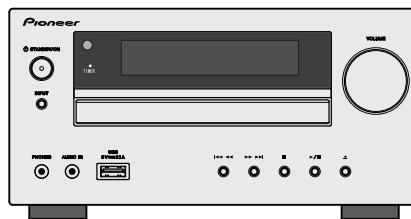


**Pioneer**

# Service Manual



X-HM70-K

ORDER NO.  
**RRV4217**

**NETWORK CD RECEIVER SYSTEM**

# X-HM70-K

# X-HM70-S

# XC-HM70-K

# XC-HM70-S

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

| Model     | Type   | Power Requirement | Serial No.  | Remarks    |
|-----------|--------|-------------------|-------------|------------|
| X-HM70-K  | SYXCN8 | AC 220 V to 240 V | &&&&#####YY | YY: Europe |
| X-HM70-S  | SYXCN8 | AC 220 V to 240 V | &&&&#####YY | YY: Europe |
| XC-HM70-K | SYXCN8 | AC 220 V to 240 V | &&&&#####YY | YY: Europe |
| XC-HM70-S | SYXCN8 | AC 220 V to 240 V | &&&&#####YY | YY: Europe |



**PIONEER CORPORATION** 1-1, Shin-ogura, Saiwai-ku, Kawasaki-shi, Kanagawa 212-0031, Japan

**PIONEER ELECTRONICS (USA) INC.** P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.

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**PIONEER ELECTRONICS ASIACENTRE PTE. LTD.** 253 Alexandra Road, #04-01, Singapore 159936

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K-IZV OCT. 2011 Printed in Japan

# SAFETY INFORMATION

A



This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

## WARNING

B

This product may contain a chemical known to the State of California to cause cancer, or birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 - Proposition 65

C

### IMPORTANT

THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1. SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

### Laser Pickup specifications and Laser characteristics

|        |                                                  |
|--------|--------------------------------------------------|
| For CD | Wave length (typ) : 790 nm                       |
|        | Operation output : 3 mW CW, Class 1              |
|        | Maximum output : Class 1 (Under fault condition) |

## WARNING

The Laser component is capable of emitting radiation exceeding the limit for CLASS 1. A specially instructed person should do servicing operation of the apparatus.

D

## LABEL CHECK

E

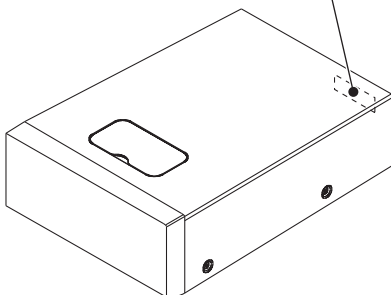
### CAUTION

This product is a class 1 laser product classified under the Safety of laser products, IEC 60825-1:2007.

CLASS 1 LASER PRODUCT

D58-5-2-2a\_A1\_En

F



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# 1. SERVICE PRECAUTIONS

## 1.1 NOTES ON SOLDERING

- For environmental protection, lead-free solder is used on the printed circuit boards mounted in this unit.  
Be sure to use lead-free solder and a soldering iron that can meet specifications for use with lead-free solders for repairs accompanied by reworking of soldering.
- Compared with conventional eutectic solders, lead-free solders have higher melting points, by approximately 40 °C.  
Therefore, for lead-free soldering, the tip temperature of a soldering iron must be set to around 373 °C in general, although the temperature depends on the heat capacity of the PC board on which reworking is required and the weight of the tip of the soldering iron.

Do NOT use a soldering iron whose tip temperature cannot be controlled.

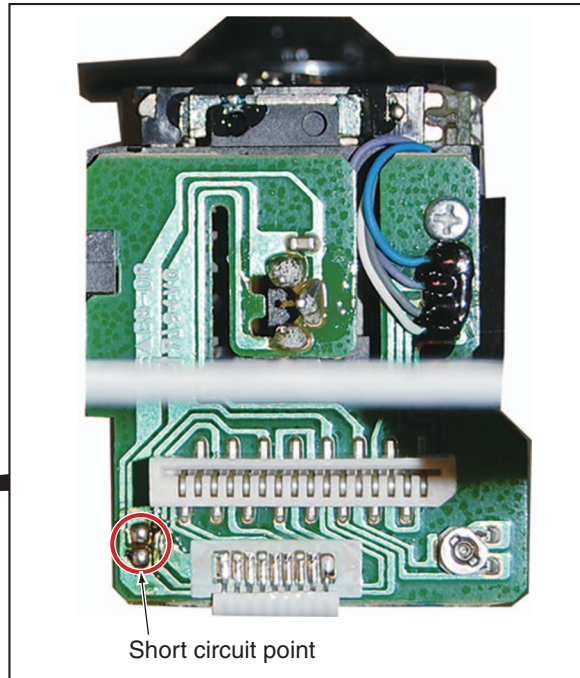
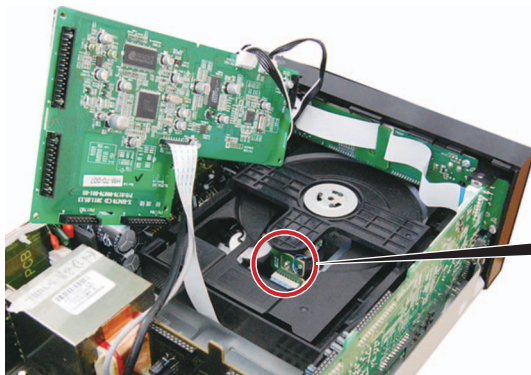
Compared with eutectic solders, lead-free solders have higher bond strengths but slower wetting times and higher melting temperatures (hard to melt/easy to harden).

The following lead-free solders are available as service parts:

- Parts numbers of lead-free solder:  
GYP1006 1.0 in dia.  
GYP1007 0.6 in dia.  
GYP1008 0.3 in dia.

## 1.2 WHEN REPLACING MECHA

It is necessary to remove the soldering on the short circuit point after connecting the pickup flexible cable.



## 2. SPECIFICATIONS

As part of our policy of continuous improvement, PIONEER reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units. There may be some deviations from these values in individual units.

\*The specifications are applicable when the power supply is 230 V.

### Amplifier section

RMS Power Output.....50 W + 50 W  
(1 kHz, 10 % T.H.D., 4 ohms)

Guaranteed speaker impedance .....4 ohms to 16 ohms

Headphones.....recommended: 32 ohms

### Tuner section

Frequency Range (FM) ..... 87.5 MHz to 108 MHz

Antenna Input (FM).....75 ohms unbalanced

Frequency Range (AM) .....531 kHz to 1602 kHz

Antenna (AM) ..... Loop antenna

### Video section

Signal level (Composite).....1 Vp-p (75 ohms)

### Network section

LAN terminal..... Ethernet jack  
10BASE-T/100BASE-TX

### Other connectors

Power supply

Front USB connector..... 5 V, 2.1 A

iPod connector..... 5 V, 1.0 A

Rear DC output connector (for Wireless LAN)..... 5 V, 600 mA

### Miscellaneous

Power source.....AC 220 V to 240 V, 50 Hz

Power consumption

Power on.....80 W

Power stand-by..... 0.5 W or less

Dimensions

Width ..... 215 mm

Height ..... 111 mm

Depth ..... 353 mm

Weight..... 4.7 kg

### Speaker (X-HM70 only)

Type

2-way type speaker system

2.5 cm Dome-Tweeter

12 cm Woofer

Maximum input power ..... 50 W

Impedance..... 4 ohms

Dimensions

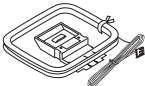
Width ..... 148 mm

Height ..... 263.5 mm

Depth ..... 208 mm

Weight.....2.7 kg/each

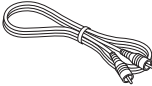
## Accessories



AM loop aerial  
(E601019000010-IL)



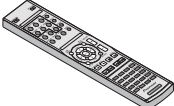
FM aerial  
(E605010140010-IL)



Video cable  
(L063202010050-IL)



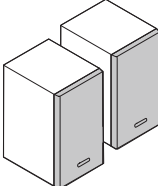
Speaker cables x2  
(X-HM70 only)  
(8952SHM700042-IL)



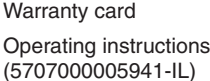
Remote control (AXD7639)  
(8300763900010-IL)



"AAA" size battery x 2



Speaker x2  
(X-HM70 only)



Warranty card  
Operating instructions  
(5707000005941-IL)

## 3. BASIC ITEMS FOR SERVICE

### 3.1 CHECK POINTS AFTER SERVICING

#### Items to be checked after servicing

To keep the product quality after servicing, confirm recommended check points shown below.

| No. | Procedure                                              | Check points                                                                          |
|-----|--------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1   | Confirm whether the customer complain has been solved. | The customer complain must not be reappeared.<br>Audio and operations must be normal. |
| 2   | Check the CD playback.                                 | Audio and operations (search etc.) must be normal.                                    |
| 3   | Check the iPod playback.                               | Audio and operations must be normal.                                                  |
| 4   | Check the USB playback.                                | Audio and operations must be normal.                                                  |
| 5   | Check the internet radio and Network audio playback.   | Audio and operations must be normal.                                                  |
| 6   | Check the tuner operations.                            | Audio and operations (station search etc.) must be normal.                            |
| 7   | Check the Line input playback.                         | Audio and operations must be normal.                                                  |
| 8   | Check the appearance of the product.                   | No scratches or dirt on its appearance after receiving it for service.                |

See the table below for the items to be checked regarding audio.

| Item to be checked regarding audio |
|------------------------------------|
| Distortion                         |
| Noise                              |
| Volume too low                     |
| Volume too high                    |
| Volume fluctuating                 |
| Sound interrupted                  |

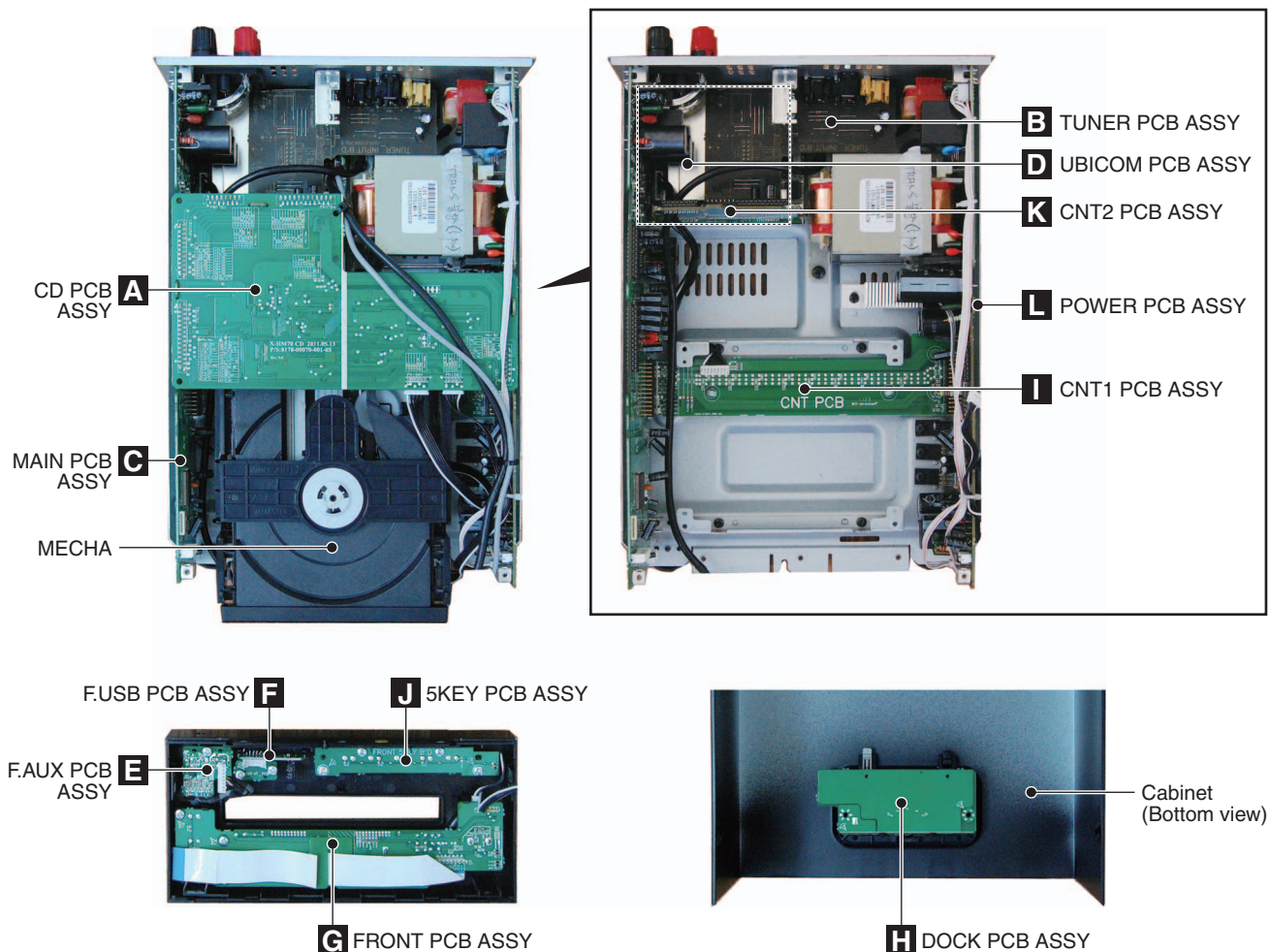
### 3.2 JIGS LIST

#### Jigs List

| Jig Name                           | Part No. | Remarks                                     |
|------------------------------------|----------|---------------------------------------------|
| RS-232C update jig                 | GGF1642  | Firmware update                             |
| Board to board extension jig cable | GGD1767  | Diagnosis (MAIN PCB Assy ↔ CD PCB Assy)     |
| Board to board extension jig cable | GGD1768  | Diagnosis (CNT2 PCB Assy ↔ UBICOM PCB Assy) |
| Board to board extension jig cable | GGD1769  | Diagnosis (CNT2 PCB Assy ↔ CD PCB Assy)     |
| Board to board extension jig cable | GGD1770  | Diagnosis (POWER PCB Assy ↔ CD PCB Assy)    |
| Board to board extension jig cable | GGD1771  | Diagnosis (MAIN PCB Assy ↔ CNT1 PCB Assy)   |
| Extension jig FFC                  | GGD1774  | Diagnosis (Mecha ↔ CD PCB Assy)             |

5 6 7 8

### 3.3 PCB LOCATIONS



NOTES: ● Parts marked by “NSP” are generally unavailable because they are not in our Master Spare Parts List.  
● The  $\triangle$  mark found on some component parts indicates the importance of the safety factor of the part.  
Therefore, when replacing, be sure to use parts of identical designation.

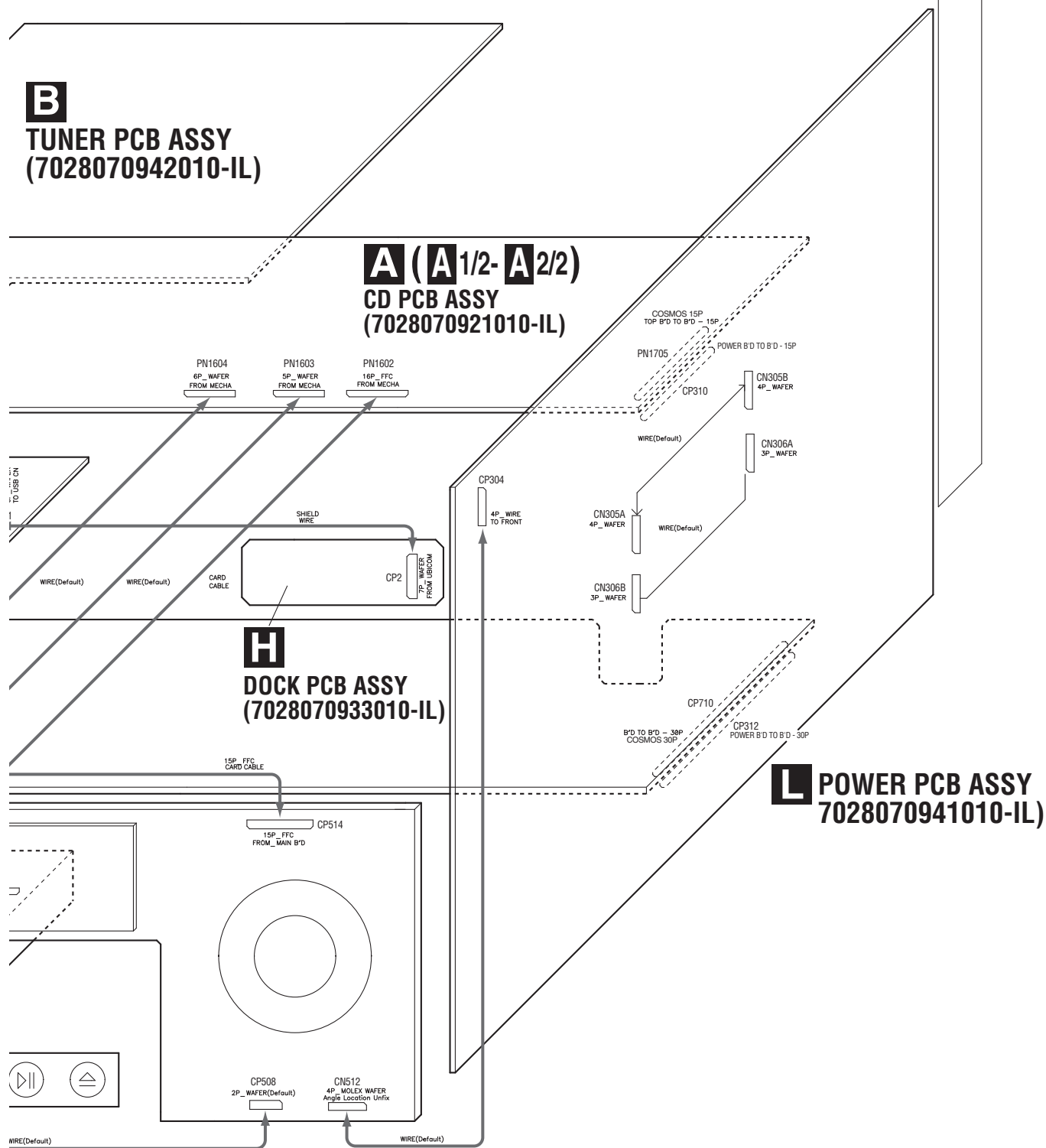
| Mark                      | No.                     | Description | Part No.         | Mark     | No.                     | Description | Part No.         |
|---------------------------|-------------------------|-------------|------------------|----------|-------------------------|-------------|------------------|
| <b>LIST OF ASSEMBLIES</b> |                         |             |                  |          |                         |             |                  |
| NSP                       | 1..PCB TOTAL ASSY MAIN  |             | 7025MU1101011-IL | NSP      | 1..PCB TOTAL ASSY UBICO |             | 7025MU1101013-IL |
|                           | 2..MAIN PCB ASSY        |             | 7028070931010-IL |          | 2..UBICOM PCB ASSY      |             | 7028070951010-IL |
|                           | 2..FRONT PCB ASSY       |             | 7028070932010-IL | NSP      | 1..PCB TOTAL ASSY CD    |             | 7025MU1101014-IL |
|                           | 2..DOCK PCB ASSY        |             | 7028070933010-IL |          | 2..CD PCB ASSY          |             | 7028070921010-IL |
|                           | 2..F.AUX PCB ASSY       |             | 7028070934010-IL |          |                         |             |                  |
|                           | 2..CNT1 PCB ASSY        |             | 7028070935010-IL | 1..MECHA |                         |             | 8030000010070-IL |
|                           | 2..F.USB PCB ASSY       |             | 7028070936010-IL |          |                         |             |                  |
| NSP                       | 1..PCB TOTAL ASSY POWER |             | 7025MU1101012-IL |          |                         |             |                  |
|                           | 2..POWER PCB ASSY       |             | 7028070941010-IL |          |                         |             |                  |
|                           | 2..TUNER PCB ASSY       |             | 7028070942010-IL |          |                         |             |                  |
|                           | 2..CNT2 PCB ASSY        |             | 7028070944010-IL |          |                         |             |                  |
|                           | 2..5KEY PCB ASSY        |             | 7028070946010-IL |          |                         |             |                  |

#### 4.1 OVERALL CONNECTION DIAGRAM



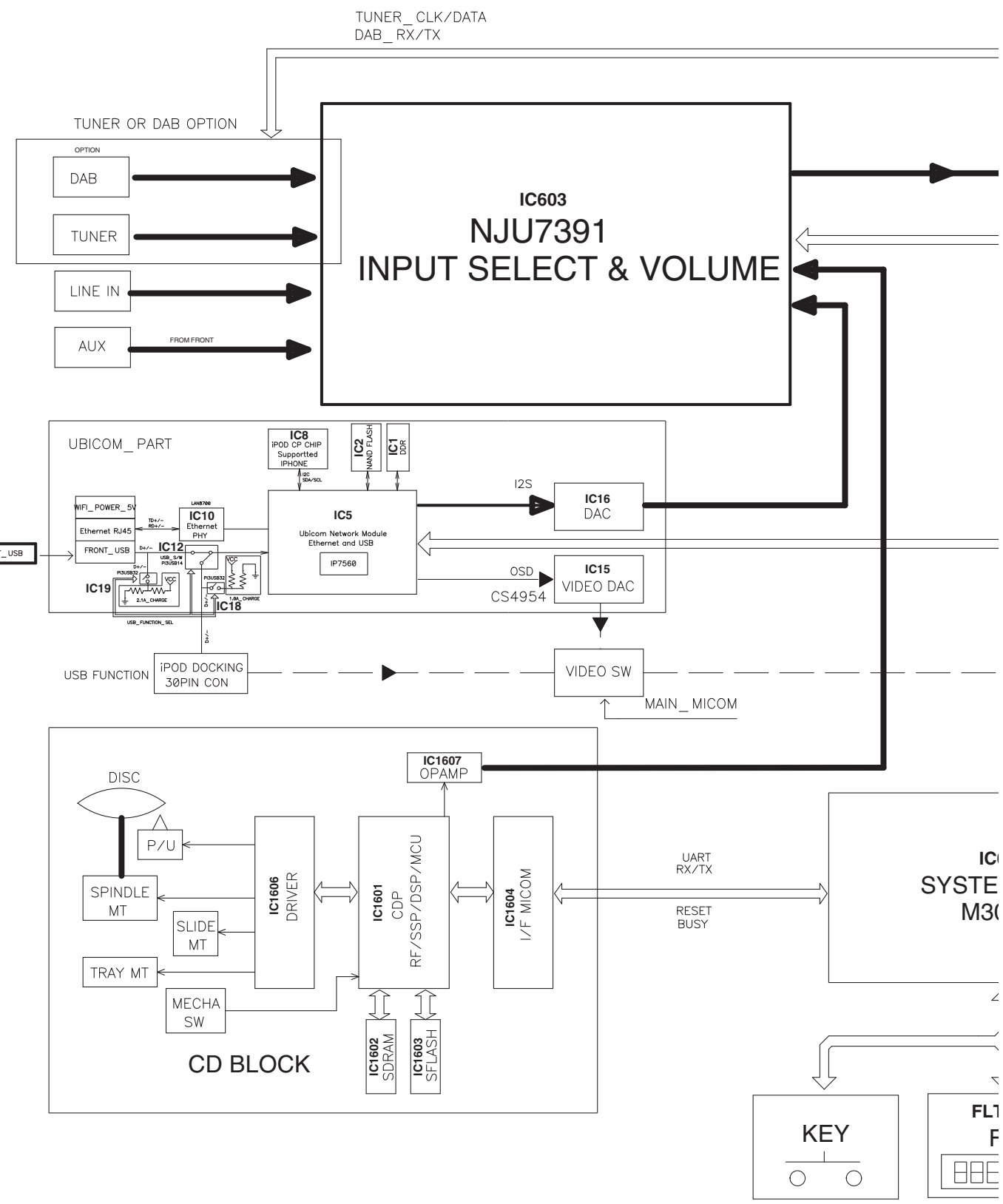
## B TUNER PCB ASSY (7028070942010-IL)

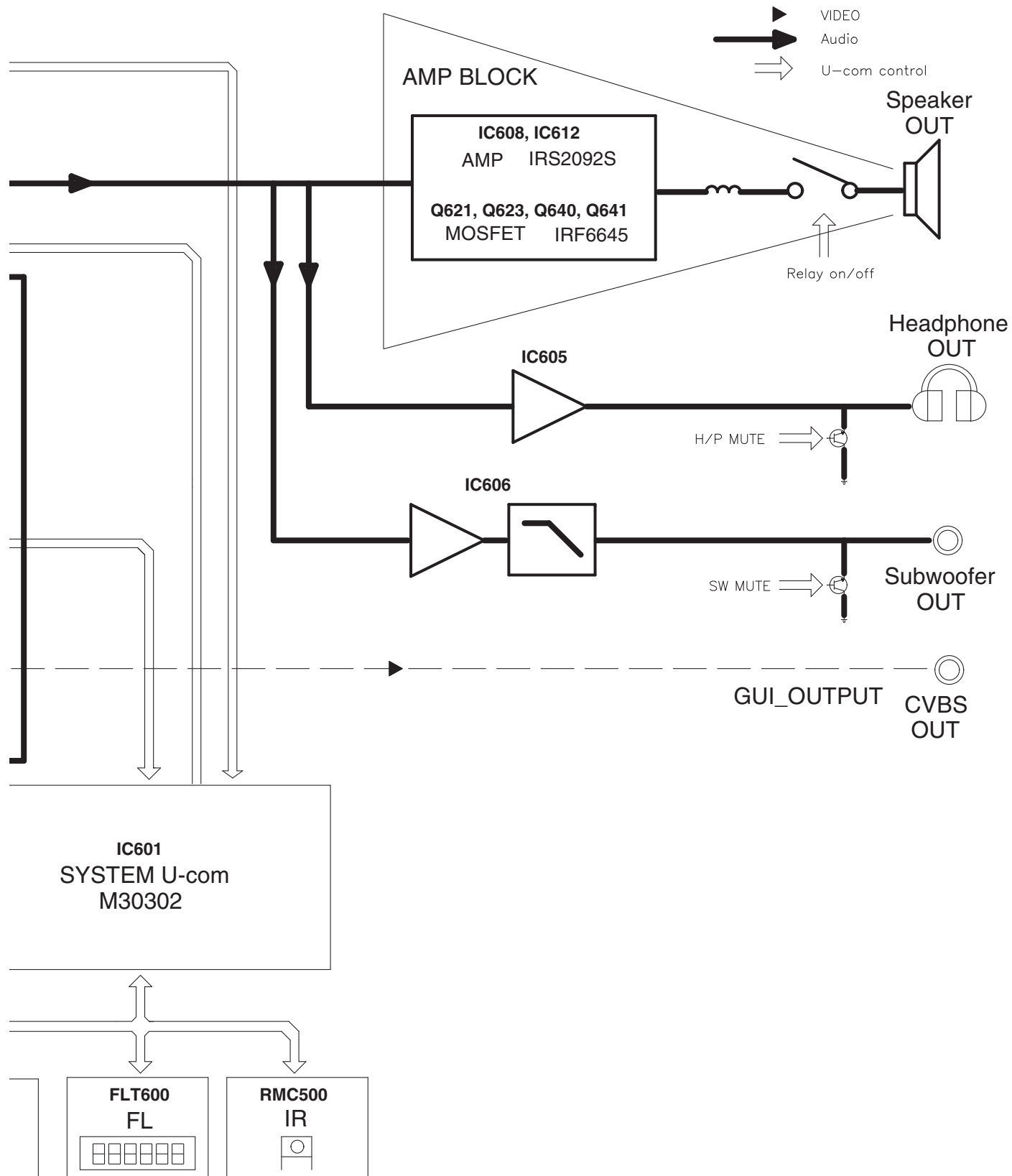
## A (A 1/2- A 2/2) CD PCB ASSY (7028070921010-IL)



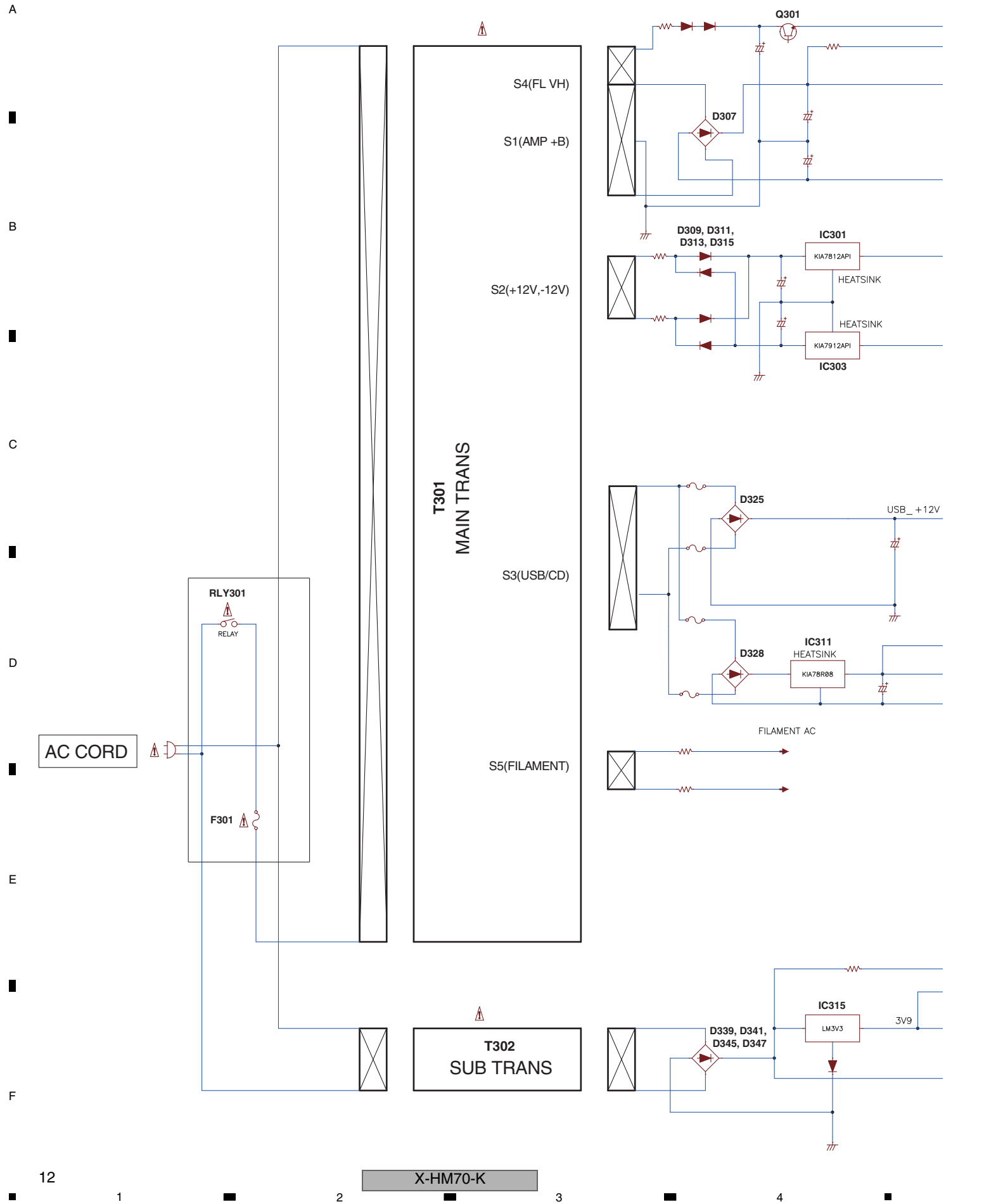
- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
-  : The power supply is shown with the marked box.

