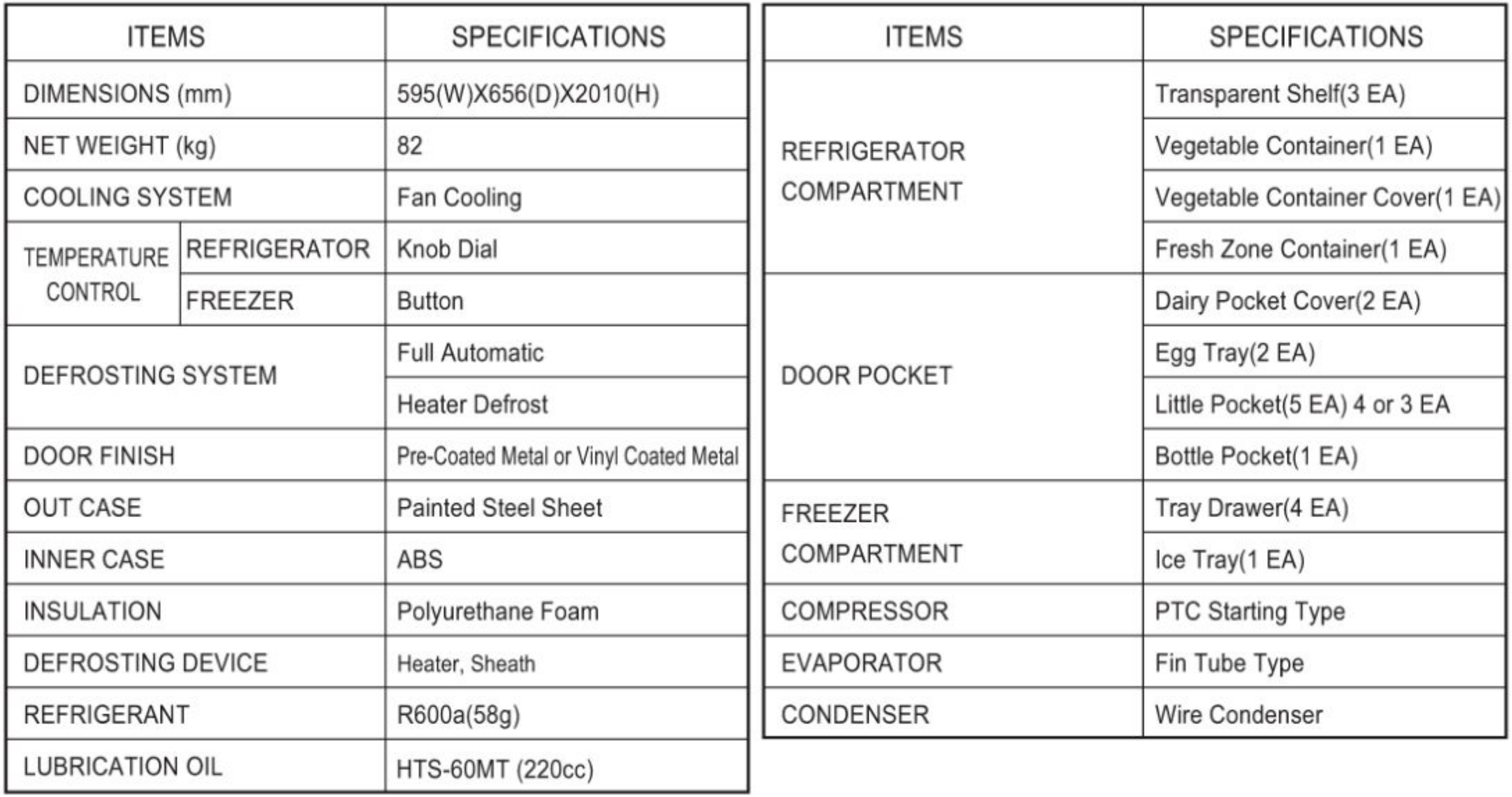
REF. LG
GC-F439WAQK

Trainer: **Evstratkin Nikita**

Оглавление

1. Спецификация GC-F439WAQK Общий вид панели индикации
2. Отделения холодильника
3. Панель Индикации
4. Основная плата/ Подключение разъемов
5. Компрессор
6. Описание ошибок холодильника
7. Ошибка E1
8. Ошибка E2
9. Ошибка E4
10. Ошибка E5
11. Ошибка E6
12. Ошибка E7
13. Ошибка E8
14. Ошибка CO
15. Не вкл. лампочка
16. Сервисный тест

1. Спецификация GC-F439WAQK

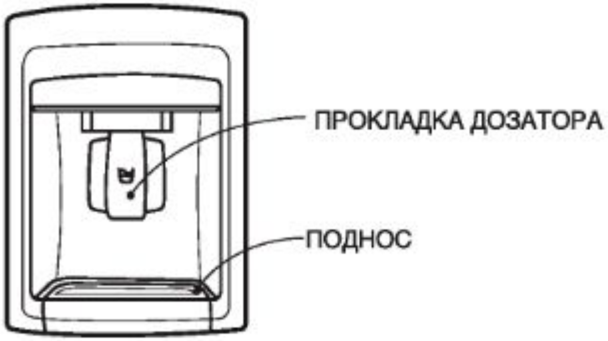


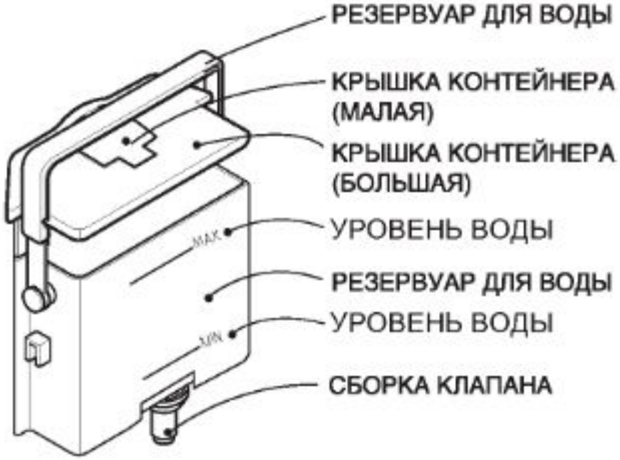
ITEMS		SPECIFICATIONS
DIMENSIONS (mm)		595(W)X656(D)X2010(H)
NET WEIGHT (kg)		82
COOLING SYSTEM		Fan Cooling
TEMPERATURE CONTROL	REFRIGERATOR	Knob Dial
	FREEZER	Button
DEFROSTING SYSTEM		Full Automatic
		Heater Defrost
DOOR FINISH		Pre-Coated Metal or Vinyl Coated Metal
OUT CASE		Painted Steel Sheet
INNER CASE		ABS
INSULATION		Polyurethane Foam
DEFROSTING DEVICE		Heater, Sheath
REFRIGERANT		R600a(58g)
LUBRICATION OIL		HTS-60MT (220cc)

