HISTORY INFORMATION FOR THE FOLLOWING MANUAL:

SERVICE MANUAL

ORIGINAL MANUAL ISSUE DATE: 3/2013

RB1FK *CHASSIS*
Segment: BA

Version	Date	Subject
1.0	3/2013	Original manual issue.
1.1	10/2013	Correction of Panel Selection in Service mode. (P.19)

LCD Digital Color TV

SONY®

9-888-532-02

SERVICE MANUAL

RB1FK *CHASSIS*

Segment: BA

LCD Digital Color TV

SONY ®

9-888-532-02

MODEL LIST

MODEL	COLOR	COMMANDER	DEST.
KDL-32R420A	*Black*	*RM-ED054*	*AEP*
KDL-32R421A	*Black*	*RM-ED054*	*AEP*
KDL-32R423A	*Black*	*RM-ED054*	*AEP/UK*
KDL-32R424A	*Black*	*RM-ED054*	*AEP*
KDL-40R470A	*Black*	*RM-ED054*	*AEP*
KDL-40R471A	*Black*	*RM-ED054*	*AEP*
KDL-40R473A	*Black*	*RM-ED054*	*AEP/UK*
KDL-40R474A	*Black*	*RM-ED054*	*AEP*
KDL-46R470A	*Black*	*RM-ED054*	*AEP*
KDL-46R473A	*Black*	*RM-ED054*	*AEP/UK*

MODEL	COLOR	COMMANDER	DEST.

WARNINGS AND CAUTIONS - ENGLISH

CAUTION

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

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

WARNING!!

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

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

CARRYING THE TV

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

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

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

SAFETY-RELATED COMPONENT WARNING!!

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

WARNINGS AND CAUTIONS - FRENCH

ATTENTION!!

Ces instructions de service sont à l'usage du personnel de service qualifi é seulement.

Pour prévenir le risque de choc électrique, ne pas faire l'entretien autre que celui contenu dans le Mode d'emploi à moins que vous soyez qualifi é faire ainsi.

WARNING!!

Afi n d'eviter tout risque d'electrocution provenant d'un chássis sous tension, un transformateur d'isolement doit etre utilisé lors de tout dépannage. Le chássis de ce récepteur est directement raccordé à l'alimentation du secteur.

POUR TRANSPORTER LE TÉLÉVISEUR

Tenez compte de ce qui suit pendant l'installation du téléviseur :

• Débranchez tous les câbles avant de transporter le téléviseur.

• Transportez le téléviseur avec le nombre de personnes approprié ; un téléviseur de grande taille doit être transporté par au moins deux personnes.

• Lors du transport du téléviseur, l'emplacement des mains est très important pour votre sécurité, ainsi que pour éviter de causer des dommages.

ALERTE!!

Afi n d'eviter tout risque d'electrocution provenant d'un chassis sous tension, un transformateur d'isolement doit etre utilise lors de tout depannage. Le chassis de ce recepteur est directement raccorde a l'alimentation du secteur.

## ATTENTION AUX COMPOSANTS RELATIFS A LA SECURITE!!

Les composants identifi es par une trame et par une marque ! sur les schemas de principe, les vues explosees et les listes de pieces sont d'une importance critique pour la securite du fonctionnement. Ne les remplacer que par des composants Sony dont le numero de piece est indique dans le present manuel ou dans des supplements publies par Sony. Les reglages de circuit dont l'importance est critique pour la securite du fonctionnement sont identifi es dans le present manuel. Suivre ces procedures lors de chaque remplacement de composants critiques, ou lorsqu'un mauvais fonctionnement suspecte.

USE CAUTION WHEN HANDLING THE LCD PANEL

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

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

1) Do not press on the panel or frame edge to avoid the risk of electric shock.
2) Do not scratch or press on the panel with any sharp objects.
3) Do not leave the module in high temperatures or in areas of high humidity for an extended period of time.
4) Do not expose the LCD panel to direct sunlight.
5) Avoid contact with water. It may cause a short circuit within the module.
6) Disconnect the AC power when replacing the backlight (CCFL) or inverter circuit. (High voltage occurs at the inverter circuit at 650Vrms.)
7) Always clean the LCD panel with a soft cloth material.
8) Use care when handling the wires or connectors of the inverter circuit. Damaging the wires may cause a short.
9) Protect the panel from ESD to avoid damaging the electronic circuit (C-MOS).
10) It is recommended not to exceed 1 hour of Power-On nor Burn-in period with LCD panel face down condition, in repair activity.
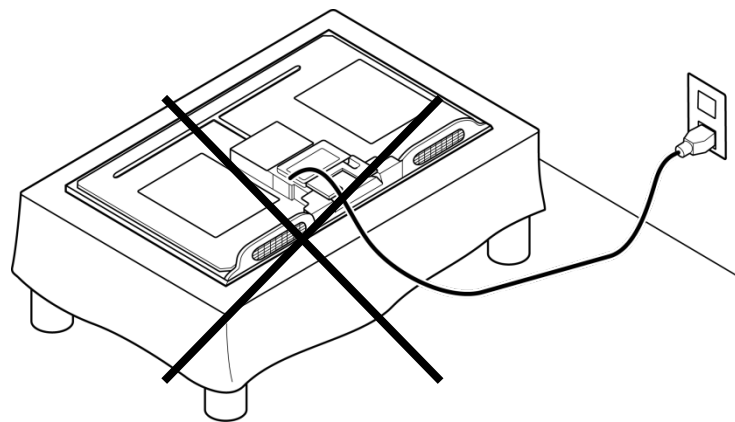
SAFETY CHECK-OUT

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

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

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

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

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

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

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

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

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

Leakage Test

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes).
Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instructions.

2. A battery-operated AC milliampmeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low voltage scale.
The Simpson's 250 and Sanwa SH-63TRD are examples of passive VOMs that are suitable. Nearly all battery-operated digital multimeters that have a 2 VAC range are suitable (see Figure A).
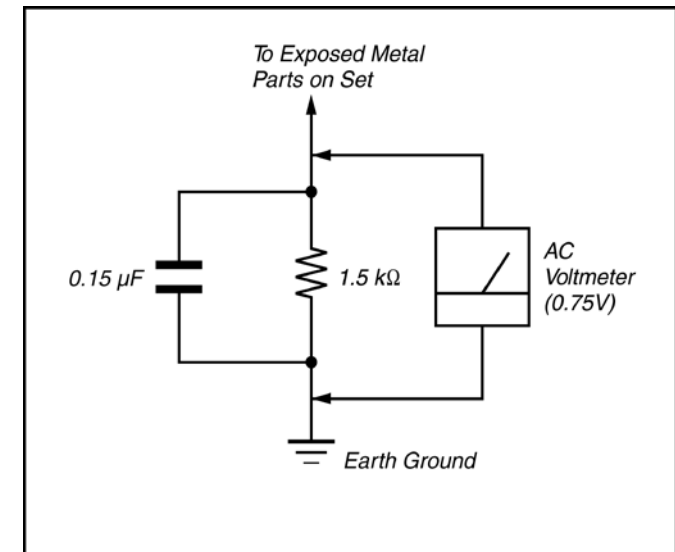

FigureA. Using an AC voltmeter to check AC leakage.

How to Find a Good Earth Ground

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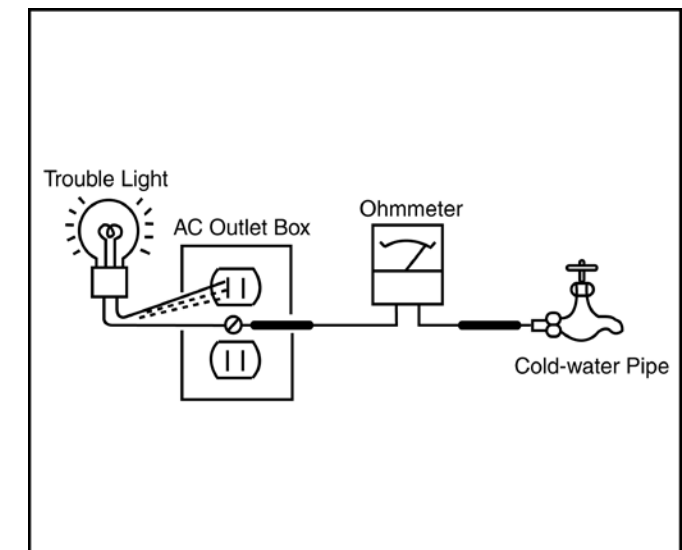

Figure B. Checking for earth ground.

SELF DIAGNOSIS FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the STANDBY 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 STANDBY 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 STANDBY LED will flash a set number of times to indicate the possible cause of the problem.
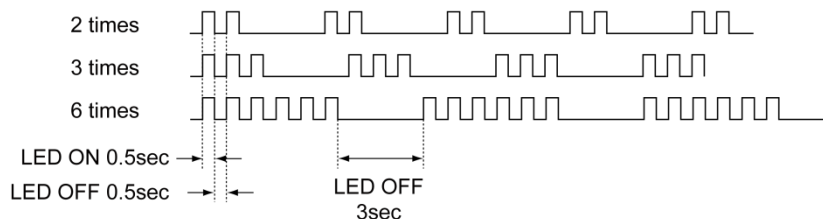
If there is more than one error, the LED will identify the first of the problem areas.

Result for all of the following diagnostic items are displayed on screen.

If the screen displays a "0", no error has occurred .

STBY LED Flash time	Service menu Item name (Screen Display)	Diagnostic Item Description
2	MAIN_POWER	Detect power board 12V. (V_DROP_DET)
3	TUNER_ERR	Detect TS signal Error.
	AUDIO_PROT	Detect Audio Amp Error.
	DC_ALERT1	Detect +3.3V+5V Drop. (V_DROP_DET)
4	BALANCER_ERR	Not used
5	TCON_ERR	Not used
	PANEL_POWE	Not used
6	BACKLIGHT_ERR	Detect panel backlight ready.
7	TEMP_ERR	Not used
8	-	Not used
9	-	Not used
10	-	Not used
11	-	Not used
12	-	Not used

DISPLAY OF STANDBY LED FLASH COUNT

[FLASH COUNT]

2 times
3 times
6 times

LED ON 0.5sec →
LED OFF 0.5sec →
LED OFF 3sec

Note: One flash counts is not self-diagnostic.

SELF-DIAGNOSTIC SCREEN DISPLAY

For errors with symptoms such as "power sometimes shuts off" or "screen sometimes goes out" that cannot be confirmed, it is possible to bring up past occurrences of failure for confirmation on the screen:
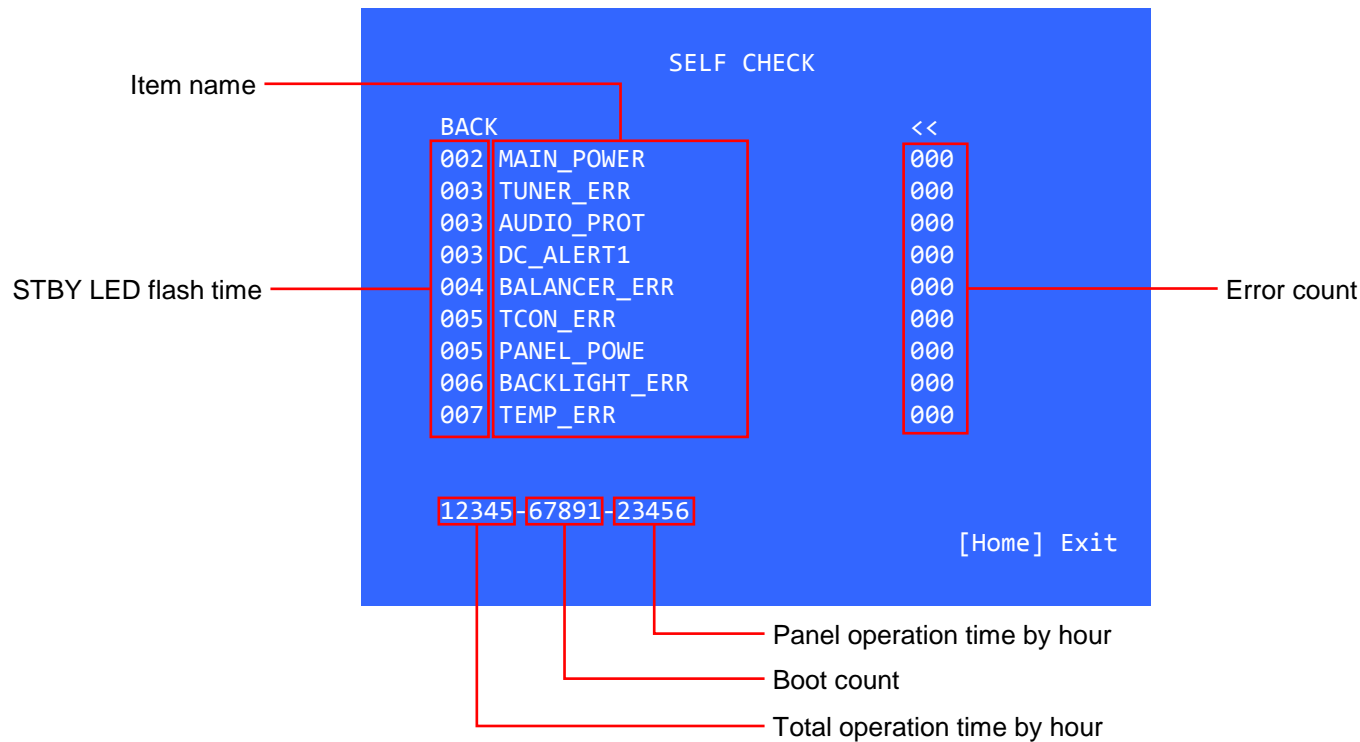
[To Bring Up Screen Test]

In standby mode, press buttons on the remote commander sequentially in rapid succession as shown below:

Info ➡ Channel 5 ➡ Volume −* ➡ TV POWER

* : Note that this differs from entering the service mode (volume +)

[SELF DIAGNOSTIC SCREEN DISPLAY]

```
                        SELF CHECK

Item name ─────────────┐
                       │
          BACK         │                    <<
          002 │MAIN_POWER                    │000│
          003 │TUNER_ERR                     │000│
          003 │AUDIO_PROT                    │000│
          003 │DC_ALERT1                     │000│
STBY LED flash time ── 004 │BALANCER_ERR     │000│ ── Error count
          005 │TCON_ERR                      │000│
          005 │PANEL_POWE                    │000│
          006 │BACKLIGHT_ERR                 │000│
          007 │TEMP_ERR                      │000│

          12345-67891-23456
                                        [Home] Exit
```

Panel operation time by hour

Boot count

Total operation time by hour

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

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

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

SEC 1. DISASSEMBLY AND PARTS LIST

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

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

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

Note: About the wire dressing, please refer to **"APPENDIX-1"**.

Note: About the tape position, please refer to **"APPENDIX-2"**.

Note: About the procedure of switch unit disassembly method, please refer to **"APPENDIX-3"**.

1-1. KDL-32R420A/421A/423A/424A

1-1-1. STAND SHAFT

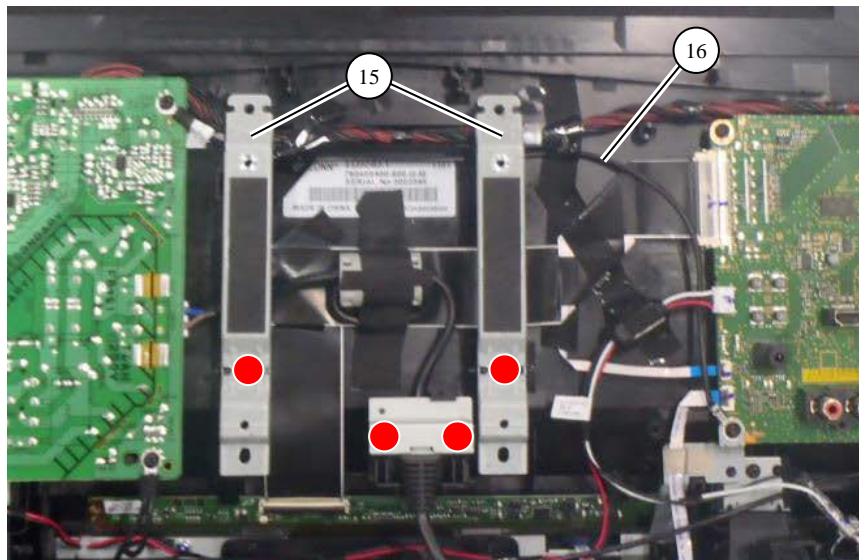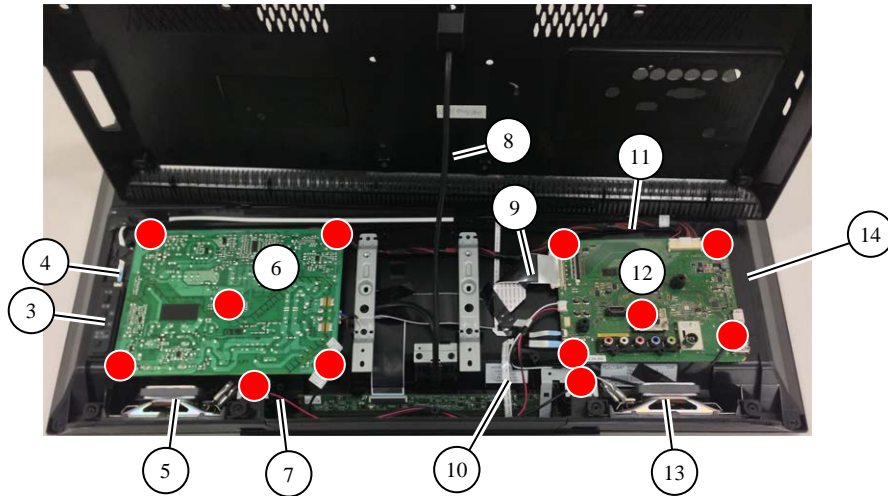| REF. No.	PART No.	DESCRIPTION	MARK
1	4-446-634-01	STAND SHAFT (M2)	
2	4-459-441-51	COVER, UNDER (32FANF)	for KDL-32R423A(UK)
	4-459-441-61	COVER, UNDER (32FANF)	for KDL-32R420A/421A/ 423A(AEP)/424A

▲ 2-580-608-11	SCREW, +PSW M5X16	
◯ 2-580-639-01	SCREW, +BVTP 4X12 TYPE2 IT-3	
★ 7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	

1-1-2. COVER, UNDER

1-1. KDL-32R420A/421A/423A/424A

1-1-3. GL3 BOARD, A BOARD, SPEAKER AND VESA BRACKET

REF. No.	PART No.	DESCRIPTION	MARK
3	1-492-329-21	SWITCH UNIT	
4	1-910-108-04	FFC CABLE 32 MB-KEY 6P	
5	1-858-888-21	LOUD SPEAKER (R) 40X100MM	
6	⚠ 1-474-486-11	GL3(ID)-STATIC CONVERTER(TV)	
7	1-910-107-98	CONNECTOR ASSY 32 MB-SP LR 4P	
8	⚠ 1-846-662-11	POWER-SUPPLY CORD	for KDL-32R420A/421A /423A(AEP)/424A
	⚠ 1-846-663-11	POWER-SUPPLY CORD	for KDL-32R423A(UK)
9	1-910-108-02	FFC CABLE 32 MB-TCON 30P	
10	1-910-108-03	FFC CABLE 32 MB-IR 10P	
11	1-910-107-97	CONNECTOR ASSY 32 MB-PSU 14P	
12	🔒 1-895-375-11	MOUNTED PWB A	for KDL-32R420A/421A
	🔒 1-895-375-21	MOUNTED PWB A	for KDL-32R423A(AEP)/424A
	🔒 1-895-375-31	MOUNTED PWB A	for KDL-32R423A(UK)
13	1-858-888-11	LOUD SPEAKER (L) 40X100MM	
14	⚠ A-1939-532-A	LCM ASSY (32FANFY MR) EU	for KDL-32R420A/423A
	⚠ A-1939-533-A	LCM ASSY (32FANFY HL) EU	for KDL-32R421A/424A
15	4-459-475-21	BRACKET, VESA (FANF)	
16	1-910-107-99	GROUND CABLE 32 MB-PSU (M)	
🔴	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	

