

This section addresses the most common system problems associated with 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.



Dometic Manual Refrigerators			
SYMPTOM	CAUSE	REFER TO SECTION	PAGE
1. No operation.	Operation Wiring Switch	18C B 13C,14C	37,38 25-30 35
2. No electric operation.	Operation AC Volts Heating Element Thermostat Switch Wiring	18C 17C 10C 6C 13C,14C B	37,38 36 34 33 35 25-30
3. No gas operation — no spark.	Operation DC Volts Igniter Electrode High Voltage Cable Switch Wiring	18C 15C 12C 12C 12C 13C,14C B	37,38 36 34 34 35 35 25-30
4. No gas operation — sparks but no flame.	Operation LP gas Filter Orifice Burner Shut-off Valve Safety Valve Thermocouple Thermocouple Adapter, (Top Mount Controls Only)	18C 1A 8C 3A 2A 2A 2C 3C 4C	37,38 12 33 14 12 12 32 32 32
5. No cooling on any mode.	Operation Level Ambient Temperature Cooling Unit	18C 1J 5J 6J	37,38 89 90 90
6. No cooling on gas — cools properly on other mode(s). (RM2604 & RM2804 ONLY)	LP Gas Thermostat Filter Orifice Burner Flue Baffle Flue Tube	1A 5C 8C 3A 2A 3A 3A	12 33 33 14 12 12,13 14
7. No cooling on electric — cools properly on other mode(s). (RM2604 & RM2804 ONLY)	AC Volts Heating Element Thermostat Switch Wiring	17C 17C 9C 13C,14C B	36 37 33 35 25-30

SYMPTOM	CAUSE	REFER TO SECTION	PAGE
8. Insufficient cooling on all modes.	Operation	18C	37,38
	Level	1J	89
	Ventilation	2J	89
	Ambient Temperature	5J	90
	Air Leaks	3J	89
	Thermostat	6C	33
	Cooling Unit	6J	90
9. Insufficient cooling on electric — cools properly on other mode(s).	AC Volts	17C	36
	Heating Elements	17C	37
	Thermostat	6C	33
10. Insufficient cooling on gas. Cools properly on other mode(s).	LP Gas Pressure	1A	12
	Thermostat	6C	33
	Filter	8C	33
	Orifice	3A	14
	Burner	2A	12
	Flue Baffle	2A,3A	12,13
	Flue Tube	3A	14
11. Freezes on electric – cools properly on other mode(s). (RM2604 & RM2804 ONLY)	Thermostat	9C	33
	Wiring	B	25-30
12. Freezes on gas – cools properly on other mode(s). (RM2604 & RM2804 ONLY)	Bypass Screw	1C	32
	Thermostat	5C	33
13. Won't stay lit on gas.	LP Gas	1A	12
	Safety Valve	2C	32
	Thermocouple	3C	32
	Thermocouple Adapter, (Top Mount Controls Only)	4C	32
	Flame Failure Meter (Top Mount Controls Only)	7C	33
	Flue Baffle	2A,3A	12,13
	Flue Cap (Bottom Mount Controls Only)	3A	14
	Orifice	3A	14
	Burner	2A	12
	14. Rapid formation of frost.	Food Storage	7J
Air Leaks		3J	89
Interior Liner Seal to Frame		9J	90
High Humidity		8J	90
15. No DC operation – cools properly on AC and gas.		DC Volts	15C
	Heating Element	11C	34
	Switch	13C,14C	35
	Wiring	B	25-30
	Relay(RM2610/2810/2604/2804)	10C	34
	16. Insufficient cooling on DC– cools properly on AC and gas. RM2510/RM2610/RM2810/RM2604/RM2804/ RM2552/RM2553	DC Volts	15C
Heating Element		11C	34
Relay (RM2610/2810/2604/2804)		10C	34
Electrode		12C	34
17. On gas mode, sparks while flame is lit.	LP Gas	1A	12
	Bypass Screw	1C	32
	Filter	8C	33
	Ignitor	12C	34

**AES MODELS: RM3604, RM3804, RM4804 and
RM7030 with Product No. 921890201, 921890301**

SYMPTOM	CAUSE	REFER TO SECTION	PAGE
1. No operation – no panel lights.	DC Volts Fuse Wiring Upper PC Board Circuit Board	4F 5F B 5F 5F	65 71 18,19,21 67-70 70,71
2. No operation – has panel lights.	Thermostat Upper Circuit Board Solenoid Wiring Circuit Board	5F 5F 5F B 5F	65 67-70 65,66 18,19,21 70,71
3. Operating OK – no panel lights.	DC Volts Wiring Upper Circuit Board Circuit Board	4F B 5F 5F	65 18,19,21 67-70 70,71
4. No AC operation – operates on DC and gas.	AC Volts Heating Element Upper Circuit Board Wiring Thermostat Circuit Board	2F 3F 5F B 5F 5F	65 65 67-70 18,19,21 65 70,71
5. No DC operation – operates on AC and gas.	DC Volts Heating Element Upper Circuit Board Wiring Relay Thermostat Circuit Board	4F 3F 5F B 5F 5F 5F	65 65 67-70 18,19,21 66 65 70,71
6. No gas operation – operates on AC and DC.	LP Gas Manual Gas Valve Igniter High Voltage Cable Electrode Solenoid Upper Circuit Board Wiring Circuit Board	1A 2A 5F 5F 5F 5F 5F B 5F	12 12 66 66 66 65,66 67-70 18,19,21 70,71
7. Insufficient cooling on all modes.	Ventilation Leveling Ambient Temperature Air Leaks Thermostat Cooling Unit	2J 1J 5J 9J 5F 6J	89 89 90 90 65 90

SYMPTOM	CAUSE	REFER TO SECTION	PAGE
8. Insufficient cooling on AC. Cools properly on DC and gas.	AC Volts Heating Element	2F 3F	65 65
9. Insufficient cooling on DC. Cools properly on AC and gas.	DC Volts Heating Element Wiring	4F 3F B	65 65 18,19,21
10. Insufficient cooling on gas. Cools properly on AC and DC.	LP gas Orifice Flue Baffle Flue Tube Flue Cap Burner	1A 3A 2A,3A 3A 3A 2A	12 14 12,13 14 14 12
11. Freezes on all modes.	Thermostat DC Volts	5F 4F	65 65
12. Changes preset mode.	DC Volts Wiring Circuit Board	4F B 5F	65 18,19,21 70,71
13. Flame failure light within 10 seconds.	Igniter High Voltage Cable Electrode Wiring	5F 5F 5F B	66 66 66 18,19,21
14. Flame failure light after 3 minutes.	LP Gas Manual Gas Valve Solenoid Orifice Burner Wiring Thermocouple	1A 2A 5F 3A 2A,3A B 5F	12 12 65,66 14 12 18,19,21 66
15. Interior Light ON when door is closed.	Wiring Door Switch Door Position	B 5F 4J	18,19,21 67 90
16. Rapid formation of frost.	Food Storage Interior Liner Seal to Frame High Humidity Air Leaks	7J 9J 8J 3J	90 90 90 89

AMES/AES Refrigerator Models including: S1521, S1531, S1621, S1631, S1821, S1831, RM2607, RM2611, RM2807, RM2811, RM3607 and RM3807, the ROYALE/ELITE Refrigerator Models including RM3662, RM3663, RM3862, RM3863, RM4872, RM4873, RM7732, RM7832, RM7130, and RM7030 with Product No. 921890401.

SYMPTOM	CAUSE	REFER TO SEC.	PAGE
REFRIGERATOR SECTION			
1. No operation - no panel lights	Operation DC Volts Fuse Wiring Upper Circuit Board Lower Circuit Board	1D-5D 11D 13D B 12D 13D	40-47 48-49 53 15,16,17,22,23,24 51 52,53
2. No operation - has panel lights	Operation DC Volts Thermistor Fuses Upper Circuit Board Wiring Lower Circuit Board	1D-5D 11D 9D 13D 12D B 13D	40-47 48,49 48 53 51 15,16,17,22,23,24 52,53
3. No AC operation - operates on other mode(s)	Operation AC Volts Fuse Heating Element Upper Circuit Board Wiring Lower Circuit Board	1D-5D 6D 13D 7D 12D B 13D	40-47 47 53 47 51 15,16,17,22,23,24 52,53
4. No DC operation - operates on other mode(s)	Operation DC Volts Fuse Heating Element Upper Circuit Board Wiring Lower Circuit Board	1D-5D 11D 13D 8D 12D B 13D	40-47 48,49 53 47 51 15,16,17,22,23,24 52,53
5. No Gas operation - operates on other mode(s)	Operation LP Gas Manual Gas Valve Igniter High Voltage Cable Electrode Solenoid Upper Circuit Board Wiring Lower Circuit Board	1D-5D 1A 2A 12D 12D 12D 12D 12D B 13D	40-47 12 12 50 50 50 49 51 15,16,17,22,23,24 52,53
6. Insufficient cooling on all modes.	Ventilation Leveling Ambient Temperature Air Leaks Thermistor Cooling Unit Thermistor Adjuster	2J 1J 5J 3J 9D 6J 10D	89 89 90 89 48 90 48

SYMPTOM	CAUSE	REFER TO	PAGE
7. Insufficient cooling on AC - cools properly on other mode(s).	AC Volts Heating Element Lower Circuit Board	6D 7D 13D	47 47 52,53
8. Insufficient cooling on DC - cools properly on other mode(s).	DC Volts Heating Element Wiring Lower Circuit Board	11D 8D B 13D	48,49 47 15,16,17,22,23,24 52,53
9. Insufficient cooling on Gas - cools properly on other mode(s).	LP Gas Orifice Flue Baffle Flue Tube Flue Cap (if equipped) Burner Lower Circuit Board	1A 3A 2A,3A 3A 3A 2A 13D	12 14 12,13 14 14 12 52,53
10. Freezes.	Thermistor Thermistor Adjuster Lower Circuit Board Upper Circuit Board	9D 10D 13D 12D	48 48 52,53 51
11. Changes preset mode.	Operation DC Volts Wiring Upper Circuit Board Lower Circuit Board	1D-5D 11D B 12D 13D	40-47 48,49 15,16,17,22,23,24 51 52,53
12. Check light on.	DC Volts Wiring LP Gas Manual Gas Valve Solenoid Orifice Burner Lower Circuit Board Thermocouple	11D B 1A 2A 12D 3A 2A 13D 8E	48,49 15,16,17,22,23,24 12 12 49 14 12 52,53 60
13. Interior light on when door is closed.	Wiring Door Switch Door Position	B 13D 4J	15,16,17,22,23,24 53 90
14. Rapid formation of frost.	Food Storage Interior Liner to Frame High Humidity Air Leaks	7J 9J 8J 3J	90 90 90 89
15. Water on frame.	Interior Liner to Frame High Humidity Air Leaks Climate Control Heater	9J 8J 3J 13D	90 90 89 53

RM2652, RM2852, RM2612 & RM2812 DOMETIC REFRIGERATORS

SYMPTOM	CAUSE	REFER TO	PAGE	
REFRIGERATOR SECTION				
1. No operation - no panel lights	Operation	1E	55,56	
	DC Volts	7E	57,58	
	Fuse	8E	62	
	Wiring	B	20	
	Upper Circuit Board	8E	60	
	Lower Circuit Board	8E	60,61,62	
	2. No operation - has panel lights	Operation	1E	55,56
DC Volts		7E	57,58	
Thermistor		8E	58	
Fuses		8E	62	
Wiring		B	20	
Lower Circuit Board		8E	60,61,62	
3. No AC operation - operates on gas mode		Operation	1E	55,56
	AC Volts	5E	57	
	Fuse	8E	62	
	Heating Element	6E	57	
	Wiring	B	20	
	Lower Circuit Board	8E	60,61,62	
	4. No Gas operation - operates on AC mode	Operation	1E	55,56
LP Gas		1A	12	
Manual Gas Valve		2A	12	
Igniter		8E	59	
High Voltage Cable		8E	60	
Electrode		8E	60	
Solenoid		8E	59	
Wiring		B	20	
Lower Circuit Board		8E	60,61,62	
5. Insufficient cooling on all modes.		Ventilation	2J	89
		Leveling	1J	89
	Ambient Temperature	5J	90	
	Air Leaks	3J	89	
	Thermistor	8E	58	
	Cooling Unit	6J	90	
	6. Insufficient cooling on AC - cools properly on gas mode.	AC Volts	5E	57
Heating Element		6E	57	
Lower Circuit Board		8E	60,61,62	

SYMPTOM	CAUSE	REFER TO	PAGE
7. Insufficient cooling on Gas - cools properly on AC mode.	LP Gas Orifice Flue Baffle Flue Tube Burner Lower Circuit Board	1A 3A 2A,3A 3A 2A 8E	12 14 12,13 14 12 60,61,62
8. Freezes.	Operation Thermistor Lower Circuit Board	1E 8E 8E	55,56 58 60,61,62
9. Check light on.	DC Volts Wiring LP Gas Manual Gas Valve Solenoid Orifice Burner Thermocouple Lower Circuit Board	7E B 1A 2A 8E 3A 2A 8E 8E	57,58 20 12 12 59 14 12 60 60,61,62
10. Interior light on when door is closed.	Wiring Door Switch Door Position	B 8E 4J	20 62 90
11. Rapid formation of frost.	Food Storage Interior Liner to Frame High Humidity Air Leaks	7J 9J 8J 3J	90 90 90 89
12. Water on frame.	Interior Liner to Frame High Humidity Air Leaks Climate Control Heater	9J 8J 3J 8E	90 90 89 62
ICE MAKER SECTION/WITHOUT COMPRESSOR			
13. Ice Maker fails to start.	Operation Arm in Up Position AC Voltage Water Valve Ice Maker Cycle	2G 1G 4G 1G 1G	73 72 77 73 73

SYMPTOM	CAUSE	REFER TO SEC.	PAGE
14. Ice Maker won't make ice.	Blades Frozen in Ice AC Voltage Water Valve Ice Maker Cycle	1G 4G 1G 1G	72 77 73 73
15. Keeps making ice and won't shut off.	Shut-off arm	1G	72
16. Not making enough ice.	Operation Mold Thermostat Cube Size Ice Maker Cycle	2G 1G 3G 1G	73 72 76 73
17. Too much water is coming out.	Water Fill Adjustment Water Valve	3G 1G	76 73
18. Ejector blade frozen into ice cubes.	Water Fill Adjustment Water Valve	3G 1G	76 73
19. Unit is hooked-up no water comes in.	Water Water Valve	3G 1G	77 73
20. Ice maker is running but won't make cubes.	Water Shut-Off Arm Mold Thermostat Mold Switch	3G 1G 1G 1G	77 72 72 73
21. Ice maker will not make ice.	Ice Ejector Mold Heater Timing Motor	1G 1G 1G	72 72 73
<u>ICE MAKER SECTION</u>			
22. Ice Maker fails to start.	Operation Arm in UP Position AC Volts Switch On/Off	1H 2H 6H 2H	78 79 84 78
23. Fan Runs – No compressor.	Wiring Starting Device Compressor	6H 2H 2H	84 78 78,79

SYMPTOM	CAUSE	REFER TO SEC.	PAGE
24. Compressor runs but kicks ON and OFF.	Starting Device Refrigerant System	2H 7H	78 85
25. Compressor runs – no fan.	Fan Motor	2H	79
26. Ice maker trips breaker.	Low Voltage High Amperage Compressor Breaker	6H 6H 2H 6H	84 84 78,79 84
27. Ice maker won't make ice.	Ice Maker Assembly Blade Frozen in Ice Switch AC Voltage Water Valve	2H 2H 2H 6H 2H	80 79 78 84 80
28. Water in bucket.	Level Water fill adjustment Water Valve	1J 4H 2H	89 83 80
29. Ice is too soft and wet.	Air Flow Condenser Fins	4H 2H	83 80
30. Keeps making ice and won't shut off.	Shut-Off Arm Shut-Off Switch	2H 2H	79 78
31. Not making enough ice.	Operation Thermostat, Mold Cube Size Air Flow Condenser Fins Fan Motor	1H 2H 4H 4H 3H 2H	78 79 83 83 80 79
32. Too much water is coming out.	Water Fill Adjustment Water Valve	4H 2H	83 80
33. Ejector blade frozen into ice cubes.	Water Fill Adjustment Water Valve	4H 2H	83 80
34. Unit is hooked-up – no water comes in.	Water Supply Water Valve	8H 2H	85 80
35. Ice maker is running but won't make any cubes.	Water Supply Shutoff Arm Thermostat, Mold Mold Switch	8H 2H 2H 2H	85 79 79 80

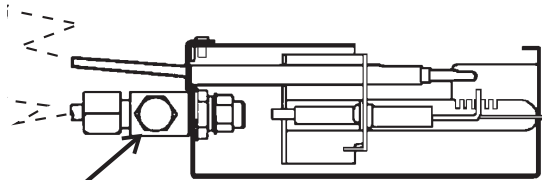
SYMPTOM	CAUSE	REFER TO SEC.	PAGE
36. Will not eject ice.	Ice Ejector Mold Heater Timing Motor	2H 2H 2H	79 79 80
37. Unit leaks water.	Installation	5H	83

SECTION A.

LP GAS REQUIREMENTS

1A. LP GAS REQUIREMENTS

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



PRESSURE TEST HOUSING

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. See the chart on the next page for dimensions and position.

2A. LP GAS COMPONENTS

SHUT-OFF VALVE

It is the valve where the incoming LP gas supply is attached. This valve is direct coupled to the selector switch. When the selector switch is turned to the electric mode, the shut-off valve is automatically closed. When this same switch is turned to the LP gas mode, the valve opens and allows gas flow and the electric circuit to the heating elements is also automatically interrupted. To check the shut-off valve, remove and inspect for any obstructions.

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.

3A. FLUE BAFFLE DIMENSIONS AND POSITIONS

Model	Length of Flue Baffle Assembly (Flue Baffle & Wire)	Flue Baffle	Proper Baffle Position (from Burner to Bottom of Baffle)
RM2310 RM2410	18-3/4"	5/8" W X 4" L	3-1/4"
RM2510	21-3/4"	13/16" W X 4" L	3-1/8"
RM2610 RM2604	31-9/16"	3/4" W X 5-1/4" L	1-5/8"
RM2810 RM2804	37-1/8"	3/4" W X 6" L	1-3/4"
RM2452 RM2453	22-1/2"	3/4" X 3-7/8" L	1/1/2"
RM2552 RM2553	25-1/2"	3/4" L X 3-7/8" L	1-1/2"
RM2612	31-9/16"	3/4" W X 5-1/4" L	1-5/8"
RM2812	37-1/8"	3/4" W X 6" L	1-3/4"
RM2652	31-5/8"	13/16" W X 5-3/16" L	1-7/8"
RM2852	38"	13/16" W X 5-3/16" L	1-7/8"
S1521 S1531	18-3/16"	3/4" W X 4" L	2-1/4"
S1621 S1631	31-9/16"	3/4" W X 5-1/4" L	1-5/8"
S1821 S1831	37-1/8"	3/4" W X 6" L	1-5/8"
RM2607 RM2611	31-9/16"	3/4" W X 5-1/4" L	1-5/8"
RM2807 RM2811	37-1/8"	3/4" X 6" L	1-3/4"
RM3607	31-9/16"	3/4" W X 5-1/4" L	1-5/8"
RM3807	37-1/8"	3/4" W X 6" L	1-3/4"
RM3662 RM3663	31-5/8"	13/16" W X 5-3/16" L	1-7/8"
RM3862 RM3862 RM4872 RM4873	38"	13/16" W X 5-3/16" L	1-7/8"
RM3604	31-9/16"	3/4" W X 5-1/4" L	1-5/8"
RM3804 RM4804	37-1/8"	3/4" W X 6" L	1-3/4"
RM7030 RM7732 RM7130 RM7832	39" 40" 39" 40"	13/16" W X 6" L 13/16" W X 6" L 13/16" W X 6" L 13/16" W X 6" L	1" 1" 1" 1"

FLUE CAP (Only on applicable models)

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.



FLUE TUBE

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

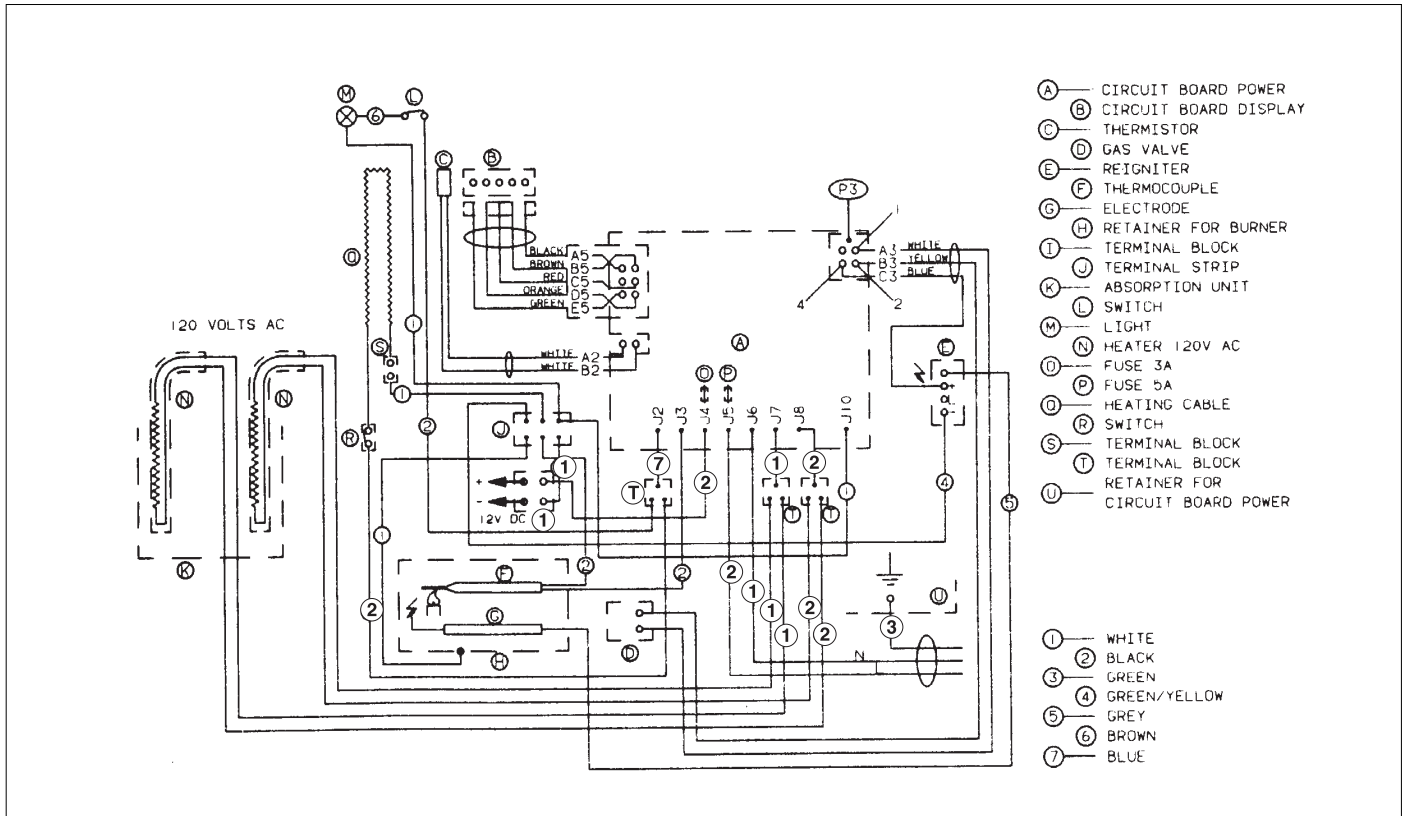
NOTE: After cleaning be sure to reinstall the flue baffle and flue cap (if equipped).

ORIFICE

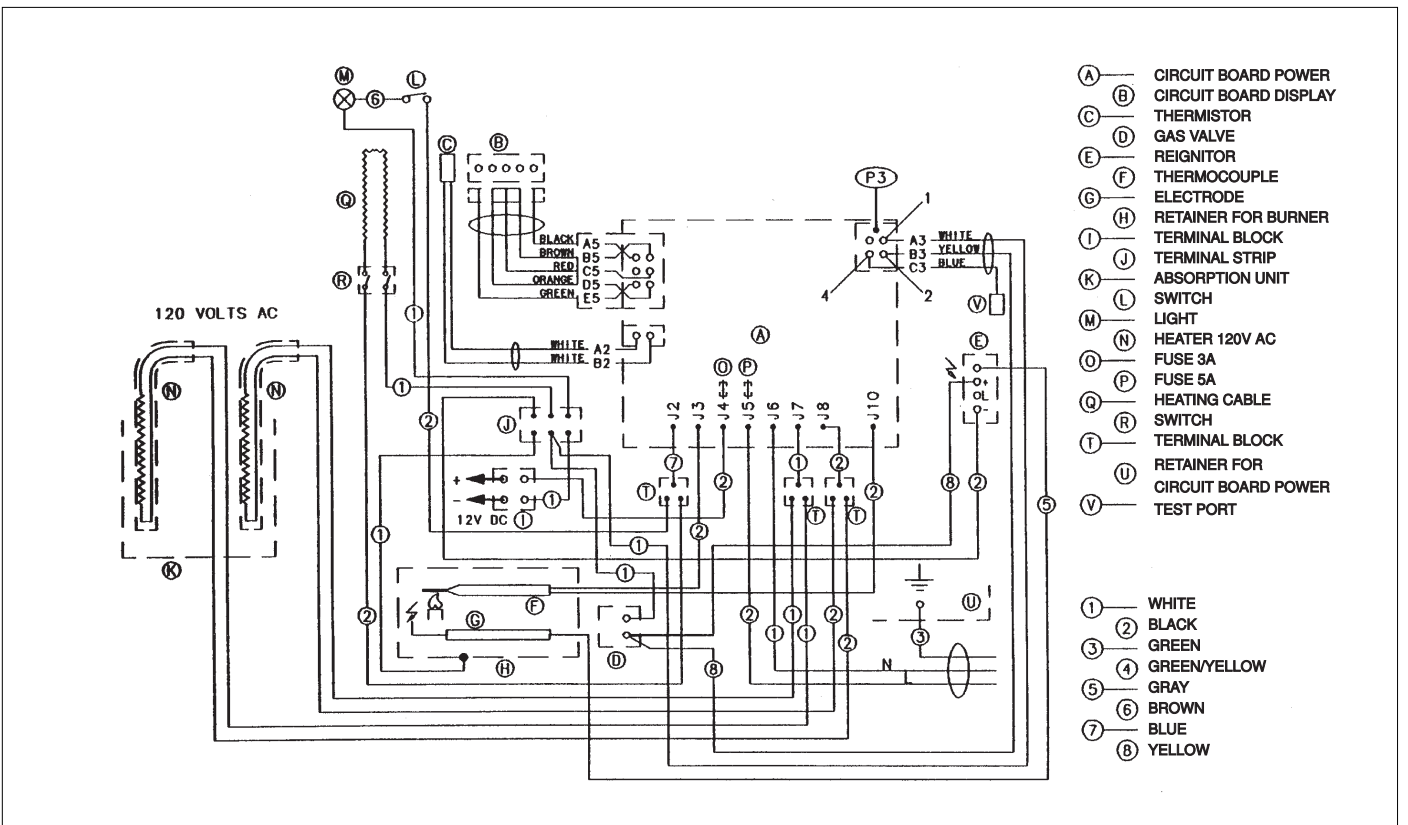
The orifice is a small brass fitting that has a ruby membrane that is laser beam drilled and is mounted on the gas line just prior to the burner. The orifice should be cleaned periodically, at least once a year, by using an alcohol based solvent and allowing to air dry. Never use a drill bit or jet tip cleaner to clean any orifice as these devices will damage the factory machined part and create a potentially dangerous condition.

The correct size orifice for your model refrigerator, refer to the TECHNICAL DATA section.

