DENON

# Service Manual Ver. 7

CD RECEIVER

# RCD-M41
# RCD-M41DAB


*Click here!*

**Online service parts list**

http://dmedia.dmglobal.com/Document/DocumentDetails/23162

Online Parts List (P5 to P7)

**WEB owner's manual**

**NA:** http://manuals.denon.com/RCDM41/NA/EN/index.php

**EU:** http://manuals.denon.com/RCDM41/EU/EN/index.php

**AP:** http://manuals.denon.com/RCDM41/AP/ZH/index.php



- For purposes of improvement, specifications and design are subject to change without notice.
- Please use this service manual with referring to the operating instructions without fail.
- Some illustrations using in this service manual are slightly different from the actual set.

**Please refer to the MODIFICATION NOTICE.**

# CAUTION IN SERVICING

## SAFETY PRECAUTIONS

## NOTE FOR SCHEMATIC DIAGRAM

## NOTE FOR PARTS LIST

## INSTRUCTIONS FOR HANDLING SEMICONDUCTORS AND OPTICAL UNIT

## WARNING AND LASER SAFETY INSTRUCTIONS

## Online Parts List



## CAUTION IN SERVICING.

# SAFETY PRECAUTIONS

The following items should be checked for continued protection of the customer and the service technician.

## Leakage current check

Before returning the set to the customer, be sure to carry out either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the set is defective.
Be sure to test for leakage current with the AC plug in both polarities, in addition, when the set's power is in each state (on, off and standby mode), if applicable.

**CAUTION** **Please heed the following cautions and instructions during servicing and inspection.**

### ◎ Heed the cautions!

Cautions which are delicate in particular for servicing are labeled on the cabinets, the parts and the chassis, etc. Be sure to heed these cautions and the cautions described in the handling instructions.

### ◎ Cautions concerning electric shock!

(1) An AC voltage is impressed on this set, so if you touch internal metal parts when the set is energized, you may get an electric shock. Avoid getting an electric shock, by using an isolating transformer and wearing gloves when servicing while the set is energized, or by unplugging the power cord when replacing parts, for example.
(2) There are high voltage parts inside. Handle with extra care when the set is energized.

### ◎ Caution concerning disassembly and assembly!

Through great care is taken when parts were manufactured from sheet metal, there may be burrs on the edges of parts. The burrs could cause injury if fingers are moved across them in some rare cases. Wear gloves to protect your hands.

### ◎ Use only designated parts!

The set's parts have specific safety properties (fire resistance, voltage resistance, etc.). Be sure to use parts which have the same properties for replacement. The burrs have the same properties. In particular, for the important safety parts that are indicated by the ⚠ mark on schematic diagrams and parts lists, be sure to use the designated parts.

### ◎ Be sure to mount parts and arrange the wires as they were originally placed!

For safety seasons, some parts use tapes, tubes or other insulating materials, and some parts are mounted away from the surface of printed circuit boards. Care is also taken with the positions of the wires by arranging them and using clamps to keep them away from heating and high voltage parts, so be sure to set everything back as it was originally placed.

### ◎ Make a safety check after servicing!

Check that all screws, parts and wires removed or disconnected when servicing have been put back in their original positions, check that no serviced parts have deteriorate the area around. Then make an insulation check on the external metal connectors and between the blades of the power plug, and otherwise check that safety is ensured.
(Insulation check procedure)
Unplug the power cord from the power outlet, disconnect the antenna, plugs, etc., and on the power. Using a 500V insulation resistance tester, check that the insulation resistance value between the inplug and the externally exposed metal parts (antenna terminal, headphones terminal, input terminal, etc.) is 1M Ω or greater. If it is less, the set must be inspected and repaired.

**CAUTION** **Concerning important safety parts**

Many of the electric and the structural parts used in the set have special safety properties. In most cases these properties are difficult to distinguish by sight, and the use of replacement parts with higher ratings (rated power and withstand voltage) does not necessarily guarantee that safety performance will be preserved. Parts with safety properties are indicated as shown below on the wiring diagrams and the parts list in this service manual. Be sure to replace them with the parts which have the designated part number.

(1) Schematic diagrams Indicated by the ⚠ mark.
(2) Parts lists Indicated by the ⚠ mark.
The use of parts other than the designated parts could cause electric shocks, fires or other dangerous situations.

# NOTE FOR SCHEMATIC DIAGRAM

**WARNING:**

Parts indicated by the ⚠ mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

**CAUTION:**

Before returning the set to the customer, be sure to carry out either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the set is defective.

**WARNING:**

DO NOT return the set to the customer unless the problem is identified and remedied.

**NOTICE:**

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM / M=1,000,000 OHM
ALL CAPACITANCE VALUES ARE EXPRESSED IN MICRO FARAD, UNLESS OTHERWISE INDICATED. P INDICATES MICRO-MICRO FARAD. N INDICATES NANO FARAD. EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION. CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

# NOTE FOR PARTS LIST

1. Parts indicated by "**nsp**" on this table cannot be supplied.
2. When ordering a part, make a clear distinction between "1" and "I" (i) to avoid mis-supplying.
3. A part ordered without specifying its part number can not be supplied.
4. Part indicated by "**@**" mark is not illustrated in the exploded view.

**WARNING:** Parts indicated by the ⚠ mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

# INSTRUCTIONS FOR HANDLING SEMICONDUCTORS AND OPTICAL UNIT

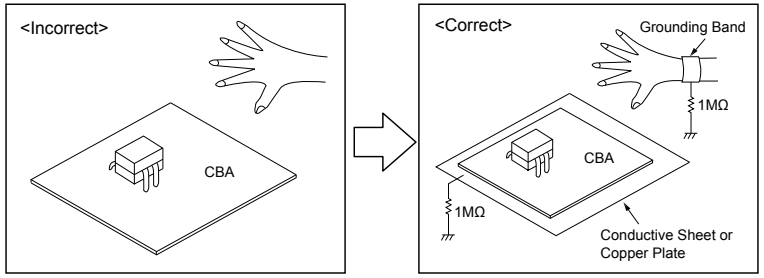
Electrostatic breakdown of the semi-conductors or optical pickup may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

## 1. Ground for Human Body

Be sure to wear a grounding band (1 M ohm) that is properly grounded to remove any static electricity that may be charged on the body.

## 2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1 M ohm) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing




# WARNING AND LASER SAFETY INSTRUCTIONS

**(GB) WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

**ESD**

**(NL) WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

**(F) ATTENTION**

Tous les IC et beaucoup d'autres semiconducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise a leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller a ce que les composants ainsi que les outils que l'on utilise soient également a ce potentiel.

**(D) WARNUNG**

Alle IC und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern.
Sorgen sie dafür, das Sie im Reparaturfall dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls über ein Pulsarmband mit Widerstand mit auf diesem Potential.

**(I) AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevita potrebbe essere fortemente ridatta in caso di non osservazione della piu grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

**(GB)**

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

**(D)**

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten.
Der Originalzustand des Gerats darf nicht verandert werden.
Fur Reparaturen sind Original-Ersatzteile zu verwenden.

**(NL)**

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt terug gebracht en dat onderdelen, identiek aan de gespecifieerde worden toegepast.

**(I)**

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiago idetici a quelli specificati.

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne."

**(F)**

Les normes de sécurité exigent que l'appareil soit remis a l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

## LASER SAFETY

This unit employs a laser. Only a qualified service person should remove the cover or attempt to service this device, due to possible eye injury.


**USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURE OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.**

**AVOID DIRECT EXPOSURE TO BEAM**

**WARNING**

**The use of optical instruments with this product will increase eye hazard.**
**Repair handling should take place as much as possible with a disc loaded inside the player**

**WARNING LOCATION: INSIDE ON LASER COVERSHIELD**

CAUTION VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING NÄR DEKSEL Å PNES UNNGÅ EKSPONERING FOR STRÅLEN
VARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN
VARO! AVATT AESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETSEN
DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM
ATTENTION RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE EXPOSITION DANGEREUSE AU FAISCEAU

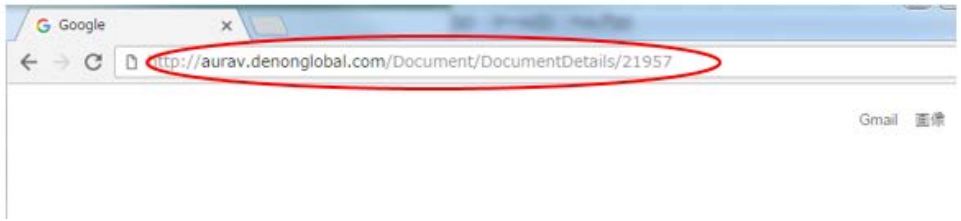
100301DM

# Online Parts List

## Accessing the Parts List

(1) Click the URL link on the cover of the service manual.
Examples of display


**NOTE :** If the web browser does not open automatically, copy the URL and paste it into the address bar of the web browser and then press Enter.




(2) When the login screen is displayed, enter your username and password.
(3) Enter the 5 letters shown as the blue CAPTCHA code as single-byte characters.
If the text is unclear, click "**Refresh**" to change the CAPTCHA code, and enter it again.

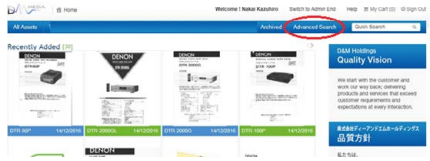

(4) Press the "**Login**" button.

## Logging in to New SDI and Accessing the Parts List

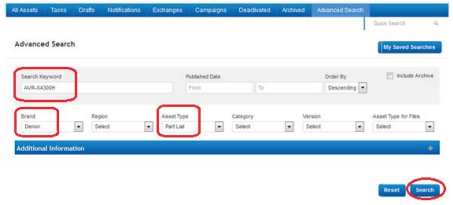
(1) Access New SDI from the URL below.
<http://dmedia.dmglobal.com>

(2) When the login screen is displayed, enter your username and password.
(3) Enter the 5 letters shown as the blue CAPTCHA code as single-byte characters.
If the text is unclear, click "**Refresh**" to change the CAPTCHA code, and enter it again.

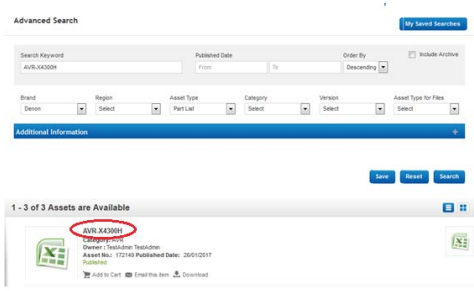

(4) Press the "**Login**" button.
(5) When the Home screen is displayed, click "**Advanced Search**".



(6) Enter the following search conditions and click "**Search**".
Keyword : Model name Brand : brand name Asset Type : Part list

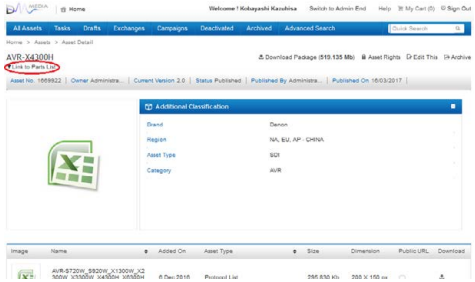



(7) Click the model name when the search results are displayed.



## Accessing the Part List from the Model Asset Screen

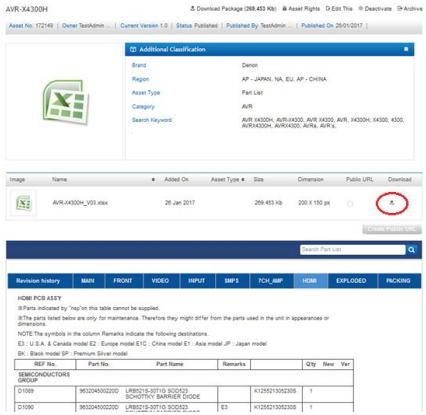
(1) Display Model Asset from New SDI.
(2) Click the section displayed as ▼ Link to Part Lists under the model name.



**NOTE :** If the ▼ Link to Parts List section is not displayed, download the parts table from the Asset list.

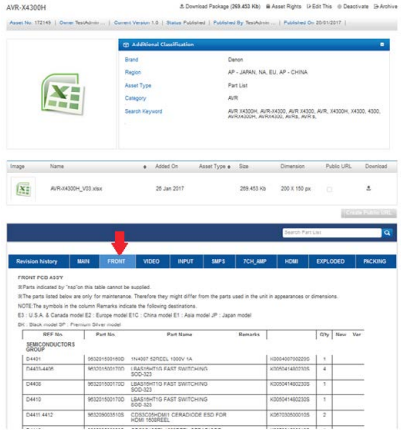
## Downloading the Parts List as an Excel File

(1) Displays the Parts List. Click the Download icon.



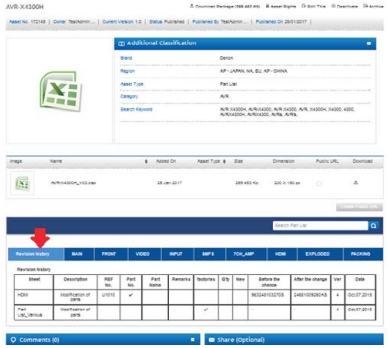
## PRINTED CIRCUIT BOARDS Parts Table

(1) Display the Parts List. Click the PCB name in the blue bar to display the parts list for the board.



## Revision History

(1) Click "**Revision history**" in the blue bar.



The following details are displayed.

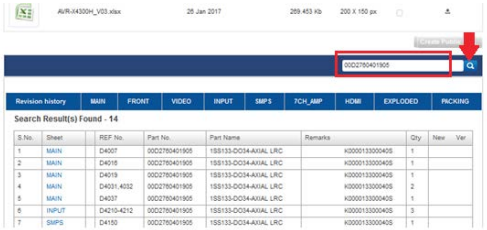
Sheet : Name of the changed sheet
Description : Description of the changes
Remarks : Destination, color information
Factories : Factory number
Ver : Version number after revision if changes were made to the parts list
Date : Date of changes

## Searching Part Numbers or Ref. Numbers

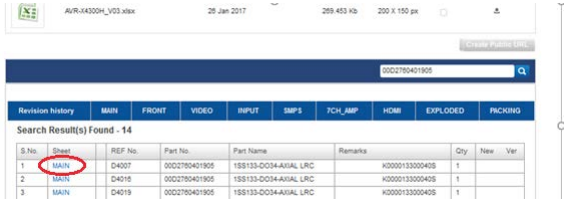
You can search a Parts List for part numbers or Ref. numbers.

(1) Enter the part number or Ref. number in the search window of the Parts List, and press the search button.

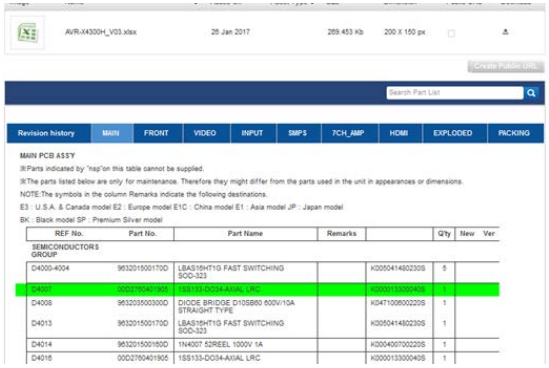
(2) The search results are displayed.
The name of the sheet in which the search part is used and the part's line are displayed.




(3) Next, click the "**Sheet**" section of the search results.




(4) The Board Part Table opens and the line on which the searched part number appears is highlighted.



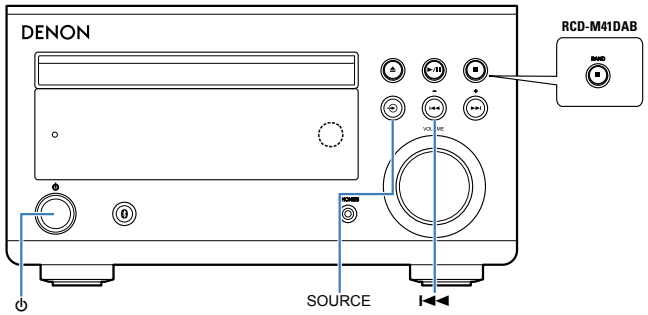
# CAUTION IN SERVICING.

## Initializing This Unit

Make sure to initialize this unit after replacing the microcomputer or any peripheral equipment, or the digital PCB.

1. Press the power operation button to turn off the power, and remove the AC plug from the socket.
2. While holding down buttons the "**SOURCE**" and "**I◀◀**" buttons simultaneously, insert the AC plug to turn the power on.
   ∗ This unit can also be initialized by holding down the button "**SOURCE**" and pressing the power button for 3 seconds or more while on standby.
3. "**INITIALIZE**" is displayed.
   ∗ The unit is initialized.
   ∗ Unplug the AC plug to cancel this mode.
4. After 5 seconds, switch to the normal mode.

**NOTE** :
- If the unit fails to enter the service mode in step 3, repeat the procedure from step 1.
- Initializing the device restores the customized settings to the factory settings. Write down your settings in advance and reconfigure the settings after initialization.




## ⚠3 JIG FOR SERVICING

When repairing the board, use an extension jig cable (300mm FFC cable connecting the CD mechanism to the main board) for the JIG.

Part No. : 9006065032805
Part Name : JIG FFC 16 PIN 300 MM 1.0 MM DTYPE
Order unit : 1 pc

# ELECTRICAL

## SCHEMATIC DIAGRAMS

SCH01_CPU
SCH02_DSP
SCH03_DIR
SCH04_CNT1
SCH05_INPUT
SCH06_CNT2
SCH07_DAB
SCH08_FRONT
SCH09_SPK
SCH10_AMP
SCH11_ST_BY
⚠5 SCH12_ST_BY-2

## PRINTED CIRCUIT BOARDS

MAIN, INPUT, CNT 1, CNT 2, REGULATOR 1,
REGULATOR 2, DAB EK Only, GUIDE R, GUIDE F, SUB
GUIDE F , GUIDE
SPK, FRONT, AMP, ST_BY
⚠5 ST_BY-2

