SERVICE MANUAL (TROUBLESHOOTING)

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LCD TV

SONY®

Sony EMCS (Malaysia) Sdn. Bhd. HES-M
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MODEL LISTS

THIS SERVICE MANUAL CONTAINS **TROUBLESHOOTING** INFORMATION FOR BELOW REGIONS AND MODELS:

Self Diagnosis Supported model

MODEL

XR-55X90K	XR-65X90K	XR-75X90K	XR-85X90K
XR-55X90CK	XR-65X90CK	XR-75X90CK	XR-85X90CK

TABLE OF CONTENTS

Self Diagnosis Supported model

Please refer Service Manual (Disassembly) for below information:

- Tools and Equipments
- FFC Precautions
- Disassembly and Removal Caution
- Wire Dressing
- Circuit Board Location
- Exploded Views and Part Lists
- Smart Core
- Appendix - Sharp Edge

    - FFC Replacement Cautions

Note: Pictures provided in this manual may have difference from actual sets

SAFETY NOTES

1-1. Warnings and Caution.

1) CAUTION: These servicing instructions are for use by qualified service personnel only.

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

3) 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.

The replaceable fuse should be in the neutral of the mains supply. When replacing the fuse, the mains must be disconnected to de-energize the phase conductors.

 (*Except AC ADAPTOR, Because it does not carry out replacing an internal fuse.)

4) 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.

5) SAFETY-RELATED COMPONENT WARNING!!: Components identified by shading and ! mark on the exploded views, and in the parts list are critical for safe operations. 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 operations are identified in this manual. Follow these procedures whenever critical components are replaced or improper operation is suspected.

6) IMPORTANT REMINDER FOR TV MAIN BOARD REPLACEMENT:

It is mandatory for service centers to confirm the TV's system information after each repair is carried out with Main board replacement.

Whenever a TV Main board is replaced, the correct TV Model and Serial number must be reinserted into memory.

This is a MANDATORY procedure that each service center must apply.

Please refer to the chapter of ADJUSTMENT in this service manual to find out how to set the model number and serial number in service mode.
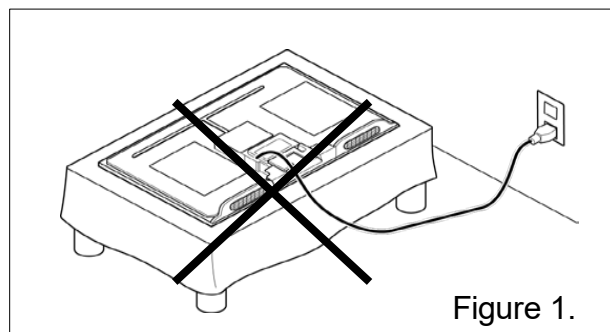
1-2. Caution Handling of LCD Panel.

When repairing the LCD Panel, make sure you are grounded with a wrist band.

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

1) Do not press 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 temperature 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 short circuit within the module.

6) Disconnect the AC power when replacing the backlight.

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

8) Handle the wires or connectors of the backlight circuit with care. Damaging the wires may cause a short circuit.

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

SAFETY NOTES

10) During the repair, DO NOT leave the POWER ON or Burn-in period for more

than 1 hour while the TV is facing down on a cloth. Refer Figure 1.

Figure 1.

1-3. Caution_for_Board_handling.

The following problems will occur due to handling of the IC mounted on the board

・Solder crack due to substrate handling (stress).

・IC breakdown due to static electricity (ESD).

When repairing the TV at the customer's home or service station or Repair of

defect board, please pay attention to the handling of the board.

Substrate that needs attention for handling :
* Main Board（B** Board）
* Backend Board（D** Board）

※Things to prepare in advance.

ESD wrist-strap.

※Caution: ESD wrist-strap to be checked daily.

Use Multi-meter to make sure resistance of ESD wrist-strap is OK.

(R=750K Ohms to 35Mega Ohms)

SAFETY NOTES

ESD cushion / sheet
Please use a bag containing the board or a special seat

1) Caution for Board handling(Stress).Be sure to observe the following contents.
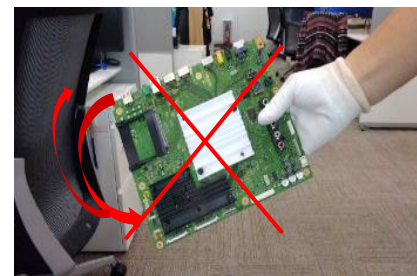
① Hold the board with both hands

② Do not hold/push Heat-Sink

③ Handle with care. Do not swing

④ Regardless of Good board or Defective board, always put it on ESD cushion / sheet slowly.
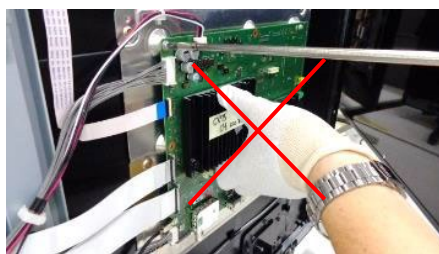

⑤ Do not stack up

SAFETY NOTES

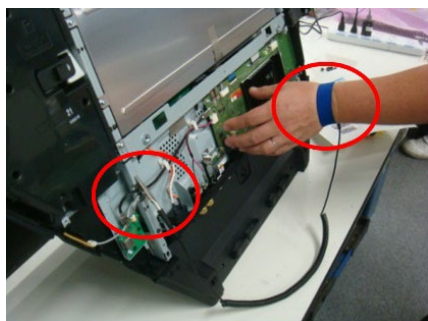|	
⑥	Keep vertical position and put in/take out from Box. Always put into ESD bag then place into Box/Container Box
⑦	After take defective board out from TV, put it into ESD bag. Do not place on floor mat/carpet direct and always put it on ESD cushion

2) Caution for Board handling (ESD).Be sure to observe the following contents
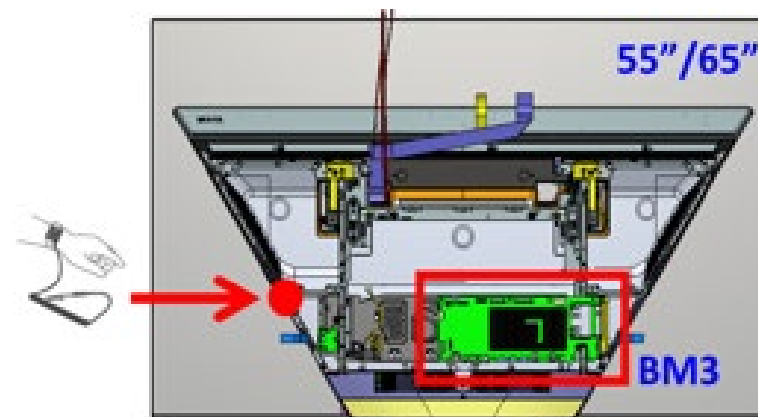
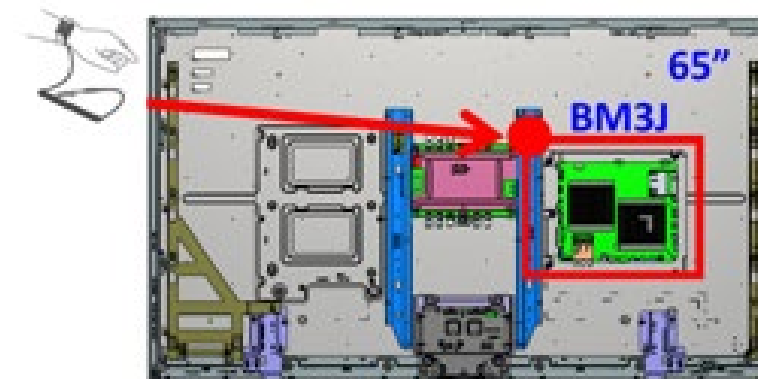| ①	When take off Rear-Cover, do not touch to board	②	Use ESD wrist-strap

※Installation example of wrist-strap.

Please connect the clip to the metal part of the chassis of the TV with the wristband grounded. Below is a grounding example of each model.

＜K*-65Z9F＞

※Caution : ESD wrist-strap to be checked daily.

Use Multi-meter to make sure resistance of ESD wrist-strap is OK.

(R=750K Ohms to 35Mega Ohms)

SAFETY NOTES

③	When holding board, do not hit or touch to Plastic part(s)

④	After take defective board out from TV, put it into ESD bag. Do not place on floor mat/carpet direct. And, always put it on ESD cushion

1-4. Caution About the Lithium Battery.

1) Danger of explosion if battery is incorrectly replaced.

   Replace only with the same or equivalent type.

2) Outer case broken battery should not contact to water.

SAFETY NOTES

1-5. 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 inter board wiring to ensure that no wires are pinched or contact high-wattage resistors.
3) Check all control knobs, shields, covers, ground straps and mounting hardware have been replaced. Be certain 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 them replacement.
5) Look for parts which show obvious signs of deterioration even though functioning. Point them to the customer and recommend for 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, metalized knobs, screws and all other exposed metal parts for AC leakage. Check leakage test as described next.
8) For safety reasons, repairing the Power board and/or Inverter board is prohibited.

1-6. 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 voltmeter: Input resistance > 1 Mohm, Input capacitance < 200 pF, Frequency range: 15 Hz – 1MHz . Refer Figure 2. 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).

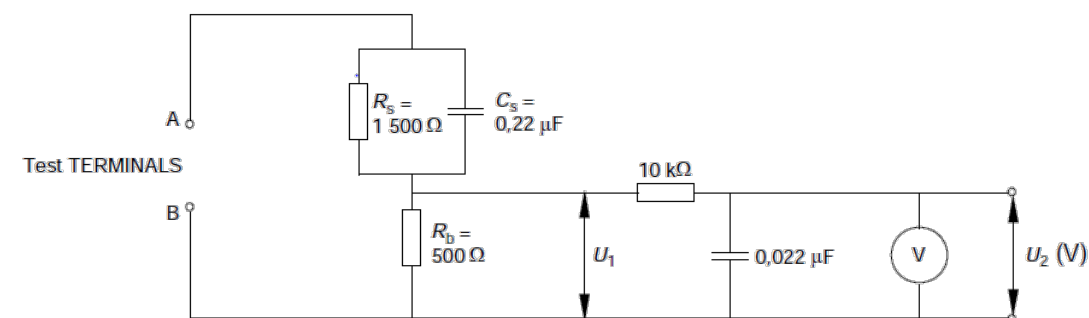Note: including AC adaptor, AC adaptor/DC operated unit combination.

Figure 2 – Measuring network for Leakage Current

IEC 802/98

SAFETY NOTES

1-7. How to Find a Good Earth Ground.

1) A cold-water pipe is a guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground.

2) 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.

3) 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 3).
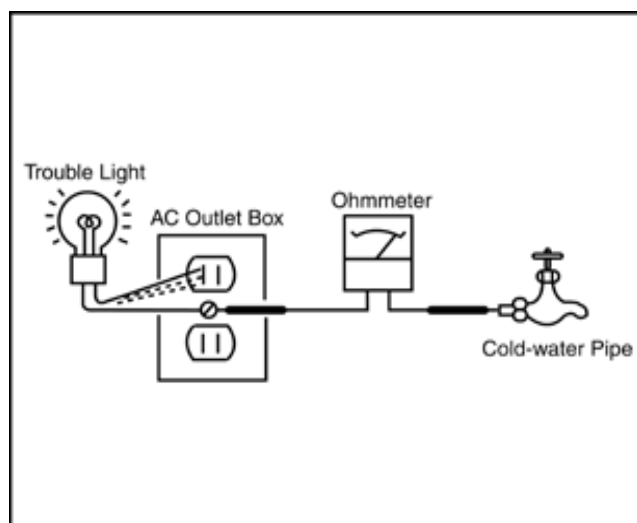

Figure 3. Checking for earth ground.

1-8. Lead Free Information

The circuit boards used in these models have been processed using Lead Free Solder. The boards are identified by the LF logo located close to the board designation.
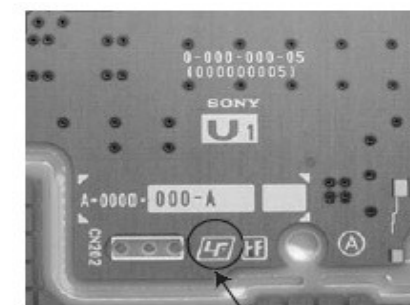

Figure 4: LF Logo

Figure 5: LF logo on circuit board

The servicing of these boards requires special precautions. It is strongly recommended to use Lead Free Solder material in order to guarantee optimal quality of new solder joints.

SELF DIAGNOSIS FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the Smart Core Red LED will automatically begin to flash. The number of times the LED flashes translates to a probable source of the problem.

A definition of the Smart Core Red LED flash indicators is listed in the instruction manual for the user's knowledge and reference.
If an error symptom cannot be reproduced, the remote commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

DIAGNOSTIC TEST INDICATORS

When an error occurs, the Smart Core Red LED will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the LED will identify the first of the problem areas.

Result for all of the following diagnostic items are displayed on screen. If the screen displays a "0", no error has occurred .

Self Diag. Quick Reference (LED blinking)

Smart Core RED LED blinking count	Error Item	Detection Items
2x	MAIN_POWER	<B/G> Main 12V over voltage
3x	DC_ALERT	<B/G> Main 5.0V failure
	AUD_ERR	<B/S> Audio amp. protection
4x	*LD_ERR*	<LD/P/B/G> LED driver failure/LED voltage protection
	BCM_ERR	<LD/B> LD IC initialize failed.
5x	*P_ID_ERR*	<B/T/P/G> *Panel ID EEPROM I2C No ACK (Also panel power failure is a suspect)*
6x	BACKLIGHT_ERR	<B/G/P/LD> Backlight failure
7x	TEMP_ERR	<B/H/P> Over temperature protection
8x	4KBE_ERR	<B> 4KBE WDT

Blue italic: detect at startup sequence only.
<G>: Power Supply board, <B>: Main board, <T>: T-con board, <LD>: LD board, <Tu>: Tuner board, <A>: Power Adapter, <P>: Panel module, <S>: Speaker, <H>: H-board

SYS SET

SELF DIAGNOSIS FUNCTION

Self Diag. Quick Reference (Not LED blinking [Record Only])

Error Item	Detection Items
TCON ERR	<T> T-CON device I2C communication failure
AUD_ERR_I2C	<B> Audio amp I2C communication failure
TEMP_ERR_I2C	<B/H> Temp sensor I2C communication failure
TU_DEMOD_I2C	<B> Tuner & Demodulator I2C communication failure

<B>: Main board, <T>: T-con board, <H>: H-board

SELF DIAGNOSIS FUNCTION

Retry Limitation by Remote/Power Key

Smart Core Red LED blinking count	Error Name	Retry Permission Times [1]	Note
2x	MAIN_POWER	STDWN_RTRY_LIMIT_MAINPOWR = 1	
3x	DC_ALERT (5V)	STDWN_RTRY_LIMIT = 2	
	AUD_ERR	STDWN_RTRY_LIMIT = 2	
4x	LD_ERR	STDWN_RTRY_LIMIT = 2	
	BCM_ERR	STDWN_RTRY_LIMIT = 2	
5x	P_ID_ERR	STDWN_RTRY_LIMIT = 2	
6x	BACKLIGHT	STDWN_RTRY_LIMIT = 2	
7x	TEMP_ERR	STDWN_RTRY_LIMIT = 2	
8x	4KBE_ERR	STDWN_RTRY_LIMIT = 2	

Number of off/on action for MAIN_POWER shutdown is recorded to STDWN_OFFON_CNT_MAIN_POWER.

Number of off/on action during the error shutdown is recorded to STDWN_OFFON_CNT.

[1] If STDWN_OFFON_CNT <= STDWN_RTRY_LIMIT, and STDWN_OFFON_CNT_MAIN_POWER <= STDWN_RTRY_LIMIT_MAINPOWR, you can turn the set on by a remote/power key. At this time, if the error occurs again, the STDWN_OFFON_CNT is incremented by 1.

[2] When the main micro operates normally for STDWN_OFFON_CLR = 60 minutes, STDWN_OFFON_CNT and STDWN_OFFON_CNT_MAIN_POWER are cleared.

