Index

No	Contents	Page
1	No Water Coming In (IE Error)	W-1
2	Water Does Not Drain (OE Error)	W-2
3	Motor Not Operating / Rotating (LE Error)	W-3,4
4	Door Does not Open or Close (DE Error)	W-5
5	Keypad / Button / Display Not Working	W-6
6	Water Go In or Out of Washer (PE Error)	W-7

	Index	
No	Contents	Page
8	Temperature is not correct (t1 / t2 Error)	W-9,10
9	Clothes Not Dry	W-11
10	Dryer Drum Won't Tumble	W-12
11	Heater (Electric type)	W-13
12	Gas smell, No Flame	W-14
13	HE Error, Does not dry	W-15
14	IE Error, No Water	W-16

NoContentsPageNoContents1Fan Motor DefectiveR-1,27Door alarm on / Light always on2ICE is Not dispensedR-38Low Cooling /Freezer Fan not working3Water is Not dispensedR-49Freezer Fan not working4ICE Maker is Defective, No ICER-5,67Sensor defective.5Refrigerator compartment sensor defective.R-78Image: Contents6Defrost function is defective.R-8Image: ContentsImage: Contents	Index	
1 Fan Motor Defective R-1,2 7 Door alarm on / Light always on 2 ICE is Not dispensed R-3 8 Low Cooling /Freezer Fan not working 3 Water is Not dispensed R-4 9 Freezer Fan not working 4 ICE Maker is Defective, No ICE R-5,6 7 1000000000000000000000000000000000000	No Contents	Page
 2 ICE is Not dispensed R-3 8 Low Cooling /Freezer Fan not working 9 Freezer Fan not working 4 ICE Maker is Defective, No ICE R-5,6 5 Refrigerator compartment sensor defective. R-7 6 Defrost function is defective. R-8 	1 Fan Motor Defective	R-1,2
 3 Water is Not dispensed R-4 4 ICE Maker is Defective, No ICE R-5,6 5 Refrigerator compartment R-7 sensor defective. 6 Defrost function is defective. R-8 	2 ICE is Not dispensed	R-3
 4 ICE Maker is Defective, No ICE R-5,6 5 Refrigerator compartment R-7 sensor defective. 6 Defrost function is defective. R-8 	3 Water is Not dispensed	R-4
 5 Refrigerator compartment R-7 sensor defective. 6 Defrost function is defective. R-8 	4 ICE Maker is Defective, No ICE	R-5,6
6 Defrost function is defective. R-8	5 Refrigerator compartment sensor defective.	R-7
	6 Defrost function is defective.	R-8

Index

No	Contents	Page
1	Keypad Not Working	C-1
2	No Power (MWO)	C-2
3	No Heat	C-3,4
4	Will Not Work	C-5
5	HS Indicator When Cook Top Cool	C-7
6	Oven Won't Heat	C-8
7	Cook Top No Heat	C-9,10

Index

No	Contents	Page
8	No Key <u>Operation</u>	C-11
9	Key Short Error	C-12
10	No Power (E/Range)	C-13
11	Hidden Error Code Check	C-14
12	Error Code	C-15,16

Title : No Water Coming In (IE Error)

Major Causes can be: Water Connection, Filter Screen, Valve Issues. Not PCB.

* Precondition: Items to Check first

a)Check if Water is On.

b)Check that Hose is not Kinked.

c)Check if Cold Water and Hot Water hoses are not reversed.

d)Check if Inlet Screen is clogged.

e)Open Faucet & Check water flow

f)Open Faucet & Check water flow

Step No.	Check Item	Result & SVC Action				
1	Perform Test Mode for all Inlet Valve		Result	5	SVC Action	
	(PreWash, Main Wash, Hot Water, Steam, Bleach)		Inlet Valve Turn On	Edu	No Issue cate Customer	
	Steam, Bleach) Refer to Tech Sheet		Inlet Valve NOT Turn On		Go to Step 2	
2	2 Check Inlet Valve		Result		SVC Action	
	Check Point		108 ~ 132 VAC		Go to Step 3	
			0 VAC		Replace main PCB	
3	Disconnect Inlet Valve	C	Connectors			
4	Check Inlet Valve	L	Result		SVC Action	
	Check Point		0.8-1.2 kΩ	۱ F	Normal. Check for External Problem/Cause	
			0 Ω or Infinity(∞)Ω		Replace Inlet Valve	
	-					

Title : Water Does Not Drain (OE Error)

Major Cause can be: Pump System. Not PCB.

