

# ⚠ 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

Do not open package until it is time to install the electronic board.

ESD problems are present everywhere. ESD may damage or weaken the electronic board. The new board 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 electronic board by edges only.
- When repackaging failed electronic board 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 or DVM 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.
- The most common cause for control failure is corrosion on connectors. Therefore, disconnecting and reconnecting wires will be necessary throughout test procedures.
- 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 of components must be made with power cord unplugged from outlet, and with wiring harness or connectors disconnected.

## LESS DRY TEST

Begin with a fully assembled, empty dryer with clean lint screen. Be sure dryer is connected to a known good power source.

1. Set the following configuration:
  - Door - must be closed
  - Timer - LESS DRY
  - Fabric Care / Temperature switch - COTTON TOWELS / HIGH
  - Wrinkle Guard Switch - OFF
  - Signal switch - LOUDER
2. Press the PTS (Push To Start) switch. After approximately 16 seconds, the Timer will start to advance to the OFF position. If this function does not occur, proceed to the Diagnostic Test.

## DIAGNOSTIC TEST

This test allows factory/service personnel to test and verify all inputs to the electronic control. The basic operation of this test is to notify the operator with an audible beep every time the status of an input to the control changes state.

This test is performed with a fully assembled dryer, connected to a known good power source.

### Activating the Test Mode

1. Set the following configuration:
  - Door - must be open
  - Fabric Care / Temperature switch - AIR FLUFF / NO HEAT
  - Signal switch - LOUDER
  - Timer - TIMED DRY or AUTO MOISTURE SENSING PLUS selection
2. Turn the Wrinkle Guard switch from OFF to ON three times within a five second period. A single beep, pause, triple beep will sound to indicate that the factory test mode is activated.

**NOTE:** If any of these initial conditions are not satisfied, the control will not enter the test mode.

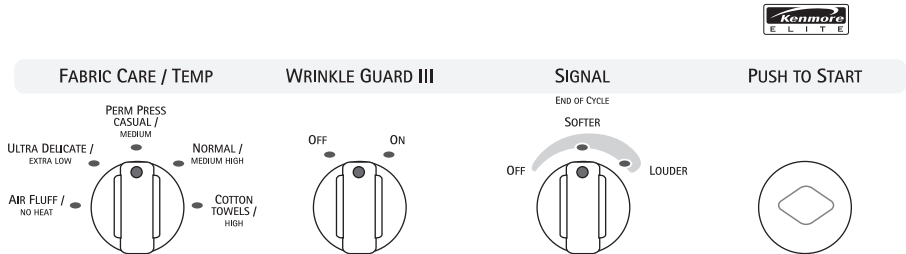
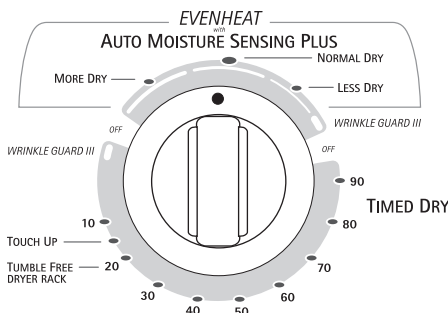
### Test Mode Functionality

When the control is in test mode, every input change of state will result in an audible beep (with the exception of the Signal switch). This includes:

- Door switch
- Moisture Sensor (short/open Sensor will result in a beep).  
**NOTE:** A moistened finger or damp cloth may also be used.
- Fabric Care / Temperature switch
- Push To Start (PTS) switch (with the door switch closed)
- Wrinkle Guard Switch
- Timer (any cam input change will result in a beep)

