Foreword

This service manual is the result of the dedication of The Dometic Corporation and its engineers in giving service people the necessary instruction for making accurate analyses of certain conditions. Provided is a diagnostic chart leading a qualified mechanic into the service manual pages to locate and solve symptoms which may occur. Dometic has continued its commitment in providing service people with this, the most up-to-date information about servicing Dometic RV accessories.

Form No. 3106928.009 2/96 (Replaces OS1407 12/92)

CONTENTS

PAGE NO.

This program will address the most common system problems associated with the RM3604/3804 supplied by The Dometic Corporation. Our intent is to provide you with a guideline of checks to make, should you encounter one of the following symptoms.

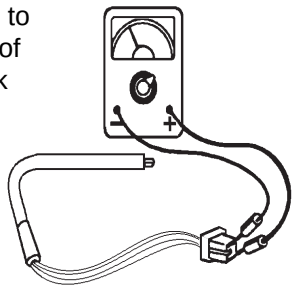
SYMPTOM	CAUSE	REFER TO SECTION	STEP
1. No operation – no panel lights.	DC Volts	3	
	Fuse	4.11	
	Wiring	7.1 & 7.2	
	Upper PC Board	4.9	1
	Circuit Board	4.10	1 & 5
2. No operation – has panel lights.	Thermostat	2 & 4.2	
	Upper Circuit Board	4.9	1
	Solenoid	4.3	
	Wiring	7.2	
	Circuit Board	4.10	2—4
3. Operating OK – no panel lights.	DC Volts	3.1	
	Wiring	7.2	
	Upper Circuit Board	4.9	2—12
	Circuit Board	4.10	5
4. No AC operation – operates on DC and gas.	AC Volts	1	
	Heating Element	2	
	Upper Circuit Board	4.9	2—5
	Wiring	7.2	
	Thermostat	4.2	
	Circuit Board	4.10	2
5. No DC operation – operates on AC and gas.	DC Volts	3.1	
	Heating Element	4.1	
	Upper Circuit Board	4.9	2—3
	Wiring	7.2	
	Relay	4.7	
	Thermostat	4.2	
	Circuit Board	4.10	3
6. No gas operation – operates on AC and DC.	LP Gas	5.1	
	Manual Gas Valve	6.1	
	Igniter	4.4	
	High Voltage Cable	4.5	
	Electrode	4.6	
	Solenoid	4.3	
	Upper Circuit Board	4.9	2—7
	Wiring	7.2	
	Circuit Board	4.10	4
7. Insufficient cooling on all modes.	Ventilation	8.2	
	Leveling	8.1	
	Ambient Temperature	8.5	
	Air Leaks	8.3	
	Thermostat	4.2	
	Cooling Unit	8.6	

SYMPTOM	CAUSE	REFER TO SECTION	STEP
8. Insufficient cooling on AC. Cools properly on DC and gas.	AC Volts Heating Element	1 2	
9. Insufficient cooling on DC. Cools properly on AC and gas.	DC Volts Heating Element Wiring	3 4.1 7.2	
10. Insufficient cooling on gas. Cools properly on AC and DC.	LP gas Orifice Flue Baffle Flue Tube Flue Cap Burner	5.1 6.2 6.5 6.7 6.6 6.4	
11. Freezes on all modes.	Thermostat DC Volts	4.2 3	
12. Changes preset mode.	DC Volts Wiring Circuit Board	3 7.1 4.10	
13. Flame failure light within 10 seconds.	Igniter High Voltage Cable Electrode Wiring	4.4 4.5 4.6 7.2	
14. Flame failure light after 3 minutes.	LP Gas Manual Gas Valve Solenoid Orifice Burner Wiring Thermocouple	3 6.1 4.3 6.2 6.4 7.2 6.3	
15. Interior Light ON when door is closed.	Wiring Door Switch Door Position	7.2 4.8 8.4	
16. Rapid formation of frost.	Food Storage Interior Liner Seal to Frame High Humidity Air Leaks	8.7 8.9 8.8 8.3	

SECTION 1
AC VOLTAGE REQUIREMENTS

The refrigerator is a 120 volt AC, 60 Hz appliance. The proper operating range is 100 to 132 volts. Check the AC volts at the receptacle where the refrigerator is attached. If voltage is outside of the proper operating range, correct the power source problem.

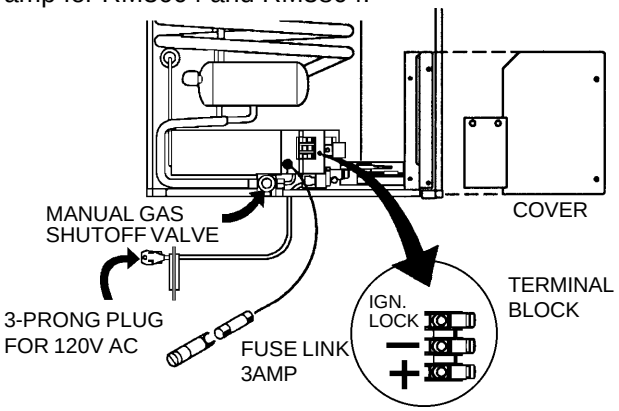
SECTION 2
AC COMPONENTS — HEATING ELEMENT



The heating element is designed to deliver a predetermined amount of heat to the cooling unit. To check a heating element, remove the heater leads from the printed circuit board and measure for proper resistance across the two leads with a properly calibrated ohm meter. This check is to be done with the heating element at room temperature. The proper ohms for RM3604 is 48 and RM3804 is 44 with a tolerance of ten percent. If the resistance is outside the tolerance range, replace the heating element.

SECTION 3
DC VOLTAGE REQUIREMENTS

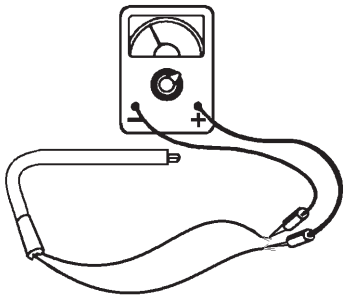
For the refrigerator to operate on any mode, DC voltage must be supplied to the terminals at the rear of the refrigerator and must be connected directly to the battery of the RV. The operational range is 10.5 to 15 volts DC. Connecting the refrigerator to an unregulated converter can result in improper operation of the refrigerator. Do not use the body or chassis of the RV as a substitute for either of the two conductors. Proper polarity is crucial for operation of the refrigerator. Check for proper voltage at the positive and negative terminals at the back of the refrigerator. If power is outside the operational range, correct the power supply problem. The power supply to the refrigerator must be fused. Maximum fuse size: 25 amp for RM3604 and RM3804.



With the refrigerator operating on AC or gas mode, if voltage to the refrigerator slowly drops to or below 9.5 volts DC, the gas flame will come and will not be thermostat controlled. Low DC volts (below 9.5) could cause over-cooling.

SECTION 4
DC COMPONENTS

4.1 HEATING ELEMENT



The heating element is designed to deliver a predetermined amount of heat to the cooling unit. Check the heating element with ohms resistance using a properly calibrated ohm meter. This check is to be done with the element at room temperature. The proper ohms for RM3604 and RM3804 DC heating element is .67 with a tolerance range of ten percent. If the heating element is outside this range, replace it.

NOTE: It will take a very precise ohm meter to accurately read this measurement. If a precise ohm meter is not available, a continuity reading will indicate an open or complete circuit. If an open circuit is the test result, replace the element.

4.2 THERMOSTAT

The thermostat operates on DC volts and regulates the inside refrigerator temperature on all modes, by making and breaking the circuit to the printed circuit board. The internal mechanism breaks contact (continuity) when adequate cabinet temperature has been reached. Check the thermostat for continuity. This check should be made at room temperature with the thermostat turned all the way to MAX. Another check would be to use a jumper wire with insulated clips and bypass the thermostat.

