T4QD SERIES SPLIT SYSTEM HEAT PUMP FOR MANUFACTURED HOUSING

INSTALLATION INSTRUCTIONS

2, 2.5, 3, 3.5, 4, & 5 Ton, 13 SEER, Single Phase Models With Quick Connect Couplings

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.

IMPORTANT SAFETY INFORMATION

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

⚠ WARNING:

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

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

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

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

⚠ WARNING:

T4QD Split System Heat Pumps are shipped fully charged with R410A refrigerant and ready for installation. When 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 attempted by qualified trained personnel thoroughly familiar with this 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.

⚠ CAUTION:

This unit uses refrigerant R-410A. DO NOT use any other refrigerant in this unit. Use of another refrigerant will damage the unit.

⚠ WARNING:

Unless noted otherwise in these instructions, only factory authorized parts or accessory kits may be used with this product. 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.

- Installation of equipment may require brazing operations. Installer must comply with safety codes and wear appropriate safety equipment (safety glasses, work gloves, fire extinguisher, etc.) when performing brazing operations.
- Follow all precautions in the literature, on tags, and on labels provided with the equipment. Read and thoroughly understand the instructions provided with the equipment prior to performing the installation and operational checkout of the equipment.
- Use caution when handling this appliance or removing components. Personal injury can occur from sharp metal edges present in all sheet metal constructed equipment.

⚠ WARNING:

The information listed below and the next page must be followed during the installation, service, and operation of this furnace. Failure to follow safety recommendations could result in possible damage to the equipment, serious personal injury or death.

- 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.
- 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.
- This equipment contains liquid and gaseous refrigerant under high pressure. **DO NOT USE ANY PORTION OF THE CHARGE FOR PURGING OR LEAK TESTING.** Installation or servicing should only be performed by qualified trained personnel thoroughly familiar with this type equipment.
- Fully annealed, refrigerant grade copper tubing should be used when installing the system. Refrigerant suction line tubing should be fully insulated.
- This unit is designed for outdoor installations only and should be positioned as described on page 3.

HEAT PUMP INSTALLATION

General Information

The T4QD series heat pump is designed only for outdoor rooftop or ground level installations. 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. 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 mechanical skills and tools.

Before You Install this Unit

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

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

√ The indoor section (air handler, furnace, etc) should be installed before routing the refrigerant tubing. Refer to the indoor unit's installation instructions for installation details.

√ 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. Please read all instructions before installing the unit.

Locating the Heat Pump

- Survey the job site to determine the best location for mounting the outdoor unit.
- The outdoor unit should be installed no closer than 18 inches from the outside walls of the facility and in an area free from overhead obstructions to ensure unrestricted airflow through the outdoor unit.
- Sufficient clearance for unobstructed airflow through the outdoor coil must be maintained in order to achieve rated performance. For minimum clearances to obstructions, see Figure 1.
- Overhead obstructions (Figure 1), poorly ventilated areas, and areas subject to accumulation of debris should be avoided.
- Consideration should be given to availability of electric power, service access, noise, and shade.

Packaging Removal

NOTE: To prevent damage to the tubing connections, carefully remove the carton and user's manual from the equipment. Discard the shipping carton.

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.
- A suitable mounting pad must be provided and separate from the building foundation. The pad must be level and strong enough to support the weight of the unit. The slab height must be a minimum of 2" (5 cm) above grade and with adequate drainage. See Figure 1.

Roof Mount

- The method of mounting should be designed so that it does not overload roof structures or transmit noise to the interior of the structure. The roof must be structurally capable of handling the weight of the unit.
- Full perimeter support is required under the unit. Support must be made of weather resistant materials and installed prior to unit installation.
- The support must be built to raise the unit 6" above the roof.

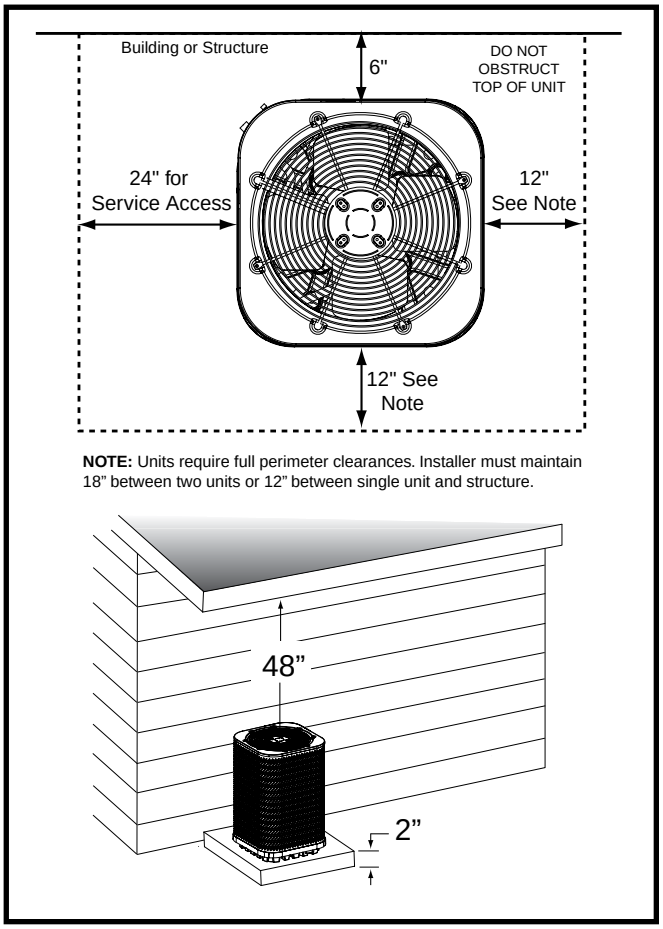


Figure 1. Clearance Requirements

Connecting Refrigerant Tubing Between the Indoor & Outdoor Unit

⚠ CAUTION:

When servicing, cover or seal openings to minimize the exposure of the refrigerant system to air to prevent accumulation of moisture and other contaminants.

After outdoor and indoor unit placement has been determined, route refrigerant tubing between the equipment in accordance with sound installation practices.

- When connecting refrigerant linesets together, it is recommended that dry nitrogen be flowing through the joints during brazing to prevent internal oxidation and scaling.
- Refrigerant tubing should be routed in a manner that minimizes the length of tubing and the number of bends in the tubing. If precise forming of refrigerant lines is required, a copper tubing bender is recommended. Avoid sharp bends and contact of the refrigerant lines with metal surfaces.
- Refrigerant tubing should be supported in a manner that the tubing will not vibrate or abrade during system operation.
- Tubing should be kept clean of foreign debris during installation.
- Every effort should be made by the installer to ensure that the field installed refrigerant containing components of the system have been installed in accordance with these instructions and sound installation practices to insure reliable system operation and longevity.
- The maximum recommended interconnecting refrigerant line lengths is 75 ft. and the vertical elevation difference between the indoor and outdoor sections should not exceed 20 ft.
- A filter dryer is provided with the unit and must be installed in the liquid line of the system. If the installation replaces a system with a filter dryer already present in the liquid line, the filter dryer must be replaced with the one supplied with the unit. The filter dryer must be installed in strict accordance with the manufacturer's installation instructions.
- Optional equipment such as liquid line solenoid valves, low ambient, etc., should be installed in strict accordance with the manufacturer's installation instructions.

These units are equipped with single shot quick connect couplings. Together with the indoor section and line set, only four coupling connections are required to provide a 100% sealed system.

