

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.

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This program will address the most common system problems associated with the Dometic RM7030/RM7732 refrigerators 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.

RM7030 REFRIGERATOR SECTION: Product No. 921890201 & 921890301 SYMPTOM			
REFRIGERATOR SECTION	CAUSE	REFER TO	STEP
1. No operation – no panel lights	Operation DC Volts Fuse Wiring Upper Circuit Board Lower Circuit Board	1.1 4 5.7 8.1, 8.2 5.8 5.9	A A A A A,D
2. No operation – has panel lights	Operation Thermostat Upper Circuit Board Solenoid Wiring Lower Circuit Board	1.1 5.1 5.8 5.4 8.2 5.9	A A A B,C,D
3. Operating OK – no panel lights	DC Volts Wiring Upper Circuit Board Lower Circuit Board	4 8.2 5.8 5.9	A B through I D
4. No AC operation – operates on gas	Operation AC Volts Heating Element Upper Circuit Board Wiring Thermostat Lower Circuit Board	1.1 2 3 5.8 8.2 5.1 5.9	A B,C B
5. No Gas operation – operates on AC	Operation LP Gas Manual Gas Valve Igniter High Voltage Cable Electrode Solenoid Upper Circuit Board Wiring Lower Circuit Board	1.1 6 7.1 5.5 5.6 5.11 5.4 5.8 8.2 5.9	A A A A B,D,E C
6. Insufficient cooling on all modes.	Ventilation Leveling Ambient Temperature Air Leaks Thermostat Cooling Unit	9.2 9.1 9.5 9.3 5.1 9.6	
7. Insufficient cooling on AC – cools properly on gas.	AC Volts Heating Element	2 3	

SYMPTOM	CAUSE	REFER TO	STEP
8. Insufficient cooling on gas – cools properly on AC.	LP Gas Orifice Flue Baffle Flue Tube Flue Cap Burner	6 7.2 7.5 7.7 7.6 7.4	
9. Freezes on all modes.	Thermostat DC volts	5.1 4	A
10. Changes preset mode.	DC Volts Wiring Lower Circuit Board	4 8.1 5.9	A A,B,C,D
11. Flame failure light within 10 seconds.	Igniter High Voltage Cable Electrode Wiring	5.5 5.6 5.11 8.2	A A
12. Flame failure light after 3 minutes.	LP Gas Manual Gas Valve Solenoid Orifice Burner Wiring Thermocouple	6 7.1 5.4 7.2 7.4 8.2 7.3	A A
13. Interior light ON when door is closed.	Wiring Door Switch Door Position	8.2 5.10 9.4	
14. Rapid formation of frost.	Food Storage Interior Liner to Frame High Humidity Air Leaks	9.7 9.9 9.8 9.3	
15. Water on frame.	Interior Liner to Frame High Humidity Air Leaks Climate Control Heater	9.9 9.8 9.3 5.12	
RM7030 (Prod. No. 921890401) & RM7732			
16. No operation – no panel lights	Operation DC Volts Fuse Wiring Upper Circuit Board Lower Circuit Board	1.1B or 1.2 4 5.7 8.1 & 8.2 5.8 5.9	B B J E
17. No operation – has panel lights	Operation DC volts Thermistor Fuses Upper Circuit Board Wiring Lower Circuit Board	1.1B or 1.2 4 5.2 5.7 5.8 8.2 5.9	B B J E,F,G

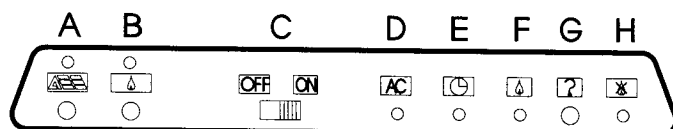
SYMPTOM	CAUSE	REFER TO	STEP
18. No AC operation – operates on gas.	Operation AC Volts Fuse Heating Element Upper Circuit Board Wiring Lower Circuit Board	1.1B or 1.2 2 5.7 3 5.8 8.2 5.9	B J E,F
19. No gas operation – operates on AC	Operation LP gas Manual Gas Valve Igniter High Voltage Cable Electrode Solenoid Upper Circuit Board Wiring Lower Circuit Board	1.1B or 1.2 6 7.1 5.5 5.6 5.11 5.4 5.8 8.2 5.9	B B B J E,G
20. Insufficient cooling on all modes.	Ventilation Leveling Ambient Temperature Air Leaks Thermistor Cooling Unit Thermistor Adjuster	9.2 9.1 9.5 9.3 5.2 9.6 5.3	
21. Insufficient cooling on AC – cools properly on gas.	AC Volts Heating Element Lower Circuit Board	2 3 5.9	E,F
22. Insufficient cooling on gas – cools properly on AC.	LP Gas Orifice Flue Baffle Flue Tube Flue Cap (RM7030 Only) Burner Lower Circuit Board	6 7.2 7.5 7.7 7.6 7.4 5.9	E,G
23. Freezes.	Thermistor Thermistor Adjuster Lower Circuit board Upper Circuit Board	5.2 5.3 5.9 5.8	E,F,G J
24. Changes preset mode.	Operation DC Volts Wiring Upper Circuit Board Lower Circuit Board	1.1B or 1.2 4 8.1 5.8 5.9	B J E
25. Check light on.	DC Volts Wiring LP Gas Manual Gas Valve Solenoid Orifice Burner Lower Circuit Board Thermocouple	4 8.2 6 7.1 5.4 7.2 7.4 5.9 7.3	B B E,G B

SYMPTOM	CAUSE	REFER TO	STEP
26. Interior light on when door is closed.	Wiring Door Switch Door Position	8.2 5.10 9.4	
27. Rapid formation of frost.	Food Storage Interior Liner to Frame High Humidity Air Leaks	9.7 9.9 9.8 9.3	
28. Water on frame.	Interior Liner to Frame High Humidity Air leaks Climate Control Heater	9.9 9.8 9.3 5.12	
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29. Ice Maker fails to start.	Operation Arm in UP Position AC Voltage Water Valve Ice Maker Cycle	10 11.4 2 11.7 11.8	
30. Ice Maker won't make ice.	Blades frozen in ice AC Voltage Water Valve Ice Maker Cycle	12.1 2 11.7 11.8	
31. Keeps making ice and won't shut off.	Shutoff Arm	11.4	
32. Not making enough ice.	Operation Mold Thermostat Cube Size Ice Maker Cycle	10 11.3 12.1 11.8	
33. Too much water is coming out.	Water Fill Adjustment Water Valve	12.1 11.7	
34. Ejector blade frozen into ice cubes.	Water Fill Adjustment Water Valve	12.1 11.7	
35. Unit is hooked-up – no water comes in.	Water Supply Water Valve	12.3 11.7	
36. Ice maker is running but won't make cubes.	Water Supply Shutoff Arm Mold thermostat Hold Switch	12.3 11.4 11.3 11.5	
37. Ice maker will not eject ice.	Ice Ejector Mold Heater Timing Motor	11.2 11.1 11.6	

SECTION 1

1.1 OPERATION

RM7030 (Product No. 921890201 & 921890301)



AES FULLY AUTOMATIC MODE

Turn switch "C" to the "ON" position. The bulb above push-button "A" will light up green, indicating that the control system is in the fully automatic mode. In this mode, 120 volts AC operation has first priority, meaning the refrigerator will operate on 120 volts AC whenever it is available. If 120 volts AC is not available, the system will automatically switch to LP gas operation. The thermostat inside the refrigerator cabinet cycles the element/burner as required to maintain the desired temperature.

NOTE: The AES controls will automatically go to the fully automatic mode each time switch "C" is turned "ON".

LP GAS OPERATION

When there is no electrical power available (120 volts AC) or if the indicator lamp above button "B" is ON, the AES system will switch to LP gas operation. When the thermostat in the refrigerator cabinet calls for cooling, the following sequence takes place:

- A high voltage spark is created above the burner.
- Power is sent to a solenoid which opens the gas control, allowing LP gas to flow to the burner. The spark ignites the LP gas and the small flame provides heat for the boiler.
- The electrode mounted above the burner tube monitors the flame continuously. If the flame should fail for any reason, the high voltage spark will start immediately and relight the flame.

When the thermostat reaches the desired temperature, it will shut off the gas flame completely. The system will remain on standby until cooling is again required.

LP GAS ONLY OPERATION

Turn switch "C" to the "ON" position and press push-button "B". The green indicator lamp over push-button "B" will come on and the refrigerator will operate only on LP gas even if 120 volts are available. When the vehicle engine is turned "OFF", the AES system initiates a 25 minute delay, preventing the refrigerator from operating on LP gas.

LP GAS DELAY MODE

When the vehicle engine is turned off, the AES system initiates a delay cycle which prevents the refrigerator from operating on LP gas for 25 minutes. The purpose of the delay is to avoid having a gas flame burning during a refueling stop at a gas station (see WARNING).

If the vehicle engine is restarted during this delay period, the LP gas operation will not start until the delay period is over. This means each time the vehicle engine is stopped, the complete 25 minute delay cycle will take place. If 120 volt AC becomes available during this delay cycle, the AES system will start operation in the 120 volt AC mode immediately, unless the push-button "B" (LP gas only) has been pressed.

If the RV is stopped somewhere other than a gas station, you may wish to cancel the delay cycle. To do this, turn the main system switch to "OFF" for several seconds, then turn the main system switch back to "ON" and the system will immediately start operation in the LP gas mode.

! WARNING

Most LP gas appliances used in recreational vehicles are vented to the outside of the vehicle. When parked close to a gasoline pump, it is possible that the gasoline fumes could enter this type of appliance and ignite from the burner flame, CAUSING A FIRE OR AN EXPLOSION.

FOR YOUR SAFETY, it is recommended that all LP gas appliances which are vented to the outside should be shut off when refueling.

The AES system is designed to turn off the LP flame during refueling stops by the use of the delay cycle explained previously. However, you must remember that the delay cycle will be activated only if the refrigerator is properly connected to the vehicle engine electrical circuit.

If the refrigerator is not connected to the engine by the ignition lock wiring, the refrigerator must be shut off during refueling. To do this, turn the main system switch "C" to "OFF". Only after the vehicle has been moved away from the refueling area should the main system switch "C" be turned back ON.

FLAME FAILURE DURING LP GAS OPERATION

If the LP gas flame fails during the burner cycle, the high voltage spark will continue arcing for up to three minutes.

At the end of three minutes the gas control will stop the flow of LP gas to the burner, the sparking will stop and the red indicator lamp "H" will light up. LP gas operation will not be possible as long as this indicator is ON.

To restart LP gas operation, turn the main system switch "C" to "OFF" for five seconds and then back ON. This will reset the AES controls and turn off the flame failure indicator "H". The system will start another cycle for gas ignition.

If the refrigerator has not been used for a long time or the LP tanks have just been refilled, air may be trapped in the supply lines. To purge the air from the lines may require resetting (turning OFF and ON) the On/Off switch "C" three or four times.

If repeated attempts fail to start the LP gas operation, check to make sure that the LP gas supply tanks are not empty and all manual Shutoff valves in the lines are open.

NOTE: If you are in the AES mode when the flame failure light "H" comes on, the mode indicator lamp "A" (green light) will go out. If 120 volt AC power becomes available during this period, the mode indication lamp will come on showing that the refrigerator is operating on another energy source. The red lamp "H" will remain on until the AES system is reset with an OFF/ON operation of the main switch "C". If you have selected the LP gas only mode (control button "B"), the 120 volt function has been locked out. If the burner fails to light, the green lamp over button "B" will go out and the red lamp "H" will glow indicating flame failure. Even if 120 volts is available, the refrigerator cannot switch to electric operation and all cooling will stop. This fact must be considered when selecting "gas only" operation.

120 VOLTS AC OPERATION

Since 120 volt AC is usually the most economical source for operation of the refrigerator, the AES control system is designed to select this mode whenever it is available. The only exception to this is when push-button "B" (LP gas only mode) is selected. The 120 volt heating elements attached to the boiler provide the heat necessary to operate the cooling system. The thermostat controls the power ON and OFF to the elements and maintains the desired temperature.

LOW VOLTAGE MONITOR

The AES system requires 12 volts DC power at all times to operate properly. The DC power must be 9.5 volts DC or higher. If the DC voltage drops below 9.5 volts DC, the AES system will switch to an emergency cooling mode.

1. The mode indicator lamp will go off (green light);
2. The system will revert to continuous LP gas operation, with no thermostat control.

The refrigerator will continue to operate in the emergency mode until the DC power supply is increased to 10.5 volts DC. When 10.5 volts is reached, the mode indicator light (green) will come back on and normal operation will resume.

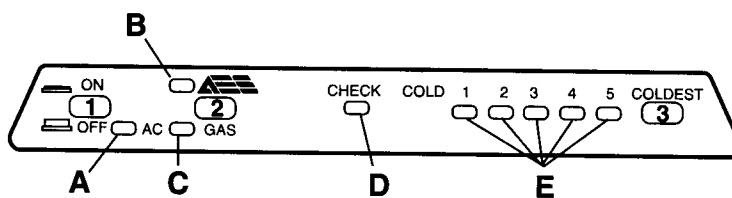
During the low voltage condition, the interior light will operate normally.

THERMOSTAT

The refrigerator is equipped with a thermostat that can be adjusted to maintain various temperatures. Turn the knob clockwise toward "MAX" for a lower temperature and for a warmer temperature – turn the knob counter-clockwise toward "MIN". Set the thermostat approximately mid-range and adjust it toward "MIN" or "MAX" to obtain the desired cabinet temperatures. Remember, at the "MAX" setting, the heating element/burner is running continuously and the lower cabinet temperatures are obtained.

1.2 RM7030 (Product No. 921890401)

AES DISPLAY PANEL



AES MODE

1. Move the AES mode selector button (2) to the DOWN position. If 120 volts AC is available, the AC mode indicator lamp "A" will illuminate indicating AC operation. If 120 volts AC is not available, the GAS mode indicator lamp "C" will illuminate and the control system will automatically switch to GAS operation.
2. If the CHECK indicator lamp "D" illuminates and the GAS mode indicator lamp "C" is off, the controls have failed to ignite the burner in the GAS mode. GAS operation may be reset by pressing main power ON/OFF button (1) to the OFF then ON position.

