



Model ST-6RF



Owner's Manual

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Dear Customer: Please follow the user manual to achieve the best service performance and the longest service of life for your machine.

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Location of Parts

Before use

Please read these instructions carefully before using your DC Refrigerator. The appliance is for indoor/domestic use only.



Major Technical Parameters

Product Model	Input Voltage	Available capacity
ST-6RF	DC 12V/24V	170L 6 cu. ft.

Working Temperature	Input Power (W)	Power Consumption (KW/h)
Fridge: 0°C ~ 10°C (32°F ~ 50°F) Freezer: 22°C ~ 15°C (7.6°F ~ 5°F)	70-100	0.7

Refrigerant (R134A) Amount	Net Weight	Exterior Dimension
110 g 0.25 lbs	44 kg 97 lbs	50 x 52 x 143 (cm) 19.7" x 20.5" x 56.3"

Installation Instructions

Location

When selecting a position for your appliance you should make sure that the floor is flat and firm, and the room is well ventilated with an average room temperature of between 16°C and 35 °C. Locate the appliance away from direct sunlight and source of heat (stove, heater, radiator, etc.) Direct sunlight may affect the acrylic coating and heat sources may increase electrical consumption. Extreme cold ambient temperatures may also cause the appliance not to perform properly. This unit is not designed for use in a garage or any other outside installation. Avoid locating the appliance in moist areas. It must therefore be installed so that the appliance has at least 15cm/6 inches from the wall at the back and side. The appliance door can either open to the right or the left, depending on whichever suits you. See page 5-7 if you want to reverse the door swing. Do not drape your appliance with any covering.

Moving the appliance

Position your appliance in front of its final operating position and gently slide the appliance into position. A minimum of two persons must be used to move the appliance.

Leveling the DC Refrigerator

Remove the packaging support from the base of the appliance and replace with the 2 leveling feet. Make sure the appliance is level. Use the leveling feet at the front. If the appliance is not level, the doors and magnetic seal alignments will be affected.

Cleaning before use

Wipe the inside of the appliance with a weak solution of bicarbonate soda. Then rinse with warm water using a damp sponge or cloth. Wash the baskets and shelves in warm soapy water and dry completely before replacing in the fridge. The external parts of the fridge can be cleaned with wax polish.

Before plugging in YOU MUST notice below Safety Precautions:

SAFETY PRECAUTIONS

- 1) Use an independent 12V or 24DC outlet with a capacity of no less than 30A.
- 2) This DC Refrigerator is only allowed to connect to a 12V or 24V DC system. It is forbidden to connect it directly with an AC power supply.
- 3) Do not immediately switch the DC Refrigerator on and off. It will damage the compressor module. The normal time interval is ten (10) minutes.
- 4) Disconnect the plug from the outlet if the unit is to be left unused for a long period of time. Check if the connection is okay before it is put to use again.
- 5) DO NOT store inflammable gases or liquids in your DC refrigerator
- 6) The supplier is not responsible for any accidents or losses incurred from the unit

Before switching on!

DO NOT SWITCH ON UNTIL TWO HOURS AFTER MOVING THE APPLIANCE
The coolant fluid needs time to settle

Please Note: The ice cube tray is for ice only and not for freezing food

CABLE REQUIREMENTS

To ensure the correct start and operating conditions for the DC Refrigerator, the following cable dimensions must be observed:

Wire Sizing Chart (Gauge)	Max. length between battery and compressor (ft)	
	12V/DC	24V/DC
# 10	15 ft	30 ft
# 8	20 ft	45 ft
# 6	30 ft	60 ft
# 4	45 ft	100 ft

Operating Your Refrigerator/Freezer

Switching on your DC Refrigerator

1. Before connecting the appliance to the DC power supply, make sure that the thermostat control dial is set at position 0. This is located on the right part of the fridge.
2. Turn the thermostat knob clockwise to set it to the desired position. Bear in mind that the higher the number, the colder the temperature.
3. To ensure that the appliance is cool enough to sufficiently chill your food wait 24 hours before filling with food.

Adjusting the temperature

The internal temperature of your appliance is controlled by a thermostat. Position 7 makes the appliance coldest and position 1 makes it warmest and 0 turns the appliance off. The recommended setting for the appliance is between 1-4 for colder working environment (i.e. during winter) and 4-6 for hotter environments. The temperature of the appliance may not operate at the correct temperature if it is in a particularly hot or cold room or if you open the appliance door often.