**NOTE:** Timer will advance during test.

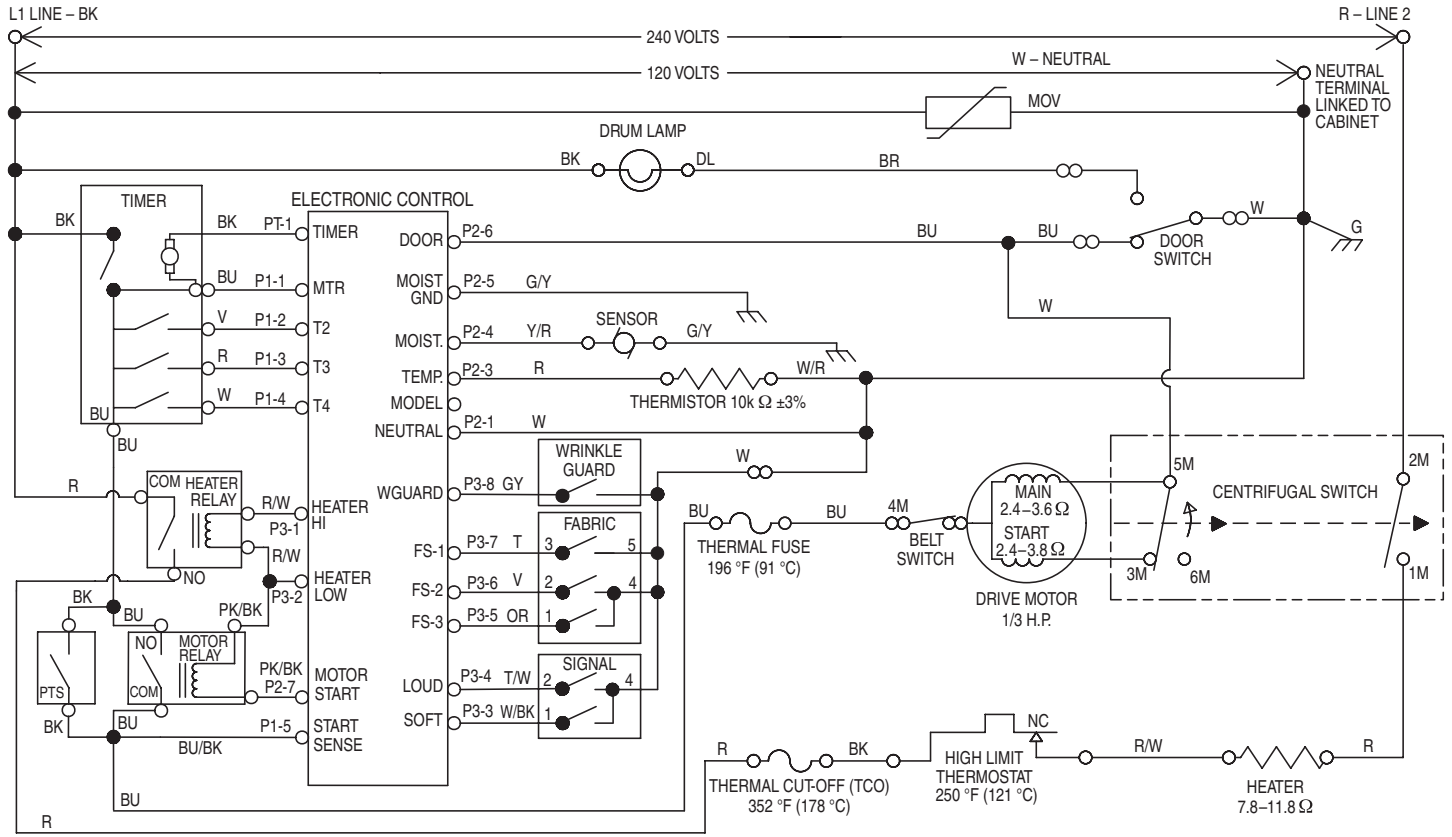
If any of the inputs do not result in a beep, proceed to the corresponding component tests on page 4.



Heavy Duty • KING Size Capacity • Quiet Pak II



# Electric Dryer Wiring Diagram



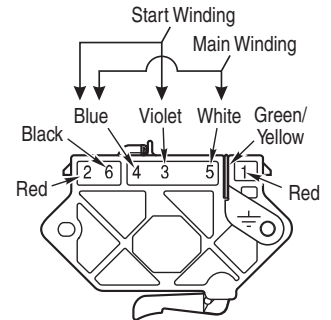
**Drum Size:**  
7.5 cubic feet

**Drum Speed:**  
51.5  $\pm$  3 RPM CW

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

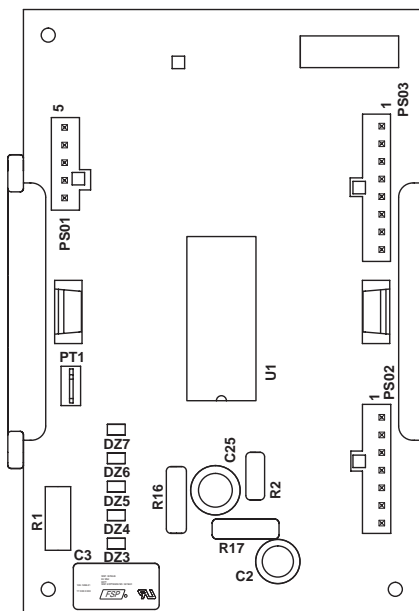
● = Contacts closed

**Centrifugal Switch (Motor)**

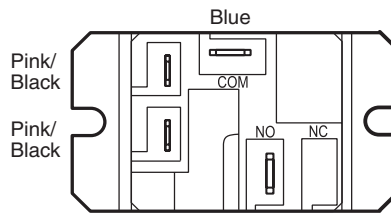


**Pluggable Drive Motor Switch**

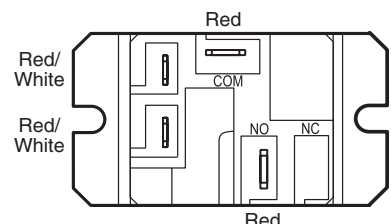
Timer	BU	BK	R	V	W
Wire Colors	Blue	Black	Red	Violet	White



