

Haier

Blood Bank Refrigerator

Operation Manual

HXC-936/576

- ◆ Read the Operation Manual carefully before using your appliance.
- ◆ Keep the Operation Manual in a safe place.
- ◆ Appearance, color and layout of the door may vary.

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Technical information

Product	Blood bank refrigerator	
Model	HXC-936	HXC-576
Volume	936L	576L
External panel	Sprayed steel sheet	
Internal panel	Stainless steel sheet	
Insulation	Styrene polyurethane foam (Freon-free)	
Rack	42	24
Cooling	Air circulation	
Compressor	Sealed	
Condenser	Finned pipes	
Evaporator	Finned pipes	
Rfrigerant	R134a	
Defrosting	Automatic	
Thermostat	Electronic control system	
Over-temp warning	Indicator blinks for buzzer and remote warning	
Low-temp warning	Indicator blinks, without deferred buzzer alarm	
Door warning	Door warning indicator on, and buzzer signal 10 minutes later	
Spare storage parts	Permanent static storage	
Lamp	Lamp, 35Wx2	35Wx1
Temp recorder	For 7 days	
Accessories	Key: 1 set; Recording paper: 1 box; Operation manual: 1; Plastic bag: 1; 9V Battery: 4	
Net weight	254kg	180kg
Rechargeable battery	UN7.0-8(8V7.0AH)	

- (1) Full or partial copying or reproduction of the contents in this Operation Manual is not permitted without written consent from Haier.
- (2) The edition of this manual for the appliance that you have just purchased may vary.

Properties

Test bottle temperature	+4°C±1°C
Required ambient temperature	+5°C~+35°C
Period before power interruption warning	72 hours (with battery fully charged)

This appliance complies with the technical standards YZB/LU 0028-2004

Registration number: LYGX (Z) No.: 2580088

Note: Technical information may vary from the appliance that you have just purchased due to technical improvements.

Design or layout of the appliance that you have just purchased may vary due to technical improvements.

Maintenance and repair



Unplug the appliance before commencing repair, maintenance and/or inspection.

Attention should be paid by technicians carrying out maintenance of the appliance to avoid inhalation of harmful dusts and powders in the air.

Cleaning

1. The appliance should be cleaned once a month.
2. Wipe clean the external surfaces and internal accessories of the appliance. Mild detergent can be used if necessary.
3. Dry the appliance both inside and outside with soft cloth after cleaning with water.
4. Do not use excessive water for cleaning the appliance to avoid damage to the insulation materials.
5. Do not use any lubrication oils inside the appliance since the compressor and other mechanical accessories are all tightly sealed.

Lamp replacement

The lamp is installed on the front top of the appliance, and installation procedure is as follows:

1. Unplug the appliance.
2. Hold the lamp holder and remove the lampshade.
3. Rotate to remove the lamp.
4. Replace with a new lamp.
5. Connect the appliance to a power source.

Caution: Ensure that the specification of the new lamp complies with the requirements.

Starter replacement

1. Unplug the appliance.
2. Remove the starter.
3. Tightly install the new starter.
4. Connect the appliance to the power source.

Recording paper

The pressure sensitive paper for the temperature recorder provided when the appliance is purchased can be used for about six months. Additional recording paper can be ordered and provided within one or two months thereafter. Ordered recording paper will be shipped in sight of payment within the following fifteen days. Contact the manufacturers service center for further information.

Batteries of the recorder

It is recommended that standard 9V DC batteries of the same brand and specifications be used. Additional batteries can be ordered and provided within one or two months thereafter. Ordered batteries will be shipped in sight of payment within the following fifteen days. Contact the manufacturers service center for further information.

Cautions

The following procedures cover the operation of the appliance.

- 1) The appliance should be connected to a dedicated socket for 220V/50Hz power supply. Allow some time lapse before loading the appliance.
- 2) The warning sound signal may be heard when the appliance is first connected to the power source and can be inactivated by pressing the buzzer button. The warning indicator stays on until the temperature of the test bottle sensor reaches $4^{\circ}\text{C}\pm 2^{\circ}\text{C}$.
- 3) Ensure that the two test bottles are filled with 10% glycol solution. (see article 4, section Installation on page 6)
- 4) The appliance is preset during manufacture for operation temperature $4^{\circ}\text{C}\pm 1^{\circ}\text{C}$.
- 5) A few hours after the appliance operates the desired temperature value will be attained. After the temperature in the appliance is stable, check the test bottle to see if the temperature complies with desired value.
- 6) Switch on the light and check the lighting condition.
- 7) Do not load excessive material in the appliance, which has been thoroughly tested and assured as operational.

Procedures for temperature sensor calibration

The temperature sensor is connected to the test bottle. The following are instructions for calibration (clearance) of the sensor.

- 1) Remove the fixing panel of the sensor.
- 2) Remove the sensor from the test bottle.
- 3) Fully stir the solution of broken ice cubes and cold water in a vacuum flask.
- 4) Place the sensor in the solution.
- 5) Continue to stir the icy solution until the temperature of the solution is 0°C measured by a precise thermometer. Test the temperature displayed on the sensor to be calibrated.
- 6) Wait until displayed temperature stabilizes. If the displayed temperature is not 0°C , calibrate using the following procedures. If displayed temperature is 0°C , continue the procedure from article 7.
 - a) Hold the Calibration Confirmation button pressed (for about 5 seconds) until C1 appears.
 - b) Press the Sensor Option button for selection of required sensor code. (upper sensor is C1, lower sensor is C2 and control sensor C3)
 - c) Press Calibration Confirmation button, 0°C is displayed for 5 seconds.
 - d) Selected mode will be inactivated 90 seconds after latest press of the button.
- 7) Take out the sensor from the icy solution and dry the sensor.
- 8) Connect the sensor with the test bottle by reversing procedures 1 and 2.

* Contact qualified technician for space adjustment.

Remote warning terminals

The remote warning terminal (30VDC volume and 2A dry contact) is on the rear panel of the appliance. The remote warning terminal is coordinated with an audible alarm. The warning can be stopped by depressing the buzzer. If the power supply source is disconnected, the remote warning operation cannot be stopped by depressing the buzzer.

Remote warning : Normal "On" Abnormal "Off"

Safety precautions

Please read this Operation Manual carefully before using the appliance. Instructions in this manual must be strictly followed.

This manual contains significant information related to safety operation of your appliance.

Follow the instructions in this operation manual to safely operate your appliance and to avoid potential hazards.

In this manual and on labels attached to this product, the words WARNING and CAUTION mean the following:

 **WARNING**
A potentially hazardous situation, which, if not avoided, could result in serious injury or death.

CAUTION:

A potentially hazardous situation which, if not avoided, may result in minor or moderate injury or damage to the equipment.

Label indications: (for example)

 indicates Careful.

 indicates Forbidden.

 indicates regulations.

This operation manual should remain attached to this appliance.

Safety precautions

⚠ WARNING

- | | |
|--|--|
| ⊘ Do not use your appliance outdoors to avoid power leaks or electrical hazards. | ⊘ Never store volatile and/or inflammable materials in the appliance. |
| Ⓜ Qualified technicians should carry out installation or maintenance as unauthorized installation or repair may result in gas or liquid leaks, electrical shocks or fires. | Ⓜ Unplug the appliance before commencing repairs, maintenance or inspection. |
| Ⓜ The appliance must be installed on a solid and flat surface, or the appliance may fall or tilt. | Ⓜ Do not pull out two drawers simultaneously when loading or unloading the appliance. Do not store excessive weight in the drawers. |
| ⊘ Do not place the appliance in a damp area as wet-insulating materials may cause electrical leaks or hazards. | ⊘ Do not sprinkle water directly on the appliance for cleaning to avoid electric shorts or hazards. |
| Ⓜ Follow the instructions on the type plate and use a dedicated power source for the appliance, as a power adaptor may cause fires. | ⊘ Unauthorized disassembly, repair or restructure is not allowed as fire or injury may result. |
| Ⓜ The electrical plug should be kept clean and be tightly inserted into the socket, or fires may result. | Ⓜ Unplug the appliance if the appliance develops a fault to avoid electric shocks or fires. |
| Ⓜ The electrical socket must be grounded by a qualified technician to avoid electrical shocks. After installation, the socket should be accessible. | Ⓜ Do not install the appliance in an area where toxic or radioactive materials are stored. |
| ⊘ Never ground the appliance to a gas or water pipe, telephone line or lightning rod as such connection may result in electrical shocks. | Ⓜ Special personnel should be authorized for disposal of discarded appliances to avoid accidental entrapment in the appliance. |
| ⊘ Avoid accidental access of steel wires or conductive cables into the airflow openings to prevent electrical shocks and damage to the appliance. | Ⓜ Cables with a section area of 0.75mm ² should be used for extension of power cable. Do not step on electrical cables when moving or installing the appliance. Damaged or worn electrical cables must be replaced with the material provided by an authorized after sales agent. |

