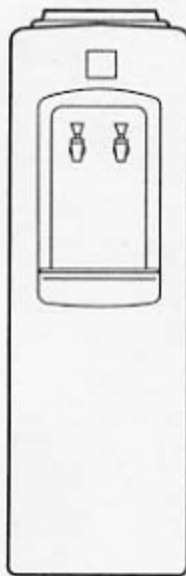


**CLOVER WATER COOLERS**

# **SERVICE MANUAL**

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

**MODEL : B7A , B7B**



**clover<sup>®</sup>**

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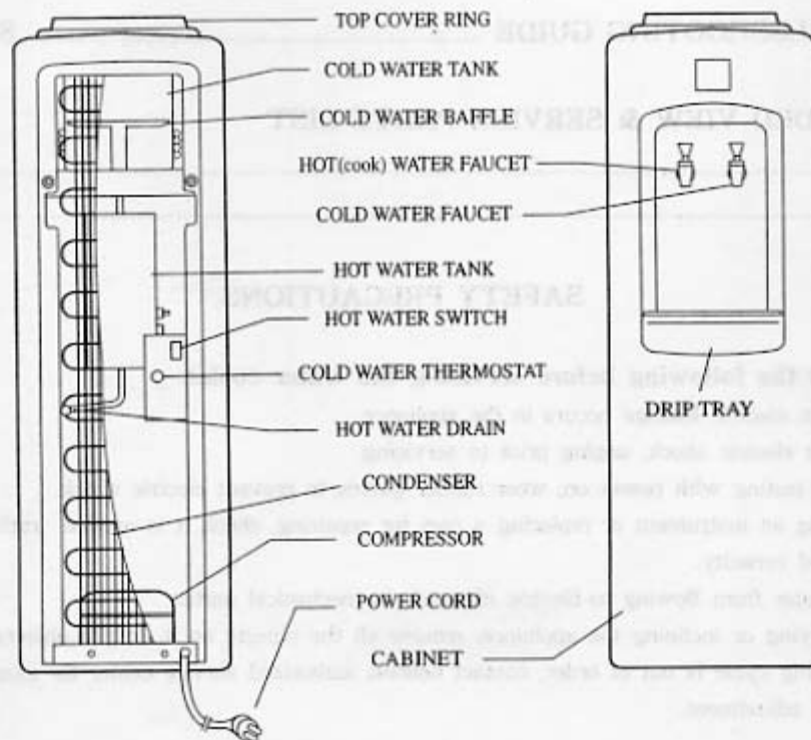
### SAFETY PRECAUTIONS

**Please read the following before servicing the water cooler.**

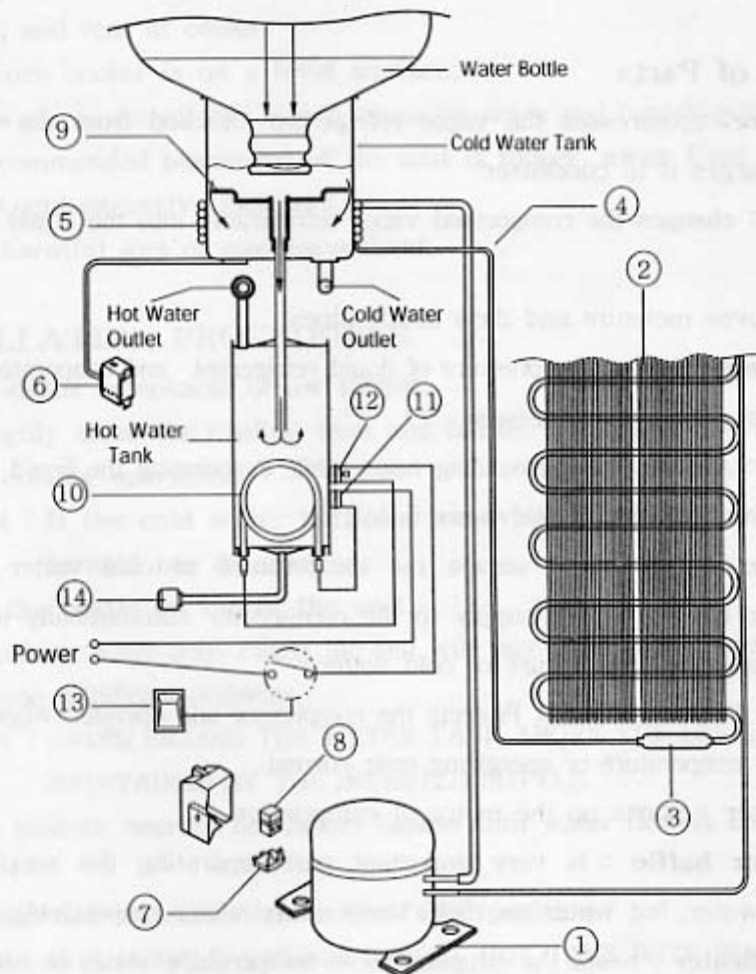
- 1) Check if an electric leakage occurs in the appliance.
- 2) To prevent electric shock, unplug prior to servicing.
- 3) In case of testing with power on, wear rubber gloves to prevent electric shock.
- 4) When using an instrument or replacing a part for repairing, check it is applied rating voltage, current and capacity.
- 5) Prevent water from flowing to electric elements in mechanical parts.
- 6) When carrying or inclining the appliance, remove all the objects on it. fragile objects like glass.
- 7) If the cooling cycle is out of order, contact nearest authorized service center for examination, repair and adjustment.