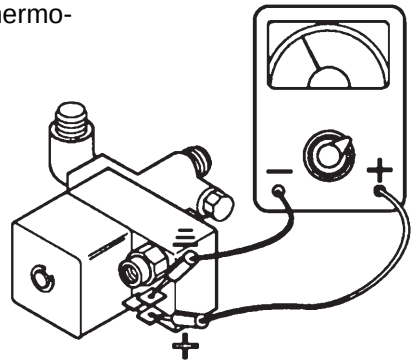
NOTE: Use care when doing this test. Do not short to thermostat casing. Also remove jumper after testing is completed.

If the above test allows the refrigerator to operate and/or the continuity test proves the thermostat to be defective, replace the thermostat. A defective thermostat would cause insufficient cooling, no cooling and freezing on all modes.

4.3 SOLENOID VALVE

The solenoid valve assembly is a **safety valve** as well as a **gas flow valve**. When the AES selects LP gas operation, DC volts are sent to the solenoid coil which opens the internal valve.

Check the solenoid coil with a properly calibrated ohm meter. Remove the connector from the solenoid and measure the resistance across the upper and lower terminals. The proper reading would be 20 ohms with tolerance range of ten percent.

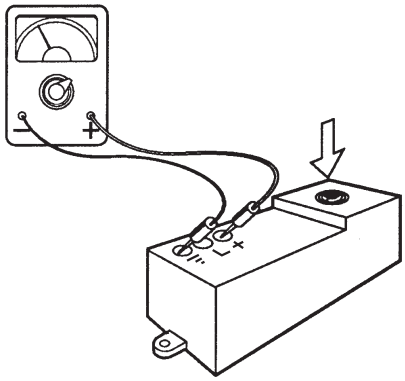


Once flame is lit, the thermocouple produces the voltage to keep the valve open. If for any reason the thermocouple does not provide enough current to the valve, it will close, stopping the flow of gas. To check this portion of the solenoid valve assembly, verify the thermocouple is good (see Sec. 6.3), the tip is clean and the receptacle in the solenoid valve assembly is clean. If the thermocouple checks good, then replace the solenoid valve assembly.

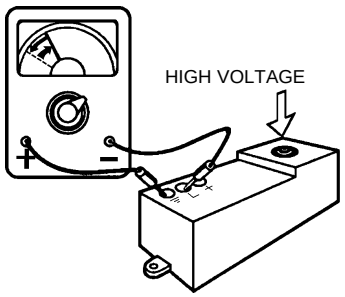
NOTE: If the solenoid ohms check shows an open coil, the refrigerator will not operate on any mode.

4.4 IGNITER

The igniter is an electronic device that produces high voltage to create a spark at the burner, only on gas mode. It also produces and increased DC voltage at the "L" terminal which is a signal to the circuit board that a spark has been produced. First, verify proper voltage at the positive (+) and ground (–) terminals. The reading should be within one volt of incoming voltage at the main terminal block. A voltage drop of more than one volt would indicate a loose connection (see Sec. 7.2) or a circuit board problem (see Sec. 4.9).



Next, disconnect DC power at refrigerator terminal block. Remove high voltage cable from igniter. Reconnect DC power — the igniter should produce a sparking sound. If not, replace the igniter. With the igniter producing spark, connect meter leads to "L" and ground (–) terminals on the igniter, with the meter set on 20 volts DC range or lower. The meter should read a pulsating voltage. If not, replace the igniter.

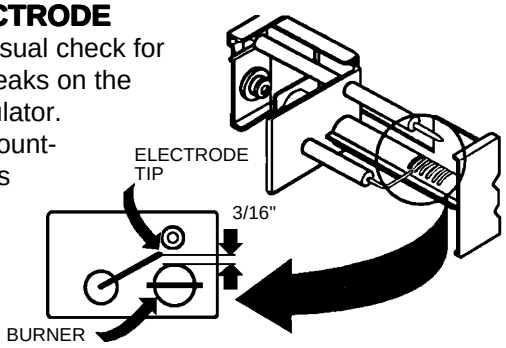


NOTE: If a spark is not produced within 10 seconds, the gas flame warning lamp will illuminate. If spark is produced it will take three minutes for lamp to illuminate.
If all of the previous checks are correct, the igniter is good – do not replace.

4.5 HIGH VOLTAGE CABLE

Disconnect DC power at refrigerator terminal block. Disconnect high voltage cable from electrode. Reconnect DC power. If sparking starts, cable is good (see Sec. 4.6). If no sparking, disconnect DC power. If sparking sound from igniter, then replace high voltage cable.

4.6 ELECTRODE



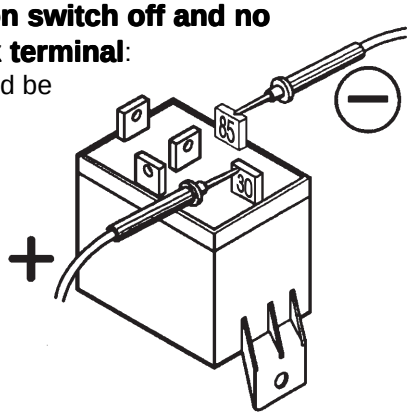
First, do a visual check for cracks or breaks on the ceramic insulator. Verify the mounting bracket is attached properly to the electrode. If either of above is found, replace the electrode. The spark gap must be set at three sixteenths (3/16") of an inch and tip of electrode above the slots in the burner.

If igniter (see Sec. 4.4) and high voltage cable (see Sec. 4.5) are good and there is no spark at the tip of the electrode, replace the electrode.

4.7 RELAY

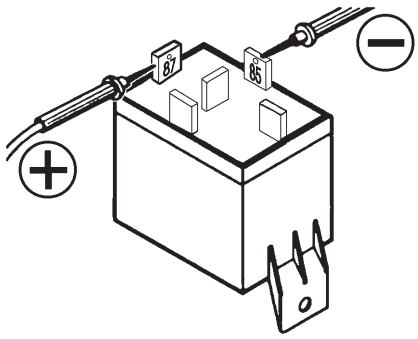
The relay controls the circuit to the DC heater. The load (amps) of the DC heater goes through the relay. Verify that DC volts to the terminal block is 13.3 or more.

With vehicle ignition switch off and no voltage to IGN lock terminal:

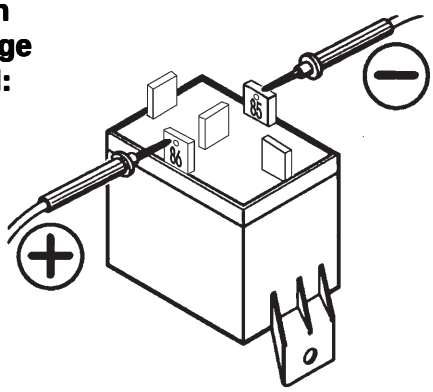


Check: Voltage should be present between terminals 85 and 30. If voltage is not present, check wiring to both terminals. (See Sec. 7.2)

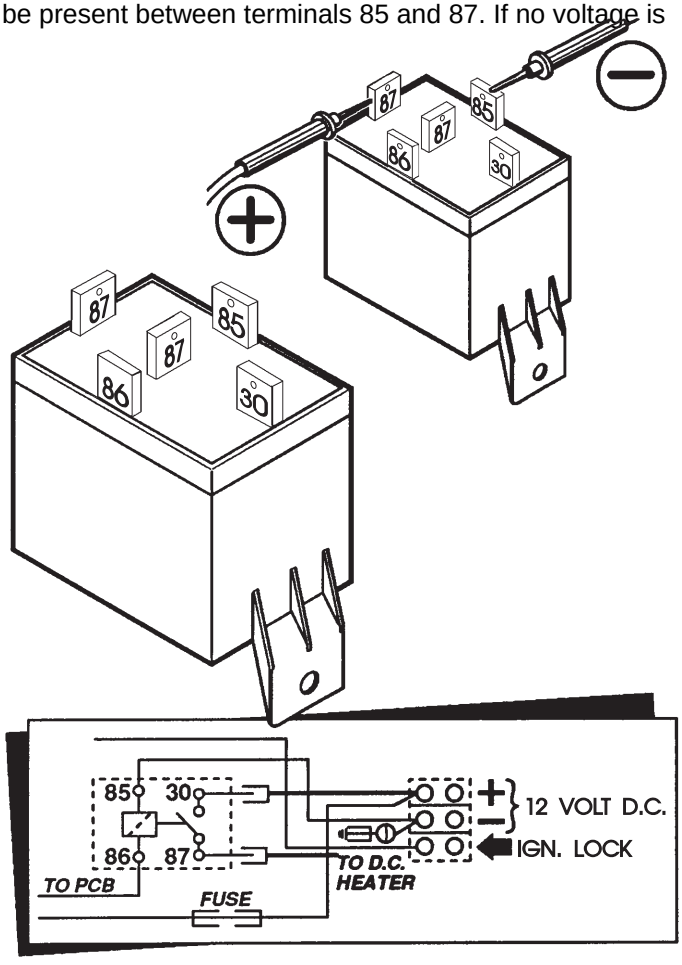
Voltage should **NOT** be present between terminals 85 and 87. If voltage is present, the relay is defective and needs to be replaced.



