

CD RECEIVER

RCD-M41

RCD-M41DAB



- 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.

Click here!

Online service parts list

<https://dmedia.soundunited.com/documents/details/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>

CAUTION IN SERVICING

ELECTRICAL

MECHANICAL

REPAIR INFORMATION

UPDATING

Please refer to the MODIFICATION NOTICE.

Confidential

CAUTION IN SERVICING

SAFETY PRECAUTIONS

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NOTE FOR PARTS LIST

INSTRUCTIONS FOR HANDLING SEMICONDUCTORS AND OPTICAL UNIT

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SERIAL NUMBER

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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.

Ⓢ 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

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 $\triangle$ 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 reasons, 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.

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 $\triangle$ mark. |
| (2) Parts lists | Indicated by the $\triangle$ 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 $\triangle$ 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 $\triangle$ mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

INSTRUCTIONS FOR HANDLING SEMICONDUCTORS AND OPTICAL UNIT

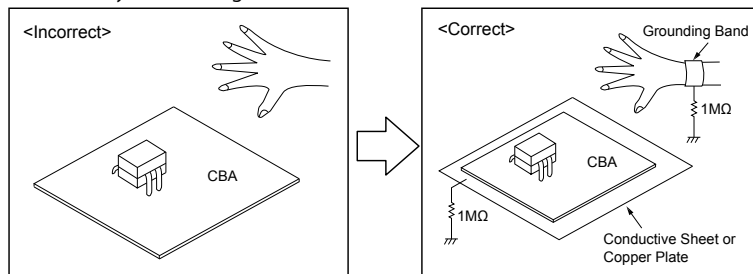
Electrostatic breakdown of the semi-conductors or optical pickup may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

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 à leur manipulation. Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le braceleterti d'une résistance de sécurité. Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à 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 longevità 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 braccialeto 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 verändert 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 gespecificeerde worden toegepast.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambio 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 COVERSHELD

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 NÅR DEKSEL Å PNES UNNGÅ EKSPONERING FOR STRÅLEN
VARNING SYNLIG OCH USYNLIG LASERSTRÅLING NÅR DENNA DEL ÅR ÖPPNAD BETRÄKTA EJ STRÅLEN
VARO! AVATT AESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRALHUNG 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

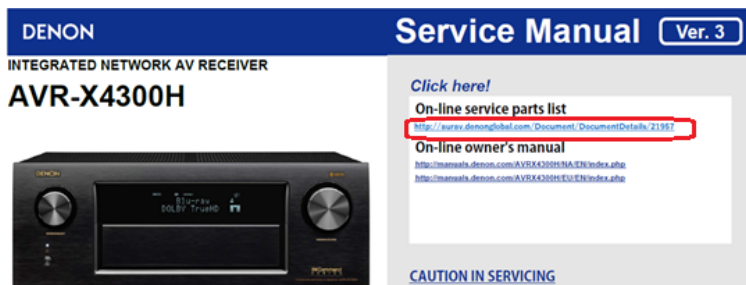
100301DM

Online Parts List

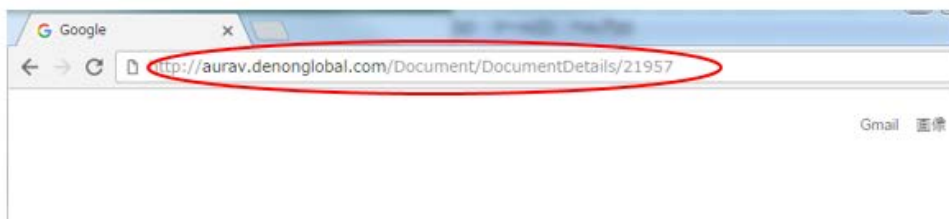
Accessing the Parts List

- (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

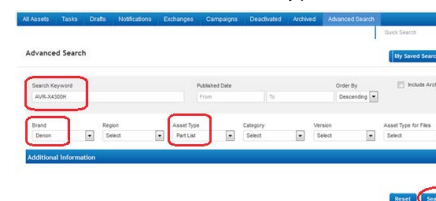
- (1) Access New SDI from the URL below.
<http://dmedia.dmglobal.com>
- (2) When the login screen is displayed, enter your username and password.
- (3) Enter the 5 letters shown as the blue CAPTCHA code as single-byte characters.
If the text is unclear, click "**Refresh**" to change the CAPTCHA code, and enter it again.



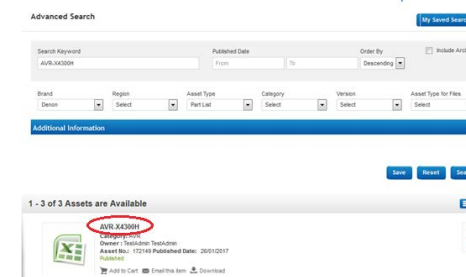
- (4) Press the "**Login**" button.
- (5) When the Home screen is displayed, click "**Advanced Search**".



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

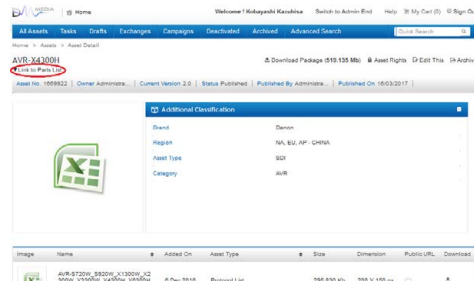


- (7) Click the model name when the search results are displayed.



Accessing the Part List from the Model Asset Screen

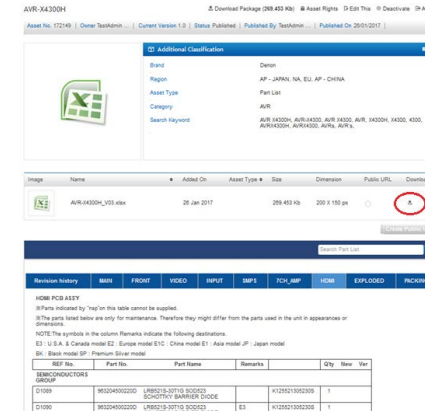
- (1) Display Model Asset from New SDI.
- (2) Click the section displayed as ▼ Link to Part Lists under the model name.



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

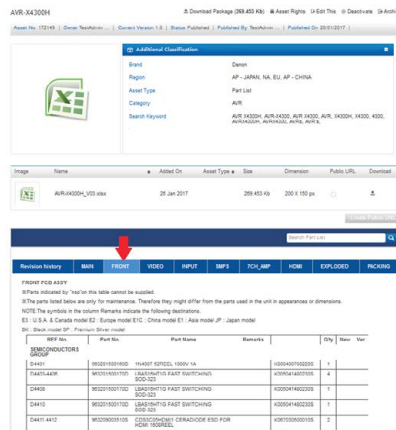
Downloading the Parts List as an Excel File

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



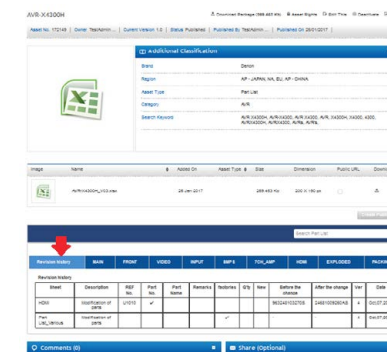
PRINTED CIRCUIT BOARDS Parts Table

- (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.

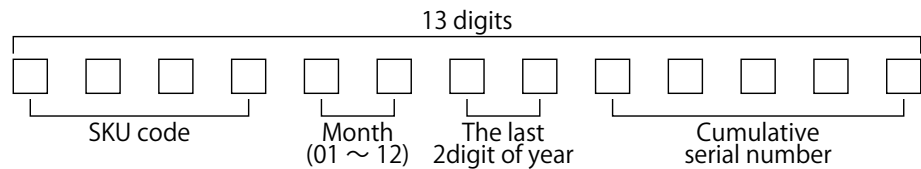


The following details are displayed.

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

Serial Number Organization

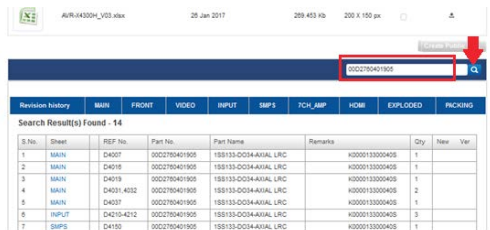
The 13-digit serial number that contains the code of the manufacturing date.



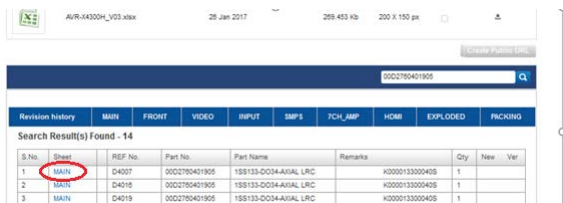
Searching Part Numbers or Ref. Numbers

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

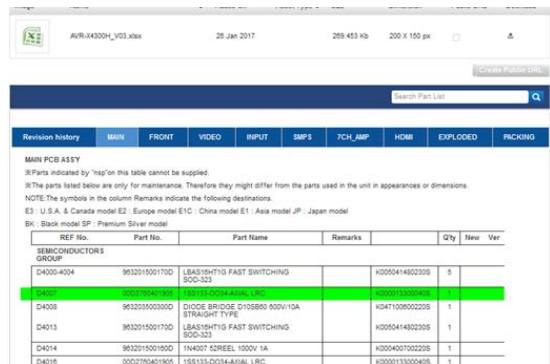
- (1) Enter the part number or Ref. number in the search window of the Parts List, and press the search button.
- (2) The search results are displayed.
The name of the sheet in which the search part is used and the part's line are displayed.



- (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.



SKU Code of this Unit

Product SKU	SKU Code
RCDM41BKE2	AUG
RCDM41SPE2	AUH
RCDM41DABBBKEK	AUJ
RCDM41DABSPEK	AUK
RCDM41BKE1C	AUP
RCDM41K	AUM
RCDM41SP	AUN

CAUTION IN SERVICING.

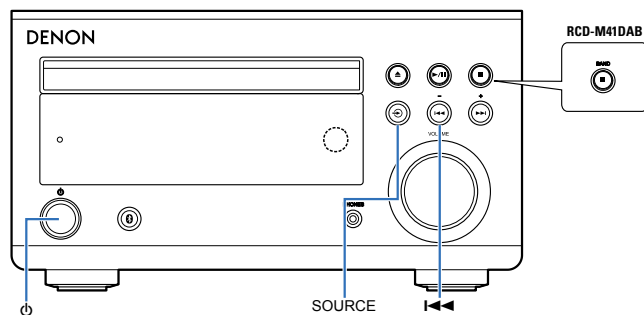
Initializing This Unit

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 "◀◀" 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.: 900606503280S
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
 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
 ST_BY-2

