

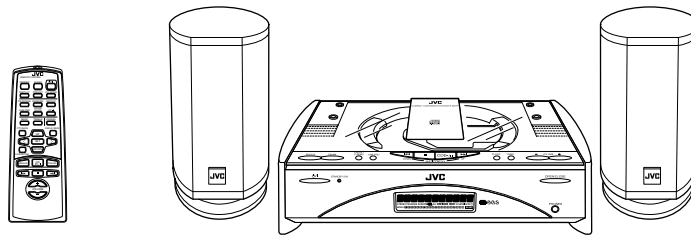
JVC

SERVICE MANUAL

COMPACT COMPONENT SYSTEM

FS-SD990R / FS-SD770R FS-SD550R

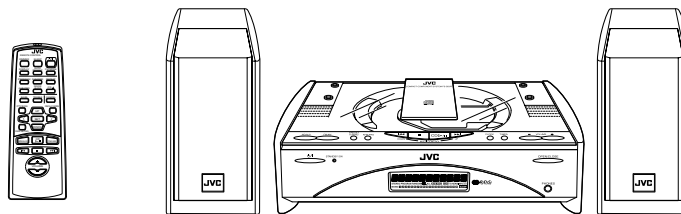
CD-ROM No.SML200103



FS-SD770R, FS-SD990R

Area Suffix

UB Hong kong



FS-SD550R



The difference between FS-SD550R and FS-SD770R・FS-SD990R is only the speaker systems.
The difference between FS-SD770R and FS-SD990R is cabinets of the speaker.

Contents These models not have adjustment.

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Safety Precautions

1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (\triangle) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

5. Leakage current check (Electrical shock hazard testing)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

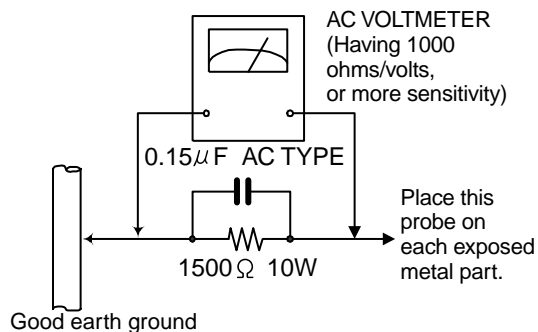
Do not use a line isolation transformer during this check.

- Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.).

- Alternate check method

Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500 Ω 10W resistor paralleled by a 0.15 μ F AC-type capacitor between an exposed metal part and a known good earth ground. Measure the AC voltage across the resistor with the AC voltmeter.

Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

CAUTION

Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of performing repair of this system.

In regard with component parts appearing on the silk-screen printed side (parts side) of the PWB diagrams, the parts that are printed over with black such as the resistor (■), diode (▣) and ICP (●) or identified by the " \triangle " mark nearby are critical for safety.

When replacing them, be sure to use the parts of the same type and rating as specified by the manufacturer. (Except the JC version)

Important for laser products

1.CLASS 1 LASER PRODUCT


2.DANGER : Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.

3.CAUTION : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.

4.CAUTION : The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.

5.CAUTION : If safety switches malfunction, the laser is able to function.

6.CAUTION : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

 **CAUTION** Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.

WARNING : Osynlig laserstrålning är denna del är öppnad och spårren är urkopplad. Betrakta ej strålen.

VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

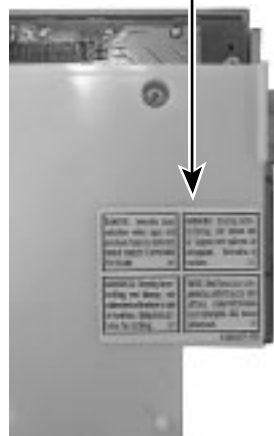
ADVARSEL : Usynlig laserstrålning ved åbning , når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

ADVARSEL : Usynlig laserstrålning ved åbning,når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

REPRODUCTION AND POSITION OF LABELS

WARNING LABEL

| | |
|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <p>DANGER : Invisible laser radiation when open and interlock or defeated. AVOID DIRECT EXPOSURE TO BEAM (e)</p> | <p>WARNING : Osynlig laserstrålning är denna del är öppnad och spårren är urkopplad. Betrakta ej strålen. (s)</p> |
| <p>VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (d)</p> | <p>ADVARSEL :Usynlig laserstrålning ved åbning , når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling. (f)</p> |



Preventing static electricity

Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pickup). Take care to prevent this when performing repairs.

1.1. Grounding to prevent damage by static electricity

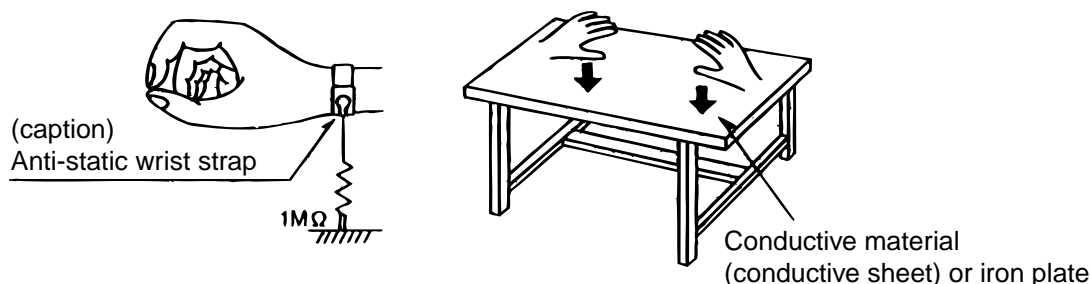
Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as DVD players. Be careful to use proper grounding in the area where repairs are being performed.

1.1.1. Ground the workbench

1. Ground the workbench by laying conductive material (such as a conductive sheet) or an iron plate over it before placing the traverse unit (optical pickup) on it.

1.1.2. Ground yourself

1. Use an anti-static wrist strap to release any static electricity built up in your body.



1.1.3. Handling the optical pickup

1. In order to maintain quality during transport and before installation, both sides of the laser diode on the replacement optical pickup are shorted. After replacement, return the shorted parts to their original condition. (Refer to the text.)
2. Do not use a tester to check the condition of the laser diode in the optical pickup. The tester's internal power source can easily destroy the laser diode.

1.2. Handling the traverse unit (optical pickup)

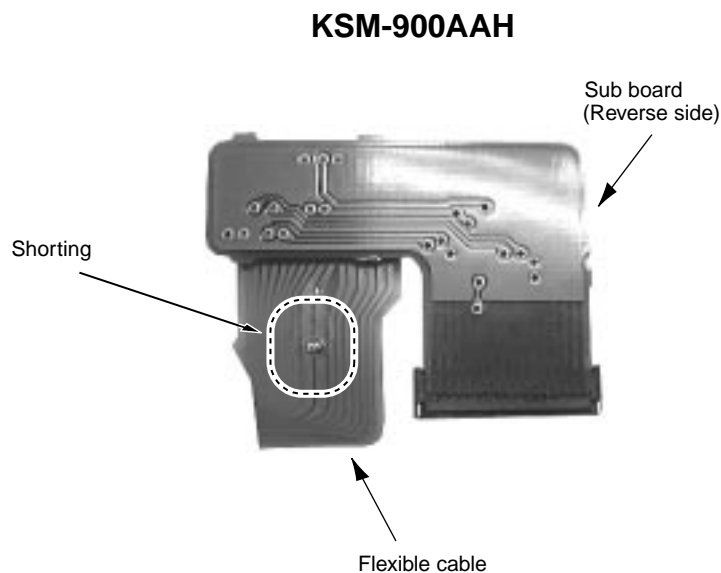
1. Do not subject the traverse unit (optical pickup) to strong shocks, as it is a sensitive, complex unit.
2. Cut off the shorted part of the flexible cable using nippers, etc. after replacing the optical pickup. For specific details, refer to the replacement procedure in the text. Remove the anti-static pin when replacing the traverse unit. Be careful not to take too long a time when attaching it to the connector.
3. Handle the flexible cable carefully as it may break when subjected to strong force.
4. It is not possible to adjust the semi-fixed resistor that adjusts the laser power. Do not turn it

Dismantling and assembling the traverse unit

Notice regarding replacement of optical pickup

Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pickup). Take care to prevent this when performing repairs to the optical pickup or connected devices.

1. Do not touch the area around the laser diode and actuator.
2. Do not check the laser diode using a tester, as the diode may easily be destroyed.
3. It is recommended that you use a grounded soldering iron when shorting or removing the laser diode.
Recommended soldering iron: HAKKO ESD-compatible product
4. Solder the land on the optical pickup's flexible cable.
 - Note : Short the land after shorting the terminal on the flexible cable using a clip, etc., when using an ungrounded soldering iron.
 - Note : After shorting the laser diode according to the procedure above, remove the solder according to the text explanation.



