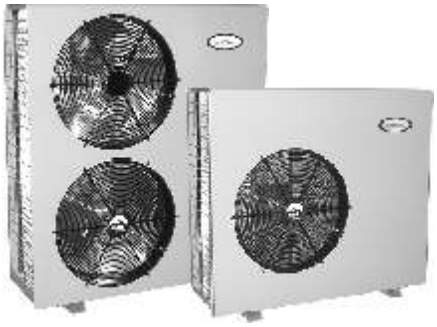
COLD POINT CORPORATION

Cold Point Corporation, Rome, New York 13440 Phone (315)339-2331 Fax (315)339-2358 Web: www.coldpointcorp.com

CNC SERIES

CNC Air Conditioning
Remote Condensing Unit

Installation Operation and Maintenance



MADE IN USA

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CONSUMER/USER INFORMATION SECTION:

Thank you for choosing *Cold Point Corp.* products! Our goal is to make sure you remain pleased with your decision to purchase *Cold Point Corp.* products. If you are in need if assistance that is not available or provided by your local installer/contractor feel free to give us a call, write us, or e-mail us at:

Cold Point Corp.
7500 Cold Point Dr.
Rome, NY 13440
Phone: 315.339.2331
FAX: 315.339.2358
e-mail: info@coldpointcorp.com

OPERATING INSTRUCTIONS:

CNC air conditioners are designed to provide comfort cooling at outside temperatures above 60 degrees. Operating the air conditioner below 60 degrees may cause unit failure and will void the Warranty. If you have need for cooling at lower outdoor temperatures a 'low ambient cooling' option is available. Contact your local contractor or call the factory.

TO OPERATE:

1). Set the switch on your wall thermostat to the 'cool' position.
2). Set the desired temperature you want to maintain by moving the temperature setting lever or dial on your thermostat. If the room is warmer than the setting, the unit will turn on and begin to blow cool air after a few minutes. Note that a warm humid room or building may take several hours of continuous operation to cool to the thermostat set point the first time. Once the set temperature is reached the unit will cycle on and off.
3). Set the 'Fan' switch on the thermostat to 'auto' if you want the fan to run only when cooling is needed or to 'on' if you want continuous air circulation. The 'on' setting of the fan generally provides better temperature control by eliminating stagnant air.
4). For energy conservation reasons you may want to set your thermostat at a higher temperature when you are away. Do not raise the temperature setting by more than 5 degrees. Changing the temperature by more than 5 degrees or shutting the unit 'off' can actually cost more than leaving the setting at a constant temperature.
5). IMPORTANT! Wait at least 3 minutes after turning your air conditioner off before trying to restart it. This gives the unit the time needed to stabilize before restarting. Failure to do so may cause unit damage and failure.
6). A properly installed and sized unit will not cycle more than 10 times per hour. If you notice more frequent starts call your service contractor.

MAINTENANCE:

Only simple periodic maintenance is required:
1). Change or clean the indoor unit air filter monthly or more frequently if unusual conditions are encountered. If you have a disposable type, throw the old one away and install a fresh one of the same size and type. If your unit has a washable type then vacuum and wash with soap and water. Flush thoroughly and dry before re-installing.
2). Keep the coil in the outdoor unit clean. Periodically flush the coil thoroughly with a garden hose. Clean away all foreign materials such as dust, leaves, grass clippings, papers, etc. Warning: Turn the power off first! Serious injury or death may result if water spray is directed at live electrical connections or power sources.
3). Yearly waxing of the exterior cabinet surfaces with a good quality car wax will keep your unit looking new and extend the life of the cabinet.

Homeowner Records:

Date of Installation _____

Model No. _____

Serial No. _____

Installing Contractor _____
Address _____
Phone No. _____ Technician's Name_____

Service/Maintenance

Date:	Work Performed	By

NOTES:

All Product Limited Warranty

Cold Point Corporation warrants to the purchase / owner, that all products will be free from defects in material and workmanship under the normal use and maintenance.