LEVEL DIAGRAM

HEADPHONE
SPEAKER

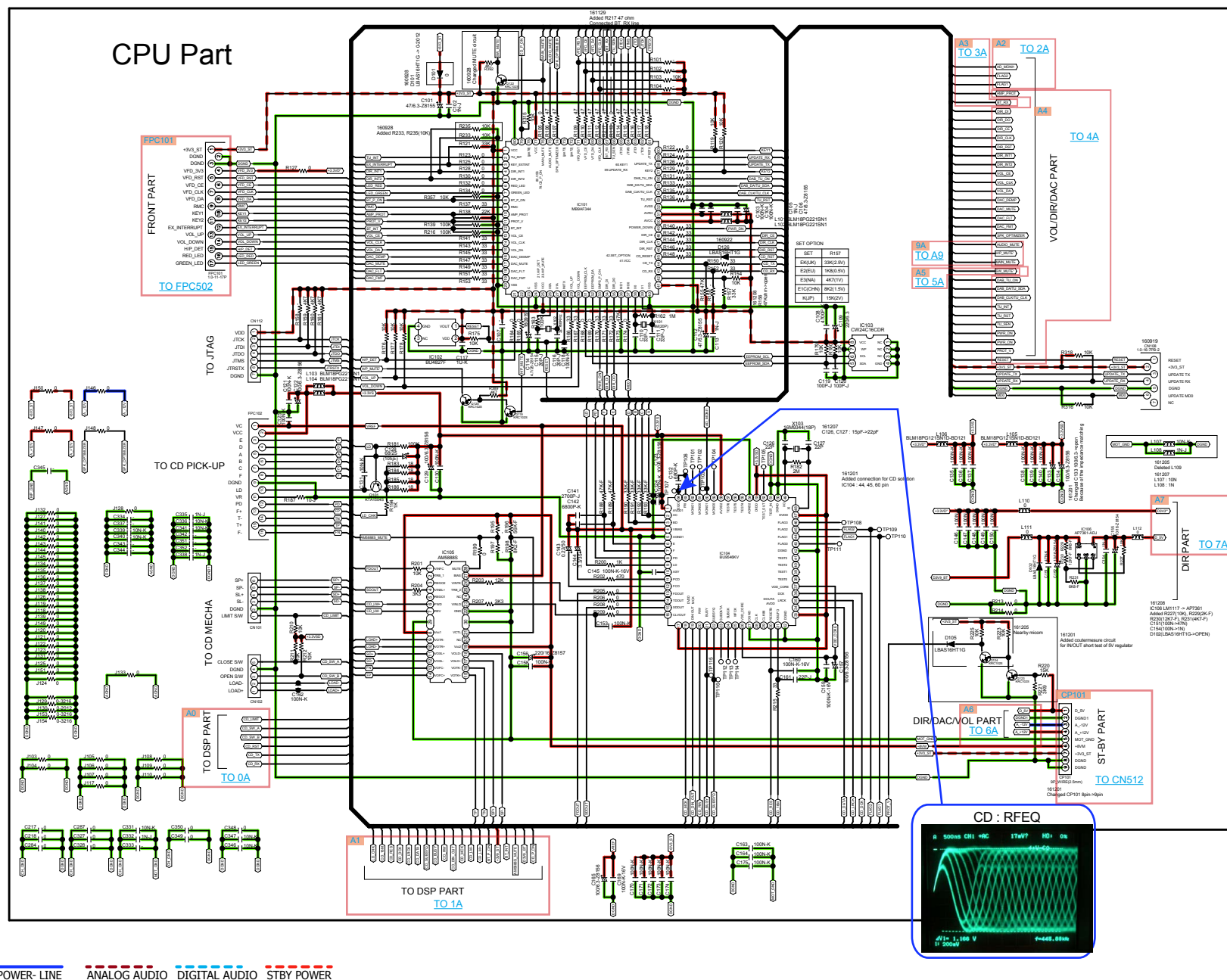
BLOCK DIAGRAM

POWER DIAGRAM

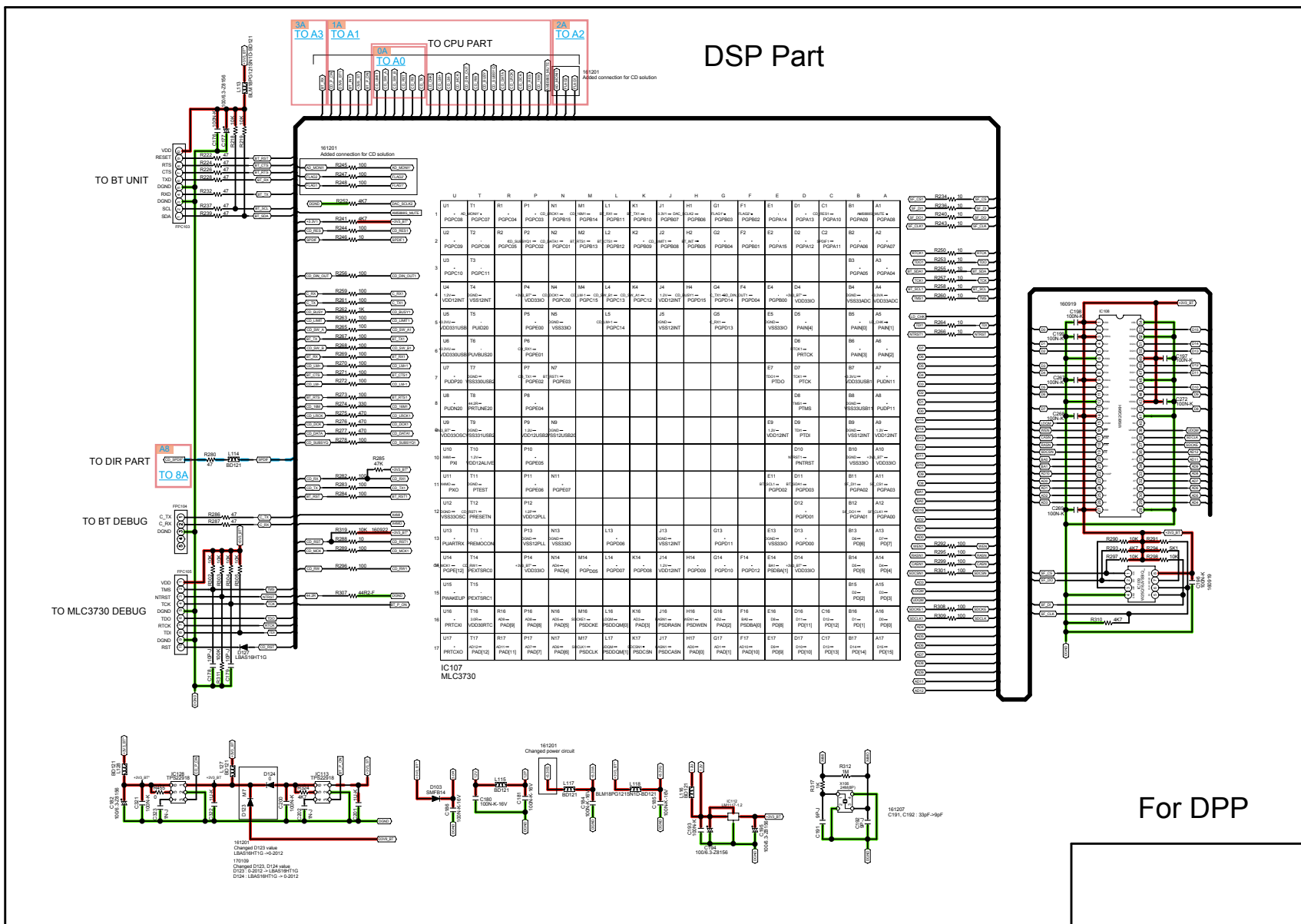
WIRING DIAGRAM

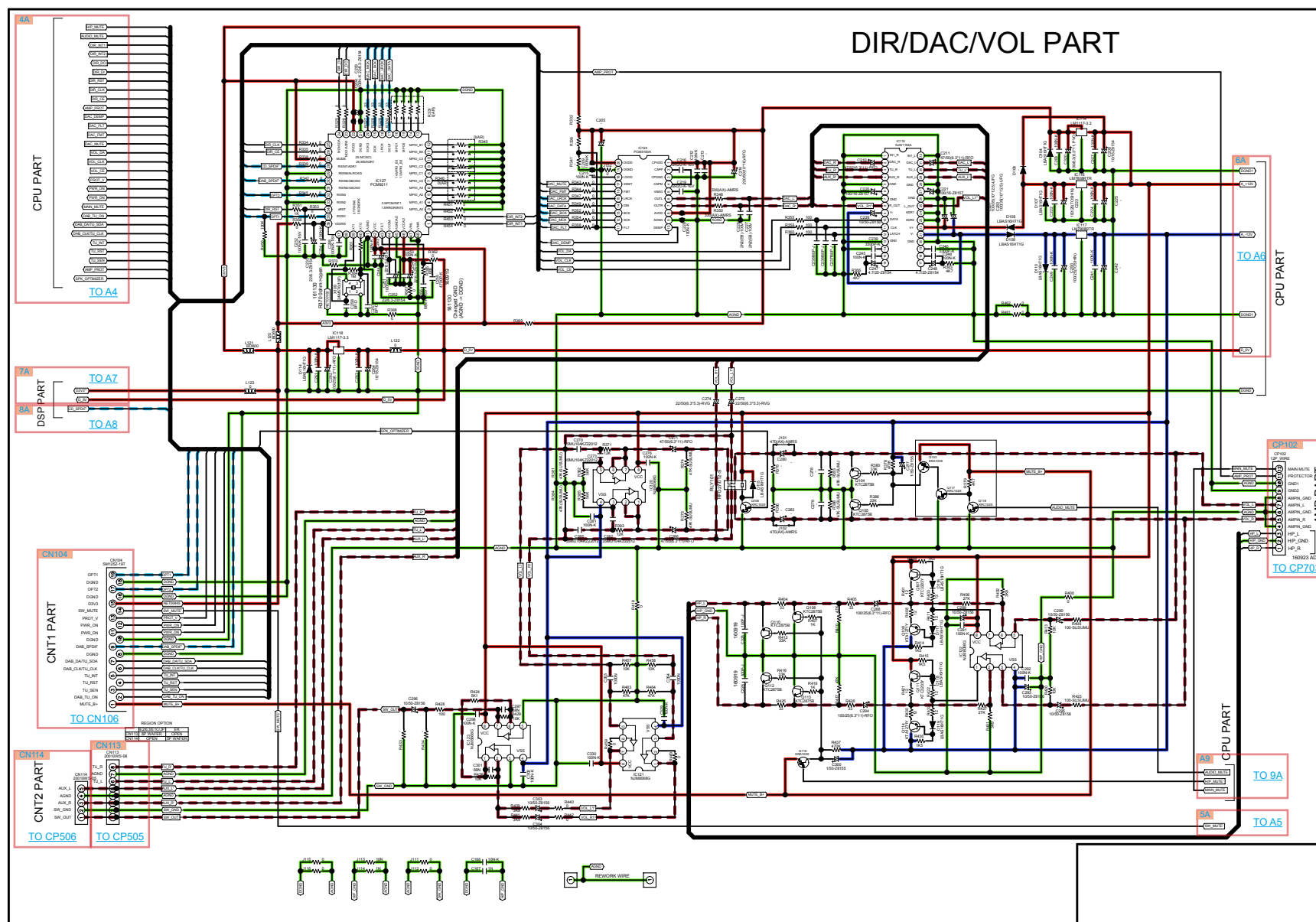
SEMICONDUCTORS

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

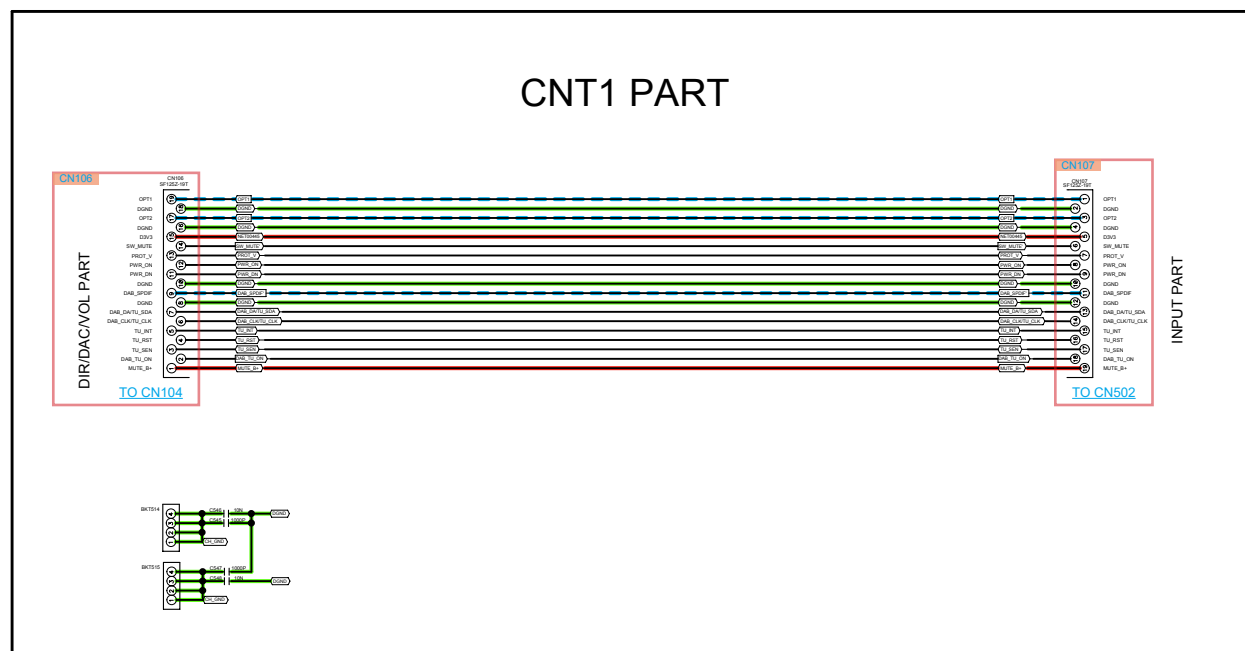


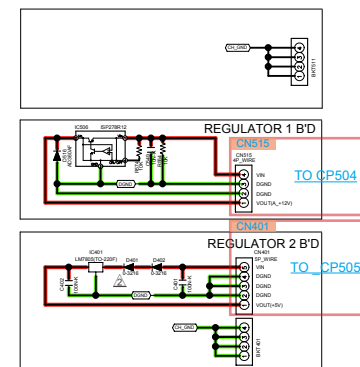
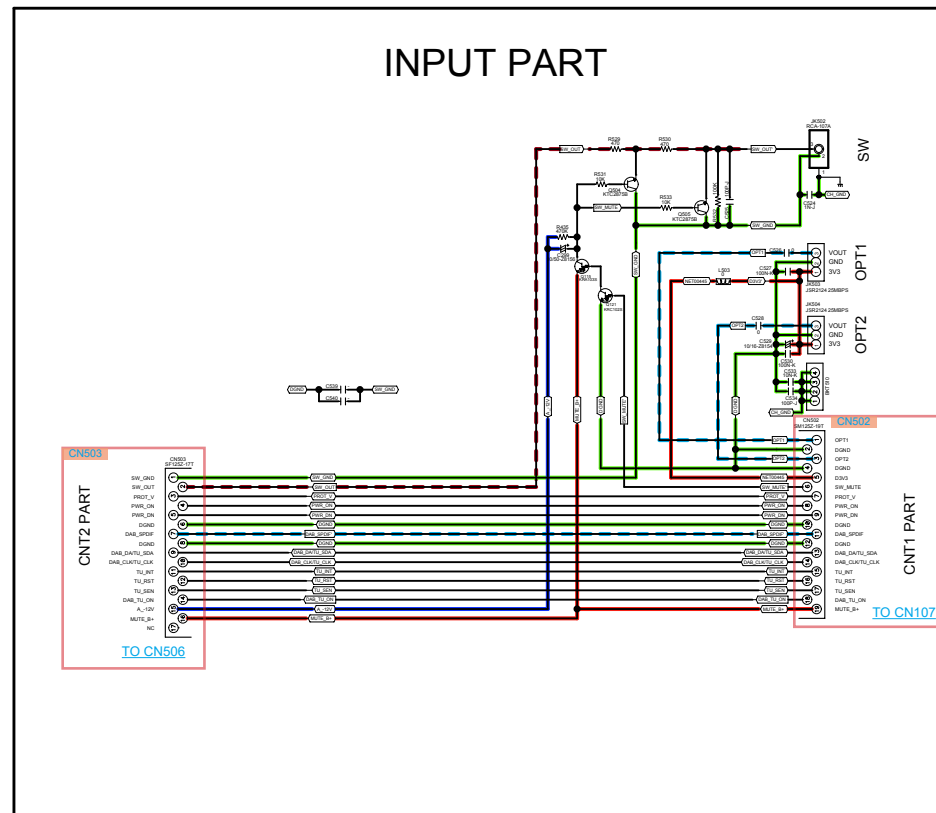
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER

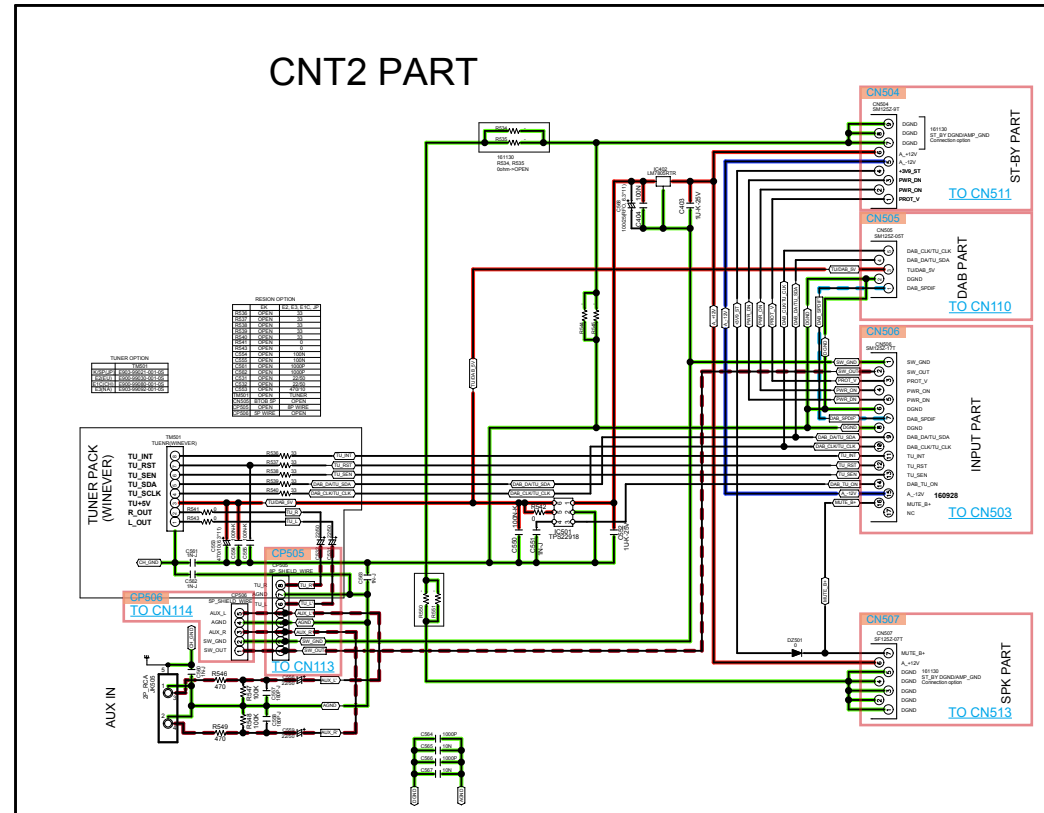




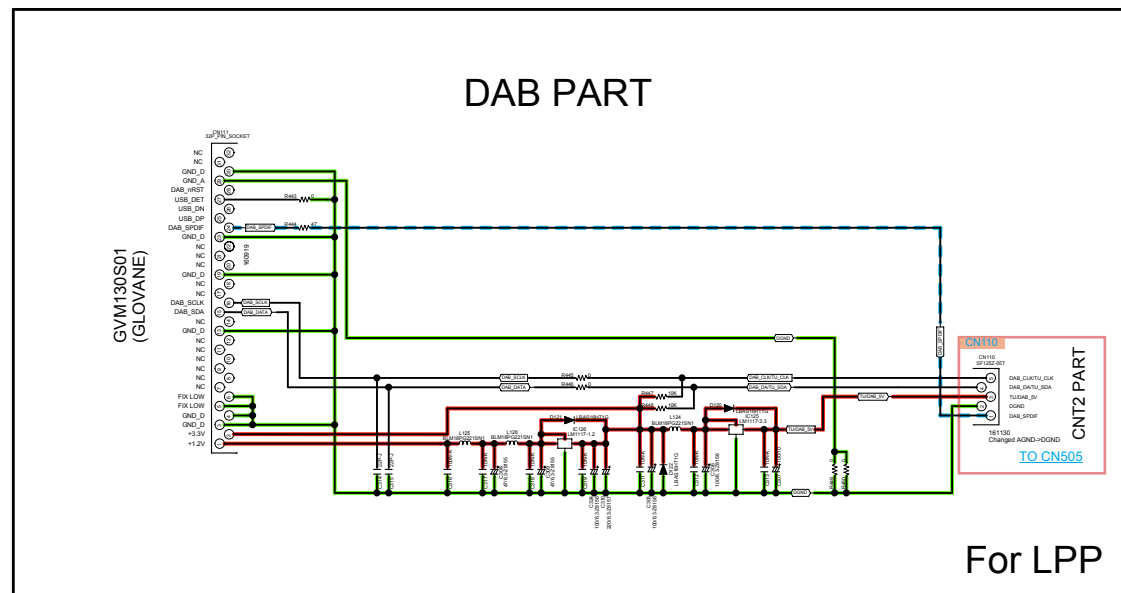
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER

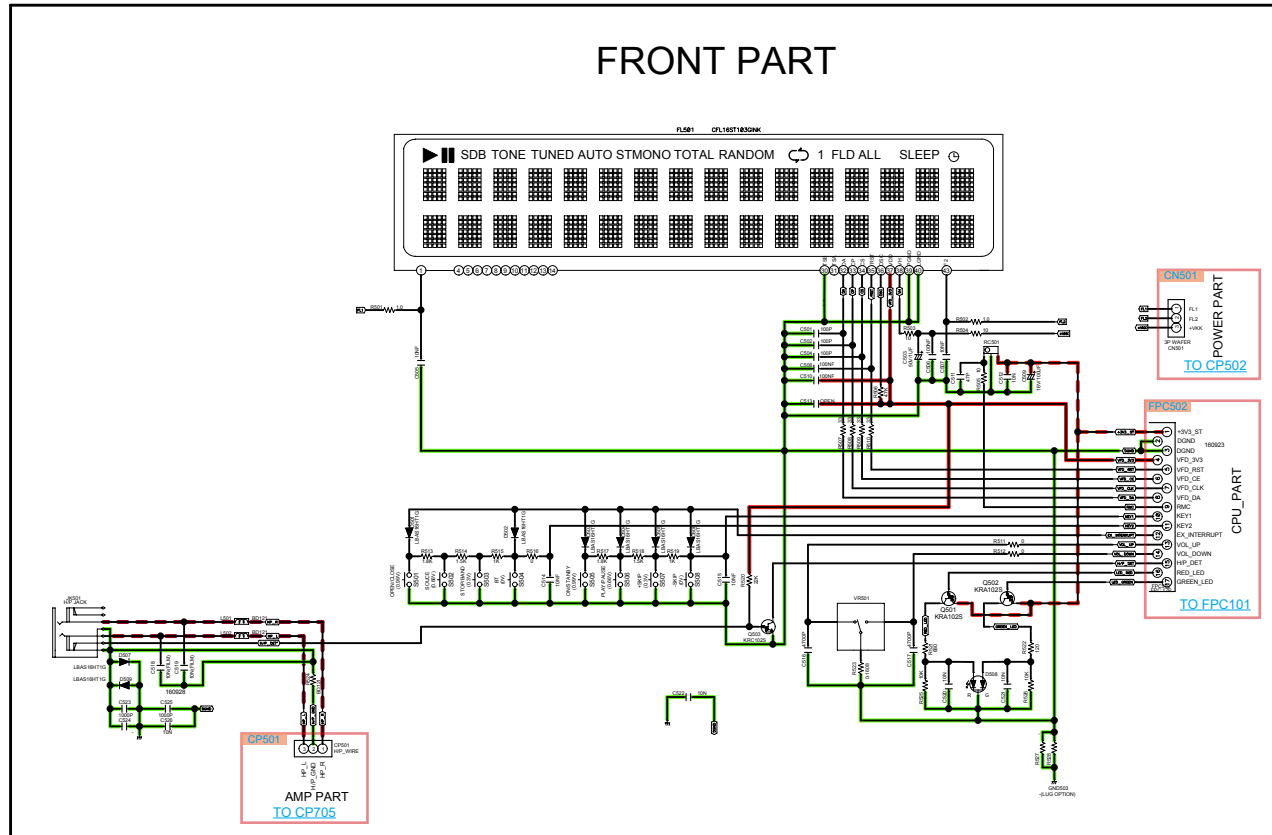






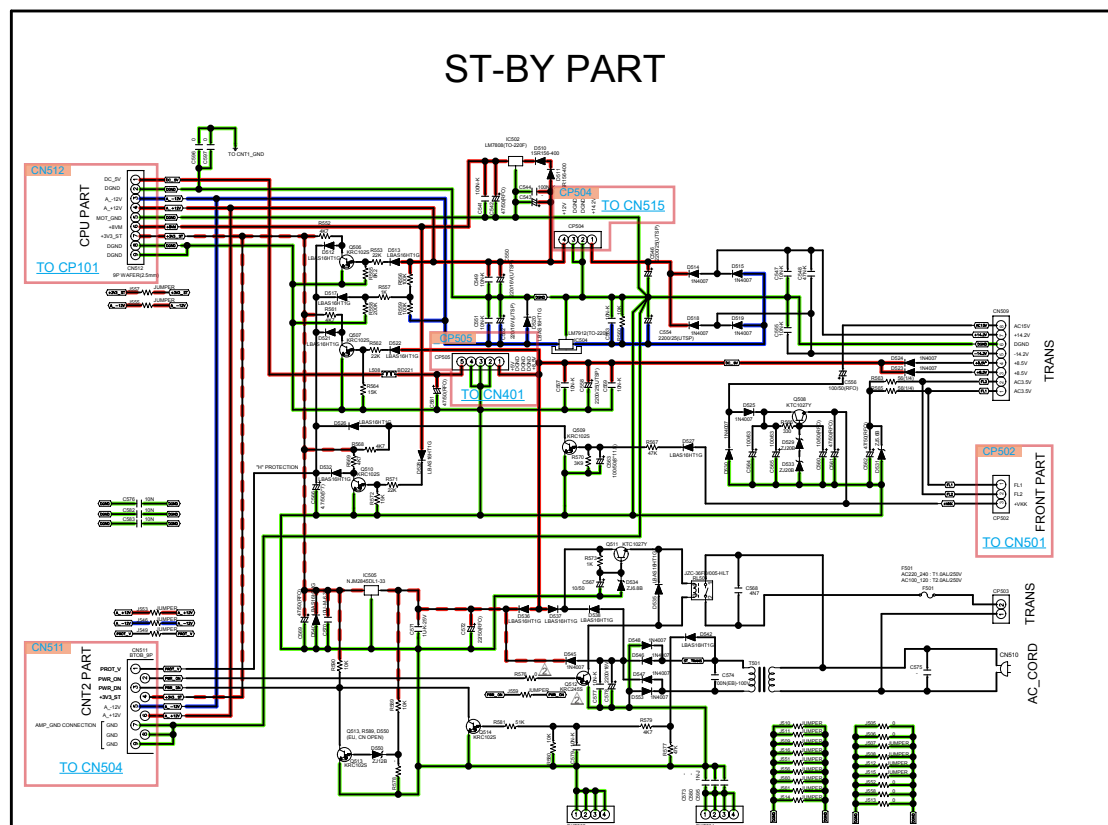
— GND LINE
 — POWER+ LINE
 — POWER- LINE
 — ANALOG AUDIO
 — DIGITAL AUDIO
 — STBY POWER





