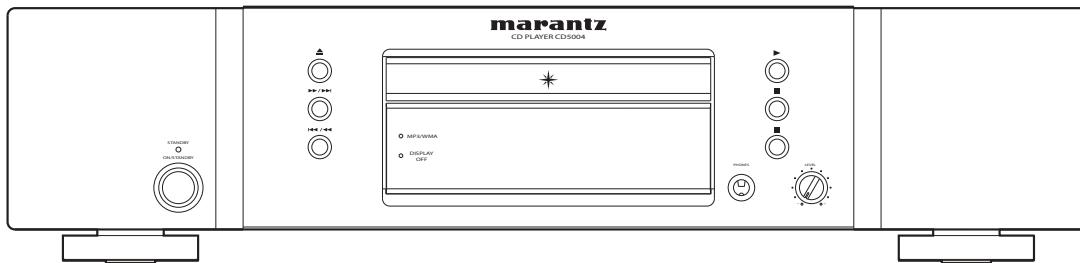


Service Manual

CD5004 /N1B/N1SG

U1B/K1SG/K1B

CD Player



CD5004

• 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.

marantz®

CD5004

Ver. 1

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, **MARANTZ** company has created the ultimate in stereo sound. Only original **MARANTZ** parts can insure that your **MARANTZ** product will continue to perform to the specifications for which it is famous.

Parts for your **MARANTZ** equipment are generally available to our National Marantz Subsidiary or Agent.

ORDERING PARTS :

Parts can be ordered either by mail or by Fax.. In both cases, the correct part number has to be specified.

The following information must be supplied to eliminate delays in processing your order :

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature : any order form or Fax. must be signed, otherwise such part order will be considered as null and void.

USA

MARANTZ AMERICA, INC
100 CORPORATE DRIVE
MAHWAH, NEW JERSEY 07430
USA

EUROPE / TRADING

D&M EUROPE B. V.
P. O. BOX 8744, BUILDING SILVERPOINT
BEEMDSTRAAT 11, 5653 MA EINDHOVEN
THE NETHERLANDS
PHONE : +31 - 40 - 2507844
FAX : +31 - 40 - 2507860

CANADA

D&M Canada Inc.
5-505 APPLE CREEK BLVD.
MARKHAM, ONTARIO L3R 5B1
CANADA
PHONE : 905 - 415 - 9292
FAX : 905 - 475 - 4159

JAPAN

D&M Holdings Inc.
D&M BUILDING, 2-1 NISSHIN-CHO,
KAWASAKI-KU, KAWASAKI-SHI,
KANAGAWA, 210-8569 JAPAN

株式会社 ディーアンドエムホールディングス
本 社 〒210-8569
神奈川県川崎市川崎区日進町2-1 D&Mビル

KOREA

D&M SALES AND MARKETING KOREA LTD.
2F, YEON BLDG.,
88-5, BANPO-DONG, SEOCHO-GU,
SEOUL KOREA
PHONE : +82 - 2 - 715 - 9041
FAX : +82 - 2 - 715 - 9040

CHINA

D&M SALES AND MARKETING SHANGHAI LTD.
ROOM.808 SHANGHAI AIRPORT CITY TERMINAL
NO.1600 NANJING (WEST) ROAD, SHANGHAI,
CHINA. 200040
TEL : 021 - 6248 - 5151
FAX : 021 - 6248 - 4434

NOTE ON SAFETY :

Symbol Fire or electrical shock hazard. Only original parts should be used to replaced any part marked with symbol . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

安全上の注意 :

がついている部品は、安全上重要な部品です。必ず指定されている部品番号のものを使用して下さい。

SHOCK, FIRE HAZARD SERVICE TEST :

CAUTION : After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard No. 60065.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

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 cautions 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) There are high voltage parts inside. Handle with extra care when the set is energized.

○ Caution concerning disassembly and assembly!

Through great care is taken when 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 properties. In particular, for the important safety parts that are marked \triangle 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 reasons, 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 wires. Insulation and 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 insulation check on the external metal connectors and between the blades of the power plug, and otherwise check that safety is ensured.

(Insulation check procedure)

Unplug the power cord from the power outlet, disconnect the antenna, plugs, etc., and turn the power switch on. Using a 500V insulation resistance tester, check that the input and the externally exposed metal parts (antenna terminal, headphones terminal, input terminal, etc.) is $1M\Omega$ 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 preserved. Parts with safety properties are indicated as shown below on the wiring diagrams and parts lists in this service manual. Be sure to replace them with parts with the designated part number.

(1) Schematic diagrams Indicated by the \triangle mark.

(2) Parts lists Indicated by the \triangle 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 millamps, 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

PARTS INFORMATION

RESISTORS

- 1) 00MGD05 $\times \times \times 140$, Carbon film fixed resistor, $\pm 5\%$ 1/4W
 2) 00MGD05 $\times \times \times 160$, Carbon film fixed resistor, $\pm 5\%$ 1/6W

① Resistance value

Examples ;

| | | | | |
|--------------------|--------------|--------------|---------------|---------------|
| ① Resistance value | 0.1Ω.....001 | 10Ω.....100 | 1kΩ.....102 | 100kΩ.....104 |
| | 0.5Ω.....005 | 18Ω.....180 | 2.7kΩ.....272 | 680kΩ.....684 |
| | 1Ω.....010 | 100Ω.....101 | 10kΩ.....103 | 1MΩ.....105 |
| | 6.8Ω.....068 | 390Ω.....391 | 22kΩ.....223 | 4.7MΩ.....475 |

Note : Please distinguish 1/4W from 1/6W by the shape of parts used actually.

CAPACITORS

CERAMIC CAP.

- 3) 00MDD1 $\times \times \times 370$, Ceramic capacitor
 ② Capacity value
 ③ Tolerance
 Temp.coeff.P350 ~ N1000, 50V

Examples ;

| | | | |
|----------------------------------|----------------------------|---------------------------|------------------|
| ② Tolerance (Capacity deviation) | $\pm 0.25\text{pF}$0 | $\pm 0.5\text{pF}$1 | $\pm 5\%$5 |
|----------------------------------|----------------------------|---------------------------|------------------|

* Tolerance of COMMON PARTS handled here are as follows :

| | | |
|---------|---------|---------------------|
| 0.5pF ~ | 5pF ~ | $\pm 0.25\text{pF}$ |
| 6pF ~ | 10pF ~ | $\pm 0.5\text{pF}$ |
| 12pF ~ | 560pF ~ | $\pm 5\%$ |

| | | | |
|------------------|---------------|--------------|---------------|
| ③ Capacity value | 0.5pF.....005 | 3pF.....030 | 100pF.....101 |
| | 1pF.....010 | 10pF.....100 | 220pF.....221 |
| | 1.5pF.....015 | 47pF.....470 | 560pF.....561 |

CERAMIC CAP.

- 4) 00MDK16 $\times \times \times 300$, High dielectric constant ceramic capacitor
 ④ Capacity value
 Disc type
 Temp.chara. 2B4, 50V

Examples ;

| | | | |
|------------------|---------------|----------------|-----------------|
| ④ Capacity value | 100pF.....101 | 1000pF.....102 | 10000pF.....103 |
| | 470pF.....471 | 2200pF.....222 | |

ELECTROLY CAP. ($\frac{1}{2}$)

- 5) 00MEA $\times \times \times \times 10$, Electrolytic capacitor
 One-way lead type, Tolerance $\pm 20\%$

Examples ;

| | | | |
|------------------|----------------|---------------|----------------|
| ⑤ Capacity value | 0.1μF.....104 | 4.7μF.....475 | 100μF ... 107 |
| | 0.33μF.....334 | 10μF.....106 | 330μF ... 337 |
| | 1μF.....105 | 22μF.....226 | 1100μF ... 118 |

| | | |
|-------------------|--------------|-------------|
| ⑥ Working voltage | 6.3V.....006 | 25V.....025 |
| | 10V.....010 | 35V.....035 |
| | 16V.....016 | 50V.....050 |

FILM CAP. ($\frac{1}{2}$)

- 6) 00MDF15 $\times \times \times 350$ → Plastic film capacitor
 00MDF15 $\times \times \times 310$ → One-way type, Mylar $\pm 5\%$ 50V
 00MDF16 $\times \times \times 310$ → Plastic film capacitor
 One-way type, Mylar $\pm 10\%$ 50V

Examples ;

| | | | |
|------------------|------------------------|-----|-----------------|
| ⑦ Capacity value | 0.001μF (1000pF) | 102 | 0.1μF 104 |
| | 0.0018μF.....182 | | 0.56μF 564 |
| | 0.01μF.....103 | | 1μF 105 |
| | 0.015μF.....153 | | |

NOTE ON SAFETY FOR FUSIBLE RESISTOR :

The suppliers and their type numbers of fusible resistors are as follows;

| | | | |
|--------------------|------------------------------------|--|--------------------|
| 1. KOA Corporation | Part No. (MJI) | Type No. (KOA) | Description |
| | 00MNH05 $\times \times \times 140$ | RF25S $\times \times \times \times \Omega J$ | ($\pm 5\%$ 1/4W) |
| | 00MNH05 $\times \times \times 120$ | RF50S $\times \times \times \times \Omega J$ | ($\pm 5\%$ 1/2W) |
| | 00MNH85 $\times \times \times 110$ | RF73B2A $\times \times \times \times \Omega J$ | ($\pm 5\%$ 1/10W) |
| | 00MNH95 $\times \times \times 140$ | RF73B2E $\times \times \times \times \Omega J$ | ($\pm 5\%$ 1/4W) |

* Resistance value * Resistance value (0.1 - 10kΩ)

| | | | |
|--|------------------------------------|---------------------------------|-------------------|
| 2. Matsushita Electronic Components Co., Ltd | Part No. (MJI) | Type No. (MEC) | Description |
| | 00MNF05 $\times \times \times 140$ | ERD-2FCJ $\times \times \times$ | ($\pm 5\%$ 1/4W) |
| | 00MRF05 $\times \times \times 140$ | ERD-2FCG $\times \times \times$ | ($\pm 2\%$ 1/4W) |
| | 00MRF02 $\times \times \times 140$ | ERD-2FCG $\times \times \times$ | ($\pm 2\%$ 1/4W) |

* Resistance value * Resistance value

| | | | | | |
|------------|--------------------|-------------|-------------|--------------|--------------|
| Examples ; | * Resistance value | 0.1Ω....001 | 10Ω....100 | 1kΩ....102 | 100kΩ....104 |
| | | 0.5Ω....005 | 18Ω....180 | 2.7kΩ....272 | 680kΩ....684 |
| | | 1Ω....010 | 100Ω....101 | 10kΩ....103 | 1MΩ....105 |
| | | 6.8Ω....068 | 390Ω....391 | 22kΩ....223 | 4.7MΩ....475 |

ABBREVIATION AND MARKS

| | | | |
|-------|------------------|---------|---------------|
| ANT. | : ANTENNA | BATT. | : BATTERY |
| CAP. | : CAPACITOR | CER. | : CERAMIC |
| CONN. | : CONNECTING | DIG. | : DIGITAL |
| HP | : HEADPHONE | MIC. | : MICROPHONE |
| μ-PRO | : MICROPROCESSOR | REC. | : RECORDING |
| RES. | : RESISTOR | SPK | : SPEAKER |
| SW | : SWITCH | TRANSF. | : TRANSFORMER |
| TRIM. | : TRIMMING | TRS. | : TRANSISTOR |
| VAR. | : VARIABLE | X'TAL | : CRYSTAL |

NOTE ON FUSE :

Regarding to all parts of parts code **00MFS20xxx2xx**, replace only with Wickmann-Werke GmbH, Type 372 non glass type fuse.

NOTE ON SAFETY :

Symbol  Fire or electrical shock hazard. Only original parts should be used to replaced any part marked with symbol  Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

安全上の注意 :

 がついている部品は、安全上重要な部品です。必ず指定されている部品番号の部品を使用して下さい。

WARNING AND LASER SAFETY INSTRUCTIONS



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



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.



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 à 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 à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.



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, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.

Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.



AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cautela 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.



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



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



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



Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden. Für Reparaturen sind Original-Ersatzteile zu verwenden.



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



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

LASER SAFETY

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



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

AVOID DIRECT EXPOSURE TO BEAM

WARNING

The use of optical instruments with this product will increase eye hazard.

Repair handling should take place as much as possible with a disc loaded inside the player

WARNING LOCATION: INSIDE ON LASER COVERSHEILD

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 ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN

WARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN

VARO! AVATTAELESSA OLET ALTTINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLÉ. ÄLÄ KATSO SÄTEESEN

VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN

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

TECHNICAL SPECIFICATIONS

Audio characteristics

- **Channels:** 2 channels
- **Frequency response:** 2 Hz to 20 kHz
- **Dynamic range:** 100 dB
- **Signal-to-noise ratio:** 110 dB
- **Channel separation:** 110 dB (1 kHz)
- **Harmonic distortion:** 0.002% (1 kHz)
- **Wow & flutter:** Precision of quartz
- **Audio output:** 2.25 V rms, stereo
- **Headphone output:** 18 mW/32 ohms
(variable maximum)
- **Digital output**
- Coaxial output (pin jack):** 0.5 Vp-p, 75 ohms
- Optical output**
(square optical connector): -19 dBm

Optical readout system

- **Laser:** AlGaAs semiconductor
- **Wavelength:** 780 nm

Signal system

- **Sampling frequency:** 44.1 kHz
- **Quantization:** 16-bit linear PCM

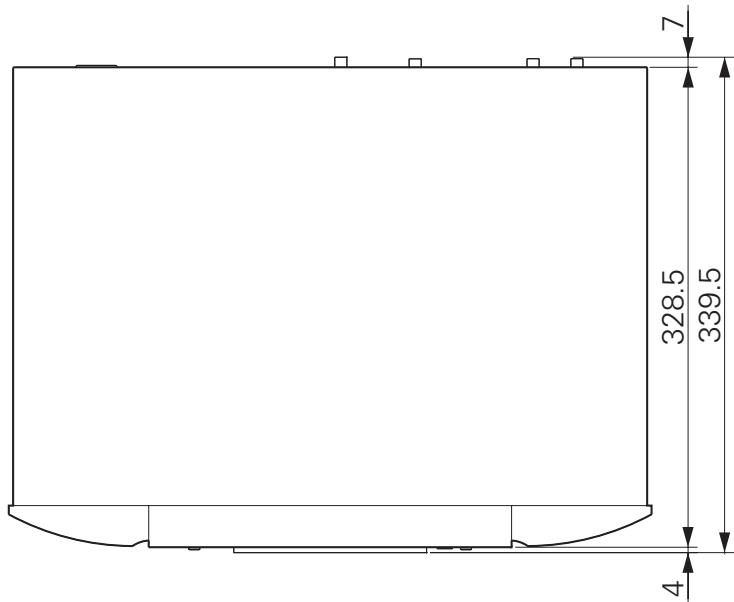
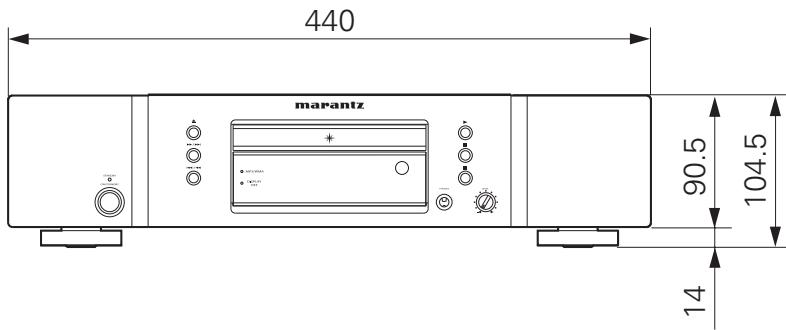
Power supply

- **N version:** AC 230 V 50 Hz
- **U version:** AC 120 V 60 Hz
- **K version:** AC 220 V 50 Hz
- **Power consumption:** 14 W
- **Standby power consumption:** 0.4 W

Cabinet, etc.

- **Accessories**
- Remote controller:** 1
- AAA batteries:** 2
- AC power cord:** 1
- Audio connecting cord:** 1
- Remote control connecting cord:** 1
- **Maximum outer dimensions**
- Width:** 440mm
- Height:** 104.5mm
- Depth:** 339.5mm
- Weight:** 5.1kg
- **Allowable operating temperature:** +5 to +35°C
- **Allowable operating humidity:** 5 to 90%
(no condensation)

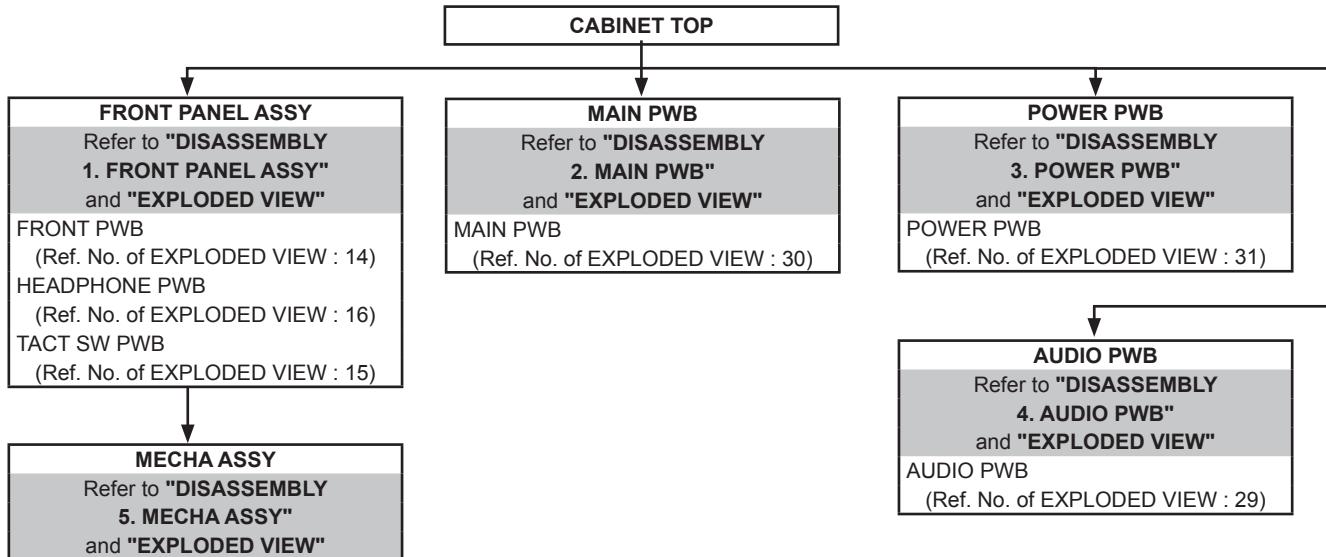
DIMENSION



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 CD5004 K1SG.

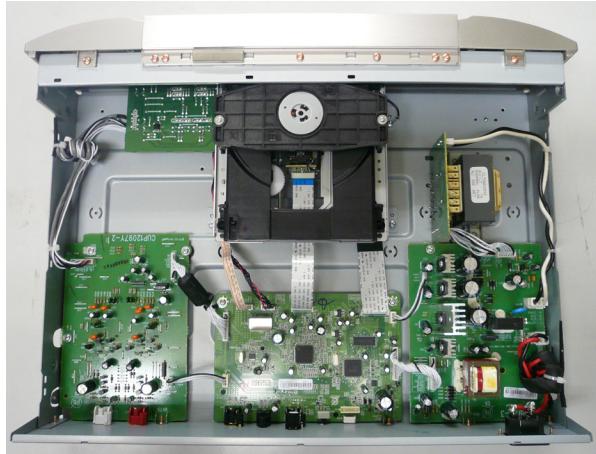
The viewpoint of each photograph (Photography direction)

[View from above]

Direction of photograph: B



Direction of photograph: C →



Front side

← Direction of photograph: D



Direction of photograph: A

1. FRONT PANEL ASSY

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

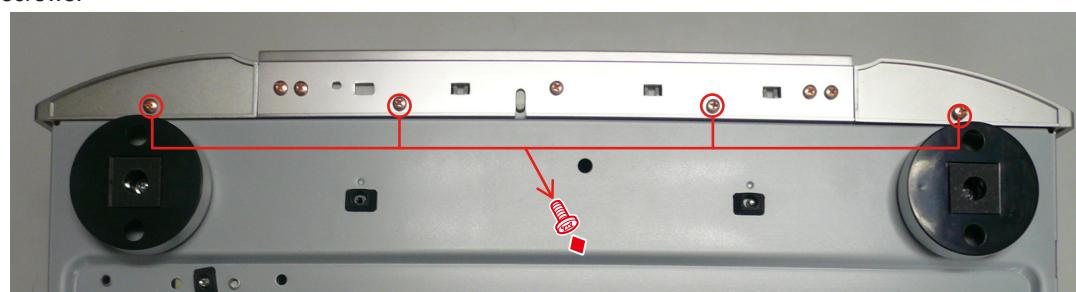
- (1) Remove the Loadr Panel.

Direction of photograph: B

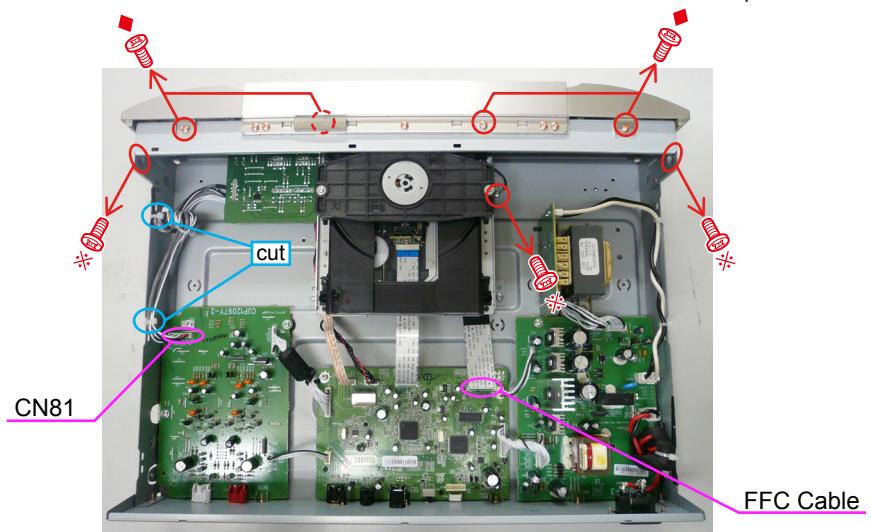


- (2) Remove the screws.

View from bottom



- (3) Disconnect the connector wire and FFC Cable. Remove the screws. Cut the wire clamp bands.



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

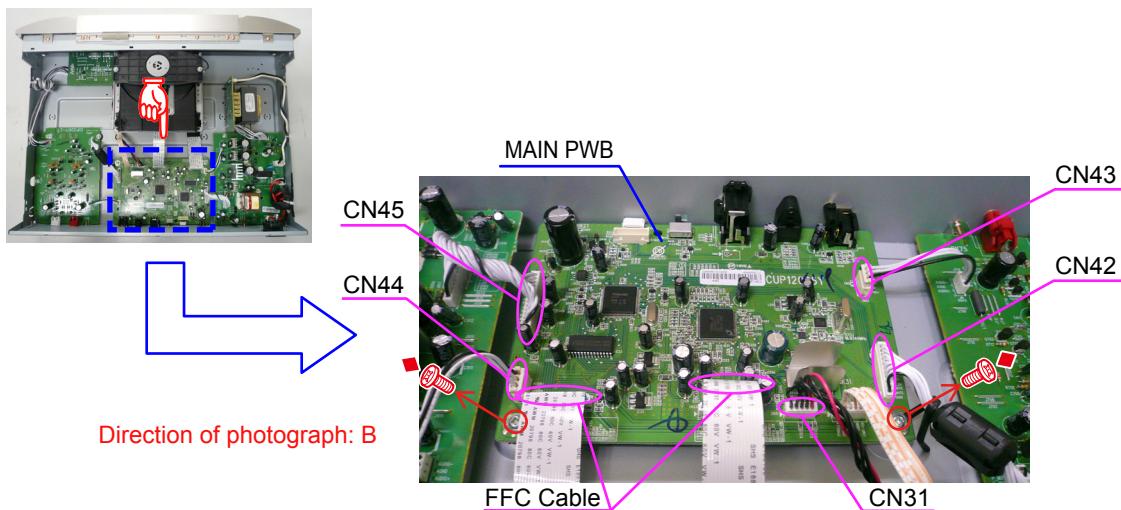
2. MAIN PWB

Proceeding : **TOP COVER** → **MAIN PWB**

- (1) Remove the screws.



- (2) Remove the screws. Disconnect the connectors wire and FFC Cable.



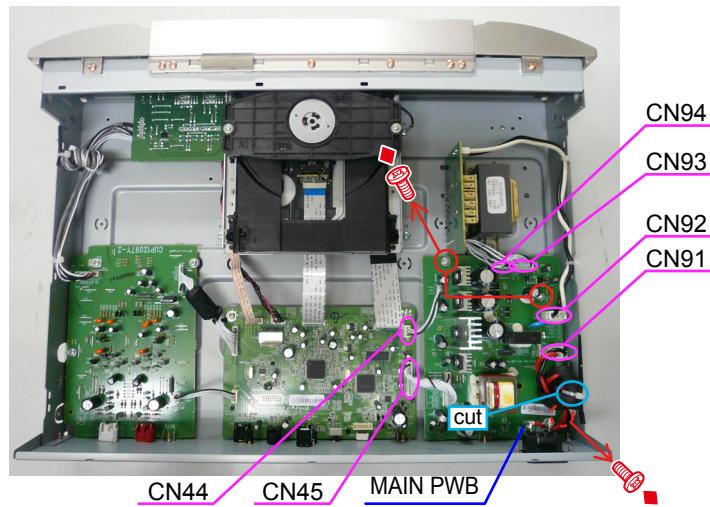
3. POWER PWB

Proceeding : **TOP COVER** → **POWER PWB**

(1) Remove the screws.



(2) Remove the screws. Disconnect the connector wires. Cut the wire clamp band.

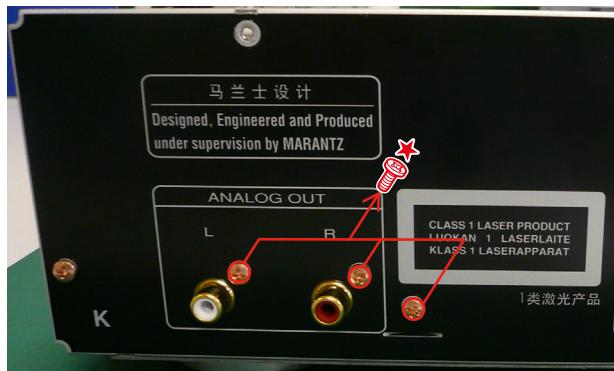


4. AUDIO PWB

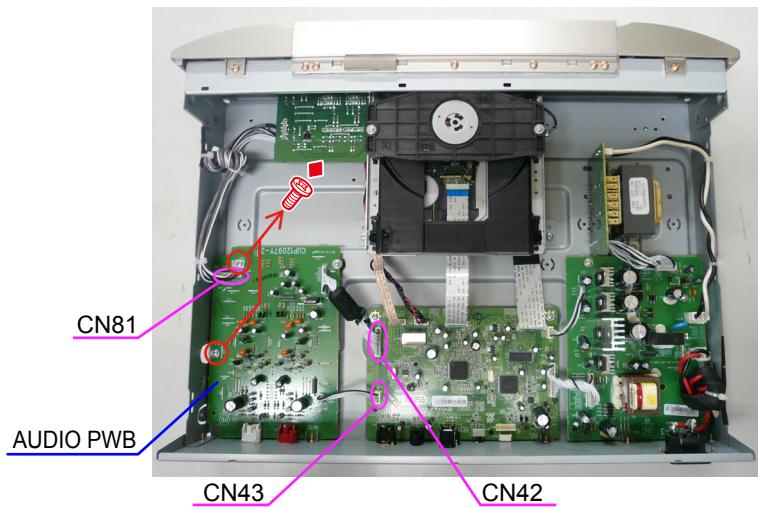
Proceeding : **TOP COVER** → **AUDIO PWB**

- (1) Remove the screws.

Direction of photograph: A



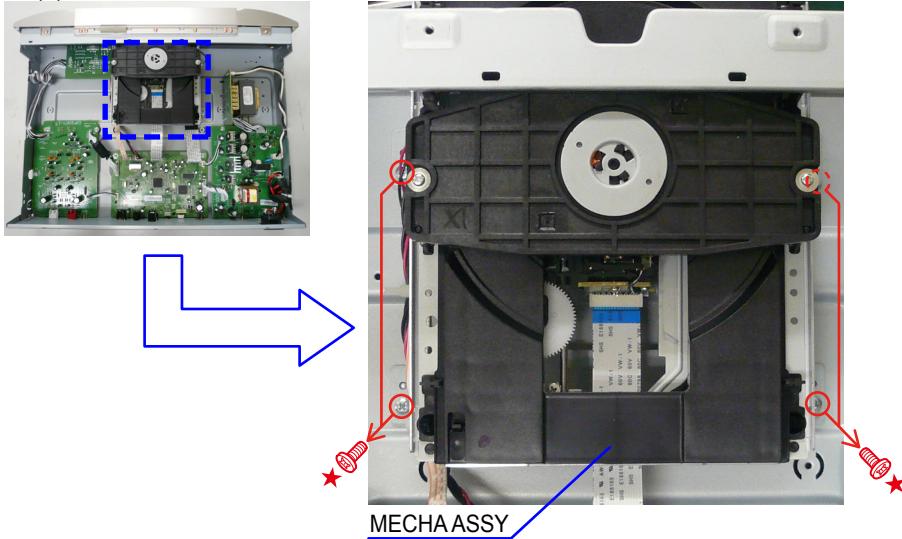
- (2) Remove the screws. Disconnect the connector wires.



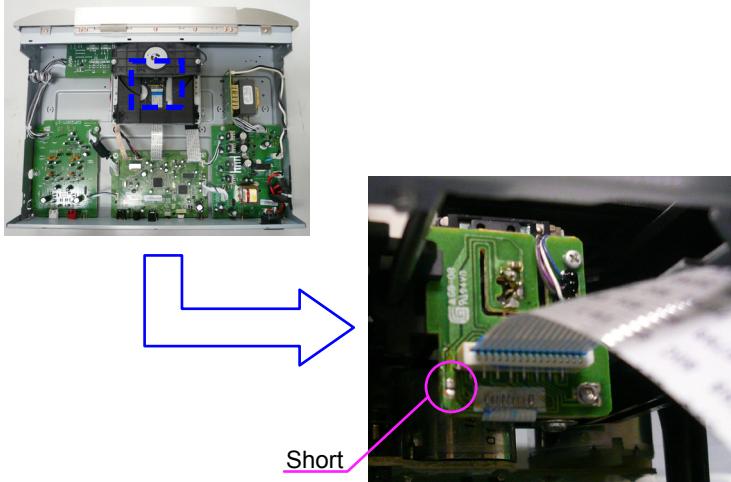
5. MECHA ASSY

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

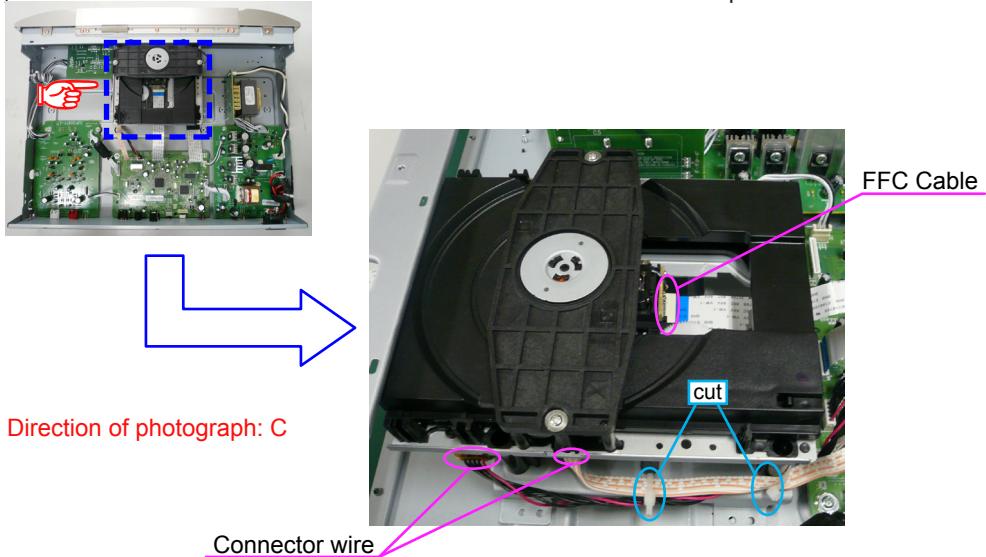
(1) Remove the screws.



(2) Solder the short-circuit before disconnect the FFC Cable.