The warranty coverage period:

From the date of original installation: Twelve, (12) months for all components, and sixty, (60) months on unit compressors.

Or

From the date of original sale: Fifteen, (15) months for all components and Sixty-three, (63) months on unit compressor from the date of original sale.

whichever comes first.

What we will cover:

PARTS: Cold Point Corp. will replace any defective part with a new or rebuilt part at no charge. The replacement part then assumes the remaining portion of the warranty.

How:

PARTS: Replacement parts, except for compressors, will be provided at no charge upon receipt of an order. Failed compressor replacements must be authorized and returned to *Cold Point Corp.* Replacement compressors will be billed when shipped and credited upon receipt and inspection by *Cold Point Corp.* See Return Material Authorization Policy Bulletin #PB002 for details.

What we do not cover:

Labor or other costs incurred for removing , installing, shipping, or handling of defective units.

Normal maintenance

Damage or repairs required as a consequence of faulty installation or application by others. Failure to start due to voltage conditions, blown fuses, open circuit breakers, or other damages due to the inadequacy or interruption of electrical service.

Damage or repairs needed as a consequence of any misapplication, abuse, improper servicing, unauthorized alteration, or improper operation.

Damage as a result of floods, wind, fires, lightning, accidents, corrosive atmosphere, or other conditions beyond the control of *Cold Point Corp.*

Products installed outside the United States or Canada.

Any damages to person or property of whatever kind, direct or indirect, special or consequential, whether resulting from use or loss of the product.

Limit of Warranties: This warranty is exclusive and in lieu of any implied warranties of merchantability and fitness for a particular purpose and all other warranties express or implied. The remedies provided for in this warranty are exclusive and shall constitute the only liabilities on the part of *Cold Point Corp.* including any statement made by any individual which shall be of no effect.

For Service, repair, or assistance:

1.) Contact the installer
2.) Call the nearest distributor
3.) Call, write, or e-mail:

Cold Point Corp.
7500 Cold Point Dr.
Rome, NY 13440
Phone: 315.339.2331
Fax: 315.339.2358
Web: www.coldpointcorp.com

INSTALLER/SERVICE CONTRACTOR INFORMATION:

Thank you for choosing *Cold Point Corp.* products! We have designed and manufactured this unit to be safe and trouble free. As the installer of this unit, you play a major role in assuring it's intended performance and customer satisfaction. The important information provided here will help you install the unit correctly and eliminate call-backs.

IMPORTANT! Alterations and replacement parts: Altering the product or replacing parts with non-authorized parts will void the factory Warranty and may result in adverse operational performance and/or a possible hazardous safety condition to service personnel and occupants. If you are in doubt as to how to service this unit or where to find factory replacement parts, call *Cold Point Corp.* at 315.339.2331 for assistance.

GENERAL:

These instructions give information relative to *Cold Point Corp. CNC* air conditioners. Local codes, if different from these instructions, must be followed and supplement or supersede these instructions. A complete installation consists of: *CNC* condensing unit, an evaporator unit by *Cold Point Corp.* or others, interconnecting tubing and wiring, R22 refrigerant, mounting pads and/or hardware, electrical supply/disconnects, and a wall mounted thermostat.

UNPACKING and INSPECTION:

The *CNC* is shipped completely assembled and in it's own package. All goods are inspected at the factory and released to the freight company in good condition. When received at the site, a visual inspection of all packages should be made immediately. Any evidence of rough handling or apparent damage should be noted on the delivery receipt and the material inspected in the presence of the carrier's representative. If damage is found a claim should be immediately filed with the freight company.

COOLING OPERATION TEMPERATURE LIMITS:

CN SERIES units are designed in accordance with ARI standards and will operate in cooling at outside temperatures between 60 degrees and 115 degrees Fahrenheit. If *CNC* Series air conditioners will be used to cool at temperatures below 60 degrees, a low ambient control must be specified or installed. Low ambient control is available as a factory installed option or may be field installed. Contact your *Cold Point Corp.* dealer or call the factory. Operation below 60 degrees without low ambient control will void the Warranty.