RCD-M41 AMP ASSY



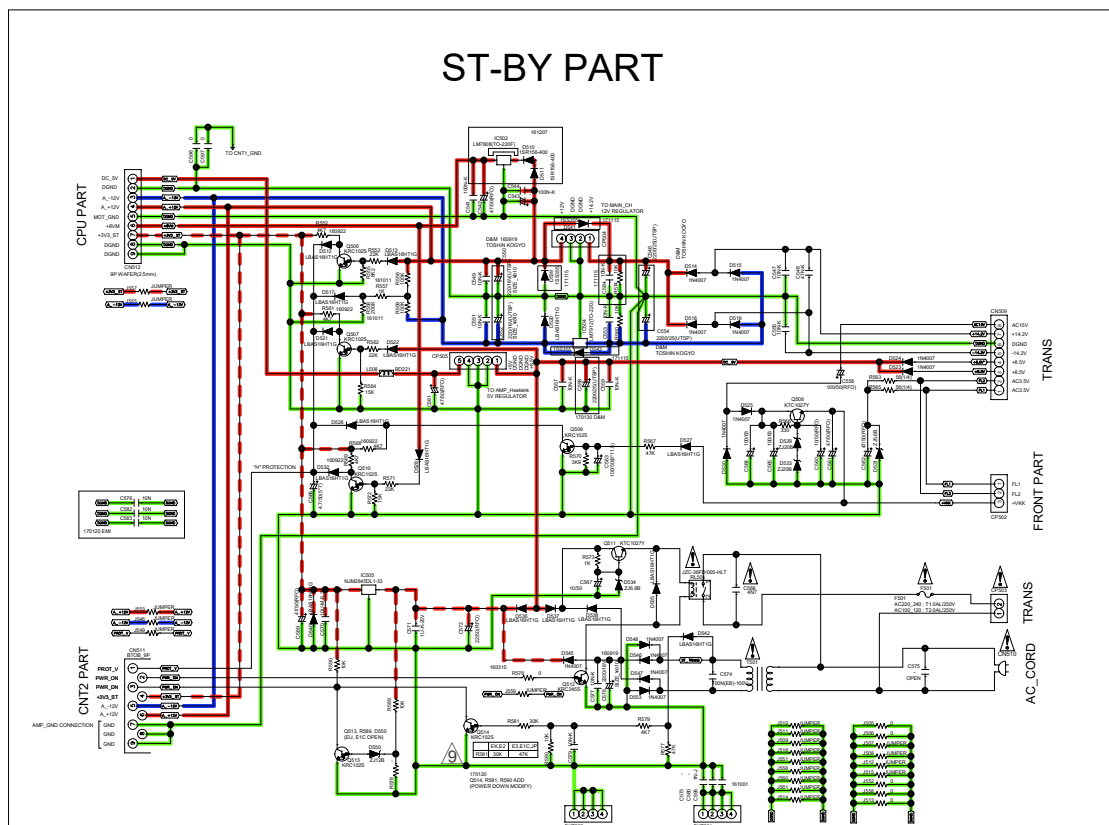


5 Note: For products with a serial number in the following table, see the schematic diagram in [SCH12_ST_BY-2](#).

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-



ST-BY PART



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](#).

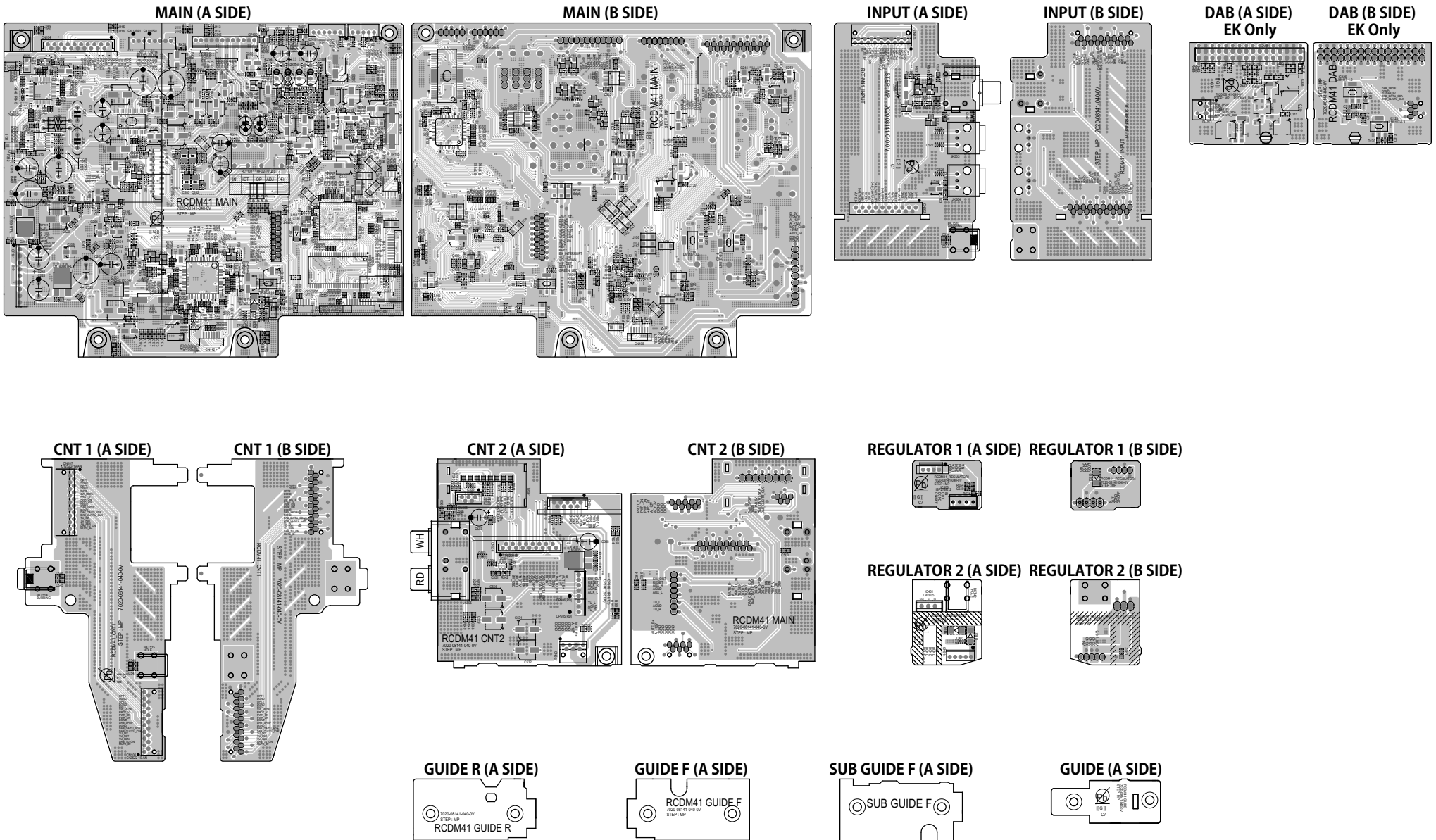
Model	Applied	Serial Number
DM41	SBKE3	02014-
RCDM41	SP	05412-
RCDM41	DABBKEK	17171-
RCDM41	DABSPEK	19870-
RCDM41	SPE2	03902-
RCDM41	BKE2	04091-
RCDM41	BKE1C	01184-

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).



Caution in
servicing

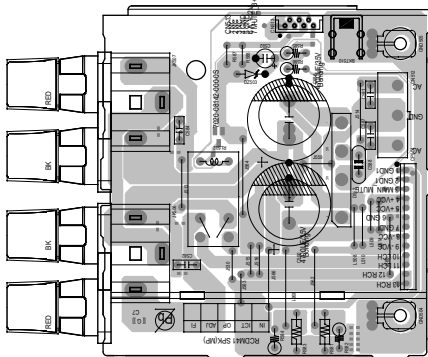
Electrical

Mechanical

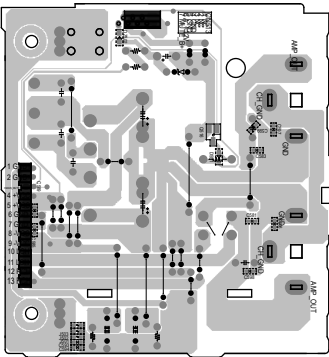
Repair Information

Updating

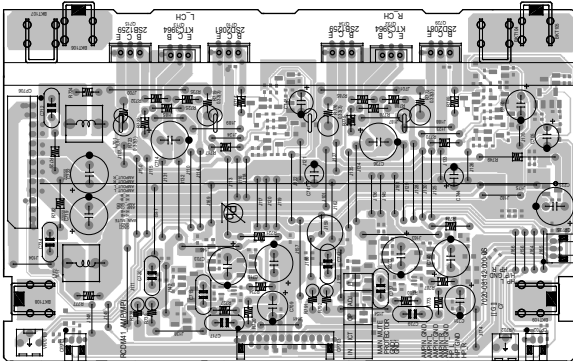
SPK (A SIDE)



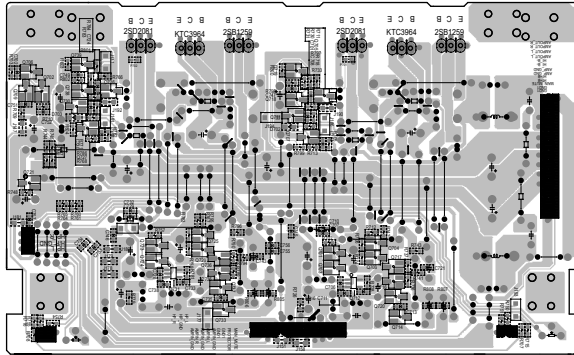
SPK (B SIDE)



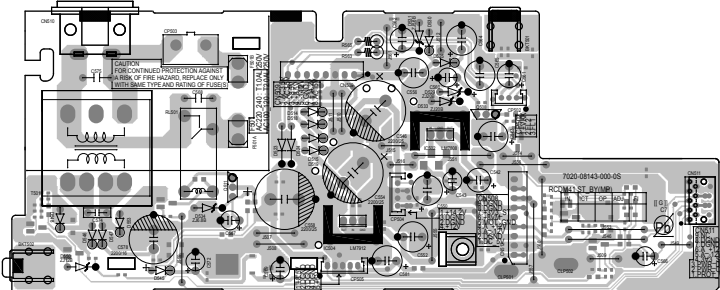
AMP (A SIDE)



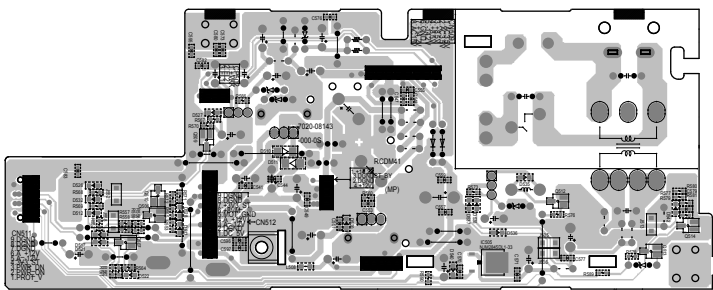
AMP (B SIDE)



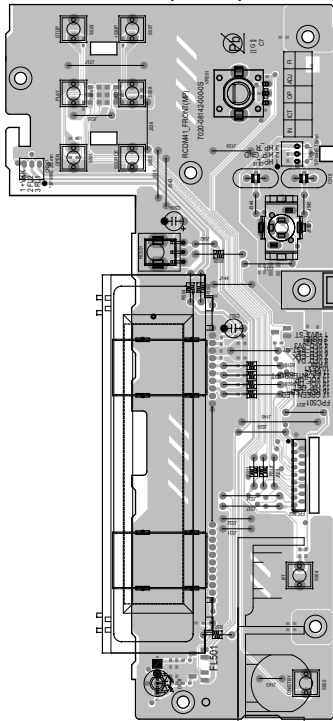
※ ST_BY (A SIDE)



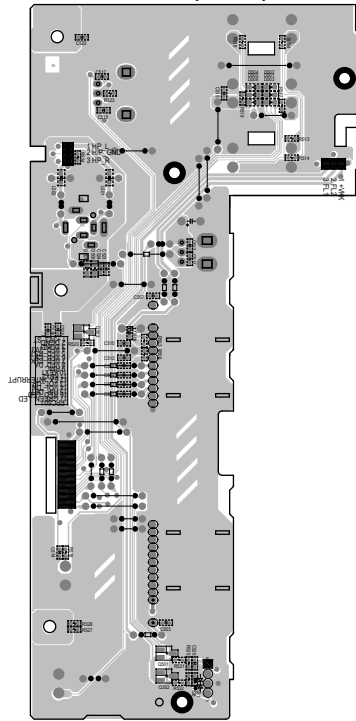
※ ST_BY (B SIDE)



FRONT (A SIDE)



FRONT (B SIDE)

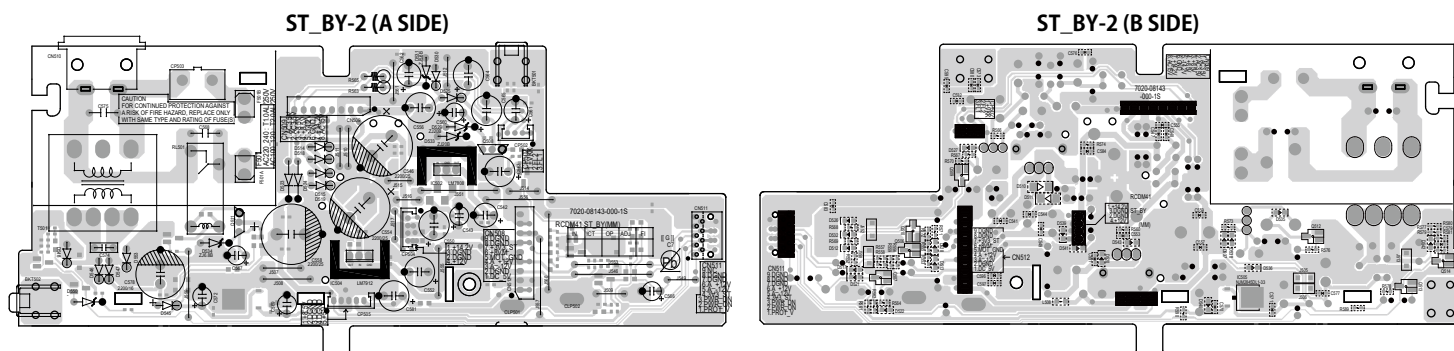


※ : For products with a serial number in the following table, see the printed circuit board in [ST_BY-2](#).