Care and Maintenance

Defrosting

Your DC Refrigerator is frost free, and the ice build in will normally defrost automatically. However, if the freezer door is left open for a period of time, ice may build in the freezer compartment. Temporarily this can be scraped away using a plastic scraper. NEVER use a metal or sharp instrument. Complete defrosting will however become necessary if the frost layer exceeds 5cm (2") to maintain the efficiency. This should be carried out if the frost build up cannot be scrapped away, or if it begins to interfere with the food storage. Choose a time when the stock of food is low and proceed as follows:

1. Take out the chilled food, turn the DC refrigerator off at the power supply and leave the door open. Ideally the chilled food should be put into another refrigerator. If this is not possible, wrap the food in several sheets of newspaper or large towels and keep it in a cool place.
2. Scrape away as much frost build up as possible using a plastic scraper. Thawing off the remainder can be sped up by placing bowls of hot water inside the fridge cabinet and closing the door. As the solid frost loosens, pry it away with the plastic scraper and remove.
3. When defrosting is completed, clean the DC refrigerator as described in the previous column.

Noises inside the DC Refrigerator

If you have not owned this type of appliance before, you may notice it makes some rather unusual noises. Most of these are perfectly normal, but you should be aware of them.

Humming, purring or pulsating

This is the compressor motor working, as it pumps the refrigerant around the system.

Gurgling, whooshing

These noises are caused by the circulation of the refrigerant liquid in the cooling system. It has become more pronounced since the introduction of CFC free gases. This is not a fault and will not affect the performance of your appliance.

Shut the door!

To prevent cold air escaping, try to limit the limit the number of times you open the door. When returning from shopping, sort foods to be kept in your appliance while the door is closed and only open it to put food in or take food out.

NOTE:

ALWAYS WRAP AND STORE RAW MEAT, POULTRY AND FISH ON THE LOWEST SHELF AT THE BOTTOM OF THE APPLIANCE. THIS WILL STOP THEM FROM DRIPPING ONTO, OR TOUCHING OTHER FOODS. DO NOT STORE INFLAMMABLE GASES OR LIQUIDS IN THE APPLIANCE.

Replacing the bulb

1. Ensure the appliance is unplugged and disconnect from the power supply.
2. Remove the bulb cover and unscrew the bulb in counter-clockwise direction.
3. Replace the bulb with a new one.
4. Replace the cover and reconnect the appliance to the power supply.

Reversing the Door Swing:

Ensure the appliance is unplugged and empty. Adjust the two leveling feet to their highest position. We recommend you have someone assist you.

Tools required:

Phillips style screwdriver
Flat bladed screwdriver

Note: to take the door off it is necessary to tilt the appliance backward. You should rest the DC Refrigerator on something solid.

DO NOT lay the appliance completely flat as this may damage the coolant system

1. Remove the screw cover. Undo the screws and remove the top cover and hinge bracket
2. Slide the fridge door up and lift away from the appliance
3. Undo the screws of the middle hinge. Slide the freezer door up and lift away from the appliance.
4. Undo the screws and remove the bottom hinge. Screw it into place on the new side and replace the adjustable feet.
5. Remove the pin from the fridge and freezer doors. On the opposite bracket, insert the replacement hinge pin. Ensure the pin is secure.
6. Place the freezer door first and screw the hinge on the opposite side.
Note: Ensure the door is aligned horizontally and vertically and that the seals are closed on all sides before finally tightening the middle hinge.
7. Place the fridge door first and screw the top hinge on the opposite side. **Note:** Ensure the door is aligned horizontally and vertically and that the seals are closed on all sides before finally tightening the top hinge.

Important: Double check that the door is aligned correctly and all the seals are closed on all sides. If necessary, re-adjust the leveling feet.