INDOOR UNIT USE and SYSTEM EFFICIENCY:

CNC SERIES air conditioners are designed to be compatible with most major brands of domestic evaporator coils/air handlers. Imported ductless air handlers maybe used but often do not include an expansion device. A properly sized thermostatic expansion valve is recommend and is available from Cold Point.

The U.S. Department of Energy, (D.O.E.), mandates that all systems achieve a minimum efficiency of 13.0 Seasonal Energy Efficiency Rating, (SEER). All *CN SERIES* units meet or exceed 13.0 SEER when used with *Cold Point Corp.* indoor units, *see Table 1*. Indoor units not supplied by *Cold Point Corp.* must be selected to meet the minimum 13.0 SEER, efficiency rating.

Use the following indoor coils supplied by Cold Point for an approved/matched system:

Table 1

Model No.	Cold Point Part #	Evap Coil Ref. #	Nominal CFM
CNC- 18	20159	TRUF37TR5	600
CNC- 24			800
CNC- 30			1,000
CNC- 36			1,200
CNC- 48	20160	TRUF49TR-6	1,600
CNC- 60	20161	TRUF61TR-8	2,000

THERMOSTAT and INDOOR FAN TIME DELAY:

All indoor units should include a fan time delay. This may be accomplished by using a Cold Point digital wall thermostat or installation of a 60 second fan time delay designed to work with your specific furnace/air handler.

Cold Point digital thermostats include a fan delay as do most brands of electronic thermostats.

Thermostats are available from *Cold Point Corp.* Use of thermostats not supplied by *Cold Point Corp.* are the responsibility of the installer.
Proper temperature control and unit operation depends on proper thermostat selection and location. Refer to the thermostat manufacturer's installation instructions for specific recommendations. Good practice is to avoid outside walls, locations where the sun may shine directly on the thermostat, and locations where the air from supply registers or unit outlets blow on the thermostat. Also avoid locations where the thermostat could be jarred by a closing door.

UNIT LOCATION and MOUNTING:

Choose a location that places the *CN* unit as close to the indoor unit as possible. The maximum separation is 100 feet. Maximum vertical lift (compressor above evaporator) is 35 feet.
Avoid high traffic areas and areas where water, snow, or ice may fall from a roof onto the unit. In climates where snow is a consideration, locate the unit away from areas prone to drifting. For heat pump installations be sure to raise the unit above expected snow levels.
For wall mounting, assure that mounting frames and hardware are corrosion resistant and of adequate size and strength to support the unit. For ground or roof mounting provide a level pad or platform.

Insure free flow of air into and out of the unit. Stay clear of obstructions such as walls and shrubs. Minimum clearances must be adhered to as illustrated in *Fig. 1* and in accordance with *Table 2*.

FIG. 1

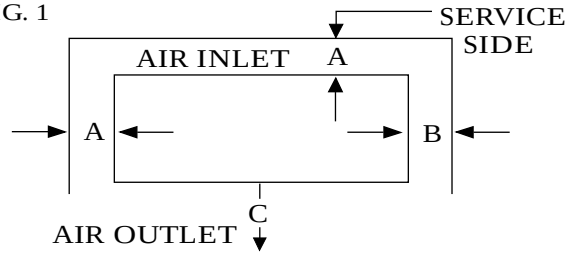
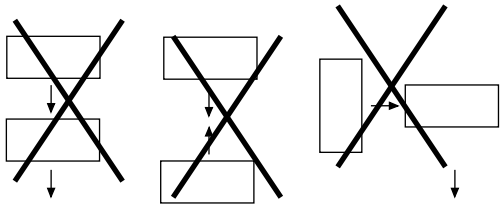


Table 2 **MINIMUM CLEARANCE**

Model No.	A	B	C
CNC-09, 12, 18, 24	8"	18"	48"
CNC-30, 36, 48, 60	11"	18"	48"

Do not locate two or more units in a way that will block air flow or in a way that hot air from one unit will blow into a nearby unit. See *Fig. 2*.