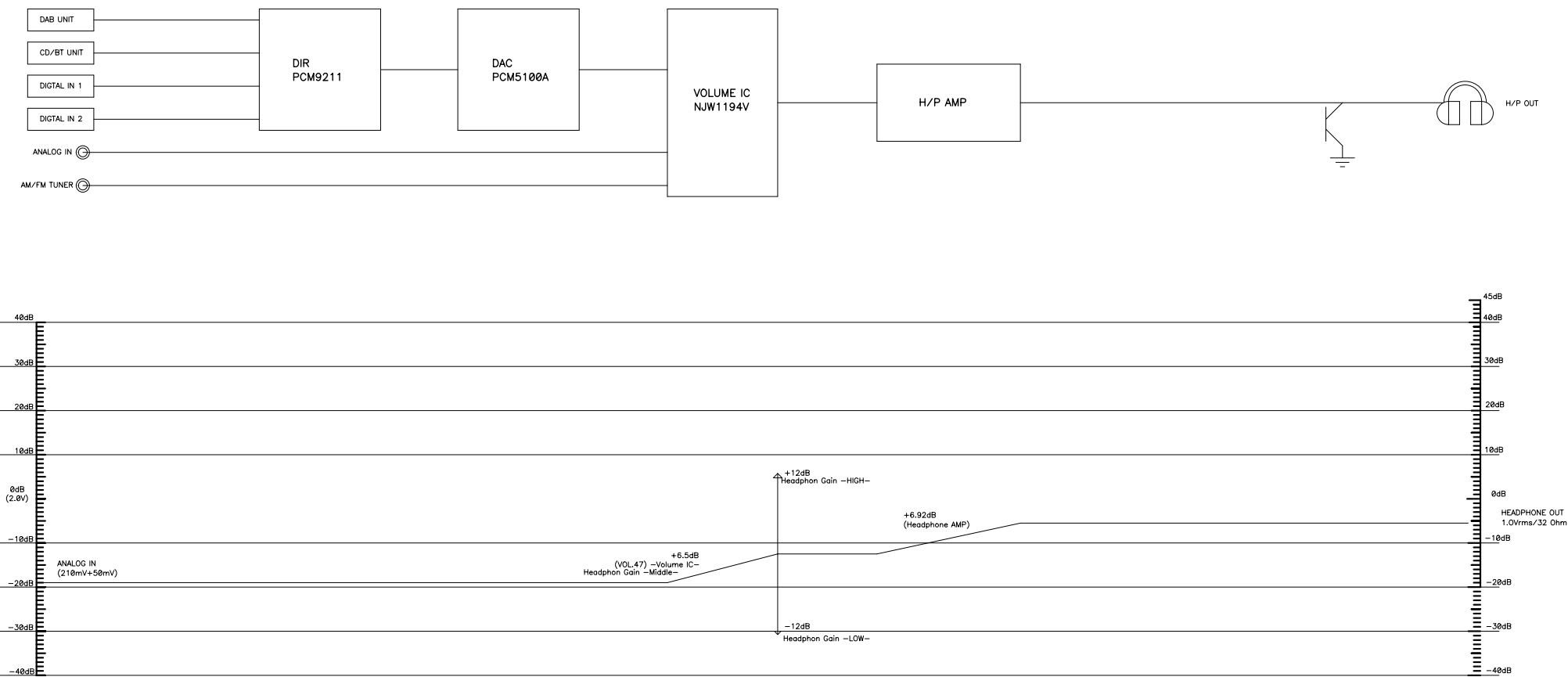
Model	Applied	Serial Number
DM41	SBKE3	02014-
RCDM41	SP	05412-
RCDM41	DABBKEK	17171-
RCDM41	DABSPEK	19870-
RCDM41	SPE2	03902-
RCDM41	BKE2	04091-
RCDM41	BKE1C	01184-

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-



RCD-M41 LEVEL DIAGRAM(HEADPHONE)



Caution in servicing

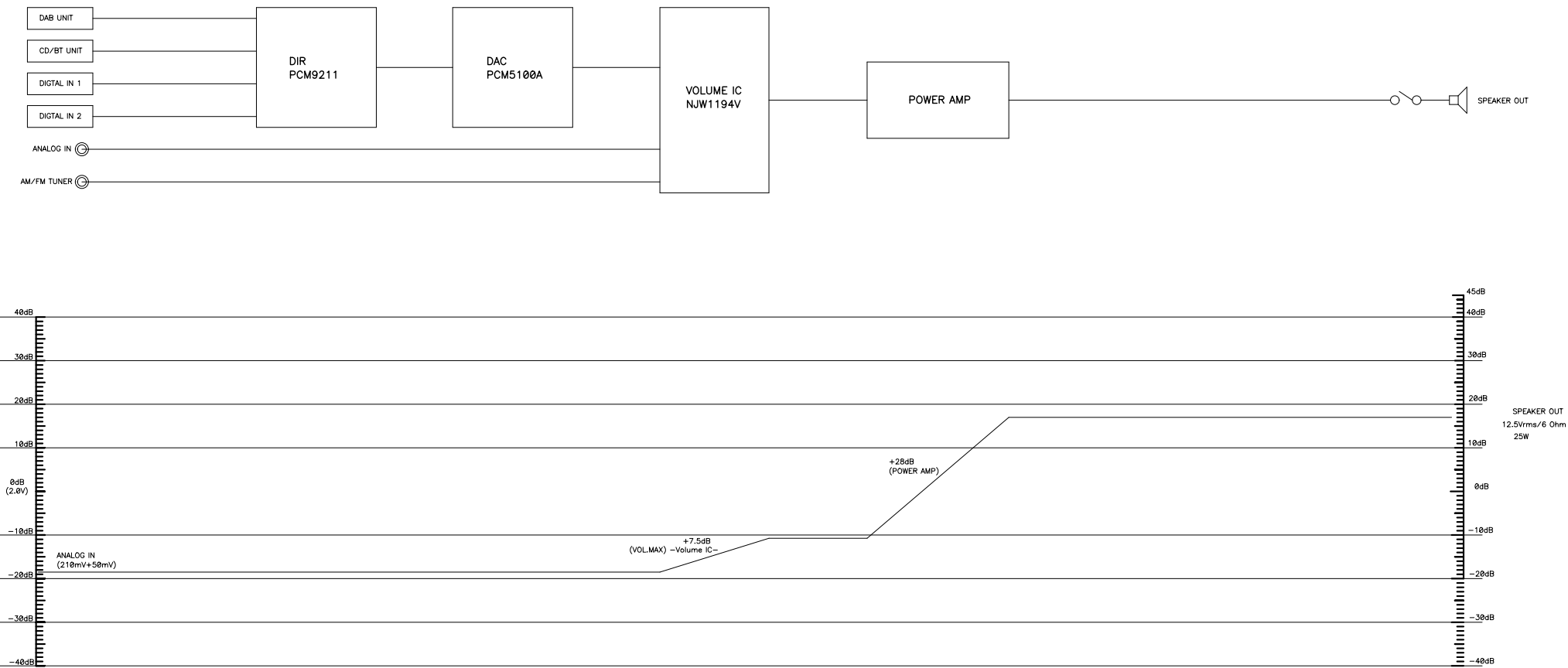
Electrical

Mechanical

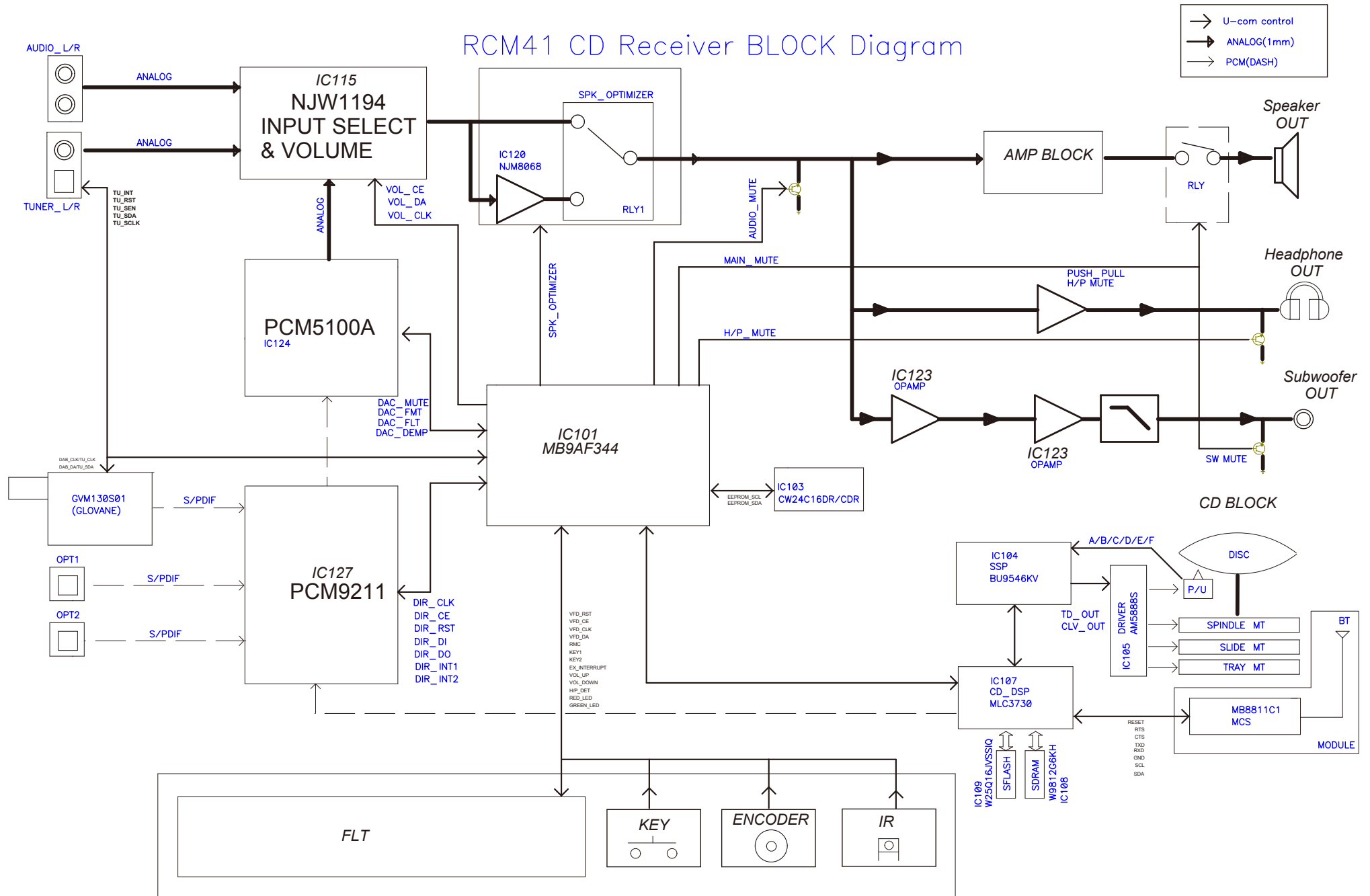
Repair Information

Updating

RCD-M41 LEVEL DIAGRAM (SPEAKER)



RCM41 CD Receiver BLOCK Diagram



Caution in
servicing

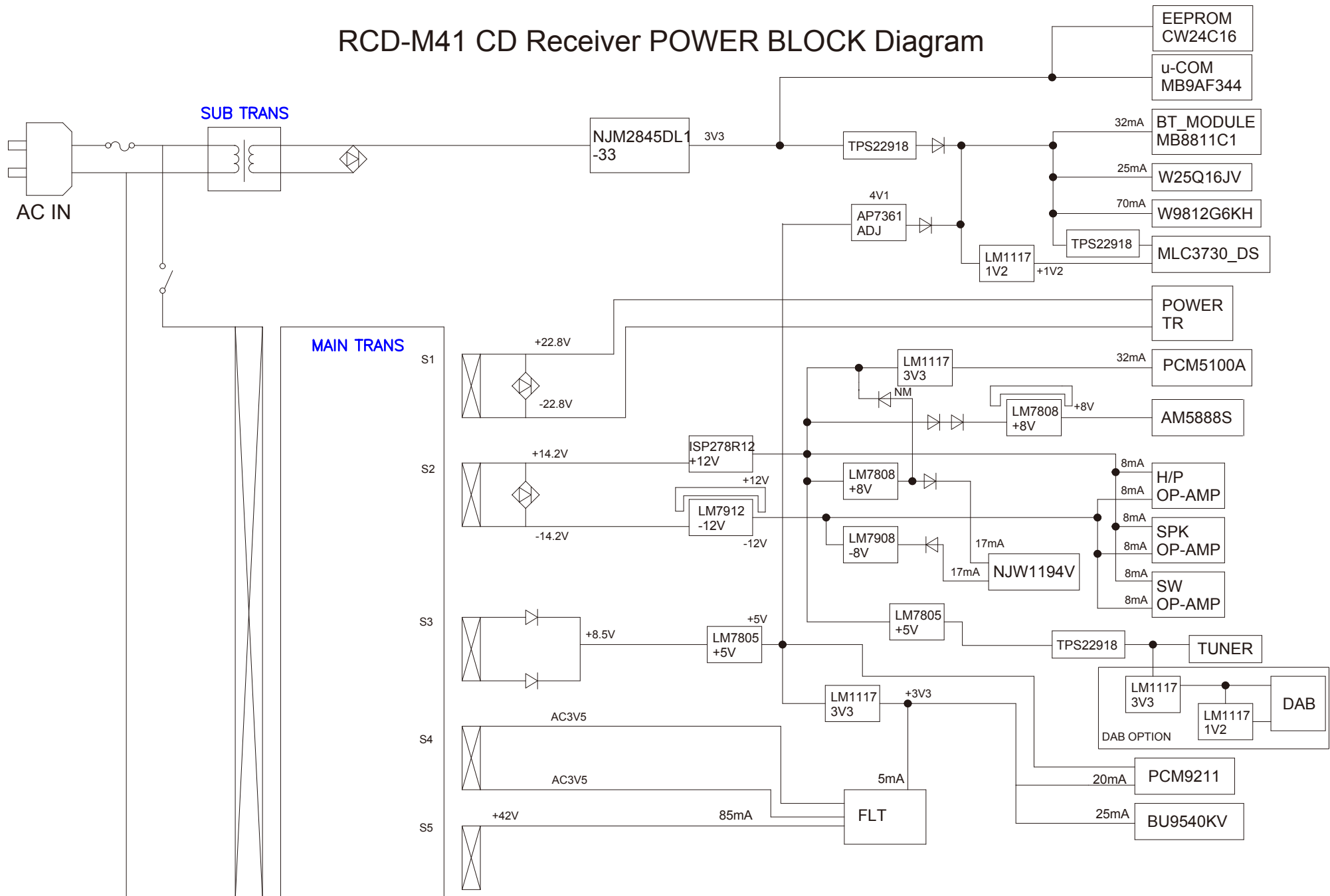
Electrical

Mechanical

Repair Information

Updating

RCD-M41 CD Receiver POWER BLOCK Diagram



Caution in
servicing

Electrical

Mechanical

Repair Information

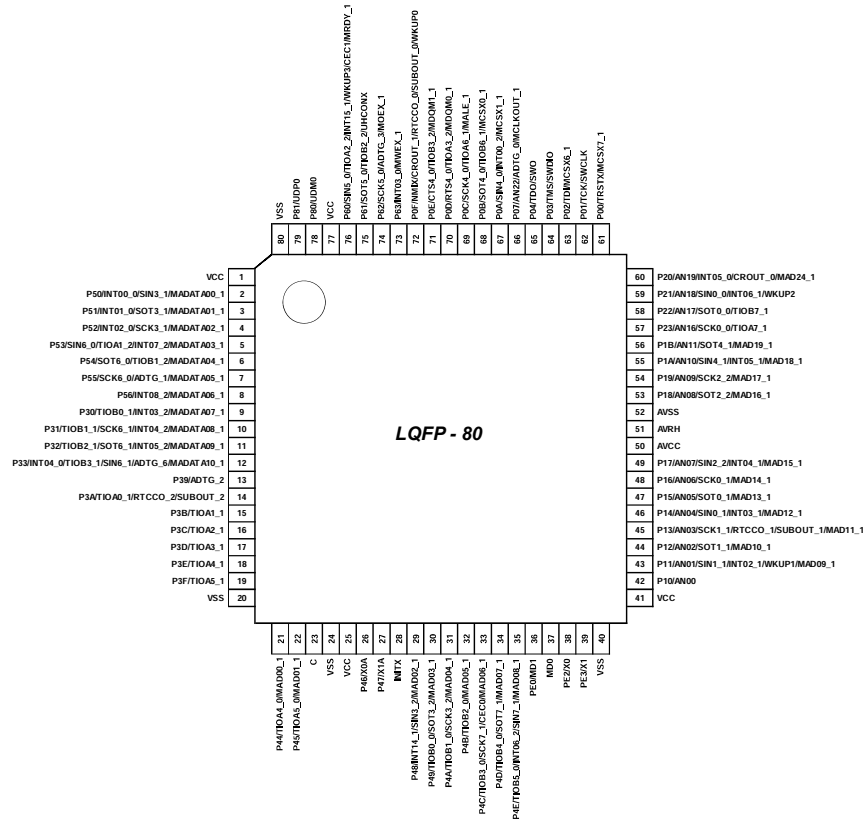
Updating

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)

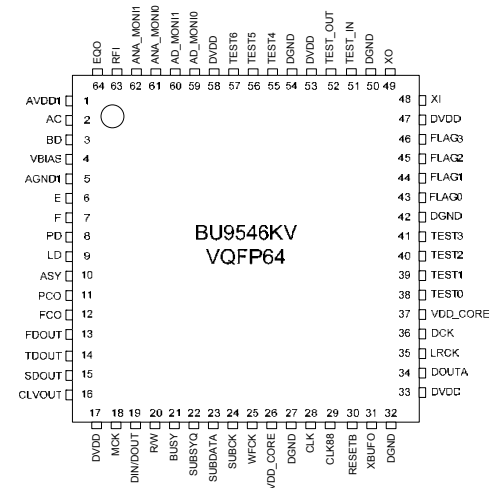


Terminal Function

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/SINO_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/CK2_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	Pin No.	Pin Name	Description of terminals
1	AVDD1	Analog power terminal	33	DVDD	I/O digital power terminal
2	AC	A + C voltage input	34	DOUTA	Audio data output
3	BD	B + D voltage input	35	LRCK	Audio LR signal output
4	VBIAS	Bias level	36	DCK	Audio clock output
5	AGND1	Analog GND	37	VDD_CORE	Internal digital power terminal
6	E	E voltage input	38	TEST0	Test signal I/O
7	F	F voltage input	39	TEST1	Test signal I/O
8	PD	Photo detector input	40	TEST2	Test signal I/O
9	LD	Laser drive output	41	TEST3	Test signal I/O
10	ASY	For asymmetric correction	42	DGND	Digital GND terminal
11	PCO	PLL PCO output terminal	43	FLAG0	Various flag output terminal
12	FCO	PLL FCO-DAC output terminal	44	FLAG1	Various flag output terminal
13	FDOU	Focus drive output terminal	45	FLAG2	Various flag output terminal
14	TDOUT	Tracking drive output terminal	46	FLAG3	Various flag output terminal
15	SDOUT	Sled drive output terminal	47	DVDD	I/O digital power terminal
16	CLVOUT	CLV drive output terminal	48	XI	X'tal 16.9344MHz connecting (input) terminal
17	DVDD	I/O digital power terminal	49	XO	X'tal 16.9344MHz
18	MCK	Sub Q and command transfer clock input terminal	50	DGND	Digital GND terminal
19	DIN/DOUT	Command input and status and sub Q output terminal	51	TEST_IN	Test signal input terminal
20	R/W	Command read/write signal input terminal	52	TEST_OUT	Test signal output terminal
21	BUSY	Busy signal output terminal	53	DVDD	I/O digital power terminal
22	SUBSYQ	Sub code synchronous	54	DGND	Digital GND terminal
23	SUBDATA	Sub code data output	55	TEST4	Test signal I/O
24	SUBCK	Sub code bit clock	56	TEST5	Test signal I/O
25	WFCK	Disk frame synchronous signal	57	TEST6	Test signal I/O
26	VDD_CORE	Internal digital power terminal	58	DVDD	I/O digital power terminal
27	DGND	Digital GND terminal	59	AD_MONI0	Test signal input/monitor
28	CLK	Output terminal for various clocks	60	AD_MONI1	Test signal input/monitor signal output terminal
29	CLK88	Clock output terminal for driver IC	61	ANA_MONI0	Analog test signal input/monitor signal output terminal
30	RESETB	System reset terminal ("L" → reset condition)	62	ANA_MONI1	Analog test signal input/monitor signal output terminal
31	XBUFO	X'tal 16.9344MHz output	63	RFI	RF output capacity
32	DGND	Digital GND terminal	64	EQO	After-RF-equalizer output terminal