Disassembly method

<Main body>

■Removing the CD door (See Fig.1)

1. Remove the four screws **A** attaching the CD door on the upper side of the body.

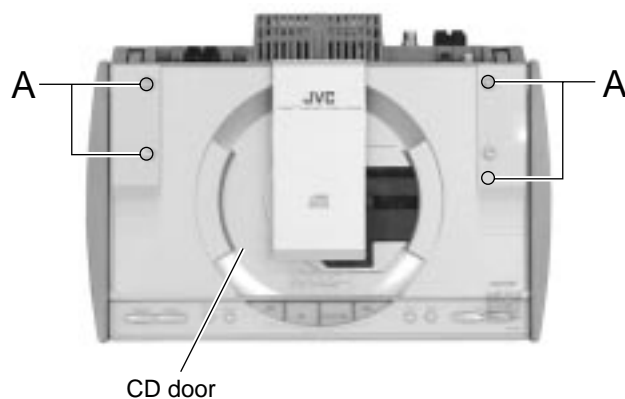


Fig.1

■Removing the rear cover (See Fig.2)

- Prior to performing the following procedure, remove the CD door.
1. Remove the ten screws **B** and the five screws **C** attaching the rear cover on the back of the body.

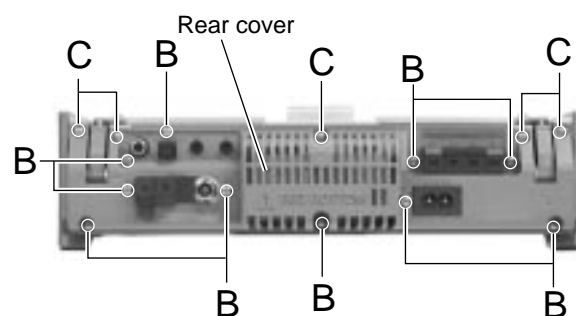


Fig.2

■Removing the right and left covers (See Fig.3)

- Prior to performing the following procedure, remove the CD door, the rear cover.
1. Remove the four screws **D** attaching the side covers on the bottom of the body.
 2. Move the left cover backward and remove outward. Also remove the right cover in the same way.

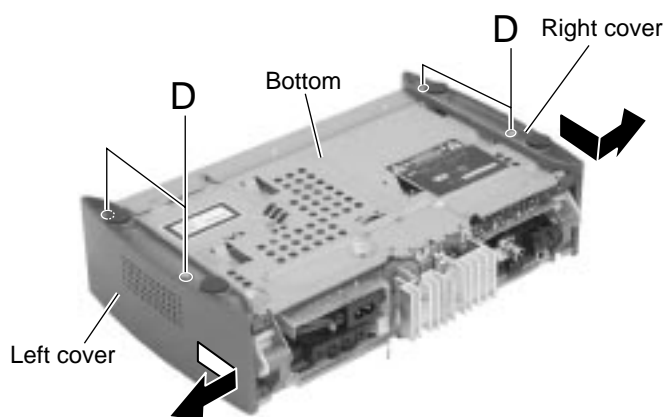
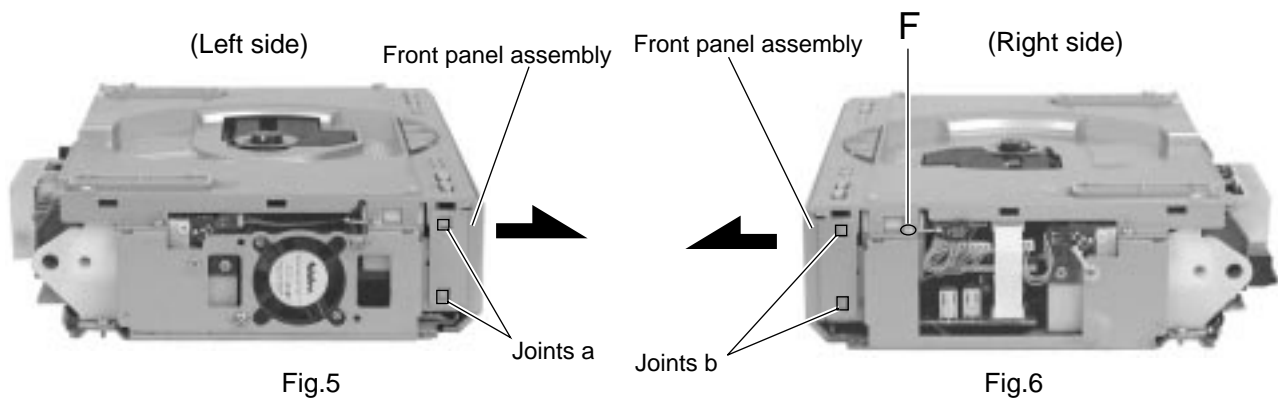
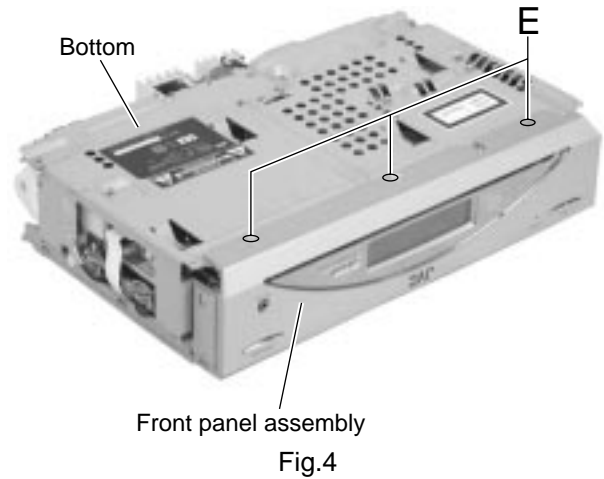


Fig.3

■ Removing the front panel assembly (See Fig.4 to 6)

• Prior to performing the following procedure, remove the CD door, the rear cover and the side covers.

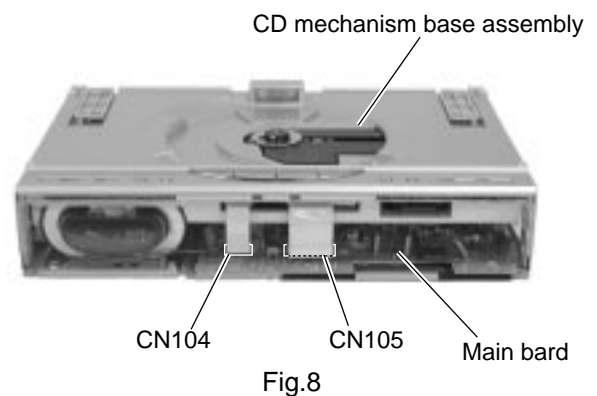
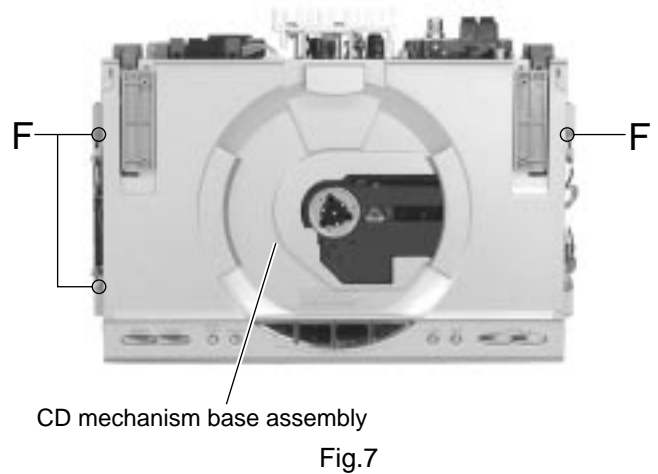
1. Remove the three screws **E** on the bottom of the body.
2. Release two joints **a** and two joints **b** on both sides of the body using a screwdriver and remove the front panel assembly toward the front.



