

⚠ WARNING

Electrical Shock Hazard
Disconnect power before servicing.
Replace all parts and panels before operating.
Failure to do so can result in death or electrical shock.

DIAGNOSTIC GUIDE

Before servicing, check the following:

- Make sure there is power at the wall outlet.
- Has a household fuse blown or circuit breaker tripped? Time delay fuse?
- Is dryer vent properly installed and clear of lint or obstructions?
- All tests/checks should be made with a VOM (volt-ohm-milliammeter) or DVM (digital-voltmeter) having a sensitivity of 20,000 ohms per volt DC or greater.
- Check all connections before replacing components. Look for broken or loose wires, failed terminals, or wires not pressed into connectors far enough.
- A potential cause of a control not functioning is corrosion on connections. Observe connections and check for continuity with an ohmmeter.
- Connectors: Look at top of connector. Check for broken or loose wires. Check for wires not pressed into connector far enough to engage metal barbs.
- Resistance checks must be made with dryer unplugged or power disconnected.

SERVICE DIAGNOSTIC MODE ENTRY

These tests allow factory or service personnel to test and verify all inputs to the machine control electronics. You may want to do a quick and overall checkup of the dryer with these tests before going to specific troubleshooting tests.

ACTIVATING THE SERVICE DIAGNOSTIC MODE

1. Be sure the dryer is in standby mode (plugged in with all indicators off, or with only the DONE indicator on).
2. Select any three buttons and follow the steps below, using the same buttons (remember the buttons and the order that the buttons were pressed):
 Within 8 seconds,
 Press and Release the 1st selected button,
 Press and Release the 2nd selected button,
 Press and Release the 3rd selected button;
 Repeat this 3 button sequence 2 more times.
3. If this test mode has been entered successfully, all indicators on the console are illuminated for 5 seconds. If there are no saved fault codes, all indicators on the console will momentarily turn off, then only the WET indicator will come on and stay on constantly.

SERVICE DIAGNOSTIC MENU TABLE

	Button Press	Function Behavior
1st Button	Momentary press Press and hold for 5 secs.	Activates User Interface/ Control System Test Exits Service Diagnostics
2nd Button	Momentary press Press and hold for 5 secs.	Triple Beep Triple Beep
3rd Button	Momentary press Press and hold for 5 secs.	Displays Next Error Code Clears the Error Codes

IMPORTANT**Electrostatic Discharge (ESD)
Sensitive Electronics**

ESD problems are present everywhere. ESD may damage or weaken the machine control electronics. The new control assembly may appear to work well after repair is finished, but failure may occur at a later date due to ESD stress.

- Use an anti-static wrist strap. Connect wrist strap to green ground connection point or unpainted metal in the appliance

-OR-

Touch your finger repeatedly to a green ground connection point or unpainted metal in the appliance.

- Before removing the part from its package, touch the anti-static bag to a green ground connection point or unpainted metal in the appliance.
- Avoid touching electronic parts or terminal contacts; handle machine control electronics by edges only.
- When repackaging failed machine control electronics in anti-static bag, observe above instructions.

Unsuccessful Activation

If entry into diagnostic mode is unsuccessful, refer to the following indications and actions:

Indication 1: None of the indicators or display turns on.

Action: Select any cycle.

- If indicators come on, try to change the function for the three buttons used to activate the diagnostic test mode. If any button fails to change the function, something is faulty with the button, and it will not be possible to enter the diagnostic mode using that button. Replace the user interface and housing assembly. See Accessing & Removing the Electronic Assemblies, page 11.
- If no indicators come on after selecting the cycle, go to TEST #1, page 5.

Indication 2: Console indicators begin flashing immediately.

Action: If console indicators begin flashing on and off immediately, replace the user interface. See Accessing & Removing the Electronic Assemblies, page 11.

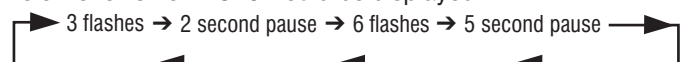
Activation With Saved Fault Codes

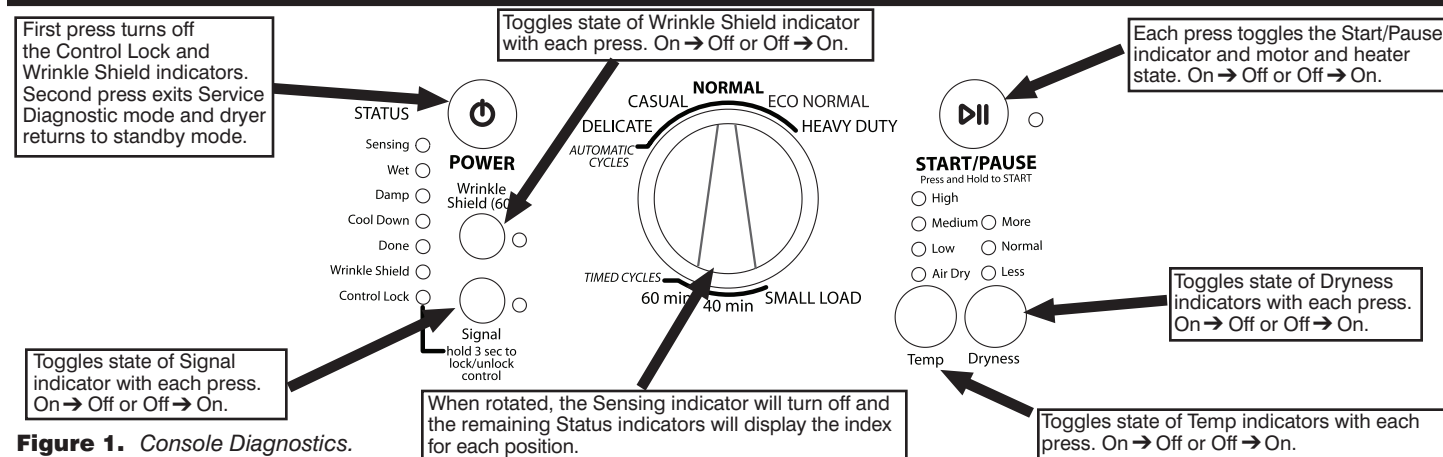
If there is a saved fault code, only the WET indicator will be flashing. Review the Fault/Error Codes table, page 2, for the recommended procedure.

Fault/Error Code Display Method

Fault codes are displayed by a series of flashes of the WET indicator. All fault codes have an F# and an E#. The first set of 0.5 second flashes should be counted and used as the F#. The F# indicates the suspect System/Category. The second set of 0.5 second flashes should again be counted and used as the E#. The E# indicates the suspect Component system. The transition from the F# to the E# is indicated by a 2 second pause. After the E# is displayed, there will be a 5 second pause before the F# is flashed again.

Below shows how F3E6 would be displayed:





Advancing Through Saved Fault/Error Codes

Procedure for advancing through saved fault codes:

Press and release → beep tone → Most recent fault code is displayed.
the 3rd button
used to activate
Service Diagnostics

- | | |
|--------|-----------------------------------------------------------|
| Repeat | → beep tone → Second most recent fault code is displayed. |
| Repeat | → beep tone → Third most recent fault code is displayed. |
| Repeat | → beep tone → Fourth most recent fault code is displayed. |
| Repeat | → Triple beep, then back to the most recent fault code. |

Up to four Fault/Error codes may be stored. When the oldest fault code is displayed, additional presses of the 3rd button will result in a triple beep, then a cycling back to the most recent fault code. If each press of the 3rd button results in a triple beep and the WET indicator is constantly lit, no saved fault codes are present.

Clearing Fault Codes

To clear fault codes, enter Service Diagnostic mode. Then press and hold the 3rd button used to enter Service Diagnostic mode for 5 seconds. Once the fault codes are successfully erased, the WET indicator will be lit constantly.

FAULT/ERROR CODES The fault codes below would be indicated when attempting to start a drying cycle, or after activating the service diagnostic mode.

CODE	DESCRIPTION	EXPLANATION AND RECOMMENDED PROCEDURE
F1E1	Primary Control Failure	F1E1 indicates a primary control failure. Replace the machine control electronics. See Accessing & Removing the Electronic Assemblies, page 11.
F2E1	Keypad/User Interface Failure	F2E1 indicates a stuck button or user interface mismatch. This fault code will ONLY appear when in the service diagnostic mode. See TEST #5, page 10.
F3E1	Exhaust Thermistor Open	F3E1 indicates that the thermistor is open. See TEST #3a, page 8.
F3E2	Exhaust Thermistor Shorted	F3E2 indicates that the thermistor has shorted. See TEST #3a, page 8.
F3E6	Moisture Sensor Open	F3E6 indicates that the moisture sensor strip is open. This fault code will ONLY appear when in the service diagnostic mode. See TEST #4, page 9.
F3E7	Moisture Sensor Shorted	F3E7 indicates that the moisture sensor strip has shorted. This fault code will ONLY appear when in the service diagnostic mode. See TEST #4, page 9.

USER INTERFACE/CONTROL SYSTEM TEST

Entry Procedure:

Press and release the first button used to activate Service Diagnostic mode. The following tests will be available.

NOTE: The Service Diagnostic mode must be activated before activating the User Interface/Control System test; see procedure on page 1.

Active Fault Code Display in User Interface/Control System Test:

If the wet indicator begins flashing while in User Interface/Control System test, it is displaying an active fault code. Active fault codes are codes that are currently failing. Only one active fault code can be displayed at a time.

Diagnostic Test: Console Buttons and Indicators

Pressing buttons will turn off the corresponding indicator and sound a beep as shown in figure 1, Console Diagnostics. Rotating the cycle selector will cause the status indicators to display the index of the cycle selector. See table at right for details. If indicators fail to come on and beep after pressing buttons and rotating the cycle selector, go to TEST #5, page 10.

NOTE: A second press of the Power button while in Console Buttons and Indicators mode exits the Service Diagnostic mode and returns the dryer to standby mode.

Status Indicator	AUTO CYCLE				
	Delicate	Casual	Normal	Eco Normal	Heavy Duty
Wet ○	"ON"	"ON"	"OFF"	"OFF"	"OFF"
Damp ○	"ON"	"ON"	"OFF"	"OFF"	"OFF"
Cool Down ○	"ON"	"ON"	"OFF"	"OFF"	"ON"
Done ○	"OFF"	"ON"	"OFF"	"ON"	"OFF"

Status Indicator	TIMED CYCLE		
	60 min	40 min	Small Load
Wet ○	"ON"	"ON"	"OFF"
Damp ○	"OFF"	"OFF"	"ON"
Cool Down ○	"OFF"	"OFF"	"ON"
Done ○	"ON"	"OFF"	"ON"

Diagnostic Test: Door Switch

When the door is opened, for electric dryers, the dryer will beep once and the WET status indicator will turn on. For gas dryers, the dryer will beep twice and the DONE status indicator will turn on. With the door open, the TEMP indicators will be used to display the Control Software ID. The TEMP indicators will be "On" or "Off" according to the table below.

Temp Indicators
<input type="radio"/> High
<input checked="" type="radio"/> Medium
<input type="radio"/> Low
<input checked="" type="radio"/> Air Dry

If opening the door fails to cause a beep(s), Control Software ID, or fuel type to be indicated, go to TEST #6, page 10.

Diagnostic Test: Moisture Sensor

Open the door and locate two metal strips on the face of the lint screen housing. Bridge these strips with a wet cloth or a finger. If a beep is heard and STATUS and/or TEMP indicators change, the sensor is OK. If not, or if a beep tone is heard before bridging the moisture strips, go to TEST #4, page 9.

Diagnostic Test: Console ID, Motor, and Heater

Close the door. Press the START button. The dryer will beep and the motor and heater will turn on. The STATUS and TEMP indicators will display the console ID, and the indicators should be lit up as indicated in the table below.

Console ID Indicator Status Table

Status Indicators	Temp Indicators
Wet <input checked="" type="radio"/>	<input type="radio"/> High
Damp <input checked="" type="radio"/>	<input type="radio"/> Medium
Cool Down <input type="radio"/>	<input type="radio"/> Low
Done <input checked="" type="radio"/>	<input checked="" type="radio"/> Air Dry

While motor is running, pressing the START button a second time will turn off the motor and heater. Each additional press of the START button will toggle the motor and heater on and off.

- If the Console ID above is not displayed, replace the user interface and housing assembly. See Accessing & Removing the Electronic Assemblies, page 11.
- If the motor does not turn on, go to TEST #2, page 6.
- If no heat is detected, go to TEST #3, page 7.

DEACTIVATING TEST MODES

Deactivating the User Interface/Control System Test

This mode can be exited by either of the two methods listed below:

1. Pressing the POWER button twice.
2. Pressing and holding the 1st button used to activate the Service Diagnostic mode for 5 seconds.

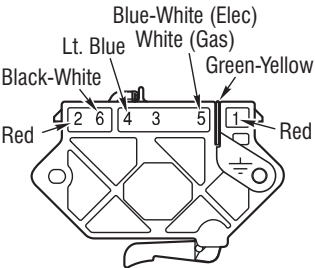
DEACTIVATING THE SERVICE DIAGNOSTIC MODE

Press and hold the 1st button used to enter the Service Diagnostic mode for 5 seconds to exit diagnostics.

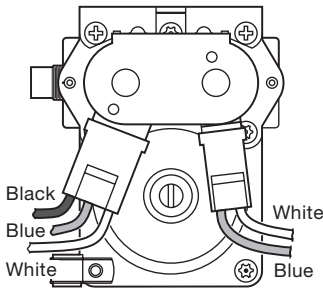
Function	Contacts				
	1M	2M	3M	5M	6M
Start			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Run	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

● = Contacts closed

Centrifugal Switch (Motor)