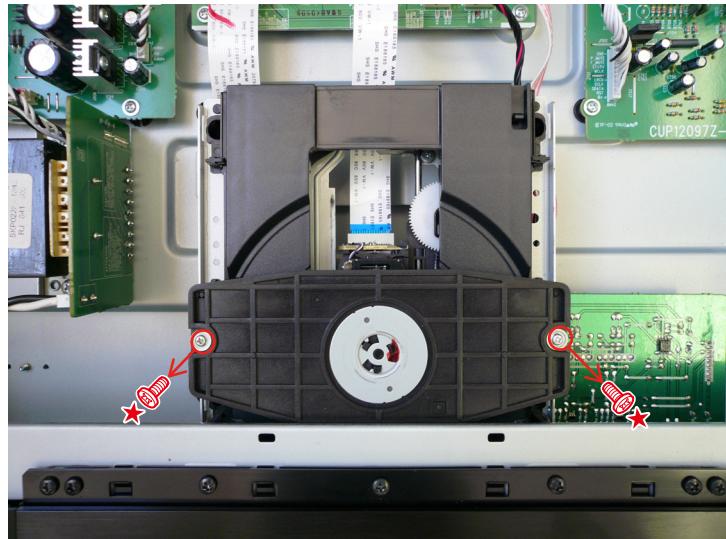
(3) Disconnect the connectors wire and FFC Cable. Cut the wire clamp bands.



REMOVING DISCS

(1) Remove the Top Cover.

(2) Remove the screws.



(3) Remove the disc clamper.

SERVICE MODE AND TAKING THE DISC OUT OF EMERGENCY

[A] SERVICE MODE

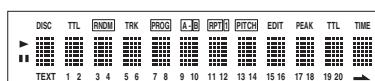
- (1) Insert mains cable plug in the outlet. (The Unit is standby mode.)
- (2) Press the <ON / STANDBY> button While pressing ▶▶/▶▶ and ■ Button.
Model name is displayed.

CD5004

- (3) Press ▶▶/▶▶ button.
Version of microprocessor is displayed.

2008-05-16-1

- (4) Press ▶▶/▶▶ button.
Light up all FL segment.



- (5) Press ▶▶/▶▶ button.
Serial number is displayed.

MZ_0000000000

- (6) Press ▶▶/▶▶ button.
Playback time is displayed.

PTime : 00021h

To return to a previous display at anytime, press ▲◀◀/◀◀ button.

Press the <ON / STANDBY> button to quit Service Mode.

HOW TO THE RESET OF PLAYBACK TIME

When replacing CD MECHANISM (TRAVERSE), please reset Playback time (total) in the following procedure.

- (1) Procedure 6 of SERVICE MODE, Playback time (total) is displayed.

PTime : 00051h

The display is a time unit. (Example: "10050 hours, 0 minute, 1 second " is 10051h)

The maximum Playback time is 65536h.

- (2) Press ■ Button 3 seconds and more.

PTime Clear? is displayed.

PTime Clear?

- (3) Press ► Button.

Done is displayed after PTime:00000h is displayed.

Play back time (total) was reset.

Done

PTime : 00000h

Press the <ON / STANDBY> button to quit Service Mode.

HOW TO INITIALIZE THE CD PLYAER

Initialize the CD player when µcom, peripheral parts of µcom, or MAIN P.W.B. unit has been replaced in servicing.

※ All user setting will be lost and its factory setting will be restored when this initialization is made. Be sure to memorize your setting for restoring again after the initialization.

- (1) Insert mains cable plug in the outlet. (The Unit is standby mode.)

- (2) Press ■ and the <ON / STANDBY> Buttons simultaneously 4 seconds and more.

EEPROM Clear is displayed after No Disc is displayed.

The microprocessor initialized to factory setting.

EEPROM Clear

No Disc

VERSION UPGRADE PROCEDURE OF FIRMWARE

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 |
|----------|----------|------------------------|----------------|--------|
| MAIN | IC21 | T5CD2(F AAD JZ) CD5004 | B | |

After replaced

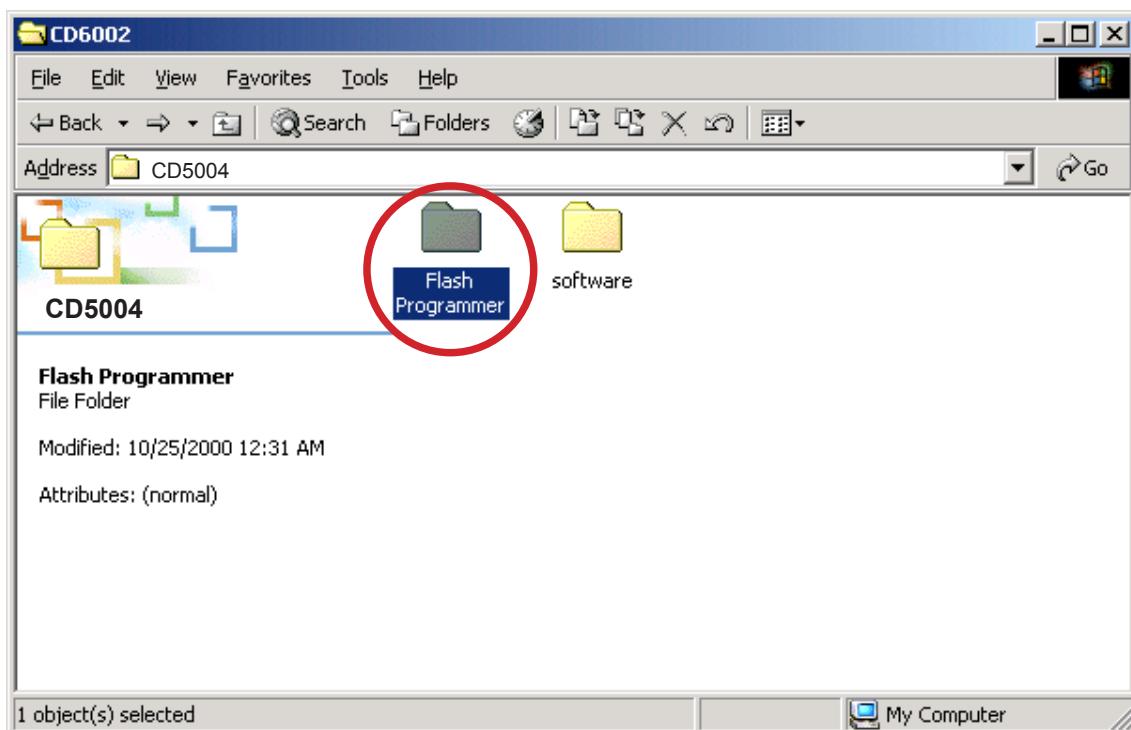
- A : Mask ROM (With software). No need write-in of software to the microprocessor.
- B : Flash ROM (With software). Usually, no need write-in of software. But, when the software was updated, you should be write-in of the new software to the microprocessor or flash ROM. Please check the software version.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

Necessary Equipment

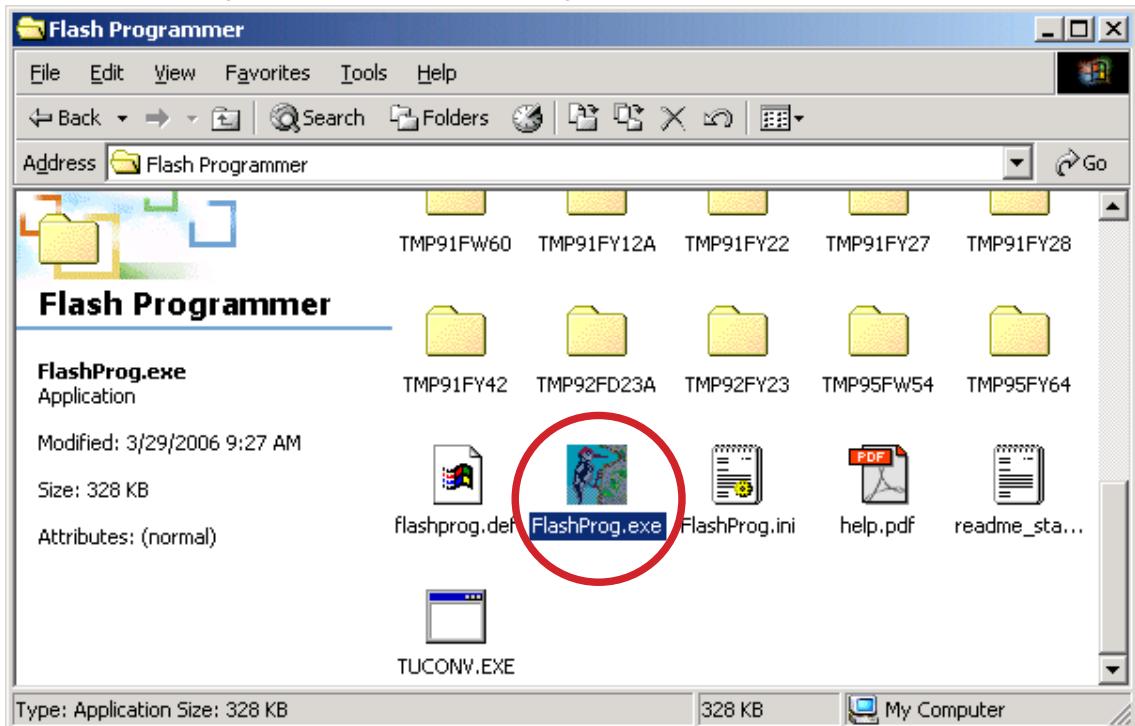
- Windows PC (OS: Windows 2000 or Windows XP) with Serial port.
- RS-232C Dsub-9 pin cable (female to female/straight type).
- Connection JIG (90M-SR4500JIG)
- Update tool (FlashProg.exe, other files and folders in Flash Programmer folder)
- Update data (CD5004_yymmdd_x.s2h4)

1. Update for software

- (1) Put the "Flash Programmer" and "software" folder into anywhere on your PC's hard disc.
- (2) Double click the "Flash Programmer" folder.

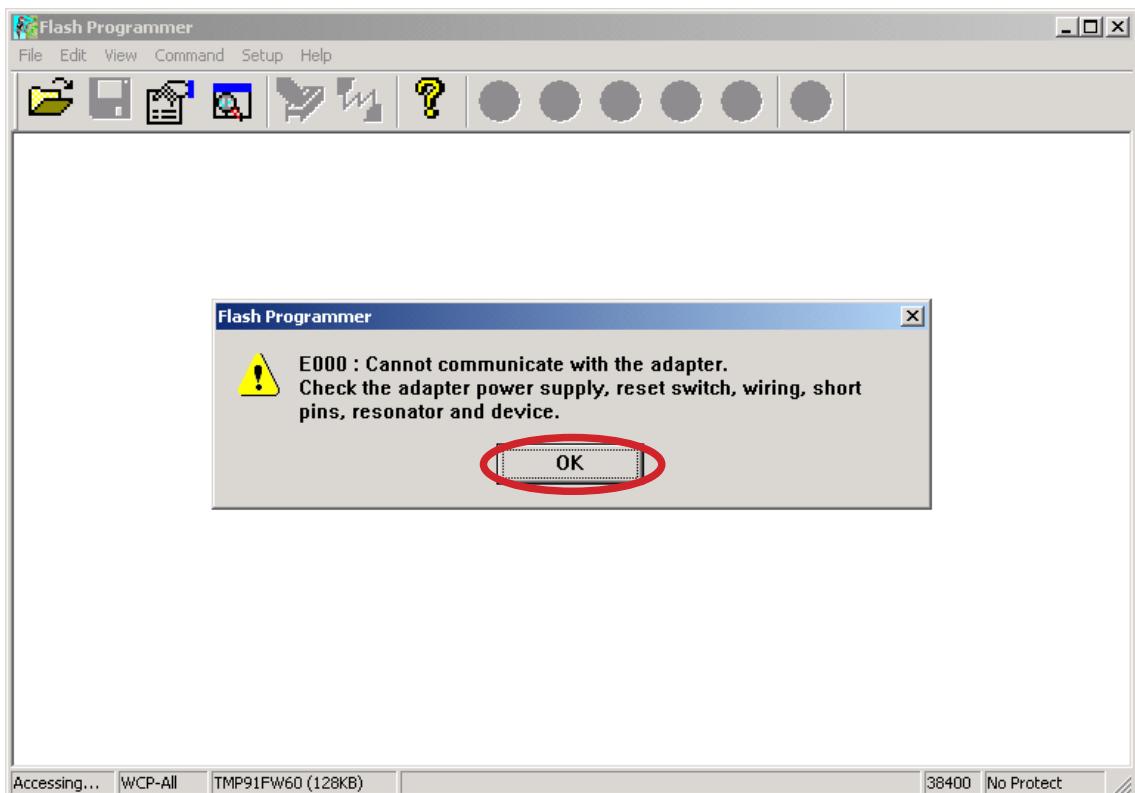


(3) Double click FlashProg.exe, and launch the Flash Programmer.



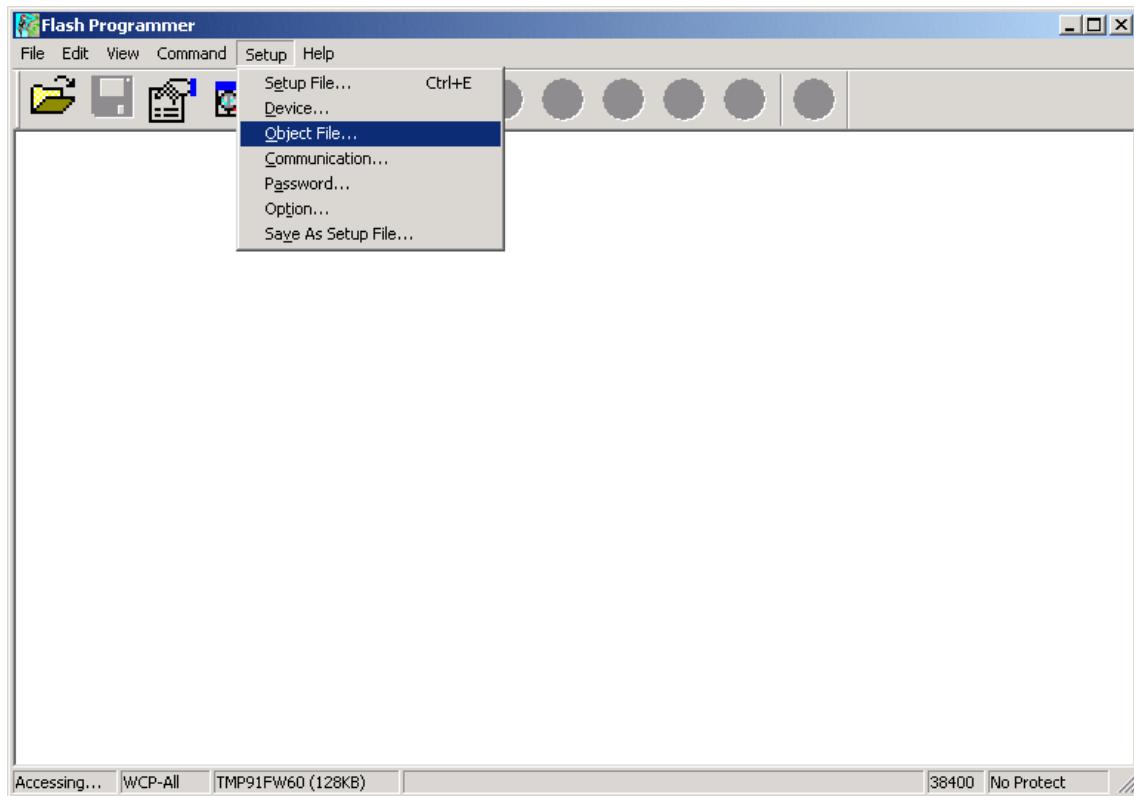
NOTE : When a Flash Programmer does not launch even if double-clicked FlashProg.exe, please refer to "2. When a Flash Programmer did not launch".

(4) Click OK.

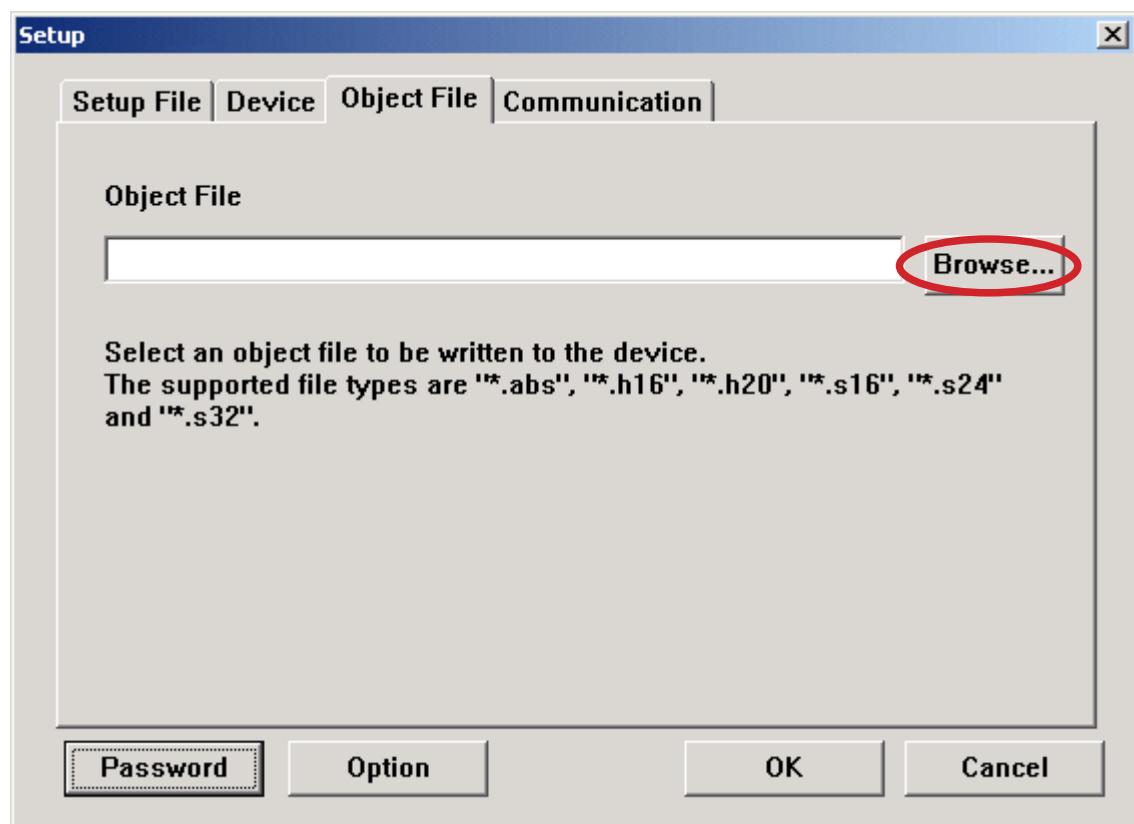


NOTE : Since Flash Programmer communicates with the unit automatically, the following dialog box appears when it fails in communication.

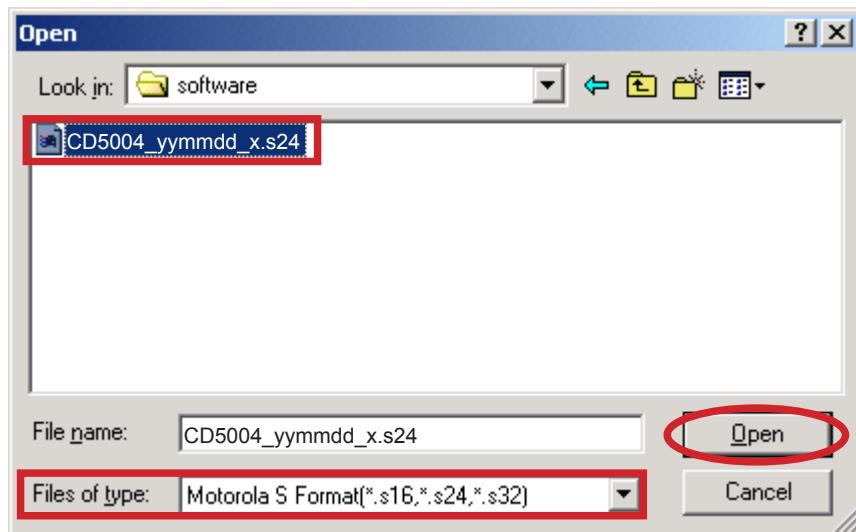
- (5) Click the Setup in the menu bar and select the Object file.



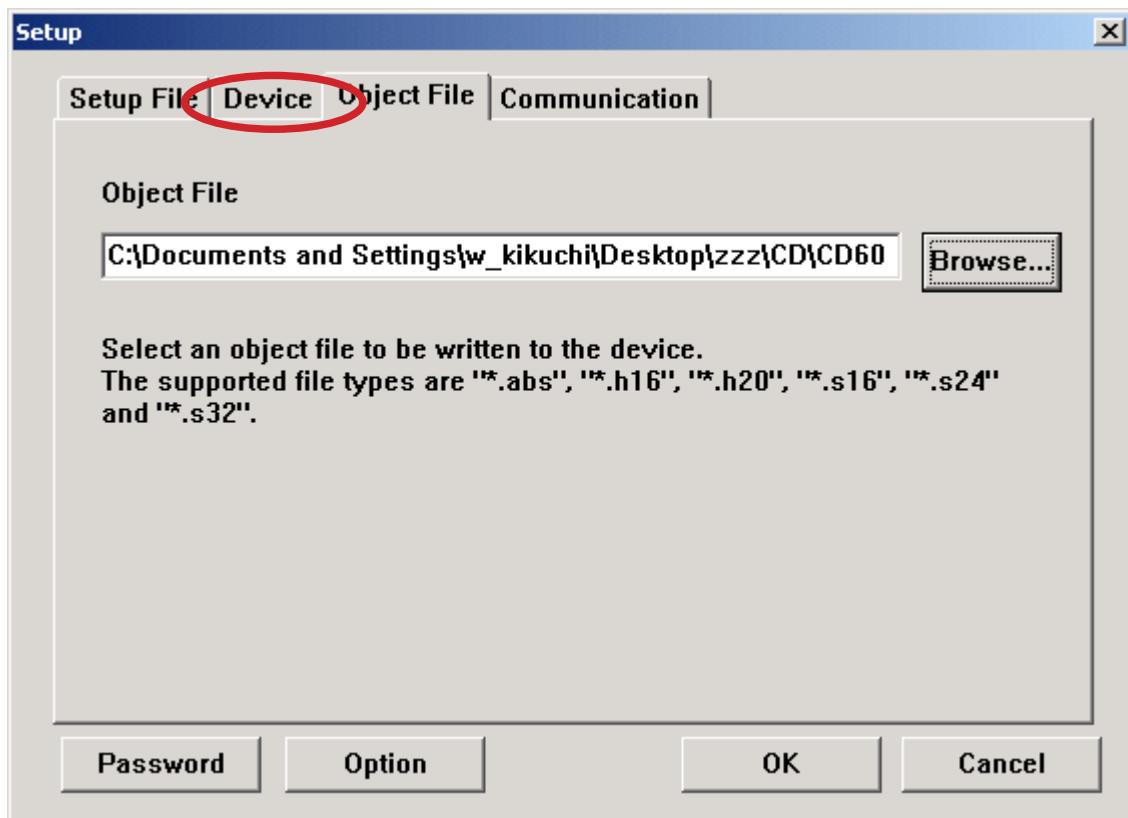
- (6) Click Browse.



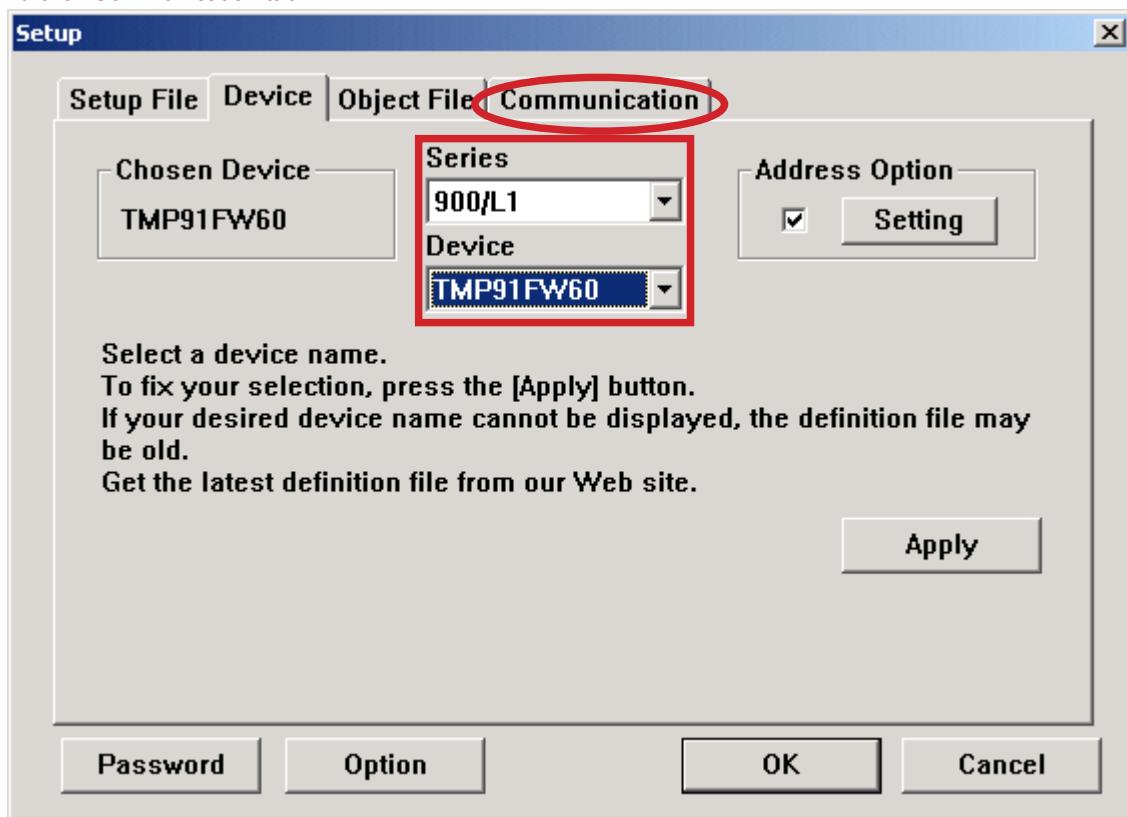
- (7) Choose the Motorola S Format (*.s16, *.s24, *.s32) in Files of type.
Choose the CD5004_yymmdd_x.s24, and click Open.
NOTE : The yy is two digits of year. The mm is month. The dd is date. The x is release number.



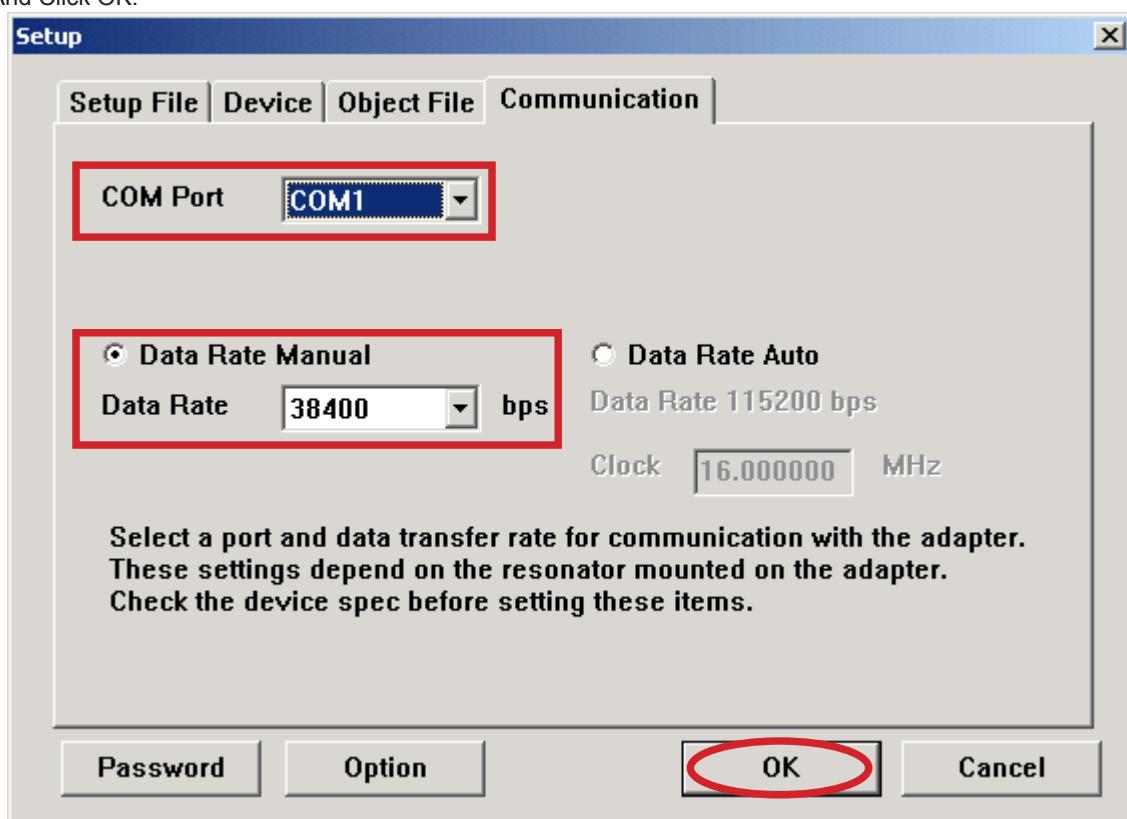
- (8) Click Device tab.



- (9) Choose the TMP91FW60 in the Device, and choose the 900/L1 in the Series.
And click Communication tab.



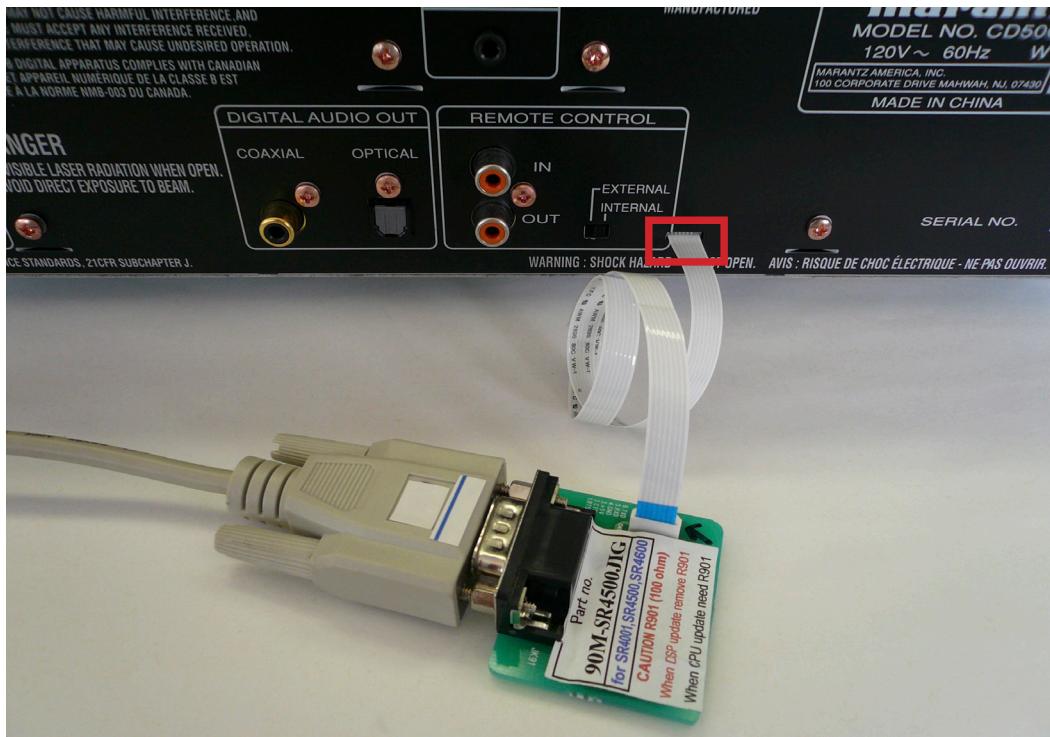
- (10) Choose the Serial port number in the COM Port.
Check the Data Rate Manual, and choose the 38400 in the Data Rate.
And Click OK.



(11) Disconnect the mains cord from the unit.

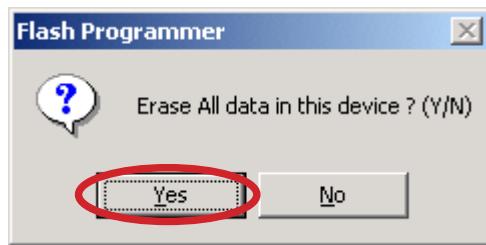
(12) Connect the RS-232C on the connection JIG and the Serial Port of windows PC with RS-232C cable.

