



# ELECTRIC & GAS DRYER SERVICE MANUAL

#### **CAUTION**

READ THIS MANUAL CAREFULLY IN ORDER TO PROPERLY DIAGNOSE PROBLEMS AND TO SAFELY PROVIDE QUALITY SERVICE ON THESE DRYERS.

MODEL: Electric Gas

 DLE2601W
 DLG2602W

 DLE2601R
 DLG2602R

 DLE2601L
 DLG2602L



P/No.: 3828EL3005Z

JUL. 2008 PRINTED IN KOREA

# **IMPORTANT SAFETY NOTICE**

The information in this service guide is intended for use by individuals possessing skill and experience in electrical, electronic, and mechanical appliance repair. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

# **A** WARNING!

To avoid personal injury, disconnect power before servicing this product. If electrical power is required for diagnosis or test purposes, disconnect the power immediately after performing the necessary checks.

## RECONNECT ALL GROUNDING DEVICES

If grounding wires, screws, straps, clips, nuts, or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

#### WHAT TO DO IF YOU SMELL GAS:

- Do not try to light a match, or cigarette, or turn on any gas or electrical appliance.
- Do not touch any electrical switches. Do not use any phone in your building.
- Clear the room, building or area of all occupants.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions carefully.
- If you cannot reach your gas supplier, call the fire department.

#### **IMPORTANT**

Electrostatic Discharge (ESD)
Sensitive Electronics

ESD problems are present everywhere. ESD may damage or weaken the electronic control assembly. 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 -

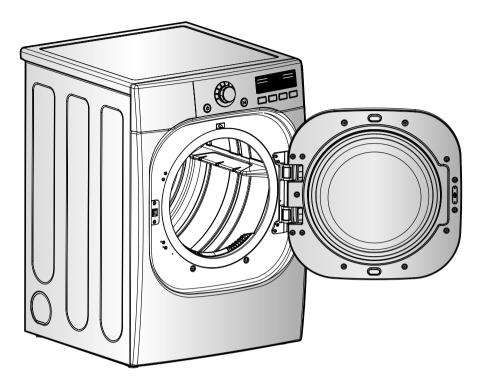
Touch your finger repeatedly to a green ground connection point or unpainted metal in the appliance.

- 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 electronic control assembly by edges only.
- When repackaging failed electronic control assembly in anti-static bag, observe above instructions.

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# **SPECIFICATIONS**



■ Name: Electric and Gas Dryer

■ Power supply: Please refer to the rating label regarding detailed information.

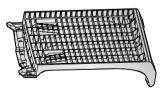
■ Size: 27 X 30 X 38.7 (inch)

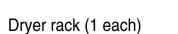
■ Dryer capacity: IEC 7.4 cu.ft.

■ Weight: 126.8 lbs (57.5 kg)

Specifications are subject to change by manufacturer.

### ACCESSORIES



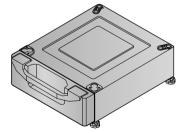


See page 6



Stacking kit (1 each)
Purchased Separately

See page 7



Pedestal (1 each)
Purchased Separately

See page 8

ITEM		DLE2601W DLE2601R DLE2601L	DLG2602W DLG2602R DLG2602L	REMARK		
		Color	Blue White / Wild	Blue White / Wild Cherry / Riviera Blue		
Material & Finish	-	Top Plate	Ро	rcelain		
		Door Trim	Chr	omate		
POWER	RSU	PPLY	120V/240	V 60Hz (26A)		
		MOTOR	250V	V (4.5A)	AC 120V	
   ELECTRICI	ΤΥ	HEATER	5400V	V (22.5A)	AC 240V(ELECTRIC MODEL)	
CONSUMPT	ION	LAMP	15 W	/ (0.2A)	AC 120V	
		GAS VALVE	13 W (	0.11A) x 2	AC 120V(GAS MODEL)	
CONTR	ROL	TYPE	Ele	ctronic		
DRUM (	DRUM CAPACITY		7.4 cu.ft.			
Weight (lbs	s) - N	let/Gross	126.8 / 145.5			
No. of	Prog	rams	9			
No. of D	ry O	ptions	5			
No. of Tempe	eratu	re Controls	5			
No. of I	Dry L	evels	5			
Sour	nd lev	els	5			
0		Moisture	Available		Electrode sensor	
Sensor	Te	mperature	Available		Thermistor	
Revers	sible	Door	Ava	ailable		
Drum		Stainless Steel				
Dryer Rack		Available				
Child Lock		Available				
Interior Light		ght	Available			
Produc	•	•		3/4" x 28 1/3"		
Packing	y (W)	(HxD)	29 1/2" x 44	3/4" x 30 3/4"		

# **FEATURES AND BENEFITS**

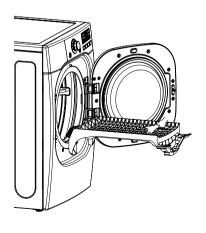


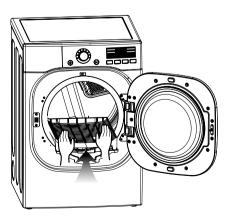
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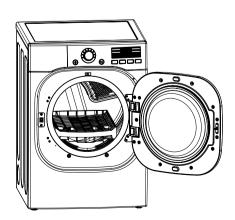
# **INSTALLATION INSTRUCTIONS**

## **Dryer Rack Installation Instructions**

- Open the door.
  Hold the dryer rack with both hands.
- Put the dryer rack into the drum
- Check and be sure that the front of the rack is properly seated behind the lint filter.







### **Stacking Kit Installation Instructions**

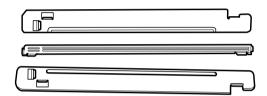
To ensure safe and secure installation, please observe the instructions below.

### WARNING

#### Do not attempt this alone!

At least two people are required to lift and position the dryer on top of a washing machine!

Failure to heed this warning can result in serious physical injury and damage to the appliance.

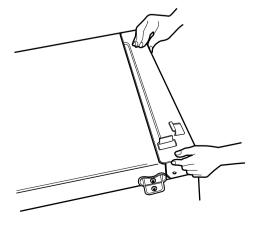


Stacking kit

- Place the washer firmly on a stable, even and solid floor as product installation instructions describe in the owner's manual.
- Peel the protective paper from the tape on the side bracket.



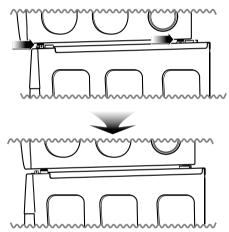
Fit the side bracket firmly to the side of the top plate by attaching the double-faced tape to the top plate as picture shown.



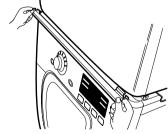
Secure the side bracket to the washer with a screw on the back of the bracket. Repeat Steps 2, 3, & 4 for the other side.



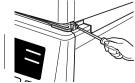
Place the dryer on top of the washer by placing the legs as shown. Be careful not to pinch fingers between the washer and dryer. Slide the dryer back against the stop on the side rail.



Insert the front rail of the stacking kit. Push the front rail back against the stops on the side brackets.



Screw both sides of the front rail to the side brackets.



 Do not use a stacking kit with a gas dryer in potentially unstable conditions like a mobile home.

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#### **Pedestal Installation Instructions**

#### The pedestal accessory includes:

- Drawer divider (1)
- Wrench (1)
- Screws (18) †
- Retainers (4) ††



#### Tools Needed for Installation:

- Phillips-head screwdriver
- Wrench (supplied)



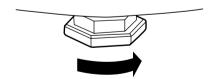
To ensure safe and secure installation, please thoroughly follow the instructions below.

#### **A WARNING**

- Incorrect installation can cause serious accidents.
- The appliances are heavy. Two or more people are required when installing the pedestal. There is a risk of serious back injury or other injuries.
- Do not allow children to play in or on the drawer.
   There is a risk of suffocation or injury.
- Do not step on the handle. There is a risk of serious injury.
- If appliances are already installed, disconnect them from all power, water, or gas lines and from draining or venting connections. Failure to do so can result in electrical shock, fire, explosion, or death.
- · When installing, gloves must be put on.

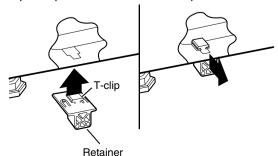
Make sure the leveling feet of the dryer are fully retracted.

**NOTE:** The appliance and pedestal assembly must be placed on a solid, sturdy, level floor for proper operation.



Retract fully

Insert the T-clip of the 4 retainers into the dryer base as shown. Press up on the back of the clip and pull outward to lock into place.



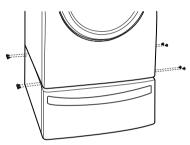
Place the dryer on the pedestal. Make sure the front and back feet are in the correct positions. The dryer feet will fit into the innermost positions as shown.