# 1. SPECIFICATION & PARTS IDENTIFICATION

MODEL		B7A(HOT & COLD)	B7B(COOK & COLD)
DIMENSION		315W×325D×960H(mm)	
WEIGHT		15kg	14kg
COLD	CONSUMPTION	105W	
	TEMP CONTROL	AUTO	
	TANK	Type 304 Stainless Steel	
	CAPACITY	0.9 GPH of 50°F(3.5 LPH of 10°C)	
HOT	CONSUMPTION	500W	
	PROTECTOR	BI-METAL	
	TEMP CONTROL	AUTO	
	TANK	Type 304 Stainless Steel	
	CAPACITY	2.0 GPH of 185°F (7.5 LPH of 85°C)	
ELECTRICAL		220-240V, 50/60Hz.	110-127V, 50/60Hz.



## 2. OPERATION & FUNCTION OF PARTS



### 1) 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 refrigerants of low temperature & low pressure absorb the surrounding heat while evaporating in the evaporator and is sucked in the compressor by turning into saturated vapor.

## 2) Heating Operation

The electric heater inside of the hot water tank heats the supplied water. The temperature of hot water is controlled by the hot control at a proper temperature. In case of overheating, the heat limiter will operate automatically.

## 3) 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 **Cold water baffle** : is very important part separating the supplied water from cold water, hot water, or room temperature water respectively.
- ⑩ **Hot tank heater** : heats the supplied room temperature water to hot water.
- ⑪ **Hot control** : controls the temperature of hot water at a proper automatically.
- ⑫ **Heat limiter** : cuts off the electric power to the heater in case of overheating.
- ⑬ **Hot water switch** : supplies or cuts off the electric power to the heater by setting it ON/OFF
- ⑭ **Drain cap** : can be used for draining water from the hot water tank when cleaning inside or not using for a long time

### 3. INSTALLATION

- A. Locate water cooler in a well ventilated space where temperature is always above freezing.
- B. Insure proper ventilation by maintaining a minimum clearance of 4 inches on sides and rear of cooler.
- C. Make sure cooler is on a level surface.  
Unbalanced placement may cause excessive noise and trembling of the unit.
- D. The recommended placement of the unit is indoor, away from direct sunlight and excessive moisture.
- E. Avoid harmful gas or excessive heat.

### 4. INSTALLATION PROCEDURES

- A. Install drain receptacle below faucet.
- B. Thoroughly clean the cooling tank and baffle. Baffle must be in place for proper cooling operation.

**CAUTION :** If the cold water baffle is removed, cold water will not be formed nor discharged.

- C. Invert the bottle on top of the unit.