(13) Connect FFC (upside contact) to the rear panel of the unit from connection JIG.



(14) Connect the mains cord into the unit.

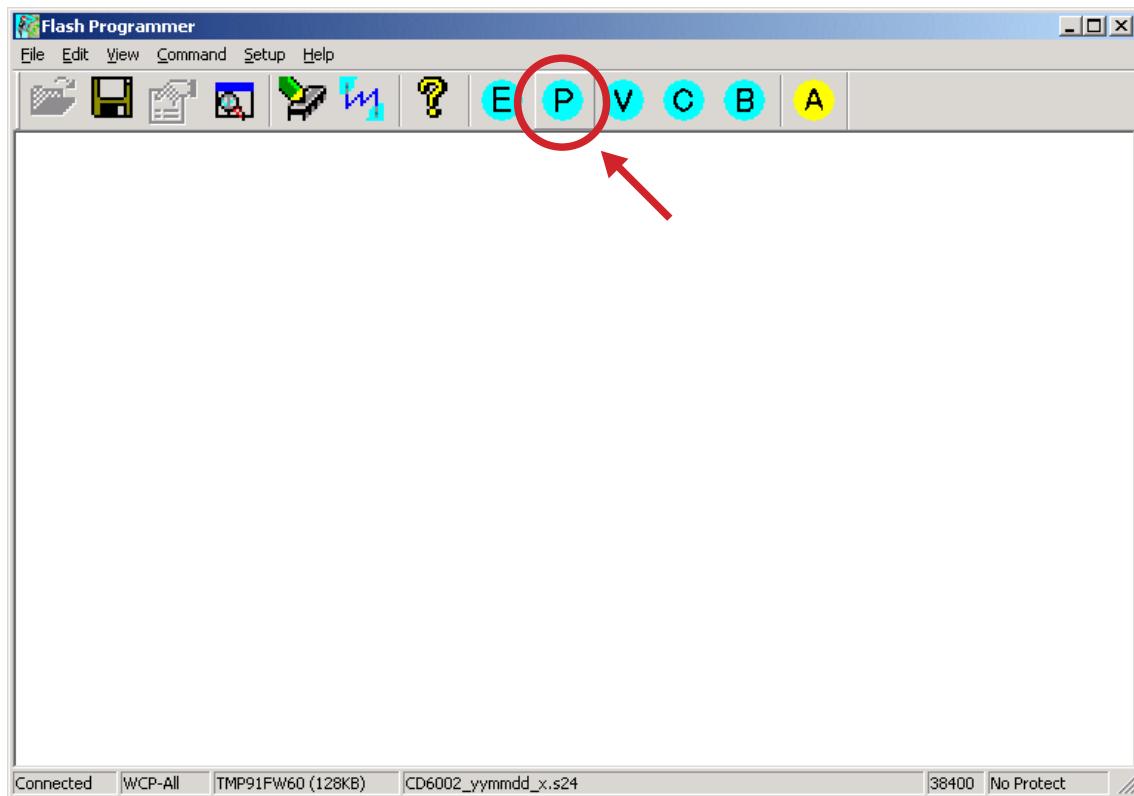
(15) If the connection with the Flash Programmer is successfully made, a dialogue box saying "Erase All data in this device? (Y/N)" appears automatically. If the connection fails, error message will appear. (Ex.: E000)
Click Yes.



(16) Click OK.



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



(18) Software is written into the microprocessor.

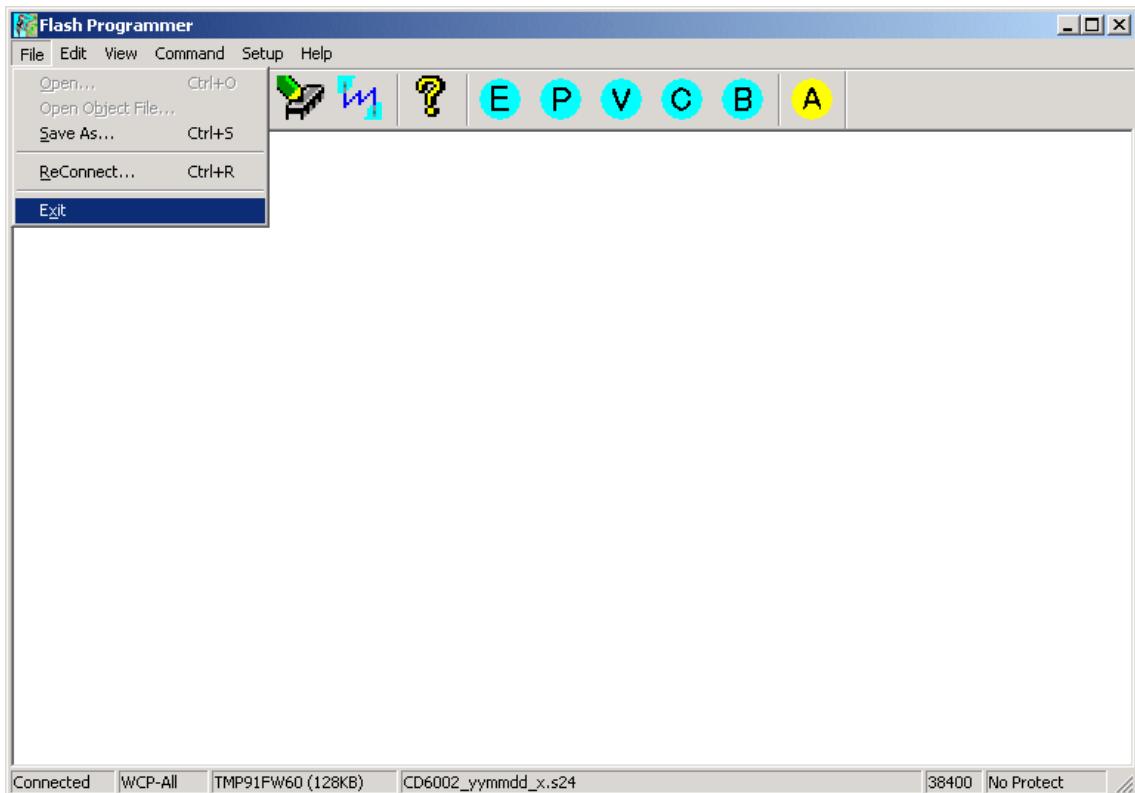
The writing of software takes about 50 seconds.



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



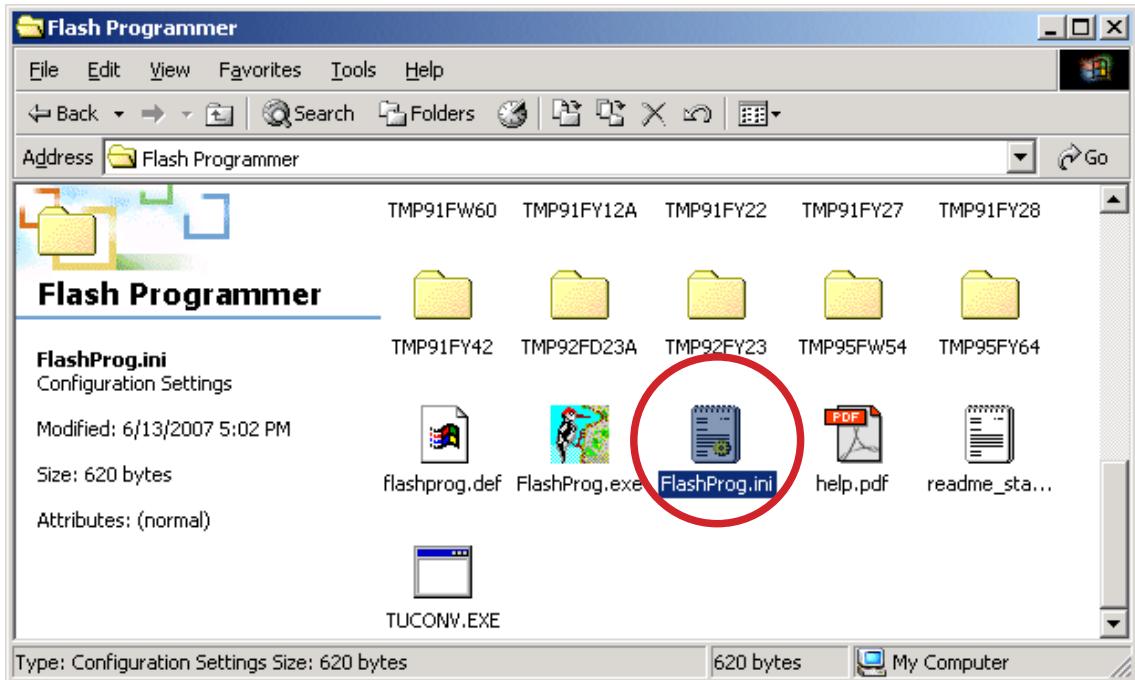
(20) Click the File in the menu bar and select the Exit.



(21) Disconnect mains cord from the unit, and then disconnect FFC of connection JIG from the unit.

2. 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)...\\???.s24".

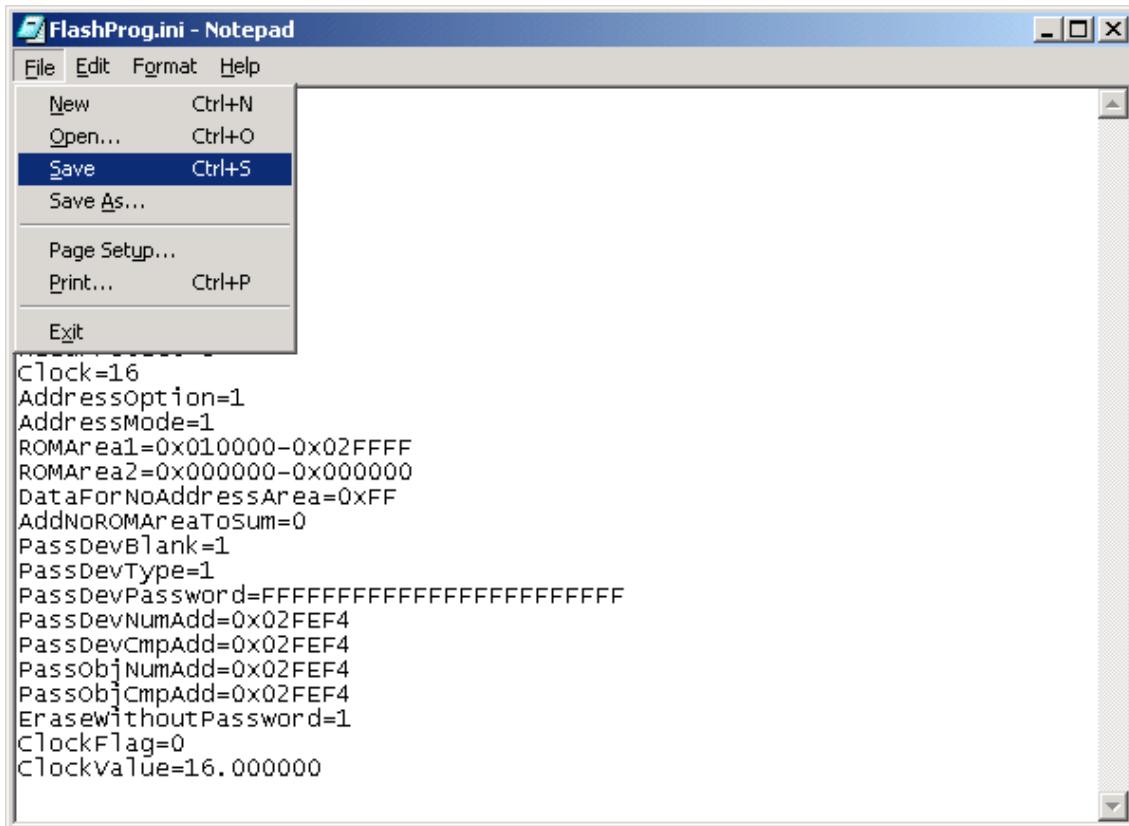
The screenshot shows a Windows Notepad window titled "FlashProg.ini - Notepad". The file contains configuration settings for a flash programmer. The "OpenFile" entry is highlighted in blue, indicating it is selected or about to be deleted. The full content of the file is as follows:

```
[Flash Programmer]
Device=TMP91FW60
OpenFile=C:\Documents and Settings\w_kikuchi\Desktop\zzz\CD\CD6002\software\CD6002_yymmdd_x.s24
COMPort=COM1
DataRate=38400
AllErase=0
BlankCheck=0
Programming=0
Verify=0
FileCompare=0
ReadProtect=0
Clock=16
AddressOption=1
AddressMode=1
ROMArea1=0x010000-0x02FFFF
ROMArea2=0x000000-0x000000
DataForNoAddressArea=0xFF
AddNoROMAreaToSum=0
PassDevBlank=1
PassDevType=1
PassDevPassword=FFFFFFFFFFFFFFFFFFFF
PassDevNumAdd=0x02FEF4
PassDevCmpAdd=0x02FEF4
PassObjNumAdd=0x02FEF4
PassObjCmpAdd=0x02FEF4
EraseWithoutPassword=1
ClockFlag=0
ClockValue=16.000000
```

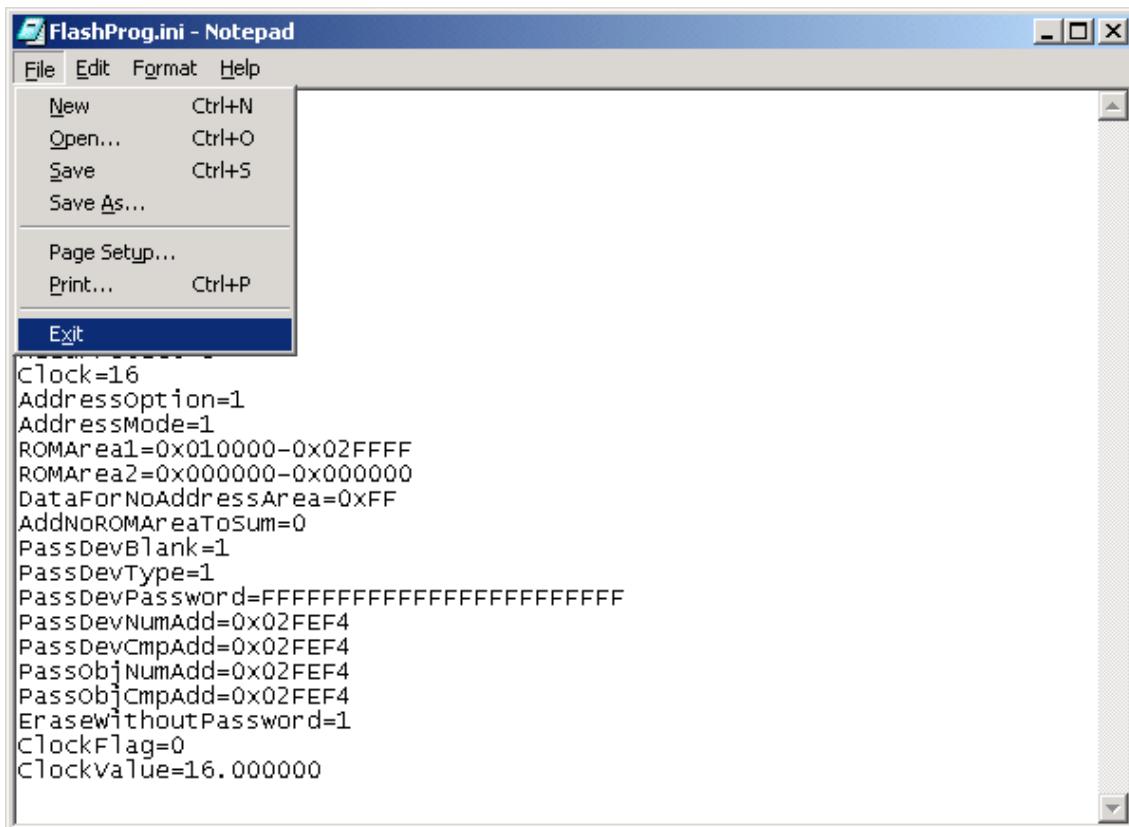
The screenshot shows the same Notepad window after the "OpenFile" entry has been deleted. The file now contains the following configuration settings:

```
[Flash Programmer]
Device=TMP91FW60
COMPort=COM1
DataRate=38400
AllErase=0
BlankCheck=0
Programming=0
Verify=0
FileCompare=0
ReadProtect=0
Clock=16
AddressOption=1
AddressMode=1
ROMArea1=0x010000-0x02FFFF
ROMArea2=0x000000-0x000000
DataForNoAddressArea=0xFF
AddNoROMAreaToSum=0
PassDevBlank=1
PassDevType=1
PassDevPassword=FFFFFFFFFFFFFFFFFFFF
PassDevNumAdd=0x02FEF4
PassDevCmpAdd=0x02FEF4
PassObjNumAdd=0x02FEF4
PassObjCmpAdd=0x02FEF4
EraseWithoutPassword=1
ClockFlag=0
ClockValue=16.000000
```

- (3) Save the FlashProg.ini.



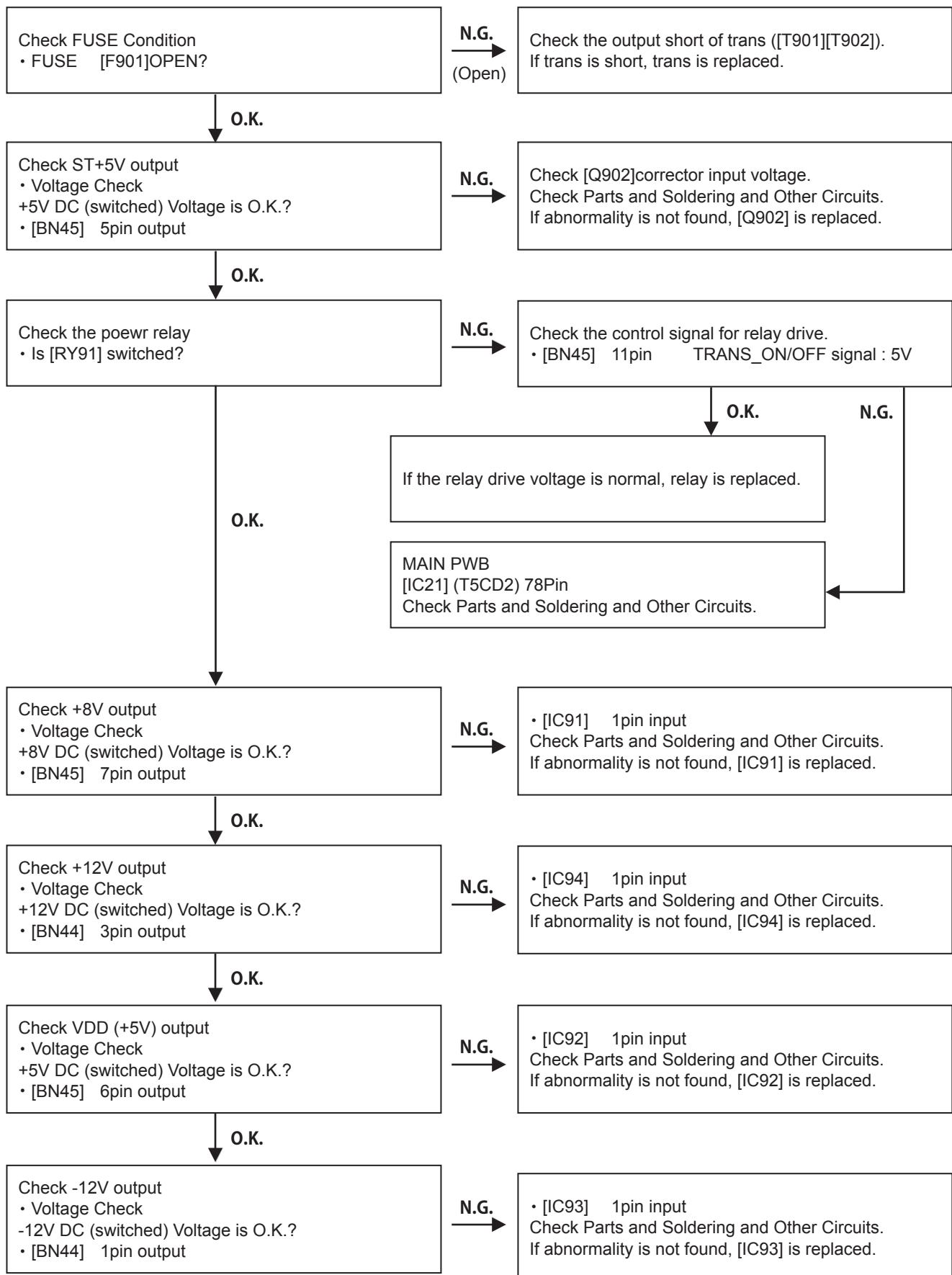
- (4) Close the text editor.



- (5) Probably you can launch the Flash Programmer. Go to the 1. Update Procedure step 3.

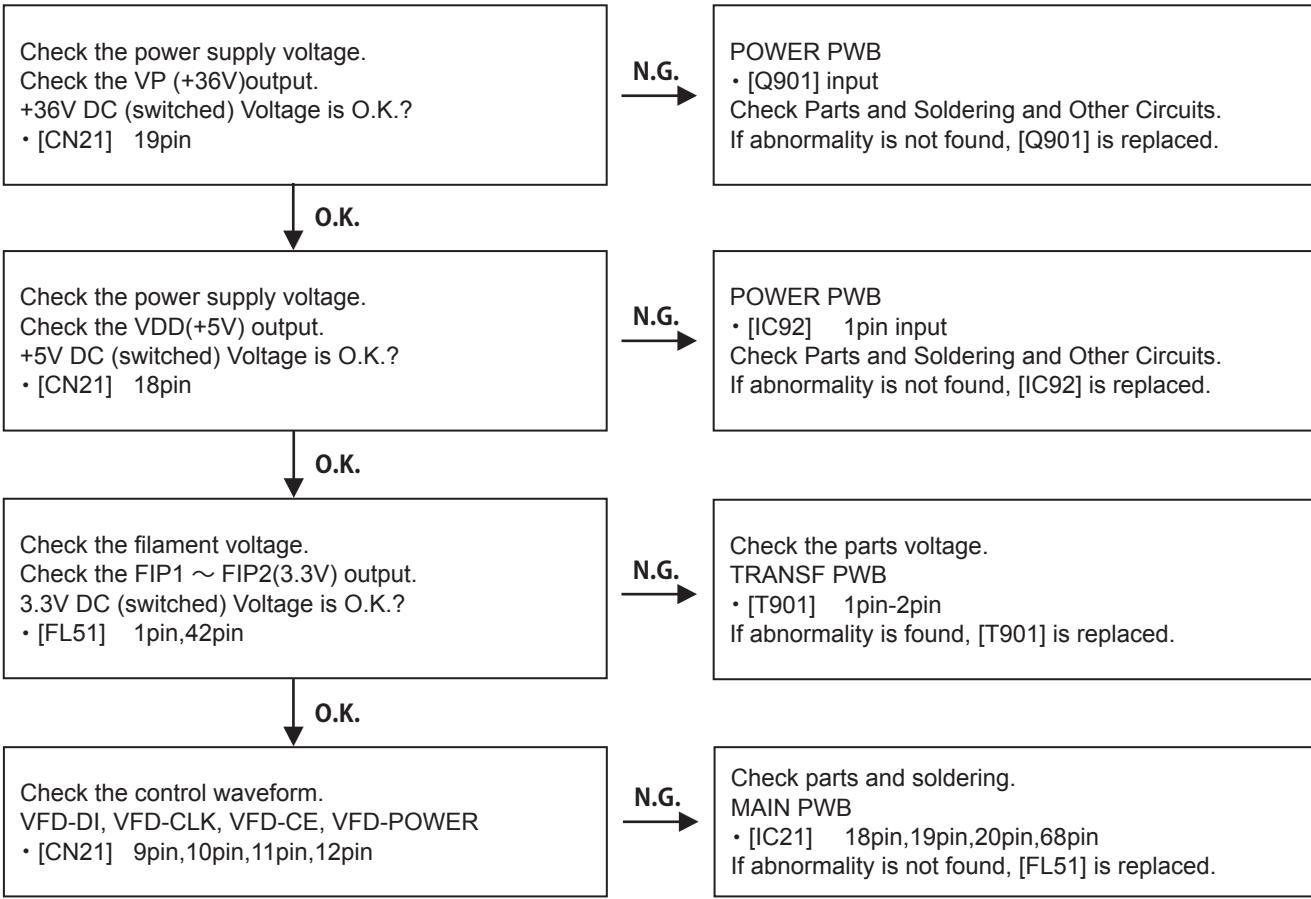
TROUBLE SHOOTING

1. POWER PWB

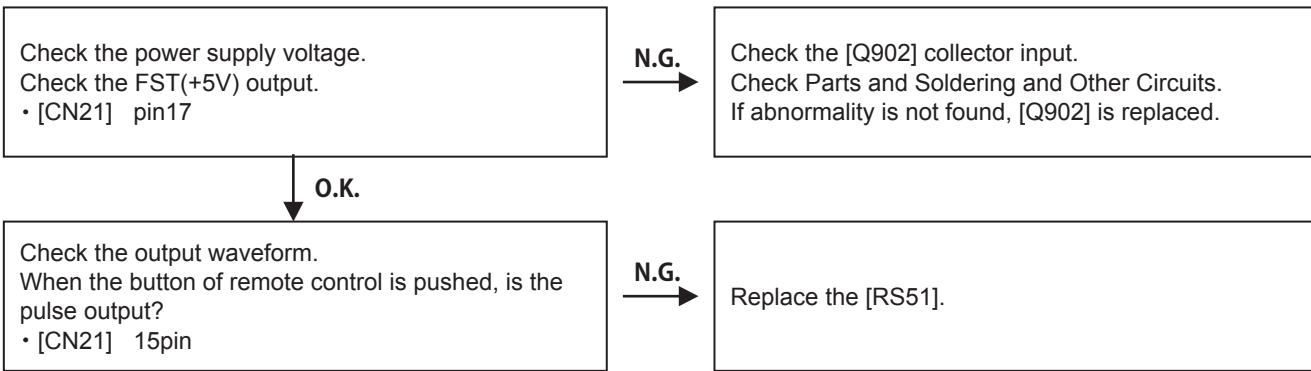


2. FRONT PWB

2.1. FL TUBE doesn't light

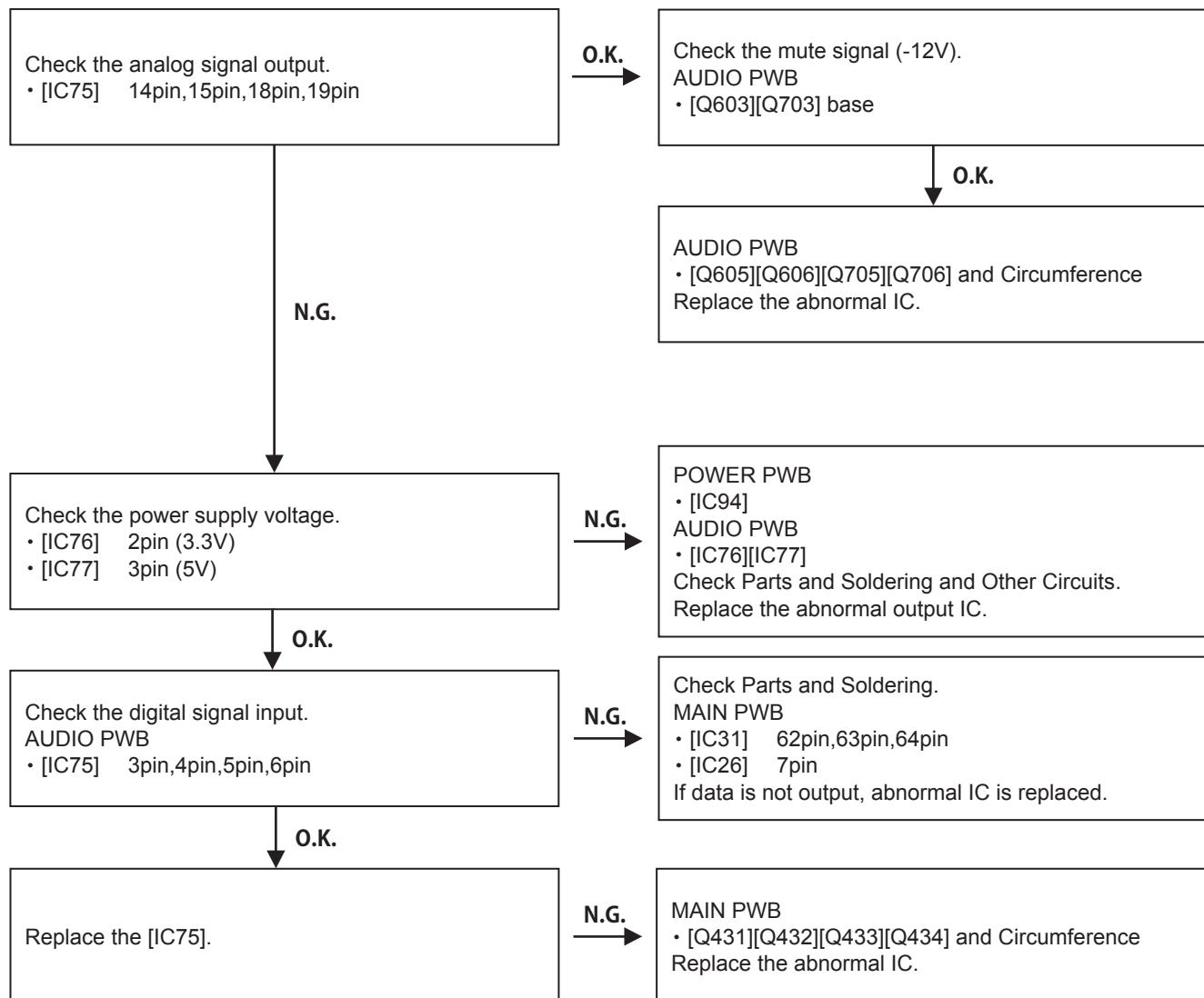


2.2. Remotecontrol is not accepted.



3. AUDIO PWB

3.1 No Audio output

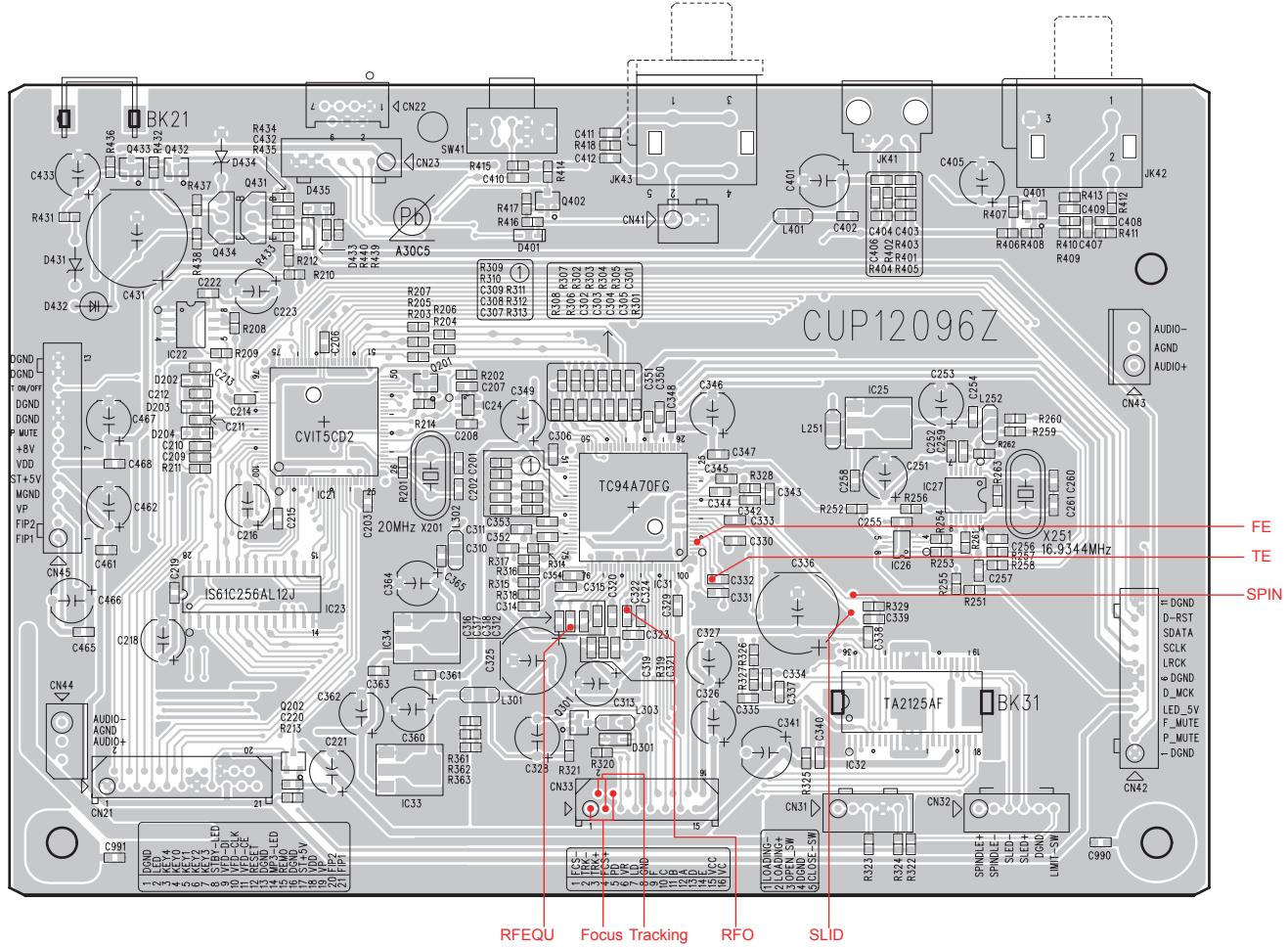


MEASURING METHOD AND WAVEFORMS

Measuring Disc: 4822 397 30184
TCD-784

(It is better to use wires for extending between the probe and test points.)