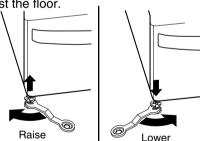
Make sure the screws on the pedestal align with the holes in the retainers, then install 4 screws on each side to securely attach the appliance to the pedestal.

**NOTE:** If the screws are not installed properly, noise and vibration may result.

Move the appliance to the desired location.



Loosen the locknuts on all 4 leveling feet of the **pedestal** until you can turn them with the wrench. Turn clockwise to raise or counterclockwise to lower until the pedestal is level and all 4 feet are solidly against the floor.

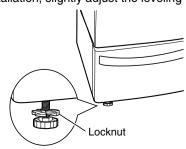


Securely tighten all locknuts by hand.

**NOTE:** Noise and vibration may result if locknuts are not tightened.

Be sure to connect the appliances to all water, power, or gas lines and draining or venting connections before operation.

If there is excessive vibration during the first operation after installation, slightly adjust the leveling feet.



#### **Electric Dryer Only**

Review the following options to determine the appropriate electrical connection for your home:



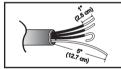
# 4-wire receptacle (NEMA type14-30R)

Use the instructions under option 1 if your home homehas a 4-wire receptacle (NEMA type 14-30R).



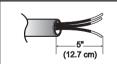
# 3-wire receptacle (NEMA type10-30R)

Use the instructions under option 2 or 3 if your home has a 3-wire receptacle (NEMA type 10-30R). Use option 2 if local codes and ordinances permit the connection of a chassis ground to the neutral connector. If this is not permitted, use option 3.



#### 4-wire direct

If this type is available at your home, you will be connecting to a fused disconnect or circuit breaker box



#### 3-wire direct

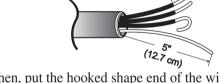
If this type is available at your home, you will be connecting to a fused disconnect or circuit breaker box

#### 4-wire connection: Direct wire

**Important:** Grounding through the neutral conductor is prohibited for (1) new branch-circuit installations, (2) mobile homes, and (3) recreational vehicles, and (4) areas where local codes prohibit grounding through the neutral conductor.

Prepare minimum 5ft(1.52m) of length in order for dryer to be replaced.

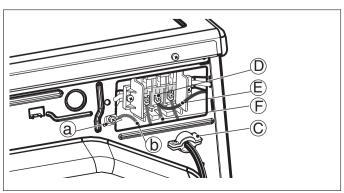
First, peel 5 inch (12.7cm) of covering material from end. Make a 5 inch of ground wire bared. After cutting 1<sup>1</sup>/<sub>2</sub> inch (3.8cm) from 3 other wires. peel insulation back 1inch (2.5cm). Make ends of 3 wires a hook shape.



Then, put the hooked shape end of the wire under the screw of the terminal block(hooked end facing rightward) and pinch the hook together and screw tightly.



- 1. Connect neutral wire(white) of power cord to center terminal block screw.
- 2. Connect red and black wire to the left and right terminal block screws.
- 3. Connect ground wire(green) of power cord to external ground screw and move neutral ground wire of appliance and connect it to center screw.
- 4. Make sure that the strain relief screw is tightened. and be sure that all terminal block nuts are on tight and power cord is in right position.

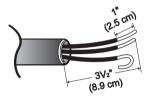


#### 3-wire connection: Direct wire

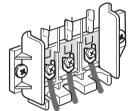
**Important:** Grounding through the neutral conductor is prohibited for (1) new branch-circuit installations, (2) mobile homes, and (3) recreational vehicles, and (4) areas where local codes prohibit grounding through the neutral conductor.

Prepare minimum 5ft(1.52m) of length in order for dryer to be replaced.

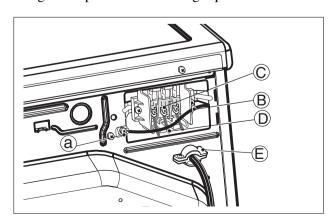
First, peel 3 ½ inch (8.9cm) of covering material from end and bare 1 inch from the ends.



Then, put the hooked shape end of the wire under the screw of the terminal block(hooked end facing rightward) and pinch the hook together and screw tightly.

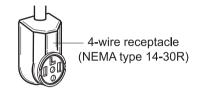


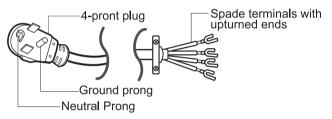
- 1. Connect neutral wire(white) of power cord to center terminal block screw.
- 2. Connect red and black wire to the left and right terminal block screws.
- 3. Make sure that the strain relief screw is tightened and be sure that all terminal block nuts are on tight and power cord is in right position.

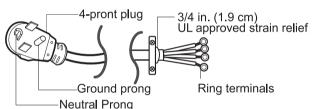


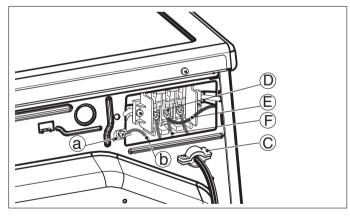
# **Option 1:** 4-wire connection with a Power supply cord.

• If your local codes or ordinances do not allow the use of a 3 wire connection, or you are installing your dryer in a mobile home, you must use a 4-wire connection.





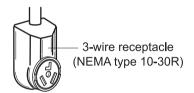


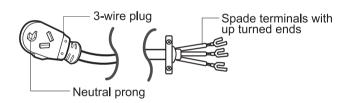


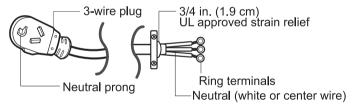
- 1. Connect the neutral wire (white) of the power cord to the center terminal block screw.
- 2. Connect the red and black wires to the left and right terminal block screws.
- 3. Connect the ground wire (green) of the power cord to the external ground screw. Remove the neutral ground wire of appliance and connect it to center screw.
- 4. Make sure that the strain relief screw is tightened and that all terminal block nuts are tight and the power cord is in the right position.

# **Option 2:** 3-Wire Connection with a Power Supply Cord

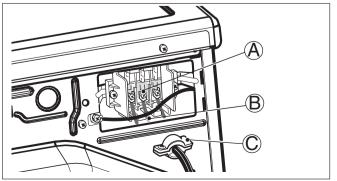
If your local codes or ordinances permit the connection of a frame-grounding conductor to the neutral wire, use these instructions. If your local codes or ordinances do not allow the connection of a frame-grounding conductor to the neutral wire, use the instructions under **Section 3: Optional 3-wire connection.** 





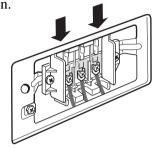


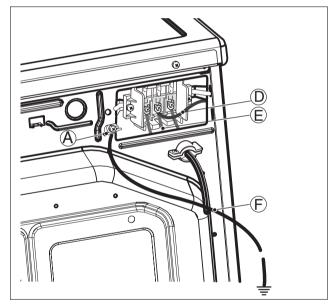
- 1. Connect the neutral (white or center) wire (B) to the center, silver colored, screw (A) and tighten securely.
- 2. Connect the other two power cord wires (red and black) to the left and right terminal block screws and tighten securely.
- 3. Tighten the strain relief screws (C) securely.



# **Option 3:** Optional 3-wire connection.

• If your local codes or ordinances do not allow the connection of a frame-grounding conductor to the neutral wire, use the instructions under this section.



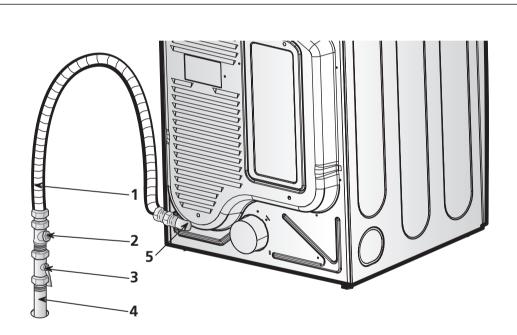


- 1. Remove the appliance ground wire (D) (green) from the external ground connector screw and reconnect it, together with the center, white, neutral wire (E) to the center, silver colored, terminal block screw.
- 2. Connect the other two power cord wires (red and black) to the left and right terminal block screws and tighten securely.
- 3. Tighten the strain relief screws securely.
- 4. Connect an independent ground wire (F) from the external ground connector screw to a proper ground. (The ground wire must be long enough to allow the appliance to be moved, if necessary, for service or cleaning.)

### 3-2. Connect Gas Supply Pipe (Gas Dryer ONLY)

For further assistance, refer to section on Gas Requirements.

- 1. Make certain your dryer is equipped for use with the type of gas in your laundry room. Dryer is equipped at the factory for Natural Gas with a 3/8" N.P.T. gas connection.
- 2. Remove the shipping cap from the gas connection at the rear of the dryer. Make sure you do not damage the pipe thread when removing the cap.
- 3. Connect to gas supply pipe using a new flexible stainless steel connector.
- 4. Tighten all connections securely. Turn on gas and check all pipe connections (internal & external) for gas leaks with a non-corrosive leak detection fluid.
- 5. For L.P. (Liquefied Petroleum) gas connection, refer to section on Gas Requirements.