Caution in
servicing

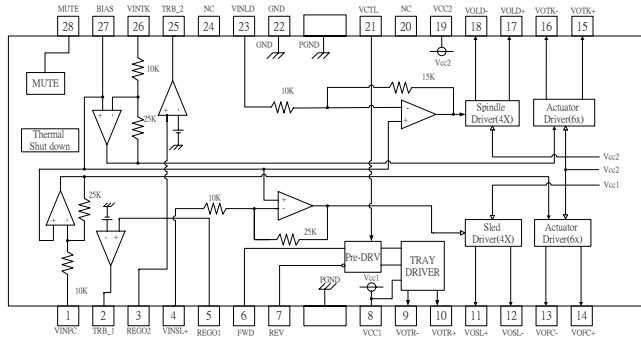
Electrical

Mechanical

Repair Information

Updating

AM5888S (MAIN : IC105)

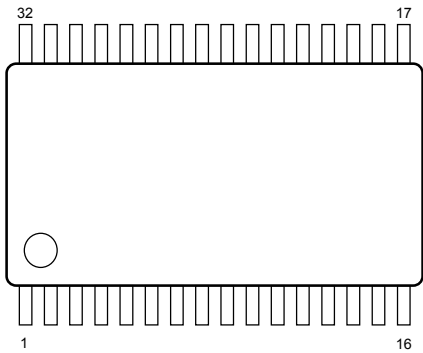


Pin Discriptions

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

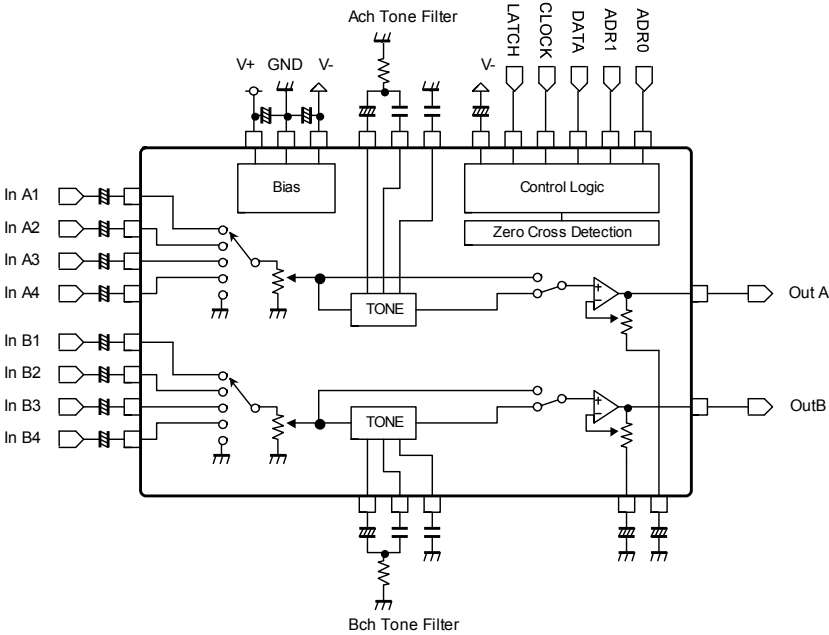
Notes) Symbol of + and - (output of drivers) means polarity to input pin.
(For example, if voltage of pin1 is high, pin14 is high.)

NJW1194V (MAIN : IC115)



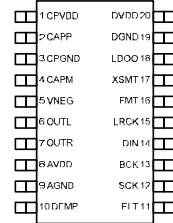
No.	Pin Name	No.	Pin Name
1	InA1	17	Tone_Ba2b
2	InA2	18	Tone_Ba1b
3	InA3	19	Tone_Tr1b
4	InA4	20	GND
5	GND	21	V -
6	DCCAP_A	22	V +
7	GND	23	ADR0
8	Out A	24	ADR1
9	VDDOUT	25	OutB
10	DATA	26	GND
11	CLOCK	27	DCCAP_B
12	LATCH	28	GND
13	GND	29	InB4
14	Tone_Tr1a	30	InB3
15	Tone_Ba1a	31	InB2
16	Tone_Ba2a	32	InB1

Block Diagram



PCM5100A (MAIN : IC124)

PW 20-Pin Package
(Top View)



Pin Functions

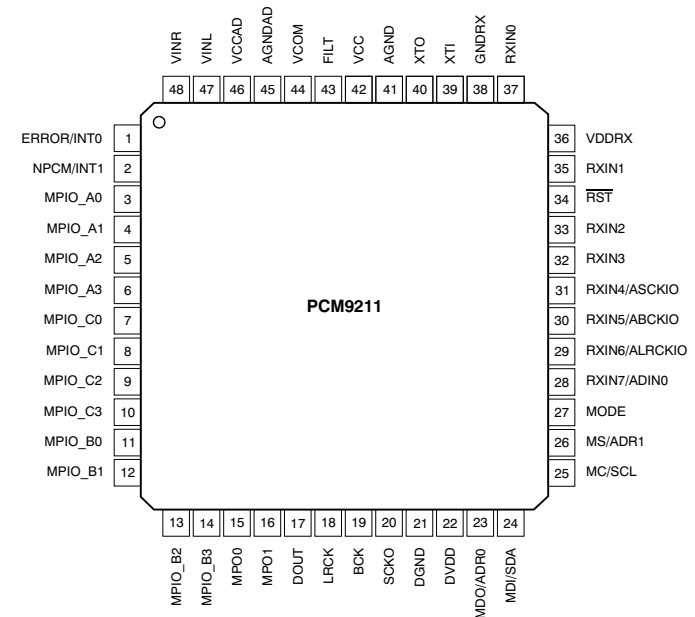
PIN		TYPE	DESCRIPTION
NAME	NO.		
AGND	9	—	Analog ground
AVDD	8	P	Analog power supply, 3.3 V
BCK	13	I	Audio data bit clock input ⁽¹⁾
CAPM	4	O	Charge pump flying capacitor terminal for negative rail
CAPP	2	O	Charge pump flying capacitor terminal for positive rail
CPGND	3	—	Charge pump ground
CPVDD	1	P	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 ² S (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

Caution in
servicing

Electrical

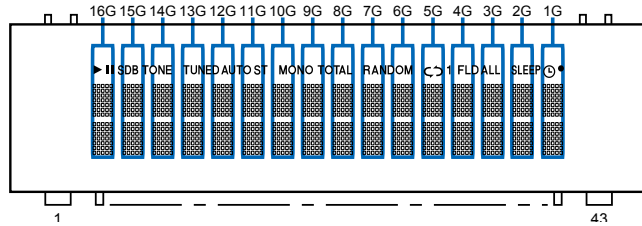
Mechanical

Repair Information

Updating

2. FL DISPLAY

16-ST-103GINK (MAIN : FL501)



PIN CONNECTION

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

NOTE

- 1) F1, F2 ----Filament
- 2) NP -----No pin
- 3) NC -----No connection
(NC pin should be electrically open on the PC board)
- 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) CS -----Chip Select Input pin
- 14) 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	II	TUNED	MONO	1	SLEEP	-
AD4	▶	-	-	↺	-	-

3. Remote Code Table

The diagram illustrates the layout of the RC-MATX remote control, organized into functional groups and corresponding menu items.

Power basic setup (Buttons 1-4):

- 1 SLEEP
- 2 CLOCK
- 3 DIMMER
- 4 POWER

source select (Buttons 5-10):

- 5 CD
- 6 TUNER
- 7 Bluetooth
- 8 OPTICAL IN 1
- 9 OPTICAL IN 2
- 10 ANALOG IN

playback operation (Buttons 11-19):

- 11
- 12
- 13
- 14 <<
- 15 PLAY/PAUSE
- 16 >>
- 17 <</TU -
- 18 STOP
- 19 >>/TU +

basic operation (Buttons 20-25):

- 20 CH+
- 21 SDB/TONE
- 22 VOLUME up
- 23 CH-
- 24 MUTE
- 25 VOLUME down

MENU operation (Buttons 26-34):

- 26 FOLDER / ALL
- 27 UP
- 28 INFO
- 29 LEFT
- 30 ENTER
- 31 RIGHT
- 32 DAB/RDS
- 33 DOWN
- 34 SETUP

10 key (Buttons 35-46):

- 35 1
- 36 2
- 37 3
- 38 4
- 39 5
- 40 6
- 41 7
- 42 8
- 43 9
- 44 +10
- 45 0
- 46 CLEAR

RANDOM REPEAT PROGRAM REMOTE/B (Buttons 47-50):

- 47 RANDOM
- 48 REPEAT
- 49 PROGRAM
- 50 REMOTE/BROWSE

Remote Control Layout:

The remote control features a standard layout with the following buttons:

- Top Row:** SLEEP, CLOCK, DIMMER, POWER (with a red power button icon).
- Source Select Row:** SOURCE, CD, TUNER, Bluetooth.
- Optical Input Row:** OPTICAL IN 1, OPTICAL IN 2, ANALOG IN.
- Playback Controls:** Previous, Play/Pause, Next, Tune-, Stop, Tune+, Channel+, Channel-, Volume Up, Volume Down, Mute, Repeat, Program, Mode.
- Navigation Pad:** Up, Down, Left, Right, Enter.
- Number Pad:** 1-9, 0, +10, CLEAR.
- Bottom Row:** RANDOM, REPEAT, PROGRAM, MODE.
- Brand Name:** DENON RC-MATX.

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

KEY No.	Name	Genre 1 (D ₁)	Genre 2 (D ₁)	DATA Code (D ₂)	Parity (D ₀)
KEY1	SLEEP	SYSTEM (5H)	SYSTEM (1H)	SLEEP (431H)	02H
KEY2	CLOCK	SYSTEM (5H)	SYSTEM (1H)	CLOCK(434H)	52H
KEY3	DIMMER	SYSTEM (5H)	SYSTEM (1H)	DIMMER(433H)	21H
KEY4	POWER	SYSTEM (5H)	SYSTEM (1H)	POWER ON/STANDBY(403H)	22H
KEY5	SD	SYSTEM (5H)	AUXO PLAYER(3H)	(FUNCTION)CD (407H)	63H
KEY6	TUNER	SYSTEM (5H)	TUNER (6H)	(FUNCTION)TUNER (407H)	66H
KEY7	Blueooth	SYSTEM (5H)	AMP/RECEIVER (2H)	BLUETOOTH(41DH)	C3H
KEY8	OPTICAL IN 1	SYSTEM (5H)	AMP/RECEIVER (2H)	(FUNCTION)OPTICAL(414H)	53H
KEY9	OPTICAL IN 2	SYSTEM (5H)	AMP/RECEIVER (2H)	(FUNCTION)OPTICAL2(41CH)	D3H
KEY10	ANALOG IN	SYSTEM (5H)	AMP/RECEIVER (2H)	(FUNCTION)AUX1(408H)	92H
KEY11					
KEY12					
KEY13					
KEY14	<<	SYSTEM (5H)	SYSTEM (1H)	<<< (40DH)	C1H
KEY15	PLAY/ PAUSE	SYSTEM (5H)	SYSTEM (1H)	PLAY/PAUSE(40AH)	B1H
KEY16	>>	SYSTEM (5H)	SYSTEM (1H)	>>> (40CH)	D1H
KEY17	<<->/->	SYSTEM (5H)	SYSTEM (1H)	<<-> (40FH)	E1H
KEY18	STOP	SYSTEM (5H)	SYSTEM (1H)	STOP (43FH)	E2H
KEY19	>>+>	SYSTEM (5H)	SYSTEM (1H)	>>+> (40EH)	F1H
KEY20	CH+	SYSTEM (5H)	TUNER (6H)	CH+(40CH)	D6H
KEY21	SDB/TONE	SYSTEM (5H)	SYSTEM (1H)	TONE(SDB)(430H)	12H
KEY22	VOLUME up	SYSTEM (5H)	SYSTEM (1H)	VOLUME+ (404H)	51H
KEY23	CH-	SYSTEM (5H)	TUNER (6H)	CH-(40DH)	C6H
KEY24	MUTE	SYSTEM (5H)	SYSTEM (1H)	MUTE (406H)	71H
KEY25	VOLUME down	SYSTEM (5H)	SYSTEM (1H)	VOLUME- (405H)	41H
KEY26	FOLDER / all	SYSTEM (5H)	SYSTEM (1H)	FOLDER(42DH)	C3H
KEY27	UP	SYSTEM (5H)	SYSTEM (1H)	CURSOR UP (420H)	13H
KEY28	INFO	SYSTEM (5H)	SYSTEM (1H)	DISPLAY/(TIME) (432H)	32H
KEY29	LEFT	SYSTEM (5H)	SYSTEM (1H)	CURSOR LEFT (422H)	33H
KEY30	ENTER	SYSTEM (5H)	SYSTEM (1H)	ENTER (424H)	53H
KEY31	RIGHT	SYSTEM (5H)	SYSTEM (1H)	CURSOR RIGHT (423H)	23H
KEY32	DAB/RS	SYSTEM (5H)	TUNER(6H)	DAB/RS(424H)	84H
KEY33	DOWN	SYSTEM (5H)	SYSTEM (1H)	CURSOR DOWN (420H)	03H
KEY34	SETUP	SYSTEM (5H)	SYSTEM (1H)	(SYSTEM)MENU(440H)	15H
KEY35	1	SYSTEM (5H)	SYSTEM (1H)	1 (411H)	01H
KEY36	2	SYSTEM (5H)	SYSTEM (1H)	2 (412H)	20H
KEY37	3	SYSTEM (5H)	SYSTEM (1H)	3 (413H)	30H
KEY38	4	SYSTEM (5H)	SYSTEM (1H)	4 (414H)	50H
KEY39	5	SYSTEM (5H)	SYSTEM (1H)	5 (415H)	40H
KEY40	6	SYSTEM (5H)	SYSTEM (1H)	6 (416H)	60H
KEY41	7	SYSTEM (5H)	SYSTEM (1H)	7 (417H)	70H
KEY42	8	SYSTEM (5H)	SYSTEM (1H)	8 (418H)	90H
KEY43	9	SYSTEM (5H)	SYSTEM (1H)	9 (419H)	80H
KEY44	+10	SYSTEM (5H)	SYSTEM (1H)	+10(41CH)	D0H
KEY45	0	SYSTEM (5H)	SYSTEM (1H)	0 (410H)	A0H
KEY46	CLEAR	SYSTEM (5H)	SYSTEM (1H)	CLEAR(42FH)	03H
KEY47	RANDOM	SYSTEM (5H)	SYSTEM (1H)	RANDOM (42AH)	B3H
KEY48	REPEAT	SYSTEM (5H)	SYSTEM (1H)	REPEAT (42BH)	A3H
KEY49	PROGRAM	SYSTEM (5H)	SYSTEM (1H)	PROGRAM(429H)	83H
KEY50	RF.MOTF./BROWSE	SYSTEM (5H)	PORTABLE (7H)	RF.MOTF./BROWSE(42DH)	C5H

Maker Code (C ₀ C ₁)
DENON (3254H)

Byte 1	Byte 2
00101010	01001100

[illegible]

Extended Code					
1	POWER ON	SYSTEM (5H)	SYSTEM (1H)	POWER ON (401H)	01H
2	POWER OFF	SYSTEM (5H)	SYSTEM (1H)	POWER OFF (402H)	31H
3	DAB	SYSTEM (5H)	TUNER (6H)	DAB (40AH)	56H
4	FM	SYSTEM (5H)	TUNER (6H)	FM (409H)	86H
5	AM	SYSTEM (5H)	TUNER (6H)	AM (408H)	96H
6	CD PLAY	SYSTEM (5H)	AUDIO PLAYER(3H)	PLAY(CD) (408H)	93H
7	USE-PLAY	SYSTEM (5H)	AUDIO PLAYER(3H)	PLAY(USE) (4214H)	93H
8	PAUSE	SYSTEM (5H)	SYSTEM (1H)	PAUSE (409H)	81H
9	DISC (All)/discrete	SYSTEM (5H)	SYSTEM (1H)	DISC (All)/discrete (439H)	82H
10	Folddr/descrete	SYSTEM (5H)	SYSTEM (1H)	Folddr/descrete (438H)	92H

00001010	10001000	00000010	10000000
00001010	10000100	00000010	10001100
00001010	01100101	00000010	01101101
00001010	01101001	00000010	01100001
00001010	01100001	00000010	01101001
00001010	11000001	00000010	11001001
00001010	11001000	01000010	00000000
00001010	10001001	00000010	10000001
00001010	10000001	11000010	01000001
00001010	10000001	11000010	01001001

DISASSEMBLY

Flowchart

1. LOADER PANEL

2. FRONT PANEL ASSY

3. MECHA ASSY

4. HEAT SINK SUB ASSY

5. REAR PANEL

6. PCB ASSY

7. MAIN PCB

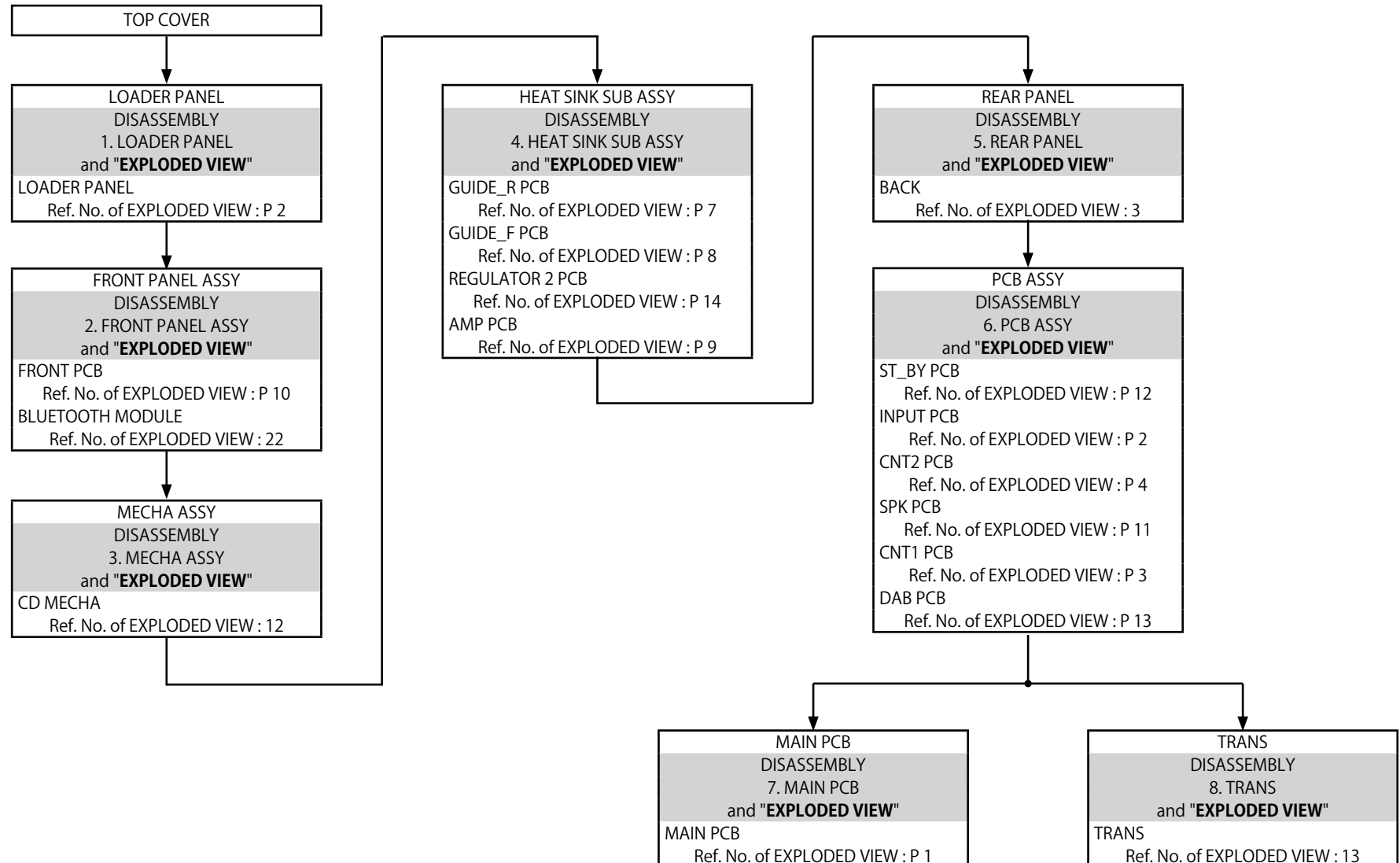
8. TRANS

EXPLODED VIEW

PACKING VIEW

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](#)"