- Press the TEMPERATURE SELECTOR button (3) until the lamp at the desired position is illuminated.
- When operating in the AES mode, the AES mode indicator lamp "B" will illuminate. The control system will automatically select between AC and GAS operation with AC having priority over GAS. Either the AC indicator lamp "A" or the GAS indicator lamp "C" will illuminate depending on the energy source selected by the control system. If the control system is operating with AC energy and it then becomes unavailable, the system will automatically switch to GAS. As soon as AC becomes available again, the control will switch back to AC regardless of the status of GAS operation.

GAS MODE

- Move the AES mode selector button (2) to the UP position. The GAS mode indicator lamp "C" will illuminate. After 45 seconds the burner should be ignited and operating normally.
- On the initial refrigerator start-up, it may take longer than 45 seconds to allow air to be purged from the gas line. If the gas does not ignite within 45 seconds, the CHECK indicator lamp "D" will illuminate and the GAS mode indicator lamp "C" will go off. To reset when the CHECK indicator lamp "D" is illuminated, press the main power ON/OFF button (1) to the OFF then ON position.

If the control is switched to AC operation while the CHECK indicator lamp is on, it will function properly, but the CHECK indicator lamp will not go off until the main power ON/OFF button is pressed to the OFF then ON position.

NOTE: Do not continue to reset GAS operation if the CHECK indicator lamp continues to be illuminated after several tries. If repeated attempts fail to start the LP gas operation, check to make sure that the LP gas supply tanks are not empty and all manual shutoff valves in the lines are open.

- Press the TEMPERATURE SELECTOR button (3) until the lamp at the desired position is illuminated.

THERMOSTAT

The thermostat on the refrigerator controls both the gas and electric operation, thereby eliminating the necessity of resetting each time a different energy source is employed.

After the initial start-up, the thermostat should be moved from "COLDEST" to the desired temperature setting, usually about mid-setting.

STANDBY MODE OF OPERATION

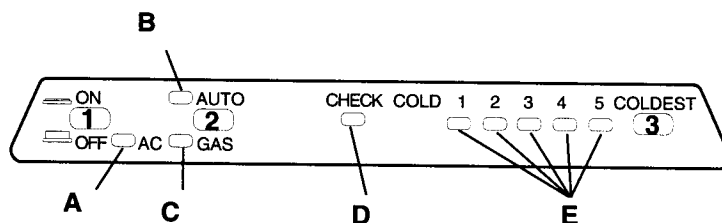
This control system contains a feature where it will continue to operate the cooling system in the event of a failure of a major operating component. Two different modes of operation can occur in this category.

If for some reason the display module becomes non-functional, the control system will revert to fully automatic operation – selecting the best energy source available with AC and GAS priority. The temperature of the refrigerator will be maintained at the MID position within normal temperature tolerances. The power module will continually attempt to reestablish operation of the display module.

The second standby mode of operation will execute when a failure of the temperature sensing device or associated electronic circuitry occurs. If this should occur, the control system will operate on the energy source selected via the control panel. The cooling unit will run continuously on the selected energy source. The refrigerator will continue to operate in this mode indefinitely or until a new sensor is installed and the system is reset.

1.3 RM7732 REFRIGERATOR OPERATION

2-WAY DISPLAY PANEL



AUTO MODE

Press the AUTO mode selector button (2) to the DOWN position. If 120 volts AC is available, the AC mode indicator lamp (A) will illuminate indicating AC operation. If 120 volts AC is not available, the GAS mode indicator lamp (C) will illuminate and the control system will automatically switch to GAS operation.

If the CHECK indicator lamp (D) illuminates and the GAS mode indicator lamp (C) is OFF, the controls have failed to ignite the burner in the GAS mode. GAS operation may be reset by pressing the main power ON/OFF button (1) to the OFF then ON position. (See GAS MODE.)

Press the TEMPERATURE SELECTOR button (3) until the lamp at the desired position is illuminated.

GAS MODE

Move the AUTO mode selector button (2) to the UP position. The GAS mode indicator lamp (C) will illuminate. After 45 seconds the burner should be ignited and operating normally.

On the initial refrigerator start-up, it may take longer than 45 seconds to allow air to be purged from the gas line. If the gas does not ignite within 45 seconds, the CHECK indicator lamp (D) will illuminate and the GAS mode indicator lamp (C) will go off. To reset when the CHECK indicator lamp (D) is illuminated, press main power ON/OFF button (1) to the OFF then ON position.

NOTE: DO NOT continue to reset GAS operation if the CHECK indicator lamp continues to be illuminated after several tries.

Press the TEMPERATURE SELECTOR button (3) until the lamp (E) at the desired position is illuminated.

THERMOSTAT

The thermostat on the refrigerator controls both the gas and electric operation, thereby eliminating the necessity of resetting each time a different energy source is employed.

After the initial start-up, the thermostat should be moved from "COLDEST" to the desired temperature setting is usually about mid-setting.

TO SHUT OFF THE REFRIGERATOR

The refrigerator may be shut off while in any mode of operation by pressing the main power ON/OFF button (1) to the UP (OFF) position. This shuts off all DC power to the refrigerator, including the interior light.

DESCRIPTION OF OPERATING MODES

AUTO MODE

When operating in the AUTO mode, the AUTO mode indicator lamp (B) will illuminate. The control system will automatically select between AC and GAS operation with AC having priority over GAS. Either the AC indicator lamp (A) or the GAS indicator lamp (C) will illuminate depending on the energy source selected by the control system. If the control system is operating with AC energy and it then becomes unavailable, the system will automatically switch to GAS. As soon as AC becomes available again, the control will switch back to AC regardless of the status of GAS operation.

GAS MODE

When operating in the GAS mode, the AUTO mode indicator lamp (B) will be off and the GAS mode indicator lamp (C) will be illuminated. This mode provides LP gas operation only. The control system will activate the ignition system and will attempt to light the burner for a period of approximately 45 seconds. If unsuccessful, the CHECK indicator lamp (D) will illuminate and the GAS mode indicator lamp (C) will turn off.

To restart GAS operation, press the main power ON/OFF button (1) to the OFF and then ON position. The control system will attempt a new 45 second ignition sequence.

If the refrigerator has not been used for a long time or the LP tanks have just been refilled, air may be trapped in the supply lines. To purge the air from the lines may require resetting the main power ON/OFF button (1) three or four times. If repeated attempts fail to start the LP gas operation, check to make sure that the LP gas supply tanks are not empty and all manual shutoff valves in the lines are open.

If the control is switched to AC or DC operation while the CHECK indicator lamp is on, it will function properly, but the CHECK indicator lamp will not go off until the main power ON/OFF button is pressed to the OFF then ON position.

STANDBY MODE OF OPERATION

This control system contains a feature where it will continue to operate the cooling system in the event of a failure of a major operating component. Two different modes of operation can occur in this category.

If for some reason the display module becomes non-functional, the control system will revert to full automatic operation selecting the best energy source available with AC as first priority, and GAS as the second priority. The temperature of the refrigerator will be maintained at the MID position within normal temperature tolerances. The power module will continually attempt to reestablish operation of the display module.

The second standby mode of operation will execute when a failure of the temperature sensing device or associated electronic circuitry occurs. If this should occur, the control system will operate on the energy source selected via the control panel. The cooling unit will run continuously on the selected energy source. The refrigerator will continue to operate in this mode indefinitely or until a new sensor is installed and the system is reset.

SECTION 2

AC VOLTAGE REQUIREMENTS

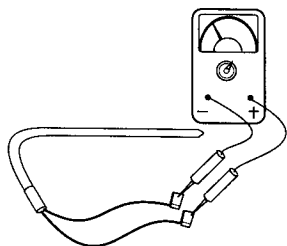
The refrigerator is a 120 volt AC, 60 Hz appliance. The proper operating range is **100 to 132 volts**. Check the AC volts at the receptacle where the refrigerator is attached. If voltage is outside of the proper operating range, correct the power source problem.

On RM7030 (Product No. 921890401) and RM7732, if voltage drops below 100 volts, cooling efficiency will decrease with voltage decrease. The refrigerator will not switch to another mode of operation until all **AC power is lost**.

SECTION 3

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 each of the two RM7030 and RM7732 heating elements is 69, with a tolerance of ten percent. If the resistance is outside the tolerance range, replace the heating element.



SECTION 4

DC VOLTAGE REQUIREMENTS

A. RM7030 (Product No. 921890201 & 921890301)

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 the 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: 5 amps.

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 on and will not be thermostatically controlled. Low DC volts (below 9.5) could cause over-cooling.

B. RM7030 (Prod. No. 921890401) & RM7732

For the refrigerator to operate on any mode, DC voltage must be supplied to the terminals at the rear of the refrigerator.

The operational range of the unit is a minimum of 9.6V DC to a maximum of 22V DC. The unit will automatically shut down until voltage has decreased to 18V DC. The refrigerator requires at least 9.6V DC for proper operation; however, the panel lights will continue to illuminate until voltage has dropped to 4V DC or below.

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 refrigerator operation. Check for proper DC voltage at the positive and negative terminals at the back of the unit. If the voltage is outside the operational range, correct the power supply problem.

SECTION 5

DC COMPONENTS

5.1 THERMOSTAT

RM7030 (Product No. 921890201 & 921890301)

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.

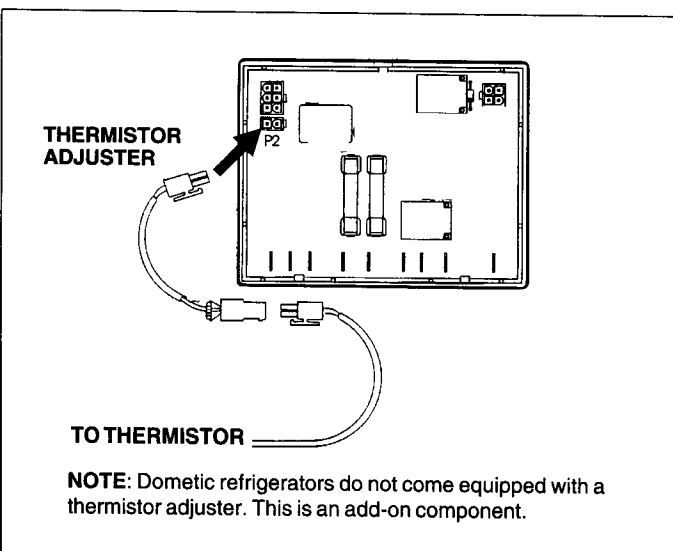
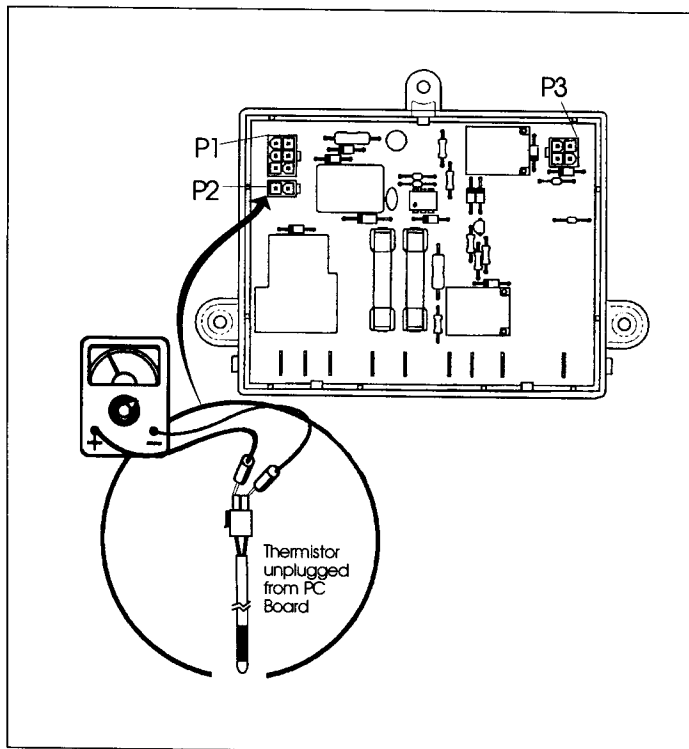
If the above test allows the refrigerator to operate and/or the continuity test proves the thermostat to be defective, replace the thermostat. A defective thermostat would cause insufficient cooling, no cooling or freezing on all modes.

5.2 THERMISTOR

RM7030 (Prod. No. 921890401) and RM7732

To determine if the temperature sensor is functioning properly, perform the following test.

Remove the cover from the lower circuit board. Disconnect the thermistor harness from the P2, 2-pin terminal on the lower circuit board. Place thermistor in a glass of ice water. Wait 2 to 3 minutes. Using an ohm meter, place a probe on each terminal point. You should get a reading of approximately 7,000 to 10,000 ohms. Normal failure for this type of device is to have a very high resistance. A defective thermistor could cause an over-cooling condition on all modes.



5.3 THERMISTOR ADJUSTER

RM7030 (Product No. 921890401) and RM7732

The thermistor adjuster is a resistor-type component that attaches between the thermistor and the lower board. Its function is to allow the refrigerator to reach temperatures below the normal 46° to 35°F. range (setting 1 through 5 on upper circuit board).

To determine if the thermistor adjuster is operating properly, do an ohms resistance check across the terminals. Proper ohms reading is approximately 23,200 ohms $\pm$ 10%.

5.4 SOLENOID VALVE

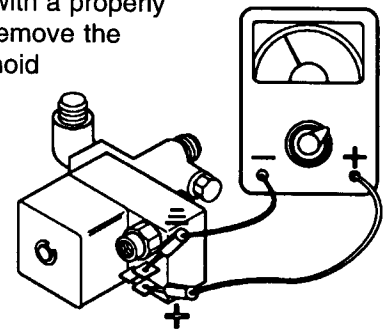
A. RM7030 (Product No. 921890201 & 921890301)

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 a 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. 7.3A), 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.