- New Stainless Steel Flexible Connector Use only if allowed by local codes (Use Design A.G.A. Certified Connector)
- 2 1/8" N.P.T. Pipe Plug (for checking inlet gas pressure)
- 3 Equipment Shut-Off Valve-Installed within 6' (1.8 m) of dryer
- 4 Black Iron Pipe Shorter than 20' (6.1 m) - Use 3/8" pipe Longer than 20' (6.1 m) - Use 1/2" pipe
- 5 3/8" N.P.T. Gas Connection

# **DRYER CYCLE PROCESS**

			Default			Conditions of operation and termination				
	Cycle		Dry	Dienlos	Dryi	ng	Cod	oling	Wrinkle care	
			Dry Display time		Electro- sensor	Temp- Control	Default time	Temp- Control**	Time	
	HEAVY DUTY	HIGH	(Normal)	54min	Saturation	68±4°C	(5min)	47±5°C		
	COTTON/ TOWELS	MID HIGH	(Normal)	55min	Saturation	66±4°C	(5min)	47±5°C		
Sensor	NORMAL	MEDIUM	(Normal)	41min	Saturation	60±4°C	(5min)	47±5°C	0.1	
Dry*	PERM PRESS	LOW	(Normal)	36min	Saturation	52±3°C	(5min)	47±5°C	3Hr	
	DELICATES	LOW	(Normal)	32min	Saturation	52±3°C	(5min)	38±5°C		
	ULTRA DELICATE	ULTRA LOW	(Normal)	34min	Saturation	45±3°C	(5min)	38±5°C		
	SPEED DRY	(HIGH)	_	25min	Saturation	(70±5°C)	(5min)	(47±5°C)		
Manual Dry**	FRESHEN UP	(MID HIGH)	_	20min	Saturation	(66±5°C)	(5min)	(47±5°C)	3Hr	
	AIR DRY	_	_	30min	Saturation	No heater	N/A	N/A		
	,		Motor						Off Time: 6min	
		Load							On Time: 10sec	
		Load	Hea	iter	Temperati	ure Contr	ol for eac	ch cycle		

<sup>\*</sup> Sensor dry: "Dry Level" is set by users.

\*\* Manual dry: "Temperature control" is set by users.

Default settings can be adjusted by users.

# **COMPONENT TESTING INFORMATION**

**A CAUTION** When checking the Component, be sure to turn the power off, and do voltage discharge sufficiently.

Component	Test Procedure	Check result	Remark
1. Thermal cut off	Measure resistance of terminal to terminal	If thermal fuse is open must be replaced	Heater case- Safety
	① Open at 266 ± 12°F (130 ± 7°C)	① Resistance value ≒ ∞	Electric type
Check Top Marking:     N130	② Auto reset 31°F (35°C) Same shape as Outlet Thermostat.	<b>2</b> Continuity (250°F $\downarrow$ ) < 1 $\Omega$	
Hi limit Thermostat     (Auto reset)	Measure resistance of terminal to terminal		Heater case -     Hi limit
	① Open at 257 ± 9°F (125 ± 5°C)	① Resistance value ≒ ∞	Electric type
	② Close at 221 ± 9°F (105 ± 5°C)	<b>②</b> Resistance value $< 5\Omega$	
3. Outlet Thermostat ( Auto reset)	Measure resistance of terminal to terminal		Blow housing - Safety
	① Open at 185 ± 9°F (85 ± 5°C)	① Resistance value	Electric type
Check Top Marking:	② Close at 149 ± 9°F (65 ± 5°C)	<b>2</b> Resistance value $< 5\Omega$	
N85	Same shape as Thermal cut off.		
4. Lamp holder	Measure resistance of terminal to terminal	Resistance value: $80\Omega \sim 100\Omega$	
5. Door switch	Measure resistance of the following terminal		The state that Knob is
	1) Door switch knob: open ① Terminal: "COM" - "NC" (1-3) ② Terminal: "COM" - "NO" (1-2) 2) Door switch push: push ① Terminal: "COM" - "NC" (1-3)	<ol> <li>Resistance value &lt; 1Ω</li> <li>Resistance value ≒ ∞</li> <li>Resistance value ≒ ∞</li> </ol>	pressed is opposite to Open condition.
	② Terminal: "COM" - "NO" (1-2)		
6. Idler switch	Measure resistance of the following terminal: "COM - NC"	<ol> <li>lever open</li> <li>Resistance value &lt; 1Ω</li> <li>Lever push (close)</li> <li>Resistance value ≒ ∞</li> </ol>	

Component	Test Procedure	Check result	Remark
7. Heater	Measure resistance of the following terminal		Electric type
	① Terminal: 1 (COM) - 2	${f 1}$ Resistance value: ${f 10}\Omega$	
	2 Terminal: 1 (COM) - 3	<b>②</b> Resistance value: 10Ω	
2 3	3 Terminal: 2 - 3	③ Resistance value: 20Ω	
8. Thermistor	Measure resistance of terminal to terminal	Resistance value: 10Ω	Heater case -     Hi limit
	Temperature condition: 58°F ~ (10~40°C) 58°F ~ 104F (10~40°C)		Electric type
9. Motor			• See Page 13
10. Gas valve	Measure resistance of the following terminal		Gas type
	① Valve 1 terminal	① Resistance value: > 1.5 k $\Omega$	
valve 2	② Valve 2 terminal	② Resistance value: > 1.5~2.5 kΩ	
11. Igniter	Measure resistance of terminal to terminal	Resistance value: 100~800Ω	Gas type
12. Frame Detect	Measure resistance of terminal to terminal		Gas type
THE PRINCE OF TH	① Open at 370°F ((Maximum) ② Close at 320°F	<ol> <li>Resistance value ≒ ∞</li> <li>Resistance value &lt; 1Ω</li> </ol>	

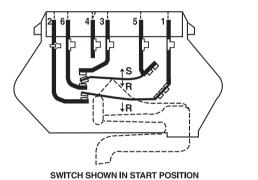
Component	Test Procedure	Check result	Remark
13. Outlet Thermostat	Measure resistance of terminal		Gas type
(Auto reset)	to terminal		Gas funnel
	① Open at 203 ± 7°F (95 ± 5°C)	<ul><li>① Resistance value ≒ ∞</li><li>② Continuity &lt; 1Ω</li></ul>	
	② Close at 158 ± 9°F (70 ± 5°C)	Continuity < 152	
Check Top Marking:     N95			
14. Outlet Thermostat	Measure resistance of terminal	If thermal fuse is open must	Gas type
(Manual reset)	to terminal	be replaced	Gas funnel
65 30	① Open at 212 ± 12°F (100 ± 7°C)	① Resistance value ≒ ∞	
	2 Manual reset	② Continuity < 1Ω	
Check Top Marking:			
N100			

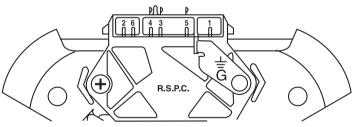
# **MOTOR DIAGRAM AND SCHEMATIC**

## **NOTE** When checking Component, be sure to turn Power off, then do voltage discharge sufficiently.

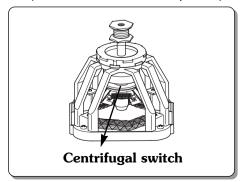
■ Contact On / Off by Centrifugal Switch

Terminal No								D 1
Mode	Resistance	1	2	3	4	5	6	Remark
	2 ~ 3Ω				•	•		Motor
Motor STOP	÷ ∞	•	•					Heater (Electric Models)
	<b>≒</b> ∞			•			•	Gas Valve (Gas Models)
	3 ~ 5Ω				•	•		Motor
Motor RUN	< 1Ω	•	•					Heater (Electric Models)
	< 1Ω			•			•	Gas Valve (Gas Models)

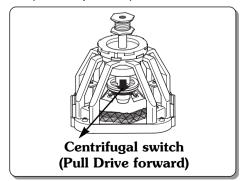




■ STOP MODE (When Motor does not operate)



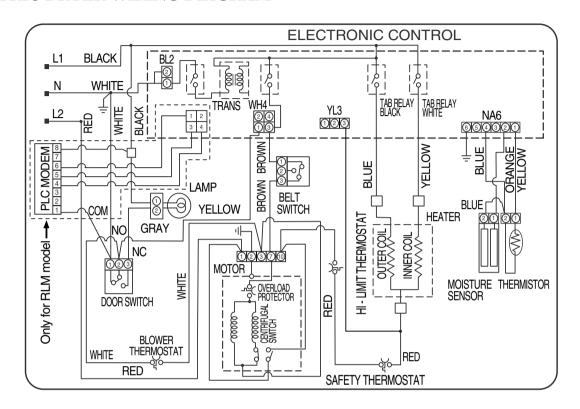
■ RUN MODE (Motor operates)