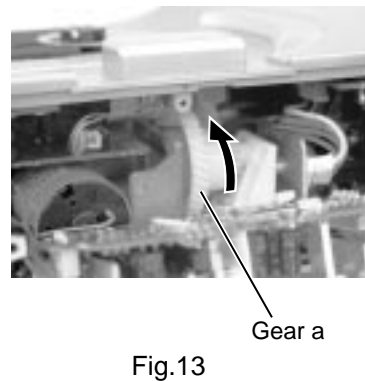
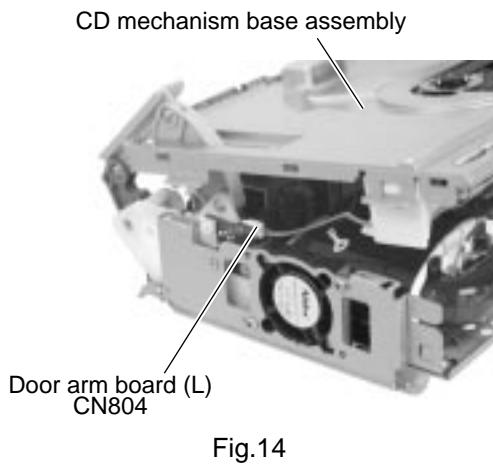
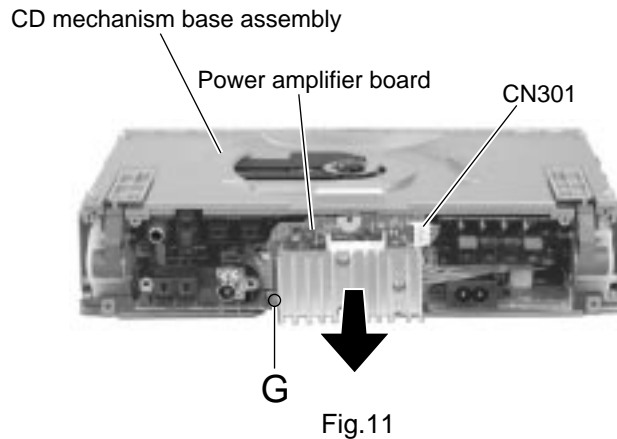
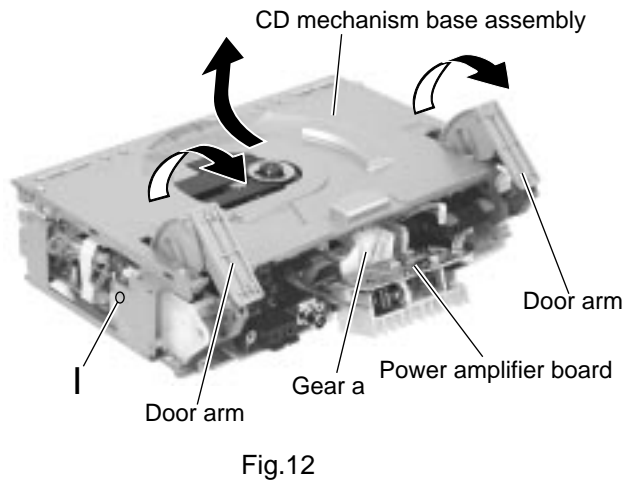
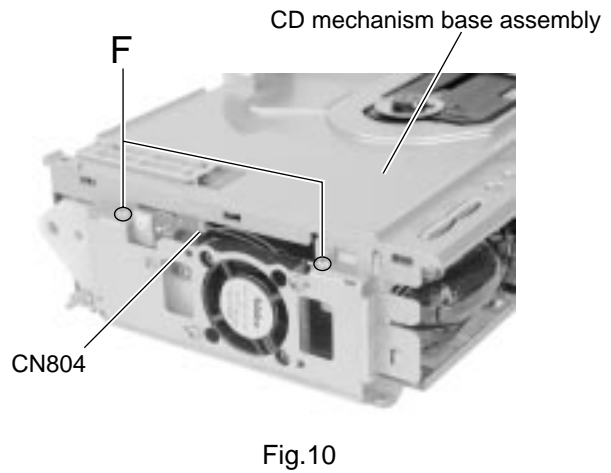
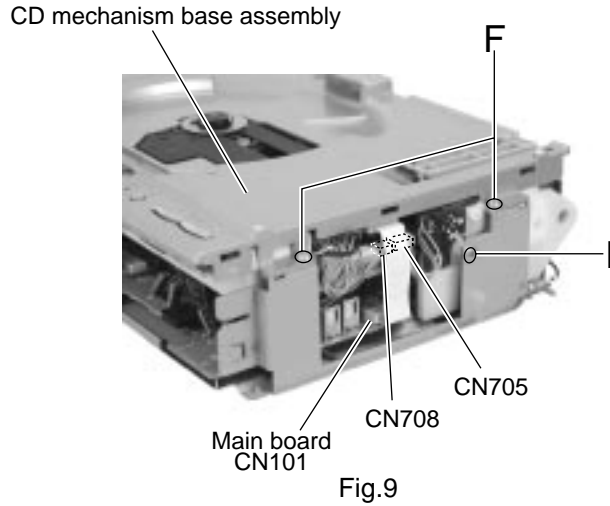
■ Removing the CD mechanism base assembly (See Fig.7 to 14)

• Prior to performing the following procedure, remove the CD door, the rear cover, the side covers and the front panel assembly.

1. Disconnect the card wire from connector CN104 and CN105 of the main board in the front part of the body. Disconnect the card wire from CN101 of the main board on the right side, and the wire from CN705 and CN of the CD mechanism base assembly respectively.
2. Remove the four screws **F** attaching the CD mechanism base assembly on the upper side of the body. Remove the screw **I** attaching the earth terminal on the right side.



3. Remove the screw **G** attaching the power amplifier board on the back of the body. Disconnect the wire from connector CN301 and pull the power amplifier board fully outward.
4. Raise the right and left door arms by turning the gear **a** in the rear of the power amplifier board.
5. After the CD mechanism base assembly is detached from the door arms, pull the CD mechanism base assembly toward the front and disconnect the wire from connector CN804 on the left side of the door arm board.
6. Pull out the CD mechanism base assembly toward the front.



■Removing the door arm assembly / the door arm board (R) and (L)
(See Fig.15 to 20)

• Prior to performing the following procedure, remove the rear cover, the side covers, the front panel assembly and the CD mechanism base assembly.

1. In case that the upper parts of the door arms attached to the CD door are not level, let down them to the level position by turning the gear **a** in the direction of the arrow.

ATTENTION: When the door arms incline, the door arm assembly and the door arm board (R) and (L) may not be removed.

2. Remove the four screws **H** on the upper side and the one screw **I** on the left side of the body.
3. Remove the four screws **J** attaching the door arm board (L) and (R) on both sides of the door arm assembly.