1-2. KDL-40R470A/471A/473A/474A

1-2-1. STAND SHAFT

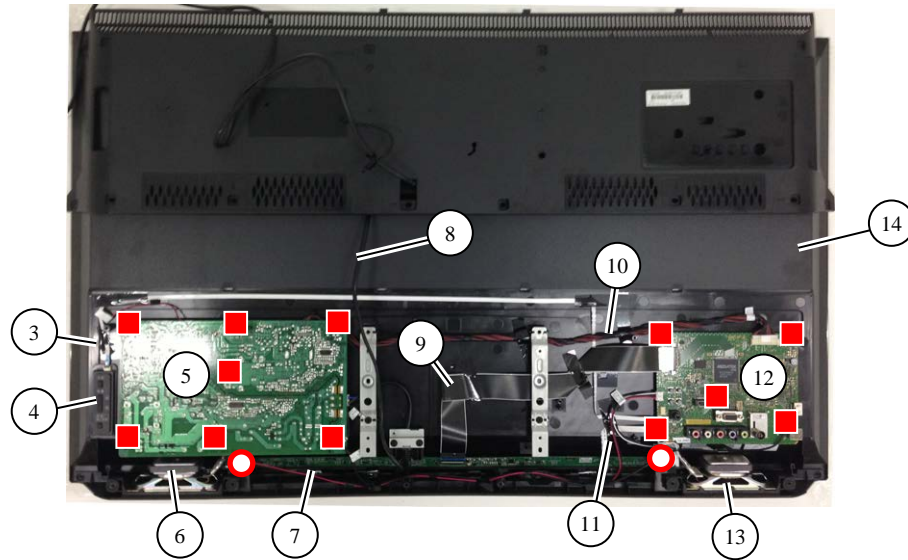| REF. No.	PART No.	DESCRIPTION	MARK
1	4-446-635-01	STAND SHAFT (ML2)	
2	4-459-446-51	COVER, UNDER (40FANF)	for KDL-40R473(UK)
	4-459-446-61	COVER, UNDER (40FANF)	for KDL-40R470A/471A /473(AEP)/474A

△ 2-580-608-11	SCREW, +PSW M5X16	
○ 2-580-639-01	SCREW, +BVTP 4X12 TYPE2 IT-3	
☆ 7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	

1-2-2. COVER, UNDER
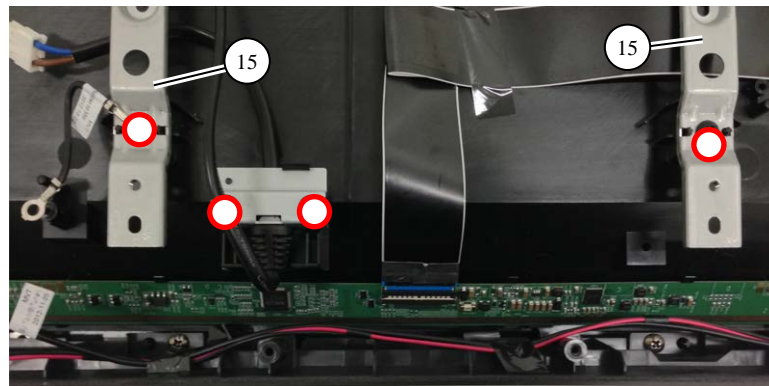
1-2. KDL-40R470A/471A/473A/474A

1-2-3. GL4 BOARD, A BOARD AND SPEAKER

REF. No.	PART No.	DESCRIPTION	MARK
3	1-910-108-12	FFC CABLE 40 MB-KEY 6P	
4	1-492-329-21	SWITCH UNIT	
5 ⚠	1-474-487-11	GL4(CH)-STATIC CONVERTER (TV)	
6	1-858-888-21	LOUD SPEAKER (R) 40X100MM	
7	1-910-108-06	CONNECTOR ASSY 40 MB-SP LR 4P	
8 ⚠	1-846-662-11	POWER-SUPPLY CORD	for KDL-40R470A/471A /473A(AEP)/474A
⚠	1-846-663-11	POWER-SUPPLY CORD	for KDL-40R473A(UK)
9	1-910-108-10	FFC CABLE 40 MB-TCON 51P	
10	1-910-108-05	CONNECTOR ASSY 40 MB-PSU 14P	
11	1-910-108-11	FFC CABLE 40 MB-IR 10P	
12 🔒	1-895-375-41	MOUNTED PWB A	for KDL-40R470A/471A
🔒	1-895-375-51	MOUNTED PWB A	for KDL-40R473A(AEP)/474A
🔒	1-895-375-61	MOUNTED PWB A	for KDL-40R473A(UK)
13	1-858-888-11	LOUD SPEAKER (L) 40X100MM	
14 ⚠	A-1939-535-A	LCM ASSY (40FANFY MR) EU	for KDL-40R470A/473A
⚠	A-1939-536-A	LCM ASSY (40FANFY HL) EU	for KDL-40R471A/474A
15	4-459-475-21	BRACKET, VESA (FANF)	

1-2-4. VESA BRACKET

■ 7-685-646-79	SCREW, +BVTP 3X8 TYPE2 IT-3	
⭕ 2-580-639-01	SCREW, +BVTP 4X12 TYPE2 IT-3	

1-3. KDL-46R470A/473A

1-3-1. STAND SHAFT

REF. No.	PART No.	DESCRIPTION	MARK
1	4-446-636-01	STAND SHAFT (L2)	
2	4-459-473-51	COVER, UNDER (46FANF)	for KDL-46R473A(UK)
	4-459-473-61	COVER, UNDER (46FANF)	for KDL-46R470A/473A(AEP)

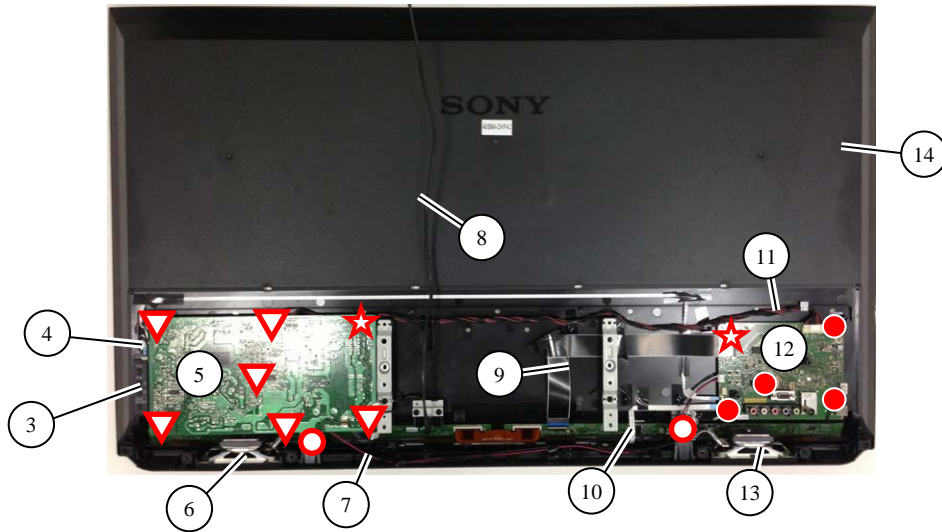| ▲	2-580-608-11	SCREW, +PSW M5X16
⭕	2-580-639-01	SCREW, +BVTP 4X12 TYPE2 IT-3
☆	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3

1-3-2. COVER, UNDER

1-3. KDL-46R470A/473A

1-3-3. GL5 BOARD, A BOARD AND SPEAKER

REF. No.	PART No.	DESCRIPTION	MARK
3	1-492-329-21	SWITCH UNIT	
4	1-910-108-20	FFC CABLE 46 MB-KEY 6P	
5 ⚠	1-474-488-11	GL5(CH)-STATIC CONVERTER (TV)	
6	1-858-888-21	LOUD SPEAKER (R) 40X100MM	
7	1-910-108-14	CONNECTOR ASSY 46 MB-SP LR 4P	
8 ⚠	1-846-662-11	POWER-SUPPLY CORD	for KDL-46R470A/473A(AEP)
⚠	1-846-663-11	POWER-SUPPLY CORD	for KDL-46R473A(UK)
9	1-910-108-18	FFC CABLE 46 MB-TCON 51P	
10	1-910-108-19	FFC CABLE 46 MB-IR 10P	
11	1-910-108-13	CONNECTOR ASSY 46 MB-PSU 14P	
12 🔒	1-895-375-41	MOUNTED PWB A	for KDL-40R470A
🔒	1-895-375-51	MOUNTED PWB A	for KDL-46R473A(AEP)
🔒	1-895-375-61	MOUNTED PWB A	for KDL-46R473A(UK)
13	1-858-888-11	LOUD SPEAKER (L) 40X100MM	
14 ⚠	A-1939-537-A	LCM ASSY (46FANFY MR) EU	for KDL-46R470A/473A
15	4-459-475-31	BRACKET, VESA (FANF)	
●	7-685-646-79	SCREW, +BVTP 3X8 TYPE2 IT-3	
☆	4-465-806-01	GEAR SCREW M3X5 22	
◯	2-580-639-01	SCREW, +BVTP 4X12 TYPE2 IT-3	
▽	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	

1-3-4. VESA BRACKET
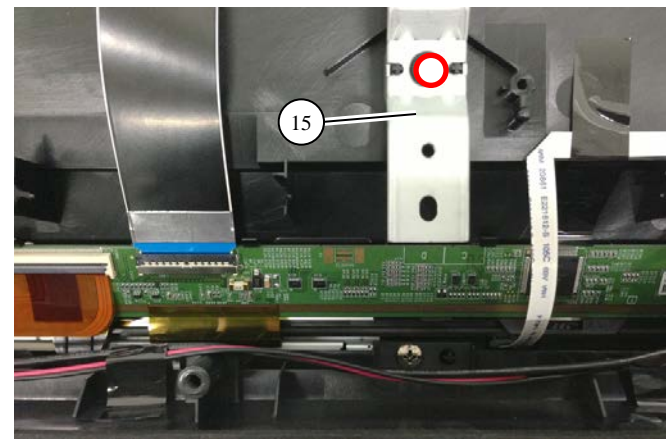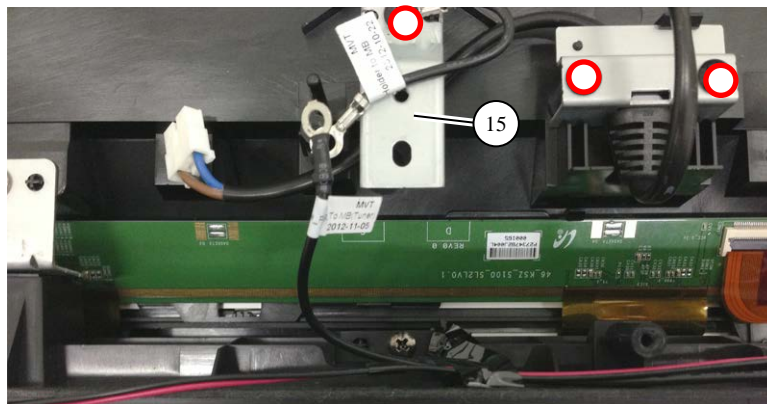
1-4. OTHER PART

1-4-1. MISCELLANEOUS

PART No.	DESCRIPTION	MARK
1-492-067-11	REMOTE COMMANDER (RM-ED054)	
4-458-514-11	MANUAL, INSTRUCTION	GB
4-458-514-21	MANUAL, INSTRUCTION	FR/ES/NL/DE/PT
4-458-514-31	MANUAL, INSTRUCTION	NO/FI/DK/SE
4-458-514-41	MANUAL, INSTRUCTION	PL/HU/CZ/SK/RO/BG/GR/IT
4-458-514-91	MANUAL, INSTRUCTION	RU/UA
4-459-474-21	BRACKET, VESA TOP LONG A (46FAN)	for wall mount (46inch only)
2-580-602-01	SCREW, +PSW M4X12 (VESA L FAN)	for wall mount (46inch only)

SEC 2. ADJUSTMENT

HOW TO ENTERING SERVICE MODE

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

2) Press the buttons on the remote commander as follows, and entering service mode.

| Info | ➡ | Channel | 5 | ➡ | Volume | + | ➡ | TV POWER |

3) Service mode display.

```
              Service Mode

   Status Information              >>
   Self diagnosis history          >>
   Panel Selection        <[ 19_S320DB3-1_EU ]>
   NO_SIGNAL_MUTE         <[      Off      ]>
   TUNING SYSTEM          <[      AUTO     ]>
   LVDS Spectrum (%o)     <[       30      ]>
   Low of HPD             <[       5       ]>
   UART Selection         <[    Usb Fact   ]>
   SERIAL NUMBER EDID            6000001
   MODEL NAME EDID             KDL-32R420A


                  [</>]Set[Home]Exit
```

Panel Selection	MODEL NAME EDID
19_S320DB3-1_EU	KDL-32R420A KDL-32R421A KDL-32R423A KDL-32R424A
18_S400DH1-1_EU	KDL-40R470A KDL-40R471A KDL-40R473A KDL-40R474A
48_S460DH1-1_EU	KDL-46R470A KDL-46R473A

- When replace Main Board or panel, please confirm "Panel Selection" and "MODEL NAME EDID" in service mode.
  If they are different, please select a suitable thing.

- Change of SERIAL NUMBER EDID and MODEL NAME EDID are possible only once when they are white character.

Note: About the software data update, please refer to **"APPENDIX-4"**.

4) How to use the remote commander.

Function	The flow of control
Service mode on	<Info><5><Vol Up><Power>
Service mode off	<Other> / <Power off + on>
Adjustment Item up / down	⇧ / ⇩
Data Value up / down	⇦ / ⇨

5) After entering service mode, then turn off the power switch.

SEC 3. TROUBLE SHOOTING

3-1. NO POWER

```
No power
   │
   ▼
Long AC off(> 15 min.)   ──OK──▶   Enter Service Mode and check   ──▶   IF MAIN_POWER > 0 or   ──Yes──▶   Change
and then                           Self diagnosis history                DC_ALERT1 > 0                        Main board
Power On                                                                      │
   │                                                                          No
   NG                                                                         ▼
   │                                                                     IF AUDIO_PROT > 0   ──Yes──▶   Change
   ▼                                                                          │                         Main board
Check SB_3.3V                                                                 No
at 1 pin of CN201   ──NG──▶   Check the harness   ──OK──▶   Replace the harness   ──▶   BACKLIGHT_ERR > 0   ──Yes──▶   Change
on the Main board             PSU to M/B                    between PSU and                                            Panel
Between 3.14~3.45V            connection                    Main board   ──NG──▶   Change PSU
   │                              │                              │
   OK                             NG                      OK  │  Symptom improvement
   │                              │                              │
   ▼                              ▼                              ▼
Change                        Fix the harness              Harness issue
Main board                    connection
```

3-2. STANDBY LED BLINK

1) 2 times blinking (Main Power Error)

```
┌──────────────┐
│ 2-time blinking │
└──────────────┘
        │
        ▼
   Check REG+12V at          Check PSU_EN# at        Check the harness         Replace the harness
   CN201_Pin-3/8 on  ──NG──▶  CN201_Pin-6 on  ─>=2.6V─▶  PSU to M/B  ──OK──▶   between PSU and  ──NG──▶  Change PSU
   Main board               Main board               connection                Main board
   (11.8~13.2V)
        │                        │                        │                        │
        OK                      <2.6V                     NG                   OK  Symptom improvement
        ▼                        ▼                        ▼                        ▼
   Change                   Change                   Fix the harness          Harness issue
   Main board               Main board               connection
```

2) 3 times blinking (Main Board Error)

```
                    ┌─────────────────────┐
                    │   3-time blinking   │
                    └─────────────────────┘
                              │
         ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─│─ ─ ─ ─ ─ ─ ─ ─ ┐  ┌ ─ ─ ─ ─ ┐
                              │                     DC_ALERT
         │                    ▼                  │  └ ─ ─ ─ ─ ┘
                     ╱─────────────────╲    NG     ┌─────────────────────┐
         │          ╱  Check PWM_5V at  ╲─────────▶│   U202, L202, etc    │
                    ╲  L202 pin-2 on     ╱         │  Change Main board   │
         │          ╲  Main board       ╱          └─────────────────────┘
                     ╲  (4.75~5.25V)   ╱
         │            ╲───────────────╱
                              │ OK
         │                    ▼
                     ╱─────────────────╲    NG     ┌─────────────────────┐
         │          ╱  Check SYS_3.3V   ╲─────────▶│     U204, etc        │
                    ╲  at U204_Pin-6     ╱         │  Change Main board   │
         │          ╲  on Main Board    ╱          └─────────────────────┘
                     ╲ (3.135~3.465V)  ╱
         │            ╲───────────────╱
         └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─│─ ─ ─ ─ ─ ─ ─ ─ ┘
                              │ OK
```

(flowchart continued)

Lower section:

- Check the harness M/B to Speaker connection
  - OK → Check the speaker Impedance at the SP Connector (8ohm+/-15%)
    - NG → Change Speaker
    - OK → Demo, Audio, Tuner, etc Change Main board
  - NG → Fix the harness connection

AUDIO

3) 6 times blinking (Backlight Error)

```
                    ┌─────────────────┐
                    │ 6-time blinking │
                    └────────┬────────┘
                             │
          ┌──────────────────┴──────────────────┐
          │ Check PSU_BL_EN#      <2.4V          │──────────►  ┌──────────────┐
          │ at CN201_Pin-14                      │             │ Change       │
          │ on the Main board                    │             │ Main board   │
          └──────────────────┬──────────────────┘             └──────────────┘
                        >=2.4V
          ┌──────────────────┴──────────────────┐
          │ Check PSU_BL_ERR#     <=0.7V         │──────────►  ┌──────────────┐
          │ at CN201_Pin-13                      │             │ Change       │
          │ on the Main board                    │             │ Main board   │
          └──────────────────┬──────────────────┘             └──────────────┘
                        >=1.8V
          ┌──────────────────┴──────────────────┐
          │ Check the harness     NG            │──────────►  ┌──────────────┐
          │ PSU to M/B                           │             │ Fix the harness│
          │ connection                           │             │ connection   │
          └──────────────────┬──────────────────┘             └──────────────┘
                          OK
          ┌──────────────────┴──────────────────┐   Symptom
          │ Replace the harness   improvement   │──────────►  ┌──────────────┐
          │ PSU to Main board     OK            │             │ Harness issue│
          └──────────────────┬──────────────────┘             └──────────────┘
                          NG
```

Check the FFC(LVDS) Between PSU and Panel connection → NG → Fix the FFC(LVDS) connection

OK

Replace the FFC(LVDS) Between PSU and Panel → OK → FFC(LVDS) issue

NG

Replace PSU → OK → PSU issue

NG

Change Panel

3-3. NO PICTURE

No picture

Press HOME Key. Menu displayed?