## LEVEL DIAGRAM

HEADPHONE
SPEAKER

## BLOCK DIAGRAM

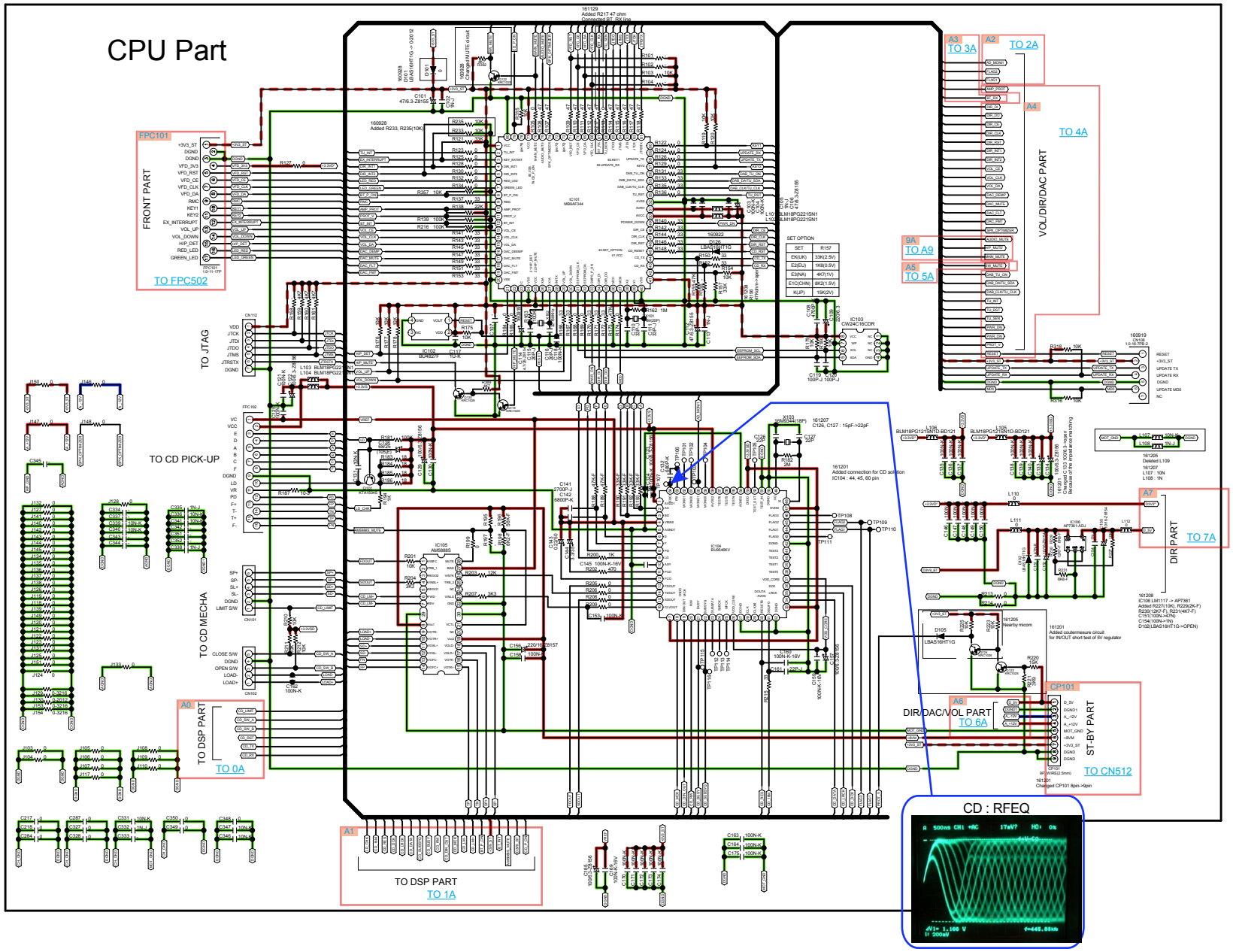
## POWER DIAGRAM

## WIRING DIAGRAM

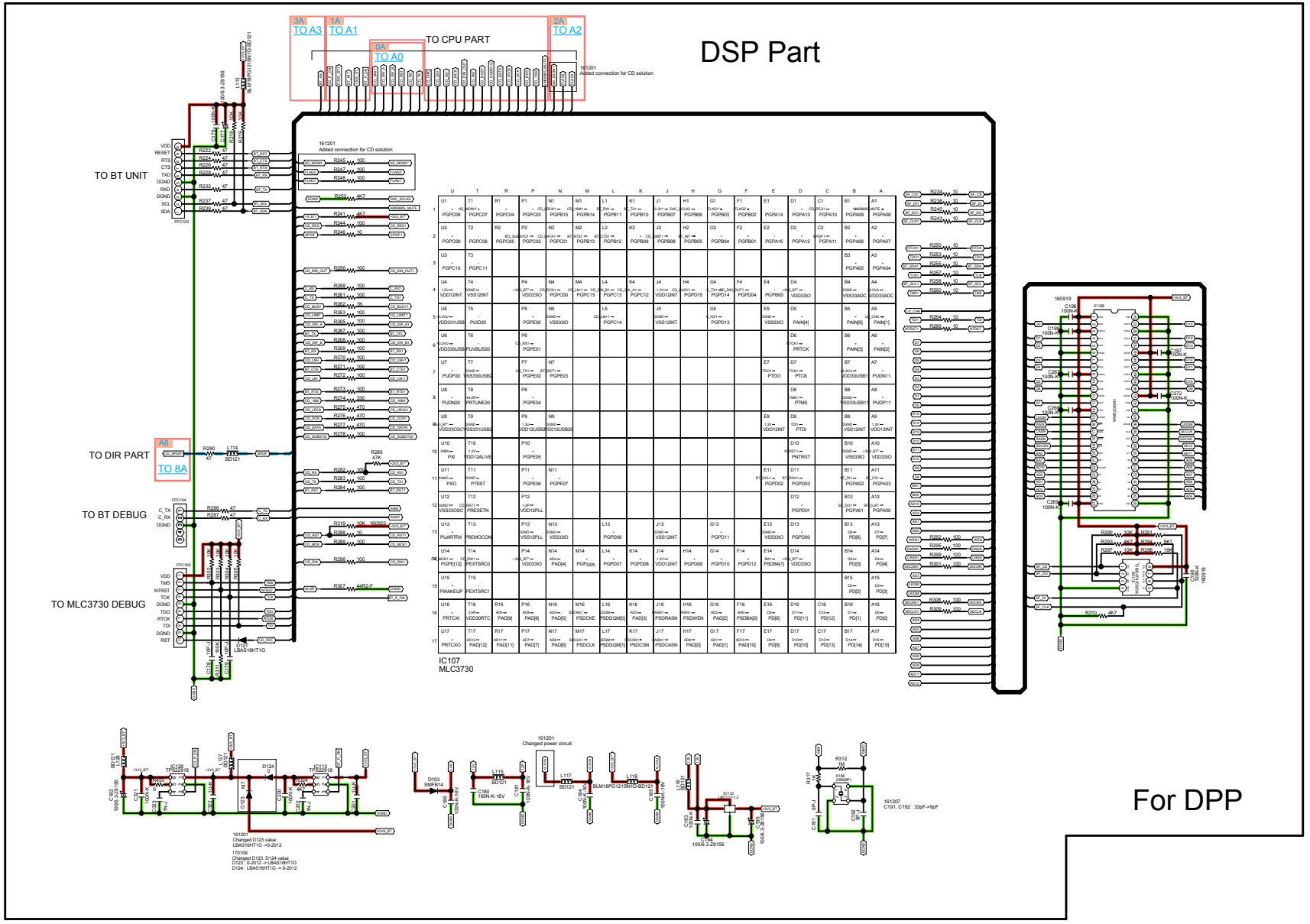
## SEMICONDUCTORS

1. IC's
2. FL DISPLAY
3. Remote Code Table

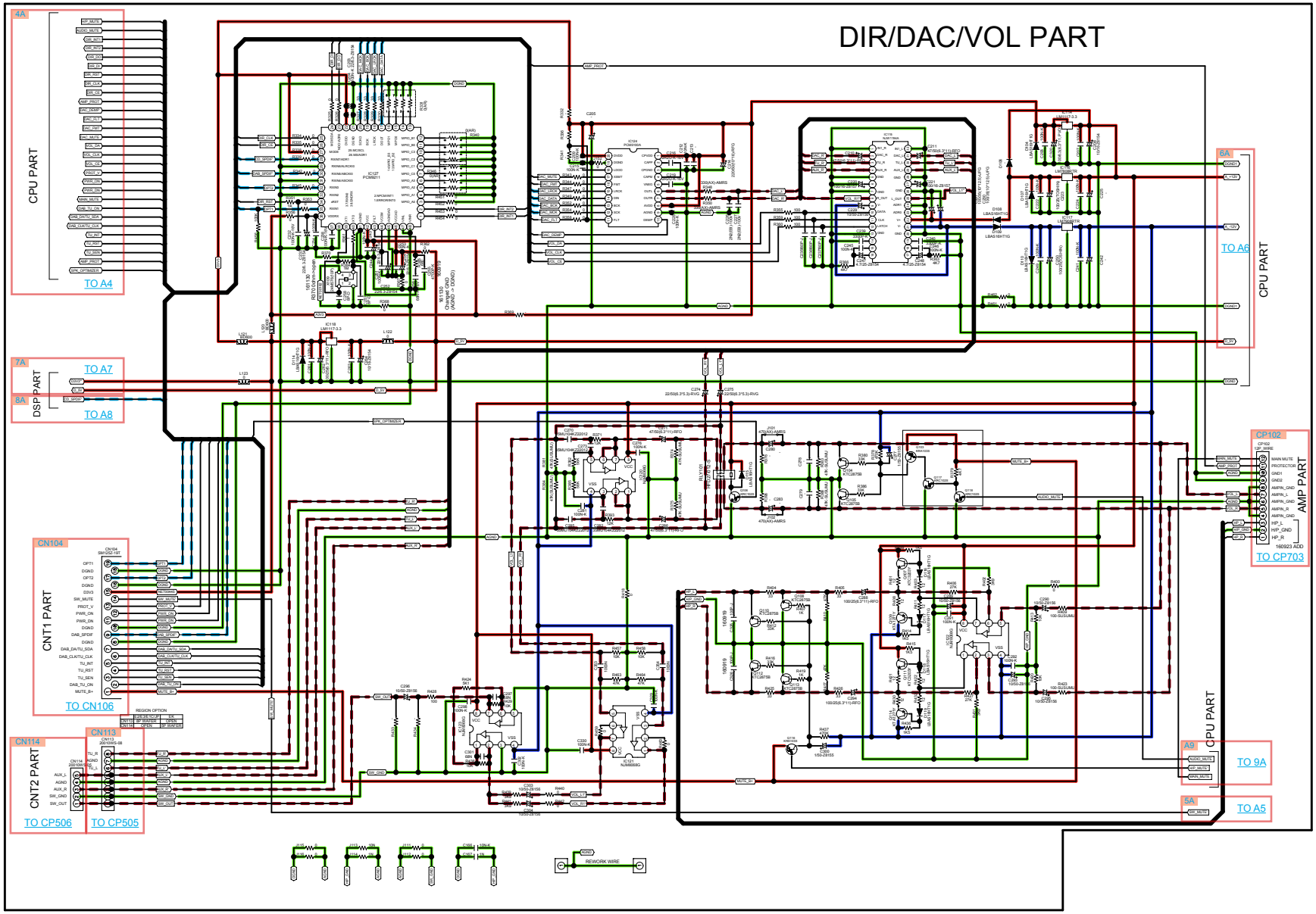
## SCH01_CPU



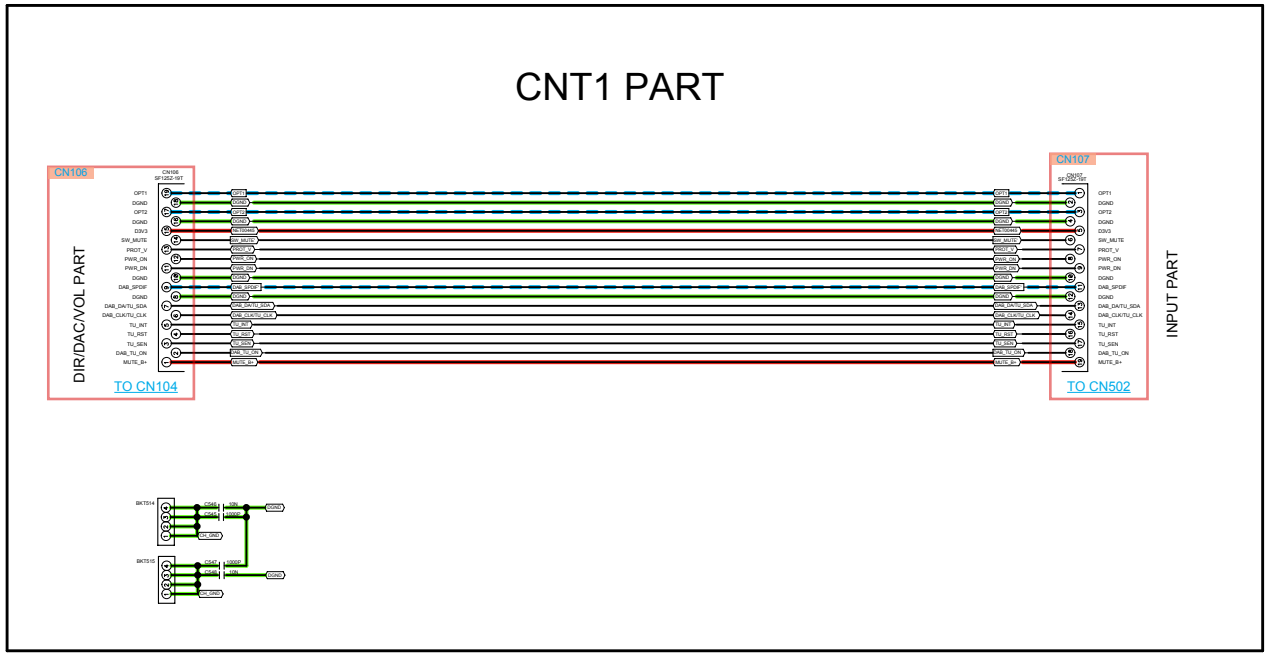

GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER



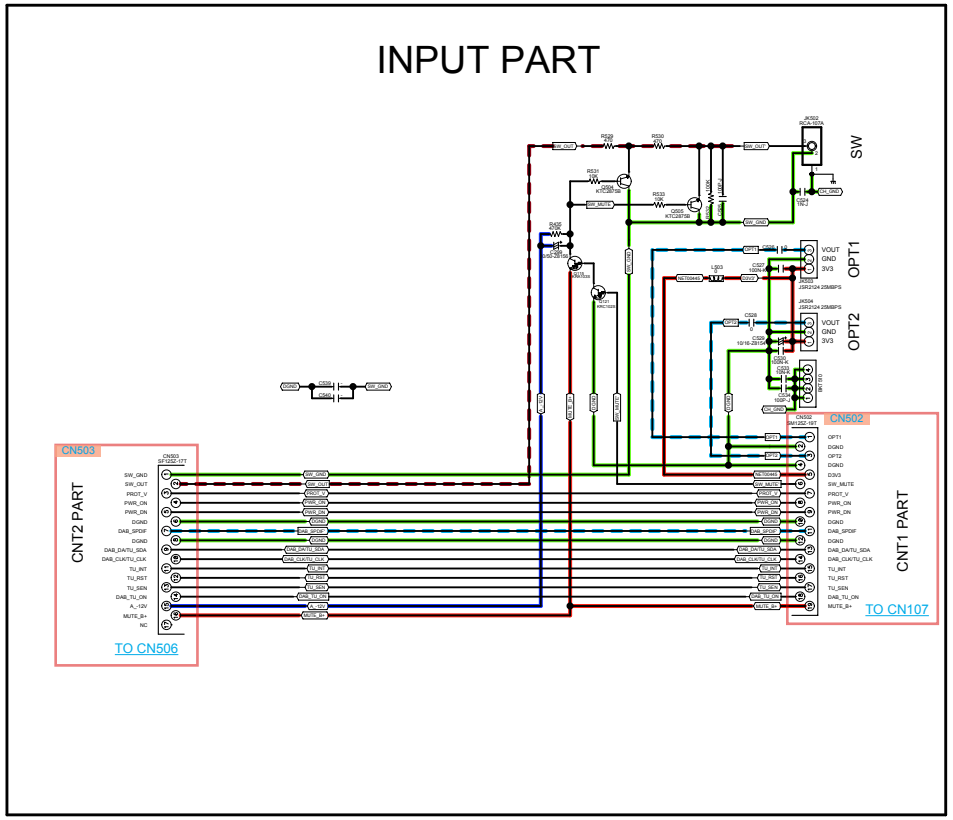

GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER

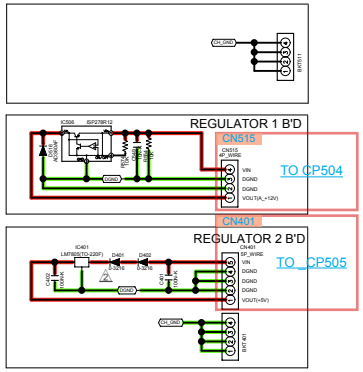



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER

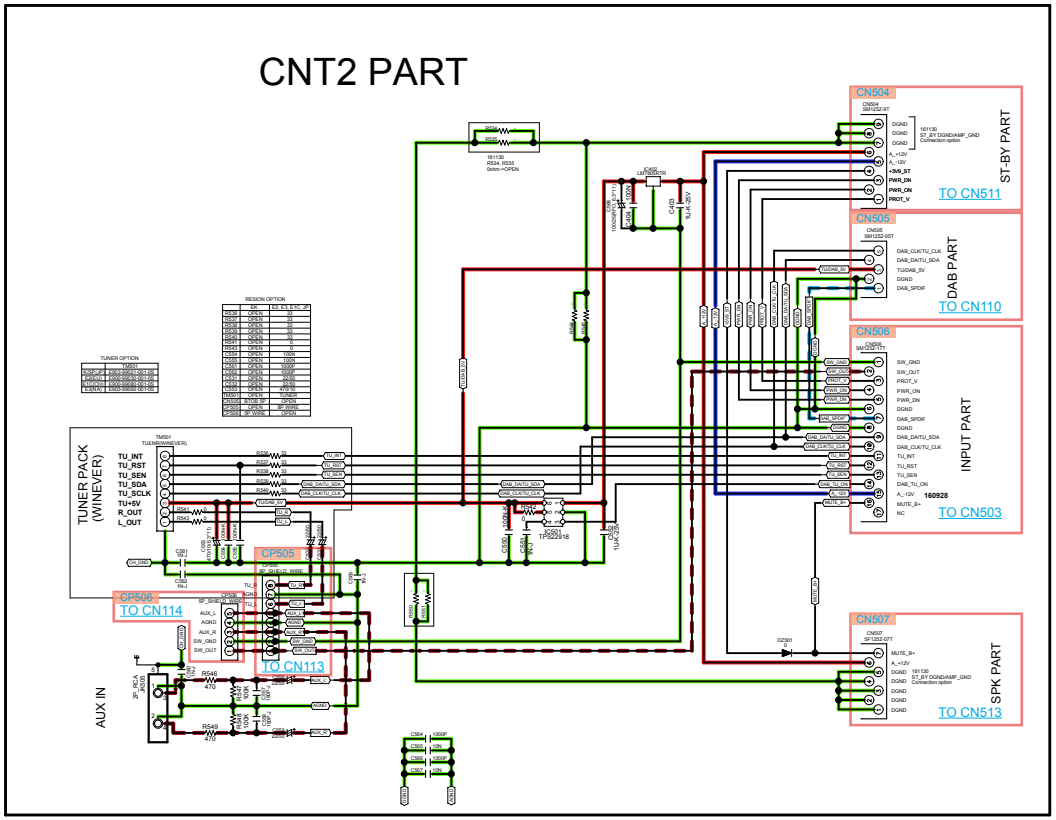



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER

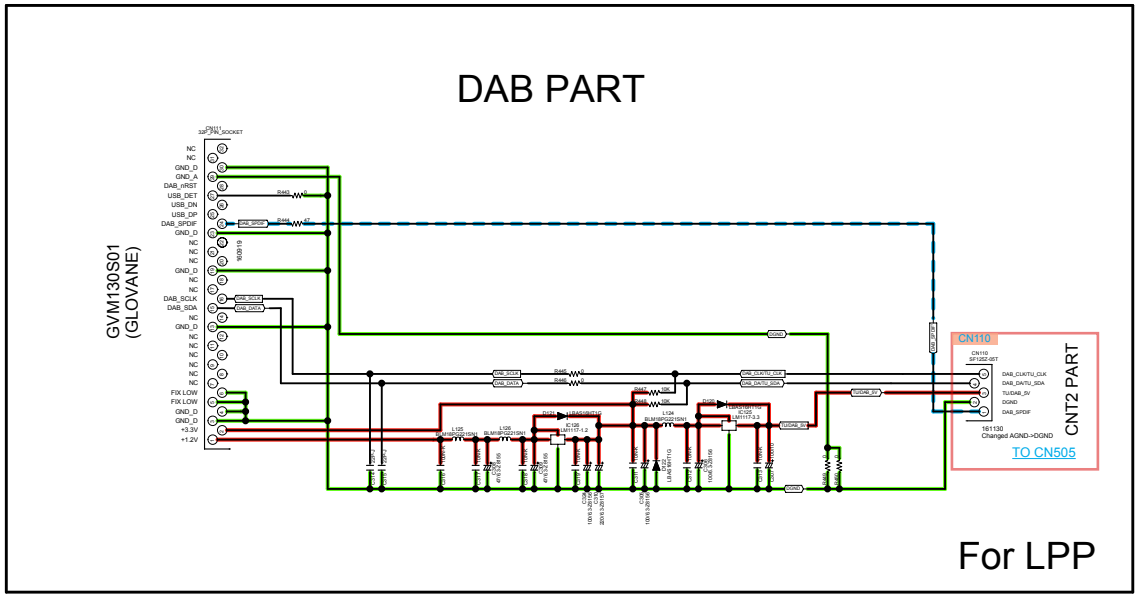


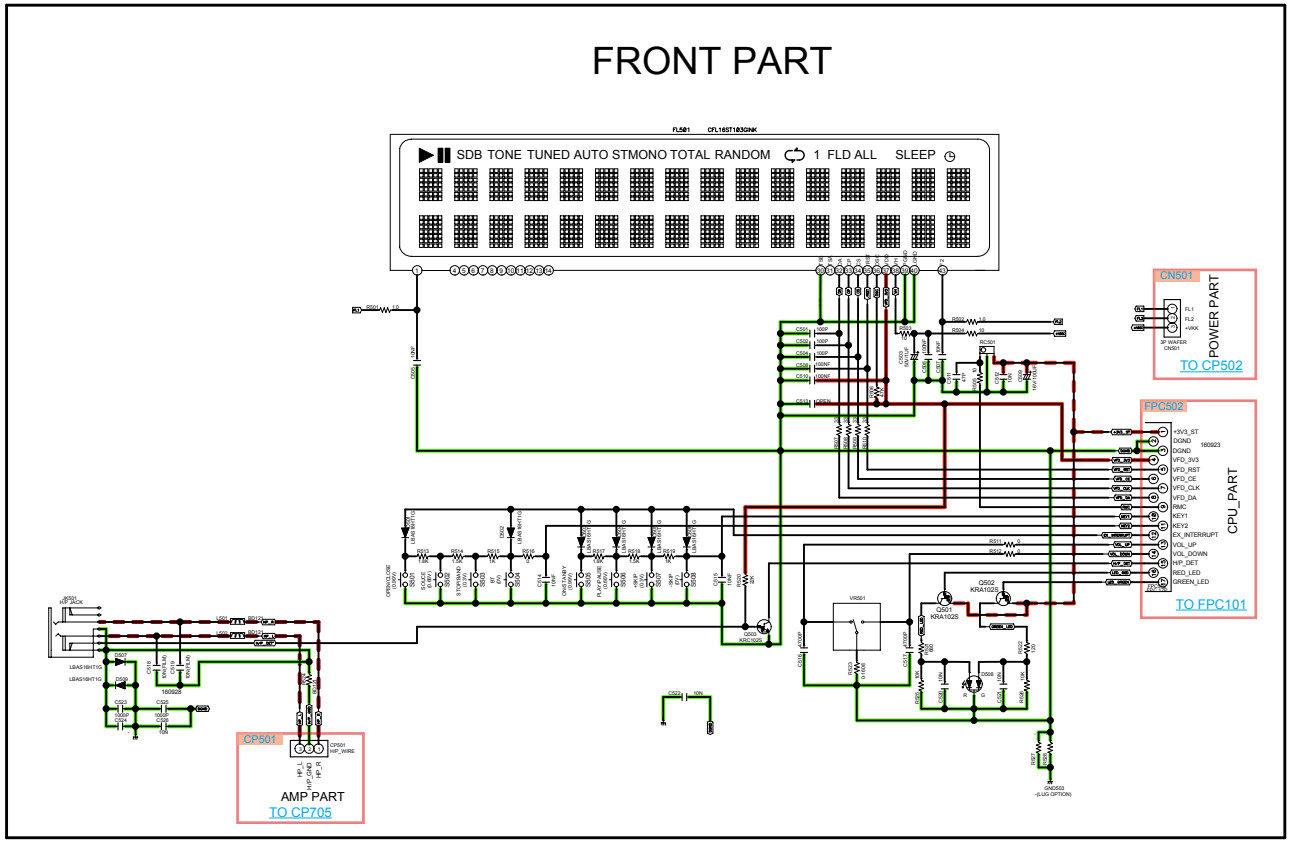

GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER



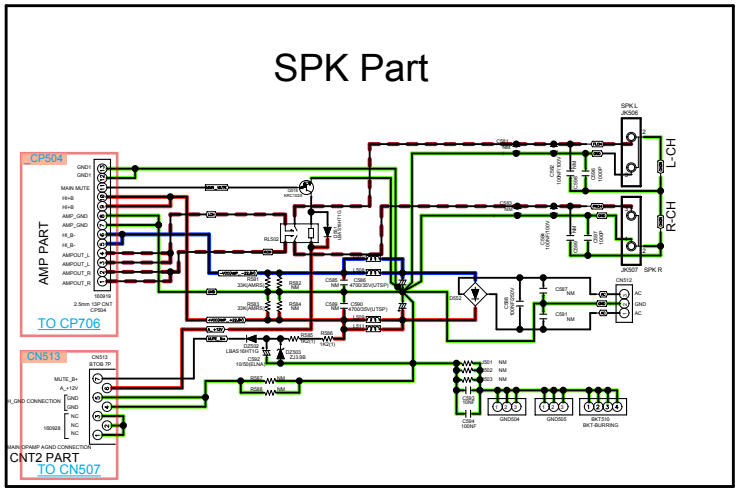

GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER




GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER

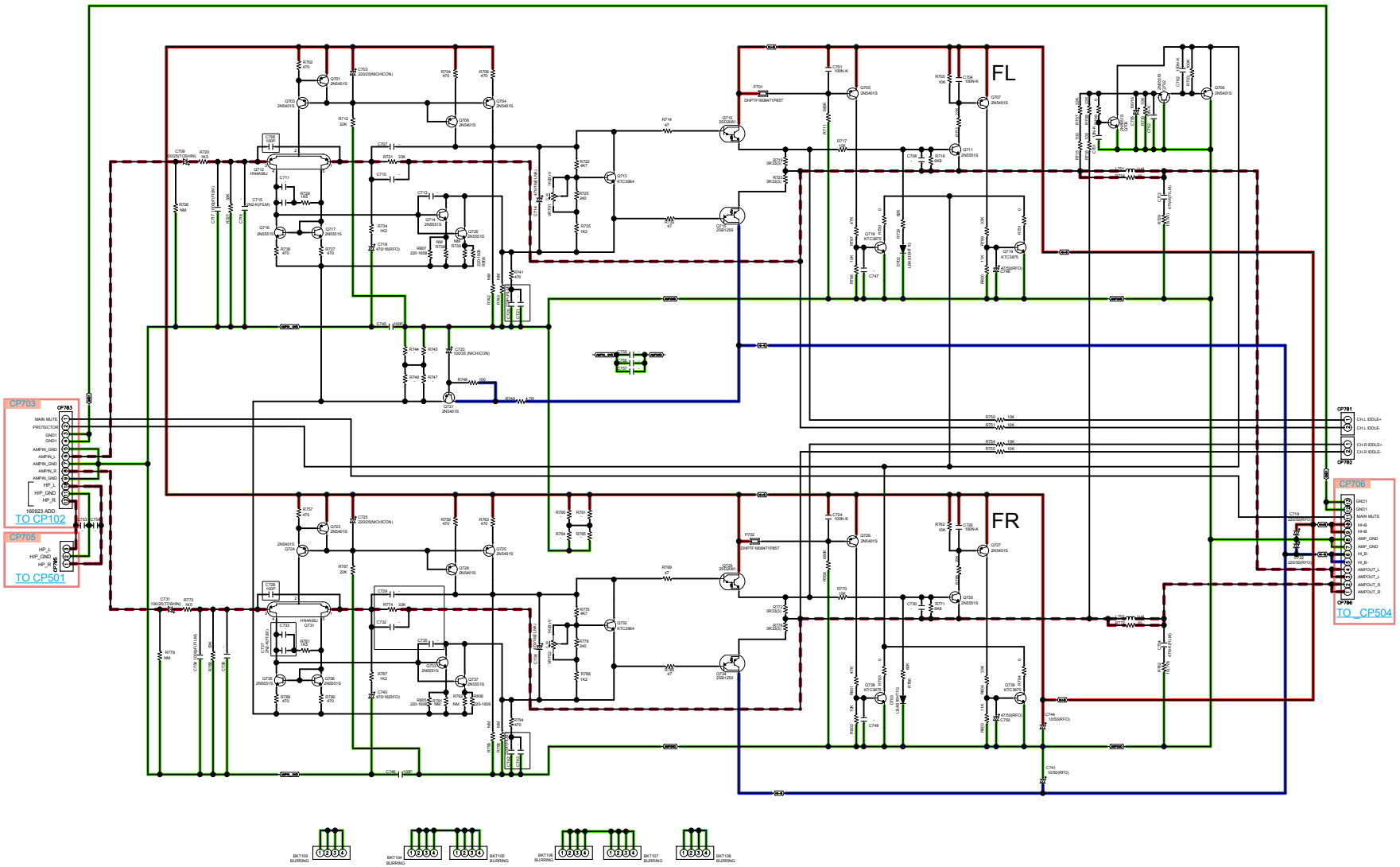



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER

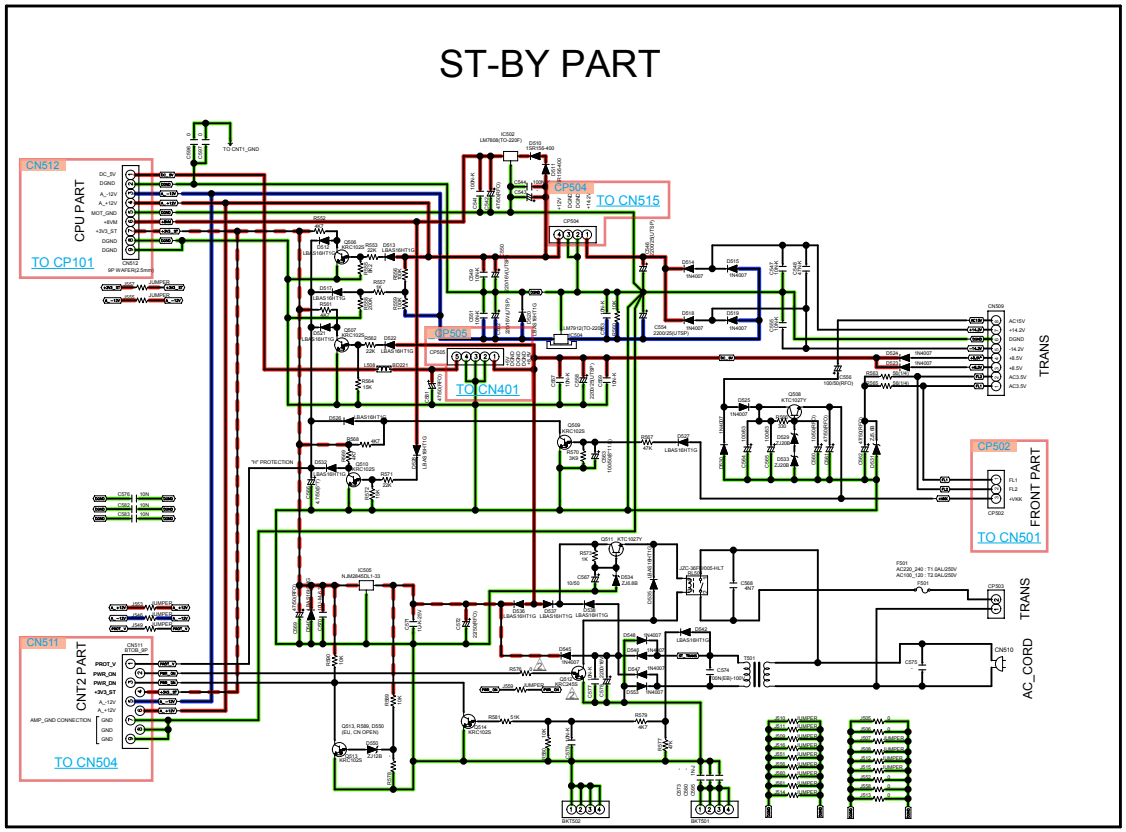



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER

## RCD-M41 AMP ASSY



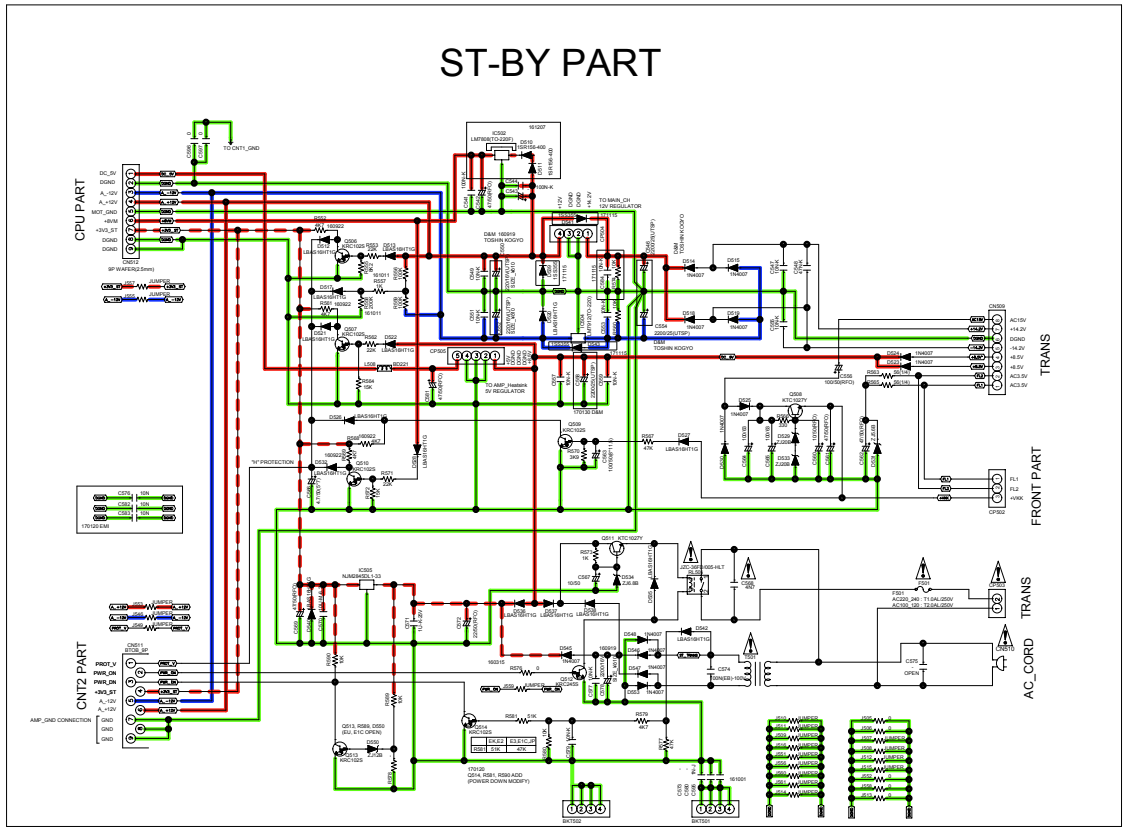

GND LINE  POWER+ LINE  POWER- LINE  ANALOG AUDIO  DIGITAL AUDIO  STBY POWER




Note: For products with a serial number in the following table, see the schematic diagram in SCH12_ST_BY-2.