FIG. 2



ELECTRICAL WIRING and SUPPLY VOLTAGE:

All electrical wiring must be run according to NEC and local codes. Nameplate data indicates the operating voltage, phase, ampacity, maximum over current protection, and minimum voltage. Use copper conductors only.

The contractor is to provide branch circuit over current protection for the unit as required by code. Run power supply wiring through a weatherproof disconnect box and conduit to the unit connection. Disconnects are required to be within sight and easy reach of the unit, (usually within 3 feet).

For low voltage wiring use NEC class 2 wire. Check the unit wiring diagram for the number of conductors required. Route neatly and protect from sharp edges and damage.

CN SERIES units are rated for use on 230V power supply circuits. Unit performance and life depend on a supply voltage that is maintained between 207V and 253V. Inadequate wiring and/or improper electrical supply will likely result in failure of the compressor and other electrical components and voids the Warranty.

REFRIGERANT PIPING:

The length of refrigerant lines and the number of bends determine the pressure drop which affects capacity and efficiency of the system and oil return to the compressor.

The outdoor unit connections are sweat type. Tube size should always be the same diameter as the connections provided at the service valves. Up sizing of lines can result in inadequate oil return to the compressor and excessive refrigerant charge and will void the Warranty. See *Table 3*.

Table 3

Refrig. Line Data.	Model			
	09,12	18,24	30,36	48,60
Max. Line Length	100	100	100	100
Max. Elevation	35	35	35	35
Max. Number Bends	10	10	10	10
Liq. O.D.	1/4"	3/8"	3/8"	1/2"
Suction O.D.	1/2"	5/8"	3/4"	7/8"
'P' Trap (invert)	Every 10' of Rise			

Choose a location that places the *CN* unit as close to the indoor unit as possible. The maximum separation is 100 feet of piping. Use only clean refrigeration grade tubing. Avoid piping on wet or rainy days. Always keep the tube ends capped until you are ready to make the final connections. Remove burrs from cut ends of tubing. Use tube benders to avoid kinking.

Insulate the suction line with Armaflex or equivalent with a wall thickness of at least 3/8". Support the tubing adequately to avoid sags that can trap oil. Isolate the tubing so as not to transmit noise to the building structure. Avoid sharp edges that could cut the tubes. Maximum vertical lift (compressor above evaporator) is 35 feet. Trap risers with a 'P' trap every 10 feet.

Units are supplied with a filter drier for installation in the liquid line. Install in a convenient location. Protect from excessive heat while brazing connections.

LEAK TEST, EVACUATION & RELEASE of REFRIGERANT:

The CN unit is supplied with R-22 charge sufficient for most matching evaporator units. Charge must be added for interconnecting tubing.

The unit's service valves are shipped in the closed position and should not be opened until final connections and evacuation are completed.

WARNING: It is illegal to discharge refrigerant into the atmosphere. Use proper reclaiming methods and equipment when working on the refrigerant containing parts of the unit. Service should be performed by a QUALIFIED service agency and certified technicians.

The recommended procedure for leak test, evacuation, and release of refrigerant is outlined below:

1). Complete the final piping connections to the indoor and outdoor units using high temperature brazing alloy.
2). Connect a charging manifold to the service ports provided at the service valves.
3). Pressurize the lines and evaporator with nitrogen and leak check all connections with soap bubbles. Repair as necessary any faulty joints. If brazing is required be sure to RELEASE THE NITROGEN FIRST. Re-test as needed.
4). Connect a vacuum pump to the manifold center connection, start the pump and open the manifold valves.
5). Evacuate to 500 microns or less for a minimum of 30 minutes. Close the manifold valves and shut off the pump. Note the vacuum reading and wait 15 minutes. Take a new vacuum reading. A reading of 800 microns or higher indicates the presence of moisture or a leak.
6). Repair as necessary and repeat steps 3, 4 & 5.
7). Confirm that manifold valves are closed and disconnect the vacuum pump.
8). Remove the caps from the services valves. Using an allen wrench open the valves to the fully 'back-seat' position. Replace service valve caps and tighten.

