Condensing Dryer

DLEC733W

Introduction

INTRODUCTION

Series 33 (WM1333HW, DLEC733W, etc.) laundry products are being introduced into the United States by LG Electronics during 2007. The Series 33 product line includes two dryers. This manual covers the DLEC733W condensation dryer. It is a ventless unit well suited for installation in areas where ducts to the outside can't be installed. This unit condenses moisture from the heated air in the dryer. The installation can be set up to drain the condensed water or collect it in a reservoir for later disposal.

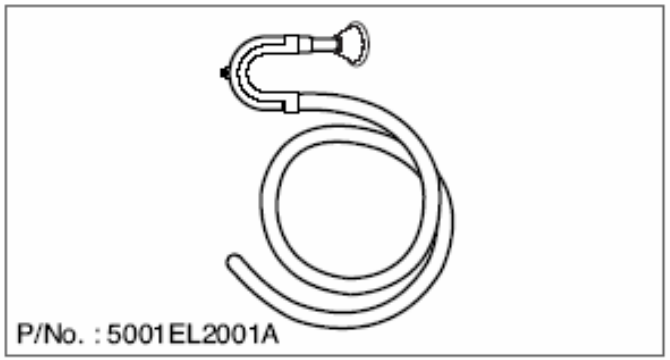
Specifications

ITEM	DLEC733
DRYING TYPE	Condensation
WEIGHT	88 lbs. (40 kg.) 101 1/2 lbs. (46 kg.) gross
SIZE	23 1/2" (W) x 33 1/2" (H) x 23 5/8" D 595 mm. (W) x 850 mm. (H) x 600 mm. (D)
STANDARD CAPACITY	15 1/2 lbs. (7.0 kg.)
POWER SUPPLY	AC 220-230 V, 50 Hz (16A)
MOTOR	250 W
HEATER	2500 W (22.5)
LAMP	15 W (125 mA)
DOOR SWITCH	250 V (10 A)
THERMOSTAT	240 V (25 A)
DRUM CAPACITY	116 Liters
SAFETY DEVICES	Thermal Fuse (Motor)
	Over current protect (Motor)
	Thermostat
SENSING TYPE	Micom Electronic Control
	1. 2 Thermistors
	2. Humidity Electrode Sensor
	3. Semiconductor Sensor
FILTER	Removable (Double screen)
DRUM SPEED	56-57 rpm
REVERSIBLE DOOR	Yes
DRUM	Stainless steel

Accessories

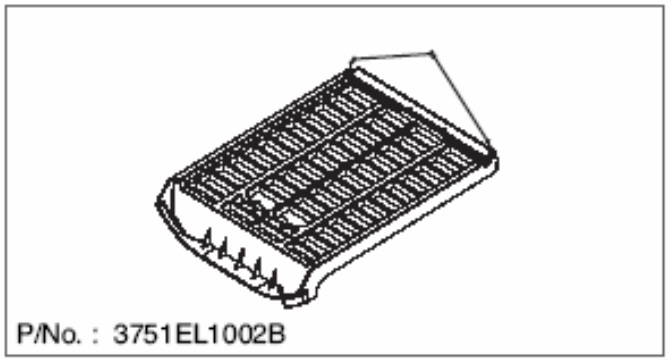
DLEC733W

1. Drain Hose Assembly



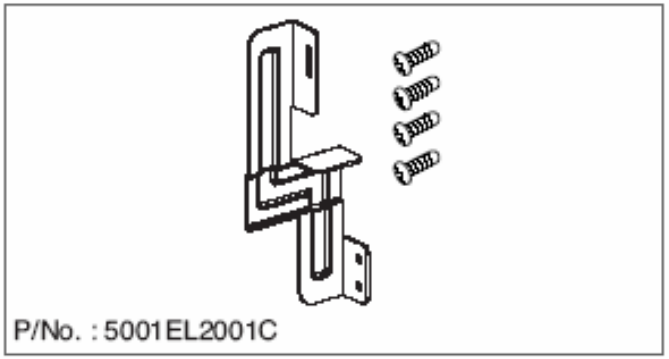
P/No. : 5001EL2001A

2. Dryer Rack Assembly



P/No. : 3751EL1002B

3. Stacking kit Assembly (Purchased Seperately)



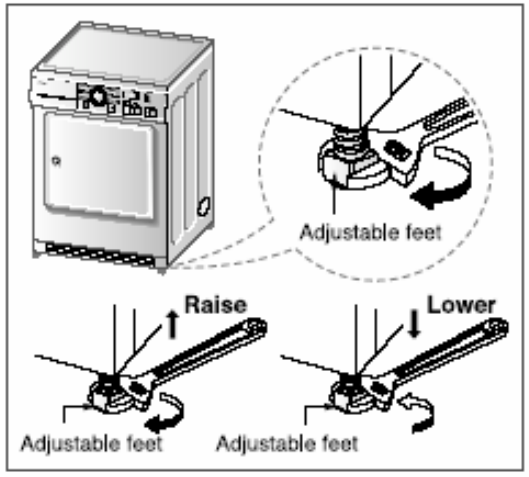
P/No. : 5001EL2001C

Installation

Usually, the technician will be called to service a machine that has already been installed by someone who has been specifically trained for that task. It is important, however, that the servicer be familiar with installation procedures and able to determine whether a particular problem is a product defect or the result of poor installation. The following pages describe an installation and operation check.

LEVEL THE DRYER

Leveling the dryer is to prevent undesirable noise and vibration. Place your dryer in a solid and level area where water is not dripping or freezing. If the dryer is not level, adjust the leveling legs up and down as necessary. Turn them clockwise to raise and counterclockwise to lower until the dryer is not wobbling both front-to-back and side-to-side.



When pushing down the opposite corners of the machine, the machine should not move. (Please, check both directions) If machine rocks when pushing the machine top plate diagonally, adjust the feet again.

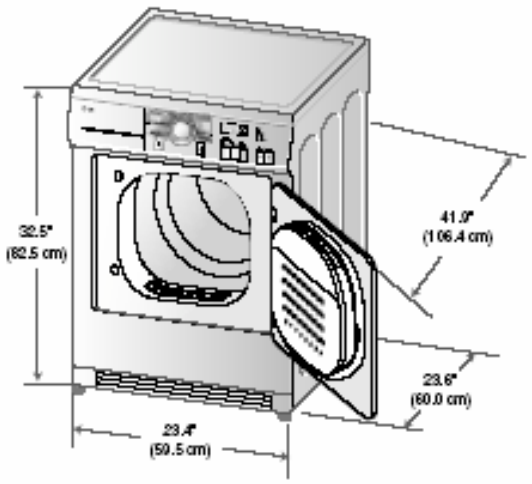
Installation

POSITION THE DRYER

Choose a location with a solid floor for your dryer. Place the dryer at least eighteen inches above the floor for a garage installation. After placing the dryer in the desired location, please make sure that it has the required clearances shown below.

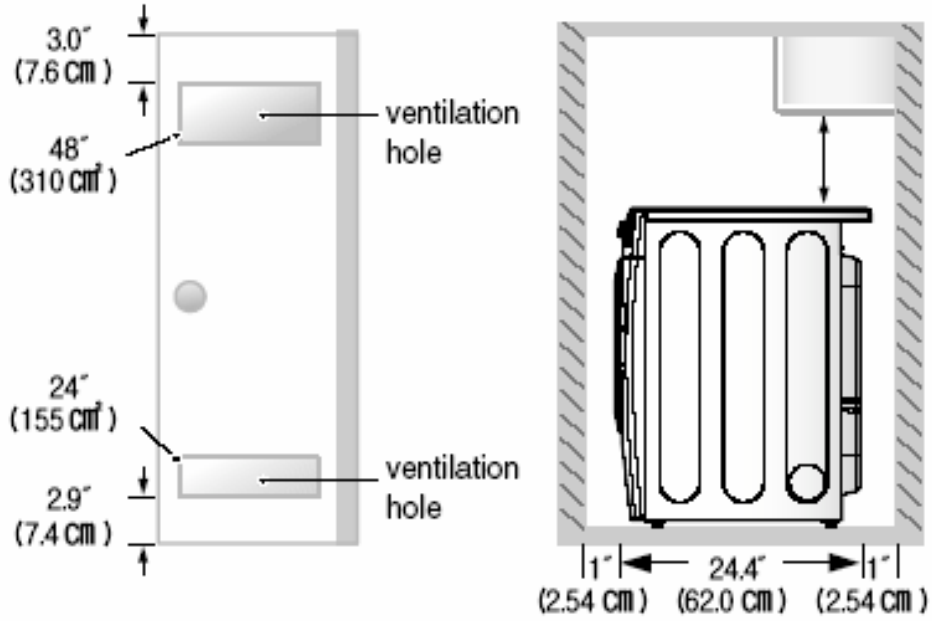
Leveling legs should be secured. All four legs are stably placed on the solid and even floor. If dryer is not level, laundry may not tumble properly and sensor will not detect the accurate humidity information. When adjusting leveling, please be cautious not to have serious injuries on your fingers and toes.

Certain minimum clearances are required behind and to the sides of the unit, as shown. Consider space needed for companion appliances and allow additional clearance for installation and servicing.



Installation

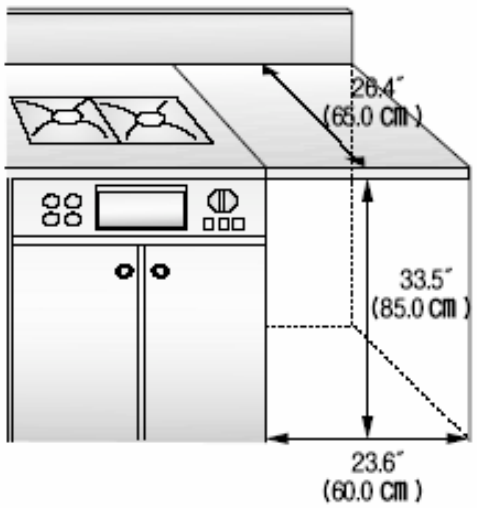
Wall, door and floor molding may force additional clearances. An additional inch of clearance is recommended to minimize noise transfer. For closet installations, the picture shows the minimum required ventilation openings for the door. A louvered door with comparable ventilation openings is also acceptable.



Installation

BUILT-IN INSTALLATION

Your dryer can be built-in. You can fit the dryer under-counter in a kitchen cabinet opening.Consider space needed for companion appliances. Opening dimensions are shown as follows. For your safety, metal cover must be tightly fitted. This must be placed by an experienced service person and installed under a continuous worktop.



< Built in >

< Closet-Front view >

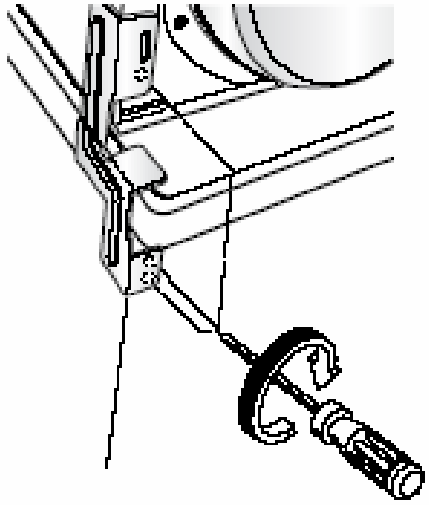
Installation

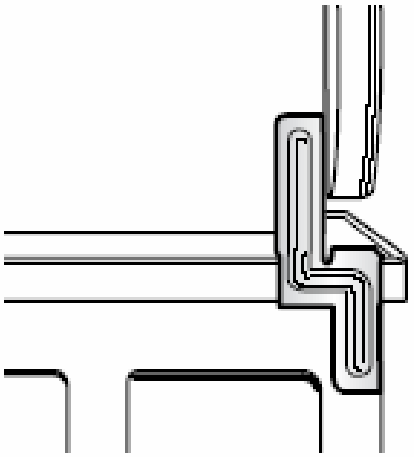
CONDENSATE DRAIN

The dryer can drain water without delivering to the water container. Water is directly pumped out of the dryer.

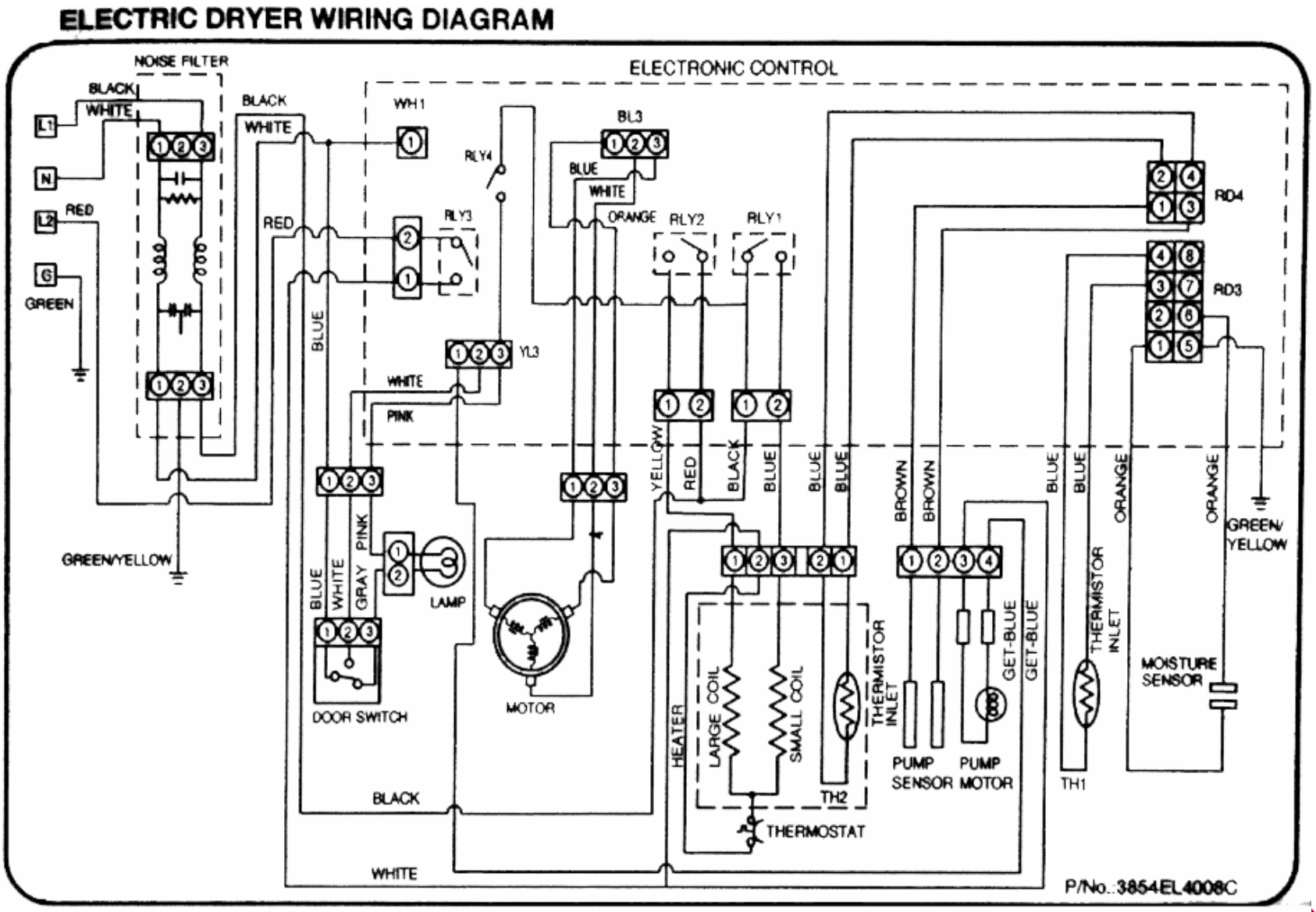
STACKING KIT

In order to stack this dryer on a matching washing machine, a stacking kit is needed.





