

TROUBLESHOOTING FRIGIDAIRE RANGES OR OVENS WITH ELECTRONIC OVEN CONTROLS (EOC)

When an oven with an electronic control fails, it usually signals the failure with an “F” code. These “F” codes are considered by many people to be an indicator as to positively which part in the circuit has failed (“F1” a defective control, “F3” a defective oven probe, and so on). To the embarrassment of many servicemen who have believed this, they have installed the indicated part only to find it did not correct the problem.

To troubleshoot an oven with an electronic oven control that is not operating:

1. Make sure electrical power is being supply to the control.
2. Disconnect power for 30 seconds. If fault returns when power is reconnected continue with the following steps.
3. Go to the back of the control and disconnect the multi-pin plug.
4. Check the wiring diagram to determine which two pins in the plug (not on the EOC) are connected to the oven sensor.
5. With an Ohmmeter check the resistance between the two pins in the plug that are connected to the sensor. At room temperature:

STEP 1: If the meter reads below 900 Ohms or above 1200 Ohms, remove the sensor from the oven and check it for resistance. If the resistance of the sensor is the same as reading at the plug, the sensor is defective. If the resistance of the sensor reads between 900 & 1200, the wiring between the control and the sensor is defective.

STEP 2: If the meter reads between 900 Ohms & 1200 Ohms check the resistance between one of the pins going to the sensor and chassis. If the meter reads infinity go to step 3. If the meter shows continuity, remove the sensor and check from one of its pins to the case of the sensor. If the meter reads continuity, the sensor is defective. If the meter reads infinity, the wiring between the control and the sensor is shorted to chassis of the range.

STEP 3: From the wiring diagram, determine which 3 wires if automatic lock or which 2 wires if manual lock, in the plug is from the door lock switch or switches. From the diagram determine which of the switches are open or closed when the door in the unlocked position. With an Ohmmeter check to see if the switch that is shown open is open and the switch that is shown closed is closed by checking the proper pins in the plug.

6. If the above checks test good and the relay on the board for the selected function is not closing replace the control.

IMPORTANT: If the oven problem is intermittent you must do the above test when the oven is malfunctioning.

RTD SCALE	
TEMPERATURE °F	RESISTANCE Ω
32 ± 1.9	1000 ± 4.0
75 ± 2.5	1091 ± 5.3
250 ± 4.4	1453 ± 8.9
350 ± 5.4	1654 ± 10.8
450 ± 6.9	1852 ± 13.5
550 ± 8.2	2047 ± 15.8
650 ± 13.6	2237 ± 18.5
900 ± 13.6	2697 ± 24.4

DISPLAYED FAULT CONDITIONS

IMPORTANT NOTE: Not all EOC's will display every fault code listed. Some of the F-codes are found only on older products. For example: F3 on current models can be an open or shorted probe and they will not display an F4, but on some older models F3 indicates an open probe and F4 indicates a shorted probe.

F1

Control Failure

Shorted keypad. Internal checksum may have corrupted control relay shorted or bad probe. Check probe and probe wiring and replace if bad. Power off for 30 seconds. If fault returns replace control

F2

Oven temperature above specifications:

The oven temp has risen above 665 degrees F and the oven door is not locked or : the oven temp has risen above 965 degrees F with the door locked.

TEST: Door latch switch or switches; oven sensor (RTD); Electronic oven control (EOC)

F3

The RTD is open/shorted

Check for open wiring connections between EOC and RTD. Check resistance of RTD using resistance table. If resistance test is correct and wiring is good to board replace EOC.

F4

Shorted oven sensor (RTD)

Check for shorted wiring between EOC and RTD. Check resistance of RTD using resistance table. **If resistance test is correct and wiring is good replace EOC.**

F5

The watchdog circuit is active when it should be disabled.

The microprocessor checked for operation of EOC relay after selection of Bake, Broil, or Clean operation and relay failed test. Check for shorted keypad or pushbuttons binding in glass and stuck. If not replace EOC.

F6

No 60 Hz base

Time base is required for time controlled cycling. Replace EOC.

F7

Lock motor relay watchdog circuit active when it should be disabled.

