

Refrigerator Service Manual

Applicable to: FBM117L(BCD-117)

BCD-117、BCD-157SR

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I. Product features

This is a direct-cooling bottom-mounted refrigerator adopting the mechanical control system. Its upper part is the fridge compartment for fresh food storage, such as fruits, vegetables, eggs, milk, cooked foods, etc.; and its lower part is the freezer compartment where fish, meat, etc. can be frozen for the long-term storage. This product features the end-edging design. The plate tube evaporator is used for the fridge and the coil evaporator is used for the freezer, so as to reduce frosting and improve the user experience.

II. Operating instructions

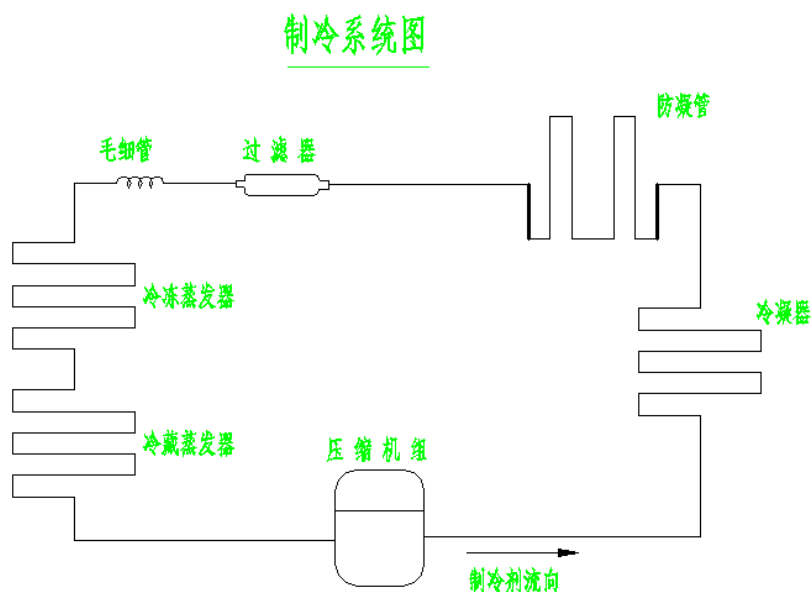
This model is the mechanical control direct-cooling refrigerator.

The thermostat is used to control the refrigerator compressor switch-on /off. When the fridge temperature rises to the power-on temperature point, the thermostat contact gets closed, with the compressor started, and the fridge evaporator starts cooling; and when the internal temperature drops to the power-off temperature point, the thermostat contact gets disconnected, with the compressor stopped, and the refrigerator stops cooling.

The refrigerator compartment temperature can be adjusted by turning the internal thermostat knob switch.

III. Cooling system

- Schematic diagram of the cooling system

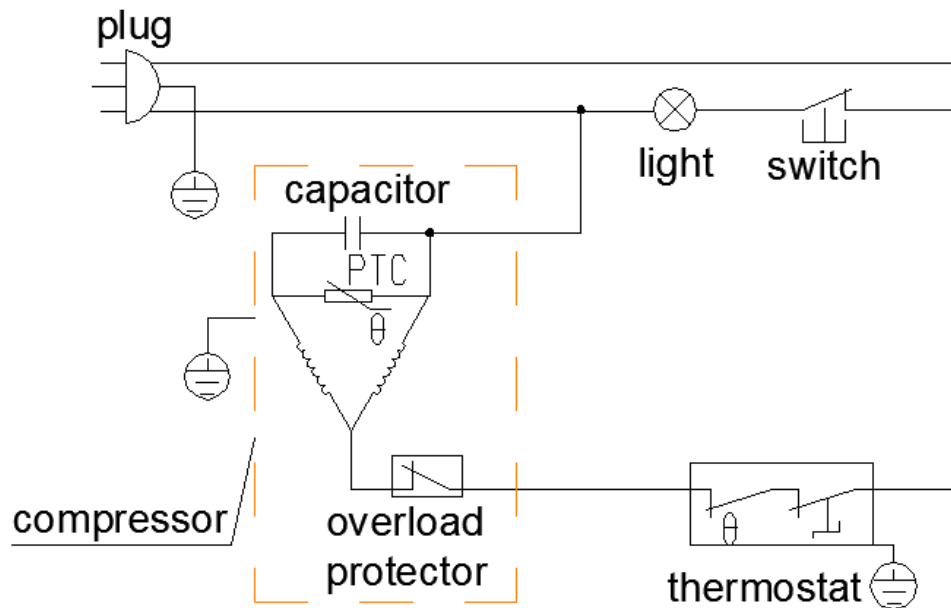


IV. Control system

(Including the control system diagram, main control board circuit layout diagram, each component control)