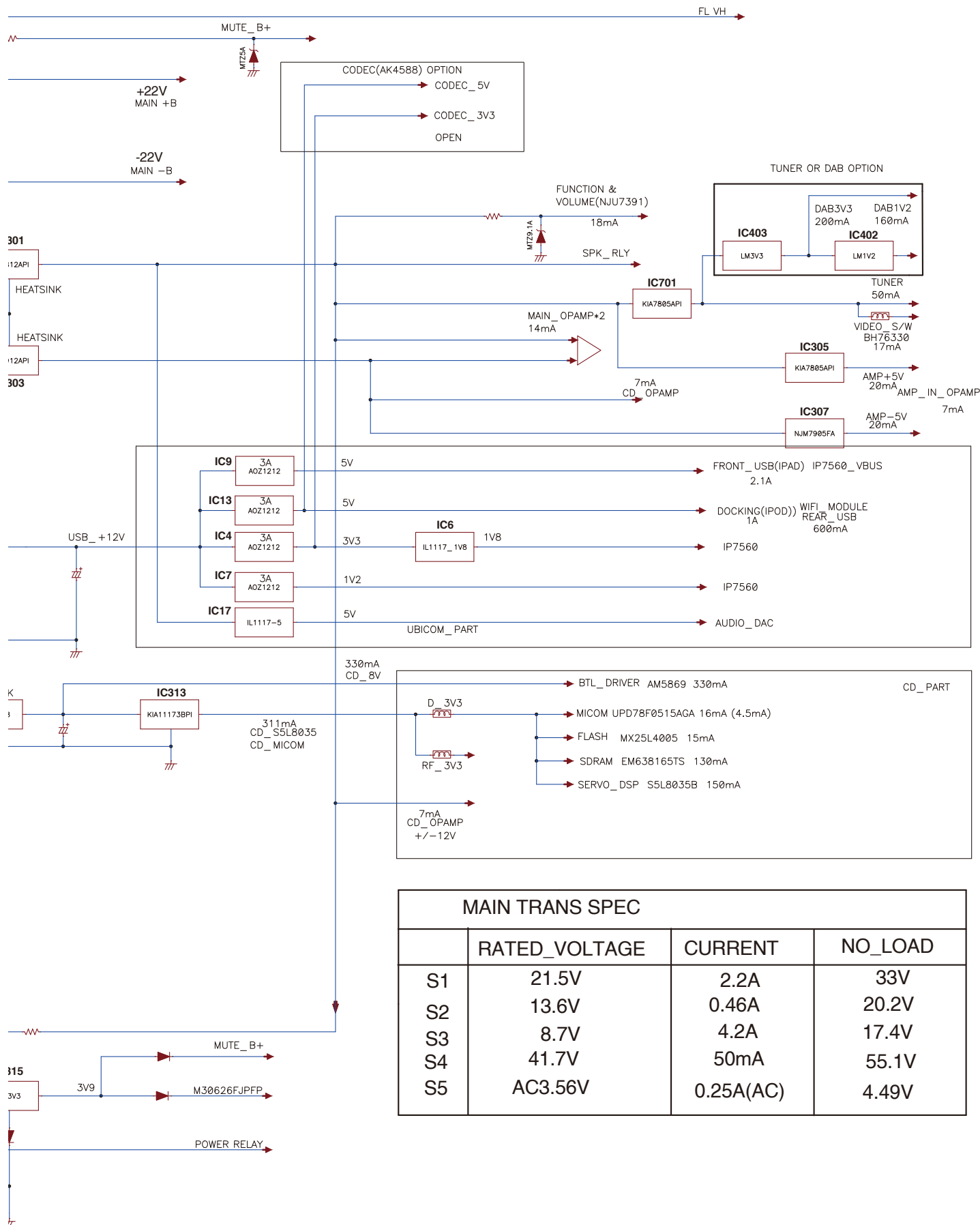
4.2 OVERALL BLOCK DIAGRAM





4.3 POWER BLOCK DIAGRAM

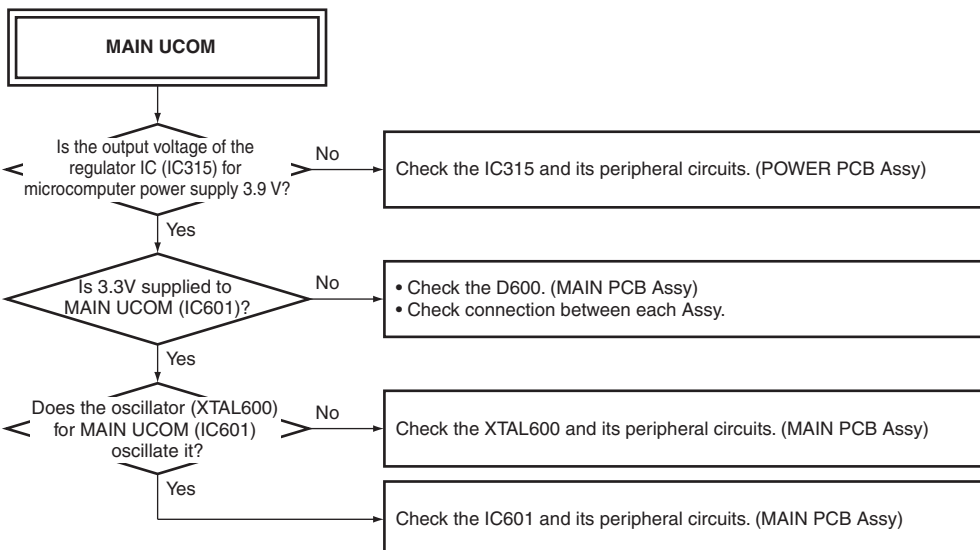
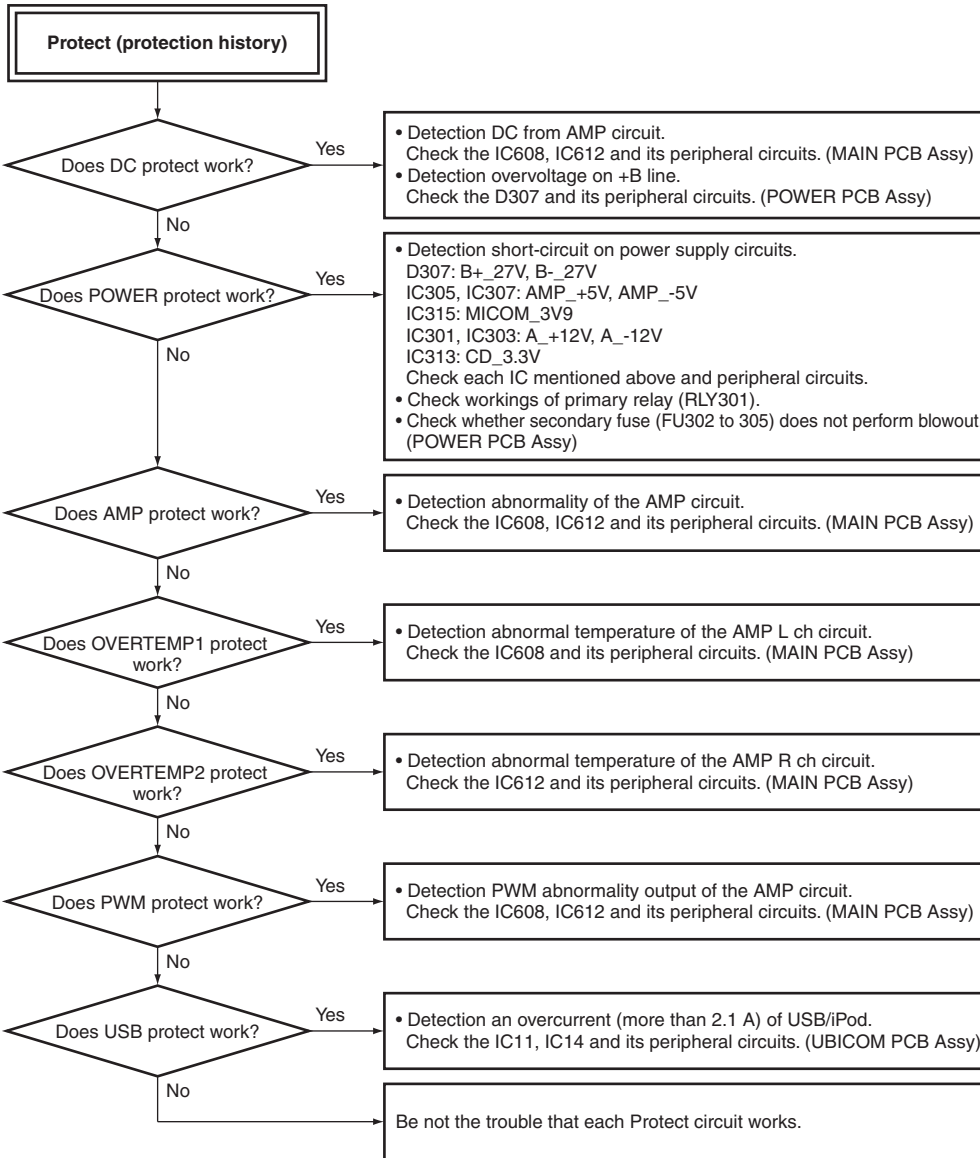




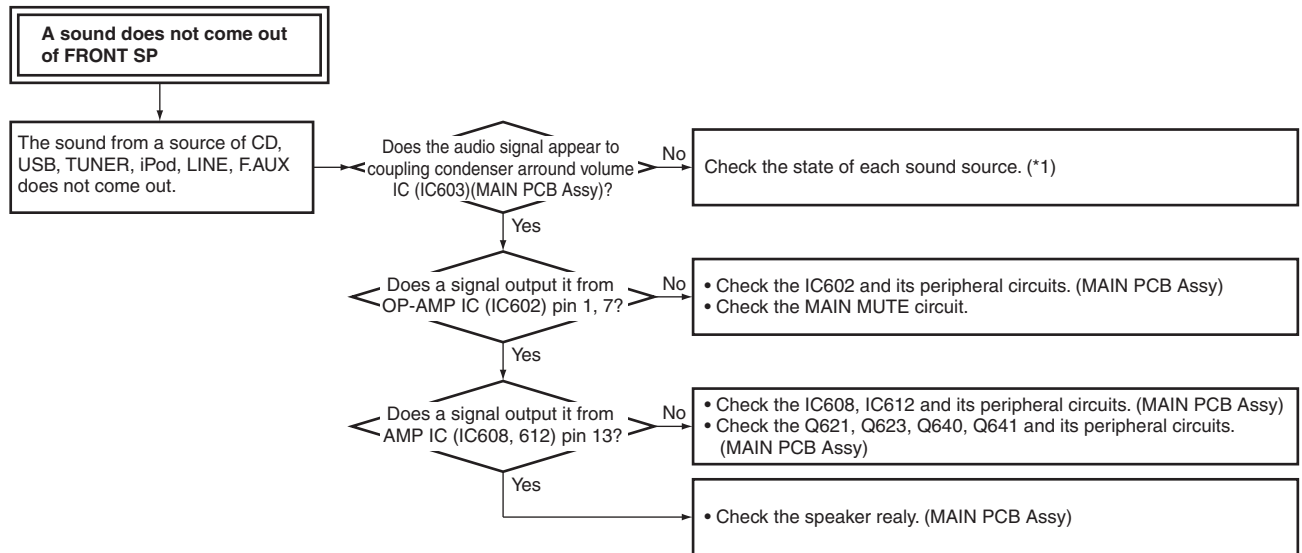
# 5. DIAGNOSIS

## 5.1 TROUBLESHOOTING

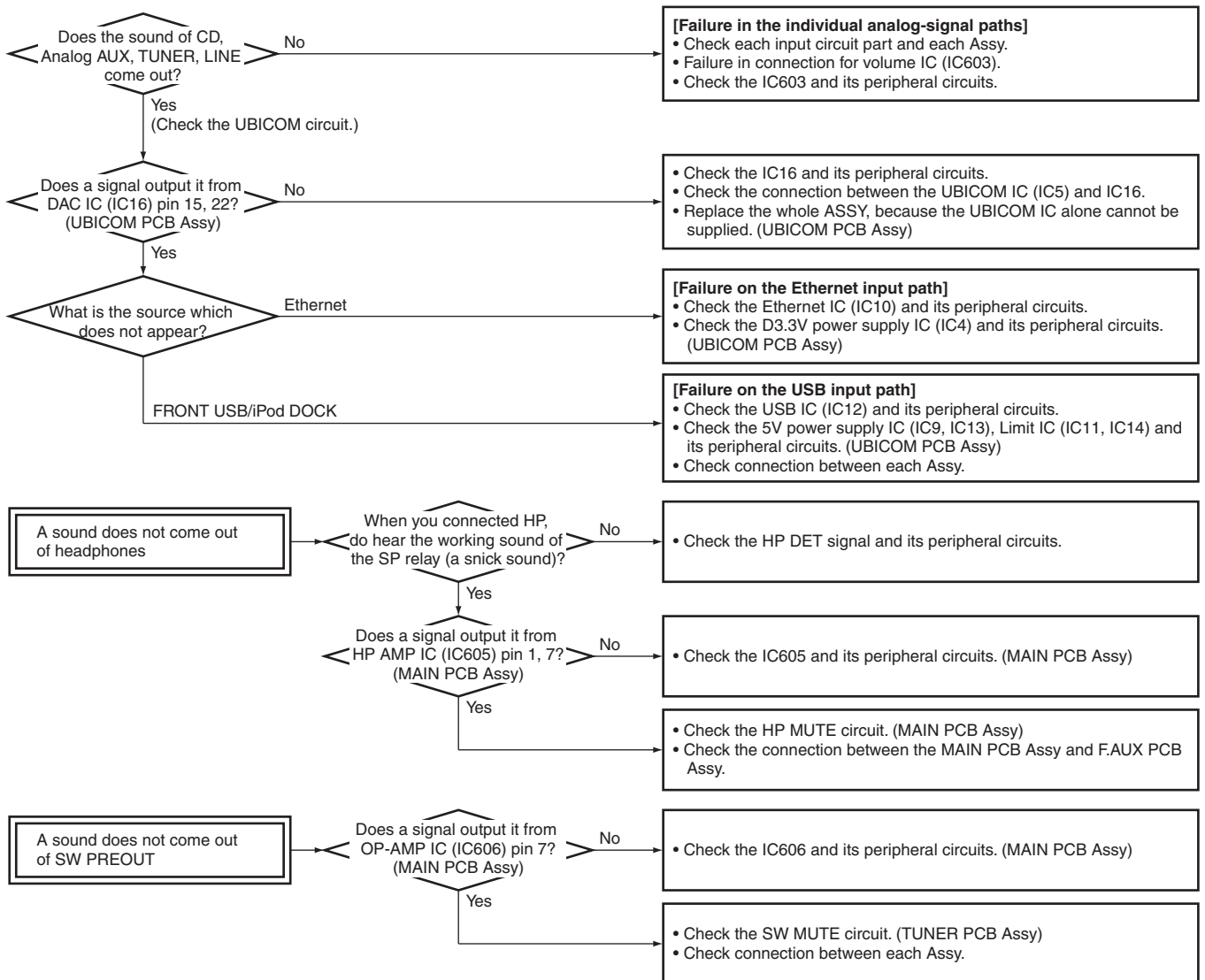
### A • No Power



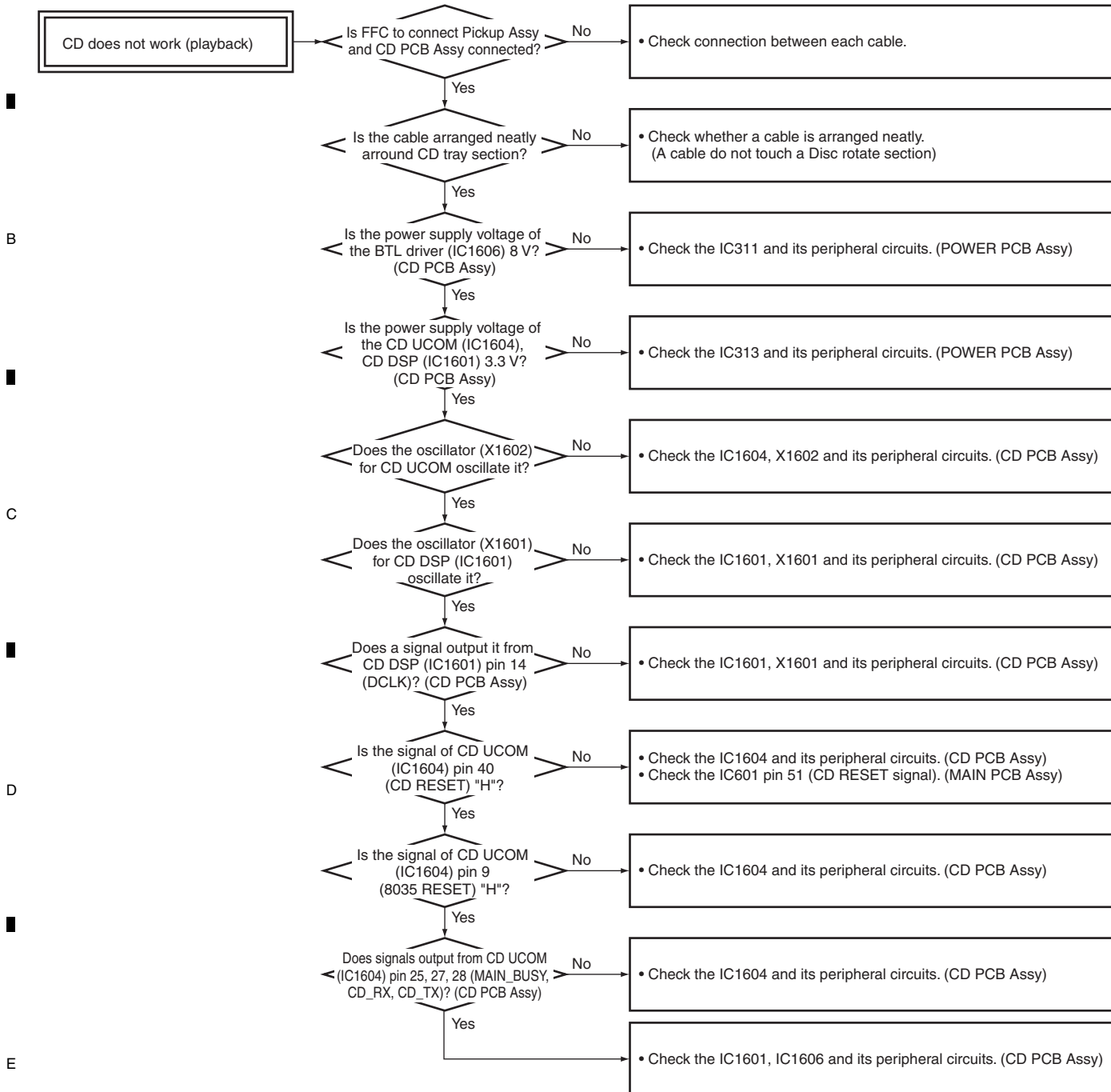
## • No Sound

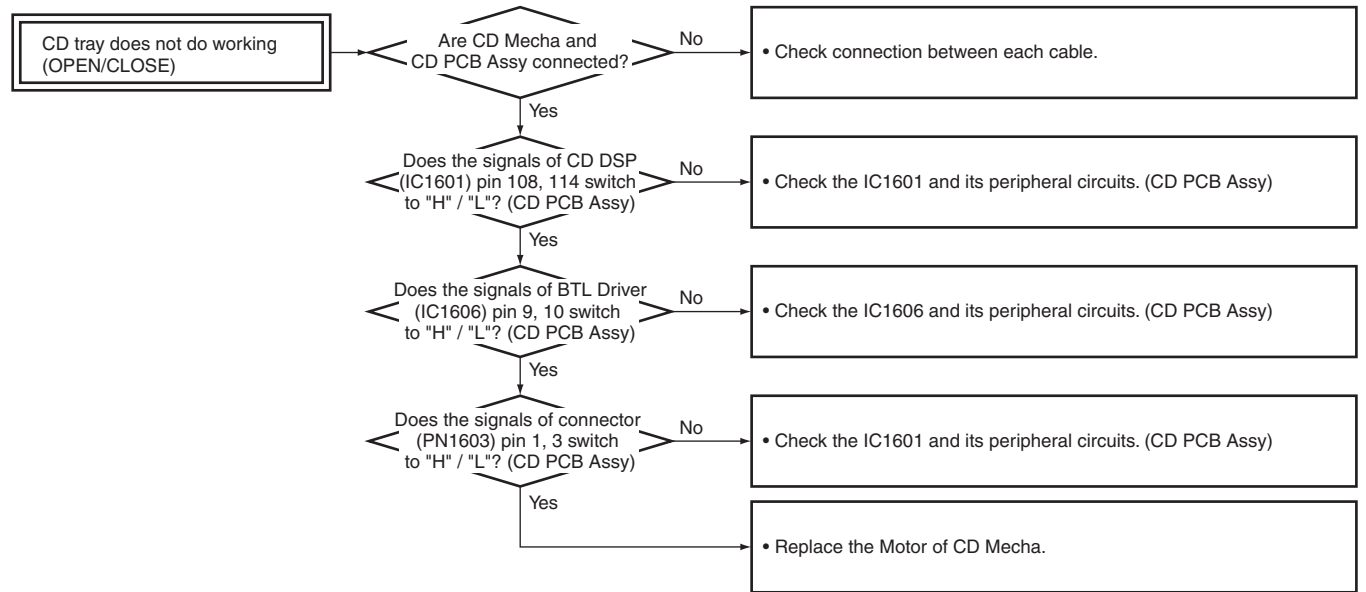


### (\*1) The confirmation that is in a state of each sound source

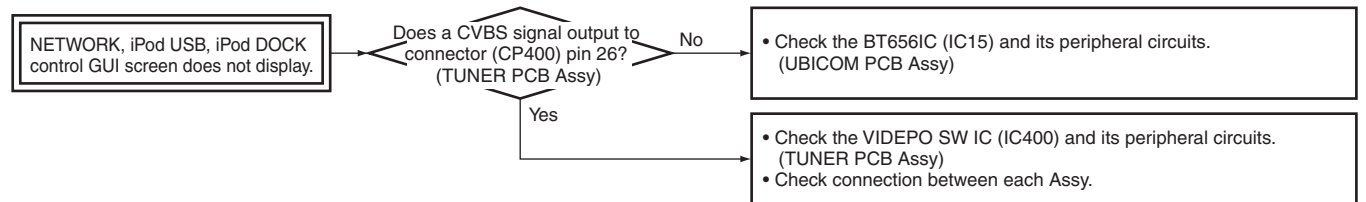


## A • CD does not work

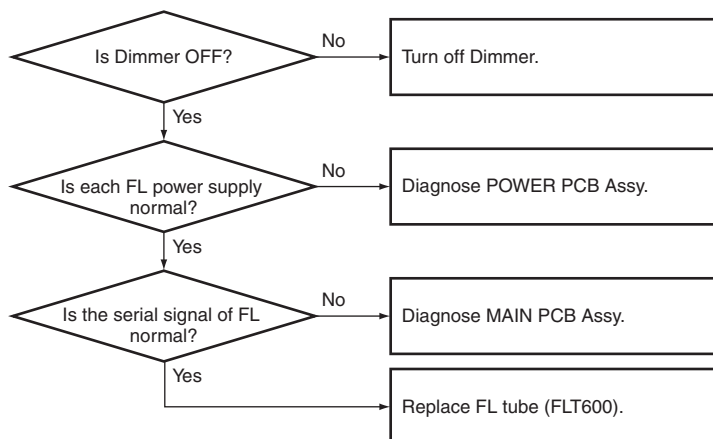




### • No Picture (GUI)



### • LED does not lit



A If a protection circuit is activated then the unit enters Standby mode, the LED flashes in accordance with the activated protection function, as shown in the table below.

| Protection | LED flashing time |          | Operation Lock |
|------------|-------------------|----------|----------------|
|            | LED ON            | LED OFF  |                |
| DC         | 100 msec          | 900 msec | Lock           |
| POWER      | 500 msec          | 500 msec | Lock           |
| AMP        | 100 msec          | 100 msec | —              |
| OVER TEMP1 | 100 msec          | 100 msec | —              |
| OVER TEMP2 | 100 msec          | 100 msec | —              |
| PWM        | 900 msec          | 100 msec | Lock           |
| USB        | 100 msec          | 100 msec | —              |

B If the DC, POWER, or PWM protection circuit is activated, operation of the unit will be locked.  
The buttons that can be used to release operation lock are as follows:

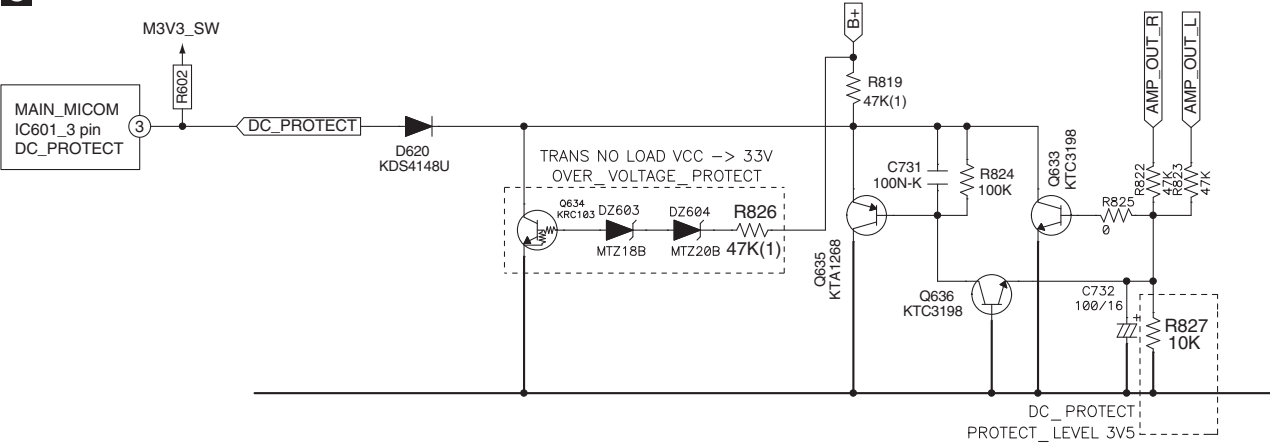
- Simultaneously press the "INPUT" and "▶▶▶▶I (Tune Up, Skip Up)" buttons on the front panel.  
After operation lock is released and the unit is then turned ON, the unit will perform the following:
- Count the number of activations of protection circuits
  - Cancel flashing of the LED

C **Description of Each Function**

• **DC Protect**

The DC outputs from AMP\_OUT\_L and AMP\_OUT\_R are detected to avoid DC current surge to the speakers and excess voltage at B+ (+33 V).  
The protection circuit is activated when the signal at Pin 3 of IC601 changes from H to L.

C MAIN PCB ASSY



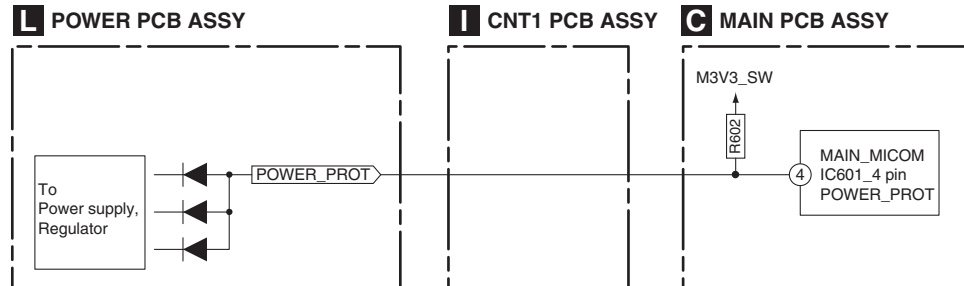
### • Power Protect

The protection circuit is activated when short-circuiting is detected at the regulator output.

The circuit is activated when the signal at Pin 4 of IC601 changes from H to L.

Detected power: B+\_27V, B-\_27V, AMP\_+5V, AMP\_-5V, MICOM\_3V9, A\_+12V, A\_-12V, CD\_3.3V

Note: The above names are the indications on the POWER PCB Assy. The indications of power may be different on other Assys.

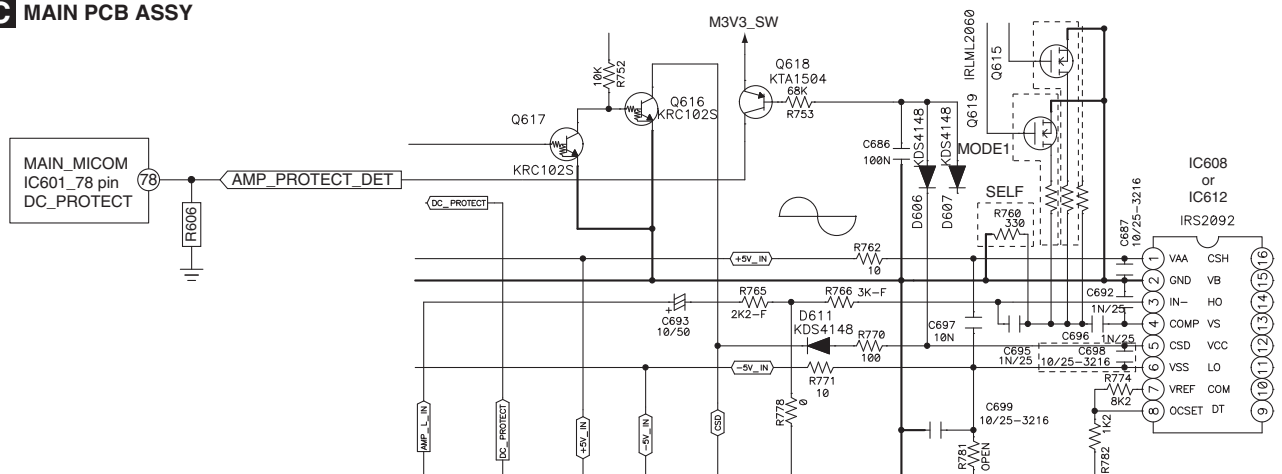


### • AMP\_PROTECT

The protection circuit is activated when excess current is detected from the AMP.

The circuit is activated when the signal at Pin 78 of IC601 changes from L to H.

#### C MAIN PCB ASSY

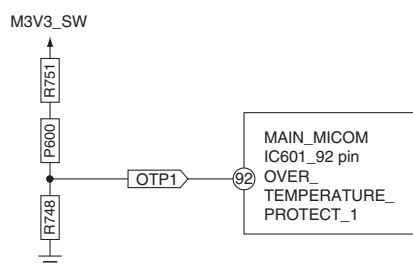


### • OVER\_TEMPERATURE\_PROTECT\_1

The protection circuit is activated when abnormally high temperature is detected by the P600 PTC thermistor near IC608 (AMP\_Lch).

The circuit is activated when the signal at Pin 92 of IC601 changes from H to L.

#### C MAIN PCB ASSY

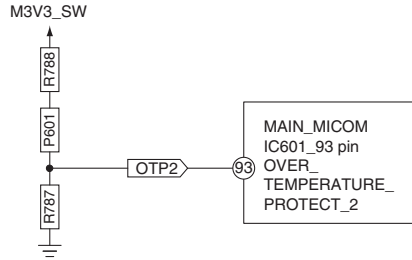


## A • OVER\_TEMPERATURE\_PROTECT\_2

The protection circuit is activated when abnormally high temperature is detected by the P601 PTC thermistor near IC612 (AMP\_Rch).

The circuit is activated when the signal at Pin 93 of IC601 changes from H to L.

### C MAIN PCB ASSY

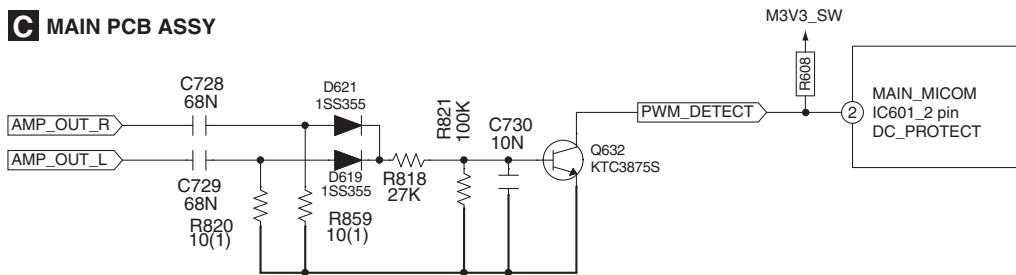


## C • PWM\_DETECT

The protection circuit is activated when abnormal PWM output is detected from the AMP\_OUT\_L or AMP\_OUT\_R.

The circuit is activated when the signal at Pin 2 of IC601 changes from H to L.

### C MAIN PCB ASSY



## C • USB\_LIMIT\_DET

The protection circuit is activated when excess current (2.1 A or higher) is detected from the USB/iPod.

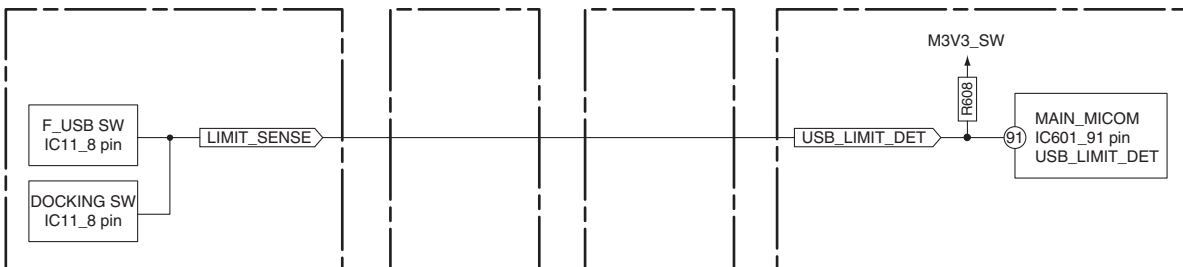
The circuit is activated when the signal at Pin 91 of the IC601 changes from H to L.

### D UBICOM PCB ASSY

### K CNT2 PCB ASSY

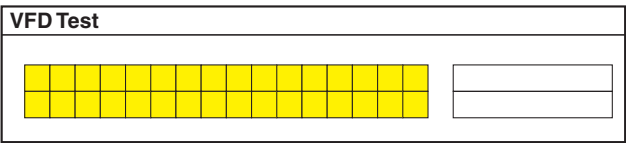
### A CD PCB ASSY

### C MAIN PCB ASSY



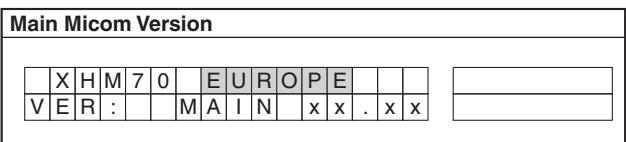
Version display

1. During Standby mode, simultaneously press the  (STANDBY/ON) and  (STOP) buttons on the front panel.



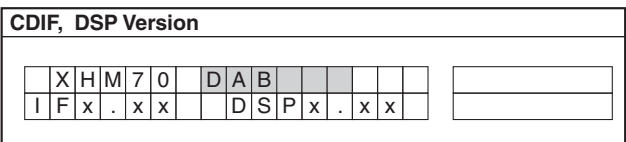
All the segments on the FL display light.  
When the firmware of the MAIN microcomputer is more than 04.90, TIMER LED blinks.  
In the case of 04.70, the TIMER LED does not blink the firmware of the MAIN microcomputer.

