

INTRODUCTION

The 2012 edition of the Atwood Refrigerator Service Manual is a resource created to help service technicians identify Atwood products by serial number, diagnose service problems, and efficiently and effectively process warranty claims. This manual offers a general overview of the product as well as more specific product information.

For the refrigerator product within this manual, you will find model identification, sequence of operation, part identification and troubleshooting guides, warranty procedures, flat rate schedules, and replacement part reference chart.

Additional information is available on our website. Visit <u>www.askforatwood.com</u> to download brochures, review trouble shooting guides, and read the latest information bulletins. All Atwood Authorized Service Centers are listed on our site as well, accessible via an easy-to-use search system.

Service for all Atwood products is handled our of our Elkhart, IN location. Should you have any questions, please contact service toll-free at 1-866-869-3118, or by e-mail at <u>service@atwoodmobile.com</u>. Please be sure to have the Model and Serial Numbers when you call.

Thank you for your business,

Atwood Service Team



Refrigerators

Flat Rate Schedule

07/10/12

TIME ALLOWANCE SCHEDULE in hours:	Single Door Models	
Freezer/Refrigerator Door Changed	.50	
Door Lock/Handle Broken	.20	
Door Hinge Broken	.20	
Heating Element	.50	
Burner Replaced	.50	
Gas Solenoid Replaced**	.50	
Interior Light Assembly	.50	
Thermistor Replaced	.50	
Circuit Board Replaced**	.70	
Front Display Board Replaced**	.50	
Side Vent Broken	.20	
Ventilator Fan Replaced	1.00	
Cooling Units Performance**	Call	
Refrigerator Replaced**	1.00	
	[

Before a cooling unit is replacement you must call for prior authorization to 866-869-3118

*** All parts must be returned to Atwood Mobile Products

Note: Warranty claims must be filed and received within six months from the date of repair. Claims received beyond this time frame will not be considered for warranty payment. All flat rates include diagnostic time and when applicable, gas leak test.

HE-0601 HE-0801

GAS ABSORPTION RV REFRIGERATORS

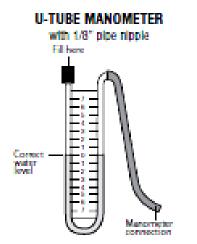
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Recommended Tools and Equipment

U-Tube Manometer - This is the most accurate device for measuring gas pressure. If you use a dial-type manometer, calibrated it periodically.

Multi-meter - This is the most versatile meter and will test continuity and 12VDC. These tests will allow one to verify voltage problems or faulty components. The entire electronic system can be tested with this meter.



MULTI-METER TO TEST CONTINUITY & VOLTAGE



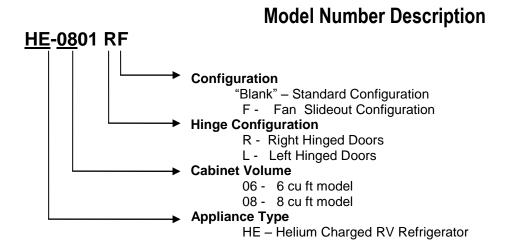
Common Hand Tools - 1/8" and 1/4" nut drivers, open end wrenches, flat blade and Phillips screw drivers.

Leak Test Solution - A solution that bubbles when applied to gas fittings or connections showing where a gas leak is present.

Review Questions

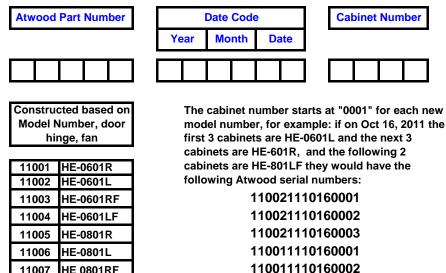
After reviewing this manual, you will be able to answer the following questions:

- What is the refrigerator's AUTO mode and how does it choose the power source?
- How does the temperature setting affect the refrigerator's internal temperature?
- What is the Backup Temperature Control system? How is it connected to the thermistor?
- What are the pinouts for the Powerboard connectors?
- How to handle a "poor cooling" complaint?
- What are all of the fault conditions which the control can display?
- How can the tilt feature be verified if it is working properly?



ATWOOD SERIAL NUMBER

Serial Number Description



110011110160003

110081110160001 110081110160002

HE 0801RF

11008 HE-0801LF

11007

4

Refrigerator Sequence of Operation

Gas Supply

11" w.c. of pressure on the LP gas input to the gas solenoid valve is necessary

- the setting of t
- POWER ON Pushbutton
 This is located on the display board on the front of the refrigerator. Pressing this pushbutton turns on the refrigerator control and turns this pushbutton surface blue. This pushbutton turns on a 3.3v regulator on the control board in the back of the refrigerator which powers the processor and begins execution of the refrigerator program. Even with the refrigerator control OFF, there is +12V present and

120VAC present on portions of the control board however no refrigerator outputs are active.