* Precondition: Items to Check first

- a) Check for Loose Connections
- b) Check if Drain Hose is twisted, clogged, or frozen
- c) Check Drain Hose Installation (make sure Drain hose is not too high)
- d) Check Drain hose is max. 96 inches high and within 5ft. Of machine

St N	ep o.	Check Item		Result &	sve	C Action
	1	Perform Test Mode for Drain Pump. Refer to Tech. Sheet for Test Mode		Result Drain Pump Turn On Drain Pump NOT Turn On	Edu	SVC Action No Issue cate Customer Go to Step 2
2	2	Check Drain Pump Voltage at Check		Result		SVC Action
	Points Point		120 VAC		Go to Step 3	
			0 VAC		Replace main PCB	
		K 20				
(3	Disconnect Drain Pump Connectors				
4	4	Check Drain Pump Resistance at Check Points		Result	5	SVC Action
				10 ~ 20 Ω	Nori Pr	mal. Check for External oblem/Cause
				Other		Replace Drain Pump

☆ Pr a) C b) C	econdition: Items to Ch heck for Loose Connecti heck to see if motor is di	eck first on fficult to turn by han	d	Step No.	Check Item	Re	esult & SV	C Actio
c) C (E d) C Step	heck if anything is prever Example: clothes caught heck if Motor Rotor Magr Check Item	nting motor from tur on tub or gasket) nets are broken or c Result & SV	ning cracked C Action	5	From PCB, disconnect Hall Sensor connector and Stator connectors.			
1	Disconnect the Hall Se the Motor.	nsor and Stator cor	nnector from		Refer to Tech Sheet for Hall Sensor and Stator Connectors			
2	Check Resistance of Hall Sensor at Test	Test Points Result	SVC Action	6	Check Resistance of Hall Sensor at PCB	Test Points	Result	SVC A
	Points.	8 ~ 12 kΩ (1) & (5)	 Check rest Points (2) & (5) Replace Hell 		Test Points.	(Ha) &	8 ~ 12 kΩ	Check Poi (Hb) &
	Other Ceptace Hall Sensor		for Hall Sensor Test	(GND)	Other	Replace Harr		
	(1)(2) (5)	(2) & (5)	Replace Hall			(Hb) &	8 ~ 12 kΩ	Go to S
			Sensor				Other	Harn
3	Stator at Test Points.	Points Result	SVC Action	7	Check Resistance of Stator at PCB Test	Test Points	Result	SVC A
	a case	(1) & (2) Other	Points (1) & (3) Replace	Points.	Points.	(U) & (V)	8 ~ 11 Ω	Check Points (W
$\begin{array}{ c c c c }\hline \hline $		for Hall Sensor Test	. , . ,	Other	Repl Harn			
	(1) & (3) (1) (2) (3) (1) (2) (3) (1) & (3) Other Replace Motor		Points	(V) &	8 ~ 11 Ω	Check Points (W		
		8 ~ 11 Ω (2) & (3)	Go to Step 4			(VV)	Other	Repl Harr
		Other	Motor			(U) &	8 ~ 11 Ω	Repl Main
-		und Otatan ta Matan	1			(W)	Other	Rep

ating (LE Error)

SVC Action

Check Test

Points (Hb) & (GND) Replace Wire

. Harness

Go to Step 7 Replace Wire

. Harness

SVC Action Check Test

Points (V) & (W) Replace

Harness Check Test

Points (U) & (W) Replace

Harness Replace

Main PCB Replace

Harness

Title : Door Does not Open or Close (DE Error)

Major Cause can be: Door Latch. Not PCB.

- **※ Precondition:** Items to Check first
- a) Check for Loose Connections.
- b) Check Door Installation and confirm Door is Not hanging
- c) Confirm the door hook latches with door switch
- d) Confirm Door Hook spring is operational

Step No.	Check Item	Result & SVC Action				
1	Select Normal Cycle	R	Result	SVC Action		
	*Refer to Tech Sheet for Test Mode	Door Does N	Locks but NOT Unlock	Mechanical Issue Check Switch		
		Cycle Door	Starts, but does NOT Lock	Electrical Issue Go to Step 2		
2	Check if Door Switch makes clicking noise	F	Result	SVC Action		
	(1-3 times) when	Clicking Noise		Go to Step 3		
	pressed	No Clicking Noise		Replace PCB		
3	Check Door Switch resistance at Test	Test Points	Result	SVC Action		
	Points below. Test at 77ºF	(2) &	700-1500 Ω	Check Test Points (3) & (4)		
		(4)	Other	Replace Door Switch		
	(2) ₍₃₎ (4) ₍₅₎	(3) & (4)	60-90 Ω	Check Test Points (4) & (5)		
			Other	Replace Door Switch		
		(4) &	INFINITE / OPEN	Replace Main PCB		
		(5)	Other	Replace Door Switch		

Title : Keypad / Button / Display Not Working

- **※ Precondition:** Items to Check first
- a) Check for Loose Connection
- b) Check if any of the Buttons are stuck in the Panel

Step No.	Check Item	Result & SVC Action		
1	Check if Machine is	Result	SVC Action	
	Pront Load and Power On.	Does NOT Power ON	Go to Step 2	
	All other Washer Go to Step 4	Does Power ON	Go to Step 4	
2	Spin Drum with	Result	SVC Action	
	Hands	Display Light Up	Replace Display PCB	
		Display NOT Light Up	Go to Step 3	
3	Check LED on Main	Decult	SVC Action	
	PCB	LED DOES Light UP	Replace Display PCB	
		LED Does NOT Light UP	Replace Main PCB	
	Chack if cound			
4	comes from the	Result	SVC Action	
	Buzzer and the LED light turns on when selecting different Cycles	Cracked / Broken PCB	Replace Display PCB	
		Display PCB NOT Defective	Replace Main PCB	
5	Check if Display PCB cracked or broken			

Title : Water Go In or Out of Washer (PE Error)

Major Cause can be: Pressure Switch. Not PCB.