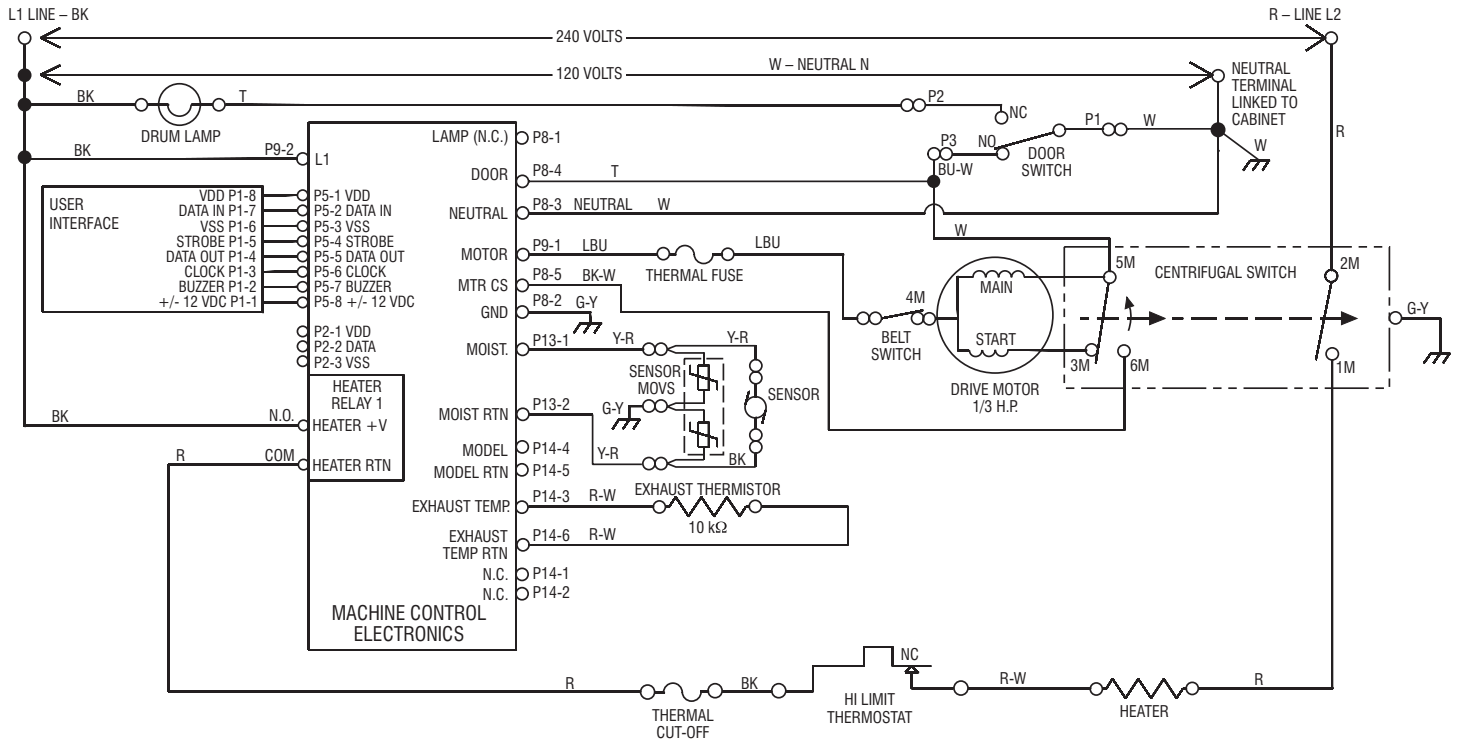
Pluggable Drive Motor Switch



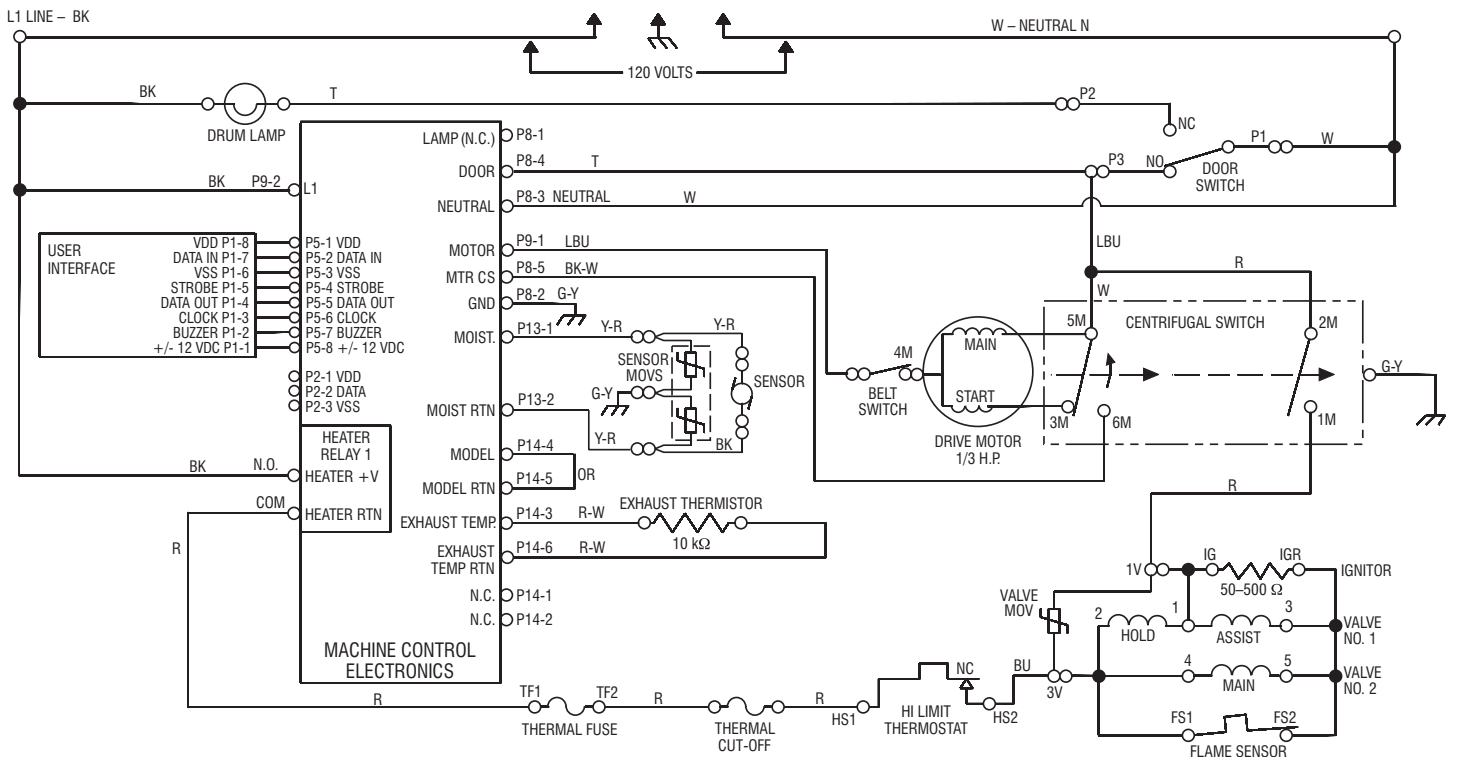
Gas Valve, Gas Dryer

ELECTRIC DRYER WIRING DIAGRAM

IMPORTANT: Electrostatic (static electricity) discharge may cause damage to machine control electronics. See page 1 for details.



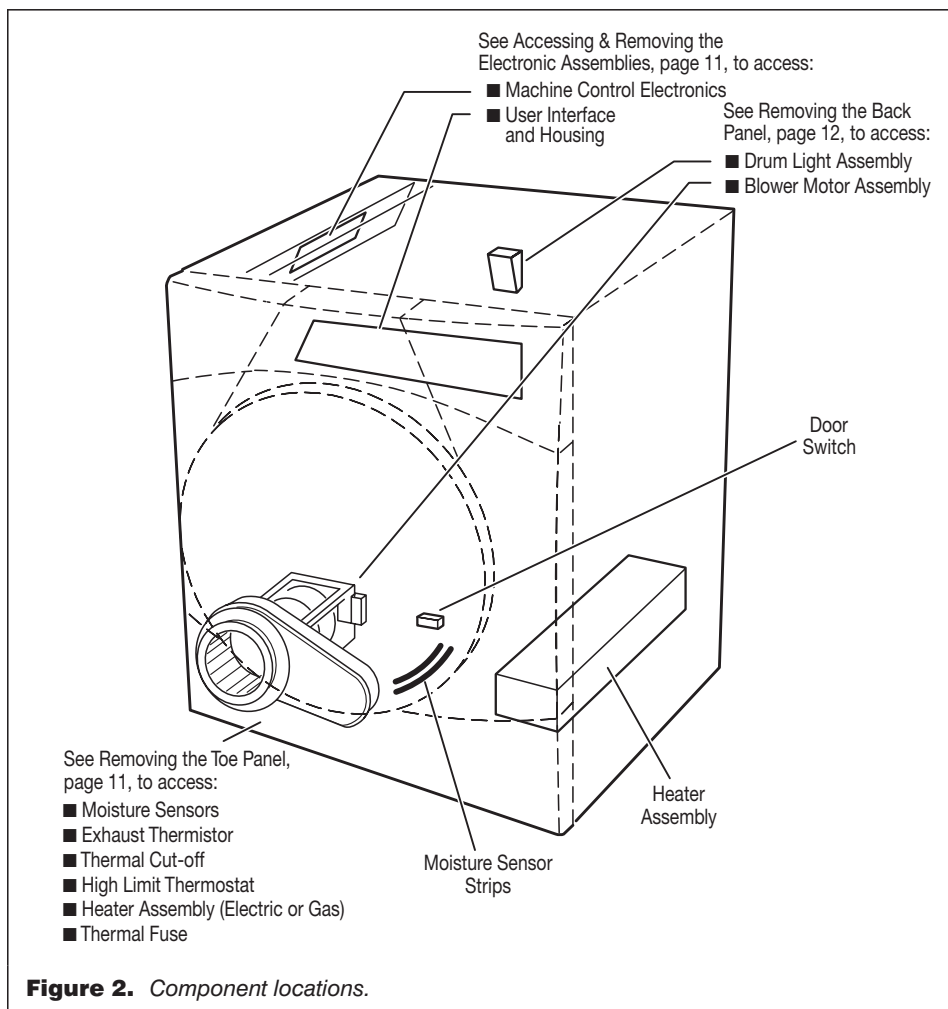
GAS DRYER WIRING DIAGRAM



TROUBLESHOOTING GUIDE

Some tests will require accessing components. See figure 2 for component locations.

