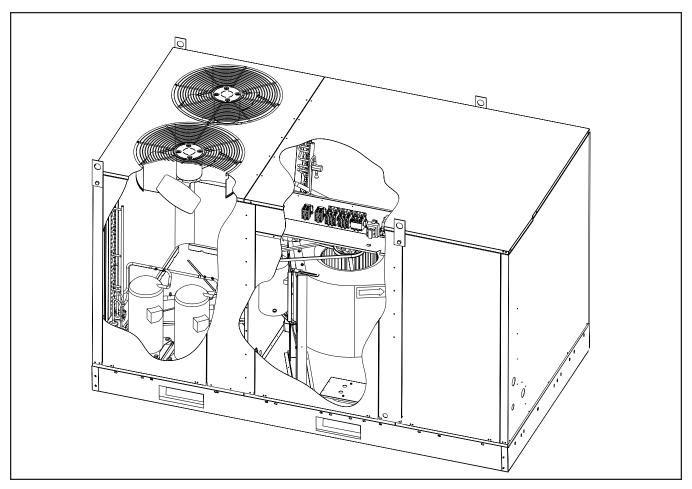
Installation Instructions

71/2 and 10 Ton Series

Single Package Electric Heating/Electric Cooling Rooftop Unit



A WARNING:

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

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

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

These instructions are intended primarily 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. Read all instructions carefully before starting the installation.

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GENERAL SPECIFICATIONS

Single Package Electric Cooling units are designed for outdoor rooftop or ground level slab installations. The units are shipped ready for downflow duct connections and are easily converted for horizontal flow connections.

All models are shipped from the factory with the following:

- 1. Adjustable Belt
- 2. Downflow duct connections
- 3. 24V circuit breaker protection.

Unit dimensions are shown on the Physical Data pages.

SAFETY CONSIDERATIONS

It is the responsibility of the installer to ensure that the installation is made in accordance with all applicable local and national codes.

! WARNING!

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

Literature, Labels, and Tags — When working with this equipment, follow all precautions in the literature, on tags, and on labels provided with the unit and/or approved field installed kits. The type of hazard and severity are described on each label or tag.

Pressures Within The System — 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.

INSTALLATION REQUIREMENTS

Equipment Application — Before beginning the installation, verify that the unit model is correct for the job. The unit model number is printed on the data label. This furnace is NOT to be used for temporary heating of buildings or structures under construction.

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

Requirements and Codes — The installer must comply with all local codes and regulations which govern this type equipment. Local codes and regulations take precedence

over any recommendations contained in these instructions. All electrical wiring must be made in accordance with 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. 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), "Installation of combination heating/cooling units must also conform with current C.S.A. Standard B52 "Mechanical Refrigeration Code."

NFPA publications are available by writing: National Fire Protection Association Batterymarch Park Quincy, ME 02269

Unit Location — The electric unit is designed only for outdoor installations. Choosing the location of the unit should be based on minimizing the length of the supply and return ducts. Consideration should also be given to availability of fuel, electric power, service access, noise, and shade. The unit installation shall avoid areas where condensate drainage may cause problems.

Clearances to Combustible Materials — See Figure 3 for required clearances to combustible materials. Refer to the unit data label for the model number.

! WARNING!

Rooftop installations with vertical ducts must have an elbow installed in the supply duct so that the elements are not directly over a supply grille.

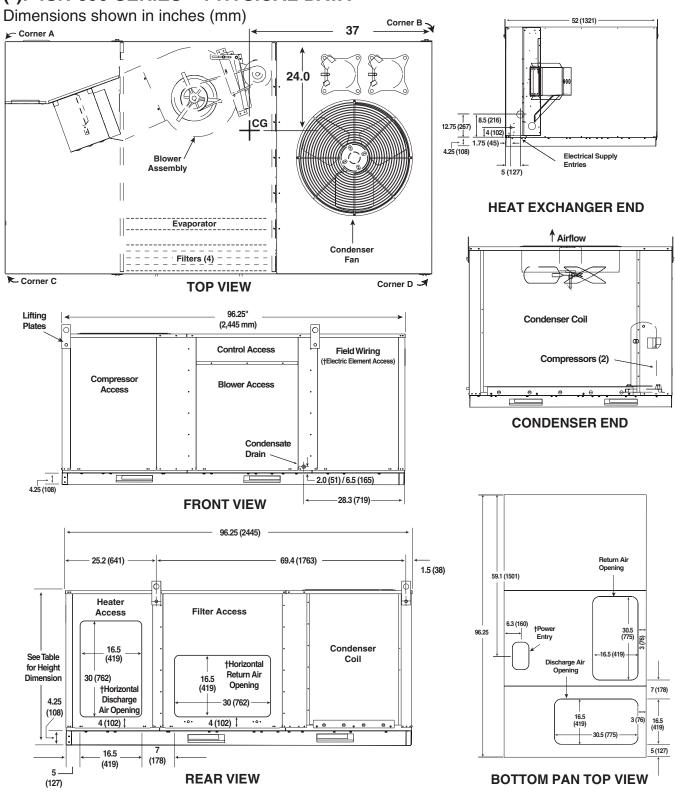
The electric unit is suitable for installation on combustible flooring or class A, B, or C roofing materials. A clearance of at least 36 inches from all sides of the unit is recommended to allow for servicing and maintenance. Where accessibility to combustibles clearances are greater than minimum clearances, accessibility clearances must take preference. Sufficient clearance for unobstructed airflow through the outdoor coil must be maintained in order to achieve rated performance. See Figure 3 for minimum clearances to obstructions.

Thermostat — A two stage cooling/one stage heating 24VAC thermostat should be used with these units.

Air Filter Requirements — A suitable air filter must be installed in the unit or in the return air system. Refer to Specification & Electrical Data Table for recommended filter sizes. Air filter pressure drop must not exceed 0.08 inches WC.

This unit is supplied with air filters. Air filter(s) must be installed ahead of the evaporator coil of this unit. All return air to this unit must pass through the filters before entering this unit.