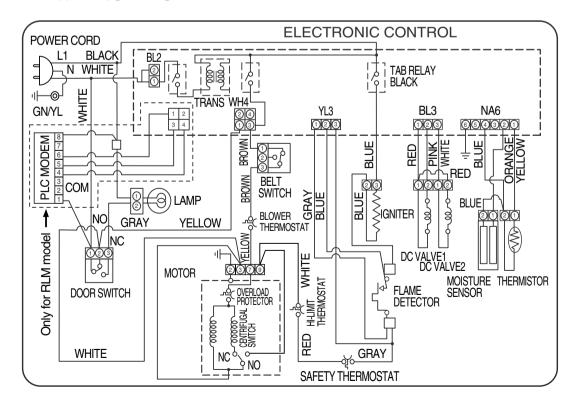
---- Open --- Close

# **WIRING DIAGRAM**

#### ELECTRIC DRYER WIRING DIAGRAM



#### GAS DRYER WIRING DIAGRAM



8

# **FLOW SENSOR FUNCTION**

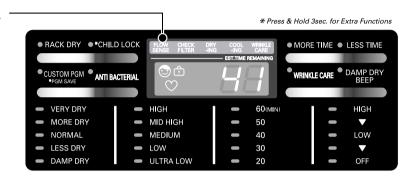
#### 8-1 Flow sensor

This FlowSense<sup>™</sup> function detects the clogging or blocking of ducts.

"Clogged" duct vents or hoses decrease efficiency in drying cloths. Clogged vents can also cause fire. This function alarms you, when to clean the ducts.

When the alarm about Duct clogging is on display of the panel, your duct vents should be cleaned by yourself or serviceman.

#### **Flow Sensor Function**

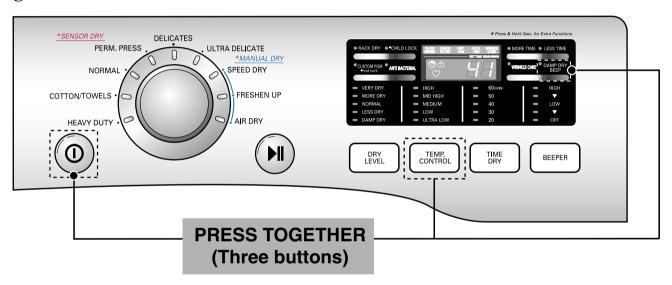


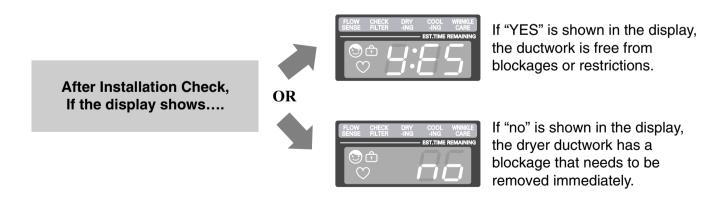
#### 8-2 Installation check

This feature allows you to quickly verify that the exhaust system is adequate for the normal function of the dryer. The check takes only two minutes. The results of the check are displayed in the FlowSense display window as shown below

(Fig. 1). The dryer must be at room temperature for this test to be reliable. To perform this test, start the machine in standby mode (power off). Press and hold both the **DAMP DRY BEEP** and the **TEMP CONTROL** buttons together while turning on the dryer with the POWER button i.e. Press together the three buttons **DAMP DRY BEEP + TEMP CONTROL + POWER.** The dryer will start and run for 2 minutes while it checks temperatures. At the end of this short cycle, it will display the results as follows.

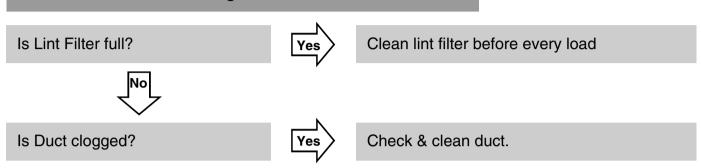
Fig.1





# 8-3 Troubleshooting for flow sensor dryer

#### 1. FLOW SENSE indicator light is on

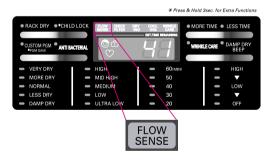


#### 2. FLOW SENSE indicator light is on and does not disappear.

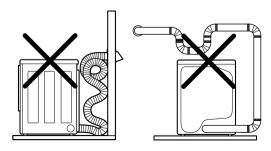
- 1. FLOW SENSE indicator light is on even when vents have been clean and even when the vents are off.
  - → This is Normal. After Flow sensor Recheck Full Next Cycle, Flow sensor is Reset. (Flow sensor bars will disappear after Dryer has operated two cycle)

#### ■ Displayed and Don't disappear Bars

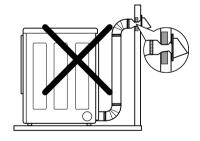
\*Control Panel



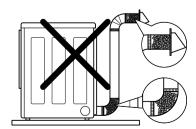
Avoid long runs of ducts or runs with multiple elbows or bends.



Make sure that the ductwork is not crushed or restricted.



Check for blockages and lint build up.



# 9

# **DIAGNOSTIC TEST**

- 1. This TEST should be used for Factory test /Service test. Do not use this DIAGNOSTIC TEST other than specified.
- 2. Activating the Heater manually with the Door open may trip the Thermostat attached to the Heater, therefore do not activate it manually. (Do not press the door switch to operate the heater while the door is open )

#### ■ ACTIVATING THE DIAGNOSTIC TEST MODE

- 1. UNIT must be in standby (unit plugged in, display off)
- 2. Press POWER while pressing MORE TIME and LESS TIME simultaneously.
- 3. Press START/PAUSE button to advance through diagnostics.

Pressing the START/PAUSE	CHECKING ACTION	DISPLAY	CHECKPOINT
	Electric control	8E9(Elec Type) 898(Gas Type)	Standard
None	& T	V00	PGM Ver (8E8-V008E8)
	Temperature sensor	tE1	Thermistor open
		tE2	Thermistor shorted
		30 = Low	Motor runs
Once	Motor+Controller	moisture 239 = High moisture	Displays Moisture Sensor Operation : If moisture sensor is contacted with damp cloth. The display number is below180innormalcondition
Twice	■ELECTRIC TYPE Motor+Heater1(2700W) ■GAS TYPE Motor+Gasvalve	Current Temp. (5~70)	■ ELECTRIC TYPE Heater 1 is energized - 2700 W ■ GAS TYPE Valve runs (Temperature in the drum is displayed in degrees C.)
3 times	■ ELECTRIC TYPE  Motor+Heater1+Heater2 (5400W) ■ GAS TYPE  Motor+Gasvalve	Current Temp. (5~70)	■ ELECTRIC TYPE: Heater 1 and heater 2 are energized - 5400 W ■ GAS TYPE: Gas valve is energized (Temperature in the drum is displayed in degrees C.)
4 times	Motor Hostor	50~230 Measured	Motor, Heater Off
4 times	Motor, Heater	"SE" (Error Display)	Semi-conductor
5 times	Control Off		

#### \* To check pump operation:

When pressed 4 times in the test mode, If the AD value of the pump is higher than 10 on the display, the pump is normal. If it is lower than 10, E5 error will be displayed.

# ■ **Test 1** 120V AC Electrical supply

power was applied to Controller. (LED,LCD Disp						
th Dryer Power On; Connector linked to Controlle	r.					
	_					
Check the outlet, is the voltage 110V ~ 125V AC?	NO	Check the fuse or circuit breaker.				
YES	_					
Check if the voltage measured between Connector BK2 or WH2-② (Black Wire) Linked to the Controller and WH1-① (White Wire) Is 110~125V?	NO	Check if Power     Cord is properly     connected.				
YES						
<ol> <li>Check if the Controller wire is disconnected.</li> <li>Check if Terminal Block and Power Cord are connected (Check Plug).</li> <li>Does Power Cord N (Natural) line match to Terminal Center N (Natural) line?</li> </ol>	NO	Reconnect the controller.				
YES Replace controller.						
	Check if the voltage measured between Connector BK2 or WH2-② (Black Wire) Linked to the Controller and WH1-① (White Wire) Is 110~125V?   1 Check if the Controller wire is disconnected. ② Check if Terminal Block and Power Cord are connected (Check Plug ) Does Power Cord N (Natural) line match to Terminal Center N (Natural) line?	Check if the voltage measured between Connector BK2 or WH2-② (Black Wire) Linked to the Controller and WH1-① (White Wire) Is 110~125V?   1 Check if the Controller wire is disconnected. ② Check if Terminal Block and Power Cord are connected (Check Plug ) Does Power Cord N (Natural) line match to Terminal Center N (Natural) line?				

Caution	When measuring power, be sure to wear insulated gloves, to and avoid an electric shock.
Trouble Symptom	Check the Tab Relays Connection properly.
Measurement Condition	With Dryer Power On; Connector linked to Controller.