- Use drinking water only. Filling the unit with any other type of beverage(s) may cause significant problems.

**CAUTION :** AVOID FILLING THE WATER TANK ABOVE THE LEVEL NORMALLY MAINTAINED BY THE INVERTED BOTTLE.

- D. On hot models, depress hot faucet handle until water flow is continuous and clear.
- E. Place the hot water switch in the "ON" position.

**CAUTION :** HOT MODELS: FAILURE TO FILL HOT TANK WITH WATER BEFORE ON HOT WATER SWITCH, CAN CAUSE PHYSICAL DAMAGE TO THE UNIT.

- F. Check the available power supply against the water cooler data plate to assure correct electrical service.
- G. Allow cooler to operate about 30 minutes for chilled and hot water dispensing.

**CAUTION :** WATER FROM HOT FAUCET CAN SCALD.

- H. Hot Water Safer Faucet : A safer faucet that deters accidental dispensing of water by toddlers is available. This new faucet is simple and easy to use with one hand.

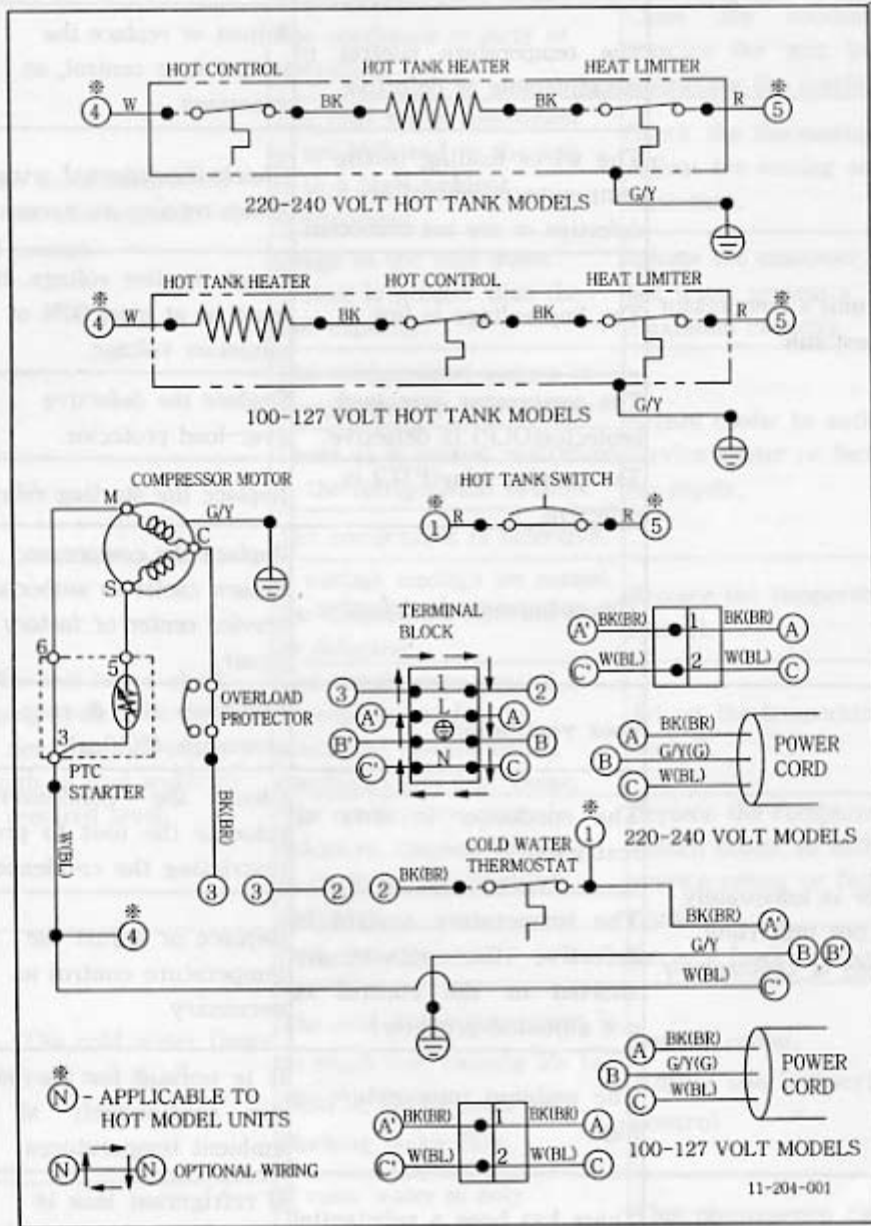
## 5. STORAGE

- A. Disconnect power supply cord.
- B. Remove water bottle from cooler.
- C. Open faucet(s) to drain water
- D. Hot Models: Place the hot water switch in the "OFF" position. Draw water from the hot faucet until the water is cool. Place a bucket under the drain. Open the drain pipe by turning the drain cap, and drain the water from hot water tank. Turn the drain cap to a closed position when tank is empty.
- E. ALWAYS DRAIN ALL WATER WHEN FREEZING TEMPERATURES ARE ANTICIPATED AND BEFORE SHIPPING THE WATER COOLER.

## 6. CLEANING

- A. Disconnect the power supply during cleaning and inspection to avoid the dangers of electric shocks.
- B. Keep the condenser free from dirt and dust.  
The cooling performance decreases when the condenser is soiled.
- C. Cabinet, top cover ring and drip tray can be cleaned with any non-abrasive household cleaner. To prevent damage to plastic parts, avoid abrasive cleaning aids such as steel wool, etc.

# 7. WIRING DIAGRAM





## 8. TROUBLESHOOTING GUIDE

WIRING DIAGRAM

TROUBLE	POSSIBLE CAUSE	REMEDY
<b>REFRIGERATION SYSTEM</b>		
A. The unit's compressor does not run.	No electric power to outlet.	Turn on electric power outlet.
	The temperature control is misadjustable or defective.	Adjust or replace the temperature control, as necessary.
	The wires leading to the temperature control are defective or are not connected.	Check the internal wiring. Make repairs as necessary.
	The line voltage is low.	Check the line voltage. It must be at least 90% of minimum voltage.
	The compressor over-load protector(OLP) is defective.	Replace the defective over-load protector.
	The starting relay(PTC) is defective.	Replace the starting relay.
