⚠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.

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.

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.

DIAGNOSTIC TESTS

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 DIAGNOSTIC TEST MODE

1. Be sure the dryer is in standby mode (plugged in with all indicators off, or with only the Dry indicator on).
2. Select any one button (except Pause/Cancel) and follow the steps below, using the same button (remember the button):

   Press/hold 2-5 seconds → Release for 2-5 seconds → Press/hold 2-5 seconds → Release for 2-5 seconds → Press/hold 2-5 seconds

3. If this test mode has been entered successfully, all indicators on the console are illuminated for 5 seconds with 88 showing in the Estimated Time Remaining two-digit display.

DIAGNOSTIC: Unsuccessful Entry

If entry into diagnostic mode is unsuccessful, press the Pause/Cancel button twice, then press the Power button.

→ If indicators come on, try to use a different button than was used to activate the diagnostic test mode. If that button fails to enter the diagnostic mode, something is faulty, and it is not possible to enter the diagnostic mode. Go to TEST #2, page 6.

→ If no indicators come on after pressing the Power button, go to TEST #1, page 6.

DIAGNOSTIC: Saved Fault Codes

If there are saved fault codes, the most recent fault code will alternately show “F-” and “XX” where XX is the fault code.

Press and release the same button used to activate Diagnostics	→ 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	→ All indicators momentarily turn off, then stay on.

DIAGNOSTIC: Console Buttons and Indicators

Pressing the console buttons or rotating the cycle selector will sound a beep and will turn on or off the corresponding indicators as shown in Figure 1, Console Diagnostics, page 2. Pressing Timed Cycle Adjust ▲ (more time) will sound a beep and turn the left digit of the display on or off. Pressing Timed Cycle Adjust ▼ (less time) will sound a beep and turn the right digit of the display on or off.

→ If indicators fail to turn on or off and beep after pressing buttons or rotating the cycle selector, go to TEST #6, page 10.

DIAGNOSTIC: Door Switch

Opening the door should cause a beep and an alphanumeric number to be displayed. Closing the door should cause a beep and 88 to be displayed.

→ If opening the door fails to cause a beep and a number and letter to be displayed, go to TEST #7, page 10.

DIAGNOSTIC: Moisture Sensor

Open the door and locate two metal strips on the inside of the dryer. Bridge these strips with a wet cloth or a finger.

→ If a continuous beep tone is heard and an alphanumeric number is displayed on the console, the sensor is OK.

→ If not, or if a continuous beep tone is heard before bridging the moisture strips, go to TEST #5, page 9.

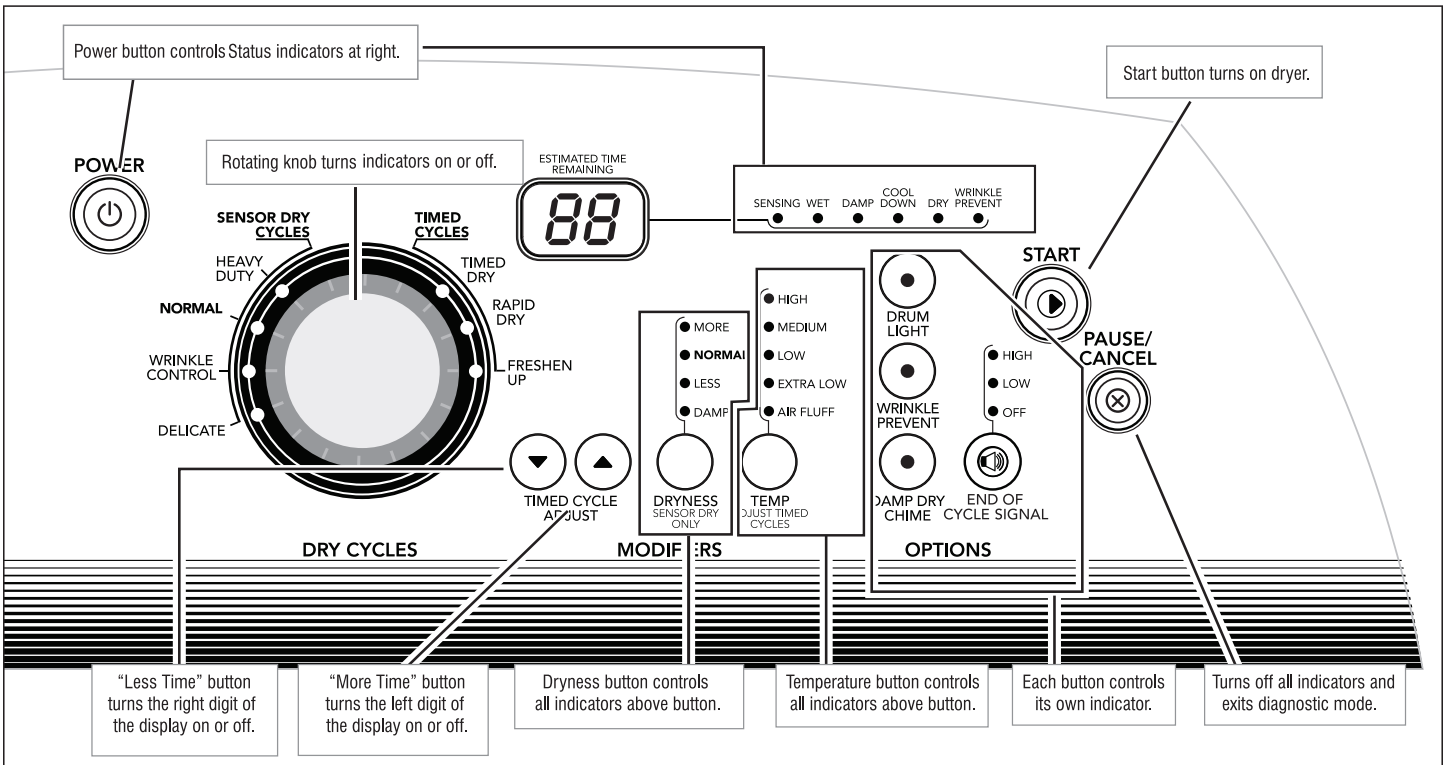


Figure 1. *Console Diagnostics.*

DIAGNOSTIC: Motor, Heater, and Console ID

Close the door. Press the Start button. The motor and heater will turn on, and the display will show the console ID 69.

- → If the Console ID above is not displayed, replace the user interface assembly. See Accessing & Removing the Electronic Assemblies, page 11.
- → If the motor does not turn on, go to TEST #3, page 7.
- → If no heat is detected, go to TEST #4, page 8.

DIAGNOSTIC: Displaying Inlet Air Flow

Used to display the airflow value at the inlet of the heater box being measured by the machine control.