2. Press the  (Tune Up, Skip Up) button on the front panel.



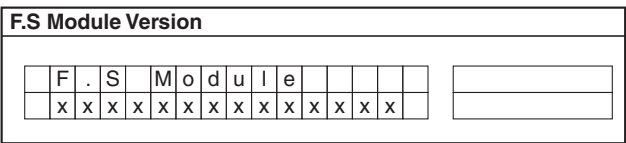
The version of the MAIN microcomputer firmware is displayed.  
(Display example: In a case of the EU model)

3. Press the  (Tune Up, Skip Up) button on the front panel.



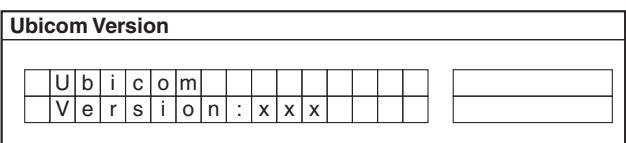
The versions of the CDIF and DSP firmware are displayed.  
(Display example: In a case of the UK model)

4. Press the  (Tune Up, Skip Up) button on the front panel.



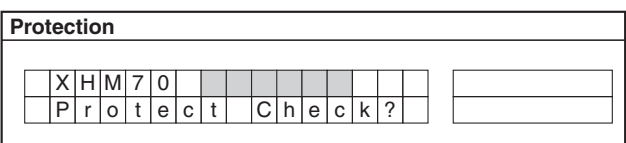
The version of the F.S module (DAB module) is displayed.  
To display all the data, scrolling is required.  
(Version display of the F.S module is available only for the UK model.)

5. Press the  (Tune Up, Skip Up) button on the front panel.



The version of the UBICOM firmware is displayed.  
(Display example: In a case of the EU model)  
Note that it may take about 30 seconds for such data to be displayed.

6. Press the  (Tune Up, Skip Up) button on the front panel.



Indication for selecting the mode for displaying the number of detected protection activations

7. To return the display to that of Step 1, press the  (Tune Up, Skip Up) button on the front panel.  
If you press the  (Play or Pause) button on the front panel, the display will shift to Step 8 for the mode for displaying the number of detected protection activations.

When you finish Version display, press the  (STANDBY/ON) button, and turn off the power.

## A ■ Mode for displaying the number of detected protection activations

8. **Protection**

|   |   |   |   |   |   |   |   |   |   |   |   |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|--|--|
| X | H | M | 7 | 0 | P | r | o | t | e | c | t |  |  |
| N | o |   | P | r | o | t | e | c | t |   |   |  |  |

The latest protection function that was activated is displayed.  
If no protection function has been activated, "No Protect" will be displayed.

Each time the ►►►►I (Tune Up, Skip Up) button on the front panel is pressed, the number of activations of each protection function will be displayed, in the order indicated below.

9. **Protection**

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | H | M | 7 | 0 | P | r | o | t | e | c | t |   |   |   |
| D | C |   | P | r | o | t | e | c | t |   | : | x | x | x |
| P | o | w | e | r |   | P | r | o | t | e | : | x | x | x |
| A | m | p |   | P | r | o | t | e | c | t | : | x | x | x |
| O | v | e | r |   | T | e | m | p | 1 |   | : | x | x | x |
| O | v | e | r |   | T | e | m | p | 2 |   | : | x | x | x |
| P | w | m |   | P | r | o | t | e | c | t | : | x | x | x |
| U | S | B |   | P | r | o | t | e | c | t | : | x | x | x |
| C | l | e | a | r | : | Y | e | s | ? |   |   |   |   |   |

The maximum value for the number of activations for each protection function is 255.

17. To return to the display of Step 9, press the ►►►►I (Tune Up, Skip Up) button on the front panel while "Clear:Yes?" is displayed.  
To reset all values of detected protection activations, press the ►/II (Play or Pause) button on the front panel.  
When you finish displaying the number of detected protection activations, press the ⏻ (STANDBY/ON) button, and turn off the power.

## D ■ LED Indications When Activation of Any of the Protection Functions is Detected, and Protection Lock

If a protection function is activated then the unit enters Standby mode, the LED flashes in accordance with the activated protection function, as shown in the table below.

If any of the DC, POWER, or PWM protection functions is activated, operations of the unit will be locked.

To cancel operation lock, see the next item.

| Protection | Flashing patterns of the LED |              | Operation lock |
|------------|------------------------------|--------------|----------------|
|            | LED ON time                  | LED OFF time |                |
| DC         | 100 ms                       | 900 ms       | Locked         |
| POWER      | 500 ms                       | 500 ms       | Locked         |
| AMP        | 100 ms                       | 100 ms       | Not locked     |
| OVERTEMP1  | 100 ms                       | 100 ms       | Not locked     |
| OVERTEMP2  | 100 ms                       | 100 ms       | Not locked     |
| PWM        | 900 ms                       | 100 ms       | Locked         |
| USB        | 100 ms                       | 100 ms       | Not locked     |

## ■ Canceling Operation Lock After a Protection Function Activation was Detected

Simultaneously press the INPUT and ►►►►I (Tune Up, Skip Up) buttons on the front panel.

- F With the buttons indicated below, you can also cancel operation lock by activating other functions:  
⏻ (STANDBY/ON) and ■ (Stop) buttons: Version & Protect check  
⏻ (STANDBY/ON) and ►/II (Play or Pause) buttons: Ubicom Upgrade

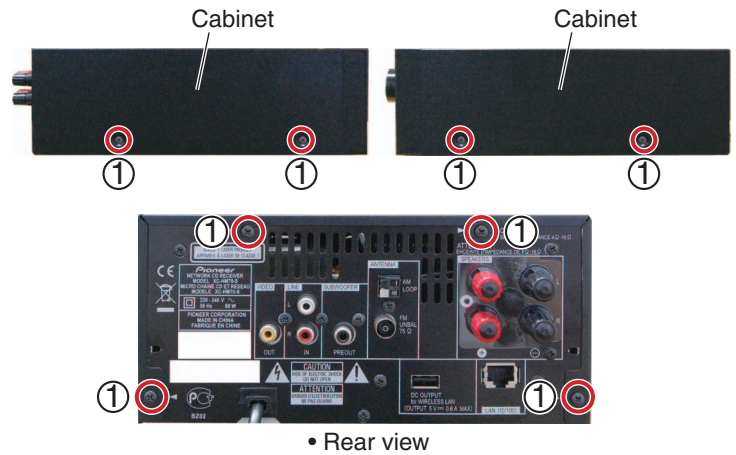
**Note:**  
(1) Do NOT look directly into the pickup lens. The laser beam may cause eye injury.  
(2) Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.  
(3) For performing the diagnosis shown below, the following jigs for service is required:

- Board to board extension jig cable (GGD1767)
- Board to board extension jig cable (GGD1768)
- Board to board extension jig cable (GGD1769)
- Board to board extension jig cable (GGD1770)
- Board to board extension jig cable (GGD1771)
- Extension jig FFC (GGD1774)

[1] Cabinet and DOCK PCB Assy

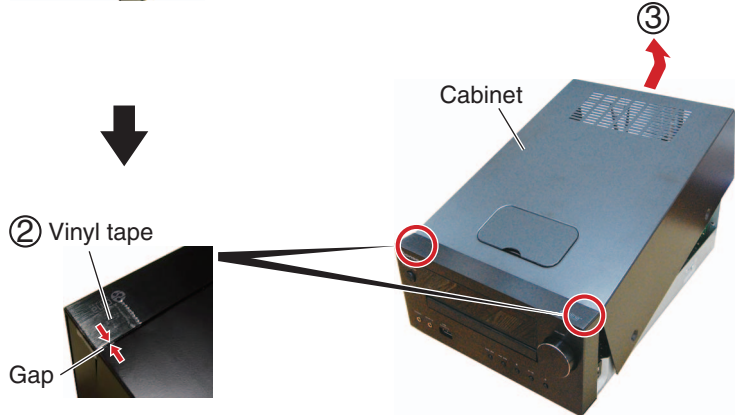
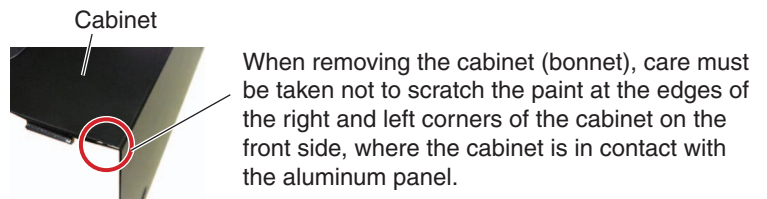
• Cabinet

- (1) Remove the eight screws.  
(K: B020230083B10-IL)  
(S: BBZ30P080FNI)



- (2) Apply a piece of vinyl tape to the corner edges of the cabinet.  
(3) Remove the cabinet.

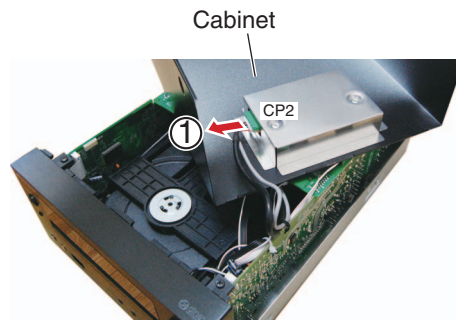
**Note:**  
Please do not damage the cables when removing the cabinet.



Apply a piece of vinyl tape to the corner edges of the cabinet, where the aluminum panel and the cabinet make a slight gap, to protect the edges. Then remove the cabinet.

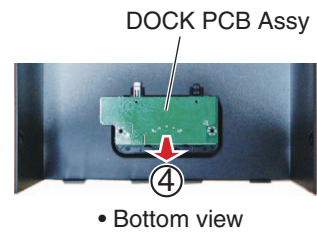
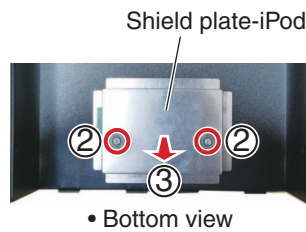
## A • DOCK PCB Assy

- (1) Disconnect the one connector. (CP2)



B

- (2) Remove the two screws.  
(B020030081B10-IL)  
(3) Remove the shield plate-iPod.  
(4) Remove the DOCK PCB Assy.

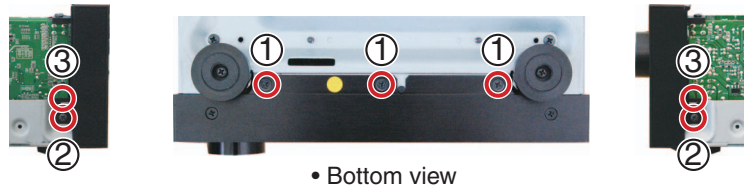


C

## [2] Front Section

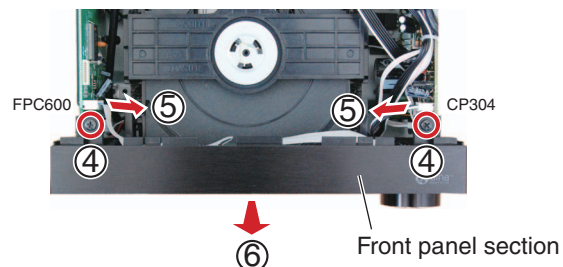
- (1) Remove the cabinet.  
(See procedure [1].)

- (1) Remove the three screws.  
(K: B020030083F10-IL)  
(S: B020030084F10-IL)  
(2) Remove the two screws.  
(B020230083B10-IL)  
(3) Unhook the two hooks.



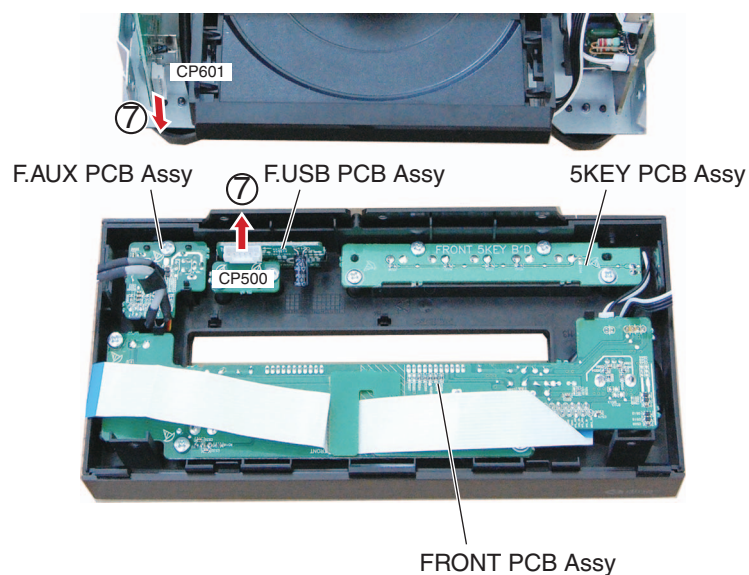
E

- (4) Remove the two screws.  
(B020230083B10-IL)  
(5) Disconnect the one flexible cable and one connector. (FPC600, CP304)  
(6) Remove the front panel section.



F

- (7) Disconnect the two connectors.  
(CP500, 601)

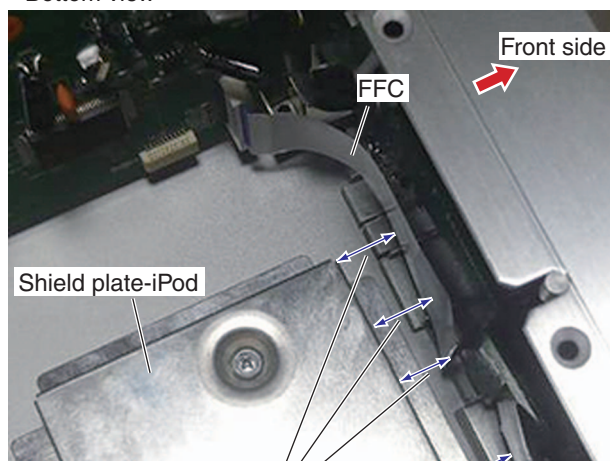


#### • Cable Dressing of the FFC Connecting between the FRONT PCB Assy and MAIN PCB Assy

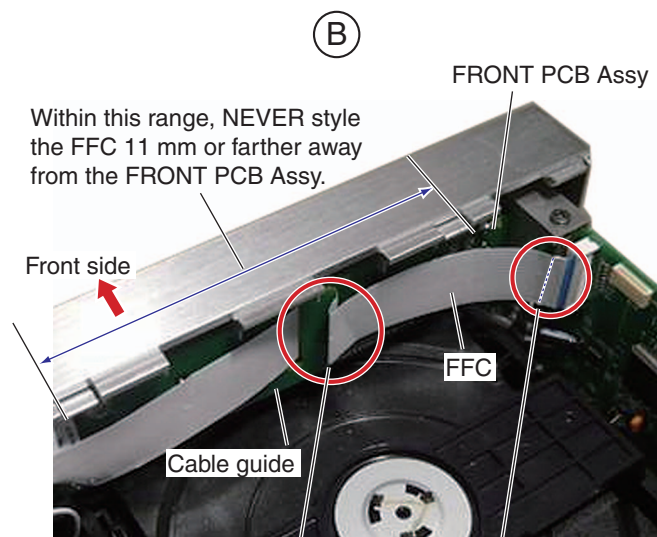
For measures against static electricity, the FFC must be styled at least 10 mm away from the shield Plate-iPod, as shown in Photo ① below.

Be sure to style the FFC so that it runs close to the FRONT PCB Assy, as shown in Photo ② below.  
(NEVER style the FFC 11 mm or farther away from the FRONT PCB Assy.)

#### • Bottom view



Be sure to style the FFC at least 10 mm away from the Shield plate-iPod.



Within this range, NEVER style the FFC 11 mm or farther away from the FRONT PCB Assy.

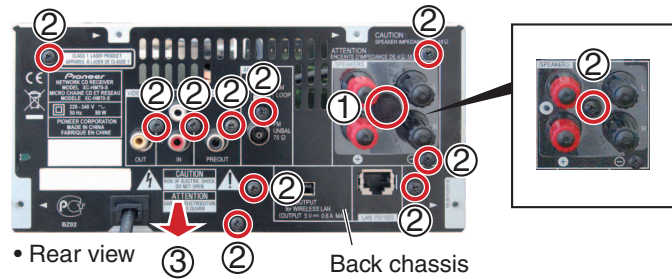
Fold back the FFC along the cable guide, as shown here.

Fold the FFC back toward the front side.



### A [3] Back Chassis

- (1) Remove the one cushion.
- (2) Remove the 11 screws.  
(BBT30P100FTB)
- (3) Remove the back chassis.



B

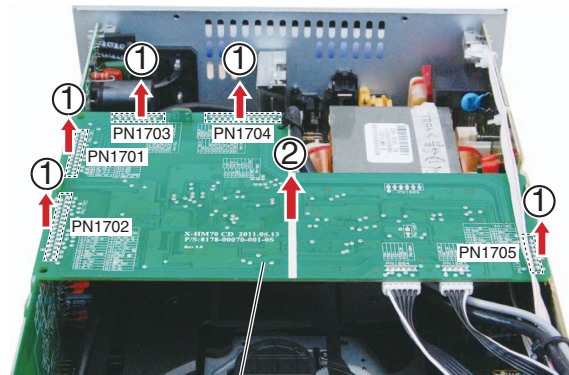
### C [4] CD PCB Assy, Mecha

- (1) Remove the cabinet.  
(See procedure [1].)
- (2) Remove the front panel section.  
(See procedure [2].)

C

#### • CD PCB Assy

- (1) Disconnect the five BtoB connectors.  
(PN1701 to PN1705)
- (2) Remove the CD PCB Assy.



D

- (3) Short-circuit position of figure soldering.  
(short)

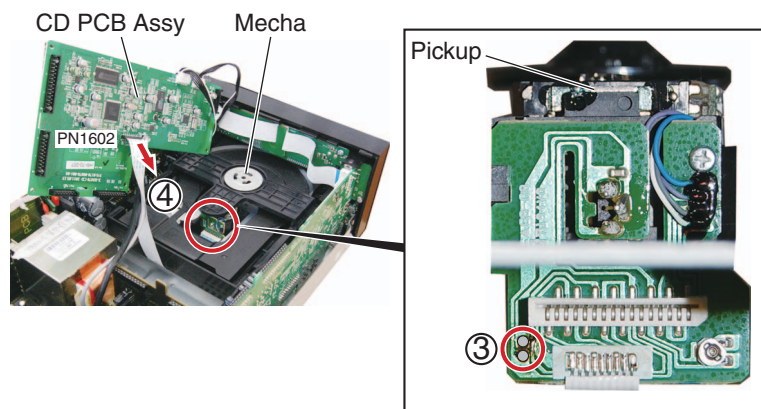
E

#### Note:

After working, connect the flexible cable, then remove the soldered joint (open).

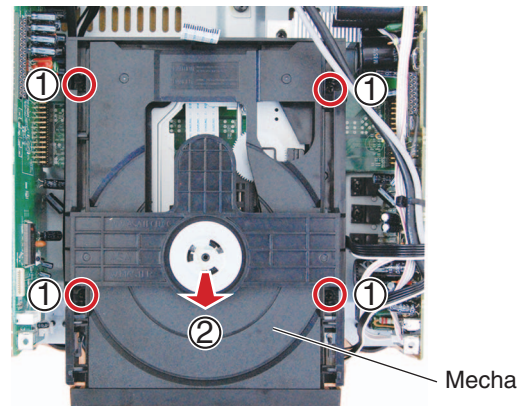
- (4) Disconnect the one flexible cable.  
(PN1602)

F



### • Mecha

- (1) Remove the four screws.  
(B020230083B10-IL)
- (2) Remove the Mecha.

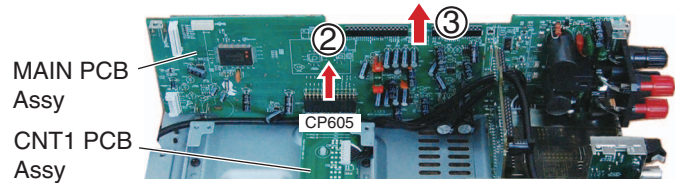


### • MAIN PCB Assy

- (1) Remove the one screw.  
(B020230083B10-IL)

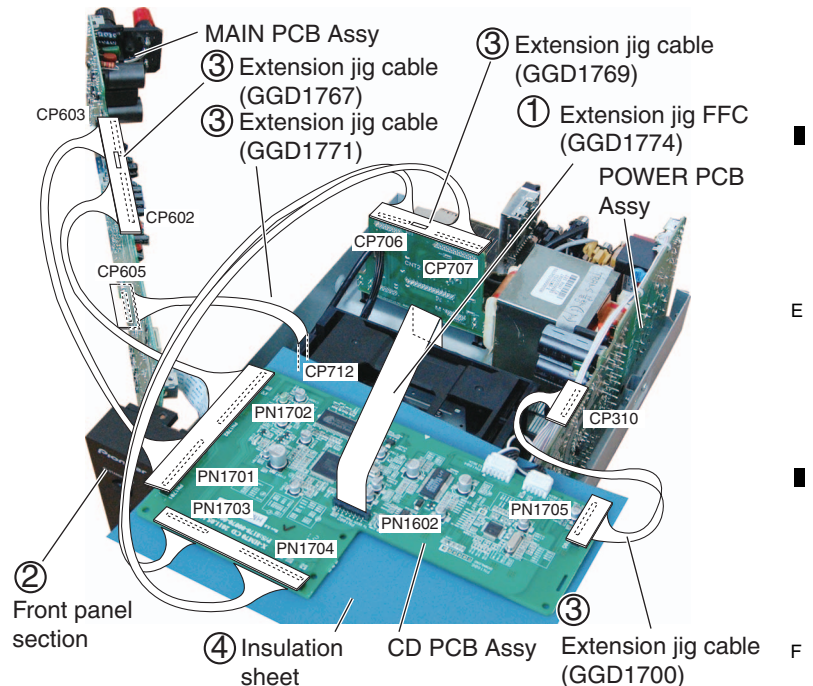


- (2) Disconnect one BtoB connector.  
(CP605)
- (3) Remove the MAIN PCB Assy.



### • Diagnosis

- (1) Reassemble the Mecha with extension jig FFC.  
GGD1774:  
PN1602 (CD) ↔ Mecha
- (2) Reassemble the front panel section.
- (3) Connect the five jig cables.  
GGD1767:  
PN1701, 1702 (CD) ↔ CP603, 602 (MAIN)  
GGD1769:  
PN1703, 1704 (CD) ↔ CP706, 707 (CNT2)  
GGD1770:  
PN1700 (CD) ↔ CP310 (POWER)  
GGD1771:  
CP605 (MAIN) ↔ CP712 (CNT1)
- (4) Insert the any insulation sheet.



## A [5] MAIN PCB Assy

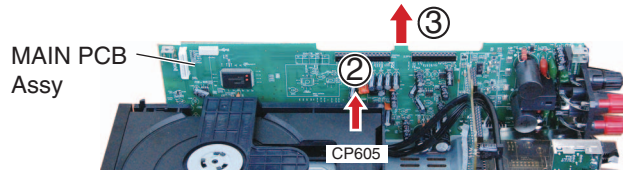
- (1) Remove the cabinet.  
(See procedure [1].)
- (2) Remove the front panel section.  
(See procedure [2].)
- (3) Remove the back chassis.  
(See procedure [3].)
- (4) Remove the CD PCB Assy.  
(See procedure [4].)

### • MAIN PCB Assy

- (1) Remove the one screw.  
(B020230083B10-IL)

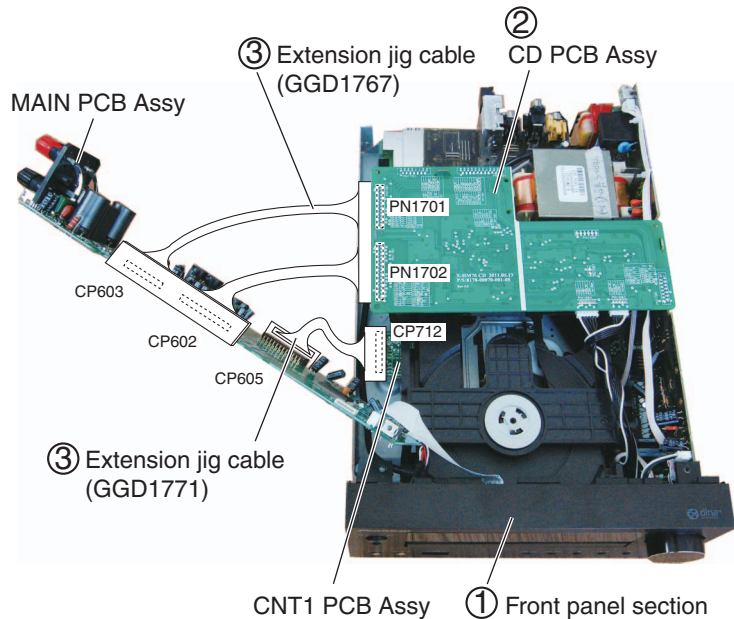


- (2) Disconnect one BtoB connector.  
(CP605)
- (3) Remove the MAIN PCB Assy.



### • Diagnosis

- (1) Reassemble the front panel section.
- (2) Reassemble the CD PCB Assy.
- (3) Connect the two jig cables.  
GGD1767:  
PN1701, 1702 (CD) ↔ CP603, 602 (MAIN)  
GGD1771:  
CP605 (MAIN) ↔ CP712 (CNT1)

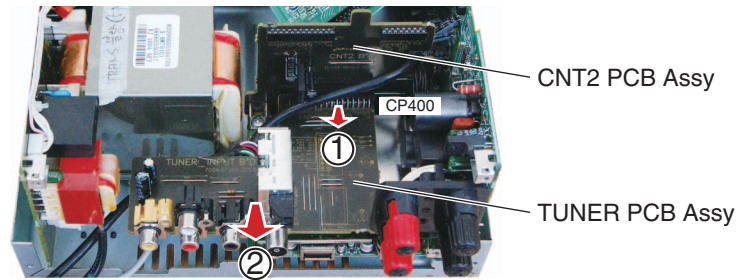


## [6] UBICOM PCB Assy

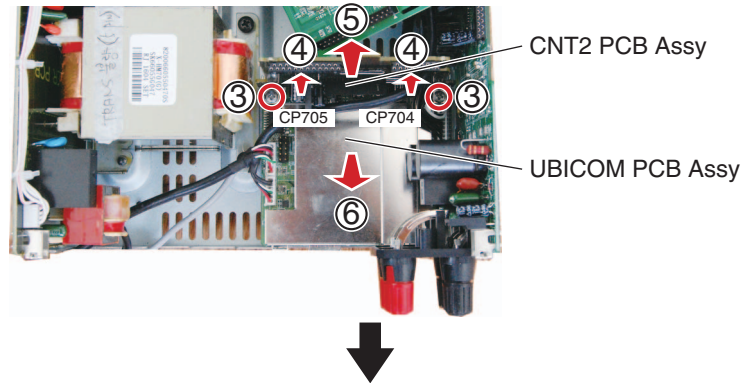
- (1) Remove the cabinet.  
(See procedure [1].)
- (2) Remove the back chassis.  
(See procedure [3].)
- (3) Remove the CD PCB Assy.  
(See procedure [4].)

### • TUNER, CNT2, UBICOM PCB Assemblies

- (1) Disconnect the one BtoB connector. (CP400)
- (2) Remove the TUNER PCB Assy.

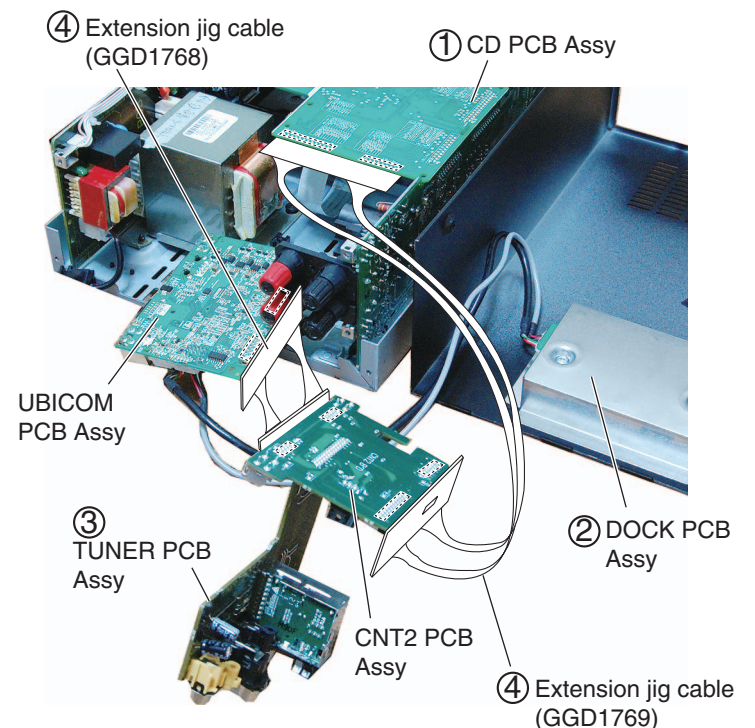


- (3) Remove the two screws.  
(B020030171B10-IL)
- (4) Disconnect the two BtoB connectors.  
(CP704, 705)
- (5) Remove the CNT2 PCB Assy.
- (6) Remove the UBICOM PCB Assy.



### • Diagnosis

- (1) Reassemble the CD PCB Assy.
- (2) Reconnect the DOCK PCB Assy.
- (3) Reassemble the TUNER PCB Assy.
- (4) Connect the two jig cables.  
GGD1768:  
CN1, 2 (UBICOM) ↔ CP704, 705 (CNT2)  
GGD1769:  
PN1703, 1704 (CD) ↔ CP706, 707 (CNT2)

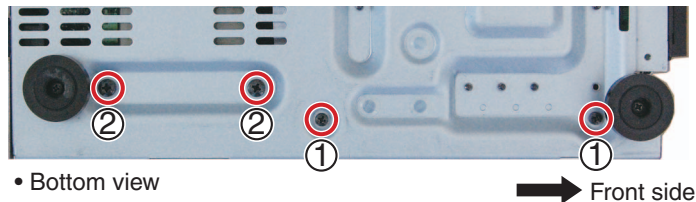


## A [7] POWER PCB Assy

- (1) Remove the cabinet.  
(See procedure [1].)
- (2) Remove the front panel section.  
(See procedure [2].)
- (3) Remove the back chassis.  
(See procedure [3].)
- (4) Remove the CD PCB Assy.  
(See procedure [4].)

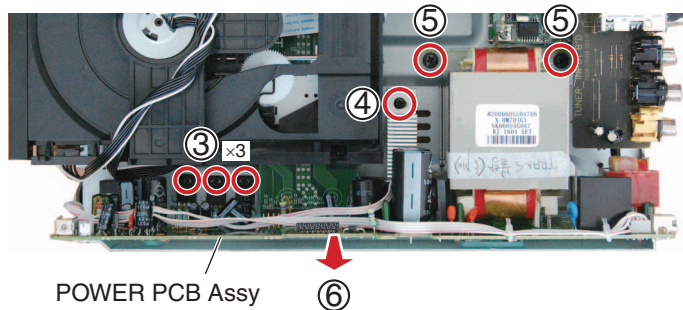
B

- (1) Remove the two screws.  
(B020230083B10-IL)
- (2) Remove the two screws.  
(B028940101B11-IL)



C

- (3) Remove the three screws.  
(B020230083B10-IL)
- (4) Remove the one screw.  
(B020230083B10-IL)
- (5) Remove the two screws.  
(B028940101B11-IL)
- (6) Remove the POWER PCB Assy.

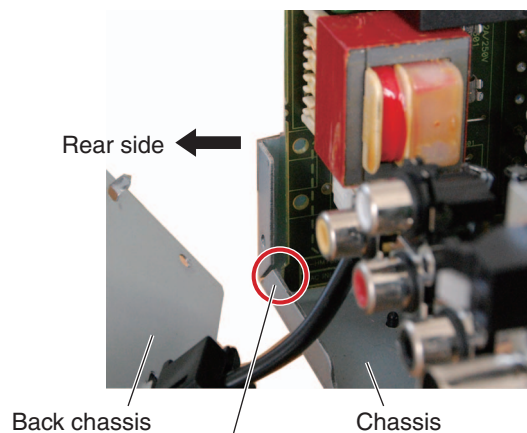
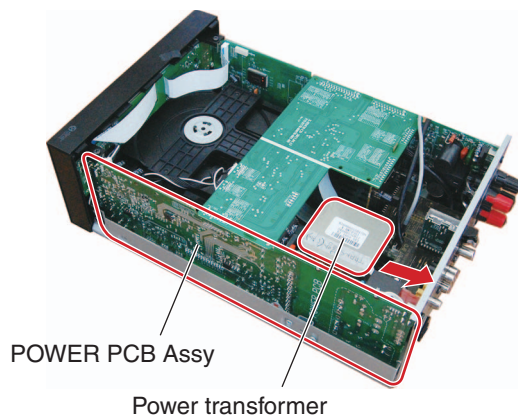


D

### • How to Reassemble the POWER PCB Assy

Place the POWER PCB Assy so that the rear side of the POWER PCB Assy comes in contact with that of the chassis, then secure the four fastening screws of the transformer. Then, secure the two screws from the bottom of the chassis.

E



Bring the POWER PCB Assy into contact with the bend of the chassis.

F

### Rationale:

If the POWER PCB Assy is not assembled as described above, it will be attached nearer to the front than as designed, with the result that the cabinet and the rear panel may be separated by a gap or that the front panel may be inclined forward.

## 8. EACH SETTING AND ADJUSTMENT

### 8.1 UPDATING OF THE MAIN MICROCOMPUTER FIRMWARE

#### [Purpose]

Refer to this section when updating the firmware of each microcomputer is required by the service information, etc.

