DENON

Ver. 3

Please refer to the MODIFICATION NOTICE.

SERVICE MANUAL

MODEL	JP	E3	E2	EK	EA	E1	E1K	E1C
RCD-M38		✓	✓					
RCD-M38DAB				✓				
D-M38S		✓						

STEREO CD RECEIVER

- 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.

DENON

D&M Holdings Inc.

S0105-1V03DM/DG1007

SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Before returning the unit to the customer, make sure you make 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 unit is defective.
Be sure to test for leakage current with the AC plug in both polarities, in addition, in each power ON, OFF and STANDBY mode, if applicable.

CAUTION Please heed the points listed below during servicing and inspection.

◎ Heed the cautions!

Spots requiring particular attention when servicing, such as the cabinet, parts, chassis,etc., have cautions indicated on labels. be sure to heed these causions and the cautions indicated in the handling instructions.

◎ Caution concerning electric shock!

(1) An AC voltage is impressed on this set, so touching internal metal parts when the set is energized could cause electric shock. Take care to avoid electric shock, by for example using an isolating transformer and gloves when servicing while the set is energized, unplugging the power cord when replacing parts, etc.

(2) Tere 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 manufacturing parts from sheet metal, there may in some rare cases be burrs on the edges of parts which could cause injury if fingers are moved across them. Use gloves to protect your hands.

◎ Only use designated parts!

The set's parts have specific safety properties (fire resistance, voltage resistance, etc.). For replacement parts, be sure to use parts which have the same poroperties. In particular, for the important safety parts that are marked ⚠ on wiring diagrams and parts lists, be sure to use the designated parts.

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

For safety seasons, some parts use tape, 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 wores omsode amd clamps are used to keep wires away from heating and high voltage parts, so be sure to set everything back as it was originally.

◎ Inspect for safety after servicing!

Check that all screws, parts and wires removed or disconnected for servicing have been put back in their original positions, inspect that no parts around the area that has been serviced have been negatively affected, conduct an inslation 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 turn the power switch on. Using a 500V insulation resistance tester, check that the inplug and the externally exposed metal parts (antenna terminal, headphones terminal, input terminal, etc.) is 1MΩ or greater. If it is less, the set must be inspected and repaired.

CAUTION Concerning important safety parts

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

(1) Schematic diagrams ..... Indicated by the ⚠ mark.
(2) Parts lists ..... Indicated by the ⚠ mark.
Using parts other than the designated parts could result in electric shock, fires or other dangerous situations.

NOTE FOR SCHEMATIC DIAGRAM

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

CAUTION:
Before returning the unit to the customer, make sure you make 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 unit is defective.

WARNING:
DO NOT return the unit to the customer until the problem is located and corrected.

NOTICE:
ALL RESISTANCE VALUES IN OHM. k=1,000 OHM / M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO 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 for which "nsp" is indicated on this table cannot be supplied.
2. When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
3. Ordering part without stating its part number can not be supplied.
4. Part indicated with the mark "★" is not illustrated in the exploded view.
5. Not including General-purpose Carbon Film Resistor in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)
6. Not including General-purpose Carbon Chip Resistor in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

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

● Resistors

Ex.: RN | 14K | 2E | 182 | G | FR

RN: Type	14K: Shape and performance	2E: Power	182: Resistance	G: Allowable error	FR: Others
RD : Carbon		2B : 1/8 W	F : ±1%		P : Pulse-resistant type
RC : Composition		2E : 1/4 W	G : ±2%		NL : Low noise type
RS : Metal oxide film		2H : 1/2 W	J : ±5%		NB : Non-burning type
RW: winding		3A : 1 W	K : ±10%		FR : Fuse-resistor
RN : Metal film		3D : 2 W	M : ±20%		F : Lead wire forming
RK : Metal mixture		3F : 3 W			
		3H : 5 W			

* Resistance

1 8 2 ⇨ 1800ohm=1.8kohm
- 2 → Indicates number of zeros after effective number.
- 1 8 → 2-digit effective number.

1 R 2 ⇨ 1.2ohm
- 2 → 1-digit effective number.
- 1 R → 2-digit effective number, decimal point indicated by R.

: Units: ohm

● Capacitors

Ex.: CE | 04W | 1H | 3R2 | M | BP

CE: Type	04W: Shape and performance	1H: Dielectric strength	3R2: Capacity	M: Allowable error	BP: Others
CE : Aluminum foil electrolytic		0J : 6.3 V	F : ±1%		HS : High stability type
CA : Aluminium solid electrolytic		1A : 10 V	G : ±2%		BP : Non-polar type
CS : Tantalum electrolytic		1C : 16 V	J : ±5%		HR : Ripple-resistant type
CQ : Film		1E : 25 V	K : ±10%		DL : For change and discharge
CK : Ceramic		1V : 35 V	M : ±20%		HF : For assuring high requency
CC : Ceramic		1H : 50 V	Z : ±80%		U : UL part
CP : Oil		2A : 100 V	: - 20%		C : CSA part
CM : Mica		2B : 125 V	P : +100%		W : UL-CSA part
CF : Metallized		2C : 160 V	C : ±0.25pF		F : Lead wire forming
CH : Metallized		2D : 200 V	D : ±0.5pF		
		2E : 250 V	= : Others		
		2H : 500 V			
		2J : 630 V			

* Capacity (electrolyte only)

2 2 2 ⇨ 2200 μF
- 2 → Indicates number of zeros after effective number.
- 2 2 → 2-digit effective number.
- ・Units: μF.

2 R 2 ⇨ 2.2 μF
- 2 → 1-digit effective number.
- 2 R → 2-digit effective number, decimal point indicated by R
- ・Units: μF.

* Capacity (except electrolyte)

2 2 2 ⇨ 2200pF=0.0022 μF
- 2 → Indicates number of zeros after efective number. (More than 2)
- 2 2 → 2-digit effective number.
- ・Units:pF

2 2 1 ⇨ 220pF
- 1 → Indicates number of zeros after effective numver. (0 or 1)
- 2 2 → 2-digit effective number.
- ・Units:pF

・ When the dielectric strength is indicated in AC,"AC" is included after the dieelectric strength value.

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 hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs 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 über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls 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.

(NL)

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

(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.

(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.

(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.

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

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 NÅR 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

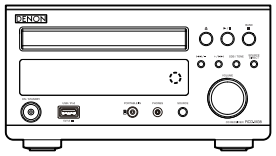
030804ecr

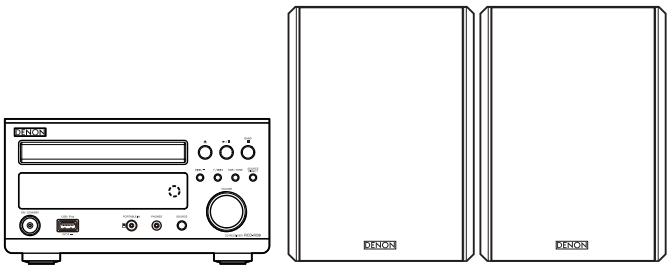
SYSTEM CONFIGURATION

- **RCD-M38**
- **RCD-M38DAB**

- **D-M38S (RCD-M38/SC-M37)**

  SC-M37 : Refer to the service manual of SC-M37.





RCD-M38 SC-M37

SPECIFICATIONS

❑ Audio section

Power amplifer
Rated output:
30 W + 30 W (6 Ω, 1 kHz T.H.D 10 %)

❑ Tuner section

Receiving range (E2,EK model):
FM: 87.50 MHz – 108.00 MHz AM: 522 kHz – 1611 kHz
DAB (EK model): BAND3 170 MHz – 240 MHz
Receiving range (E3 model):
FM: 87.50 MHz – 107.9 MHz AM: 520 kHz – 1710 kHz
Usable sensitivity:
FM: 1.5 µV/75 Ω AM : 20 µV
DAB (EK model): –93 dBm
FM stereo separation: 35dB (1kHz)

❑ CD section

Playback frequency response: 2Hz ~ 20kHz
Wow & flutter: Below measurable limits (± 0.001%)
Sampling frequency: 44.1kHz

❑ Clock/Timer section

Clock method: Crystal oscillator (Within 1 – 2 minutes per month)
Timer: Everyday/Once timer: One each
Sleep timer: 90 minutes, maximum

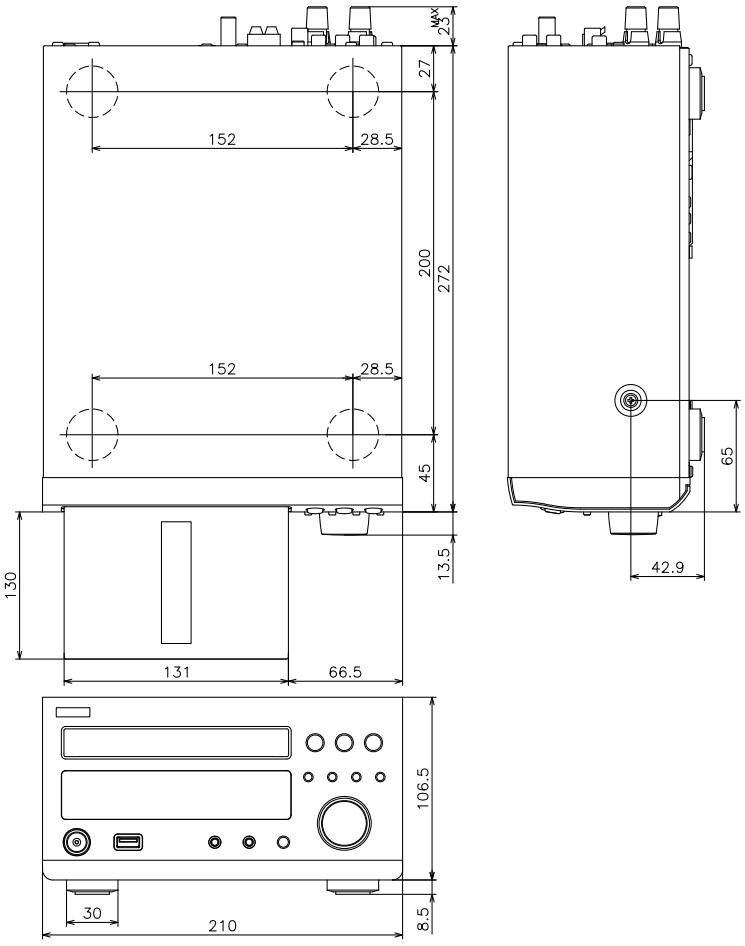
❑ General

Power supply (E2,EK model): AC 230 V, 50 Hz
Power supply (E3 model): AC 120 V, 60 Hz
Power consumption: 80 W
Approx. 0.3 W (standby)
Maximum external dimensions:
210 (W) x 115 (H) x 308.5 (D) mm
Weight: 4.3kg

❑ Remote control (RC-1127)

Power supply: R03/AAA Type (two batteries)
Maximum external dimensions:
49 (W) x 220 (H) x 24 (D) mm
Weight: 110 g (including batteries)

DIMENSION



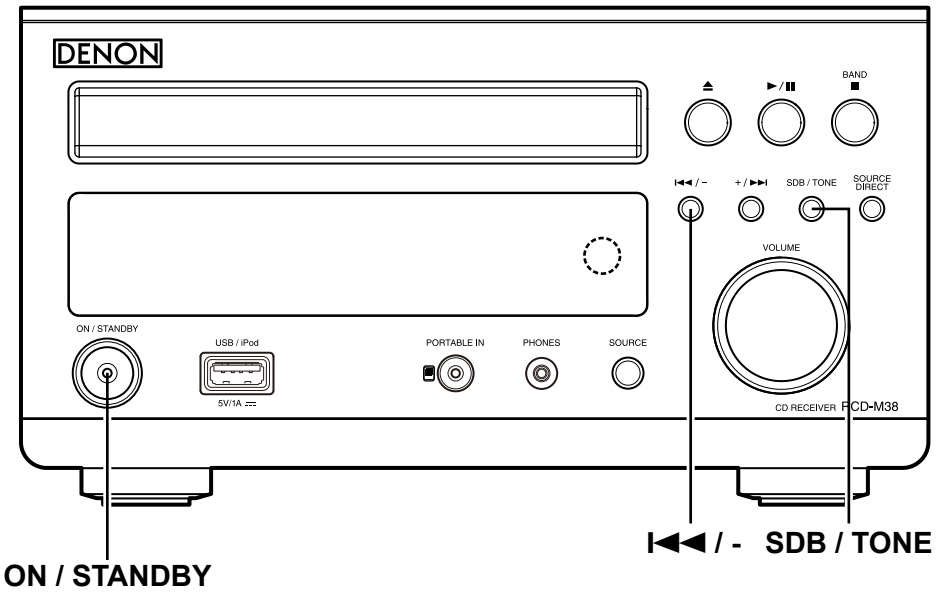
CAUTION IN SERVICING

Initializing STEREO CD RECEIVER

STEREO CD RECEIVER initialization should be performed when the µcom, peripheral parts of µcom, and Digital PCB. are replaced.

1. Turn off the power using ON/STANDBY button, unplug the power cord.
2. Plug the power cord into a power outlet while pressing I◀◀ / - and SDB / TONE button simultaneously.
   ∗ Initialize.

Note: •All user settings will be lost and this factory setting will be recovered when this initialization mode. So make sure to memorize your setting for restoring after the initialization.



Service tools

Measuring Disc: CD/TCD-784
CD-R/TCD-R082W
CD-RW/TCD-W082W

∗ Refer to "MEASURING METHOD AND WAVEFORMS".

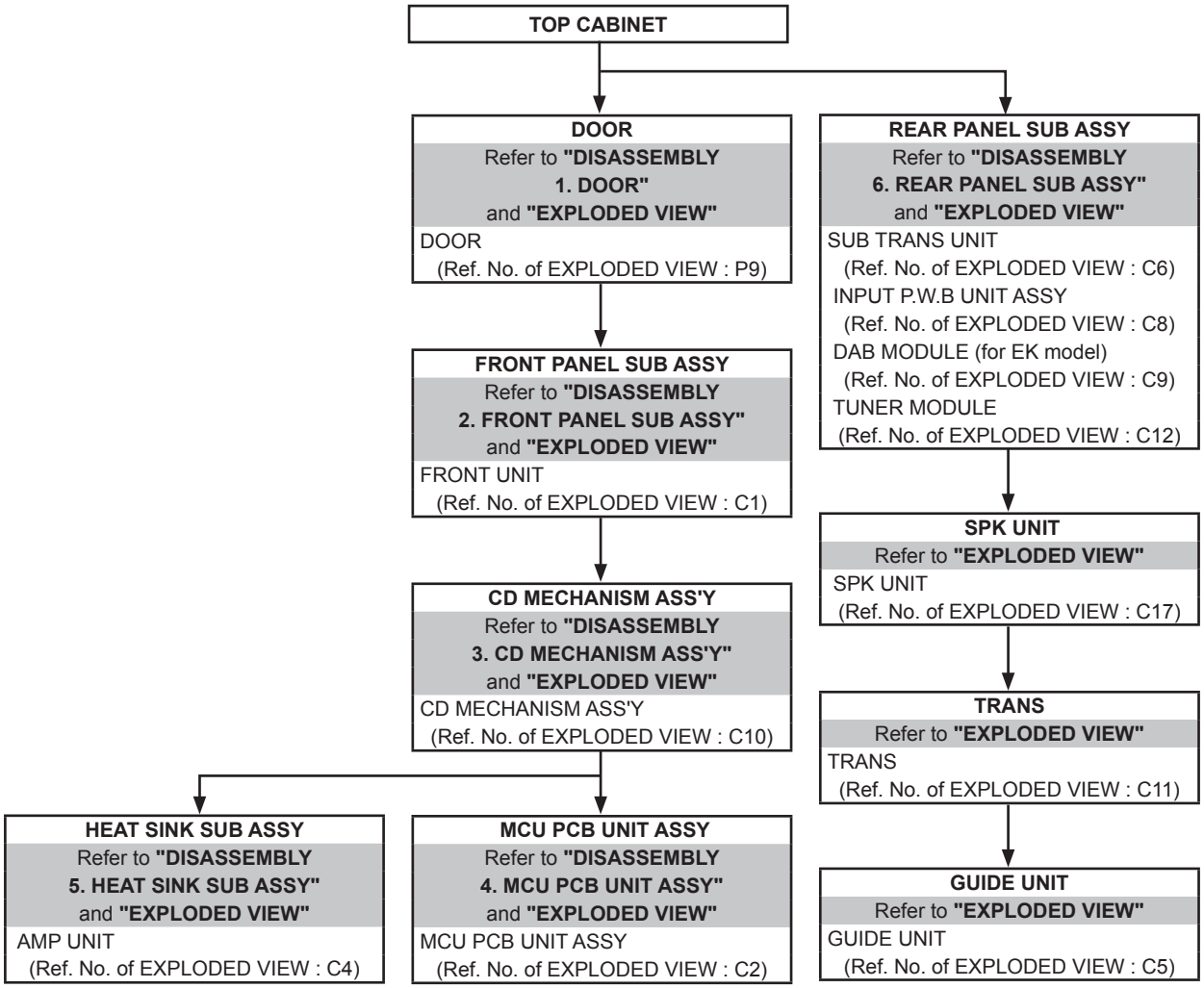
Service Jigs

When you repair the printing board, you can use the following JIG (Extension cable kit).
Please order to Denon Official Service Distributor in your region if necessary.

943309004570M : DATA UPDATE KIT : 1 Set
(Refer to 26 page)

DISASSEMBLY

- Disassemble in order of the arrow of the figure of following flow.
- In the case of the re-assembling, assemble it in order of the reverse of the following flow.
- In the case of the re-assembling, observe "attention of assembling" it.
- If wire bundles are untied or moved to perform adjustment or parts replacement etc., be sure to rearrange them neatly as they were originally bundled or placed afterward.
  Otherwise, incorrect arrangement can be a cause of noise generation.

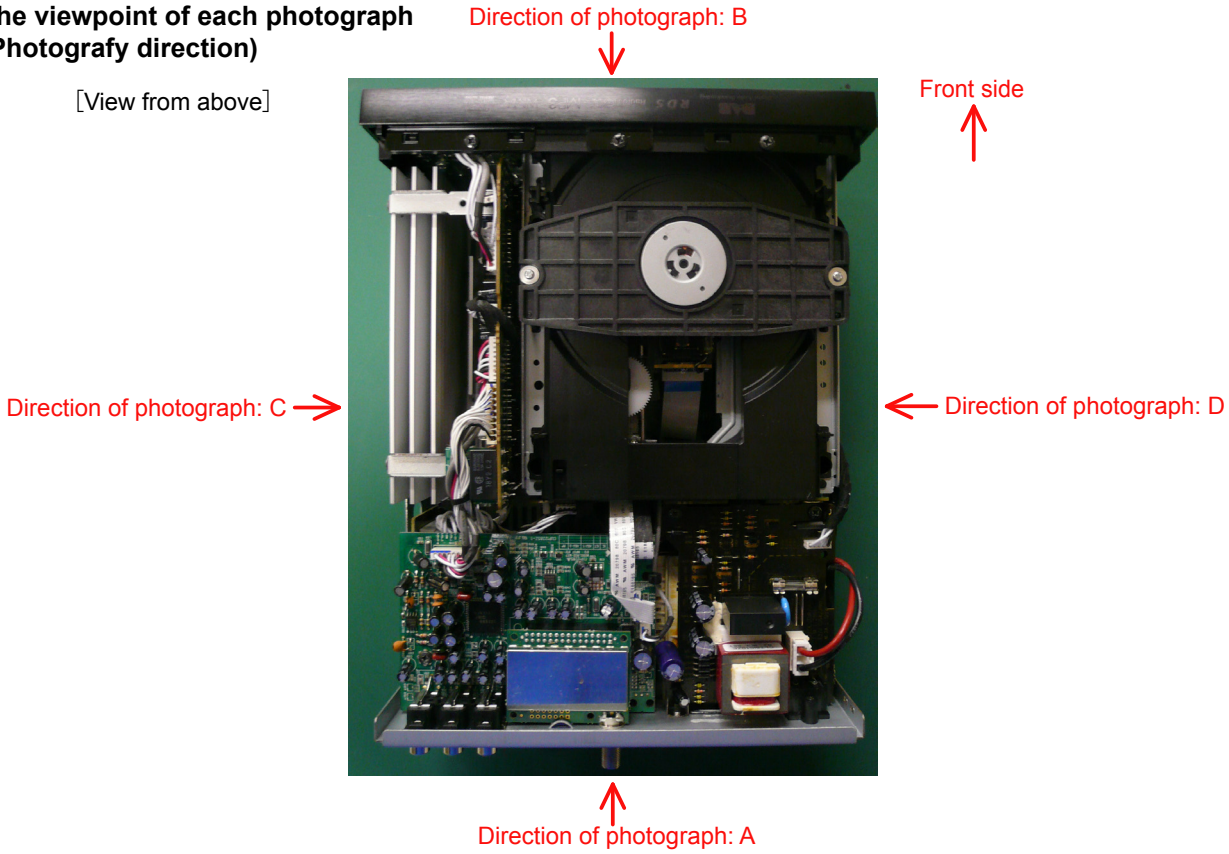


About the photos used for descriptions in the DISASSEMBLY" section.

- The direction from which the photographs used herein were photographed is indicated at "Direction of photograph: ***" at the left of the respective photographs.
- Refer to the table below for a description of the direction in which the photos were taken.
- Photographs for which no direction is indicated were taken from above the product.
- The photograph is RCD-M38 EK model.

The viewpoint of each photograph (Photografy direction)

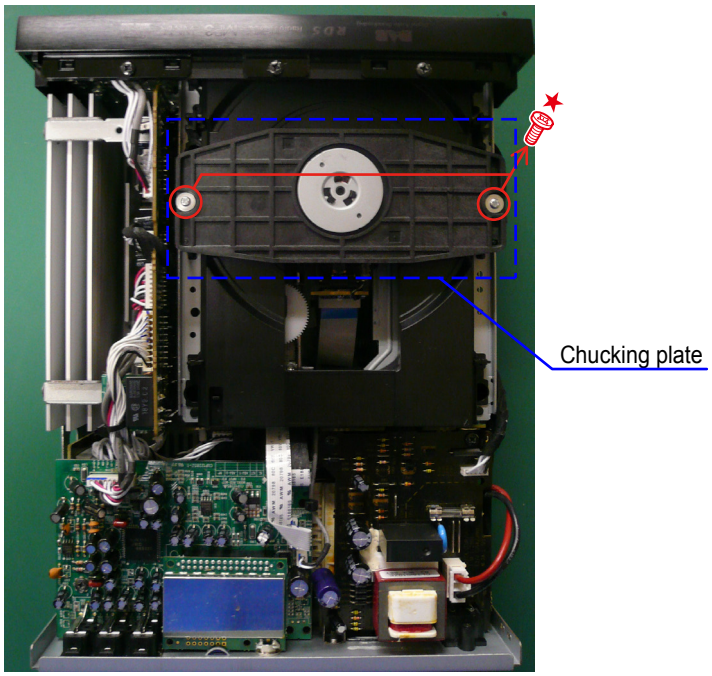
[View from above]



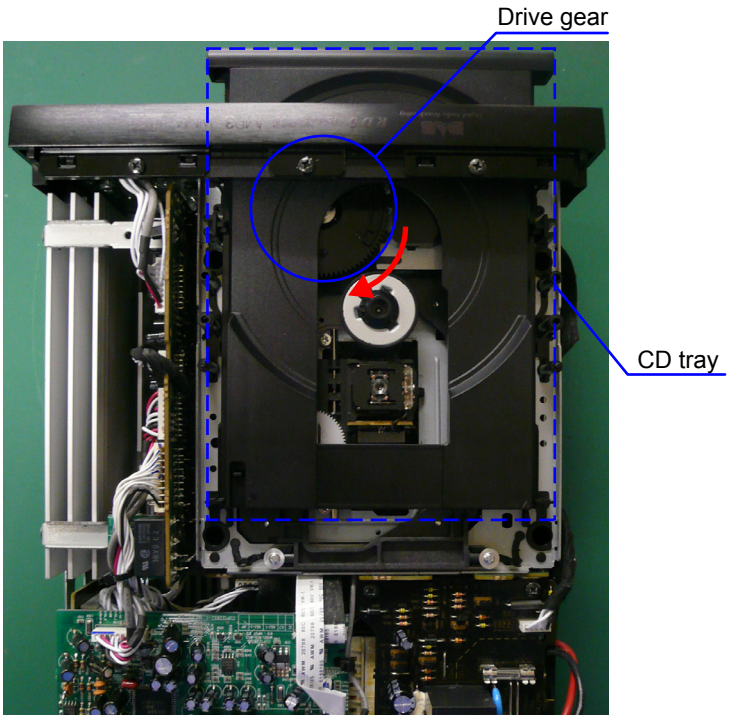
1. DOOR

Proceeding : TOP CABINET → DOOR

(1) Take off the Chucking plate after removing screws.

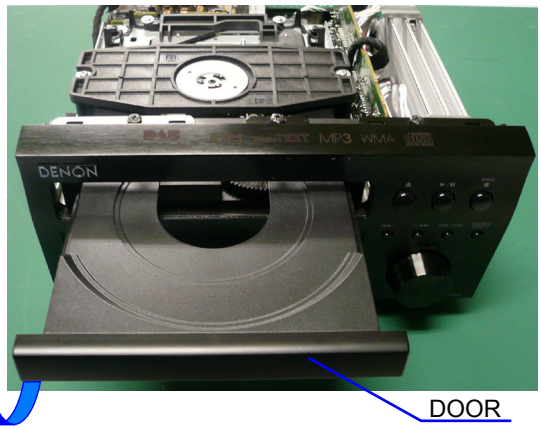


(2) Open the CD tray by turning the Drive gear clockwise.



(3) Detach the DOOR.

Direction of photograph: B

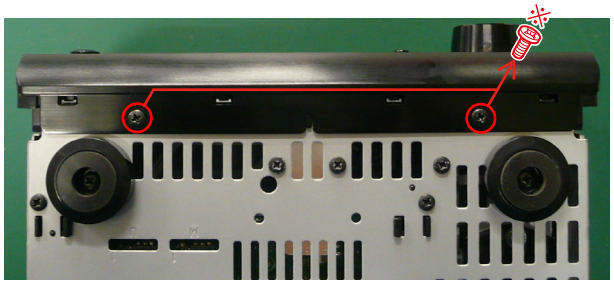


2. FRONT PANEL SUB ASSY

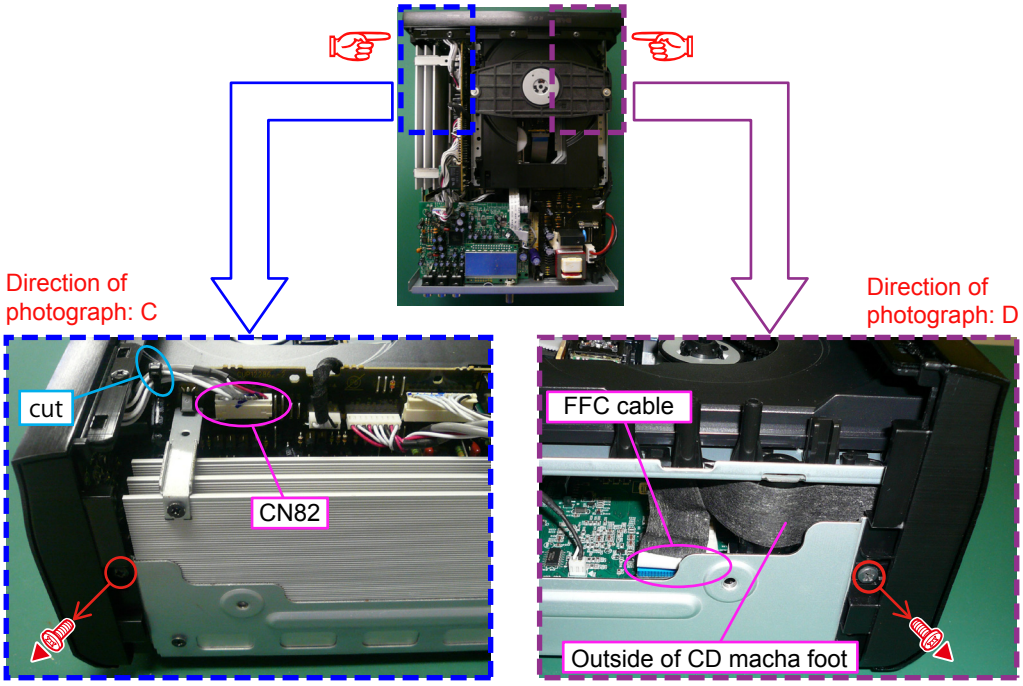
Proceeding : TOP CABINET → DOOR → FRONT PANEL SUB ASSY

(1) Remove the screws.

View from bottom

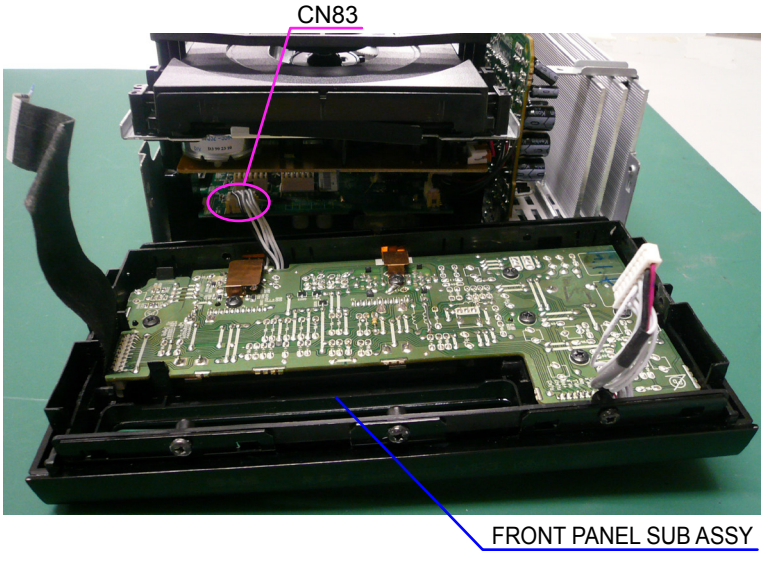


(2) Disconnect the connector wire and FFC cable, then remove the screws.



(3) Disconnect the connector wire.

Direction of photograph: B

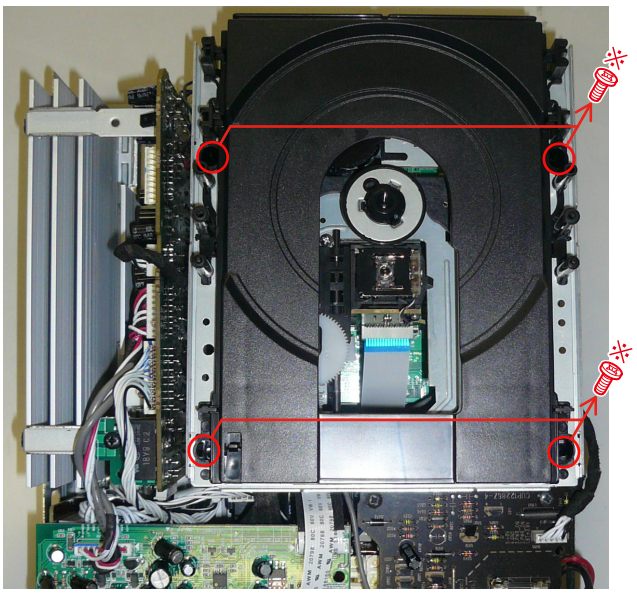


Please refer to "EXPLODED VIEW" for the disassembly method of each PCB included in FRONT PANEL ASSY.

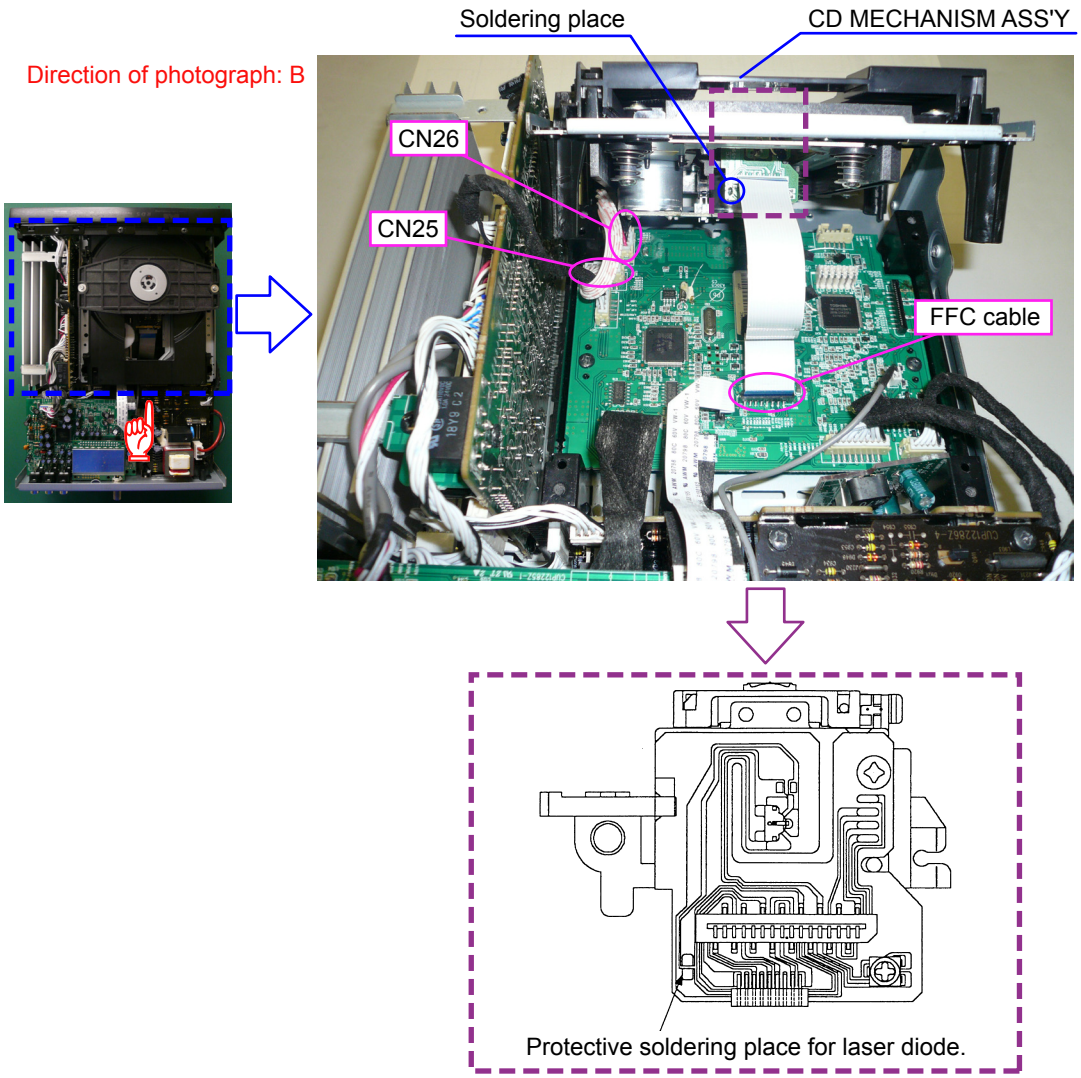
3. CD MECHA

Proceeding : TOP CABINET → DOOR → FRONT PANEL SUB ASSY → CD MECHANISM ASS'Y

(1) Remove the screws.



(2) Laser short-circuit in Pick-up of CD MECHANISM ASS'Y, then disconnect the connector wires and FFC cable.

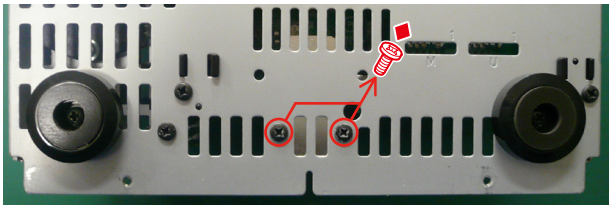


4. MCU PCB UNIT ASSY

Proceeding : TOP CABINET → DOOR → FRONT PANEL SUB ASSY → CD MECHANISM ASS'Y → MCB PCB UNIT ASSY

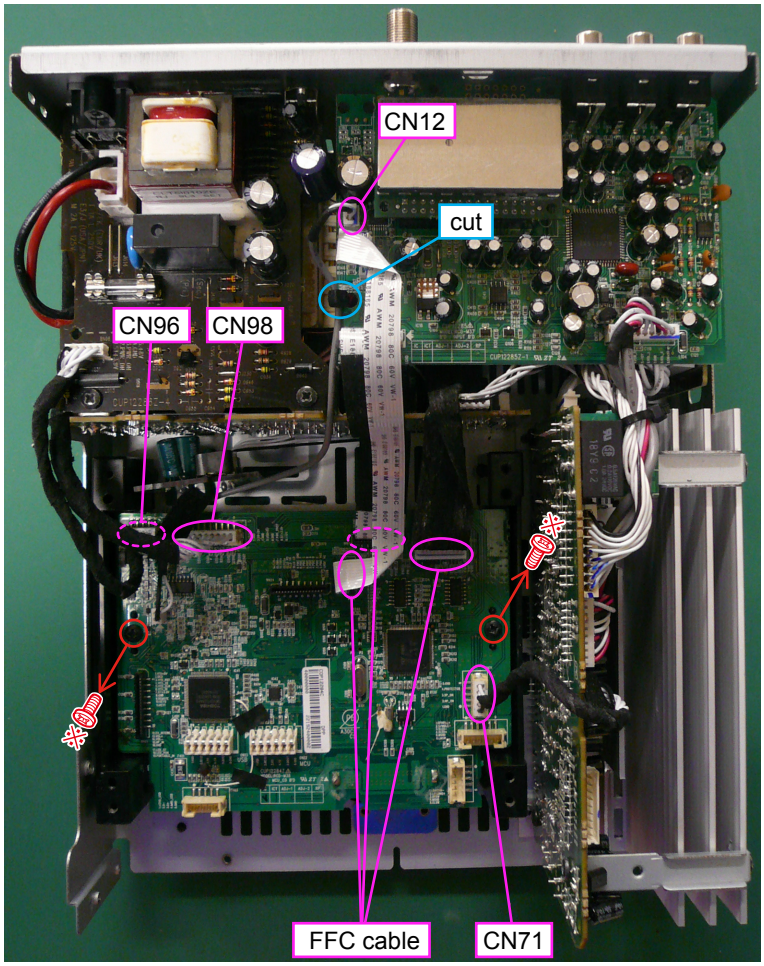
(1) Remove the screws.

Direction of photograph: B
View from bottom



(2) Cut the wire clamp band, then disconnect the connector wires and FFC cable. Remove the screws.

Direction of photograph: B

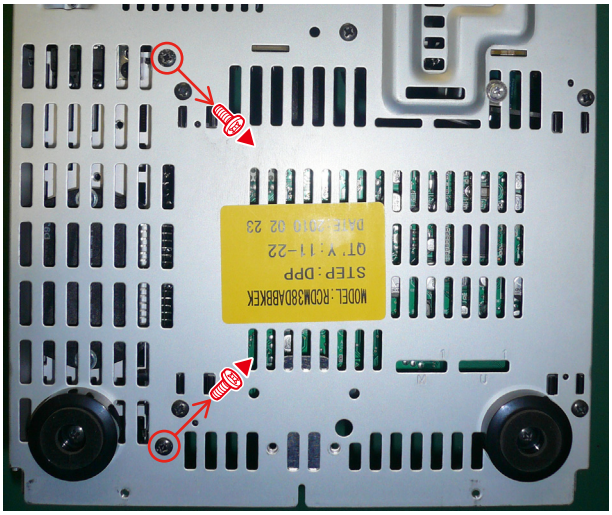


5. HEAT SINK SUB ASSY

Proceeding : TOP CABINET → DOOR → FRONT PANEL SUB ASSY → CD MECHANISM ASS'Y → HEAT SINK SUB ASSY

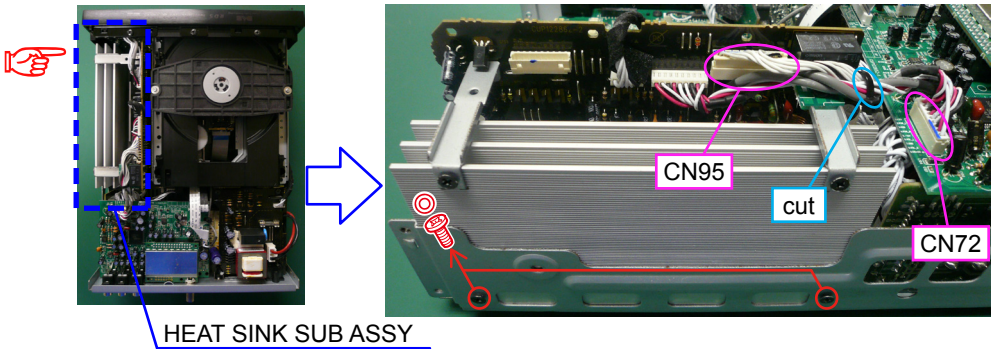
(1) Remove the screws.

Direction of photograph: B
View from bottom



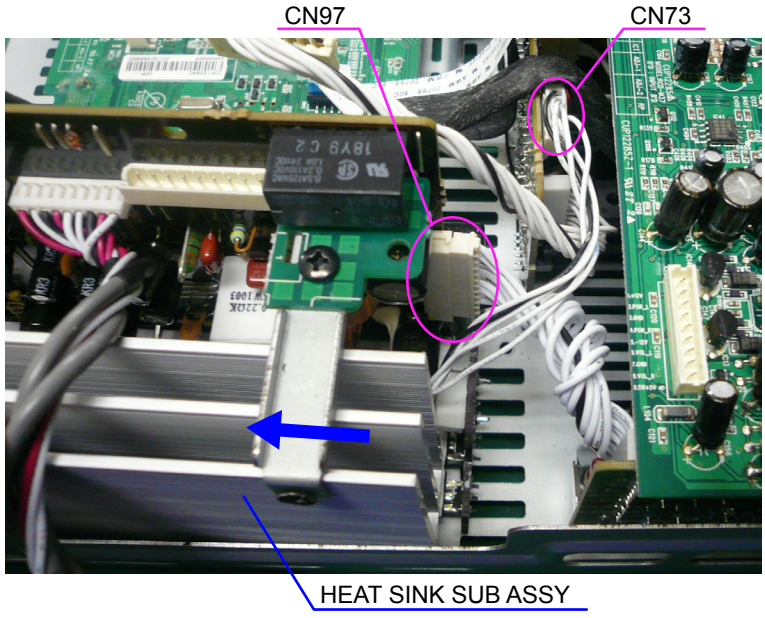
(2) Cut the wire clamp band, then disconnect the connector wires. Remove the screws.

Direction of photograph: C



(3) Disconnect the connector wires.

Direction of photograph: C



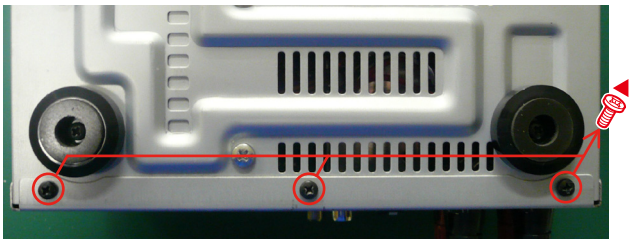
Please refer to "EXPLODED VIEW" for the disassembly method of each PCB included in HEAT SINK SUB ASSY.

6. REAR PANEL SUB ASSY

Proceeding : TOP CABINET → REAR PANEL SUB ASSY

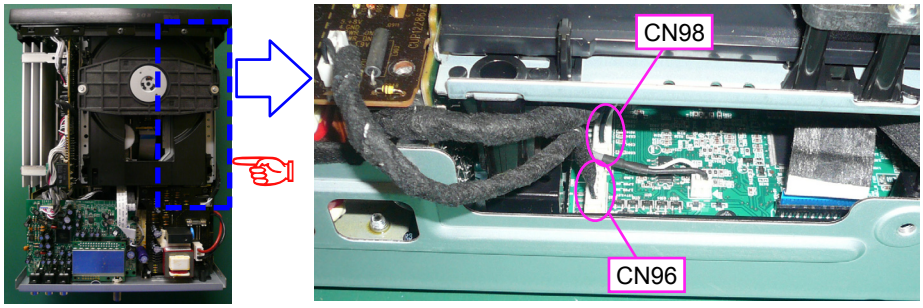
(1) Remove the screws.

View from bottom

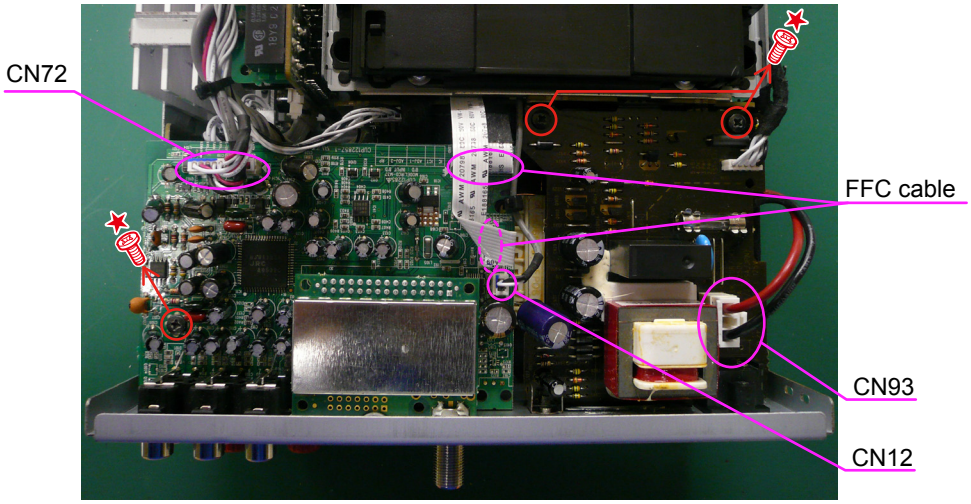


(2) Disconnect the connector wires.