After all saved fault codes have been displayed, press the Wrinkle Prevent button to activate airflow detection. A 30 or 50 second countdown timer will start and the dryer will turn on.

→ If the dryer is cold, the countdown will start at 50 seconds.

NOTE: If the dryer is extremely cold (less than 40°F [4.4°C]) the airflow may not be detected properly, and "--" will be displayed.

→ If the dryer is hot, the countdown timer will start at 30 seconds (cool down period) followed by an additional 50 second countdown.

A Dryness modifier LED will also be illuminated to indicate the airflow range corresponding to the number displayed.

- The More LED will be illuminated for airflow readings above 40 cfm.
- The Normal LED will be illuminated for airflow readings between 29 and 40 cfm.
- The Less LED will be illuminated for airflow readings less than 29 cfm.

→ If airflow value is low, check to make sure the lint screen is clean, the door seal is in place and the vent is not obstructed.

DIAGNOSTIC: Displaying Line Voltage

Used to display the line voltage currently being measured by the machine control:

After all saved fault codes have been displayed, press the End of Cycle Signal button. The last 2 digits of the voltage value will be displayed on the dual 7-segment display.

A Dryness modifier LED will also be illuminated to indicate the voltage range corresponding to the number displayed. The Dryness LEDs relate to specific voltage ranges as follows:

- The More LED will be illuminated for high voltage readings (above 260 VAC).
- The Normal LED will be illuminated for normal voltage readings (200-260 VAC).
- The Less LED will be illuminated for low voltage readings (below 200 VAC).

→ If the line voltage is not seen on L2 the display will flash L2. Go to TEST #1, page 6.

DEACTIVATING THE DIAGNOSTIC TEST MODE

Press the Pause/Cancel button twice to exit diagnostics.

ACTIVATING THE MANUAL LOAD TEST

1. Be sure the dryer is in standby mode (plugged in with all indicators off, or with only the Dry indicator on).
2. Select any one button (except Pause/Cancel) and follow the steps below, using the same button (remember the button):

Press/ hold 2-5 seconds → Release for 2-5 seconds → Press/ hold 2-5 seconds → Release for 2-5 seconds → Press/ hold 2-5 seconds → Release for 2-5 seconds → Press/ hold 2-5 seconds

88 flashes momentarily, the motor starts right away, and the Heavy Duty LED flashes (this step starts the Manual Load sequence):

1. Turn on motor. → Flash "Heavy Duty" LED.

Now press any key (except Pause/Cancel) and the control will advance through each step of the following sequence:

2. Motor + heater 1. → Flash "Wrinkle Control" LED.
3. Motor + heater 2. → Flash "Timed Dry" LED.
4. Motor + heater 1 + heater 2 + drum light. → Flash "Drum Light" LED.
5. No loads on (motor + heaters off). → Flash "Normal" LED.
6. Repeat using same button. → Start sequence again at 1.

DEACTIVATING THE MANUAL LOAD TEST

Press the Pause/Cancel button to exit this mode.

DISPLAY FAULT CODES

The fault codes below would be indicated when attempting to start a drying cycle or after activating the diagnostic test mode.

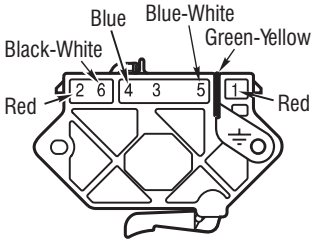
DISPLAY	DESCRIPTION	EXPLANATION / RECOMMENDED PROCEDURE
PF	**Power Failure**	**PF** flashes to indicate that a power failure occurred while the dryer was running. Press Start to continue the cycle, or press Pause/Cancel to clear the display.
AF	**Restricted Airflow Condition**	**AF** flashes if a restricted airflow condition exists. Check to make sure the lint screen is clean, the door seal is in place and the vent is not obstructed.
F-01	**Primary Control Failure**	**F-01** flashes when there is a primary control failure. Replace the machine control electronics. See Accessing & Removing the Electronic Assemblies, page 11.
F-02	**Keypad/ User Interface Failure**	**F-02** flashes when there is a stuck button or user interface mismatch. This fault code will ONLY appear when in the diagnostic test mode. See TEST #6, page 10.
F-22	**Exhaust Thermistor Open**	**F-22** flashes if the exhaust thermistor is open. See TEST #4a, page 8.
F-23	**Exhaust Thermistor Shorted**	**F-23** flashes if the exhaust thermistor has shorted. See TEST #4a, page 8.
F-24	**Inlet Thermistor Open**	**F-24** flashes if the inlet thermistor is open. This fault code will ONLY appear when in the diagnostic test mode. See TEST #4a, page 8.
F-25	**Inlet Thermistor Shorted**	**F-25** flashes if the inlet thermistor is shorted. This fault code will ONLY appear when in the diagnostic test mode. See TEST #4a, page 8.
F-26	**Motor Drive System Failure**	**F-26** flashes if there is a motor drive system failure. See TEST #3, page 7.
F-28	**Moisture Sensor Open**	**F-28** flashes if the moisture sensor strip is open. This fault code will ONLY appear when in the diagnostic test mode. See TEST #5, page 9.
F-29	**Moisture Sensor Shorted**	**F-29** flashes if the moisture sensor strip has shorted. This fault code will ONLY appear when in the diagnostic test mode. See TEST #5, page 9.
F-30	**Restricted Airflow Condition**	**F-30** flashes if a restricted airflow condition exists. This fault code will ONLY appear when in the diagnostic test mode. Check to make sure the lint screen is clean, the door seal is in place and the vent is not obstructed.

TROUBLESHOOTING GUIDE

Some tests will require accessing components. See figure 2, page 6 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.)	1. Supply connections. See TEST #1, page 6. 2. Check harness connections. 3. User interface assembly. See TEST #6, page 10.
WON'T START CYCLE WHEN START BUTTON IS PRESSED.	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 #3, page 7. 3. See TEST #7, page 10.
WON'T SHUT OFF WHEN EXPECTED.	1. Check Pause/Cancel button. See TEST #6, page 10. 2. User interface assembly. See TEST #6, page 10. 3. Moisture sensor. See TEST #5, page 9.
CONTROL WON'T ACCEPT SELECTIONS.	User interface assembly. See TEST #6, page 10.
WON'T HEAT.	1. Heater. See TEST #4, page 8. 2. Check harness connections. 3. Check installation.
HEATS IN AIR CYCLE.	Heater. See TEST #4, page 8.
SHUTS OFF BEFORE CLOTHES ARE DRY.	1. Check the dryness setting for Sensor Dry Cycles. 2. Check for full lint screen. 3. Check for clogged vent. 4. Moisture sensor. See TEST #5, page 9. 5. Dryness adjust. See Adjusting Customer-Focused Drying Modes, page 10.

