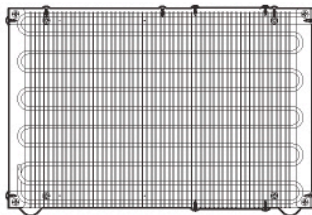


CLOVER WATER COOLERS

SERVICE MANUAL

CAUTION : BEFORE SERVICING THE APPLIANCE
READ THE "SAFETY PRECAUTIONS" IN THIS MANUAL

MODEL : C12E



clover[®]

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FOR YOUR SAFETY

Please read the following safety precaution before servicing the watercooler.

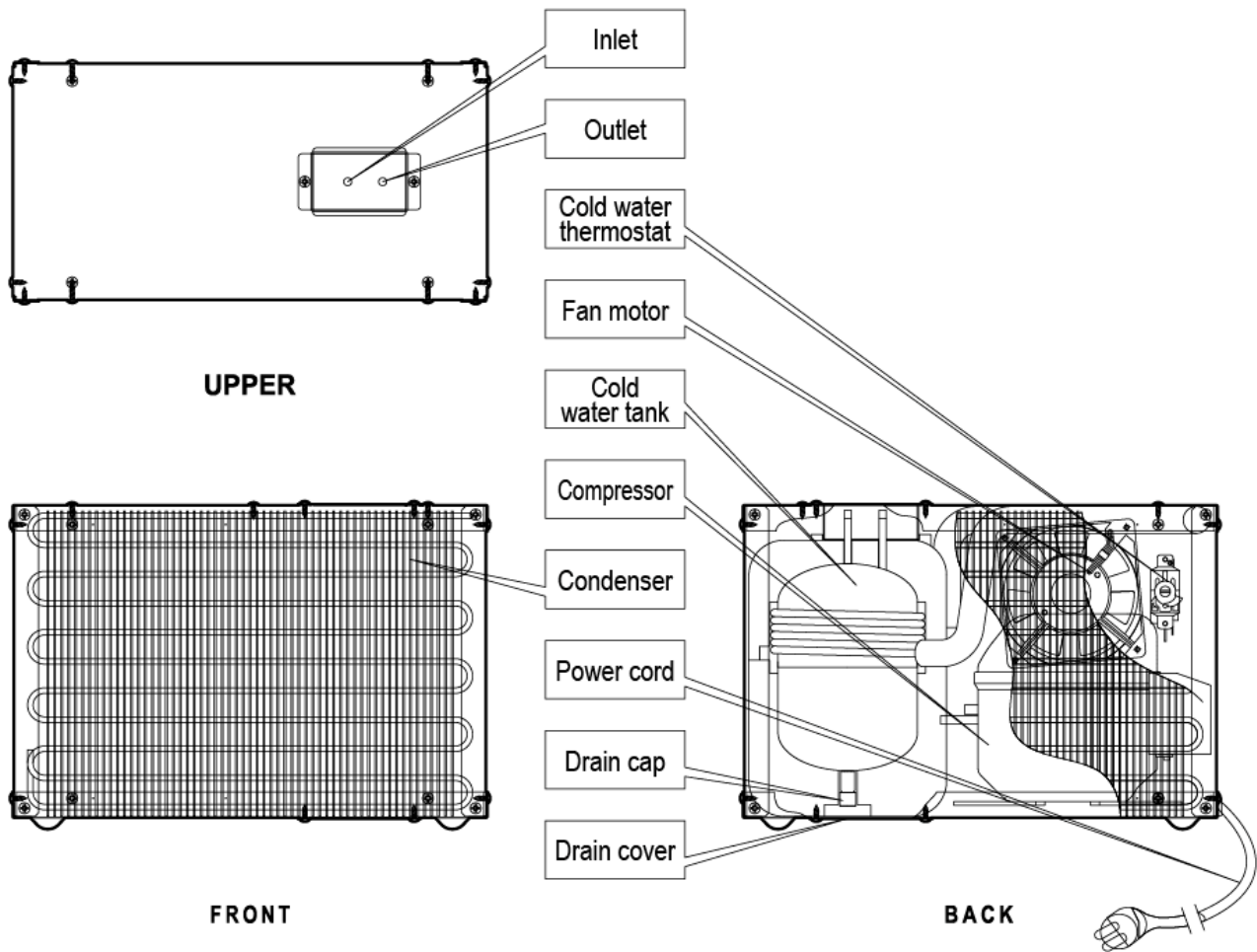
- 1) Check if an electric leakage occurs in the appliance.
- 2) To prevent electric shock, unplug prior to servicing.
- 3) In case of testing with power on, wear rubber gloves to prevent electric shock.