No → Check the harness PSU to Panel connection

OK → Replace PSU to Panel Harness

NG → Check the FFC(LVDS) PSU to Panel connection

OK → Replace the FFC(LVDS) Between PSU and Panel

NG → Change Main board

NG

Yes

NG → Fix the harness connection

OK | Symptom improvement → Harness issue

NG → Fix the FFC(LVDS) connection

OK → FFC(LVDS) issue

OK → Main board issue

Change Equipment Or Player to check TV display

No display → Change Main board

OK

Signal or Equipment Problem

Change PSU

NG → Change Panel

OK | Symptom improvement → PSU issue

3-4. NO SOUND

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

3-5. TV COMMANDER BUTTONS MALFUNCTION

1) TV button malfunction

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

2) IR remote commander malfunction

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

SEC 4. DIAGRAMS

4-1. BLOCK DIAGRAM

PCMCIA

DDR3

NAND Flash

Demod.
T2:
CXD2837ER+MT5135
T:
MT5135

Tuner
Defined
by Region

TS

IF

Demodulator
(ATSC/NTSC/PAL)

MT5367

LVDS

Panel
Module

I2S

Amplifier

Speaker
(8! /8W*2)

HDMI 1 (ARC)
HDMI 2 (MHL)

Sil1292

HP Driver

Hybrid

Audio
Line out

Line out

SPDIF

Digital Out

YPbPr/CVBS

YPbPr-R/L/CVBS-R/L

Keypad

SCART

IR / LED

USB

USB
1.1/2.0

PSU
32" GL3B
40" GL4
46" GL5

Ethernet
(EU)

Ethernet
PHY

Main Board

4-2. CONNECTOR DIAGRAM

Panel

Key Pad

Power Board

CN6401

GROUND
CABLE (32)

CN4001(32)
CN4002(40/46)

CN201

CN8001

CN4006

CN4003

Main Board

T-Con Board

Speaker

IR Board

CN950

Speaker

4-3. CIRCUIT BOARDS LOCATION

KDL-32R420A/421A/423A/424A

Switch Unit

GL3 Board

A Board

H Board

KDL-40R470A/471A/473A/474A

Switch Unit

GL4 Board

A Board

H Board

KDL-46R470A/473A

Switch Unit

GL5 Board

A Board

H Board

END

APPENDIX-1

WIRE DRESSING

1. KDL-32R420A/421A/423A/424A

Keypad wire dressing

3 Pcs tapes length: 60mm

Acetate cloth tape length: 60mm

Boss

Boss

Boss

Boss

1. KDL-32R420A/421A/423A/424A

PSU->MB dressing-1

2 Pcs tapes length: 60mm

Should be in the rib

Should be in the rib

PSU-M harness should be pass under wall bracket, above M -Keypad harness and between back chassis ribs
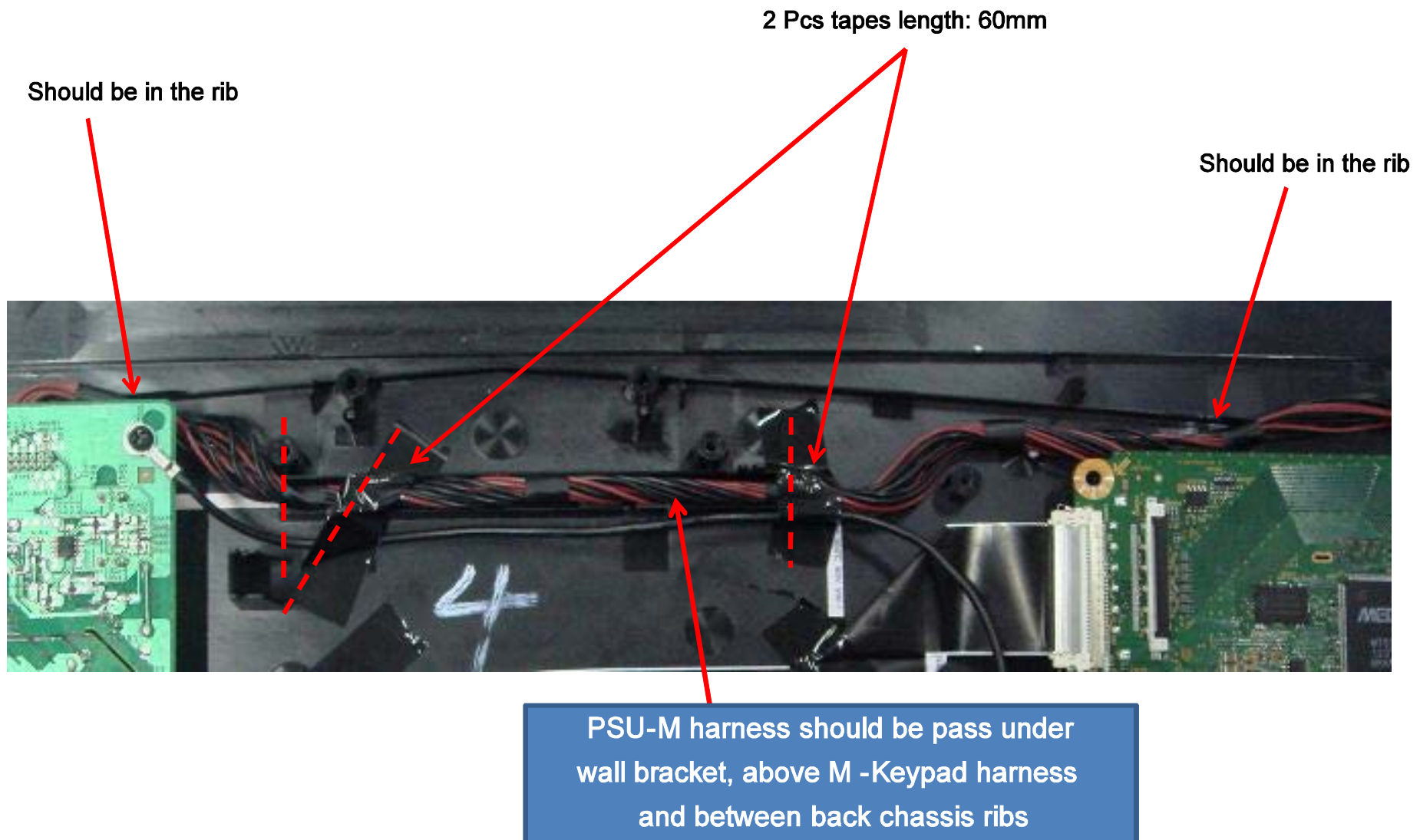
1. KDL-32R420A/421A/423A/424A

PSU->MB dressing-2
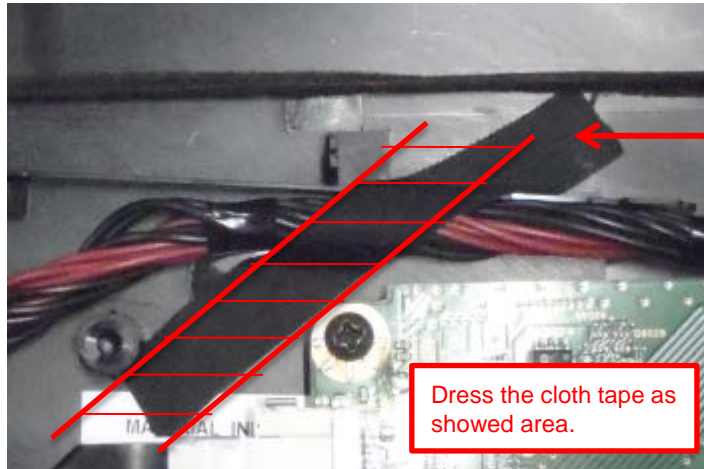
Part Name: ACETATE CLOTH TAPE W10
Part Number: 4-468-753-01

Dress the cloth tape as showed area.

Part Name: ACETATE CLOTH TAPE W20
Part Number: 4-468-753-11

Align the harness black tape.
0~3mm.
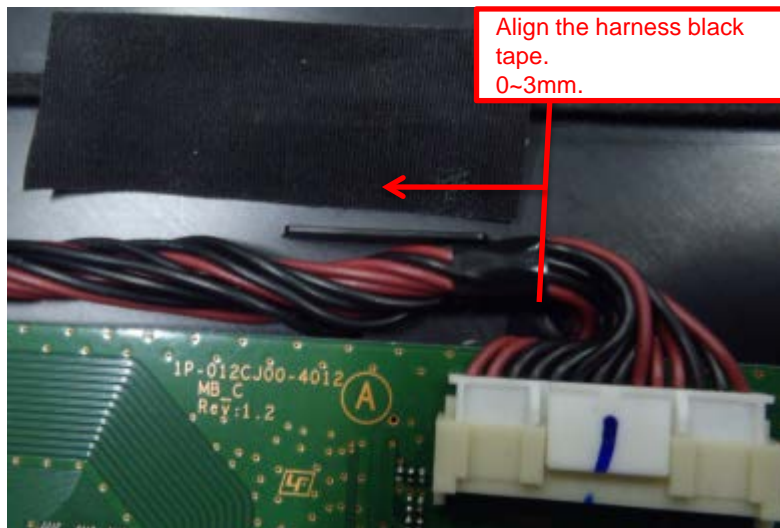
1. KDL-32R420A/421A/423A/424A

Speaker and GND combine dressing-1

3 Pcs tapes length: 60mm
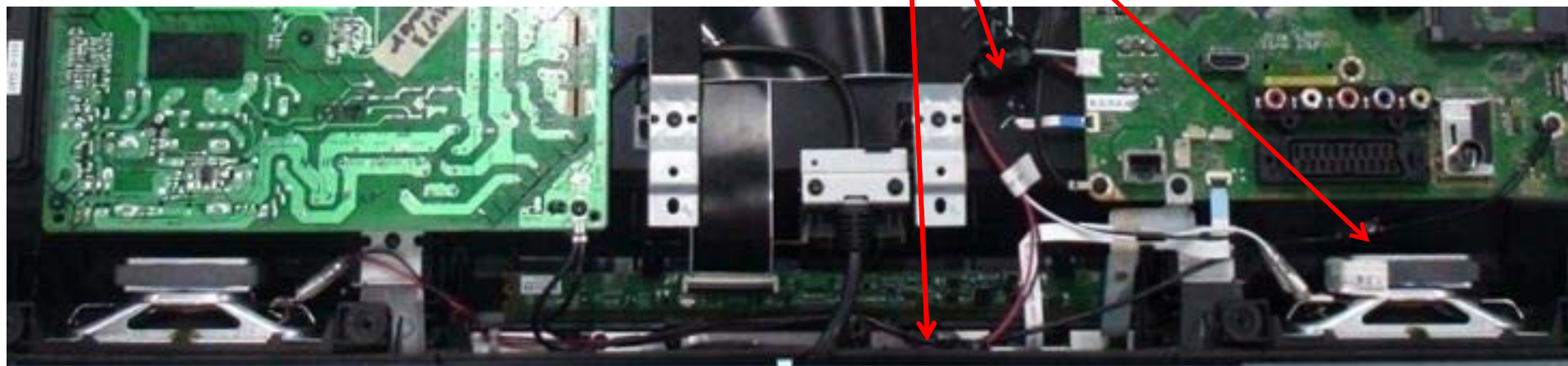
1. KDL-32R420A/421A/423A/424A

Speaker and GND combine dressing-2

Clamper

Bottom BKT hole

Not paste on the source board is OK

The GND lock on the bottom BKT
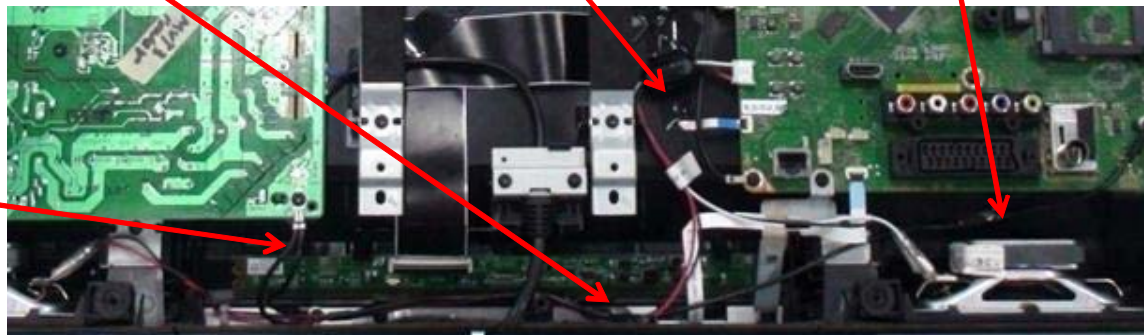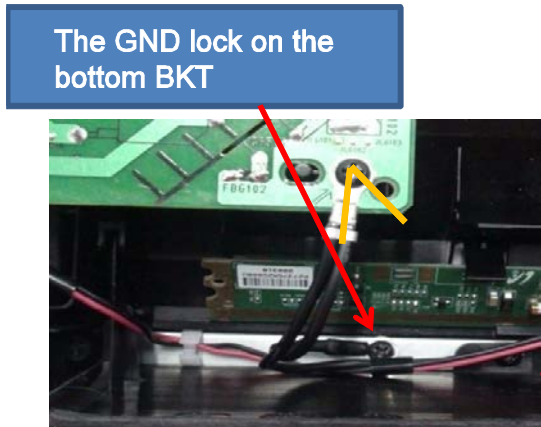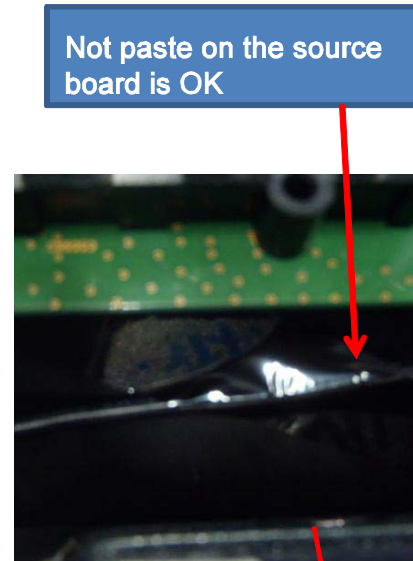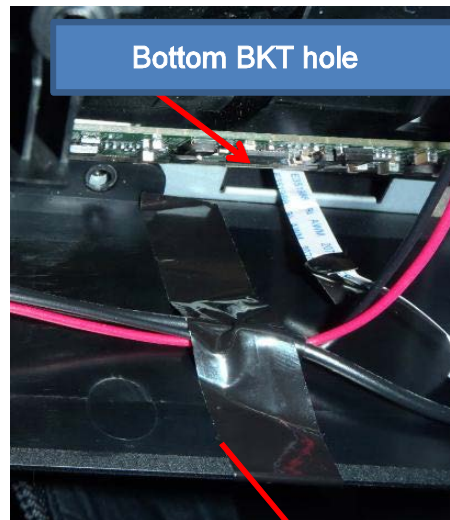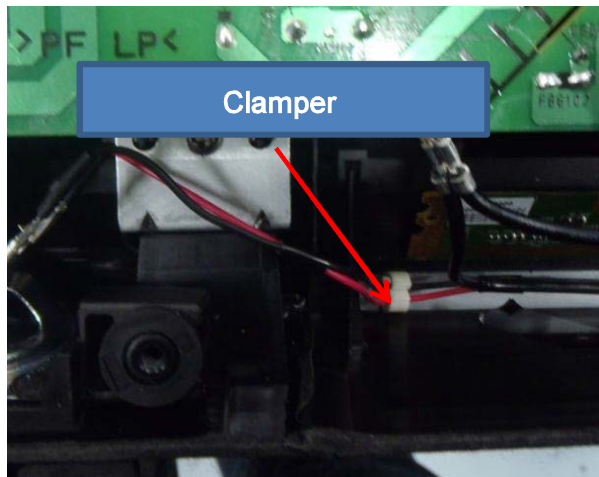
1. KDL-32R420A/421A/423A/424A

Speaker and GND combine dressing-3
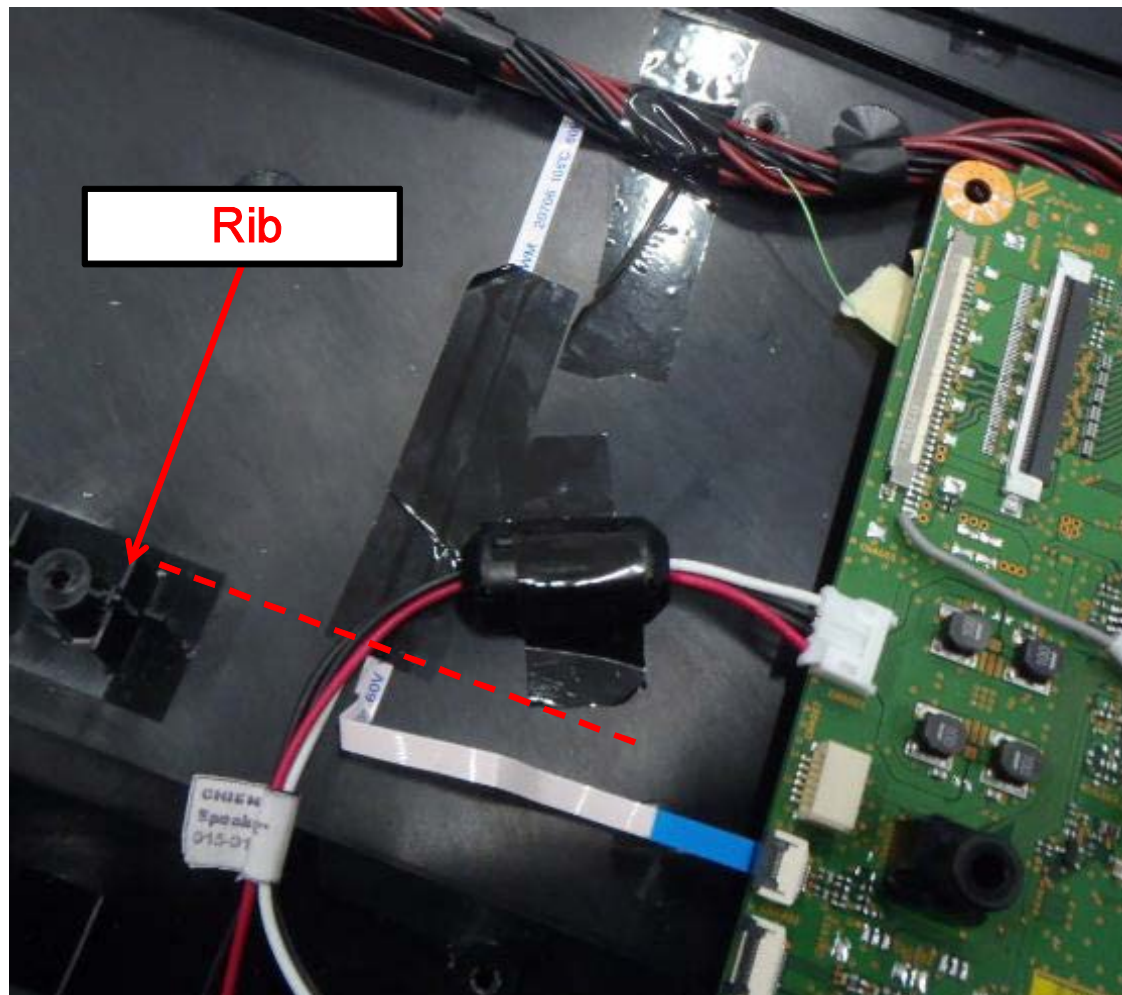
1. KDL-32R420A/421A/423A/424A

Speaker and GND combine dressing-4

Note:
Speaker & Ground wire combined harness need keep away with S-board, speaker harness keep close to Speaker Baffle inside of ground harness.

