



**IMPORTANT  
INFORMATION  
FOR  
CT96 / CT96GE SERIES**

**This unit has passed  
QUALITY CONTROL INSPECTION  
and meets the high standards for Carrier  
Refrigeration products.**

**IMPORTANT  
PLEASE RETAIN FOR YOUR RECORDS**

**SALES OFFICE: P.O. BOX 5932 SPARTANBURG, S.C. 29304-5932  
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PLANTS: SPARTANBURG, S.C. BROOKVILLE, PA. HONEA PATH, S.C.**



## INSTALLATION AND OPERATING INSTRUCTIONS

### MODEL: CT96 SERIES

#### 1. INSTALLATION

##### a) Receiving Inspection:

Upon receipt, check all packages for accessories or components including legs, casters, and shelves.

2.

##### b) Legs and Casters: (Optional)

Remove skid base by removing (4) hex head bolts. Leveling feet are factory installed. To install legs or casters, tip or raise the cabinet one side at a time, remove leveling feet and replace.

##### c) Leveling:

To provide adequate condensate drainage, proper door alignment and operation, it is necessary that the cabinet be level. If cabinet is equipped with casters, make sure cabinet is placed on a flat, level surface. If levelers are not used, local sanitation codes may require cabinet to be sealed around the perimeter of the cabinet base. Sealant material must be approved for this use, such as Dow Corning #732

##### d) Shelves:

Product shelves are packed inside the unit, along with and a bag of shelf support clips. Upper shelf spacing is adjustable to suit requirements. Bottom shelf must be placed on interior floor and should be inserted into the two retainer clips provided at the rear corners of the unit floor.

##### e) Locating Cooler:

Provide at least three inches of space between cabinet and any adjacent wall or fixture.

#### 3. OPERATION

##### a) Electrical Supply and connections:

This unit should be powered by an electrical service meeting all local and national electrical codes. Review the unit data label, before initiation electrical service. Low line voltage is often the cause of service complaints. Check to see that the line voltage is 110 volts or more with the unit running. Other motors or heavy appliances should not be used on the same circuit with the cooler. **WARNING:** when performing major repair, disconnect electrical service for safety reasons. **CAUTION:** If an extension cord is necessary, use only three wire grounding type. The use of ungrounded cords or overloaded circuit voids compressor warranty.

##### b) Initial Start-up:

Turn power on and check to verify the compressor, lamp, and fans are running.

##### c) Temperature Control:

Factory setting of temperature control is at the number 4 position (normal), which will maintain the product at approximately 38 F. For colder temperature, remove the lamp guard and the plug covering the access hole to the control dial. Adjustments are made by use of flat blade screwdriver. Turn screwdriver clockwise for colder temperature. Adjust temperature control in small increments, allowing 24 hours between adjustments.



Excessive tampering with temperature control could lead to service difficulties. For operation above 3,000-ft. altitude, have thermostat adjusted by a qualified serviceman.

- d) Condensate Disposal: The evaporator drain pan is located above the compressor. Airflow in compressor compartment hastens condensate evaporation so that external drain plumbing is not required.

#### 4. MAINTENANCE:

- a) Cleaning Cabinet Exterior:

Cabinets should be cleaned with a solution of mild soap and water or mild household cleaner. Do not use caustic soap or abrasive cleaners, since these might damage the cabinet finish. If stainless steel surface becomes discolored, scrub by rubbing only in direction of the finish grain. Do not use steel wool, as rusting can occur.

- b) Cleaning Interior Surface:

The inside of the cabinet is coated with baked-on epoxy. To clean, use mild soap and water solution or mild household cleaner.

- c) Condenser:

For efficient operation, it is recommended that the unit be placed a minimum of 3 inches (75mm) from surfaces adjacent to the unit back and top. Inspect condenser periodically for accumulation of debris. Use a brush or vacuum cleaner for removal.

- d) Evaporator Compartment (interior top area):

**Caution:** disconnect electrical service, before proceeding with access to this compartment.

If internal components are to be serviced, remove three screws fastening the plastic cover panel at the front. Plastic cover can be tilted downward to fully expose the Fan, Lamp Ballast and Temperature Control.