#### [Necessary Tools]

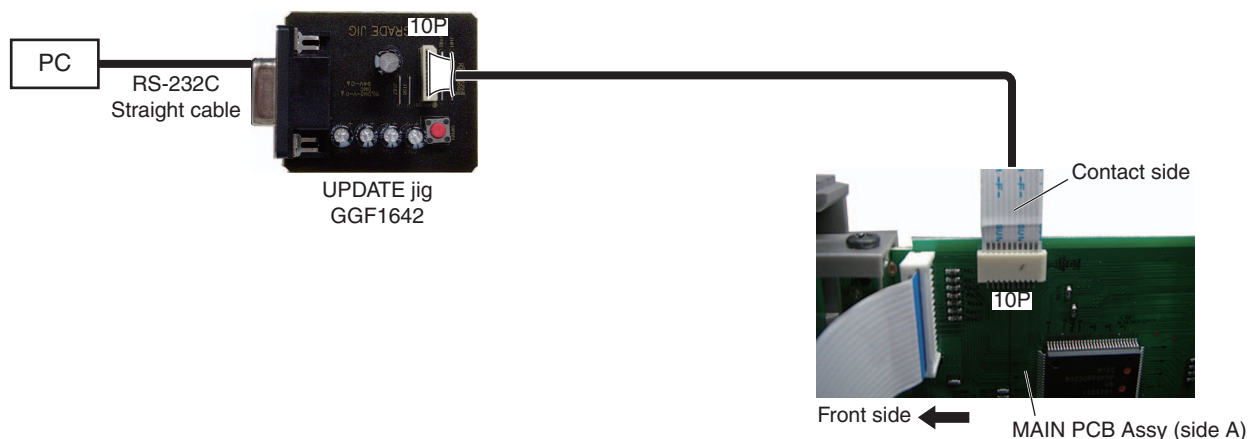
- PC with a serial port
- Updating program: FlashSta.exe
- RS-232C straight cable (9pin female ↔ 9pin male)
- RS-232C update jig: GGF1642
- Firmware file: ".mot" file

#### [Connections]

Remove the cabinet (bonnet) so that the MAIN PCB Assy becomes accessible.

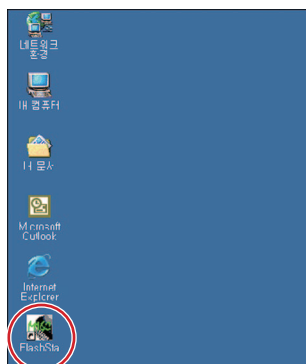
Connect as shown in the figure below.

For the contact side of the FFC, see the photo below.



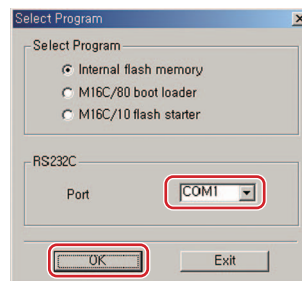
#### [Procedures]

1. Unplug the AC cord.  
Connect the FFC cable. ( MAIN microcomputer )  
Start up application FlashSta on the PC.



2. Plug the AC cord. (STANDBY mode)  
For updating of the MAIN microcomputer, proceed with the following steps in STANDBY mode.

3. Press the OK button.



Select for COM port.

[ if the following messages are displayed ]

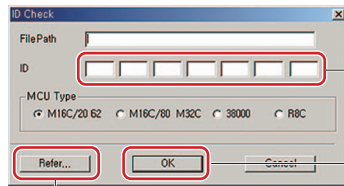


Please push the cancel button and press the JIG's RESET button.

And confirm a connection of FFC.

Please return to procedure 1.

## 4. Select the update file and enter ID.

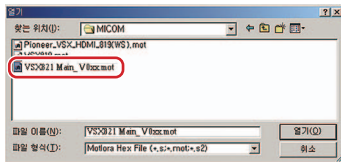


① Selection of upgrade file

② Enter ID.  
Enter "ff" in all field.

③ Press OK button to go to next step.

## ① Select the update file

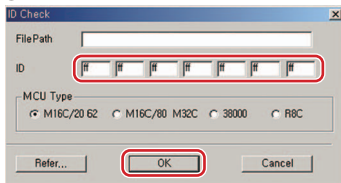


Select "XM70 Main V0xx.mot" file to update the MCU.



Press the OK button.

## ② Enter ID.

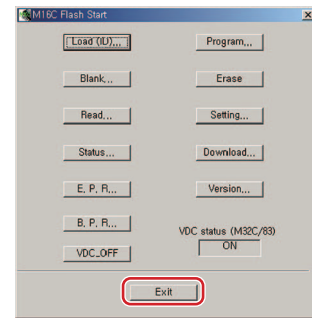


Press the OK button.

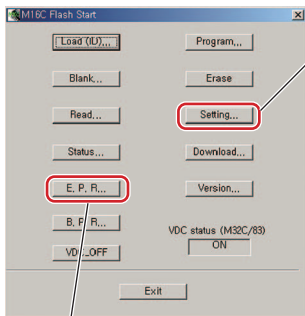
## 6. Update Finished MAIN microcomputer.



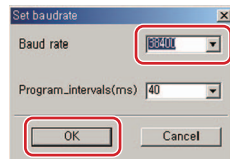
Press the OK button.

Press the Exit button.  
Please wait for until this window disappears.7. Turn the unit off. (STANDBY mode)  
Disconnect the Power cord.  
Disconnect the FFC cable.

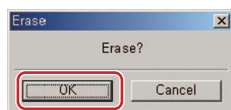
## 5. Set speed update and update the MCU.



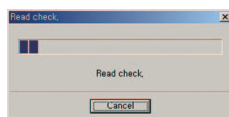
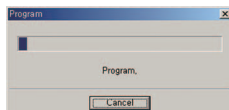
① Set speed of update.

① Set speed of update.  
Set Baud rate to 38400.  
(Default Baud rate is 9600)

Press the OK button.

② Update the MCU.  
E.P.R=>Erase+Program+Read② Update the MCU  
Press the E.P.R ... button

Press OK button.



## 8.2 UPDATING OF THE CD I/F, CD DSP MICROCOMPUTERS FIRMWARE

For updating firmware for the CD I/F and CD DSP microcomputers, create separate discs for updating each microcomputer then play the disc on the unit.

### ■ How to Update

1. Write a \*\*\*.UPG file onto a CD-R/RW to create the disc for updating.

Examples of file names (File names vary, depending on the version of firmware.)

For the CD I/F microcomputer: XHM70CD\_IFM\_V1\_00\_110713.UPG

For the CD DSP microcomputer: XHM70CD\_DSPV102\_(20110720\_VT).UPG

File writing can be performed, using the writing function of Windows XP.

Note: Create separate discs for updating the CD I/F and CD DSP microcomputers.

If two files for updating these microcomputers are written on one disc, a problem may occur.

NEVER write files other than a .UPG file onto the CD-R/RW for updating.

2. Turn the unit ON.
3. Set the Function selection to CD.
4. Open the disc tray, load the created disc, then close the tray.
5. Updating starts automatically.
6. After updating is completed, the disc tray will be automatically opened.
7. Unload the disc then turn the unit OFF.

## 8.3 UPDATING OF THE UBICOM FIRMWARE

For updating of firmware for the UBICOM, a USB memory device is required.

### ■ How to Update

1. Write a file for updating onto a USB memory device.

Examples of file names (File names vary, depending on the version of firmware.)

xhm70\_v0\_40.ub (In a case of Version 0.40)

Note: NEVER write files other than a file for updating into the USB memory device.

Write the file into the root directory.

2. Plug the AC power cord of the unit into the outlet.  
The unit will enter Standby mode.
3. Plug the USB memory device for updating into the USB connector on the front panel of the unit.
4. Press the  $\odot$  (STANDBY/ON) button on the front panel while holding the  $\blacktriangleright$ /|| (Play or Pause) button pressed.
5. "UBICOM UPGRADE" is displayed on the FL display.
6. Updating starts when "UPGRADE" is displayed on the lower row of the FL display.  
(It may take about 1 minute until updating starts.)
7. Updating is completed when "COMPLETE" is displayed on the lower row of the FL display.
8. Unplug the USB memory device then turn the unit OFF.

If "FILE NOT FOUND" is displayed instead of "UPGRADE," or if "SYSTEM ERROR" is displayed instead of "COMPLETE," unplug the AC power cord, then repeat the procedure from Step 2.

It may take 5 to 10 minutes for updating.

NEVER unplug the AC power cord while "UPGRADE" is displayed.

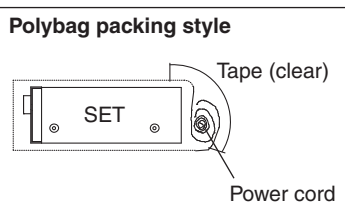
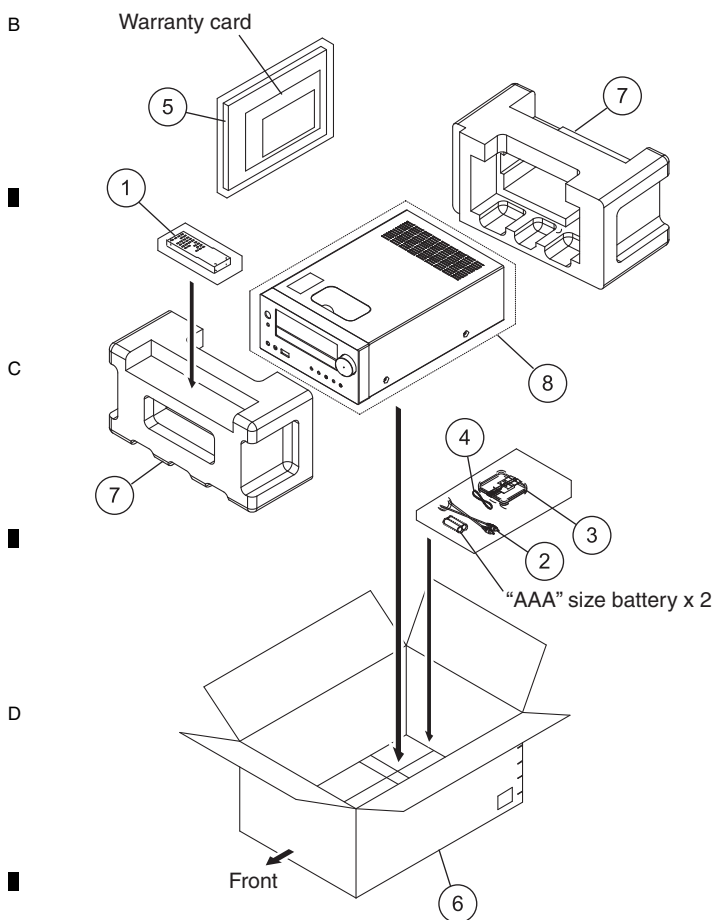
# 9. EXPLODED VIEWS AND PARTS LIST

NOTES: ● Parts marked by “NSP” are generally unavailable because they are not in our Master Spare Parts List.

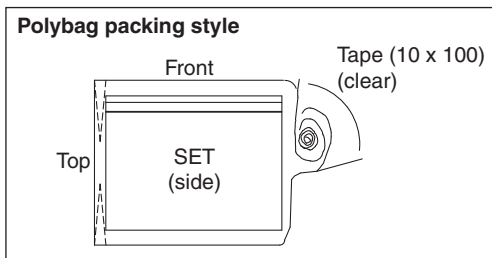
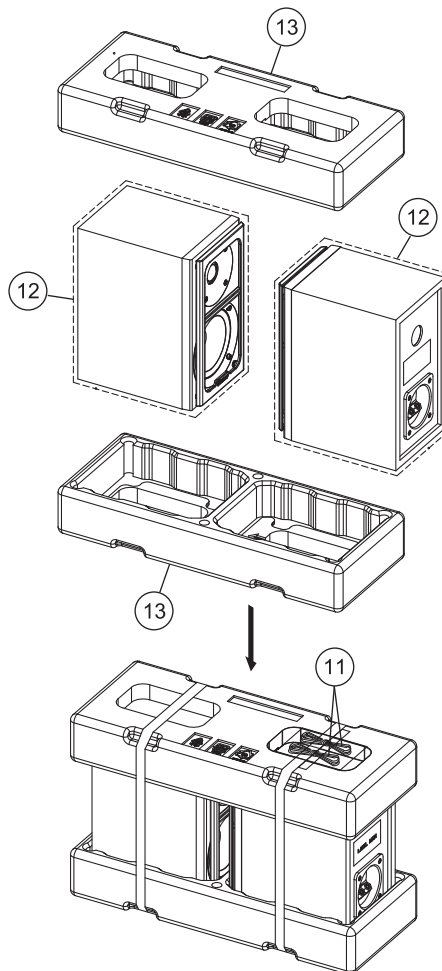
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Screws adjacent to ▼ mark on product are used for disassembly.
- For the applying amount of lubricants or glue, follow the instructions in this manual.  
(In the case of no amount instructions, apply as you think it appropriate.)

## 9.1 PACKING SECTION

### • CD Receiver



### • Speaker (X-HM70 only)



(1) PACKING SECTION PARTS LIST

| Mark No. | Description                                            | Part No.               |
|----------|--------------------------------------------------------|------------------------|
| 1        | Remote Control (AXD7639)                               | 8300763900010-IL       |
| 2        | Video Cable                                            | L063202010050-IL       |
| 3        | AM Loop Aerial                                         | E601019000010-IL       |
| 4        | FM Aerial                                              | E605010140010-IL       |
| 5        | Operating Instructions<br>(En, Fr, Es, De, It, NI, Ru) | 5707000005940-IL       |
| 6        | Box, Gift                                              | See Contrast table (2) |
| 7        | Cushion, Snow                                          | 6230213044000-IL       |
| 8        | PE, Sheet                                              | 6327210009000-IL       |
| 9        | •••••                                                  |                        |
| 10       | •••••                                                  |                        |
| 11       | Speaker Cables                                         | See Contrast table (2) |
| 12       | Bag Poly                                               | See Contrast table (2) |
| 13       | Snow Cushion                                           | See Contrast table (2) |

(2) CONTRAST TABLE

X-HM70-K/SYXCN8, X-HM70-S/SYXCN8, XC-HM70-K/SYXCN8 and XC-HM70-S/SYXCN8 are constructed the same except for the following:

| Mark | No. | Symbol and Description | X-HM70-K<br>/SYXCN8 | X-HM70-S<br>/SYXCN8 | XC-HM70-K<br>/SYXCN8 | XC-HM70-S<br>/SYXCN8 |
|------|-----|------------------------|---------------------|---------------------|----------------------|----------------------|
|      | 6   | Box, Gift              | 6007211940100-IL    | 6007211940110-IL    | 6007211940000-IL     | 6007211940010-IL     |
|      | 11  | Speaker Cables         | 8952SHM700042-IL    | 8952SHM700042-IL    | Not used             | Not used             |
|      | 12  | Bag Poly               | 8952SHM700044-IL    | 8952SHM700044-IL    | Not used             | Not used             |
|      | 13  | Snow Cushion           | 8952SHM700045-IL    | 8952SHM700045-IL    | Not used             | Not used             |

△

A

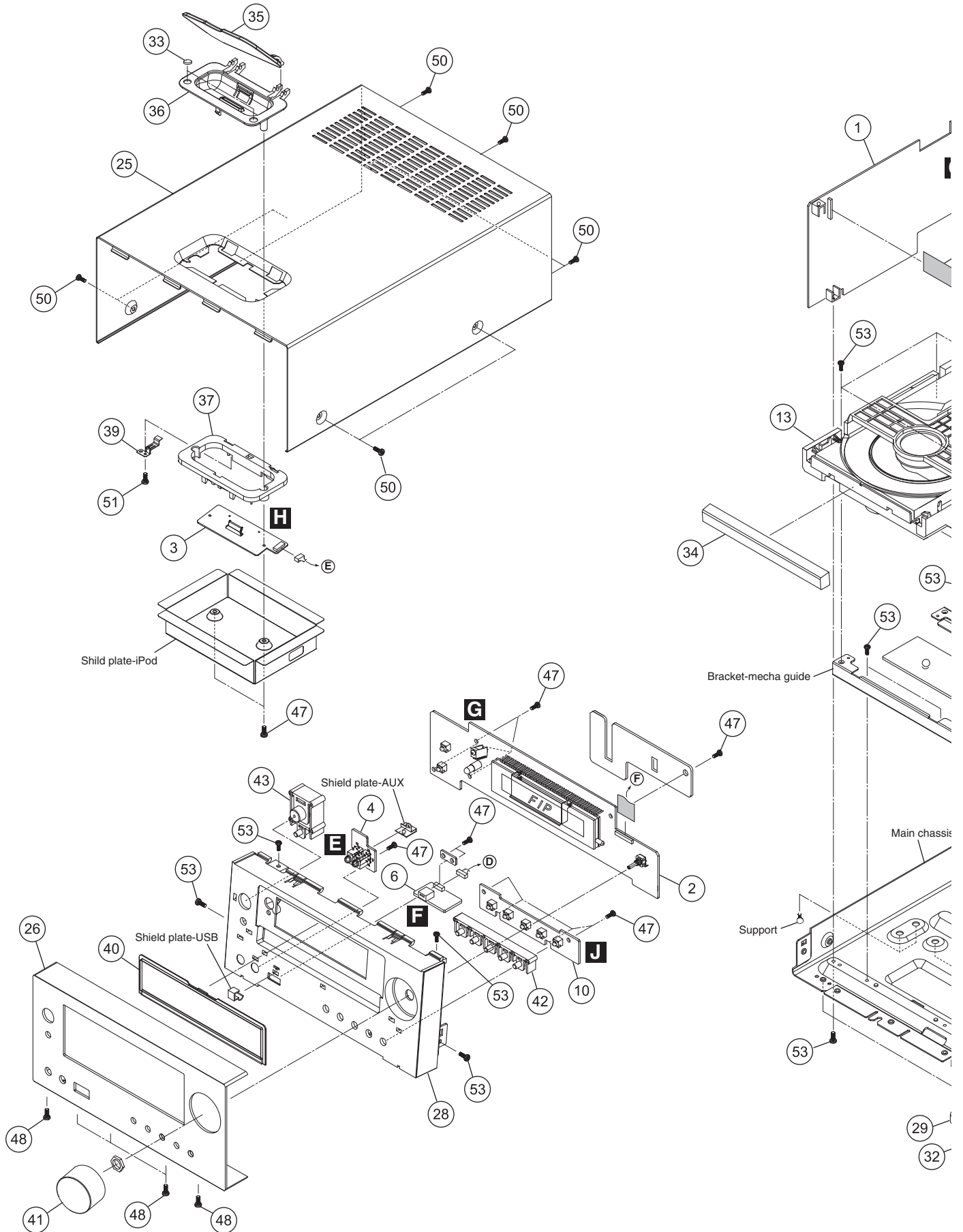
B

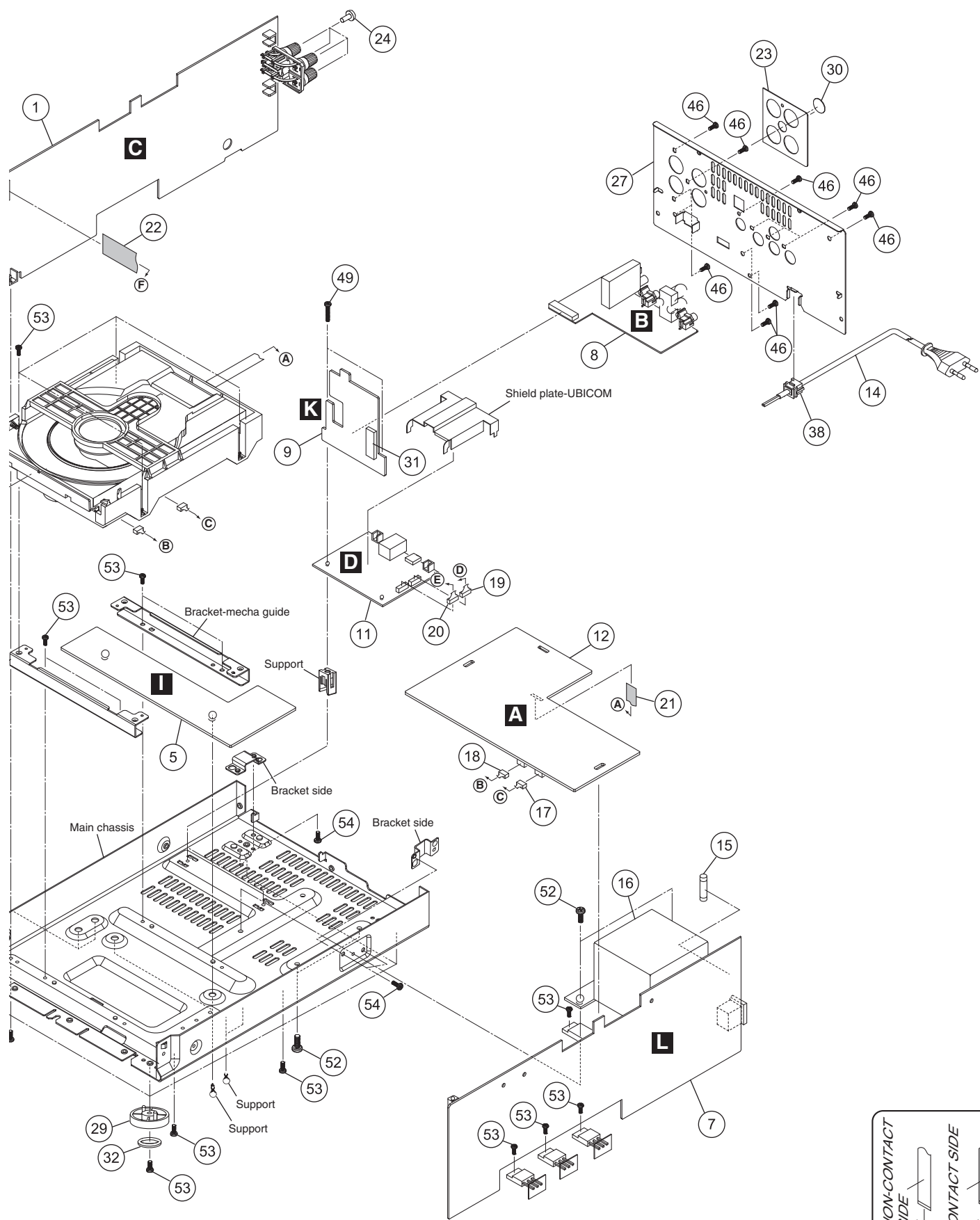
C

D

E

F





## (1) EXTERIOR SECTION PARTS LIST

| Mark No. | Description               | Part No.               | Mark No. | Description     | Part No.               |
|----------|---------------------------|------------------------|----------|-----------------|------------------------|
| A        | 1 MAIN PCB Assy           | 7028070931010-IL       | 31       | Cushion         | 4050213305000-IL       |
|          | 2 FRONT PCB Assy          | 7028070932010-IL       | 32       | Cushion Foot    | 4050213645000-IL       |
|          | 3 DOCK PCB Assy           | 7028070933010-IL       | 33       | Cushion iPod    | See Contrast table (2) |
|          | 4 F.AUX PCB Assy          | 7028070934010-IL       | 34       | Cover Tray CD   | See Contrast table (2) |
|          | 5 CNT1 PCB Assy           | 7028070935010-IL       | 35       | Cover iPod      | See Contrast table (2) |
|          | 6 F.USB PCB Assy          | 7028070936010-IL       | 36       | Holder          | See Contrast table (2) |
|          | 7 POWER PCB Assy          | 7028070941010-IL       | 37       | Guide           | 4350210471000-IL       |
|          | 8 TUNER PCB Assy          | 7028070942010-IL       | 38       | Stopper         | 4380040162010-IL       |
|          | 9 CNT2 PCB Assy           | 7028070944010-IL       | 39       | Plate           | 4470212226000-IL       |
|          | 10 5KEY PCB Assy          | 7028070946010-IL       | 40       | Window          | 5077213193000-IL       |
| B        | 11 UBICOM PCB Assy        | 7028070951010-IL       | 41       | Knob Assy       | See Contrast table (2) |
|          | 12 CD PCB Assy            | 7028070921010-IL       | 42       | Button 5 Key    | See Contrast table (2) |
|          | 13 MECHA                  | 8030000010070-IL       | 43       | Button Standby  | See Contrast table (2) |
|          | ⚠ 14 AC Cord              | L068250250040-IL       | 44       | •••••           |                        |
|          | ⚠ 15 Fuse Glass Tube 20mm | N751502001160-IL       | 45       | •••••           |                        |
|          | ⚠ 16 Power Trans. (T301)  | 8200660550472-IL       | 46       | Screw           | BBT30P100FTB           |
|          | 17 CN, Wire 2mm           | L002171050060-IL       | 47       | Screw           | B020030081B10-IL       |
|          | 18 CN, Wire 2mm           | L002171060080-IL       | 48       | Screw, Tap Tite | See Contrast table (2) |
|          | 19 CN, Wire 2mm           | L002401060080-IL       | 49       | Screw           | B020030171B10-IL       |
|          | 20 CN, Wire 2mm           | L002401070050-IL       | 50       | Screw, Tap Tite | See Contrast table (2) |
| C        | 21 Cable Flat Card 1.0    | N711161842410-IL       | 51       | Screw, Tap Tite | B020920051B10-IL       |
|          | 22 Cable Flat Card 1.25   | N712152013480-IL       | 52       | Screw           | B028940101B11-IL       |
|          | 23 Sheet Speaker          | 1210211573000-IL       | 53       | Screw, Tap Tite | B020230083B10-IL       |
|          | 24 Bushing (PLS)          | 2410040353010-IL       | NSP 54   | Screw           | B020030051B10-IL       |
|          | 25 Cabinet                | See Contrast table (2) |          |                 |                        |
|          | 26 Panel                  | See Contrast table (2) |          |                 |                        |
|          | 27 Back Chassis           | See Contrast table (2) |          |                 |                        |
|          | 28 Frame                  | See Contrast table (2) |          |                 |                        |
|          | 29 Foot                   | 4000210671000-IL       |          |                 |                        |
|          | 30 Cushion                | 4050211745000-IL       |          |                 |                        |

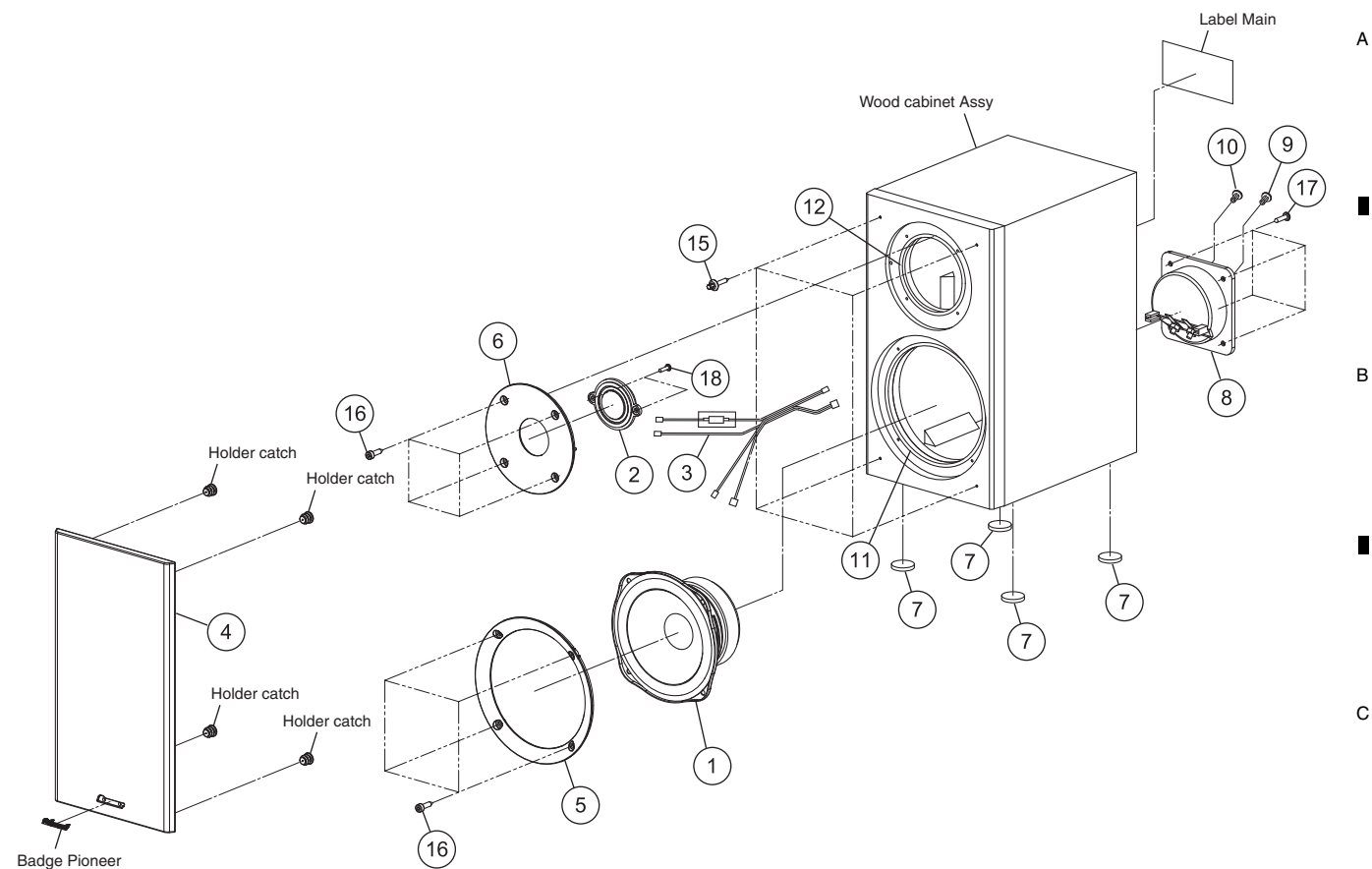
## (2) CONTRAST TABLE

X-HM70-K/SYXCN8, X-HM70-S/SYXCN8, XC-HM70-K/SYXCN8 and XC-HM70-S/SYXCN8 are constructed the same except for the following:

| Mark | No. | Symbol and Description | X-HM70-K<br>/SYXCN8 | X-HM70-S<br>/SYXCN8 | XC-HM70-K<br>/SYXCN8 | XC-HM70-S<br>/SYXCN8 |
|------|-----|------------------------|---------------------|---------------------|----------------------|----------------------|
| E    | 25  | Cabinet                | 3007211936000-IL    | 3007211936010-IL    | 3007211936000-IL     | 3007211936010-IL     |
|      | 26  | Panel                  | 3067215308000-IL    | 3067215308010-IL    | 3067215308000-IL     | 3067215308010-IL     |
|      | 27  | Back Chassis           | 3207214026000-IL    | 3207214026010-IL    | 3207214026000-IL     | 3207214026010-IL     |
|      | 28  | Frame                  | 3217212171000-IL    | 3217212171100-IL    | 3217212171000-IL     | 3217212171100-IL     |
|      | 33  | Cushion iPod           | 4050213655000-IL    | 4050213655100-IL    | 4050213655000-IL     | 4050213655100-IL     |
|      | 34  | Cover Tray CD          | 4310215421000-IL    | 4317215421100-IL    | 4310215421000-IL     | 4317215421100-IL     |
|      | 35  | Cover iPod             | 4317215431000-IL    | 4317215431100-IL    | 4317215431000-IL     | 4317215431100-IL     |
|      | 36  | Holder                 | 4327211111000-IL    | 4327211111100-IL    | 4327211111000-IL     | 4327211111100-IL     |
|      | 41  | Knob Assy              | 5088212518000-IL    | 5088212518100-IL    | 5088212518000-IL     | 5088212518100-IL     |
|      | 42  | Button 5 Key           | 5090214731000-IL    | 5090214731100-IL    | 5090214731000-IL     | 5090214731100-IL     |
| F    | 43  | Button Standby         | 5090214741000-IL    | 5090214741100-IL    | 5090214741000-IL     | 5090214741100-IL     |
|      | 48  | Screw, Tap Tite        | B020030083F10-IL    | B020030084F10-IL    | B020030083F10-IL     | B020030084F10-IL     |
|      | 50  | Screw, Tap Tite        | B020230083B10-IL    | BBZ30P080FNI        | B020230083B10-IL     | BBZ30P080FNI         |

5 6 7 8

### 9.3 SPEAKER SECTION (X-HM70 ONLY)



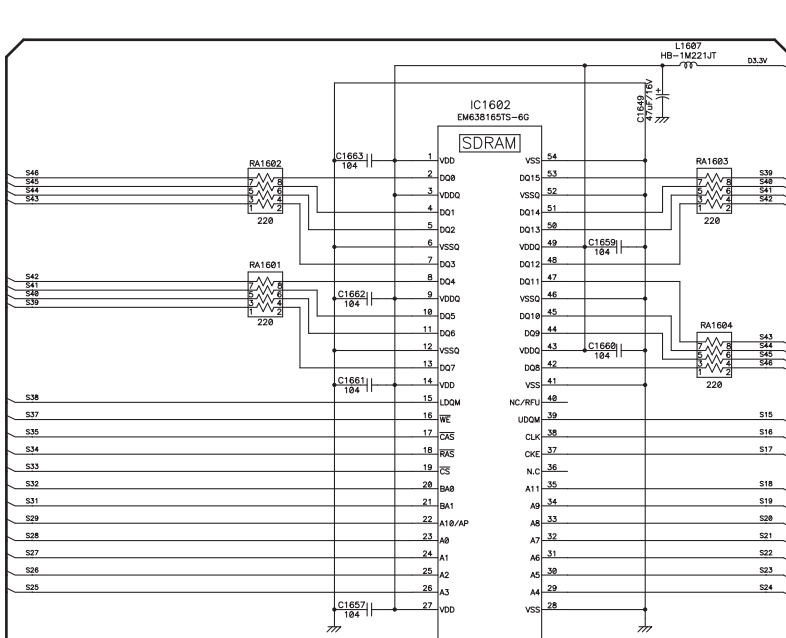
#### SPEAKER SECTION PARTS LIST

| <u>Mark No.</u> | <u>Description</u> | <u>Part No.</u>  |
|-----------------|--------------------|------------------|
| 1               | Unit Woofer        | 8952SHM700032-IL |
| 2               | Tweeter            | 8952SHM700033-IL |
| 3               | Network Assy       | 8952SHM700036-IL |
| 4               | Frame Net Assy     | 8952SHM700019-IL |
| 5               | Deco Unit          | 8952SHM700024-IL |
| 6               | Deco Tweeter       | 8952SHM700025-IL |
| 7               | Foot Cushion       | 8952SHM700026-IL |
| 8               | Terminal SPK Assy  | 8952SHM700027-IL |
| 9               | Cap Terminal BK    | 8952SHM700028-IL |
| 10              | Cap Terminal RED   | 8952SHM700029-IL |
| 11              | Felt EVA           | 8952SHM700034-IL |
| 12              | Damper EVA         | 8952SHM700035-IL |
| 13              | •••••              |                  |
| 14              | •••••              |                  |
| 15              | Screw Special      | 8952SHM700037-IL |
| 16              | Screw Wrench       | 8952SHM700038-IL |
| 17              | Screw              | BYC35P160FTB     |
| 18              | Screw, Tap Tite    | B020230083B10-IL |