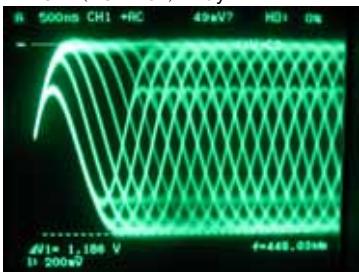
1. CUP12096Z MCU UNIT: TEST POINT



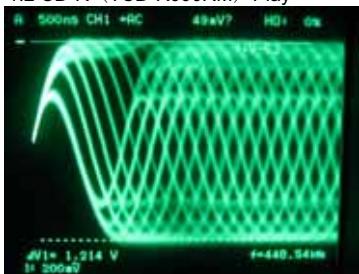
2. WAVEFORMS

1. DISC PLAY RF WAVEFORM (EYE-PATTERN)

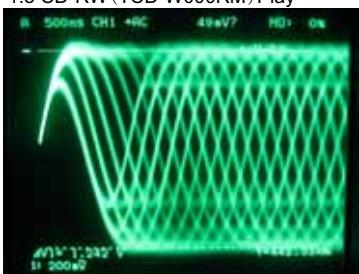
1.1 CD (TCD-784) Play



1.2 CD-R (TCD-R000RM) Play



1.3 CD-RW (TCD-W000RM) Play

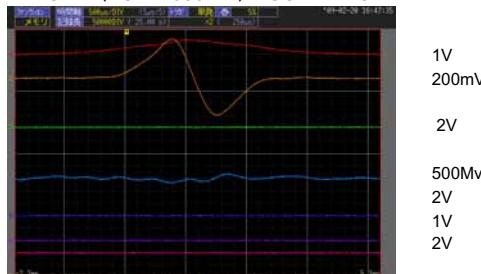


2. DISC DETECTION

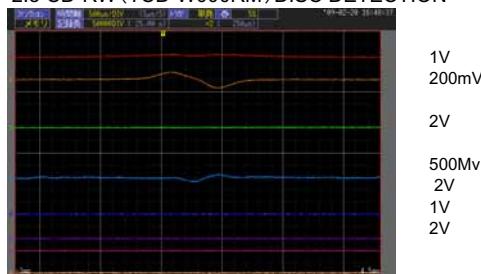
2.1 CD (TCD-784) DISC DETECTION



2.2 CD-R (TCD-R000RM) DISC DETECTION



2.3 CD-RW (TCD-W000RM) DISC DETECTION



3. TOC READ

3.1 CD (TCD-784) TOC READ



3.2 CD-R (TCD-R000RM) TOC READ

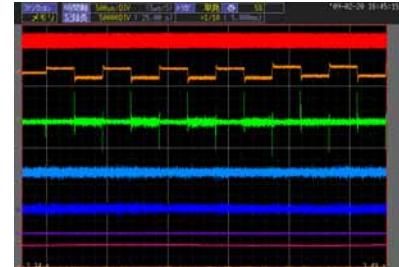


3.3 CD-RW (TCD-W000RM) TOC READ



4. FOCUS ADJUSTMENT

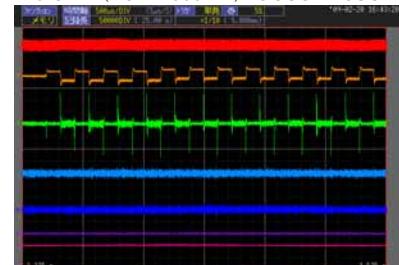
4.1 CD (TCD-784) FOCUS ADJUSTMENT



4.2 CD-R (TCD-R000RM) FOCUS ADJUSTMENT



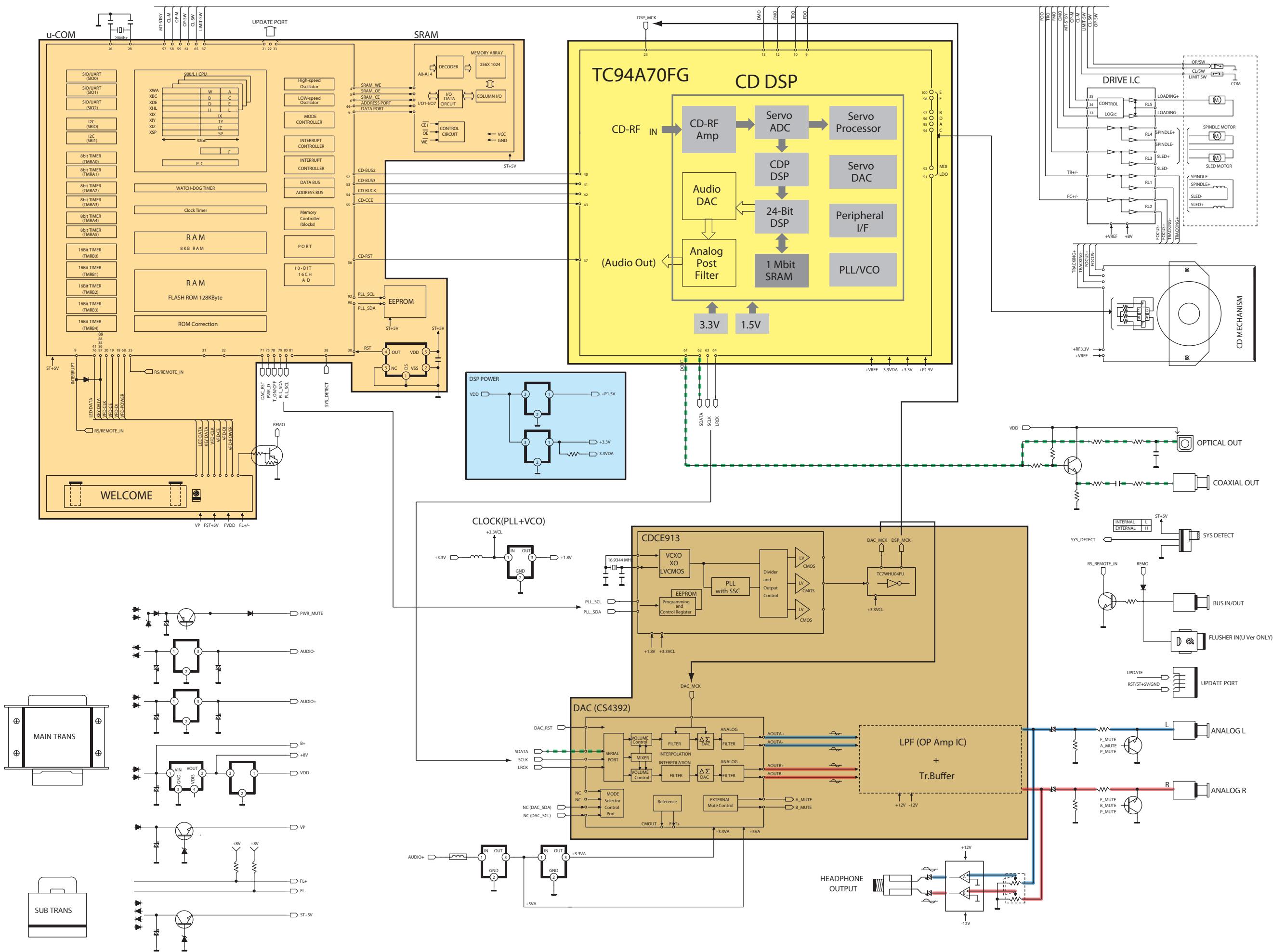
4.3 CD-R (TCD-R000RM) FOCUS ADJUSTMENT



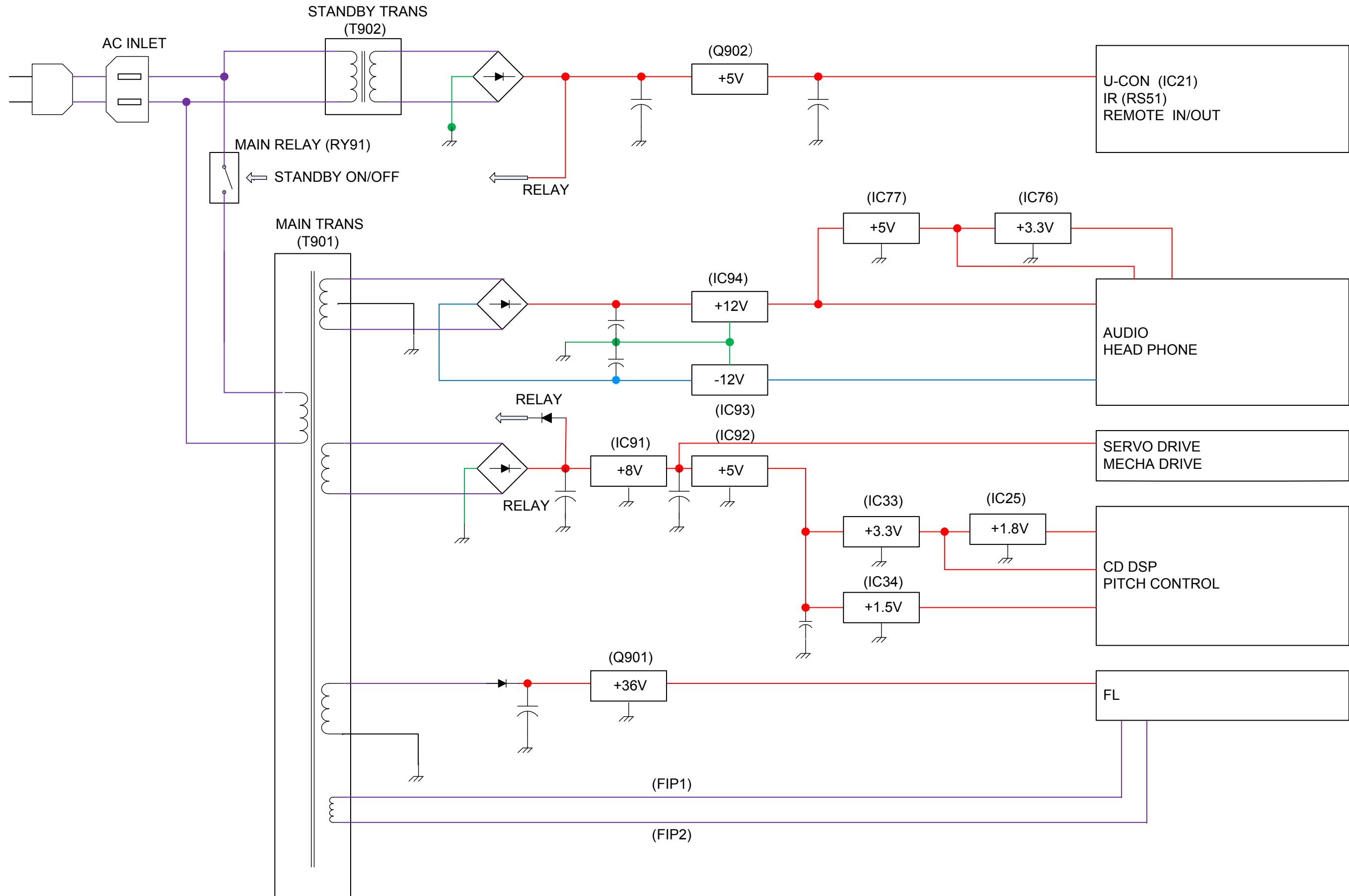
5. LOADER OPEN-CLOSE



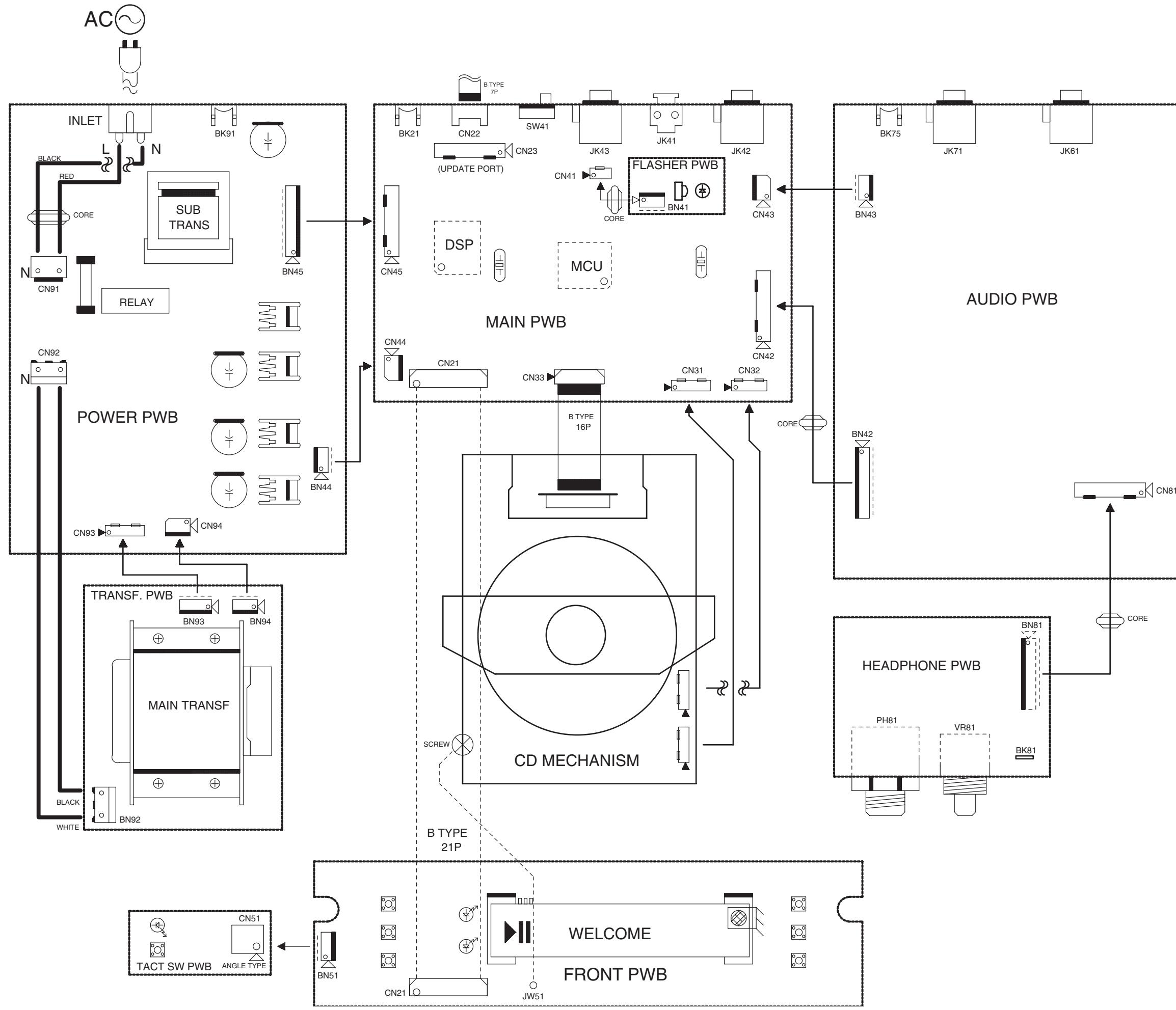
BLOCK DIAGRAM



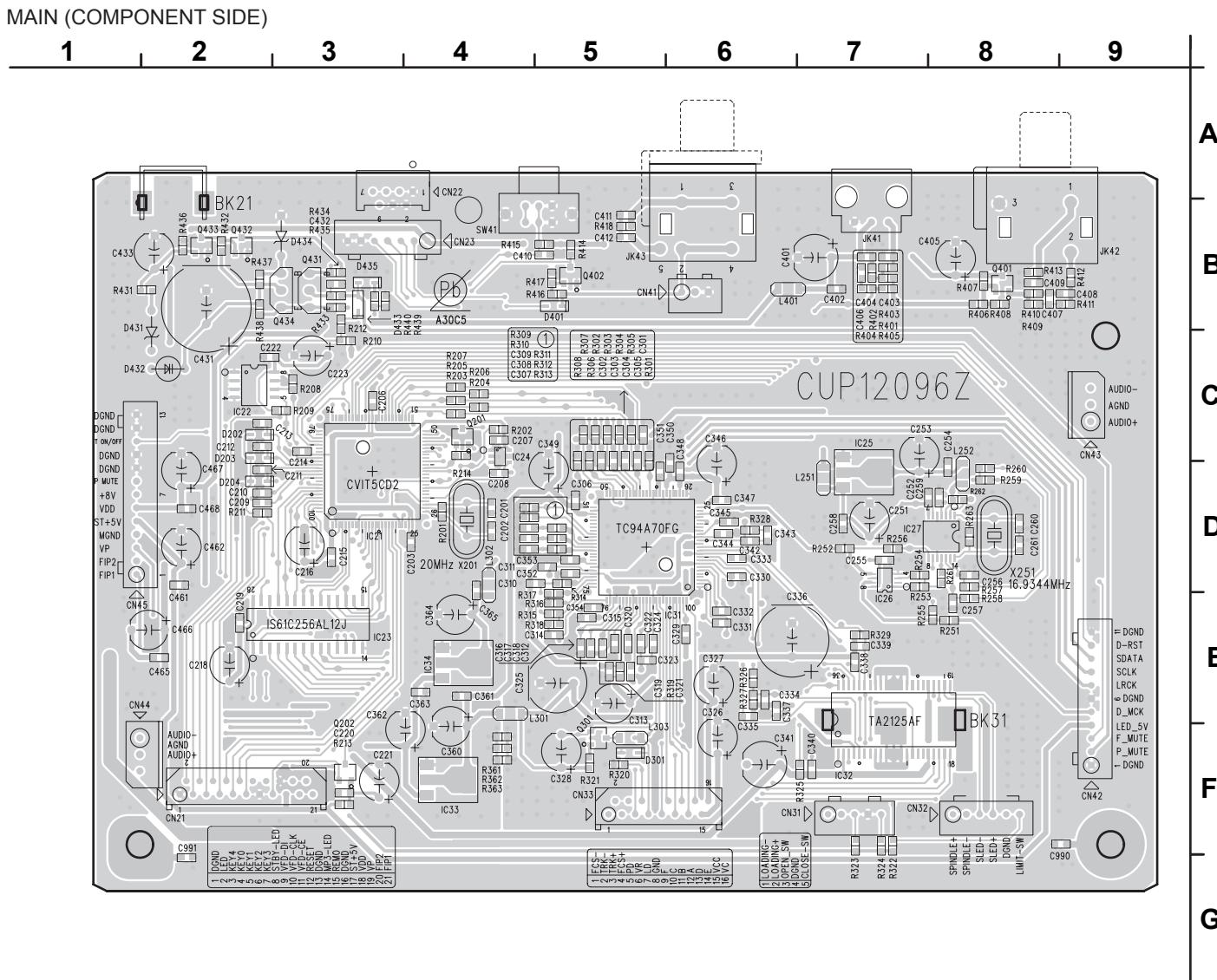
POWER SUPPLY BLOCK DIAGRAM



WIRING DIAGRAM



PRINTED WIRING BOARDS

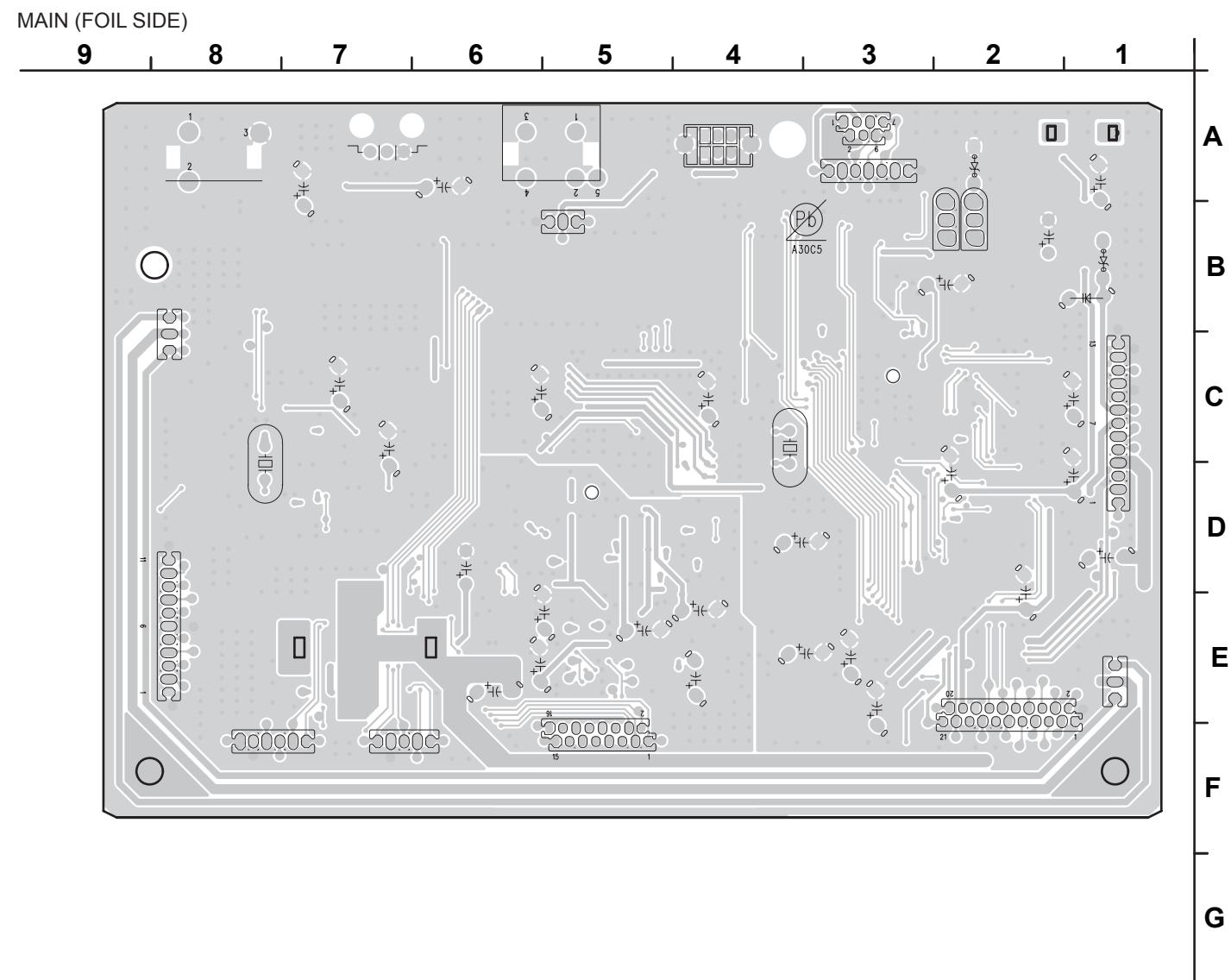


鉛フリー半田

半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。

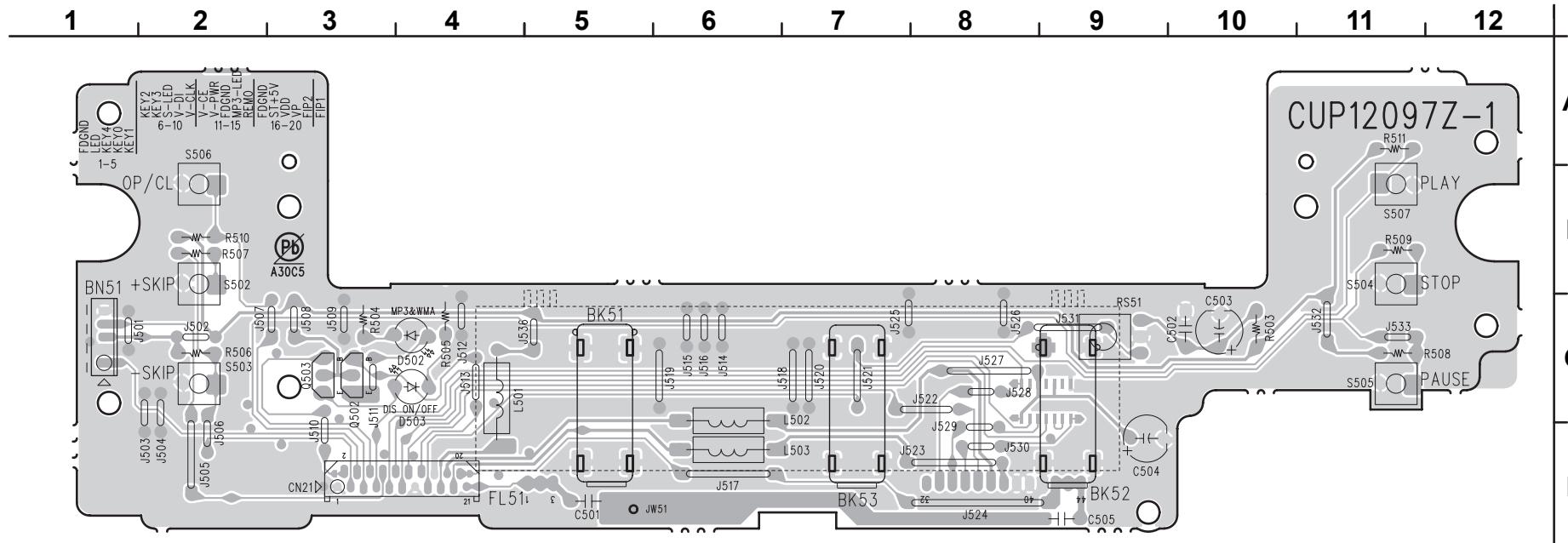
Lead-free Solder

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

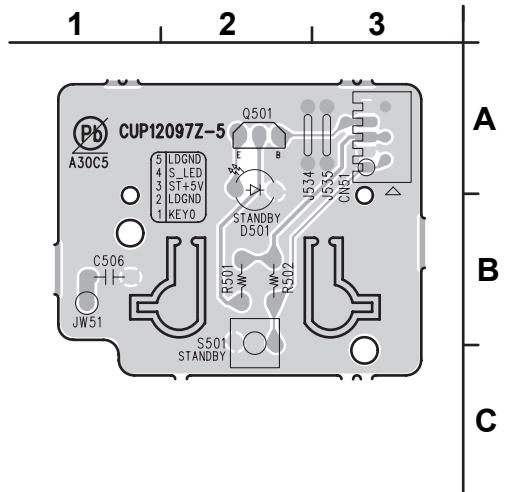


鉛フリー半田
半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。
Lead-free Solder
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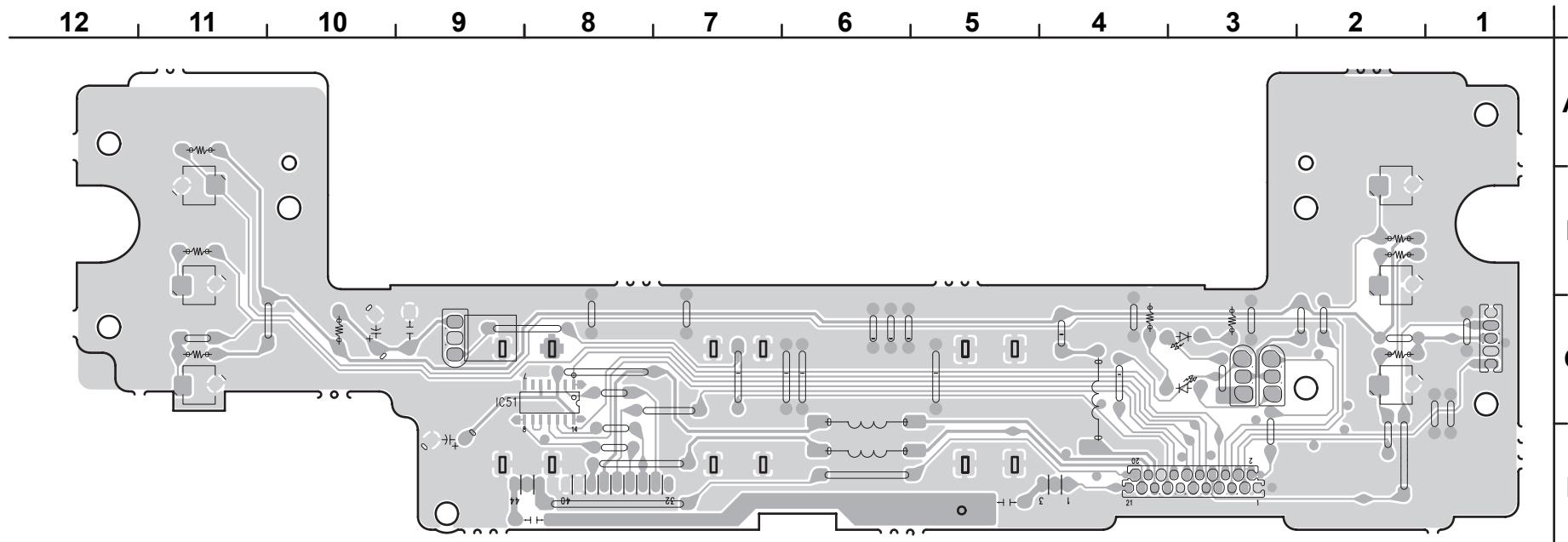
FRONT (COMPONENT SIDE)



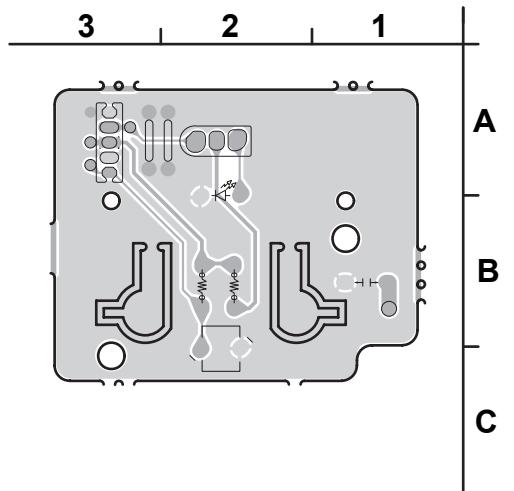
TACT SW (COMPONENT SIDE)



FRONT (FOIL SIDE)



TACT SW (FOIL SIDE)

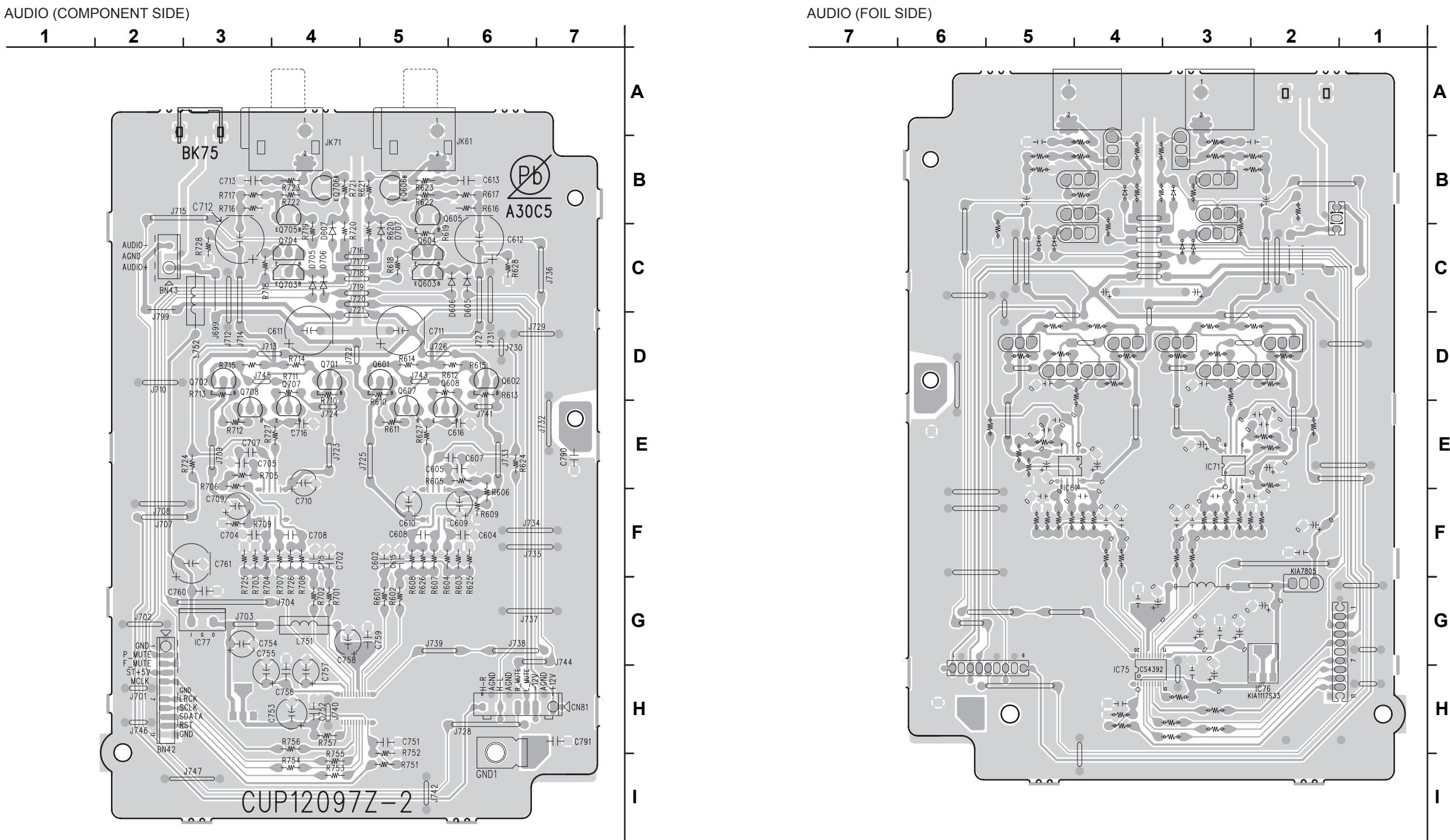


鉛フリー半田

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).