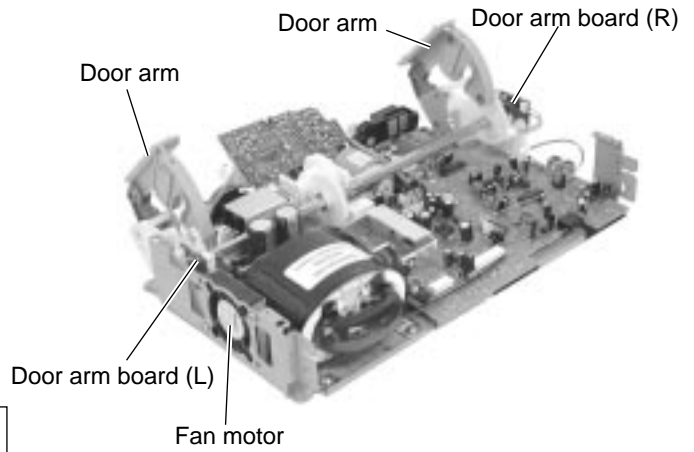


Fig.15

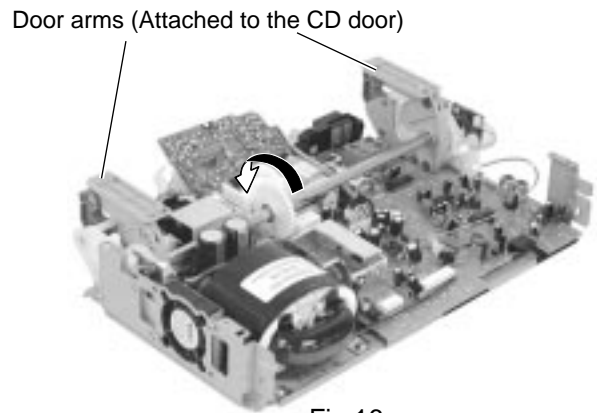


Fig.16

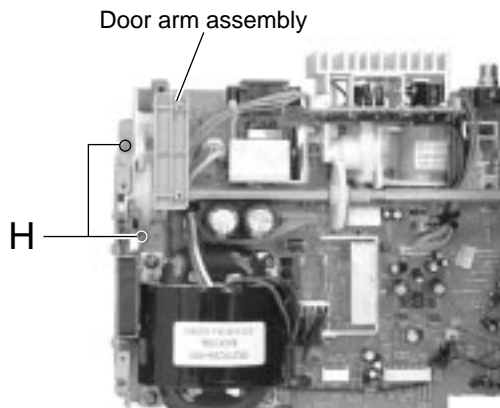


Fig.17

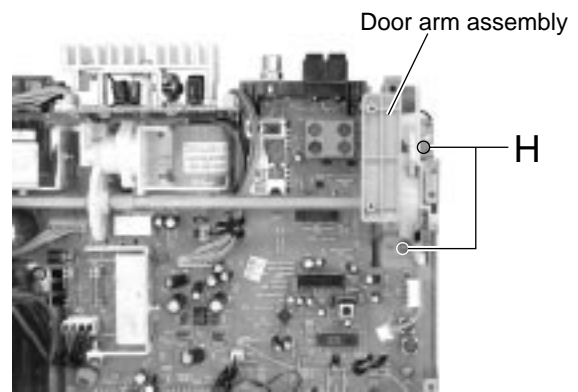


Fig.18

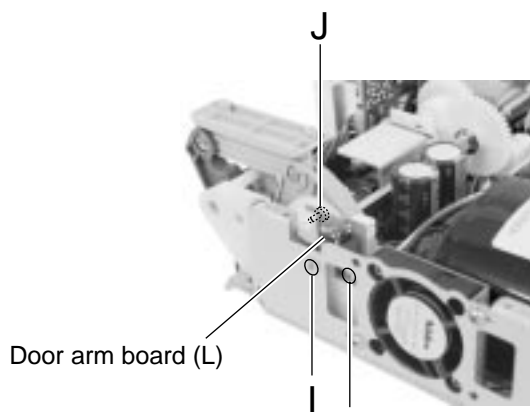


Fig.19

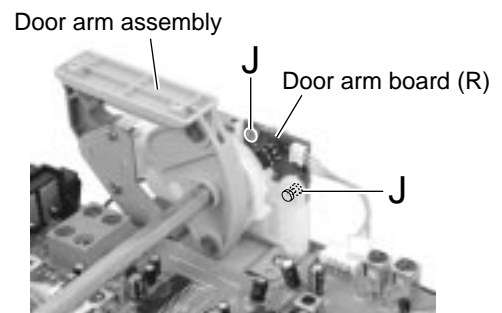


Fig.20

■Removing the power amplifier board (See Fig.21 and 22)

• Prior to performing the following procedure, remove the CD mechanism base assembly.

1. Disconnect the wires from connector CN102 and CN193 on the main board and release them from the cord stopper respectively.
2. Remove the two screws **K** and the two screws **L** attaching the heat sink and the power amplifier board.

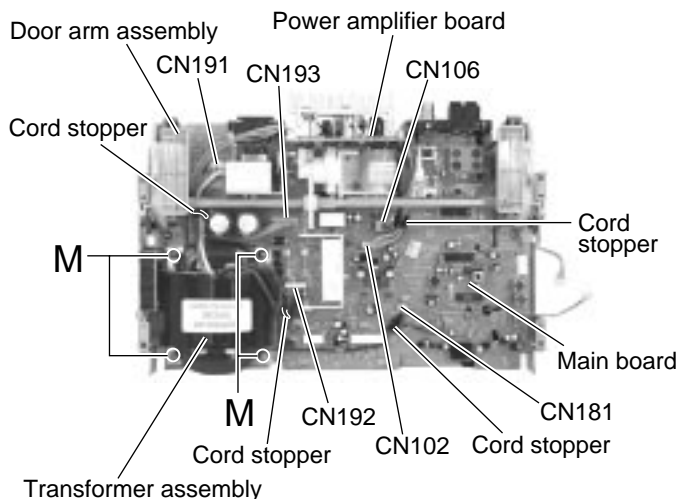


Fig.21

■Removing the transformer assembly (See Fig.21)

• Prior to performing the following procedure, remove the CD mechanism base assembly.

1. Disconnect the wires from connector CN191 and CN192 on the main board and release them from the cord stopper respectively.
2. Remove the four screws **M** attaching the transformer assembly.

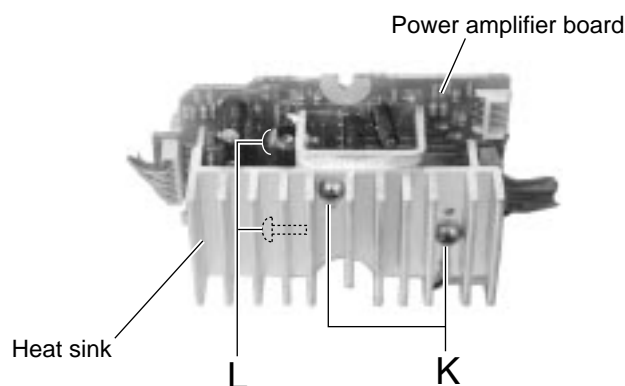


Fig.22

■Removing the gear motor assembly (See Fig.23 and 24)

• Prior to performing the following procedure, remove the CD mechanism base assembly and the door arm assembly.

1. Disconnect the wires from connector CN106 on the main board and release it from the cord stopper.
2. Remove the three screws **N** attaching the gear motor assembly. Remove the gear motor assembly with the gear motor stopper.
3. Remove the belt from the gear motor assembly.
4. Remove the two screws **O** from the gear motor assembly.

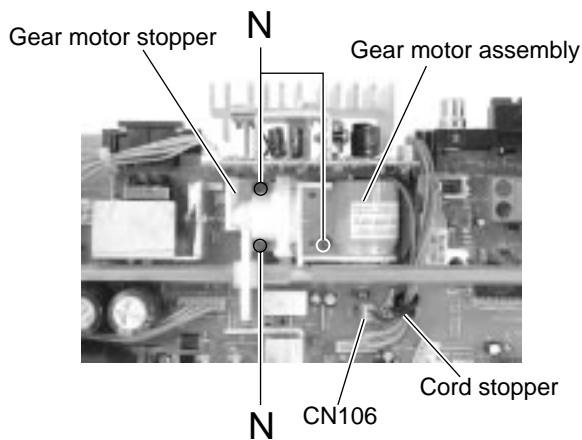


Fig.23

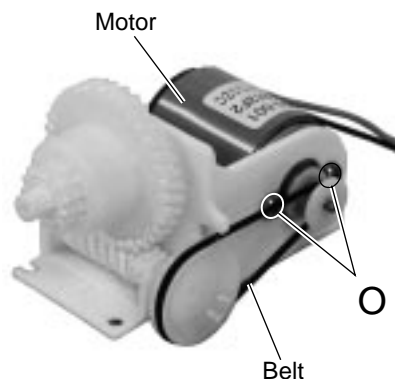


Fig.24

**■Removing the fan motor assembly
(See Fig.25 and 26)**

• Prior to performing the following procedure, remove the CD mechanism base assembly.

1. Disconnect the wires from connector CN181 on the main board.
2. Remove the two screws **P** on the left side of the body. Move the fan motor assembly upward to remove it from the base chassis.
3. Remove the two screws **Q** and the fan motor from the fan bracket.

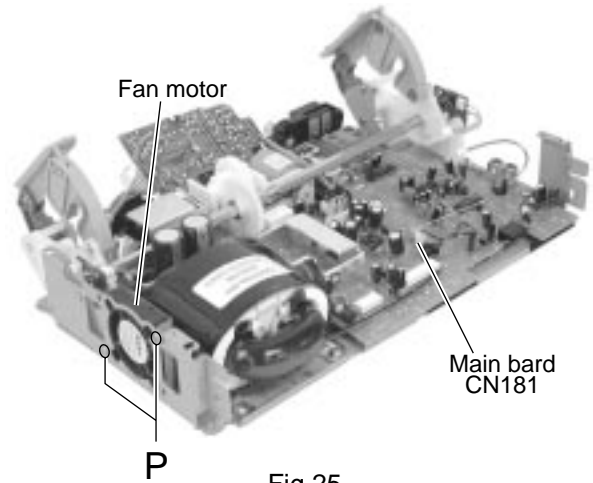


Fig.25

■Removing the main board (See Fig.27)

• Prior to performing the following procedure, remove the CD mechanism base assembly and the door arm assembly.

• To facilitate operation process, remove the gear motor assembly before performing the following procedure.

1. Disconnect the wires from connector CN102, CN106, CN191, CN192, CN193 and CN181 on the main board.
2. Remove the five screws **R** attaching the main board with the cord stopper.

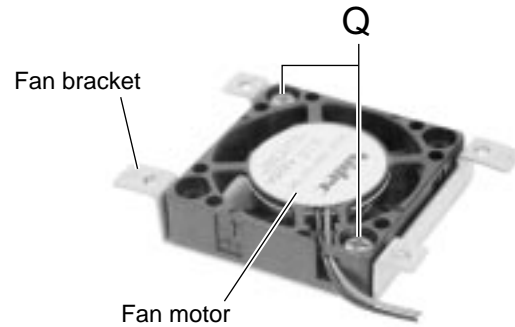


Fig.26

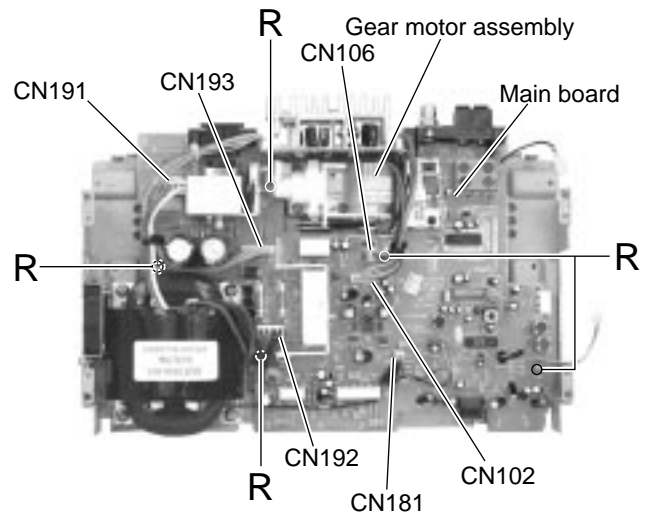


Fig.27

<Front panel assembly>

**■Removing the front panel board
(See Fig.28)**

• Prior to performing the following procedure, remove the front panel assembly.