The microprocessor checked for operation of the EOC lock relay after selection, and the relay failed the test. Replace EOC

F8/F9

Lock motor switches improperly positioned. The microprocessor has found the lock motor switches to be out of sequence or shorted. Test switches and if found to be good and in proper sequence then replace EOC.

On freestanding gas and electric ranges manufactured beginning with the serial number date code **VF426** many of the EOC's will have expanded three digit fault codes. These codes may also appear in new replacement EOC's for ranges built prior to this date. Below is a list of possible fault codes that might appear in the EOC display window. The original two digit fault codes appear in the shaded boxes followed by the replacement three digit codes.

EOC Failure / Fault Codes

For each Fault code there is a listing of the likely failure condition or cause, as well as suggested corrective actions to be taken. Not all fault codes will appear in every model but the fault codes are universal and have the same meaning regardless of the model that is being serviced

Note: Fault codes are not a foolproof system. Never assume that a part has failed based on a displayed fault code. An example would be if the EOC is displaying F30 (open sensor), the failure could be caused by a loose connection or faulty wire harness between the EOC and sensor or the sensor could simply be unplugged.

FAULT CODE	LIKELY FAILURE CONDITION/CAUSE	SUGGESTED CORRECTIVE ACTION	
F1	F10	Runaway Temperature.	
	F11	Shorted Keypad.	
	F12	Bad Micro Identification.	
	F13	Bad EEPROM Identification/Checksum error.	
	F14	Display tail missing/not connected	
		<ol style="list-style-type: none"> (F10 only) Check RTD Sensor Probe & replace if necessary. If oven is overheating, disconnect power. If oven continues to overheat when the power is reapplied, replace EOC. Severe overheating may require the entire oven to be replaced should damage be extensive. (F11, 12 & 13) Disconnect power, wait 30 seconds and reapply power. If fault returns upon power-up, replace EOC. (F14 only) Re-seat the P12 ribbon connector tail. If fault returns replace EOC (first action); Touch Panel (second action) 	
	F20	Communication failure between EOC and ESEC system.	<ol style="list-style-type: none"> Test harness/connections P4 (EOC) & P11 (Surface element control board). If harness checks O.K. failure can be caused by faulty UIB, surface element control board, or EOC.
	F26	Communication failure with mini oven control.	Check harness and connectors from the EOC to mini oven control board. Check for 15vdc to mini oven control (red & gray wires). If harness and voltage are good replace mini oven control. If fault returns replace EOC.
F3	F30	Open probe connection.	<ol style="list-style-type: none"> (F30 or F31) Check resistance at room temperature & compare to RTD Sensor resistance chart. If resistance does not match the RTD chart replace RTD Sensor Probe. Check Sensor wiring harness between EOC & Sensor Probe connector. (F30 or F31) Check resistance at room temperature, if less than 500 ohms, replace RTD Sensor Probe. Check for shorted Sensor Probe harness between EOC & Probe connector.
	F31	Shorted Probe connection	
	F40	Cooktop Lockout error.	<ol style="list-style-type: none"> (F40 or F41) Check the wiring. (F40 or F41) Replace the Cooktop Lockout Control Board. (F40 or F41) Replace EOC.
	F41		
F9	F90	Maximum oven door unlock time exceeded.	<ol style="list-style-type: none"> (F90, 91, 92, 93 & 94) Check the wiring between EOC & Lock Motor Micro Switch. (F90, 91, 92, 93 & 94) Replace the Motor Door Latch assembly if necessary. (F90, 91, 92, 93 & 94) Check for binding of the Latch Cam, Lock Motor Rod & Lock Motor Cam. (F90, 91, 92, 93 & 94) Check to see if Lock Motor Coil is open. If open, replace Lock Motor Assembly. (F90, 91, 92, 93 & 94) Lock Motor continuously runs - if Micro Switch is open, replace Lock Motor Assembly. (F92, 93 & 94) Check oven door Light Switch - if open, replace Switch. If all situations above do not solve problem, replace EOC.
	F91	Maximum oven door unlock attempts exceeded.	
	F92	Maximum oven door open time exceeded.	
	F93	Maximum oven door lock time exceeded.	
	F94	Maximum oven door lock attempts exceeded.	