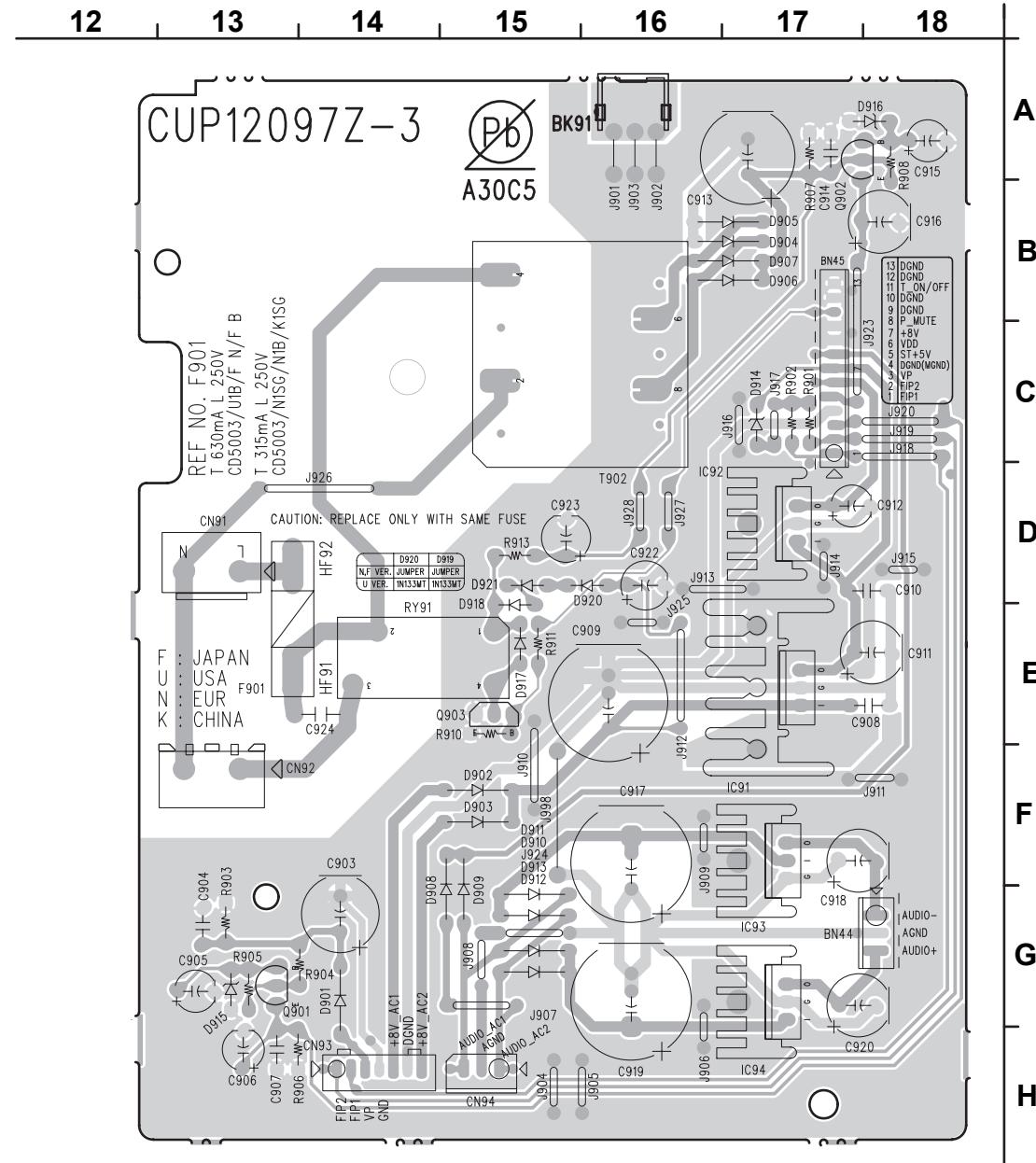
鉛フリー半田

半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。

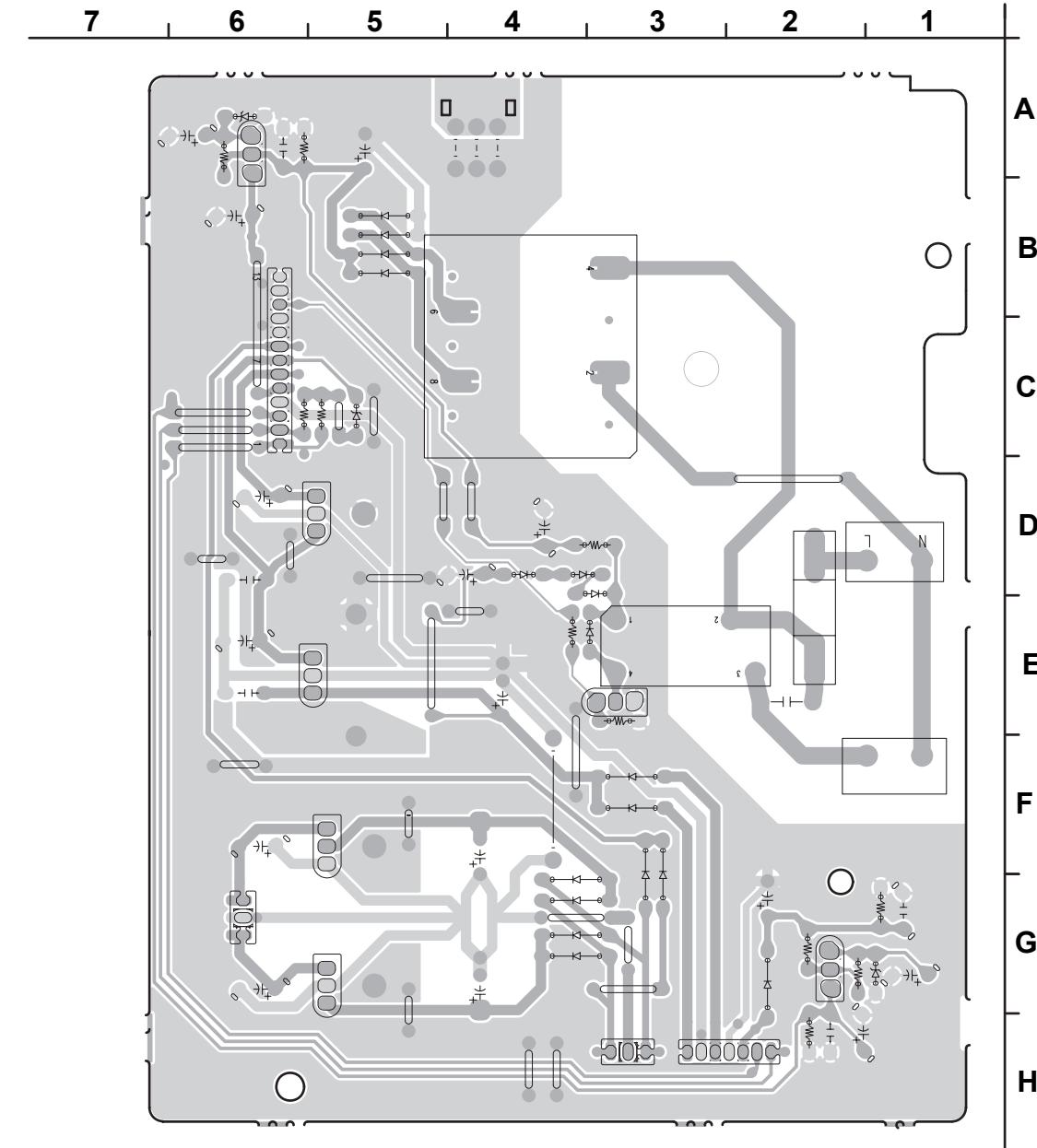
Lead-free Solder

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

POWER (COMPONENT SIDE)



POWER (FOIL SIDE)

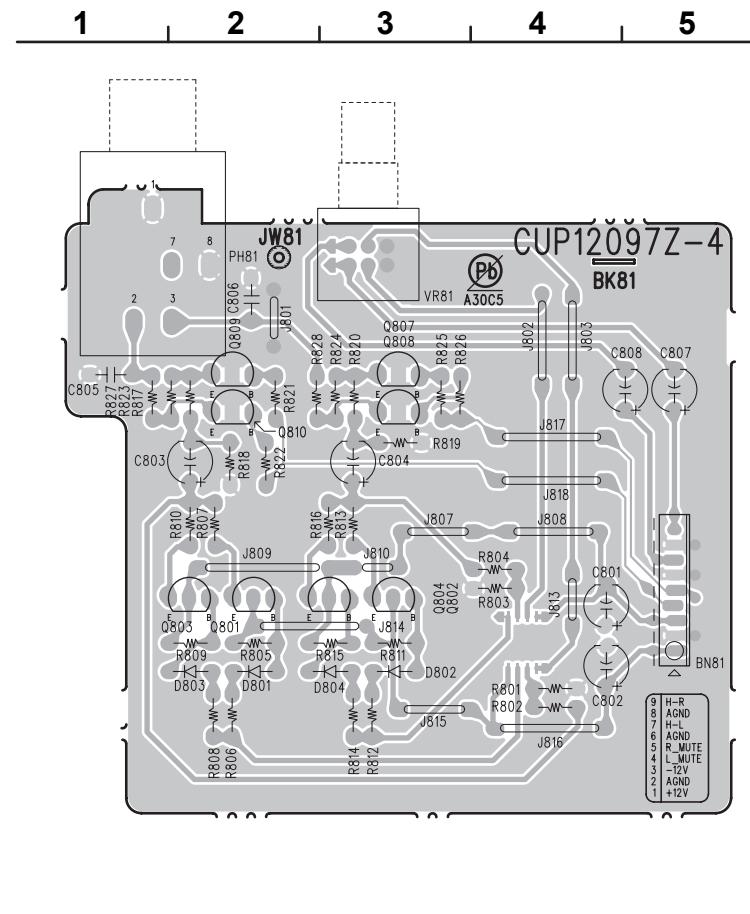
**鉛フリー半田**

半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。

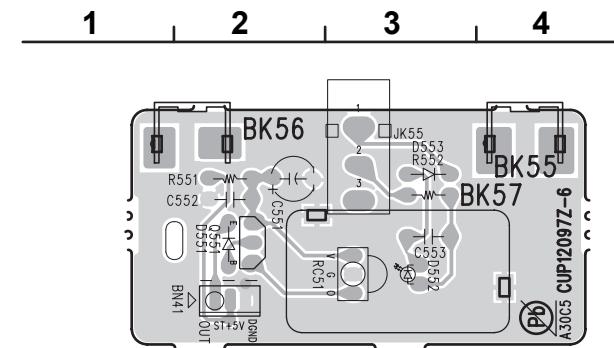
Lead-free Solder

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

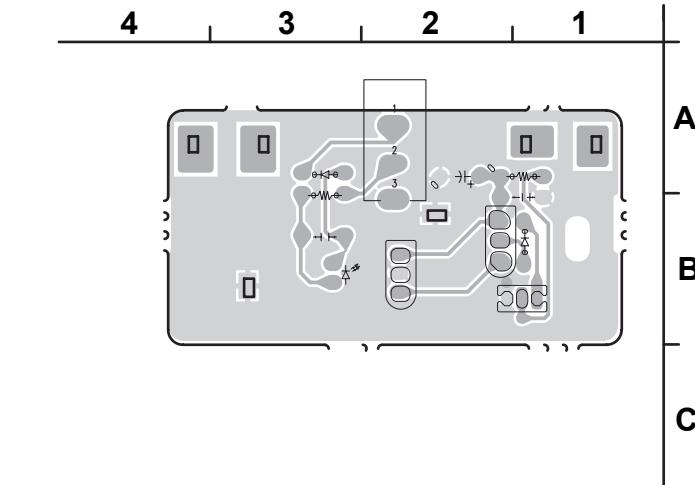
HEADPHONE (COMPONENT SIDE)

A
B
C
D
E
F

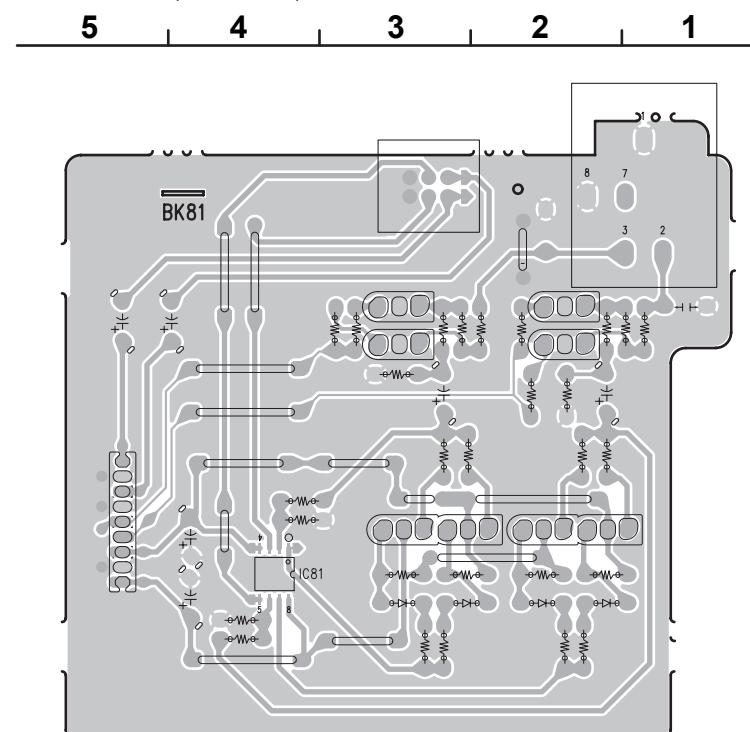
FLASHER (COMPONENT SIDE)



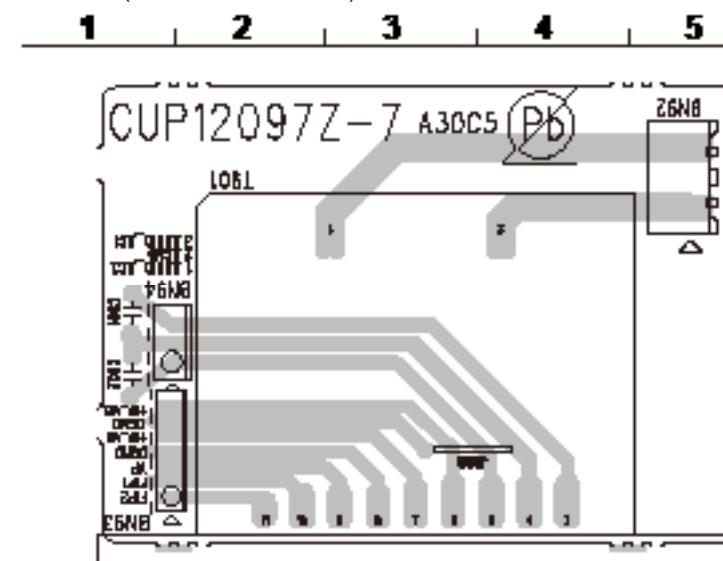
FLASHER (FOIL SIDE)

A
B
C
D
E
F

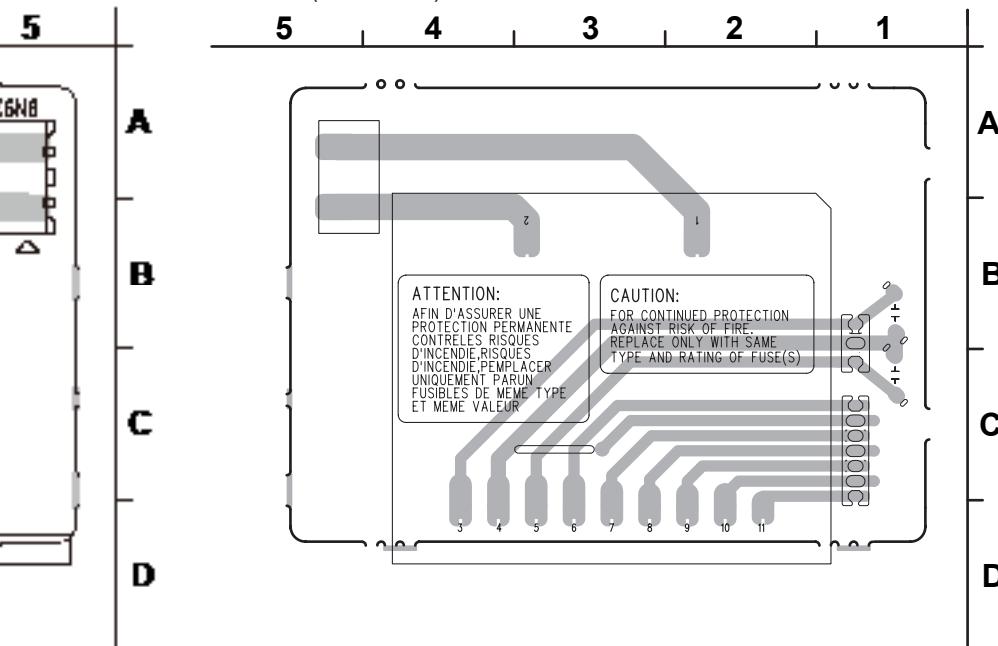
HEADPHONE (FOIL SIDE)

A
B
C
D
E

TRANSF (COMPONENT SIDE)



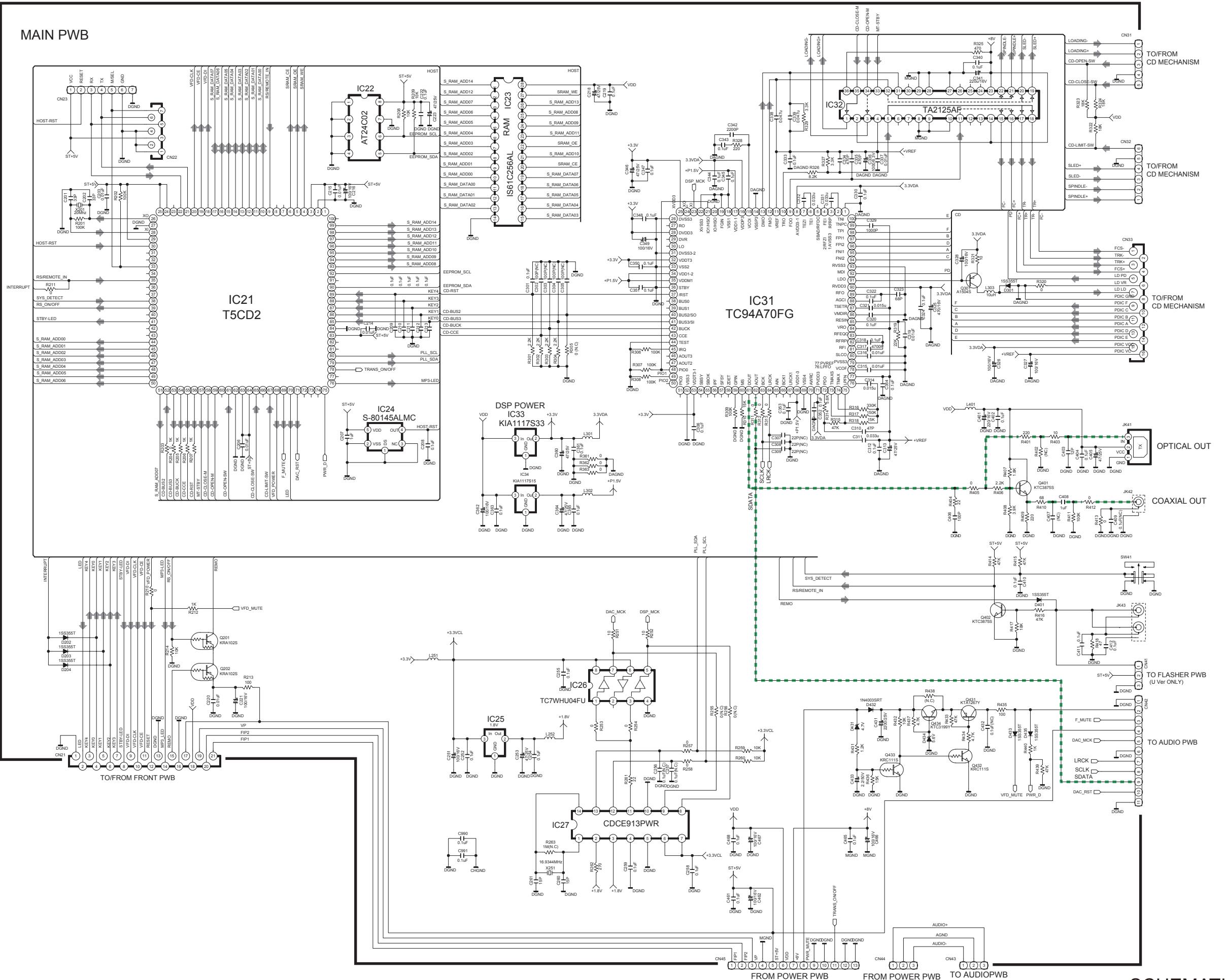
TRANSF (FOIL SIDE)

A
B
C
D
E

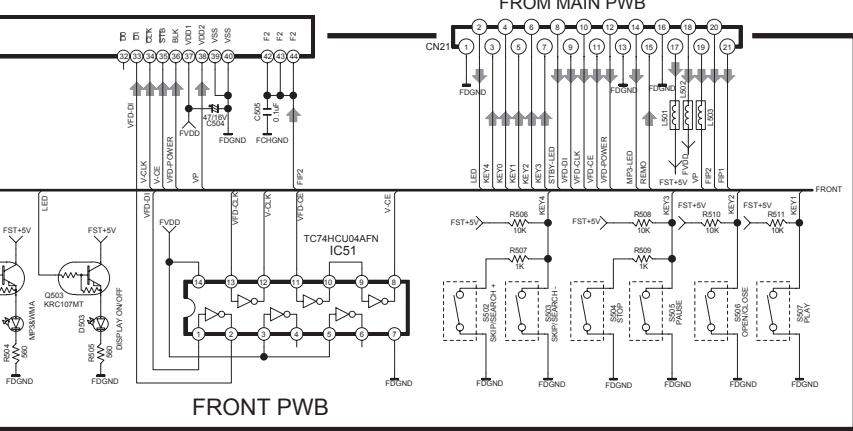
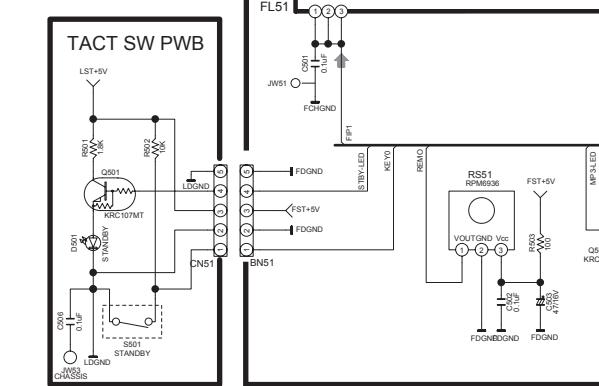
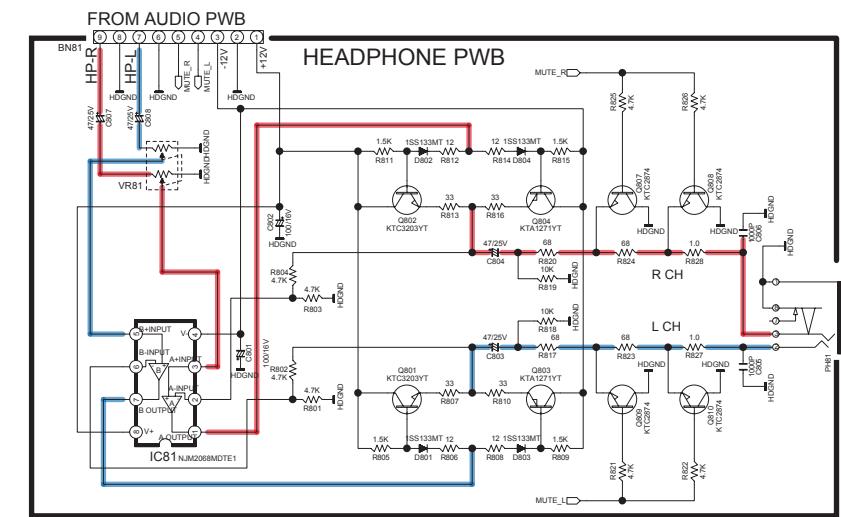
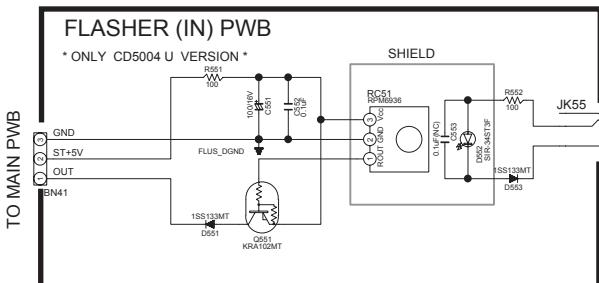
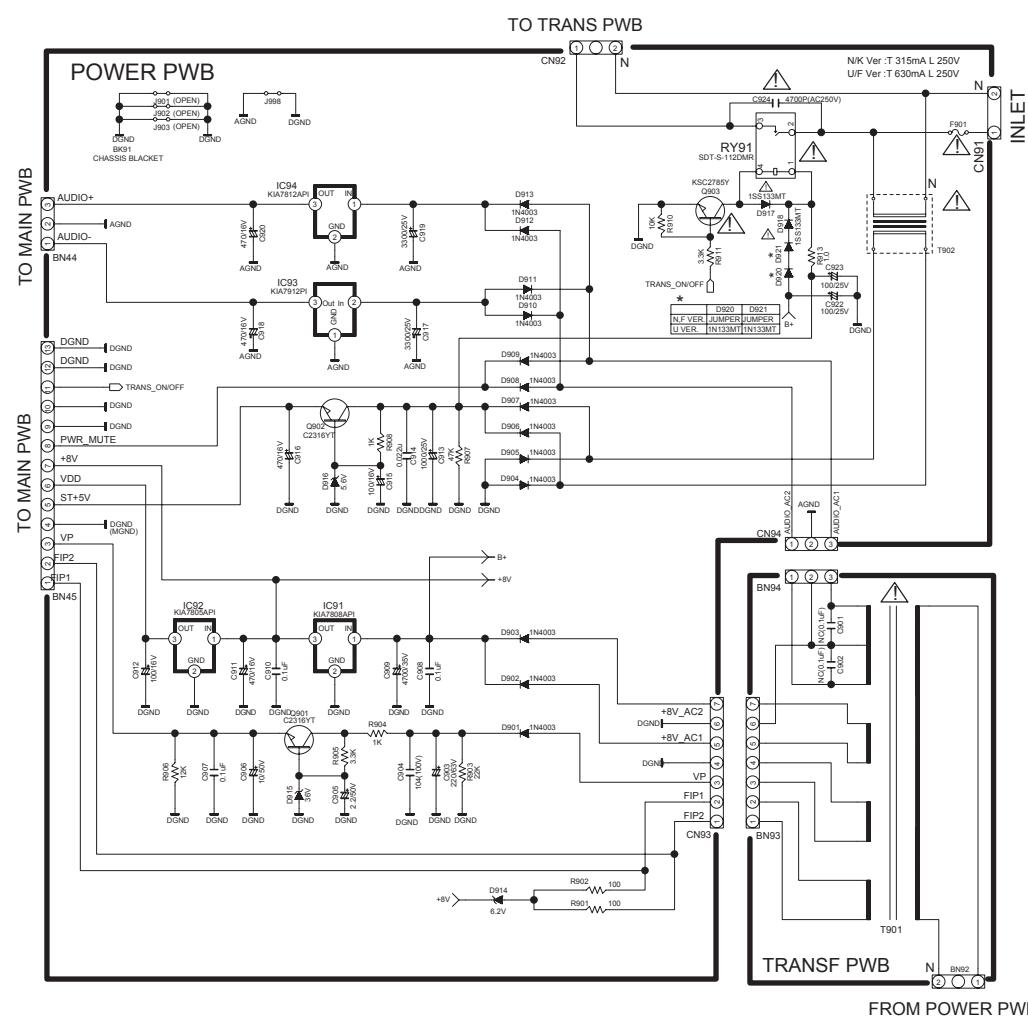
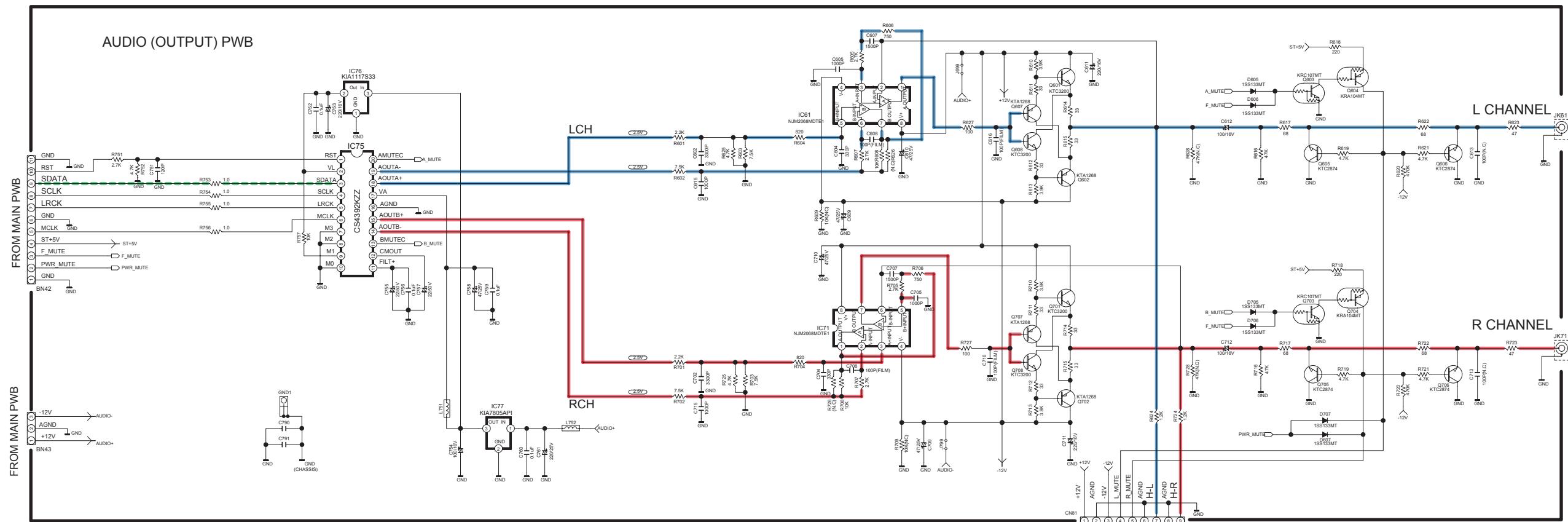
鉛フリー半田
半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。
Lead-free Solder
When soldering, use the Lead-free Solder (Sn-Ag-Cu).