INITIAL START-UP & CHECKS:

Operation of the unit is automatic and will provide cooling depending on the setting of the thermostat.

IMPORTANT! All panels must be installed, main power turned on and the thermostat properly connected before operating the unit.

1). System check - set thermostat system switch to "Off" position and fan switch to "Auto" position. Turn the power supply breaker on.
2). Set the fan switch to "On" , blower should operate.
3). Return the fan switch to "Auto". Blower should shut off. Set the system switch to "Cool" and lower thermostat set point to coldest setting. The compressor, condenser fan, and evaporator blower should all come on. Cool air will be supplied after a couple of minutes of run time.
4). Proceed to the 'FIELD CHARGING' section of these instructions.

FIELD CHARGING:

Unit performance, efficiency, and life depends, to a large extent, on a proper system charge. Time spent on getting the charge right at start-up will pay off in the long run.

Operating conditions such as voltage, air flow, evaporator coil size, and indoor and outdoor temperature and humidity all have an effect on the system pressures and superheat conditions.

CNC series units are factory charged for the outdoor and indoor unit and factory supplied filter drier. Charge must be added for the interconnecting tubing. Cold Point supplied evaporator coils are supplied with non-bleed type thermostatic expansion valves. Use the sub-cooling method or verify/adjust charge (see page 7).

Use the following 'superheat' and 'sub-cooling' methods to verify proper charge after adjustments are made.

SUPERHEAT METHOD FOR FIXED ORIFACE/ CAPILLARY TUBE INDOOR UNITS:

For fixed metering devices such as bullet orifices, pistons, and cap tubes the superheat method will always be the method used. Measuring superheated vapor values at the suction service valve is one of the most important indicators of proper system performance. If the superheat is too high, the evaporator coil will under perform. If too low, there is a risk of damaging the compressor with liquid refrigerant. A fixed metering device is unable to control super heat; therefore, proper superheat values can vary greatly with conditions that affect it, such as outdoor and indoor air conditions. Use the steps outlined in steps 1 thru 6.

PROCEED as FOLLOWS:

1). Run the unit for at least 10 minutes to allow the system to stabilize. Then take readings of the indoor and outdoor air temperatures and suction pressure. Write them down.

2). On the gauge face, read the equivalent temperature on the R-22 scale next to the suction pressure reading.

3). Using a thermocouple or probe type thermometer read the suction line temperature as it enters the service valve. Make certain that the thermocouple/probe is tight to the copper line.

4). From the thermocouple thermometer reading subtract the suction pressure equivalent temperature (saturated suction).

5). Proceed to the Superheat chart (Fig. 3). Add or remove R-22 to achieve the superheat reading indicated by the chart.

IMPORTANT: When connecting the manifold to the charging bottle be sure to purge the hose of air with a small amount of R-22.

Wait at least 5 minutes between charge adjustments to allow the unit to stabilize.

6). When charge adjustment is complete remove the manifold hoses from the service valves and replace and tighten service port caps.