※ Precondition: Items to Check first

- a) Check for Loose Connection
- b) Check the Air Chamber
- c) Check if the Tube is clogged or has water leakage
- d) Check if Inlet Valve is Defective
- e) Check if the Drain Pump is Defective

Step No.	Check Item	Result & SVC Action		
1	Disconnect the Pressure Switch Connector			
2	Check Resistance of			
	Pressure Switch	Result	SVC Action	
		21 ~ 23 kΩ	Replace Pressure Switch	
		Other	Replace Main PCB	
	Check Point			

Title :

Title : Temperature is not correct (t1 / t2 Error)

Major Cause can be: Thermistor Connection. Not PCB.

※ Precondition: Items to Check first

- a) Check for Loose Connection
- b) Check that distance between igniter and flame holder is between 3~6mm (Gas Dryer Only)

Step No.	Check Item	Result & SVC Action	
1	Is Dryer Gas or	Result	SVC Action
	Electric?	Gas Dryer	Go to Step 2
		Electric Dryer	Go to Step 4
2	Check if Gas Dryer	Result	SVC Action
	produces Heat while	Heat is output	Go to Step 3
	Cycle.	Heat is NOT output	Go to Step 4
3	Check Gas Valve Manufacturer	Result	SVC Action
	Starion Kanbishi	STARION Gas Valve	Replace with KANBISHI Gas Valve
	CGV22C	KANBISHI Gas Valve	Go to Step 4
	BRION CORP		
4	Disconnect Thermistor		
	**		

Title : Temperature is not correct (t1 / t2 Error)

Step No.	Check Item	Result & SVC Action			ion		
5	Check Resistance of Heating Thermistor.	R	esult	SVC	SVC Action		
	Verify with Table 1 .	Resista NO ⁻ Tem	ance Value Match perature	Re The	place rmistor		
		Resista M Tem	ance Value latch perature	G St	io to tep 6		
		<ta< th=""><th>ble 1></th><th>(R : kΩ</th><th>±30%)</th></ta<>	ble 1>	(R : kΩ	±30%)		
		Temp (°F)	Resist ance	Temp (°F)	Resist ance		
		50	18	110	5.2		
		70	60 14.2 70 11.7		4.3 3.9		
		80 9.3 90 7.7 100 6.2		140	3.0		
				15	2.5		
				160	2.2		
6	Reconnect Thermistor (Connect	or				
7	From PCB side, disconnect Thermistor Connector Refer to Tech Sheet for Thermistor Connector location on PCB						
8	Check Resistance of			-			
	Thermistor at	Result		SVC	Action		
	Points.	Resista NOT Tem	Resistance Value NOT Match Temperature		place Harness		
	Refer to Tech Sheet for Hall Sensor Test Points	Resista N Tem	ince Value latch perature	e Re Mair	place n PCB		

<u>W-10</u>

Dryer

 Major Causes can be: venting, Long vent, Clogging. Not PCB. * Precondition: Items to Check first a) Check for Loose Connection b) Verify that enough clothes are in dryer to come in contact with Moisture Sensor c) Check Dryer Function on Timed Cycle 										
Step No.	Check Item	Re	esult &	svo	C Action					
1	Perform Test Mode to to Refer to Tech Sheet for	erform Test Mode to tumble the Dryer without Heat. efer to Tech Sheet for Test Mode								
2	2 Verify Moisture Sensor Operation		Res	ult	SVC Action					
	touching Moisture Sensor. CAUTION: Keep hand close to filter housing to avoid being hit by moving vanes	touching Moisture Sensor.	Damp Cloth to	Display Number Decrease		Remove Hand from Moisture Sensor				
		Moistur e Sensor	NOT Decrease or NOT Below 100 Display Number Increase		Replace Moisture Sensor					
		Remov e Cloth			Go to Step 3					
		Moistur e Sensor	Display Number NOT Increase		Replace Moisture Sensor					
3	Check if Dryer produces Heat while	Res	sult	s	VC Action					
	running Normal Cycle.	Hea NOT o	Heat is NOT output Chec Conc		Dryer – Check r Condition ric Dryer – k Heater ition					
		Hea Out	nt is put	Replace Main PCB						

Clothes are not Dry / Long Drying Time

Title :

Title : **Dryer Drum Won't Tumble ※ Precondition:** Items to Check first a) Check if anything is causing the motor to be stuck b) Check the Belt Assembly between Idle Switch and Motor Switch c) Check the Roller Assembly Dryer d) Verify Dryer Load size is appropriate Step **Check Item Result & SVC Action** No. Perform Test Mode 1 SVC Action to tumble the Dryer Result while Door is Closed. Replace DE Error . Door Switch Refer to Tech Sheet for Test Mode No DE Error Go to Step 2 3 Check Resistance of Door Switch SVC Action Result Replace 0~3Ω PCB Replace Other . Door Switch

Title : Dryer does not Heat (Electric Dryer)

Major Causes can be: Exhaust is clogged, Thermostat, or Heat Element. Not PCB.