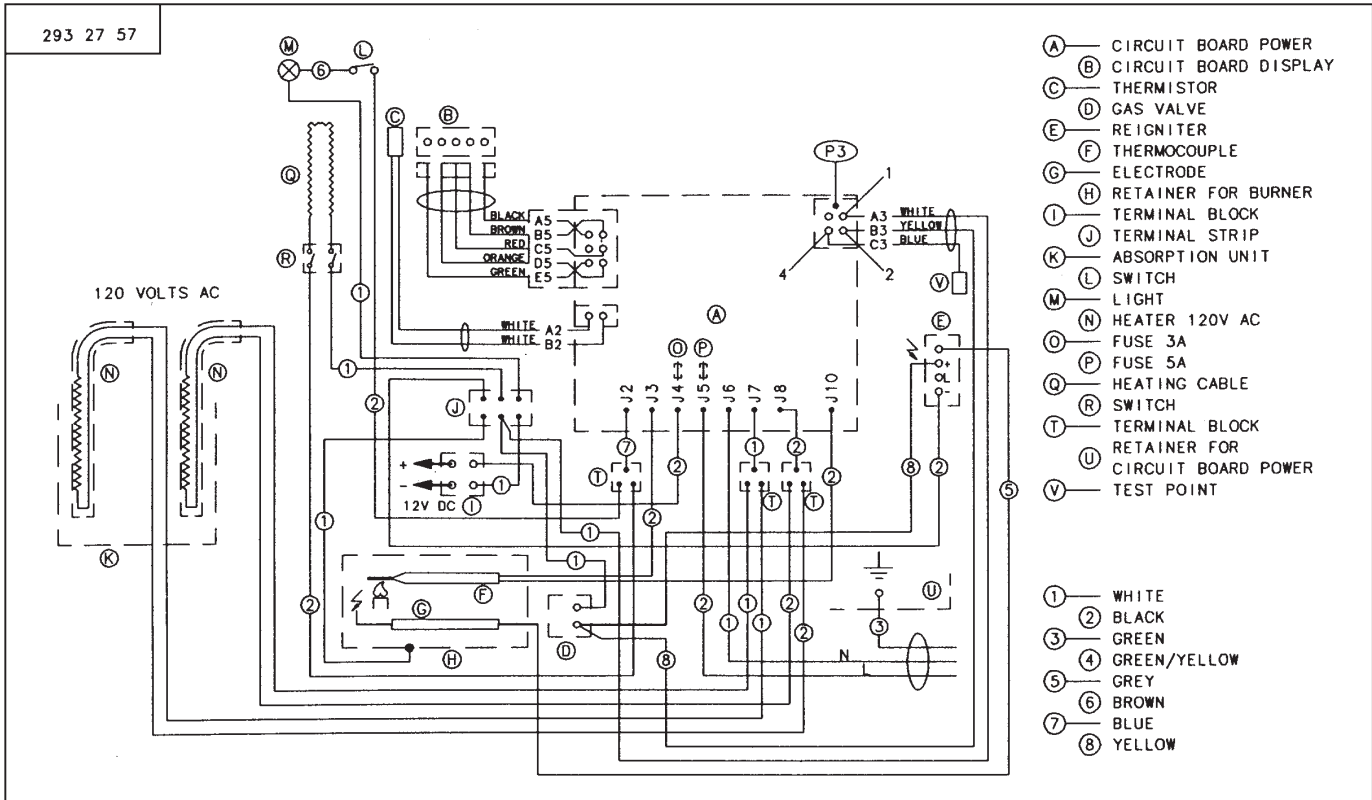
RM7130 TYPICAL WIRING DIAGRAM



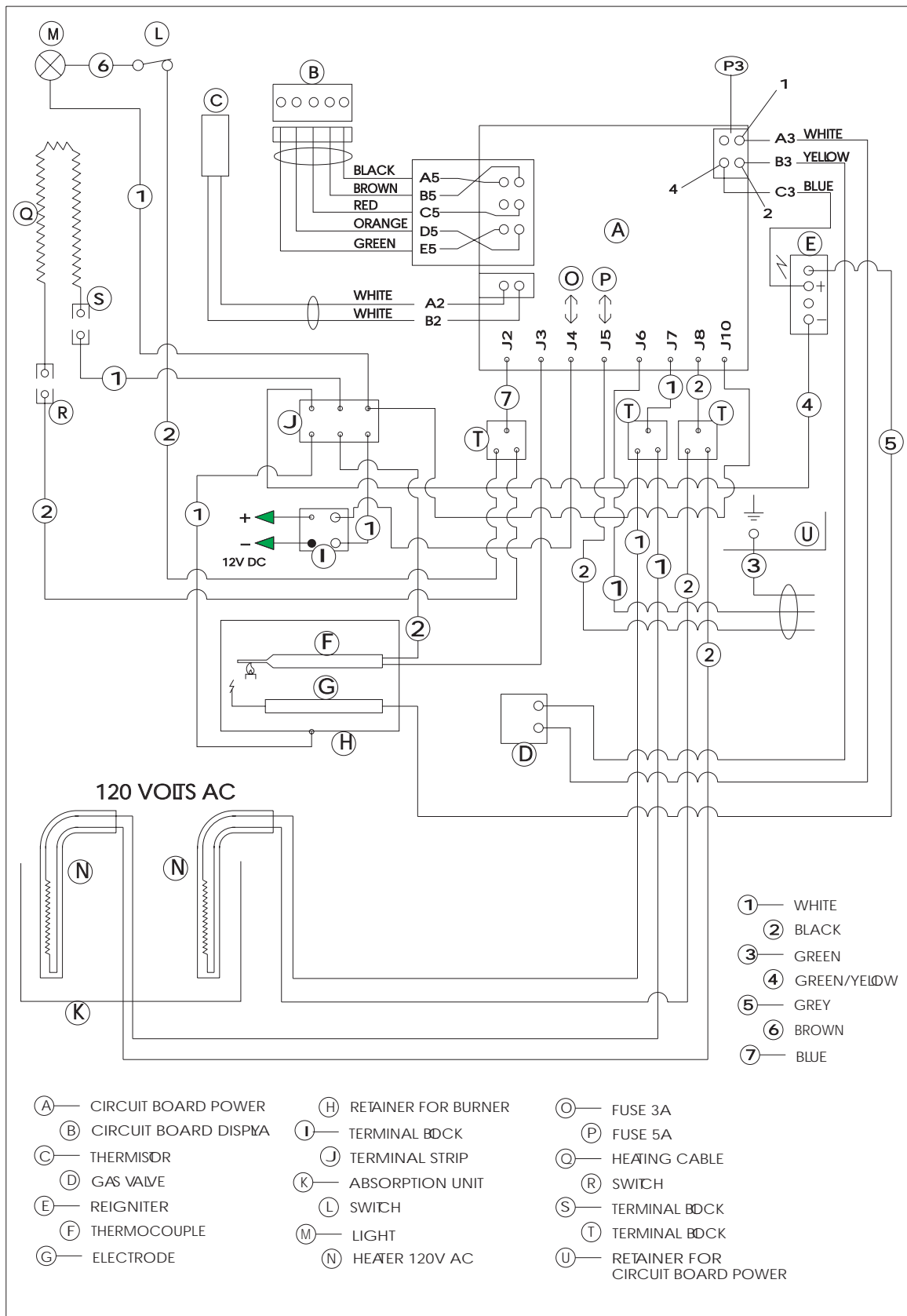
RM7832 TYPICAL WIRING DIAGRAM



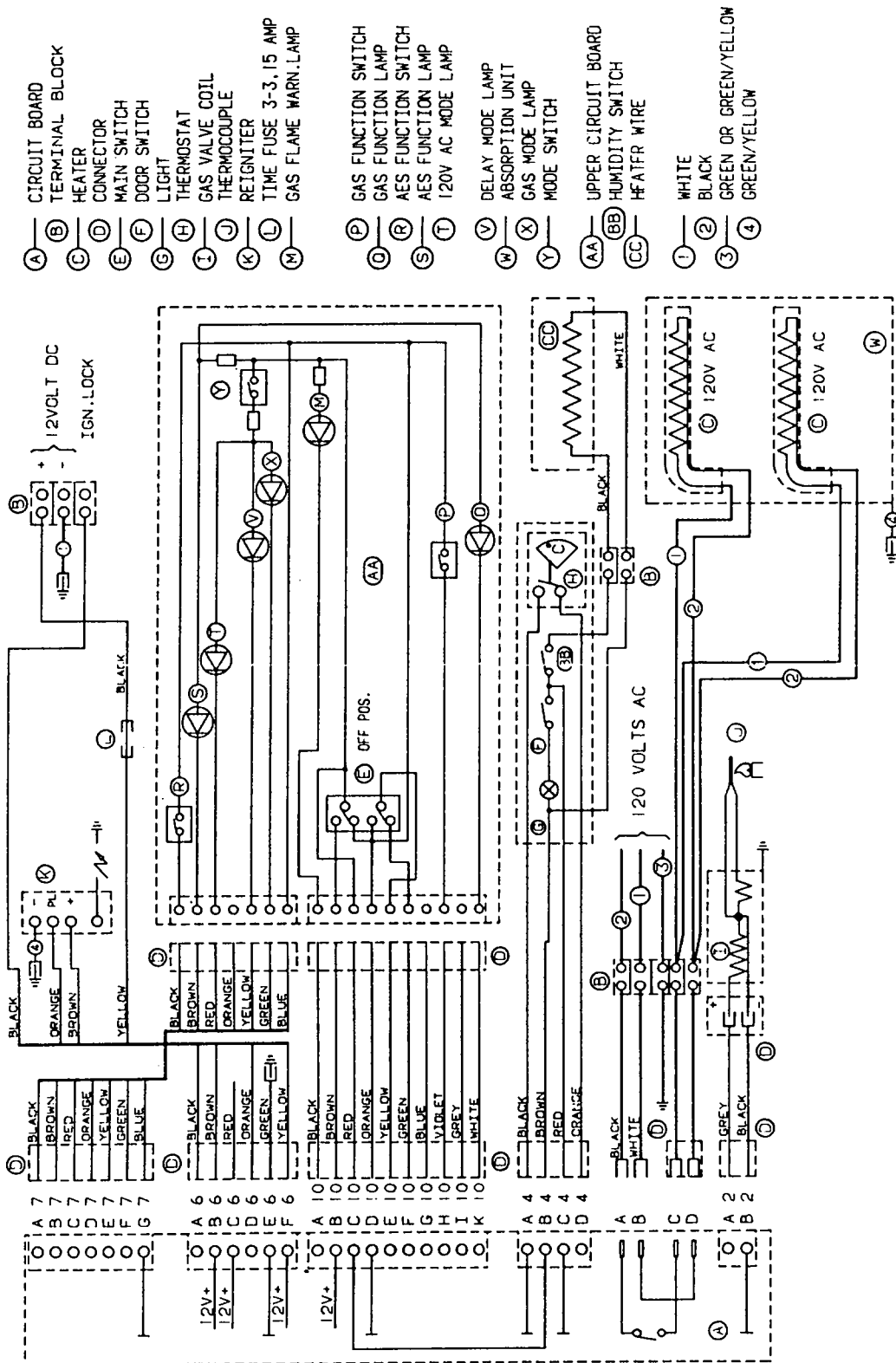
RM7732 TYPICAL WIRING DIAGRAM



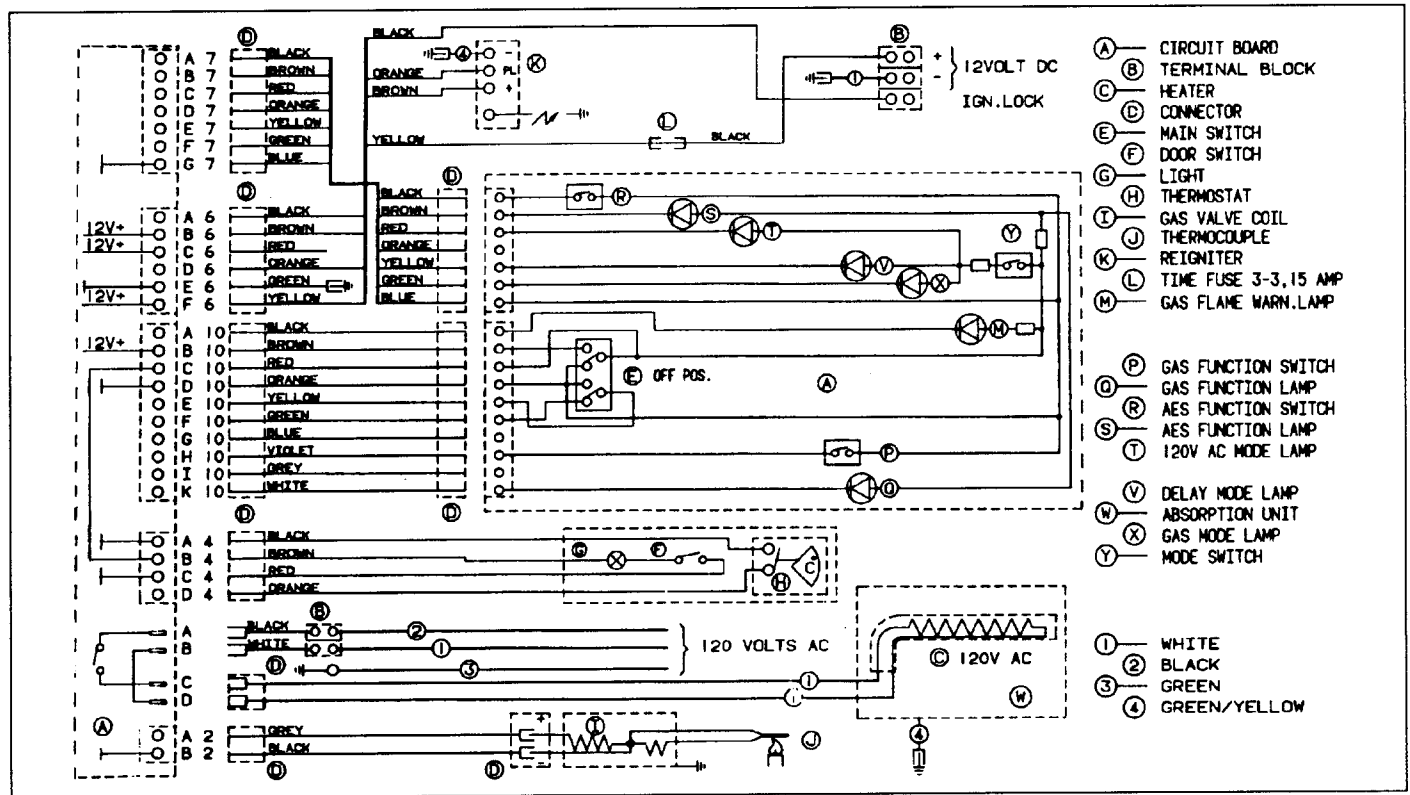
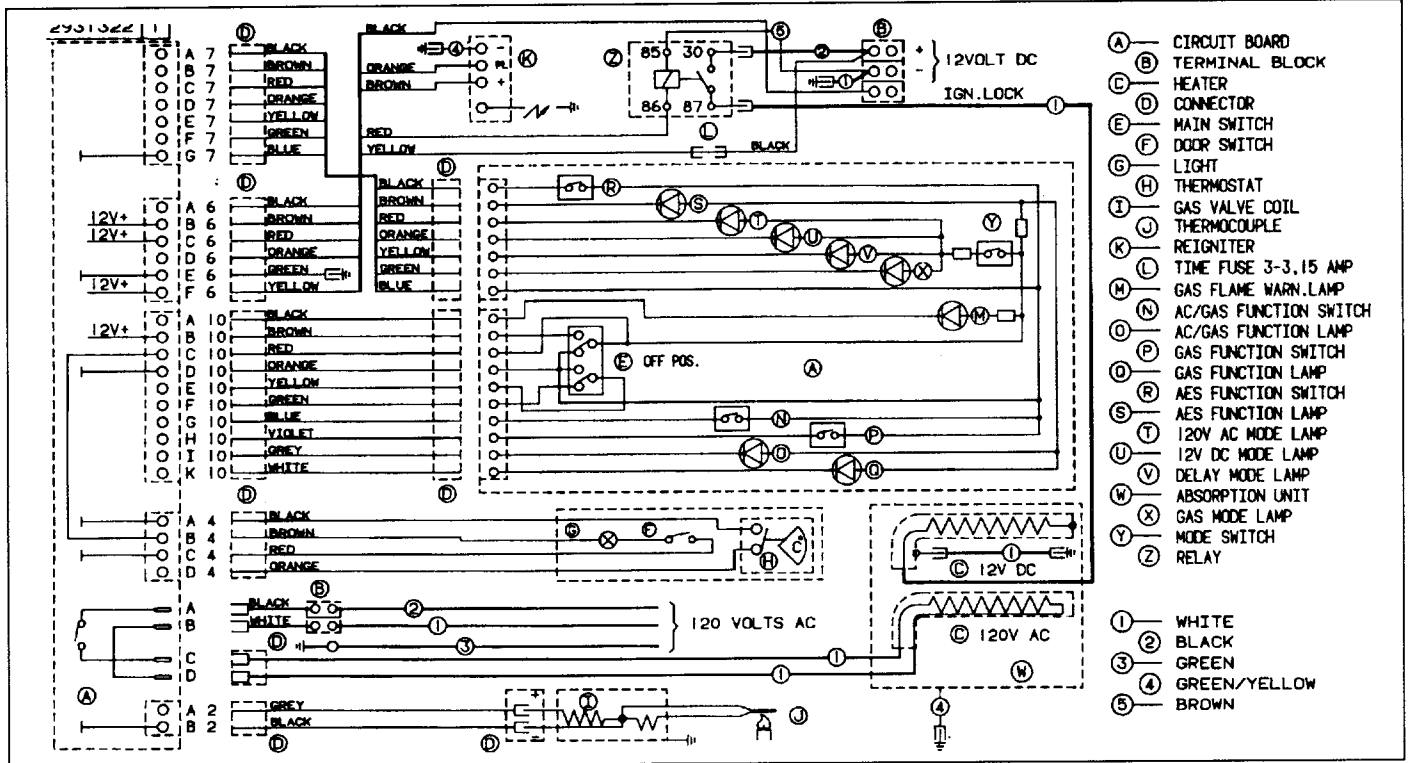
TYPICAL WIRING DIAGRAM FOR RM7030 (PRODUCT NO. 921890401)



