22	1.12	1.02	0.93	0.84
0.4	CFM	3630	3545	3460	3355	3250	3130	3010	2885	2760		
	RPM	853	839	824	806	787	766	745	725	705		
	kW	1.75	1.63	1.50	1.39	1.29	1.23	1.17	1.05	0.92		
0.5	CFM	3520	3425	3330	3205	3080	2940	2800				
	RPM	854	840	825	807	788	767	746				
	kW	1.67	1.55	1.44	1.35	1.27	1.19	1.11				
0.6	CFM	3310	3230	3150	3025	2900	2745	2600				
	RPM	855	841	826	808	789	768	747				
	kW	1.60	1.48	1.36	1.25	1.14	1.08	1.01				
0.7	CFM	3170	3040	2910	2790	2690						
	RPM	856	843	829	810	791						
	kW	1.51	1.40	1.28	1.19	1.10						
0.8	CFM	2940	2745	2550								
	RPM	857	844	831								
	kW	1.42	1.33	1.25								
0.9	CFM	2660										
	RPM	858										
	kW	1.37										
LOW-SPEED OPERATION (FOR REFERENCE ONLY)												
0.1	CFM	2560	2505	2450	2375	2300	2215	2130	2050	1970	1930	1890
	RPM	572	562	551	540	528	514	500	487	473	458	443
	kW	0.73	0.69	0.65	0.59	0.54	0.53	0.52	0.63	0.73	0.56	0.39
0.2	CFM	2320	2240	2160	2110	2060	1945	1830	1745	1660	1630	1600
	RPM	573	563	552	541	530	516	501	488	474	459	444
	kW	0.68	0.64	0.60	0.55	0.50	0.49	0.47	0.44	0.41	0.40	0.38
0.3	CFM	2030	1965	1900	1710	1520	1500	1480	1430	1380		
	RPM	574	564	553	543	533	517	501	488	475		
	kW	0.62	0.58	0.54	0.49	0.44	0.43	0.43	0.40	0.37		
0.4	CFM	1680	1640	1600								
	RPM	575	565	554								
	kW	0.56	0.53	0.50								

**NOTES:**

- \* Denotes Recommended Sheave Setting.
- Boldface type indicates factory-recommended blower operating range.
- Values include losses for 2" standard air filters, unit casing, and dry evaporator coil.
- For 208V operation deduct approximately 0.5% from CFM shown.
- See Accessory Performance Data table for additional static pressure information.

**FACTORY DRIVE CONSISTS OF:**

15" x 15" FC Blower, 2-HP/2-Speed Motor  
1VP4O Sheave, BK85 Pulley and B57 Belt.

**Table 7. P7TQ-090 C/D/N\* Series - Downflow Models**

**P7TQ-090C/D/N SERIES**

**2-HP, 2-SPEED, HORIZONTAL BLOWER DATA  
DRIVE CHANGE REQUIRED, SEE NOTE**

HIGH-SPEED OPERATION													
EXTERNAL UNIT STATIC (IN WC)	OPERATING @ 230V, 460V OR 575V	ADJUSTABLE MOTOR SHEAVE SETTING											
		FULLY CLOSED	0.5 TURNS OPEN	1 TURN OPEN	1.5 TURNS OPEN	2 TURNS OPEN	2.5 TURNS OPEN	3 TURNS OPEN	3.5 TURNS OPEN	4 TURNS OPEN	4.5 TURNS OPEN	5 TURNS OPEN	
0.1	CFM									3635	3480	3385	3290
	RPM									644	625	609	593
	kW									0.91	0.89	0.92	0.94
0.2	CFM						3675	3555	3400	3240	3135	3030	
	RPM						682	665	645	625	610	594	
	kW						0.90	0.94	0.92	0.90	0.91	0.93	
0.3	CFM				3720	3580	3450	3320	3160	3000	2875	2875	
	RPM				718	705	686	666	645	624	609	594	
	kW				0.88	0.85	0.89	0.94	0.92	0.90	0.91	0.89	
0.4	CFM		3724	3630	3480	3330	3185	3040	2875	2720	2565	2410	
	RPM		747	733	719	705	686	667	647	627	607	587	
	kW		0.91	0.90	0.87	0.85	0.88	0.92	0.90	0.93	0.92	0.90	
0.5	CFM	3600	3500	3400	3240	3080	2920	2760	2600	2440	2280	2120	
	RPM	762	748	734	720	705	687	670	653	636	619	602	
	kW	0.91	0.89	0.88	0.86	0.85	0.87	0.88	0.91	0.94	0.92	0.90	
0.6	CFM	3325	3168	3010	2790	2650	2495	2340	2185	2030	1875	1720	
	RPM	763	749	736	720	703	687	670	653	636	619	602	
	kW	0.88	0.88	0.88	0.86	0.93	0.92	0.92	0.92	0.92	0.91	0.91	
0.7	CFM	3050	2835	2760	2590	2420	2220	2020	1820	1620	1420	1220	
	RPM	764	751	832	813	794	775	756	737	718	699	680	
	kW	0.86	0.87	0.94	0.93	0.93	0.91	0.89	0.87	0.85	0.83	0.81	
0.8	CFM		3634	3500	3225	2950							
	RPM		849	836	816	797							
	kW		0.91	0.94	0.93	0.93							
0.9	CFM	3520	3345	3170									
	RPM	864	851	837									
	kW	0.88	0.91	0.93									
1.0	CFM	3025											
	RPM	867.5											
	kW	0.88											
LOW-SPEED OPERATION (FOR REFERENCE ONLY)													
Alternate Drive	0.1	CFM			2526	2436	2345	2278	2211	2093	1975	1880	1785
		RPM			488	478	468	456	443	430	417	404	391
		kW			0.73	0.72	0.72	0.71	0.71	0.71	0.71	0.71	0.73
	0.2	CFM	2345	2249	2152	2062	1972	1803	1634	1502	1370	1268	1165
		RPM	509	499	489	479	469	457	445	431	417	402	388
		kW	0.71	0.72	0.73	0.73	0.72	0.72	0.71	0.71	0.72	0.73	0.74
	0.3	CFM	1780	1667	1553	1432	1310	1183	1056				
		RPM	513	503	493	482	471	459	447				
		kW	0.71	0.72	0.73	0.73	0.72	0.72	0.72				
Factory Drive	0.1	CFM						2740	2650	2540	2430	2340	2250
		RPM						519	506	491	475	464	453
		kW						0.73	0.74	0.74	0.74	0.74	0.73
	0.2	CFM	2880	2815	2750	2640	2530	2430	2330	2195	2060	1955	1850
		RPM	577	568	559	546	532	520	507	492	476	465	454
		kW	0.71	0.72	0.73	0.72	0.72	0.72	0.73	0.73	0.74	0.74	0.74
	0.3	CFM	2605	2507	2409	2285	2160	2000	1840				
		RPM	578	570	561	547	533	521	508				
		kW	0.70	0.72	0.73	0.72	0.72	0.72	0.72				
0.4	CFM	2070	1955	1840									
	RPM	580	572	564									
	kW	0.71	0.72	0.73									

- NOTES:**
- Boldface type indicates factory-recommended blower operating range.
  - Values include losses for 2" standard air filters, unit casing, and dry evaporator coil.
  - For 208V operation deduct approximately 0.5% from CFM shown.
  - See Accessory Performance Data table for additional static pressure information.

**FACTORY DRIVE CONSISTS OF:**  
15" x 15" FC Blower, 2-HP/2-Speed Motor  
1VP40 Sheave, BK85 Pulley, and B57 Belt.

**OPTIONAL DRIVE CONSISTS OF:**  
Same except uses BK95 Blower Pulley and B59 Belt.

**Table 8. P7TQ-090 C/D/N\* Series - Horizontal Models**

**P7TQ-120C/D/N SERIES**

**2-HP, 2-SPEED, DOWNFLOW BLOWER DATA**

Factory Standard Static Drive:

HIGH-SPEED OPERATION												
EXTERNAL UNIT STATIC (IN WC)	OPERATING @ 230V, 460V, OR 575V	ADJUSTABLE MOTOR SHEAVE SETTING										
		FULLY CLOSED	0.5 TURN OPEN	1 TURN OPEN	1.5 TURNS OPEN	2 TURNS OPEN	2.5 TURNS OPEN	3 TURNS OPEN	3.5 TURNS OPEN*	4 TURNS OPEN	4.5 TURNS OPEN	5 TURNS OPEN
0.1	CFM								3830	3690	3585	3480
	RPM								794	772	751	729
	kW								1.60	1.43	1.34	1.25
0.2	CFM							3840	3680	3520	3395	3270
	RPM							819	797	774	752	730
	kW							1.65	1.54	1.43	1.31	1.20
0.3	CFM						3765	3630	3500	3370	3245	3120
	RPM						841	820	798	775	753	731
	kW						1.73	1.57	1.46	1.34	1.24	1.13
0.4	CFM					3780	3620	3460	3335	3210	3050	2890
	RPM					860	841	821	800	778	755	732
	kW					1.835	1.67	1.51	1.41	1.30	1.19	1.08
0.5	CFM				3720	3560	3435	3310	3145	2980		
	RPM				884	861	842	823	801	779		
	kW				1.85	1.72	1.59	1.47	1.36	1.25		
0.6	CFM			3760	3575	3390	3260	3130	2960			
	RPM			908	885	862	843	824	802			
	kW			1.864	1.76	1.66	1.50	1.34	1.20			
0.7	CFM			3610	3420	3230	3095	2960				
	RPM			910	888	865	846	826				
	kW			1.87	1.72	1.57	0.85	0.13				
0.8	CFM		3565	3420	3225	3030	2830					
	RPM		929	912	889	866	847					
	kW		1.905	1.68	1.59	1.50	1.32					
0.9	CFM	3520	3395	3270	3035	2800						
	RPM	948	931	914	890.5	867						
	kW	1.94	1.781	1.622	1.503	1.38						
1.0	CFM	3270	3125	2980								
	RPM	951	933.5	916								
	kW	1.82	1.6485	1.477								
1.1	CFM	3080	3030									
	RPM	954	935									
	kW	1.73	1.6035									

LOW-SPEED OPERATION - FOR REFERENCE ONLY												
EXTERNAL UNIT STATIC (IN WC)	OPERATING @ 230V, 460V, OR 575V	ADJUSTABLE MOTOR SHEAVE SETTING										
		FULLY CLOSED	0.5 TURN OPEN	1 TURN OPEN	1.5 TURNS OPEN	2 TURNS OPEN	2.5 TURNS OPEN	3 TURNS OPEN	3.5 TURNS OPEN*	4 TURNS OPEN	4.5 TURNS OPEN	5 TURNS OPEN
0.1	CFM	2920	2850	2780	2695	2610	2520	2430	2350	2270	2180	2090
	RPM	634	623	611	596	580	566	552	538	524	507	490
	kW	0.87	0.83	0.78	0.76	0.73	0.69	0.64	0.58	0.51	0.49	0.47
0.2	CFM	2700	2610	2520	2440	2360	2275	2190	2105	2020	1930	1840
	RPM	635	624	612	597	582	568	553	539	525	509	492
	kW	0.83	0.76	0.70	0.69	0.68	0.63	0.58	0.53	0.48	0.46	0.44
0.3	CFM	2500	2360	2220	2160	2100	2005	1910	1845	1780	1690	1600
	RPM	637	626	614	599	584	569	554	540	526	509	492
	kW	0.78	0.73	0.68	0.65	0.62	0.57	0.52	0.49	0.46	0.45	0.43
0.4	CFM	2253	2052	1850	1835	1820	1700	1580				
	RPM	639	627	615	600	585	571	556				
	kW	0.71	0.68	0.64	0.59	0.55	0.51	0.47				
0.5	CFM	1910										
	RPM	640										
	kW	0.64										

**NOTES:**

- \* Denotes Recommended Sheave Setting.
- Boldface type indicates factory-recommended blower operating range.
- Values include losses for 2" standard air filters, unit casing, and dry evaporator coil.
- For 208V operation deduct approximately 0.5% from CFM shown.
- See Accessory Performance Data table for additional static pressure information.

**FACTORY DRIVE CONSISTS OF:**

15" x 15" FC Blower, 2-HP/2-Speed Motor, 1VP40 Sheave, BK77 Pulley and B56 Belt

**Table 9. P7TQ-120 C/D/N\* Series - Downflow Models**



**P7TQ-120C/D/N SERIES**

**2-HP, 2-SPEED, HORIZONTAL BLOWER DATA  
DRIVE CHANGE REQUIRED, SEE NOTE**

HIGH-SPEED OPERATION														
EXTERNAL UNIT STATIC (IN WC)	OPERATING @ 230V, 460V, OR 575V	ADJUSTABLE MOTOR SHEAVE SETTING												
		FULLY CLOSED	0.5 TURN OPEN	1 TURN OPEN	1.5 TURNS OPEN	2 TURNS OPEN	2.5 TURNS OPEN	3 TURNS OPEN	3.5 TURNS OPEN	4 TURNS OPEN*	4.5 TURNS OPEN	5 TURNS OPEN	5.5 TURNS OPEN	
0.1	CFM											3958	3810	3670
	RPM											690	672	651
	kW											0.91	0.90	0.90
0.2	CFM									4025	3890	3748	3605	3445
	RPM									730	708	691	673	652
	kW									0.92	0.97	0.94	0.90	0.91
0.3	CFM								3985	3828	3670	3525	3380	3220
	RPM								752	731	709	692	674	654
	kW								0.89	0.91	0.92	0.91	0.89	0.89
0.4	CFM							3923	3775	3620	3465	3298	3130	2940
	RPM							772	753	732	710	693	676	655
	kW							0.90	0.88	0.90	0.93	0.92	0.90	0.90
0.5	CFM				4020	3880	3725	3570	3385	3200	3038	2875		
	RPM				811	792	774	755	733	711	695	678		
	kW				0.94	0.93	0.90	0.88	0.91	0.94	0.92	0.90		
0.6	CFM			3960	3805	3650	3495	3340	3113	2885				
	RPM			830	812	793	775	757	735	713				
	kW			0.94	0.93	0.93	0.92	0.92	0.92	0.91				
0.7	CFM	4015	3888	3760	3590	3420	3220	3020						
	RPM	860	846	832	813	794	775	756						
	kW	0.89	0.91	0.94	0.93	0.93	0.91	0.89						
0.8	CFM	3768	3634	3500	3225	2950								
	RPM	862	849	836	816	797								
	kW	0.88	0.91	0.94	0.93	0.93								
0.9	CFM	3520	3345	3170										
	RPM	864	851	837										
	kW	0.88	0.91	0.93										
1.0	CFM	3025												
	RPM	867.5												
	kW	0.879												

LOW-SPEED OPERATION - FOR REFERENCE ONLY														
EXTERNAL UNIT STATIC (IN WC)	OPERATING @ 230V, 460V, OR 575V	ADJUSTABLE MOTOR SHEAVE SETTING												
		FULLY CLOSED	0.5 TURN OPEN	1 TURN OPEN	1.5 TURNS OPEN	2 TURNS OPEN	2.5 TURNS OPEN	3 TURNS OPEN	3.5 TURNS OPEN	4 TURNS OPEN †	4.5 TURNS OPEN	5 TURNS OPEN	5.5 TURNS OPEN	
0.1	CFM							2740	2650	2540	2430	2340	2250	2145
	RPM							519	506	491	475	464	453	437
	kW							0.73	0.74	0.74	0.74	0.74	0.73	0.74
0.2	CFM	2880	2815	2750	2640	2530	2430	2330	2195	2060	1955	1850	1695	
	RPM	577	568	559	546	532	520	507	492	476	465	454	439	
	kW	0.71	0.72	0.73	0.72	0.72	0.72	0.73	0.73	0.74	0.74	0.74	0.74	0.75
0.3	CFM	2605	2507	2409	2285	2160	2000	1840						
	RPM	578	570	561	547	533	521	508						
	kW	0.70	0.72	0.73	0.72	0.72	0.72	0.72						
0.4	CFM	2070	1955	1840										
	RPM	580	572	564										
	kW	0.71	0.72	0.73										

- NOTES:**
- Boldface type indicates factory-recommended blower operating range.
  - Values include losses for 2" standard air filters, unit casing, and dry evaporator coil.
  - For 208V operation deduct approximately 0.5% from CFM shown.
  - See Accessory Performance Data table for additional static pressure information.

**OPTIONAL DRIVE CONSISTS OF:**  
 15" x 15" FC Blower, 2-HP/2-Speed Motor  
 1VP40 Sheave, BK85 Pulley, and B57 Belt.

**Table 10. P7TQ-120 C/D/N\*Series - Horizontal Models**

7.5-TON HIGH STATIC DRIVE - DOWNFLOW - 3-HP ECM MOTOR																					
ESP	0.2			0.3			0.4			0.5			0.6			0.7			0.8		
SPEED TAP	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW
1-Low	2165	559	0.5	2090	588	0.52	2000	623	0.56	1900	653	0.58									
2-Low	2380	593	0.58	2310	618	0.61	2240	643	0.64	2130	680	0.67	2025	716	0.70						
3-High										3300	831	1.39	3230	847	1.41	<b>3200</b>	<b>865</b>	<b>1.44</b>	3160	882	1.47
4-High										3480	857	1.55	3430	875	1.58	3330	897	1.64	3230	918	1.70
5-High													3620	901	1.76	3560	918	1.79	3510	935	1.83
ESP	0.9			1.0			1.1			1.2			1.3			1.4					
SPEED TAP	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW
1-Low																					
2-Low																					
3-High	3100	901	1.50	3040	919	1.53	2930	953	1.57	<i>2830</i>	<i>987</i>	<i>1.61</i>	<i>2780</i>	<i>1001</i>	<i>1.66</i>						
4-High	<b>3200</b>	<b>934</b>	<b>1.72</b>	3170	950	1.74	3140	966	1.76	3100	982	1.78	2980	1016	1.82						
5-High	3450	951	1.86	3400	967	1.88	3350	986	1.93	3290	1005	1.97	3240	1023	2.01	<b>3180</b>	<b>1042</b>	<b>2.06</b>			

**NOTES:**

1. Factory recommended settings are in bold.
2. Shaded areas are not recommended or approved for proper operation of equipment.
3. 7.5-Ton High Static Drive Consists of: 3-HP/5-Speed ECM Motor and Controller, BK45 Motor Pulley, BK70 Blower Pulley, and B56 Belt. See accessory offering in Technical Sales Literature.