1. Remove the seven screws **S** attaching the front panel board inside the front panel assembly.

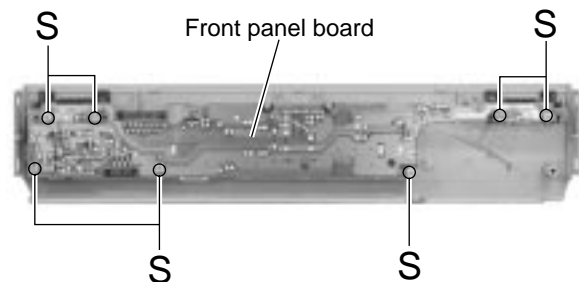


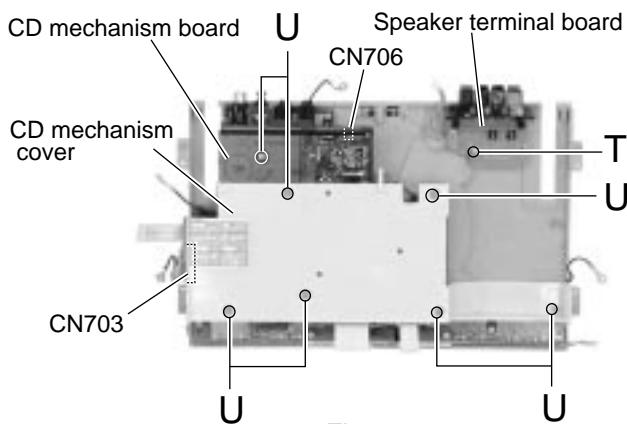
Fig.28

<CD mechanism base assembly>

- Prior to performing the following procedure, remove the CD mechanism base assembly.
- Refer to "Dismantling and assembling the CD mechanism assembly" on page 1-5 for the treatment of optical pickup.

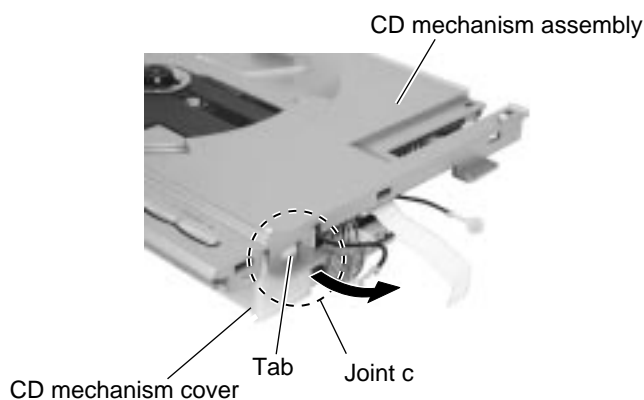
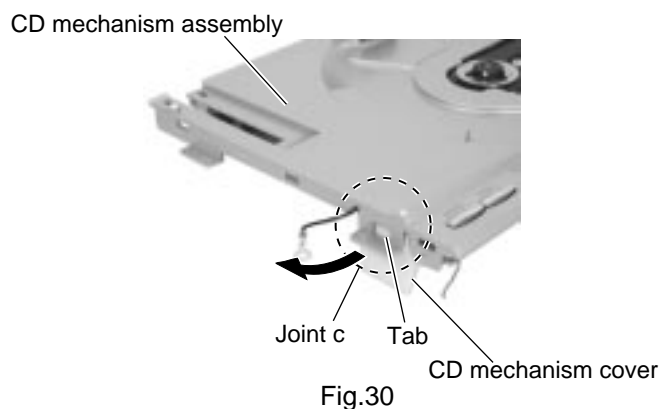
■Removing the speaker terminal board (See Fig.29)

1. Remove the screw T attaching the speaker terminal board on the underside of the CD mechanism base assembly.



■Removing the CD mechanism board / CD mechanism assembly (See Fig.29 to 34)

1. Turn over the CD mechanism base assembly and disconnect the wire from connector CN703 and CN706 on the CD mechanism board.
2. Turn over the CD mechanism base assembly and disconnect the wires from connector CN703 and CN706 on the CD mechanism board.
3. Turn back the CD mechanism assembly and detach the CD mechanism cover while pulling the CD mechanism assembly outward to release the two joint tabs marked c.



4. Solder the short circuit land on the sub board.

5. Disconnect the wire from connector CN605 on the main board.

Disconnect the sub board from connector CN603 on the main board while peeling off the adhesive tape on the underside of the sub board.

6. Remove the CD mechanism assembly from the three shafts of the CD mechanism cover.

ATTENTION: When reassembling, confirm that the cushion of the CD mechanism assembly is reattached to the three shafts.

7. Remove the CD mechanism board from the CD mechanism cover.

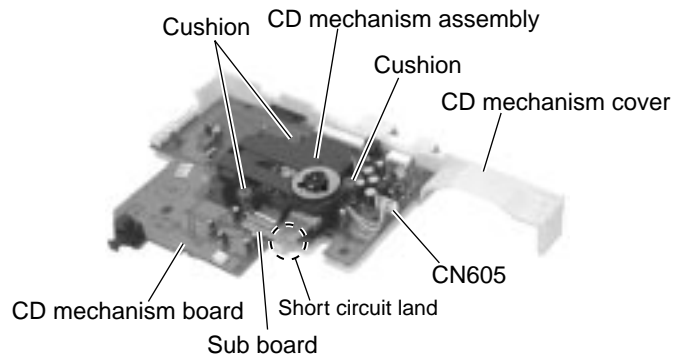


Fig.32

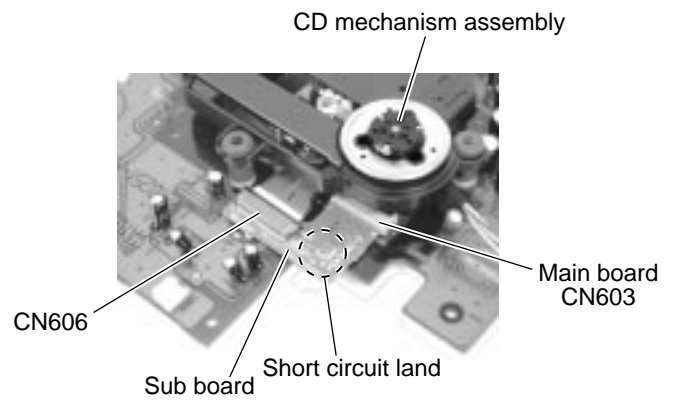


Fig.33

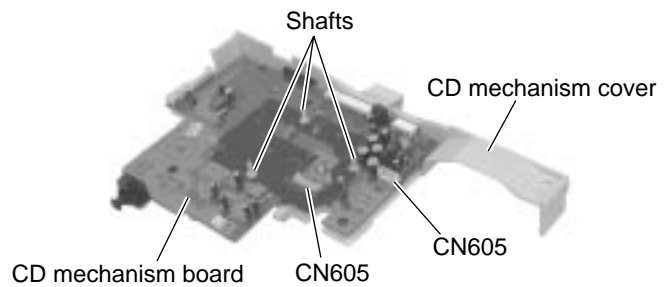


Fig.34

■Removing the jack board (See Fig.35)

- Prior to performing following procedure, remove the CD mechanism board.
1. Disconnect the wire from connector CN502 on the jack board.
 2. Remove the two screws V attaching the jack board.

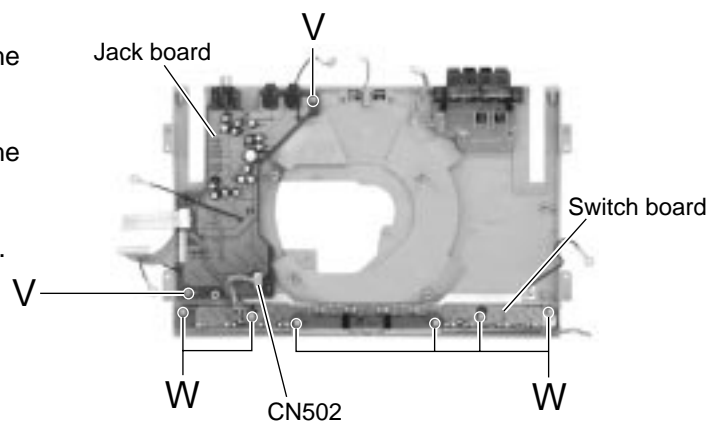


Fig.35

■Removing the switch board (See Fig.35)

- Prior to performing following procedure, remove the CD mechanism board.
1. Disconnect the wire from connector CN502 on the jack board.
 2. Remove the six screws W attaching the switch board.