1. Route the suction line and liquid line between indoor and outdoor sections, remove protector caps and plugs
2. lubricate entire surface of the diaphragm "O" ring and threads of the male coupling using the lubricant supplied with the line set and a small brush.
3. Make sure that coupling halves are held in proper alignment with each other prior to starting the threads of female coupling nut onto the male half. Thread coupling halves together by hand until a defi nite resistance is felt.
4. Using a marker, mark a line from the coupling union nut to the bulkhead then tighten an addition wrench fl at (60°). See Table 1 for torque values. Repeat for all couplings.

Coupling Size	Torque	Male Coupling	Female Coupling Nut	Female Coupling Body
3/8" (10mm)	10-12 Ft-Lbs (14-16 Nm)	3/4"	11/16"	5/8"
3/4" (19mm)	35-45 Ft-Lbs (47-61 Nm)	1-1/8"	1-5/16"	1"
7.8" (22mm)	10-12 Ft-Lbs (14-16 Nm)	1-1/8"	1-5/16"	1"

Table 1. Torque Values

ELECTRICAL WIRING

⚠ 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.

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

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

Pre-Electrical Checklist

√ Verify 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. Refer to the unit wiring label for proper voltage wiring.

√ Verify factory wiring is in accordance with the unit wiring diagram (Figure 9, page 16). Inspect for loose connections.

Line Voltage

- A wiring diagram is located on the inside cover of the electrical box of the outdoor unit. The installer should become familiar with the wiring diagram before making any electrical connections to the outdoor 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.
- Line voltage to the unit should be supplied from a dedicated branch circuit containing the correct fuse or circuit breaker for the unit. Incoming field wiring and minimum size of electrical conductors and circuit protection must be in compliance with information listed on the outdoor unit data label. Any other wiring methods must be acceptable to authority having jurisdiction.
- The outdoor unit requires both power and control circuit electrical connections. Refer to the wiring diagram / schematic for identification and location of outdoor unit field wiring interfaces (Figure 9, page 16). Make all electrical connections in accordance with all applicable codes and ordinances.
- Overcurrent protection must be provided at the branch circuit distribution panel and sized as shown on the unit rating label and according to applicable local codes. See the unit rating plate for minimum circuit ampacity and maximum overcurrent protection limits.
- 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 terminals on the contactor inside the control compartment.
- Use only copper wire for the line voltage power supply to this unit as listed in Table 2. Use proper code agency listed conduit and a conduit connector for connecting the supply wires to the unit. Use of rain tight conduit is recommended.
- 208/230 Volt units are shipped from the factory wired for 230 volt operation. For 208V operation, remove the lead from the transformer terminal marked 240V and connect it to the terminal marked 208V.
- Optional equipment requiring connection to the power or control circuits must be wired in strict accordance of the NEC (ANSI/NFPA 70), applicable local codes, and the instructions provided with the equipment.

COPPER WIRE SIZE — AWG (1% Voltage Drop)				
Supply Wire Length-Feet				Supply Circuit Ampacity
200	150	100	50	
6	8	10	14	15
4	6	8	12	20
4	6	8	10	25
4	4	6	10	30
3	4	6	8	35
3	4	6	8	40
2	3	4	6	45
2	3	4	6	50
2	3	4	6	55
1	2	3	4	60

Wire Size based on N.E.C. for 60° type copper conductors.

Table 2. Copper Wire Size

Thermostat Connections

- Thermostat connections should be made in accordance with the instructions supplied with the thermostat and the indoor equipment. See Figure 2 (page 6).
- The outdoor unit is designed to operate from a 24 VAC 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.
- The low voltage wires must be properly connected to the units low voltage terminal block. Recommended wire gauge and wire lengths for typical thermostat connections are listed in Table 3 (page 6).
- The thermostat should be mounted about 5 feet above the floor on an inside wall. DO NOT install the thermostat on an outside wall or any other location where its operation may be adversely affected by radiant heat from fireplaces, sunlight, or lighting fixtures, and convective heat from warm air registers or electrical appliances. Refer to the thermostat manufacturer's instruction sheet for detailed mounting and installation information.

Blower Time Delay Relay (Select Models)

A time delay relay may be provided with the unit and must be installed in the indoor section. The relay will keep the indoor blower running an additional 40 seconds for increased cooling efficiency after the outdoor unit shuts off.

The relay has four terminals and one mounting hole.

- Connect terminal 1 to load side of blower relay.
- Connect terminal 2 to terminal **R** of T'stat.
- Connect terminal 3 to common terminal at blower relay or transformer.
- Connect terminal 4 to terminal **G** on T'stat.

Grounding

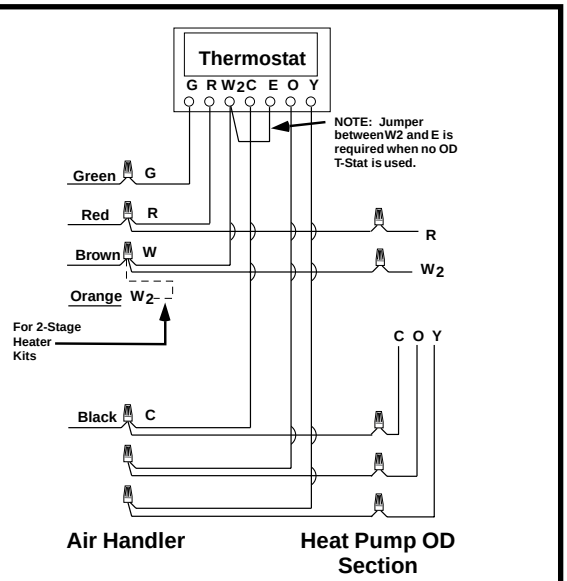
⚠ WARNING:

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!

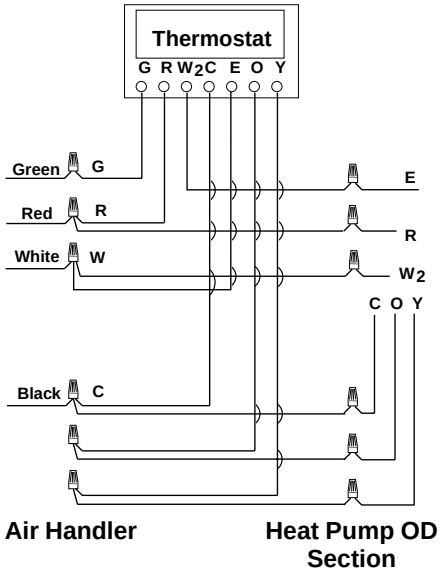
This unit must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code (ANSI/NFPA 70) or the CSA C22.1 Electrical Code. Use the grounding lug provided in the control box for grounding the unit.

Thermostat Wire Gauge	Recommended T-Stat Wire Unit to T-Stat (Length in FT)	
	2-Wire (Heating)	5-Wire (Heating/Cooling)
24	55	25
22	90	45
20	140	70
18	225	110

Table 3. Thermostat Wire Gauge



Typical Heat Pump with Standard Air Handler



Typical Heat Pump with Outdoor Thermostat and Air Handler

Figure 2. Typical Thermostat Connections

START UP & ADJUSTMENTS

Pre-Start Check List

- √ Verify the indoor unit is level and allows proper condensate drainage.
- √ Verify the outdoor coil and top of the unit are free from obstructions and debris, and all equipment access/ control panels are in place.
- √ Verify air filters are cleaned and properly installed.
- √ Verify duct work is sealed to prevent air leakage.
- √ Verify line voltage power leads are securely connected and the unit is properly grounded.
- √ Verify low voltage wires are securely connected to the correct leads on the low voltage terminal strip.
- √ Verify power supply branch circuit overcurrent protection is sized properly.
- √ Verify the thermostat is wired correctly.

Start-Up Procedures

The thermostat's function mode should be set to OFF and the fan mode should be set to AUTO. Close all electrical disconnects to energize the system.

