



RECORD THIS UNIT INFORMATION FOR FUTURE REFERENCE:  
 Model Number \_\_\_\_\_  
 Serial Number \_\_\_\_\_  
 Date Purchased \_\_\_\_\_

# MODELS TJ18, TJ22, TJ42, TJ80 Refrigerator and TJF42 Freezer

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**⚠ WARNING**

This manual must be read and understood before installation, adjustment, service, or maintenance is performed. This unit must be installed by a qualified service technician. Modification of this product can be extremely hazardous and could result in personal injury or property damage.

## INSTALLATION & OPERATING INSTRUCTIONS

**MODEL  
 Series**  
 TJ18 TJ22  
 TJ42 TJF42  
 TJ80

**REVISION**  
 Form No. 3309080.039 11/06  
 (Replaces 3309080.020)  
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 LaGrange, IN 46761

**Important: These Instructions  
 must stay with unit.  
 Owner read carefully.**

## SAFETY INSTRUCTIONS

This manual has safety information and instructions to help users eliminate or reduce the risk of accidents and injuries.

### RECOGNIZE SAFETY INFORMATION



This is the safety-alert symbol. When you see this symbol in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating instructions.

### UNDERSTAND SIGNAL WORDS

A signal word, **WARNING OR CAUTION** is used with the safety-alert symbol. They give the level of risk for potential injury.

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

**CAUTION** indicates a potentially hazardous situation which, if not avoided may result in minor or moderate injury.

**CAUTION** used without the safety alert symbol indicates, a potentially hazardous situation which, if not avoided may result in property damage.

Read and follow all safety information and instructions.

## GENERAL INFORMATION

- A. Before installing your Dometic refrigerator, refer to the Tundra Installation Check List 3309081.0XX located in the envelope assembly furnished with your Tundra Refrigerator.
- B. This refrigerator is designed for making ice and the conservation of food and drinks only.
- C. All materials exposed to contact with food comply with **EC directive 89/109**.
- D. Install appliance away from heat sources in a dry and well-ventilated area. Avoid direct contact with water. **The Refrigerator is not waterproof.**
- E. This refrigerator complies with **EC directive 89/336** governing radio suppression.

**Note:** The data plate bearing the model number, serial number, and technical data is located on the right-hand side, inside the refrigerator. An identical data plate is located on the back of the cabinet.

## SPECIFICATIONS

### A. Danfoss Compressor Data

1. Voltage Operating Range
  - 12 VDC systems: From 10.4 VDC to 17 VDC
  - 24 VDC systems: From 22.8 VDC to 31.5 VDC

The electronic unit will calibrate automatically to the applied voltage. This means that if the battery voltage is less than 17 VDC, the electronic unit assumes that it is working in a 12 VDC System. If the voltage is higher than 17 VDC, the electronic unit assumes that it is working in a 24 VDC system. Consequently, the compressor does not run at power supply voltages between about 17 VDC and the desired battery protection cutout voltage (22.8 VDC) for 24 VDC systems.

2. Protection Systems
 

The compressor protection system facilitates protection against compressor overload and start failure as well as destructive battery discharge. When an overload protection is activated, the compressor enters a cycle in which it makes start attempts at approximately 60 second intervals until successful start is achieved.
3. Overload Protections
 

The compressor overload and start protection cuts off power to the compressor if the compressor speed drops below approximately 1,900 rpm, or if this motor speed is not reached during the start sequence. Possible reasons for overload protection activating could be too high refrigeration system pressures during operation or lack of pressure equalizing at start.

The fan overload protection stops the compressor and the fan if the fan current exceeds 0.5 A (average) or 1 A (peak).

An overheating of the electronic unit heat sink will cause the compressor to stop. Restart will occur automatically when a normal temperature has been reached.

4. Voltage Protection

If a voltage outside the operating range is applied to the electronic unit, the compressor does not start, or it stops if the voltage limit is exceeded during operation. The compressor will restart automatically approximately 1 minute after the supply voltage has reached the reset voltage within the range in question.