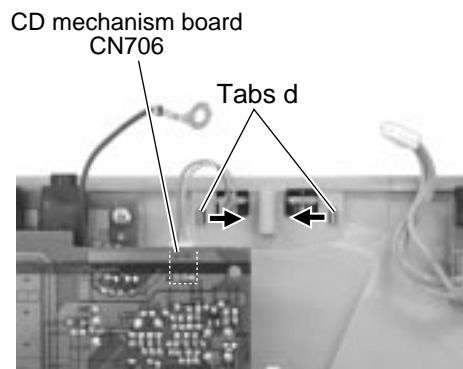


Fig.36

■Removing the LED board (See Fig.36 and 37)

1. Disconnect the harness from connector CN706 on the CD mechanism board on the underside of the CD mechanism base assembly.
2. Push inward the two tabs d attaching the LED board case and release them.
3. Pull out the LED board from the LED board case.

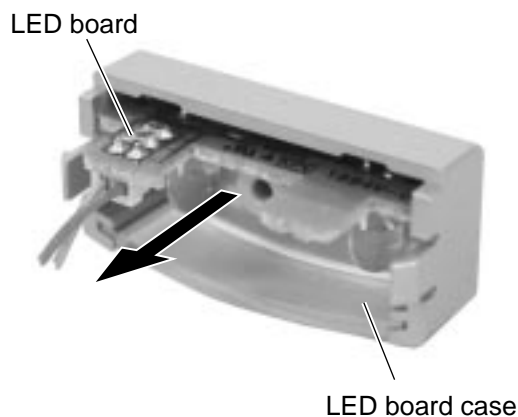
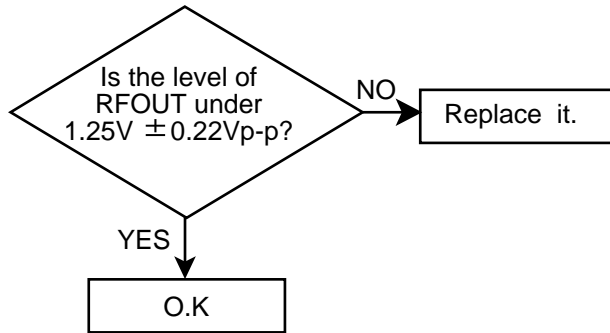


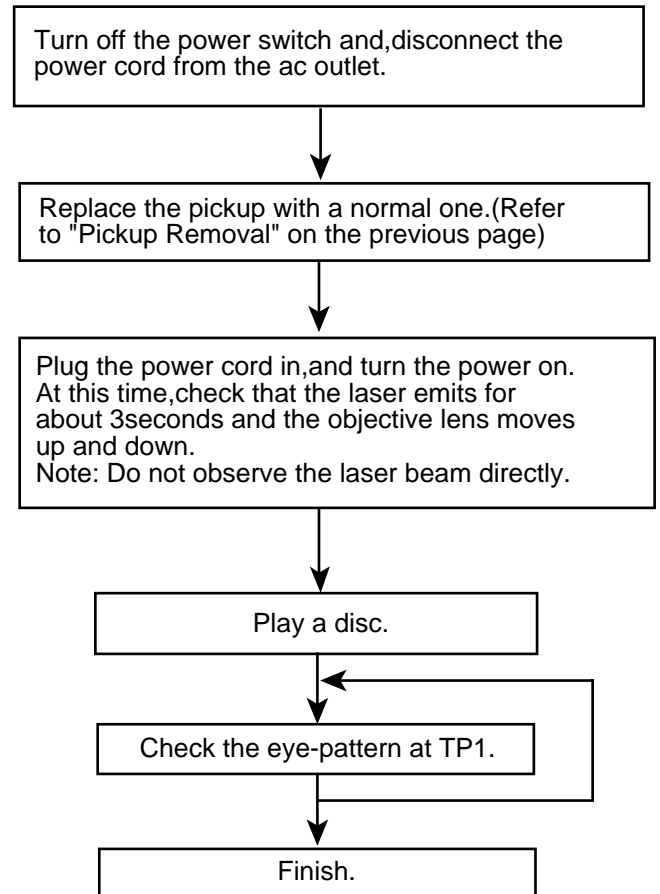
Fig.37

Maintenance of laser pickup

- (1) Cleaning the pick up lens
Before you replace the pick up, please try to clean the lens with a alcohol soaked cotton swab.
- (2) Life of the laser diode
When the life of the laser diode has expired, the following symptoms will appear.
 1. The level of RF output (EFM output:amplitude of eye pattern) will below.

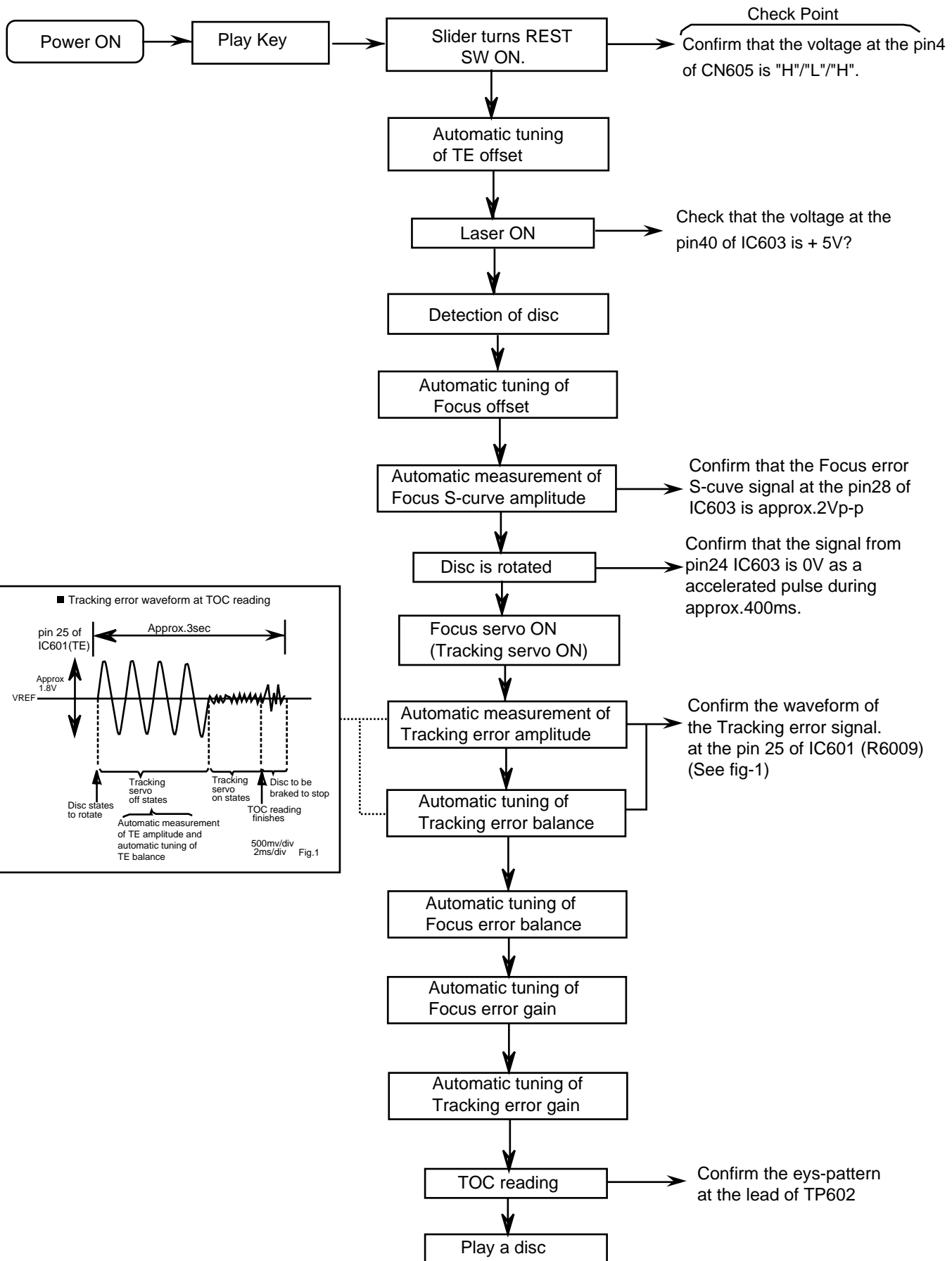


Replacement of laser pickup



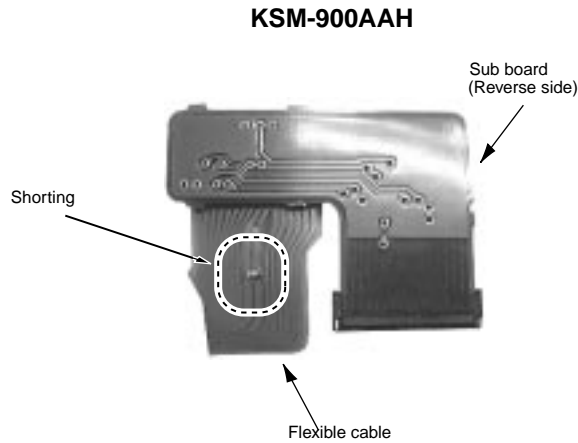
- (3) Semi-fixed resistor on the APC PC board The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power. Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.
If the laser power is lower than the specified value, the laser diode is almost worn out, and the laser pickup should be replaced.
If the semi-fixed resistor is adjusted while the pickup is functioning normally, the laser pickup may be damaged due to excessive current.