- **※ Precondition:** Items to Check first
- a) Check Power Check Vents for Twists, Clogs, Foreign Material
- b) Check for Foreign Material in Blower
- c) Check Filter installation
- d) Check Correct Power Cable installation

Step No.	Check Item	Re	C Action	
1	Disconnect Heater	Test	Result	SVC Action
	Check Resistance at		18~22 Ω	Check ① - ③
	Heater Check Points	(1) - (2)	Other	Replace Heater
			18~22 Ω	Check ② - ③
		0-0	Other	Replace Heater
		2-3	36~44 Ω	Go to Step 2
			Other	Replace Heater
	3			
2	Check TH Thermostat Check Points	Test	Result	SVC Action
		TH2 & TH3	Less than 1Ω	Replace Main PCB
			Other	Replace Thermostat
	TH3 TH2			

W-13

Title : Gas Smell / Does not Dry (Gas Dryer)

- **※ Precondition:** Items to Check first
- a) Check for Loose Connection
- b) Check if enough voltage being provided to Dryer (over 100 VAC)
- c) Check that distance between igniter and flame holder is between 3~6mm

Step No.	Check Item		Result & SVC Action			
1	Check Gas Valve Manufacturer Starion Kanbishi					
2	Check Gas Valve Voltage	Resul Other Unde 90 VD		sult ner der DC	er Go to DC Step 3	
3	Check Resistance of	Γ	Test	Res	ult	SVC Action
	Valve 1 valve 2		Volvo 1	Below kΩ	1.5	Replace Valve 1
			valve i	Above1.5 kΩ		Replace Main PCB
			valve 2	Below 1. kΩ		Replace Valve 1
				Above1.5 kΩ		Replace Main PCB

W-14

Title : Dishes Do Not Dry (HE Error)

Major Cause can be: Heater. Not PCB.

- **※ Precondition:** Items to Check first
- a) Check for Loose Connection
- b) Check PCB Serial Number Serial Number Before 909** should be replaced

Step No. Check Item	Result &	SVC Action
1 Disconnect connector for Heater in Sump	Result	SVC Action
Check Heater	INFINITE / OPEN	Replace Sump Heater
Resistance at Check Points	10 ~ 14 Ω	Replace Main PCB
Heater assembled in the sumpImage: state of the sum of the		

Title : No Water Going Out (OE Error) Major Cause can be: Drain Pump. Not PCB. **※ Precondition:** Items to Check first a) Check for Loose Connections b) Check if Drain Hose is twisted, clogged, or frozen c) Check Drain Hose Installation (make sure Drain hose is not too high) Step **Check Item Result & SVC Action** No. 1 Perform Test Mode Result SVC Action for Drain Pump. No Issue Drain Pump Educate Turn On Refer to Tech. Sheet Customer for Test Mode Drain Pump Go to NOT Turn On Step 2 2 Disconnect Drain **Pump Connectors** 3 Check Drain Pump Resistance at Check Result SVC Action Points Go to 24 ~ 29 Ω Check Step 4 Point Replace Other Drain Pump Reconnect Drain 4 Pump Connectors. Perform Test Mode for Drain Pump **SVC** Action Result 5 Check Drain Pump Voltage at Check Replace Points 120 VAC Drain Pump Replace main 0 VAC PCB

D/Washer

Title: Fan Motor defective

Major Causes can be: Freezer Door does not close, Freezer Fan Motor, and Cycle System. NOT PCB **% Precondition:** Items to Check first 1)Check for Loose Connection (Fan Motor housing).

2)Check if the fan housing or motor is frozen.

3)Check if Fan blade was stuck or damaged.

4)Confirm the temperature setting of the freezer.

Step No.	Check Item	Result & SVC Action					
1	Check Serial Number and	Part	Re	sult		SVC Action	
	Maker of motor.	Serial Number	After	902	•* r F	refer to page R-11, 13	
	(See Fig.1)	Serial Number	Be 90	fore)2**	ſ	Check Notor Maker	
		Motor	L	LG		Replace Aotor & Main Board	
		IVIANEI	Oh Sung		ļ	Go to Step 2	
2	Check Voltage Fan Motor	Condition	tion Part Res		sult	SVC Action	
	(See fig.2)			9~ VD	16 0C	Check ®	
	()	Test	A	Oth	ner	Replace Main PCBA	
		Mode #1	0	0~ VD	- 5)C	Go to Step 3	
			•	Oth	ner	Replace Main PCBA	
3	Check condition	Result A			SVC Action		
		Fan is Locked			Adjust Fan		
		Fan is	Frozei	n	R	Remove Ice	
		Ot	her		Ν	Replace Jain PCBA	

R-1

FAN Motor Maker





Oh Sung

Check Point FAN Motor Voltage

<u>< Fig.2 ></u>



DIOS

Title: ICE is Not dispensed

Major Causes can be: Auger Motor malfunction, Ice stuck, Dispenser Paddle malfunction, Cap Duct Door not open. NOT PCB

※ Precondition: Items to Check first 1)Check Loose connection

Step No.	Check Item	Result & SVC Action					
1 Check Cap Duct		Condition	Result	SVC Action			
	2001	Push Pad & Door	Cap Duct Open	Check ICE is clumped , ICE Outlet is clogged ICE Pad Stuck			
		Close	Do Not Open	Go to Step 2			
2	Check Resistance	Part	Result	SVC Action			
	Solenoid & Auaer Motor	Solenoid	44 ~ 54 Ω	Check Auger Motor			
So	blenoid	Solenoid	Other	Replace Solenoid			
3944 CARD HRESTER		Auger	9.9 ~ 12.1 Ω	Go to Step 3			
	Check Point	Motor	Other	Replace Auger Motor			
3	Check Voltage Solenoid &	Part	Result	SVC Action			
	Auger Motor		110~120 VAC	Check Auger Motor			
1	100	Solenoid	Other	Replace Dispenser PCBA			
	Auger Motor	Auger	9~12 VDC	Replace Display PCBA			
		Motor	Other	Replace Dispenser PCBA			
		R-3					