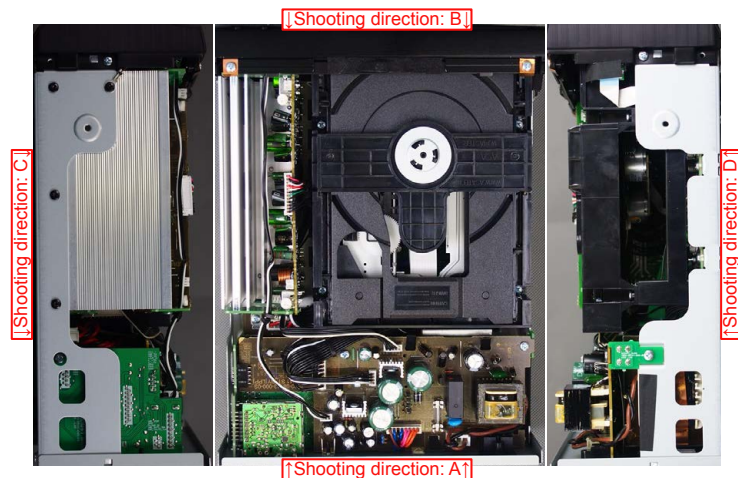


Explanatory Photos for DISASSEMBLY

- 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]

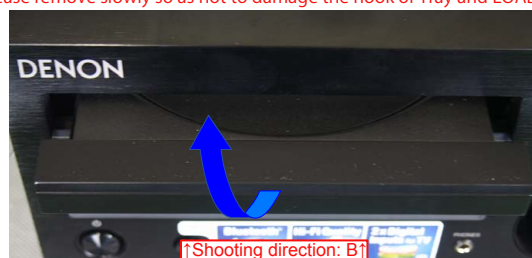


1. LOADER PANEL

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

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

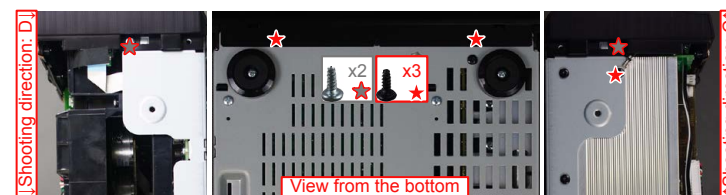
NOTE: Please remove slowly so as not to damage the hook of Tray and LOADER PANEL.



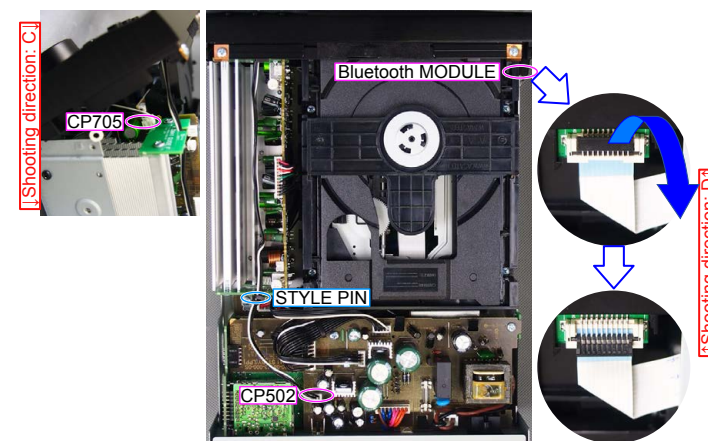
2. FRONT PANEL ASSY

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

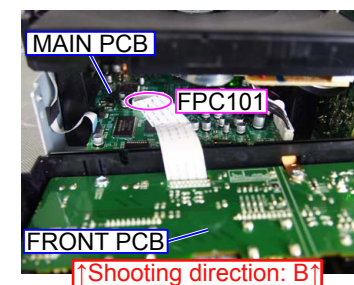
- (1) Remove the screws.



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



- (3) Remove the FFC.

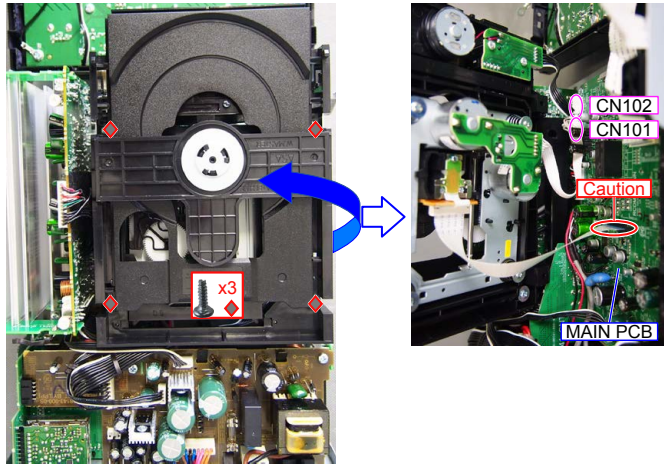


3. MECHA ASSY

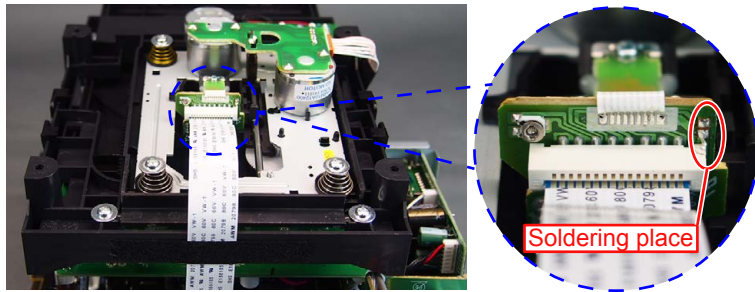
Proceeding : **TOP COVER** → **LOADER PANEL** → **FRONT PANEL ASSY** → **MECHA ASSY**

(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.



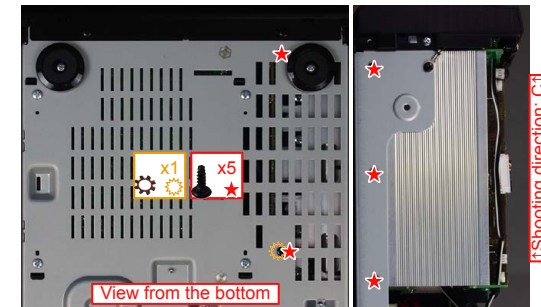
(2) Remove the FFC cable after the CD mecha's short circuit pattern for LD damage prevention has been short circuited.
Be sure to wear an earth band.



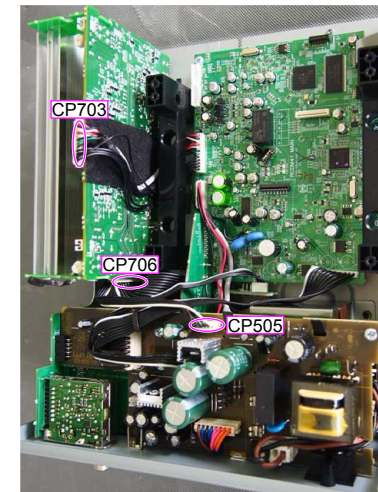
4. HEAT SINK SUB ASSY

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

(1) Remove the screws.



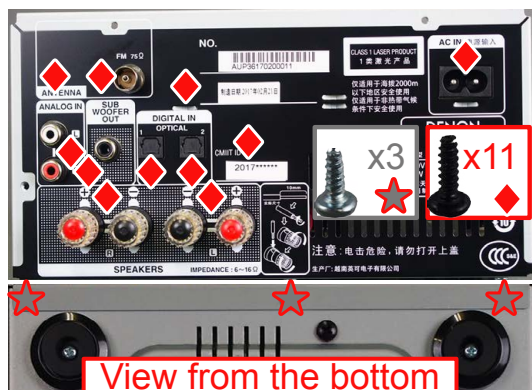
(2) Remove the connector.



5. REAR PANEL

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

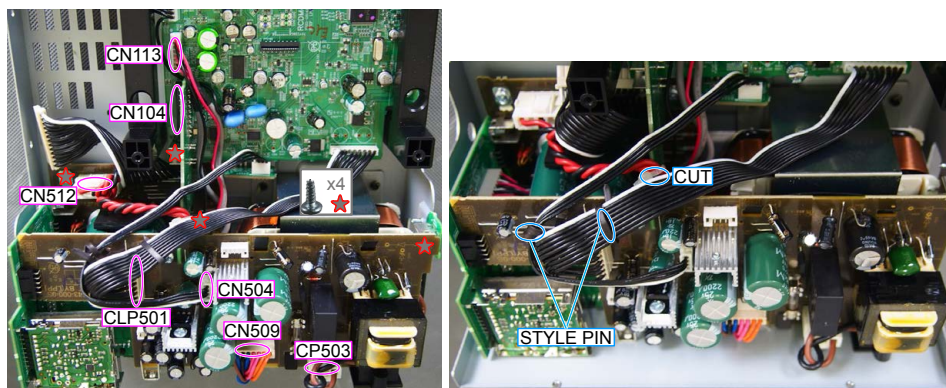
(1) Remove the screws.



6. PCB ASSY

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

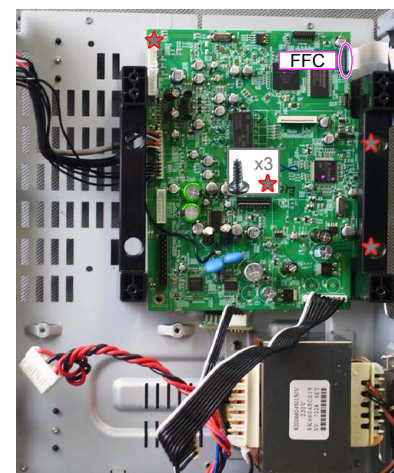
(1) Remove the screws. Remove the connector. Cut the wire clamps, then remove the STYLE PINs.



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

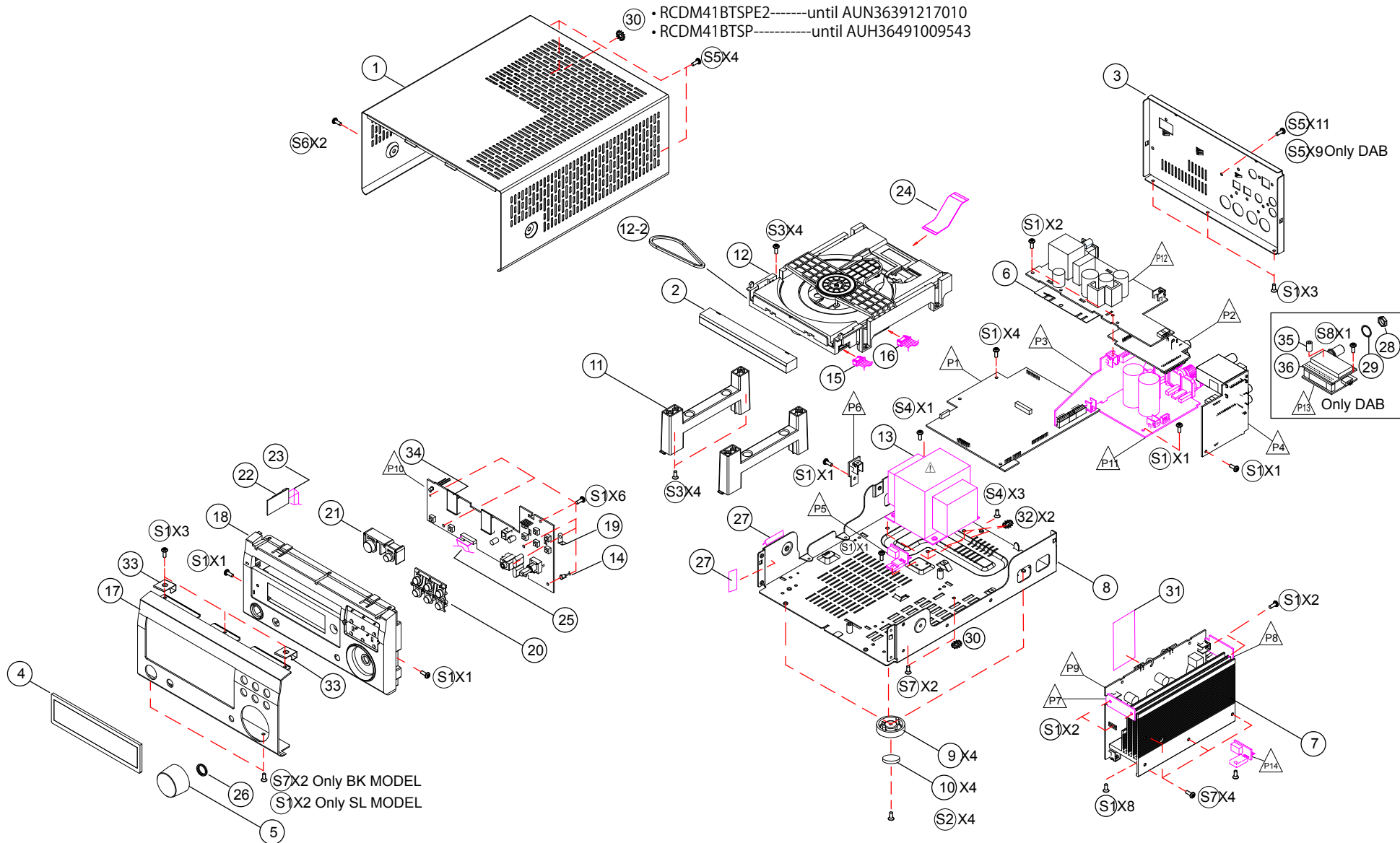
Proceeding : **TOP COVER** → **LOADER PANEL** → **FRONT PANEL ASSY** → **MECHA ASSY**
 → **HEAT SINK SUB ASSY** → **REAR PANEL** → **PCB ASSY** → **TRANS**

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

Parts List
<https://dmedia.soundunited.com/documents/details/23162>

Others are not used.

- RCDM41BTBKE3-----until AUT36790906883
- RCDM41BTBKE2-----until AUG36400109830
- RCDM41BTDABBKEK-until AUJ36200140104
- RCDM41BTSPE2-----until AUN36391217010
- RCDM41BTSP-----until AUH36491009543



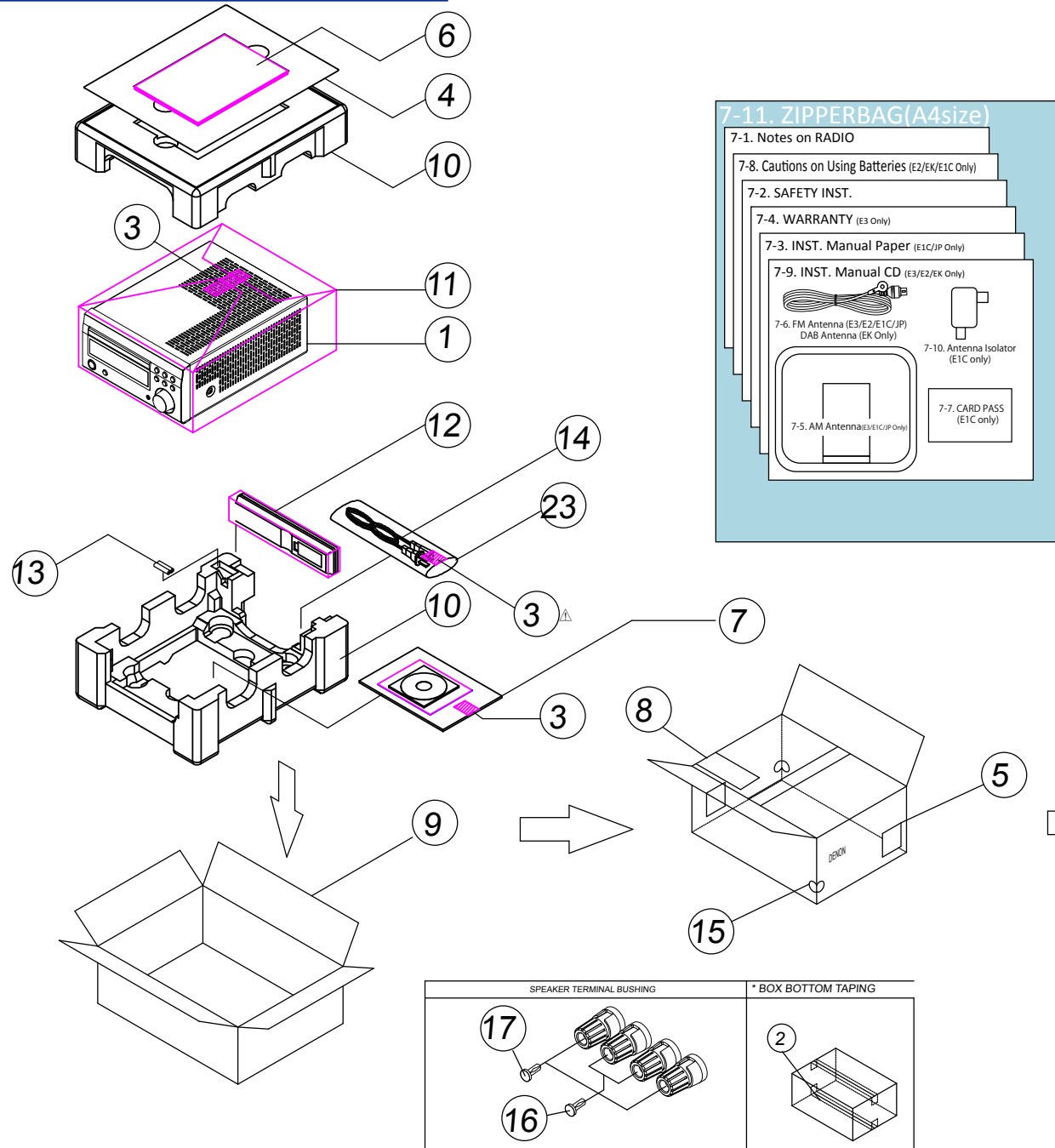
WARNING:

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

PACKING VIEW

Parts List

<https://dmedia.soundunited.com/documents/details/23162>



One packing(Only E3)

Caution in
servicing

Electrical

Mechanical

Repair Information

Updating

TROUBLE SHOOTING

1. The unit does not power on (No.1)
2. The unit does not power on (No.2)
3. VFD is not lit
4. The disc does not load, does not play, or "UNSUPPORTED" is indicated on the FL display, etc.
5. No audio output from Tuner
6. No audio output from DAB (EK Only)
7. No audio output from Bluetooth.
8. No audio output from this unit.

