OPERATING INSTRUCTIONS FOR THE SUN FROST RF-12
12 CUBIC FOOT REFRIGERATOR-FREEZER

INSTALLATION

For convenience the SUN FROST RF-12 can be mounted on a cabinet about 30 inches high. This height can be adjusted for the convenience of the user.

For A.C. Models

Plug the unit into a wall socket and set thermostat to the appropriate temperature.

For D.C. Models

The SUN FROST RF-12, D.C. model must be connected directly to a battery. The battery can then be charged by photovoltaics, wind power, a battery charger, or other energy source. The SUN FROST RF-12 comes in both 12 and 24 volt models.

When connecting the batteries, it is very important that the battery's polarity is carefully checked. Reversing the polarity will blow a fuse in the electronic unit. Though less likely, it is also possible to blow a component in the electronic unit. Red is positive, black is negative. Connection to a battery is the only connection necessary to turn the refrigerator on.

A voltage regulator MUST BE USED IN THE SYSTEM. For the 12 volt model, the voltage should be kept between 11.0 V and 15.5 V. For the 24 volt model the voltage should be kept between 22.0 V and 31 V. A higher voltage could blow out a component in the electronic unit and damage the system's batteries.

It is very important to use sufficiently heavy hook-up wires from the batteries to the refrigerator. Appropriate wire gauge and lead length are given below.

Lead Dimensions

Wire Size	Max Length Feet 12V Model	Max Length Feet 24V Model
#16	4	8
#14	6	13
#12	11	21
#10	17	34
# 8	27	54
# 6	43	86
# 4	68	136
# 2	108	216

The starting current for the 12V model is 15 amps and the running current is between 4 and 5 amps. For the 24V model starting current is 7.5 amps and the running current is between 2 and 2.5 amps.

Mounting

The cooling system for the RF-12 is located on top of the unit. Heat is given off by this system, making ventilation above the unit necessary. Allow at least 8" of clear space above the unit for this purpose.

Temperature Control

The cooling coils for the freezer section are located in the floor and ceiling of that section. The cooling coils for the refrigerator are located on the back wall of the refrigerator section.

The thermostat is located in the back wall of the refrigerator section. There is no temperature sensor in the freezer section. If the refrigerator section is kept at 38 F, the freezer section will average about 8 F in a 70 F room and 15 F in a 90 F room. When the unit is first turned on the initial cool down period will take about 5 hours.

To locate the temperature control, open the freezer door and look underneath the shroud. The control should be on the right side of the unit.

The thermostat may not be in exact calibration over the entire temperature range. If the temperature needs to be set accurately we suggest using a thermometer to check the thermostat setting.

In all units manufactured after June 1990, provisions have been made to allow for the installation of a replacement electronic thermostat in the event that the original thermostat fails. The leads for the electronic thermostat sensor are located in the mechanical thermostat cover.

NOTE: ***In AC models it is important to unplug the unit before taking off the thermostat cover. Failure to do so may result in electric shock.***

Shelves

The shelves are 3/16 inch tempered glass and are adjustable. Additional brackets are supplied. Note that the glass is tapered: the front is slightly wider than the back.

Defrosting the Freezer

Generally, the freezer will need to be defrosted once or twice a year. Defrosting is advisable when the frost is 1/2 inch thick on the ceiling of the freezer section. The unit may be shut off by turning the thermostat to 90 F. While the freezer is defrosting, the food from the freezer section may be placed in the refrigerator compartment. If the refrigerator door is kept shut, the food from the freezer section should remain frozen during the 30 minute defrosting process.

As the freezer section warms, the ice will separate from the ceiling and floor and may then be removed in large pieces. Do not pry off the ice with sharp metallic instruments.
After the first 1/4 inch of ice has formed, the rate of frost build up will slow.

Frost in the Refrigerator Section

Heavy frost will not usually build up on the refrigerator section's cooling coils, which are located on the back wall. In exceptionally warm weather or with a low setting on the refrigerator, some frost may accumulate. This

frost will not affect the operation of the refrigerator unless it is fairly thick.

The ice build up may be eliminated by raising the thermostat setting about 4 degrees F. In several days the frost should be gone. It will have melted and drained through the condensate hole. The thermostat can then be returned to its former setting.

Storage Conditions

The refrigerator sections of the Sun Frost have high humidity storage conditions. This retards the wilting of vegetables and fruits and also keeps other foods, such as bread, from drying out as rapidly. The shelf life of fruits and vegetables will often be more than doubled in a Sun Frost.

In conventional refrigerators, high humidity conditions are maintained by storing vegetables in sealed drawers or plastic containers. These are unnecessary in a Sun Frost since the humidity is high in the entire refrigerator section. Fruits and vegetables store better if their oxygen supply is not cut off by a sealed container. We recommend storing food in breathable containers, such as paper bags.

Freezer burn often occurs in conventional freezers due to a loss of moisture in the stored food. The Sun Frost freezer section significantly slows this process because high humidity conditions are also maintained in the freezer.

Door Adjustment

The mounting holes on the catch are slotted so that the catch may be adjusted if necessary.