1. KDL-32R420A/421A/423A/424A

IR dressing

1 Pcs conductive tape length: 10x35mm

Old

Old

The ESD Hole and tape hole must be align

The ESD Hole and tape hole must be align

New

New
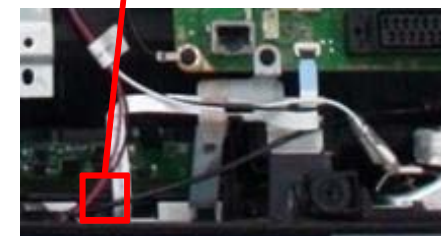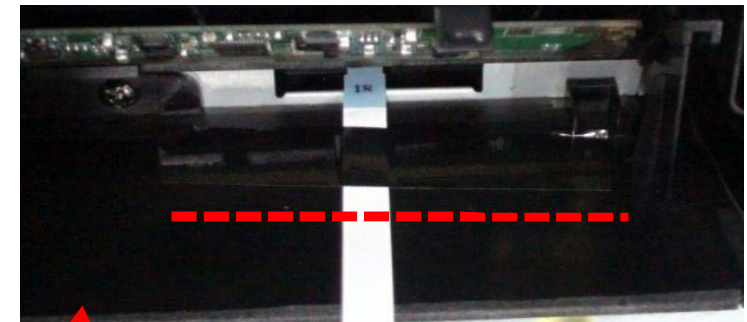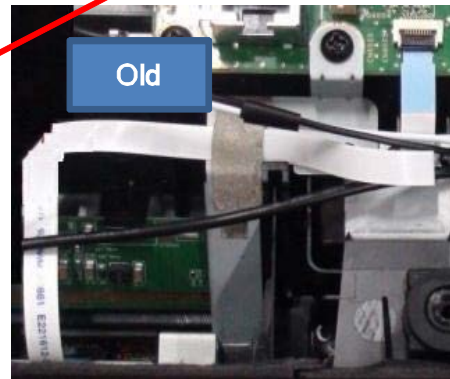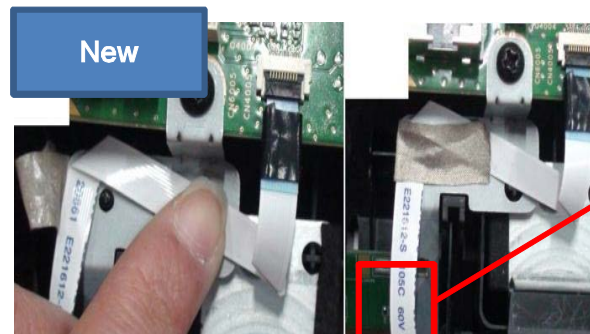
1. KDL-32R420A/421A/423A/424A

LVDS dressing

2 Pcs tapes length: 60mm
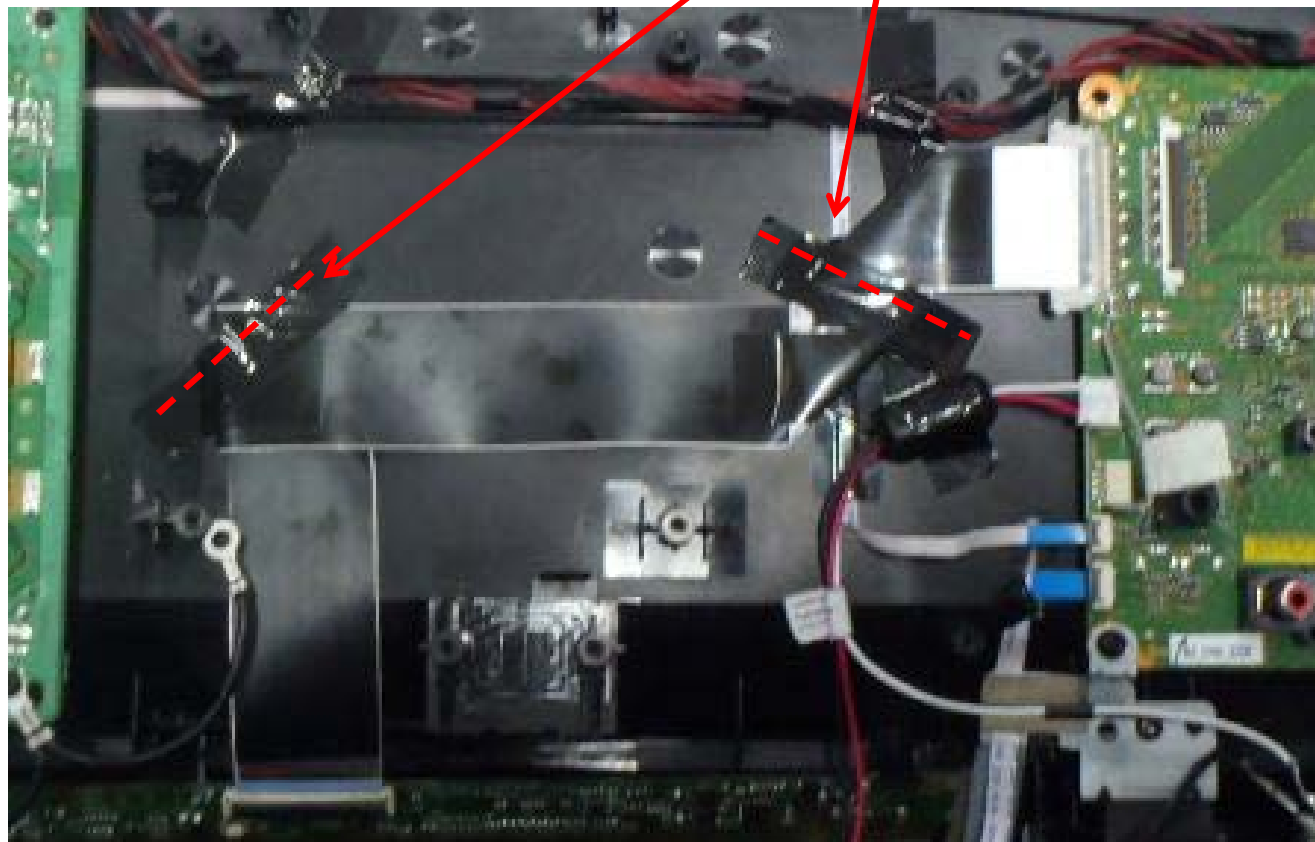
1. KDL-32R420A/421A/423A/424A

GND dressing

4 Pcs tapes length: 60mm
Must combine the GND with MB -> PSU together

The direction should be parallel with the line
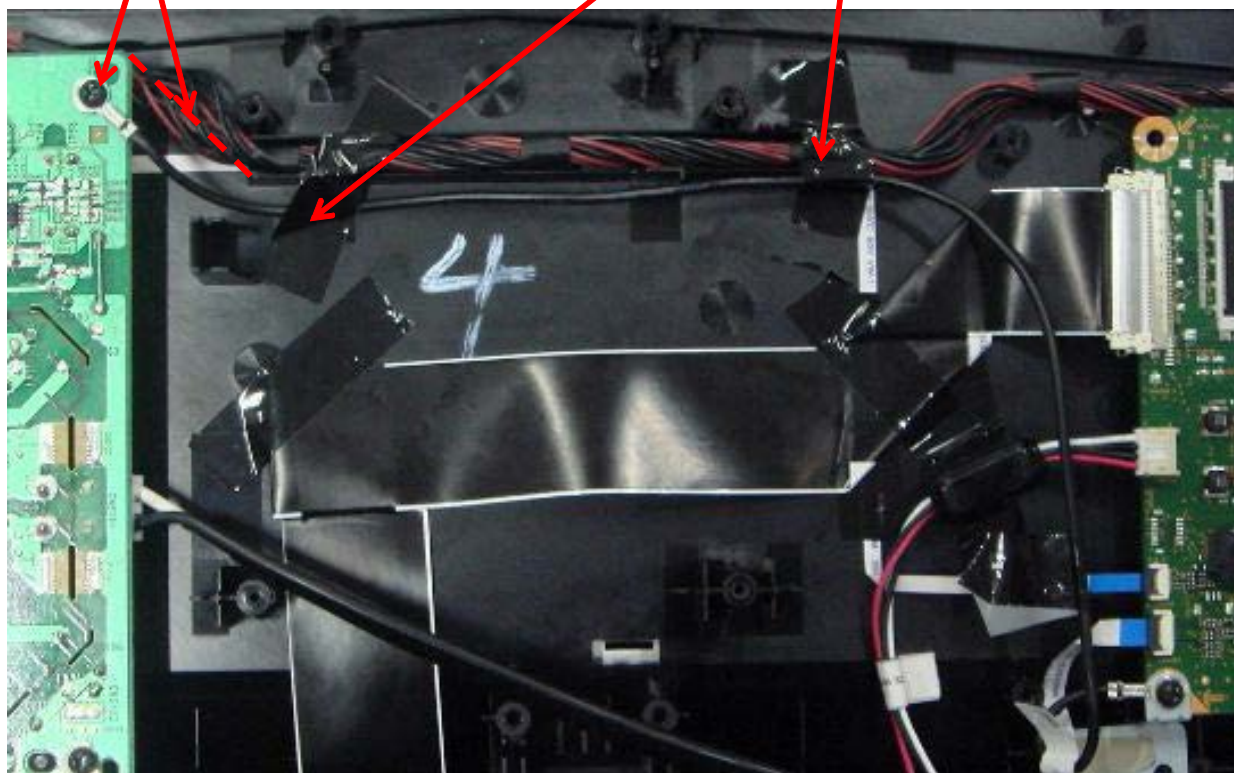
1. KDL-32R420A/421A/423A/424A

AC dressing

1 Pcs acetate cloth tape length: 100mm

1 Pcs tape length: 60mm
The tape is vertical to fix the AC wire
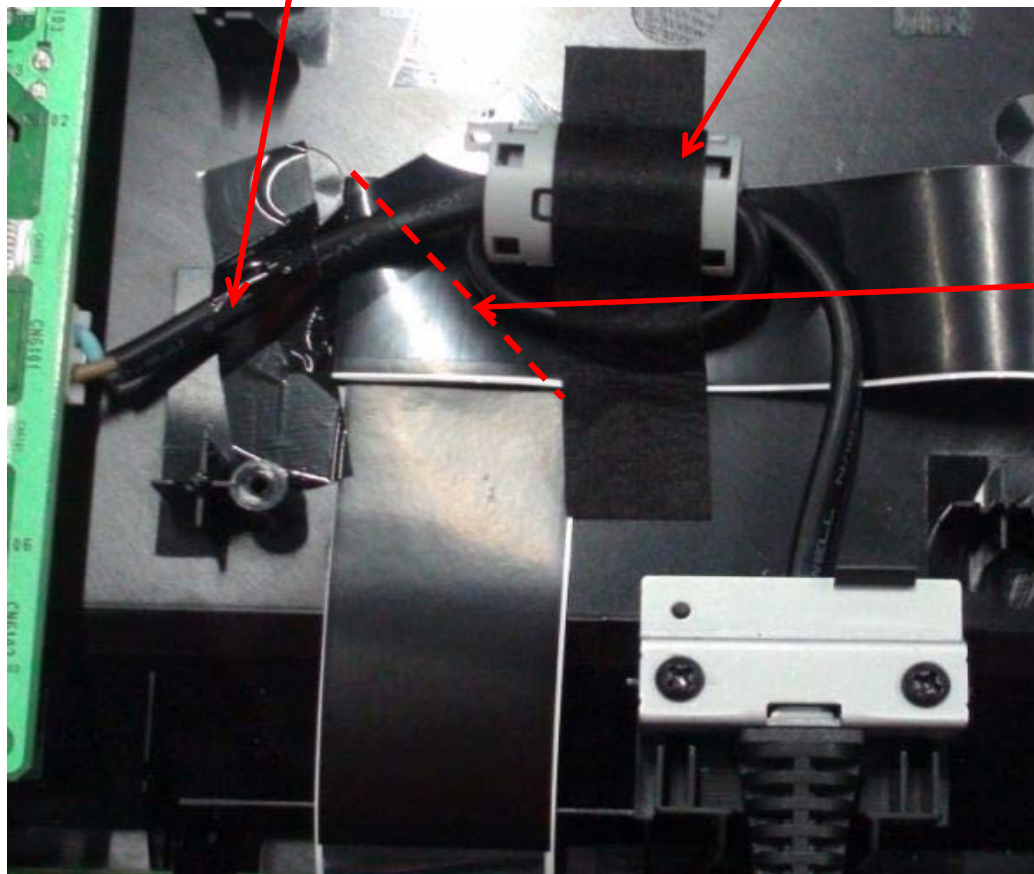
Core should be at the right of line

Note:
AC CORE must dressed horizontally, at
the FFC harness top.

1. KDL-32R420A/421A/423A/424A

Overview
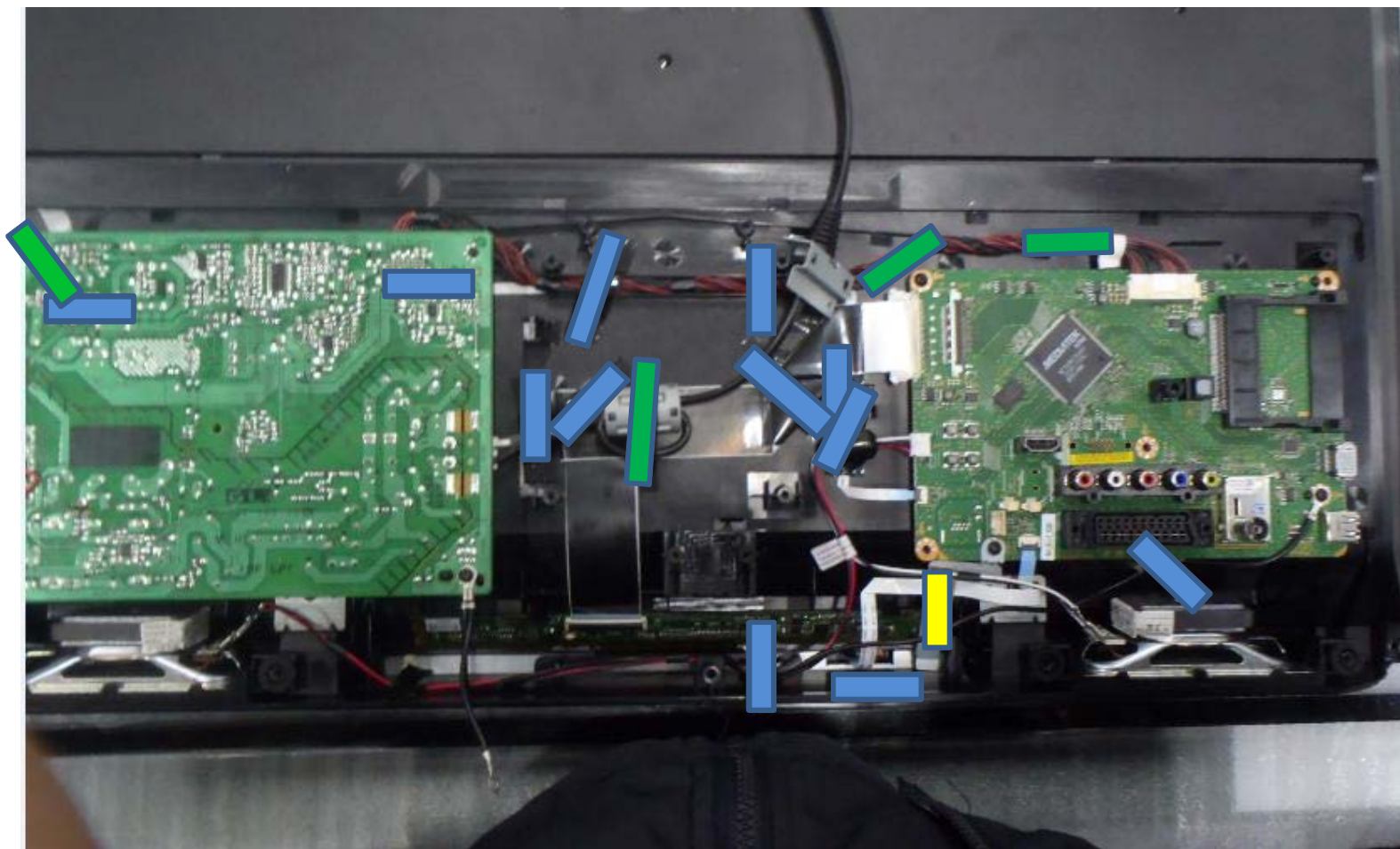
12 Pcs tapes and 4 Pcs acetate cloth tape and 1 Pcs conductive tape Hotel (14 Pcs tapes)

2. KDL-40R470A/471A/473A/474A

Keypad wire dressing-1

5 Pcs tapes length: 60mm

2. KDL-40R470A/471A/473A/474A

Keypad wire dressing-2

Boss

Boss

The two tapes should be together
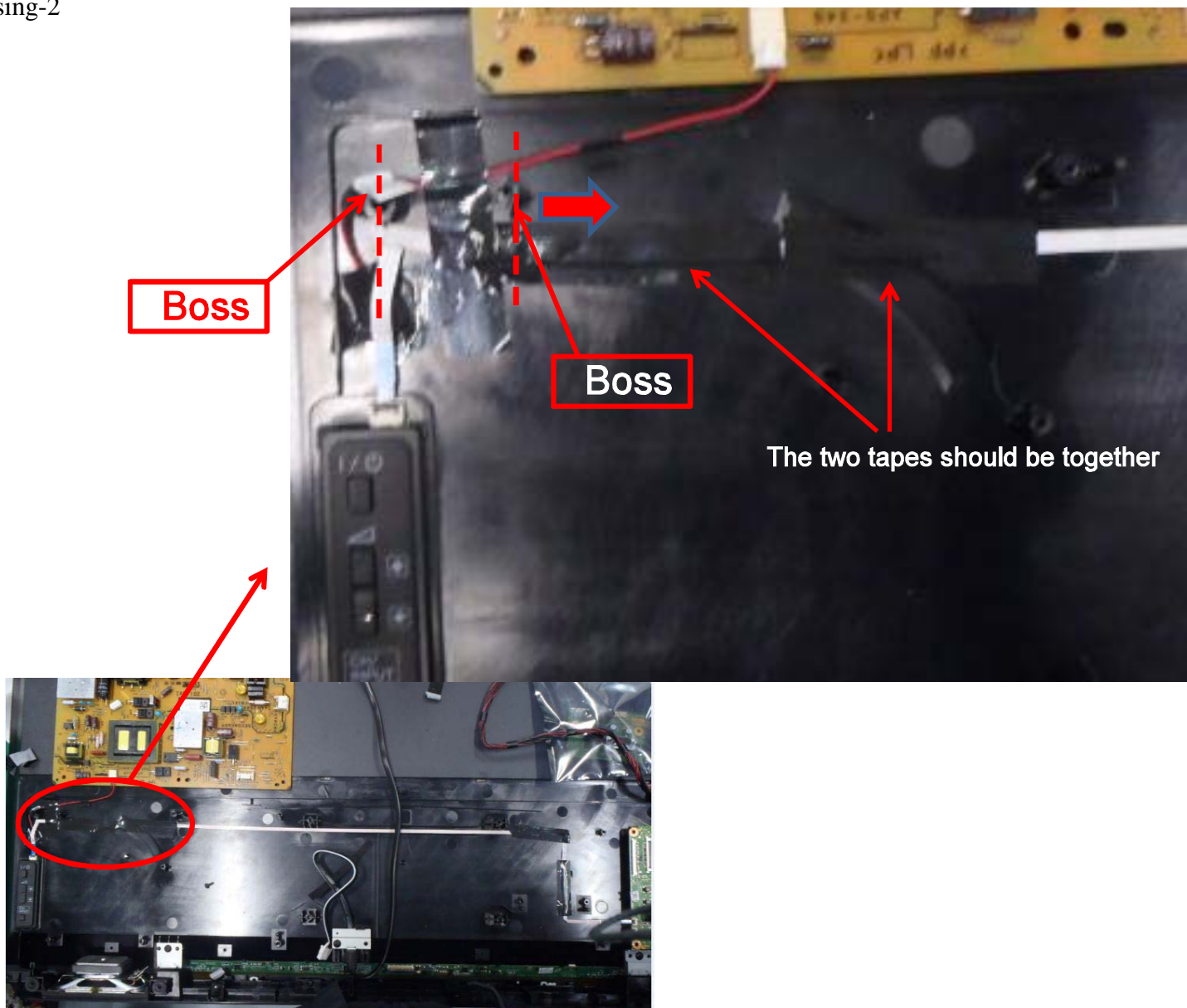
2. KDL-40R470A/471A/473A/474A

PSU->MB dressing

3 Pcs tapes length: 60mm

PSU-M harness should be pass under wall bracket, above M -Keypad harness and between back chassis ribs
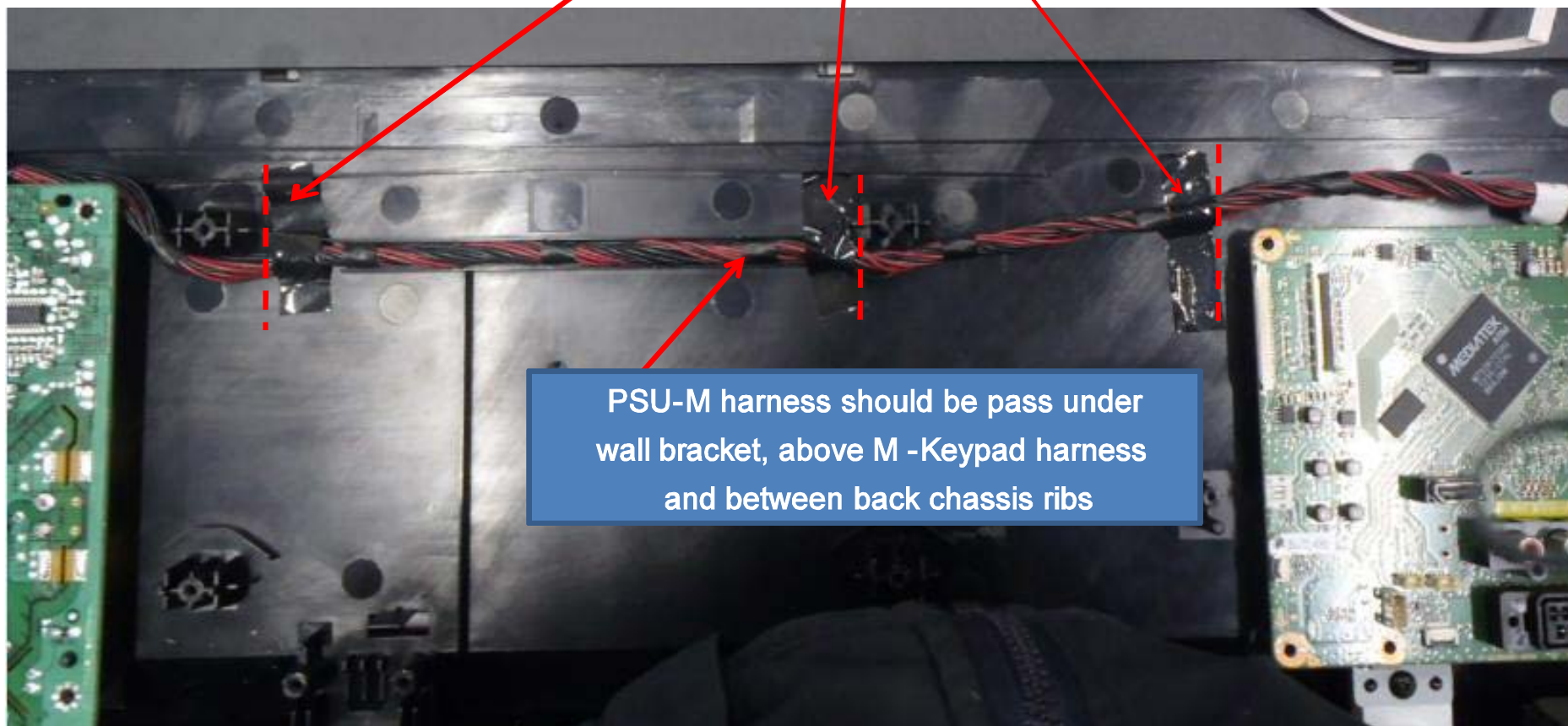
2. KDL-40R470A/471A/473A/474A

Speaker and GND combine dressing-1

4 Pcs tapes length: 60mm
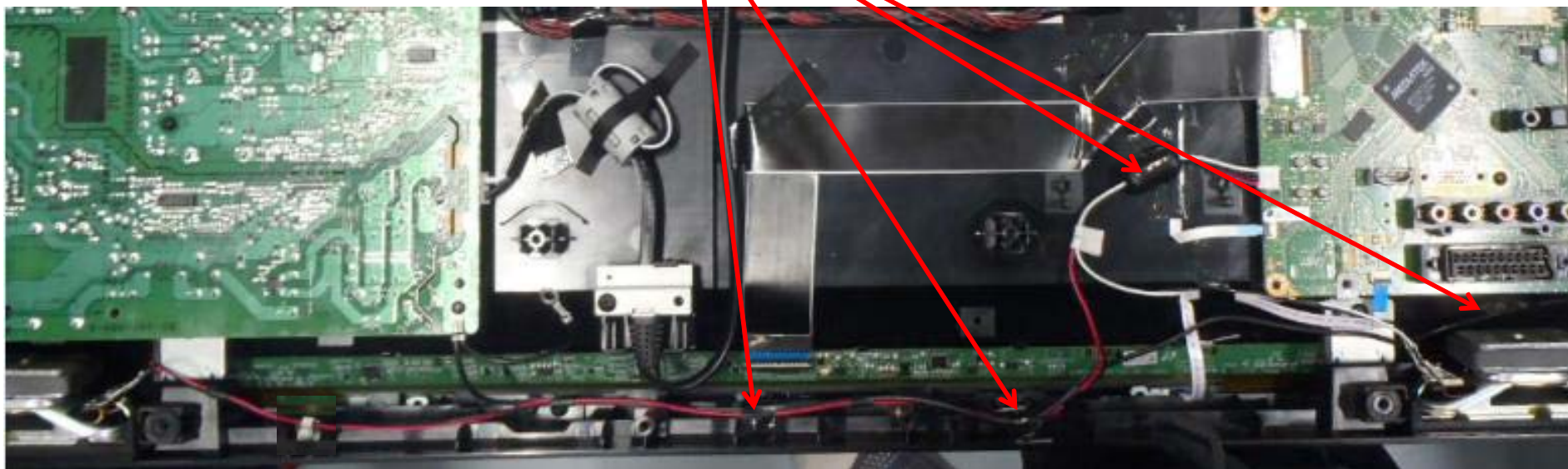
2. KDL-40R470A/471A/473A/474A

Speaker and GND combine dressing-2

2. KDL-40R470A/471A/473A/474A

Speaker and GND combine dressing-3

BOSS
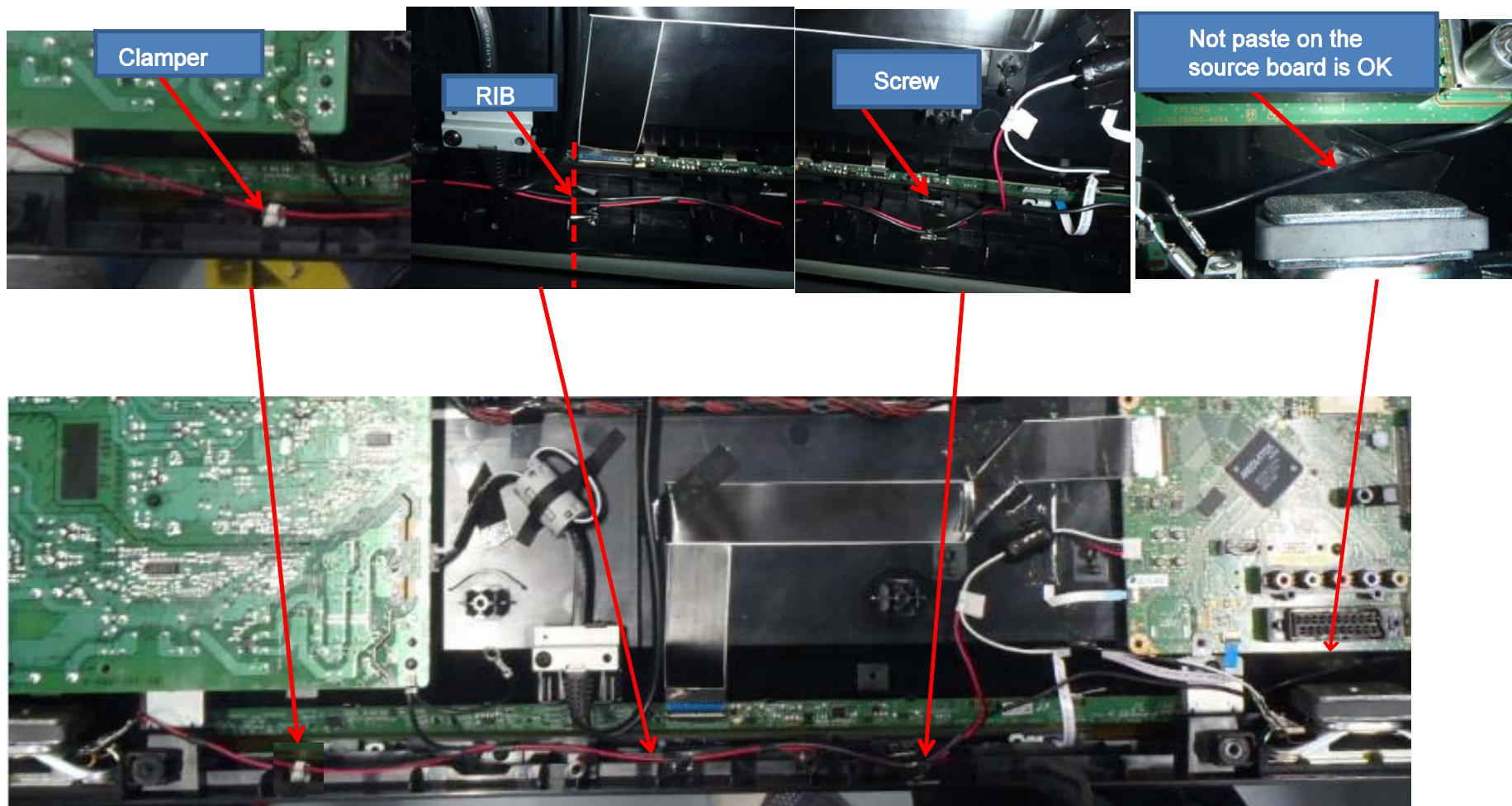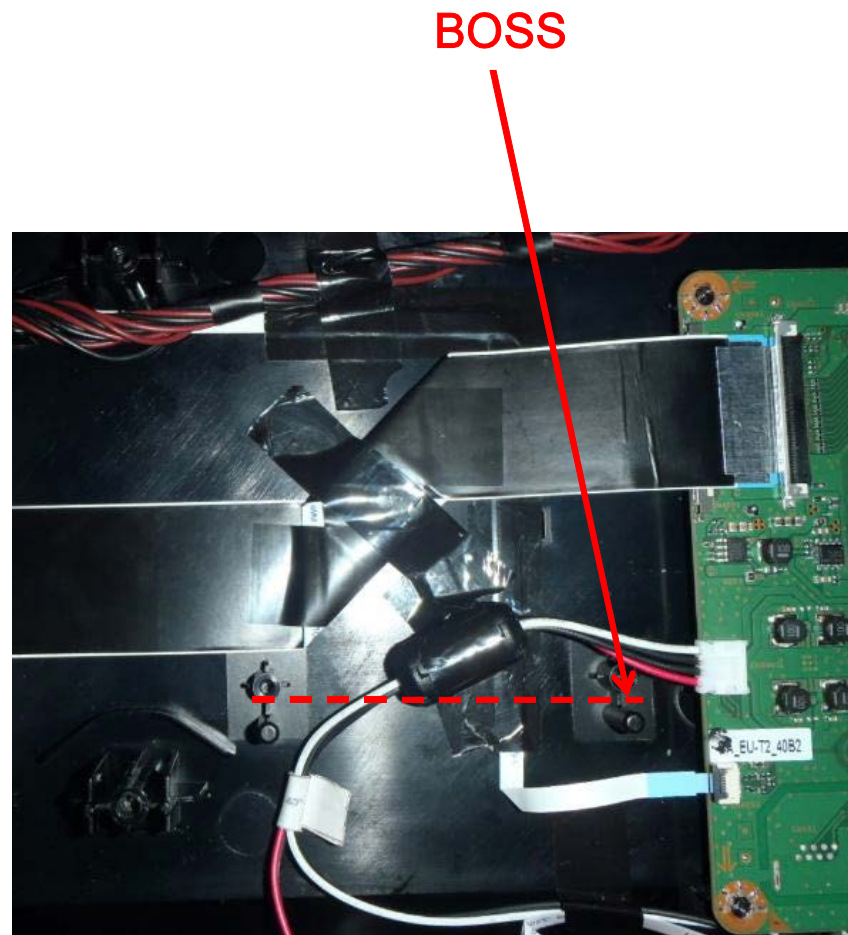
2. KDL-40R470A/471A/473A/474A

IR dressing

1 Pcs tape length: 60mm

The is vertical, paste speaker wire(L)
and IR together is OK
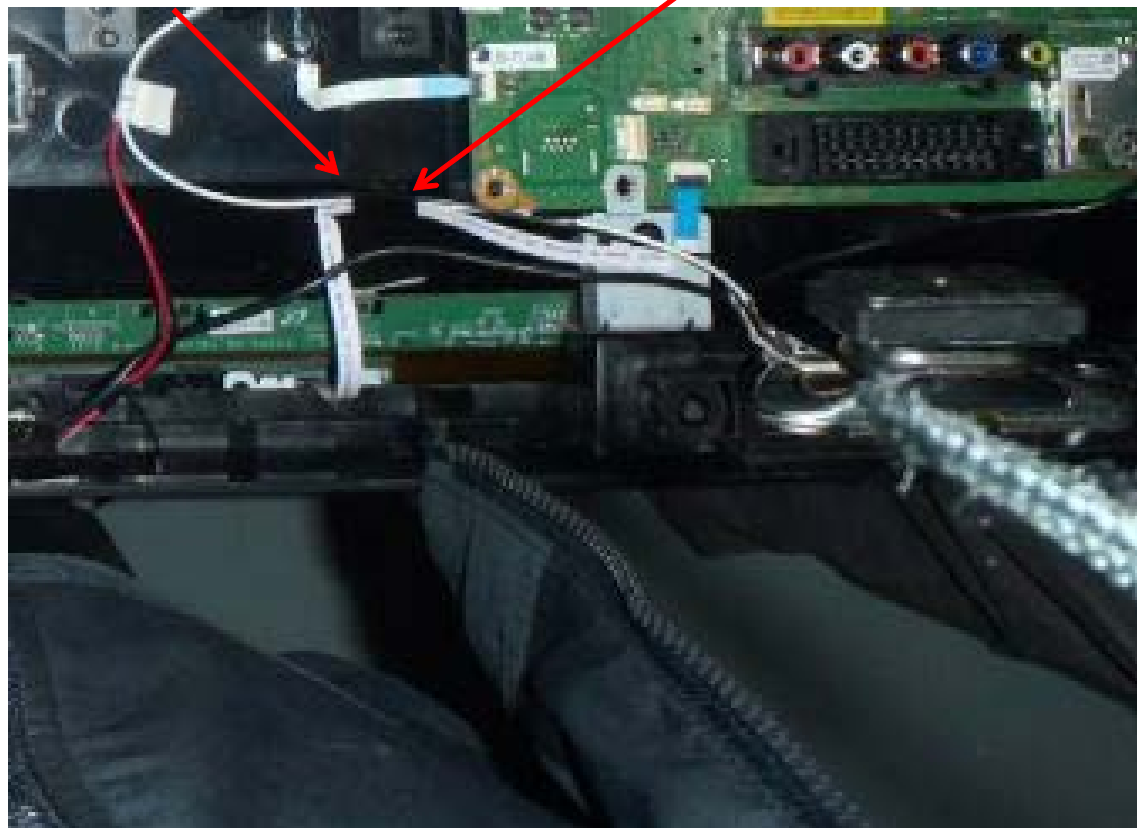
2. KDL-40R470A/471A/473A/474A

LVDS dressing

2 Pcs tapes length: 60mm

2. KDL-40R470A/471A/473A/474A

AC dressing

Under Rib

Part Name: ACETATE CLOTH TAPE W20
Part Number: 4-468-753-11

2. KDL-40R470A/471A/473A/474A

Overview

15 Pcs tapes and 1 Pcs acetate cloth tape

3. KDL-46R470A/473A

Keypad wire dressing-1

7 Pcs tapes length: 60mm
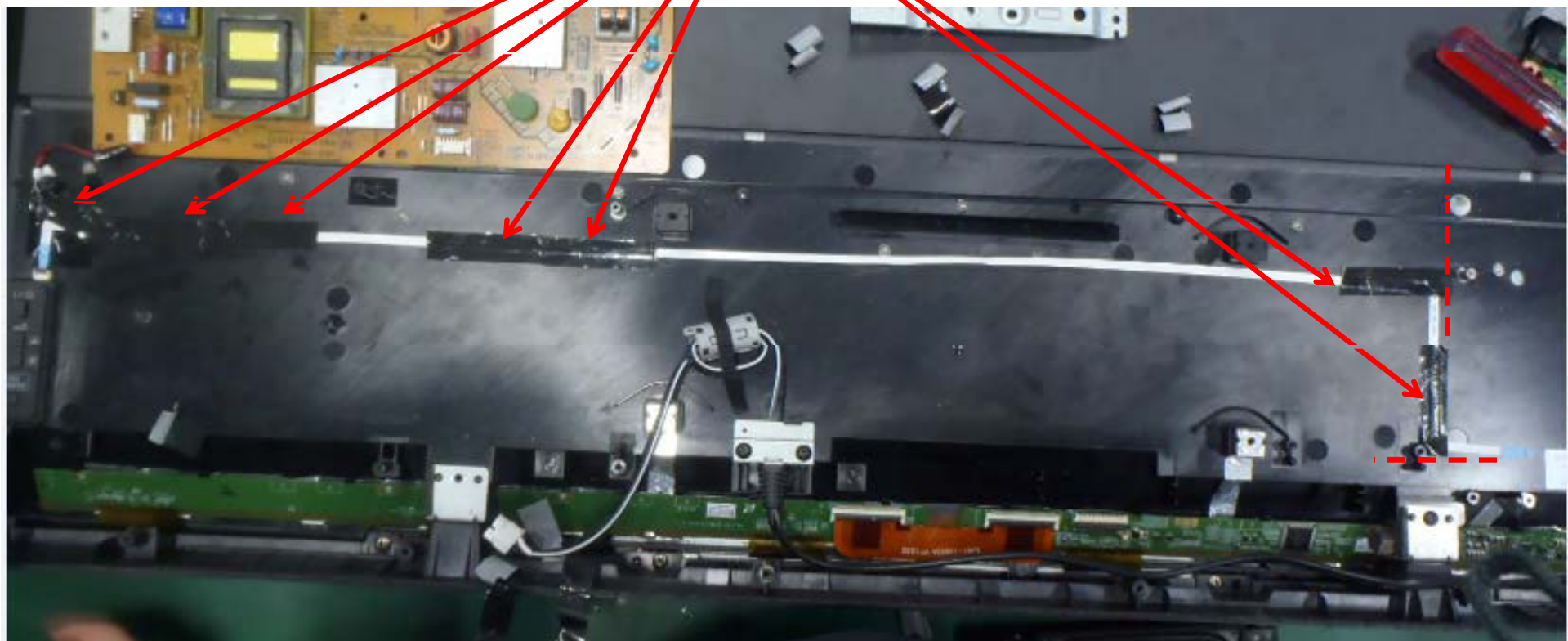
3. KDL-46R470A/473A

Keypad wire dressing-2
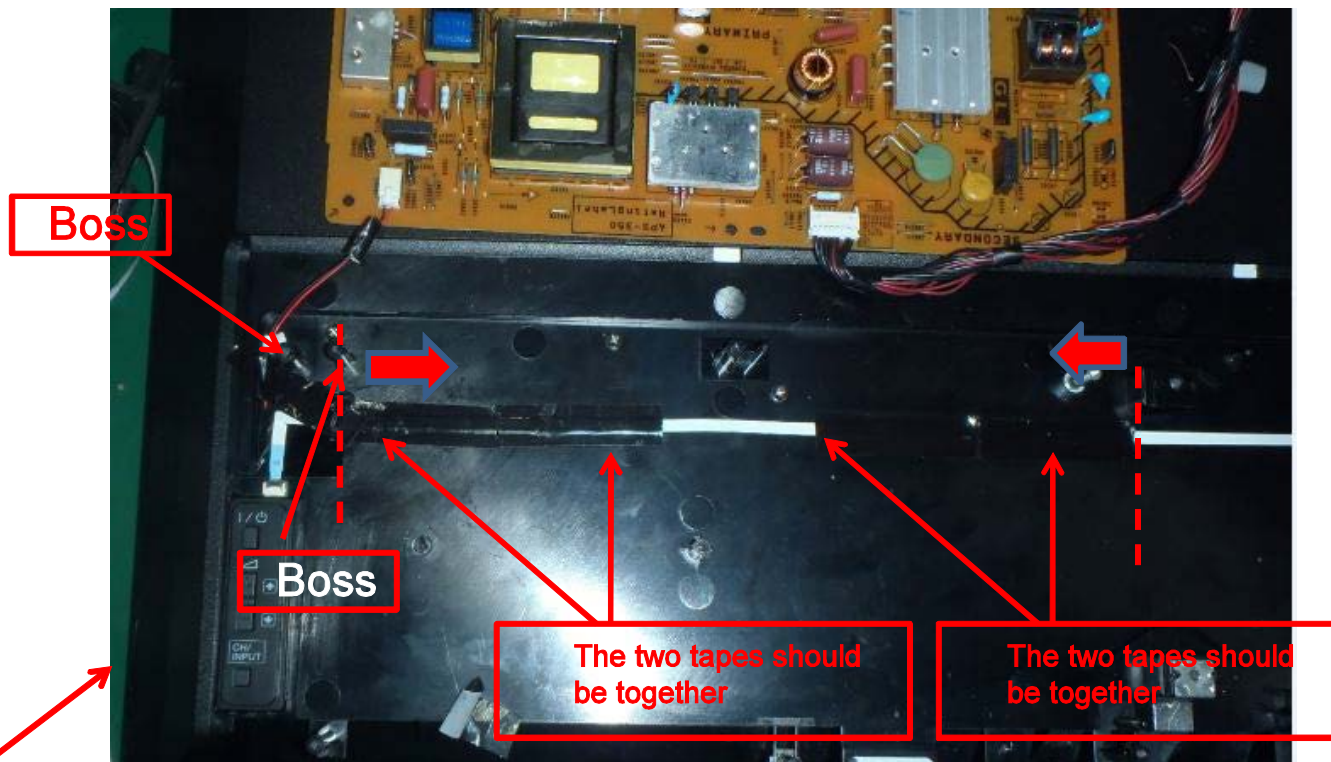
3. KDL-46R470A/473A

PSU->MB dressing-1

3 Pcs tapes length: 60mm

Like this

Should be in the rib

Should be in the rib

Should be on the boss

PSU -M harness should be pass under wall bracket, above M-Keypad harness and between back chassis ribs
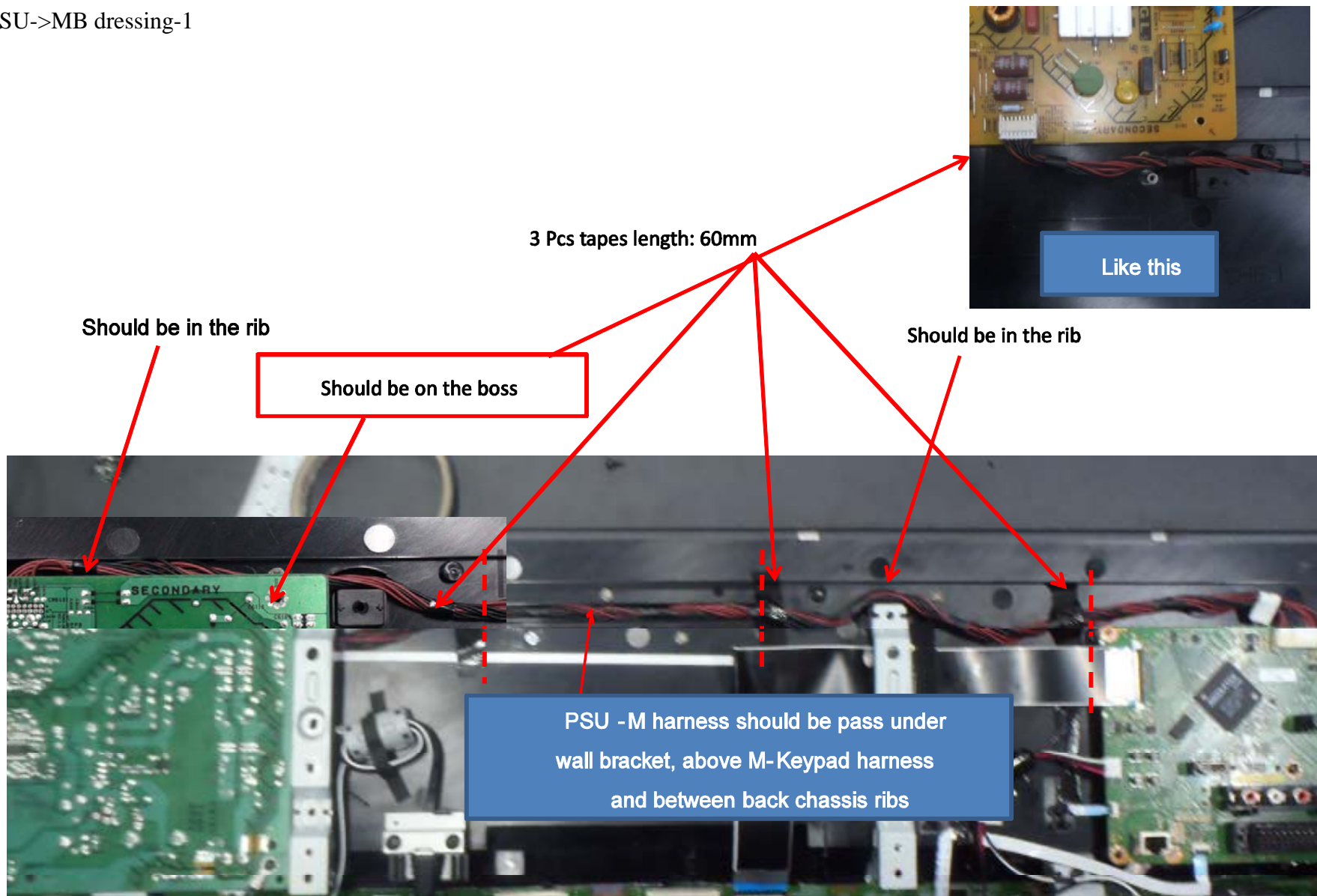
3. KDL-46R470A/473A

Speaker and GND combine dressing-1

6 Pcs tapes length: 60mm

3. KDL-46R470A/473A

Speaker and GND combine dressing-2

RIB

RIB

Screw

Clamper

The GND in under the Vesa BKT
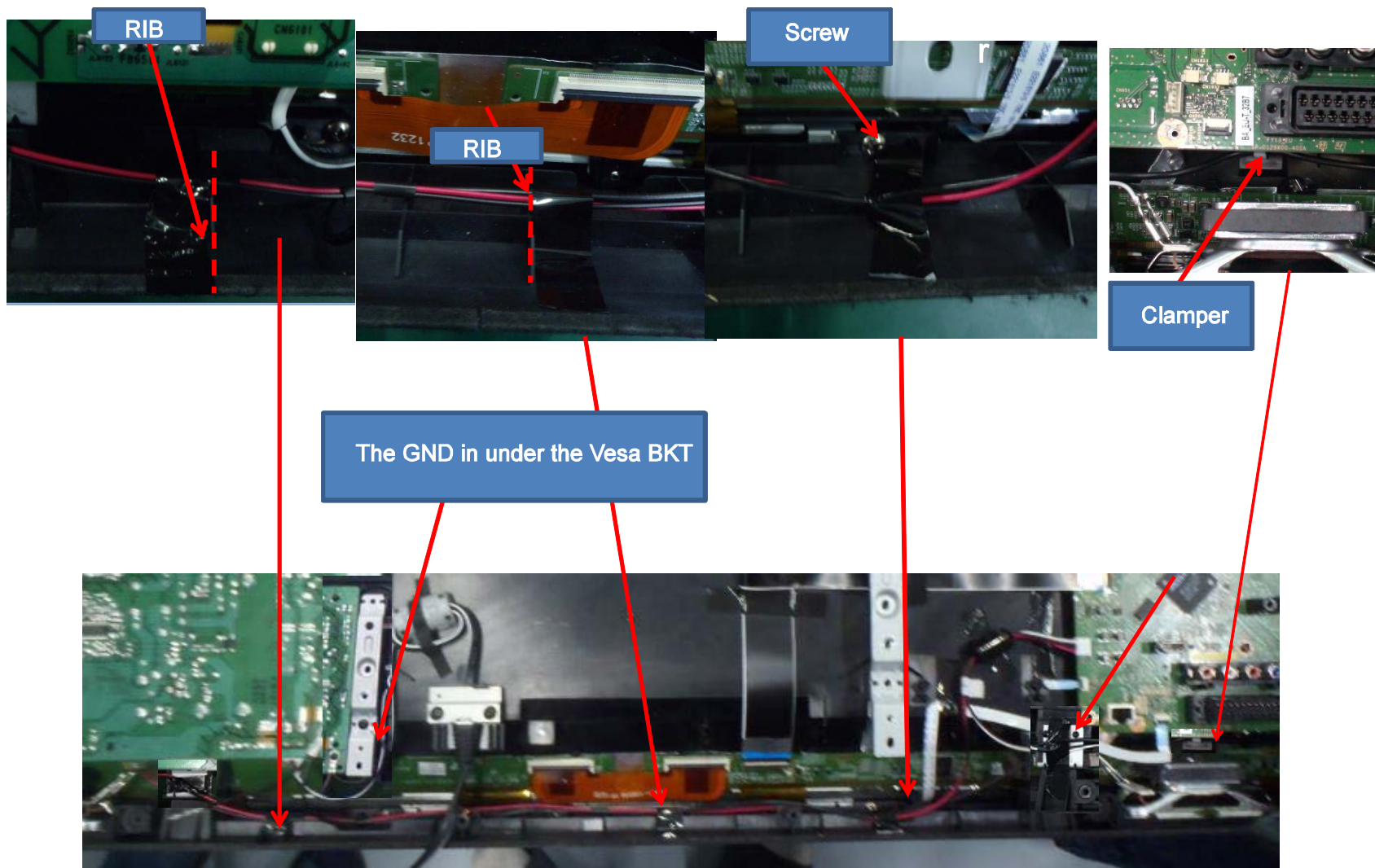
3. KDL-46R470A/473A