	The compressor is defective.	Replace the compressor. Return cooler to authorized service center or factory for repair.
B. Water is adequately chilled, but unit runs excessively or continuously.	Poor ventilation.	Minimum side & rear clearance 4"(10cm).
	The condenser is dirty or restricted.	Clean the condenser or relocate the unit to prevent restricting the condenser.
	The temperature control is defective (the contacts are shorted or the control is not adjusted properly)	Replace or adjust the temperature control as necessary.
	The ambient temperature is high	It is normal for the unit to run continuously at high ambient temperatures.
C. The unit compressor runs continuously, but there is no cold water.	There has been a substantial loss in the sealed system's charge of refrigerant.	If refrigerant leak is suspected, return cooler to authorized service center or factory for repair.
	The compressor is defective.	Same as above.

TROUBLE	POSSIBLE CAUSE	REMEDY
D. The units excessively and the cold water is not cold enough.	Cold water baffle is not in place	Check inside the reservoir to make sure baffle is fully inserted into the mating socket.
	The condenser is dirty or restricted.	Clean the condenser and relocate the unit to prevent restricting the condenser.
	The cold water thermostat is set high and or the unit is in a high ambient environment.	Check the thermostat setting. Adjust the setting as necessary.
	Usage of the cold water system is greater than the unit capacity.	Inform the customer of the hot water system's maximum capacity.
	The refrigeration system is overcharged or undercharge.	Return cooler to authorized service center or factory for repair.
	There is a partial restriction in the refrigeration system.	
	The compressor is defective.	
E. The unit has a short running cycle. It is cooling, but does not run long enough to cool water to the required level.	If wattage readings are normal, the temperature control may be defective.	Replace the temperature control.
	The temperature control is improperly set for the prevailing environmental conditions and unit usage.	Adjust the temperature control.
	The compressor motor is defective, causing the unit to cycle on the overload protector.	Replace the compressor. Return cooler to authorized service center or factory for repair.
F. A. The cold water flows slowly or not at all.	Defective faucet.	Replace faucet assembly.
	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.
G. Cook Water too Cold. (cook & cold models)	If cook water is only occasionally used cold water will migrate into the cook water system.	This phenomenon can be happened under normal condition.