Direction of photograph: D



(3) Disconnect the connector wires and FFC cable, then remove the screws.

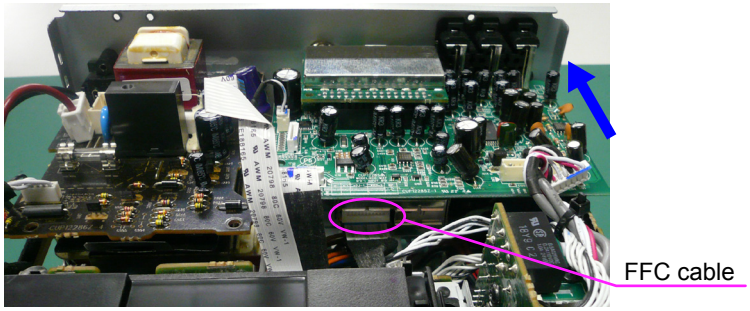


(4) Remove the screws.

Direction of photograph: A

(5) Disconnect the FFC cable.

Direction of photograph: B



Please refer to "EXPLODED VIEW" for the disassembly method of each PCB included in REAR PANEL SUB ASSY.

7. SPK UNIT

Proceeding : TOP CABINET → REAR PANEL SUB ASSY → SPK UNIT

Please refer to "EXPLODED VIEW" for the disassembly method of SPK UNIT.

8. TRANS

Proceeding : TOP CABINET → REAR PANEL SUB ASSY → SPK UNIT → TRANS

Please refer to "EXPLODED VIEW" for the disassembly method of TRANS.

9. GUIDE UNIT

Proceeding : TOP CABINET → REAR PANEL SUB ASSY → SPK UNIT → TRANS → GUIDE UNIT

Please refer to "EXPLODED VIEW" for the disassembly method of GUIDE UNIT.

DISASSEMBLY OF MECHANIC

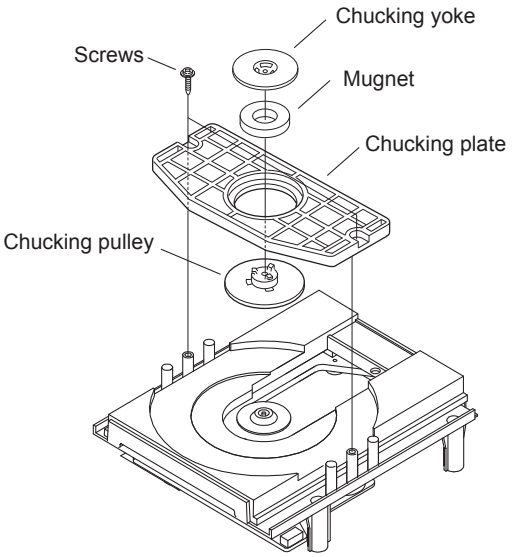
(Follow the procedure below in reverse order when reassembling.)

Caution : The optical pickup can damaged by sassily by static electricity charged on human body.
Take necessary anti-static measures when repairing around the optical pickup.

1. Chucking plate

(1) Remove 2 top screws, then detach the Chucking plate.

(2) Detaching the Chucking pulley and chucking yoke by removing the 3 hooks, when abandoning CD MECHA ass'y.



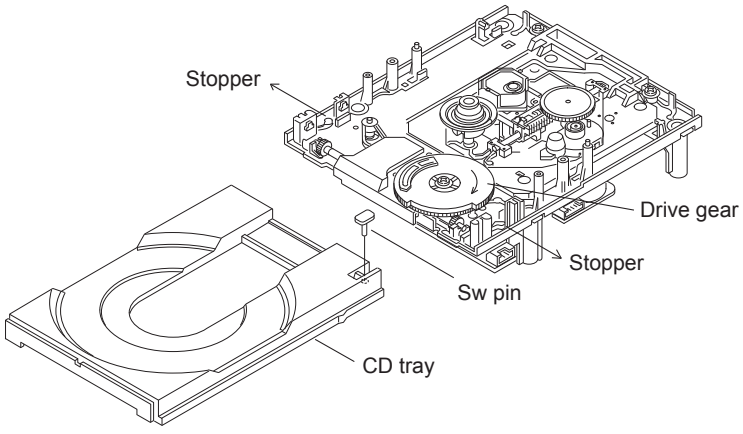
2. CD tray

When abandoning CD MECHA ass'y, please detach the CD tray.

(1) Detach the Sw pin on the CD tray.

(2) Open the CD tray by turning the Drive gear clockwise.

(3) Open the Stopper as shown in the fig., then detach CD tray.



NOTE HANDLING AND REPLACEMENT OF THE LASER PICK-UP

1. Protection of the LD

Short a part of the LD circuit by soldering. After connection to a circuit, remove the short solder.

2. Precautions when handling the laser CD mechanism

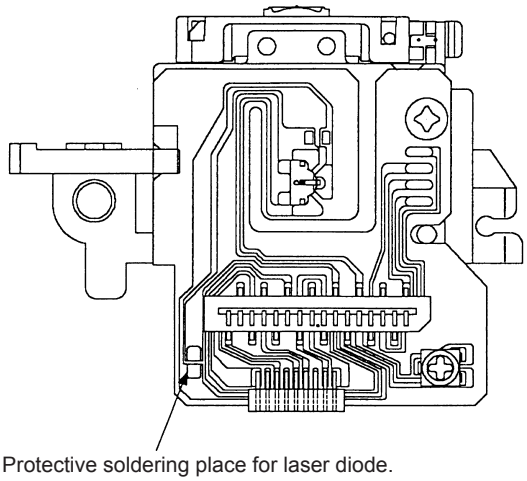
- Handle the laser pick-up so that it is not exposed to dust.
- Do not leave the laser pick-up bare. Be sure to cover it.
- If dust adheres on lens of the pick-up, blow it off with a blower brush.
- Do not shock the laser pick-up.
- Do not watch the light of the laser pick-up.

3. Cautions on assembling and adjustment

- Be sure that to 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 that damaging outside forces are not received.
- When carrying the finished mechanism, hold it by the chassis body
- For proper operation, storage and operating environment should not contain corrosive gases. For example H2S, SO2, NO2, CI2 etc. In addition storage environment should not have materials that emit corrosive gases especially from silicic, cyanic, formalin and phenol group. I the mechanism or the set, existence of corrosive gases may cause no rotation in motor.

4. Determining whether the laser pick-up is defective

- Check the Iop(Laser drive current). Check Iop in "SERVICE MODE". (Refer to 24 page.)
- If the present Iop (current) value becomes more than 50mA, replace the Traverse unit with a new one.
- No mechanical adjustment is necessary after the replacement.



Protective soldering place for laser diode.

SERVICE MODE

1. Version Display Mode

(1) Plug AC cord into power outlet while pressing ON/STANDBY and DIRECT button same time on Main Unit.

(2) Press the "SDB/TONE" button to the display the 2nd item information on the Display.
【Main µ-com Ver.】→【USB µ-com Ver.】→【iPod Dock Ver.(Connecting Dock)】→【Main µ-com Ver.】→・・・

【Main µ-com Ver.】

	V	e	r		1	0	0	4	2	7	0	1	v	E	K

【USB µ-com Ver.】

U	S	B		V	E	R									
2	0	1	0		0	4		3	0		0	0			

【iPod Dock Ver.(Connecting Dock)】

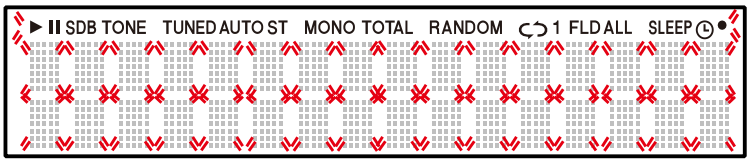
D	O	C	K		V	E	R		#	#	#	#			

(3) Unplug AC cord to clear this mode.

2. VFD checking mode

(1) Plug AC cord into power outlet while pressing ON/STANDBY and OPEN/CLOSE button same time on Main Unit.

(2) All segment of VFD is turning on and off every one second. MUTING ON.



(3) Unplug AC cord to clear this mode.

3. Cold start mode (initialization)

(1) Plug AC cord into power outlet while pressing ON/STANDBY and ⏮ / - button same time on Main Unit.
Initialize.

			I	N	I	T	I	A	L	I	Z	E			

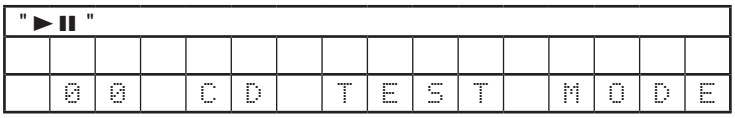
	Default
source	DISC
TUNER(band)	FM (DAB Model:DAB)
SDB	OFF
BASS	0
TREBLE	0
BALANCE	CENTER
DIMMER	100%
VOLUME	8
TUNER Preset	All 0
Set -/+ (TUNER)	PRESET -/+ button
Clock	00:00（Blink, E3 Model : AM12:00
TIMER (EVERYDAY/ONCE)	Timer function CD
	ON TIME 0:00 (E3:AM12:00)
	OFF TIME 0:00 (E3:AM12:00)
SPK OPTIMISE	ON
iPod mode	Remote mode
AUTO STANDBY	OFF
DAB Module (EK)	Initialzed Module
Protection memory	NO PROTECT

※ The following settings are not initialized.
- Laser ON TIME and Laser Current
- Power supply abnormal flag

(2) After initialization, the unit will start in normal mode (Power On).

4. CD test mode

(1) Plug AC cord into power outlet while pressing ON/STANDBY and SOURCE button same time on Main Unit.



(►, II flashing)

(2) Move the slide to the initially set position (10 mm towards the outside from the innermost position).
(3) Check by performing key input. Refer to 4.2① ～ 4.2⑥.
(4) Cancel the mode by turning the power back on.
※ Do not push the button without the explanation.

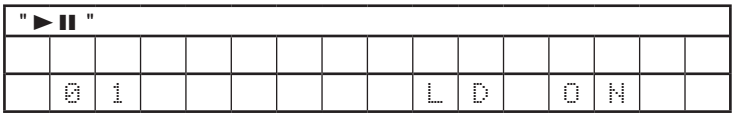
4.1 Disc loading

(1) Press the ≜ button to open the tray.
(2) Set a disc on the tray, then press the ≜ button again to close the tray.
(3) Move the slide to the initially set position (10 mm towards the outside from the innermost position) and stop in this status.

4.2 Servo check

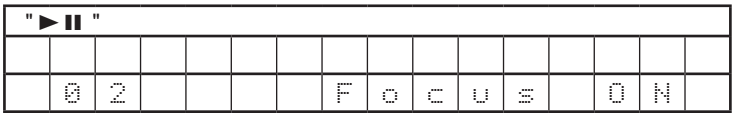
• Press the ≜ button. Execute the following steps.
※ Press ►/II button continuously for over 1second to switch directly to SUB CODE readout in step ⑤.

① LD ON (with servo still stopped)



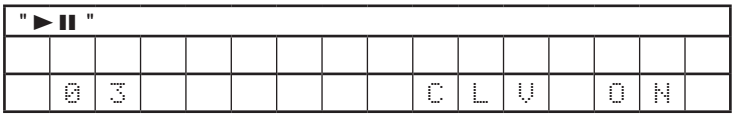
(►, II flashing)

② FOCUS ON (disc rotation, tracking off)
∗ If no disc loaded, retry then stop.



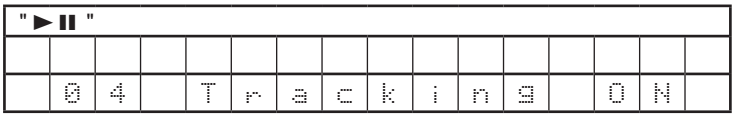
(►, II flashing)

③ CLV ON



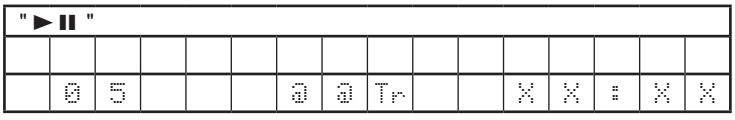
(►, II flashing)

④ TRACKING ON



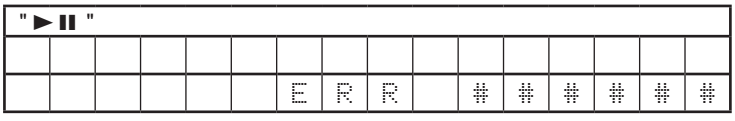
(►, II flashing)

⑤ SUB CODE readout (playback sound output)



(►, II flashing / @@:T.No / XX:XX:Time)

⑥ When display is as in ⑤ and the ►/II button is pressed, conduct BER (Block Error Rate) display for 2 seconds.



(►, II flashing / ######:B.E.R)

4.3 Pickup movement

(1) In the stop mode, pickup moves in REV (inwards) or FWD (outwards) direction when ⏮ / - or + / ⏭ button pressed.
(2) When ⏮ / - button pressed, move to stop operation after detection that inner switch has turned on.
(3) Pickup movement stops when button released.

4.4 Stop

(1) When STOP ■ button is pressed, play operation and servo stop.
(2) After stopping, conduct reading of auto adjust values.

4.5 All servo on

- When SDB/TONE button is pressed, the adjustment values are displayed in the following order.

"►II "															
						@	@	Tr			X	X	:	X	X

(►, II flashing / @@:T.No / XX:XX:Time)

4.6 Adjustment value display

(1) When DIRECT button is pressed, the adjustment values are displayed in the following order.

① FOCUS BALANCE

"►II "															
X	X	X	X												
F	O	C	U	S		B	A	L	A	N	C	E			

(►, II flashing / XXXX:Adjustment value)

② FOCUS GAIN

"►II "															
X	X	X	X												
F	O	C	U	S		G	A	I	N						

(►, II flashing / XXXX:Adjustment value)

③ TRACKING BALANCE

"►II "															
X	X	X	X												
T	R	A	C	K	I	N	G		B	A	R	A	N	C	E

(►, II flashing / XXXX:Adjustment value)

④ TRACKING GAIN

"►II "															
X	X	X	X												
T	R	A	C	K	I	N	G		G	A	I	N			

(►, II flashing / XXXX:Adjustment value)

⑤ FOCUS OFFSET

"►II "															
X	X	X	X												
F	O	C	U	S		O	F	F	S	E	T				

(►, II flashing / XXXX:Adjustment value)

⑥ TRACKING OFFSET

"►II "															
X	X	X	X												
T	R	A	C	K	I	N	G		O	F	F	S	E	T	

(►, II flashing / XXXX:Adjustment value)

⑦ RFRP

" ►II "															
X	X	X	X												
R	F	R	P												

(►, II flashing / XXXX:Adjustment value)

(2) Press the ■ button, "4. CD test mode (1)" display reappears.

※ If auto adjustment is not completed, proper values are not displayed.

4.7 Laser current is display

(1) When the ■ button is pressed for over 1 second while the RCD-M38 is in the stop mode(Display of "4. CD test mode (1)"), the laser turns on and the laser current is measured.

" ►II "															
S	/	C	:			X	X	m	A	/		Y	Y	m	A
L	A	S	E	R		C	U	R	R	E	N	T			

(►, II flashing / XX:Stored data(stored in the EEPROM) / YY:Current value)

- The first current value is measured 3 seconds after the laser turns on.
- The current value is updated every 3 seconds.
- The laser drive current undergoes A/D conversion for calculation. Decimal values are discarded.

(2) Press the ■ button, "4. CD test mode (1)" display reappears.

※ Stored data is not cleared, initialazation of "3. Cold start mode".

4.7.1 Overwriting the stored data

(1) When the ►/II button is pressed for over 5 seconds while the laser current is displayed, the current value is stored in the EEPROM (overwriting the stored data).

" ►II "															
S	T	O	R	E	D										
L	A	S	E	R		C	U	R	R	E	N	T			

(►, II flashing)

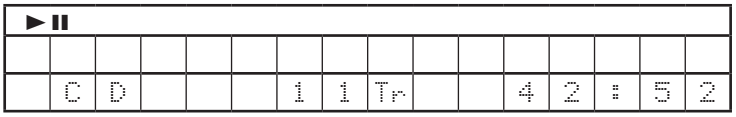
(2) Press the ►/II button, the initial value is stored in the EEPROM

(3) Once rewriting is completed, the display in No.4.7(1) reappears.

※ Rewriting is performed upon shipment from the factory and when the mechanism is replaced.

5. CD heat run mode

(1) Plug AC cord into power outlet while pressing ON/STANDBY and SDB/TONE button same time on Main Unit. (Be sure to insert the CD before this operation)



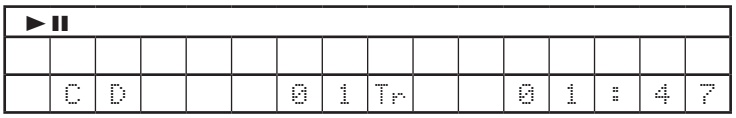
(►, II lit / Normal display except when ►, II lit.)

(2) Switches to mode according to button input. See No.5.1 and No.5.2.
(3) If an error occurs, display the error and stop operation at that point. Number of operations held. See No.5.3 to No.5.5.
(4) Heat run no. cleared when ■ button pressed.
(5) Mode canceled and tray opened after ⏏ button pressed.
(6) Press the ON/STANDBY button to clear this mode too.

5.1 Normal heat run1 mode

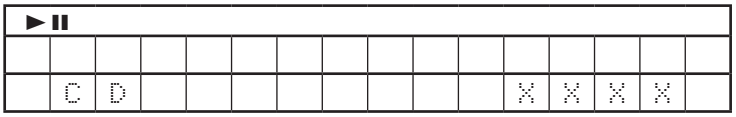
- After CD heat run mode has started, re-read TOC and press the ►/II button. (Be sure to finish reading the TOC before push ►/II button) Count this as the 0th heat run repetition.
  ① Play from the first to last track on disc.
  ② If disc being used has less than 20 tracks, play all tracks. If disc has 21 or more tracks, skip to final track after playback of first track has finished.
  ③ After disc playback has finished, move pickup to innermost position and open tray.The heat run repetition no. is incremented (increased by 1) when the tray is opened.
  ④ When loader open status detected, close tray again, re-read TOC and start playback from the first track on the disc.
  ⑤ Conduct ① to ④ repeatedly.

【During playback is display】



(►, II lit / Normal display except when ►, II lit.)

【Number of heat run is display (No.5.1 ③)】

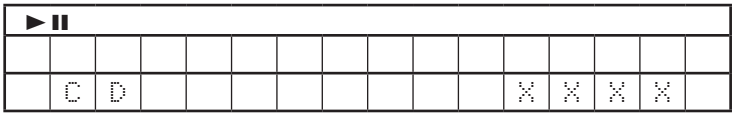


(►, II lit / XXXX：No. of heat run repetitions)

5.2 Automatic mounting mode

(1) After CD heat run mode has started, re-read TOC and press the ■ buton once in the stop mode.
(2) TOC reading ⇒ Search for first track on disc ⇒ tray open ⇒ tray close ⇒ TOC reading ⇒ repeat. No. heat run repetitions displayed on time display section.
(3) Increment the heat run repetition no. at the point when the loader has finished opening.

【When the tray is open】

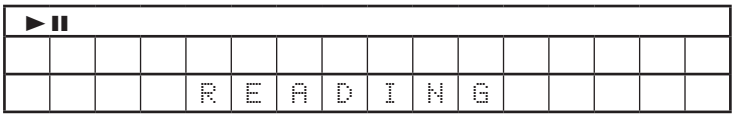


(►, II lit / XXXX：No. of heat run repetitions)

【When the tray is closed】

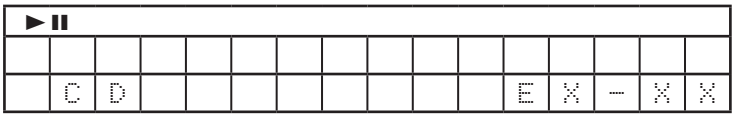
(►, II lit)

【When TOC is read】



(►, II lit)

5.3 Error display

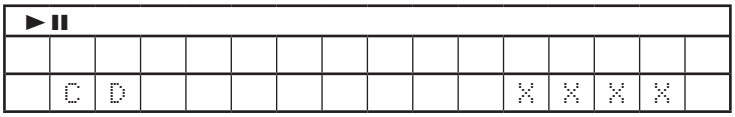


(►, II lit / X-XX:Error cord)

Error code	
E1-00	Disc cannot be detected
E1-01	Tracking offset adjustment not possible
E1-02	Focus offset adjustment not possible
E2-00	Focus servo dropped during playback.
E2-01	Focus servo dropped during searching.
E2-03	Focus servo dropped during TOC reading.
E2-06	Focus servo dropped during manual search.
E2-10	Subcode can no longer be read during playback
E2-11	Subcode can no longer be read during searching
E2-12	Subcode can no longer be read during TOC reading
E2-14	Subcode cannot be read during pause
E2-15	Subcode cannot be read during manual search
E3-00	TOC could not be read within specified time
E3-01	PVD/SVD analysis could not be completed within specified time
E4-04	Search time out
E4-05	Error in communications with CD decoder
E5-00	Inner switch not on
E6-00	Inner switch not off
E9-00	Tray is not opened by the specified time.
E9-01	Other error

【Number of heat runs performed when error occurred 】

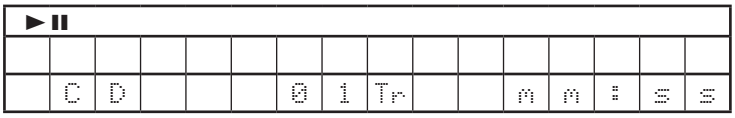
(1) Press the +/►►I button while the error is displayed.
(2) No. heat runs is displayed for 5 seconds, the error display reappears.



(►, II lit / XXXX：Number of heat runs repeated when error occurred)

【Track no. and elapsed time when error occurred】

(1) Press the I◄◄/ - button while the error is displayed.
(2) The track no. and time when the error occurred is displayed for 5 seconds, then error display reappears.



(►, II lit / mm:ss：Number of heat runs repeated when error occurred)

6. Accumulated laser on time display mode

(1) Plug AC cord into power outlet while pressing ON/STANDBY and ■ button same time on Main Unit.

X	X	X	X	X		h	o	u	r						
L	A	S	E	R		O	N		T	I	M	E			

- The laser drive times are added and the result is displayed.
- One count corresponds to 10 minutes. (Valuesunder 10 minutes are discarded.)
- Count values are stored in the EEPROM every 10 minutes.
- The accumulated laser on time is displayed in hours.
- The count values are not cleared, even when the set is initialazation(3. Cold start mode).
- Minimum display specification.
  - No. digits stored in EPROM: 4, 0xFFFF
  - No. digits displayed: 5
  - When the time exceeds 10922 hours, the stored data is not updated and the value is fixed to 0xFFFF. (The display is fixed to 10922 hours.)

(2) Unplug AC cord to clear this mode.

6.1 Count value is reset

(1) When the ►/❚❚ button is pressed for over 5 seconds while the acumulated laser on time is displayed, the count value is reset.

C	L	E	A	R											
L	A	S	E	R		O	N		T	I	M	E			

(2) After resetting is completed, the display in "6. Accumulated laser on time display mode(1)" (00000 hours on the top line) reappears.

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

7. Displaying the protection history mode

(1) Plug AC cord into power outlet while pressing SDB/TONE and +/►►❙ button same time on Main Unit.
(2) The last protection incident.
(3) Unplug AC cord to clear this mode too.

【No protection incident】

P	R	O	T	E	C	T	I	O	N	:					
N	O		P	R	O	T	E	C	T						

【The last protection incident was AMP protection】

P	R	O	T	E	C	T	I	O	N	:					
A	M	P													

【The last protection incident was Power protection】

P	R	O	T	E	C	T	I	O	N	:					
P	O	W	E	R											

7.1 Clearing the protection history

(1) Start up the error (protection history display) mode, display the error, then press and hold in the ►/❚❚ button over 5 seconds.

【Display of Clearing】

P	R	O	T	E	C	T	I	O	N	:					
C	L	E	A	R											

※ Protection history reset by initialazation (3. Cold start mode), too.

VERSION UPGRADE PROCEDURE OF FIRMWARE

1. ABOUT REPLACE THE MICROPROCESSOR WITH A NEW ONE

When replaced of the U-PRO (Microprocessor) or the Flash ROM, confirm contents of the following.

PWB Name	Ref. No.	Description	After replaced	Remark
MCU	IC11	TMPM330FYFG	**B**	for E3,E2P model
MCU	IC11	CVIT5CN5	**B**	for EK model
MCU	IC41	TMP92FD28FG	**B**	

After replaced

A : Mask ROM (With software). No need write-in of software to the microprocessor.

B : Flash ROM (With software). Usually, no need write-in of software. But, when the software was updated, you should be write-in of the new software to the microprocessor or flash ROM. Please check the software version.

C : Empty Flash ROM (Without software). You should be write-in of the software to the microprocessor or flash ROM. Refer to “Update procedure” or “writing procedure”, when you should be write-in the software.

2. UPDATE MODE

Software for MAIN CPU and USB CPU can be updated.
There are two mode of update, regarding to the target of software as below.

2.1. Update MAIN CPU's software to internal Flash-ROM.

The target devise is internal flash ROM of CPU (IC11) on COP12284 (MCU PCB).
The updating of software takes about 1 minute.

- Update data for MAIN CPU (RCDM38_38-0427-01.bin)

Procedure of the MAIN CPU's Update

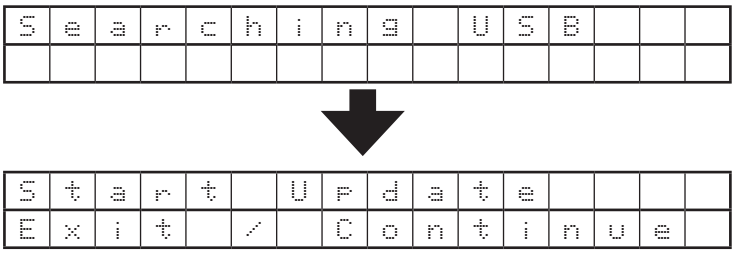
(1) Prepare USB memory in which the Update program is written.

(2) Power On.

(3) Select USB source.

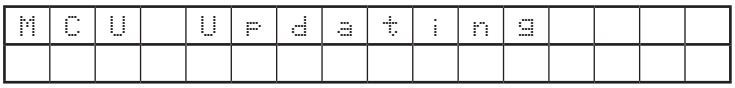
(4) Insert a USB memory has the update file.

(5) ■ button is pressed for over 5 seconds (Serch files)



When nothing press the button here (more than about four seconds) or when press the "SOURCE DIRECT" button, Update is called off, and it is displayed (3).
When cancel Update, press USB memory in (3) state, and please switch it off.

(6) Press SDB/TONE button. (Start Update))



ON/STANDBY LED flashes in Update.

(7) When Update is completed, it is Power off.

(8) Disconnect USB memory.

(9) UPDATE completion. Please check the version in "SERVICE MODE : 1. Version Display Mode". (Refer to 18 page.)

2.2 Update USB CPU's software to internal Flash-ROM.

The target devise is internal flash ROM of CPU (IC41) on COP12284 (MCU PCB).
The updating of software takes about 30 seconds.

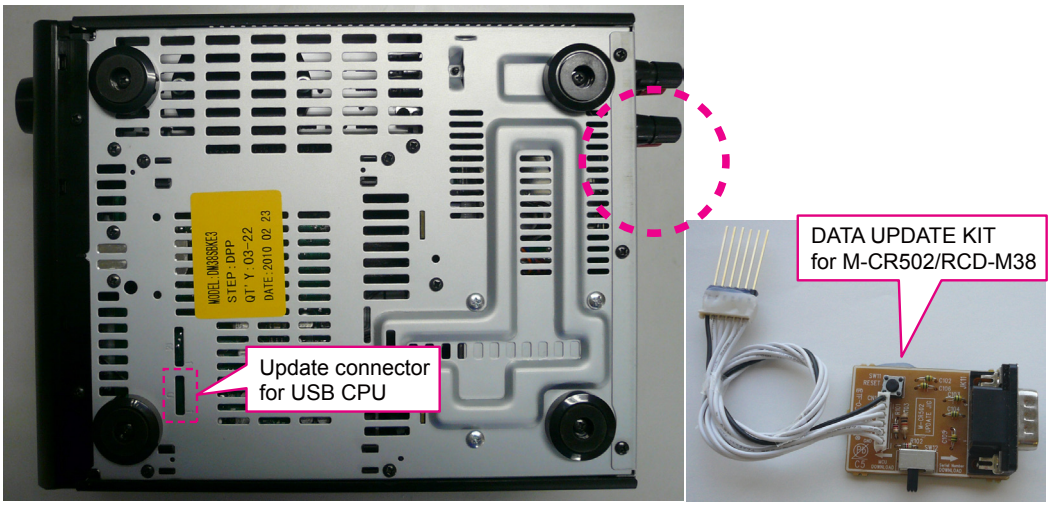
Procedure of the USB CPU's Update and download

NECESSARY EQUIPMENT

The following items are required for updating/downloading.
- Windows PC (OS: Windows2000 or WindowsXP) with Serial port.
- RS-232C Dsub-9 pin cable (female to female/straight type)
- DATA UPDATE KIT for M-CR502/RCD-M38 (part no : 943309004570M)
- Update tool (FlashProg.exe, other files and folders in Flash Programmer folder)
- Update data for USB CPU (RCD-M38DAB_100430-00-USB.s32)

NOTE : The yy is two digits of year. The mm is month. The dd is date. The vv is release number.

LOCATION

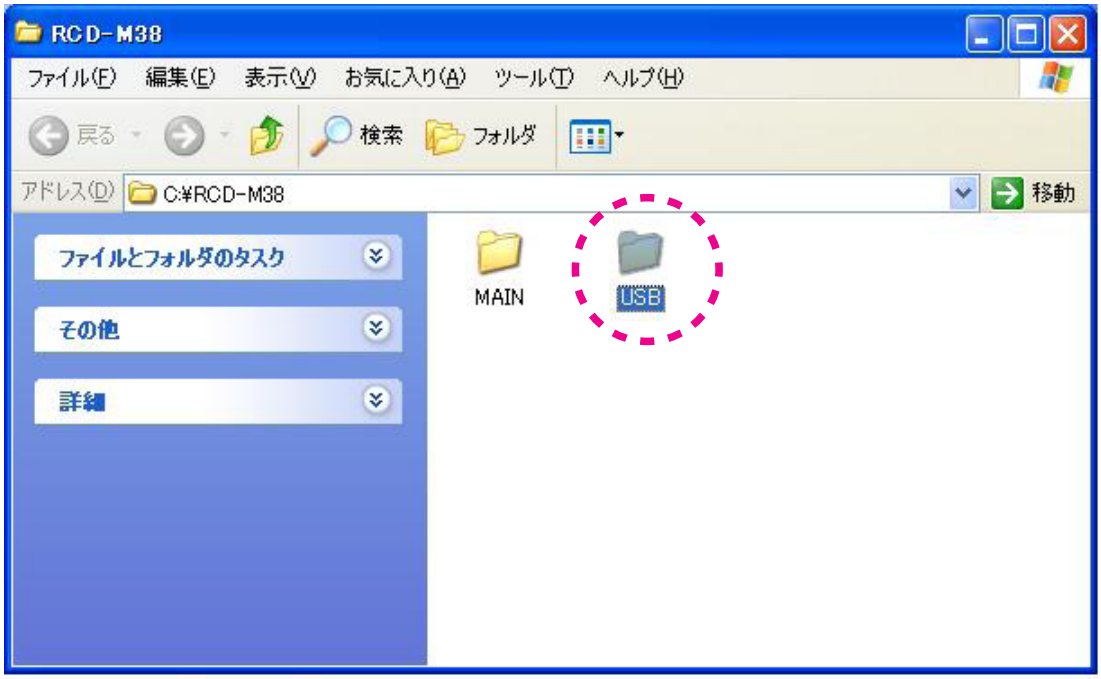


Procedure of the UDSB CPU's Update

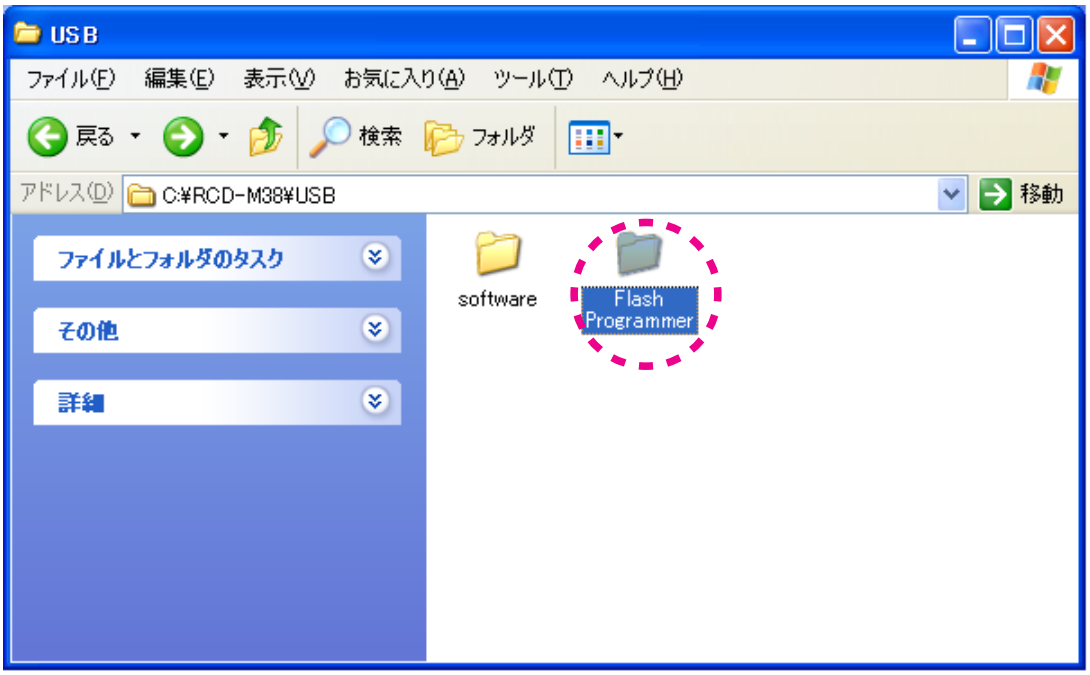
(1) Create the MODEL NAME folder into anywhere on your PC's hard disk.
(Ex. : RCD-M38)

(2) Put the "USB" folder into the MODEL NAME folder.

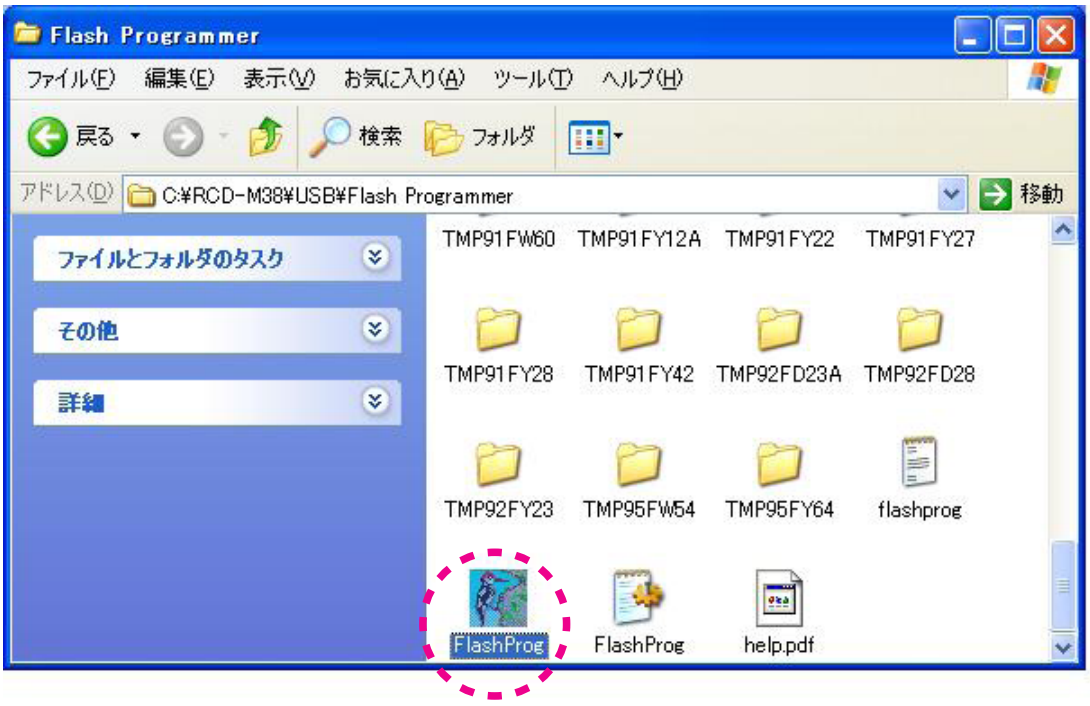
(3) Double click the "USB" folder.



(4) Double click the "Flash Programmer" folder.

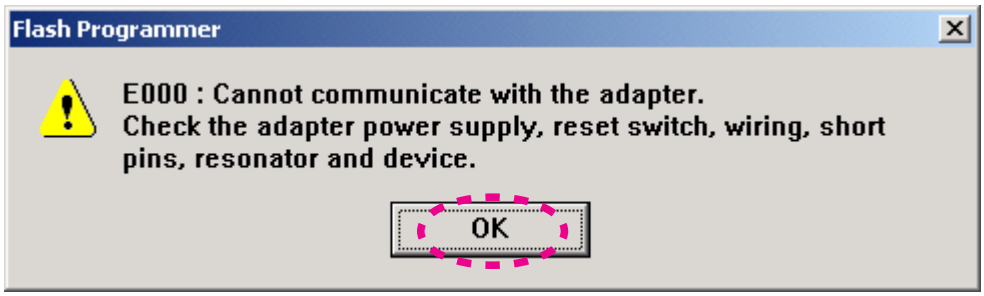


(5) Double click FlashProg_b35.exe, and launch the Flash Programmer.



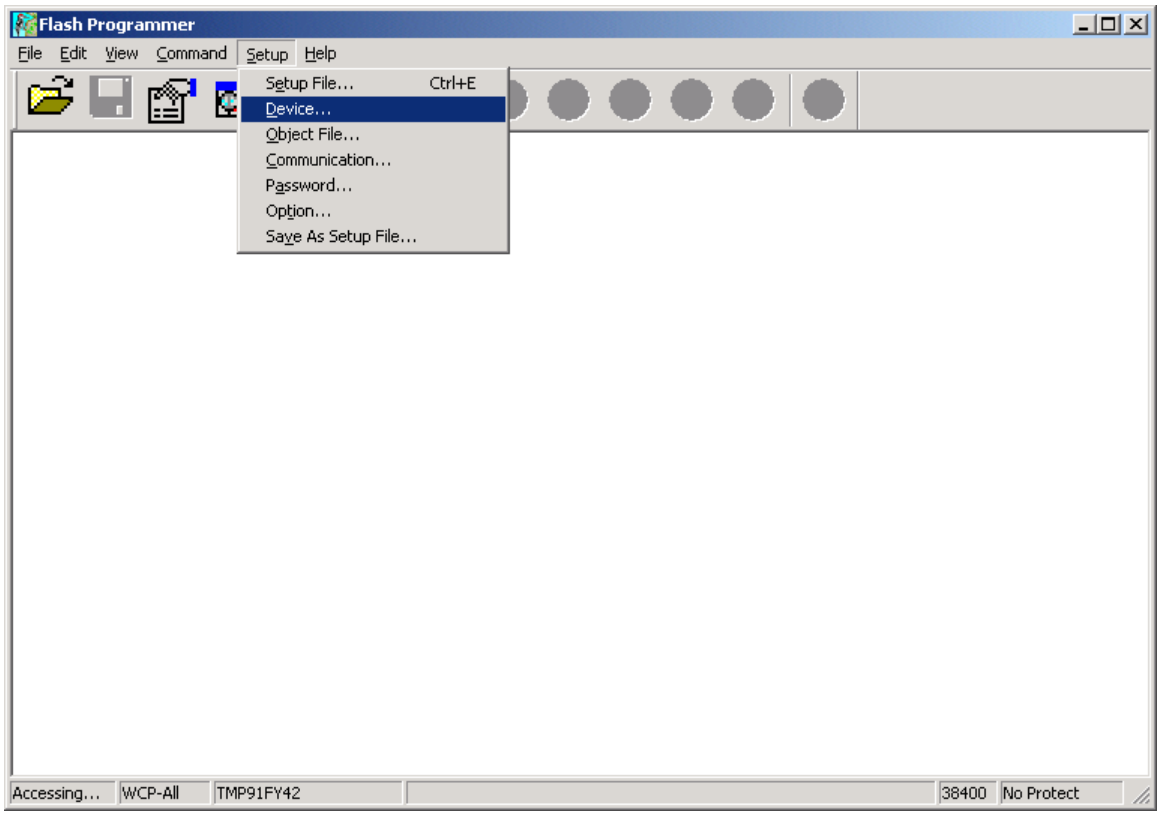
NOTE : When a Flash Programmer does not launch even if double-clicked FlashProg_b35.exe, please refer to "2.3. When a Flash Programmer did not launch".

(6) The following dialog box appears several seconds later after the Flash Programmer launch.
Click OK.

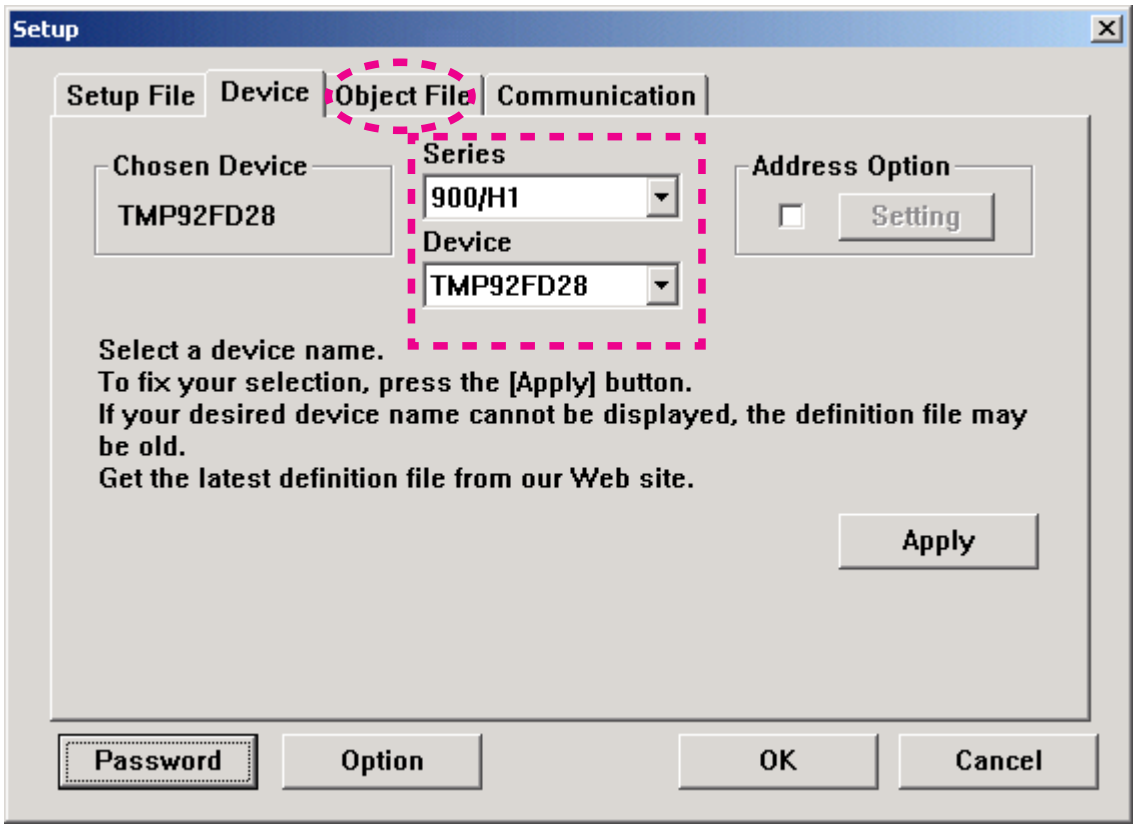


NOTE : Since Flash Programmer communicates with the unit automatically, the above dialog box appears when it fails in communication.

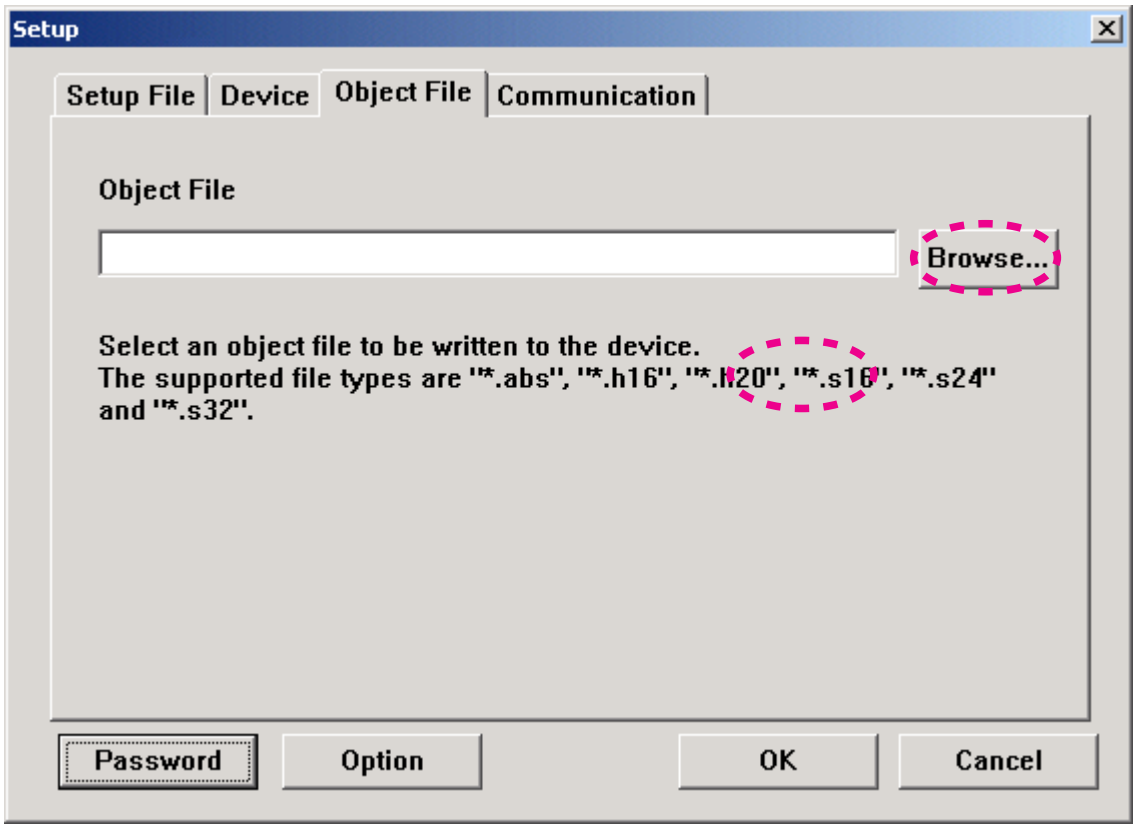
(7) Click the Setup in the menu bar and select the Device.



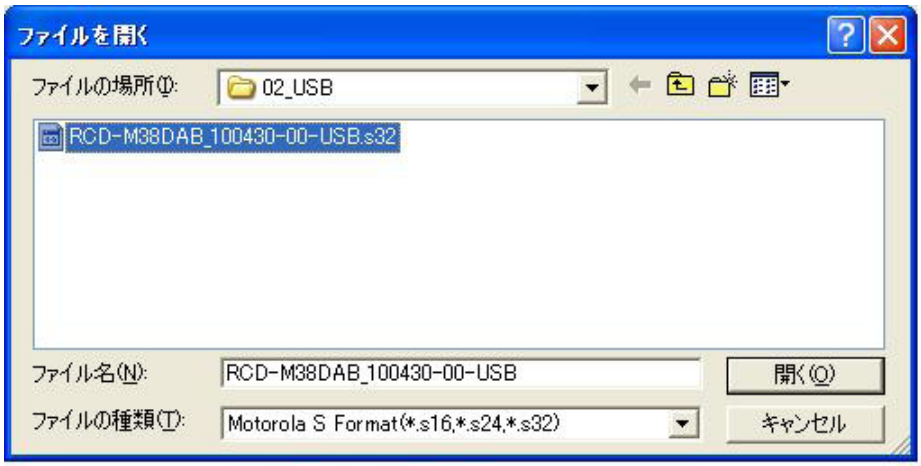
(8) Choose the TMP92FD28 in the Device, and choose the 900/H1 in the Series.
And click Object File tab.



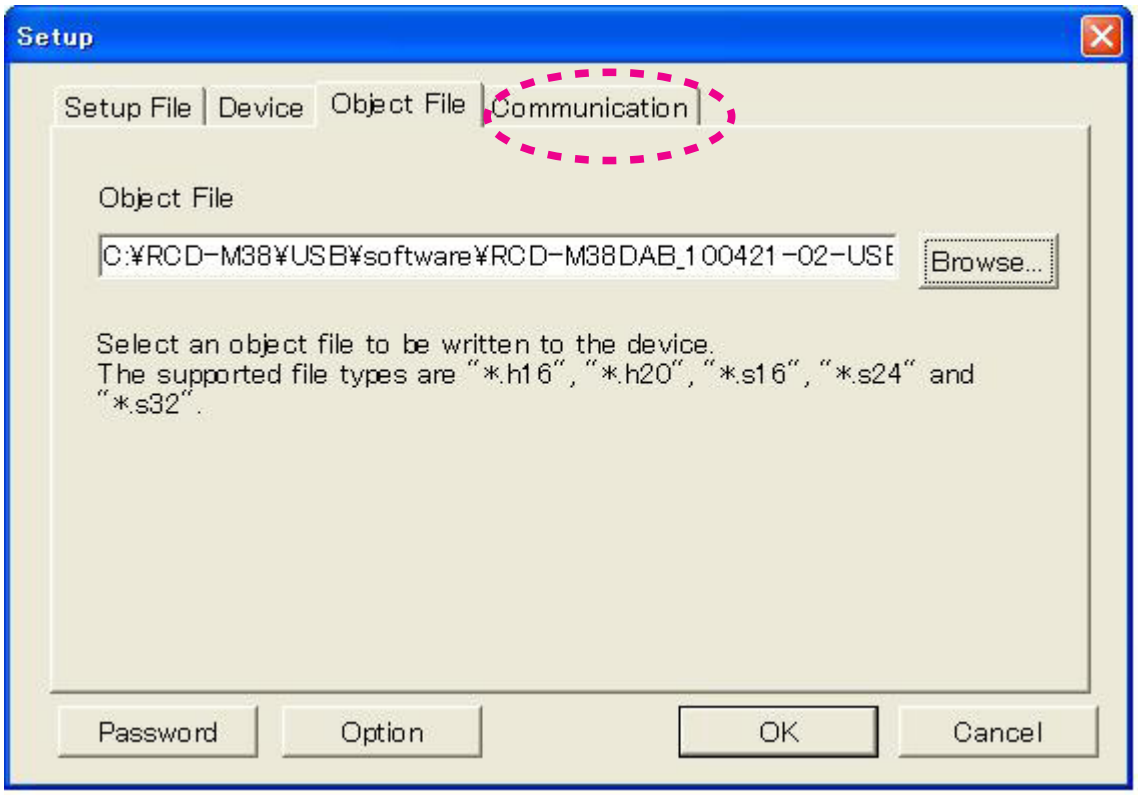
(9) Click Browse.



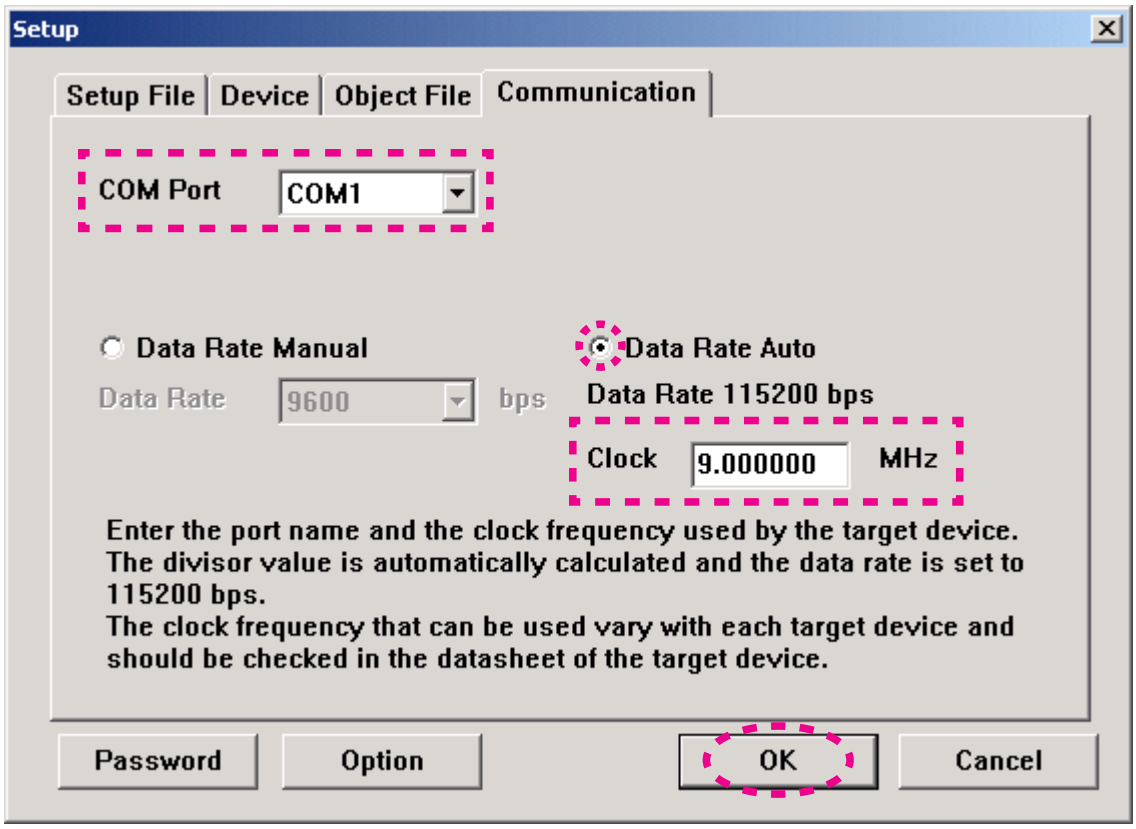
(10) Choose the Motorola S Format(*.s16,*.s24, *.s32) in Files of type.
Choose the RCD-M38DAB_100430-00-USB.s32, and click Open.



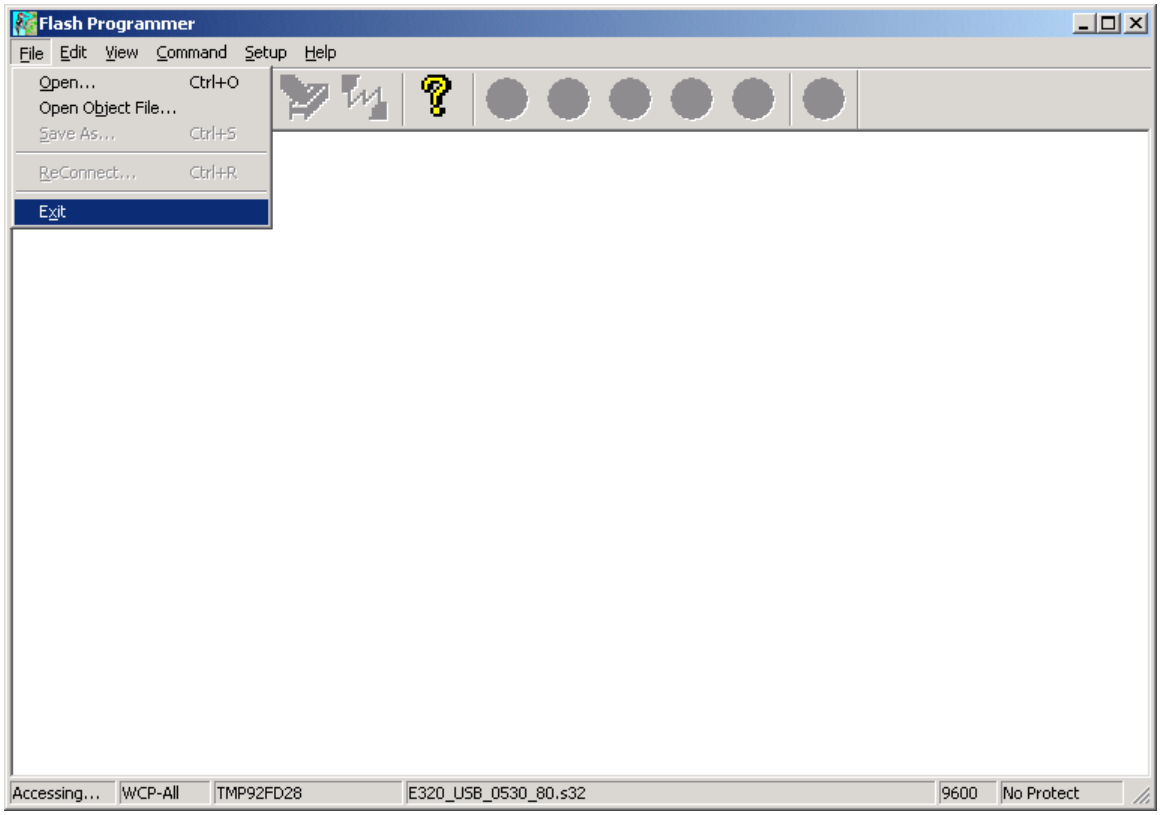
(11) Click Communication tab.



(12) Choose the Serial port number in the COM Port.
Check the Data Rate Auto.
Input the 9.00 in the Clock.
And Click OK.



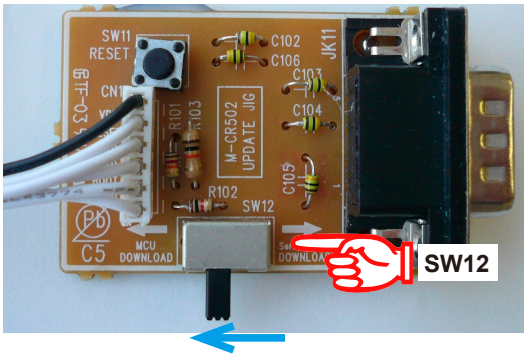
(13) Click the File in the menu bar and select the Exit.

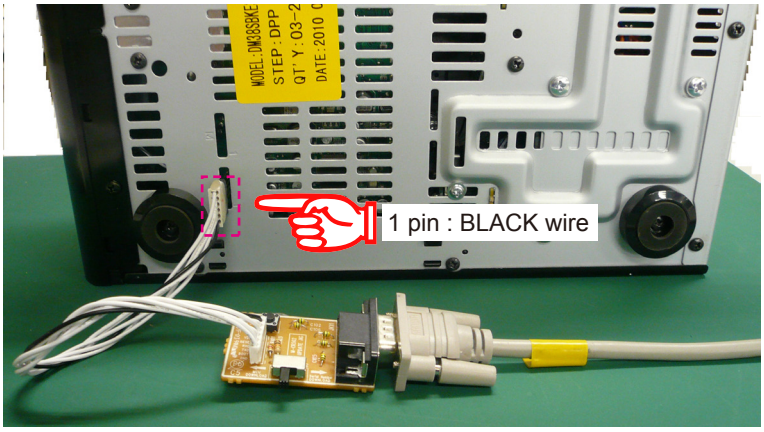


(14) Disconnect the mains cord from the unit.

(15) Connect the RS-232C on the DATA UPDATE KIT and the Serial Port of windows PC with RS-232C cable.
Set the slide switch (SW12) to "MCU DOWNLOAD".

(16) Connect the connective wire (1 pin is lower in a picture) to the bottom chassis of the unit from DATA UPDATE KIT.
Caution : A connector pin has the connection direction.
Refer to the photograph.

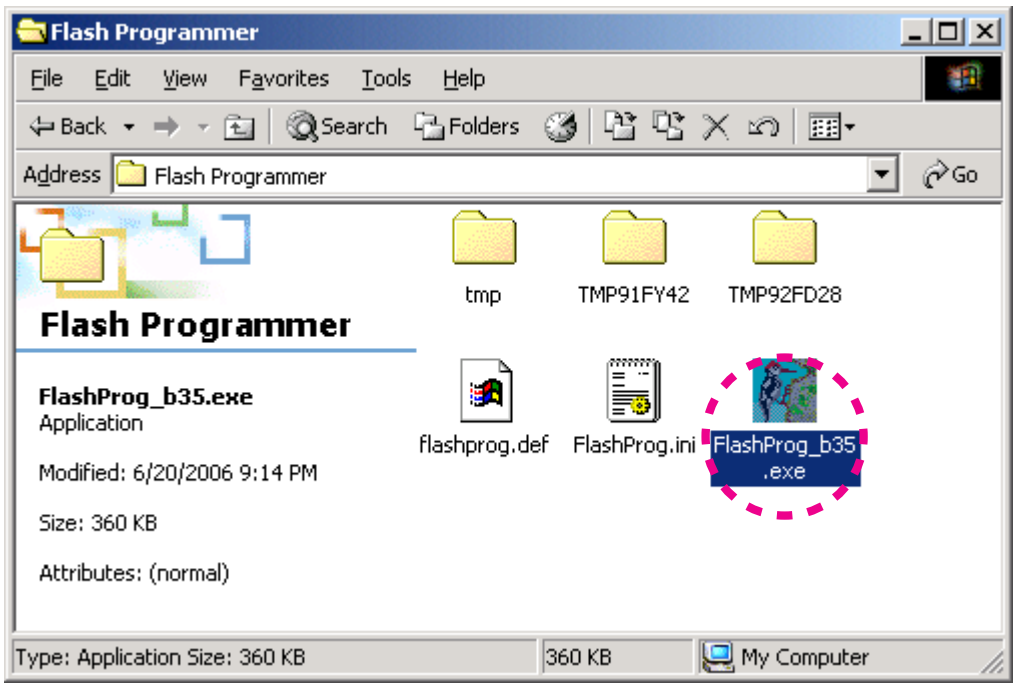




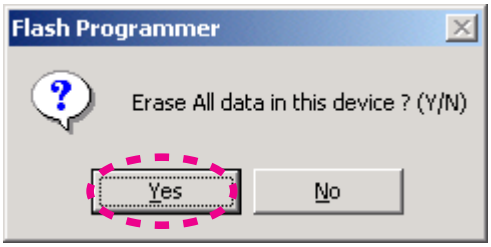
(17) Connect the mains cord into the unit.

(18) Press the ON/STANDBY button to turn on the unit.

(19) Double click FlashProg_b35.exe, and launch the Flash Programmer again.

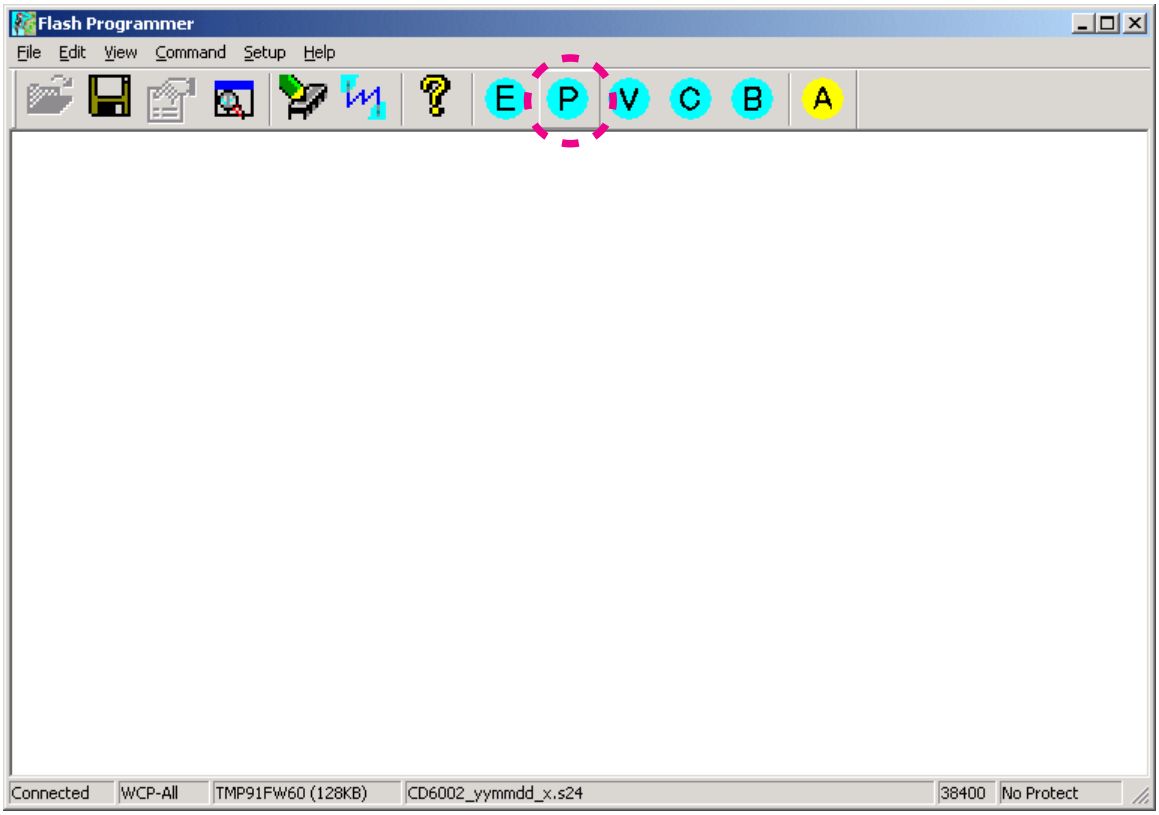


(20) The Flash Programmer communicates automatically.
When communication succeeds between a unit and a program, a dialog box saying "Erase All data in this device? (Y/N)" appears.
Click Yes.

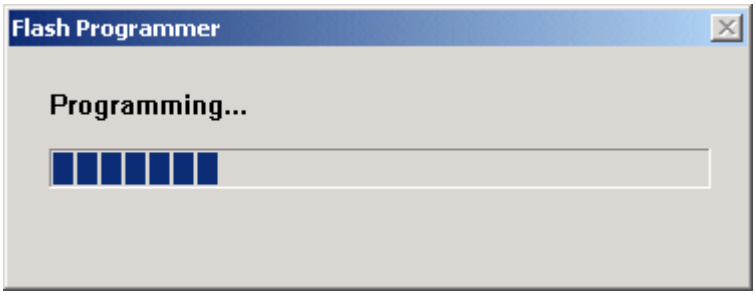


(21) Click OK.

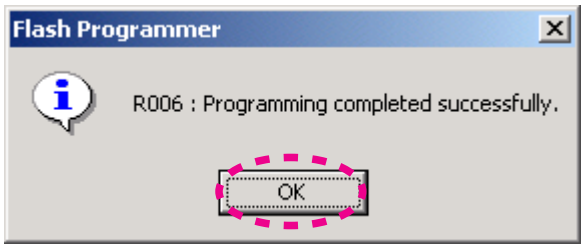
(22) Click P (Program) to start update.



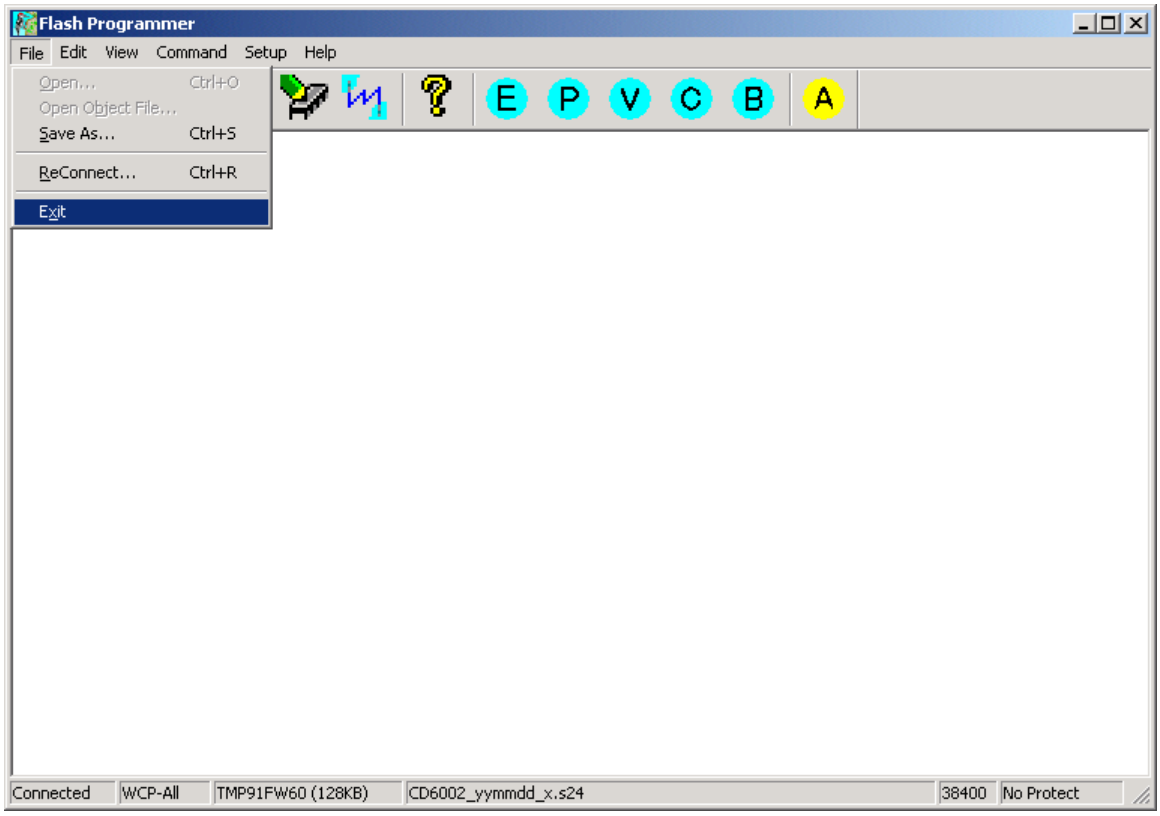
(23) Software is written into the microprocessor.
The writing of software takes about 30 seconds.



(24) If the software is updated successfully, a dialog box saying "R006: Programming completed successfully." appears. Click OK.



(25) Click the File in the menu bar and select the Exit.



(26) OPress the ON/STANDBY button to turn off the unit.

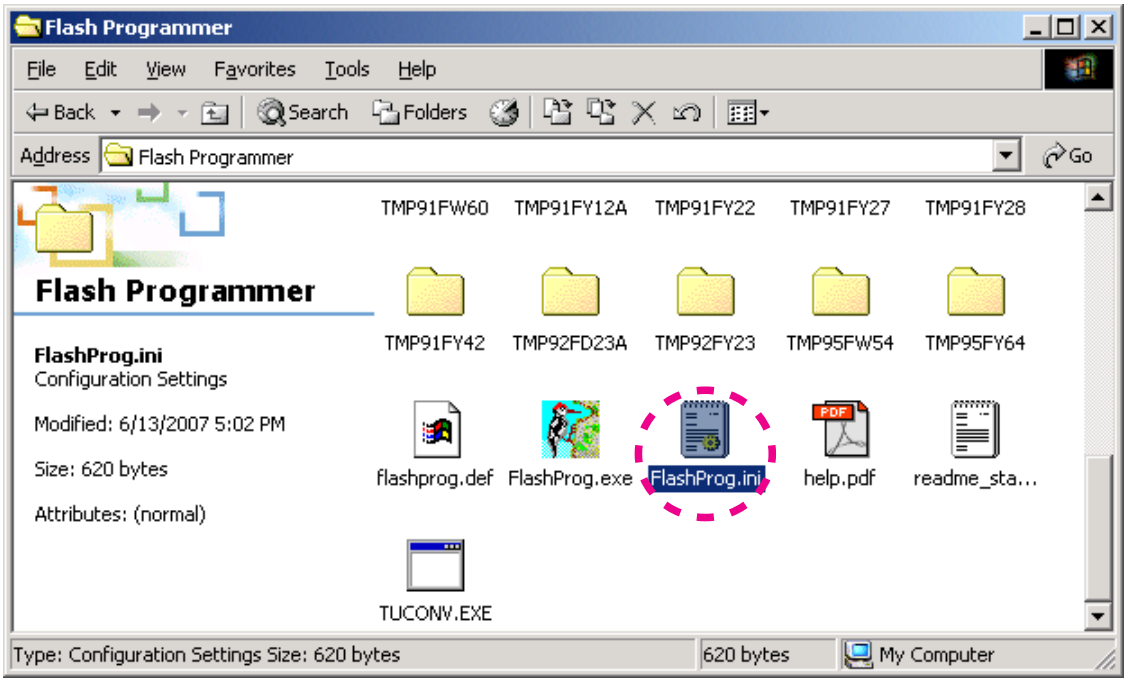
(27) Disconnect the mains cord from the unit, and then disconnect the connective wire of DATA UPDATE KIT from the unit.

(28) UPDATE completion

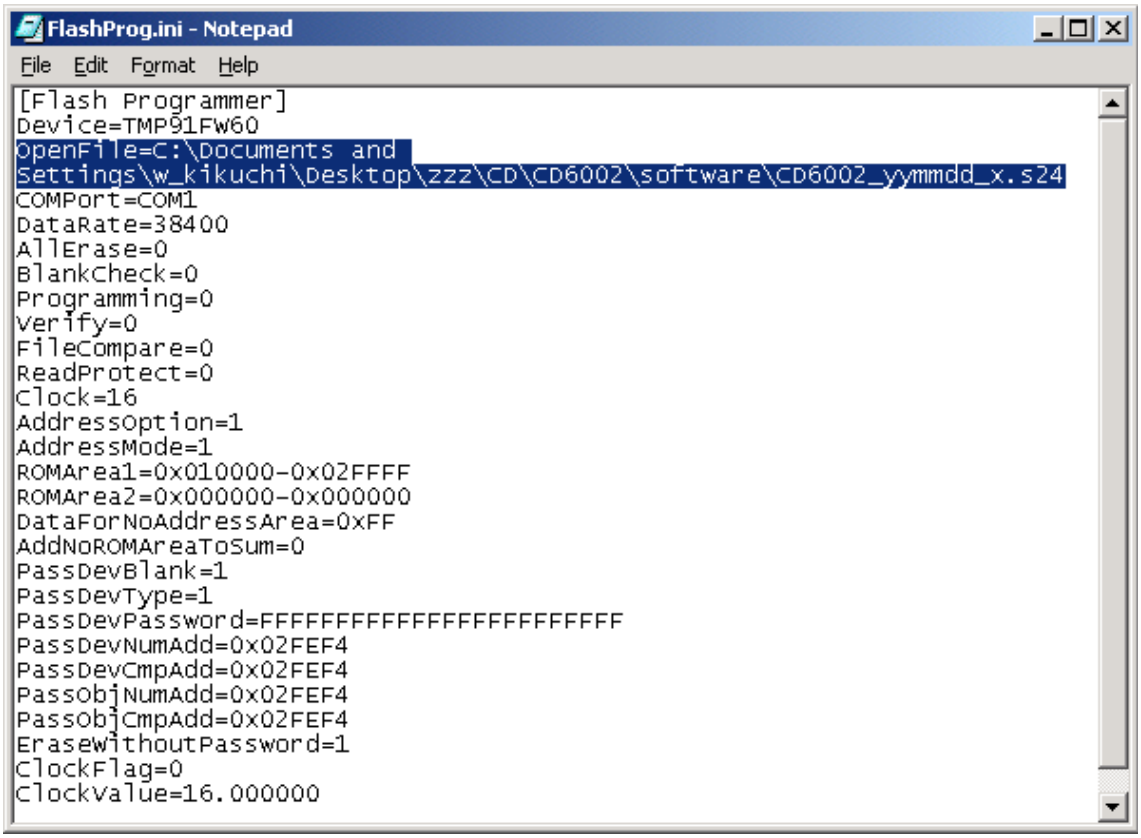
(29) Please check the version in "SERVICE MODE : 1. Version Display Mode". (Refer to 18 page)

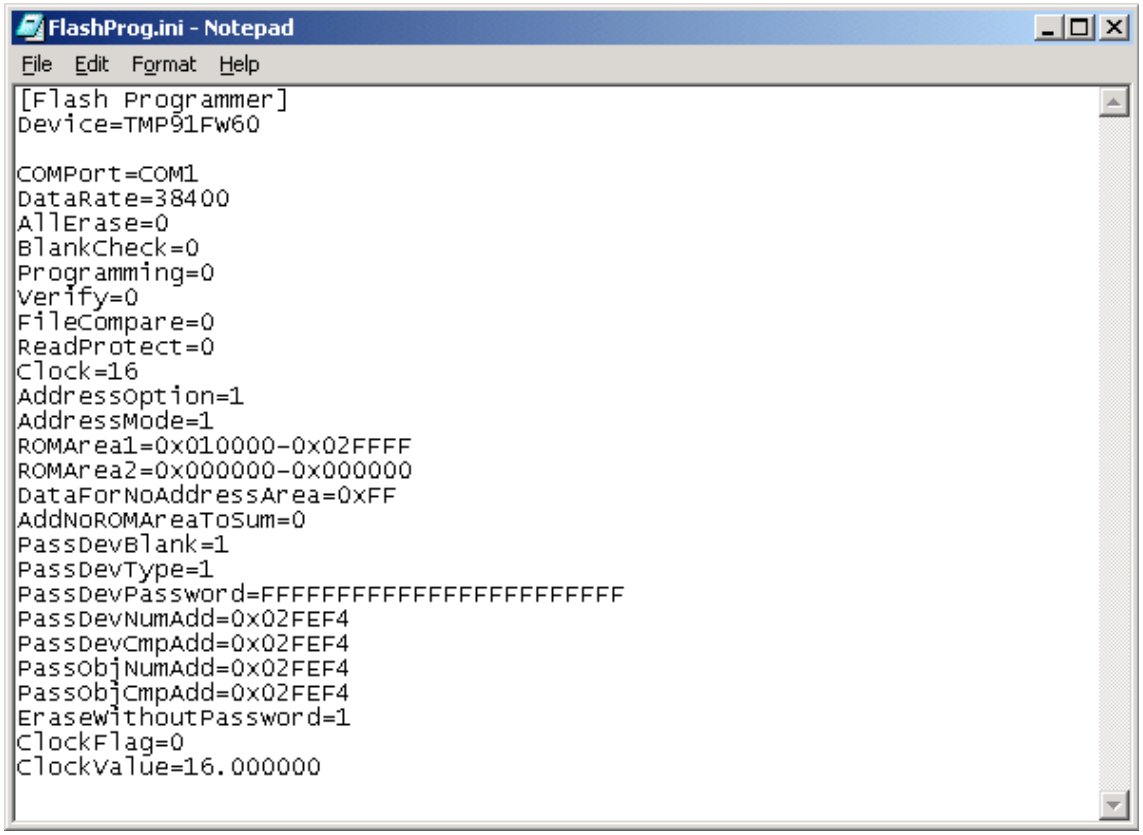
2.3. When a Flash Programmer did not launch

(1) Open the FlashProg.ini in the Flash Programmer folder by text editor. (EX.: Notepad, etc)

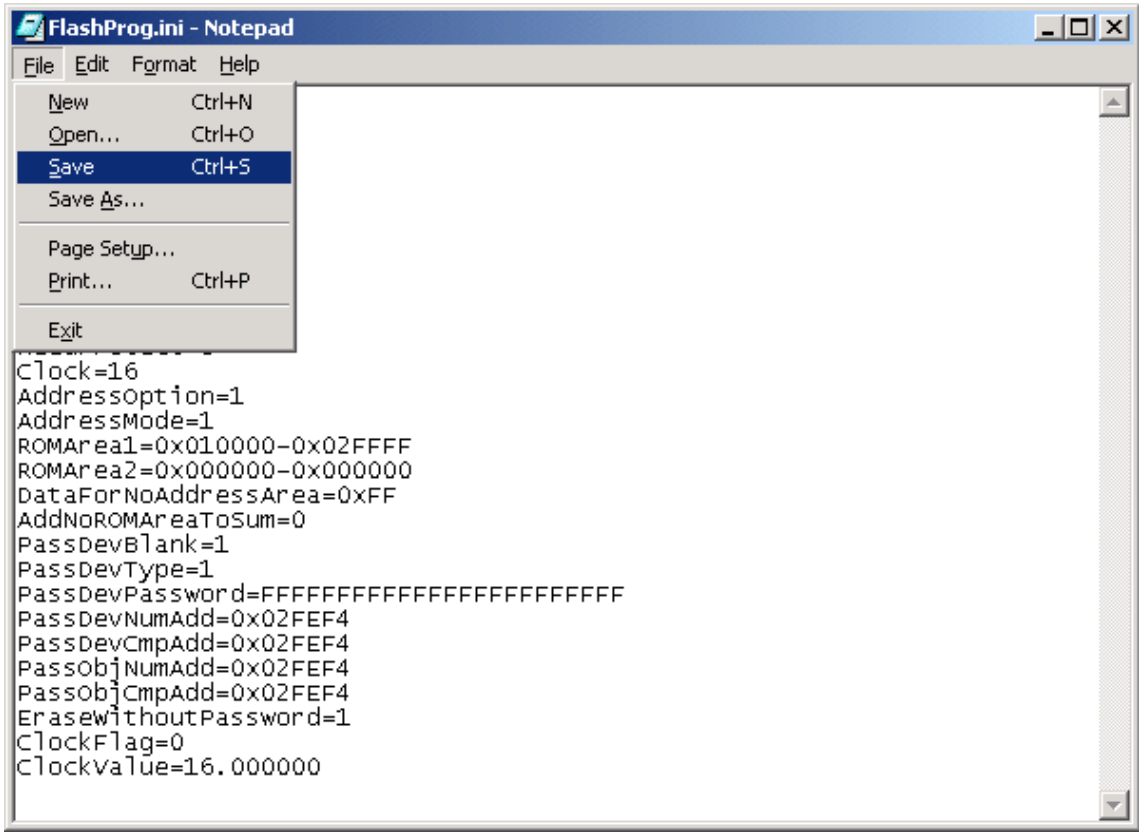


(2) Delete the text "OpenFile=C:\...(your PC setting)...\???.s32".

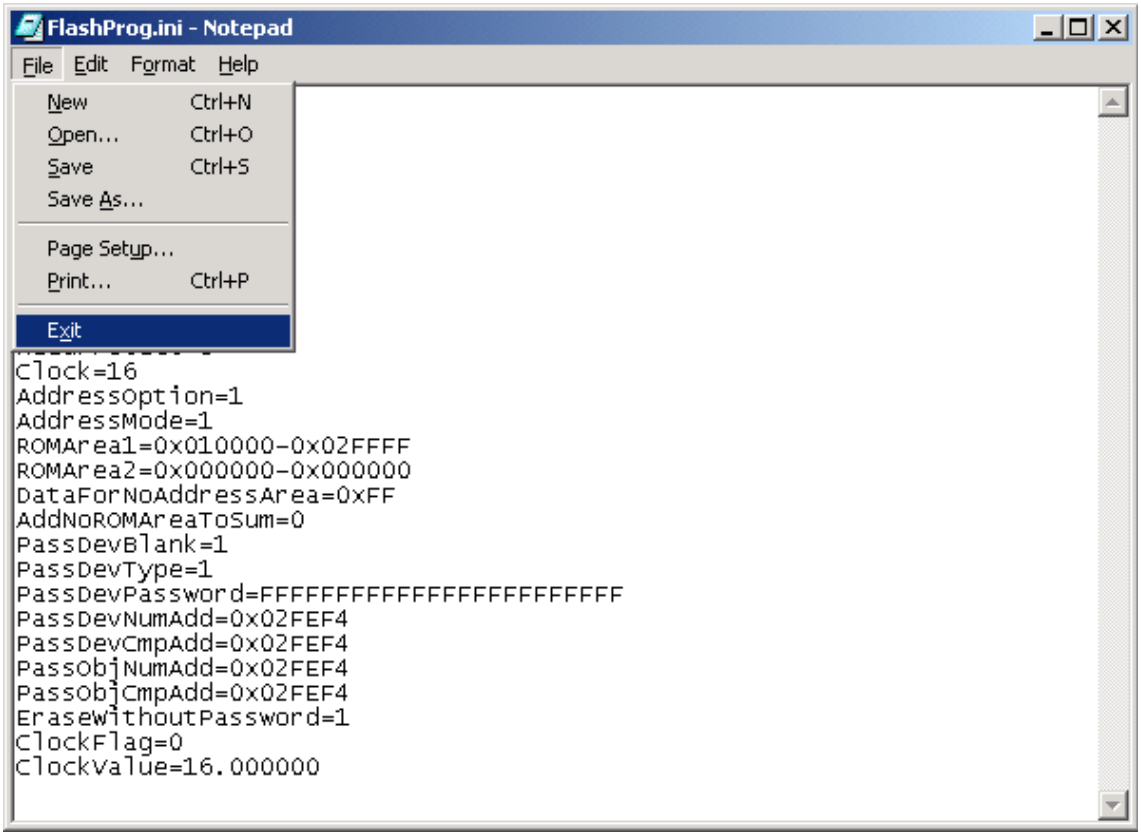




(3) Save the FlashProg.ini.



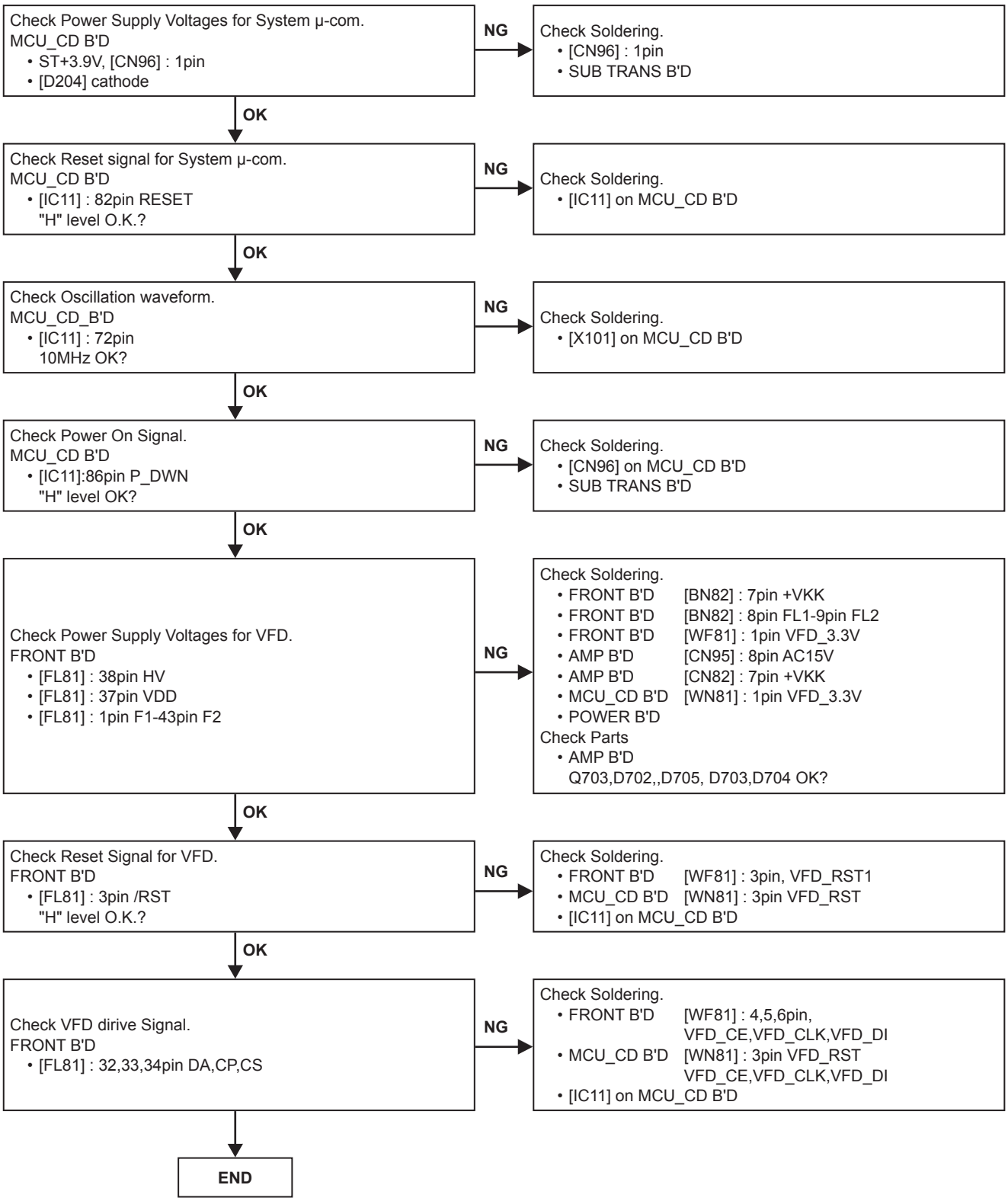
(4) Close the text editor.



(5)Probably you can launch the Flash Programmer. Go to the "Procedure of the UDSB CPU's Update "step 5.

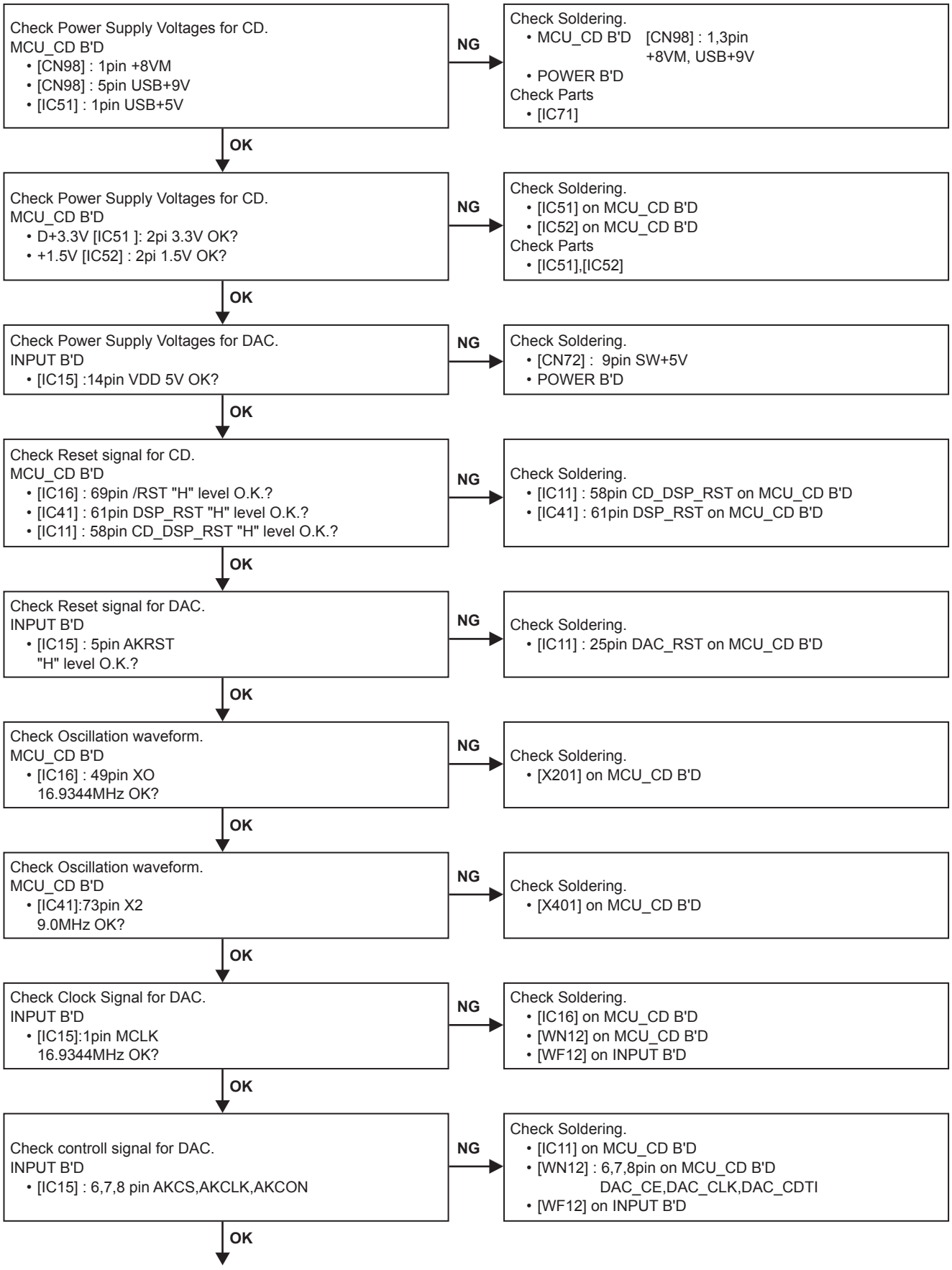
TROUBLE SHOOTING

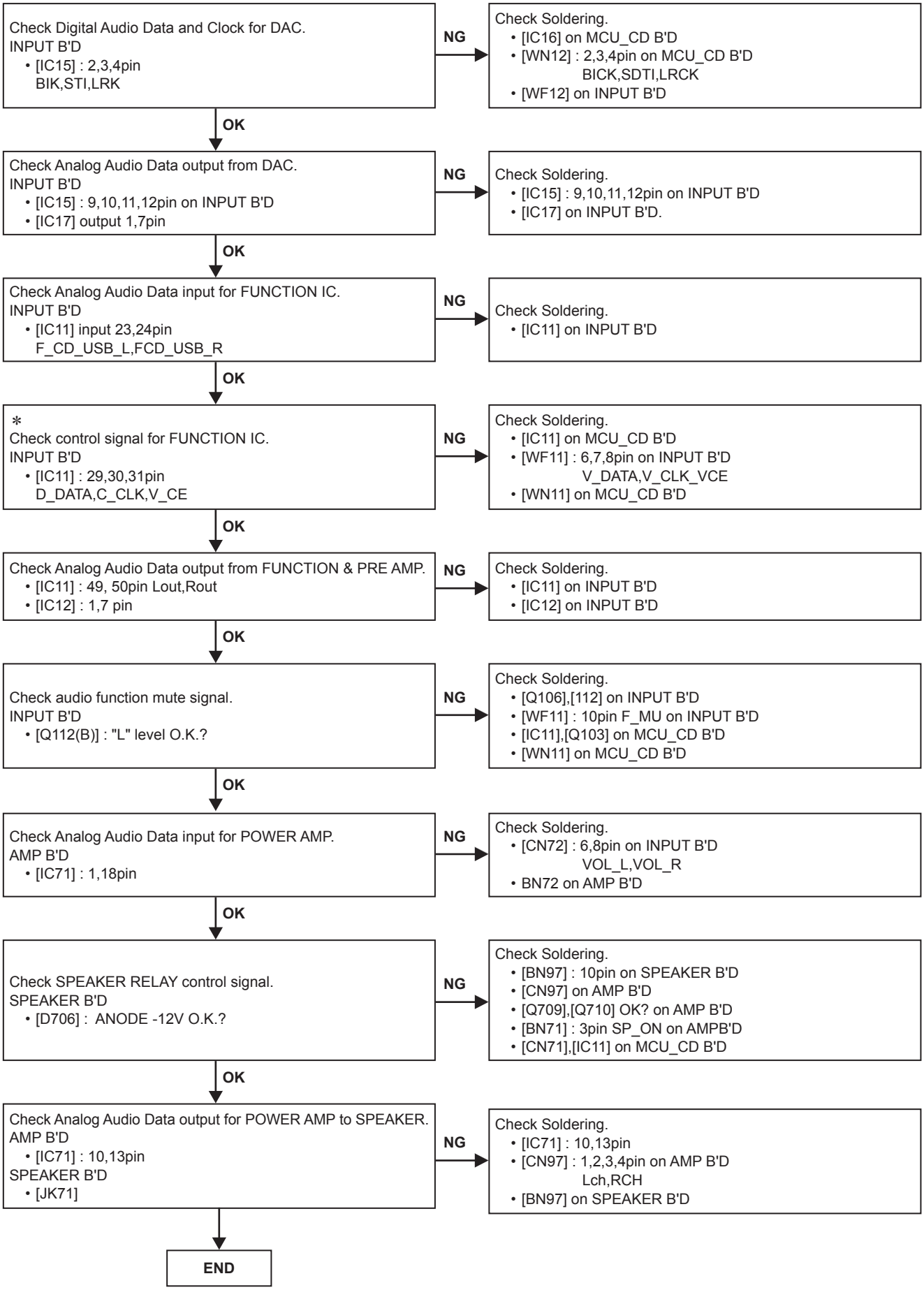
1. VFD dosen't light



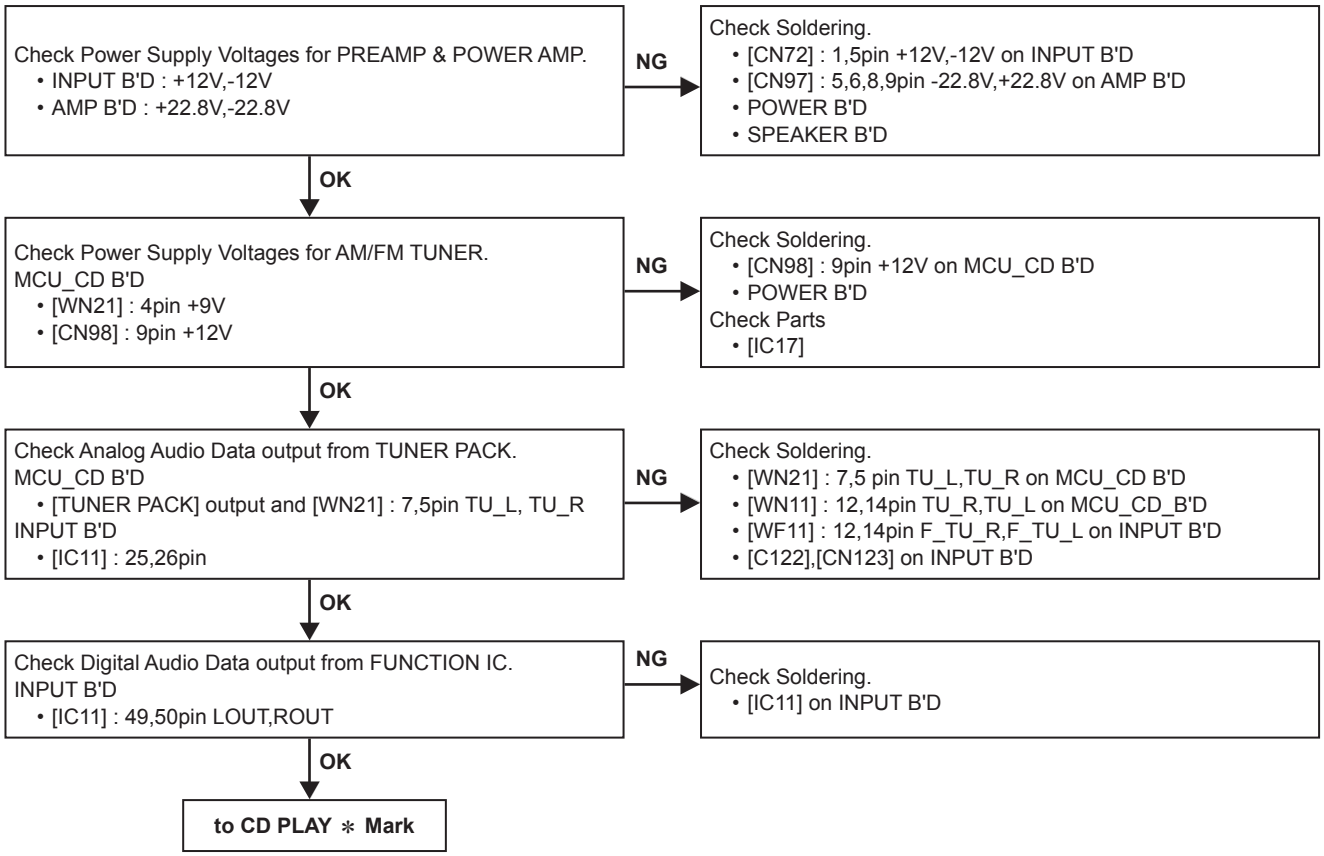
2. No Sound,Noise generated

2.1. CD PLAY

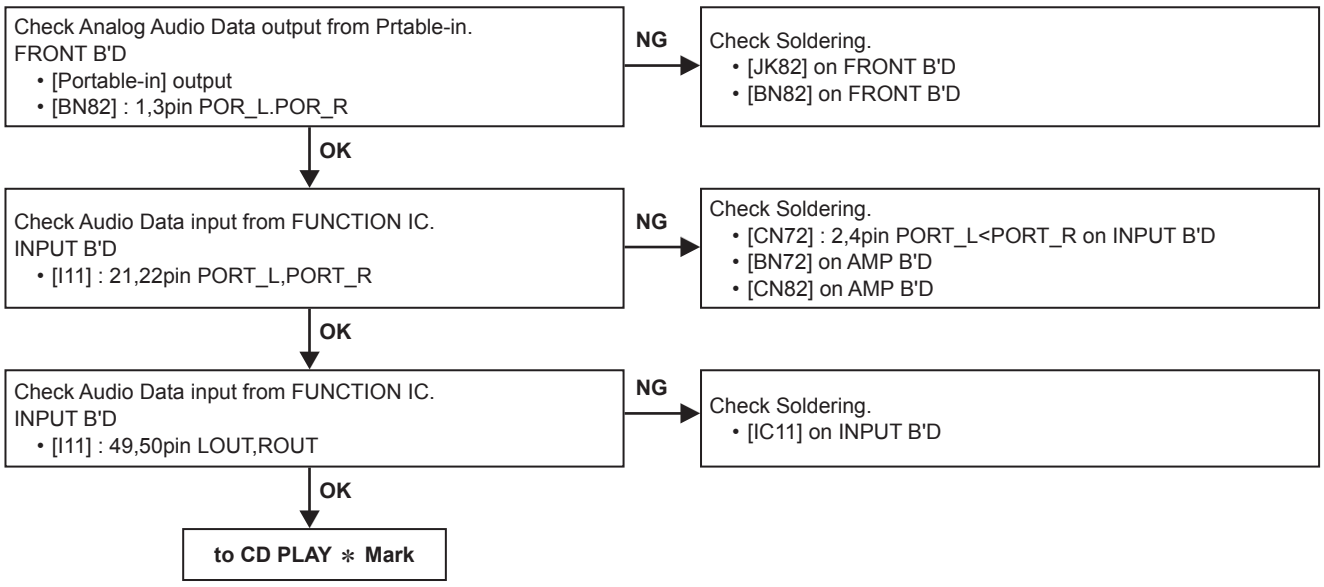



Check Digital Audio Data and Clock for DAC.
INPUT B'D
• [IC15] : 2,3,4pin
BIK,STI,LRK
NG
Check Soldering.
• [IC16] on MCU_CD B'D
• [WN12] : 2,3,4pin on MCU_CD B'D
BICK,SDTI,LRCK
• [WF12] on INPUT B'D
OK
Check Analog Audio Data output from DAC.
INPUT B'D
• [IC15] : 9,10,11,12pin on INPUT B'D
• [IC17] output 1,7pin
NG
Check Soldering.
• [IC15] : 9,10,11,12pin on INPUT B'D
• [IC17] on INPUT B'D.
OK
Check Analog Audio Data input for FUNCTION IC.
INPUT B'D
• [IC11] input 23,24pin
F_CD_USB_L,FCD_USB_R
NG
Check Soldering.
• [IC11] on INPUT B'D
OK
*
Check control signal for FUNCTION IC.
INPUT B'D
• [IC11] : 29,30,31pin
D_DATA,C_CLK,V_CE
NG
Check Soldering.
• [IC11] on MCU_CD B'D
• [WF11] : 6,7,8pin on INPUT B'D
V_DATA,V_CLK_VCE
• [WN11] on MCU_CD B'D
OK
Check Analog Audio Data output from FUNCTION & PRE AMP.
• [IC11] : 49, 50pin Lout,Rout
• [IC12] : 1,7 pin
NG
Check Soldering.
• [IC11] on INPUT B'D
• [IC12] on INPUT B'D
OK
Check audio function mute signal.
INPUT B'D
• [Q112(B)] : "L" level O.K.?
NG
Check Soldering.
• [Q106],[112] on INPUT B'D
• [WF11] : 10pin F_MU on INPUT B'D
• [IC11],[Q103] on MCU_CD B'D
• [WN11] on MCU_CD B'D
OK
Check Analog Audio Data input for POWER AMP.
AMP B'D
• [IC71] : 1,18pin
NG
Check Soldering.
• [CN72] : 6,8pin on INPUT B'D
VOL_L,VOL_R
• BN72 on AMP B'D
OK
Check SPEAKER RELAY control signal.
SPEAKER B'D
• [D706] : ANODE -12V O.K.?
NG
Check Soldering.
• [BN97] : 10pin on SPEAKER B'D
• [CN97] on AMP B'D
• [Q709],[Q710] OK? on AMP B'D
• [BN71] : 3pin SP_ON on AMPB'D
• [CN71],[IC11] on MCU_CD B'D
OK
Check Analog Audio Data output for POWER AMP to SPEAKER.
AMP B'D
• [IC71] : 10,13pin
SPEAKER B'D
• [JK71]
NG
Check Soldering.
• [IC71] : 10,13pin
• [CN97] : 1,2,3,4pin on AMP B'D
Lch,RCH
• [BN97] on SPEAKER B'D
END

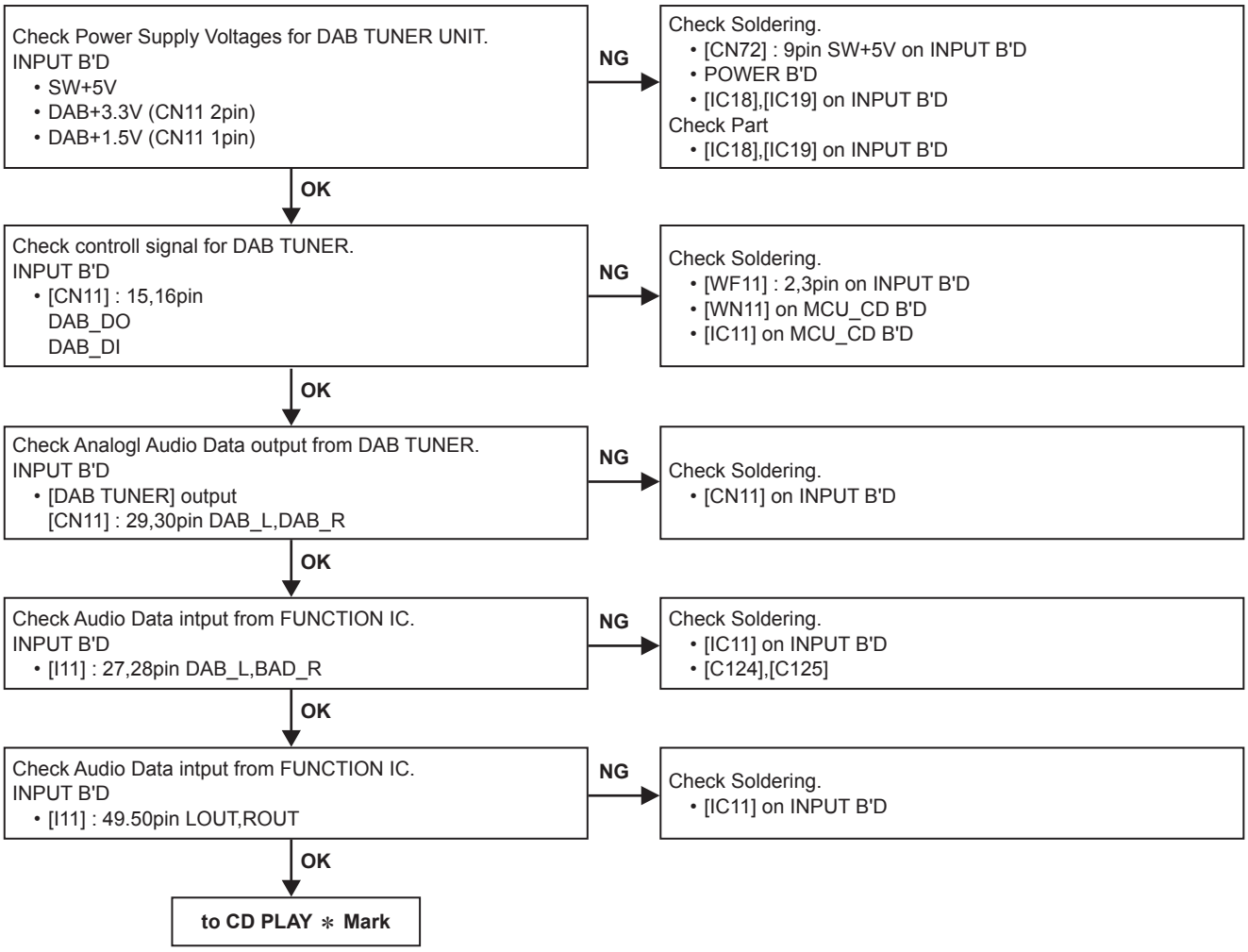
2.2. AM/FM TUNER-in



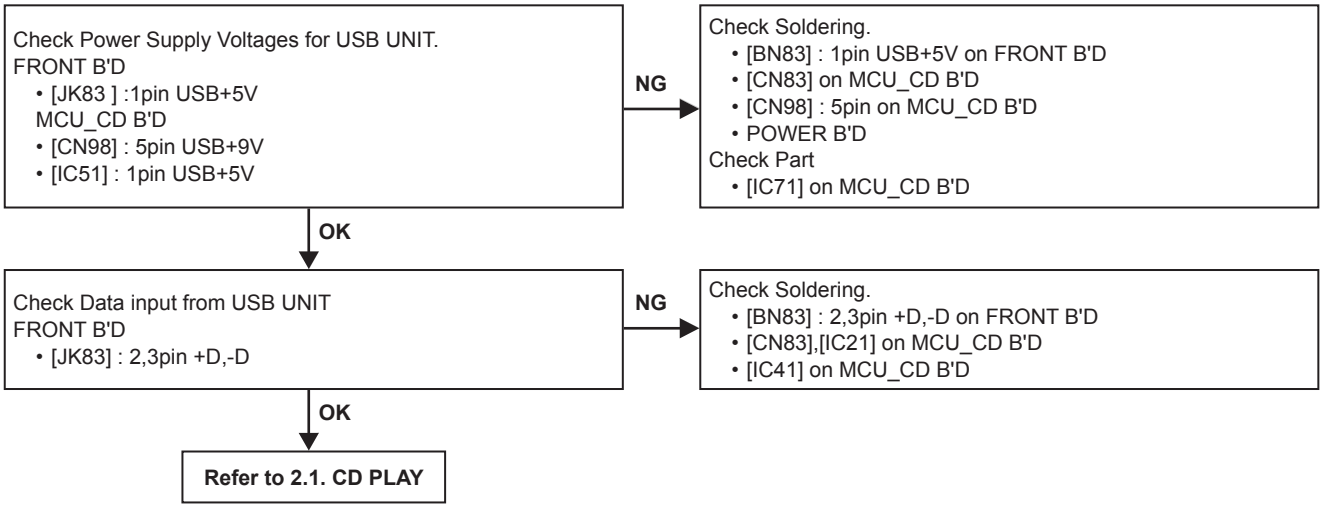
2.3. Portable-in(Front-in)



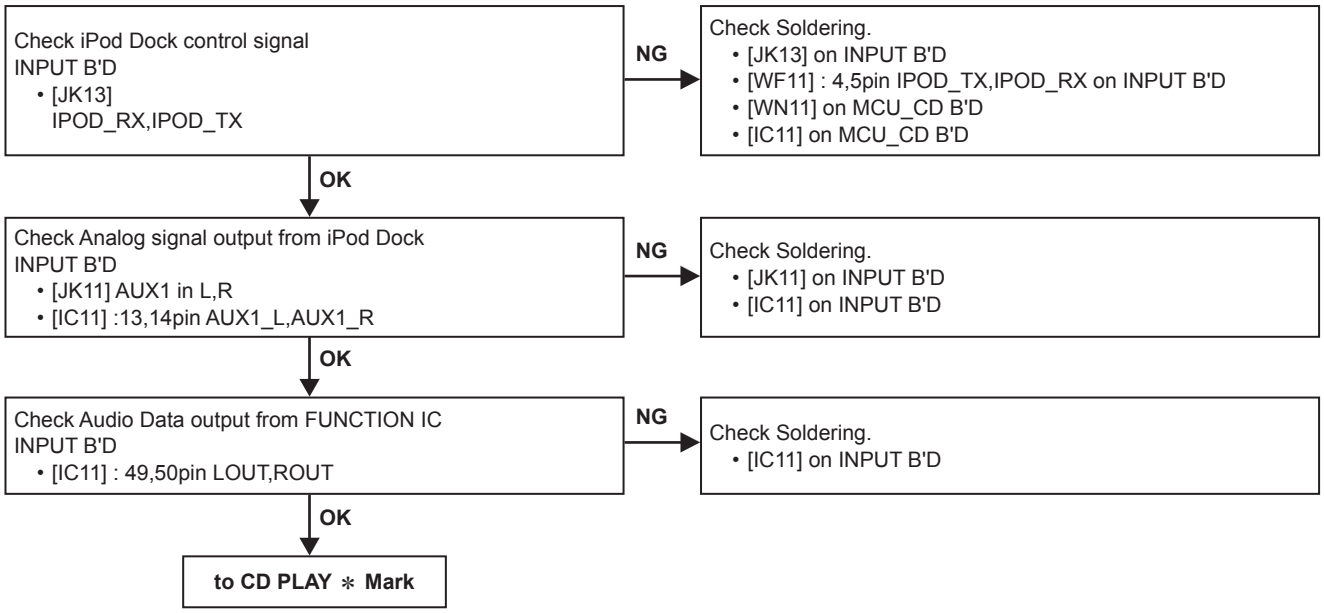
2.4. DAB TUNER-in (EK model)



2.5. USB PLAY



2.6. iPod PLAY


Check iPod Dock control signal
INPUT B'D
• [JK13]
IPOD_RX,IPOD_TX
NG
Check Soldering.
• [JK13] on INPUT B'D
• [WF11] : 4,5pin IPOD_TX,IPOD_RX on INPUT B'D
• [WN11] on MCU_CD B'D
• [IC11] on MCU_CD B'D
OK
Check Analog signal output from iPod Dock
INPUT B'D
• [JK11] AUX1 in L,R
• [IC11] :13,14pin AUX1_L,AUX1_R
NG
Check Soldering.
• [JK11] on INPUT B'D
• [IC11] on INPUT B'D
OK
Check Audio Data output from FUNCTION IC
INPUT B'D
• [IC11] : 49,50pin LOUT,ROUT
NG
Check Soldering.
• [IC11] on INPUT B'D
OK
to CD PLAY ∗ Mark

MEASURING METHOD AND WAVEFORMS

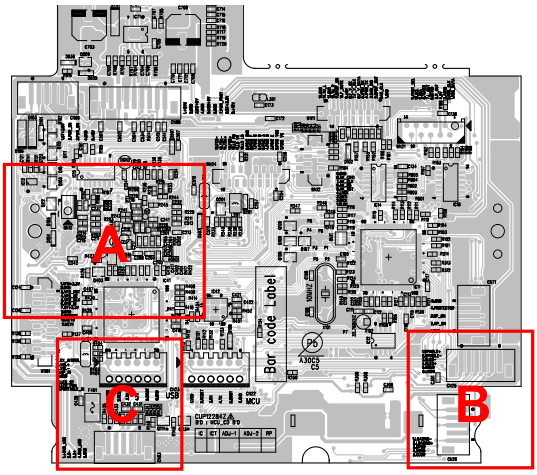
To check the waveforms, the GND (-) probe of the oscilloscope to specified reference voltage.
(Except for Inner SW, TRVSW)

NOTES

Measuring Disc: CD/TCD-784
CD-R/TCD-R082W
CD-RW/TCD-W082W

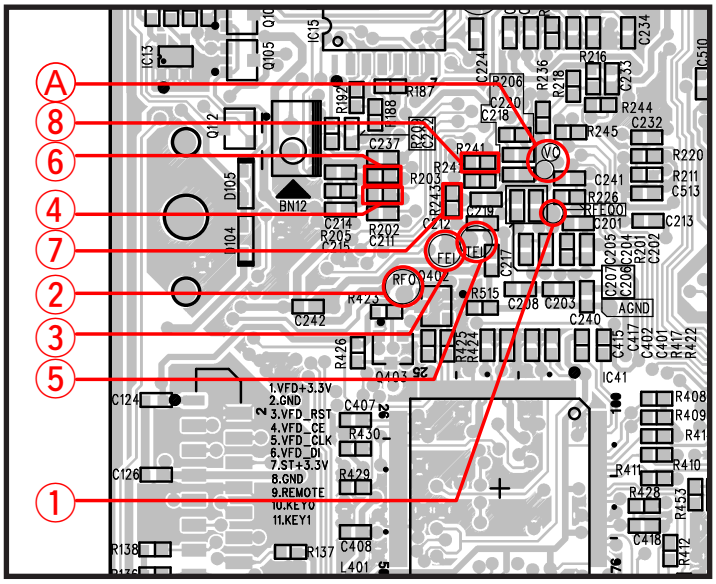
(It is better to use wires for extending between the probe and test points.)
- When watching the HF waveform, use the extending wire as short as possible.
- When HF waveform is noisy or cannot discriminate the eye-pattern, replace the Traverse Unit after measuring the lop.
- Point ① ～ ⑰ is measured with the point shown below.

1. MCU CD PCB : TEST POINT

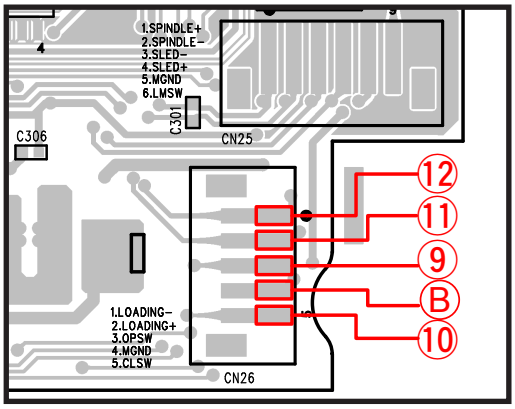


Component side

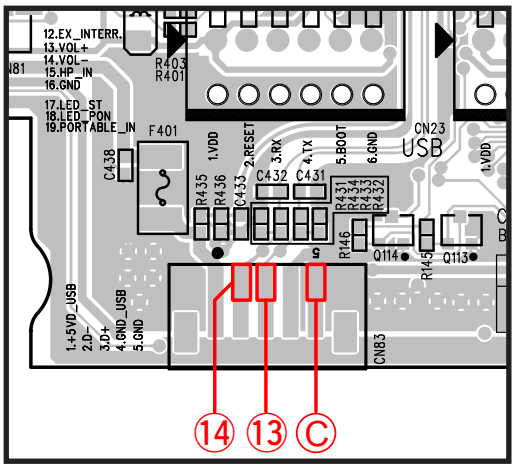
Detail A



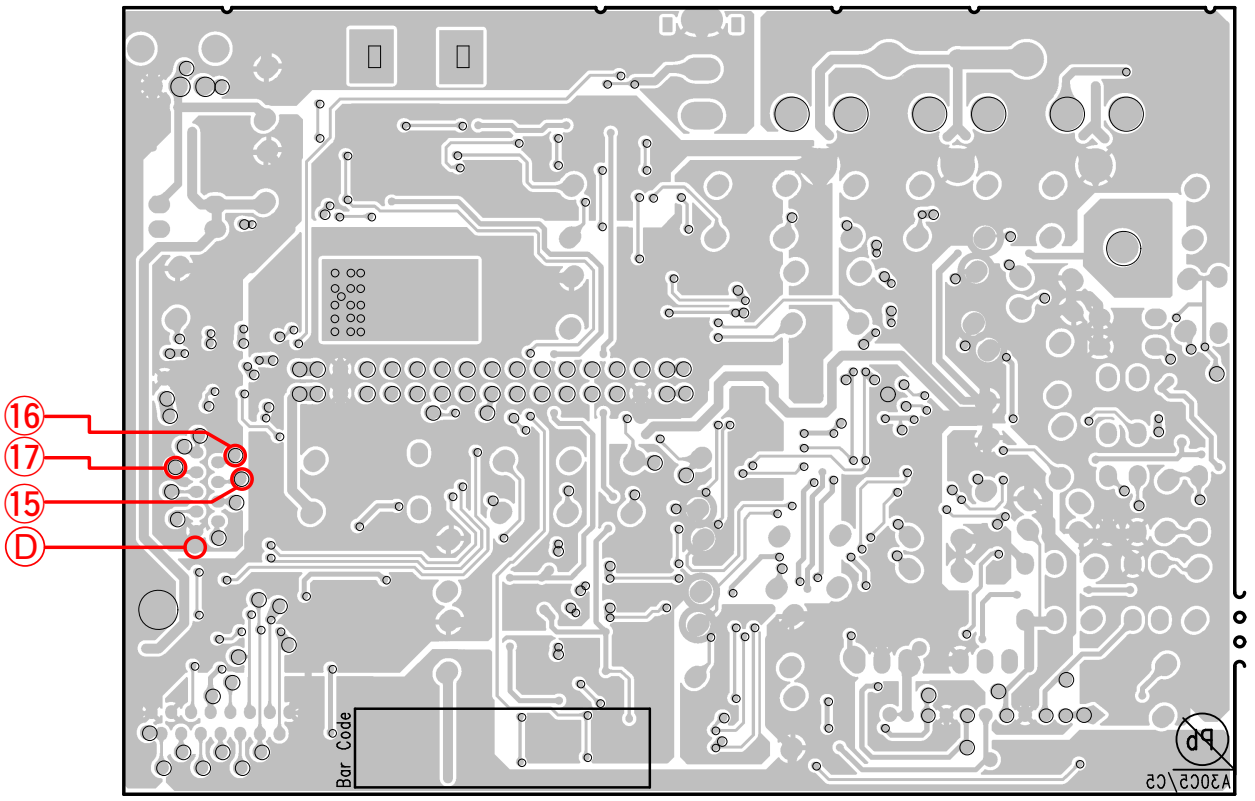
Detail B



Detail C



2. INPUT PCB : TEST POINT



Foil side

No.	Symbol	
①	TP	RFEQO
②	TP	RFO
③	TP	FEI
④	R202(0Ω)	FOO
⑤	TP	TEI
⑥	R203(0Ω)	TRO
⑦	R243(0Ω)	FMO
⑧	R241(0Ω)	DMO
⑨	CN26(3)	OPSW
⑩	CN26(5)	CLSW
⑪	CN26(2)	LOAD+
⑫	CN26(1)	LOAD-
⑬	CN83(3)	D+
⑭	CN83(2)	D-
⑮	WF12(4)	LRCK
⑯	WF12(2)	BICK
⑰	WF12(3)	SDTI

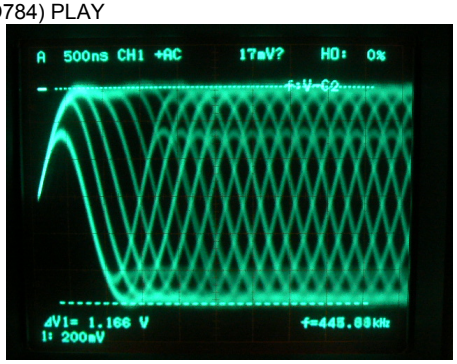
No.	Symbol	Reference voltage
Ⓐ	TP	VC : ① ~ ⑧
Ⓑ	CN26(4)	MGND : ⑨ ~ ⑫
Ⓒ	CN83(5)	DGND : ⑬, ⑭
Ⓓ	WF12(9)	DGND : ⑮ ~ ⑰

3. WAVEFORMS

1. DISC PLAY RF WAVEFORM (EYE-PATTERN)

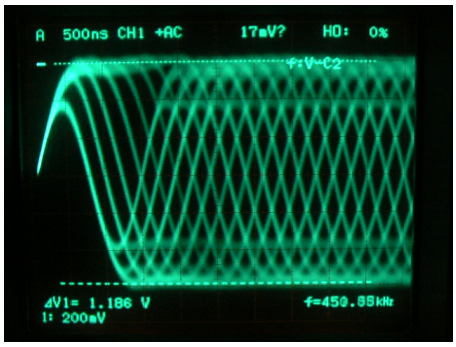
1.1 CD(TCD784) PLAY

①RFEQO



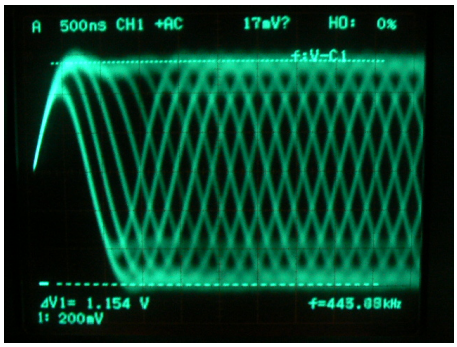
1.2 CD-R (TCDR082W) PLAY

①RFEQO



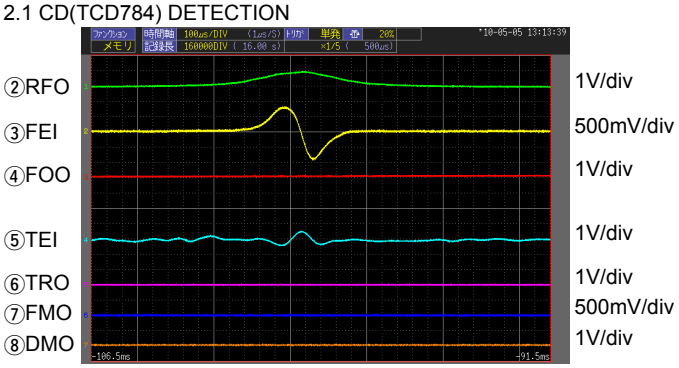
1.3 CD-RW (TCDW082W) PLAY

①RFEQO

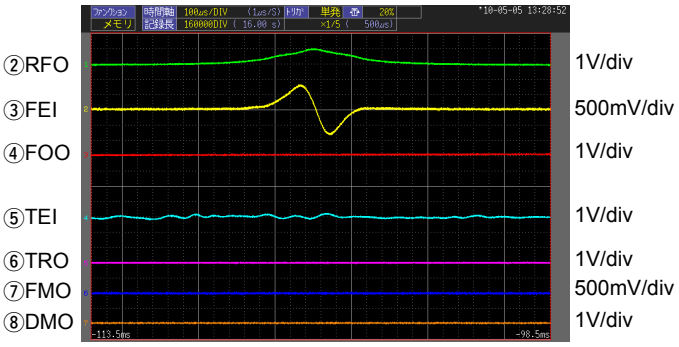


2. DISC DETECTION

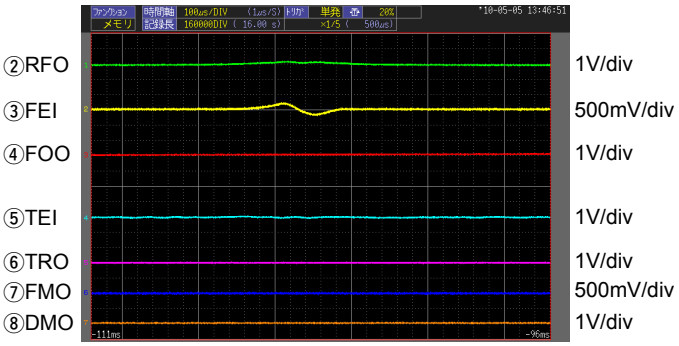
2.1 CD(TCD784) DETECTION



2.2 CD-R (TCDR082W) DETECTION

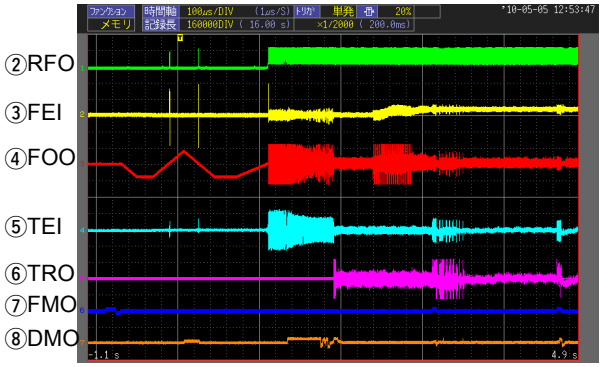


2.3 CD-RW (TCDW082W) DETECTION

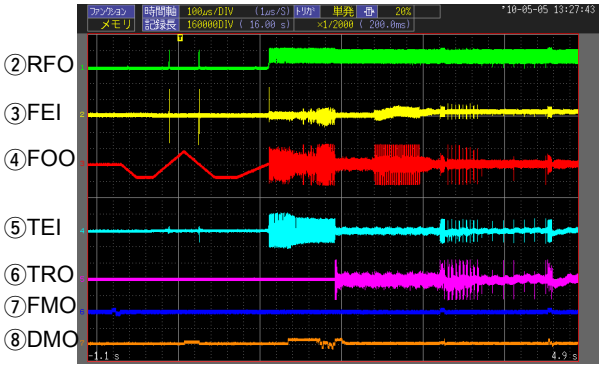


3. TOC READ

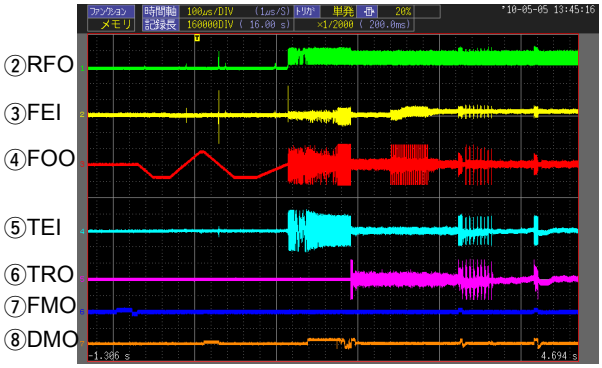
3.1 CD(TCD784) READ



3.2 CD-R (TCDR082W) READ

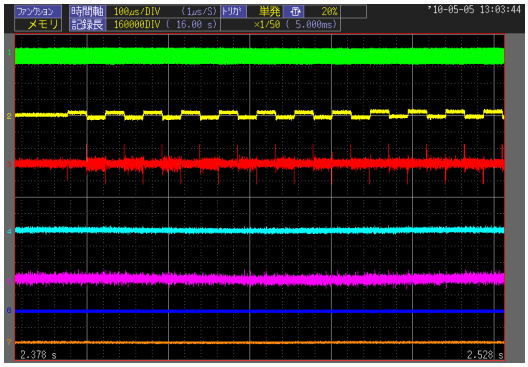


3.3 CD-RW (TCDW082W) READ

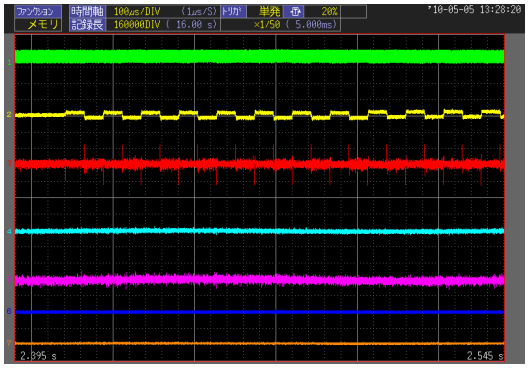


4. FOCUS ADJUSTMENT

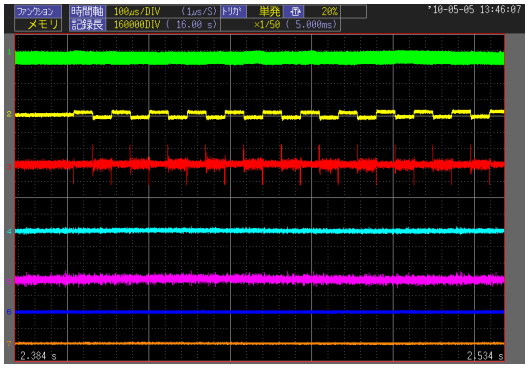
4.1 CD(TCD784) FOCUS ADJUSTMENT



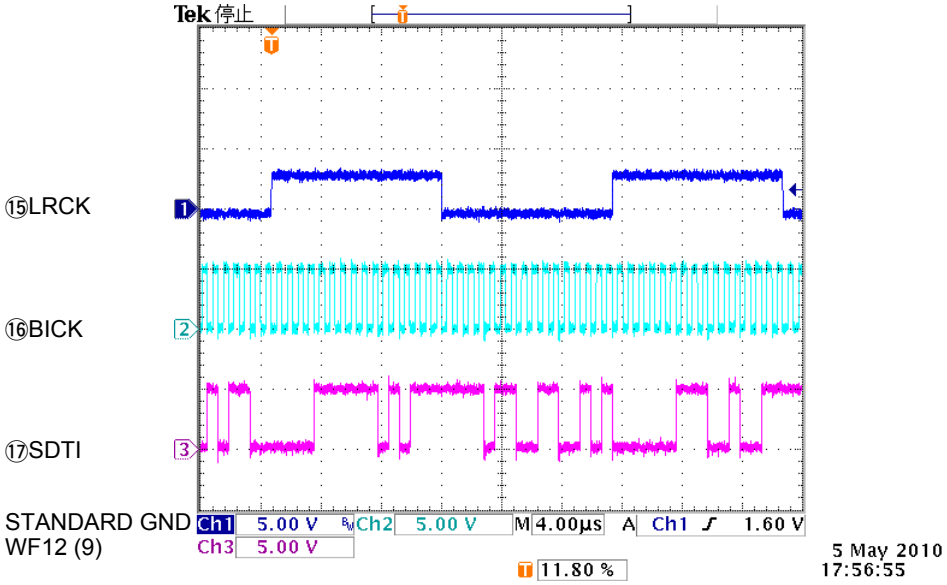
4.2 CD-R (TCDR082W) FOCUS ADJUSTMENT



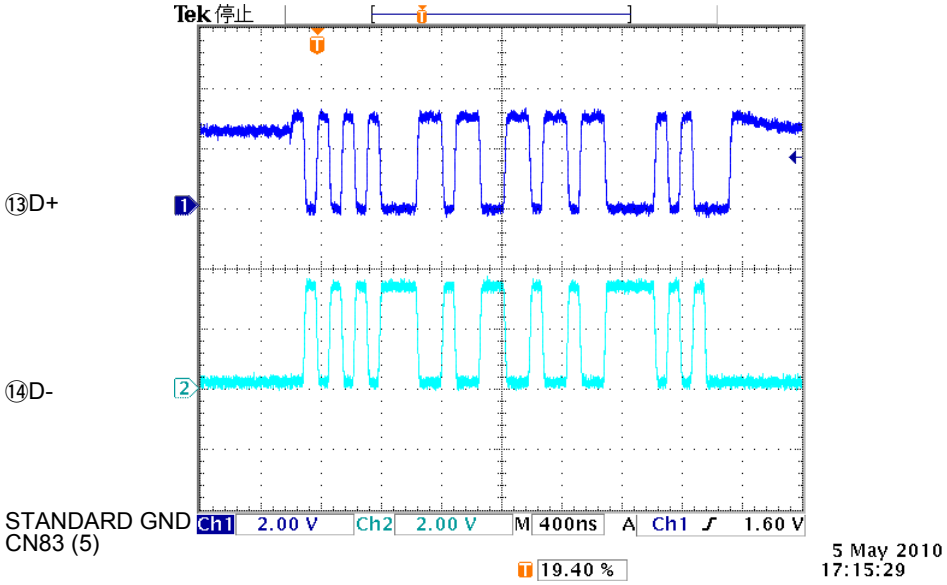
4.3 CD-RW (TCDW082W) FOCUS ADJUSTMENT



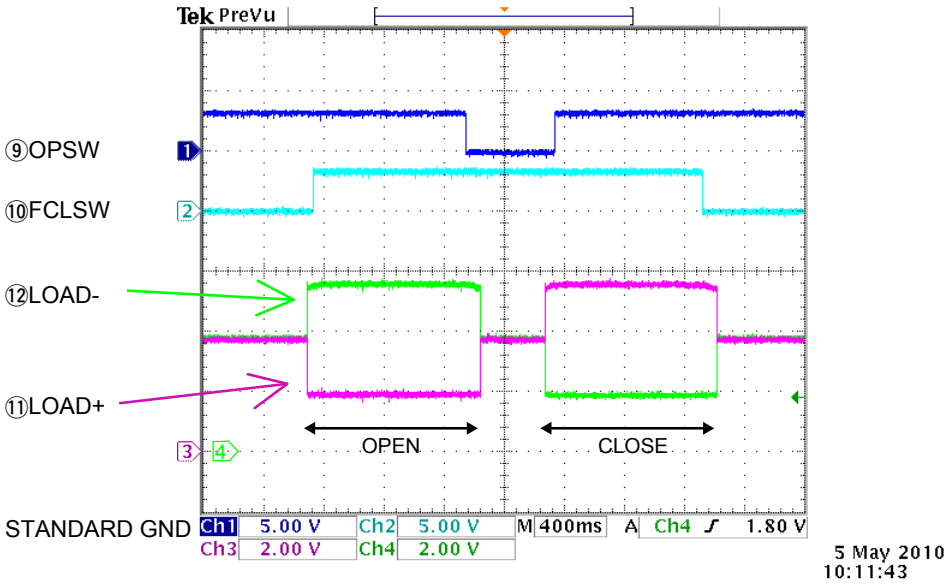
5. CD Playback



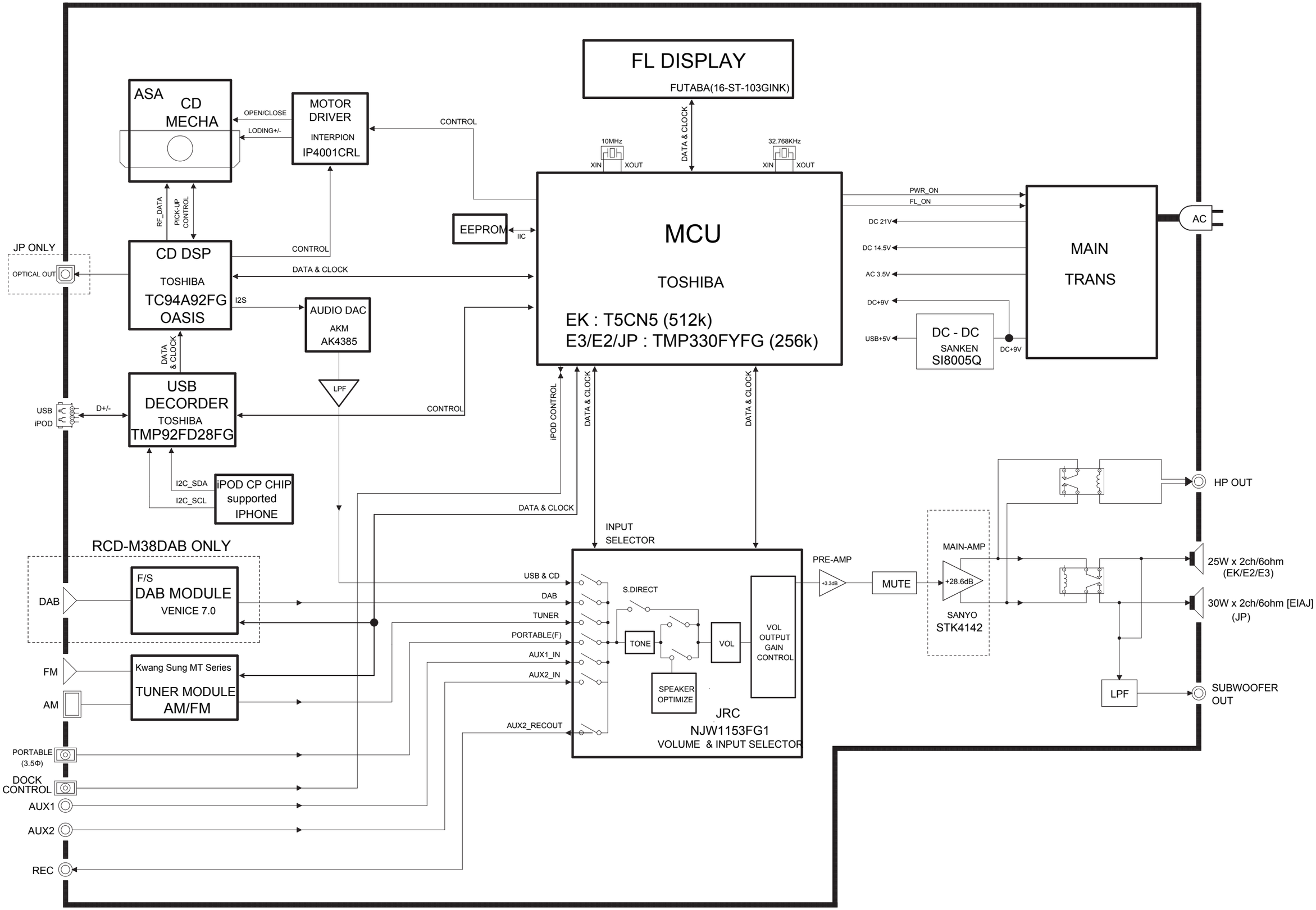
6. USB playback



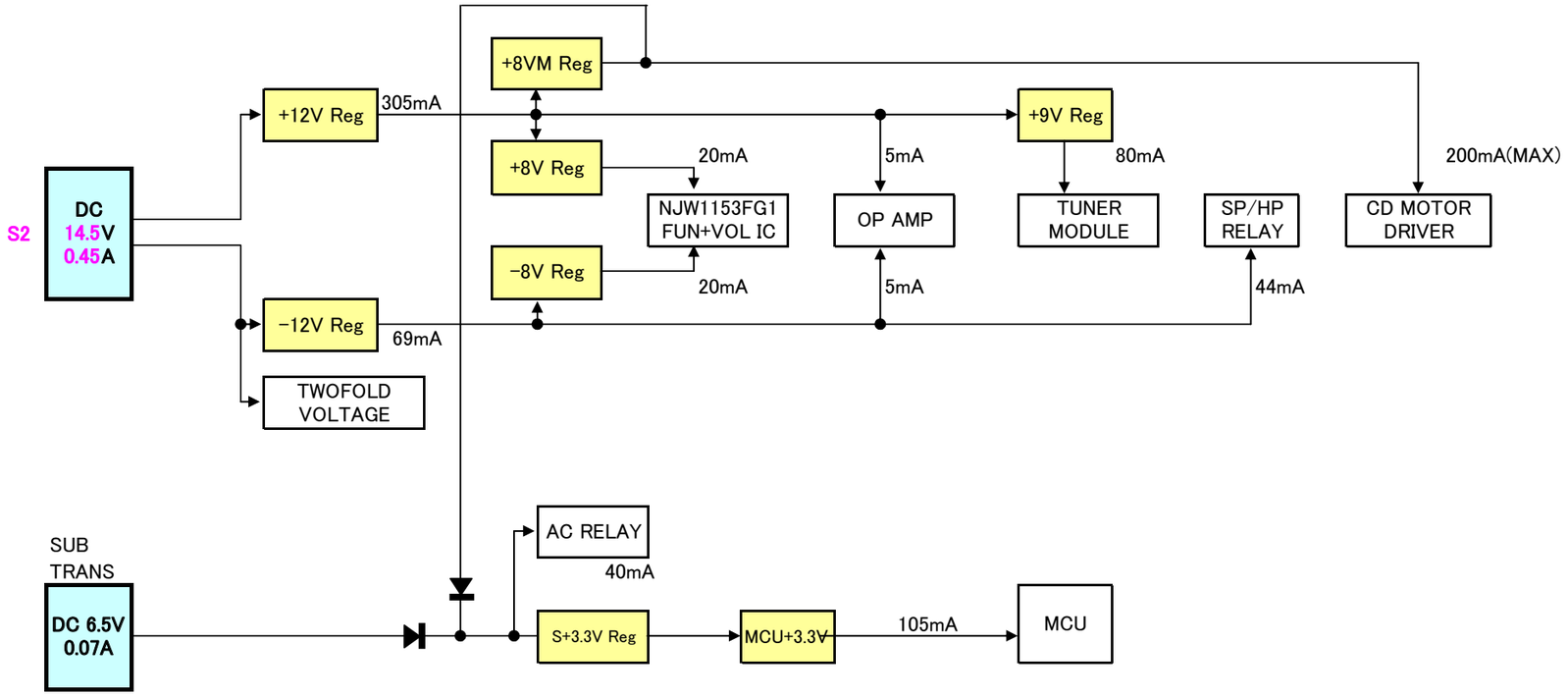
7. LOADER OPEN-CLOSE

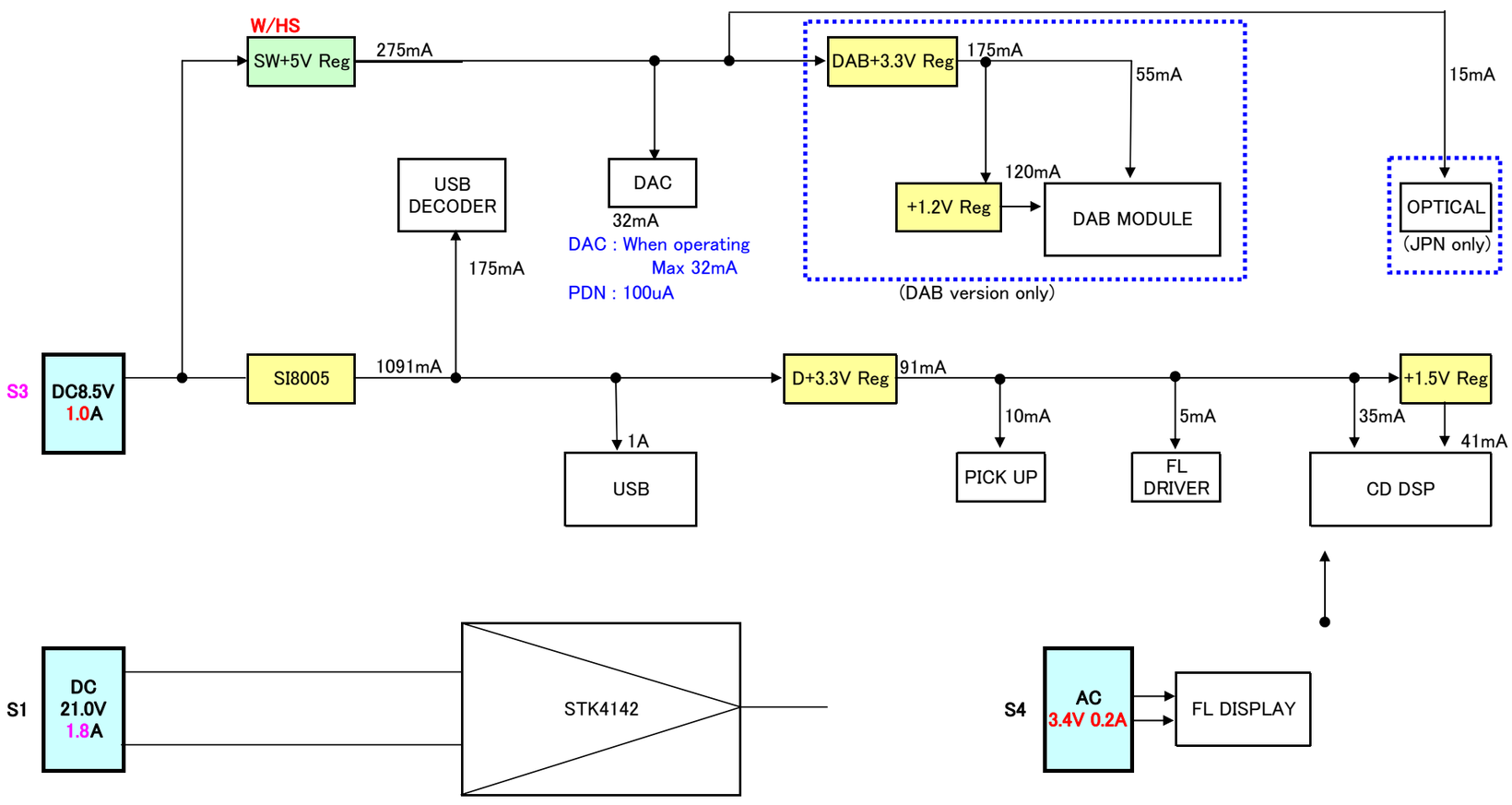


BLOCK DIAGRAM

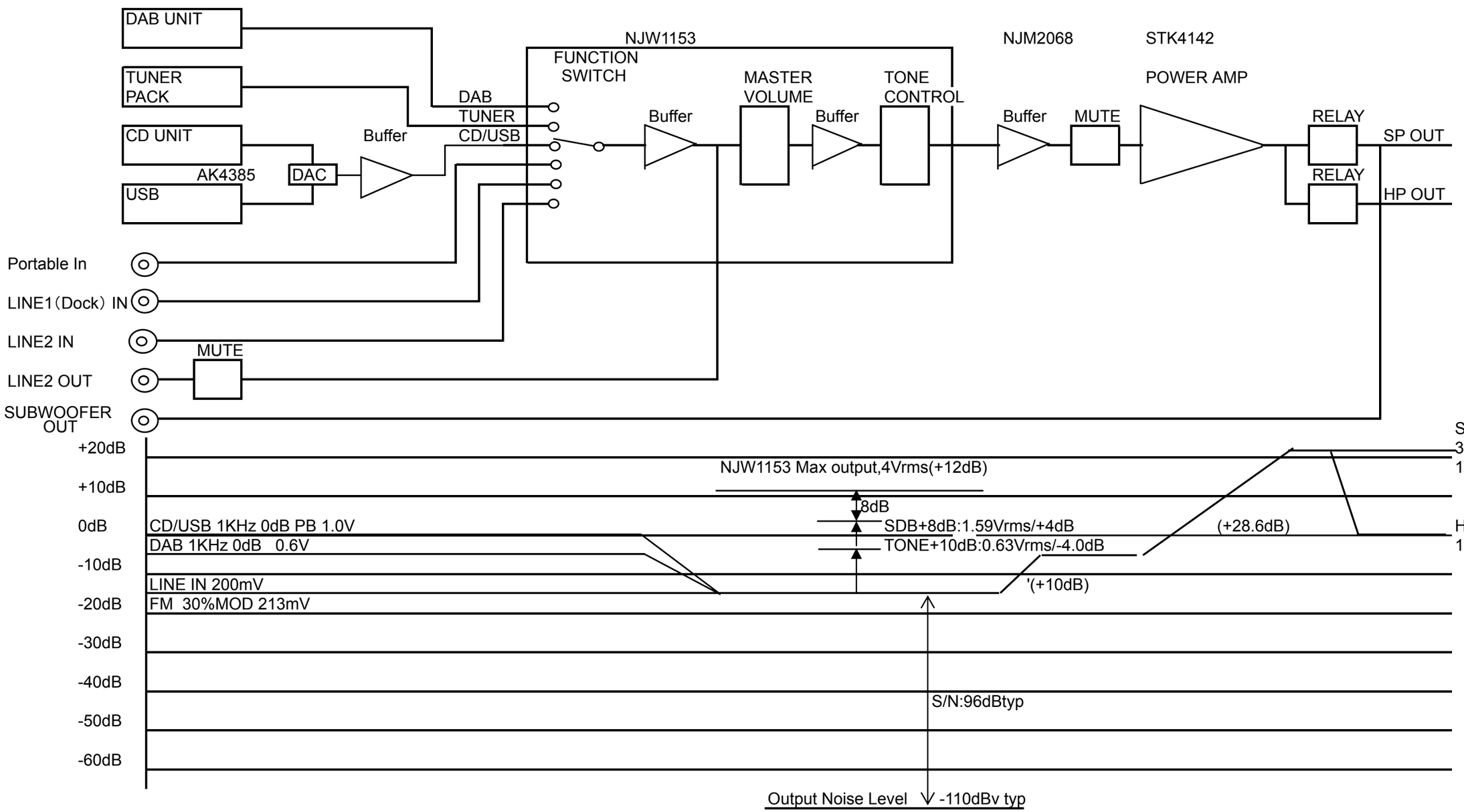


CURRENT BLOCK DIAGRAM

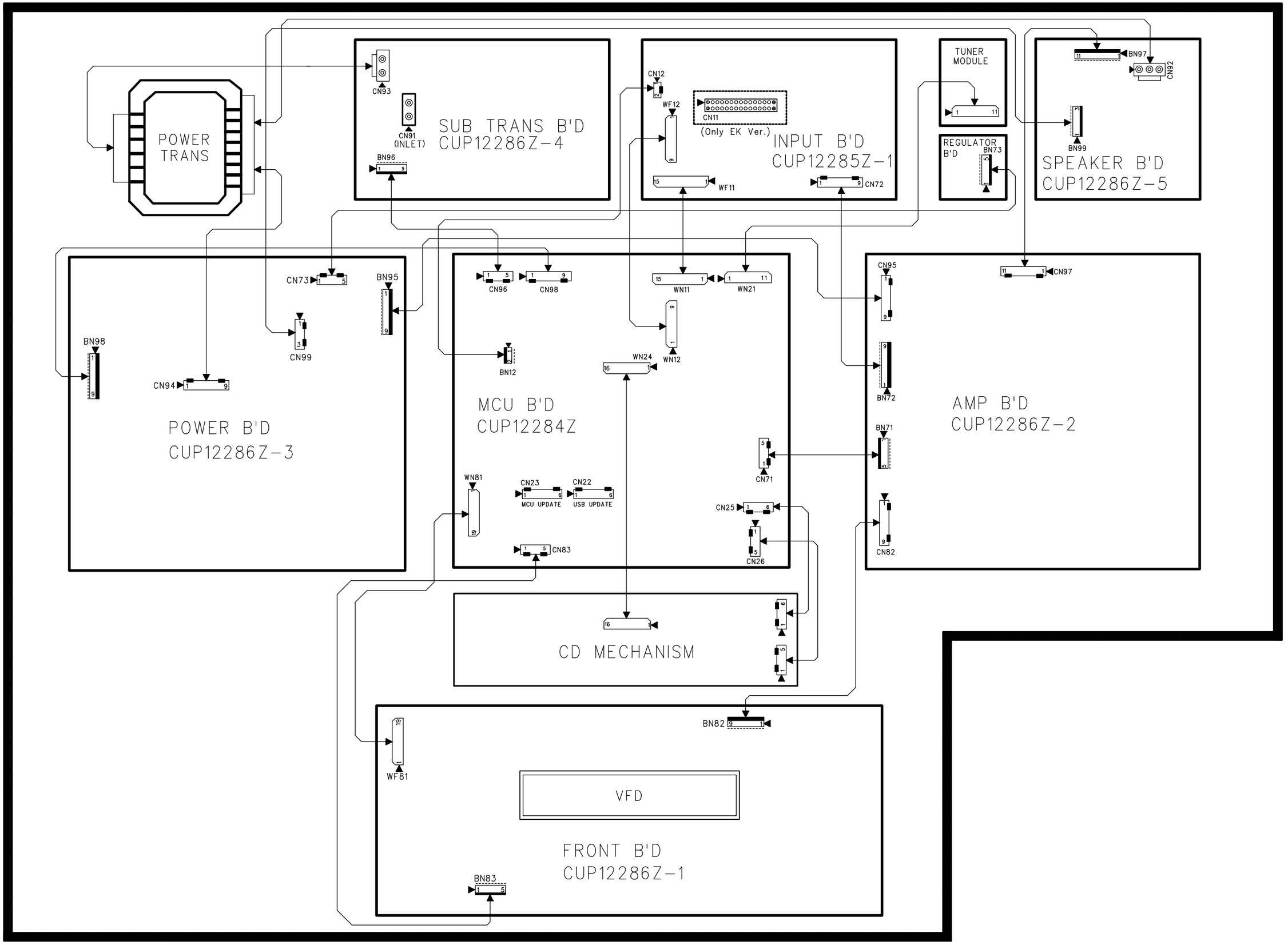




LAEVEL DIAGRAM

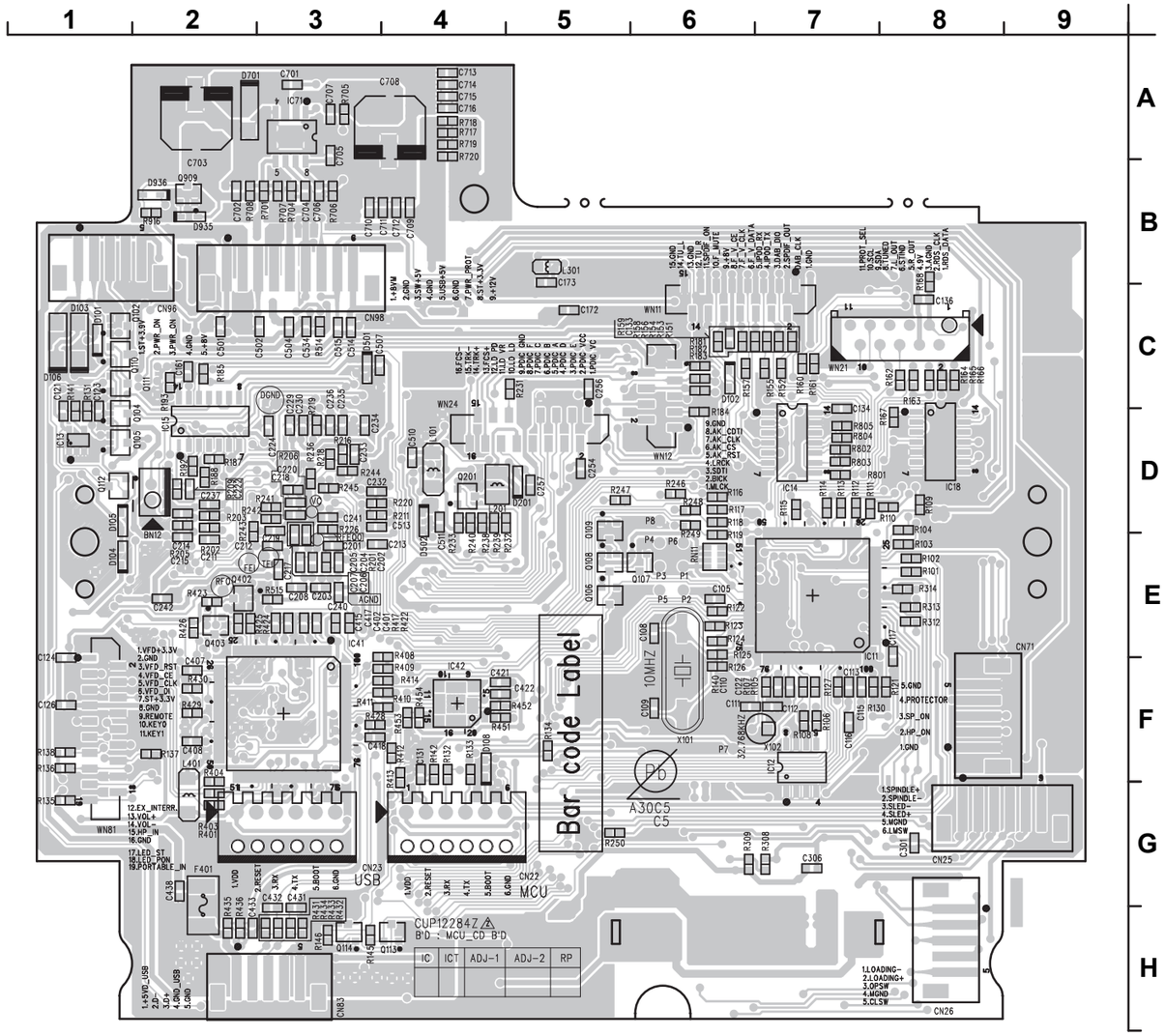


WIRING DIAGRAM

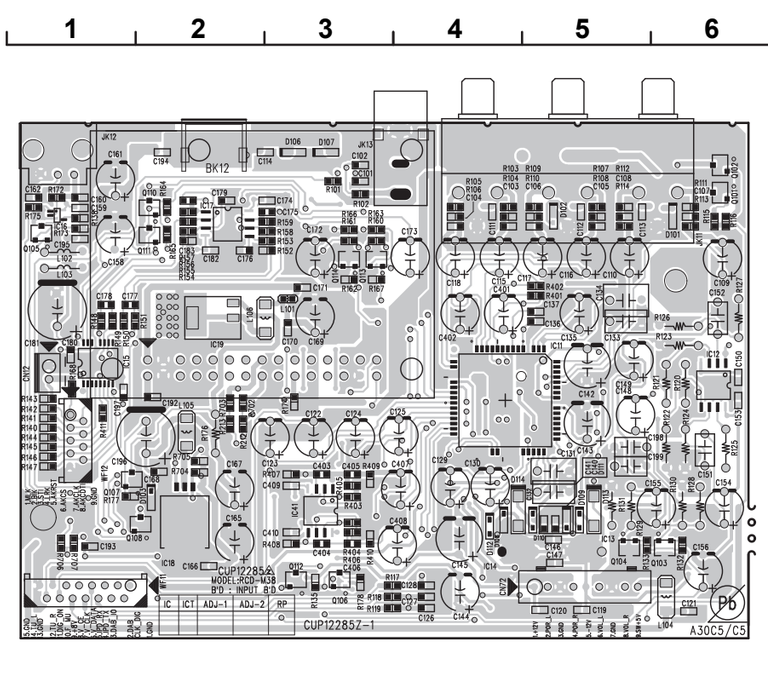


PRINTED WIRING BOARDS

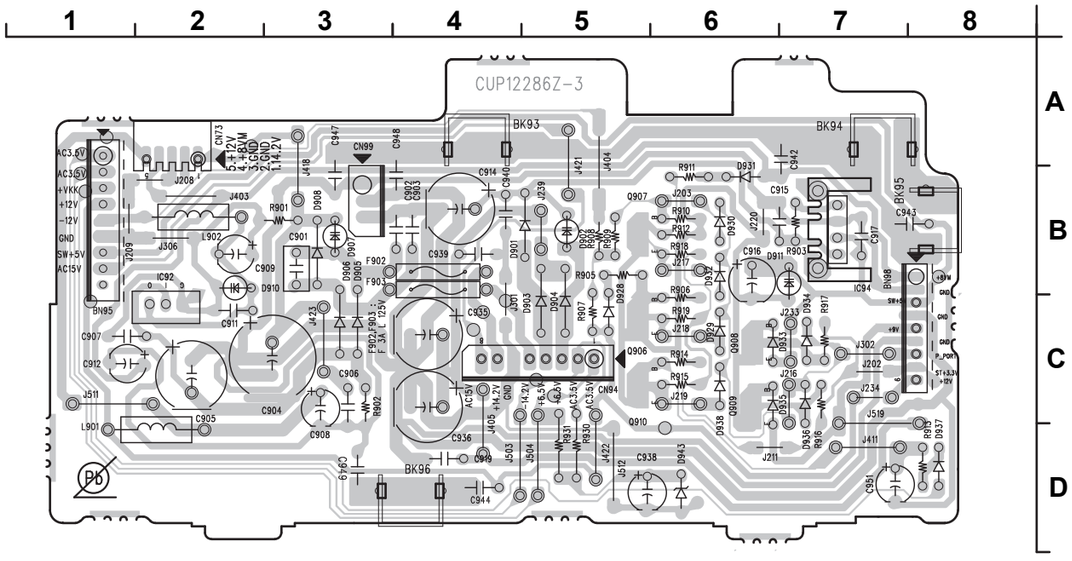
MCU PCB (COMPONENT SIDE)



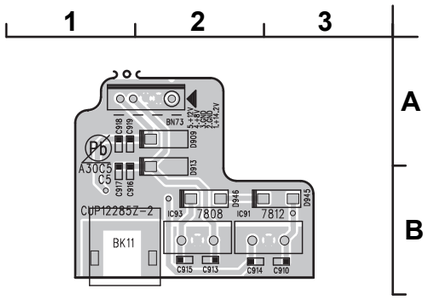
INPUT PCB (COMPONENT SIDE)



GUIDE PCB (COMPONENT SIDE)



REGULATOR PCB (COMPONENT SIDE)



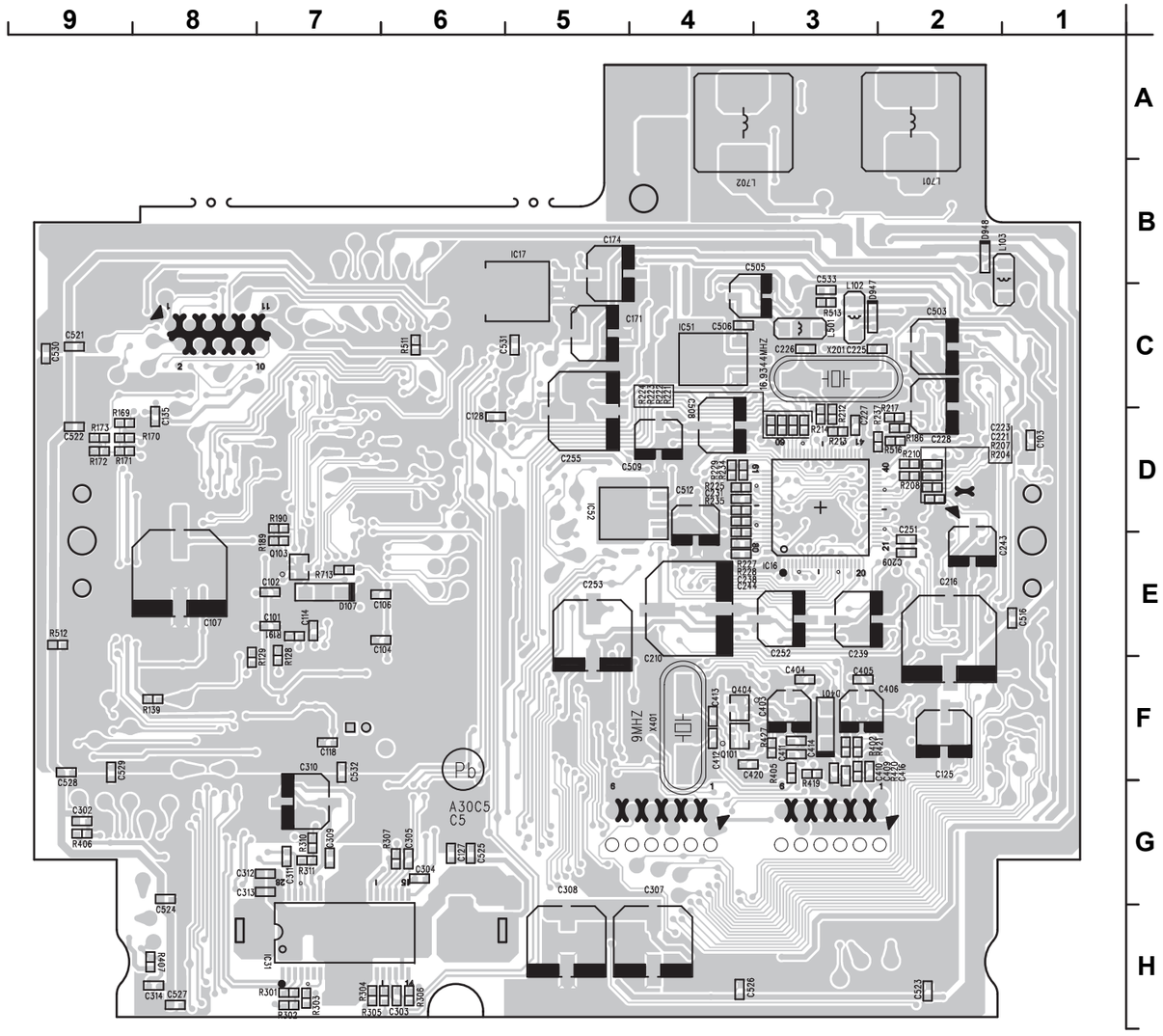
鉛フリー半田

半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。

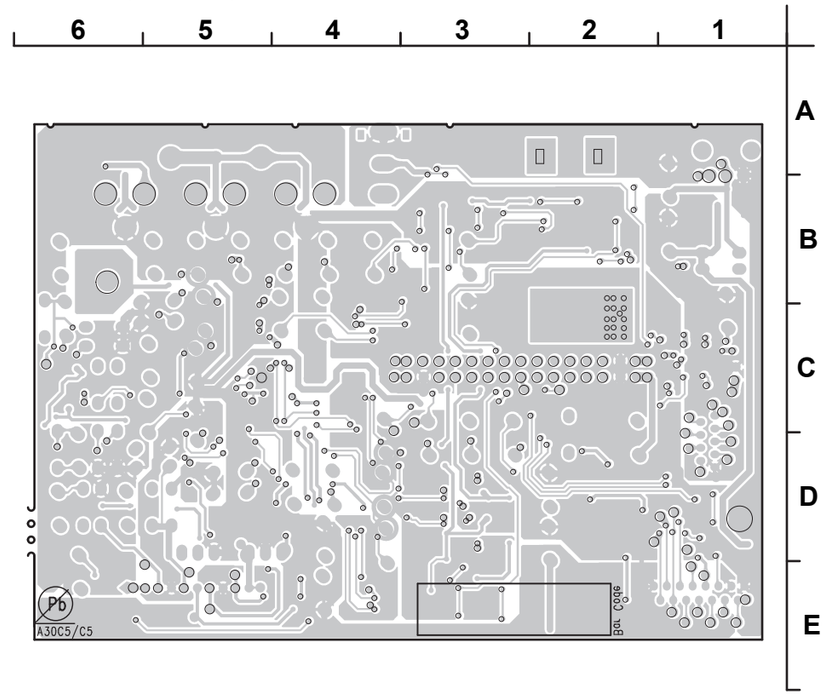
Lead-free Solder

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

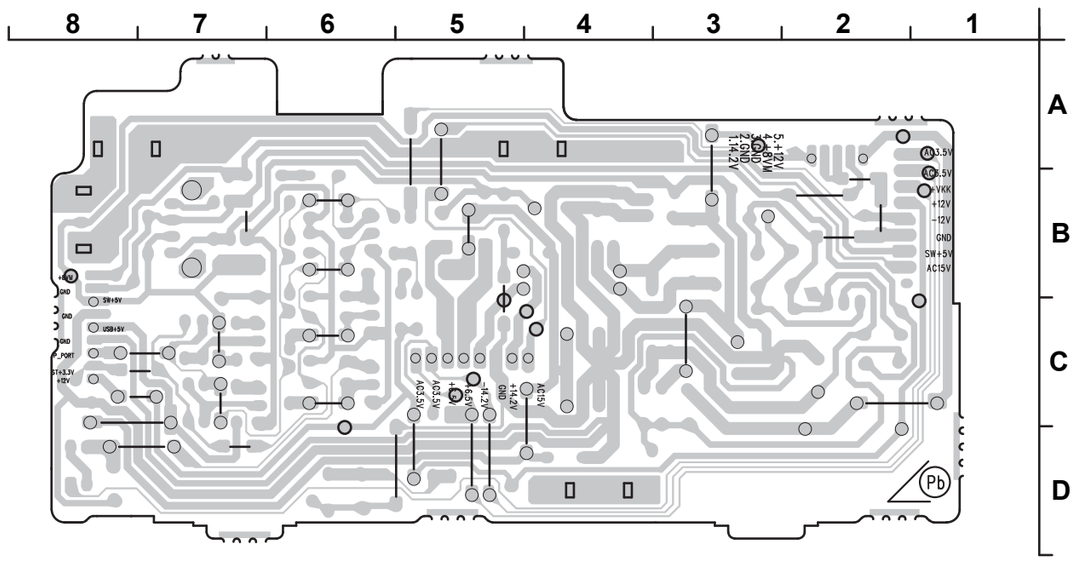
MCU PCB (FOIL SIDE)



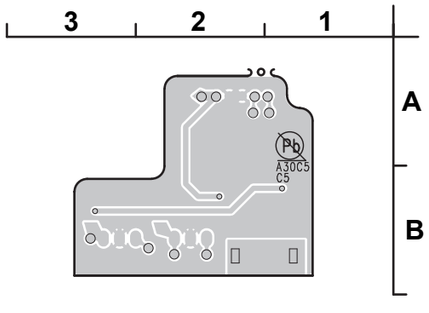
INPUT PCB (FOIL SIDE)



GUIDE PCB (FOIL SIDE)



REGULATOR PCB (FOIL SIDE)



鉛フリー半田
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Lead-free Solder
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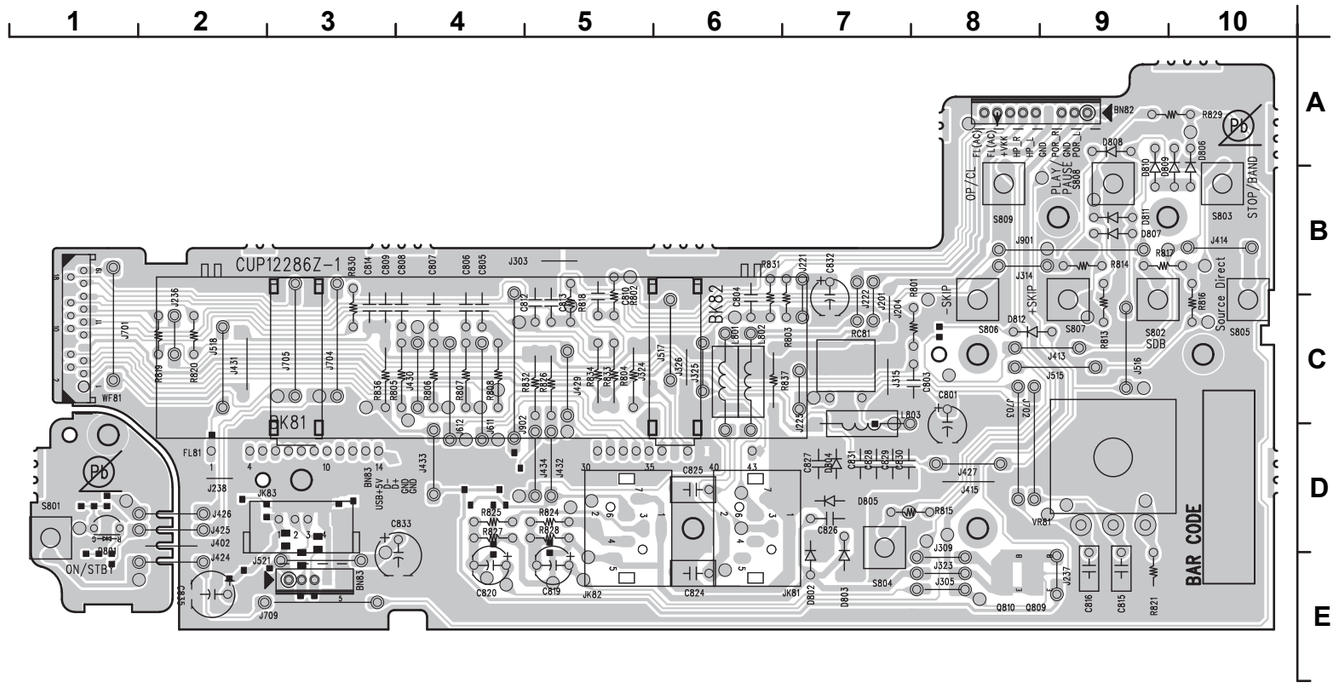
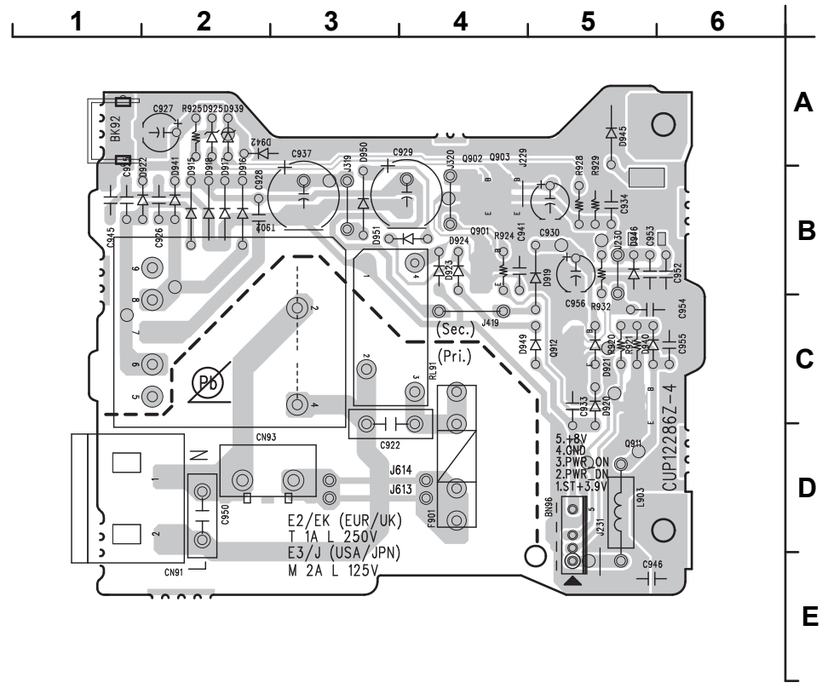
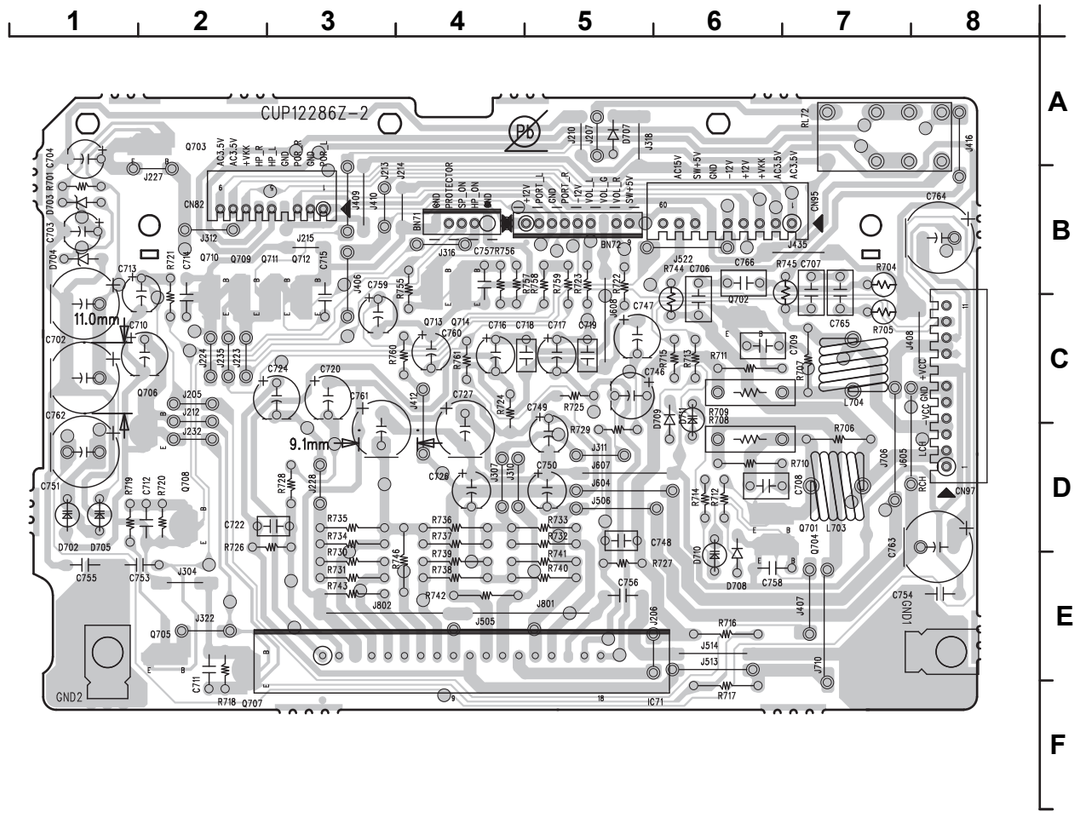
FRONT PCB (COMPONENT SIDE)



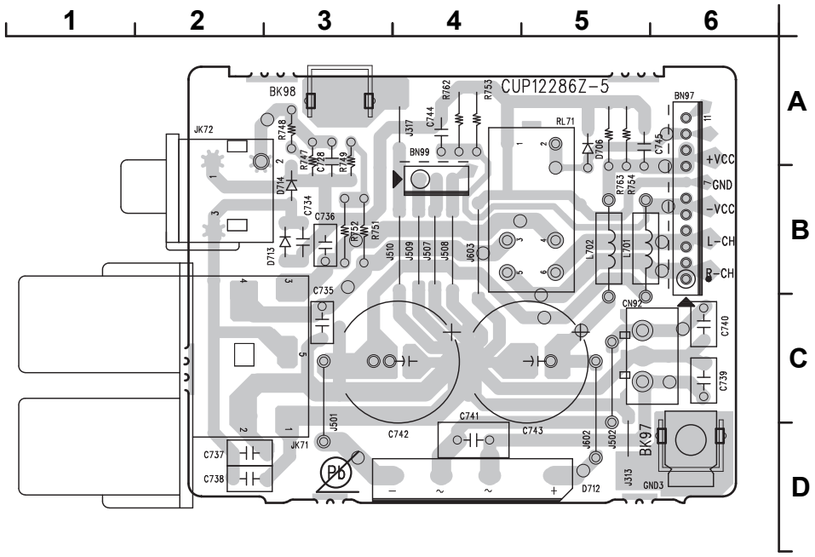
SUB TRANS PCB (COMPONENT SIDE)



AMP PCB (COMPONENT SIDE)



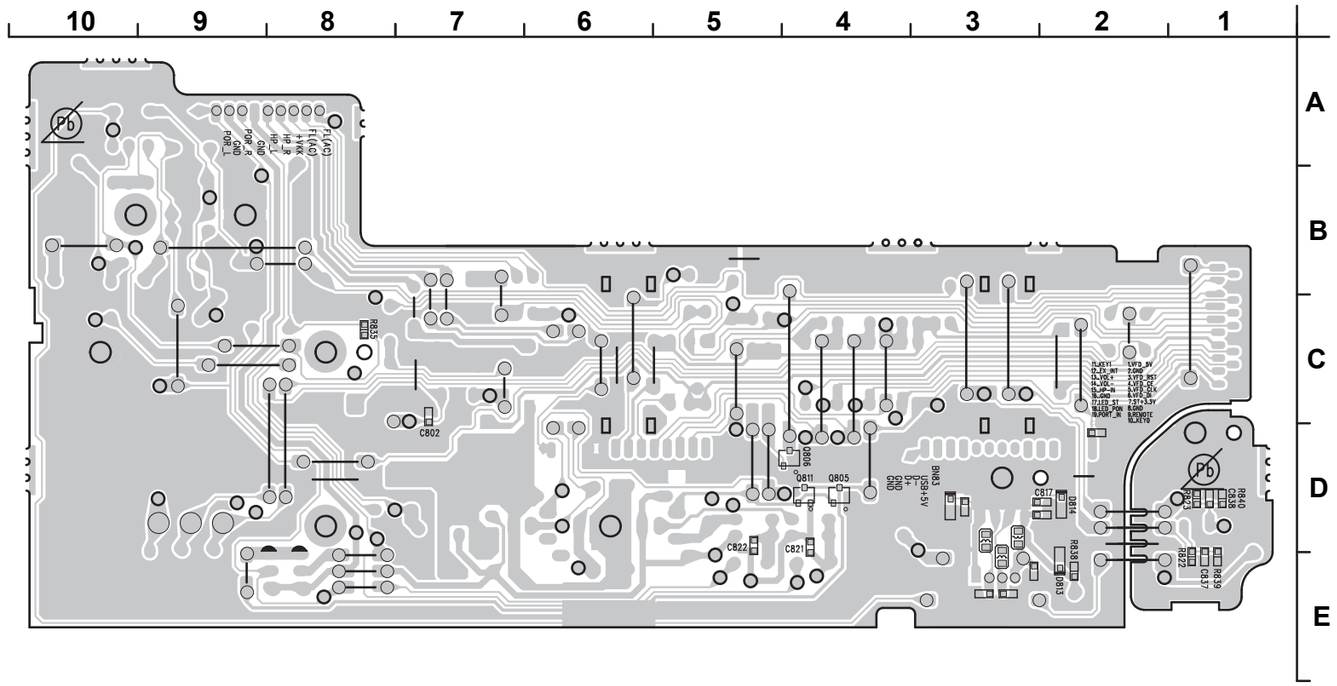
SPK PCB (COMPONENT SIDE)



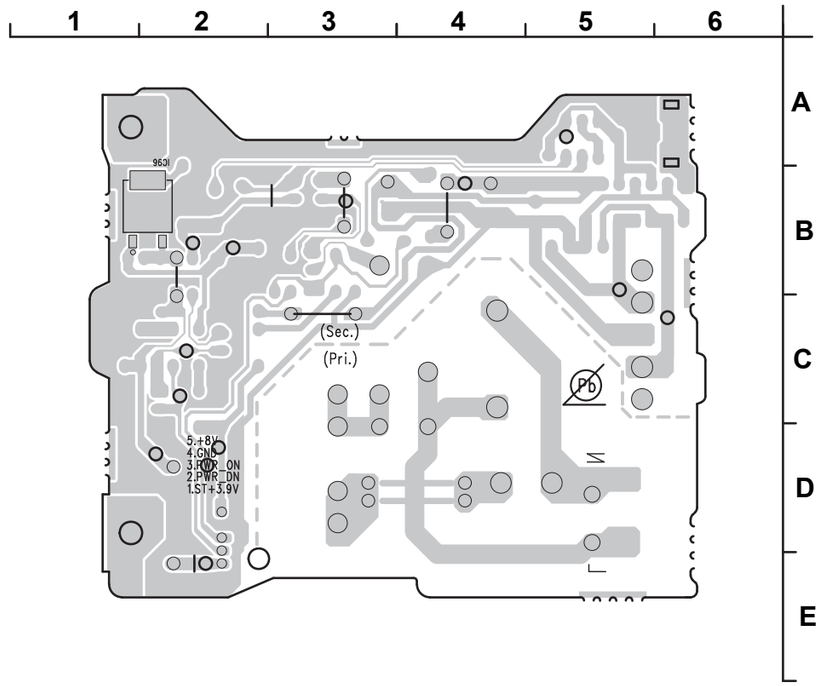
鉛フリー半田
半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。

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

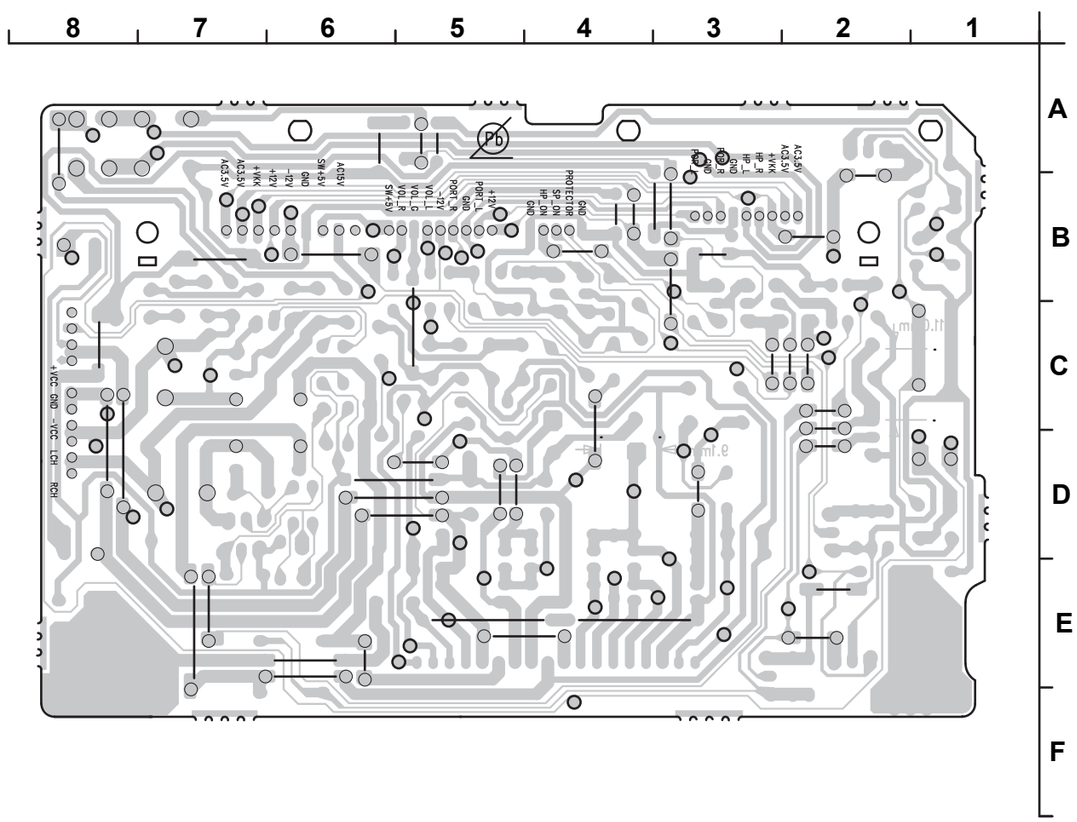
FRONT PCB (FOIL SIDE)



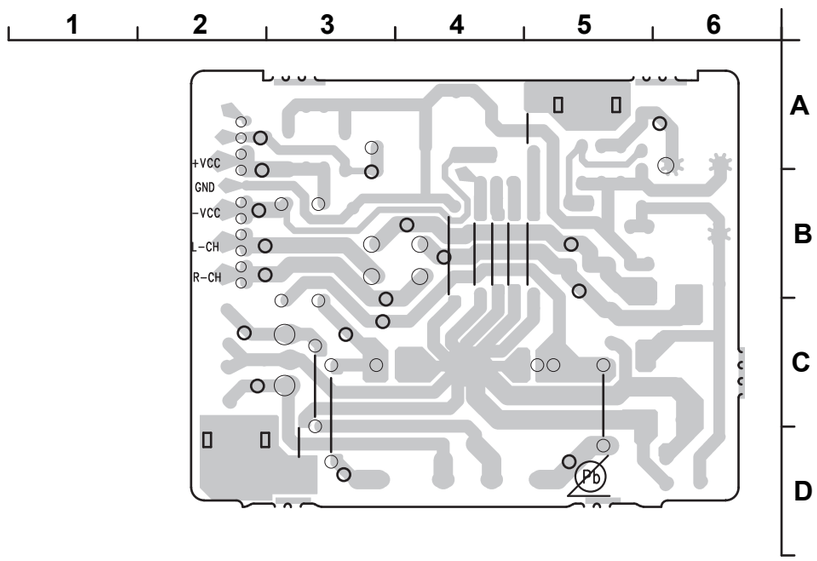
SUB TRANS PCB (FOIL SIDE)



AMP PCB (FOIL SIDE)

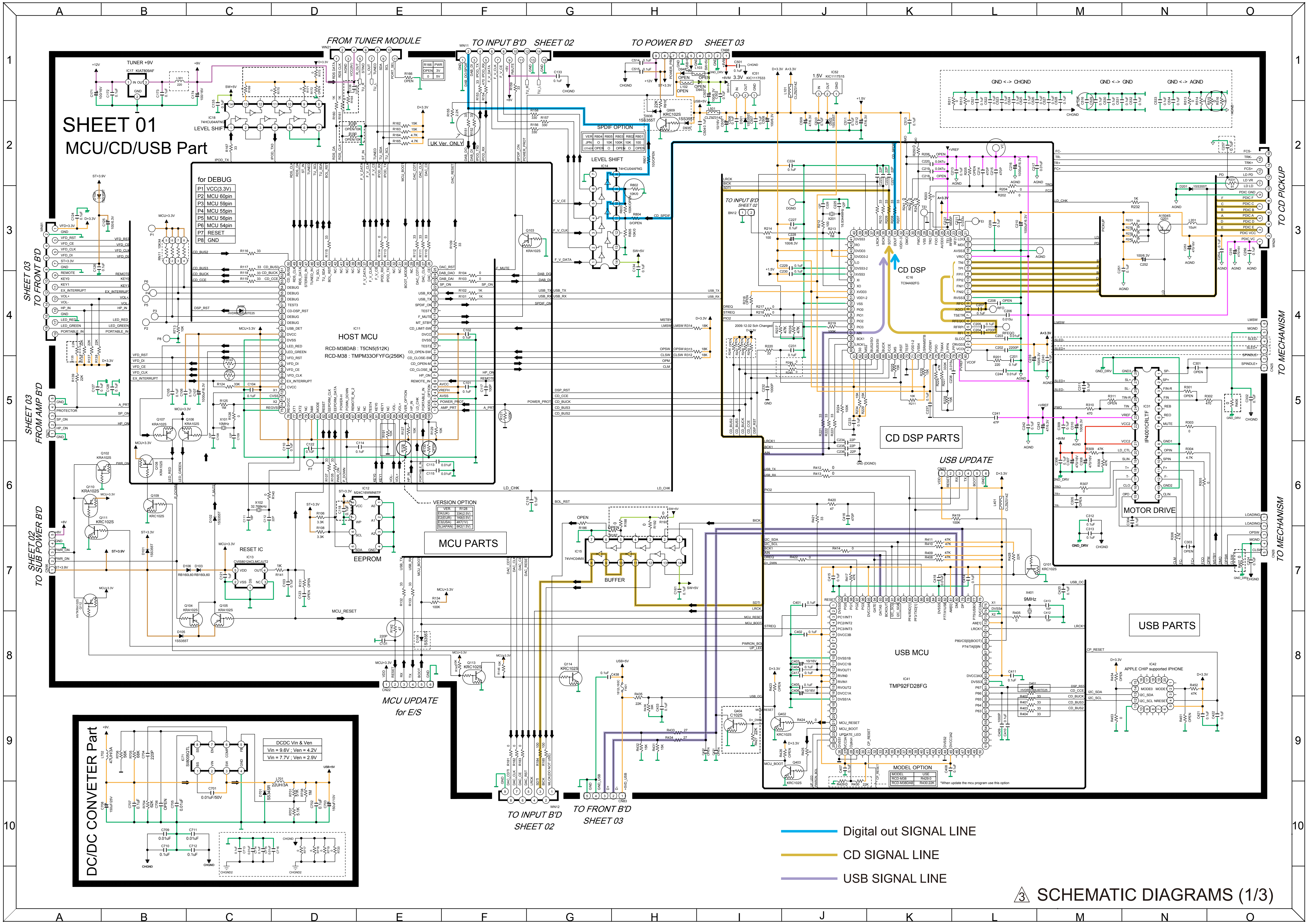


SPK PCB (FOIL SIDE)



鉛フリー半田
半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。

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


SHEET 01
MCU/CD/USB Part
FROM TUNER MODULE
TO INPUT B'D SHEET 02
TO POWER B'D SHEET 03
for DEBUG
P1 VCC(3.3V)
P2 MCU 60pin
P3 MCU 59pin
P4 MCU 55pin
P5 MCU 56pin
P6 MCU 54pin
P7 RESET
P8 GND
HOST MCU
RCD-M38DAB : T5CN5(512K)
RCD-M38 : TMPM33OFYFG(256K)
SPDIF OPTION
LEVEL SHIFT
UK Ver. ONLY
CD DSP
CD DSP PARTS
TO CD PICKUP
TO MECHANISM
MOTOR DRIVE
MCU PARTS
VERSION OPTION
EEPROM
RESET IC
BUFFER
USB UPDATE
USB MCU
USB PARTS
MODEL OPTION
APPLE CHIP supported IPHONE
SHEET 03 TO FRONT B'D
SHEET 03 FROM AMP B'D
SHEET 02 TO SUB POWER B'D
MCU UPDATE for E/S
TO INPUT B'D SHEET 02
TO FRONT B'D SHEET 03
DC/DC CONVETER Part
DCDC Vin & Ven
Vin = 9.6V ; Ven = 4.2V
Vin = 7.7V ; Ven = 2.9V
Digital out SIGNAL LINE
CD SIGNAL LINE
USB SIGNAL LINE
SCHEMATIC DIAGRAMS (1/3)

SHEET 01
TO CD/MCU B'D

SHEET 01
TO CD/MCU B'D

SHEET 02
INPUT Part

INPUT B'D

* JPN Ver. ONLY

AUDIO DAC

FUNCTION/VOLUME

DAB MODULE VENICE 7.0

UK OPTION(DAB)

JPN Ver. ONLY

* EK Ver. ONLY

SUB B'D

FROM PWR B'D
SHEET 02

TO AMP B'D
SHEET 03

Digital out SIGNAL LINE
Lch SIGNAL LINE
Rch SIGNAL LINE
CD SIGNAL LINE

SCHEMATIC DIAGRAMS (2/3)

SHEET 03

FRONT/POWER/AMP Part

POWER TRANS

FRONT B'D

POWER B'D

SUB TRANS B'D

SPEAKER B'D

AMP B'D

PORTABLE

PHONES

PORTABLE MUTE

USB/IPOD DIRECT

FROM AMP B'D

TO CD/MCU B'D SHEET 01

TO SUB PWR B'D SHEET 02

SHEET 01 TO CD/MCU B'D

FROM POWER TRANS

TO AMP B'D

SHEET 02 TO INPUT B'D

FROM SPEAKER B'D

FROM POWER B'D

TO FRONT B'D

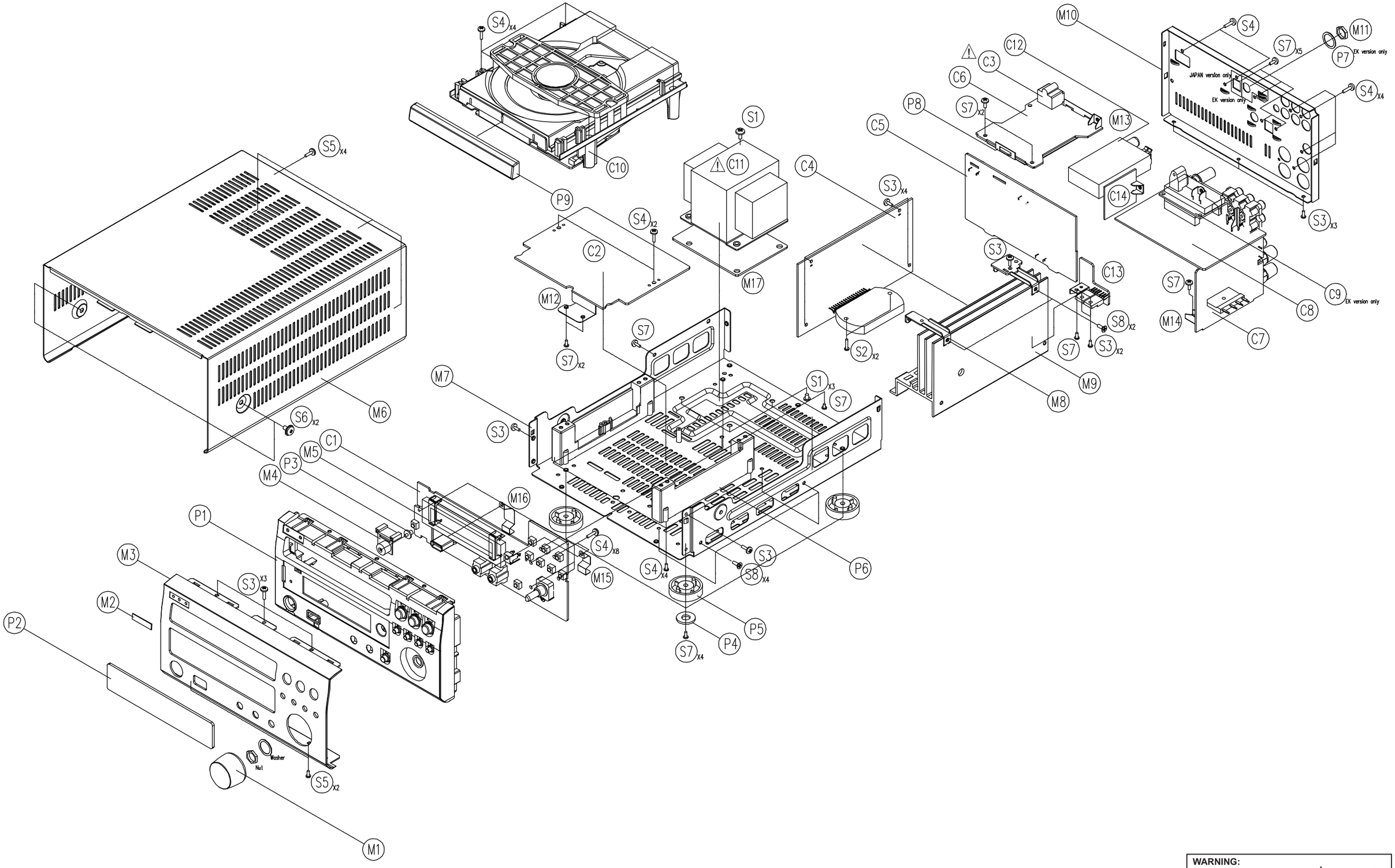
Lch SIGNAL LINE

Rch SIGNAL LINE

USB SIGNAL LINE

SCHEMATIC DIAGRAMS (3/3)

EXPLODED VIEW ⚠2



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

PARTS LIST OF EXPLODED VIEW

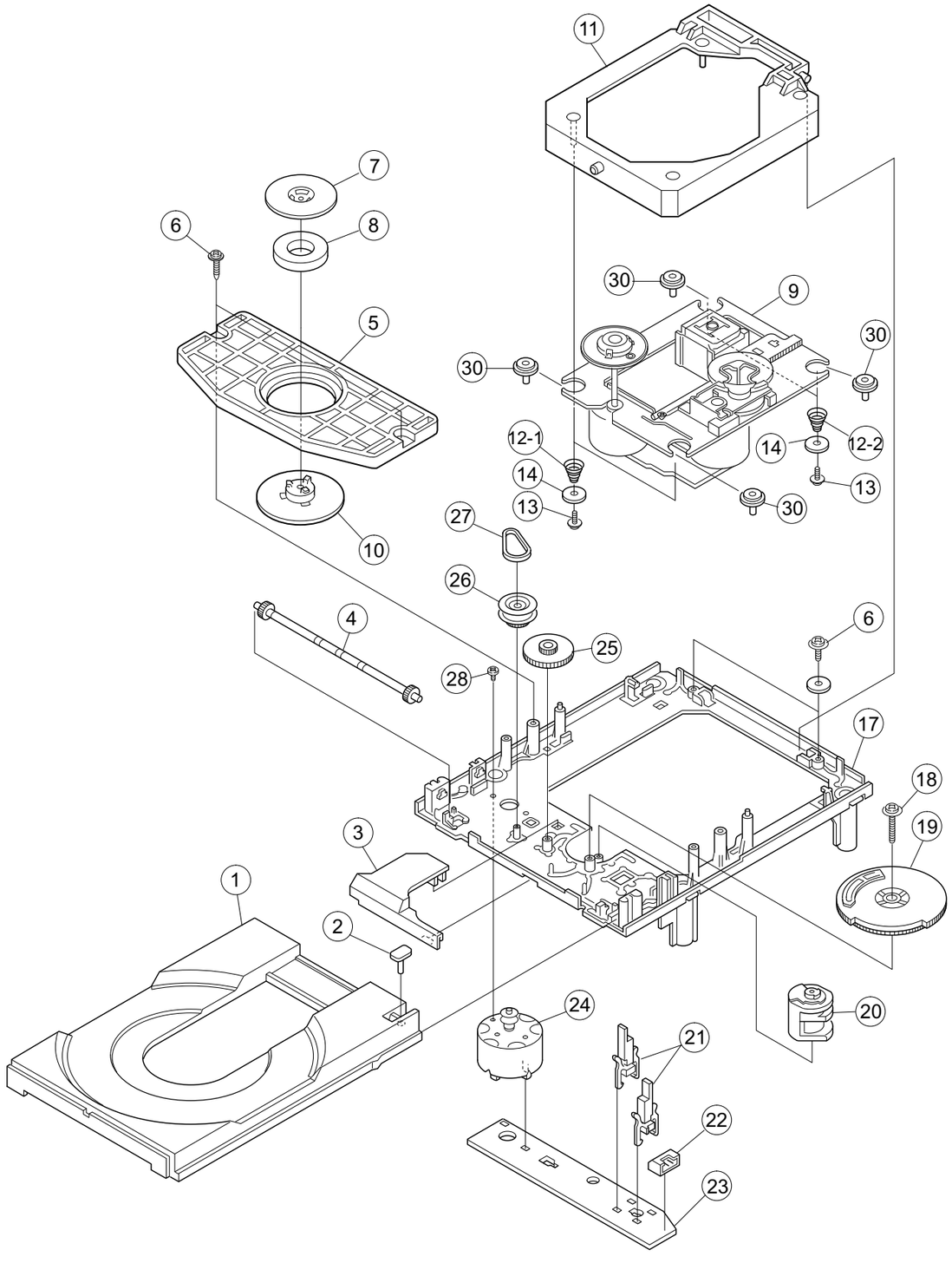
＊Parts for which "nsp" is indicated on this table cannot be supplied.
＊P.W.B. ASS'Y for which "nsp" is indicated on this table cannot be supplied. When repairing the P.W.B. ASS'Y, check the board parts table and order replacement parts.
＊Part indicated with the mark " ★ " is not illustrated in the exploded view.
＊The parts listed below are for maintenance only, might differ from the parts used in the unit in appearances or dimensions.

Note: The symbols in the column "Remarks" indicate the following destinations.
E3 : U.S.A. & Canada model　　E2 : Europe model　　EK : U.K. model
BK : Black model　　SP : Premium Silver model

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New
	C2	nsp	MCU_CD_DSP PCB ASSY	E3	COP12284E	1	*
	C2	nsp	MCU_CD_DSP PCB ASSY	EK,E2	COP12284B	1	*
	C8'	nsp	INPUT PCB ASS'Y	E3	COP12285E	1	*
	C8'	nsp	INPUT PCB ASS'Y	EK/E2	COP12285B	1	*
	C8	-	INPUT PCB				
	C13	-	REGULATOR PCB				
	C14	-	DCDC PCB				
	C1'	nsp	MAIN PCB ASS'Y	E3	COP12286E	1	*
	C1'	nsp	MAIN PCB ASS'Y	EK,E2	COP12286B	1	*
	C1	-	FRONT PCB				
	C4	-	AMP PCB				
	C5	-	GUIDE PCB				
	C6	-	SUB TRANS PCB				
	C7	-	SPK PCB				
⚠	C3	00D2033905015	INLET	E3	CJJ8A013Z	1	
⚠	C3	943641009280S	INLET	EK,E2,JP	CJJ8A012Z	1	
	C9	943189009060D	DAB MODULE	EK	CNVFS2027B	1	*
	C10	943302009630S	CD MECHANISM ASS'Y		CDJL2130BZ	1	*
⚠	C11	943101009240S	POWER TRANS	E3	CLT5P047ZU	1	
⚠	C11	943101009220S	POWER TRANS	EK,E2	CLT5P047ZE	1	*
	C12	943183009270S	TUNER MODULE	E3	CNVMT004MS0-80	1	*
	C12	943183009250S	TUNER MODULE	EK,E2	CNVMT104MS1-80	1	*
	M1	943412009020D	VOLUME KNOB ASSY	BK	CGK1A162ZA	1	*
	M1	943412009010D	VOLUME KNOB ASSY	SP	CGK1A162YA	1	*
	M2	00D1310158049	BADGE , DENON	BK	CGB1A140U	1		⚠2
	M2	00D1310158052	BADGE , DENON	SP	CGB1A140T	1		⚠2
	M3	943402009750D	FRONT PANEL (K)	E3	CKM2A196WC45	1	*	⚠2
	M3	943402009770D	FRONT PANEL (BKEK)	BKEK	CKM2A196YC45	1	*	⚠2
	M3	943402009780D	FRONT PANEL (SPEK)	SPEK	CKM2A196YC62	1	*	⚠2
	M3	943402009790D	FRONT PANEL (BKE2)	BKE2	CKM2A196ZC45	1	*	⚠2
	M3	943402009800D	FRONT PANEL (SPE2)	SPE2	CKM2A196ZC62	1	*	⚠2
	M4	943411000460D	POWER KNOB ASSY	BK	CGX1A353XA	1	
	M4	00D9430211100	POWER KNOB ASSY	SP	CGX1A353YA	1	
	M5	nsp	FIP BRACKET		CMD1A468	2	
	M6	943403009410D	CABINET, TOP	BK	CKC2A186S56	1	*
	M6	943403009420D	CABINET, TOP	SP	CKC2A186S55	1	*
	M7	nsp	BOTTOM, CHASSIS		CUA3A286	9	
	M8	nsp	HT BRACKET		CMD1A672	9	
	M9	nsp	HEAT SINK		CMY2A301	9	
	M10	nsp	PANEL, REAR	E3	CKF1A435Y	1	*
	M10	nsp	PANEL, REAR	EK	CKF2A435Z	1	*
	M10	nsp	PANEL, REAR	E2	CKF2A435Z	1	*
	M11	nsp	DAB NUT	EK	CNE1A009	1	
	M12	nsp	HEAT SINK		CMY1A305	1	

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New
	M13	nsp	PCB BRACKET		CMD1A569	7	
	M14	nsp	PCB BRACKET		CMD1A387	1	
	M15	nsp	EARTH PLATE		CMC1A350	1	
	M16	nsp	USB EARTH PLATE		CMC1A351	1	
	M17	nsp	TRANS BRACKET		CMD1A686	1	
	P1	943443009050D	INNER PANEL ASS'Y	BK	CGW2A456YA	1	*
	P1	943443009040D	INNER PANEL ASS'Y	SP	CGW2A456ZA	1	*
	P2	943416009030D	FL WINDOW		CGU1A418Y	1	
	P3	943481000370D	LENS		CGL1A230A14	1	
	P4	nsp	CUSHION , FOOT		CHG1A360	4	
	P5	00D9430094506	FOOT		CKL1A189	4	
	P6	nsp	MECHA SUPPORT		CMH1A287	2	
	P7	nsp	SUPPORT	EK	CNW1A038	1	
	P8	nsp	INSULATOR		CMX1A280	1	
	P9	943415000380D	DOOR	BK	CGR1A450B28	1	
	P9	943415000390D	DOOR	SP	CGR1A450RGG45	1	
	BN25	nsp	6P WIRE ASS'Y (6P, 100MM, 2.0MM PITCH)		CWZRCDM37BN25	1	
	BN26	nsp	5P WIRE ASS'Y (5P, 100MM, 2.0MM PITCH)		CWZRCDM37BN26	1	
	WN24	943606001050S	CABLE , CARD (16P, 200MM, 1.0MM PITCH)		CWC4F1A16A150AZ	1	
	WN11	943606001010S	CABLE , CARD(15P, 120mm)		CWC4F4A15A120BZ	1	
	WN12	943606001040S	CABLE , CARD(9P, 180MM 1.0MM)		CWC4F4A09A180B	1	
	WN21	943606009430S	CARD, CABLE (11P,1.25,120mm,Atype)		CWC4F4A11B120BZ	1	*
	WN81	943606001020S	CABLE , CARD(19P, 150mm)		CWC4F4A19A150BZ	1	
SCREWS							
	S1	nsp	SCREW		CTB4+8FR	4	
	S2	nsp	SCREW		CTW3+18JR	2	
	S3	nsp	SCREW		CTB3+8JFZR	19	
	S4	nsp	SCREW		CTB3+10JFZR	22	
	S5	nsp	DOT SCREW	BK	CTBD3+8JFZR	6	
	S5	nsp	DOT SCREW	SP	CTBD3+8JFN	6	
	S6	nsp	SCREW	BK	CTWD4+6FFZR	2	
	S6	nsp	SCREW	SP	CTWD4+6FFN	2	
	S7	nsp	SCREW		CTB3+6FFZR	1	
	S8	nsp	SCREW		CTS3+8JFZR	4	

EXPLODED VIEW OF CD MECHANISM UNIT

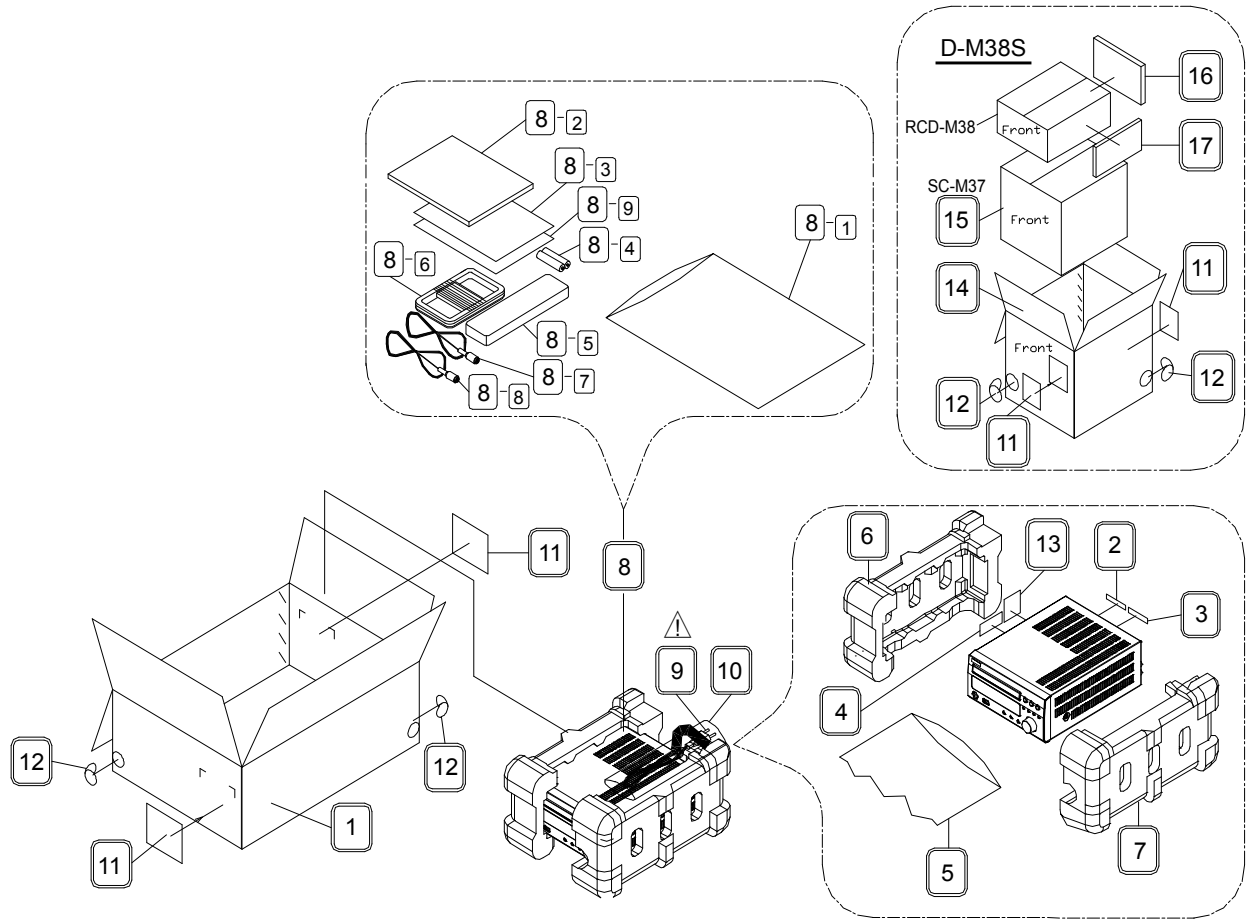


PARTS LIST OF CD MECHANISM UNIT ⚠2

* Parts for which "nsp" is indicated on this table cannot be supplied.
* The parts listed below are for maintenance only, might differ from the parts used in the unit in appearances or dimensions.

	Ref. No.	Part No.	Part Name	Remarks	Q'ty	New
	1	00DS264629001	Tray (C)		1	
	2	-	-	This part (No.2)doesn't belong to the tray. Take it down from old tray and use again when changing the tray.		
	3	nsp	Gear cover(S)		1	
	4	nsp	Tray gear(S)		1	
	5	nsp	Chucking plate		1	
	6	nsp	Screw 2.6 x 7 +PTPWH		4	
	7	nsp	Chucking yoke		1	
	8	nsp	Magnet		1	
	9	941302002350M	MECHA DA11T3CN		1	
	10	nsp	Chucking pulley		1	
	11	nsp	Sub chassis Ass'y		1	
	12-1	nsp	Coil spring(front)		2	
	12-2	nsp	Coil spring(back)		2	
	13	nsp	Screw 2.6 x 10 +P	No slit type2	4	
	14	nsp	Washer 2130		4	
	17	nsp	Outsert main chassis(S)		1	
	18	nsp	Screw 2.6 x 16 +PTPWH		1	
	19	nsp	Drive gear(S)		1	
	20	nsp	Contorol cam(S)		1	
	21	nsp	Leaf switch		2	
	22	nsp	5P connector		1	
	23	nsp	Loading P.W.B		1	
	24	nsp	Loading motor Ass'Y		1	
	25	nsp	Middle gear		1	
	26	nsp	Loading pulley		1	
	27	nsp	LM belt		1	
	28	nsp	Screw 2.6 x 2.5 +B		1	
	30	nsp	Insulator		4	

PACKING VIEW



PARTS LIST OF PACKING & ACCESSORIES

* Parts for which "nsp" is indicated on this table cannot be supplied.
* The parts listed below are for maintenance only, might differ from the parts used in the unit in appearances or dimensions.

Note: The symbols in the column "Remarks" indicate the following destinations.
E3 : U.S.A. & Canada model E2 : Europe model EK : U.K. model
BK : Black model SP : Premium Silver model

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New	
	1	943531008970D	BOX, OUT CARTON	E3	CPG1A860S	1	*	
	1	943531008930D	BOX, OUT CARTON	EK	CPG1A860K	1	*	⚠3
	1	943531008940D	BOX, OUT CARTON	E2	CPG1A860J	1	*	⚠3
	2	nsp	LABEL , YEAR	E3	-	1		
	3	nsp	LABEL , SERIAL NO		-	1		
	4	nsp	LABEL , CAUTION		CQB1A661Z	1		
	5	943535001060D	BAG , POLY(SET)		CPP1A082Z	1		
	6	943533000150D	PAD , SNOW(L)		CPS1A811	1		
	7	943533000160D	PAD , SNOW(R)		CPS1A812	1		
	8-1	nsp	BAG , POLY(MANUAL260X365)		CPB1A190Z	1		
	8-2	943541009000D	MANUAL, INSTRUCTION	E3	CQX1A1529Z	1	*	
	8-2	943541008980D	MANUAL, INSTRUCTION	EK,E2	CQX1A1528Y	1	*	⚠3
	8-3	nsp	LIST , S.S	E3,EK,E2	CQE1A226P	1		
	8-4	nsp	BATTERY , AAA 2PCS IN PACK		CABR03PPB	2		
	8-5	943307007900D	REMOCON		CARTDRAF107BK	1		
	8-6	00D9430030405	ANT , AM LOOP		CSA1A020Z	1		
	8-7	00D9430113403	FM 1 POLE ANT		CSA1A018Z	1		

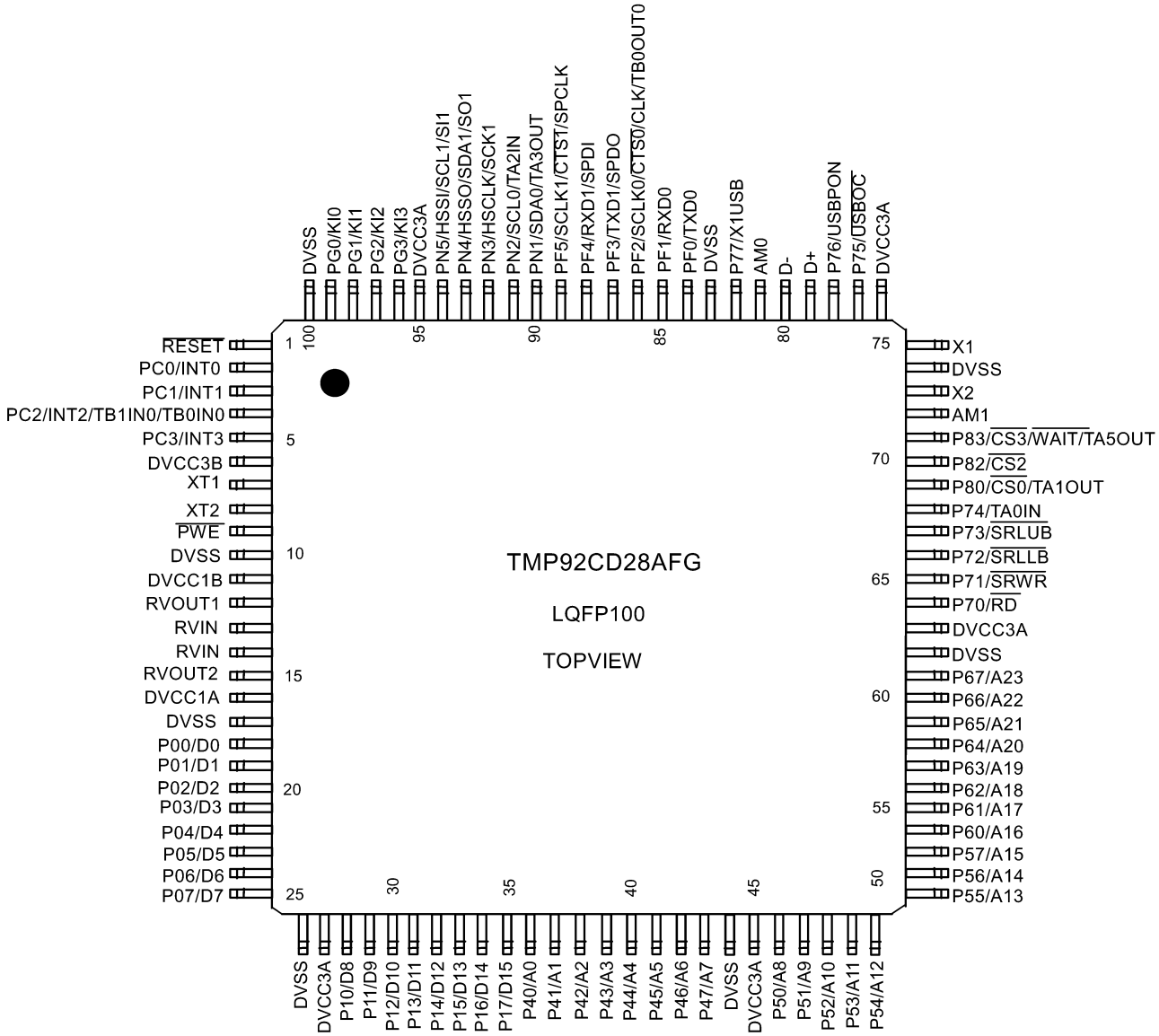
	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New	
	8-8	943429007990S	ANT , DAB	EK	CSA1A036Z	1		
	8-9	nsp	WARRANTEE CARD	E3	CQE1A224V	1		
⚠	9	943611000230S	CORD , POWER	E3	CJA2A107ZV	1		
⚠	9	943611000210S	CORD , POWER	EK	CJA2E106ZV	1		
⚠	9	943611000190S	CORD , POWER	E2	CJA2B108ZV	1		
	10	nsp	BAG , POLY	EK,E2	CPB1A008Z	1		
	11	nsp	LABEL , CONTROL	EK,E2	CQB1A993Z	2		
	12	nsp	COLOR LABEL(GRAY)	SPEK,SPE2	CPB1A008Z	2		
	13	nsp	FCC LABEL	E3	CQB1A634Z	1		
	14	943531009400D	MASTER BOX , OUT CARTON	E3	CPG3A864X	1	*	⚠3
	15	nsp	SPEAKER ASSY	E3	SCM37BKE3	1		
	16	943533000250D	PAD(A)	E3	CPS1A819	1		
	17	943533000260D	PAD(B)	E3	CPS1A820	1		

SEMICONDUCTORS

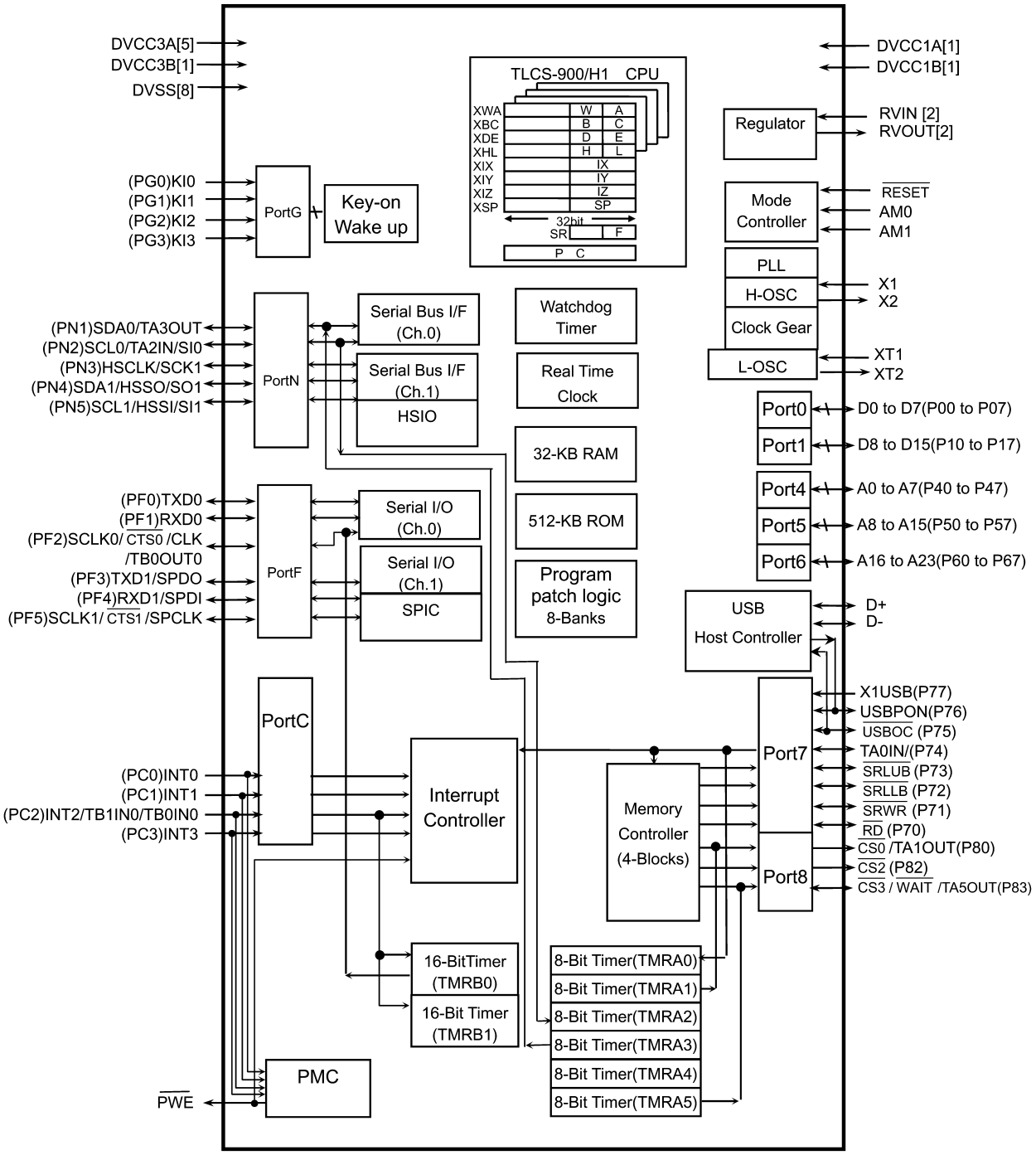
Only major semiconductors are shown, general semiconductors etc. are omitted to list.
The semiconductor which described a detailed drawing in a schematic diagram are omitted to list.

1. IC's

TMP92FD28FG (MCU : IC41)



TMP92FD28FG Block Diagram



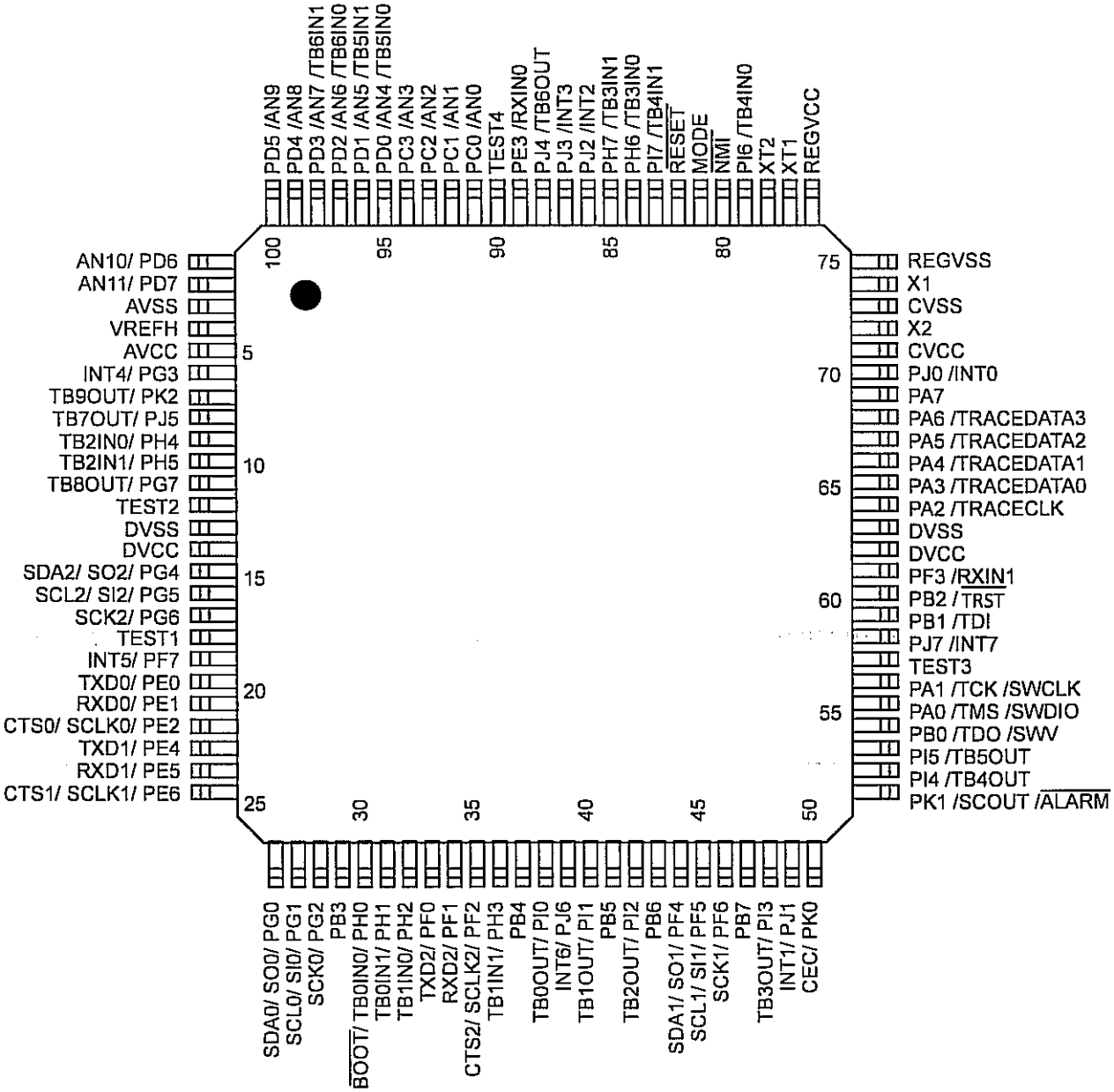
( ): Initial function after reset

TMP92FD28FG Terminal Function

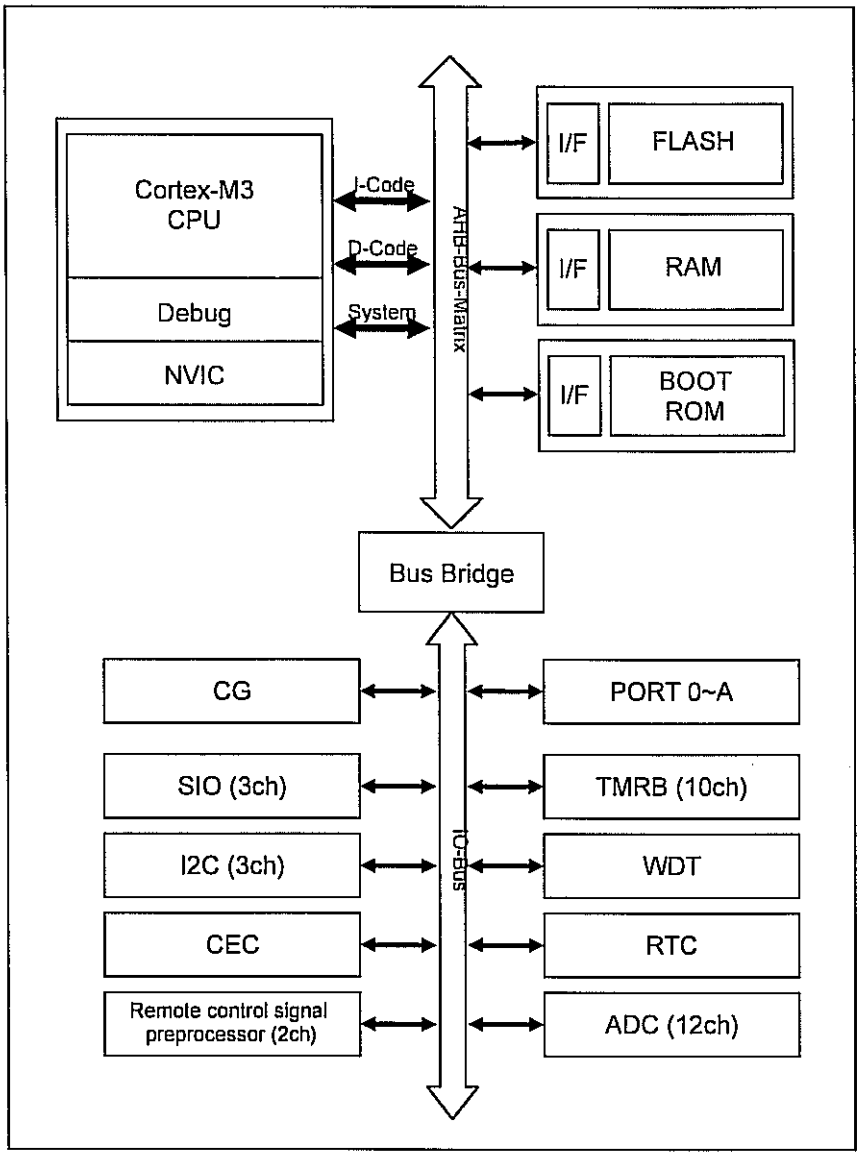
Pin No	Port Name	Port Name	I/O	Status				Note
				Pull-U/D	init.	stby	Act.	
1	/RESET	RESET	I					
2	PC0	N.C	I					Open
3	PC1	N.C	I					Open
4	PC2	N.C	I					Open
5	PC3	USB-REQ	I	PD	-	-	L	STREQ to Oasis(IC16)
6	DVCC3B	VDD3.3V	P					
7	PC6	N.C	O		L			Open
8	PC7	N.C	O		L			Open
9	/PWE	N.C	O					Open
10	DVSS1B	DVSS1B	G					
11	DVCC1B	DVCC1B	P					
12	RVOUT1	RVOUT1	O					
13	RVIN	RVIN	P					Flash version is a terminal Power supply 3.3V
14	RVIN	RVIN	P					Flash version is a terminal Power supply 3.3V
15	RVOUT2	RVOUT2	G					
16	DVCC1A	DVCC1A	P					
17	DVSS1A	DVSS1A	G					
18	P00	N.C	O		L			Open
19	P01	N.C	O		L			Open
20	P02	N.C	O		L			Open
21	P03	MCU_RESET	O		L	L	H	for HOST MCU writing
22	P04	MCU_BOOT	O		L	L	H	for HOST MCU writing
23	P05	UPDATE_LED	O		L	L	H	when update, LED blink
24	P06	PWR ON_BOL	O		L	L	H	when update, control power on
25	P07	N.C	O		L			Open
26	DVSS3A	DVSS3A	G					
27	DVCC3A	VDD3.3V	P					
28	P10	MODEL OPTION	O	PU/PD	L	L	H or L	RCD-M38:"LOW" / RCD-M38DAB:"HIGH"
29	P11	MODEL OPTION	O		L	L	L	RCD-M38"LOW" / MC-R503 "HIGH"
30	P12	N.C	O		L			Open
31	P13	CP-RESET	O		H	L	L	to Apple Chip (WWI) IC42(MFI341S2164)
32	P14	N.C	O		L			Open
33	P15	N.C	O		L			Open
34	P16	N.C	O		L			Open
35	P17	N.C	O		L			Open
36	P40	N.C	O		L			Open
37	P41	N.C	O		L			Open
38	P42	N.C	O		L			Open
39	P43	N.C	O		L			Open
40	P44	N.C	O		L			Open
41	P45	N.C	O		L			Open
42	P46	N.C	O		L			Open
43	P47	N.C	O		L			Open
44	DVSS3A	DVSS3A	G					
45	DVCC3A	VDD3.3V	P					
46	P50	N.C	O		L			Open
47	P51	N.C	O		L			Open
48	P52	N.C	O		L			Open
49	P53	N.C	O		L			Open
50	P54	N.C	O		L			Open
51	P55	N.C	O		L			Open
52	P56	N.C	O		L			Open
53	P57	N.C	O		L			Open
54	P60	N.C	O		L			Open
55	P61	N.C	O		L			Open
56	P62	N.C	O		L			Open
57	P63	CD_BUS2	I		-	-	H/L	to Oasis (IC16)
58	P64	CD_BUS3	O		L	L	H/L	to Oasis (IC16)
59	P65	CD_BUCK	O		L	L	H/L	to Oasis (IC16)
60	P66	CD-CCE	O		L	L	H/L	to Oasis (IC16)
61	P67	DSP-RESET	O		H	H	L	to Oasis (IC16)
62	DVSS3A	GND	G					
63	DVCC3A	VDD3.3V	P					
64	P70	N.C	O		L			Open

Pin No	Port Name	Port Name	I/O	Status				Note
				Pull-U/D	init.	stby	Act.	
65	P71	N.C	O		L			Open
66	P72	N.C	O		L			Open
67	P73	N.C	O		L			Open
68	P74	N.C	O		L			Open
69	P80	BOOT	I	PU	-	-	L	
70	P82	N.C	O		L			Open
71	P83	LRCK1	O		L	L	H/L	to Oasis (IC16)
72	AM1	VDD3.3V	P					
73	X2	X2	O					Oscilator connection 9MHz output
74	DVSS	GND	G					
75	X1	X1	I					Oscilator connection 9MHz input
76	DVCC3A	VDD3.3V	P					
77	P75	USB_OC	I	PU	-	-	L	USB over current detection
78	P76	N.C	O		L			Open
79	D+	USB+	I/O					
80	D-	USB-	I/O					
81	AM0	VDD3.3V	P					
82	P77	USB-DETECT	I		-	-	L	USB Detect
83	DVSS3A	GND	G					
84	PF0 / TXD0	N.C	O		L			Open
85	PF1 / RXD0	N.C	O		L			Open
86	PF2	D+ DOWN	O	PD	L	-	H	USB D+ LINE RESET
87	PF3 / TXD1	USB-TX	O		L	L	H/L	to HOST MCU (IC11)
88	PF4 / RXD1	USB-RX	I		-	-	H/L	to HOST MCU (IC11)
89	PF5	N.C	O		L			
90	PN1	CP-SDA	I/O	PU	L	L	H/L	to Apple Chip (WWI) IC42(MFI341S2164)
91	PN2	CP-CLK	O	PU	L	L	H/L	to Apple Chip (WWI) IC42(MFI341S2164)
92	PN3	USB-BCK	O		L	L	H/L	to Oasis (IC16)
93	PN4	UBS-DATA	O		L	L	H/L	to Oasis (IC16)
94	PN5	USB-GATE	O		L	L	H	to Oasis (IC16)
95	DVCC3A	VDD3.3V	P					
96	PG3	N.C	I					Open
97	PG2	DREQ(MP3REQ)	I	PD	-	-	L	to Oasis (IC16)
98	PG1	N.C	I	PU				
99	PG0	N.C	I					Open
100	DVSS3A	GND	G					

TMPM330FYFG (for E3,E2,JP model) / T5CN5 (for EK model) (MCU : IC11)



TMPM330FYFG (for E3,E2,JP model) / T5CN5 (for EK model) Block Diagram



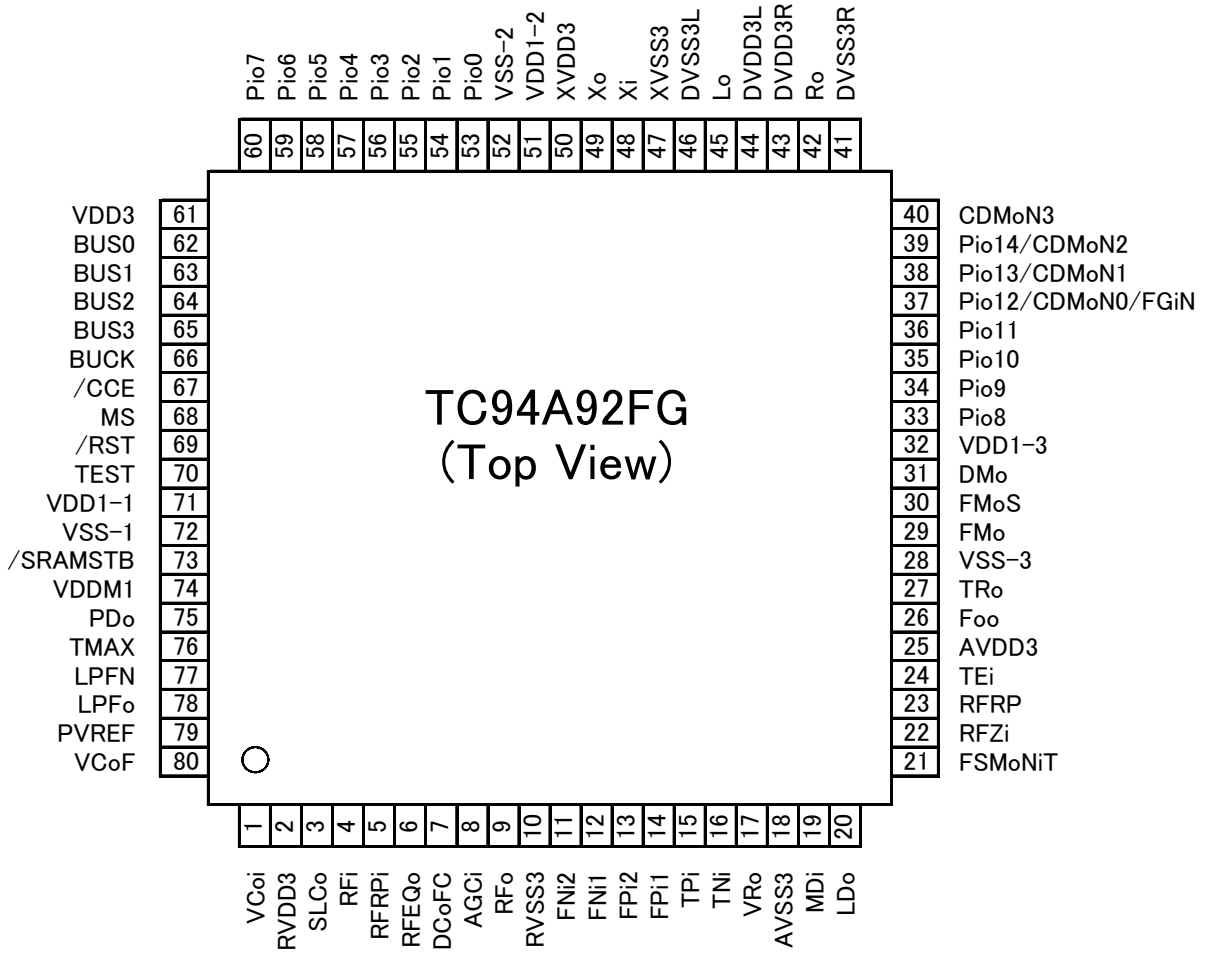
TMPM330FYFG (for E3,E2,JP model) / T5CN5 (for EK model) Terminal Function

Pin No	Port Name	Port Name	I/O	Status				Note
				Pull-up/ down	init.	stby	Act.	
1	PD6	AMP_PRT	I	Pull-up	-	H	L	AMP protect detect
2	AN11	POWER_PROT	I	Pull-down	-	L	H	POWER protect detect
3	AVSS		G					A/D converter: GND pin (0V)
4	VREFH		P					Reference power supply
5	AVCC		P					A/D converter with a power supply
6	INT4	REMOTE_IN_1	I		-	-	-	remote in
7	PK2	HP_ON	O		L	L	H	Headphone on/off control (SP Relay Control)
8	PJ5	CD_CLOSE_M	O		L	L	H	CD CLOSE MOTOR IP4001(14) Mute
9	PH4	CD_OPEN_M	O		L	L	H	CD OPEN MOTOR IP4001(9) Mute
10	PH5	CD_CLOSE_SW	I	Pull-up	-	O	-	CD CLOSE switch
11	PG7	CD_OPEN_SW	I	Pull-up	-	O	-	CD OPEN switch
12	TEST2							TEST pin, Set to OPEN.
13	DVSS		G					GND pin
14	DVCC		P					Power supply pin
15	PG4	CD_LIMIT_SW	I	Pull-up	-	-	L	CD INNER switch
16	PG5	MT_STBY	O		L	L	H	motor stanby IP4001(7) Mute
17	PG6	F_MUTE	O		L	H	H	function mute (INPUT B'D Q112-B)
18	TEST1							TEST pin, Set to OPEN.
19	PF7	SPDIF_ON	O		L	L	H	SPDIF on (J Ver. Only)

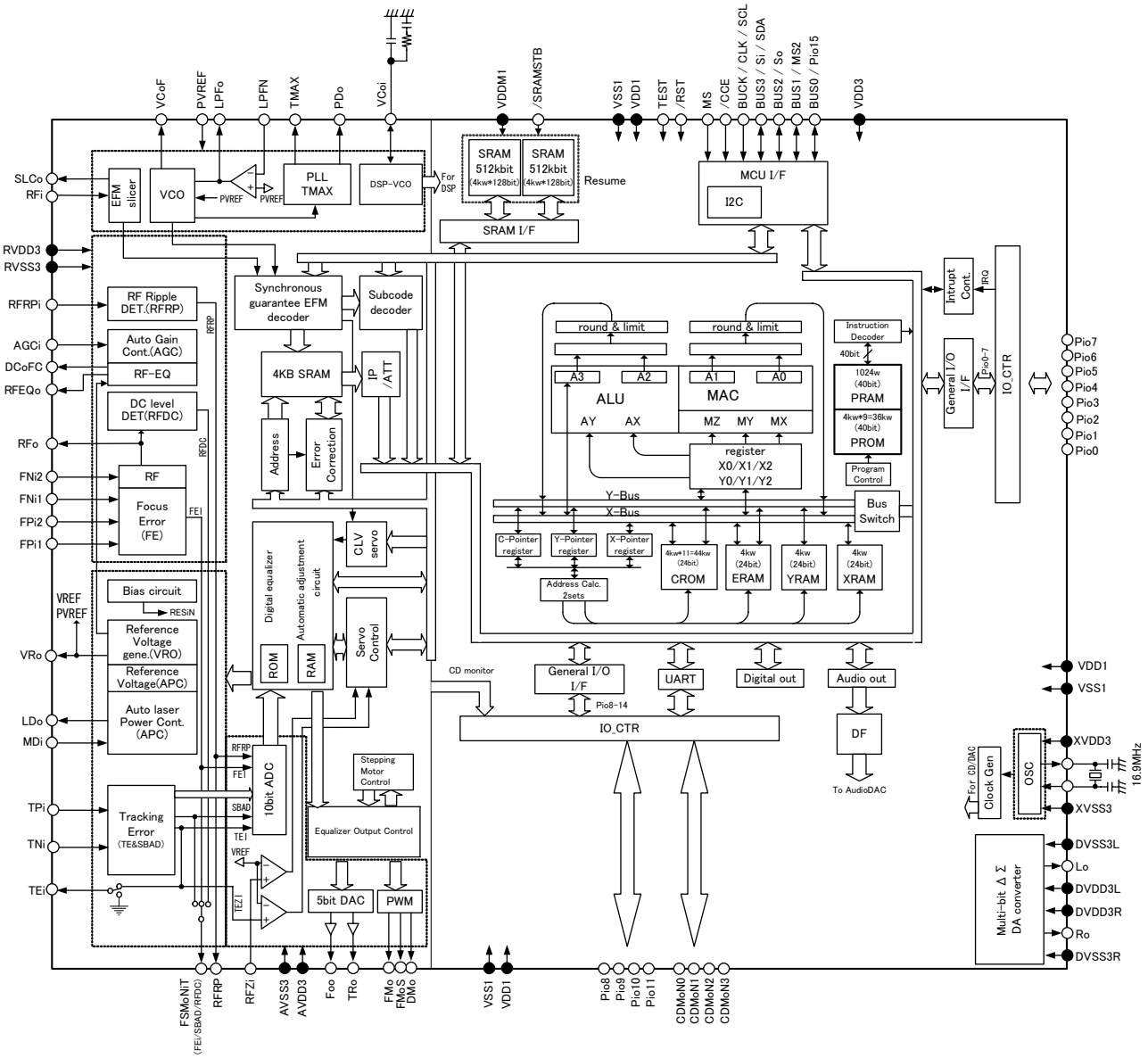
Pin No	Port Name	Port Name	I/O	Status				Note
				Pull-up/ down	init.	stby	Act.	
20	TXD0	USB_TX/UPDATE TX	O		L	L	-	send command to bolero IC
21	RXD0	USB_RX/UPDATE RX	I		-	-	-	receive data from bolero IC
22	PE2	SP_ON	O		L	L	H	speaker on/off control (AMP B'D Q710-E)
23	TXD1	DAB_TX	O		L	L	-	send command to DAB Module
24	RXD1	DAB_RX	I		-	-	-	receive data from DAB Module
25	PE6	DAC_RST	O	Pull-down	L	L	-	AK4385 DAC reset
26	PG0	DAC_CS	O	Pull-down	L	L	-	AK4385 DAC chip select
27	PG1	DAC_CLK	O	Pull-down	L	L	-	AK4385 DAC clock
28	PG2	DAC_CDTI	O	Pull-down	L	L	-	AK4385 DAC data
29	PB3	-	O					OPEN
30	BOOT	single boot mode	I	Pull-up	-	H	L	update mode select
31	PH1/TB0IN0	-	O					OPEN
32	PH2/TB1IN0	-	O					OPEN
33	TXD2	iPodDock_TX	O		L	L	-	used when connect with iPod uart data out
34	RXD2	iPodDocK_RX	I		-	-	-	used when connect with iPod uart data in
35	PF2	F_V_CS	O		L	L	L	function IC strobe (NJW11153)
36	PH3	F_V_CLK	O		L	L	-	function IC clock (NJW11153)
37	PB4	F_V_DATA	O		L	L	-	function IC data (NJW11153)
38	PI0/TB0OUT	-	O					OPEN
39	PJ6/INT6	-	O					OPEN
40	PI1/TB1OUT	-	O					OPEN
41	PB5	-	O					OPEN
42	PI2/TB2OUT	-	O					OPEN
43	PB6	BOL_RST	O		L	L	L	Bolero (IC41) Reset
44	PF4	TU_SDA	I/O	Pull-up	L	L	-	tuner PLL IC data
45	PF5	TU_SCL	O	Pull-up	L	L	-	tuner PLL IC clock
46	PF6	TUNED	I	Pull-up	-	-	L	tuned in
47	PB7	STEREO	I	Pull-up	-	-	L	stereo in
48	PI3	RDS_DATA	I	Pull-down	-	-	-	RDS data
49	INT1	RDS_CLK	I	Pull-down	-	-	-	RDS clock
50	PK0	CD_BUS2	I		-	-	-	receive data from CD DSP (Oasis (64)pin OUT)
51	PK1	CD_BUS3	O		L	L	-	send command to CD DSP (Oasis (65)pin IN)
52	PI4	CD_BUCK	O		L	L	-	communication clock with CD DSP
53	PI5	CD_CCE	O		L	L	-	communication chip enable with CD DSP
54	PB0/TDO/SWV		O	Pull-up				for DEBUG
55	PA0/TMS/SWDIO		O	Pull-up				for DEBUG
56	PA1/TCK/SWCLK		O	Pull-down				for DEBUG
57	TEST3							TEST pin, Set to OPEN.
58	PJ7	CD_DSP_RST	O		L	L	L	CD DSP reset
59	PB1/TDI		O	Pull-up				for DEBUG
60	PB2/TRST		O	Pull-up				for DEBUG
61	PF3/RXIN1	-	O					OPEN
62	DVCC		P					Power supply pin
63	DVSS		G					GND pin
64	PA2	LED_RED	O		H	H	L	TIMER ST LED(RED) Control ”L";ON
65	PA3	LED_GREEN	O		H	H	L	Power LED (GRREN) Control "L";ON
66	PA4	VFD_RST	O		L	L	L	vfd reset
67	PA5	VFD_DI	O		L	L	-	vfd data
68	PA6	VFD_CS	O		L	L	L	vfd chip select
69	PA7	VFD_CLK	O		L	L	-	vfd clock
70	INT0	EX_INTERRUT	I	Pull-up	-	H	L	External Interrupt (For Key detection)
71	CVCC		P					Power supply pin
72	X2							oscillator(10MHz) high-speed oscillator(Output)
73	CVSS		G					GND pin
74	X1							oscillator(10MHz) high-speed oscillator(Input)
75	REGVSS	GND pin	G					GND pin
76	REGVCC		P					Power supply pin
77	XT1							RTC oscillator(32.768KHz) low-speed oscillator(Input)
78	XT2							RTC oscillator(32.768KHz) low-speed oscillator(Output)
79	PI6/TB4IN0	-	O					OPEN
80	NMI		P					3.3V Non-maskable interrupt
81	MODE		G					GND
82	RESET	Reset input pin	I			I	L	MCU RESET
83	PI7	EEPROM_SCL	O	Pull-up	L	-	-	EEPROM clock
84	PH6	EEPROM_SDA	I/O	Pull-up	L	-	-	EEPROM data

Pin No	Port Name	Port Name	I/O	Status				Note
				Pull-up/ down	init.	stby	Act.	
85	PH7	POWER_H	O		L	L	H	RL91 Control
86	PJ2	POWER_DOWN	I	Pull-up	H	H	L	Power down
87	PJ3/INT3	-	O					OPEN
88	PJ4/TB6OUT	-	O					OPEN
89	PE3/RXIN0	-	O					OPEN
90	TEST4							TEST pin, Set to OPEN.
91	AN0	KEY0	I	Pull-up	-	-	-	key0
92	AN1	KEY1	I	Pull-up	-	-	-	key1
93	PC2	-	I	Pull-down				OPEN
94	PC3	VOL_EN1 (VOL-)	I	Pull-up	-	-	-	volume encoder sw1
95	PD0	VOL_EN2 (VOL+)	I	Pull-up	-	-	-	volume encoder sw2
96	AN5	Version Option.	I		-	-	-	Version Option R128 (EK;33k / E2;1.8k / E3;4.7k / J;8.2k)
97	PD2	HP_IN	I	Pull-up	-	O	L	headphone in detect
98	AN7	LD_CHK	I		-		-	check for LASER Current (A/D conversion)
99	PD4	PORTABLE_IN	I	Pull-up	-	O	L	Portable In
100	PD5	Model option	I	Pull-up	-	-	-	Model Option "H"

TC94A92FG (MCU : IC16)



TC94A92FG Block Diagram



TC94A92FG Terminal Function

Pin No.	Symbol	I/O	Description	Default	Remarks
1	VCoi	O 3AI/F	DSP VCO - EFM and PLCK Phase difference signal output pin. (DSP VCO control voltage inputr pin.)	O	3 state output
2	RVDD3	-	CD-DSP-Power supply for 3.3V RF amplifier core and PLL circuit	-	
3	SLCo	O 3AI/F	EFM slice level output pin	O	Connect capacitor according with se rvo frequency band.
4	RFi	I 3AI/F	RF signal input pin	I	Selectable Zin 20/10 kΩ
5	RFRPi	I 3AI/F	RF ripple signal input pin	I	
6	RFEQo	O 3AI/F	RF equalizer circuit output pin.	O	Connect to RFRPi by 0.1uF, to RFi by 4700pF.
7	DCoFC	O 3AI/F	RFEQo offset compensation LPF output	O	Connect to Vro by more than 0.015uF
8	AGCi	I 3AI/F	RF signal AGC amplifier input pin	I	
9	RFo	O 3AI/F	RF signal generation amplifier output pin	O	
10	RVSS3	-	Grounding pin for 3.3 RF amplifier core and PLL circuit	-	
11	FNI2	I 3AI/F	Main beam signal input pin. To be connected to PIN diode C.	I	
12	FNI1	I 3AI/F	Main beam signal input pin. To be connected to PIN diode A.	I	
13	FPI2	I 3AI/F	Main beam signal input pin. To be connected to PIN diode D.	I	
14	FPI1	I 3AI/F	Main beam signal input pin. To be connected to PIN diode B.	I	
15	TPi	I 3AI/F	Sub beam signal input pin. To be connected to PIN diode F.	I	
16	TNi	I 3AI/F	Sub beam signal input pin. To be connected to PIN diode E.	I	
17	VRo	O 3AI/F	1.65 V reference voltage output pin.	O	Connected to PVREF, And connect to GNG by 0.1uF+100uF.
18	AVSS3	-	Grounding pin for 3.3V CD analog circuits.	-	
19	MDi	I 3AI/F	Monitor photodiode amplifier input pin.	I	Reference Voltage=178mVtyp.
20	LDo	O 3AI/F	Laser diode amplifier output pin	O	

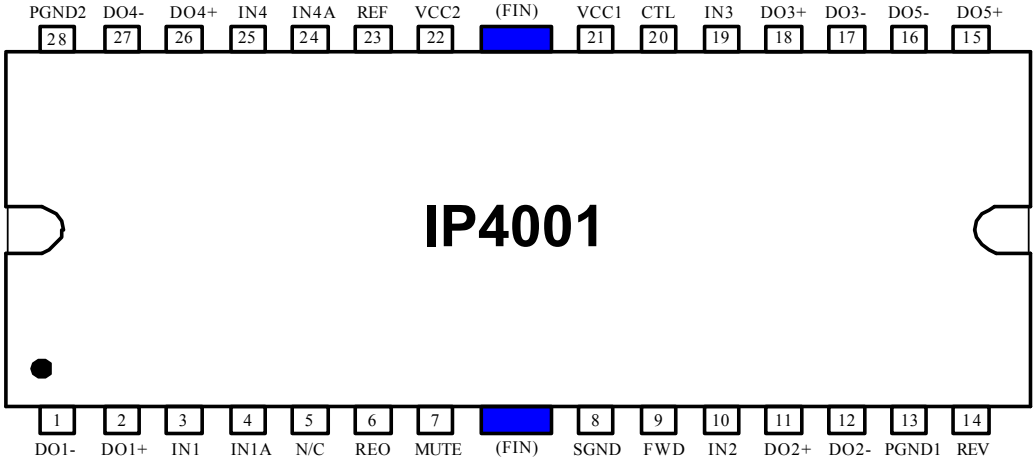
Pin No.	Symbol	I/O	Description	Default	Remarks
21	FSMoNiT	O 3AI/F	Focus Error signal / Sub beam add signal output pin(monitor pin/GND)	O	
22	RFZi	I 3AI/F	RF ripple zero-cross signal Input pin	I	
23	RFRP	O 3AI/F	RF ripple signal output pin.	O	
24	TEi	O 3AI/F	Tracking error signal output pin.	O	Bulit-in serises R=500Ω. Connect to VRo by capacitor.
25	AVDD3	-	Power supply pin for 3.3 V CD analog circuits.	-	
26	FOo	O 3AI/F	Focus servo equalizer output pin.	O	Bulit-in serises R=3.3 kΩ
27	TRo	O 3AI/F	Tracking servo equalizer output pin.	O	Bulit-in output R=3.3 kΩ
28	VSS-3	-	Grounding pin for 1.5V Decoder-DSP CD circuit	-	
29	FMo	O 3AI/F	Feed servo equalizer output pin.	O	Bulit-in output R=3.3 kΩ
30	FMoS	O 3AI/F	Feed servo equalizer output pin. (Stepper motor application)	O	Bulit-in output R=3.3 kΩ
31	DMo	O 3AI/F	Disc servo equalizer output pin	O	Bulit-in output R=3.3 kΩ
32	VDD1-3	I/O 3I/F	Power supply pin for 1.5V Decoder-DSP /CD circuit	-	
33	Pio8	I/O 3I/F	Port 8（General Input/Output Port ）	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
34	Pio9	I/O 3I/F	Port 9（General Input/Output Port ）	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
35	Pio10	I/O 3I/F	Port 10（General Input/Output Port ）	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
36	Pio11	I/O 3I/F	Port 11（General Input/Output Port ）	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
37	Pio12/ CDMoN0/ FGiN	I/O 3I/F	Port 12（General Input/Output Port ） / CD Monitor 0 / FG signal input	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
38	Pio13/ CDMoN1	I/O 3I/F	Port 13（General Input/Output Port ） / CD Monitor1	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
39	Pio14/ CDMoN2	I/O 3I/F	Port 14（General Input/Output Port ） / CD Monitor 2	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
40	CDMoN3	O 3I/F	CD Monitor3 (Default output : SBSY)	O	CMOS Port Refer to [1.2 Pin Assinment Table]

Pin No.	Symbol	I/O	Description	Default	Remarks
41	DVSS3R	-	Grounding pin for 3.3V Muiti-Bit DAC circuit	-	
42	Ro	O 3AI/F	R channel audio output pin of Audio DAC.	O	
43	DVDD3R	-	Power supply pin for 3.3V Audio DAC circuit.	-	
44	DVDD3L	-	Power supply pin for 3.3V Audio DAC circuit.	-	
45	Lo	O 3AI/F	L channel audio output pin of Audio DAC	O	
46	DVSS3L	-	Grounding pin for 3.3V Muiti-Bit DAC Circuit	-	
47	XVSS3	-	Grounding pin for 3.3V clock oscillator circuit	-	
48	Xi	I 3AI/F	System clock Input pin	I	Xtal oscillation circuit. Connect feedback resistor 1 MΩ between Xo and Xi
49	Xo	O 3AI/F	System clock Output pin	O	
50	XVDD3	-	Power Supply pin for 3.3V clock oscillator circuit	-	
51	VDD1-2	-	Power Supply pin for 1.5V Digital circuit	-	
52	VSS-2	-	Grounding pin for 1.5V digital circuit	-	
53	Pio0	I/O 3I/F	Port 0（General Input/Output Port ）	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
54	Pio1	I/O 3I/F	Port 1（General Input/Output Port ）	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
55	Pio2	I/O 3I/F	Port 2（General Input/Output Port ）	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
56	Pio3	I/O 3I/F	Port 3（General Input/Output Port ）	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
57	Pio4	I/O 3I/F	Port 4（General Input/Output Port ）	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
58	Pio5	I/O 3I/F	Port 5（General Input/Output Port ）	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
59	Pio6	I/O 3I/F	Port 6（General Input/Output Port）	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
60	Pio7	I/O 3I/F	Port 7（General Input/Output Port ）	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]

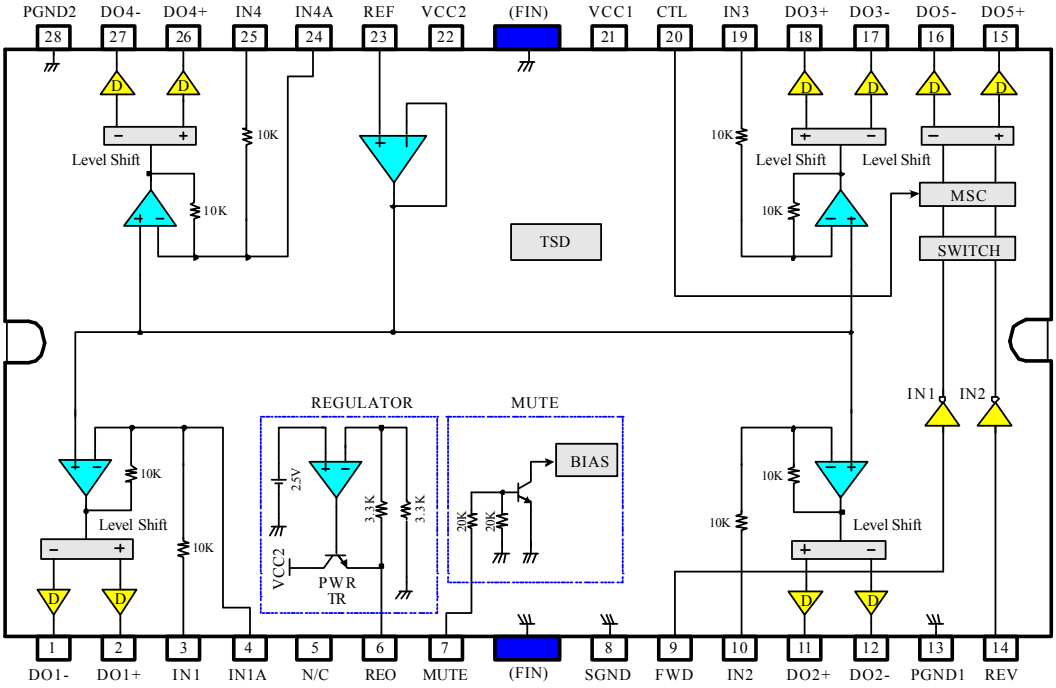
Pin No.	Symbol	I/O	Description	Default	Remarks
61	VDD3	-	Power Supply pin for 3.3V Digital circuit	-	
62	BUS0	I/O 3I/F	Microprocessor I/F data input/output pin 0	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
63	BUS1	I/O 3I/F	Microprocessor I/F data input/output pin 1	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
64	BUS2	I/O 3I/F	Microprocessor I/F data input/output pin 2	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
65	BUS3	I/O 3I/F	Microprocessor I/F data input/output pin 3	I	CMOS Port Schmitt input Refer to [1.2 Pin Assinment Table]
66	BUCK	I 3I/F	Microprocessor I/F BUS clock Input pin	I	Schmitt input Refer to [1.2 Pin Assinment Table]
67	/CCE	I 3I/F	Microprocessor I/F chip enable input pin	I	Schmitt input Refer to [1.2 Pin Assinment Table]
68	MS	I 3I/F	Microprocessor I/F mode selection pin. "H": Parallel I/F, "L": Serial I/F	I	Refer to [1.2 Pin Assinment Table]
69	/RST	I 3I/F	Reset Input pin	I	Schmitt input
70	Test	I 3I/F	Test pin ("L" fixed)	I	Connect to GND for normal operation
71	VDD1-1	-	Power Supply pin for 1.5V Digital circuit	-	
72	VSS-1	-	Grounding pin for 1.5V Digital circuit	-	
73	/SRAMSTB	I 3I/F	1Mbit SRAM stand by pin(/SRAMSTB="L")	I	
74	VDDM1	-	Power Supply for 1.5V 1Mbit SRAM circuit	-	
75	PDo	O 3AI/F	EFM and PLCK Phase difference signal output pin.	O	4-state output (RVDD3, RVSS3,PVREF, Hiz)
76	TMAX	O 3AI/F	TMAX detection result output pin	O	3-state output (RVDD3, RVSS3, Hiz)
77	LPFN	I 3AI/F	PLL circuit LPF amplifier inversion input pin	I	
78	LPFo	O 3AI/F	PLL circuit LPF amplifier Output pin	O	
79	PVREF	-	PLL circuit 1.65 V reference voltage pin.	-	Connected to VRO. Connect to GND by 0.1uF and 100uF.
80	VCoF	O 3AI/F	VCO filter pin	O	Connect to GND by 0.01uF

3A I/F : 3 V analog circuit input/output pin.
1.5 I/F : 1.5Vdigital input/output pin.
3 I/F : 3 V digital input/output pin.

CVIIP4001CRLTF (MCU : IC31)



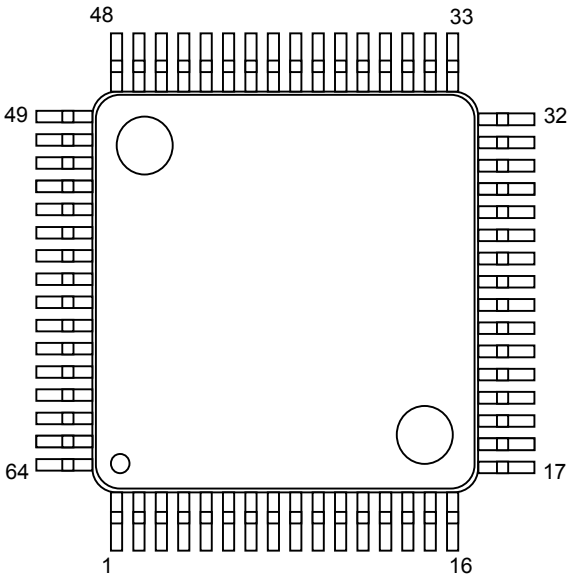
CVIIP4001CRLTF Block Diagram



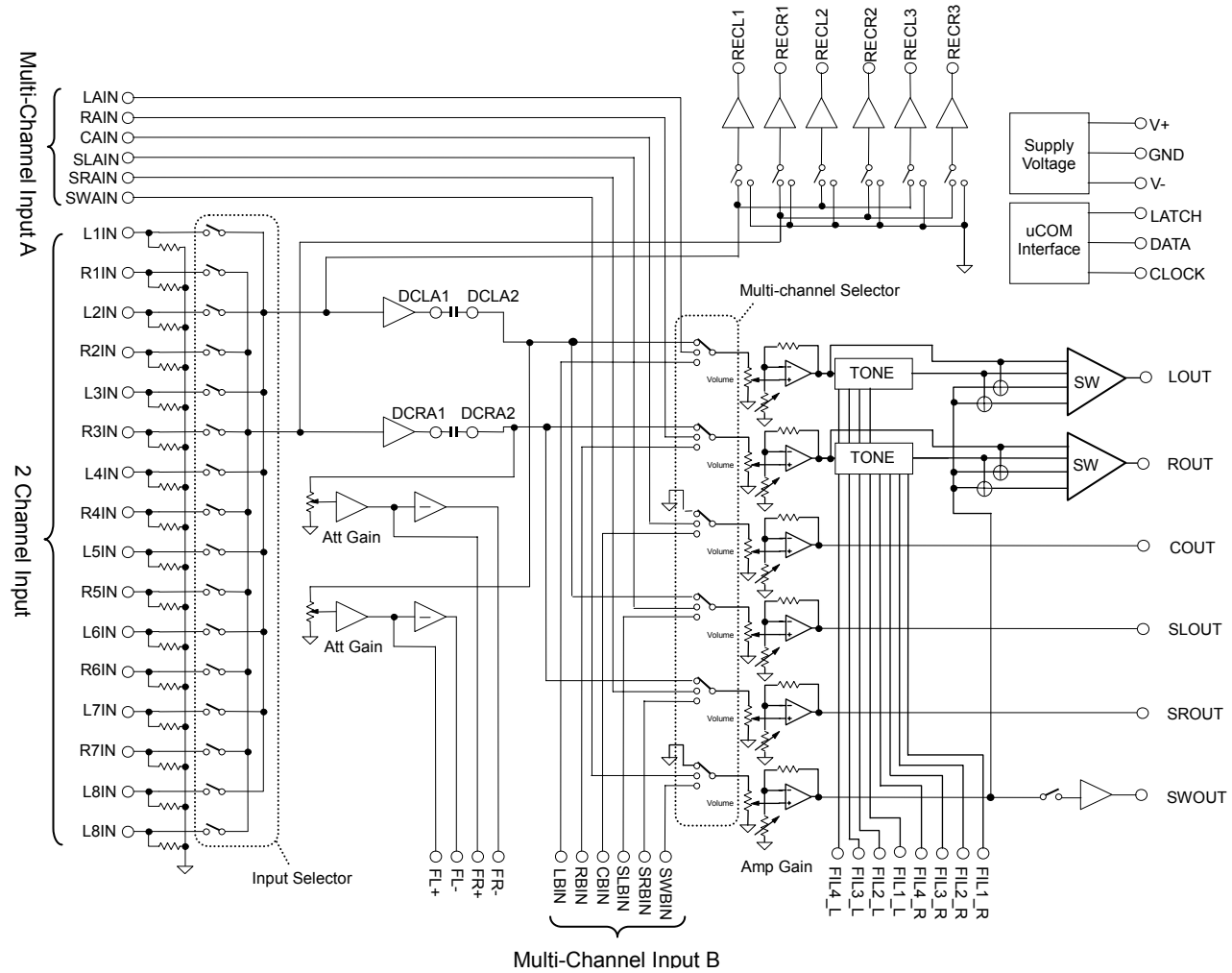
CVIIP4001CRLTF Pin Discriptions

NO	SYMBOL	I/O	DESCRIPTION	NO	SYMBOL	I/O	DESCRIPTION
1	DO1-	O	CH1 OUTPUT (-)	15	DO5+	O	CH5 OUTPUT (+)
2	DO1+	O	CH1 OUTPUT (+)	16	DO5-	O	CH5 OUTPUT (-)
3	IN1	I	CH1 INPUT 1	17	DO3-	O	CH3 OUTPUT (-)
4	IN1A	I	CH1 INPUT 2	18	DO3+	O	CH3 OUTPUT (+)
5	N / C	-	NO-CONNECTION	19	IN3	I	CH3 INPUT
6	REO	O	REGULATOR OUTPUT	20	CTL	I	CH5 MOTOR SPEED CONTROL
7	MUTE	I	MUTE INPUT	21	VCC1	I	SUPPLY VOLTAGE 1 (CH2,CH3,CH5)
8	SGND	-	SIGNAL GROUND	22	VCC2	I	SUPPLY VOLTAGE 2 (CH1,CH4,SIGNAL,REG)
9	FWD	I	CH5 INPUT 1	23	REF	I	CH BIAS INPUT
10	IN2	I	CH2 INPUT	24	IN4A	I	CH4 INPUT 1
11	DO2+	O	CH2 OUTPUT (+)	25	IN4	I	CH4 INPUT 2
12	DO2-	O	CH2 OUTPUT (-)	26	DO4+	O	CH4 OUTPUT (+)
13	PGND1	-	POWER GROUND 1	27	DO4-	O	CH4 OUTPUT (-)
14	REV	I	CH5 INPUT 2	28	PGND2	-	POWER GROUND 2

NJW1153FGI (INPUT : IC11)



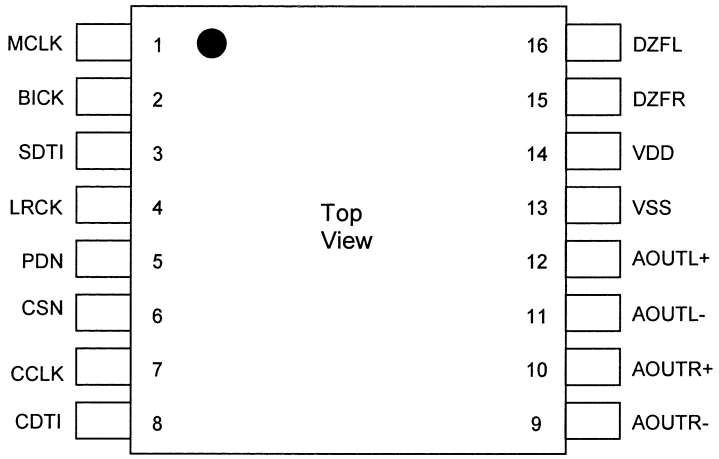
NJW1153FGI Block Diagram



NJW1153FGI Pin Discriptions

No.	SYMBOL	FUNCTION	No.	SYMBOL	FUNCTION
1	FIL2_R	Rch Bass filter terminal	33	RAIN	Multi-channel Rch input A
2	FIL3_R	Rch Bass filter DC cut capacitor output terminal	34	CAIN	Multi-channel Cch input A
3	FIL4_R	Rch Bass filter DC cut capacitor input terminal	35	SLAIN	Multi-channel SLch input A
4	GND	Ground	36	SRAIN	Multi-channel SRch input A
5	FL+	“Input selector gain control” Lch no-inverted output	37	SWAIN	Multi-channel SWch input A
6	FL-	“Input selector gain control” Lch inverted output	38	LBIN	Multi-channel Lch input B
7	FR+	“Input selector gain control” Rch no-inverted output	39	RBIN	Multi-channel Rch input B
8	FR-	“Input selector gain control” Rch inverted output	40	CBIN	Multi-channel Cch input B
9	DCLA1	“Input selector” Lch output	41	SLBIN	Multi-channel SLch input B
10	DCLA2	“Multi-channel selector” Lch input	42	SRBIN	Multi-channel SRch input B
11	DCRA1	“Input selector” Rch output	43	SWBIN	Multi-channel SWch input B
12	DCRA2	“Multi-channel selector” Rch input	44	SurTC	Switching noise rejection capacitor
13	L1IN	“Input selector” Lch input 1	45	FIL4_L	Lch Bass filter DC cut capacitor input terminal
14	R1IN	“Input selector” Rch input 1	46	FIL3_L	Lch Bass filter DC cut capacitor output terminal
15	L2IN	“Input selector” Lch input 2	47	FIL2_L	Lch Bass filter terminal
16	R2IN	“Input selector” Rch input 2	48	FIL1_L	Lch Treble filter terminal
17	L3IN	“Input selector” Lch input 3	49	LOUT	Lch output
18	R3IN	“Input selector” Rch input 3	50	ROUT	Rch output
19	L4IN	“Input selector” Lch input 4	51	COUT	Cch output
20	R4IN	“Input selector” Rch input 4	52	SLOUT	SLch output
21	L5IN	“Input selector” Lch input 5	53	SROUT	SRch output
22	R5IN	“Input selector” Rch input 5	54	SWOUT	SWch output
23	L6IN	“Input selector” Lch input 6	55	V+	+ Power supply voltage input
24	R6IN	“Input selector” Rch input 6	56	GND	Ground
25	L7IN	“Input selector” Lch input 7	57	V-	- Power supply voltage input
26	R7IN	“Input selector” Rch input 7	58	RECL1	“Input selector” Lch REC output 1
27	L8IN	“Input selector” Lch input 8	59	RECR1	“Input selector” Rch REC output 1
28	R8IN	“Input selector” Rch input 8	60	RECL2	“Input selector” Lch REC output 2
29	DATA	Control data signal input	61	RECR2	“Input selector” Rch REC output 2
30	CLOCK	Clock signal input	62	RECL3	“Input selector” Lch REC output 3
31	LATCH	Latch signal input	63	RECR3	“Input selector” Rch REC output 3
32	LAIN	Multi-channel Lch input A	64	FIL1_R	Rch Treble filter terminal

AK4385 (INPUT : IC15)

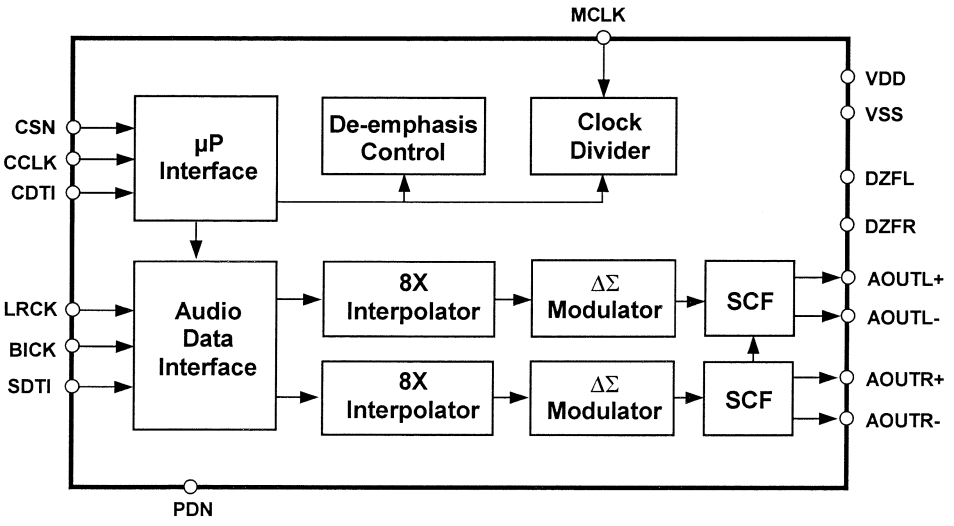


AK4385 Pin Discriptions

No.	Pin Name	I/O	Function
1	MCLK	I	Master Clock Input Pin An external TTL clock should be input on this pin.
2	BICK	I	Audio Serial Data Clock Pin
3	SDTI	I	Audio Serial Data Input Pin
4	LRCK	I	L/R Clock Pin
5	PDN	I	Power-Down Mode Pin When at "L", the AK4385 is in the power-down mode and is held in reset. The AK4385 must be reset once upon power-up.
6	CSN	I	Chip Select Pin
7	CCLK	I	Control Data Input Pin
8	CDTI	I	Control Data Input Pin in serial mode
9	AOUTR-	O	Rch Negative Analog Output Pin
10	AOUTR+	O	Rch Positive Analog Output Pin
11	AOUTL-	O	Lch Negative Analog Output Pin
12	AOUTL+	O	Lch Positive Analog Output Pin
13	VSS	-	Ground Pin
14	VDD	-	Power Supply Pin
15	DZFR	O	Rch Data Zero Input Detect Pin
16	DZFL	O	Lch Data Zero Input Detect Pin

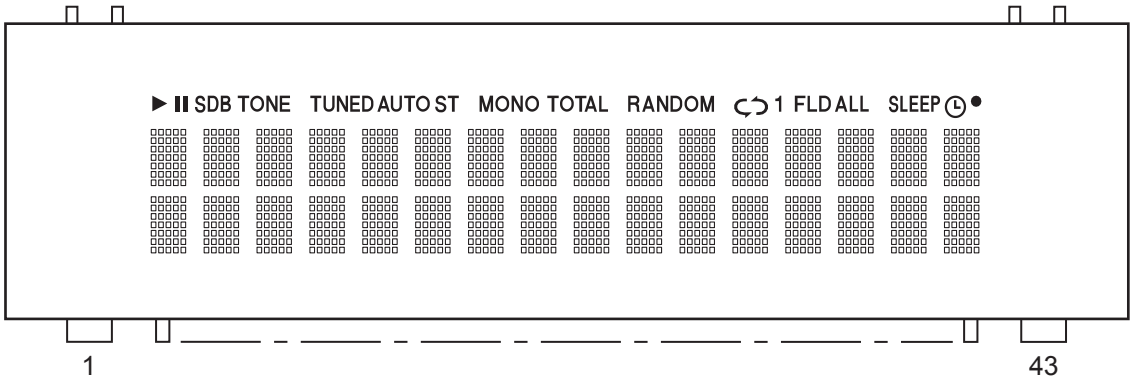
Note: All input pins should not be left floating.

AK4385 Block Diagram



2. IC's

16ST103GINK (MAIN : FL81)

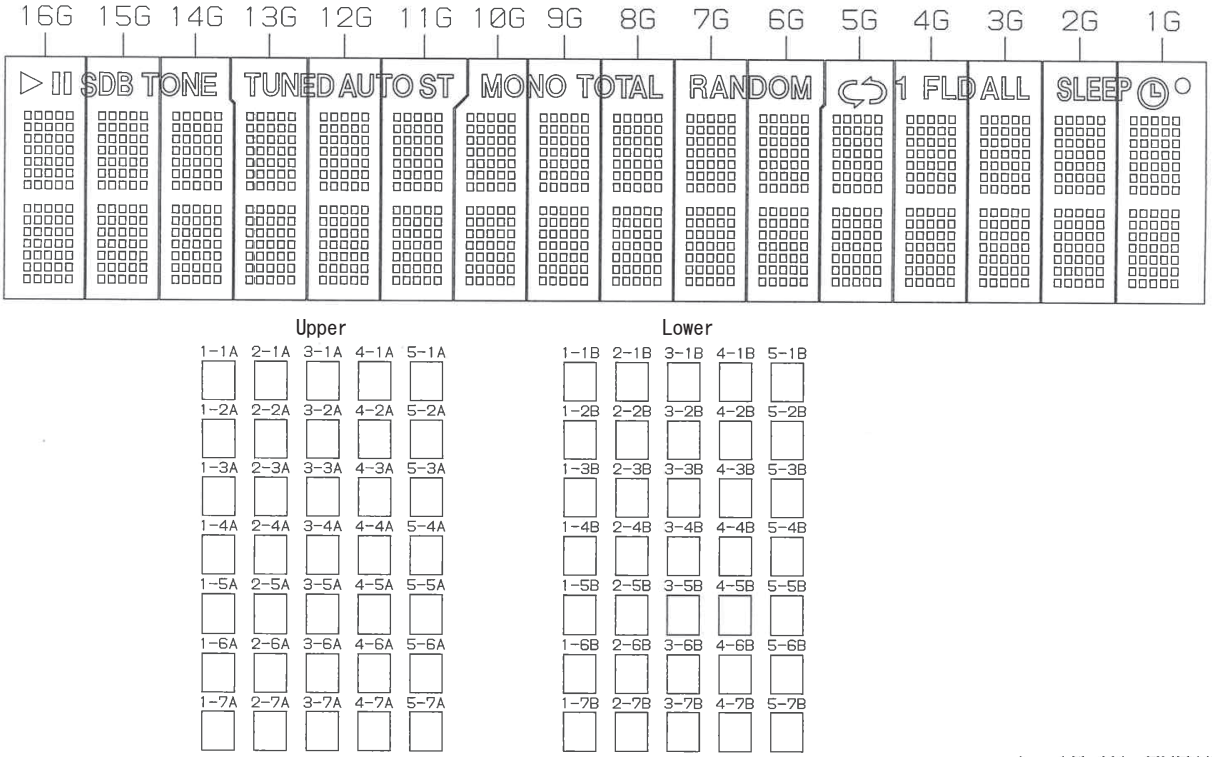


PIN CONNECTION

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	TSBA	TSAA	DCP	-CCS	-RESET	OSCC	OVDD	VHH	PGND	LGND	NP	NP	F2	

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) $\overline{ISA}$,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.

GRID ASSIGNMENT



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	▷	–	–	↻	–	–

PARTS LIST OF P.C.B. UNIT

* Parts for which "nsp" is indicated on this table cannot be supplied.
* The parts listed below are for maintenance only, might differ from the parts used in the unit in appearances or dimensions.

Note: The symbols in the column "Remarks" indicate the following destinations.
E3 : U.S.A. & Canada model E2 : Europe model EK : U.K. model
BK : Black model SP : Premium Silver model

MCU_CD_DSP PCB ASSY

△3

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New	
SEMICONDUCTORS GROUP								
	IC11	943243009090D	IC U-COM RCD-M38(TMPM330FYFG,TOSHIBA)	E3,E2	CVIANAM1513CR		*	
	IC11	943243009100D	IC U-COM RCD-M38(TMPM330FYFG,TOSHIBA)	EK	CVIANAM1512CR		*	
	IC12	943243009110D	IC EEPROM(16K,2.5V~5.5V,SOP-8P)		CVIM24C16WMN6TP		*	
	IC13	943234009290S	IC RESET 2.4V (200ms,C-MOS,SOT23-5P)		CVIS80124CLMCJIJT2			△2
	IC14	00D9430183608	IC TC74HCU04AFNG		HVI74HCU04AFNG			
	IC15	90M-HC700520R	IC K74VHC04M		HVI74VHC04MX			
	IC16	943245006980S	IC CD DSP (SERVO,AMPLIFIER,DSP,LQFP-80P)		CVITC94A92FG			
	IC17	90M-HC900040R	IC REGULATOR (+9V,DPAK)		CVIKIA7809AF			
	IC18	00D9430183608	IC TC74HCU04AFNG		HVI74HCU04AFNG			
	IC31	943239006900S	IC 5-CH MOTOR DRIVE IC (WITH REG,SSOP-28P)		CVIIP4001CRLTF			
	IC41	943243009080D	IC USB DECODER FLASH RCD-M38		CVIANAM1511CR			
	IC42	236710076509S	IC IPOD AUTHENTICATION CHIP FROM MARANTZ		CVI236710076509S-DM			
	IC51	00D9430209701	IC KIA1117S/F33 REGULATOR(SOT-223)		CVIKIA1117S33			
	IC52	90M-HC900160R	IC LM1117S15 REGULATOR(SOT-223)		CVIKIA1117S15			
	IC71	943239007340S	IC DCDC CONVERTER (3.5A)		CVISI8005QTL			
	D101,102	90M-HD201800R	DIODE 1SS355		HVD1SS355T			
	D103	90M-HD201820R	DIODE RB160L-60TE25		HVDRB160L60TE25			
	D104,105	90M-HD201800R	DIODE 1SS355		HVD1SS355T			
	D106,107	90M-HD201820R	DIODE RB160L-60TE25		HVDRB160L60TE25			
	D108	90M-HD201800R	DIODE 1SS355		HVD1SS355T			
	D201	90M-HD201800R	DIODE 1SS355		HVD1SS355T			
	D401	00D9430041106	DIODE RB160L-60TE25		HVDRB160L60TE25			
	D501,502	90M-HD201800R	DIODE 1SS355		HVD1SS355T			
	D701	943204006840S	DIODE SCHOTTKY 40V3A DO-214AC		CVDSS34SR			
	Q101	00D9430037903	CHIP TR KRC102S		HVTKRC102S			
	Q102-108	00D9430038009	CHIP TR KRA102S		HVTKRA102S			
	Q109	00D9430037903	CHIP TR KRC102S		HVTKRC102S			△3
	Q110	00D9430038009	CHIP TR KRA102S		HVTKRA102S			
	Q111	00D9430037903	CHIP TR KRC102S		HVTKRC102S			△3
	Q112	00D9430038009	CHIP TR KRA102S		HVTKRA102S			
	Q113,114	00D9430037903	CHIP TR KRC102S		HVTKRC102S			△3
	Q201	00D9430058908	CHIP TR KTA1504S Y RTK		HVTKTA1504SYRTK			
	Q402-404	00D9430037903	CHIP TR KRC102S		HVTKRC102S			△3
	Q909	00D9430037903	CHIP TR KRC102S		HVTKRC102S			△3
CAPACITORS GROUP								
	C101-106	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC			
	C107	nsp	ELECT CAP		HCEC0JRV102T			
	C108,109	nsp	CHIP CAP 12pF 50V		CCUS1H120JA			
	C110	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC			

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New
	C111	nsp	CHIP CAP 18pF 50V		CCUS1H180JA		
	C112	nsp	CHIP CAP 22pF 50V		CCUS1H220JA		
	C113	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C114	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C115	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C116	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C117	nsp	CHIP CAP 100pF 50V		CCUS1H101JA		
	C118	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C121	nsp	CHIP CAP 1uF 10V		CCUS1A105KC		
	C122	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C124	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C125	nsp	ELECT CAP 100UF 6.3V		HCEC0JRV2101T		
	C126-128	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C131	nsp	CHIP CAP 220pF 50V		CCUS1H221JA		
	C133-135	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C136	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C161	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C171	nsp	ELECT CAP 100uF 16V		HCEC1CRV2101T		
	C172,173	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C174	nsp	ELECT CAP100UF 16V		HCEC1CRV2101T		
	C201	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C202	nsp	CHIP CAP 2200pF 50V		CCUS1H222KC		
	C203	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C204	nsp	CHIP CAP 4700pF 50V		CCUS1H472KC		
	C205	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C206	nsp	CHIP CAP 0.015uF 50V		CCUS1H153KC		
	C207	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C209	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C210	nsp	ELECT CAP		HCEC0JRV102T		
	C211	nsp	CHIP CAP 0.033uF 50V		CCUS1H333KC		
	C212	nsp	CHIP CAP 5600pF 50V		CCUS1H562KC		
	C213	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C214,215	nsp	CHIP CAP 470pF 50V		CCUS1H471JA		
	C216	nsp	ELECT CAP		HCEC0JRV102T		
	C217	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C219,220	nsp	CHIP CAP 0.047uF 50V		CCUS1H473KC		
	C221-223	nsp	CHIP CAP 22pF 50V		CCUS1H220JA		
	C224	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C225,226	nsp	CHIP CAP 12pF 50V		CCUS1H120JA		
	C227	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C228	nsp	ELECT CAP 100UF 6.3V		HCEC0JRV2101T		
	C229-231	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C232	nsp	CHIP CAP 1000pF 50V		CCUS1H102KC		
	C233	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C234-236	nsp	CHIP CAP 22pF 50V		CCUS1H220JA		
	C237	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C238	nsp	CHIP CAP 0.015uF 50V		CCUS1H153KC		
	C239	nsp	ELECT CAP 100UF 6.3V		HCEC0JRV2101T		
	C240	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C241	nsp	CHIP CAP 47pF 50V		CCUS1H470JA		
	C242	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C243	nsp	ELECT CAP 47UF 6.3V		HCEC0JRV2470T		
	C244	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New
	C251	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C252	nsp	ELECT CAP 100UF 6.3V		HCEC0JRV2101T		
	C253	943134001130S	SMD ELECT CAP 470 16V		CCEC1CRV471T		
	C254	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C255	943134001130S	SMD ELECT CAP 470 16V		CCEC1CRV471T		
	C256	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C257	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C302	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C304	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C306	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C307,308	943134001130S	SMD ELECT CAP 470 16V		CCEC1CRV471T		
	C309	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C310	nsp	ELECT CAP 100UF 6.3V		HCEC0JRV2101T		
	C311-314	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C401,402	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C403	nsp	ELECT CAP 10UF 16V		HCEC1CRV2100T		
	C404,405	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C406	nsp	ELECT CAP 10UF 16V		HCEC1CRV2100T		
	C407,408	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C409	nsp	CHIP CAP 1000pF 50V		CCUS1H102KC		
	C410,411	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C412,413	nsp	CHIP CAP 15pF 50V		CCUS1H150JA		
	C414,415	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C416	nsp	CHIP CAP 470pF 50V		CCUS1H471JA		
	C417	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C418	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C420,421	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C422	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C433	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C438	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C501,502	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C503	nsp	ELECT CAP 100UF 6.3V		HCEC0JRV2101T		
	C504	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C505	nsp	ELECT CAP 10UF 16V		HCEC1CRV2100T		
	C506,507	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C508	nsp	ELECT CAP 100UF 6.3V		HCEC0JRV2101T		
	C509	nsp	ELECT CAP 47UF 6.3V		HCEC0JRV2470T		
	C510,511	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C512	nsp	ELECT CAP 47UF 6.3V		HCEC0JRV2470T		
	C513-516	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C521-534	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C701	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C702	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C703	nsp	ELECT CAP 150uF 10V		CCEC1ACEEX151TY		
	C704	nsp	CHIP CAP 220pF 50V		CCUS1H221JA		
	C705	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C707	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C708	nsp	ELECT CAP 150uF 25V		CCEC1EHVH151TY		
	C709	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C710	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C711	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C712,713	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C714	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New
	C715	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C716	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
OTHERS PARTS GROUP							
	BN12	nsp	2P SHEILD WIRE ASS'Y (200MM 2MM PITCH)		CWZRCDM37BN12		
	CN22,23	nsp	WAFER (CD MECHA)		CJP06HA37ZM		
	CN25	nsp	WAFER SMD (2MM PITCH)		CJP06GA208ZY		
	CN26	nsp	WAFER SMD (2MM PITCH)		CJP05GA208ZY		
	CN71	nsp	WAFER SMD (2MM PITCH)		CJP05GA208ZY		
	CN83	nsp	WAFER SMD (2MM PITCH)		CJP05GA208ZY		
	CN96	nsp	WAFER SMD (2MM PITCH)		CJP05GA208ZY		
	CN98	nsp	WAFER SMD (2MM PITCH)		CJP09GA208ZY		
	F401	943661006910S	POLY SWITCH (1.6A 8V)		CBA5H1600PSUYT		
	L101	nsp	CHIP FERRITE BEAD(60ohm 4516)		CLZ9Z014Z		
	L201	90M-LU000220R	CHIP INDUCTOR 10UH (3225 PKG)		HLQ10E100KRZ		
	L301	nsp	CHIP FERRITE BEAD(220ohm 2012)		CLZ9R006Z		
	L401	nsp	CHIP FERRITE BEAD(60ohm 4516)		CLZ9Z014Z		
	L501	nsp	CHIP FERRITE BEAD(60ohm 4516)		CLZ9Z014Z		
	L701	nsp	POWER COIL (22UH/3A)		CLQ13E220MRZ		
	L702	nsp	POWER COIL (47UH/3A)		CLQ13E470MRZ		
	RN11	90M-BW000410R	CHIP RES 10K OHM 1608 X 4		CRJ104DJ103T		
	WN11	nsp	WAFER CARD CABLE SMD		CJP15GA193ZY		
	WN12	nsp	WAFER CARD CABLE SMD		CJP09GA193ZY		
	WN21	nsp	WAFER (11P ST 1.25MM)		CJP11GA115ZY		
	WN24	nsp	WAFER CARD CABLE SMD		CJP16GA193ZY		
	WN81	nsp	WAFER CARD CABLE		CJP19GA193ZY		
	X101	943141009130D	CRYSTAL 10MHz 12pF		COX10000E120S		*
	X102	90M-JX001280R	CRYSTAL 32.768KHz 12pF 20PPM		HOX00032K120I		
	X201	943141001190S	CRYSTAL 16.9344MHZ 12pF 25PPM		COX16934E120S		
	X401	943141001200S	CRYSTAL 09.000MHz 15pF 25PPM		COX09000E150S		
		nsp	IC HEAT SINK		CMY1A305		

INPUT PCB ASS'Y

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New
SEMICONDUCTORS GROUP							
	IC11	90M-HC108700R	IC NJW1153FG1		HVINJW1153FG1		
	IC12	00D9430007108	IC NJM2068MD-TE1		HVINJM2068MDTE1		
	IC13	00D9430005702	IC KA79L08AZT		HVIKA79L08AZT		
	IC14	00D9430005605	IC KA78L08AZT		HVIKA78L08AZT		
	IC15	00D2623552904	IC AK4385ET		CVIAK4385ET		
	IC17	00D9430007108	IC NJM2068MDTE1		HVINJM2068MDTE1		
	IC18	00D9430038902	IC LM1117S-3.3V	EK	HVILM1117S-3V3		
	IC19	90M-HC900170R	IC KIA1117S00	EK	CVIKIA1117S00		
	IC41	00D9430007108	IC NJM2068MDTE1		HVINJM2068MDTE1		
	IC91	00D2631100021	IC KIA7812API-U/P		HVIKIA7812API		
	IC93	90M-HC300780R	IC KIA7808API		HVIKIA7808API		
	D101,102	90M-HD201800R	DIODE 1SS355T		HVD1SS355T		
	D103	90M-HD201800R	DIODE 1SS355T	E2	HVD1SS355T		
	D106-112	90M-HD201800R	DIODE 1SS355T		HVD1SS355T		
	D113,114	90M-HD201820R	DIODE SCHOTTKEY RB160L60TE25		HVDRB160L60TE25		
	D909	90M-HD201840R	DIODE 1SR159		HVD1SR159-200		
	D913	90M-HD201840R	DIODE 1SR159		HVD1SR159-200		
	D945,946	90M-HD201840R	DIODE 1SR159		HVD1SR159-200		
	Q103,104	90M-HT300970R	CHIP TR KTC2875B		HVTKTC2875B		
	Q106	90M-BA001600R	CHIP TR KRA107S		HVTKRA107S		
	Q108	00D9430037903	CHIP TR KRC102S		HVTKRC102S		⚠3
	Q112	00D9430037903	CHIP TR KRC102S		HVTKRC102S		
CAPACITORS GROUP							
	C101-108	nsp	CHIP CAP 180pF 50V		CCUS1H181JA		
	C109,110	nsp	ELECT CAP 10uF 50V		CCEA1HH100T		
	C111-114	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C115-118	nsp	ELECT CAP 10uF 50V		CCEA1HH100T		
	C119-121	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C122-125	nsp	ELECT CAP 10uF 50V		CCEA1HH100T		
	C126-128	nsp	CHIP CAP 180pF 50V		CCUS1H181JA		
	C129	nsp	ELECT CAP 1uF 100V		CCEA2ARFO1R0T		
	C130	nsp	ELECT CAP 4.7uF 50V		CCEA1HH4R7T		
	C131	943139001210S	METALLIZED FLIM CAP 0.22UF 100V		CCME2A224JXT		
	C132,133	nsp	CAP MYLAR 4700PF 50V		HCQI1H472JZT		
	C134	943139001210S	METALLIZED FLIM CAP 0.22UF 100V		CCME2A224JXT		
	C135	nsp	ELECT CAP 4.7uF 50V		CCEA1HH4R7T		
	C140,141	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C142-144	nsp	ELECT CAP 47UF 50V		CCEA1HRFO470T		
	C145	nsp	ELECT CAP 100uF 50V		CCEA1HRFO101T		
	C146,147	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C148,149	nsp	ELECT CAP 22UF 50V		CCEA1HRFO220T		
	C150	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C151,152	nsp	CERAMIC CAP 39pF 50V		CCCT1H390JC		
	C153	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C154,155	nsp	ELECT CAP 22UF 50V		CCEA1HRFO220T		
	C156	nsp	ELECT CAP 10uF 63V		CCEA1JRFO100T		

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New
	C165	nsp	ELECT CAP 100UF 6.3V	EK	CCEA0JKS101T		
	C166	nsp	CHIP CAP 0.01uF 50V	EK	CCUS1H103KC		
	C167	nsp	ELECT CAP 47UF 6.3V	EK	CCEA0JKS470T		
	C168	nsp	CHIP CAP 0.01uF 50V	EK	CCUS1H103KC		
	C169	nsp	ELECT CAP 47UF 6.3V	EK	CCEA0JKS470T		
	C170,171	nsp	CHIP CAP 0.1uF 50V	EK	CCUS1H104KC		
	C172,173	nsp	ELECT CAP 10UF 50V		CCEA1HKS100T		
	C174	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C175	nsp	CHIP CAP 390PF 50V		CCUS1H391JA		
	C176	nsp	CHIP CAP 220pF 50V		CCUS1H221JA		
	C177,178	nsp	CHIP CAP 1200PF 50V		CCUS1H122KC		
	C179	nsp	CHIP CAP 220pF 50V		CCUS1H221JA		
	C180	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C181	nsp	ELECT CAP 220UF 50V		CCEA1HRFO221E		
	C182	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C183	nsp	CHIP CAP 390PF 50V		CCUS1H391JA		
	C192-195	nsp	CAP, ELECT 330UF 10V	EK	CCUS1H104KC		
	C196	nsp	ELECT CAP 330UF 10V	EK	CCEA1AH331T		
	C197	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C198,199	nsp	CERAMIC CAP 1200PF 50V		CCKT1H122KB		
	C401,402	nsp	ELECT CAP 10uF 50V		CCEA1HH100T		
	C403-406	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C407,408	nsp	ELECT CAP 4.7UF 50V		CCEA1HKS4R7T		
	C409	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C410	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C910	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C913-919	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
OTHERS PARTS GROUP							
	BK11	nsp	PCB BRACKET		CMD1A387		
	BK12	nsp	PCB BRACKET		CMD1A569		
	BN73	nsp	WIRE ASS'Y		CWB2B905100EN		
	CN11	nsp	WAFER 30PIN	EK	CJP30GA221ZB		
	CN12	nsp	WAFER 2PIN		CJP02GA19ZY		
	CN72	nsp	WAFER STRAIGHT 9PIN		CJP09GA19ZY		
	JK11	90M-YT004010R	TERMINAL IN/OUT		CJJ4R019W		
	JK13	90M-YT004860R	STEREO JACK		CJJ2D008Z		
	L101	nsp	CHIP BEAD	EK	HLZ9Z008Z		
	L103	nsp	COIL AXAIL		HLQ02C220KT		
	L104	nsp	FERRITE CHIP BEAD(60ohm 4516)		CLZ9Z014Z		
	L105,106	nsp	FERRITE CHIP BEAD(60ohm 4516)	EK	CLZ9Z014Z		
	WF11	nsp	WAFER CARD CABLE		CJP15GA117ZY		
	WF12	nsp	WAFER		CJP09GA117ZY		

MAIN PCB ASS'Y

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New
SEMICONDUCTORS GROUP							
	IC71	943239001350S	IC HYBRID		CVISTK4142MK2		
	IC92	00D9430089702	IC NJM7912FA		HVINJM7912FA		
	IC94	90M-HC300790R	IC KIA78R05PI		HVIKIA78R05PI		
	IC96	00D2622944946	IC BA33BC0FP		BVIBA33BC0FP		
	D702	00D9430209400	DIODE 1N4003SRT		CVD1N4003SRT		
	D703,704	00D9430087102	ZENER DIODE MTZJ20B 1/2W		HVDMTZJ20BT		
	D705	00D9430209400	DIODE 1N4003SRT		CVD1N4003SRT		
	D706-709	90M-HD201290R	DIODE 1SS133MT		HVD1SS133MT		
	D710,711	00D9430041902	SCHOTTKY DIODE 1N5819		HVD1N5819T		
	D712	90M-HE200390R	DIODE GBJ1006		HVDGBJ1006		
	D713,714	90M-HD201290R	DIODE 1SS133MT		HVD1SS133MT		
	D801	90M-HI101090R	LED SPR39MVW3 2COLOR		HVDSPR39MVW3		
	D802,803	90M-HD201290R	DIODE 1SS133MT		HVD1SS133MT		
	D806-812	90M-HD201290R	DIODE 1SS133MT		HVD1SS133MT		
	D813-815	90M-HD201800R	DIODE 1SS355T		HVD1SS355T		
	D901,902	00D9430110008	DIODE 1N4003ST		CVD1N4003ST		
	D903,904	nsp	DIODE SCHOTTKY		HVD21DQ10T		
	D905,906	00D9430110008	DIODE 1N4003ST		CVD1N4003ST		
	D907	00D9430209400	DIODE 1N4003SRT		CVD1N4003SRT		
	D908	00D9430110008	DIODE 1N4003ST		CVD1N4003ST		
	D910,911	00D9430209400	DIODE 1N4003SRT		CVD1N4003SRT		
	D915	00D9430041902	SCHOTTKY DIODE 1N5819		HVD1N5819T		
	D916,917	00D9430110008	DIODE 1N4003ST		CVD1N4003ST		
	D918,919	00D9430041902	SCHOTTKY DIODE 1N5819		HVD1N5819T		
	D920	90M-HD201290R	DIODE 1SS133MT		HVD1SS133MT		
	D921	nsp	COPPER WIRE		C3A206		
	D922-924	90M-HD201290R	DIODE 1SS133MT		HVD1SS133MT		
	D925	nsp	DIODE ZENER		HVDMTZJ12BT		
	D928-934	90M-HD201290R	DIODE 1SS133MT		HVD1SS133MT		
	D937,938	90M-HD201290R	DIODE 1SS133MT		HVD1SS133MT		
	D939	nsp	COPPER WIRE		C3A206		
	D940	90M-HD201290R	DIODE 1SS133MT		HVD1SS133MT		
	D941	90M-HD201290R	DIODE 1SS133MT		HVD1SS133MT		
	D942	90M-HD201290R	DIODE 1SS133MT	E3	HVD1SS133MT		
	D943	00D9430087500	ZENER DIODE 5.6V 1/2W		HVDMTZJ5.6BT		
	D945	00D9430110008	DIODE 1N4003ST		CVD1N4003ST		
	D946	90M-HD201290R	DIODE 1SS133MT		HVD1SS133MT		
	D949	90M-HD201290R	DIODE 1SS133MT		HVD1SS133MT		
	D950	00D9430110008	DIODE 1N4003ST		CVD1N4003ST		
	D951	90M-HD201290R	DIODE 1SS133MT		HVD1SS133MT		
	Q701,702	90M-HT600040R	TR KTA1267YT		HVTKTA1267YT		
	Q703	943219006820S	TR KTC1027Y		CVTKTC1027YT		
	Q704	90M-BA001460R	TR KRC107M		HVTKRC107MT		
	Q705	90M-BA001450R	TR KRA107MT		HVTKRA107MT		
	Q706-708	00D9430154404	TR KTC3198Y		HVTKTC3198YT		
	Q709	90M-BA001460R	TR KRC107M		HVTKRC107MT		
	Q710	00D9430154200	TR KRA102M		HVTKRA102MT		
	Q711	90M-BA001460R	TR KRC107M		HVTKRC107MT		

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New
	Q712,713	00D9430154200	TR KRA102M		HVTKRA102MT		
	Q714	00D9430107804	TR KRC102M		HVTKRC102MT		
	Q805,806	00D9430037903	TR KRC102S		HVTKRC102S		
	Q809,810	90M-BA001500R	TR KRC111M		HVTKRC111MT		
	Q811	90M-HX800090R	TR KRC111S		HVTKRC111S		
	Q901	00D9430154200	TR KRA102M		HVTKRA102MT		
	Q902,903	90M-BA001460R	TR KRC107M		HVTKRC107MT		
	Q906-908	00D9430107804	TR KRC102M		HVTKRC102MT		
	Q910	00D9430107804	TR KRC102M		HVTKRC102MT		
	Q911	90M-BA001460R	TR KRC107M		HVTKRC107MT		
	Q912	00D9430072609	TR KTC3199Y		HVTKTC3199YT		
RESISTORS GROUP							
	R704,705	nsp	RES, METAL(OXIDE)FILM,5%		KRG1SANJ4R7RT		
	R706,707	nsp	RES CARBON		CRD25FJ4R7T		
	R708,709	nsp	RES CEMENT		CRF5EKR22		
	R742	943129001240S	RES FUSIBLE		CRQ14AJ101T		
	R744,745	nsp	RES METAL OXIDE FILM(1W, 330)		CRG1SANJ331RT		
	R746	943129001240S	RES FUSIBLE		CRQ14AJ101T		
	R818	nsp	WIRE COPPER		C3A206		
	R821	nsp	RES CARBON		CRD20TJ122T		
CAPACITORS GROUP							
	C702	nsp	ELECT CAP 100UF 63V		CCEA1JH101E		
	C703,704	nsp	ELECT CAP 10uF 50V		CCEA1HH100T		
	C706,707	943139001210S	METALLIZED FLIM CAP 0.22UF 100V		CCME2A224JXT		
	C708,709	943133001380S	METALLIZED FILM CAP		CCME2A473JXT		
	C710	nsp	ELECT CAP 470uF 10V		CCEA1AH471T		
	C711,712	nsp	CERAMIC CAP 0.1UF 50V		CCBS1H104ZFT		
	C713	nsp	ELECT CAP 47uF 25V		CCEA1EH470T		
	C714,715	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C716,717	nsp	ELECT CAP 4.7uF 50V		CCEA1HH4R7T		
	C718,719	nsp	CERAMIC CAP 470PF 50V		CCKT1H471KB		
	C720	nsp	ELECT CAP 47UF 50V		CCEA1HRFO470T		
	C722	nsp	CERAMIC CAP 5pF 50V CC		CCCT1H050CC		
	C724	nsp	ELECT CAP 47UF 50V		CCEA1HRFO470T		
	C726	nsp	ELECT CAP 10uF 63V		CCEA1JRFO100T		
	C727	nsp	ELECT CAP 100uF 50V		CCEA1HRJ3101T		
	C728	nsp	CERAMIC CAP 1000PF 50V		CCBS1H102KBT		
	C734	nsp	CERAMIC CAP 0.1UF 50V		CCBS1H104ZFT		
	C735,736	nsp	MYLAR CAP 6800pF 50V J		HCQI1H682JZT		
	C737,738	00D9430189505	METALLIZED CAP 0.1uF 100V J		CCME2A104JXT		
	C739,740	nsp	CERAMIC CAP 0.01UF 100V		CCME2A103JXT		
	C741	90M-OF100490R	METALLIZED CAP 0.1uF 250V J		KCME2E104JP04T		
	C742,743	943134001270S	ELECT CAP 4700UF 35V		CCEA1VRO472E		
	C744,745	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C746,747	nsp	ELECT CAP 47UF 50V		CCEA1HRFO470T		
	C748	nsp	CERAMIC CAP 5pF 50V CC		CCCT1H050CC		
	C749,750	nsp	ELECT CAP 10uF 63V		CCEA1JRFO100T		
	C751	nsp	ELECT CAP		CCEA1HH221E		
	C753-757	nsp	CERAMIC CAP 0.1UF 50V		CCBS1H104ZFT		

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New
	C758	nsp	CERAMIC CAP 1000PF 50V		CCBS1H102KBT		
	C759,760	nsp	ELECT CAP 10uF 50V		CCEA1HH100T		
	C761	nsp	ELECT CAP 100uF 50V		CCEA1HRJ3101T		
	C762	nsp	ELECT CAP 100UF 63V		CCEA1JH101E		
	C763,764	nsp	ELECT CAP 220UF 50V		CCEA1HRFO221E		
	C765,766	943139001210S	METALLIZED FLIM CAP 0.22UF 100V		CCME2A224JXT		
	C801	nsp	ELECT CAP 100UF 16V		CCEA1CKS101T		
	C802	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C803	nsp	CERAMIC CAP 47PF 50V		CCBS1H470JT		
	C804	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C805-807	nsp	CERAMIC CAP 100PF 50V		CCBS1H101KBT		
	C808-810	nsp	CERAMIC CAP 0.1UF 50V		CCBS1H104ZFT		
	C811	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C812,813	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C815,816	nsp	CERAMIC CAP 4700PF 50V		CCKT1H472KB		
	C817,818	nsp	CHIP CAP 68pF 50V		CCUS1H680JA		
	C819,820	nsp	ELECT CAP 4.7UF 50V		CCEA1HKS4R7T		
	C821,822	nsp	CHIP CAP 470pF 50V		CCUS1H471JA		
	C824,825	nsp	CERAMIC CAP 0.01UF 100V		CCME2A103JXT		
	C826	nsp	CERAMIC CAP 0.1UF 50V		CCBS1H104ZFT		
	C828-831	nsp	CERAMIC CAP 0.1UF 50V		CCBS1H104ZFT		
	C832	nsp	ELECT CAP 1UF 50V		CCEA1HKS1R0T		
	C833	nsp	ELECT CAP		CCEA1HKS100T		
	C834	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C835	nsp	ELECT CAP 100UF 16V		CCEA1CKS101T		
	C836	nsp	CHIP CAP 0.1uF 50V		CCUS1H104KC		
	C837,838	nsp	CHIP CAP 0.01uF 50V		CCUS1H103KC		
	C839,840	nsp	CHIP CAP 68pF 50V		CCUS1H680JA		
	C901	943133001380S	METALLIZED FILM CAP		CCME2A473JXT		
	C902,903	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C904	nsp	ELECT CAP 2200UF 25V		CCEA1EH222E		
	C905	nsp	ELECT CAP 1000uF 25V		CCEA1EH102E		
	C906,907	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C908,909	nsp	ELECT CAP 100uF 16V		CCEA1CH101T		
	C911	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C912	nsp	ELECT CAP 100uF 16V		CCEA1CH101T		
	C914	nsp	ELECT CAP 1000uF 16V		CCEA1CRFO102E		
	C915	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C916	nsp	ELECT CAP 220uF 16V		CCEA1CRJ4221T		
	C917	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C919	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C922	nsp	CERAMIC CAP 0.0047uF 2.5KV		KCKDKS472ME		
	C925,926	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C927	nsp	ELECT CAP		CCEA1HHR33T		
	C928	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C929	nsp	ELECT CAP		CCEA1CH102E		
	C930	nsp	ELECT CAP 10uF 50V	E3	CCEA1HH100T		
	C933,934	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C935-937	nsp	ELECT CAP		CCEA1CH102E		
	C938	nsp	ELECT CAP 4.7uF 50V		CCEA1HH4R7T		
	C939-941	nsp	CERAMIC CAP 0.01UF 50V		CCBS1H103ZFT		
	C942-949	nsp	CERAMIC CAP 0.1UF 50V		CCBS1H104ZFT		
	C951	nsp	ELECT CAP 100uF 16V		CCEA1CH101T		

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New
	C952,953	nsp	CERAMIC CAP 0.1UF 50V		CCBS1H104ZFT		
OTHERS PARTS GROUP							
	BN71	nsp	5P WIRE ASS'Y (120MM 2MM PITCH)		CWZRCDM37BN71		
	BN72	nsp	9P SHEILD WIRE ASS'Y(120MM 2MM PITCH)		CWZRCDM37BN72		
	BN82	nsp	9P SHEILD WIRE ASS'Y(80MM 2MM PITCH)		CWZRCDM37BN82		
	BN83	nsp	5P WIRE ASS'Y (80MM 2MM PITCH)		CWZRCDM37BN83		
	BN95	nsp	9P WIRE ASS'Y(120MM 2.5MM PITCH)		CWB2B909100BM		
	BN96	nsp	5P WIRE ASS'Y(120MM 2.0MM PITCH)		CWZRCDM37BN71		
	BN97	nsp	11P WIRE ASS'Y(80MM 2.5MM PITCH)		CWB1C911080BM		
	BN98	nsp	9P WIRE ASS'Y (120MM 2MM PITCH)		CWZRCDM37BN98		
	BN99	nsp	WIRE ASS'Y(150MM 2.5MM)		CWB1C903150BM		
	CN73	nsp	WAFER		CJP05GB46ZY		
	CN82	nsp	WAFER ANGLE 9PIN		CJP09GB46ZY		
	CN91	00D2033905015	AC INLET (125V/7A PCB MOUNT TYPE)	E3	CJJ8A013Z		
	CN91	943641009280S	AC INLET (125V/7A PCB MOUNT TYPE)	E2,EK	CJJ8A012Z		
	CN92	nsp	WAFER		CJP03GA90ZY		
	CN93	nsp	WAFER		CJP02GA89ZY		
	CN94	nsp	WAFER STRAIGHT 8PIN		CJP08GA01ZY		
	CN95	nsp	WAFER		CJP09GB03ZY		
	CN97	nsp	WAFER(11P 2.5MM PITCH YMW025)		CJP11GB03ZY		
	CN99	nsp	WAFER		CJP03GA01ZY		
	F901	nsp	FUSE HOLDER		KJCFC5S		
⚠	F901	00D9430170909	FUSE GLASS TUBE(125V, 2A, 20MM)	E3	KBA1C2000A4UY		
⚠	F901	00D9430170909	FUSE GLASS TUBE(250V, 1A, 20MM)	E2,EK	KBA2C1000TLEY		
	F902	nsp	COPPER WIRE		C3A206		
	F903	nsp	COPPER WIRE		C3A206		
	FL81	943172007420D	V.F.D (16ST103GINK)		CFL16ST103GINK		
	GND1	nsp	EARTH PALTE		HJT1A025		
	GND2	nsp	EARTH PALTE		HJT1A025		
	JK71	943646001310S	TERMINAL 4P SCREW SPEAKER(RD/BK)		CJJ5P028Z		
	JK72	943643002710S	JACK BOARD		CJJ4M046Z		
	JK81,82	00D9430105204	JACK HEADPHONE (SILVER)		HJJ2D003Y		
	JK83	943643001320S	JACK USB STRAIGHT(BLACK)		CJJ9X006Z		
	L701,702	nsp	BEAD CORE		KLZ9H001Z		
	L703,704	nsp	COIL SPEAKER		CLEY0R5KAK		
	L801-803	nsp	BEAD CORE		KLZ9H001Z		
	L805	nsp	CHIP FERRITE BEAD(220ohm 2012)		CLZ9R006Z		
	L806,807	nsp	CHIP RES 0 OHM 5% 1/8W 2012		CRJ18AJ0R0T		
	L901-903	nsp	BEAD CORE		KLZ9H001Z		
	RC81	00D9430194706	SENSOR REMOCON		CRVKSM603TH5B		
	RL71	00D9430060608	RELAY OSA-SS-212DM3		HSL4A004ZU		
	RL72	943682000810S	RELAY G5V-2-H1 DC12		CSL4A015ZU		
	RL91	00D9430194900	RELAY POWER G5PA-1 (DC 6V)		CSL1E002ZE		

	Ref. No.	Part No.	Part Name	Remarks		Q'ty	New
	S801-809	00D9430209507	SW TACT		CST1A023ZT		
⚠	T902	943101000980D	TRANS SUB RCD-M37USA	E3	CLT5I010ZU		
⚠	T902	943101000960D	TRANS SUB RCD-M37EUR	E2,EK	CLT5I010ZE		
	VR81	943667001330S	ENCODER VR		CSR2A033Z		
	WF81	nsp	CARD CABLE WAFER		CJP19GA117ZY		