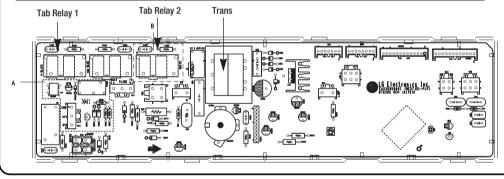
#### 1.Power Connection

#### < Table1 > : Connection of the Tab Relay with Heater (Elec)

	Tab Relay 1	Tab Relay 2	Heater 1	Heater 2	Remark
High Mid High Medium	on	on	on	on	Temperature Control below 68±4°C. Turn on Heater1 and Heater2.
Low Extra Low	on	off	on	off	Temperature Control below 52±4°C. Only Turn on Heater1.

#### < Table 2 > : Connection of the Tab Relay with Burner (Gas)

	Tab Relay 1	Burner	Remark
High Mid High Medium	0	0	Temperature Control below 70±4°C. Turn on Burner
Low Extra Low	0	0	Temperature Control below 47±4°C. Turn on Burner



₩ PCB ASSEMBLY LAYOUT

#### 2. Status Mode Of The Connection

< Table1 > : Connection of Tab Relay with the Tab Relay of the PCB ASSEMBLY (Elec)

	Oolon	Connection		Domasik	
	Color	Harness	PCB	- Remark	
Connector Housing	Black	Yellow Wire  Black Wire  Connector Housing	Tap relay 1	Check the Matching color Between Harness wire and Tab Relay. (Black Housing – Black Tab Relay)	
	White	Blue Wire  Black Wire  Connector Housing	Tap relay 2	Check the Matching color Between Harness wire and Tab Relay. (White Housing – White Tab Relay)	

< Table 2 > : Connection of Tab Relay with PCB ASSEMBLY (Gas)

	Color	Harness	РСВ	Remark
Connector Housing	Black	Blue Wire  Black Wire  Connector Housing	Tap relay 1	Check the Matching color Between Harness wire and Tab Relay. (Black Housing – Black Tab Relay)

#### 3. Status Mode Of wrong Connection

< Table1 > : Wrong Connection of the Tab Relay and Connector Housing (Elec)

Items	Case	Heater1 Operation(black)	Heater2 operation(White)	PCB condition Of operation
1.Black and White Housing	Wire ①, ② CROSS	Off	Off	Power Off
2.Black Housing	Wire ①, ② CROSS	Off	Off	Power Off
3.White Housing	Wire ①, ② CROSS	Normal	Normal	Power On
* 4.Black and White Housing	Housing CROSS	Heater2	Heater1	Power On
5.Black and White Housing	Housing and Wire ①, ② CROSS	Off	Off	Power Off

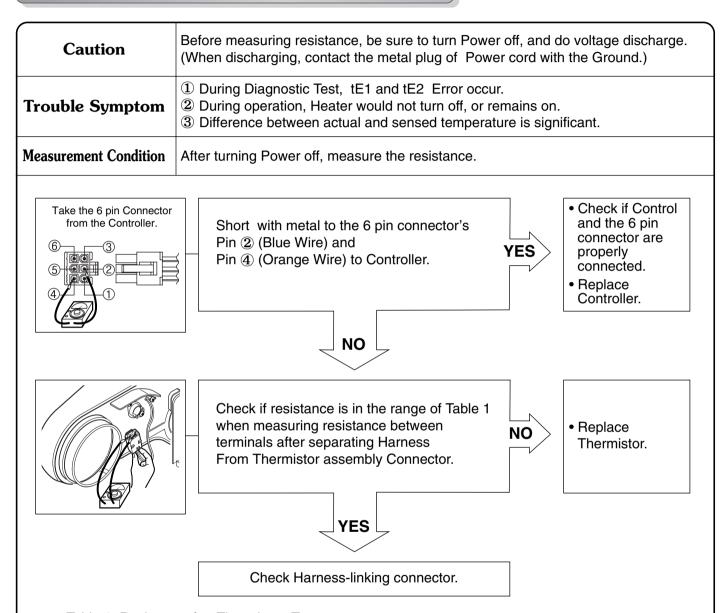
#### < Table2 > : Wrong Connection of the Tab Relay and Connector Housing (Gas)

Items	Case	Heater1 Operation(black)	Heater2 operation(White)	PCB condition Of operation
1.Black and White Housing	Wire ①, ② CROSS	Off	Off	Power Off

### **A** CAUTION

- In case of power failure(<Table 1>-1,2,5,<Table 2>-1), Please check the Connection of "2.Status Table of Connection". In case of power failure(<Table 1>-4), please check the Connection of "2. Status Table of Connection". Because improper Connection of the equipment-dryer can be damaged of changing heater.

#### ■ **Test 2** Thermistor Test --- Measure with Power Off



■ Table 1. Resistance for Thermistor Temperature.

Air TEMP.[°F (°C)]	<b>RES.</b> $[k\Omega]$	Air TEMP.[°F (°C)]	<b>RES.</b> $[k\Omega]$	Air TEMP.[°F (°C)]	<b>RES.</b> $[k\Omega]$
50°F (10°C)	18.0	90°F (32°C)	7.7	130°F (54°C)	2.9
60°F (16°C)	14.2	100°F (38°C)	6.2	140°F (60°C)	3.0
70°F (21°C)	11.7	110°F (43°C)	5.2	150°F (66°C)	2.5
80°F (27°C)	9.3	120°F (49°C)	4.3	160°F (71°C)	2.2

# ■ Test 3 Motor test

Caution	Before measuring resistance, be sure to turn Power off, and do voltage discharge. (When discharging, contact the metal plug of Power cord with earth line.)						
Trouble Symptom	Drum will not rotate; No fan will function; No Heater will work.						
Measurement Condition	Turn the Dryer's Power Off, then measure resistance.						
WH 1 BL2	Is resistance below 3Ω between Connector WH① (White wire) and BL2-② (Brown wire)?  ** Measure while door is closed.	Replace Control. (Relay check)     Check Controller connector.					
BL2 II	Is resistance below 3Ω between Connector WH① (White wire) and BL2-① (Yellow wire)?  ** Measure while door is closed.  YES	<ul> <li>Check if Door flame presses door switch knob.</li> <li>Check Door Switch.</li> <li>Check Harness connection.</li> </ul>					
P 3	Is resistance below $3\Omega$ between Connector BL2-① (Yellow wire) and BL2-② (Brown wire)?	Replace Control.     (Relay check)     Check Controller connector.					
	Is resistance below $1\Omega$ between terminals of Outlet Thermostat attached to blower housing?	<ul><li>Replace Outlet</li><li>Thermostat. (Refer to 'Component')</li></ul>					
	Does Idle Switch attached to Motor Bracket operate Level by drum belt? (Not operating Lever is normal.)	Check Idler Assembly.     Drum Belt cuts off     Drum Belt takes off from Motor Pulley.					
Idler Switch Lever Idler Switch	Is resistance below $1\Omega$ between Idler Switch terminals?	Replace Idler     Switch.					
	PES     Check Motor. (Refer to 'Motor Diagram & Check')     Check if Control Connector is contacted.						

# ■ Test 4 Moisture sensor

Caution	Before measuring resistance, be sure to turn Power off, and do voltage discharge. (When discharging, contact the metal plug of Power cord with earth line.)				
Trouble Symptom	Degree of dryness does not match with Dry Level.				
Measurement Condition	Turn the Dryer's Power Off, then measure resistance.				
Take 6pin Connector from the Controller.	Short with metal to the 6 pin connector's Pin ② (Blue Wire) and Pin ④ (Orange Wire) to Controller.  • Check Electro Load and Harness Connector. • Check Harness-linking connector.				
Damping clo	When contacting cloth to Electro load:  1. Is the measurement within the range of Table 2 during Diagnostic Test?  2. Is the measurement within the range of Table 2 when measuring the voltage in the 6 pin connector's Pin ③ (BLUE wire) and Pin ⑤ (ORANGE wire)?  YES  YES				
<b>-</b> T-1-1-0 IMO D	Normal Condition				

■ Table 2. IMC Ratio and Display Value / Voltage (IMC: Initial Moisture Content)

IMC	Display Value	Voltage (DC) (between 6 Pin terminal 3,5)	Remark
70% ~ 40%	50 ~ 130	2.5V	Weight after removing from Washing Machine
40% ~ 20%	130 ~ 20	2.0V ~ 4.0V	Damp Dry
10% ~ Dried clothes	205 ~ 240	Over 4.0V	Completely-dried clothes

# ■ **Test 5** Door switch test

Caution	Before measuring resistance, be sure to turn Power (When discharging, contact the metal plug of Powe		
Trouble Symptom	Door Opening is not sensed.(During operation, whe Heater run continuously) Door Close is not sensed. (Drum motor will not operate. Display will flash at 0.8)		
Measurement Condition	After turning Dryer Power Off, measure resistance.		
BK2 WH1	Measure while Door is closed. Check it resistance is below 2500 Ω between WH1-①(White wire) and BK2-② Connector WH1,BL2 after taking WH1,BL2 out from Controller.	YES	Door switch     Check (Refer to     Component     testing.)
	Measure while Door is open. Check it resistance is 300~60 Ω between WH1-①(White wire) and BK2-② (Black wire). Connector WH1,BL2 after taking WH1,BL2 out from Controller.	NO	Check Lamp.     (When opening Lamp, replace then measure again.)     Door switch Check(Refer to Component testing.)
WH 1 BL2	Measure while Door is open. Check it resistance is below 1 Ω between BL2- ①(Yellow wire) and WH1-①(White wire) after taking Connector WH1,BL2 out from Controller.	YES	Door switch     Check (Refer to     Component     testing.)
	Measure while Door is closed. Check it resistance is below 1 Ω between BL2- ①(Yellow wire) and WH1-①(White wire) after taking Connector WH1,BL2 out from Controller.	NO	Door switch     Check (Refer to     Component     testing.)
	Check Controller. Check Harness-linking connector.		