- e) Lamp Replacement

**Caution:** disconnect electrical service, before proceeding with replacement.

Remove plastic lamp shield by pushing upward on the bottom surface, until free of the slot. Remove lamp by rotating lamp 90 degrees to align lamp pins with holder slots.

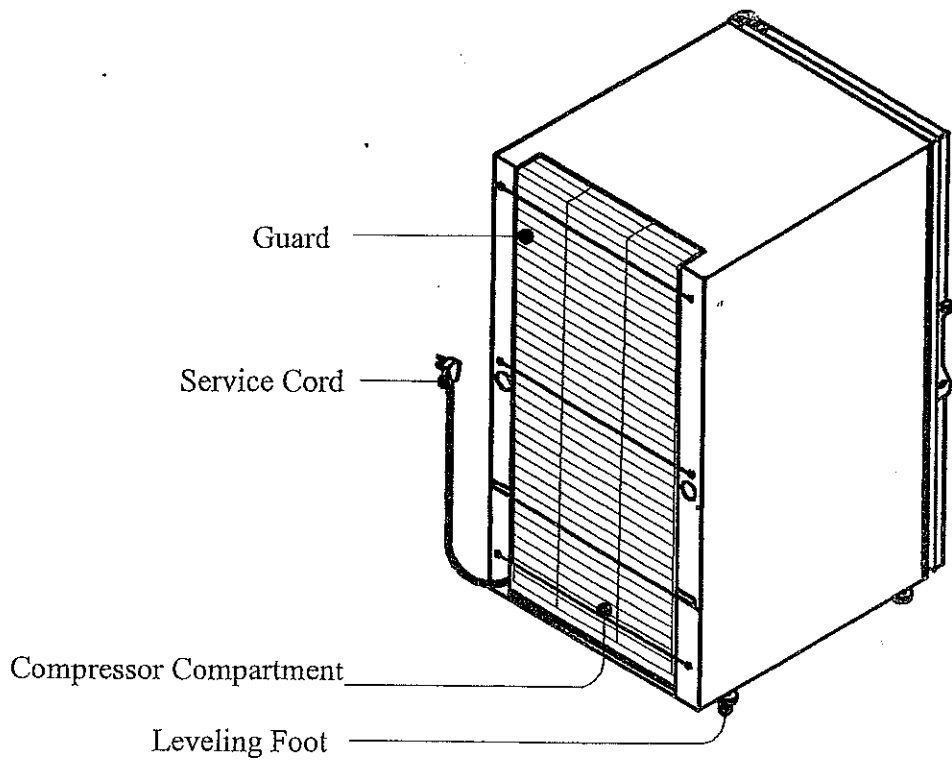
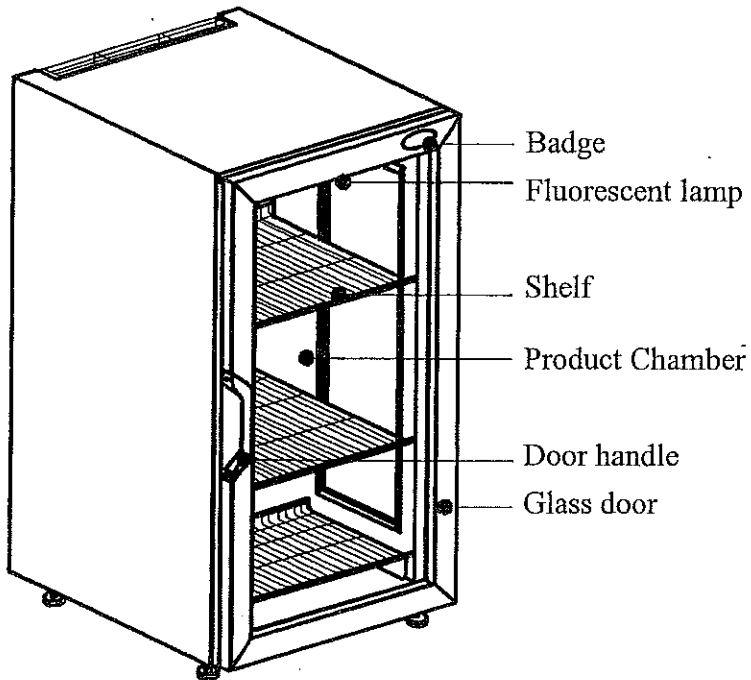
- f) Compressor Compartment (bottom rear area):