1. Schematic diagram of the control system

电路原理图



Components output:

- ◆ Compressor (220~240V / 50Hz)
- ◆ Fridge lamp (230V, MAX 10W)

Note: No main control board;

2. Components control rules

1) Compressor

Make sure to wait for at least 5 minutes before you start it again after it is shut down.

2) Lamp

- a) If any refrigerator door switch is detected to be on, the corresponding compartment lamp gets switched on.
- b) If any refrigerator door switch is detected to be off, the corresponding compartment lamp gets switched off.

V. Maintenance guide

1. Fault troubleshooting

(How to detect the fault is presented here only, and for details about disassembly and assembly, see the next chapter.)

Note: Make sure to cut off power supply before servicing.

(1) The lamp does not work.

- a. Check whether the refrigerator plug is well inserted into the socket; check whether the socket connected is electrified; check whether the socket voltage is normal;
- b. Cut off power supply, remove the thermostat box, check whether terminals are well connected, insert them well again, and power on the system to observe whether the lamp goes on.
- c. If the lamp is still off, cut off power supply, change the LED lamp.

(2) The compressor cannot start. (Other devices are working normally)

The compressor shutdown during the normal operation of the refrigerator does not belong to this type of failure. Be sure to wait for at least 5 minutes before starting the compressor again in the case of compressor shutdown. During the following maintenance operations, if a power failure occurs, please wait for 5 minutes, and then power on the system to observe the compressor working, or wait for 5 minutes after the system is powered on to observe whether the compressor can work normally or not.

- a. Cut off power supply, remove the electrical box cover, check whether the terminals are properly connected, insert them again, and then power on the system to observe whether the compressor can start normally.
- b. If it still cannot start, it is judged as the compressor fault, then replace the compressor.

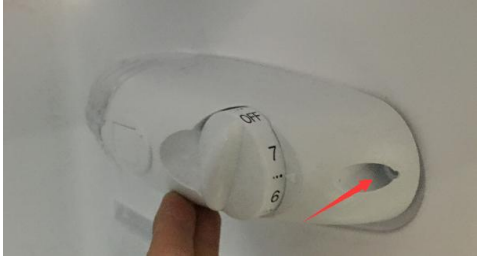
(3) The refrigerator is not cooling.

Cut off power supply, remove the electrical box cover, check whether the terminals on the main board are properly connected, insert them well again, and then power on the system when the door is opened, wait for 10 minutes to observe whether the refrigerator compressor can be started. If not, refer to Item (2); and if yes, touch the left and right-side plates by hand to check whether they are hot or not. If not hot, it is judged to be the refrigerant leakage fault, then

conduct vacuum pumping and charge the refrigerant again.

2. Disassembly instructions for key components

✓ How to dismantle the thermostat assembly.

	(a) Remove the screw with an electric pen or cross screwdriver;
	(b) Use an electric pen or flat screwdriver to pry off the wire terminal, then the terminal can be removed.

✓ How to dismantle the door lamp switch.

	(a) Pry off the door lamp switch from the bottom side using an electric pen or flat head screwdriver.
	(b) Use an electric pen or flat head screwdriver to pry off the wire terminal, then the door lamp switch can be removed.