# ■ **Test 6** Heater switch test - Electric Type

Caution	Before measuring resistance, be sure to turn Power off, and do voltage discharge. (When discharging, contact the metal plug of Power cord with earth line.)					
Trouble Symptom	While operating, Heating will not work. Drying time takes longer.					
<b>Measurement Condition</b>	After turning Power off, measure the resistance.					
	<ol> <li>1. Is resistance between Heater terminal         <ul> <li>and ② below 18 ~ 22Ω?</li> </ul> </li> <li>2. Is resistance between Heater terminal         <ul> <li>and ③ below 18 ~ 22Ω?</li> </ul> </li> <li>3. Is resistance between Heater terminal         <ul> <li>and ③ below 9 ~ 11Ω?</li> </ul> </li> </ol>	NO	Replace Heater.			
	YES					
■ Only for FLOW SENSE model  L2D(White)  TH3  TH2	Check if the value of measured resistance is below 1Ω between terminal TH2 (Safety Thermostat).	NO	Replace TH2     (Safety     Thermostat) and     TH3 (Hi-Limit     thermostat)			
L2S(White)	Check if the value of measured resistance is below $1\Omega$ between terminal TH3 (HI-Limit Thermostat).	NO	Replace TH2     (Safety     Thermostat) and     TH3 (Hi-Limit)			
■ Others	YES		thermostat)			
TH3 TH2	Check Motor. Check if the value of measured resistance is below $1\Omega$ between terminal ① and ① at RUN condition.	NO	Check Motor and replace it.			
L2(Red) L2S(White)	YES	-				
<ul> <li>*Wires</li> <li>L2(Red)</li> <li>L2D(White): Go to the duct (YL3 in main pcb</li> <li>L2S(White): Go to the safety.</li> </ul>	Check Controller. Check Harness-linking Connector.					

# ■ Test 7 GAS Valve test - Gas Type

Caution	When measuring power, be sure to wear insulated gloves, to avoid electric shock.					
Trouble Symptom	While operating, Heating will not work. Drying time takes longer.					
Measurement Condition	With dryer power on					
	Power On & Start (Normal Cycle)					
Valve 1	When measuring Valve 1 voltage, More than DC 90V?	NO	Check thermostat     Hi limit Safety			
	YES					
	Igniter operates? (after 1 min, Igniter becomes reddish)	NO	Check Igniter &     Frame detect			
Igniter	YES					
Valve 2	When measuring Valve 2 voltage, Value is more than DC 90V? (10 sec after Igniter off)	YES	Check Gas     connection or     Gas supply			
	NO					
	When measuring terminal resistance on Valve 1 and Valve 2, Valves are more than 1.5 ~ 2.5 k $\Omega$ ? (Measure after Off )	YES	Change Valve			
	NO					
	If "Valve 1 " and "Valve 2" are under DC 10V, Valves are Off?	NO	Change Valve			
	YES					
	Harness check     Controller change					
		conds.				

# ■ Test 8 Semi Conductor

Caution	Before measuring resistance, be sure to turn Power off, and do voltage discharge. (When discharging, contact the metal plug of Power cord with earth line.)					
Trouble Symptom	Degree of Resistance is not in 300°æ30 $\Omega$					
Measurement Condition	Turn the Dryer's Power Off, then measure resistance.					
Take 6pin Connector from the Controller.	When measuring resistance ③–④, ④–⑤ Is resistance 300±20 Ω?  YES	Check Semi- conductor and Harness Connector     Check Harness linking connector				

# **■ Test 9** Motor Assembly, DC, Pump

Caution	Before measuring resistance, be sure to turn Power off, and do voltage discharge. (When discharging, contact the metal plug of Power cord with earth line.)			
Trouble Symptom	During Diagnostic Test, E5 Error occur.			
Measurement Condition	Turn the Dryer's Power Off, then measure resistance.			
	After activating the *diagnostic test, press START/PAUSE button 4 times. Is AD value displayed higher than 10 ?  YES  • Replace the DC Pump			
	Normal condition			
* diagnostic test : go to page	222			

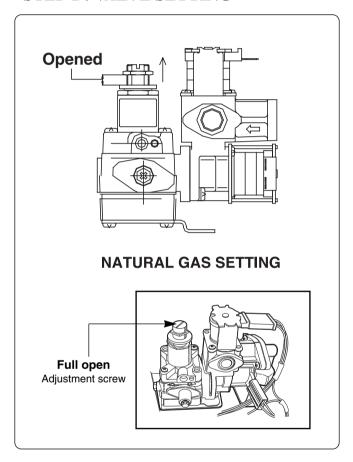
# **CHANGE GAS SETTING (NATURAL GAS, PROPANE GAS)**

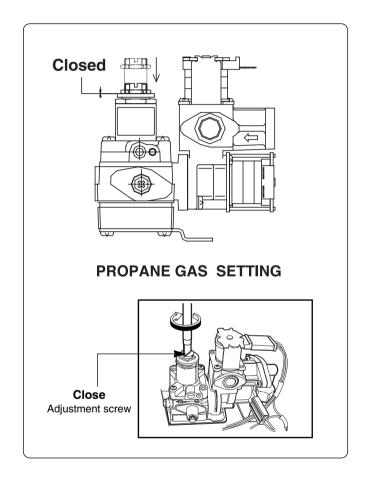
### **A** Warning

Changing orifices and gas valve adjustments improperly can result in an explosion and/or fire. Conversion must be made by a qualified technician.

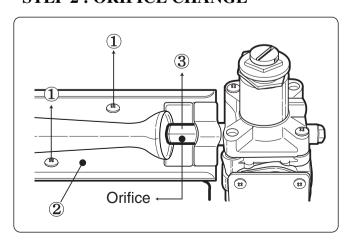
**Initially**, Natural Gas mode is set. Propane Gas Orifice is on sale as a Service Part to authorized servicers only.

#### **STEP 1: VALVE SETTING**





#### **STEP 2: ORIFICE CHANGE**

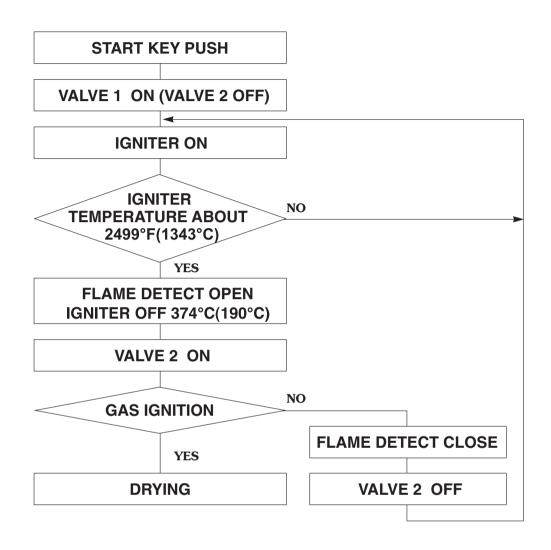


- 1 Remove 2 screws.
- 2) Disassemble the pipe assembly.
- 3 Replace Natural Gas orifice with Propane Gas orifice.

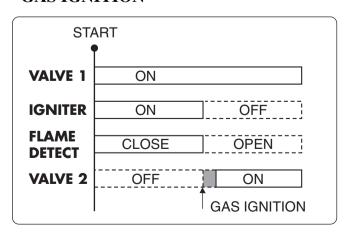
Gas type	Orifice P/No	Marking	Shape
Natural Gas	4948EL4001B	NCU	
Propane Gas	4948EL4002B	PCU	

Kit contents: Orifice (Dia. = 1.613mm, for Propane Gas)
 Replace Label
 Instruction Sheet

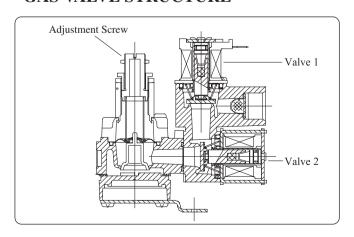
#### **■** GAS VALVE FLOW



#### **GAS IGNITION**



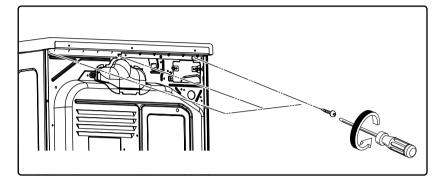
#### GAS VALVE STRUCTURE



# **DISASSEMBLY INSTRUCTIONS**

\* Disassemble and repair the unit only after pulling out power plug from the outlet.

