

SERVICE TIPS

 **Dometic®**

MANUAL REFRIGERATORS

Models

RM2310	RM2510
RM2410	RM2610
RM2452	RM2810
RM2453	
RM2552	
RM2553	

THE MOST COMMON SYSTEM PROBLEMS ASSOCIATED WITH THE
 RM2310, RM2410, RM2510, RM2610 , RM2810, RM2452, RM2453, RM2552
 AND RM2553 REFRIGERATORS

SYMPTOM

CAUSE

- | | |
|--|--|
| 1. No operation. | Operation
Wiring
Switch |
| 2. No electric operation. | Operation
AC Volts
Heating Element
Thermostat
Switch
Wiring |
| 3. No gas operation — no spark. | Operation
DC Volts
Igniter
Electrode
High Voltage Cable
Switch
Wiring |
| 4. No gas operation — sparks but no flame. | Operation
LP gas
Filter
Orifice
Burner
Shut-off Valve
Safety Valve
Thermocouple
Thermocouple Adapter,
(Top Mount Controls Only) |
| 5. No cooling on any mode. | Operation
Level
Ambient Temperature
Cooling Unit |
| 6. No cooling on gas — cools properly on other mode(s). | LP Gas
Thermostat
Filter
Orifice
Burner
Flue Baffle
Flue Tube |
| 7. No cooling on electric — cools properly on other mode(s). | AC Volts
Heating Element
Thermostat
Switch
Wiring |

SYMPTOM

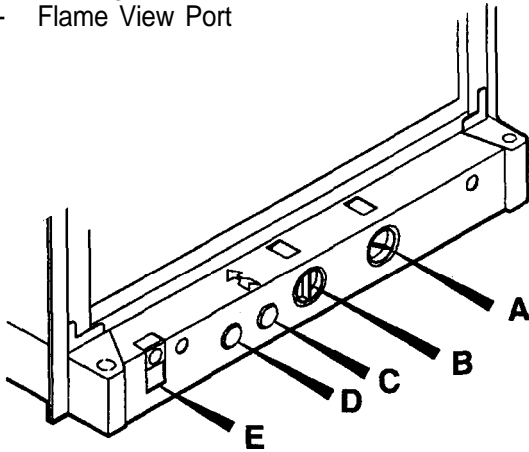
CAUSE

- | | |
|--|--|
| 8. Insufficient cooling on all modes. | Operation
Level
Ventilation
Ambient Temperature
Air Leaks
Thermostat
Cooling Unit |
| 9. Insufficient cooling on electric – cools properly on other mode(s). | AC Volts
Heating Elements
Thermostat |
| 10. Insufficient cooling on gas.
Cools properly on other mode(s). | LP Gas Pressure
Thermostat
Filter
Orifice
Burner
Flue Baffle
Flue Tube |
| 11. Freezes on electric - cools properly on other mode(s). | Thermostat
Wiring |
| 12. Freezes on gas - cools properly on other mode(s). | Bypass Screw
Thermostat |
| 13. Won't stay lit on gas. | LP Gas
Safety Valve
Thermocouple
Thermocouple Adapter,
(Top Mount Controls Only)
Flame Failure Meter
(Top Mount Controls Only)
Flue Baffle
Flue Cap (Bottom Mount
Controls Only)
Orifice
Burner |
| 14. Rapid formation of frost. | Food Storage
Air Leaks
Interior Liner Seal to Frame
High Humidity |
| 15. No DC operation - cools properly on AC and gas. | DC Volts
Heating Element
Switch
Wiring
Relay (RM2610/RM2810) |
| 16. Insufficient cooling on DC- cools properly on AC and gas. | DC Volts
Heating Element
Relay (RM2610/RM2810) |
| RM2510/RM2610/RM2810 | |
| 17. On gas mode, sparks while flame is lit. | Electrode
LP Gas
Bypass Screw
Filter |

REFRIGERATORS WITH BOTTOM MOUNT CONTROLS

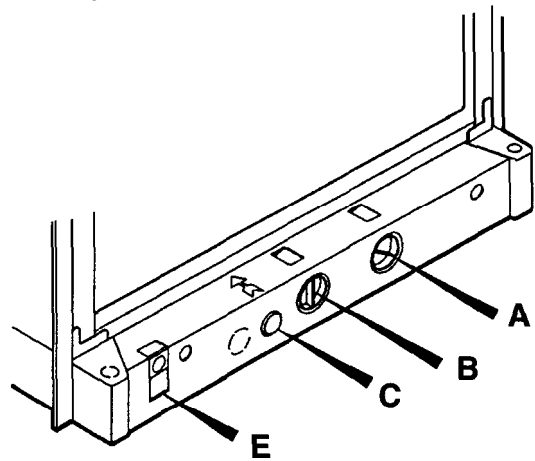
Refrigerators with Piezo Ignitors (RM2310 & RM2410)

- A - ON/OFF Switch
- B - Thermostat Gas/Electric
- c - Safety Push-button
- D - Piezo Ignitor
- E - Flame View Port



Refrigerators with Automatic Reigniters (RM2510/RM2610/RM2610)

- A - ON/OFF Switch
- B - Thermostat, Gas/Electric
- c - Safety Push-button
- E - Light



GAS OPERATION

Refrigerators with Piezo Ignitor (RM2310 & RM2410)

To start the refrigerator, turn knob "A" to the "GAS" position.

Turn the thermostat knob "B" one-quarter (1/4) of a turn from the "OFF" position.

Push button "C" in until it bottoms out-and hold. While holding button "C", push button "D" for the piezo ignitor several times to light the burner. This can be observed through the flame view port, "E", on the refrigerator.

After the flame lights, continue to hold button "C" for an additional fifteen (15) seconds. Release the button "C" and check the flame view port "E" to make sure the burner does not go out. If the burner goes out, repeat the lighting procedure.

To shut off the refrigerator, turn Knob "A" to the "OFF" position.

Refrigerators with Automatic Reigniters (RM2510/RM2610/RM2810)

To start the refrigerator, turn knob "A" to the "GAS" position.

Turn the thermostat knob "B" one-quarter (1/4) of a turn from the "OFF" position.

Push button "C" in until it bottoms out-and hold. When lamp "E" stops flashing, hold push-button "C" an additional 15 seconds. Release button "C". If the lamp "E" starts to flash again, repeat lighting procedure. If flame blows out, the reigniter will automatically relight the flame.

NOTE: After changing an LP tank, or after a long shut off period, the gas line is likely to be filled with air. You may have to repeat the lighting procedure several times to purge the air out of the gas lines.