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

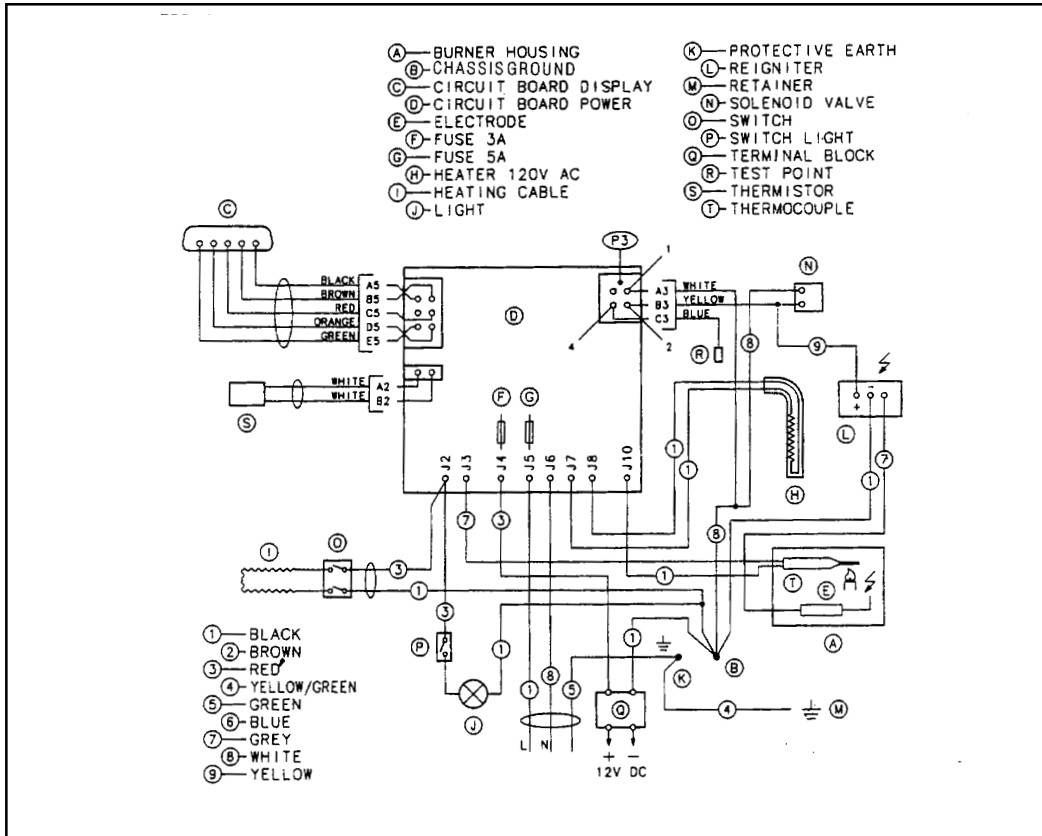


TYPICAL RM4804 3-WAY 12/120 VOLTS WIRING DIAGRAM

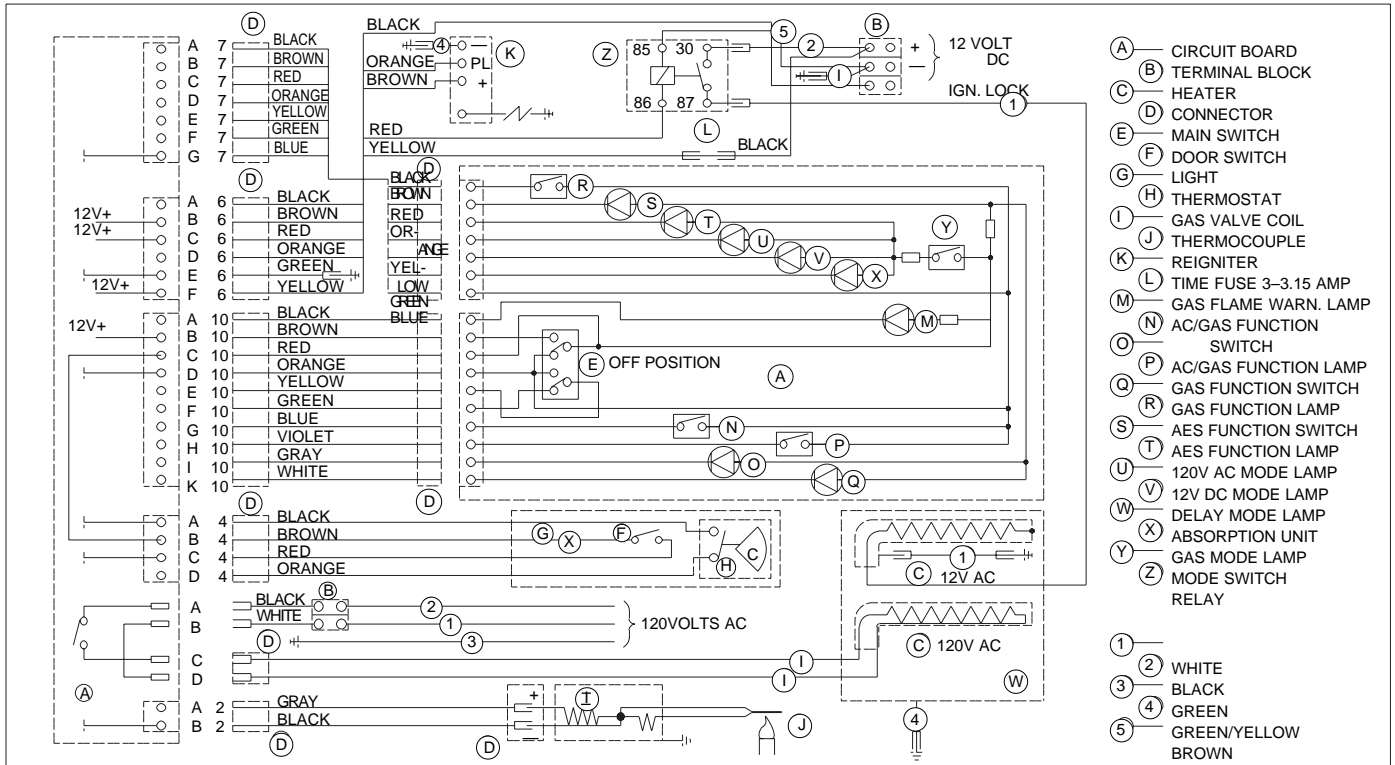


TYPICAL RM4804 2-WAY 120 VOLTS WIRING DIAGRAM

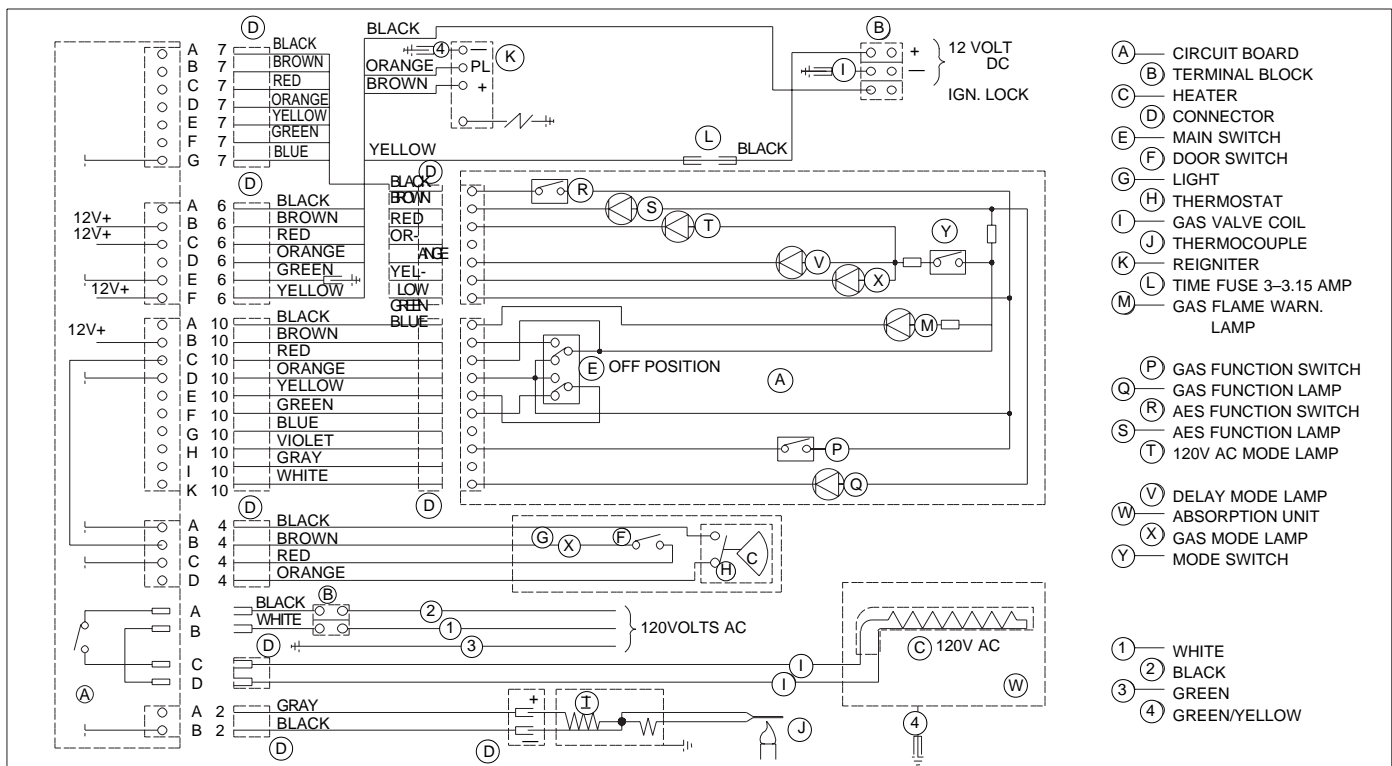
TYPICAL WIRING DIAGRAM - RM2652, RM2852, RM2612, RM2812



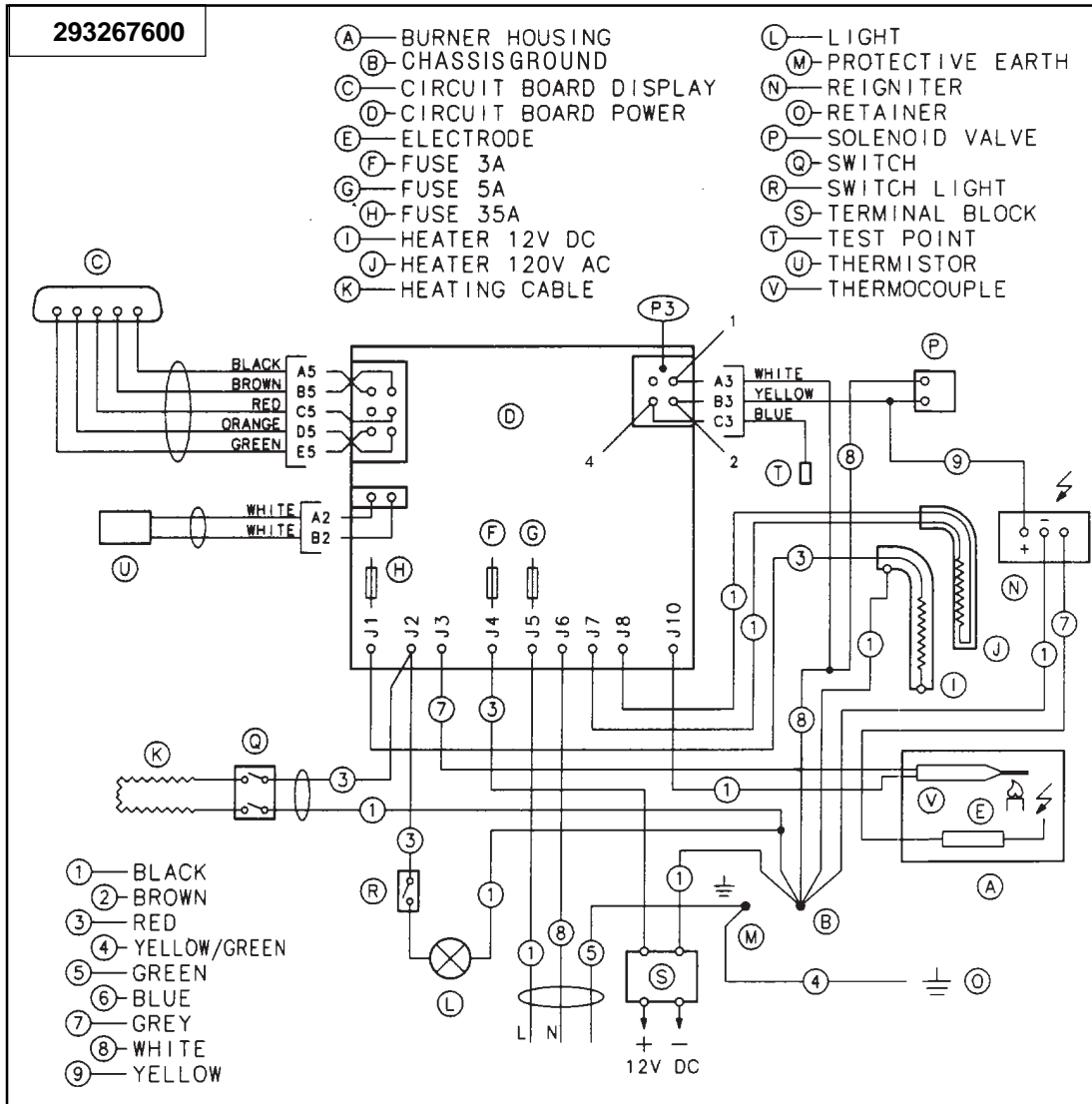
RM3604 & RM3804 3-WAY 12/120 VOLTS



RM3604 & RM3804 2-WAY 120 VOLTS



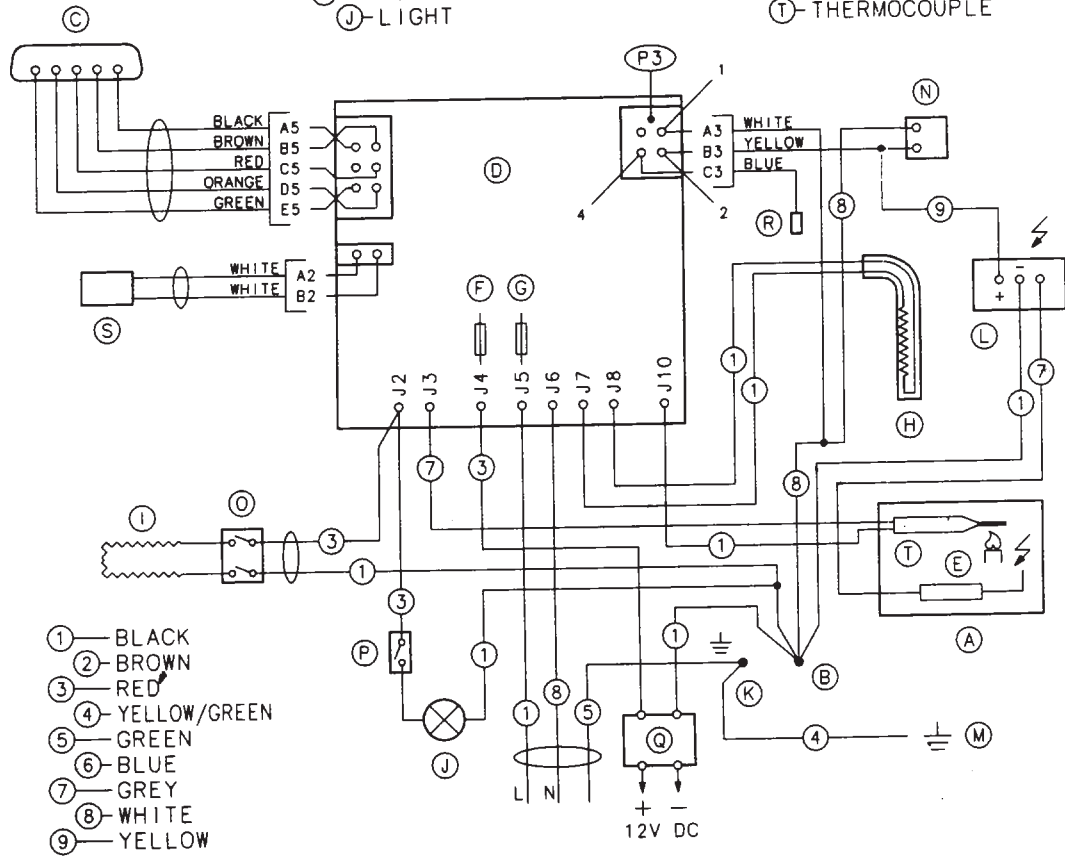
ROYALE & ELITE TYPICAL 3-WAY WIRING DIAGRAM



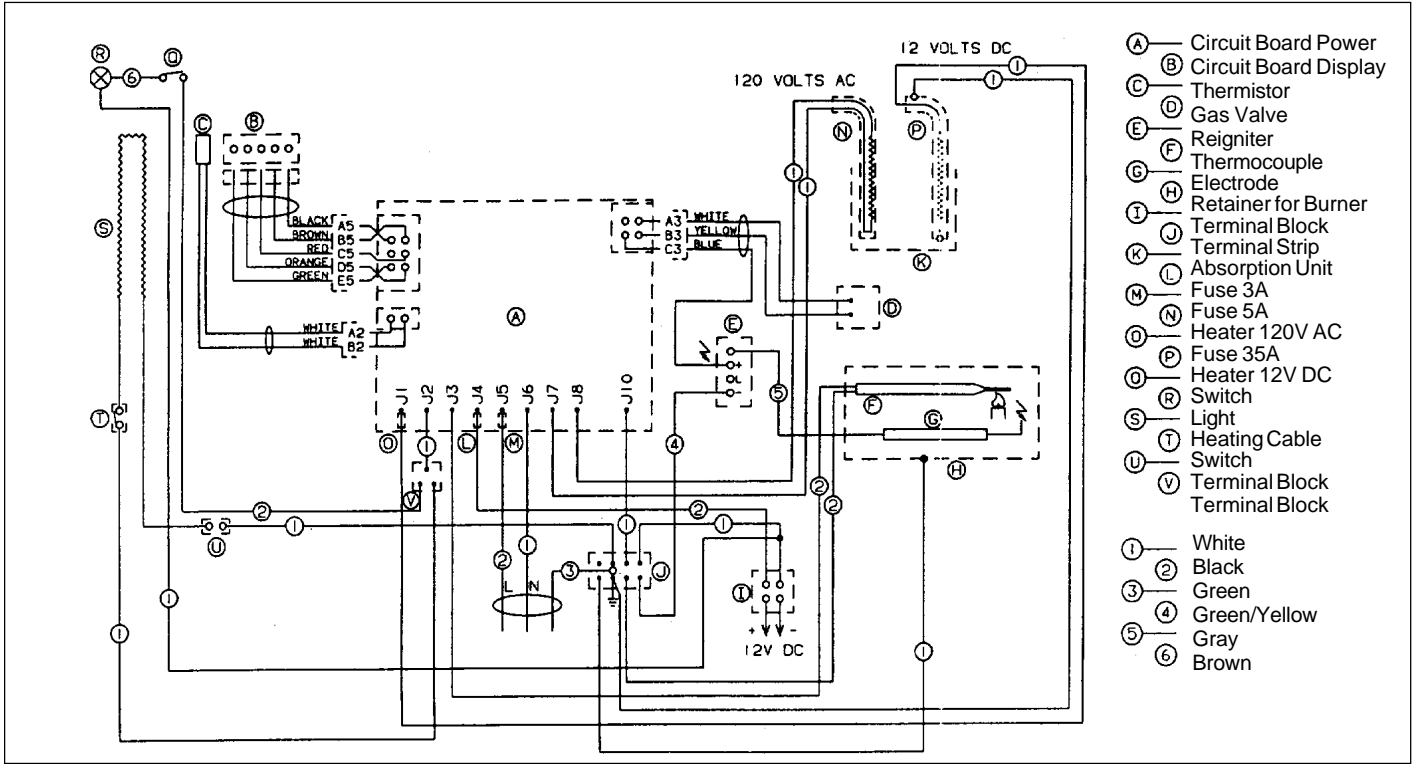
ROYALE & ELITE TYPICAL 2-WAY WIRING DIAGRAM

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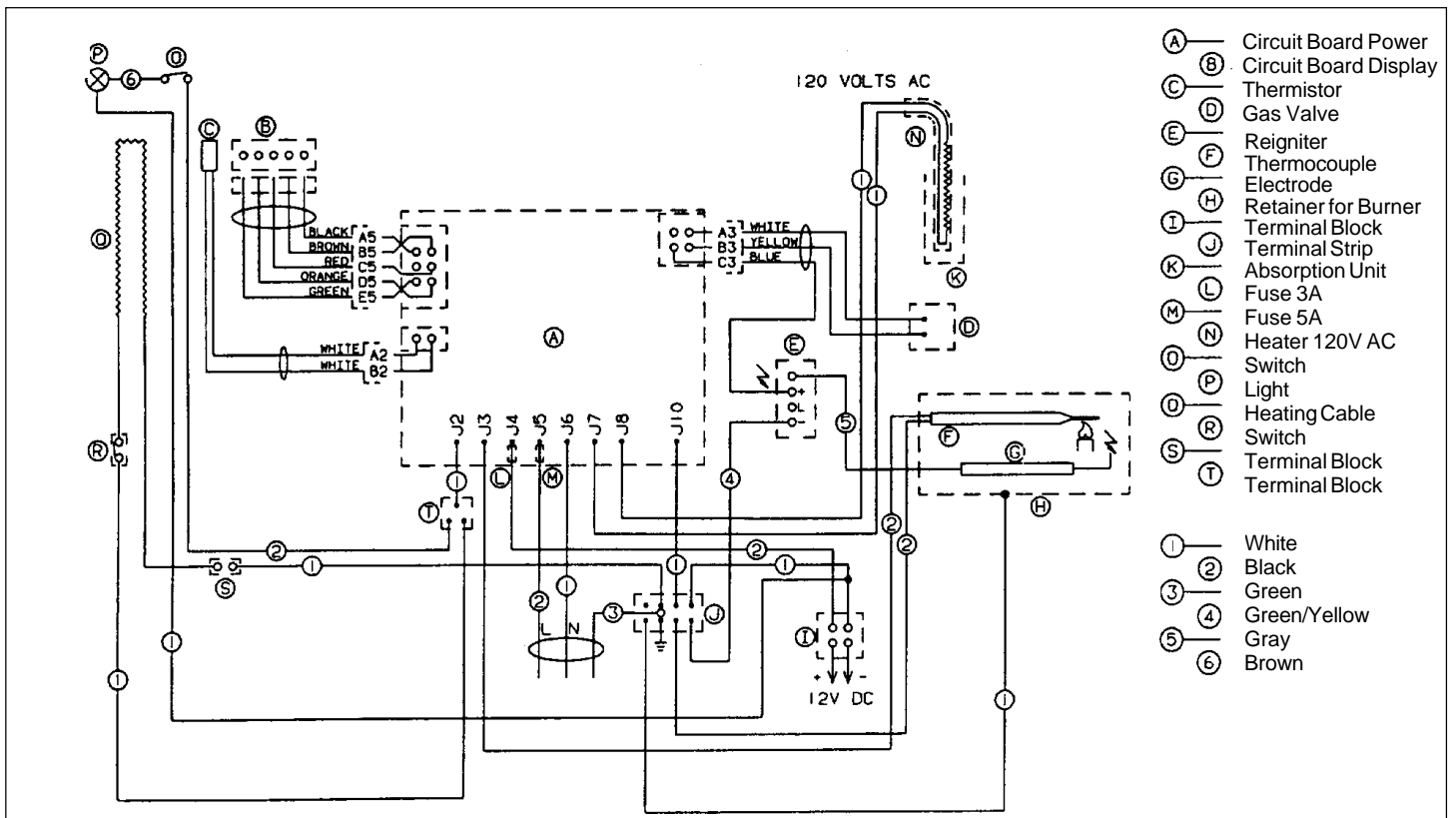
- | | |
|-----------------------------|------------------------|
| (A) — BURNER HOUSING | (K) — PROTECTIVE EARTH |
| (B) — CHASSIS GROUND | (L) — REIGNITER |
| (C) — CIRCUIT BOARD DISPLAY | (M) — RETAINER |
| (D) — CIRCUIT BOARD POWER | (N) — SOLENOID VALVE |
| (E) — ELECTRODE | (O) — SWITCH |
| (F) — FUSE 3A | (P) — SWITCH LIGHT |
| (G) — FUSE 5A | (Q) — TERMINAL BLOCK |
| (H) — HEATER 120V AC | (R) — TEST POINT |
| (I) — HEATING CABLE | (S) — THERMISTOR |
| (J) — LIGHT | (T) — THERMOCOUPLE |



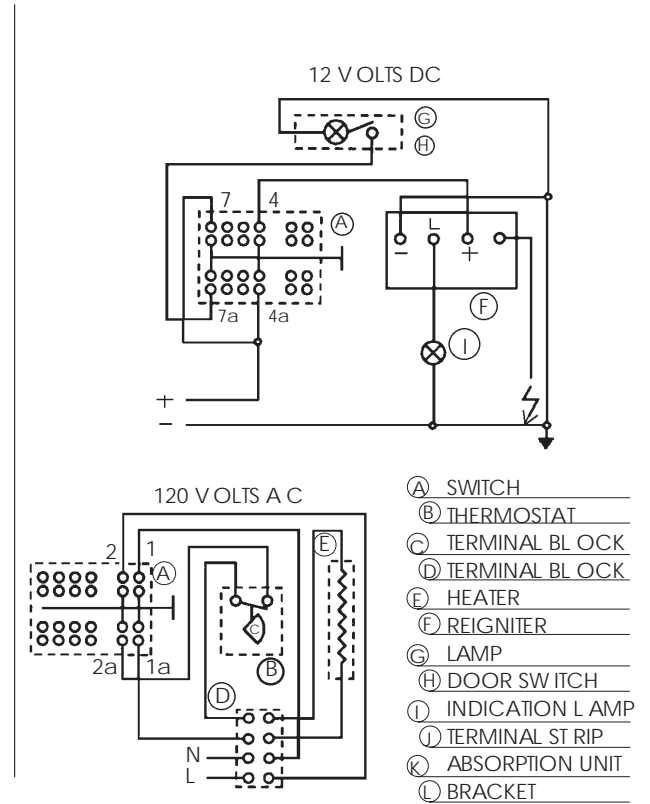
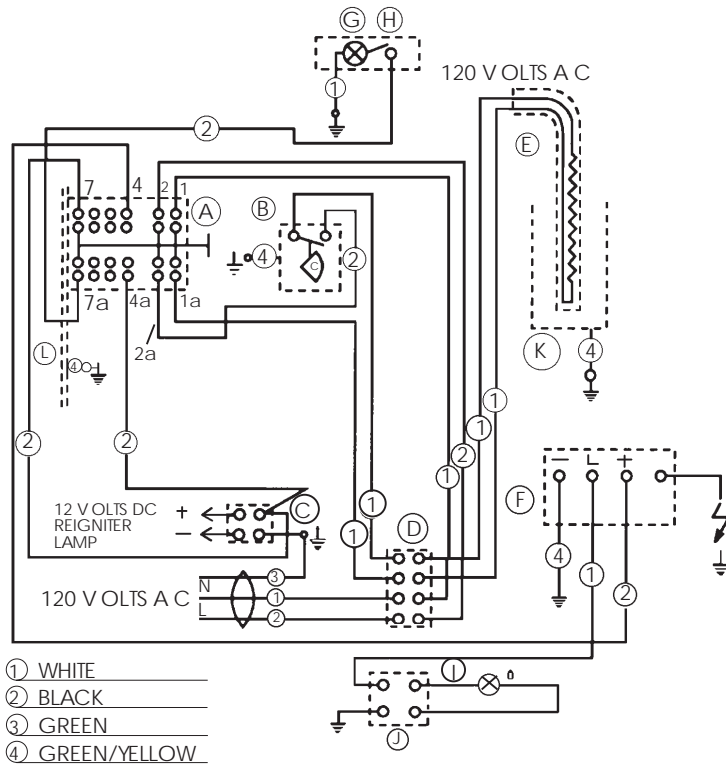
AMES & AES TYPICAL 3-WAY WIRING DIAGRAM



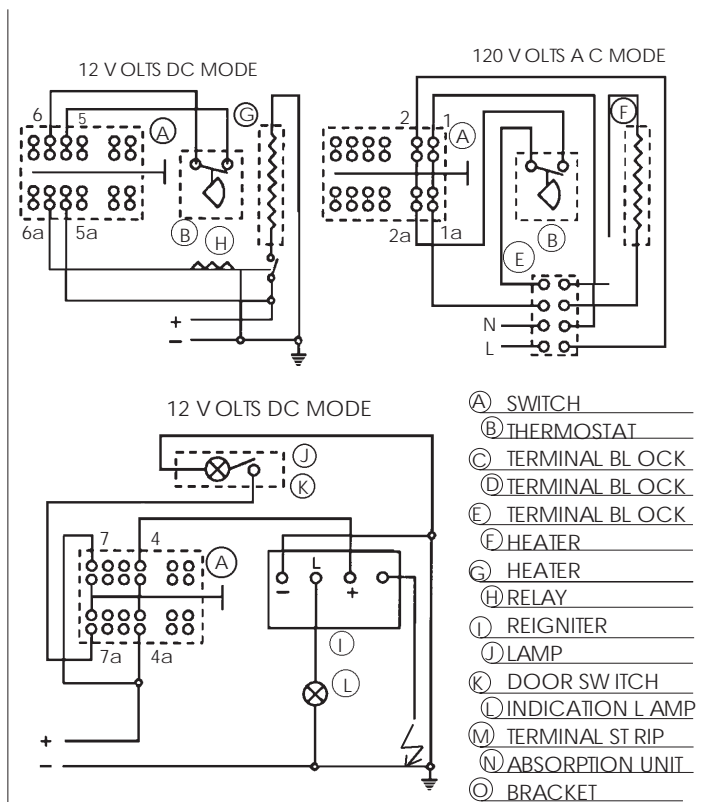
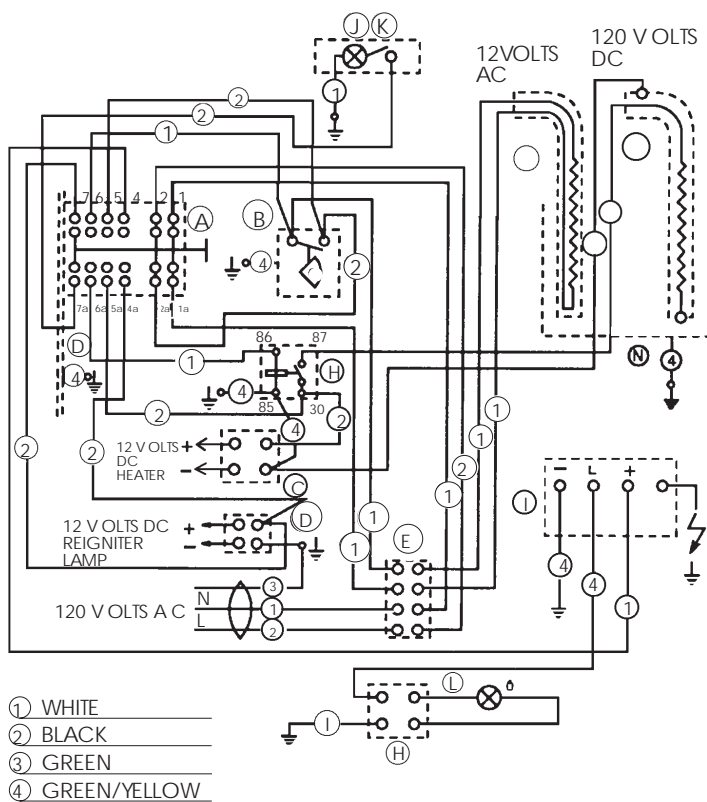
AMES & AES TYPICAL 2-WAY WIRING DIAGRAM



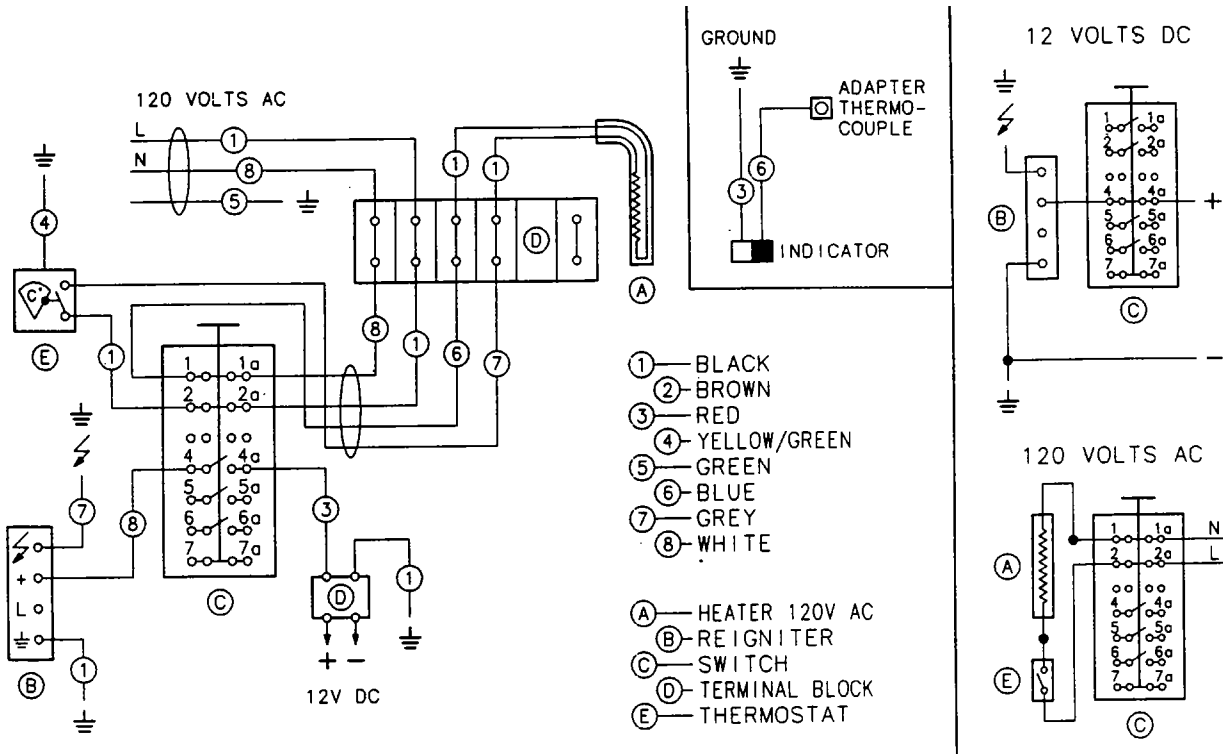
RM2604 & RM2804 2-WAY 120 VOLTS



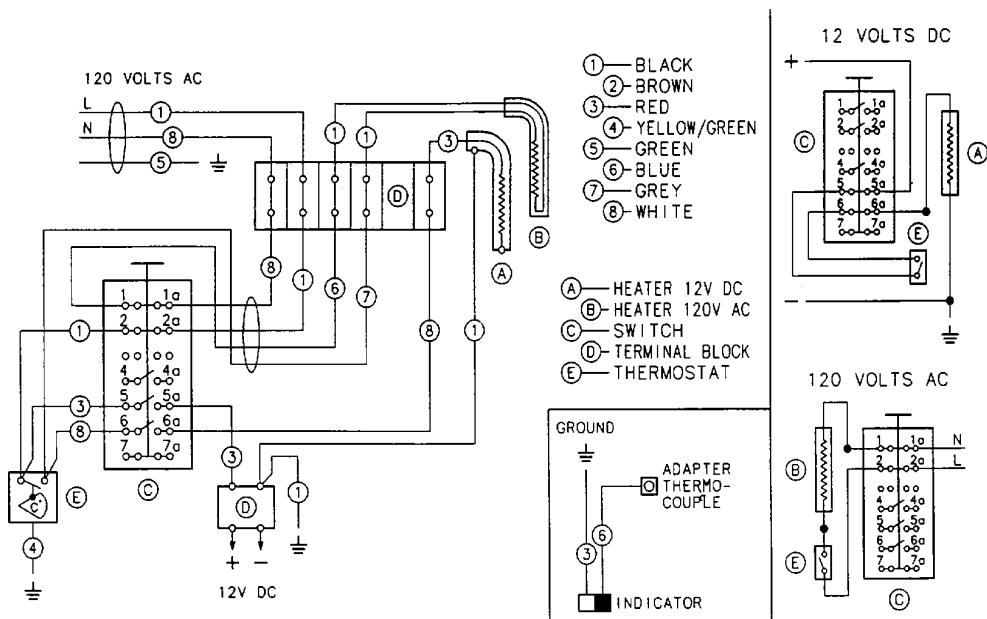
RM2604 & RM2804 3-WAY 12/120 VOLTS



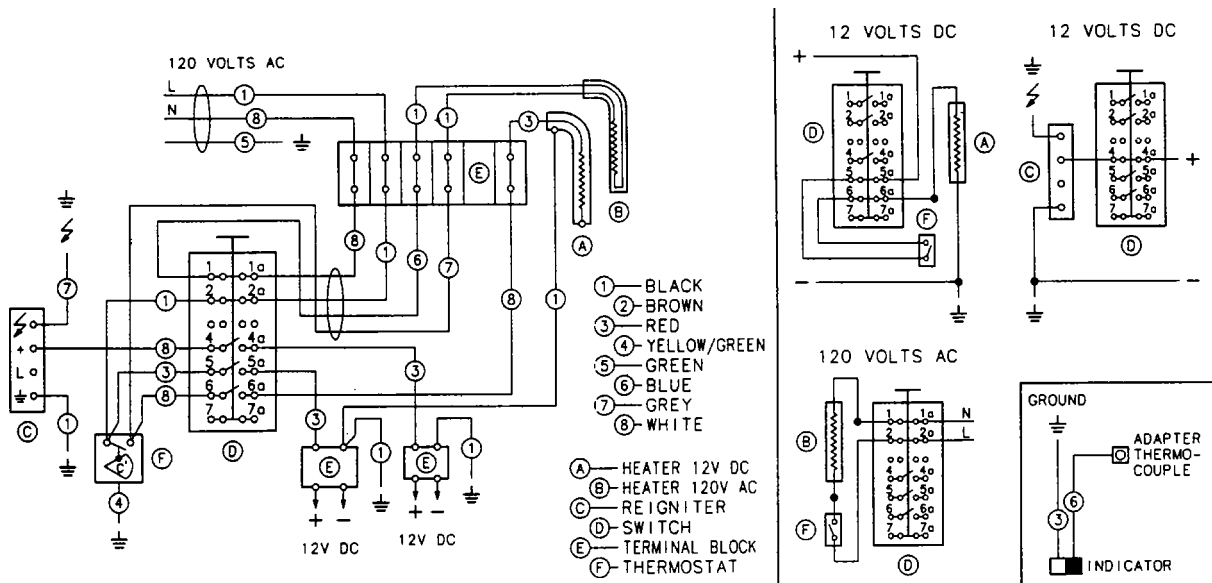
TYPICAL MANUAL 2-WAY WITH REIGNITOR FOR REFRIGERATORS WITH TOP MOUNT CONTROLS



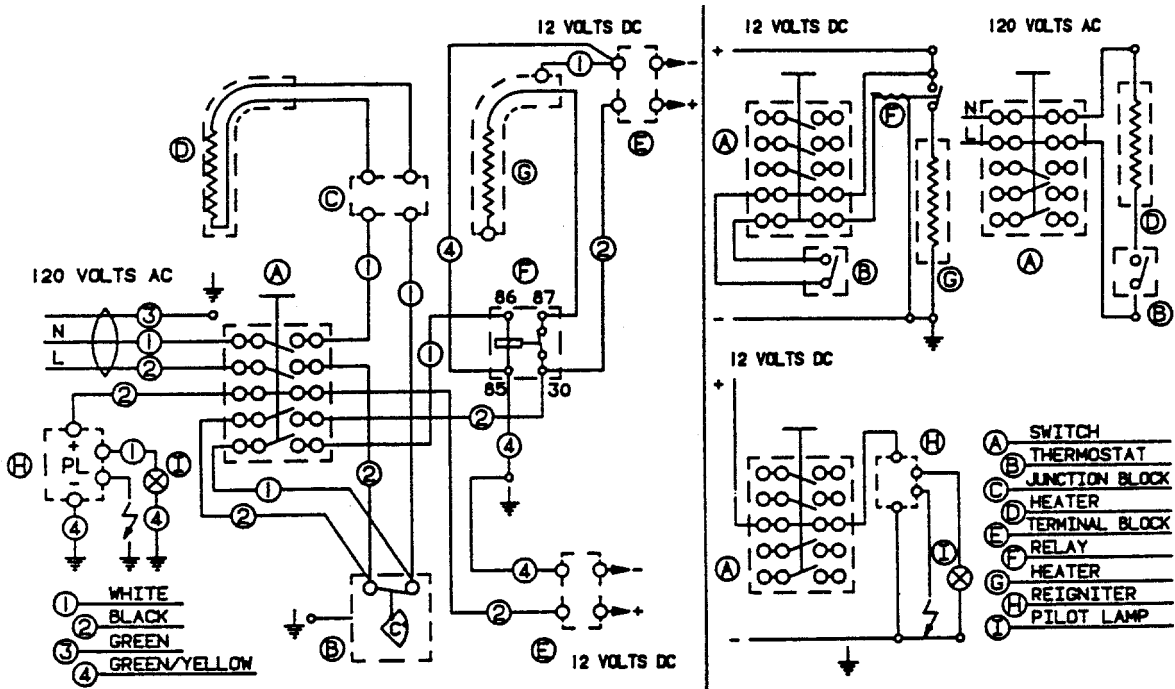
TYPICAL MANUAL 3-WAY WITH PIEZO IGNITOR FOR REFRIGERATORS WITH TOP MOUNT CONTROLS



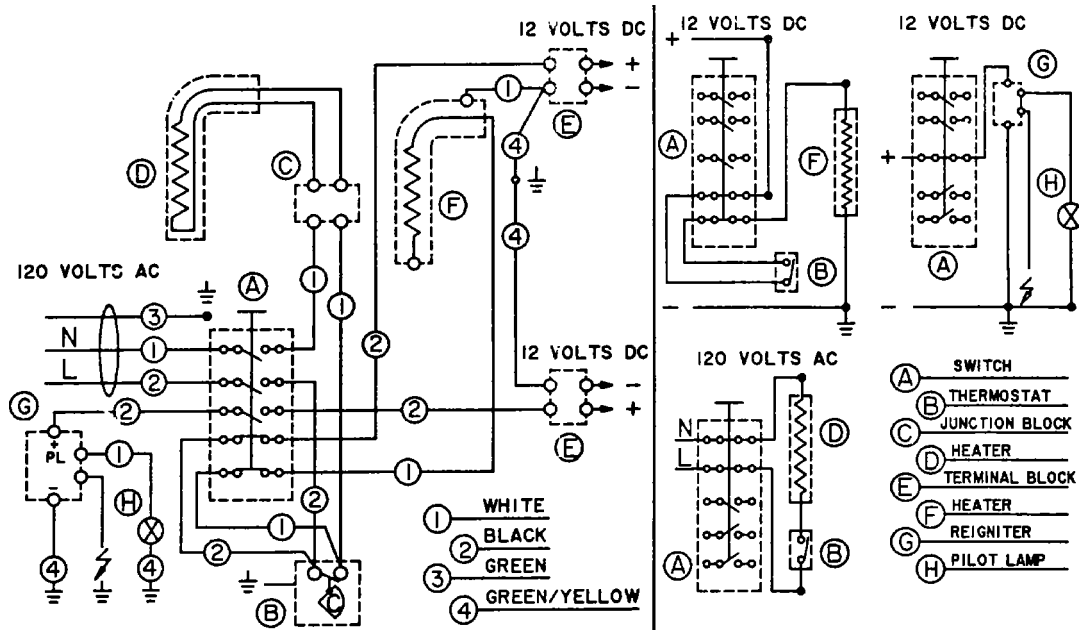
TYPICAL MANUAL 3-WAY WITH REIGNITOR FOR REFRIGERATORS WITH TOP MOUNT CONTROLS



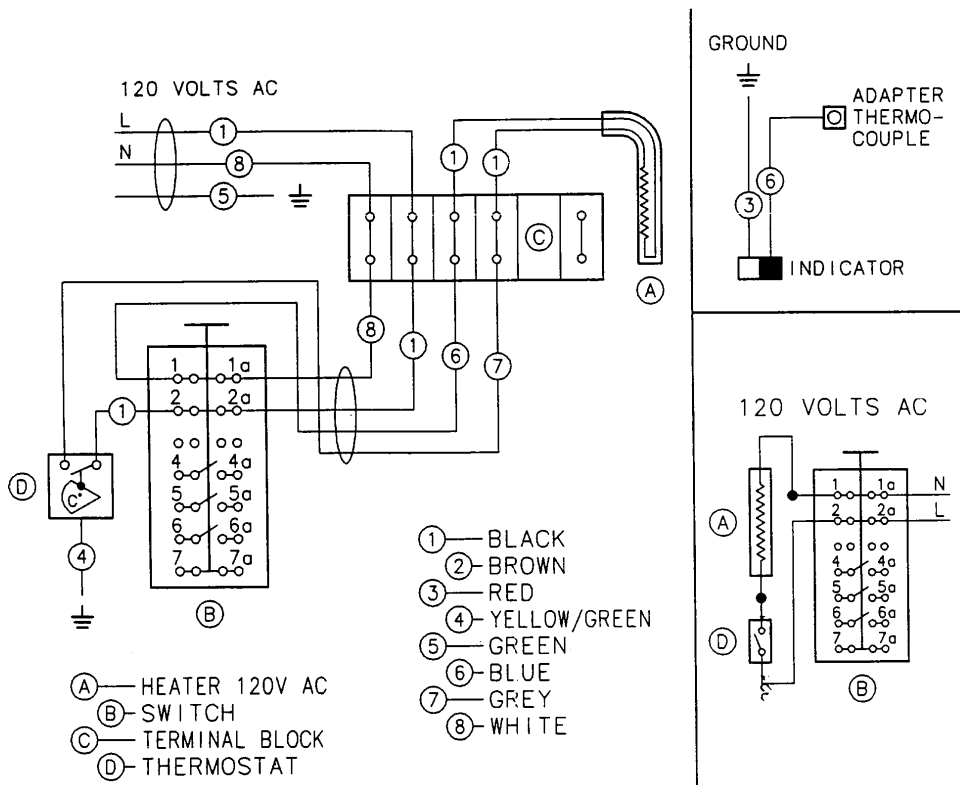
TYPICAL MANUAL 3-WAY WITH REIGNITER AND RELAY FOR REFRIGERATORS WITH BOTTOM MOUNT CONTROLS



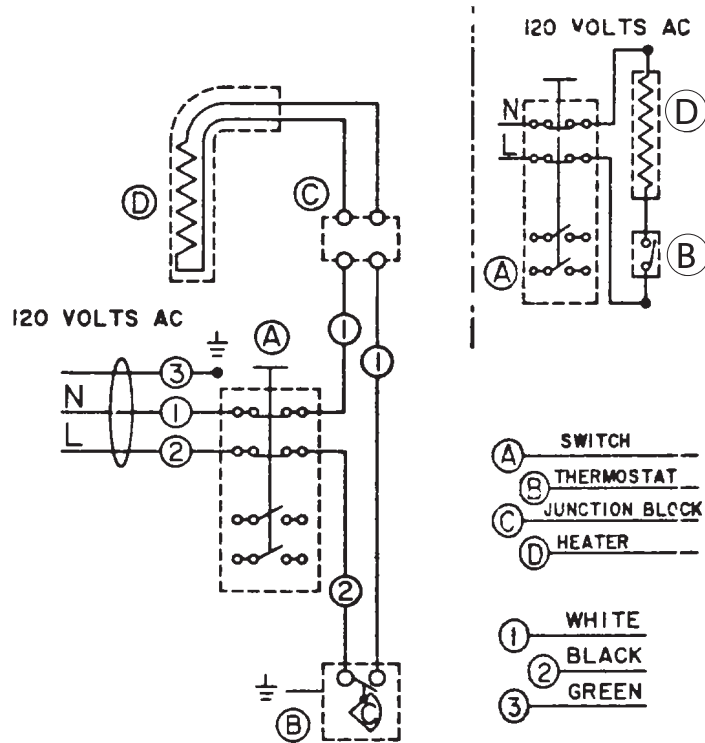
**TYPICAL MANUAL 3-WAY WITH REIGNITER
FOR REFRIGERATORS WITH BOTTOM MOUNT CONTROLS**



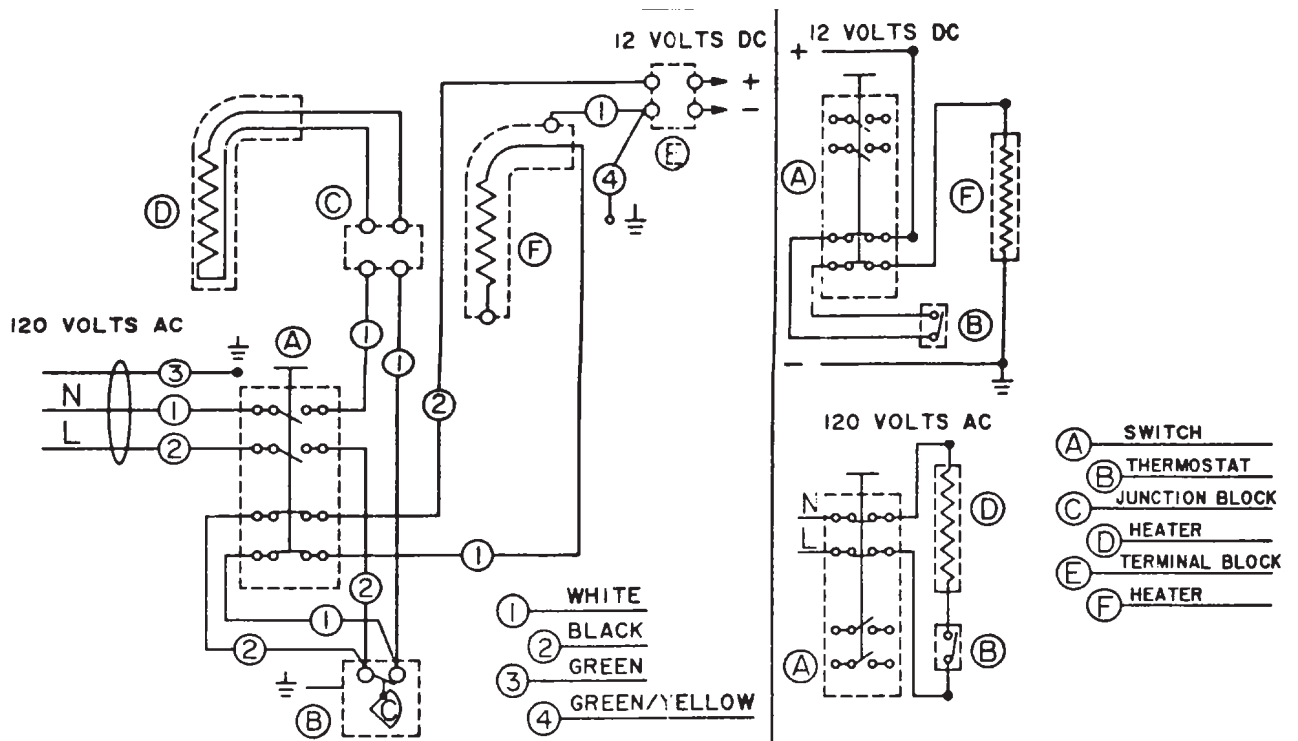
**TYPICAL MANUAL 2-WAY WITH PIEZO IGNITOR
FOR REFRIGERATORS WITH TOP MOUNT CONTROLS**



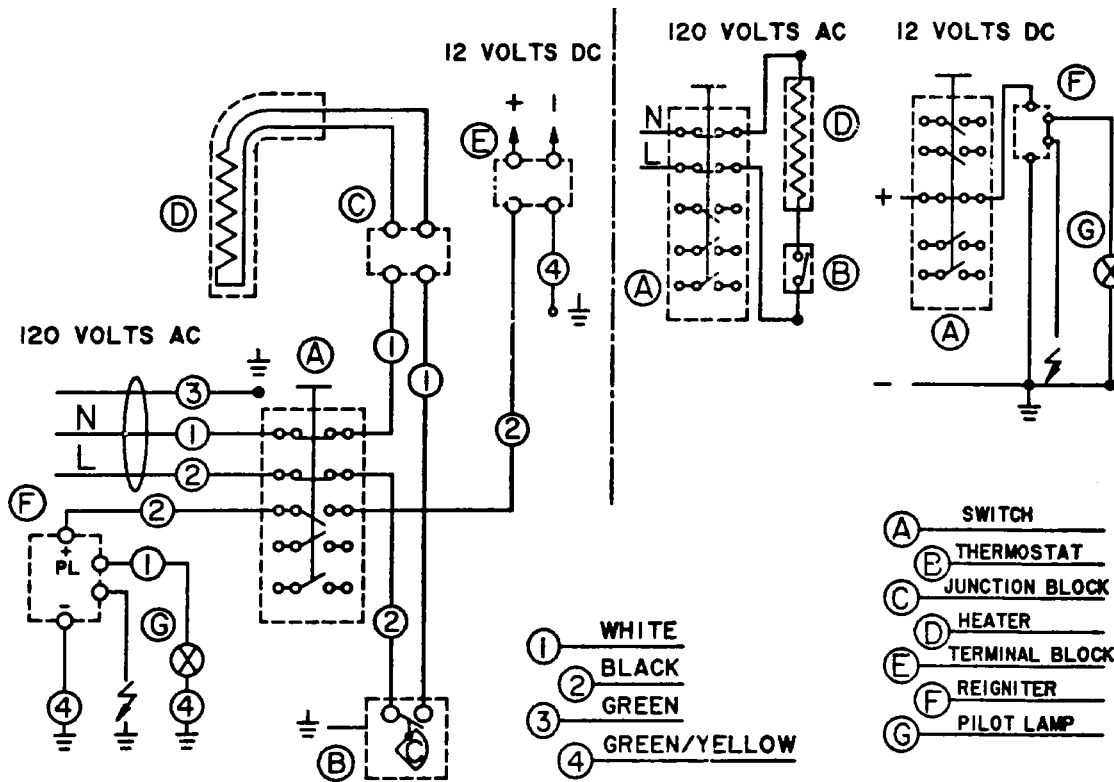
TYPICAL MANUAL 2-WAY WITH PIEZO IGNITER
FOR REFRIGERATORS WITH BOTTOM MOUNT CONTROLS



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



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



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 Connection for Igniter (On Manual Models only):** The connection is made to the terminal block marked 12 volts DC REIGNITER. The igniter must be connected to a battery circuit and will draw about 1 amp at 12 volts DC.
- C. **12 Volt DC Connection for Heater (3-Way Models Only):** This connection is made to the terminal block marked DC VOLT HEATER. The refrigerator must be connected to the battery circuit with two wires of adequate capacity to avoid voltage drop. The wire gauge should be chosen with consideration to the wire length in accordance with the Table located in the Installation Manual appropriate for your model.

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.

D. Ignition Lock Connection (Only on Systems with a Tag Line):

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

INTERNAL WIRING

Check all wires and the connectors to ensure a proper and tight connection. Also verify the refrigerator is wired per the wiring diagram for the model you are working on. (See applicable wiring diagrams for your model refrigerator)

SECTION C.

THIS SECTION APPLIES TO THE DOMETIC MANUAL REFRIGERATOR

1C. BYPASS SCREW

The bypass screw is a small brass screw located on any Dometic gas thermostat that regulates gas flow in the low flame mode. There are three common sizes of this screw: S-17 (350 BTU), S-14 (325 BTU) and S-11 (300 BTU). To check the bypass screw, connect a manometer at the pressure test housing. The pressure on low flame mode should be 2 to 4 inches water column. Above 5 inches water column on low flame mode could cause an over-cooling situation. The bypass screw used on the Manual Refrigerators is S-14.

2C. SAFETY VALVE

The safety valve is an assembly that shuts off the supply of LP gas to the burner if the flame goes out for any reason. This is to ensure that a concentration of un-burned gas does not accumulate in the refrigerator vent area. To check the safety valve, use a known good thermocouple and install into the safety valve. Next, supply flame to the tip of the thermocouple for 2 to 3 minutes while holding in on the safety valve stem. Next, remove flame from thermocouple tip and release safety valve stem. The safety valve should hold in for at least 30 seconds. If it releases earlier than 30 seconds, replace the safety valve.

3C. THERMOCOUPLE

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

4C. THERMOCOUPLE ADAPTER (Top Mounted Controls Only)

Located between the thermocouple and the safety valve, the thermocouple adapter is a device that allows the flame indicator meter to read DC millivolts from the thermocouple.

To test the thermocouple adapter, remove it from its location and do a continuity test from the terminal to the center post. Continuity should exist. Next, check for continuity between the terminal and casing. No continuity should exist. If either check is incorrect, **REPLACE THE ADAPTER.**

5C. GAS THERMOSTAT (RM2804 & RM2604 ONLY)

On the LP gas mode, full line pressure is directed through the thermostat to the burner until the thermostat senses that the refrigerator cabinet has reached proper cooling temperature. At that time an internal valve closes and redirects the gas flow through the by-pass screw. This reduces the amount of LP gas going to the burner assembly. The gas flow remains in this "by-pass" mode until the thermostat senses that the refrigerator cabinet needs more cooling. Again, the thermostat directs LP gas flow through the thermostat at full line pressure until the cabinet temperature is sufficient. The thermostat is calibrated by the manufacturer so that at mid-range the cabinet temperature should be approximately 40 degrees Fahrenheit. **To check the calibration of the thermostat**, place a container of water in the cabinet of the refrigerator and operate at mid-range setting until the thermostat is satisfied. Then, check the temperature of the water. It should be approximately 40 degrees. We do not recommend any calibration in the field. If calibration is not correct, replace the thermostat. **To check the thermostat for proper gas flow**, set the thermostat to maximum and check the gas pressure at the pressure test port. It should be line pressure, between 11 to 12 inches water column. If you have less than 11 inches of water column pressure, the next step would be to shut off the gas supply and remove the by-pass screw. Then install a by-pass screw that does not have the small o-ring on it. Next, turn on the gas supply and take a reading. If the manometer now reads 11 inches of water column, the thermostat is defective and must be replaced. If the by-pass screw test shows no change in pressure, the problem lies in the filter, the shut-off valve or the gas supply. Shut off the gas supply, remove the by-pass screw, replace it with a proper one that has an o-ring and turn the gas on.

NOTE: Check for leaks with an approved LP gas leak solution whenever any part of the gas system has been worked on.

6C. DUAL THERMOSTAT LP GAS MODE

On the LP gas mode, full line pressure is directed through the thermostat to the burner until the thermostat senses that the refrigerator cabinet has reached proper cooling temperature. At that time an internal valve closes and redirects the gas flow through the bypass screw. This reduces the amount of LP gas going to the burner assembly. The gas flow remains in this "bypass" mode until the thermostat senses that the refrigerator

7C. FLAME INDICATOR METER (On Top Mounted Controls Only)

The flame indicator meter is basically a DC volt meter. It reads DC millivolts coming from the thermocouple. If the millivolts from the thermocouple are 5 millivolts or more, the red needle in the meter should be in the green section.

If the blue wire to the meter is shorted to ground or if the blue and red wires are shorted together, a flame failure condition could result.

8C. FILTER

A filter is located in the inlet fitting to the thermostat. It protects the internal valve portion of the thermostat by collecting any particles and/or oil that could get into the LP gas line. The filter can become saturated and cause a restriction to gas flow. This could cause a lack of cooling on gas mode. If you suspect a restriction, first verify the thermostat and bypass screw are good. If these components are good, and filter is restricted, replace thermostat.

9C. ELECTRIC THERMOSTAT (For RM2804 & RM2806 Only)

It is an electric only thermostat. On 2-way models it controls the AC heating element. On 3-way models it controls the DC heating element as well as the AC heating element. The thermostat regulates the cabinet temperature by making and breaking the heat source circuit. The internal mechanism breaks contact (continuity) when adequate cabinet temperature has been reached. Check the thermostat for continuity or use a jumper wire with insulated clips and bypass the thermostat.

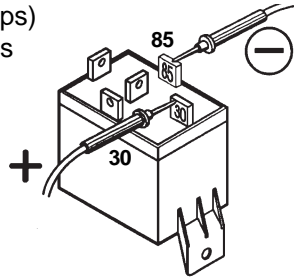
NOTE: Care should be used. Do not short to thermostat casing. Also remove the jumper after testing is completed.

If the above test allows the refrigerator to operate, replace the thermostat.

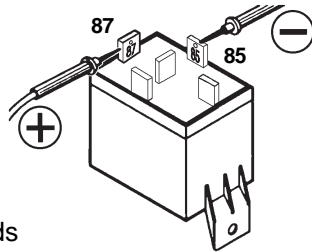
10C. RELAY (RM2604/RM2610/RM2804/RM2810 3-WAY MODELS ONLY)

The relay controls the circuit to the DC heating element. The load (amps) of the DC heating element goes through the relay.

To check the relay, first verify the selector switch is on DC mode and the thermostat is **NOT** completing the circuit. Next, verify voltage is present between terminals 85 and 30. If voltage is not present, check wiring to both terminals.



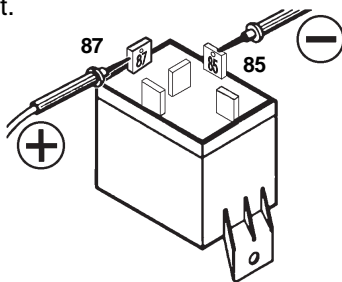
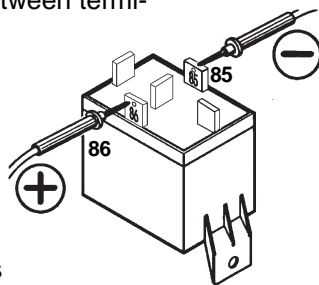
Next, check for voltage between terminals 85 and 87. If voltage is present, the relay is defective and needs to be replaced.



Second, verify the selector switch is on DC mode and the thermostat is completing the circuit.

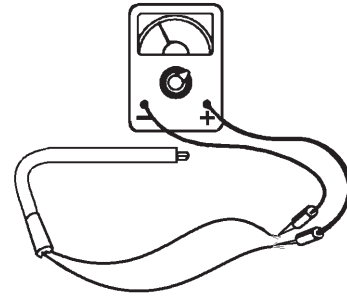
Next, verify voltage is present between terminals 85 and 86. If no voltage is present, check wiring and connections.

Next, if voltage is present between 85 and 86 terminals, then voltage should be present between terminals 85 and 87. If no voltage is present, the relay is defective, replace it.



11C. HEATING ELEMENT (3-WAY MODELS ONLY)

The heating element is designed to deliver a predetermined amount of heat to the cooling unit. Check the heating element with ohms resistance using a properly calibrated ohm meter. This check is to be done with the element at room temperature.



For values, refer to Technical Data Section, Pg. 86.

12C. IGNITER

1. MODEL RM2310, 2410, 2452, 2453

The piezo lighter is a self-contained assembly which generally does not need maintenance. When the button is pushed, a spring loaded striker creates a spark. If there is no resistance when pressing the button, the piezo igniter is defective and must be replaced. If the piezo snaps or has resistance when the button is pushed, but there is no spark, the problem lies in the electrode or electrode wire.

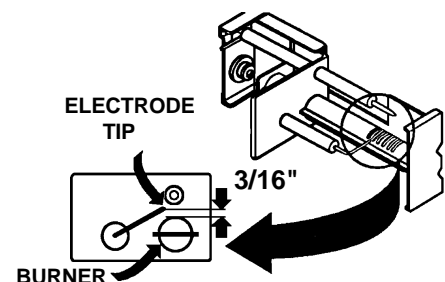
2. MODEL RM2510, 2610, 2810, 2552, 2553

The igniter is an electronic device that produces high voltage to create a spark at the burner, only on gas mode. First, check that the switch is in the gas mode and is completing the circuit. Next, verify proper voltage at the positive (+) and ground (-) terminals of the igniter. The reading should be within one volt of incoming voltage at the terminal block. A voltage drop of more than one volt would indicate a loose connection. No voltage would indicate an open circuit, check switch, wiring and DC voltage requirements.

ELECTRODE

To check the electrode, first do a visual inspection for cracks or breaks on the ceramic insulator. Also, verify the mounting bracket is attached properly to the electrode. If either of the above conditions are found, replace the electrode. Next, check the spark gap. It must be set at three sixteenths (3/16) of an inch and the tip of electrode above the slots in the burner.

NOTE: If igniter and high voltage cable are good and there is no spark at the tip of the electrode, REPLACE THE ELECTRODE.

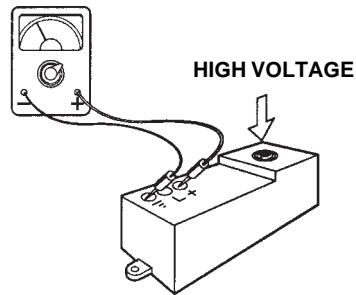


RM2452/RM2453/RM2552/RM2553 SWITCH

HIGH VOLTAGE CABLE

NOTE: Be sure switch and igniter are good before checking the high voltage cable and the switch is in the gas mode.

To check the high voltage cable, first disconnect DC power at the terminal block. Next, disconnect high voltage cable from electrode. Then reconnect DC power to the terminal block. If sparking starts, cable is good, **DO NOT REPLACE**, check the electrode. If no sparking, disconnect DC power at the terminal block and then disconnect high voltage cable at the igniter. Reconnect DC power to the terminal block. If sparking sound from igniter, replace the high voltage cable.



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

ON MODEL RM2510, 2604, 2610 AND 2804, 2810: Next, with the igniter producing spark, set the meter on 20 volts DC or lower scale, connect meter leads to L and ground terminals on the igniter. The meter should read a pulsating voltage. If not, replace the igniter.

If all of the previous checks are correct, the igniter is good, **DO NOT REPLACE**. The pulsating voltage allows a lamp to illuminate on the front of the refrigerator to advise the customer spark has been produced. To check the lamp, first, verify it is wired correctly. Next, verify the lamp receptacle is receiving the signal, if so, and lamp is not illuminating (flashing), replace the lamp.

NOTE: Do not supply DC power to the lamp. It will **NOT** illuminate with normal DC power. For the lamp to illuminate it must receive an increased DC signal.

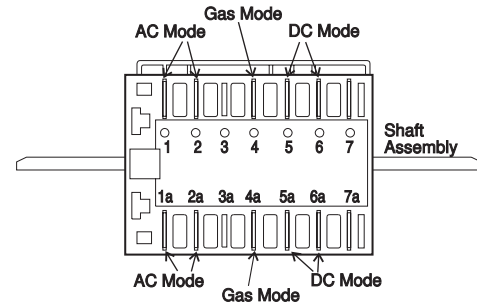
13C. SWITCH (TOP MOUNT CONTROLS)

The Selector Switch should be checked for continuity in the following manner. Remove all wires from the assembly.

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

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

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



14C. DC COMPONENTS

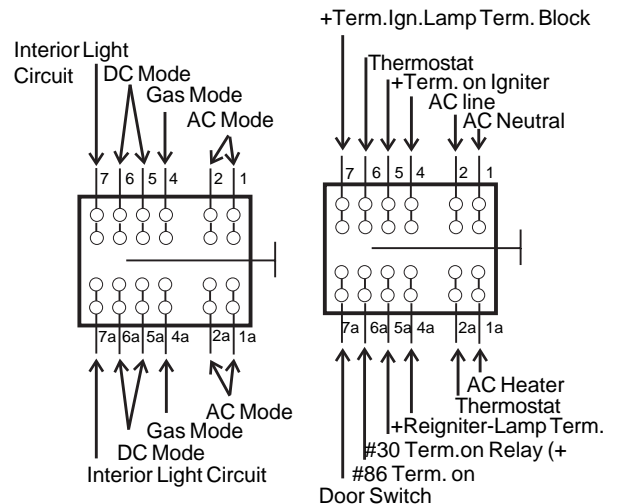
SWITCH

This is the switch that selects the mode of operation (120 volt AC, gas and 12 volt DC). It is also a circuit interrupter for each mode of operation on the refrigerator. When the customer selects either AC, gas or DC (3-way models only) operation, the selector switch directs electricity first to the interior light and the thermostat and on to the heating element or the igniter for gas mode. When this switch is turned off, the AC or DC circuit is interrupted. To check the switch in the AC mode, continuity should exist between these terminals: 1 to 1A, 2 to 2A and 7 to 7A. To check the switch in the gas mode, continuity should exist between these terminals: 4 to 4A and 7 to 7A.

To check the switch in the DC mode (on 3-way models only), continuity should exist between these terminals: 5 to 5A, 6 to 6A and 7 to 7A.

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. After the check, be sure switch is wired properly per the wiring diagram.

When the switch is in the off position a continuity reading **SHOULD NOT** be indicated on any terminals. If the above test results are correct, **DO NOT REPLACE** the switch. If any one of the above tests are not correct **REPLACE** the switch.



15C. DC VOLTAGE REQUIREMENTS

For the refrigerator to operate, igniter (gas mode) and DC volt operation (3-way models only), DC voltage must be supplied to the terminal block or blocks (2 terminal blocks on 3-way models) at the rear of the refrigerator. 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. Check for proper voltage at the terminal block or blocks 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. The igniter will draw about 1 amp at 12 volts DC.

The DC heating element (on 3-Way Models ONLY) will draw the following amps at 12 volts:

RM2310	10.4 AMPS
RM2410	10.4 AMPS
RM2510	14.6 AMPS
RM2604/2610	17.9 AMPS
RM2804/2810	17.9 AMPS
RM2453	14.6 AMPS
RM2553	14.6 AMPS

The maximum fuse size is as follows:

RM2310	15 AMPS
RM2410	15 AMPS
RM2510	20 AMPS
RM2604/2610	25 AMPS
RM2804/2810	25 AMPS
RM2452	15 AMPS
RM2453	15 AMPS
RM2552	20 AMPS
RM2553	20 AMPS

16C. DC COMPONENTS

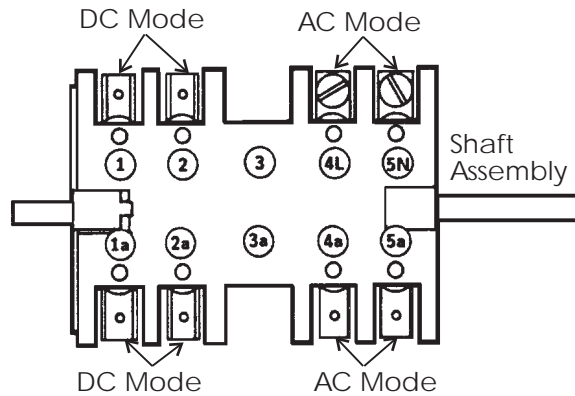
SWITCH (BOTTOM MOUNT CONTROLS)

A. The selector switch should be checked for continuity in the following manner. Remove all wires from the assembly.

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

For the AC mode, you should have continuity between 4L and 4A and 5N and 5A. If you lack continuity in any mode when making these checks, the switch is defective and should be replaced.

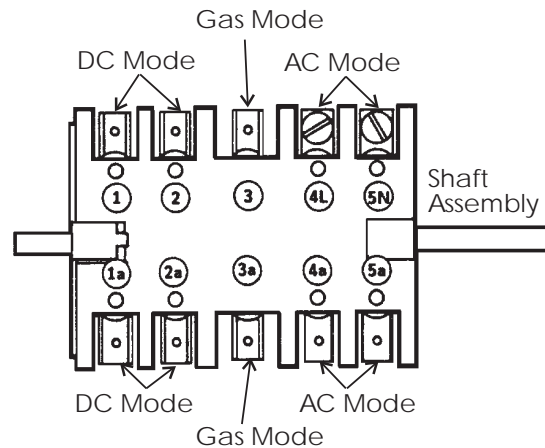
RM2310 & RM2410 SWITCH ASSEMBLY



- B. The RM2510/RM2610/RM2810 selector switch should be checked for continuity in the following manner. Remove all wires from the assembly. **For the DC mode**, continuity should exist between terminals 1 and 1A and 2 and 2A. **For the gas mode**, you should have continuity between 3 and 3A.

For the **AC mode**, you should have continuity between 4L and 4A and 5N and 5A. If you lack continuity in any mode when making these checks, the switch is defective and should be replaced.

RM2510/RM2610/RM2810 SWITCH ASSEMBLY



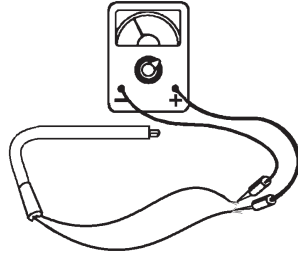
17C. AC VOLTAGE REQUIREMENTS

- 1) 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 drops below 100 volts, cooling efficiency will decrease with voltage decrease. If voltage is outside of the proper operating range, correct the power source problem.

2) 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 terminal block 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.

Refer to the Technical Data Section for the correct values.



18C. OPERATION

A. GAS OPERATION

REFRIGERATORS WITH PIEZO IGNITOR (RM2452 & RM2453)

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

REFRIGERATORS WITH AUTOMATIC REIGNITORS (RM2552 AND RM2553)

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

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

B. ELECTRIC OPERATION

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

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

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

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

C. THERMOSTAT

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

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

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

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

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

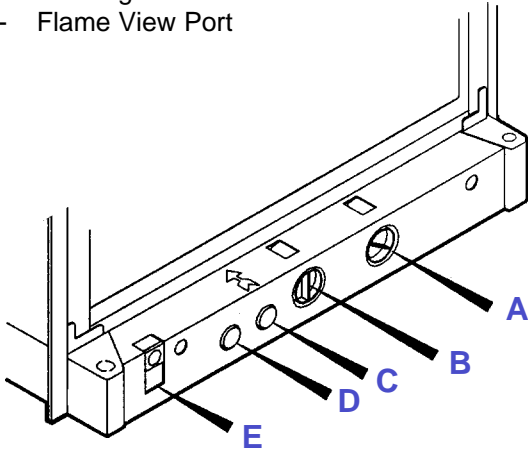
The setting of the thermostat is not critical, but we recommend it be adjusted to maintain a dry frost on the cooling fins. Adjust the thermostat knob closer to "MAX" when the outside temperature becomes warm.

19C. OPERATION FOR REFRIGERATORS WITH BOTTOM MOUNT CONTROLS

CONTROLS

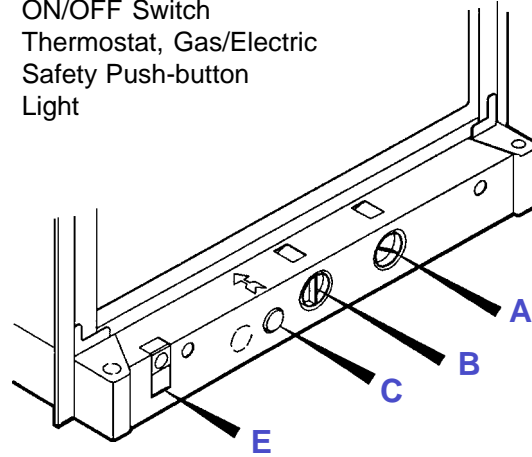
Refrigerators with Piezo Igniters (RM2310 & RM2410)

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



Refrigerators with Automatic Reigniters (RM2510/RM2610/RM2810)

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



A. GAS OPERATION

■ Refrigerators with Piezo Ignitor (RM2310 & RM2410)

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

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

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

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

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

■ Refrigerators with Automatic Reigniters (RM2510/RM2610/RM2810)

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

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

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

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

B. ELECTRIC OPERATION

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

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

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

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

C. THERMOSTAT

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

"OFF" Setting of the Thermostat: In gas operation,

the thermostat closes its main valve and the burner runs continuously at the bypass rate or pilot. In electrical operation, the contacts in the thermostat are open and the heating elements are off.

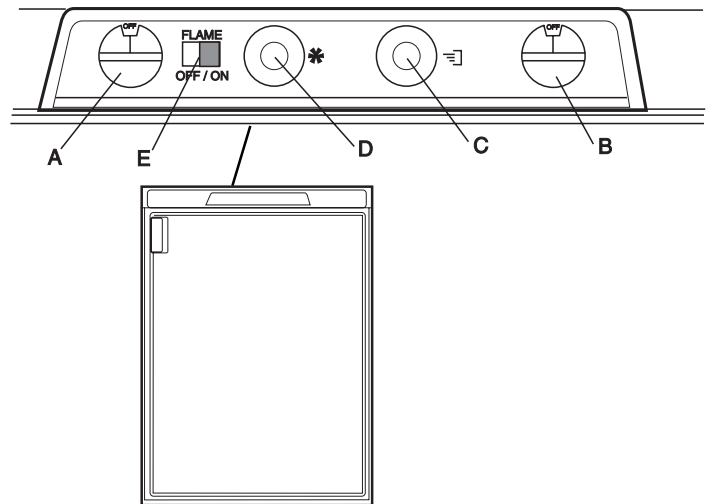
"MAX" Setting of the Thermostat: In gas operation, the thermostat allows the burner to remain on high flame continuously. In electric operation, the heating element is "ON" continuously.

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

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

20C. OPERATION FOR REFRIGERATORS WITH TOP MOUNT CONTROLS

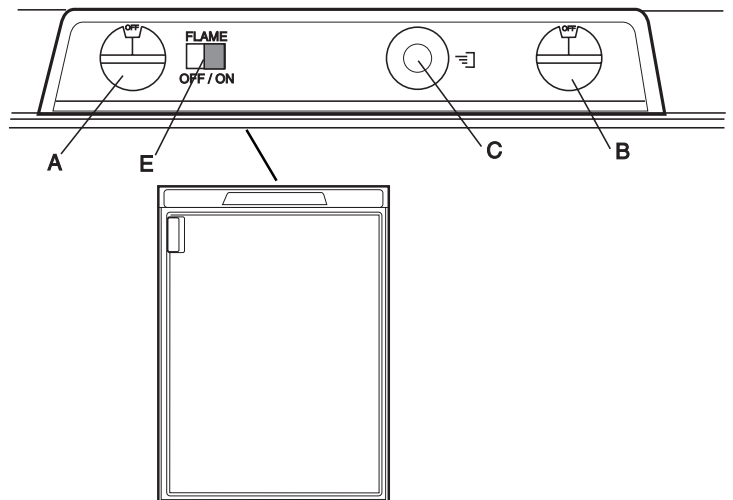
REFRIGERATORS WITH PIEZO IGNITORS: RM2452 AND RM2453



LEGEND:

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

REFRIGERATORS WITH AUTOMATIC IGNITION: RM2552 AND RM2553

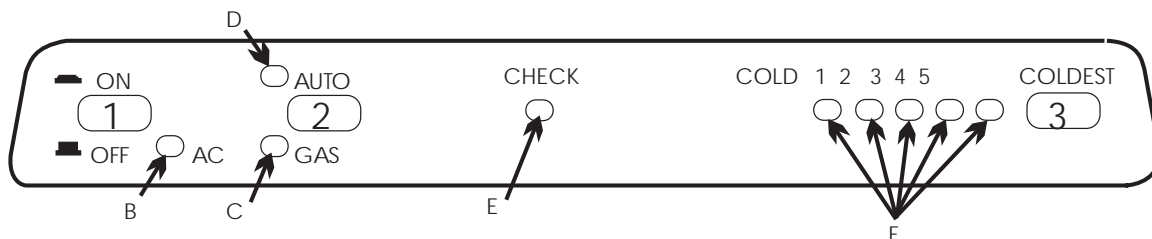


THIS SECTION APPLIES TO MODELS:

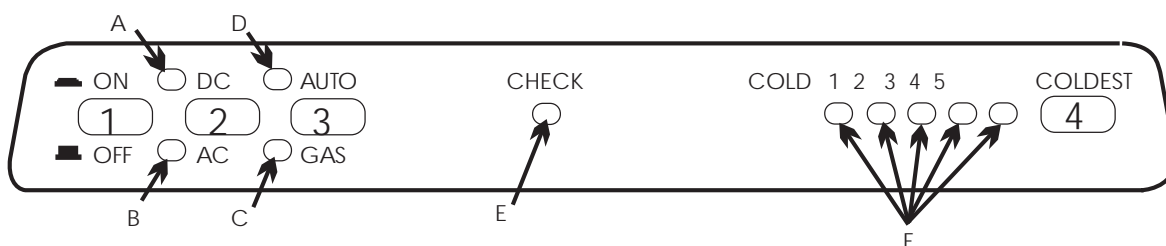
AMES/AES/ROYALE/ELITE, RM7130, RM7732, RM7832 AND RM7030 WITH PRODUCT NO. 921890401

1D. AMES REFRIGERATOR OPERATION

2-WAY DISPLAY PANEL



3-WAY DISPLAY PANEL



MODELS INCLUDE: S1521, S1531, S1621, S1631, S1821, S1831, RM2607, RM2611, RM2807, RM2811

AUTO MODE

When operating in the AUTO mode, the AUTO mode indicator lamp (D) will illuminate. The control system will automatically select between AC and GAS operation with AC having priority over GAS. Either the AC indicator lamp (B) 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 (D) will not 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 (E) 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.

DC MODE (3-Way Models Only)

When operating in the DC mode, the DC mode indicator lamp (A) will be illuminated. All other mode lamps will be off. The DC mode overrides all other operating modes. If one of the other operating modes is desired, the DC selector button (2) must be in the UP (OFF) position.

SPECIAL FEATURES 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 the display module becomes nonfunctional, the control system will revert to full automatic operation selecting the best energy source available with AC, DC (3-way only) 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.

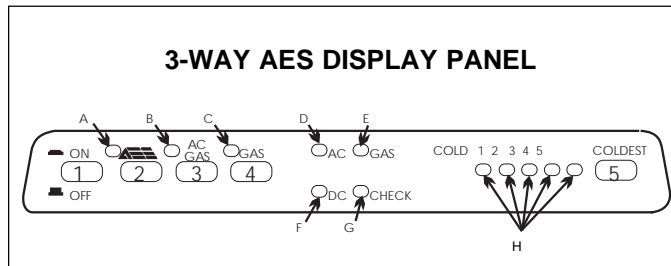
The second Special Feature of operation will execute when a failure of the temperature sensing device or associated electronic circuitry occurs. If this should occur, the control system will operate on the energy source selected via the control panel. The cooling unit will run continuously on the selected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

NOTE: The operational range of these refrigerators is 46° to 35° ± 3°F.

2D. AES REFRIGERATOR OPERATION

Models Include: RM3607 and RM3807

AES MODE



The AES mode of operation takes priority over all other operating modes. If more than one mode selector button (2), (3) or (4) is in the down position, the priority is from left to right.

When operating in the AES mode, the AES mode indicator lamp (A) will illuminate. In this mode the control system will automatically select the energy source with AC having top priority, DC second priority and GAS third priority. If the control system has selected a particular energy source such as AC, and then it becomes unavailable, it will automatically seek out the next available energy source.

AC/GAS MODE

When operating in the AC/GAS mode the AC/GAS mode indicator lamp (B) will illuminate.

In this mode of operation the control system will automatically select between the AC and GAS energy sources with AC having first priority.

GAS MODE

When operating in the GAS mode, the mode indicator lamp (E) will illuminate.

The GAS 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 (G) 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 seconds 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 the AES or AC/GAS mode of operation while the CHECK indicator lamp is on, it will function properly on AC or DC, but if the CHECK indicator lamp is on, it will not go off until the main power ON/OFF button is pressed to the OFF then ON position.

BATTERY PROTECTION SYSTEM

The control system is equipped with a battery protection system. If AC power is not available, the control will switch to the DC energy source. If the input voltage at the terminal block connections is below 12.8 volts, the control system will bypass the DC energy source and attempt GAS operation. If the GAS energy source is available, CHECK lamp is on, the control system will return to the DC energy source. The control will operate in the DC mode for a maximum of 10 minutes.

If the input voltage has not returned above 12.8 volts within this time, the control will terminate DC operation and turn off the DC lamp (F) and start gas operation if GAS energy source is available and check light is not on.

The input battery voltage must rise above 12.8 volts for 25 minutes before DC operation can resume.

As soon as the input voltage rises above the required 12.8 volts, the DC mode lamp (F) will illuminate; however, the control system will remain in the 25 minute delay mode and operate on gas. This delay is to allow sufficient time for the vehicle charging system to recharge the battery. If 120 volt AC becomes available during the 25 minute delay, the control will automatically switch energy source.

SPECIAL FEATURES 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 the display module becomes nonfunctional, the control system will revert to full automatic operation selecting the best energy source available with AC, DC 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 Special Feature 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 and could freeze. The refrigerator will continue to operate in this mode indefinitely or until a new sensor is installed and the system is reset.

NOTE: The operational range of these refrigerators is 46°F to 35°F ± 3°.

3D. ROYALE REFRIGERATOR OPERATION

MODELS INCLUDE: RM3662, RM3663, RM3862 and RM3863

AUTO MODE (2-WAY MODEL)

Press the AUTO mode selector button (2) to the DOWN position. If 120 volts AC is available, the AC mode indicator lamp (B) 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 (E) 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 (2-WAY MODEL)

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 (E) will illuminate and the GAS mode indicator lamp (C) will go off. To reset when the CHECK indicator lamp (E) is illuminated, press the main power ON/OFF button (1) to the OFF and 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 (F) at the desired position is illuminated.

AUTO MODE (3-WAY MODEL)

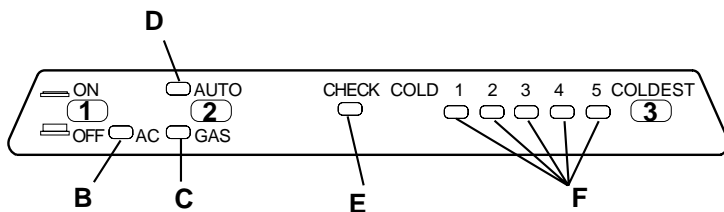
Press the DC mode selector button (2) to the UP (OFF) position.

Move the AUTO mode selector button (3) to the DOWN position. If 120 volts AC is available, the AC

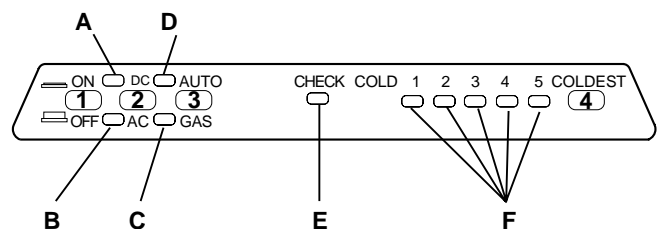
mode indicator lamp (B) will illuminate indicating AC operation. If 120 volts AC is not available, the GAS mode indicator lamp (C) will illuminate and the control system will automatically switch to GAS operation.

If the CHECK indicator lamp (E) 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).

2-WAY DISPLAY PANEL



3-WAY DISPLAY PANEL



Press the TEMPERATURE SELECTOR button (4) until the lamp (F) at the desired position is illuminated.

GAS MODE (3-WAY MODEL)

Press the DC mode button (2) to the UP (OFF) position. Move the AUTO mode selector button (3) 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 (E) will illuminate and the GAS mode indicator lamp (C) will go off. To reset when the CHECK indicator lamp (E) is illuminated, press the main power ON/OFF button (1) to the OFF and 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 (4) until the lamp (F) at the desired position is illuminated.

DC MODE (3-WAY MODEL ONLY)

Press the DC mode indicator button (2) to the DOWN position. (Lamp [A] will light).

Press the TEMPERATURE SELECTOR button (4) until the lamp (F) at the desired position is illuminated.

The refrigerator will continue to operate in the DC mode until switch (2) is moved to the UP position.

CAUTION

Turn off the refrigerator or move the DC selector button (2) to the UP/OFF position. The DC mode over-rides all the other operating modes. Discharging of the battery will occur if the vehicle engine is not running.

TEMPERATURE SELECTOR

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

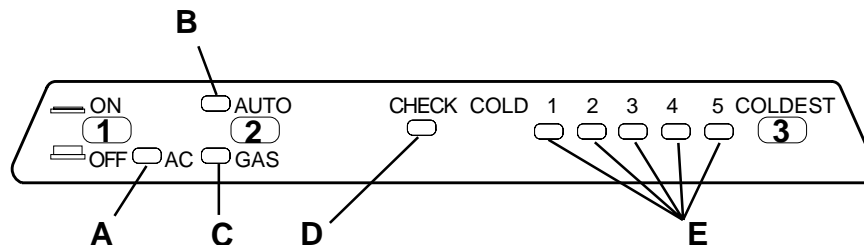
After the initial start-up, the temperature selector should be moved from "COLDEST" to the desired temperature setting, which is usually about mid-setting.

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.

4D. ELITE REFRIGERATOR OPERATION (2-WAY) MODELS INCLUDE: RM4872

2-WAY DISPLAY PANEL



AUTO MODE

Press the Auto mode selector button (2) to the DOWN position. Lamp (B) will illuminate. If 120 volts is available, the AC mode indicator lamp (A) will illuminate indicating AC operation. If 120 Volts AC is not available, the GAS indicator lamp (C) will illuminate, indicating the control has automatically switched to the GAS mode.

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 Step 2 under GAS MODE).

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

GAS MODE

Move the 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.

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 at the desired position is illuminated.

TEMPERATURE SELECTOR

The temperature selector 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 temperature selector should be moved from "COLDEST" to the desired temperature setting, 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 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.

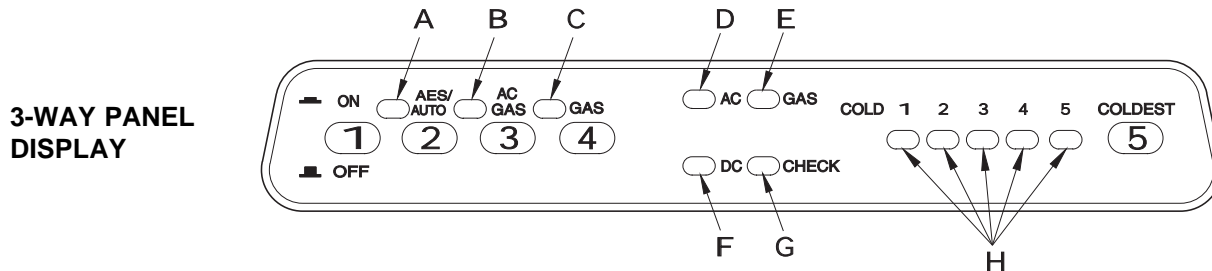
SPECIAL FEATURES OF OPERATION

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.

5D. ELITE REFRIGERATOR OPERATION (3-WAY) MODELS INCLUDE: RM4873



AES/AUTO MODE

The AES/AUTO mode of operation takes priority over all other operating modes. If more than one mode selector button (2), (3) or (4) is in the down position, the priority is from left to right.

When operating in this mode, the AES/AUTO mode indicator lamp (A) will illuminate. In this mode the control system will automatically select the energy source with AC having top priority, DC second priority and GAS third priority. If the control system has selected a particular energy source such as AC, and then it becomes unavailable, it will automatically seek out the next available energy source.

Press the AES/AUTO mode selector button (2) to the DOWN position. Indicator lamp (A) should illuminate. Indicator lamp (D), (E) or (F) should also illuminate indicating which energy source the control has selected.

Press the TEMPERATURE SELECTOR button (5) until the lamp at the desired position is illuminated.

AC/GAS MODE

Press the AC/GAS mode selector button (3) to the DOWN (ON) position. Mode indicator lamp (B) should illuminate.

In this mode of operation the control system will automatically select between the AC and GAS energy sources with AC having first priority.

The AES/AUTO mode selector button (2) must be in the UP (OFF) position.

Indicator lamp (D) or (E) should also illuminate indicating which energy source the control has selected. If the CHECK indicator lamp (G) illuminates, see *GAS MODE* for further instructions.

Press the TEMPERATURE SELECTOR button (5) until the lamp at the desired position is illuminated.

GAS MODE

When operating in the GAS mode, the AES/AUTO (2) and AC/GAS (3) mode selector buttons must be in the UP (OFF) position.

The GAS mode provides LP gas operation only.

Press the GAS mode indicator button (4) to the DOWN (ON) position.

Indicator lamps (C) and (E) should illuminate indicating GAS operation. 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 (G) will illuminate and the GAS indicator lamp (C) and (E) will go off.

To reset when the CHECK indicator lamp (G) is illuminated, press the 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. 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 (5) until the lamp (H) at the desired position is illuminated.

If the control is switched to the AES/AUTO or AC/GAS mode of operation while the CHECK indicator lamp is on, AC or DC 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.

TEMPERATURE SELECTOR

The temperature selector 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 temperature selector should be moved from "COLDEST" to the desired temperature setting, 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 to the UP (OFF) position. This shuts off all DC power to the refrigerator.

DESCRIPTION OF OPERATING MODES

AES/AUTO MODE

The AES/AUTO mode of operation takes priority over all other operating modes. If more than one mode selector button (2), (3) or (4) is in the down position the priority is from left to right.

When operating in the AES/AUTO mode, the AES/AUTO mode indicator lamp (A) will illuminate. In this mode the control system will automatically select the energy source with AC having top priority, DC second priority and GAS third priority. If the control system has selected a particular energy source such as AC, and then it becomes unavailable, it will automatically seek out the next available energy source.

AC/GAS MODE

When operating in the AC/GAS mode, the AC/GAS mode indicator lamp (B) will illuminate.

In this mode of operation the control system will automatically select between the AC and GAS energy sources with AC having first priority.

GAS MODE

When operating in the GAS mode, the GAS mode indicator lamp (C) will illuminate.

The GAS 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 (G) 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 AES/AUTO or AC/GAS mode of 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.

BATTERY PROTECTION SYSTEM

The control system is equipped with a battery protection system. If AC power is not available the control will switch to the DC energy source. If the input voltage at the terminal block connections is below 12.8 volts the control system will bypass the DC energy source and attempt GAS operation. If the GAS energy source is available, CHECK lamp is on, the control system will return to the DC energy source. The control will operate in the DC mode for a maximum of 10 minutes.

If the input voltage has not returned above 12.8 volts within this time, the control will terminate DC operation and turn off the DC lamp (F) and start gas operation if GAS energy source is available.

The input battery voltage must rise above 12.8 volts for 25 minutes before DC operation can resume.

As soon as the input voltage rises above the required 12.8 volts, the DC mode lamp (F) will illuminate. However the control system will remain in the 25 minute DC delay mode and operate on gas. This delay is to allow sufficient time for the vehicle charging system to recharge the battery. If 120 volt AC becomes available during the 25 minute delay, the control will automatically switch to the AC energy source.

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.

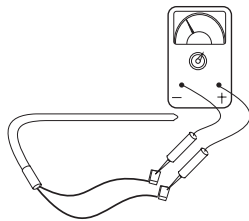
6D. AC VOLTAGE REQUIREMENTS

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.

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**.

7D. 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 lower 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.

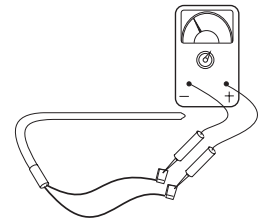


For values, refer to the TECHNICAL DATA SECTION.

8D. DC COMPONENTS

HEATING ELEMENT

The heating element is designed to deliver a predetermined amount of heat to the cooling unit. Check the heating element with ohms resistance using a properly calibrated ohm meter. This check is to be done with the element at room temperature.



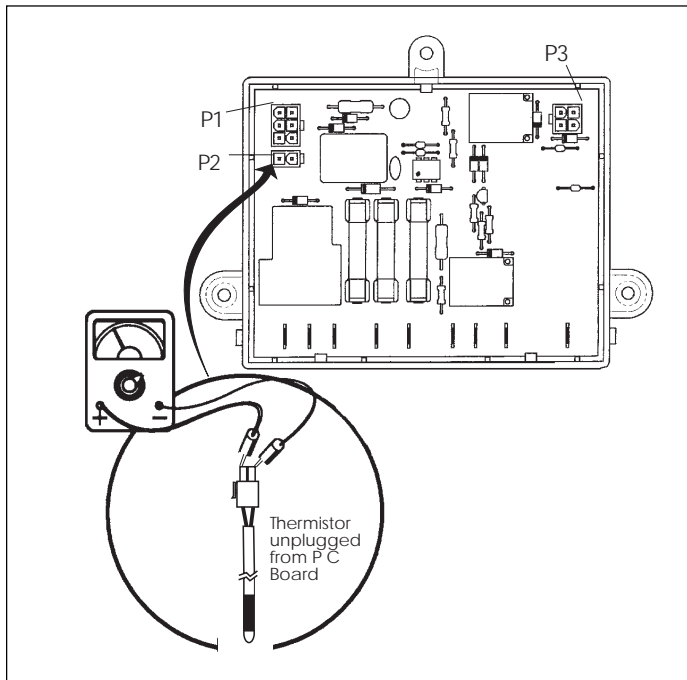
For Values, refer to Technical Data Section Pg. 86.

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

9D. THERMISTOR

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

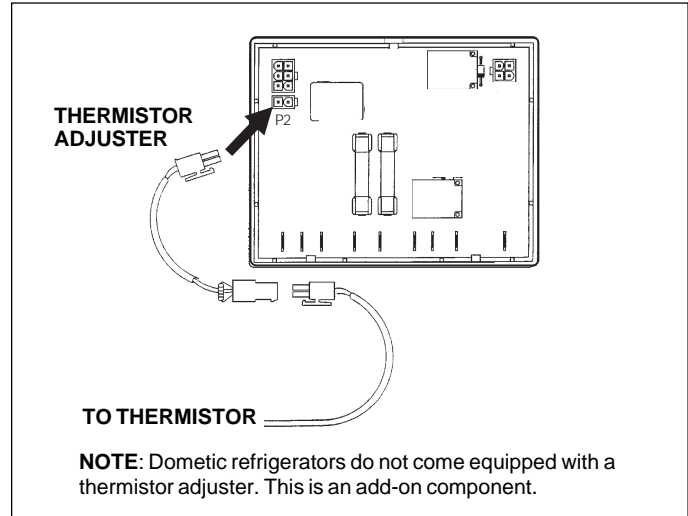
Remove the cover from lower circuit board. Disconnect the thermistor harness from the P2, 2-pin terminal on the lower circuit board. Place the thermistor in a glass of ice water. Wait 2 to 3 minutes. Using an ohm meter, place a probe on each terminal point. You should get a reading of approximately 7,000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



10D. THERMISTOR ADJUSTER

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.



11D. DC VOLTAGE REQUIREMENTS

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

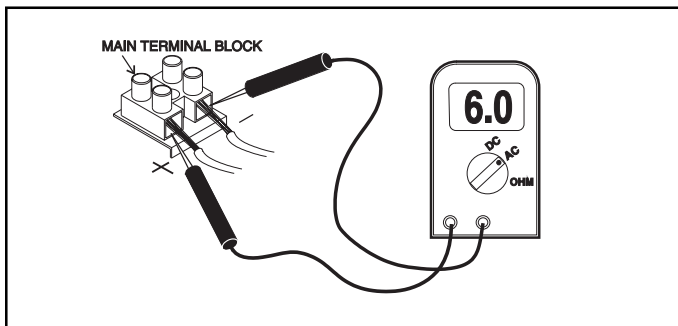
Clean Direct Current (DC) power is mandatory for high-tech circuits to operate as designed. The sources for DC power are a battery and a converter.

A battery will provide straight line DC power, but extended operation will require recharging of the battery by the converter or the alternator.

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The converter and alternator produce DC power by a series of diodes that rectify alternating current to DC. A battery or capacitors can be used to clean up the AC ripple that is present after AC voltage has been rectified.

AC ripple can be measured by a digital voltmeter set on the AC scale at the main terminal block connections. Six volts AC or less is acceptable.



NOTE: A brief interruption of the DC power supply while refrigerator is operating on gas can cause a check light; for example:

Turning the refrigerator OFF–ON while operating in the gas mode can cause a check light. The switching of relays from converter power to battery power when unplugging from shore power or shutting down of the generator could interrupt DC power long enough to cause a check light.

The thermocouple produces 25–35 MVDC when operating. When DC power is interrupted and restored, the thermocouple may not have sufficient time to cool. If the power module sees above 6 MVDC, when power is restored the power module will assume a problem in the gas mode and immediately turn on the check light.

The operational range of the unit is a minimum of 9.6V DC to a maximum of 22V DC. At 22V DC, the unit will automatically shut down until voltage has decreased to 18V 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.

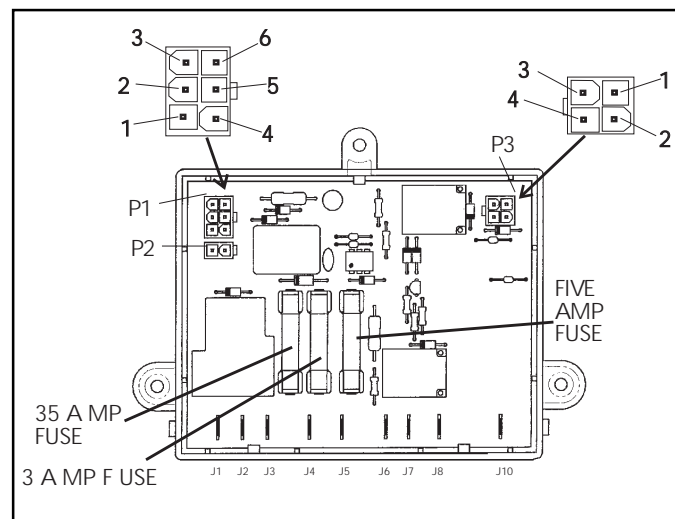
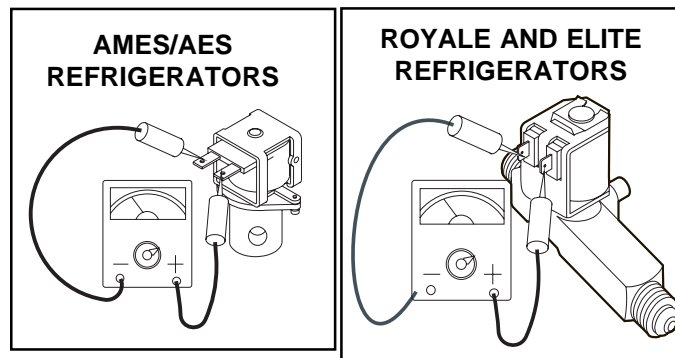
12D. DC COMPONENTS

SOLENOID VALVE

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 tolerance range of ten percent.

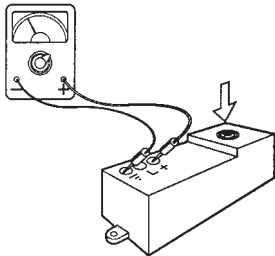
Next, hook up a manometer at the test port. Then check for DC volts at gas valve terminals while the unit is in trial-for-ignition (approximately 45 seconds). If DC volts are present and pressure is low, replace the valve. If DC volts are not present at the valve while the unit is in trial-for-ignition (approximately 45 seconds), verify that the wire at Plug 3, Terminal 2 on lower circuit board has DC volts (9 or more). If the valve chatters, check for low input voltage to the valve (below 9 volts DC).



IGNITER

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 of the ignitor. The reading should be within one volt of incoming voltage at the main terminal block during trial-for-ignition (approximately 45 seconds). A voltage drop of more than one volt would indicate a loose connection or a circuit board problem.



Next, disconnect DC power at the refrigerator terminal block. Remove high voltage cable from igniter. Reconnect DC power – the igniter should produce a sparking sound, during trial-for-ignition (approximately 45 seconds). If not, replace the igniter. If sparking sound, the igniter is good.

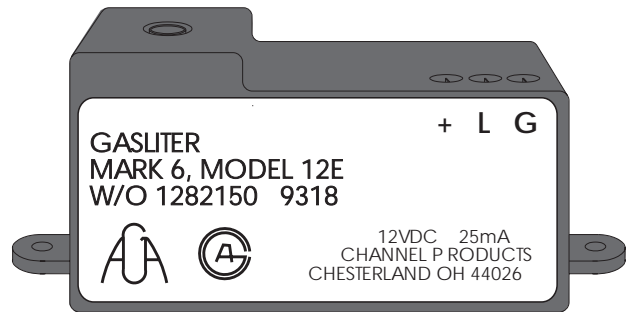
The igniter installed on the refrigerators as original equipment is part number 2931132019 (RV Gas Model 679). This igniter is rated 50 MA. This igniter may also be used on any other model.

DO NOT install the Channel Mark 6, Model 12E igniter (shown below) as a service replacement part.



Installing the Channel Mark 6, Model 12E, rated 25 MA can result in failure to ignite on gas if the DC power supply is below 12.5 volts DC. The igniter will see low voltage and not produce a spark, resulting in flame failure lockout.

Installation of the Channel Products, Inc., Gasliter Mark 6, Model 12E, will **VOID** the Warranty on the refrigerator.



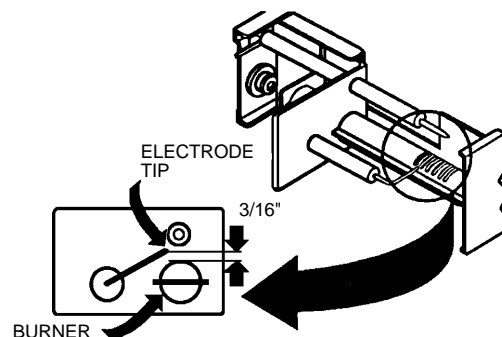
HIGH VOLTAGE CABLE

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. 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.

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 and high voltage cable are good and there is no spark at the tip of the electrode, replace the electrode.



THERMOCOUPLE

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.

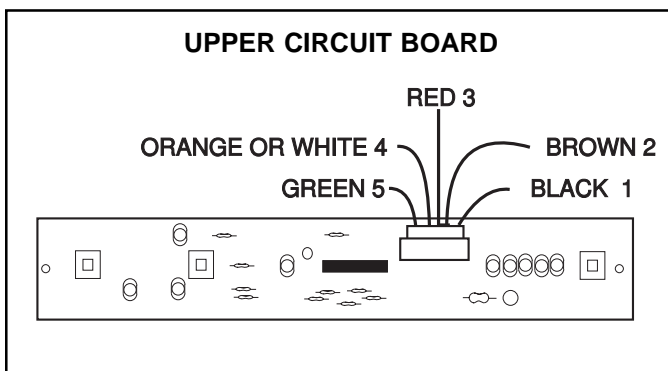
UPPER CIRCUIT BOARD

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 (orange or white wire) and terminal 5 (red wire) 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 (red) 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), 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.

13D. 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: Activate DC heater. Check for DC volts between J1 (+) and J10 (-).
- 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.

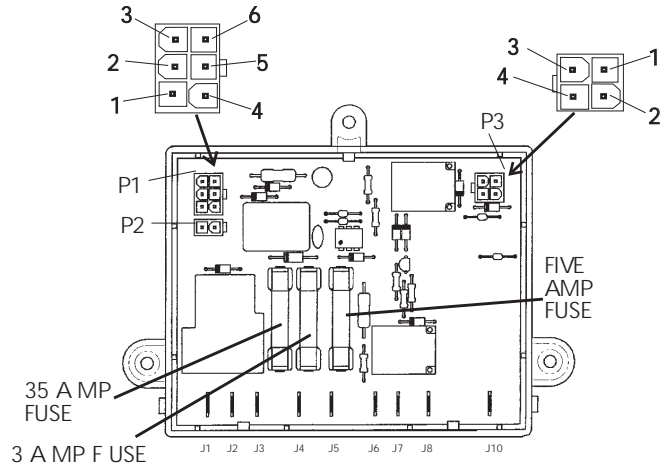
If all checks prove to be good, and the refrigerator does not operate on electric mode, replace the lower circuit board. It has been damaged by AC volts in excess of 180 volts.

LOWER CIRCUIT BOARD

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.

A. **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 (see Sec. 4). 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.



B. 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.

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.

NOTE: Before installing a new circuit board, determine and correct the cause of the failure. If voltage is present, do not change the circuit board. Check the AC heating element.

C. DC 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 DC heating element operation (on 3-way models only), check for voltage between terminal J4 on the circuit board and the ground strip. If voltage is 12.8 volts DC or above, check for DC volts between the heating element (J1) connection and the ground strip. If there is no voltage present, check the fuses and the DC heating element. If these check good, change the circuit board.

NOTE: If DC volts are below 12.8V DC, see "Operation".

D. **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 REFRIGERATOR 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 (blue wire), replace the lower circuit board.

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

DOOR SWITCH (Only on Models Equipped with Interior Lights)

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.

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.

FUSES

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. On 3-way models only, the 35 amp DC fuse is designed to protect the DC heater circuit integrity.

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.

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 $24 \text{ ohms} \pm 10\%$. 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.

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.

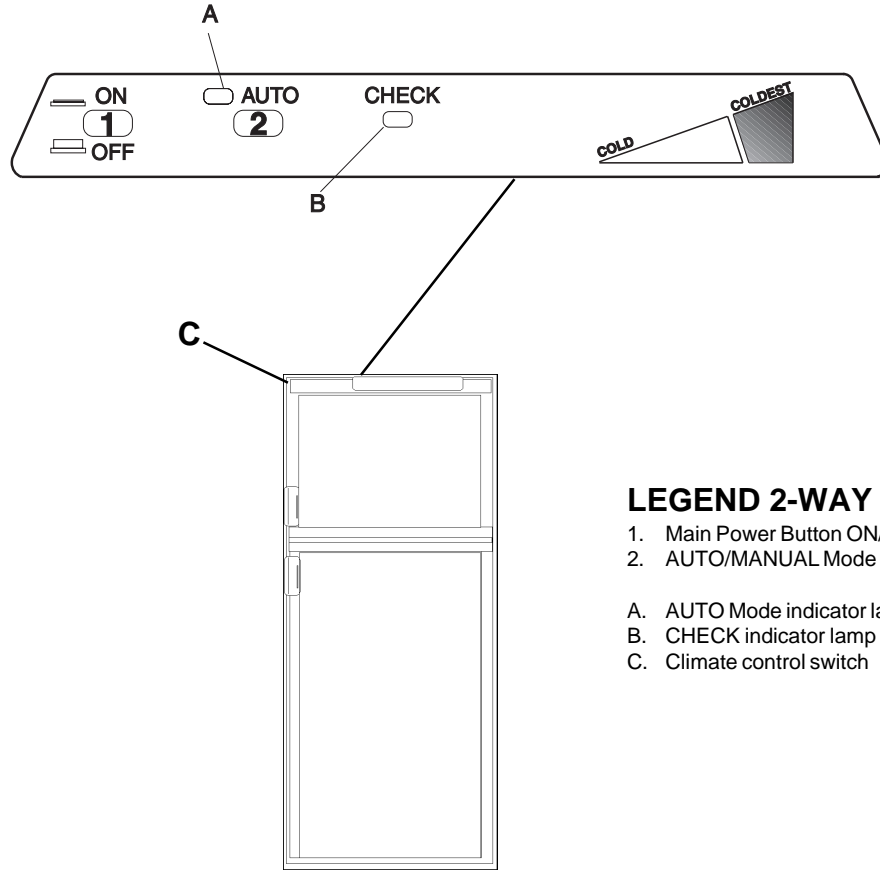
The first few cycles may have small cubes due to air trapped in the water lines. The first container of ice cubes should be dumped if the water system has been winterized or not used for several weeks.

SECTION E.

1E. THIS SECTION APPLIES TO MODELS: RM2652, RM2852, RM2612 AND RM2812

REFRIGERATOR OPERATION

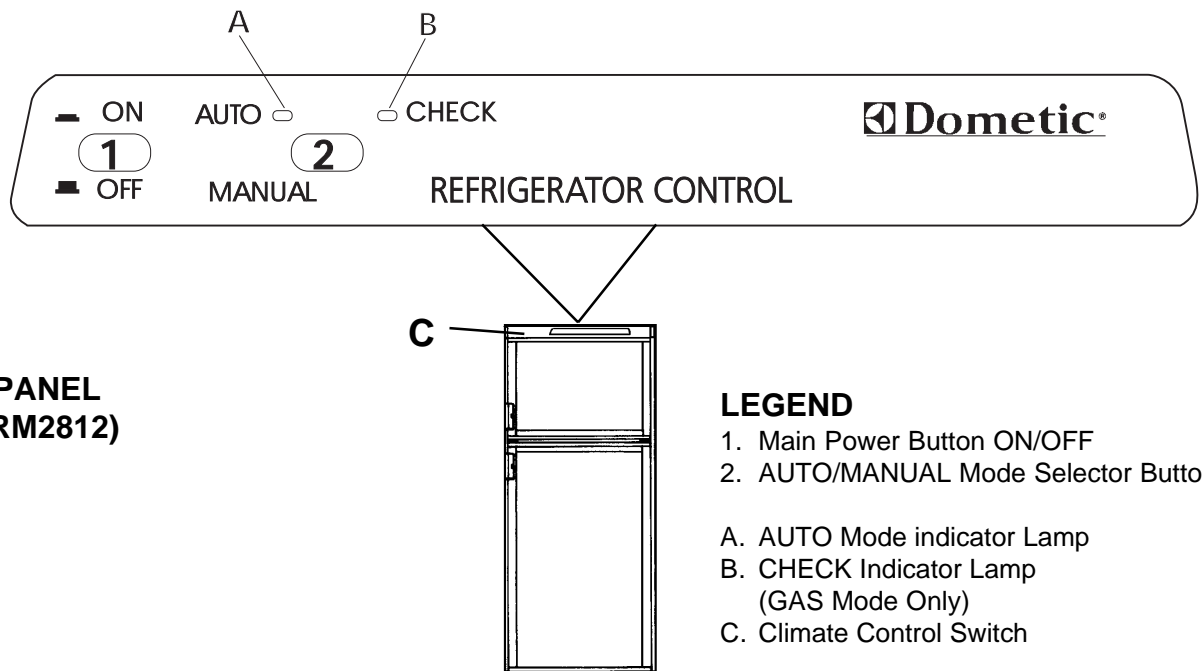
DISPLAY PANEL
(RM2652, RM2852)



LEGEND 2-WAY MODEL

- 1. Main Power Button ON/OFF
- 2. AUTO/MANUAL Mode Selector Button
- A. AUTO Mode indicator lamp
- B. CHECK indicator lamp (Gas Mode Only)
- C. Climate control switch

DISPLAY PANEL
(RM2612, RM2812)



LEGEND

- 1. Main Power Button ON/OFF
- 2. AUTO/MANUAL Mode Selector Button
- A. AUTO Mode indicator Lamp
- B. CHECK Indicator Lamp (GAS Mode Only)
- C. Climate Control Switch

2E. START-UP INSTRUCTIONS

Before starting the refrigerator, check that all the manual gas valves are in the ON position. DO NOT forget the manual shutoff valve on the rear of the refrigerator.

This refrigerator is equipped with a control system, which can automatically select the most suitable energy source which is available, either 120 Volt AC or LP gas operation. The refrigerator can be operated in either the AUTO mode (thermostat factory preset below the safe food storage temperature) or MANUAL mode (continuous operation - no thermostat control).

NOTE: Under certain cool weather conditions, the food in the lower portion of the fresh food compartment may freeze if operated for an extended period of time on the MANUAL mode.

- A. A 12 volt DC supply must be available for the electronic control to function. The refrigerator will work down to 9.6 volt DC.
 - B. Press the main power ON/OFF button (1) to the DOWN position.
- B. In AUTO mode operation, the temperature is controlled by a single temperature setting, on the energy source selected by the control system. (See Auto Mode)
- C. In MANUAL mode operation, the refrigerator will run continuously on the energy source selected by the control system. (See Manual Mode)

NOTE: The food in the lower compartment may be frozen if the refrigerator is left on MANUAL mode.

3E. 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 to the UP (OFF) position. This shuts off all DC power to the refrigerator, including the interior light.

4E. OPERATING MODES

AUTO MODE

Press the AUTO/MANUAL mode selector button (2) to the DOWN position. The AUTO mode indicator lamp (A) will illuminate.

When operating in the AUTO mode, the AUTO mode indicator lamp (A) will illuminate. The control system will automatically select between AC and GAS operation with AC having priority over GAS. If the control system is operating on 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 operation.

If 120 volts AC is not available, the control system will automatically switch to GAS operation. Within 45 seconds the burner should be ignited and operating normally. If

unsuccessful, the CHECK indicator lamp (B) will illuminate.

To restart an ignition attempt with the CHECK lamp illuminated or to clear (turn off) the CHECK lamp, press the main power ON/OFF button to the OFF and then to the ON position. The control system will attempt a new 45 second ignition sequence.

On the initial refrigerator start-up on gas (120 volts AC is not available), it may take longer than 45 seconds to allow air to be purged from the gas line. 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.

NOTE: DO NOT continue to reset GAS operation if the CHECK indicator lamp continues to be illuminated after 3 or 4 tries.

If 120 volts AC becomes available while the CHECK indicator lamp is on, the control system will switch to 120 volt AC operation. The CHECK lamp will not turn off until the main power ON/OFF button is pressed to the OFF then ON position.

In AUTO mode operation, the temperature is controlled by a single temperature setting.

MANUAL MODE

When operating in the MANUAL mode, the AUTO mode indicator lamp (A) will be off, and the refrigerator will run continuously on the energy source selected by the control system.

NOTE: The food in the lower compartment may be frozen if the refrigerator is left on "MANUAL" mode.

STANDBY MODE

This control system contains a feature that will continue to operate the cooling system in the event of a failure of a major operating component. If the control cannot read the temperature sensor and operate at the preset temperature, then the control will run the cooling unit like the MANUAL mode.

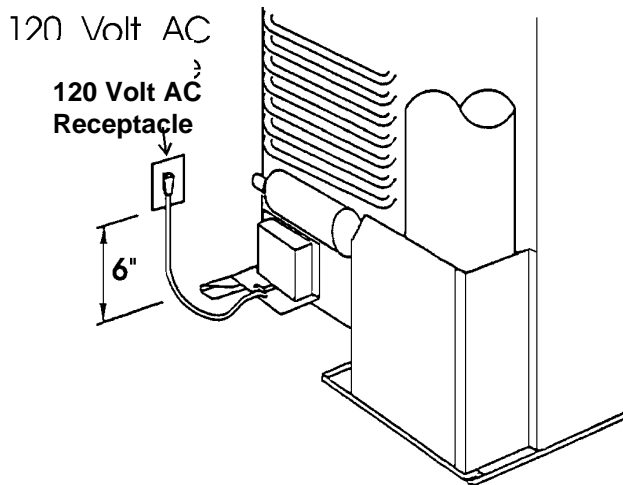
The refrigerator will continue to operate in this mode indefinitely or until a new sensor is installed and the system is reset.

5E. 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.

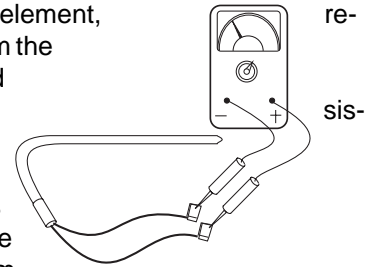
If voltage drops below 100 volts, cooling efficiency will decrease with voltage decrease. The refrigerator will not switch to another mode of operation until all **AC power is lost**.

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. The power cord should be routed to avoid direct contact with the burner cover, flue cover or manual gas shutoff valve knob. The free length of the cord is two feet and therefore recommended that the receptacle be located to the left side of the refrigerator (viewed from the rear) and approximately six inches from the floor. This allows easy access through the vent door.



6E. 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 lower 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.



For values, refer to the TECHNICAL DATA section.

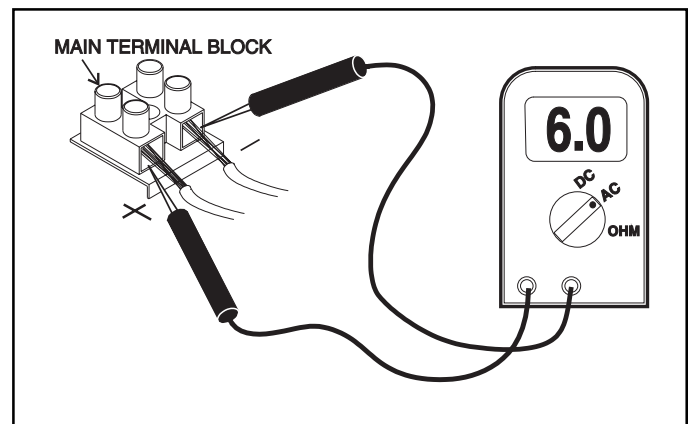
7E. DC VOLTAGE REQUIREMENTS

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

Clean Direct Current (DC) power is mandatory for high-tech circuits to operate as designed. The sources for DC power are a battery and a converter.

A battery will provide straight line DC power, but extended operation will require recharging of the battery by the converter or the alternator.

The converter and alternator produce DC power by a series of diodes that rectify alternating current to DC. A battery or capacitors can be used to clean up the AC ripple that is present after AC voltage has been rectified. AC ripple can be measured by a digital voltmeter set on the AC scale at the main terminal block connections. Six volts AC or less is acceptable.



NOTE: A brief interruption of the DC power supply while refrigerator is operating on gas can cause a check light; for example:

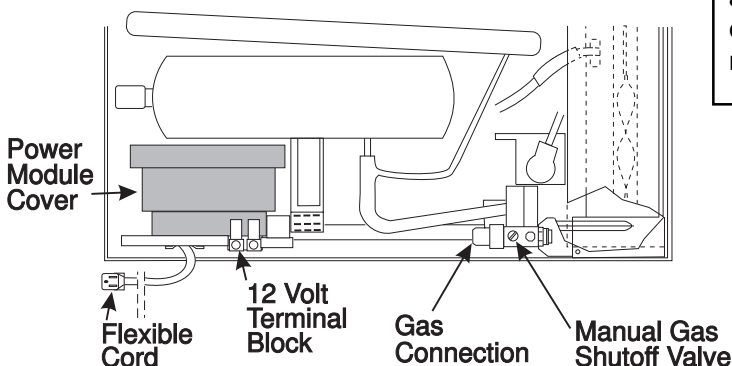
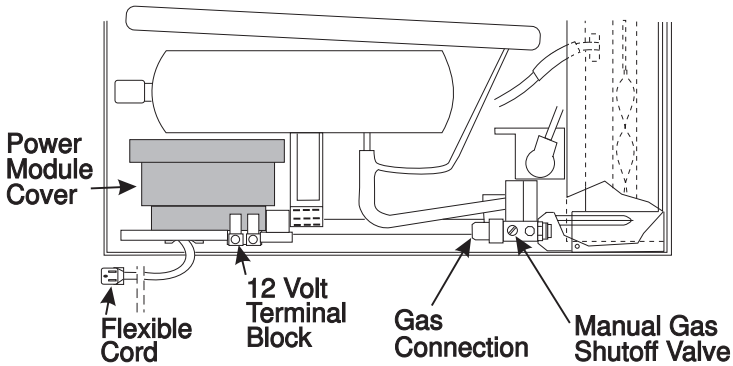
Turning the refrigerator OFF-ON while operating in the gas mode can cause a check light.

The switching of relays from converter power to battery power when unplugging from shore power or shutting down of the generator could interrupt DC power long enough to cause a check light.

The thermocouple produces 25–35 MVDC when operating. When DC power is interrupted and restored, the thermocouple may not have sufficient time to cool. If the power module sees above 6 MVDC, when power is restored the power module will assume a problem in the gas mode and immediately turn on the check light.

The operational range of the unit is a minimum of 9.6V DC to a maximum of 22V DC. At 22V DC, the unit will automatically shut down until voltage has decreased to 18V 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 or 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.

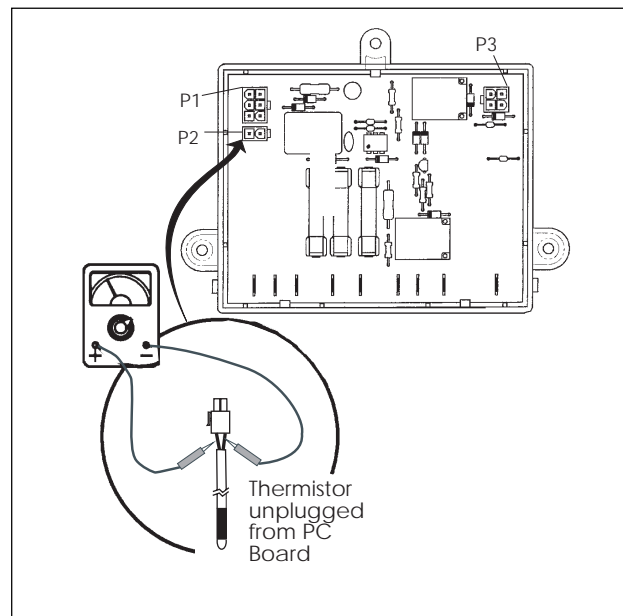


8E. DC COMPONENTS

THERMISTOR

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

Remove the cover from lower circuit board. Disconnect the thermistor harness from the P2, 2-pin terminal on the lower circuit board. Place the thermistor in a glass of ice water, approximately 33°F to 35°F. Wait 2 to 3 minutes. Using a properly calibrated 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.



⚠ CAUTION

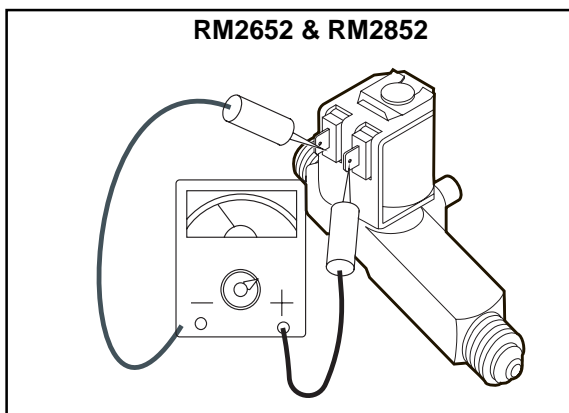
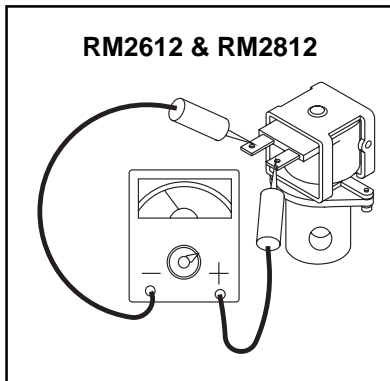
NEVER use a thermistor adjuster or a thermistor for any other model of refrigerator. Either of these can cause an over-cooling problem similar to manual mode of operation.

SOLENOID VALVE

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 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 (approximately 45 seconds). If DC volts are present and pressure is low, replace the valve. If DC volts are not present at the valve while the unit is in trial-for-ignition (approximately 45 seconds), verify that the wire at Plug 3, Terminal 2 on lower circuit board have DC volts (9 or more). If the valve chatters, check for low input voltage to the valve (below 9 volts DC).

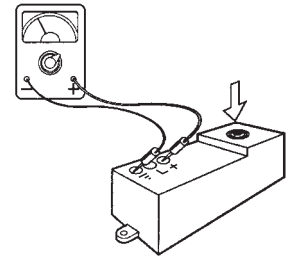


IGNITER

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 of the igniter. The reading should be within one volt of incoming voltage at the main terminal block during trial-for-ignition (approximately 45 seconds). A

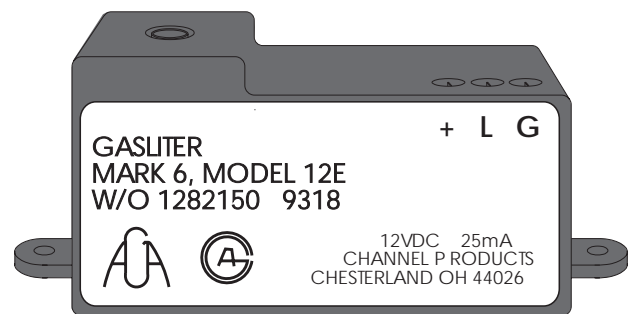
voltage drop of more than one volt would indicate a loose connection or a circuit board problem



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 (approximately 45 seconds). If not, replace the igniter. If sparking sound, the igniter is good.

The igniter installed on the refrigerators as original equipment is part number 2931132019 (RV Gas Model 679). This igniter is rated 50 MA. This igniter may also be used on any other model.

DO NOT install the Channel Mark 6, Model 12E igniter (shown below) as a service replacement part.



Installing the Channel Mark 6, Model 12E, rated 25 MA can result in failure to ignite on gas if the DC power supply is below 12.5 volts DC. The igniter will see low voltage and not produce a spark, resulting in flame failure lockout.

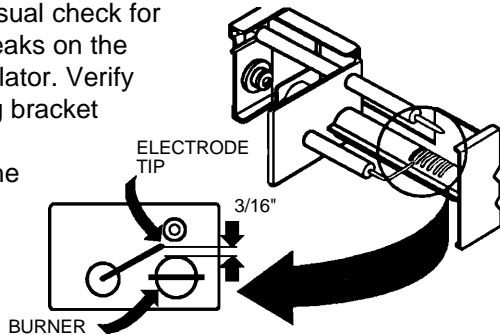
Installation of the Channel Products, Inc., Gasliter Mark 6, Model 12E, will **VOID** the Warranty on the refrigerator.

HIGH VOLTAGE CABLE

Disconnect DC power at the refrigerator terminal block. Disconnect high voltage cable from electrode. Reconnect DC power. If sparking starts during trial-for-ignition (approximately 45 seconds), the cable is good. If there is no sparking during trial-for-ignition (approximately 45 seconds), 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 (approximately 45 seconds), then replace high voltage cable.

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.

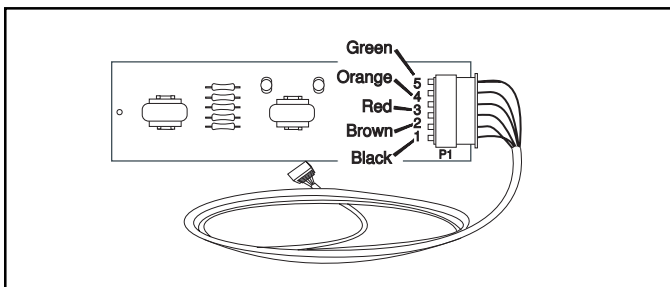
If igniter and high voltage cable are good and there is no spark at the tip of the electrode, replace the electrode.

THERMOCOUPLE

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.

UPPER CIRCUIT BOARD

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.



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

Check for DC voltage at Plug 1, Terminal 4 (orange wire) and terminal 5 (red wire) 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 wire) and terminal 3 (red 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. Red wire (-) negative plug 1, terminal 5, to green wire, plug 1, terminal 1 and black wire, plug 1, terminal 3. 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.

LOWER CIRCUIT BOARD

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.

The controls for Models RM2612, RM2812, RM2652 and RM2852 are unique to these models. They are **NOT** interchangeable with any other models.

On Model RM2612, below Serial Number 41900000, there were three separate and distinct versions of controls as described below. The various components **MUST NOT** be mixed.

If you suspect mismatched part numbers, compare the part numbers on parts to the ones listed below to ensure a proper match.

The RM2612 with Serial Number 41900000 or higher will have Version III controls as original equipment.

The RM2812, RM2652 and RM2852 should have only Version III controls as original equipment.

CAUTION

MIXING OF ELECTRICAL COMPONENTS FROM OTHER MODEL REFRIGERATORS AND WITHIN THE "12 SERIES" MODEL REFRIGERATORS MAY CAUSE IMPROPER OPERATION (i.e. NO COOLING, OVER-COOLING) AND DAMAGE TO POWER MODULE, DISPLAY PANEL OR BOTH.

When Replacement Electronic Controls on Model RM2612, with Serial Numbers below 41900000 are required, use 3108701.601 Electronic Control Kit. It contains a matching set of controls as in Version III. **Individual parts can be ordered for all RM2812, RM2652 and RM2852 refrigerators and any RM2612 with a serial number over 41900000. These were produced with Version III controls as original equipment.**

VERSION I

Display Panel	2932189.01
Power Module	2931842.02 or 2931842.03
Thermistor	2931863035

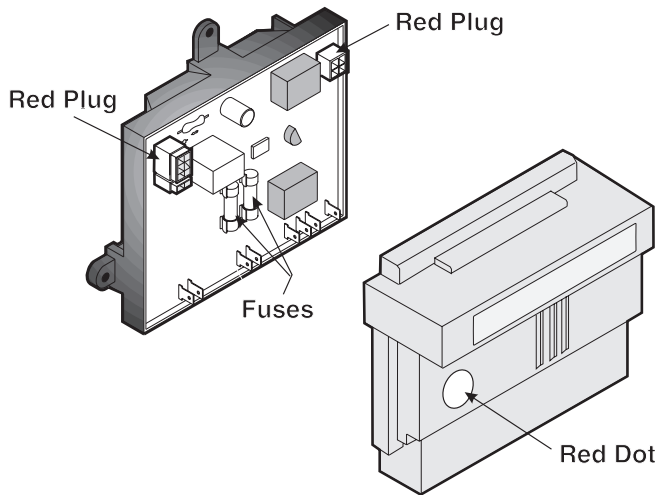
VERSION II

Display Panel	2932189.02
Power Module	2931842.02X
Thermistor	2931863035

* Power Module has red plugs and a Red Dot on the cover.

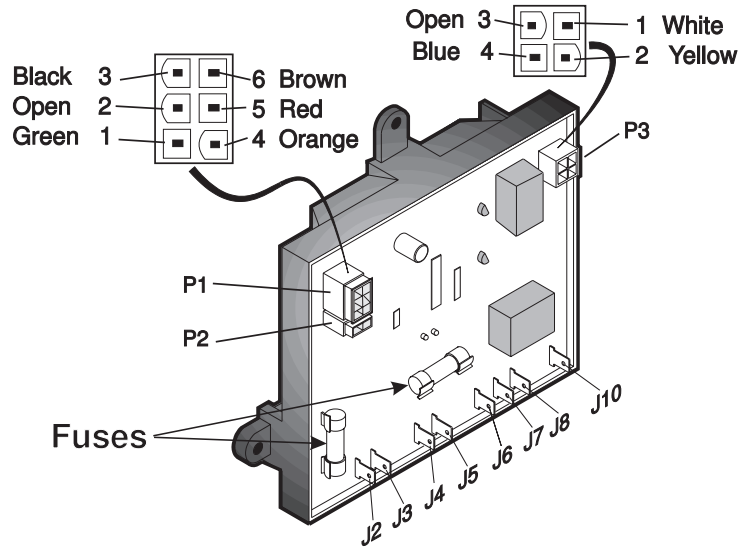
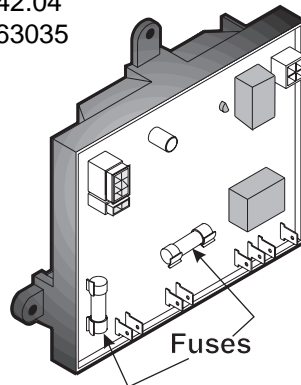
VERSION III

Power Module 2931842.02X



Display Panel	2932189.03
Power Module	2931842.04
Thermistor	2931863035

Power Module 2931842.04



A. 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 (see Sec. 4). 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.

B. 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.

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.

NOTE: Before installing a new circuit board, determine and correct the cause of the failure. If voltage is present, do not change the circuit board. Check the AC heating elements.

- C. **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 REFRIGERATOR 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.

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 (blue wire), replace the lower circuit board.

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

DOOR SWITCH (Only on Models Equipped with Interior Lights)

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.

FUSES

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

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.

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.

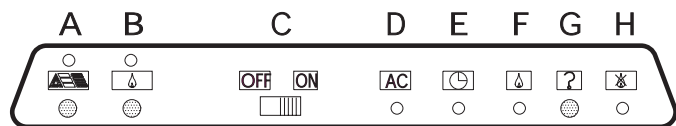
To check the switch, disconnect the wires and do a continuity check. In the OFF position, there should be no continuity. In the ON position, there should be a continuity reading.

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 24 ohms \pm 10%. The approximate amp draw is less than .5 (1/2) amp.

NOTE: On some models, the climate control will draw DC power continuously. It should be turned off when charging source is not available.

THIS SECTION APPLIES TO MODELS:

RM3804, RM3604, RM4804 with Ice Maker, & RM7030 with Product No. 921890201, 921890301

1F. 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

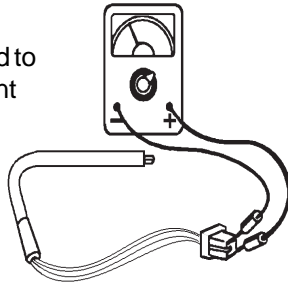
The refrigerator is equipped with a thermostat that can be adjusted to maintain various temperatures. Turn the knob clockwise toward "MAX" for a lower temperature and for a warmer temperature – turn the knob counterclockwise toward "MIN". Set the thermostat approximately mid-range and adjust it toward "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.

2F. 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.

3F. AC COMPONENTS HEATING ELEMENT

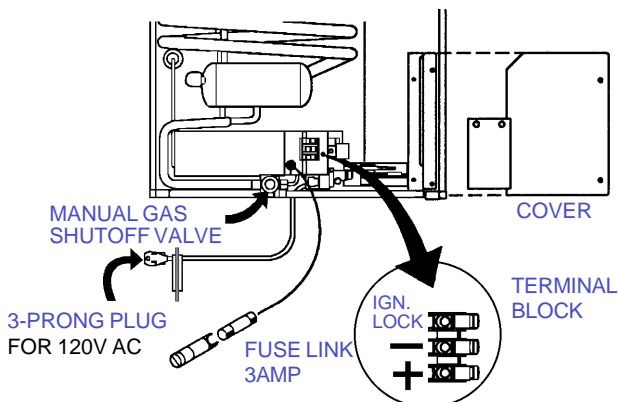
The heating element is designed to deliver a predetermined amount of heat to the cooling unit. To check a heating element, remove the heater leads from the printed circuit board and measure for proper resistance across the two leads with a properly calibrated ohm meter. This check is to be done with the heating element at room temperature. For values, refer to the TECHNICAL DATA section.



4F. DC VOLTAGE REQUIREMENTS

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

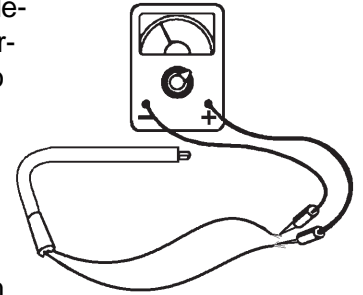
With the refrigerator operating on AC or gas mode, if voltage to the refrigerator slowly drops to or below 9.5 volts DC, the gas flame will come and will not be thermostat controlled. Low DC volts (below 9.5) could cause over-cooling.



5F. DC COMPONENTS

HEATING ELEMENT

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



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

THERMOSTAT

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

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

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

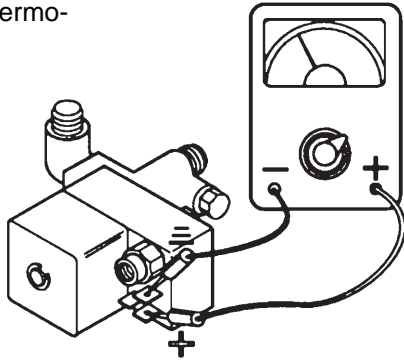
SOLENOID VALVE

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

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

Once flame is lit, the thermocouple produces the voltage to keep the valve open. If for any reason the thermocouple does not provide enough current to the valve, it will close, stopping the flow of gas. To check this portion of the solenoid valve assembly, verify the thermocouple is good, 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.

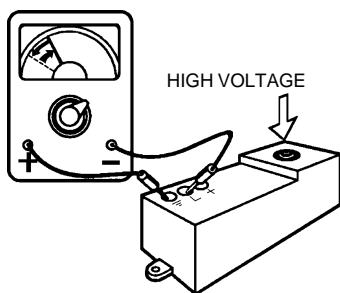
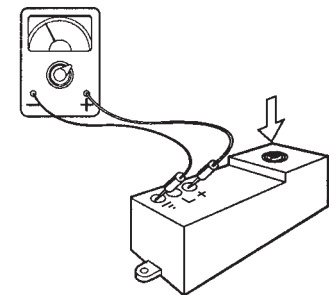


IGNITER

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

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

NOTE: If a spark is not produced within 10 seconds, the gas flame warning lamp will illumi-



nate. If spark is produced it will take three minutes for lamp to illuminate.

If all of the previous checks are correct, the igniter is good – do not replace.

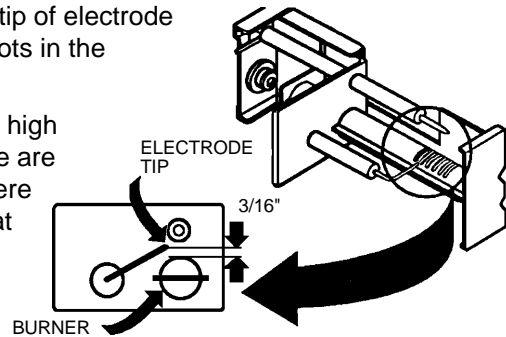
HIGH VOLTAGE CABLE

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

ELECTRODE

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

If igniter and high voltage cable are good and there is no spark at the tip of the electrode, replace the electrode.

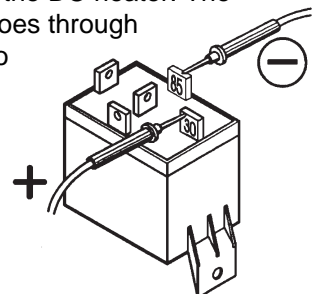


THERMOCOUPLE

The thermocouple is a component extending above the burner assembly so the tip is in the path of the flame. In normal operation, it will produce 14 to 30 millivolts DC. To check thermocouple, use a known good safety valve and attach to the thermocouple. Next supply flame to tip of thermocouple for 2 to 3 minutes while depressing safety valve. Remove flame and release safety valve. The valve should hold for at least 30 seconds. If it does not hold safety valve open for 30 seconds, replace thermocouple. If it does hold for 30 or more seconds, thermocouple is good - do not replace it. **NOTE:** Be sure the tip on the thermocouple is clean.

RELAY

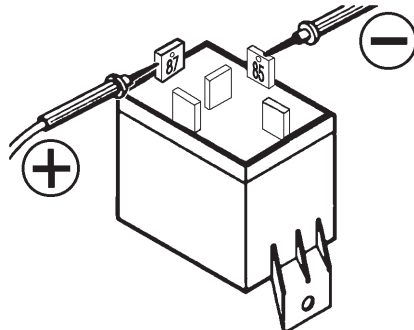
The relay controls the circuit to the DC heater. The load (amps) of the DC heater goes through the relay. Verify that DC volts to the terminal block is 13.3 or more.



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

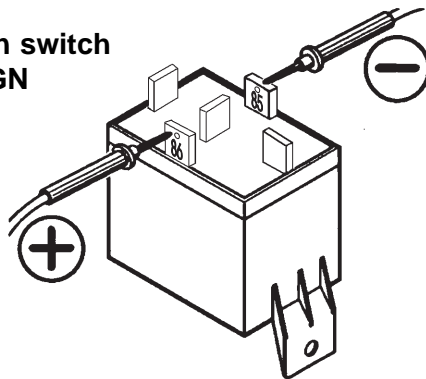
Check: Voltage should be present between terminals 85 and 30. If voltage is not present, check wiring to both terminals.

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

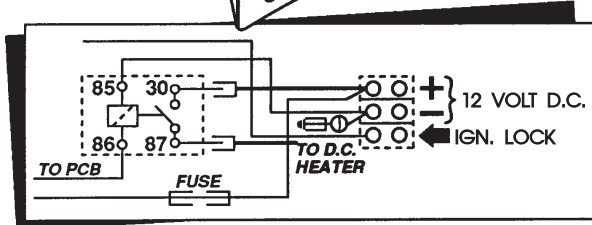
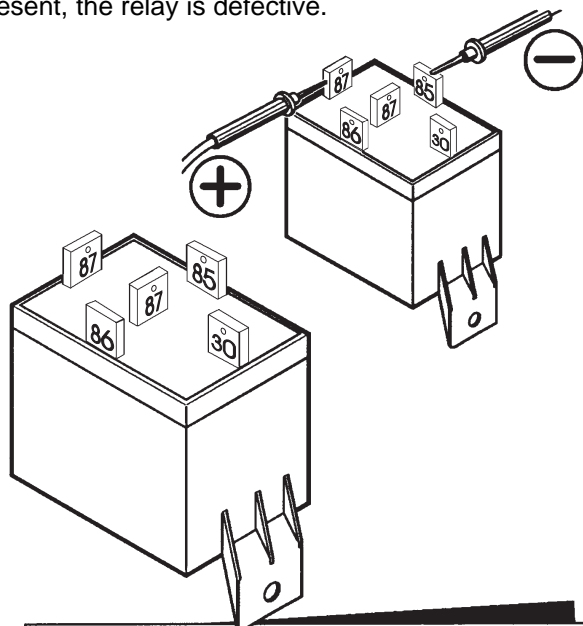


With vehicle ignition switch on and voltage to IGN lock terminal:

Check: Voltage should be present between terminals 85 and 86. If no voltage is present, check wiring connections, upper circuit board, thermostat and circuit board.



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

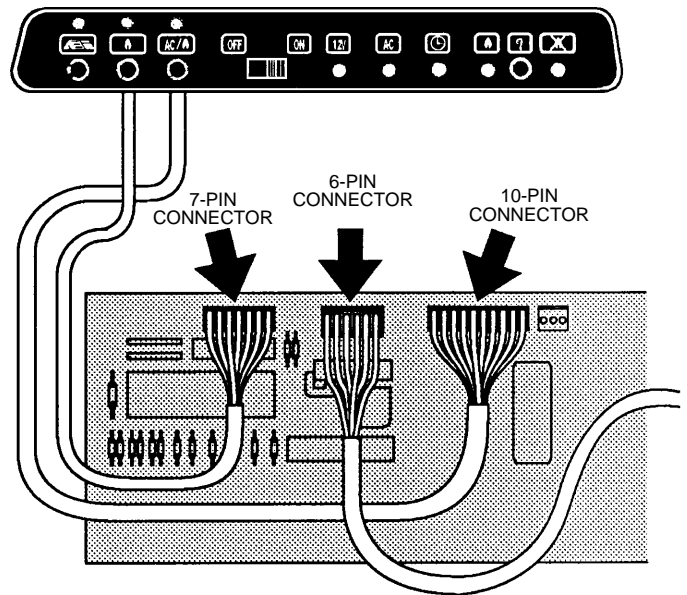


DOOR SWITCH

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

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

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



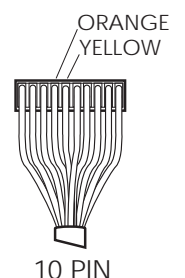
UPPER CIRCUIT BOARD (SWITCH CARD)

1. ON-OFF SWITCH

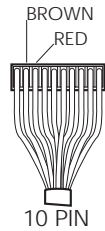
NOTE: The following checks should be made on the upper circuit board and harness assembly BEFORE replacing the upper circuit board or wiring harness. The checks are to be done with the wiring harness REMOVED from the lower circuit board.

With the switch in the "ON" position:

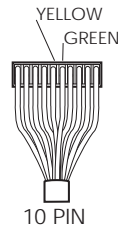
CONTINUITY should be indicated between the orange terminal to the yellow terminal on the 10 pin connector.



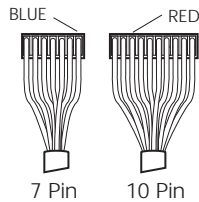
CONTINUITY should be indicated between the brown terminal to the red terminal on the 10-pin connector.



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



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

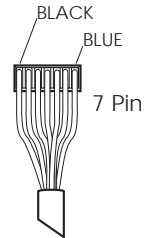


2. AES FUNCTION SWITCH

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

With the AES function switch manually depressed:

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



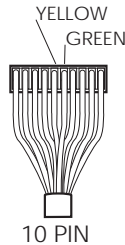
With the AES function switch NOT depressed:

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

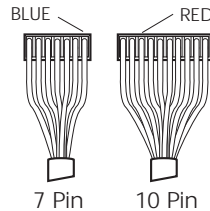
NOTE: If the check on AES function switch is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

With the switch in the "OFF" position:

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



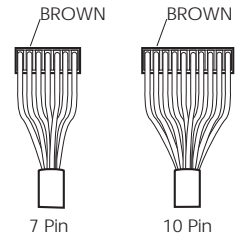
CONTINUITY should be indicated between the red terminal on the 10-pin connector to the blue terminal on the 7-pin connector.



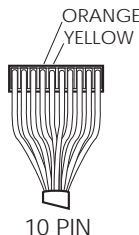
3. AES FUNCTION LAMP

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

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



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

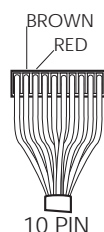


NOTE: If the check on the AES function lamp is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

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

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

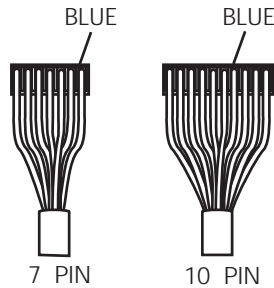
NO continuity should be indicated between the brown terminal to the red terminal on the 10-pin connector.



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

With the AC/gas function switch manually depressed:

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



With the AC/gas function switch NOT depressed:

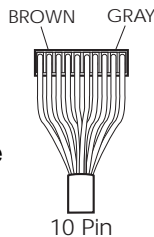
A reading would **NOT** be indicated.

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

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

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

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



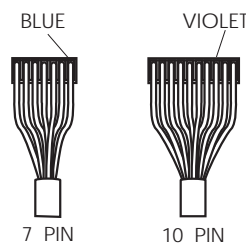
NOTE: If the check on AC/gas function lamp is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

6. GAS FUNCTION SWITCH

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

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

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

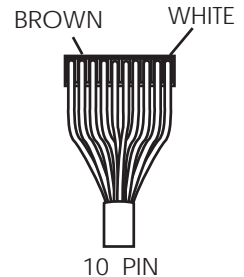


NOTE: If the check on gas function switch is not

correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

7. GAS FUNCTION LAMP

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



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

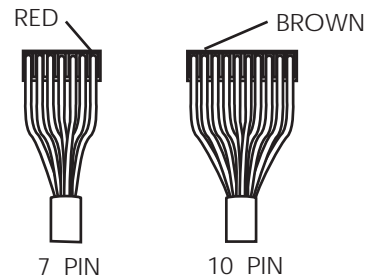
NOTE: If the check on gas function lamp is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

8. AC MODE LAMP AND SWITCH

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

With the mode switch (?) manually depressed:

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



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

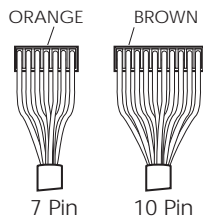
NOTE: If the check on AC mode lamp and switch is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

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

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

With the mode switch (?) manually depressed:

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

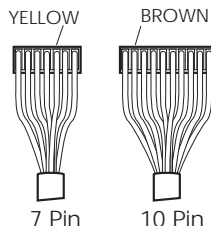


NOTE: If the check on 12-volt mode lamp and switch is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

10. Delay Mode Lamp and Switch

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

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



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

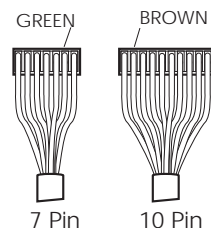
NOTE: If the check on the delay mode lamp and switch is not correct, verify the wire harness has continuity. If wire harness is good, replace the upper circuit board.

11. Gas Mode Lamp and Switch:

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

With the mode switch (?) manually depressed:

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

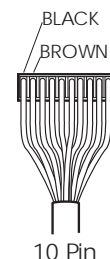


With the mode switch (?) NOT depressed: A reading would **NOT** be indicated.

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

12. Gas Flame Warning Lamp:

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



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

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

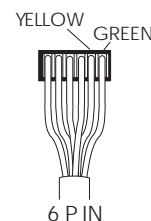
CIRCUIT BOARD

The circuit board controls all modes of operation.

1. ! CAUTION

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

Before any checks are to be done, be sure proper DC volts are to the board. 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.



2. ! CAUTION

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

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

NOTE: Before installing a new circuit board, correct the cause of the failure, most likely it is the heating element or wiring.

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

3.

! CAUTION

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

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



4.

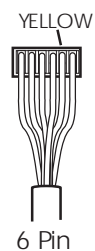
! CAUTION

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

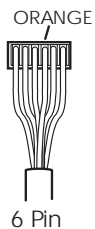
Before you check the circuit board for gas operation, verify these components are good:

- Igniter
- Electrode
- Upper Circuit Board
- Thermostat (
- High Voltage Cable
- Solenoid

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 and the orange wire and connections. If signal voltage is present, next check for voltage on the solenoid wires at the circuit board. Positive lead from meter to the gray wire and negative lead from the meter to the black wire. If voltage is 9.5 volts or more, the circuit board is good. Do not replace. If no voltage is present, replace the circuit board.

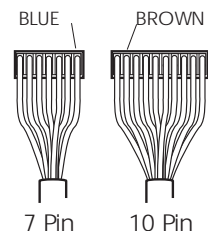


5.

! CAUTION

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

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



FUSE

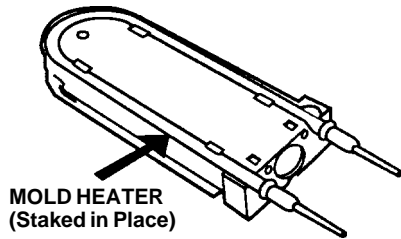
The fuse is to protect the circuit board. To check the fuse, remove it from the holder and do a continuity check. If no continuity, replace it with a proper 3 amp time delay fuse.

THIS SECTION REFERS TO THE ICE MAKER CYCLE WITHOUT A COMPRESSOR

1G. ICE MAKER COMPONENTS

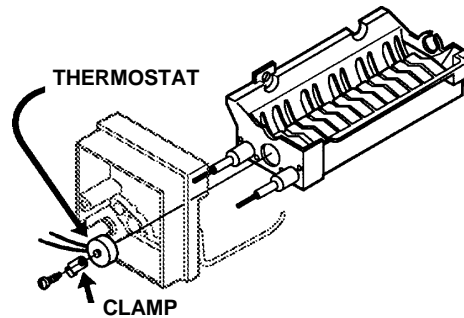
MOLD HEATER

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.



MOLD THERMOSTAT

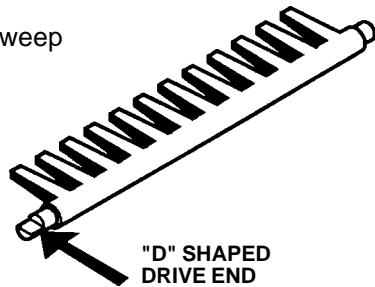
This is a single-pole, single-throw, bimetal switch. It starts an ejection cycle by closing at $18^{\circ}\text{F} \pm 5^{\circ}$. The reset temperature is $50^{\circ}\text{F} \pm 5^{\circ}$. The thermostat is in series with the mold heater and acts as a safety against overheating in case of a mechanical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



ICE EJECTOR

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

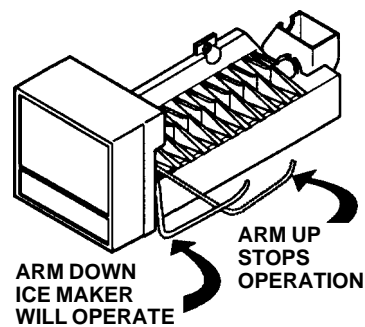
The drive end of the ejector is "D" shaped for positive coupling. The bearings at both ends are lubricated with silicone grease. If the ejector blades are frozen into the ice, defrost the ice maker and manually cycle the ice making unit, making sure the ejector stops at the right location.



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.



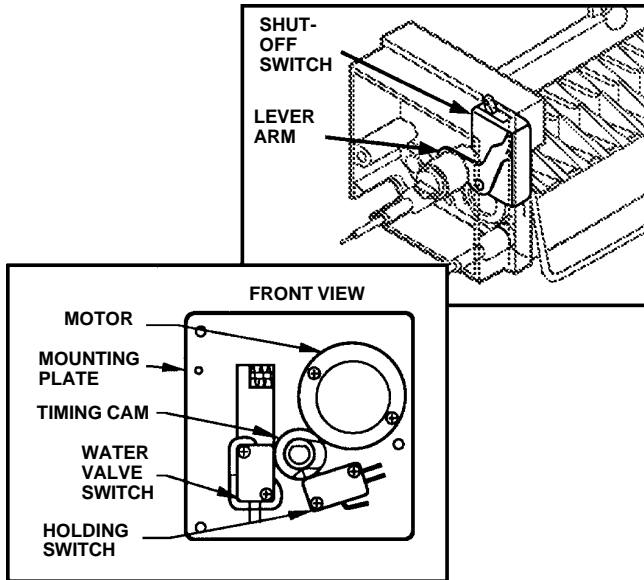
MOLD SWITCHES

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.

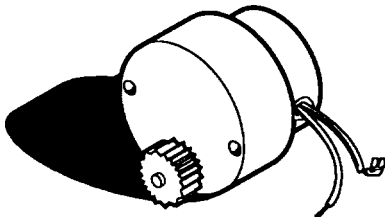
The shutoff switch stops the ice maker's operation when the storage bin is full.



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.



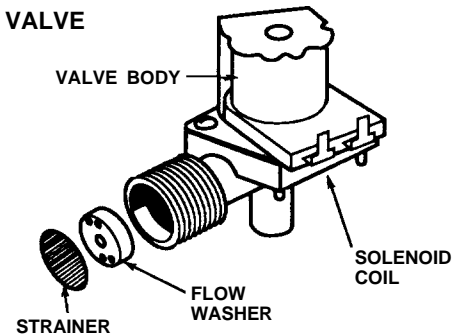
WATER VALVE

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 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



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.

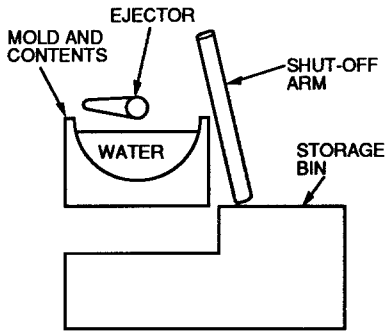
2G. OPERATION

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.

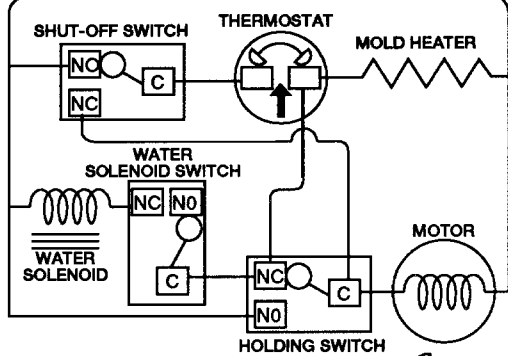
NOTE THE RELATIVE POSITION OF THESE COMPONENTS IN THE FOLLOWING SCHEMATICS



1

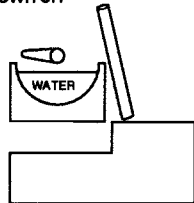
NON ENERGIZED CIRCUIT _____
ENERGIZED CIRCUIT _____

115 VOLTS
60 CYCLE

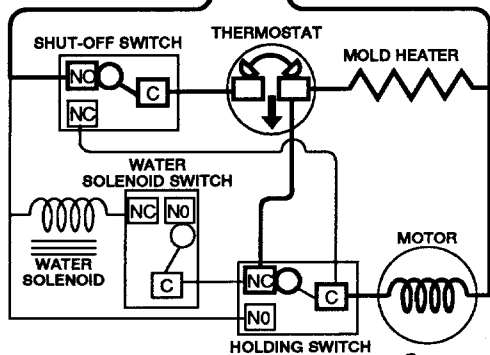


2

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

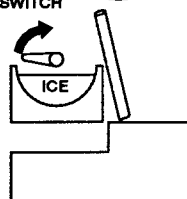


115 VOLTS
60 CYCLE



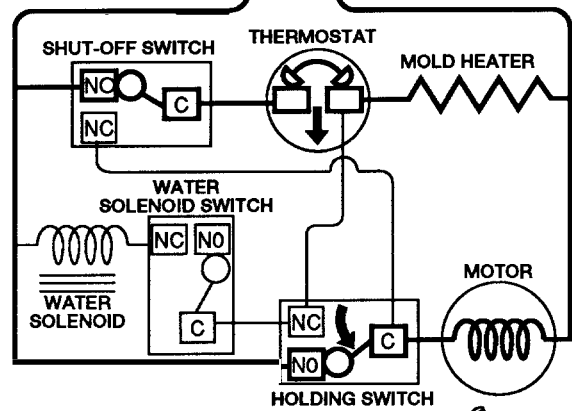
3

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

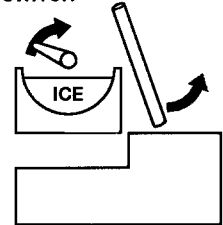


4

115 VOLTS
60 CYCLE

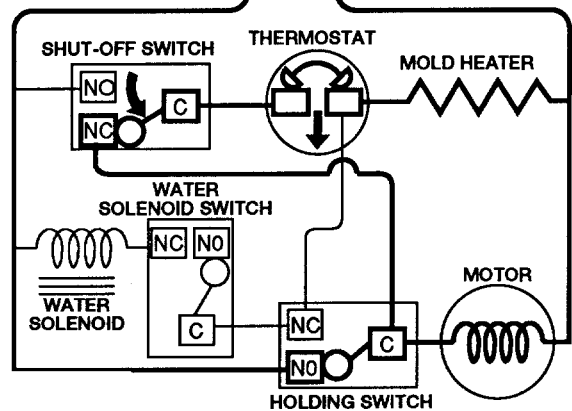


After a few degrees of motor rotation, the timing cam switches the holding switch to its normally open position; this assures completion of the cycle. The mold heater remains energized through the thermostat circuit. During the first half of the cycle, the shut-off arm is raised and lowered by the timing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

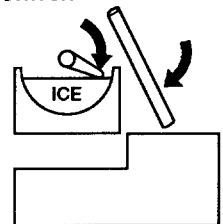


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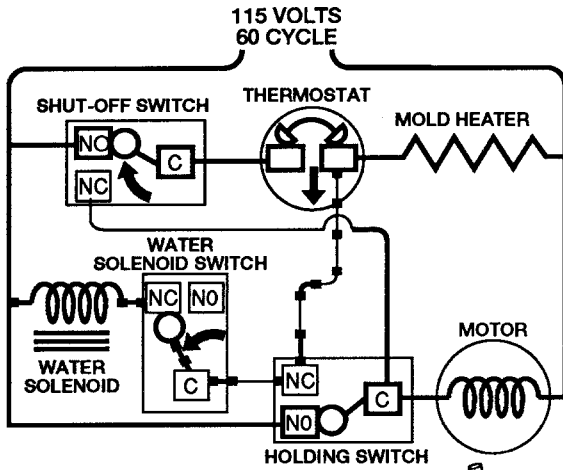
115 VOLTS
60 CYCLE



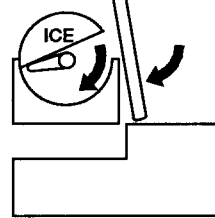
When the ejector blades reach the ice in the mold, the motor will stall. It will remain in this position until the ice has thawed loose. During this time the mold heater remains energized.



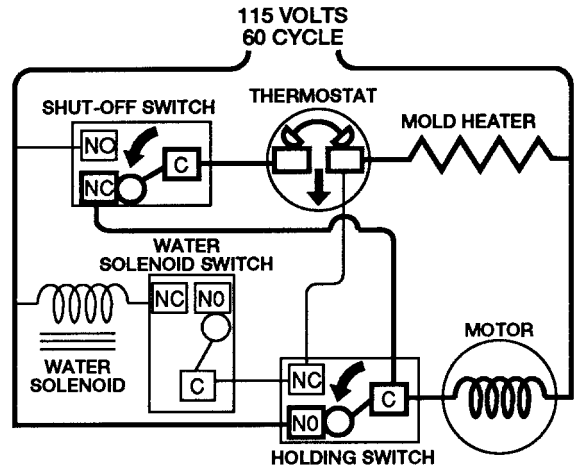
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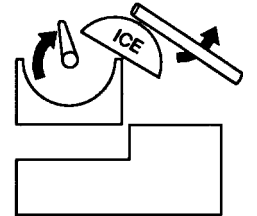
Near the completion of the first revolution, the timing cam closes the water valve switch. However since the thermostat is still closed the mold heater circuit is energized. Current will not pass through the water valve solenoid and its switch. (Electrical current follows the path of least resistance.)



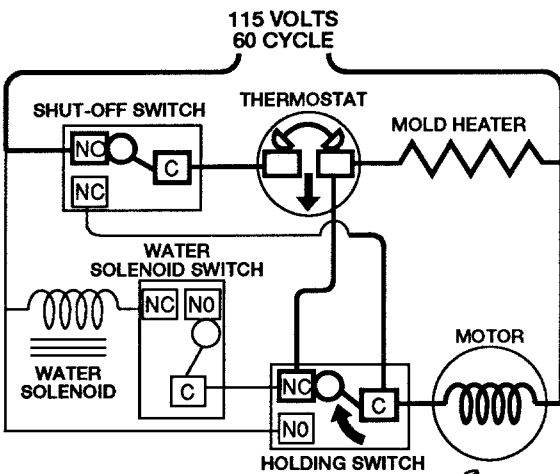
8



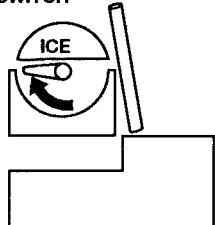
Once again after a few degrees of rotation the timing cam closes the holding switch providing a circuit to the motor that will assure completion of this revolution. The mold heater remains energized. The shut-off arm will raise and lower again operating its switch. The ice that was ejected during the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



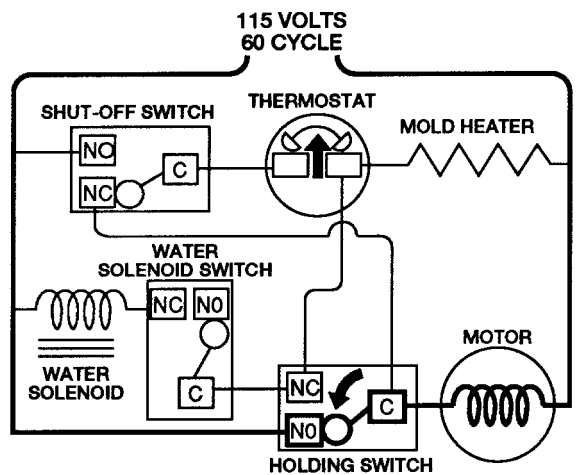
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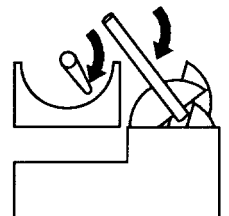
At the end of the first revolution the timing cam opens the holding switch. However, since the thermostat is still closed a second revolution begins.



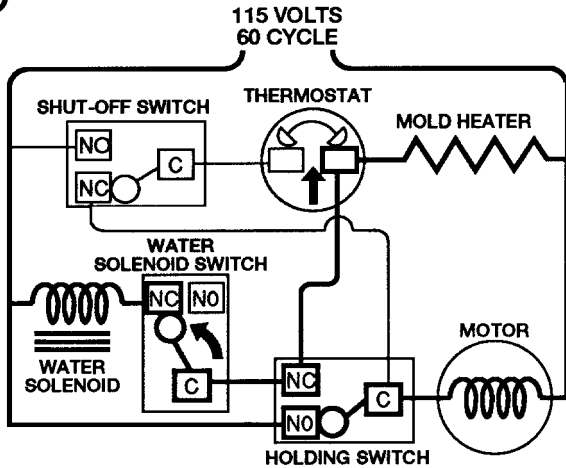
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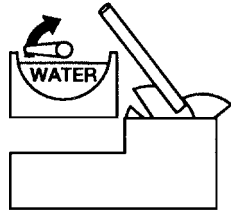
Some time during the second revolution the mold heater resets the thermostat. At this time, the mold heater is de-energized. If the storage bin is full, the shut-off arm will remain in a raised position.



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.



3G. ICE MAKER – OTHER

WATER FILL ADJUSTMENT

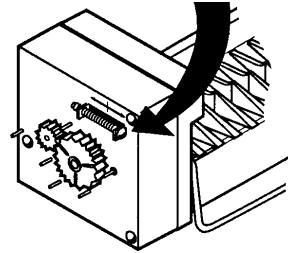
The correct water level in the mold is important for the proper production of ice. The size of the ice cubes depends on the amount of water which enters the mold. The cubes should be approximately 1/2" wide, 3/4" high and 2-1/2" long.

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.

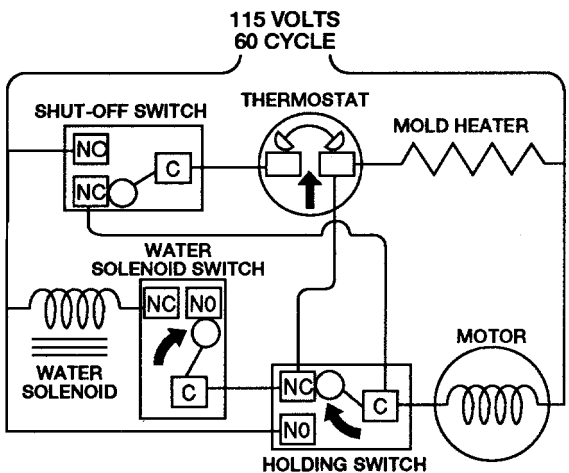
If there is still water overflow, adjustment of the water fill screw is necessary. Locate the screw on the ice maker assembly. Turn the screw as necessary toward the "+" or "-" side. One full turn of the screw will make an 18cc change in the amount of water. DO NOT turn the screw more than one full turn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

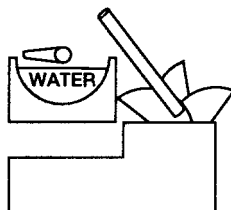
**WATER FILL ADJUSTING SCREW
1 FULL TURN = 18 cc's CHANGE**



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.



4G. WIRING

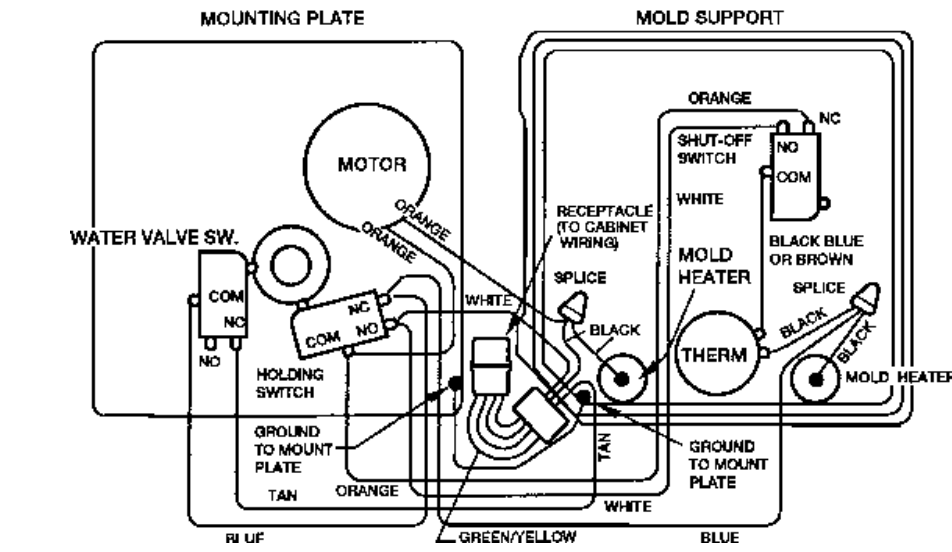
Refer to the wiring diagram supplied with the unit you are working on, and make sure all wiring connections are correct and tight.



WARNING

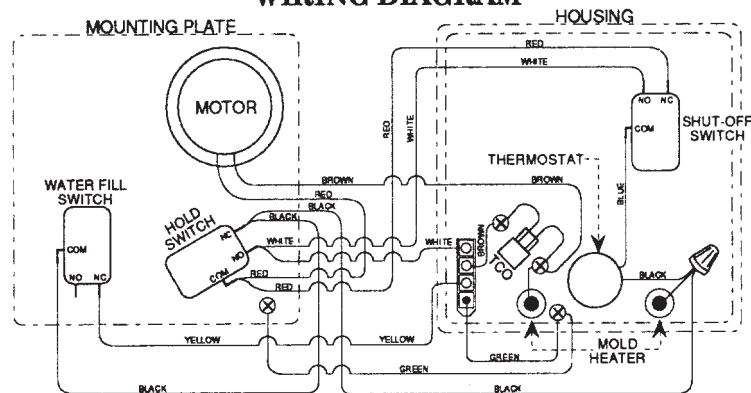
**THIS IS AN ENERGIZED CIRCUIT. ELECTRICAL SHOCK CAN OCCUR.
BEFORE CHECKING THESE COMPONENTS BE SURE THERE IS NO POWER TO THE APPLIANCE.**

AMES & AES ICE MAKER TYPICAL WIRING DIAGRAM



ROYALE/ELITE ICE MAKER TYPICAL WIRING DIAGRAM

WIRING DIAGRAM



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.

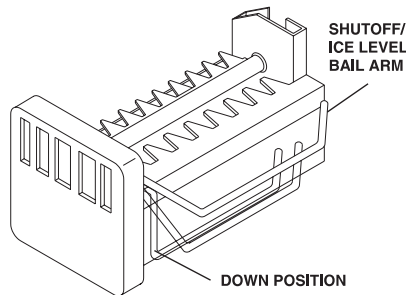
First check to see that the water supply is fully turned on. Visually check the line for kinks, etc. which might obstruct the flow of water.

To remove trapped air, loosen the connection at the solenoid water 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.

THIS SECTION APPLIES TO ICE MAKERS WITH A COMPRESSOR

1H. ICE MAKER OPERATION

The refrigerator has to be connected to 120 volts AC before the ice maker can operate. The water valve supplying the refrigerator must be turned on and the shutoff ice level bail arm in fully down position. Turn on the ice maker switch, starting the compressor. The compressor operation lowers the temperature in the ice maker compartment. 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 start position.



Turn on the ice maker switch, starting the compressor. The compressor operation lowers the temperature in the ice maker compartment. 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 start position.

The compressor will still function and keep the ice maker compartment at the proper temperature for storage of ice.

To prevent water from splashing out of the ice maker while traveling, raise the ice maker bail arm to the "UP" position about 1-1/2 hours before departing. This will allow any water in the mold to freeze.

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.

2H. ICE MAKER COMPONENTS

SWITCH, ON/OFF

This switch is located on the lower front panel inside the freezer door. To check for continuity, unplug the appliance, and disconnect the wires to the switch. With the switch in the "ON" position, you should have continuity between terminals 1 and 2.

With the switch in the "OFF" position you should have no continuity between the terminals.

Any other results indicate a defective switch and it must be replaced.