Refrigerator Amperage		
Model	Amperage	
	12 VDC	24 VDC
TJ18, TJ22 & TJ42	3.72	1.86
TJF42 & TJ80	4.56	2.28

5. Battery Protection

The electronic unit provides protection as follows:  
**Standard Battery Protection Settings**

12 VDC cutout	12 VDC cutin	24 VDC cutout	24 VDC cutin
10.4	11.7	22.8	24.2

**ABYC Standards - ABYC Guidelines E9 - Direct Current  
 Conductor Sizes For 3 % Drop in Voltage**

**See Amp Draw Chart Above To Determine Wire Size**

Total Current On Circuit In Amps	Length of Conductor from Source of Current to Device and Back to Source - Feet																		
	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
<u>12 Volts - 3% Drop Wire Size (gauge) - Based on Minimum CM Area</u>																			
5	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6	6	6	6
10	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2	2	2	2
15	12	10	10	8	8	6	6	6	4	4	2	2	2	2	2	1	1	1	1
20	10	10	8	6	6	6	4	4	2	2	2	2	1	1	1	0	0	0	2/0
25	10	8	6	6	6	4	4	2	2	2	1	1	0	0	0	2/0	2/0	3/0	3/0
30	10	8	6	6	4	4	2	2	1	1	0	0	0	2/0	2/0	3/0	3/0	3/0	3/0
40	8	6	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0
50	6	6	4	4	2	2	1	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0				
60	6	4	4	2	2	1	0	2/0	3/0	3/0	4/0	4/0	4/0						
70	6	4	2	2	1	0	2/0	3/0	3/0	4/0	4/0								
80	6	4	2	2	1	0	3/0	3/0	4/0	4/0									
90	4	2	2	1	0	2/0	3/0	4/0	4/0										
100	4	2	2	1	0	2/0	3/0	4/0											
<u>24 Volts - 3% Drop Wire sizes (gauge) - Based on Minimum CM Area</u>																			
5	18	18	18	16	16	14	12	12	12	10	10	10	10	10	8	8	8	8	8
10	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6	6	6	6
15	16	14	12	12	10	10	8	8	6	6	6	6	6	4	4	4	4	4	2
20	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2	2	2	2
25	12	12	10	10	8	6	6	6	4	4	4	4	2	2	2	2	2	2	1
30	12	10	10	8	8	6	6	4	4	4	2	2	2	2	2	1	1	1	1
40	10	10	8	6	6	6	4	4	2	2	2	2	1	1	1	0	0	0	2/0
50	10	8	6	6	6	4	4	2	2	2	1	1	0	0	0	2/0	2/0	2/0	3/0
60	10	8	6	6	4	4	2	2	1	1	0	0	0	2/0	2/0	3/0	3/0	3/0	3/0
70	8	6	6	4	4	2	2	1	1	0	0	2/0	2/0	3/0	3/0	3/0	3/0	4/0	4/0
80	8	6	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0
90	8	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0	4/0	4/0	4/0
100	6	6	4	4	2	2	1	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0				

**ABYC Standards - ABYC Guidelines E8 - Alternating Current/Amperage**  
**Temperature Rating of Conductor Insulation (Guidelines when using an AC/DC Converter)**