TROUBLE	POSSIBLE CAUSE	REMEDY
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#### HOT WATER SYSTEM

A. The hot water is not hot.	If cooler equipped with hot water switch may be OFF.	Turn the hot water switch ON.
	There is a loose or broken wire connection in the hot water system.	Identify the loose or broken wire connection, repair as necessary.
	The hot control is defective.	Replace the hot control.
	The heat limiter is "ON".	Push "Reset" button of heat limiter.
	The hot tank heater is defective.	Replaced the hot tank heater or tank assembly.
B. The hot water is hot, but not hot enough	Usage of the hot water system is greater than its capacity.	Inform the customer of the hot water system's maximum capacity.
	The hot control is defective.	Replace hot control.
C. The hot water flows slowly or not at all.	Hot water flow is designed to flow slowly and than the cold and cook water to prevent splashing.	Advise the customer of this safety feature.
	Defective faucet.	Replace faucet.
	Hot tank plugged with mineral deposits.	De-lime tank.
D. Hot tank is noisy	The hot tank heater is caked with mineral deposits.	Slight boiling sound normal during heating cycle. De-lime tank.

#### NOISE

A. There is excessive noise coming from the unit, but it is otherwise operating normally.	The unit is not level.	The unit must be level. Place the unit on a level surface.
	A section of the tubing inside the unit is touching other parts of unit, 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 a fixed nut.	Completely connect the fixed nut.
	The compressor's operation is noisy because of inherent conditions.	Advise the customer of the unit's normal operating sounds.

TROUBLE	POSSIBLE CAUSE	REMEDY
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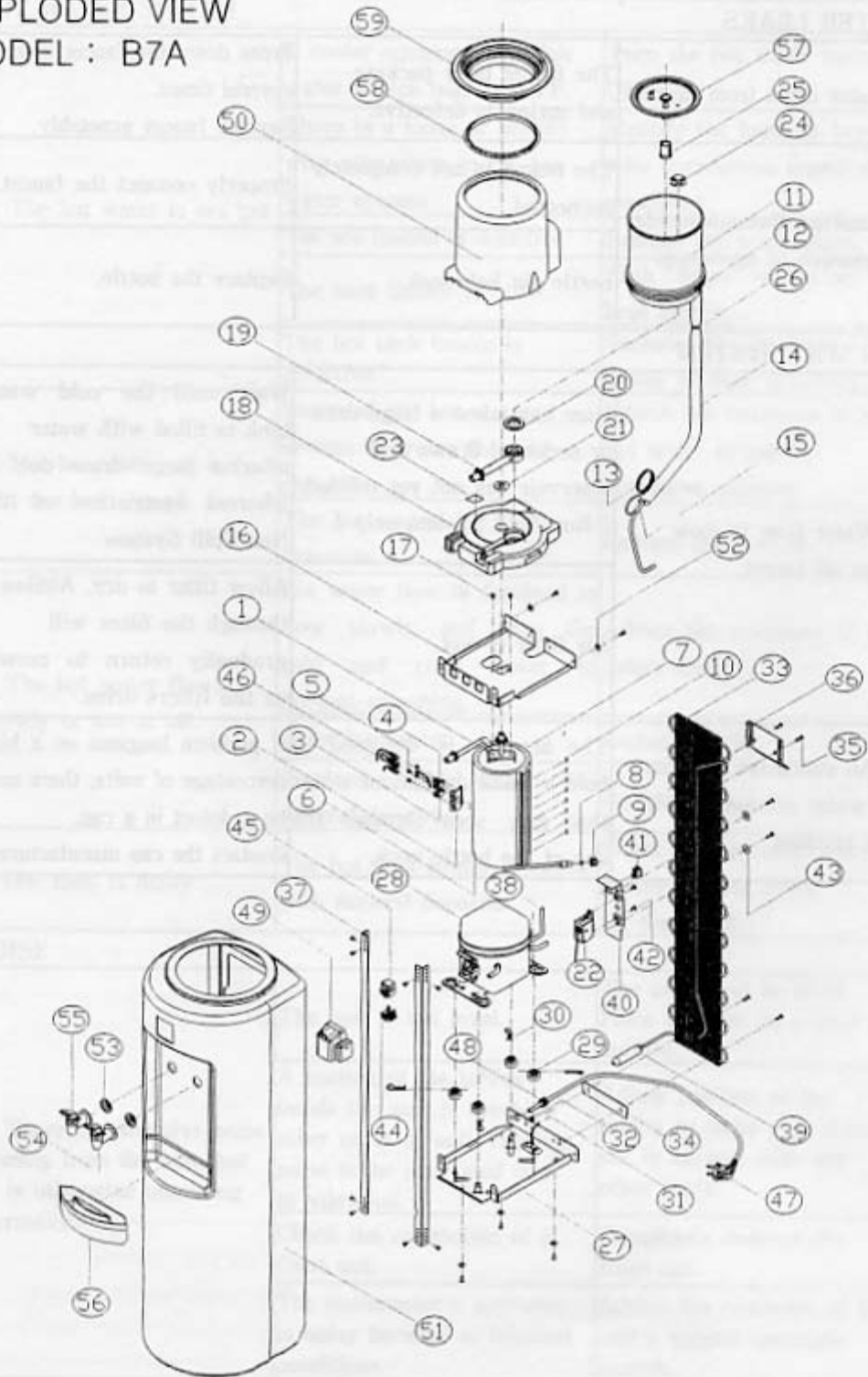
#### WATER LEAKS

A. Water drips from faucet.	The faucet body packing and spring is defective.	Press down the faucet lever several times. Replace faucet assembly.
B. Leakage through inside or outside of appliance.	The faucet is not completely connected.	Properly connect the faucet.
	Bottle pin hole leak.	Replace the bottle.

#### NON SPILL SYSTEM

A. Water flow is slow from all faucet.	User has taken a large draw or series of draws and reservoir has not yet refilled. ( Non Spill System only )	Wait until the cold water tank is filled with water after a large draw due to inherent restriction of the Non Spill System
	Air filter is wet.	Allow filter to dry. Airflow through the filter will gradually return to normal as the filters dries.
B. An excessive quantity of water accumulates in the housing.	The housing is designed to hold a small amount of water that may seep through the cap at the bottle neck.	If problem happens on a high percentage of units, there may be a defect in a cap. Contact the cap manufacturer.

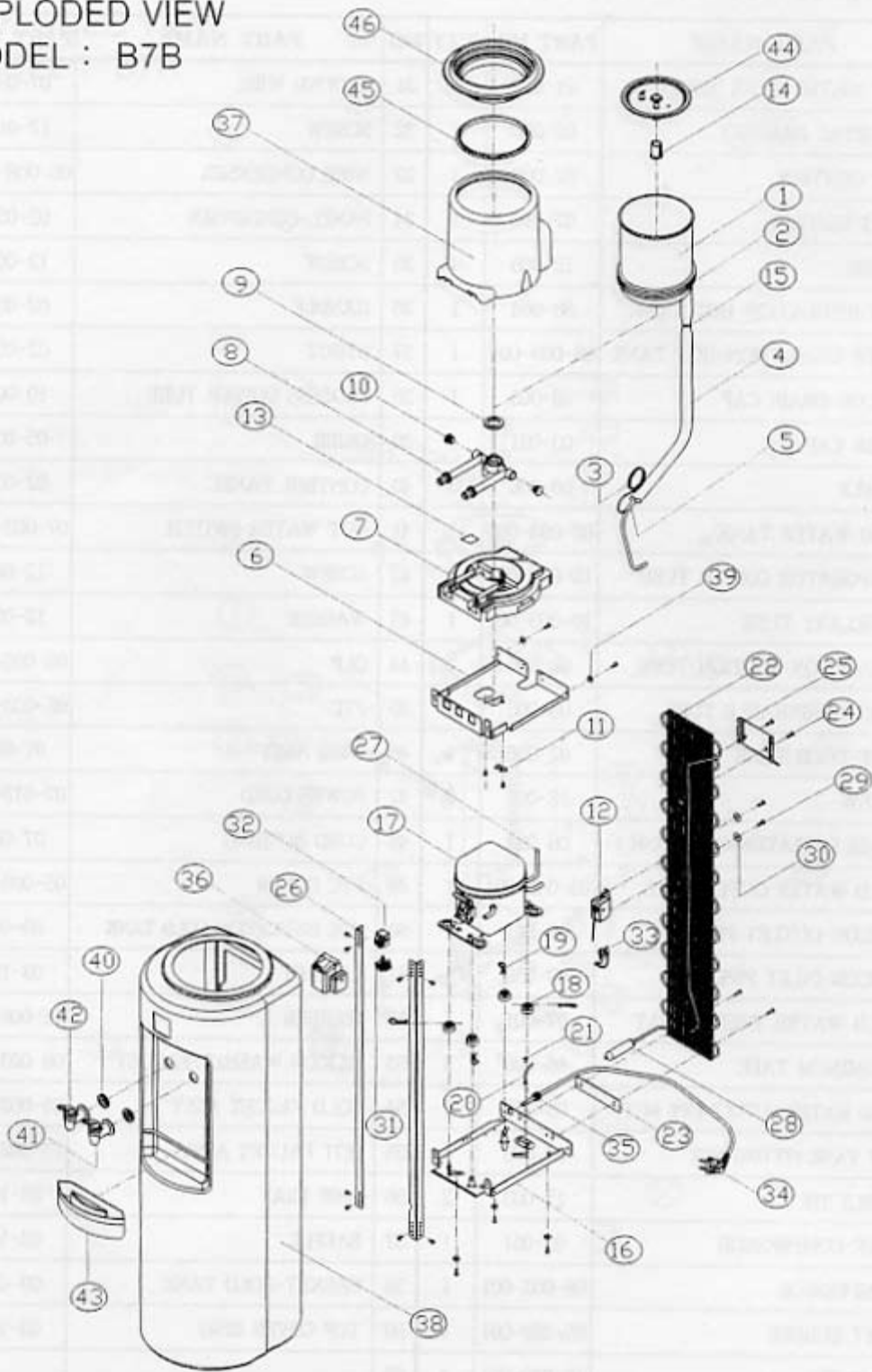
EXPLODED VIEW  
MODEL : B7A



## B7A SERVICE PARTS LIST

NO	PART NAME	PART NO.	Q'TY	NO	PART NAME	PART NO.	Q'TY
1	HOT WATER TANK ASSY'	21-010	1	31	GROUND WIRE	07-096	1
2	BI-METAL BRACKET	02-006	1	32	SCREW	12-018	2
3	HOT CONTROL	07-009	1	33	WIRE CONDENSER	05-008-005	1
4	HEAT LIMITER	07-010	1	34	PANEL-CONDENSER	02-055	1
5	SCREW	12-005	4	35	SCREW	12-003	2
6	SIDE INSULATION-HOT TANK	08-004	1	36	HANDLE	02-054	1
7	UPPER INSULATION-HOT TANK	08-003-001	1	37	STRUT	02-052	2
8	SILICON-DRAIN CAP	09-005	1	38	PROCESS COPPER TUBE	10-001	1
9	DRAIN CAP	03-031	1	39	DRIER	05-002	1
10	STAPLE	06-006	8	40	CONTROL PANEL	02-053	1
11	COLD WATER TANK	02-003-008	1	41	HOT WATER SWITCH	07-002-001	1
12	EVAPORATOR COPPER TUBE	10-002-001	1	42	SCREW	12-007	2
13	CAPILLARY TUBE	10-003-001	1	43	WASHER	12-008	2
14	INSULATION-SUCTION TUBE	08-005	1	44	OLP	05-003-001	1
15	HEAT SHRINKABLE TUBE	05-005	1	45	PTC	05-003-001	1
16	BASE-COLD TANK	02-050	1	46	WIRE ASSY'	07-096	1
17	SCREW	12-001	2	47	POWER CORD	07-013-004	1
18	LOWER INSULATION-COLD TANK	08-023	1	48	CORD BUSHING	07-006	1
19	COLD WATER OUTLET PIPE	03-048-001	1	49	PTC COVER	05-003-001	1
20	SILICON-OUTLET PIPE	09-001	1	50	SIDE INSULATION-COLD TANK	08-022	1
21	SILICON-INLET PIPE	09-036	1	51	CABINET	03-101	1
22	COLD WATER THERMOSTAT	07-001	1	52	WASHER	12-008-001	5
23	ALUMINUM TAPE	05-006	3	53	SILICON WASHER-FAUCET	09-003-001	2
24	COLD WATER OUTLET PIPE NUT	03-058	1	54	COLD FAUCET ASSY'	23-002-001	1
25	HOT TANK FITTING NUT	03-066	1	55	HOT FAUCET ASSY'	23-002-002	1
26	CABLE TIE	17-003	2	56	DRIP TRAY	03-103	1
27	BASE-COMPRESSOR	02-051	1	57	BAFFLE	03-107	1
28	COMPRESSOR	05-003-001	1	58	GASKET-COLD TANK	09-026	1
29	SEAT RUBBER	05-003-001	4	59	TOP COVER RING	03-102	1
30	SPLIT PIN	12-009-001	4	60			

EXPLODED VIEW  
MODEL : B7B



## B7B SERVICE PARTS LIST

NO	PART NAME	PART NO.	Q'TY	NO	PART NAME	PART NO.	Q'TY
1	COLD WATER TANK	02-003-010	1	31	OLP	05-003-001	1
2	EVAPORATOR COPPER TUBE	10-002-001	1	32	PTC	05-003-001	1
3	CAPILLARY TUBE	10-003-001	1	33	WIRE ASSY'	07-098	1
4	INSULATION-SUCTION TUBE	08-005	1	34	POWER CORD	07-013-004	1
5	HEAT SHRINKABLE TUBE	05-005	1	35	CORD BUSHING	07-006	1
6	BASE-COLD TANK	02-050	1	36	PTC COVER	05-003-001	1
7	LOWER INSULATION-COLD TANK	08-023-001	1	37	SIDE INSULATION-COLD TANK	08-022	1
8	PARTITION TUBE	03-113	1	38	CABINET	03-101	1
9	SILICON-OUTLET PIPE	09-001	1	39	WASHER	12-008-001	5
10	PLUG-PARTITION TUBE	09-039	2	40	SILICON WASHER-FAUCET	09-003-001	2
11	CLIP-LOCKING	03-114	1	41	COLD FAUCET ASSY'	23-002-001	1
12	COLD WATER THERMOSTAT	07-001	1	42	COOK FAUCET ASSY'	23-002-003	1
13	ALUMINUM TAPE	05-006	3	43	DRIP TRAY	03-103	1
14	COLD TANK FITTING NUT	03-067	1	44	BAFFLE	03-107	1
15	CABLE TIE	17-003	2	45	GASKET-COLD TANK	09-026	1
16	BASE-COMPRESSOR	02-051	1	46	TOP COVER RING	03-102	1
17	COMPRESSOR	05-003-001	1	47			
18	SEAT RUBBER	05-003-001	4	48			
19	SPLIT PIN	12-009-001	4	49			
20	GROUND WIRE	07-098	1	50			
21	SCREW	12-018	2	51			
22	WIRE CONDENSER	05-008-005	1	52			
23	PANEL-CONDENSER	02-055	1	53			
24	SCREW	12-003	2	54			
25	HANDLE	02-054	1	55			
26	STRUT	02-052	2	56			
27	PROCESS COPPER TUBE	10-001	1	57			
28	DRIER	05-002	1	58			
29	SCREW	12-007	2	59			
30	WASHER	12-008	2	60			