

WFR 2460 Service Tips -- Test Program

The last 8 fault codes are stored & displayed!

T1: Error (error displays).

The programme can be ended with the "Start / Pause" button. The errors can be selected with the "Menu" button. Only the errors of the last 8 wash programmes are stored and displayed.

Sequence:

| Time/Operation | Display | Note |
|--|-------------------|--|
| HINT: # of errors reads "0" for faults which didn't occur. Look at # of errors, not error #, to see if faults occurred. | >>MENU T1: ERRORS | The error frequency is displayed on the lower line and the error number on the right. HINT: Scroll thru all errors to check if any occurred. |
| | 7- Er : 12 | |
| | | |

| Display | Error | Possible cause | Remedial action |
|---------|------------------------------|--|---|
| Er: 01 | Door open | Door switch not actuated | Close door, check lock |
| Er: 02 | Door lock cannot be released | | |
| Er: 03 | Door lock cannot be locked | | |
| Er: 04 | Door actuation defective | Triac defective / relay stuck | Replace controller |
| Er: 05 | NTC interruption | Cable break / NTC damaged | Rectify cable break / replace NTC |
| Er: 06 | NTC short-circuit | Cable short-circuit / NTC damaged | Rectify cable short-circuit / replace NTC |
| Er: 07 | Unexpected heating | Temperature increase without actuation of heater | Start <u>T/P18</u> heater test programme |

| | | | |
|--------|---|--------------------------------------|--|
| Er: 08 | Heating time exceeded | After 105 min. | Start <u>T/P18</u> heater test programme |
| Er: 09 | Uncontrolled motor acceleration | Motor triac defective | Start <u>T/P4</u> motor test programme |
| Er: 10 | Motor does not rotate | No / incorrect tachogenerator signal | Start <u>T/P4</u> motor test programme |
| Er: 11 | Reversing relay test not passed | | Start <u>T/P4</u> motor test programme |
| Er: 12 | Flow rate sensor outside operating range | Sensor / line | Check line Replace sensor |
| Er: 13 | Flow rate sensor detects low water level | Water inlet / sensor | Start <u>T/P11</u> sensor test programme |
| Er: 14 | Water inlet time exceeded | W controller after 6 min. | Start <u>T/P9</u> controller test programme |
| Er: 15 | Pumping time exceeded | 0 level not reached within 6 min. | Check pump circuit |
| Er: 16 | Safety level reached | | Start <u>T/P8 and 9</u> level test programme |
| Er: 17 | Pressure sensor | | Check line Replace sensor |
| Er: 18 | Calibration of pressure sensor not possible | | Start <u>T/P8</u> level test programme |
| Er: 19 | Aqua stop fault | Aqua stop actuated | Eliminate leaks |
| Er: 20 | Turbidity sensor | Calibration not possible | Start <u>T/P10</u> sensor test programme |
| Er: 21 | Update | | |
| Er: 22 | Spin cycle terminated | After 15 start-up attempts | Start <u>T/P4</u> motor test programme |
| Er: 23 | Foam detected | Via analogue sensor | Consult customer about dosing |

Range Error Codes

| CODE | DESCRIPTION | WHEN CHECKED | FAULT LIMIT |
|-------------|---|-----------------------------|--------------------|
| F31 | Oven temperature sensor failure | Cook or clean programmed | 20 sec |
| F33 | Warning Drawer Sensor Failure | When W. Drawer is active | 20 sec |
| F41 | Motorized latch will not lock | Latch should be locked | 1 min |
| F43 | Motorized latch will not unlock | Latch should be unlocked | 1 min |
| F45 | Motorized Latch both locked and unlocked | Always | 1 min |
| F111 | Runaway Oven temperature 585°F | Latch unlocked | 5 sec |
| F113 | Runaway Oven temperature 950°F | Latch locked | 5sec |
| F121 | Stuck key in the membrane switch layer | Always | 1 min |
| | | | |
| F125 | Cancel key circuit problem | Always | 1 min |
| | | | |
| F141 | Slave micro not functioning | Always | 1 min |
| F151 | Eeprom failure or communication circuit failure | Cook or clean programmed | 1 sec |
| F153 | User Interface too hot | Always | 1 sec |
| F154 | Power Board too hot | Always | 1 sec |
| F155 | Cook profile corrupted in EEPROM | Cook or clean Programmed | 1 sec |
| | | | |
| F170 | Power Failure | Always | 2 ms |
| F190 | Power over voltage | At power on | |
| F200 | Time out and stop function | During Production test mode | 110 sec. |
| F210 | Range exceeded safe test limits | During Service test mode | 200°F |

Range Error Codes – Additional Information

| CODE | DESCRIPTION | WHEN CHECKED |
|------------------------|--|--------------------------|
| F1 | Meat probe not there or incorrect | During Test / use |
| F2 | Oven sensor not correct | During Test / use |
| F3 | Warming sensor not correct | During Test / use |
| DOOR LATCH ERROR | Door latch problem | During self-clean |
| ERROR | Temp. reaches 585 degrees F. Display shows “CONTACT SERVICE” and beeps. The beep can be stopped with touching cancel zone, but display will stay up with program locked until main power is removed for a minimum of 5 seconds. If the temperature continues to rise (due to stuck relay) the latch will lock at 600 degrees F | During any cooking mode |

Note: Depending on model, program will only look for probes or sensors that it should have.

WFMC Service Tips – Test Program (2B): Module Fault Codes (Test1)

Test **P1:ERRORS / P:01** (Viewing control module fault codes) – Start & end test **P1** (WFMC6400) / (**P:01**) (WFMC3200) by pushing **Start/Pause** button. Scroll through list of fault codes by pushing **Spin Selection** (WFMC3200) or **Menu** (WFMC6400) buttons.

- WFMC3200 display alternates between fault code (e.g. **E:01**) & when fault occurred on in last 8 washes (e.g. : **C:00**) – shows **C:00** if fault didn't occur.
- WFMC6400 display shows fault code & when fault occurred on in last 8 washes (e.g. **0 – Er:01**)

Last 8 fault codes are stored & display!