Conductor Size (AWG)	60°C (140°F)		75°C (167°F)		80°C (176°F)		90°C (194°F)		105°C (221°F)		125°C (257°F)		200°C (392°F) Outside or inside Engine Spaces
	Outside Engine Spaces	Inside Engine Spaces	Outside Engine Spaces	Inside Engine Spaces	Outside Engine Spaces	Inside Engine Spaces	Outside Engine Spaces	Inside Engine Spaces	Outside Engine Spaces	Inside Engine Spaces	Outside Engine Spaces	Inside Engine Spaces	
18	7.0	4.1	7.0	5.3	10.5	8.2	14.0	11.5	14.0	11.9	17.5	15.6	17.5
16	10.5	6.1	10.5	7.9	14.0	10.9	17.5	14.4	17.5	14.9	21.0	18.7	24.5
14	14.0	8.1	14.0	10.5	17.5	13.7	21.0	17.2	24.5	20.8	28.0	24.9	31.5
12	17.5	10.2	17.5	13.1	24.5	19.1	28.0	23.0	31.5	26.8	35.0	31.2	38.5
10	28.0	16.2	28.0	21.0	35.0	27.3	38.5	31.6	42.0	35.7	49.0	43.6	49.0
8	38.5	22.3	45.5	34.1	49.0	38.2	49.0	40.2	56.0	47.6	63.0	56.1	70.0
6	56.0	32.5	66.5	49.9	70.0	54.6	70.0	57.4	84.0	71.4	87.5	77.9	94.5
4	73.5	42.6	87.5	65.6	91.0	71.0	94.5	77.5	112.0	95.2	119.0	105.9	126.0
3	84.0	48.7	101.5	76.1	105.0	81.9	108.5	89.0	126.0	107.1	136.5	121.5	147.0
2	98.0	56.8	119.0	89.3	122.5	95.6	126.0	103.3	147.0	125.0	157.5	140.2	168.0
1	115.5	67.0	136.5	102.4	147.0	114.7	147.0	120.5	171.5	145.8	185.6	165.1	196.0
0	136.5	79.2	161.0	120.8	171.5	133.8	171.5	140.6	199.5	169.6	213.5	190.0	227.5
00	157.5	91.4	185.5	139.1	199.5	155.6	199.5	163.6	231.0	196.4	248.5	221.2	259.0
000	182.0	105.6	217.0	162.8	31.0	180.2	231.0	189.4	269.5	229.1	287.0	255.4	301.0
0000	210.0	121.8	252.0	189.0	269.5	210.2	269.5	221.0	311.5	264.8	332.5	295.9	357.0

## INSTALLATION INSTRUCTIONS

### A. Precautions

1. Read and understand the Installation and Operating instructions before attempting to start your refrigerator installation.
2. The manufacturer assumes no responsibility for any injuries or damage caused by non compliance with any of the installation instructions.
3. The refrigerator must be wired and grounded in accordance with the ABYC Guideline E9 or equivalent. See ABYC Guidelines E9 page 3.

### B. Unpacking, Handling, and Inspection Instructions



**This refrigerator contains an exposed coil assembly. To avoid personal injury, wear protective gloves when unpacking and handling refrigerator.**

1. Inspect packaging for transport damage. Note any packaging damage that may indicate hidden damage to the refrigerator.
2. Remove refrigerator from packaging.
3. Inspect refrigerator for damage. Report any damage resulting from transport to the dealer no later than 24 hours after delivery. A notice is printed on the top of each box, describing the general procedures required.
4. Dispose of packaging material in accordance with local laws for sorted waste recycling.

### C. Ventilation Requirements

All units require ventilation for proper operation. For models TJ18, TJ22, TJ42 & TJF42 use a minimum of 50 total square inches of ventilation. For model TJ80 use a minimum of 76 total square inches. Two vents (inlet/discharge) are recommended. See FIG. 1. 2" clearance at the rear of unit is required.