PLUGGABLE DRIVE MOTOR SWITCH



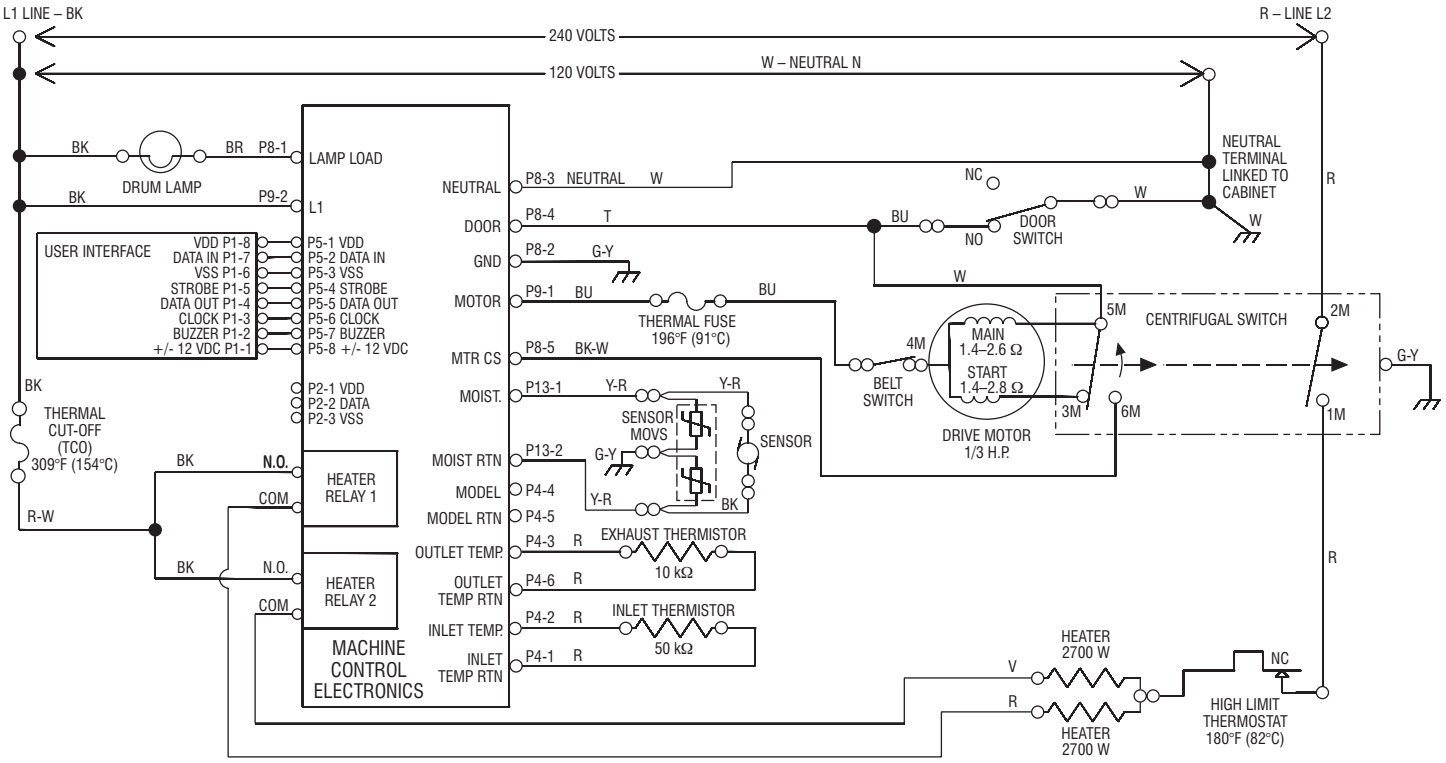
CENTRIFUGAL SWITCH (MOTOR)