- 4) When using an instrument or replacing a part for repairing, check it is applied to rated voltage current and capacity.
- 5) Prevent water from flowing into electric elements in mechanical parts.
- 6) When carrying or tilting the appliance, remove all the objects on it.
- 7) If the cooling cycle is out of order, contact nearest authorized service center for maintenance, repair and adjustment.

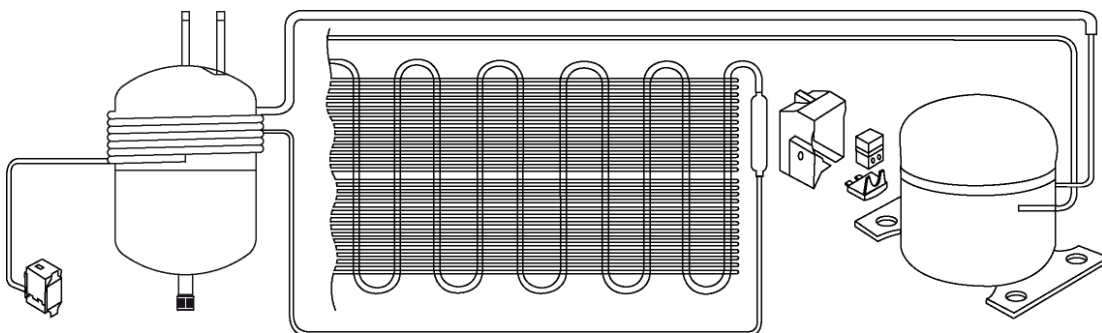
1. SPECIFICATION & PARTS IDENTIFICATION

MODEL		C12E (CHILLER)
DIMENSION		410W×210D×290H(mm)
WEIGHT		12.5kg
COLD	CONSUMPTION	120W
	TEMP CONTROL	AUTO
	TANK	Stainless Steel
	CAPACITY	5.0 ℓ/h (10 ³)
ELECTRICAL		220-240V, 50/60Hz. 110-127V, 50/60Hz.

Check the available power supply against the watercooler data plate to assure correct electrical service.



2. OPERATION & FUNCTION OF PARTS



A. Cooling Operation

The vapor refrigerants that compressed to high temperature & high pressure conditions in the compressor, turn into liquid refrigerant of high temperature and high pressure passing through the condenser, and then turn into the liquid refrigerants of low temperature and low pressure conditions by passing through the capillary tubes. The liquid refrigerant of low temperature & low pressure absorbs the surrounding heat while evaporating in the evaporator. Then, it is sucked in the compressor by turning into saturated vapor.

B. Function of Parts

- ① Compressor: Compresses the vapor refrigerant sucked from the evaporator and discharges it to condenser
- ② Condenser: Changes the compressed vapor refrigerant into the liquid refrigerant by cooling.
- ③ Drier: Removes moisture and dirt inside pipes
- ④ Capillary tube: Reduces the pressure of liquid refrigerant and evaporates it in the evaporator under constant pressure.
- ⑤ Evaporator: Absorbs the surrounding heats while evaporating the liquid refrigerant, cools down water inside of cold water tank.
- ⑥ Cold water thermostat: Senses the temperature of cold water tank and controls the electric power supply to the compressor automatically in order to keep the constant temperature of cold water.
- ⑦ Over Load Protector (OLP): Protects the compressor and operates when rising up to abnormal temperature or energizing over current.
- ⑧ PTC Starter: Starts up the motor of compressor.
- ⑨ Drain cap: By opening this, you may drain out remaining water in hot water tank when cleaning or not using cooler for a long period of time.