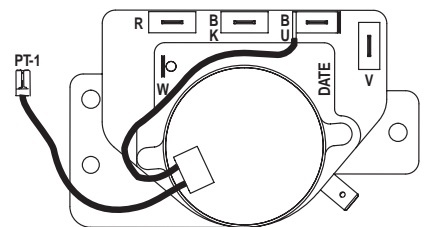
**Electronic Control Assembly**



**Motor Relay**

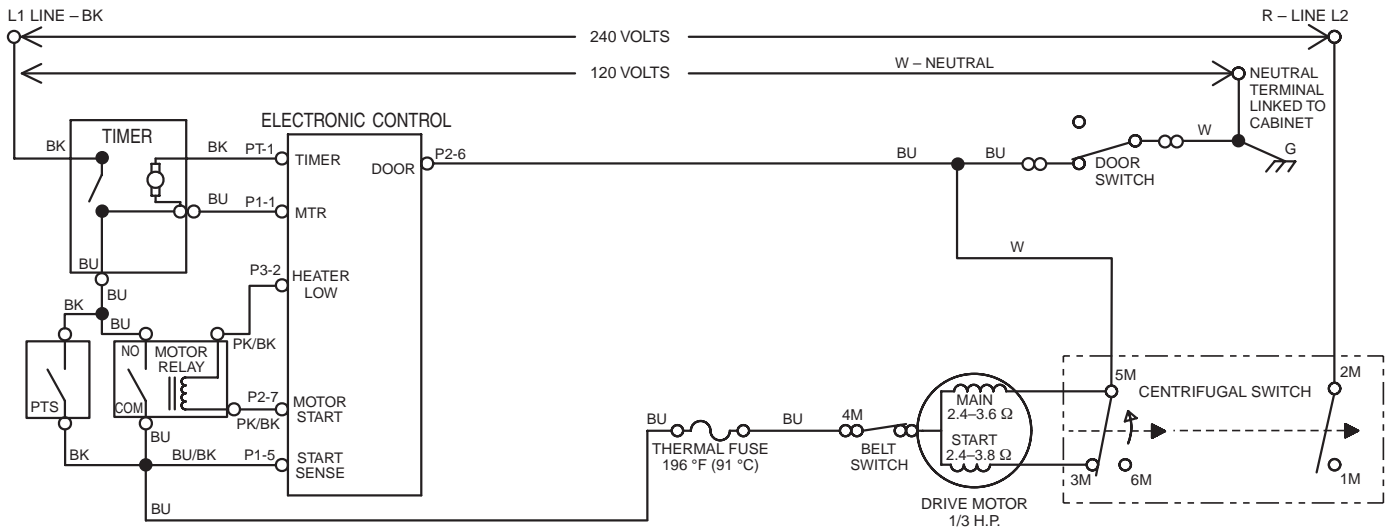


**Heater Relay**

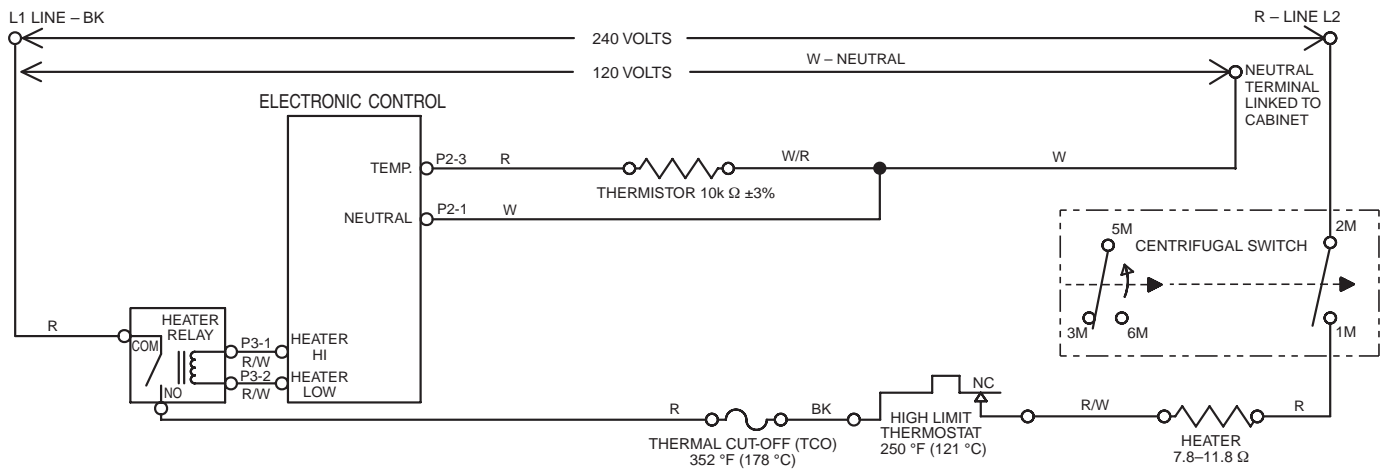


**Timer**

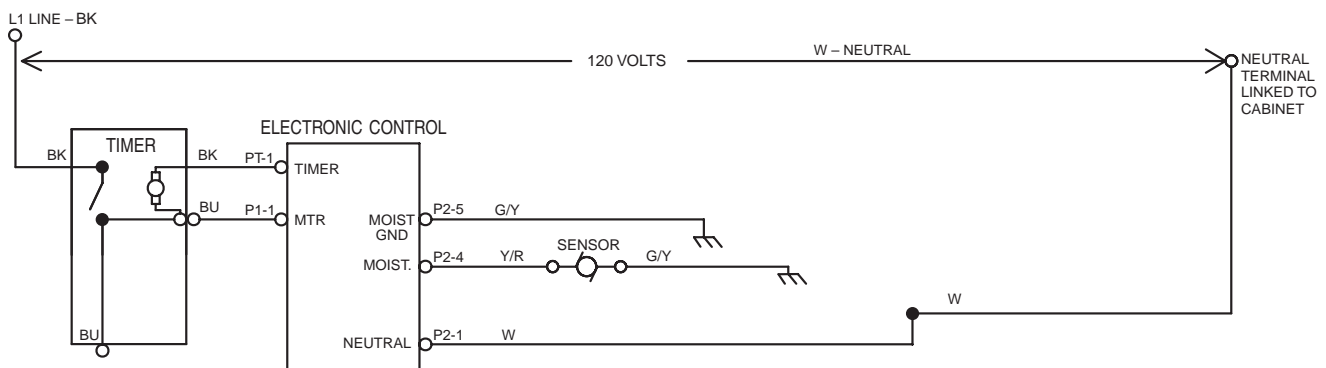
**MOTOR STRIP CIRCUIT**



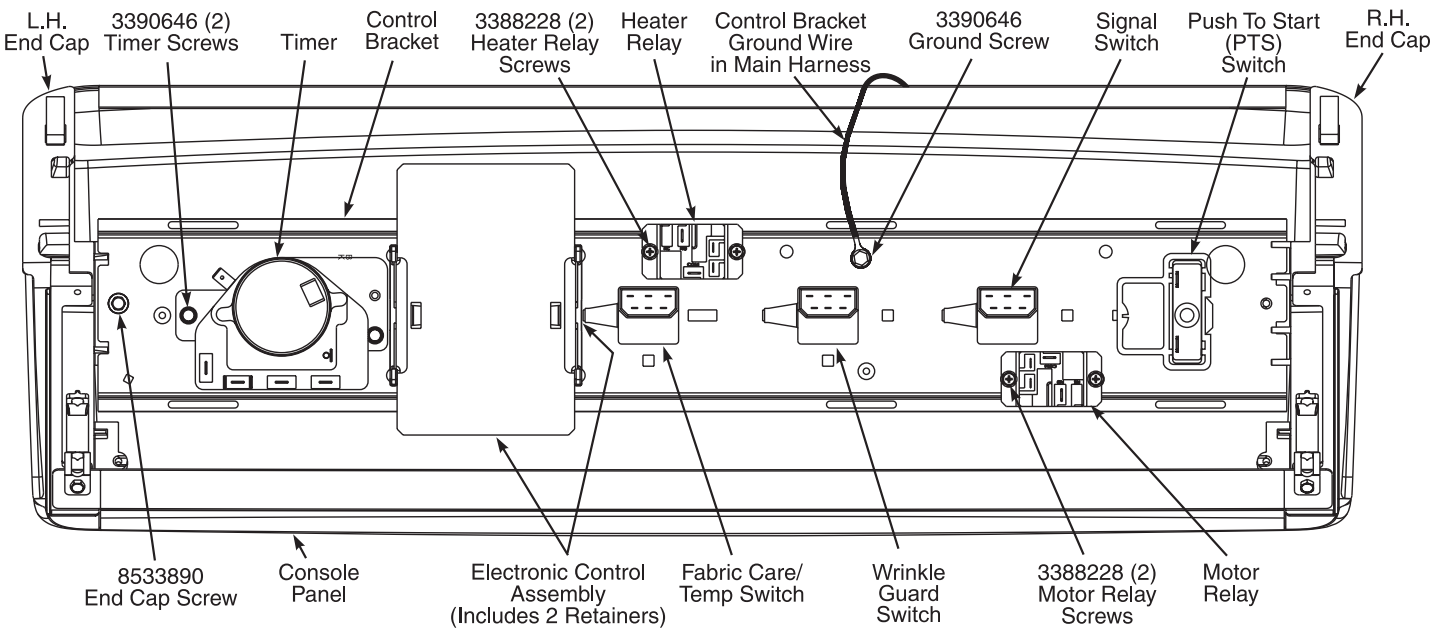
**HEATER STRIP CIRCUIT**



**MOISTURE SENSOR STRIP CIRCUIT**



**Component Location**



COMPONENT	PART NUMBER		
	MODEL NO. 64972 64982 64992 (White)	MODEL NO. 64994 (Bisque)	MODEL NO. 64976 64996 (Graphite)
Console Panel for White Models:	64972 64982 64992	8541379 8541381 8538886	- - -
for Bisque Model:	64994	-	8538887
for Graphite Models:	64976 64996	- -	3980335 8538888
End Cap - R. H.	8538940	8538941	8538942
End Cap - L. H.	8538943	8538944	8538945
P.T.S. Switch	3977456	3977456	3977456
P.T.S. Knob *	8541487	8541488	8541489
Control Knob *	8541468 (3)	8541469 (3)	8541470 (3)
Signal Switch	3405151	3405151	3405151
