

Website:http://www.LGEservice.com E-mail:http://www.LGEservice.com/techsup.html

# WASHING MACHINE SERVICE MANUAL

#### **A** CAUTION

READ THIS MANUAL CAREFULLY TO DIAGNOSE PROBLEMS CORRECTLY BEFORE SERVICING THE UNIT.

MODEL : WM2411HW/WM2011H\*/WM1811CW WM2432HW/WM2032H\*/WM1832CW WM0532HW/WD-10210BD/WD-12210(5)BD WM2444H\*M/WM2442H\*/WM2042CW WM0642H\*



DEC. 2002 PRINTED IN KOREA

P/No.:3828ER3013T

## CONTENTS

1. SPECIFICATIONS	3
2. FEATURES & TECHNICAL EXPLANATION	5
3. PARTS IDENTIFICATION	7
4. INSTALLATION	8
5. OPERATION	11
6. WIRING DIAGRAM / PROGRAM CHART	15
7. TROUBLESHOOTING	19
7-1. BEFORE PERFORMING SERVICE	19
7-2. QC TEST MODE	19
7-3. HOW TO CHECK THE WATER LEVEL FREQUENCY	19
7-4. ERROR DISPLAY	20
8. ERROR DIAGNOSIS AND CHECK LIST	22
8-1. DIAGNOSIS AND SOLUTION FOR ABNORMAL OPERATION	22
8-2. FAULT DIAGNOSIS AND TROUBLESHOOTING	25
9. DISASSEMBLY INSTRUCTIONS	32
10. EXPLODED VIEW	40
10-1. CABINET & CONTROL PANEL ASSEMBLY	40
10-2. DRUM & TUB ASSEMBLY	41
10-3. DISPENSER ASSEMBLY	42

# **1. SPECIFICATIONS**

ІТ	EM	WM2411HW WM2432HW WD-12210(5)BD	WM2011HS / WM2011HW WM2032HS / WM2032HW WM0532HW / WD-10210BD	WM1811CW WM1832CW							
POWER	SUPPLY		120V ~ 60Hz								
PRODUCT	WEIGHT		190 lbs. (86 kg)								
ELECTRIC	WASHING		280W	235W							
POWER	DRAIN MOTOR		80W								
CONSUMPTION	WASH HEATER		1000W	_							
REVOLUTION	WASH		42 rpm								
SPEED	SPIN	0-1200 rpm	0-1000 rpm	0-900 rpm							
Cì	′CLES	9	7	5							
WASH / RINSE T	EMPERATURES	6	5	4							
SPIN S	PEEDS	6 5 5									
OPTI	ONS	Prewash, Stain Cycle, Quick Cycle, Extra Rinse, Rinse+Spin, Delay Wash									
CUSTOM F	PROGRAM	Incorporated									
WATER CIF	RCULATION	Incorporated –									
OPERATIONAL W	ATER PRESSURE	4.5−145 psi (30-1000 kPa)									
CONTRO	DL TYPE	Electronic									
WASH C	APACITY	3.22 cu.ft (3.72 cu.ft.IEC)									
DIMEN	SIONS	27"(W) X 29 - 1/2"(D) X 42 - 3/4"(H), 49 - 4/5"(D, door open)									
DELAY	WASH	up to 19 hours	19 hours up to 12 hours up to 9								
DOOR SWI	ТСН ТҮРЕ	PTC + Solenoid									
WATER	LEVEL	7 steps (by sensor)									
LAUNDRY LO	AD SENSING	Incorporated									
ERROR DI	AGNOSIS	Incorporated									
AUTO PO	WER OFF	Incorporated									
CHILD	LOCK	Incorporated									
RLM EI	NABLE		-								