With vehicle ignition switch on and voltage to IGN lock terminal:
Check: Voltage should be present between terminals 85 and 86. If no voltage is present, check wiring connections (see Sec. 7.2), upper circuit board (see Sec. 4.9), thermostat (see Sec. 4.2) and circuit board (see Sec. 4.10).



If voltage is present between 85 and 86, voltage should be present between terminals 85 and 87. If no voltage is present, the relay is defective.

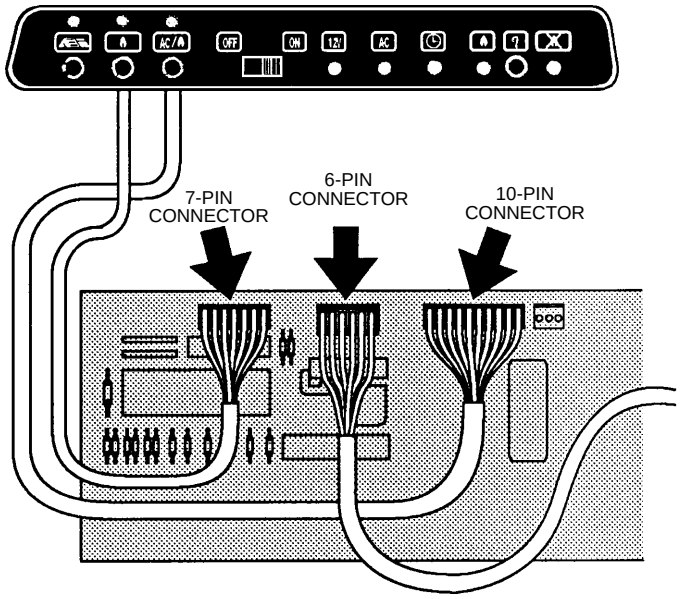


4.8 DOOR SWITCH

The door switch is an open switch when the switch arm is depressed (interior light should be off). When the refrigerator door is open the switch is closed (interior light should be on). Check that the switch assembly is properly aligned and that it is not broken. Check the switch assembly for continuity.

NOTE: To do a continuity check, first be sure all power to the refrigerator is disconnected or off. Second, remove all wires from the switch assembly, then check the switch. After the check, be sure the switch assembly is wired properly per the wiring diagram.

When the switch arm is depressed, there should NOT be continuity. When the switch arm is not depressed, there SHOULD BE continuity. If any of these checks are incorrect, replace the switch.

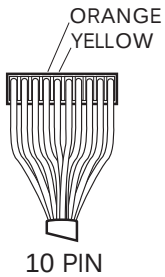


4.9 UPPER CIRCUIT BOARD (SWITCH CARD)

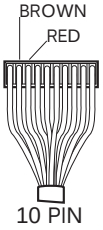
1. **ON–OFF SWITCH**

   NOTE: The following checks should be made on the upper circuit board and harness assembly BEFORE replacing the upper circuit board or wiring harness. The checks are to be done with the wiring harness REMOVED from the lower circuit board.

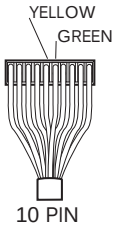
   With the switch in the "ON" position:
   CONTINUITY should be indicated between the orange terminal to the yellow terminal on the 10 pin connector.



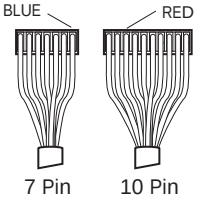
CONTINUITY should be indicated between the brown terminal to the red terminal on the 10-pin connector.



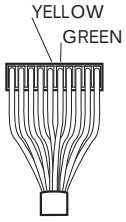
NO continuity should be indicated between the yellow terminal to the green terminal on the 10-pin connector.



NO continuity should be indicated between the red terminal on the 10-pin connector to the blue terminal on the 7-pin connector.

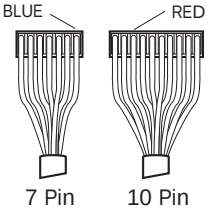


With the switch in the "OFF" position:

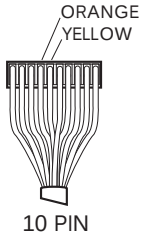


CONTINUITY should be indicated between the yellow terminal to the green terminal on the 10-pin connector.

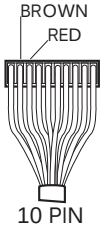
CONTINUITY should be indicated between the red terminal on the 10-pin connector to the blue terminal on the 7-pin connector.



NO continuity should be indicated between the orange terminal to the yellow terminal on the 10-pin connector.



NO continuity should be indicated between the brown terminal to the red terminal on the 10-pin connector.



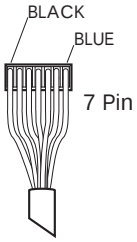
NOTE: If any of these checks on the ON–OFF switch is not correct, verify the wire harness has continuity. If the wire harness is good, replace the upper circuit board.

2. **AES FUNCTION SWITCH**

NOTE: The following checks should be made on the upper circuit board and harness assembly BEFORE replacing the upper circuit board or wiring harness. The checks are to be done with the wiring harness REMOVED from the lower circuit board, and the ON-OFF switch turned to "ON".

With the AES function switch manually depressed:

CONTINUITY should be indicated between the blue terminal and the black terminal on the 7-pin connector.



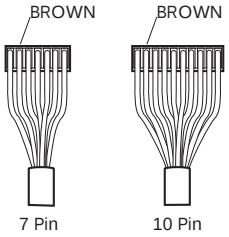
With the AES function switch NOT depressed:

NO continuity should be indicated between the blue and black terminals on the 7-pin connector.

NOTE: If the check on AES function switch is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

3. **AES FUNCTION LAMP**

NOTE: The following checks should be made on the upper circuit board and harness assembly BEFORE replacing the upper circuit board or wiring harness. These checks are to be done with the wiring harness REMOVED from the lower circuit board and the ON–OFF switch turned to "ON".



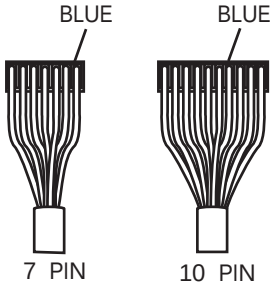
Measure resistance between the brown terminal on the 7-pin connector (positive [+] lead from meter) to the brown terminal on the 10-pin connector (negative [–] lead from meter). The proper resistance is approximately 26,000 ohms.

NOTE: If the check on the AES function lamp is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

4. **AC/GAS FUNCTION SWITCH (Only on 3-Way Models)**:

NOTE: The following checks should be made on the upper circuit board and harness assembly BEFORE replacing the upper circuit board or wiring harness. The checks are to be done with the wiring harness REMOVED from the lower circuit board, and the ON–OFF switch turned to "ON".

With the AC/gas function switch manually depressed: Continuity should be indicated between the blue terminal on the 7-pin connector to the blue terminal on the 10-pin connector.