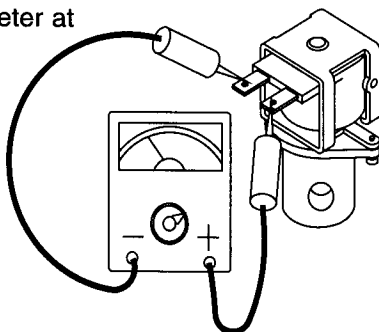


B. RM7030 (Product No. 921890401) and RM7732

When the refrigerator 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 terminals. The proper reading would be 49 ohms with a tolerance range of ten percent.

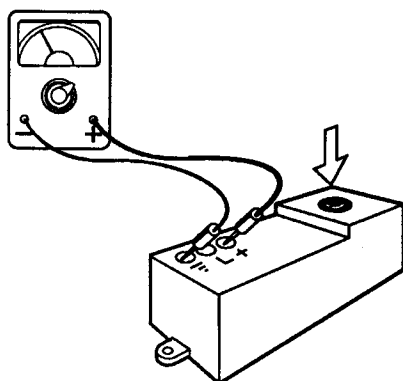
Next, hook up a manometer at the test port. Then check for DC volts at gas valve terminals while the unit is in trial-for-ignition. If DC volts are present and pressure is low, replace the valve. If DC volts are not present at the valve while unit is in trial-for-ignition, verify that the wires at Plug 3, Terminal 1 and 2 on lower circuit board have DC volts (9 or more). If the valve chatters, check for low input voltage to the valve (below 9V DC).



5.5 IGNITER

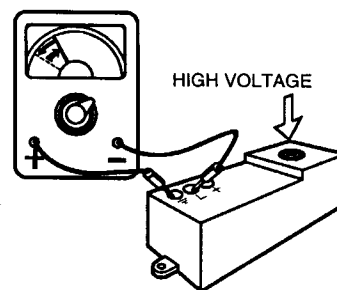
A. RM7030 (Product No. 921890201 & 921890301)

The igniter is an electronic device that produces high voltage to create a spark at the burner, only on gas mode. It also produces an 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. 8.2) or a circuit board problem (see Sec. 5.9A to 5.9D).



Next, disconnect DC power at refrigerator terminal block. Remove high voltage cable from igniter. Reconnect DC power – the igniter should produce 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 3 minutes for lamp to illuminate. If all of the previous checks are correct, the igniter is good – do not replace.



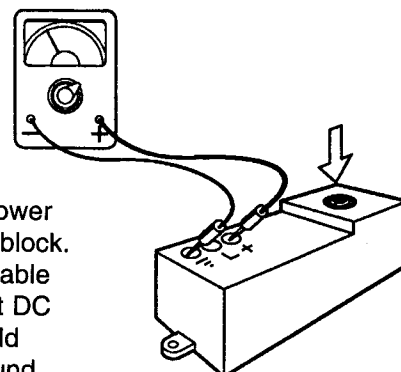
B. RM7030 (Product No. 921890401) and RM7732

The igniter is an electronic device that produces high voltage to create a spark at the burner, only on gas mode.

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 during trial-for-ignition.

If no voltage is present, see Sec. 5.9E to 5.9G.

Next, disconnect DC power at refrigerator terminal block. Remove high voltage cable from igniter. Reconnect DC power, the igniter should produce a sparking sound during trial-for-ignition. If not, replace the igniter.



5.6 HIGH VOLTAGE CABLE

A. RM7030 (Product No. 921890201 & 921890301)

Disconnect DC power at the refrigerator terminal block. Disconnect high voltage cable from electrode. Reconnect DC power. If sparking starts, cable is good (see Sec. 5.11). If no sparking, disconnect DC power. If sparking sound from igniter, then replace high voltage cable.

B. RM7030 (Product No. 921890401) and RM7732

Disconnect DC power at the refrigerator terminal block. Disconnect high voltage cable from electrode. Reconnect DC power. If sparking starts during trial-for-ignition, the cable is good (see Sec. 5.11). If there is no sparking during trial-for-ignition, disconnect DC power and disconnect high voltage cable at the igniter. Reconnect DC power. If there is a sparking sound from the igniter during trial-for-ignition, then replace high voltage cable.

5.7 FUSES

A. RM7030 (Product No. 921890201 & 921890301)

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.

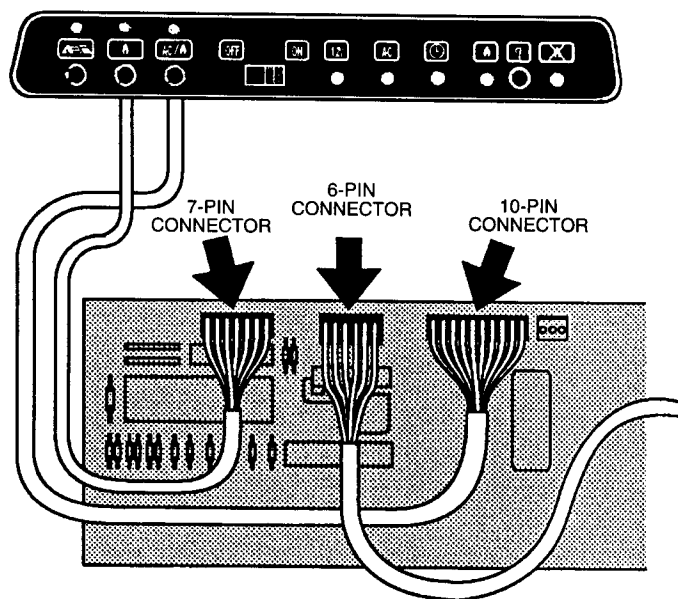
B. RM7030 (Product No. 921890401) and RM7732

The fuses are to protect the circuit board and the integrity of the heater circuit(s) against shorts.

The 3-amp DC fuse is designed to protect the circuit board from internal shorts. The 5-amp AC fuse is designed to protect the integrity of the AC heater circuit from shorts.

To check the fuses, remove from the holder and do a continuity check. If no continuity, replace with a proper amperage fuse.

NOTE: Determine the cause of the fuse failure and correct before replacing fuse.



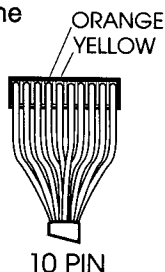
5.8 UPPER CIRCUIT BOARD

RM7030 (Product No. 921890201 & 921890301)

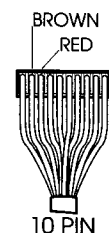
A. ON-OFF SWITCH

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.

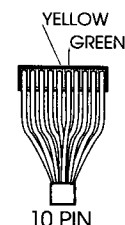
With the switch in the "ON" position:
CONTINUITY should be indicated between the orange terminal to the yellow terminal on the 10-pin connector.



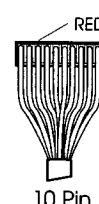
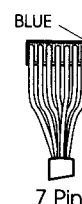
CONTINUITY should be indicated between the brown terminal to the red terminal on the 10-pin connector.



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

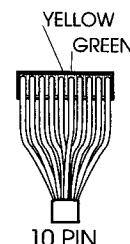


NO continuity should be indicated between the red terminal on the 10-pin connector to the blue terminal on the 7-pin connector.

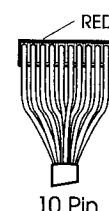
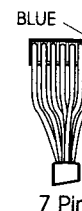


With the switch in the "OFF" position:

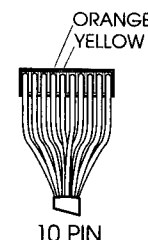
CONTINUITY should be indicated between the yellow terminal to the green terminal on the 10-pin connector.



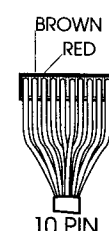
CONTINUITY should be indicated between the red terminal on the 10-pin connector to the blue terminal on the 7-pin connector.



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.



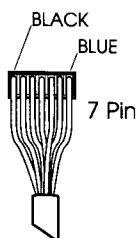
NOTE: If any of these checks on the ON-OFF switch are not correct, verify the wire harness has continuity. If the wire harness is good, replace the upper circuit board.

B. 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:

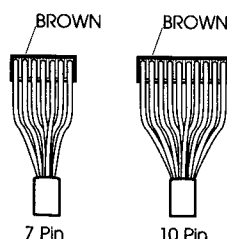
NO continuity should be indicated between the blue and black terminals on the 7-pin connector.

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.

C. 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.



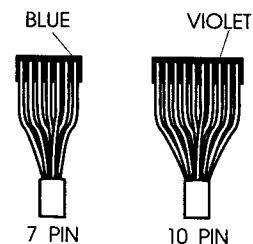
NOTE: If the check on the AES function lamp is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

D. 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.

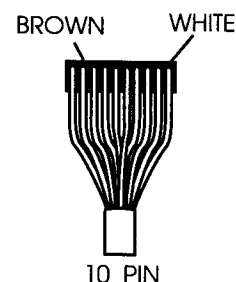


NOTE: If the check on gas function switch is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

E. 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.

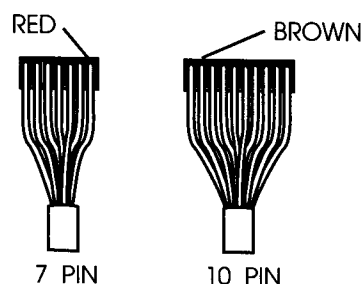


NOTE: If the check on gas function lamp is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

F. 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.



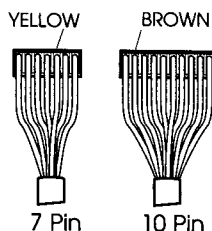
With the mode switch (?) NOT depressed: A reading would **NOT** be indicated.

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.

G. 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.



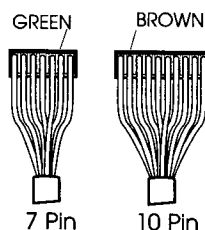
With the mode switch (?) NOT depressed: A reading would **NOT** be indicated.

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.

H. 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.



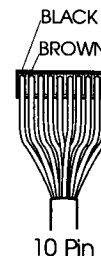
With the mode switch (?) NOT depressed: A reading would **NOT** be indicated.

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.

I. 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.

J. RM7030 (Product No. 921890401) and RM7732

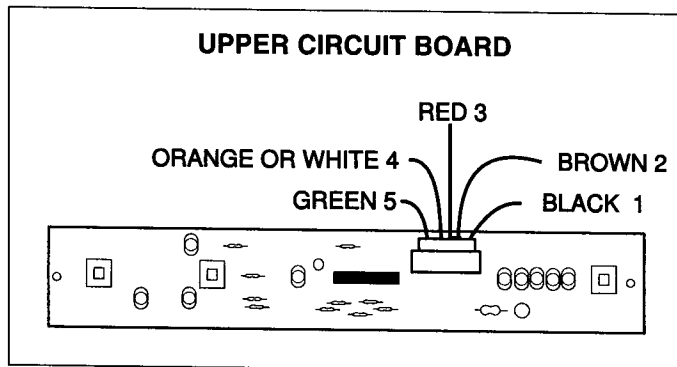
NOTE: The PAL tester will allow for proper testing of the integrity of the upper and lower circuit boards. PAL is available from your Dometic parts distributor.

NOTE: Each of the following tests should be done according to pin locations. The wire colors may vary.

With main ON/OFF switch on display panel in OFF position:

Check for DC voltage at Plug 1, Terminal 4 and terminal 5 negative (-) DC on the **lower circuit board**. If no voltage, then check fuse condition. Replace if blown. Check for DC voltage between J4 and J10 terminals on the lower circuit board. If fuse is good and there is battery voltage at J4, remove and replace lower circuit board.

Next, check for DC voltage at the upper circuit board between terminal 4 (orange or white wire) and terminal 3 (black wire) which is negative (-) DC. If no voltage, and your previous check proved voltage at the lower circuit board between these wires, replace the cable assembly. If DC volts are present, proceed to the next check.



With main ON/OFF switch on display panel in ON position:

Check for DC volts between terminal 3 (red wire), (-) negative and terminal 5 (green wire) and terminal 1 (black wire). If there is no voltage, the ON/OFF switch on upper circuit board is defective. Replace the upper circuit board. If voltage is present, the ON/OFF switch is good.

Next, do the same voltage test at the lower circuit board. Negative (-) plug 1, terminal 5 (red wire), to plug 1, terminal 1 (green wire) and plug 1, terminal 3 (black wire). If there is no voltage and you had voltage on previous test, the cable assembly is defective and you must replace it. If voltage is present, the ON/OFF switch on the upper circuit board and cable assembly is good.

DIAGNOSTIC MODE

NOTE: The PAL tester will allow for proper testing of the integrity of the upper and lower circuit boards. PAL is available from your Dometic parts distributor.

This control system has an integral Diagnostic/ Test sequence.

Access to the diagnostic sequence unit is by means of the ON/OFF Power Switch and the Temperature Selector Switch. With the Power Switch in the OFF position, hold the Temperature Selector Switch in the DOWN position. While keeping the Temperature Selector Switch in the DOWN position, move the main power ON/OFF Switch to the ON (DOWN) position. Hold the Temperature Selector Switch DOWN for three (3) seconds. The control will indicate that the diagnostics have been entered by illuminating each of the Mode Indicator Lamps and the Temperature Indicator Lamps one at a time in sequence. Each lamp is illuminated twice. The Check Lamp will then flash ON and OFF and #1 position Temperature Indicator will remain illuminated. The test sequence can be operated automatically or manually. For AUTO step sequence, press the AUTO/GAS Mode Selector Switch to the DOWN position. The AUTO Mode Indicator will illuminate. If each lamp illuminates during the check, the display circuit board is good.

In automatic test mode, each load is activated for approximately four (4) seconds then released. The control system will automatically exit the diagnostic sequence in approximately four (4) minutes or when power is turned OFF.