HINT: # of faults reads "0" for faults which didn't occur. Look at # of faults, not error #, to see if faults occurred – scroll thru all faults to check if any occurred.

| <i>WFMC32 Display</i> | WFMC64 Display | Test # | Problem | Possible Cause(s) |
|---------------------------|---------------------------|-----------------|--|--|
| E:01 | Er:01 | washing | Door open | Door lock not engaged |
| E:02 | Er:02 | washing | Door lock doesn't unlock | Jammed lock or bad wire harness |
| E:03 | Er:03 | washing | Door lock doesn't lock | Jammed lock or bad wire harness |
| E:04 | Er:04 | washing | Door control broken | Faulty Triac or control module |
| E:05 | Er:05 | P:16 | NTC open-circuited | Faulty NTC or bad wire harness |
| E:06 | Er:06 | P:16 | NTC shorted | Faulty NTC or bad wire harness |
| E:07 | Er:07 | P:16 | Unexpected heating (heater on at wrong time) | Faulty heater or stuck heater relay |
| E:08 | Er:08 | P:16 | Heater doesn't shut off | Faulty heater or stuck heater relay |
| E:09 | Er:09 | P:4 | Communication lost to motor | Faulty wire harness |
| ---- | Er:10 | P:11 | Flow meter gives wrong values | Faulty flow meter or wire harness |
| ---- | Er:11 | P:8/9/13 | No water flow (within 6 minutes) | Faulty inlet valve, wire harness, hose |
| E:12 | Er:12 | P:8/9/13 | Water supply time exceeded | Faulty inlet valve, wire harness, hose |
| E:13 | Er:13 | P:15 | Drain pump time exceeded | Faulty drain pump, wire harness, hose |
| E:14 | Er:14 | P:9 | Overflow level exceeded | Faulty/blocked pump, hose, inlet valve |
| ---- | Er:15 | P:8 | Pressure sensor gives failure voltage level | Faulty pressure sensor, wire harness |
| ---- | Er:16 | P:8 | Can't calibrate pressure sensor | Faulty pressure sensor, wire harness |
| E:20 | Er:20 | P:4 | Spinning aborted due to unbalanced load | Unbalanced load or faulty wire harness |
| E:21 | Er:21 | | Excessive foam | Wrong or too much detergent used |
| E:22 | Er:22 | washing | Frequency synchronization failed | Faulty control module |
| E:24 | Er:24 | P:4 | Motor power relay failed | Faulty control module |

WFMC Service Tips – Test Program (2C): Motor Control Fault Codes (Test1)

Test **P1:ERRORS / P:01** (Viewing motor control fault codes) – Start & end test **P1** by pushing **Start/Pause** button. Scroll through list of (18) fault codes by pushing **Spin Selection** (WFMC3200) or **Menu** (WFMC6400) buttons.

- WFMC3200 display alternates between fault code (e.g. **d:01**) & when fault occurred on in last 16 washes (e.g. : **C:00**) – shows **C:00** if fault didn't occur.
- WFMC6400 display shows fault code & when fault occurred on in last 16 washes (e.g. **0 – Er:01**)

Last 16 fault codes are stored & display!

HINT: # of faults reads “0” for faults which didn't occur. Look at # of faults, not error #, to see if faults occurred – scroll thru all faults to check if any occurred.

| <i>WFMC32 Display</i> | WFMC64 Display | Test # | Problem | Possible Cause(s) |
|---------------------------|---------------------------|---------------|---|--------------------------------------|
| d:01 | dr:01 | P:04 | Motor control short circuit | Faulty motor control. |
| d:02 | dr:02 | P:04 | Motor control interruption | Faulty motor control. |
| d:03 | dr:03 | P:04 | Damaged motor control temperature sensor | Faulty temperature sensor. |
| d:06 | dr:06 | P:04 | NTC relay failure | NTC too hot or relay stuck closed. |
| d:07 | dr:07 | P:04 | Motor winding short circuited | Motor winding short circuited. |
| d:08 | dr:08 | P:04 | Motor speed sensor failed | Faulty speed sensor or wire harness. |
| d:09 | dr:09 | P:04 | Voltage too high | Faulty motor control. |
| d:10 | dr:10 | P:04 | Power limiter switch off | Motor overloaded or binding. |
| d:11 | dr:11 | P:04 | Voltage too low | Faulty motor control. |
| d:12 | dr:12 | P:04 | Motor control high current switch off | Motor overloaded or binding. |
| d:13 | dr:13 | P:04 | Motor control high temperature switch off | Motor overloaded or binding. |
| d:14 | dr:14 | P:04 | Motor control high temperature warning | Motor overloaded or binding. |
| d:15 | dr:15 | P:04 | Power limiter warning | Motor overloaded or binding. |
| d:16 | dr:16 | P:04 | Motor high temperature switch off | Motor overloaded or binding. |
| d:17 | dr:17 | P:04 | Motor high temperature warning | Motor overloaded or binding. |
| d:18 | dr:18 | P:04 | Peak voltage too high | Faulty motor control. |

WTMC Service Tips - - Test program (4A): Fault Codes

WTMC Dryer Test Program Fault Codes

| Fault Code | Fault | Solution | Notes | Effect |
|-------------------|--|---|---|-----------------------------------|
| E:11 | Overheating due to clogged lint filter. | Clean lint filter (&air duct if necessary). | Displays E:01 during normal use. Measures reduced air flow. | |
| E:12 | Severe overheating due to clogged lint filter. | Clean lint filter (&air duct if necessary). | Displays E:01 during normal use. Measures reduced air flow. | |
| E:13 | Maxium drying time exceed | Check heater, control module, NTC's & Hi-limits. Usually faulty heater. Can also be overloaded dryer. | Stops & displays E:03 during normal use (after maxium drying time limit of 240 minutes). | . |
| E:17 | NTC error (NTC R3 @ lint screen) | Check NTC R3 & wire harness. Replace faulty part. | Typically shorted or opened wire harness. | Dryer stops & can't be restarted. |
| E:18 | NTC error (NTC R2 @ heater) | Check NTC R2 & wire harness. Replace faulty part. | Typically shorted or opened wire harness. | Dryer stops & can't be restarted. |
| E:20 | EEPROM error | Replace faulty control module. | | Dryer stops & can't be restarted. |
| E:21 | Incorrect checksum | Replace faulty control module. | | Dryer stops & can't be restarted. |
| E:22 | Invalid update | Replace faulty control module. | | Dryer stops & can't be restarted. |

NOTE: To run fault codes tests to display fault codes:

- While pushing & holding **Start/Stop & Delicates** button, rotate **cycle selector knob** to **Extra Dry – Regular/Cotton**.
- Push **Start/Stop** button to start test. Push **Start/Stop** button to scroll through fault codes (if more than one exists). Do not rotate knob through **Off** to avoid exiting test program.
- Rotate **cycle selector knob** to end test.