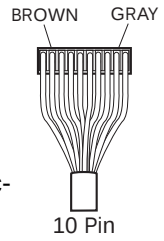


With the AC/gas function switch NOT depressed: A reading would **NOT** be indicated.

NOTE: If the check on the AC/gas function switch is not correct, verify the wire harness has continuity. If the wire harness is good, replace the upper circuit board.

5. **AC/GAS FUNCTION LAMP (Only on 3-Way Models)**:

NOTE: The following checks should be made on the upper circuit board and harness assembly BEFORE replacing the upper circuit board or wiring harness. These checks are to be done with the wiring harness REMOVED from the lower circuit board and the ON–OFF switch turned to "ON".



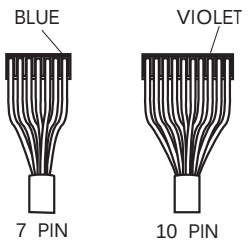
Measure resistance between the brown terminal on the 10 pin connector (negative [–] lead from meter) to the gray terminal on the 10-pin connector (positive [+] lead from meter). The proper resistance is approximately 26,000 ohms.

NOTE: If the check on AC/gas function lamp is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

6. **GAS FUNCTION SWITCH**

NOTE: The following checks should be made on the upper circuit board and harness assembly BEFORE replacing the upper circuit board or wiring harness. The checks are to be done with the wiring harness REMOVED from the lower circuit board and the ON-OFF switch turned to "ON".

With the gas function switch manually depressed: CONTINUITY should be indicated between the violet terminal on the 10-pin connector to the blue terminal on the 7-pin connector.

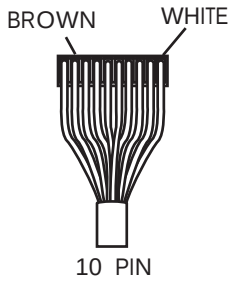


With the gas function switch NOT depressed: A reading would **NOT** be indicated.

NOTE: If the check on gas function switch is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

7. **GAS FUNCTION LAMP**

NOTE: The following checks should be made on the upper circuit board and harness assembly BEFORE replacing the upper circuit board or wiring harness. These checks are to be done with the wiring harness REMOVED from the lower circuit board, and the ON–OFF switch turned to "ON".



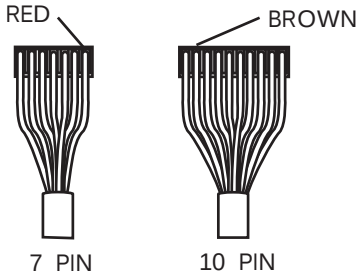
Measure resistance between the brown terminal on the 10-pin connector (negative [–] lead from meter) to the white terminal on the 10-pin connector (positive [+] lead from meter). The proper ohms resistance is approximately 26,000 ohms.

NOTE: If the check on gas function lamp is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

8. **AC MODE LAMP AND SWITCH**

NOTE: The following checks should be made on the upper circuit board and harness assembly BEFORE replacing the upper circuit board or wiring harness. These checks are to be done with the wiring harness REMOVED from the lower circuit board, and the ON-OFF switch turned to "ON".

With the mode switch (?) manually depressed: Resistance should be indicated between the brown terminal on the 10-pin connector (negative [–] lead from meter) to the red terminal on the 7-pin connector (positive [+] lead from meter). The proper resistance is approximately 26,000 ohms.



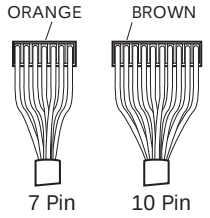
With the mode switch (?) NOT depressed: A reading would **NOT** be indicated.

NOTE: If the check on AC mode lamp and switch is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

9. **12-VOLT MODE LAMP & SWITCH (Only on 3-Way Models)**

NOTE: The following checks should be made on the upper circuit board and harness assembly BEFORE replacing the upper circuit board or wiring harness. These checks are to be done with the wiring harness REMOVED from the lower circuit board, and the ON-

With the mode switch (?) manually depressed: An ohms reading should be indicated between the brown terminal on the 10-pin connector (negative[–] lead from meter) to the orange terminal on the 7-pin connector (positive [+] lead from meter). The ohms reading should be approximately 26,000. You should **NOT** have a reading unless the mode switch (?) is depressed.

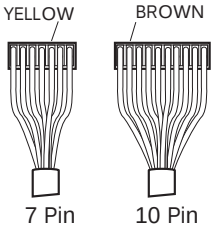


NOTE: If the check on 12-volt mode lamp and switch is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

10. **Delay Mode Lamp and Switch**

NOTE: The following checks should be made on the upper circuit board and harness assembly BEFORE replacing the upper circuit board or wiring harness. The checks are to be done with the wiring harness REMOVED from the lower circuit board, and the OFF-ON switch turned to "ON".

With the mode switch (?) manually depressed: Resistance should be indicated between the brown terminal on the 10-pin connector (negative [–] lead from meter) to the yellow terminal on the 7-pin connector (positive [+] lead from meter). The proper resistance is approximately 26,000 ohms.



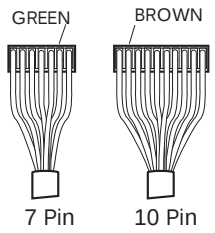
With the mode switch (?) NOT depressed: A reading would **NOT** be indicated.

NOTE: If the check on the delay mode lamp and switch is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

11. **Gas Mode Lamp and Switch**:

NOTE: The following checks should be made on the upper circuit board and harness assembly BEFORE replacing the upper circuit board or wiring harness. The checks are to be done with the wiring harness REMOVED from the lower circuit board, and the ON-OFF switch turned to "ON".

With the mode switch (?) manually depressed: Resistance should be indicated between the brown terminal on the 10-pin connector (negative [–] lead from meter) to the green terminal on the 7-pin connector (positive [+] lead from meter). The proper resistance is approximately 26,000 ohms.



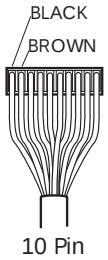
With the mode switch (?) NOT depressed: A reading would **NOT** be indicated.

NOTE: If the check on gas mode lamp and switch is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

12. **Gas Flame Warning Lamp**:

NOTE: The following checks should be made on the upper circuit board and harness assembly BEFORE replacing the upper circuit board or wiring harness. The checks are to be done with the wiring harness REMOVED from the lower circuit board, and the OFF-ON switch turned to "ON".

Measure resistance between the brown terminal on the 10-pin connector (negative [–] lead from meter) to the black terminal on the 10-pin connector (positive [+] lead from meter). The proper resistance is approximately 22,000 ohms.



NOTE: If the check on gas flame warning lamp is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

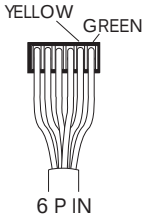
4.10 CIRCUIT BOARD

The circuit board controls all modes of operation.

1. **! CAUTION**

THESE PROCEDURES MUST BE FOLLOWED IN SEQUENCE AND AT THE PROPER TERMINALS OR DAMAGE TO THE BOARD WILL RESULT.

Before any checks are to be done, be sure proper DC volts are to the board (see Sec. 3.1). Measure volts between yellow terminal on the 6-pin connector (positive [+] lead from meter) to green terminal on 6-pin connector (negative [–] lead from meter). Voltage should be the same as at the positive (+) and negative (–) terminal block. If not, check the fuse (see Sec. 4.11) and wiring (see Sec. 7.2).



2. **! CAUTION**

THESE PROCEDURES MUST BE FOLLOWED IN SEQUENCE AND AT THE PROPER TERMINALS OR DAMAGE TO THE BOARD WILL RESULT.

For AC heating element operation, check that voltage is present between the large black and large white wire at the circuit board. If voltage is below 100 volts, the circuit board will select another mode. If voltage is above 100 volts, check that AC volts are present at the heating element connection. If no voltage is present, change the circuit board.

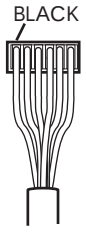
NOTE: Before installing a new circuit board, correct the cause of the failure, most likely it is the heating element (see Sec. 2.1) or wiring (see Sec. 7.2).