The Temperature Indicator Lamps are used to indicate which part of the control system is being tested. When position #1 is illuminated, the control is in an idle position with all output loads off. To activate the first load simply push the Temperature Selector Switch.

All of the checks listed below are done on the lower circuit board.

The manual test sequence is as follows:

- Position #1: Idle Position, all loads off.
- Position #2: Activate AC Heater. Check for AC volts at terminals J7 and J8.
- Position #3: Activate Gas Solenoid. Check for DC volts at Gas Solenoid white wire (-) and yellow wire (+).
- Position #4: Idle position. All loads OFF.
- Position #5: Activate spark ignition system. Check for DC volts to (+) terminal of igniter and ground.

If you experience a problem on any of the above checks, verify the fuses on the lower circuit board are good.

If all checks prove to be good, and the refrigerator does not operate on electric mode, replace the lower circuit board. It has been damaged by AC volts in excess of 180 volts.

5.9 LOWER CIRCUIT BOARD

RM7030 (Product No. 921890201 & 921890301)

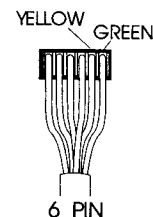
The circuit board controls all modes of operation.

A. DC VOLTS



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. 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 and wiring.



B. AC OPERATION

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 elements or wiring.

If voltage is present, DO NOT CHANGE THE CIRCUIT BOARD. Check the following components: heating elements, upper circuit board, thermostat and wiring.

C. GAS OPERATION

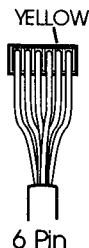
CAUTION

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:

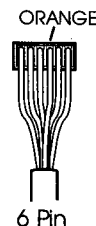
Igniter (Sec 5.5A) **High Voltage Cable** (Sec. 5.6A)
Electrode (Sec. 5.11) **Solenoid** (Sec. 5.4A)
Upper Circuit Board (Sec. 5.8A to 5.8I)
Thermostat (Sec. 5.1)

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. 5.5A) 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.

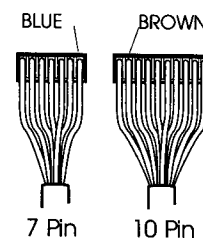


D. DC VOLTS TO UPPER CIRCUIT BOARD

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 lower 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.

RM7030 (Product No. 921890401) & RM7732

E. DC VOLT: ALL TESTS ARE TO BE DONE WITH THE REFRIGERATOR IN THE COOLING MODE.

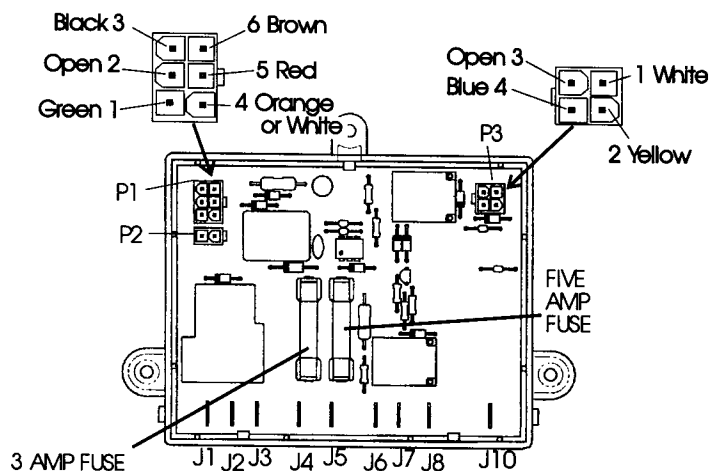
Before any checks are made, make sure the board is receiving proper DC volts. Measure volts between terminal J4 and the ground strip. Voltage should be the same as at the positive (+) and negative (-) on the terminal block. If not, check for loose connections.

F. AC MODE: NOTE: The PAL tester will allow for proper testing of the integrity of the upper and lower circuit boards. PAL is available from your Dometic parts distributor.

ALL TESTS ARE TO BE DONE WITH THE REFRIGERATOR IN THE COOLING MODE.

For AC heating element operation, check that incoming AC voltage is present at terminals J5 and J6 on the circuit board. If voltage is below 100 volts, see Sec. 2.

Check for voltage at the heating element connection terminals J7 and J8 on the circuit board. If no voltage is present, check the 5 amp AC and 3 amp DC fuses. If fuse is defective, replace the fuse. If fuses are good, replace the circuit board.



G. **GAS MODE**: NOTE: The PAL tester will allow for proper testing of the integrity of the upper and lower circuit boards. PAL is available from your Dometic parts distributor.

ALL TESTS ARE TO BE DONE WITH THE REFRIG-
ERATOR IN THE COOLING MODE.

Before checking the circuit board for gas operation, verify that the following components are good: Upper Circuit Board, Thermistor and 3 Amp Fuse.

NOTE: Each of the following tests should be done according to pin locations. The wire colors may vary.

First, check for voltage during **trial-for-ignition** (approximately 45 seconds) at Plug 3, Terminals 1 (white wire) and 2 (yellow wire) to the solenoid. If no voltage is present, change the circuit board. If voltage is present, check for voltage at the solenoid. If voltage is not present, check the wires and connections.

Next, check for voltage to the igniter. If no voltage is present, check the wires. If good, then change the circuit board. If voltage is present, this portion of the board is good.

NOTE: When millivolts to the lower circuit board are 10 ± 3 , the power to Plug 3, Terminal 4 (blue wire) will be shut off. If flame extinguishes during the cooling mode, the circuit board will not supply voltage to Plug 3, Terminal 4 (blue wire) again until the millivolts have decreased to 10 ± 3 . This process could take up to 15 seconds or longer.

To check the flame sense circuit of the lower circuit board, operate the refrigerator on GAS mode, then measure the millivolts between J3 terminal and the other wire connection from the thermocouple. The millivolt meter should read between 25 to 35 millivolts with the gas flame burning. Next, turn the manual shutoff valve to OFF and watch the millivolt reading as it drops. Note the millivolt reading when Plug 3, terminal 4 (blue wire) receives power. It should be 10 ± 3 millivolts or 7 to 13.

Repeat this test several times. If the igniter fails to spark on any test sequence, it should be replaced.

If the millivolt readings vary more than 1 to 2 MV from one test to the other when power is supplied to Plug 3, terminal 4, replace the lower circuit board.

NOTE: Verify all connections are clean and tight before replacing either component.

5.10 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 is disconnected or OFF to the refrigerator. 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.

5.11 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

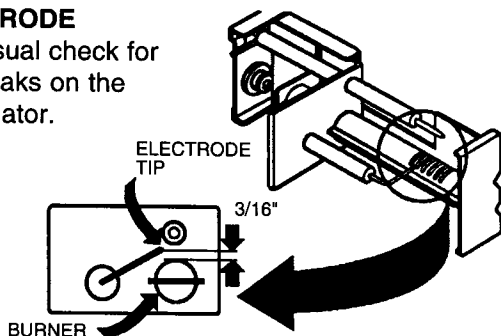
either of the above is found, replace the electrode. The spark gap must be set at three sixteenths (3/16") of an inch and tip of electrode above the slots in the burner.

If igniter (see Sec. 5.5A or B) and high voltage cable (see Sec. 5.6A or B) are good and there is no spark at the tip of the electrode, replace the electrode.

5.12 CLIMATE CONTROL HEATER

The climate control is a switch operated DC electric heater. Its primary function is to warm the frame of the refrigerator during high temperature/high humidity conditions. This prevents the formation of condensation on the metal frame.

To check the switch, disconnect the wires and do a continuity check. In the OFF position, there should be no continuity. In the ON position, there should be a continuity reading.



To check the heater itself, do an ohms resistance reading on the heater wire by using a properly calibrated ohm meter. The proper ohms reading is 34 ohms $\pm$ 10%. The approximate amp draw is less than .5 (1/2) amp.

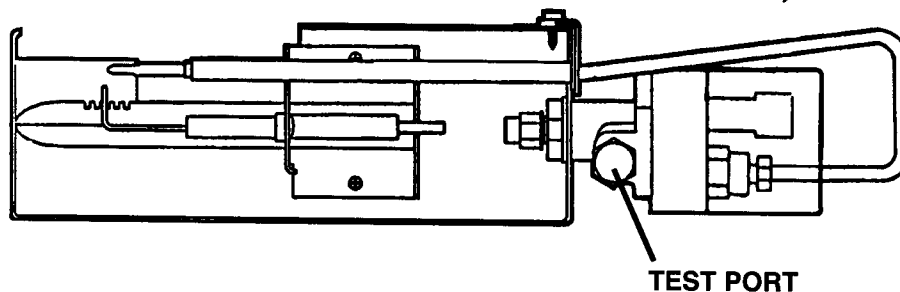
NOTE: The climate control will draw DC power continuously. It should be turned off when charging source is not available.

SECTION 6

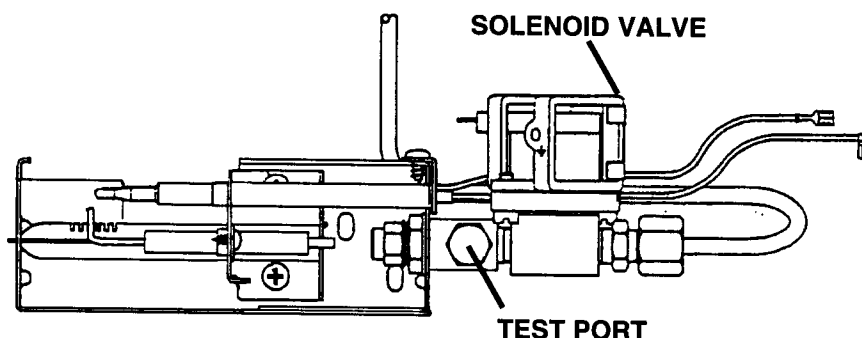
LP GAS REQUIREMENTS

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 port on the solenoid.

RM7030 (Product No. 921890201 & 921890301)



RM7030 (Product No. 921890401) and RM7732



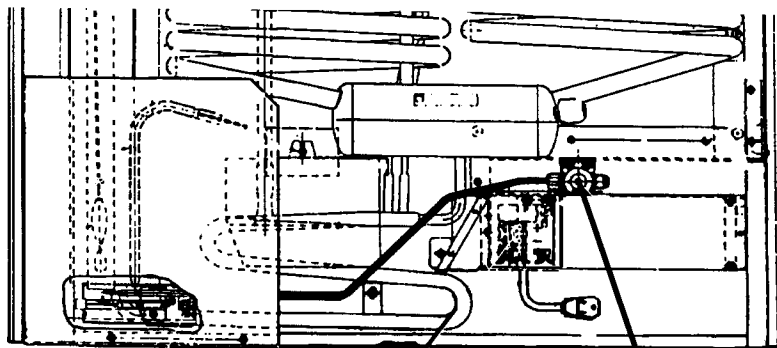
SECTION 7

LP GAS COMPONENTS

7.1 MANUAL GAS Shutoff VALVE

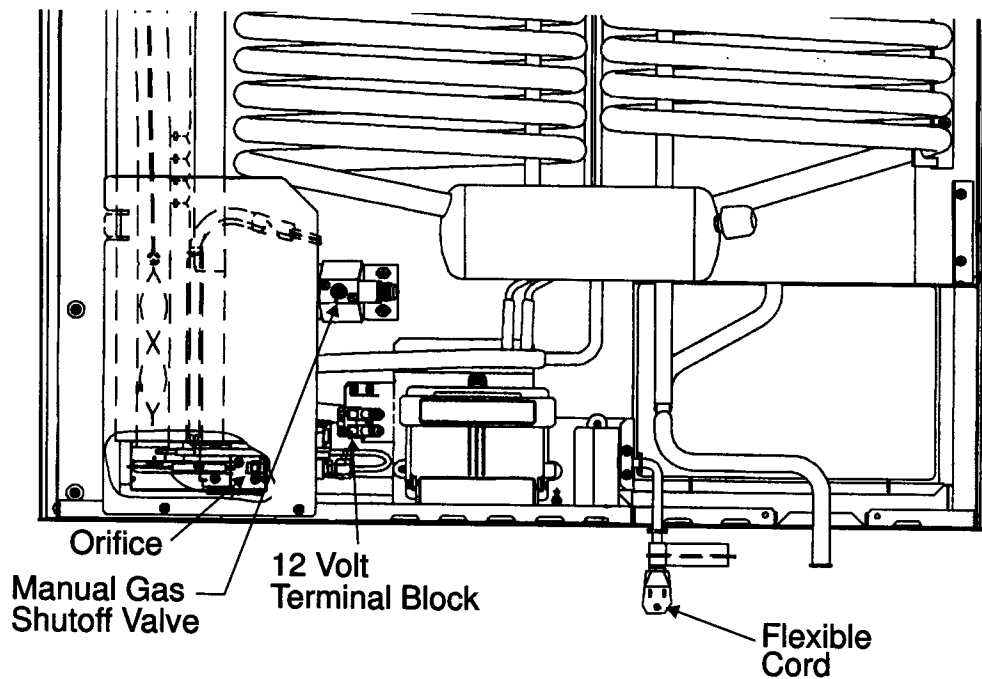
The manual gas shutoff valve is where the incoming LP gas supply is attached. To check the shutoff valve, remove and inspect for any obstructions. The valve must be turned to "ON" before any gas operation can occur.

RM7030 (Product No. 921890201 & 921890301)



MANUAL GAS
Shutoff VALVE

RM7030 (Product No. 921890401) and RM7732



7.2 ORIFICE

The orifice is a small brass fitting that has a ruby membrane that is laserbeam 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.

⚠ WARNING

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.

If there is lack of cooling on gas operation, verify the orifice is the proper size (#73).