Function	Contacts 1M	2M	3M	5M	6M
Start			●	●	
Run	●	●		●	●

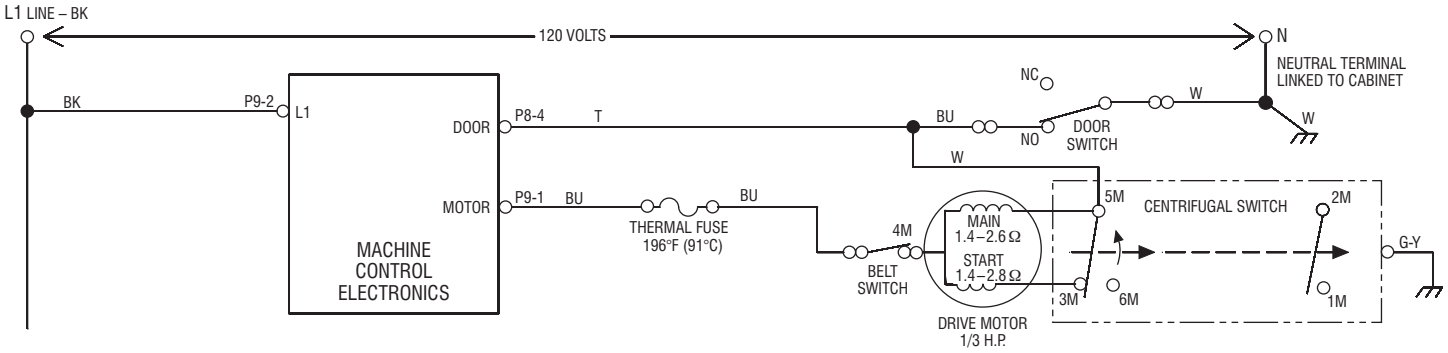
● = *Contacts closed*

ELECTRIC DRYER WIRING DIAGRAM

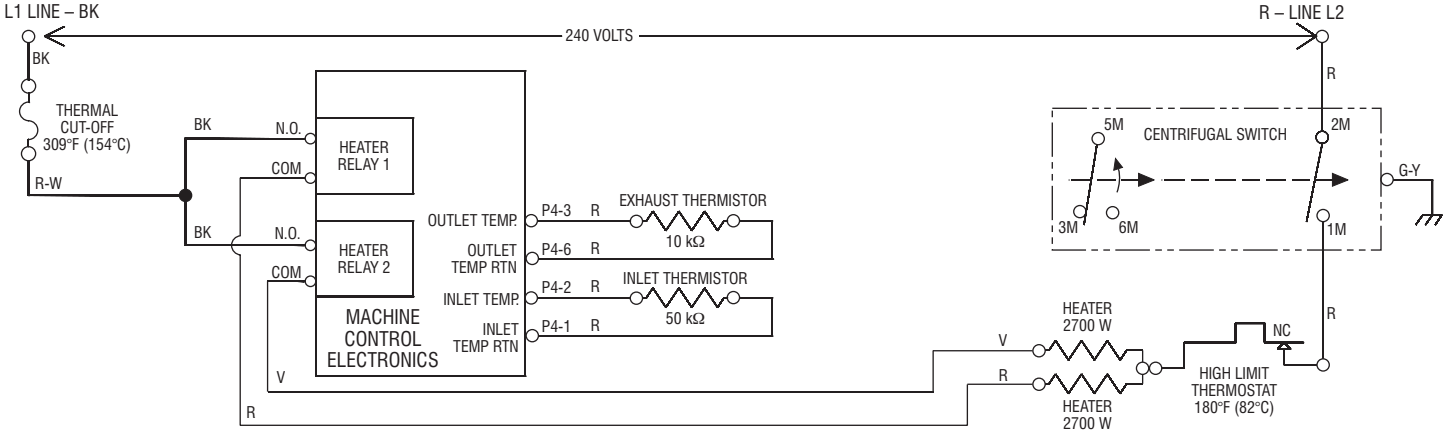
IMPORTANT: Electrostatic (static electricity) discharge may cause damage to machine control electronics. See page 1 for details.



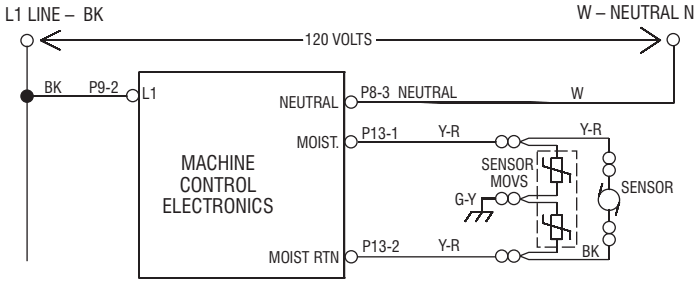
DRIVE MOTOR STRIP CIRCUIT



HEATER STRIP CIRCUIT



MOISTURE SENSOR STRIP CIRCUIT



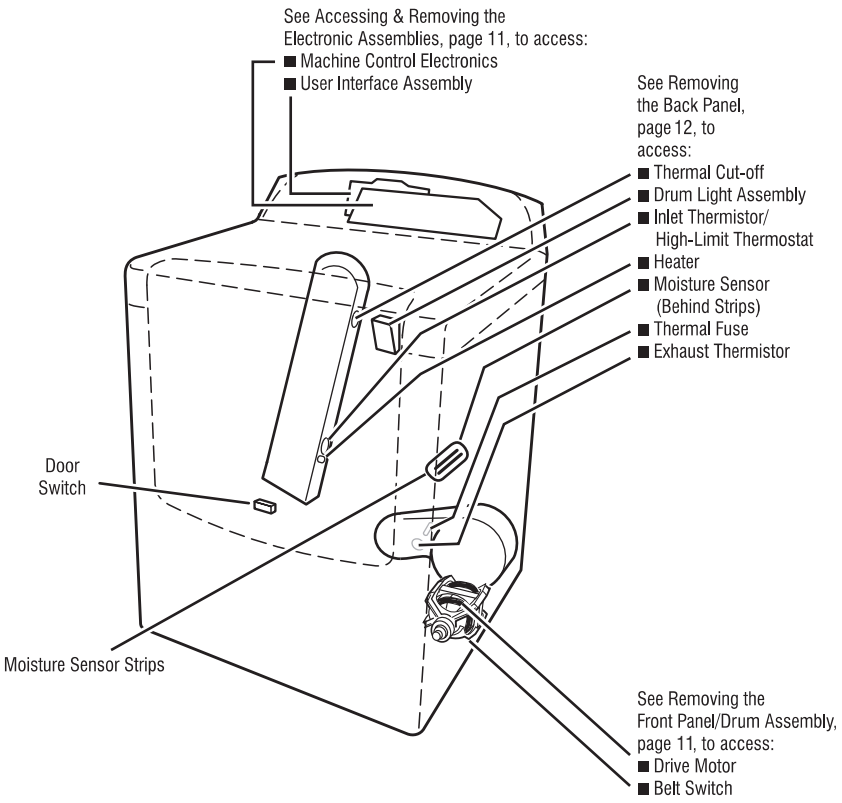


Figure 2. *Component locations.*

TROUBLESHOOTING TESTS

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

TEST #1 *Supply Connections*

This test should only be done after confirming proper voltage at the outlet.

1. Unplug dryer or disconnect power.
2. Remove the cover plate from the back of the dryer. See figure 3.

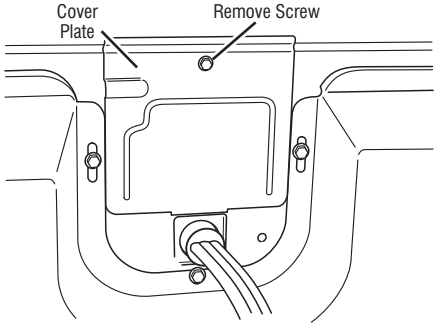


Figure 3. *Remove the cover plate.*

3. Make sure the power cord is securely fastened to the terminal block.
4. 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.

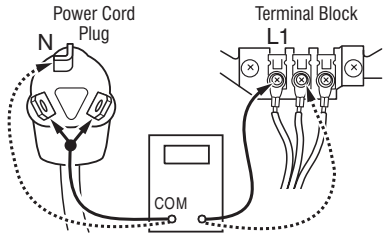


Figure 4. *Plug-to-terminal connections.*

- → If there is no continuity, replace the power cord and test the dryer.
- → If there is continuity, go to step 5.

5. 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 above and wiring diagram, page 4.
   - → When this is found, go to step 6.
   - → 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.
6. Access the machine control electronics without disconnecting any wiring to the control board. See Accessing & Removing the Electronic Assemblies, page 11.
7. With an ohmmeter, check for continuity between the L1 terminal of the plug (found in step 5) and P9-2 (black wire) on the machine control board. See figure 15, page 11.
   - → If there is continuity, go to step 8.
   - → 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.
8. 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 9.
   - → If there is no continuity and the mechanical connections of the wire are secure, replace the main wire harness.
9. Visually check that the P5 connector is inserted all the way into the machine control electronics.
10. Visually check that the user interface assembly is properly inserted into the front console.
11. If both visual checks pass, replace the user interface assembly.
12. Plug in dryer or reconnect power.
13. Perform the Console Buttons and Indicators Diagnostic test, page 1, to verify repair.
14. 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.
    - → Perform the Console Buttons and Indicators Diagnostic test, page 1 to verify repair.

TEST #2 *Machine Control Power Check*

This test is used to determine if power is present at the machine control electronics.

NOTE: The drum light is controlled by the machine control on all models.