Wrinkle Guard Switch	3405152	3405152	3405152
Fabric Care/Temperature Switch	3399643	3399643	3399643
Motor Relay	3405281	3405281	3405281
Heater Relay	3405281	3405281	3405281
Electronic Control Assembly	8546229	8546229	8546229
Timer Knob and Skirt *	8541480	8541481	8541482
Console Harness *	8530005	8530005	8530005
Main Harness *	8530002	8530002	8530002
Door Switch *	3406107	3406107	3406107
Belt Switch*	3394881	3394881	3394881
Thermal Cut-Off *	3977394	3977394	3977394
Thermal Fuse *	3392519	3392519	3392519
Heat Element Assembly *	3392661	3392661	3392661
High Limit Thermostat *	3390291	3390291	3390291
Drive Motor *	8538263	8538263	8538263
Thermistor - NTC 10k Ohms *	3976615	3976615	3976615
Timer	8299771	8299771	8299771

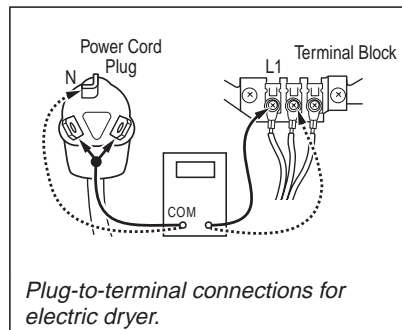
\* not shown in illustration above

**COMPONENT TESTS**

**Supply Connections Test**

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.

