HISTORY INFORMATION FOR THE FOLLOWING MANUAL:

SERVICE MANUAL

GN3FK *CHASSIS*

Segment: KCL

ORIGINAL MANUAL ISSUE DATE: 2017/6/27

Version	Date	Subject
1.0	2017/6/27	First version issue.

LCD Digital Color TV

SONY®

9-888-740-01

MODEL LIST

MODEL	COLOR	COMMANDER	DEST.
KD-60X690E	Black	RMT-TX300U	UC2/LA1
KD-70X690E	Black	RMT-TX300U	UC2/LA1
KD-60X695E	Black	RMT-TX300B	AR4/LA8
KD-60X697E	Black	RMT-TX300B	CO1
KD-60X6700E	Black	RMT-TX300E/300P	AZ1/ME6/EA4
KD-70X6700E	Black	RMT-TX300E/300P	AZ1/ME6/EA4

MODEL	COLOR	COMMANDER	DEST.

WARNINGS AND CAUTIONS

CAUTION

These servicing instructions are for use by qualified service personnel only.

To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

WARNING!!

An isolation transformer should be used during any service to avoid possible shock hazard, because of live chassis.

The chassis of this receiver is directly connected to the ac power line.

CARRYING THE TV

Be sure to follow these guidelines to protect your property and avoid causing serious injury.

• Carry the TV with an adequate number of people; larger size TVs require two or more people.

• Correct hand placement while carrying the TV is very important for safety and to avoid damages.

SAFETY-RELATED COMPONENT WARNING!!

Components identified by shading and ! mark on the schematic diagrams, exploded views, and in the parts list are critical for safe operation. Replace these components with Sony parts whose part numbers appear as shown in this manual or in supplements published by Sony. Circuit adjustments that are critical for safe operation are identified in this manual. Follow these procedures whenever critical components are replaced or improper operation is suspected.

USE CAUTION WHEN HANDLING THE LCD PANEL

When repairing the LCD panel, be sure you are grounded by using a wrist band.

When repairing the LCD panel on the wall, the LCD panel must be secured using the 4 mounting holes on the rear cover.

1) Do not press on the panel or frame edge to avoid the risk of electric shock.

2) Do not scratch or press on the panel with any sharp objects.

3) Do not leave the module in high temperatures or in areas of high humidity for an extended period of time.

4) Do not expose the LCD panel to direct sunlight.

5) Avoid contact with water. It may cause a short circuit within the module.

6) Disconnect the AC power when replacing the backlight (CCFL) or inverter circuit. (High voltage occurs at the inverter circuit at 650Vrms.)

7) Always clean the LCD panel with a soft cloth material.

8) Use care when handling the wires or connectors of the inverter circuit. Damaging the wires may cause a short.

9) Protect the panel from ESD to avoid damaging the electronic circuit (C-MOS).

10) It is recommended not to exceed 1 hour of Power-On nor Burn-in period with LCD panel face down condition, in repair activity.
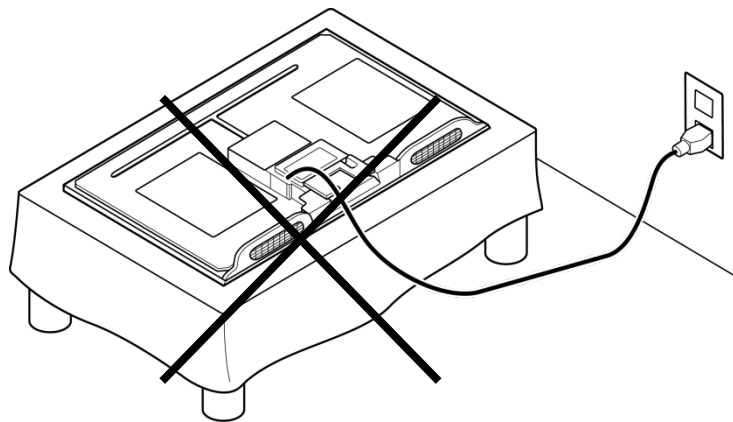
SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly soldered connections. Check the entire board surface for solder splashes and bridges.

2. Check the interboard wiring to ensure that no wires are "pinched" or touching high-wattage resistors.

3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.

4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.

5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.

6. Check the line cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.

7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

8. For safety reasons, repairing the Power board and/or Inverter board is prohibited.

Leakage Test

(To protect electric shock when customer touch the terminal.)

Leakage current can be measured by V: Voltmeter or oscilloscope (r.m.s. or peak reading)
Stabilized power supply instrument and isolated voltage transformer: Use too much current capacity and isolated voltage transformer does not need to use stabilized power supply equipment Specification of RMS volt meter: Input resistance > 1 M ohm, Input capacitance < 200 pF, Frequency range: 15 Hz – 1MHz (Refer Figure A). Isolated type volt -meter (FLUKE 8921A etc *1)
*1 Not use FLUKE 8920A that connected to protective earth by diode
Leakage current of measurement instrument is less than 10μArms when under test equipment AC plug is opened # Set up the following condition and turn on the set.
Applied voltage: Nominal input voltage (Description on Nameplate) # Measure the leakage current between one phase conductor and neutral for terminal A and terminal B.
Read rms value, and then calculate to peak value PEAK VALUE =$\sqrt{2}$ RMS VALUE
Comply with the following requirement Class II equipment (2-pin plug): for each terminal, the worst value of measurement must not exceed AC 350uA peak). Note: including AC adaptor, AC adaptor/DC operated unit combination
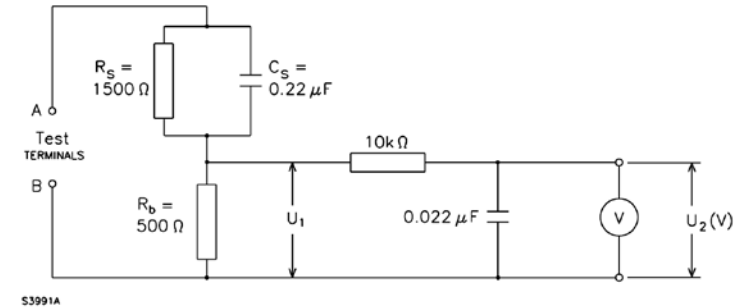

Figure A. Measuring network for Leakage Current

How to Find a Good Earth Ground

A cold-water pipe is a guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground.
If the retaining screw is to be used as your earth ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms.
If a cold-water pipe is not accessible, connect a 60- to 100-watt trouble- light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side on the line; the lamp should light at normal brilliance if the screw is at ground potential (see Figure B).
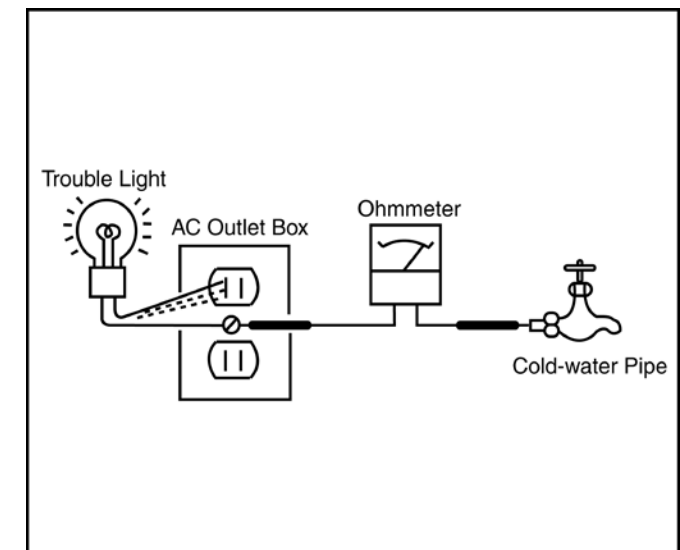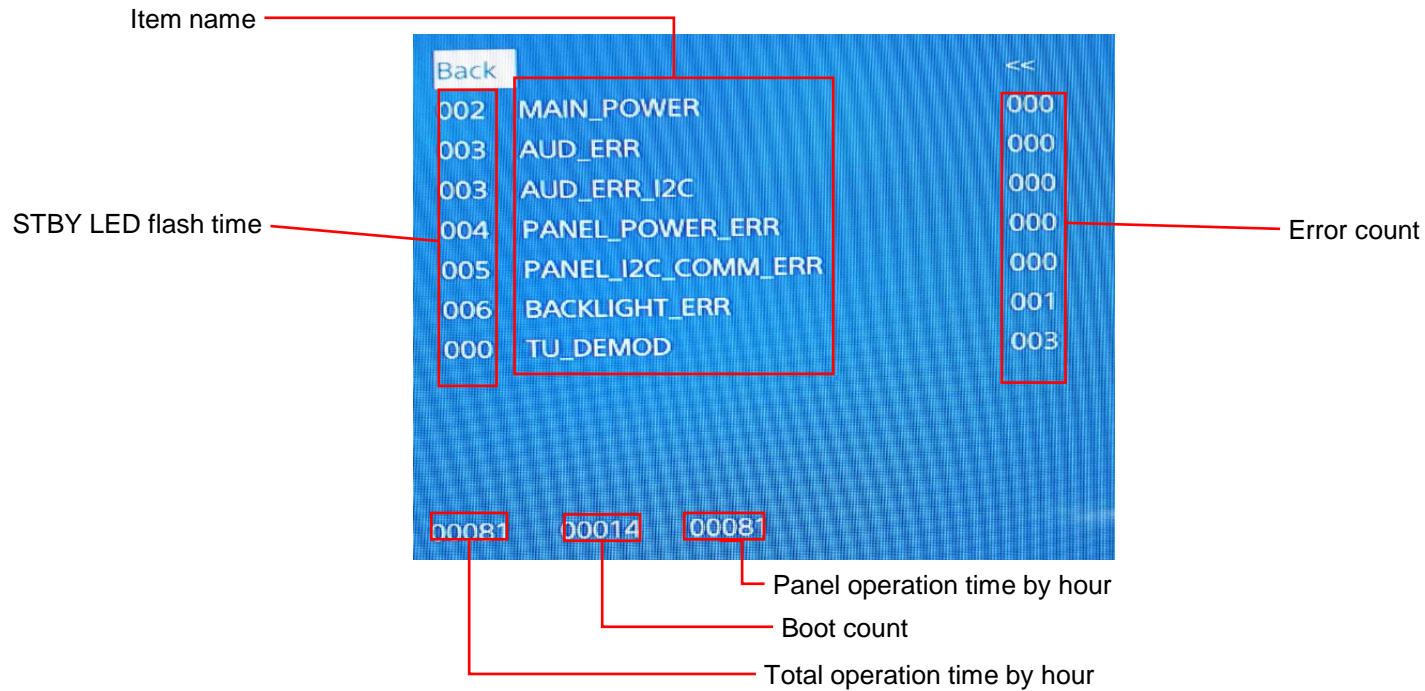

Figure B. Checking for earth ground.

SELF DIAGNOSIS FUNCTION

Error Items	Number of LED flashing	Go to Shutdown State	Description
MAIN_POWER	2	Yes	Detect and observe main voltage (1) 19.5V from AC adapter (2) 12V from power board (TBD)
AUD_ERR	3	Yes	Detecting/Observing audio AMP error
AUD_I2C	3	Yes	Audio AMP communication error
TU_DEMOD	-	No (Only record error log)	Tuner & Demodulator I2C communication monitoring. Tuner Detect signal monitoring.
PANEL_POWER_ERR	4	Yes	Detect and observe for Panel_12V
PANEL_I2C_ERR	5	Yes	Detect Panel I2C Communication access error
BACKLIGHT	6	Yes	Detect and observe backlight error
LED_I2C	6	Yes	LED Driver communication error
BE_I2C	-	No (Only record error log)	BE device I2C communication error detection.
PMIC_I2C	-	No (Only record error log)	PMIC communication error

[SELF DIAGNOSTIC SCREEN DISPLAY]

Item name

Back   <<

002	MAIN_POWER	000
003	AUD_ERR	000
003	AUD_ERR_I2C	000
004	PANEL_POWER_ERR	000
005	PANEL_I2C_COMM_ERR	000
006	BACKLIGHT_ERR	001
000	TU_DEMOD	003

STBY LED flash time

Error count

00081   00014   00081

Panel operation time by hour

Boot count

Total operation time by hour

Since the diagnostic results displayed on the screen are not automatically cleared, always check the self-diagnostic screen.
After you have completed the repairs, clear the result display to "0".

Clearing the Self Check Diagnostic List
    1. Error history and Error count :   Press the Channel 8 => Channel 0 .
    2. Panel operation time :   Press the Channel 7 => Channel 0 .

Exiting the Self-diagnostic screen
To exit the Self Diagnostic screen, turn off the power to the TV by pressing the POWER button on the remote or the POWER button on the TV.

SEC 1. DISASSEMBLY AND PARTS LIST

• Items with no part number and no description are not stocked because they are seldom required for roution service.
• The construction parts of an assembled part are indicated with a collation number in the remark colum.
• Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

> The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

> The components identified by mark 🔒 contain confidential information. Strictly follow the instructions whenever the components are repaired and/or replaced.

1-2-1. STAND BLOCK

REF.NO.	PART No.	DESCRIPTION	MARK
1	4-723-281-01	STAND, NECK	
2	4-723-280-01	STAND, COVER	
3	4-723-282-01	STAND, BRACKET L	
4	4-723-283-01	STAND, BRACKET R	
5	4-723-284-01	STAND, BRACKET FRONT	
△	4-723-296-01	SCREW, +PSW M5X12	
☆	7-682-961-09	SCREW, +PSW M4x8 W8	
✚	4-729-979-01	SCREW,F,CROSS,T.T-3*6,BLK-ZN.	

1-2-2. STAND COVER ASSY AND STAND BASE ASSY AND NECK

1-2-3. AC COVER AND REAR COVER

REF.NO.	PART No.	DESCRIPTION	MARK
6	4-725-317-01	COVER, AC	
7	1-912-305-11	AC Cord(USA 2pin)	For UC2/LA1/CO1
	1-912-304-11	AC Cord(Argentina 2pin)	For AR4
	1-912-303-11	AC Cord(Europe 2pin)	For LA8/ME6
	1-912-301-11	AC Cord(UK 3pin)	For EA4
	1-912-302-11	AC Cord(AUS/NZ 2pin)	For AZ1
8	4-723-275-01	COVER, REAR (UC2)	ForUC2
	4-723-277-01	COVER, REAR (LA1/EA4/ME6)	ForLA1/EA4/ME6
	4-723-276-01	COVER, REAR (LA8/CO1/AR4)	ForLA8/CO1/AR4
	4-723-298-01	COVER, REAR (AZ1)	ForAZ1
○	4-729-978-01	SCREW, +PSW M3X8 W8	
□	4-268-126-02	SCREW,ORNAMENTAL M6X12	
●	7-685-646-79	SCREW, +BVTP 3X8 TYPE2 IT-3	

1-2-4. OVERALL

REF.NO.	PART No.	DESCRIPTION	MARK
9	1-522-035-11	ANTENNA 1 (W)	
10	1-522-033-11	ANTENNA 2 (B)	
11	1-897-219-11	MOUNTED PWB POWER UNIT	
12	1-897-214-11	MOUNTED PWB A	For UC2
	1-897-209-11	MOUNTED PWB A	For LA8
	1-897-217-11	MOUNTED PWB A	For LA1
	1-897-211-11	MOUNTED PWB A	For AR4
	1-897-210-11	MOUNTED PWB A	For CO1
	1-897-208-11	MOUNTED PWB A (AZ1, ME6, EA4)	For AZ1/ME6/EA4
13	1-897-212-11	MOUNTED PWB H	
14	1-897-213-11	MOUNTED PWB KEY	
15	1-897-207-11	MOUNTED PWB WF	
16	1-910-112-59	CONNECTOR ASSY 15P (MB-PSU)	
17	1-910-112-60	CONNECTOR ASSY (MB-SPK 1)	
18	1-910-112-61	CONNECTOR ASSY (MB-SPK 2)	
19	1-910-112-56	LVDS CABLE 41P (MB-Panel)	
20	1-910-112-57	CONNECTOR ASSY 10P (MB-IR)	
21	1-910-112-58	CONNECTOR ASSY 6P (MB-key)	
22	1-910-112-63	CONNECTOR ASSY (PSU-Panel)	
23	1-910-112-62	CONNECTOR ASSY (MB-WIFI)	
24	1-859-242-11	SPEAKER 12W	
25	4-723-286-01	SHEET, INSULATION	
26	4-723-287-01	DECO	
27	4-545-671-01	BRACKET, VESA (60)	
28	4-723-278-01	BRACKET, BOTTOM	
29	4-723-297-01	BRACKET, SIDE IO	For UC2/LA1/EA4/ME6/AZ1
	4-723-279-01	BRACKET, SIDE IO (LA8/CO1/AR4)	For LA8/CO1/AR4
30	4-729-982-01	CUSHION W25*T5	
31	4-723-294-01	CLAMP, CABLE	
32	4-729-986-01	NWF 145*8*0.35mm	
●	2-990-421-41	SCREW(PSW)(M3X6)	
▼	4-729-978-01	SCREW, +PSW M3X8 W8	
☀	4-459-864-01	SCREW, +PWTP2 4X10	
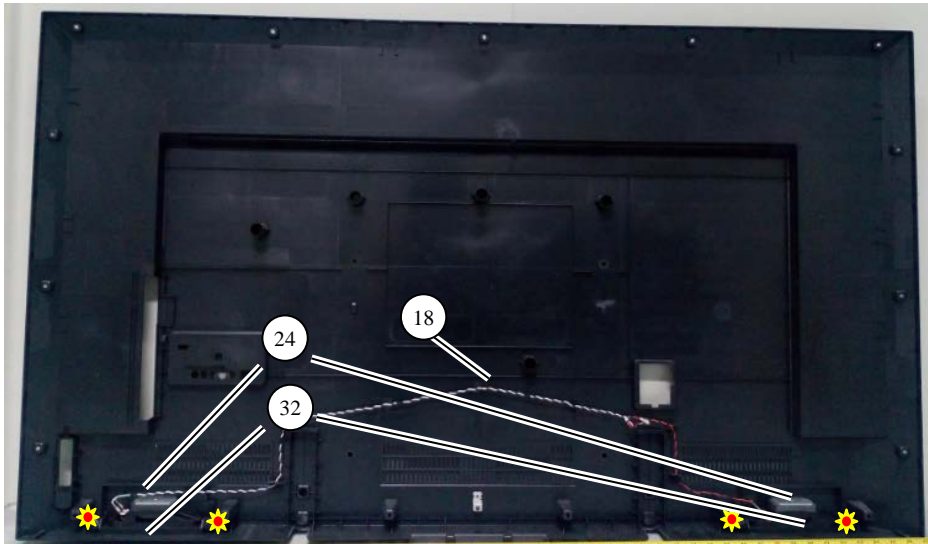
1-2-5. TUNER MODULE