| Model | Applied | Serial Number |
|---|---|---|
| DM41 | SBKE3 | 02014- |
| RCDM41 | SP | 05412- |
| RCDM41 | DABBKEK | 17171- |
| RCDM41 | DABSPEK | 19870- |
| RCDM41 | SPE2 | 03902- |
| RCDM41 | BKE2 | 04091- |
| RCDM41 | BKE1C | 01184- |

GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER




Note: This schematic diagram is for products with a serial number in the following table. For products with earlier serial numbers, see SCH11_ST_BY.

| Model | Applied | Serial Number |
|---|---|---|
| DM41 | SBKE3 | 02014- |
| RCDM41 | SP | 05412- |
| RCDM41 | DABBKEK | 17171- |
| RCDM41 | DABSPEK | 19870- |
| RCDM41 | SPE2 | 03902- |
| RCDM41 | BKE2 | 04091- |
| RCDM41 | BKE1C | 01184- |

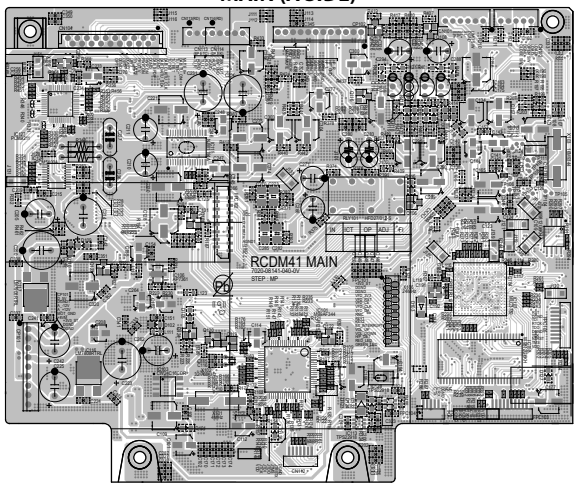
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER

# PRINTED CIRCUIT BOARDS

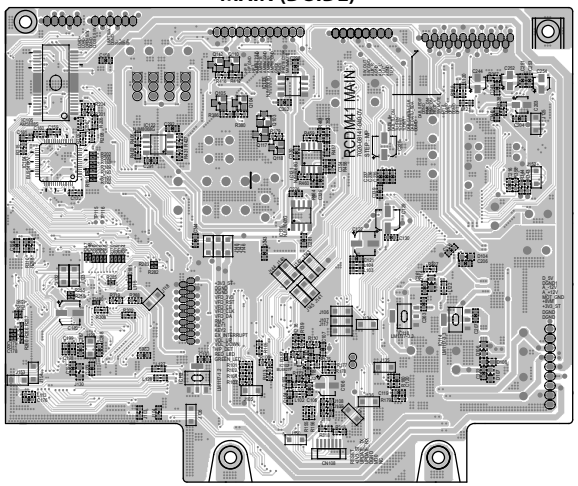
## MAIN, INPUT, CNT 1, CNT 2, REGULATOR 1, REGULATOR 2, DAB EK Only, GUIDE R, GUIDE F, SUB GUIDE F , GUIDE

**Lead-free Solder**
When soldering, use the Lead-free Solder (Sn-Ag-Cu).

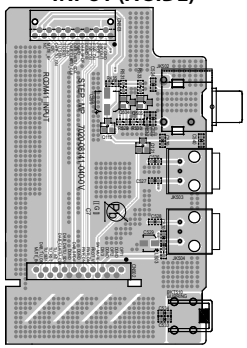
MAIN (A SIDE)



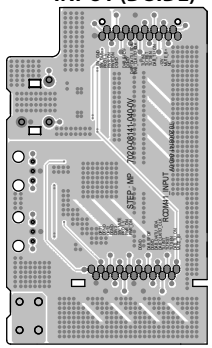

MAIN (B SIDE)



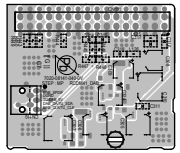

INPUT (A SIDE)



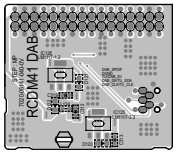
INPUT (B SIDE)



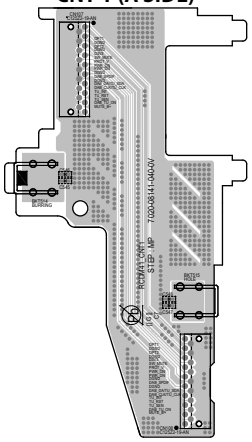
DAB (A SIDE) EK Only



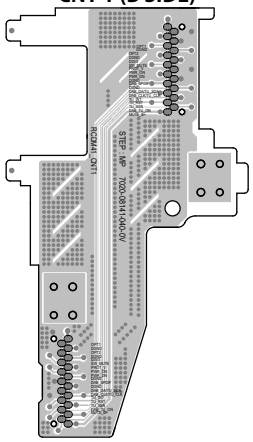
DAB (B SIDE) EK Only



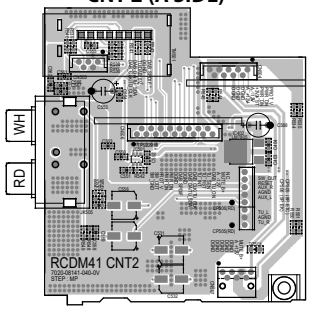

CNT 1 (A SIDE)



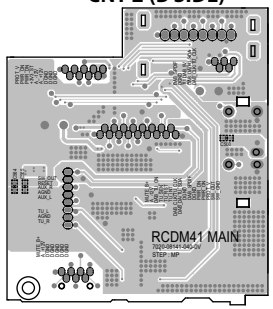
CNT 1 (B SIDE)



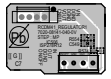
CNT 2 (A SIDE)



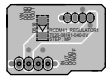

CNT 2 (B SIDE)



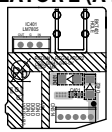

REGULATOR 1 (A SIDE)



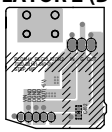
REGULATOR 1 (B SIDE)



REGULATOR 2 (A SIDE)

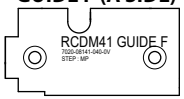


REGULATOR 2 (B SIDE)

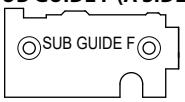


GUIDE R (A SIDE)

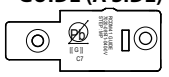

GUIDE F (A SIDE)



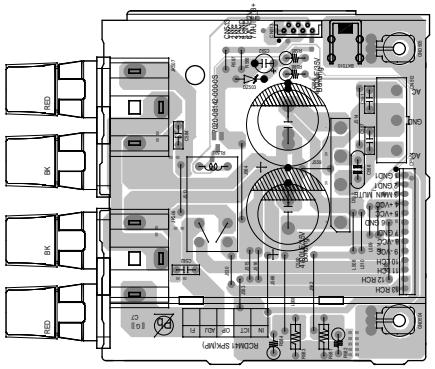

SUB GUIDE F (A SIDE)



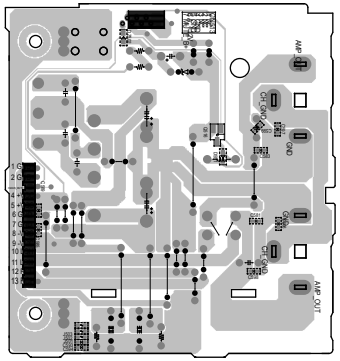

GUIDE (A SIDE)



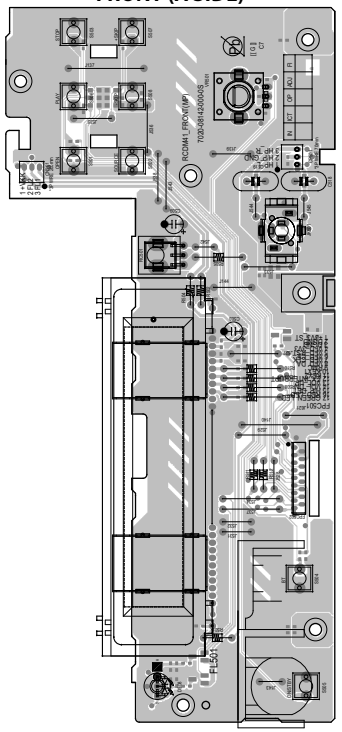
SPK (A SIDE)



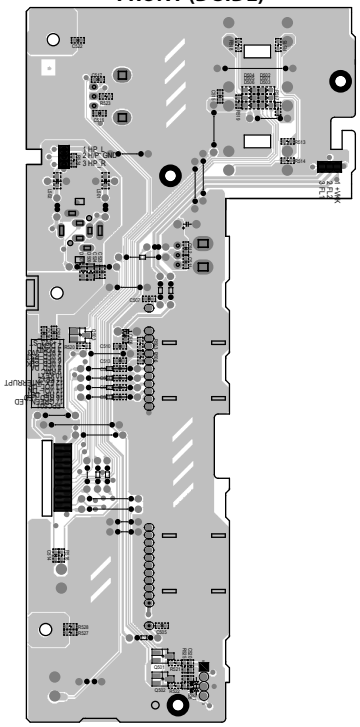
SPK (B SIDE)



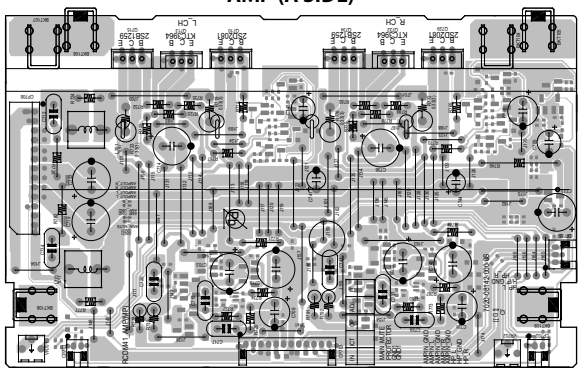
FRONT (A SIDE)



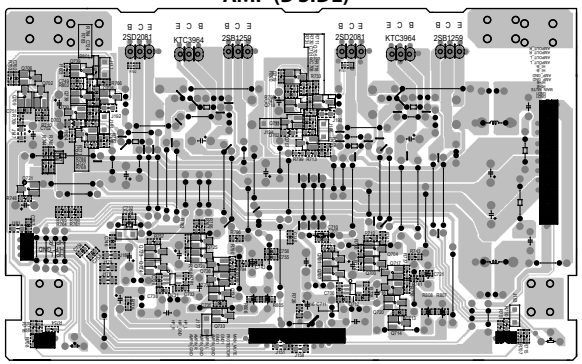
FRONT (B SIDE)



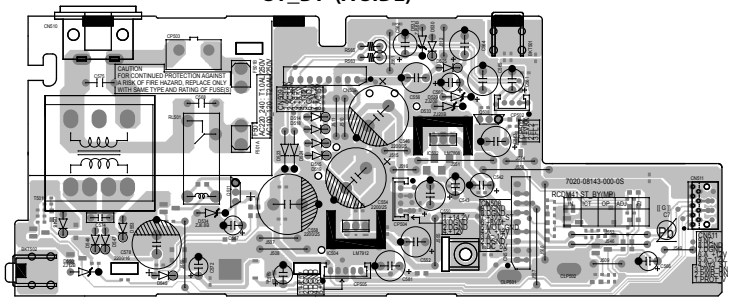
AMP (A SIDE)



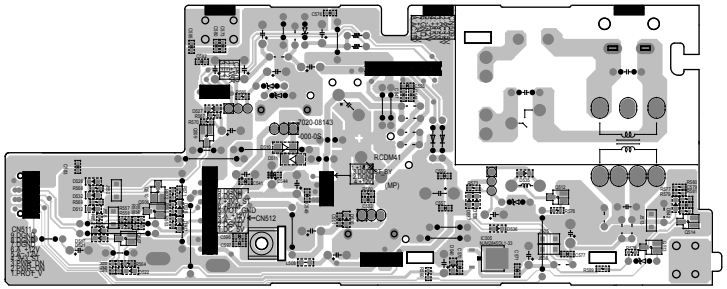
AMP (B SIDE)



※ ST_BY (A SIDE)



※ ST_BY (B SIDE)



△5 ※ : For products with a serial number in the following table, see the printed circuit board in ST_BY-2.

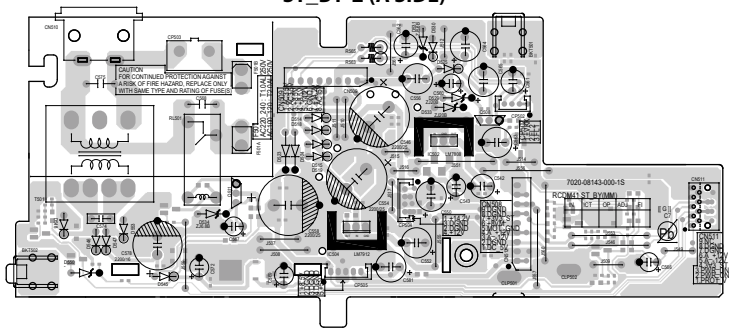
| Model | Applied | Serial Number |
|---|---|---|
| DM41 | SBKE3 | 02014- |
| RCDM41 | SP | 05412- |
| RCDM41 | DABBKEK | 17171- |
| RCDM41 | DABSPEK | 19870- |
| RCDM41 | SPE2 | 03902- |
| RCDM41 | BKE2 | 04091- |
| RCDM41 | BKE1C | 01184- |

# ST_BY-2

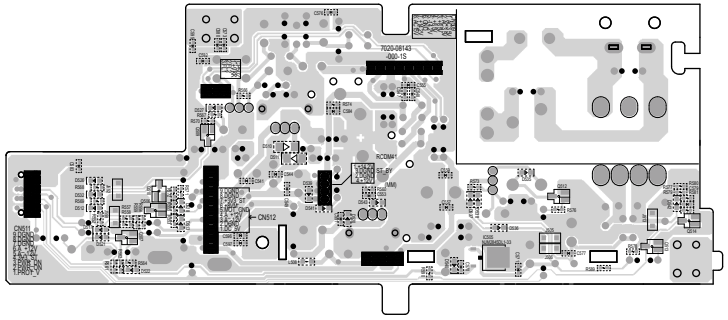
Note: This printed circuit board is for products with a serial number in the following table. For products with earlier serial numbers, see ST_BY.

| Model | Applied | Serial Number |
|---|---|---|
| DM41 | SBKE3 | 02014- |
| RCDM41 | SP | 05412- |
| RCDM41 | DABBKEK | 17171- |
| RCDM41 | DABSPEK | 19870- |
| RCDM41 | SPE2 | 03902- |
| RCDM41 | BKE2 | 04091- |
| RCDM41 | BKE1C | 01184- |

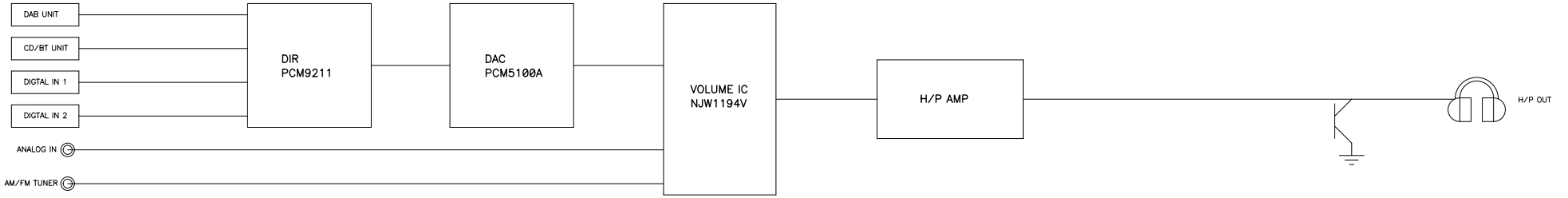
ST_BY-2 (A SIDE)

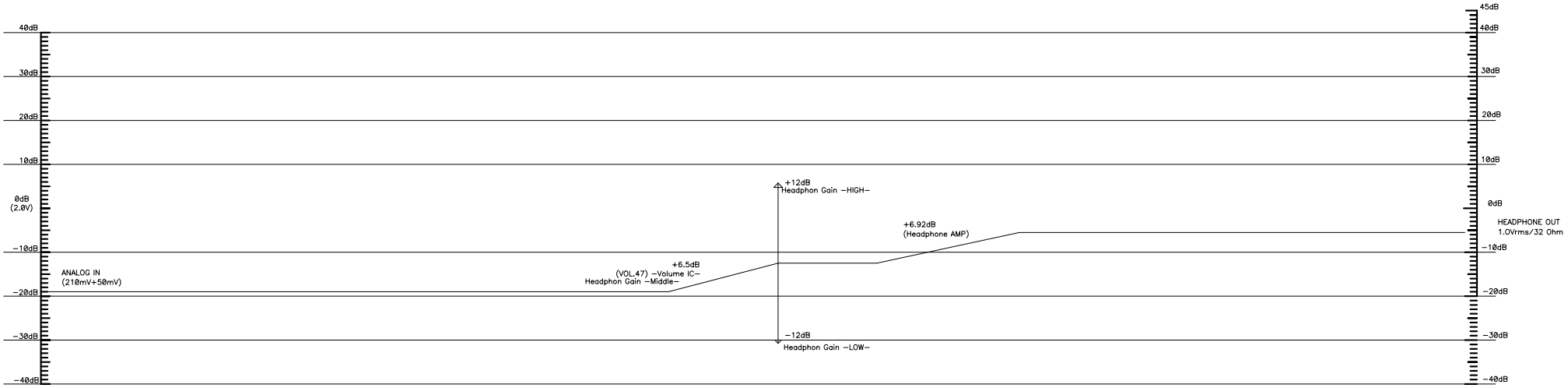


ST_BY-2 (B SIDE)

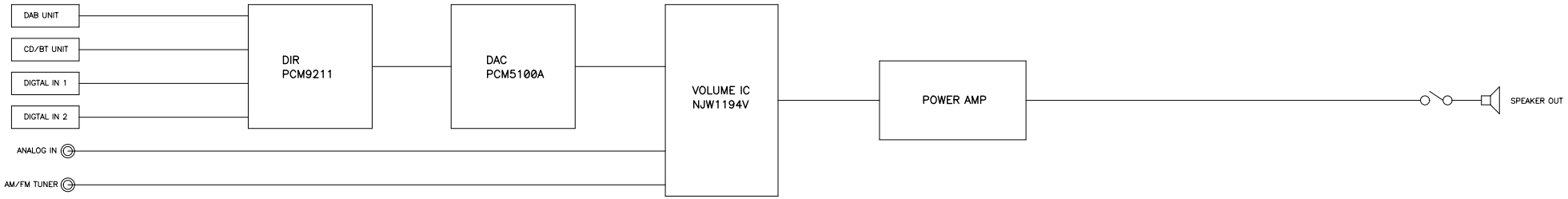


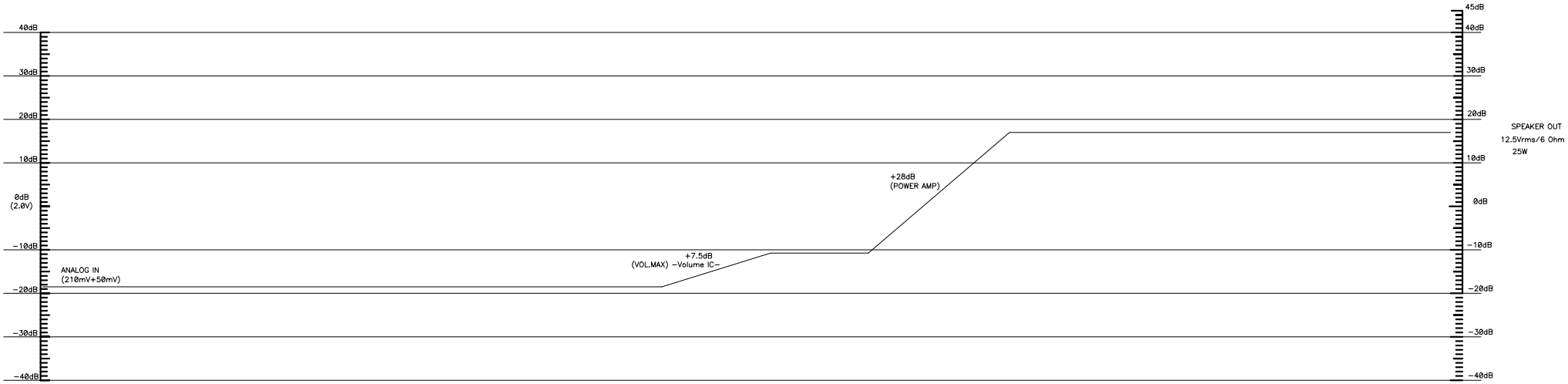
# RCD-M41 LEVEL DIAGRAM(HEADPHONE)

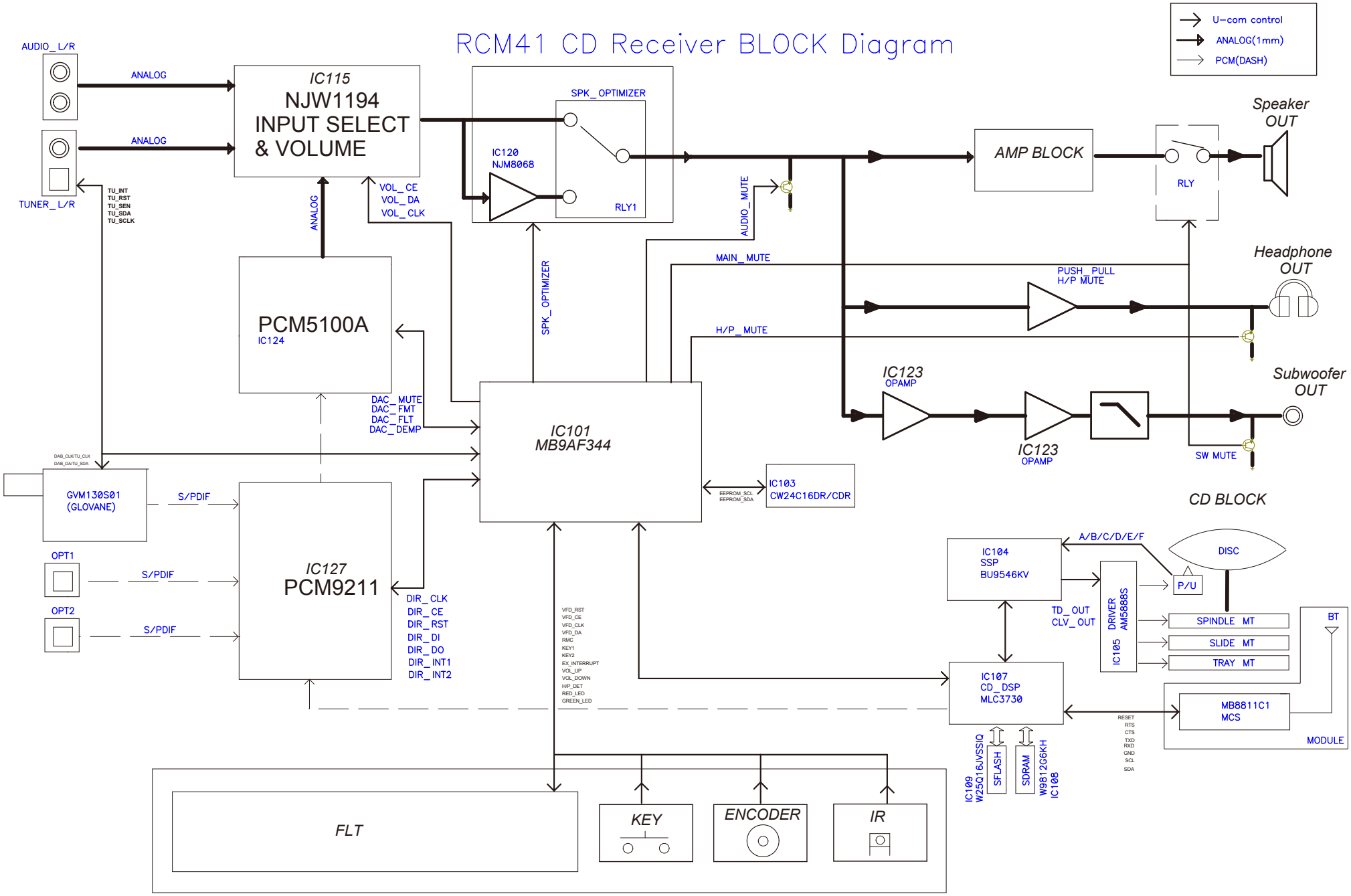


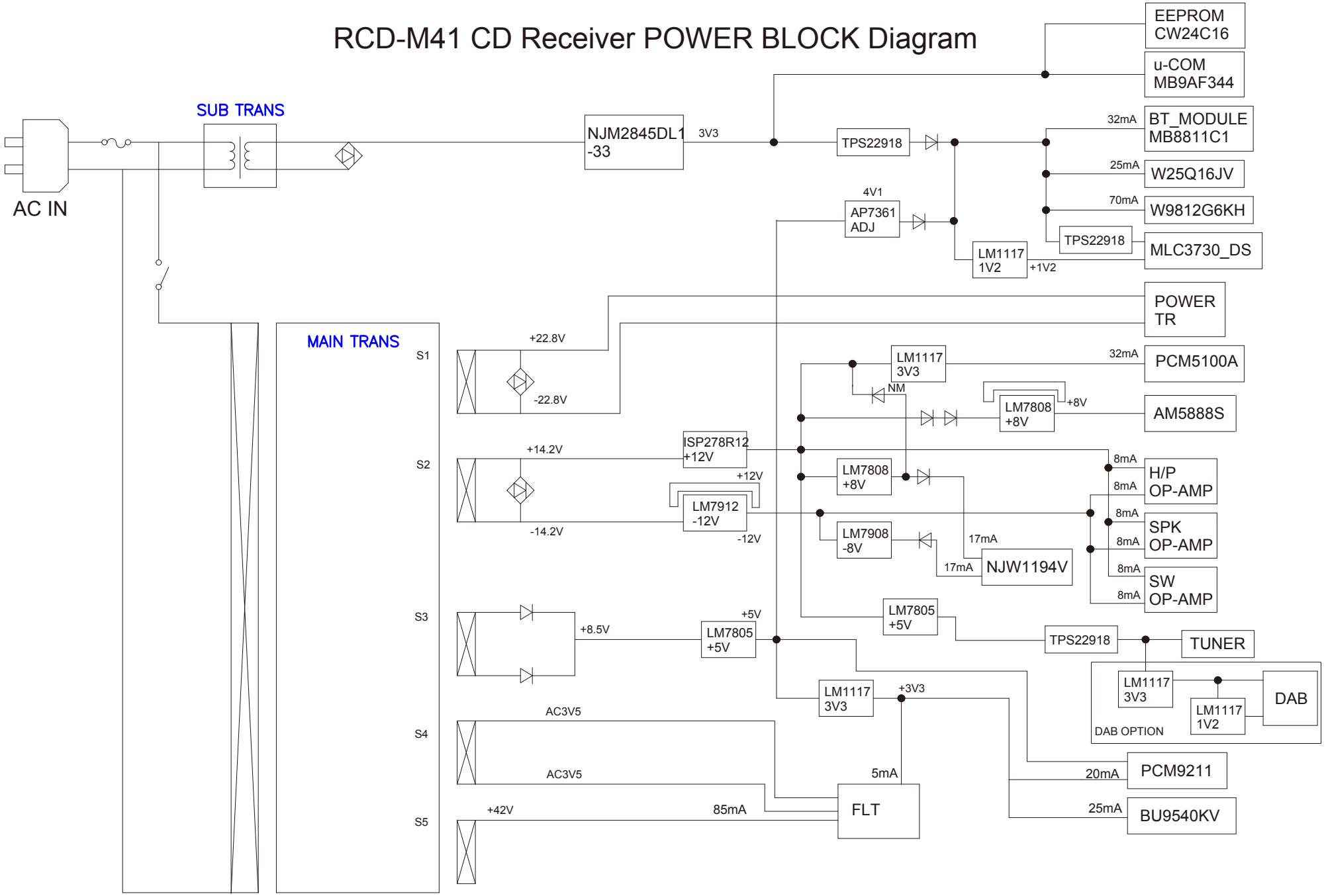
# RCD-M41 LEVEL DIAGRAM (SPEAKER)



