STARTING DELAYS

The compressor may not start for several minutes if it has been running, is turned off, and then turned on immediately. This second delay is caused by a pressure difference in the cooling system. After several minutes, the system pressure equalizes and the compressor will start again.

TESTING PROCEDURES

For DC refrigerators:

1. Check the polarity: When in operation, the compressor, via the electronic control unit, must always be connected to a battery. Make sure the positive and negative terminals are not reversed.

2. Check the wire size: Sufficiently thick wire should be used to connect the battery to the compressor. The greater the distance between the battery and refrigerator, the thicker the wiring needs to be.

3. Check the voltage: If the compressor shakes when attempting to start or emits a high frequency squeak, the voltage may be low. For a 12V compressor, the voltage should be between 15.5 volts and 11 volts, double this for a 24 volt system. On DC refrigerators, an LED (Light Emitting Diode) can be connected to the ECU (Electronic Control Unit), as shown in the Danfoss instructions, to see if the voltage remains within an acceptable range.

If the batteries are weak or there is resistance in the connecting wires, the voltage may be sufficiently high when the refrigerator is not running, however, the voltage could drop when the starting current is drawn so that the refrigerator will not be able to start. If possible, it is therefore preferrable to measure the voltage when the refrigerator is running. Excessive resistance may also be due to a poor connection.

4. Check the connections: Be sure all of the connections to the battery are clean and solid.

5. Check the electronic unit: If a high frequency squeak is heard coming from the electronic control unit, or if the compressor shakes when it is attempting to start, and your voltage is okay, the electronic unit is defective.

For AC and DC refrigerators:

6. Check the thermostat: If the compressor is continually running, not running at all, or if the temperature is not being properly controlled, the thermostat may be malfunctioning. First check that the thermostat is properly adjusted. The thermostat acts as a switch that controls the compressor. The compressor should be on when the thermostat switch is closed (short circuited) and should be off when the thermostat switch is open.

If the compressor will not run, test the thermostat by shorting the two wires connected to it. The compressor should start when these wires are connected to each other. The compressor should stop when one of the leads is removed from the thermostat. If the compressor starts and stops as it should during these tests, but the temperature in the refrigerator is not properly controlled, the thermostat is probably faulty and needs replaced. The replacement thermostat is electronic and is available from Sun Frost. The leads for a 10,000 ohms thermister temperature sensor for this thermostat are located in the rear of the thermostat box.

Refrigerant replacement (All Units Except RF12 & RFVB):

Refrigerator:
The compressor must be off when charging the unit. They require about 3 ounces, (85 grams) of R134a refrigerant. For a refrigerator section which is at 38°F, at shut off, the compressor pressure should be 19 psig for DC refrigerator and 11 psig for AC refrigerator.

Freezer:
With the freezer section at 10°F, at shut off, it should be 4 psig for DC refrigerator and 1 psig for AC refrigerator.

Fine-tuning system charge to adjust freezer temperature: (For RF-12 and Vaccine Storage units only)

The temperature of the refrigerator section is controlled by the thermostat. The sensor for the thermostat is located on the back outside wall of the refrigerator. The temperature of the freezer is controlled by the quantity of refrigerant in the system. When the refrigerator reaches the desired temperature (we suggest 3°C or 38°F), the freezer temperature will typically fluctuate between 5 and 15°F, averaging 10°F. To raise the freezer temperature, add more refrigerant. Remove refrigerant to lower the freezer temperature. In a 90°F room the freezer section will be about 5°F warmer.

AC Inside Light:

The AC refrigerators have a 12 volt light inside of the refrigerator section. The transformer for this light is located on the top of the refrigerator.