Wiring Diagram



Test Mode

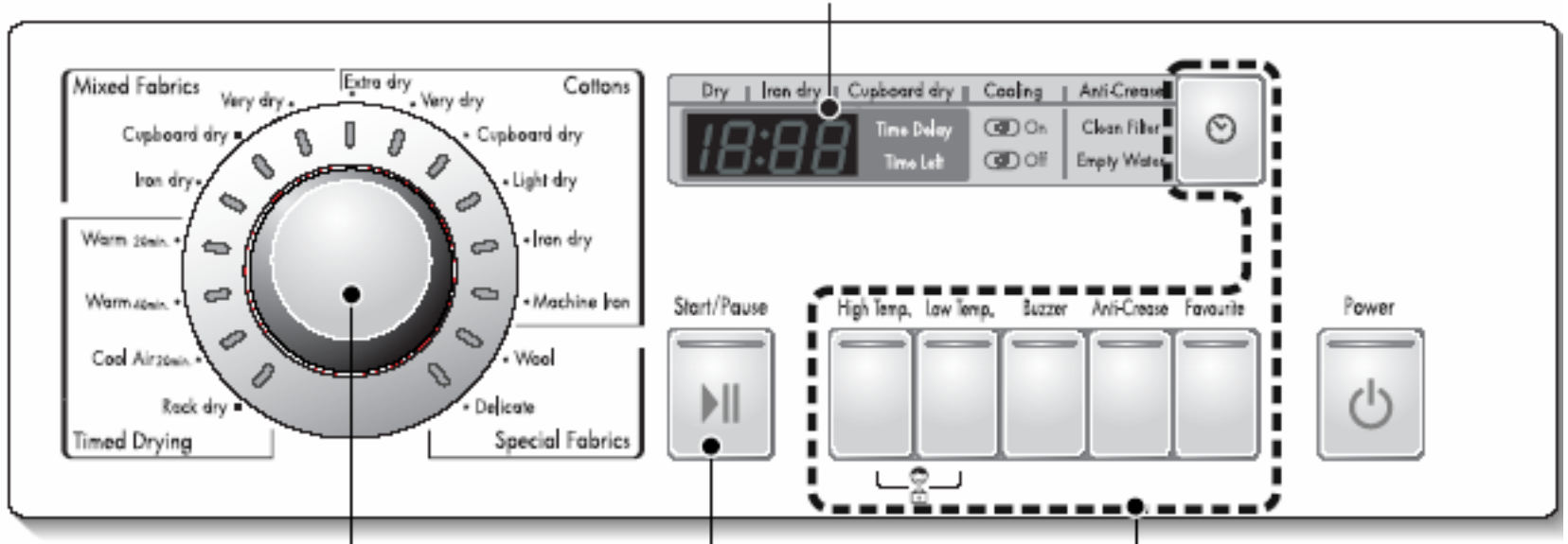
To enter the QC Test Mode, press the *Power* button while holding the *Buzzer* and *Wrinkle Care* buttons. After entering the QC Test Mode, step through the tests below by pressing the *Start/Pause* button.

Start/Pause ___ **times**	**Checkpoint**	**Display**
0	**LEDs**	**Programming checksum**
1	**Motor on (CCW), Humidity data**	**Moisture data (Normal: 230-245)**
2	**Motor on (CW), Humidity data**	**Moisture data (Normal: 230-245)**
3	**Motor on (CW)** **1750W heater on**	**Temperature at the low temp thermistor under the door**
4	**Motor on (CW)** **both heating coils on**	**Temperature at high temp thermistor located in heater**
5	**Pump on, Motor off**	**Moisture data (Normal: 230-245)**
6	**Motor on (CW)**	**Moisture data (Normal: 230-245).** (For moisture sensor check on production line by opening door with door switch pressed.)
7	**Motor off**	**Moisture data (Normal: 221) by semiconductor moisture sensor.**
8	**Motor off, Buzzer on**	**No ELB (Earth Leakage Breaker)**
9	**End QC Test mode**	

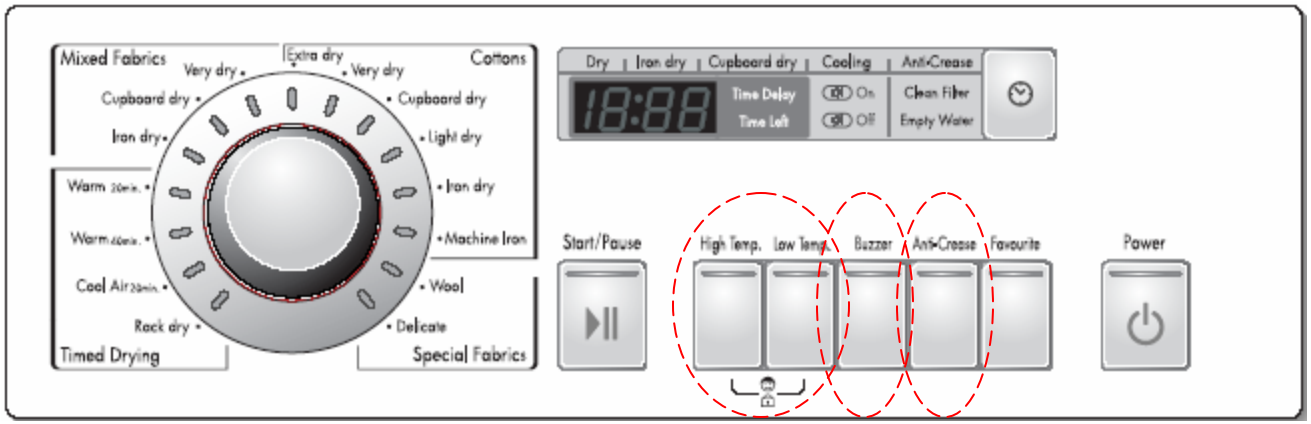
Note: This information was verified on an early production dryer. The sequence of operations may vary on the particular dryer being serviced.

Operation Programming

Control Panel



Operation Programming



High Temp./Low Temp.

This shortens or lengthens the drying time by increasing or decreasing the temperature.

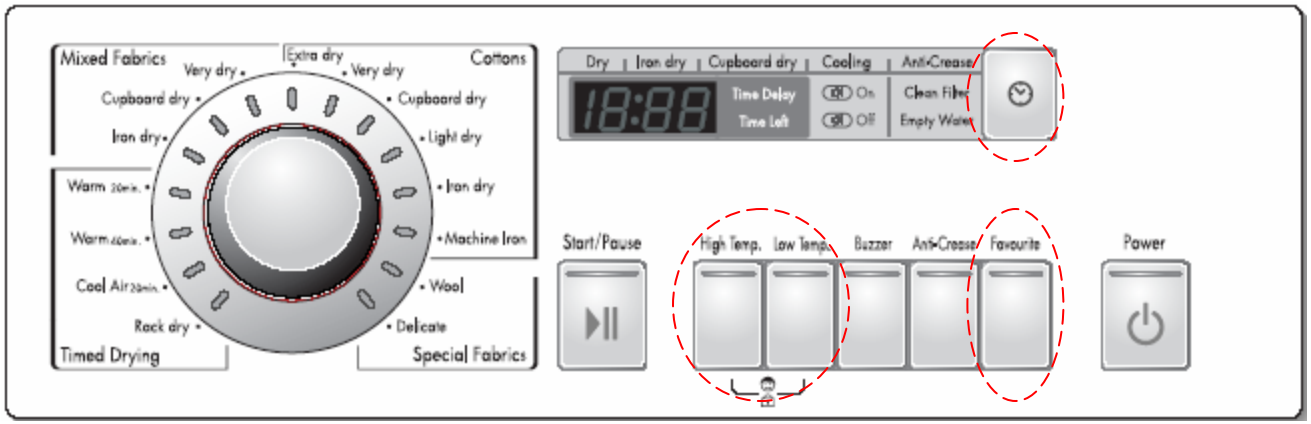
Buzzer off

A buzzer sounds whenever power is on and a button is pressed. The sound can be turned off by pressing this button.

Wrinkle Care / Anti-Crease

If the dryer is not unloaded promptly at the end of the drying cycle, *Wrinkle Care* will help to reduce wrinkling by automatically rotating the drum periodically to tumble the clothes. The *Wrinkle Care* function is cancelled by opening the door to remove the clothes. (Pressing *Pause* and opening the door during the drying cycle will not affect the *Wrinkle Care* function.)

Operation Programming



Favorite

This function allows the customer to store one customized program in the dryer's memory for future use. After setting the clothing type, drying level, drying temperature, wrinkle care, etc., press the *Favorite* button and hold until a sound is heard (about 3 seconds) before pressing the *Start* button. The next time the customer wants to use this setting, it will only be necessary to press *Power*, then *Favorite*, and then *Start* to begin drying

Time Delay

You can use the Time Delay function to delay the finishing time of drying cycle.
Maximum Time Delay is 19 hours.

1. Turn the dryer on
2. Select cycle
3. Set time delay hour
4. Press Start/Pause button

Child Lock

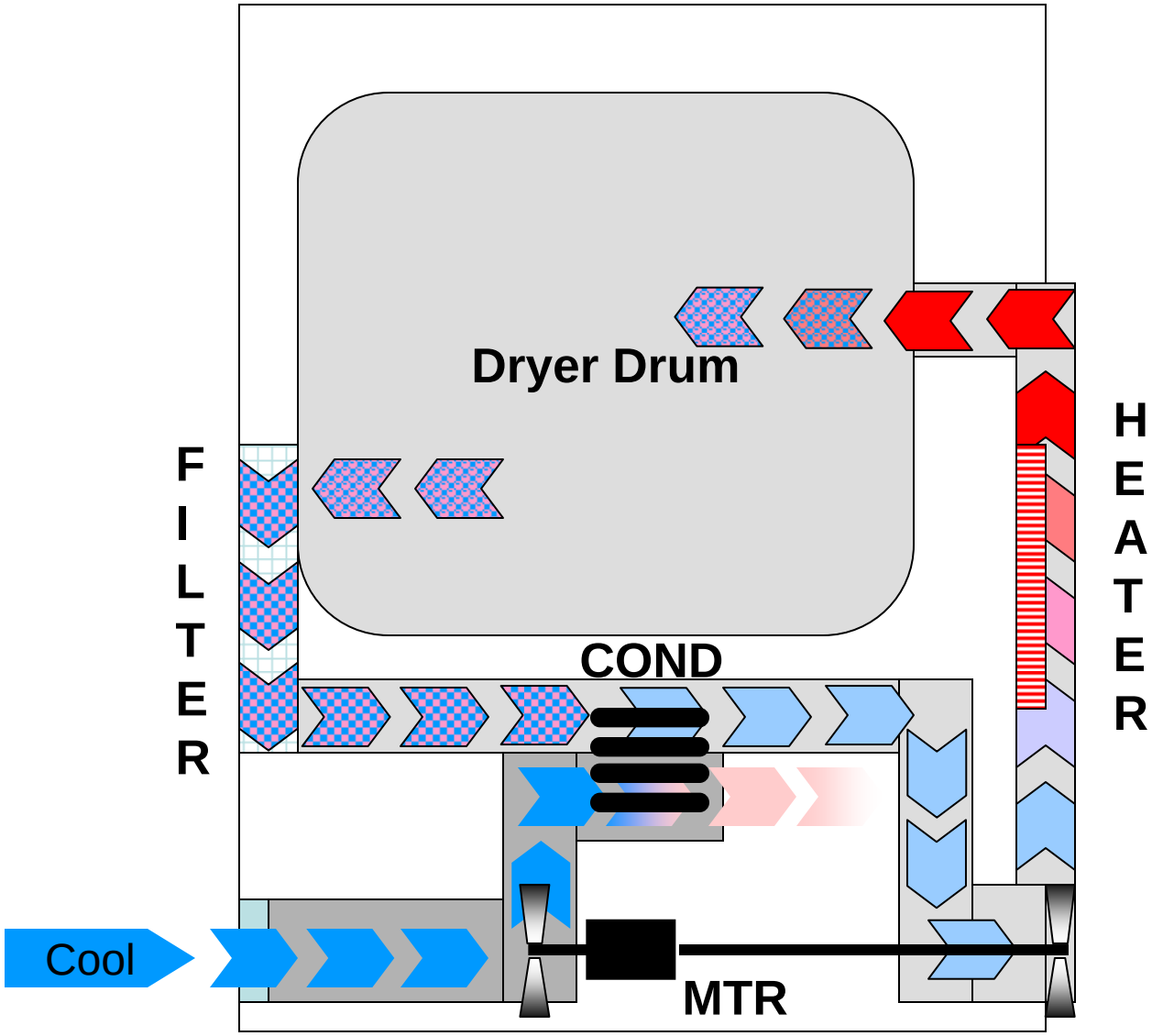
The Child Lock feature prevents unintended changing of a program during the drying operation. For safety, the Power button remains active so the dryer can be turned off, but all other buttons are deactivated.