1. Approved Vent Locations
  - a. TJ18, TJ22, TJ42 & TJF42
    - (A & C) or (B & D) - Pair Of Grills = 50 Square Inch Minimum  
Inlet - 25 Square Inch Minimum  
Discharge - 25 Square Inch Minimum
    - A or B - Single Grill = 50 Square Inch Minimum
  - b. TJ80
    - (E & F) - Pair of Grills = 76 Square Inch Minimum  
Inlet - 38 Square Inch Minimum  
Discharge - 38 Square Inch Minimum
    - G or H - Single Grill = 76 Square Inch Minimum

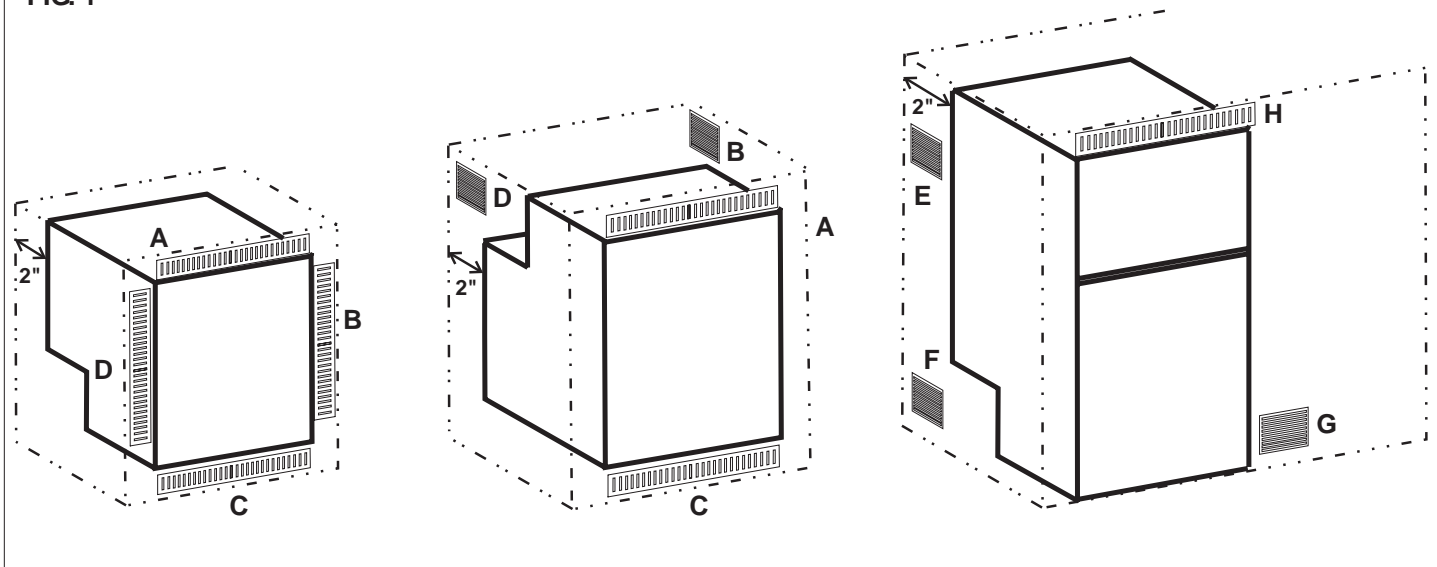
**Note:** For other vent locations contact Dometic Environmental System's Application Department

### D. Electrical Connection

**Important:** Route supply wires in a manner that will not interfere with the placement of the refrigerator. Make sure the refrigerator is not standing on the power supply cable.

**Important:** Before connecting the refrigerator to the 12 VDC power supply, check that the line voltage corresponds to the indications on the refrigerator rating plate and those of the compressor plate.

FIG. 1



**Important:** The light bulb supplied is a 12 VDC bulb. In a 24 VDC system, you must replace the with a 24 VDC bulb. Order part 3320018.024

**Note:** The data plate bearing the model and serial number and technical data is located inside the refrigerator on the right-hand side of the cabinet.

1. 12/24 VDC Only Wiring
  - a. For direct current (DC) refrigerators, connect the refrigerator to the DC distribution center. A 15 Amp circuit breaker must be installed for systems using 12 VDC and a 10 Amp if the system is 24 VDC. Check that all grounding systems are in good working order. **The Appliance must be wired and grounded in accordance with the ABYC Guideline E9 or equivalent. See ABYC Guidelines E9 on page 3.**

**Important:** Make sure that proper polarity is maintained at all times.

2. (Refrigerator Power Supply), 120/240 VAC & 12 VDC Converter.