- Thermal Cutoff Switch
 There is a bimetal thermal cutoff switch which has normally closed contacts located on the metal canister approximately 8" above the burner box. This switch's contact will open in the unlikely event that the temperature in the generator section of the cooling system (located directly behind the thermal switch) reaches an unsafe temperature. This will turn off +12V to all of the refrigerator outputs – turning them OFF and the display board in the front of the refrigerator will light the CHECK indicator and all of the MODE indicators across the top of the display board. This error code will continue to be displayed until the thermal switch contacts are closed. When the abnormally high, unsafe temperature is returned to a safe operating temperature – the thermal switch can be reset by pressing a pushbutton which extends between the two terminals on the back of the unit. Should this switch's contacts open a second time – the refrigerator should be turned OFF and an authorized Atwood service technician should be contacted.
- Refrigerator Electronic Control boards
 The Atwood refrigerator control consists of two electronic boards: the display board in the front of the refrigerator which the owner can select various modes of operation and adjust the temperature settings and the control board which is mounted inside a protective plastic box on the back of the refrigerator. Both boards have their own individual processors and execute their own programs. They communicate to each other across a 5-wire connection. When the POWER ON pushbutton is pressed and the control turns on, the display board is actually communicating to the control board in back of the refrigerator. When the MODE pushbutton is pressed and manual AC is selected, the display board communicates that choice back to the control board and the control board de-energizing the gas control value and energizing the AC relay which places 120VAC on the AC heater. When the AUTO MODE is selected, the refrigerator control automatically selects AC if AC is present, otherwise the control automatically selects GAS if present. A more complete description of the refrigerator control is given in the IOM owner's manual and also later in this manual.

AC MODE

If AC is present – the AC relay is energized on the control board and AC voltage is placed on the AC heater. The amperage draw should be 2.7 amps (2.3 - 3.0 range). Whenever AC is ON – the gas solenoid valve should be OFF. GAS MODE

The control will begin 40 second ignition trial (20 sec spark, 2 sec pause, 10 sec spark, 2 sec pause, 6 sec spark). If the burner is not lit, the control will display CHECK light constant ON and the GAS Indicator will flash indicating that no ignition occurred. This can be reset by turning the refrigerator OFF and then ON again and a new 40 sec ignition trial will be initiated. Whenever the gas solenoid is ON – the AC heater should be OFF.

		CHECK	auto	GAS	AC	MODE
Atwood	\bigcirc		— —	.IUM	_; ;	— ТЕМР

CONTROL PANEL

The refrigerator control panel is located between the fresh food and freezer compartments of your refrigerator. The refrigerator control requires +12 volts DC to operate. There are three pushbuttons.

POWER ON – Pressing this pushbutton turns the refrigerator on and off.

MODE – Pressing and holding this pushbutton cycles the mode selections from AUTO, manual GAS, and manual AC. Releasing the pushbutton selects the last mode displayed. The selected mode will be displayed for approx 5 seconds before all the mode indicators are turned off. The active mode can be displayed at any time by pressing and releasing the MODE pushbutton.

TEMP – Pressing and holding this pushbutton cycles the temperature settings from 1 through 5 with 5 being the maximum cool setting. Releasing the pushbutton selects the last temperature setting displayed. The selected temperature setting will be displayed for approx 5 seconds before all the temperature indicators are turned off. The active temperature setting can be displayed at any time by pressing and releasing the TEMP pushbutton.

AUTO MODE

When the refrigerator is in the AUTO mode, the control automatically selects the best energy source which is available. When a more efficient energy source becomes available, the refrigerator automatically switches to the more efficient source. AC energy is considered the more efficient energy source and is the first choice selected by the control. Propane gas is the second choice and is selected in the AUTO mode only when AC energy is not available.

GAS MODE

The GAS mode can be selected either automatically or manually. When switching to gas operation, the refrigerator control begins a 40 second trial ignition cycle. During this period, the control opens the gas safety valve and begins sparking the burner. If after 40 seconds the control fails to detect the presence of a flame, the control shuts off the gas safety valve and stops sparking the burner. The CHECK indicator on the control panel turns on indicating that the burner failed to ignite. The CHECK indicator can be reset by turning the refrigerator off and then back on again and a new 40 second trial ignition cycle begins. On initial start up or after changing a propane tank, it is possible that air in the gas supply lines will require 2 or 3 ignition trials before successfully lighting the burner. If after repeated attempts, the burner fails to ignite, stop and consult your local dealer or an authorized Atwood Service Center.