Air Circulation - Indoor Blower

1. Set the thermostat system mode on OFF and the fan mode to ON.
2. Verify the blower runs continuously. Check the air delivery at the supply registers and adjust register openings for balanced air distribution. If insufficient air is detected, examine ductwork for leaks or obstructions.
3. Set the thermostat fan mode to AUTO and verify the blower stops running.

System Cooling

1. Set the thermostat's system mode to COOL and the fan mode to AUTO. Gradually lower the thermostat temperature setpoint below room temperature and verify the outdoor unit and indoor blower energize.
2. Verify blower wheel is spinning in direction indicated by arrow. Feel the air being circulated by the indoor blower and verify that it is cooler than ambient temperature. Listen for any unusual noises. If unusual sounds occur, determine the source of the noise and correct as necessary.
3. Verify HI and LO refrigerant pressures.
4. Allow the system to operate for several minutes and then set the temperature selector above room temperature. Verify the fan and compressor cycle off with the thermostat. **NOTE:** The blower should also stop unless fan mode is set to the ON position.

System Heating (optional)

1. Set the thermostat's system mode to HEAT and the temperature mode above room temperature.
2. Verify the optional heating equipment (furnace or electric heat) and indoor blower energize. Feel the air being circulated by the indoor blower and verify that it is warmer than ambient temperature. Listen for any unusual noises. If unusual sounds occur, determine the source of the noise and correct as necessary.

Refrigerant Charging

⚠ WARNING:

T4QD Split System Heat Pumps are shipped fully charged with R410A refrigerant and ready for installation. When 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 attempted by qualified trained personnel thoroughly familiar with this 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.

- After refrigerant line connections are completed, it is required that you leak check and evacuate the indoor section and all line connections (using proper methods) before finalizing the full system refrigerant charge.
- Refrigerant charging charts are applicable only to matched assemblies of NORDYNE equipment and listed airflows for the indoor coil. Refer to Tables 4 - 6 (page 9) and Figures 3 - 8 (pages 10 - 12) for correct system charging.
- T4QD outdoor units with non AHRI listed indoor coils are not recommended. Deviations from rated airflows or non-listed combinations may require modification to the expansion device and refrigerant charging procedures for proper and efficient system operation.
- The refrigerant charge can be checked and adjusted through the service ports provided external to the outdoor unit. Use only gage line sets which have a “Schrader” depression device present to actuate the valve.
- Heat Mode Verification Tables (Tables 7 - 12, pages 14 - 15) are provided for quick reference when the unit is in heating mode and for the inspection of the liquid line pressures and temperatures.

Charging an R-410A system in AC mode at outdoor temperatures above 55° F for optimized sub-cooling of 10° F - 12° F.

1. With the system operating at steady-state, measure the liquid refrigerant pressure (in psig) at the outdoor unit service valve.
2. Measure the liquid refrigerant temperature (in Fahrenheit) at the service valve.
3. Determine the required liquid refrigerant pressure from Tables 4 - 6 (page 9) and Figures 3 - 8 (pages 10 - 12).
   - If the pressure measured in Step 1 is greater than the required liquid refrigerant pressure determined in Step 3, then there is too much charge in the system. Remove refrigerant and repeat Steps 1 through 3 until the system is correctly charged.
   - If the pressure measured in Step 1 is less than the required liquid refrigerant pressure determined in Step 3, there is too little charge in the system. Add refrigerant and repeat Steps 1 through 3 until the system is correctly charged.

HEAT PUMP MAINTENANCE

⚠ WARNING:

To prevent 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.

Proper maintenance is important to achieve optimum performance from the heat pump. 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. Routine maintenance should include the following:

- Inspect and clean or replace air filters at the beginning of each heating and cooling season, or more frequently if required.
- Inspect the condensate drain and outdoor coil at the beginning of each cooling season. Remove any debris. Clean the outdoor coil and louvers as necessary using a mild detergent and water. Rinse thoroughly with water.
- Inspect the electrical connections for tightness at the beginning of each heating and cooling season. Service as necessary.

⚠ CAUTION:

The unit should never be operated without a filter in the return air system. Replace disposable filters with the same type and size.

- Do not add additional oil to motors unequipped with oil tubes. The compressor is hermetically sealed at the factory and does not require lubrication.

COMPONENT FUNCTIONS

High Pressure Switch (HPS) - A high-pressure switch is factory-installed and located in the liquid line internal to the outdoor unit. The switch is designed to protect the system when very high pressures occur during abnormal conditions. Under normal conditions, the switch is closed. If the liquid pressure rises above 575 psig, then the switch will open and de-energize the outdoor unit. The switch will close again once the liquid pressure decreases to 460 psig. Please note that the switch interrupts the thermostat inputs to the unit. Thus, when the switch opens and then closes, there may be a 5 minute short cycling delay before the outdoor unit will energize.

Low Pressure Switch (LPS) - A low-pressure switch is factory-installed in select models only. If provided, this located in the suction line internal to the outdoor unit. The switch is designed to protect the compressor from a loss of charge. Under normal conditions, the switch is closed. If the suction pressure falls below 5 psig, then the switch will open and de-energize the outdoor unit. The switch will close again once the suction pressure increases above 20 psig. Please note that the switch interrupts the thermostat inputs to the unit. When the switch opens and then closes, there will be a 5 minute short cycling delay before the outdoor unit will energize.

APPLICATION NOTES FOR USING T4QD REFRIGERANT CHARGING CHARTS & TABLES - COOLING ONLY

LEGEND

Shaded boxes indicate flooded conditions.

Rated design values. The suction pressure will be lower than design value if outdoor air flow, entering dry bulb, or entering wet bulb temperatures are lower than design.

NOTES:

1. All pressures are listed psig and all temperatures in °F
2. Discharge temperatures GREATER than charted values indicate an UNDERCHARGED system.
3. Discharge temperatures LESS than charted values indicate an OVERCHARGED system.

Application Notes on the Use of Charging Charts

- **This equipment's cooling system contains refrigerant under high pressure. Always use safe and environmentally sound methods when handling refrigerant handling or servicing the unit. Review the factory literature and safety warnings prior to servicing.**
- When repairing system leaks, always use 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 with one capable of acid removal. After completing the repairs, evacuate the system to 350 - 500 microns and weigh in the refrigerant to the amount specified on the unit rating label.
- The refrigerant charging charts and tables are valid for a variety of indoor, return air conditions and are most influenced by the outdoor ambient temperature, outdoor fan operation and the unit operating voltage. Before using these tables and charts, make sure the unit is in a stable operating mode. As shown in Tables 4 - 6 (page 9) and Figures 3 - 8 (pages 10 - 12), the ideal system sub-cooling can vary over the range of operation. Reference the tables to determine the ideal amount of sub-cooling for a given liquid pressure. Units charged to other values will not perform at the rated unit efficiency (EER) or rated Coefficient of Performance (COP) in heating mode.
- 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 charts value for most installations.
- For systems that are operating with more than a 5% deviation, inspect the unit for the proper voltage and phase balance and the refrigeration system for leaks.
- Units that are operating at less then 95% of the nominal voltage or with a 2% phase imbalance may see a more significant deviation than the amount stated above.
- **DO NOT** use the charts in systems that have a fan cycling under low-ambient control. Refer to the low-ambient kit instructions for more information. (If applicable)

Suct. Press.	OUTDOOR TEMPERATURE (° F)															
	70		75		80		85		90		95		100		105	
	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.
132	245	148														
134	245	153	268	147												
136	245	158	269	152	291	147										
138	249	155	269	156	292	151	314	148								
140	250	158	272	156	293	155	315	152	337	149						
142			273	159	294	157	316	155	338	152	359	151				
144					295	160	317	158	339	156	360	154	382	153		
146							318	161	340	159	362	156	383	155	404	155
148							319	164	341	162	362	160	384	158	405	157
150									341	165	363	163	385	160	407	159
152											364	166	386	164	408	161
154													387	167	409	165
156															410	168
158																

Table 4. Charging Table for T4QD-024KA Series (2 Ton Units) - Orifice Matches

Suct. Press.	OUTDOOR TEMPERATURE (° F)															
	70		75		80		85		90		95		100		105	
	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.
130	248	145														
132	249	150	271	147												
134	249	155	272	151	293	149										
136	250	159	272	156	294	153	316	151								
138	251	163	273	160	295	157	317	155	338	153						
140			274	164	296	161	317	159	339	157	360	155				
142					296	165	318	163	340	160	361	159	383	158		
144							319	167	341	164	362	162	384	161	405	161
146							320	171	341	168	363	166	385	164	406	164
148									342	172	364	170	385	168	407	166
150											365	174	386	171	408	170
152													387	175	409	173
154															409	177
156																

Table 5. Charging Table for T4QD-030KA Series (2.5 Ton Units) - Orifice Matches

Suct. Press.	OUTDOOR TEMPERATURE (° F)															
	70		75		80		85		90		95		100		105	
	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.
129	258	144														
131	259	148	282	147												
133	260	153	283	151	306	149										
135	261	155	284	155	306	154	329	153								
137	262	158	285	158	307	158	330	156	353	156						
139			286	161	309	161	331	160	354	159	376	159				
141					310	164	332	163	355	163	377	162	400	162		
143							333	167	356	166	379	166	401	165	423	165
145							334	170	357	170	380	169	402	168	425	168
147									358	173	381	173	403	172	426	171
149											382	176	404	176	427	175
151													405	179	428	178
153															429	182
155																

Table 6. Charging Table for T4QD-036KA Series (3 Ton Units) - Orifice Matches

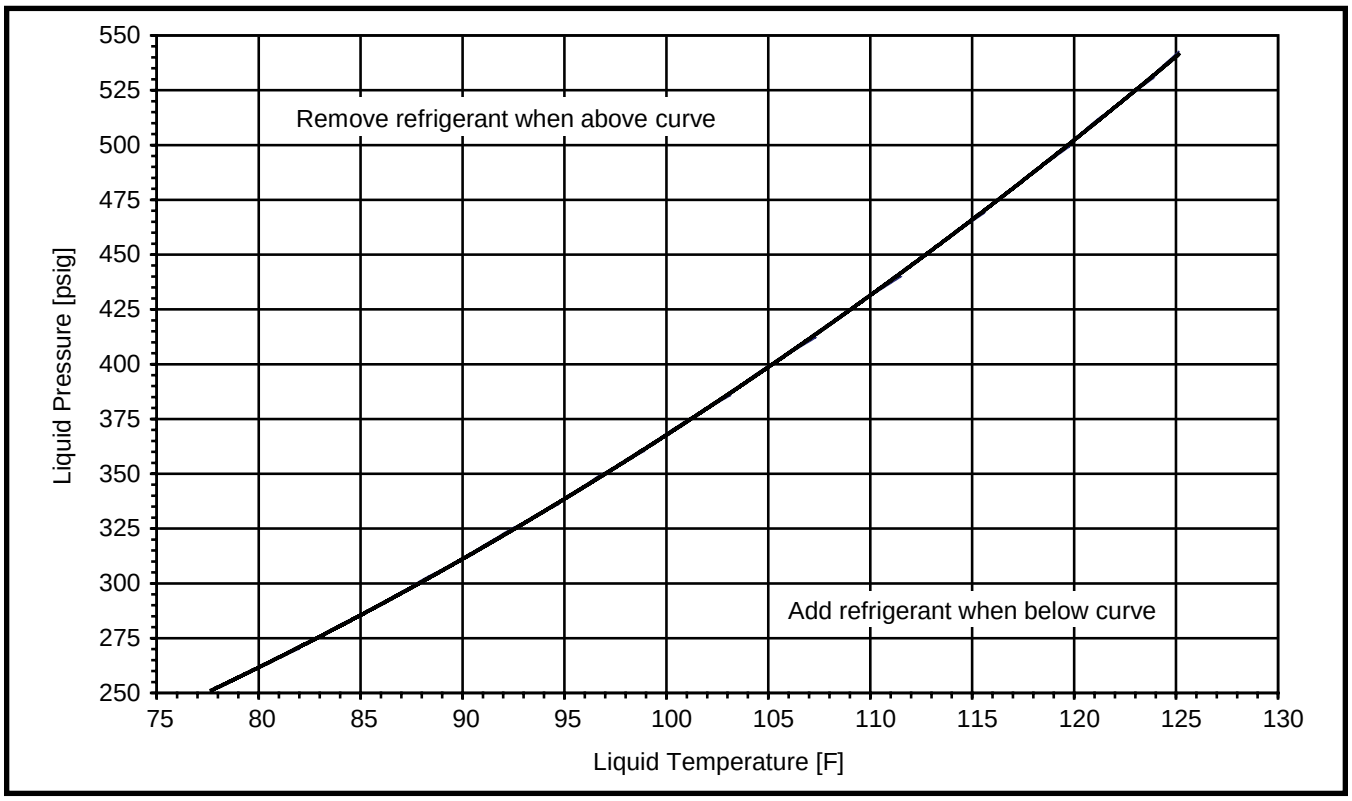


Figure 3. Charging Chart for T4QD-024K Series (2 Ton Units) - TXV Matches

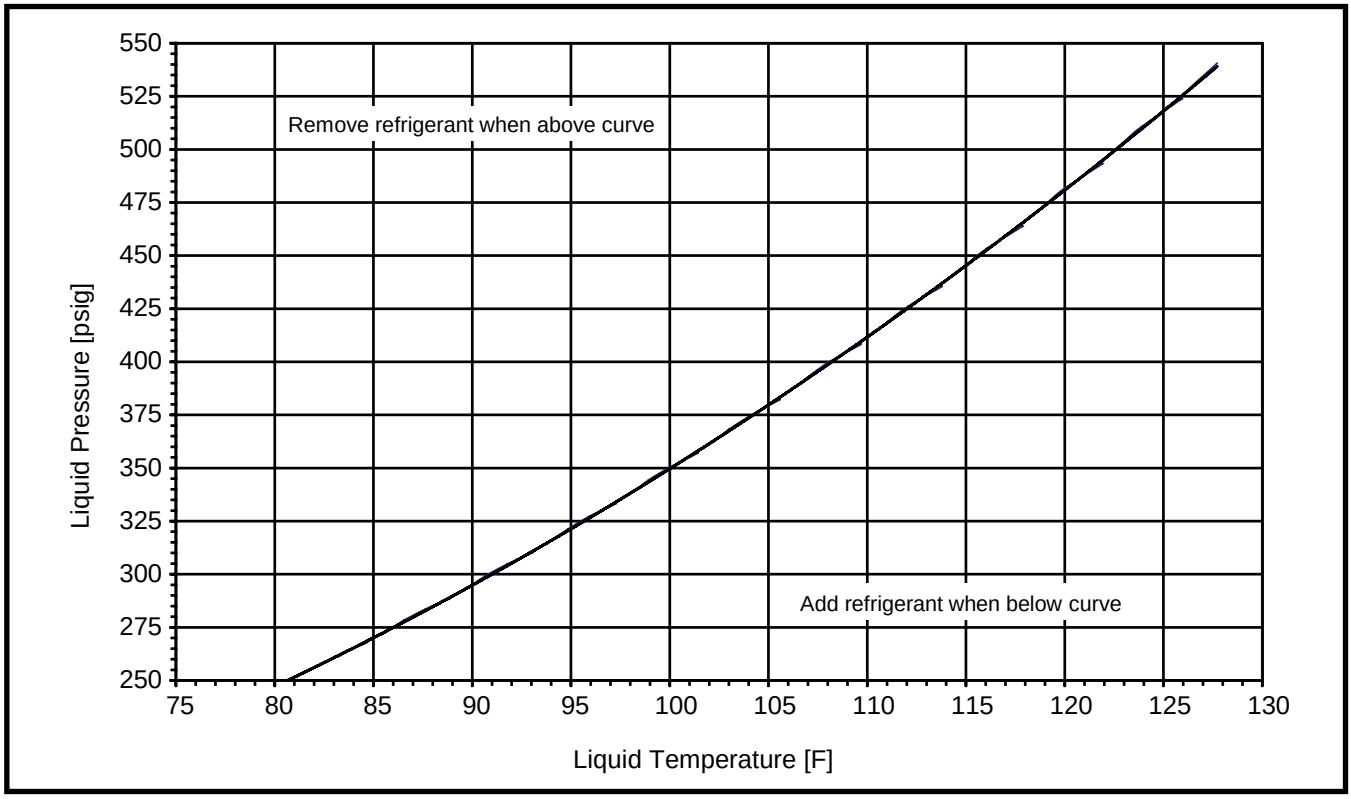


Figure 4. Charging Chart for T4QD-030K Series (2.5 Ton Units) - TXV Matches

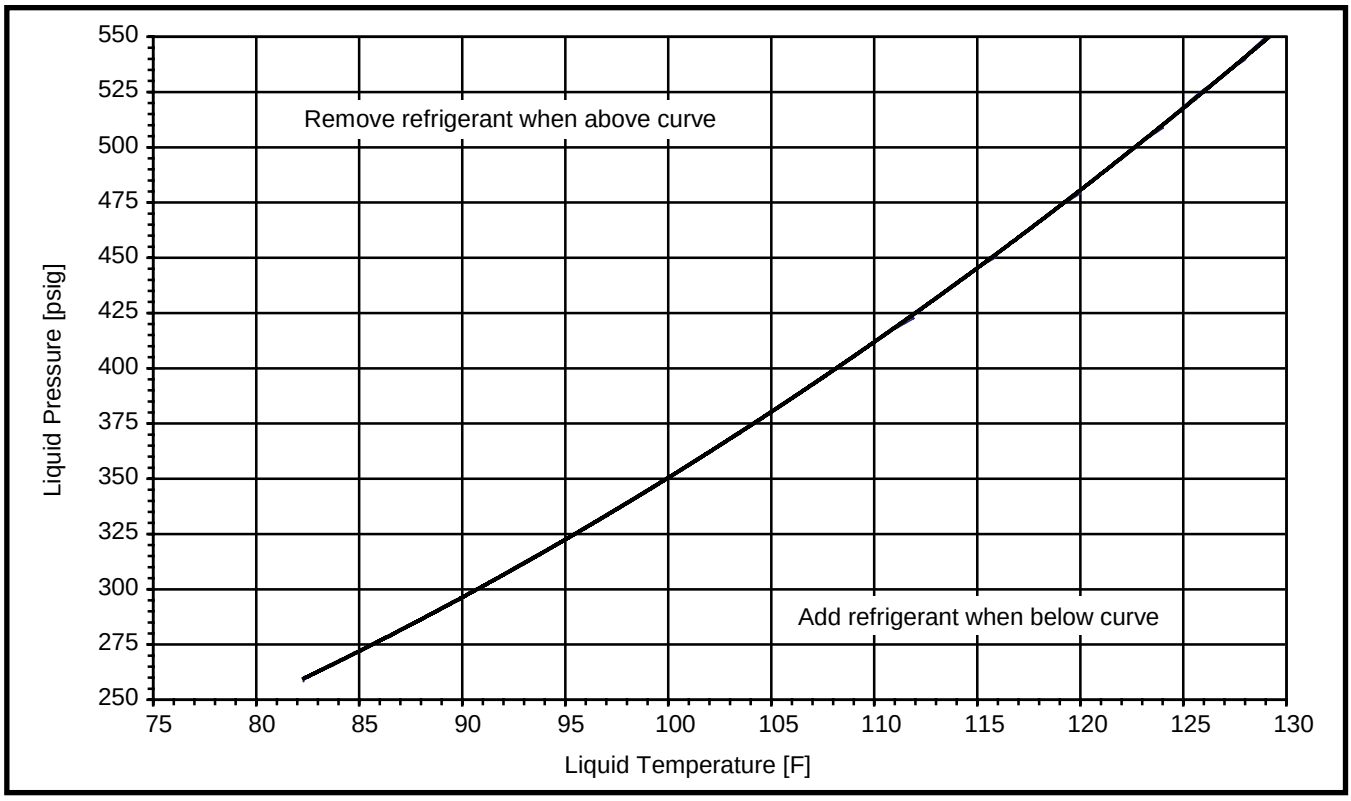


Figure 5. Charging Chart for T4QD-036K Series (3 Ton Units) - TXV Matches

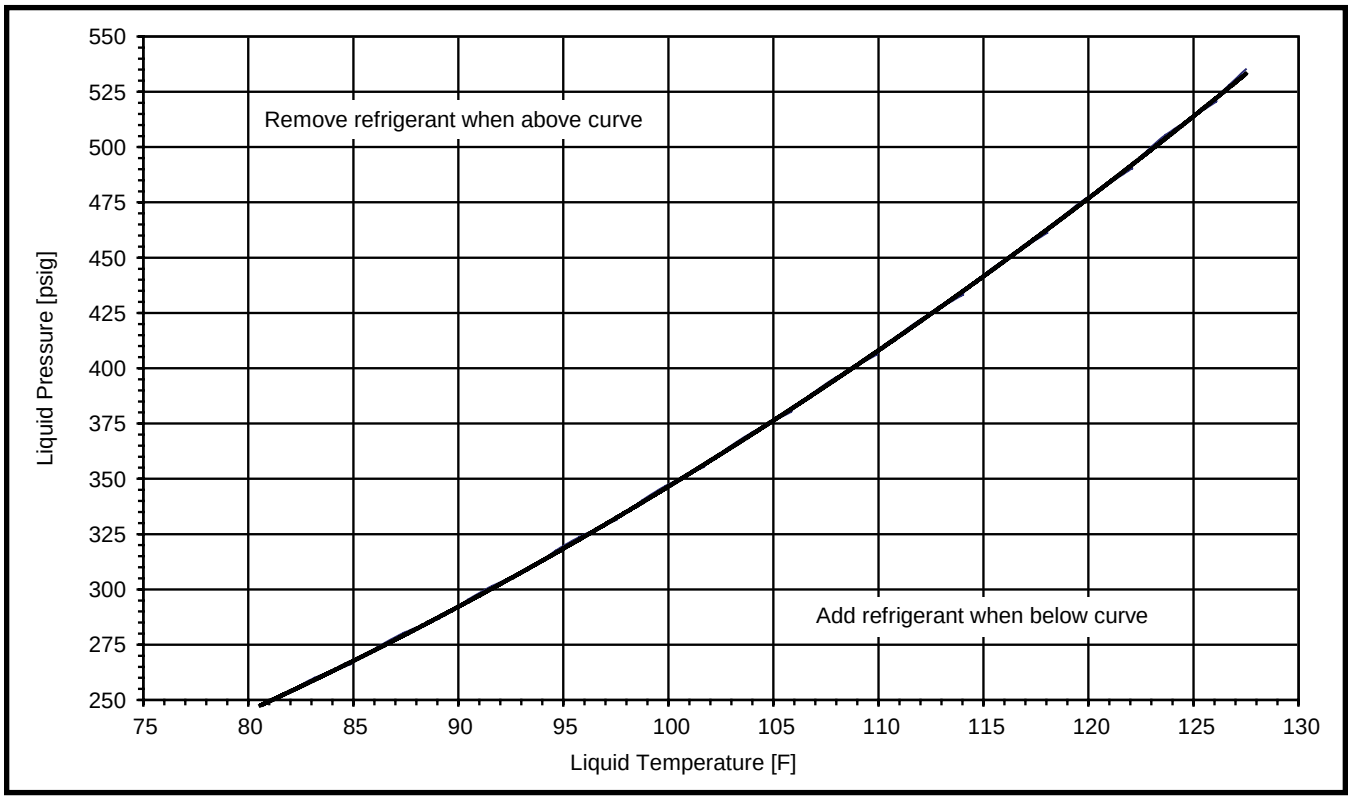