**Note:** On TJ18 models the Refrigerator Power Supply is supplied loose inside the refrigerator. It will need to be mounted in a dry location close to the refrigerator. See wiring diagram for proper wiring. The Power Supply is mounted to the rear of the cabinet on all other models.

- a. If the refrigerator is equipped with a refrigerator power supply, then both AC and DC power may be used. The Power Supply functions by converting AC power into DC power for the compressor. When the power supply is connected to both AC and DC, and the AC power is on, then the unit will run on AC power. However, if the AC power is lost, the unit will run on the DC power. If both types are to be used, connect the DC wiring to the DC distribution center, and the AC wiring to the AC distribution center, following ABYC guidelines. The

Refrigerator Power Supply may be connected to either AC or DC power only, if so desired. For DC wiring, follow the same instructions as stated in the "DC Only Wiring" section. For AC wiring, use a 10 Amp circuit breaker maximum. Check that all wire sizing is correct and that all grounding systems are in good working order. The appliance must be wired and grounded in accordance with the ABYC Guideline E8 or Equivalent. See ABYC Guidelines E8, page 4.

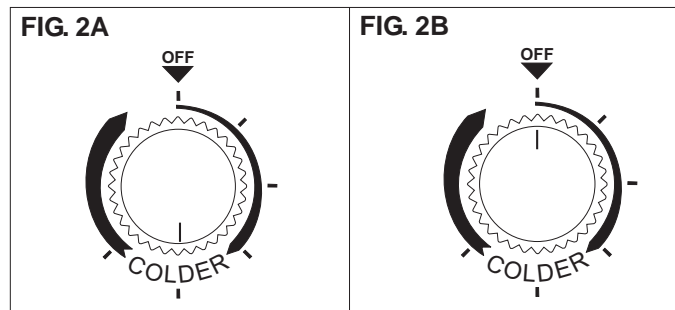
**Important:** Make sure that proper polarity is maintained at all times.

## OPERATING INSTRUCTIONS

### A. Rotary Thermostat

Each refrigerator is fitted with a manual thermostat. It automatically maintains the set temperature.

1. To start the refrigerator, turn the thermostat adjustment knob clock-wise. To start off with, a mid-range setting should be selected. See FIG. 2A. Allow the refrigerator to run at least 12 hours before loading it with goods.
2. Once the refrigerator is cold, adjust the thermostat knob to obtain the desired temperature. The thicker the band, the colder the temperature.
3. To turn the refrigerator OFF, rotate the thermostat adjust knob counter-clock-wise until the indicator is pointing to OFF. See FIG. 2B



## B. Loading The Refrigerator

**Important: Do not put glass containers holding liquids in the freezer compartment. They may break due to expansion.**

The food storage compartment is completely closed and non ventilated, which is necessary to maintain the required low temperature for food storage. Consequently, foods having a strong odor or those that absorb odors easily should be covered. Vegetables, salads, etc. should be covered to retain their crispness. The coldest position in the refrigerator is at the bottom of the refrigerator. The warmer areas are on the upper door shelves. This should be considered when placing different types of food in the refrigerator.

When the refrigerator is heavily loaded, it will take a longer time to lower the temperature; therefore, to get maximum efficiency the refrigerator and food items should be precooled prior to loading. The shelves should not be covered with paper or plastic, and the food items should be arranged so air can circulate freely.

## C. Defrosting The Refrigerator

Defrosting should be carried out whenever the frost layer exceeds a thickness of 1/8". Defrosting is necessary to guarantee efficient refrigeration and to avoid excessive power consumption. Excess frost buildup will effect the refrigerator performance.

1. Turn the thermostat adjustment knob to the OFF position. See FIG. 2B. Keep the door/freezer lid open to minimize the defrosting time.