(*)P4SN-090 SERIES - PHYSICAL DATA

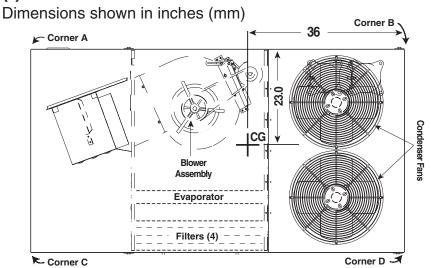


<u>7½ Ton</u>																
	Linit W	olabt-	Ship	ping	Center of	f Gravity			(Corner	Weight	s			Unit I	leight
Model No.	Unit W	eigni4	Wei	ght	Inches	(mm)		A		В		2		D	without	with
	Lbs.	Kg.	Lbs.	Kg	Α	В	Lbs.	Kg	Lbs.	Kg	Lbs.	Kg	Lbs.	Kg	Baserails	Baserails
(*)P4SN-090C	799	363	1018	462	37 (940)	24 (610)	167	76	263	119	143	65	223	101	39 (991)	43.25 (1098)
(*)P4SN-090D	799	363	1018	462	37 (940)	24 (610)	167	76	263	119	143	65	223	101	39 (991)	43.25 (1098)

[‡] Unit weight without packaging or field installed accessories.

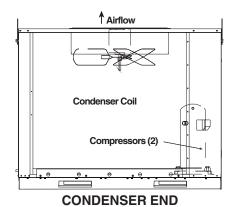
[†] Field Installed Kit

(*)P4SN-120 SERIES - PHYSICAL DATA



12.75 (267) 8.5 (216) 14 (102) 1.75 (45) 4.25 (108) **Electrical Supply** 5 (127)

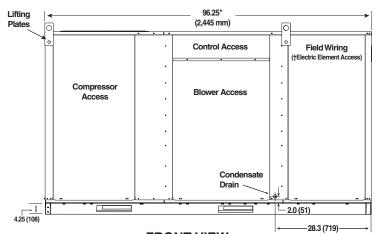
HEAT EXCHANGER END



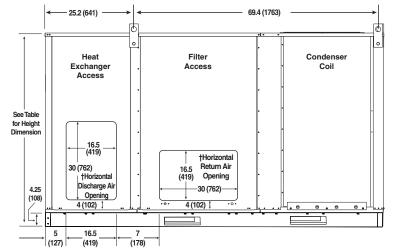
Return Air Opening 59.1 (1501) 96.25 (92) -16.5 (419) Discharge Air Opening 7 (178) 16.5 (419) 30.5 (775) 5 (127)

BOTTOM PAN TOP VIEW

TOP VIEW



FRONT VIEW



REAR VIEW

<u>10 Ton</u>																
	11	المعاددات	Ship	ping	Center of	f Gravity				Corner	Weight	s			Unit I	leight
Model No.	Unit W	eight‡	Wei	ight	Inches	(mm)		A	В		С)	without	with
	Lbs.	Kg.	Lbs.	Kg	Α	В	Lbs.	Kg	Lbs.	Kg	Lbs.	Kg	Lbs.	Kg	Baserails	Baserails
(*)P4SN-120C	996	452	1215	552	36 (914)	23 (584)	209	95	348	158	169	77	278	126	51 (1295)	55.25 (1403)
(*)P4SN-120D	996	452	1215	552	36 (914)	23 (584)	209	95	348	158	169	77	278	126	51 (1295)	55.25 (1403)

[‡] Unit weight without packaging or field installed accessories.

[†] Field Installed Kit

! WARNING!

Never operate unit without a filter. A failure to follow this warning could result in a fire, personal injury, or death.

Condensate Drain - Condensate is removed from the unit through the 3/4" (19mm) PVC pipe located on the front side of the unit. Install a 3" (8 cm) Min. trap between the drain line and an open vent of the same size for proper condensate removal. (See Figure 2) Refer to local codes and restrictions for proper condensate disposal requirements.

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

UNIT INSTALLATION

Minimum Clearance Requirements - Units are certified as combination Heating and Cooling equipment for outdoor installation only at the minimum clearances to combustible materials shown. Clearances shown are for both Downflow and Horizontal discharge. (See Figure 3)

⚠ WARNING!

This product contains fiberglass wool. Disturbing the insulation of this product during installation, maintenance, or repair will expose you to fiberglass wool. Breathing this may cause lung cancer. (Fiberglass wool is known to the State of California to cause cancer.)

Fiberglass wool may also cause respiratory, skin, and eye irritation.

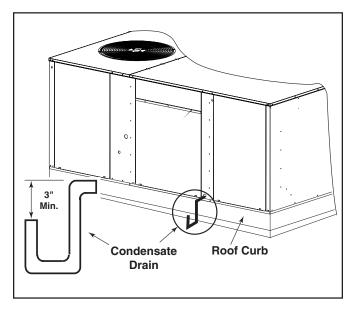


Figure 2. Condensate Drain

Units may be installed on wood flooring or on Class A, B, or Croof covering material when used with side supply and return air ducts. (Horizontal Discharge Kit required.) Units may be installed on wood flooring or on Class A, B,

or C roof covering material when used with bottom discharge and return air ducts in conjunction with a roof curb.

Notice to Installer: If installing units on a combustible floor with downflow discharge, a roof curb is required.

Units may be installed on non-combustible flooring when used with bottom supply and return air ducts.

Rooftop Mounting - For rooftop installations use the appropriate accessory roof curb and follow all instructions included with it. Locate the unit according to local building codes and ordinances. The roof curb must be square and level to ensure proper condensate drainage.

On bottom discharge applications, supply and return air ducts must be attached to the roof curb duct supports, not the unit. Install all ductwork before setting unit to curb or frame.

Notice to Installer: If installing units on a combustible floor with downflow discharge, the base rails must be removed and a roof curb is required. See Rigging and Hoisting for base rail removal instructions. In downflow applications never drill or punch holes in unit base. Leakage may occur if unit bottom pan is punctured.