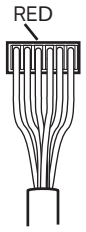
If voltage is present, DO NOT CHANGE THE CIRCUIT BOARD. Check the following components: heating element (see Sec. 2.1), upper circuit board (see Sec. 4.9 #2 to 4.9 #5 and 4.9 #8), thermostat (see Sec. 4.2) and wiring (see Sec. 7.2).

3. **! CAUTION**

THESE PROCEDURES MUST BE FOLLOWED IN SEQUENCE AND AT THE PROPER TERMINALS OR DAMAGE TO THE BOARD WILL RESULT.

For DC heating element operation, first check the IGN lock terminal for a voltage reading of more than 4 volts. If voltage is below 4 volts, correct wiring problem (see Sec. 7.1). If voltage is 4 or more, next check voltage between the positive (+) and negative (–) terminals on the main terminal block. If voltage is below 13.3 (plus or minus [±] .3 volts), the DC heating element will not be energized, the circuit board will select gas mode; correct the power source problem. If voltage is above 13.6 and IGN lock terminal is receiving more than 4 volts, verify the IGN lock voltage is reaching the circuit board by checking the black terminal on the 6-pin connector. If no voltage is present, correct wire and or connection. If voltage is present, next verify the voltage is reaching the circuit board by checking between the yellow terminal on the 6-pin connector (positive [+] lead from meter) to the grounding strip (negative [–] lead from the meter). If no voltage is present, check the fuse (see Section 4.11). If voltage is present but BELOW 13.6, correct the wire and/or connection problem. If voltage is ABOVE 13.6, check for voltage between the red terminal on the 6-pin connector (positive [+] lead from meter) and the grounding strip (negative [–] lead from meter). If no voltage is present, replace the circuit board. If voltage is present, the circuit board is NOT defective, do not replace.





4. **! CAUTION**

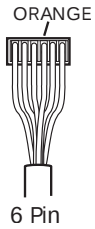
THESE PROCEDURES MUST BE FOLLOWED IN SEQUENCE AND AT THE PROPER TERMINALS OR DAMAGE TO THE BOARD WILL RESULT.

Before you check the circuit board for gas operation, verify these components are good:

Igniter (Sec. 4.4) **High Voltage Cable** (Sec. 4.5)
Electrode (Sec. 4.6) **Solenoid** (Sec. 4.7)
Upper Circuit Board (Sec. 4.9)
Thermostat (Sec. 4.2)

Also be sure NO voltage is present at the IGN lock terminal, and delay mode is not activated. First, check that voltage in excess of 10.5 volts is between the yellow terminal on the 6-pin connector (positive [+] lead from meter) to the ground strip (negative [–] lead from meter). If less than 10.5 volts, correct wiring and/or power source problem.

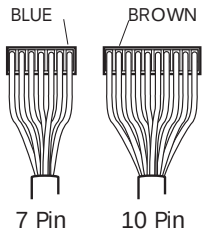
Next, check for the pulse voltage from the igniter at the orange terminal on the 6-pin connector (negative [–] lead from meter) and the ground strip (positive [+] lead from meter). If there is no signal voltage, check the igniter (see Sec. 4.4) and the orange wire and connections. If signal voltage is present, next check for voltage on the solenoid wires at the circuit board. Positive lead from meter to the gray wire and negative lead from the meter to the black wire. If voltage is 9.5 volts or more, the circuit board is good. Do not replace. If no voltage is present, replace the circuit board.



5. **! CAUTION**

THESE PROCEDURES MUST BE FOLLOWED IN SEQUENCE AND AT THE PROPER TERMINALS OR DAMAGE TO THE BOARD WILL RESULT.

This check is to determine if the circuit board is providing voltage to the upper circuit board. Measure between the brown terminal on the 10-pin connector (positive [+] lead from meter) to the blue terminal on the 7-pin connector (negative [–] lead from meter). A voltage reading indicates the circuit board is good. If no voltage is present, replace the circuit board. **NOTE**: Before changing the circuit board, be sure all troubleshooting steps have been followed.

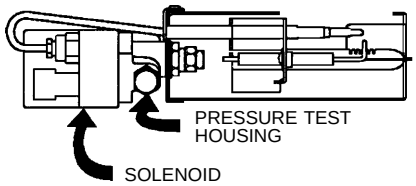


4.11 FUSE

The fuse is to protect the circuit board. To check the fuse, remove it from the holder and do a continuity check. If no continuity, replace it with a proper 3 amp time delay fuse.

SECTION 5
LP GAS REQUIREMENTS

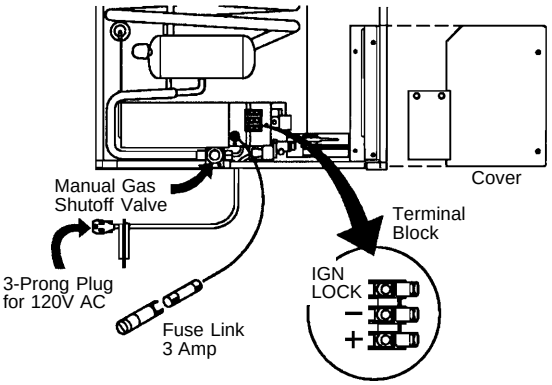
The LP gas pressure to the refrigerator should be 11 inches water column with half of all BTU's of the RV turned on. With all other appliances off, the pressure to the refrigerator should not exceed 12 inches water column. To check the gas pressure when the refrigerator is operating, there is a pressure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



SECTION 6
LP GAS COMPONENTS OR MANUAL GAS SHUTOFF VALVE

6.1 MANUAL GAS SHUTOFF VALVE

The manual gas shutoff valve is where the incoming LP gas supply is attached. To check the shutoff valve, remove and inspect for any obstructions. The valve must



be turned to "ON" before any gas operation can occur.

6.2 ORIFICE

The orifice is a small brass fitting that has a ruby membrane that is laser beam drilled and is mounted on the gas line just prior to the burner. The orifice is cleaned by using an alcohol based solvent and allowing to air dry.

IMPORTANT

NEVER USE A DRILL BIT OR JET TIP CLEANER TO CLEAN ANY ORIFICE AS THESE DEVICES WILL DAMAGE THE FACTORY MACHINED PART AND CREATE A POTENTIALLY DANGEROUS CONDITION.

6.3 THERMOCOUPLE

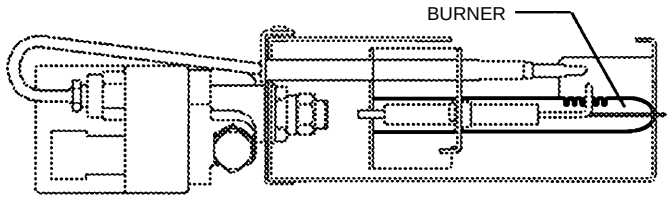
The thermocouple is a component extending above the burner assembly so the tip is in the path of the flame. It will produce 14 to 30 millivolts DC in normal operation. To check the thermocouple, use a known good safety valve and attach to the thermocouple. Next, supply flame to tip of the thermocouple for a few moments 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, replace the thermocouple. If it does hold for 30 seconds or more, the thermocouple is good — do not replace it.

NOTE: Be sure the tip on the thermocouple is clean.

6.4 BURNER

The burner is a slotted metal tube located below the flue tube on the cooling unit. 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. To clean the burner, remove from the refrigerator and check for any foreign residue that could cause a deflection of the gas flow or the flame. Next, soak the



burner in an alcohol based solvent and allow to air dry. After cleaning, reinstall in the refrigerator.