т	EM	WM2444H*M	WM2442H*/WM0642H*	WM2042CW						
POWER	SUPPLY	120V ~ 60Hz								
PRODUCT	T WEIGHT	190 lbs. (86 kg)								
ELECTRIC	WASHING		280W							
POWER	DRAIN MOTOR		80W							
CONSUMPTION	WASH HEATER		1000W	-						
REVOLUTION	WASH		42 rpm							
SPEED	SPIN		0-1200 rpm	0-1000 rpm						
C	/CLES		7	5						
WASH / RINSE T	EMPERATURES		6	4						
SPIN S	PEEDS		6 5							
OPTI	ONS	Prewash, Stain Cycle, Quick Cycle, Extra Rinse, Rinse+Spin, Delay Wash								
CUSTOM F	PROGRAM	Incorporated								
WATER CIF	RCULATION	Incorporated –								
OPERATIONAL W	ATER PRESSURE	4.5−145 psi (30-1000 kPa)								
CONTRO	OL TYPE	Electronic								
WASH C	APACITY	3.32 cu.ft (3.83 cu.ft.IEC)								
DIMEN	SIONS	27"(W) X 29 -1/2"(D) X 44"(H), 49 -4/5"(D, door open)								
DELAY	WASH	up to 12 hours up to 9 ho								
DOOR SWI	ТСН ТҮРЕ	PTC + Solenoid								
WATER	LEVEL	10 steps (by sensor)								
LAUNDRY LO	AD SENSING	Incorporated								
ERROR D	IAGNOSIS	Incorporated								
AUTO PO	WER OFF	Incorporated								
CHILD	LOCK		Incorporated							
RLM EI	NABLE	Incorporated	_							

# 2. FEATURES & TECHNICAL EXPLANATION

## 2-1.FEATURES



#### ■ Direct Drive System

The advanced Brushless DC motor directly drives the drum without belt and pulley.

#### ■ Tilted Drum and Extra Large Door Opening

The tilted drum and extra large door opening make it possible to load and unload easily.

#### Water Circulation

Spray detergent solution and water onto the load repeatedly. Clothes are soaked more quickly and thoroughly during the wash cycle. Detergent suds are eliminated more easily by the water shower during rinse cycle. The water circulation system uses both water and detergent more efficiently.

#### RollerJets

The washing ball enhances wash performance and reduces damage to clothing. The jets spray and help tumble clothes to enhance washing performance while maintaining fabric care.

#### Built-in Heater

The internal heater automatically heats the water to the optimum temperature on selected cycles.

#### Child Lock

The Child lock feature prevents children from pressing any buttons to change the settings during operation.

## ■ Using the RLM (Remote Laundry Monitor)

The RLM monitors status of your washer and/or dryer. You can plug the display unit into any power outlet in your home. The RLM Display Unit can be purchased separately for this washer.







## 2-2.FUZZY LOGIC WASHING TIME OPTIMIZATION

To get the best washing performance, optimal time is determined by the water temperature, the selected washing temperature, and the size of the load.



## 2-3.WATER LEVEL CONTROL

- This model incorporates a pressure sensor which can sense the water level in the tub.
- The water supply is stopped when the water level reaches the preset level, the washing program then proceeds.
- Spinning does not proceed until the water in the tub drains to a certain level.

## 2-4.DOOR CONTROL

- The door can be opened by pulling the door handle whenever washer is not in operation.
- When the cycle is completed, the DOOR LOCKED light will turn off.
- If a power failure has occurred while in operation, the door will lock for 5 minutes.
- Clicking sounds can be heard when the door is locked / unlocked.

# **3. PARTS IDENTIFICATION**



ACCESSORIES



# 4. INSTALLATION

- 1 Before servicing, ask the customer what the trouble is.
- 2 Check the setup (power supply is 120V AC, remove the transit bolts....).
- 3 Check with the troubleshooting guide.
- 4 Plan your service method by referring to the disassembly instructions.
- 5 Service the unit.
- 6 After servicing, operate the appliance to see whether it functions correctly.
- STANDARD INSTALLATION

The appliance should be installed as follows:



#### ■ HOW TO CONNECT THE INLET HOSE

- Verify that the rubber washer is inside of the valve connector.
- Connect the inlet hose firmly to prevent leaks.



#### ■ CONNECT THE DRAIN HOSE





% The end of the drain hose should be placed less than 96" from the floor.