WTMC Service Tips - - Test program (4B): Fault Codes

| WTMC Dryer Test Program Fault Codes | | | | |
|-------------------------------------|--------------------------------------|--------------------------------|--------------|-----------------------------------|
| <i>Fault Code</i> | Fault | Solution | Notes | Effect |
| <i>E:23</i> | Model variant doesn't match table | Replace faulty control module. | | Dryer stops & can't be restarted. |
| E:24 | Software version doesn't match table | Replace faulty control module. | | Dryer stops & can't be restarted. |
| E:25 | Damaged data table | Replace faulty control module. | | Dryer stops & can't be restarted. |
| E:26 | Control error | Replace faulty control module. | | Dryer stops & can't be restarted. |

NOTE: Fault displayed alternates with # of times fault occurred every two (2) seconds. If there's no faults, displays will be blank.

- E:xx = fault code from E11 – E39 (e.g. E:11)
- C:xx = # of occurrences (e.g. C:01)

NOTE: When test program is initially entered, last fault code will show. Display will be cleared once any test is started.

Service Tips – Fault Codes (1)

DISHWASHER TEST PROGRAM ERROR CODES (on 2&3-digit digital displays):

- ✘ 0- No faults 00
- ✘ 1- Aqua Sensor (Sensotronic) fault
- ✘ 2- Heating system fault (heater, Hi-Limit, flow switch, NTC, control heater relay) 000
- ✘ 4- Water filling fault
- ✘ 8- NTC (temperature sensor) fault *TIP:* Fault codes add up for multiple faults
- ✘ 16- Water switch fault (e.g. heating + water filling fault = 2 + 4 = 6)

HINT: Apexx heater runs during steps 05 - 08. Press “_” button to skip to test 05 to measure heater amp draw.

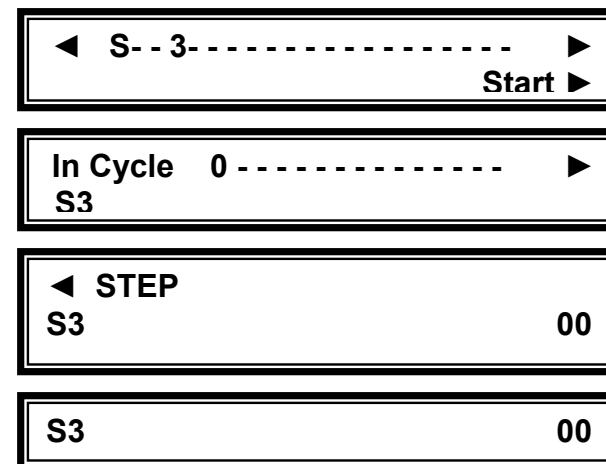
DISHWASHER TEST PROGRAM ERROR CODES (on 2&3-digit digital displays):

- ✘ F- Water filling fault (underfill, overfill or water in the base) 00
- ✘ 2H- Last wash cycle too long (> 99 minutes). Can be cold inlet water or heating system fault (heater, Hi-Limit, flow switch, NTC, control module heater relay). 000
- ✘ F- Delay Start feature (not a fault code)

DISHWASHER TEST PROGRAM ERROR CODES (on lower line of full text Apexx SH 99 displays):

- ✘ S3 - No faults
- ✘ A – Aqua Sensor (red) fault
- ✘ B – Aqua Sensor (green) fault
- ✘ E – Water switch fault (no pulses detected)
- ✘ F – Water filling fault
- ✘ G – Water switch fault (won’t stop running)
- ✘ H – Heating system fault (heater, Hi-Limit, flow switch, NTC, control module heater relay)
- ✘ K- NTC fault (short-circuited or open-circuited)
- ✘ Xx – Test program step count (testing done when = 00)

TIP: Top line shows wash cycle & bottom line shows fault code.



HINT: Dishwasher test program heat water to 150°F, so test programs will generally run > 20 minutes for incoming water temperatures ~ 120°F

HINT: Open door to select test program for fully-integrated models, then close door to run program.

NOTE: Flow through heaters heat water ~ 2°F/minute.

Service Tips – Fault Codes (2)

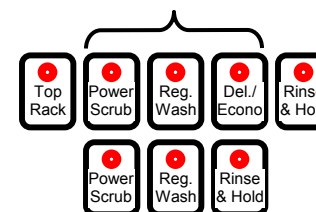
DISHWASHER TEST PROGRAM ERROR CODES (on SHX33A/43E/46A-B, SHV46C, SL84A models):

- ✘ ●○○ – Heating system fault (heater, Hi-Limit, flow switch, control heater relay)
- ✘ ○●○ – NTC (temperature sensor) fault
- ✘ ○●● – Water filling fault
- ✘ ●○○ – N/A
- ✘ ●○● – N/A
- ✘ ●●○ – Aqua sensor (sensotronic) fault
- ✘ ●●● – N/A

SHV46C, SHX43E/46A-B, SL84A

SHX33

Fault code LED's



TIP: Fault codes do NOT add up for multiple faults – shows highest fault code on list above (1st – heating, 2nd – NTC, 3rd – water filling, 4th – aqua sensor)

DISHWASHER TEST PROGRAM ERROR CODES (on SHU43E/53E/66E models):

| Faults | LED Fault Codes | | | |
|--------------------|-----------------|-------|-------|-----|
| | READY | CYCLE | CLEAN | NSF |
| 0 - No faults | ✘ | ○ | ✘ | ○ |
| 1 - Heater Element | ● | ○ | ✘ | ○ |
| 2 - Water Filling | ✘ | ● | ✘ | ○ |
| 3 - NTC | ✘ | ○ | ● | ○ |
| 4 - Aquasensor | ✘ | ○ | ✘ | ● |

- ✘ LED flashes
- LED lit
- LED off

NOTE: Flow through heaters heat water ~ 2°F/minute.

