

Brand: Maytag, Amana, Jenn-Air**Date: February 19, 2004****Product Type: Refrigeration****Product Sub-System: Temperature and System Operation****Models Affected: New 2004 Electronic Refrigerators**

Maytag is introducing a new electronic control for refrigeration products.

This solid-state module provides compressor, damper, defrost and temperature control. Two thermistors, one in the fresh food compartment and one in the freezer compartment monitor temperatures.

A major departure from past controls, this controller is programmed with the information it needs to operate any of the compatible variety of refrigerators. When installed, the controller needs to be activated by entering a code that matches the refrigerator it is going to operate. This code will be located on the serial number tag. The word code will be printed, followed by the proper code for that refrigerator. This code is also referred to as the personality for the control.

The controller will also allow individual components to be powered during diagnosis.

At this time there are four modes available to the technician that will assist in troubleshooting and repair. These modes are: Programming Mode, Showroom Mode, Forced Defrost Mode and Service Test Mode.

Entering any of the modes is a two-step process. First the mode must be requested by pressing the correct control button three times within ten seconds while holding the fresh food door switch closed. The door switch is released and the display will indicate the mode that was requested. An additional press of the same control button will activate the mode.

The modes and their control buttons are summarized according to the following table:

Mode	Activation Button	Freezer Display	Ref Display
Programming	Freezer Temp Down	P	E
Showroom	Freezer Temp Up	S	H
Forced Defrost	Refrigerator Temp Down	F	d
Service Test	Refrigerator Temp Up	S	E

Programming Mode

When the replacement control board is shipped there is no code activated. The display will indicate code 0 0. Without a code selected, the control board will not run the refrigerator. It is important that the correct code is selected.

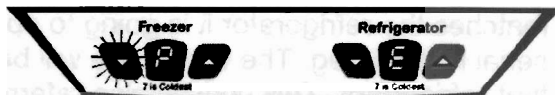
To enter the programming mode so the code may be set, hold the **refrigerator door switch** closed and press the **freezer temperature decrease** button three times within ten seconds.



Release the door switch and the display should indicate that you are about to enter the programming mode by displaying P E.



Enter the programming mode by pressing the freezer temperature decrease one more time.

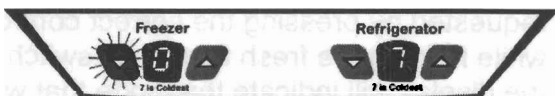


The display will indicate the current code that is set in this control.



If this code matches the code listed on the serial plate, no further action is needed. You can exit the programming mode by pressing and releasing the refrigerator door switch. If the code does not match, use the temperature increase buttons to set the proper code.

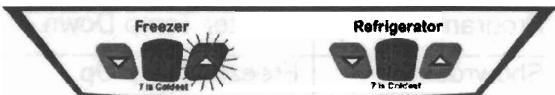
Once the correct code is entered, press the freezer temperature decrease button until the displays flashes. Close the refrigerator door.



Showroom Mode

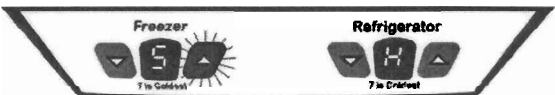
The showroom mode will allow the demonstration of the electronic control without the cooling system energized. This is for display purposes only.

To enter the showroom mode, hold down the **refrigerator door switch** and press the **freezer temperature increase** button three times within ten seconds.



Release the door switch and the display should indicate that you are about to enter the showroom mode using the letters S H.

To activate the showroom mode, press the freezer temperature increase button one more time.



There are two ways to cancel the showroom mode. If power is removed from the system, the showroom mode will be cancelled. The other way to cancel the showroom mode is to begin to enter the showroom mode by pressing the freezer temperature increase button three times with the refrigerator door switch being held. Release the door switch but **do not** confirm entry into the showroom mode. Close the refrigerator door and the showroom mode should be cancelled.

Forced Defrost Mode

To enter the forced defrost mode, hold down the **refrigerator door switch** and press the **refrigerator temperature decrease** button three times within ten seconds.

Release the door switch and the display should indicate that you are about to enter the forced defrost mode by showing the letters F d.

Enter the forced defrost mode by pressing the refrigerator temperature decrease button one more time.

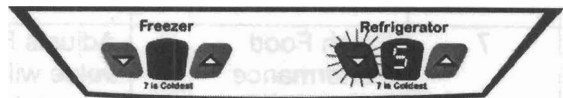
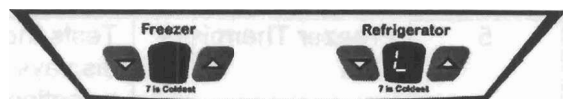
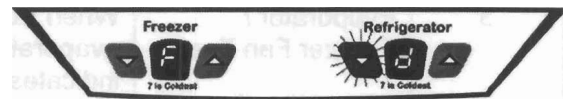
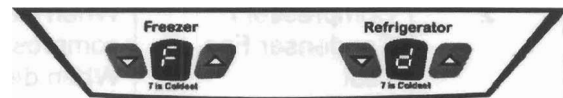
The display will indicate that you have selected the short forced defrost mode by displaying an S in the refrigerator temperature display.