If any brand other than a NORDYNE Roof Curb is to be used the frame support must be constructed using noncombustible materials. Units require full perimeter support under the unit. Supports must be made of steel or suitably treated wood materials. The unit must be square and level to ensure proper condensate drainage.

The roof must be capable of handling the weight of the unit. See Physical Data pages for unit weights. Reinforce the roof if required.

Frame must be high enough to ensure prevention of any moisture from entering the unit. Recommended height to unit base is 8"(20cm) for both Downflow and Horizontal applications.

Secure roof curb or frame to roof using acceptable mechanical methods per local codes.

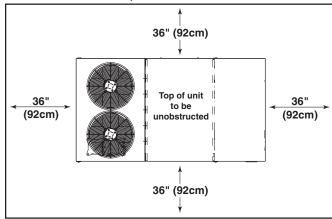


Figure 3. Minimum Clearances to Combustibles

! WARNING!

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.

Ground Level - If installing the unit at ground level, provide a concrete mounting pad separate from the building foundation. The pad must be level to ensure proper condensate disposal and strong enough to support the unit's weight. Make sure the slab is a minimum of 3" (8cm) above grade and in an area that drains well.

Unit clearances must be in accordance with those shown in Figure 3.

Ductwork should be attached directly to flanges on panels supplied in horizontal duct conversion kits.

Units require full perimeter support under the unit. Supports must be made of steel or suitably treated wood materials. The unit must be square and level to ensure proper condensate drainage.

Frame must be high enough to ensure prevention of any moisture from entering the unit. Recommended height to unit base is 8" (20cm).

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

Rigging and Hoisting - Remove wooden top cap and side panel assembly from base rails. Remove base rail screws from the perimeter of the unit and loosen corner screws. Once the unit is lifted the base rails will detach from the unit

! WARNING!

All access panels must be securely in place when rigging and hoisting.

The unit should be lifted with slings or chains attached to the four lifting plates supplied from the factory. Spreader bars are not required but may be used to ensure even loading. Ensure the lifting equipment is adequate for the load. Refer to Physical Data pages for unit weights. Keep the unit in an upright position at all times. The rigging must be located outside the units center of gravity. Refer to Physical Data pages for center of gravity location.

Lifting plates may be removed after installation. If removed, store inside unit for later use.

Bolts, washers, and rubber grommets must be left in place to avoid water or debris from entering the unit.

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

CIRCULATING AIR SUPPLY

! WARNING!

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 framing on which the unit is mounted must provide sound physical support of the unit with no gaps, cracks, or sagging between the unit and the curb or frame.

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.

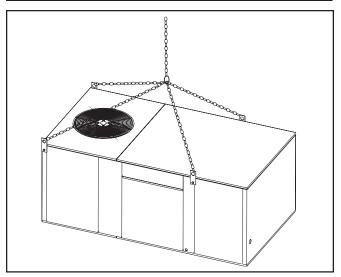


Figure 4. Rigging and Hoisting

This unit is designed only for use with a supply and return duct. Any exterior ducts, joints, or openings in the building roof or walls must be weatherized with conventional flashing and sealing compounds. Air ducts should be installed in accordance with all applicable local codes and the standards of the National Fire Protection Association "Standard for Installation of Air Conditioning Systems" (NFPA 90A).

Design the ductwork according to methods described by the Air Conditioning Contractors of America (ACCA) Manual D. The ducts must be properly sized not to exceed 0.2 inches WC pressure drop at 400 scfm per nominal ton of cooling capacity.

If outside air is utilized as return air to the unit for ventilation or to improve indoor air quality, the system must be designed so that the return air to the unit is not less than 50°F (10°C) during heating operation. 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.

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

Acoustical Ductwork—Certain installations may require the use of acoustical lining inside the supply ductwork. 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 ductwork may be used in place of internal duct liners if the fiber ductwork is in accordance with the current revision of the SMACNA construction standard on fibrous glass ducts. Fibrous ductwork and internal acoustical lining must be NFPA Class 1 air ducts when tested per UL Standard 181 for Class 1 ducts.

Downflow to Horizontal Conversion — The unit is shipped ready for downflow duct connections. If horizontal ducts are required, the unit must be converted according to the directions in the conversion kit for both the supply and return ducts.

ELECTRICAL WIRING

WARNING!

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

General — Electrical power wiring must be made in accordance with all applicable local codes and ordinances, and with the current revision of the National Electric Code NFPA 70 or in Canada CSA C.22.1 Canadian Electrical Code Part 1. If any of the original wire as supplied with the unit must be replaced, it must be replaced with material of the same gauge and temperature rating.

NOTE: Units are shipped with two 2" x 1" conduit knock out reducer bushings (located at unit field wiring terminal block) for units requiring smaller gauge field wiring. Other (field supplied) reducers are approved for use to meet specific conduit size requirements.

Line Voltage — All (*)P4SN model units are shipped factory ready for Single Circuit Electrical Supply connections. See Table 3 or unit rating label for proper high voltage wiring requirements.

For Dual Electrical Supply connections see unit rating plate or heater kit installation instructions for proper high voltage wiring requirements. Use NORDYNE P/N-917468,3 Pole Dual Circuit Adaptor for converting to dual supply connections.

Before proceeding with the electrical connections, make certain that the voltage, frequency and phase of the supply source are the same as those specified on the unit rating plate. Also verify that the service provided by the utility is sufficient to handle the additional load imposed by this equipment.

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.