7.3 THERMOCOUPLE

A. RM7030 (Product No. 921890201 & 921890301)

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

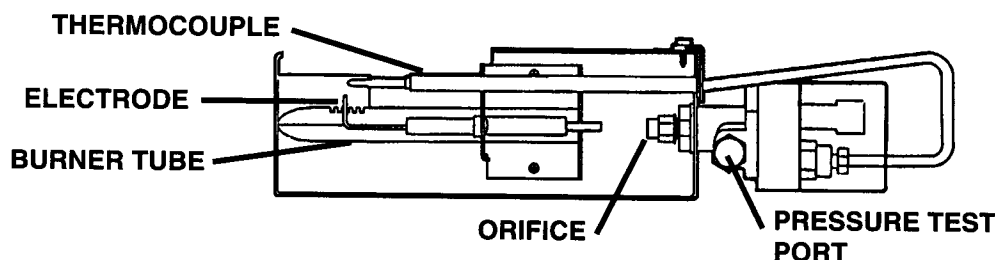
valve and attach to the thermocouple. Next, supply flame to tip of the thermocouple for a few moments while depressing the safety valve. Remove the flame and release the safety valve.

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.

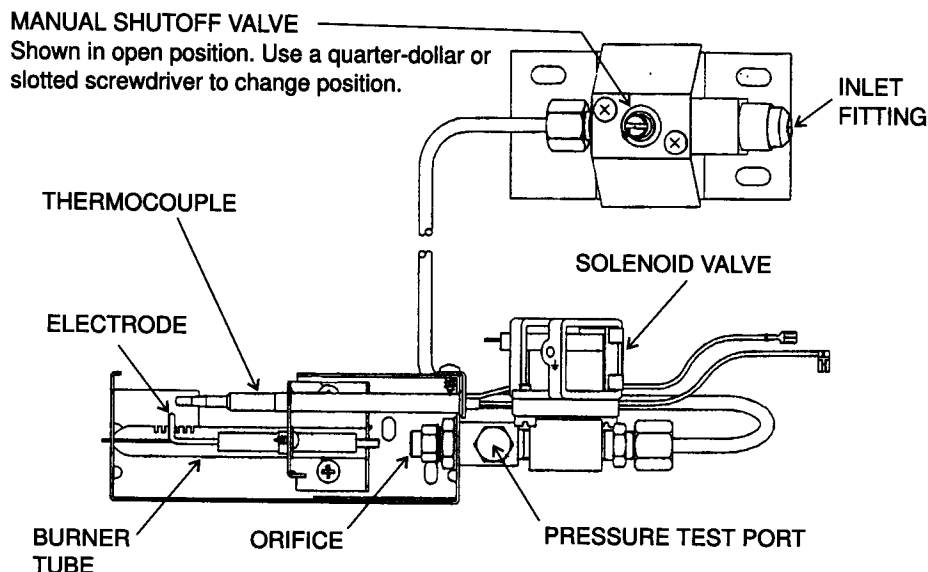
B. RM7030 (Product No. 921890401) & RM7732

The thermocouple is a component extending above the burner assembly so the tip is in the path of the flame. During normal gas operation, the thermocouple should produce 25 to 35 millivolts when connected to the lower circuit board. Any reading below 18 millivolts could cause erratic gas operation. NOTE: A reading of 18 or less could be caused by low gas pressure or improper thermocouple location.

RM7030 (Product No. 921890201 & 921890301)



RM7030 (Product No. 921890401) and RM7732



7.4 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.

7.5 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.

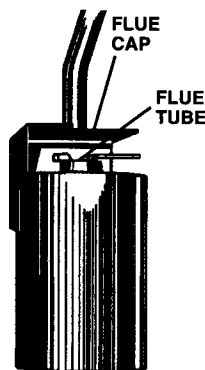
The length of the flue baffle assembly (flue baffle and wire) should be 39 inches on RM7030; 40 inches on RM7732. The flue baffle itself should measure 13/16 inch wide and 6 inches long on RM7030 and RM7732. The proper position of the baffle above the burner is 1 inch.

7.6 FLUE CAP (RM7030 ONLY)

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.

7.7 FLUE TUBE

The flue 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 No. 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 8

WIRING

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

B. 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 a minimum of 14 gauge.

RM7030 (Product No. 921890201 & 921890301)

C. Ignition Lock Connection

In order for the circuit board to perform certain functions, it must receive a signal when the vehicle engine is running. The 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.

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.

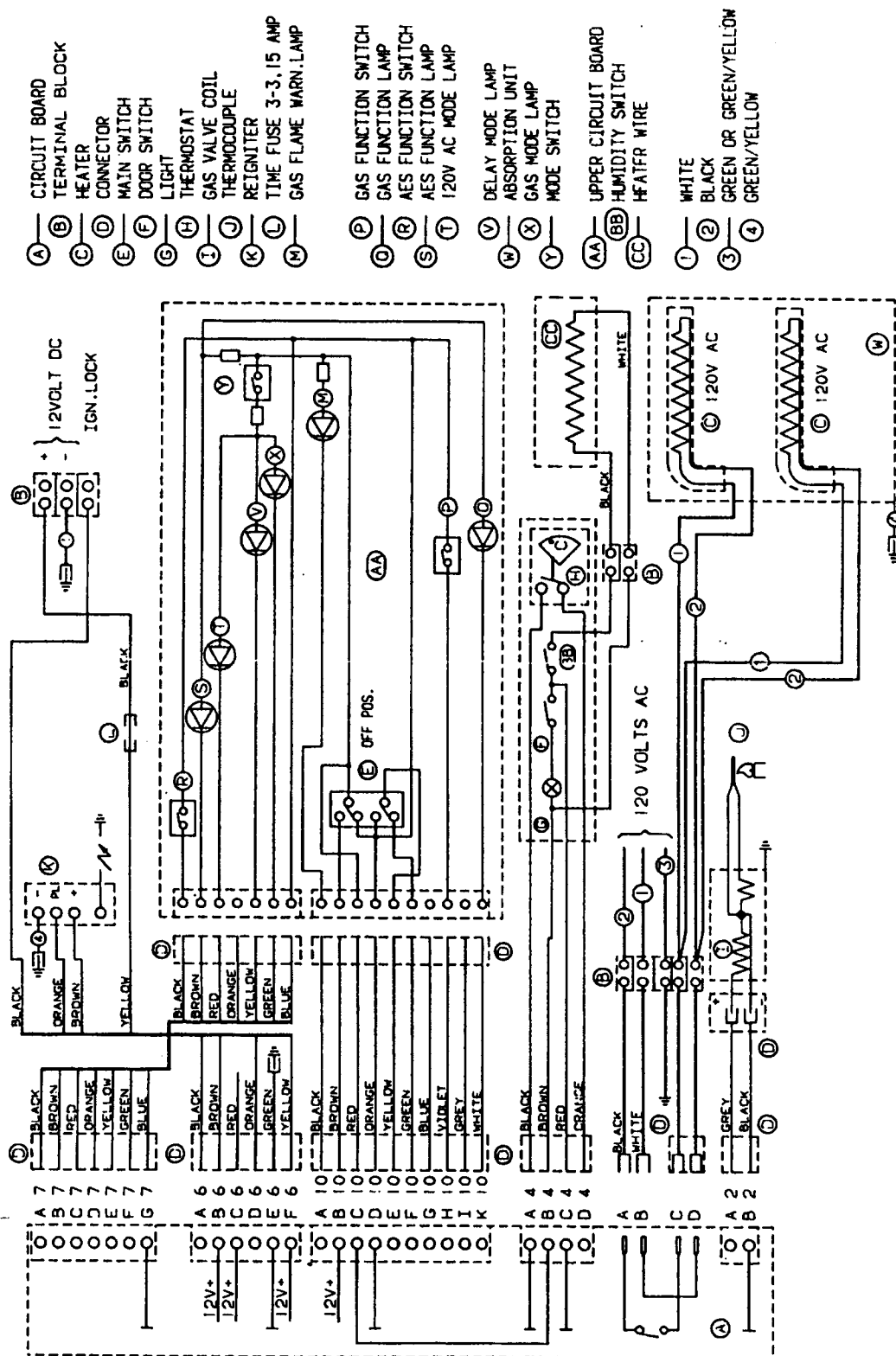
8.2 INTERNAL WIRING

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 exact model you are working on. See the following typical wiring diagrams.

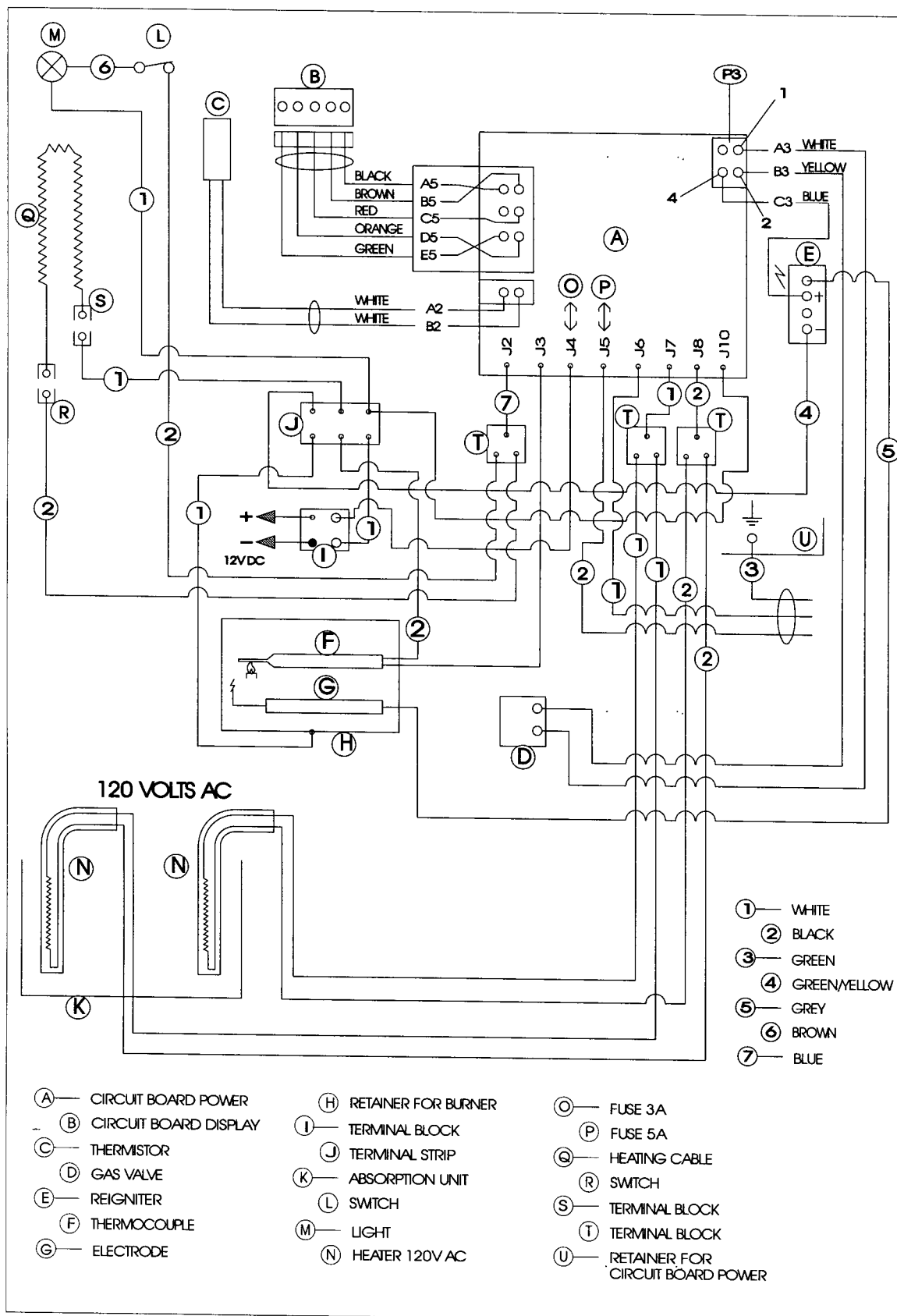
NOTE: Improper wiring at the lower circuit board could cause erratic operation and lower circuit board failure.