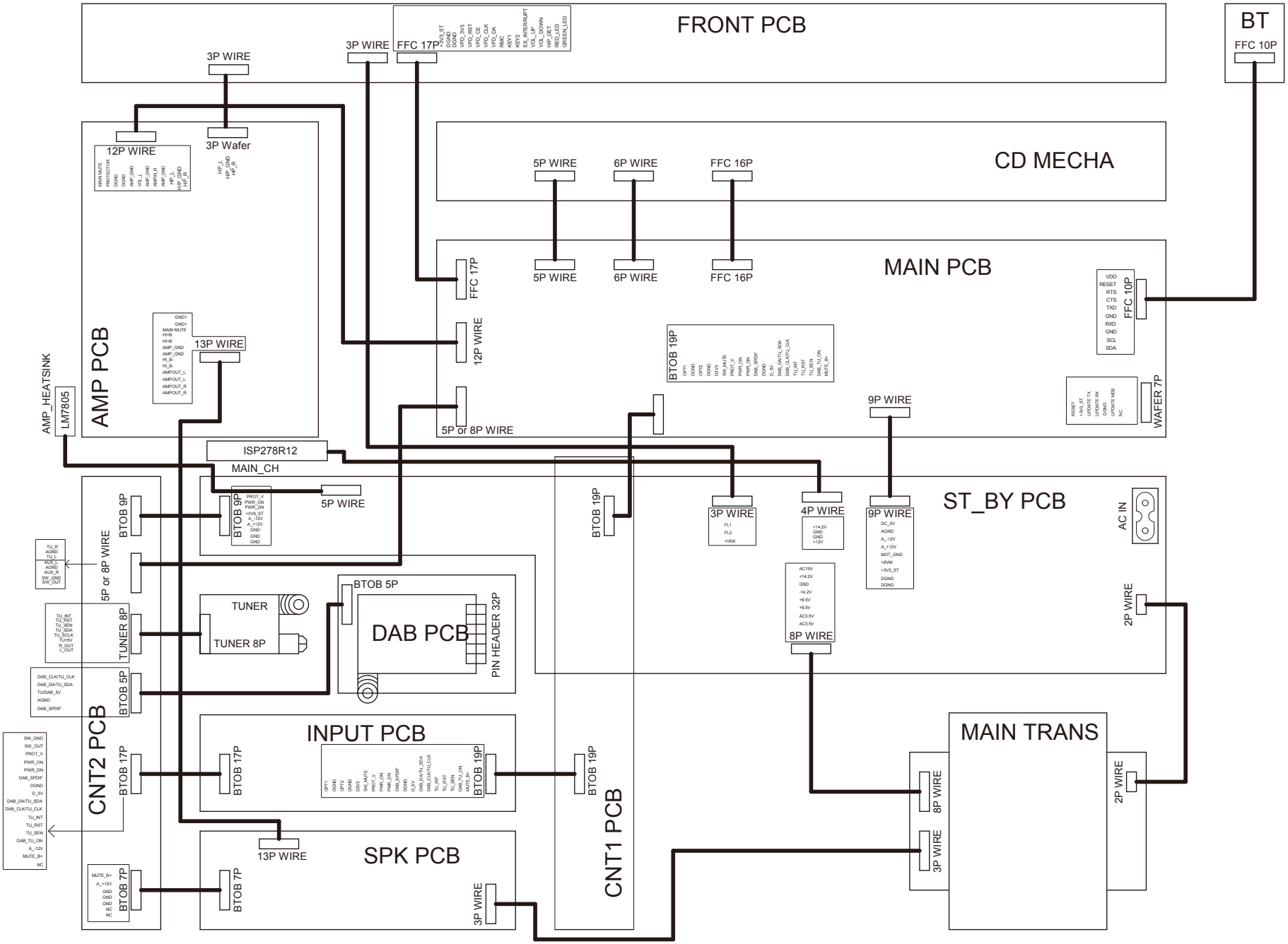




RCM41 CD Receiver BLOCK Diagram
U-com control
ANALOG(1mm)
PCM(DASH)
AUDIO_L/R
ANALOG
TUNER_L/R
TU_INT
TU_RST
TU_SEN
TU_SDA
TU_SCLK
IC115
NJW1194
INPUT SELECT
& VOLUME
VOL_CE
VOL_DA
VOL_CLK
SPK_OPTIMIZER
IC120
NJM8068
RLY1
AUDIO_MUTE
AMP BLOCK
RLY
Speaker
OUT
MAIN_MUTE
PUSH_PULL
H/P MUTE
Headphone
OUT
H/P_MUTE
PCM5100A
IC124
DAC_MUTE
DAC_FMT
DAC_FLT
DAC_DEMP
IC123
OPAMP
IC123
OPAMP
Subwoofer
OUT
SW MUTE
IC101
MB9AF344
IC103
CW24C16DR/CDR
EEPROM_SCL
EEPROM_SDA
CD BLOCK
GVM130S01
(GLOVANE)
S/PDIF
OPT1
OPT2
S/PDIF
S/PDIF
IC127
PCM9211
DIR_CLK
DIR_CE
DIR_RST
DIR_DI
DIR_DO
DIR_INT1
DIR_INT2
IC104
SSP
BU9546KV
A/B/C/D/E/F
DISC
P/U
TD_OUT
CLV_OUT
DRIVER
AM5888S
IC105
SPINDLE MT
SLIDE MT
TRAY MT
BT
IC107
CD_DSP
MLC3730
MB8811C1
MCS
MODULE
IC109
W25Q16JVSSIQ
SFLASH
SDRAM
W9812G6KH
IC108
FLT
KEY
ENCODER
IR

# RCD-M41 CD Receiver POWER BLOCK Diagram



# RCD-M41 WIRING DIAGRAM

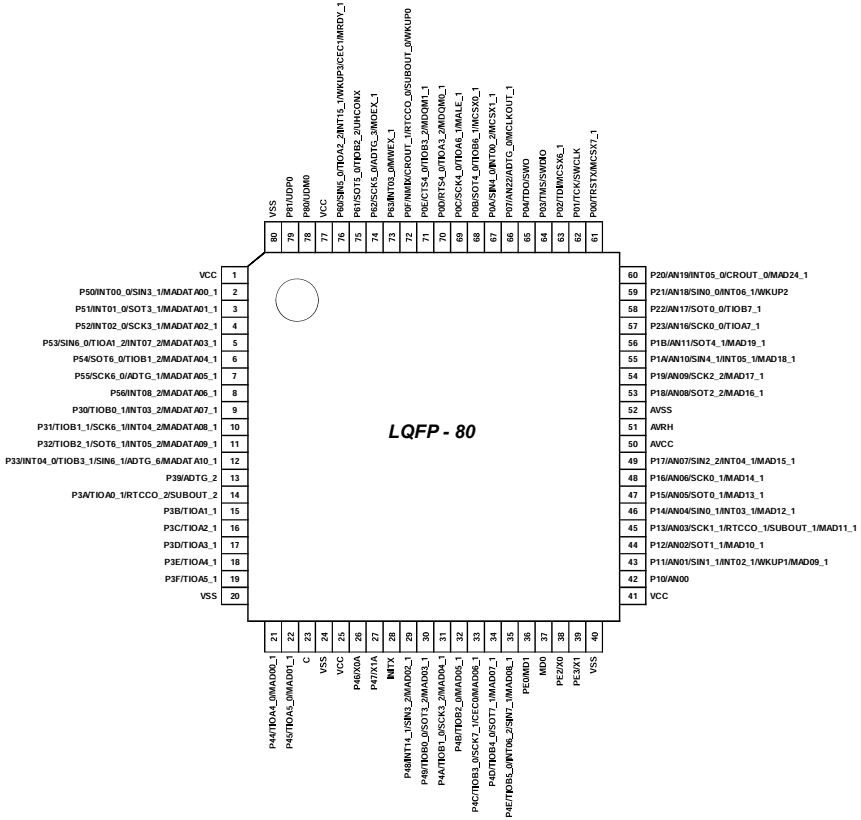


# SEMICONDUCTORS

Only major semiconductors are shown, general semiconductors etc. are omitted to list.
The semiconductor which described a detailed drawing in a schematic diagram are omitted to list.

## 1. IC's

### MB9AF344 (MAIN : IC101)

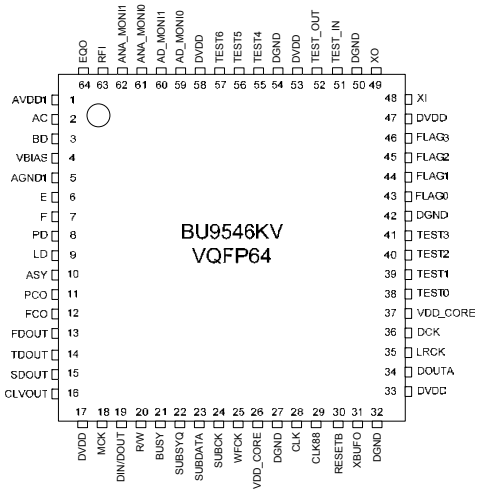



Terminal Function

| pin No | Pin Name | Alternate | Symbol | I/O | Description |
|---|---|---|---|---|---|
| 1 | VCC | - | - | - | |
| 2 | P50 | INT00_0/SIN3_1/MADATA00_1 | TU_INT | I/O | TUNER INTERRUPT |
| 3 | P51 | INT01_0/SOT3_1/MADATA01_1 | EX_INTERRUPT | I | KEY EXIT REQUEST |
| 4 | P52 | IN02_0/SCK3_1/MADATA02_1/MADATA02_1 | DIR_INT1 | I | DIR INTERRUPT 1 |
| 5 | P53 | INT07_2/SIN6_0/TIOA1_2/MADATA03_1 | DIR_INT2 | I | DIR INTERRUPT 2 |
| 6 | P54 | SOT6_0/TIOB1_2/MADATA04_1 | LED_RED | O | RED LED |
| 7 | P55 | SCK6_0/ADTG_1/MADATA05_1 | LED_GREEN | O | GREEN LED |
| 8 | P56 | INT08_2/MADATA06_1 | BT_P_ON | O | BT POWER SWITCH ON/OFF |
| 9 | P30 | TIOB0_1/INT03_2/MADATA07_1 | RMC | I | REMOCON INPUT |
| 10 | P31 | TIOB1_1/SCK6_1/INT04_2/MADATA08_1 | AMP_PROT | I | AMP PROTECTION |
| 11 | P32 | TIOB2_1/SOT6_1/INT05_2/MADATA09_1 | PROT_V | I | POWER PROTECTION |
| 12 | P33 | INT04_0/TIOB3_1/SIN6_1/ADTG_6/MADATA11_1 | BT_REQ | I | BT POWER ON REQUEST |
| 13 | P39 | ADTG_2 | VOL_CE | O | NJW1194 CE |
| 14 | P3A | TIOA0_1/RTCCO_2/SUBOUT_2 | VOL_CLK | O | NJW1194_CLK |
| 15 | P3B | TIOA1_1 | VOL_DA | O | NJW1194_CA |
| 16 | P3C | TIOA2_1 | DAC_DEEMP | O | DAC DEEMPHASYS |
| 17 | P3D | TIOA3_1 | DAC_MUTE | O | DAC MUTE |
| 18 | P3E | TIOA4_1 | DAC_FLT | O | DAC FILTER |
| 19 | P3F | TIOA5_1 | DAC_FMT | O | DAC OUT FORMAT |
| 20 | VSS | - | - | - | |
| 21 | P44 | TIOA4_0/MAD00_1 | H/P_DET | I | HEADPHONE DETECTION |
| 22 | P45 | TIOA5_0/MAD01_1 | H/P_MUTE | O | HEADPHONE MUTE |
| 23 | C | - | - | - | |
| 24 | VSS | - | - | - | |
| 25 | VCC | - | - | - | |
| 26 | X0A | P46 | SUB CLOCK | - | 32,768Hz |
| 27 | X1A | P47 | SUB CLOCK | - | |
| 28 | INITX | - | RESET | - | RESET |
| 29 | P48 | INT14_1/SIN3_2/MAD02_1 | VOL_UP | I | VOLUME ENCODER UP |
| 30 | P49 | TIOB0_0/SOT3_2/MAD03_1 | VOL_DOWN | I | VOLUME ENCODER DOWN |
| 31 | P4A | TIOB1_0/SCK3_2/MAD04_1 | EEPROM_SCL | O | EEPROM CLK |
| 32 | P4B | TIOB2_0/MAD05_1 | EEPROM_SDA | I/O | EEPROM DATA |
| 33 | P4C | TIOB3_0/SCK7_1/CEC0/MAD06_1 | PWR_ON | O | POWER ON/OFF |
| 34 | P4D | TIOB4_0/SOT7_1/MAD07_1 | DIR_DI | I | DIR DATA INPUT |
| 35 | P4E | TIOB5_0/INT06_2/SIN7_1/MAD08_1 | DIR_DO | O | DIR DATA OUTPUT |
| 36 | MD1 | PE0 | MD1 | - | UPGRADE MD1(GND) |
| 37 | MD0 | - | MD0 | - | UPGRADE MD0 |
| 38 | X0 | PE2 | MAIN CLOCK | - | 4MHz |
| 39 | X1 | PE3 | MAIN CLOCK | - | |
| 40 | VSS | - | - | - | |
| 41 | VCC | - | - | - | |
| 42 | P10 | AN00 | SET_OPTION | I | SET OPTION |
| 43 | P11 | AN01/SIN1_1/INT02_1/WKUP1/MAD09_1 | CD_RX | I | CD UART INPUT |
| 44 | P12 | AN02/SOT1_1/MAD10_1 | CD_TX | O | CD UART OUTPUT |
| 45 | P13 | AN03/SCK1_1/RTCCO_1/SUBOUT_1/MAD11_1 | CD_RST | O | CD RESET |
| 46 | P14 | AN04/INT03_1/SIN0_1/MAD12_1 | DIR_RST | O | DIR RESET |
| 47 | P15 | AN05/SOT0_1/MAD13_1 | DIR_CLK | O | DIR CLOCK |
| 48 | P16 | AN06/SCK0_1/MAD14_1 | DIR_CE | O | DIR CE |
| 49 | P17 | AN07/SIN2_2/INT04_1/MAD15_1 | PWR_DN | I | AC PULSE INPUT |
| 50 | AVCC | - | - | - | |

| pin No | Pin Name | Alternate | Symbol | I/O | Description |
|---|---|---|---|---|---|
| 51 | AVRH | - | - | - | |
| 52 | AVSS | - | - | - | |
| 53 | P18 | AN08/SOT2_2/MAD16_1 | TU_RST | O | TUNER RESET |
| 54 | P19 | AN09/SCK2_2/MAD17_1 | DAB_CLK/TU_CLK | O | DAB CLOCK / TUNER CLOCK |
| 55 | P1A | AN10/SIN4_1/INT05_1/MAD18_1 | DAB_DA/TU_SDA | I/O | DAB DATA / TUNER DATA |
| 56 | P1B | AN11/SOT4_1/MAD19_1 | DAB_ON/TU_ON | O | DAB POWER ON / TUNER POWER ON |
| 57 | P23 | AN16/SCK0_0/TIOA7_1 | KEY2 | I | KEY INPUT 2 |
| 58 | P22 | AN17/SOT0_0/TIOB7_1 | TX | O | UPDATE TX |
| 59 | P21 | AN18/SIN0_0/INT06_1 | RX | I | UPDATE RX |
| 60 | P20 | AN19/INT05_1/CROUT_0/MAD24_1 | KEY1 | I | KEY INPUT 1 |
| 61 | P00 | TRSTX/MCSX7_1 | JTRSTX | - | JTAG |
| 62 | P01 | TCK/SWCLK | JTCK | - | JTAG |
| 63 | P02 | TDI/MCSX6-1 | JTDI | - | JTAG |
| 64 | P03 | TMS/SWDIO | JTMS | - | JTAG |
| 65 | P04 | TDO/SWO | JTDO | - | JTAG |
| 66 | P07 | AN22/ADTG_0/MCLKOUT1/TRACED2/ACK4_2 | TU_SEN | O | TUNER SENSE |
| 67 | P0A | SIN4_0/INT00_2/MCSX1_1 | BT_RX | I | BT RX INTERRUPT |
| 68 | P0B | SOT4_0/TIOB6_1/MCSX0_1 | VFD_CLK | O | VFD CLOCK |
| 69 | P0C | SCK4_0/TIOA6_1/MALE_1 | VFD_DA | O | VFD DATA |
| 70 | P0D | RTS4_0/TIOA3_2/MDQM0_1 | VFD_CE | O | VFD CE |
| 71 | P0E | CTS4_0/TIOB3_2/MDQM1_1 | VFD_RST | O | VFD RESET |
| 72 | P0F | NMIX/CROUT_1/RTCCO_0/SUBOUT_0/WKUP0 | - | O | |
| 73 | P63 | INT03_0/MWEX_1 | - | O | |
| 74 | P62 | SCK5_0/ADTG_3/MOEX_1 | SPK_OPTIMIZER | O | SPEAKER OPTIMIZE RELAY ON/OFF |
| 75 | P61 | SOT5_0/TIOB2_2/UHCONX | AUDIO_MUTE | O | AUDIO MUTE |
| 76 | P60 | SIN5_0/TIOA2_2/INT15_1/WKUP3/CEC1/MRDY_1 | MAIN_MUTE | O | SPEAKER RELAY ON/OFF |
| 77 | VCC | - | - | - | |
| 78 | P80 | UDM0 | - | O | |
| 79 | P81 | UDP0 | CD_P_ON | O | Power 3V On |
| 80 | VSS | - | - | - | |

## BU9546KV (MAIN : IC104)



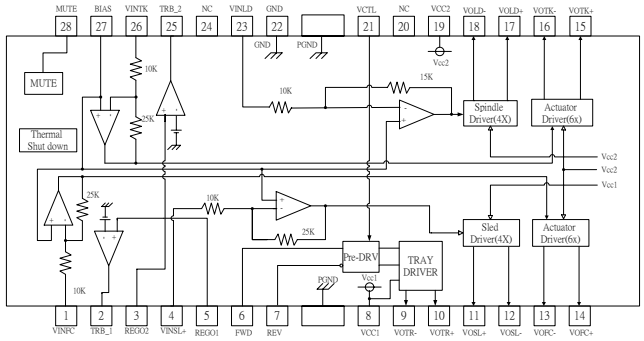

### Terminal Function

**Pin Description(s)**

| Pin No. | Pin Name | Description of terminals |
|---|---|---|
| 1 | AVDD1 | Analog power terminal |
| 2 | AC | A + C voltage input |
| 3 | BD | B + D voltage input |
| 4 | VBIAS | Bias level |
| 5 | AGND1 | Analog GND |
| 6 | E | E voltage input |
| 7 | F | F voltage input |
| 8 | PD | Photo detector input |
| 9 | LD | Laser drive output |
| 10 | ASY | For asymmetric correction |
| 11 | PCO | PLL PCO output terminal |
| 12 | FCO | PLL FCO-DAC output terminal |
| 13 | FDOUT | Focus drive output terminal |
| 14 | TDOUT | Tracking drive output terminal |
| 15 | SDOUT | Sled drive output terminal |
| 16 | CLVOUT | CLV drive output terminal |
| 17 | DVDD | I/O digital power terminal |
| 18 | MCK | Sub Q and command transfer clock input terminal |
| 19 | DIN/DOUT | Command input and status and sub Q output terminal |
| 20 | R/W | Command read/write signal input terminal |
| 21 | BUSY | Busy signal output terminal |
| 22 | SUBSYQ | Sub code synchronous |
| 23 | SUBDATA | Sub code data output |
| 24 | SUBCK | Sub code bit clock |
| 25 | WFCK | Disk frame synchronous signal |
| 26 | VDD_CORE | Internal digital power terminal |
| 27 | DGND | Digital GND terminal |
| 28 | CLK | Output terminal for various clocks |
| 29 | CLK88 | Clock output terminal for driver IC |
| 30 | RESETB | System reset terminal ("L" → reset condition) |
| 31 | XBUFO | X'tal 16.9344MHz output |
| 32 | DGND | Digital GND terminal |

| Pin No. | Pin Name | Description of terminals |
|---|---|---|
| 33 | DVDD | I/O digital power terminal |
| 34 | DOUTA | Audio data output |
| 35 | LRCK | Audio LR signal output |
| 36 | DCK | Audio clock output |
| 37 | VDD_CORE | Internal digital power terminal |
| 38 | TEST0 | Test signal I/O |
| 39 | TEST1 | Test signal I/O |
| 40 | TEST2 | Test signal I/O |
| 41 | TEST3 | Test signal I/O |
| 42 | DGND | Digital GND terminal |
| 43 | FLAG0 | Various flag output terminal |
| 44 | FLAG1 | Various flag output terminal |
| 45 | FLAG2 | Various flag output terminal |
| 46 | FLAG3 | Various flag output terminal |
| 47 | DVDD | I/O digital power terminal |
| 48 | XI | X'tal 16.9344MHz connecting (input) terminal |
| 49 | XO | X'tal 16.9344MHz |
| 50 | DGND | Digital GND terminal |
| 51 | TEST_IN | Test signal input terminal |
| 52 | TEST_OUT | Test signal output terminal |
| 53 | DVDD | I/O digital power terminal |
| 54 | DGND | Digital GND terminal |
| 55 | TEST4 | Test signal I/O |
| 56 | TEST5 | Test signal I/O |
| 57 | TEST6 | Test signal I/O |
| 58 | DVDD | I/O digital power terminal |
| 59 | AD_MONI0 | Test signal input/monitor |
| 60 | AD_MONI1 | Test signal input/monitor signal output terminal |
| 61 | ANA_MONI0 | Analog test signal input/monitor signal output terminal |
| 62 | ANA_MONI1 | Analog test signal input/monitor signal output terminal |
| 63 | RFI | RF output capacity |
| 64 | EQO | After-RF-equalizer output terminal |

## AM5888S (MAIN : IC105)

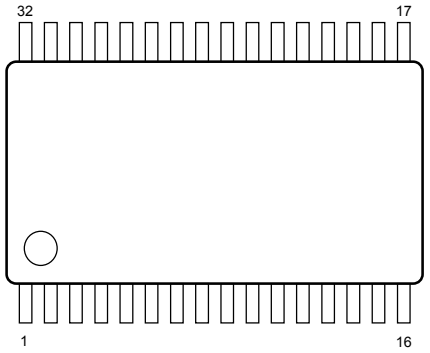



Pin Discriptions

| PIN No | Pin Name | Function |
|---|---|---|
| 1 | VINFC | Input for focus driver |
| 2 | TRB_1 | Connect to external transistor base |
| 3 | REGO2 | Regulator voltage output, connect to external transistor collector |
| 4 | VINSL+ | Input for the sled driver |
| 5 | REGO1 | Regulator voltage output, connect to external transistor collector |
| 6 | FWD | Tray driver forward input |
| 7 | REV | Tray driver reverse input |
| 8 | Vcc1 | Vcc for pre-drive block and power block of sled and tray |
| 9 | VOTR- | Tray driver output (-) |
| 10 | VOTR+ | Tray driver output (+) |
| 11 | VOSL+ | Sled driver output (+) |
| 12 | VOSL- | Sled driver output (-) |
| 13 | VOFC- | Focus driver output (-) |
| 14 | VOFC+ | Focus driver output (+) |
| 15 | VOTK+ | Tracking driver output (+) |
| 16 | VOTK- | Tracking driver output (-) |
| 17 | VOLD+ | Spindle driver output (+) |
| 18 | VOLD- | Spindle driver output (-) |
| 19 | Vcc2 | Vcc for power block of spindle, tracking and focus |
| 20 | NC | No Connection |
| 21 | VCTL | Speed control input of tray driver |
| 22 | GND | Ground |
| 23 | VINLD | Input for spindle driver |
| 24 | NC | No Connection |
| 25 | TRB_2 | Connect to external transistor base |
| 26 | VINTK | Input for tracking driver |
| 27 | BIAS | Input for reference voltage |
| 28 | MUTE | Input for mute control |

Notes) Symbol of + and – (output of drivers) means polarity to input pin.
(For example, if voltage of pin1 is high, pin14 is high.)