**Caution:** disconnect electrical service, before proceeding with access to this compartment.

Access to compressor compartment requires removal of six screws fastening the rear guard. Cooling fan access requires removal of a single bracket fastening screw. After tubing and electrical connections are removed, compressor replacement requires removal of four clips securing compressor base plate.



5.1 PART NAMES AND FUNCTIONS:



CT96 SERIES



## SERVICE INSTRUCTIONS

## REFRIGERATION SYSTEM

MALFUNCTION	POSSIBLE CAUSE	SOLUTION
Compressor will not start - no hum	<ol style="list-style-type: none"> <li>1. Line cord not plugged in.</li> <li>2. Fuse removed or blown.</li> <li>3. Overload protector tripped.</li> <li>4. Temp control stuck in open position.</li> <li>5. Wiring improper or loose.</li> </ol>	<ol style="list-style-type: none"> <li>1. Plug in the cord.</li> <li>2. Replace fuse.</li> <li>3. Refer to electrical section.</li> <li>4. Repair or replace temp control.</li> <li>5. Check wiring against diagram.</li> </ol>
Compressor will not start - hums but trips on overload protector.	<ol style="list-style-type: none"> <li>1. Low voltage to unit</li> <li>2. Relay failing to close</li> <li>3. Starting capacitor defective.</li> <li>4. Improperly wired.</li> </ol>	<ol style="list-style-type: none"> <li>1. Determine cause and correct</li> <li>2. Determine cause and correct. Replace if necessary</li> <li>3. Determine cause and replace</li> <li>4. Check wiring against diagram</li> </ol>
Compressor starts but does not switch off of start winding.	<ol style="list-style-type: none"> <li>1. Low voltage to unit.</li> <li>2. Relay failing to open.</li> <li>3. Run capacitor defective</li> <li>4. Comp. motor winding open or short</li> </ol>	<ol style="list-style-type: none"> <li>1. Determine cause and correct.</li> <li>2. Determine cause and correct. Replace if necessary.</li> <li>3. Determine cause and replace.</li> <li>4. Determine cause and correct. Replace comp</li> </ol>
Compressor starts and runs, but short cycles on overload protector.	<ol style="list-style-type: none"> <li>1. Additional current passing through overload protector.</li> <li>2. Low voltage to unit.</li> <li>3. Overload protector effective.</li> <li>4. Run capacitor defective.</li> <li>5. Excessive discharge pressure.</li> <li>6. Compressor too hot - return gas hot.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check wiring diagram. Check for added fan motors, pumps, etc. connected to wrong side of protector.</li> <li>2. Determine cause and correct.</li> <li>3. Check current, replace protector.</li> <li>4. Determine cause and replace.</li> <li>5. Check ventilation, restrictions in cooling medium, restrictions in refrigeration system.</li> <li>6. Check refrigerant charge (possible leak) Check air flow across condenser.</li> </ol>
Unit runs OK, but short cycles.	<ol style="list-style-type: none"> <li>1. Overload protector.</li> <li>2. Cold control.</li> <li>3. Overcharge.</li> <li>4. Air in system.</li> <li>5. Undercharge.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check wiring diag for correct wiring</li> <li>2. Differential set too close.</li> <li>3. Reduce refrigerant charge.</li> <li>4. Recover and recharge.</li> <li>5. Correct leak and recharge with refrigerant.</li> </ol>
Unit operates long or continuously.	<ol style="list-style-type: none"> <li>1. Dirty condenser</li> <li>2. Shortage of refrigerant.</li> <li>3. Replace Temp control</li> <li>4. Evaporator coil iced.</li> <li>5. Restriction in refrigeration system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean condenser</li> <li>2. Repair leak, vacuum and charge</li> <li>4. Defrost</li> <li>5. Determine location and remove.</li> </ol>