TROUBLESHOOTING

Triage Chart

Before you make the service call:

1. Confirm the symptom from the customer.
2. Select that symptom from the chart.
3. Bring all the boards and cables listed for that symptom.
4. Follow the troubleshooting charts in the technical guides to isolate the board.
5. Chart Color Code:　● : Most likely defective part　　　■ : Tertiary possible defective part

　　　　　　　　　　　▲ : Secondary possible defective part　　　BLACK TEXT: Board that may correct the symptom

Column group headers:
- **Symptoms - Shutdown. Power LED blinking red diagnostics sequences**: columns 2, 3, 4, 5, 6, 7, 8
- **Symptoms - no shutdown / Error log record only**: TU_DEMOD, TU_DEMOD_I2C, TCON_ERR, FRCTC_I2C, AUD_ERR_I2C, 4KPQ_ERR_I2C, TEMP_ERR_I2C, EARC_ERR_I2C, AMB_ERR_I2C
- **No Power**: No White Power LED & does not respond to remote (Dead Set)
- **Video - missing or distorted**: Stationary colored lines or dots, No video One of Inputs, NO RF input, No video of Camera, No video all Inputs
- **Remote**: No Remote Operation
- **Network**: Cannot connect to Wireless Network
- **Audio**: No Audio
- **Smart Core**: Smart Core no LED (Set is still alive)
- **Bluetooth (BT)**: Bluetooth / One Step Remote (OSR) can't connect

Reference	2	3	4	5	6	7	8	TU_DEMOD	TU_DEMOD_I2C	TCON_ERR	FRCTC_I2C	AUD_ERR_I2C	4KPQ_ERR_I2C	TEMP_ERR_I2C	EARC_ERR_I2C	AMB_ERR_I2C	Dead Set	Stationary colored lines or dots	No video One of Inputs	NO RF input	No video of Camera	No video all Inputs	No Remote Operation	Cannot connect to Wireless Network	No Audio	Smart Core no LED	Bluetooth OSR
Main Board	▲	●	■	■	■	●	●		●	▲		●		▲			▲	▲	●	●	▲	●	▲	▲	●	▲	▲
Power Board	●	▲	■	■	■												●					▲		▲			
Receiver Board														●			▲						●			●	
Speaker		▲																							●		
Wi-fi & BT Module																								●			●
LD-Board			▲																								
V By One FFC				▲						▲								▲				▲					
T-con				●						●								▲				■					
LCD Panel		●		▲	●	▲				■								●				■					
Camera (bundle or accessory)																					●						
Problem	Power	Power / Audio	Panel / LD	Panel (Communication) / T-con	Panel (Backlight)	TEMP	4KBE																				

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TROUBLESHOOTING

1.0 No Power - PSU

```
┌─────────────┐
│  No Power   │
└─────────────┘
       │
       ▼
  ╱──────────────────────────────────╲
 ╱  Before open TV set rear cover &    ╲        Still      ┌──────────────┐
│   check details, recommend to do      │ ───── NG ─────▶  │   No Power   │
 ╲  force factory data reset             ╱                  └──────────────┘
  ╲ (method refer "factory data reset") ╱                          │
   ╲──────────────────────────────────╱                           ▼
              │                                          ╱──────────────────╲
       TV can boot up                                   ╱  Check STBY 3.3V    ╲    NG
              │                                        │  C1708 near CN1701    │ ────▶ ...
              ▼                                         ╲  on BM5A board       ╱
         ┌─────────┐                                     ╲──────────────────╱
         │   End   │                                            │
         └─────────┘                                           OK
```

No Power → Check STBY 3.3V C1708 near CN1701 on BM5A board

- **NG** → Replace Harness between G* Board and BM5A board
  - **NG** → Replace G* Board
  - **OK** → Harness
- **OK** → BM5A board
  - u-Com Failure
  - DDCON/LDO
  - Main Device Failure

TROUBLESHOOTING

Board View

B-Side

C1708

TROUBLESHOOTING

Checking Point

TROUBLESHOOTING

1.2 No Power u-com Failure

Main Board

P-on u-com control signal path summary

3.3V_STBY	VDD → #pin6
	PGOOD_1 ← #pin9
	DDC : 0.8V_M5_CORE (IC804)
	#pin12 P_ON_#1
	DDCs: 0.9V_BE_DDC_1 (IC4802), 0.9V_BE_DDC_2 (IC4803), 0.8V_BE (IC4809), 0.7V_BE (IC4810) LDO : 1.8V_EMMC (IC2201)

Power-Board or Local Dimming-Board

BL_ON → #pin7

POWER_ON → #pin10

12.7V_MAIN — R450

12.7V_21V_AUDIO — R444

12V_MON → #pin16 ADC port

R462 → GND

3.3V_STBY

R445

TYPE_DET → #pin17

R446

GND

P-on u-com IC401

#pin13 P_ON_#2

DDCs: 5V_MAIN&5.0V_VBUS&5V_AUDIO (IC600), 1.0V_TU_P(IC603), 1.8V_M5 (IC813), 1.0V_M5 (IC812), 0.8V_M5_CPU (IC810), 0.8V_M5_GPU (IC811), 1.8V_BE_DDC (IC4800) LDOs: 3.3V_MAIN_H (IC403) FET SW : 3.3V_TU_P (Q602), 3.3V_MAIN &3.3V_AUDIO(Q611),

#pin18 P_ON_HL

FET SW : 12.7V_LNB (Q604) SW IC : 3.3V_TU_P (Q609) USB VBUS SW (IC3803/IC3804)

DC_MON → #pin11 ADC port

R457 → GND

#pin2 OPWRSB
#pin14 ORESETB
#pin3 DC_OFF_DET
#pin8 X_BL_MUTE

SOC Muffin 5 (IC1000)

SYS SET

TROUBLESHOOTING

1.2 No Power u-com Failure

```
                START
                  │
                  ▼
        ┌─────────────────────┐   no    ┌──────────────────────────────────┐
        │ Check VDD           │────────▶│ Check  3.3V_STBY Line            │
        │ C442 Voltage.       │         │ (C1708, CN1701 #9pin)            │
        │ Is the voltage >3.0V?│        └──────────────────────────────────┘
        └─────────────────────┘
                  │ yes
                  ▼
        ┌─────────────────────┐   no    ┌──────────────────────────────────┐
        │ Check TYPE_DET      │────────▶│ Type Detection Circuit problem.  │
        │ CL408 Voltage.      │         │ Check TYPE_DET Line (R445, R446).│
        │ Is the voltage      │         └──────────────────────────────────┘
        │ 2.6±0.2V?           │
        └─────────────────────┘
                  │ yes
                  ▼
        ┌─────────────────────┐   no    ┌──────────────────────────┐
        │ Check OPWRSB        │────────▶│ SOC Muffin 5 problem     │
        │ CL411 Voltage.      │         │ IC1000                   │
        │ Is the voltage 0V?  │         │ # AP17 OPWRSB            │
        └─────────────────────┘         └──────────────────────────┘
                  │ yes
                  ▼
        ┌─────────────────────┐   no    ┌───────────────────────────────────────────────┐
        │ Check POWER_ON      │────────▶│ Try AC Off and On after few minutes.          │
        │ CL419 Voltage.      │         │ If #pin10 keep Low, change IC401.             │
        │ Is the voltage >3.0V?│        │ If #pin10 goes High few seconds and downs     │
        └─────────────────────┘         │  to Low, Check 12.7V_MAIN Line (from Power board).│
                  │ yes                  └───────────────────────────────────────────────┘
                  └────────────────────────────────────────────────┐
                                                                    │
        ┌─────────────────────┐   no    ┌──────────────────────────────────┐
        │ Check 12V_MON       │────────▶│ Check 12.7V_MAIN Line            │
        │ R462 Voltage.       │         │ and 12.7V_21V_AUDIO Line         │
        │ Is the voltage >2.6V?│        │ (from Power board or LD board).  │
        └─────────────────────┘         └──────────────────────────────────┘
                  │ yes
                  ▼
        ┌─────────────────────┐   no    ┌──────────────────────────────────┐
        │ Check DC_OFF_DET    │────────▶│ Change IC401                     │
        │ CL414 Voltage.      │         └──────────────────────────────────┘
        │ Is the voltage >3.0V?│
        └─────────────────────┘
                  │ yes
                  ▼
        ┌─────────────────────┐   no    ┌──────────────────────────────────┐
        │ Check P_ON_#1       │────────▶│ Change IC401                     │
        │ CL418 is >3.0V?     │         └──────────────────────────────────┘
        └─────────────────────┘
                  │ yes
                  ▼
        ┌─────────────────────┐   no    ┌──────────────────────────────────┐
        │ Check  PGOOD_1      │────────▶│ 1.3  No POWER - DDCON/LDO        │
        │ CL413 Voltage.      │         │ Check 0.8V_M5_CORE               │
        │ Is the voltage >2.31V?│       │ DDCON (IC804)                    │
        └─────────────────────┘         └──────────────────────────────────┘
                  │
                  ▼
            Continue next page…
```

TROUBLESHOOTING

1.2 No Power u-com Failure

Previous page

```
Check P_ON_#2          no
CL417 Voltage.         ────►   Change IC401
Is the voltage >3.0V?
         │ yes
         ▼
Check P_ON_HL          no
CL415 Voltage.         ────►   Change IC401
Is the voltage >3.0V?
         │ yes
         ▼
Check ORESETB          no
CL416 Voltage.         ────►   Change IC401
Is the voltage >3.0V?
         │ yes
         ▼
Check X_BL_MUTE        no
CL412 Voltage.         ────►   SOC Muffin 5 (IC1000)
Is the voltage >3.0V?          problem.
         │ yes
         ▼
```

```
Check BL_ON            no
CL420 Voltage.         ────►   Change IC401
Is the voltage >3.0V?
         │ yes
         ▼
END
u-com IC401 is working OK
```

TROUBLESHOOTING

Board View

Top Side

B-Side

IC401 P u-Com

IC401 P u-Com

21

SYS SET

TROUBLESHOOTING

Board View

Top Side   B-Side

IC401 P u-Com

IC401 P u-Com

TROUBLESHOOTING

Checking Point

Top Side

B-Side

TROUBLESHOOTING

1.3 No Power DDCON/LDO

Board	Operation	IC Ref	Voltage supply	Output ref.	Enable pin	Enable source	Fuse	Vcc ref.
BM5STY	DC/DC	IC418	5.0V_STBY_H	C510	R557	Vin	-	C505
	LDO	IC403	3.3V_MAIN_H	C416	IC403 Pin#3	P_ON_#2	-	C415
	DC/DC	IC600	5V_MAIN/5.0V_VBUS/5V_AUDIO	C610	IC600 Pin#15	P_ON_#2	F600	C601
	DC/DC	IC618	3.3V_MAIN	C727	IC618 Pin#4	1.8V_BE_DDC	F609	C726
	DC/DC	IC603	1.0V_TU_P	C630	IC603 Pin#4	P_ON_#2 or IC1000 #AL18 (EWS_PWR_ON)	-	C628
	DC/DC	IC801	1.1V_M5_DDR	C806	IC801 Pin#4	R804/R907 (3.3V_STBY)	-	C801
	DC/DC	IC802	0.9V_M5_STBY	C809	IC802 Pin#4	R804/R907 (3.3V_STBY)	-	C807
	DC/DC	IC803	1.8V_STBY	C812	IC803 Pin#4	R804 (3.3V_STBY)	-	C810
	DC/DC	IC804	0.8V_M5_CORE	C846	IC804 Pin#8	P_ON_#1	F802	C831
	LDO	IC806	1.8V_M5_ET_STBY	C818	IC806 Pin#3	IC1000 #AN19 (ETHER_PWR_EN)	-	C817
	DC/DC	IC813	1.8V_M5	C904	IC813 Pin#4	P_ON_#2	F807	C902
	DC/DC	IC812	1.0V_M5	C898	IC812 Pin#4	P_ON_#2	F805	C896
	LDO	IC809	3.3V_M5_STBY	C816	R917	R917 (3.3V_STBY)	-	C815
	DC/DC	IC810	0.8V_M5_CPU	C861	IC810 Pin#19	P_ON_#2	F803	C855
	DC/DC	IC811	0.8V_M5_GPU	C874	IC811 Pin#19	P_ON_#2	F804	C868
	LDO	IC2201	1.8V_EMMC	C2216	IC2201 Pin#3	P_ON_#1 or ORESETB	-	C2214
	DC/DC	IC4800	1.8V_BE_DDC	C4805	IC4800 Pin#4	P_ON_#2	F4800	C4803
	DC/DC	IC4801	1.1V_BE	C4813	IC4801 Pin#4	1.8V_BE_DDC	F4801	C4812
	DC/DC	IC4802	0.9V_BE_DDC_1	C4820	IC4802 Pin#4	P_ON_#1	F4802	C4819
	DC/DC	IC4803	0.9V_BE_DDC_2	C4828	IC4803 Pin#4	P_ON_#1	F4803	C4827
	DC/DC	IC4809	0.8V_BE	C4860	IC4809 Pin#8	P_ON_#1	F4804	C4845
	DC/DC	IC4810	0.7V_BE	C4876	IC4810 Pin#8	P_ON_#1	F4805	C4863

P_ON_#1 : P-on u-com IC401 #pin12
P_ON_#2 : P-on u-com IC401 #pin13
ORESETB : P-on u-com IC401 #pin14

TROUBLESHOOTING

1.3 No Power DDCON/LDO (DDCON Check)

```
START
  │
  ▼
Check IC600 Vcc voltage
C601
Is voltage >12V?  ──no──► Check Vcc voltage
  │                        C801 / C628
  yes                      Is voltage >3V?  ──no──► Check D800/D600  ──no──► Change D800/D600
  │                          │                       Is diode okay?
  ▼                          yes                       │
Check Vcc voltage            │                         yes
C801/C628                    ▼                          └──► Check 3.3V_STBY. Power board
Is voltage >4V?  ──no──► Check D801/D601  ──no──► Change D801/D601
  │                       Is diode okay?
  yes                       │
  │                         yes
  ▼                          └──► Check 5V_MAIN DDCON (IC600)
Check Enable
IC800 #pin1/IC608 #pin4  ──no──► 1.2 No Power u-Com Failure
Is voltage >2.5V?                or Enable source
  │
  yes
  ▼
Change DDCON
IC801/IC802/IC803/IC603
```

Please Refer page 24 for Ref Number.

Board	Operation	IC Ref	Voltage supply
BM5ST	DC/DC	IC801	1.1V_M5_DDR
	DC/DC	IC802	0.9V_M5_STBY
	DC/DC	IC803	1.8V_STBY
	DC/DC	IC603	1.0V_TU_P

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SYS SET

TROUBLESHOOTING

1.3 No Power DDCON/LDO (DDCON Check)

```
START
  │
  ▼
Check fuse          no
F6xx/F8xx      ────────►  Change Fuse
Is fuse OK?
  │
  │ yes
  ▼
Check Vcc voltage   no      1) Check POWER_ON  P-on u-com IC401 #pin10
C4xx / C6xx/C8xx ─────────►  (Refer  1.2 No Power U-Com Failure)
Is voltage >12.0V?          2) Check Power board
  │
  │ yes
  ▼
Check Enable pin    no      1.2 No Power U-Com Failure
voltage         ─────────►           or
Is voltage >2.5V?                Enable source
  │
  │ yes
  ▼
Change DDCON IC
```

Please Refer page 24 for Ref Number.

Board	Operation	IC Ref	Voltage supply
BM5STY	DC/DC	IC418	5.0V_STBY_H
	DC/DC	IC600	5V_MAIN/5V_AUDIO
	DC/DC	IC618	3.3V_MAIN
	DC/DC	IC804	0.8V_M5_CORE
	DC/DC	IC813	1.8V_M5
	DC/DC	IC812	1.0V_M5
	DC/DC	IC810	0.8V_M5_CPU
	DC/DC	IC811	0.8V_M5_GPU
	DC/DC	IC4800	1.8V_BE_DDC
	DC/DC	IC4801	1.1V_BE
	DC/DC	IC4802	0.9V_BE_DDC_1
	DC/DC	IC4803	0.9V_BE_DDC_2
	DC/DC	IC4809	0.8V_BE
	DC/DC	IC4810	0.7V_BE

TROUBLESHOOTING

Board View

Top Side   B-Side

Top Side labels:
- 3.3V_MAIN
- 5.0V_VBUS/5V_MAIN/5V_AUDIO
- 1.0V_TU_P
- 3.3V_MAIN_H
- 5.0V_STBY_H

B-Side labels:
- 1.8V_BE_DDC
- 0.9V_BE_DDC_2
- 1.1V_BE
- 1.8V_STBY
- 1.8V_M5
- 0.8V_M5_GPU
- 0.9V_M5_STBY
- 1.1V_M5_DDR
- 0.8V_M5_CPU
- 1.8V_M5_ET_STBY
- 0.8V_M5_CORE
- 3.3V_M5_STBY
- 1.0V_M5
- 1.8V_EMMC
- 0.9V_BE_DDC_1
- 0.7V_BE
- 0.8V_BE

SYS SET

TROUBLESHOOTING

Board View

Top Side B-Side

Top Side labels:
- 3.3V_MAIN
- 5.0V_VBUS/5V_MAIN/5V_AUDIO
- 1.0V_TU_P
- 5.0V_STBY_H
- 3.3V_MAIN_H

B-Side labels:
- 1.8V_BE_DDC
- 0.9V_BE_DDC_2
- 1.1V_BE
- 1.8V_M5
- 1.8V_STBY
- 0.8V_M5_GPU
- 0.9V_M5_STBY
- 1.1V_M5_DDR
- 0.8V_M5_CPU
- 1.8V_M5_ET_STBY
- 0.8V_M5_CORE
- 3.3V_M5_STBY
- 1.0V_M5
- 1.8V_EMMC
- 0.7V_BE
- 0.9V_BE_DDC_1
- 0.8V_BE

TROUBLESHOOTING

Checking Point

5.0V_STBY_H   A-Side

5.0V_VBUS/5V_MAIN/5V_AUDIO   Top Side

IC418
C505
C510

B-Side
R557

Pin#15
IC600
C610
C601
F600

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TROUBLESHOOTING

Checking Point

3.3V_MAIN   Top Side

TROUBLESHOOTING

Checking Point

1.0V_TU_P Top Side

1.1V_M5_DDR B-Side

SYS SET

TROUBLESHOOTING

Checking Point

0.9V_M5_STBY   B-Side

1.8V_STBY   B-Side

SYS SET

TROUBLESHOOTING

Checking Point

0.8V_M5_CORE   B-Side   **1.8V_M5**   B-Side

TROUBLESHOOTING

Checking Point

TROUBLESHOOTING

Checking Point

0.8V_M5_GPU

B-Side

SYS SET

TROUBLESHOOTING

Checking Point

1.8V_BE_DDC B-Side

1.1V_BE B-Side

TROUBLESHOOTING

Checking Point

0.9V_BE_DDC_1 B-Side

0.9V_BE_DDC_2 B-Side

TROUBLESHOOTING

Checking Point

TROUBLESHOOTING

1.3 No Power DDCON/LDO (LDO Check)

Please Refer page 24 for Ref Number.

Board	Operation	IC Ref	Voltage supply
BM5STY	LDO	**IC403**	3.3V_MAIN_H

START

yes

Check Vcc voltage
C415
Is voltage >4V?

no → Check 5V_MAIN DDCON (IC600)

yes

Check Enable pin
voltage
Is voltage >3V?

no → 1.2 No Power U-Com Failure
or
Enable source

yes

Change LDO IC

TROUBLESHOOTING

1.3 No Power DDCON/LDO (LDO Check)

Please Refer page 24 for Ref Number.

Board	Operation	IC Ref	Voltage supply
BM5STY	LDO	**IC806**	1.8V_M5_ET_STBY

START

↓ yes

Check Vcc voltage
C817
Is voltage >3V?