Speaker and GND combine dressing-3

3. KDL-46R470A/473A

IR dressing

1 Pcs tape length: 60mm

Tape is vertical
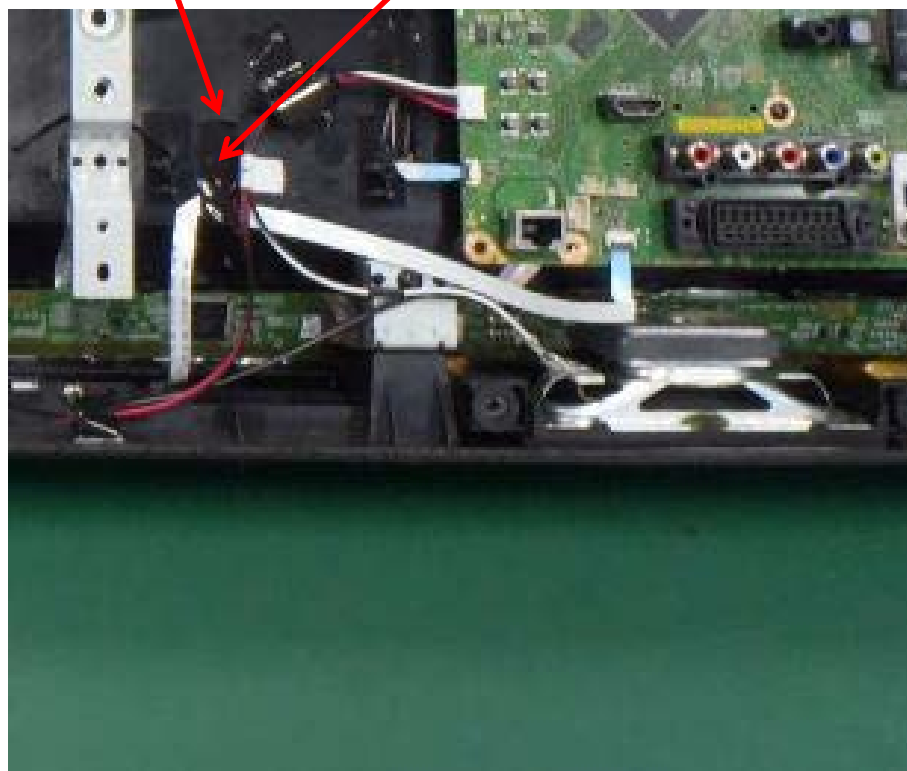
3. KDL-46R470A/473A

LVDS dressing

2 Pcs tapes length: 60mm
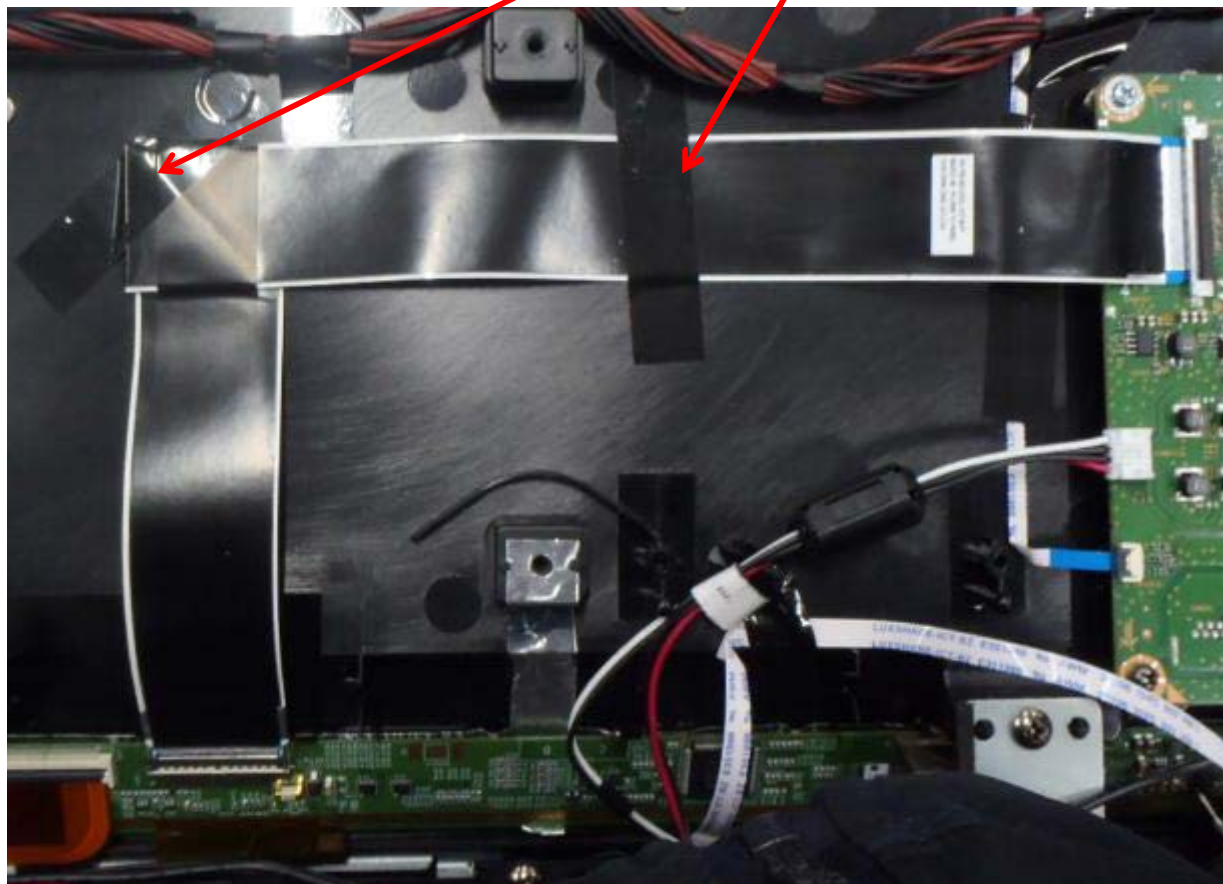
3. KDL-46R470A/473A

AC dressing

1 Pcs acetate cloth tape length: 100mm
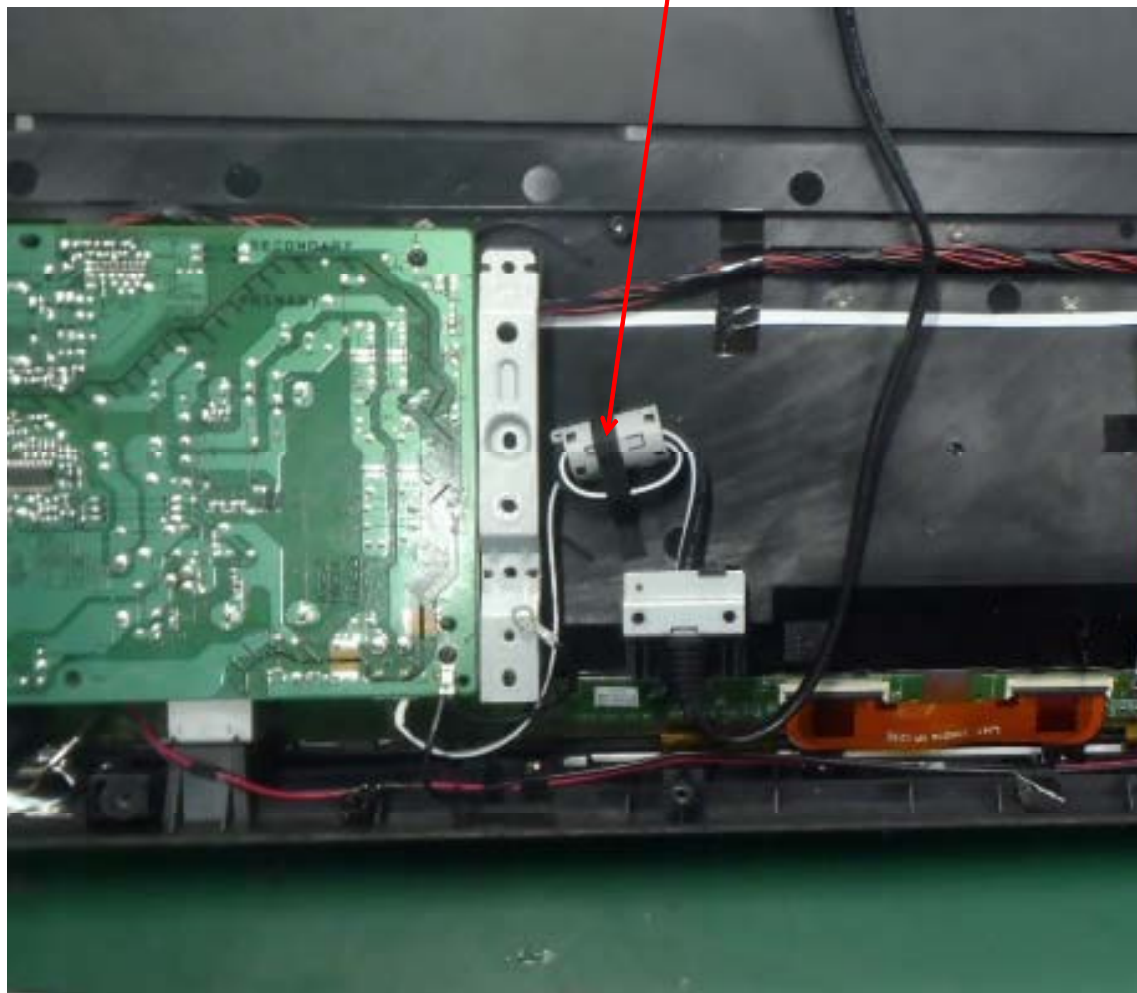
3. KDL-46R470A/473A

Overview

Part Name: HIMELON (FANF)
Part Number: 4-466-473-61

19 Pcs tapes and 1 Pcs acetate cloth tape

Part Name: ACETATE CLOTH TAPE W20
Part Number: 4-468-753-11
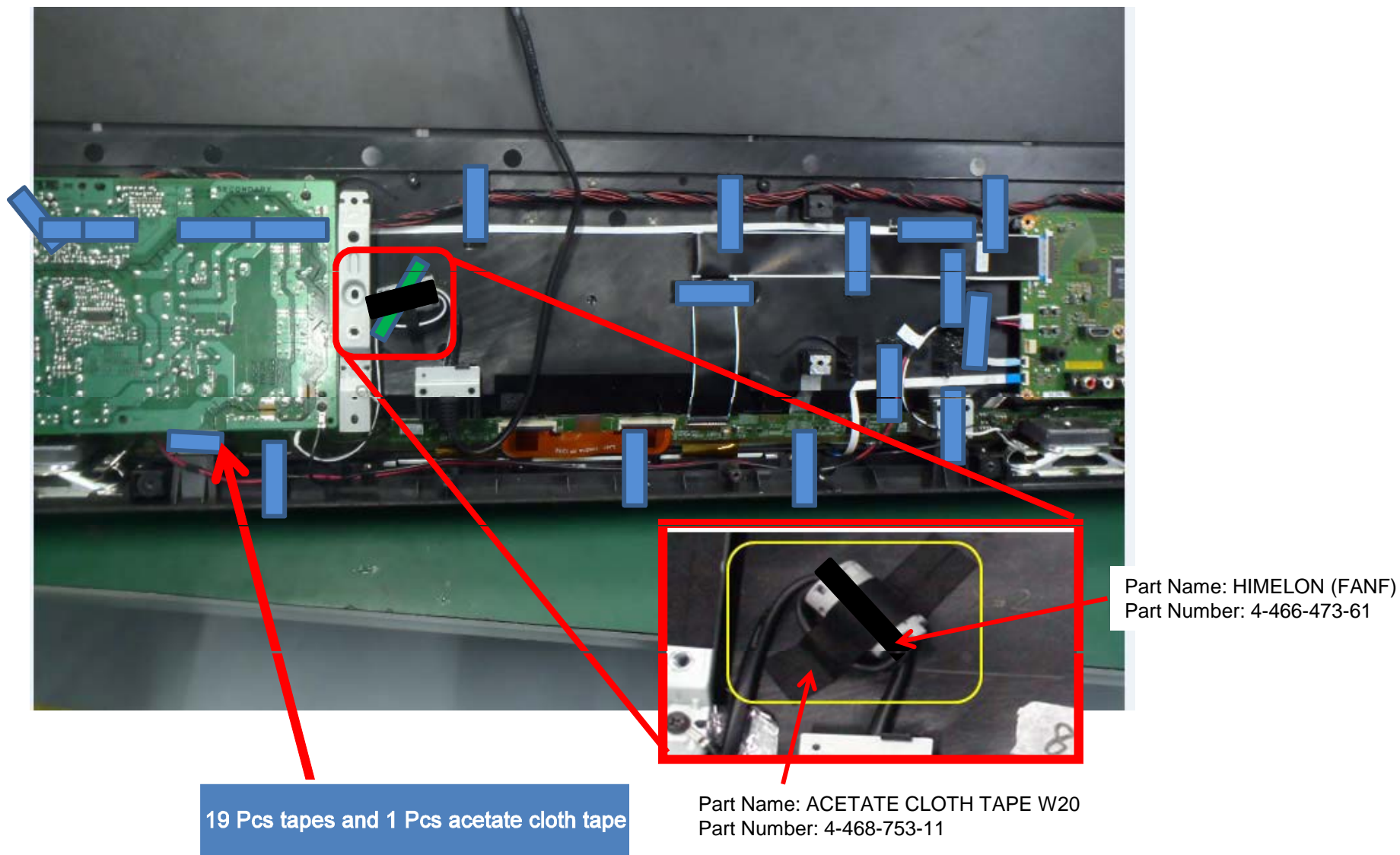
APPENDIX-2

TAPE POSITION

1. KDL-32R420A/421A/423A/424A

Must cover the plastic cover area

0~2 mm
SPK baffle edge

0~2 mm
SPK edge

Part Name: HIMELON (FANF)
Part Number: 4-466-473-41

Part Name: TAPE GASKET (FANF)
Part Number: 4-468-429-01

Gap: Label & Sponge
1 mm or less

0~1 mm

Part Name: CUSHION (FANF)
Part Number: 4-468-430-01

1. KDL-32R420A/421A/423A/424A

70 mm ±4

80 mm ±4

285 mm ±4

260 mm ±4

0~1 mm
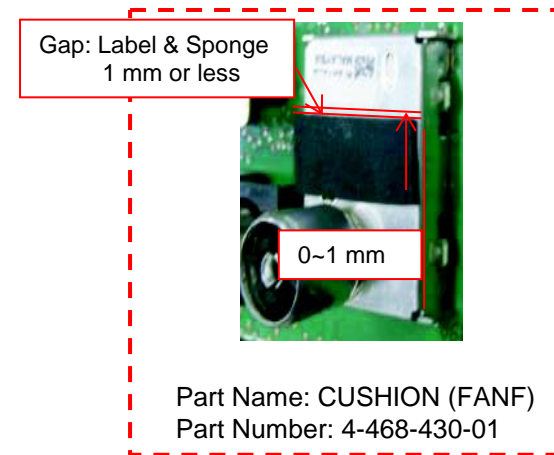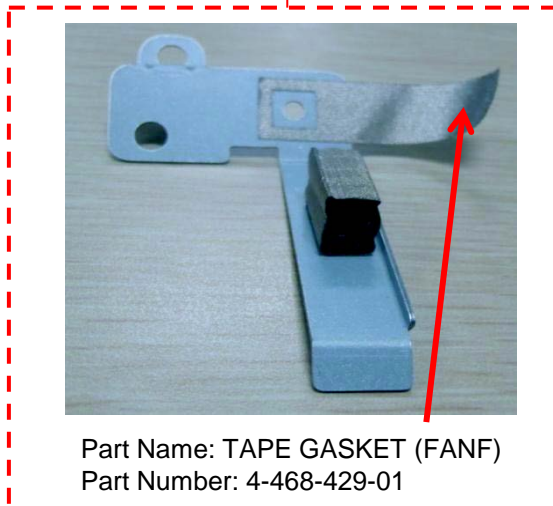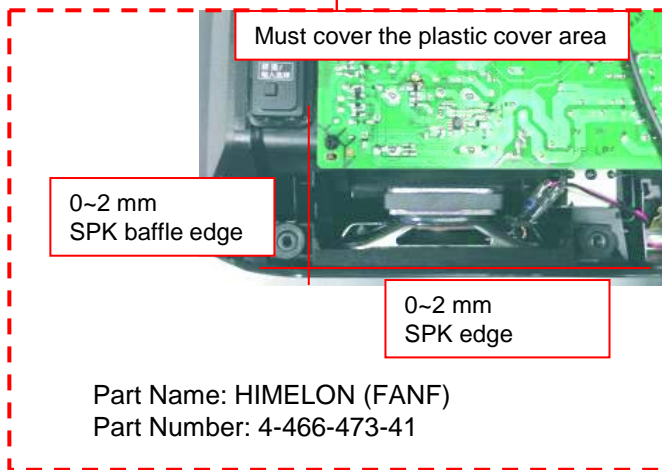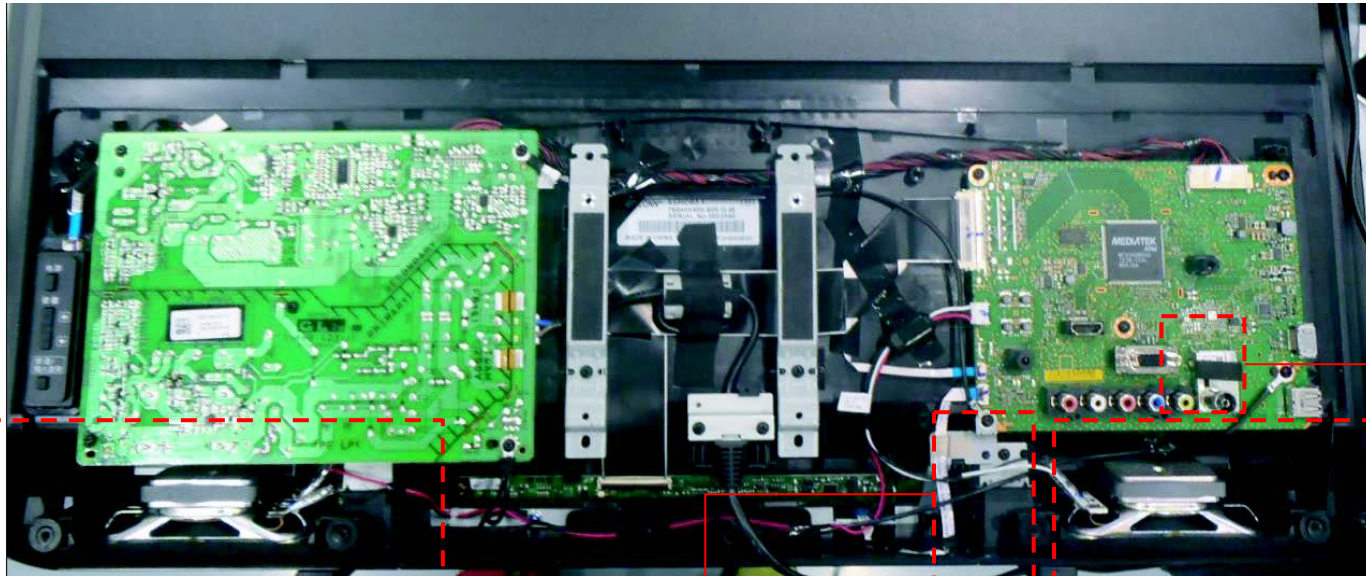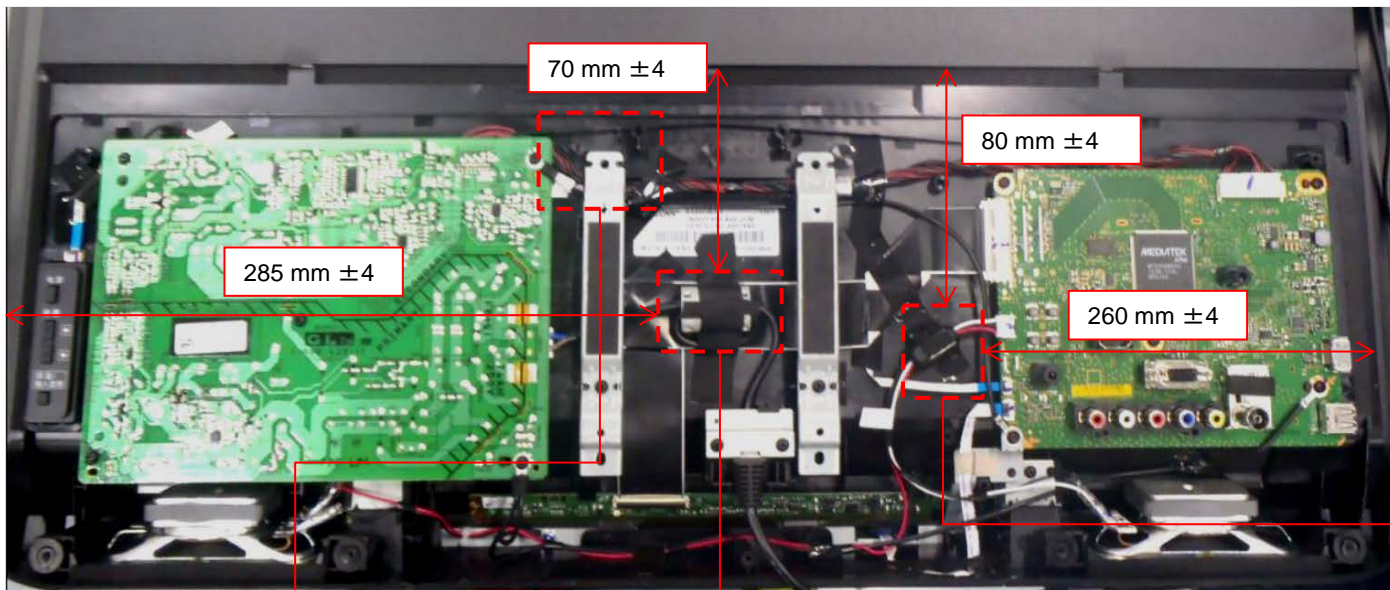
Paste 1 pcs tape on Vesa Bracket BTM picture red mark area
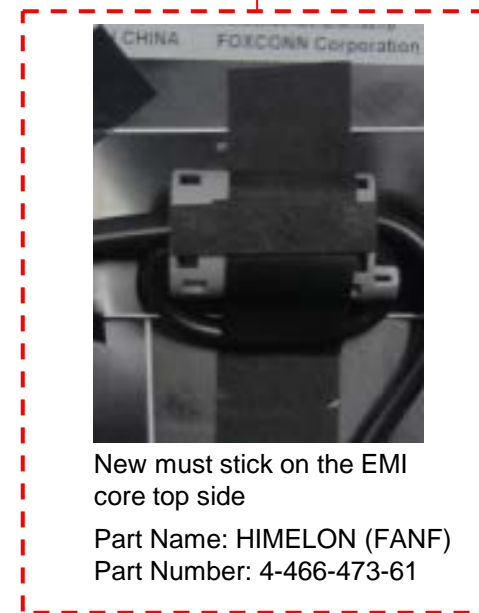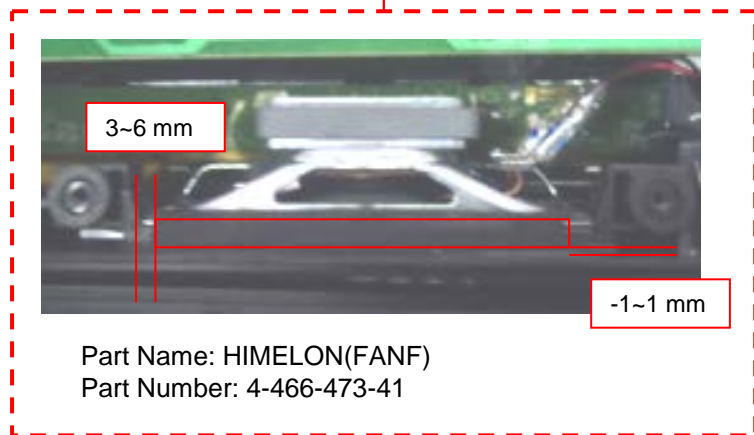
Part Name: HEMELON (FANF)
Part Number: 4-466-473-01

NWF must apply cover the CORE top side
Part Name: HEMELON (FANF)
Part Number: 4-466-473-71
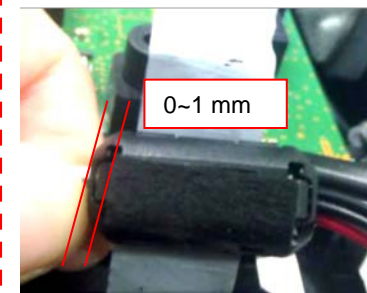
NWF must apply under the SPK core

Part Name: HEMELON (FANF)
Part Number: 4-466-473-61

1. KDL-32R420A/421A/423A/424A
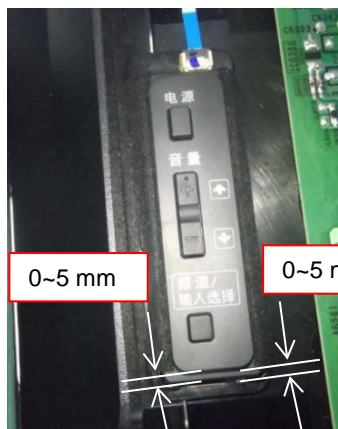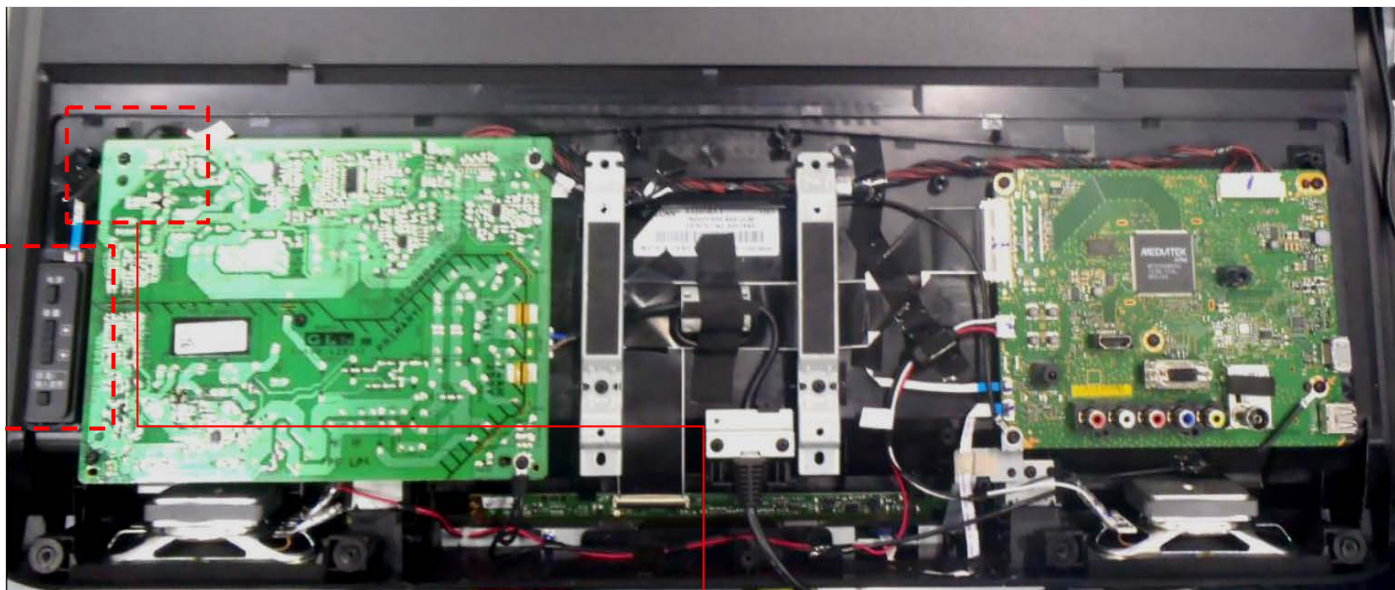
0~5 mm   0~5 mm