MANUAL MODES

The manual modes allow for selection of either the AC or GAS modes directly. If the selected mode's energy source is not available, the refrigerator is turned off, the CHECK is turned on and the selected mode indicator flashes on and off indicating which energy source is not available.

DOOR HANDLES

The door handles latch when closed to prevent the doors from opening during travel. When closing the doors, push each door into the refrigerator cabinet until you hear a distinct "click" sound which will indicate that the door is latched. To open a door, pull the handle away from the refrigerator cabinet to unlatch the handle.

During off-season storage, the handle has a storage latch which prevents the door from completely closing. Keeping the doors partially opened during long term storage prevents odors from building up in the cabinet. To engage the storage latch, open each door about 1/2 inch, hold the door handle in the open position, and push the storage latch into the cutout of the strike plate. Never use the storage latch as a travel latch because the doors will not be fully closed.

DOOR AJAR ALARM

This refrigerator has an alarm to alert you if the fresh food compartment door is not fully closed. If the door is left open for more than 2 minutes, the CHECK light will be lit and a beeper will sound a chirp approx every 5 seconds until the door is closed.

The refrigerator will continue to operate normally throughout the door ajar alarm sequence.

MOISTURE DIVIDER HEATER

This refrigerator has a heater which is automatically controlled and prevents moisture from forming on the center divider located between the freezer and fresh food compartments.

BACKUP TEMPERATURE CONTROL SYSTEM

This refrigerator has a backup temperature control system which allows the owner to have variable temperature control of the refrigerator even if the temperature sensor should fail.

If the control cannot read the temperature sensor, the control uses the last selected temperature setting to control the refrigerator duty cycle and adjust the temperature accordingly.

THERMAL SWITCH MONITOR

This refrigerator has a thermal switch which serves as an overheating monitor.

TILT SENSOR TECHNOLOGY

This refrigerator control incorporates a patent pending tilt sensor which enables the control to constantly monitor the angle at which the refrigerator is operated. This feature protects the user from potential hazards attributed to prolonged operation at severe angles of inclination. This monitoring function is completely invisible to the user and only becomes apparent to the user in the rare event that the refrigerator has been operated for prolonged periods of time at severe tilt angles. Normal care in leveling of your vehicle will prevent this feature from ever being noticed.

Troubleshooting Guide

Control Display Panel Fault Table

The refrigerator's electronic control provides "fault codes" for a variety of fault conditions.

For example, if the thermal switch located on the canister just above the burner box reaches an abnormally high temperature, the thermal switch "opens" and the control display panel lights up the following indicators: CHECK, AUTO, GAS, AC, DC and they remain ON when the control is powered ON. In addition, all the power source outputs (the AC relay and the GAS valve relay output) are all disabled.

Another example, if the refrigerator is in GAS mode and the burner fails to ignite in the 45 seconds allowed, the control display panel turns on the CHECK indicator, it flashes the GAS indicator, and the beeper sounds a beep lasting 240ms.

A third example, if the door is left open for longer than 2 minutes, the CHECK indicator flashes and the beeper sounds a very short beep approximately every 2 seconds.

The table below provides a complete listing of all of these fault codes.