1 2 3 4 5 6 7 8

MAIN PWB



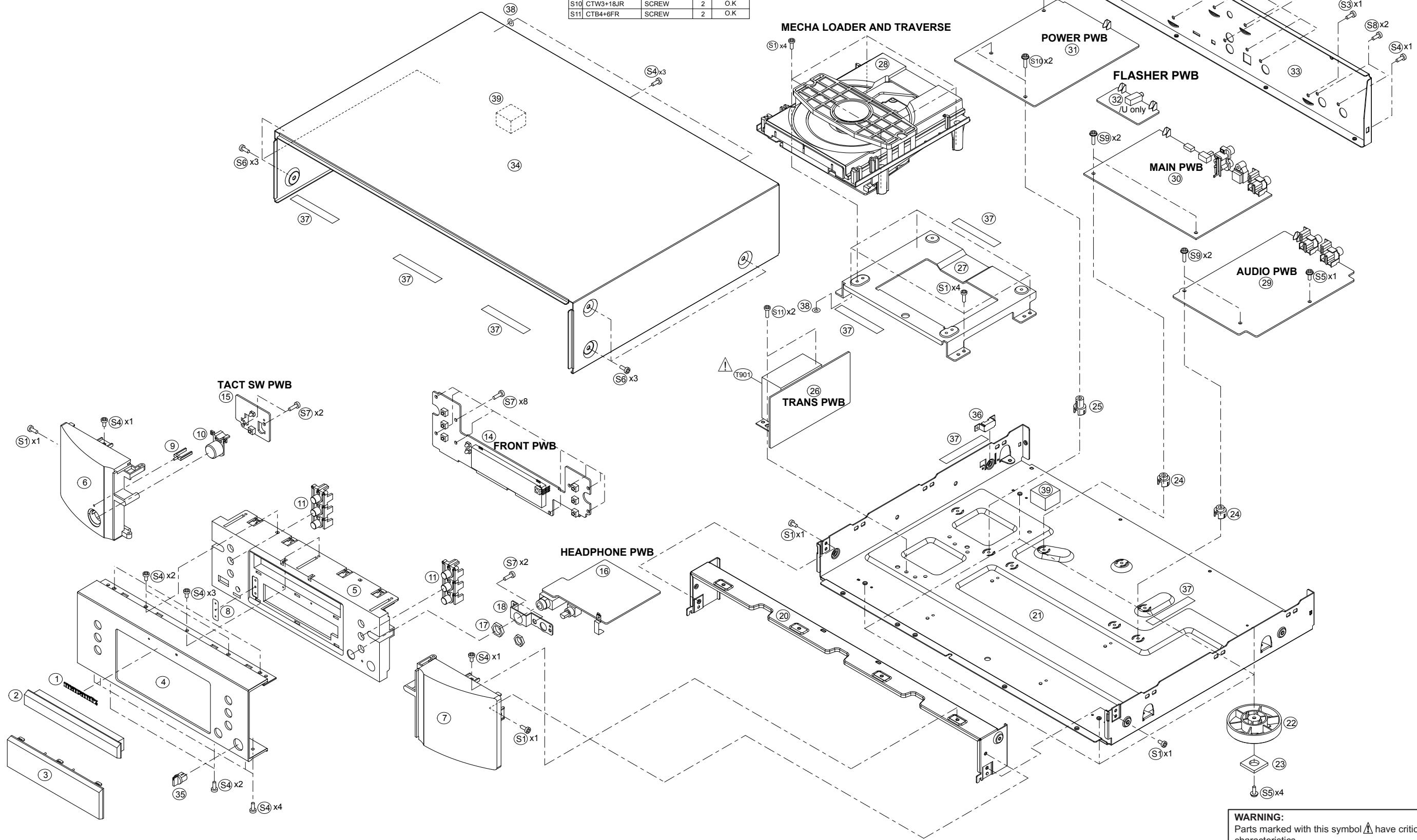
SCHEMATIC DIAGRAMS (1/2)



SCHEMATIC DIAGRAMS (2/2)

EXPLODED VIEW

| NO. | PARTS NO. | DESCRIPTION | Q'TY | A/S PART |
|-----|------------|-------------|------|----------|
| S1 | CTB3+6JR | SCREW | 12 | O.K |
| S2 | CTB3+6FFB | SCREW | 4 | O.K |
| S3 | CTBD3+8JFB | SCREW , DOT | 1 | O.K |
| S4 | CTB3+8JF | SCREW | 18 | O.K |
| S5 | CTW3+8JR | SCREW | 6 | O.K |
| S6 | CTW3+8JFZR | SCREW | 6 | O.K |
| S7 | CTB3+10JR | SCREW | 12 | O.K |
| S8 | CTB3+10JFB | SCREW | 5 | O.K |
| S9 | CTW3+12JR | SCREW | 4 | O.K |
| S10 | CTW3+18JR | SCREW | 2 | O.K |
| S11 | CTB4+6FR | SCREW | 2 | O.K |



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.

* 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.

U : North America model

N : Europe model

K : China model

B : Black model

SG : Silver Gold model

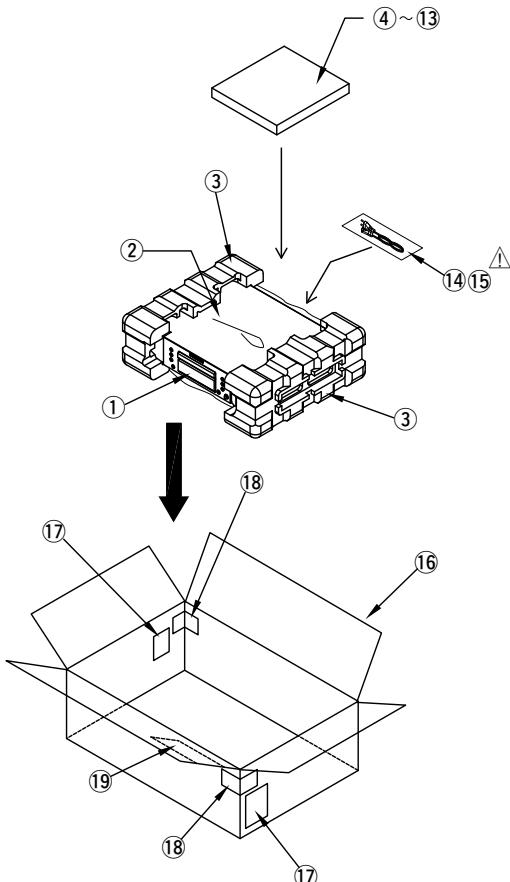
| Ref. No. | Part No. | Part Name | Remarks | Q'ty | New |
|----------|---------------|-----------------------------|---------|----------------|-----|
| 29 | nsp | AUDIO PWB ASSY | K,N | COP12097B | 1 |
| 29 | nsp | AUDIO PWB ASSY | U | COP12097D | 1 |
| | | | | | |
| 32 | nsp | FLASHER IN PWB ASSY | U | COP12097D | 1 |
| | | | | | |
| 14 | nsp | FRONT PWB ASSY | K,N | COP12097B | 1 |
| 14 | nsp | FRONT PWB ASSY | U | COP12097D | 1 |
| | | | | | |
| 16 | nsp | HEADPHONE PWB ASSY | K,N | COP12097B | 1 |
| 16 | nsp | HEADPHONE PWB ASSY | U | COP12097D | 1 |
| | | | | | |
| 30 | nsp | MAIN PWB ASSY | K,N | COP12096B | 1 |
| 30 | nsp | MAIN PWB ASSY | U | COP12096C | 1 |
| | | | | | |
| 31 | nsp | POWER PWB ASSY | K,N | COP12097B | 1 |
| 31 | nsp | POWER PWB ASSY | U | COP12097D | 1 |
| | | | | | |
| 15 | nsp | TACT SW PWB ASSY | K,N | COP12097B | 1 |
| 15 | nsp | TACT SW PWB ASSY | U | COP12097D | 1 |
| | | | | | |
| 26 | nsp | TRANSF. PWB ASSY | K,N | COP12097B | 1 |
| 26 | nsp | TRANSF. PWB ASSY | U | COP12097D | 1 |
| | | | | | |
| 1 | 421410006004M | MARANTZ BADGE (AL) M1 MODEL | | CGB1A206 | 1 |
| 2 | 943402009350M | TRAY COVER | SG | CGR1A455RMWD10 | 1 * |
| 2 | 943402009340M | TRAY COVER | B | CGR1A455XB37 | 1 * |
| 3 | 943416002190M | WINDOW FIP | | CGU1A423A12Z | 1 |
| 4 | 943402009330M | FRONT PANEL | SG | CKM1A203WC62 | 1 * |
| 4 | 943402009320M | FRONT PANEL | B | CKM1A203XC23 | 1 * |
| 5 | 443510004038M | CHASSIS CENTER MOLD SG | SG | CGW1A462RMD10 | 1 |
| 5 | 443510004007M | CHASSIS CENTER MOLD BL | B | CGW1A462B37 | 1 |
| 6 | 943402009310M | PANEL SIDE L | SG | CGW1A463R0WD10 | 1 * |
| 6 | 943402009300M | PANEL SIDE L | B | CGW1A463RNXB37 | 1 * |
| 7 | 402510021032M | PANEL ESCUTCHEON R SG | SG | CGW1A464RLD10 | 1 |
| 7 | 402510021001M | PANEL ESCUTCHEON R BL | B | CGW1A464RKB37 | 1 |
| 8 | nsp | SHEET LED | | CGX1A411Z | 1 |
| 9 | 481510003006M | LENS POWER INDICATOR | | CGL1A274 | 1 |
| 10 | 411510021036M | BUTTON POWER SWITCH SG | SG | CBT1A1072RMD10 | 1 |
| 10 | 411510015017M | BUTTON POWER TACT BL | B | CBT1A1072 | 1 |
| 11 | 411510019033M | BUTTON3 KEY SG | SG | CBT1A1084RMD10 | 2 |
| 11 | 411510019002M | BUTTON3 KEY BL | B | CBT1A1084 | 2 |
| 17 | nsp | NUT PHONE | | CNE1A013 | 2 |
| 18 | nsp | BRACKET HEADPHONE | | CMD1A677 | 1 |
| 20 | nsp | STAY FRAME FRONT | | CUF1A004 | 1 |
| 21 | nsp | BOTTOM CHASSIS CD5003 | | CUA1A289 | 1 |
| 22 | 00M243W057210 | LEG FOR SILVER | | CKL2A042H46 | 4 |

| Ref. No. | Part No. | Part Name | Remarks | | Q'ty | New | |
|----------|---------------|---------------------------|------------------------------------|---------------|------------|-----|--|
| 23 | 00M32CW107010 | SHEET CUSHION FOOT | | CHG1A360 | 4 | | |
| 24 | nsp | HOLDER PWB | | CHE170 | 2 | | |
| 25 | nsp | HOLDER PWB | | CHE1A030 | 1 | | |
| 27 | nsp | BRACKET SUPPORT MECHANISM | | CMD1A676 | 1 | | |
| 28 | 943302002290M | MECHA LOADER AND TRAVERSE | | CJDWSL11VF | 1 | | |
| 33 | nsp | REAR PANEL K | K | CKF3A390T | 1 | | |
| 33 | nsp | REAR PANEL N | N | CKF3A390V | 1 | | |
| 33 | nsp | REAR PANEL U | U | CKF4A390W | 1 | | |
| 34 | 401310003033M | LID TOP COVER SG | SG | CKC2A187D11 | 1 | | |
| 34 | 401310003002M | LID TOP COVER BL | B | CKC2A187K117 | 1 | | |
| 35 | 00M24AW154120 | KNOB LEVEL SG | SG | CBN1A170RMD10 | 1 | | |
| 35 | 00M24AW154020 | KNOB LEVEL BL | B | CBN1A170 | 1 | | |
| 36 | nsp | COVER SCREW | | CMD1A495 | 1 | | |
| 37 | nsp | TAPE HEMELON | | CHS1A032 | 6 | | |
| 38 | nsp | WASHER GROUND COPPER | | CNW1A035 | 4 | | |
| 39 | nsp | BUFFER CUSHION RUBBER | | CHG1A157 | 2 | | |
| ⚠ | 40 | 00MYJ04002640 | R-301(21) AC INLET | | CJJ8A006ZW | 1 | |
| ★ | 41 | 90M-FC500030R | FERRITE COREFERRITE RING 29X7.7X19 | | CLZ9W003Z | 1 | |
| ★ | 42 | 90M-FC500130R | FERRITE COREFERRITE CORE | | CLZ9Z071Z | 1 | |
| ⚠ | T901 | 90M-TS002510R | TRANSF POWER TRANSF. (EUR/UK) | K,N | CLT5M025YE | 1 | |
| ⚠ | T901 | 90M-TS002530R | TRANSF POWER TRANSF. (TC) | U | CLT5M025YU | 1 | |
| | | | | | | | |
| | | | | | | | |

WIRES

| | | | | | | |
|-------|---------------|----------------------------|--|-----------------|---|--|
| ★ 201 | 943606002310S | FPC FFC 21P 250MM 1MM | | CWC4F4A21A250B | 1 | |
| ★ 202 | 943606002320S | FPC FFC 16P 150MM CD MECHA | | CWC4F2A16A150B | 1 | |
| ★ 203 | nsp | CORD WIRE ASSY | | CWZCD6002BN95 | 1 | |
| ★ 204 | nsp | CORD WIRE ASSY 5P 2500MM | | CWB1B005250EG | 1 | |
| ★ 205 | nsp | CORD WIRE ASSY | | CWB5A906220EG | 1 | |
| ★ 206 | nsp | CORD WIRE ASSY | | CWZCD6002BN95ZA | 1 | |

PACKING VIEW



PARTS LIST OF PACKING VIEW

* 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.

U : North America model
B : Black model

N : Europe model
SG : Silver Gold model

K : China model

| Ref. No. | Part No. | Part Name | Remarks | Q'ty | New |
|----------|---------------|------------------------------------|------------|-------------|-----|
| 1 | - | set | - | 1 | |
| 2 | nsp | POLY BAG | | CPB1A013Y | 1 |
| 3 | 943533002300M | CUSHION CD5003 | | CPS1A821 | 2 |
| 4 | nsp | POLY BAG | | CPB1061W | 1 |
| 5 | 541110510059M | MANUAL CD5004/K | K | CQX1A1534Z | 1 |
| 5 | 541110510035M | MANUAL CD5004/N | N | CQX1A15321 | 1 |
| 5 | 541110510028M | MANUAL CD5004/U | U | CQX1A1533Z | 1 |
| 6 | nsp | BATTERY | | CABR03PPB | 2 |
| 7 | 307010035001M | UNIT KIT REMOTE CONTROLLER RC002CD | | CARTCD5003M | 1 |
| 8 | 90M-ZD000440R | CONN. CORD PIN | | CJS4M009X | 1 |
| 9 | 90M-ZD000510R | CONN. CORD PIN | | CJS4N014Z | 1 |
| 10 | nsp | CARD, POST MARANTZ F | U | CQE1A131W | 1 |
| 11 | nsp | SHEET, SALES ADDRESS | U | CQE1A132V | 1 |
| 12 | nsp | STAPLE | | CPL0905 | 3 |
| 13 | nsp | WARRANTY CARD | K | CQE1A449Z | 1 |
| 14 | nsp | POLY BAG | | CPB11A008Z | 1 |
| ⚠ 15 | 90M-ZC000650R | MAINS CORD FOR K | K | CJA2N075Z | 1 |
| ⚠ 15 | 943611002340S | MAINS CORD UL | U | CJA2A070Z | 1 |
| ⚠ 15 | 90M-ZC000320R | MAINS CORD 2WIRE 10A/250V | N | CJA2B054Z | 1 |
| 16 | 531210136002M | CARTON CASE | | CPG1A870T | 1 |
| 17 | nsp | SHIPPING LABEL | | CQB1A993Z | 2 |
| 18 | nsp | LABEL, WHITE M1 SG | N1SG, K1SG | CQB1A908Z | 2 |

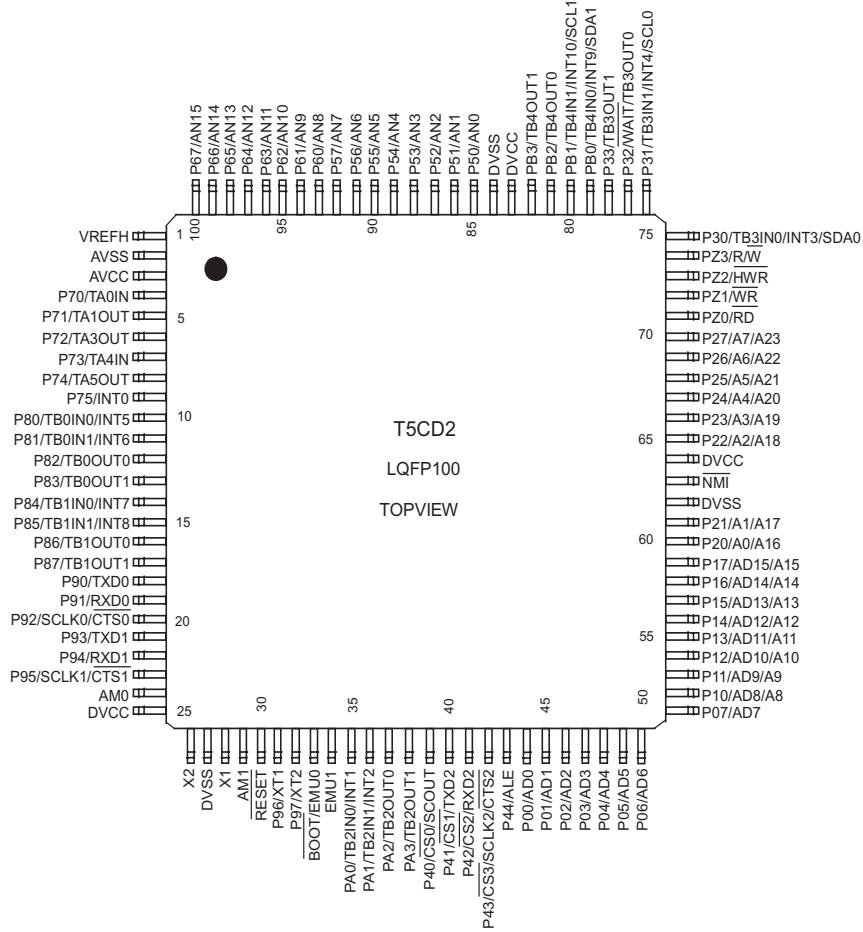
SEMICONDUCTORS

Only major semiconductors are shown, general semiconductors etc. are omitted to list.

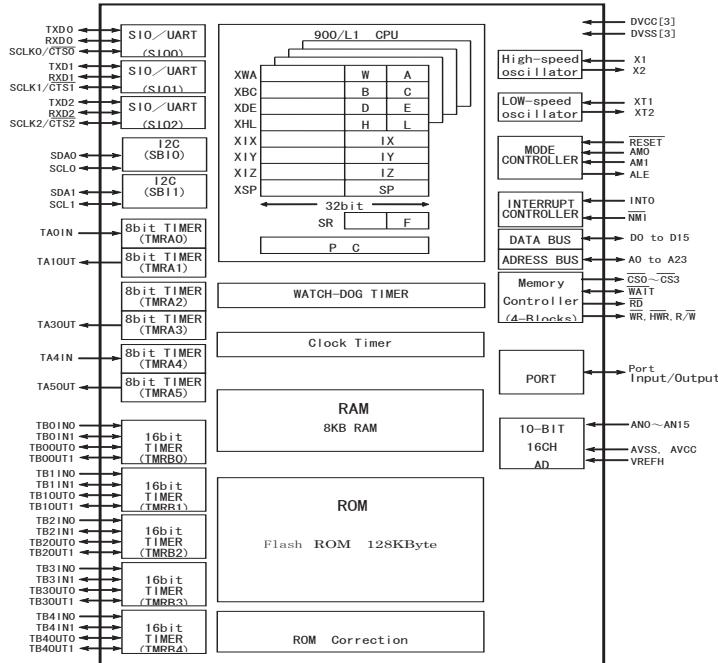
The semiconductor which described a detailed drawing in a schematic diagram are omitted to list.

1. IC's

T5CD2 (MAIN : IC21)



Block Diagram



Terminal Function

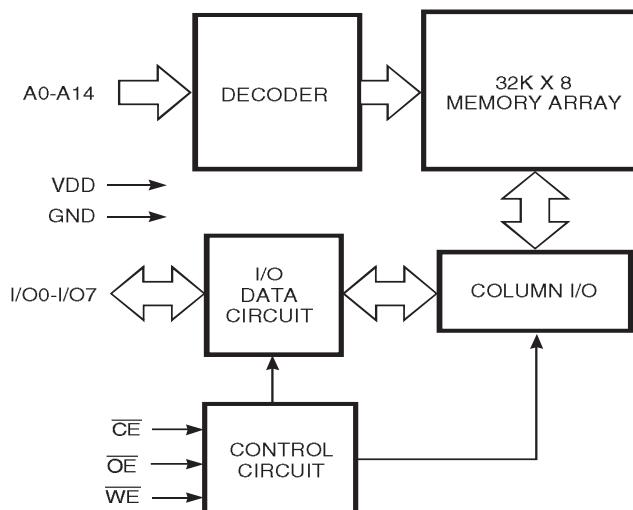
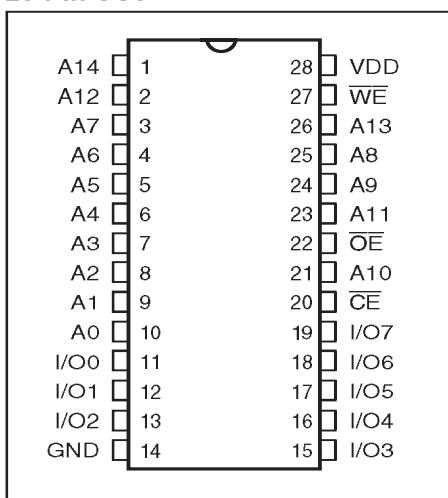
| Pin No. | Port Name | I/O | Use | Power off | Name | Port Setting | | Note |
|---------|--------------------|-----|-----|-----------|---------------|--------------|------|---------------------------------------|
| | | | | | | Act | init | |
| 1 | VREFH | | | | VREFH | | | ADC power, connect with +5V |
| 2 | AVSS | | | | GND | | | GND |
| 3 | AVCC | | | | AVCC | | | MCU power, connect with +5V |
| 4 | P70/TA0IN | I/O | O | L | /SRAM_WE | L | I | sram write enable |
| 5 | P71/TA1OUT | I/O | O | L | /SRAM_OE | L | I | sram output enable |
| 6 | P72/TA3OUT | I/O | O | L | /SRAM_CE | L | I | sram chip enable |
| 7 | P73/TA4IN | I/O | | | NC | | | open |
| 8 | P74/TA5OUT | I/O | | | NC | | | open |
| 9 | P75/INT0 | I/O | I | - | RS/REMOTE | - | I | remote in |
| 10 | P80/TB0IN0/INT5 | I/O | I/O | L | SRAM_DATA00 | - | I | sram_data_00 |
| 11 | P81/TB0IN1/INT6 | I/O | I/O | L | SRAM_DATA01 | - | I | sram_data_01 |
| 12 | P82/TB0OUT0 | I/O | I/O | L | SRAM_DATA02 | - | I | sram_data_02 |
| 13 | P83/TB0OUT1 | I/O | I/O | L | SRAM_DATA03 | - | I | sram_data_03 |
| 14 | P84/TB1IN0/INT7 | I/O | I/O | L | SRAM_DATA04 | - | I | sram_data_04 |
| 15 | P85/TB1IN1/INT8 | I/O | I/O | L | SRAM_DATA05 | - | I | sram_data_05 |
| 16 | P86/TB1OUT0 | I/O | I/O | L | SRAM_DATA06 | - | I | sram_data_06 |
| 17 | P87/TB1OUT1 | I/O | I/O | L | SRAM_DATA07 | - | I | sram_data_07 |
| 18 | P90/TXD0 | I/O | O | L | VFD_DATA | - | | vfd data |
| 19 | P91/RXD0 | I/O | O | L | VFD_CS | L | | vfd chip select |
| 20 | P92/SCLK0/CTS0 | I/O | O | L | VFD_CLK | L | I | vfd clock |
| 21 | P93/TXD1 | I/O | O | L | UPDATE_TXD | - | I | used when connect with update tool |
| 22 | P94/RXD1 | I/O | I | I | UPDATE_RXD | - | I | used when connect with update tool |
| 23 | P95/SCLK1/CTS1 | I/O | | | NC | - | I | open |
| 24 | AM0 | | | | AM0 | | | chip operate select, connect with +5V |
| 25 | DVCC | | | | DVCC | | | MCU power, connect with +5V |
| 26 | X2 | | | | X2 | | | oscillator(20MHz) |
| 27 | DVSS | | | | DVSS | | | GND |
| 28 | X1 | | | | X1 | | | oscillator(20MHz) |
| 29 | AM1 | | | | AM1 | | | chip operate select, connect with +5V |
| 30 | /RESET | | | | /RESET | | | MCU reset |
| 31 | P96/XT1 | I/O | | | NC | | | open |
| 32 | P97/XT2 | I/O | | | NC | | | open |
| 33 | /BOOT/EMU0 | | | | BOOT | | | update mode select |
| 34 | EMU1 | I/O | | | NC | | | open |
| 35 | PA0/TB2IN0/INT1 | I/O | I | - | RS/REMOTE | - | I | remote in |
| 36 | PA1/TB2IN1/INT2 | I/O | | | NC | | | open |
| 37 | PA2/TB2OUT0 | I/O | O | H | BUSOUT | - | I | bus out |
| 38 | PA3/TB2OUT1 | I/O | I | - | SYSTEM_DETECT | - | I | system detect |
| 39 | P40/CS0/SCOUT | I/O | O | - | RS_ON/OFF | - | I | remote signal kill control |
| 40 | P41/CS1/TXD2 | I/O | O | L | CTRL | H | I | Unit power control |
| 41 | P42/CS2/RXD2 | I/O | O | H | LED | L | | stanby LED control |
| 42 | P43/CS3/SCLK2/CTS2 | I/O | | | NC | | | open |
| 43 | P44/ALE | I/O | | | NC | | | open |
| 44 | P00/AD0 | I/O | O | L | SRAM_ADD00 | - | I | sram_address_00 |
| 45 | P01/AD1 | I/O | O | L | SRAM_ADD01 | - | I | sram_address_01 |
| 46 | P02/AD2 | I/O | O | L | SRAM_ADD02 | - | I | sram_address_02 |
| 47 | P03/AD3 | I/O | O | L | SRAM_ADD03 | - | I | sram_address_03 |
| 48 | P04/AD4 | I/O | O | L | SRAM_ADD04 | - | I | sram_address_04 |
| 49 | P05/AD5 | I/O | O | L | SRAM_ADD05 | - | I | sram_address_05 |
| 51 | P07/AD7 | I/O | O | L | SRAM_ADD07 | - | I | sram_address_07 |

| Pin No. | Port Name | I/O | Use | Power off | Name | Port Setting | | Note |
|---------|-----------------------|-----|-----|-----------|--------------|--------------|------|---------------------------------------|
| | | | | | | Act | init | |
| 52 | P10/AD8/A8 | I/O | I | I | CD_BUS2 | - | I | receive data from CD DSP |
| 53 | P11/AD9/A9 | I/O | O | L | CD_BUS3 | - | I | send command to CD DSP |
| 54 | P12/AD10/A10 | I/O | O | L | CD_BUCK | - | I | communication clock with CD DSP |
| 55 | P13/AD11/A11 | I/O | O | L | CD_CCE | L | I | communication chip enable with CD DSP |
| 56 | P14/AD12/A12 | I/O | O | L | DSP_RESET | L | I | CD DSP reset |
| 57 | P15/AD13/A13 | I/O | O | L | MT_STBY | H | I | motor stanby |
| 58 | P16/AD14/A14 | I/O | O | L | CD_CLOSE_M | H | I | cd close motor |
| 59 | P17/AD15/A15 | I/O | O | L | CD_OPEN_M | H | I | cd open motor |
| 60 | P20/A0/A16 | I/O | | | NC | | | open |
| 61 | P21/A1/A17 | I/O | I | I | CD_OPEN_SW | - | I | cd open switch |
| 62 | DVSS | | | | DVSS | | | GND |
| 63 | /NMI | | | | /NMI | | | external interrupt, connect with +5V |
| 64 | DVCC | | | | DVCC | | | MCU power, connect with +5V |
| 65 | P22/A2/A18 | I/O | I | I | CD_CLOSE_SW | - | I | cd close switch |
| 66 | P23/A3/A19 | I/O | | | NC | | | open |
| 67 | P24/A4/A20 | I/O | I | I | CD_LIMIT_SW | - | I | cd inner switch |
| 68 | P25/A5/A21 | I/O | O | L | VFD_POWER | H | I | vfd blink control |
| 69 | P26/A6/A22 | I/O | O | H | F_MUTE | H | I | preout mute control |
| 70 | P27/A7/A23 | I/O | O | L | DISPLAY_P | L | I | FIP display on/off control |
| 71 | PZ0/RD | I/O | O | L | DAC_RESET | L | H | DAC reset |
| 72 | PZ1/WR | I/O | O | L | NC | | | open |
| 73 | PZ2/HWR | I/O | O | L | DAC_CLK | - | I | DAC clock |
| 74 | PZ3/R/W | I/O | O | L | DAC_DATA | - | I | DAC data |
| 75 | P30/TB3IN0/INT3/SDA0 | I/O | O | L | TRANS_ON/OFF | H | I | trans change control |
| 76 | P31/TB3IN1/INT4/SCL0 | I/O | O | L | MP3_LED_P | H | I | MP3 LED control |
| 77 | P32/WAIT/TB3OUT0 | I/O | O | L | WMA_LED_P | H | I | WMA LED control |
| 78 | P33/TB3OUT1 | I/O | | | NC | | | open |
| 79 | PB0/TB4IN0/INT9/SDA1 | I/O | O | L | PLL_SDA_ | - | I | Pitch data Control |
| 80 | PB1/TB4IN1/INT10/SCL1 | I/O | O | L | PLL_SCL | - | I | Pitch clock Control |
| 81 | PB2/TB4OUT0 | I/O | O | L | PLL_PLL | L | I | Pitch chip enable Control |
| 82 | PB3/TB4OUT1 | I/O | O | L | PLL_EX_SEL | - | I | PLL Ex Select Pin |
| 83 | DVCC | | | | DVCC | | | MCU power, connect with +5V |
| 84 | DVSS | | | | DVSS | | | GND |
| 85 | P50/AN0 | I/O | I | I | KEY0 | - | I | key1 input |
| 86 | P51/AN1 | I/O | I | I | KEY1 | - | I | key2 input |
| 87 | P52/AN2 | I/O | I | I | KEY2 | - | I | key3 input |
| 88 | P53/AN3 | I/O | | | NC | | | open |
| 89 | P54/AN4 | I/O | | | NC | | | open |
| 90 | P55/AN5 | I/O | | | NC | | | open |
| 91 | P56/AN6 | I/O | | | NC | | | open |
| 92 | P57/AN7 | I/O | | | NC | | | open |
| 93 | P60/AN8 | I/O | O | L | SRAM_ADD08 | - | I | sram_address_08 |
| 94 | P61/AN9 | I/O | O | L | SRAM_ADD09 | - | I | sram_address_09 |
| 95 | P62/AN10 | I/O | O | L | SRAM_ADD10 | - | I | sram_address_10 |
| 96 | P63/AN11 | I/O | O | L | SRAM_ADD11 | - | I | sram_address_11 |
| 97 | P64/AN12 | I/O | O | L | SRAM_ADD12 | - | I | sram_address_12 |
| 98 | P65/AN13 | I/O | O | L | SRAM_ADD13 | - | I | sram_address_13 |
| 99 | P66/AN14 | I/O | O | L | SRAM_ADD14 | - | I | sram_address_14 |
| 100 | P67/AN15 | I/O | | | NC | | | open |

IS61C256AL (MAIN : IC23)

PIN CONFIGURATION

28-Pin SOJ



PIN DESCRIPTIONS

| | |
|-----------|---------------------|
| A0-A14 | Address Inputs |
| CE | Chip Enable Input |
| OE | Output Enable Input |
| WE | Write Enable Input |
| I/O0-I/O7 | Bidirectional Ports |
| VDD | Power |
| GND | Ground |

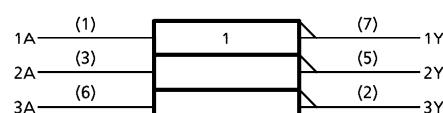
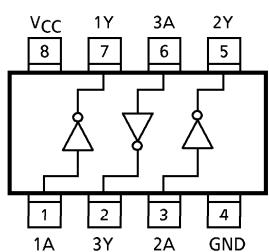
TRUTH TABLE

| Mode | WE | CE | OE | I/O Operation |
|------------------------------|----|----|----|---------------|
| Not Selected (Power-down) | X | H | X | High-Z |
| Output Disabled | H | L | H | High-Z |
| Read | H | L | L | DOUT |
| Write | L | L | X | DIN |