→ no → Check 3.3V_DDC_OUT
DDCON
(IC607 on BM5A)
or
3.3V_STBY (Power board)

↓ yes

Check Enable pin
voltage
Is voltage >3V?

→ no → 1.2 No Power U-Com Failure
or
Enable source

↓ yes

Change LDO IC

TROUBLESHOOTING

1.3 No Power DDCON/LDO (LDO Check)

Please Refer page 24 for Ref Number.

Board	Operation	IC Ref	Voltage supply
BM5STY	LDO	**IC809**	3.3V_M5_STBY

START

↓ yes

Check Vcc voltage
C815
Is voltage >3.2V?

→ no → Check 3.3V_DDC_OUT
DDCON
(IC607 on BM5A)
or
3.3V_STBY (Power board)

↓ yes

Check Enable pin
voltage
Is voltage >3V?

→ no → 1.2 No Power U-Com Failure
or
Enable source

↓ yes

Change LDO IC

TROUBLESHOOTING

1.3 No Power DDCON/LDO (LDO Check)

Please Refer page 24 for Ref Number.

Board	Operation	IC Ref	Voltage supply
BM5ST	LDO	**IC2201**	1.8V_EMMC

START

Check IC600 Vcc voltage C601 Is voltage >12V? — no → Check Vcc voltage C2214 Is voltage >3V? — no → Check D2200 Is diode okay? — no → Change D2200

yes (C601) ↓ Check Vcc voltage C2214 Is voltage >4V?

yes (D2200) → Check 3.3V_STBY. Power board

Check Vcc voltage C2214 Is voltage >4V? — no → Check D2201 Is diode okay? — no → Change D2201

yes (D2201) → Check 5V_MAIN DDCON (IC600)

Check Enable IC2201 #pin3 Is voltage >1.0V? — no → 1.2 No Power u-Com Failure or Enable source

yes ↓ Change LDO IC2201

TROUBLESHOOTING

Checking Point

3.3V_MAIN_H B-Side

1.8V_M5_ET_STBY B-Side

TROUBLESHOOTING

Checking Point

3.3V_M5_STBY B-Side

1.8V_EMMC B-Side

TROUBLESHOOTING

1.4 NO POWER – Muffin5 Failure

TROUBLESHOOTING

2.0 LED Blinking: 2x (Main power Error)

```
        ┌─────────────────┐
        │  2-time blinking │
        └─────────────────┘
                 │
                 ▼
          ╱─────────────╲
         ╱  Check "12.7V_MAIN" ╲         Yes    ┌──────────────┐
        ╱ at pin 5,6,7,8 of CN1700 ╲──────────→│  Power Board │
        ╲  on Main Board,          ╱            └──────────────┘
         ╲ Voltage > 13.2V ?      ╱
          ╲─────────────╱
                 │
                 │ No
                 ▼
        ┌─────────────────┐
        │    Main Board    │
        └─────────────────┘
```

TROUBLESHOOTING

Checking Point

Board PWB (A side)	Detail
CN1700	CN1700 Pin 5,6,7,8 12.7V_MAIN

47

SYS SET

TROUBLESHOOTING

Detail of 3x LED Blinking

Error Item	Number of STBY LED flashing	Description
DC_ALERT	3	Main board 5V power rail monitoring
AUD_ERR	3	Audio amp error detection

SYS SET

TROUBLESHOOTING

2.1 LED Blinking: 3x (DC ALERT)

```
                    ┌─────────────────┐
                    │  3-time blinking │
                    │   (DC Alert)    │
                    └─────────────────┘
                             │
                             ▼
```

BM5STY

Check "12.7V_MAIN" at pin 5,6,7,8 of CN1700 on Main board, Voltage = 12.2~13.2V?

— OK → Check "5V_MAIN" at **JL601** on Main board, 4.75V < Voltage < 5.25V?

— OK → Check "5V_DET" at **CL1247** on Main board, 0.77V < Voltage < 1.11V?

— OK → Check Audio Error

NG → Power Board

NG → IC600, etc (Main Board)

NG → R1284, R1285, etc (Main Board)

TROUBLESHOOTING

Checking Point

Board PWB (A side)	Detail
 CN1700 **CL1247** **(Under Heatsink)**	 CN1700 Pin 5,6,7,8 12.7V_MAIN 5V_DET at CL1247

SYS SET

TROUBLESHOOTING

Checking Point

Board PWB (A side)	Detail
JL601	5V_MAIN at JL601

SYS SET

TROUBLESHOOTING

2.2 LED Blinking: 3x (AUD_ ERR)

```
                    ┌─────────────────┐
                    │   3x blinking   │
                    │   (AUD_ERR)     │
                    └────────┬────────┘
                             │
TV            ┌──────────────▼──────────────┐  Yes
Power OFF     │      Main Board             ├──────────┐
check         │  Audio Amp Fuse broken?     │          │
              └──────────────┬──────────────┘          │
                             │ No                       │
              ┌──────────────▼──────────────┐  Yes      │
              │      Main Board             ├──────────┤
              │  Audio Amp PVDD-GND short?  │          │        ┌──────────────┐  OK  ┌──────────────┐
              └──────────────┬──────────────┘          ├───────►│   Replace    ├─────►│  Main Board  │
                             │ No                       │        │  Main Board  │      └──────────────┘
              ┌──────────────▼──────────────┐  Yes      │        └──────┬───────┘
              │      Main Board             ├──────────┘               │ NG
              │  Audio Amp DVDD-GND short?  │                          │
              └──────────────┬──────────────┘                          │
                             │ No                                      │
TV            ┌──────────────▼──────────────┐                          │
Power ON      │      Main Board             │  Yes                     ▼
check         │  Audio Amp PVDD OK?         ├──────────┐     ┌──────────────────────┐  OK  ┌──────────────┐
              │  Before enter 3x blinking,  │          └────►│      Replace         ├─────►│ Main Board or│
              │  Check voltage supplied to  │                │ Power Board or       │      │   LD-Board   │
              │  B-Board Audio Amp PVDD for │                │     LD-Board         │      └──────────────┘
              │  that moment.               │                └──────────┬───────────┘
              └──────────────┬──────────────┘                           │ NG
                             │ No                                       ▼
              ┌──────────────────────────────┐         ┌──────────────┐  OK  ┌──────────────┐
              │ Measure the Speaker or        │  Yes    │   Replace    ├─────►│  Speaker or  │
              │ Tweeter Unit impedance by     ├────────►│  Speaker or  │      │   Tweeter    │
              │ multi-meter More than 10Ω or  │         │   Tweeter    │      └──────────────┘
              │ Less than 3.6Ω ?              │         └──────┬───────┘
              └──────────────┬────────────────┘  No           │ NG
                             ◄───────────────────────────────┘
                             ▼
              ┌──────────────────────────────┐         ┌──────────────────────┐  OK  ┌──────────────────┐
              │ Measure the Speaker Harness   │  Yes    │      Replace         ├─────►│ Speaker Harness  │
              │ Or Tweeter harness            ├────────►│ Speaker Harness or   │      │ or Tweeter       │
              │ connectivity by multi-meter   │         │  Tweeter Harness     │      │   Harness        │
              │ No connectivity? or           │         └──────────────────────┘      └──────────────────┘
              │ Shorted to GND/Chassis?       │
              └──────────────────────────────┘
```

TROUBLESHOOTING

2.2 LED Blinking: 3x (AUD_ ERR)

Caution : Before start do checking point, please ensure TV in "Power Off" Condition for Continuity check

Audio Amp Fuse

For Fuse open check
Measure continuity of Fuse F6603, F6604
Open = NG

Audio AMP(IC6600)

F6603

Audio Amp PVDD CN1700 Pin15,17,19

Audio Amp PVDD-GND check
Measure impedance between CN1700 Pin 15/17/19 and GND. Short = NG
Audio Amp PVDD-Voltage check
Measure Voltage at CN1700 Pin 15/17/19 and GND. <11.4V or >14.0V = NG

F6604

Audio AMP(IC6001)

Audio Amp DVDD

C6604

Audio AMP(IC6001)

Audio Amp DVDD-GND check
Measure impedance between DVDD and GND at capacitor C6604
Short = NG

TROUBLESHOOTING

2.5 LED Blinking : 5x Blinking (Panel ID Read Error)

A flowchart for troubleshooting 5x LED blinking (Panel ID Read Error):

- **5x blinking** →
- **Check "12.5V_TCON" on T-con board**
  - NG → **Replace Power Board**
    - OK → **Power Board NG**
    - NG → (returns to OK path)
  - OK → **Replace the Harness from Power board to Main board**
    - Symptom recovers → **Harness NG**
    - NG → **Replace the V-By-One FFC**
      - Symptom recovers → **V-By-One FFC NG**
      - NG → **Replace Main Board**
        - NG → **Replace Panel (T-con)**
          - Symptom recovers → **Panel (T-Con) NG**
        - Symptom recovers → **Main Board NG**

TROUBLESHOOTING

2.5 LED Blinking : Check point for 12.5V T-con at T-con Board

FT Back Chassis	Detail
G-board, LD board, BM5STY, T-con board	12V TCON

SYS SET

TROUBLESHOOTING

2.6 LED Blinking: 6x (Backlight Error)

```
6-times blinking
        │
        ▼
Check Voltage of "BL_ERR" at JL1703 on Main Board
   │ High (3.3V) ──▶ Check harness/connection Power board to Main Board
   │                      │ Harness / Connection broken ──▶ Replace harness ──▶ Symptom Improvement ──▶ Harness
   │                      │                                      │ No improvement
   │                      │ Harness / Connection OK ──────────▶ Power board ▶ Replace Power board. ──▶ Symptom Improvement ──▶ Power board
   │                                                             │ No improvement
   │ Low (0V) ──────────────────────────────────────────────▶ Replace Main Board ──▶ Symptom Improvement ──▶ Main Board
                                                                 │ No Improvement
                                                              Replace Panel ──▶ Symptom Improvement ──▶ Panel
```

TROUBLESHOOTING

Checking Point

Name	Board PWB (B side)	Detail
BM5A	JL1703 BL_ERR	JL1703 BL_ERR

SYS SET

TROUBLESHOOTING

2.7 LED Blinking: 7x (Temperature Error)

```
                        ┌──────────────────┐
                        │  7-time blinking  │
                        └──────────────────┘
                                 │
                                 ▼
                  ╱────────────────────────╲
                 ╱      Setting              ╲        No      ┌──────────────────┐
                ╱   circumstance is OK?       ╲──────────────▶│  Set to another   │
                ╲      Temperature,           ╱               │  location, etc.   │
                 ╲    Ventilation, etc.      ╱                └──────────────────┘
                  ╲────────────────────────╱
                                 │ Yes
                                 ▼
                  ╱────────────────────────╲     Symptom
                 ╱      Replace FFC          ╲  improvement   ┌──────────────────┐
                ╱  from Main Board to Receiver╲──────────────▶│       FFC         │
                ╲       Board.                ╱               └──────────────────┘
                  ╲────────────────────────╱
                                 │ NG
                                 ▼
                  ╱────────────────────────╲     Symptom
                 ╱   Replace Receiver Board, ╲  improvement   ┌──────────────────┐
                 ╲   and Aging a few hours   ╱──────────────▶│  Receiver board   │
                  ╲────────────────────────╱                 └──────────────────┘
                                 │ NG
                                 ▼
                  ╱────────────────────────╲     Symptom
                 ╱     Replace Main          ╲  improvement   ┌──────────────────┐
                ╱   Board, and Aging a few    ╲──────────────▶│  Main Board NG    │
                ╲       hours                 ╱               └──────────────────┘
                  ╲────────────────────────╱                           │
                                 │ NG                                  ▼
                                 ▼                            ┌──────────────────┐
                        ┌──────────────────┐                  │  I2C dumping or   │
                        │    TV Chassis     │                  │   Muffin check    │
                        └──────────────────┘                  └──────────────────┘
```

Confirming Environment

TROUBLESHOOTING

Checking Point

BM5STY board (A side)	Detail

SYS SET

TROUBLESHOOTING

2.8 LED Blinking : 8x Blinking

8-times blinking

Replace
Main Board

System
recovers

Main board **NG**

TROUBLESHOOTING

3.1 No Sound for Speaker

No Sound
Speaker

Check
・[Speakers] setting is [TV Speakers]?
・Nothing is connected to Headphone terminal and Bluetooth ?
・Volume setting is not too small?

OK

Measure the Speaker
or Tweeter Unit
impedance by multi-meter
>10Ω or <3.6Ω ?

Yes → Replace Speaker or Tweeter ? — OK

NG

No

Confirm the Speaker Harness
or Tweeter Harness
Cut or Shorted to the chassis ?

NG → Replace Speaker Harness
Then OK? — OK

NG

OK

Others TV settings correct?

NG → Factory Reset
Then OK? — OK

OK

NG

Replace Main Board
then OK ? — OK

Still NG

Replace Power Board and Power Board Harness

Finish

No sound only
Analog or Digital RF ?

Go to
3.7 No Sound Tuner

No sound only
HDMI ?

Go to
3.8 No Sound HDMI

TROUBLESHOOTING

3.2 No Sound for Headphone out/ Audio out/Optical out

**No Sound
Headphone out
(*Selected models only)**

Check
- Volume setting is not too small?
- Factory Data Reset? OK?

OK

NG

Replace Main Board

Finish

**No Sound
Opt out**

Check [Settings]
- [Speakers] setting is [TV Speakers]?
- [Digital Audio Out] is [PCM] ?
- [Digital audio out volume] is [Max]?

OK

NG

Replace Main Board

Finish

TROUBLESHOOTING

3.3 No Sound for TV Centre Speaker Mode

```
┌─────────────────────────────┐
│         No Sound            │
│  TV Centre Speaker Mode     │
└─────────────────────────────┘
              │
              ▼
┌──────────────────────────────────────────────────────┐
│ Check [Set up]                                        │
│ • [HDMI Input 3] is connected to Audio System         │──── OK ──┐
│ • [S-Center Speaker in] is connected to Audio System  │          │
│ • [Audio System] is turn on                           │          │
│ • [Audio source] with center speaker signal is        │          │
│   playback from TV                                    │          │
└──────────────────────────────────────────────────────┘          │
              │ NG                                                 │
              ▼                                                    │
┌──────────────────────────────────────────┐                      │
│ Check [Settings]                          │                      │
│ • [Speakers] setting is [Audio System]?   │──── OK ──────────┐   │
│ • [TV Centre speaker mode] is on ?        │                  │   │
│ • Factory Data Reset                      │                  │   │
└──────────────────────────────────────────┘                  │   │
              │ NG                                             │   │
              ▼                                                │   │
┌──────────────────────────────┐                              │   │
│     Replace  Main Board       │                              │   │
└──────────────────────────────┘                              │   │
              │                                                │   │
              ▼                                                │   │
┌──────────────────────────────┐◄─────────────────────────────┴───┘
│           Finish              │
└──────────────────────────────┘
```

TROUBLESHOOTING

3.8 No Sound HDMI 1/2/3/4

No Sound

↓

Check the picture — NG → Refer to 4.5 HDMI NO PICTURE

OK

↓

Check Sound with Others TV — NG → Refer to 3.0 No Sound

OK

↓

Is HDMI Splitter used ? — NO → Check Source equipment by Reference TV set — OK

YES

↓

Connect Source equipment directly

Check Source equipment by Reference TV set — NG → Check the settings of Source equipment

→ Change Main-Board.

No Sound ARC/eARC (HDMI3)

↓

Check the Port — Except HDMI3 → Change to HDMI 3

HDMI3

↓

Check the Amplifier /Soundbar — Not support ARC/eARC → Change to ARC/eARC support Amplifier/Soundbar

Support ARC/eARC

↓

Check Sound with Others TV — OK → Change Main-Board.

NG

↓

Inform the designer of it

TROUBLESHOOTING

4.0 No Picture

```
┌─────────────────┐
│   No Picture    │
└─────────────────┘
```

```
     Any abnormal          No      Check smart core      No       Check           Replace              NG     Replace          NG     Replace          NG    LCD panel
     display? (horizontal/  ──►    LED indication         ──►     power supply     the V by One FFC     ──►    Main board       ──►    TCON board       ──►   (O-cell) NG
     vertical line)                (5x blinking)                  problem          harness
```

Yes — Check other portions:

Ye s — Refer flow 2.5: 5x blinking – Panel ID Read Error

(power supply) — Refer flow 1.0: No Power

System recovers — V by One FFC harness NG

System recovers — Main board NG

System recovers — TCON board NG

Check other portions:
- Refer flow Analog Video – 4.2: No Picture
- Refer flow HDMI – 4.5: No Picture
- Refer flow Tuner – 4.4: No Picture

TROUBLESHOOTING

4.1 Analog Video Signal Path

CVBS

Composite

VIDEO_DET

AH9:GPIO56

CVBS0P

AL31:CVBS0P

**M5
IC1000**

TROUBLESHOOTING

4.2 No Picture – Investigation flow

Checking condition:
- TV ON, *AV conversion cable is connected to conversion jack input (Yellow) at TV side. Composite input cable is connected to composite source output.
- TV UI Display : Video in(WW)/AV in(EU)

Video
No Picture

Check if Analog Video Input UI is selectable?

No → Check VIDEO_DET signal at R2841 Is it 3.3V?

OK (**Vpp: 3.3 V**) → J2800 Connectivity Problem.

NG (**Vpp: 0 V**)

Yes

Check waveform between C2825 and IC1000. Is it Vpp : 0.56V?