MEASURING METHOD AND WAVEFORMS

1. TEST POINT
2. WAVEFORMS

NOTES ON HANDLING AND REPLACEMENT OF THE LASER PICK-UP

1. Protection of the LD
2. Precautions when handling the laser CD mechanism
3. Cautions on assembling and adjustment
4. Notes on Handling the Laser Pick-Up

SPECIAL MODE

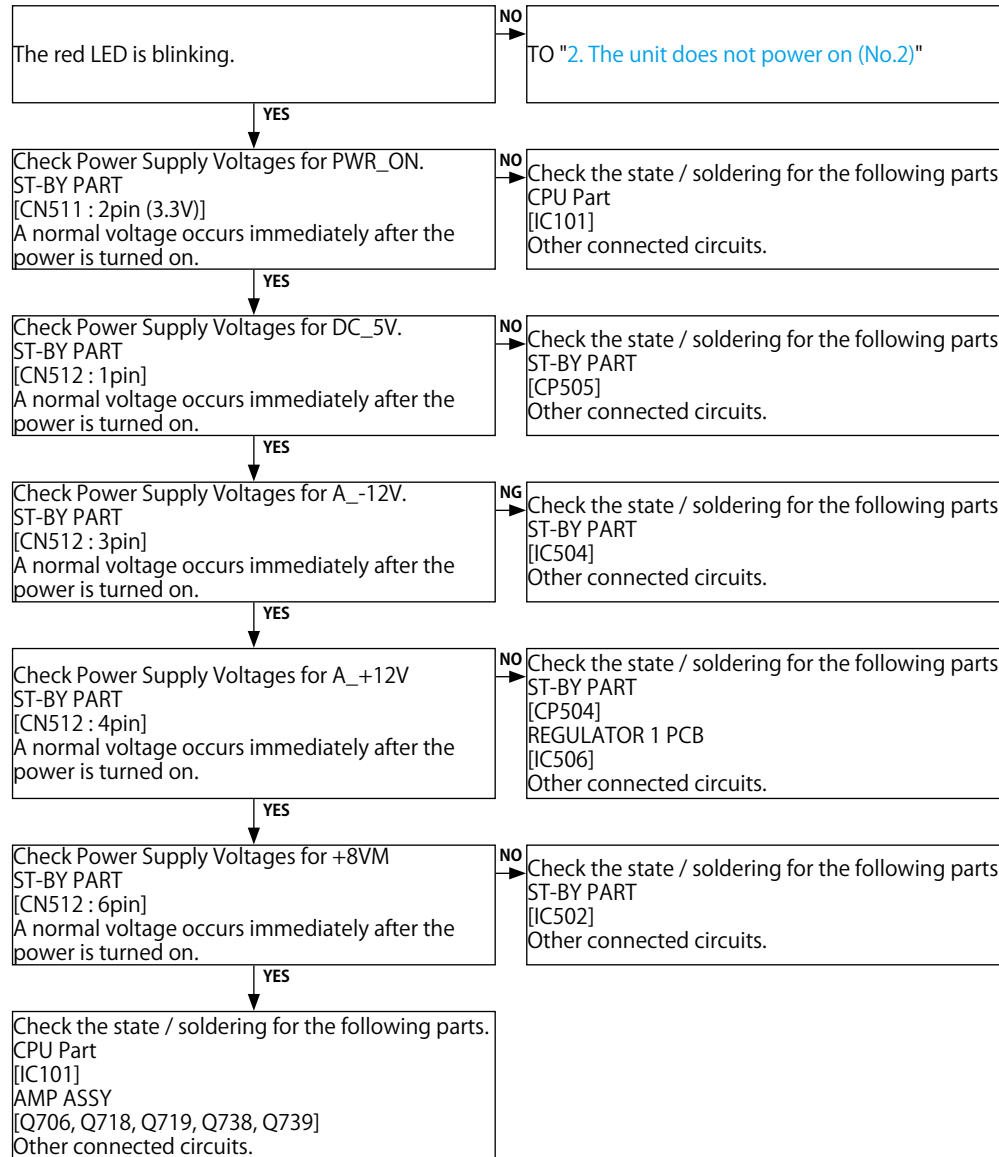
Special mode setting button

1. Version Display Mode
2. Display check mode
3. Initialization Mode
4. Test mode
 - 4-1. Disc mounting
 - 4-2. Servo check
 - 4-3. Pickup movement
 - 4-4. Stop
 - 4-5. All servo on
 - 4-6. Adjustment value display
 - 4-7. Displaying the laser current
5. Heat run mode
 - 5-1. Normal heat run mode
 - 5-2. Chucking mode
 - 5.3. Error display
6. Accumulated laser on time display mode
7. Protection History Display Mode
8. Version Display of DAB Module (RCD-M41DAB Only)