TC7WHU04FU (MAIN : IC26)

PIN ASSIGNMENT (TOP VIEW)

LOGIC DIAGRAM



TRUTH TABLE

| A | Y |
|---|---|
| L | H |
| H | L |

CDCE913PWR (MAIN: IC27)

Programmable 1-PLL VCXO Clock Synthesizer With 1.8-V, 2.5-V, and 3.3-V Outputs

FEATURES

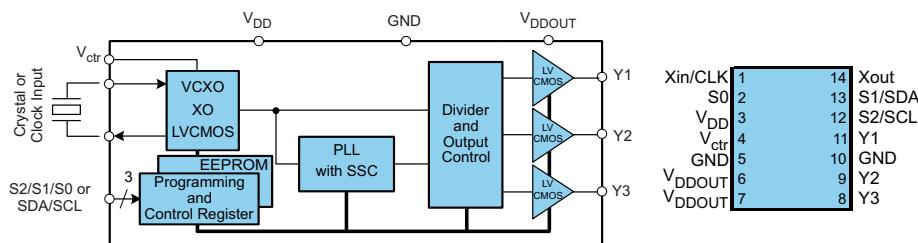
- Member of Programmable Clock Generator Family
 - **CDCE913/CDCEL913: 1-PLL, 3 Outputs**
 - **CDCE925/CDCEL925: 2-PLL, 5 Outputs**
 - **CDCE937/CDCEL937: 3-PLL, 7 Outputs**
 - **CDCE949/CDCEL949: 4-PLL, 9 Outputs**
- In-System Programmability and EEPROM
 - Serial Programmable Volatile Register
 - Nonvolatile EEPROM to Store Customer Setting
- Flexible Input Clocking Concept
 - External Crystal: 8 MHz to 32 MHz
 - On-Chip VCXO: Pull Range ± 150 ppm
 - Single-Ended LVCMOS up to 160 MHz
- Free Selectable Output Frequency up to 230 MHz
- Low-Noise PLL Core
 - PLL Loop Filter Components Integrated
 - Low Period Jitter (Typical 50 ps)
- Separate Output Supply Pins
 - CDCE913: 3.3 V and 2.5 V
 - CDCEL913: 1.8 V

Flexible Clock Driver

- Three User-Definable Control Inputs [S0/S1/S2], for example., SSC Selection, Frequency Switching, Output Enable, or Power Down
 - Generates Highly Accurate Clocks for Video, Audio, USB, IEEE1394, RFID, Bluetooth™, WLAN, Ethernet™, and GPS
 - Generates Common Clock Frequencies Used With TI-DaVinci™, OMAP™, DSPs
 - Programmable SSC Modulation
 - Enables 0-PPM Clock Generation
- 1.8-V Device Power Supply
 - Wide Temperature Range -40°C to 85°C
 - Packaged in TSSOP
 - Development and Programming Kit for Easy PLL Design and Programming (TI Pro-Clock™)

APPLICATIONS

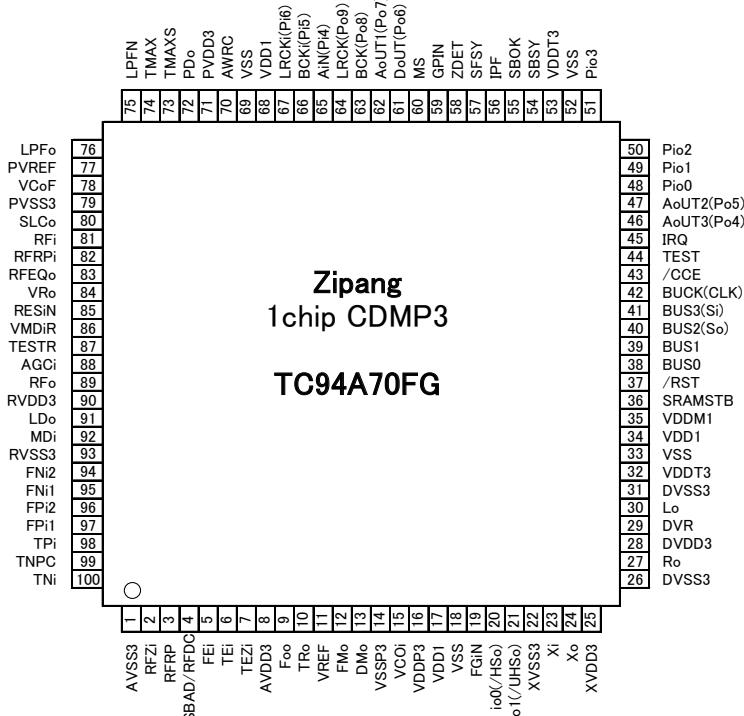
- D-TV, STB, IP-STB, DVD-Player, DVD-Recorder, Printer



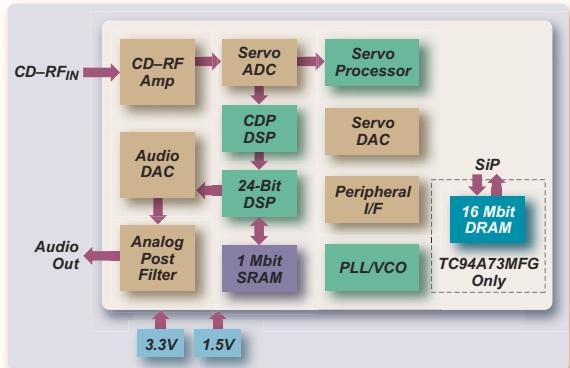
Terminal Function

| TERMINAL | | I/O | DESCRIPTION |
|--------------------|-------------|----------|---|
| NAME | PIN TSSOP14 | | |
| Y1-Y3 | 11, 9, 8 | O | LVCMOS outputs |
| Xin/CLK | 1 | I | Crystal oscillator input or LVCMOS clock Input (selectable via SDA/SCL bus) |
| Xout | 14 | O | Crystal oscillator output (leave open or pullup when not used) |
| V _{Ctrl} | 4 | I | VCXO control voltage (leave open or pullup when not used) |
| V _{DD} | 3 | Power | 1.8-V power supply for the device |
| V _{DDOUT} | 6, 7 | Power | CDCEL913: 1.8-V supply for all outputs CDCE913: 3.3-V or 2.5-V supply for all outputs |
| GND | 5, 10 | Ground | Ground |
| S0 | 2 | I | User-programmable control input S0; LVCMOS inputs; internal pullup 500k |
| SDA/S1 | 13 | I/O or I | SDA: bidirectional serial data input/output (default configuration), LVCMOS internal pullup; or S1: user-programmable control input; LVCMOS inputs; internal pullup 500k |
| SCL/S2 | 12 | I | SCL: serial clock input LVCMOS (default configuration), internal pullup 500k or S2: user-programmable control input; LVCMOS inputs; internal pullup 500k |

TC94A70FG (MAIN : IC31)



Block Diagram



Terminal Function

| Pin No. | Symbol | I/O | Description | Default | Remarks |
|---------|-----------|-------------|--|---------|--|
| 1 | AVSS3 | — | Grounding pin for 3.3V CD analog circuits. | — | |
| 2 | RFZI | I 3AI/F | Input pin for RF ripple zero-cross signal. | I | Connect to RFRP by 0.033uF |
| 3 | RFRP | O 3AI/F | RF ripple signal output pin. | O | |
| 4 | SBAD/RFDC | O 3AI/F | Sub beam addition signal or RFDC (Hologram PUE RF peak detection signal) signal output pin | O | |
| 5 | FEI | O 3AI/F | Focus error signal input pin. | O | |
| 6 | TEI | O 3AI/F | Tracking error signal input pin. | O | |
| 7 | TEZI | I 3AI/F | Tracking error signal zero-cross input pin. | I | Connect to TEI by 0.033uF |
| 8 | AVDD3 | — | Power supply pin for 3.3 V CD analog circuits. | — | |
| 9 | Foo | O 3AI/F | Focus servo equalizer output pin. | O | Built-in series resister 3.3kΩ |
| 10 | TRo | O 3AI/F | Tracking servo equalizer output pin. | O | |
| 11 | VREF | — | Reference voltage pin for analog circuits(1.65V) | — | Connect to VRO and PVREF. Connect 0.1uF |
| 12 | FMo | O 3AI/F | Feed servo equalizer output pin. | O | Built-in series resister 3.3kΩ 3-state output (AVDD3,AVSS3,VREF) |
| 13 | DMo | O 3AI/F | Disc servo equalizer output pin | O | |
| 14 | VSSP3 | — | Grounding pin for 3.3V DSP VCO circuits. | — | |
| 15 | VCOI | I 3AI/F | DSP VCO control voltage input pin. | I | |
| 16 | VDDP3 | — | Power supply pin for 3.3V DSP VCO circuit. | — | |
| 17 | VDD1 | — | Power supply pin for 1.5V digital circuit | — | |
| 18 | VSS | — | Grounding pin for 1.5V digital circuit | — | |
| 19 | FGIN | I 3I/F | FG signal input pin for CAV. CLV: "L", CAV: FG input | I | Analog input |
| 20 | io0(IHS0) | I/O 3I/F | General Input/output port -0 (CD) (Playback speed mode flag output pin.) | I | Schmitt input CMOS PORT |
| 21 | io1(UHS0) | I/O 3I/F | General Input/output port -1 (CD) (Playback speed mode flag output pin.) | I | Schmitt input CMOS PORT |
| 22 | XVSS3 | — | Grounding pin for 3.3V system clock oscillator circuit. | — | |
| 23 | Xi | I 3AI/F | Input pin for system clock oscillator Circuit (External Rfb=1MΩ) | I | X'tal |
| 24 | Xo | O 3AI/F | Output pin for system clock oscillator circuit | O | X'tal |
| 25 | XVDD3 | — | Power supply pin for 3.3 V system clock oscillator circuit | — | |

| Pin No. | Symbol | I/O | Description | Default | Remarks |
|---------|------------|-------------|---|---------|---|
| 26 | DVSS3 | — | Grounding pin for 3.3V DAC circuit | — | |
| 27 | Ro | O 3AI/F | R channel audio output pin of Audio DAC. | O | No capacitor required to DVR pin when built-in audio DAC is not in use, however , connect 3.3V to DVDD3 and GND to DVSS3. |
| 28 | DVDD3 | — | Power supply pin for 3.3V Audio DAC circuit. | — | |
| 29 | DVR | — | Reference voltage pin for Audio DAC. | — | |
| 30 | Lo | O 3AI/F | L channel audio output pin of Audio DAC | O | |
| 31 | DVSS3 | — | Grounding pin for 3.3V Audio DAC circuit | — | |
| 32 | VDDT3 | — | Power supply pin for 3.3V digital I/O circuit. | — | For CD and DSP I/O |
| 33 | VSS | — | Grounding pin for 3.3V digital circuit | — | — |
| 34 | VDD1 | — | Power supply pin for 1.5V digital circuit. | — | — |
| 35 | VDDM1 | — | Power supply pin for 1.5V 1Mbit SRAM. | — | |
| 36 | SRAMSTB | I 3I/F | 1Mbit SRAM stand-by pin | I | Schmitt input |
| 37 | /RST | I 3I/F | Reset signal input pin. | I | Schmitt input |
| 38 | BUS0 | I/O 3I/F | Data input/output pin -0 for microcontroller interface | I | Schmitt input CMOS PORT |
| 39 | BUS1 | I/O 3I/F | Data input/output pin -1 for microcontroller interface | I | Schmitt input CMOS PORT |
| 40 | BUS2(So) | I/O 3I/F | Data input/output pin -2 for microcontroller interface (Serial output) | I | Schmitt input CMOS PORT |
| 41 | BUS3(Si) | I/O 3I/F | Data input/output pin -3 for microcontroller interface (Serial input) | I | Schmitt input CMOS PORT |
| 42 | BUCK(CLK) | I 3I/F | Clock input pin for the microcontroller interface. (Clock input for Serial communication interface) | I | Schmitt input |
| 43 | /CCE | I 3I/F | Chip enable signal input pin for microcontroller interface. | I | Schmitt input |
| 44 | TEST | I 3I/F | Setting pin for LSI test mode. (Connect to GND in normal operation) | I | Schmitt input |
| 45 | IRQ | I 3I/F | DSP interruption pin.(Pull down by 100kΩ when not in use) | I | Schmitt input |
| 46 | AoUT3(Po4) | O 3I/F | Audio data output pin -3 (DSP general output port -4) | O | CMOS PORT |
| 47 | AoUT2(Po5) | O 3I/F | Audio data output pin -2 (DSP general output port -5) | O | CMOS PORT |
| 48 | Pio0 | I/O 3I/F | DSP general input/output port -0 | I | Schmitt input CMOS PORT |
| 49 | Pio1 | I/O 3I/F | DSP general input/output port -1 | I | Schmitt input CMOS PORT |
| 50 | Pio2 | I/O 3I/F | DSP general input/output port -2 | I | Schmitt input CMOS PORT |
| 51 | Pio3 | I/O 3I/F | DSP general input/output port -3 | I | Schmitt input CMOS PORT |
| 52 | VSS | — | Grounding pin for 3.3V digital circuit | — | — |
| 53 | VDDT3 | — | Power supply pin for 3.3 V digital I/O circuit. | — | For CD and DSP I/O |
| 54 | SBSY | O 3I/F | Sub code block sync output pin | O | CMOS PORT |
| 55 | SBOK | O 3I/F | CRCC check result output pin for sub code Q data. | O | CMOS PORT |

| Pin No. | Symbol | I/O | Description | Default | Remarks |
|---------|------------|------------|--|---------|---|
| 56 | IPF | O 3I/F | Correction flag output | O | CMOS PORT |
| 57 | SFSY | O 3I/F | Servo internal register read clock output pin | O | CMOS PORT |
| 58 | ZDET | O 3I/F | Internal Audio DAC Zero data detection flag output | O | CMOS PORT |
| 59 | GPIN | I 3I/F | CD General Input port(Pull down by 100kΩ when not in use) | I | Schmitt input |
| 60 | MS | I 3I/F | Microprocessor I/F mode selection pin. "L": Parallel I/F, "H": Serial I/F | I | |
| 61 | DoUT(Po6) | O 3I/F | Digital Audio output (SPDIF) pin (DSP general output port -6) | O | CMOS PORT |
| 62 | AoUT1(Po7) | O 3I/F | Audio data output pin -1(DSP general output port -7) | O | CMOS PORT |
| 63 | BCKO(Po8) | O 3I/F | Bit clock output pin for AoUT (DSP general output port -8) | O | CMOS PORT |
| 64 | LRCKO(Po9) | O 3I/F | L/R channel clock output pin (DSP general output port -9) | O | CMOS PORT |
| 65 | AIN(Pi4) | I 3I/F | Audio data input for Audio DAC (DSP general input port -4) | I | Schmitt input |
| 66 | BCKI(Pi5) | I 3I/F | Bit clock input pin for AIN (DSP general input port -5) | I | Schmitt input |
| 67 | LRCKI(Pi6) | I 3I/F | L/R channel clock for AIN (DSP general input port -6) | I | Schmitt input |
| 68 | VDD1 | — | Power supply pin for 1.5V digital circuit. | — | |
| 69 | VSS | — | Grounding pin for 1.5V digital circuit. | — | |
| 70 | AWRC | O 3AI/F | VCO control pin for active wide-range PLL | O | Applicable in CLV/CAV mode. Connect 0.033 uF. |
| 71 | PVDD3 | — | Power supply pin for 3.3V CD PLL circuit. | — | |
| 72 | PDo | O 3AI/F | EFM and PLCK Phase difference signal output pin. | O | 4-state output (PVDD3, Hz,PVSS3,PVREF) |
| 73 | TMAXS | O 3AI/F | TMAX detection result output pin | O | 3-state output (PVDD3,PVSS3,HIZ) |
| 74 | TMAX | O 3AI/F | TMAX detection result output pin | O | 3-state output(PVDD3,PVSS3,HIZ) |
| 75 | LPFN | I 3AI/F | PLL circuit LPF amplifier inversion input pin | I | Connect resistor of LPF, refer to application circuit diagram. |
| 76 | LPFo | O 3AI/F | PLL circuit LPF amplifier Output pin | O | Connect capacitor of LPF, refer to application circuit diagram. |
| 77 | PVREF | — | PLL circuit 1.65 V reference voltage pin. | — | Connected to VREF and VRO inside of IC. Connect 0.1uF. |
| 78 | VCoF | O 3AI/F | VCO filter pin | O | Connect 0.01uF. |
| 79 | PVSS3 | — | Grounding pin for 3.3V CD PLL circuit. | — | |
| 80 | SLCo | O 3AI/F | EFM slice level output pin. Output impedance =2.5kΩ both of analog/digital slice mode. | O | Connect capacitor according with servo frequency band. |
| 81 | RFI | I 3AI/F | RF signal input pin. Zin is selectable by command. | I | Zin : 20kΩ, 10kΩ, 5kΩ |
| 82 | RFRPI | I 3AI/F | RF ripple signal input pin | I | To be connected to PIN diode E. |

| Pin No. | Symbol | I/O | Description | Default | Remarks |
|---------|--------|------------|---|---------|--|
| 83 | RFEQo | O 3AI/F | RF equalizer circuit output pin. | O | Connect to RFRPI by 0.1uF, To RFI by 4700pF. |
| 84 | VRo | O 3AI/F | 1.65 V reference voltage output pin. | O | Connected to VREF and PVREF inside of IC. Connect 0.1uF+100uF. |
| 85 | RESIN | O 3AI/F | Pin for connecting a resistor for reference current generation. | O | Connect 22kΩ//0.01uF. |
| 86 | VMDIR | — | Reference voltage output pin for LD APC. | — | Connect 0.1uF. |
| 87 | TESTR | O 3AI/F | LPF connection pin for RFEQO offset | O | Connect more than 0.015uF. |
| 88 | AGCI | I 3AI/F | RF signal AGC amplifier input pin | I | |
| 89 | RFo | O 3AI/F | RF signal generation amplifier output pin | O | |
| 90 | RVDD3 | — | Power supply for 3.3V RF amplifier core circuit. | — | |
| 91 | LDo | O 3AI/F | Laser diode amplifier output pin. | | |
| 92 | MDI | I 3AI/F | Monitor photodiode amplifier input pin. | I | Reference Voltage=178mVtyp. |
| 93 | RVSS3 | — | Grounding pin for RF amplifier core circuit | — | |
| 94 | FNI2 | I 3AI/F | Main beam signal input pin. To be connected to PIN diode C. | I | |
| 95 | FNI1 | I 3AI/F | Main beam signal input pin. To be connected to PIN diode A. | I | |
| 96 | FPI2 | I 3AI/F | Main beam signal input pin. To be connected to PIN diode D. | I | |
| 97 | FPI1 | I 3AI/F | Main beam signal input pin. To be connected to PIN diode B. | I | |
| 98 | TPI | I 3AI/F | Sub beam signal input pin. To be connected to PIN diode F. | I | |
| 99 | TNPC | O 3AI/F | TNI/TPI input common capacitor connection pin. | O | Connect to VRO by capacitor. |
| 100 | TNI | I 3AI/F | Sub beam signal input pin. To be connected to PIN diode E. | I | |

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

Note: The servo output pins (FOO, TRO, FMO, and DMO) become undefined or GND level under the following conditions:

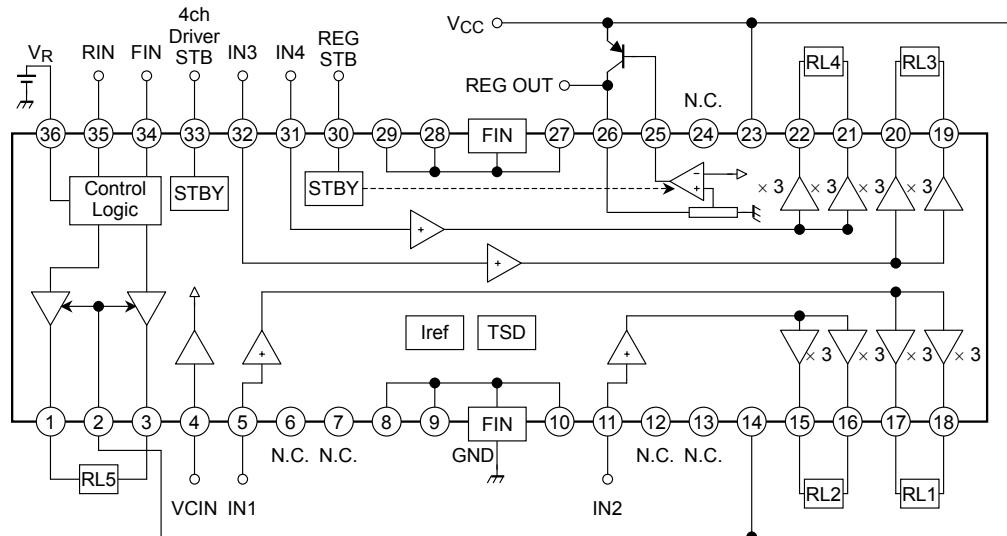
- /RST pin = Low
- Crystal oscillation stopped according to the instructions by the Stop crystal oscillation command
- Power supply for CD is OFF.

• RFRPI pin = High

To prevent the undefined pin states from affecting the servo circuitry or any other mechanical blocks in the system, appropriate measures should be taken, such as using a driver IC supporting a standby feature to place the system in standby mode while either of the above conditions is satisfied.

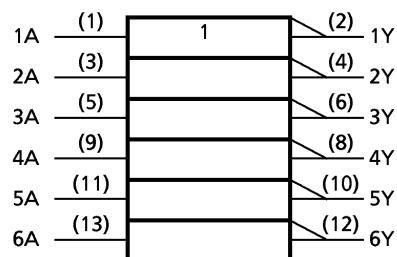
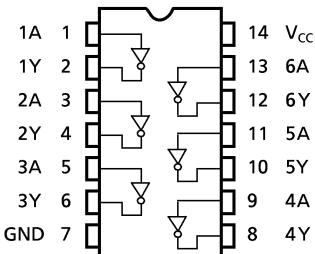
TA2125AF (MAIN : IC32)

Block Diagram



Terminal Function

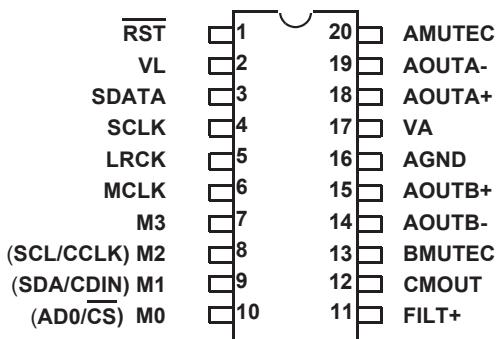
| No. | Symbol | Function |
|-----|------------------|--|
| 1 | OUT5A | Output terminal |
| 2 | V _M | Supply voltage terminal for Logic |
| 3 | OUT5B | Output terminal |
| 4 | V _{CIN} | Input reference voltage |
| 5 | IN1 | Input for ch1 |
| 6 | N.C. | Open |
| 7 | N.C. | Open |
| 8 | N.C. | 8, 9, 10, 27, 28, 29 are connected to PW GND (FIN) |
| 9 | N.C. | 8, 9, 10, 27, 28, 29 are connected to PW GND (FIN) |
| 10 | N.C. | 8, 9, 10, 27, 28, 29 are connected to PW GND (FIN) |
| 11 | IN2 | Input for ch2 |
| 12 | N.C. | Open |
| 13 | N.C. | Open |
| 14 | V _{CC1} | Supply voltage terminal for ch1/ch2 |
| 15 | OUT2M | Inverted output for ch2 |
| 16 | OUT2P | Non-inverted output for ch2 |
| 17 | OUT1M | Inverted output for ch1 |
| 18 | OUT1P | Non-inverted output for ch1 |
| 19 | OUT3P | Non-inverted output for ch3 |
| 20 | OUT3M | Inverted output for ch3 |
| 21 | OUT4P | Non-inverted output for ch4 |
| 22 | OUT4M | Inverted output for ch4 |
| 23 | V _{CC2} | Supply voltage terminal for ch3/ch4 |
| 24 | N.C. | Open |
| 25 | REG | Connection with BASE of PNP Tr |
| 26 | REG OUT | Output for regulator (5 V) |
| 27 | N.C. | 8, 9, 10, 27, 28, 29 are connected to PW GND (FIN) |
| 28 | N.C. | 8, 9, 10, 27, 28, 29 are connected to PW GND (FIN) |
| 29 | N.C. | 8, 9, 10, 27, 28, 29 are connected to PW GND (FIN) |
| 30 | REG STBY | Standby control for regulator |
| 31 | IN4 | Input for ch4 |
| 32 | IN3 | Input for ch3 |
| 33 | STBY | Standby control for 4ch BTL |
| 34 | FIN | Logic control input |
| 35 | RIN | Logic control input |
| 36 | VR | Supply voltage terminal for motor driver |

TC74HCU04AFNG (FRONT: IC51)**IEC LOGIC SYMBOL****PIN ASSIGNMENT****TRUTH TABLE**

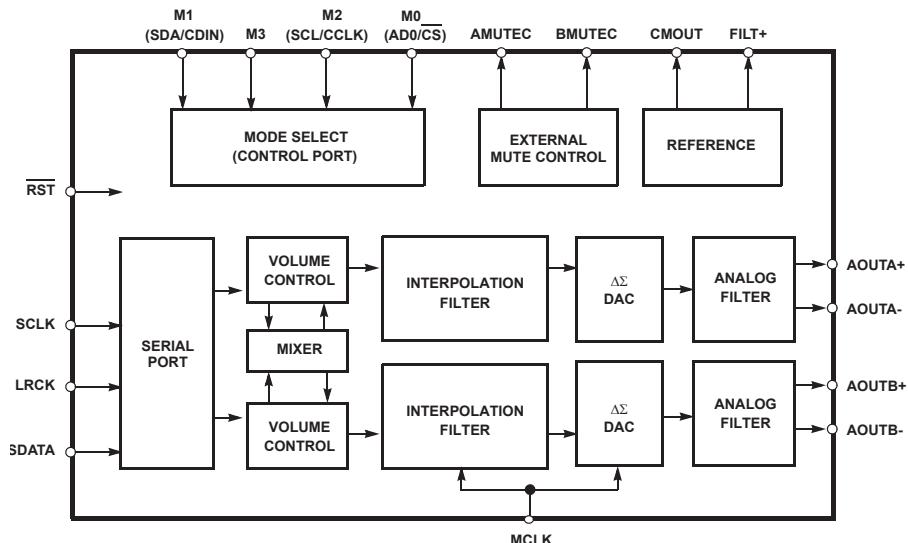
| A | Y |
|---|---|
| L | H |
| H | L |

CS4392KZZ (AUDIO: IC75)

1. PIN DESCRIPTION - PCM DATA MODE



Block Diagram



Terminal Function

| | | |
|--------------------------------------|----|--|
| RST | 1 | Reset (Input) - Powers down device and resets all internal registers to their default settings. |
| VL | 2 | Logic Power (Input) - Positive power for the digital input/output. |
| SDATA | 3 | Serial Audio Data (Input) - Input for two's complement serial audio data. |
| SCLK | 4 | Serial Clock (Input/Output) - Serial clock for the serial audio interface. |
| LRCK | 5 | Left Right Clock (Input/Output) - Determines which channel, Left or Right, is currently active on the serial audio data line. |
| MCLK | 6 | Master Clock (Input) - Clock source for the delta-sigma modulator and digital filters. |
| FILT+ | 11 | Positive Voltage Reference (Output) - Positive reference voltage for the internal sampling circuits. |
| CMOUT | 12 | Common Mode Voltage (Output) - Filter connection for internal quiescent voltage. |
| AMUTEC | 20 | Mute Control (Output) - The Mute Control pin goes high during power-up initialization, reset, muting, power-down or if the master clock to left/right clock frequency ratio is incorrect. |
| AOUTB- | 14 | Differential Analog Output (Outputs) - The full scale differential analog output level is specified in the Analog Characteristics specification table. |
| AOUTB+ | 15 | |
| AOUTA+ | 18 | |
| AOUTA | 19 | |
| AGND | 16 | Ground (Input) |
| VA | 17 | Analog Power (Input) - Positive power for the analog section. |
| Control Port Mode Definitions | | |
| M3 | 7 | Mode Selection (Input) - This pins should be tied to GND level during control port mode. |
| SCL/CCLK | 8 | Serial Control Port Clock (Input) - Serial clock for the serial control port. |
| SDA/CDIN | 9 | Serial Control Data (Input/Output) - SDA is a data I/O line in I ² C mode. CDIN is the input data line for the control port interface in SPI mode. |
| AD0/CS | 10 | Address Bit 0 (I²C) / Control Port Chip Select (SPI) (Input/Output) - AD0 is a chip address pin in I ² C mode; CS is the chip select signal for SPI format. |
| Stand-Alone Mode Definitions | | |
| M3 | 7 | Mode Selection (Input) - Determines the operational mode of the device. |
| M2 | 8 | |
| M1 | 9 | |
| M0 | 10 | |

PARTS LIST OF P.W.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.