Model Number	Nominal Electrical		age nge		essors Ea.	Outdoor Motor	Indoor Blower	•	gle Cii Circu	rcuit uit Am	p.		gle Cii . Ove	rcuit rcurre	nt
(*)P4SN	Supply	Min.	Max.	RLA	LRA	FLA	FLA	0	9kw	18kw	35kw	0	9kw	18kw	35kw
-090C	208-230/60/3	187	253	13.9	88	3.7	6.3	43.5	43.5	62.9	115	60	60	70	120
-090D	460/60/3	414	506	6.4	44	1.9	3.1	20.5	20.5	32.4	57.5	30	30	40	60
-120C	208-230/60/3	187	253	16.4	124	2.8 ea.	9.1	56.6	56.6	69.9	122	70	70	90	125
-120D	460/60/3	414	506	8.2	59.6	1.4 ea.	4.4	28.2	28.2	35.7	60.9	35	35	35	70

NOTES: FLA = Full Load Amps; LRA = Lock Rotor Amps; RLA = Rated Load Amps.

Table 3. Electrical Data

Use a separate branch electrical circuit for this unit. A means of electrical disconnect must be located within sight of and readily accessibility to the unit.

Units are shipped from the factory wired for 240 or 460 volt operation (See unit data label for proper incoming field wiring). For 208 volt operation, remove the lead from the transformer terminal marked 240V (on 208-230 models only) and connect it to the terminal marked 208V. For maximum circuit ampacity and maximum overcurrent protection, see the unit rating plate or Table 3.

WARNING!

The unit cabinet must have an uninterrupted or unbroken electrical ground to minimize personal injury if an electrical fault should occur. This ground may consist of electrical wire or approved conduit when installed in accordance with existing national or local codes.

Overcurrent protection must be provided at the branch circuit distribution panel and sized as shown in Table 3 or on the unit rating label and according to the National Electric Code and applicable local codes.

Provide power supply for the unit in accordance with the unit wiring diagram, and the unit rating plate. Connect the line-voltage leads to the corresponding terminals on the 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 a conduit connector for connecting the supply wires to the unit and for obtaining proper grounding. Grounding may also be accomplished by using the grounding lug provided in the control box.

Blower Speed — The blower speed is preset at the factory. For optimum system performance and comfort, it may be necessary to change the factory set speed. Refer to Fan Performance Data page for proper operating range.

To change the blower speed:

- 1. Disconnect all electrical power to the unit and remove the blower access panel.
- Loosen the motor tension bars 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 tension bar bolts.

Check all factory wiring per the unit wiring diagram and inspect the factory wiring connections to be sure none loosened during shipping or installation.

WARNING!

To avoid personal injury or property damage, make certain that the motor leads cannot come into contact with any uninsulated metal components of the unit.

Room Thermostat — A single stage heating/two stage cooling thermostat is required for these units. Select a thermostat which operates in conjunction with the installed accessories. The thermostat should be mounted about five feet above the floor on an inside wall. The thermostat should be kept away from drafts, slamming doors, lamps, direct sunlight and the supply air flow.

To install the thermostat:

- 1. Position the subbase on an inside wall and mark the mounting holes and thermostat cable openings.
- Cut out the cable opening and route the thermostat cable from the unit's low voltage compartment to the thermostat location. The thermostat cable is supplied by the installer.
- 3. Connect the cable leads to the subbase or thermostat terminals and to the unit's low voltage terminal block as shown in Figure 7. A system wiring diagram is also provided on the inside of the control access panel and in Figure 8a and 8b of these installation instructions.
- 4. Secure the subbase or thermostat to the wall using screws provided with the thermostat.
- 5. Install the correct thermostat housing to subbase.
- 6. Refer to thermostat instruction sheet for complete detailed mounting information.

To determine the heat anticipator setting, either:

- 1. Add the current draw of the system components or,
- 2. Measure the current flow on the thermostat R-W circuit after the circulating blower motor has started.

SYSTEM CHECK

Pre-Start Check List

- Verify that the unit is level to allow proper condensate drainage.
- Verify that there is free airflow to and from the outdoor coil and that all clearance requirements are met.
- Verify that the ductwork is sealed to prevent air leakage.
- Verify that the line voltage power leads are securely connected and the unit is properly grounded.
- Verify that low voltage wires are securely connected to correct leads in the low voltage area of the control box.
- Verify that all exterior panels are replaced and securely fastened.
- Verify that the outdoor fan turns freely.
- Verify that the power supply branch circuit overcurrent protection is sized properly.
- Verify that the thermostat is wired correctly. The thermostat function switch should be set to "Off" and the thermostat fan switch should be set to "Auto."

WARNING!

The unit is equipped with crankcase heaters. Allow 24 hours prior to continuing the start up procedures to allow for heating of the refrigerant compressor crankcase. Failure to comply may result in damage and could cause premature failure of the system. This warning should be followed at initial start up and any time the power has been removed for 12 hours or longer.

START-UP PROCEDURE

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

Air Circulation — Leave the thermostat system switch set to "Off" and set the thermostat fan switch to "On." The blower motor should run continuously. Check for air delivery at the register(s). Ensure that there are no obstructions at the registers or in the ductwork. Set thermostat fan switch to "Auto," the blower will shut 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.

T'Stat Wire Gauge	Recommended T'Stat Wire Length - Ft. (Unit to T'Stat)
18 Ga.	0 - 60
16 Ga.	61 - 130
Field Supplied Wiring	J Use Solid Class II Copper Wire
(Y1) (Y2) (W1) (G)	
RC	
Indoor Thermostat	Unit Low Voltage

Figure 7. Typical Connections - 2 Stage Cool/Single Stage Heat T-Stat

Terminal

System Cooling

- I. Set the thermostat system switch to "Cool" and the thermostat fan switch to "Auto." Lower the thermostat temperature switch below room temperature and observe that the blower, both compressors and fan(s) energize. Check that air cooler than room temperature is being discharged at the register. Ensure unit refrigerant pressures are in order. Blower should be turning in direction indicated by arrow. 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 both compressors. DO NOT alter unit wiring. Listen for any unusual noises. Locate the source and correct as needed.
- After allowing the unit to run for several minutes, set the temperature selector above room temperature, 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 optional electric heat 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.

Install the heater kits as directed by the instruction sheet that comes as part of the heater kit. Follow all cautions and warnings as directed.