1. Unplug dryer or disconnect power.
2. Remove the cover plate from the back of the dryer.
3. With an ohmmeter, check for continuity between the neutral (N) terminal of the plug and the center contact on the terminal block. See illustration below.



Plug-to-terminal connections for electric dryer.

- ➔ 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 illustration above.

- ➔ 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 electronic control without disconnecting any wiring to it.
6. With an ohmmeter, check for continuity between the L1 terminal of the plug (found in step 4) and BK (black wire) terminal on the timer.

- ➔ 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 or repair the main wire harness and test the dryer.

7. Check for continuity between the neutral (N) terminal of the plug and P2-1 (white wire) on the electronic control.

- ➔ If there is continuity, go to the Timer Test.
- ➔ If there is no continuity and the mechanical connections of the wire are secure, replace or repair the main wire harness.

**Timer Test**

Perform the diagnostic test on page 1 to determine that the timer motor advances (should run continuously). If the timer does not advance or fails the diagnostic test:

1. Unplug dryer or disconnect power.
2. Remove the wires from timer terminals.
3. Check the timer motor resistance and timer switching. The resistance (BU to PT-1) should be 3 k ohms (±2). Use the timer encoding table below for switching conductivity, and refer to timer illustration on page 2.

Reference contact continuity to timer - BK.

**Timer Encoding Table**

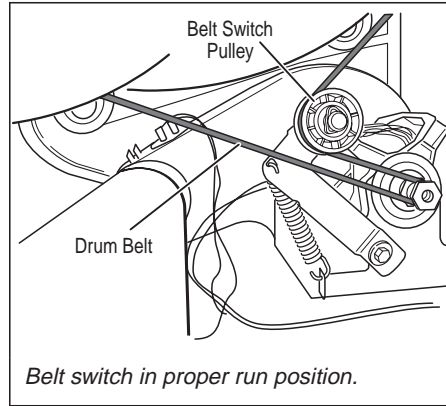
TIMED DRY MODE					
TIMER CONTACTS	TIMED DRY	COOL DOWN	WRINKLE GUARD	OFF	
W to BK	O	O	O	O	
R to BK	X	X	O	O	
V to BK	O	X	X	O	
BU to BK	X	X	X	O	
AUTO MOISTURE SENSING PLUS MODE					
TIMER CONTACTS	MORE DRY	NORMAL DRY	LESS DRY	WRINKLE GUARD	OFF
W to BK	X	X	O	O	O
R to BK	O	O	O	O	O
V to BK	X	O	O	X	O
BU to BK	X	X	X	X	O
O = OPEN X = CLOSED					

**Motor Test**

1. Unplug dryer or disconnect power.
2. Open the dryer door.
3. Measure resistance between the motor relay common (COM) terminal and the P2-6 terminal on the electronic control. 1 to 6 ohms should be measured.
  - If resistance measurements are outside 1 to 6 ohms, perform the Thermal Fuse, Door Switch and Belt Switch Tests, and check harness continuity. If they test good, replace the motor.
4. Measure resistance between the motor relay common (COM) terminal and ground. A high resistance (open) should be measured.
  - If it does not, perform the Thermal Fuse, Door Switch and Belt Switch Tests and check harness continuity. If they test good, replace the motor.

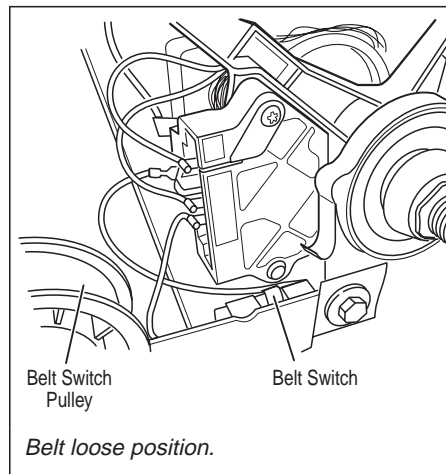
**Belt Switch Test**

1. Unplug dryer or disconnect power.
2. Disconnect belt switch from harness and check belt switch continuity.
  - With the belt switch in the proper run position, it should measure closed (motor test measurement can be done to verify the belt switch). See illustration below.



*Belt switch in proper run position.*

- With the belt loose, infinity (open) should be measured. See illustration below.

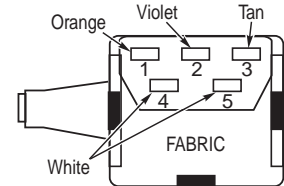


*Belt loose position.*

**Door Switch Test**

1. Unplug dryer or disconnect power.
2. Check door switch continuity. Neutral to P2-6 on the electronic control should read closed with the door closed, and open with the door open.
3. Otherwise, verify harness continuity.
  - If no continuity, repair or replace the harness.
  - If harness is good, replace the door switch.