PROBLEM	POSSIBLE CAUSE / TEST
NOTE: Possible Cause/Tests MUST be performed in the sequence shown for each problem.	
WON'T POWER UP. (No response when buttons are pressed.)	<ol style="list-style-type: none"> 1. Supply connections. See TEST #1 at right. 2. Check harness connections. 3. User interface and housing assembly. See TEST #5, page 10.
WON'T START CYCLE WHEN START BUTTON IS PRESSED.	<ol style="list-style-type: none"> 1. If number display flashes, check to be sure the door is completely shut, and press and hold down START for about 1 second. 2. See TEST #2, page 6. 3. See TEST #6, page 10.
WON'T SHUT OFF WHEN EXPECTED.	<ol style="list-style-type: none"> 1. Check START/PAUSE button. See TEST #5, page 10. 2. User interface and housing assembly. See TEST #5, page 10. 3. Moisture sensor. See TEST #4, page 9.
CONTROL WON'T ACCEPT SELECTIONS.	User interface and housing assembly. See TEST #5, page 10.
WON'T HEAT.	<ol style="list-style-type: none"> 1. Heater. See TEST #3, page 7. 2. Check harness connections. 3. Check installation.
HEATS IN AIR CYCLE.	Heater. See TEST #3, page 7.
SHUTS OFF BEFORE CLOTHES ARE DRY.	<ol style="list-style-type: none"> 1. Check the dryness setting for auto cycles. 2. Check for full lint screen. 3. Check for clogged vent. 4. Moisture sensor. See TEST #4, page 9. 5. Dryness adjust. See TEST #4a, page 10.

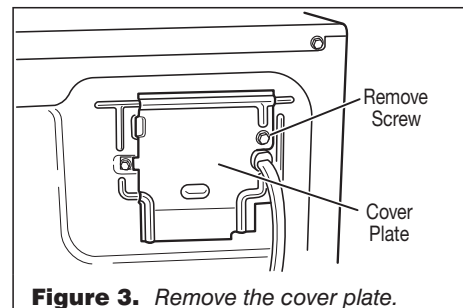


TROUBLESHOOTING TESTS

NOTE: These checks are done with the dryer unplugged or disconnected from power.

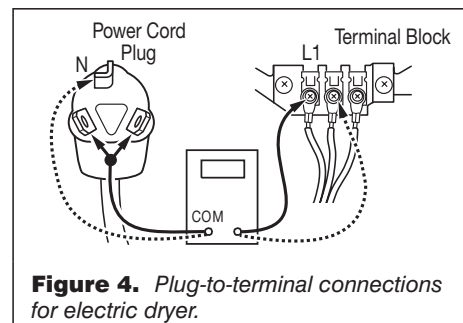
TEST #1 Supply Connections

This test assumes that proper voltage is present at the outlet, and visual inspection indicates that the power cord is securely fastened to the terminal block (electric dryer) or wire harness connection (gas dryer).



ELECTRIC DRYER:

1. Unplug dryer or disconnect power.
2. Remove the cover plate from the top right corner of the back of the dryer. See figure 3.
3. With an ohmmeter, check for continuity between the neutral (N) terminal of the plug and the center contact on the terminal block. See figure 4.
 - If there is no continuity, replace the power cord and test the dryer.
 - If there is continuity, go to step 4.
4. In a similar way, check which terminal of the plug is connected to the left-most contact on the terminal block and make a note of it. This will be L1 (black wire) in the wiring diagram. See figure 4.



- When this is found, go to step 5.
- If neither of the plug terminals have continuity with the left-most contact of the terminal block, replace the power cord and test the dryer.

5. Access the machine control electronics without disconnecting any wiring to the control board. See Accessing & Removing the Electronic Assemblies, page 11.

6. With an ohmmeter, check for continuity between the L1 terminal of the plug (found in step 4) and P9-2 (black wire) on the machine control board. See figure 17, page 11.

→ If there is continuity, go to step 7.

→ If there is no continuity, check that wires to the terminal block are mechanically secure. If so, replace the main wire harness and test the dryer.

7. Check for continuity between the neutral (N) terminal of the plug and P8-3 (white wire) on the machine control board.

→ If there is continuity, go to step 8.

→ If there is no continuity and the mechanical connections of the wire are secure, replace the main wire harness.

8. Visually check that the P5 connector is inserted all the way into the machine control electronics.

9. Visually check that the user interface and housing assembly is properly inserted into the front console.

10. If both visual checks pass, replace the user interface and housing assembly.

11. Plug in dryer or reconnect power.

12. Activate the Service Diagnostic mode per procedure on page 1. Then activate the User Interface/Control System test and verify the repair by completing the Buttons and Indicators test per procedures on page 2.

13. If indicators still do not light, the machine control electronics has failed:

→ Unplug dryer or disconnect power.

→ Replace the machine control electronics.

→ Plug in dryer or reconnect power.

→ Activate the Service Diagnostic mode per procedure on page 1. Then activate the User Interface/Control System test and verify the repair by completing the Buttons and Indicators test per procedures on page 2.

GAS DRYER:

1. Unplug dryer or disconnect power.

2. Remove the cover plate from the top right corner of the back of the dryer. See figure 3, page 5.

3. Check that the power cord is firmly connected to the dryer's wire harness. See figure 5.

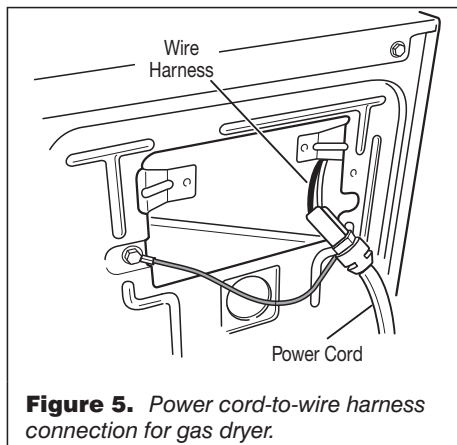


Figure 5. Power cord-to-wire harness connection for gas dryer.

4. Access the machine control electronics without disconnecting any wiring to the control board. See figure 16, page 11.

5. With an ohmmeter, check for continuity between the neutral (N) terminal of the plug and P8-3 (white wire) on the machine control board. The left-hand side of figure 6 shows the position of the neutral terminal (N) on the power cord plug. Also see figure 17, page 11.

→ If there is continuity, go to step 6.

→ If there is no continuity, disconnect the white wire of the harness from the power cord at the location illustrated in figure 5. Test the continuity of the power cord neutral wire as illustrated in figure 6. If an open circuit is found, replace the power cord. Otherwise, go to step 6.

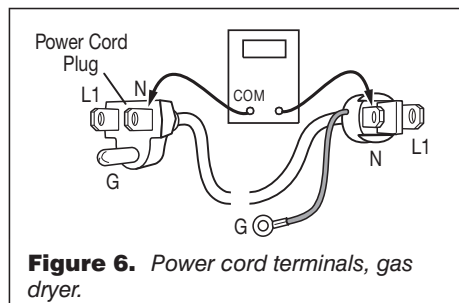


Figure 6. Power cord terminals, gas dryer.

6. In a similar way, check the continuity between the L1 terminal of the plug and P9-2 (black wire) on the control board.

→ If there is continuity, go to step 8.

→ If there is no continuity, check the continuity of the power cord in a similar way to that illustrated in figure 6, but for power cord's L1 wire.

→ If an open circuit is found, replace the power cord. Otherwise, go to step 7.

7. Replace the main harness.

8. Visually check that the P5 connector is inserted all the way into the machine control electronics.

9. Visually check that the user interface and housing assembly is properly inserted into the front console.

10. If both visual checks pass, replace the user interface and housing assembly.

11. Plug in dryer or reconnect power.

12. Activate the Service Diagnostic mode per procedure on page 1. Then activate the User Interface/Control System test and verify the repair by completing the Buttons and Indicators test per procedures on page 2.

13. If indicators still do not light, the machine control electronics has failed:

→ Unplug dryer or disconnect power.

→ Replace the machine control electronics.

→ Plug in dryer or reconnect power.

→ Activate the Service Diagnostic mode per procedure on page 1. Then activate the User Interface/Control System test and verify the repair by completing the Buttons and Indicators test per procedures on page 2.