(Wiring diagrams continued on next page)

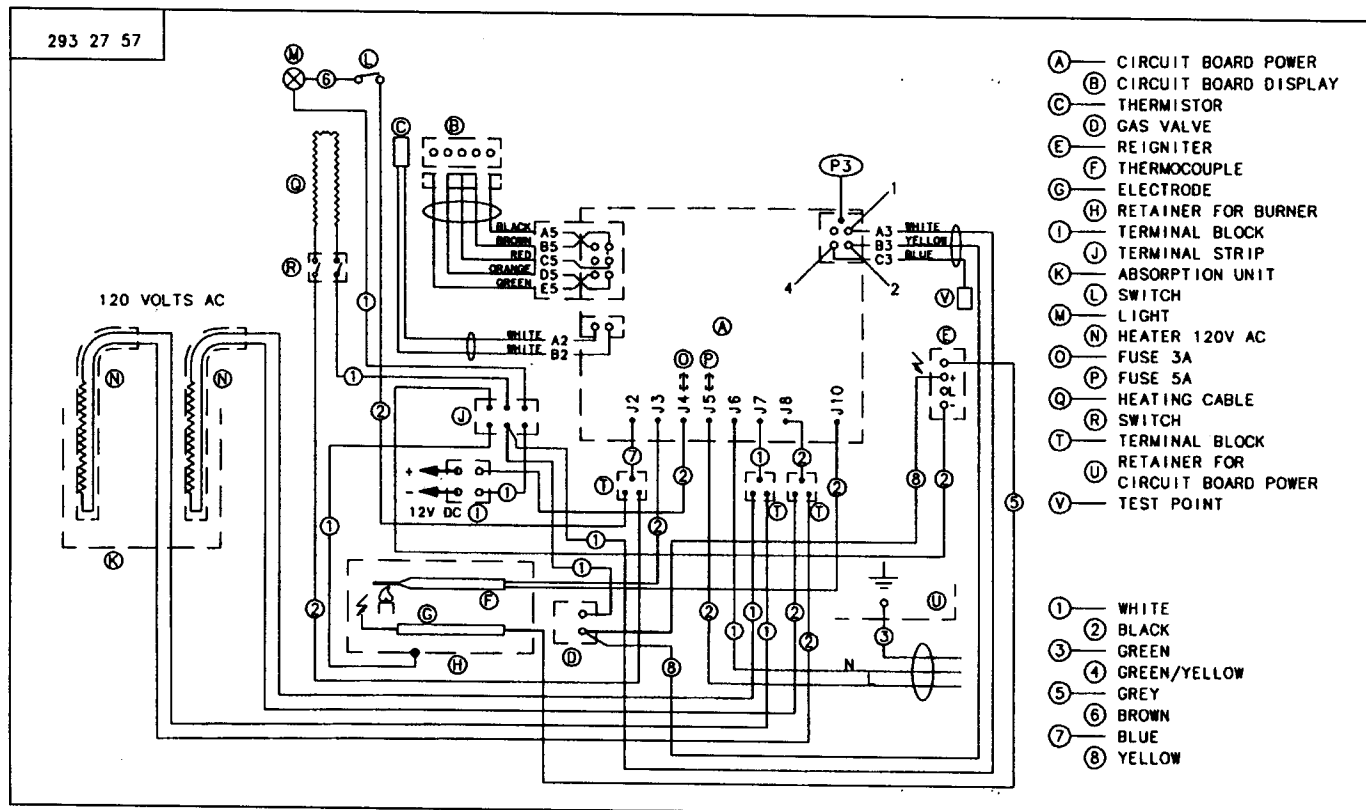
TYPICAL WIRING DIAGRAM FOR
RM7030 (PRODUCT NO. 921890201 & 921890301)



TYPICAL WIRING DIAGRAM FOR
RM7030 (PRODUCT NO. 921890401)



RM7732 TYPICAL WIRING DIAGRAM



SECTION 9 OTHER

9.1 LEVELING

In an absorption refrigerator system, ammonia is liquefied in the finned condenser coil at the top of the refrigerator. The liquid ammonia then flows into the evaporator (inside the freezer section) and is exposed to a circulating flow of hydrogen gas, which causes the ammonia to evaporate, creating a cold condition in the freezer.

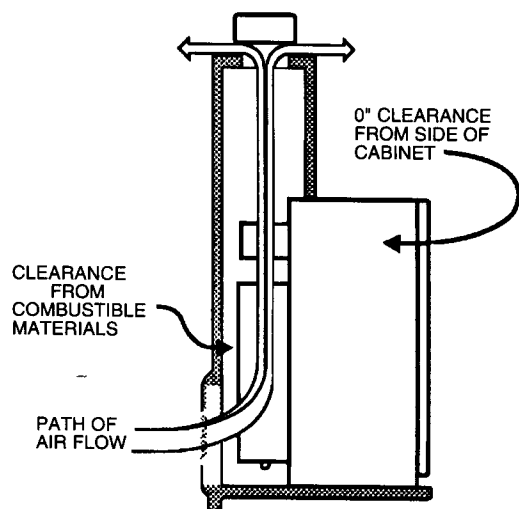
The tubing in the evaporator section is specifically sloped to provide a continuous movement of liquid ammonia downward by gravity through this section. If the refrigerator is operated when it is not level and the vehicle is not moving, liquid ammonia will accumulate in sections of the evaporator tubing. This will slow the circulation of hydrogen and ammonia gas, or in severe cases, completely block it, resulting in a loss of cooling.

Any time the vehicle is parked for several hours with the refrigerator operating, the vehicle should be level to prevent this loss of cooling. The vehicle needs to be leveled only so it is **comfortable to live in** (no noticeable sloping of floors or walls).

When the vehicle is moving, the leveling is not critical as the rolling and pitching motion of the vehicle will pass to either side of level, keeping the liquid ammonia from accumulating in the evaporator tubing.

9.2 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 ensure that heat won't be trapped in these spaces and reduce efficiency.

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

9.3 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 drier.



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.

RM7030:

The refrigerator is secured in the enclosure with six screws and they must be installed in the following order:

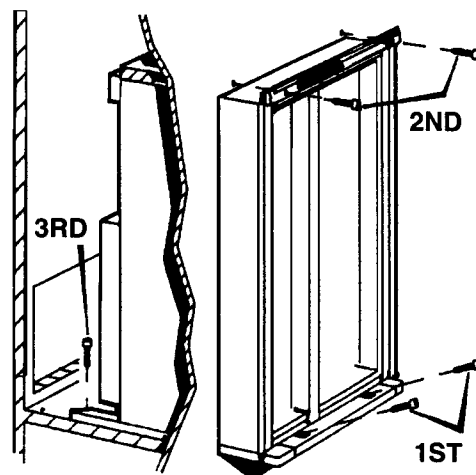
First Two Screws installed on front base;

Second Two Screws installed in the top frame;

Third Two Screws installed in the rear base.

Failure to follow the sequence in securing refrigerator in enclosure can cause leakage between the frame and cabinet.

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



RM7732:

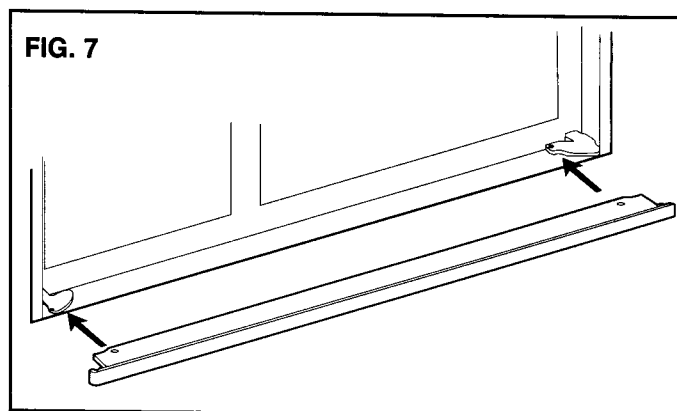
SECURING THE REFRIGERATOR:

After the refrigerator is mounted in place (ensuring a combustion seal at the front frame), the refrigerator is to be secured in the enclosure with six screws. The screws have to be installed in the following order:

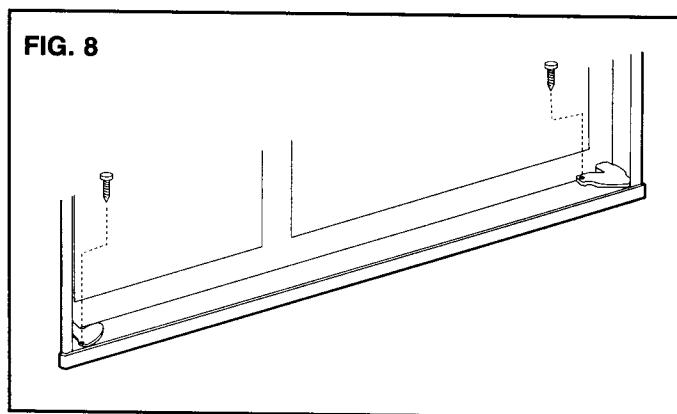
STEP 1: Two screws installed through the front base, which includes the lower front strip installation.

The refrigerator is provided with a lower front strip (shipped as a loose part). The front strip is to be attached after the refrigerator is set into the cutout opening.

A. Install the lower front strip by maneuvering it under the bottom hinge plates, as shown in FIG. 7.



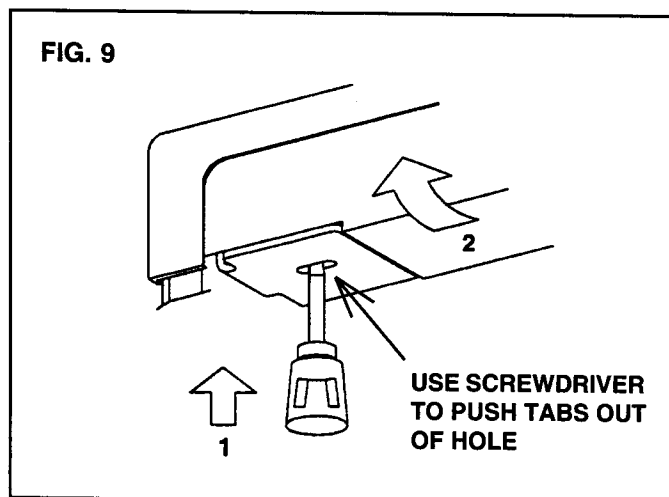
B. Secure the refrigerator and the lower front strip with two screws: One screw through each hinge. See FIG. 8.



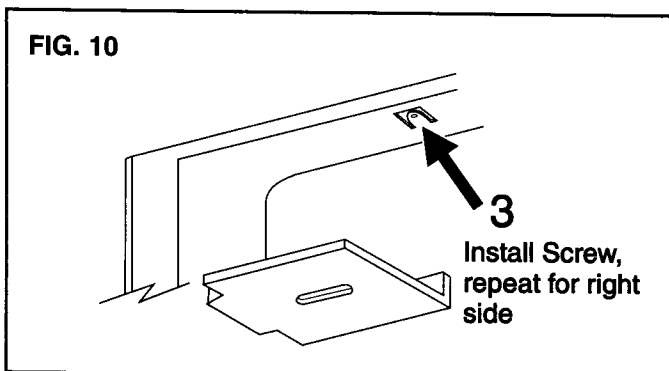
STEP 2: Install the two screws in the top frame.

A. The top decoration panel must be removed from the refrigerator before the screws can be installed. Open refrigerator door and gently push the tabs out of the hole in the hinge with flat blade screwdriver. See FIG. 9.

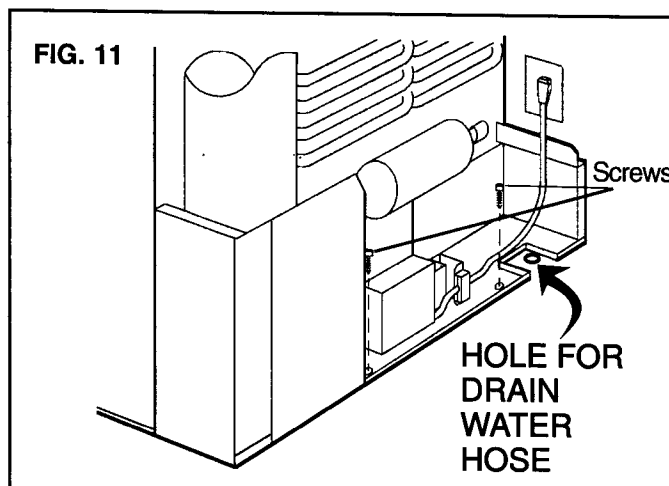
B. Carefully tilt the top decoration panel and lift up to remove from top frame. See FIG. 9.



C. Install the second two screws in the top frame as shown in FIG. 10.



STEP 3: Two screws installed in the rear base. See FIG. 11

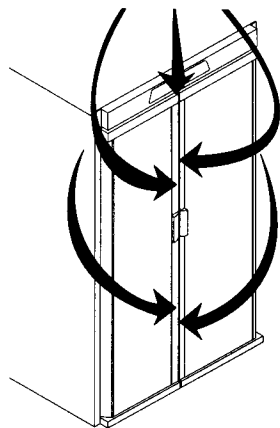


Failure to follow the sequence in securing refrigerator in the enclosure can cause leakage between the frame and cabinet.

9.4 DOOR POSITION

The door position can be checked by observing any misalignment of the door in relation to the frame.

SMOOTH FIT, PROPER SEAL



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

To adjust either door, loosen the hinge bracket screws, reposition the door then tighten the hinge bracket screws.

To adjust up or down, remove the door and add or remove washers from the lower hinge pin. Reinstall door and check for correct clearances.

9.5 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 RM7030 and RM7732 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.

9.6 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 elements are good (see Sec. 3). 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 directly to the AC heating elements 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. 9.2 and 9.5). If so, the cooling unit is good. If the temperature of the water is above 45 degrees, replace the cooling unit.

9.7 FOOD STORAGE

Proper refrigeration requires free air circulation within the food storage compartment. Restricted air circulation within the compartment will cause higher cabinet temperatures. To remedy this situation, simply rearrange your food items. It is also essential that the shelves are not covered with paper or large storage containers. Always remember to allow for proper air circulation.

Odors 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.

9.8 HIGH HUMIDITY

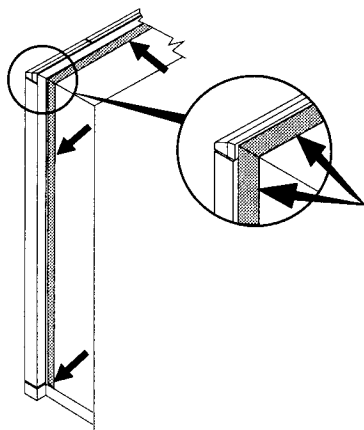
High humidity may cause a small amount of condensation to form on the frame of the refrigerator. In extreme cases, the condensation may actually run off the frame. As the humidity is reduced, the sweating will decrease. High humidity can also be a factor in rapid formation of frost.

The RM7030 and RM7732 refrigerators have climate controls installed (see Sec. 5.12). Use of the climate control will reduce the formation of condensation on the frame.

9.9 INTERIOR LINER SEAL TO FRAME

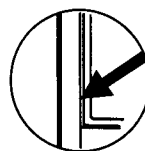
There is a seal that is applied to the liner in the area where the metal frame makes contact with the interior liner. If this seal is incomplete, cold air can migrate out to the metal frame. If this happens, condensation could form on the frame and could promote rapid formation of frost. If you suspect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

Remove all screws securing the refrigerator into the cabinet and slide the refrigerator out approximately 2–4 inches. 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. Refer to illustration top of page 22.

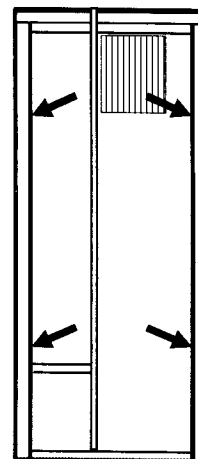


Make sure the refrigerator is dry and that the surface temperatures are above 50°F. Use a clear silicon caulking compound and seal the seam between the refrigerator's plastic liner and the metal frame. Apply the silicon in a continuous bead around both the refrigerator freezer and food compartments.