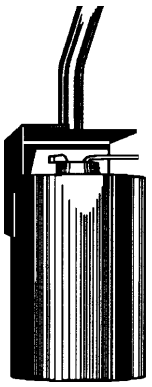
6.5 FLUE BAFFLE

The flue baffle is designed to concentrate the heat (from the gas flame) at a certain area of the flue tube. It should be cleaned periodically, at least once a year. To clean, remove from the flue tube and check for any damage, then clean thoroughly. The length of the flue baffle assembly (flue baffle and wire) for the RM3604 is 31-9/16 inches, and for the RM3804 is 37-1/8". The flue baffle itself for the RM3604 is 3/4 inch wide and 5-1/4 inches long; for the RM3804, it's 3/4 inch wide and 6 inches long. The proper baffle position for the RM3604 is 1-5/8 inches from the burner to the bottom of the baffle; for the RM3804 the proper baffle position is 1-3/4 inches from the burner to the bottom of the baffle.

6.6 FLUE CAP

The flue cap is located at the top of the flue tube and is attached with a screw. It must be properly attached or flame outage could occur.

6.7 FLUE TUBE



The flue tube is a component of the cooling unit. It must be cleaned periodically, at least once a year. To clean, remove flue cap and flue baffle, then cover the burner and clean by using a flue brush. Dometic Part Number 0151404001. If the flue tube becomes coated with scale or residue from combustion of LP gas, the efficiency of gas operation decreases.

NOTE: After cleaning be sure to reinstall the flue baffle and flue cap.

SECTION 7
WIRING

7.1 EXTERNAL WIRING

1. 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. Do not cut or remove the grounding prong from this plug.

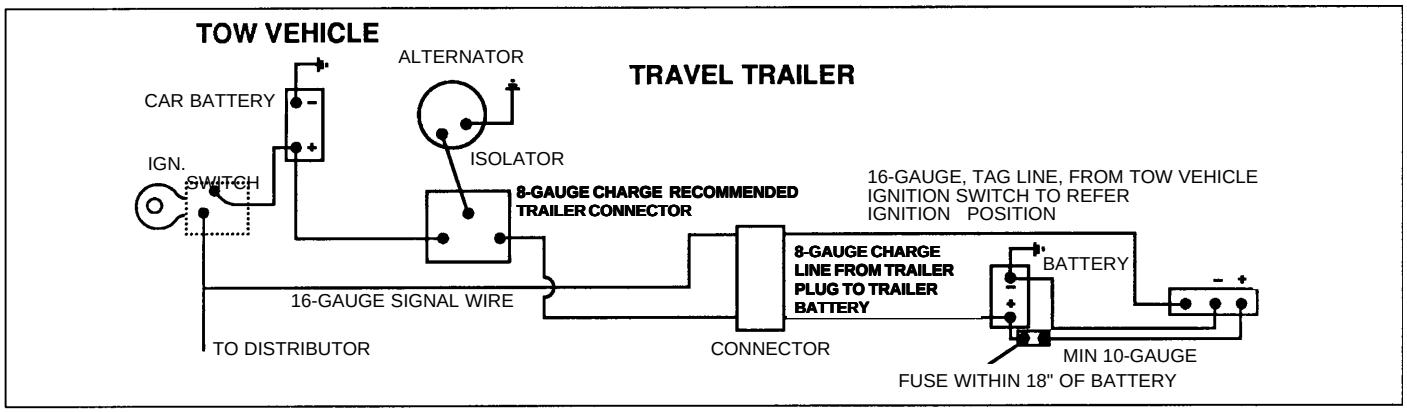
2. 12 Volt DC Connection

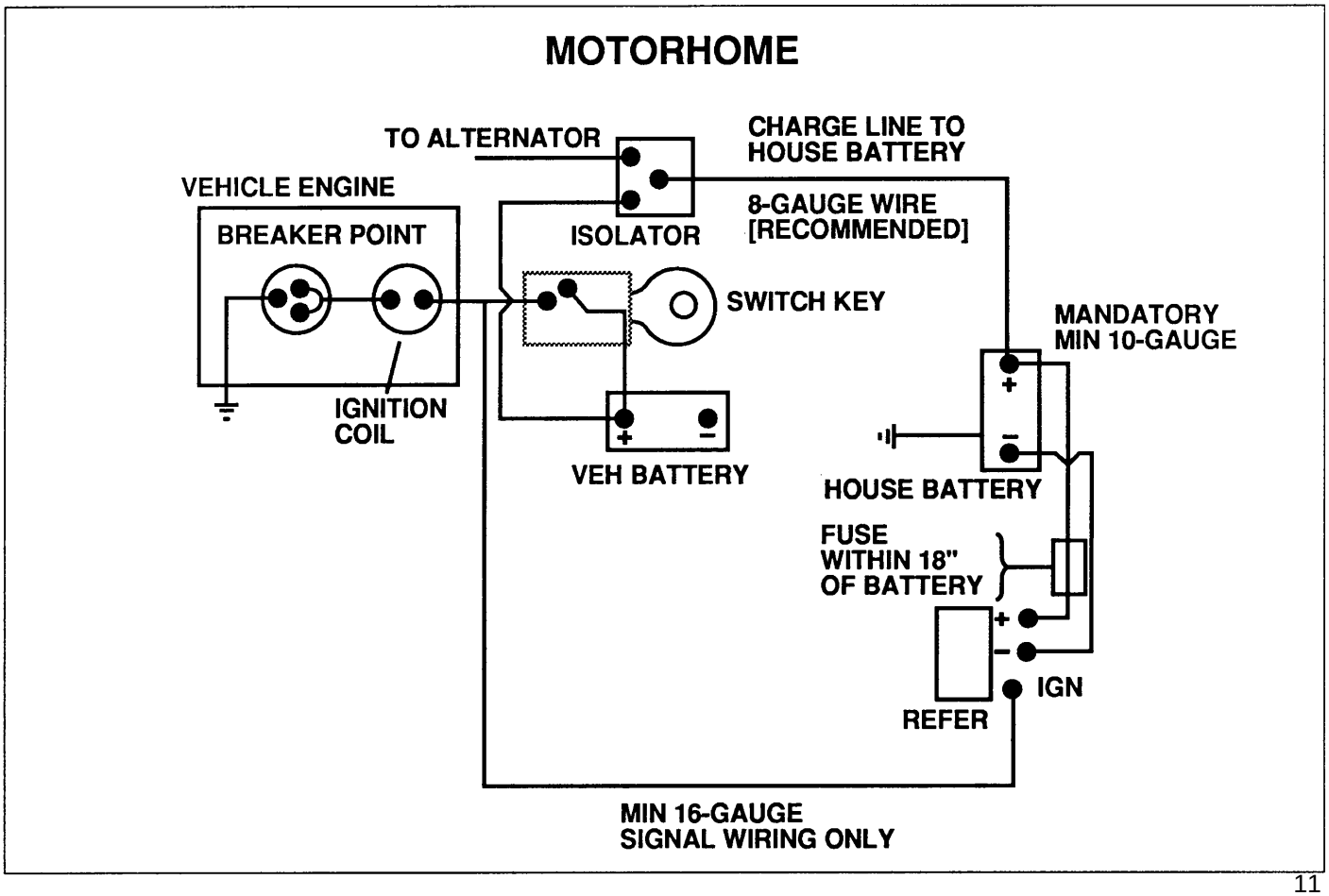
Connection is made to the main terminal block. The refrigerator must be connected to the battery circuit with two wires of adequate capacity to avoid voltage drop.

The wire gauge should be chosen with consideration to the wire length in accordance with the Table below.

MAXIMUM CONDUCTOR WIRE LENGTH IN FEET		
AWG	RM3604	RM3804
10	17	17
8	27	27

Do not use the body or chassis of the vehicle as a substitute for either of the two conductors. No other electrical equipment or lighting should be connected to the refrigerator circuit. The refrigerator will draw 18 amps at 12 volts.