3. LOCATION REQUIREMENTS

- A. This unit is intended to be installed underneath a conventional kitchen sink, in a cabinet not less than 36" (914mm) wide (inside dimension). Chiller may be installed in any location in the cabinet base as long as there is a minimum of 5" (127mm) between unit and cabinet walls. In order to have necessary air exchange for the unit, a free air opening of at least 60 square inches (387 cm²) should be provided in the kitchen counter. The opening should be located as close to the unit as possible and can be made in the 'toe space of the counter' or 'above the toe space'
- B. Make sure installation ground is flat and even. - Unbalanced placement may cause excessive noise and trembling of the cooler.
- C. Coolers are for indoor use only. Keep away from direct sunlight and excessive moisture.
- D. Avoid harmful gas or excessive heat.

4. INSTALLATION PROCEDURES

- A. Connect the 1/4"OD tubing between water inlet of chiller and the supply water hose with pressure rating suitable for use with the application. The tubing must be acceptable for use with potable water.
- B. Using the 1/4"OD tubing included with the (gooseneck) faucet, connect on water outlet of chiller.
 - Flush water in lines before installing gooseneck faucet.
 - Acceptable supply water pressure is 15~100 PSI (100~700kPa)

CAUTION: TO PREVENT PROPERTY DAMAGE DUE TO WATER LEAKAGE, SEEK INSPECTION BY PLUMBERS TO SEE THE WATER PRESSURE IS LESS THAN 100PSI (690KPA) BEFORE YOU CONNECT THE SUPPLY WATER HOSE.

- C. Slowly open supply water valve. By opening faucet lever, let water flows for about one minute. Check all the connections.
 - Purge off all air from all water lines by opening faucet lever. Steady stream assures all air is ventilated.
- D. Prior to drinking, flush water through chiller for at least 5 minutes.
- E. Check the available power supply against the chiller data plate to assure correct electrical service.
- F. Plug in chiller and the chiller will be ready to serve you cold water in 30 minute after installation

CAUTION: FAILURE TO ABIDE BY ABOVE PROCEDURE CAN CAUSE PHYSICAL DAMAGE ON THE COOLER.

5. STORAGE

- A. Unplug power cord.
- B. Open faucet until water is room temperature.
- C. Close the source water valve.
- D. Disconnect the water pipe from the product.
- E. Place a bucket beneath the drain pipe. Open the drain cover and cap. Then, drain the remaining water.
- F. When storing, ensure it stands on its erect position on the flat and even ground. (Do not lay the product on its sides down or upside down.)
- G. When not use for a long period of time, conduct product cleaning before you put in storage.