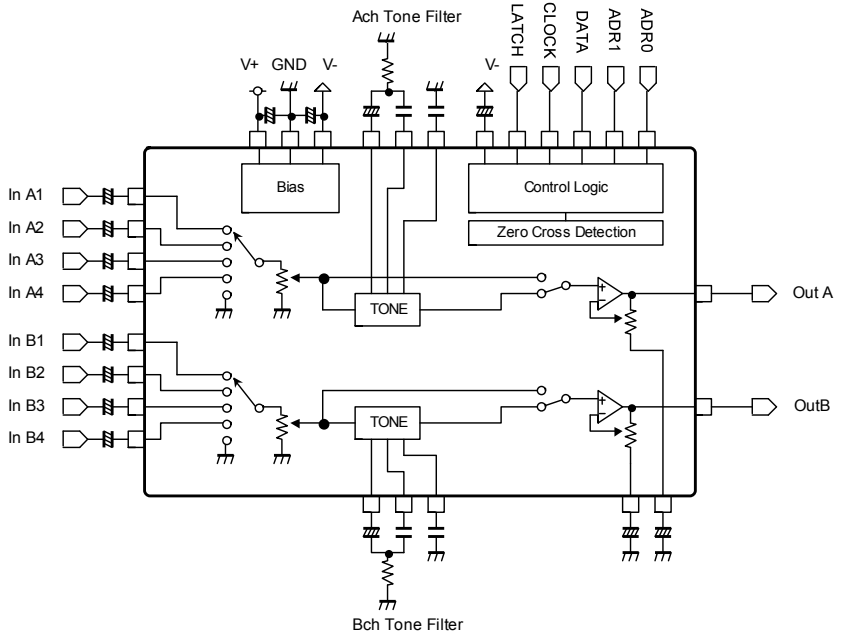
## NJW1194V (MAIN : IC115)




| No. | Pin Name |
|---|---|
| 1 | InA1 |
| 2 | InA2 |
| 3 | InA3 |
| 4 | InA4 |
| 5 | GND |
| 6 | DCCAP_A |
| 7 | GND |
| 8 | Out A |
| 9 | VDDOUT |
| 10 | DATA |
| 11 | CLOCK |
| 12 | LATCH |
| 13 | GND |
| 14 | Tone_Tr1a |
| 15 | Tone_Ba1a |
| 16 | Tone_Ba2a |

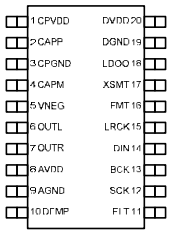
| No. | Pin Name |
|---|---|
| 17 | Tone_Ba2b |
| 18 | Tone_Ba1b |
| 19 | Tone_Tr1b |
| 20 | GND |
| 21 | V - |
| 22 | V + |
| 23 | ADR0 |
| 24 | ADR1 |
| 25 | OutB |
| 26 | GND |
| 27 | DCCAP_B |
| 28 | GND |
| 29 | InB4 |
| 30 | InB3 |
| 31 | InB2 |
| 32 | InB1 |

Block Diagram



# PCM5100A (MAIN : IC124)

**PW 20-Pin Package**
**(Top View)**




**Pin Functions**

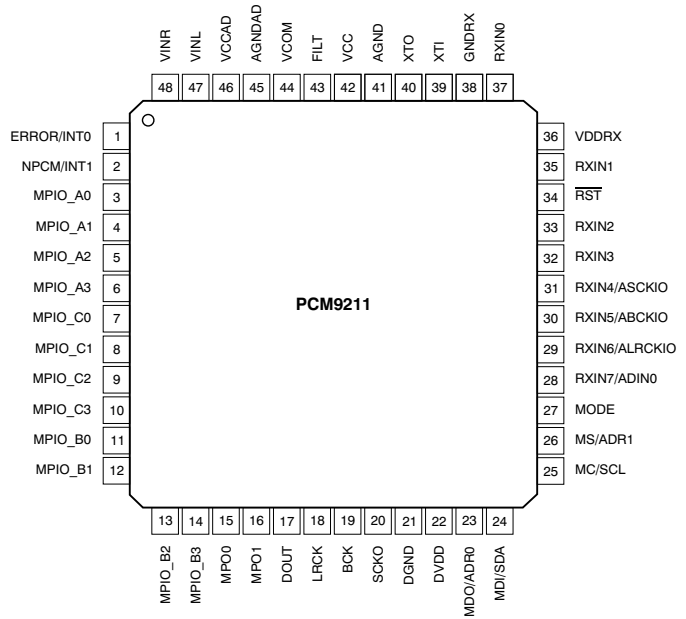
| PIN | | TYPE | DESCRIPTION |
|---|---|---|---|
| NAME | NO. | | |
| AGND | 9 | — | Analog ground |
| AVDD | 8 | P | Analog power supply, 3.3 V |
| BCK | 13 | I | Audio data bit clock input(1) |
| CAPM | 4 | O | Charge pump flying capacitor terminal for negative rail |
| CAPP | 2 | O | Charge pump flying capacitor terminal for positive rail |
| CPGND | 3 | — | Charge pump ground |
| CPVDD | 1 | P | Charge pump power supply, 3.3 V |
| DEMP | 10 | I | De-emphasis control for 44.1-kHz sampling rate(1): Off (Low) / On (High) |
| DGND | 19 | — | Digital ground |
| DIN | 14 | I | Audio data input(1) |
| DVDD | 20 | P | Digital power supply, 1.8 V or 3.3 V |
| FLT | 11 | I | Filter select : Normal latency (Low) / Low latency (High) |
| FMT | 16 | I | Audio format selection : $I^2S$ (Low) / Left-justified (High) |
| LDOO | 18 | P | Internal logic supply rail terminal for decoupling, or external 1.8 V supply terminal |
| LRCK | 15 | I | Audio data word clock input(1) |
| OUTL | 6 | O | Analog output from DAC left channel |
| OUTR | 7 | O | Analog output from DAC right channel |
| SCK | 12 | I | System clock input(1) |
| VNEG | 5 | O | Negative charge pump rail terminal for decoupling, –3.3 V |
| XSMT | 17 | I | Soft mute control(1): Soft mute (Low) / soft un-mute (High) |

(1) Failsafe LVCMOS Schmitt trigger input

# DIR PCM9211 (MAIN : IC127)

## PIN CONFIGURATIONS

**PT PACKAGE**
**LQFP-48**
**(TOP VIEW)**



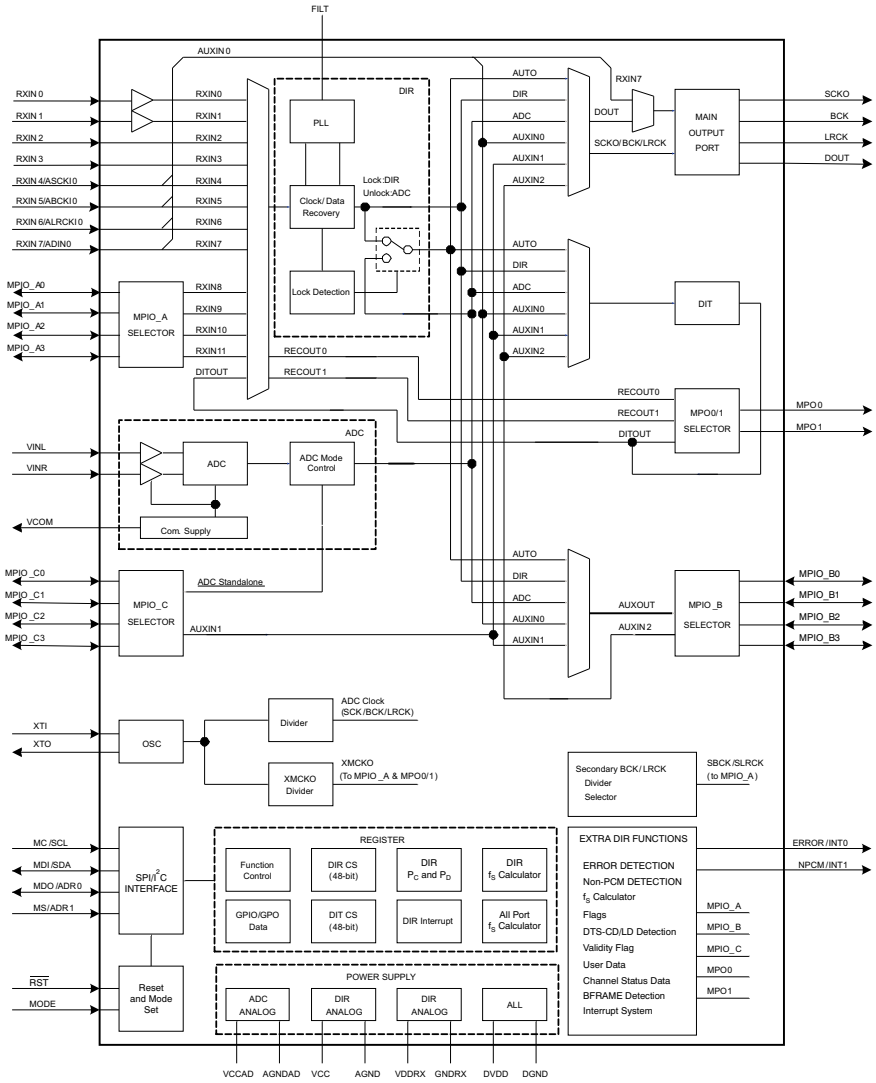

## PIN FUNCTIONS

| PIN | | | | DESCRIPTION |
|---|---|---|---|---|
| NO. | NAME | I/O | 5-V TOLERANT | |
| 1 | ERROR/INT0 | O | No | DIR Error detection output / Interrupt0 output |
| 2 | NPCM/INT1 | O | No | DIR Non-PCM detection output / Interrupt1 output |
| 3 | MPIO_A0 | I/O | Yes | Multipurpose I/O, Group A(1) |
| 4 | MPIO_A1 | I/O | Yes | Multipurpose I/O, Group A(1) |
| 5 | MPIO_A2 | I/O | Yes | Multipurpose I/O, Group A(1) |
| 6 | MPIO_A3 | I/O | Yes | Multipurpose I/O, Group A(1) |
| 7 | MPIO_C0 | I/O | Yes | Multipurpose I/O, Group C(1) |
| 8 | MPIO_C1 | I/O | Yes | Multipurpose I/O, Group C(1) |
| 9 | MPIO_C2 | I/O | Yes | Multipurpose I/O, Group C(1) |
| 10 | MPIO_C3 | I/O | Yes | Multipurpose I/O, Group C(1) |
| 11 | MPIO_B0 | I/O | Yes | Multipurpose I/O, Group B(1) |
| 12 | MPIO_B1 | I/O | Yes | Multipurpose I/O, Group B(1) |
| 13 | MPIO_B2 | I/O | Yes | Multipurpose I/O, Group B(1) |
| 14 | MPIO_B3 | I/O | Yes | Multipurpose I/O, Group B(1) |
| 15 | MPO0 | O | No | Multipurpose output 0 |

| PIN | | | | DESCRIPTION |
|---|---|---|---|---|
| NO. | NAME | I/O | 5-V TOLERANT | |
| 16 | MPO1 | O | No | Multipurpose output 1 |
| 17 | DOUT | O | No | Main output port, serial digital audio data output |
| 18 | LRCK | O | No | Main output port, LR clock output |
| 19 | BCK | O | No | Main output port, Bit clock output |
| 20 | SCKO | O | No | Main output port, System clock output |
| 21 | DGND | – | – | Ground, for digital |
| 22 | DVDD | – | – | Power supply, 3.3 V (typ.), for digital |
| 23 | MDO/ADR0 | I/O | Yes | Software control I/F, SPI data output / I²C slave address setting0(2) |
| 24 | MDI/SDA | I/O | Yes | Software control I/F, SPI data input / I²C data input/output(2)(3) |
| 25 | MC/SCL | I | Yes | Software control I/F, SPI clock input / I²C clock input(2) |
| 26 | MS/ADR1 | I | Yes | Software control I/F, SPI chip select / I²C slave address setting1(2) |
| 27 | MODE | I | No | Control mode setting, (see the Serial Control Mode section, Control Mode Pin Setting) |
| 28 | RXIN7/ADIN0 | I | Yes | Biphase signal, input 7 / AUXIN0, serial audio data input(2) |
| 29 | RXIN6/ALRCKI0 | I | Yes | Biphase signal, input 6 / AUXIN0, LR clock input(2) |
| 30 | RXIN5/ABCKI0 | I | Yes | Biphase signal, input 5 / AUXIN0, bit clock input(2) |
| 31 | RXIN4/ASCKI0 | I | Yes | Biphase signal, input 4 / AUXIN0, system clock input(2) |
| 32 | RXIN3 | I | Yes | Biphase signal, input 3(2) |
| 33 | RXIN2 | I | Yes | Biphase signal, input 2(2) |
| 34 | $\overline{\text{RST}}$ | I | Yes | Reset Input, active low(2)(4) |
| 35 | RXIN1 | I | Yes | Biphase signal, input 1, built-in coaxial amplifier |
| 36 | VDDRX | – | – | Power supply, 3.3 V (typ.), for RXIN0 and RXIN1. |
| 37 | RXIN0 | I | Yes | Biphase signal, input 0, built-in coaxial amplifier |
| 38 | GNDRX | - | - | Ground, for RXIN |
| 39 | XTI | I | No | Oscillation circuit input for crystal resonator or external XTI clock source input(5) |
| 40 | XTO | O | No | Oscillation circuit output for crystal resonator |
| 41 | AGND | – | – | Ground, for PLL analog |
| 42 | VCC | – | – | Power supply, 3.3 V (typ.), for PLL analog |
| 43 | FILT | O | No | External PLL loop filter connection terminal; must connect recommended filter |
| 44 | VCOM | O | No | ADC common voltage output; must connect external decoupling capacitor |
| 45 | AGNDAD | – | – | Ground, for ADC analog |
| 46 | VCCAD | – | – | Power supply, 5.0 V (typ.), for ADC analog |
| 47 | VINL | I | No | ADC analog voltage input, left channel |
| 48 | VINR | I | No | ADC analog voltage input, right channel |

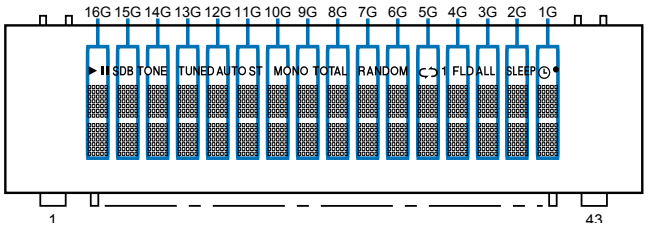
(2) Schmitt trigger input
(3) Open-drain configuration in I²C mode
(4) Onboard pull-down resistor (50 kΩ, typical)
(5) CMOS Schmitt trigger input

DIR PCM9211 Block Diagram



# 2. FL DISPLAY

## 16-ST-103GINK (MAIN : FL501)




PIN CONNECTION

| PIN NO. | 1 | 2 | 3 | 4 | - | 14 | 15 | - | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONNECTION | F1 | NP | NP | NC | | | NX | | | TSB | TSA | DA | CP | CS | RESET | OSC | VDD | VH | PGND | LGND | NP | NP | F2 |

NOTE

1) F1, F2 ----Filament
2) NP ------No pin
3) NC ------No connection
   (NC pin shold be electrically open on the PC boaed)
4) NX ------No extend pin
5) DL ------Datum Line
6) LGND ----Logic GND pin
7) PGND ----Power GND pin
8) VH ------High Voltage Supply pin
9) VDD ------Logic Voltage Supply pin
10) CP ----Shift Register Clock
11) DA ----Serial Data Input
12) TSA, B --Test pin
13) $\overline{CS}$ ------Chip Select Input pin
14) $\overline{RESET}$ --Reset Input
15) OSC ----Pin for self-oscillation
16) Solder composition is Sn-3Ag-0.5Cu.

PATTERN DETAIL

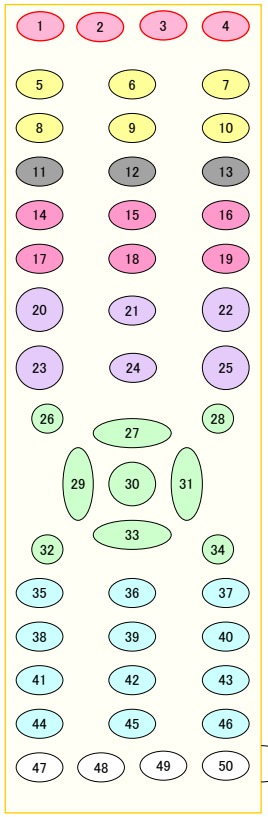
| Upper | | | | | | Lower | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1-1A | 2-1A | 3-1A | 4-1A | 5-1A | | 1-1B | 2-1B | 3-1B | 4-1B | 5-1B |
| 1-2A | 2-2A | 3-2A | 4-2A | 5-2A | | 1-2B | 2-2B | 3-2B | 4-2B | 5-2B |
| 1-3A | 2-3A | 3-3A | 4-3A | 5-3A | | 1-3B | 2-3B | 3-3B | 4-3B | 5-3B |
| 1-4A | 2-4A | 3-4A | 4-4A | 5-4A | | 1-4B | 2-4B | 3-4B | 4-4B | 5-4B |
| 1-5A | 2-5A | 3-5A | 4-5A | 5-5A | | 1-5B | 2-5B | 3-5B | 4-5B | 5-5B |
| 1-6A | 2-6A | 3-6A | 4-6A | 5-6A | | 1-6B | 2-6B | 3-6B | 4-6B | 5-6B |
| 1-7A | 2-7A | 3-7A | 4-7A | 5-7A | | 1-7B | 2-7B | 3-7B | 4-7B | 5-7B |

ANODE CONNECTION

| | T21 | T20 | T19 | T18 | T17 | T16-T1 |
|---|---|---|---|---|---|---|
| D0A | - | - | - | - | - | 1-1A |
| D1A | - | - | - | - | - | 2-1A |
| D2A | - | - | - | - | - | 3-1A |
| D3A | - | - | - | - | - | 4-1A |
| D4A | - | - | - | - | - | 5-1A |
| D5A | - | - | - | - | - | 1-2A |
| D6A | - | - | - | - | - | 2-2A |
| D7A | - | - | - | - | - | 3-2A |
| D8A | - | - | - | - | - | 4-2A |
| D9A | - | - | - | - | - | 5-2A |
| D10A | - | - | - | - | - | 1-3A |
| D11A | - | - | - | - | - | 2-3A |
| D12A | - | - | - | - | - | 3-3A |
| D13A | - | - | - | - | - | 4-3A |
| D14A | - | - | - | - | - | 5-3A |
| D15A | - | - | - | - | - | 1-4A |
| D16A | - | - | - | - | - | 2-4A |
| D17A | - | - | - | - | - | 3-4A |
| D18A | - | - | - | - | - | 4-4A |
| D19A | - | - | - | - | - | 5-4A |
| D20A | - | - | - | - | - | 1-5A |
| D21A | - | - | - | - | - | 2-5A |
| D22A | - | - | - | - | - | 3-5A |
| D23A | - | - | - | - | - | 4-5A |
| D24A | - | - | - | - | - | 5-5A |
| D25A | - | - | - | - | - | 1-6A |
| D26A | - | - | - | - | - | 2-6A |
| D27A | - | - | - | - | - | 3-6A |
| D28A | - | - | - | - | - | 4-6A |
| D29A | - | - | - | - | - | 5-6A |
| D30A | - | - | - | - | - | 1-7A |
| D31A | - | - | - | - | - | 2-7A |
| D32A | - | - | - | - | - | 3-7A |
| D33A | - | - | - | - | - | 4-7A |
| D34A | - | - | - | - | - | 5-7A |

| | T21 | T20 | T19 | T18 | T17 | T16-T1 |
|---|---|---|---|---|---|---|
| D0B | - | - | - | - | - | 1-1B |
| D1B | - | - | - | - | - | 2-1B |
| D2B | - | - | - | - | - | 3-1B |
| D3B | - | - | - | - | - | 4-1B |
| D4B | - | - | - | - | - | 5-1B |
| D5B | - | - | - | - | - | 1-2B |
| D6B | - | - | - | - | - | 2-2B |
| D7B | - | - | - | - | - | 3-2B |
| D8B | - | - | - | - | - | 4-2B |
| D9B | - | - | - | - | - | 5-2B |
| D10B | - | - | - | - | - | 1-3B |
| D11B | - | - | - | - | - | 2-3B |
| D12B | - | - | - | - | - | 3-3B |
| D13B | - | - | - | - | - | 4-3B |
| D14B | - | - | - | - | - | 5-3B |
| D15B | - | - | - | - | - | 1-4B |
| D16B | - | - | - | - | - | 2-4B |
| D17B | - | - | - | - | - | 3-4B |
| D18B | - | - | - | - | - | 4-4B |
| D19B | - | - | - | - | - | 5-4B |
| D20B | - | - | - | - | - | 1-5B |
| D21B | - | - | - | - | - | 2-5B |
| D22B | - | - | - | - | - | 3-5B |
| D23B | - | - | - | - | - | 4-5B |
| D24B | - | - | - | - | - | 5-5B |
| D25B | - | - | - | - | - | 1-6B |
| D26B | - | - | - | - | - | 2-6B |
| D27B | - | - | - | - | - | 3-6B |
| D28B | - | - | - | - | - | 4-6B |
| D29B | - | - | - | - | - | 5-6B |
| D30B | - | - | - | - | - | 1-7B |
| D31B | - | - | - | - | - | 2-7B |
| D32B | - | - | - | - | - | 3-7B |
| D33B | - | - | - | - | - | 4-7B |
| D34B | - | - | - | - | - | 5-7B |
| AD1 | TONE | ST | RANDOM | ALL | ● | - |
| AD2 | SDB | AUTO | TOTAL | FLD | 🕒 | - |
| AD3 | ⏸ | TUNED | MONO | 1 | SLEEP | - |
| AD4 | ▶ | - | - | ↻ | - | - |

# 3. Remote Code Table




| | M40 | Remarks |
|---|---|---|
| 1 | SLEEP | |
| 2 | CLOCK | |
| 3 | DIMMER | |
| 4 | POWER | |
| 5 | CD | |
| 6 | TUNER | |
| 7 | Bluetooth | |
| 8 | OPTICAL IN 1 | |
| 9 | OPTICAL IN 2 | |
| 10 | ANALOG IN | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | \|<< | |
| 15 | PLAY/ PAUSE | |
| 16 | >>\| | |
| 17 | <</TU - | |
| 18 | STOP | |
| 19 | >>/TU + | |
| 20 | CH+ | |
| 21 | SDB/TONE | |
| 22 | VOLUME up | |
| 23 | CH- | |
| 24 | MUTE | |
| 25 | VOLUME down | |
| 26 | FOLDER / ALL | |
| 27 | UP | |
| 28 | INFO | |
| 29 | LEFT | |
| 30 | ENTER | |
| 31 | RIGHT | |
| 32 | DAB/RDS | |
| 33 | DOWN | |
| 34 | SETUP | |
| 35 | 1 | |
| 36 | 2 | |
| 37 | 3 | |
| 38 | 4 | |
| 39 | 5 | |
| 40 | 6 | |
| 41 | 7 | |
| 42 | 8 | |
| 43 | 9 | |
| 44 | +10 | |
| 45 | 0 | |
| 46 | CLEAR | |
| 47 | RANDOM | |
| 48 | REPEAT | |
| 49 | PROGRAM | |
| 50 | REMOTE/BROWSE | |