- 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.

! WARNING!

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

Verify Operation of Over-Temperature Limit Control -

To verify operation of the over-temperature limit control, make sure that all access panels are in place and that there is power to the unit. Block the return airflow to the unit by installing a close-off plate in place of or upstream of the filter. Set the thermostat to a temperature above room temperature and verify the unit operates with the correct sequence of operation (see Operating Sequence). The over-temperature limit control should function to turn off the electric strip heat within approximately four minutes (the exact time depending on the efficiency of the close-off in blocking the return air to the unit).

Sub-Base

The circulating air blower should continue to run when the over-temperature limit control switch opens. Remove the close-off immediately after the over-temperature limit control opens. If the unit operates for more than four minutes with no return air, set the thermostat to a temperature below room temperature, shut off the power to the unit, and replace the over-temperature limit control.

COMPONENT FUNCTIONS

Over-Temperature Limit Control — 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, electric heat will shut off.

UNIT MAINTENANCE



! WARNING!

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



! 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.

Refrigerant Charging — Packaged electric units are fully charged at the factory. The system refrigerant charge can be checked and adjusted through the service ports provided behind the compressor service panel. 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 proper amount of charge.

! WARNING!

The units are shipped fully charged and ready for installation. When a system is installed according to these instructions, no refrigerant charging is required. 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.

Routine Maintenance — Proper maintenance is important to achieve optimum performance from the air conditioner. The ability to properly perform maintenance on this equipment requires certain mechanical skills and tools.

If you do not possess these skills, contact your dealer for maintenance. Consult your local dealer about the availability of maintenance contracts. At a minimum, routine maintenance should include the following:

Air Filters — It is recommended that you inspect and clean or replace the air filters every three to four weeks. Units are equipped with 2" pleated disposable filters. Filter rack is adjustable for 1" permanent type filters. Do not use 1" disposable filters. Replace using filters of like size and kind.

! WARNING!

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

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

A CAUTION:

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

Motor Lubrication — The motors for the circulating air blower, outdoor fan, and combustion blower are prelubricated at the factory. No further oiling is required for the life of this product.

MARNING!

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

Blower Compartment — The blower compartment should be cleaned monthly during the heating and cooling seasons to remove any dirt and lint that may have accumulated in the compartment or on the blower and motor. 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.

! CAUTION:

Verify proper operation after servicing.

OPERATING SEQUENCE

The operating sequences for the heating, cooling, and fan modes are described below. Refer to the wiring diagram for the unit.

Cooling Mode:

- On a call for cooling the thermostat closes, applying 24 VAC to "Y1", "G", and "Y2" if Stage 2 cooling is required.
- "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.
- 5. The circulating blower motor is de-energized immediately.

Blower Mode:

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

Heating Mode:

 On a call for heat the thermostat closes, applying 24 VAC to the "W1" terminal.

Unit Fails to Operate

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

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

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

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

SPECIFICATIONS AND ELECTRICAL DATA

Model P4SN	090C	090D	120C	120D		
Performance						
Capacity-Cooling BTUH (High)	90,000	90,000	115,000	115,000		
Capacity-Cooling BTUH (Low)	45,000	45,000	58,000	58,000		
Cooling-Efficiency EER	10.30	10.30	10.30	10.30		
Electrical Rating - 60 Hz.						
Phase	3	3	3	3		
Operating Voltage	187-253	414-506	187-253	414-506		
Maximum Rated Ampacity	40	18.9	52.5	26.1		
Minimum Circuit Ampacity (MCA)	43.5	20.5	56.6	28.2		
Max. Overcurrent Protection (MOP)	60	30	70	35		
Compressor Data	2 ea.	2 ea.	2 ea.	2 ea.		
Volts	208/230	460	208/230	460		
Rated Load Amps	13.9	6.4	16.4	8.2		
Lock Rotor Amps	88	44	124	60		
Indoor Blower - Belt Drive						
Wheel Diameter	12 x 12	12 x 12	15 x 15	15 x 15		
Motor-HP/RPM	2 / 1725	2 / 1725	3 / 1725	3 / 1725		
Motor Amps	6.3	3.1	9.1	4.4		
Airflow Range (CFM)	2700	- 3500	3500	- 4400		
Outdoor Fan(s)	1 ea.	1 ea.	2 ea.	2 ea.		
Motor-HP/RPM	3/4-1060	3/4-1060	1/2 - 1075	1/2 - 1075		
Motor Amps	3.7	1.9	2.8	1.4		
Fan Diameter/CFM	24" / 5200	24" / 5200	22" / 8600	22" / 8600		
Refrigerant Charge - oz.						
Stage 1 Circuit	108	108	156	156		
Stage 2 Circuit	108	108	156	156		
High Pressure Switch (PSIG)	425 ± 10 M	anual Reset	425 ± 10 M	anual Reset		
Loss of Charge Switch (PSIG)	Cut Ou	t: 5 ± 5	Cut Ou	t: 5 ± 5		
	Cut In:	20 ± 5	Cut In:	20 ± 5		
Freeze Protection Thermostat	Opens (°l	F): 28 ± 5	Opens (°F): 28 ± 5			
	Closes (°	F): 57 ± 6	Closes (°F): 57 ± 6			
Filters						
Style	Disposable	- 2" Pleated	Disposable - 2" Pleated			
Size (Qty.)	16" x 20"	x 2" (4)	16" x 25" x 2" (4)			