**Table 11. P7TQ-090C/D/N\* Series High Static Drive**

10-TON HIGH STATIC DRIVE - DOWNFLOW - 3-HP ECM MOTOR																					
ESP	0.2			0.3			0.4			0.5			0.6			0.7			0.8		
SPEED TAP	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW
1-Low	<b>2310</b>	<b>581</b>	<b>0.55</b>	2240	608	0.58	2170	634	0.60	<i>2050</i>	<i>674</i>	<i>0.63</i>									
2-Low	2540	616	0.65	2450	639	0.68	2380	662	0.70	2290	692	0.73	2195	721	0.8						
3-High										<b>3480</b>	<b>857</b>	<b>1.55</b>	3430	875	1.58	3330	897	1.64	3230	918	1.70
4-High										3670	886	1.73	3620	901	1.76	3560	918	1.79	3510	935	1.83
5-High													3845	938	2.01	3790	954	2.06	3740	969	2.10
ESP	0.9			1.0			1.1			1.2			1.3			1.4					
SPEED TAP	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW	CFM	RPM	KW
1-Low																					
2-Low																					
3-High	<i>3200</i>	<i>934</i>	<i>1.72</i>	<i>3170</i>	<i>950</i>	<i>1.74</i>	<i>3140</i>	<i>966</i>	<i>1.76</i>												
4-High	<b>3450</b>	<b>951</b>	<b>1.86</b>	3400	967	1.88	3350	986	1.93	3290	1005	1.97	3240	1023	2.01	<i>3180</i>	<i>1042</i>	<i>2.06</i>			
5-High	3690	985	2.13	3635	1000	2.15	3575	1016	2.188	3525	1031	2.222	3490	1048	2.25	<b>3450</b>	<b>1063</b>	<b>2.27</b>			

**NOTES:**

1. Factory recommended settings are in bold.
2. Shaded areas are not recommended or approved for proper operation of equipment.
3. 10-Ton High Static Drive Consists of: 3-HP/5-Speed ECM Motor and Controller, BK45 Motor Pulley, BK70 Blower Pulley, and B56 Belt. See accessory offering in Technical Sales Literature.

**Table 12. P7TQ-120C/D/N\* Series High Static Drive**

**P7TQ-150C/D/N SERIES**

**3- AND 5-HP/2-SPEED DOWNFLOW BLOWER DATA**

HIGH-SPEED OPERATION													
EXTERNAL UNIT STATIC (IN WC)	OPERATING @ 230V OR 460V	SHEAVE SETTING											
		FULLY CLOSED	0.5 TURN OPEN	1 TURN OPEN	1.5 TURNS OPEN	2 TURNS OPEN	2.5 TURNS OPEN	3 TURNS OPEN *	3.5 TURNS OPEN	4 TURNS OPEN	4. TURNS OPEN	5 TURNS OPEN	
Factory Drive	0.1	CFM				4680	4470	4490	4510	4350	4190	4040	3890
		RPM				826	785	789	792	770	747	727	706
		kW				2.34	2.06	2.09	2.12	1.98	1.85	1.73	1.62
	0.2	CFM			4810	4610	4410	4380	4350	4225	4100	3930	4380
		RPM			868	832	795	794	793	771	748	728	792
		kW			2.55	2.28	2.01	2.04	2.07	1.90	1.72	1.63	2.23
	0.3	CFM		4775	4660	4485	4310	4230	4150	4015	3880	4430	4210
		RPM		885	869	838	806	800	794	772	749	822	794
		kW		2.65	2.46	2.24	2.02	1.98	1.94	1.76	1.58	2.42	2.18
	0.4	CFM	4760	4645	4530	4360	4190	4085	3980	3810	4450	4235	4020
		RPM	902	886	870	843	815	805	794	772	850	824	797
		kW	2.74	2.56	2.38	2.17	1.96	1.94	1.91	1.73	2.59	2.27	1.95
	0.5	CFM	4580	4460	4340	4170	4000	3875	3750	4440	4240	4025	3810
		RPM	904	888	872	846	819	807	795	874	852	826	799
		kW	2.67	2.48	2.28	2.09	1.90	1.85	1.79	2.70	2.47	2.18	1.90
	0.6	CFM	4380	4275	4170	4020	3870	4600	4430	4250	4070	3835	4180
		RPM	906	890	875	851	826	909	897	876	854	828	861
		kW	2.48	2.37	2.25	2.05	1.85	3.02	2.79	2.56	2.32	2.10	2.24
	0.7	CFM	4000	3930	3860	3750	4620	4465	4310	4095	3880	4265	4030
		RPM	908	893	876	853	931	915	899	878	856	903	865
		kW	2.30	2.20	2.09	1.92	3.06	2.89	2.73	2.51	2.30	2.44	2.17
	0.8	CFM	3800	3750	4690	4560	4430	4225	4020	3860	4320	4100	3880
		RPM	909	894	980	963	946	924	902	880	944	907	869
		kW	2.22	2.07	3.411	3.21	3.01	2.76	2.52	2.40	2.59	2.34	2.10
Medium Static Drive	0.9	CFM	4770	4660	4550	4395	4240	4055	3870	4360	4145	3938	3730
		RPM	1006	994	982	965	948	926	903	975	946	911	876
		kW	3.44	3.34	3.25	3.06	2.86	2.64	2.43	2.76	2.49	2.25	2.02
	1.0	CFM	4580	4485	4390	4245	4100	3875	4430	4200	3970	3775	
		RPM	1007	996	984	967	949	927	1008	978	948	916	
		kW	3.40	3.28	3.15	2.95	2.74	2.58	2.90	2.64	2.39	2.16	
	1.1	CFM	4430	4315	4200	4040	3880	4455	4300	4040	3775		
		RPM	1009	997	985.5	969	952	1024	1004	977	951		
		kW	3.33	3.16	2.99	2.83	2.68	3.03	2.79	2.53	2.28		
	1.2	CFM	4280	4145	4010	3835	4450	4230	4015				
		RPM	1011	999	987	971	1046	1023	1000				
		kW	3.25	3.04	2.83	2.72	3.27	3.00	2.72				
1.3	CFM	4040	3925	3810	4375	4240							
	RPM	1014	1002	989	1064	1048							
	kW	3.10	2.87	2.64	3.34	3.12							
High Static Drive	1.4	CFM	4430	4380	4330	4180	4030						
		RPM	1116	1099.5	1083	1067	1051						
		kW	3.64	3.39	3.15	3.06	2.97						
	1.5	CFM	4260	4205	4150	4045	3940						
		RPM	1119	1103	1087	1070	1052						
		kW	3.59	3.43	3.27	3.08	2.88						
	1.6	CFM	4110	4045	3980	3915							
		RPM	1121	1106	1091	1072							
		kW	3.49	3.31	3.13	2.95							
1.7	CFM	4020											
	RPM	1122											
	kW	3.42											

**FACTORY DRIVE CONSISTS OF:**  
 15" x 15" FC Blower, 3-HP/2-Speed Motor  
 1VP40 Sheave, BK80 Pulley, B56 Belt

**MEDIUM STATIC DRIVE CONSISTS OF:**  
 Same as factory except uses BK72 Pulley

**HIGH STATIC DRIVE CONSISTS OF:**  
 5-HP motor, 1VP44 Sheave, BK70 Pulley

**NOTES:**

\*Denotes Factory Sheave Setting.  
 Values include losses for 2" standard air filters, unit casing, and dry evaporator coil.  
 For 208V operation deduct approximately 0.5% from CFM shown.

**Table 13. P7TQ-150 C/D/N\*Series - Downflow Models (High-Speed)**

**P7TQ-150C/D/N SERIES**

**3- AND 5-HP/2-SPEED DOWNFLOW BLOWER DATA**

LOW-SPEED OPERATION - FOR REFERENCE ONLY													
EXTERNAL UNIT STATIC (IN WC)	OPERATING @ 230V OR 460V	SHEAVE SETTING											
		FULLY CLOSED	0.5 TURNS OPEN	1 TURN OPEN	1.5 TURNS OPEN	2 TURNS OPEN	2.5 TURNS OPEN	3 TURNS OPEN *	3.5 TURNS OPEN	4 TURNS OPEN	4.5 TURNS OPEN	5 TURNS OPEN	
Factory Drive	0.1	CFM	3140	3080	3020	2980	2940	2815	2690	2625	2560	2450	2340
		RPM	598	589	579	567	554	540	525	511	497	482	467
		kW	0.98	0.92	0.86	0.84	0.81	0.76	0.71	0.67	0.62	0.60	0.58
	0.2	CFM	2950	2895	2840	2760	2680	2525	2370	2300	2230	2090	1950
		RPM	600	590	580	568	555	541	526	512	498	483	468
		kW	0.91	0.86	0.81	0.76	0.71	0.68	0.65	0.61	0.58	0.55	0.53
	0.3	CFM	2690	2610	2530	2435	2340	2185	2030	1960	1890		
		RPM	602	592	582	570	557	542	527	513	499		
		kW	0.85	0.79	0.73	0.68	0.64	0.61	0.59	0.55	0.51		
	0.4	CFM	2370	2280	2190	2075	1960	1870	1780				
		RPM	604	594	584	572	560	544	528				
		kW	0.75	0.71	0.66	0.62	0.571	0.55	0.533				
Medium Static Drive	0.3	CFM	3240	3190	3140	3040	2940	2850	2760	2655	2550	2395	2240
		RPM	669	660	650	638	625	610	594	580	565	548	531
		kW	1.30	1.21	1.11	1.04	0.97	0.95	0.93	0.89	0.85	0.74	0.63
	0.4	CFM	3020	2950	2880	2775	2670	2565	2460	2325	2190	2035	1880
		RPM	671	661	651	639	626	611	596	581	566	550	533
		kW	1.18	1.14	1.09	1.00	0.92	0.91	0.91	0.85	0.79	0.67	0.56
	0.5	CFM	2810	2725	2640	2525	2410	2285	2160	2065	1970		
		RPM	674	664	653	641	628	613	598	583	567		
		kW	1.08	1.04	1.00	0.94	0.89	0.88	0.88	0.80	0.72		
	0.6	CFM	2550	2450	2350	2285	2220						
		RPM	676	666	655	643	630						
		kW	0.98	0.99	0.99	0.92	0.85						
High Static Drive	0.4	CFM	3600	3520	3440	3345	3250	3125	3000	2830	2660		
		RPM	738	729	720	707	694	678	662	647	632		
		kW	1.59	1.49	1.39	1.28	1.17	1.09	1.01	0.96	0.91		
	0.5	CFM	3370	3290	3210	3105	3000	2863	2725	2578	2430		
		RPM	740	731	722	709	696	680	664	649	633		
		kW	1.50	1.40	1.30	1.21	1.11	1.02	0.93	0.89	0.85		
	0.6	CFM	3130	3055	2980	2865	2750	2600	2450	2325	2200		
		RPM	742	733	724	711	698	682	666	650	634		
		kW	1.41	1.31	1.21	1.13	1.05	0.95	0.84	0.82	0.79		
	0.7	CFM	2850	2815	2780	2620	2460						
		RPM	745	735	725	713	700						
		kW	1.21	1.14	1.06	1.03	0.99						

**FACTORY DRIVE CONSISTS OF:**  
 15" x 15" FC Blower, 3-HP/2-Speed Motor  
 1VP40 Sheave, BK80 Pulley, B56 Belt

**MEDIUM STATIC DRIVE CONSISTS OF:**  
 Same as factory except uses BK72 Pulley

**HIGH STATIC DRIVE CONSISTS OF:**  
 5-HP motor, 1VP44 Sheave, BK70 Pulley

**NOTES:**

\*Denotes Factory Sheave Setting.  
 Values include losses for 2" standard air filters, unit casing, and dry evaporator coil.  
 For 208V operation deduct approximately 0.5% from CFM shown.

**Table 14. P7TQ-150 C/D/N\*Series - Downflow Models (Low-Speed)**

**P7TQ150-C/D SERIES**

**3-HP/2-SPEED HORIZONTAL BLOWER DATA**

HIGH-SPEED OPERATION													
EXTERNAL UNIT STATIC (IN WC)	OPERATING @ 230V OR 460V	SHEAVE SETTING											
		FULLY CLOSED	0.5 TURN OPEN	1 TURN OPEN	1.5 TURNS OPEN	2 TURNS OPEN	2.5 TURNS OPEN	3 TURNS OPEN *	3.5 TURNS OPEN	4 TURNS OPEN	4.5 TURNS OPEN	5 TURNS OPEN	
Factory Drive	0.1	CFM							5285	5118	4950	4785	4620
		RPM							789	768	746	725	703
		kW							1.91	1.86	1.81	1.75	1.68
	0.2	CFM							5090	4935	4780	4605	4430
		RPM							790	769	747	726	704
		kW							1.84	1.79	1.74	1.65	1.55
	0.3	CFM					5330	5100	4870	4700	4530	4340	4150
		RPM					829	811	792	770	748	727	706
		kW					1.95	1.87	1.79	1.75	1.71	1.61	1.50
	0.4	CFM			5380	5205	5030	4850	4670	4525	4380	4180	3980
		RPM			865	848	830	812	793	771	749	728	707
		kW			2.08	2.00	1.92	1.82	1.73	1.71	1.68	1.56	1.44
	0.5	CFM	5420	5310	5200	5030	4860	4665	4470	4275	4080	4390	4170
		RPM	892	879	865	850	834	815	795	773	750	772	752
		kW	2.25	2.14	2.04	1.94	1.84	1.75	1.66	1.61	1.56	1.66	1.56
	0.6	CFM	5280	5140	5000	4820	4640	4435	4230	4015	4380	4150	3920
		RPM	894	881	868	852	836	816	796	775	794	774	754
		kW	2.18	2.07	1.95	1.82	1.69	1.65	1.61	1.56	1.75	1.63	1.50
0.7	CFM	5110	4950	4790	4625	4460	4230	4000	4370	4180	3935	3690	
	RPM	897	884	871	854	837	817	797	820	797	776	755	
	kW	2.10	1.99	1.88	1.76	1.63	1.59	1.55	1.69	1.58	1.53	1.47	
0.8	CFM	4840	4675	4510	4305	4100	4520	4270	4110	3950	3620		
	RPM	900	887	873	856	839	868	848	824	799	778		
	kW	2.05	1.95	1.85	1.73	1.61	1.89	1.77	1.66	1.54	1.48		
0.9	CFM	4530	4420	4310	4090	4560	4275	3990	3805	3620			
	RPM	905	890	875	858	889	870	850	827	803			
	kW	2.01	1.91	1.80	1.68	1.81	1.69	1.56	1.53	1.50			
1.0	CFM	4250	4105	3960	4520	4400	4030	3660					
	RPM	908	893	878	910	891	872	853					
	kW	1.86	1.75	1.64	1.84	1.74	1.58	1.42					
1.1	CFM	3980	4500	4360	4190	4020	3690						
	RPM	912	948	933	915	896	876						
	kW	1.80	2.06	2.00	1.84	1.67	1.56						
High Static Drive	1.2	CFM	4410	4235	4060	3880	3700						
		RPM	964	950	935	918	900						
		kW	2.14	1.95	1.76	1.64	1.52						
	1.3	CFM	4060	3880	3700								
		RPM	967	953	939								
		kW	1.96	1.84	1.71								
	1.4	CFM	3860										
		RPM	969										
		kW	1.94										

**NOTES:**

\* Denotes Factory Sheave Setting.  
 Values include losses for 2» standard air filters, unit casing, and dry evaporator coil.  
 For 208V operation deduct approximately 0.5% from CFM shown.

**FACTORY DRIVE CONSISTS OF:**

15" x 15" FC Blower, 3-HP/2-Speed Motor  
 1VP40 Sheave, BK80 Pulley, and B57 Belt

**ALTERNATE HIGH STATIC DRIVE CONSIST OF:**  
 Same except uses BK75 Blower Pulley

**Table 15. P7TQ-150 C/D/N\*Series - Horizontal Models (High-Speed)**

**P7TQ150-C/D SERIES**

**3-HP/2-SPEED HORIZONTAL BLOWER PERFORMANCE CHART**

LOW-SPEED OPERATION - FOR REFERENCE ONLY													
EXTERNAL UNIT STATIC (IN WC)	OPERATING @ 230V OR 460V	SHEAVE SETTING											
		FULLY CLOSED	0.5 TURN OPEN	1 TURN OPEN	1.5 TURNS OPEN	2 TURNS OPEN	2.5 TURNS OPEN	3 TURNS OPEN *	3.5 TURNS OPEN	4 TURNS OPEN	4.5 TURNS OPEN	5 TURNS OPEN	
Factory Drive	0.1	CFM	3740	3695	3650	3515	3380	3290	3200	3065	2930	2835	2740
		RPM	595	585	575	562	549	536	523	508	493	478	463
		kW	0.50	0.49	0.48	0.46	0.43	0.38	0.32	0.32	0.31	0.29	0.27
	0.2	CFM	3490	3445	3400	3250	3100	2970	2840	2720	2600	2510	2420
		RPM	598	587	576	563	550	539	528	511	493	479	464
		kW	0.42	0.44	0.45	0.42	0.40	0.37	0.34	0.34	0.34	0.30	0.25
	0.3	CFM	3180	3095	3010	2870	2730	2595	2460	2255	2050	1885	1720
		RPM	600	590	579	566	552	541	529	512	494	480	465
		kW	0.48	0.44	0.41	0.37	0.32	0.29	0.26	0.27	0.28	0.25	0.22
	0.4	CFM	2880	2795	2710	2490	2270	2135	2000	1710	1420		
		RPM	602	592	581	568	554	542	530	513	495		
		kW	0.37	0.37	0.36	0.31	0.26	0.24	0.22	0.22	0.21		
High Static Drive	0.2	CFM	3780	3705	3630	3505	3380	3305	3230	3100	2970	2845	2720
		RPM	629	619	609	596	582	570	557	542	527	512	496
		kW	0.69	0.62	0.55	0.54	0.53	0.49	0.45	0.41	0.37	0.34	0.31
	0.3	CFM	3620	3510	3400	3240	3080	2960	2840	2720	2600	2455	2310
		RPM	633	622	611	598	585	572	558	544	529	513	497
		kW	0.56	0.52	0.47	0.46	0.45	0.43	0.40	0.36	0.31	0.30	0.29
	0.4	CFM	3170	3100	3030	2880	2730	2585	2440	2285	2130	1915	1700
		RPM	636	625	614	601	587	574	560	546	532	516	499
		kW	0.54	0.49	0.43	0.42	0.41	0.38	0.34	0.31	0.27	0.25	0.23
	0.5	CFM	2810	2755	2700	2505	2310	2080	1850	1483	1115		
		RPM	642	630	617	604	590	576	562	548	534		
		kW	0.52	0.46	0.39	0.38	0.36	0.31	0.26	0.25	0.24		

**NOTES:**

\* Denotes Factory Sheave Setting.  
 Values include losses for 2» standard air filters, unit casing, and dry evaporator coil.  
 For 208V operation deduct approximately 0.5% from CFM shown.