OK (**Vpp: 0.56 V**)

NG (**Vpp: 0 V**) → **Check all parts condition at CVBS0P line. [D2800, VR2800, R2843, R2844, R2845, R2848, R2849, R2842, C2831]

OK → J2800 Connector Problem. (Change connector)

NG → Parts Broken. (Change Part)

IC1000 Problem. (Change B board)

*AV conversion cable spec

3.5 mm

1 2 3 4

1: L
2: Video
3: Ground
4: R

** OK Condition : No part short-circuited
NG Condition : Part short-circuited

TROUBLESHOOTING

4.2 No Picture - Actions

Condition	Actions to be taken
Muffin [IC1000] Problem	Change Main-board
Connector Problem Connectivity Problem	Change Connector
Parts Broken	Change Part according to ** remarks

TROUBLESHOOTING

4.2 No Picture – Parts Location

Board Name	Board PWB (A-side)	Details
BM5STY R2842, C2825		 C2825 R2842

SYS SET

TROUBLESHOOTING

4.2 No Picture – Parts Location

Board Name	Board PWB (B-side)	Details
BM5STY D2800, VR2800, R2843, R2844, R2845, R2848, R2849, C2831, R2841		VR2800, D2800, R2843, R2848, R2845, R2844, R2849, C2831 R2841

SYS SET

TROUBLESHOOTING

4.3 Input Skip Function

Under default condition;
If user insert analog video cables into video jacks, the Video/Component will be highlighted and can be selected.
The detection mechanism is based on below tables.

Input	Signal	Non-Detect (Typical)	Detect (Typical)
VIDEO IN /AV IN	VIDEO_DET IC1000 AH9-GPIO56	0V	3.3V

TROUBLESHOOTING

4.4 No Picture at Tuner

TROUBLESHOOTING

4.4 No Picture at Tuner

```
┌─────────────────────────────────┐
│ RF input no picture / noisy picture │
└─────────────────────────────────┘
              │
              ▼
      ╱─────────────────╲                    ┌──────────────────────────┐
     ╱ Check RF source    ╲        NG         │ Change RF cable and antenna │
     ╲ cable and antenna, OK? ╱ ────────────▶ └──────────────────────────┘
      ╲─────────────────╱
              │ OK
              ▼
   ╱──────────────────────────────╲
  ╱ Check Tuner power line:          ╲
 ╱  3.3V at JL3019 = 3.3V?            ╲          NG     ┌──────────────────────┐
│   1.0V at FB3102=1.0V? (UC ATSC3.0, JP) │ ─────────────▶ │ Please refer DDCON   │
 ╲  1.0V at FB3103=1.0V(Philippines)  ╱                 │ troubleshooting      │
  ╲  5.0V at FB3001= 5.0V (AEP)      ╱                   └──────────────────────┘
   ╲  1.8V at C3357=1.8V (JP)       ╱
    ╲──────────────────────────────╱
              │ OK
              ▼
   ╱──────────────────╲      NG      ╱────────────────────────────────╲    NG    ┌──────────────────────────┐
  ╱ All broadcasting     ╲ ─────────▶ ╱ Check part mounting condition    ╲ ──────▶ │ Change NG parts connected to │
  ╲ channel cannot be received? ╱      ╲ for I2C SDA & SCL line. (Refer Note I2C) ╱        │ I2C bus                     │
   ╲──────────────────╱            ╲────────────────────────────────╱          └──────────────────────────┘
              │ OK                                │ OK
              ◀───────────────────────────────────┘
```

Notes: I2C
- Parts for I2C SDA line: R3036, C3005
- Parts for I2C SCL line : R3035, C3006

Waveform confirmation point
- I2C_TU_ SDA line: JL3013
- I2C_TU_SCL line : JL3012

Notes: Demodulator
- Digital Tuning 1 : SoC inside demodulator
- Digital Tuning 2 : On board demodulator

*1 : Except US ATSC3.0, Please refer Digital Tuning 2

```
      ●────────────●──────────────────────────────────────────┐
      │            │                                    Satellite
   Analog│   Digital│  Terrestrial/Cable                        ▼
      │            │                              ╱──────────────────╲      NG
      │            │                             ╱ Check LNB power line ╲ ─────────▶
      │            │                             ╲ 12V at C3028 = 12V?   ╱
      │            │        AEP                    ╲──────────────────╱         │
      │            ●──────────────●                       │ OK                  ▼
      │   For TW, NA-ATSC(MX/UC),                  For JP, US ATSC 3.0,   ┌──────────────────────┐
      │   CH/HK, LA, PA, AEP                       and Philippines        │ 12V LNB Voltage Checking │
      ▼            ▼                                      ▼               └──────────────────────┘
┌──────────────┐ ┌──────────────────┐ ┌──────────────────┐
│ Refer Analog │ │ Refer Digital     │ │ Refer Digital     │
│ Tuning       │ │ Tuning 1          │ │ Tuning 2          │
└──────────────┘ └──────────────────┘ └──────────────────┘
```

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TROUBLESHOOTING

4.4 No Picture at Tuner

BM5STY Tuner portion(Top View)

1.0V Voltage Checking

BM5STY Tuner portion(Bottom View)

+12V_LNB Voltage Checking

BM5STY Tuner portion(Bottom View)

3.3V Voltage Checking

TROUBLESHOOTING

4.4 No Picture at Tuner - Tuner Power Lines: 3.3V, 12.0V, 1.0V

BM5STY Tuner portion(Top View)

BM5STY Tuner portion(Bottom View)

R3037

R3038

12V

R643

C3028

Q604

+12V_LNB Voltage Checking

FB3102

FB3103

1.0V Voltage Checking

BM5STY Tuner portion(Bottom View)

3.3V

JL3019 = 3.3V

3.3V Voltage Checking

TROUBLESHOOTING

4.4 No Picture at Tuner

BM5STY Tuner portion(Bottom View)

1.8V Voltage Checking

BM5STY Tuner portion(Top View)

5.0V Voltage Checking

TROUBLESHOOTING

4.4 No Picture at Tuner

Tuner Power Lines: 1.8V, 5.0V
BM5STY (Top View)

BM5STY Tuner portion(Top View)

5.0V

FB3001

5.0V Voltage Checking

BM5STY Tuner portion(Bottom View)

1.8V

C3357= 1.8V

1.8V Voltage Checking

SYS SET

TROUBLESHOOTING

4.4 No Picture at Tuner - FOR ANALOG TUNING

Notes:
- Parts for IF_N line : C3011
- Parts for IF_P line : C3010
- Parts for TAGC line: R3024, C3023, R3003,

A : Insert correct signal in correct ANT terminal.

Analog Tuning

For LA only

Confirm ANT or Cable connection

NG

OK

A

For Other destination

Enable to present broadcast channels?

OK

NG

Replace main board

Check part mounting condition for analog control line "IF_N, IF_P, TAGC"

OK

NG

Replace tuner module

NG

Replace main board

OK

End

Change NG parts

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TROUBLESHOOTING

4.4 No Picture at Tuner - FOR DIGITAL TUNING 1 For TW, NA-ATSC(MX/UC)*1, CH/HK, LA, PA

Notes:
- Parts for IF_N line : C3011
- Parts for IF_P line : C3010
- Parts for TAGC line: R3024, C3023, R3003,
-Parts for I line:C3009
-Part for Q line:C3012
-Parts for SAGC line:C3024, C3025

(A) : Insert correct signal in correct ANT/CABLE/ Satellite terminal.

*1:except US ATSC3.0, Please refer Digital Tuning 2

Digital Tuning 1

For LA (Dual ANT)

For AEP only

Confirm ANT or Cable connection
NG
OK

Confirm ANT or Satellite connection
OK
NG

For TW,NA-ATSC(MX/UC)*1, CH/HK, PA,

A

A

Sound is normal?
OK
No sound

Replace main board
NG

Check part mounting condition for digital data line "IF_N, IF_P, TAGC"
NG, (AEP)
OK

Replace tuner module

Check part mounting condition for digital data line "I, Q, SAGC"
NG, (AEP)

NG, (TW, NA-ATSC(MX/UC)*1, CH/HK, LA, PA)

OK
End

Change NG parts

OK

TROUBLESHOOTING

4.4 No Picture at Tuner - FOR DIGITAL TUNING 2 For US ATSC3.0 and Philippines

Digital Tuning 2

For US ATSC3.0 and Philippines

For JP

Confirm ANT or Satellite connection — NG → A

OK

Sound is normal? — OK

No sound

IC1000 (SoC) defect

Can it preset Digital broadcast? — OK

NG

Can it preset Analog broadcast? — NG

OK

Check part mounting condition for digital data line "TU1_TS_DATA0, TU1_TS_CLK, TU1_TS_VALID, TU1_TS_SYNC, TU_TS1_DATA1(JP Only)" (Refer Notes: TS line) — OK

NG

Change NG parts

Replace main board

Check part mounting condition for I2C SDA & SCL line. (Refer Note I2C) — NG

OK

Change Tuner module

Change NG parts

Check part mounting condition for X_DEMOD_RST_STBY line. (Refer Note RST) — NG

OK

Check the status of IC3001 peripheral components (UC ATSC 3.0, Philippines, JP)

Change NG parts

Notes: I2C
- Parts for I2C SDA line: R3036, C3005
- Parts for I2C SCL line : R3035, C3006

Waveform confirmation point
- I2C_TU_ SDA line: JL3013
- I2C_TU_SCL line : JL3012

Notes: TS line
-TS line parts for US ATSC3.0/Philippines
    R3120/R3121/ R3122/ R3123/ R3114/ C3126/ R3116/R3117/RB3001
- TS line parts for JP :
    R3113/R3120/R3121/ R3122/ R3123/ R3114/ C3126/ R3116/R3117/RB3001

A : Insert correct signal in correct ANT terminal.

Notes: RST
- Parts for X_DEMOD_RST_STBY line:
    R3109, C3117

Voltage confirmation point
    C3117 = 3.3V

SYS SET

TROUBLESHOOTING

4.4 No Picture at Tuner

Please refer to next slide for detail ref.no and part location.

BM5STY Tuner portion(Bottom View)

BM5STY Tuner portion(Top View)

TS Line near SOC

TAGC line (Need to open heatsink)

BM5STY Tuner portion(Bottom View)

I2C lines

IF Lines (Need to open heatsink)

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SYS SET

TROUBLESHOOTING

4.4 No Picture at Tuner- IF_N, IF_P, TAGC, TS Lines(Near SOC)

BM5STY Tuner portion(Top View)

BM5STY Tuner portion(Bottom View)

RB3001

BM5STY(Top View)

C3023

R3024

BM5STY Tuner portion(Bottom View)

JL3012

JL3013

BM5STY Tuner portion(Top View)

C3010

C3011

IF_P

IF_N

TROUBLESHOOTING

4.4 No Picture at Tuner

Please refer to next slide for detail ref.no and part location.

X_DEMOD_RST_STBY

I2C_SDA, I2C_SCL

TS Line near Tuner

TROUBLESHOOTING

4.4 No Picture at Tuner - I2C_SDA, I2C_SCL, TS Lines(Near tuner), X_DEMOD_RST_STBY

BM5STY Tuner portion(Top View)

BM5STY(Top View)

BM5STY Tuner portion(Top View)

I2C_SDA, I2C_SCL

BM5STY Tuner portion(Top View)

X_DEMOD_RST_STBY

TS Line near Tuner

TROUBLESHOOTING

4.4 No Picture at Tuner

BM5STY Tuner portion(Top View)

SAGC Line (Need to open heatsink)

BM5STY Tuner portion(Bottom View)

I, Q Lines

TV Business Group

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SYS SET

TROUBLESHOOTING

4.4 No Picture at Tuner - I,Q, SAGC(Near SOC)

BM5STY(Top View)

BM5STY Tuner portion(Bottom View)

BM5STY Tuner portion(Top View)

C3012

C3009

I, Q Lines

C3025

C3024

SAGC Line (Need to open heatsink)

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TROUBLESHOOTING

4.5 No Picture: HDMI 1/2/3/4

TROUBLESHOOTING

4.5 No Picture: Check Points HDMI 1,2,3 & 4

HDMI 1
+5V part :R4036
+5V line :CL4009
HPD line :CL4008

HDMI 2
+5V part :R4037
+5V line :CL4011
HPD line :CL4010

HDMI 3
+5V part :R4038
+5V line :CL4013
HPD line :CL4012

HDMI 4
+5V part :R4039
+5V line :CL4015
HPD line :CL4014

HDMI 1

CL4009

CL4008

R4036

HDMI 2

CL4011

CL4010

R4037

HDMI 3

CL4013

CL4012

R4038

HDMI 4

CL4015

CL4014

R4039

TROUBLESHOOTING

5.0 Key Switch Button Error

```
Key button error  →  Check harness connection between Main board and Receiver board

                        ─ NG →  Harness connection issue

                        ↓ OK

                     Change harness between Main board to Receiver board

                        ─ OK →  Main board to Receiver board harness issue

                        ↓ NG

                     Change Receiver board

                        ─ OK →  Receiver board issue

                        ↓ NG

                     Change Main board
                     Main device issue
```

TROUBLESHOOTING

5.1 IR Remote Commander Error

```
┌─────────────────────────┐      ╱‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾╲   NG   ┌─────────────────────────┐
│ IR remote commander     │ ───▶ │ Check harness   │ ─────▶ │ Harness connection      │
│ does not operate        │      │ connection      │        │ issue                   │
└─────────────────────────┘      │ between Main    │        └─────────────────────────┘
                                  │ board and       │
                                  │ Receiver board  │
                                  ╲_____╱
                                         │ OK
                                         ▼
                                  ╱‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾╲   OK   ┌─────────────────────────┐
                                  │ Change harness  │ ─────▶ │ Main board to Receiver  │
                                  │ between Main    │        │ board harness           │
                                  │ board to        │        │ issue                   │
                                  │ Receiver board  │        └─────────────────────────┘
                                  ╲_____╱
                                         │ NG
                                         ▼
                                  ╱‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾╲   OK   ┌─────────────────────────┐
                                  │ Change Receiver │ ─────▶ │ Receiver board issue    │
                                  │ board           │        └─────────────────────────┘
                                  ╲_____╱
                                         │ NG
                                         ▼
                                  ╱‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾╲
                                  │ Change Main     │
                                  │ board           │
                                  │ Main device     │
                                  │ issue           │
                                  ╲_____╱
```

TROUBLESHOOTING

5.2 Light Sensor Error

```
Backlight level does not change when          Check Light sensor
ambient light changed                         setting in TV menu.          Setting is "ON"      Check harness          NG      Harness connection
                                              On RC press    ────────────────────────►         connection between  ────────►      issue
                                              "Setting"→Select "Light                           Main board and Receiver
                                              Sensor"                                           board

                                                      │ Setting is "OFF"                                │ OK

                                                      ▼                                                 ▼
                                              Setting issue,                                    Change harness          OK      Main board to Receiver
                                              Change setting to "ON"                            between Main board to ────────►  board harness issue
                                                                                                Receiver board

                                                                                                        │ NG

                                                                                                        ▼
                                                                                                Change Receiver board   OK      Receiver board issue
                                                                                                                      ────────►

                                                                                                        │ NG

                                                                                                        ▼
                                                                                                Change Main board
                                                                                                Main device issue
```

TROUBLESHOOTING

5.3 CAS ID Unknown

Digital broadcasting (terrestrial / satellite) cannot be received. And the message of Fig1 or Fig2 is displayed on the screen.

Check harness connection between Main board and Smart Core*

NG → Harness connection issue

OK ↓

Change harness between Main board to Smart Core* harness

NG → Main board to Smart Core* harness issue

OK ↓

Change Smart Core*

NG → Smart Core* issue

OK ↓

Change Main board Main device issue

Unable to read info on the CAS. Unplug the TV from the AC power, wait for a while, then plug it in again.

Fig2. CAS ID Error (English)

*Smart Core = H-board (HY1)

TROUBLESHOOTING

6.0 Network Malfunction: Ethernet (wired)

```
[Network Set-up]
>[Wired Set-up]
on the TV
        |
        v
Connection Results          OK          Connection Results          OK          Connection Results          OK
Cable Connection    ------------->       Local Access        ------------->      Internet Access     ------------->   Main board
        |                                       |                                       |
    Failed                                   Failed                                  Failed
        |                                       |                                       |
        v                                       v                                       v
   Check cable    --OK-->  Main board     Wired Set-up    --Auto-->   Check          Proxy setting
        |                                 IP address setting          Local router
       NG                                       |                     DHCP server
        |                                    Manual
        v                                       |
   Ethernet Cable                               v
                                         Check IP address
                                               &
                                         Local router setting
```

Main Board

```
CHK1                    CHK2                    CHK3                    CHK4                    CHK5

Any scratches    NO    Check Ethernet    OK    Check            OK    Check body        OK    Check CMF        OK    IC1000 problem.
along         ------>  Connector pins  ------> Pulse Transformer ---> Appearance &    ------> Soldering      ------> Change Main board
TX+/-, RX+/-           Soldering              soldering               soldering              L2402 & L2403
lines?                 J2401                  T2401,T2402             Zener Diode
   |                      |                      |                    D2402                      |
  YES                    NG                     NG                      |                       NG
   |                      |                      |                     NG                        |
   v                      v                      v                      |                        v
Change Main board   Change             Change Pulse Trans             v                    Change CMF
                    Ethernet Connector                         Change Zener Diode
```

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TROUBLESHOOTING

6.1 Network Malfunction: Ethernet (wired)

Name	Full Board (A side)	Zoomed in view
BM5STY (Actual board)		TX, RX line (CHK1) · L2402 (CHK5) · T2401 (CHK3) · J2401 (CHK2) · L2403 (CHK5) · D2402 (CHK4) · T2402 (CHK3)

TROUBLESHOOTING

6.2 Wi-Fi Bluetooth - Wireless Network malfunction

TROUBLESHOOTING

6.3 Wi-Fi Bluetooth - Bluetooth malfunction

Bluetooth Remote doesn't work
Or
Bluetooth Mouse/Keyboard/Controller doesn't work
Or
Bluetooth Speaker/Headphone/ doesn't work

"Settings" →
"Remotes & Accessories" →
"Bluetooth Settings"
("Bluetooth" turn ON)

OK → Please refer connection instruction or device manual

NG

Check FFC 20P connection is OK between Wi-Fi/BT module and Main board

NG → Connect properly → OK → Loose FFC 20P

OK

Change Wi-Fi//BT module

NG

NG → Change FFC 20P Between Main board and Wi-Fi/BT module → NG → Change Main board

OK → Wi-Fi/BT module

OK → FFC 20P

B-board

FFC 20P

Wi-Fi/BT modules
DHUR-SY63

TROUBLESHOOTING

6.3 Wi-Fi Bluetooth

A Side   B Side

Wi-fi connector

TROUBLESHOOTING

Wi-Fi Module

Wi-fi connector

TROUBLESHOOTING

6.4 Built in Mic Malfunction

```
Built in mic doesn't work
          │
          ▼
Check Mic hardware switch ──NG──▶ Turn on Mic switch
        on TV
          │
          │ OK
          ▼
Check harness connection ──NG──▶ Connect properly ──NG──▶ Change FFC Cable
   between Main board                    │                 between Main board and
   and Receiver Board                    │ OK                  Receiver board
          │                              │
          │ OK                           │
          ▼                              ▼
  Change Receiver board ◀────────────────
          │
          │ NG
          ▼
   Change Main board
```

	FT
Main board	BM5STY
Receiver board	HT2

FFC 25P

Bboard

Receiver
board

SYS SET

TROUBLESHOOTING

Board View

BM5STY (Top view)

Receiver board connector

HT2 (Top view)

Receiver board connector

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SOFTWARE UPDATE & RESET

USB Update

1: Download USB image and unzip file.