# 10. SCHEMATIC DIAGRAM

## 10.1 CD PCB ASSY (1/2)

A



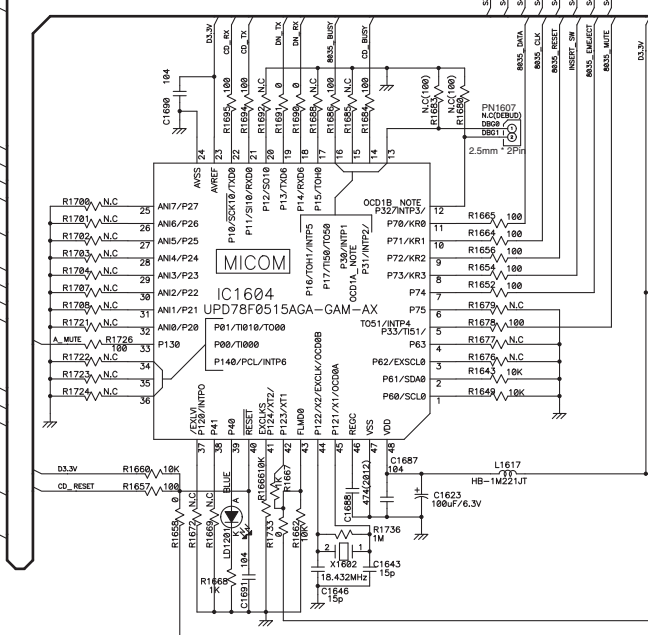
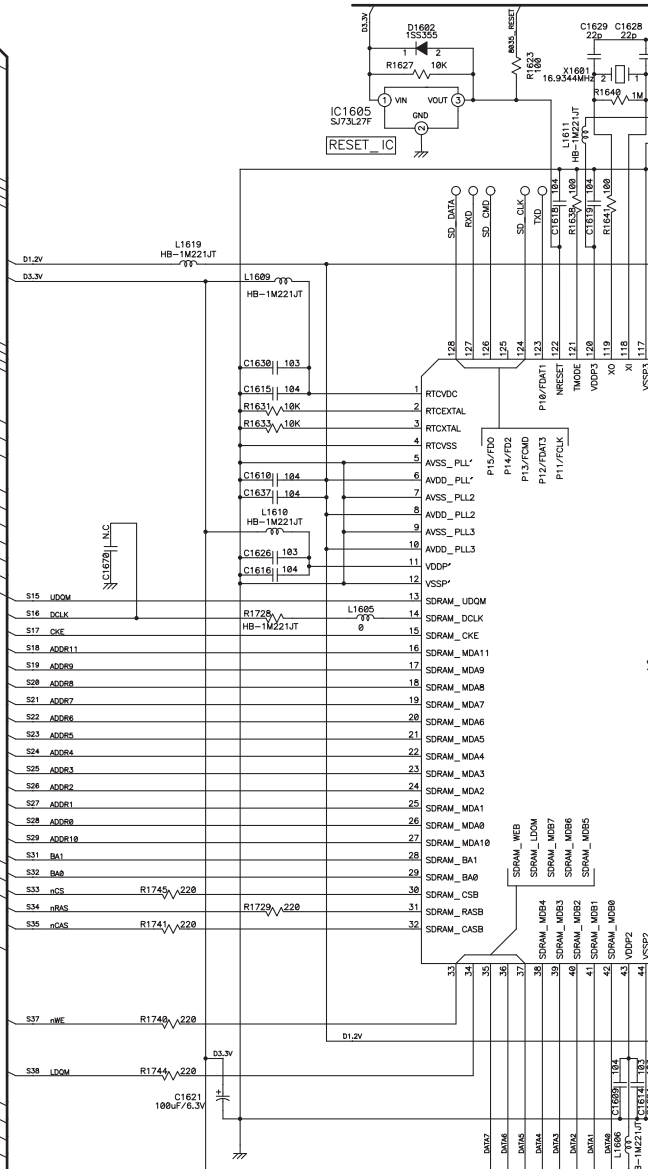
B

C

D

E

F



(CD)  : Audio Signal Route (CD Lch)

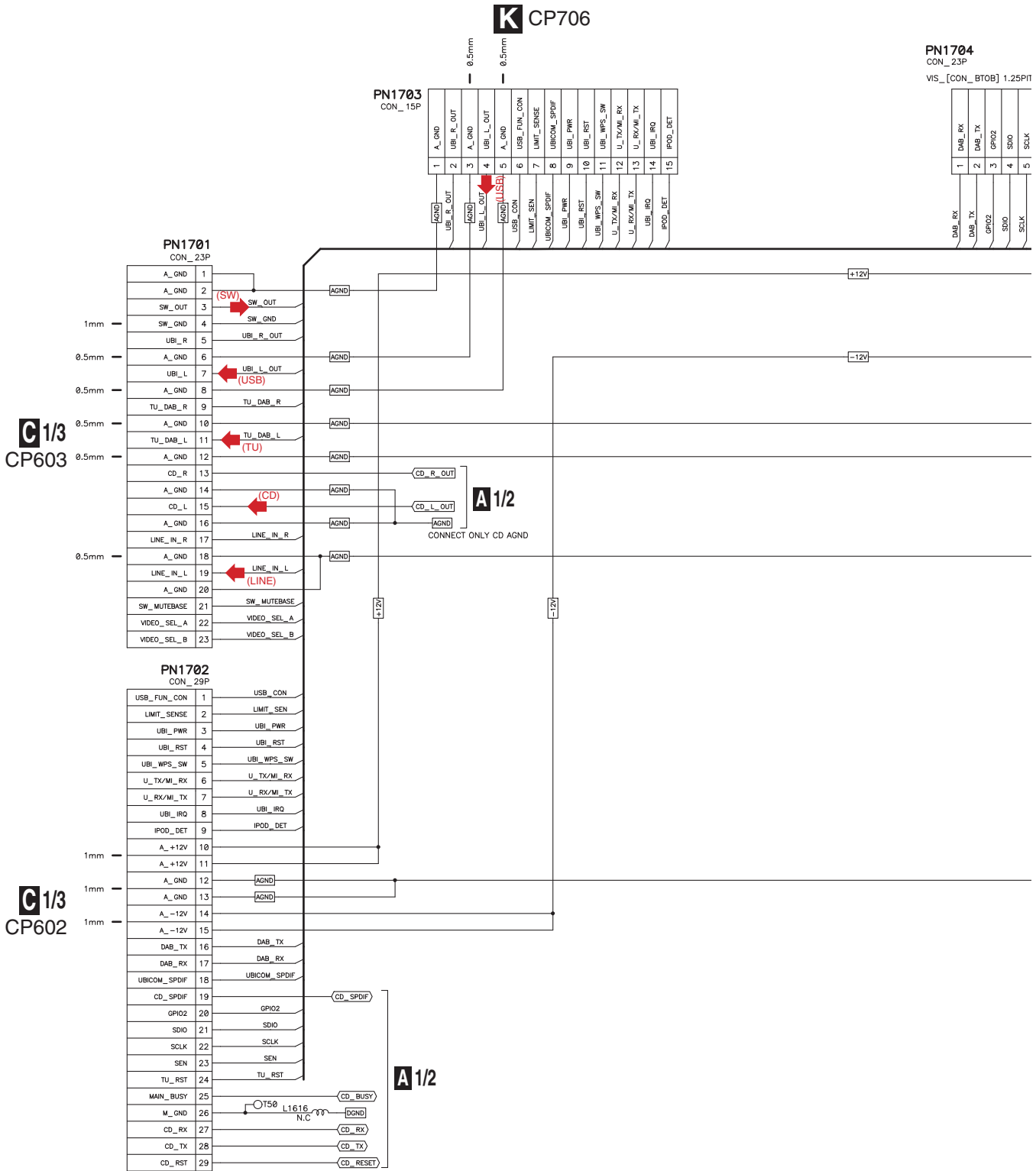


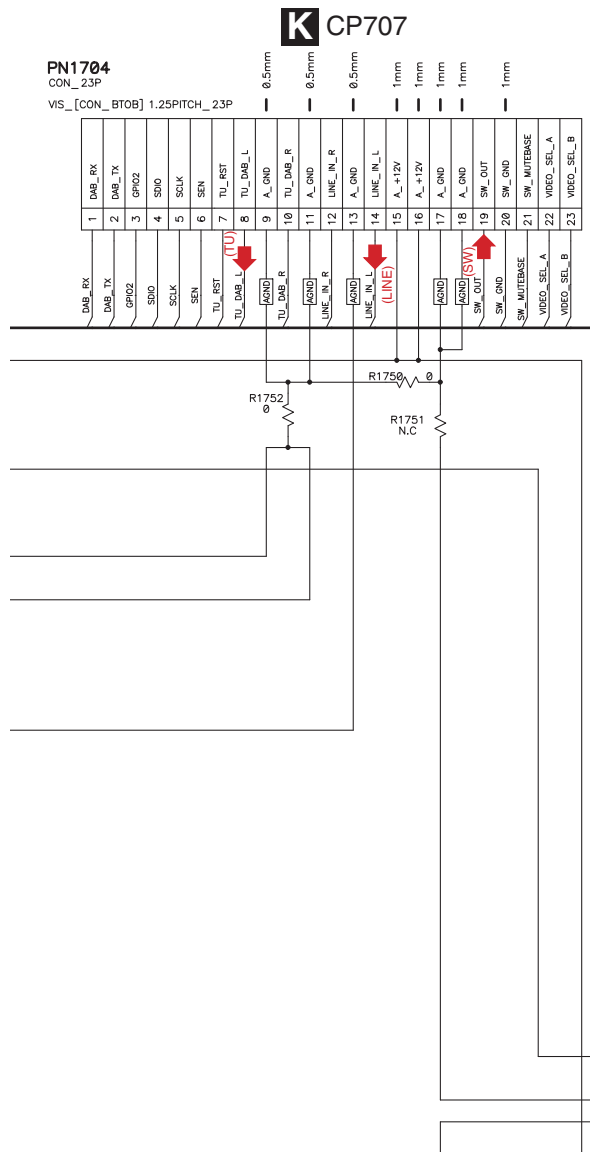
MECHA  
(SPINDLE/  
SLED)

MECHA  
(TRAY)

10.2 CD PCB ASSY (2/2)

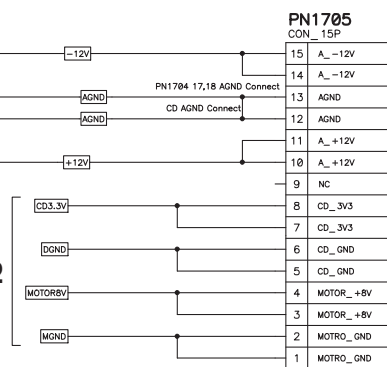
A2/2 CD PCB ASSY (7028070921010-IL)





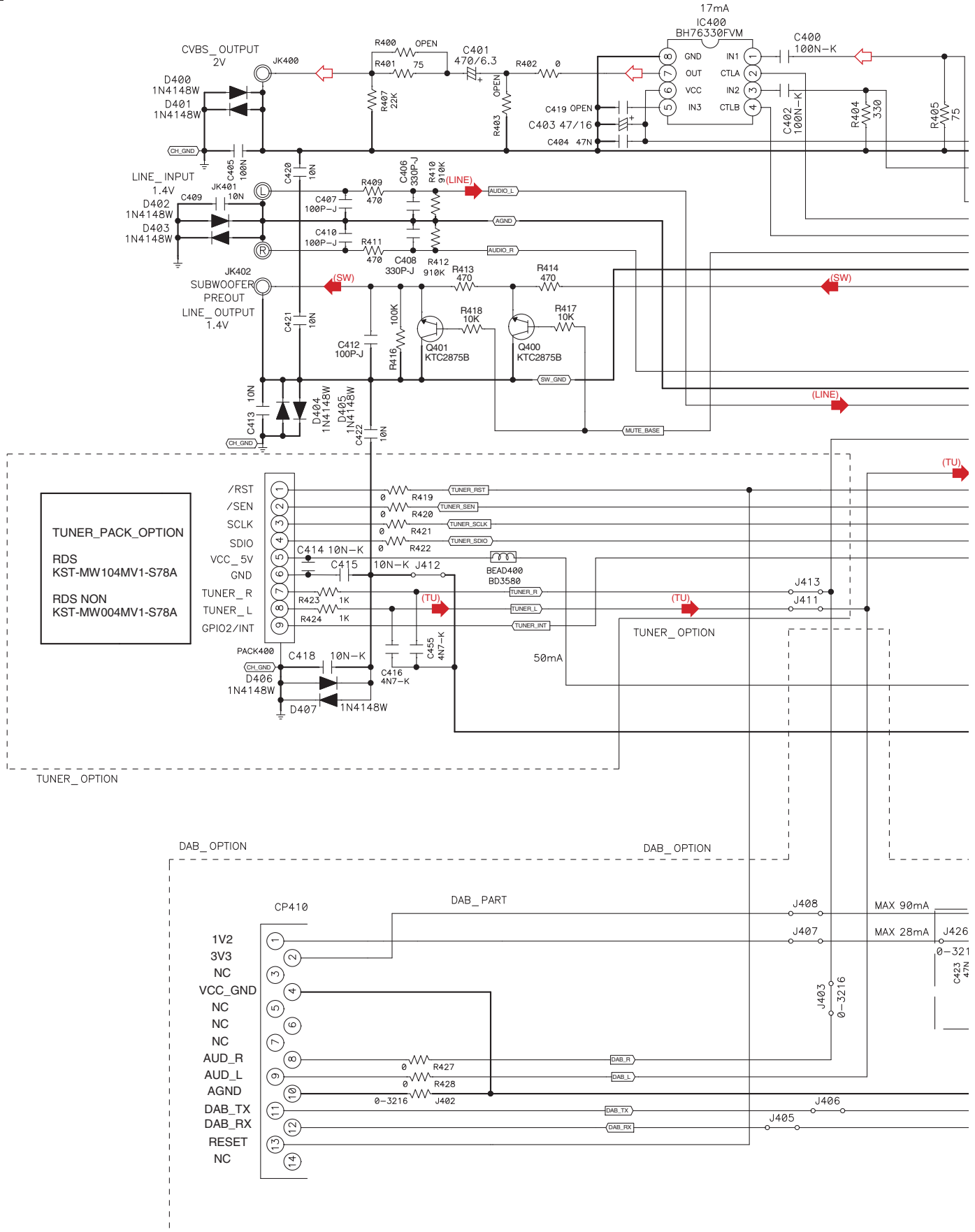
- (CD) : Audio Signal Route (CD Lch)
- (TU) : Audio Signal Route (TUNER L ch)
- (LINE) : Audio Signal Route (LINE IN L ch)
- (USB) : Audio Signal Route (USB L ch)
- (SW) : Audio Signal Route (SubWoofer ch)

A1/2



## 10.3 TUNER PCB ASSY

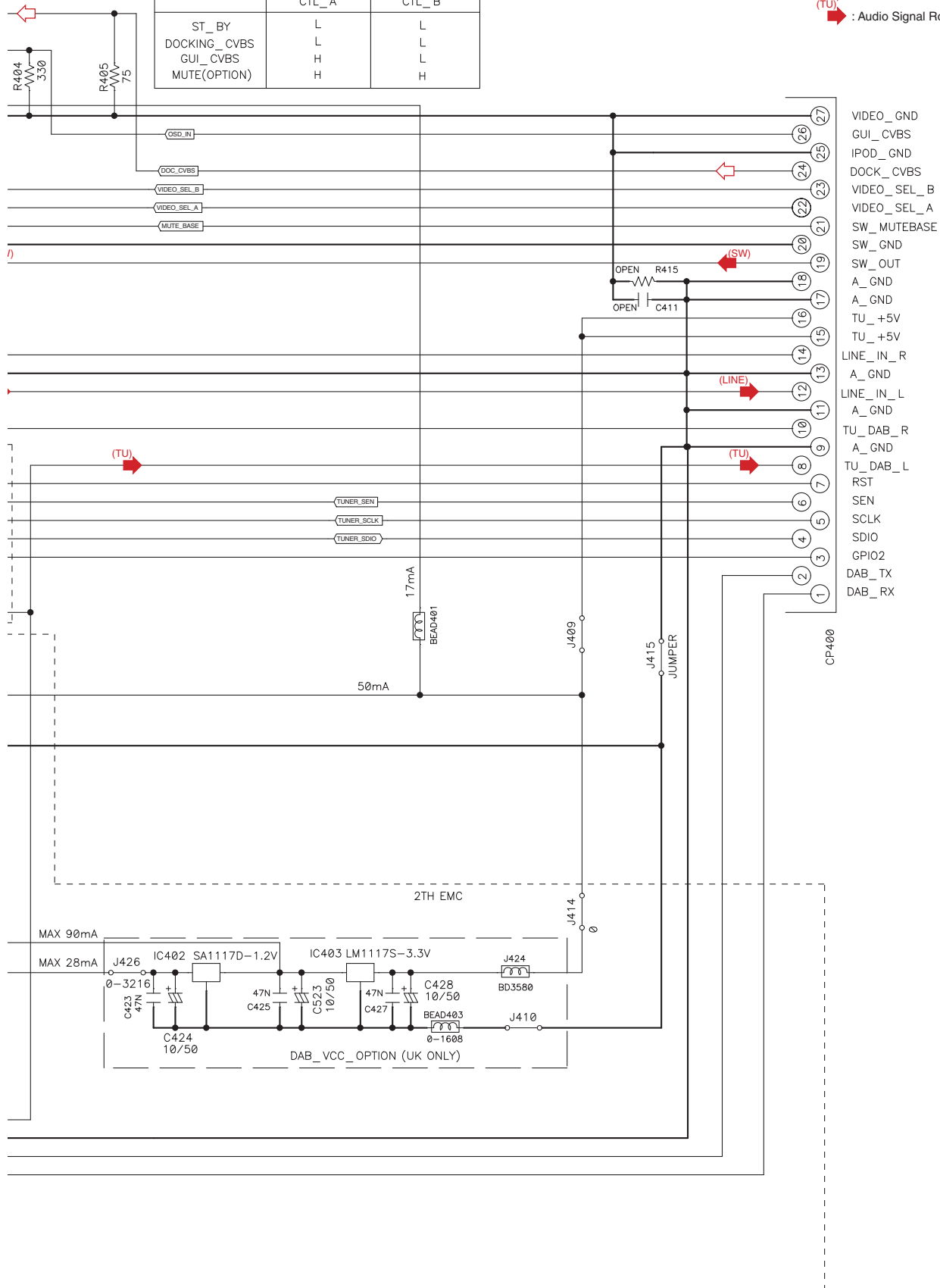
### B TUNER PCB ASSY (7028070942010-IL)



\*BH76330FVM VIDEO SWITCH TRUTH TABLE

|              | CTL_A | CTL_B |
|--------------|-------|-------|
| ST_BY        | L     | L     |
| DOCKING_CVBS | L     | L     |
| GUI_CVBS     | H     | L     |
| MUTE(OPTION) | H     | H     |

-  : Video Signal Route  
 : Audio Signal Route (SubWoofer ch)  
 : Audio Signal Route (LINE IN L ch)  
 : Audio Signal Route (TUNER L ch)



K CP708

## 4

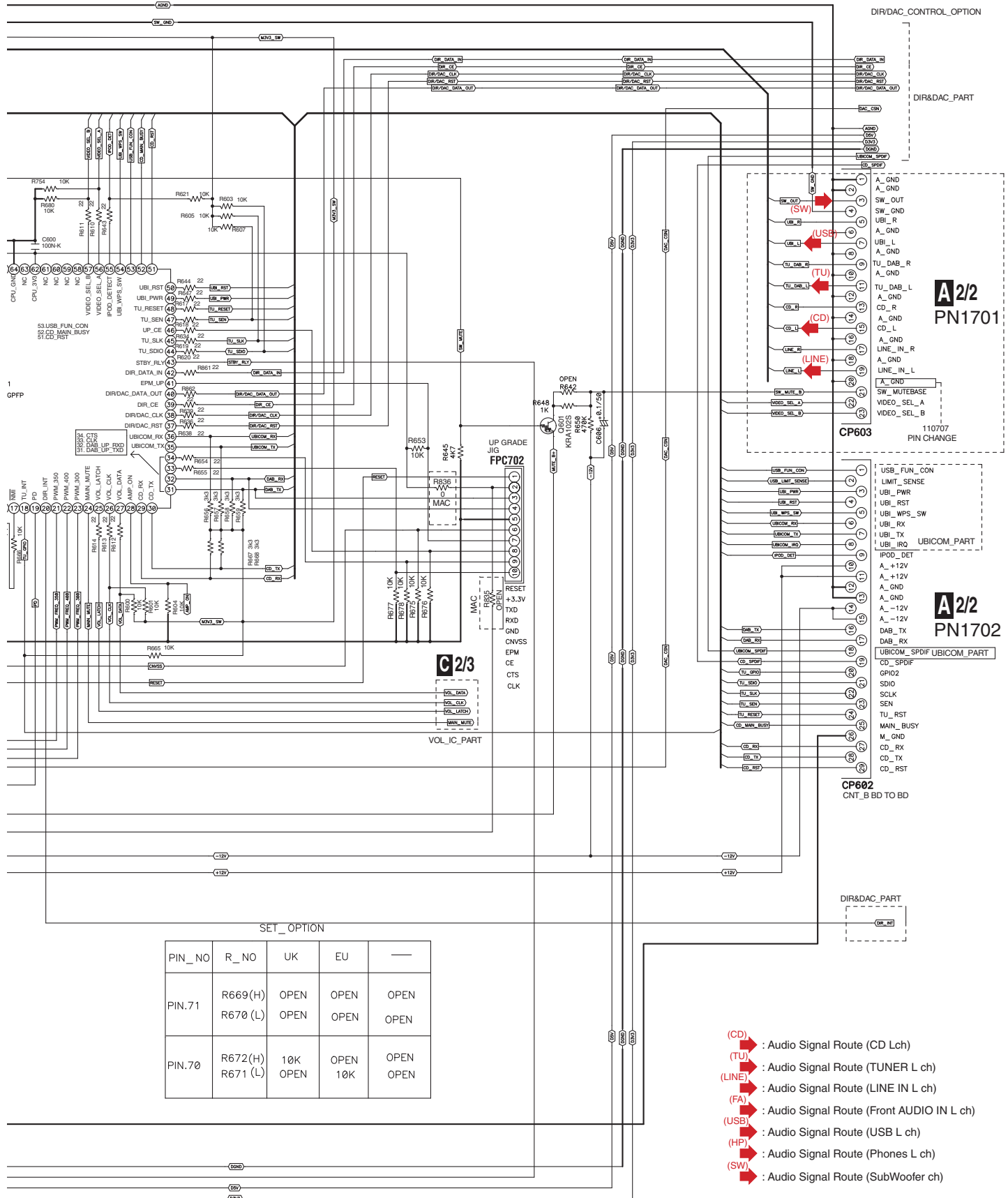
F



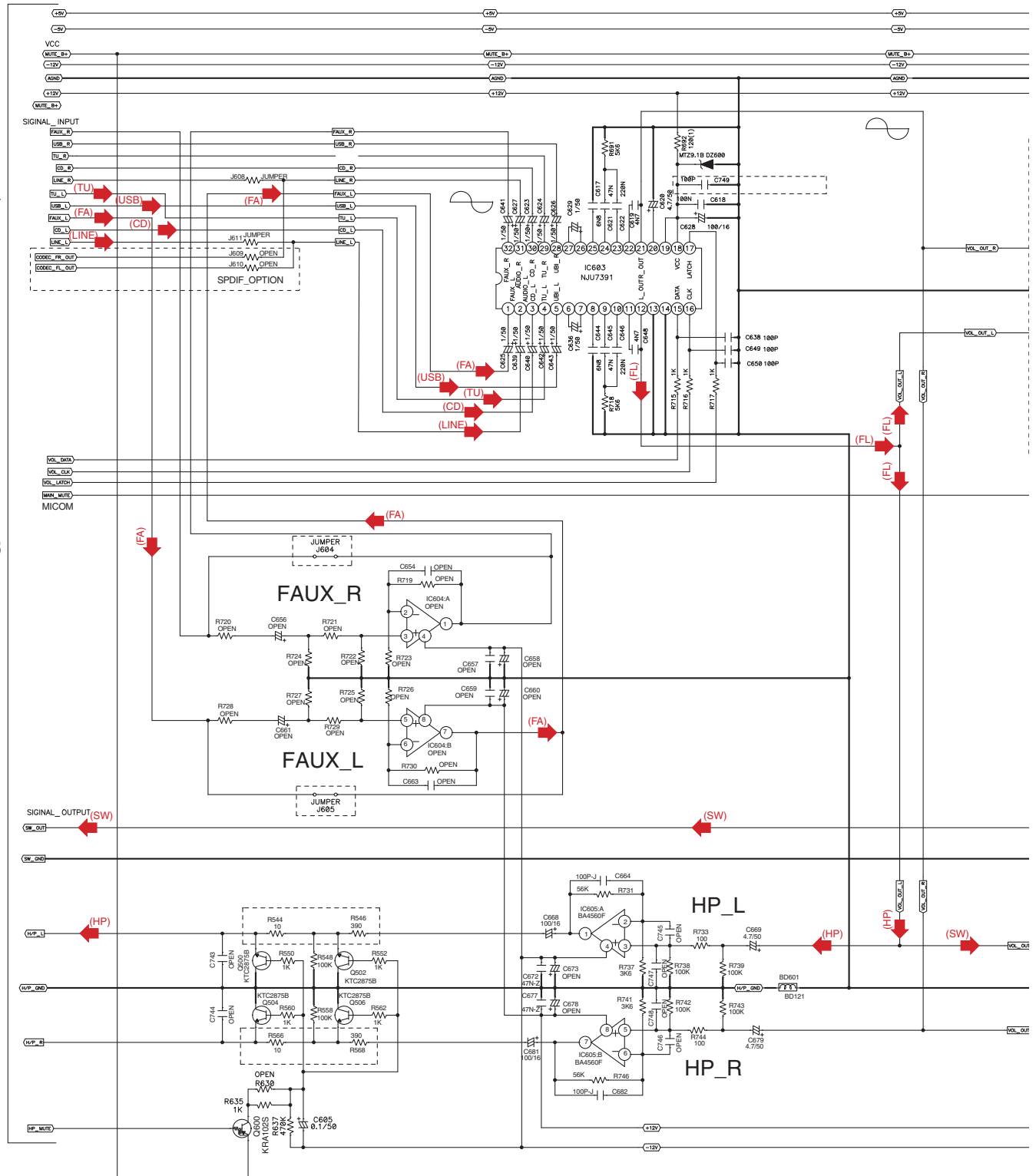
△

# C1/3 MAIN PCB ASSY (7028070931010-IL)

## • MAIN\_MICOM BLOCK



# 10.5 MAIN PCB ASSY (2/3)



*A*



AMP\_SHEET

C 3/3

C

D

E

F

## 4

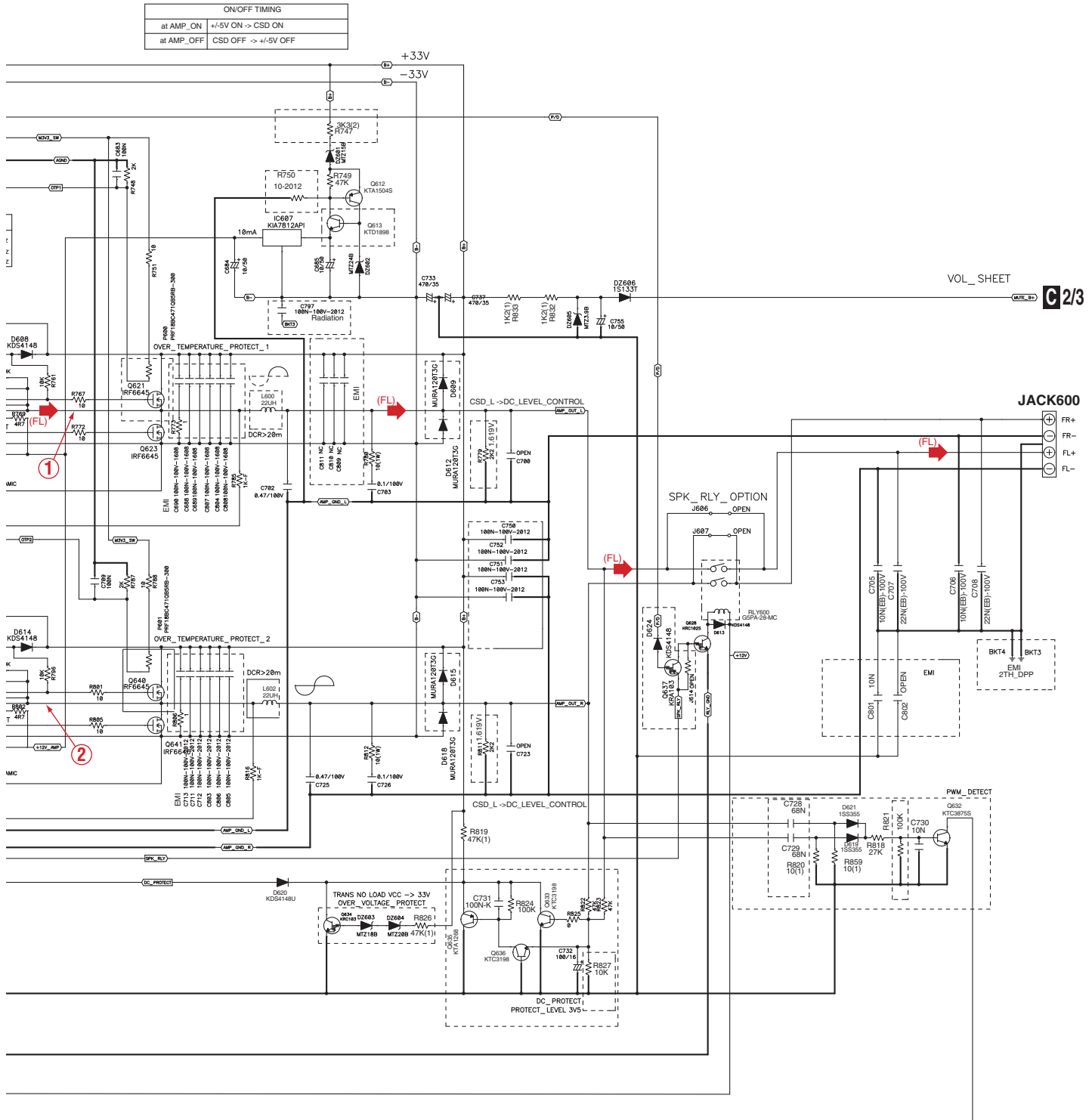
F



# C3/3 MAIN PCB ASSY (7028070931010-IL)

## • IR\_AMP BLOCK

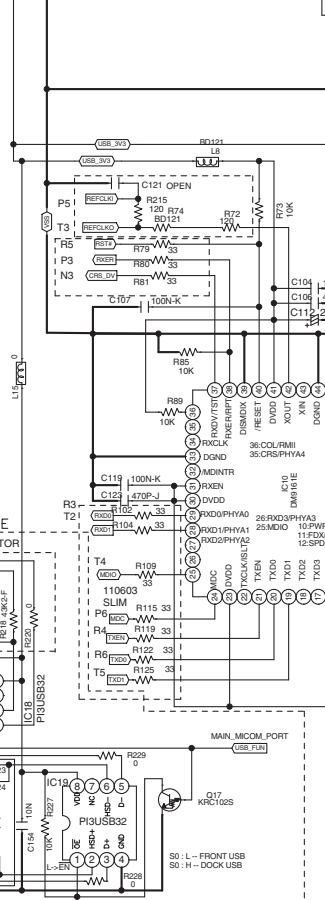
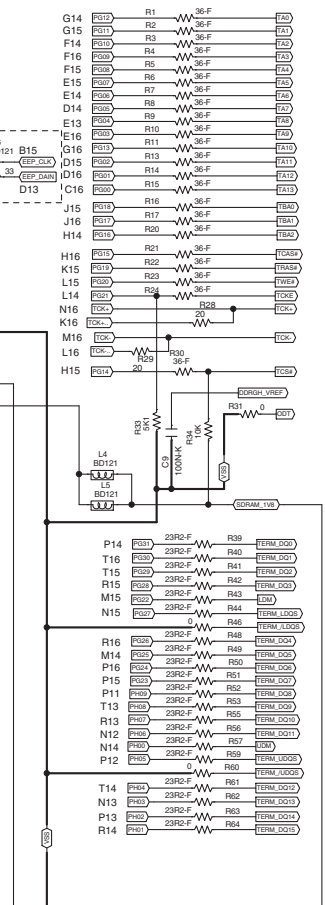
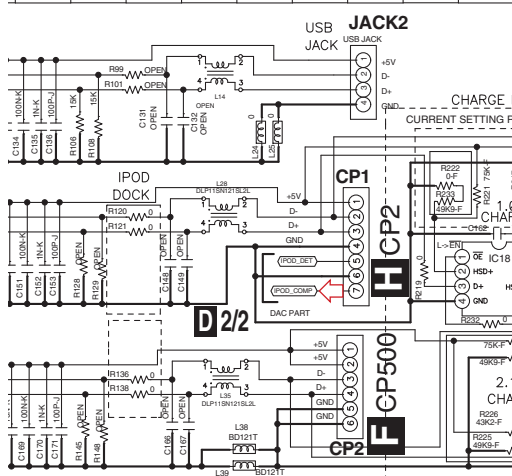
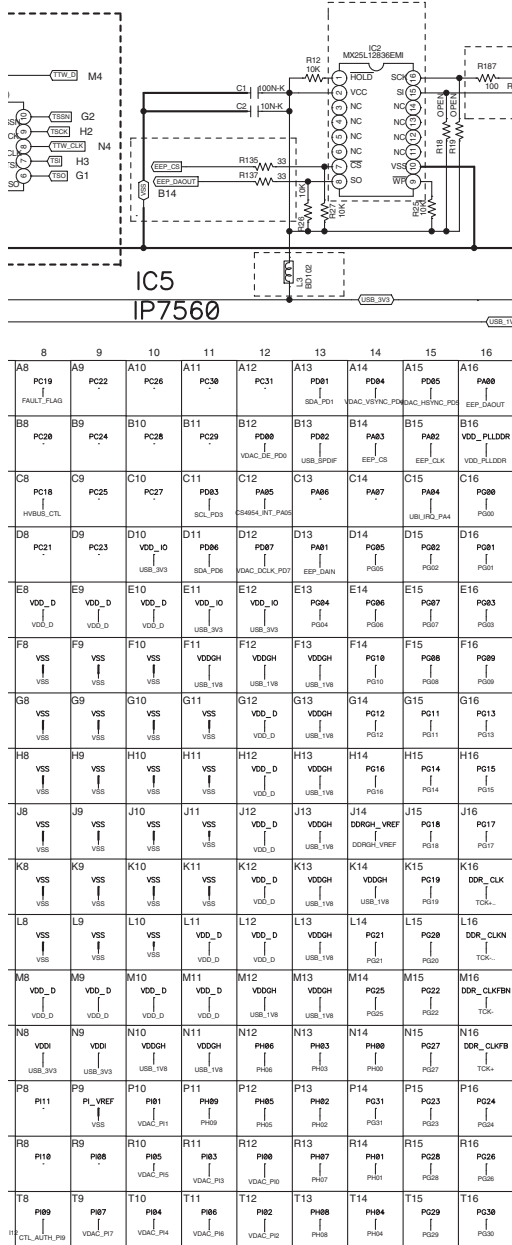
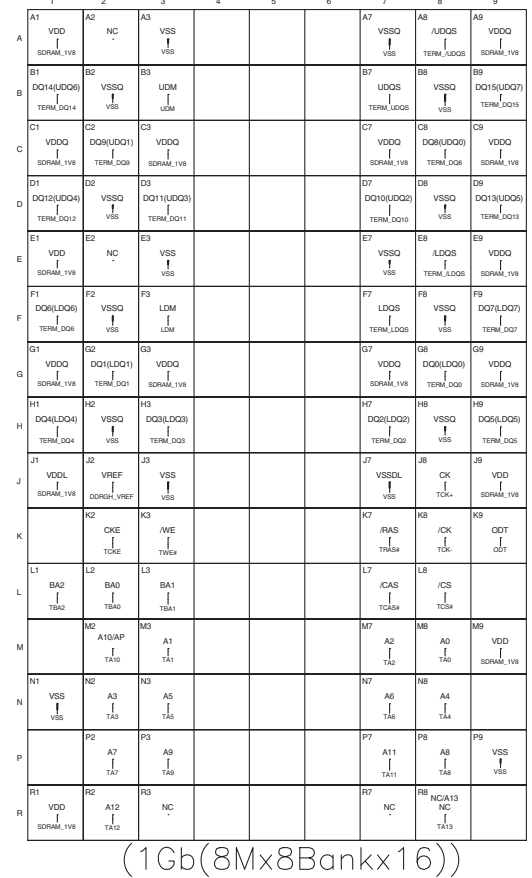
(FL) : Audio Signal Route (Front L ch)