Operation Programming

Cycle Selection Table

Electronic Auto Dry Cycles		Standard Program
Mixed-Fabric cycles **Note: press the "Low temp." button for heat-sensitive items**		
Bed linen and table linen, tracksuits, anorak, blankets	For thick and quilted fabrics which do not need to be ironed.	Very Dry
shirts, blouses and sportswear	For fabrics which do not need to be ironed.	Cupboard dry
Trousers, dressers, skirts, blouses	For fabrics which do need to be ironed.	Iron Dry
Cotton (Whites and coloureds) **Note: press the "Low temp." button for heat-sensitive items**		
Towelling, dressing gowns and bed linen	For thick and quilted fabrics.	Extra Dry
Terry towelling, tea towels, towel, bed linen	For thick and quilted fabrics which do not need to be ironed.	Very Dry
Bath towels, tea towels, underwear, cotton socks	For fabrics which do not need to be ironed.	Cupboard dry
T-shirts, trousers, underwear, work clothes	For fabrics which do need to be ironed lightly, not completely.	Light Dry
Bed linen, table linen, towels, T-shirts Polo shirts and work clothes	For fabrics which do need to be ironed.	Iron Dry
Bed linen, table linen, towels	For fabrics which do need to be pressed.	Machine Iron
Time Cycles for selected length of time		
Bath towels, bath robes, dishclothes, Quilted fabrics made of acrylic	Small clothes & pre-dried laundry Normal Normal fabrics using hot temperature for 20minutes	Warm (20min.)
	Small clothes & pre-dried laundry Normal fabrics using hot temperature 40minutes	Warm (40min.)
All fabrics needing freshing, tumbles without heat		Cool Air (20min.)
sweater, delicate, fabrics, sportshoes	For the fabrics you do not want tumble dry.	Rack dry
Special Fabrics		
Wool	For wool fabrics.	Wool
Silk, Women's thin clothes, lingerie	For fabrics which are heat-sensitive like synthetic fabrics.	Delicates

Drying Cycle



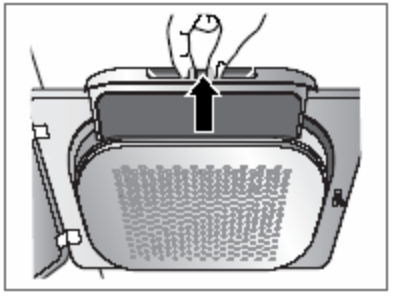
Owner’s Maintenance

Clean Lint Filter

A clean lint filter reduces drying, reduces energy consumption, and lengthens the dryer’s life.

The filter can be cleaned by vacuuming or by rinsing with water.

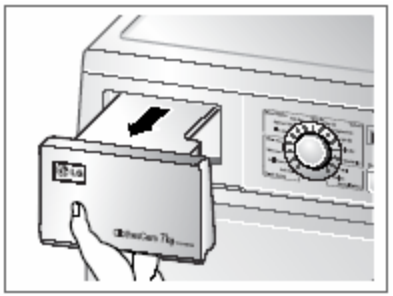
Note: If the *Clean Filter* indicator flashes during operation, clean the filter promptly. (Allow the dryer to cool for a few minutes to prevent injury from burning.)



Empty Water Container

If the dryer has not been installed with the optional drain kit attached, the condensed water container should be emptied after every use.

If the Empty Water warning lights and a buzzer sounds while the dryer is operating, the container is full and must be emptied within one hour.



Owner’s Maintenance

Condenser

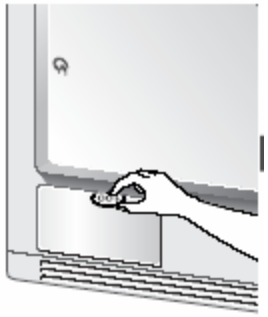
The condenser plays a very important role in the dryer’s efficient operation. It is recommended that it be cleaned three or four times a year.

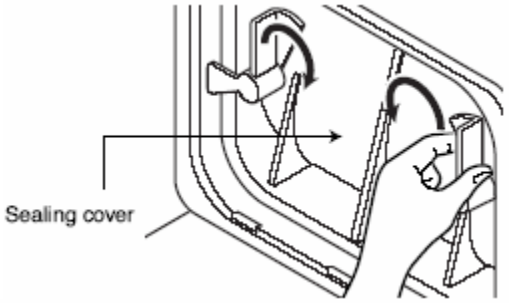
Open the condenser's cover by depressing the latching tab with a coin, a key, or a screwdriver.

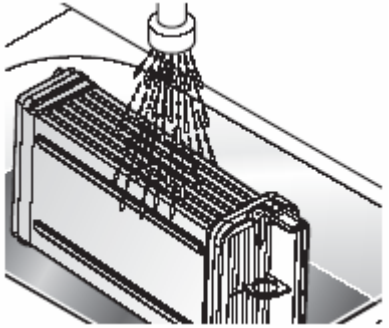
Turn the locking levers and remove the sealing cover.

Turn two more locking levers and remove the condenser by pulling the finger hole tab on the front of the condenser.

Clean the condenser thoroughly by running water through the openings, from front to back and from side to side.





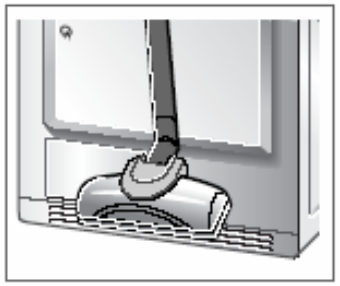


Owner’s Maintenance

Front Ventilation Grille

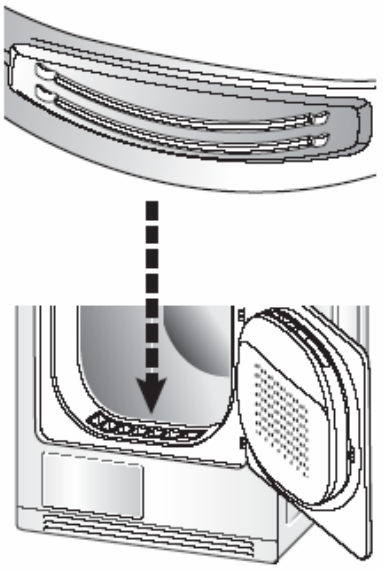
The dryer uses room temperature air to condense moisture from the warmer air in the dryer. It is important that dust does not accumulate around the vents in the front grille to restrict the air flow.

Vacuum the front grille three or four times a year to prevent dust accumulation.

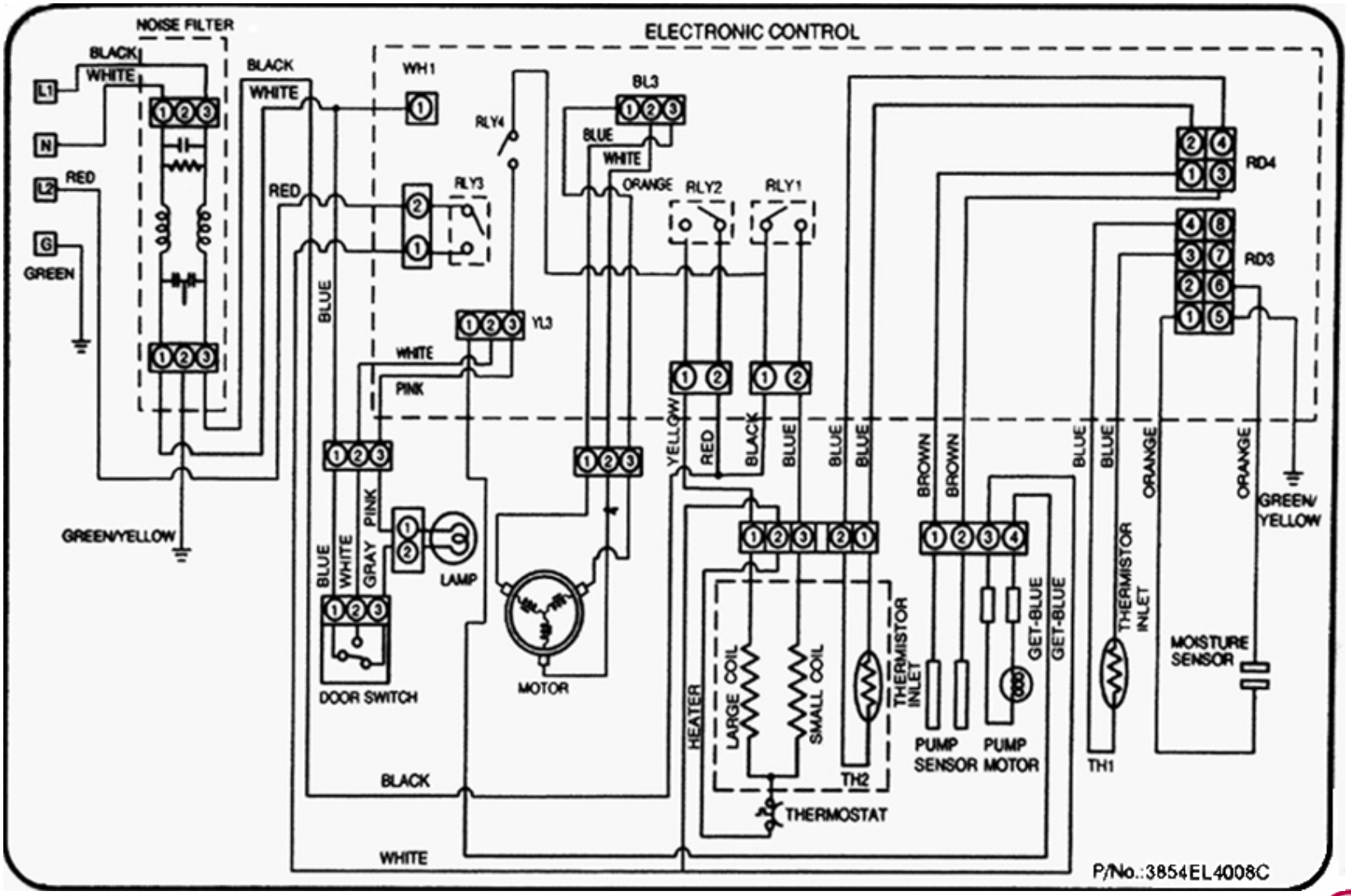


Moisture Sensor

Two strips of metal just below the door, inside the dryer, sense the moisture content of the laundry. These can develop a coating from minerals in the customer’s water supply, from dryer sheets (which are not recommended for use), or simply from oxidation over an extended period of time. Any coating on the strips will affect the sensor’s ability to accurately sense the moisture within the laundry. The sensor strips should be wiped clean frequently.



Wiring Diagram



Main PCB

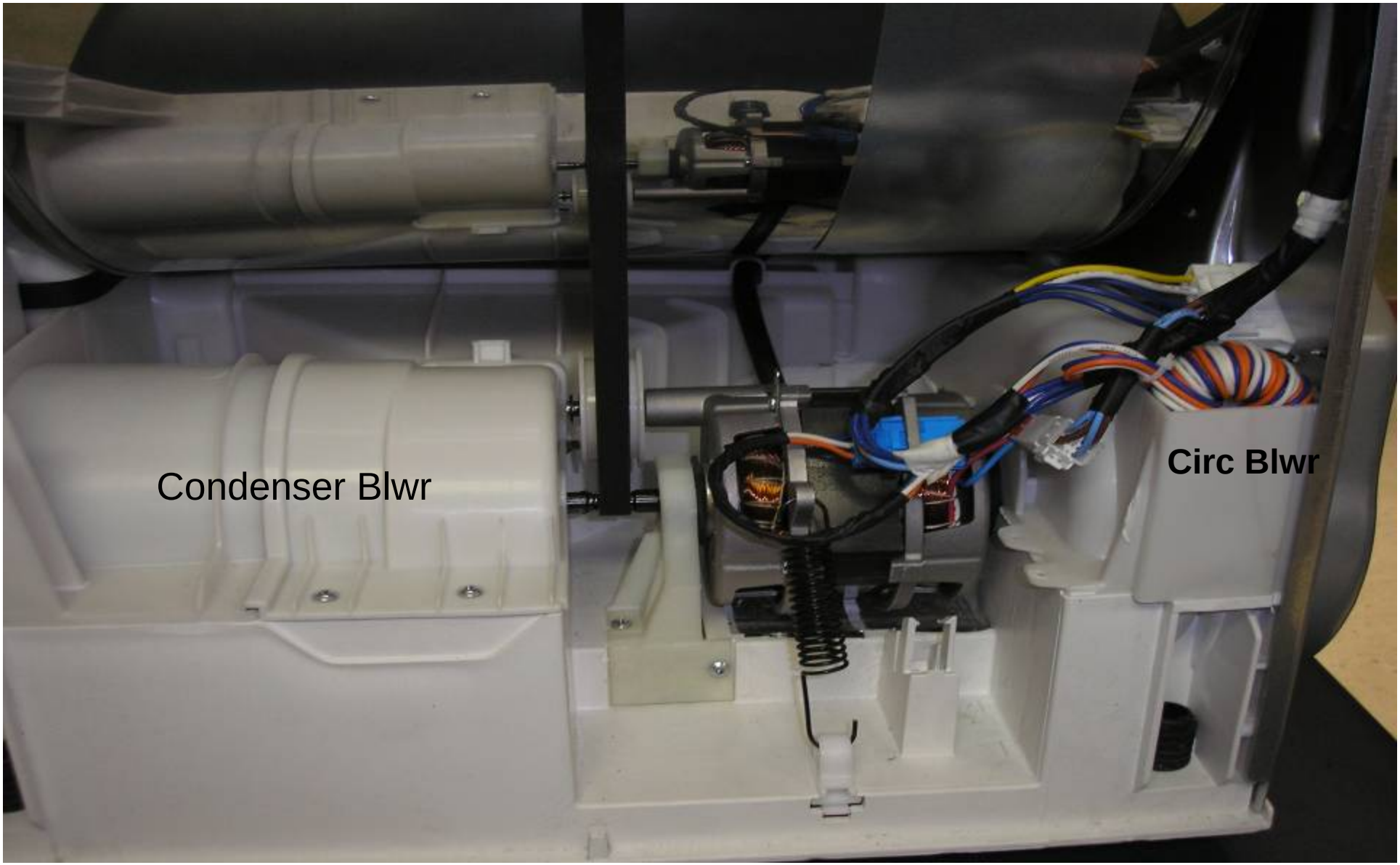
Front & Rear View

Remove 2 Screws

Remove Side Panel
Side Screws - Lift up off Tab

With Screws Removed, Lift Up

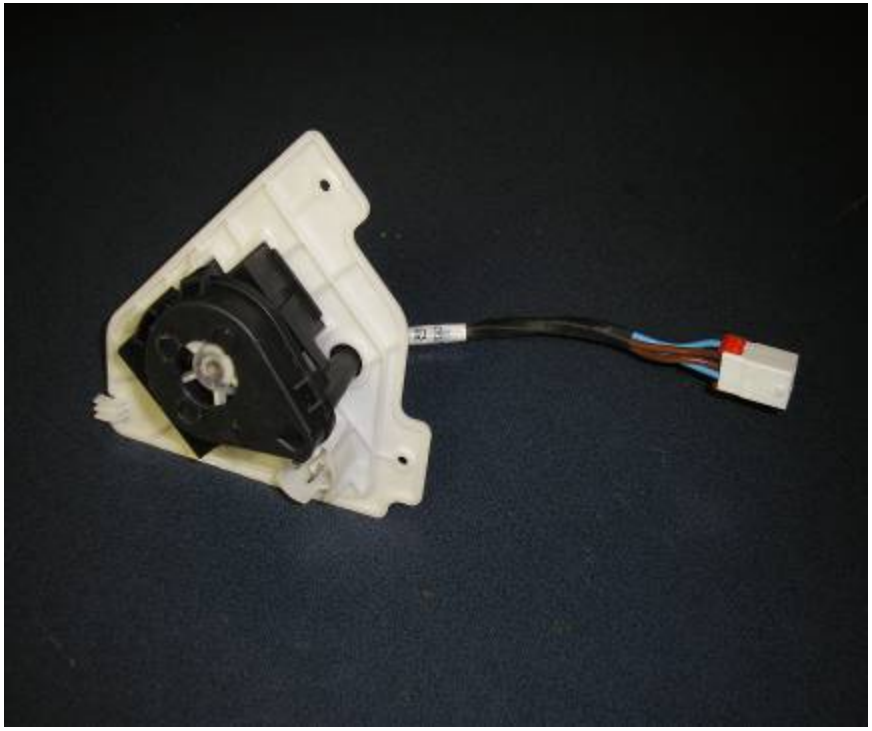
Motor-Belt, Condenser Blower, & Circulating Blower