Notices & Routine Maintenance

- 1) Do not switch on the DC Refrigerator within 2 hours after transportation. After the appliance has been placed it needs to be left for 2 hours. This allows time for the coolant to settle.
- 2) **DO NOT** switch on the DC Refrigerator within ten (10) minutes after a sudden power failure.
- 3) The unit cannot be re-started until after a half an hour on the leveled floor that it is moved to. The unit should be left to run for two (2) full hours before food is put into it for storage.
- 4) The temperature of the food in the unit should not exceed the ambient temperature.
- 5) Acids, alkaline, corrosive substances, volatile or inflammable materials cannot be stored in case of damages to the cabinet of the unit.
- 6) How to clean your SUN STAR unit:
 - a) Wipe down the interior walls and shelves with a soft cloth dipped in a neutral detergent.
 - b) Exhaust the condensed water or wipe it off with a dry clean cloth.
 - c) The outside of the unit can be cleaned with a thin soda water or alcohol and then wiped clean with a damp cloth.
- 7) After the unit has been in use for half a year, wipe off the dust that has been accumulated on the condenser, fan, and compressor.
- 8) Leveling the DC Refrigerator. Make sure the appliance is level. Use the rotating leveling feet at the front. If the appliance is not level, the door and magnetic seal alignments will be affected and may cause your appliance to work incorrectly.
- 9) Locate the unit to be no less than fifteen (15) cm / six (6) inches from the wall at the back and side.
- 10) Do not attempt to repair your appliance yourself as it might endanger you and others.
- 11) Do not place your appliance near a heat source, e.g. cooker, boiler, or radiator. Also avoid direct sunlight in outbuildings or sun lounges

General Faults and Trouble-shooting

In case of an abnormal operation, please refer to the table below for inspection and possible solutions. If the faults cannot be solved, please contact the service department of our company and our local institutions with special engagement.

Fault	Cause	Solution
Faulty indicators and / or non operation of the compressor	1. Loose contact 2. Loose cables	1. Make it tight 2. Make it tight
The compressor is running abnormally or with unusual noise	The supply voltage is 85% lower than the rated value.	1. Switch the unit off immediately until the recovery of the voltage supply is normal. A voltage regulator with an input power five (5) times larger is required if the voltage fluctuation exceeds that which is specified. 2. Check the input voltage on the module and power supply battery if it is out of operating voltage. 3. Check the cable length between the battery and module. Please refer to "Cable Requirements" on page 1 of the User Manual.
The successive automatic shut-off of the compressor several minutes after start up	The supply voltage is 110% higher than the rated value.	
The storage temperature rises while the compressor is running properly	1. Frequent opening of the doors. 2. The cabinet is overloaded with tightly packed food. 3. Too much frost accumulation. 4. Door leakage. 5. Gasket failure.	Try to open the doors less frequently. Arrange the food orderly with enough space for smooth air circulation. Take out frozen food and remove the frost. Adjust the door sealing.
Abnormal noise in general is being produced	1. The unit is not leveled 2. Loose fastening parts 3. Unwanted contact between pipes	1. Adjust the unit to a stable and leveled floor. 2. Tighten the loose parts. 3. Keep the parts away from each other.

The following are NOT results of faulty equipment:

- 1) The intermitting noise heard in the cabinet during operation of the unit some time after shut-off is caused by the circulating flow of coolant in the condensing pipes.
- 2) The surface temperature of compressor may rise to a range between 66°C /150°F and 90°C/194°F.
- 3) The condensed water beads on the external side of the unit or door during the rainy seasons will not affect the operation of the unit. The water beads may be wiped off with a dry cloth.

Start Up and Compressor Signal Lighting:

There is a light bulb located near the module of the compressor. It will flash a number of times if a fault occurs. Count the number of flashes and compare with the chart below:

Flash Number	Fault Occurring
1	Battery Protection Cut Out
2	Fan Over-Current Cut Out
3	Motor Start Error
4	Minimum Motor Speed Error
5	Thermal Cut Out of Module

- 1) The module will run too hot if the unit system has been too heavily loaded or if the ambient temperature higher than 45°C/113°F
- 2) The unit will not run if there is t connecting the anode and cathode of the voltage compressor.

Safety tips

Do not use electrical appliances such as hair dryer or heater to defrost your freezer.

Do not store inflammable gases or liquids inside your DC refrigerator.

Disposal

Old appliances still have some residual value. An environmentally friendly method of disposal will ensure that valuable raw materials can be recovered and used again. The refrigerant used in your appliance and insulation materials requires special disposal procedures. Ensure that none of the pipes on the back of the appliance are damaged prior to disposal. Up-to-date information concerning options for disposing of your old appliance and packaging from the new one can be obtained from your local council office.



This symbol on the product or in the instructions means that your electrical and electronic equipment should be disposed at the end of its life separately from your household waste. There are separate collection systems for recycling in the EU.

For more information please contact the local authority or your retailer where you purchased the product.

Contact Information

SUNSTAR TECH SUPPORT: 260-214-0949

FAX: 260-499-4984