✓ **How to dismantle the compressor compartment.**

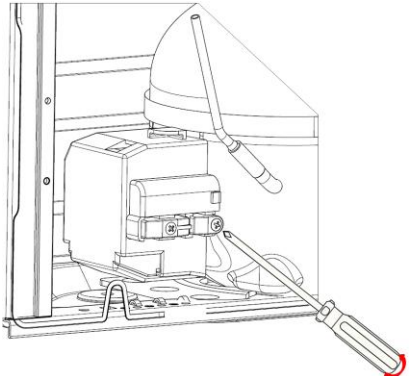
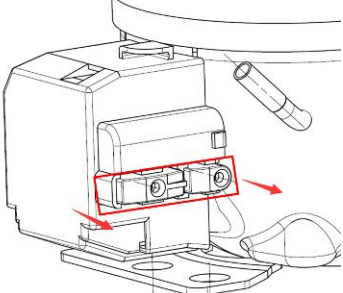
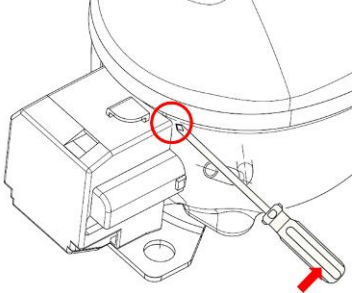
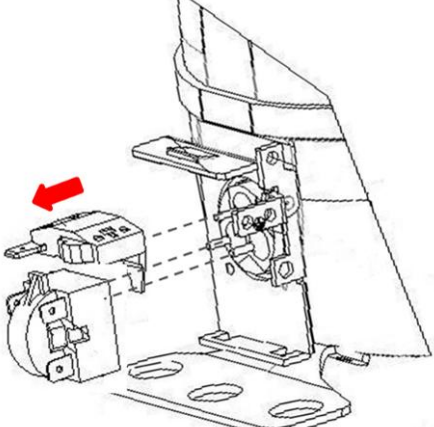


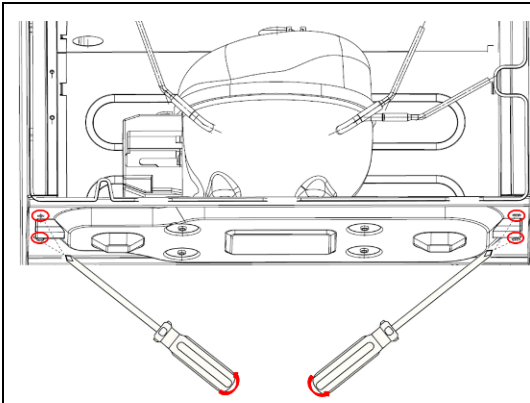
(a)Screw off the two screws as illustrated above to remove the two crimping blocks. Remove the compressor terminal box in the arrow direction, using the screwdriver as an assistant tool.

✓ **How to change the compressor and how to disconnect and weld the refrigeration system pipeline.**

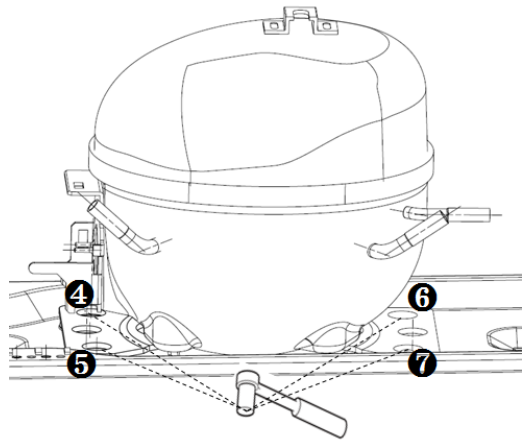
(Note: If the refrigerant R600a is used, operations should be made in the environment where there is good ventilation and free from open fire.)

	1. Cut off power supply, take foods out of the refrigerator, and secure all doors with adhesive tapes to prevent the door from falling off when the refrigerator gets tilted.
	2. Tilt the refrigerator slowly forward, leaning it against the wall or the object that is strong enough, and leave enough space for operation. For safety reasons, you need someone to help support the refrigerator to prevent it from toppling down.
	3. Cut off the compressor pipeline - ① Truncate the process tube - ② Truncate the low-pressure air return pipe - ③ Truncate the high-pressure exhaust pipe.