NOTE: TO FORM A PROPER SEAL, IT IS IMPORTANT NOT TO LEAVE ANY GAPS.



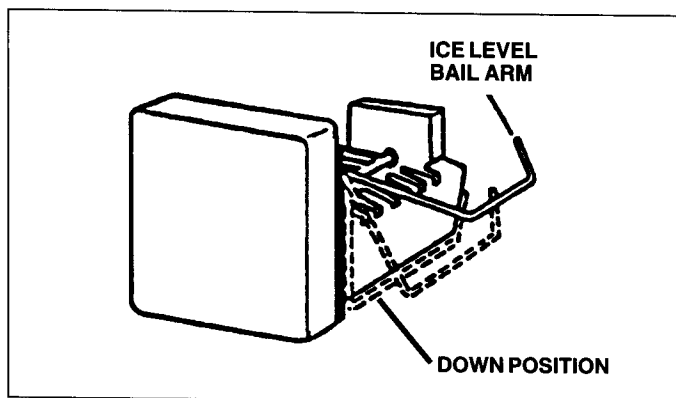
CAULK SEAM
BETWEEN
PLASTIC LINER
AND METAL
FRAME



(Refrigerator
shown with
doors removed)

SECTION 10 ICE MAKER OPERATION

The refrigerator must be allowed to precool properly before starting the ice maker. The refrigerator has to be connected to 120 volts AC before the ice maker can operate. The water line manual shutoff valve must be open. To start making ice, move the ice level bail arm to DOWN position.



When the ice maker thermostat senses the preset temperature for ejection of the ice cubes, the fingers will start to rotate – dumping any ice cubes and filling the mold with water.

When the storage container is full of ice, the ice level bail arm can not return to the DOWN position. This will stop further production of ice until the container is emptied and the bail arm is returned to the down position.

The absorption system will keep the compartment at the proper temperature for storage of ice. Ice making is accelerated if the thermostat is set to the coldest position. It is a good idea to do this a few hours before you anticipate a need for ice.

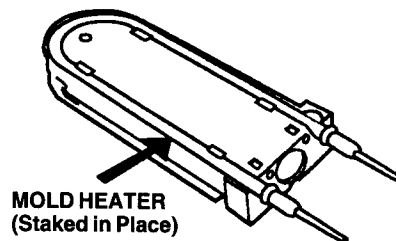
NOTE: IF THE ICE MAKER WAS CLEANED AND DRAINED, NO ICE CUBES WILL BE DUMPED INTO THE STORAGE CONTAINER DURING THE FIRST CYCLE.

The first few cycles may have small cubes due to air trapped in the water lines. The first container of ice cubes should be dumped if the water system has been winterized or not used for several weeks.

SECTION 11 ICE MAKER COMPONENTS

11.1 MOLD HEATER

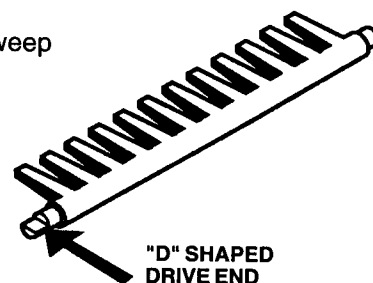
The mold heater uses 165 watts to thaw the ice free from the mold. It is wired in series with the thermostat which also acts as a safety device. With power to the appliance off, check for resistance between the two leads to the heater element. You should obtain a reading of approximately 80 ohms. If the heater is found to be defective, the manufacturer recommends replacement of the entire ice making unit for proper operation.



11.2 ICE EJECTOR

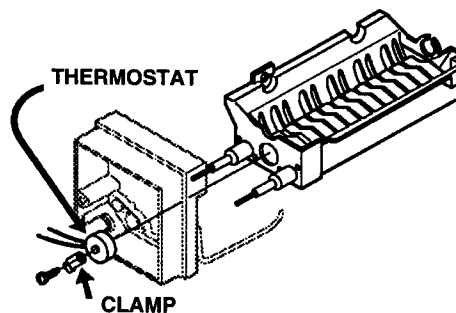
The ice ejector blades sweep the ice from the mold cavities during the ejection cycle.

The drive end of the ejector is "D" shaped for positive coupling. The bearings at both ends are lubricated with silicone grease. If the ejector blades are frozen into the ice, defrost the ice maker and manually cycle the ice making unit, making sure the ejector stops at the right location.



11.3 MOLD THERMOSTAT

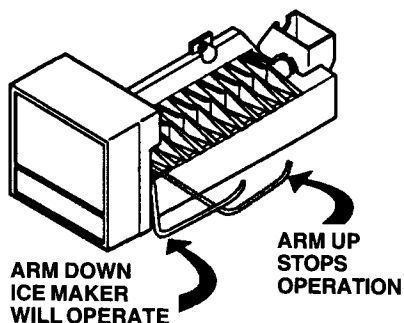
This is a single-pole, single-throw, bimetal switch. It starts an ejection cycle by closing at 18°F ± 5°. The reset temperature is 50°F ± 5°. The thermostat is in series with the mold heater and acts as a safety against overheating in case of a mechanical failure. If the thermostat is defective, replace it.



11.4 SHUTOFF ARM

The shutoff arm is cam driven. It operates a switch to control the quantity of ice produced. During the ejection cycle the arm is raised and lowered during each of the two revolutions of the timing cam. If the shutoff arm comes to rest on top of the ice in the storage bin during either revolution, the switch will remain open and stop the ice maker at the end of that revolution. The arm has a manual shutoff built into the linkage; by raising the arm as high as possible, it will lock in that position until forced down.

If the arm and switch do not operate properly, check for damage and repair or replace parts as necessary.



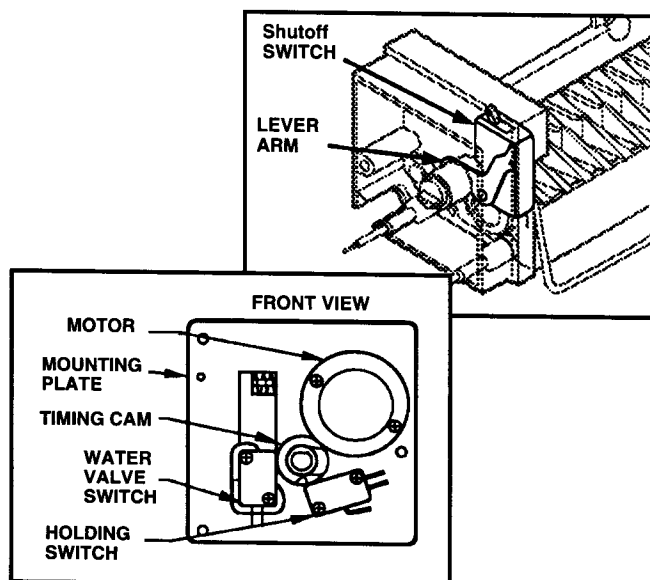
11.5 MOLD SWITCHES

These three switches are single-pole, double-throw style. They are identical and interchangeable.

The holding switch assures completion of a revolution once a cycle has started.

The water valve switch opens the water valve during the fill stage of the cycle. NOTE: This is the only adjustable component of the ice maker. If you use a double-throw switch, DO NOT use the N.O. terminal.

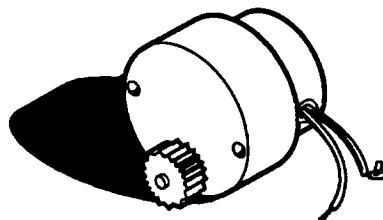
The shutoff switch stops the ice maker's operation when the storage bin is full.



11.6 TIMING MOTOR

This is a low-wattage, stall-type motor which is geared to the timing cam and ice ejector. It is a one RPM motor.

To check the motor, disconnect power to the appliance and test for continuity between the two leads. If you DO NOT have continuity, replace the motor. If you have continuity and the motor runs, DO NOT replace.



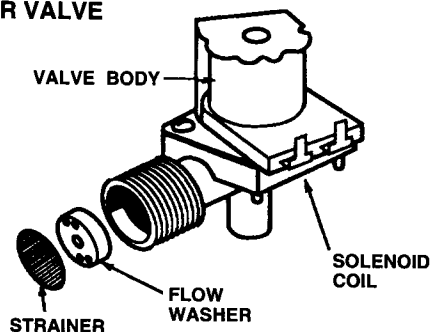
11.7 WATER VALVE

This valve is solenoid operated. When it is open, it releases water from the source to the mold. The amount of water is proportional to the length of time the water valve switch is held closed by its timing cam.

Disconnect power to the appliance, remove the wires to the water valve solenoid coil, and check for continuity between the two terminals. If you have continuity, the solenoid is good. It takes 10-15 watts to energize the solenoid coil. The mold heater and coil are in series. When the mold heater is activated, this causes the voltage to drop to about 105 VAC at the coil.

The valve has a flow washer inside which acts as a pressure regulator. A strainer is installed to prevent dirt, rust, etc. from entering the valve. Check for any debris which might obstruct the flow of water, or prevent the valve from closing completely when the circuit is not energized. Remove any obstructions. If the valve still fails to operate properly, replace it.

WATER VALVE



11.8 ICE MAKER ASSEMBLY

It may be necessary to replace the entire ice maker assembly.

Disconnect power to the appliance. Disconnect the leads inside the ice maker unit. Check each wire for continuity to make sure the wiring is good before replacing the ice maker unit. If there is no continuity on any of these wires, replace or repair them as necessary and recheck the ice maker unit to determine whether the problem was in the wiring or the unit itself.

OPERATION

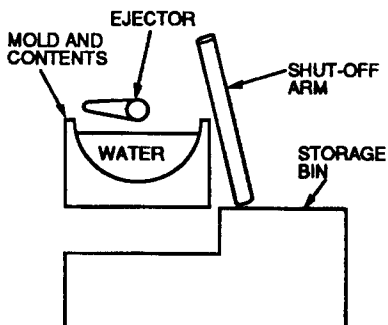
While the operation of the ice maker is fairly simple, an understanding of its cycle is necessary for the service technician to diagnose specific problems.

The following series of electrical schematics (on the following pages) will show a typical cycle, and the positions of various components during the cycle: the mold and its contents, the ejector, the shutoff arm and the storage bin.

NOTE: If you have difficulty in reading schematics and circuit diagrams, please enroll in a basic electrical course at your local school or college.

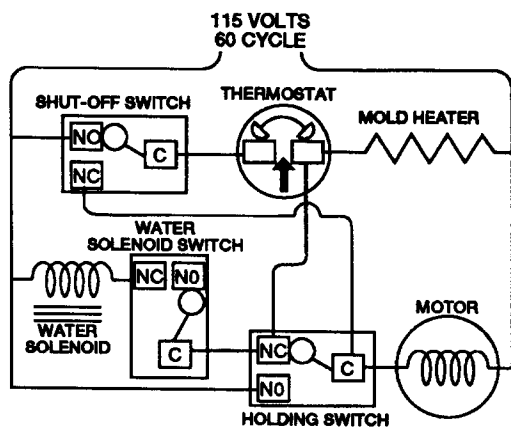
(SCHEMATICS CONTINUED ON PAGES 32 THROUGH 34)

NOTE THE RELATIVE POSITION
OF THESE COMPONENTS IN THE
FOLLOWING SCHEMATICS



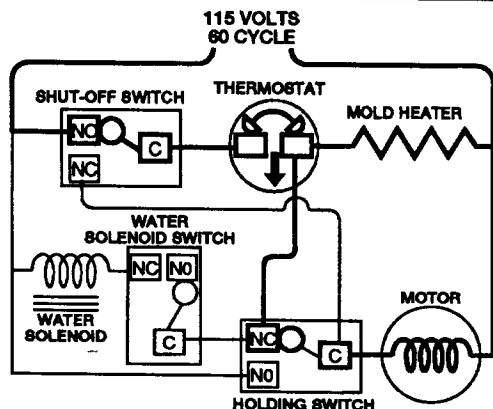
1

NON ENERGIZED CIRCUIT
ENERGIZED CIRCUIT



2

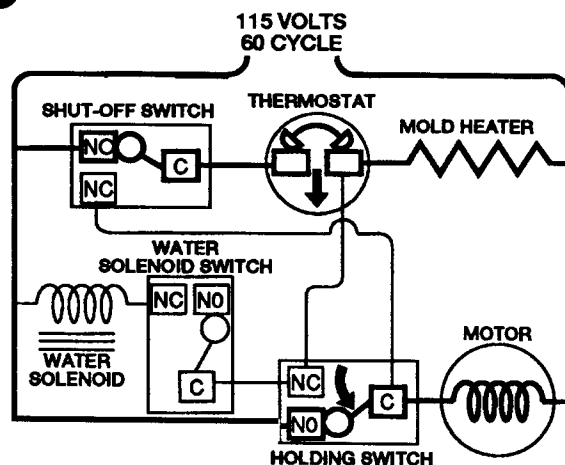
This is a freeze cycle. The mold is filled with water. The thermostat is open. All components are de-energized.



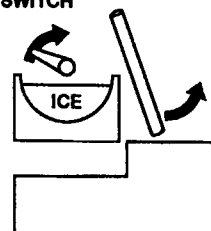
3

This is the start of an ejection cycle. The thermostat switches to its closed position after being sufficiently cooled by the ice in the mold. The mold heater and motor are now energized. The ejector blades begin to turn.