Operation

3. Paper replacement

Following are the procedures for paper replacement

- 1) Press the button (3#) on the front panel of the recorder.
- 2) Hold the button (3#) pressed for about 1 second until the paper moves leftward.
- 3) Remove the center screw after the used recording paper moves outside the coverage of the ink pen. Replace the used recording paper with new paper, ensuring that the date line on the paper is aligned with the slot on the upper left of the front panel of the recorder. (See attached diagram)
- 4) Tighten the center screw and press the button (3#), the inked pen will then operate.
- 5) Ensure that the ink pen is in good condition, or make necessary adjustment to the contact of the pen point on the paper. (Attention should be paid when adjusting the pen. Dismount the lintel Remove the carrier with a screwdriver and slightly bend it before replacement)
- 6) The ink pen should be calibrated after changing the recording paper. Press button (3#) until the ink pen moves away from the paper. Press the same button again to let the ink pen return to the paper. The pen pauses over the marginal scale, which does not represent a certain temperature value. If the pen does not stop over the said position, the arrows 1# and 2# can be used to adjust the pen's position within 5 seconds.

4. Temperature recorder calibration

The temperature recorder is preset during the manufacturing process. The following are procedures for resetting.

- 1) Set the recorder in operation for at least 2 hours before the appliance reaches a stable operation status and produces a regular temperature fluctuation curve.
- 2) Place a standard thermocouple in the bottle filled with 100ml 10% glycerin, and then place the bottle and a recording sensor in the cabinet of the recorder. Ensure that there is no contact between the recording sensor and the solution.
- 3) Keep the bottle in the recorder cabinet for 4 hours and compare the temperature values of the standard thermocouple and temperature recorder. If a difference is identified between the temperature values, make necessary adjustment by pressing button (1#) at left and button (2#) at the right of the front panel.

Note: The ink pen will operate 5 seconds after the button is released.

Caution: The temperature recorder is preset during production, so resetting of the temperature recorder is not recommended unless absolutely necessary.

Operation

Temperature Recorders

The appliance is equipped with a six inch recorder, which starts operation after the appliance is connected to power supply.

1. Installation and operation

Following are procedures for correct operation of the temperature recorder.

- 1) Open the door of the temperature record cabinet.
- 2) Connect the temperature record to the battery (9V) as spare power source.
- 3) Load new pressure-sensitive chart paper
- 4) Remove the plastic cap of the ink market pens, and close the cabinet door.

Caution: The recorder does not operate until the temperature in the appliance reaches the value within the operation range of recording.

2. Power supply

The temperature recorder requires an AC power supply (220V/50Hz). If AC power supply is interrupted, the LED of the recorder blinks and the warning indicator turns on. The temperature recorder can also be operated with DC from spare source battery which lasts about 30 hours. (Caution: The battery should remain fully charged. If the appliance is not in operation, the battery should be switched off. Ensure that the battery is in good status as a spare power source.) If power fails, the LED of the temperature record blinks until AC power is supplied or spare power source is connected. The LED indicator will blink when the power in the battery is low

Maintenance and replacement of temperature recorder

Following are inspection procedures when the green LED blinks.