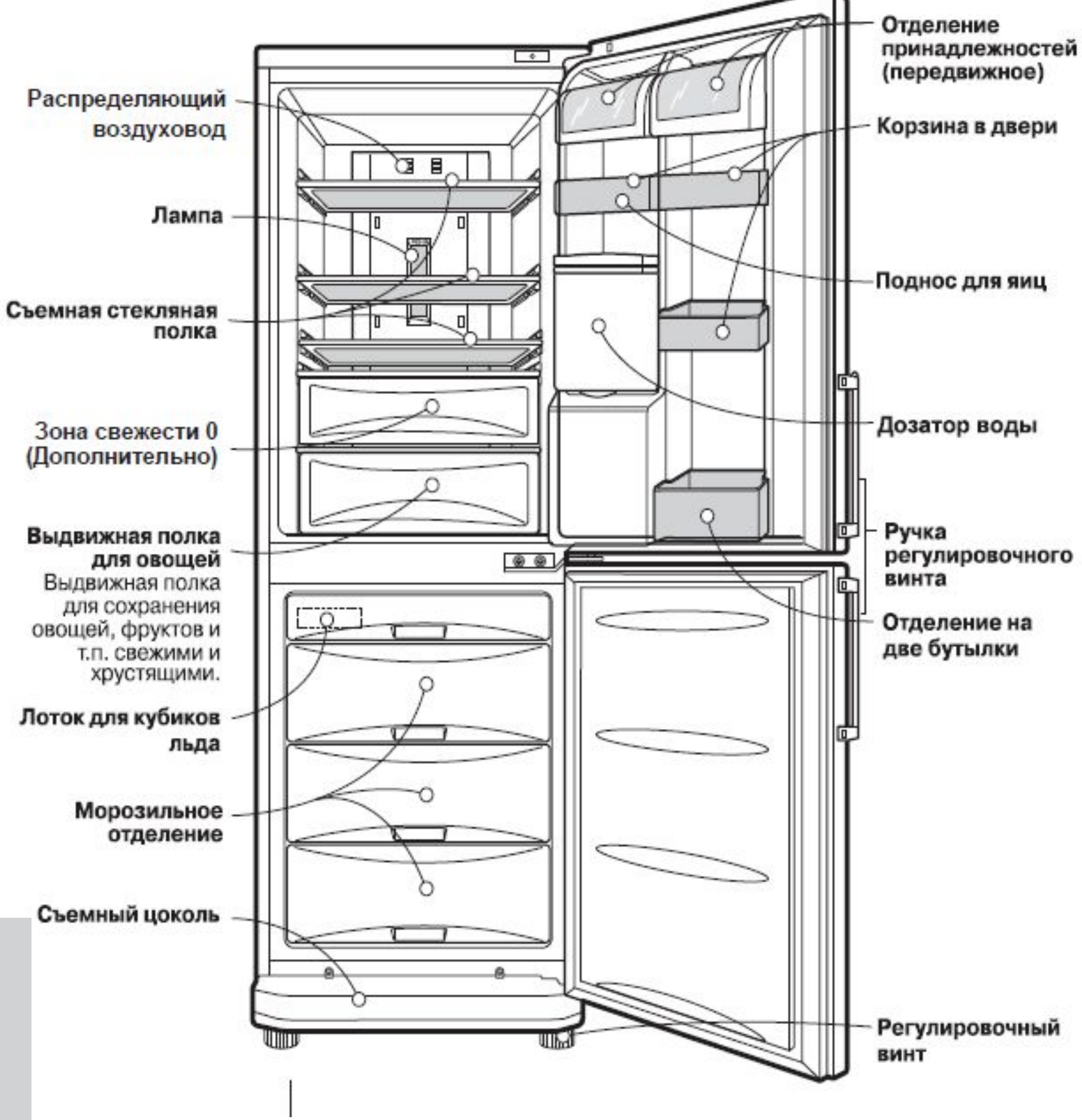
ITEMS	SPECIFICATIONS
REFRIGERATOR COMPARTMENT	Transparent Shelf(3 EA)
	Vegetable Container(1 EA)
	Vegetable Container Cover(1 EA)
	Fresh Zone Container(1 EA)
DOOR POCKET	Dairy Pocket Cover(2 EA)
	Egg Tray(2 EA)
	Little Pocket(5 EA) 4 or 3 EA
	Bottle Pocket(1 EA)
FREEZER COMPARTMENT	Tray Drawer(4 EA)
	Ice Tray(1 EA)
COMPRESSOR	PTC Starting Type
EVAPORATOR	Fin Tube Type
CONDENSER	Wire Condenser