- UBICOM USB BLOCK



# IC1 EM44CM1688LBA

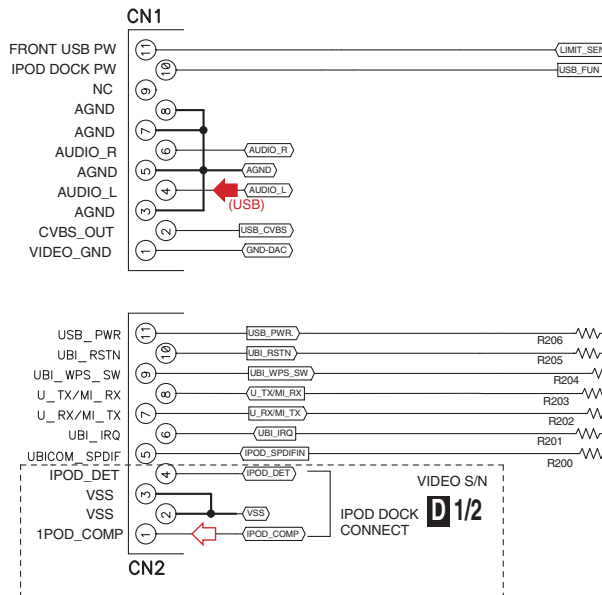
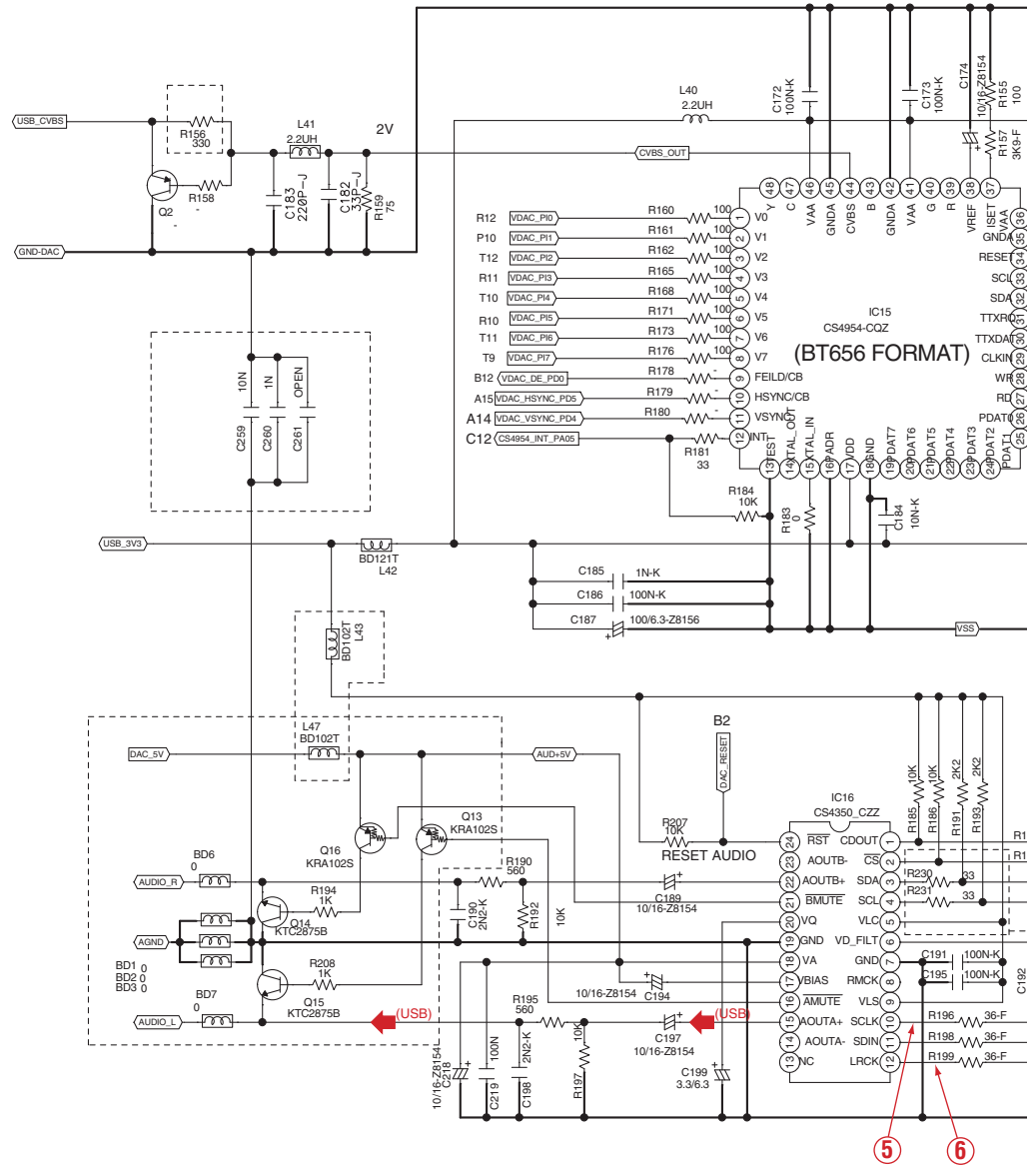


Video Signal Route  
(UD) USB Data Signal Route

# 10.8 UBICOM PCB ASSY (2/2)

## D 2/2 UBICOM PCB ASSY (7028070951010-IL)

• DAC BLOCK



K CP704

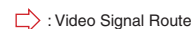
K CP705

D 1/2

TO USB PART

D 1/2

D 2/2

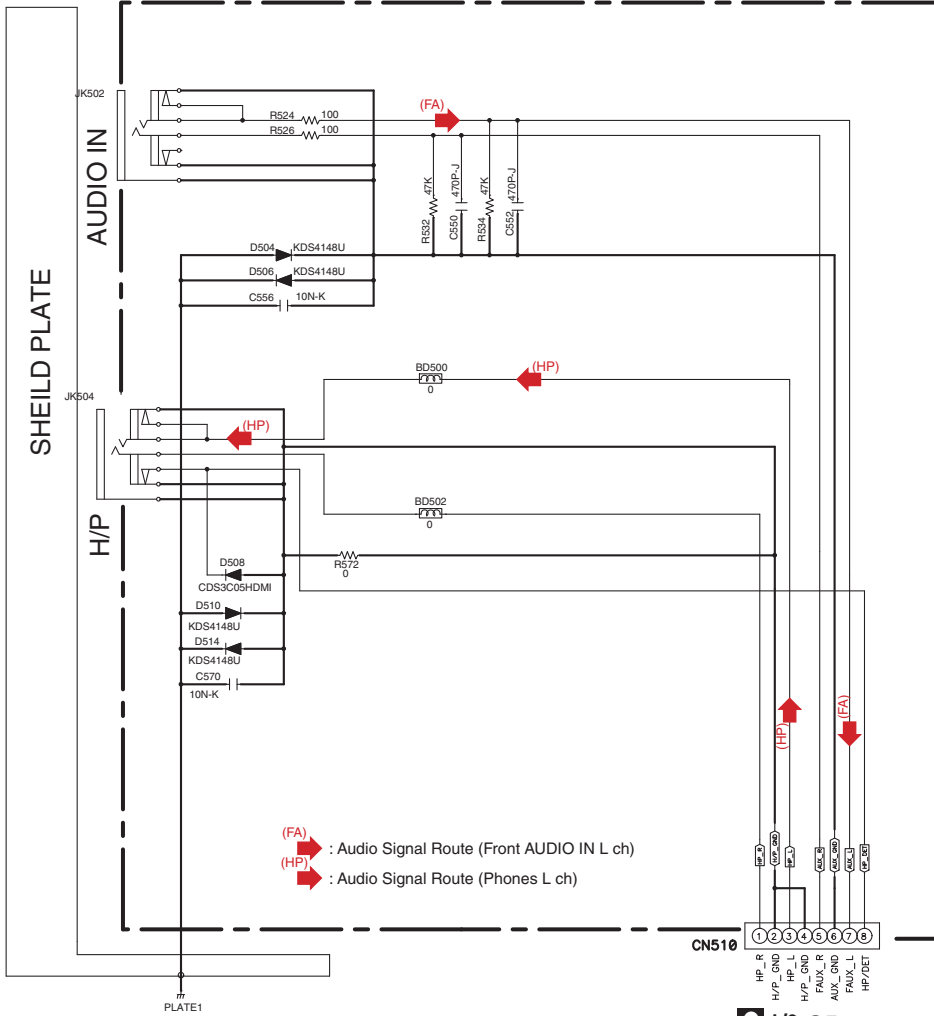


F

(UD) : USB Data Signal Route  
(USB) : Audio Signal Route (USB L ch)

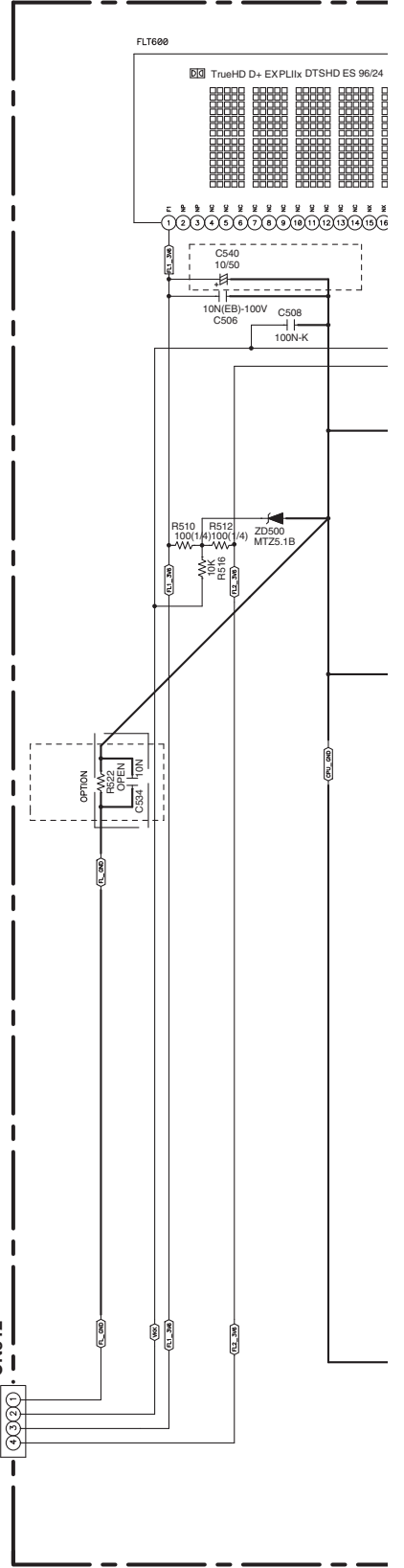
## 10.9 F.AUX, F.USB and FRONT PCB ASSYS

### E F.AUX PCB ASSY (7028070934010-IL)

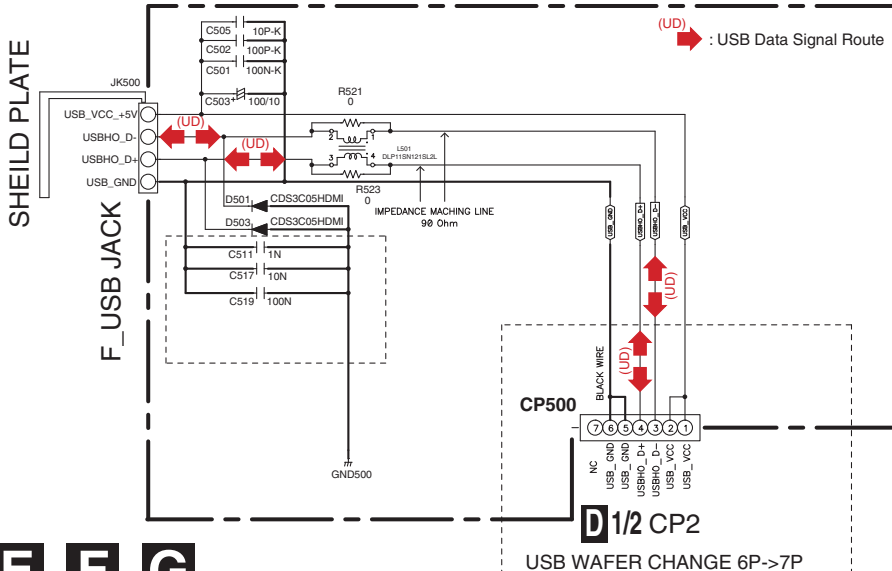


C 1/3 CP601

### G FRONT PCB ASSY (7028070936010-IL)



### F F.USB PCB ASSY (7028070936010-IL)



D 1/2 CP2

USB WAFER CHANGE 6P->7P

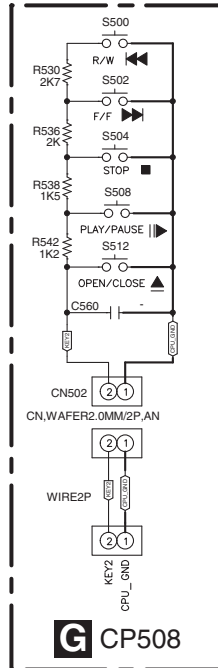
E F G

FRONT

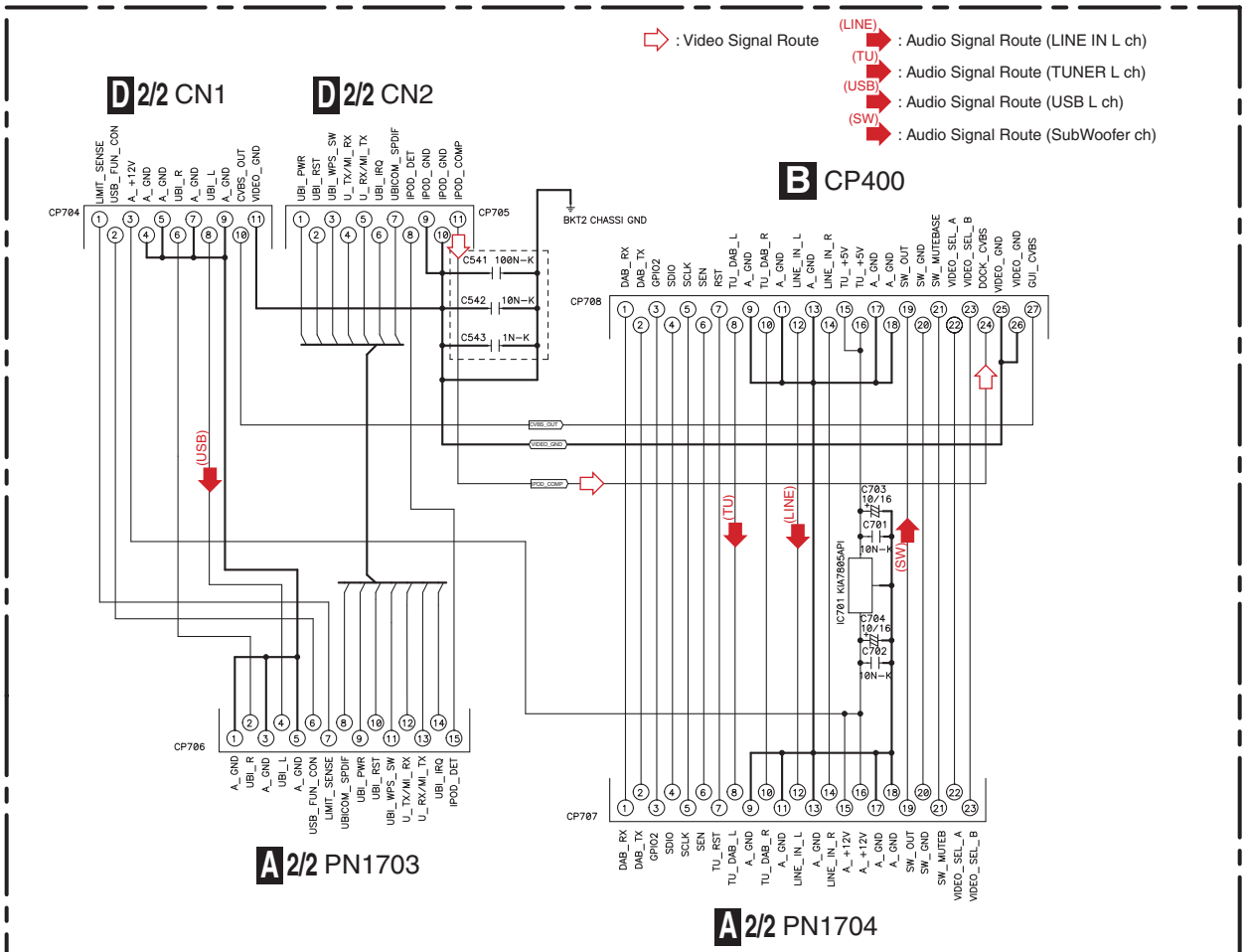




# J 5KEY PCB ASSY (7028070946010-IL)

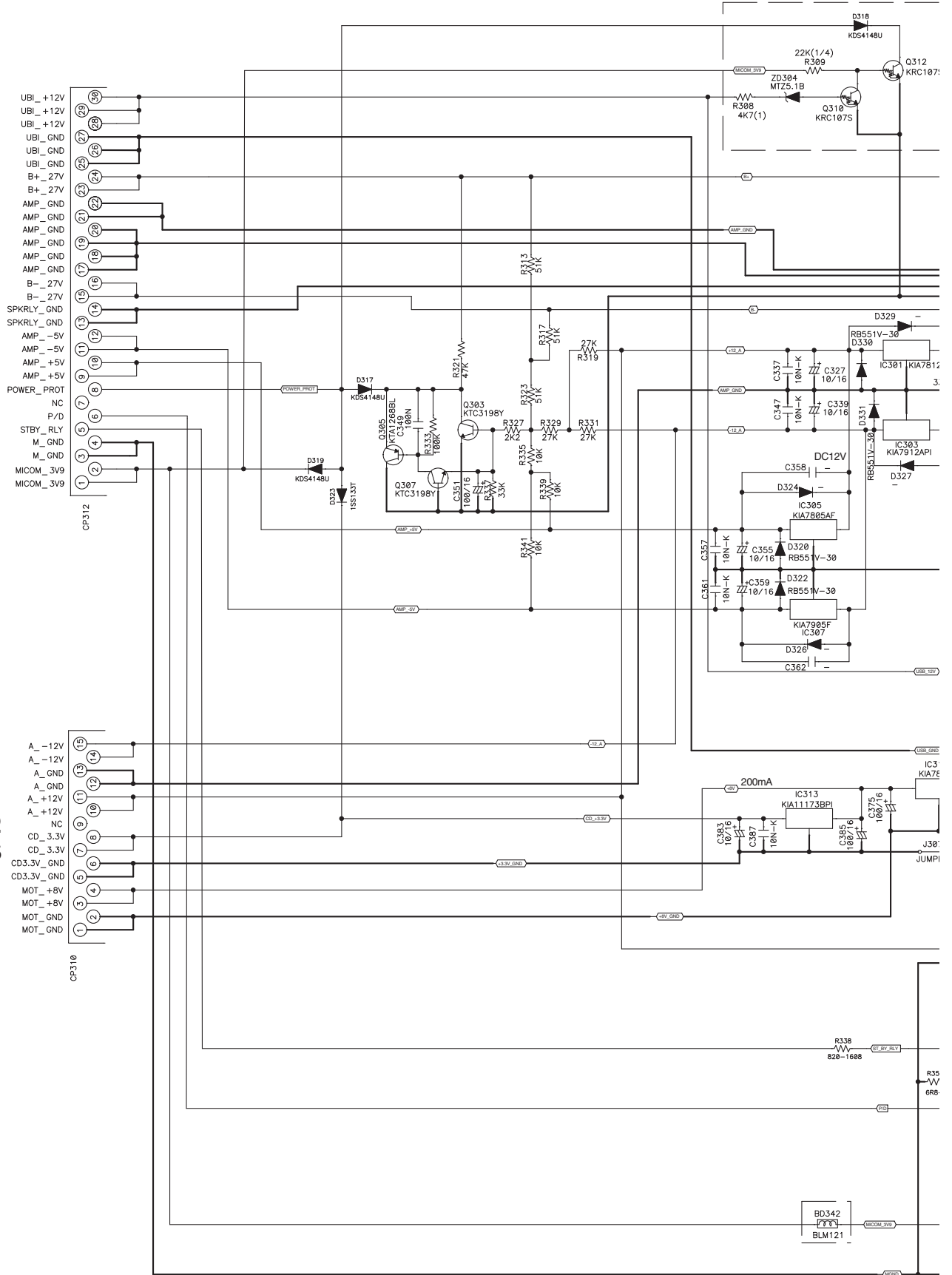


# K CNT2 PCB ASSY (7028070944010-IL)



# 10.11 POWER PCB ASSY

## POWER PCB ASSY (7028070941010-IL)



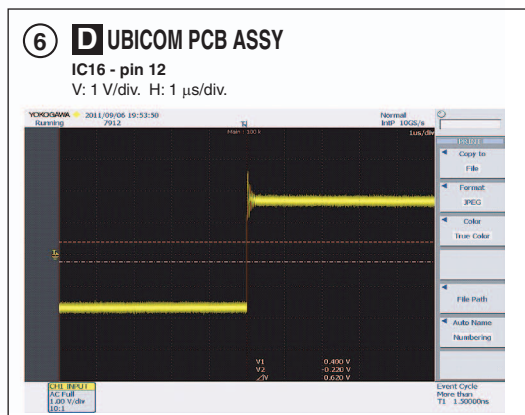
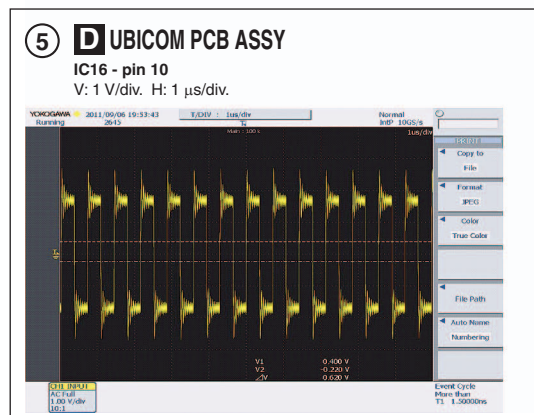
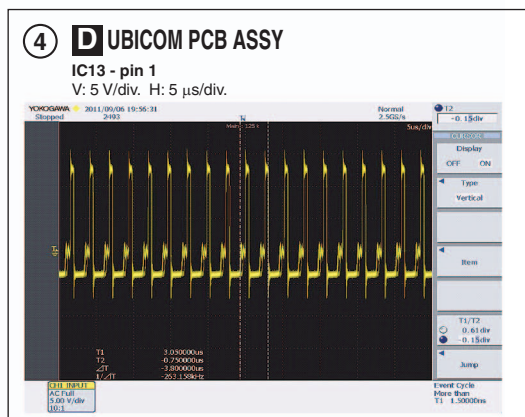
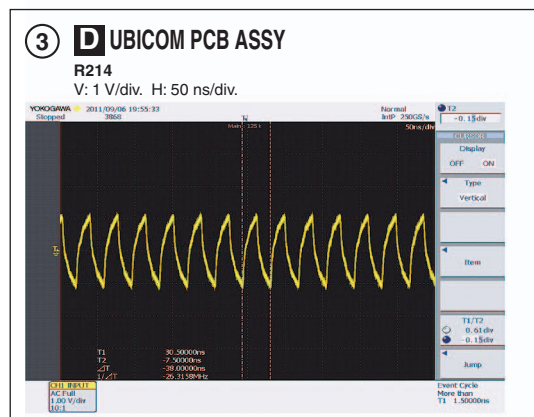
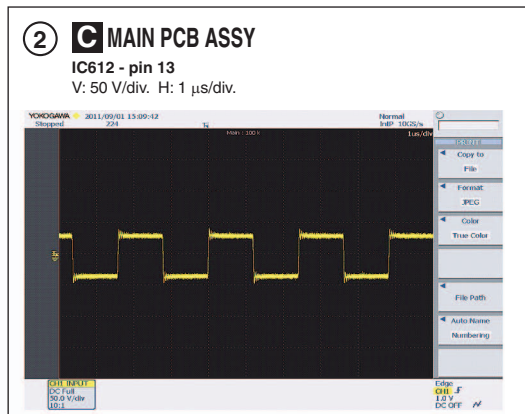
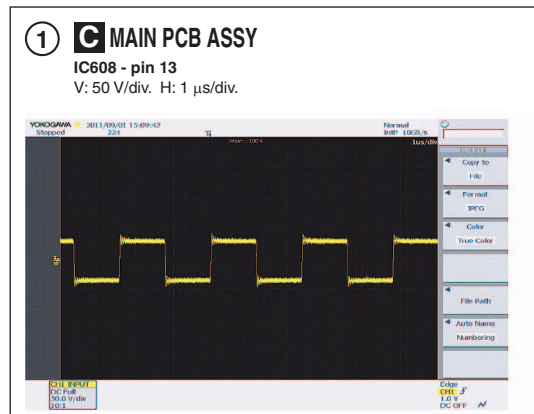
**CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE,  
REPLACE WITH SAME TYPE AND RATINGS OF FUSE.**



- 1] Since those parts marked with **are critical parts for safety**, use only the one described in the parts list
- 2] Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