### CAUTION

**Do not attempt to remove the frost layer using any sharp instruments. This could pierce the refrigerator plate and cause irreparable damage.**

2. After defrosting, dry the entire interior surfaces, and then turn the refrigerator back ON. (See Operating Instructions-Section A.)

## D. Cleaning The Refrigerator

### WARNING

**Shock Hazard. Disconnect refrigerator from the 120 VAC and 12/24 VDC power supply. Failure to follow these instructions could cause death or serious personal injury.**

1. Exterior
  - a. Clean the exterior with warm water and then rinse with cold water.
  - b. Dry with a soft cloth. Avoid use of abrasive products.
2. Interior
  - a. Remove racks, containers and ice trays.
  - b. Clean the interior using warm water mixed with baking soda or vinegar.
  - c. Rinse and dry carefully with a soft cloth.

**Important:** Do not use abrasive products, detergents or soap. In the case of prolonged disuse, to avoid the formation of mold or unpleasant odors, disconnect all power supplies, empty the unit completely, clean the interior, and leave the door/lid ajar.

### CAUTION

**Cut Hazard. When cleaning condenser, avoid direct contact with finned section. Fins will cut and if these instructions are not followed injury could occur.**

3. Condenser
  - a. Clean the condenser at least once a year using a vacuum cleaner or dry brush. Do not clean with sharp objects.



## TROUBLE SHOOTING GUIDELINES

### A. Refrigerator Does Not Operate

1. The thermostat is set to OFF.
2. On 12/24 VDC only models the circuit breaker between the distribution center and the AC power supply has tripped.
3. On models with a Refrigerator Power Supply, the circuit breaker between the Refrigerator Power Supply and the AC supply may have tripped or fuses inside the Refrigerator Power Supply may have blown.



**Shock Hazard. The Dometic Refrigerator Power Supply is considered non-serviceable. Do not open case for any reason. Failure to follow these instructions could cause death or severe personal injury.**

4. Power supply cable is faulty or poorly connected.
5. The battery is delivering insufficient power. If the battery voltage is less than 10.4 VDC (on a 12 VDC system) or 22.8 VDC (on a 24 VDC system), the unit will not operate.
6. The voltage on the electronic control unit terminal board does not correspond with the battery. Or the voltage drop is over 0.2-0.4 VDC check:
  - a. The size of the cable connecting the battery to the electronic control unit corresponds to specifications. See ABYC Guidelines.
  - b. All connection points in the power supply are properly tightened.
  - c. There are no signs of oxidation on the battery poles and contact points.
7. If a Refrigerator Power Supply or other AC/DC converter is used, check:
  - a. The AC power source is on.
  - b. The circuit board terminals are properly connected.
  - c. Output voltage to the refrigerator is sufficient.
8. Electronic unit heat sink overheating:
  - a. Insufficient venting.
  - b. Dirt build up on heat sink. Clean if necessary.

### B. Excessive Refrigerator Noise

1. The refrigerator is not positioned on a flat surface.
2. The refrigerator is touching other objects that may cause vibration.
3. The refrigerant lines at the back of the refrigerator are touching or vibrating against the refrigerator.
4. Fan blade hitting other objects.