Table 6. Specifications and Electrical Data

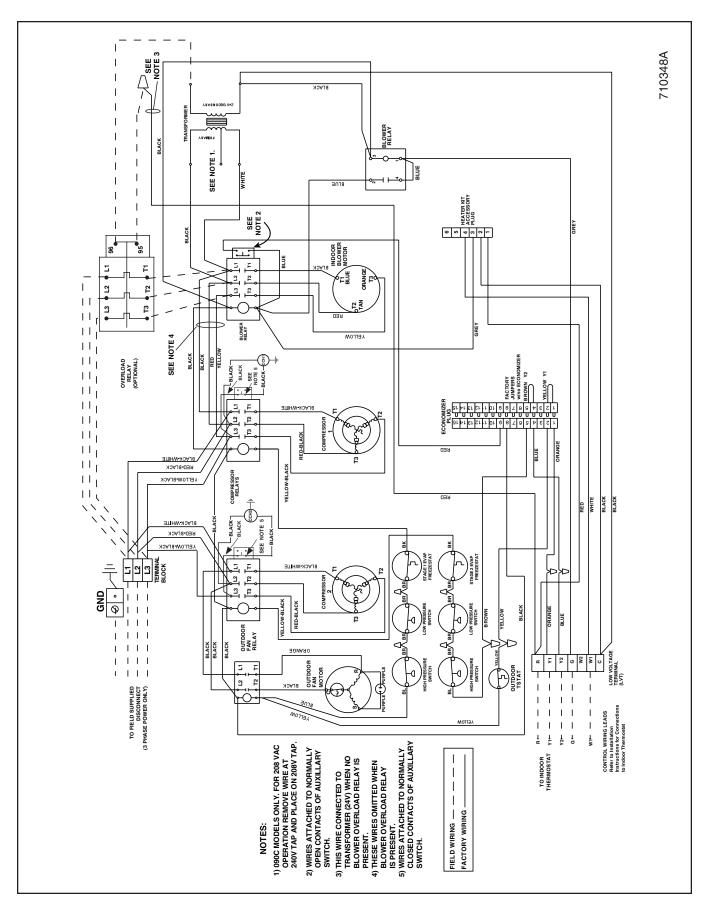


Figure 8A. (*)P4SN-090 Series

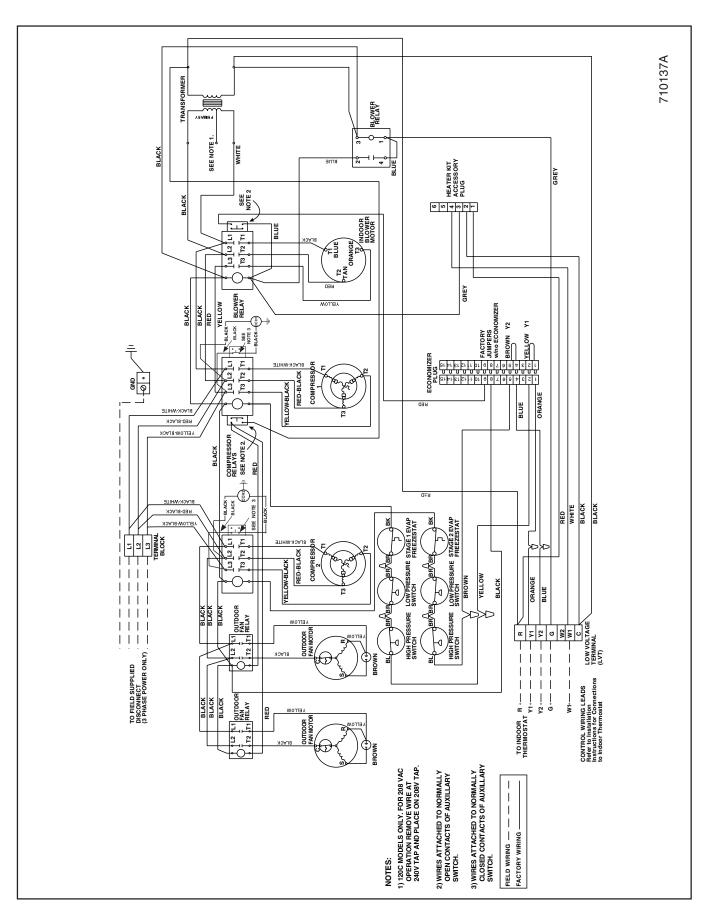


Figure 8B. (*)P4SN-120 Series

(*)P4SN-090 Series Fan Performance

Vertical Discharge

				Е	xterna	al Sta	tic Pre	essure	(Inch	ies W	ater C	olum	n)			
Air	0.	.2	0.	4	0.	.5	0.	6	0.	7	0.	8	0.	9	1.	.0
Volume		BHP		BHP		BHP		BHP		BHP		BHP		BHP		BHP
(CFM)	RPM		RPM		RPM		RPM		RPM		RPM		RPM		RPM	
		(KW)		(KW)		(KW)		(KW)		(KW)		(KW)		(KW)		(KW)
						1.00		1.04		1.10		1.19		1.29		1.38
2600					788		812		842		895		944		988	
						0.91		0.95		1.00		1.08		1.17		1.26
				1.03		1.12		1.17		1.21		1.30		1.40		1.47
2800			756		816		845		875		912		950		991	
				0.94		1.02		1.06		1.10		1.18		1.27		1.34
		1.07		1.18		1.29		1.34		1.38		1.49		1.58		
3000	730		785		840		865		895		945		989			
		0.97		1.07		1.17		1.22		1.26		1.36		1.44		
		1.17		1.31		1.44		1.49		1.56		1.68		1.77		
3200	752		810		868		900		924		980		1030			
		1.06		1.19		1.31		1.36		1.42		1.53		1.61		
		1.40		1.51		1.63		1.68		1.74		1.86				
3400	808		864		910		932		955		1010					
		1.27		1.37		1.48		1.53		1.58		1.69				
		1.63		1.71		1.80		1.86		1.90						
3600	863		910		942		965		982							
		1.48		1.56		1.64		1.69		1.73						