2. Отделения холодильника

Дозатор воды


ПРОКЛАДКА ДОЗАТОРА
ПОДНОС

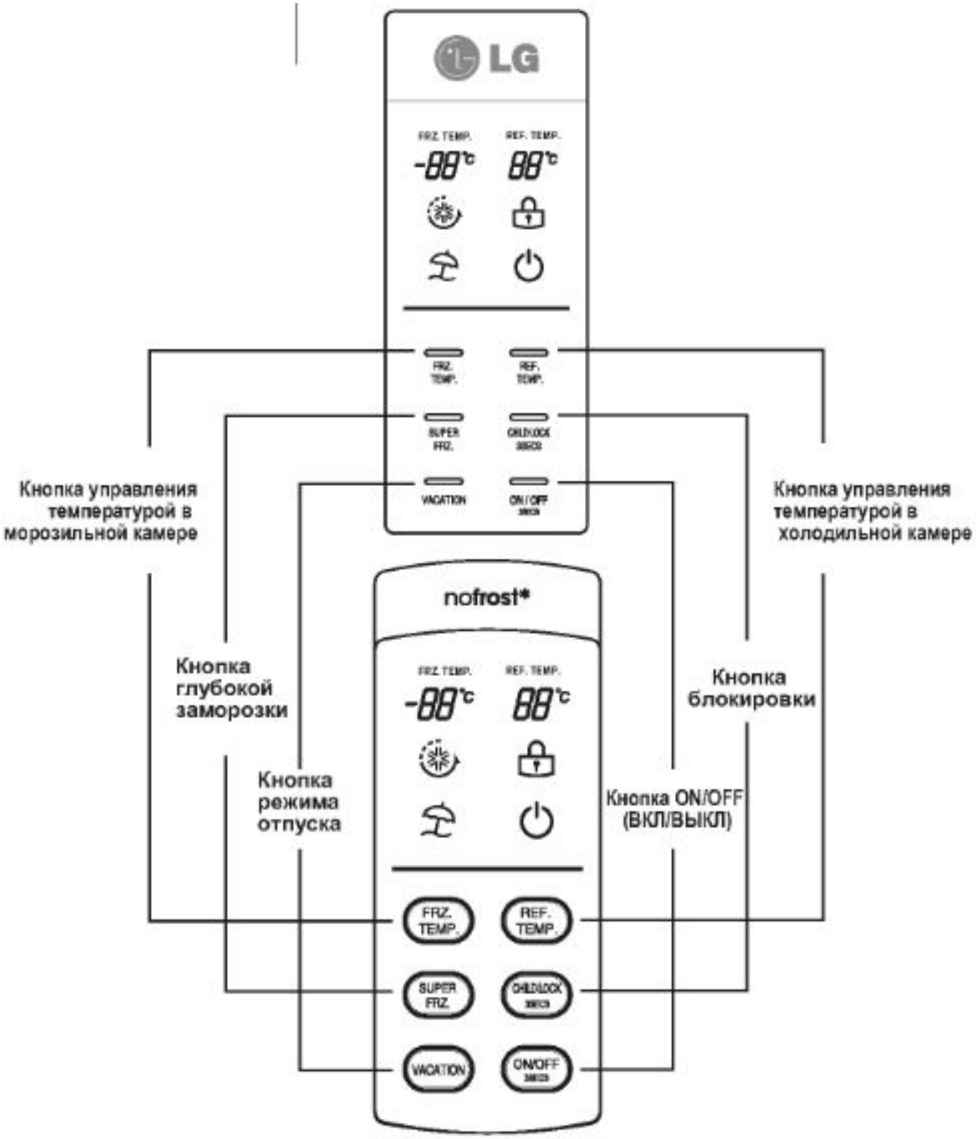

РЕЗЕРВУАР ДЛЯ ВОДЫ
КРЫШКА КОНТЕЙНЕРА (МАЛАЯ)
КРЫШКА КОНТЕЙНЕРА (БОЛЬШАЯ)
УРОВЕНЬ ВОДЫ
РЕЗЕРВУАР ДЛЯ ВОДЫ
УРОВЕНЬ ВОДЫ
СБОРКА КЛАПАНА
MAX
MIN


Распределяющий воздуховод
Лампа
Съемная стеклянная полка
Зона свежести 0 (Дополнительно)
Выдвижная полка для овощей
Выдвижная полка для сохранения овощей, фруктов и т.п. свежими и хрустящими.
Лоток для кубиков льда
Морозильное отделение
Съемный цоколь
Отделение принадлежностей (передвижное)
Корзина в двери
Поднос для яиц
Дозатор воды
Ручка регулировочного винта
Отделение на две бутылки
Регулировочный винт

Не наливайте в резервуар ничего, кроме воды, в том числе газированные напитки, молоко и сок. Это особенно относится к напиткам с мякотью (они могут привести к неисправности).

3. Панель Индикации

Total No Frost
FRZ. TEMP.
REF. TEMP.
SUPER FRZ.
CHILD LOCK 3SECS
VACATION
ON/OFF 3SECS


LG
FRZ. TEMP.
REF. TEMP.
-88°C
88°C
FRZ. TEMP.
REF. TEMP.
SUPER FRZ.
CHILD LOCK 3SECS
VACATION
ON/OFF 3SECS
nofrost*

Кнопка управления температурой в морозильной камере

Кнопка управления температурой в холодильной камере

Кнопка глубокой заморозки

Кнопка блокировки

Кнопка режима отпуска

Кнопка ON/OFF (ВКЛ/ВЫКЛ)

4. Основная плата/ Подключение разъемов

CON 5(Display)
PIN1 ➔ GND
PIN2 ➔door switch
PIN3 ➔ 12V
PIN4 ➔GND
PIN5 ➔Ambient temperature sensor
PIN6 ➔ Receiving end of the display panel
PIN7 ➔ Transmitting end of the PCB panel
PIN8 ➔5V

CON 3(FAN Motor)
PIN1 ➔ Input voltage of F room Fan
PIN2 ➔ GND
PIN3 ➔ F/BACK of the freezer fan
PIN4 ➔ Input voltage of the mechanical room fan
PIN5 ➔ GND
PIN6 ➔ F/BACK of the mechanical room fan

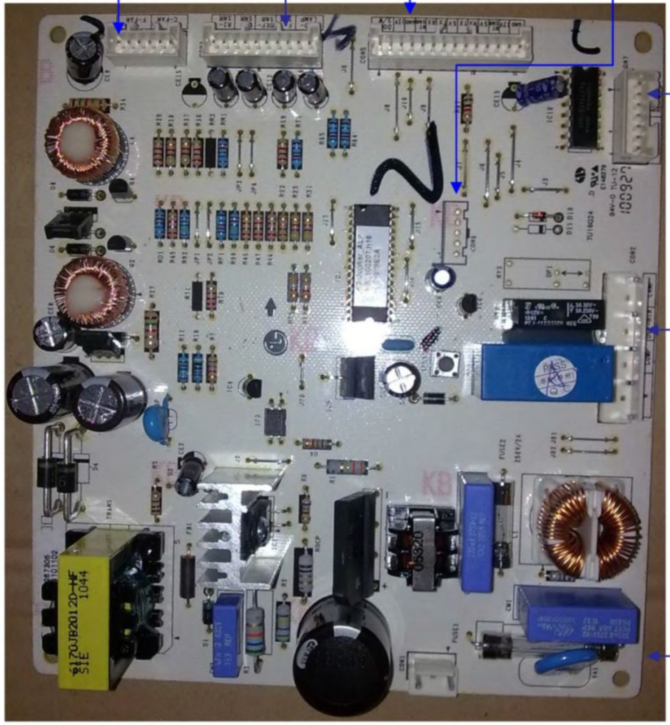
CON4(Sensing&LED LAMP)
PIN1 ➔ R room2 sensor
PIN3 ➔ R room1 sensor
PIN5 ➔ Defrost sensor
PIN7 ➔ Freezer sensor
PIN9 ➔ 12V
PIN2&PIN4& PIN6&PIN8➔GND
PIN10 ➔LED LAMP

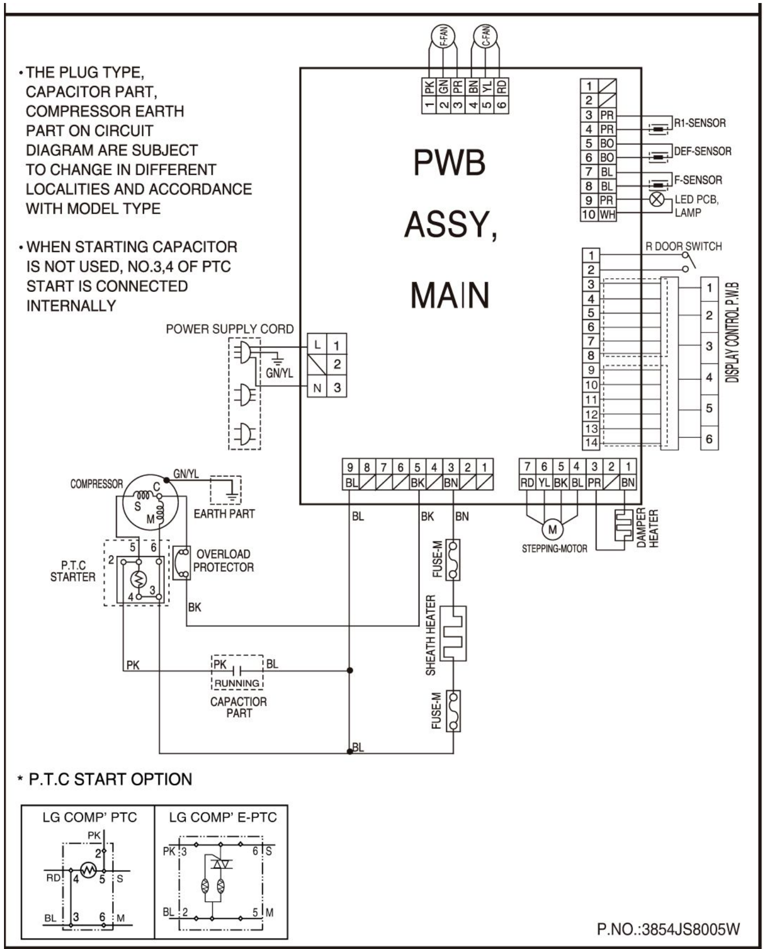
CON6 (Program write port)
PIN1-5 ➔ Main program
WRITING&MONITORING PIN

CON7 (Refrigerator Air Damper Motor & Air Damper heater)
PIN4到PIN7 ➔Air Damper heater
PIN1&PIN3 ➔ Air Damper heater
PIN2 ➔ No use

CON 2(AC Load of Freezer)
PIN1 ➔ Lamp
PIN3 ➔Defrost Heater
PIN5 ➔ COMP
PIN7 ➔ N
PIN9 ➔ N

CON1(Power)
PIN1 ➔N
PIN3 ➔L
PIN2 ➔No use




F-FAN
C-FAN
1 PK
2 GN
3 PR
4 BN
5 YL
6 RD
PWB ASSY, MAIN
3 PR
4 PR
5 BO
6 BO
7 BL
8 BL
9 PR
10 WH
R1-SENSOR
DEF-SENSOR
F-SENSOR
LED PCB, LAMP
R DOOR SWITCH
DISPLAY CONTROL P.W.B
POWER SUPPLY CORD
GN/YL
L
N
COMPRESSOR
C
S
M
EARTH PART
P.T.C STARTER
OVERLOAD PROTECTOR
BK
PK
BL
RUNNING
CAPACTIOR PART
BN
FUSE-M
SHEATH HEATER
FUSE-M
RD
YL
PR
STEPPING-MOTOR
DAMPER HEATER
LG COMP' PTC
LG COMP' E-PTC

- THE PLUG TYPE, CAPACITOR PART, COMPRESSOR EARTH PART ON CIRCUIT DIAGRAM ARE SUBJECT TO CHANGE IN DIFFERENT LOCALITIES AND ACCORDANCE WITH MODEL TYPE
- WHEN STARTING CAPACITOR IS NOT USED, NO.3,4 OF PTC START IS CONNECTED INTERNALLY

* P.T.C START OPTION

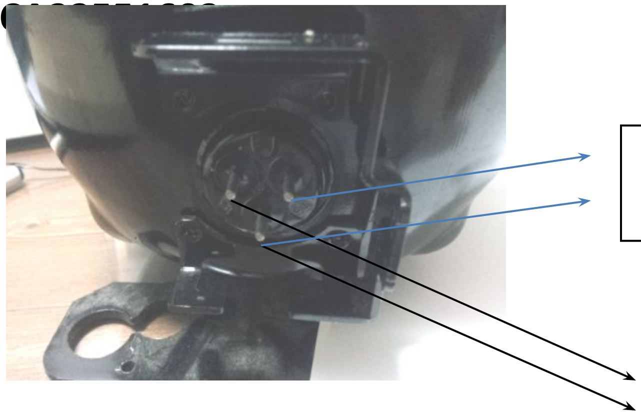
P.NO.:3854JS8005W

BK:BLACK
BN:BROWN
RD:RED
BO:BRIGHT ORANGE
YL:YELLOW
GN:GREEN
BL:BLUE
PR:PURPLE
GY:GRAY
WH:WHITE
SB:SKY BLUE
PK:PINK
GN/YL:GREEN/YELLOW
WH/BK:WHITE/BLACK

5. Компрессор

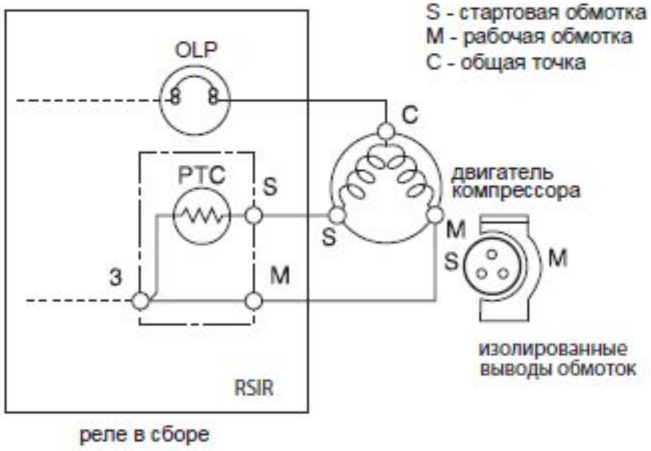
LG
MQ98NAEM
RoHS
R600a

Кривошипошатунный компрессор MQ98NAEM P/N Т



~18 Ω

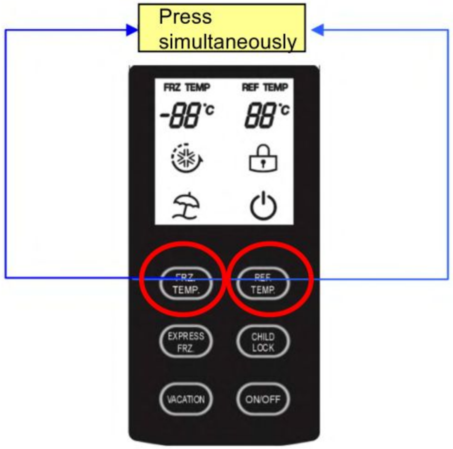
~21 Ω


OLP
C
PTC
S
S
3
M
двигатель компрессора
M
S
M
изолированные выводы обмоток
RSIR
реле в сборе

S - стартовая обмотка
M - рабочая обмотка
C - общая точка

6. Описание ошибок холодильника

(1) При возникновении какого-либо дефекта, кнопки перестают функционировать. Каждое нажатие кнопки сопровождается сигналом зуммера.
(2) Когда дефект устранен холодильник, возвращается к нормальному функционированию.
(3) Код ошибки (дефекта) холодильной и морозильной камер отображается на дисплее.
(4) Для самостоятельного поиска ошибок необходимо зажать одновременно кнопки REF. Temp. и FRZ. Temp и зажать более чем на 1 секунду. В случае наличия ошибки на дисплей выводится код
ошибки. В случае отсутствия ошибок на дисплее засветятся все светодиоды.

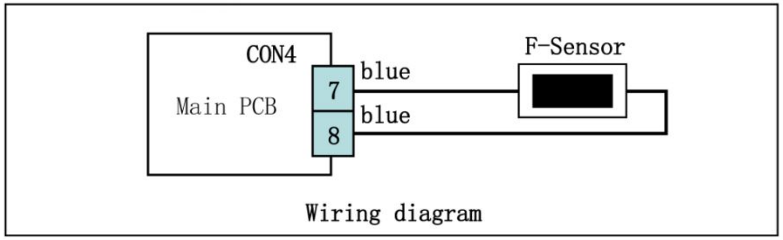

Press simultaneously

NO.	Item	Fault Display	Fault ontent	Remarks
1	Normal	Setting temperature display	None	DISPLAY S/W normal operation
2	Abnormal freezer Sensor	E1	Freezer sensor short or open	Each sensor circuit open /short inspection (Push F key and R key 2S simultaneously, display 5S)
3	Abnormal sensor 1	E2	Refrigerator sensor 1 short or open	
4	Abnormal sensor 2	E3 Cancel	Refrigerator sensor 2 short or open	
5	Abnormal outside sensor	E4	Outside sensor short or open	
6	Abnormal defrost sensor	E5	Defrost sensor short or open	
7	Poor defrost	E6	When the defrost sensor does not reach 7□ or higher after 2 hours' defrost	The temperature fuse is broken/The heater is broken/The heater drives RELAY ineffectively (Push F key and R key 2S simultaneously, display 5S)
8	Abnormal freezer BLDC fan motor	E7	When BLDC fan motor drives and no F/B signal for 65s	BLDC MOTOR disconnected and poor DRIVE IC and TR (Push F key and R key 2S simultaneously, display 5S)
9	Abnormal mechanical room BLDC fan motor	E8	When BLDC fan motor drives and no F/B signal for 65s	
10	Poor communication	CO	Poor communication between MainMicom and Display Micom	Interrupted communication and poor transmitting and receiving part (not hide, automatic display)

7. Ошибка E1

1-2. Troubleshooting With Error

F sensor Error


CON4
Main PCB
7
8
blue
blue
F-Sensor

Wiring diagram

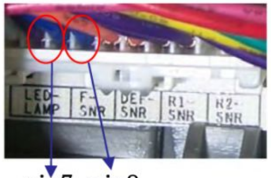
Does it show E1 on DISPLAY?

FRZ TEMP
REF TEMP

Yes

Does the display PCB become loose?

NO → Reconnect


LED-LAMP
F-SNR
DEF-SNR
R1-SNR
R2-SNR

pin7 pin8

CON4

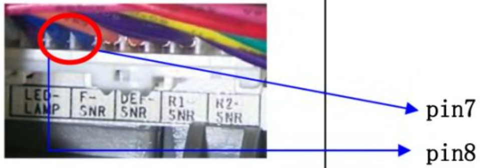
YES

Power OFF

Tip : To protect MICOM

Is the resistance of Pin7~8 as shown in the following table when seperated con4 from PCB

No → Change F senser


LED-LAMP
F-SNR
DEF-SNR
R1-SNR
R2-SNR
pin7
pin8

Test point	Result
Pin7 to Pin8	1 ~ 150 kΩ

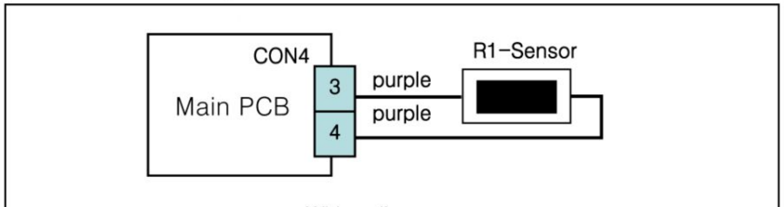
Yes

Insert CON4 again power on

If E1 appears again, replace the main PCB and also explain to the customer!

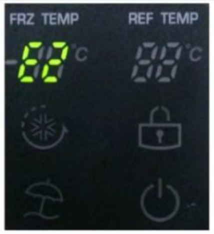
8. Ошибка E2

R senser1 Error


CON4
Main PCB
3
4
purple
purple
R1−Sensor

Wiring diagram

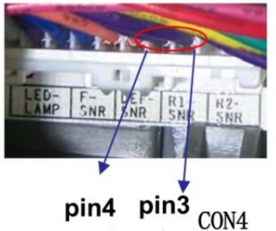
Does it show E2 on DISPLAY?


FRZ TEMP
REF TEMP
E2 °C
88 °C

Yes

Does the display PCB become loose?

NO → Reconnect


LED-LAMP
F-SNR
DEF-SNR
R1-SNR
R2-SNR
pin4
pin3
CON4

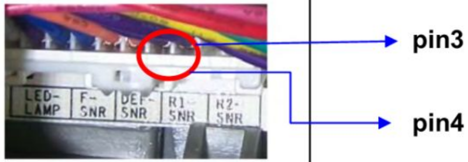
YES

Power OFF

Tip : To protecct MICOM

Is the resistance of Pin3~4 as shown in the following table when seperated con4 from PCB

No → ChangeR1 sensor


LED-LAMP
F-SNR
DEF-SNR
R1-SNR
R2-SNR
pin3
pin4

Test point	Result
Pin3 to Pin4	6 ~ 300 kΩ

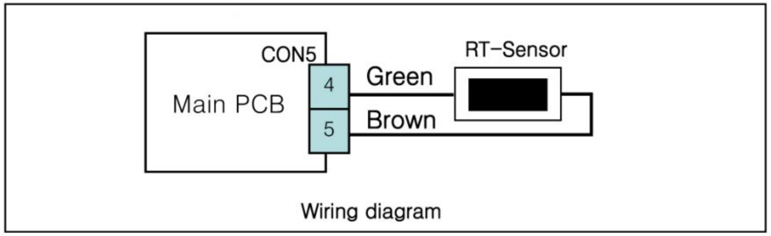
Yes

Insert CON4 again power on

If E2 appears again, replace the main PCB and also explain to the customer!

9. Ошибка E4

RT sensor Error


CON5
Main PCB
4
5
Green
Brown
RT–Sensor

Wiring diagram

Does it show E4 on DISPLAY?

FRZ TEMP
REF TEMP
-E4°C
88°C

Yes

Does the display PCB become loose?

5V
TX
RX
SNR
12V
DOOR S/W

CON5

NO → Reconnect

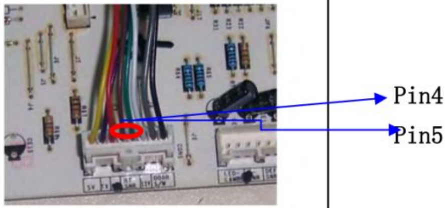
YES

Power OFF

Tip : To protecct MICOM

Is the resistance of Pin4~5 as shown in the following table when seperated con5 from PCB?

No → Change RT senser



Test point	Result
Pin4 to Pin5	5 ~ 400 kΩ

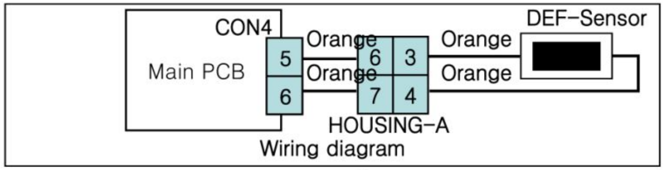
Yes

Insert CON5 again power on

If E4 appears again, replace the main PCB and also explain to the customer!

10. Ошибка E5

Defrost senser Error


CON4
Main PCB
5
6
Orange
Orange
6
7
3
4
Orange
Orange
DEF–Sensor
HOUSING–A

Wiring diagram

Does it show E5 on DISPLAY?

FRZ TEMP
REF TEMP
-E5°C
88°C

Yes

Does the display PCB become loose?

NO → Reconnect

CON4

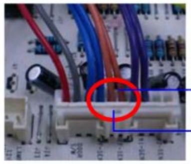
Yes

Power OFF

Tip : To protecct MICOM

Is the resistance of Pin5~6 as shown in the following table when seperated con4 from PCB?

No → Change DEF Senser

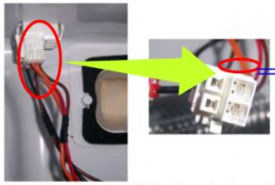


Test point	result
Pin5 to Pin6	6 ~ 600 ㏀

Yes

Is the resistance of Pin3~4 on HOUSING-A as shown in the following table?

No → ChangeDEF Senser


Pin3Oran
Pin4Oran

Consider if it short circuit

Measure point	Result
Pin3 To pin4	6 ~ 300 ㏀

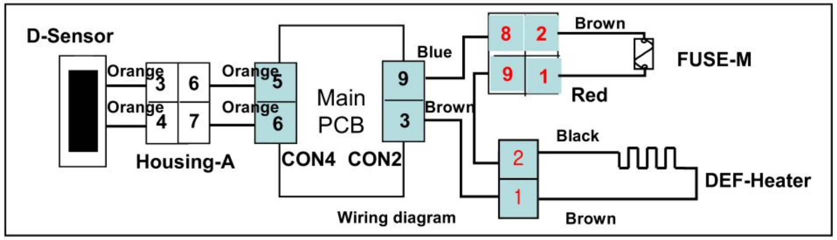
Yes

Insert CON5 again power on

If E4 appears again, replace the main PCB and also explain to the customer!

11. Ошибка E6

Defrost Sensor Fault


D-Sensor
Orange
Orange
3
6
4
7
Orange
Orange
5
6
Housing-A
Main PCB
CON4
CON2
9
3
Blue
Brown
8
2
9
1
Brown
Red
FUSE-M
Black
2
1
DEF-Heater
Brown

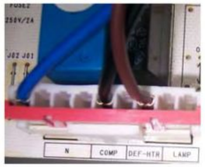
Wiring diagram

Is the display showing E6?

FRZ TEMP
REF TEMP

Yes

Does the display PCB become loose?

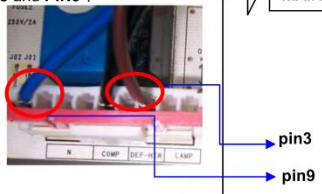


CON2

NO → Reconnect

YES

Enter the **TEST 2** mode
Is the voltage **230V AC** between **PIN3** and **PIN9** ?

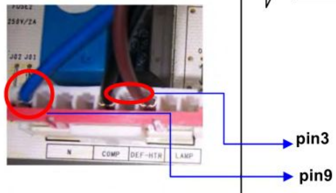


No → Change MAIN PCB

Measure	result
pin3 To pin9	230Vac

Yes

Reset TEST 2 MODE（normal）
Is the voltage 0V AC on Pin 3 and Pin9?



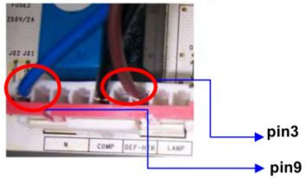
No → change MAIN PCB

Measure	result
pin3 To pin9	0-2Vac

Yes

Is the resistance as shown in the following table between Pin3 and Pin9?

Yes → **Normal**

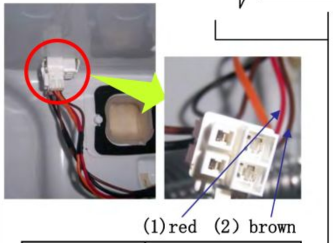


Measure	Result
Pin3 To Pin9	300 ~ 350 Ω

No

Is the resistance the same value as shown in the following table?

No → **Change the fuse**

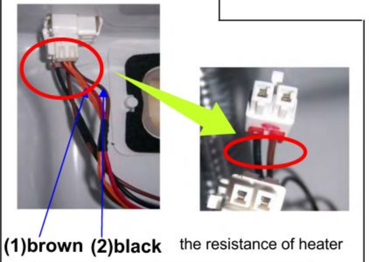

(1) red
(2) brown

Measure	result
(1) to (2)	0 Ω

Yes

Is the resistance of heater the same value as shown in the following table?

No → Change the heater


(1)brown (2)black

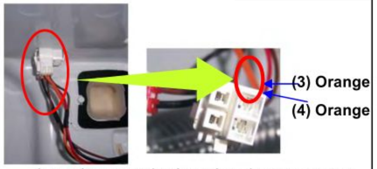
the resistance of heater

Measure	result
(1) To (2)	300 ~ 350 Ω

Yes

Is the resistance of the defrost sensor the same value as shown in the following table? Calculate the resistance value based on the temperature

No → Change the defrost sensor


(3) Orange
(4) Orange

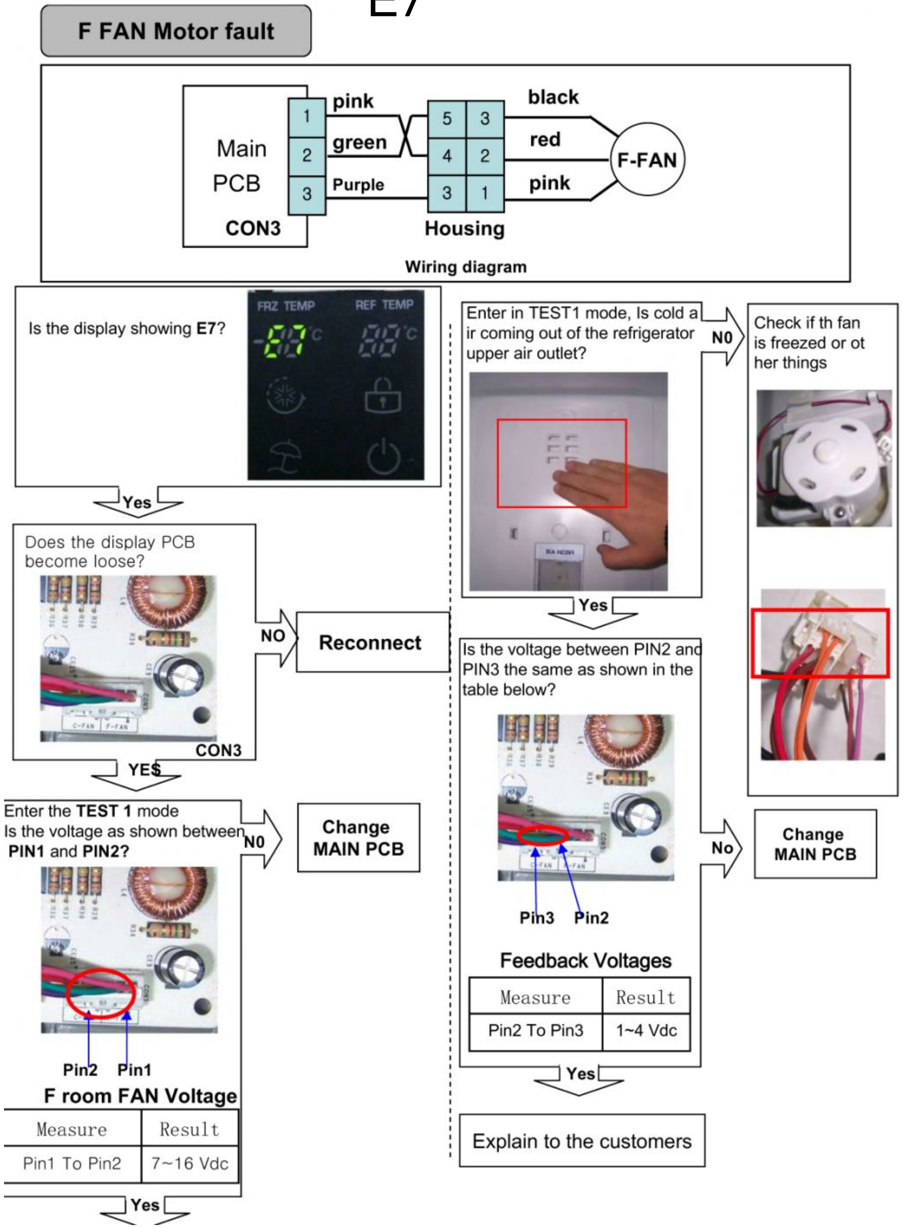
the resistance value based on the temperature

Measure	Result	Measure	Result
-30℃	129.3 ㏀	10℃	19.53 ㏀
-20℃	76.96 ㏀	20℃	13.03 ㏀
-10℃	47.34 ㏀	30℃	8.896 ㏀
0℃	30 ㏀	40℃	6.201 ㏀

Yes

Explain to the customer!
Possible causes: Door seals leaking or too many hot foods are placed in the unit.

12. Ошибка E7


Main PCB
CON3
1
2
3
pink
green
Purple
5
4
3
3
2
1
Housing
black
red
pink
F-FAN
FRZ TEMP
REF TEMP
E7
CON3
Pin2
Pin1
Pin3
Pin2

F FAN Motor fault

Wiring diagram

Is the display showing **E7**?

Yes

Does the display PCB become loose?

NO → **Reconnect**

YES

Enter the **TEST 1** mode
Is the voltage as shown between **PIN1** and **PIN2?**

NO → **Change MAIN PCB**

F room FAN Voltage

Measure	Result
Pin1 To Pin2	7~16 Vdc

Yes

Enter in TEST1 mode, Is cold air coming out of the refrigerator upper air outlet?

NO → Check if th fan is freezed or other things

Yes

Is the voltage between PIN2 and PIN3 the same as shown in the table below?

No → **Change MAIN PCB**

Feedback Voltages

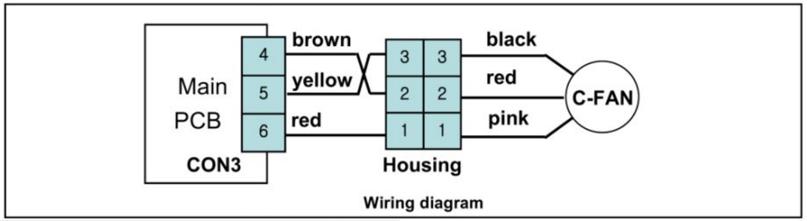
Measure	Result
Pin2 To Pin3	1~4 Vdc

Yes

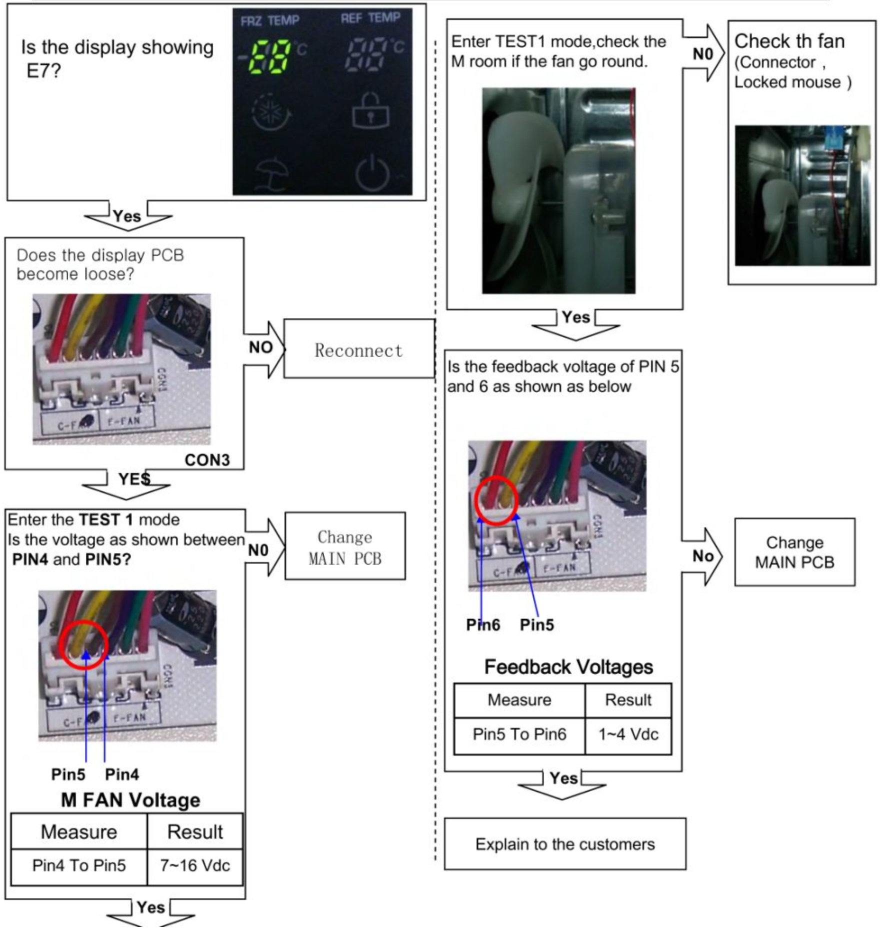
Explain to the customers

13. Ошибка E8

Mechanical Room Motor Fault


Main PCB
CON3
4
5
6
brown
yellow
red
3
2
1
Housing
black
red
pink
C-FAN

Wiring diagram


FRZ TEMP
REF TEMP
CON3
C-FAN
F-FAN
Yes
YES
NO
No
Pin5
Pin4
Pin6
Pin5

Is the display showing E7?

Yes → Does the display PCB become loose?

NO → Reconnect

YES → Enter the **TEST 1** mode
Is the voltage as shown between **PIN4** and **PIN5?**

NO → Change MAIN PCB

M FAN Voltage

Measure	Result
Pin4 To Pin5	7~16 Vdc

Yes

Enter TEST1 mode,check the M room if the fan go round.

NO → Check th fan (Connector , Locked mouse)

Yes → Is the feedback voltage of PIN 5 and 6 as shown as below

No → Change MAIN PCB

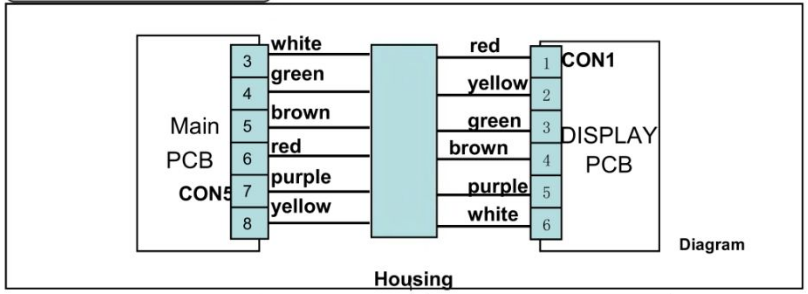
Feedback Voltages

Measure	Result
Pin5 To Pin6	1~4 Vdc

Yes → Explain to the customers

14. Ошибка CO

Communication error

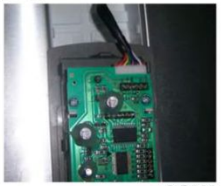

Main PCB
CON5
3
4
5
6
7
8
white
green
brown
red
purple
yellow
red
yellow
green
brown
purple
white
1
2
3
4
5
6
CON1
DISPLAY PCB
Diagram
Housing

Is the display showing **CO**?

FRZ TEMP
REF TEMP
-88°C
88°C

Yes

Does the display PCB become loose?

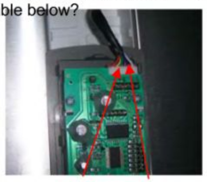


NO → Reconnect

Yes

Is the voltage between PIN1 and PIN3 the same as shown in the table below?

YES → Change the PCB


Pin3green
Pin1red

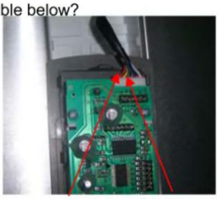
DISPLAY PCB voltage

Measure	Result
Pin1 To Pin3	0 V or 5 V

NO

Is the voltage between PIN3 and PIN5 the same as shown in the table below?

YES → Change the PCB


Pin5 purple
Pin3 green

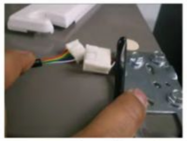
DISPLAY PCB voltage

Measure	Result
Pin3 To Pin5	0 V or 5 V

NO

Do the connectors on the hinge become loose?

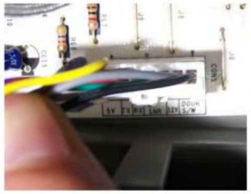
Yes → Reconnect



No

Does the display PCB become loose?

Yes → Reconnect

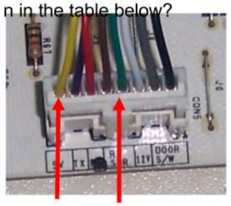


No

Main PCB

Is the voltage between PIN4 and PIN6 the same as shown in the table below?

YES → Replace Main PCB



Transmitting End Voltage

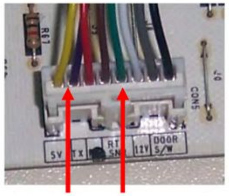
Measure	result
Pin4 To Pin6	0 V or 5 V

NO

Main PCB

Is the voltage between PIN4 and PIN7 the same as shown in the table below?

YES → Replace Main PCB



Sending End Voltage

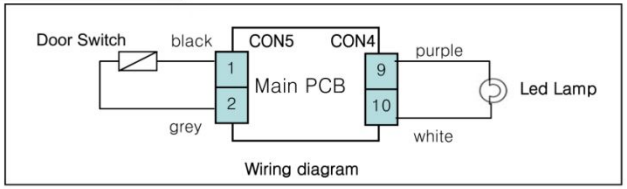
Measure	result
Pin4 To Pin7	0 V or 5 V

NO

If **CO** disappears after connecting the power,and didn't showed after 2 mintues, explain to the customer!

15. Не вкл. лампочка

The bulb in the refrigerator does not work


Door Switch
black
grey
CON5
CON4
1
2
9
10
Main PCB
purple
white
Led Lamp

Wiring diagram

Does the door switch match the conditions in the following table.Does the status of door switch show as below.

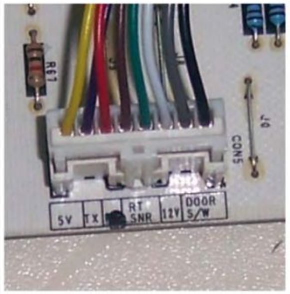
No → Replace the door switch and reconnect

status（between1and 2）	result
Normal	0 Ω
PUSH	∝

Yes ↓

Does the connector become loose?

No → reconnect

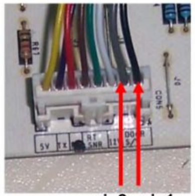

R67
CON5
J6
5V
TX
RT SNR
12V
DOOR S/W

CON5

Yes ↓

Is the voltage between **Pin 1** and **2** the same as shown in the following table?

No → Replace Main PCB



Door Switch Voltage

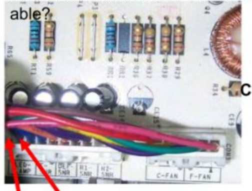
Door	Test point	result
Off	Pin1 To Pin2	5V
on	Pin1 To Pin2	0V

Yes ↓

Main PCB

Is the voltage between **Pin 9** and 10 the same as shown in the following table?

No → Replace Main PCB


CON4
Pin10
Pin9

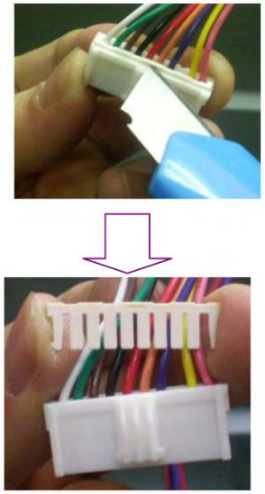
Door	Test point	result
off	Pin9To10	0V
on	Pin9To10	11V

Yes → Replace the lamp

16. Сервис тест

Note

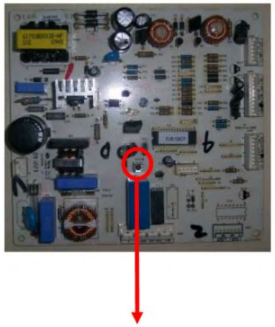
1. How to remove a TPA



After repairing the refrigerator, must reattach all TPAs.

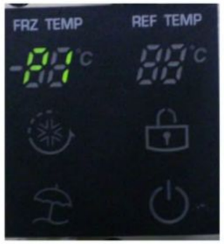
2. How to activate the test mode?

Press the test button on the main control panel, and you can enter the test mode.

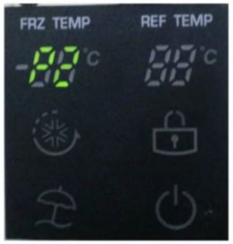


Test button

Press the test button once: "P1" is displayed, the compressor starts to work, the C-Fan is on, the F-Fan is on, and the air damper of the refrigerator is open.



Press the test button twice: "P2" is displayed, the compressor stops working, the defrost heater is on, the air damper of the refrigerator is closed, the F-fan is off, and the C-Fan is off.



Press the test button three times:
return to the normal mode.