Condition	Beeper	CHECK	AUTO	GAS	AC	DC	NOTE
1. Open fuse F3 on Control board							
 Open thermal switch on canister Undervoltage condition ((<8V) 	OFF	ON	ON	ON	ON	ON	All Heat Sources OFF
4. Old control board with orig Q17							
AC Mode and No AC Supply	250ms	ON	OFF	OFF	FLASH	OFF	
DC Mode and No DC Supply	250ms	ON	OFF	OFF	OFF	FLASH	
GAS Mode and no Ignition	240ms	ON	any	FLASH	OFF	OFF	Latched after 33 sec
Door Open > 2 minutes	80ms	ON	any	any	any	any	beeps once every 2 sec
Thermister Open or Short (Backup Operating Mode Active)	OFF	FLASH	any	any	any	any	flashs once every 10 sec
Stress Monitor Fault (initial)	720ms	ON	OFF	OFF	OFF	OFF	Latched Nonvolatile
Stress Monitor Fault (after power cycle)	OFF	ON	OFF	OFF	OFF	OFF	Latched Nonvolatile
Flame Detect circuit offset too high (Faulty or Wet Electrode)	240ms	ON	any	FLASH	OFF	OFF	Detected at power up
Condition	Beeper	CHECK	AUTO	GAS	AC	DC	NOTE
		FLASH	any	any	any	any	flashs once every 10sec
Thermister Open or Short	OFF	TEMP1	TEMP2	TEMP3	TEMP4	TEMP5	NOTE
(Backup Operating Mode Active)		FLASH	FLASH	FLASH	FLASH	FLASH	IF TEMP switch pressed
Enter Diagnostic Display Mode by pressing MODE and TEMP simultaneously for 5 sec during NORMAL operation							
Enter Diagnostic Display Mode by press	ing MODE a	nd TEMP s	imultaneou	sly for 5 se	c during NC	ORMAL ope	
Enter Diagnostic Display Mode by pressi Condition	ing MODE a Beeper	nd TEMP s	imultaneou AUTO	sly for 5 seo GAS	c during NC AC	DRMAL ope	NOTE
		CHECK	AUTO	GAS	AC	DC	NOTE
Condition	Beeper	CHECK ON	AUTO STR2	GAS STR1	AC STR0	DC OFF	NOTE
Condition	Beeper	CHECK ON TEMP1	AUTO STR2 TEMP2	GAS STR1 TEMP3	AC STR0 TEMP4	DC OFF TEMP5	NOTE Stress Monitor value
Condition	Beeper	CHECK ON TEMP1	AUTO STR2 TEMP2	GAS STR1 TEMP3	AC STR0 TEMP4	DC OFF TEMP5	NOTE Stress Monitor value
Condition Diagnostic Mode Active	Beeper OFF	CHECK ON TEMP1 ON	AUTO STR2 TEMP2 OFF	GAS STR1 TEMP3 TILT2	AC STR0 TEMP4 TILT1	DC OFF TEMP5 TILT0	NOTE Stress Monitor value Tilt Monitor value
Condition Diagnostic Mode Active	Beeper OFF	CHECK ON TEMP1 ON CHECK	AUTO STR2 TEMP2 OFF AUTO	GAS STR1 TEMP3 TILT2 GAS	AC STR0 TEMP4 TILT1 AC	DC OFF TEMP5 TILT0 DC	NOTE Stress Monitor value Tilt Monitor value

Troubleshooting Guide

Temperature Setting Setpoints

There is a high temperature TURN ON setpoint and a low temperature TURNOFF setpoint associated with each temperature setting. The corresponding voltage at the input pin (J10-1) is listed for each temperature point. This results in an average temperature for each setting given in the small table on the right. Please note that this is the average temperature for the FIN - the average CABINET AIR temperature will be approximately 6-8 degrees warmer than the FIN temperature.

Cooling Level	High Temp to Turn ON	Volts @ High Temp for ON	Low Temp to turn OFF	Volts @ Low Temp for OFF	Temp for Strip to Turn ON	Volts for Strip to Turn ON	Avg Temp Targ	Volts @ Temp Targ
1	36	1.21	28	1.39	42	1.09	32	1.30
2	34	1.26	26	1.43	40	1.13	30	1.34
3	32	1.30	24	1.48	38	1.17	28	1.39
4	30	1.34	22	1.53	36	1.21	26	1.43
5	26	1.43	18	1.63	32	1.30	22	1.53

Note: Lower Voltage = WARMER

Condition Poor Cooling

Solution

INFORMATION GATHERING

First – we need to define what is meant by "poor cooling".

- 1) What are the outside ambient conditions? Direct sunlight on vehicle?
- 2) What are the temperatures in the freezer air and the cabinet air?
- 3) Is there reported frost buildup in cabinet or freezer?
- 4) Is the cabinet level?
- 5) What is power source? Does problem happen with AC and GAS?
- 6) Is there evidence of "frosted elbow" (ie cooling not being used up)
- 7) Is there adequate ventilation? (ie, no blockages, etc)

Verify: In AC mode, verify AC heater is energized with 2.7amps Verify : In GAS mode, that burner is being ignited and flame has good shape and color

- Next attempt to get accurate temp data
 - 1) Suggest running cabinet overnight with thermometers placed
 - 2) Get thermocouple data if possible
 - 3) Have dealers/service centers run cabinet outside of RV overnight

Poor Cooling

1) Refrigerators perform poorly in 100-110°F;especially in direct sunlight These refrigerators may perform normally in 90°F