1. If LED extinguishes and the recorder does not operate, check to see if AC power supply is interrupted, the circuit shorted or cables are not connected. After AC power supply is recovered, install the battery. If the battery is in good condition, the green LED indicator turns on but does not blink. Low voltage of the battery may result in the LED flashing. Replace the battery.
2. If the battery is removed, the power indicator LED blinks. The temperature recorder operates with AC power supply. The green LED indicator blinks until a good battery is reinstalled.



HXC-936 Diagram

Accessories

1. Control panel

The operation mode and temperature are displayed on the control panel. Pressing the button on the control panel will display the current temperature and warning data.

2. Light switch

Control of the lights inside the appliance

3. Casters

Casters designed for free movement of the appliance.

4. Automatic temperature chart recorder

A seven-day temperature chart recorder is standard on all models.

5. Rack

The racks can be loaded with 320 blood bags of 200ml.

6. Inner light

Operation

During power interruption, fully charged batteries can keep the warning function operational for 72 hours. If power interruption occurs a while after the appliance is first initiated, it will take 2 days for the appliance to fully charge the batteries. During the process of charging the batteries, the remote warning contact is maintained in operational mode.

Warning test procedures

Press “Warning Test” button. If one press of the button results in 3 buzzes of 1Hz, 3 flashes of the warning indicator and 3 operation cycles of the remote warning relay before disconnection, the warning system is deemed to be in a normal state.

- ⓘ Staff should be designated for daily inspection and record of the operation status of the appliance. Items in storage should be moved to another appliance if temperature fluctuates abnormally.

Troubleshooting

Problem	Solution
Unit does not operate.	Fuse in good condition
	Appliance is not properly plugged.
	Failure of input and control cables.
	Low voltage
Desired temperature is not reached.	Excessive or hot stuff in storage.
	No space saved between stuff in storage
	Under direct sunlight or near heat resource
	Frequent opening door
	High ambient temperature
Excessive noise	Ventilation blocked
	Appliance not placed on flat surface.
Warning indicator blinks with buzz	Appliance contacts other objects.
	New items loaded while temperature is not at 2-6°C.
	Door not tightly closed
	Insufficient power supply
	Temperature exceeds designed degree.

Operation

Warning, safety and detection

This appliance has warning, safety operation and detection functions.

Table 2 Warning and safety

Warning/Safety	Phenomenon	Warning indicator	Buzz	Safe operation
High temp	Temperature detected by upper or lower sensor $\geq 6^{\circ}\text{C}$	Warning indicator blinks.	Pulse warning	Remote warning contact activated
Low temp	Temperature detected by upper or lower sensor $< 2^{\circ}\text{C}$	Warning indicator blinks.	Pulse warning	
Super temp	Temperature detected by sensor $\geq 8^{\circ}\text{C}$ or $\leq 1^{\circ}\text{C}$	Warning mode on and no further instruction	Hi-temp warning mode activated	
Power interruption	Power interruption or switch off	Warning indicator blinks; temp display off	Pulse warning for $< 72\text{h}$ power interruption	
Door ajar	External door ajar or open	Warning indicator blinks 10 min later	Pulse warning after 10 min delay	
Sensor back after calibration	Control panel off control within ≤ 90 seconds	Test bottle temp display	Not affected	Calibration mode finishes
Abnormal sensor	Upper sensor open or short	Warning indicator blinks; temp display E1	Pulse warning	Remote warning contact activated
	Lower sensor open or short	/	/	/
	Defrosting circuit open or short	/	/	/
	Over temp sensor open or short	/	/	/
	Rechargeable battery voltage low or abnormal	/	/	Not affected

Caution: Remote warning contact and sound warning indicator can activated at the same time. When the appliance warning mode is activated, pressing the buzzer button will disconnect the remote warning contact. When the power is interrupted, the contact is in the warning mode until power interruption status is lifted. All warning functions can reset automatically. If warning status is not altered within 30 minutes, the buzzer and remote control contact will be activated again.

Location

The appliance should be located in an area where the following requirements can be satisfied.

1. Solid and flat surface

The appliance must be placed on a solid and flat surface, or excessive vibration and noise may be produced when the appliance in operation.