#### ■ CONNECT POWER PLUG





## 7 TEST OPERATION



# **5. OPERATION**







#### ■ WM2444H\*M/WM2442H\*



#### WM2042CW



#### WM0642H\*



## 6. WIRING DIAGRAM / PROGRAM CHART

#### WM2411HW / WM2011HS / WM2011HW / WM2432HW / WM2032HS / WM2032HW / WM0532HW / WD-10210BD / WD-12210(5)BD



#### WM1811CW / WM1832CW



WM2444H\*M



#### WM2442H\*M/WM0642H\*



16

WM2042CW



PROGRA	AM CHART									* Water Supply : W·S * Intermittent Spin : I										S * Disentangle : D T														
С	C Washing							Rinse										Spir	n															
\\\\Y	Pre Main					Normal E								Extra or Stain Extra & Stair						ain	Ľ	opii	• 	E	U T									
///c	w	×			w	Was	shing	Sta	iycoo	ling			1	1		2	2			3	3			3	3	U.				N	Ó	Norm	a	
	s	Washing	Drain	I S	s	Heating	Washing	w s	Rinsing	Drain	Drain	l S	w s	Rinsing	Drain	l s	w s	Rinsing	Drain	l S	w s	Rinsing	Drain	! S	w s	Rinsing	Drain	Spin	D.T	D	O F F	Worki Time (Hour:Mi	ĕ	
U\\p	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	20	20		lute)	
R S E E	60		60	300	60		MIN	60	60	60	60	300	60	240	60	300	60	240	60	300	60	240	60	300	60	240	60	120 ~ 540	120	20	20			
Sanitary		. 8					66	2	TIME	s																	_		┝		┝━┥	About 1	1:44	
Cotton /Towels		.8					19		$\succ$	$\leq$																						About	57	
Normal		8					19	$\square$	$\succ$	$\langle$			_														_		┝━┛			About	56	
Perm Press		. 8					17		$\succ$	$\leq$																						About	53	
Delicates		. 8					13	$\triangleright$	>	$\langle$			_											>	<	$\langle$					┝┥	About	34	
Wool/Silk	/	$\geq$	<	$\leq$			13		$\succ$	$\langle$													$\checkmark$	>	<	$\geq$						About	34	
Hand Wash	$\left \right\rangle$	>	<	$\langle$	-		13	$\left \right>$	$\succ$	$\langle$						*****								>	<	$\langle$			-		┝━┥	About	34	
Speed Wash								$\leq$																About	29									
Drain+Spin																																About	12	
Wash + Rinse		.8					19	$\square$	$\succ$	$\langle$																			$\geq$	$\leq$	$\geq$	About	45	
Rinse + Spin					$\geq$	>	<	$\leq$												*****				>	<	$\leq$						About	29	
Rinse						>	<	$\leq$	$\leq$										*****	KKKKK	****			>	<	$\leq$			$\geq$	$\leq$	$\leq$	About	18	

\* Basic Cycle \* Cycle \* Pre-Setting Time : Water Supply - 60 sec. Drain - 60 sec.

\* Basic time is minute in washing chart.
 \* The actual program time can be varied with the load amount, water temperature or ambient temperature.

## 7. TROUBLESHOOTING

## 7-1. BEFORE PERFORMING SERVICE

■ Be careful of electric shock when disconnecting parts for while troubleshooting.

■ The voltage of each terminal is 120V AC and DC when the unit is plugged in.

## 7-2. QC TEST MODE.

The washer must be empty and the controls must be in the off state.

¤ Press the SPIN SPEED and SOIL LEVEL buttons simultaneously.

¤LPress the Power button, while the above condition. Then buzzer sound twice.

¤ØIn order to advance to the next step of test mode, press the START / PAUSE button once.

Number of times the Start/Pause button is pressed	Check Point	Display Status
None	Turns on all lamps and locks the door.	
1 time	Tumble clockwise.	rpm (40~50)
2 times	Low speed Spin.	rpm
3 times	High speed Spin.	rpm
4 times	Inlet valve for prewash turns on.	Water level frequency (25~65)
5 times	Inlet valve for main wash turns on.	Water level frequency (25~65)
6 times	Inlet valve for hot water turns on.	Water level frequency (25~65)
7 times	Inlet valve for softener turns on.	Water level frequency (25~65)
8 times	Inlet valve for bleach turns on.	Water level frequency (25~65)
9 times	Tumble counterclockwise.	rpm (40~50)
10 times	Heater turns on for 3 sec.	Water temperature
11 times	Circulation pump turns on.	Water level frequency (25~65)
12 times	Drain pump turns on.	Water level frequency (25~65)
13 times	Power off and unlock the door.	Turn off all lamps.