Flow of functional operation until TOC read

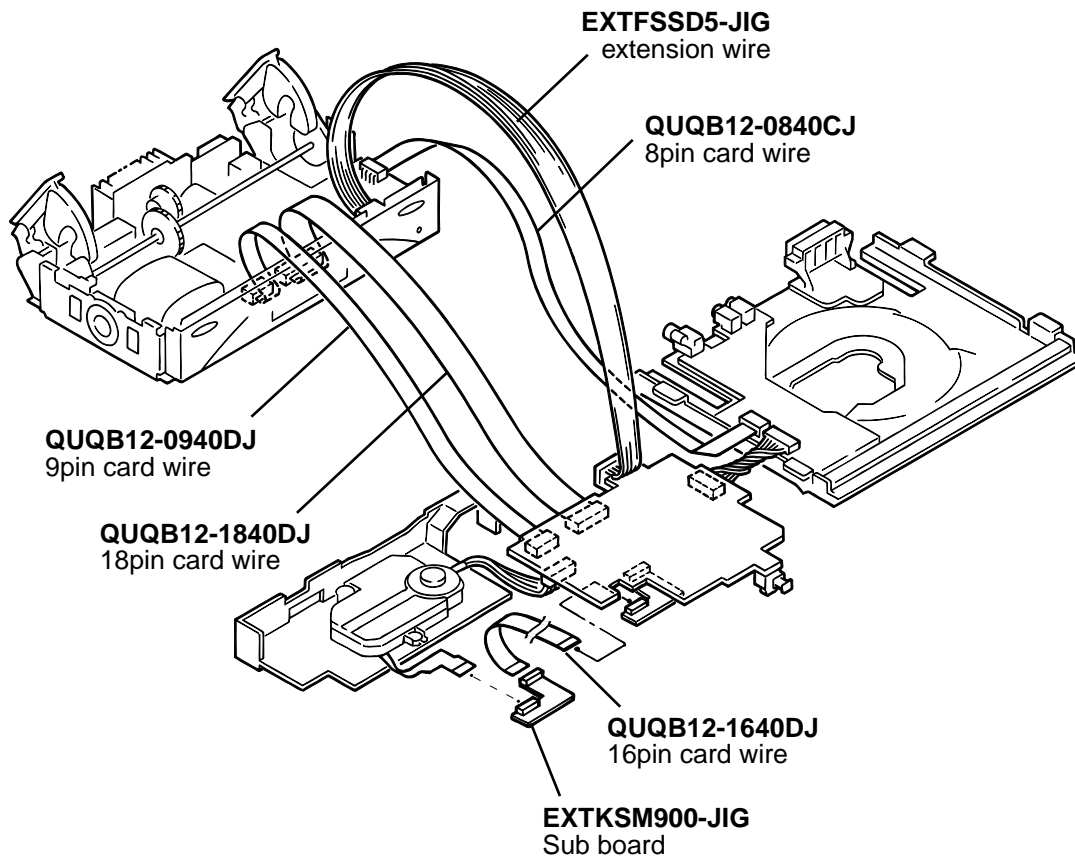


Method of connecting treatment device wire

First short-circuit the pickup circuit before removing the pickup. Then carry out the replacement.
Refer to "Dismantling and assembling the traverse unit" on page 1-5.



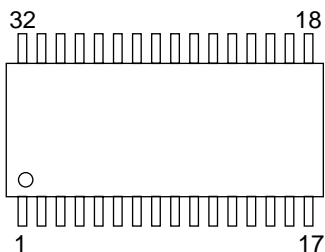
When the KSM-900AAH mechanism is used, the expansion cable is used as follows.