Cleaning

Clean with a Formica friendly counter top polish. We recommend "Hopes Premium Counter Top Polish". Apply evenly with a wool buffer to enhance shine..

Condensation

The cooling fins for the refrigeration section are located behind the back wall. Condensation will form on this cooling surface, then run through adrain hole located in the center rear of the refrigeration compartment. Condensation running through this hole drains into a tube that exits under the refrigerator. The moisture may then be collected in a tray or jar. The tube may also be joined with a longer hose and drained under the house or into a drain pipe. A 44" x .25" drain hose extension is provided with the refrigerator for this purpose.

A good technique for inserting the drain tube extension is to tilt the unit from the hinge side up to an elevation of no more than five inches. This allows access to the drain tube protruding from the bottom of the refrigerator, while reducing the possibility of the door swinging open and causing damage to the hinges or the door itself. Be certain that the weight of the refrigerator does not rest on the door during this process. The drain hose extension may then be inserted into the drain tube.

Sometimes small amounts of moisture may collect in the gutter before draining down the tube. In some cases mold may begin to grow in this area. The problem can be eliminated and/or prevented by placing one or two **drops** of household bleach into the gutter and down the drain tube each time it is cleaned. This tiny amount of bleach will not affect or taint the food stored in the unit.

Energy Conservation

One of our customers recently informed us that he kept his Sun Frost RF-12 running on a single 30 Watt PV panel by turning up his thermostat and using his freezer section as a refrigerator. If you have a minimal amount of energy available, you may want to try this technique.

Wall Brackets

The brackets, located on the back top of the refrigerator, allow the refrigerator to be secured to wall. These brackets prevent the possibility of the refrigerator tipping if a child were to climb on the door.

Changing Fuses

The light within the refrigerator section of A.C. models is 12 volts, provided by means of a transformer. The DC 12 volt and 24 volt models run the light directly off of the power supply. In all units the light fuse is located in a black "in-line" fuse holder and is a glass 2 amp "fast blow" type.

In addition, the DC models have an electronic unit which controls the compressor. It contains a plastic "Buss" or "Bar" type fuse. The 12 volt model uses a 15 amp fuse and the 24 volt model uses a 7.5 amp fuse. Extra fuses can be obtained at an auto parts store.

For more information contact:

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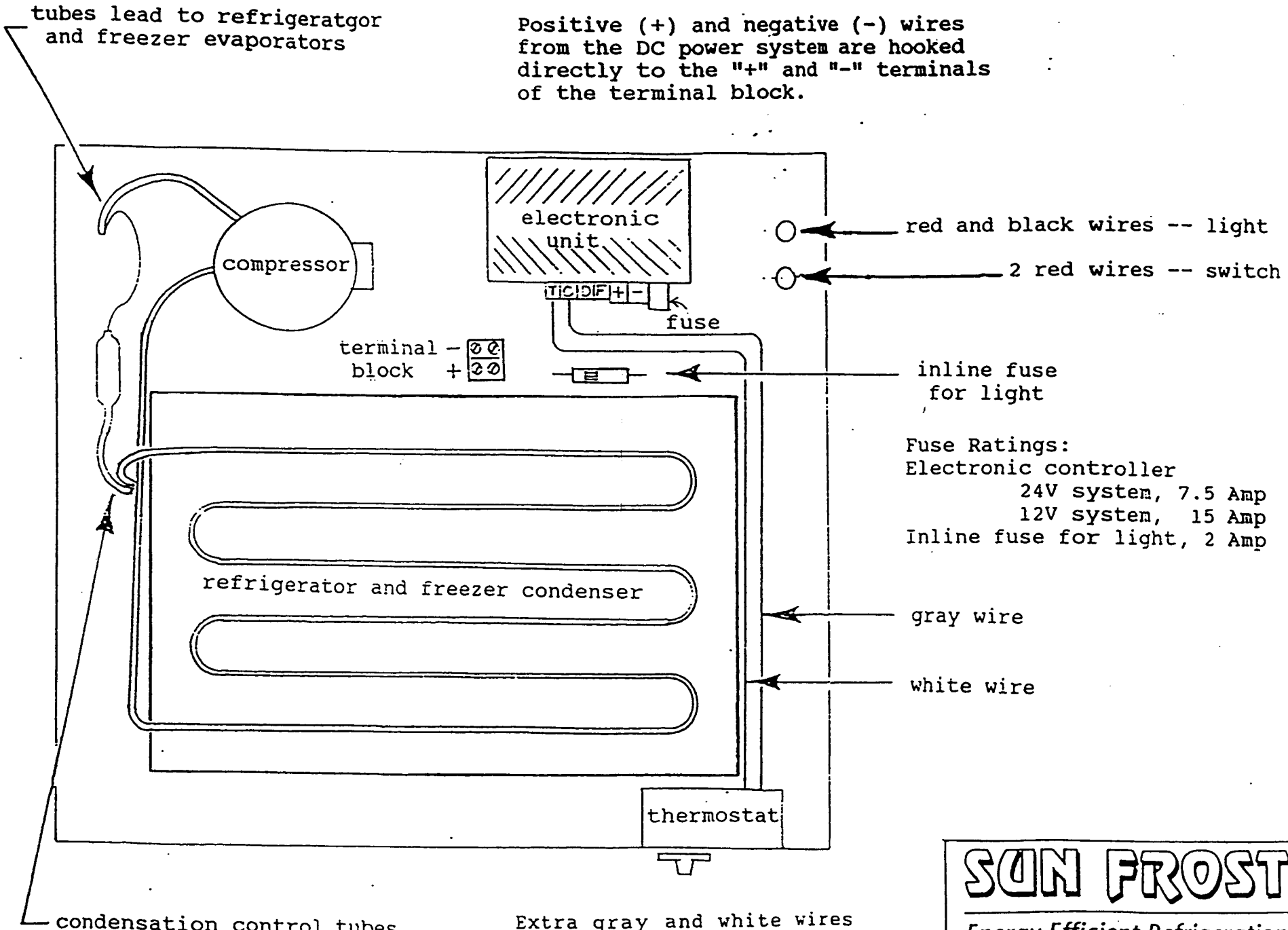