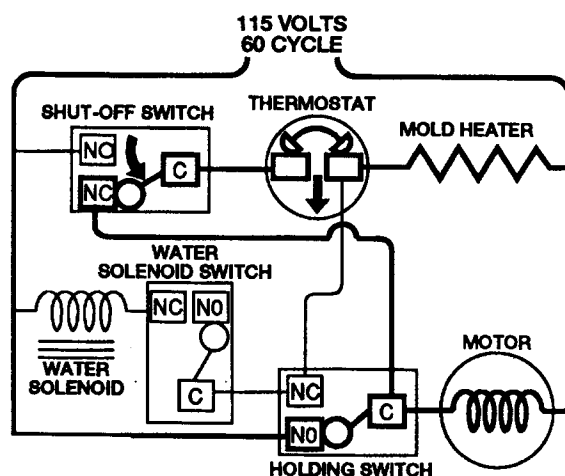
4



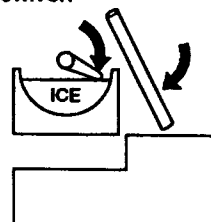
After a few degrees of motor rotation, the timing cam switches the holding switch to its normally open position; this assures completion of the cycle. The mold heater remains energized through the thermostat circuit. During the first half of the cycle, the shut-off arm is raised and lowered by the timing cam and operates the shut-off switch.



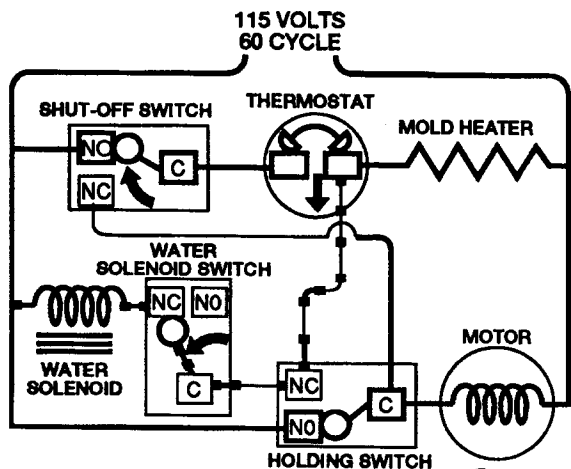
5



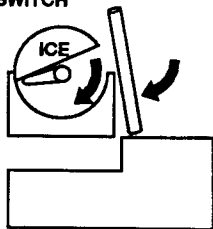
When the ejector blades reach the ice in the mold, the motor will stall. It will remain in this position until the ice has thawed loose. During this time the mold heater remains energized.



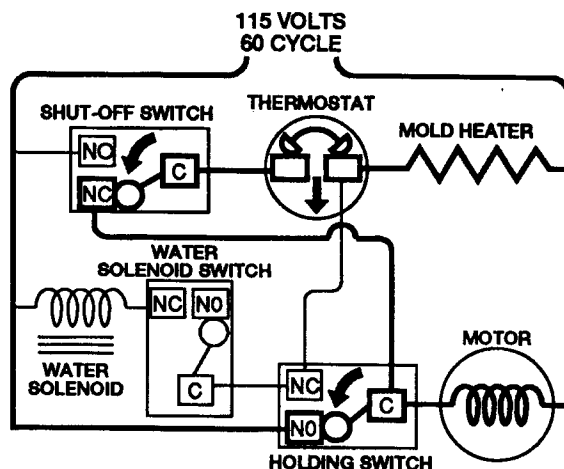
6



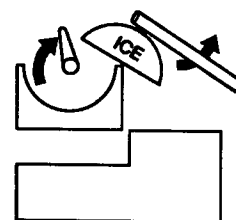
Near the completion of the first revolution, the timing cam closes the water valve switch. However since the thermostat is still closed the mold heater circuit is energized. Current will not pass through the water valve solenoid and its switch. (Electrical current follows the path of least resistance.)



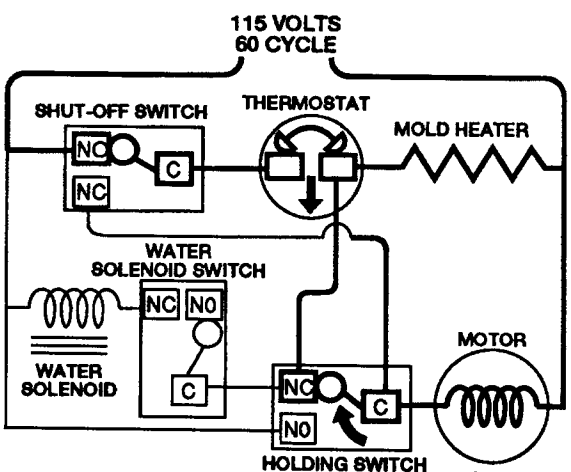
8



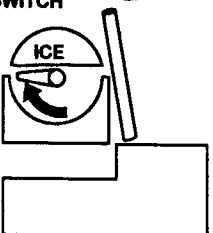
Once again after a few degrees of rotation the timing cam closes the holding switch providing a circuit to the motor that will assure completion of this revolution. The mold heater remains energized. The shut-off arm will raise and lower again operating its switch. The ice that was ejected during the first revolution is dumped into the storage bin.



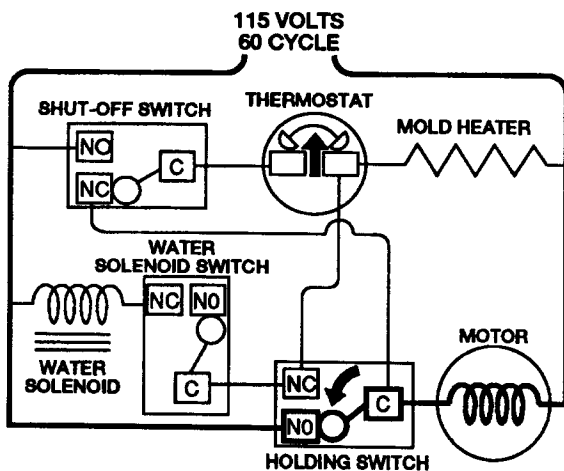
7



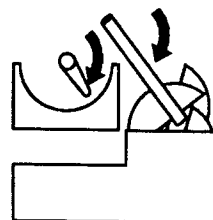
At the end of the first revolution the timing cam opens the holding switch. However, since the thermostat is still closed a second revolution begins.



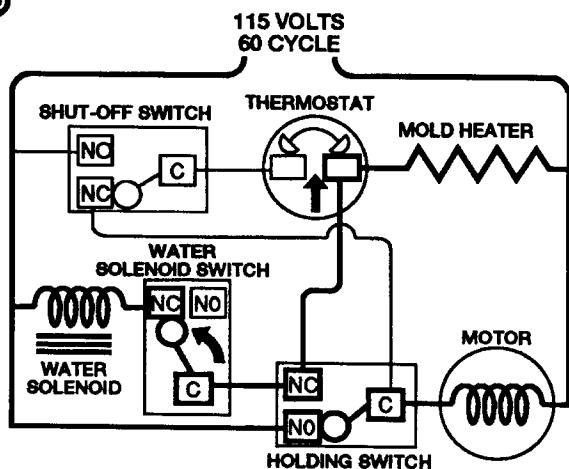
9



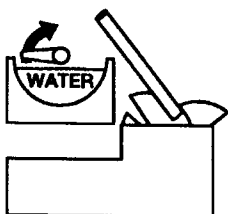
Some time during the second revolution the mold heater resets the thermostat. At this time, the mold heater is de-energized. If the storage bin is full, the shut-off arm will remain in a raised position.



10



Near the completion of the second revolution the timing cam again closes the water valve switch. This time a circuit is completed through the water valve solenoid, its switch and the mold heater. The water valve solenoid received about 105 volts. The remaining 10 volts to the mold heater are not noticeable. When the water valve solenoid is energized, the valve opens and water refills the mold.



SECTION 12 ICE MAKER – OTHER

12.1 WATER FILL ADJUSTMENT

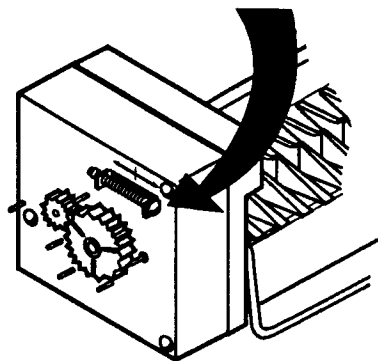
The correct water level in the mold is important for the proper production of ice. The size of the ice cubes depends on the amount of water which enters the mold. The cubes should be approximately 1/2" wide, 3/4" high and 2-1/2" long.

If the water overflows in the mold, first check to see if the ice maker unit is level in the appliance. Next ensure that the appliance is installed level in the RV.

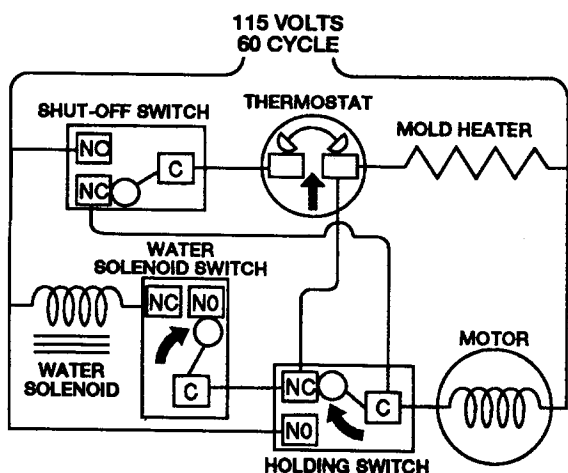
If there is still water overflow, adjustment of the water fill screw is necessary. Locate the screw on the ice maker assembly. Turn the screw as necessary toward the "+" or "-" side. One full turn of the screw will make an 18cc change in the amount of water. DO NOT turn the screw more than one full turn at a time.

If the water level is too high, it can also cause the ejector blades to become frozen in the ice. Follow the procedures above to correct the problem.

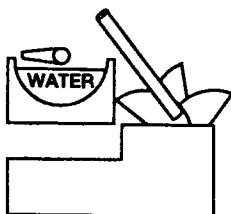
WATER FILL ADJUSTING SCREW
1 FULL TURN = 18 cc's CHANGE



11



The ejection cycle ends the moment that the holding switch is switched by the timing cam. The water valve switch is also opened. If the storage bin is full, as shown here, additional cycles will not start until sufficient ice is used to lower the shut-off arm, thus operating its switch.



12.2 WIRING

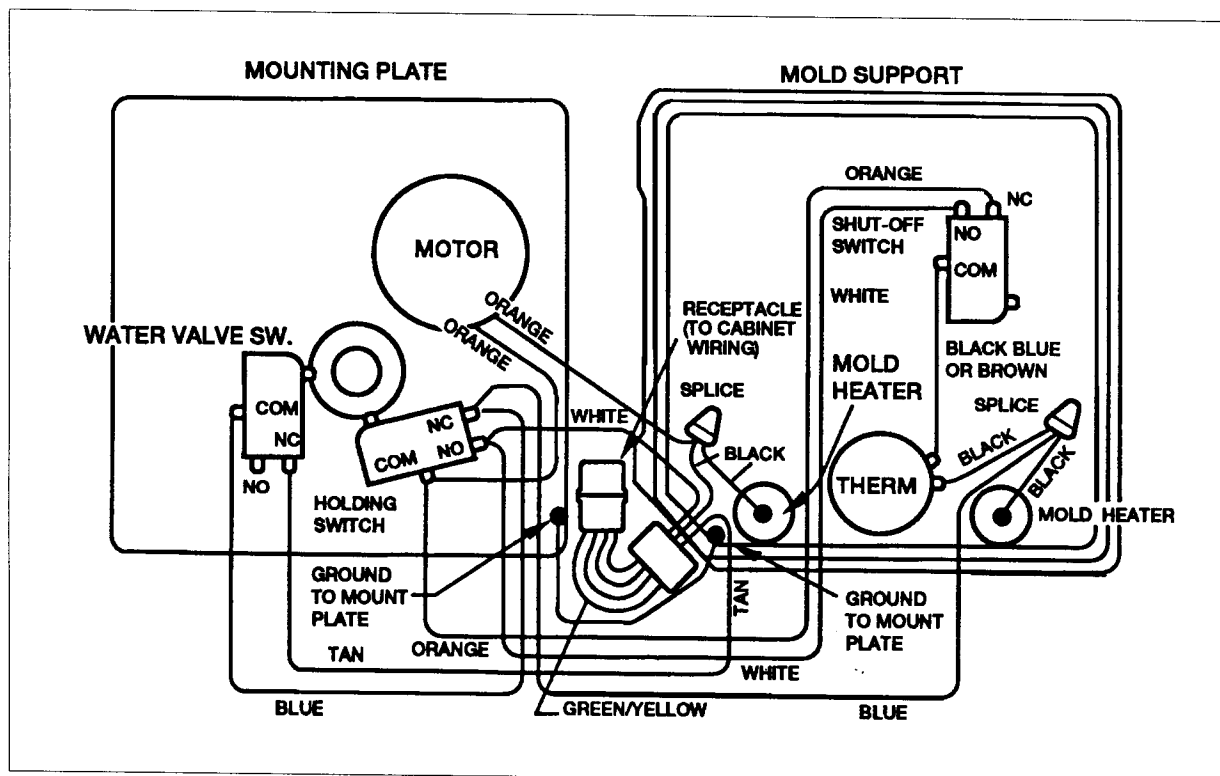
Refer to the wiring diagram supplied with the unit you are working on, and make sure all wiring connections are correct and tight.



WARNING

**THIS IS AN ENERGIZED CIRCUIT. ELECTRICAL SHOCK CAN OCCUR.
BEFORE CHECKING THESE COMPONENTS BE SURE THERE IS NO POWER TO THE APPLIANCE.**

ICE MAKER TYPICAL WIRING DIAGRAM



12.3 WATER SUPPLY

To operate properly, the water pressure in the water supply line must be between 15 lbs. PSI and 125 lbs. PSI.

Lower water pressure, water turned off, or obstructions or air in the water line can cause low or no ice production.

First check to see that the water supply is fully turned on. Visually check the line for kinks, etc. which might obstruct the flow of water.

To remove trapped air, loosen the connection at the water solenoid valve of the appliance. Ensure that pressurized water is reaching this point, and bleed off any air in the line. Retighten the connection, making sure there are no leaks.