1. Plug in dryer or reconnect power.
2. Open the door.
   - → If the drum light illuminates, then power is present at the machine control. Go to TEST #6, page 10.
   - → If the drum light fails to illuminate, do not assume the machine control electronics needs replacement. Several conditions may cause the drum light not to illuminate, including a bad bulb. If the drum light does not illuminate, go to TEST #1, at left.

TEST #3 *Drive Motor Circuit*

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

- Harness/ connection
- Thermal fuse
- 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 Ω, 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 wiring diagram, page 4 and drive motor strip circuit, page 5.

4. Perform TEST #4b, page 9. If thermal fuse is OK, continue with step 5.

5. Check the belt switch and drive motor. Access the belt switch and drive motor by removing the front panel/drum assembly. See Removing the Front Panel/Drum Assembly, page 11. Slowly remove the drum belt from the spring-loaded belt switch tension pulley, gently letting the pulley down. See figure 5.

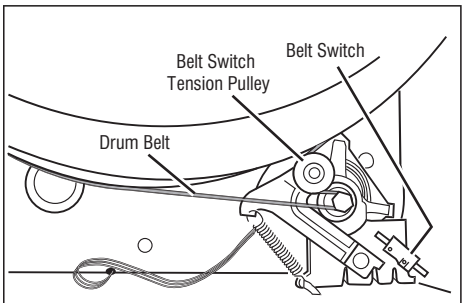


Figure 5. *Slowly remove drum belt.*

6. Remove the white connector from the drive motor switch. See figure 6.

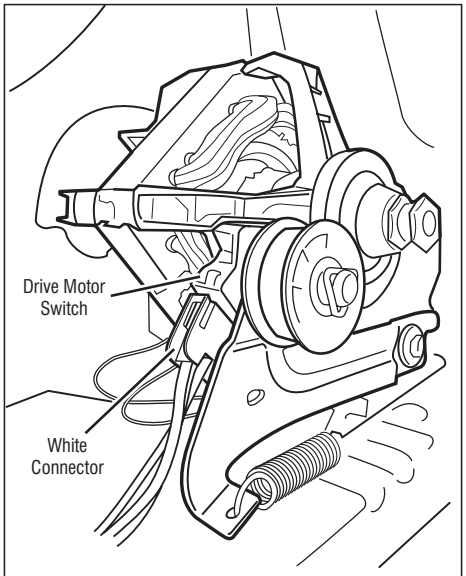


Figure 6. *Remove white connector.*

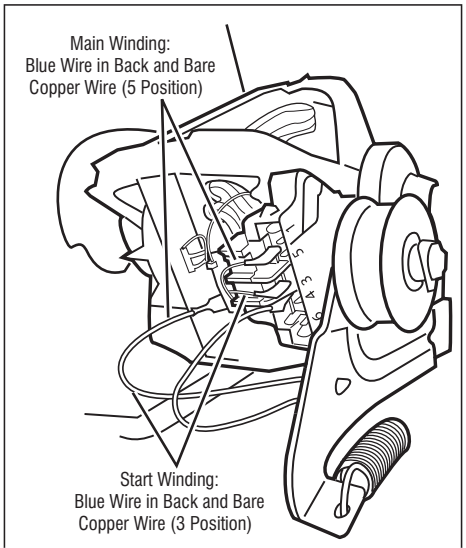


Figure 7. *Main and Start winding measure points.*

7. Using figure 7, 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 Ω	CONTACT POINTS OF MEASUREMENT
MAIN	1.4–2.6	Blue wire in back at pin 4 and bare copper wire on pin 5 of black drive motor switch
START	1.4–2.8	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 resistance is much greater than 4 ohms, replace the motor.

8. Check the belt switch by measuring resistance between the two blue wires as shown in figure 8, while pushing up the belt switch tension pulley.

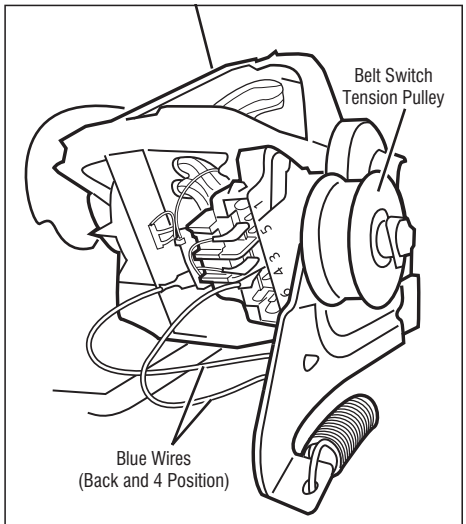


Figure 8. *Checking the belt switch.*

→ 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.

9. Door switch problems can be uncovered in the Door Switch Diagnostic Test, page 1; 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 Ω).

→ If not, replace the door switch assembly. See figure 11, page 10; and Removing the Front Panel/Drum Assembly, page 11.

TEST #4 *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:

- Harness/ connection
- Heater relay
- Thermal cut-off
- Inlet thermistor/ high limit thermostat
- Heat element assembly
- Centrifugal switch
- Exhaust thermistor
- Machine control electronics. See ESD information, page 1.
- User interface assembly

Dryer does not heat:

Locate the components using figure 2, page 6; and figure 9, below.

1. Unplug dryer or disconnect power.
2. Remove the back panel to access the thermal components. See Removing the Back Panel, page 12.

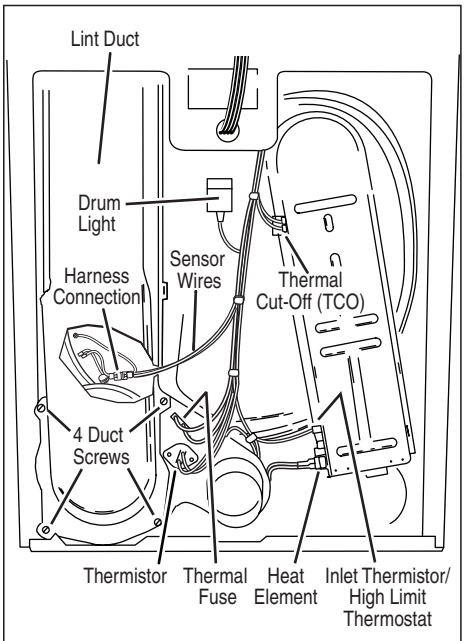


Figure 9. *Thermal components, viewed from rear.*

3. Using an ohmmeter and referring to the wiring diagram, page 4; and heater strip circuit, page 5, measure the resistance across the high limit thermostat.
   - → If an open circuit is not detected, 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 and the high limit thermostat. If connections look good, check for continuity across each of these components. Replace both the thermal cut-off and the inlet thermistor/high limit thermostat assembly if either the thermal cut-off or the high limit thermostat is electrically open.
5. Measure the resistance between the red wires at the heater.
   - → If an open circuit is not detected, go to step 7.
   - → If an open circuit is detected, go to step 6.
6. Visually check the wire connections to the heater. If the connections look good, replace the heater.
7. Measure the resistance at the heater between the violet wire and the red wire terminals.
   - → If an open circuit is not detected, go to step 9.
   - → If an open circuit is detected, go to step 8.
8. Visually check the wire connections to the heater. If the connections look good, replace the heater assembly.
9. If no open circuit is detected, remove the P4 connector, then measure the resistance between P4-3 (red wire) and P4-6 (red wire) at the connector. See figure 15, page 11 for connector location; and Accessing & Removing the Electronic Assemblies, page 11.
   - → If 5–15 kΩ are measured, replace the machine control electronics.
   - → If the resistance is less than 1 kΩ , replace the exhaust thermistor.