U : North America model

N : Europe model

K : China model

AUDIO PWB (CUP12097Z-2)

| Ref. No. | Part No. | Part Name | Remarks | Q'ty | New |
|-----------------------------|---------------|--------------------------------------|---------|----------------|-----|
| SEMICONDUCTORS GROUP | | | | | |
| IC61 | 00MHC10102090 | IC NJM2068M | | HVINJM2068MTE1 | |
| IC71 | 00MHC10102090 | IC NJM2068M | | HVINJM2068MTE1 | |
| IC75 | 00MHC10025880 | IC CS4392KZZ | | HVIC S4392KZZ | |
| IC76 | 90M-HC900150R | IC KIA1117S/F33 REGULATOR(SOT-223) | | CVIKIA1117S33 | |
| IC77 | 00MHC3890599F | IC KIA7805API | | HVIKIA7805API | |
| | | | | | |
| Q601 | 00MHT800931A0 | TRS KTC3200GR | | HVTKTC3200GRT | |
| Q602 | 00MHT600121A0 | TRS KTA1268GR | | HVTKTA1268GRT | |
| Q603 | 90M-BA001460R | TRS KRC107M | | HVTKRC107MT | |
| Q604 | 00MBA10002000 | TRS KRA104M | | HVTKRA104MT | |
| Q605 | 00MHT805501B0 | TRS KTC2874B | | HVTKTC2874BT | |
| Q606 | 00MHT805501B0 | TRS KTC2874B | | HVTKTC2874BT | |
| Q607 | 00MHT600121A0 | TRS KTA1268GR | | HVTKTA1268GRT | |
| Q608 | 00MHT800931A0 | TRS KTC3200GR | | HVTKTC3200GRT | |
| Q701 | 00MHT800931A0 | TRS KTC3200GR | | HVTKTC3200GRT | |
| Q702 | 00MHT600121A0 | TRS KTA1268GR | | HVTKTA1268GRT | |
| Q703 | 90M-BA001460R | TRS KRC107M | | HVTKRC107MT | |
| Q704 | 00MBA10002000 | TRS KRA104M | | HVTKRA104MT | |
| Q705 | 00MHT805501B0 | TRS KTC2874B | | HVTKTC2874BT | |
| Q706 | 00MHT805501B0 | TRS KTC2874B | | HVTKTC2874BT | |
| Q707 | 00MHT600121A0 | TRS KTA1268GR | | HVTKTA1268GRT | |
| Q708 | 00MHT800931A0 | TRS KTC3200GR | | HVTKTC3200GRT | |
| | | | | | |
| D605 | 00MHD20015210 | DIODE 1SS133T-77 | | CVD1SS133MT | |
| D606 | 00MHD20015210 | DIODE 1SS133T-77 | | CVD1SS133MT | |
| D607 | 00MHD20015210 | DIODE 1SS133T-77 | | CVD1SS133MT | |
| D705 | 00MHD20015210 | DIODE 1SS133T-77 | | CVD1SS133MT | |
| D706 | 00MHD20015210 | DIODE 1SS133T-77 | | CVD1SS133MT | |
| D707 | 00MHD20015210 | DIODE 1SS133T-77 | | CVD1SS133MT | |
| | | | | | |
| | | | | | |
| CAPACITORS GROUP | | | | | |
| C602 | nsp | FILM CAP3300PF 100V J MYLAR | | HCQI1H332JZT | |
| C604 | 00MOF15331540 | FILM CAPAPSVA0100J33100 POLYPROPYLNE | | CCMP2A331JN09T | |
| C605 | nsp | FILM CAP1000PF 100V J MYLAR | | HCQI1H102JZT | |
| C607 | nsp | FILM CAP1500PF 100V J MYLAR | | HCQI1H152JZT | |
| C608 | 943133002360S | FILM CAPAPSVA0100J10100 POLYPROPYLNE | | CCMP2A101JN09T | |
| C609 | 00MOA47602520 | ELECT CAP47UF 25V | | CCEA1EH470T | |
| C610 | 00MOA47602520 | ELECT CAP47UF 25V | | CCEA1EH470T | |
| C611 | 00MOA227016R0 | ELECT CAP220UF 16V | | CCEA1CR0A221T | |
| C612 | 00MOA107025Z0 | ELECT CAP100UF 25V | | HCEA1ER101T | |
| C615 | nsp | FILM CAP1000PF 100V J MYLAR | | HCQI1H102JZT | |
| C616 | 943133002360S | FILM CAPAPSVA0100J10100 POLYPROPYLNE | | CCMP2A101JN09T | |
| C702 | nsp | FILM CAP3300PF 100V J MYLAR | | HCQI1H332JZT | |
| C704 | 00MOF15331540 | FILM CAPAPSVA0100J33100 POLYPROPYLNE | | CCMP2A331JN09T | |
| C705 | nsp | FILM CAP1000PF 100V J MYLAR | | HCQI1H102JZT | |
| C707 | nsp | FILM CAP1500PF 100V J MYLAR | | HCQI1H152JZT | |
| C708 | 943133002360S | FILM CAPAPSVA0100J10100 POLYPROPYLNE | | CCMP2A101JN09T | |
| C709 | 00MOA47602520 | ELECT CAP47UF 25V | | CCEA1EH470T | |
| C710 | 00MOA47602520 | ELECT CAP47UF 25V | | CCEA1EH470T | |
| C711 | 00MOA227016R0 | ELECT CAP220UF 16V | | CCEA1CR0A221T | |
| C712 | 00MOA107025Z0 | ELECT CAP100UF 25V | | HCEA1ER101T | |
| C715 | nsp | FILM CAP1000PF 100V J MYLAR | | HCQI1H102JZT | |
| C716 | 943133002360S | FILM CAPAPSVA0100J10100 POLYPROPYLNE | | CCMP2A101JN09T | |
| C751 | nsp | CER. CAP120PF 50V CERAMIC | | CCBS1H121KBT | |
| C752 | nsp | CER. CAP0.1UF 50V Z CERAMIC | | CCBS1H104ZFT | |
| C753 | 00MOA22701620 | ELECT CAP220UF 16V | | CCEA1CH221T | |

| | Ref. No. | Part No. | Part Name | Remarks | Q'ty | New |
|--|-----------------|-----------------|-----------------------------|----------------|--------------|------------|
| | C754 | 00MOA10701620 | ELECT CAP100UF 16V | | CCEA1CH101T | |
| | C755 | 00MOA22605020 | ELECT CAP22UF 50V | | CCEA1HH220T | |
| | C756 | nsp | CER. CAP0.1UF 50V Z CERAMIC | | CCBS1H104ZFT | |
| | C757 | 00MOA22605020 | ELECT CAP22UF 50V | | CCEA1HH220T | |
| | C758 | 00MOA47602520 | ELECT CAP47UF 25V | | CCEA1EH470T | |
| | C759 | nsp | CER. CAP0.1UF 50V Z CERAMIC | | CCBS1H104ZFT | |
| | C760 | nsp | CER. CAP0.1UF 50V Z CERAMIC | | CCBS1H104ZFT | |
| | C761 | 00MOA22702520 | ELECT CAP220UF 25V | | CCEA1EH221T | |
| | C790 | nsp | CER. CAP0.1UF 50V Z CERAMIC | | CCBS1H104ZFT | |
| | C791 | nsp | CER. CAP0.1UF 50V Z CERAMIC | | CCBS1H104ZFT | |
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OTHERS PARTS GROUP

| | | | | |
|------|---------------|-----------------------------------|---------------|--|
| BK75 | nsp | BRACKET FOR PWB | CMD1A569 | |
| BN42 | nsp | CORD WIRE ASSY 11P 100MM | CWB1B911100EN | |
| BN43 | nsp | CORD WIRE ASSY CWB1 | C903080BM | |
| | | | | |
| CN81 | nsp | CONN 9P STRAIGHT 00906-0030 | CJP09GA19ZY | |
| | | | | |
| GND1 | nsp | TERMINAL MET37-0002 | HJT1A025 | |
| | | | | |
| JK61 | 943643002370S | TERMINAL CINCH JACK 1P WHITE (GL) | CJJ4M064Z | |
| JK71 | 943643002380S | TERMINAL CINCH JACK 1P RED (GL) | CJJ4M065Z | |
| | | | | |
| L751 | 90M-FN000090R | EMI FILTERBEAD | KLZ9H001Z | |
| L752 | 90M-FN000090R | EMI FILTERBEAD | KLZ9H001Z | |

FRONT PWB (CUP12097Z-1)

| Ref. No. | Part No. | Part Name | Remarks | Q'ty | New |
|-----------------------------|---------------|-----------------------------|---------|-----------------|-----|
| SEMICONDUCTORS GROUP | | | | | |
| IC51 | 90M-HC700550R | IC TC74HCU04AFNG | | HVI74HCU04AFNG | |
| | | | | | |
| Q502 | 90M-BA001460R | TRS KRC107M | | HVTKRC107MT | |
| Q503 | 90M BA001460R | TRS KRC107M | | HVTKRC107MT | |
| | | | | | |
| D502 | 90M-HI101120R | L.E.D SLR325VRA47 | | KVDSLRL325VRA47 | |
| D503 | 90M-HI101120R | L.E.D SLR325VRA47 | | KVDSLRL325VRA47 | |
| | | | | | |
| FL51 | 90M-HQ300610R | FL DISPLAY FOR CD5400 | | CFLHCA12SS18T | |
| | | | | | |
| | | | | | |
| CAPACITORS GROUP | | | | | |
| C501 | nsp | CER. CAP0.1UF 50V Z CERAMIC | | CCBS1H104ZFT | |
| C502 | nsp | CER. CAP0.1UF 50V Z CERAMIC | | CCBS1H104ZFT | |
| C503 | 00MEJ47601640 | ELECT CAP47 UF 16V KS | | CCEA1CKS470T | |
| C504 | 00MEJ47601640 | ELECT CAP47 UF 16V KS | | CCEA1CKS470T | |
| C505 | nsp | CER. CAP0.1UF 50V Z CERAMIC | | CCBS1H104ZFT | |
| | | | | | |
| | | | | | |
| OTHERS PARTS GROUP | | | | | |
| BK51 | nsp | BRACKET FL DISPLAY HOLDER | | CMD1A504 | |
| BK52 | nsp | BRACKET FL DISPLAY HOLDER | | CMD1A504 | |
| BN51 | nsp | CORD WIRE ASSY | | CWB1B905050EN | |
| | | | | | |
| CN21 | nsp | CONN 21P FPC WAFER | | CJP21GA117ZY | |
| | | | | | |
| L501 | 90M-FN000090R | EMI FILTERBEAD | | KLZ9H001Z | |
| L502 | 90M-FN000090R | EMI FILTERBEAD | | KLZ9H001Z | |
| L503 | 90M-FN000090R | EMI FILTERBEAD | | KLZ9H001Z | |
| | | | | | |
| RS51 | 00MHW10004210 | PHOTO UNITRPM6936-V4 | | CRVRPM6936V4 | |
| | | | | | |
| S502 | 90M-SP001400R | PUSH SWTACT SW EVQ22505R | | CST1A023ZT | |
| S503 | 90M-SP001400R | PUSH SWTACT SW EVQ22505R | | CST1A023ZT | |
| S504 | 90M-SP001400R | PUSH SWTACT SW EVQ22505R | | CST1A023ZT | |
| S505 | 90M-SP001400R | PUSH SWTACT SW EVQ22505R | | CST1A023ZT | |
| S506 | 90M-SP001400R | PUSH SWTACT SW EVQ22505R | | CST1A023ZT | |
| S507 | 90M-SP001400R | PUSH SWTACT SW EVQ22505R | | CST1A023ZT | |

HEADPHONE PWB (CUP12097Z-4)

| Ref. No. | Part No. | Part Name | Remarks | Q'ty | New |
|-----------------------------|---------------|------------------------------------|---------|-----------------|-----|
| SEMICONDUCTORS GROUP | | | | | |
| IC81 | 00MHC10102090 | IC NJM2068M | | HVINJM2068MTE1 | |
| | | | | | |
| Q801 | 00MHT800951B0 | TRS KTC3203Y | | HVTKTC3203YT | |
| Q802 | 00MHT800951B0 | TRS KTC3203Y | | HVTKTC3203YT | |
| Q803 | 00MHT600141B0 | TRS KTA1271Y | | HVTKTA1271YT | |
| Q804 | 00MHT600141B0 | TRS KTA1271Y | | HVTKTA1271YT | |
| Q807 | 00MHT805501B0 | TRS KTC2874B | | HVTKTC2874BT | |
| Q808 | 00MHT805501B0 | TRS KTC2874B | | HVTKTC2874BT | |
| Q809 | 00MHT805501B0 | TRS KTC2874B | | HVTKTC2874BT | |
| Q810 | 00MHT805501B0 | TRS KTC2874B | | HVTKTC2874BT | |
| | | | | | |
| D801 | 00MHD20015210 | DIODE 1SS133T-77 | | CVD1SS133MT | |
| D802 | 00MHD20015210 | DIODE DIODE 1SS133T-77 | | CVD1SS133MT | |
| D803 | 00MHD20015210 | DIODE 1SS133T-77 | | CVD1SS133MT | |
| D804 | 00MHD20015210 | DIODE 1SS133T-77 | | CVD1SS133MT | |
| | | | | | |
| CAPACITORS GROUP | | | | | |
| C801 | 00MOA10701620 | ELECT CAP100UF 16V | | CCEA1CH101T | |
| C802 | 00MOA10701620 | ELECT CAP100UF 16V | | CCEA1CH101T | |
| C803 | 00MOA47602520 | ELECT CAP47UF 25V | | CCEA1EH470T | |
| C804 | 00MOA47602520 | ELECT CAP47UF 25V | | CCEA1EH470T | |
| C805 | nsp | CER. CAP1000PF 50V B CERAMIC | | CCBS1H102KBT | |
| C806 | nsp | CER. CAP1000PF 50V B CERAMIC | | CCBS1H102KBT | |
| C807 | 00MOA47602520 | ELECT CAP47UF 25V | | CCEA1EH470T | |
| C808 | 00MOA47602520 | ELECT CAP47UF 25V | | CCEA1EH470T | |
| | | | | | |
| OTHERS PARTS GROUP | | | | | |
| BN81 | nsp | CORD WIRE ASSY 9P 280MM | | CWZCD5003BN81ZA | |
| BN81(1) | 90M-FC500030R | FERRITE COREFERRITE RING 29X7.7X19 | | CLZ9W003Z | |
| BN81(2) | nsp | CORD WIRE ASSY 9P 280MM | | CWZCD5003BN81 | |
| | | | | | |
| PH81 | 90M-YT004500R | JACK H/P SILVER PJ-612A-51 | | CJJ2E026Z | |
| | | | | | |
| VR81 | 943671002420S | VER. RES 10KA A CURVE | | CVV3J02A103Z | |

MAIN PWB (CUP12096Z)

| Ref. No. | Part No. | Part Name | Remarks | Q'ty | New |
|-----------------------------|---------------|--------------------------------------|--|-----------------|-----|
| SEMICONDUCTORS GROUP | | | | | |
| IC21 | 943243002430M | U-PROT5CD2(F AAD JZ) MAIN CPU CD5003 | | CVIT5CD2 | |
| IC22 | 90M-HC109780R | IC AT24C02NSU EEPROM(2K) | | CVIAT24C02NSU18 | |
| IC23 | 943246002440S | IC IS61C256AL-12JLI | | CVIS61C256AL12J | |
| IC24 | 00MHC10099540 | IC S-80145ALMC | | HVIS-80145ALMC | |
| IC25 | 943231002450S | IC KIA1117S18-RTK/ | | CVIKIA1117S18 | |
| IC26 | 00MHC008005K0 | IC TC7WHU04FU(TE12 | | CVITC7WHU04FU | |
| IC27 | 943235002460S | IC CDCE913PWR | | CVIC DCE913PWR | |
| IC31 | 90M-HC110060R | IC TC94A70FG CD DSP | | CVITC94A70FG | |
| IC32 | 90M-HC109470R | IC TA2125AFG | | HVITA2125AFG | |
| IC33 | 90M-HC900150R | IC KIA1117S/F33 REGULATOR(SOT-223) | | CVIKIA1117S33 | |
| IC34 | 90M-HC900160R | IC LM1117S15 REGULATOR(SOT-223) | | CVIKIA1117S15 | |
| D202 | 00MHZ21303210 | DIODE DIODE 1SS355 | NOTE : When update Firmware, please confirm a last version in SDI. | CVD1SS355T | |
| D203 | 00MHZ21303210 | DIODE 1SS355 | | CVD1SS355T | |
| D204 | 00MHZ21303210 | DIODE 1SS355 | | CVD1SS355T | |
| D301 | 00MHZ21303210 | DIODE 1SS355 | | CVD1SS355T | |
| D401 | 00MHZ21303210 | DIODE 1SS355 | | CVD1SS355T | |
| D431 | 90M-HD302440R | ZENER DIODE ZJ4.7B 1/2W | | CVDZJ4.7BT | |
| D432 | 90M-HD201750R | DIODE 1N4003 CVD | | 1N4003SRT | |
| D433 | 00MHZ21303210 | DIODE 1SS355 | | CVD1SS355T | |
| D434 | 90M-HD302460R | ZENER DIODE ZJ5.6B 1/2W | | CVDZJ5.6BT | |
| D435 | 00MHZ21303210 | DIODE 1SS355 | | CVD1SS355T | |
| Q201 | 90M HX600010R | CHIP TRS.KRA102S | | HVTKRA102S | |
| Q202 | 90M-HX600010R | CHIP TRS.KRA102S | | HVTKRA102S | |
| Q301 | 90M-HX600020R | CHIP TRS.KTA1504S Y RTK | | HVTKTA1504SYRTK | |
| Q401 | 90M-HX800100R | CHIP TRS.KTC3875S Y RTK | | HVTKTC3875SYRTK | |
| Q402 | 90M-HX800100R | CHIP TRS.KTC3875S Y RTK | | HVTKTC3875SYRTK | |
| Q431 | 00MHT600111B0 | TRS.KTA1267Y | | HVTKTA1267YT | |
| Q432 | 90M-HX800090R | CHIP TRS.KRC111S | | HVTKRC111S | |
| Q433 | 90M-HX800090R | CHIP TRS.KRC111S | | HVTKRC111S | |
| Q434 | 00MHT30001000 | TRS.KTC3199Y | | HVTKTC3199YT | |
| CAPACITORS GROUP | | | | | |
| C201 | 00MDD95330300 | CER. CAP.33PF 50V | | JACCUS1H330JA | |
| C202 | 00MDD95330300 | CER. CAP.33PF 50V | | JACCUS1H330JA | |
| C203 | 00MDK96103300 | CER. CAP.0.01UF 50V KC | | CCUS1H103KC | |
| C206 | 00MDK96103300 | CER. CAP.0.01UF 50V KC | | CCUS1H103KC | |
| C207 | 90M-DK900090R | CER. CAP.1UF 10V KC | | CCUS1A105KC | |
| C208 | 00MDK96104300 | CER. CAP.0.1UF 50V K | | CCUS1H104KC | |
| C209 | 00MDK96104300 | CER. CAP.0.1UF 50V K | | CCUS1H104KC | |
| C210 | 00MDK96104300 | CER. CAP.0.1UF 50V K | | CCUS1H104KC | |
| C211 | 00MDK96104300 | CER. CAP.0.1UF 50V K | | CCUS1H104KC | |
| C212 | 00MDK96104300 | CER. CAP.0.1UF 50V K | | CCUS1H104KC | |
| C213 | 00MDK96104300 | CER. CAP.0.1UF 50V K | | CCUS1H104KC | |
| C214 | 00MDK96103300 | CER. CAP.0.01UF 50V KC | | CCUS1H103KC | |
| C215 | 00MDK96103300 | CER. CAP.0.01UF 50V KC | | CCUS1H103KC | |
| C216 | 00MOA10701620 | ELECT CAP.100UF 16V | | CCEA1CH101T | |
| C218 | 00MOA47602520 | ELECT CAP.47UF 25V | | CCEA1EH470T | |
| C219 | 00MDK96104300 | CER. CAP.0.1UF 50V K | | CCUS1H104KC | |
| C220 | 00MDK96103300 | CER. CAP.0.01UF 50V KC | | CCUS1H103KC | |
| C221 | 00MOA10701620 | ELECT CAP.100UF 16V | | CCEA1CH101T | |
| C222 | 00MDK96104300 | CER. CAP.0.1UF 50V K | | CCUS1H104KC | |
| C223 | 00MOA47602520 | ELECT CAP.47UF 25V | | CCEA1EH470T | |
| C251 | 00MOA10701620 | ELECT CAP.100UF 16V | | CCEA1CH101T | |
| C252 | 00MDK96104300 | CER. CAP.0.1UF 50V K | | CCUS1H104KC | |
| C253 | 00MOA47602520 | ELECT CAP.47UF 25V | | CCEA1EH470T | |
| C254 | 00MDK96104300 | CER. CAP.0.1UF 50V K | | CCUS1H104KC | |
| C255 | 00MDK96104300 | CER. CAP.0.1UF 50V K | | CCUS1H104KC | |
| C258 | 00MDK96104300 | CER. CAP.0.1UF 50V K | | CCUS1H104KC | |
| C259 | 00MDK96104300 | CER. CAP.0.1UF 50V K | | CCUS1H104KC | |
| C260 | 00MDD9515030R | CER. CAP.15PF 50V JA | | CCUS1H150JA | |
| C261 | 00MDD9515030R | CER. CAP.15PF 50V JA | | CCUS1H150JA | |

| Ref. No. | Part No. | Part Name | Remarks | Q'ty | New |
|----------|---------------|---|----------------|------|-----|
| C301 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C306 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C310 | 00MDD95470300 | CER. CAP.47PF 50V JA | CCUS1H470JA | | |
| C311 | 00MDK96333300 | CER. CAP.0.033UF 50V K | CCUS1H333KC | | |
| C312 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C313 | 00MOA47602520 | ELECT CAP.47UF 25V | CCEA1EH470T | | |
| C314 | 00MDK96153300 | CER. CAP.0.015UF 50V | CCUS1H153KC | | |
| C315 | 00MDK96103300 | CER. CAP.0.01UF 50V KC | CCUS1H103KC | | |
| C316 | 00MDK96103300 | CER. CAP.0.01UF 50V KC | CCUS1H103KC | | |
| C317 | 00MDK96472300 | CER. CAP.4700PF 50V KC | CCUS1H472KC | | |
| C318 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C319 | 00MDK96103300 | CER. CAP.0.01UF 50V KC | CCUS1H103KC | | |
| C320 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C321 | 00MDK96153300 | CER. CAP.0.015UF 50V | CCUS1H153KC | | |
| C322 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C323 | 00MDD95680300 | CER. CAP.68PF 50V JA | CCUS1H680JA | | |
| C324 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C325 | 00MOA47701620 | ELECT CAP.470UF 16V ZF | CCEA1CH471T | | |
| C326 | 00MOA10701620 | ELECT CAP.100UF 16V | CCEA1CH101T | | |
| C327 | 00MOA10701620 | ELECT CAP.100UF 16V | CCEA1CH101T | | |
| C328 | 00MOA10701620 | ELECT CAP.100UF 16V | CCEA1CH101T | | |
| C329 | 00MDK96102300 | CER. CAP.1000PF 50V KC | CCUS1H102KC | | |
| C330 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C331 | 00MDK96333300 | CER. CAP.0.033UF 50V K | CCUS1H333KC | | |
| C332 | 00MDK96333300 | CER. CAP.0.033UF 50V K | CCUS1H333KC | | |
| C333 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C334 | 00MDD95471300 | CER. CAP.470PF 50V JA | CCUS1H471JA | | |
| C335 | 00MDD95471300 | CER. CAP.470PF 50V JA | CCUS1H471JA | | |
| C336 | 90M-OA000630R | ELECT CAP.KZH 6.3V/1000UF | CCEA0JKZH102KS | | |
| C337 | 00MDK96103300 | CER. CAP.0.01UF 50V KC | CCUS1H103KC | | |
| C338 | 00MDK96473300 | CER. CAP.0.043UF 50V KC | CCUS1H473KC | | |
| C339 | 00MDK96473300 | CER. CAP.0.043UF 50V KC | CCUS1H473KC | | |
| C340 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C341 | 00MOA22701620 | ELECT CAP.220UF 16V | CCEA1CH221T | | |
| C342 | 00MDK96222300 | CER. CAP.2200PF 50V KC | CCUS1H222KC | | |
| C343 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C344 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C345 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C346 | 00MOA47602520 | ELECT CAP.47UF 25V | CCEA1EH470T | | |
| C347 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C348 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C349 | 00MOA10701620 | ELECT CAP.100UF 16V | CCEA1CH101T | | |
| C350 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C351 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C352 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C353 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C354 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C360 | 00MOA47602520 | CER. CAP.47UF 25V | CCEA1EH470T | | |
| C361 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C362 | 00MOA10701620 | ELECT CAP.100UF 16V | CCEA1CH101T | | |
| C363 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C364 | 00MOA47602520 | ELECT CAP.47UF 25V | CCEA1EH470T | | |
| C365 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C401 | 00MOA22701620 | ELECT CAP.220UF 16V | CCEA1CH221T | | |
| C402 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C403 | 00MDD95120300 | CER. CAP.12PF 50V JA | CCUS1H120JA | | |
| C404 | 00MDK96104300 | CER. CAP.0.1UF 50V K CCUS1H104KC0.1UF 50V K | CCUS1H104KC | | |
| C405 | 00MOA47602520 | ELECT CAP.47UF 25V | CCEA1EH470T | | |
| C406 | 00MDD95101300 | CER. CAP.100PF 50V JA | CCUS1H101JA | | |
| C408 | 90M-DK900090R | CER. CAP.1UF 10V KC | CCUS1A105KC | | |
| C410 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C411 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C412 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C431 | 00MOA22802520 | ELECT CAP.2200UF 25V | CCEA1EH222E | | |
| C433 | 00MOA22505020 | ELECT CAP.2.2UF 50V | CCEA1HH2R2T | | |
| C461 | 00MDK96104300 | CER. CAP.0.1UF 50V K | CCUS1H104KC | | |
| C462 | 00MOA10701620 | ELECT CAP.100UF 16V | CCEA1CH101T | | |

POWER PWB (CUP12097Z-3)

| Ref. No. | Part No. | Part Name | Remarks | Q'ty | New |
|-----------------------------|---------------|---------------------------------|---------|---------------|-----|
| SEMICONDUCTORS GROUP | | | | | |
| IC91 | 90M-HC300780R | IC KIA7808API | | HVIKIA7808API | |
| IC92 | 00MHC3890599F | IC KIA7805API | | HVIKIA7805API | |
| IC93 | 00MHC3991209F | IC KIA7912PI | | HVIKIA7912PI | |
| IC94 | 00MHC3891299F | IC KIA7812API | | HVIKIA7812API | |
| | | | | | |
| Q901 | 90M-HT800040R | TRS KSC2316Y | | HVTKSC2316YT | |
| Q902 | 90M-HT800040R | TRS KSC2316Y | | HVTKSC2316YT | |
| ⚠ Q903 | 00MHT327851H0 | TRS KSC2785Y | | HVTKSC2785YT | |
| | | | | | |
| D901 | 90M-HD201730R | DIODE 1N4003 | | CVD1N4003ST | |
| D902 | 90M-HD201730R | DIODE 1N4003 | | CVD1N4003ST | |
| D903 | 90M-HD201730R | DIODE 1N4003 | | CVD1N4003ST | |
| D904 | 90M-HD201730R | DIODE 1N4003 | | CVD1N4003ST | |
| D905 | 90M-HD201730R | DIODE 1N4003 | | CVD1N4003ST | |
| D906 | 90M-HD201730R | DIODE 1N4003 | | CVD1N4003ST | |
| D907 | 90M-HD201730R | DIODE 1N4003 | | CVD1N4003ST | |
| D908 | 90M-HD201730R | DIODE 1N4003 | | CVD1N4003ST | |
| D909 | 90M-HD201730R | DIODE 1N4003 | | CVD1N4003ST | |
| D910 | 90M-HD201730R | DIODE 1N4003 | | CVD1N4003ST | |
| D911 | 90M-HD201730R | DIODE 1N4003 | | CVD1N4003ST | |
| D912 | 90M-HD201730R | DIODE 1N4003 | | CVD1N4003ST | |
| D913 | 90M HD201730R | DIODE DIODE 1N4003 | | CVD1N4003ST | |
| D914 | 90M-HD302470R | ZENER DIODE ZJ6.2B 1/2W | | CVDZJ6.2BT | |
| D915 | 90M-HD302430R | ZENER DIODE ZJ36B | | CVDZJ36BT | |
| D916 | 90M-HD302460R | ZENER DIODE ZJ5.6B 1/2W | | CVDZJ5.6BT | |
| D917 | 00MHD20015210 | DIODE 1SS133T-77 | | CVD1SS133MT | |
| D918 | 00MHD20015210 | DIODE 1SS133T-77 | | CVD1SS133MT | |
| D920 | nsp | CORD SN95/PB5 0.6 | K,N | C3A206 | |
| D920 | 00MHD20015210 | DIODE 1SS133T-77 | U | CVD1SS133MT | |
| D921 | nsp | CORD SN95/PB5 0.6 | K,N | C3A206 | |
| D921 | 00MHD20015210 | DIODE 1SS133T-77 | U | CVD1SS133MT | |
| | | | | | |
| CAPACITORS GROUP | | | | | |
| C903 | 00MOA22706320 | ELECT CAP220UF 63V | | CCEA1JH221E | |
| C904 | nsp | FILM CAP0.1UF 100V | | CCUMT2A104KB | |
| C905 | 00MOA22505020 | ELECT CAP2.2UF 50V | | CCEA1HH2R2T | |
| C906 | 00MOA10605020 | ELECT CAP10UF 50V | | CCEA1HH100T | |
| C907 | nsp | CER. CAP0.1UF 50V Z CERAMIC | | CCBS1H104ZFT | |
| C908 | nsp | CER. CAP0.1UF 50V Z CERAMIC | | CCBS1H104ZFT | |
| C909 | 90M-OA000560R | ELECT CAP4700UF 35V 16X30 | | CCEA1VH472E | |
| C910 | nsp | CER. CAP0.1UF 50V Z CERAMIC | | CCBS1H104ZFT | |
| C911 | 00MOA47701620 | ELECT CAP470UF 16V ZF | | CCEA1CH471T | |
| C912 | 00MOA10701620 | ELECT CAP100UF 16V | | CCEA1CH101T | |
| C913 | 00MOA10802520 | ELECT CAP1000UF 25V | | CCEA1EH102E | |
| C914 | nsp | CER. CAP0.022UF 50V Z CERAMIC | | CCBS1H223ZFT | |
| C915 | 00MOA10701620 | ELECT CAP100UF 16V | | CCEA1CH101T | |
| C916 | 00MOA47701620 | ELECT CAP470UF 16V ZF | | CCEA1CH471T | |
| C917 | 00MOA33802520 | ELECT CAP3300UF 25V | | CCEA1EH332E | |
| C918 | 00MOA47701620 | ELECT CAP470UF 16V ZF | | CCEA1CH471T | |
| C919 | 00MOA33802520 | ELECT CAP3300UF 25V | | CCEA1EH332E | |
| C920 | 00MOA47701620 | ELECT CAP470UF 16V ZF | | CCEA1CH471T | |
| C922 | 00MOA10702520 | ELECT CAP100UF 25V | | CCEA1EH101T | |
| C923 | 00MOA10702520 | ELECT CAP100UF 25V | | CCEA1EH101T | |
| ⚠ C924 | 90M-DK100770R | CER. CAP 0.0047UF 2.5KV CERAMIC | | KCKDKS472ME | |
| | | | | | |
| OTHERS PARTS GROUP | | | | | |
| BK91 | nsp | BRACKETBRACKET FOR PWB | | CMD1A569 | |
| BN44 | nsp | CORD WIRE ASSY | | CWB1C903080BM | |
| BN45 | nsp | CORD WIRE ASSY 13P 80MM | | CWB1C913080EN | |
| | | | | | |
| CN91 | nsp | CONN 7.92MM(YUNHO) | | CJP02KA060ZY | |
| CN92 | nsp | CONN 2P WAFER | | CJP02GA89ZY | |

| Ref. No. | Part No. | Part Name | Remarks | Q'ty | New |
|----------|---------------|-----------------------------|---------|---------------|-----|
| CN93 | nsp | CONN 7P STRAIGHT 20017WS-07 | | CJP07GA19ZY | |
| CN94 | nsp | CONN 3P STRAIGHT YMW025-03R | | CJP03GA01ZY | |
| ⚠ F901 | 90M-FS001260R | FUSE T 315MA L 250V | K,N | KBA2C0315TLEY | |
| ⚠ F901 | 90M-FS001370R | FUSE 250V T 0.63A | U | KBA2C0630TLEY | |
| HF91 | nsp | CONN HOLDER FUSE | | KJCFC5S | |
| HF92 | nsp | CONN HOLDER FUSE | | KJCFC5S | |
| RY91 | 90M-LY000340R | RELAY SDT-S-112DMR | | HSL1A008ZE | |
| ⚠ T902 | 943101002400M | TRANSF. SUB CD5003 N | K,N | CLT5I012ZE | |
| ⚠ T902 | 943101002410M | TRANSF. SUB CD5003 U | U | CLT5I012ZU | |

FLASHER IN PWB (CUP12097Z 6)

| Ref. No. | Part No. | Part Name | Remarks | Q'ty | New |
|-----------------------------|---------------|--------------------------------------|---------|---------------|-----|
| SEMICONDUCTORS GROUP | | | | | |
| Q551 | 00MBA10001000 | TRS KRA102M | U | HVTKRA102MT | |
| | | | | | |
| D551 | 00MHD20015210 | DIODE 1SS133T-77 | U | CVD1SS133MT | |
| D552 | 90M-HI200020R | L.E.DSIR-34ST3F | U | BVDSIR34ST3F | |
| D553 | 00MHD20015210 | DIODE 1SS133T-77 | U | CVD1SS133MT | |
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| | | | | | |
| CAPACITORS GROUP | | | | | |
| C551 | 00MOA10701620 | ELECT CAP100UF 16V | U | CCEA1CH101T | |
| C552 | nsp | CER. CAP0.1UF 50V Z CERAMIC | U | CCBS1H104ZFT | |
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| OTHERS PARTS GROUP | | | | | |
| BK55 | nsp | BRACKET FOR PWB | U | CMD1A569 | |
| BK56 | nsp | BRACKET FOR PWB | U | CMD1A569 | |
| BK57 | nsp | BRACKET SHIELD | U | CMD1A512 | |
| BN41 | nsp | CORD WIRE ASSY | U | CWB1B903180EN | |
| | | | | | |
| JK55 | 90M-YT004860R | TERMINAL 3.5MM JACK STEREO PJ-308-02 | U | CJJ2D008Z | |
| | | | | | |
| RC51 | 90M-HW100690R | PHOTO UNISTRPM674CBR-S | U | CRVRPM6936 | |

TACT SW PWB (CUP12097Z-5)

| Ref. No. | Part No. | Part Name | Remarks | Q'ty | New |
|-----------------------------|---------------|-----------------------------|---------|--------------------|-----|
| SEMICONDUCTORS GROUP | | | | | |
| Q501 | 90M-BA001460R | TRS KRC107M | | HVTKRC107MT | |
| | | | | | |
| D501 | 263710016400S | L.E.D SLI-325URT31W TP | | CVDSL325URT31WT055 | |
| | | | | | |
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| CAPACITORS GROUP | | | | | |
| C506 | nsp | CER. CAP0.1UF 50V Z CERAMIC | | CCBS1H104ZFT | |
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| | | | | | |
| OTHERS PARTS GROUP | | | | | |
| CN51 | nsp | CONN 5P WAFER 20017WR-05 | | CJP05GB46ZY | |
| | | | | | |
| JW51 | nsp | CORD WIRE ASSY | | CWE7202100AR | |
| | | | | | |
| S501 | 90M-SP001400R | PUSH SWTACT SW EVQ22505R | | CST1A023ZT | |

TRANSF. SW PWB (CUP12097Z-7)

| Ref. No. | Part No. | Part Name | Remarks | Q'ty | New |
|---------------------------|----------|-------------------------|---------|--------------|-----|
| OTHERS PARTS GROUP | | | | | |
| BN92 | nsp | CORD WIRE ASSY 2P 250MM | | WB4F932250UZ | |
| BN93 | nsp | CORD WIRE ASSY 7P 80MM | | WB1C907080EN | |
| BN94 | nsp | CORD WIRE ASSY | | WB1C903080BM | |

Personal notes: