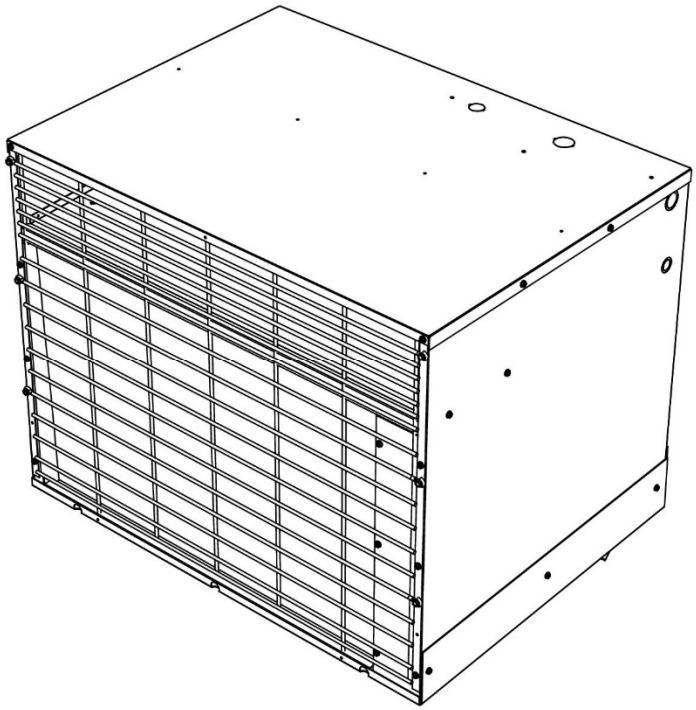
WCX-CB

R410a Condensing Unit



Installation, Operation, & Maintenance

IOM75G14 Rev.B 06/20

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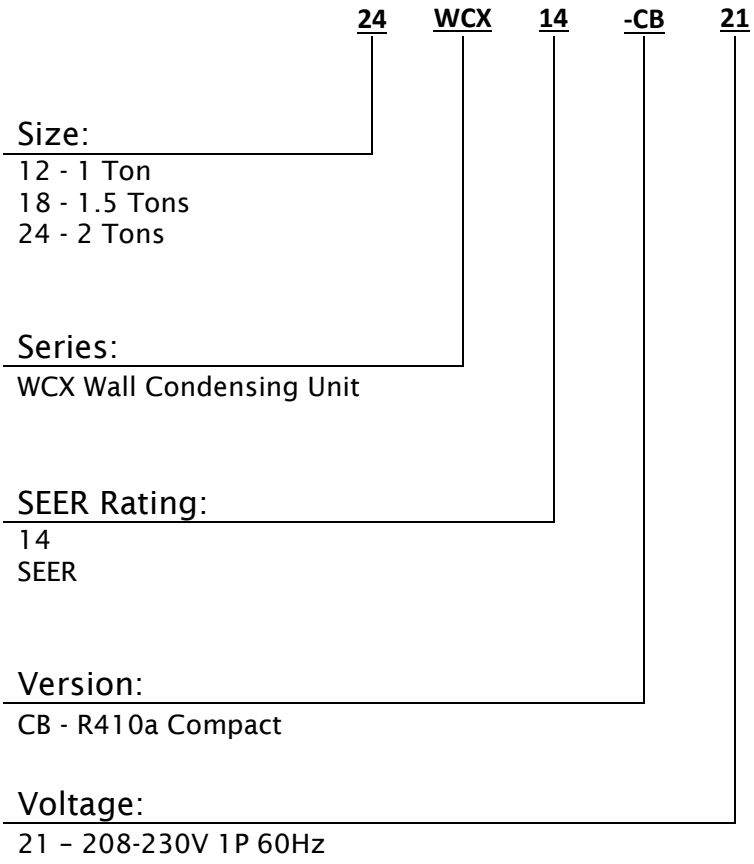
NOMENCLATURE

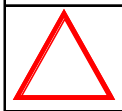
WCX Model Nomenclature



SAFETY CONSIDERATIONS:

1. **READ THE ENTIRE MANUAL BEFORE STARTING THE INSTALLATION.**
2. These instructions are intended as a general guide and do not supersede national, state, or local codes in any way.
3. Altering the product, improper installation, or the use of unauthorized factory parts voids all warranty or implied warranty and may result in adverse operation and/or performance or may result in hazardous conditions to service personnel and occupants. Company employees or contractors are not authorized to waive this warning.
4. This product should only be installed and serviced by a qualified, licensed, and factory authorized installer or service agency.
5. All "kits" and "accessories" used must be factory authorized when modifying this product. Refer and follow instructions packaged with the kits or accessories when installing.

RECOGNIZE THE FOLLOWING SAFETY NOTATIONS THROUGHOUT THIS MANUAL AND POSTED ON THE EQUIPMENT:

	This warning siginifies general hazards which could result in personal injury or death.
	This warning siginifies electrical shock hazards which could result in injury or death.
	Caution is used to identify unsafe practices which could result in injury or death.
	Note is used to highlight suggestions which may result in enhanced installation, reliability, or operation.

GENERAL

DO NOT use these units as a source of heating or cooling during the construction process. Mechanical components and filters become clogged with dirt and debris, which can cause damage to the system.

The manufacture does not warrant equipment subjected to abuse. Construction debris can void warranties and liability for equipment failure, personal injury, and property damage.

Before servicing equipment, ALWAYS turn off all power to the unit. There may be more than one disconnect switch. Electrical shock can cause injury or death.

Clear surrounding area of all tools, equipment, and debris before operating this unit.

Unit must never be operated under any circumstances without an air filter in place.

Material in this shipment has been inspected at the factory and released to the transportation agency in good condition. When received, a visual inspection of all cartons should be made immediately. Any evidence of rough handling or apparent damage should be noted on the delivery receipt in the presence of the carrier's representative. If damage is found, a claim should be immediately filed against the carrier.

These models are designed for indoor installation only. Installation of this equipment, wiring, ducts, and any related components must conform to current agency codes, state laws, and local codes. Such regulations take precedence over general instructions contained in this manual.

Extreme caution must be taken that no internal damage will result from screws that are drilled into the cabinet.

INSTALLATION PRECAUTIONS

Use two or more people when moving and installing these units. Failure to do so could result in injury or death. Contact with metal edges and corners can result injury. Protective gloves should be worn when handling. Exercise caution when installing and servicing unit.

Observe the following precautions for typical installation:

- Always use proper tools and equipment
- No wiring or any work should be attempted without first ensuring the unit is completely disconnected from the power source and locked out. Also, verify that a proper permanent and uninterrupted, ground connection exists prior to energizing power to the unit.
- Review unit nameplate and wiring diagram for proper voltage and control configurations. This information may vary from unit to unit.

INSTALLATION PRECAUTIONS CONT.

When soldering and brazing, it is recommended to have a fire extinguisher readily available. When soldering and brazing close to valves or sensitive components, heat shields or wet rags are required to prevent damage to the valves or components.

Units must be installed level where the bottom bracket will angle it towards the drain on the front of the unit.

Insulation is installed in the unit to provide a barrier between varying atmospheres outside and within the unit. If insulation is damaged condensation can occur and can lead to corrosion, component failure, and possible property damage. Damaged insulation must be repaired prior to the operation of the unit. Insulation will lose its effectiveness and value when wet, torn, separated, and/or damaged.

ALWAYS WEAR ALL APPROPRIATE PERSONAL PROTECTION EQUIPMENT WHEN INSTALLING AND SERVICING THESE UNITS.

MOUNTING DETAILS

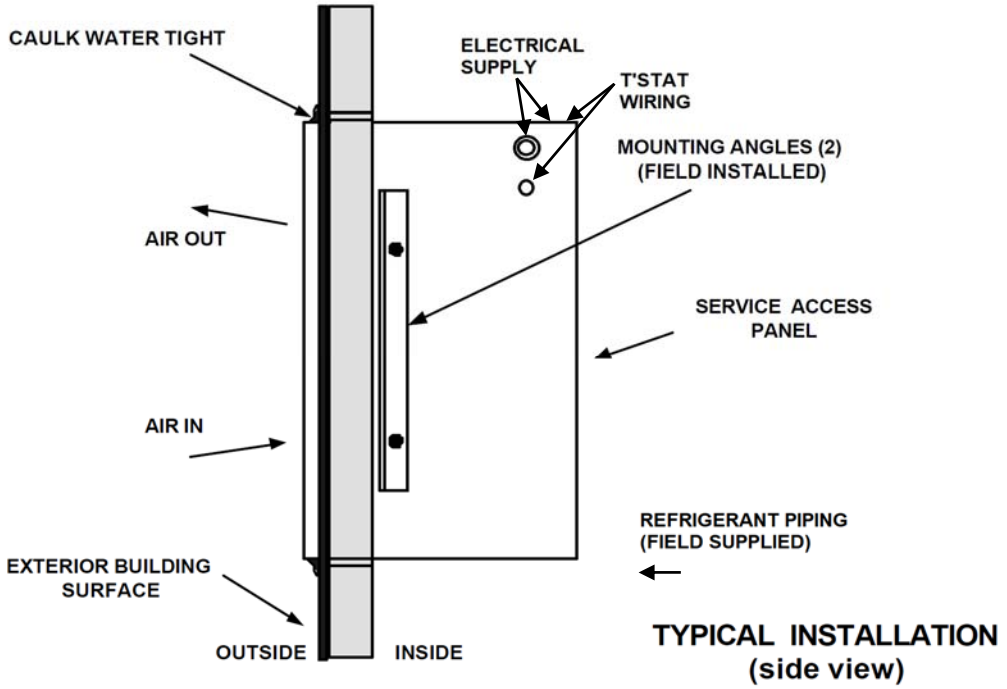


Figure 1

This unit is intended to be used in a thru-the-wall application with the coil surface side of the unit exposed to the outside of the structure and the unit access panel exposed inside the structure. A wall opening of sufficient size to allow sliding the unit through must be provided with framework sufficient to support the unit to the wall. The unit cabinet must not be relied on to provide wall support. (See figure 1)

For the unit to function properly, there must be no restrictions to free circulation of the condenser air. If architectural design considerations make it necessary to locate the unit behind a decorative grille the unit performance will be reduced if a reduction of air flow or a recirculation of airflow occurs. It may be necessary to provide a baffle between the face of the unit and the decorative grille to prevent recirculation of the hot discharge air back into the coil face. The added grille must be as open as possible to achieve the best performance.

If more than one WCX unit is to be installed in the same area a minimum of 36" spacing on the vertical and 18" on the horizontal is recommended between units to minimize recirculation of condenser exhausted air.

ELECTRICAL

The electric installation must be in accordance with the National Electric Code and any local codes or ordinances. Use a separate branch circuit for this unit and locate a disconnecting means within sight of the unit and readily accessible for service personnel.

Minimum circuit ampacity and maximum circuit breaker size information is shown on the unit nameplate. Use copper conductors only. NOTE: A Compressor Time Delay Relay may be required and will need to be field installed if rapid cycling of the compressor occurs.

Disconnect all power supplies before servicing. Lock out/tag out to prevent accidental electrical shock. NOTE: There may be multiple power sources supplying the unit.

Use copper conductors only. Install all parts and panels before operation of unit. Failure to follow these warnings can result in injury or death.

All wiring must comply with local and national code requirements. Units are provided with wiring diagrams and nameplate data to provide information required for necessary field wiring.

Connect ground wire to ground terminal marked “GND”. Failure to do so can result in injury or death.

Any device that has been furnished by the factory for field installation must be wired in strict accordance with the associated wiring diagram. Failure to do so could damage components and void warranties.

THERMOSTAT WIRING

Run a thermostat cable of at least 2 – wires 18ga min between the condensing unit and the indoor unit. Pigtail leads are provided at the condensing unit. Make connections using wire nuts and tape for security. (See figure 2)

To minimize voltage drop of the control wire, use the following wire size up to maximum lengths shown in the chart below.

WIRE SIZE	LENGTH FT(M)
18 AWG	UP TO 100(30)
16 AWG	UP TO 200(61)
14 AWG	UP TO 300(91)

SERVICE & MAINTENANCE

Keep the inside of the unit clean and be certain the drain holes in the base of the pan are open to assure rain drainage from the unit. Keep the condenser coil clean. Any restriction of the condenser air flow can seriously affect the system performance.

THERMOSTAT WIRING
24VAC-CLASS 2

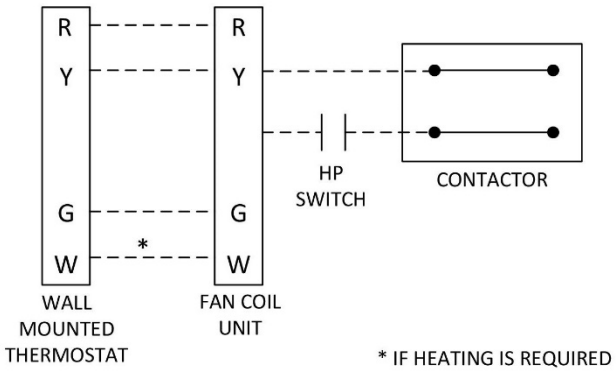
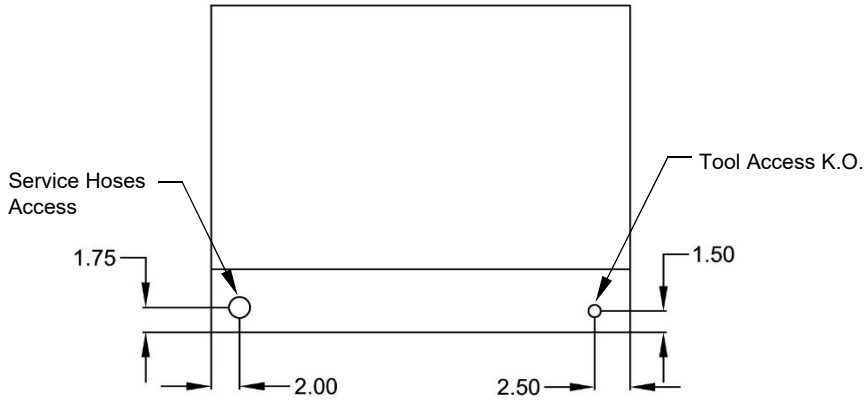


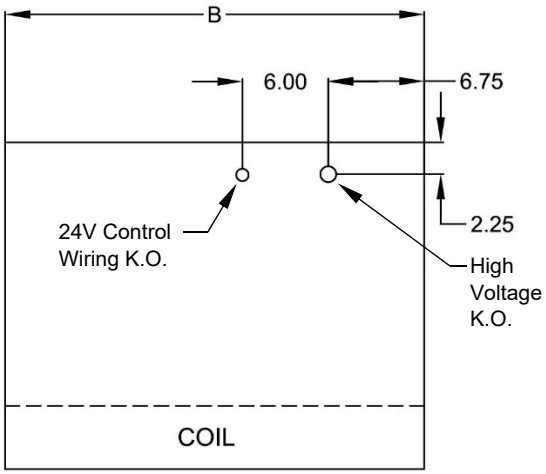
Figure 2

UNIT INFORMATION

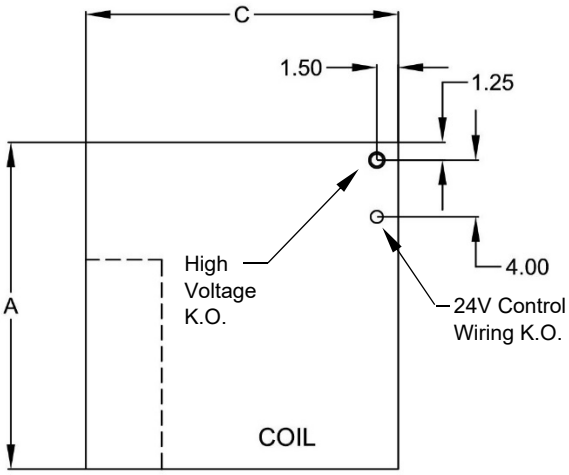
Electrical Data 208-230V - 1PH - 60Hz						
Unit Model	Compressor		Condenser Fan		MCA	MOP
	LRA	RLA	FLA	HP		
12WCX14-CB	25	4.7	2.8	1/2	8.7	15
18WCX14-CB	56.3	9	2.8	1/2	14.1	20
24WCX14-CB	62.9	10.9	2.8	1/2	16.4	25