Water is Not dispensed

M C (1) (2) (3) (4) (5) (6) (7) (6) (7) (8) (9) (1) (0) (5) (1) (0) (5) (1) (1) (1) (1) (1) (2) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2	ajor logg Che Che Che Che Che Che Che Che Che Che	Causes can be: Dis ged Filter, Frozen Wa condition: Items to o ck if water pipe is clo ck if water is leaking is ck Water pressure m ck if water filter was i ust the filter and retry ck if the water pad is ck if the micro switch ck if Water leaks due ck if water valve and ck if water valve and ction	penser P ater Tank. Check firs gged at a JOIN ⁻ ight be se nstalled co test jammed works pro- to a dama clogged I d pilot valv	addle malfu NOT PCB t T t too low prectly operly aged 'Inlet tu oy a crushed re have a loo	Inction, Ibe'. I tube Dse	
Ν	No.	Check Item	Res	sult & SVC	Action	-
	1	Check Resistance	Part	Result	SVC Action	ů,
	Water valve Check Point	Pilot	360~420 Ω	Check Dispenser Water Valve		
		Vvater Valve	Other	Replace Pilot Water Valve		
			Dispenser	360~420 Ω	Go to Step 2	
			Vvater Valve	Other	Replace Dispenser Water Valve	
	2	Check Voltage	Part	Result	SVC Action	
		Dispenser valve Relay	Pilot	ON : 12VDC OFF : 0V	Check Dispenser Valve Relay	
			Relay	Other	Replace Dispenser PCBA	
			Dispenser Valve	ON : 12VDC OFF : 0V	Check Loose Connection	
			Relay	Other	Replace Main PCBA	
			R-4			-

Title : Ice Maker defective, No ice

Major Causes can be: Ice maker system and storage capacity, not PCB

※ Precondition: Items to Check first

- 1)Check if water pipe is clogged or frozen
- 2)Check if water is leaking at a joint
- 3)Water pressure might be set too low
- 4)Check if water filter was installed correctly
- 5)Check if the ice duct is frosted up and clear it
- 6)Check if the beta gasket is sealed
- 7)Check if the ice room door is opened or not sealed

8)Icemaker room temperature should be below 1°F

- 9)Check if filler arm was frozen and remove frost
- 10)Check if the sensor is blocked or needs cleaning

11)At least 120 minutes passed to make ice after water comes into icemaker

12)At least 24 hours has passed without a ice bin full of ice (not in case of installation)

Step No.	Check Item	Result & SVC Action					
1	Check Precondition		Re	sult	ŀ	SVC Action	
			Normal Abnormal				Go to Step 2
						Ac pi	ljust the roblem
2	Check ICE Maker		Condition	Туре	Result		SVC Action
	※ Caution ICF Maker			Heating	N	Iormal	Go to Precondition
	Туре	 Fund	Function	Maker	Abnormal		Replace ICE Maker
			Test	Twisting		Iormal	Replace Main PCBA
				Maker A		onormal	Replace ICE Maker

ICT Maker Function Test

Type 1. Heating Ice Maker

STAGE	ITEMS	INDICATOR	REMARKS
1	HEATER		Five seconds after heater starts, a heater will go off if the temperature by sensor is higher than 10°C
2	MOTOR		Five seconds after heater starts, you can confirm that a motor is moving.
3	HALL IC I		Check if Ice Bin is full or not. If Ice bin is full, the motor and heater are off and on stand by until Ice bin is empty.
4	HALL IC II		You can confirm HALL IC detection of start position.
5	VALVE		Two seconds after detection of start position, you can confirm that valve is on.
6	Reset	Return to Status prior to TEST MODE	Five seconds after fifth stage is completed, The icemaker resets to initial status.

Type 2. Twisting Icemaker

Step 1) Start **Display ALL ON MODE** Step 2) Check icemaker code

- If **Er-** is displayed, clumped ice is blocking the dispenser or icemaker.
- If **Er-Is** error code is displayed, the ice sensor is defective.