ELECTRIC OPERATION

Check to be sure the power cord is properly connected to the power supply. If the refrigerator is equipped for 12 volt DC operation, the tow vehicle engine should be running to prevent discharging the battery.

Turn knob "A" to the position marked "**ELEC**" for 120 volt AC operation or "12V" for 12 volt DC operation.

Turn the thermostat knob "B" one-quarter (1/4) of a turn from the "OFF" position.

To shut off the refrigerator, turn knob "A" to the "**OFF**" position.

THERMOSTAT

The refrigerator is equipped with a thermostat that can be adjusted by turning knob "B" to a different setting to maintain the desired cabinet temperature.

"OFF" Setting of the Thermostat: In gas operation, the thermostat closes its main valve and the burner runs continuously at the bypass rate or pilot. In electrical operation, the contacts in the thermostat are open and the heating elements are off.

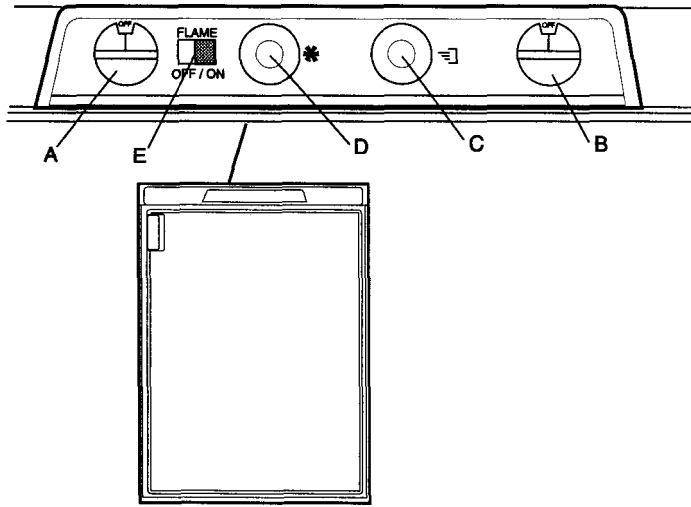
"MAX" Setting of the Thermostat: In gas operation, the thermostat allows the burner to remain on high flame continuously. In electric operation, the heating element is "ON" continuously.

The thermostat can be adjusted between "MAX" and "OFF" to obtain the desired cabinet temperature. The closer the knob is to "MAX", the colder the cabinet temperature. The closer the knob is to "OFF", the warmer the cabinet temperature.

When the thermostat reaches the set temperature, it will cut the burner back to bypass or, in electric operation, shut off the heating element.

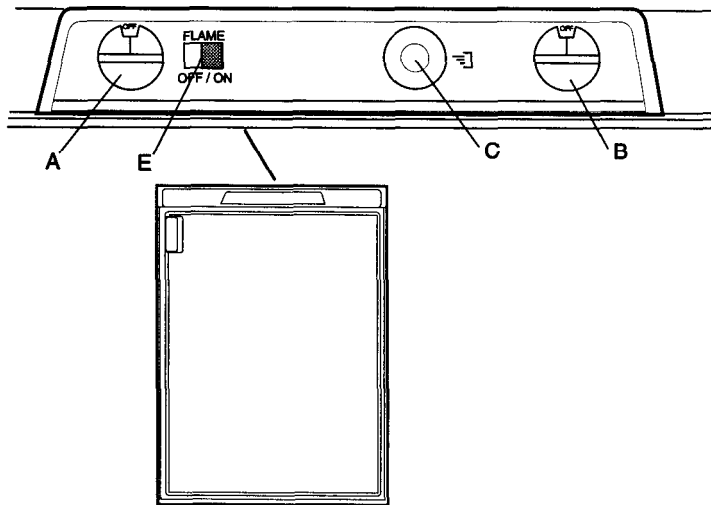
OPERATION
REFRIGERATORS WITH TOP MOUNT CONTROLS

**REFRIGERATORS WITH
PIEZO IGNITORS:
RM2452 AND RM2453**



LEGEND:
A Energy Selector Knob
B Thermostat Knob
C Flame Failure Safety
Valve Push Button
D Piezo Ignitor
E Flame Indicator

**REFRIGERATORS WITH
AUTOMATIC IGNITION:
RM2552 AND RM2553**



GAS OPERATION

REFRIGERATORS WITH PIEZO IGNITOR

(RM2452 & RM2453)

1. To start the refrigerator, turn knob "A" to the "GAS" position.
2. Turn the thermostat knob "B" one-quarter (1/4) of a turn from the "OFF" position.
3. Push button "C", push button "D" for the piezo ignitor several times to light the burner. This can be observed on the flame indicator "E", on the refrigerator.
4. After the flame lights, continue to hold button "C" for an additional ten (10) seconds. Release the button "C" and check the flame indicator "E" to make sure the burner does not go out. If the burner goes out, repeat the lighting procedure.
5. To shut off the refrigerator, turn knob "A" to the "OFF" position.

REFRIGERATORS WITH AUTOMATIC REIGNITERS

(RM2552 AND RM2553)

1. To start the refrigerator, turn knob "A" to the "GAS" position.
2. Turn the thermostat knob "B" one-quarter (1/4) of a turn from the "OFF" position.
3. Push button "C" in until it bottoms out - and hold. When flame indicator "E" shows the flame is on, hold push button "C" an additional 15 seconds. Release button "C". If the flame indicator "E" starts to move toward off, repeat lighting procedure. Should flame blow out, the re-igniter will automatically relight the flame.

NOTE: After changing an LP tank, or after a long shut-off period, the gas line is likely to be filled with air. You may have to repeat the lighting procedure several times to purge the air out of the gas lines.

ELECTRIC OPERATION

Check to be sure the power cord is properly connected to the power supply. If the refrigerator is equipped for 12 volt DC operation, the tow vehicle or caravan engine should be running to prevent discharging the battery.

Turn knob "A" to the position marked "ELEC" for 120 volt AC operation or "12V" for 12 volt DC operation.

Turn the thermostat knob "9" one-quarter (1/4) of a turn from the "OFF" position.

To shut off the refrigerator, turn knob "A" to the "OFF" position.

THERMOSTAT

The refrigerator is equipped with a thermostat that can be adjusted by turning knob "9" to a different setting to maintain the desired cabinet temperature.

"OFF" Setting of the Thermostat: In gas operation, the thermostat closes its main valve and the burner runs continuously at the bypass rate or pilot. In electrical operation, the contacts in the thermostat are open and the heating elements are off.

"MAX" Setting of the Thermostat: In gas operation, the thermostat allows the burner to remain on high flame continuously. In electric operation, the heating element is "ON" continuously.