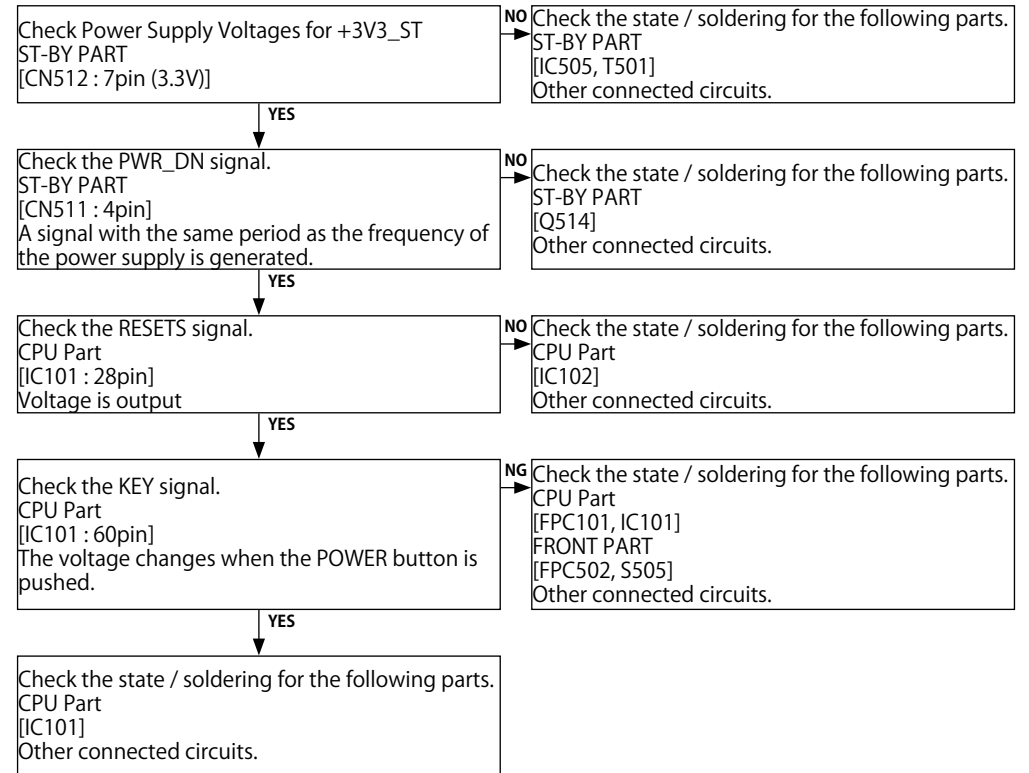
ADJUSTMENT

TROUBLE SHOOTING

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



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



Caution in
servicing

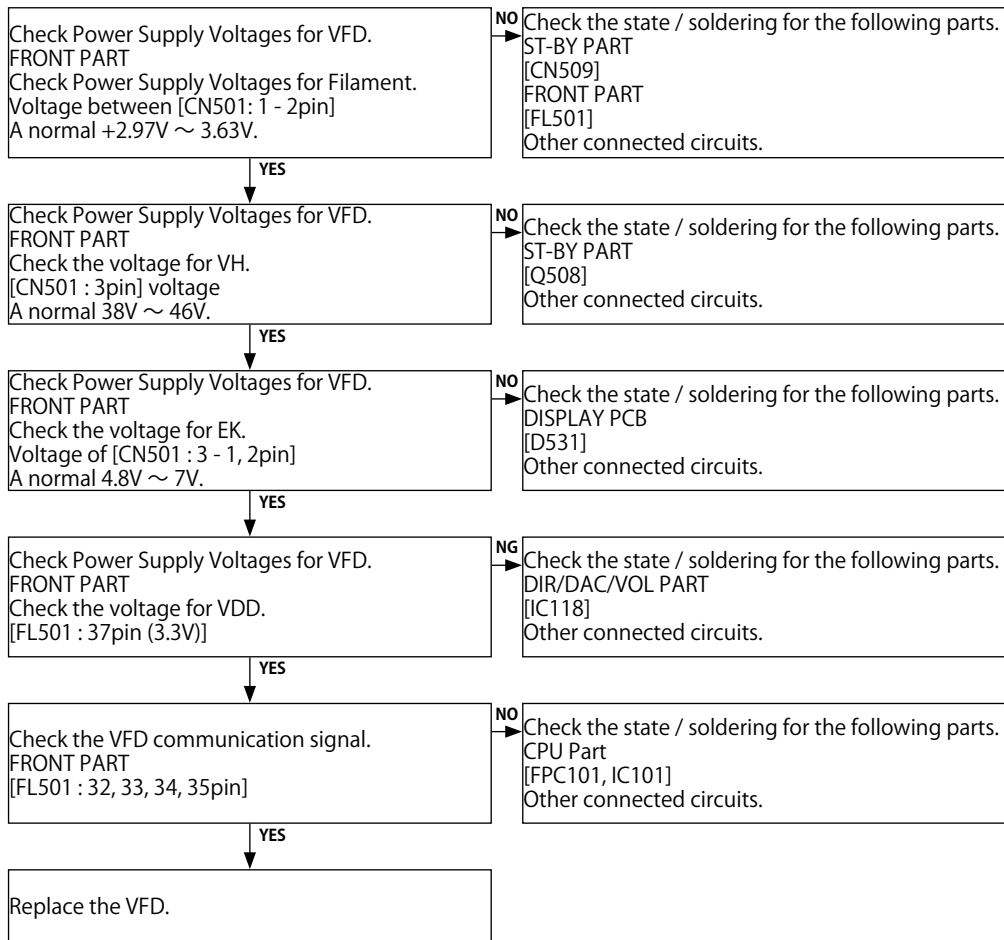
Electrical

Mechanical

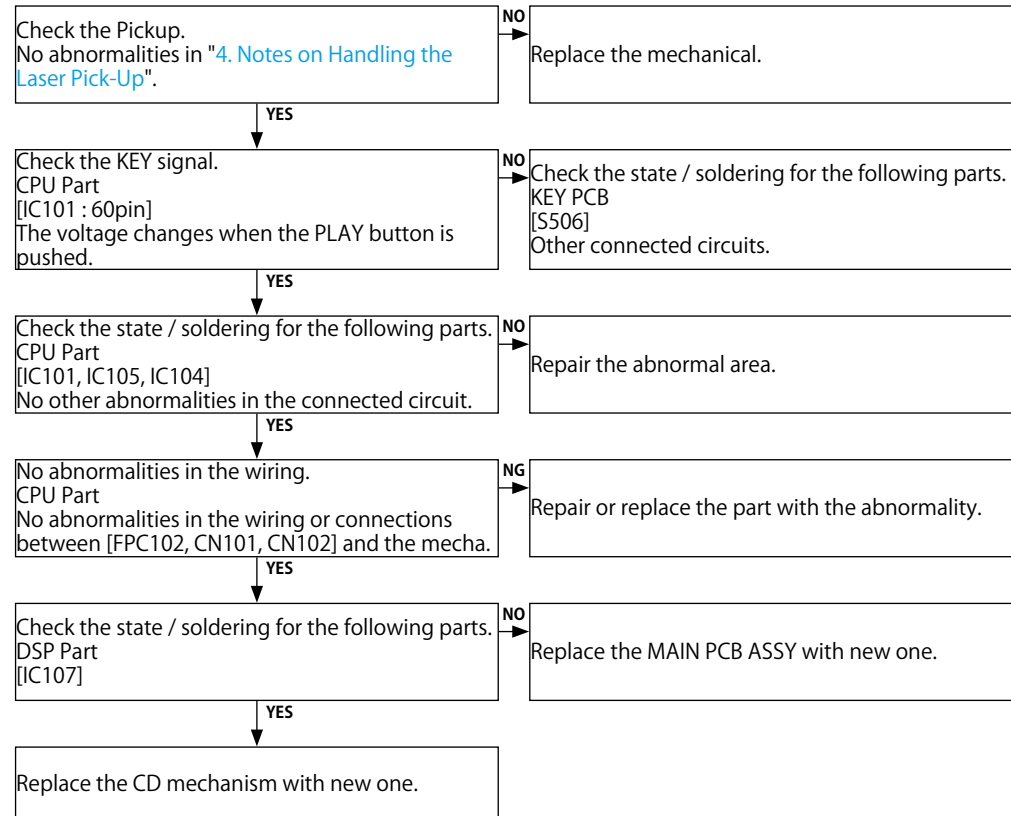
Repair Information

Updating

3. VFD is not lit



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



Caution in
servicing

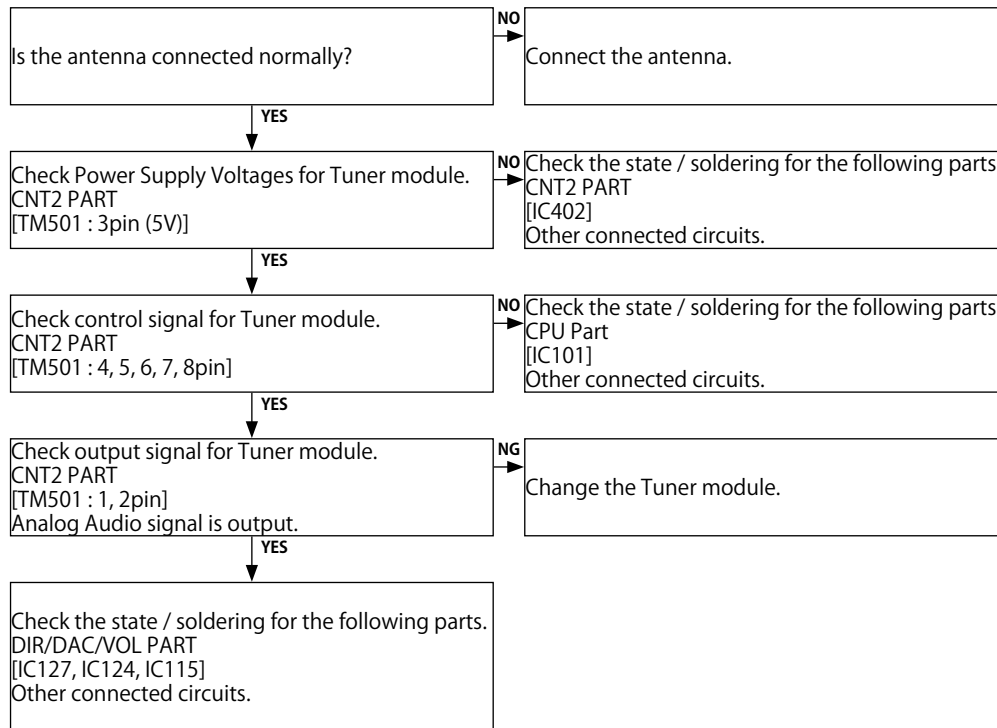
Electrical

Mechanical

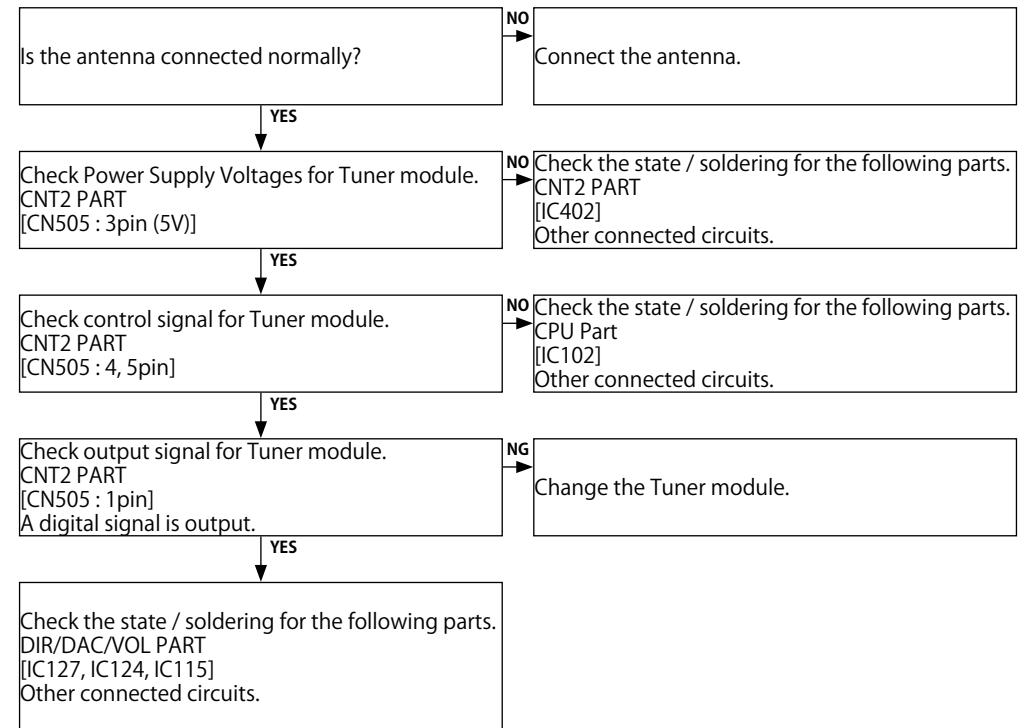
Repair Information

Updating

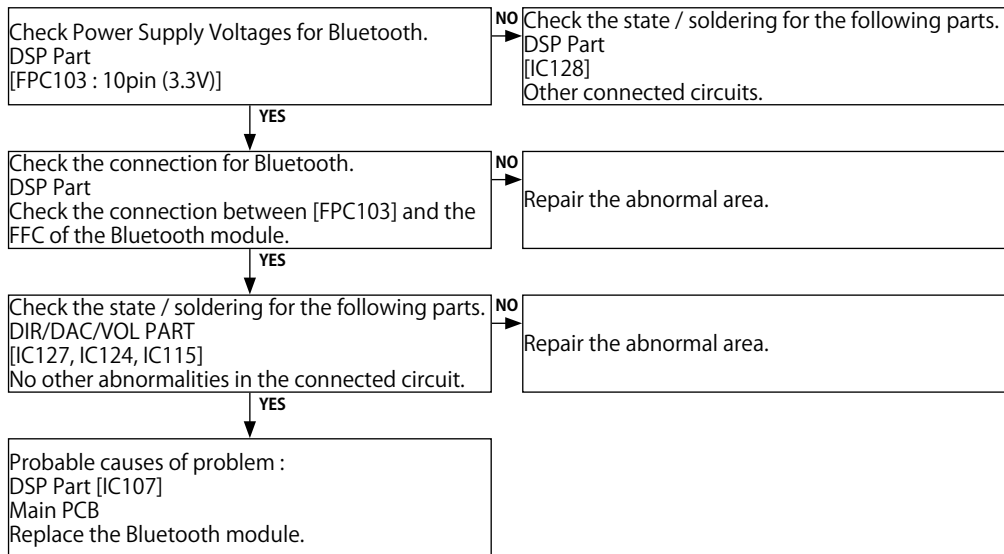
5. No audio output from Tuner



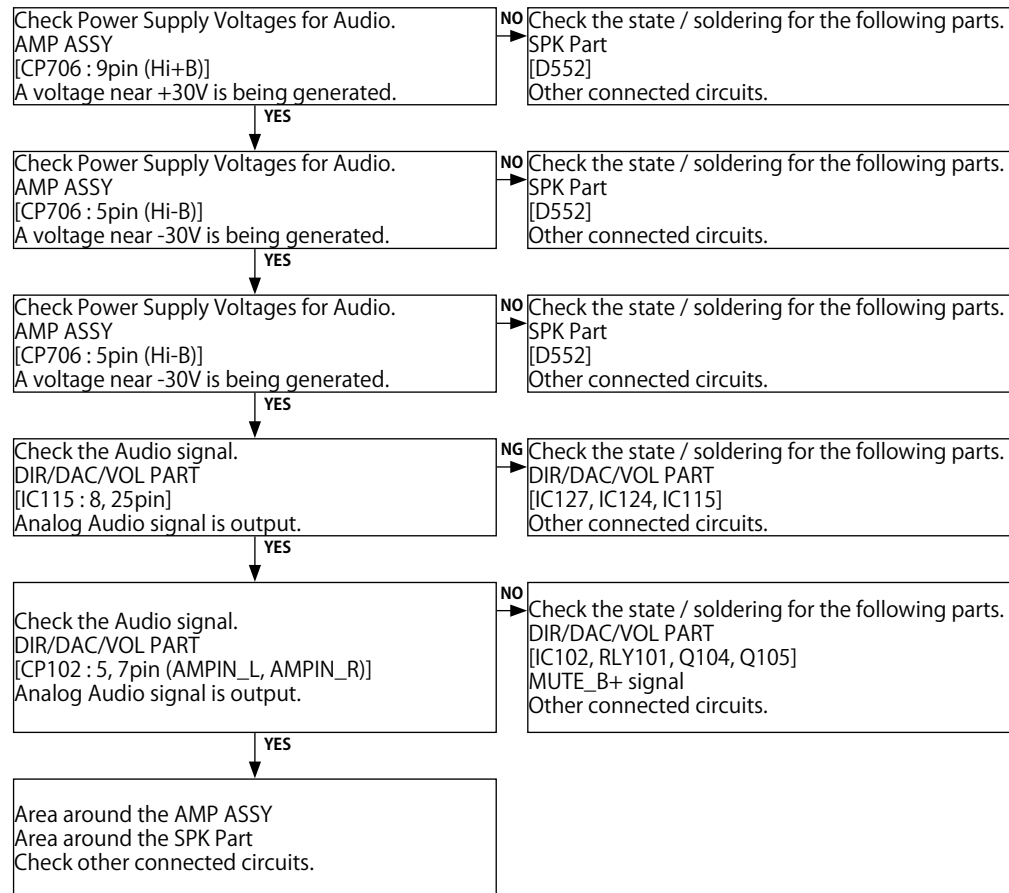
6. No audio output from DAB (EK Only)



7. No audio output from Bluetooth.



8. No audio output from this unit.



MEASURING METHOD AND WAVEFORMS

1. TEST POINT

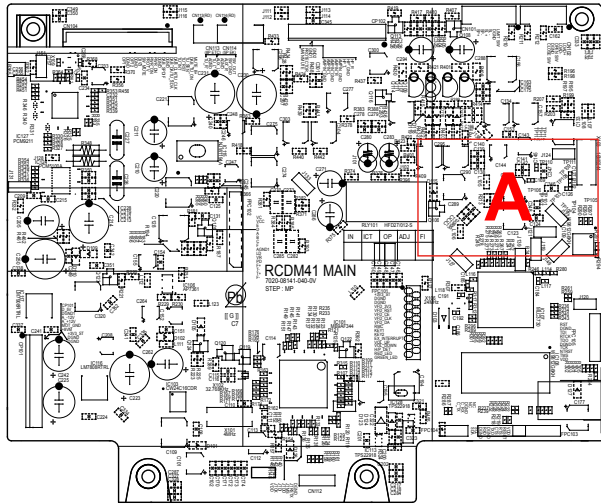
Connect the GND (-) probe of the oscilloscope to the specified reference voltage points to check the waveforms.

NOTE

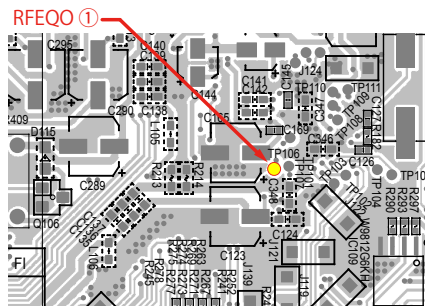
Measuring Disc : CD/TCD-784

(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



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

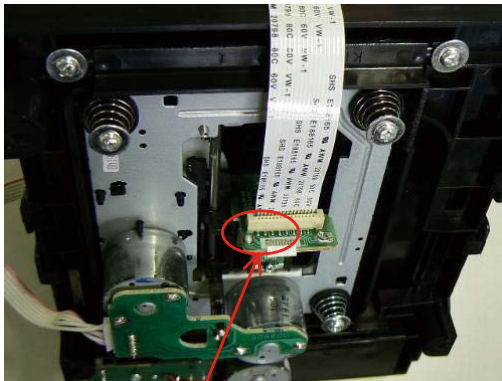
- Be careful not to expose the laser pick-up to dust.
- Do not leave the laser pick-up bare. Be sure to cover it.
- If dust adheres on the laser pick-up lens, blow it off with a blower brush.
- Do not apply shock to the laser pick-up.
- Do not watch the light of the laser pick-up.

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 Cl₂ 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 lop (Laser drive current).
Check lop in "**SPECIAL MODE**". See "[4-7. Displaying the laser current](#)".
- If the present lop (current) value is "**50 mA**" or higher, replace the Traverse unit with a new one.
- No mechanical adjustment is necessary after the replacement.



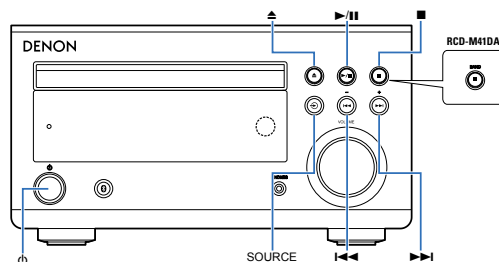
Protective soldering place for laser diode.

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. (See 1. Version Display Mode)
2	Display check mode	⦿	▲	All segments on the display flash in a 2 second cycle. (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. 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. (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. (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. (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. (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 "◀◀" buttons simultaneously, insert the AC plug to turn the power on.

then press the "◀◀ or ▶▶" 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.

① System Version

L1	Ver *****v\
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

- Press the power operation button to turn off the power, and remove the AC plug from the socket.
- While holding down buttons the "SOURCE" and "◀◀" 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.
- "INITIALIZE" is displayed.
 - * The unit is initialized.
 - * Unplug the AC plug to cancel this mode.
- 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 00T *** **
----	---------------

00 : 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 "◀◀" or "▶▶" 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 "◀◀" 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	00T *** **

00 : 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

(▶|| flashes)

L1	*****
L2	FOCUS BALANCE

***** : adjustment values

② FOCUS GAIN

(▶|| flashes)

L1	*****
L2	FOCUS GAIN

***** : adjustment values

③ TRACKING BALANCE

(▶|| flashes)

L1	*****
L2	TRACKING BALANCE

***** : adjustment values

④ TRACKING GAIN

(▶|| flashes)

L1	*****
L2	TRACKING GAIN

***** : adjustment values

⑤ FOCUS OFFSET

(▶|| flashes)

L1	*****
L2	FOCUS OFFSET

***** : adjustment values

⑥ TRACKING OFFSET

(▶|| flashes)

L1	*****
L2	TRACKING OFFSET

***** : adjustment values

⑦ RFRP

(▶|| 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.

(▶|| 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 "▶||" button for over 5 second to save the current value on EEPROM (overwrite the stored data).

(▶|| flashes)

L1	STORED
L2	LASER CURRENT

- (2) Press the "▶||" 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 "▶▶" buttons simultaneously, insert the AC plug to turn the power on.

(▶▶ lit)

L2	CD	11	42:52
----	----	----	-------

(The display is the same as the normal stopped display, except that "▶" and "■" 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 "▶▶" 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】

(▶▶ lit)

L2	CD	01	01:47
----	----	----	-------

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

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

(▶▶ lit)

L2	CD	****	
----	----	------	--

XXXX : 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】

(▶▶ lit)

L2	CD	****	
----	----	------	--

(**** : heat run repetition count)

【Display while tray is CLOSE】

(▶▶ lit)

L2	CLOSE		
----	-------	--	--

【Display during TOC reading】

(▶▶ 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 "▶▶" 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 "◀◀" 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 01r *****

(***** : 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 "▶▶" 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 "▶/■" 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



ADJUSTMENT

Adjusting Idling Current

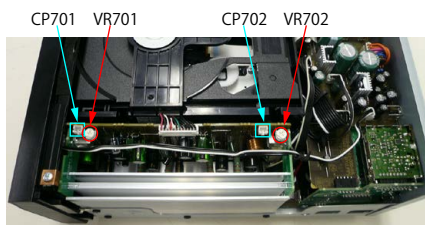
1. Preparation

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

1. Items necessary for update
2. Updating via System u-com (IC101)
3. Updating via Disc (IC109)
4. Updating via DSP (IC109)

PROCEDURE AFTER REPLACING THE PCB.

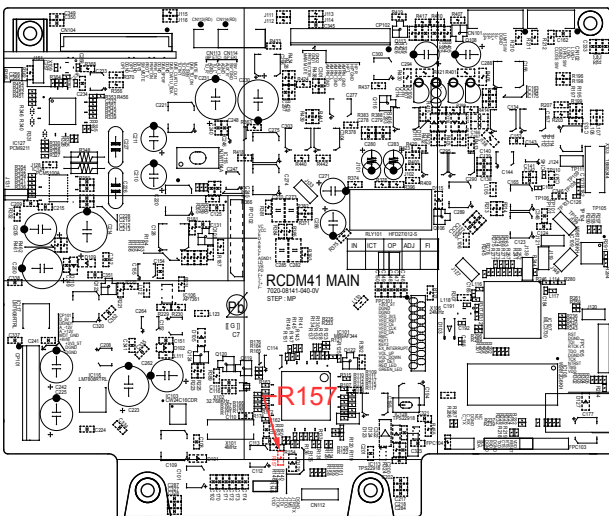
The procedure after replacing the printed circuit boards is as follows.

(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 Re- placement	Remark
DIGITAL	IC101	MB9AF344	B	SOFTWARE : Main
DIGITAL	IC109	W25Q16JVSSIQ	B	SOFTWARE : DSP ROM
FRONT	FL501	OLD : DISPLAY,FLT 16-ST-103GINK 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.

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 NEW JIG : 8U-310098 DSP UNIT 	-	8U- 210100S	-
	7P FFC	Straight	-	606050028012P	-
	FLASHSTA	-	-	-	FLASHSTA.EXE
DSP Update	Provide a writable CD-R/RW disc.	-	X	-	FIRMWARE_Vxx_RCDM41_ xxxxxxx.mp3

Caution in
servicing

Electrical

Mechanical

Repair Information

Updating

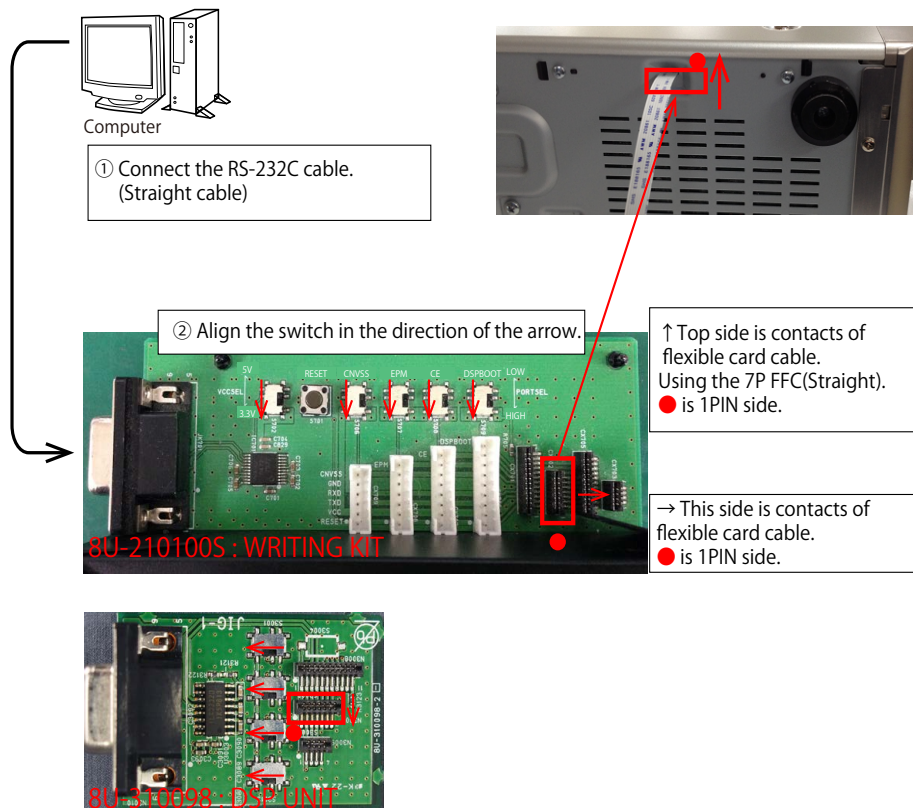
2. Updating via System u-com (IC101)

2.1. Items to Be Prepared

- (1) Obtain "**pcwfm3-v01107.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, or 8U-310098 DSP UNIT)
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.



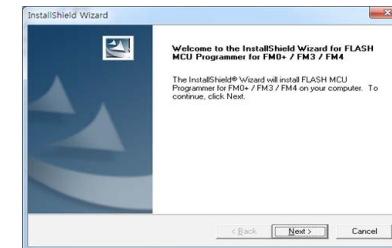
2.3. Installing the Software

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

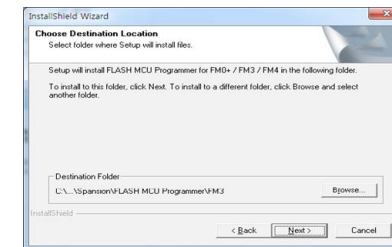
- (1) Download "**pcwfm3-v01107.zip**" from SDI.
- (2) Double-click "Setup.exe".



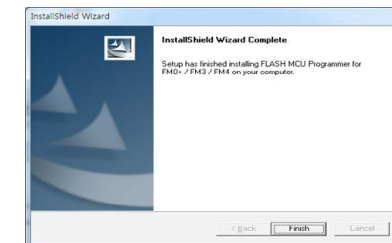
- (3) Click "Next >".



- (4) Click "Next >".



- (5) Click "Finish".

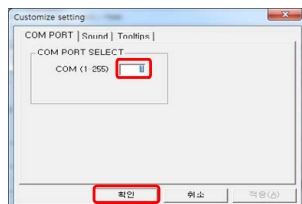
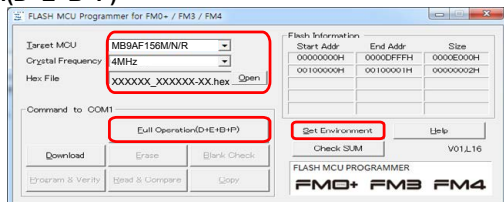


2.4. Run the FLASH MCU Programmer

- (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)**"



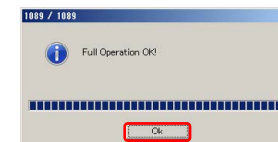
- (4) Press the "**Reset**" button on the WRITING KIT.
 Case of 8U-310098 DSP UNIT : Skip



- (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_xxxxxxx.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

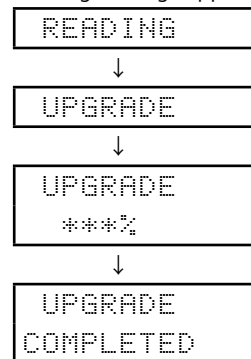
- Use the Disc created in "3.2. How to create a disc".

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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