**KEY CODE (Kaseikyo)**
**RCD-M41:RC-1214**

| Maker Code ($C_0C_1$) |
|---|
| DENON (3254H) |

| Byte 1 | Byte 2 |
|---|---|
| 00101010 | 01001100 |

| KEY No. | Name | Genre 1($D_0$) | Genre 2($D_1$) | DATA Code ($D_2$) | Parity ($D_P$) | Byte 3 | Byte 4 | Byte 5 | Byte 6 |
|---|---|---|---|---|---|---|---|---|---|
| KEY1 | SLEEP | SYSTEM (5H) | SYSTEM (1H) | SLEEP (431H) | 02H | 00001010 | 10001000 | 11000010 | 01000000 |
| KEY2 | CLOCK | SYSTEM (5H) | SYSTEM (1H) | CLOCK(434H) | 52H | 00001010 | 10000010 | 11000010 | 01001010 |
| KEY3 | DIMMER | SYSTEM (5H) | SYSTEM (1H) | DIMMER(433H) | 22H | 00001010 | 10001100 | 11000010 | 01000100 |
| KEY4 | POWER | SYSTEM (5H) | SYSTEM (1H) | POWER ON/STANDBY(403H) | 21H | 00001010 | 10001100 | 00000010 | 10000100 |
| KEY5 | CD | SYSTEM (5H) | AUDIO PLAYER(3H) | (/FUNCTION)CD(407H) | 63H | 00001010 | 11001110 | 00000010 | 11000110 |
| KEY6 | TUNER | SYSTEM (5H) | TUNER (6H) | (/FUNCTION)TUNER (407H) | 66H | 00001010 | 01101110 | 00000010 | 01100110 |
| KEY7 | Bluetooth | SYSTEM (5H) | AMP/RECEIVER (2H) | BLUETOOTH(41DH) | C3H | 00001010 | 01001011 | 10000010 | 11000011 |
| KEY8 | OPTICAL IN 1 | SYSTEM (5H) | AMP/RECIEVER (2H) | (/FUNCTION)OPTICAL(414H) | 53H | 00001010 | 01000010 | 10000010 | 11001010 |
| KEY9 | OPTICAL IN 2 | SYSTEM (5H) | AMP/RECIEVER (2H) | (/FUNCTION)OPTICAL2(41CH) | D3H | 00001010 | 01000011 | 10000010 | 11001011 |
| KEY10 | ANALOG IN | SYSTEM (5H) | AMP/RECIEVER (2H) | (/FUNCTION)AUX1(408H) | 92H | 00001010 | 01000001 | 00000010 | 01001001 |
| KEY11 | | | | | | | | | |
| KEY12 | | | | | | | | | |
| KEY13 | | | | | | | | | |
| KEY14 | \|<< | SYSTEM (5H) | SYSTEM (1H) | \|<< (40DH) | C1H | 00001010 | 10001011 | 00000010 | 10000011 |
| KEY15 | PLAY/ PAUSE | SYSTEM (5H) | SYSTEM (1H) | PLAY/PAUSE(40AH) | B1H | 00001010 | 10000101 | 00000010 | 10001101 |
| KEY16 | >>\| | SYSTEM (5H) | SYSTEM (1H) | >>\| (40CH) | D1H | 00001010 | 10000011 | 00000010 | 10001011 |
| KEY17 | <</TU - | SYSTEM (5H) | SYSTEM (1H) | <</TU- (40FH) | E1H | 00001010 | 10001111 | 00000010 | 10000111 |
| KEY18 | STOP | SYSTEM (5H) | SYSTEM (1H) | STOP (43FH) | E2H | 00001010 | 10001111 | 11000010 | 01000111 |
| KEY19 | >>/TU + | SYSTEM (5H) | SYSTEM (1H) | >>/TU+ (40EH) | F1H | 00001010 | 10000111 | 00000010 | 10001111 |
| KEY20 | CH+ | SYSTEM (5H) | TUNER (6H) | CH+(40CH) | D6H | 00001010 | 01100011 | 00000010 | 01101011 |
| KEY21 | SDB/TONE | SYSTEM (5H) | SYSTEM (1H) | TONE(/SDB)(430H) | 12H | 00001010 | 10000000 | 11000010 | 01001000 |
| KEY22 | VOLUME up | SYSTEM (5H) | SYSTEM (1H) | VOLUME+ (404H) | 51H | 00001010 | 10000010 | 00000010 | 10001010 |
| KEY23 | CH- | SYSTEM (5H) | TUNER (6H) | CH-(40DH) | C6H | 00001010 | 01101011 | 00000010 | 01100011 |
| KEY24 | MUTE | SYSTEM (5H) | SYSTEM (1H) | MUTE (406H) | 71H | 00001010 | 10000110 | 00000010 | 10001110 |
| KEY25 | VOLUME down | SYSTEM (5H) | SYSTEM (1H) | VOLUME- (405H) | 41H | 00001010 | 10001010 | 00000010 | 10000010 |
| KEY26 | FOLDER / ALL | SYSTEM (5H) | SYSTEM (1H) | FOLDER(42DH) | C3H | 00001010 | 10001011 | 01000010 | 11000011 |
| KEY27 | UP | SYSTEM (5H) | SYSTEM (1H) | CURSOR UP (420H) | 13H | 00001010 | 10000000 | 01000010 | 11001000 |
| KEY28 | INFO | SYSTEM (5H) | SYSTEM (1H) | DISPLAY(/TIME) (432H) | 32H | 00001010 | 10000100 | 11000010 | 01001100 |
| KEY29 | LEFT | SYSTEM (5H) | SYSTEM (1H) | CURSOR LEFT (422H) | 33H | 00001010 | 10000100 | 01000010 | 11001100 |
| KEY30 | ENTER | SYSTEM (5H) | SYSTEM (1H) | ENTER (424H) | 53H | 00001010 | 10000010 | 01000010 | 11001010 |
| KEY31 | RIGHT | SYSTEM (5H) | SYSTEM (1H) | CURSOR RIGHT (423H) | 23H | 00001010 | 10001100 | 01000010 | 11000100 |
| KEY32 | DAB/RDS | SYSTEM (5H) | TUNER(6H) | DAB/RDS(42AH) | B4H | 00001010 | 01100101 | 01000010 | 00101101 |
| KEY33 | DOWN | SYSTEM (5H) | SYSTEM (1H) | CURSOR DOWN (421H) | 03H | 00001010 | 10001000 | 01000010 | 11000000 |
| KEY34 | SETUP | SYSTEM (5H) | SYSTEM (1H) | (/SYSTEM)MENU(440H) | 15H | 00001010 | 10000000 | 00100010 | 10101000 |
| KEY35 | 1 | SYSTEM (5H) | SYSTEM (1H) | 1 (411H) | 00H | 00001010 | 10001000 | 10000010 | 00000000 |
| KEY36 | 2 | SYSTEM (5H) | SYSTEM (1H) | 2 (412H) | 30H | 00001010 | 10000100 | 10000010 | 00001100 |
| KEY37 | 3 | SYSTEM (5H) | SYSTEM (1H) | 3 (413H) | 20H | 00001010 | 10001100 | 10000010 | 00000100 |
| KEY38 | 4 | SYSTEM (5H) | SYSTEM (1H) | 4 (414H) | 50H | 00001010 | 10000010 | 10000010 | 00001010 |
| KEY39 | 5 | SYSTEM (5H) | SYSTEM (1H) | 5 (415H) | 40H | 00001010 | 10001010 | 10000010 | 00000010 |
| KEY40 | 6 | SYSTEM (5H) | SYSTEM (1H) | 6 (416H) | 70H | 00001010 | 10000110 | 10000010 | 00001110 |
| KEY41 | 7 | SYSTEM (5H) | SYSTEM (1H) | 7 (417H) | 60H | 00001010 | 10001110 | 10000010 | 00000110 |
| KEY42 | 8 | SYSTEM (5H) | SYSTEM (1H) | 8 (418H) | 90H | 00001010 | 10000001 | 10000010 | 00001001 |
| KEY43 | 9 | SYSTEM (5H) | SYSTEM (1H) | 9 (419H) | 80H | 00001010 | 10001001 | 10000010 | 00000001 |
| KEY44 | +10 | SYSTEM (5H) | SYSTEM (1H) | +10(41CH) | D0H | 00001010 | 10000011 | 10000010 | 00001011 |
| KEY45 | 0 | SYSTEM (5H) | SYSTEM (1H) | 0 (41BH) | A0H | 00001010 | 10001101 | 10000010 | 00000101 |
| KEY46 | CLEAR | SYSTEM (5H) | SYSTEM (1H) | CLEAR(42FH) | E3H | 00001010 | 10001111 | 01000010 | 11000111 |
| KEY47 | RANDOM | SYSTEM (5H) | SYSTEM (1H) | RANDOM (42AH) | B3H | 00001010 | 10000101 | 01000010 | 11001101 |
| KEY48 | REPEAT | SYSTEM (5H) | SYSTEM (1H) | REPEAT (42BH) | A3H | 00001010 | 10001101 | 01000010 | 11000101 |
| KEY49 | PROGRAM | SYSTEM (5H) | SYSTEM (1H) | PROGRAM(429H) | 83H | 00001010 | 10001001 | 01000010 | 11000001 |
| KEY50 | REMOTE/BROWSE | SYSTEM (5H) | PORTABLE (7H) | REMOTE/BROWSE(42DH) | C5H | 00001010 | 11101011 | 01000010 | 10100011 |

**Extended Code**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | POWER ON | SYSTEM (5H) | SYSTEM (1H) | POWER ON (401H) | 01H | 00001010 | 10001000 | 00000010 | 10000000 |
| 2 | POWER OFF | SYSTEM (5H) | SYSTEM (1H) | POWER OFF (402H) | 31H | 00001010 | 10000100 | 00000010 | 10001100 |
| 3 | DAB | SYSTEM (5H) | TUNER (6H) | DAB (40AH) | B6H | 00001010 | 01100101 | 00000010 | 01101101 |
| 4 | FM | SYSTEM (5H) | TUNER (6H) | FM (409H) | 86H | 00001010 | 01101001 | 00000010 | 01100001 |
| 5 | AM | SYSTEM (5H) | TUNER (6H) | AM (408H) | 96H | 00001010 | 01100001 | 00000010 | 01101001 |
| 6 | CD PLAY | SYSTEM (5H) | AUDIO PLAYER(3H) | PLAY(/CD) (408H) | 93H | 00001010 | 11000001 | 00000010 | 11001001 |
| ~~7~~ | ~~USB PLAY~~ | ~~SYSTEM (5H)~~ | ~~AUDIO PLAYER(3H)~~ | ~~PLAY(/USB) (421H)~~ | ~~01H~~ | ~~00001010~~ | ~~11001000~~ | ~~01000010~~ | ~~10000000~~ |
| 8 | PAUSE | SYSTEM (5H) | SYSTEM (1H) | PAUSE (409H) | 81H | 00001010 | 10001001 | 00000010 | 10000001 |
| 9 | DISC(/All)(/descrete) | SYSTEM (5H) | SYSTEM (1H) | DISC(/All)(/descrete) (439H) | 82H | 00001010 | 10001001 | 11000010 | 01000001 |
| 10 | Folder(/descrete) | SYSTEM (5H) | SYSTEM (1H) | Folder(/descrete) (438H) | 92H | 00001010 | 10000001 | 11000010 | 01001001 |

# MECHANICAL

## DISASSEMBLY



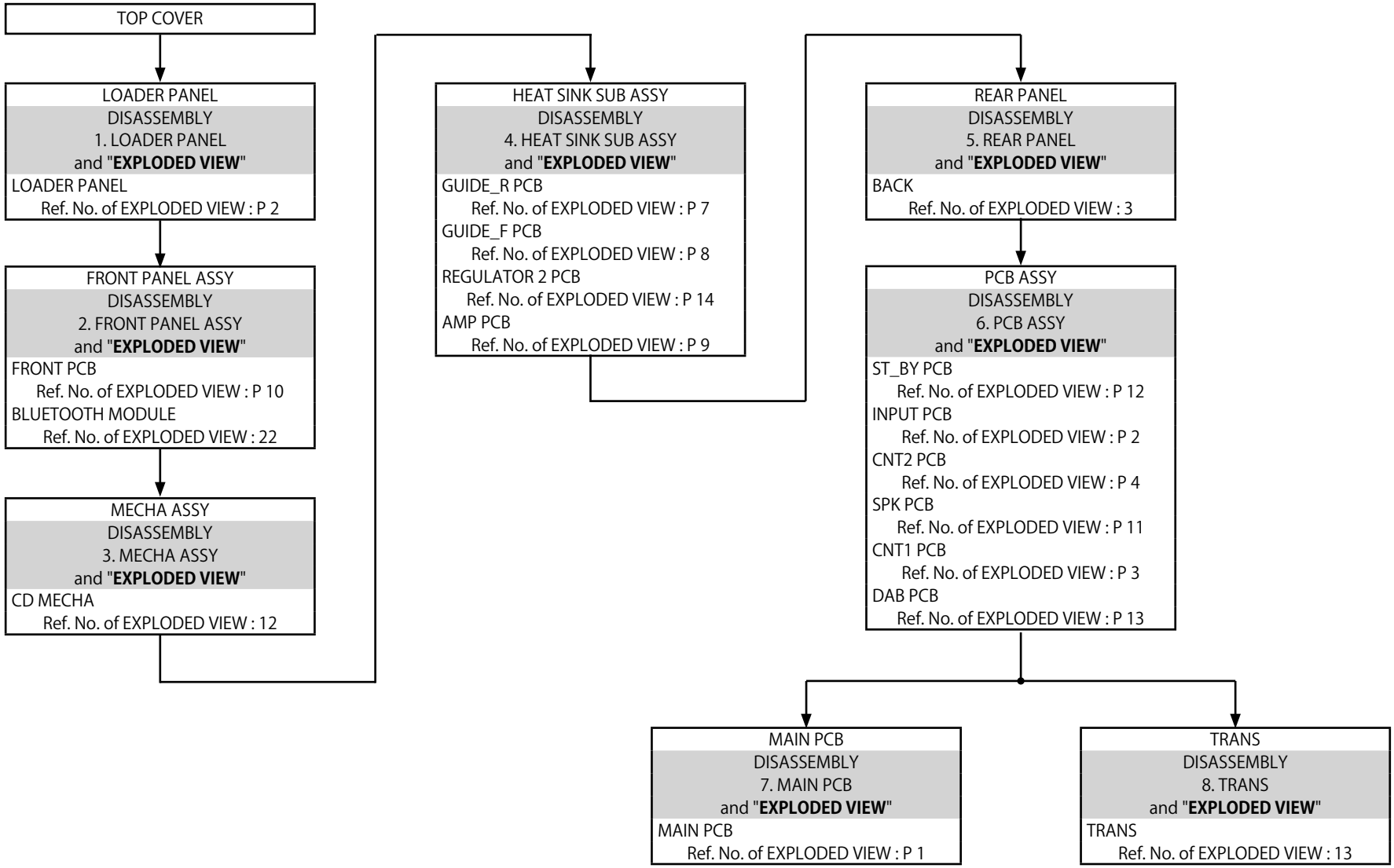
## EXPLODED VIEW

## PACKING VIEW

# DISASSEMBLY

## Flowchart

- Remove each part following the flow below.
- Reassemble the removed parts in the reverse order.
- Read "SAFETY PRECAUTIONS" before reassembling the removed parts.
- If wire bundles are removed or moved during adjustment or part replacement, reshape the wires after completing the work. Failure to shape the wires correctly may cause problems such as noise.
- See "EXPLODED VIEW"

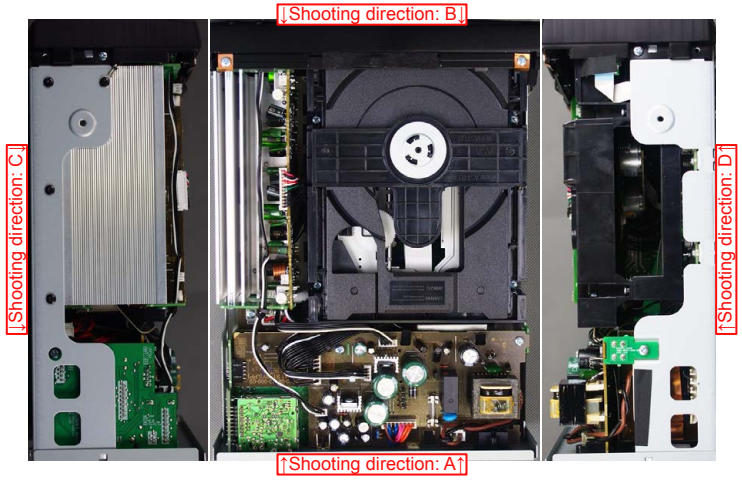


## Explanatory Photos for DISASSEMBLY

- For the shooting direction of each photos used in this manual, see the photo below.
- **A, B, C and D** in the photo below indicate the shooting directions of photos.
- The photographs with no shooting direction indicated were taken from the top of the unit.
- Photos of RCD-M41 E1C are used in this manual.

## The viewpoint of each photograph

(Shooting direction : X) [View from the top]

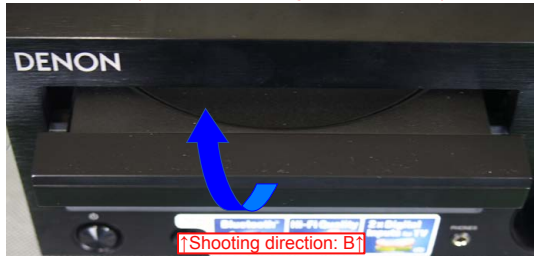



## 1. LOADER PANEL

**Proceeding :** TOP COVER → LOADER PANEL

(1) Open the CD tray and remove LOADER PANEL. Remove the AC power cord.

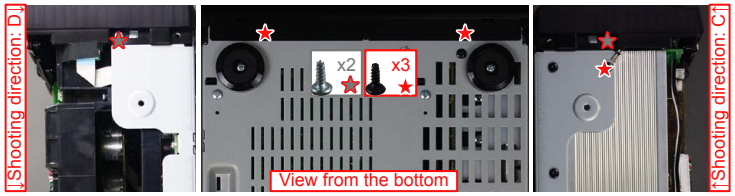
NOTE: Please remove slowly so as not to damage the hook of Tray and LOADER PANEL.



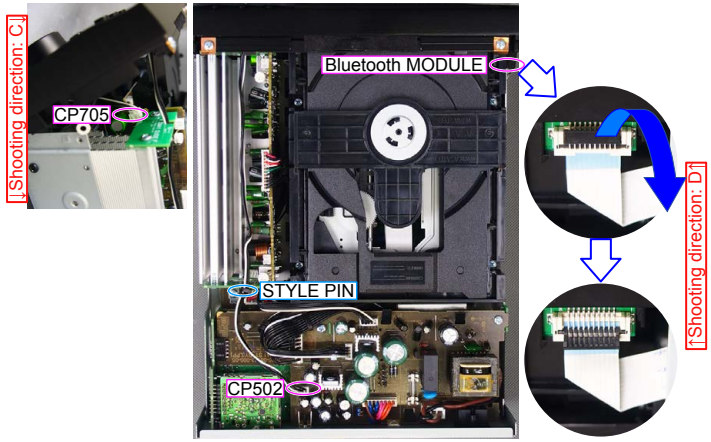

## 2. FRONT PANEL ASSY

**Proceeding :** TOP COVER → LOADER PANEL → FRONT PANEL ASSY

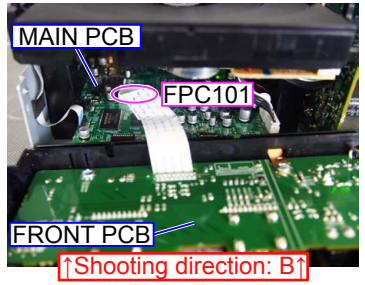
(1) Remove the screws.




(2) Remove the STYLE PINs and connectors. Remove the FFC.



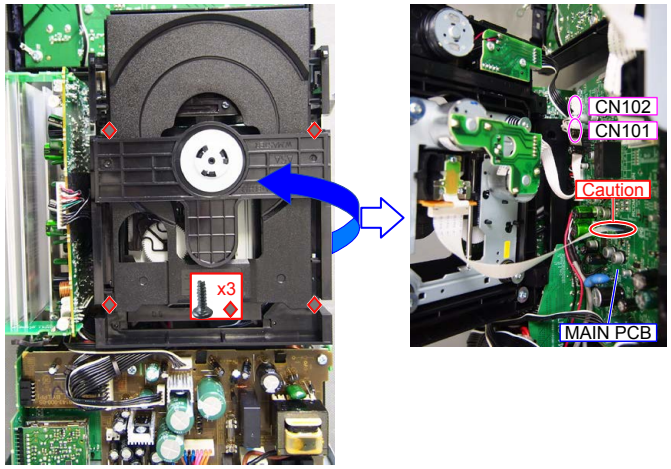

(3) Remove the FFC.



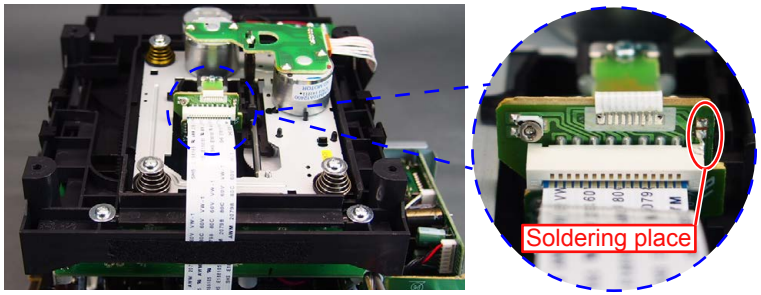
## 3. MECHA ASSY

**Proceeding :** TOP COVER → LOADER PANEL → FRONT PANEL ASSY → MECHA ASSY

(1) Remove the screws.
Caution : Remove the FFC cable after the CD mecha's short circuit pattern for LD damage prevention has been short circuited.



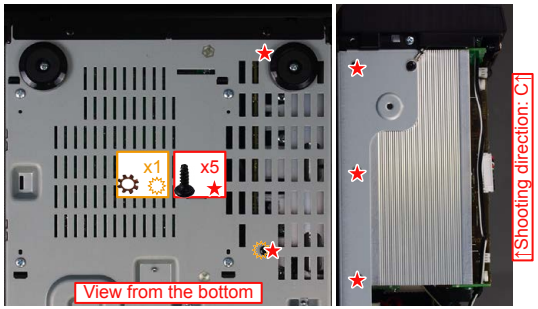

(2) Remove the FFC cable after the CD mecha's short circuit pattern for LD damage prevention has been short circuited.
Be sure to wear an earth band.



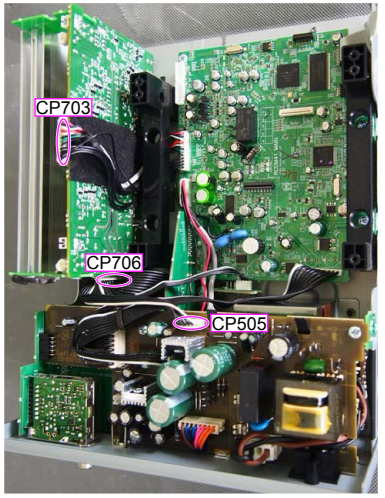

## 4. HEAT SINK SUB ASSY

**Proceeding :** TOP COVER → LOADER PANEL → FRONT PANEL ASSY → MECHA ASSY → HEAT SINK SUB ASSY

(1) Remove the screws.



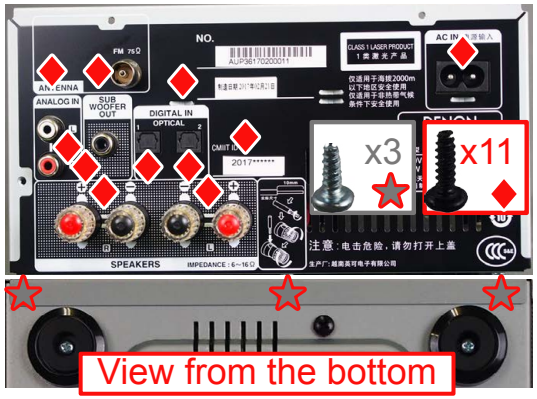

(2) Remove the connector.



## 5. REAR PANEL

**Proceeding :** TOP COVER → LOADER PANEL → FRONT PANEL ASSY → MECHA ASSY → HEAT SINK SUB ASSY → REAR PANEL

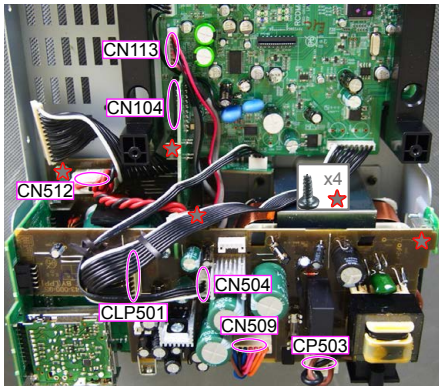
(1) Remove the screws.

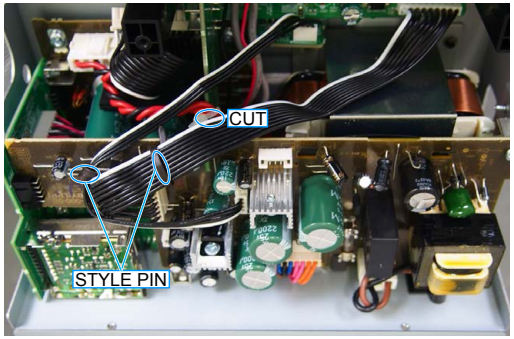



## 6. PCB ASSY

**Proceeding :** TOP COVER → LOADER PANEL → FRONT PANEL ASSY → MECHA ASSY → HEAT SINK SUB ASSY → REAR PANEL → PCB ASSY

(1) Remove the screws. Remove the connector. Cut the wire clamps, then remove the STYLE PINs.




## 7. MAIN PCB

**Proceeding :** TOP COVER → LOADER PANEL → FRONT PANEL ASSY → MECHA ASSY → HEAT SINK SUB ASSY → REAR PANEL → PCB ASSY → MAIN PCB

(1) Remove the screws.

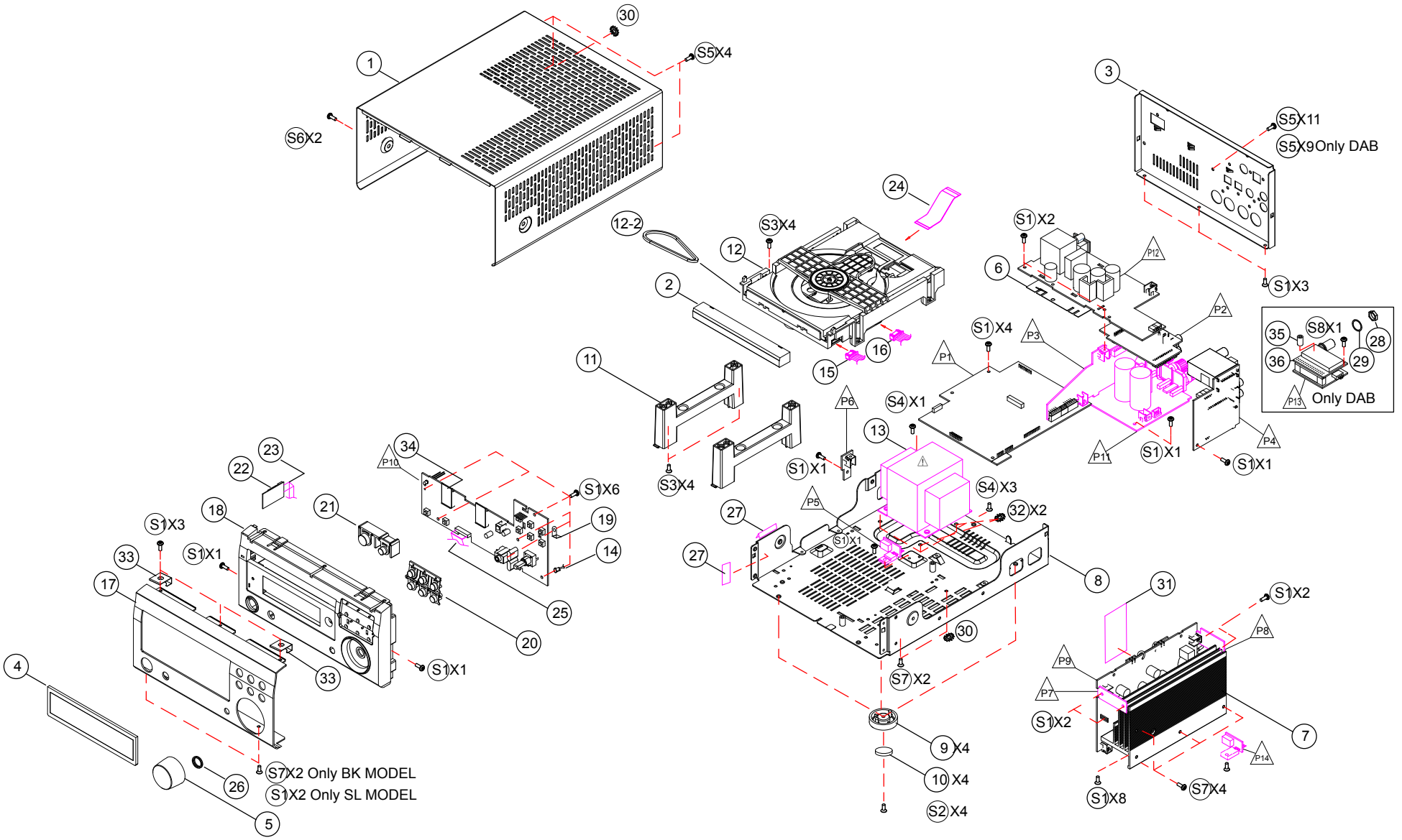

## 8. TRANS

**Proceeding :** TOP COVER → LOADER PANEL → FRONT PANEL ASSY → MECHA ASSY → HEAT SINK SUB ASSY → REAR PANEL → PCB ASSY → TRANS

See "EXPLODED VIEW" for instructions on removing the transformer (TRANS).