- 2) Door gasket leakage can lead to abnormal high internal temperatures
- 3) Leakage generally caused by door mis-alignment or poor gaskets
- 4) Off level cabinets inhibit good absorber/condenser function (3° angle)
- 5) If one power source is worse focus on that power source
- 6) Suggests poor evaporator tube contact in freezer and/or cabinet fin
- 7) Poor ventilation directly affects cooling performance
- 8) AC heater may not be delivering full power (ie damaged, open circuit)
- 8a) Incoming AC power may be below 110VAC (90-100 VAC problematic)
- 9) Gas pressure may not be 11"wc; burner may be misaligned if the flame wicks up along the side of the flue

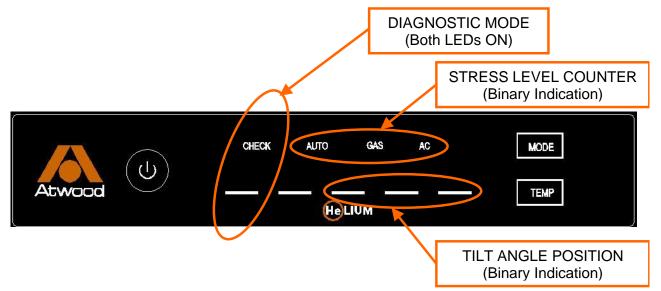
DIAGNOSTIC MODE WORK INSTRUCTION OF REFRIGERATOR rev 1

(NOTE: The diagnostic mode is only accessible from a normal, power on condition)

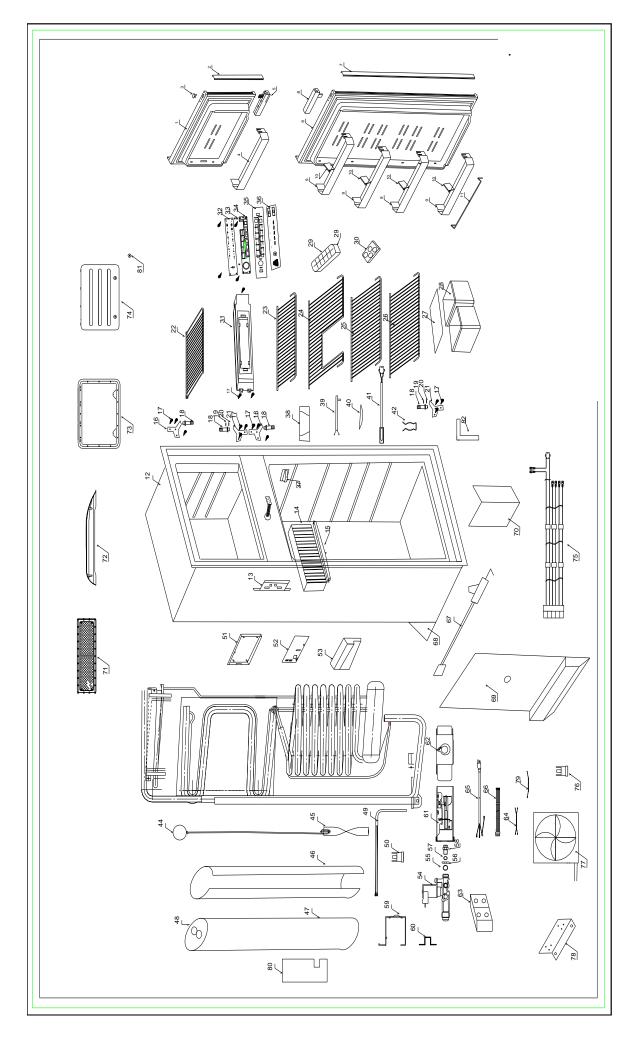
1. Make sure the refrigerator is powered on and functioning normally.

2. To enter the Diagnostic Mode, perform the following steps:

- 1. Press and hold both the TEMP and MODE pushbuttons together while watching the LEDs on the left hand side of the display board;
- 2. After about 2 seconds of holding both pushbuttons down, both the CHECK LED and the leftmost bar indicator on the temperature setting LEDs will turn on.
- 3. Release both the TEMP and MODE pushbuttons within 1 second of the two LEDs becoming lit and the display will be in the diagnostic mode.
 - a) The CHECK and the leftmost bar both ON indicates that the display is in diagnostic mode
 - b) The AUTO, GAS, and AC LEDs indicate the contents of the stress level counter in binary with the AC indicator being the least significant bit and the AUTO indicator being the most significant bit
 - c) The 3 LEDs on the right-hand side of the temperature setting LEDs indicate the tilt position angle of the power board in binary with the rightmost LED being the least significant bit.
- 4. To exit the diagnostic mode and return to normal operation, press either the MODE or TEMP buttons.



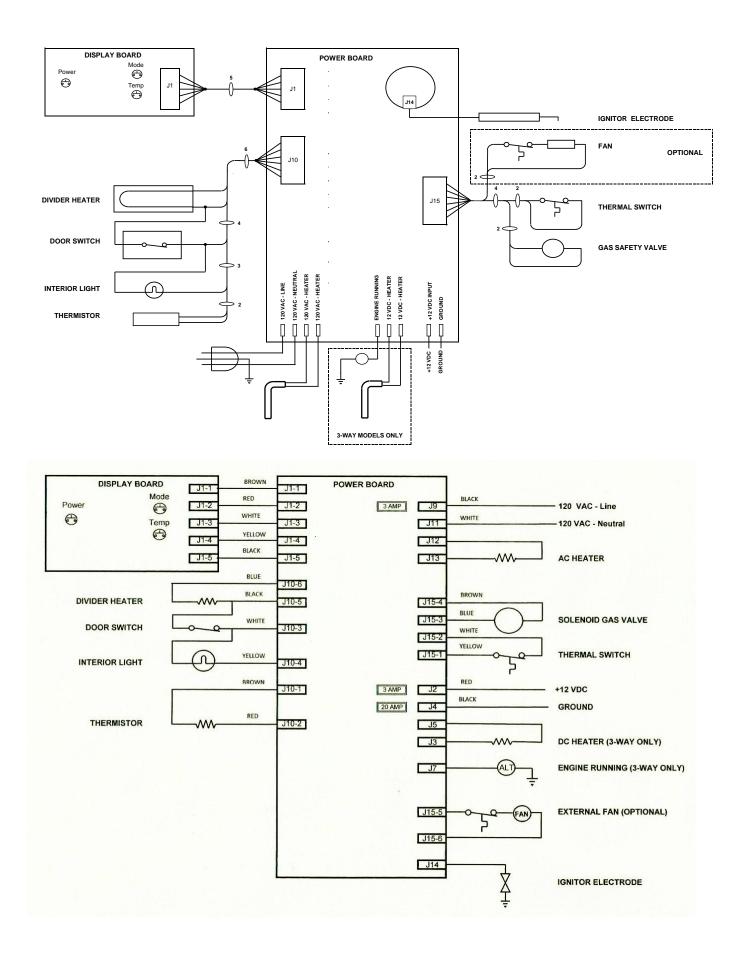
- 4. Normally the tilt angle position is zero (all LEDs OFF) when the powerboard is mounted on the refrigerator and the refrigerator is standing vertical. As the powerboard is tilted approximately 5 degrees either to the right or the left, one rightmost LED will light. As the powerboard is tilted to 10 and 15 degree angles off of vertical, the tilt position will count up in binary to "010" and "011" respectively. When the refrigerator is returned to the vertical position, all three LEDs should again be OFF. This indicates that the tilt sensor is performing normally. If none of the LEDs turn on as the refrigerator is tilted thru these angles you should contact an authorized service center immediately. If when the refrigerator and the powerboard are standing vertical and all three of the LEDs are not OFF this indicates that the tilt calibration procedure may need to be performed. Please contact an authorized service center.
- 5. Normally the stress level counter is zero (all LEDs OFF) indicating that the control has not been operated at severe position angles for any length of time. It is possible that the counter might display "001" or a "010" this indicates that the refrigerator had been operated at a severe angle for short periods of time. The owner should be alerted that better care of leveling needs to be taken when operating his refrigerator particularly during long-term storage. If the counter displays "110" or "111" the owner should contact an authorized service center immediately as the refrigerator has been operated for long periods of time at severe position angles.

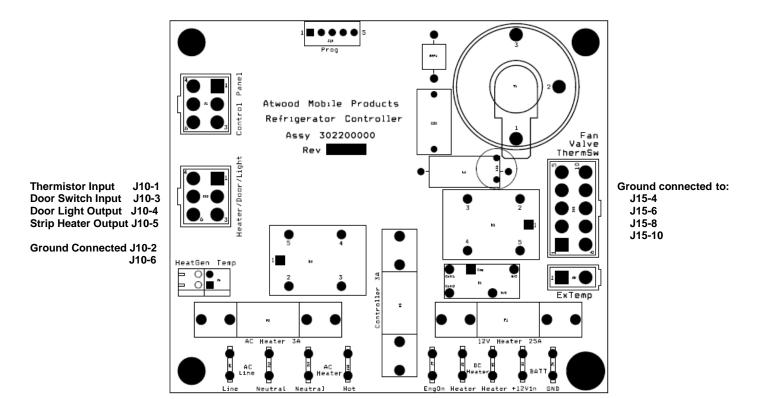


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GAS ABSORPTION RV REFRIGERATORS