2: Copy zip file to USB memory root folder.

3: USB memory insert TV.

Caution:
Do not power off while
the update is in progress.

4-a:USB image is newer soft version.
Automatically show message and start update.
Please follow directions.

4-b:USB image is not newer soft version.
Automatically show message.
Please follow directions.

Updating your TV software...

46%

During the software update, you can't use this TV. When the software update completes, the Illumination LED stops blinking and your TV restarts automatically. Please do not remove the USB flash drive until this blinking stops. The update takes about 10 minutes to complete. Press the BACK button on your remote control to cancel the update.

System software update

Your software is up to date.
Please remove the USB device and select [OK] to exit.

OK

Updating...

The system reboot
will happen once or twice

5: finished

5: finished

※ Display may change depending on the model / SW version.

SOFTWARE UPDATE & RESET

Factory Data Reset – with UI method

1. At Home Menu, go to Settings

2. Select System/Device Preferences

3. Select 'About'

4. In About, Select 'Reset'

7. Select 'Yes'

6. Select 'Delete everything'

5. In Reset, Select 'Factory data reset'

SOFTWARE UPDATE & RESET

Factory Data Reset – force method (without UI)

1. Press and hold the Power button. (The position of the Power button depends on the model.)

or

2. AC on.

3. Hold the Power button down for several seconds until the system starts Factory Data Reset.

SYS SET

DIAGRAM

55" Connecting Diagram

DIAGRAM

65" Connecting Diagram

DIAGRAM

75" Connecting Diagram

DIAGRAM

85" Connecting Diagram

HANDLING GUIDE

1. Holding Position

OK

Be sure to wear gloves and work with two people

OK

Holding edge of the Bezel without touching the O-cell

NG

Hand pressing the O-Cell

OK

Support set at edge of the Bezel without touching the O-cell

NG

Hand pressing the O-Cell

SYS SET

HANDLING GUIDE

2. Carry Position

OK

The panel should be vertical and carried by two people with the corners.

NG

Notes
FT: With LD board

DO NOT carry the panel horizontally

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HANDLING GUIDE

3. Carry Condition

OK

The panel should be vertical and carried by two people with the corners.

NG

DO NOT carry the panel at the center area

NG

DO NOT carry the panel alone

NG

NG

Since the O-cell may pop out, **DO NOT** apply force to the Back Chassis or rotate the Bezel

NG

O-Cell Pop out

SYS SET

HANDLING GUIDE

3. Carry Condition

OK

The panel should be carried by the corners.

NG

DO NOT carry the panel at the center area

HANDLING GUIDE

4. Resting Condition

2 persons put the panel on the table

DO NOT put the panel on the table by yourself

Panel can be fully supported by table surface

Panel is not fully supported by table surface (Corner / edge is hanging)

HANDLING GUIDE

5. Prohibit Method

NG

Handle the panel without gloves

NG

Notes
FT: With LD board

Press on the panel during Assy & Disassy

HANDLING GUIDE

6. Restricted Area

OK

Rear Cover hook
(2 positions L/R)

PIEZO hook
(2 positions L/R)

NG

Touch on the PIEZO hook

NG

Touch on the Rear Cover hemming

DO NOT touch the Piezo hook and the rear cover hook

English
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SERVICE MANUAL (DISASSEMBLY)

ORIGINAL MANUAL ISSUE DATE: 2023.11

9-888-901-U1

LCD TV

SONY®

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MODEL LISTS

Model	Remote	Destination
XR-55X90K	RMF-TX800U	UCM
XR-55X90CK	RMF-TX900U	UC2
XR-65X90K	RMF-TX800U	UCM
XR-65X90CK	RMF-TX900U	UC2
XR-75X90K	RMF-TX800U	UCM
XR-75X90CK	RMF-TX900U	UC2
XR-85X90K	RMF-TX800U	UCM
XR-85X90CK	RMF-TX900U	UC2

Self Diagnosis
Supported model

RMF-TX800U   RMF-TX900U

TABLE OF CONTENTS

Self Diagnosis Supported model

Please refer Service Manual (Troubleshooting) for below information:

- General Safety Notes
- Self Diagnosis Function
- Triage Chart
- Troubleshooting, Troubleshooting reference
- Software Update & Reset
- Diagram: Connector Diagram
- Handling Guide

Note: Pictures provided in this manual may have difference from actual sets

TOOLS & EQUIPMENTS

1 LIST OF ITEMS TO PREPARE

i. Screwdriver (e.g., #2 Phillips Screwdriver)

ii. Multimeter

iii. ESD Wrist Straps

iv. Metal Washer (Flat) or Coin (for remove Rear Cover)

v. Ruler (for remove Rear Cover)

vi. Service Manual (Disassembly) (for remove & replace details)

2 OPTIONAL EQUIPMENTS

i. Screwdriver (e.g., #0 Phillips Screwdriver)

ii. Parts Tray for loose screws and small items

iii. Flashlight

iv. Service Manual (Troubleshooting)

3 PREPARATION BEFORE REPAIRS

Before you begin, unplug the TV from the wall outlet and stand it up on a level work surface to begin removing the Rear Cover. If you are working on a TV that was wall-mounted, and does not have a stand, simply place the TV faced-down on top of a thick blanket, on a large/flat surface, or you may be able to lean it up against a wall near a wall outlet.

Thickness: approx. 1.5mm
Diameter: 20~25mm
(wrap in tape (L=50mm))

Plastic or Metal Ruler
(In case of Metal ruler, wrap in tape (L=50mm) for prevent scratches)

FFC PRECAUTIONS

FFC Insertion Method

※Caution: DO NOT hold / touch copper side during FFC handling.

ESSENTIAL CAUTION INFO THAT MUST BE FOLLOWED BY PRODUCTION FOR ANY FFC INSERTION METHOD

STRAIGHT INSERT

OK

Connector

FFC

NG

Connector

FFC

INSERT FFC IN STRAIGHT CONDITION

DO NOT INSERT FFC IN SLANTING CONDITION

DO NOT APPLY EXCESSIVE FORCE DURING INSERTION

INSERT ANGLE

OK

FFC

Connector

<15°

FFC

BOARD

Cross section of TV set from A

NG

FFC

FFC bending

Connector

RECOMMENDED FFC HOLDING METHOD MATRIX

INDICATION FOR FFC FULL INSERTION

		A Sandwich	B Both ends	C Plate
1	One-hand	1A	1B	1C
2	Both hands	2A		2C

For manual insertion checking

For automation insertion checking

FFC PRECAUTIONS

Caution for FFC with Housing Connector

| CAUTION FOR FFC WITH CONNECTOR INSTALLATION AT PANEL SIDE | ABNORMAL HANDLING WILL CAUSE CONTACT SHIFTED & FOREIGN PARTICLES ISSUE AS PICTURE BELOW: |

ZIFF FFC Insertion Caution

Pull **up** to open actuator.

Close actuator securely to lock
Make sure line indication on FFC is align with actuator.

Do not push **inwards** with excessive force.

SECTION 1: XR-55X9*K

REAR COVER

1. Remove the screws from the rear cover (5 pcs)

2. Unhook the bottom hook, starting from center.

<1> <2>

① Unhook two hooks closest to center simultaneously to prevent lock back. (Refer to the next page for the location of hooks)

② Unhook both hooks using coin or jig.

③ Use mirror or touch the line to assist locating the hook position.

Coin or jig to unhook bottom Rear Cover - Bezel hook
*Wrap coin in tape (55mmX25mm)
*Thickness of coin approximately 2mm

Coin

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

SYS SET

SECTION 1: XR-55X9*K

REAR COVER

Bottom Hook Position

42mm　325mm　86mm　162mm

3. Unhook corner hook.

Ruler or jig to release corner hook
*Wrap ruler with tape to prevent scratch

① Releasing the corner hook by pulling the Rear Cover corner and
　insert a jig or ruler.

② Ensure the jig or ruler is pulled backward.

③ DO NOT pivot on bezel when inserting the jig or ruler.

1

2　**OK**

Backward

3　**NG**

Do NOT pivot on bezel

SECTION 1: XR-55X9*K

REAR COVER

4.   Unhook left side hooks.

Total rear cover back chassis : 4 hooks

① Grip the rear cover by hand and use a ruler or jig to remove the hook of the rear cover back chassis.

② Flex the rear cover outward to remove the hook. Support set with arm.

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

SECTION 1: XR-55X9*K

1-1. DISASSEMBLY AND REMOVAL CAUTION

REAR COVER

5.   Unhook right side hooks.

Total side bracket hooks : 3 hooks.

Total rear cover – back chassis hooks : 4 hooks

<1>

① Remove the side hooks.

② Pull the rear cover below the side jack to remove the hook.

③ Remove the remaining side hooks.

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

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SYS SET

SECTION 1: XR-55X9*K

1-1. DISASSEMBLY AND REMOVAL CAUTION

REAR COVER

6. Unhook top row.

> Total hooks (top row): 6 hooks

① Tilt the rear cover and push upwards on the left and right side.

② Pull the rear cover below the side jack to remove the upper hook.

Hook positioning.

205mm 180mm 165mm 150mm 165mm 180mm

185mm

140mm

87mm

83mm

130mm

95mm

100mm

77mm

SECTION 1: XR-55X9*K

POWER BOARD   LD BOARD   WI-FI BOARD   MAIN BOARD   RECEIVER BOARD

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

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SYS SET

SECTION 1: XR-55X9*K

1-3. WIRE DRESSING

INFORMATION

Caution:
1. Operator need to fix Smart Core on **FLAT** surface before FFC insertion to ensure **FFC STRAIGHT** insertion.
2. FFC side with blue supporting tape, must face **CONNECTOR WITH LOCKING** during FFC insertion.

FFC (longer side) is inserted at Main Board

After assemble Receiver board to Smart Core, operator need to insert Receiver board FFC in straight condition.

FFC side with blue supporting tape face connector with locking during insertion.

FFC (shorter side) is inserted at Smart Core

Smart Core is placed on FLAT surface during FFC insertion.

INFORMATION

Special Handling for FFC 41P & 51P Dressing

1. Align FFC 41P & 51P to the emboss edge before apply VA tape.

2. Follow WWOPS datum — Apply VA tape based on WWOPS datum.

OK — FFC has curve — FFC has buffer length at Main Board side.

NG — FFC is straight — FFC is stressed at Main Board side.

| TOOLS & EQUIPMENTS | FFC PRECAUTIONS | SECTION 1 | SECTION 2 | SECTION 3 | SECTION 4 | SMART CORE | APPENDIX |

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SYS SET

SECTION 1: XR-55X9*K

1-3. WIRE DRESSING

TAPE

INFORMATION

OK — FFC has curve

FFC has buffer length at Main Board side.

NG — FFC is straight

FFC is stressed at Main Board side.

WIRE DRESSING

WIRE DRESSING

1

2

Pinching wire

SECTION 1: XR-55X9*K

WIRE DRESSING

1

2

Pinching wire

TAPE

1

Align harness at the red dotted line before tapping

T-CON L (COM)

BCCDE

2

SHIELD, T-CON L (COM)

BCCDE

No stress during taping

WIRE DRESSING

1	2

Pinching wire

WIRE DRESSING

1	2

Pinching wire

SECTION 1: XR-55X9*K

WIRE DRESSING

TAPE

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

SECTION 1: XR-55X9*K

1-3. WIRE DRESSING

TAPE

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

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SYS SET

INFORMATION

Tape Folding Direction Information

OK	NG
Tape is folded in correct direction	Tape is folded incorrectly

Touch up Tape, if folding direction is incorrect

1. Pinch SHEET SHADING TAPE with finger.

2. Move as above direction. Correct folding direction.

SECTION 1: XR-55X9*K

1-4. EXPLODED VIEW AND PART LIST

- Place the TV set facing downwards on a stable, level surface before disassembly and assembly of parts.
- ⚠ and shaded parts are critical for safety. Replace only with part number specified.
- 🔒 Parts contain confidential information. Strictly follow the instruction whenever the components are repaired and/or replaced

- \ (*) Parts are not stocked since they are seldom required for routine service. Some delays should be anticipated when ordering these components.
- \ Picture provided in this section might have slight difference from the actual sets.
- \ The reference number beside the part indicates the disassembly sequence.
- \ Remove screws before disassembly. Unplug connectors before disassembly

Stand

SECTION 1: XR-55X9*K

SET PART LIST

REF. NO	PART NO.	DESCRIPTION	XR-55X90K	XR-55X90CK
			UCM	UC2
1	5-039-876-01	LABEL, SIDE TERMINAL HP (TGR)	•	•
⚠ 2	5-026-651-01	REAR COVER ASSY (L RIS)	•	•
3	1-009-973-11	LOUDSPEAKER,FY21 14_17MM-TW	•	•
4	1-013-470-11	SP-BOX ASSY,FY22 W30L DBR-A	•	•
5	1-013-470-21	SP-BOX ASSY,FY22 W30L DBR-B	•	•
6	5-009-258-21	BRACKET, WIFI(BNN)	•	•
🔒 7	1-005-419-13	WLAN/BT MODULE(11AC)	•	•
8	5-039-955-11	BRACKET SIDE (BNN) A	•	•
🔒 9	A-5042-769-A	COMPL_SVC_BM5STY_UC_FT	•	•
10	4-457-451-12	SHEET, THERMAL (BAF)	•	•
⚠ 11	1-013-618-21	G21P-STATIC CONVERTER (TV)	•	•
⚠ 12	5-027-740-12	SHEET, INSULATION (L PHN) A	•	•
13	5-020-359-01	SHEET, THERMAL CSOT (APL)	•	•
14	5-027-341-01	SHEET, THERMAL (RIS)	•	•
15	1-014-119-11	MOUNTED PWB E-T-CON (55)	•	•
16	A-5042-589-A	COMPL 22LD48C1_FT	•	•
⚠ 17	A-5044-463-A	P-MOD (YDCM055DCS01)(SVC)	•	n/a
18	5-034-614-01	STAND L (L TGR) A	•	•
19	5-034-615-01	STAND R (L TGR) A	•	•

SECTION 1: XR-55X9*K

SCREW

REMARKS	P/N	DESCRIPTION	QTY	TORQUE (N.m)
🔴	4-472-518-11	SCREW, +PSW M3X6	11	0.4 ± 0.05
🔴🟡	2-580-592-01	SCREW, +PSW M3X8	1	0.4 ± 0.05
🟢	5-015-521-01	+PSW M6*16 W14	4	1.2 ± 0.1
🔵🟡	4-579-926-01	M3x3.0 STEP	1	0.4 ± 0.05

SYS SET

SECTION 1: XR-55X9*K

CONNECTOR

REF. NO	PART NO.	DESCRIPTION	REMARKS
1	1-007-098-11	CONNECTOR ASSY 15P	CN6601(G21/G22/G23B)-CN1003(LD55/LD65/LD75)(1)
2	1-014-494-11	CONNECTOR ASSY 28P	CN6401(G21/G22/G23B)-CN1700(BM5STY)-CON3/J105/J114(TCON)(1)
3	1-007-097-12	CONNECTOR ASSY 4P (PZ)	CN6602(BM5STY)-TW(1)
4	1-007-107-11	FLEXIBLE FLAT CABLE 30P	CN1000(LD55/LD65)-CN6200(BM5STY)(1)
5	1-007-108-12	FLEXIBLE FLAT CABLE 41P	CN4201(BM5STY)-U2/J104(T-CON)(1)
6	1-007-110-12	FLEXIBLE FLAT CABLE 51P	CN4200(BM5STY)-U1/J103(T-CON)(1)
7	1-007-100-11	FLEXIBLE FLAT CABLE 20P	CN3801(BM5STY)-J1(WIFI/BT)(1)
8	1-007-105-11	FLEXIBLE FLAT CABLE 25P	CN1200(BM5STY)- CN102(HT2)(1)
9	1-006-501-33	CONNECTOR ASSY 4P (SP)	CN3550(BM5A)/CN6600(BM5STY)-SP(1)

SECTION 1: XR-55X9*K

OTHER PARTS

PART NO.	DESCRIPTION	XR-55X90K UCM	XR-55X90CK UC2	REMARKS
4-535-064-61	ASSY,FALL LOCK,BELT LL	•	•	-
⚠1-005-642-12	C7L AC POWER CORD SETS (US)	•	•	-
1-013-691-23	REMOTE COMMANDER (RMF-TX800U)	•	n/a	-
1-013-685-22	REMOTE COMMANDER (RMF-TX900U)	n/a	•	-
*5-037-700-11	REFERENCE GUIDE	•	•	-
*5-038-985-11	SETUP GUIDE	•	•	-
7-600-031-97	TAPE (3M 1350FB-1)15MMX66M BLK	•	•	-
5-009-861-02	VESA SPACER A (COM)	•	•	Screw extension for Fall Lock Belt and Wall Mount, Qty 1, refer Setup Guide for details..