- -- --

Title : Refrigerator compartment sensor defective

Major Causes can be: Damper Motor, Damper Freezing, Defrost System, Freezer Fan Motor. NOT PCB

※ Precondition: Items to Check first

1)Check Loose connection

2)Adjust Sensor position

Step No.	Check Item	Result & SVC Action					
1	1 Check Resistance Condition		Result	SVC Action			
	Sensor	Power OFF &	ОК	Go to Step 2			
	Sensor Table under here	Sensor Connection	NG	Replace Refrigerator Sensor			
2	Check Error Code	Condition	Result	SVC Action			
	Reconnect Sensor Connection & Power ON		Appear rS error Code	Replace Main PCBA			
			Do Not Appear Error Code	Explain to customer the unit is normal			

Sensor Table

Test Point	Result	Test Point	Result
-30 ℃	129.3 kΩ	10 ℃	19.53 kΩ
-20 ℃	76.96 kՁ	20 °C	13.03 kՁ
-10 ℃	47.34 kՁ	30 ℃	8.896 kΩ
0 °C	30 kΩ	40 °C	6.201 kΩ

Title: Defrost function is defective, ER-DH

Major Causes can be: Damper Motor, Damper Freezing, Defrost System, Freezer Fan Motor. NOT PCB **% Precondition:** Items to Check first 1)Check for Loose Connection

2)Check if Drain Pipe was frozen and remove the ice 3)Make sure Refrigerator temperature is below 41° F 4)If it has a serial number starting after 9**, you need to push Freezer and ICE Plus Button simultaneously to check the error code on the display. Before 9**, it displays the error code as soon as it is plugged in.

5)Plug out and in, Start Test Mode.

(SxS : Push Test Switch 2 time, 3D/4D :

Push Test Switch 3 time)

Step No.	Check Item	Result & SVC Action					
1	Check Resistance	e Result nds 0 Ω Other Value		SVC Action	v		
	between ends			tween ends 0 Ω		Go to Step 2	
	of Fuse-M			Replace Fuse-M			
2	Check Resistance	Result		SVC Action			
	between ends	Sensor Ta	able Value	Go to Step 2			
	Sensor	Other	Value	Replace Def Sensor			
3	Check the	Condition	Result	SVC Action			
	of defrost	Heater ON	110~120VA	AC Check Heater OFF			
	heater RELAY on the main	Healer ON	Other	Replace Main PCBA			
	PCB	Heater	0 ~ 2 VA0	C Replace Defrost Heater			
62-		OFF	Other	Replace Main PCBA			
			- Def S	Sensor			
T			- Fuse- R-8	M			

Title : Door alarm on / Light always on

Major Causes can be:

1)Refrigerator and freezer doors do not close 2)DOOR SWITCH was pressed when door was CLOSED

3)Alignment of the Door Hinge

4)Gaskets are Torn, Ripped, Dirty

Step No.	Check Item	Result & SVC Action					
1	Check DOOR		Result		SVC Action		
	Doort / lighthold		Normal	Che Door S	ck & Adjust witch Location		
			Abnorma	l Doc	Adjust or Alignment		
2	Check Resistance DOOR SWITCH		Condition	Result	SVC Action		
	See Fig.1		Switch ON	0 Ω	Check Switch OFF		
	- Brie	Switch OK		Other	Replace Door Switch		
			Switch OF	Infinite F	Go to Step 3		
	100			Other	Replace Door Switch		
3	Check Working of		Condition	Result	SVC Action		
	Check Door Lamp Voltage at the Check Points on the PCB.		Door Close	0 ~ 2 VA(Check Door Open		
			Door	110 ~ 12 VAC	0 Replace Lamp		
	*Refer to Tech		Open	Other	Replace Main PCB		
	Lamp Check Points.						



[Improvement History] Door Switch



[Improvement History] Door Hinge

Before



act as a guide to align all the components and to avoid movement.

DIOS

Top Mount



R-10

Title: Low Cooling / Freezer Fan not working

Major Causes can be: Freezer Door does not close, Freezer Fan Motor, and Cycle System. NOT PCB

* Precondition: Items to Check first

1)Check refrigerator and freezer doors do not close 2)Check if the DOOR SWITCH was pressed when door was CLOSED.

3)Adjust the alignment of the door hinge.

4)Check if the door gasket fits snugly against the case.5)Check the connection status and fasten the fan motor housing.

Step No.	Check Item	Result & SVC Action				
1	Check Fan Motor	Result	Result		SVC Action	
		Working Do Not Work		C 00	Go to Step 2	
				Check Fan Motor i Frozen Check Fan Blade i Stuck		
2	Check Voltage of Freezer FAN	Part	R	esult	SVC Action	
	RELAY (F-FAN)		12 ~	16 VDC	Check GND – F/B.	
	(See. Check	VCC - GND	C)ther	Replace Main PCB	
	Voltage for F- FAN,		1~	4 VDC	Go to Step 3	
	Page R-12)	GND – F/B.	С	Other	Replace Main PCB	
3	Check Voltage DEF Heater	Part	R	esult	SVC Action	
	(See Check		11(\	0~120 /AC	Check Heater OFF	
	Voltage for DEF Heater, Page R-14)	Heater ON	С	Other	Replace Main PCB	
			0~	2 VAC	Go to Precondition	
			С	Other	Replace Main PCB	
	ļ					

Check Voltage for F-FAN



R-12

Title: Freezer Fan not working / Frost build-up

Major Causes can be: Freezer Door does not close, Freezer Fan Motor, and Cycle System. NOT PCB

* Precondition: Items to Check first

1)Check refrigerator and freezer doors do not close 2)Check if the DOOR SWITCH was pressed when door was CLOSED.

3)Adjust the alignment of the door hinge.

4)Check if the door gasket fits snugly against the case.5)Check the connection status and fasten the fan motor housing.