Atwood Part No	Description		Picture ID
14007	Freezer Door Formed Apoly		1 0 0
14007	Freezer Door Foamed Assy Cabinet Door Foamed Assy, HE-0601		1,2,3 6,7,3
14008	Cabinet Door Foamed Assy, HE-0001		
14009	Panel Retainer, Freezer Door		6,7,3 2
14010	Panel Retainer, Cabinet Door, HE-0601	7	2
14012	Panel Retainer, Cabinet Door, HE-0601	7	
14012	Door Handle Assy, Upper	'	5
14006	Door Handle Assy, Lower		8
14019	Door Bin Freezer		4
14018	Door Bin Cabinet Assy	9,10	-
14060	Bottle Holder (Bottom Door Bin)	11	
14025	Shelf, Freezer	••	22
14021	Shelf, Top Cabinet Narrow		23
14022	Shelf, Mid Cabinet Notched		24
14023	Shelf, Bot Cabinet Deep	26	
14024	Plastic Shelf		27
14026	Shelf Clips		xx
14052	Cabinet Hinge Kit (4)		16,17,18,19,20,21
14031	Crisper Bins (2)	28	
14033	Ice Cube Tray		29
14015	Egg Tray		30
14004	Display Board Panel Assy		32,33,34,35,36,31,17
14003	Display Board PCB		32
14002	Powerboard PCB		52
14034	Powerboard Box	51,53	
14035	Gas Valve Assy	54,55,5	7,58
14016	Orifice Adaptor Assy (Jet)		58
14039	Burner Bracket Assy		61,59,62
14016	Gas Valve Bracket		60
14054	Terminal Block, +12VDC	63	
14036	Spark Electrode Wire		67
14044	AC Heater		49
14036	Thermal Cutoff Switch (TCO)		50
14045	Light Switch (Door)		37
14028	Lamp Assy Kit		38,39,40
14029	Thermister Kit		41,42
14032	Top/Bottom Trim Cap Kit (2)		XX
14059	Side Trim Protectors (2)	XX	
14047	Fan Kit Assy		75,76,77,78
14046	Fan		77
14040	Windshield, Burner Box	70	
14058	Bottom Back Bracket		68
14053	Canister Assy		44,45,46,47,48,49,80
14049	Cooling System Replacement, 6cuft		43,44,45,46,47,48,49,80
14050	Cooling System Replacement, 8cuft		43,44,45,46,47,48,49,80
13001	Side Vent Assy, White		73,74
13002	Side Vent Assy, Grey		73,74
13003	Side Vent Assy, Black		73,74
13004	Roof Vent Assy, White		71,72
13005	Roof Vent Assy, Grey		71,72
13006	Roof Vent Assy, Black		71,72





Control Sequence of Operation

The ON/OFF pushbutton allows the refrigerator control to power up. The indicator lights on the display board will light up and display the MODE and the current TEMP SETTING.

The refrigerator will be in one of three modes: AC manual mode, GAS manual mode, AUTO mode

AC Manual Mode

If the cabinet temperature is higher than 60°F, then 110VAC is applied to the AC heater and 110VAC can be read across terminals J11 and J13. The AC heater creates heat inside the generator portion of the cooling system (inside the canister) which causes the cabinet fin to get colder which in turn lowers the temperature in the freezer and the refrigerator cabinet. The cabinet will continue to get colder until it reaches the LOW TEMP to TURN OFF thermostatic setpoint determined by the TEMP SETTING 1 thru 5 as detailed on the table on page 7.

When the cabinet fin temperature reaches the lowest point for the selected TEMP SETTING – 110VAC is removed from the AC heater resulting in a reading of 0 VAC across the terminals J11 and J13. The AC heater remains OFF until the cabinet fin temperature rises to the HIGH TEMP to TURN ON thermostatic setpoint determined by the TEMP SETTING 1 thru 5 as detailed on the table on page 7.

There is a high temperature cut-off switch which is located on the canister several inches above the burner box. This switch is normally CLOSED. The +12VDC power for the output drivers on the control board is routed thru this switch. If the cooling system has an abnormally high generator temperature the high temperature cut-off switch OPENS and +12VDC is removed to the output drivers – disabling and turning OFF both the AC heater and the gas solenoid valve. The display board will light the CHECK light and all of the mode indicator lights across the top of the display board.