SECTION 2: XR-65X9*K

2-1. DISASSEMBLY AND REMOVAL CAUTION

REAR COVER

1. Remove the screws from the rear cover (5 pcs)

2. Unhook the bottom hook, starting from center.

<1> <2>

① Unhook two hooks closest to center simultaneously to prevent lock back. (Refer to the next page for the location of hooks)

② Unhook both hooks using coin or jig.

③ Use mirror or touch the line to assist locating the hook position.

Coin or jig to unhook bottom Rear Cover - Bezel hook
*Wrap coin in tape (55mmX25mm)
*Thickness of coin approximately 2mm

Coin

SECTION 2: XR-65X9*K

REAR COVER

Bottom Hook Position

56mm 135mm 253mm 108mm 172mm

3. Unhook corner hook.

Ruler or jig to release corner hook
*Wrap ruler with tape to prevent scratch

① Releasing the corner hook by pulling the Rear Cover corner and insert a jig or ruler.

② Ensure the jig or ruler is pulled backward.

③ DO NOT pivot on bezel when inserting the jig or ruler.

1	2 OK	3 NG
	Backward	Do NOT pivot on bezel

SECTION 2: XR-65X9*K

REAR COVER

4.   Unhook left side hooks.

> Total rear cover back chassis : 4 hooks

① Grip the rear cover by hand and use a ruler or jig to remove the hook of the rear cover back chassis.

② Flex the rear cover outward to remove the hook. Support set with arm.

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

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SYS SET

SECTION 2: XR-65X9*K

2-1. DISASSEMBLY AND REMOVAL CAUTION

REAR COVER

5. Unhook right side hooks.

Total side bracket hooks : 3 hooks.

Total rear cover – back chassis hooks : 4 hooks

<2>

<1>

① Remove the side hooks.

② Pull the rear cover below the side jack to remove the hook.

③ Remove the remaining side hooks.

1

2

3

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

SYS SET

SECTION 2: XR-65X9*K

2-1. DISASSEMBLY AND REMOVAL CAUTION

REAR COVER

6. Unhook top row.

> Total hooks (top row): 7 hooks

① Tilt the rear cover and push upwards on the left and right side.

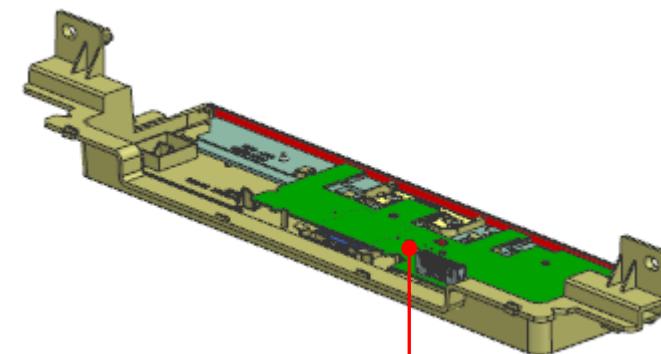② Pull the rear cover below the side jack to remove the upper hook.

Hook positioning.

124mm 200mm 200mm 200mm 200mm 200mm 200mm

170mm
130mm
125mm
167mm
127mm

87mm
83mm
95mm

SECTION 2: XR-65X9*K

2-2. BOARD LOCATION

POWER BOARD   LD BOARD   WI-FI BOARD   MAIN BOARD   RECEIVER BOARD

SECTION 2: XR-65X9*K

2-3. WIRE DRESSING

INFORMATION

Caution:
1. Operator need to fix Smart Core on **FLAT** surface before FFC insertion to ensure **FFC STRAIGHT** insertion.
2. FFC side with blue supporting tape, must face **CONNECTOR WITH LOCKING** during FFC insertion.
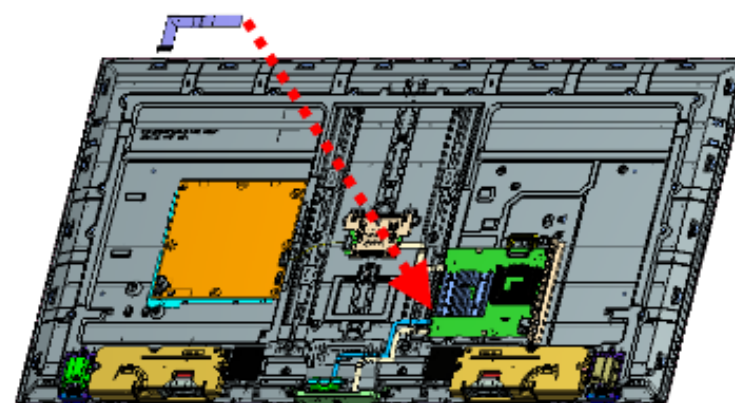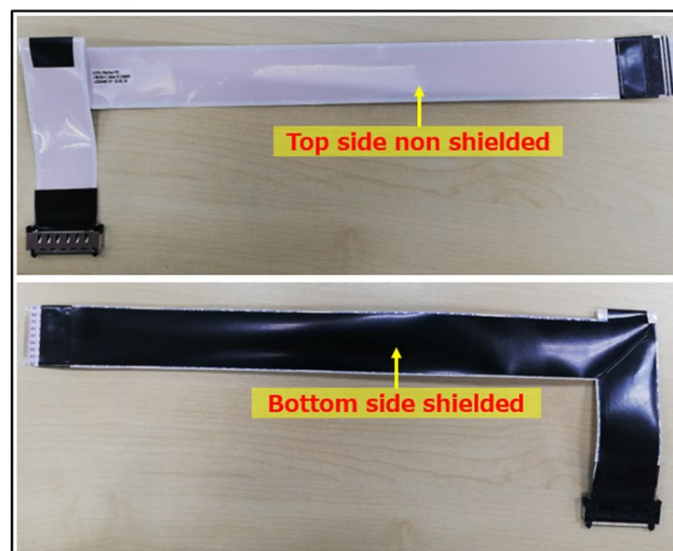
FFC (shorter side) is inserted at Main Board

After assemble Receiver board to Smart Core, operator need to insert Receiver board FFC in straight condition.

FFC (longer side) is inserted at Smart Core

FFC side with blue supporting tape face connector with locking during insertion.

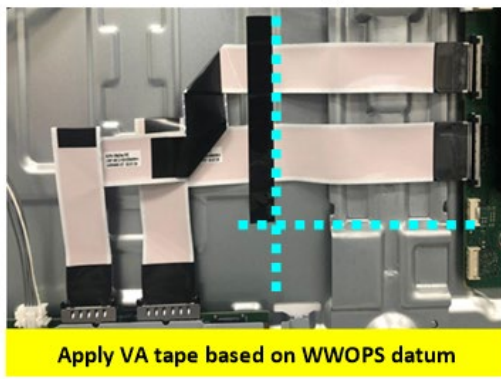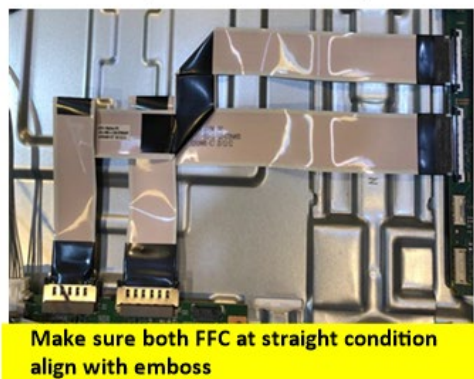Smart Core is placed on FLAT surface during FFC insertion.

INFORMATION

Special Handling for FFC 41P & FFC 51P Dressing

Make sure FFC 41P at the middle of upper emboss and FFC 51P align with middle emboss edge

Apply VA tape based on WWOPS datum.

OK

FFC has buffer length at Main Board side.

NG

FFC is stressed at Main Board side.

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

SECTION 2: XR-65X9*K

TAPE

1

2

No stress during taping

WIRE DRESSING

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

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SYS SET

SECTION 2: XR-65X9*K

WIRE DRESSING

WIRE DRESSING

SECTION 2: XR-65X9*K

TAPE

1

Align harness at the red dotted line before taping

SHIELD, T-CON L (COM)

2

No stress during taping

SHIELD, T-CON L (COM)

WIRE DRESSING

1

(2L COM)

2

(2L COM)

Pinching wire

SECTION 2: XR-65X9*K

2-3. WIRE DRESSING

WIRE DRESSING

Pinching wire

SECTION 2: XR-65X9*K

2-3. WIRE DRESSING

INFORMATION

INFORMATION

Caution : Keep harness away from Inhibit Area

Tape Folding Direction Information

OK	NG
Tape is folded in correct direction	Tape is folded incorrectly

Touch up Tape, if folding direction is incorrect

1. Pinch SHEET SHADING TAPE with finger.
2. Move as above direction. Correct folding direction.

SECTION 2: XR-65X9*K

- Place the TV set facing downwards on a stable, level surface before disassembly and assembly of parts.
- ⚠ and shaded parts are critical for safety. Replace only with part number specified.
- 🔒 Parts contain confidential information. Strictly follow the instruction whenever the components are repaired and/or replaced

\ (*) Parts are not stocked since they are seldom required for routine service. Some delays should be anticipated when ordering these components.
\ Picture provided in this section might have slight difference from the actual sets.
\ The reference number beside the part indicates the disassembly sequence.
\ Remove screws before disassembly. Unplug connectors before disassembly

Stand

SECTION 2: XR-65X9*K

SET PART LIST

REF. NO	PART NO.	DESCRIPTION	XR-65X90K	XR-65X90CK
			UCM	UC2
1	5-039-876-01	LABEL, SIDE TERMINAL HP (TGR)	•	•
⚠ 2	5-026-655-01	REAR COVER ASSY (2L RIS)	•	•
3	1-009-973-11	LOUDSPEAKER,FY21 14_17MM-TW	•	•
4	1-013-470-11	SP-BOX ASSY,FY22 W30L DBR-A	•	•
5	1-013-470-21	SP-BOX ASSY,FY22 W30L DBR-B	•	•
6	5-009-258-21	BRACKET, WIFI(BNN)	•	•
🔒 7	1-005-419-13	WLAN/BT MODULE(11AC)	•	•
8	5-039-955-11	BRACKET SIDE (BNN) A	•	•
🔒 9	A-5042-769-A	COMPL_SVC_BM5STY_UC_FT	•	•
10	4-457-451-12	SHEET, THERMAL (BAF)	•	•
⚠ 11	1-013-619-21	G22P-STATIC CONVERTER (TV)	•	•
⚠ 12	5-027-741-11	SHEET, INSULATION (2L PHN) A	•	•
13	5-020-359-01	SHEET, THERMAL CSOT (APL)	•	•
14	5-027-341-01	SHEET, THERMAL (RIS)	•	•
15	1-014-121-11	MOUNTED PWB E-T-CON (65)	•	•
16	A-5042-592-A	COMPL 22LD60C2_FT	•	•
⚠ 17	A-5044-461-A	P-MOD (YDCM065DCS01)(SVC)	•	n/a
18	5-034-614-01	STAND L (L TGR) A	•	•
19	5-034-615-01	STAND R (L TGR) A	•	•

SECTION 2: XR-65X9*K

2-4. EXPLODED VIEW AND PART LIST

SCREW

REMARKS	P/N	DESCRIPTION	QTY	TORQUE (N.m)
⭕	4-472-518-11	SCREW, +PSW M3X6	11	0.4 ± 0.05
🔴	2-580-592-01	SCREW, +PSW M3X8	1	0.4 ± 0.05
🟢	5-015-521-01	+PSW M6*16 W14	4	1.2 ± 0.1
🔵	4-579-926-01	M3x3.0 STEP	1	0.4 ± 0.05

SECTION 2: XR-65X9*K

CONNECTOR

REF. NO	PART NO.	DESCRIPTION	REMARKS
1	1-007-098-11	CONNECTOR ASSY 15P	CN6601(G21/G22/G23B)-CN1003(LD55/LD65/LD75)(1)
2	1-014-494-11	CONNECTOR ASSY 28P	CN6401(G21/G22/G23B)-CN1700(BM5STY)-CON3/J105/J114(TCON)(1)
3	1-007-113-12	CONNECTOR ASSY 4P (PZ)	CN6602(BM5STY)-TW(1)
4	1-007-107-11	FLEXIBLE FLAT CABLE 30P	CN1000(LD55/LD65)-CN6200(BM5STY)(1)
5	1-007-108-12	FLEXIBLE FLAT CABLE 41P	CN4201(BM5STY)-U2/J104(T-CON)(1)
6	1-007-110-12	FLEXIBLE FLAT CABLE 51P	CN4200(BM5STY)-U1/J103(T-CON)(1)
7	1-007-100-11	FLEXIBLE FLAT CABLE 20P	CN3801(BM5STY)-J1(WIFI/BT)(1)
8	1-007-105-11	FLEXIBLE FLAT CABLE 25P	CN1200(BM5STY)- CN102(HT2)(1)
9	1-006-513-34	CONNECTOR ASSY 4P (SP)	CN3550(BM5A)/CN6600(BM5STY)-SP(1)

SECTION 2: XR-65X9*K

OTHER PARTS

PART NO.	DESCRIPTION	XR-65X90K UCM	XR-65X90CK UC2	REMARKS
4-535-064-61	ASSY,FALL LOCK,BELT LL	•	•	-
⚠1-005-642-12	C7L AC POWER CORD SETS (US)	•	•	-
1-013-685-22	REMOTE COMMANDER (RMF-TX900U)	n/a	•	-
*5-037-700-11	REFERENCE GUIDE	•	•	-
*5-037-702-11	SETUP GUIDE	•	•	-
7-600-031-97	TAPE (3M 1350FB-1)15MMX66M BLK	•	•	-
5-009-861-02	VESA SPACER A (COM)	•	•	Screw extension for Fall Lock Belt and Wall Mount, Qty 1, refer Setup Guide for details..

SECTION 3: XR-75X9*K

REAR COVER

1. Remove the screws from the rear cover (5 pcs)

2. Unhook the bottom hook, starting from center.

① Unhook two hooks closest to center simultaneously to prevent lock back. (Refer to the next page for the location of hooks)

② Unhook both hooks using coin or jig.

③ Use mirror or touch the line to assist locating the hook position.

Coin or jig to unhook bottom Rear Cover - Bezel hook
*Wrap coin in tape (55mmX25mm)
*Thickness of coin approximately 2mm

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

SYS SET

SECTION 3: XR-75X9*K

REAR COVER

Bottom Hook Position

80mm 137mm 313mm 157mm 150mm

3. Unhook corner hook.

Ruler or jig to release corner hook
*Wrap ruler with tape to prevent scratch

① Releasing the corner hook by pulling the Rear Cover corner and insert a jig or ruler.

② Ensure the jig or ruler is pulled backward.

③ DO NOT pivot on bezel when inserting the jig or ruler.

1

2   OK

Backward

3   NG

Do NOT pivot on bezel

SECTION 3: XR-75X9*K

REAR COVER

4.   Unhook left side hooks.

Total rear cover back chassis : 4 hooks

① Grip the rear cover by hand and use a ruler or jig to remove the hook of the rear cover back chassis.

② Flex the rear cover outward to remove the hook. Support set with arm.

SECTION 3: XR-75X9*K

REAR COVER

5.   Unhook right side hooks.

> Total side bracket hooks : 3 hooks.
>
> Total rear cover – back chassis hooks : 4 hooks

<2>

<1>

① Remove the side hooks.

② Pull the rear cover below the side jack to remove the hook.

③ Remove the remaining side hooks.

1

2

3

REAR COVER

6.　Unhook top row.

Total hooks (top row): 8 hooks

① Tilt the rear cover and push upwards on the left and right side.

② Pull the rear cover below the side jack to remove the upper hook.

Hook positioning.

156mm 180mm 200mm 200mm 200mm 200mm 200mm 180mm

210mm

180mm

185mm

87mm

83mm

180mm

95mm

113mm

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX	47

SYS SET

POWER BOARD   LD BOARD   WI-FI BOARD   MAIN BOARD

RECEIVER BOARD

SECTION 3: XR-75X9*K

INFORMATION

Caution:
1. Operator need to fix Smart Core on **FLAT** surface before FFC insertion to ensure **FFC STRAIGHT** insertion.
2. FFC side with blue supporting tape, must face **CONNECTOR WITH LOCKING** during FFC insertion.

FFC (shorter side) is inserted at Main Board

After assemble Receiver board to Smart Core, operator need to insert Receiver board FFC in straight condition.

FFC (long side) is inserted at Smart Core

FFC side with blue supporting tape face connector with locking during insertion.

Smart Core is placed on FLAT surface during FFC insertion.