BACK VIEW



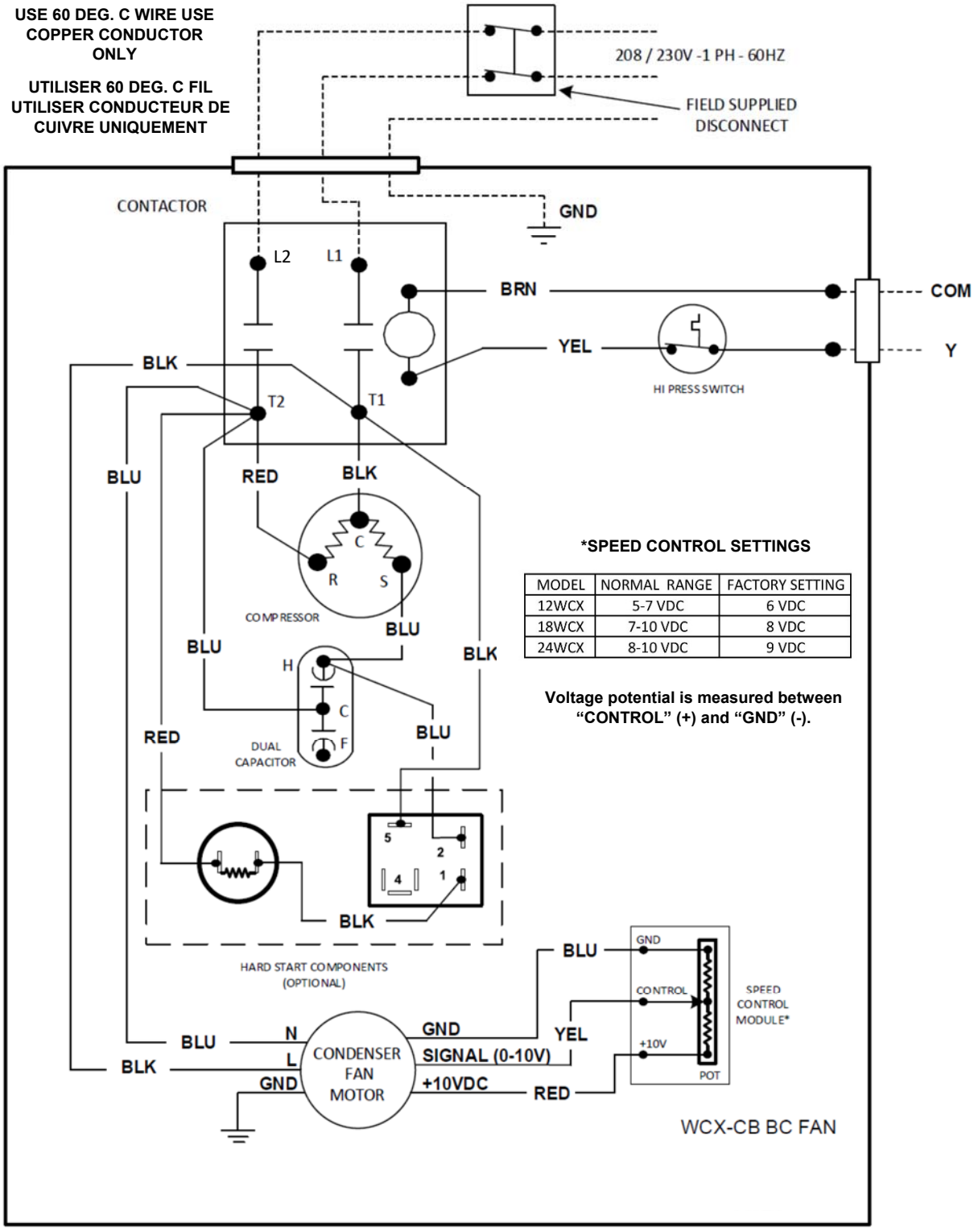
TOP VIEW



RIGHT VIEW

Physical Dimensions					
Unit Model	A	B	C	LIQ/SUCT. Line Conn. (Sweat)	Approx. Ship WT.
12WCX14-CB	23	29.5	22	3/8 O.D. / 3/4 O.D.	125 lbs
18WCX14-CB					134 lbs
24WCX14-CB					140 lbs

WIRING DIAGRAM



***SPEED CONTROL SETTINGS**

MODEL	NORMAL RANGE	FACTORY SETTING
12WCX	5-7 VDC	6 VDC
18WCX	7-10 VDC	8 VDC
24WCX	8-10 VDC	9 VDC

Voltage potential is measured between "CONTROL" (+) and "GND" (-).

PRE-START UP CHECK LIST

Before Start-up, all components should be checked thoroughly. The system should be completely cleaned of all construction dirt and debris. Coils should be cleaned using an industry acceptable cleaning method.

Prior to starting the unit:

1. Ensure supply voltage matches nameplate data.
2. Ensure unit is properly grounded.
3. WITH POWER OFF, check that the fan wheel rotates freely.
4. Ensure unit is properly and securely installed.
5. Ensure unit has proper slope for water drainage.
6. Ensure accessibility for future servicing.
7. Ensure all cabinet openings and wiring connections are tight and sealed.
8. Ensure all access panels and cover plates are properly installed and secured.