2. Away from heat sources

The appliance should be placed in an area away from heat sources, including radiators, gas or coal stoves, or the cooling efficiency of the appliance may be reduced.

3. Away from sunlight

The appliance may not operate properly if it is under direct sunlight. Prolong exposure to sunlight may shorten the service life of the appliance.

4. Dry

The appliance should not be placed in a damp area.

⚠ CAUTION!

Circuit breaker

If the appliance has to be used in a damp area, a circuit breaker must be installed and the appliance must be grounded. The circuit breaker is installed in the power circuit. Contact authorized retailer or technician of the manufacturer for further information.

5. Clean and tidy

The appliance should be operated in an area free from chemicals, material, which might generate gas or excessive dusts.

6. Well ventilated

The appliance should be placed in a well ventilated area. Poor ventilation may reduce the cooling efficiency of the appliance.

7. Grounding

Appliance must be grounded to prevent electrical hazards.

⚠ WARNING

- ⚠ Plug with a grounding pin should be used for the appliance to prevent electrical shocks.
- ⊘ Do not ground the appliance to water pipes, as frequently PVC pipes are used for water supply system.
- ⊘ Do not ground the appliance to gas pipes as this may result in dangers.
- ⊘ Do not ground the appliance to telephone lines or lightning rods which may transmit strong electrical current in stormy days.

8. Ensure that no article can fall on the top of the appliance.

CAUTION

- ⓪ Do not place the appliance in an area where foreign articles may drop onto the appliance, as electrical components are installed on the top of the appliance.

Installation

Before use

Installation

1. Unpacking

Remove all the packing materials, and open the door of the appliance to ventilate. Mild detergent solution can be used to clean the appliance external surfaces.

2. Leveling

Turn the adjustable bolt anticlockwise to level the appliance.

3. Fixing the shelf fence

Take out the shelf fence and fix it on the rear wall of the compartment with M5 screws.

4. Preparation for the temperature sensor test bottle

Before using your appliance, ensure that the test bottle in the drawer is filled with solution to the scale 200. If not, follow the instruction listed hereunder to fill the test bottle (including upper and lower test bottle) with 10% glycerin (or other solution such as glycol).

- 1) Remove the upper and bottom drawers and then sensor fixing panel.
- 2) Dismount the sensor from the test bottle.
- 3) Remove the two screws for dismounting the test bottle.
- 4) Fill the test bottle with 10% glycerin (or other solution such as glycol) to the scale 200.
- 5) Replace the capped test bottle in its original position.
- 6) Set the sensor on the test bottle and replace the sensor fixing panel.

Operation Instructions

Temperature adjusting:

Press and hold both SENSOR SELECT button and CALIB CANCEL button for more than 3s until original setting starts flashing to indicate that it enters temperature setting mode. With each press of CALIB CANCEL button, temperature setting increases 0.1 °C until reaching upper limit, which is defaulted as 8°C. If press again, it returns to lower limit, which is defaulted as 2°C. It repeats the above cycle. When it reaches your desired temperature, if you don't press the button within 5s, the temperature setting will be saved and it automatically quits the temperature setting mode (the temperature setting range programmed at factory is 2 - 8°C). The display returns to display inside sensor temperature or average temperature before setting is made (not flashing).

Operation Instructions

Control panel

1. Temperature display

Preset temperature of the appliance is 4°C ±1°C.

Preset warning point of high temperature is 6°C, and of low temperature is 2°C.

Table 1 Temperature display

			● Light on	○Light off
	Operation	Button	Display	Display Mode
1	Plug for power supply		Test bottle average temperature ● Up ● Low	Average temperature
2	Press temperature display button	◊	Upper test bottle temperature ● Up ○Low	Upper test bottle temperature
3	Press temperature display button	◊	Lower test bottle temperature ○Up ● Low	Lower test bottle temperature
4	Press temperature display button	◊	Average temperature of test bottle ● Up ● Low	Average temperature
5	Repeat for position 2			

Caution: Displayed temperature is detected by test bottles for upper and lower sections of the appliance, and does not always remain at 4°C. The information displayed by the sensor indicates the average temperature.