INFORMATION

Top side non shielded

Bottom side shielded

Please insert FFC 51P before insert FFC 41P

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

SYS SET

SECTION 3: XR-75X9*K

3-3. WIRE DRESSING

INFORMATION

Special Handling for FFC 41P & 51P Dressing

Make sure both FFC at straight condition align with emboss

Apply VA tape based on WWOPS datum

OK — FFC has buffer length at main board side

NG — FFC is stressed at main board side

TAPE

1 — TOP

2 — No stress during taping

SHIELD, T-CON L (COM)

SHIELD, T-CON L (COM)

SECTION 3: XR-75X9*K

TAPE

WIRE DRESSING

1

2

Pinching wire

SECTION 3: XR-75X9*K

3-3. WIRE DRESSING

WIRE DRESSING

TAPE

1 Align harness at the yellow dotted line before taping

2 No stress during taping

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

SECTION 3: XR-75X9*K

WIRE DRESSING

| 1 | 2 |

Pinching wire

WIRE DRESSING

| 1 | 2 |

Pinching wire

SECTION 3: XR-75X9*K

3-3. WIRE DRESSING

INFORMATION

Caution : Keep harness away from Inhibit Area

INFORMATION

Tape Folding Direction Information

OK — Tape is folded in correct direction

NG — Tape is folded incorrectly

Touch up Tape, if folding direction is incorrect

1. Pinch SHEET SHADING TAPE with finger.
2. Move as above direction. Correct folding direction.

SECTION 3: XR-75X9*K

3-4. EXPLODED VIEW AND PART LIST

- • Place the TV set facing downwards on a stable, level surface before disassembly and assembly of parts.
- • ⚠ and shaded parts are critical for safety. Replace only with part number specified.
- • 🔒 Parts contain confidential information. Strictly follow the instruction whenever the components are repaired and/or replaced

- ⑊ (*) Parts are not stocked since they are seldom required for routine service. Some delays should be anticipated when ordering these components.
- ⑊ Picture provided in this section might have slight difference from the actual sets.
- ⑊ The reference number beside the part indicates the disassembly sequence.
- ⑊ Remove screws before disassembly. Unplug connectors before disassembly

Stand

SECTION 3: XR-75X9*K

3-4. EXPLODED VIEW AND PART LIST

SET PART LIST

REF. NO	PART NO.	DESCRIPTION	XR-75X90K UCM	XR-75X90CK UC2
1	5-039-876-01	LABEL, SIDE TERMINAL HP (TGR)	•	•
⚠ 2	5-027-678-01	REAR COVER ASSY (3L RIS)	•	•
3	1-009-973-11	LOUDSPEAKER,FY21 14_17MM-TW	•	•
4	1-004-511-12	SP-BOX ASSY,FY20 W30XL-A	•	•
5	1-004-511-22	SP-BOX ASSY,FY20 W30XL-B	•	•
6	5-009-258-21	BRACKET, WIFI(BNN)	•	•
🔒 7	1-005-419-13	WLAN/BT MODULE(11AC)	•	•
8	5-039-955-11	BRACKET SIDE (BNN) A	•	•
🔒 9	A-5042-769-A	COMPL_SVC_BM5STY_UC_FT	•	•
10	4-457-451-12	SHEET, THERMAL (BAF)	•	•
⚠ 11	1-013-621-21	G23BP-STATIC CONVERTER (TV)	•	•

REF. NO	PART NO.	DESCRIPTION	XR-75X90K UCM	XR-75X90CK UC2
⚠ 12	5-027-742-11	SHEET, INSULATION (3L PHN) A	•	•
13	5-020-359-01	SHEET, THERMAL CSOT (APL)	•	•
14	5-027-341-01	SHEET, THERMAL (RIS)	•	•
15	1-014-123-11	MOUNTED PWB E-T-CON (75)	•	•
16	A-5042-595-A	COMPL 22LD60C1_FT	•	•
⚠ 17	A-5043-422-A	P-MOD (YDCM075DCS02)	•	n/a
18	5-034-616-01	STAND L (3L TGR) A	•	•
19	5-034-617-01	STAND R (3L TGR) A	•	•

SECTION 3: XR-75X9*K

SCREW

REMARKS	P/N	DESCRIPTION	QTY	TORQUE (N.m)
🔴	4-472-518-11	SCREW, +PSW M3X6	13	0.4 ± 0.05
🔴	2-580-592-01	SCREW, +PSW M3X8	1	0.4 ± 0.05
🟢	5-015-521-01	+PSW M6*16 W14	4	1.2 ± 0.1
🔵	4-579-926-01	M3x3.0 STEP	1	0.4 ± 0.05

SECTION 3: XR-75X9*K

3-4. EXPLODED VIEW AND PART LIST

CONNECTOR

REF. NO	PART NO.	DESCRIPTION	REMARKS
1	1-007-098-11	CONNECTOR ASSY 15P	CN6601(G21/G22/G23B)-CN1003(LD55/LD65/LD75)(1)
2	1-014-494-11	CONNECTOR ASSY 28P	CN6401(G21/G22/G23B)-CN1700(BM5STY)-CON3/J105/J114(TCON)(1)
3	1-007-114-11	CONNECTOR ASSY 4P (PZ)	CN6602(BM5STY)-TW(1)
4	1-007-116-11	FLEXIBLE FLAT CABLE 30P	CN1000(LD75)-CN8200(BM5STY)(1)
5	1-011-898-12	FLEXIBLE FLAT CABLE 41P	CN4201(BM5STY)-U2/J104(T-CON)(1)
6	1-011-900-12	FLEXIBLE FLAT CABLE 51P	CN4200(BM5STY)-U1/J103(T-CON)(1)
7	1-007-100-11	FLEXIBLE FLAT CABLE 20P	CN3801(BM5STY)-J1(WIFI/BT)(1)
8	1-007-105-11	FLEXIBLE FLAT CABLE 25P	CN1200(BM5STY)- CN102(HT2)(1)
9	1-006-514-13	CONNECTOR ASSY 4P (SP)	CN3550(BM5A)/CN6600(BM5STY)-SP(1)

SECTION 3: XR-75X9*K

OTHER PARTS

PART NO.	DESCRIPTION	XR-75X90K	XR-75X90CK	REMARKS
		UCM	UC2	
4-535-064-61	ASSY,FALL LOCK,BELT LL	•	•	-
1-785-504-21	ADAPTOR, CONVERSION	•	•	-
⚠ 1-005-642-12	C7L AC POWER CORD SETS (US)	•	•	-
1-013-691-23	REMOTE COMMANDER (RMF-TX800U)	•	n/a	-
1-013-685-22	REMOTE COMMANDER (RMF-TX900U)	n/a	•	-
*5-037-700-11	REFERENCE GUIDE	•	•	-
*5-037-702-11	SETUP GUIDE	•	•	-
7-600-031-97	TAPE (3M 1350FB-1)15MMX66M BLK	•	•	-
5-009-861-02	VESA SPACER A (COM)	•	•	Screw extension for Fall Lock Belt and Wall Mount, Qty 1, refer Setup Guide for details..

SECTION 4: XR-85X9*K

4-1. DISASSEMBLY AND REMOVAL CAUTION

REAR COVER

1. Remove the screws from the rear cover (5 pcs)

2. Unhook the bottom hook, starting from center.

① Unhook two hooks closest to center simultaneously to prevent lock back. (Refer to the next page for the location of hooks)

② Unhook both hooks using coin or jig.

③ Use mirror or touch the line to assist locating the hook position.

Coin or jig to unhook bottom Rear Cover - Bezel hook
*Wrap coin in tape (55mmX25mm)
*Thickness of coin approximately 2mm

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

SYS SET

SECTION 4: XR-85X9*K

REAR COVER

Bottom Hook Position

91mm　165mm　303mm　190mm　199mm

3. Unhook corner hook.

Ruler or jig to release corner hook
*Wrap ruler with tape to prevent scratch

① Releasing the corner hook by pulling the Rear Cover corner and insert a jig or ruler.

② Ensure the jig or ruler is pulled backward.

③ DO NOT pivot on bezel when inserting the jig or ruler.

1

2　OK

3　NG

Backward

Do NOT pivot on bezel

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

SYS SET

SECTION 4: XR-85X9*K

4-1. DISASSEMBLY AND REMOVAL CAUTION

REAR COVER

4. Unhook left side hooks.

> Total rear cover back chassis : 4 hooks

① Grip the rear cover by hand and use a ruler or jig to remove the hook of the rear cover back chassis.

② Flex the rear cover outward to remove the hook. Support set with arm.

SECTION 4: XR-85X9*K

REAR COVER

5.   Unhook right side hooks.

> Total side bracket hooks : 3 hooks.
>
> Total rear cover – back chassis hooks : 4 hooks

<1>

<2>

① Remove the side hooks.

② Pull the rear cover below the side jack to remove the hook.

③ Remove the remaining side hooks.

SECTION 4: XR-85X9*K

6. Unhook top row.

> Total hooks (top row): 9 hooks

① Tilt the rear cover and push upwards on the left and right side.

② Pull the rear cover below the side jack to remove the upper hook.

Hook positioning.

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

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SYS SET

SECTION 4: XR-85X9*K

POWER BOARD   LD BOARD   WI-FI BOARD   MAIN BOARD

RECEIVER BOARD

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

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SYS SET

SECTION 4: XR-85X9*K

4-3. WIRE DRESSING

INFORMATION

Caution:
1. Operator need to fix Smart Core on **FLAT** surface before FFC insertion to ensure **FFC STRAIGHT** insertion.
2. FFC side with blue supporting tape, must face **CONNECTOR WITH LOCKING** during FFC insertion.

FFC (longer side) is inserted at Main Board

After assemble Receiver board to Smart Core, operator need to insert Receiver board FFC in straight condition.

FFC side with blue supporting tape face connector with locking during insertion.

FFC (shorter side) is inserted at Smart Core

Smart Core is placed on FLAT surface during FFC insertion.

WIRE DRESSING

Ensure to insert connectors to board first before wire dressing

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

SYS SET

SECTION 4: XR-85X9*K

TAPE

TAPE

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

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SYS SET

SECTION 4: XR-85X9*K

4-3. WIRE DRESSING

TAPE

1

Datum: Center of FFC
Datum: TCON shield emboss

2

No stress during taping

WIRE DRESSING

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

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SYS SET

SECTION 4: XR-85X9*K

WIRE DRESSING

WIRE DRESSING

TOOLS & EQUIPMENTS	FFC PRECAUTIONS	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SMART CORE	APPENDIX

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SYS SET

SECTION 4: XR-85X9*K

4-3. WIRE DRESSING

WIRE DRESSING

SECTION 4: XR-85X9*K

4-3. WIRE DRESSING

INFORMATION

Caution : Keep harness away from Inhibit Area

SECTION 4: XR-85X9*K

- Place the TV set facing downwards on a stable, level surface before disassembly and assembly of parts.
- ⚠ and shaded parts are critical for safety. Replace only with part number specified.
- 🔒 Parts contain confidential information. Strictly follow the instruction whenever the components are repaired and/or replaced

\ (*) Parts are not stocked since they are seldom required for routine service. Some delays should be anticipated when ordering these components.
\ Picture provided in this section might have slight difference from the actual sets.
\ The reference number beside the part indicates the disassembly sequence.
\ Remove screws before disassembly. Unplug connectors before disassembly

Stand

SECTION 4: XR-85X9*K

4-4. EXPLODED VIEW AND PART LIST

SET PART LIST

REF. NO	PART NO.	DESCRIPTION	XR-85X90K	XR-85X90CK
			UCM	UC2
1	5-039-876-01	LABEL, SIDE TERMINAL HP (TGR)	•	•
⚠ 2	5-039-626-01	REAR COVER (4L TGR) A	•	•
3	1-009-973-11	LOUDSPEAKER,FY21 14_17MM-TW	•	•
4	1-004-511-12	SP-BOX ASSY,FY20 W30XL-A	•	•
5	1-004-511-22	SP-BOX ASSY,FY20 W30XL-B	•	•
6	5-009-258-21	BRACKET, WIFI(BNN)	•	•
🔒 7	1-005-419-13	WLAN/BT MODULE(11AC)	•	•
8	5-039-955-11	BRACKET SIDE (BNN) A	•	•
🔒 9	A-5042-769-A	COMPL_SVC_BM5STY_UC_FT	•	•
10	4-457-451-12	SHEET, THERMAL (BAF)	•	•
⚠ 11	1-013-620-21	G23P-STATIC CONVERTER (TV)	•	•
⚠ 12	5-027-742-11	SHEET, INSULATION (3L PHN) A	•	•
13	1-014-131-11	MOUNTED PWB E-T-CON (85)	•	•
14	A-5039-794-A	COMPL 22LD60A1_FT	•	•
⚠ 15	A-5043-416-A	P-MOD (YDCM085DCU02)	•	n/a
16	5-034-618-01	STAND L (4L TGR) A	•	•
17	5-034-619-01	STAND R (4L TGR) A	•	•

SECTION 4: XR-85X9*K

SCREW

REMARKS	P/N	DESCRIPTION	QTY	TORQUE (N.m)
⭕ (red)	4-472-518-11	SCREW, +PSW M3X6	13	0.4 ± 0.05
🔴 (red/orange)	2-580-592-01	SCREW, +PSW M3X8	1	0.4 ± 0.05
🟢 (green)	5-015-521-01	+PSW M6*16 W14	4	1.2 ± 0.1
🔵 (blue/yellow)	4-579-926-01	M3x3.0 STEP	1	0.4 ± 0.05

SECTION 4: XR-85X9*K

CONNECTOR

REF. NO	PART NO.	DESCRIPTION	REMARKS
1	1-014-496-11	CONNECTOR ASSY 15P	CN6601(G23)-CN1003(LD85)(1)
2	1-014-497-11	CONNECTOR ASSY 28P	CN6401(G23)-CN1700(BM5STY)-J105/J114(TCON)(1)
3	1-007-224-11	CONNECTOR ASSY 4P (PZ)	CN6602(BM5STY)-TW(1)
4	1-014-502-11	FLEXIBLE FLAT CABLE 30P	CN1000(LD85)-CN6200(BM5STY)(1)
5	1-014-504-11	FLEXIBLE FLAT CABLE 41P	CN4201(BM5STY)-J104(T-CON)(1)
6	1-014-506-11	FLEXIBLE FLAT CABLE 51P	CN4200(BM5STY)-J103(T-CON)(1)
7	1-014-498-11	FLEXIBLE FLAT CABLE 20P	CN3801(BM5STY)-J1(WIFI/BT)(1)
8	1-014-500-11	FLEXIBLE FLAT CABLE 25P	CN1200(BM5STY)-CN102(HT2)(1)
9	1-006-517-11	CONNECTOR ASSY 4P (SP)	CN3350(BM5A)/CN6600(BM5STY)-SP(1)

SECTION 4: XR-85X9*K

OTHER PARTS

PART NO.	DESCRIPTION	XR-85X90K	XR-85X90CK	REMARKS
		UCM	UC2	
4-535-064-61	ASSY,FALL LOCK,BELT LL	•	•	-
⚠ 1-005-642-12	C7L AC POWER CORD SETS (US)	•	•	-
1-013-691-23	REMOTE COMMANDER (RMF-TX800U)	•	n/a	-
1-013-685-22	REMOTE COMMANDER (RMF-TX900U)	n/a	•	-
*5-037-700-11	REFERENCE GUIDE	•	•	-
*5-037-702-11	SETUP GUIDE	•	•	-
7-600-031-97	TAPE (3M 1350FB-1)15MMX66M BLK	•	•	-
5-009-861-02	VESA SPACER A (COM)	•	•	Screw extension for Fall Lock Belt and Wall Mount, Qty 1, refer Setup Guide for details..

SMART CORE

1. Remove harness in yellow box.

2. Release smart core hook in red box.

3. Remove the smart core.

DISASSEMBLE COVER TOP

Remove the hooks in the following order.

① Lift the hook in red circle and slide it.

② Hold the area in the red box and lift the receiver board.

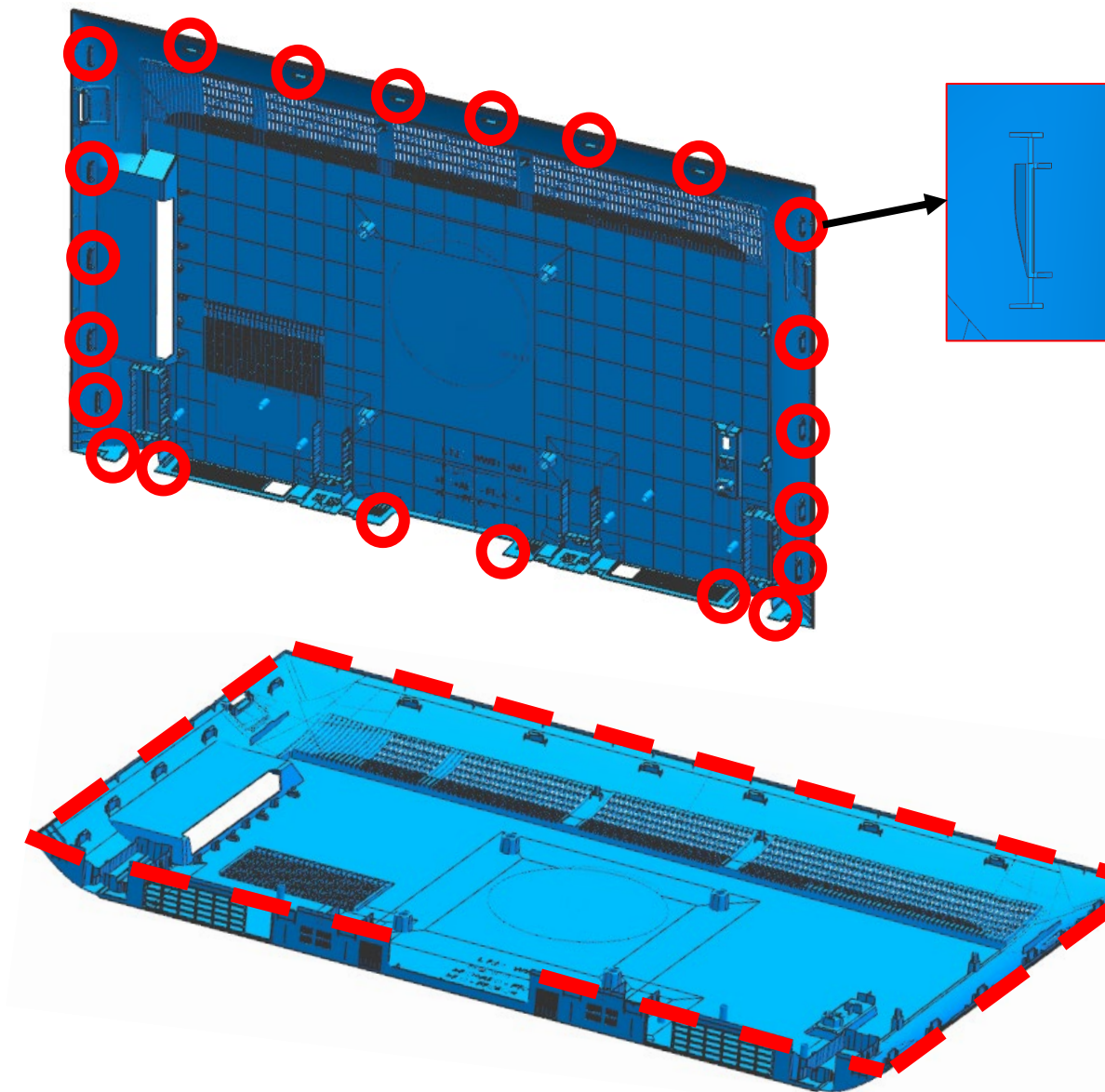# SMART CORE

EXPLODED VIEW AND PART LIST

REF. NO	PART NO.	DESCRIPTION	REMARKS
1	*5-024-516-22	COVER, TOP (COM)	-
2	A-5042-371-A	FY22_HT2_MIC_WW_EV_PR MOUNT	-
3	5-024-521-22	SLIDE, SW	-
4	5-036-705-01	COVER, BTM(3L EPH) A	55" / 65" / 75"
4	5-036-684-01	COVER, BTM(4L TGR) A	85"