REF.NO.	PART No.	DESCRIPTION	MARK
33	8-594-302-70	TUNER MODULE SUT-RA243ZP	For UC2/LA1
	8-594-308-30	TUNER MODULE SUT-RT243ZP	For LA8/AR4
	8-594-325-00	TUNER MODULE SUT-DB251ZP	For CO1
	8-594-328-10	TUNER MODULE SUT-DE251ZP	For AZ1/EA4/ME6

A BOARD

33
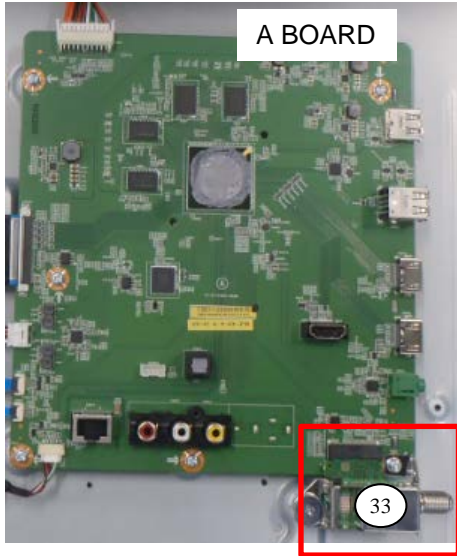
For CO1

For LA8/AR4

For UC2/LA1

For AZ1/EA4/ME6

1-2-6. LCM
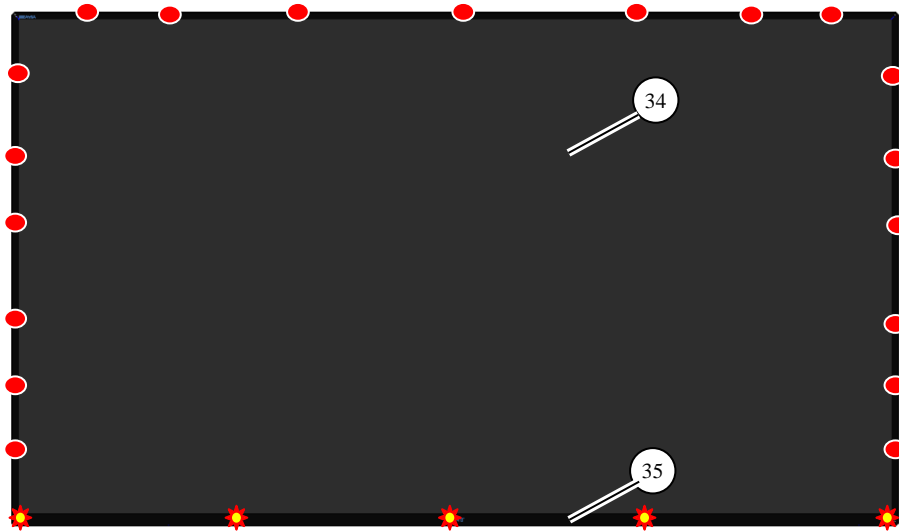
REF.NO.	PART No.	DESCRIPTION	MARK
34	1-812-368-11	LCM ASSY (60) (S600DUC-1)	
35	4-724-143-01	BEZEL, FRONT	
36	4-729-983-01	FC BTM BRACKET (60)	
37	4-729-985-01	Double Side Tape	
●	4-729-980-01	SCREW,A,M2.5,L5	
✹	4-729-981-01	SCREW(B)/M2.5*L10	

1-2-7. LCM (W/O BEZEL)
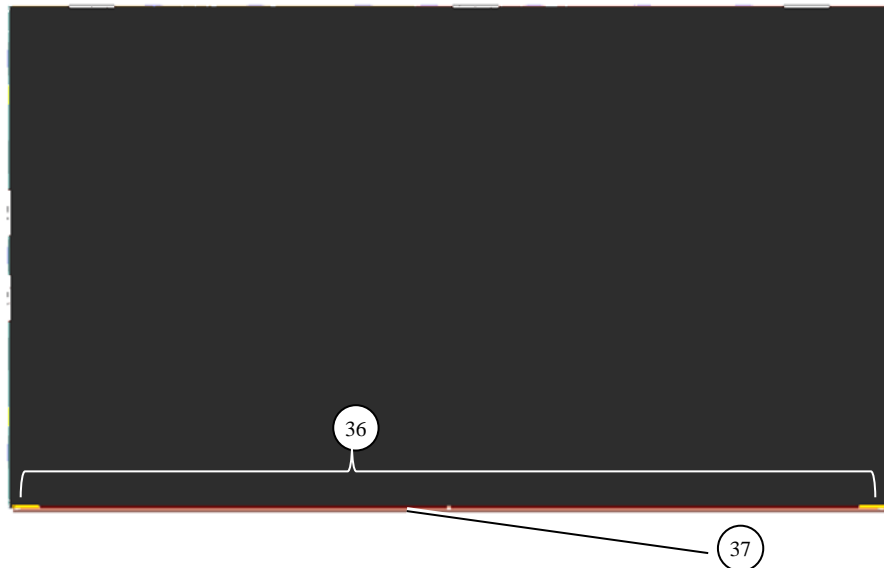
1-2-8. PACKAGE
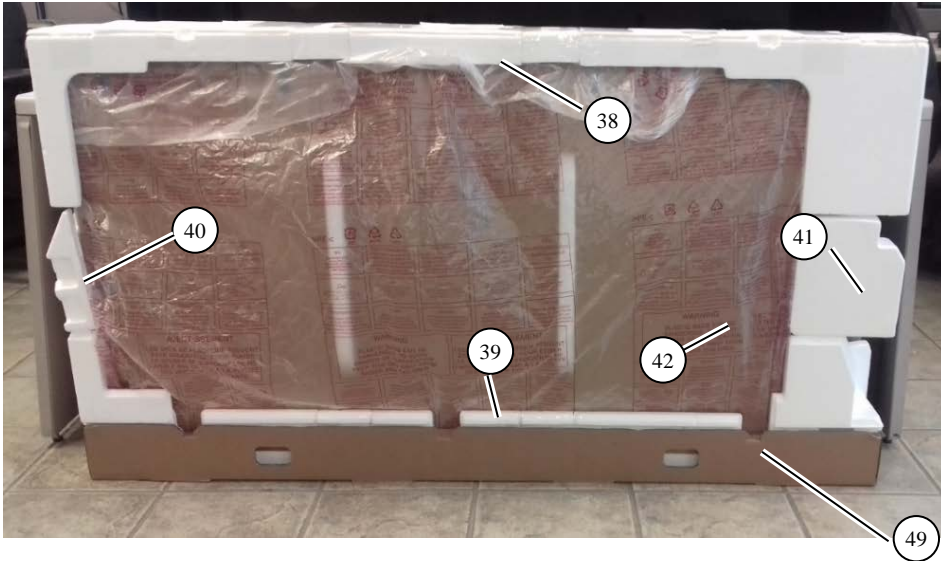
REF.NO.	PART No.	DESCRIPTION	MARK
38	4-723-288-01	CUSHION, UPPER（60)	
39	4-723-289-01	CUSHION, LOWER (60)	
40	4-723-290-01	CUSHION, SIDE L (60)	
41	4-723-291-01	CUSHION, SIDE R (60)	
42	4-723-292-01	PLATE, EPE FRONT (60)	
43	4-723-547-01	CARTON, INDIVIDUAL (UC2)	For UC2
	4-723-549-01	CARTON, INDIVIDUAL (LA1/LA8/CO1/AR4)	ForLA1/LA8/CO1/AR4
	4-723-551-01	CARTON, INDIVIDUAL (AZ1/ME6/EA4)	For AZ1/ME6/EA4
44	3-674-673-22	STOPPER (A)	
45	4-723-285-01	BAG, STAND	
46	4-723-293-01	CARTON STAND SUPPORT (60MB)	
47	4-409-919-33	BAG,PROTECTION PEHD(1720*1050)	
48	4-729-987-01	SHEET, PROTECTION PE (L180xW260xT1.01mm)	
49	4-729-990-01	CARTON TRAY (60)	

ASSESSORY BAG
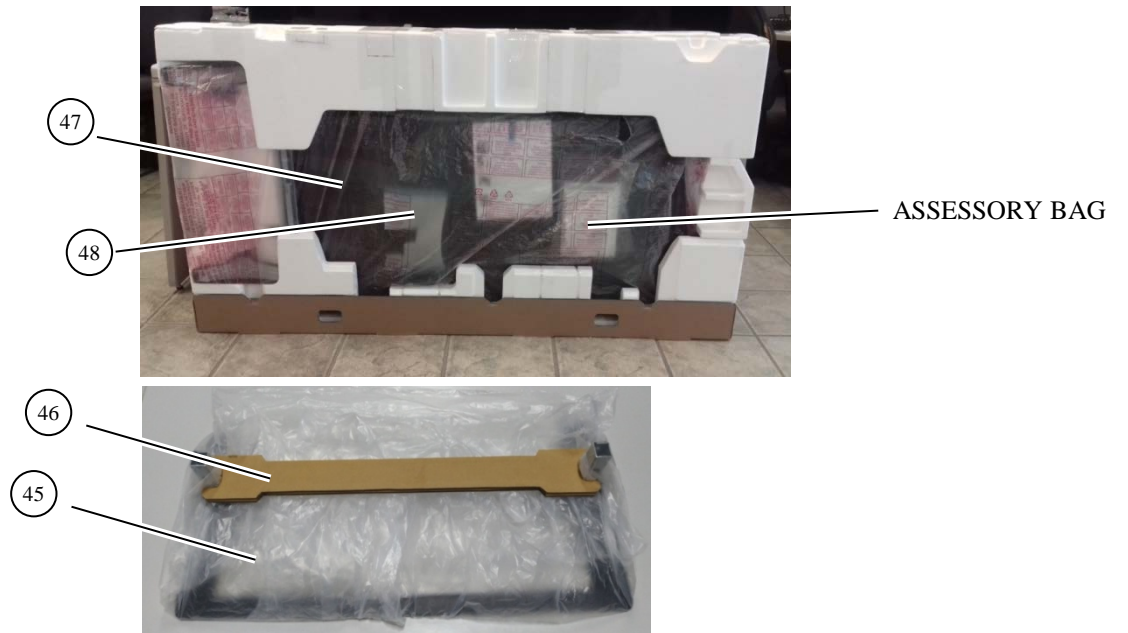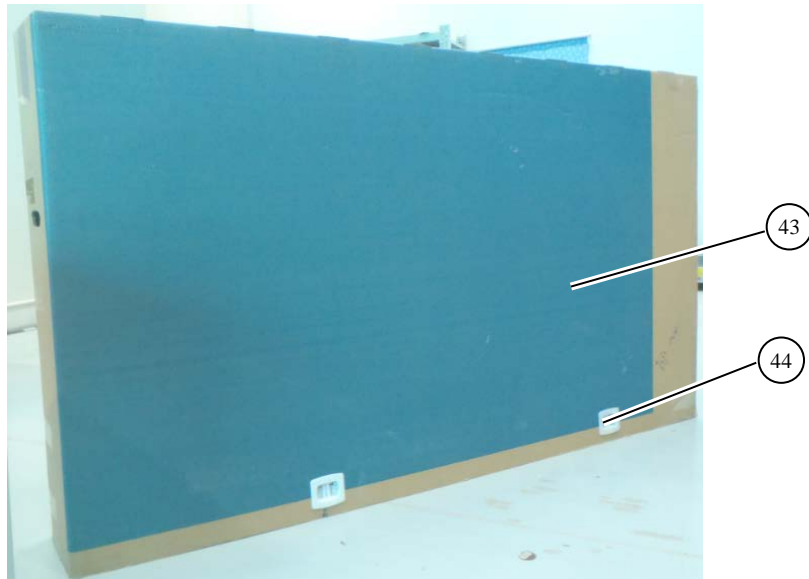
1-2-9. OTHER PART

PART No.	DESCRIPTION	MARK
1-493-312-11	REMOTE COMMANDER (RMT-TX300U)	For UC2/LA1
1-493-313-11	REMOTE COMMANDER (RMT-TX300B)	For AR4/CO1/LA8
1-493-314-11	REMOTE COMMANDER (RMT-TX300E)-AZ1	For AZ1
1-493-315-11	REMOTE COMMANDER (RMT-TX300P)-ME6/EA4	For ME6/EA4
1-853-643-21	CARBON ZINC DRY BATTERY(R03)	

1-3-1. STAND BLOCK

REF.NO.	PART No.	DESCRIPTION	MARK
1	4-723-281-01	STAND, NECK	
2	4-723-280-01	STAND, COVER	
3	4-723-282-01	STAND, BRACKET L	
4	4-723-283-01	STAND, BRACKET R	
5	4-723-284-01	STAND, BRACKET FRONT	
△	4-723-296-01	SCREW, +PSW M5X12	
☆	7-682-961-09	SCREW, +PSW M4x8 W8	
✚	4-729-979-01	SCREW,F,CROSS,T.T-3*6,BLK-ZN.	

1-3-2. STAND COVER ASSY AND STAND BASE ASSY AND NECK
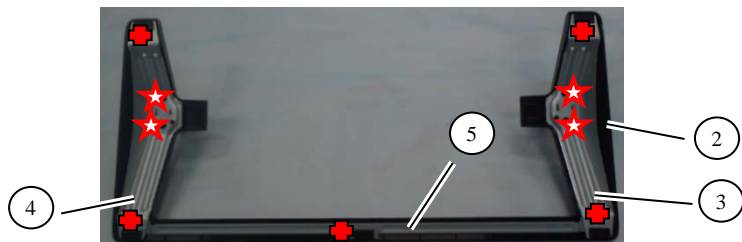
1-3-3. AC COVER AND REAR COVER
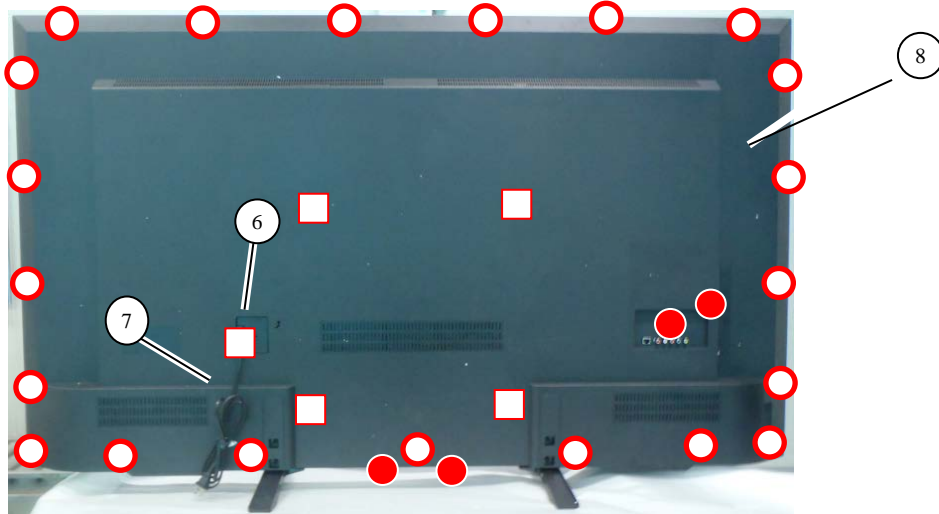
REF.NO.	PART No.	DESCRIPTION	MARK
6	4-725-317-01	COVER AC	
7	1-912-305-11	AC Cord(USA 2pin)	For UC2/LA1
	1-912-303-11	AC Cord(Europe 2pin)	For ME6
	1-912-301-11	AC Cord(UK 3pin)	For EA4
	1-912-302-11	AC Cord(AUS/NZ 2pin)	For AZ1
8	4-723-306-01	COVER, REAR (UC2)	ForUC2
	4-723-307-01	COVER, REAR (LA1/EA4/ME6)	ForLA1/EA4/ME6
	4-723-308-01	COVER, REAR (AZ1)	ForAZ1
⭕	4-729-978-01	SCREW, +PSW M3X8 W8	
⬜	4-268-126-02	SCREW,ORNAMENTAL M6X12	
🔴	7-685-646-79	SCREW, +BVTP 3X8 TYPE2 IT-3	