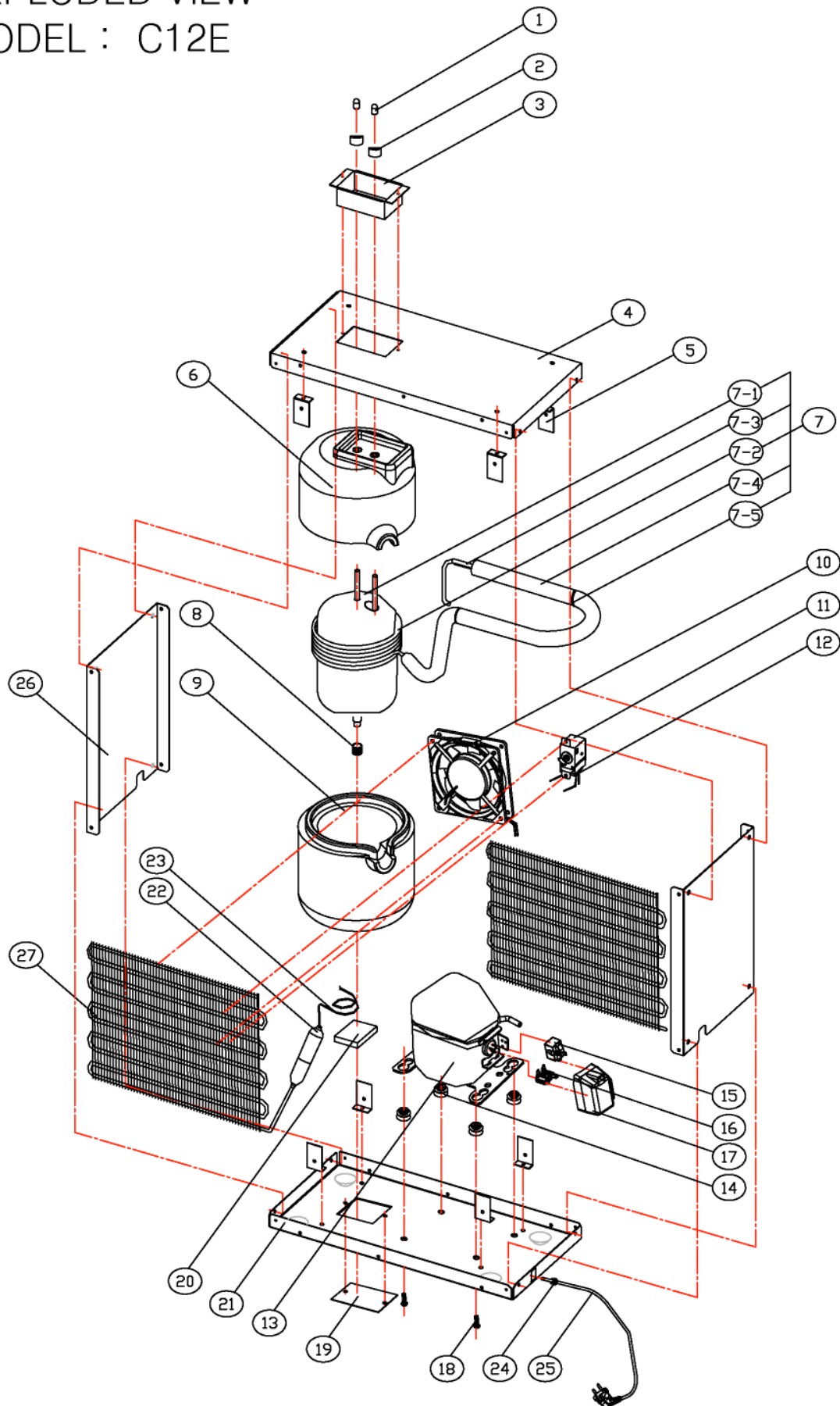
CAUTION: FAILURE TO ABIDE BY ABOVE PROCEDURE MAY INCUR PHYSICAL DAMAGE ON THE COOLER.

7. TROUBLESHOOTING GUIDE

<u>TROUBLE</u>	<u>POSSIBLE CAUSE</u>	<u>REMEDY</u>
REFRIGERATION SYSTEM		
A. Compressor does not run.	<p>No electric power to outlet.</p> <p>The thermostat is misadjusted or defective.</p> <p>The wires leading to the thermostat are defective or are not connected.</p> <p>The line voltage is low.</p> <p>The compressor over-load Protector (OLP) is defective.</p> <p>The starting relay (PTC) is defective.</p> <p>The compressor is defective.</p>	<p>Turn on electric power outlet.</p> <p>Adjust or replace the thermostat, as necessary.</p> <p>Check the internal wiring. Make repairs as necessary.</p> <p>Check the line voltage. It must be at least 90% of minimum voltage.</p> <p>Replace the defective over-load protector.</p> <p>Replace the starting relay.</p> <p>Replace the compressor.</p> <p>Return cooler to authorized service center or factory for repair.</p>
B. Water is adequately chilled, but cooler runs excessively or continuously.	<p>Poor ventilation.</p> <p>The condenser is dirty or restricted.</p> <p>The thermostat is defective. (the contacts are shorted or the control is not adjusted properly)</p> <p>The ambient temperature is high.</p>	<p>Minimum side & rear clearance 4"</p> <p>Clean the condenser or relocate the unit to prevent restricting the condenser.</p> <p>Replace or adjust the thermostat as necessary.</p> <p>It is normal for the cooler to run continuously at high ambient temperatures.</p>
C. The cooler compressor runs continuously, but I do not have cold water.	<p>There has been a substantial loss in the sealed system's charge of refrigerant.</p> <p>The compressor is defective.</p>	<p>If refrigerant leak is suspected, return cooler to authorized service center or factory for repair.</p> <p>Same as above.</p>
D. The cooler excessively and the cold water is not cold enough.	<p>The condenser is dirty or restricted.</p> <p>The cold water thermostat is set high and or the cooler is in a high ambient environment.</p> <p>Usage of the cold water system is greater than the cooler capacity.</p> <p>The temperature of supply water is too high</p> <p>The refrigeration system is overcharged or undercharged.</p> <p>There is a partial restriction in the refrigeration system.</p>	<p>Clean the condenser and relocate the cooler to prevent restricting the condenser.</p> <p>Check the thermostat setting. Adjust the setting as necessary.</p> <p>Inform the customer of the cold water system's maximum capacity.</p> <p>Wait for a moment until cold water is made</p> <p>Return cooler to authorized service center or factory for repair.</p>
E. The cooler has a	If wattage readings are normal, the	Replace the thermostat.