Horizontal Discharge

				Е	xterna	al Stat	tic Pre	essure	(Inch	es W	ater C	olum	n)			
Air	0.	2	0.4	4	0.	.5	0.	.6	0.	7	0.	8	0.	.9	1.	.0
Volume		BHP		BHP		BHP		BHP		BHP		BHP		BHP		BHP
(CFM)	RPM		RPM		RPM		RPM		RPM		RPM		RPM		RPM	
		(KW)	(KW)		(KW)		(KW)		(KW)		(KW)		(KW)		(KW)
						0.96		0.99		1.01		1.03		1.06		1.10
2600					758		785		815		850		905		940	
						0.87		0.90		0.92		0.94		0.96		1
				0.99		1.03		1.06		1.07		1.12		1.21		1.25
2800			725		780		810		840		880		920		955	
				0.90		0.94		0.96		0.97		1.02		1.10		1.14
		1.01		1.07		1.10		1.12		1.19		1.29		1.37		1.46
3000	700		755		805		830		860		905		940		970	
		0.92		0.97		1.00		1.02		1.08		1.17		1.25		1.33
		1.10		1.12		1.21		1.25		1.35		1.49		1.58		1.65
3200	720		780		830		865		895		925		955		987	1.00
0200	0	1.00		1.02		1.10		1.14		1.23		1.36		1.44		1.5
		1.26		1.34		1.42		1.52		1.62		1.70		1.78		1.5
3400	752	1.20	820		855	1.42	880		910	1.02	950	1.70	985	1.70		
3400	132	4 45				1 00				1 17	930	1 55		1 60		
		1.15		1.22		1.29		1.38		1.47		1.55		1.62		
		1.43		1.56		1.65		1.74		1.82		1.93				
3600	810		875		905		935		960		982					
		1.30		1.42		1.50		1.58		1.66		1.76				

Notes:

- 1. BHP Brake Horsepower Input to Fan
- 2. Boldface indicates factory recommended blower operating range.
- 3. Values include losses for air filters, unit casing, and dry evaporator coil.

 See Accessory Performance Data table for additional static pressure information.

(*)P4SN-120 Series Fan Performance

Vertical Discharge

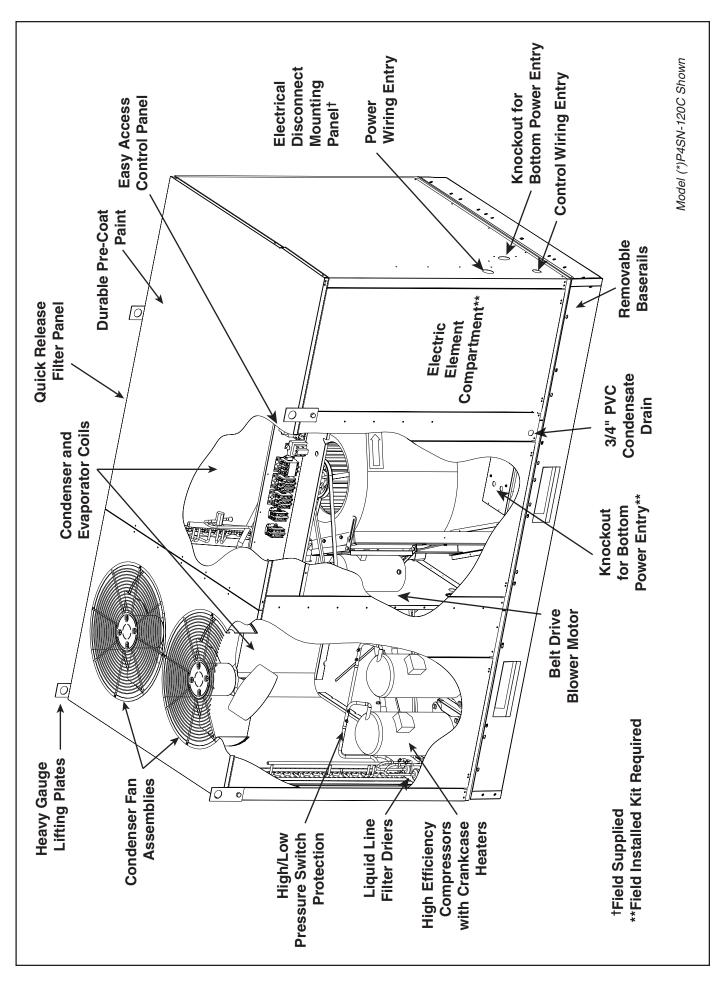
				Е	xterna	l Sta	tic Pre	essure	(Inch	nes W	ater C	Colum	n)			
Air	0.	.2	0.4		0.	5	0.	6	0.	7	0	.8	0.	9	1.	.0
Volume		BHP		BHP		BHP		BHP		BHP		BHP		BHP		BHP
(CFM)	RPM		RPM		RPM		RPM		RPM		RPM		RPM		RPM	
		(KW)	((KW)		(KW)		(KW)		(KW)		(KW)		(KW)		(KW)
								1.56		1.63		1.69		1.76		
3600							752		780		810		835			
								1.42		1.48		1.54		1.60		
						1.63		1.69		1.78		1.89		1.99		2.09
3800					751		778		805		830		855		881	
						1.48		1.54		1.62		1.72		1.81		1.90
				1.76		1.80		1.88		1.93		2.07		2.21		2.33
4000			749		777		805		829		854		879		905	
				1.60		1.64		1.71		1.76		1.88		2.01		2.12
		1.71		1.92		1.98		2.04		2.18		2.32		2.41		2.50
4200	720		773		800		827		850		875		900		926	
		1.56		1.75		1.80		1.86		1.98		2.11		2.19		2.27
		1.87		2.08		2.17		2.31		2.45		2.53		2.63		2.59
4400	745		798		825		850		874		900		924		925	
		1.70		1.89		1.97		2.10		2.23		2.30		2.39		2.36
		2.03		2.23		2.42		2.57		2.66		2.75		2.86		
4600	767		824		848		872		898		923		950			
		1.85		2.03		2.20		2.34		2.42		2.50		2.60		
		2.23		2.53		2.68		2.79		2.89		2.99				
4800	790	_	846		870		896		922		950					
		2.03		2.30		2.44		2.54		2.63	•	2.72				