TEST #2 Motor Circuit

This test will check the wiring to the motor and the motor itself. The following items are part of this motor system:

Part of Motor System	Electric Dryer	Gas Dryer
Harness/connection	✓	✓
Thermal fuse	✓	no
Belt/belt switch	✓	✓
Drive motor	✓	✓
Centrifugal switch	✓	✓
Door switch	✓	✓
Machine control electronics. See ESD information, page 1.	✓	✓

1. Unplug dryer or disconnect power.

2. Access the machine control electronics and measure the resistance across P8-4 and P9-1. See Accessing & Removing the Electronic Assemblies, page 11.

→ If resistance across P8-4 and P9-1 is in the range of 1 to 6 ohms, replace the machine control electronics.

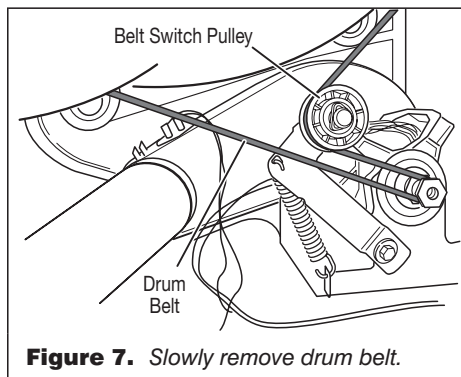
→ Otherwise, go to step 3.

3. Check the wiring and components in the path between these measurement points by referring to the appropriate wiring diagram (gas or electric) on page 4.

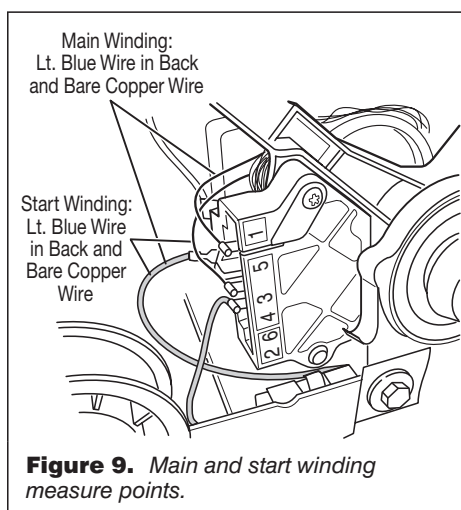
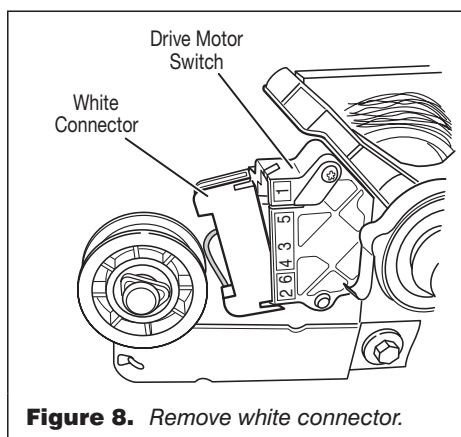
ELECTRIC DRYER ONLY: Check the thermal fuse. See TEST #3b, page 9.

ALL DRYERS: Continue with step 4, following on page 7, to test the remaining components in the motor circuit.

4. Check the belt switch and drive motor. Access the belt switch and drive motor by removing the back panel. See Removing the Back Panel, page 12. Slowly remove the drum belt from the spring-loaded belt switch pulley, gently letting the belt switch pulley down. See figure 7.



5. Remove the white connector from the drive motor switch. See figure 8.



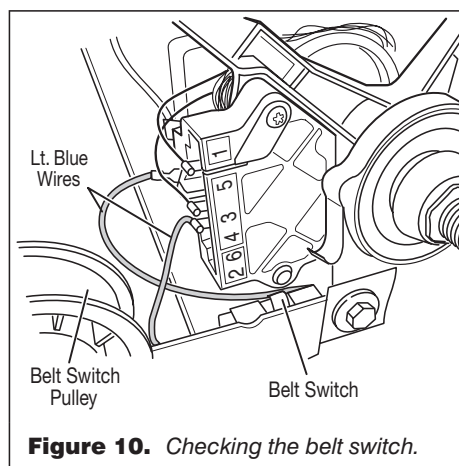
6. Using figure 9, check for the resistance values of the motor's Main and Start winding coils as shown in the following table.

NOTE: Main and Start winding coils must be checked at the motor.

Winding	Resistance	Contact Points of Measurement
MAIN	2.4–3.6 Ω	Lt. blue wire in back at pin 4 and bare copper wire on pin 5 of black drive motor switch
START	2.4–3.8 Ω	Lt. blue wire in back at pin 4 and bare copper wire on pin 3 of black drive motor switch

- If the resistance at the motor is correct, there is an open circuit between the motor and machine control electronics. Check for failed belt switch.
- If the Start winding is in question and the resistance is much greater than 4 ohms, replace the motor.

7. Check the belt switch by measuring resistance between the two light blue wires, as shown in figure 10, while pushing up the belt switch pulley.



- If the resistance reading goes from infinity to a few ohms as pulley arm closes the switch, belt switch is OK. If not, replace the belt switch.
- If belt switch is OK and there is still an open circuit, check and repair the wiring harness.

8. Door Switch problems can be uncovered by following procedure under Diagnostic Test: Door Switch, page 3; however, if this was not done, the following can be done without applying power to the dryer. Connect an ohmmeter across P8-3 (neutral, white wire) and P8-4 (door, tan wire).
- With the door properly closed, the ohmmeter should indicate a closed circuit (0–2 ohms).
 - If not, replace the door switch assembly.

TEST #3 Heater

This test is performed when either of the following situations occur:

- ✓ Dryer does not heat
- ✓ Heat will not shut off

This test checks the components making up the heating circuit. The following items are part of this system:

Part of Heating System	Electric Dryer	Gas Dryer
Harness/connection	✓	✓
Heater relay	✓	✓
Thermal cut-off	✓	✓
Thermal fuse	no	✓
High limit thermostat	✓	✓
Heat element assembly	✓	no
Gas burner assembly	no	✓
Centrifugal switch	✓	✓
Exhaust thermistor	✓	✓
Machine control electronics. See ESD information, page 1.	✓	✓
User interface and housing assembly	✓	✓
Gas supply	no	✓

Dryer does not heat:

Locate the components using figure 11, page 8.

ELECTRIC DRYER:

1. Unplug dryer or disconnect power.
2. Remove the toe panel to access the thermal components. See figure 14, page 11.
3. Using an ohmmeter and referring to the wiring diagram, measure the resistance from the red wire terminal at the thermal cut-off to the red wire terminal at the heater.
 - If the resistance is about 10 ohms, go to step 5.
 - If an open circuit is detected, go to step 4.
4. Visually check the wire connections to the thermal cut-off, high limit thermostat, and heater. If connections look good, check for continuity across each of these components.
 - Replace the heater if it is electrically open.
 - Replace both the thermal cut-off and high limit thermostat if either one is electrically open.
5. If no open circuit is detected, remove the P14 connector, then measure the resistance between P14-3 (red-white wire) and P14-6 (red-white wire) at the connector. See figure 17, page 11 for connector location; and Accessing &