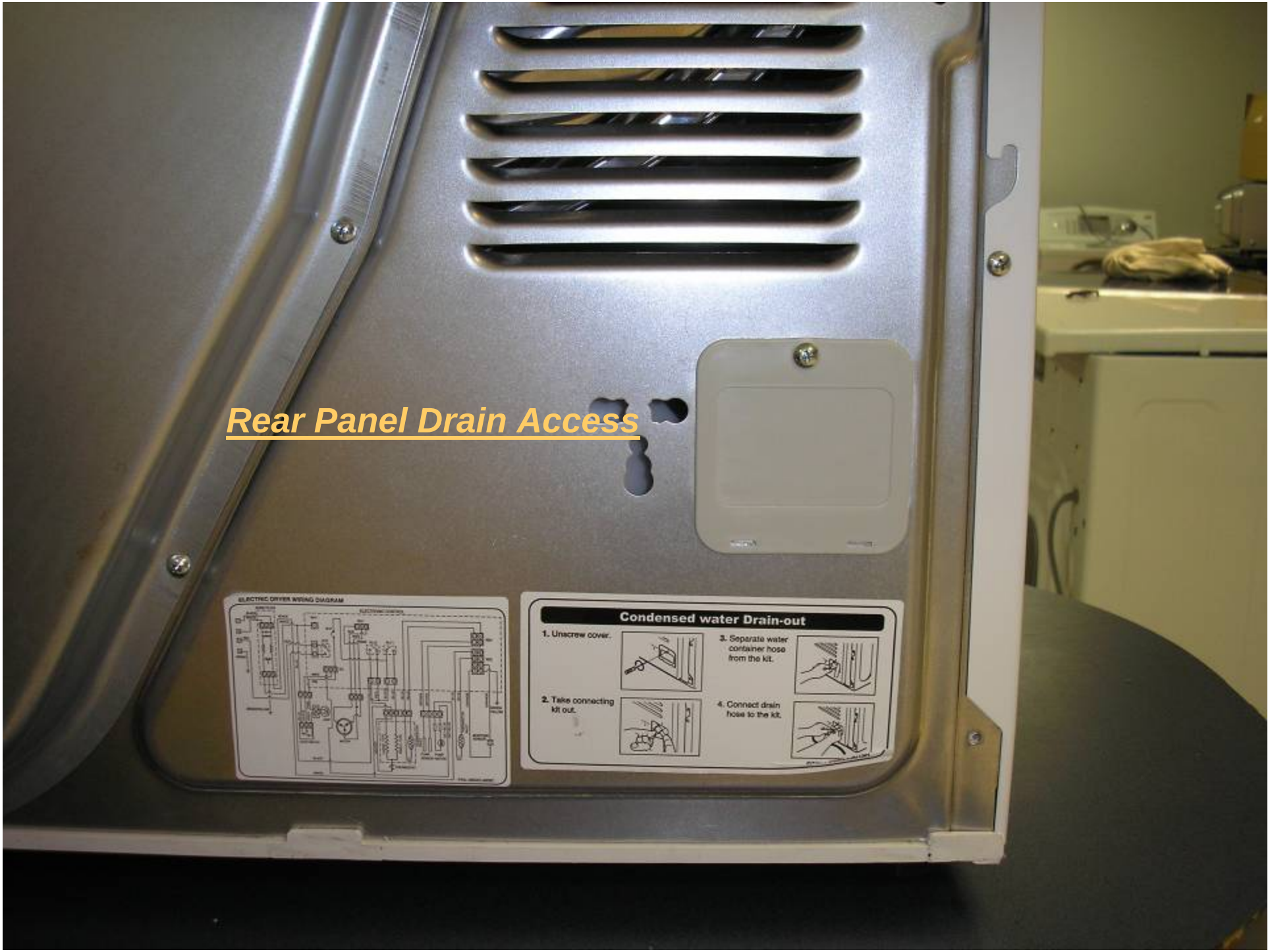


Pump Assembly 240 VAC In Place

Pump Assembly 240 VAC In Place

Pump Assembly 240 VAC

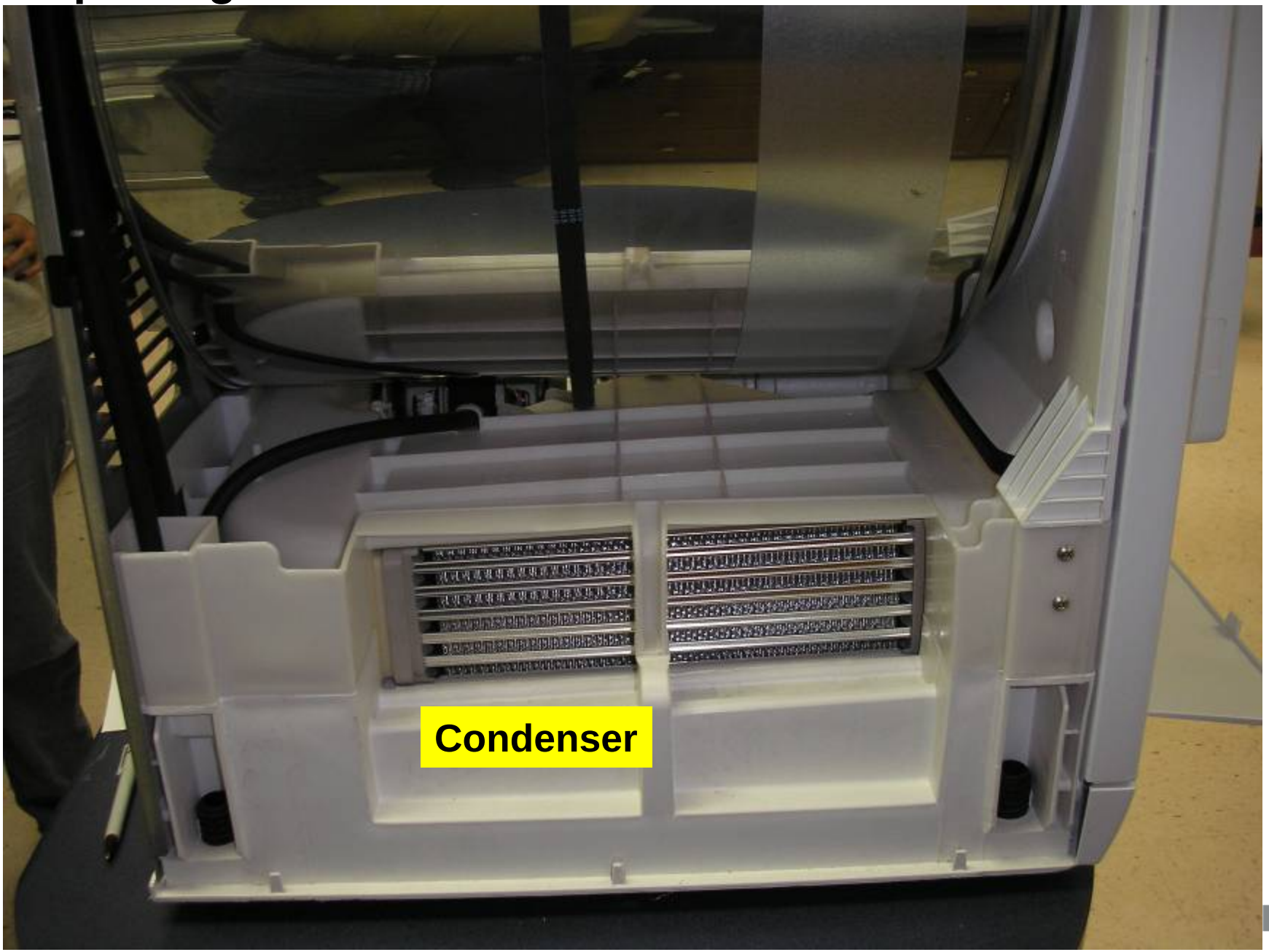



Rear Panel Drain Access
Condensed water Drain-out
1. Unscrew cover.
2. Take connecting kit out.
3. Separate water container hose from the kit.
4. Connect drain hose to the kit.

Condensate Line

from Pump to Reservoir or to Drain

Replacing the Belt-Both Side Panels Must be Removed



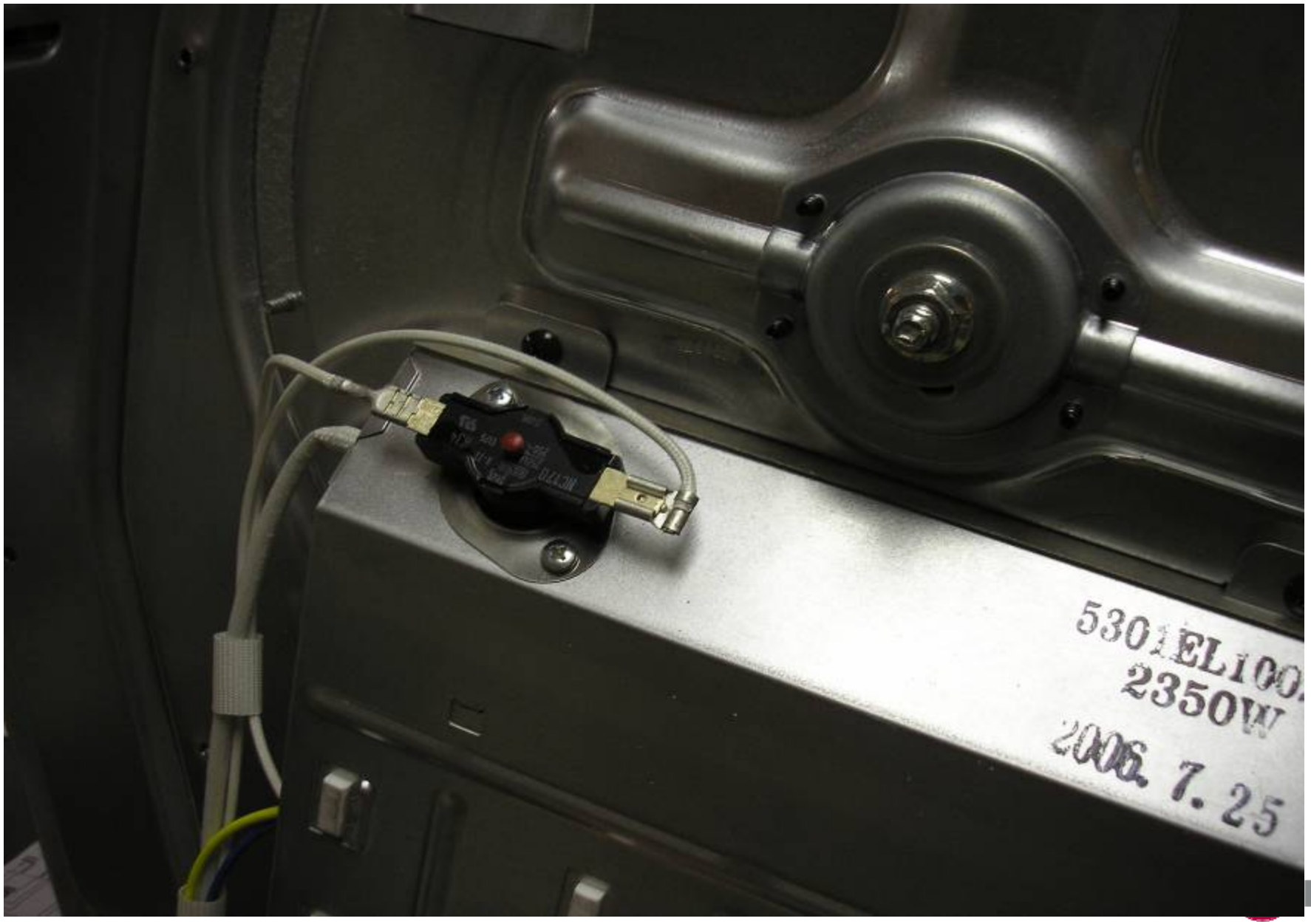
Replacing the Belt

Remove Blower Wheel Nut (Right Hd)

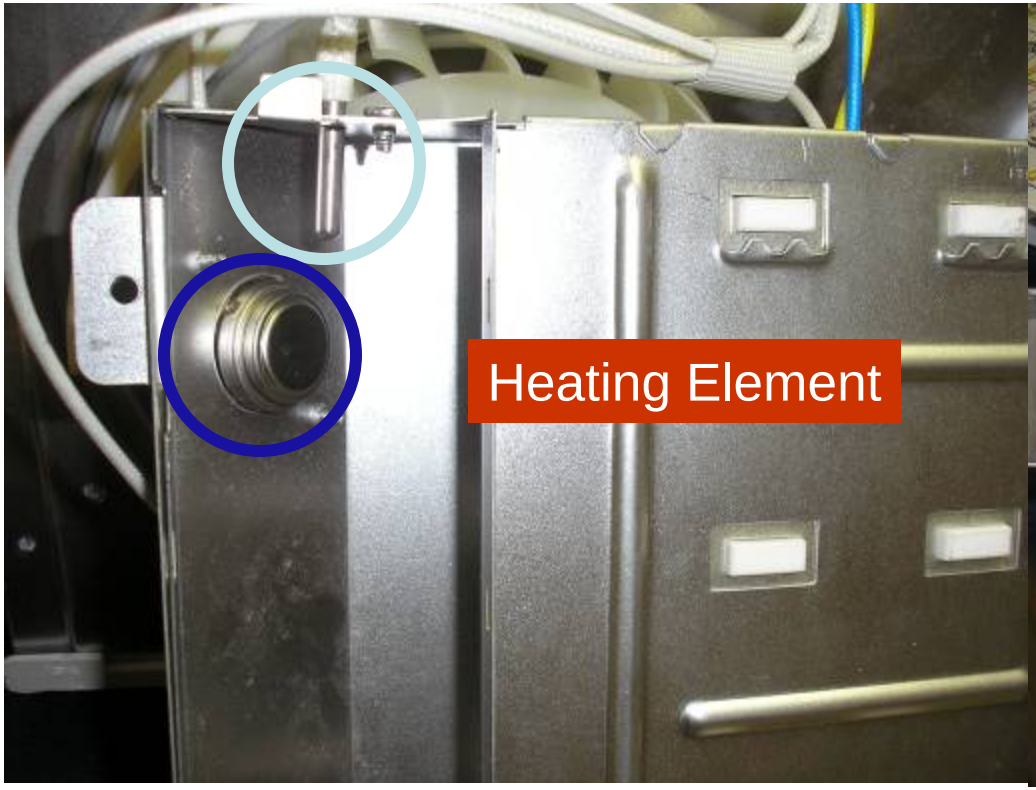
Remove Bearing Nut (Right Hd)

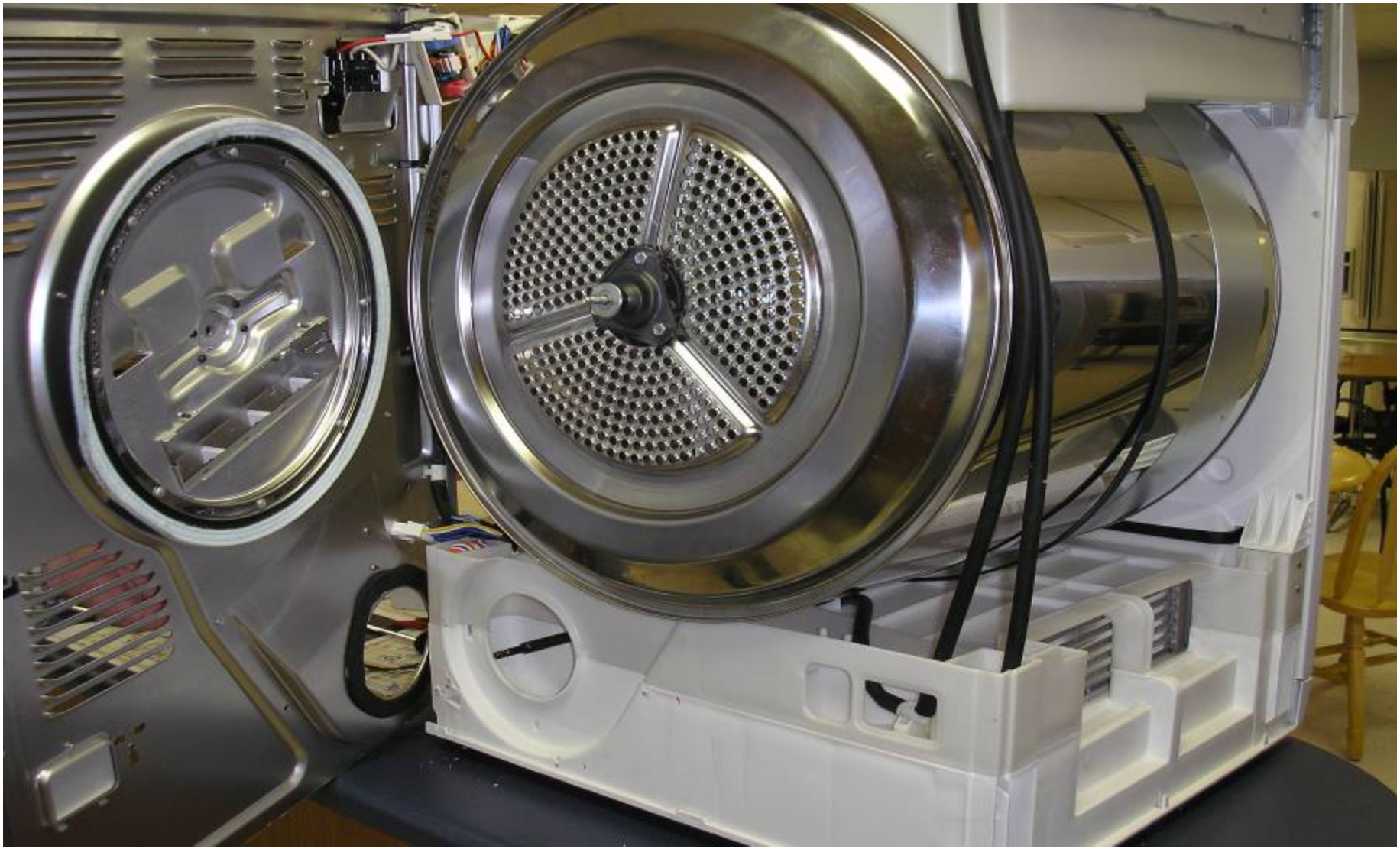
Safety Stat, Thermistor, & Heating Element

After Removing Rear Duct



Safety Stat, Thermistor, & Heating Element





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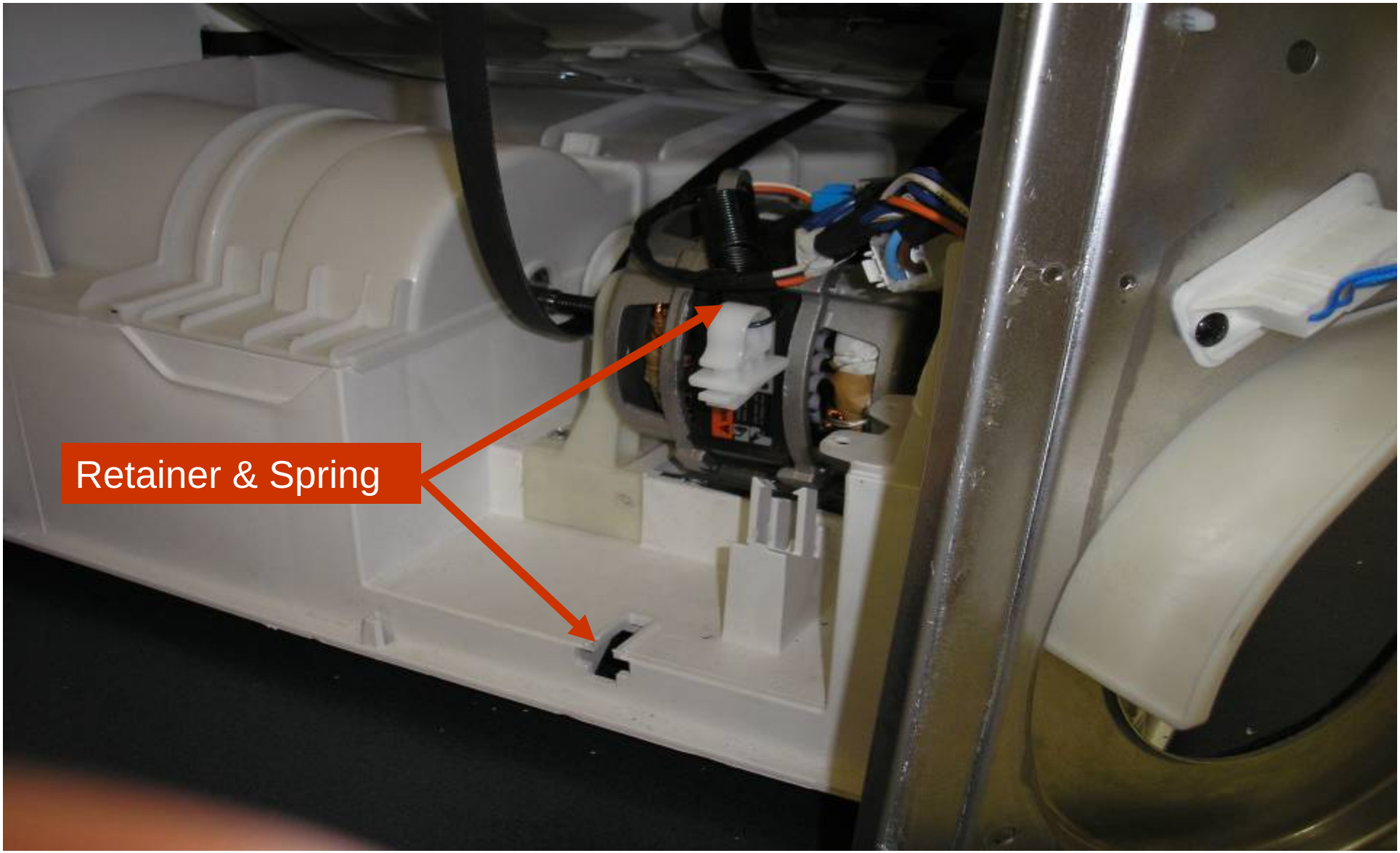
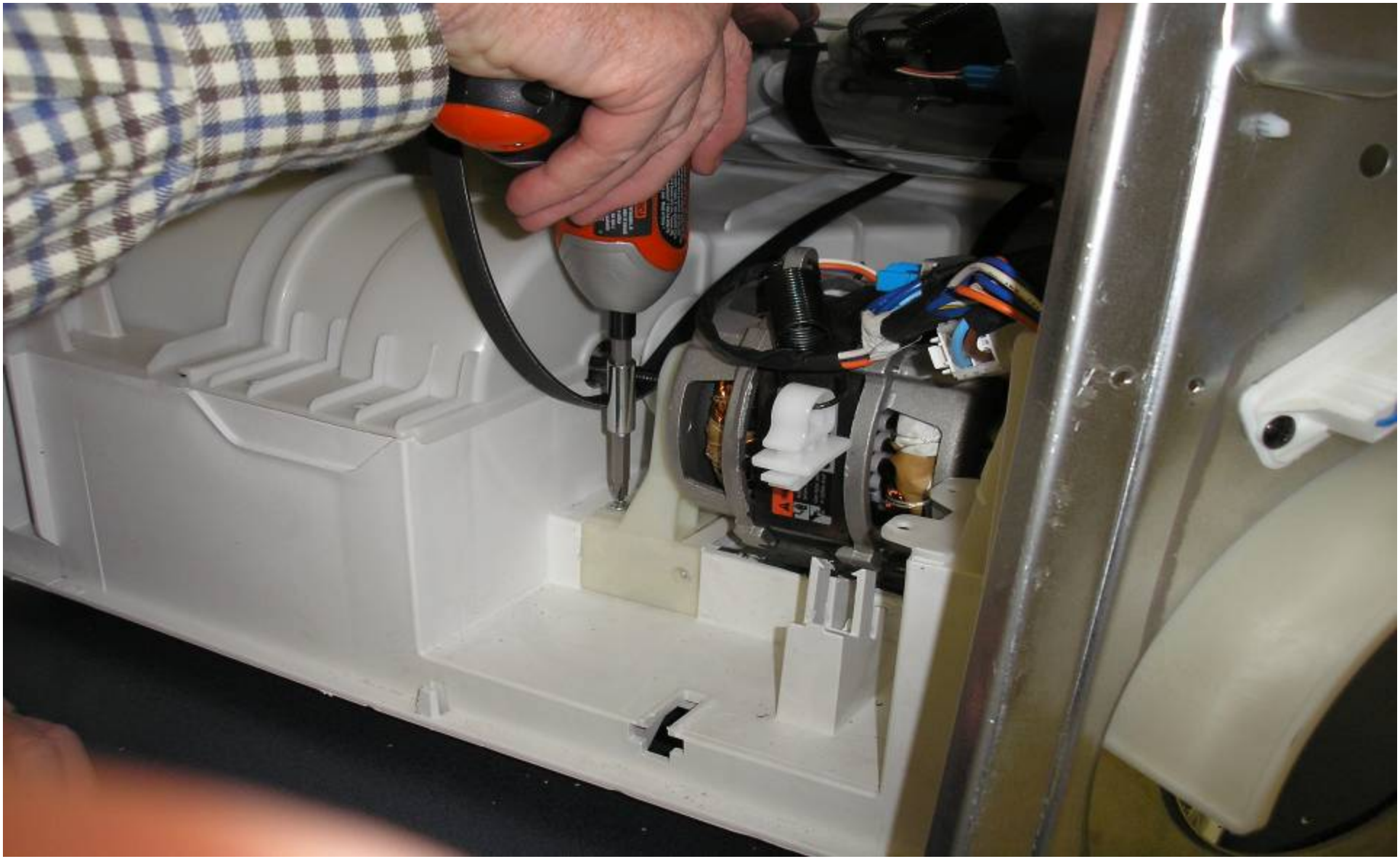
Remove Blower Cover

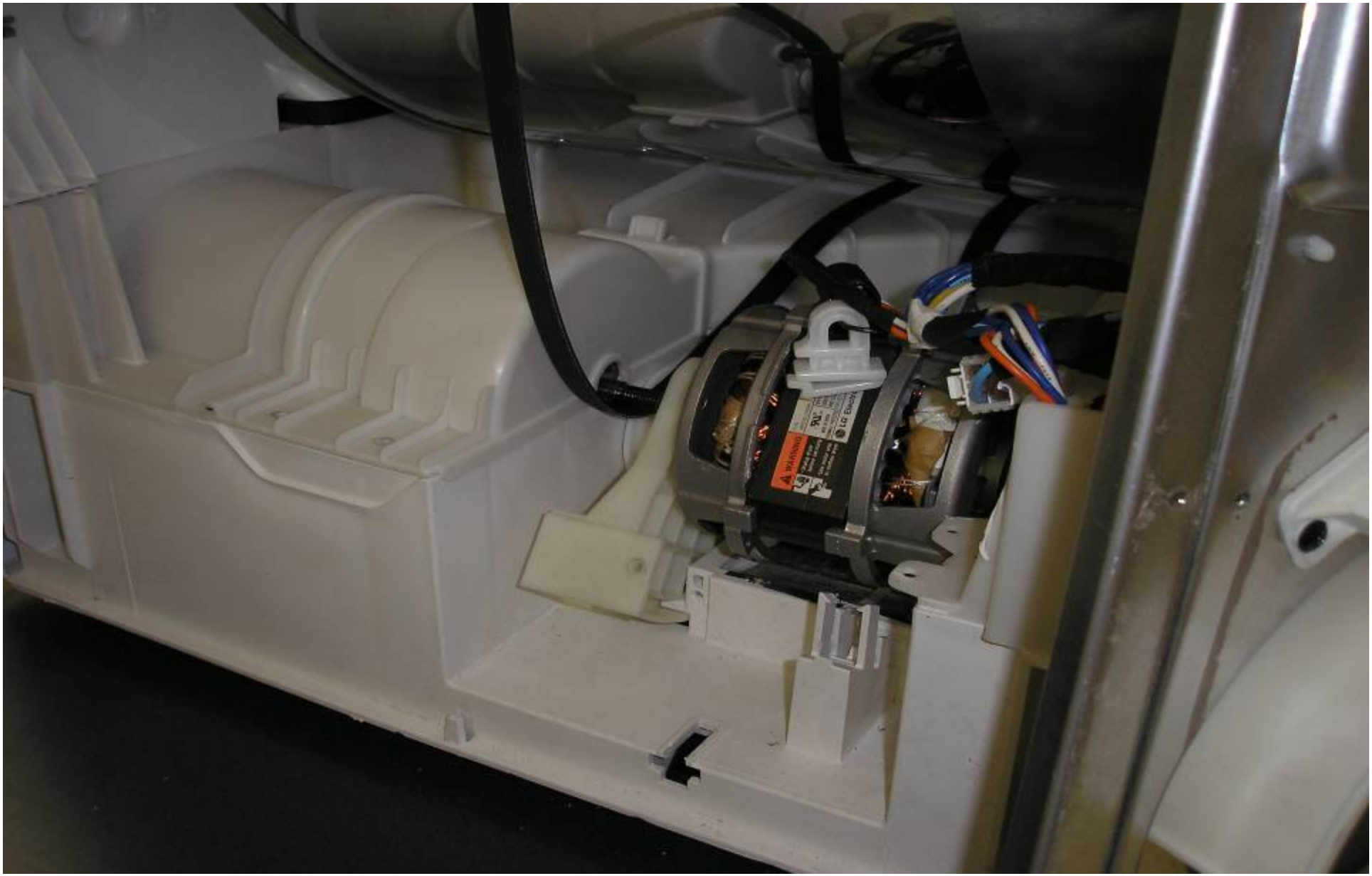
Remove Motor Spring Retainer



Remove Motor Retainer



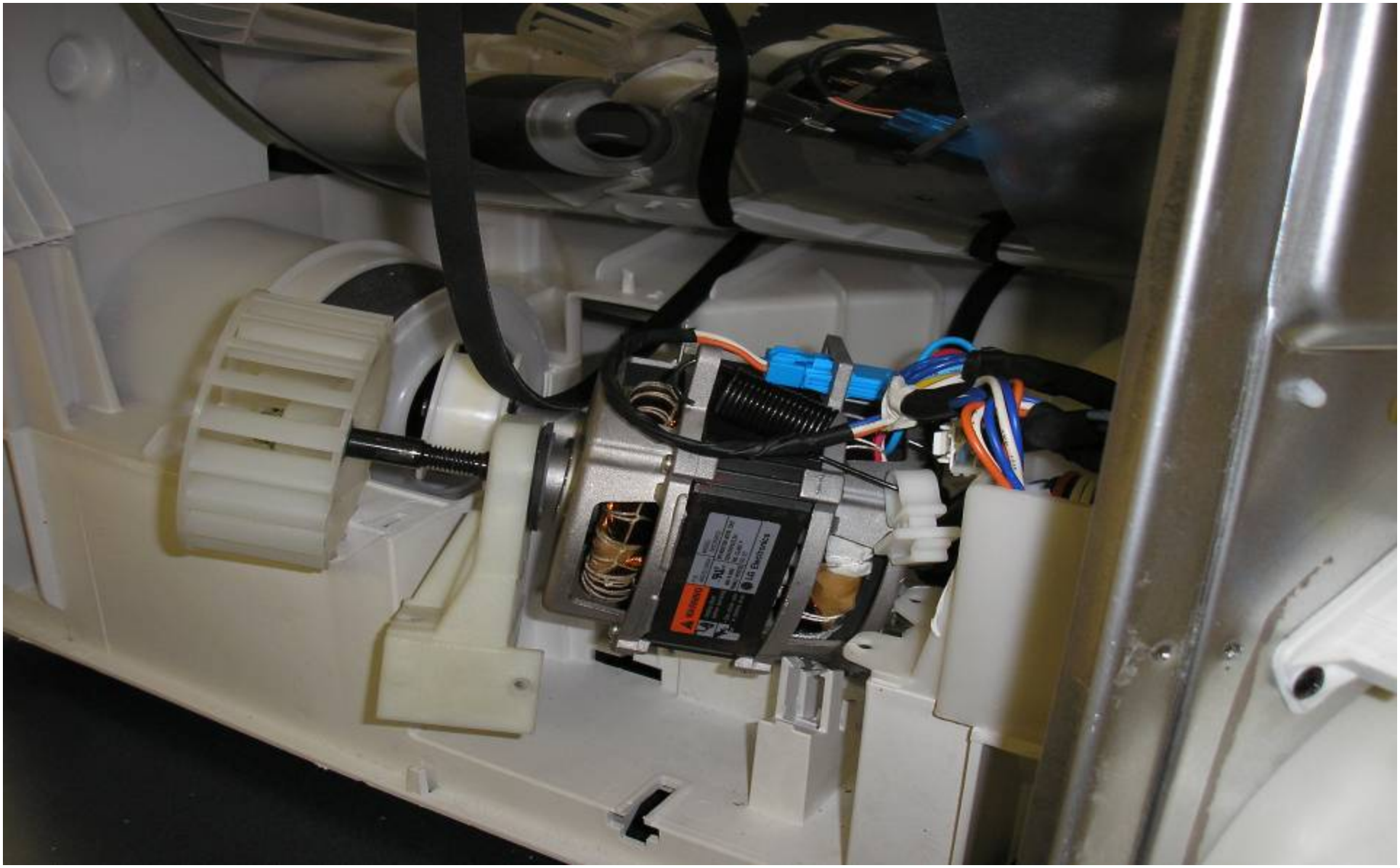
Retainer Loose

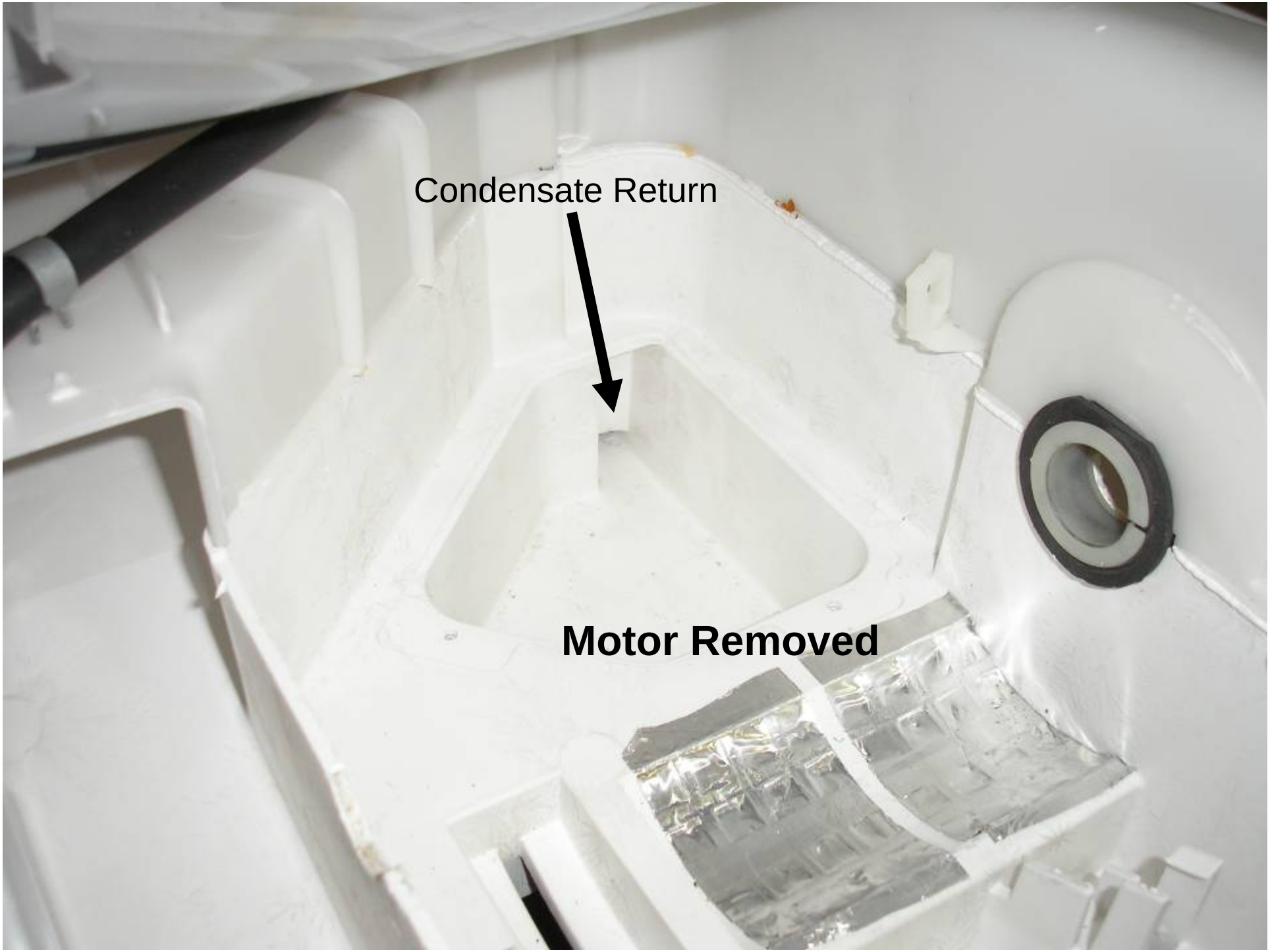


DLEC733W

With Housing Removed – Condenser Blower

Motor can now be lifted-
Belt is off Idler & Motor –Slide Belt to Rear




Condensate Return
Motor Removed

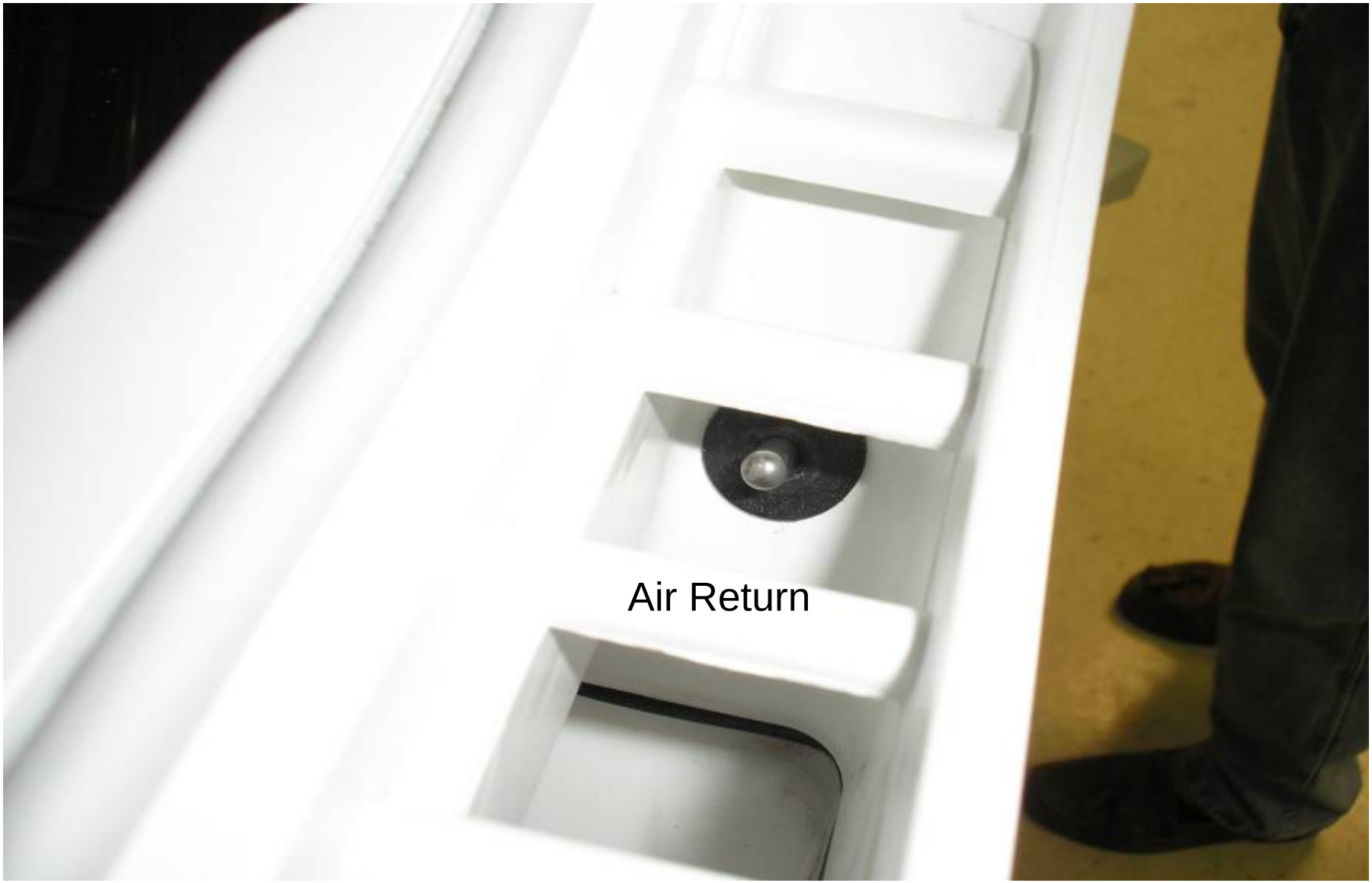
Removing the Front Panel

Bottom Panel Held by Tabs

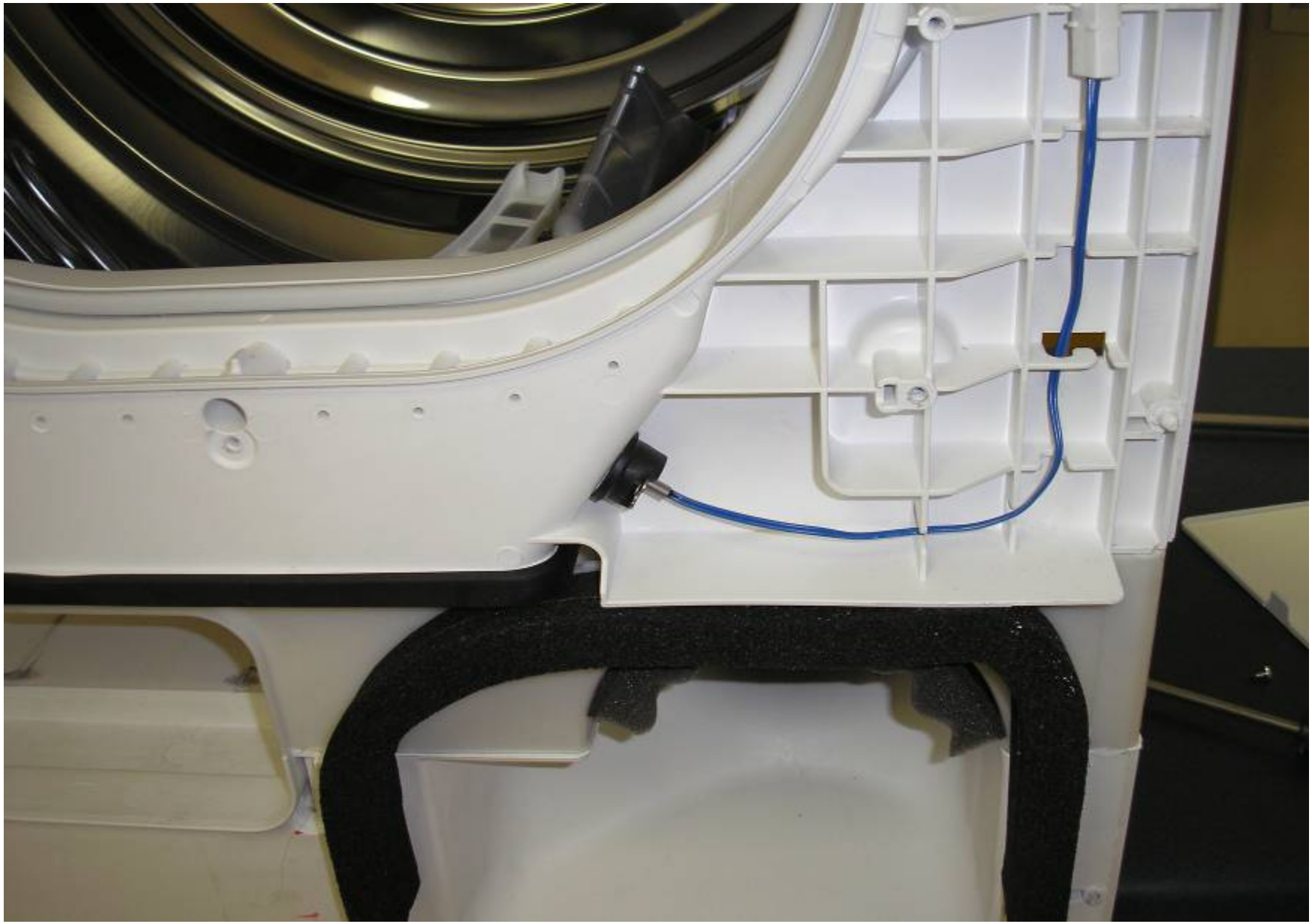
Remove Door 1st – Cabinet screws

Condenser Housing

Operating Thermistor



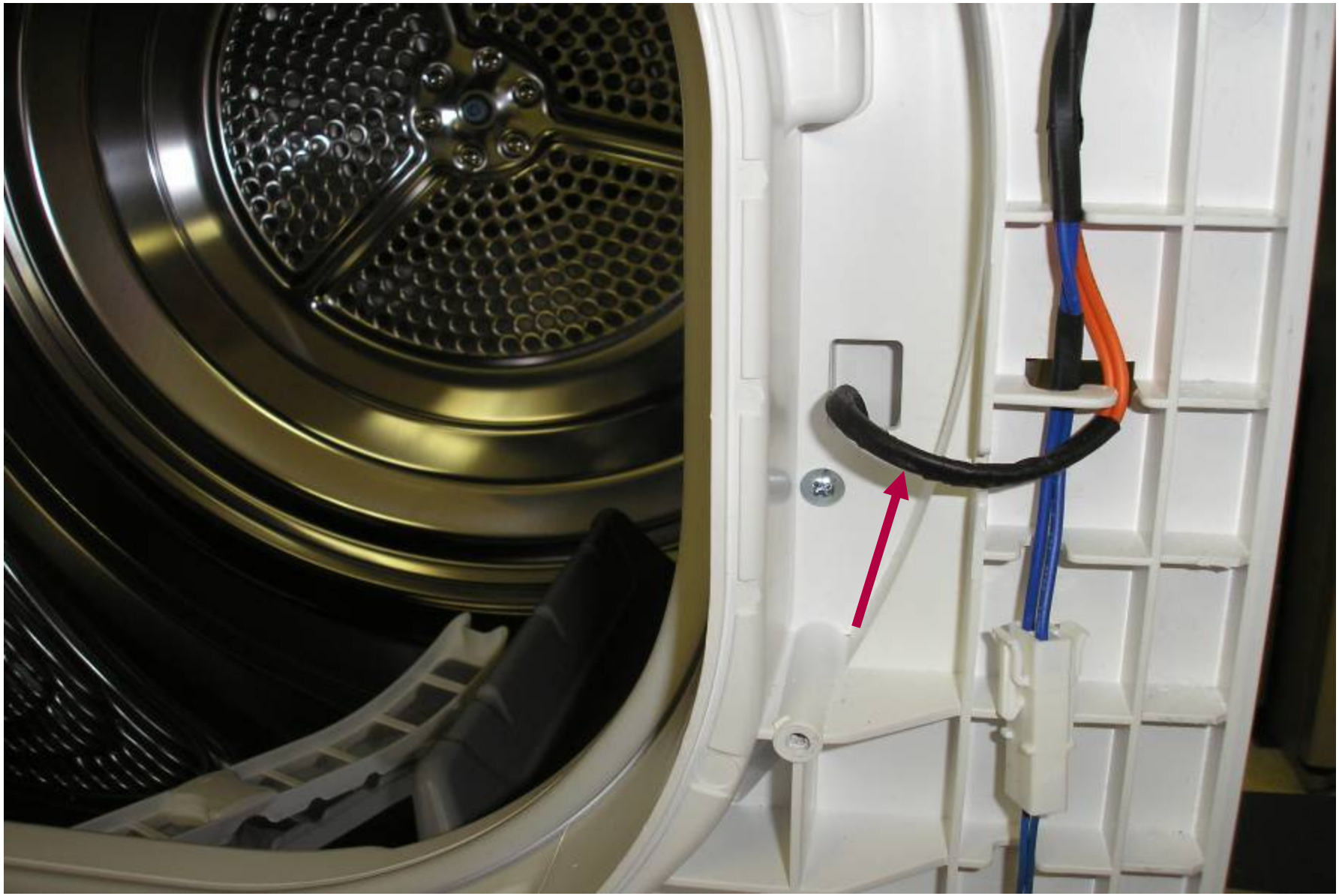
Thermistor Leads



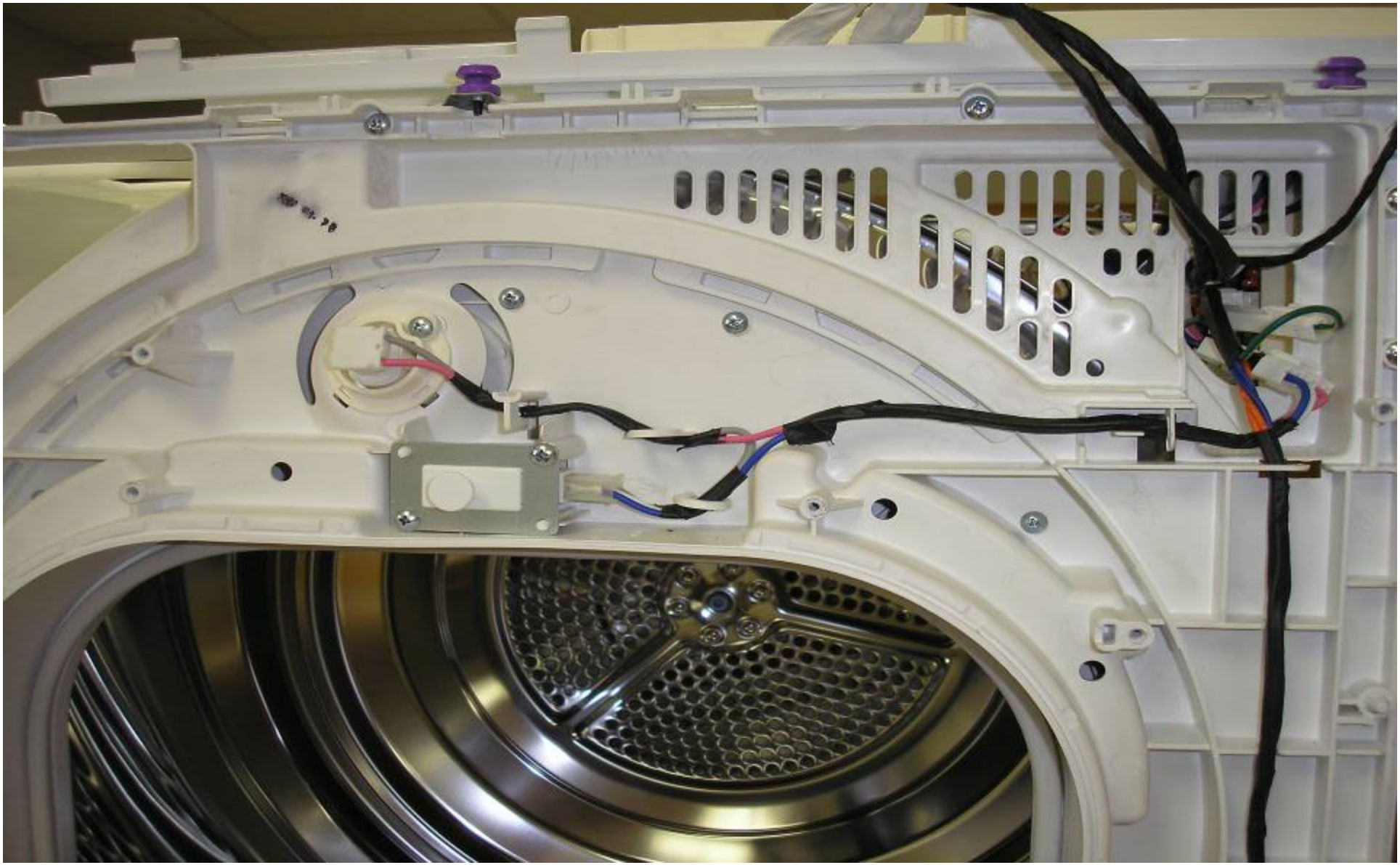
Sensor Bands

DLEC733W

Sensor Band Leads



Light Bulb & Door Switch



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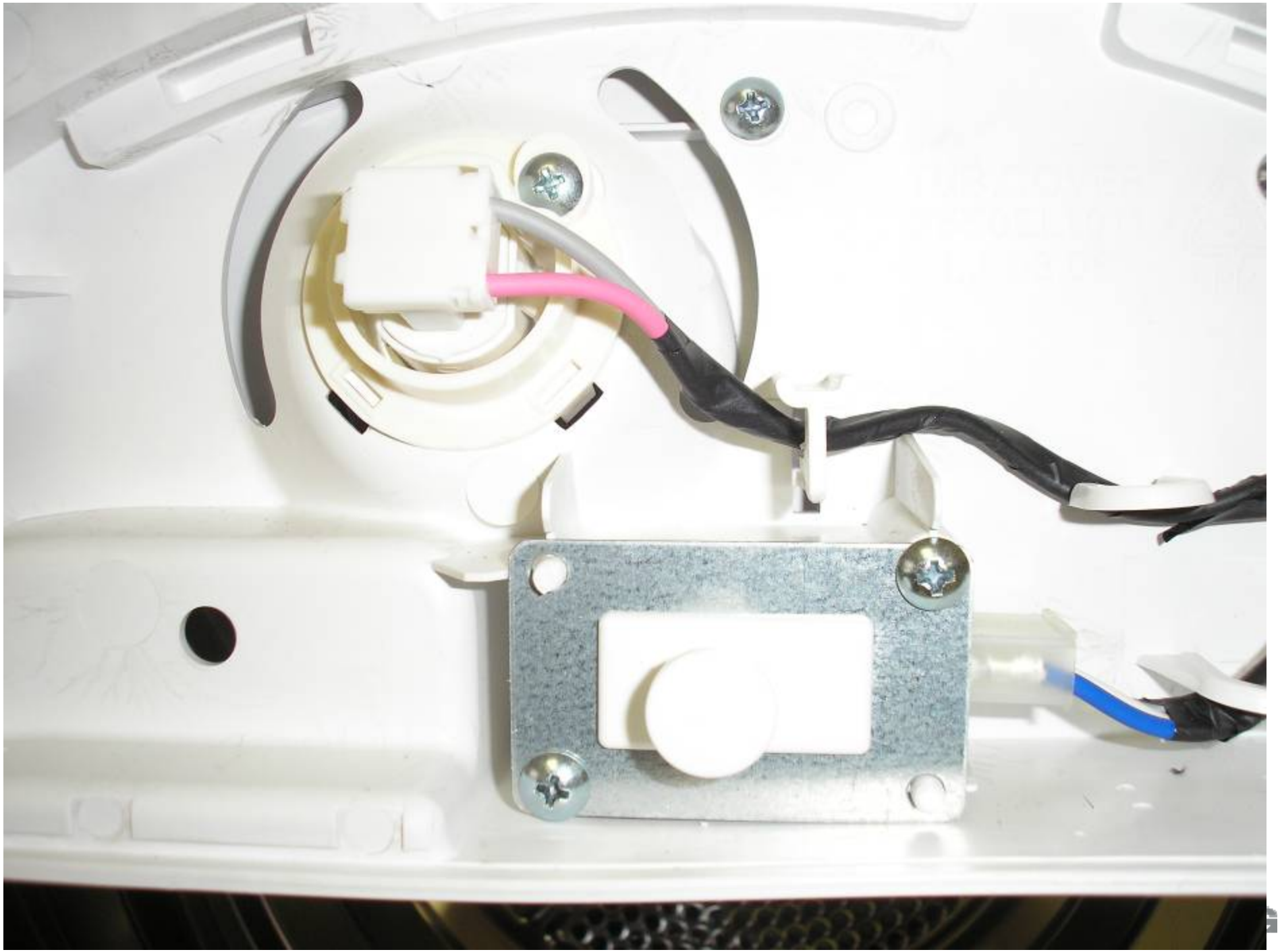
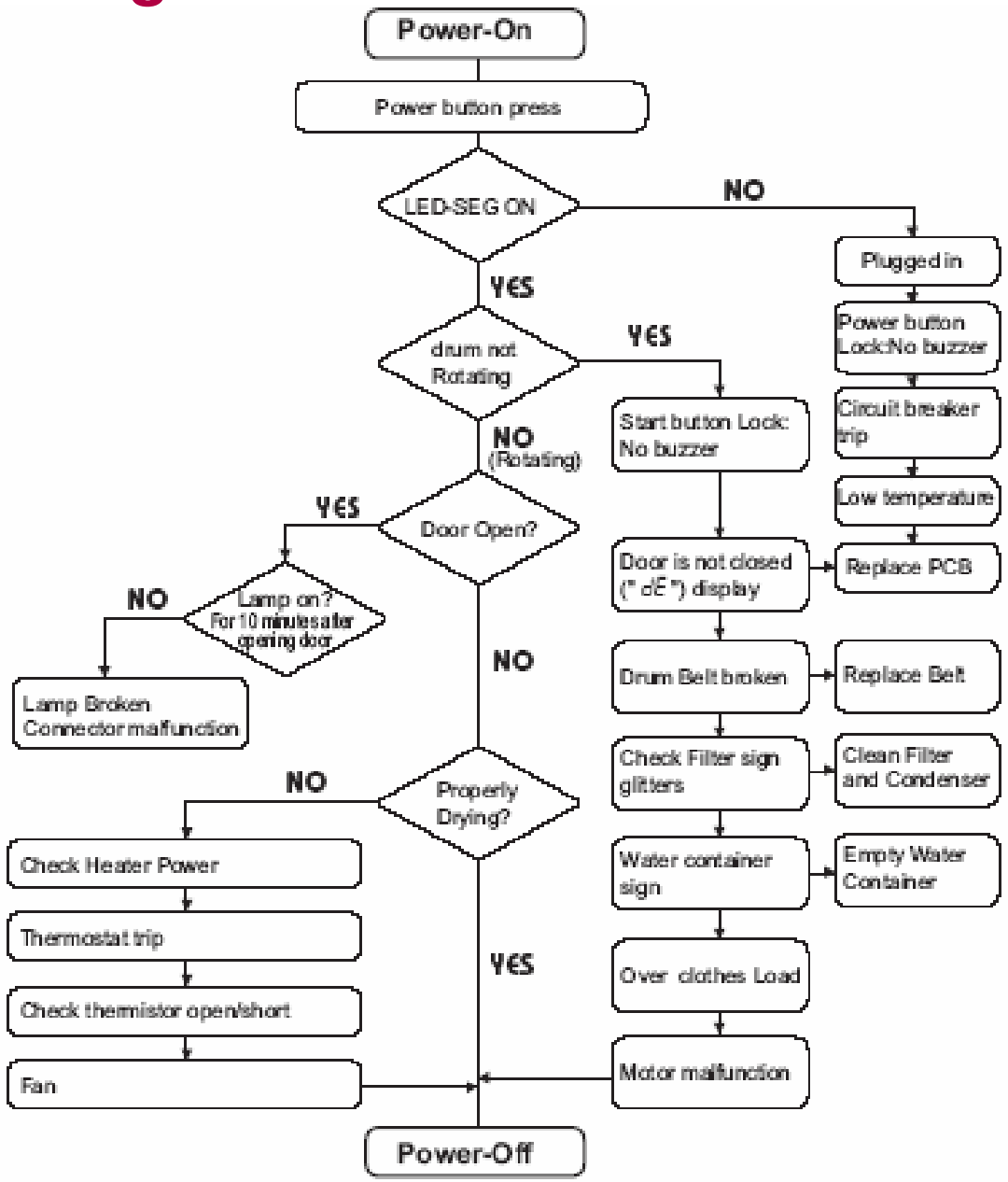


Lint Filter

DLEC733W

Troubleshooting



Diagnostic Testing

YES

Test 1 : ELECTRIC SUPPLY & CONTROL CHECK

Trouble Symptom : No power to the dryer or the controller

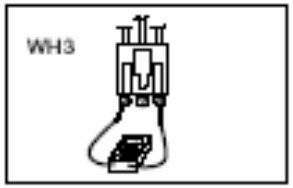
Measurement condition : Power is on.
[Caution] Electric shock. Please test after grounding check.

Power voltage is within standard range (AC 215V~245V)?

NO

- Check the
  - Circuit breaker

YES



- Check after pulling white 3 pin connector out from controller.
- Check the range of white pin ①~③ is within

AC 215~245V?

YES

- Check or replace the controller

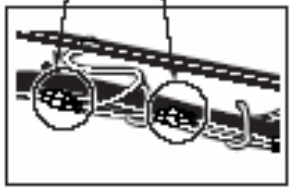
NO

- Check connection of power cord and harness assembly.
- Check white 1pin-black 1pin of connector and secure that range is between AC 215~245V?

NO

- Check or replace the power cord

YES



Check the short of harness assembly(white and white wire) and the connection(WH3)

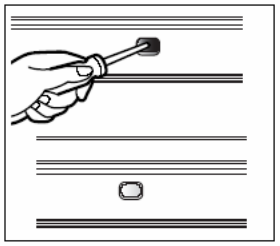
※In the case that the dryer is not working, when controller is powered and display button is properly working, Check RLY1 in the controller.

Diagnostic Testing

DOOR SWITCH/LAMP CHECK

Trouble Symptom: Malfunction of lamp operation and door switch
No operation of pump motor

Measurement condition: Check with power connected and dryer running.



When door is opened, lamp turns on?
(Tumbling stops)

NO → Check the door switch movement. (See the picture at the left).
Check and replace lamp.

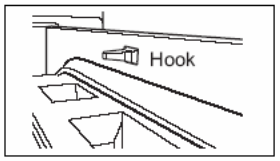
YES ↓

When door is closed, lamp turns off?

When "Start" button is on, the dryer is working?

YES → • Door switch is working normally.

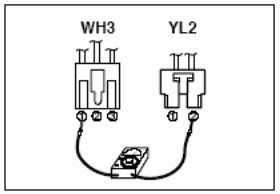
NO ↓



When door is opened or closed, door switch hook is not broken?

YES → • Replace door hook and close the door.

NO ↓



• With door closed, check voltage of connector WH3 ③ and YL3 ① which are pulled out from controller in advance. The voltage range is between AC 215 & 245V?

NO → • Door frame is distorted
• Check door switch

YES ↓

Check or replace Controller Assembly
Replace Harness and connector

• With door closed, when "Start" button is pressed, lamp turns off and controller is working, but the dryer is not working.

• With door closed, check voltage of connector WH3 ① and YL2 ② which are pulled out from controller in advance. The voltage range is between AC 215 & 245V?

NO → • Check Harness

YES → • Check and replace Controller

Diagnostic Testing

MOTOR

Trouble Symptom : Motor malfunction, ventilation error

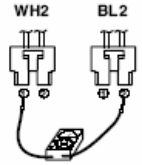
Measurement condition : • Power cord is unplugged.
• Door is closed.
• Pre-Check door switch
(If door switch has contact problem, pump motor is not working.)

• When power is on, motor is rotating.

YES → • Check or replace Controller
- TR1, TR2 broken

NO

NO



With WH2,BL2 being unplugged from Controller,
① WH2 ① - BL2 ① resistance
② WH2 ① - BL 2 ② resistance
measurement ranges 18Ω~26Ω ?

NO → • Check or replace Motor
- Check Motor TP
• Check Harness connection

YES

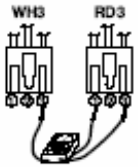
• Check controller
-See page 15
(PCB Assembly Lay-out)

Diagnostic Testing

HEATER

Trouble Symptom : Heater is not working. Drying failure. The designated temperature is not reached.

Measurement condition : ① Power cord is unplugged.



With WH3,RD3 disconnected from Controller,

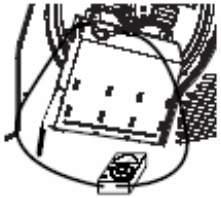
① WH3 ③ - RD3 ① resistance ranges 26Ω~32Ω ?

② WH3 ③ - RD3 ③ resistance ranges 53Ω~59Ω ?

YES

- Check and replace controller.
- Relay RTY2, RTY3
- See page 15, PCB assembly lay-out.

NO



When check thermostat to Heater,

it is less than 1Ω?

YES

- Replace Heater
- Check Harness connection

NO

Manually get Thermostat back (Press button)

Heater On/Off occurs frequently

1. Clean Condensing unit :
2. Check if Lint filter is damaged or clogged

Diagnostic Testing

PUMP

Trouble Symptom : Check if pump is out of order. "Empty Water" Error signals.

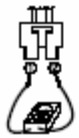
Measurement condition : Power cord is unplugged.

(Measure with power on)
On QC test mode, when Pump is on,
Electric noise doesn't occur
Electric noise doesn't occur while pumping?

YES

- Disassemble Pump
  - Check foreign objects
  - Check impeller restriction
  - Check connection hose clogged

NO



(Measure after power is off.)
With YL2 disconnected from Controller,
YL 2 ① - YL 2 ② resistance ranges 205 ± 10Ω ?

NO

- Check or replace pump
- Check Harness connection

YES

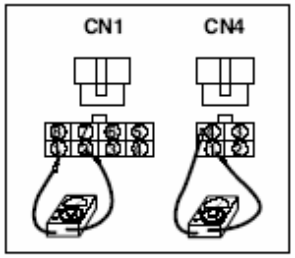
- Check Pump sensor
- Check and replace Controller
  - TR3

Diagnostic Testing

THERMISTOR

Trouble Symptom : Poor drying performance(over-drying or no drying). Abnormal thermistor operation.

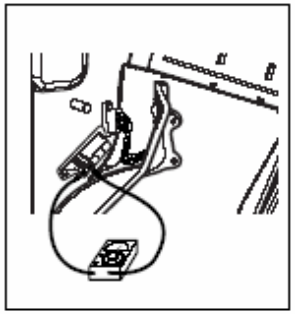
Measurement condition : Power cord is unplugged.



With CN1(RED4), CN4(WH4) disconnected from Controller, check
① TH-Heater
CN4 ② - CN4 ① resistance ranges table data according to surrounding temperature?
②TH-Drum
CN1 ① - CN1 ② resistance ranges table data according to surrounding temperature?

YES → • Check and replace Controller

NO



• When measuring "TH-Heater" Thermistor, they range Table data ?

NO → • Replace "TH-Heater" Thermistor

YES

• When measuring "TH-Drum " Thermistor, they range Table data ?

NO → • Replace "TH-Drum " Thermistor

YES

• Check Harness

Dryer Temperature	Resistance		Dryer Temperature	Resistance		Remark
	TH-Heater	TH-Drum		TH1	TH2	
10°C ↓		19~111kΩ	40~50°C	113~75kΩ	5~4kΩ	
20~30°C	250~180kΩ	11~8kΩ	50~60°C	75~50kΩ	4~2.5kΩ	
30~40°C	180~113kΩ	8~5kΩ	60°C ↑	50kΩ ↓	2.5kΩ ↓	

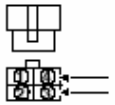
Diagnostic Testing

MOISTURE SENSOR

Trouble Symptom : Drying Failure

Measurement condition : Power cord is unplugged.

CN1(RD4)

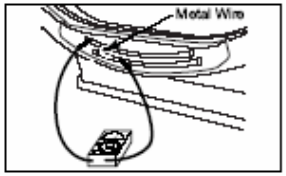


With CN1(RED4) disconnected from Controller, CN1 ③ - CN1 ④ resistance is unlimited?

NO

- Check Harness
- Check if Sensor tips have foreign objects
  - Refer to the left picture

YES



With metal tape attached to Sensor tips, CN1 ③ - CN1 ② resistance is less than 10Ω?

NO

- Check Harness
  - Open, Connector is disconnected

YES

After damp clothes touch Sensor tips, the range are within the below table when QA-test?

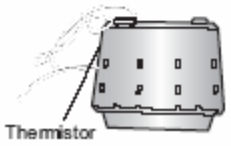
NO

- Check and replace Controller

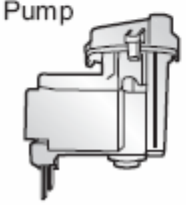
❄ IMC	DISPLAY	NOTE
40% ~ 60%	50 ~ 130	After Spinning
5% ~ 20%	100 ~ 200	Iron dry
-3 ~ +5 %	205 ~ 240	After normal dry

❄ IMC : Initial Moisture Contents.

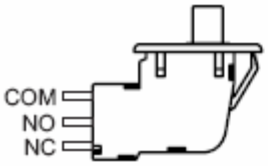
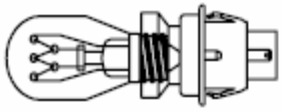
Component Testing

Component	Test procedure	Check result	Remark
1. Thermostat (Manual type) 	Measure resistance of Terminal to terminal 1) Open at 170°C (-10/+5°C)	Measure resistance by pressing button When resistance becomes ∞ Resistance value < 5Ω	Safety Thermostat
2. Thermistor (Low temp.) 	Measure resistance of terminal to terminal	Resistance value : 10KΩ±5% (at 25°C)	Cover, Front
3. Heater, Thermistor 	Measure resistance of Terminal to terminal	Resistance value : Yellow/White : 28.96±1Ω Blue/White : 56.29±2Ω	
	Measure resistance of therminal to terminal	Resistance value : 200KΩ±5% (at 25°C)	Heater

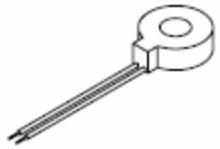
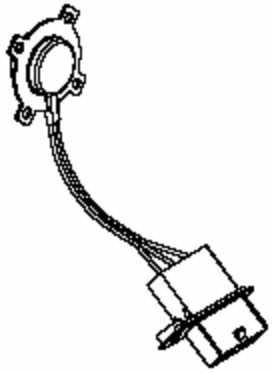
Component Testing

Component	Test procedure	Check result	Remark
4. Motor 	Measure resistance of Terminal to terminal	Resistance value : White/Blue : 24.8±2.5Ω Blue/Red : 21.5±2.0Ω	
5. Capacitor 	Measure capacitance of Terminal to terminal	Capacitance value : 10±0.2μF	
6. Pump 	Measure resistance of Terminal to terminal	Resistance value : 205±10Ω	

Component Testing

Component	Test procedure	Check result	Remark
7. Door Switch  	Measure resistance of the Following terminal 1) Door switch knob : open ①Terminal: "COM"- "NC" (1-3) ②Terminal: "COM"- "NO" (1-2) 2)Door switch push: Push ①Terminal: "COM"- "NC" (1-3) ②Terminal: "COM"- "NO" (1-2)	① Resistance value < 1Ω ② Resistance value ÷ ∞ ① Resistance value ÷ ∞ ② Resistance value < 1Ω	The state when knob is Pressed is opposite to open condition.
8. Lamp holder 	Measure resistance of terminal to terminal	Resistance value: 80Ω~100Ω AC 230V, 15W	

Component Testing

9. ELB (Earth Leackage Breaker) 			
10. Semi Conductor Sensor 	Measure resistance of Terminal to Terminal	Resistance value: Red/Black: 29 ±4	