**Fabric Care / Temperature Switch Test**

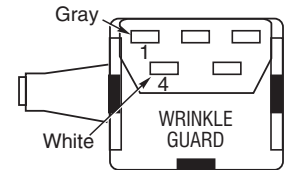


1. Unplug dryer or disconnect power.
2. Remove the wires from the switch to complete this test.
3. Reference contact continuity with Pins 1 and 2 to Pin 4 (White).
4. Reference contact continuity with Pin 3 to Pin 5.

**Fabric Care / Temp Switch Table**

SWITCH POSITION	CONTACTS			FUNCTION
	3-5	2-4	1-4	
9 o'clock	O	O	O	NO HEAT
10 o'clock	O	O	X	EXTRA LOW
12 o'clock	O	X	O	MEDIUM
2 o'clock	O	X	X	MEDIUM HIGH
3 o'clock	X	O	O	HIGH
O = OPEN X = CLOSED				

**Wrinkle Guard Switch (On/Off) Test**



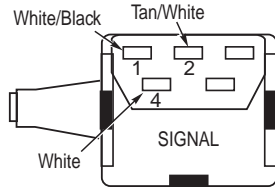
1. Unplug dryer or disconnect power.
2. Remove the wires from the switch to complete this test.
3. Reference contact continuity with Pin 1 to Pin 4 (White).

**Wrinkle Guard Switch Table**

SWITCH POSITION	CONTACTS	FUNCTION
11 o'clock	Open	Wrinkle Guard OFF
1 o'clock	Closed	Wrinkle Guard ON



**“End of Cycle” Signal Switch Test**



1. Unplug dryer or disconnect power.
2. Remove the wires from the switch to complete this test.
3. Reference contact continuity with Pins 1 and 2 to Pin 4 (White).

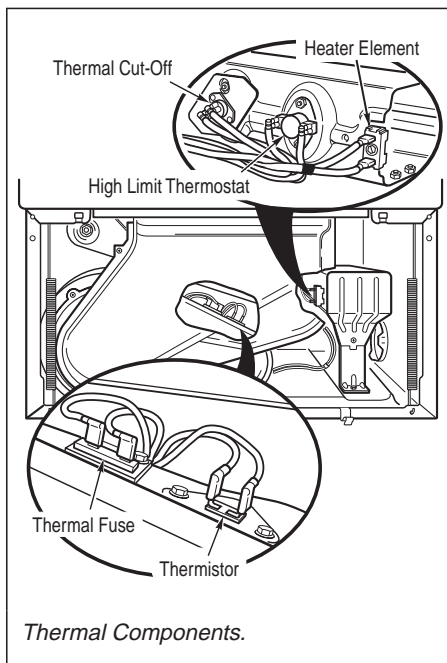
**Signal Switch Table**

SWITCH POSITION	CONTACTS		FUNCTION
	1-4	2-4	
10 o'clock	O	O	OFF
12 o'clock	X	O	SOFTER End of Cycle Signal
2 o'clock	O	X	LOUDER End of Cycle Signal

O = OPEN X = CLOSED

**High Limit Thermostat Test**

1. Unplug dryer or disconnect power.
2. Remove the high limit thermostat and check continuity. Refer to the Thermal Components illustration below.
  - ➔ If open, replace the high limit thermostat.
  - ➔ If closed, apply heat. It should open at about 250°F (121°C). Otherwise, replace the high limit thermostat.



**Thermal Cut-Off**

This unit is equipped with a “one-shot” thermal cut-off. See Thermal Components illustration below left. If the dryer does not heat with power supplied:

1. Unplug dryer or disconnect power.
2. Check the thermal cut-off for continuity.
  - ➔ If continuity is open, thermal cut-off has failed and must be replaced.

**NOTE:** If the thermal cut-off has failed, replace the cut-off and high limit thermostat. In addition, check for failed heater element, or blocked or improper exhaust system.

**Thermal Fuse Test**

A thermal fuse is used on this model. The thermal fuse is wired in series with the dryer drive motor. If the thermal fuse opens, power is shut off to the motor. (Centrifugal switch in motor also opens heater circuit.)

1. Unplug dryer or disconnect power.
2. Check continuity of thermal fuse.
3. Once the thermal fuse has opened, it must be replaced. Check for failed thermistor, shorted heat element, or other causes of failure. Replace failed parts. See Thermal Components illustration, left.

**Thermistor Test or Dryer Beeps 3 Times when Push To Start (PTS) Pressed**

An electronic temperature sensor called a thermistor is used in this model in place of an operating thermostat. The electronic control monitors the exhaust temperature using the thermistor, and cycles the heater relay on and off to maintain the desired temperature.

**Procedure**

Begin with a fully assembled, empty dryer and a clean lint screen.

1. Set the following configuration:
  - Door - must be closed
  - Timer dial - TIMED DRY
  - Fabric Care / Temperature switch - COTTON TOWELS / HIGH
  - Signal switch - LOUDER
2. Press the Push To Start switch.
  - ➔ If you hear three short beeps and the dryer shuts off after several seconds, the thermistor or wire harness is either shorted or open.

- Unplug dryer or disconnect power.
- Check wire connections at the electronic control and thermistor.
- If wiring is functional, replace the thermistor. Refer to Thermal Components illustration on this page.

- ➔ If the dryer appears to operate correctly, proceed to step 3.
3. Remove exhaust vent and start the dryer.

- ➔ Turn Fabric Care / Temperature switch to desired temperature to be tested, and select 20 minutes on the TIMED DRY dial. Hold a glass bulb thermometer capable of reading from 90°F to 180°F (32°C to 82°C) in the center of the exhaust outlet. Measure exhaust temperatures with heater off and on.