(;<u>;;;;;</u>) WM2411HW (18:92

1)

WM2432HW (17:55 WD-12210(5)BD

(; ; ; ; ; ; ; ) WM2011HS / WM2011HW WM2032HS / WM2032HW WM0532HW / WD-10210BD

(;<u>;;;;;;</u>) WM1811CW WM1832CW (15:92

## 7-3. HOW TO CHECK THE WATER LEVEL FREQUENCY

\* Press the SPIN SPEED and SOIL LEVEL button simultaneously.



The digits indicate the water level frequency (x.1 kHz).

So, for example a display indicating 241 : a Water level frequency of 241 x.1 kHz

= 24.1 kHz

## 7-4. ERROR DISPLAY

- If you press the START/PAUSE button when an error is displayed, any error except "PE \_ will disappear and the machine will go into the pause status.
- In case of *PE*, *FE*, *fE*,

	ERROR	SYMPTOM	CAUSE
1	WATER INLET ERROR	;	• Correct water level (2 level) is not reached within 8 minutes after water is supplied or it does not reach the preset water level within 25 minutes.
2	IMBALANCE ERROR		<ul> <li>The load is too small.</li> <li>The appliance is tilted.</li> <li>Laundry is gathered to one side.</li> <li>Non distributable things are put into the drum.</li> </ul>
3	DRAIN ERROR		• Not fully drained within 10 minutes.
4	OVER FLOW ERROR	ŗ,	<ul> <li>Water is overflowing (over 8 level).</li> <li>is displayed, the drain pump will operate to the drain water automatically.</li> </ul>
5	PRESSURE SENSOR ERROR	Ģ, Ç, Ç	• The SENSOR SWITCH ASSEMBLY is out of order.
6	DOOR OPEN ERROR	e E	<ul> <li>Door not all the way closed.</li> <li>Loose electrical connections at Door switch and PWB Assembly.</li> <li>The DOOR SWITCH ASSEMBLY is out of order.</li> </ul>
7	HEATING ERROR		The THERMISTOR is out order.

	ERROR	SYMPTOM	CAUSE
8	OVER CURRENT ERROR		<ul> <li>MAIN PWB ASSEMBLY is out of order.</li> <li>Winding in the STATOR ASSEMBLY is short-circuited.</li> </ul>
9	LOCKED MOTOR ERROR		<ul> <li>The connector (3-pin, male, white) in the MOTOR HARNESS is not connected to the connector (3-pin, female, white) of STATOR ASSEMBLY.</li> <li>The electric contact between the connectors (3-pin, male, white) in the MOTOR HARNESS and 4-pin, female, white connector in the MAIN PWB ASSEMBLY is bad or unstable.</li> <li>The MOTOR HARNESS between the STATOR ASSEMBLY and MAIN PWB ASSEMBLY is cut (open circuited).</li> <li>The hall sensor is out of order/defective.</li> </ul>
10	BALL SENSOR ERROR	<b>5</b>	<ul> <li>Loose Ball Sensor Connector.</li> <li>Ball Sensor is out of order. <ul> <li>Displayed only when the START / PAUSE button is first pressed in the QC Test Mode.</li> </ul> </li> </ul>
11	EEPROM ERROR	ĘĘ	<ul> <li>EEPROM is out of order.</li> <li>i Displayed only when the START / PAUSE button is first pressed in the QC Test Mode.</li> </ul>
12	POWER FAILURE	<b>;;;;</b>	• The washer experienced a power failure.

# 8. ERROR DIAGNOSIS AND CHECK LIST

## 8-1. DIAGNOSIS AND SOLUTION FOR ABNORMAL OPERATION







## 8-2.FAULT DIAGNOSIS AND TROUBLESHOOTING

#### ▲ CAUTION

- 1. Be careful of electric shock if disconnecting parts while troubleshooting.
- 2. First of all, check the connection of each electrical terminal with the wiring diagram.
- 3. If you replace the MAIN PWB ASSEMBLY, reinsert the connectors correctly.





#### 



## HEATING WITHOUT WATER



#### DRAIN MALFUNCTIONING





#### 





# 9. DISASSEMBLY INSTRUCTIONS

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

## CONTROL PANEL ASSEMBLY





- 1. Unscrew 7 screws on the Rear Frame.
- 2. Disassemble the Rear Frame.