## SERVICE INSTRUCTIONS

## REFRIGERATION SYSTEM

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Start capacitor open, shorted or blown.	1. Relay contacts not opening properly. 2. Low voltage to unit. 3. Improper relay.	1. Replace relay 2. Determine reason and correct. 3. Replace.
Run capacitor open, shorted or blown.	1. Improper capacitor. 2. Excessively high line voltage (110% of rated max).	1. Determine correct size and replace. 2. Determine cause and correct.
Relay defective or burned out.	1. Incorrect relay. 2. Line voltage too high or too low. 3. Relay being influenced by loose vibrating mounting.	1. Check and replace. 2. Determine reason and replace. 3. Remount rigidly.
Space temperature too high.	1. Control setting too high. 2. Overcharged with refrigerant. 3. Inadequate air circulation.	1. Reset control. 2. Recover refrigerant and recharge with proper charge specified on dataplate. 3. Improve air movement.
Cooler freezing beverage.	1. Temperature control	1. Reset control.
Unit noisy.	1. Loose parts or mountings. 2. Tubing rattle. 3. Bent fan blade causing vibration. 4. Fan motor bearings worn.	1. Find and tighten. 2. Reform to be free of contact. 3. Replace blade. 4. Replace motor.

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ALL SERVICE MUST COMPLY WITH STATE AND FEDERAL REGULATIONS

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## REFRIGERATION SYSTEM INFORMATION - GENERAL

### ▪ REFRIGERATION SYSTEM

The Refrigeration System consists of a hermetically sealed compressor, finned evaporator and wire on tube condenser.

### ▪ CONDENSER

The condenser design provides for less dirt and dust accumulation. The condenser will require periodic cleaning, for maximum efficiency.

### ▪ CONDENSER FAN MOTOR

The condenser fan motor assembly is mounted between the condenser and the compressor. Air is forced over the body of the compressor and out the rear of the compartment.

The motor is wired to cycle with the compressor, but will continue to operate should the compressor cut out on the overload protector.

### ▪ DRIER

The drier is installed in the system upstream of the capillary tube. The drier purpose is to trap small particles of foreign material and absorb moisture in the system.

### ▪ LIQUID CONTROL AND HEAT EXCHANGE

Liquid refrigerant control to the evaporator of the system is accomplished by the use of a capillary tube. This capillary tube is soldered to the suction line to form a heat exchanger which subcools the liquid refrigerant to maintain high efficiency within the system.

## REFRIGERATION SERVICE

### ▪ EVACUATION

Moisture in a refrigeration system is directly or indirectly the cause of more problems, than all other factors combined.

When large amounts of moisture are present, system freeze ups will occur. Even in small amounts, moisture will combine with refrigerants to form an acid. The corrosive action of this acid forms sludge, which shortens compressor life.

Since most field type vacuum pumps cannot pull a low enough vacuum to remove all moisture from the system, it is recommended that the system be triple evacuated, breaking each time with dry refrigerant or nitrogen. Use care to purge air from the charging hose when breaking the vacuum.

### ▪ CHARGING REFRIGERATION SYSTEM

Since capillary tube systems have small and critical refrigerant charges, we recommend the field charge be scale weighed. After vacuum evacuation is complete, attach charging cylinder to the compressor tube, first purging air from hose with refrigerant. With the unit running, allow refrigerant to flow slowly into the system until the desired charge is reached.



#### OVERCHARGE

When the cabinet has pulled down to operating temperature, an indication of an overcharge is that the suction line will be cooler than normal with the compressor running. Running time will be longer than normal. Suction line will sweat or frost.

Reclaim excessive refrigerant from the system very carefully in small amounts, waiting several minutes for the system to balance.

#### UNDERCHARGE

An undercharge or shortage of refrigerant will result in any of the following:

1. Lower than normal head pressure.
2. Lower than normal suction pressure.
3. Excessive or continuous operation of compressor.
4. Higher than normal cabinet temperature.

**FEDERAL LAW REQUIRES THAT REFRIGERANTS BE RECOVERED PRIOR TO SERVICING**