The thermostat can be adjusted between "MAX" and "OFF" to obtain the desired cabinet temperature. The closer the knob is to "MAX", the colder the cabinet temperature. The closer the knob is to "OFF", the warmer the cabinet temperature.

When the thermostat reaches the set temperature, it will cut the burner back to bypass or, in electric operation, shut off the heating element.

The setting of the thermostat is not critical, but we recommend it be adjusted to maintain a dry frost on the cooling fins. Adjust the thermostat knob closer to "MAX" when the outside temperature becomes warm.

AC VOLTAGE REQUIREMENTS

The proper operating range is 100 to 132 volts. Check the AC volts at the receptacle where the refrigerator is attached. If voltage drops below 100 volts, cooling efficiency will decrease with voltage decrease.

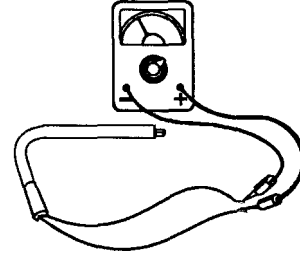
AC COMPONENTS

HEATING ELEMENT

To check a heating element, remove the heater leads from the terminal block and measure for proper resistance across the two leads.

You should obtain the following readings, plus or minus 10%:

RM2310	92
RM2410	92
RM2510	75
RM2610	48
RM2810	44
RM2452	69
RM2453	69
RM2552	69
RM2553	69



DC VOLTAGE REQUIREMENTS

The operational range is 10.5 to 15 volts DC. Check for proper voltage at the terminal block or blocks at the back of the refrigerator. The power supply to the refrigerator must be fused.

DC COMPONENTS

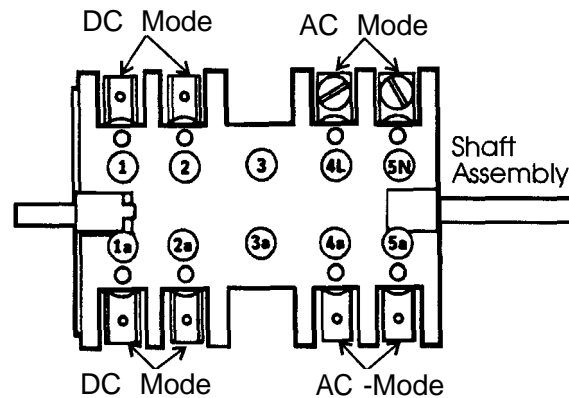
SWITCH (BOTTOM MOUNT CONTROLS)

A. Remove all wires from the assembly.

For the DC mode, continuity should exist between terminals 1 and 1A and 2 and 2A. (3-Way Models Only)

For the AC mode, you should have continuity between 4L and 4A and 5N and 5A.

RM2310 & RM2410 SWITCH ASSEMBLY

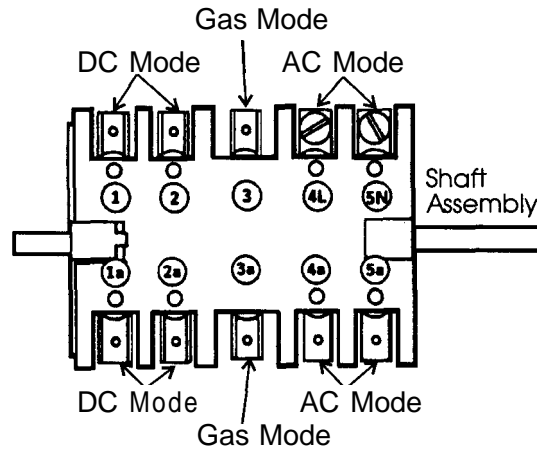


B. The RM2510/RM2610/RM2810 selector switch should be checked for continuity in the following manner. Remove all wires from the assembly.

For the DC mode, continuity should exist between terminals 1 and 1A and 2 and 2A. **For the gas mode**, you should have continuity between 3 and 3A.

For the AC mode, you should have continuity between 4L and 4A and 5N and 5A.

RM2510/RM2610/RM2810 SWITCH ASSEMBLY



SWITCH (TOP MOUNT CONTROLS)

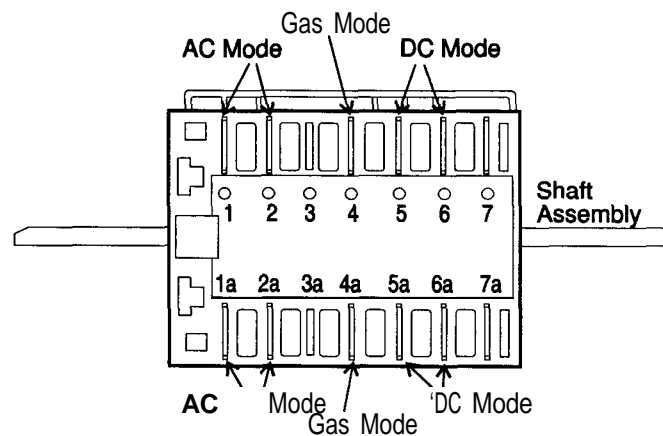
Remove all wires from the assembly.

For the DC Mode (3-Way Models ONLY), continuity should exist between terminals 5 and 5a and 6 and 6a.

For the AC Mode, continuity should exist between terminals 1 and 1a and 2 and 2a.

For the Gas Mode (on refrigerators equipped with automatic REIGNITERS ONLY), continuity should exist between terminals 4 and 4a.

RM2452/RM2453/RM2552/RM2553 SWITCH



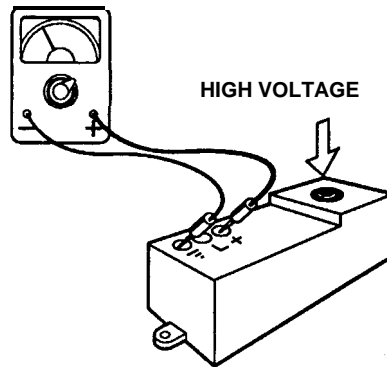
IGNITER

A. MODEL RM2310,2410,2452,2453

When the button is pushed, a spring loaded striker creates a spark. If there is no resistance when pressing the button, the piezo igniter is defective.

B. MODEL RM2510,2610,2810,2552,2553

Check that the switch is in the gas mode and is completing the circuit. Next, verify proper voltage at the positive (+) and ground (-) terminals of the igniter. The reading should be within one volt of incoming voltage at the terminal block.