Figure 6. Charging Chart for T4QD-042K Series (3.5 Ton Units) - TXV Matches

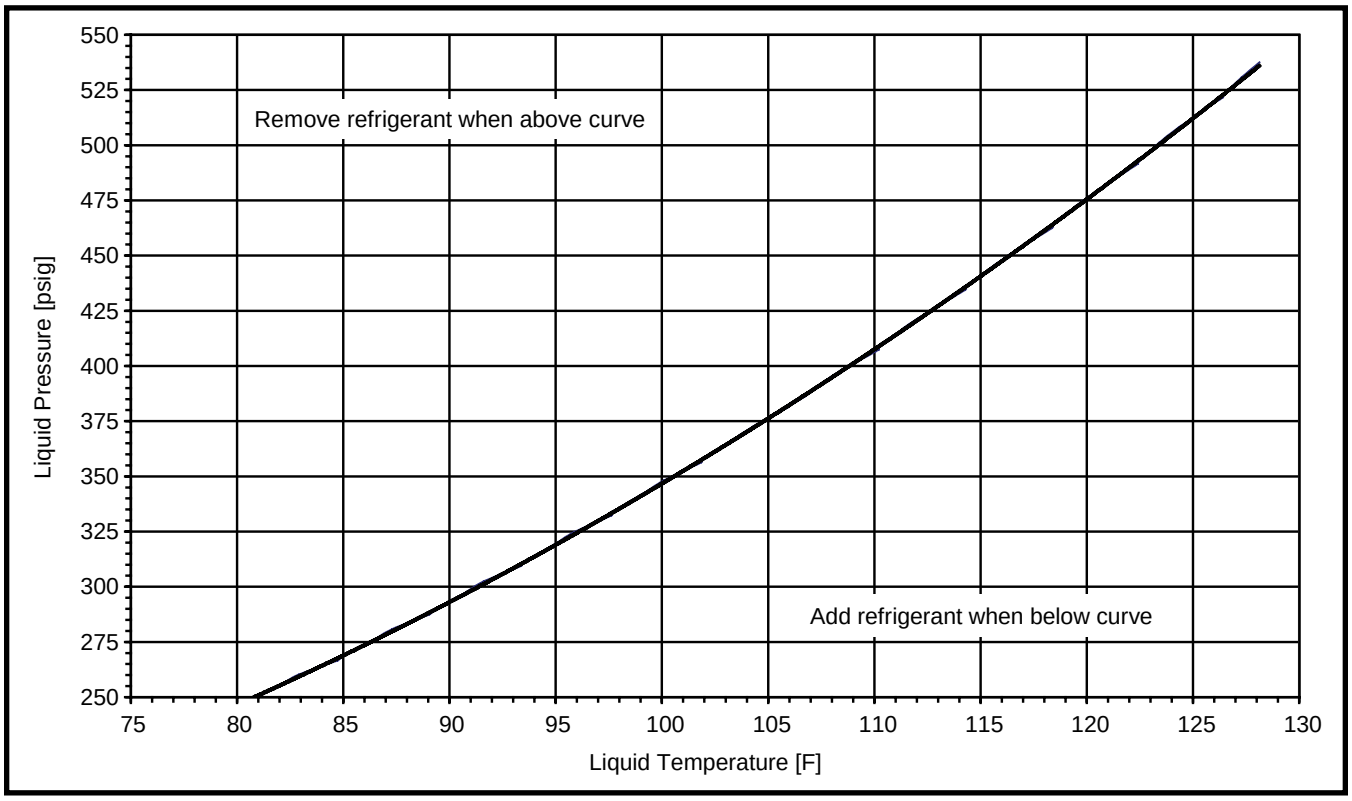


Figure 7. Charging Chart for T4QD-048K Series (4 Ton Units) - TXV Matches

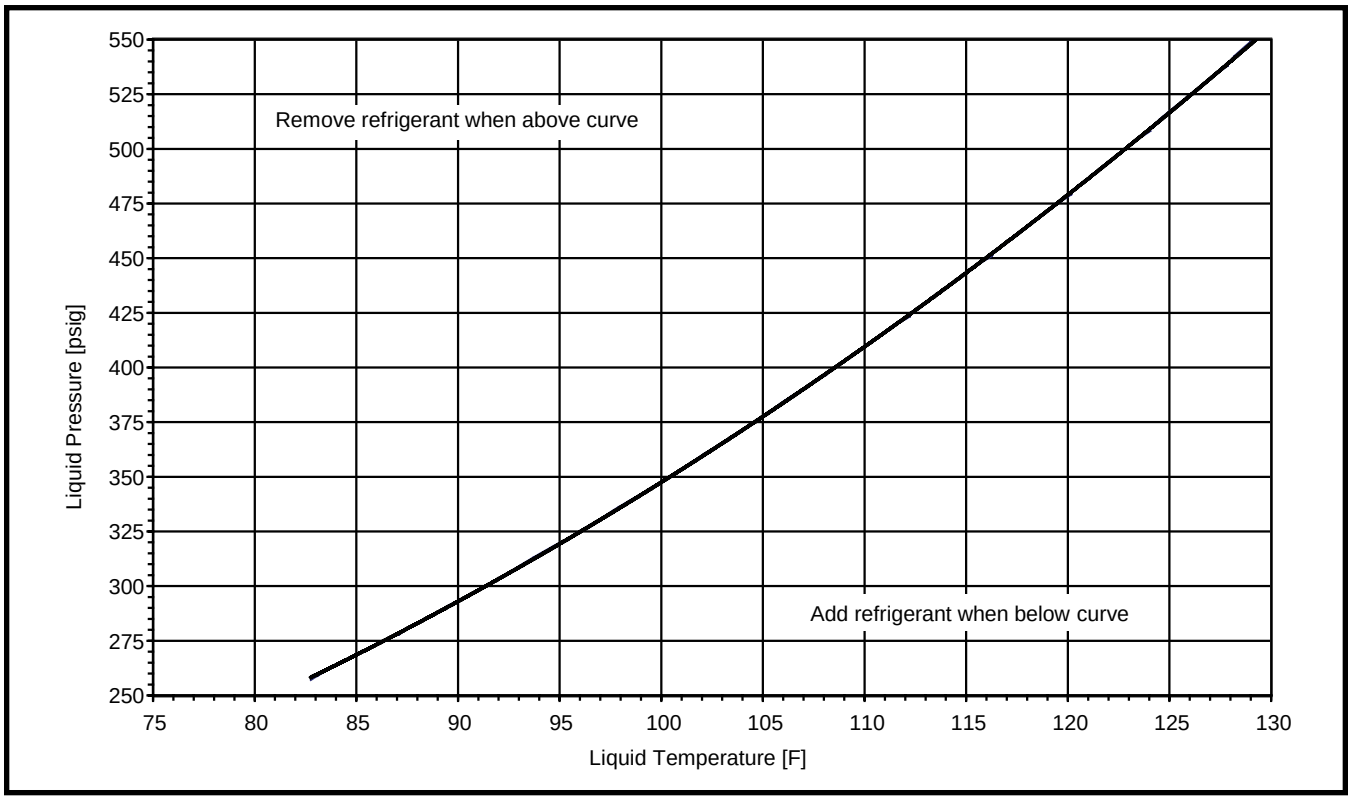


Figure 8. Charging Chart for T4QD-060K Series (5 Ton Units) - TXV Matches

APPLICATION NOTES FOR USING T4QD HEAT MODE VERIFICATION TABLES - HEATING ONLY

LEGEND

Shaded boxes indicate flooded conditions.

Rated design values. Suction pressure will vary from design value if outdoor air flow, entering dry bulb, or entering wet bulb temperatures vary.

NOTES:

1. All pressures are listed psig and all temperatures in °F
2. Discharge temperatures greater than charted values indicate an undercharged system.

- **Read all notes and warnings for the cooling-mode charging charts and tables prior to using the heat mode verification tables. Always use safe and environmentally sound methods when handling refrigerant handling or servicing the unit. Review the factory literature and safety warnings prior to servicing.**
- When repairing system leaks, always use 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 with one capable of acid removal. After completing the repairs, evacuate the system to 350 - 500 microns and weigh in the refrigerant to the amount specified on the unit rating label.
- Before using Tables 7 - 12 (pages 14-15), determine the outdoor ambient temperature and the return air temperature to the unit. Locate the appropriate location on the units verification chart based on those measurements to determine the ideal liquid line pressure and temperature. Verify the outdoor fan and compressor are running and the outdoor coil is free from frost accumulation. Also verify the system is not operating in defrost mode before inspecting the system.
- Always use quality instruments that are in good working order to measure the actual operating point of the refrigeration system. The liquid line temperature should be within 2 degrees of the ideal value and the pressure should be within 2%.
- The most reliable way of verifying the system is at the correct charge is to evacuate the system and weigh in the charge to the amount shown on the rating label. However, if an inspection with these verification tables does not line up with the values shown and the ambient temperature is above 50˚ F, then a more accurate way to inspect the system for proper charge is with charging charts and tables in the cooling mode section. Switch the unit into cooling mode and allow it to operate and stabilize for a few minutes then inspect the unit operation with the cooling mode charts and procedures.

Before changing the unit charge, always inspect the following items first:

1. Inspect the liquid line temperature on the inlet and outlet of the filter dryers. If it is the factory dryer and in good condition there should be no temperature difference. If the temperature difference is larger than 5˚, replace the filter dryer with one that is bi-directional and has acid removal capability. Refer to the unit RPL for the recommended part number and size.
2. Inspect the units input voltage. Units operating at less than 95% of the nominal voltage may deviate more from the chart then previously stated.
3. Inspect the input voltage for a phase imbalance. Units with greater then a 2% disparity will not operate at the rated performance.
4. Verify that the unit filters are installed and are clean. The pressure drop across the filters should not exceed 0.08 in-W.C.
5. Inspect the indoor coil, indoor blower and blower motor for cleanliness, clogging, and proper operation. Verify the drive belt is in good condition and properly tightened.
6. Inspect the system for leaks. If any leaks are detected, repair them immediately. Re-inspect the return air and ambient temperatures and verify that the correct system point on the verification chart was selected.

DO NOT use the tables in systems that have the fan cycling under a low-ambient control. Low-ambient controls are for cooling operation. In heating mode, the low ambient control should be disabled. Unless the unit is in defrost mode, the outdoor fan should always operate in conjunction with the compressor.

OUTDOOR TEMPERATURE (° F)																		
0			10			20			30			40			50			60		
Suc. Press	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.
33	217	114	48	237	118	63	257	121	78	277	125	94	315	139	111	394	164	128	474	190
34	224	112	49	243	116	64	262	119	79	280	123	95	322	136	112	401	160	129	481	183
35	231	110	50	249	114	65	266	117	80	284	121	96	329	134	113	408	155	130	488	177
36	238	108	51	255	112	66	271	115	81	288	119	97	336	131	114	415	151	131	495	171
37	245	106	52	261	110	67	276	113	82	291	117	98	343	128	115	422	146	132	502	165
38	252	104	53	266	108	68	281	111	83	295	115	99	350	125	116	429	142	133	509	159
39	259	102	54	272	106	69	285	109	84	299	113	100	357	122	117	436	137	134	516	153

Table 7. Charging Table for T4QD-024KA Series (2 Ton Units)

OUTDOOR TEMPERATURE (° F)																				
0			10			20			30			40			50			60		
Suc. Press	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.
30	210	113	46	234	118	61	258	123	76	282	128	91	299	137	108	333	150	125	367	163
31	217	111	47	240	116	62	263	121	77	285	126	92	306	134	109	340	146	126	374	157
32	224	109	48	246	114	63	267	119	78	289	124	93	313	132	110	347	141	127	381	150
33	231	107	49	252	112	64	272	117	79	293	122	94	320	129	111	354	137	128	388	144
34	238	105	50	258	110	65	277	115	80	296	120	95	327	126	112	361	132	129	395	138
35	245	103	51	264	108	66	282	113	81	300	118	96	334	123	113	368	128	130	402	132
36	252	101	52	269	106	67	286	111	82	304	116	97	341	120	114	375	123	131	409	126

Table 8. Charging Table for T4QD-030KA Series (2.5 Ton Units)

OUTDOOR TEMPERATURE (° F)																				
0			10			20			30			40			50			60		
Suc. Press	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.
31	219	117	45	243	120	60	266	124	74	290	128	90	312	138	107	356	155	123	400	172
32	226	115	46	249	118	61	271	122	75	294	126	91	319	135	108	363	150	124	407	165
33	233	113	47	254	116	62	276	120	76	297	124	92	326	132	109	370	146	125	414	159
34	240	111	48	260	114	63	281	118	77	301	122	93	333	129	110	377	141	126	421	153
35	247	109	49	266	112	64	285	116	78	305	120	94	340	126	111	384	137	127	428	147
36	254	107	50	272	110	65	290	114	79	308	118	95	347	124	112	391	132	128	435	141
37	261	105	51	278	108	66	295	112	80	312	116	96	354	121	113	398	128	129	442	135

Table 9. Charging Table for T4QD-036KA Series (3 Ton Units)

OUTDOOR TEMPERATURE (DEG. F)																			
0			10			20			30			40			50			60		
Suc. Press	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.
36	212	106	50	235	114	64	259	123	78	282	131	93	297	144	109	328	162	125	358	181
37	219	104	51	241	112	65	263	121	79	286	129	94	304	141	110	335	158	126	365	175
38	226	102	52	247	110	66	268	119	80	289	127	95	311	138	111	342	153	127	372	168
39	233	100	53	253	108	67	273	117	81	293	125	96	318	136	112	349	149	128	379	162
40	240	98	54	259	106	68	278	115	82	297	123	97	325	133	113	356	145	129	386	156
41	247	96	55	265	104	69	283	113	83	300	121	98	332	130	114	363	140	130	393	150
42	254	94	56	271	102	70	287	111	84	304	119	99	339	127	115	370	136	131	400	144

Table 10. Charging Table for T4QD-042K Series (3.5 Ton Units)