Start-up and Operation Data

Customer: _____ Condensing Unit Model: _____

Address: _____ City: _____ Serial Number: _____
(1 letter) – (2 numbers) – (1 letter) – (6 numbers)

Date: _____ Dealership: _____ Technician: _____

Air Handler Information:

Brand: _____ Model Number: _____ Serial Number: _____

Metering Device: Piston ☐ TXV Hard Shut-Off ☐ TXV Rapid Bleed ☐

Motor Voltage: _____ Amps: _____ Cooling Speed: _____ Heating Speed: _____

Evaporator Coil Temperatures:

Evaporator Coil EAT Dry Bulb: _____ Evaporator Coil LAT Dry Bulb: _____ Delta: _____

Evaporator Coil EAT Wet Bulb: _____ Evaporator Coil LAT Wet Bulb: _____ Delta: _____

Condensing Unit:

Unit Voltage: _____ Compressor Voltage: _____ Amps: _____ Discharge Line Temp: _____

Min Circuit Amps (MCA): _____ Max Overcurrent Amps (MCO): _____ Breaker/Fuse Size: _____ Wire Size: _____

Start Kit: Yes ☐ No ☐ Recommended: Kickstart or similar kit with a potential relay only—do not use solid state kits.

Refrigerant Pressures / Temperatures: Outdoor Ambient Temp: _____

Low Side PSIG: _____ {Vapor Line Temp: _____ **minus** Saturated Temp: _____ = _____ degrees of **Superheat**}

High Side PSIG: _____ {Saturated Temp: _____ **minus** Liquid Line Temp: _____ = _____ degrees of **Sub-cooling**}

APPLICATION, SYSTEM START-UP, and CHARGING NOTES:

Proper start-up and operational checks must be performed on each installation and should include gathering all of the information listed above. Please refer to the WCX Installation, Operation, and Maintenance Instructions for complete details.

When selling and installing a WCX condensing unit with a new air handler we recommend choosing a certified matched size air handler.

If the air handler matched with a WCX condensing unit has a piston metering device, the piston size may need to be larger than the one supplied with the air handler. If system charge and performance dictate, a larger size piston may be installed in the air handler.

Example: A First Co 2.0 ton air handler comes with a #59 piston. If necessary, a #63 piston may be installed for better performance.
We recommend TXV's be installed on systems incorporating thru-the-wall condensing units.

Start kits should be installed on systems with a 208-volt power supply. In addition, start kits must be installed on all systems with a hard-shut-off TXV. When in doubt as to the type of TXV installed on a system, install a start kit. The addition of a start kit reduces the initial current inrush, reduces contactor wear, and extends compressor life.

System Start-Up and Charging: The proper practice of refrigerant recovery, evacuation, and charging should be followed when replacing/installing a thru-the-wall condensing unit. When charging a system with a piston (fixed orifice) refrigerant metering device, the system should be charged by super heat. A normal super heat range of 10 to 15 degrees is acceptable. When charging a system with a thermal expansion valve (TXV) charging should be accomplished using the sub-cooling method. The recommended sub-cooling operational range is between 8 and 12 degrees. The temperature drop across the evaporator coil will be approximately 18 degrees for a properly operating system.

Head pressure for the WCX units frequently run higher than other split systems especially on days when the temperature is in the mid to upper 90's. This is due to the limited physical size of the condensing coils. Head pressures are likely to run from the low 400 lb. range to as high as 500 lbs. plus depending on the application. First Company exterior grilles are the only grilles approved for use with the WCX condensing units. The installation of an architectural grille will increase head pressure. Proper charging of a system with a WCX thru-the-wall condensing unit, based in the parameters above, will insure maximum capacity, efficiency and dependability.

PREVENTIVE MAINTENANCE:

To achieve maximum performance and service life of equipment, a formal schedule of regular maintenance should be established and adhered to.

ALL APPROPRIATE PERSONAL PROTECTION EQUIPMENT SHOULD BE WORN WHEN SERVICING OR MAINTAINING THIS UNIT.

Personal injury can result from sharp metal edges, moving parts, and hot or cold surfaces.

Fan:
The fan should be inspected and cleaned annually in conjunction with maintenance of the motor and bearings. It is important to keep the fan section and motor clean and free from obstruction to prevent imbalance, vibration, and improper operation.

Motor:
Check motor connections to ensure they are secure and in accordance with the unit wiring diagram.
MAKE SURE POWER IS DISCONNECTED BEFORE SERVICING.

Coil:


Clean all heat transfer surfaces and remove all dirt, dust, and contaminates that potentially impairs air flow using industry accepted practices. Care should be taken not to bend coil fin material.

Maintenance Updates:
Check regularly for a current copy of the maintenance program log which can be found at www.FIRSTCO.com under “product information”.