HINT: Open door to select test program for fully-integrated models, then close door to run program.

HINT: Dishwasher test program heat water to 150°F, so test programs will generally run > 20 minutes for incoming water temperatures ~120°F.

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ERROR CODES

For products with electronic controls

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| Error | Cause | Corrective Action |
|--------------|--|--|
| F31 | Upper (or single) oven temperature sensor failure. An open or short circuit in the sensor wiring. | <ol style="list-style-type: none">1. Check all connections, especially P4 on the Power Board.2. Unplug the sensor connector and check sensor resistance (approximately 1080 ohms at room temperature with connector removed). Remember to reconnect it.3. Check that neither sensor wire is open or pinched to the appliance chassis.4. Check that the solder joints in header P4 on the Power Board are not broken.5. If sensor is OK, replace Power Board. |

| Error | Cause | Corrective Action |
|--------------|--|---|
| F32 | Lower oven temperature sensor failure. An open or short circuit in the lower oven sensor wiring. | <ol style="list-style-type: none">1. Check all connections, especially P24 on the Power Board.2. Unplug the sensor connector and check sensor resistance (approximately 1080 ohms at room temperature with connector removed). Remember to reconnect it.3. Check that neither sensor wire is open or pinched to the appliance chassis.4. Check that the solder joints in header P4 on the Power Board are not broken.5. If sensor is OK, replace Power Board. |
| F41 | Upper (or single) oven motorized latch will not lock. Defective or jammed upper (or single) oven door or latch switches. Defective latch motor or its wiring. | <ol style="list-style-type: none">1. Check P4 connector on the Power Board.2. Ensure door latch switches are operating properly.3. Check that neither latch switch nor common wires are pinched to the appliance chassis.4. Check P10 connector and check if latch motor wire is pinched to the appliance chassis.5. If F41 persists, replace Power Board. |

| Error | Cause | Corrective Action |
|--------------|---|---|
| F42 | Lower motorized latch will not lock. Defective or jammed lower oven door or latch switches. Defective latch motor or its wiring. | <ol style="list-style-type: none">1. Check P24 connector on the Power Board.2. Ensure door latch switches are operating properly.3. Check that neither latch switch nor common wires are pinched to the appliance chassis.4. Check P10 connector and check if latch motor wire is pinched to the appliance chassis.5. If F42 persists, replace Power Board. |
| F43 | Upper (or single) oven motorized latch will not unlock. Defective or jammed upper oven door or latch switches. Defective latch motor or its wiring. | <ol style="list-style-type: none">1. Check P4 connector on the Power Board.2. Ensure door latch switches are operating properly.3. Check that neither latch switch nor common wires are pinched to the appliance chassis.4. Check P10 connector and check if latch motor wire is pinched to the appliance chassis.5. If F43 persists, replace Power Board. |

| Error | Cause | Corrective Action |
|--------------|--|---|
| F44 | Lower motorized latch will not unlock. Defective or jammed lower oven door or latch switches. Defective latch motor or its wiring. | <ol style="list-style-type: none">1. Check P24 connector on the Power Board.2. Ensure door latch switches are operating properly.3. Check that neither latch switch nor common wires are pinched to the appliance chassis.4. Check P10 connector and check if latch motor wire is pinched to the appliance chassis.5. If F44 persists, replace Power Board. |
| F45 | Upper (or single) oven latch both locked and unlocked. Defective or jammed upper oven door or latch switches. | <ol style="list-style-type: none">1. Check P4 connector on the Power Board.2. Ensure door latch switches are operating properly.3. Check that neither latch switch nor common wires are pinched to the appliance chassis.4. If F45 persists, replace Power Board. |

| Error | Cause | Corrective Action |
|--------------|--|--|
| F46 | Lower oven latch both locked and unlocked. Defective or jammed lower oven door or latch switches. | <ol style="list-style-type: none">1. Check P24 connector on the Power Board.2. Ensure door latch switches are operating properly.3. Check that neither latch switch nor common wires are pinched to the appliance chassis.4. If F44 persists, replace Power Board. |
| F111 | Runaway upper (or single) oven temperature (>650°F). a) Oven powered on when temperature inside oven is >650°F. b) Intermittent or bad temperature sensor. c) Heating element relay stuck on. | <ol style="list-style-type: none">1. Allow oven to cool down <650°F before turning power on.2. Check P4 connector on the Power Board.3. Unplug the upper (or single) oven sensor connector and check sensor resistance (approximately 1080 ohms at room temperature with connector removed).4. If sensor is OK, replace Power Board.5. Check wiring to heating element. If OK, replace Power Board. |

| Error | Cause | Corrective Action |
|--------------|---|--|
| F112 | Runaway lower temperature (>650°F). a) Oven powered on when temperature inside oven is >650°F. b) Intermittent or bad temperature sensor. c) Heating element relay stuck on. | <ol style="list-style-type: none">1. Allow oven to cool down <650°F before turning power on.2. Check P24 connector on the Power Board.3. Unplug the sensor connector and check lower sensor resistance (approximately 1080 ohms at room temperature with connector removed).4. If sensor is OK, replace Power Board.5. Check wiring to heating element. If OK, replace Power Board. |
| F113 | Runaway upper (or single) oven temperature (>950°F). a) Intermittent or bad temperature sensor. b) Heating element relay stuck on. | <ol style="list-style-type: none">1. Check P4 connector on the Power Board.2. Unplug the upper (or single) oven sensor connector and check sensor resistance (approximately 1080 ohms at room temperature with connector removed). If sensor is OK, replace Power Board.3. Check wiring to heating element. If OK, replace Power Board. |