OUTDOOR TEMPERATURE (DEG. F)																			
0			10			20			30			40			50			60		
Suc. Press	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.
35	218	133	49	246	142	62	274	151	75	302	160	88	317	169	100	343	180	112	369	191
36	225	131	50	252	140	63	279	149	76	306	158	89	324	167	101	350	176	113	376	185
37	232	129	51	258	138	64	283	147	77	309	156	90	331	164	102	357	171	114	383	179
38	239	127	52	263	136	65	288	145	78	313	154	91	338	161	103	364	167	115	390	173
39	246	125	53	269	134	66	293	143	79	317	152	92	345	158	104	371	162	116	397	166
40	253	123	54	275	132	67	298	141	80	320	150	93	352	155	105	378	158	117	404	160
41	260	121	55	281	130	68	303	139	81	324	148	94	359	152	106	385	153	118	411	154

Table 11. Charging Table for T4QD-048K Series (4 Ton Units)

OUTDOOR TEMPERATURE (DEG. F)																			
0			10			20			30			40			50			60		
Suc. Press	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.	Suc. Press.	Liquid Press.	Disch. Temp.
31	223	131	44	253	143	57	283	155	70	313	166	82	329	179	95	355	193	107	381	206
32	230	129	45	259	141	58	288	153	71	316	164	83	336	176	96	362	188	108	388	200
33	237	127	46	265	139	59	292	151	72	320	162	84	343	173	97	369	184	109	395	194
34	244	125	47	271	137	60	297	149	73	324	160	85	350	171	98	376	179	110	402	188
35	251	123	48	277	135	61	302	147	74	327	158	86	357	168	99	383	175	111	409	181
36	258	121	49	282	133	62	307	145	75	331	156	87	364	165	100	390	170	112	416	175
37	265	119	50	288	131	63	312	143	76	335	154	88	371	162	101	397	166	113	423	169

Table 12. Charging Table for T4QD-060K Series (5 Ton Units)

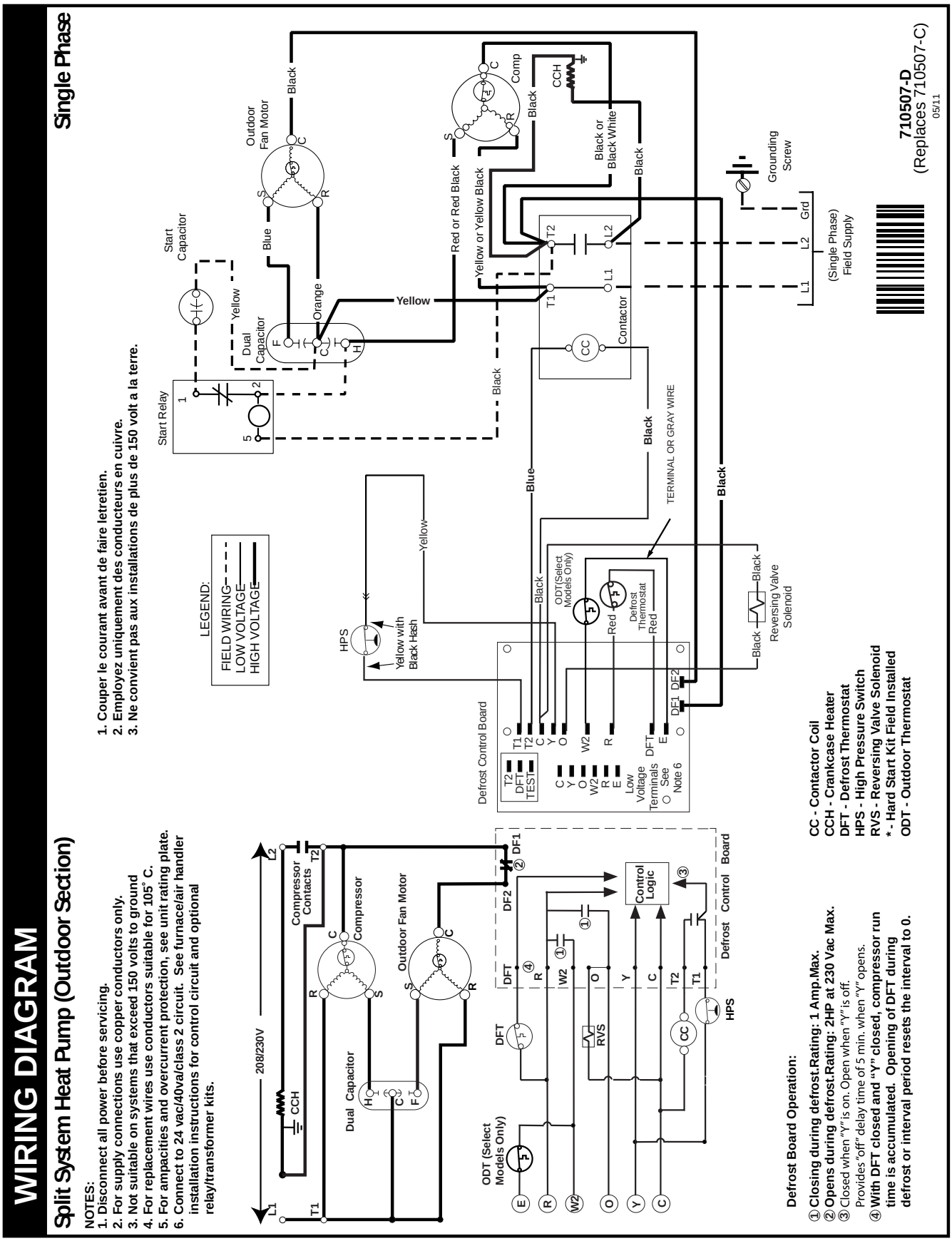


Figure 9. T4QD Wiring Diagram

INSTALLATION / PERFORMANCE CHECK LIST

INSTALLATION ADDRESS:		
CITY _____	STATE _____	
UNIT MODEL # _____		
UNIT SERIAL # _____		
Unit Installed Minimum clearances per Figure 1 (page 3)?	YES	NO
INSTALLER NAME:		
CITY _____	STATE _____	

REFRIGERATION SYSTEM:		
Was unit given 24 hr warm up period for crankcase heaters?	YES	NO
Stage-1 Liquid Pressure (high side) _____		
Stage-1 Suction Pressure (low side) _____		
Has the owner's information been reviewed with the customer?	YES	NO
Has the Literature Package been left with the unit?	YES	NO

ELECTRICAL SYSTEM:		
Electrical connections tight?	YES	NO
Line voltage polarity correct?	YES	NO
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		
Blower Motor HP: _____ Sheave Setting _____ # Turns		
Has the thermostat been calibrated?	YES	NO
Is the thermostat level?	YES	NO
Is the heat anticipator setting correct? (If Applicable)	YES	NO

USA DESIGNED & ASSEMBLED

AHRI CERTIFIED™ www.ahridirectory.org
Unitary Large HP
AHRI Standard 340/360
Certification applies only when the complete system is listed with AHRI.

C ETL LISTED US
Intertek

HRAI YOUR ENVIRONMENT OUR EXPERTISE ✓MEMBER COMPANY

We Encourage Professionalism
NATE NORTH AMERICAN TECHNICIAN EXCELLENCE
Through Technician Certification by NATE

REPLACEMENT PARTS

Replacement parts are available through all Nordyne distributors. Please have the complete model and serial number of the unit when ordering replacement parts.

Electrical

Capacitors
Compressors
Contactors
Pressure Switches
Relays
Temperature Limit Switches
Thermostats
Time Delay Relays
Transformers

Motors

Blower Motor
Fan Motor

Components

Blower Assembly
Cabinet Panels
Expansion Valves
Fan Grille
Filter/Driers

NORDYNE
COMPLETE COMFORT. GENUINE VALUE.

Specifications & illustrations subject to change without notice or incurring obligations.
O' Fallon, MO | Printed in U.S.A. (11/11)

7092940 (Replaces 7089980)