For Models: DE 441, DE461, DE451, DE490, DC440, DC451, DC490, MRFT415, MRFT440, MRFT460
Trouble Shooting - Reference

Quick reference

- Compressor does not run
  - Procedure A
  - Procedure B
  - Procedure C
  - Procedure D

- Insufficient cooling
  - Procedure E
  - Procedure G

- Refrigerator to cold
  - Procedure A
    - Refer to "Is Temperature Control LED ON?"
  - Procedure F

ART01205
Trouble Shooting - Procedure A

Compressor does not run

Is Temperature Control LED on?

YES

NO

Check connection from battery to refrigerator.

Check DC Polarity

Wrong

Good

Check DC Fuse

Bad

Check Battery Voltage (10.5 - 15.4 VDC)

Wrong

Good

Measure terminal voltage of Temperature Control between TP1 & TP2

DC 0 V

DC 5 V

DC 2 V

 Measure terminal voltage of Temperature Control between TP3 & TP2

DC 0 V

DC 15 to 32 V

Check connection from battery to refrigerator.

If male to female connectors, insure of proper connection and that metal of wire is contacting metal of connector

OR

If butt connectors, insure of proper connection and that metal of wire is contacting metal of connector (not broken).

Compressor runs

YES

NO

Replace if defective

10A (DE/DC)

8A (MRFT)

Check DC Fuse

Replace if defective

Compressor runs

YES

NO

Correct DC Voltage

Compressor runs

YES

NO

Reverse polarity & check operation

Compressor runs

YES

OK

Wrong

Compressor runs

YES

OK

OK

OK

Check Battery Voltage (10.5 - 15.4 VDC)

Correct DC Voltage

Compressor runs

NO

DC Supply Failure

Change Power Supply

Power Supply Failure

Change Power Supply

Normal

See Procedure B

Measure terminal voltage of Temperature Control between TP1 & TP2

DC Supply Failure

Change Power Supply

Power Supply Failure

Change Power Supply

Normal

See Procedure B

Figure 1
Trouble Shooting - Procedure B

Measure compressor resistance

- ∞ Ω: Compressor Coil Open, Change Cooling Unit
- 0 Ω: Compressor Coil Shorted, Change Cooling Unit
- 3 +/− 0.5 Ω: Normal, See Procedure C

ART01193

Figure 2

ART01194

Figure 3
Trouble Shooting - Procedure C

Measure Power Supply Output Voltage

- Below 15 V AC: Power Supply Failure
- 0 V AC: Power Supply Failure
- 15 - 25 V AC: Normal
- See Procedure D

Figure 4
Figure 5

Measure Evaporator Thermistor Resistance

Evaporator Thermistor
Failure

6K  -  21°F
2.8K  -  50°F
2.0K  -  77°F

Normal

Change Evaporator Thermistor

Replace Cooling Unit

Disconnect 3 pole connector & measure resistance

3P Connector

Evaporator Thermistor

Power supply (Bottom view)

Measure resistance

Figure 5
Insufficient cooling
NOTE: Inspect input voltage before proceeding.
Refer to Procedure A - "Check Battery Voltage".

Compressor cycles on and off frequently

- Hot to touch, no vibration
- Vibration, no Cooling
  - Measure input current to power supply
  - 4.5A/12 VDC
  - No
    - See Procedure B
  - Yes
    - Refrigerator shelves covered with foil/paper.
      - Yes
        - Remove covering, allow air circulation
      - No
        - Measure ambient temperature
          - 110°F and over
            - Yes
              - Correct/add ventilation according to specifications. See Procedure G
            - No
          - Begin with Trouble Shooting Procedure B

Compressor Locked

Low refrigerant charge

Change Cooling Unit

ART01199
Trouble Shooting - Procedure F

Refrigerator to cold

Adjust temperature control to lower setting

Yes

OK

No

Is the Evaporator Thermistor securely mounted to plate?

Yes

Reposition Thermistor or
Tighten mounting screw

No

Connect a 20K Variable resistor in place of evaporator thermistor.

Reading should be 10.1 +/- 0.5K
Reading for test points.

No

Set temperature control to setting 5

Refrigerator - Over 10.6K MRFT's - Over 15

Disconnect Thermostat coupler from power supply.

Reading should be 5K +/- .05K
MRFT Models Only
Reading should be 13.5K +/- .05K

Yes

Replace evaporator thermistor

No

Replace temperature control

Yes

Replace power supply

Reading should be 14K +/- 1K

Set the temperature control to 5. Measure resistance between TP1 & TP2. See page 3 test points of Temperature Control.

Yes

Replace temperature control

No

Reading should be 13.5K +/- .05K

Measure cut-in & cut-out resistance TP7 & TP8. See Wiring Schematic for test points.

No

Set temperature control to setting 5.

Reading should be 10.1 +/- 0.5K
Ventilation is required to assure efficient operation of the refrigerator and to increase the life expectancy of the refrigerator’s cooling system. Ventilation allows fresh air to come from and exhaust to the living area of the vehicle by means of an inlet and exhaust vents. These vents allow an adequate airflow over the rear mounted refrigerator condenser and cooling unit. These vents must be unobstructed and provide an open path to the rear of the refrigerator.

Each refrigerator has a specified **minimum** airflow requirement. It is suggested to provide as much ventilation as possible. The more air circulating over the rear of the refrigerator, the more efficient the refrigerator will operate. Refer to Figures 6, 7 and 8 on pages 9 and 10 and the Ventilation Requirement Chart on page 11.

**Figure 6**

**CAUTION**

Failure to provide the required ventilation will result in shortened life expectancy of the cooling unit, poor refrigeration, continuous operation, accelerated battery discharge and will void the refrigerator warranty.
In addition to the required vents sizes, a fan can be added to increase the refrigerator performance and to decrease the refrigerator current consumption. A fan kit is available through Norcold part distribution network. Refer to Fan Kit Assembly chart on page 11.
### VENTILATION REQUIREMENT CHART

<table>
<thead>
<tr>
<th>Refrigerator Model</th>
<th><strong>Min. Vent Sizes Without Fan</strong></th>
<th><strong>Min. Vent Sizes With Fan</strong></th>
<th>Recommended Fan CFM</th>
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<tr>
<td>DC440</td>
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<td>25 Square Inches Inlet 25 Square Inches Outlet</td>
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### FAN KIT ASSEMBLY

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<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Model</th>
<th>AMP</th>
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<tr>
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<td>620648</td>
<td>Fan Kit</td>
<td>DE461</td>
<td>.15</td>
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</tbody>
</table>
Trouble Shooting - Wiring Schematic

- DC 12-32 V
- AC 85-132 V
- Battery In +
- Battery In -
- AC - IN (L)
- AC - IN (N)
- DC Out +
- DC Out -
- DC/DC Converter
- Low Temp. Protector
- Battery Monitor
- Electronic Thermostat
- Input High Voltage Protector
- Electronic Current Protector
- Ambient Thermistor
- Evaporator Thermistor
- DC 24 V Fan Motor
- DC 24 V Fan
- TP 5
- TP 6
- TP 7
- TP 8
- DC/DC Converter
- Inverter
- DC 24 V @ 40 W
- DC 51 V @ 60 W
- DC 44.5 V
- DC 24V Fan Motor
- ART01204