# EXPLODED VIEW

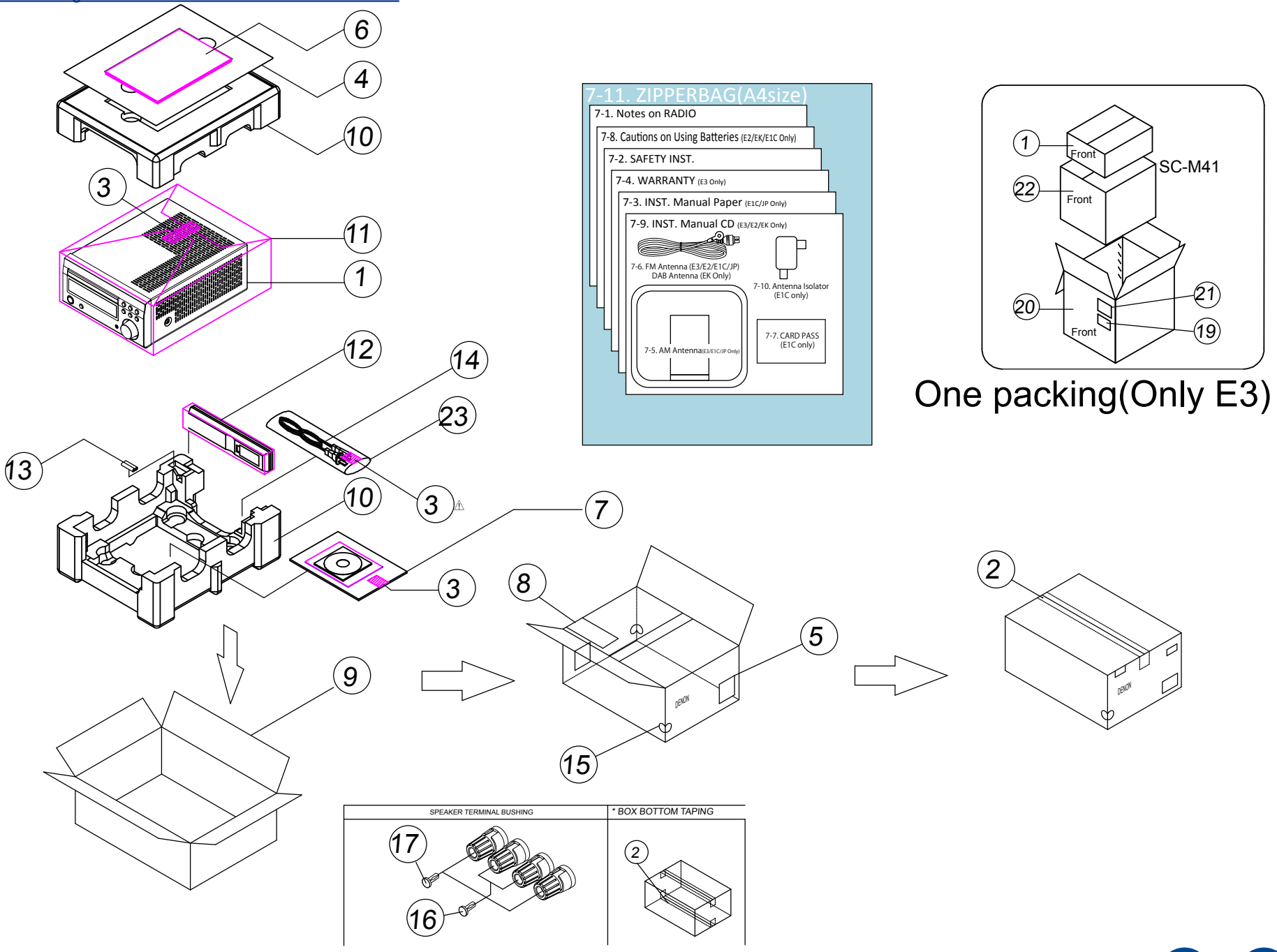
**Parts List**
http://dmedia.dmglobal.com/Document/DocumentDetails/23162




**WARNING:**
Parts marked with this symbol ⚠ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

# PACKING VIEW

**Parts List**
http://dmedia.dmglobal.com/Document/DocumentDetails/23162



# REPAIR INFORMATION

## TROUBLE SHOOTING



## MEASURING METHOD AND WAVEFORMS



## NOTES ON HANDLING AND REPLACEMENT OF THE LASER PICK-UP



## SPECIAL MODE



## ⚠6 ADJUSTMENT

## 1. The unit does not power on (No.1)

The red LED is blinking.
NO → TO "2. The unit does not power on (No.2)"
YES ↓

Check Power Supply Voltages for PWR_ON.
ST-BY PART
[CN511 : 2pin (3.3V)]
A normal voltage occurs immediately after the power is turned on.
NO → Check the state / soldering for the following parts.
CPU Part
[IC101]
Other connected circuits.
YES ↓

Check Power Supply Voltages for DC_5V.
ST-BY PART
[CN512 : 1pin]
A normal voltage occurs immediately after the power is turned on.
NO → Check the state / soldering for the following parts.
ST-BY PART
[CP505]
Other connected circuits.
YES ↓

Check Power Supply Voltages for A_-12V.
ST-BY PART
[CN512 : 3pin]
A normal voltage occurs immediately after the power is turned on.
NG → Check the state / soldering for the following parts.
ST-BY PART
[IC504]
Other connected circuits.
YES ↓

Check Power Supply Voltages for A_+12V
ST-BY PART
[CN512 : 4pin]
A normal voltage occurs immediately after the power is turned on.
NO → Check the state / soldering for the following parts.
ST-BY PART
[CP504]
REGULATOR 1 PCB
[IC506]
Other connected circuits.
YES ↓

Check Power Supply Voltages for +8VM
ST-BY PART
[CN512 : 6pin]
A normal voltage occurs immediately after the power is turned on.
NO → Check the state / soldering for the following parts.
ST-BY PART
[IC502]
Other connected circuits.
YES ↓

Check the state / soldering for the following parts.
CPU Part
[IC101]
AMP ASSY
[Q706, Q718, Q719, Q738, Q739]
Other connected circuits.

## 2. The unit does not power on (No.2)

Check Power Supply Voltages for +3V3_ST
ST-BY PART
[CN512 : 7pin (3.3V)]
NO → Check the state / soldering for the following parts.
ST-BY PART
[IC505, T501]
Other connected circuits.
YES ↓

Check the PWR_DN signal.
ST-BY PART
[CN511 : 4pin]
A signal with the same period as the frequency of the power supply is generated.
NO → Check the state / soldering for the following parts.
ST-BY PART
[Q514]
Other connected circuits.
YES ↓

Check the RESETS signal.
CPU Part
[IC101 : 28pin]
Voltage is output
NO → Check the state / soldering for the following parts.
CPU Part
[IC102]
Other connected circuits.
YES ↓

Check the KEY signal.
CPU Part
[IC101 : 60pin]
The voltage changes when the POWER button is pushed.
NG → Check the state / soldering for the following parts.
CPU Part
[FPC101, IC101]
FRONT PART
[FPC502, S505]
Other connected circuits.
YES ↓

Check the state / soldering for the following parts.
CPU Part
[IC101]
Other connected circuits.

## 3. VFD is not lit

Check Power Supply Voltages for VFD.
FRONT PART
Check Power Supply Voltages for Filament.
Voltage between [CN501: 1 - 2pin]
A normal +2.97V ~ 3.63V.
NO → Check the state / soldering for the following parts.
ST-BY PART
[CN509]
FRONT PART
[FL501]
Other connected circuits.

YES

Check Power Supply Voltages for VFD.
FRONT PART
Check the voltage for VH.
[CN501 : 3pin] voltage
A normal 38V ~ 46V.
NO → Check the state / soldering for the following parts.
ST-BY PART
[Q508]
Other connected circuits.

YES

Check Power Supply Voltages for VFD.
FRONT PART
Check the voltage for EK.
Voltage of [CN501 : 3 - 1, 2pin]
A normal 4.8V ~ 7V.
NO → Check the state / soldering for the following parts.
DISPLAY PCB
[D531]
Other connected circuits.

YES

Check Power Supply Voltages for VFD.
FRONT PART
Check the voltage for VDD.
[FL501 : 37pin (3.3V)]
NG → Check the state / soldering for the following parts.
DIR/DAC/VOL PART
[IC118]
Other connected circuits.

YES

Check the VFD communication signal.
FRONT PART
[FL501 : 32, 33, 34, 35pin]
NO → Check the state / soldering for the following parts.
CPU Part
[FPC101, IC101]
Other connected circuits.

YES

Replace the VFD.

## 4. The disc does not load, does not play, or "UNSUPPORTED" is indicated on the FL display, etc. △4

Check the Pickup.
No abnormalities in "4. Notes on Handling the Laser Pick-Up".
NO → Replace the mechanical.

YES

Check the KEY signal.
CPU Part
[IC101 : 60pin]
The voltage changes when the PLAY button is pushed.
NO → Check the state / soldering for the following parts.
KEY PCB
[S506]
Other connected circuits.

YES

Check the state / soldering for the following parts.
CPU Part
[IC101, IC105, IC104]
No other abnormalities in the connected circuit.
NO → Repair the abnormal area.

YES

No abnormalities in the wiring.
CPU Part
No abnormalities in the wiring or connections between [FPC102, CN101, CN102] and the mecha.
NG → Repair or replace the part with the abnormality.

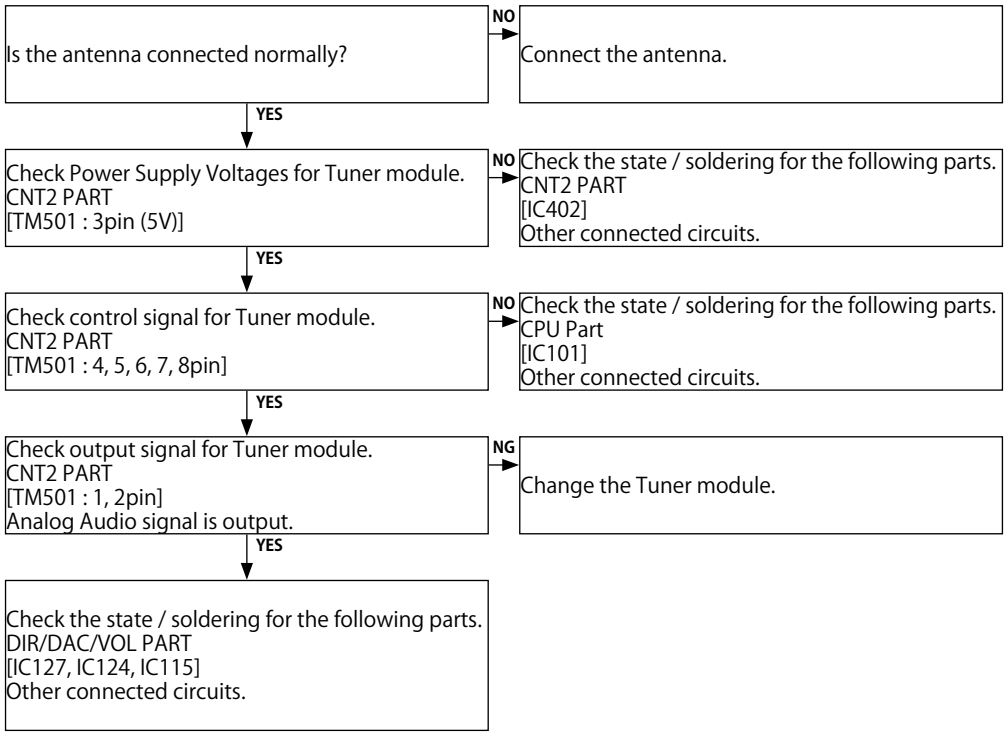
YES

Check the state / soldering for the following parts.
DSP Part
[IC107]
NO → Replace the MAIN PCB ASSY with new one. △4

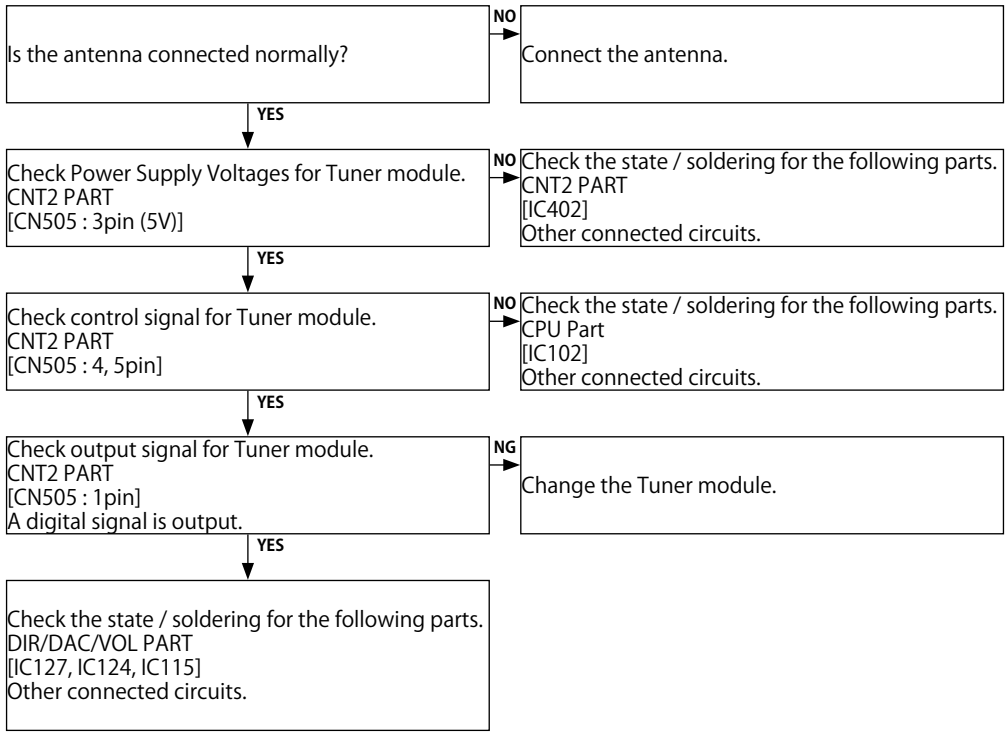
YES

Replace the CD mechanism with new one.

## 5. No audio output from Tuner




## 6. No audio output from DAB (EK Only)



## 7. No audio output from Bluetooth.

Check Power Supply Voltages for Bluetooth.
DSP Part
[FPC103 : 10pin (3.3V)]
NO → Check the state / soldering for the following parts.
DSP Part
[IC128]
Other connected circuits.
YES ↓

Check the connection for Bluetooth.
DSP Part
Check the connection between [FPC103] and the FFC of the Bluetooth module.
NO → Repair the abnormal area.
YES ↓

Check the state / soldering for the following parts.
DIR/DAC/VOL PART
[IC127, IC124, IC115]
No other abnormalities in the connected circuit.
NO → Repair the abnormal area.
YES ↓

Probable causes of problem :
DSP Part [IC107]
Main PCB
Replace the Bluetooth module.

## 8. No audio output from this unit.

Check Power Supply Voltages for Audio.
AMP ASSY
[CP706 : 9pin (Hi+B)]
A voltage near +30V is being generated.
NO → Check the state / soldering for the following parts.
SPK Part
[D552]
Other connected circuits.
YES ↓

Check Power Supply Voltages for Audio.
AMP ASSY
[CP706 : 5pin (Hi-B)]
A voltage near -30V is being generated.
NO → Check the state / soldering for the following parts.
SPK Part
[D552]
Other connected circuits.
YES ↓

Check Power Supply Voltages for Audio.
AMP ASSY
[CP706 : 5pin (Hi-B)]
A voltage near -30V is being generated.
NO → Check the state / soldering for the following parts.
SPK Part
[D552]
Other connected circuits.
YES ↓

Check the Audio signal.
DIR/DAC/VOL PART
[IC115 : 8, 25pin]
Analog Audio signal is output.
NG → Check the state / soldering for the following parts.
DIR/DAC/VOL PART
[IC127, IC124, IC115]
Other connected circuits.
YES ↓

Check the Audio signal.
DIR/DAC/VOL PART
[CP102 : 5, 7pin (AMPIN_L, AMPIN_R)]
Analog Audio signal is output.
NO → Check the state / soldering for the following parts.
DIR/DAC/VOL PART
[IC102, RLY101, Q104, Q105]
MUTE_B+ signal
Other connected circuits.
YES ↓

Area around the AMP ASSY
Area around the SPK Part
Check other connected circuits.

# MEASURING METHOD AND WAVEFORMS

## 1. TEST POINT

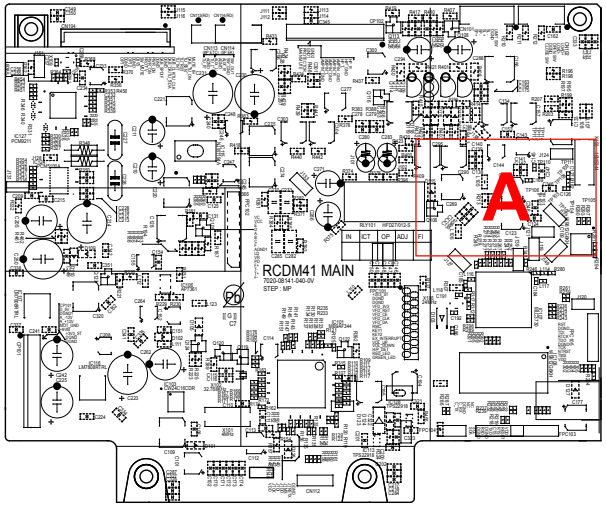
Connect the GND (-) probe of the oscilloscope to the specified reference voltage points to check the waveforms.

**NOTE**

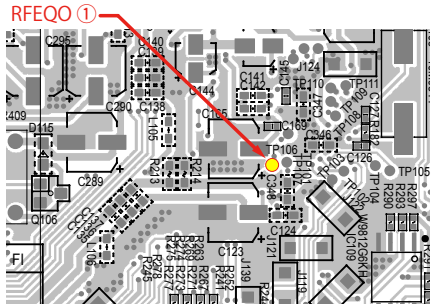
Measuring Disc : CD/TCD-784
(It is recommended to use extension wires between the probe and test points.)

- When watching the HF waveform, use the extending wire as short as possible.
- If the HF waveform is unclear due to noise or the eye pattern is indistinguishable, replace the traverse ASSY after measuring the lop.
- For points ① take measurements at the points shown in the diagram below.

1.1. MAIN PCB test point




**Detail A**

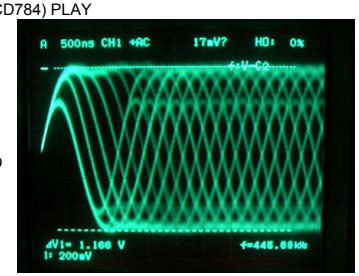



## 2. WAVEFORMS

1. DISC PLAY RF WAVEFORM (EYE-PATTERN)

1.1 CD(TCD784) PLAY

①RFEQO



# NOTES ON HANDLING AND REPLACEMENT OF THE LASER PICK-UP

## 1. Protection of the LD

Solder a part of the LD circuit to short-circuit. After connecting the circuit, remove the soldering form.
Precautions when handling the laser CD mechanism

## 2. Precautions when handling the laser CD mechanism

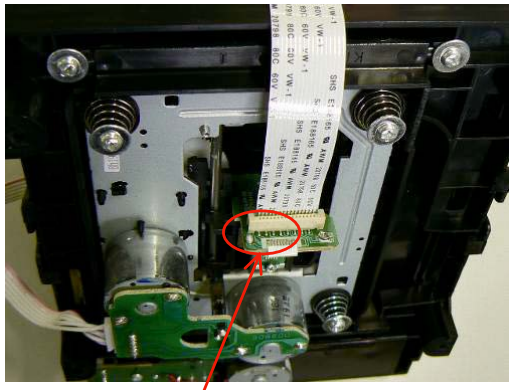
- Be careful not to expose the laser pick-up to dust.
- Do not leave the laser pick-up bare. Be sure to cover it.
- If dust adheres on the laser pick-up lens, blow it off with a blower brush.
- Do not apply shock to the laser pick-up.
- Do not watch the light of the laser pick-up.

## 3. Cautions on assembling and adjustment

- Be sure that the bench, jig, head of soldering iron (with ceramic) and measuring instruments are well grounded.
- Workers who handle the laser pick-up must be grounded.
- The finished mechanism (prior to anchoring in the set) should be protected against static electricity and dust.
  The mechanism must be stored where abnormal external force is not applied.
- When carrying the finished mechanism, hold it by the chassis body.
- Do not use or store the mechanism where corrosive gas such as H2S, SO2, NO2 and CI2 or toxic gas may be generated, or where substances especially organosilicon, cyanide, formalin and phenolic materials exist. In particular, make sure that these substances which generate toxic gas do not exist in the set. This may cause the motor not rotating.

## 4. Notes on Handling the Laser Pick-Up

• Check the Iop (Laser drive current).
Check Iop in "**SPECIAL MODE**". See "4-7. Displaying the laser current"
• If the present Iop (current) value is "**50 mA**" or higher, replace the Traverse unit with a new one.
• No mechanical adjustment is necessary after the replacement.



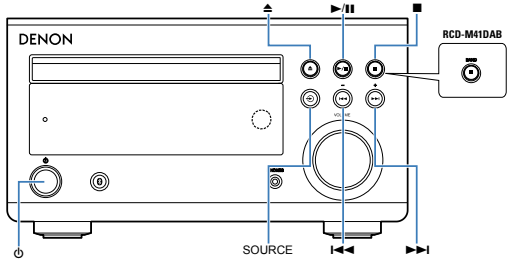
Protective soldering place for laser diode.

# SPECIAL MODE

## Special mode setting button

※ No. 1 - 8 : While holding down buttons "**A**" and "**B**" simultaneously, insert the AC plug into the wall outlet to turn on the power.

| No. | Mode | Button A | Button B | Descriptions |
|---|---|---|---|---|
| 1 | Version Display Mode | ■ | ⏮ | The firmware version is shown on the display.<br>(See 1. Version Display Mode) |
| 2 | Display check mode | ⏻ | ⏏ | All segments on the display flash in a 2 second cycle.<br>(See 2. Display check mode) |
| 3 | Initialization Mode | SOURCE | ⏮ | Initialize this unit. (See 3. Initialization Mode) |
| 4 | Test mode | ⏻ | SOURCE | Servo adjustment. Displaying the adjustment values and laser current. (See 4. Test mode) |
| 4-1 | Disc mounting | ⏏ | - | For executing each CD mode. |
| 4-2 | Servo check | ▶/❚❚ | - | Checks each servo. |
| 4-3 | Pickup movement | ⏮ or ⏭ | | Moves the pickup to the inner or outer circumference. |
| 4-4 | Stop | ■ | - | Stops playback operations and servos and loads the automatic adjustment values. |
| 4-5 | All servo on | SOURCE | - | Turns all servos on and performs automatic adjustment. |
| 4-6 | Display adjustment values | ↑ | - | Displays the following adjustment values.<br>FOCUS BALANCE, FOCUS GAIN, TRACKING BALANCE, TRACKING GAIN, FOCUS OFFSET, TRACKING OFFSET, RFRP |
| 4-7 | Displaying the laser current | ■ | - | Indicates the present laser current. |
| 5 | CD heat Run mode | ■ | ⏭ | Executes each heat run mode.<br>(See 5. Heat run mode) |
| 5-1 | Normal heat run mode | ▶/❚❚ | - | Executes normal heat run mode. |
| 5-2 | Chucking mode | ■ | - | Executes chucking mode. |
| 5-3 | Error display | - | - | Displays the error code. |
| 6 | Accumulated laser on time display mode | ⏻ | ■ | Indicates the accumulated laser on time.<br>(See 6. Accumulated laser on time display mode) |
| 6-1 | Resetting the count value | ▶/❚❚ | - | Initializes the count value. |
| 7 | Protection history display mode | SOURCE | ⏭ | Displays the protection occurrence history.<br>(See 7. Protection History Display Mode) |
| 7-1 | Resetting the protection history | ▶/❚❚ | - | Resetting the protection history. |
| 8 | Version Display of DAB module | - | - | The version of the DAB module is displayed.<br>(See 8. Version Display of DAB Module (RCD-M41DAB Only)) |



# 1. Version Display Mode

## 1.1. Actions

Version information is displayed when the device is started in this mode.

## 1.2. Starting up

While holding down buttons the "■" and "I◀◀" buttons simultaneously, insert the AC plug to turn the power on.
then press the "**I◀◀ or ▶▶I**" button to display the information in section "**1.3.**" on the display.

## 1.3. Display Order

① System Version → ② Bluetooth Version ·····
Unplug the AC plug to cancel this mode.

①System Version

| | |
|---|---|
| L1 | Ver ********\ |
| L2 | |

\ : Region (E3, E2, EK, CH, JP)

② Bluetooth Version

| | |
|---|---|
| L1 | Bluetooth VER |
| L2 | **** ** ** ** |

# 2. Display check mode

## 2.1. Operations

While holding down buttons the "⏻" and "⏏" buttons simultaneously, insert the AC plug to turn the power on.
Unplug the AC plug to cancel this mode.

| | |
|---|---|
| L1 | ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓ |
| L2 | ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓ |

All segments on the display flash in a 2 second cycle (1 second on, 1 second off).

# 3. Initialization Mode

## 3.1. Actions

Make sure to initialize this unit after replacing the microcomputer or any peripheral equipment, or the PCB.
Initial value of laser current and The accumulated laser on time are not cleared.

## 3.2. Operations

1. Press the power operation button to turn off the power, and remove the AC plug from the socket.
2. While holding down buttons the "**SOURCE**" and "I◀◀" buttons simultaneously, insert the AC plug to turn the power on.
   ∗ This unit can also be initialized by holding down the button "**SOURCE**" and pressing the power button for 3 seconds or more while on standby.
3. "**INITIALIZE**" is displayed.
   ∗ The unit is initialized.
   ∗ Unplug the AC plug to cancel this mode.

4. After 5 seconds, switch to the normal mode.

| | |
|---|---|
| L1 | |
| L2 | INITIALIZE |

## 3.3. Initialization item

| No | Items | Default |
|---|---|---|
| 1 | SOURCE | DISC |
| 2 | TUNER BAND | FM (EK only : DAB) |
| 3 | TUNER frequency | Minimum receive frequency |
| 4 | SDB | OFF |
| 5 | BASS | 0 |
| 6 | TREBLE | 0 |
| 7 | BLANCE | CENTER |
| 8 | DIMMER | 100% |
| 9 | VOLUME | 5 |
| 10 | TUNER PRESET | ALL 0 |
| 11 | Unit -/+(TUNER) | PRESET − / + |
| 12 | Clock | 00:00 (flashes, E3 only : AM12:00) |
| 13 | ALARM SOURCE | DISC |
| 14 | ALARM ON | 00:00 (flashes, E3 only : AM12:00) |
| 15 | ALARM OFF | 00:00 (flashes, E3 only : AM12:00) |
| 16 | SPK OPTIMISE | ON |
| 17 | CD Auto Play | ON |
| 18 | CLOCK MODE | Off |
| 19 | H/P AMP GAIN | Middle |
| 20 | AUTO STANDBY | E2/EK : ON, E3/JP/CN : OFF |
| 21 | DAB setting (EK Only) | initialized |
| 22 | Bluetooth Pairing information | None |
| 23 | Bluetooth On/Off setting | Off |

# 4. Test mode

## 4.1. Actions

A mode for starting Servo check, Pickup movement, Stop, All servo on, Adjustment value display, Displaying the laser current and various test modes.

## 4.2. Starting up

(1) While holding down buttons the "⏻" and "**SOURCE**" buttons simultaneously, insert the AC plug to turn the power on.

(►❚❚ flashes)

| | |
|---|---|
| L1 | |
| L2 | 00 CD TEST MODE |

(2) Return the slide to the default setting position. (10mm from inner circumference)
(3) Perform the check by pressing the buttons.
(4) Turn the power back on to cancel this mode.

※ Do not operate controls other than the buttons to be used in this mode. (The operations may not work correctly).

## 4-1. Disc mounting

(1) Press the "⏏" button to open the tray.
(2) Place the disc in the tray and press the "⏏" button again to close the tray and start disc chucking.
(3) Return the slide to the default setting position (10mm from inner circumference) and stop it in this position.

## 4-2. Servo check

Press "►/❚❚" button. Execute the following steps.
Press and hold the "►/❚❚" button continuously for over 1 second to skip to SUB CODE readout in step "**(5)**".

(1) LD ON(while servo is stopped)

(►❚❚ flashes)

| | |
|---|---|
| L2 | 01 LD ON |

(2) FOCUS ON (disc rotating, tracking off)

∗If there is no disc, the unit retries the operation and then stops.

(►❚❚ flashes)

| | |
|---|---|
| L2 | 02 Focus ON |

(3) CLV ON

(►❚❚ flashes)

| | |
|---|---|
| L2 | 03 CLV ON |

(4) TRACKING ON

(►❚❚ flashes)

| | |
|---|---|
| L2 | 04 Tracking ON |

(5) READ SUB CODE (playback sound output)

(►❚❚ flashes)

| | |
|---|---|
| L2 | 05 @@Tr **:** |

@@ : T.No, **:** : time

(6) Press the "►/❚❚" button while "**(5)**" is displayed to show the BER(Bit Error Rate) display for two seconds.

(►❚❚ flashes)

| | |
|---|---|
| L2 | ERR ###### |

###### : BER

## 4-3. Pickup movement

(1) Press the "I◄◄ or ►►I" buttons to move the pickup to the inner or outer circumference. Release the button to stop the pickup.
(2) You can also stop the pickup by pressing the "I◄◄" button. After the inner switch is set to on, the pickup stops.
(3) Release the button to stop the pickup.

## 4-4. Stop

(1) Press the "■" button to stop the playback operation and servo.
(2) After stopping, the auto adjustment values will be read.

## 4-5. All servo on

Press and hold the "**SOURCE**" button for five seconds to turn all servos on.
The playback operation starts after automatic adjustment is performed (playback sound is output).

(►❚❚ flashes)

| | |
|---|---|
| L1 | |
| L2 | @@Tr **:** |

@@ : T.No, **:** : time

## 4-6. Adjustment value display

### 4-6.1. Display Order

(1) When "**SOURCE**" button is pressed, the adjustment values are displayed in the following order.
① FOCUS BALANCE → ② FOCUS GAIN → ③ TRACKING BALANCE → ④ TRACKING GAIN
→ ⑤ FOCUS OFFSET → ⑥ TRACKING OFFSET → ⑦ RFRP .....

① FOCUS BALANCE
(►II flashes)

| | |
|---|---|
| L1 | **** |
| L2 | FOCUS BALANCE |

**** : adjustment values

② FOCUS GAIN
(►II flashes)

| | |
|---|---|
| L1 | **** |
| L2 | FOCUS GAIN |

**** : adjustment values

③ TRACKING BALANCE
(►II flashes)

| | |
|---|---|
| L1 | **** |
| L2 | TRACKING BALANCE |

**** : adjustment values

④ TRACKING GAIN
(►II flashes)

| | |
|---|---|
| L1 | **** |
| L2 | TRACKING GAIN |

**** : adjustment values

⑤ FOCUS OFFSET
(►II flashes)

| | |
|---|---|
| L1 | **** |
| L2 | FOCUS OFFSET |

**** : adjustment values

⑥ TRACKING OFFSET
(►II flashes)

| | |
|---|---|
| L1 | **** |
| L2 | TRACKING OFFSET |

**** : adjustment values

⑦ RFRP
(►II flashes)

| | |
|---|---|
| L1 | **** |
| L2 | RFRP |

**** : adjustment values

(2) Press the "■" button, to return to the "**CD TEST MODE**" screen.

| | |
|---|---|
| L2 | 00 CD TEST MODE |

※ If you have not completed the adjustment, the displayed values are not correct.

## 4-7. Displaying the laser current

- Press and hold the "■" button for at least 1 second while stopped (**CD TEST MODE**) to turn the laser ON and measure and display the laser current.
(►II flashes)

| | |
|---|---|
| L1 | S/C: XXmA/ YYmA |
| L2 | LASER CURRENT |

XX : Stored data (stored EEPROM value), YY : Current value

• The initial current value is measured after the laser has been on for 3 seconds.
• The current value is updated every 3 seconds.
• The laser on current is measured using A/D conversion. Figures below decimal point are omitted.
• The initial value of the factory, is "**50mA**" or less.
(2) Press the "■" button, to return to the "**CD TEST MODE**" screen.
∗ Stored data is not erased when this unit is initialized.

### 4-7.1. Overwriting the stored data

(1) With the laser current displayed, press and hold the "►/II" button for over 5 second to save the current value on EEPROM (overwrite the stored data).
(►II flashes)

| | |
|---|---|
| L1 | STORED |
| L2 | LASER CURRENT |

(2) Press the "►/II" button to save the initial value to the EEPROM.
(3) After overwriting, the "**laser current appears**" again.
※ Rewriting is performed upon shipment from the factory and when the mechanism is replaced.

# 5. Heat run mode

## 5.1. Actions

Executes each heat run mode.

## 5.2. Starting up

(1) Insert the disc first.
(2) While holding down buttons the "■" and "►►I" buttons simultaneously, insert the AC plug to turn the power on.
(►II lit)

| L2 | CD 11Tr 42:52 |
|---|---|

(The display is the same as the normal stopped display, except that "►" and "II" are lit)

(2) The unit switches to the mode corresponding to the button that is pressed.
(3) If an error occurs, an error display appears and the operation stops immediately. The operation count is retained. See "5.3. Error display"
(4) Pressing the "■" button clears the heat run count.
(5) Pressing the "⏏" button clears the mode and opens the tray.
(6) The mode can also be cleared by pressing the "⏻" button.

# 5-1. Normal heat run mode

• Press the "►/II" button after the CD heat run mode starts and TOC reading is completed. The heat run repetition count is 0 at this time.
(1) Play the disc from the first track to the last track.
(2) All tracks are played if the disc being used contains 20 tracks or less. If the disc contains 21 or more tracks, the unit plays track 1 and then skips to the last track.
(3) When playback of the disc is finished, move the pickup to the inner circumference and open the tray. An increment is added to the heat run count when the tray is opened.
(4) When the loader OPEN status is detected, close the tray again and start playing the disc from the first track after TOC has been loaded.
(5) Repeat steps (1) ~ (4).

【Displaying playback】
(►II lit)

| L2 | CD 01Tr 01:47 |
|---|---|

(The display is the same as the normal stopped display, except that "►" and "II" are lit)

【Displaying heat run repetition count (Display in step (3))】
(►II lit)

| L2 | CD ＊＊＊＊ |
|---|---|

＊＊＊＊ : heat run repetition count

# 5-2. Chucking mode

(1) Press the "■" button once while stopped after the CD heat run mode starts and TOC reading is completed.
(2) Repeat TOC reading → search of first track on disc → OPEN tray → CLOSE tray → TOC reading.
The heat run repetition count is shown in the time display area.
(3) An increment is added to the heat run count when the loader is OPEN and the process is completed.

【Display while tray is OPEN】
(►II lit)

| L2 | CD ＊＊＊＊ |
|---|---|

(＊＊＊＊ : heat run repetition count)

【Display while tray is CLOSE】
(►II lit)

| L2 | CLOSE |
|---|---|

【Display during TOC reading】
(►II lit)

| L2 | READING |
|---|---|

## 5.3. Error display

(►▮▮ lit)

| | |
|---|---|
| L2 | CD EX-XX |

(EX-XX : Error Code)

| Error Code | Description |
|---|---|
| E1-00 | Disc cannot be detected. |
| E1-01 | Tracking offset adjustment not possible. |
| E1-02 | Focus offset adjustment not possible. |
| E2-00 | The focus servo was disabled during playback. |
| E2-01 | The focus servo was disabled during searching. |
| E2-03 | The focus servo was disabled during TOC reading. |
| E2-06 | The focus servo was disabled during manual search. |
| E2-10 | Subcode became unreadable during playback. |
| E2-11 | Subcode became unreadable during searching. |
| E2-12 | Subcode became unreadable during TOC reading. |
| E2-14 | Subcode cannot be read while pausing. |
| E2-15 | Subcode cannot be read during manual search. |
| E3-00 | TOC could not be read within the specified time. |
| E3-01 | PVD/SVD analysis was not be completed within the specified time. |
| E4-04 | Search time out (The search was not completed within the specified time). |
| E4-05 | Decoder bus error (Error in communications with CD decoder). |
| E5-00 | Inner switch is not on. |
| E6-00 | Inner switch is not off. |
| E9-00 | A CD u-COM error occurred |
| E9-01 | Error other than above. |

【Heat run count at the time the error occurred】
(1) Press the "►►I" button while the error code is displayed.
(2) The heat run count is displayed for 5 seconds before returning to the error code display.

(►▮▮ lit)

| | |
|---|---|
| L2 | CD ＊＊＊＊ |

(＊＊＊＊ : Heat run repetition count at the time the error occurred)

【Track number and elapsed time of track at the time the error occurred】
(1) Press the "I◄◄" button while the error code is displayed.
(2) The track number and elapsed time of the track at the time the error occurred are displayed for 5 seconds before returning to the error code display.

(►▮▮ lit)

| | |
|---|---|
| L2 | 05 01T＊ ＊＊:＊＊ |

(＊＊＊＊ : elapsed time of track at the time the error occurred)

## 6. Accumulated laser on time display mode

### 6.1. Actions

- The laser drive time is added and the result is displayed.
- Each count is 10 minutes (truncated if less than 10 minutes).
- The count value is saved to the EEPROM.
- The accumulated laser on time is displayed in hours.
- The count value is not erased when the unit is initialized (3. Cold start mode).
- Minimum display specification (also possible when the display time below is exceeded).
- Number of digits retained in EPROM : 4 digits 0xFFFF
- Number of digits displayed : 5 digits
- When 10922 hours are exceeded, the retained data is not updated and the value is fixed as 0xFFFF (the display is fixed as "10922 hour").

(1) While holding down buttons the "⏻" and "■" buttons simultaneously, insert the AC plug to turn the power on.

| | |
|---|---|
| L1 | ＊＊＊＊＊ hour |
| L2 | LASER ON TIME |

(＊＊＊＊ : Heat run repetition count at the time the error occurred)

(2) Remove the AC plug to exit this mode.

### 6.1. Resetting the count value

(1) With the accumulated laser-on time displayed, press and hold the "**►/▮▮**" button for over 5 second to reset the count value (overwrite the stored data).

| | |
|---|---|
| L1 | CLEAR |
| L2 | LASER ON TIME |

(2) The display returns to the display in "**LASER ON TIME**" ("00000 hour" at top) after initialization is completed.

※ The Count value is reset upon shipment from the factory and when the mechanism is replaced.

## 7. Protection History Display Mode

(1) While holding down buttons the "**SOURCE**" and "►►I" buttons simultaneously, insert the AC plug to turn the power on.
(2) The last backed up protection to be detected is displayed.
(3) Remove the AC plug to exit this mode.

【No detected history】

| | |
|---|---|
| L1 | PROTECTION: |
| L2 | NO PROTECT |

【AMP error detected】

| | |
|---|---|
| L1 | PROTECTION: |
| L2 | AMP |

【Power error detected】

| | |
|---|---|
| L1 | PROTECTION: |
| L2 | POWER |

### 7.1. Resetting the protection history

(1) With the protection history displayed, press and hold the "►/II" button for over 5 seconds to clear the protection history.

【Cleared display】

| | |
|---|---|
| L1 | PROTECTION: |
| L2 | CLEAR |

・Protection history is cleared, even when the Initialization Mode.

## 8. Version Display of DAB Module (RCD-M41DAB Only)

(1) Insert the AC plug and turn on the power.
(2) Press "**TUNER**" on the remote control and select "**DAB**".

| | |
|---|---|
| L1 | DAB |
| L2 | NO SERVICE |

(3) Press "**DAB/RDS**" on the remote control to display the "**DAB Menu**".

| | |
|---|---|
| L1 | DAB MENU |
| L2 | ◆AUTO SCAN |

(4) Press the cursor button "▽" on the remote control 5 times to select "**DAB VERSION**".

| | |
|---|---|
| L1 | DAB MENU |
| L2 | ◆DAB VERSION |

(5) Press "**ENTER**" on the remote control to display the version of the DAB module.

| | |
|---|---|
| L1 | DAB VERSION |
| L2 | 0304/0600 |

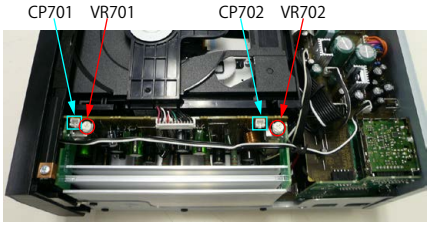
## Adjusting Idling Current

### 1. Preparation

Prepare a DC voltmeter.

### 2. Adjustment Procedure

(1) Remove the top cover.
(2) Connect the DC Voltmeter to the test points.
(3) Set this unit as follows.
MASTER VOLUME : "---" (∩ min.) : turn counterclockwise to the lowest position.
(4) Turn the variable resistance and adjust the voltage of the test point to "**2.6mV ± 0.3mV DC**".
(5) Adjust the variable resistance of each channel using the same method.
Left ch : CP701 : VR701
Right ch : CP702 : VR702



TOP View

# UPDATING

## PROCEDURE AFTER REPLACING THE PCB.

## PROCEDURE AFTER REPLACING THE U-COM, ETC.

## FIRMWARE UPDATE PROCEDURE

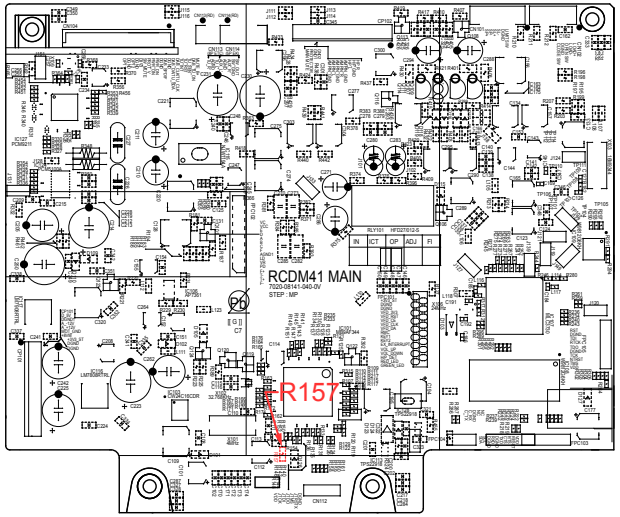
# PROCEDURE AFTER REPLACING THE PCB.

The procedure after replacing the printed circuit boards is as follows.
(1) Change the resistor for setting the region.

| Model Area | MAIN PCB |
|---|---|
| | R157 |
| North America (E3) | 4K7 |
| Europe (E2) | 1K8 |
| Europe (EK) | 33K |
| China (E1C) | 8K2 |
| Japan (JP) | 15K |

See the PCB below.

(2) Be sure to replace the software with the latest version.




# PROCEDURE AFTER REPLACING THE U-COM, ETC.

The procedure after replacing the u-COM (microprocessor), flash ROM, etc. is as follows.
Implement the update method when the DIGITAL PCB or network module is replaced.

| PCB Name | Ref. No. | Description | Procedure after Replacement | Remark |
|---|---|---|---|---|
| DIGITAL | IC101 | MB9AF344 | B | SOFTWARE : Main |
| DIGITAL | IC109 | W25Q16JVSSIQ | B | SOFTWARE : DSP ROM |
| ⚠7 FRONT | FL501 | OLD : DISPLAY,FLT 16-ST-103GINK<br>NEW : DISPLAY VFD CIG25-1607N | E | DISPLAY |

Procedure after Replacement

**A :** The software has been written. The software is not written at the time of replacement.
**B :** The software has been written. The software may need to be rewritten by version updates. Check the version.
**C :** The software has not been written. The software needs to be written after replacement.
See "FIRMWARE UPDATE PROCEDURE" for information on writing the software.
**D :** The software has been written. Be sure to replace the software with the latest version.
See "FIRMWARE UPDATE PROCEDURE" for information on writing the software.
⚠7 **E :** Match the DISPLAY to the system u-COM [U101] Version.
When changing the DISPLAY, make sure it matches the system u-COM [U101] version to change.
See "1. Version Display Mode"

(1) If the system u-COM Version is "**Ver 17101933**":
(1-1) To change to [FL501] 943172007420D (OLD) DISPLAY:
Downgrade the system u-COM [**IC101**] to Version "**Ver 17032030**".
(1-2) To change to [FL501] 963172100240S (NEW) DISPLAY:
No procedure required.

(2) If the system u-COM Version is "**Ver 17032030**":
(2-1) To change to [FL501] 943172007420D (OLD) DISPLAY:
No procedure required.
(2-2) To change to [FL501] 963172100240S (NEW) DISPLAY:
Update the system u-COM [**IC101**] Version to "**Ver 17101933**".

| Type | [FL501] VFD | | [U101] Version | |
|---|---|---|---|---|
| | Parts number | Parts name | System Version | Download from SDI |
| OLD | 943172007420D | DISPLAY,FLT 16-ST-103GINK | Ver 17032030 | RCD_M41_System(17032030).zip |
| NEW | 963172100240S | DISPLAY VFD CIG25-1607N | Ver 17101933 | RCD_M41_System(17101933).zip |

# FIRMWARE UPDATE PROCEDURE

## 1. Items necessary for update

Items necessary for update are as follows.

| Update Type | Needed Part for Update | Requirement | Offered / not Offered | | |
|---|---|---|---|---|---|
| | | | Standard Service Equipment Not offered by D&M | Purchase from D&M Article code | Download from SDI |
| System u-com Update | RS-232C cable | 9P (Male), Straight | X | - | - |
| | 8U-210100S WRITING KIT | OLD JIG : SPK-581 WRITING KIT | - | 8U- 210100S | - |
| | 7P FFC | Straight | - | 606050028012P | - |
| | FLASHSTA | - | - | - | FLASHSTA.EXE |
| DSP Update | Provide a writable CD-R/RW disc. | - | X | - | FIRMWARE_Vxx_RCDM41_ xxxxxxxx.mp3 |

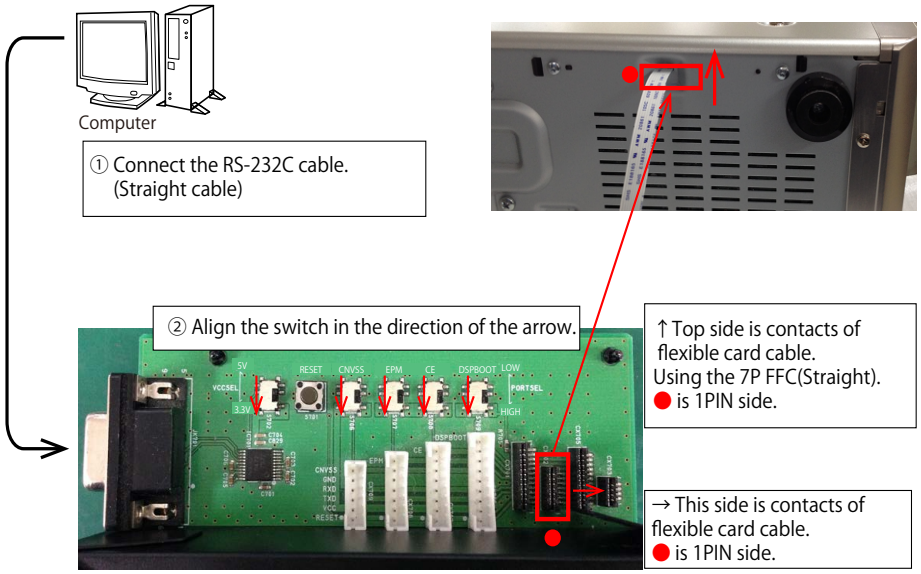
# 2. Updating via System u-com (IC101)

## 2.1. Items to Be Prepared

(1) Obtain "**pcwfm3-v01l07.zip**" from SDI.
(2) Personal Computer (Be installed "**FLASH MCU Programmer for FM0+/FM3/FM4**").
(3) RS-232C cable (9P (Male), Straight).
(4) 8U-210100S : WRITING KIT (OLD JIG : SPK-581 WRITING KIT)
606050028012P : 7P FFC (Straight)

## 2.2. Connecting the WRITING KIT to This Unit

(1) Check that the power of this unit is off.
(2) Connect the RS-232C cable to the computer and WRITING KIT.
(3) Connect the update terminal of this unit to the WRITING KIT.

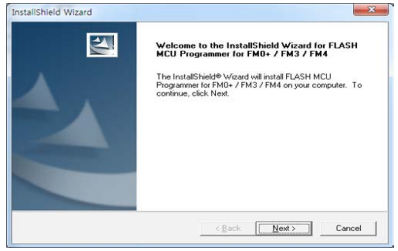



## 2.3. Installing the Software

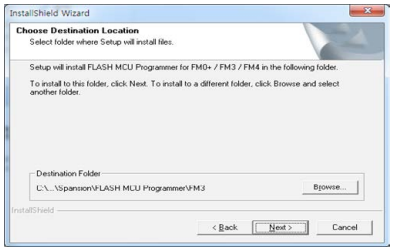
Install the writing software "**FLASH MCU Programmer for FM3/FM4**" on your computer.

(1) Download "**pcwfm3-v01l07.zip**" from SDI.
(2) Double-click "Setup.exe".

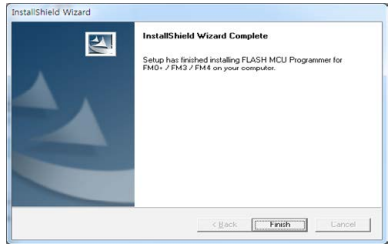

(3) Click "Next >".




(4) Click "Next >".




(5) Click "Finish".

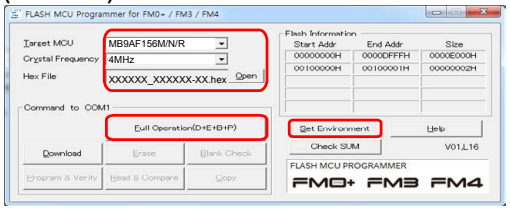


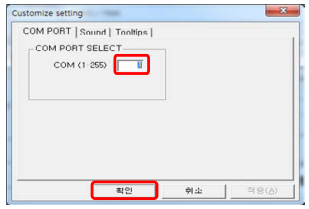
## 2.4. Run the FLASH MCU Programmer

(1) Press the power button to turn on the power.

(2) Execute "**FLASH MCU Programmer for FM3/FM4**" after installing it on your computer.
(1) Double-click **FLASH MCU Programmer** to launch **FLASH MCU Programmer** Start.


(3) Target MCU : Select "**MB9AF344L/M/N**"
Crystal Frequency : Select "**4MHz**"
Hex File : Select the file to be "**Update**" RCD_M41(xxxxxx).hex
Set Environment : Select "**COM PORT**"
Click "**Full Operation(D+E+B+P)**"

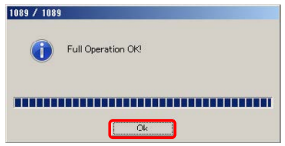



(4) Press the "**Reset**" button on the WRITING KIT.

(5) Click "**OK**".


(5) The following display appears when the firmware update is complete.
Click "**OK**".




(6) Initialize this unit.
Remove the AC plug.

(7) After updating the firmware, check the version.
See "1. Version Display Mode"

## 3. Updating via Disc (IC109)

The latest firmware can be written to a disc for update.

### 3.1. Support Disc

(1) Preparation

• Provide a writable CD-R/RW disc.

### 3.2. How to create a disc

Write the update file to a disc

Update file : **FIRMWARE_Vxx_RCDM41_xxxxxxxx.mp3**

The update file is written to the disc with the following settings.

• Multi Session : No
• File System : ISO9660+Joliet
• Mode : MODE1
• Write speed : 8-16x (match this with the performance of the CD-R)
• Write method : Disc at Once (Finalize(Close))

## 4. Updating via DSP (IC109)

### 4.1. Preparation

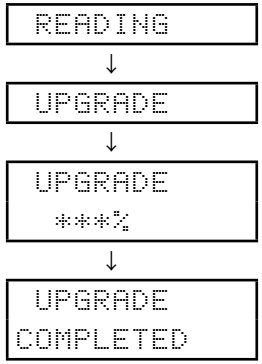
• Use the Disc created in "3.2. How to create a disc".

### 4.2. Starting up

(1) Press the power button to turn on the power.
(2) Place the update disc on the tray and close it.
(3) This unit recognizes the update file and then the update starts automatically.

### 4.3. Displays

(1) The following message appears on the display.




When the file data load is completed, "**COMPLETED**" is displayed and the tray opens automatically.
At this point, make sure to remove the disc from the tray.

(3) The firmware update finishes.
Press the power button to turn off the power.

(4) After updating the firmware, check the version.
See "1. Version Display Mode"

---Cautions on Firmware Update---
• Turning on the power while the update disc is inserted starts the update automatically.
• Do not turn off the power until updating is completed.

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