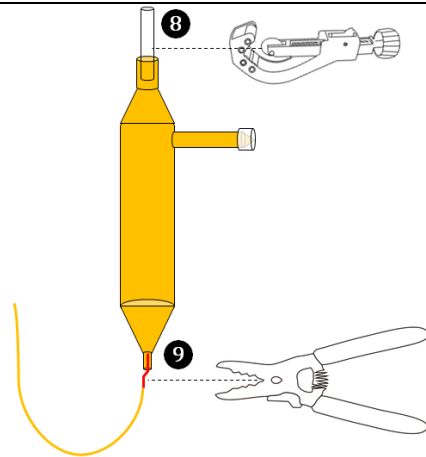
	4. Remove screws: - 2 outside screws; - 1 inside screw;
	5. Remove the crimping block;
	6. Dismantle the protective cover;
	7. Disassemble the starter and protector Unplug the starter and protector in turn (you can use a screwdriver to slowly pry them off.)



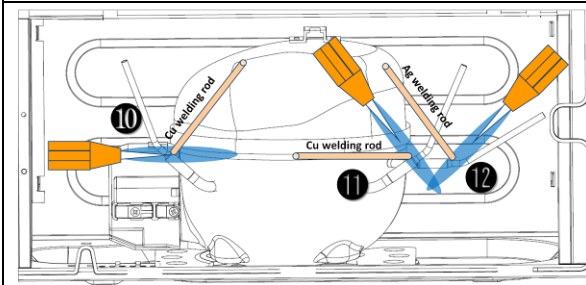
8. Loosen the fixing screws of the compressor on the bottom plate, and dismantle the compressor from the cabinet together with the bottom plate.



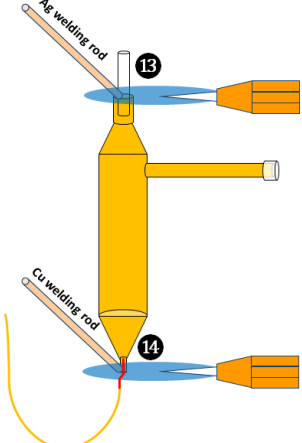
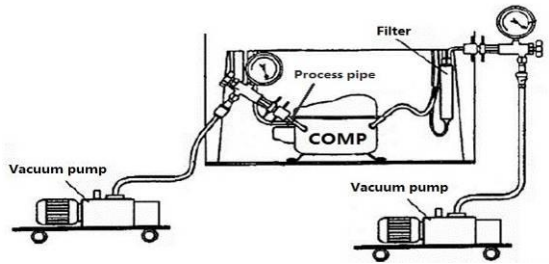
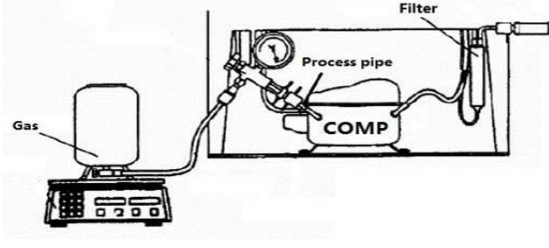
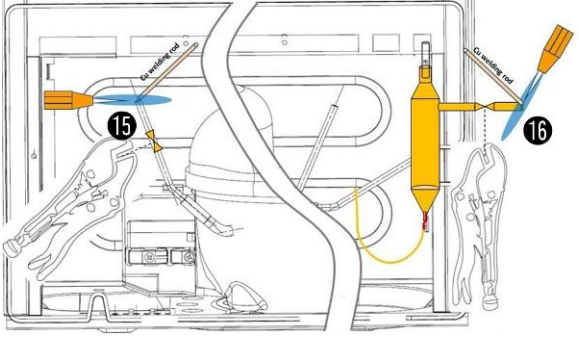
9. Use a wrench to screw off the bolts ④ ⑤ ⑥ ⑦ in turn, and install them in the reverse order after replacing the compressor.



10. Cut off the condenser ⑧ with a pipe cutter, and cut off the capillary tube using the capillary pliers ⑨.



11. Replace the compressor and weld the pipes:
 - ⑩ Weld the process tube;
 - ⑪ Weld the low pressure air return pipe;
 - ⑫ Weld the high pressure exhaust pipe;

	12. Replace the filter, use the silver electrode for the copper-iron pipe 13 connection, and use the copper electrode for the copper-copper pipe 14 connection.
	13. Conduct vacuum pumping, with the vacuum degree reaching below 10Pa.
	14. Charge the system with refrigerant.
	15. Use the locking pliers to clamp the middle of the process tube, and then weld the process tubes 15 and 16 for sealing.