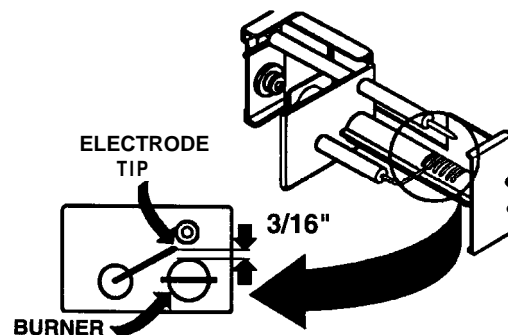
Disconnect DC power at the terminal block. Remove high voltage cable from igniter. Reconnect DC power, the igniter should produce a sparking sound.

ON MODEL RM2510,2610 AND 2810: With the igniter producing spark, set the meter on 20 volts DC or lower scale, connect meter leads to L and ground terminals on the igniter. The meter should read a pulsating voltage.

The pulsating voltage allows a lamp to illuminate on the front of the refrigerator to advise the customer spark has been produced.

ELECTRODE

Do a visual inspection for cracks or breaks on the ceramic insulator. Also, verify the mounting bracket is attached properly to the electrode. Check the spark gap. It must be set at three sixteenths ($3/16$) of an inch and the tip of electrode above the slots in the burner.

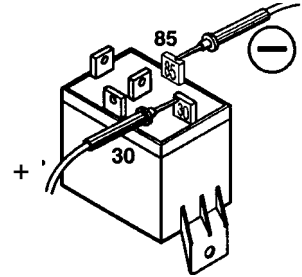


HIGH VOLTAGE CABLE

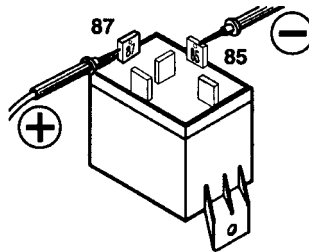
Be sure switch and igniter are good before checking the high voltage cable and the switch is in the gas mode. Disconnect DC power at the terminal block. Disconnect high voltage cable from electrode. Reconnect DC power to the terminal block. If sparking starts, cable is good. If no sparking, disconnect DC power at the terminal block and then disconnect high voltage cable at the igniter. Reconnect DC power to the terminal block.

RELAY (RM261 0/RM2810 3-WAY MODELS ONLY)

Verify the selector switch is on DC mode and the thermostat is NOT completing the circuit. Verify voltage is present between terminals 85 and 30.



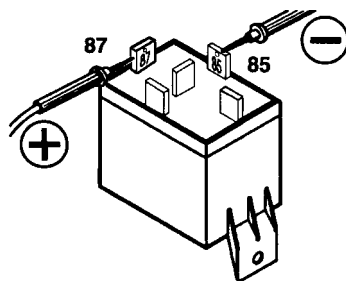
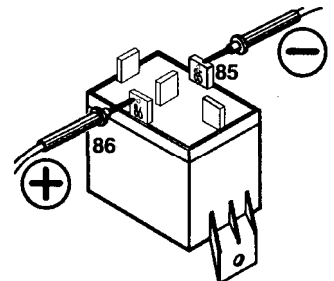
Check for voltage between terminals 85 and 87. If voltage is present, the relay is defective.



Verify the selector switch is on DC mode and the thermostat is completing the circuit.

Verify voltage is present between terminals 85 and 86.

If voltage is present, between 85 and 86 terminals, then voltage should be present between terminals 85 and 87.



**HEATING ELEMENT
(3-WAY MODELS ONLY)**

Check the heating element with ohms resistance using a properly calibrated ohm meter.

You should obtain the following readings, plus or minus 10%:

RM2310	1.15 OHMS
RM2410	1.15 OHMS
RM2510	.82 OHMS
RM2610	.67 OHMS
RM2810	.67 OHMS
RM2453	.83 OHMS
RM2553	.83 OHMS

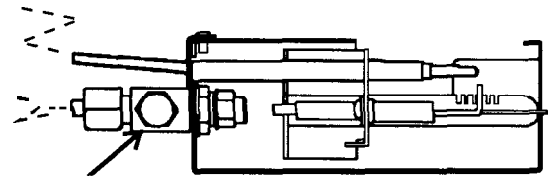
A continuity reading will indicate an open or complete circuit.

FLAME INDICATOR METER

If the millivolts from the thermocouple are 5 millivolts or more, the red needle in the meter should be in the green section.

LP GAS REQUIREMENTS

The LP gas pressure to the refrigerator should be 11 inches water column with half of all BTU's of the RV turned on. With all other appliances turned off, the pressure to the refrigerator should not exceed 12 inches water column. To check the gas pressure when the refrigerator is operating, there is a pressure test housing located just prior to the orifice.

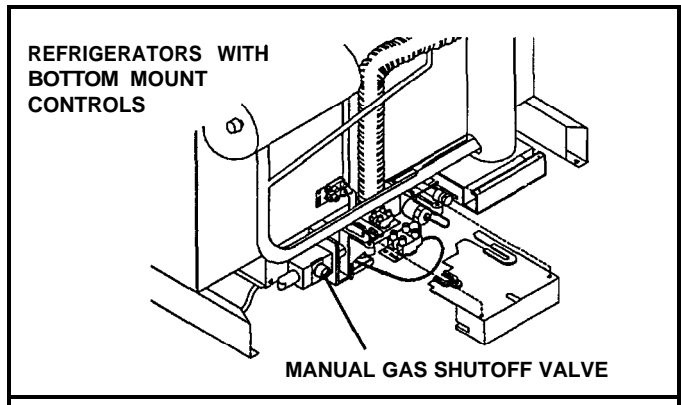


PRESSURE TEST HOUSING

LP GAS COMPONENTS

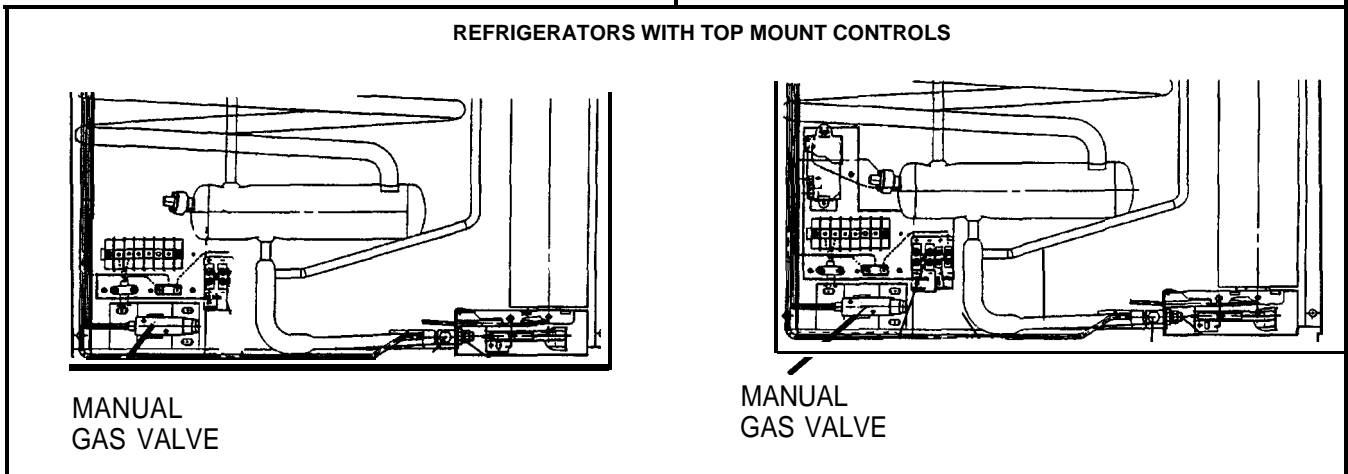
SHUT-OFF VALVE

To check the shut-off valve, remove and inspect for any obstructions.