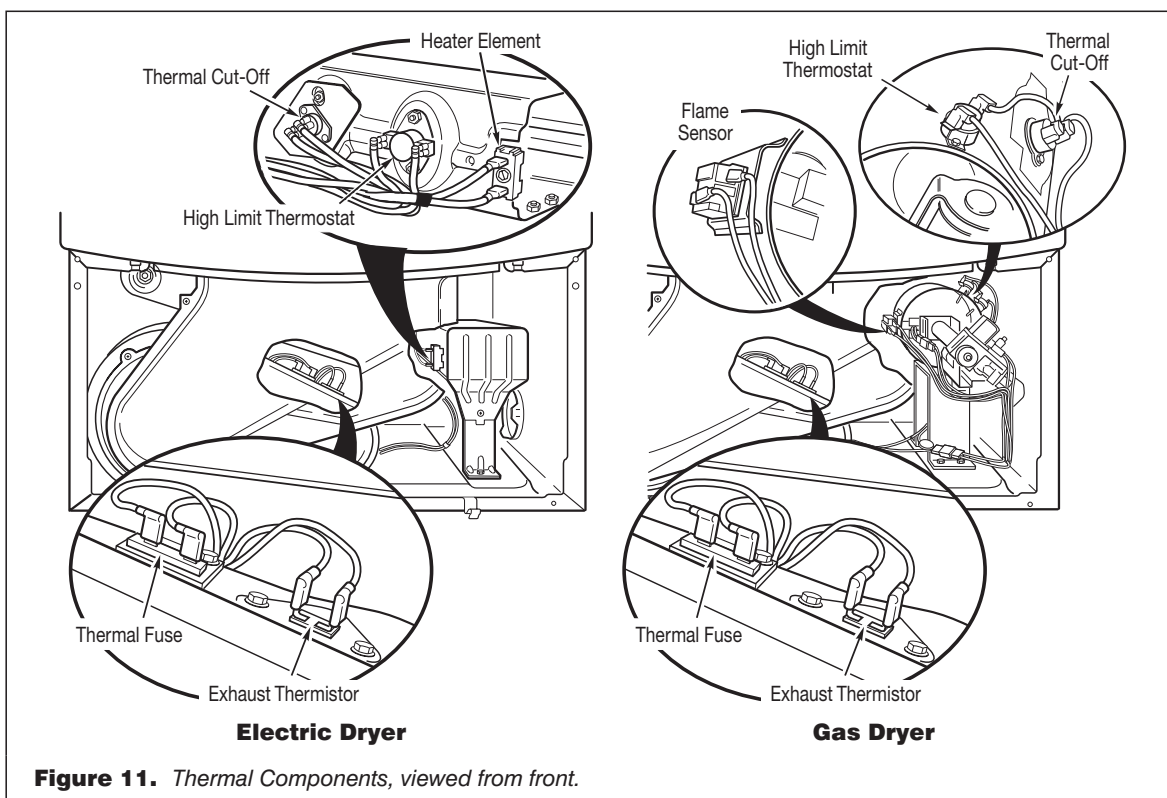


Figure 11. Thermal Components, viewed from front.

Removing the Electronic Assemblies, page 11.

- If 5–15 k ohms are measured, replace the machine control electronics.
- If the resistance is less than 1 k ohm, replace the exhaust thermistor.

GAS DRYER:

1. Unplug dryer or disconnect power.
2. Remove the toe panel to access the thermal components. See figure 14, page 11.
3. Perform TEST #3b, page 9. If the thermal fuse is OK, go to step 4.
4. Perform TEST #3c, page 9. If the thermal cut-off is OK, go to step 5.
5. Locate the high limit thermostat. See figure 11. Measure the continuity through it by connecting the meter probes on the red wire and blue wire terminals.
 - If there is an open circuit, replace the high limit thermostat and thermal cut-off.
 - Otherwise, go to step 6.
6. Perform TEST #3d, page 9. If this is OK, replace the machine control electronics.

Heat will not shut off:

1. Unplug dryer or disconnect power.
2. Access the machine control electronics. Remove the P14 connector, then measure the resistance between P14-3

(red-white wire) and P14-6 (red-white wire) at the connector. See figure 17, page 11 for connector location; and Accessing & Removing the Electronic Assemblies, page 11.

- If 5–15 k ohms are measured, replace the machine control electronics.
- If the resistance is greater than 20 k ohms, replace the exhaust thermistor.

TEST #3a Exhaust Thermistor

The machine control electronics monitors the exhaust temperature using the exhaust thermistor, and cycles the heater relay on and off to maintain the desired temperature.

Begin with an empty dryer and a clean lint screen.

1. Plug in dryer or reconnect power.
2. Start the Timed Dry cycle.
3. If after 60 seconds, the WET indicator flashes F3E1 or F3E2 and the dryer shuts off, the thermistor or wire harness is either open or shorted.
 - Unplug dryer or disconnect power.
 - Check wire connections at the machine control electronics and thermistor. See Accessing & Removing the Electronic Assemblies on page 11, and for thermistor location, see figure 11.

- If wire connections are good, remove the two wires from the thermistor and replace the thermistor.

→ Plug in dryer or reconnect power.

4. If the WET indicator does not flash F3E1 or F3E2, the connections to the thermistor are good. Therefore, check the exhaust temperature value at any or all of the temperature levels in question, using the Timed Dry cycle, and the following process:

Hold a glass bulb thermometer capable of reading from 90° to 180°F (32° to 82°C) in the center of the exhaust outlet. The correct exhaust temperatures are as follows:

EXHAUST TEMPERATURES		
TEMPERATURE SETTING	HEAT TURNS OFF*	HEAT TURNS ON
High	155° ± 5°F (68° ± 3°C)	10–15°F (6–8°C) below the heat turn off temperature
Medium	140° ± 5°F (60° ± 3°C)	
Low	125° ± 5°F (52° ± 3°C)	
Extra Low	115° ± 5°F (46° ± 3°C)	

* The measured overshoot using the glass bulb thermometer in the exhaust outlet can be 30°F (17°C) higher.

5. If the exhaust temperature is not within specified limits, remove the P14 connector, then measure the resistance between P14-3 (red-white wire) and P14-6 (red-white wire) at the connector. See figure 17, page 11 for connector location; and Accessing & Removing the Electronic Assemblies, page 11.

NOTE: All thermistor resistance measurements must be made while dryer is unplugged or disconnected from power.

The following table gives temperatures and their associated resistance values.

EXHAUST THERMISTOR RESISTANCE			
TEMP. °F (°C)	RES. k Ω	TEMP. °F (°C)	RES. k Ω
50° (10°)	19.0–22.0	80° (27°)	8.5–10.5
60° (16°)	14.8–16.8	90° (32°)	6.8–8.8
70° (21°)	11.5–13.5	100° (38°)	5.0–7.0

→ If the thermistor resistance does not agree with table, replace the exhaust thermistor.

→ If the thermistor resistance checks agree with the measurements in the table, replace the machine control electronics.

TEST #3b Thermal Fuse

ELECTRIC DRYER: The thermal fuse is wired in series with the dryer drive motor.

GAS DRYER: The thermal fuse is wired in series with the dryer gas valve.

ALL DRYERS:

1. Unplug dryer or disconnect power.
2. Access the thermal fuse by first removing the toe panel. See Removing the Toe Panel, page 11; and for thermal fuse location, see figure 11, page 8.
3. Using an ohmmeter, check the continuity across the thermal fuse. See figure 11 for location.

→ If the ohmmeter indicates an open circuit, replace the failed thermal fuse.

TEST #3c Thermal Cut-Off

If the dryer does not produce heat, check the status of the thermal cut-off.

1. Unplug dryer or disconnect power.
2. Access the thermal cut-off by first removing the toe panel. See Removing the Toe Panel, page 11.
3. Using an ohmmeter, check the continuity across the thermal cut-off. See figure 11, page 8 for location.

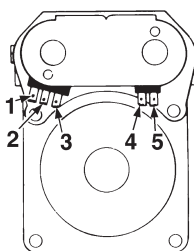
→ If the ohmmeter indicates an open circuit, replace the failed thermal cut-off and high limit thermostat. In addition, check for blocked or improper exhaust system, or failed heat element (electric dryer).

TEST #3d Gas Valve, Gas Dryer Only

1. Unplug dryer or disconnect power.
2. Access the gas valve by removing the toe panel. See Removing the Toe Panel, page 11.
3. Use an ohmmeter to determine if a gas valve coil has failed. Remove harness plugs. Measure resistance across terminals. Readings should match those shown in the following chart. If not, replace coil.

Terminals	Resistance
1 to 2	1365 $\Omega \pm 25$
1 to 3	560 $\Omega \pm 25$
4 to 5	1220 $\Omega \pm 50$

IMPORTANT: Be sure all harness wires are looped back through the strain relief after checking or replacing coils.



TEST #4 Moisture Sensor

NOTE: This test is started with the dryer completely assembled.

This test is performed when an automatic cycle stops too soon, or runs much longer than expected.

NOTE: Dryer will shut down automatically after 2½ hours.

The following items are part of this system:

Harness/connection
Metal sensor strips
Machine control electronics. See ESD information, page 1.

1. Enter Service Diagnostic mode and select the User Interface/Control System test. See procedure on page 2.
2. Open the dryer door. The dryer should beep and then the TEMP indicators should change.
3. Locate the two metal sensor strips on the face of the lint screen housing. Bridge these strips with a wet cloth or finger.

→ If a beep tone is heard and the TEMP and STATUS indicators change, the sensor passed the test. Go to step 9.

→ If a beep tone is not heard, or a continuous beep tone is heard

before bridging the moisture strips, continue with step 4.