| Error | Cause | Corrective Action |
|--------------|--|--|
| F114 | Runaway lower temperature (>950°F) a) Intermittent or bad temperature sensor. b) Heating element relay stuck on. | <ol style="list-style-type: none">1. Check P24 connector on the Power Board.2. Unplug the sensor connector and check lower sensor resistance (approximately 1080 ohms at room temperature with connector removed).3. If sensor is OK, replace Power Board.4. Check wiring to heating element. If OK, replace Power Board. |
| F121 | Stuck keyboard key. Bad display head or bad keyboard. | <ol style="list-style-type: none">1. Check all connections between the display head (P5) and the keyboard (J1).2. Make sure that there are no objects in close proximity to the front and back sides of the keypads.3. Replace Display Board or keyboard or both. |
| F123 | Keyboard disconnected Bad connection between keyboard and Display Board. | <ol style="list-style-type: none">1. Check all connections between keyboard (J1) and Display Board (P5).2. If OK, replace keyboard or Display Board or both. |

| Error | Cause | Corrective Action |
|--------------|---|--|
| F125 | [Upper Cancel] or [Cancel] for single oven key circuit problem. Bad connection or bad Display or keyboard. | <ol style="list-style-type: none">1. Check all connections between keyboard (J1) and Display Board (P5).2. If OK, replace keyboard or Display Board or both. |
| F126 | [Lower Cancel] key circuit problem. Bad connection or bad Display or keyboard. | <ol style="list-style-type: none">1. Check all connections between keyboard (J1) and Display Board (P5).2. If OK, replace keyboard or Display Board or both. |
| F127 | [Cancel] key redundant return problem. Bad connection or bad Display or keyboard. | <ol style="list-style-type: none">1. Check all connections between keyboard (J1) and Display Board (P5).2. If OK, replace keyboard or Display Board or both. |
| F141 | Slave micro not functioning. Bad connection or bad Display or keyboard. | <ol style="list-style-type: none">1. Check power and Display Board connectors P1B and associated wiring.2. If OK, replace Power Board.3. If fault persists, replace Display Board. |

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| Error | Cause | Corrective Action |
|--------------|---|--|
| F143 | Vcc open circuit on slave micro. Bad Power Board or Display Board. | 1. Check power display and Display Board connectors P1B associated wiring. 2. If OK, replace Power Board. 3. If fault persists, replace Display Board. |
| F145 | Sensor input on the slave micro shorted together. Bad Power Board. | Replace Power Board. |
| F147 | Ground open circuit on the slave micro. Bad Power Board. | Replace Power Board. |
| F151 | Eeprom failure or communication circuit error. Bad Power Board or Display Board. | 1. Check power and Display Board connectors P1B and associated wiring. 2. If OK, replace Display Board. 3. If fault persists, replace Power Board. |

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| Error | Cause | Corrective Action |
|--------------|---|--|
| F153 | Control calibration values not in range. Bad Power Board or Display Board. | <ol style="list-style-type: none">1. (If possible, re-calibrate.)2. Check power and Display Board connectors P1B and associated wiring.4. If OK, replace Power Board.5. If fault persists, replace Display Board. |
| F155 | Checksum match error. Wrong eeprom data on Display Board. | <ol style="list-style-type: none">1. If possible, re-write default data to the Display Board eeprom via P7.2. If not, replace Display Board. |

FAULTS NOT DETECTED BY THE CONTROL

| Problem | Possible Solutions |
|--|---|
| <i>Meat probe icon appears on the display even if the probe is not plugged in.</i> | <ol style="list-style-type: none">1. Check P2 connector on the Display Board and the wires.2. Check the connection terminals on the socket mounted on the cavity left sidewall. They may be shorted or have a loose contact (for example, through the aluminum foil around the insulating material). |
| <i>Lock symbol is always displayed.</i> | <ol style="list-style-type: none">1. Check the latch and door switches and their connections.2. Check if any shorts on P4 (for upper or single oven) or P24 (for lower oven) connector pins.3. If everything is OK, try to replace the Power Board. |
| <i>Some of the keys are not working. No beeps when touched and expected action not executed.</i> | <ol style="list-style-type: none">1. Check the connection cable between the Display Board and the Keyboard.2. If OK, replace the Keyboard. |
| <i>Buzzer Never beeps.</i> | Replace Display Board. |

| Problem | Possible Solutions |
|--|---|
| <i>Oven lights always off</i> | <ol style="list-style-type: none">1. Check P11 connector on the Display Board and the wires.2. Check the transformer.3. Check that the lamps are not burnt.4. If OK, replace Power Board. |
| <i>Cavity fan doesn't work or it works at one speed only.</i> | <ol style="list-style-type: none">1. Check P10 connector on the Display Board and the wires. (Check also P19 terminal for single oven only).2. For double oven only, check P2 connector on the Auxiliary Relay Board and the relay outputs.3. If relay outputs don't work, check also the two low voltage cables between Power and Auxiliary Board.4. Check R2 (39 ohms) resistor in series with the fan coil. |
| <i>Cooling fan doesn't work or it works at one speed only.</i> | <ol style="list-style-type: none">1. Check P10 connector and P19 terminal on the single oven Power Board or P11 connector on the double oven Power Board and their connections. If Power Board output is not activated, replace the board.2. Check R1 (78 ohms) resistor in series with the fan coil.3. Check the circuit (latch switch) to by-pass the resistor for high speed in self-clean. |

| Problem | Possible Solutions |
|--|--|
| <i>One of the elements is not energized.</i> | <ol style="list-style-type: none">1. Check all connections between the relays on the Power Board and the elements.2. Check the relay outputs on the Power Board. |
| <i>All the elements are not energized.</i> | <ol style="list-style-type: none">1. Check the common L1 red wire on the Power Board relays.2. Check the safety thermostat connection in series with black L2 wire.3. Check, if present, the DLB relay connections on the Auxiliary Relay Board.4. Check, if present, the DLB relay outputs. If they are not OK, replace the Auxiliary Relay Board. |
| <i>Display never turns on</i> | <ol style="list-style-type: none">1. Check Power supply connection on the Power Board (P18 for double oven, P5 for single oven).2. Check the P1A cable between Power and Display Board.3. Disconnect the P1A cable and measure by a meter the voltages on the P1A connector on the Power Board.<ol style="list-style-type: none">a. If they meet the values indicated in the electric schematics then replace the Display Board.b. If they don't meet, replace the Power Board. |

WFR 2460 Washer Fault Codes

The last 8 fault codes are stored & displayed!

T1: Error (error displays).

The programme can be ended with the “Start / Pause” button. The errors can be selected with the “Menu” button. Only the errors of the last 8 wash programmes are stored and displayed.