APPENDIX
SHARP EDGE

- Please wear gloves when removing rear cover to avoid sharp edge at bottom side and hook area as shown in the next figure.

| ⭕ | : Sharp edge and sharp corner |

Hook position may vary according to inch

| ▬ ▬ ▬ ▬ | : Sharp edge |

APPENDIX

FFC REPLACEMENT CAUTIONS

Remark: Refer to Board Location and Connector Diagram
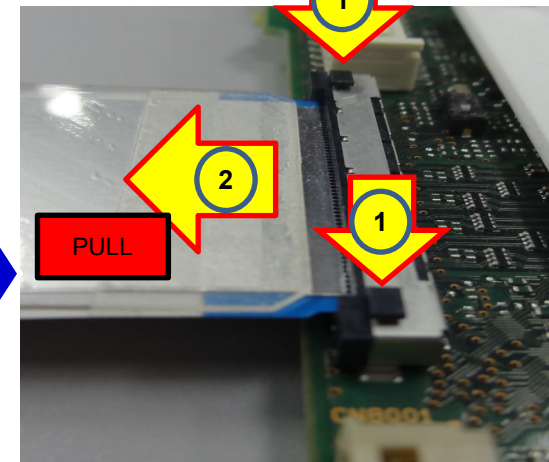
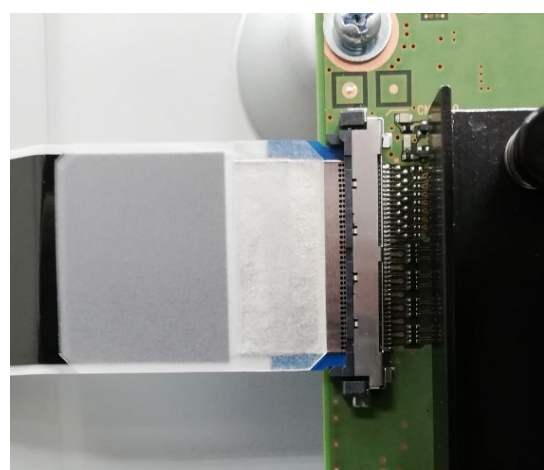## WITHDRAWAL OF 41P / 51P FFC CONNECTOR (TYPE1)

Initial condition

Step 1

1 **PRESS**

1 **PRESS**

Step 2

1

2 **PULL**

1

1 Press the release lock button downward at same time (highlighted in red).

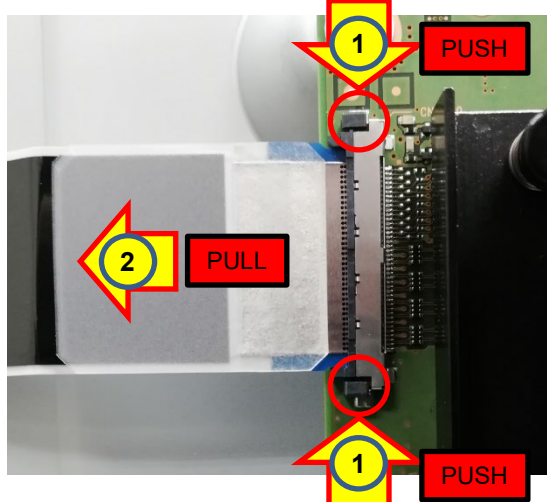**2** Pull FFC in straight direction while pressing both release lock button at the same time.

Note: FFC as in image is only for reference purpose. Actual FFC outlook may vary by each vendor.
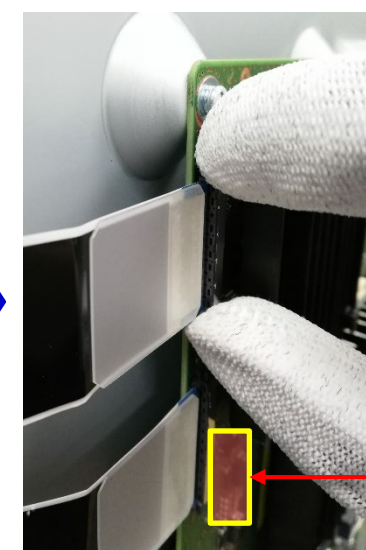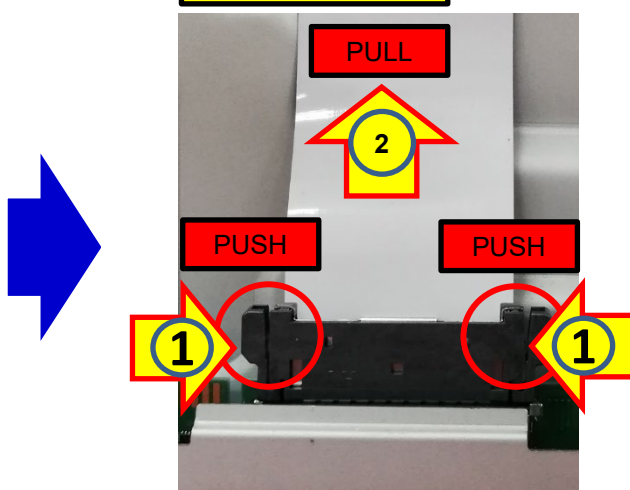
WITHDRAWAL OF 41P / 51P FFC CONNECTOR (TYPE2)

Initial condition

Step 1 & 2

1 **PUSH**

2 **PULL**

1 **PUSH**

Caution

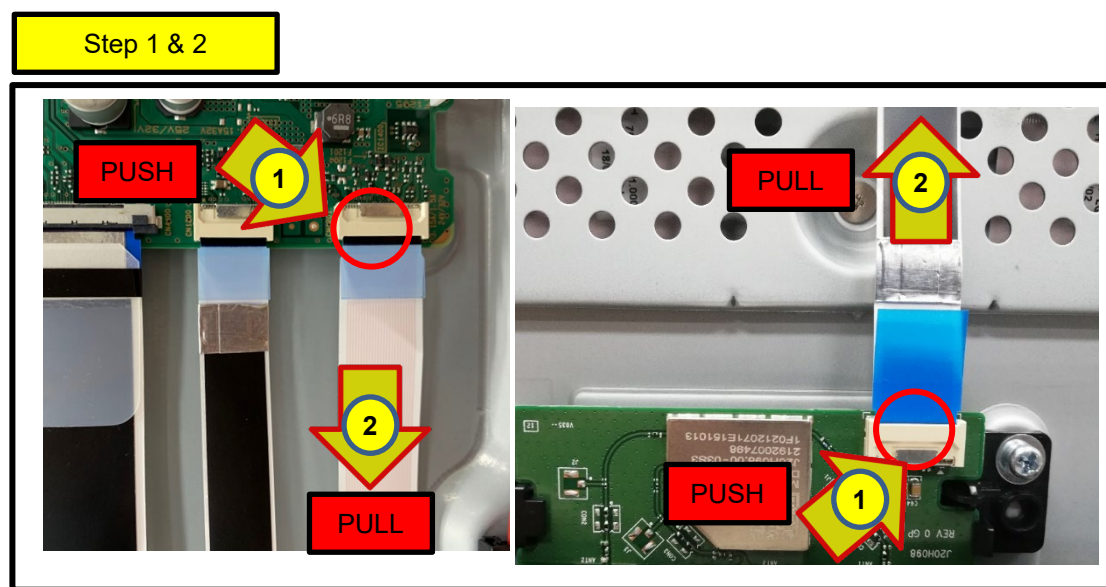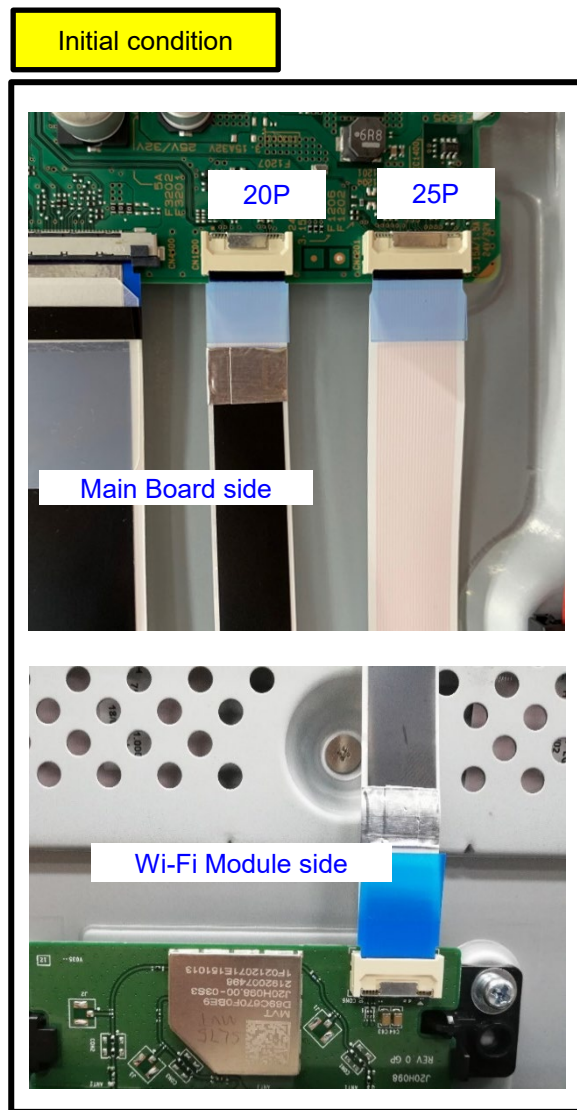**1** Push the side-release lock buttons inward (highlighted in red).

2 Pull-out FFC in straight direction while pushing side-release lock buttons at the same time.

Note: FFC as in image is only for reference purpose. Actual FFC outlook may vary by each vendor.

Ensure fingers does **NOT** touch parts on board and tuner connector when pushing the side locks.

APPENDIX

FFC REPLACEMENT CAUTIONS

WITHDRAWAL OF 41P & 51P FFC CONNECTOR (TYPE3)

Remark: Refer to Board Location and Connector Diagram

Initial condition

Step 1 & 2

PULL

2

PUSH

PUSH

1

1

1 Push the side-release lock buttons inward (highlighted in red).

2 Pull-out FFC in straight direction while pushing side-release lock buttons at the same time.

Note: FFC as in image is only for reference purpose. Actual FFC outlook may vary by each vendor.
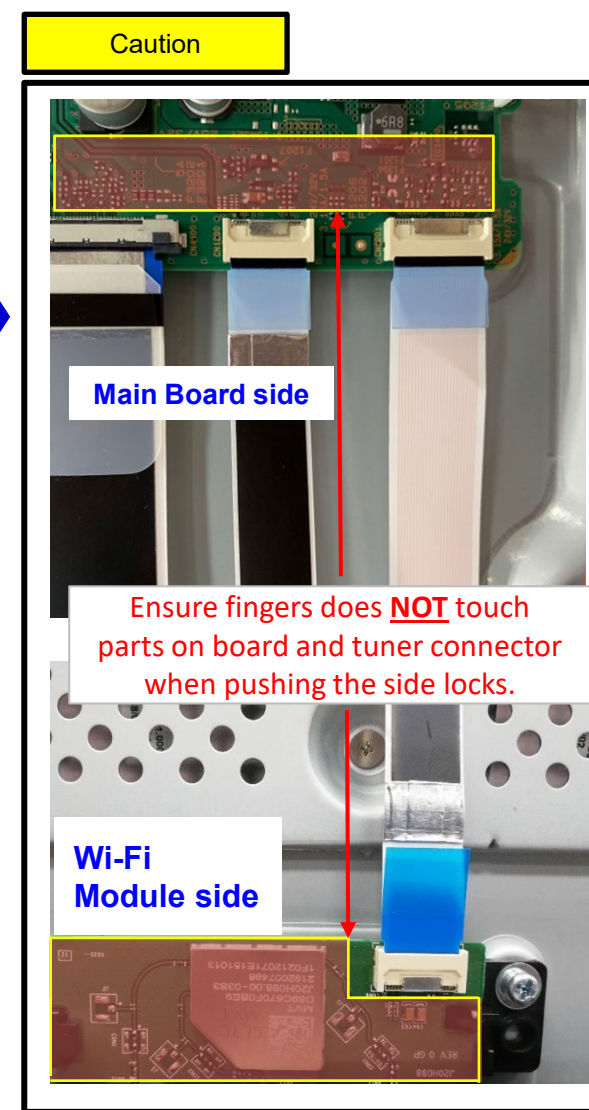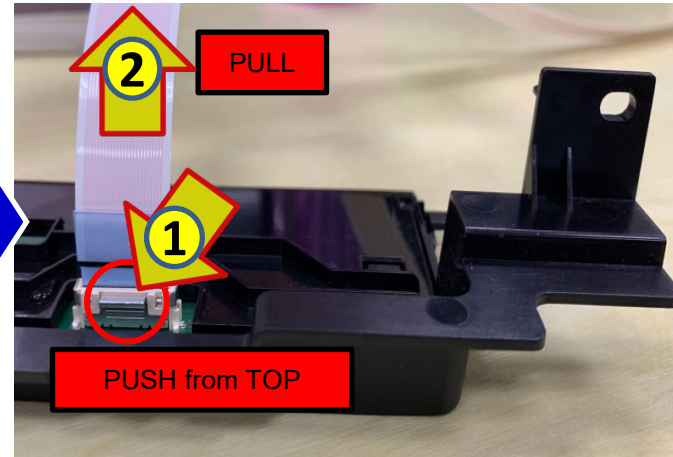
APPENDIX

FFC REPLACEMENT CAUTIONS

WITHDRAWAL OF 20P / 25P FFC CONNECTOR

Initial condition

20P   25P

Main Board side

Wi-Fi Module side

Step 1 & 2

PUSH   1

PULL   2

2

PULL

PULL   2

PUSH   1

Caution

Main Board side

Ensure fingers does NOT touch parts on board and tuner connector when pushing the side locks.

Wi-Fi Module side

1   Push the side-release lock buttons inward (highlighted in red).

2   Pull-out FFC in straight direction while pushing side-release lock buttons at the same time.

Note: FFC as in image is only for reference purpose.
Actual FFC outlook may vary by each vendor.

APPENDIX

FFC REPLACEMENT CAUTIONS

WITHDRAWAL OF 25P FFC CONNECTOR

Pre-Step Before FFC Removal

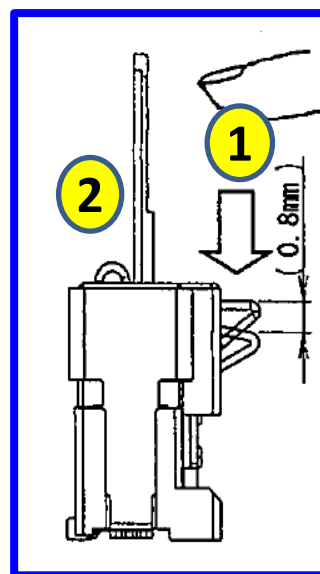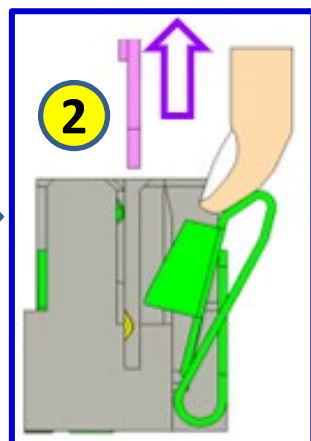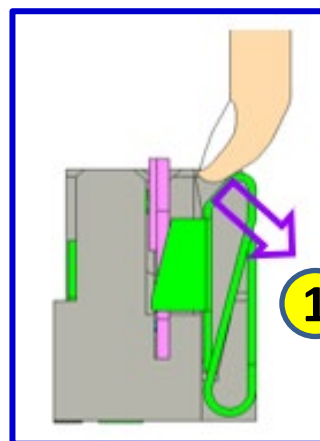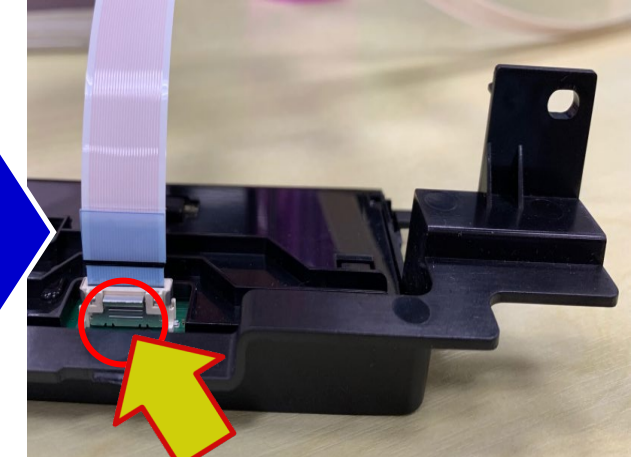Push Smart Core outwards to dismantle from TV set

Step 1 & 2

2 PULL

1

PUSH from TOP

Caution

Do **NOT** push from side as connector will break due to excessive force applied.

1 Push the side-release lock buttons inward (highlighted in red).

2 Pull-out FFC in straight direction while pushing side-release lock buttons at the same time.

0.8mm

Note: FFC as in image is only for reference purpose. Actual FFC outlook may vary by each vendor.

Remark: Release lock mechanism might be different

SYS SET