Part Name: HIMELON (FANF)
Part Number: 4-466-473-51

0~1 mm

Part Name: CUSHION (FANF)
Part Number: 4-468-430-01

CORE

TAPE GASKET(FANF)

RC

TAPE GASKET(FANF) MUST UNDER CORE

1. KDL-32R420A/421A/423A/424A

Align the line at PSU, can not over line to bottom

0~3mm
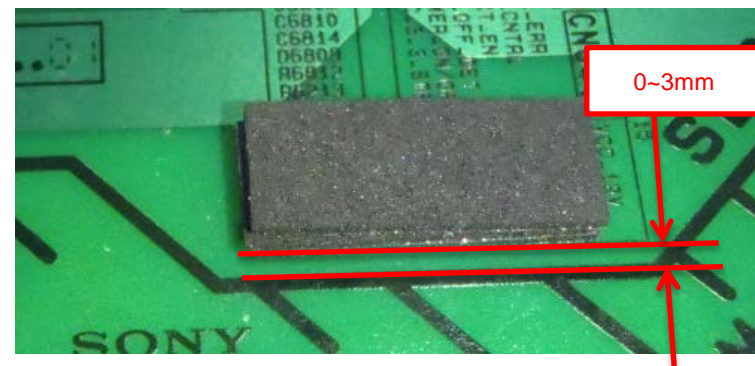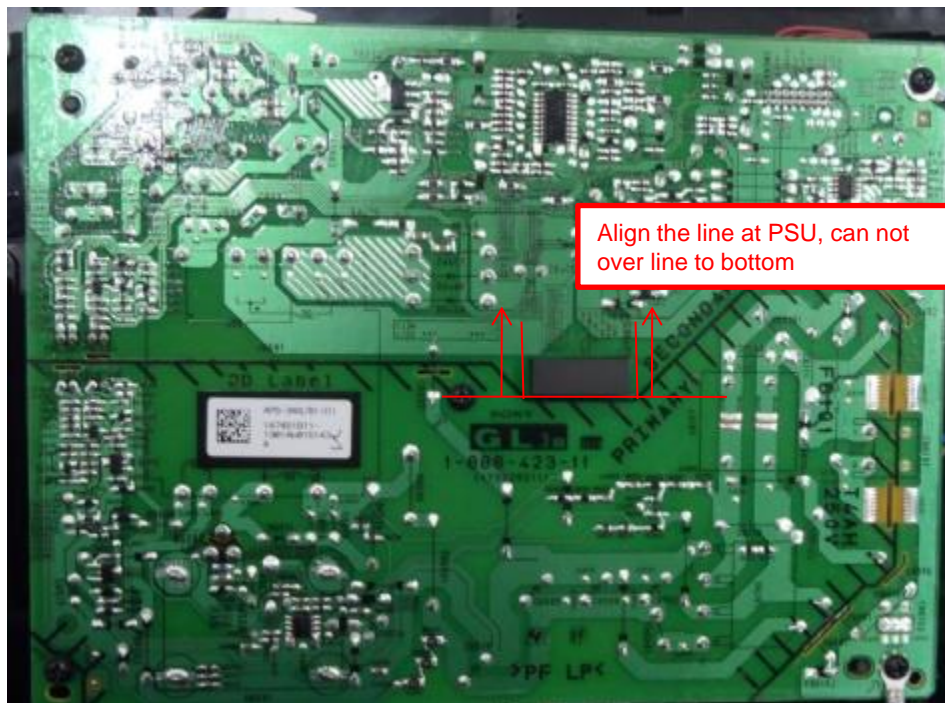
Part Name: CUSHION (FANF)
Part Number: 4-468-430-01

2. KDL-40R470A/471A/473A/474A

Can not over METAL EDGE

0~2 mm

0~2 mm

Check no peel off
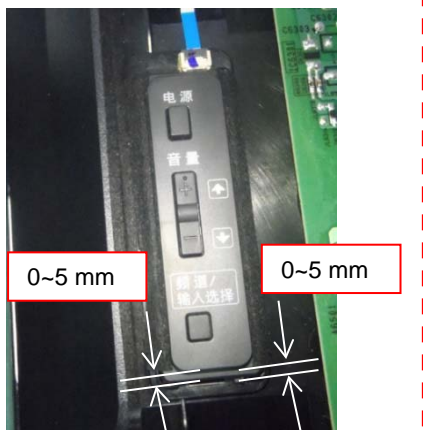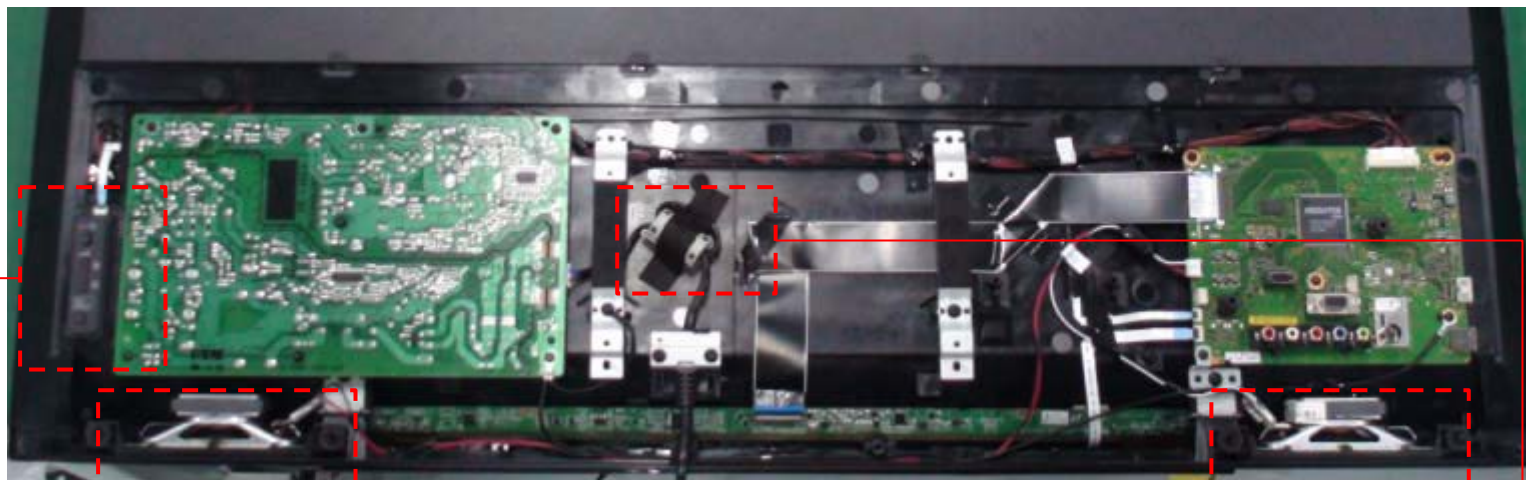
Part Name: CUSHION, RUBBER (FANF)
Part Number: 4-467-119-21

电源

音量

频道/
输入选择

0~5 mm   0~5 mm

Part Name: HIMELON (FANF)
Part Number: 4-466-473-51
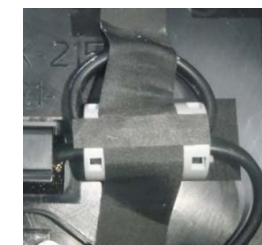
New must stick on the
EMI core top side

Part Name: HIMELON (FANF)
Part Number: 4-466-473-61

2. KDL-40R470A/471A/473A/474A

Part Name: HIMELON (FANF)
Part Number: 4-466-473-01

0~1 mm

NWF must apply under
the SPK core

Part Name: HIMELON (FANF)
Part Number: 4-466-473-71

Gap: Label & Sponge
1 mm or less

0~1 mm

Part Name: CUSHION (FANF)
Part Number: 4-468-430-01

3. KDL-46R470A/473A

3~6 mm

-1~1 mm

Part Name: HIMELON(FANF)
Part Number: 4-466-473-41

Can not hide the
screw hole

Part Name: HIMELON (FANF)
Part Number: 4-466-473-01

New must stick on the EMI
core top side

Part Name: HIMELON (FANF)
Part Number: 4-466-473-61

3. KDL-46R470A/473A
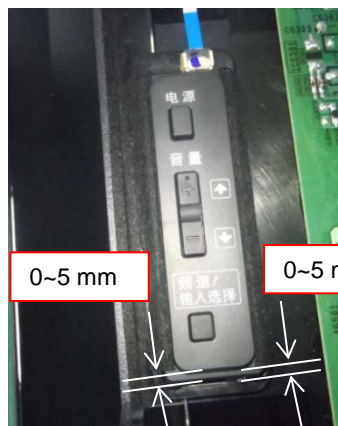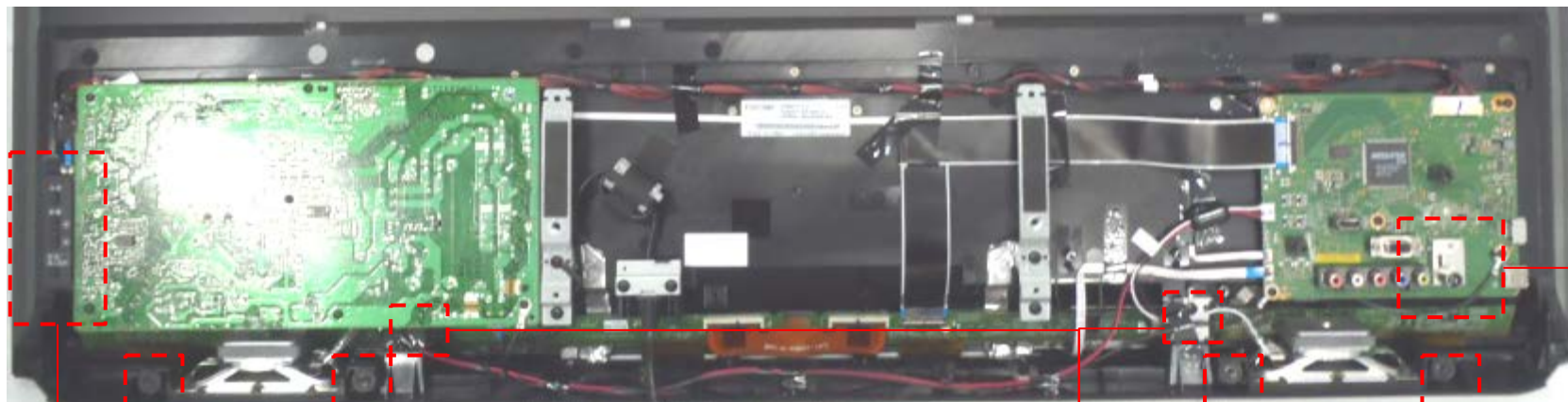
0~5 mm   0~5 mm

Part Name: HIMELON (FANF)
Part Number: 4-466-473-51

NG   OK

Assy. Speaker should be
pushed to flat
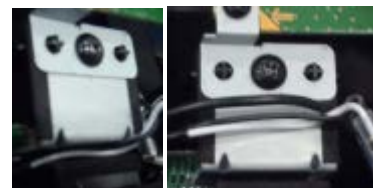
NG   OK

Speaker cable can't be
clamped by bracket

Gap: Label & Sponge
1 mm or less
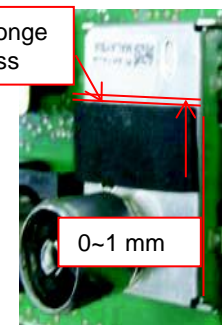
0~1 mm

Part Name: CUSHION (FANF)
Part Number: 4-468-430-01

4. SMALL PARTS LIST

KDL-32R420A/421A/423A/424A

Part name	Part number	T (mm)	W (mm)	L (mm)	Qty/Set	Primary part (Adherence)
HIMELON (FANF)	4-466-473-41	0.7	8	110	2	SPEAKER
TAPE GASKET (FANF)	4-468-429-01		10	35	1	ESD BKT
CUSHION (FANF)	4-468-430-01	1	8	20	2	MB TUNER/LED CORE
HIMELON (FANF)	4-466-473-01	0.25	8	25	1	VESA BKT
HIMELON (FANF)	4-466-473-61	0.5	8	25	1	AC CORE
HIMELON (FANF)	4-466-473-51	0.4	8	70	2	SIDE KEY
CUSHION (FANF)	4-468-430-11	6	8	20	1	PSU
HIMELON (FANF)	4-466-473-71	0.4	8	20	1	SPEAKER CORE

KDL-40R470A/471A/473A/474A

Part name	Part number	T (mm)	W (mm)	L (mm)	Qty/Set	Primary part (Adherence)
CUSHION, RUBBER (FANF)	4-467-119-21	5	20	50	2	SPEAKER
CUSHION (FANF)	4-468-430-01	1	8	20	1	MB TUNER
HIMELON (FANF)	4-466-473-01	0.25	8	25	1	VESA BKT
HIMELON (FANF)	4-466-473-51	0.4	8	70	2	SIDE KEY
HIMELON (FANF)	4-466-473-61	0.5	8	25	1	AC CORE
HIMELON (FANF)	4-466-473-71	0.4	8	20	1	SPEAKER CORE

KDL-46R470A/473A

| Part name	Part number	T (mm)	W (mm)	L (mm)	Qty/Set	Primary part (Adherence)
HIMELON (FANF)	4-466-473-41	0.7	8	110	2	SPEAKER
CUSHION (FANF)	4-468-430-01	1	8	20	1	MB TUNER
HIMELON (FANF)	4-466-473-01	0.25	8	25	1	VESA BKT
HIMELON (FANF)	4-466-473-51	0.4	8	70	2	SIDE KEY
HIMELON (FANF)	4-466-473-61	0.5	8	25	1	AC CORE

COMMON

Part name	Part number	T (mm)	W (mm)	L (mm)	Qty/Set	Primary part (Adherence)
ACETATE CLOTH TAPE W10	4-468-753-01		10		1	
ACETATE CLOTH TAPE W20	4-468-753-11		20		1	

APPENDIX-3

SWITCH UNIT DISASSEMBLY

Insert your finger on the free space on the left side of the pocket where the side key was installed and pull up
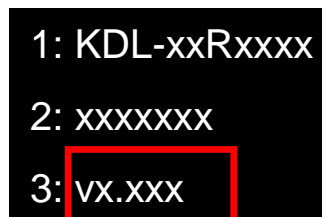

Free space

Pull up
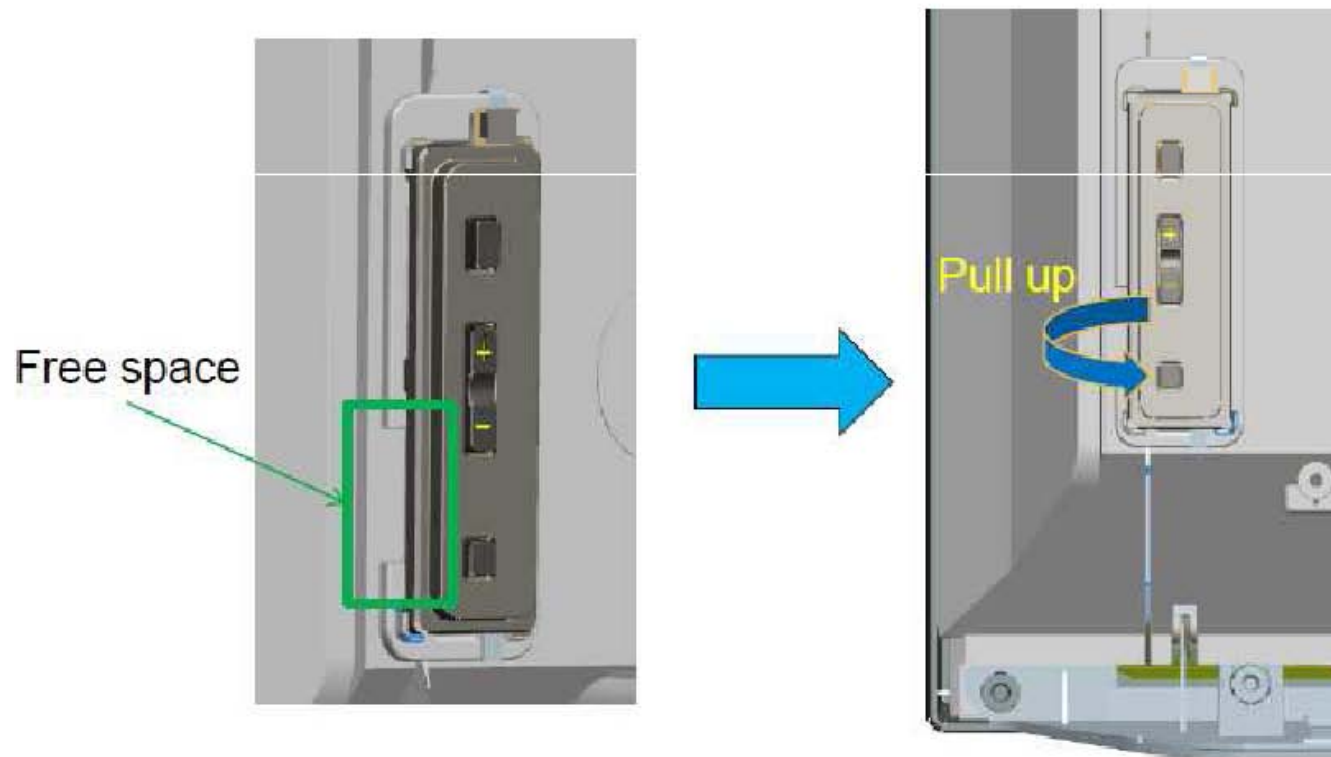
APPENDIX-4

SOFTWARE DATA UPDATE

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

Entering product information of setting menu.

Please use the latest software.

[HOME] - [Settings] - [Set-up] - [Product Information]

1: KDL-xxRxxxx	1. Model Name
2: xxxxxxx	2. Serial Number
3: vx.xxx	3. Software Version

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

■ **SOFTWARE DOWNLOAD**

The downloaded software may be compressed(.zip).

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

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

However, please store only the following one file to USB memory for software update.

| **BA (EU) :** | **sony_fw_2013_xxxx_AEUF1.pkg** |

■ SOFTWARE UPDATE BY USB MEMORY

1. Turn on the TV.

2. Unplug the AC power code.

3. Connect the USB memory.

Note: Do not connect USB memory in standby mode.

4. Plug the AC power cord then update starts automatically.

Lights up Green LED. (no picture)

Starting update
Lights up Red LED and Orange LED is flashing. (1-2min)

Finish update
Lights up Green LED again and TV is turned on.

5. Unplug AC power cord and disconnect USB memory.

6. Plug the AC power cord then turn on the TV.

■ CONFIRM SOFTWARE VERSION

Please confirm whether it is the latest software.

Product information of setting menu.

[HOME] - [Settings] - [Set-up] - [Product Information]