Sequence:

| Time/Operation | Display | Note |
|---|---------|--|
| HINTS: # of errors reads “0” for faults which didn’t occur. Look at # of errors, not error #, to see if faults occurred. | | The error frequency is displayed on the lower line and the error number on the right. Hint: Scroll thru all errors to check if any occurred. |

| Display | Error | Possible Cause | Remedial action |
|---------|------------------------------|--|---|
| Er: 01 | Door open | Door switch not actuated | Close door, check lock |
| Er: 02 | Door lock cannot be released | | |
| Er: 03 | Door lock cannot be locked | | |
| Er: 04 | Door actuation defective | Triac defective / relay stuck | Replace controller |
| Er: 05 | NTC interruption | Cable break / NTC damaged | Rectify cable short – circuit / replace NTC |
| Er: 06 | NTC short-circuit | Cable short-circuit / NTC damaged | Rectify cable short-circuit / replace NTC |
| Er: 07 | Unexpected heating | Temperature increase without actuation of heater | Start <u>T/P 18</u> heater test programme |

| | | | |
|--------|---|--------------------------------------|--|
| Er: 08 | Heating time exceeded | After 105 min. | Start <u>T/P18</u> heater test programme |
| Er: 09 | Uncontrolled motor acceleration | Motor triac defective | Start <u>T/P4</u> motor test programme. |
| Er: 10 | Motor does not rotate | No / incorrect tachogenerator signal | Start <u>T/P4</u> motor test programme. |
| Er: 11 | Reversing relay test not passed | | Start <u>T/P4</u> motor test programme. |
| Er: 12 | Flow rate sensor detects low water level | Sensor / line | Check line Replace sensor |
| Er: 13 | Water inlet time exceeded | Water inlet / sensor | Start <u>T/P11</u> sensor test programme |
| Er: 14 | Water inlet time exceeded | W controller after 6 min. | Start <u>T/P9</u> controller test programme |
| Er: 15 | Pumping time exceeded | 0 level not reached within 6 min. | Check pump circuit |
| Er: 16 | Safety level reached | | Start <u>T/P8 and 9</u> level test programme |
| Er: 17 | Pressure sensor | | Check line Replace sensor |
| Er: 18 | Calibration of pressure sensor not possible | | Start <u>T/P8</u> level test programme |
| Er: 19 | Aqua stop fault | Aqua stop actuated | Eliminate leaks |
| Er: 20 | Turbidity sensor | Calibration not possible | Start <u>T/P10</u> sensor test programme |
| Er: 21 | Update | | |
| Er: 22 | Spin cycle terminated | After 15 start-up attempts | Start <u>T/P4</u> motor test programme |
| Er: 23 | Foam detected | Via analogue sensor | Consult customer about dosing |

WFK 2401 Washer Fault Codes

| Fault Code | Faults | Possible Causes/Notes | Corrective Actions |
|------------|-------------------------|---|---|
| 00 | No Faults | | |
| 01 | No Water filling | <ul style="list-style-type: none"> • Water supply turned off. • Water inlet hose filters (strainers) blocked. • Water pressure too low. • Control module has failed. • Water inlet valve(s) has failed. <p><u>NOTE:</u> Fault code occurs during customer use or test program.</p> | <ul style="list-style-type: none"> • Turn on supply. • Check water inlet hose filters. Clean if dirty. Replace if damaged. • Check if incoming water pressure is 14.5 – 145 psi. • Check voltage output to water inlet valves (when they're energized). If no voltage, replace faulty control module. • Measure resistance of water inlet valves (~ 2.7 – 3.3 kΩ). Replace inlet valve(s), if fault. |
| 02 | No heating | <ul style="list-style-type: none"> • Heater has failed. • NTC has failed. • Heater is covered with scale. • Voltage too low. • Control module has failed. <p><u>NOTE:</u> Fault code occurs during customer use or test program.</p> | <ul style="list-style-type: none"> • Disconnect heater and measure resistance at terminals (~15 - 28Ω). Replace heater if faulty. • Disconnect NTC and measure resistance at terminals (~5.4 – 6.5 kΩ @ 20°C (68°F)). Replace NTC if faulty. • If possible, remove & clean heater. If not, replace it. • Have an electrician check the house wiring and the wiring to the washer to make sure it is 240 volts. • Check voltage output to heater (when it's energized). If no voltage, replace faulty control module. |
| 03 | No draining | <ul style="list-style-type: none"> • Drain pump or motor protector has failed. • Control module has failed. <p><u>NOTE:</u> Fault code occurs during customer use or test program.</p> | <ul style="list-style-type: none"> • Disconnect drain pump and measure resistance at connector (~ 83Ω). Replace drain pump if faulty. • Check voltage output to drain pump when it's energized). If no voltage, replace faulty control module. |
| 04 | Overheating | <ul style="list-style-type: none"> • Control module has failed. • NTC failed. <p><u>NOTE:</u> Fault code occurs during customer use or test program.</p> | <ul style="list-style-type: none"> • Check voltage to heater. If voltage is present when heater shouldn't be on, replace faulty control module. • Disconnect NTC and measure resistance at terminals (~5.4 – 6.5 kΩ @ 20°C (68°F)). Replace NTC if faulty. |

WFK 2401 Washer Fault Codes

| Fault Code | Faults | Possible Causes/Notes | Corrective Actions |
|------------|--------------------------------|--|---|
| 05 | Drum motor erratic | <ul style="list-style-type: none"> • Motor drive circuit (Triac) has failed. • Drum drive motor has failed. • Reserving relays have failed. <p><u>NOTE:</u> Fault code occurs during test program.</p> | <ul style="list-style-type: none"> • Check voltage at motor connectors when motor is energized. If low or no voltage, replace faulty control module. • Check voltage at motor connectors when motor is energized. If ~240V, replace faulty drum motor. • Check voltage at motor connectors when motor is energized. If voltage doesn't reverse, replace faulty control module. |
| 06 | Door open or won't lock | <ul style="list-style-type: none"> • Door isn't closed properly. • Door latch is broken. • Door lock is faulty. <p><u>NOTE:</u> Fault code occurs during customer use or test program.</p> | <ul style="list-style-type: none"> • Close door securely. If door won't latch, check door latch and door hinge alignment. • Replace broken door latch. • Measure resistance of door lock mechanism (~ 300 – 1350 Ω). Replace faulty door lock mechanism. |
| 08 | Drum motor won't run | <ul style="list-style-type: none"> • Drum rear bearing has failed. • Motor drive circuit (Triac) has failed. • Drum drive motor has failed. • Reserving relays have failed. <p><u>NOTE:</u> Fault code occurs during test program.</p> | <ul style="list-style-type: none"> • Check how drum rotates. If drum wobbles or won't move, replace faulty rear bearing. • Check voltage at motor connectors when motor is energized. If low or no voltage, replace faulty control module. • Check voltage at motor connectors when motor is energized. If ~ 240V, replace faulty drum motor. • Check voltage at motor connectors when motor is energized. If voltage doesn't reverse, replace faulty control module. |