Pressing the refrigerator temperature increase button will toggle between a short forced defrost and a long forced defrost. The difference between the short and long defrost options is the amount of time before the next defrost. When the short option is selected, the next defrost will happen after eight hours of run time. If the long option is chosen, the next defrost will not happen for at least 72 hours of run time. The long defrost mode is for manufacturing use only. Do not select the long defrost mode.

When an S is displayed to indicate a short forced defrost, press the **refrigerator temperature decrease** button to activate the short defrost mode.

The control will exit the forced defrost selection mode, start the defrost cycle and return to the normal display.

There are two ways to cancel a forced defrost. One method is to remove power from the refrigerator. The second method is to reenter the forced defrost mode.



Confirm entry into the mode until an S is displayed in the refrigerator temperature display. **Do not** activate the forced defrost mode. Close the door.

Service Test Mode

There are several service test modes available to the technician. These modes can be used to operate various components in the refrigerator as well as test some of the components. The different service test modes are summarized in the following table:

Service Test	Service Test Name	Indications
1	Defrost Thermostat & Defrost Circuit	Energizes the defrost circuit and indicates whether the defrost terminator is Open (O) or closed (S).
2	Compressor / Condenser Fan Test	When Refrigerator display indicates On (O), compressor and condenser fan should be operating. When display indicates Off (F), compressor and condenser should be off.
3	Evaporator / Freezer Fan Test	When Refrigerator display indicates On (O), evaporator fan should be operating. When display indicates Off (F), evaporator fan should be off.
4	Fresh Food Thermistor Test	Tests the fresh food compartment thermistor circuit and displays condition in the fresh food temperature selection display. P indicates Passed, O indicates Open, S indicates Shorted
5	Freezer Thermistor Test	Tests the freezer compartment thermistor circuit and displays condition in the fresh food temperature selection display. P indicates Passed, O indicates Open, S indicates Shorted
6	Open Damper Test	Cycles the electronic damper open and closed. Requires one minute between changes in state. O indicates damper is Open C indicates damper is closed
7	Fresh Food Performance Adjustment	Adjusts Fresh Food Thermistor offset. Increasing the value will decrease the temperature in the fresh food compartment.
8	Freezer Performance Adjustment	Adjusts Freezer Thermistor offset. Increasing the value will decrease the temperature in the freezer compartment.

While in the service mode, the freezer display will indicate the service mode you are currently accessing. The freezer temperature adjustment buttons will allow you to select the different service tests. The refrigerator temperature increase button will activate a test if needed.

To enter the service mode, hold down the **refrigerator door** switch and press the **refrigerator temperature increase** button three times within ten seconds.

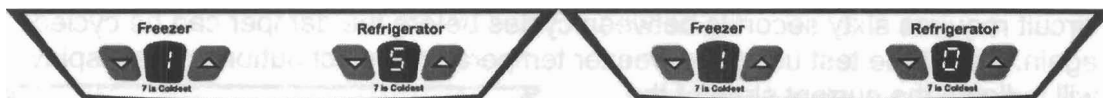
Release the door switch. The display should indicate that you are about to enter the service mode by displaying S E.

To activate the service mode, press the refrigerator temperature increase button one more time.

As soon as you enter the service mode, the display will show the software version that is stored in this control. In this example, the software is version 3.

After displaying the software version for a brief time, the control will indicate that you are at service test one. Press the refrigerator temperature increase button to activate the test.

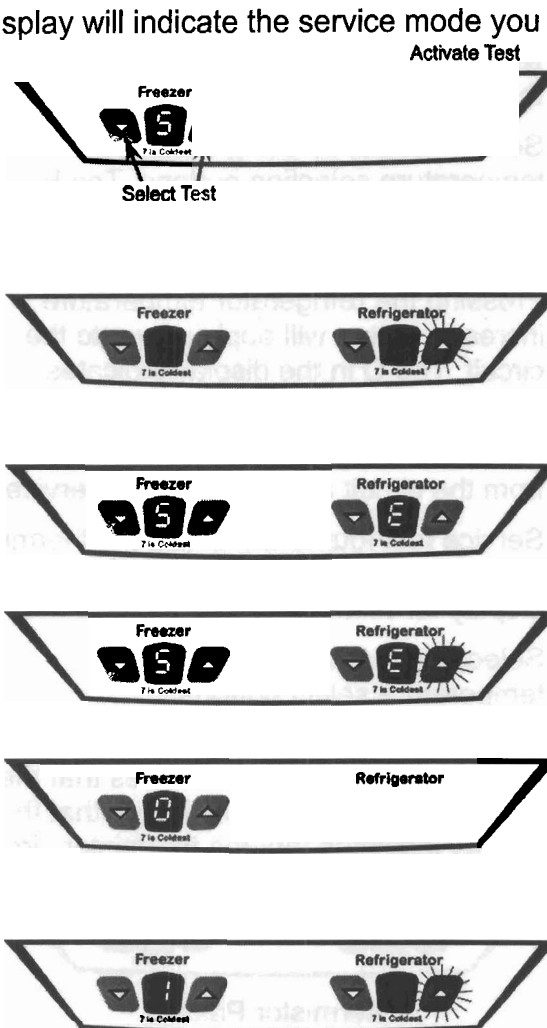
Service test one provides a quick check of the defrost terminator. To perform this test, the defrost circuit will be energized. If the terminator is closed the refrigerator display will indicate an S that indicates the thermostat is closed (shorted). If the terminator is open, the refrigerator display will show an O.