The correct exhaust temperatures are as follows:

FABRIC CARE TEMP. SWITCH SETTING	HEAT TURNS OFF	HEAT TURNS ON
COTTON TOWELS / HIGH	150° ± 10°F (66° ± 6°C)	10°-15°F (6°-8°C) below heat off
NORMAL / MEDIUM HIGH	140° ± 10°F (60° ± 6°C)	
PERM PRESS CASUAL / MEDIUM	125° ± 10°F (52° ± 6°C)	
ULTRA DELICATE / EXTRA LOW	115° ± 10°F (46° ± 6°C)	

- ➔ If the exhaust temperature is not within specified limits:
  - Unplug dryer or disconnect power.
  - Check the resistance of the thermistor.

THERMISTOR RESISTANCE			
TEMP. °F (°C)	RES. k Ω	TEMP. °F (°C)	RES. k Ω
50° (10°)	19.9	100° (38°)	5.7
60° (16°)	15.3	110° (43°)	4.7
70° (21°)	11.9	120° (49°)	3.7
80° (27°)	9.2	130° (54°)	3.1
90° (32°)	7.4	140° (60°)	2.5

- ➔ If the thermistor resistance checks within normal limits, replace the electronic control assembly.

**TROUBLESHOOTING GUIDE**

PROBLEM	POSSIBLE CAUSE / TEST
<b>DRYER WILL NOT RUN.</b>	Refer to Motor Strip Circuit, page 3. - LINE VOLTAGE - HARNESS/CONNECTION - MOTOR RELAY - PUSH TO START (PTS) SWITCH - THERMAL FUSE - BELT/BELT SWITCH - MOTOR - DOOR SWITCH - ELECTRONIC CONTROL For more details, see Troubleshooting section at right.
<b>DRYER WILL NOT HEAT.</b>	Refer to Heater Strip Circuit, page 3. - LINE VOLTAGE - HARNESS/CONNECTION - HEATER RELAY - THERMAL CUT-OFF - HIGH LIMIT THERMOSTAT - HEATER - CENTRIFUGAL SWITCH - THERMISTOR - ELECTRONIC CONTROL For more details, see Troubleshooting section at right.
<b>DRYER HEATS DURING AIR FLUFF/NO HEAT CYCLE.</b>	Refer to Heater Strip Circuit, page 3. - HARNESS/CONNECTION - HEATER RELAY - FABRIC CARE / TEMP SWITCH - ELECTRONIC CONTROL For more details, see Troubleshooting section at right.
<b>DRYER WON'T SHUT OFF.</b>	Refer to Motor and Moisture Sensor Strip Circuits, page 3. - PUSH TO START (PTS) SWITCH - HARNESS/CONNECTION - MOTOR RELAY - MOISTURE SENSOR - ELECTRONIC CONTROL For more details, see Troubleshooting section page 8.
<b>DRYER SHUTS OFF BEFORE CLOTHES ARE DRY.</b>	Refer to Thermistor Test, page 6; and Moisture Sensor Strip Circuit, page 3. - HARNESS/CONNECTION - MOISTURE SENSOR - THERMISTOR - ELECTRONIC CONTROL - MAY NEED TO CHANGE TIMER SETTING TO A MORE DRY SETTING For more details, see Troubleshooting section page 8.
<b>TIMER CONTINUOUSLY ADVANCES.</b>	Refer to Timer Drawing, page 2, and Motor Strip Circuit, page 3. - HARNESS/CONNECTION - TIMER For more details, see Troubleshooting section page 8.
<b>WRINKLE GUARD DOES NOT RUN.</b>	Refer to Wrinkle Guard Switch (On/Off) Test, page 5.

**IMPORTANT:** Electrostatic (static electricity) discharge may cause damage to electronic control assemblies. See page 1 for details.

**TROUBLESHOOTING**

**PROBLEM: Dryer Will Not Run**

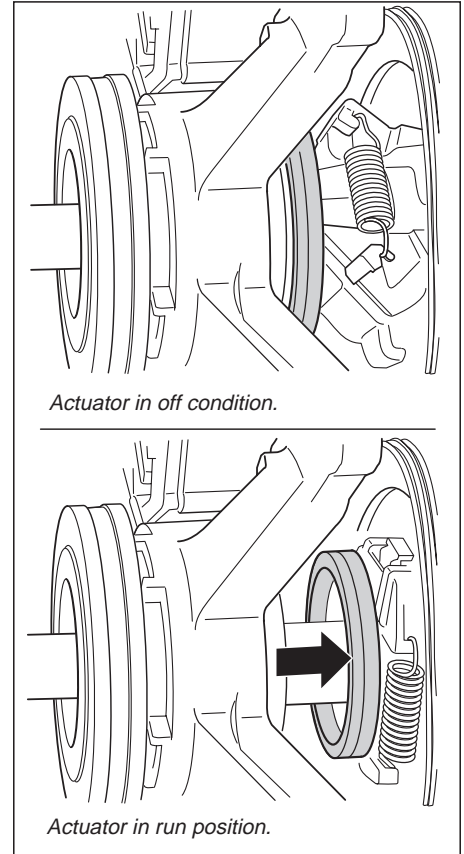
(Refer to Motor Strip Circuit, page 3; and Troubleshooting Guide, this page.)