Step No.	Check Item	Result & SVC Action				
1	Check Sealing of DOOR GASKET		Result A Normal S		SVC Action	
					(S	So to Step 2
		Abnorma	Abnormal Fix o		r Replace ASKET	
2	Check Voltage of Freezer FAN RELAY (F-FAN) (See. Check	Part Vcc - GND		R 12 ~	esult 16 VDC Other	SVC Action Check GND – F/B. Replace Main PCB
Voltage for F- FAN, Page R-12)		GND – F/B.	1~	4 VDC	Replace F-FAN Motor	
			C	Other	Main PCB	

Check Voltage for DEF Heater

Enter the <u>TEST MODE 3</u>

Is the voltage value between DEF Heater and GND 115 V AC?



EXIT TEST MODE 3 (Normal) Is the voltage value between DEF Heater and GND 0 ~ 2 VAC?



Relay Operation				
Test Point	Result			
DEF to GND	115V			

Relay Open

DEF to GND 0 ~ 2 V	Test Point	Result
	DEF to GND	0 ~ 2 V



Title : Keypad Not Working

Major Cause can be: Loose Connection. Not Main PCB.

※ Precondition: Items to Check first

- 1) Check for Defective Latch
- 2) Check if Door and Latch are aligned correctly
- 3) Loose Connections

Step No.	Check Item	Result & SVC Action				
1	Check ALL Keys	Condition	Result		SVC Action	
	opolato	Door	START or E Do NOT Op Some	Z-ON erate	Go to Step 2 Replace	
		CLOSE	Keys Oper ALL Keys	ate Do	Keypad Replace	
2	Check Secondary Switch Resistance		NOT Oper		кеураа	
	Secondary	Condition	Result	S Ac	VC ction	
	Secondary Switch	Deer	Under 10 Ω	G St	o to ep 3	
		OPEN	Other	Re Seco S\	place ondary witch	
	Check	Door	Approx. 0 Ω (short)) Ω Go to Step 3		
	Point	Point	CLOSE	Other	Re Seco S\	place ondary witch
3	Check Keypad Operation	Condition	Result		SVC Action	
		Door CLOSE	Some or AL Keys Do Not Oper	^{-L} R Mai	eplace n Board	

Title :

No Power

Major Cause can be: Fuse or Loose Connection. Not Main PCB.

※ Precondition: Items to Check first

1)Loose Connections for Power Connection

	Step No.	Check Item	Result & SVC Action			
	1	Push Any Key	Condition	Result		SVC Action
			Power	No Soun	b	Go to Step 2
			ON	Sound		Replace PCBA
Γ	2	Check Fuse				
		Resistance	R	esult	S A	SVC ction
		Check Point	Sho	ort (0 Ω)	G St	io to tep 3
			Open (Infinite)		Replace Fuse	
						•
	3	Check Harness Connection Status	Result		A	SVC ction
			Sho	l (Go to tep 4	
		A PA	Open (Infinite)		Re Noi	eplace se Filter
		Check Po	int			
	4	Check Thermostat Resistance				
			F	Result	A	SVC ction
		Check Point	Sho	ort (0 Ω)	Re P	eplace CBA
	1		Оре	n (Infinite)	Re The	eplace rmostat
L						

C-2

No Heat

Major Causes can be: Magnetron, HVT, HV Capacitor, HV Diode. Not Main PCB.

※ Precondition: Items to Check first

1)Loose Connections for PCB, Relay, MGT, HVD, HVC, Micro S/W.

Step No.	Check Item	Re	esult & SVC	Actio	n	
1	Check the Keys Operate	Condition	Result		SVC Action	
		Door CLOSE	START or E Do NOT Op START or E Do Opera	Z-ON erate Z-ON tte	Go to Step 2 Go to Step 3	
2	Check Resistance					
	Secondary Switch	Condition	Result	S Ac	VC ction	
Secondary & Primar Switch		ry Door	Under 10 Ω	Ao Switch	djust location	
	OPEN	Other	Re Seco S\	place ondary witch		
			Door	Approx. 0 Ω (short)	Ao Switch	djust location
	Check Point		Other	Re Seco Sv	place ondary witch	
3	Check Resistance MGT	Condition	Result	A	SVC action	
	Point	Power Off	Less than 1 (Go to Step 4	
		& Discharge	Any other valu	Je Re I	eplace MGT	
		C-3				



Title :

Title :

Will Not Work

MWO

※ Precondition: Items to Check first

- 1) Loose Connections
- 2) Check Defective latch
- 3) Replace or Adjust Primary or Secondary Micro-switch

Step No.	Check Item	Result & SVC Action			
1	Check Resistance Fan Motor	Condition	F	Result	SVC Action
			@-©	23 ~ 50	Go to
1	Check Point	Power	®-©	5 ~ 15 Ω	Step 2
-	3	OFF	@-©	Any othe	Replace
			®-©	value	Motor
y	C B C				
2	Check Resistance Turn Table Motor	Condition	R	esult	SVC Action
Check Point		Power	2.5 ~ 3.5 k Ω		Replace PCBA
		OFF	Any other value		Replace Turn Table Motor

<u>C-5</u>

Title :

<u>C-6</u>

Title : HS Indicator When Cook Top Cool

Major Cause is from the Limiter in Element. Not Main PCB.