WFK 2401 Washer Fault Codes

| Fault Code | Faults | Possible Causes/Notes | Corrective Actions |
|------------|------------------------------------|--|---|
| 09 | NTC failed | <ul style="list-style-type: none">NTC open circuited. <p><u>NOTE:</u> Fault code occurs during test program.</p> | <ul style="list-style-type: none">Disconnect NTC and measure resistance at terminals (~5.4 – 6.5 kΩ @ 20°C (68°F)). Replace NTC if faulty. |
| 10 | NTC failed | <ul style="list-style-type: none">NTC shorted <p><u>NOTE:</u> Fault code occurs during test program.</p> | <ul style="list-style-type: none">Disconnect NTC and measure resistance at terminals (~5.4 – 6.5 kΩ @ 20°C (68°F)). Replace NTC if faulty. |
| 12 | Drum motor reversing relays failed | <ul style="list-style-type: none">Reversing relays have failed. <p><u>NOTE:</u> Fault code occurs during test program.</p> | <ul style="list-style-type: none">Check voltage at motor connectors when motor is energized. If voltage doesn't reverse, replace faulty control module. |

NOTES:

- While running water inlet valves, pressure switch, heater & drain pump test, display shows fault codes **01** since water doesn't totally fill & **02** since water isn't heated. This is normal.

WFL 2060 Washer Fault Codes

| Fault | Possible Causes | Flashing Lights | Program fault Occurred | |
|---|---|--|-------------------------------|-------------|
| Door open or won't lock | <ul style="list-style-type: none"> <input type="checkbox"/> Door left open. <input type="checkbox"/> Faulty door latch or door lock | <ul style="list-style-type: none"> <input type="radio"/> Door locked <input type="radio"/> Rinse/Spin <input checked="" type="radio"/> Wash | Wash | |
| No water filling | <ul style="list-style-type: none"> <input type="checkbox"/> Water shut off. <input type="checkbox"/> Inlet strainer filters blocked. <input type="checkbox"/> Water pressure too low (<1 bar) | <ul style="list-style-type: none"> <input type="radio"/> Door locked <input checked="" type="radio"/> Rinse/Spin <input type="radio"/> Wash | Wash | |
| No heating | <ul style="list-style-type: none"> <input type="checkbox"/> Fault heater. <input type="checkbox"/> Voltage too low. <input type="checkbox"/> Excessive scale on heating element. | <ul style="list-style-type: none"> <input type="radio"/> Door locked <input checked="" type="radio"/> Rinse/Spin <input checked="" type="radio"/> Wash | | Test |
| No draining | <ul style="list-style-type: none"> <input type="checkbox"/> Blocked sensor. <input type="checkbox"/> Faulty water level controlled. <input type="checkbox"/> Faulty or blocked drain pump. | <ul style="list-style-type: none"> <input checked="" type="radio"/> Door locked <input type="radio"/> Rinse/Spin <input type="radio"/> Wash | Wash | |
| Motor won't run | <ul style="list-style-type: none"> <input type="checkbox"/> Faulty speed control. <input type="checkbox"/> Triac short-circuited. <input type="checkbox"/> Faulty reversing relay. | <ul style="list-style-type: none"> <input type="radio"/> Door locked <input checked="" type="radio"/> Rinse/Spin <input type="radio"/> Wash | | Test |
| Overheating | <ul style="list-style-type: none"> <input type="checkbox"/> Faulty control module. | <ul style="list-style-type: none"> <input checked="" type="radio"/> Door locked <input checked="" type="radio"/> Rinse/Spin <input type="radio"/> Wash | | Test |
| NTC failed (short or open circuited) | <ul style="list-style-type: none"> <input type="checkbox"/> Faulty wire harness. <input type="checkbox"/> Faulty NTC. | <ul style="list-style-type: none"> <input checked="" type="radio"/> Door locked <input checked="" type="radio"/> Rinse/Spin <input checked="" type="radio"/> Wash | | Test |

WTA 35 & WTL 54 Fault Codes & Troubleshooting

HINT: Use dryer test program to diagnose dryer problems.

HINT: Remove top panel of dryer to access wiring, control module and drum conductance brushes.

| <i>Fault code</i> | <i>Problem</i> | <i>Possible Cause</i> | <i>Suggested Action</i> |
|-------------------------------------|--|--|---|
| Damp Dry Light flashes | <input type="checkbox"/> NTC # R3 failed NOTE: When viewing wiring diagram, see NTC # R3. | <input type="checkbox"/> NTC (temperature sensor) failed. | <input type="checkbox"/> Check voltage at and wiring to NTC. Turn off dryer, measure NTC resistance and replace faulty NTC. NOTE: NTC resistances: <ul style="list-style-type: none"> ▪ 9 – 11 kΩ @ 59°F - 221°F |
| Regular Dry Light flashes | <input type="checkbox"/> NTC # R2 failed NOTE: When viewing wiring diagram, see NTC # R2. | <input type="checkbox"/> NTC (temperature sensor) failed. | <input type="checkbox"/> Check voltage at and wiring to NTC. Turn off dryer, measure NTC resistance and replace faulty NTC. NOTE: NTC resistances: <ul style="list-style-type: none"> ▪ 18 – 22 kΩ @ 59°F – 392°F |
| Extra Dry Light flashes | <input type="checkbox"/> Heater (dryer overheated) | <input type="checkbox"/> Heater failed. <input type="checkbox"/> Drum motor failed. | <input type="checkbox"/> Check voltage at and wiring to heater. Turn off dryer, measure heater resistance and replace faulty heater. NOTE: Heater resistances: <ul style="list-style-type: none"> ▪ 62 – 67 Ω (800W – E2 on wiring diagram on page E-2) ▪ 25 – 29 Ω (1900W – E3 on wiring diagram) <input type="checkbox"/> Check voltage at and wiring to drum motor. Turn off dryer, measure motor resistance and replace faulty motor. NOTE: Drum motor resistances (see wiring diagram): <ul style="list-style-type: none"> ▪ 19 – 25 Ω (between points X2.2 – X2.3 for WTL 54) ▪ 18 – 23 Ω (between points X2.2 – X2.4 for WTL 54) ▪ 25 – 29 Ω (between points X2.2 – X2.3 for WTL 35) ▪ 25 – 30 Ω (between points X2.2 – X2.4 for WTL 35) |