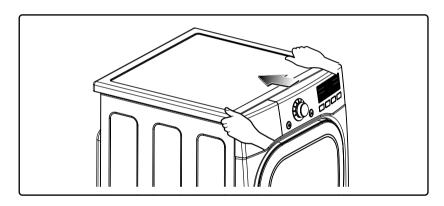
### **TOP PLATE**



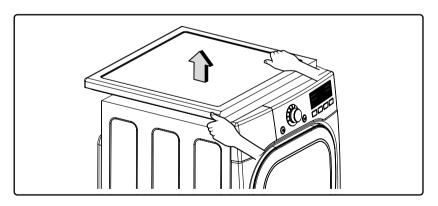
### **A** WARNING!

When you disassemble the top plate, be sure to take gloves and careful plate edge. Failure to do so can cause serious injury.

**1.** Remove 3 screws on the upper plate.

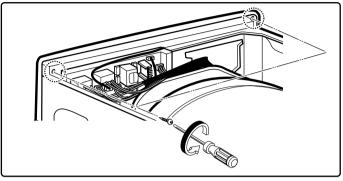


**2.** Push the top plate backward.



3. Lift the top plate

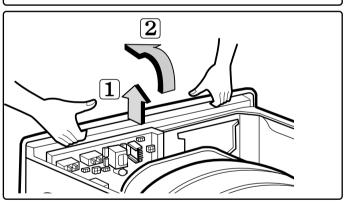
#### **CONTROL PANEL ASSEMBLY**



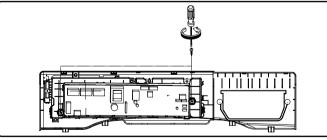
### **A** WARNING!

When you disassemble the control panel, be sure to take gloves and careful panel frame's edge. Failure to do so can cause serious injury.

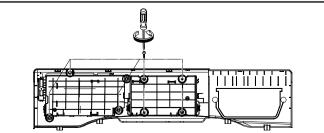
- **1.** Remove 2 screws on the control panel frame.
- 2. Disconnect the connectors.



**3.** Pull the control panel assembly upward and then forward.

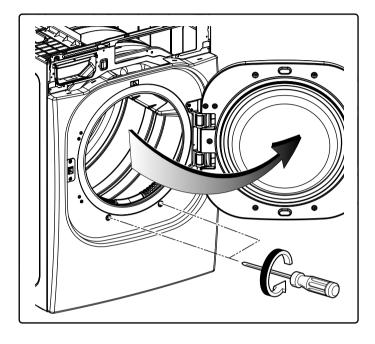


- **4.** Remove 2 screws on the PWB(PCB) assembly, main.
- **5.** Disassemble the main PWB



- **6.** Remove 8 screws on the PWB(PCB) assembly, display.
- 7. Disassemble the display PWB

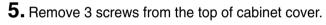
#### **COVER CABINET**



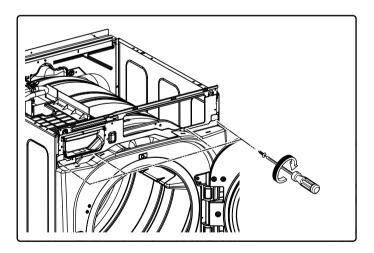
# **A** WARNING!

When you disassemble the door switch connector, be sure to take gloves and careful cabinet edge. Failure to do so can cause serious injury.

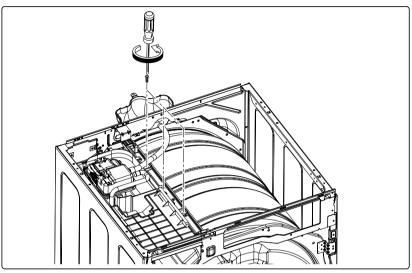
- **1.** Disassemble the top plate.
- **2.** Disassemble the control panel assembly.
- **3.** Disassemble the door assembly.
- 4. Remove 2 screws.



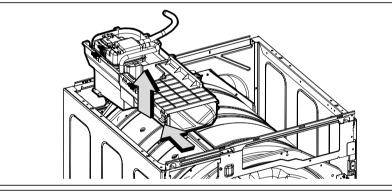
**6.** Disconnect the harness of door switch.



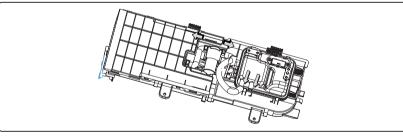
### **GUIDE ASM**



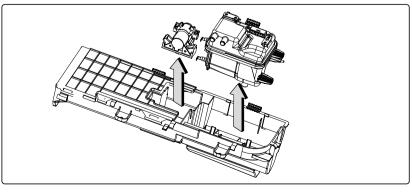
1. Remove 3 screws on the frame body.



**2.** Push the Guide ASM to the back side and then lift it.

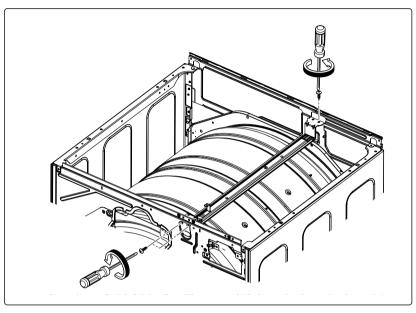


**3.** Separate 2 hoses from the pump and generator.

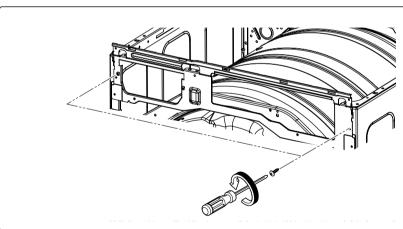


**4.** Lift a pump and a generator up.

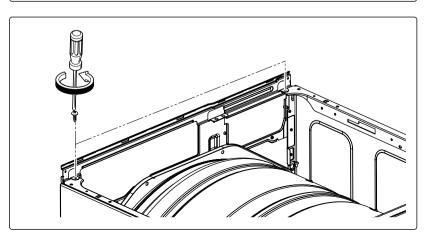
#### **FRAME BODY & PANEL FRAME**



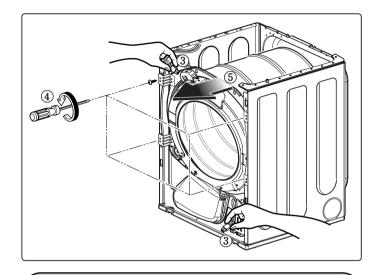
1. Remove 3 screws on the frame body and then disassemble the frame body.



**2.** Remove 4 screws on the panel frame and then disassemble the panel frame.



#### **TUB DRUM [FRONT]**

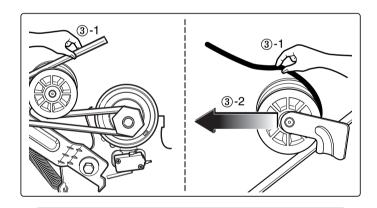


### **A** WARNING!

When you disassemble the lamp connector, be sure to take gloves and careful cabinet edge. Failure to do so can cause serious injury.

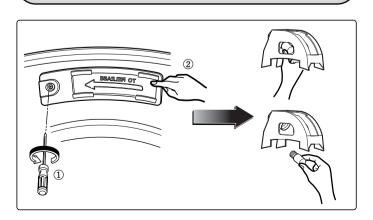
- 1. Disassemble the top plate.
- 2. Remove Cover Cabinet.
- **3.** Disconnect the door lamp and electrode sensor connector.
- 4. Remove 4 screws.
- **5.** Disassemble the Tub Drum [Front].

#### **DRUM ASSEMBLY**



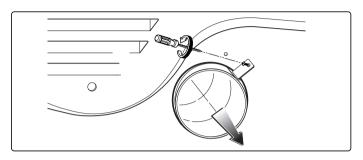
- 1. Disassemble the top plate.
- **2.** Remove the Cabinet Cover and Tub drum [front].
- 3. Loosen belt from motor and idler pulleys.
- **4.** Carefully remove the drum.

#### **CHANGING THE DRUM LAMP**

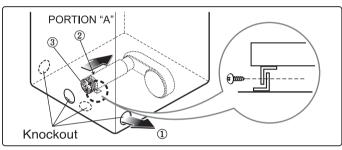


- 1. Disassemble the door.
- 2. Hold the lamp shield in place while removing the screw.
- **3.** Slide the shield up and remove.
- **4.** Remove the bulb and replace with a 15 watt, 120 volt candelabra-base bulb.
- **5.** Replace the lamp shield and screw.

#### **DRYER EXHAUST CHANGE**

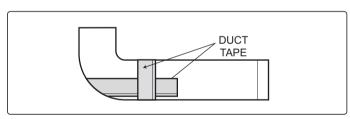


1. Remove a screw and the exhaust duct.

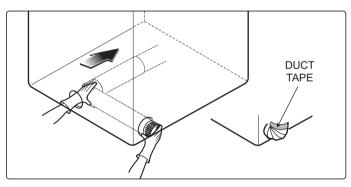


**2-1.** Detach and remove a knockout at the botton, left or right side as desired. (Right Side Vent not available on Gas dryer)

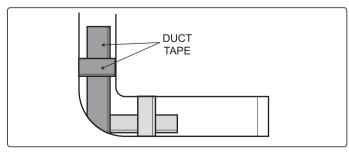
①, ②, ③ the order of work.



**2-2.** Reconnect the another duct [11 in (28cm)] to the blower housing, and attach the duct to the base. (Duct is a SVC part)

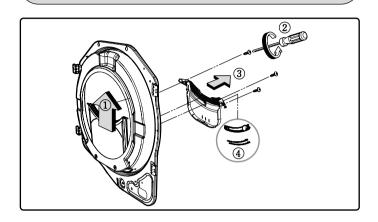


**3-1.** Pre-assemble 4" elbow with 4" duct. Wrap duct tape around joint.



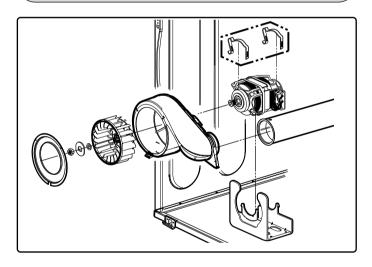
**3-2.** Insert the elbow duct assembly through the side opening and connect the elbow to the internal duct.

#### **FILTER ASSEMBLY**



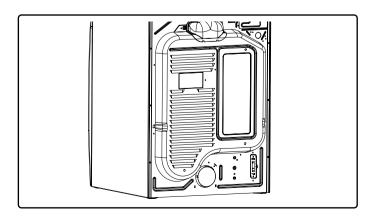
- **1.** Remove the filter.
- 2. Remove 3 screws.
- 3. Remove the Cover Grid.
- **4.** Disconnect the electrode sensor.

#### **BLOWER HOUSING**



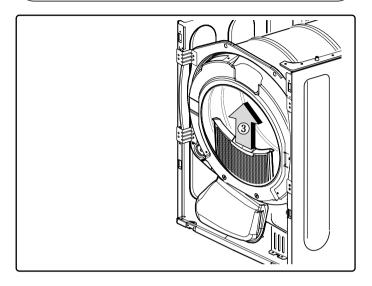
- **1.** Disassemble the top plate.
- 2. Remove the Cabinet Cover and Tub Drum [Front].
- **3.** Remove the Drum assembly.
- **4.** Remove 2 screws and cover (Air guide).
- **5.** Remove the bolt and washer.
- **6.** Remove the fan.
- **7.** Disconnect the motor clamp and motor.

#### **BACK COVER**

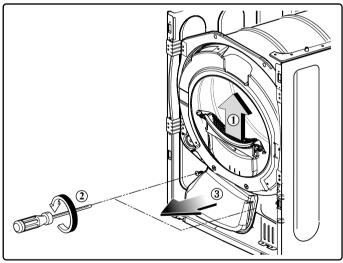


- **1.** Disassemble the top plate.
- 2. Remove the Cabinet Cover and Tub Drum [Front].
- **3.** Remove the Drum assembly.
- 4. Remove 7 screws.
- **5.** Remove the Back Cover.

#### **AIR DUCT**

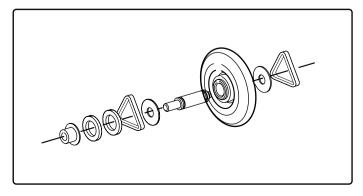


- **1.** Disassemble the top plate.
- **2.** Remove the Cover Cabinet.
- **3.** Remove the filter.



- **1.** Remove the Cover guide.
- 2. Remove 2 screws.
- **3.** Remove the air duct.

#### **ROLLERS**

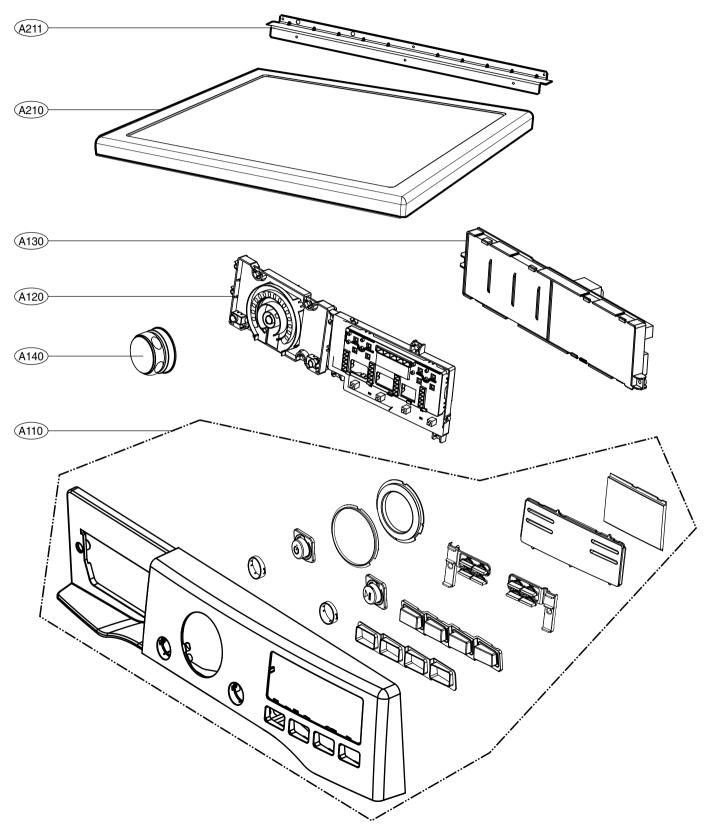


- **1.** Disassemble the top plate.
- 2. Remove the Cover Cabinet and Tub Drum [Front].
- **3.** Remove the Drum assembly and Tub Drum [Rear].
- **4.** Disconnect the Air duct from the Tub Drum [Front].
- **5.** Remove the roller from the Tub Drum [Front] and Tub Drum [Rear].

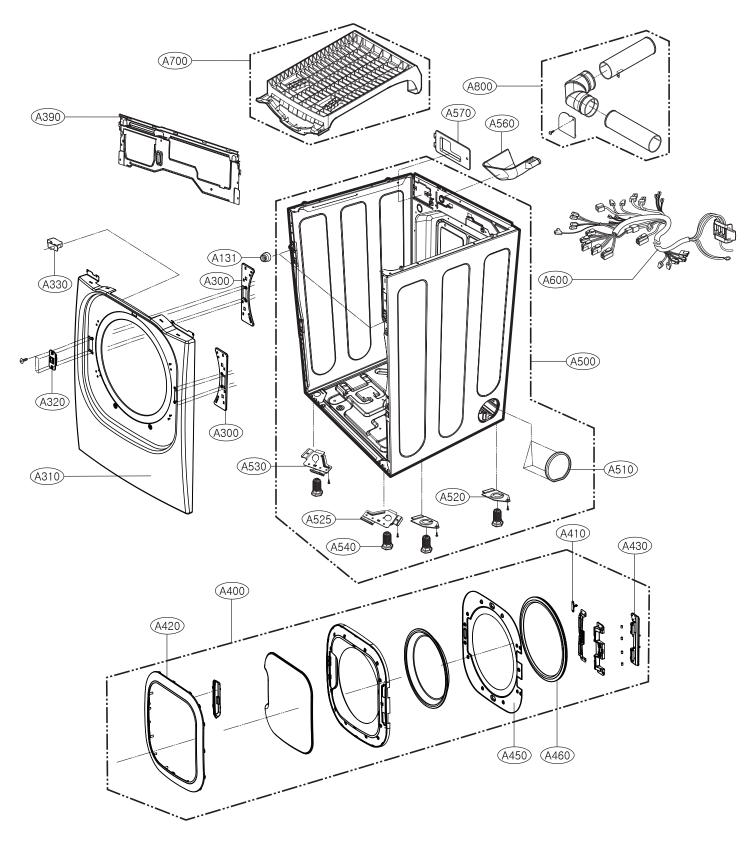
# 12

# **EXPLODED VIEW**

# 12-1. Control Panel & Plate Assembly



12-2-1. Cabinet & Door Assembly: Electric Type



12-3-1. Drum & Motor Assembly: Electric Type