Heat will not shut off:

1. Unplug dryer or disconnect power.
2. Access the machine control electronics. See Accessing & Removing the Electronic Assemblies, page 11. Remove the P4 connector. See figure 15, page 11 for connector location; then measure the resistance between P4-3 (red wire) and P4-6 (red wire) at the connector.
   - → If 5–15 kΩ are measured, replace the machine control electronics.
   - → If the resistance is greater than 20 kΩ , replace the exhaust thermistor.

TEST #4a *Thermistors*

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, F-22 or F-23 flashes in the display 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, page 11; and for thermistor location, figure 9.
   - → If wire connections are OK, check the exhaust thermistor resistance per step 5.
4. If F-22 or F-23 does not flash in the display, 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* °F (°C)	HEAT TURNS ON °F (°C)
High	155°±5° (68°±3°)	10°–15° (6°–8°) below the heat turn off temperature
Medium	140°±5° (60°±3°)	
Low	125°±5° (52°±3°)	
Extra Low	105°±5° (41°±3°)	

* 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, or you have come here from step 3, remove the P4 connector, then measure the resistance between P4-3 (red wire) and P4-6 (red wire) at the connector. See figure 15, page 11 for connector location; and Accessing & Removing the Electronic Assemblies, page 11.
   - → If the resistance is OK, check P4-3 and P4-6 to machine ground.
   - → If resistance is greater than 0 (zero), replace wiring harness.

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

The following table gives temperatures and ranges for the associated thermistor resistance values.

EXHAUST THERMISTOR RESISTANCE			
TEMP. °F (°C)	RES. kΩ	TEMP. °F (°C)	RES. kΩ
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.

INLET THERMISTOR

The machine control electronics monitors the inlet temperature using an inlet thermistor that is part of the inlet thermistor/high limit thermostat assembly.

1. Activate the diagnostic test mode. See procedure on page 1.
2. If F-24 or F-25 is a displayed error in the diagnostic test mode, the thermistor or wire harness is either open or shorted.
   - ➔ Unplug dryer or disconnect power.
   - ➔ Check wire connections at the machine control electronics and inlet thermistor. See Accessing & Removing the Electronics Assemblies, page 11, and for inlet thermistor location see figure 9, page 8.
   - ➔ If wire connections are good, remove the wires from the inlet thermistor/high limit thermostat assembly and replace the assembly.
   - ➔ Plug in dryer or reconnect power.
3. If F-24 or F-25 is not an error that is displayed in the diagnostic test mode, the connections to the thermistor are good. Therefore, check the thermistor's resistance value, using the following process:
   - ➔ Unplug dryer or disconnect power.
   - ➔ Access the heater assembly. See figure 2, page 6; and Removing the Back Panel, page 12.
   - ➔ Hold a glass bulb thermometer capable of reading from 68° to 176°F (20° to 80°C) in the heater assembly.
   - ➔ Check the resistance of the inlet thermistor. See figure 9, page 8 for location.

INLET THERMISTOR RESISTANCE			
TEMP. °F (°C)	RES. kΩ	TEMP. °F (°C)	RES. kΩ
68° (20°)	61.2–63.7	131° (55°)	14.6–15.3
77° (25°)	49.0–51.0	140° (60°)	12.1–12.8
86° (30°)	39.5–41.1	149° (65°)	10.2–10.7
95° (35°)	32.0–33.3	158° (70°)	8.5–9.0
104° (40°)	26.1–27.2	167° (75°)	7.2–7.6
113° (45°)	21.4–22.3	176° (80°)	6.1–6.5
122° (50°)	17.6–18.5		

The table above shows the resistance values that should be observed for the various temperatures at the heater assembly.

- ➔ If the thermistor resistance does not agree with the measurements in the table, replace the inlet thermistor/high limit thermostat assembly.
- ➔ If the thermistor resistance agrees with the measurements in the table, replace the machine control electronics.

TEST #4b *Thermal Fuse*

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

1. Unplug dryer or disconnect power.
2. Access the thermal fuse by first removing the back panel. See Removing the Back Panel, page 12; and for thermal fuse location see figure 9, page 8.
3. Using an ohmmeter, check the continuity across the thermal fuse.
   - ➔ If the ohmmeter indicates an open circuit, replace the failed thermal fuse.

TEST #4c *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 back panel. See Removing the Back Panel, page 12.
3. Using an ohmmeter, check the continuity across the thermal cut-off. See figure 9, page 8, for location.
   - ➔ If the ohmmeter indicates an open circuit, replace the failed thermal cut-off and inlet thermistor/high limit thermostat assembly. In addition, check for blocked or improper exhaust system, or failed heat element.

TEST #5 *Moisture Sensor*

NOTE: This test is started with the machine 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

1. Activate the diagnostic test mode and advance past saved fault codes. See procedure on page 1.
2. Open the dryer door. If a continuous beep tone is heard and an alphanumeric number is displayed on the console as soon as the door is opened, a short circuit exists in the moisture sensor system.
   - ➔ If this doesn't happen, go to step 3.
   - ➔ Otherwise, go to step 4.

   NOTE: Over drying may be caused by a short circuit in the sensor system.
3. Locate the two metal sensor strips on the inside of the dryer. Bridge these strips with a wet cloth or finger.
   - ➔ If a continuous beep tone is heard and a software revision number is displayed on the console, the sensor passes the test. Go to step 8.
   - ➔ If a beep tone is not heard, or a continuous beep tone is heard before bridging the moisture strips, continue with step 4.
4. Access the moisture sensor wires:
   - ➔ Remove the back panel. See Removing the Back Panel, page 12.
   - ➔ Remove the lint screen.
   - ➔ Remove the two screws holding the lint screen duct to the top.
   - ➔ Remove four screws from bottom of the duct in rear. See figure 9, page 8.
   - ➔ Remove the duct from the dryer to access the moisture sensor.
   - ➔ Disconnect the sensor connector. See figure 10, page 10.