short running cycle. It is cooling, but does not run long enough to cool water to the required level.	thermostat may be defective.	Replace the thermostat.
	The thermostat is improperly set for the prevailing environmental conditions and cooler usage.	Adjust the thermostat.
F. A. The cold water flows slowly or not at all.	The compressor motor is defective, causing the cooler to cycle on the overload protector.	Replace the compressor. Return cooler to authorized service center or factory for repair.
	The cold water thermostat is so much low, causing ice to build up in the reservoir, blocking water flow.	Defrost cooler. Adjust the temperature control.
NOISE		
A. There is excessive noise coming from the cooler, but it is otherwise operating normally.	The cooler is not level.	The cooler must be leveled. Place the cooler on even surface.
	A section of the tubing inside the cooler is touching other parts of cooler, causing noise to be generated due to vibration.	Adjust position of the tubing to make sure it is not in contact with any other parts.
	Check the connection of the fixed screws.	Completely connect the fixed screws.
	The compressor's operation is noisy because of inherent conditions.	Advise the customer of the cooler's normal operating sounds.
WATER LEAKAGE		
A. Leakage through inside of appliance	The cold water tank leaks.	Return chiller to authorized service center or factory for repair.
OTHERS		
A. Odd taste and smell in Water	Mineral concentration of supplied water is somewhat high.	This product does not include filters. Change the existing filter or use a proper one.
	No use for a long time.	Continue to let the water flow until it runs clear.
B. Strong water flow	When using a water pressure regulator.	Adjust a regulator according to it' manual or contact a qualified engineer.
	Supplied water pressure is set up too high originally.	Install a regulator that can control the pressure or contact a qualified engineer.

EXPLODED VIEW
MODEL : C12E



C12E SERVICE PARTS LIST

Updated December 30, 2008

NO	PART NAME	PART NO	Q'TY	NO	PART NAME	PART NO	Q'TY
1	End Cab	17-053	2	27	Wire Condenser	05-008-010	2
2	Insulation-In/Outlet	08-005-004	2				
3	In/Outlet Cover	02-080-001	1				
4	Base (Top Cover)	02-077-002	1				
5	Wire Condenser Bracket	02-079	8				
6	Insulation Cold Water Tank (Upper)	08-027	1				
7	Cold Water Tank Ass'y	22-012-001	1				
7-1	Cold Water Tank	02-003-014 02-003-015	1				
7-2	Evaporator Copper Tube	10-002	1				
7-3	Heat Shrinkable Tube	05-005	1				
7-4	Insulation-Suction Pipe	08-005-004	1				
7-5	Cable Tie	17-003	1				
8	Drain Cap	04-019	1				
9	Insulation Cold Water Tank (Lower)	08-028	1				
10	Fan Motor	07-105-001	1				
11	Cold Water Thermostat	07-001-001	1				
12	Wire Ass'y	07-111-001	1				
13	Compressor (NS)	05-003B-004	1				
14	Compressor Seat Robber	09-048	4				
15	Compressor PTC	05-021-003	1				
16	Compressor OLP	05-020-003	1				
17	Compressor PTC Cover	05-022-001	1				
18	Bolt	12-033-001	4				
19	Drain Cover	02-081	1				
20	Insulation-Drain	08-029	1				
21	Base (Compressor)	02-077	1				
22	Drier	05-002-001	1				
23	Capillary Tube	10-003-001	1				
24	Cord Bushing	07-006-003	1				
25	Power Cord	07-058-004	1				
26	Side Panel	02-078-001	2				

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