START DEVICE AND OVERLOAD

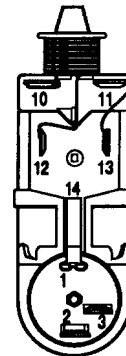
The start device and overload are two separate components, but they work together in starting and allowing the compressor circuit to be completed.

! WARNING

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

To test the starting device, remove the wires from the terminals. Check for continuity between terminals 10 and 12, and between terminals 11 and 13.

To test the overload, check for continuity between terminals 1 and 3. If you do not get continuity in any of these checks, either the starting device or the overload is defective and both must be replaced.



COMPRESSOR

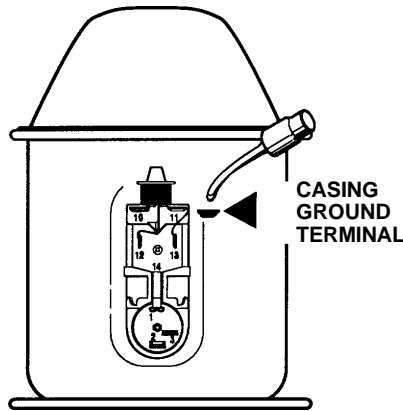
! WARNING

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

To check the compressor, unplug the appliance or otherwise be sure all power is off to the appliance. Remove the wires on the start device and overload. Check for continuity on terminal 14 to 12 and terminal 14 to 13 and terminal 12 to 13. Continuity should be present.

Next, check each terminal (12, 13 and 14) for continuity to the compressor casing ground terminal. Continuity should NOT be present.

If continuity test results are proper the compressor is good electrically and does not need to be replaced. If continuity test results are outside of the described checks, the compressor is defective electrically and needs to be replaced.



FAN MOTOR

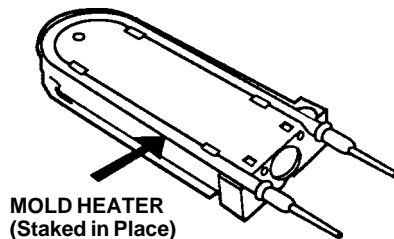
There are two wires to the fan motor. Disconnect power to the appliance, and check for continuity between the two terminals. There should be continuity.

Scrape a spot of paint off the motor housing. Check for continuity between the motor housing and each of the leads. If there is continuity, the motor is defective and it must be replaced. If the motor checks are proper, do not replace it.

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.

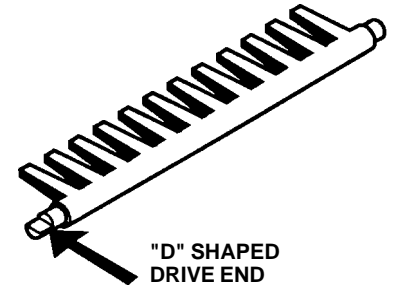


ICE EJECTOR

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.

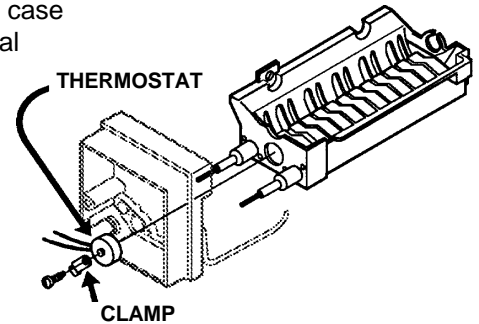


MOLD THERMOSTAT

This is a single-pole, single-throw, bimetal switch. It starts an ejection cycle by closing at $18^{\circ}\text{F} \pm 5^{\circ}$. The reset temperature is $50^{\circ}\text{F} \pm 5^{\circ}$. The thermostat is in series with the mold heater and acts as a safety against overheating in case of a mechanical

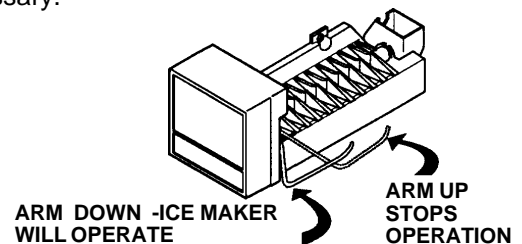
failure. To check the thermostat, disconnect one wire and do a continuity check.

The temperature surrounding the ice maker must be at 20°F . or lower. You should get a continuity reading. If the thermostat is defective, replace it.



SHUTOFF/ICE LEVEL BAIL ARM

The shut-off 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 shut-off 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 shut-off 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.



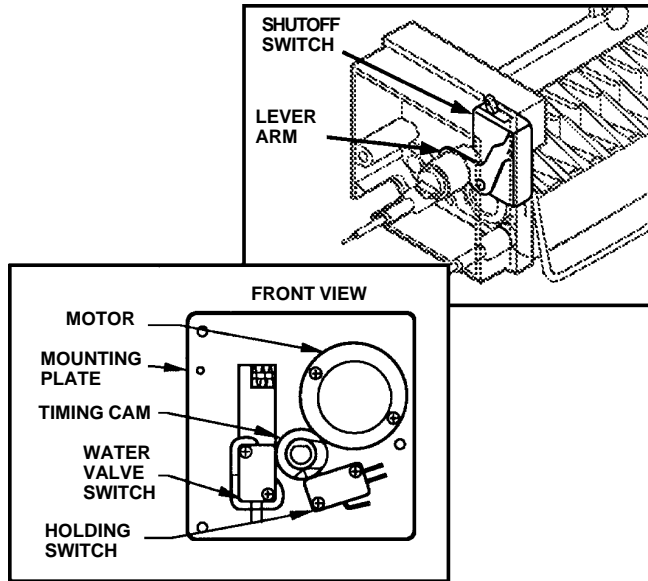
MOLD SWITCHES

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.

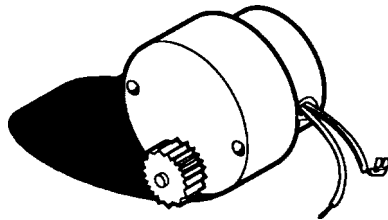
The water valve switch opens the water valve during the fill stage of the cycle. NOTE: This is the only adjustable component of the ice maker. If you use a double-throw switch, DO NOT use the N.O. terminal.

The shut-off switch stops the ice maker's operation when the storage bin is full.



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.

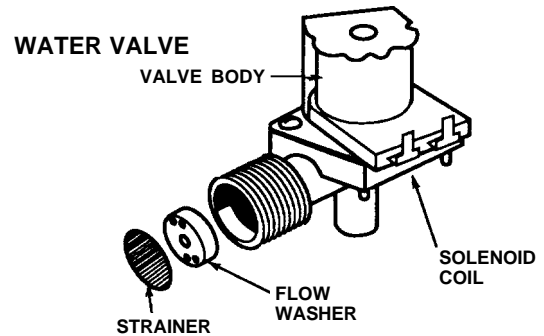
WATER VALVE

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 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.



ICE MAKER ASSEMBLY

It may be necessary to replace the entire ice maker assembly. Follow replacement instructions supplied with the new ice maker assembly.

3H. 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 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.

(Refer to the following pages for Schematics)

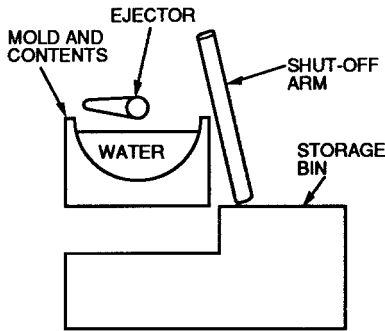
CONDENSER

If the ice maker is producing soft, wet ice or if it is not making enough ice, the problem may be air flow restriction in the condenser.

Check the condenser coil fins to be sure they are straight, allowing full air flow across the coils. If any fins are bent, carefully straighten them.

Inspect the coil and fin assembly for dirt, lint, etc. Using a soft bristle brush, remove all such debris and vacuum up the residue. Any restriction to air flow across the condenser coil fins will reduce the efficiency drastically.

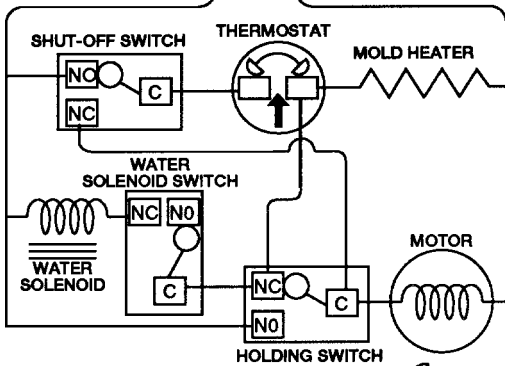
NOTE THE RELATIVE POSITION OF THESE COMPONENTS IN THE FOLLOWING SCHEMATICS



1

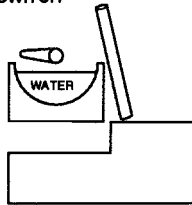
NON ENERGIZED CIRCUIT _____
ENERGIZED CIRCUIT _____

115 VOLTS
60 CYCLE

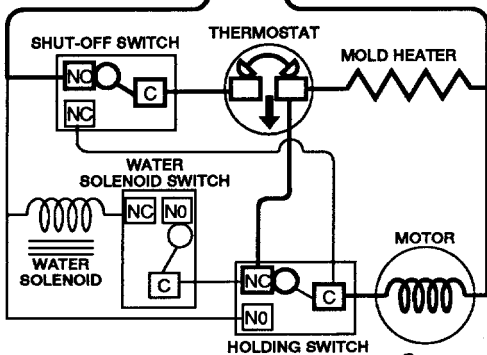


2

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

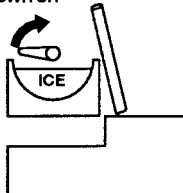


115 VOLTS
60 CYCLE



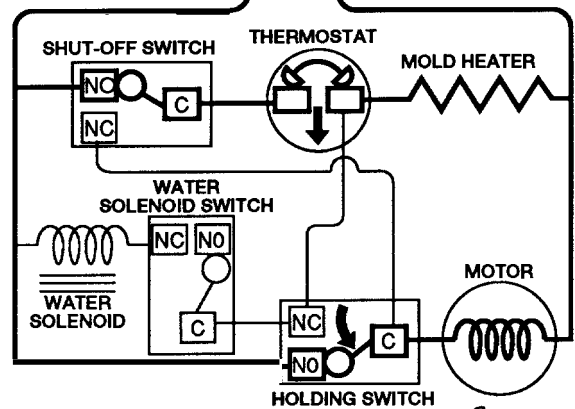
3

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

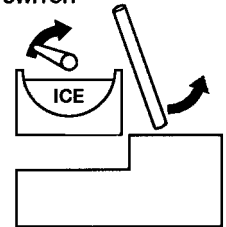


4

115 VOLTS
60 CYCLE

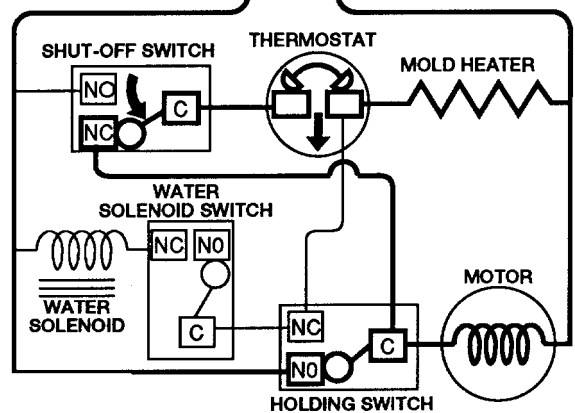


After a few degrees of motor rotation, the timing cam switches the holding switch to its normally open position; this assures completion of the cycle. The mold heater remains energized through the thermostat circuit. During the first half of the cycle, the shut-off arm is raised and lowered by the timing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

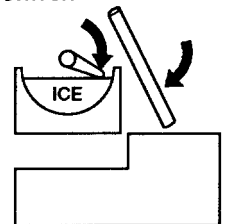


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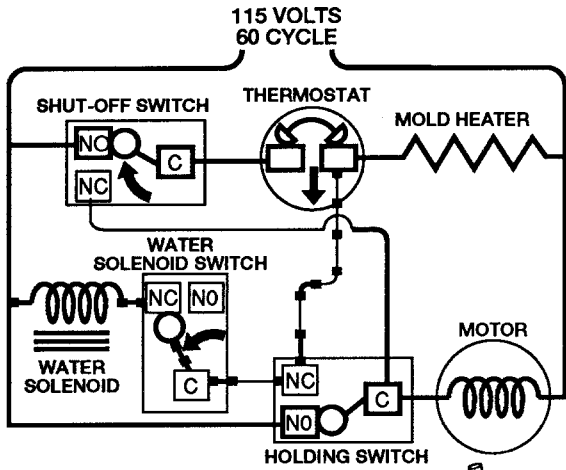
115 VOLTS
60 CYCLE



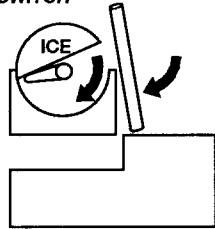
When the ejector blades reach the ice in the mold, the motor will stall. It will remain in this position until the ice has thawed loose. During this time the mold heater remains energized.



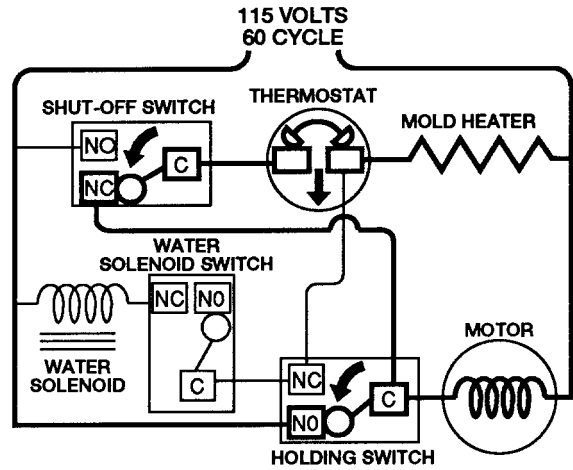
6



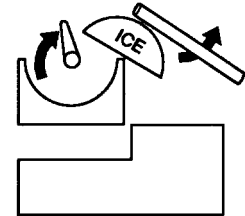
Near the completion of the first revolution, the timing cam closes the water valve switch. However since the thermostat is still closed the mold heater circuit is energized. Current will not pass through the water valve solenoid and its switch. (Electrical current follows the path of least resistance.)



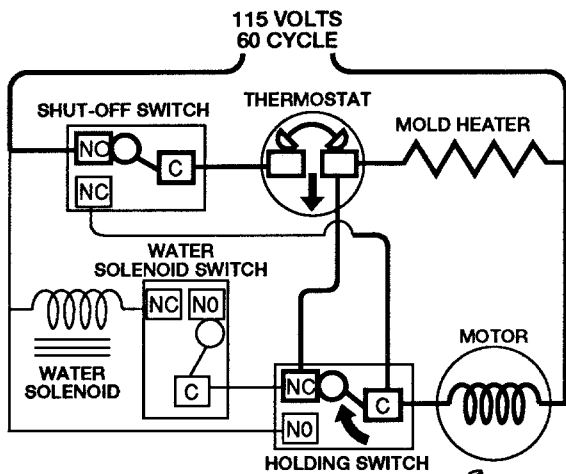
8



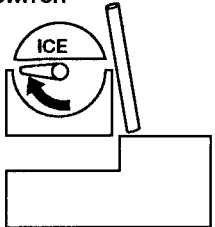
Once again after a few degrees of rotation the timing cam closes the holding switch providing a circuit to the motor that will assure completion of this revolution. The mold heater remains energized. The shut-off arm will raise and lower again operating its switch. The ice that was ejected during the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



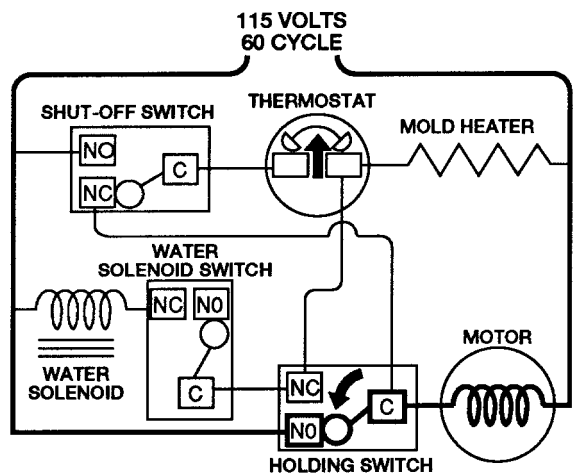
7



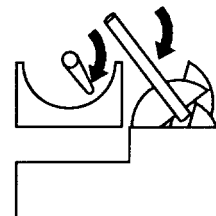
At the end of the first revolution the timing cam opens the holding switch. However, since the thermostat is still closed a second revolution begins.



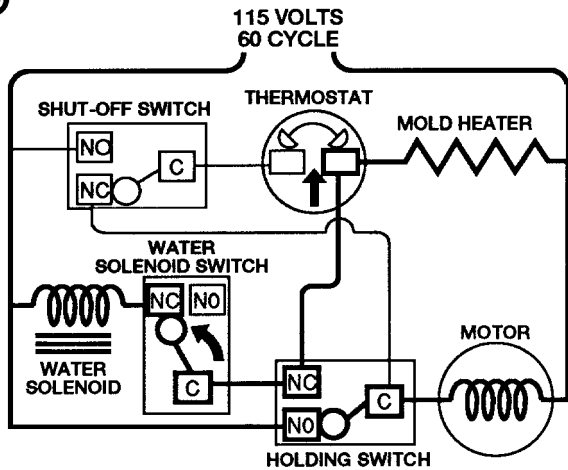
9



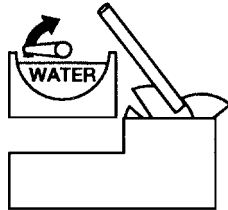
Some time during the second revolution the mold heater resets the thermostat. At this time, the mold heater is de-energized. If the storage bin is full, the shut-off arm will remain in a raised position.



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.



4H. ICE MAKER – OTHER

AIR FLOW

The path of air through the base of the refrigerator must be kept intact and free of obstructions.

Make sure there are no obstructions such as dirt, lint, etc. which might affect the proper production of ice.

WATER FILL ADJUSTMENT

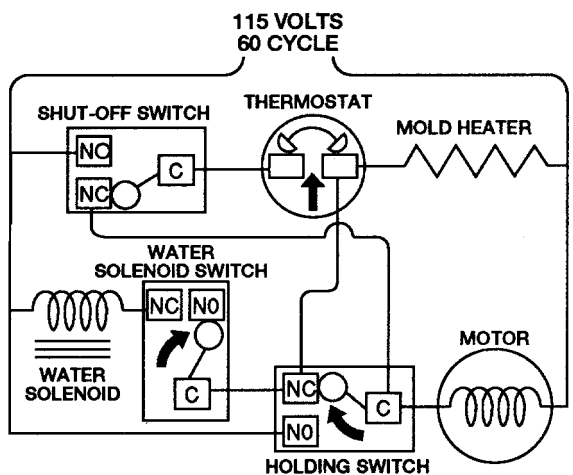
The correct water level in the mold is important for the proper production of ice. The size of the ice cubes depends on the amount of water which enters the mold. The cubes should be approximately 1/2" wide, 3/4" high and 2-1/2" long.

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.

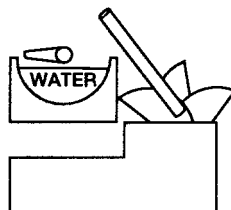
If there is still water overflow, adjustment of the water fill screw is necessary. Locate the screw on the ice maker assembly. Turn the screw as necessary toward the "+" or "-" side. One full turn of the screw will make an 18cc change in the amount of water. DO NOT turn the screw more than one full turn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

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

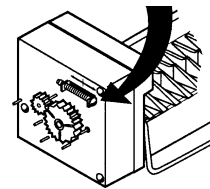
11



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.



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



WEIGHT OF ICE

A large accumulation of ice in the ice storage bucket can cause the ice cubes to compress and become stuck together. Advise the user to empty the bucket periodically and store the surplus ice in the refrigerator's freezer compartment.

5H. INSTALLATION

The refrigerator must be installed according to the installation instructions supplied with every appliance.

The most common installation problem is water leaks. Visually check all water connections in the water supply line, and where the line connects to the ice maker. Correct any problems found. Be sure the appliance is installed level in the coach with reference to the floor. Off-level conditions can cause water overflow into the ice bucket.

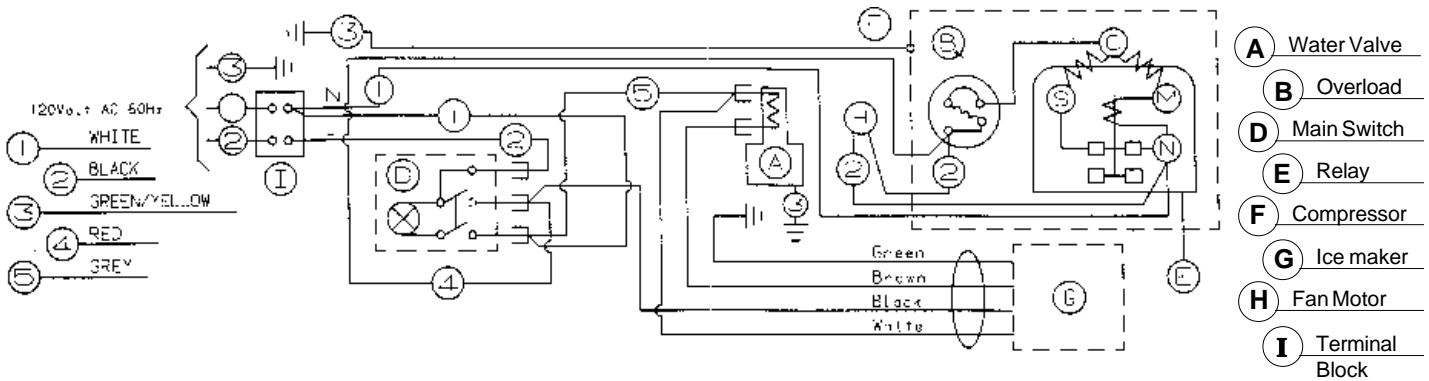
6H. WIRING

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

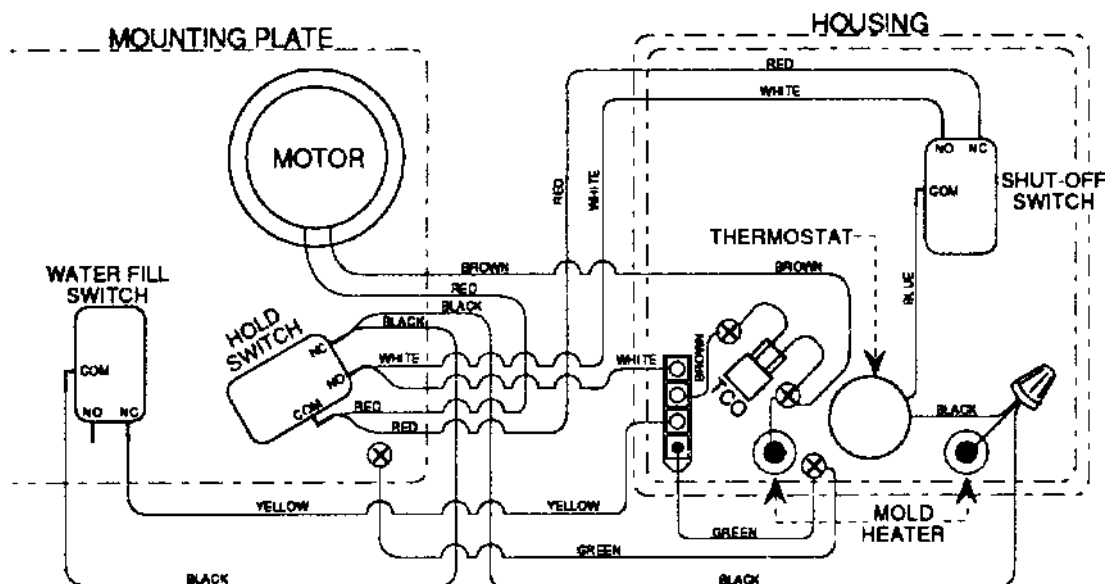
⚠ WARNING

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

TYPICAL WIRING DIAGRAM



TYPICAL ICE MAKER MOLD (ITEM G) WIRING DIAGRAM



7H. REFRIGERANT SYSTEM

The ice maker uses 134A refrigerant in its sealed system. Frequent starting and stopping of the compressor can be a symptom of low refrigerant level in the system.

NOTE: The *Clean Air Act* of 1990 set guidelines in regard to recapturing or disposition of refrigerants. Check with the local authorities for proper handling of evacuation of refrigerants.

Evacuation and recharge of the sealed refrigerant system must only be done by a technician trained in the procedure, and equipped with the necessary items.

The correct amount of 134A refrigerant is listed on the data plate of the appliance. The system is a critically charged unit. It must be charged with an exact weighted amount of refrigerant.

8H. WATER SUPPLY

To operate properly, the water pressure in the water supply line must be between 15 lbs. PSI and 100 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 solenoid water 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.

THIS SECTION APPLIES TO ALL REFRIGERATOR MODELS

OTHER

1J. LEVELING

Leveling is one of the requirements for proper operation with absorption refrigerators. The absorption design utilizes no mechanical pumps or compressors to circulate the refrigerant within the system, so proper leveling must be maintained to provide the correct refrigerant flow. Without proper leveling, refrigerant within the cooling unit will collect and stagnate at certain areas. Without proper refrigerant flow, the cooling process will stop. Refrigerators have a type of cooling unit that utilizes an enclosed pump tube surrounded by a solution to protect the assembly. To ensure proper leveling with these models, the vehicle needs to be leveled so it is comfortable to live in. (No noticeable sloping of floor or walls). When the vehicle is moving, leveling is not critical as the rolling and pitching movement of the vehicle will pass to either side of level, keeping the refrigerant from accumulating in the piping.

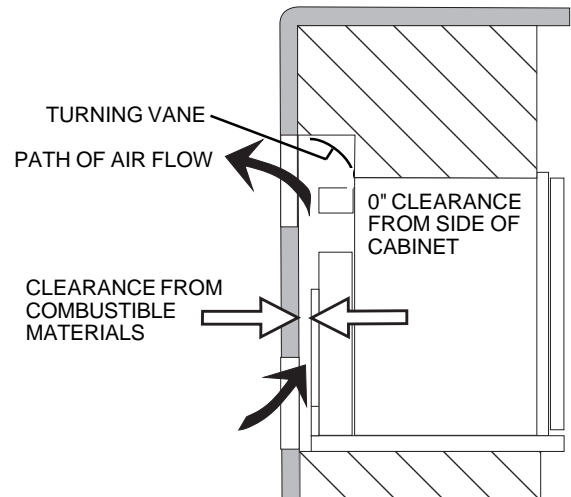
J2. VENTILATION

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 zero (0") clearance 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.

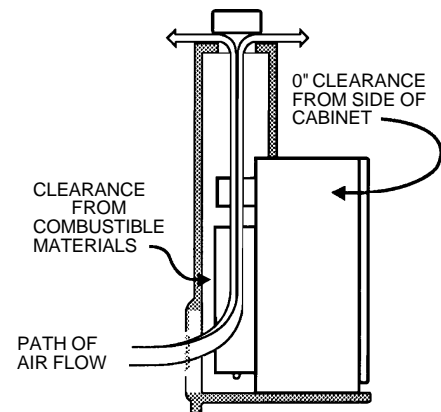
NOTE: Refrigerators should be installed in accordance with appropriate installation instructions received with the refrigerator.

FOR MORE INFORMATION ON VENTILATION REQUIREMENTS, refer to Vent Installation Instructions, Form No. 3107479.XXX.

SINGLE-DOOR REFRIGERATORS



DOUBLE-DOOR REFRIGERATORS



J3. AIR LEAKS

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

CAUTION
DO NOT OVERHEAT
AS YOU CAN MELT THE MATERIAL.

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

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

4J. DOOR POSITION

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

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

If the door needs more adjustment than is available through the hinge adjustment, the base can be repositioned to reorient the door. Turn the refrigerator on its side to gain access to the two front base screws. Loosen both screws slightly. Reposition the base until the door is reoriented. Retighten the base screws while holding the base in its new position.

5J. 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. Improper venting at this point, will cause the cooling unit to have reduced efficiency.

6J. COOLING UNIT

The cooling unit is a self-contained, hermetically sealed set of coils where the refrigeration process takes place. The chemicals involved in the cooling process include hydrogen, ammonia, water and a rust inhibiting agent. There are no repairs recommended on the cooling unit. If it is defective, replace with a new cooling unit. To check the cooling unit, first verify the AC heating element is good. Then place approximately one gallon of water inside the refrigerator and place a thermometer in one of the containers of water. Next, supply 115 volts direct to the AC heating element and operate for at least

12 hours. Then check the temperature on the thermometer. It should be at 45 degrees or lower depending on test conditions. If so, the cooling unit is good. If the temperature of the water is above 45 degrees, replace the cooling unit.

7J. FOOD STORAGE

Proper refrigeration requires free air circulation within the food storage compartment. Restricted air circulation within this compartment will cause higher cabinet temperatures. To remedy this situation, simply rearrange your foodstuffs. It is also essential that the shelves are not covered with paper or large storage containers. Always remember to allow for proper air circulation. Odorous or highly flavored foods should always be stored in covered dishes, plastic bags or wrapped in foil or waxed paper to prevent food odors. Vegetables, lettuce, etc., should be covered to retain their crispness. **NEVER PUT HOT FOOD INTO THE REFRIGERATOR.** To reduce frost formation in and on the freezing compartment, cover stored liquids and moist foods and do not leave the door open longer than necessary. When the refrigerator is heavily loaded, it takes a longer time for refrigerator temperatures to lower, also increasing the ice making time. A very heavy load may also cause defrosting.

8J. HIGH HUMIDITY

High humidity may cause a small amount of condensation to form on the frame of the refrigerator. In some cases it can develop to such a degree that it will 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.

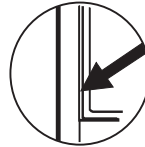
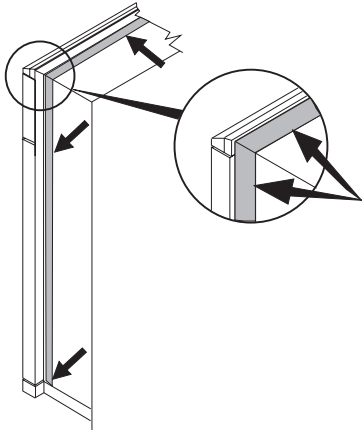
9J. INTERIOR LINER SEAL TO FRAME

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.

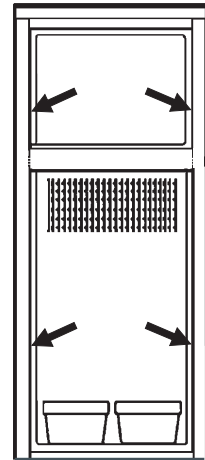
Remove all screws securing the refrigerator into the cabinet and slide the refrigerator out approximately 2–4 inches. Clean the metal frame and foil-backed insulation around the refrigerator. Apply a foil-backed adhesive tape to the joint between outer frame and foil-backed refrigerator insulation. Refer 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.

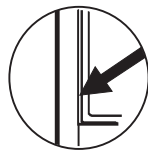


CAULK SEAM BETWEEN PLASTIC LINER AND METAL FRAME

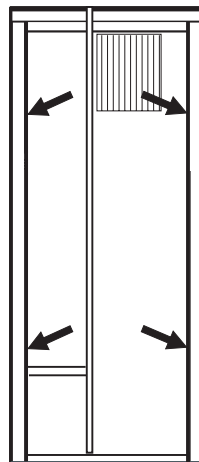


DOUBLE DOOR REFRIGERATOR SHOWN WITH DOORS REMOVED

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)