### C. Insufficient Cooling

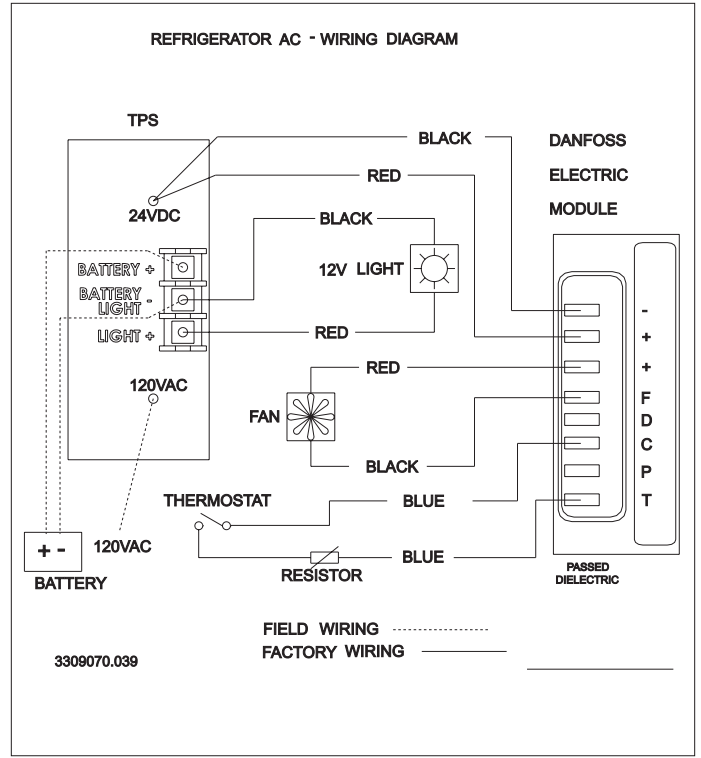
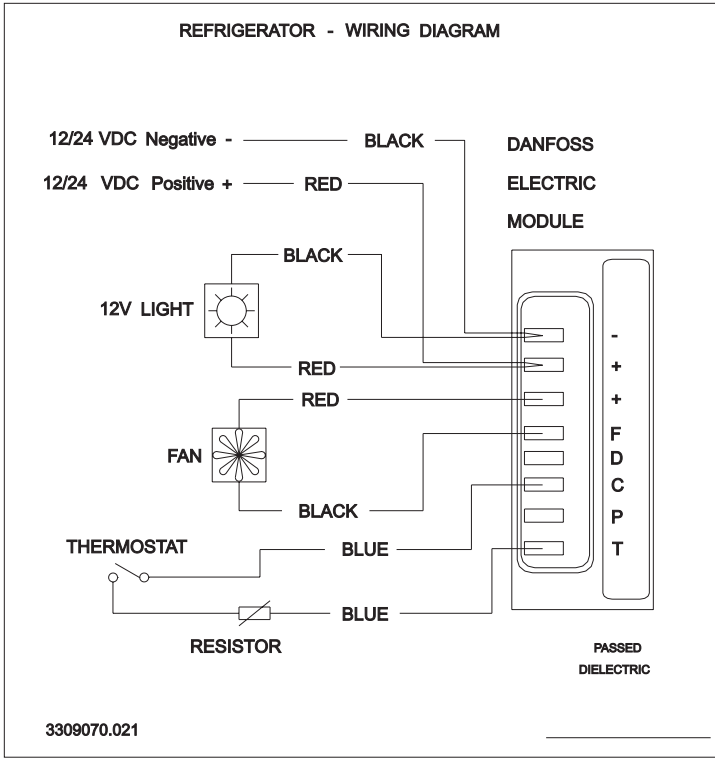
1. The door/lid is not sealed properly.
2. The refrigerator is positioned close to a heat source.
3. The refrigerator is insufficiently ventilated.
4. Excessive frost buildup on the evaporator.
5. Dust blocking the condenser.
6. The refrigerator is over-filled.
7. Fan not working.

If after checking the above, the refrigerator still does not function properly, contact your service dealer or Dometic Corporation Environmental Systems at (804) 746-1313 or (954) 973-2477. Ask for the Refrigerator Service Department.

# WIRING DIAGRAM

**Model**  
**TJ18, TJ18S, TJ18P,**  
**TJ22, TJ22P, TJ42, TJ42RE & TJF42**

**Model**  
**TJ18AC, TJ18SAC, TJ22AC, TJ42AC, TJ42REAC,**  
**TJF42 & TJ80AC**



**Model**  
**TJ18F & TJ22F**