REFRIGERATORS WITH
BOTTOM MOUNT
CONTROLS

MANUAL GAS SHUTOFF VALVE



REFRIGERATORS WITH TOP MOUNT CONTROLS

MANUAL
GAS VALVE

MANUAL
GAS VALVE

FILTER

A filter is located in the inlet fitting to the thermostat. The filter can become saturated and cause a restriction to gas flow. If you suspect a restriction, first verify the thermostat and bypass screw are good.

THERMOSTAT

LP GAS MODE

The thermostat is calibrated by the manufacturer so that at mid-range the cabinet temperature should be approximately 40 degrees Fahrenheit. **To check the calibration of the thermostat**, place a container of water in the cabinet of the refrigerator and operate at mid-range setting until the thermostat is satisfied. Check the temperature of the water. It should be approximately 40 degrees. **To check the thermostat for proper gas flow**, set the thermostat to maximum and check the gas pressure at the pressure test port. It should be line pressure, between 11 to 12 inches water column. If you have less than 11 inches of water column pressure, the next step would be to shut off the gas supply and remove the bypass screw. Then install a bypass screw that does not have the small o-ring on it. Next, turn on the gas supply and take a reading. If the manometer now reads 11 inches of water column, the thermostat is defective and must be replaced. If the bypass screw test shows no change in pressure, the problem lies in the filter, the shut-off valve or the gas supply.

ELECTRIC MODE

On 2-way models it controls the AC heating element. On 3-way models it controls the DC heating element as well as the AC heating element. Check the thermostat for continuity.

BYPASS SCREW

There are three common sizes of this screw: S-17 (350 BTU), S-14 (325 BTU) and S-1 1 (300 BTU). To check the bypass screw, connect a manometer at the pressure test housing. The pressure on low flame mode should be 2 to 4 inches water column.

SAFETY VALVE

To check the safety valve, use a known good thermocouple and install into the safety valve. Supply flame to the tip of the thermocouple for 2 to 3 minutes while holding in on the safety valve stem. Remove flame from thermocouple tip and release safety valve stem. The safety valve should hold in for at least 30 seconds.

THERMOCOUPLE

It will produce 14 to 30 millivolts DC in normal operation. To check the thermocouple, use a known good safety valve and attach to the thermocouple. Next, supply flame to the tip of the thermocouple for 2 to 3 minutes while depressing the safety valve. Remove the flame and release the safety valve. The valve should hold for at least 30 seconds. If it does not hold the safety valve open for 30 seconds.

THERMOCOUPLE ADAPTER

The thermocouple adapter is a device that allows the flame indicator meter to read DC millivolts from the thermocouple.

Remove it from its location and do a continuity test from the terminal to the center post. Continuity should exist. Next, check for continuity between the terminal and casing. No continuity should exist.

BURNER

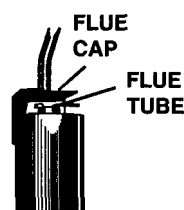
It should be level and the slots in the burner should be directly below the flue tube. The burner should be cleaned periodically, at least once a year.

FLUE BAFFLE

It should be cleaned periodically, at least once a year.

FLUE CAP - BOTTOM MOUNT CONTROLS

It must be properly attached or flame outage could occur.



FLUE TUBE

It must be cleaned periodically, at least once a year.

ORIFICE

The orifice should be cleaned periodically, at least once a year. The correct size orifice for the manual refrigerator is as follows:

RM2310	#39
RM2410	#39
RM2510	#43
RM2610	#53
RM2810	#58
RM2452	#43
RM2453	#43
RM2552	#43
RM2553	#43

WIRING:

EXTERNAL WIRING

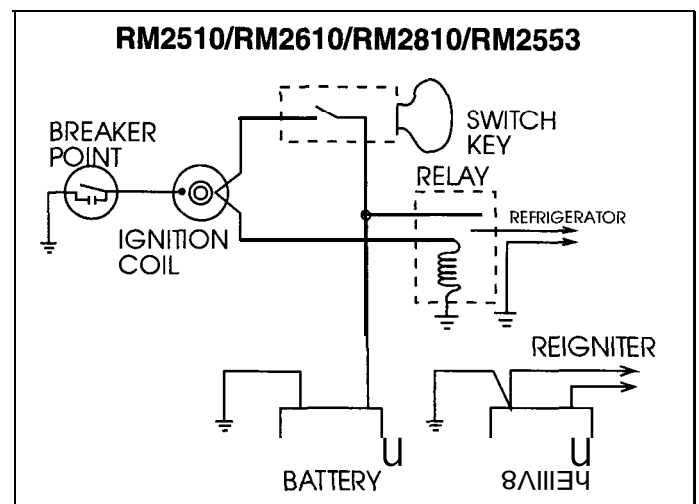
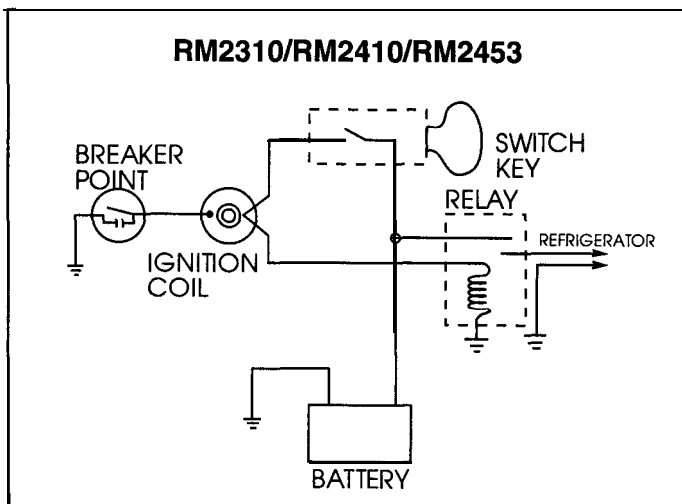
- A. **120 Volts AC Connection:** The refrigerator is equipped with a three-prong (grounded) plug for protection against shock hazards and should be plugged directly into a properly grounded three prong receptacle. **DONOT** cut or remove the grounding prong from this plug.
- B. **12 Volt Connection for Igniter:** The connection is made to the terminal block marked 12 volts DC REIGNITER.
- C. **12 Volt DC Connection for Heater (3-Way Models Only):** This connection is made to the terminal block marked DC VOLT HEATER.