1. Unplug dryer or disconnect power.
2. Check connector pins in P2 connector of the electronic control to verify they are making good connections.
3. Check the PTS (Push To Start) switch continuity when pressed. It should show continuity while pushed in. If not, replace the PTS switch.
4. Perform Thermal Fuse Test, page 6.
5. Perform Door Switch Test, page 5.
6. Perform Belt Switch Test, page 5.
7. If the motor started but did not continue to run, and components checked in steps 2 through 6 were OK, replace the electronic control assembly.
8. If motor did not start and components checked in steps 2 through 6 were OK, replace the motor.

**PROBLEM: Dryer Will Not Heat**

(Refer to Heater Strip Circuit, page 3; and Troubleshooting Guide, this page.)

1. Perform Supply Connections Test, page 4.
2. Perform Thermal Cut-Off Test, page 6.
3. Perform High Limit Thermostat Test, page 6.
4. Unplug dryer or disconnect power.
5. Check continuity of heater. Each element should be about 10 ohms and should be open to ground, chassis, and neutral.  
 → If either element fails these tests in step 5, replace the heat element assembly.
6. Unplug dryer or disconnect power.
7. Check continuity of motor centrifugal switch:  
 → 1M to 2M terminals should be open in the off condition. Manually operating the switch should close 1M to 2M. This can be done by



Actuator in off condition.

Actuator in run position.

pushing the actuator from the off condition to the run position. See the illustration above.

- If these conditions are not true, replace the motor.

**PROBLEM: Dryer Heats During Air Fluff / No Heat Cycle**

(Refer to Heater Strip Circuit, page 3; and Troubleshooting Guide, this page.)

1. Perform Fabric Care / Temperature Switch Test, page 5.
2. Unplug dryer or disconnect power.
3. Check continuity of heater relay contacts. COM to NO should be open. If not, replace the heater relay.
4. With dryer fully assembled, plug in dryer or reconnect power.
5. Set to AIR FLUFF / NO HEAT. If the dryer still heats:  
 → Unplug dryer or disconnect power.  
 → Replace the electronic control assembly.

**IMPORTANT:** Electrostatic (static electricity) discharge may cause damage to electronic control assemblies. See page 1 for details.

## TROUBLESHOOTING (cont.)

### PROBLEM: Dryer Won't Shut Off

(Refer to Motor and Moisture Sensor Strip Circuits, page 3; and Troubleshooting Guide, page 7.)

1. With the dryer fully assembled, set the timer to OFF. If the dryer starts running as soon as it is plugged in:
  - Unplug dryer or disconnect power.
  - Replace the timer.
2. Set the following configuration:
  - Dryer - power cord plugged in
  - Door - must be closed
  - Fabric Care / Temperature switch - COTTON TOWELS / HIGH
  - Timer - TIMED DRY for less than 10 minutes
3. If the dryer starts running before the Push to Start (PTS) switch is pressed:
  - Unplug dryer or disconnect power.
  - Replace the PTS switch.
  - If, after replacing the PTS switch, the dryer still starts before the PTS switch is pressed:
    - Unplug dryer or disconnect power.
    - Replace the motor relay.
4. If the dryer does not stop after the set time elapses:
  - Unplug dryer or disconnect power.
  - Check the motor relay. Continuity of relay should be open from COM to NO.
5. If the dryer will not terminate its cycle when set to AUTO MOISTURE SENSING PLUS:
  - Unplug dryer or disconnect power.
  - Check the moisture sensor.
  - If there is continuity to Ground for Yellow/Red (Y/R) wire with no load, look for a short in the sensor or Y/R wire. Verify harness connections both at the sensor and the electronic control.
  - If the sensor and Y/R wire are good, replace the electronic control assembly.

### PROBLEM: Dryer Shuts Off Before Clothes Are Dry

(Refer to Moisture Sensor Strip Circuit, page 3; Thermistor Test, page 6; and Troubleshooting Guide, page 7.)

1. Test the moisture sensor by following the procedure outlined in the Diagnostic Test, page 1. If the moisture sensor fails the Diagnostic Test (does not produce a beep sound):
  - Unplug dryer or disconnect power.
  - Check the moisture sensor.
  - If there is continuity to Ground for Yellow/Red (Y/R) wire with no load, look for a short in the Sensor or Y/R wire. Verify harness connections both at the sensor and the electronic control.
  - If the Sensor and Y/R wire are good, replace the electronic control assembly.
2. If Diagnostic Test is passed, verify thermistor by performing test procedures outlined in Thermistor Test, page 6.
3. If problem persists after replacing moisture sensor and thermistor:
  - Unplug dryer or disconnect power.
  - Replace the electronic control assembly.

### PROBLEM: Timer Continuously Advances

(Refer to Timer Drawing, page 2; Motor Strip Circuit, page 3; and Troubleshooting Guide, page 7.)

1. Unplug dryer or disconnect power.
2. Verify the Blue wire and the Black L1 wires are in the correct positions. See timer illustration on page 2.
3. Test the timer by following the procedure outlined in the Diagnostic Test, page 1.
4. If the timer continues to advance past OFF, then replace the timer.

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

4,669,200	4,899,464	5,809,828	D314,261
4,700,495	4,908,959	6,020,698	D314,262
4,754,556	4,989,347	6,047,486	D457,991
4,840,285	5,066,050	6,199,300	D457,992
4,865,366	5,560,120	6,446,357	