WTA 35 & WTL 54 Fault Codes & Troubleshooting

| | | | |
|---|--|--|--|
| <p>Anti – Crease/End Light flashes</p> | <p><input type="checkbox"/> Time fault (drying time too long)</p> | <p><input type="checkbox"/> Control module failed.</p> <p><input type="checkbox"/> Door lock failed.</p> <p><input type="checkbox"/> Moisture sensor(s) failed.</p> <p><input type="checkbox"/> Water level switch failed (WTL 5400 only).</p> <p><input type="checkbox"/> Hi-Limit (“overheat”) thermostat tripped and failed to reset.</p> <p><input type="checkbox"/> Supply voltage too low.</p> | <p><input type="checkbox"/> Check voltage at and wiring to module. Turn off dryer, and replace faulty module.</p> <p><input type="checkbox"/> Check voltage at and wiring to door lock. Turn off dryer, measure door lock resistance and replace faulty door lock.</p> <p><input type="checkbox"/> Run moisture sensor conductance test. Check voltage at and wiring to sensors. Turn off dryer and replace faulty sensor(s).</p> <p><input type="checkbox"/> Check voltage at and wiring to Hi-Limit. Turn off dryer, measure Hi-Limit resistance and replace faulty Hi-Limit.</p> <p><input type="checkbox"/> Check voltage at and wiring to Hi-Limit. Turn off dryer, measure Hi-Limit resistance and replace faulty Hi-Limit.</p> <p>NOTE: Hi-Limit trips @ 248°F (WTL 54) or 212°F (WTA 35)</p> <p><input type="checkbox"/> Have customer upgrade power system to provide consistent voltage to dryer during heating (need min. 198V).</p> |
| <p>E1</p> | <p><input type="checkbox"/> Pump failed (WTL 5400 condensation dryer only)</p> | <p><input type="checkbox"/> Pump failed.</p> | <p><input type="checkbox"/> Check voltage at and wiring to pump. Turn off dryer, measure pump resistance (110 – 136 Ω) and replace faulty pump.</p> |
| <p>---</p> | <p><input type="checkbox"/> Dryer won’t run or indicator lights won’t come on (no power to dryer)</p> | <p><input type="checkbox"/> Dryer not turned on.</p> <p><input type="checkbox"/> No power to dryer</p> <p><input type="checkbox"/> Dryer fuse has blown.</p> | <p><input type="checkbox"/> Turn “on/off” switch on.</p> <p><input type="checkbox"/> Check customer circuit breaker, fuse box or power connections.</p> <p><input type="checkbox"/> Unscrew holder cap & replace fuse (15A, type SC-15).</p> |

BOSCH

Dishwasher Error codes

Error codes that the consumer will see on models with numeric display:

- F** Indicates a water level or filling error. Underfill, overfill or water in the base. **See note 1**
- 2H** Indicates that the last wash cycle took over 99 minutes to complete.
Usually indicates inlet water too cold, or heating fault in the dishwasher. **See note 1 & 2**

Error codes only displayed in diagnostic program: **See note 3**

Models with numeric display:

- 0** No faults
- 1** Aqua Sensor “Sensotronic” fault
- 2** Heating fault
- 4** Filling fault
- 8** NTC (temperature sensor) fault

Models without numeric display:

LED’s on the buttons will be lit to indicate faults.

Please refer to **B/S/H Dishwasher Troubleshooting Tips or Major Appliances Technical Manual** for specific model / code information.

Dishwasher Error Codes...continued

NOTE 1 Once cause of this fault has been corrected, the code will reset itself 15 minutes after

The dishwasher has been turned on, or by running the dishwasher through the diagnostic program. See **B/S/H Dishwasher Troubleshooting Tips, or Major Appliances Technical Manual** for instruction by model number.

Note 2 Heating faults must be tested in the diagnostic mode. The diagnostic program will begin with running the drain motor for 30 seconds, then it will check the aqua sensor (if equipped) for 65 seconds, filling until water level switch is closed, and then the circulation pump and heater will be activated. To test heater circuit, put amprobe around the red wire from control board to the base. It would read approximately 10 amps if all is working properly. If no amperage is indicated, test for voltage (120VAC) at the red wire. If voltage is present, but no amperage, the heater assembly is at fault. If no voltage is present, the relay contact on the control board is most likely the cause. Resolder the connection as per instructions in **B/S/H** service bulletin.

Note 3 Each model dishwasher has a diagnostic program which allows the technician to quickly diagnose specific faults without having to wait for a regular wash cycle to reach the proper time for specific events to occur. Each program will begin by running the drain motor for 30 seconds, calibrating the aqua sensor for 65 seconds (if model is equipped with aqua sensor), filling until water level switch (f1) is closed, the circulation motor begins to run, the soap dispenser actuates, and the heater will be activated to heat the water to 150 degrees, and the unit will drain. The instruction for entering the diagnostic programs and specific fault code indication are listed in the **B/S/H Dishwasher Troubleshooting Tips** manual or the **Major Appliance Technical Manual**.

Note 4 If multiple faults occur, the numeric codes will be added and displayed as a total, for example, if the unit had both a heating and an aqua sensor fault, the numeric indication would be **5, 1** for aqua sensor fault plus **4** for the heating fault.