→ GAS Manual Mode

If the cabinet temperature is higher than 60°F, the GAS solenoid valve is energized and the control begins a 40 second ignition trial period. During this 40 second time period, the control attempts to ignite the burner. During this 40 second time period there are 3 separate bursts of ignition tries, specifically a 20 sec burst followed by a short pause followed by a second 10 sec burst followed by a short pause followed by a third 8 sec burst. If after 40 seconds the control cannot ignite the burner, then the control enters a CHECK mode with the CHECK indicator light being lit, the GAS indicator light flashes, and the gas solenoid valve is de-energized. This can be reset by turning OFF the refrigerator for 5 seconds and then turning the refrigerator back ON and the 40 second ignition trial begins again.

Once the burner is ignited, the gas burner creates heat inside the generator portion of the cooling system (inside the canister) which causes the cabinet fin to get colder which in turn lowers the temperature in the freezer and the refrigerator cabinet. The cabinet will continue to get colder until it reaches the LOW TEMP to TURN OFF thermostat setpoint determined by the TEMP_SETTING 1 thru 5 as detailed on the table on page 7.

When the cabinet fin temperature reaches the lowest point for the selected TEMP SETTING – the gas solenoid valve is shut off and the flame at the burner is extinguished. The gas burner remains OFF until the cabinet fin temperature rises to the HIGH TEMP to TURN ON thermostatic setpoint determined by the TEMP SETTING 1 thru 5 as detailed on the table on page 7.

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AUTO Mode

In the Automatic mode, if AC is present and available to the control board – the control goes into AC mode and energizes the AC heater in the same manner as in the AC Manual mode. If AC is not available, the control automatically switches into GAS mode and energizes the gas solenoid valve and begins a 40 sec ignition trial in the same manner as the GAS Manual Mode. The only difference is that is AC becomes available while the refrigerator is in AUTO GAS, the control switches automatically to AUTO AC mode.

ATWOOD REFRIGERATOR LIMITED WARRANTY

Atwood Mobile Products warrants to the original owner and subject to the below mentioned conditions, that this product will be free of defects in material or workmanship for a period of two years from the original date of purchase. Atwood's liability hereunder is limited to

the replacement of the product, repair of the product, or replacement of the product with a reconditioned product at the discretion of the manufacturer. This warranty is void if the product has been damaged by accident,

unreasonable use, neglect, tampering or other causes not arising from defects in material workmanship.

This warranty extends to the original owner of the product only and is subject to the following conditions:

1. For a period of two years from the date of purchase, Atwood will replace any defective part in material or workmanship. This warranty includes reasonable labor charges required to remove and replace the defective part.

2. For two years from the date of purchase, Atwood will repair or replace any part defective in material or workmanship. This warranty includes reasonable labor charges, required to remove and replace the part.

Service calls to customer's location are not considered part of these charges and are, therefore, the responsibility of the owner.

3. This warranty does not cover the following items classified as normal maintenance:

- a. Adjustment of gas pressure
- b. Cleaning or replacement of burner orifice
- c. Cleaning or adjustment of burner assembly
- d. Cleaning or defrosting of refrigerator

4. In the event of a warranty claim, the owner must contact, in advance, either an authorized Atwood Service Center or the Atwood Service Department. Warranty claim service must be performed at an authorized Atwood Service Center (can be found online @ www.atwoodmobile.com) or as approved by the Consumer Service Department, Atwood Mobile Products, 1120 North Main St., Elkhart, IN 46514 USA. Phone: (866-869-8116).

5. Return parts (or refrigerator) must be shipped to Atwood "Prepaid". Credit for shipping costs will be included with the warranty claim. The defective parts (or refrigerator) become the property of Atwood Mobile Products and must be returned to the Consumer Service Department, Atwood Mobile Products, 301 E. Simonton Elkhart, IN 46514 USA.

6. This warranty applies only if the unit is installed according to the installation instructions provided and complies with local and state codes.

7. The warranty period on replacement parts is the unused portion of the original warranty period or ninety (90) days, whichever is greater.

8. Damage or failure resulting from misuse (including failure to seek proper repair service), misapplication or alterations are the owner's responsibility.

9. Atwood does not assume responsibility for any loss of use of vehicle, loss of time, inconvenience, expense for gasoline, telephone, travel, lodging, loss or damage to personal property or revenues. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

10. Any implied warranties are limited to two (2) years. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

11. Replacement parts (components) purchased outside of the original refrigerator warranty carries a 90 day warranty. This includes the part at no charge and reasonable labor charges to replace it. This Atwood appliance is designed for use in recreational vehicles for the purpose of food preservation as stated in the "serial plate" on the refrigerator. Any other use, unless authorized in writing by the Atwood Engineering Department, voids this warranty.