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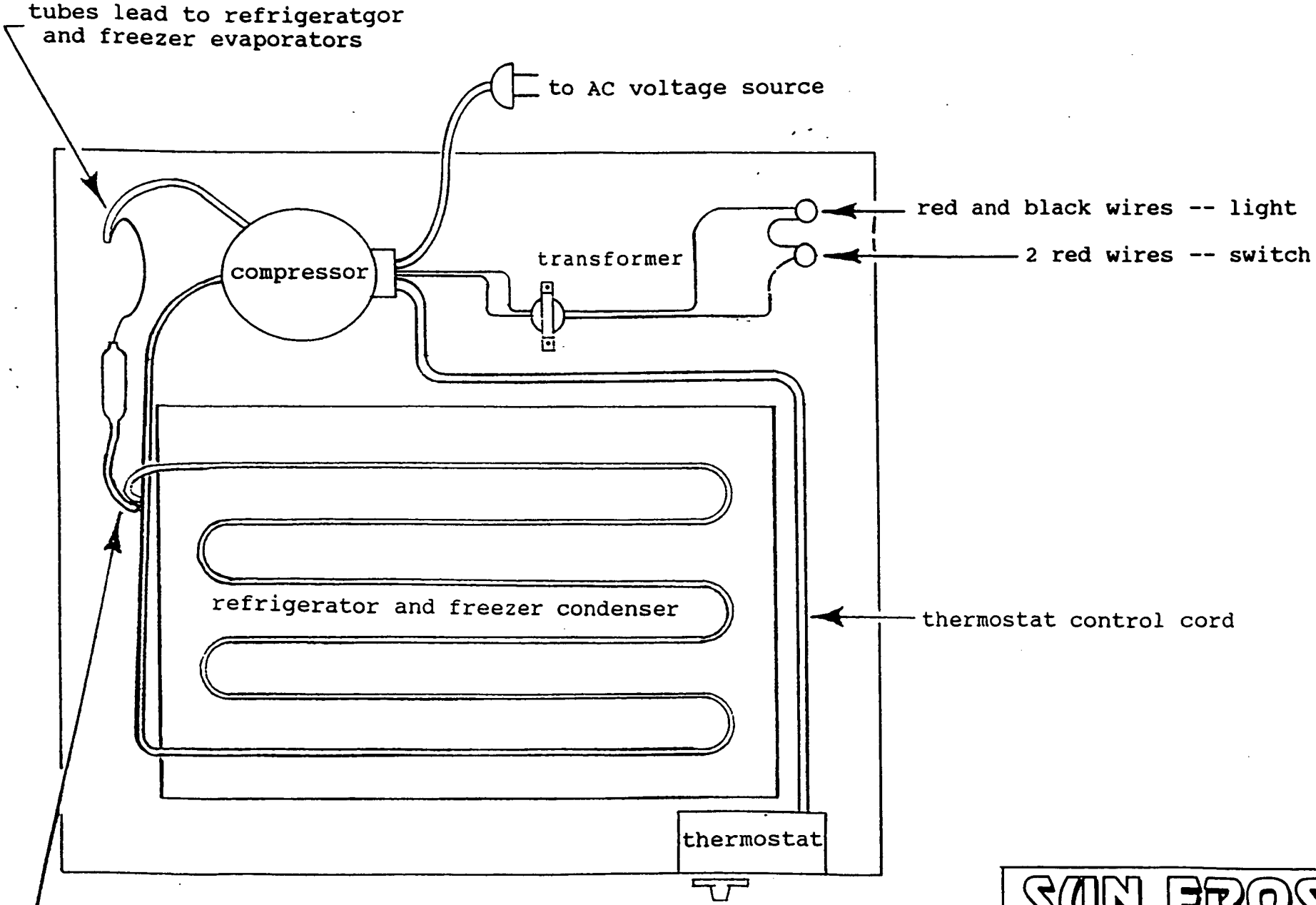
Energy Efficient Refrigeration

Top View
RF12 DC model



Extra gray and white wires inside of thermostat are connected to spare thermistor.

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Energy Efficient Refrigeration

Top View
RF12 AC model