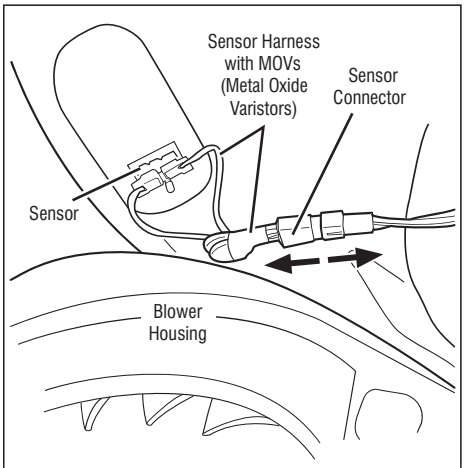
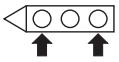
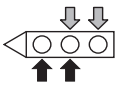


Figure 10. *Disconnect sensor connector.*

5. Access the machine control electronics. See Accessing & Removing the Electronic Assemblies, page 11. Remove the connector P13 from the circuit board. Check the main harness connections between the sensor connector and machine control for a short or open circuit.
   - ➔ Replace the main harness if necessary.
   - ➔ If harness is OK, continue with step 6.
6. Measure the resistance across the outermost contacts of the sensor connector that includes the two MOVs.



   - ➔ If a small resistance is measured, check for debris across moisture strips inside of the drum; clean if debris is present. If debris is not present, replace sensor harness with MOVs.
   - ➔ If a small resistance is not measured, continue with step 7.
7. 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 with MOVs.
8. If moisture sensor diagnostic test passes, check the thermistor: Perform TEST #4a, page 8.
   - ➔ If the problem persists after replacing the moisture sensor, harness with MOVs and thermistor, replace the machine control electronics.

TEST #6 *Buttons and Indicators*

This test is performed when any of the following situations occurs during the Console Buttons and Indicators Diagnostic Test, page 1:

- ✔ 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 6 to verify supply connections.
3. Perform TEST #2, page 6.
4. Perform steps in Accessing & Removing the Electronic Assemblies, page 11 and visually check that the P5 connector is inserted all the way into the machine control electronics.
5. Visually check the user interface assembly connections.
6. If both visual checks pass, replace the user interface assembly.
7. Plug in dryer or reconnect power.
8. Perform the Console Buttons and Indicators Diagnostic test, page 1 to verify repair.
9. 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.
   - ➔ Perform the Console Buttons and Indicators Diagnostic test, page 1 to verify repair.

No beep sound is heard:

1. Perform steps in Accessing & 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 assembly.
2. Plug in dryer or reconnect power.
3. Perform the Console Buttons and Indicators Diagnostic test, page 1 to verify repair.
4. If replacing the user interface assembly failed:
   - ➔ Unplug dryer or disconnect power.
   - ➔ Replace the machine control electronics.
   - ➔ Plug in dryer or reconnect power.
   - ➔ Perform the Console Buttons and Indicators Diagnostic test, page 1 to verify repair.

Some buttons do not light indicators:

1. Perform steps in Accessing & Removing the Electronic Assemblies, page 11 and visually check the user interface assembly connections.
   - ➔ If visual check passes, replace the user interface assembly.
2. Plug in dryer or reconnect power.
3. Perform the Console Buttons and Indicators Diagnostics test, page 1 to verify repair.

TEST #7 *Door Switch*

Activate the diagnostic test mode as shown on page 1, and perform the Door Switch Diagnostic test, page 1. Functionality is verified with a beep each time the door is closed and opened, and an alphanumeric number appears in the display (i.e., *0E*, *09*, etc.).

If any of these conditions are not met:

- ➔ Unplug dryer or disconnect power.
- ➔ Check that the wires between the door switch and machine control electronics are connected. See figure 11 for switch location and see Removing the Front Panel/Drum Assembly, page 11.
  - ➔ If the connections are OK, replace the door switch assembly and retest.
  - ➔ If the door switch assembly has been replaced and dryer still does not start, replace the machine control electronics.

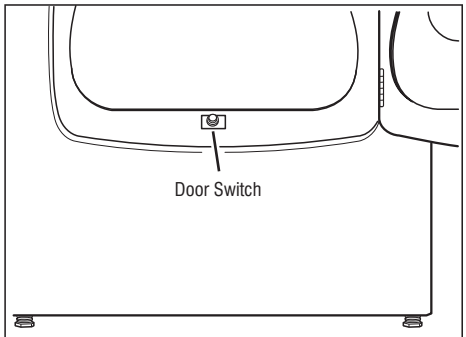


Figure 11. *Door switch location.*

ADJUSTING CUSTOMER-FOCUSED DRYING MODES

NOTE: If the customer is complaining about the clothes being damp and the moisture sensor passes TEST #5, page 9, step 3, the total dry time can be lengthened by changing from a “1” (standard auto cycle) to a “2” (15% more drying time) or “3” (20% more drying time) auto cycle.

1. Press and hold the Dryness button for 5 seconds. The dryer will beep and display *CF* for one second, then the current drying mode will be seen on the display. The factory default value is “1”.
2. To select a different drying mode, press the Dryness button again. The dryer display will flash and show the available settings.
3. With the display flashing the selected drying mode, press the Start button to save the drying mode and exit (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.
4. Press the Pause/Cancel button at any time to cancel changes and exit from this mode.

REMOVING THE FRONT PANEL/DRUM ASSEMBLY

1. Unplug dryer or disconnect power.
2. Remove the lint screen.
3. Remove the two screws holding the lint screen duct to the top.
4. Open the door.
5. Push on the retaining clips located under top of dryer on the right and left side using a flat object such as a putty knife. See figure 12.

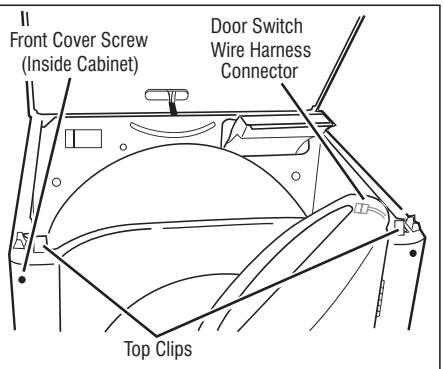


Figure 12. *Slowly rotate top backwards and support.*

6. Slowly rotate top backwards and lean against wall, or support with a prop rod.
7. Disconnect the door switch wire harness located on the right side. See figure 12.
8. Remove the front panel/door assembly by removing the two front cover screws at the top of the panel inside the cabinet, and lifting upward.
9. Remove the front bulkhead by loosening the upper two screws and removing the lower two screws. See figure 13.