## 10.12 WAVEFORMS

**NOTE:** The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

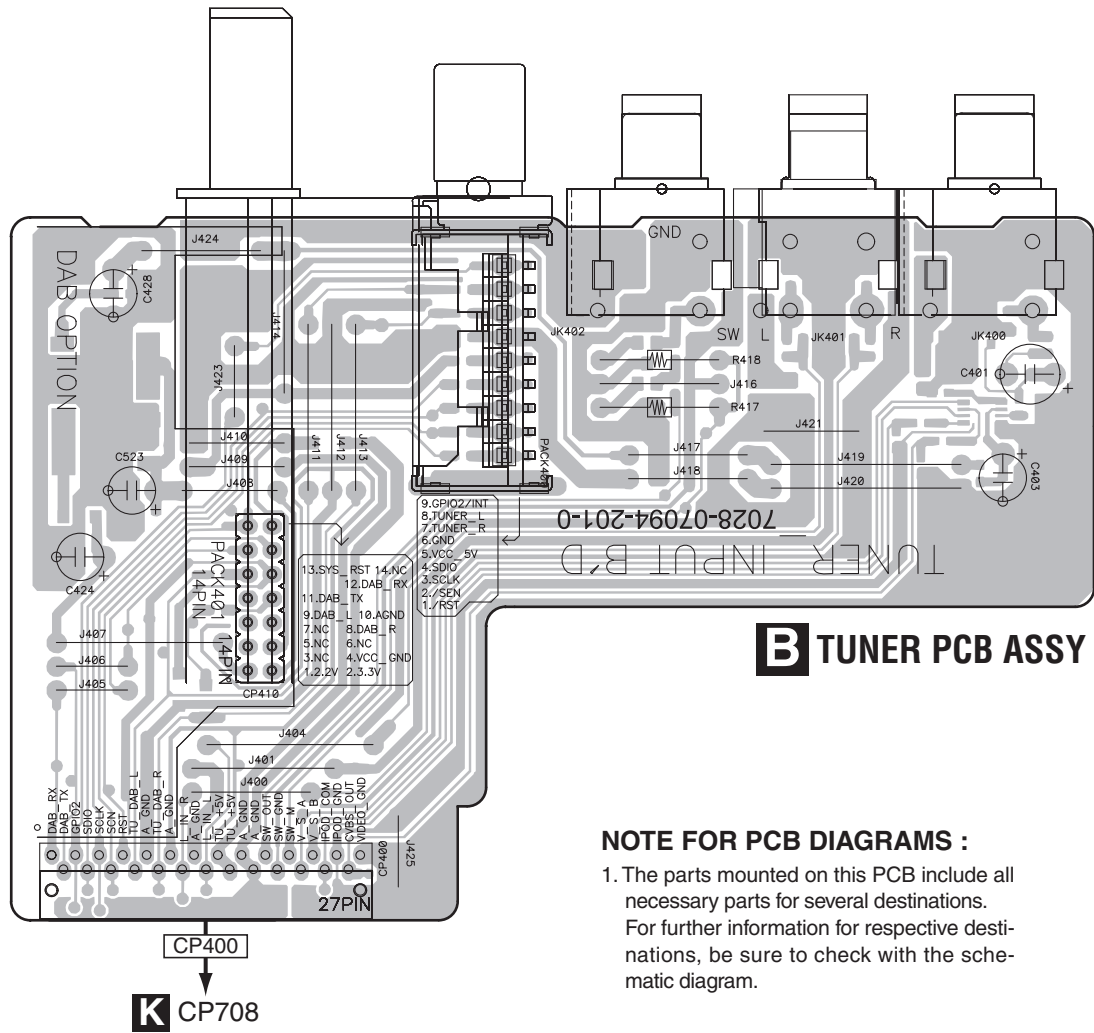


# 11. PCB CONNECTION DIAGRAM

## 11.1 TUNER PCB ASSY

**SIDE A**

**SIDE A**

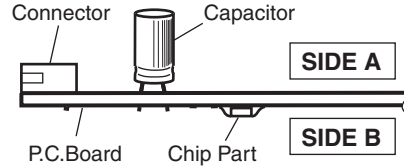


**B TUNER PCB ASSY**

### NOTE FOR PCB DIAGRAMS :

1. The parts mounted on this PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.
2. View point of PCB diagrams.

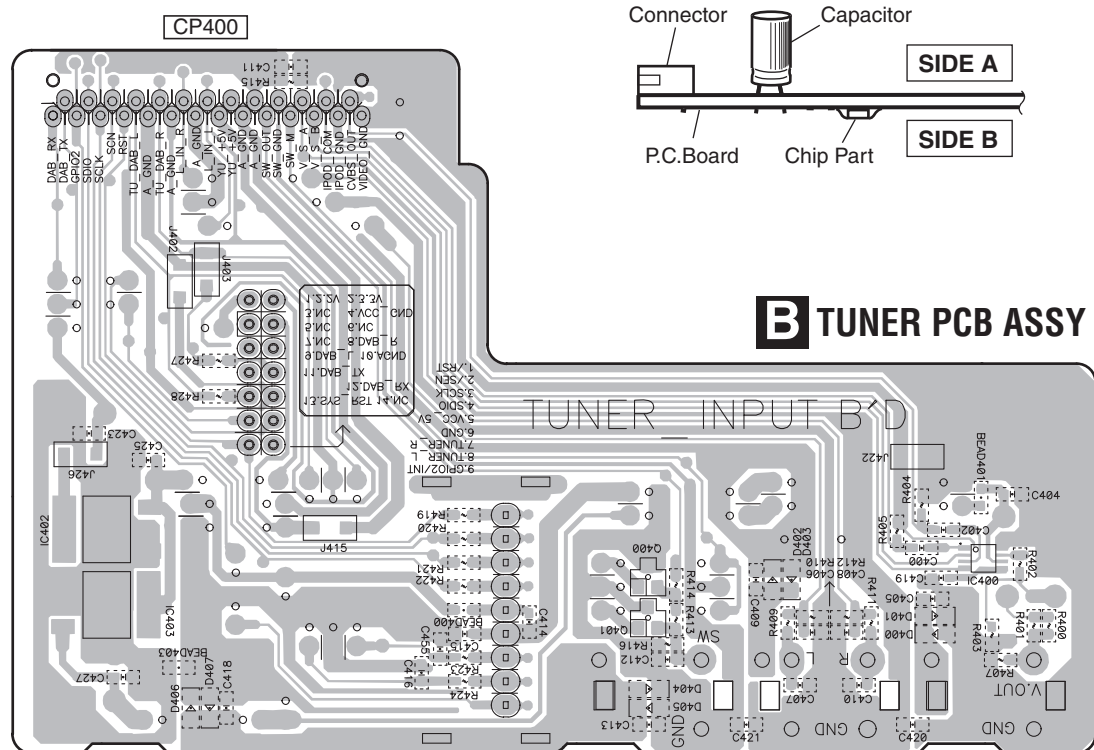
Connector Capacitor



**SIDE B**

**SIDE B**

IC402  
IC400  
Q400  
IC403  
Q401



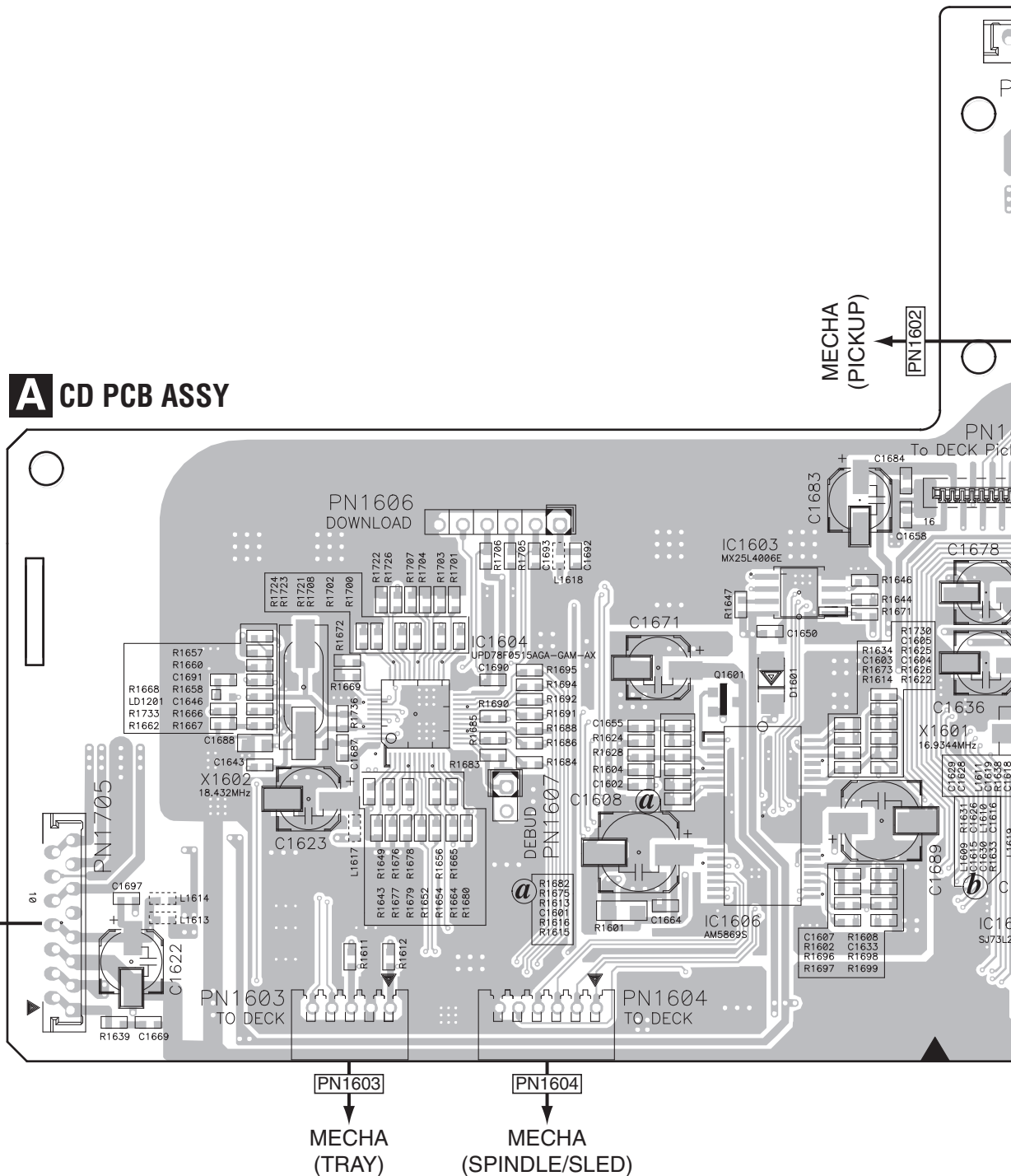
**B TUNER PCB ASSY**

X-HM70-K

**B**

# 11.2 CD PCB ASSY

SIDE A



A

SIDE A

A

B

C

D

E

F

A

65

K CP707

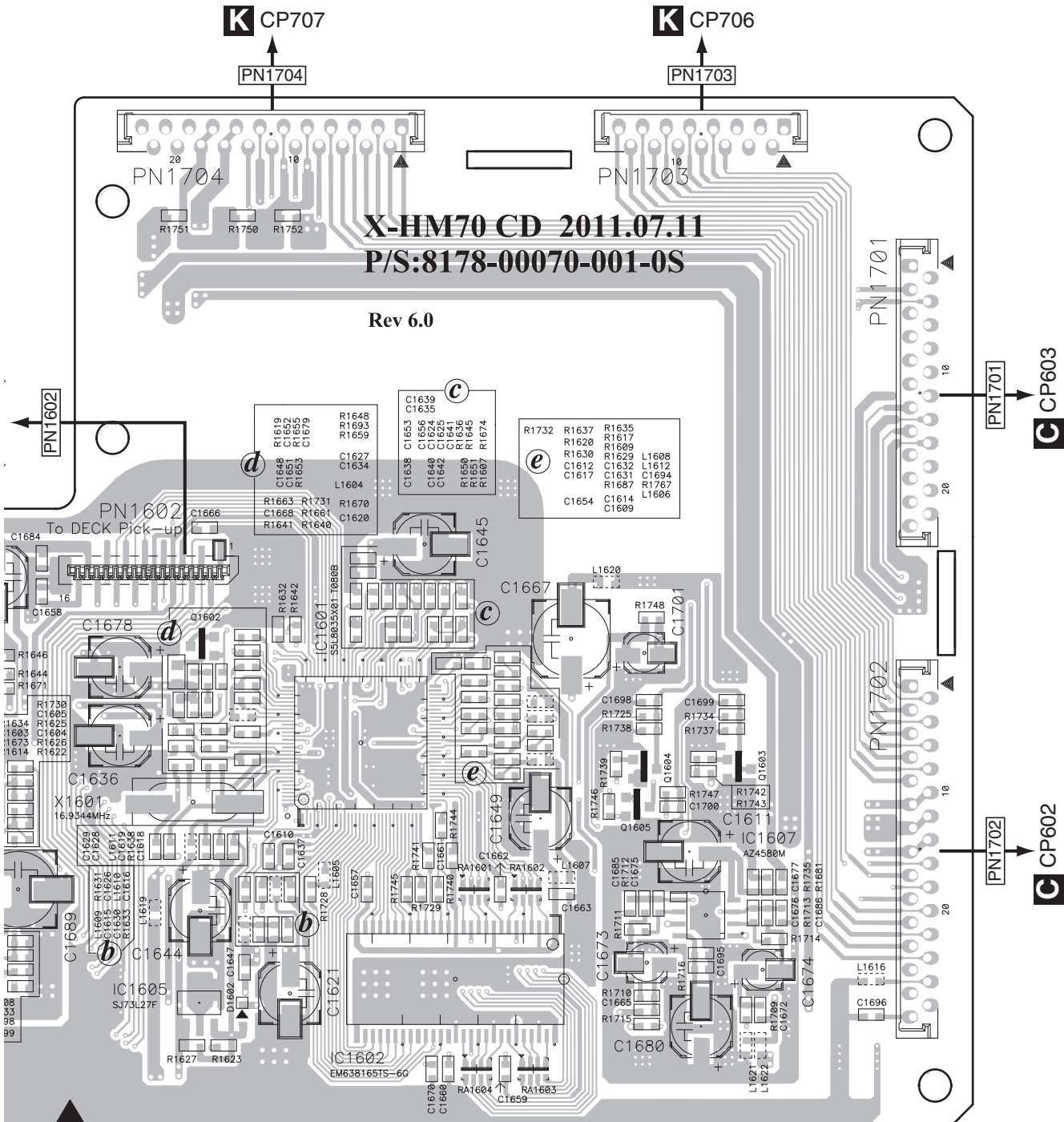
PN1704

K CP706

PN1703

**X-HM70 CD 2011.07.11**  
**P/S:8178-00070-001-0S**

Rev 6.0



Q1602  
IC1605

IC1601

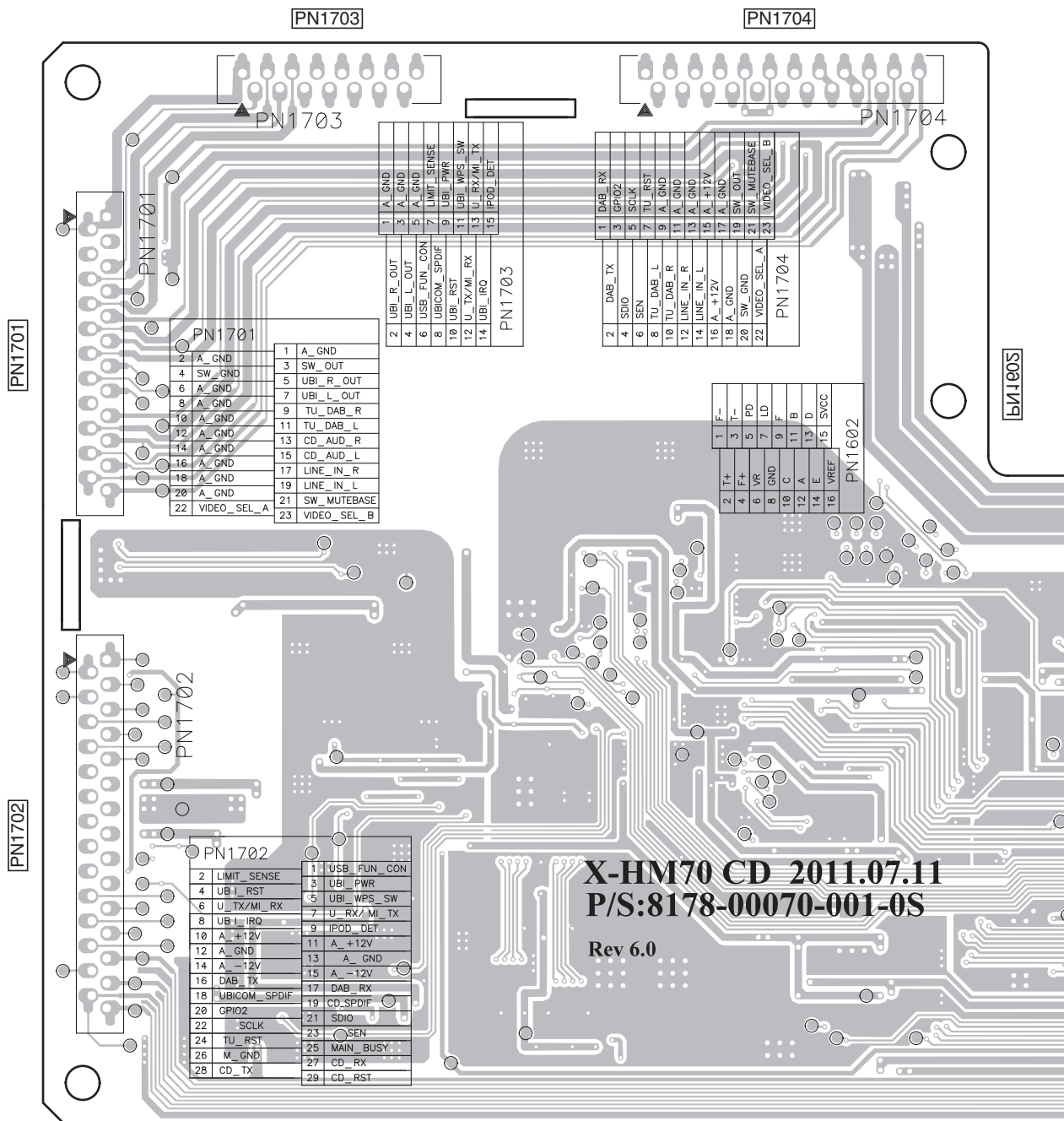
IC1602

Q1604  
Q1605

Q1603  
IC1607

X-HM70-K

SIDE B



SIDE B

A

B

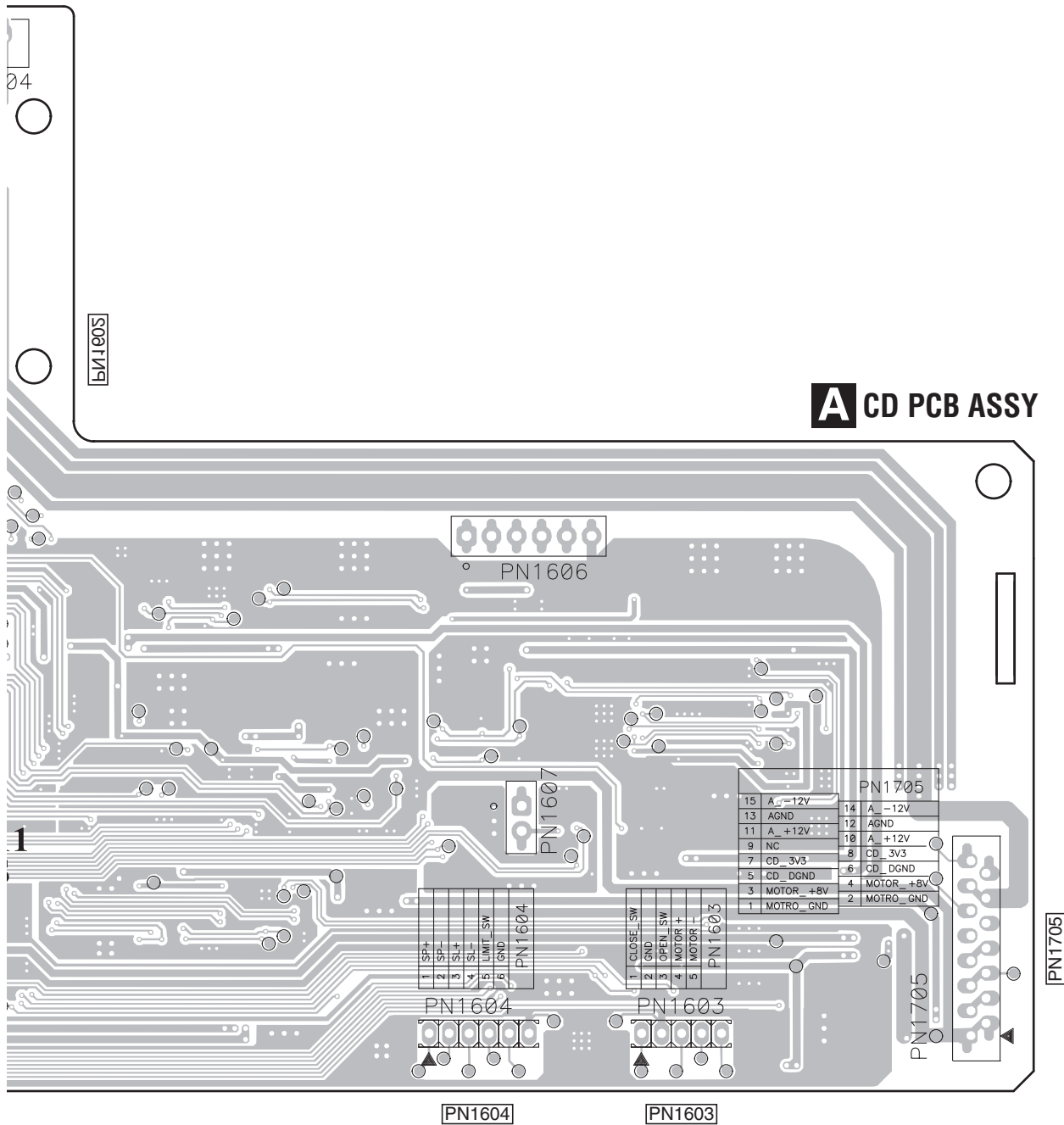
C

D

E

F

**A** CD PCB ASSY



# 11.3 MAIN PCB ASSY

**SIDE A**

**C MAIN PCB ASSY**

**A PN1702**

A

B

C

**G** CP514

**E** CP510

FPC600

CP601

CP602

CP605

**I** CP712

Q600 IC600 IC601 Q630 IC610 IC611 IC60

**SIDE B**

**C MAIN PCB ASSY**

D

E

F

CP601

FPC600

CP605

CP602

Q500 Q502 Q504 Q506 Q637 Q631 Q605 Q603 Q604 Q602 Q606 Q601

X-HM70-K

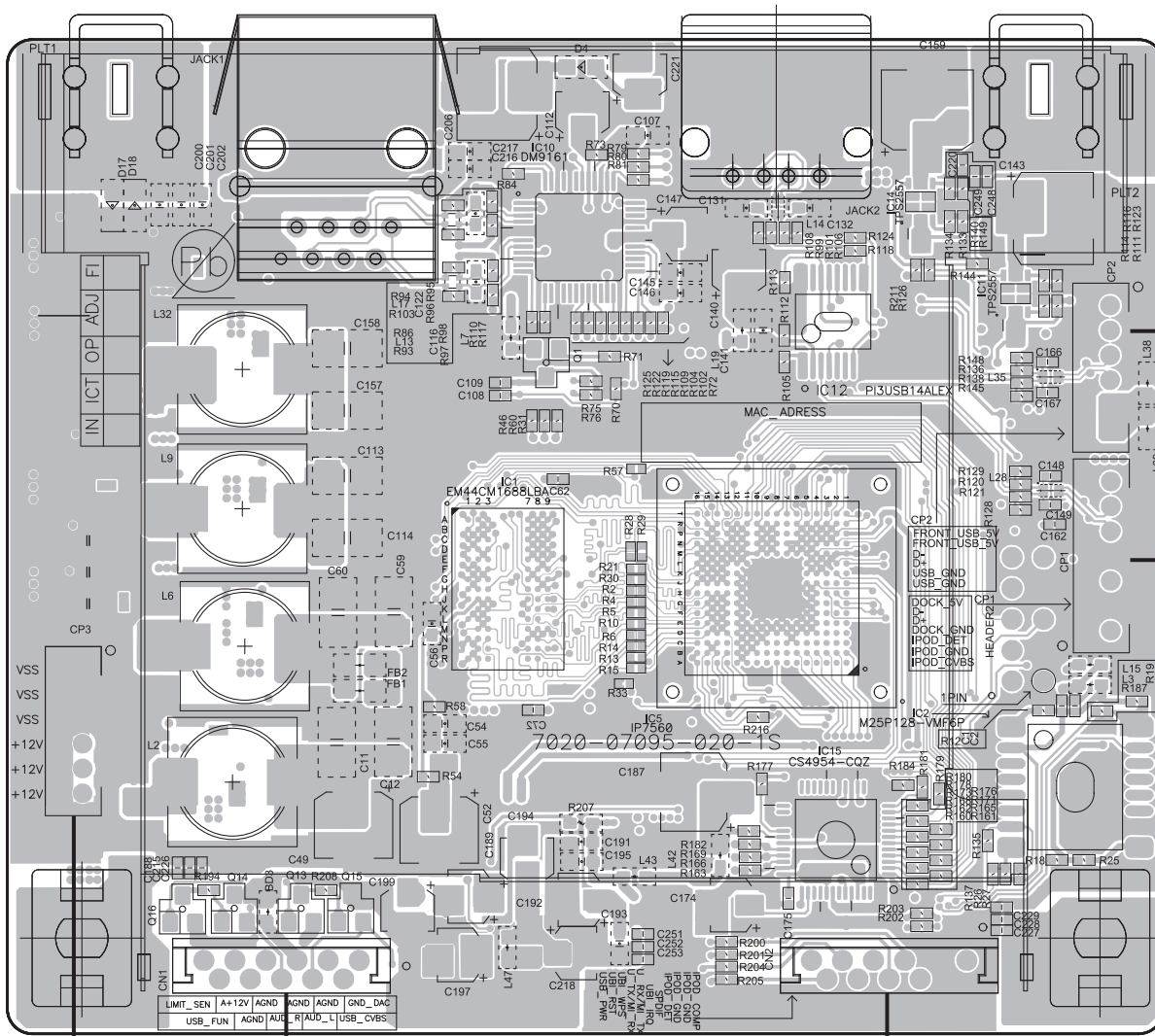


# 11.4 UBICOM PCB ASSY

SIDE A

SIDE A

## UBICOM PCB ASSY



**I** CN305

**K** CP704

**K** CP705

**F** CP500

**H** CP2

**D**

70

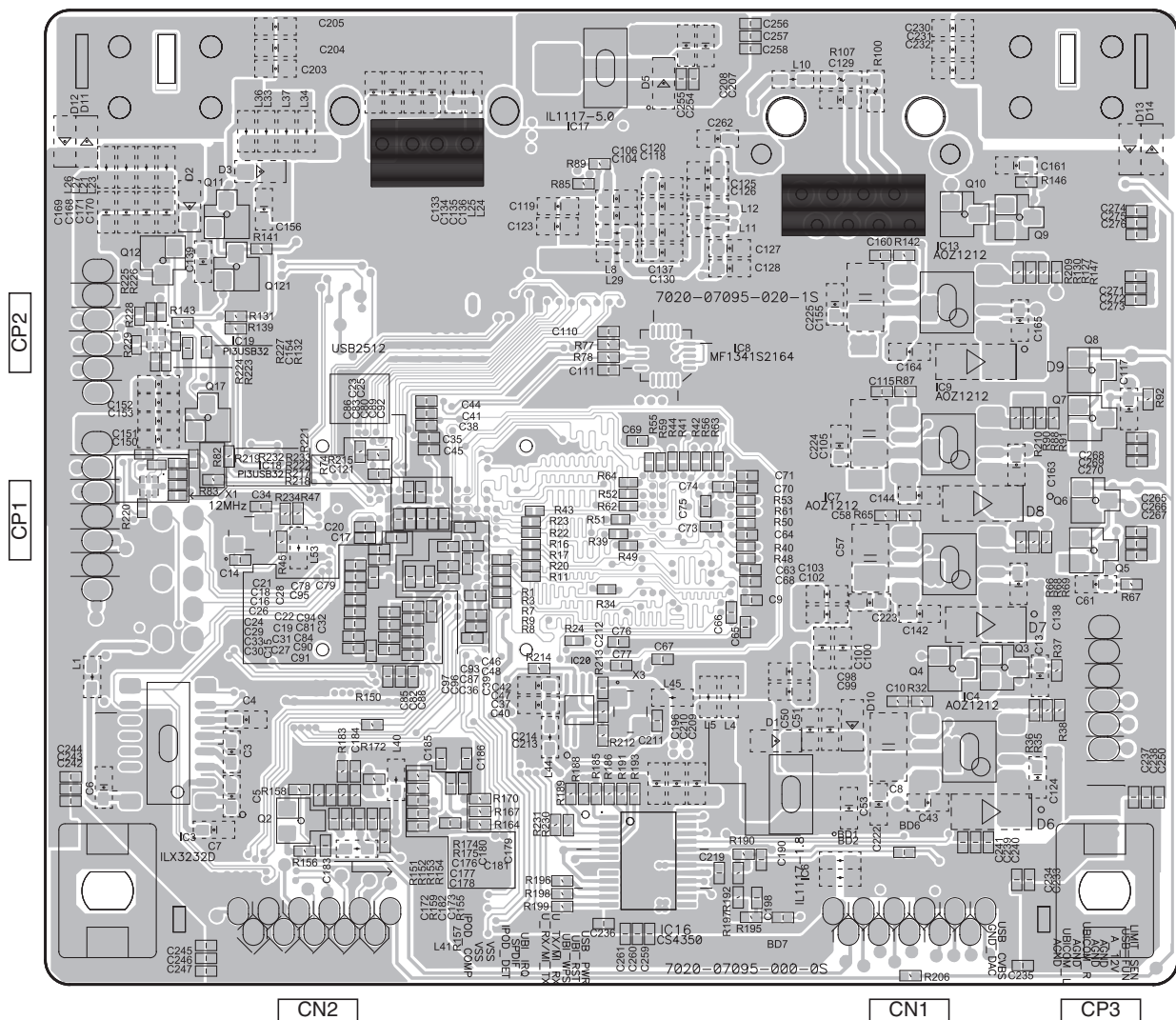
X-HM70-K

SIDE B

SIDE B

A

# DUBICOM PCB ASSY



B

C

D

E

F

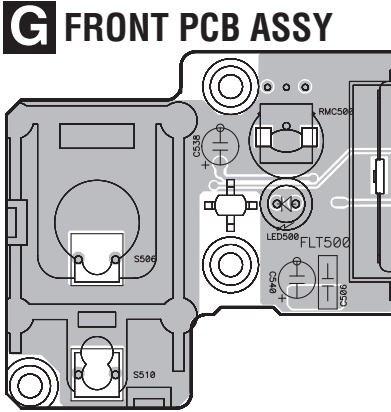
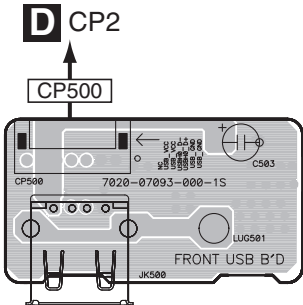
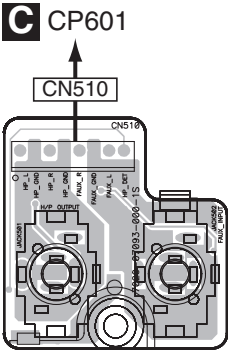
Q12 Q11  
IC19 Q121  
IC18 Q17 Q2  
IC3

IC17 IC8  
IC20 IC16 IC6

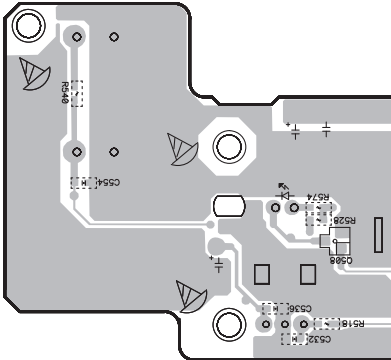
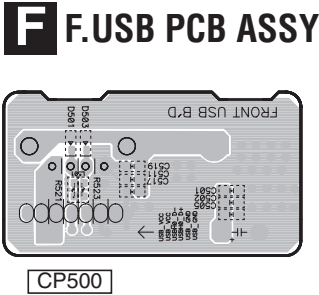
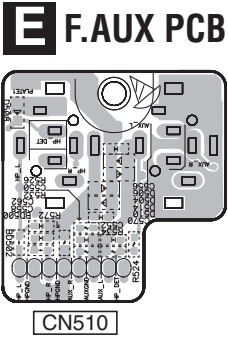
Q10 Q9 Q8  
IC13 Q7  
IC9 Q6  
IC7 Q5  
Q4 Q3  
IC4

11.5 F.AUX, F.USB and FRONT PCB ASSYS

SIDE A



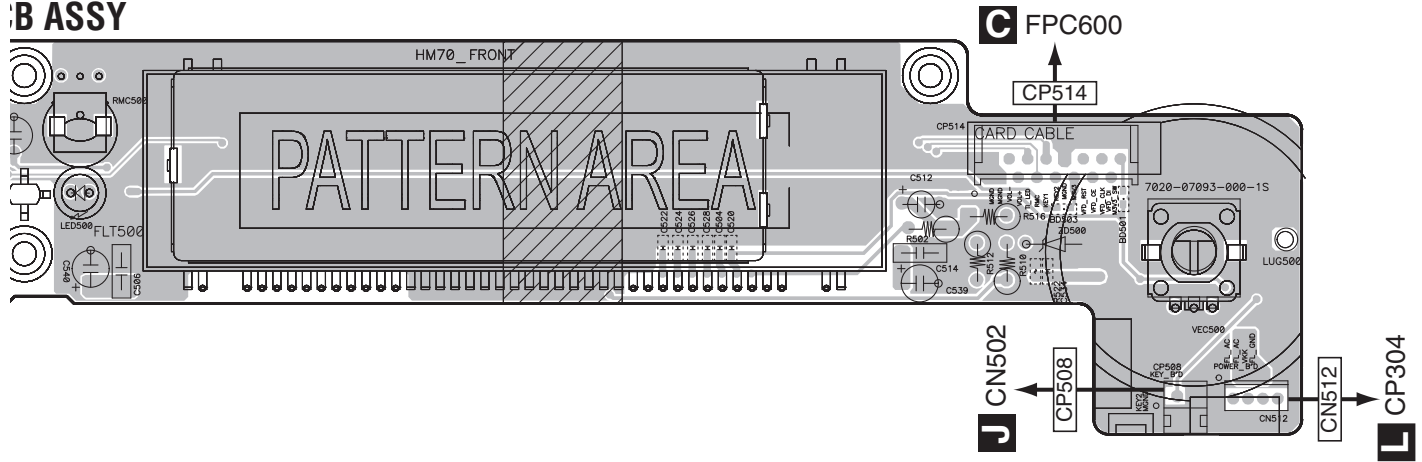
SIDE B



SIDE A

A

B ASSY

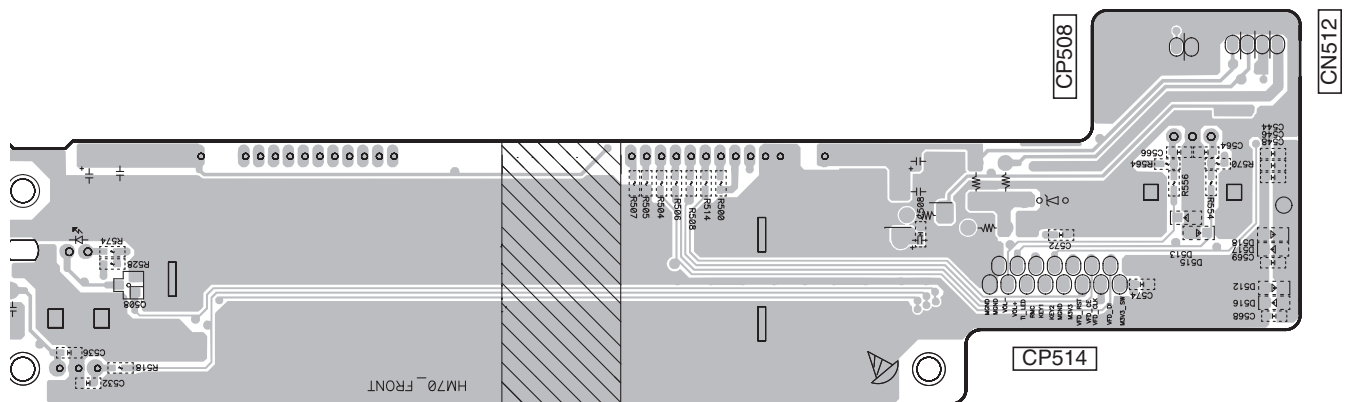


B

C

SIDE B

D



E

B ASSY

Q508

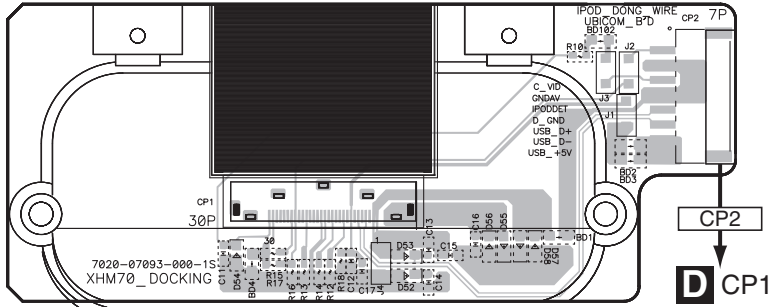
F

G

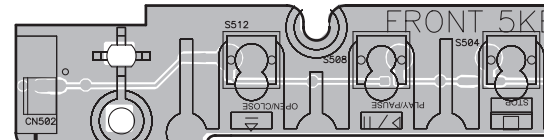
## 11.6 DOCK, CNT1, 5KEY and CNT2 ASSYS

**SIDE A**

**H DOCK PCB ASSY**



**J 5KEY PCB ASSY**



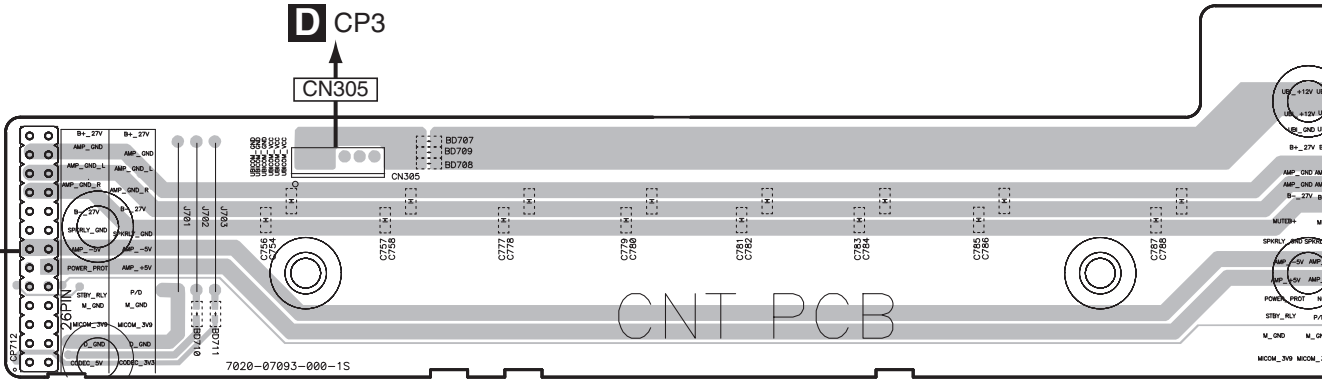
**G CP508**

**D CP3**

**CN305**

**C CP605**

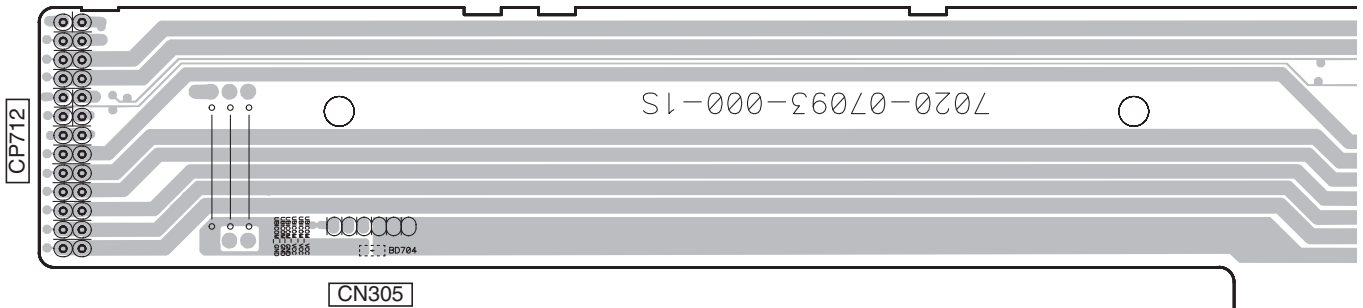
**CP712**



**I CNT1 PCB ASSY**

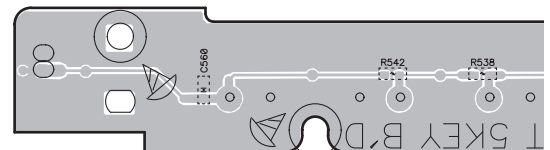
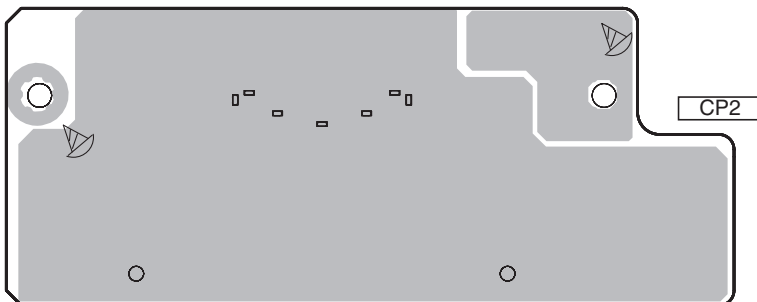
**SIDE B**