NOTE: Overdrying may be caused by a short circuit in the sensor system.

4. Access the moisture sensor wires by removing the toe panel. See Removing the Toe Panel, page 11. Disconnect the sensor wires from the harness. See figure 12.

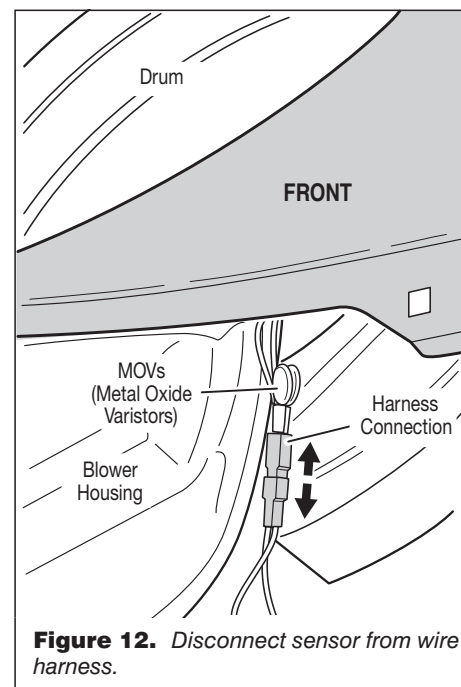


Figure 12. Disconnect sensor from wire harness.

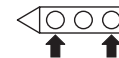
5. Access the machine control electronics. See Accessing & Removing the Electronic Assemblies, page 11. Remove connector P13 from the circuit board. Check the main harness connections between the sensor harness and machine control for a short or open circuit.

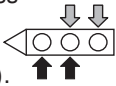
→ Replace the main harness if necessary.

→ If harness is OK, continue with step 6.
6. Access the moisture sensor by removing the toe panel. See Removing the Toe Panel, page 11. Disconnect the sensor from the wire harness. See figure 12.
7. Measure the resistance across the outermost contacts of the cable that includes the two red MOV's.

→ If a small resistance is measured, check for debris across moisture strips inside the drum; clean if debris is present. If debris is not present, replace sensor harness.

→ If a small resistance is not measured, continue with step 8.



8. Measure the resistance across each of the outermost contacts and the center terminal (ground connection).
- 
- If a resistance less than infinity is measured, replace the sensor harness.

9. If moisture sensor diagnostic test passes, check the thermistor: Perform TEST #3a, page 8.
- If the problem persists after replacing the moisture sensor and thermistor, replace the machine control electronics.

TEST #4a Adjusting Customer-Focused Drying Modes

NOTE: If the customer is complaining about the clothes being damp and the moisture sensor passed TEST #4, step 3, the total auto dry time can be changed by choosing one of 3 different Customer-Focused drying modes.

- 1 = standard auto cycle
- 2 = 15% more drying time
- 3 = 30% more drying time

1. Be sure the dryer is in standby mode (plugged in with all indicators off, or with only the DONE indicator on).
2. Activate the Customer-Focused Drying Mode by pressing and holding the TEMP button for more than 6 seconds.
3. The dryer will beep and the current drying mode will be seen on the STATUS indicators. The factory default value is "1".
4. To select a different drying mode, press the TEMP button again. STATUS indicators will indicate the current selected drying mode.

NOTE: While cycling through the settings, the current setting will not flash, but the other settings will.

- 1 = WET indicator lit constantly or flashing
- 2 = WET and DAMP indicators lit constantly or flashing
- 3 = WET, DAMP, and COOL DOWN indicators lit constantly or flashing

5. With the desired drying mode shown, press the START button to save the drying mode and exit diagnostics (the START button in this mode does not start a drying cycle). The result will be stored in EEPROM of the control board, and will be retained after a power loss.
6. Press the POWER button at any time to cancel changes and exit from this mode.

TEST #5 Buttons and Indicators

This test is performed when any of the following situations occurs during the Console Buttons and Indicators test in the User Interface/Control System test, page 2:

- ✓ None of the indicators light up
- ✓ No beep sound is heard
- ✓ Some buttons do not light indicators

None of the indicators light up:

1. See Diagnostic Guide/Before Servicing... on page 1.
2. Perform Test #1, page 5 to verify supply connections.
3. Perform steps in Accessing and Removing the Electronic Assemblies, page 11 and visually check that the P5 connector is inserted all the way into the machine control electronics.
4. Visually check that the user interface and housing assembly is properly inserted into the front console.
5. If both visual checks pass, replace the user interface and housing assembly.
6. Plug in dryer or reconnect power.
7. Activate the Service Diagnostic mode per procedure on page 1. Then activate the User Interface/Control System test and verify the repair by completing the Buttons and Indicators test per procedures on page 2.
8. If indicators still do not light, the machine control electronics has failed:
 - Unplug dryer or disconnect power.
 - Replace the machine control electronics.
 - Plug in dryer or reconnect power.
 - Activate the Service Diagnostic mode per procedure on page 1. Then activate the User Interface/Control System test and verify the repair by completing the Buttons and Indicators test per procedures on page 2.

No beep sound is heard:

1. Perform steps in Accessing and Removing the Electronic Assemblies, page 11 and visually check that the P5 connector is inserted all the way into the machine control electronics.
 - If visual check passes, replace the user interface and housing assembly.
2. Plug in dryer or reconnect power.
3. Activate the Service Diagnostic mode per procedure on page 1. Then activate the User Interface/Control System test and verify the repair by completing the Buttons and Indicators test per procedures on page 2.
4. If replacing the user interface and housing assembly failed:
 - Unplug dryer or disconnect power.
 - Replace the machine control electronics.

- Plug in dryer or reconnect power.
- Activate the Service Diagnostic mode per procedure on page 1. Then activate the User Interface/Control System test and verify the repair by completing the Buttons and Indicators test per procedures on page 2.

Some buttons do not light indicators:

1. Perform steps in Accessing and Removing the Electronic Assemblies, page 11 and visually check that the user interface and housing assembly is properly inserted into the front console.
 - If visual check passes, replace the user interface and housing assembly.
2. Plug in dryer or reconnect power.
3. Activate the Service Diagnostic mode per procedure on page 1. Then activate the User Interface/Control System test and verify the repair by completing the Buttons and Indicators test per procedures on page 2.

TEST #6 Door Switch

Perform steps under Activating the Service Diagnostic Mode, page 1, and activate the User Interface/Control System test. Then perform the Door Switch Diagnostic test, page 3. Functionality is verified with a beep each time the door is closed and opened, and the TEMP indicators display the Control Software ID along with the WET or DONE indicator illuminating to indicate fuel type.

If any of the above conditions are not met, or if the dryer Control Software ID listed above is displayed when the door is closed:

- Unplug dryer or disconnect power.
- Check that the wires between the door switch and machine control electronics are connected. See figure 13 for switch location, and see Accessing and Removing the Electronic Assemblies, page 11.

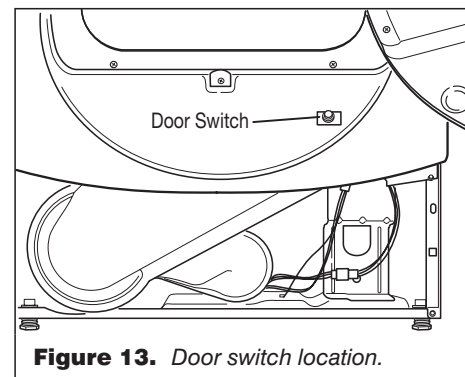


Figure 13. Door switch location.

- If the connections are OK, replace the wire and door switch assembly and retest.
- If wire and door switch assembly have been replaced and dryer still does not start, replace the machine control electronics.

REMOVING THE TOE PANEL

1. Unplug dryer or disconnect power.
2. Remove two screws below the toe panel.
3. Slide the toe panel down, then pull it out from the bottom. See figure 14.

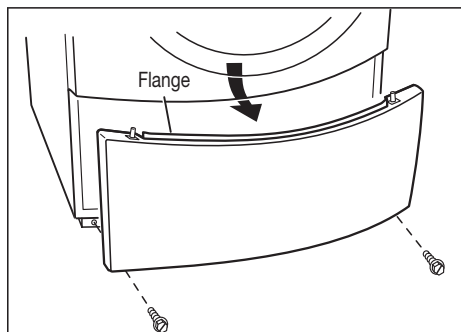


Figure 14. Pull the toe panel down to clear flange, then pull panel out.

ACCESSING & REMOVING THE ELECTRONIC ASSEMBLIES

There are two electronic assemblies: the User Interface and Housing, and the Machine Control Electronics. See figure 15.

1. Unplug dryer or disconnect power.
2. Remove the two rear screws from the top panel, and slide the top panel to the rear to remove.

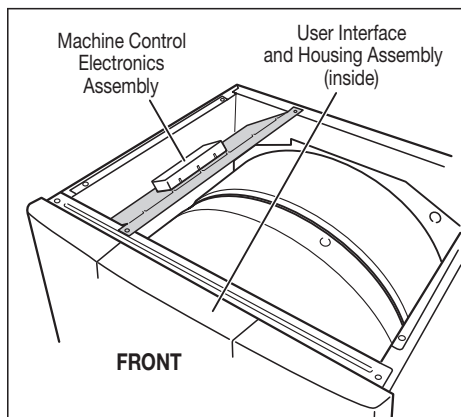


Figure 15. Locate the electronic assemblies.

Accessing the Machine Control Electronics

1. After locating the machine control electronics, remove the screws that hold the machine control electronics bracket in place.
2. Slide the bracket over the top of the drum to access the machine control electronics connectors and mounting screw. See figure 16.

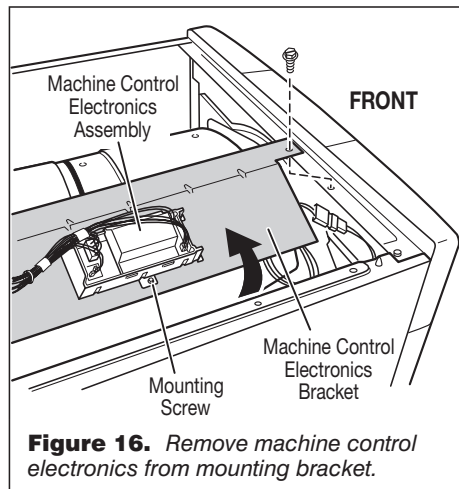


Figure 16. Remove machine control electronics from mounting bracket.

Removing the Machine Control Electronics

1. Remove all the wire connections to the machine control electronics. See figure 17.
2. Remove the screw holding the machine control electronics assembly to the mounting bracket. See figure 16.
3. There are two plastic legs on the front of the machine control electronics that slide under the mounting bracket.
 - ✓ There is one plastic leg on the rear of the machine control electronics that slides under the mounting bracket.

- ✓ There is a locking tab on the bottom of the machine control electronics that snaps into the mounting bracket.

Press the locking tab on the bottom of the machine control electronics and slide the assembly to the front, then lift.

Accessing the User Interface and Housing Assembly

1. Access the machine control electronics (see Accessing the Machine Control Electronics at left) and disconnect the P5 ribbon cable.
2. The console panel must be removed to access the user interface and housing assembly. Remove the knob from the front of the console panel.
3. The console panel has two locking tabs on the left and right rear, one locking tab on the bottom (hidden), and three snap releases across the top. See figure 18. Press the locking tab on the right rear, and gently rotate the console panel up as you pull the top free of the three snap releases, finally pressing the locking tab on the left, and lift the console panel off.

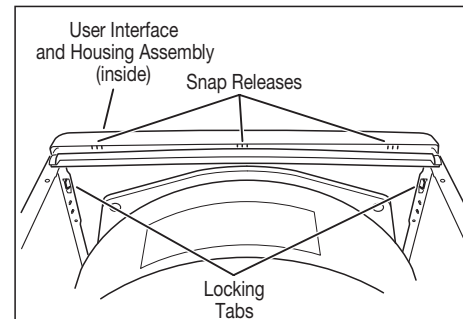


Figure 18. Remove the console panel to access the user interface and housing assembly.

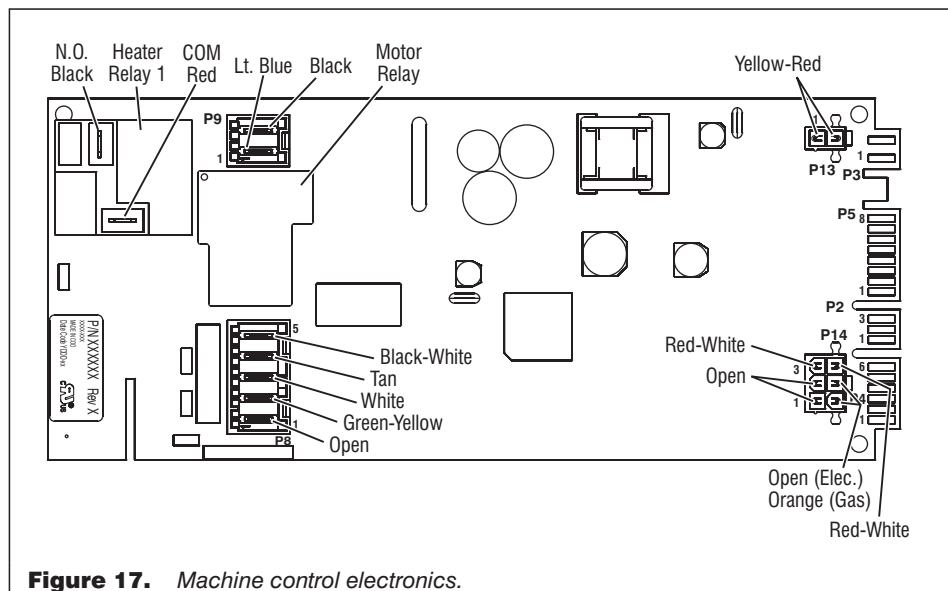


Figure 17. Machine control electronics.

Removing the User Interface and Housing Assembly

The user interface and housing assembly is held to the console panel by screws. Remove the screws and gently lift the user interface and housing assembly out of the console panel. See figure 19.

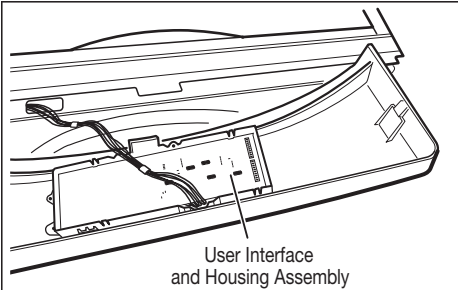


Figure 19. Remove screws.

REMOVING THE BACK PANEL

- 1. Unplug dryer or disconnect power.
- 2. Remove the two rear screws from the top panel, and slide the top panel to the rear to remove.
- 3. Remove the cover plate, disconnect the power cord, and remove ground screw.
- 4. Remove the metal spring clip between the back panel and the exhaust outlet. See figure 20.

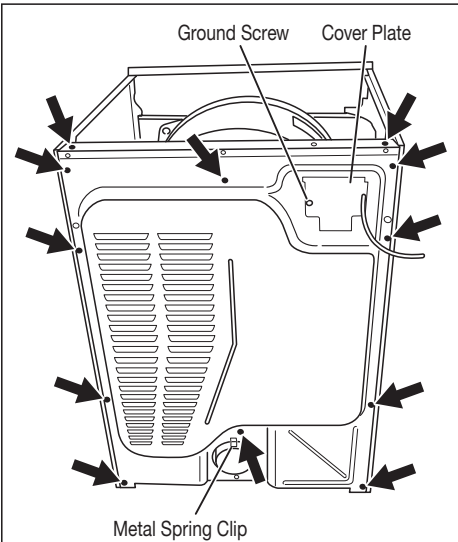


Figure 20. Remove 12 screws.

- 5. Remove the ten screws on the rear, and two screws on the top of the back panel. Pull the back panel off the dryer. See figure 20.

ELECTRIC DRYER: In addition to the above, remove the terminal block from the back panel.

SOFTWARE COPYRIGHTED.
MANUFACTURED UNDER ONE OR MORE
OF THE FOLLOWING U.S. PATENTS:

4669200	4989347	6446357	D314261
4700495	5066050	6597144	D314262
4754556	5560120	6604298	D457991
4840285	5809828	6685241	D457992
4865366	6020698	6732447	D495453
4899464	6047486	6784673	
4908959	6199300	6819255	