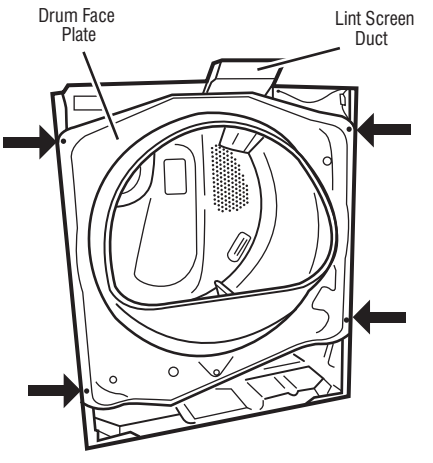


Figure 13. *Remove the front bulkhead.*

10. Lower components can be accessed at this time, however, if the drum is to be removed, the belt must be removed. See TEST #3, step 5, page 7.

Reinstalling the Front Panel/Drum Assembly

Refer to preceding removal sections and replace in reverse order.

ACCESSING & REMOVING THE ELECTRONIC ASSEMBLIES

There are two electronic assemblies; the machine control electronics and the user interface electronics. See figures 14 and 15.

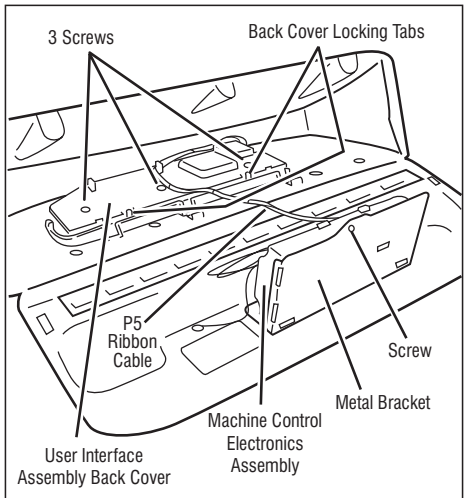


Figure 14. *Locate the electronic assemblies.*

1. Unplug dryer or disconnect power.
2. Remove two screws from the rear of the console assembly. Pull console towards front of dryer to hinge open and/or remove console.

Removing the Machine Control Electronics

3. Remove the wire connections to the machine control assembly.
4. Remove the one screw holding the machine control assembly to the metal bracket. See figure 14, page 11.
5. Push in on the tab located on the back of the machine control to slide it off the bracket.

Removing the User Interface Assembly

3. Remove the wire connections from the user interface assembly, including the P5 ribbon cable. See figure 14, page 11.
4. Remove the cycle selector knob from the front of the console by firmly pulling on it or carefully prying straight upward.
5. The user interface assembly is held to the console insert panel by three screws and two locking tabs. After the screws are removed, lift each of the locking tabs to remove the back cover of the user interface assembly. See figure 14, page 11.
6. Remove the cycle selector switch from the user interface assembly opening by lifting the locking tab on the cycle selector switch and turning the selector switch in a counterclockwise direction. See figure 16, page 12.

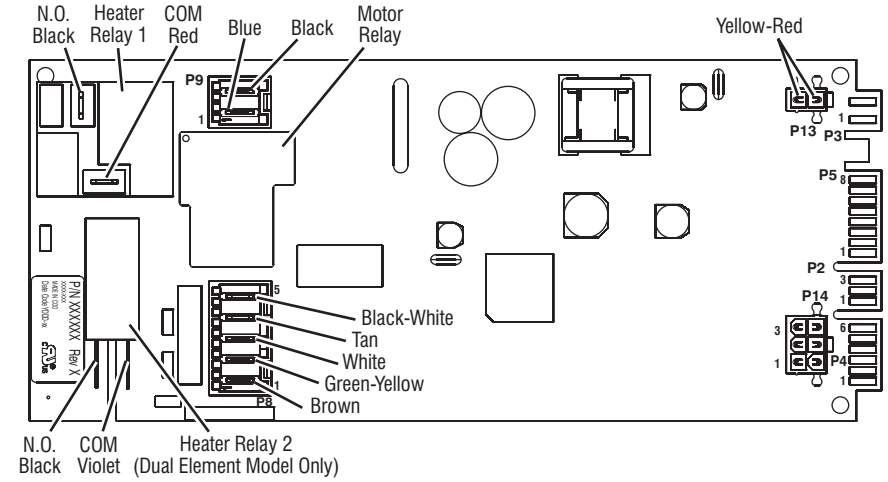


Figure 15. *Machine control electronics.*

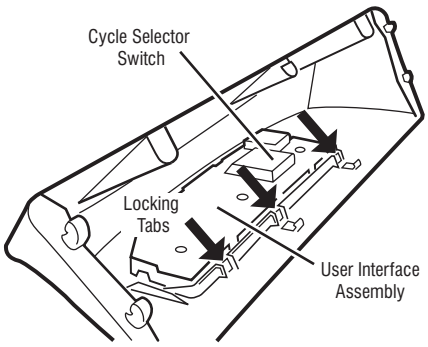


Figure 16. *Gently apply pressure to locking tabs to release the user interface assembly.*

7. Locking tabs located at the bottom of the console insert panel secure the user interface assembly to the console insert panel. Using a flat-blade screwdriver, gently apply pressure to the locking tabs to release the user interface assembly. See figure 16.

Reinstalling the Electronic Assemblies

Refer to preceding removal sections and replace in reverse order.

NOTE: When replacing the cycle selector switch, make sure that the shaft is positioned through the center of the shaft seal that is captive between the decorative overlay and the console panel insert.

NOTE: When reconnecting wire connections, be sure to route the user interface wires beneath the retainer clips on the user interface back cover.

REMOVING THE BACK PANEL

1. Unplug dryer or disconnect power.

2. Remove the cover plate screw and cover plate. See figure 17.

3. Remove the nine rear screws from the back panel, then remove panel.

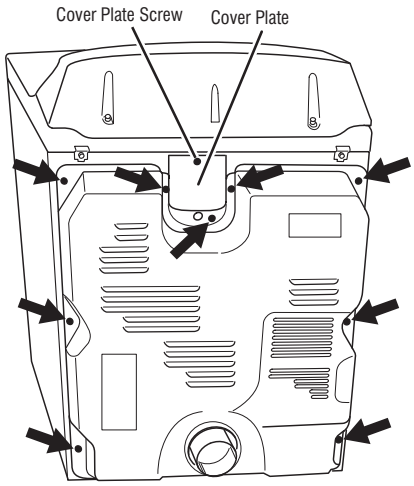


Figure 17. *Remove screws.*

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4,700,495	5,066,050	6,597,144	D314,262
4,754,556	5,560,120	6,604,298	D457,991
4,840,285	5,809,828	6,685,241	D457,992
4,865,366	6,020,698	6,732,447	D495,453
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4,908,959	6,199,300	6,819,255	