MAXIMUM TOTAL CONDUCTOR WIRE LENGTH IN FEET/METERS				
MODEL	AWG			
	14	12	10	8
RM2310	10ft.	17ft.	27ft.	43ft.
	3 m	5.2m	8.2m	13m
RM2410	9ft.	15ft.	25ft.	40ft.
	2.7m	4.6m	7.6m	12.2m
RM2510	7ft.	12ft.	19ft.	31ft.
	2.1m	3.6m	5.8m	9.5m
RM2610	6.5ft.	10.5ft.	17ft.	27ft.
	2m	3.2m	5.1m	8.1m
RM2810	6.5ft.	10.5ft.	17ft.	27ft.
	2m	3.2m	5.1m	8.1m
RM2453	9 ft.	15 ft.	25 ft.	40 ft.
	2.7m	4.6m	7.6m	12.2m
RM2553	7ft.	12 ft.	19 ft.	31 ft.
	2.1m	3.6m	5.8m	9.5m

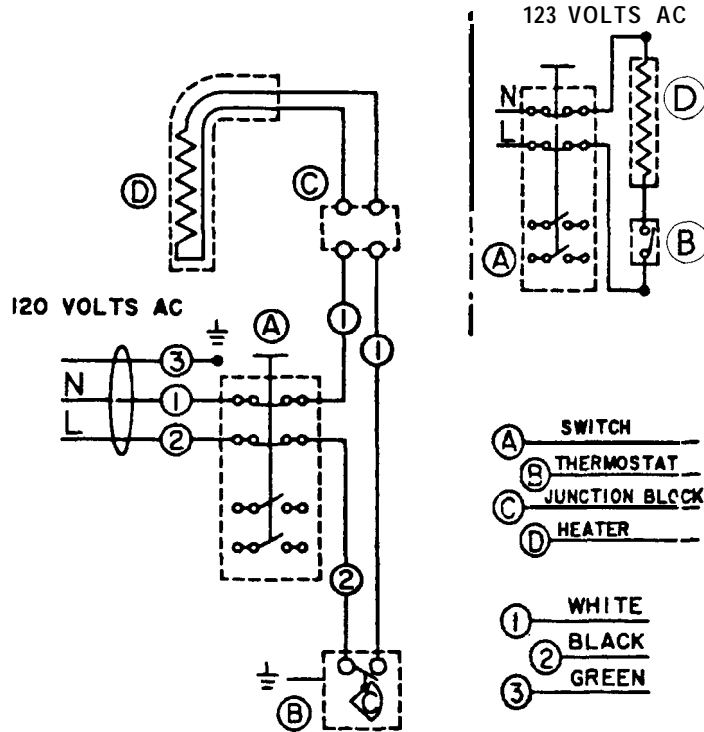
Do not use the body or chassis of the vehicle as substitute for either of the two conductors.

INTERNAL WIRING

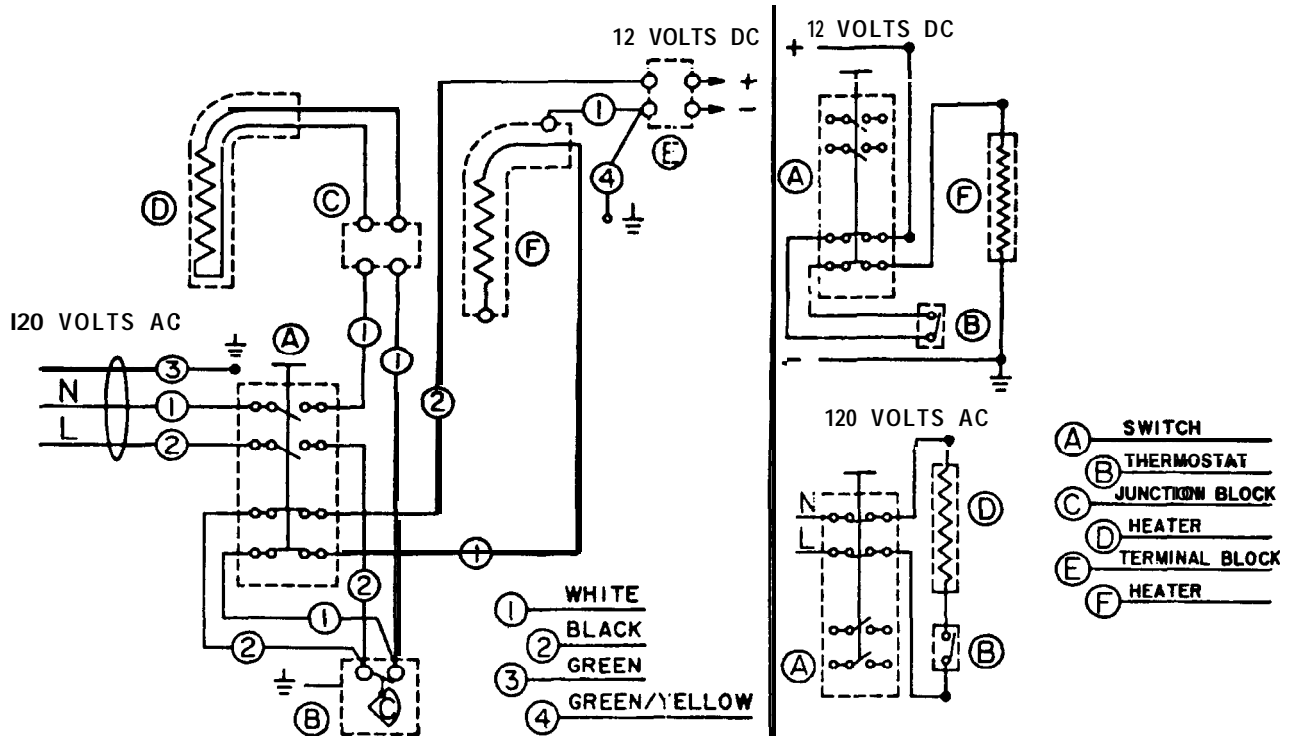
Verify the refrigerator is wired per the wiring diagram for the model you are working on.



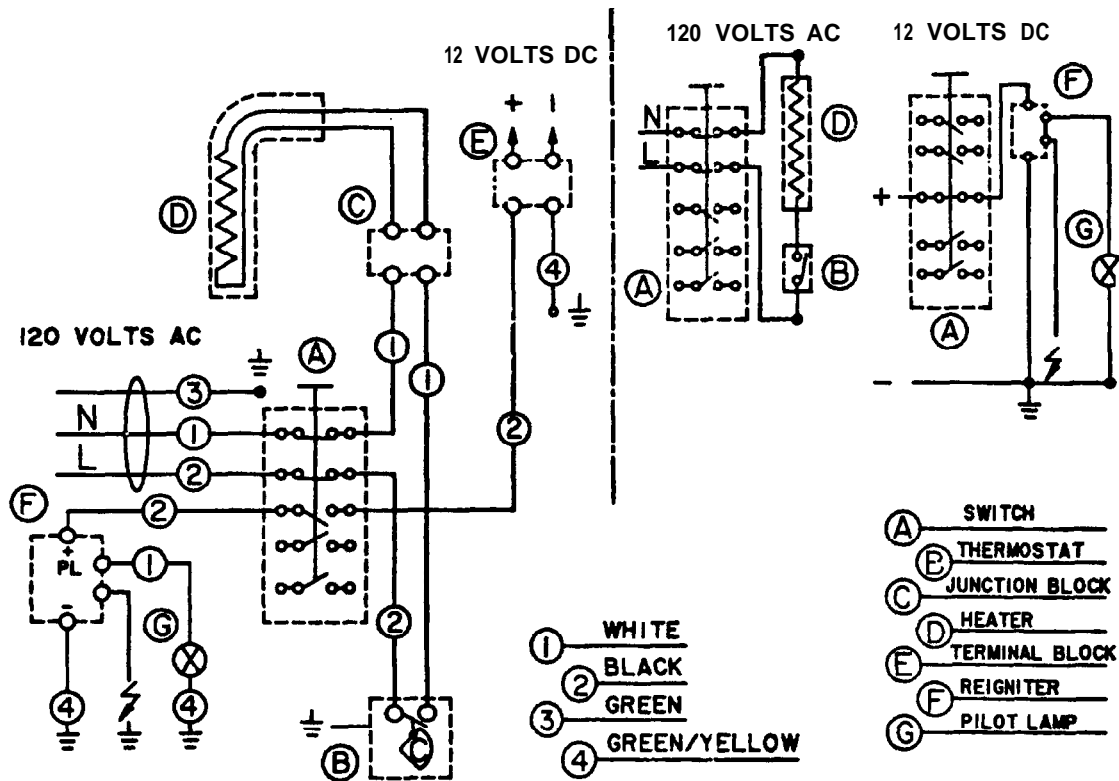
TYPICAL 2-WAY WITH PIEZO IGNITER FOR REFRIGERATORS WITH BOTTOM MOUNT CONTROLS



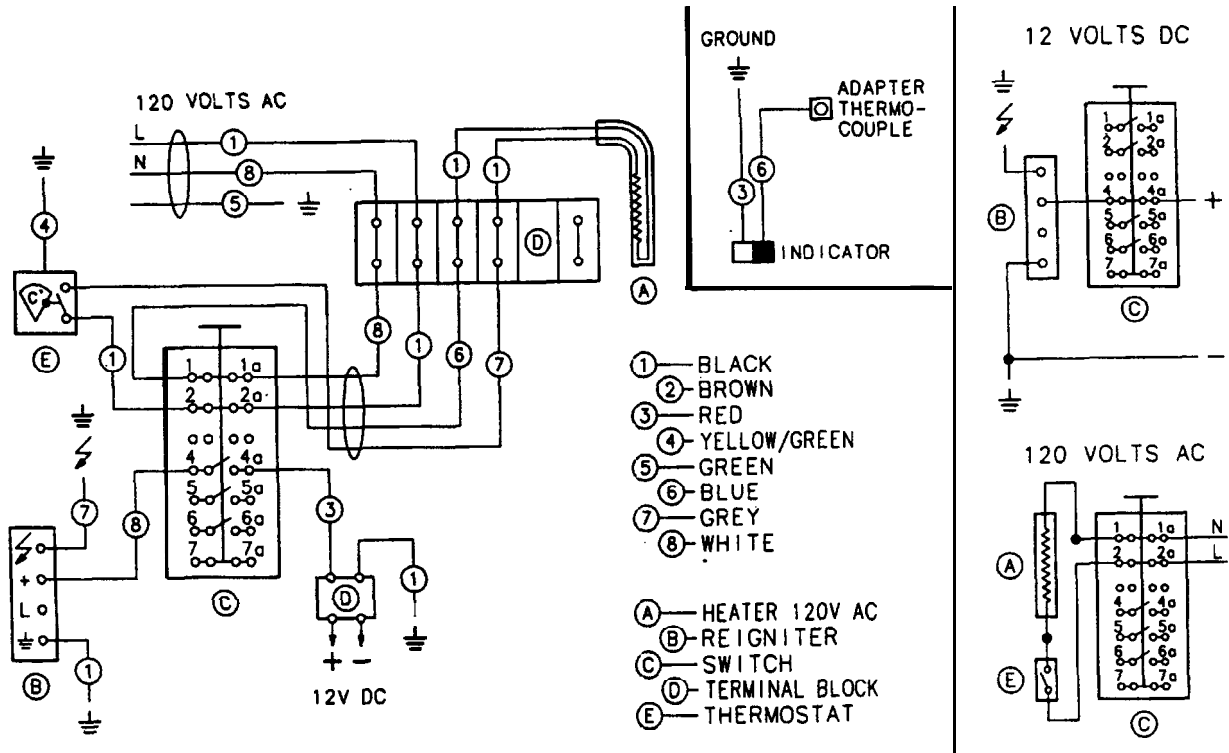
TYPICAL 3-WAY WITH PIEZO IGNITER FOR REFRIGERATORS WITH BOTTOM MOUNT CONTROLS



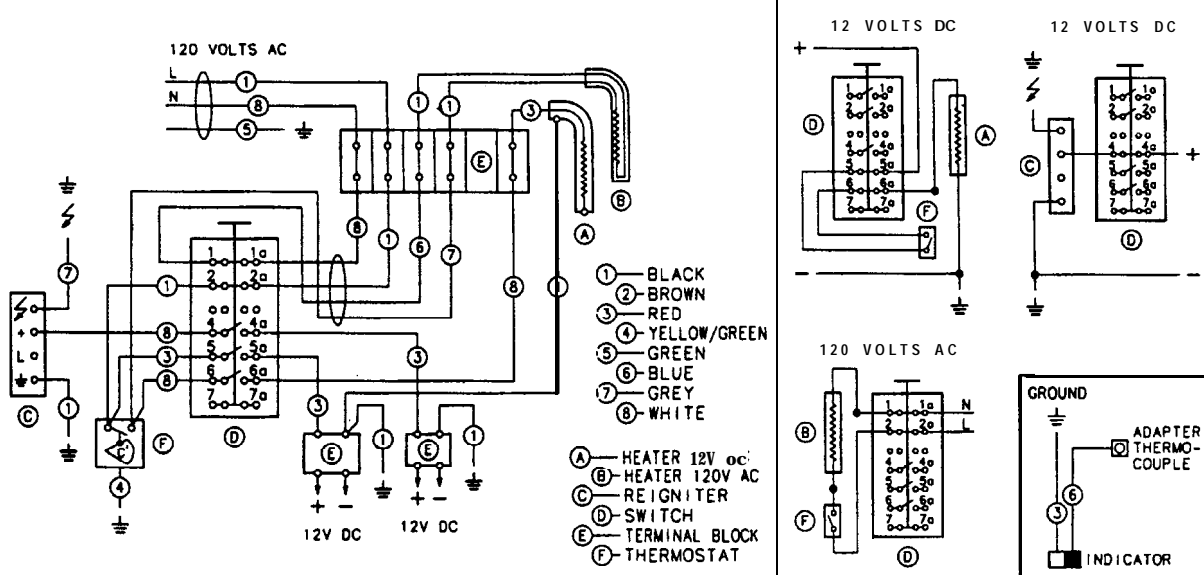
TYPICAL 2-WAY WITH REIGNITER FOR REFRIGERATORS WITH BOTTOM MOUNT CONTROLS



TYPICAL 2-WAY WITH REIGNITOR FOR REFRIGERATORS WITH TOP MOUNT CONTROLS



TYPICAL 3-WAY WITH REIGNITOR FOR REFRIGERATORS WITH TOP MOUNT CONTROLS



OTHER

LEVELING

Refrigerators have a type of cooling unit that utilizes an enclosed pump tube surrounded by a solution to protect the assembly. To ensure proper leveling with these models, the vehicle needs to be leveled so it is comfortable to live in. (No noticeable sloping of floor or walls). When the vehicle is moving, leveling is not critical as the rolling and pitching movement of the vehicle will pass to either side of level, keeping the refrigerant from accumulating in the piping.

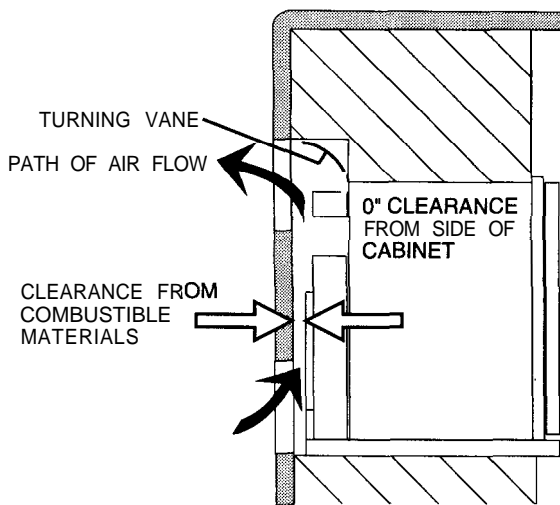
VENTILATION

In a proper installation there should be zero (0") clearance surrounding the sides and top of the refrigerator to achieve proper air flow.

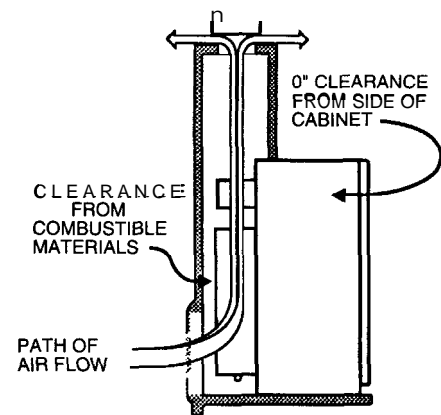
In addition, the cooling unit should have the following clearances to the nearest surface made of combustible material:

RM2310	1	INCH
RM2410	1/2	INCH
RM2510	1/2	INCH
RM2610	1/2	INCH
RM2810	1/2	INCH
RM2452	0	INCH
RM2453	0	INCH
RM2552	0	INCH
RM2553	0	INCH

RM2310 / RM2410



RM2510/ RM2610/RM2810 /
RM2452/RM2453/RM2552/RM2553



AIR LEAKS

Check the gasket on the doors to be sure of a positive air seal. Check that the cooling unit is installed properly.

DOOR POSITION

To correct an alignment of the door, loosen the hinge screws slightly, and reorient the door in the proper position.

If the door needs more adjustment than is available through the hinge adjustment, the base can be repositioned to reorient the door.

AMBIENT TEMPERATURE

As the ambient temperature increases, the air temperature in the area of the cooling unit increases.

COOLING UNIT

To check the cooling unit, first verify the AC heating element is good. Then place approximately one gallon of water inside the refrigerator and place a thermometer in one of the containers of water. Supply 115 volts direct to the AC heating element and operate for at least 12 hours. Check the temperature on the thermometer. It should be at 45 degrees or lower depending on test conditions.

FOOD STORAGE

Rearrange your foodstuffs. It is essential that the shelves are not covered with paper or large storage containers. Always remember to allow for proper air circulation. Odorous or highly flavored foods should always be stored in covered dishes, plastic bags or wrapped in foil or waxed paper to prevent food odors. Vegetables, lettuce, etc., should be covered. **NEVER PUT HOT FOOD INTO THE REFRIGERATOR.**

HIGH HUMIDITY

High humidity may cause a small amount of condensation to form on the frame of the refrigerator. As the humidity is reduced, the sweating will decrease.

INTERIOR LINER SEAL TO FRAME

There is a seal that is applied to the liner in the area where the metal frame makes contact with the interior liner. Cold air can migrate out to the metal frame.

Clean the metal frame and foil-backed insulation around the refrigerator. Apply a foil-backed adhesive tape to the joint between outer frame and foil-backed refrigerator insulation. Make sure the refrigerator is dry and that the surface temperatures are above 50°F. Use a clear silicon caulking compound and seal the seam between the refrigerator's plastic liner and the metal frame. **NOTE: TO FORM A PROPER SEAL, IT IS IMPORTANT NOT TO LEAVE ANY GAPS.**