- * Precondition: Items to Check first
- a) Check that Cook Top heaters are Turned Off.
- b) Check Wire Harness and/or Loose Connections

Step No.	Check Item	Result & SVC Action		
1	Unplug Heater Element Check Resistance of	Temp.	Result	SVC Action
Triple Surface Heater Element at Test Poin based on Cook Top Temperature	Triple Surface Heater Element at Test Points based on Cook Top Temperature	Below	INFINITE / OPEN	Normal Result
		150°F	Other	Replace Heater Element
		Abovo	SHORT / CLOSED	Normal Result
	2B 1B	150°F	Other	Replace Heater Element

Oven Not Heating E/Range Title : Major Causes can be: Connections to Bake/Broil Element and Relay PCB. Not Main PCB. **※ Precondition:** Items to Check first Check for Loose Connections at Connectors and Relays 1) 2) Perform Check Items when Oven is at Room Temperature Step **Check Item Result & SVC Action** No. SVC Check Resistance 1 Condition Result Action at Thermostat Ends Go to 0Ω (short) Step 2 Unplug Replace Thermostat Any other Heater Check value Thermostat Point Check Resistance SVC 2 Part Result Action Values of all Heater Check Broil Elements 17 Ω Heater Bake Replace Heater Other Bake Element Check 14 Ω Convection Broil Heater Replace Heater Broil Other Check Heater Go to Point 17 Ω Step 3 Convection Replace Heater Other Convection Heater Check Resistance 3 Value of Thermistor SVC Condition Result Action Check Replace Point About 1.09 K Ω PCBA Cooling Replace Down Other Thermistor

<u>C-7</u>

E-Range

Cook Top NO Heat

Major Causes can be: Element Failure, Loose Connection, Relay PCB. Not MAIN PCB.

※ Precondition: Items to Check first

1)Loose Connections

Title :

Step No.	Check Item	Re	esult & SVC A	ction
1	Loose Connection	Relay PCB	Harness to PCB	
2	Check Resistance Radiant Heater			
	♦. Relay PCB Connector 13 Pin 1 \leftrightarrow Neutral Pin 2 \leftrightarrow Neutral Pin 4 \leftrightarrow Neutral	Condition	Result	SVC Action
		Cooling Down Heater	About 100 Ω	Replace PCBA
			Infinite	Replace Radiant Heater



<u>C-10</u>

E-Range

No Key Operation

Major Causes can be: Loose Connection or Glass Touch Control Panel. Not Main PCB. **Precondition:** Items to Check first

1)Loose Connections

Title :

Step No.	Check Item	Result & SVC Action		
1	Loose Connection Key Pad	Condition	Result	SVC Action
		Reconnec	Normal Operation	End
		tion	Abnormal	Go to Step 2
2	Replace Key Pad	Condition	Result	SVC Action
		Replace	Normal Operation	End
		Key Pad	Abnormal	Replace PCBA



Key Pad Connection

C-11

Key Pad Shorted Error

Major Causes can be: Loose Connection or Glass Touch Control Panel. Not Main PCB.

※ Precondition: Items to Check first

- 1) Check operation after cooling down, Keypad Short due to Heating during operation.
- 2) Reset Power (Plug out and in)

Title :

Step No.	Check Item	Result & SVC Action		
1	Unplug Key-pad tail During 1 minute. And reconnect.	Condition	Result	SVC Action
		Reconnec	Normal Operation	Replace Key Pad
		tion	Display error	Replace Main PCBA

E-Range





C-14

Title: Error Code

LRE30757/LRE30453 (All Error codes displayed)

	Description	How to detect	Check point
F-1	Key Short Error	When any keys are continuously shorted for over 60 seconds.	Keypad malfunction
F-2	Door Lock Fail	In case of door lock failure in operating lock motor.	 Electric wiring Motor's resistance Micro switch
F-3	Open Sensor	Oven sensor (thermistor) remains open for over 1 minute during cooking.	1. Wiring 2. Oven sensor
F-4	Shorted Sensor	Oven sensor (thermistor) is short for over 1 minute during cooking.	1. Wiring 2. Oven sensor
F-7	No Heating	While door is closed, if starting oven temperature does not exceed 150 °F and oven temperature is less than or equal to starting temperature over 5 minutes during preheating,	 Electric wiring Heater Oven sensor
F-9	Oven Hot	The oven temperature is over 650°F continuously for 2 minutes while cooking. (except self cleaning mode)	1. Oven sensor 2. Relay

<u>C-15</u>

Title : Error Code

LRE3091/LSE3092ST LRG3097/LRG3095/LRG3093

	Description	Error Process	Check point
F-1	Open Sensor	Cook Clear Save error log	1. Wiring 2. Oven Sensor
F-2	Shorted Sensor	Cook Clear Save error log	1. Wiring 2. Oven Sensor
F-3	Key Short Error	 F3 Display & Cook Clear Save error log 	1.Keypad malfunction
F-5	Temp Probe Shorted	Cook Clear Save error log	1. Wiring 2. Temp Probe
F-6	Oven Hot	Cook Clear Save error log	1. Oven Sensor 2. Relay
F-10	Door Lock Fail	Cook Clear Save error log	1. Electric Wiring 2. Motor Resistance 3. Micro Switch
F-11	No Heating	F11 Display & Cook Clear Save error log	1. Electric Wiring 2. Heater 3. Oven Sensor

C-16

E-Range