1-3-4. OVERALL
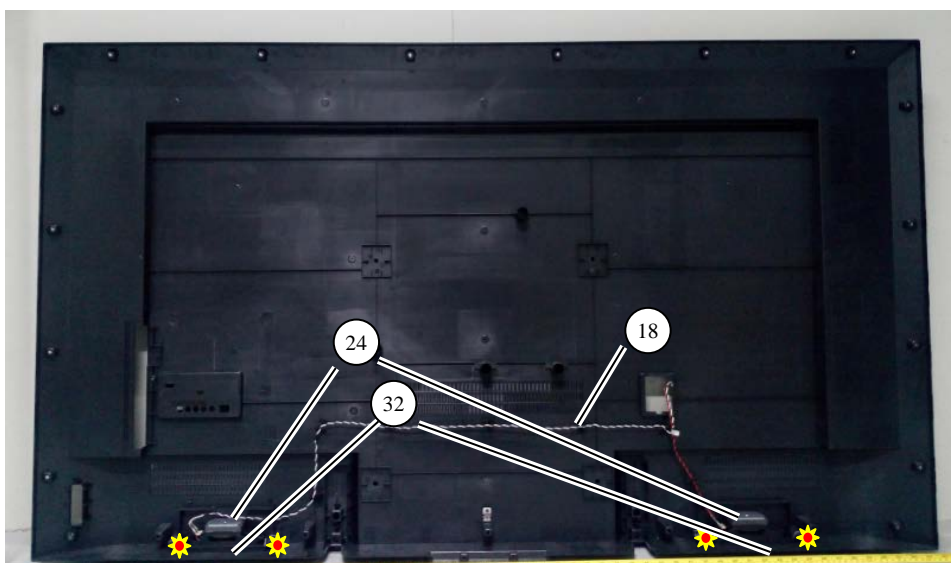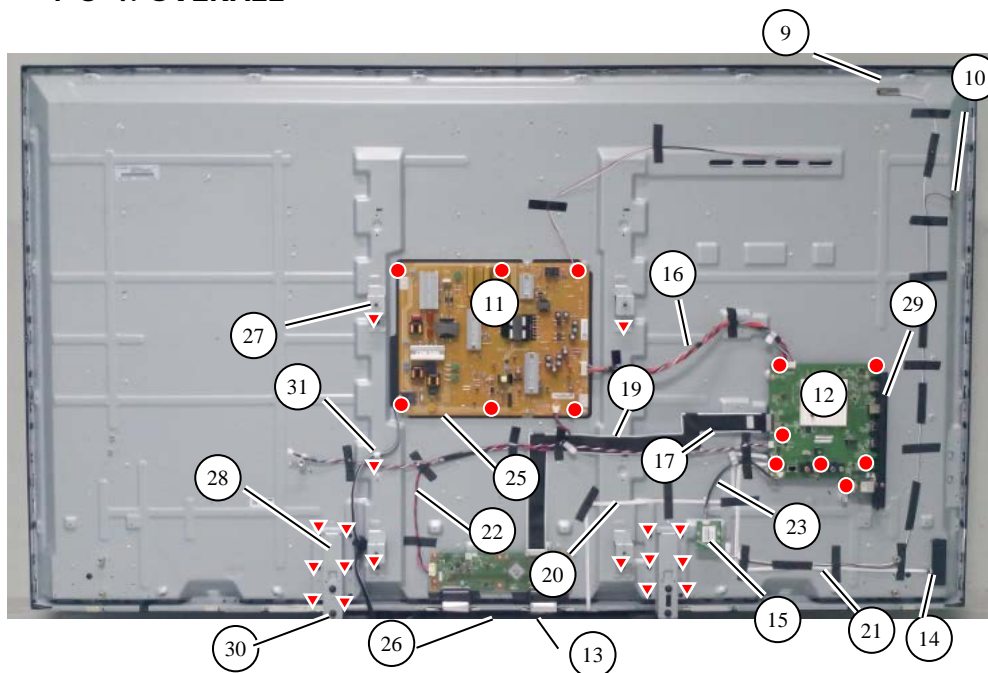
REF.NO.	PART No.	DESCRIPTION	MARK
9	1-522-034-11	ANTENNA 1 (W)	
10	1-522-032-11	ANTENNA 2 (B)	
11	1-897-216-11	MOUNTED PWB POWER UNIT	
12	1-897-215-11	MOUNTED PWB A	For UC2
	1-897-206-11	MOUNTED PWB A	For ZA1/EA4/ME6
	1-897-218-11	MOUNTED PWB A	For LA1
13	1-897-212-11	MOUNTED PWB H	
14	1-897-213-11	MOUNTED PWB KEY	
15	1-897-207-11	MOUNTED PWB WF	
16	1-910-112-67	CONNECTOR ASSY 15P (MB-PSU)	
17	1-910-112-68	CONNECTOR ASSY (MB-SPK 1)	
18	1-910-112-69	CONNECTOR ASSY (MB-SPK 2)	
19	1-910-112-64	LVDS CABLE 41P (MB-Panel)	
20	1-910-112-65	CONNECTOR ASSY 10P (MB-IR)	
21	1-910-112-66	CONNECTOR ASSY 6P (MB-key)	
22	1-910-112-71	CONNECTOR ASSY (PSU-Panel)	
23	1-910-112-70	CONNECTOR ASSY (MB-WIFI)	
24	1-859-242-11	SPEAKER 12W	
25	4-723-312-01	SHEET, INSULATION	
26	4-723-287-01	DECO	
27	4-723-309-01	BRACKET, VESA	
28	4-723-310-01	BRACKET, BOTTOM	
29	4-723-297-01	BRACKET, SIDE IO	
30	4-723-311-01	COVER, BOTTOM	
31	4-723-294-01	CLAMP, CABLE	
32	4-729-986-01	NWF 145*8*0.35mm	

- ●   2-990-421-41 SCREW(PSW)(M3X6)
- ▼   4-729-978-01 SCREW, +PSW M3X8 W8
- ☀   4-459-864-01 SCREW, +PWTP2 4X10

1-3-5. TUNER MODULE

REF.NO.	PART No.	DESCRIPTION	MARK
33	8-594-302-70	TUNER MODULE SUT-RA243ZP	For UC2/LA1
	8-594-328-10	TUNER MODULE SUT-DE251ZP	For AZ1/EA4/ME6
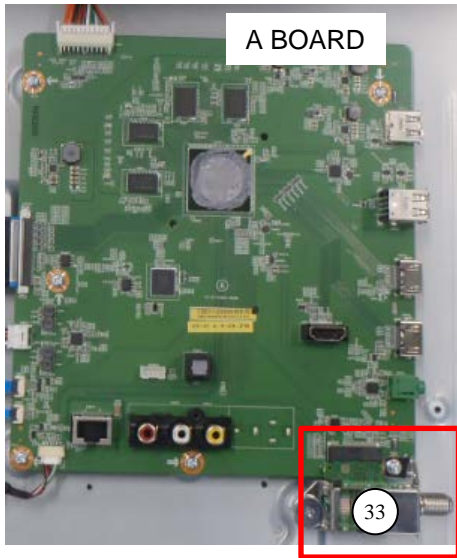
A BOARD

33

For UC2/LA1

For AZ1/EA4/ME6

1-3-6. LCM
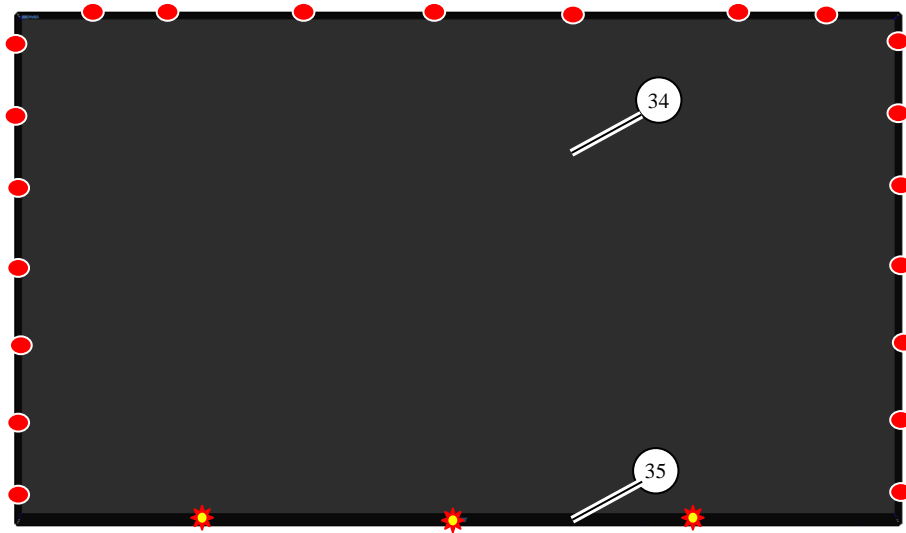
REF.NO.	PART No.	DESCRIPTION	MARK
34	1-812-369-11	LCM ASSY (70) (S700DUC-1)	
35	4-724-144-01	BEZEL, FRONT	
36	4-729-984-01	FC BTM BRACKET (70)	
●	4-729-980-01	SCREW,A,M2.5,L5	
✺	4-729-981-01	SCREW(B)/M2.5*L10	

1-3-7. LCM (W/O BEZEL)
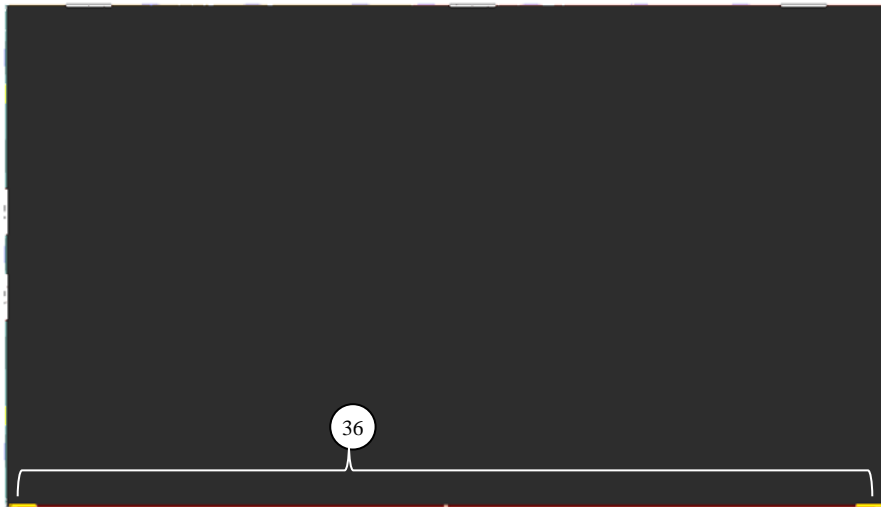
1-3-8. PACKAGE
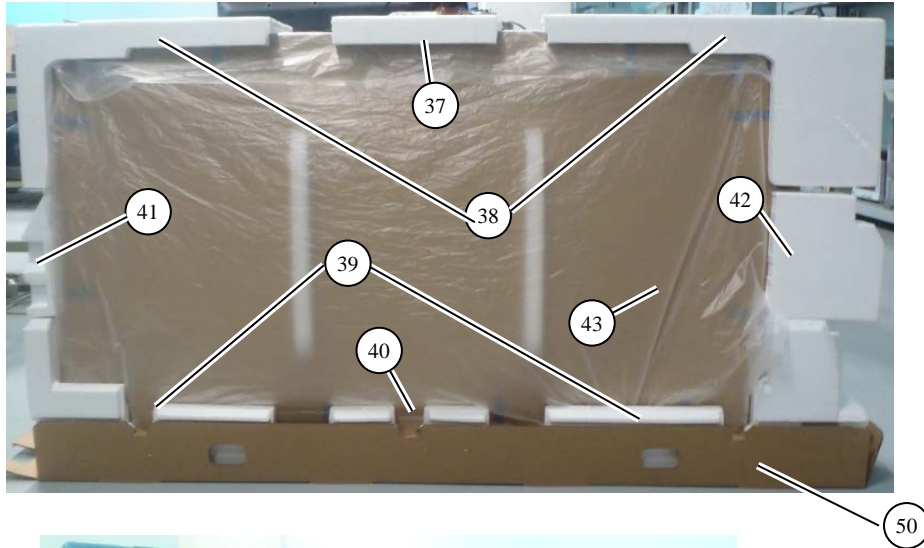
REF.NO.	PART No.	DESCRIPTION	MARK
37	4-723-314-01	CUSHION, UPPER CENTER	
38	4-723-313-01	CUSHION, UPPER	
39	4-723-315-01	CUSHION, LOWER	
40	4-723-316-01	CUSHION, LOWER CENTER	
41	4-723-317-01	CUSHION, SIDE L	
42	4-723-318-01	CUSHION, SIDE R	
43	4-723-319-01	PLATE, EPE FRONT (70)	
44	4-723-546-01	CARTON, INDIVIDUAL (UC2)	For UC2
	4-723-548-01	CARTON, INDIVIDUAL (LA1)	ForLA1
	4-723-550-01	CARTON, INDIVIDUAL (AZ1/ME6/EA4)	For AZ1/EA4/ME6
45	3-674-673-22	STOPPER (A)	
46	4-723-285-01	BAG, STAND	
47	4-723-293-01	CARTON STAND SUPPORT (60MB)	
48	4-409-920-33	BAG, PROTECTION PEHD(1950x1200)	
49	4-729-987-01	SHEET, PROTECTION PE (L180xW260xT1.01mm)	
50	4-729-991-01	CARTON TRAY (70)	

ASSESSORY BAG
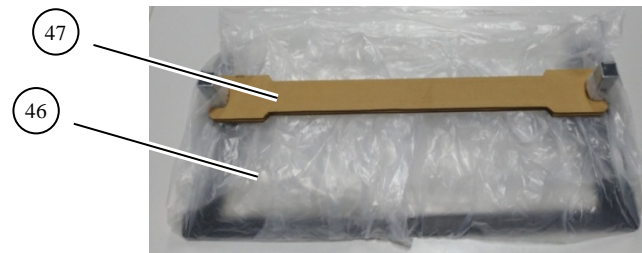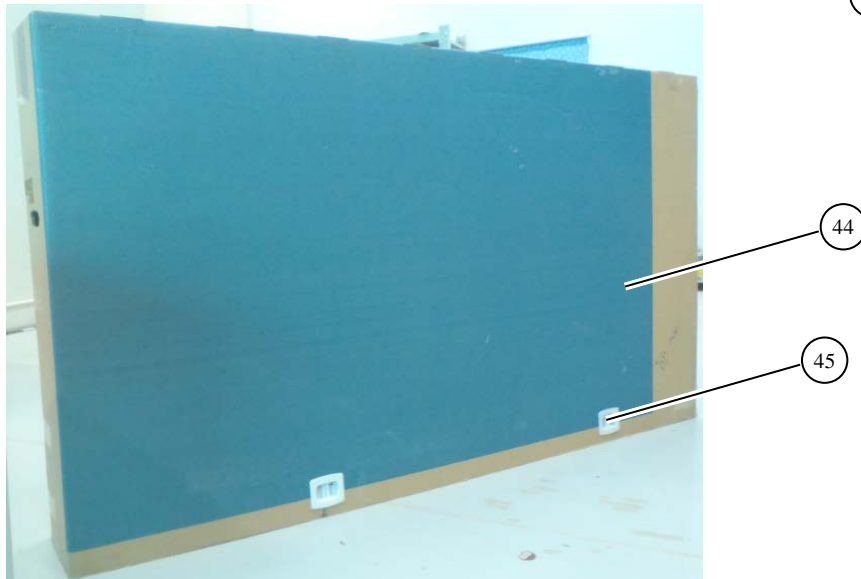
1-3. KD-70X690E/KD-70X6700E

1-3-8. PACKAGE

REF.NO.	PART No.	DESCRIPTION	MARK
50	4-729-988-01	CUSHION, EPS BAR (150MMX25MMX11MM)	
51	4-729-989-01	CUSHION, EPS BLOCK (120MMX120MMX30MM)	
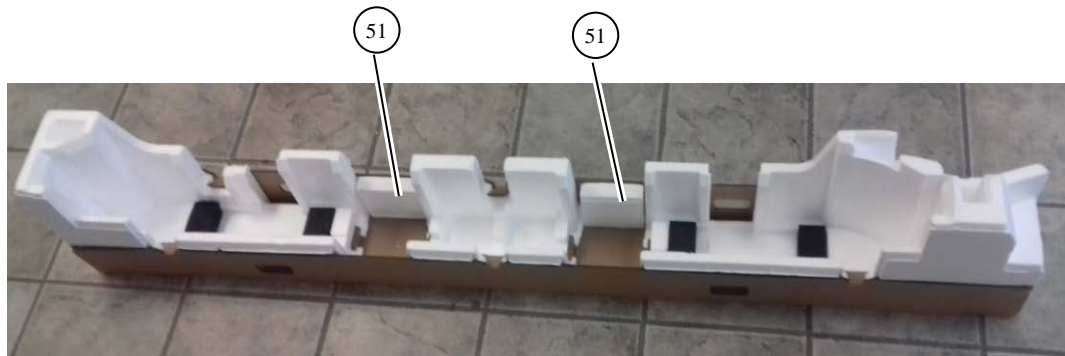
1-3-9. OTHER PART

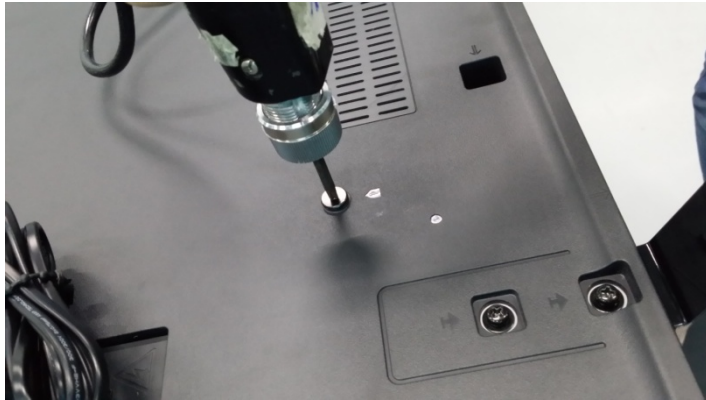| PART No.	DESCRIPTION	MARK
1-493-312-11	REMOTE COMMANDER (RMT-TX300U)	For UC2/LA1
1-493-314-11	REMOTE COMMANDER (RMT-TX300E)-AZ1	For AZ1
1-493-315-11	REMOTE COMMANDER (RMT-TX300P)-ME6/EA4	For ME6/EA4
1-853-643-21	CARBON ZINC DRY BATTERY(R03)	

1-4-1. KD-60X690E/KD-60X695E/KD-60X697E/KD-60X6700E

1. LAY DOWN THE SET IN A FLAT TABLE

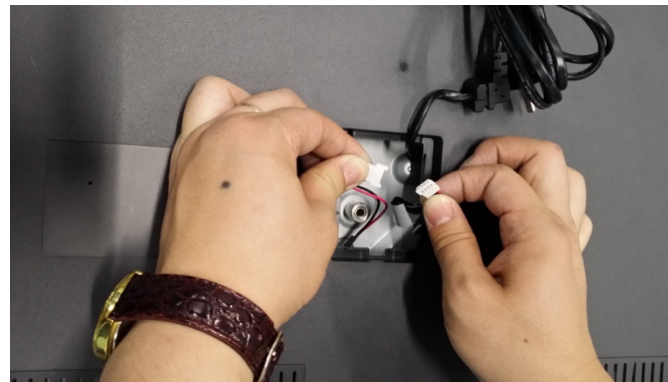Make sure no mess things under the front set.

2. UNLOCK SCREWS

○	SCREW, +PSW M3X8 W8	18PCS
□	SCREW,ORNAMENTAL M6X12	5PCS
●	SCREW, +BVTP 3X8 TYPE2 IT-3	4PCS

3. REMOVE THE REAR COVER

Take off the AC cover first

Take off the SP connector

Insert the AC cord thought the rear cover hole.

Lift up the rear cover from the bottom

4. SET UP THE SET

HOOK POSITION

KD-60X690E/KD-60X695E/KD-60X697E/KD-60X6700E

Rear Cover

KD-60X690E/KD-60X695E/KD-60X697E/KD-60X6700E

1-4-2. KD-70X690E/KD-70X6700E

1. LAY DOWN THE SET IN A FLAT TABLE

Make sure no mess things
under the front set.

2. UNLOCK SCREWS
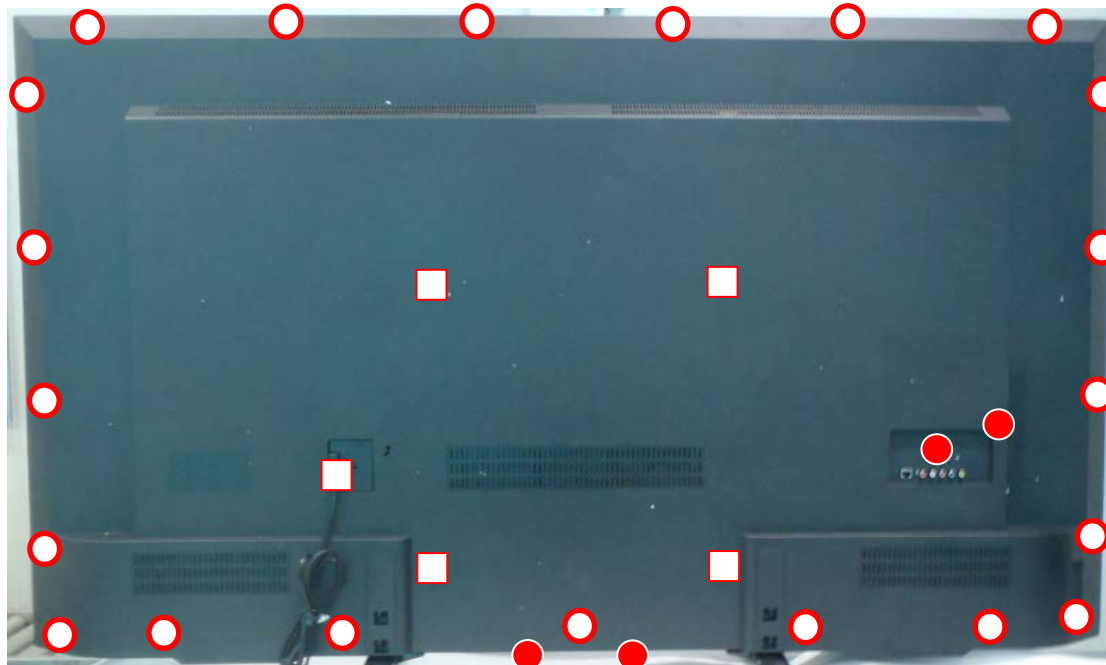
○	SCREW, +PSW M3X8 W8	21PCS
□	SCREW,ORNAMENTAL M6X12	5PCS
●	SCREW, +BVTP 3X8 TYPE2 IT-3	4PCS

3. REMOVE THE REAR COVER

Take off the AC cover first

Take off the SP connector

Insert the AC cord thought the rear cover hole.
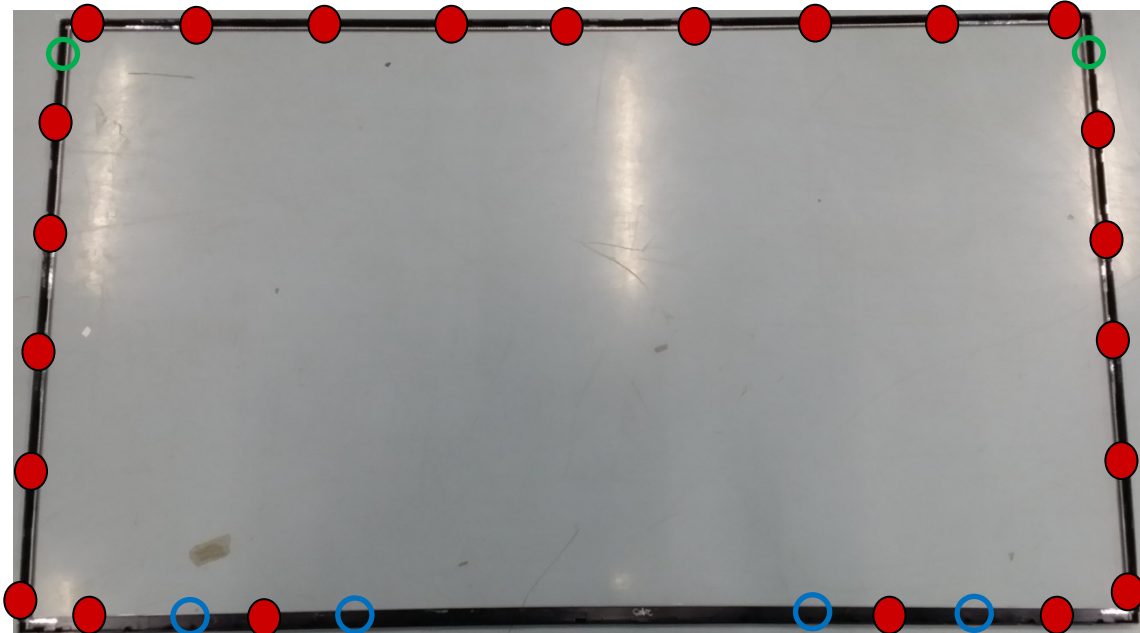

Lift up the rear cover from the bottom

4. SET UP THE SET
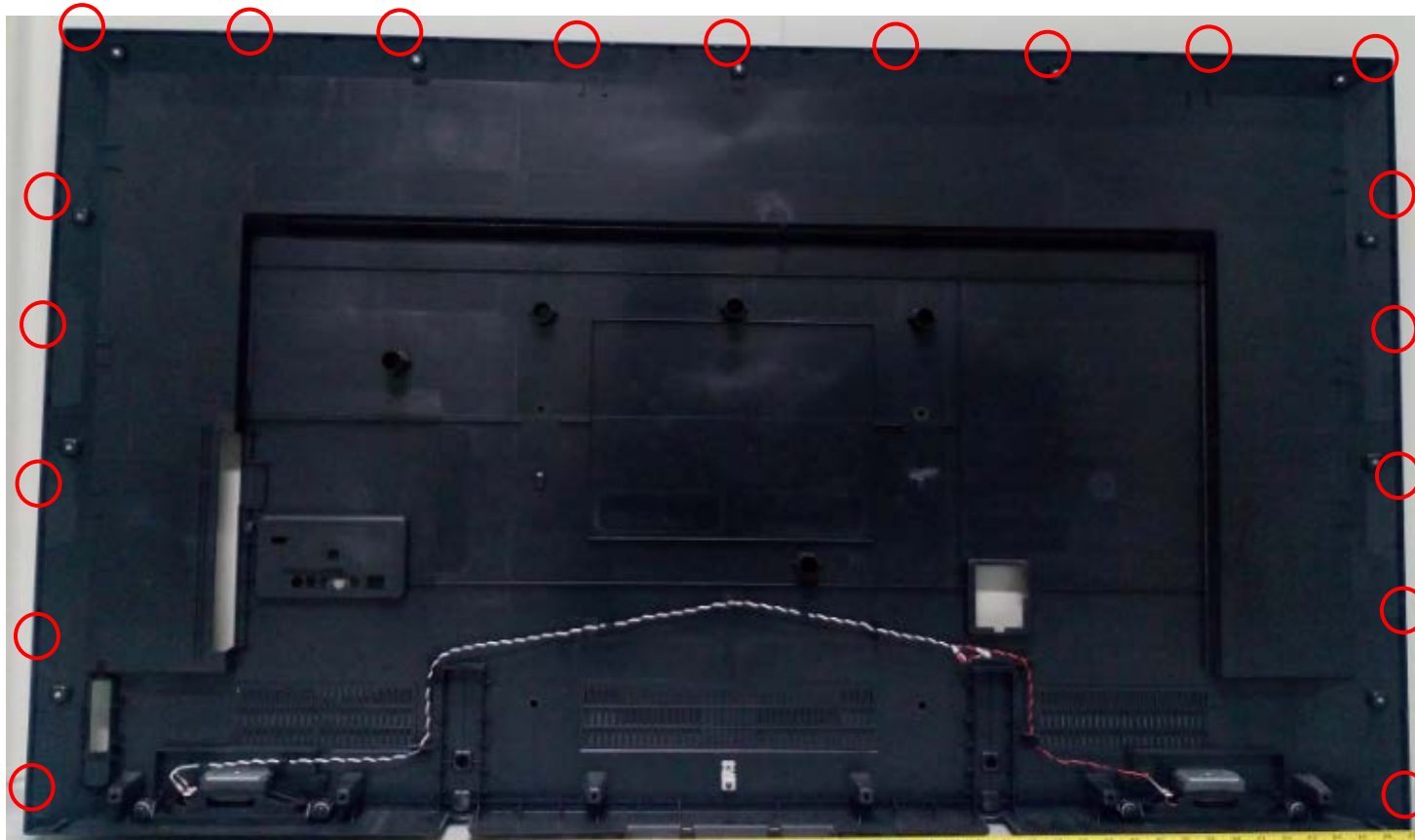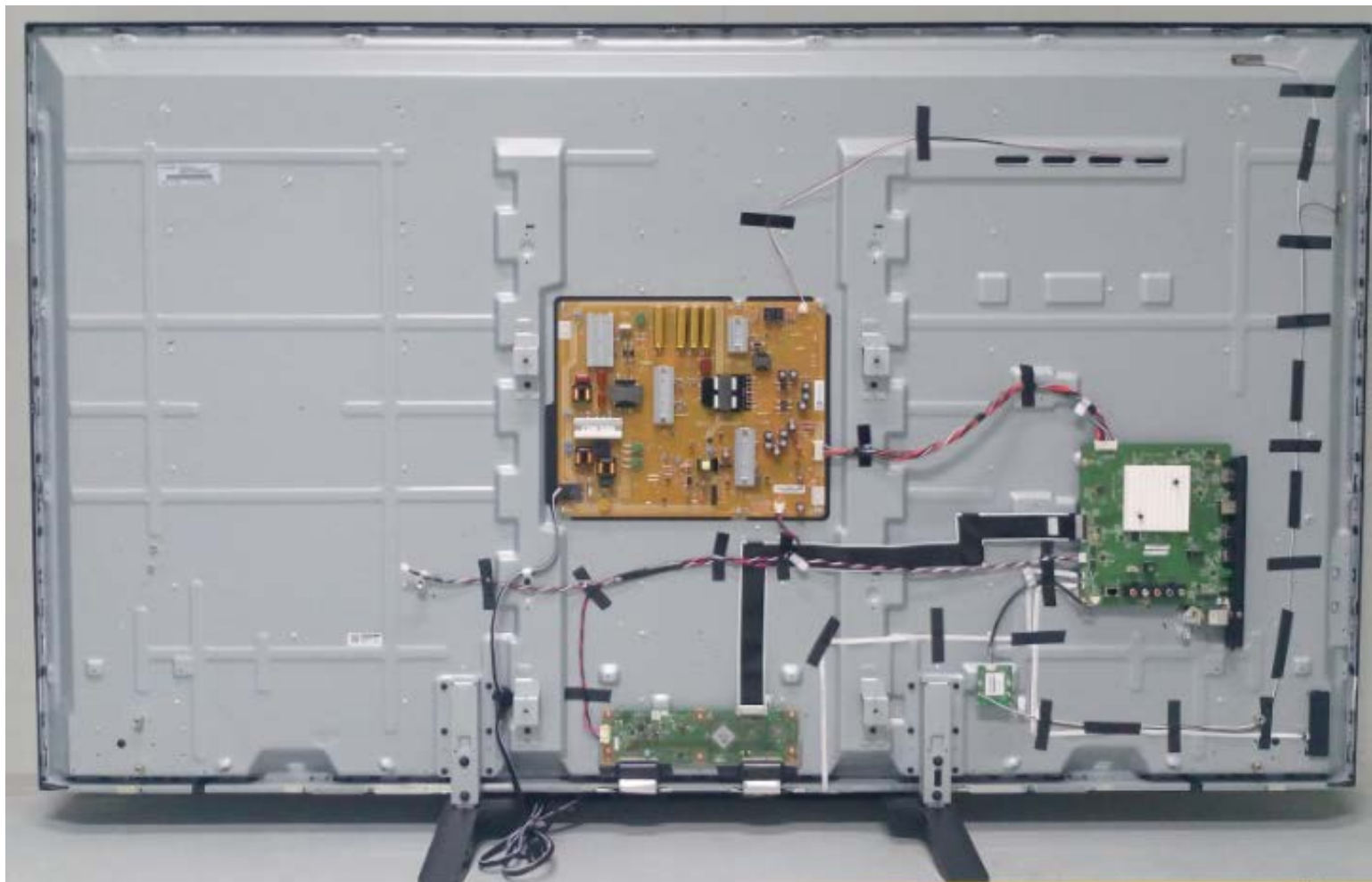
KD-70X690E/KD-70X6700E

KD-70X690E/KD-70X6700E
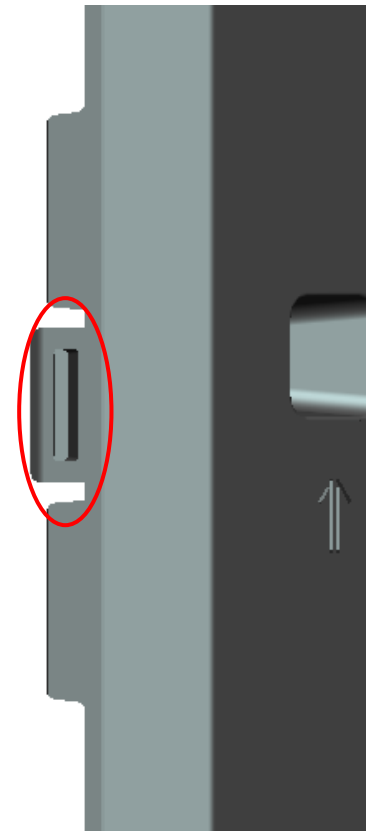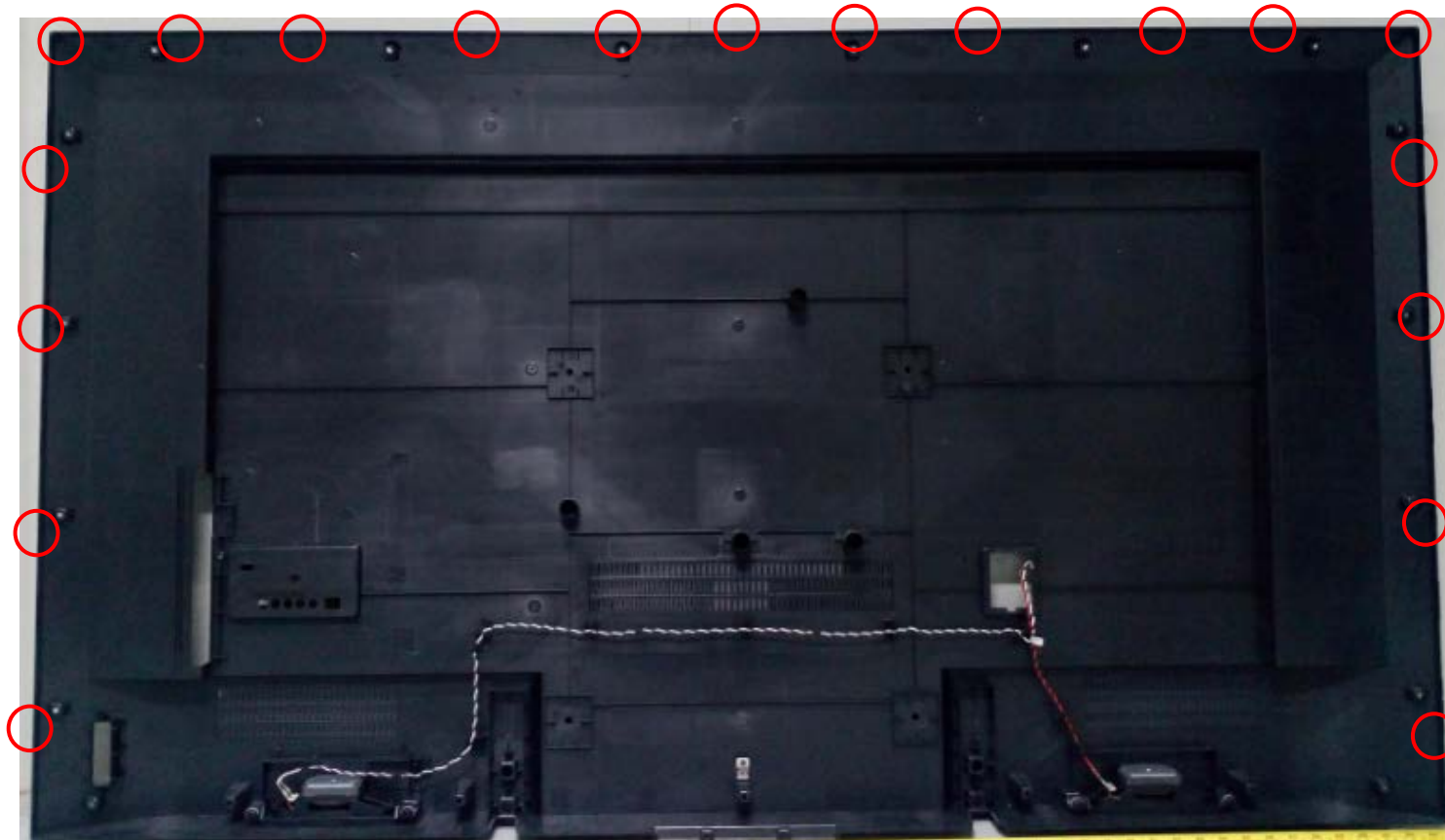
1-5-1. KD-60X690E/KD-60X695E/KD-60X697E/KD-60X6700E

1. REMOVE THE STAND

Make sure no mess things under the front set.

Lay down the set.

Unlock stand screws.

△ SCREW, +PSW M5X12   4PCS

Take off the stand

Unlock bottom bracket screws and take off

☆ SCREW, +PSW M3X8   12PCS

2. REMOVE THE ORNAMENT PANEL.

Take off the IR board.

Take off the ornament panel.
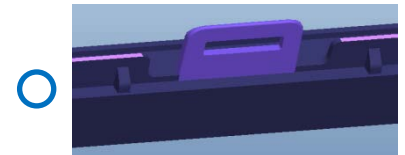
Peel off bottom Aluminum tape.

20*50mm 6PCS

30*160mm 2PCS

Remark: Aluminum tape can not reuse.
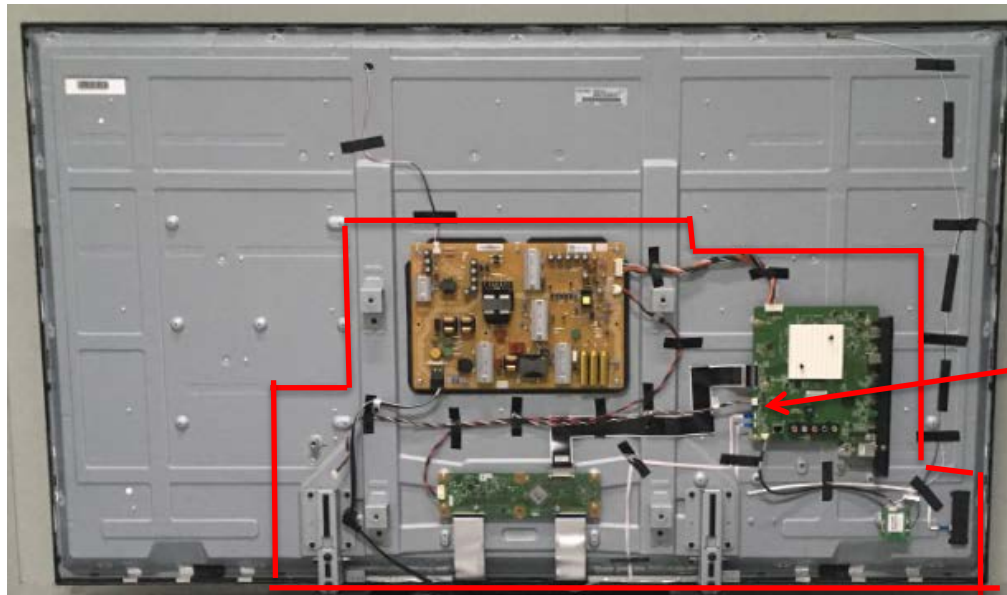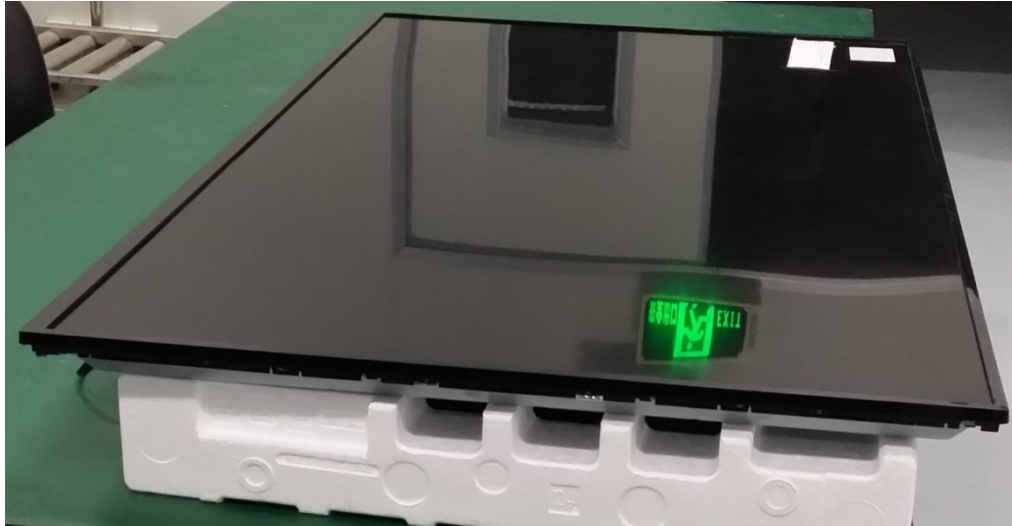
3. TURN THE SET.

Cushion can't touch this area, the height
of cushion must more than 35mm..

4. UNLOCK THE SCREWS.
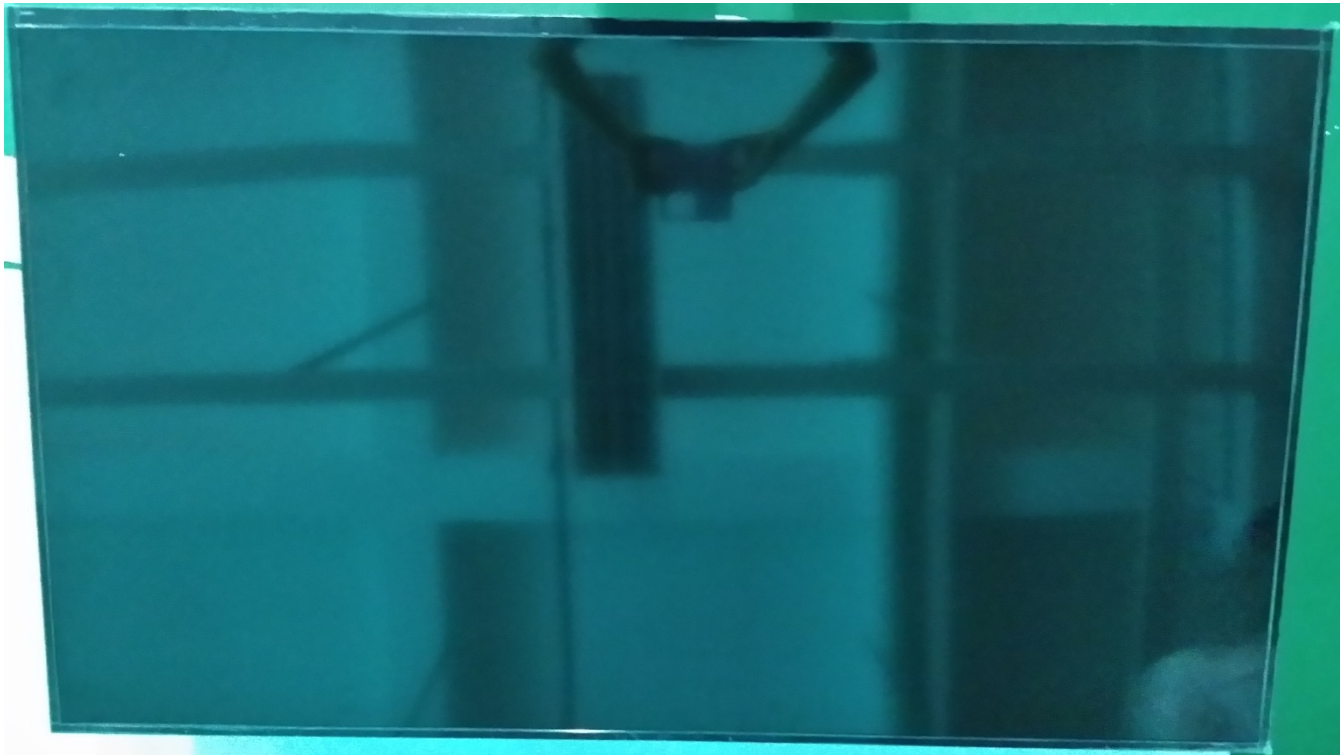
☀   SCREW SILVER/M2.5 x 6 Ni/C1018   19PCS

✻   SCREW SILVER/M2.5*L10 Ni/C1018   5PCS

5. REMOVE THE BEZEL

Take off Bezel top side firstly.

6. REMOVE THE CORE TAPE
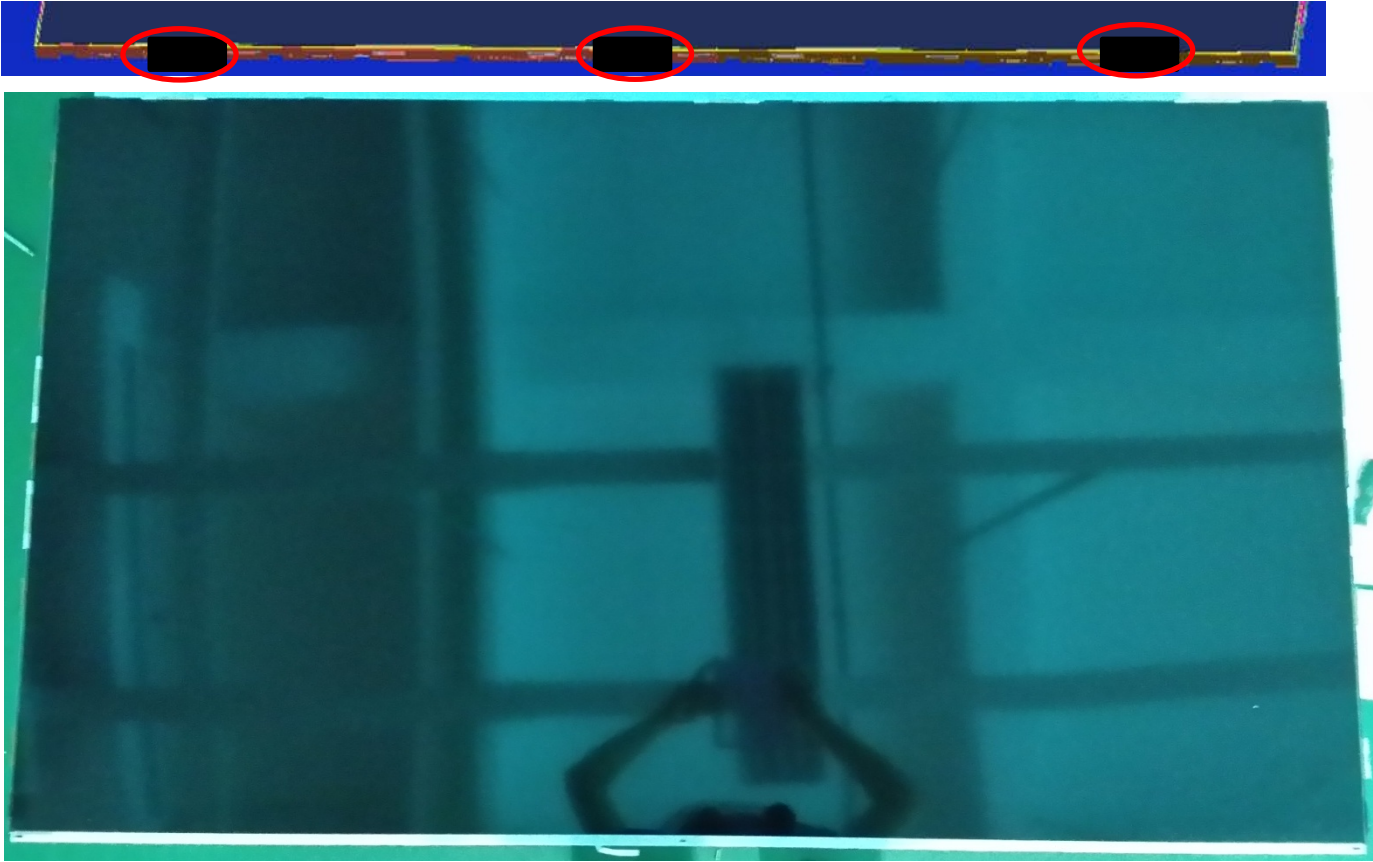
SHEET CORE TAPE (E60)   3PCS

7. UNLOCK SCREWS AND TAKE OFF FC BOTTOM BRACKET.
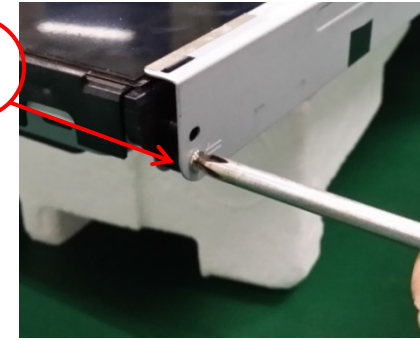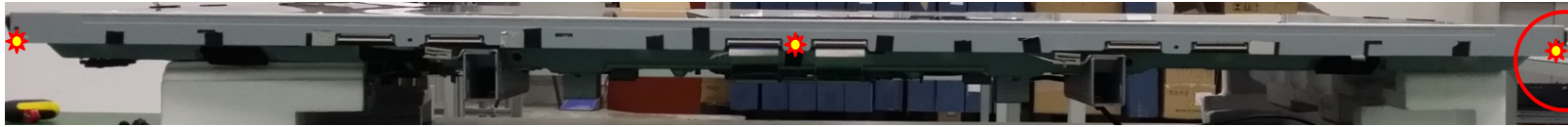
> Unlock screws.

�֎   SCREW SILVER/M2.5*L10 Ni/C1018   3PCS
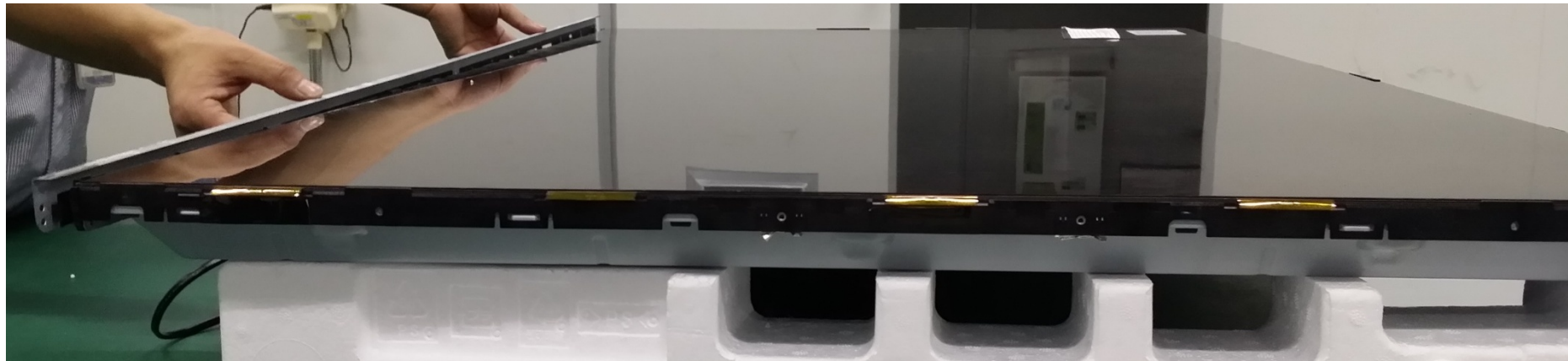
> Take off FC bottom bracket.

Remark: FC Bottom Bracket can not reuse.

TAPE LAYOUT

KD-60X690E/KD-60X695E/KD-60X697E/KD-60X6700E
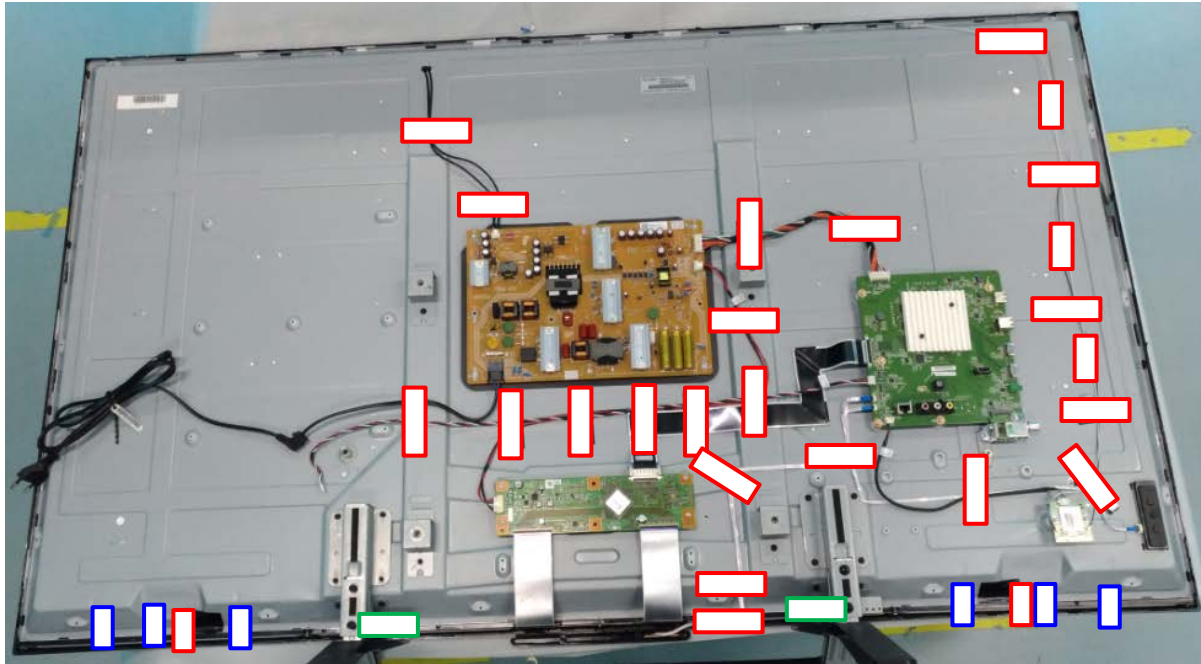
	PART No.	DESCRIPTION		MARK
🔲	20*50mm 6PCS	Aluminum tape.		Can not reuse
🔲	60*15mm 20PCS	TAPE (3M 1350FB-1)15MMX66M BLK		Can not reuse
🔲	30*160mm 2PCS	Aluminum tape.		Can not reuse

CUSHION ON REAR COVER

KD-60X690E/KD-60X695E/KD-60X697E/KD-60X6700E
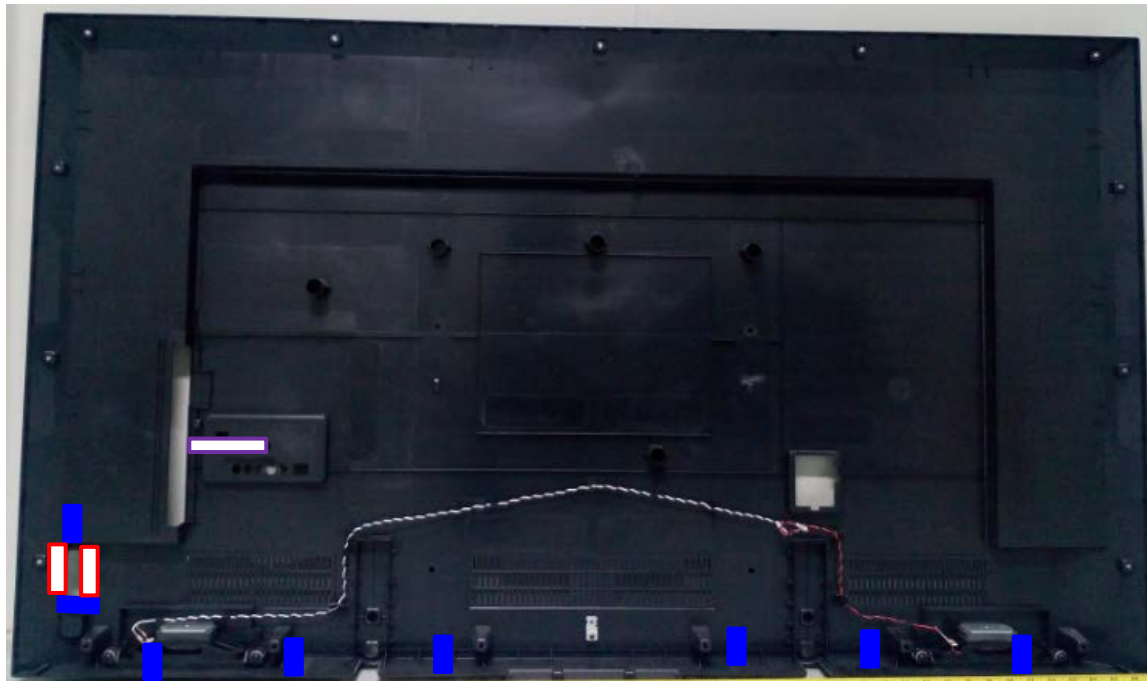
	NWF 20*8*0.35mm	8 PCS
	NWF 30*8*0.35mm	2 PCS
	NWF 60*8*0.35mm	1 PCS

1-5-2. KDKD-70X690E/KD-70X6700E

1. REMOVE THE STAND
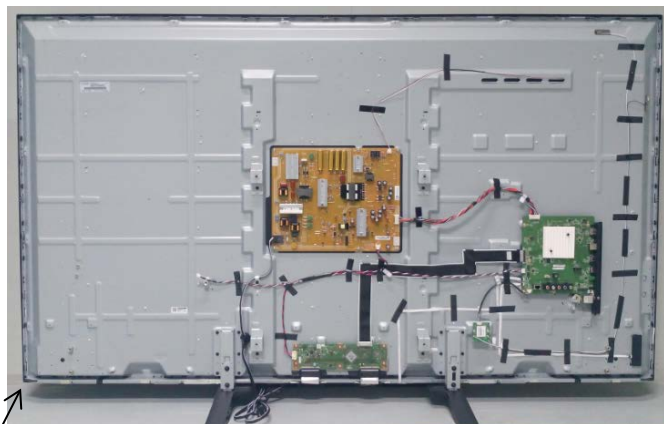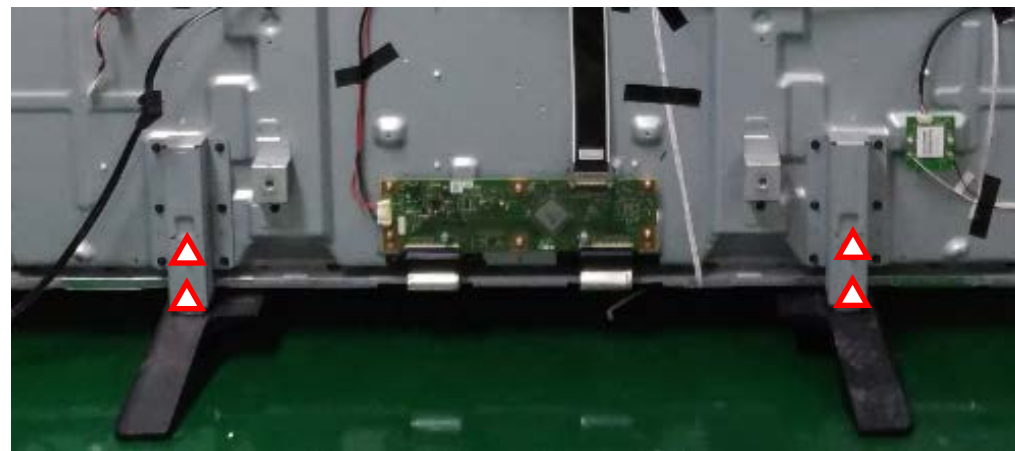
Make sure no mess things under the front set.

Lay down the set.

Unlock stand screws.

△   SCREW, +PSW M5X12   4PCS

Take off the stand
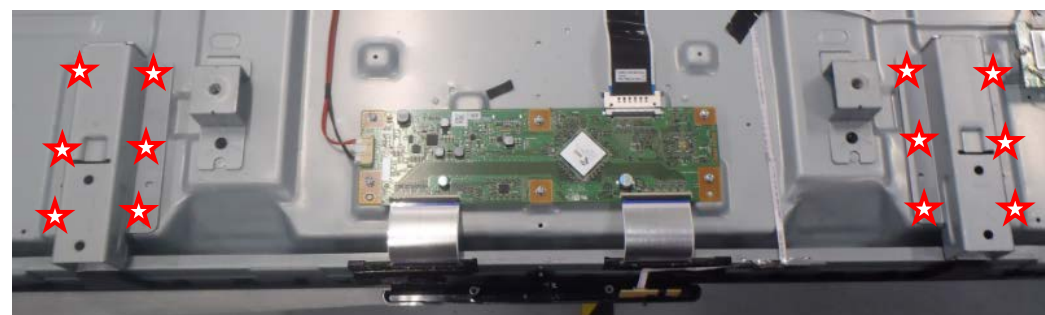
Unlock bottom bracket screws and take off

☆   SCREW, +PSW M3X8   12PCS

2. REMOVE THE ORNAMENT PANEL.

Take off the IR board.

Take off the ornament panel.
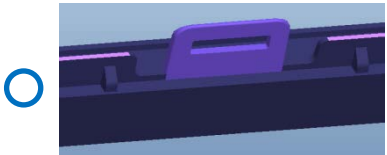
Peel off bottom Aluminum tape.

20*50mm 5PCS

30*160mm 2PCS

30*90mm 2PCS

Remark: Aluminum tape can not reuse.
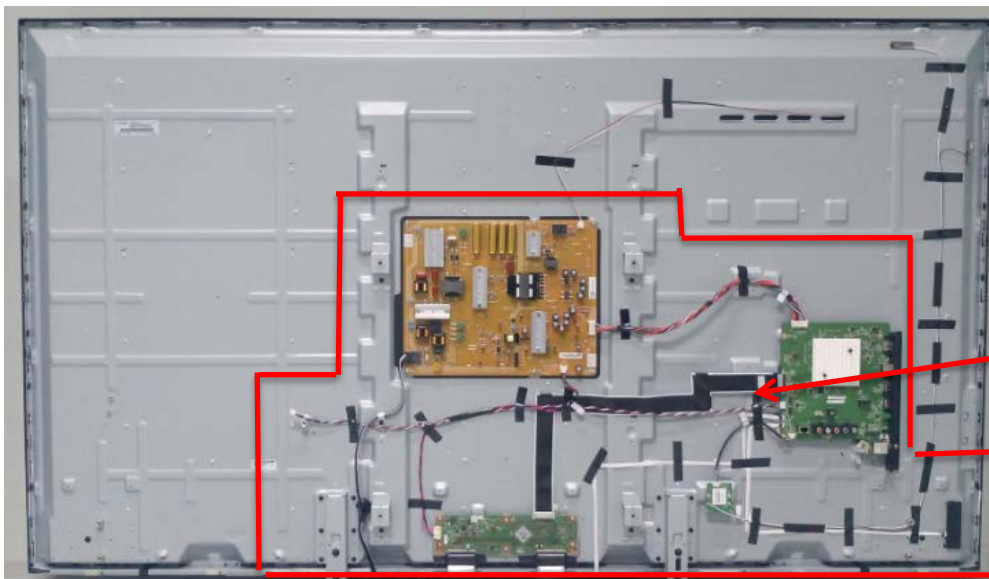
3. TURN THE SET.

Cushion can't touch this area, the height of cushion must more than 35mm..

4. UNLOCK THE SCREWS.
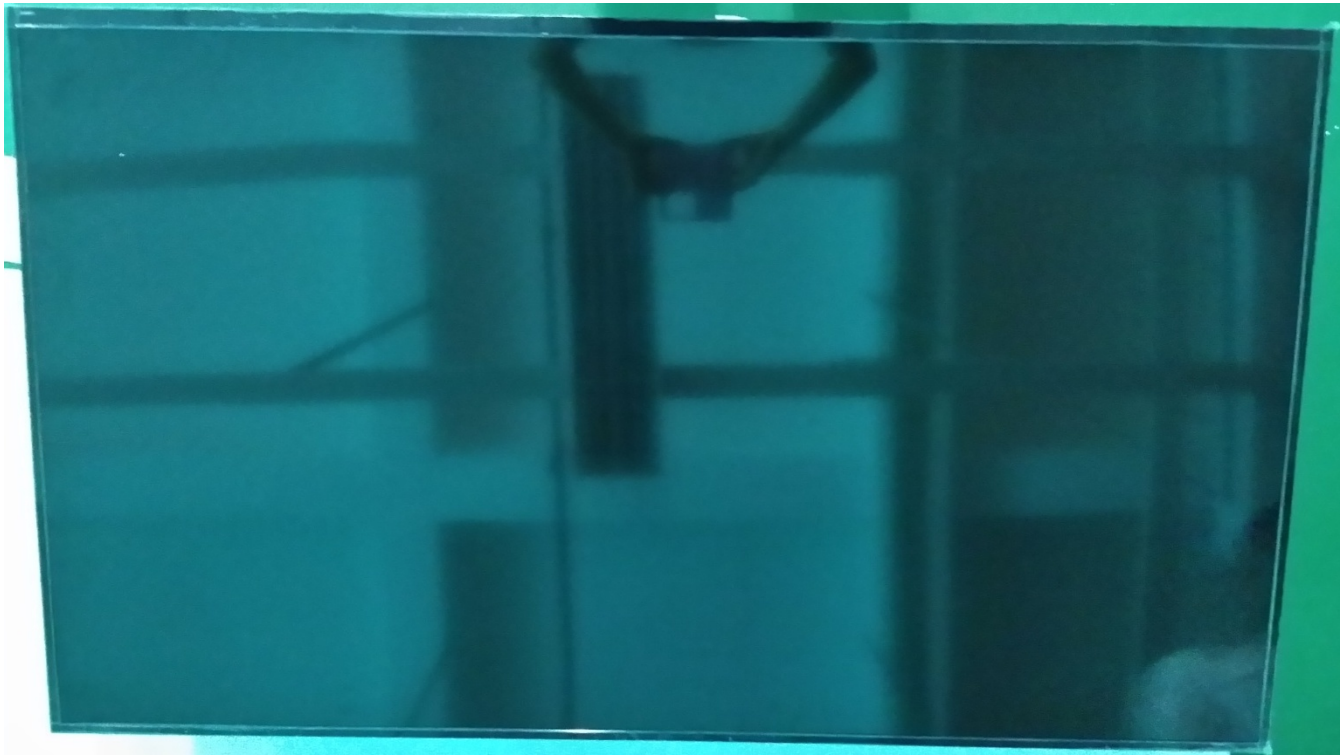
☀   SCREW SILVER/M2.5 x 6 Ni/C1018   21PCS

✿   SCREW SILVER/M2.5*L10 Ni/C1018   3PCS

5. REMOVE THE BEZEL
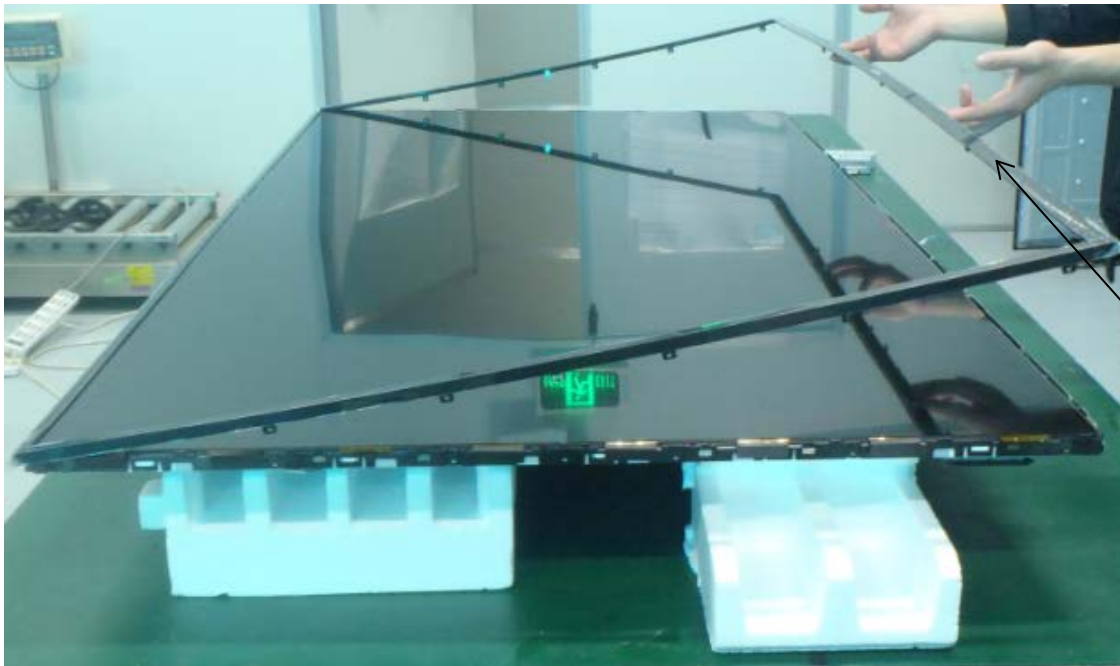
Take off Bezel top side firstly.

6. REMOVE THE CORE TAPE
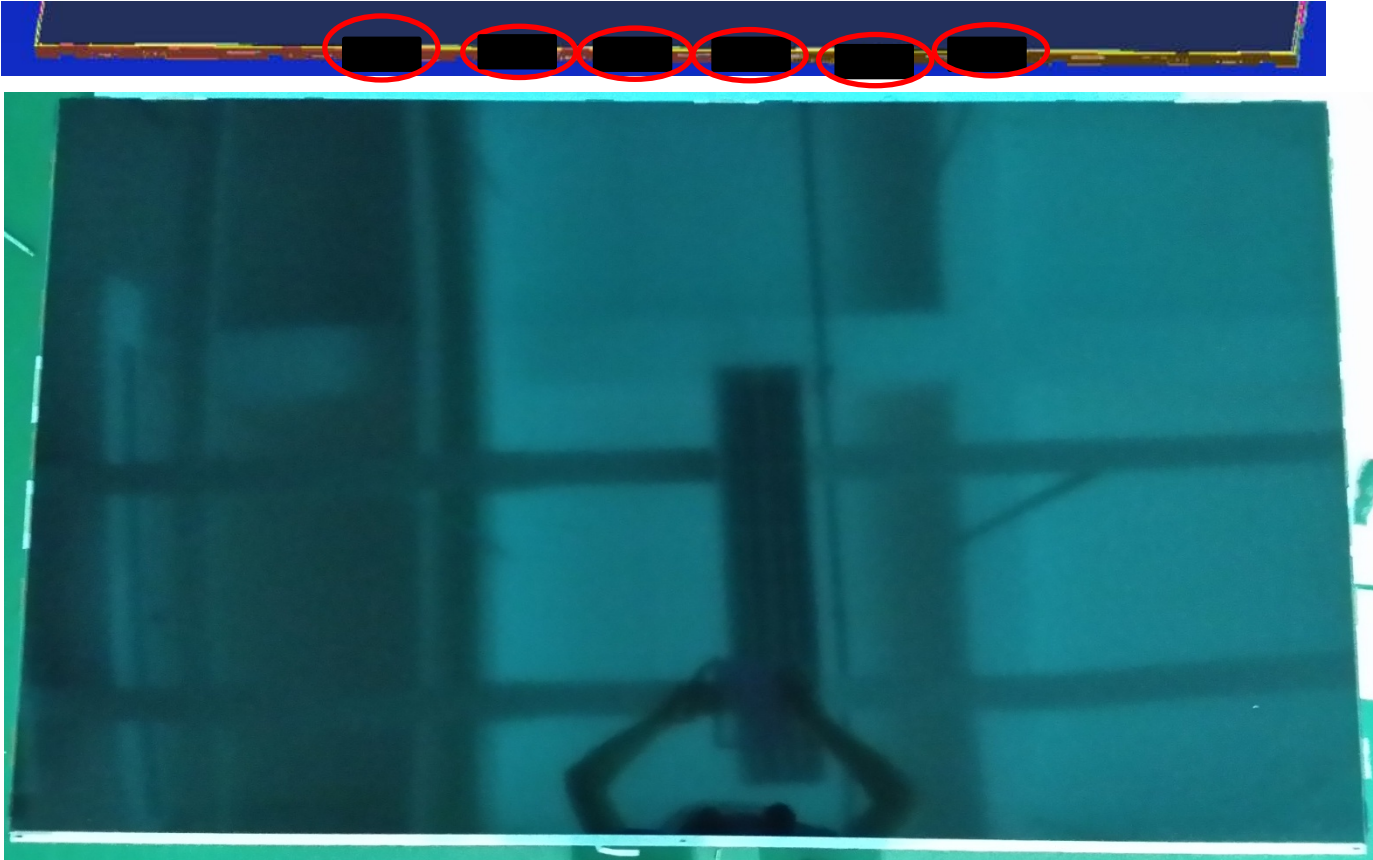
SHEET CORE TAPE (E60)   6PCS

7. UNLOCK SCREWS AND TAKE OFF FC BOTTOM BRACKET.
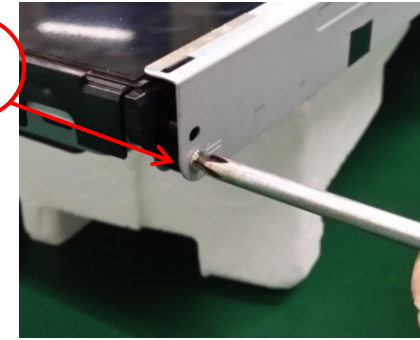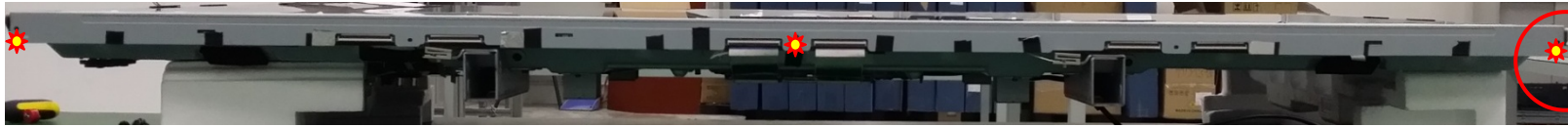
Unlock screws.

�֍   SCREW SILVER/M2.5*L10 Ni/C1018   3PCS
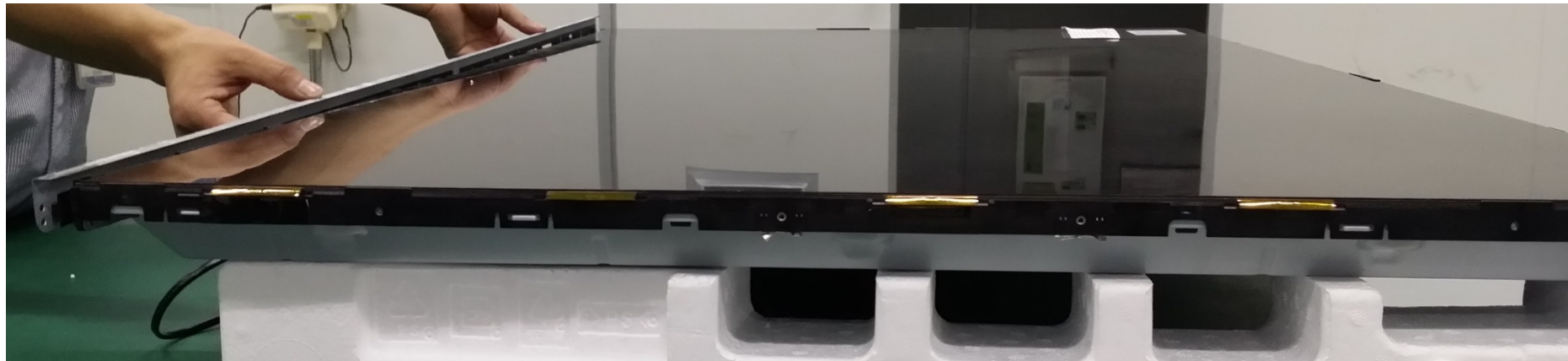
Take off FC bottom bracket.

TAPE LAYOUT

KD-70X690E/KD-70X6700E
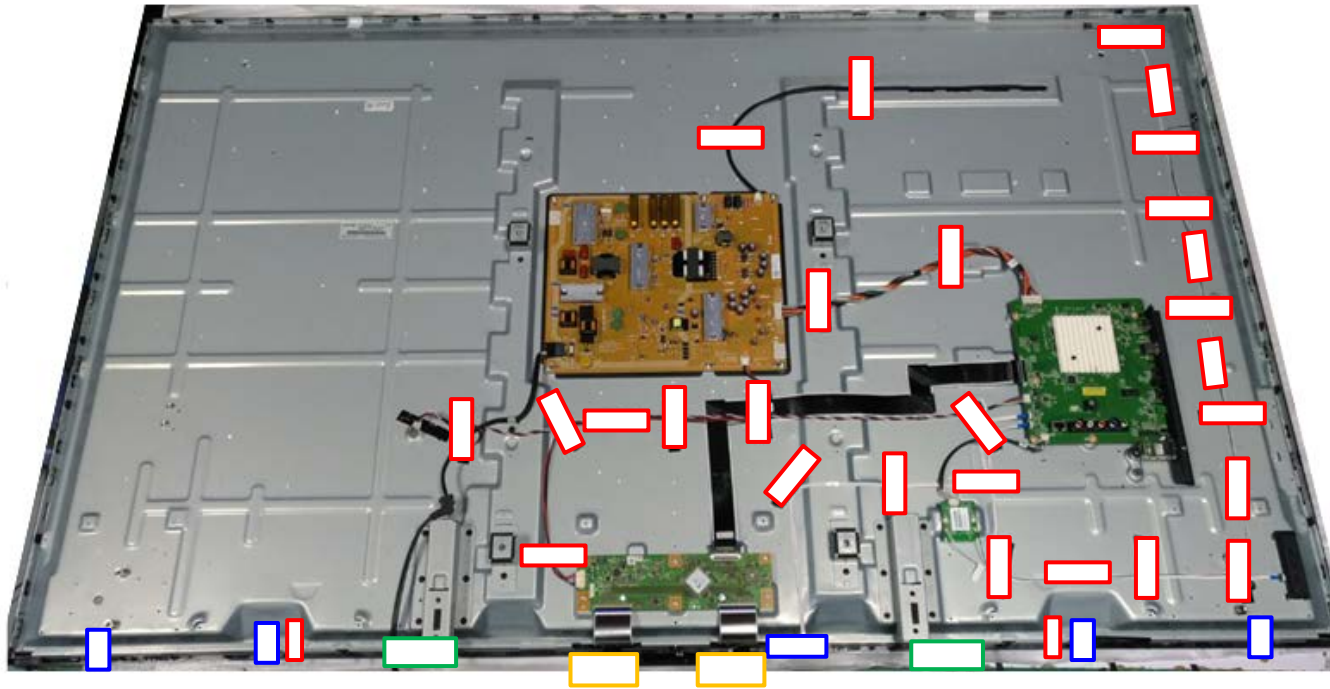
	PART No.	DESCRIPTION	MARK
	20*50mm 5PCS	Aluminum tape.	Can not reuse
	60*15mm 23PCS	TAPE (3M 1350FB-1)15MMX66M BLK	Can not reuse
	30*160mm 2PCS	Aluminum tape.	Can not reuse
	30*90mm 2PCS	Aluminum tape.	Can not reuse

CUSHION ON REAR COVER

KD-70X690E/KD-70X6700E
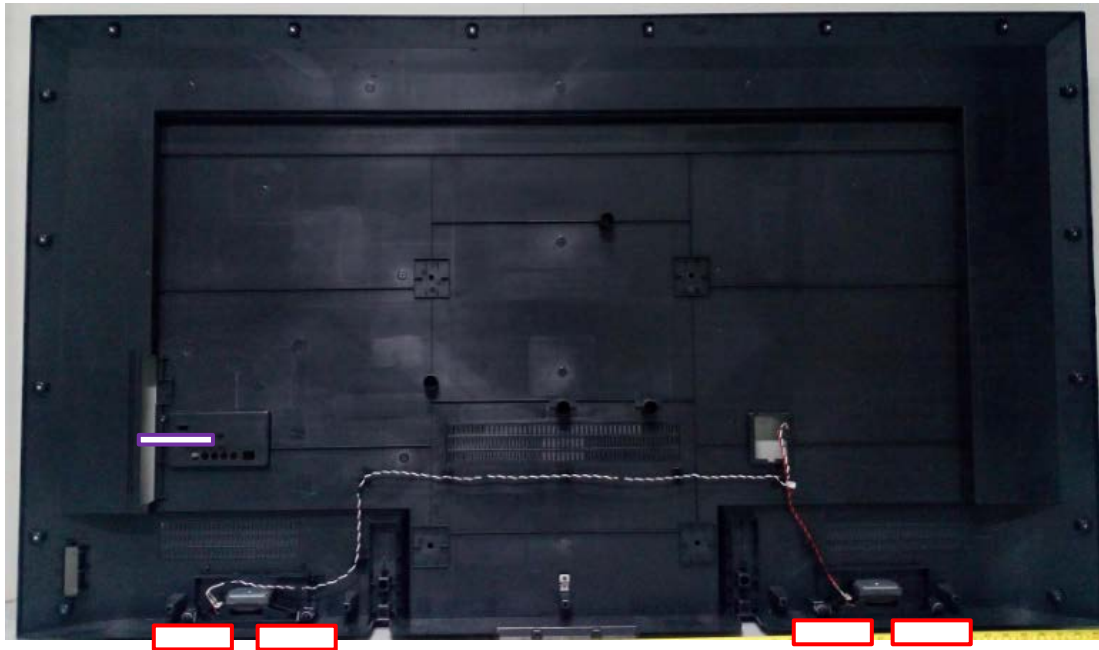
	NWF 115*8*0.15mm	4 PCS
	NWF 60*8*0.35mm	1 PCS

SEC 2. ADJUSTMENT

HOW TO ENTER SERVICE MODE

TV Under Standby Mode

1) Turn on the main power switch to place this set in standby mode.

2) Press the buttons on the remote commander as below, and enter service mode.

Info(DISPLAY) ⇨ (Digit key) 5 ⇨ Volume "+" ⇨ Power On

3) TV will power on, and then Service menu will display.

TV Power On

1) Turn on the TV.

2) Press the buttons on the remote commander as below,

and enter service mode.

Left ⇨ Right ⇨ Mute ⇨ Enter ⇨ Mute ⇨ Volume "+"

3) Service mode display.

Service Mode		
Status Information		>>
Self diagnosis history		>>
Panel Selection	◁	15_PNLLESS_2KMTFY17_ ▷
STATUS 1st Tu Infor		>>
LVDS Spectrum(%)	[	0 ▷
SERIAL NUMBER EDIT		002J075
Model Number Setting		KD-60X697E
TEST RESET	◁	Off ▷
UART Selection	◁	CLI ▷
Tu Data for serv		>>
SDB Service Menu		>>
Panel/PQ		>>
General Setting		>>
Default date for HDD recording	◁	On ▷
Tuner Detection		>>

[</>]Set[Home]Exit
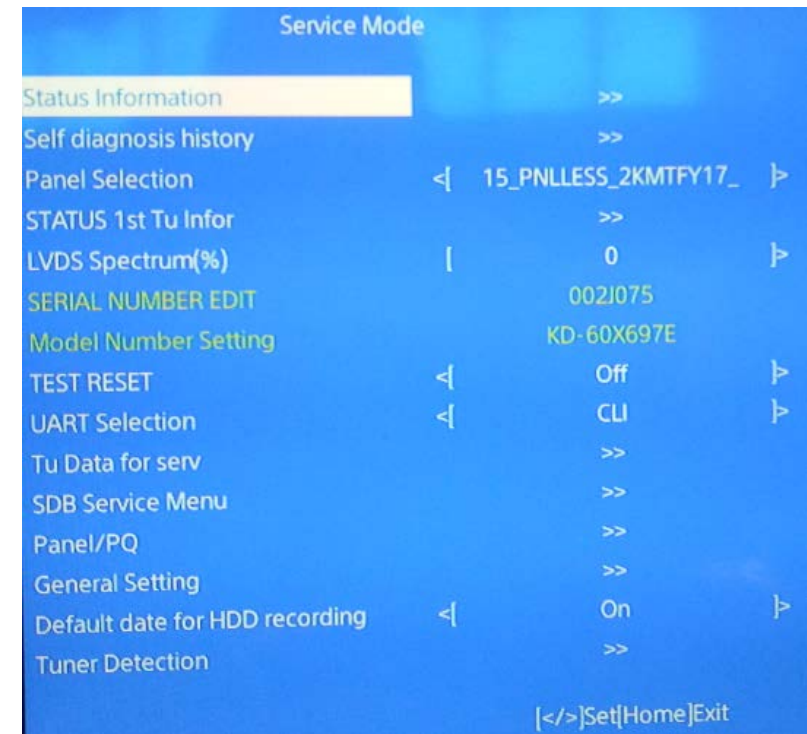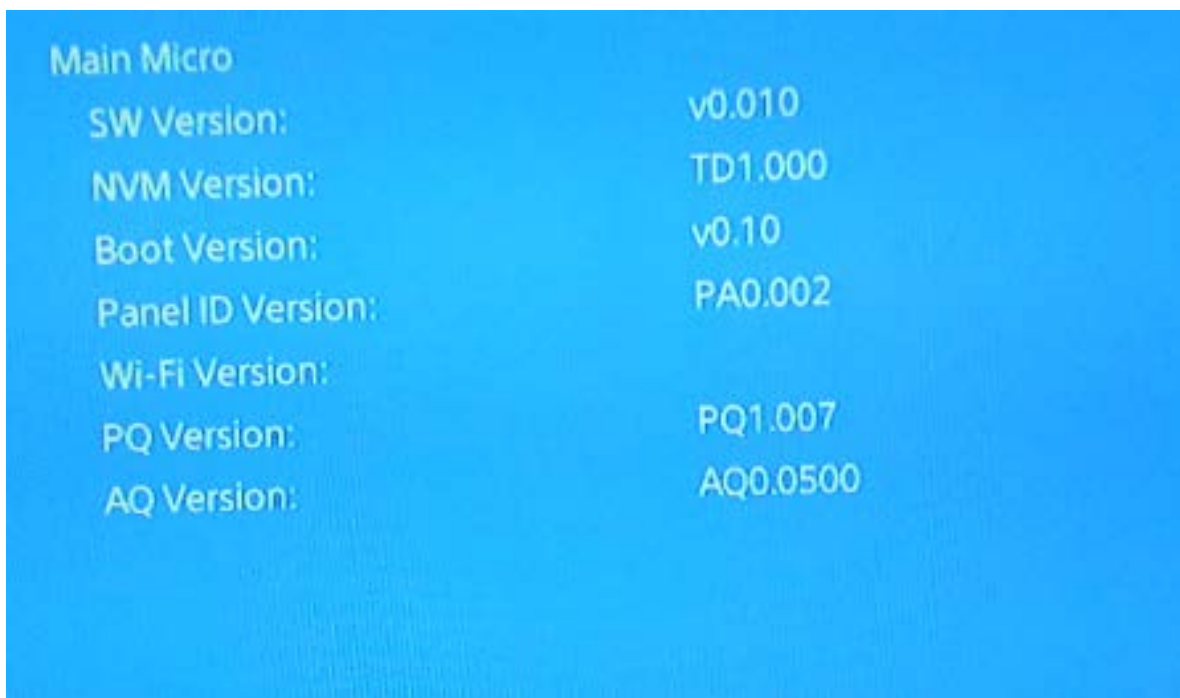
When replace Main Board or panel, please confirm " SERIAL NUMBER EDIT " and "Model Number Setting" in service menu, and set to the correct name according to your info.

STATUS INFORMATION

*Below information is just for example, and may not match the actual info you see on consumer's TV set.

Press "Return" key or "Home" key on RC to exit the Status Information screen.

HOW TO ENTER SERVICE MODE (2 ways)

TV Under Standby Mode

1) Turn on the main power switch to set TV in standby mode.

2) Press the buttons on the remote commander as below:

Info (DISPLAY) ⇨ (Digit key) 5 ⇨ Volume "+" ⇨ Power On

3) TV will power on, and then Service menu will display.

TV Power On

1) Turn on the TV.

2) Press the buttons on the remote commander as below, and enter service mode.

Left ⇨ Right ⇨ Mute ⇨ Enter ⇨ Mute ⇨ Volume "+"

3) Service mode display.

Function	The flow of control
Service mode off	<Return> / <Menu>
Adjustment Item up / down	⇧ / ⇩
Data Value up / down	⇦ / ⇨
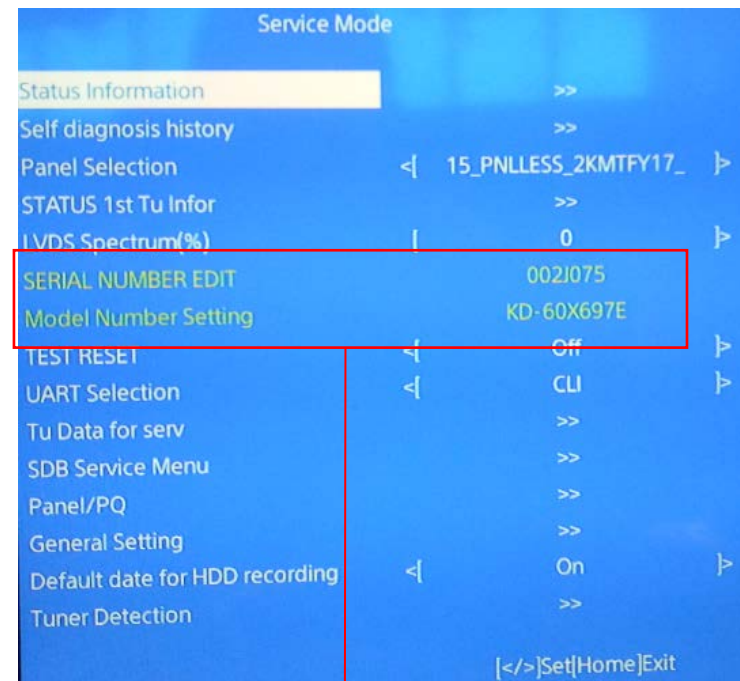
NOTICE:

1. Change of SERIAL NUMBER EDIT and *Model Number Setting* are only possible when the text is displayed in white. Once you edit and confirm the result, the text color will turn into *orange*.

2. When replace Main Board or panel, please confirm Serial Number and *Model Number* are correct according to the full set type. If they are different, please adjust to the correct one.

3. Software upgrade guide, please refer to "APPENDIX-2".

HOW TO APPLY GAMMA/CUC/MURA with service board

Service Mode

1) Purpose: For After Service In The Market and Engineering Evaluation Purpose.
2) How to get into Service Mode
Push following keys sequentially.
Standby Mode : <DISPLAY>, <5>, <VOL+>, <POWER>
Power ON Mode : <LEFT>,<RIGHT>,<MUTE>,<OK/ENTER>,<MUTE>,<VOL+>

Service Mode	
Status information	.>>
Self diagnosis history	>>
NO SIGNAL MUTE	
TUNING SYSTEM	
WIDE BAND TUNING	
· · · ·	
· · · ·	
· · · ·	
LVDS SPREAD SPECTRUM (%)	
LVDS Drive Strength (mA)	
· · · ·	
· · · ·	
Panel/PQ	>>

BACK	<<
WB Adjustment	>>
WB/Mura/CUC data transfer	>>

BACK	<<
WB data transfer	<[1.T-con To SoC]>
MURA data transfer	<[1.T-con To SoC]>
CUC data transfer	<[1.T-con To SoC]>
	[Start]

Description : 0. SoC to T-con
1. T-con to SoC
2. No Action

※1. Select the Value 1 for each WB/MURA/CUC, then enter "Start" to execute data transfer.
2. Waiting 5 seconds.
3. AC Off/On

SEC 3. DIAGRAMS AND CHASSIS STRUCTURE

3-1. BLOCK DIAGRAM

3-2. CONNECTOR DIAGRAM

PSU

AC inlet
N	1
L	2

System Power CONN
1	5VSB
5	GND
18	PWM_Dimmer
17	BL_ON
2	ACD
15	DC_Dimmer
4	T-CON_ON
16	Blinking
3	PS_ON
14	BL_Error
11	GND
12	GND
13	GND
7	REG_12V
8	REG_12V
10	T-CON_12V
9	REG_12V
6	NC

LED CONN
3	LED+
1	LED-
2	NC

T-con_12V CONN
1	GND
2	GND
3	T-con_12V
4	T-con_12V

MB

CN201
5VSB	1
GND	2
BL_PWM1	6
PSU_BL_EN	7
PSU_AC_DET#	8
BL_DC_DIMMER	9
PSU_TCON_EN	10
BL_BLINKING	11
PSU_EN	12
PSU_BL_ERR#	13
GND	14
GND	15
GND	16
PSU_12V	17
PSU_12V	18
PSU_TCON_12V	19
PSU_AMP	20
NC	3
NC	4
NC	5

CN954
1	GND
2	5V_WIFI
3	WIFI_WAKE#
4	WIFI_RST#
5	WIFI_DP
6	WIFI_DN

CN901 — IR — **IR/LED**
FFC 6pin

CN902 — Keypad — **Keypad**
FFC 8pin

Wifi Conn — **Wifi Module**
GND	5
Vcc	2
WOW	6
RST	1
D+	4
D-	3

CN803 — **Speaker**
L/R

CN701 — **NIM Tuner**
NGFF

LCM

LED CABLE
LED+	1
LED-	2

VB1 input — CN5001
FFC 51pin

T-con_12V CONN
GND	8
GND	7
T-con_12V	2
T-con_12V	1
T-con_12V	3
T-con_12V	4
NC	5
GND	6

3-3. CIRCUIT BOARDS LOCATION

KD-60X690E/KD-60X695E/KD-60X697E/KD-60X6700E
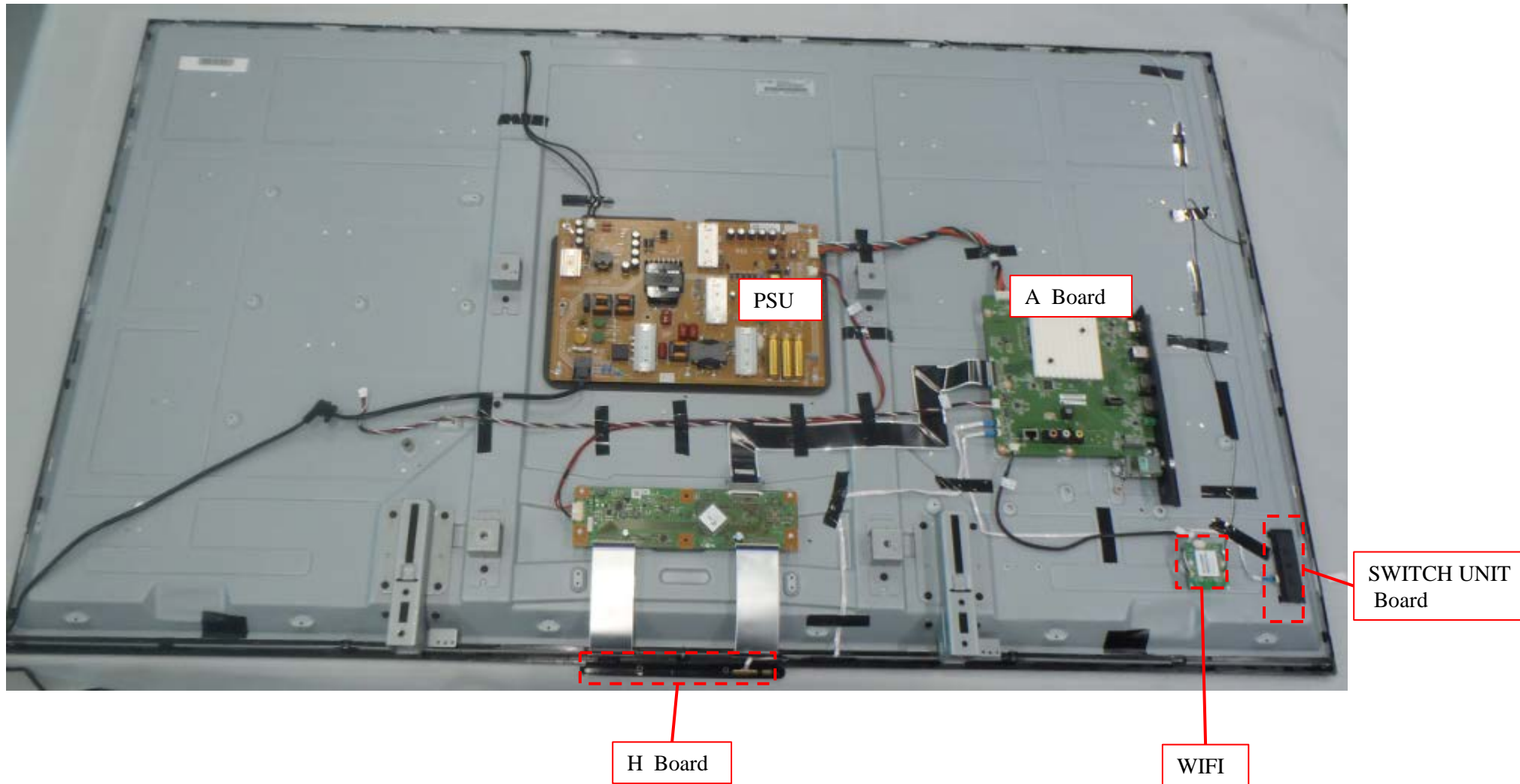
3-3. CIRCUIT BOARDS LOCATION

KD-70X690E/KD-70X6700E

PSU

A Board

H Board

WIFI

SWITCH UNIT Board

End
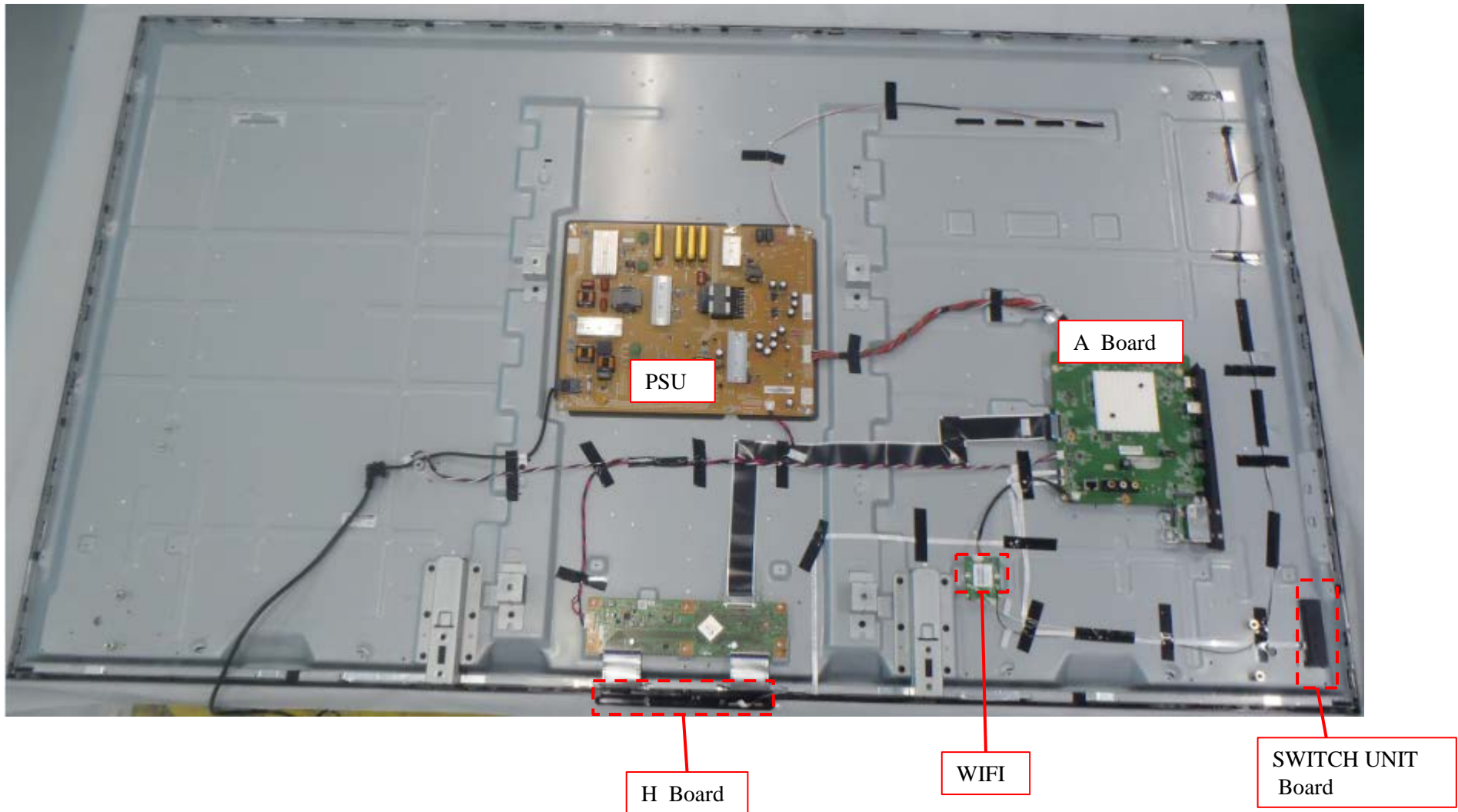
APPENDIX-1 Trouble Shooting

1-1. NO POWER

```
┌─────────────┐
│  No power   │
└─────────────┘
       │
       ▼
  ⬡ Long AC off(> 15 min.)
    and then
    Power On
       │ NG
       ▼
  ⬡ Check 5VSB              NG     ┌──────────┐
    at 1 pin of TP209  ──────────▶ │ Change   │
    on the Main board            │ PSU      │
       │ OK                       └──────────┘
       ▼
  ⬡ Check PSU_12V at 12 pin  NG    ┌──────────┐
    of TP220           ──────────▶ │ Change   │
    on the Main board            │ PSU      │
       │ OK                       └──────────┘
       ▼
  ┌─────────────┐
  │  Change     │
  │  Main board │
  └─────────────┘
```

1-2. NO PICTURE

```
┌──────────────┐
│  No picture  │
└──────┬───────┘
       │
       ▼
   Press HOME Key.        No    Check the harness    OK    Replace        NG    Check the FFC(LVDS)    OK    Replace the          NG    Change        NG
   Menu displayed? ──────────►  MB to Panel     ────────►  MB to Panel ────────► MB to Panel      ────────►  FFC(LVDS) Between ───────► Main board ─────►
                                connection                 Harness             connection                    MB and Panel
       │ Yes                        │ NG          OK │ Symptom                     │ NG              OK │                        │ OK
       ▼                            ▼                │ improvement                 ▼                    ▼                        ▼
   Change Equipment   No display  Fix the harness   Harness issue              Fix the FFC(LVDS)     FFC(LVDS) issue          Main board issue
   Or Player to check ──────────► connection                                   connection
   TV display              Change
       │ OK                 Main board
       ▼
   Signal or Equipment
   Problem
```

Change PSU — NG → Change Panel

Change PSU — OK / Symptom improvement → Adaptor issue

1-3. NO SOUND

```
                    ┌─────────────┐
                    │  No Sound   │
                    └─────────────┘
                           │
                           ▼
              ⬡ Check if TV is      Yes    ┌──────────────┐
                set to Mute    ─────────▶  │  Change to    │
                    │                       │  Un-mute      │
                   No                       └──────────────┘
                    │
                    ▼
              ⬡ Check the      "Audio System"   ┌──────────────┐
                "Speakers setting" ──────────▶  │  Change to    │
                    │                            │  "TV Speaker" │
              "TV Speakers"                      └──────────────┘
                    │
                    ▼
         ⬡ Change the speaker   NG    ⬡ Replace     Symptom improvement  ┌──────────────────┐
           harness         ─────────    Main board  ──────────────────▶  │ Main board issue │
              │                            │          OK                  └──────────────────┘
         OK  Symptom                      NG
             improvement
              │                            │
              ▼                            ▼
      ┌──────────────┐             ┌──────────────┐
      │ Speaker Harness│           │  Change       │
      │ issue          │           │  Speaker      │
      └──────────────┘             └──────────────┘
```

1-4. TV COMMANDER BUTTONS MALFUNCTION

1) TV button malfunction

```
┌─────────────────┐
│ Button malfunction │
│   on the TV      │
└─────────────────┘
         │
         ▼
   ⬡ Replace the harness        NG    ⬡ Change              Symptom      ┌──────────────┐
     between Main board  ─────────────→  Key module  ──improvement──────→│ Key module   │
     and Key module                                        OK            │   issue      │
         │                                  │                            └──────────────┘
    OK  Symptom                           NG
    improvement                            │
         │                                 ▼
         ▼                         ┌──────────────┐
   ┌──────────────┐                │   Change     │
   │ Harness issue │               │  Main board  │
   └──────────────┘                └──────────────┘
```

2) IR remote commander malfunction

```
┌──────────────────────┐
│  TV isn't controlled │
│  by remote commander │
└──────────┬───────────┘
           │
           ▼
     ╱ Green LED light ╲  ──OK──►  ╱ Green LED blinks at power indicator ╲  ──OK──►  ┌─────────────────┐
     ╲ at power indicator ╱        ╲ when using commander near sensor's window ╱        │ Change          │
           │                                      │                                    │ Remote Control  │
           NG                                     NG                                   │ battery         │
           │                                                                           └─────────────────┘
           ▼
     ╱ Change Main board to ╲  ──Symptom improvement OK──►  ┌─────────────┐
     ╲ IR board FFC ╱                                        │ IR FFC      │
           │                                                 │ issue       │
           NG                                                └─────────────┘
           ▼
     ╱ Change IR board ╲  ──Symptom improvement OK──►  ┌─────────────┐
           │                                            │ IR board    │
           NG                                           │ issue       │
           │                                            └─────────────┘
           ▼
     ┌──────────────┐
     │ Change       │
     │ Main board   │
     └──────────────┘
```

APPENDIX-2 Software data update

SOFTWARE DATA UPDATE

■ **THE CONFIRMATION OF THE SOFTWARE VERSION OF THE TV SET**

Entering product information of setting menu.

Press the buttons on the remote commander as below

[HOME] - [Settings] – [Preferences] - [Set-up] –[Customer Support]-[Product Information]

or [HOME] - [Settings] – [Preferences] - [Set-up] - [Customer Support]-[Product Information]

■ **SOFTWARE DOWNLOAD**

The downloaded software may be compressed(.zip).

If the downloaded software was compressed(.zip), please unzip it.

Store the software package to USB memory. (Applicable USB memory : Format by FAT32, USB2.0 type)

However, please store **ONLY ONE** PKG file to USB Root folder for software update.

Software PKG file name format: sony_fw_2017_1000_UUUSB.pkg

                                  version   model Name
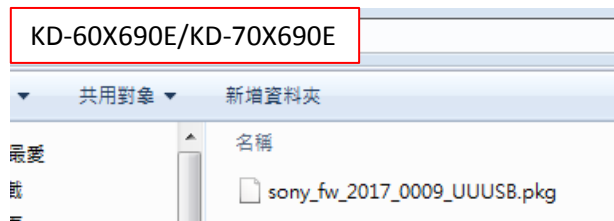
Model Name: KD-60X697E
Serial Number: 002J075
Software Version: v0.011-0.001-06

Note: When changing Main board, Model Name and Serial Number will not be displayed.

Model Name
1. KD-60X690E/KD-70X690E(UC2/LA1):UUUSB
2. KD-670X6700E/KD-70X6700E(AZ1/EA4/ME6)：UUPAB
3. KD-60X695E(LA8)：UUCPB
4. KD-60X697E(CO1)：UUCOB
5. KD-60X695E(AR4)：UUBRB

■ SOFTWARE UPDATE BY USB MEMORY

1. Prepare USB with update PKG file, Set TV to AC Off.

2. Insert USB device to TV that contains the new version software.

   ***Be sure only one PKG file is directly located under ROOT folder of the USB device.

KD-60X690E/KD-70X690E

共用對象 ▼   新增資料夾

最愛   名稱
誡
屬   sony_fw_2017_0009_UUUSB.pkg

Model Name
1.KD-60X690E/KD-70X690E(UC2/LA1):UUUSB
2. KD-670X6700E/KD-70X6700E(AZ1/EA4/ME6)：UUPAB
3. KD-60X695E(LA8)：UUCPB
4. KD-60X697E(CO1)：UUCOB
5. KD-60X695E(AR4)：UUBRB

3. Press and hold Power Tact Key for 5s while AC ON TV

4. Wait for a while, If valid file is found, LED change UPDATE mode (Orange is Blink-1sec On / 1sec Off) few second later. From now, all key & Remote are not allowed (no response) until update finish.

   (*If AC Off/On with USB memory inserted, UPDATE start again.)

USB

Orange is blink (1sec On / 1sec Off)

5. When upgrade complete, TV will turn on and LED will be green.

   ***Please remember to remove USB after upgrade finish.

6. After software update, you will need to do Initial Setup again, so please follow the steps to confirm the settings.

7. Remember to check the software version is same as the target version you want to update.

■ CONFIRM SOFTWARE VERSION

Remember to check the software version after upgrade.

Product information page will show software version.

[HOME] - [Settings] – [Preferences] - [Set-up] –[Customer Support]-[Product Information]

or [HOME] - [Settings] – [Preferences] - [Set-up] - [Customer Support]-[Product Information]

WARNING:
During the firmware installation process, do not remove the USB device, or switch off the TV set or remove the power.

APPENDIX-3 Operation Time, Boot Count, Panel Operation Time

SELF DIAGNOSIS HISTORY DISPLAY >> Operation Time, Boot Count, Panel Operation Time

*Below information is just for example, and may not match the actual info you see on consumer's TV set.

Press "Return" key or "Home" key on RC to exit the Self Diagnosis screen.
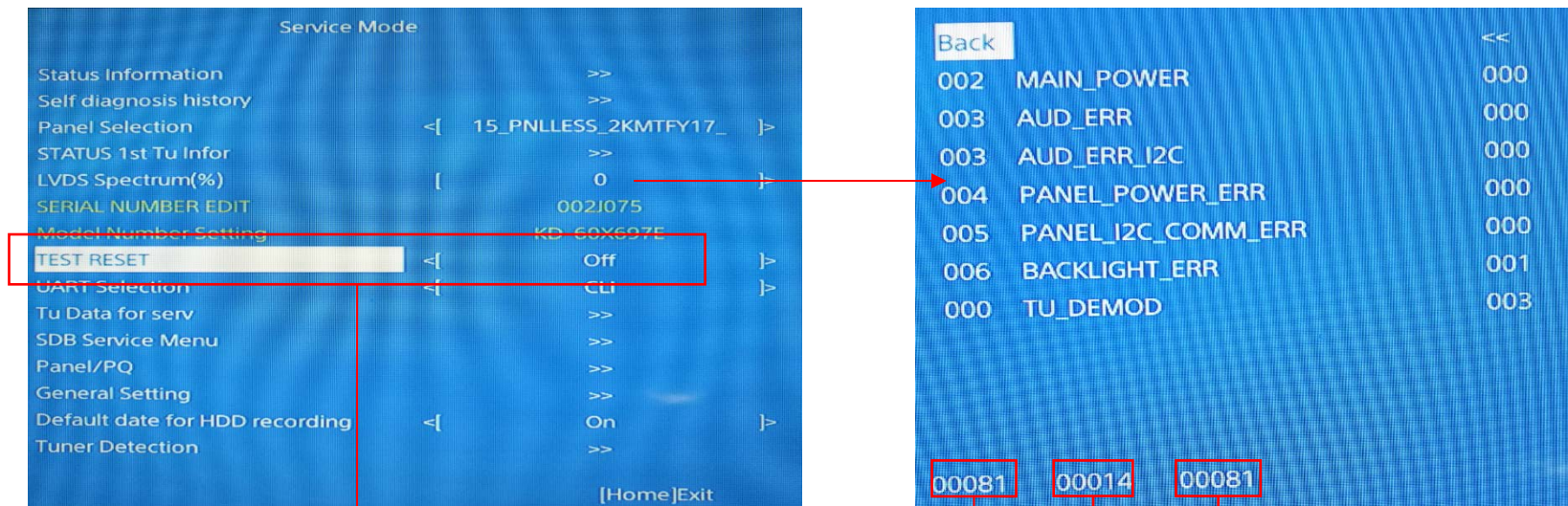
After repair or board exchange, you can reset the Self Diagnosis history to (0, 0, 0) by here.

Just move the cursor to "Test Reset" and then press Right key ⇨, the "Off" will change to "On", then TV will reboot and you will need to perform Initial Setup.

Panel operation time by hour
Boot count
Total operation time by hour