- **3.** Pull the Control panel forward.
- 4. Disconnect connectors.
- 5. Unscrew 5 screws.
- 6. Disassemble the controller assembly.

TOP PLATE





- 1. Open the Lid.
- 2. Unscrew 4 screws.
- 3. Disassemble the Lid Assembly.
- 4. Pull down the Dispenser by pushing hooks.
- 5. Put a hand into the dispenser hole and hold the top plate.
- **6.** Push backward using an opener and lift the top plate.

; Do first left side (¥I).

## DISPENSER ASSEMBLY





- **1**. Disassemble the 5 hose clamps.
- 2. Release the 5 hoses.

**3.** Unscrew the nut at the lower part of the dispenser.



## NOISE FILTER



- 4. Unscrew the 4 screws on the holder.
- 5. Disassemble the 5 connectors from the valves.

; Wire color : ¥⊥ WH-BK ¥M OR-BK ¥N WH-BK ¥○ GY-BK ¥₽ BL-BK

- 1. Unscrew the screw from the top plate.
- **2.** Unplug the 2 connectors.

## CABINET COVER







- 1. Unscrew the 2 screws from upper side of the cabinet cover.
- 2. Unscrew the screw from filter cover.

**3.** Put a flat (–) screwdriver into the both sides of the filter cover, and pull it out.

4. Unscrew the 2 screws from the lower side of the cabinet cover.





- 5. Open the door.
- **6.** Disassemble the clamp assembly using a flat (–) screwdriver.
- 7. Separate the clamp assembly from cabinet cover.
- 8. Tilt the cabinet cover.
- 9. Disconnect the door switch connector.





10. Lift and separate the cabinet cover.

- **11.** Disassemble the clamp assembly using a flat (–) screwdriver.
- **12.** Disasemble the Gasket.

# DOOR



## DOOR SWITCH ASSEMBLY



- 1. Open the door.
- 2. Unscrew the 7 screws from the hinge cover.

**3.** Put a flat (–) screwdriver into the opening of the hinge, and pull out the hinge cover.

- 4. Unscrew the screws from the door.
- 5. Disassemble the door upward / downward.

i Be careful ! The door is heavy.

- 1. Open the door.
- 2. Disassemble the clamp assembly.
- **3.** Unscrew the 2 screws from cabinet cover.

#### PUMP



HEATER



## THERMISTOR



- 1. Disassemble the cabinet cover.
- 2. Separate the pump hose, the bellows and the circulation hose assembly from the pump assembly.
- **3.** Disassemble the pump assembly in arrow direction.
- 1. Disassemble the cabinet cover.
- **2.** Separate 2 connectors from the heater.
- **3.** Loose the nut and pull out the heater.

#### ▲ CAUTION

- When assembling the heater, insert the heater into heater clip on the bottom of the tub.
- Tighten the fastening nut so the heater is secure.

- **1.** Disassemble the cabinet cover.
- **2.** Unplug the white connector from the thermistor.
- **3.** Pull it out by holding the bracket of thermistor.

## WHEN FOREIGN OBJECT IS STUCK BETWEEN DRUM AND TUB



### 1. Disassemble the cabinet cover.

- 2. Separate the heater from the tub.
- **3.** Remove any foreign objects (wire, coin, etc.) by inserting a long bar in the opening.

## SENSOR ASSEMBLY(BALL SENSOR)



**1.** Unscrew the 4 screws from the back cover.



2. Unscrew the single screw from the lower-right side of the cabinet.



3. Disconnect the connector from PWB Harness.

## MOTOR / DAMPER





HINGE, DAMPER

- 1. Disassemble the back cover.
- 2. Loosen the bolt.
- 3. Pull out the Rotor.

- 4. Unscrew the 2 screws from the tub bracket.
- 5. Loosen the 6 bolts on the stator.
- **6.** Unplug the 2 connectors from the stator.

- 1. Disassemble the damper hinges from the tub and base.
- 2. Separate the dampers.
- ℜ NOTE
  - Once removed, replace the damper pin with new one.

## 10. EXPLODED VIEW

## 10-1. CABINET & CONTROL PANEL ASSEMBLY



40

## 10-2. DRUM & TUB ASSEMBLY



41

## 10-3. DISPENSER ASSEMBLY