**FACTORY DRIVE CONSISTS OF:**

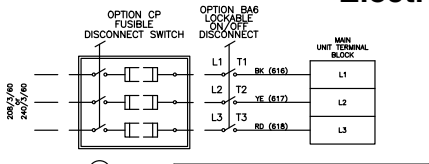
15" x 15" FC Blower, 3-HP/2-Speed Motor  
 1VP40 Sheave, BK80 Pulley, and B57 Belt

**ALTERNATE HIGH STATIC DRIVE CONSIST OF:**

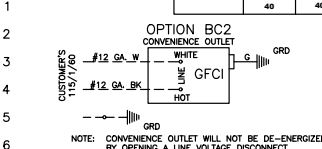
Same except uses BK75 Blower Pulley

**Table 16. P7TQ-150 C/D/N\*Series - Horizontal Models (Low-Speed)**

# Electrical Data and Diagrams



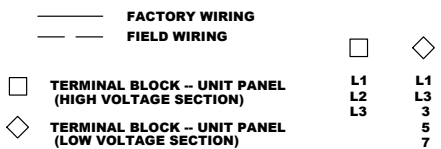
DISCONNECT & WIRE SIZES			
VOLTAGE	ELECTRIC SIZE	WIRE GA	DISCONNECT SIZE
208-230/3/60	9	18.8/21.7	60
	18	36.3/41.9	60
	30	60.6/69.3	100
	35	72.6/83.7	125
460/3/60	9	11.9	60
	18	21.7	60
	30	34.6	60
	35	41.9	60
575/3/60	10	10.04	60
	20	20.08	60
	30	30.12	60
	40	40.16	60



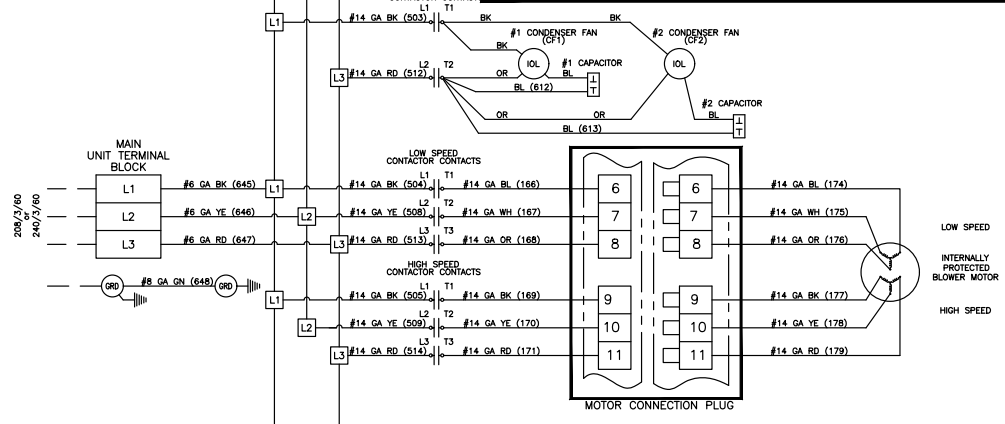
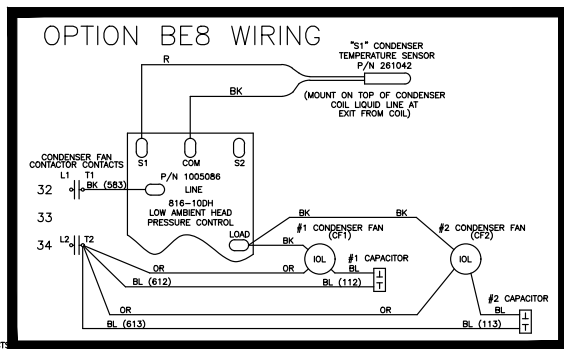
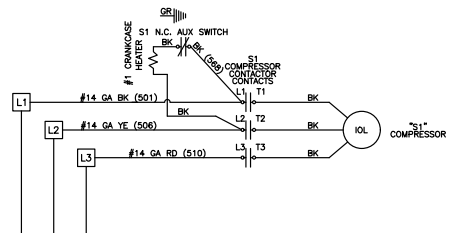
- NOTES**
1. DISCONNECT ALL POWER BEFORE SERVICING.
  2. CAUTION: IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105 DEGREES C.
  3. LINE AND BLOWER MOTOR BRANCH CIRCUIT WIRE SHOULD BE OF A SIZE TO PREVENT VOLTAGE DROP BEYOND FIVE PERCENT OF SUPPLY LINE VOLTAGE.
  4. SEE RATING PLATE LABEL FOR MCA, TO DETERMINE LINE FEED COPPER WIRE SIZE. LINE FEEDS CONNECT TO THE LOCKABLE DISCONNECT OR DISTRIBUTION BLOCKS.
  5. USE #18 GA. WIRE FOR 24 VOLT CONTROL WIRING ON UNIT.
  6. WHEN PROVIDING OR REPLACING FUSES IN THE FUSIBLE DISCONNECT SWITCH USE DUAL ELEMENTS TIME DELAY FUSES AND SIZE ACCORDING TO 1.25 TIMES THE MAXIMUM TOTAL INPUT AMPS.
  7. ALL MOTORS MARKED IOL HAVE INTERNAL LINE BREAK.
  8. FUSIBLE DISCONNECT IS FIELD FURNISHED OR AVAILABLE FROM FACTORY AS AN OPTION.
  9. THE LINE SIDE OF THE DISCONNECT SWITCH MUST BE CONNECTED TO THE INCOMING POWER SUPPLY SUCH THAT THE VOLTAGE BETWEEN L1 AND GROUND IS THE GREATER VALUE.

**WIRING CODE**  
 BLACK - BK  
 BROWN - BR  
 RED - RD  
 ORANGE - OR  
 YELLOW - YE  
 GREEN - GN  
 BLUE - BL  
 VIOLET - VI  
 WHITE - WH  
 GRAY - GY

FIELD CONTROL WIRING	
TOTAL WIRE LENGTH	MINIMUM RECOMMENDED WIRE SIZE
150 FEET	#18 GA.
250 FEET	#16 GA.
350 FEET	#14 GA.



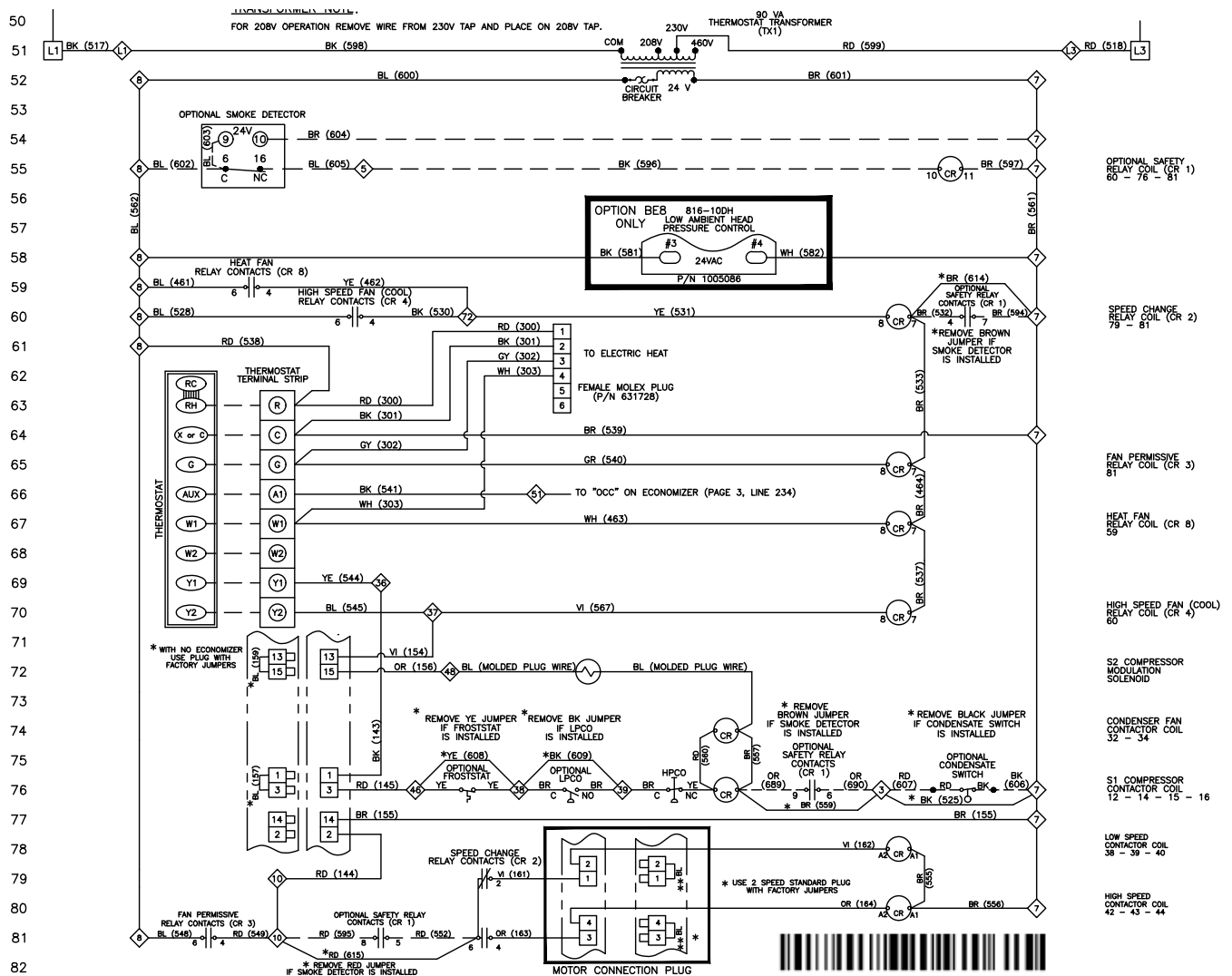
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P7TQ-72: AK20-AMSO

DWG #1012112 SHT. #1

Figure 15. Wiring Diagram for 6-Ton Models (208/230V, 2-Speed, 2-HP Motor)



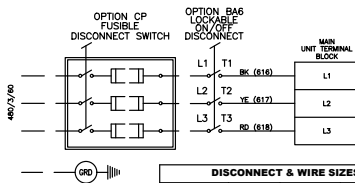
P7TQ-72: AK20-AMS0

DWG #1012112

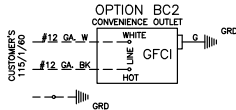
SHT. #2

Figure 15 Continued





DISCONNECT & WIRE SIZES			
VOLTAGE	ELECTRIC SIZE	WIRE GA	DISCONNECT SIZE
208-230/3/60	9	18.8-21.7	60
	18	36.3-41.0	60
	30	60.6-63.2	100
	35	72.6-83.7	125
460/3/60	9	11.9	60
	18	24.7	60
	30	34.6	60
	35	41.9	60
575/3/60	10	10.04	60
	20	20.08	60
	30	30.12	60
	40	40.16	60



- NOTES**
- DISCONNECT ALL POWER BEFORE SERVICING.
  - CAUTION: IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105 DEGREES C.
  - LINE AND BLOWER MOTOR BRANCH CIRCUIT WIRE SHOULD BE OF A SIZE TO PREVENT VOLTAGE DROP BEYOND FIVE PERCENT OF SUPPLY LINE VOLTAGE.
  - SEE RATING PLATE LABEL FOR MCA, TO DETERMINE LINE FEED COPPER WIRE SIZE. LINE FEEDS CONNECT TO THE LOCKABLE DISCONNECT OR DISTRIBUTION BLOCKS.
  - USE #18 GA. WIRE FOR 24 VOLT CONTROL WIRING ON UNIT.
  - WHEN PROVIDING OR REPLACING FUSES IN THE FUSIBLE DISCONNECT SWITCH USE DUAL ELEMENTS TIME DELAY FUSES AND SIZE ACCORDING TO 1.25 TIMES THE MAXIMUM TOTAL INPUT AMPS.
  - ALL MOTORS MARKED IOL HAVE INTERNAL LINE BREAK.
  - FUSIBLE DISCONNECT IS FIELD FURNISHED OR AVAILABLE FROM FACTORY AS AN OPTION.
  - THE LINE SIDE OF THE DISCONNECT SWITCH MUST BE CONNECTED TO THE INCOMING POWER SUPPLY SUCH THAT THE VOLTAGE BETWEEN L1 AND GROUND IS THE GREATER VALUE.

**WIRING CODE**

- BLACK - BK
- BROWN - BR
- RED - RD
- ORANGE - OR
- YELLOW - YE
- GREEN - GN
- BLUE - BL
- VIOLET - VI
- WHITE - WH
- GRAY - GY

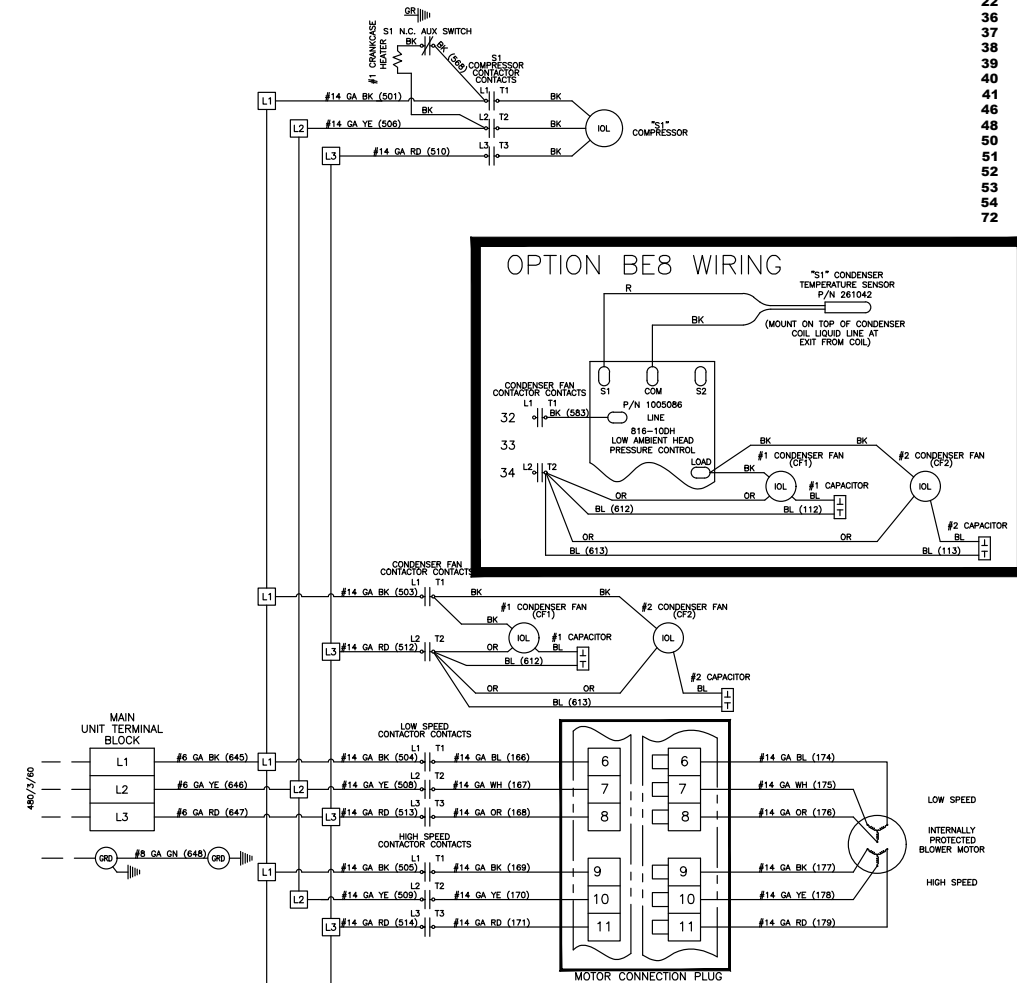
**FIELD CONTROL WIRING**

TOTAL WIRE LENGTH	MINIMUM WIRE SIZE	RECOMMENDED WIRE SIZE
150 FEET	#18 GA.	#18 GA.
250 FEET	#16 GA.	#16 GA.
350 FEET	#14 GA.	#14 GA.

- FACTORY WIRING
- - - FIELD WIRING

- TERMINAL BLOCK - UNIT PANEL (HIGH VOLTAGE SECTION)
- ◇ TERMINAL BLOCK - UNIT PANEL (LOW VOLTAGE SECTION)

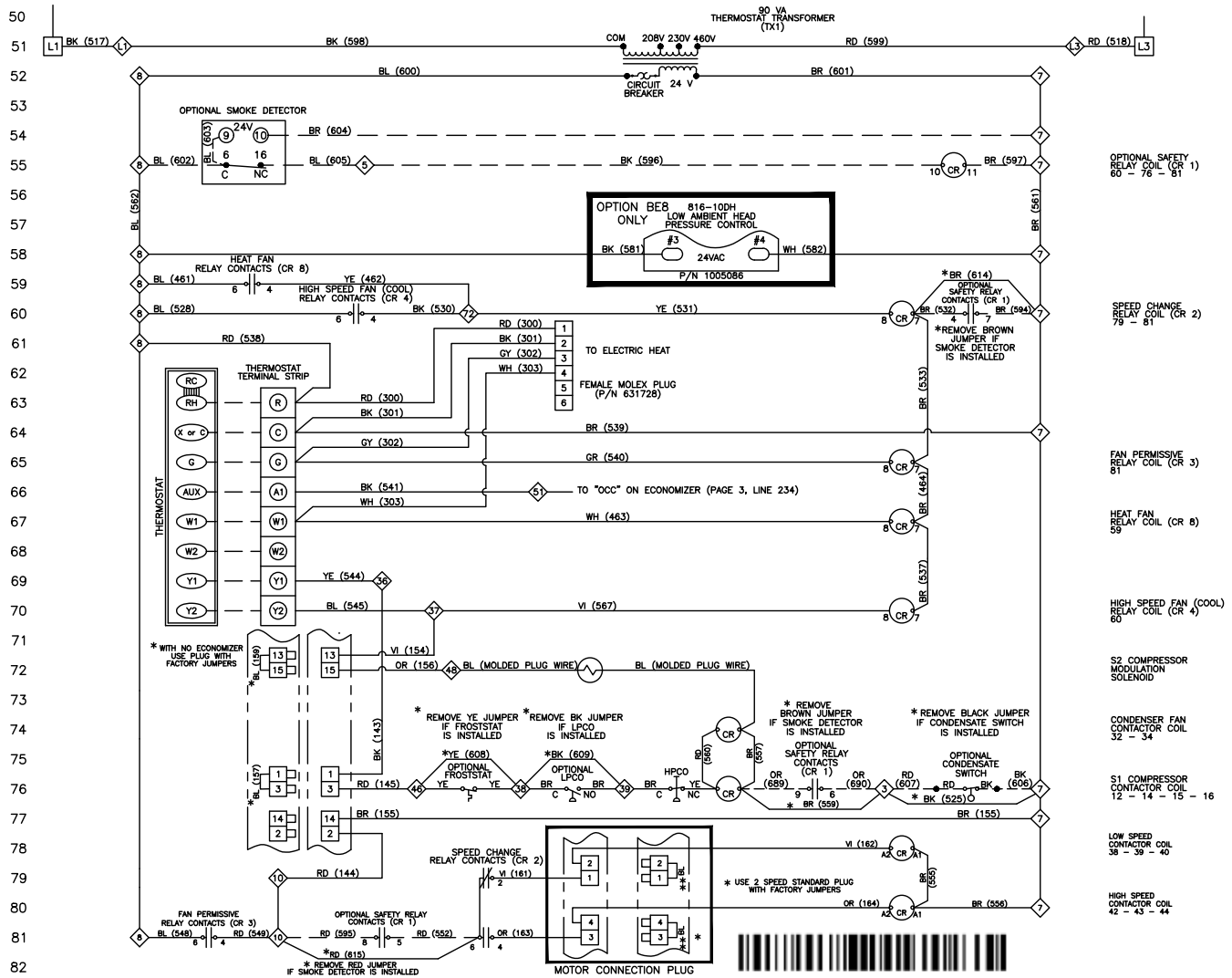
- L1
- ◇ L2
- L3
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- ◇ 52
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- ◇ 54
- 52
- ◇ 72



P7TQ-72: AK7-AMS0

DWG #1012113 SHT. #1

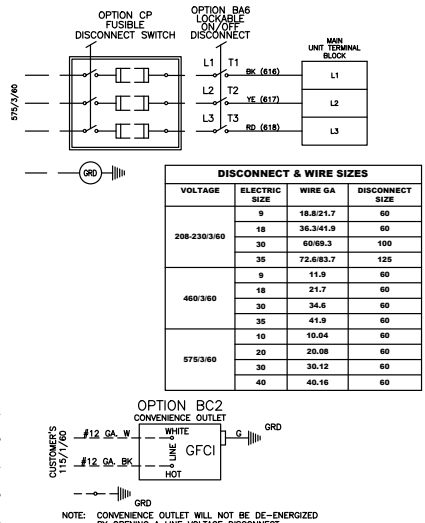
Figure 16. Wiring Diagram for 6-Ton Models (460V, 2-Speed, 2-HP Motor)



P7TQ-72: AK7-AMS0

DWG #1012113 SHT. #2

Figure 16 Continued



VOLTAGE	ELECTRIC SIZE	WIRE GA	DISCONNECT SIZE
208-230/3/60	9	18.8/21.7	60
	18	38.3/41.9	60
	30	60/69.3	100
	35	72.6/83.7	125
460/3/60	9	11.3	60
	18	21.7	60
	30	34.6	60
	35	41.9	60
575/3/60	10	10.04	60
	20	20.08	60
	30	30.12	60
	40	40.16	60

- NOTES**
1. DISCONNECT ALL POWER BEFORE SERVICING.
  2. CAUTION: IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105 DEGREES C.
  3. LINE AND BLOWER MOTOR BRANCH CIRCUIT WIRE SHOULD BE OF A SIZE TO PREVENT VOLTAGE DROP BEYOND FIVE PERCENT OF SUPPLY LINE VOLTAGE.
  4. SEE RATING PLATE LABEL FOR MCA, TO DETERMINE LINE FEED COPPER WIRE SIZE. LINE FEEDS CONNECT TO THE LOCKABLE DISCONNECT OR DISTRIBUTION BLOCKS.
  5. USE #18 GA. WIRE FOR 24 VOLT CONTROL WIRING ON UNIT.
  6. WHEN PROVIDING OR REPLACING FUSES IN THE FUSIBLE DISCONNECT SWITCH USE DUAL ELEMENTS TIME DELAY FUSES AND SIZE ACCORDING TO 1.25 TIMES THE MAXIMUM TOTAL INPUT AMPS.
  7. ALL MOTORS MARKED IOL HAVE INTERNAL LINE BREAK.
  8. FUSIBLE DISCONNECT IS FIELD FURNISHED OR AVAILABLE FROM FACTORY AS AN OPTION.
  9. THE LINE SIDE OF THE DISCONNECT SWITCH MUST BE CONNECTED TO THE INCOMING POWER SUPPLY SUCH THAT THE VOLTAGE BETWEEN L1 AND GROUND IS THE GREATER VALUE.

**WIRING CODE**

BLACK - BK  
 BROWN - BR  
 RED - RD  
 ORANGE - OR  
 YELLOW - YE  
 GREEN - GN  
 BLUE - BL  
 VIOLET - VI  
 WHITE - WH  
 GRAY - GY

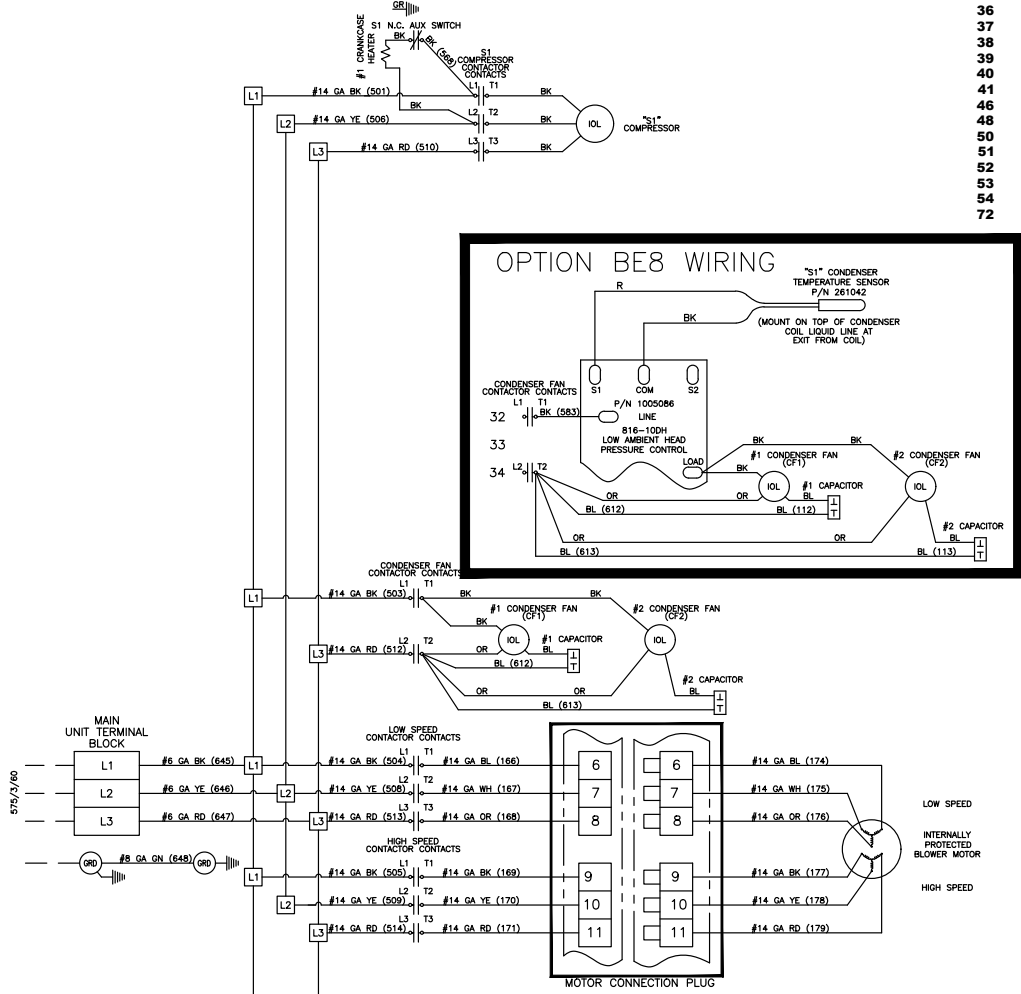
**FIELD CONTROL WIRING**

TOTAL WIRE LENGTH	MINIMUM RECOMMENDED WIRE SIZE
150 FEET	#18 GA.
250 FEET	#16 GA.
350 FEET	#14 GA.

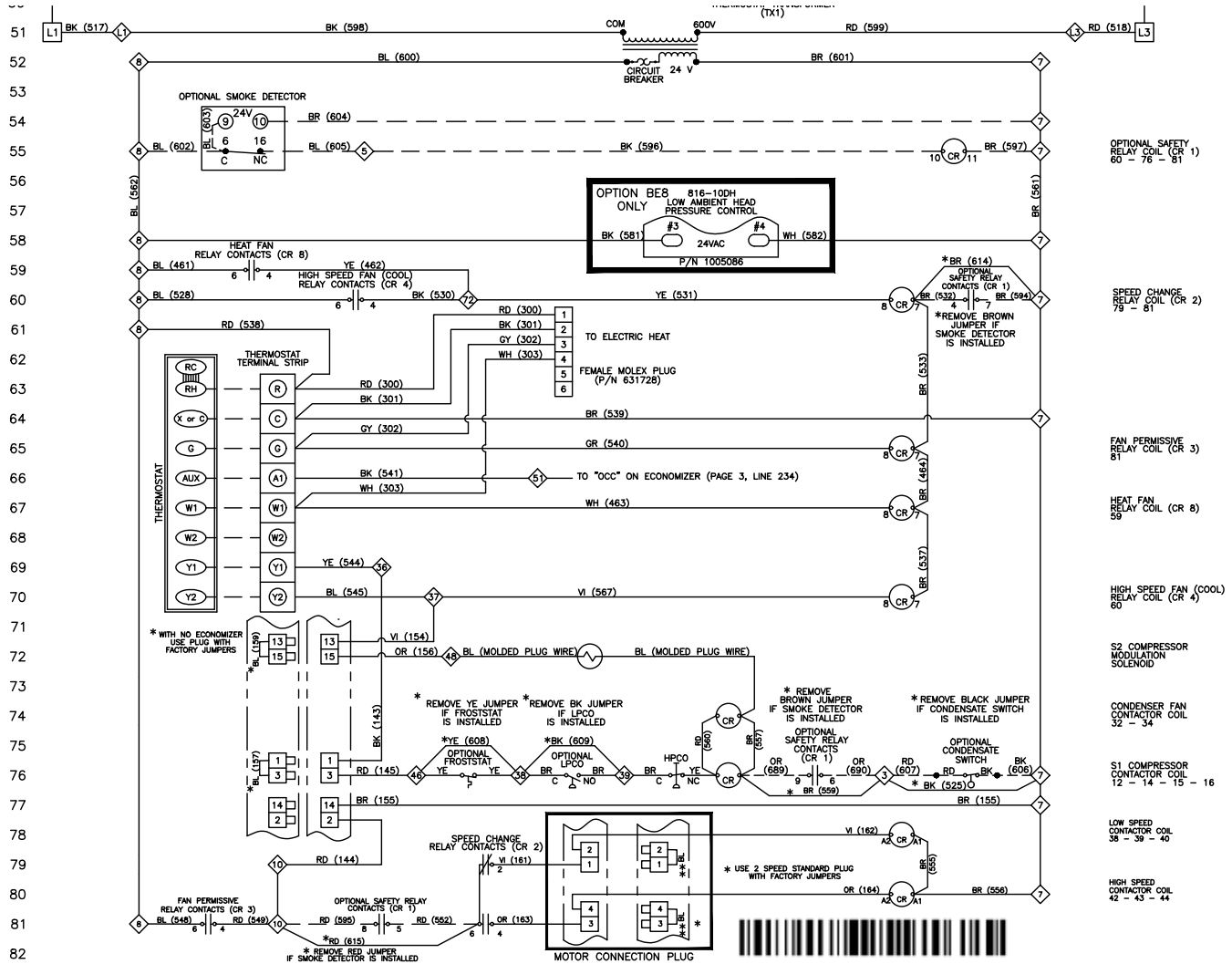
— FACTORY WIRING  
 - - - FIELD WIRING

□ TERMINAL BLOCK - UNIT PANEL (HIGH VOLTAGE SECTION)  
 ◇ TERMINAL BLOCK - UNIT PANEL (LOW VOLTAGE SECTION)

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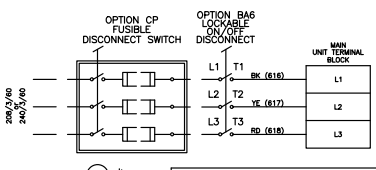
**P7TQ-72: AK8-AMS0 DWG #1012114 SHT. #1**  
**Figure 17. Wiring Diagram for 6-Ton Models (575V, 2-Speed, 2-HP Motor)**



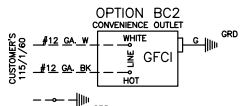
P7TQ 72: AK8-AMS0

DWG #1012114 SHT. #2

Figure 17 Continued



VOLTAGE	ELECTRIC SIZE	WIRE GA.	DISCONNECT SIZE
208-230/3/60	9	18.821.7	60
	18	36.341.8	60
	30	60.69.3	100
	35	72.683.7	125
460/3/60	9	11.9	60
	18	21.7	60
	30	34.6	60
	35	41.9	60
575/3/60	10	10.04	60
	20	20.08	60
	30	30.12	60
	40	40.16	60



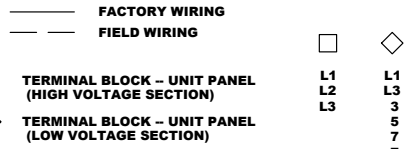
NOTE: CONVENIENCE OUTLET WILL NOT BE DE-ENERGIZED BY OPENING A LINE VOLTAGE DISCONNECT.

- NOTES**
- DISCONNECT ALL POWER BEFORE SERVICING.
  - CAUTION: IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105 DEGREES C.
  - LINE AND BLOWER MOTOR BRANCH CIRCUIT WIRE SHOULD BE OF A SIZE TO PREVENT VOLTAGE DROP BEYOND FIVE PERCENT OF SUPPLY LINE VOLTAGE.
  - SEE RATING PLATE LABEL FOR MCA, TO DETERMINE LINE FEED COPPER WIRE SIZE. LINE FEEDS CONNECT TO THE LOCKABLE DISCONNECT OR DISTRIBUTION BLOCKS.
  - USE #18 GA. WIRE FOR 24 VOLT CONTROL WIRING ON UNIT.
  - WHEN PROVIDING OR REPLACING FUSES IN THE FUSIBLE DISCONNECT SWITCH USE DUAL ELEMENTS TIME DELAY FUSES AND SIZE ACCORDING TO 1.25 TIMES THE MAXIMUM TOTAL INPUT AMPS.
  - ALL MOTORS MARKED IOL HAVE INTERNAL LINE BREAK.
  - FUSIBLE DISCONNECT IS FIELD FURNISHED OR AVAILABLE FROM FACTORY AS AN OPTION.
  - THE LINE SIDE OF THE DISCONNECT SWITCH MUST BE CONNECTED TO THE INCOMING POWER SUPPLY SUCH THAT THE VOLTAGE BETWEEN L1 AND GROUND IS THE GREATER VALUE.

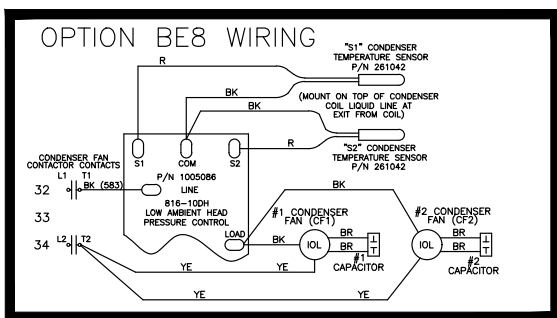
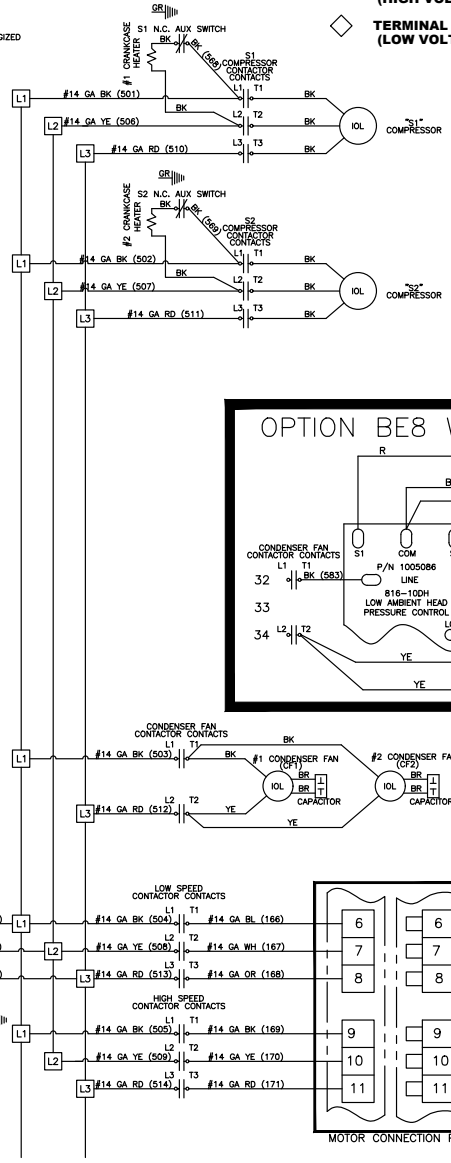
- WIRING CODE**
- BLACK - BK
  - BROWN - BR
  - RED - RD
  - ORANGE - OR
  - YELLOW - YE
  - GREEN - GN
  - BLUE - BL
  - VIOLET - VI
  - WHITE - WH
  - GRAY - GY

**FIELD CONTROL WIRING**

TOTAL WIRE LENGTH	MINIMUM WIRE SIZE RECOMMENDED
150 FEET	#18 GA.
250 FEET	#16 GA.
350 FEET	#14 GA.

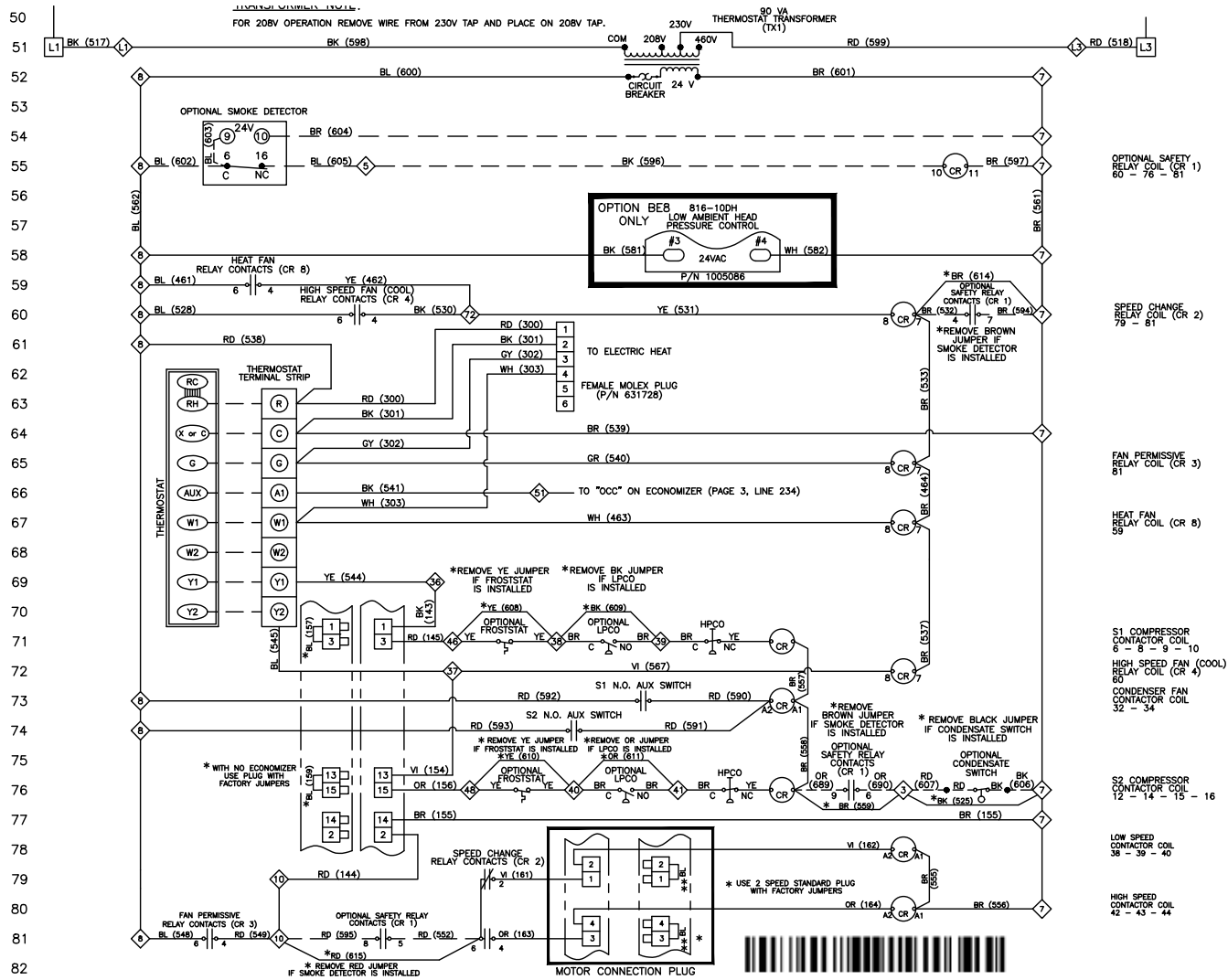


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P7TQ-90/120: AK20-AMS0 DWG #1012118 SHT. #1

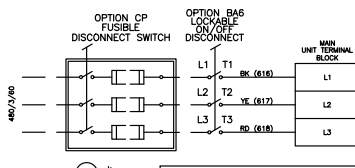
Figure 18. Wiring Diagram for 7.5- and 10-Ton Models (208/230V, 2-Speed, 2-HP Motor)



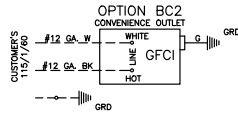
P7TQ-90/120: AK20-AMS0

DWG #1012118 SHT. #2

Figure 18 Continued



VOLTAGE	ELECTRIC SIZE	WIRE GA	DISCONNECT SIZE
208-230/3/60	9	18.821.7	60
	18	35.341.0	60
	30	60.69.3	100
	35	72.683.7	125
460/3/60	9	11.9	60
	18	21.7	60
	30	34.6	60
575/3/60	35	41.9	60
	10	10.04	60
	20	20.08	60
	30	30.12	60
	40	40.16	60



NOTE: CONVENIENCE OUTLET WILL NOT BE DE-ENERGIZED BY OPENING A LINE VOLTAGE DISCONNECT.

- NOTES**
- DISCONNECT ALL POWER BEFORE SERVICING.
  - CAUTION: IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105 DEGREES C.
  - LINE AND BLOWER MOTOR BRANCH CIRCUIT WIRE SHOULD BE OF A SIZE TO PREVENT VOLTAGE DROP BEYOND FIVE PERCENT OF SUPPLY LINE VOLTAGE.
  - SEE RATING PLATE LABEL FOR MCA, TO DETERMINE LINE FEED COPPER WIRE SIZE. LINE FEEDS CONNECT TO THE LOCKABLE DISCONNECT OR DISTRIBUTION BLOCKS.
  - USE #18 GA. WIRE FOR 24 VOLT CONTROL WIRING ON UNIT.
  - WHEN PROVIDING OR REPLACING FUSES IN THE FUSIBLE DISCONNECT SWITCH USE DUAL ELEMENTS TIME DELAY FUSES AND SIZE ACCORDING TO 1.25 TIMES THE MAXIMUM TOTAL INPUT AMPS.
  - ALL MOTORS MARKED IOL HAVE INTERNAL LINE BREAK.
  - FUSIBLE DISCONNECT IS FIELD FURNISHED OR AVAILABLE FROM FACTORY AS AN OPTION.
  - THE LINE SIDE OF THE DISCONNECT SWITCH MUST BE CONNECTED TO THE INCOMING POWER SUPPLY SUCH THAT THE VOLTAGE BETWEEN L1 AND GROUND IS THE GREATER VALUE.

**WIRING CODE**

- BLACK - BK
- BROWN - BR
- RED - RD
- ORANGE - OR
- YELLOW - YE
- GREEN - GN
- BLUE - BL
- VIOLET - VI
- WHITE - WH
- GRAY - GY

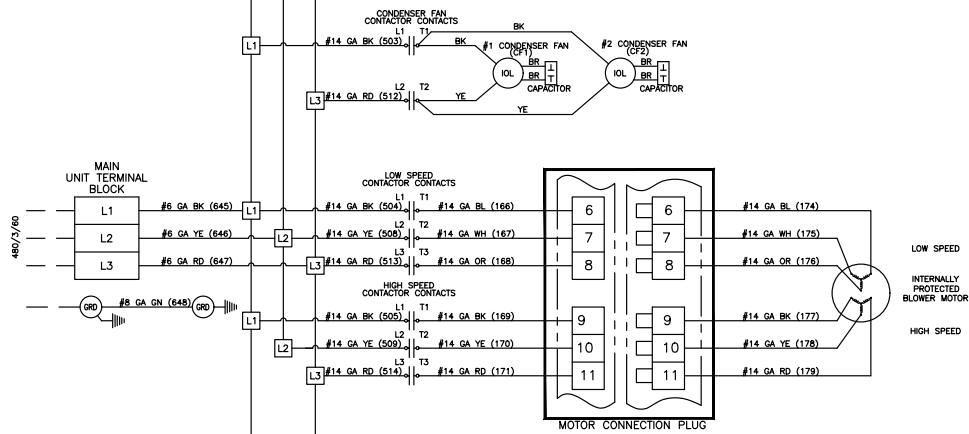
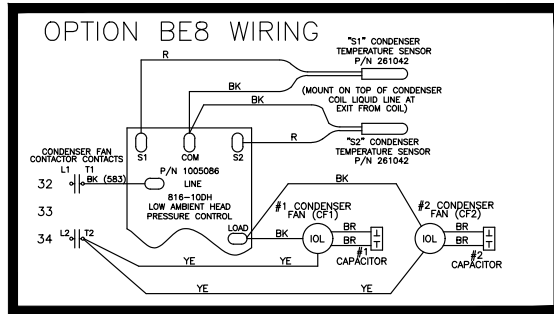
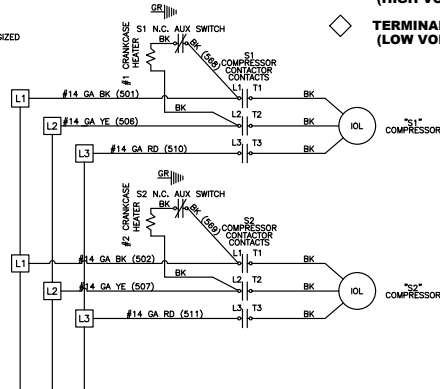
**FIELD CONTROL WIRING**

TOTAL WIRE LENGTH	MINIMUM RECOMMENDED WIRE SIZE
150 FEET	#18 GA.
250 FEET	#16 GA.
350 FEET	#14 GA.

- FACTORY WIRING
- - - FIELD WIRING

- TERMINAL BLOCK - UNIT PANEL (HIGH VOLTAGE SECTION)
- ◇ TERMINAL BLOCK - UNIT PANEL (LOW VOLTAGE SECTION)

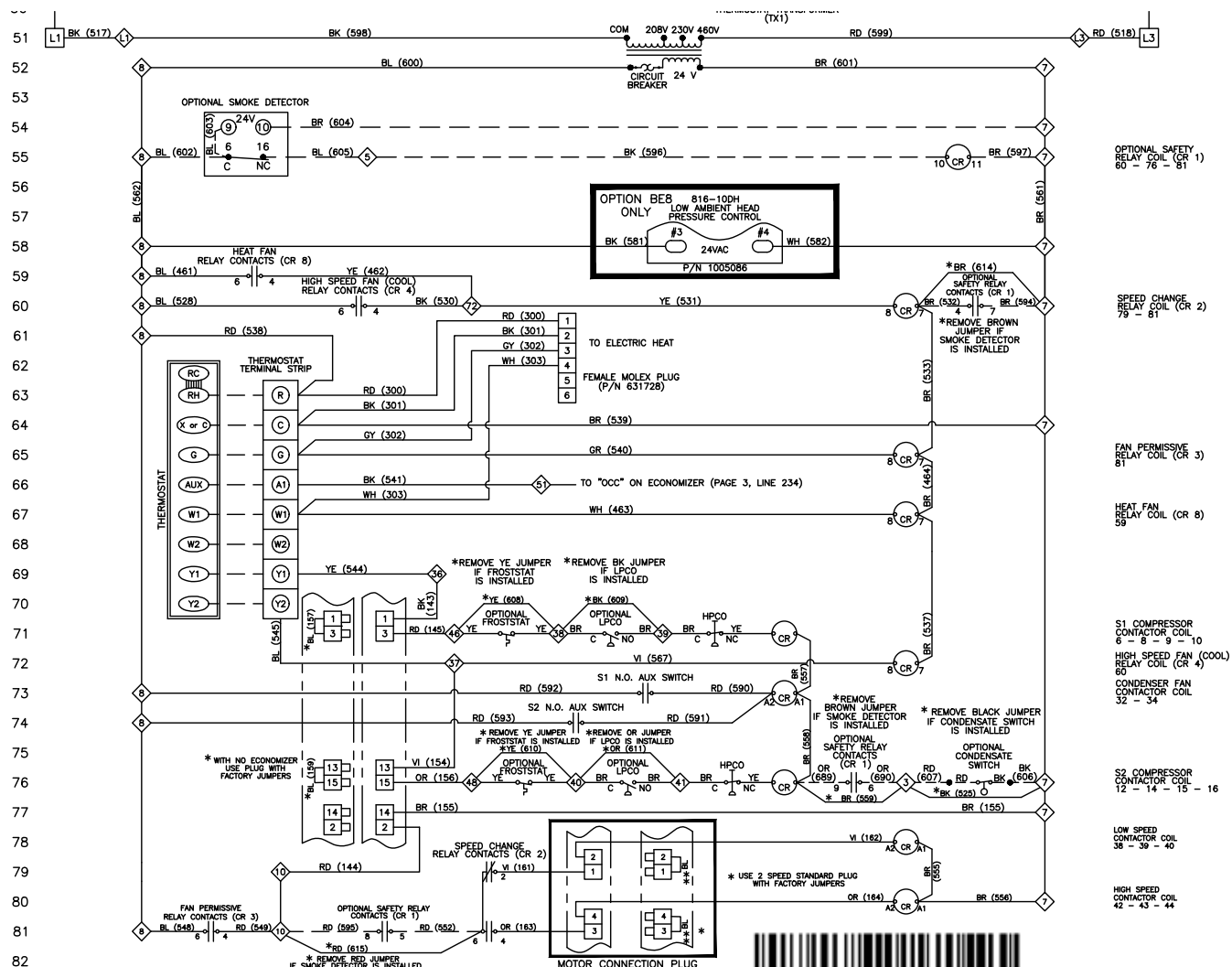
- L1
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P7TQ-90/120: AK7-AMS0

DWG #1012119 SHT. #1

Figure 19. Wiring Diagram for 7.5- and 10-Ton Models (460V, 2-Speed, 2-HP Motor)

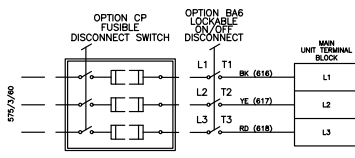


P7TQ-90/120: AK7-AMS

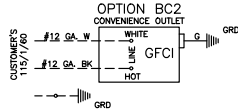
DWG #1012119 SHT. #2

Figure 19 Continued





VOLTAGE	ELECTRIC SIZE	WIRE GA	DISCONNECT SIZE
208-230/3/60	9	18.821.7	60
	18	36.341.8	60
	30	60.693.3	100
	35	72.683.7	125
460/3/60	9	11.9	60
	18	21.7	60
	30	34.6	60
	35	41.9	60
575/3/60	10	10.04	60
	20	20.08	60
	30	30.12	60
	40	40.16	60



NOTE: CONVENIENCE OUTLET WILL NOT BE DE-ENERGIZED BY OPENING A LINE VOLTAGE DISCONNECT.

- NOTES**
- DISCONNECT ALL POWER BEFORE SERVICING.
  - CAUTION: IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105 DEGREES C.
  - LINE AND BLOWER MOTOR BRANCH CIRCUIT WIRE SHOULD BE OF A SIZE TO PREVENT VOLTAGE DROP BEYOND FIVE PERCENT OF SUPPLY LINE VOLTAGE.
  - SEE RATING PLATE LABEL FOR MCA, TO DETERMINE LINE FEED COPPER WIRE SIZE. LINE FEEDS CONNECT TO THE LOCKABLE DISCONNECT OR DISTRIBUTION BLOCKS.
  - USE #18 GA. WIRE FOR 24 VOLT CONTROL WIRING ON UNIT.
  - WHEN PROVIDING OR REPLACING FUSES IN THE FUSIBLE DISCONNECT SWITCH USE DUAL ELEMENTS TIME DELAY FUSES AND SIZE ACCORDING TO 1.25 TIMES THE MAXIMUM TOTAL INPUT AMPS.
  - ALL MOTORS MARKED IOL HAVE INTERNAL LINE BREAK.
  - FUSIBLE DISCONNECT IS FIELD FURNISHED OR AVAILABLE FROM FACTORY AS AN OPTION.
  - THE LINE SIDE OF THE DISCONNECT SWITCH MUST BE CONNECTED TO THE INCOMING POWER SUPPLY SUCH THAT THE VOLTAGE BETWEEN L1 AND GROUND IS THE GREATER VALUE.

**WIRING CODE**

- BLACK - BK
- BROWN - BR
- RED - RD
- ORANGE - OR
- YELLOW - YE
- GREEN - GN
- BLUE - BL
- VIOLET - VI
- WHITE - WH
- GRAY - GY

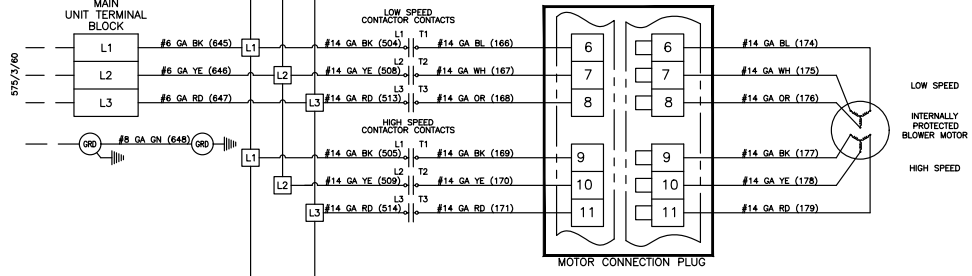
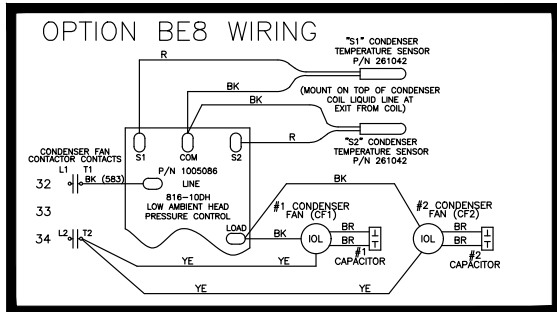
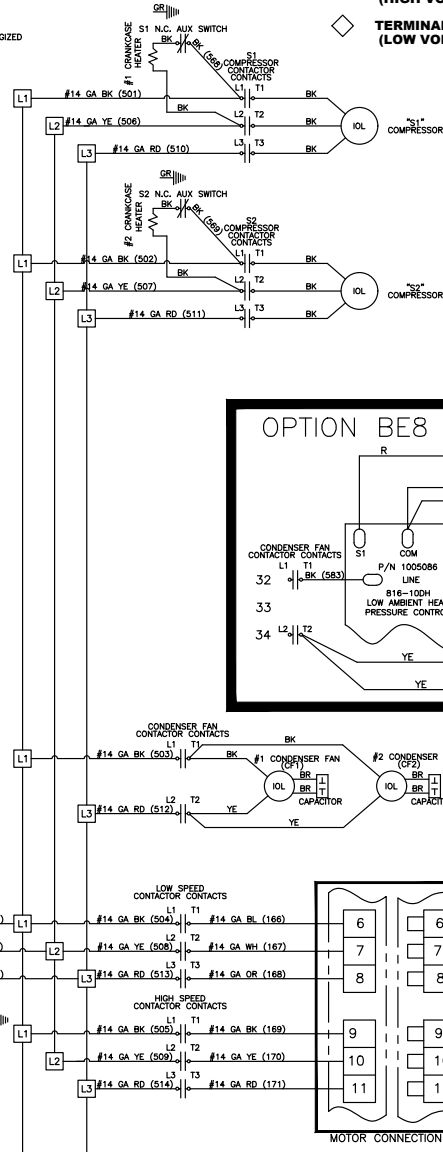
**FIELD CONTROL WIRING**

TOTAL WIRE LENGTH	MINIMUM RECOMMENDED WIRE SIZE
150 FEET	#18 GA.
250 FEET	#16 GA.
350 FEET	#14 GA.

— FACTORY WIRING  
 - - - FIELD WIRING

- TERMINAL BLOCK - UNIT PANEL (HIGH VOLTAGE SECTION)
- ◇ TERMINAL BLOCK - UNIT PANEL (LOW VOLTAGE SECTION)

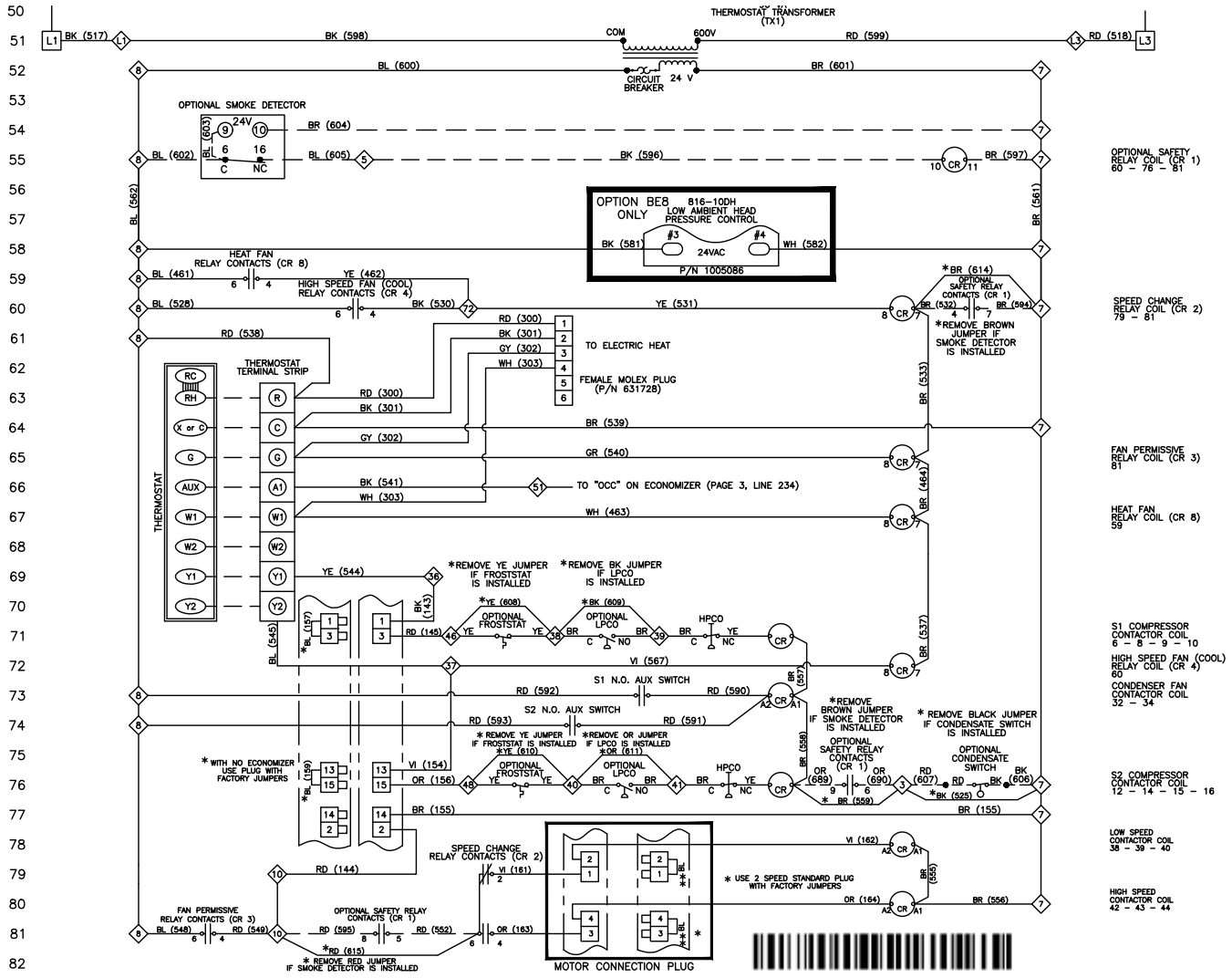
- L1
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- L3
- ◇ 3
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- ◇ 7
- ◇ 8
- ◇ 10
- ◇ 16
- ◇ 20
- ◇ 21
- ◇ 22
- ◇ 36
- ◇ 37
- ◇ 38
- ◇ 39
- ◇ 40
- ◇ 41
- ◇ 46
- ◇ 48
- ◇ 50
- ◇ 51
- ◇ 52
- ◇ 53
- ◇ 54
- ◇ 72



P7TQ-90/120: AK8-AMS0

DWG #1012120 SHT. #1

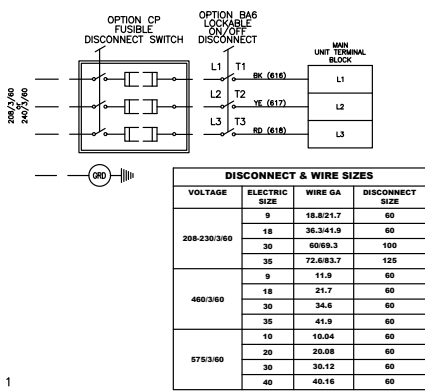
Figure 20. Wiring Diagram for 7.5- and 10-Ton Models (575V, 2-Speed, 2-HP Motor)



**P7TQ-90/120: AK8-AMS**

**DWG #1012120 SHT. #2**

**Figure 20 Continued**

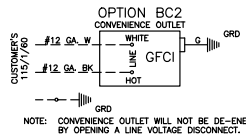
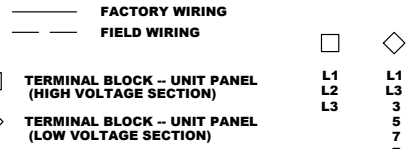


- NOTES**
1. DISCONNECT ALL POWER BEFORE SERVICING.
  2. CAUTION: IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105 DEGREES C.
  3. LINE AND BLOWER MOTOR BRANCH CIRCUIT WIRE SHOULD BE OF A SIZE TO PREVENT VOLTAGE DROP BEYOND FIVE PERCENT OF SUPPLY LINE VOLTAGE.
  4. SEE RATING PLATE LABEL FOR MCA, TO DETERMINE LINE FEED COPPER WIRE SIZE. LINE FEEDS CONNECT TO THE LOCKABLE DISCONNECT OR DISTRIBUTION BLOCKS.
  5. USE #18 GA. WIRE FOR 24 VOLT CONTROL WIRING ON UNIT.
  6. WHEN PROVIDING OR REPLACING FUSES IN THE FUSIBLE DISCONNECT SWITCH USE DUAL ELEMENTS TIME DELAY FUSES AND SIZE ACCORDING TO 1.25 TIMES THE MAXIMUM TOTAL INPUT AMPS.
  7. ALL MOTORS MARKED IOL HAVE INTERNAL LINE BREAK.
  8. FUSIBLE DISCONNECT IS FIELD FURNISHED OR AVAILABLE FROM FACTORY AS AN OPTION.
  9. THE LINE SIDE OF THE DISCONNECT SWITCH MUST BE CONNECTED TO THE INCOMING POWER SUPPLY SUCH THAT THE VOLTAGE BETWEEN L1 AND GROUND IS THE GREATER VALUE.

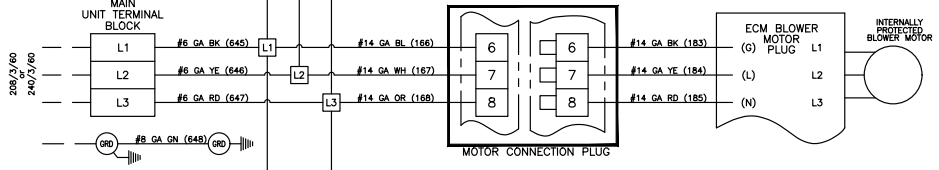
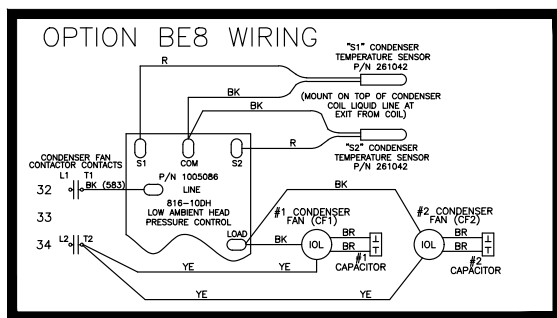
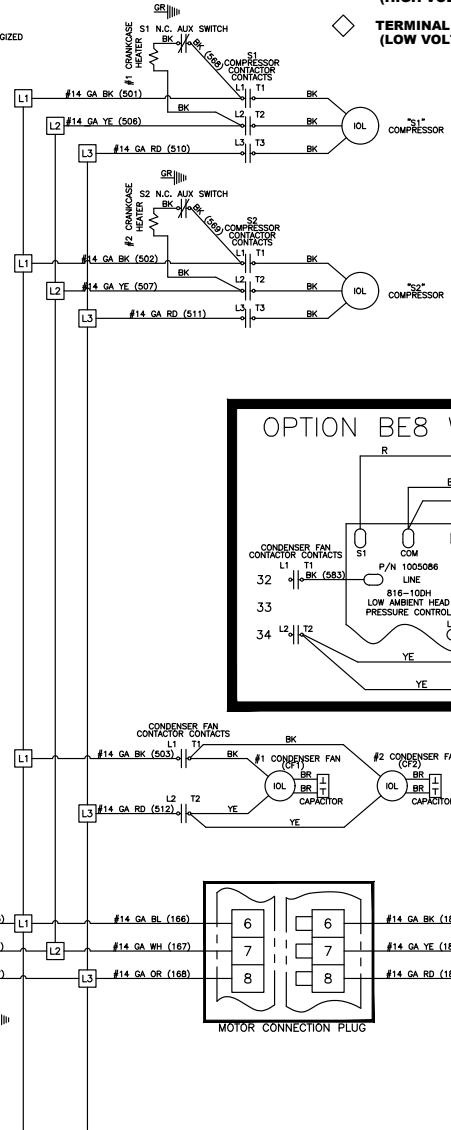
**WIRING CODE**  
 BLACK - BK  
 BROWN - BR  
 RED - RD  
 ORANGE - OR  
 YELLOW - YE  
 GREEN - GN  
 BLUE - BL  
 VIOLET - VI  
 WHITE - WH  
 GRAY - GY

**FIELD CONTROL WIRING**

TOTAL WIRE LENGTH	MINIMUM RECOMMENDED WIRE SIZE
150 FEET	#18 GA.
250 FEET	#16 GA.
350 FEET	#14 GA.

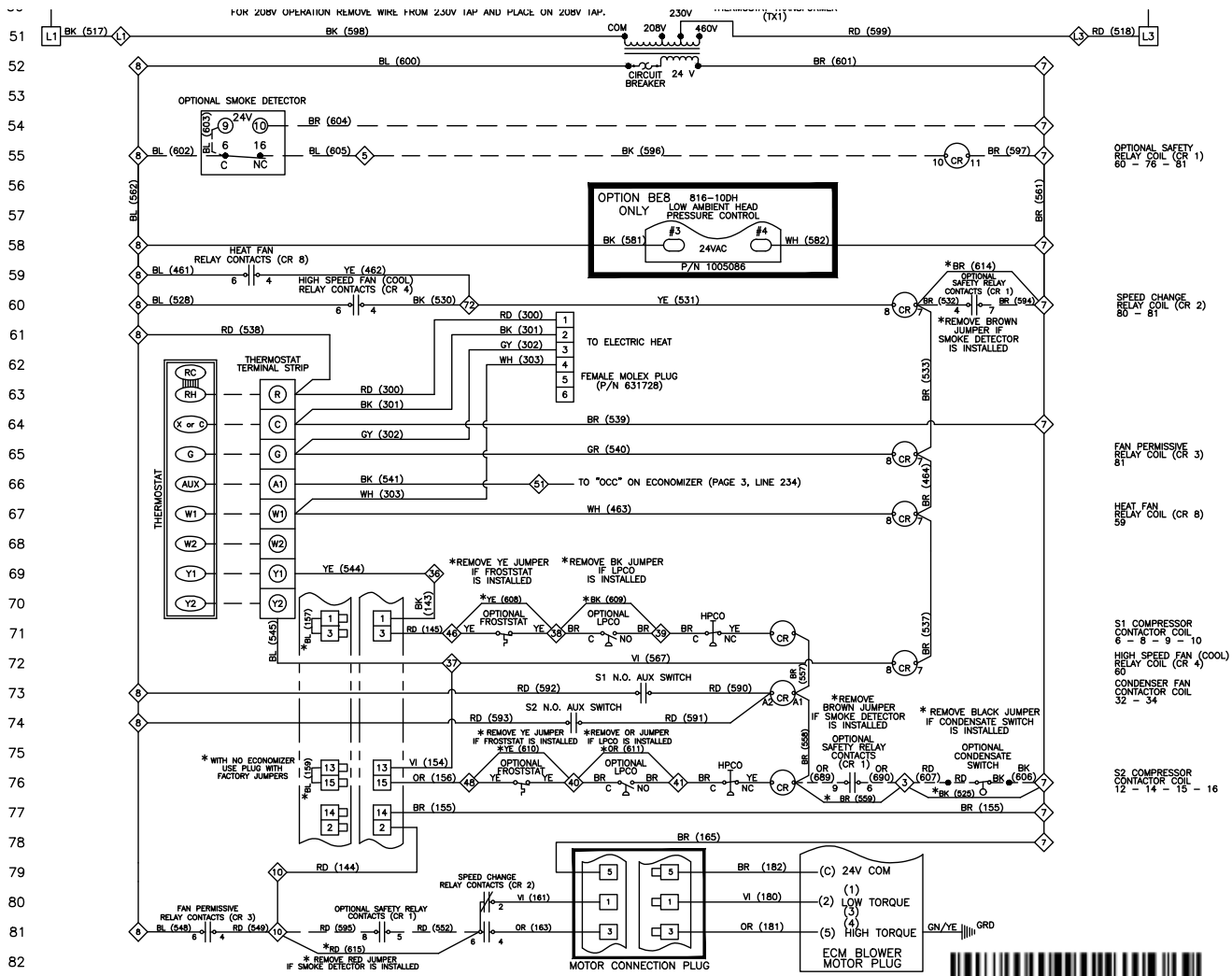


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**P7TQ-90/120: AK20-AMS6 DWG #1012121 SHT. #1**

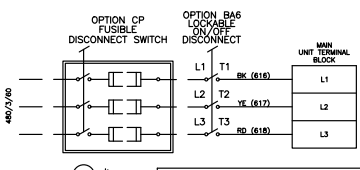
**Figure 21. Wiring Diagram for 7.5- and 10-Ton Models (208/230V, 5-Speed, 3-HP ECM Motor)**



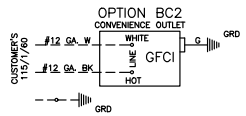
P7TQ-90/120: AK20-AMS6

DWG #1012121 SHT. #2

Figure 21 Continued



VOLTAGE	ELECTRIC SIZE	WIRE GA	DISCONNECT SIZE
208-230/3/60	9	18.821.7	60
	18	35.341.0	60
	30	60.69.3	100
	35	72.683.7	125
460/3/60	9	11.9	60
	18	21.7	60
	30	34.6	60
	35	41.9	60
575/3/60	10	10.04	60
	20	20.08	60
	30	30.12	60
	40	40.16	60



NOTE: CONVENIENCE OUTLET WILL NOT BE DE-ENERGIZED BY OPENING A LINE VOLTAGE DISCONNECT.

- NOTES**
- DISCONNECT ALL POWER BEFORE SERVICING.
  - CAUTION: IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105 DEGREES C.
  - LINE AND BLOWER MOTOR BRANCH CIRCUIT WIRE SHOULD BE OF A SIZE TO PREVENT VOLTAGE DROP BEYOND FIVE PERCENT OF SUPPLY LINE VOLTAGE.
  - SEE RATING PLATE LABEL FOR MCA, TO DETERMINE LINE FEED COPPER WIRE SIZE. LINE FEEDS CONNECT TO THE LOCKABLE DISCONNECT OR DISTRIBUTION BLOCKS.
  - USE #18 GA. WIRE FOR 24 VOLT CONTROL WIRING ON UNIT.
  - WHEN PROVIDING OR REPLACING FUSES IN THE FUSIBLE DISCONNECT SWITCH USE DUAL ELEMENTS TIME DELAY FUSES AND SIZE ACCORDING TO 1.25 TIMES THE MAXIMUM TOTAL INPUT AMPS.
  - ALL MOTORS MARKED IOL HAVE INTERNAL LINE BREAK.
  - FUSIBLE DISCONNECT IS FIELD FURNISHED OR AVAILABLE FROM FACTORY AS AN OPTION.
  - THE LINE SIDE OF THE DISCONNECT SWITCH MUST BE CONNECTED TO THE INCOMING POWER SUPPLY SUCH THAT THE VOLTAGE BETWEEN L1 AND GROUND IS THE GREATER VALUE.

**WIRING CODE**  
 BLACK - BK  
 BROWN - BR  
 RED - RD  
 ORANGE - OR  
 YELLOW - YE  
 GREEN - GN  
 BLUE - BL  
 VIOLET - VI  
 WHITE - WH  
 GRAY - GY

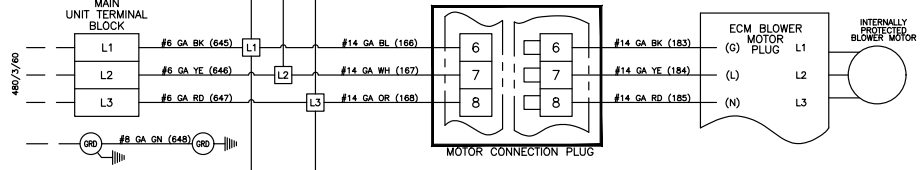
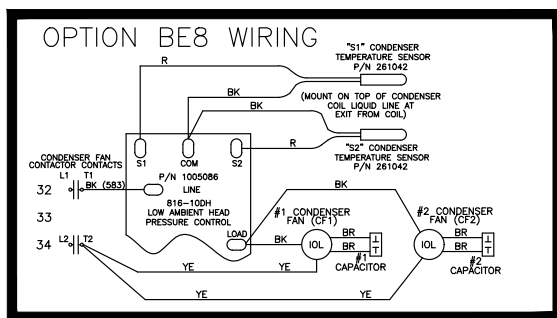
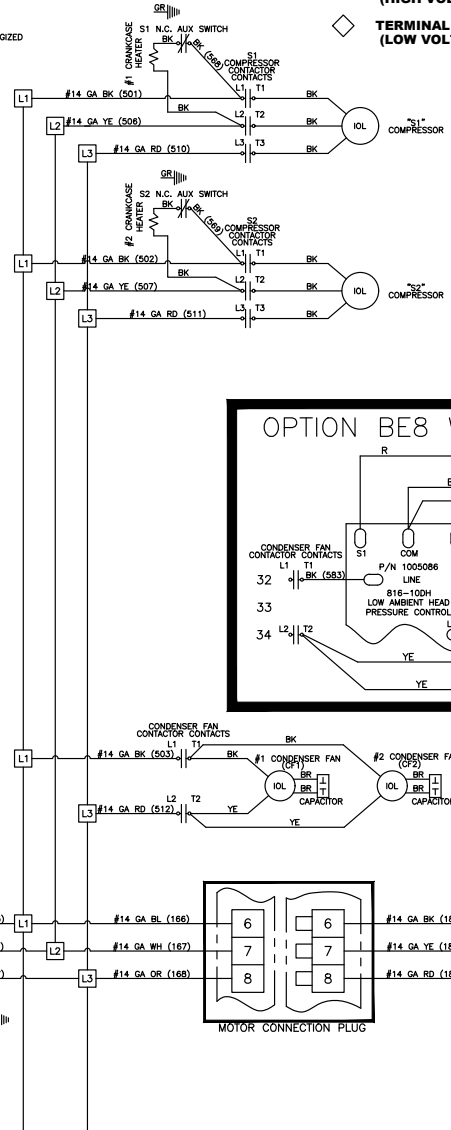
**FIELD CONTROL WIRING**

TOTAL WIRE LENGTH	MINIMUM RECOMMENDED WIRE SIZE
150 FEET	#18 GA.
250 FEET	#16 GA.
350 FEET	#14 GA.

— — — — — FACTORY WIRING  
 — — — — — FIELD WIRING

□ TERMINAL BLOCK - UNIT PANEL (HIGH VOLTAGE SECTION)  
 ◇ TERMINAL BLOCK - UNIT PANEL (LOW VOLTAGE SECTION)

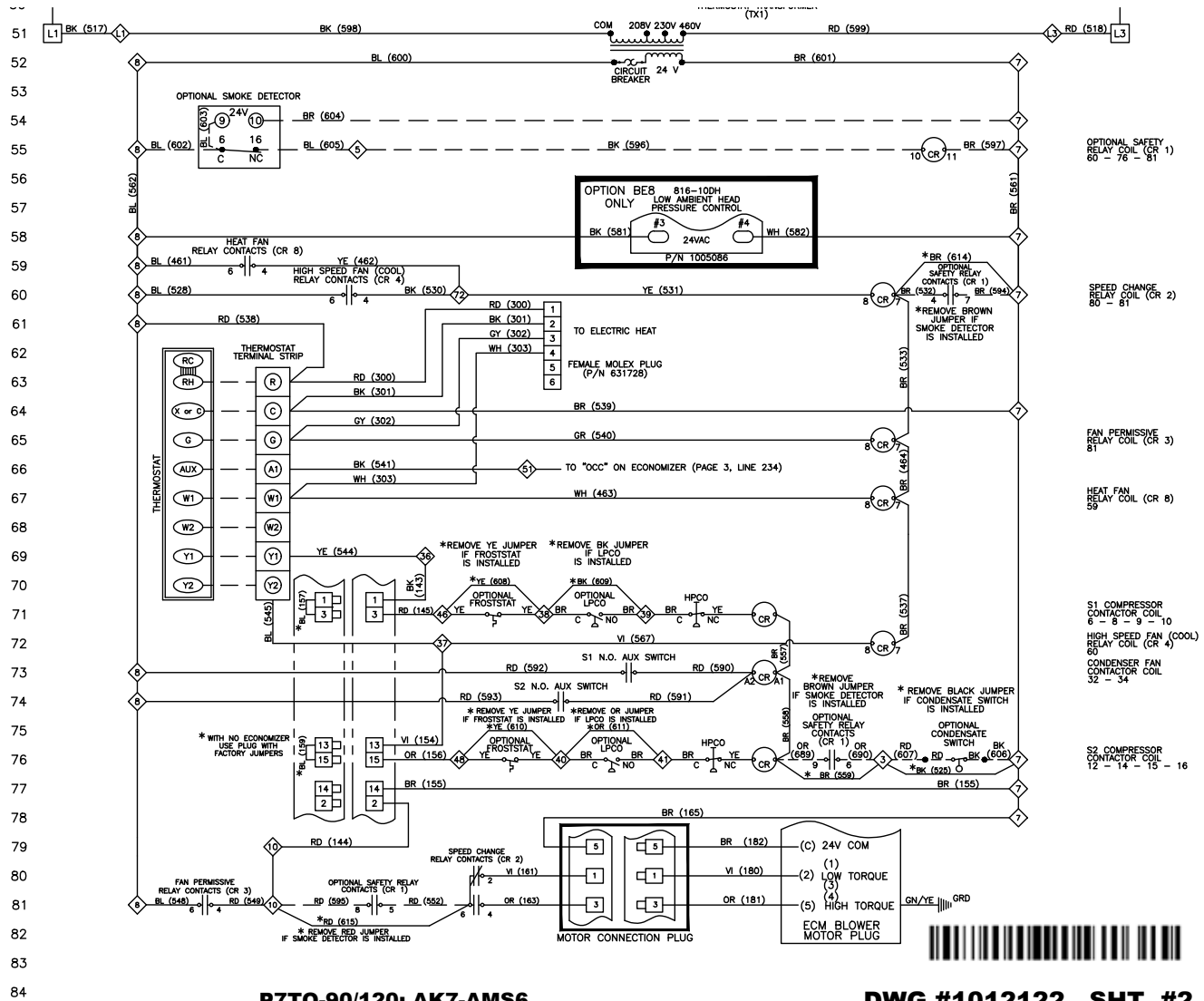
- L1
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- ◇ L2
- ◇ L3
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P77Q-90/120: AK7-AMS6

DWG #1012122 SHT. #1

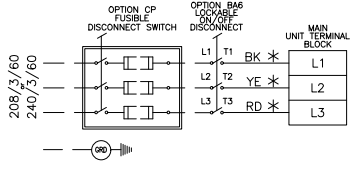
Figure 22. Wiring Diagram for 7.5- and 10-Ton Models (460V, 5-Speed, 3-HP ECM Motor)



P7TQ-90/120: AK7-AMS6

DWG #1012122 SHT. #2

Figure 22 Continued



\* REFER TO TABLE FOR DISCONNECT AND WIRE SIZE.

DISCONNECT & WIRE SIZES			
VOLTAGE	ELECTRIC SIZE (kW)	WIRE GA	DISCONNECT SIZE
208-230/3/60	9	6	60
	18	6	60
	30	2	100
	35	2	125
460/3/60	9	6	60
	18	6	60
	30	6	60
	35	6	60

REFER TO DRAWING # 1011991 FOR STANDARD PLUG & ECONOMIZER PLUG CONNECTION

- NOTES**
- DISCONNECT ALL POWER BEFORE SERVICING.
  - CAUTION: IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105 DEGREES C.
  - LINE AND BLOWER MOTOR BRANCH CIRCUIT WIRE SHOULD BE OF A SIZE TO PREVENT VOLTAGE DROP BEYOND FIVE PERCENT OF SUPPLY LINE VOLTAGE.
  - SEE RATING PLATE LABEL FOR MCA, TO DETERMINE LINE FEED COPPER WIRE SIZE. LINE FEEDS CONNECT TO THE LOCKABLE DISCONNECT OR DISTRIBUTION BLOCKS.
  - USE #16 GA. WIRE FOR 24 VOLT CONTROL WIRING ON UNIT.
  - WHEN PROVIDING OR REPLACING FUSES IN THE FUSIBLE DISCONNECT SWITCH USE DUAL ELEMENTS TIME DELAY FUSES AND SIZE ACCORDING TO 1.25 TIMES THE MAXIMUM TOTAL INPUT AMPS.
  - ALL MOTORS MARKED IOL HAVE INTERNAL LINE BREAK.
  - FUSIBLE DISCONNECT IS FIELD FURNISHED OR AVAILABLE FROM FACTORY AS AN OPTION.
  - THE LINE SIDE OF THE DISCONNECT SWITCH MUST BE CONNECTED TO THE INCOMING POWER SUPPLY SUCH THAT THE VOLTAGE BETWEEN L1 AND GROUND IS THE GREATER VALUE.
  - ALL 24 VAC LOW VOLTAGE CONNECTIONS TO UNIT MUST BE CLASS 2.

**WIRING CODE**

- BLACK - BK
- BROWN - BR
- RED - RD
- ORANGE - OR
- YELLOW - YE
- GREEN - GN
- BLUE - BL
- VIOLET - VI
- WHITE - WH
- GRAY - GY

FIELD CONTROL WIRING	
TOTAL WIRE LENGTH	MINIMUM RECOMMENDED WIRE SIZE
150 FEET	#18 GA.
250 FEET	#16 GA.
350 FEET	#14 GA.

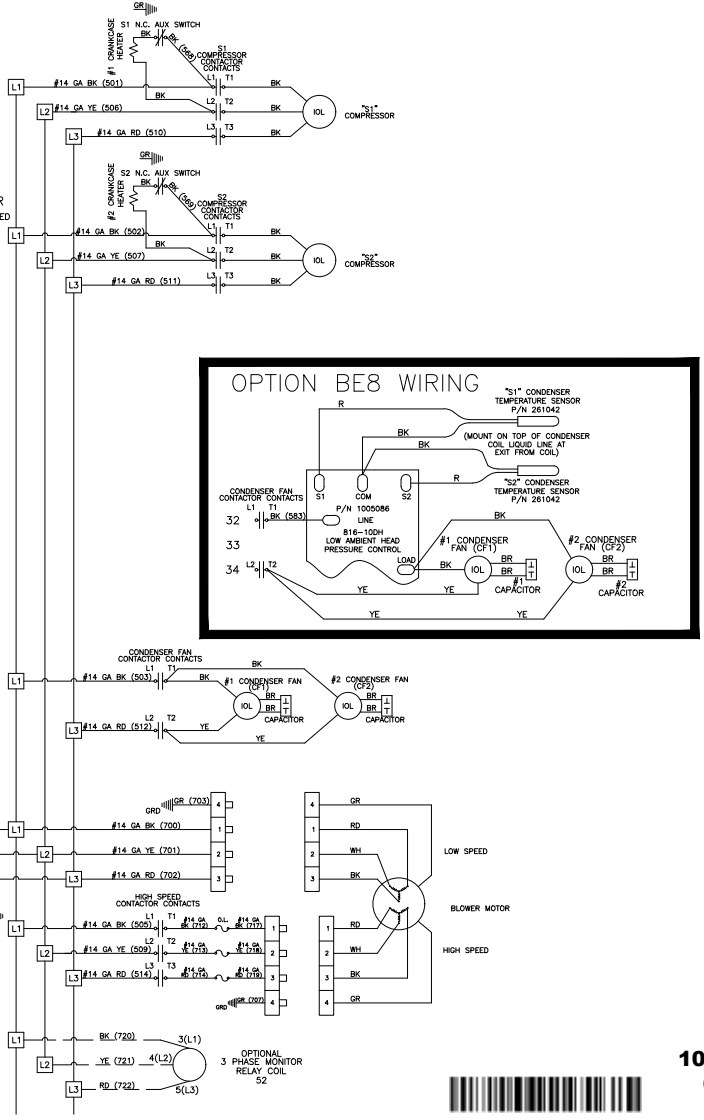
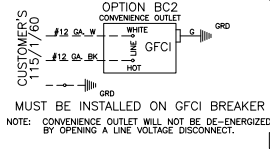
- FACTORY WIRING
- - - - - FIELD WIRING

- TERMINAL BLOCK – UNIT PANEL (HIGH VOLTAGE SECTION)
- ◇ TERMINAL BLOCK – UNIT PANEL (LOW VOLTAGE SECTION)

- L1
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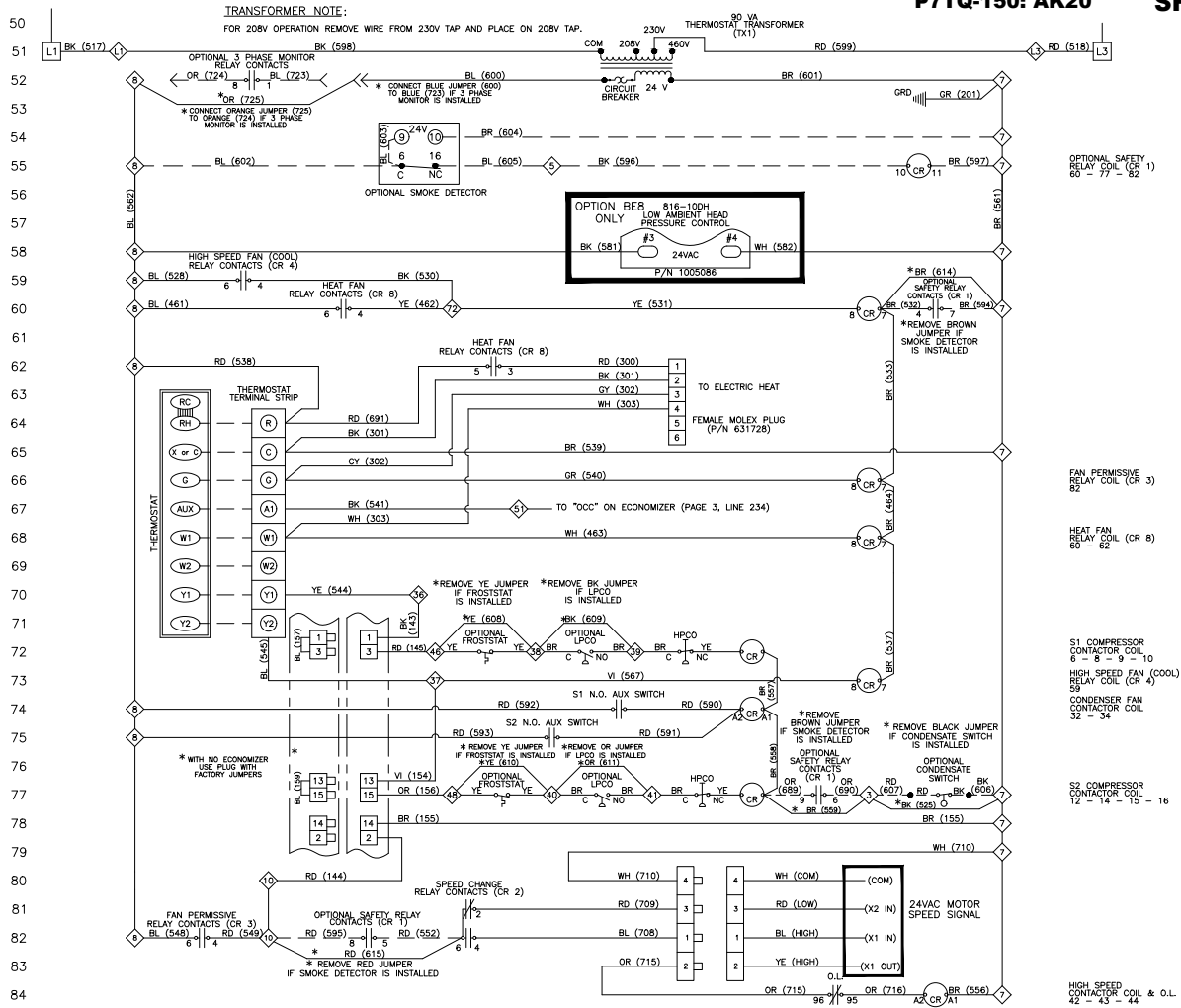
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10208000  
(NEW)  
07/18



Figure 23. Wiring Diagram for 12.5-Ton Models (208/230V)

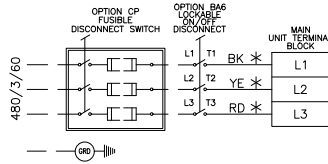


1020800 (NEW) 07/18



Figure 23 Continued





\* REFER TO TABLE FOR DISCONNECT AND WIRE SIZE.

DISCONNECT & WIRE SIZES		
VOLTAGE	ELECTRIC SIZE (kW)	DISCONNECT SIZE
208-230/3/60	9	60
	18	60
	30	100
	35	125
460/3/60	9	60
	18	60
	35	60

REFER TO DRAWING # 1011991 FOR STANDARD PLUG & ECONOMIZER PLUG CONNECTION

- NOTES**
- DISCONNECT ALL POWER BEFORE SERVICING.
  - CAUTION: IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105 DEGREES C.
  - LINE AND BLOWER MOTOR BRANCH CIRCUIT WIRE SHOULD BE OF A SIZE TO PREVENT VOLTAGE DROP BEYOND FIVE PERCENT OF SUPPLY LINE VOLTAGE.
  - SEE RATING PLATE LABEL FOR MCA, TO DETERMINE LINE FEED COPPER WIRE SIZE. LINE FEEDS CONNECT TO THE LOCKABLE DISCONNECT OR DISTRIBUTION BLOCKS.
  - USE #18 GA. WIRE FOR 24 VOLT CONTROL WIRING ON UNIT.
  - WHEN PROVIDING OR REPLACING FUSES IN THE FUSIBLE DISCONNECT SWITCH USE DUAL ELEMENTS TIME DELAY FUSES AND SIZE ACCORDING TO 1.25 TIMES THE MAXIMUM TOTAL INPUT AMPS.
  - ALL MOTORS MARKED IOL HAVE INTERNAL LINE BREAK.
  - FUSIBLE DISCONNECT IS FIELD FURNISHED OR AVAILABLE FROM FACTORY AS AN OPTION.
  - THE LINE SIDE OF THE DISCONNECT SWITCH MUST BE CONNECTED TO THE INCOMING POWER SUPPLY SUCH THAT THE VOLTAGE BETWEEN L1 AND GROUND IS THE GREATER VALUE.
  - ALL 24 VAC LOW VOLTAGE CONNECTIONS TO UNIT MUST BE CLASS 2.

**WIRING CODE**

- BLACK - BK
- BROWN - BR
- RED - RD
- ORANGE - OR
- YELLOW - YE
- GREEN - GN
- BLUE - BL
- VIOLET - VI
- WHITE - WH
- GRAY - GY

**FIELD CONTROL WIRING**

TOTAL WIRE LENGTH	MINIMUM RECOMMENDED WIRE SIZE
150 FEET	#18 GA.
250 FEET	#16 GA.
350 FEET	#14 GA.

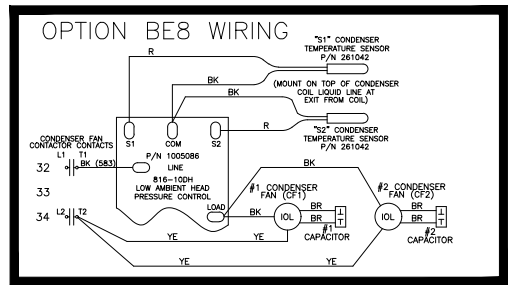
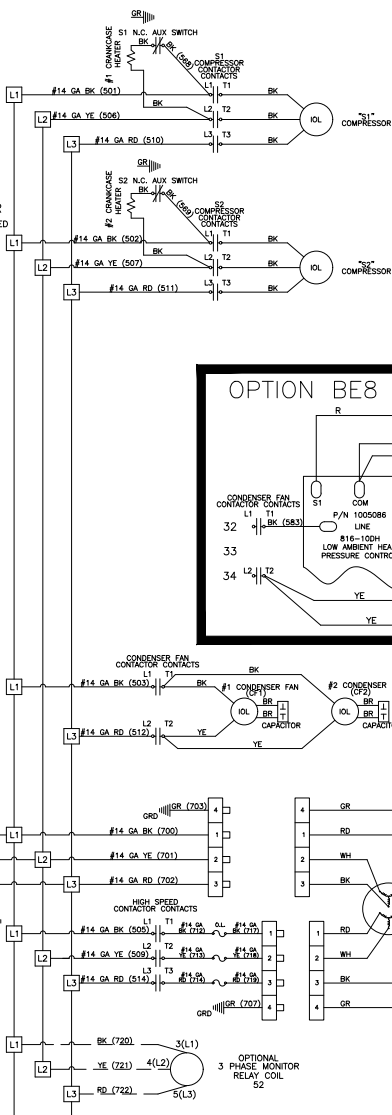
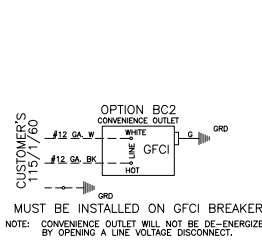
— FACTORY WIRING  
- - - FIELD WIRING

- TERMINAL BLOCK - UNIT PANEL (HIGH VOLTAGE SECTION)
- ◇ TERMINAL BLOCK - UNIT PANEL (LOW VOLTAGE SECTION)

- L1
- ◇ L2
- ◇ L3

- L1
- L2
- L3
- 3
- 5
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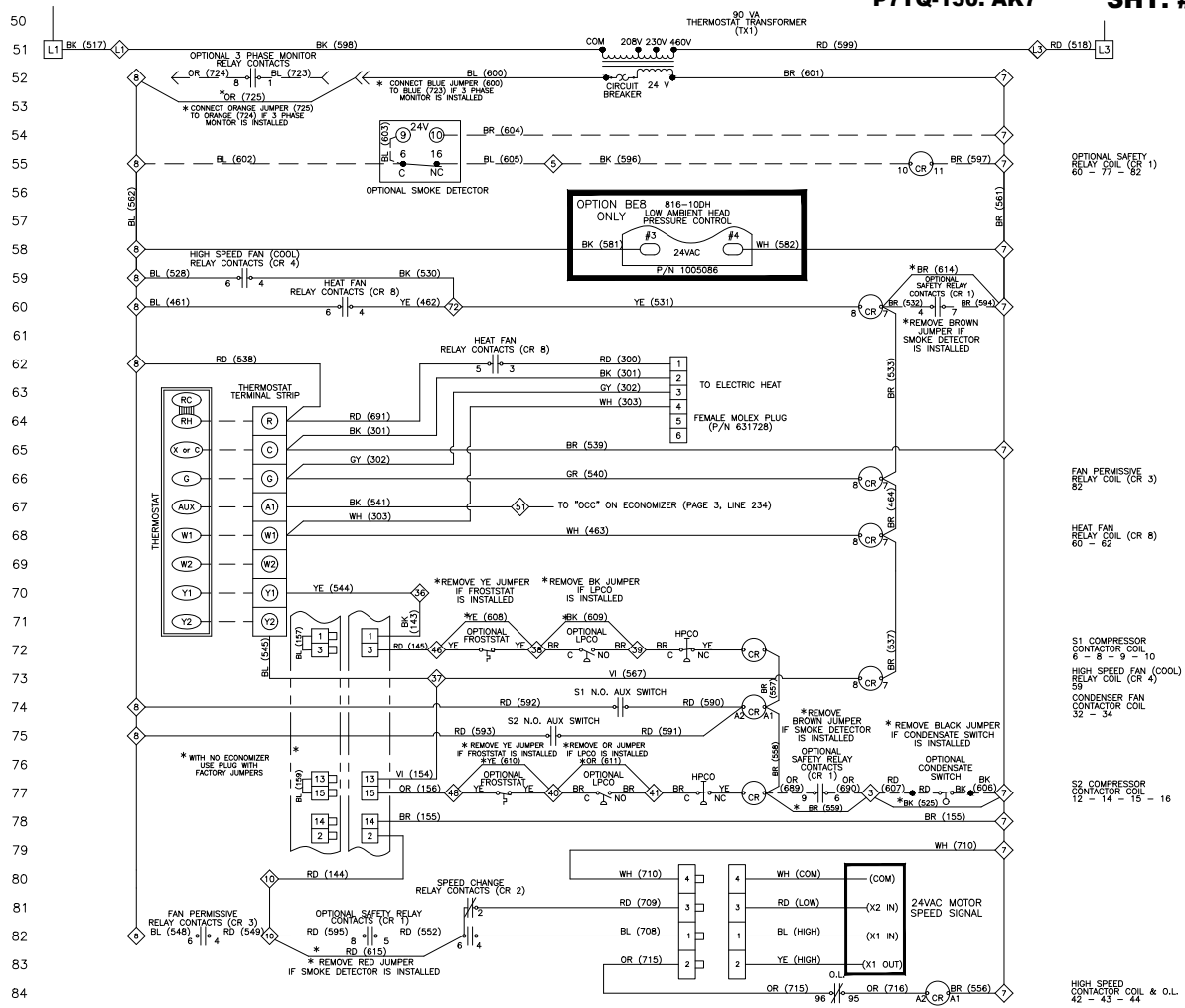
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1020810  
(NEW)  
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Figure 24. Wiring Diagram for 12.5-Ton Models (460V)



- OPTIONAL SAFETY RELAY COIL (CR 1) 60 - 77 - 82
- FAN PERMISSIVE RELAY COIL (CR 3) 82
- HEAT FAN RELAY COIL (CR 8) 60 - 62
- S1 COMPRESSOR CONTACTOR COIL 6 - 8 - 9 - 10
- HIGH SPEED FAN (COOL) RELAY COIL (CR 4) 59
- CONDENSER FAN CONTACTOR COIL 32 - 34
- S2 COMPRESSOR CONTACTOR COIL 12 - 14 - 15 - 16
- HIGH SPEED FAN COIL & O.L. 42 - 43 - 44

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Figure 24 Continued

SINGLE CIRCUIT WITH NO ELECTRIC HEAT													
UNIT EQUIPPED WITH:		STANDARD 2-HP 2-SPEED MOTOR			STANDARD 2-HP 2-SPEED MOTOR + POWER EXHAUST			HIGH STATIC DRIVE 3-HP ECM 5-SPEED MOTOR			HIGH STATIC DRIVE 3-HP ECM 5-SPEED MOTOR + POWER EXHAUST		
COOLING TONNAGE**,**	UNIT VOLTAGE***	TOTAL LINE CURRENT	MCA	MOP	TOTAL LINE CURRENT	MCA	MOP	TOTAL LINE CURRENT	MCA	MOP	TOTAL LINE CURRENT	MCA	MOP
		6	208-230	26.4	30.8	45	30.4	34.8	50	29.3	33.7	50	33.3
460	12.8		14.9	20	14.8	16.9	25	14.3	16.4	20	16.3	18.4	25
575	9.8		11.4	15	11.7	13.3	15	—					
7.5	208-230	36.8	40.1	50	40.8	44.1	50	39.7	43.0	50	43.7	47.0	60
	460	17.7	19.2	25	19.7	21.2	25	19.2	20.7	25	21.2	22.7	25
	575	13.2	14.3	15	15.1	16.2	20	N/A	N/A	N/A	N/A	N/A	N/A
10	208-230	42.6	46.6	60	46.6	50.6	60	45.5	49.5	60	49.5	53.5	60
	460	21.1	23.1	30	23.1	25.1	30	22.6	24.6	30	24.6	26.6	30
	575	15.8	17.2	20	17.7	19.1	20	N/A	N/A	N/A	N/A	N/A	N/A
UNIT EQUIPPED WITH:		STANDARD 3-HP 2-SPEED MOTOR			STANDARD 3-HP 2-SPEED MOTOR + POWER EXHAUST			HIGH STATIC DRIVE 5-HP 2-SPEED MOTOR			HIGH STATIC DRIVE 5-HP 2-SPEED MOTOR + POWER EXHAUST		
COOLING TONNAGE**,**	UNIT VOLTAGE***	TOTAL LINE CURRENT	MCA	MOP	TOTAL LINE CURRENT	MCA	MOP	TOTAL LINE CURRENT	MCA	MOP	TOTAL LINE CURRENT	MCA	MOP
		12.5	208-230	53.4	58.2	70	57.4	62.2	80	57.6	62.4	80	61.6
460	27.3		29.7	35	29.3	31.7	40	29.5	31.9	40	31.5	33.9	40

SINGLE CIRCUIT WITH ELECTRIC HEAT: STANDARD DRIVE MOTOR AND/OR POWER EXHAUST																	
UNIT EQUIPPED WITH:		2-HP 2-SPEED MOTOR + HEATER KIT								2-HP 2-SPEED MOTOR + HEATER KIT + POWER EXHAUST							
COOLING TONNAGE**,**	UNIT VOLTAGE***	MCA				MOP				MCA				MOP			
		9 KW	18 KW	30 KW	35 KW	9 KW	18 KW	30 KW	35 KW	9 KW	18 KW	30 KW	35 KW	9 KW	18 KW	30 KW	35 KW
6	208-240	31.0-34.6	52.9-59.9	82.5-94.1	98.3-112.1	45-45	60-60	90-100	100-125	36.0-39.6	57.9-64.9	87.5-99.1	103.3-117.1	50-50	60-70	90-100	110-125
	480	18.5	30.8	46.9	56.0	20	35	50	60	21.0	33.3	49.4	58.5	25	35	50	60
	575	15.5	28.1	40.6	53.3	20	30	45	60	17.9	30.5	43	55.6	20	35	45	60
7.5	208-240	40.1-40.1	52.9-59.9	82.5-94.1	98.3-112.1	50-50	60-60	90-100	100-125	44.1-44.1	57.9-64.9	87.5-99.1	103.3-117.1	50-50	60-70	90-100	110-125
	480	19.2	30.8	46.9	56.0	25	35	50	60	21.2	33.3	49.4	58.5	25	35	50	60
	575	15.5	28.1	40.6	53.3	20	30	45	60	17.9	30.5	43	55.6	20	35	45	60
10	208-240	46.6-46.6	52.9-59.9	82.5-94.1	98.3-112.1	60-60	60-60	90-100	100-125	50.6-50.6	57.9-64.9	87.5-99.1	103.3-117.1	60-60	60-70	90-100	110-125
	480	23.1	30.8	46.9	56.0	30	35	50	60	25.1	33.3	49.4	58.5	30	35	50	60
	575	17.2	28.1	40.6	53.3	20	30	45	60	19.1	30.5	43	55.6	20	35	45	60
UNIT EQUIPPED WITH:		3-HP 2-SPEED MOTOR + HEATER KIT								3-HP 2-SPEED MOTOR + HEATER KIT + POWER EXHAUST							
COOLING TONNAGE**,**	UNIT VOLTAGE***	MCA				MOP				MCA				MOP			
		9 KW	18 KW	30 KW	35 KW	9 KW	18 KW	30 KW	35 KW	9 KW	18 KW	30 KW	35 KW	9 KW	18 KW	30 KW	35 KW
12.5	208-240	58.2-58.2	58.9-65.9	88.5-100.1	104.3-118.1	70-70	60-70	90-110	110-125	62.2-62.2	63.9-70.9	93.5-105.1	109.3-123.1	80-80	70-80	100-110	110-125
	480	29.7	33.8	49.9	59.0	35	35	50	60	31.7	36.3	52.4	61.9	40	40	60	70

SINGLE CIRCUIT WITH ELECTRIC HEAT: HIGH STATIC DRIVE MOTOR AND/OR POWER EXHAUST																	
UNIT EQUIPPED WITH:		3-HP ECM MOTOR + HEATER KIT								3-HP ECM MOTOR + HEATER KIT + POWER EXHAUST							
COOLING TONNAGE**,**	UNIT VOLTAGE***	MCA				MOP				MCA				MOP			
		9 KW	18 KW	30 KW	35 KW	9 KW	18 KW	30 KW	35 KW	9 KW	18 KW	30 KW	35 KW	9 KW	18 KW	30 KW	35 KW
6	208-240	34.6-38.3	56.5-63.5	86.1-97.8	101.9-115.8	50-50	60-70	90-100	110-125	39.6-43.3	61.5-68.5	91.1-102.8	106.9-120.8	50-50	70-70	100-110	110-125
	480	20.4	32.6	48.8	57.9	25	35	50	60	22.9	35.1	51.3	60.4	25	40	60	70
	575	—															
7.5	208-240	43.0-43.0	56.5-63.5	86.1-97.8	101.9-115.8	50-50	60-70	90-100	110-125	47.0-47.0	61.5-68.5	91.1-102.8	106.9-120.8	60-60	70-70	100-110	110-125
	480	20.7	32.6	48.8	57.9	25	35	50	60	22.9	35.1	51.3	60.4	25	40	60	70
	575	—															
10	208-240	49.5-49.5	56.5-63.5	86.1-97.8	101.9-115.8	60-60	60-70	90-100	110-125	53.5-53.5	61.5-68.5	91.1-102.8	106.9-120.8	60-60	70-70	100-110	110-125
	480	24.6	32.6	48.8	57.9	30	35	50	60	26.6	35.1	51.3	60.4	30	40	60	70
	575	—															
UNIT EQUIPPED WITH:		5-HP 2-SPEED MOTOR + HEATER KIT								5-HP 2-SPEED MOTOR + HEATER KIT + POWER EXHAUST							
COOLING TONNAGE**,**	UNIT VOLTAGE***	MCA				MOP				MCA				MOP			
		9 KW	18 KW	30 KW	35 KW	9 KW	18 KW	30 KW	35 KW	9 KW	18 KW	30 KW	35 KW	9 KW	18 KW	30 KW	35 KW
12.5	208-240	62.4-62.4	64.1-71.1	93.8-105.4	109.5-123.4	80-80	70-80	100-110	110-125	66.4-66.4	69.1-76.1	98.8-110.4	114.5-128.4	80-80	70-80	100-125	125-150
	480	31.9	36.5	52.6	61.8	40	40	60	70	33.9	39.0	55.1	64.3	40	40	60	70

\*For C series units: Nominal unit input voltage = 208-230V/60-Hz/3PH, minimum allowed unit voltage = 187V, and maximum allowed voltage = 253V.

\*\*For D series units: nominal unit input voltage = 460V/60-Hz/3PH, minimum allowed unit voltage = 414V, and maximum allowed voltage = 506V.

\*\*\*To achieve the rated unit performance, unit voltage should be within 2% of nominal.

KEY: FLA = Full Load Amps, MCA = Minimum Circuit Ampacity, RLA = Rated Load Amps, MOP = Maximum Over-Current Protection, and LRA = Locked Rotor Amps.

Table 17. MCA/MOP Data (Single Circuit)









## INSTALLATION CHECKLIST

<b>INSTALLATION ADDRESS:</b>		
CITY:	STATE:	
UNIT MODEL #		
UNIT SERIAL #		
Unit Installed Minimum clearances per Figure 1 (page 5)?	YES	NO
<b>INSTALLER NAME:</b>		
CITY:	STATE:	
Has the owner's information been reviewed with the customer?	YES	NO
Has the Literature Package been left with the unit?	YES	NO

**ATTENTION INSTALLERS:**

It is your responsibility to know this product better than your customer. This includes being able to install the product according to strict safety guidelines and instructing the customer on how to operate and maintain the equipment for the life of the product. Safety should always be the deciding factor when installing this product and using common sense plays an important role as well. Pay attention to all safety warnings and any other special notes highlighted in the manual. Improper installation of the unit or failure to follow safety warnings could result in serious injury, death, or property damage. These instructions are primarily intended to assist qualified individuals experienced in the proper installation of this appliance. Some local codes require licensed installation/service personnel for this type of equipment.

REFRIGERATION SYSTEM		
Was unit given 24 hr warm up period for crankcase heaters (if equipped)?	YES	NO
Liquid Pressure (high side)	Stage 1	
	Stage 2	
Suction Pressure (low side)	Stage 1	
	Stage 2	

AIR FILTER INSPECTION		
Filter(s) secured in place?	YES	NO
Filter(s) clean?	YES	NO

ELECTRICAL SYSTEM		
Electrical connections tight?	YES	NO
Has the thermostat been calibrated?	YES	NO
Is the thermostat level?	YES	NO
Single Phase Units		
Rated Voltage: .....	VOLTS	
L1-L2 Volts: .....	VOLTS	
3-Phase Units		
Rated Voltage: .....	VOLTS	
L1-L2 Volts: .....	VOLTS	
L1-L3 Volts: .....	VOLTS	
L2-L3 Volts: .....	VOLTS	
Avg. Volts: .....	VOLTS	
Max. deviation of voltage from avg. volts: .....	VOLTS	
% Volt Imbalance: .....	VOLTS	



\* AHRI commercial furnace certification listing applies only to 3 phase units having an input rate 225,000 Btu/hr or greater



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**I-P77Q (08-19) PN1012565R3**

1012565-C  
 REPLACES 1012565-B