Fig. 3

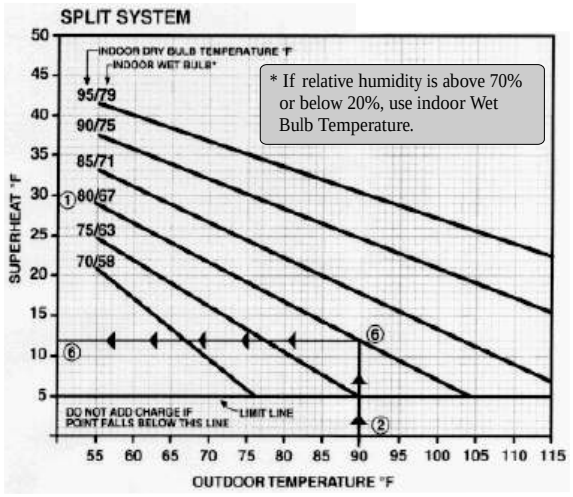


Chart based on 400 cfm/ton indoor airflow and 50% relative humidity; use only on systems that cool with an fixed oriface or capillary tube.

SUB-COOLING METHOD FOR EXPANSION VALVE INDOOR UNITS:

An air conditioning system utilizing a thermostatic expansion valve (TXV or TEV) for its metering device will automatically maintain proper evaporator superheat regardless of varying operating conditions. Therefore, when charging a TXV system, the charge is adjusted to assure that there is pure liquid refrigerant, void of any flash gas, entering the expansion device. Verifying a liquid 'seal' at the expansion valve can be accomplished by measuring the sub-cooling, (sub-cooling is the sensible heat removed from the liquid refrigerant as it travels through the last passes of the condenser). As with superheat, the proper level of sub-cooling is important. If the sub-cool level is too low or nonexistent, flash gas will form, causing restricted flow through the TXV reducing system capacity. Higher than normal sub-cooling is an indication that liquid refrigerant is "backing up" in the condenser, reducing its effective condensing area. If too high, due to an overcharge, it can lead to high condensing pressure problems.

PROCEED as FOLLOWS:

1. Operate unit a minimum of 10 minutes prior to checking refrigerant charge.
2. Measure liquid service valve pressure by attaching an accurate gage to the service port. Determine saturation temperature from T/P chart.
3. Measure liquid line temperature by attaching an accurate thermistor type or electronic thermometer to liquid line near service valve.
4.Calculate sub-cooling (Saturation temp.-measured temp.)
5.Sub-Cooling should be 15 deg. Add refrigerant if sub-cooling is lower than 15deg. Recover refrigerant if sub-cooling is higher than 15 deg..
6. Whenever charge is removed or added, the system must be operated for a minimum 20 minutes to stabilize before additional measurements can be made.

RECHARGE:

When it is necessary to completely recharge the system refer to the unit nameplate for the starting charge. Verify the final charge using the 'superheat' or 'sub-cooling' method. Be sure proper refrigerant handling and reclaiming methods are used. Technician certification is required by law.

FINAL INSPECTION:

Do a final visual inspection of the entire installation and complete any final details and clean up.

Review Unit Operation with the homeowner/user.

Installer/Contractor Records:

BEFORE CALLING the FACTORY for ASSISTANCE

A call to the factory is sometimes necessary for technical support or service/troubleshooting. We are happy to help! Before calling please gather and record the following information so that we are best able to help you.

Cold Point Corp.
7500 Cold Point Dr.
Rome, NY 13440
Phone: 315.339.2331
FAX: 315.339.2358
e-mail: info@coldpointcorp.com

Outdoor Unit Model No.: _____
Outdoor Unit Serial No.: _____
Indoor Unit Model No.: _____
Indoor Unit Serial No.: _____
Condition of outdoor unit coil and indoor air filter _____
Name of Job or Installation: _____
Your Name: _____
Your Company's Name: _____
Your Company's Address: _____
Your Company's Phone & FAX No.: _____
Outdoor Temperature: _____
Indoor Temperature: _____
Suction Pressure: _____
Suction Superheat: _____
Liquid line Pressure: _____
Voltage @ Contactor: _____
Amp Reading (clamp on): _____

Your Diagnosis or Question:

_____
_____
_____
_____

Factory rep recommendations:

Date:_____
Factory rep's name:_____
Recommendations:_____
_____
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