Horizontal Discharge

				E	xterna	al Stat	tic Pre	essure	e (Inch	nes W	ater (Colum	n)			
Air	0.	2	0	.4	0	.5	0.	.6	0.	.7	0	.8	0	.9	1	.0
Volume		BHP		BHP		BHP		BHP		BHP		BHP		BHP		BHP
(CFM)	RPM		RPM		RPM		RPM		RPM		RPM		RPM		RPM	
		(KW)		(KW)		(KW)		(KW)		(KW)		(KW)		(KW)		(KW)
								1.48		1.59		1.67		1.76		
3600							735		760		783		805			
								1.35		1.45		1.52		1.60		
						1.54		1.65		1.75		1.82		1.91		2.02
3800					740		759	4 50	782		805	4 00	830		855	
						1.40		1.50		1.59		1.66		1.74		1.84
4000					700	1.73		1.81	005	1.89		1.96		2.09		2.21
4000					760	1 57	781	1 GE	805		829	1 70	854	1 00	879	0.04
				1.81		1.57 1.89		1.65 1.98		1.72 2.07		1.78 2.20		1.90 2.34		2.01
4200			758	1.01	779	1.05	803	1.50	827		850	2.20	877	2.34	901	2.41
4200			7 30	1.65	_	1.72		1.80		1.88		2.00		2.13		2.19
				1.99		2.07		2.13		2.30		2.46		2.54		2.62
4400			776		800		825		850		876		900		924	2.02
1100				1.81	000	1.88		1.94		2.09		2.24		2.31		2.38
		2.10		2.17		2.23		2.37		2.52		2.65		2.75		
4600	774		799		823		848		874		898		921			
		1.91		1.97		2.03		2.16		2.29		2.41		2.50		
		2.18		2.34		2.50		2.65		2.77		2.88				
4800	773		822		850		872		895		919					
		1.98		2.13		2.27		2.41		2.52		2.62				

Notes:

- 1. BHP Brake Horsepower Input to Fan
- 2. Boldface indicates factory recommended blower operating range.
- Values include losses for air filters, unit casing, and dry evaporator coil.
 See Accessory Performance Data table for additional static pressure information.



ACCESSORIES

NORDYNE		P4SN-090	P4SN-120
Part #	Description		
547860	Hinged Roof Curb 8" High - K/D	Х	Х
547861	Hinged Roof Curb 14" High - K/D	Х	Х
547862	Hinged Roof Curb 18" High - K/D	Х	X
547863	Hinged Roof Curb 24" High - K/D	Х	Х
547864	0-35% Manual Outside Air Damper	Х	
547865	0-35% Motorized Damper - Only	Х	Х
	(Requires either 547864 or 547874 Panel Kit)		
547866	Economizer - Modulating w/ Relief, Adapts Horizontal	Х	
547883	Economizer - 3 Position w/ Relief, Adapts Horizontal	Х	
547884	Economizer - 3 Position w/ Relief, Adapts Horizontal		Х
547875	Economizer - Modulating w/ Relief, Adapts Horizontal		X
547867	Power Exhaust - Prop (208/230v/3ph), Adapts Horizontal	Х	
547868	Power Exhaust - Prop (460v/3ph), Adapts Horizontal	Х	
547876	Power Exhaust - Prop (208/230v/3ph), Adapts Horizontal		Х
547877	Power Exhaust - Prop (460v/3ph), Adapts Horizontal		Х
547869	20" Supply & Return Transition Round	Х	
547870	20" Flush Mount Concentric Diffuser Round	Х	
547871	20" Step Down Concentric Diffuser Round	Х	
547872	Horizontal Supply & Return Kit	Х	
547873	Hooded Hail Guard	Х	
547848	CO2 Sensor - 4-9v dc	Х	Χ
547874	0-35% Manual Outside Air Damper		X
547878	18" x 28" Supply & Return Transition		X
547879	18" x 28" Flush Mount Concentric Diffuser		Х
547880	18" x 28" Step Down Concentric Diffuser		Χ
547881	Horizontal Supply & Return Kit		X
547882	Hooded Hail Guard		X
917159	Thermostat-2 stage Heat/Cool	Χ	X
917163	Low Ambient Kit	Х	X
917454	Bottom Power Entry Kit	Х	Χ
917468	3 Pole Dual Circuit Adaptor	Х	Χ
	Heater Kits		
917423	H5HK009Q-01 9KW, 208/240V, 3Ø	Х	Χ
917424	H5HK018Q-11 18KW, 208/240V, 3Ø	Х	Χ
917425	H5HK035Q-22 35KW, 208/240V, 3Ø	Х	Χ
917426	H5HK018S-01 18KW, 480V, 3Ø	Х	Χ
917427	H5HK035S-01 35KW, 480V, 3Ø	Х	Χ

REPLACEMENT PARTS

Replacement parts are available through all NORDYNE distributors. When ordering, remember to have the complete Model and Serial number of the unit.

Electrical Transformers Contactors Temperature Limit Switches

Thermostats Capacitors Pressure Switches

Compressors Relays Filter Driers

MotorsFan MotorBlower MotorComponentsExpansion ValvesCabinet PanelsBlower AssemblyFan Grille

Blower Assembly Gaskets

· 19 —

INSTALLATION/PERFORMANCE CHECK LIST

LOCATION	CITY	STATE
INSTALLER	CITY	STATE
UNIT MODEL NUMBER	UNIT SERIAL NUMBER	
Minimum Clearances per Figure 3?	Has the Owner's Info	rmation been reviewed with the
Electrical Connections tight?	owner?	
Supply Voltage: Volts	Has the Literature	Package been left with the
Blower Motor H.P.:	owner?	
Supply Air Temperature: (°F)		
Return Air Temperature: (°F)		
Temperature Rise: (°F)		
Is the Filter(s) clean?		
Has the Thermostat been calibrated?		
Is the Thermostat level?		
Is the Heat Anticipator Setting correct?		

INSTALLER: PLEASE LEAVE THESE INSTALLATION INSTRUCTIONS WITH THE OWNER.