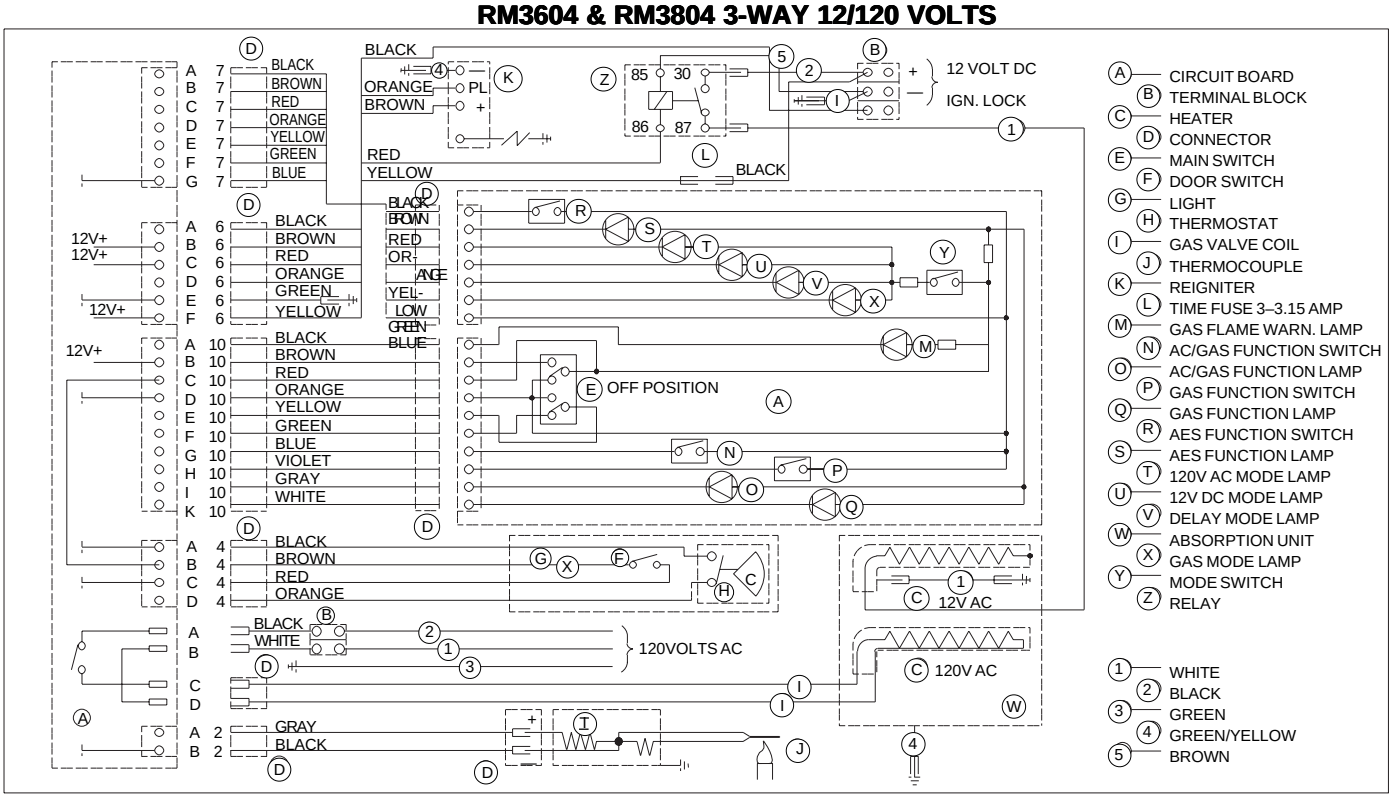
3. Ignition Lock Connection

In order for the circuit board to perform certain functions, it must receive a signal when the vehicle engine is running. This signal wire (16 gauge minimum) should originate at the run terminal of the ignition switch and connect to the "IGN lock" position on the refrigerator terminal block.

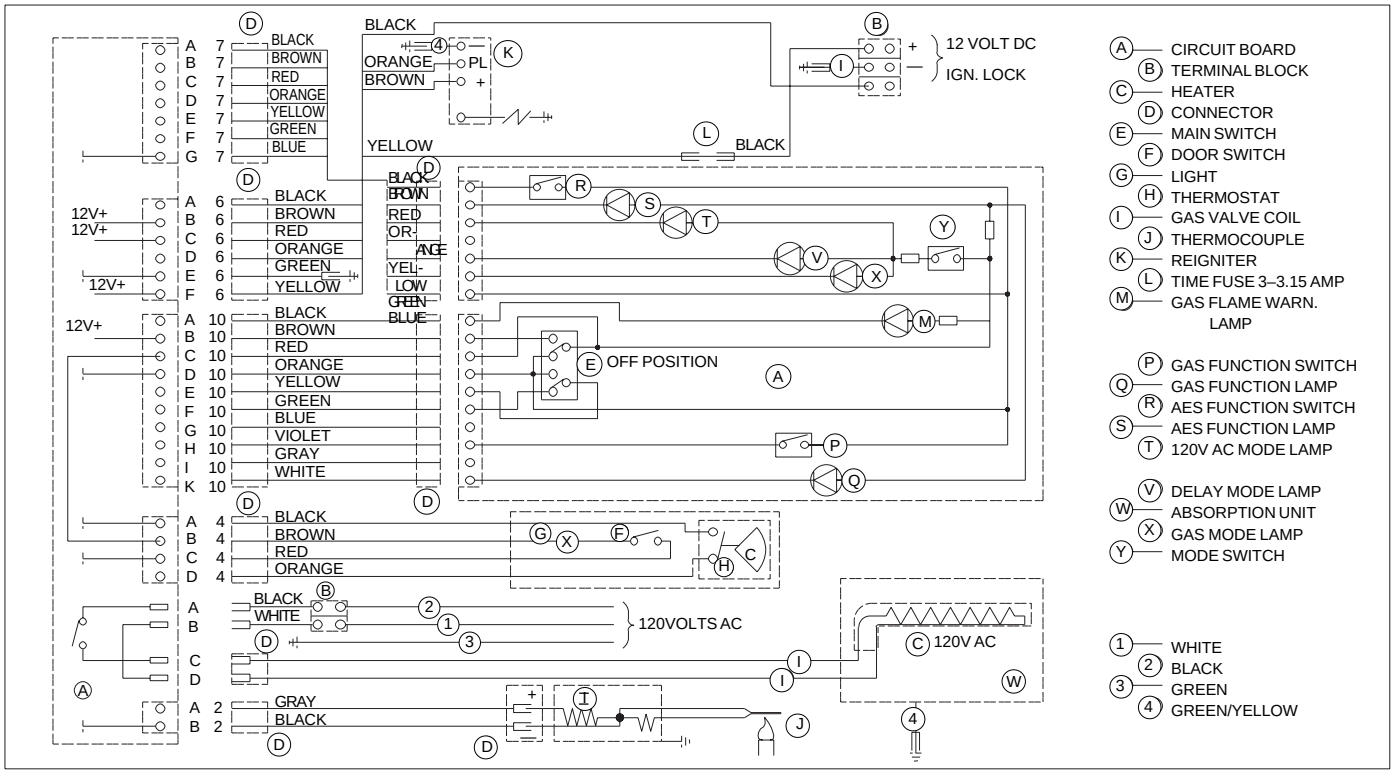
7.2 INTERNAL WIRING

Check all wires at the connectors to be sure of a proper and tight connection. Also verify the refrigerator is wired per the wiring diagram for the model you are working on. (See wiring diagrams below).

RM3604 & RM3804 3-WAY 12/120 VOLTS



RM3604 & RM3804 2-WAY 120 VOLTS



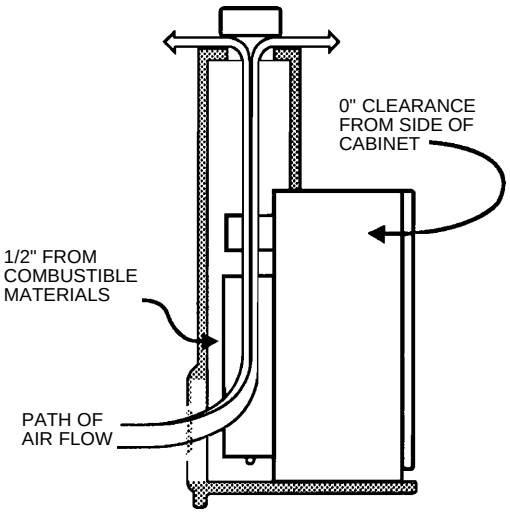
SECTION 8
OTHER

8.1 LEVELING

Leveling is one of the requirements for proper operation with absorption refrigerators. The absorption design utilizes no mechanical pumps or compressors to circulate the refrigerant within the system, so proper leveling must be maintained to provide the correct refrigerant flow. Without proper leveling refrigerant within the cooling unit will collect and stagnate at certain areas. Without proper refrigerant flow, the cooling process will stop. The RM3604 and RM3804 has a type of cooling unit that utilizes an enclosed pump tube surrounded by a solution to protect the assembly. To insure 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.

8.2 VENTILATION

Ventilation is one of the requirements for proper cooling unit operation. The coach vent system must be able to provide a way to direct the hot air produced by the action of the cooling unit, out away from the installation of the refrigerator. The refrigerator extracts heat from the interior of the refrigerator cabinet and dissipates the heat out through the vent system. In a proper installation there should be as little open space as possible surrounding the sides and top of the refrigerator to achieve proper air flow. All potential dead air pockets should be blocked or baffled to insure that heat won't be trapped in these spaces and reduce efficiency. In addition, the cooling unit should be at least one half (1/2) inch from the nearest surface made of



combustible materials.

NOTE: Refrigerators should be installed in accordance with appropriate installation instructions received with the refrigerator.

8.3 AIR LEAKS

Check the gasket on the doors to be sure of a positive air seal. A simple method to check gaskets is to close the door on a dollar bill, then pull the dollar bill out. If no resistance is felt, the gasket is not sealing properly. This should be done on all four sides of the door. If a gasket is not sealing properly, first warm the gasket material with a hair dryer.

! CAUTION

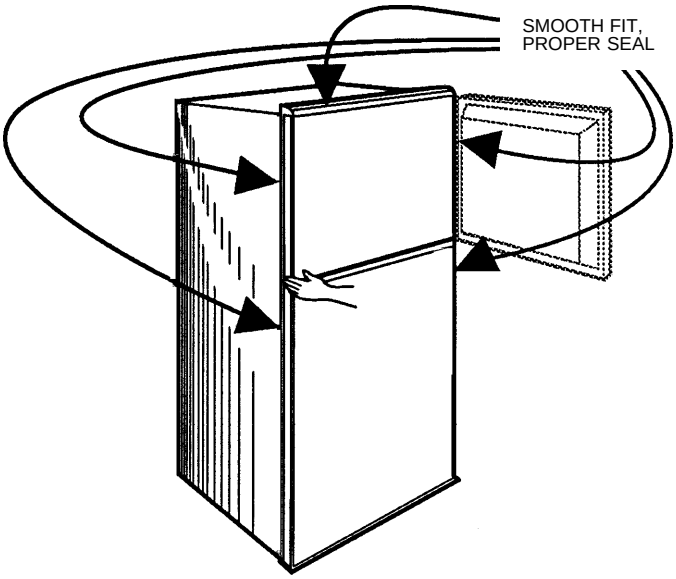
DO NOT OVERHEAT AS YOU CAN MELT THE MATERIAL.

Then close the door and the magnetic strip should pull the gasket to the metal frame. Leave door closed until the material has cooled. Then recheck for a positive seal. If a positive seal cannot be achieved, replace the gasket. Also check that the cooling unit is installed properly. The cooling unit's foam block, the portion that surrounds the evaporator coils, must be flush to the cabinet at the back of the refrigerator and have a positive seal. If the cooling unit is not installed properly, remove and install properly.

NOTE: Air leaks will cause insufficient cooling as well as rapid formation of frost.

8.4 DOOR POSITION

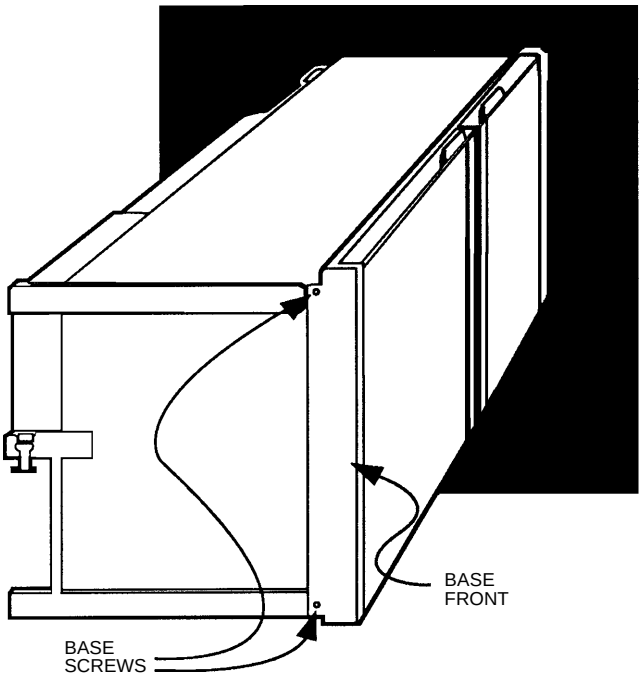
The door position can be checked by observing any



misalignment of the door in relation to the frame.

To correct the door alignment, loosen the hinge screws slightly and reorient the door in the proper position. Hold the door in its new position and carefully retighten the hinge screws.

If the door needs more adjustment than is available through the hinge adjustment, the base can be repositioned to reorient the door. Turn the refrigerator on its side to gain access to the two front base screws.



Loosen both screws slightly. Reposition the base until the door is reoriented. Retighten the base screws while holding the base in its new position.

NOTE: Improper position of the lower door can cause the interior light to stay on when the door is closed.

8.5 AMBIENT TEMPERATURE

This is the temperature surrounding the recreational vehicle, as well as the temperature of air at the back of the refrigerator. As the ambient temperature increases, the air temperature in the area of the cooling unit increases. The RM3604 and RM3804 will maintain approximately 43 degrees food storage temperature at 110 degree ambient temperature. As the ambient temperature increases, it is possible for the interior temperature of the refrigerator to increase. This means proper installation, ventilation and leveling are important for proper operating temperature of the refrigerator.

8.6 COOLING UNIT

The cooling unit is a self-contained, hermetically sealed set of coils where the refrigeration process takes place. The chemicals involved in the cooling process include hydrogen, ammonia, water and a rust inhibiting agent. There are no repairs recommended on the cooling unit. If it is defective, replace with a new cooling unit.

To check the cooling unit, first verify the AC heating element is good (see Sec. 2.1). Then place approximately one gallon of water inside the refrigerator and place a thermometer in one of the containers of water. Next, supply 115 volts direct to the AC heating element and operate for at least 12 hours. Then check the temperature on the thermometer. It should be at 45 degrees or lower depending on test conditions (see Sec. 8.5 and 8.2). If so, the cooling unit is good. If the temperature of the water is above 45 degrees, replace the cooling unit.

8.7 FOOD STORAGE

Proper refrigeration requires free air circulation within the food storage compartment. Restricted air circulation within this compartment will cause higher cabinet temperatures. To remedy this situation, simply rearrange your foodstuffs. It is also 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 to retain their crispness. NEVER PUT HOT FOOD INTO THE REFRIGERATOR.

To reduce frost formation in and on the freezing compartment, cover stored liquids and moist foods and do not leave the door open longer than necessary.

When the refrigerator is heavily loaded, it takes longer to lower the refrigerator temperature, and longer to make ice. A very heavy load may also cause defrosting.

8.8 HIGH HUMIDITY

High humidity may cause a small amount of condensation to form on the frame of the refrigerator. In extreme cases, the condensation may actually run off the frame. As the humidity is reduced, the "sweating" will decrease. High humidity can also be a factor in rapid formation of frost.

8.9 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. If this seal is incomplete, cold air can migrate out to the metal frame. If this happens, condensation could form on the frame and could promote rapid formation of frost. If you suspect an improper seal, apply a small bead of silicone all the way around the perimeter where the frame meets the interior liner.