**I CNT1 PCB ASSY**



**CP2**

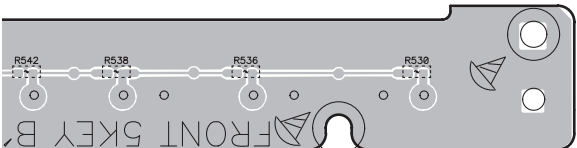
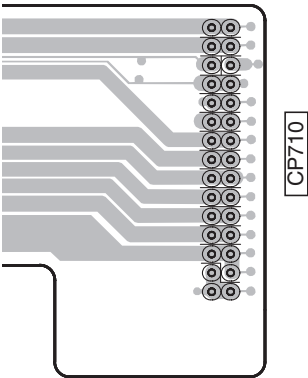
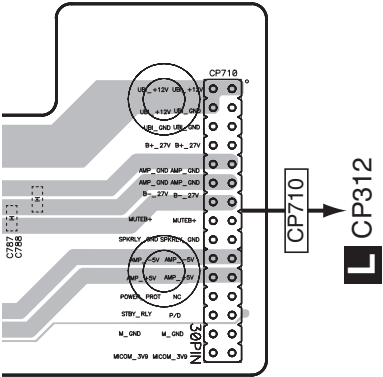
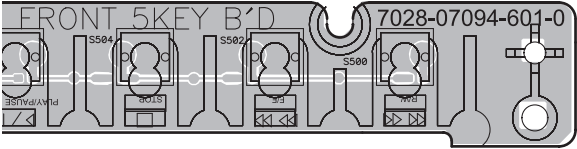
**CN502**



**H I J**

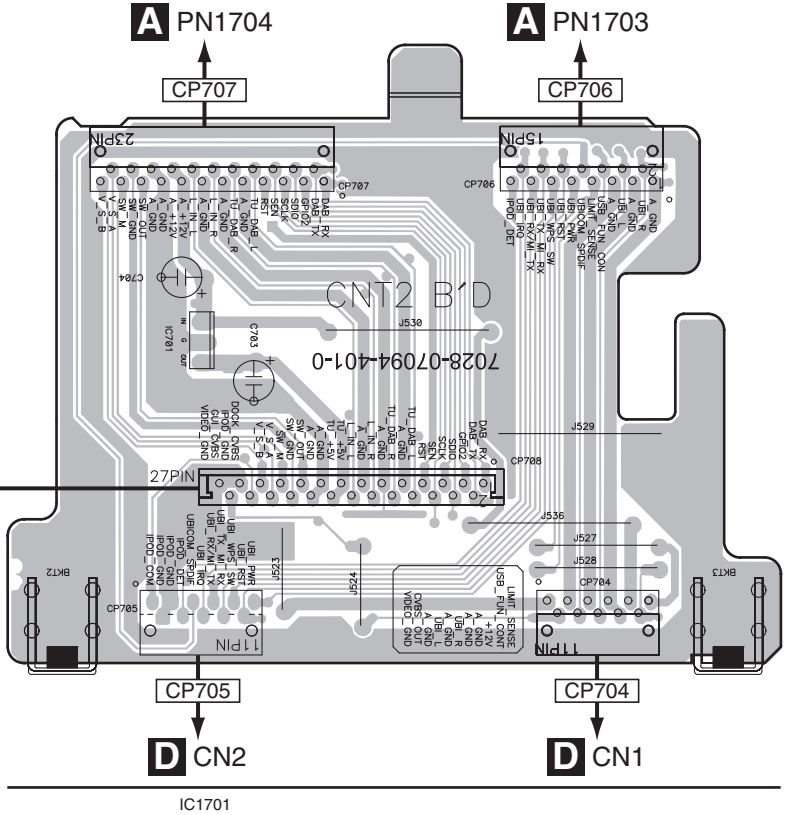
**H DOCK PCB ASSY**

**J 5KEY PCB ASSY**

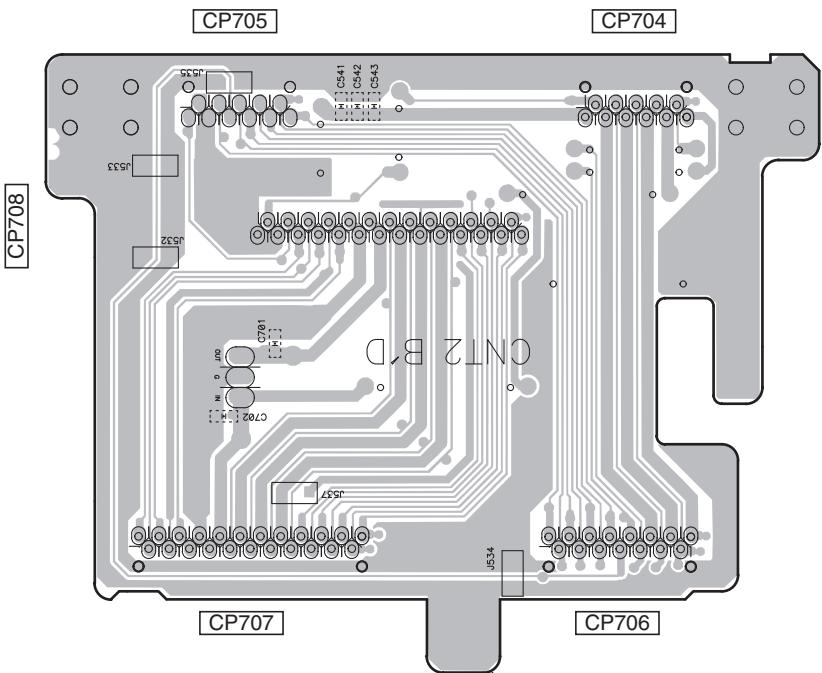


**K** CNT2 PCB ASSY

**SIDE A**



**SIDE B**

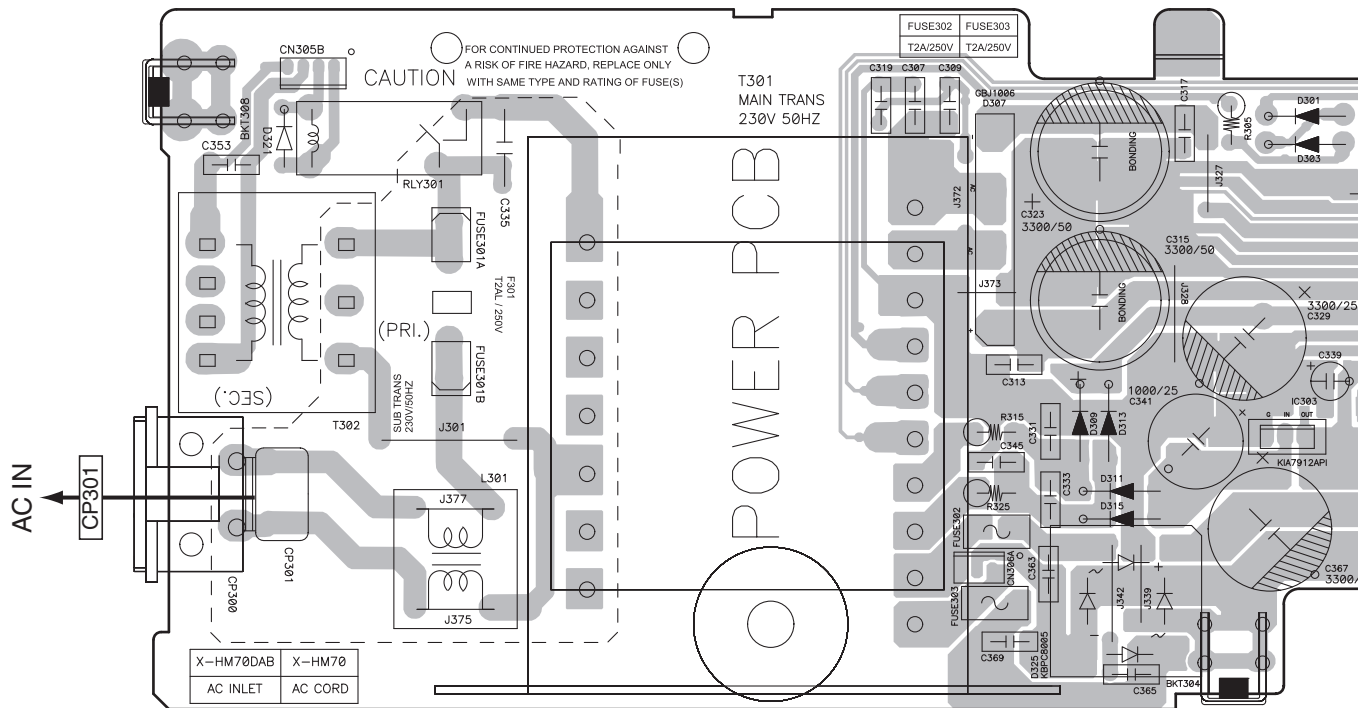


**K** CNT2 PCB ASSY

**I J K**

## SIDE A

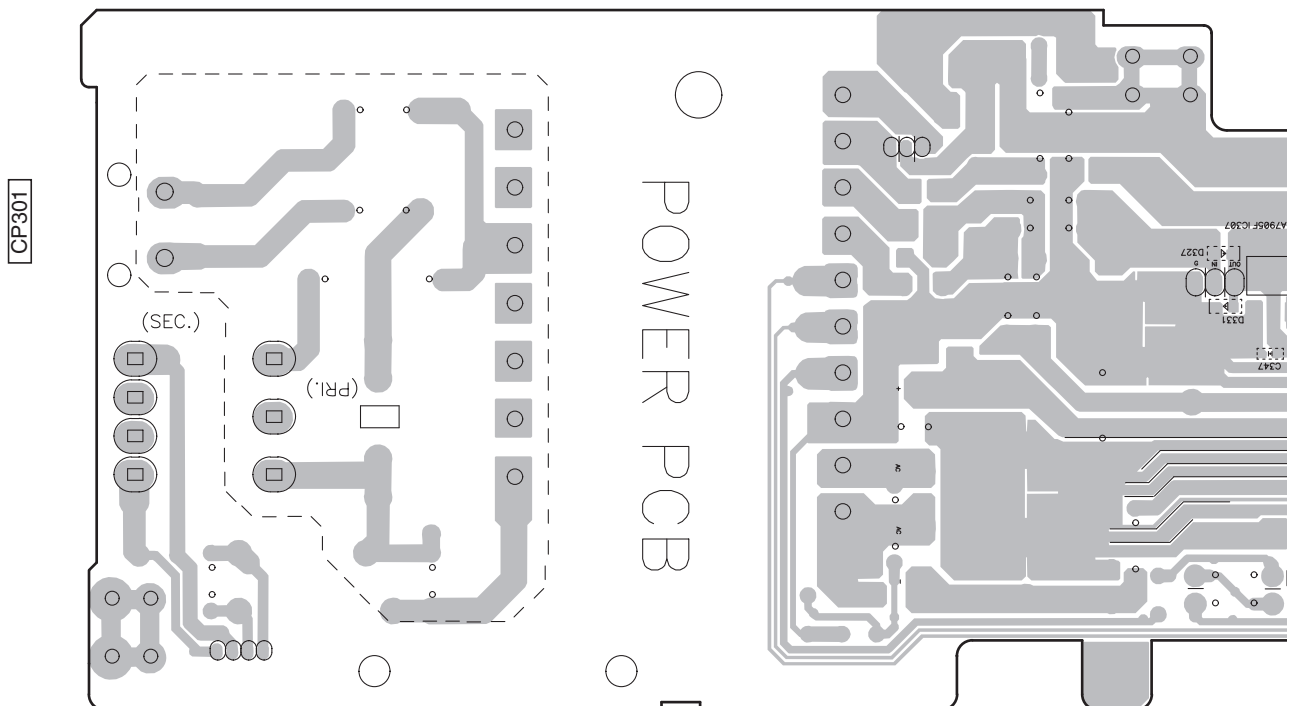
## L POWER PCB ASSY



IC303

## SIDE B

## L POWER PCB ASSY

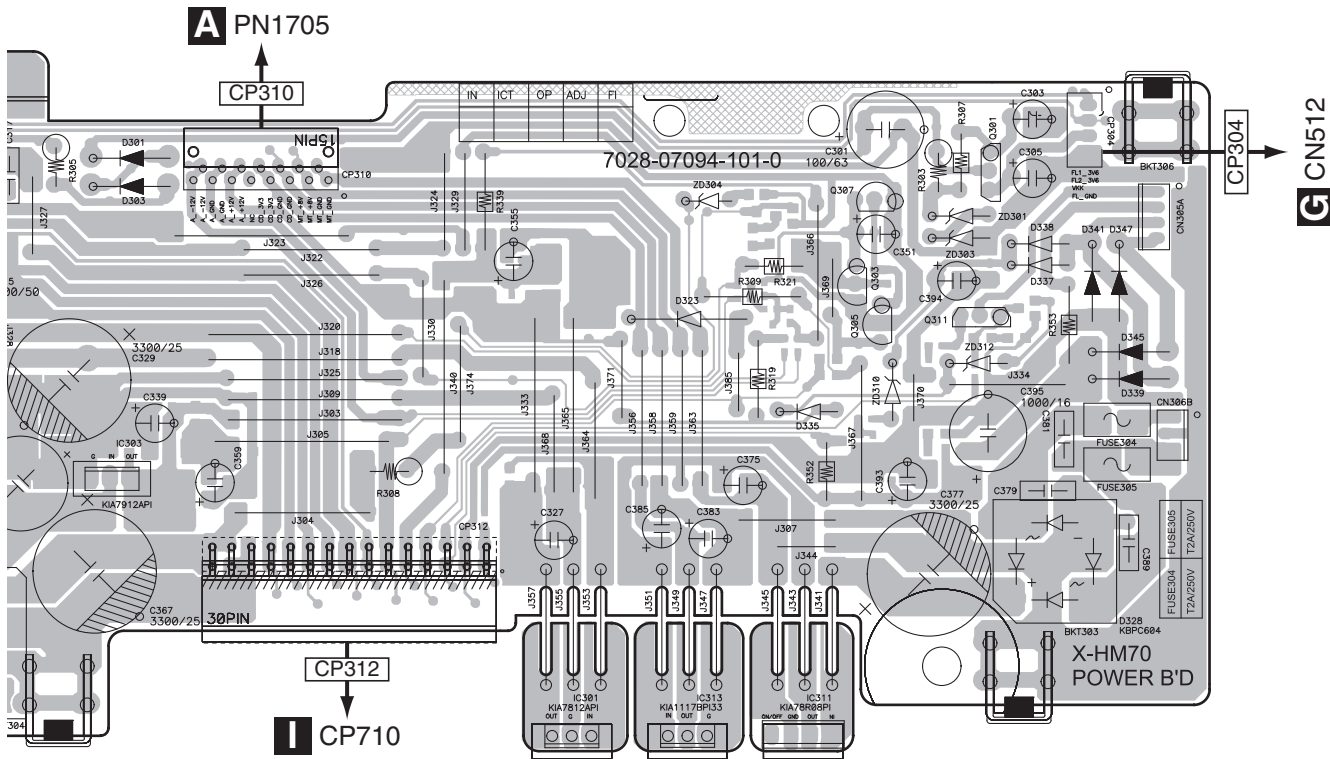


SIDE A

A

B

C



IC303

IC301

IC313

IC311

Q307

Q303

Q305

Q301

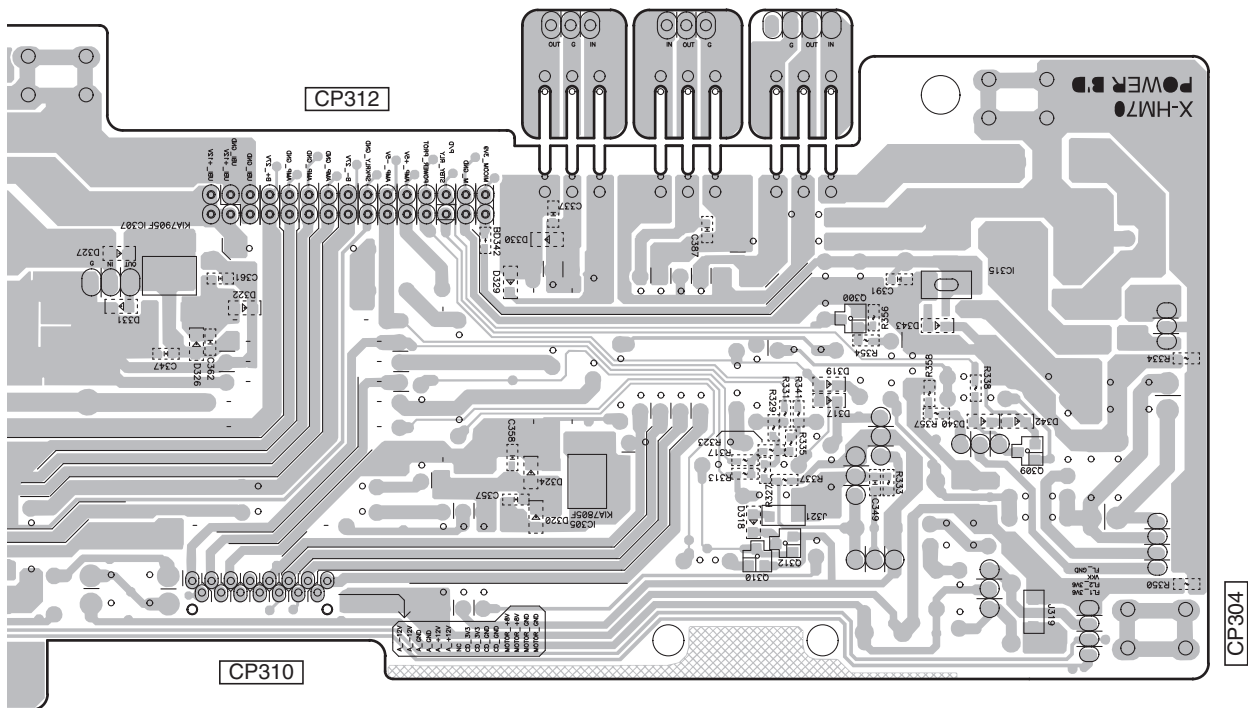
Q311

SIDE B

D

E

F



IC305

Q310

Q312

Q300

IC315

Q309

X-HM70-K

# 12. PCB PARTS LIST

NOTES: ● Parts marked by “NSP” are generally unavailable because they are not in our Master Spare Parts List.

- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47 k ohm (tolerance is shown by J = 5%, and K = 10%).

560  $\Omega$   $\rightarrow$   $56 \times 10^1$   $\rightarrow$  561.....RD1/4PU  $\begin{bmatrix} 5 \\ 6 \end{bmatrix} \begin{bmatrix} 1 \\ J \end{bmatrix}$

47 k $\Omega$   $\rightarrow$   $47 \times 10^3$   $\rightarrow$  473.....RD1/4PU  $\begin{bmatrix} 4 \\ 7 \end{bmatrix} \begin{bmatrix} 3 \\ J \end{bmatrix}$

0.5  $\Omega$   $\rightarrow$  R50.....RN2H  $\begin{bmatrix} R \\ 5 \end{bmatrix} \begin{bmatrix} 0 \\ K \end{bmatrix}$

1  $\Omega$   $\rightarrow$  1R0.....RSIP  $\begin{bmatrix} 1 \\ R \end{bmatrix} \begin{bmatrix} 0 \\ K \end{bmatrix}$

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62 k $\Omega$   $\rightarrow$   $562 \times 10^1$   $\rightarrow$  5621.....RN1/4PC  $\begin{bmatrix} 5 \\ 6 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \end{bmatrix} F$

- Meaning of the figures and others in the parentheses in the parts list.

Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.

IC 301 (A, 91, 111) IC NJM2068V

- SCHEMATIC DIAGRAM and PCB CONNECTION DIAGRAM  $\rightarrow$  ● PCB PARTS LIST

BKT  $\rightarrow$  none

CLAMP  $\rightarrow$  none

W  $\rightarrow$  none

LUG  $\rightarrow$  none

P  $\rightarrow$  none

BEAD  $\rightarrow$  L

F  $\rightarrow$  FU

FLT  $\rightarrow$  V

JACK  $\rightarrow$  JA

JACK  $\rightarrow$  JA9\*\*\*

RLY  $\rightarrow$  RY

RMC  $\rightarrow$  U

RES  $\rightarrow$  X

XTAL  $\rightarrow$  X9\*\*\*

BD  $\rightarrow$  L7\*\*\*

SW  $\rightarrow$  S

VEC  $\rightarrow$  S9\*\*\*

GND  $\rightarrow$  KN

PACK  $\rightarrow$  9\*\*\*

CP  $\rightarrow$  CN

CP  $\rightarrow$  CN9\*\*\*

FPC  $\rightarrow$  CN9\*\*\* or CN

JK  $\rightarrow$  JA

PT  $\rightarrow$  T

REG  $\rightarrow$  IC

REG  $\rightarrow$  IC9\*\*\*

LED  $\rightarrow$  D8\*\*\*

Z  $\rightarrow$  D9\*\*\*

ZD  $\rightarrow$  D9\*\*\*

DZ  $\rightarrow$  D9\*\*\*

Mark No. Description

Part No.

Mark No. Description

Part No.

## LIST OF ASSEMBLIES

|     |                        |                  |
|-----|------------------------|------------------|
| NSP | 1..PCB TOTAL ASSY MAIN | 7025MU1101011-IL |
|     | 2..MAIN PCB ASSY       | 7028070931010-IL |
|     | 2..FRONT PCB ASSY      | 7028070932010-IL |
|     | 2..DOCK PCB ASSY       | 7028070933010-IL |
|     | 2..FAUX PCB ASSY       | 7028070934010-IL |
|     | 2..CNT1 PCB ASSY       | 7028070935010-IL |
|     | 2..FUSB PCB ASSY       | 7028070936010-IL |

|     |                         |                  |
|-----|-------------------------|------------------|
| NSP | 1..PCB TOTAL ASSY POWER | 7025MU1101012-IL |
|     | 2..POWER PCB ASSY       | 7028070941010-IL |
|     | 2..TUNER PCB ASSY       | 7028070942010-IL |
|     | 2..CNT2 PCB ASSY        | 7028070944010-IL |
|     | 2..5KEY PCB ASSY        | 7028070946010-IL |

|     |                         |                  |
|-----|-------------------------|------------------|
| NSP | 1..PCB TOTAL ASSY UBICO | 7025MU1101013-IL |
|     | 2..UBICOM PCB ASSY      | 7028070951010-IL |

|     |                      |                  |
|-----|----------------------|------------------|
| NSP | 1..PCB TOTAL ASSY CD | 7025MU1101014-IL |
|     | 2..CD PCB ASSY       | 7028070921010-IL |

Mark No. Description

Part No.

## A CD PCB ASSY

### SEMICONDUCTORS

|         |                  |
|---------|------------------|
| IC 1601 | 8952HM7000030-IL |
| IC 1602 | J001638165610-IL |
| IC 1603 | J005254001210-IL |
| IC 1604 | 8952HM7000020-IL |
| IC 1605 | J126730270020-IL |
| IC 1606 | J127586900010-IL |

|             |                  |
|-------------|------------------|
| IC 1607     | J121458000020-IL |
| Q 1601      | J520124S00020-IL |
| Q 1602      | J520198100010-IL |
| Q 1603,1604 | J522123S00020-IL |
| Q 1605      | J6002201S0020-IL |
| D 1601      | K045154000000-IL |
| D 1602      | K005035500010-IL |

### MISCELLANEOUS

|              |                       |                  |
|--------------|-----------------------|------------------|
| X 1601       | CRYSTAL (16.9344 MHz) | E80516R934420-IL |
| X 1602       | CRYSTAL (18.432 MHz)  | E80518R432020-IL |
| CN 1602      | CN.FPC 1.0MM          | L130100223160-IL |
| CN 1603      | CN.WAFER 2.0MM        | L101200100520-IL |
| CN 1604      | CN.WAFER 2.0MM        | L101200100620-IL |
| CN 1701,1704 | CN,WAFER              | L109012512310-IL |
| CN 1702      | CN,WAFER              | L109012512910-IL |
| CN 1703,1705 | CN,WAFER              | L109012511510-IL |

## B TUNER PCB ASSY

### SEMICONDUCTORS

|           |                  |
|-----------|------------------|
| IC 400    | J127763300010-IL |
| Q 400,401 | J5222875B0010-IL |
| D 400-407 | K005041480030-IL |

### MISCELLANEOUS

|        |              |                  |
|--------|--------------|------------------|
| JA 400 | TER,RCA 1PIN | G600107AY000Y-IL |
| JA 401 | RCA JACK     | G601207AE020Y-IL |
| JA 402 | TER,RCA 1PIN | G600107A0000Y-IL |
| CN 400 | CN,WAFER     | L109012522710-IL |
| 400    | TUNER,FM/AM  | E903104100780-IL |



| Mark | No.   | Description    | Part No.         |
|------|-------|----------------|------------------|
| A    | S     | 506,510 SWITCH | G180501000010-IL |
|      | CN508 | CN.WAFER 2.0MM | L101200100220-IL |
|      | CN512 | CN.WIRE 2MM    | L002101042620-IL |
|      | CN514 | CN.FPC 1.25MM  | L131125021520-IL |

## H DOCK PCB ASSY

### SEMICONDUCTORS

|   |       |                  |
|---|-------|------------------|
| D | 52-54 | K067030500010-IL |
| D | 55,56 | K005041480030-IL |

### MISCELLANEOUS

|     |                |                  |
|-----|----------------|------------------|
| CN2 | CN.WAFER 2.0MM | L101200370720-IL |
|-----|----------------|------------------|

## I CNT1 PCB ASSY

### MISCELLANEOUS

|       |                |                  |
|-------|----------------|------------------|
| CN305 | CN.WIRE 2MM    | L002181080050-IL |
| CN710 | CN.WAFER 2.5MM | L102125423010-IL |
| CN712 | CN.WAFER 2.5MM | L102125422610-IL |

## J 5KEY PCB ASSY

### MISCELLANEOUS

|       |                        |                  |
|-------|------------------------|------------------|
| S     | 500,502,504,508 SWITCH | G180501000010-IL |
| S     | 512 SWITCH             | G180501000010-IL |
| CN502 | CN.WIRE 2MM            | L002500022620-IL |

## K CNT2 PCB ASSY

### SEMICONDUCTORS

|    |     |                  |
|----|-----|------------------|
| IC | 701 | J126780500110-IL |
|----|-----|------------------|

### MISCELLANEOUS

|           |          |                  |
|-----------|----------|------------------|
| CN704,705 | CN.WAFER | L109012521110-IL |
| CN706     | CN.WAFER | L109012521510-IL |
| CN707     | CN.WAFER | L109012522310-IL |
| CN708     | CN.WAFER | L109012512710-IL |

## L POWER PCB ASSY

### SEMICONDUCTORS

|    |     |                  |
|----|-----|------------------|
| IC | 301 | J126781200040-IL |
| IC | 303 | J126791200060-IL |
| IC | 305 | J126780500450-IL |
| IC | 307 | J126790500130-IL |
| IC | 311 | J12678R080010-IL |

|    |         |                  |
|----|---------|------------------|
| IC | 313     | J126111733110-IL |
| IC | 315     | J126111700041-IL |
| Q  | 300     | J522305200050-IL |
| Q  | 301     | J5021027Y0020-IL |
| Q  | 303,307 | J5023198Y0000-IL |

|   |                 |                  |
|---|-----------------|------------------|
| Q | 305             | J5001268B0050-IL |
| Q | 310,312         | J522107S00210-IL |
| Q | 311             | J5021740S0010-IL |
| D | 301,303,309,311 | K000400700010-IL |
| D | 304,310         | K06005R144520-IL |

|   |   |                   |                  |
|---|---|-------------------|------------------|
| F | ⚠ | D 307             | K047100600010-IL |
|   |   | D 313,315,339,341 | K000400700010-IL |
|   |   | D 317-319,340,342 | K005041480030-IL |
|   |   | D 320,322,330,331 | K125551300010-IL |

| Mark | No.             | Description | Part No.         |
|------|-----------------|-------------|------------------|
| D    | 321             |             | K000414802520-IL |
| D    | 323,335,337,338 |             | K000013300520-IL |
| D    | 325             |             | K047800500010-IL |
| D    | 328             |             | K047604000020-IL |
| D    | 343             |             | K005041480030-IL |
| D    | 345,347         |             | K000400700010-IL |
| D    | 9301            |             | K06020R044520-IL |
| D    | 9303            |             | K06024R044520-IL |

### MISCELLANEOUS

|   |       |                 |                  |
|---|-------|-----------------|------------------|
| ⚠ | RY301 | RELAY           | G680060102020-IL |
| ⚠ | T302  | POWER TRANS     | 8200280150380-IL |
| ⚠ | CN301 | CN.WAFER 7.92MM | L108396030010-IL |
|   | CN304 | CN.WAFER 2.0MM  | L101200100410-IL |
|   | CN305 | CN.WIRE 2MM     | L002281040080-IL |

|            |                |                  |
|------------|----------------|------------------|
| CN 306     | CN,WIRE 2MM    | L002251030150-IL |
| CN 310     | CN,WAFER       | L109012521510-IL |
| CN 312     | CN.WAFER 2.5MM | L102225423020-IL |
| FU 302-305 | FUSE           | G658202250050-IL |

### RESISTORS

|   |         |                  |
|---|---------|------------------|
| R | 305     | N113135647920-IL |
| R | 315,325 | C060R47065050-IL |

### CAPACITORS

|   |             |                  |
|---|-------------|------------------|
| C | 315,323     | D040332087000-IL |
| C | 329,367,377 | D040332084030-IL |
| ⚠ | C335        | D00847208H010-IL |
| C | 341         | D040102084060-IL |
| C | 395         | D040102083030-IL |