Closed Defrost Terminator

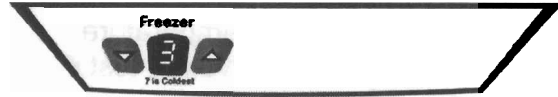
Open Defrost Terminator

Press the refrigerator temperature increase to exit the test and return to the service test selection menu to select a new test.

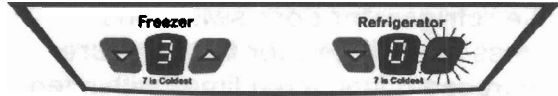


Service test two operates the compressor and condenser fan. Service test three will turn on the evaporator fan. Since the operation is similar, only service test three will be shown.

Select the test by using the freezer temperature selection buttons. The F in the refrigerator display indicates that the evaporator fan is currently off.



Pressing the refrigerator temperature increase button will apply power to the circuit. The O in the display indicates that the circuit should be active.



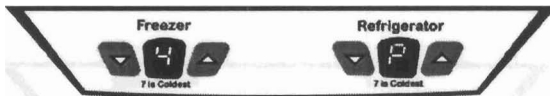
Press the refrigerator temperature increase button once more to remove power from the circuit and return to the service test selection feature.

Service test four and five test the thermistors in the compartments. Test four is for the fresh food thermistor and test five is for the freezer thermistor. Only the display for test four will be shown.

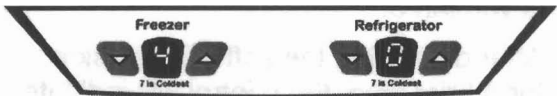
Select the test using the freezer temperature select buttons.



Activate the test by pressing the refrigerator temperature increase button. A P in the refrigerator display indicates that the thermistor circuit has passed. An O in the refrigerator display indicates that the thermistor circuit is open. An S in the display indicates that the thermistor circuit is shorted.



Thermistor Passed



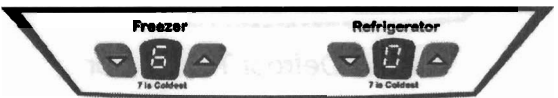
Thermistor Circuit it Open



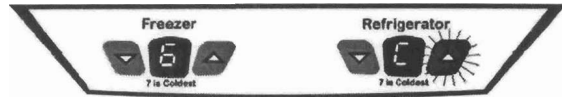
Thermistor Circuit is Shorted

To exit the thermistor test, press the refrigerator temperature increase button.

Service test six will cycle the electronic damper between open and closed. The circuit requires sixty seconds between cycles before the damper can be cycled again. Select the test using the freezer temperature select buttons. The display will indicate the current state of the damper. An O will indicate that the damper is Open while a C will indicate that the damper is closed.



To cycle the damper to the other state, press the refrigerator temperature increase button.



Service tests seven and eight will affect the temperature performance of the refrigerator and should not need to be used unless absolutely necessary. Service test seven will adjust the temperature of the fresh food section while test eight will adjust the temperature of the freezer section. Only test eight will be shown in this example.

Use the freezer temperature selection buttons to select the proper test. When you enter the test you will see the current performance setting displayed in the refrigerator display.



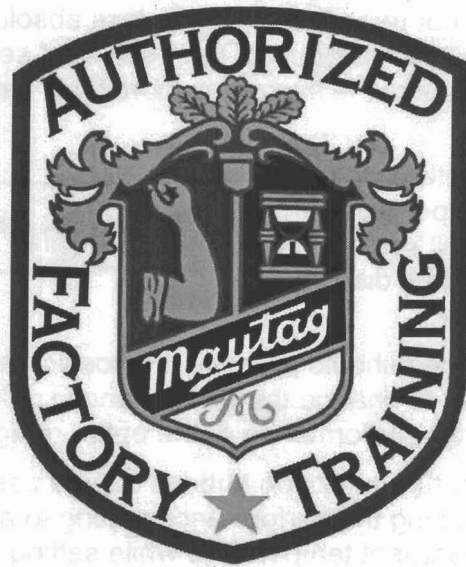
The default setting is 5 and should produce the correct temperature control. It should not be necessary to change the performance settings from the default settings. This will alter the performance of the entire refrigerator.

The refrigerator temperature selection buttons can be used to adjust the performance setting. Setting the performance setting to a higher number will result in a cooler compartment temperature while setting the value to a lower number will allow for a warmer interior temperature.



Cooler Compartment

Warmer Compartment



***Be Aware, Be Alert
Always work safely.
On the Job, On the Road, In the Home
Every Time, All the Time***

**MAYTAG *Training*
SERVICES**