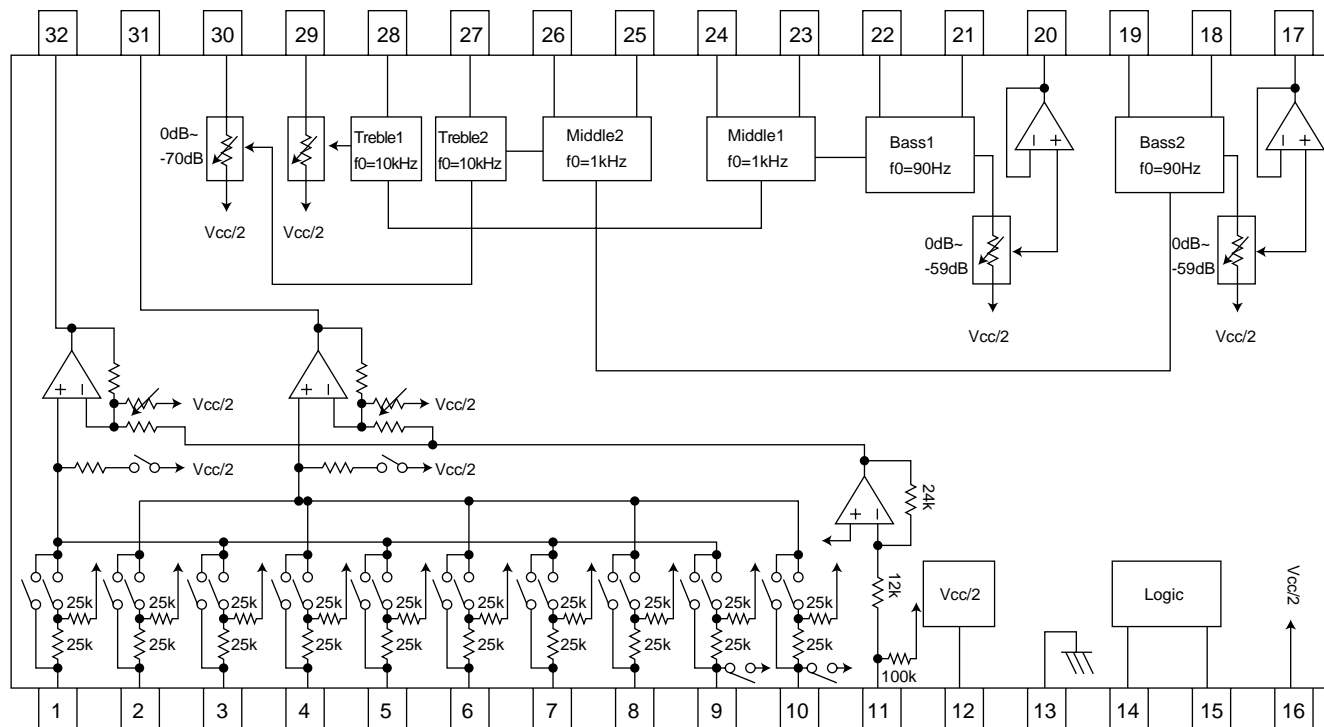
Description of major ICs

■BD3861FS-X (IC501) : Audio sound control

1. Pin layout



2. Block diagram

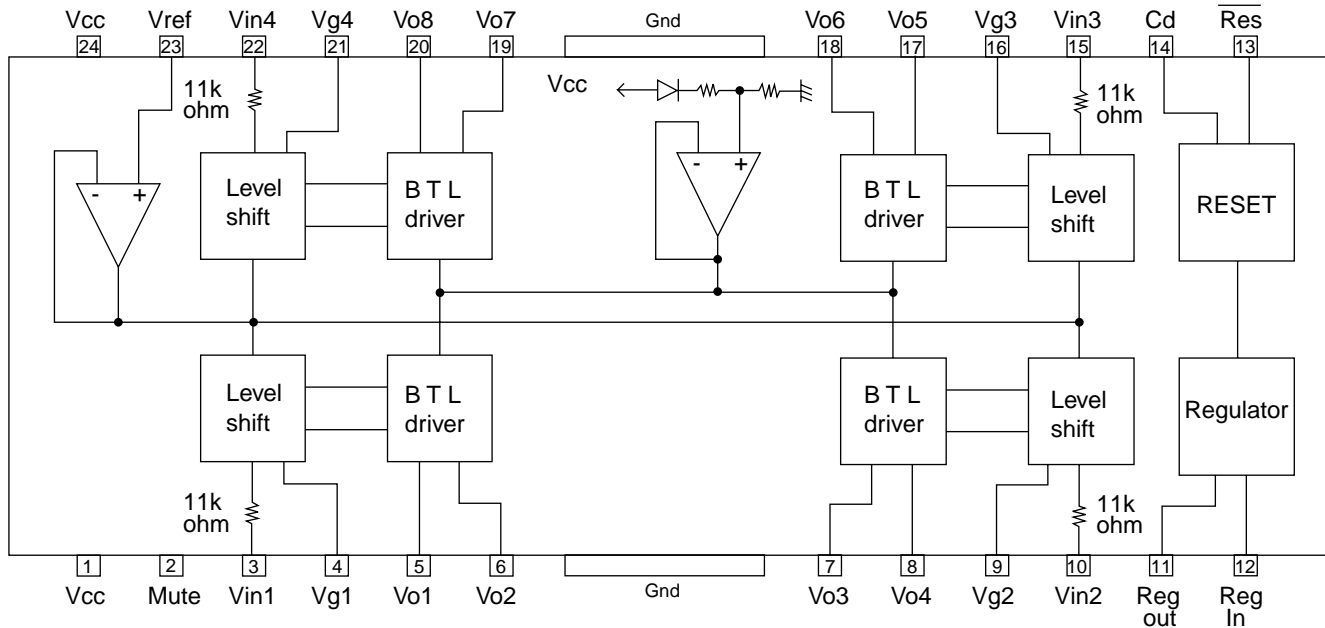


3. Pin function

| Pin No. | Symbol | Function | Symbol | Function | |
|---------|--------|---------------------------------|--------|----------|-------------------------------|
| 1 | A1 | CH1 input pin A | 17 | OUT2 | CH2 output pin |
| 2 | A2 | CH2 input pin A | 18 | BASS21 | CH2 bass filter setting pin |
| 3 | B1 | CH1 input pin B | 19 | BASS22 | CH2 bass filter setting pin |
| 4 | B2 | CH2 input pin B | 20 | OUT1 | CH1 output pin |
| 5 | C1 | CH1 input pin C | 21 | BASS11 | CH1 bass filter setting pin |
| 6 | C2 | CH2 input pin C | 22 | BASS12 | CH1 bass filter setting pin |
| 7 | D1 | CH1 input pin D | 23 | MID11 | CH1 middle filter setting pin |
| 8 | D2 | CH2 input pin D | 24 | MID12 | CH1 middle filter setting pin |
| 9 | E1 | CH1 input pin E | 25 | MID21 | CH2 middle filter setting pin |
| 10 | E2 | CH2 input pin E | 26 | MID22 | CH2 middle filter setting pin |
| 11 | MIC | Microphone input pin | 27 | TRE2 | CH2 treble filter setting pin |
| 12 | FIL | Filter pin | 28 | TRE1 | CH1 treble filter setting pin |
| 13 | GND | Ground pin | 29 | VOL1 | CH1 input volume input pin |
| 14 | DATA | Serial data latch receiving pin | 30 | VOL2 | CH2 input volume input pin |
| 15 | CLK | Serial clock receiving pin | 31 | GOUT2 | CH2 input gain output pin |
| 16 | Vcc | Power supply pin | 32 | GOUT1 | CH1 input gain output pin |

LA6541-X(IC602) : Servo Driver

1. Pin Layout & Block Diagram

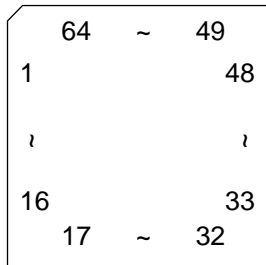


2. Pin functions

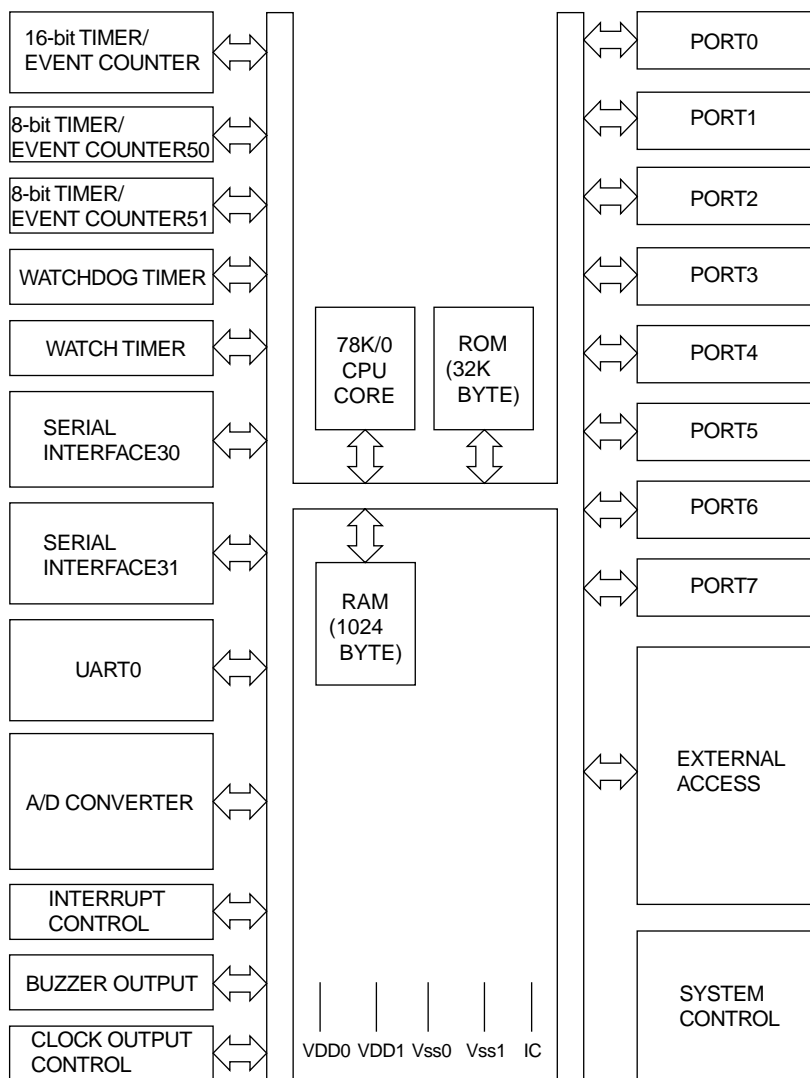
| Pin No. | Symbol | Function |
|---------|---------|------------------------------------------------------------------------|
| 1 | Vcc | Power supply (Shorted to pin 24) |
| 2 | Mute | All BTL amplifier outputs ON/OFF |
| 3 | Vin1 | BTL AMP 1 input pin |
| 4 | Vg1 | BTL AMP 1 input pin (For gain adjustment) |
| 5 | Vo1 | BTL AMP 1 input pin (Non inverting side) |
| 6 | Vo2 | BTL AMP 1 input pin (Inverting side) |
| 7 | Vo3 | BTL AMP 2 input pin (Inverting side) |
| 8 | Vo4 | BTL AMP 2 input pin (Non inverting side) |
| 9 | Vg2 | BTL AMP 2 input pin (For gain adjustment) |
| 10 | Vin2 | BTL AMP 2 input pin |
| 11 | Reg Out | External transistor collector (PNP) connection. 5V power supply output |
| 12 | Reg In | External transistor (PNP) base connection |
| 13 | Res | Reset output |
| 14 | Cd | Reset output delay time setting (Capacitor connected externally) |
| 15 | Vin3 | BTL AMP 3 input pin |
| 16 | Vg3 | BTL AMP 3 input pin (For gain adjustment) |
| 17 | Vo5 | BTL AMP 3 output pin (Non inverting side) |
| 18 | Vo6 | BTL AMP 3 output pin (Inverting side) |
| 19 | Vo7 | BTL AMP 4 output pin (Inverting side) |
| 20 | Vo8 | BTL AMP 4 output pin (Non inverting side) |
| 21 | Vg4 | BTL AMP 4 output pin (For gain adjustment) |
| 22 | Vin4 | BTL AMP 4 output pin |
| 23 | Vref | Level shift circuit's reference voltage application |
| 24 | Vcc | Power supply (Shorted to pin 1) |

■ UPD780024AGKB19(IC701) : CPU

1. Pin layout



2. Block diagram



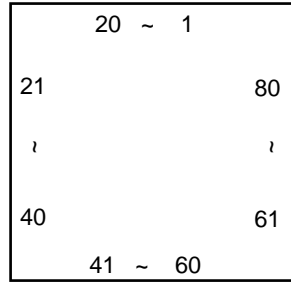
3. Pin function

UPD780024AGKB19

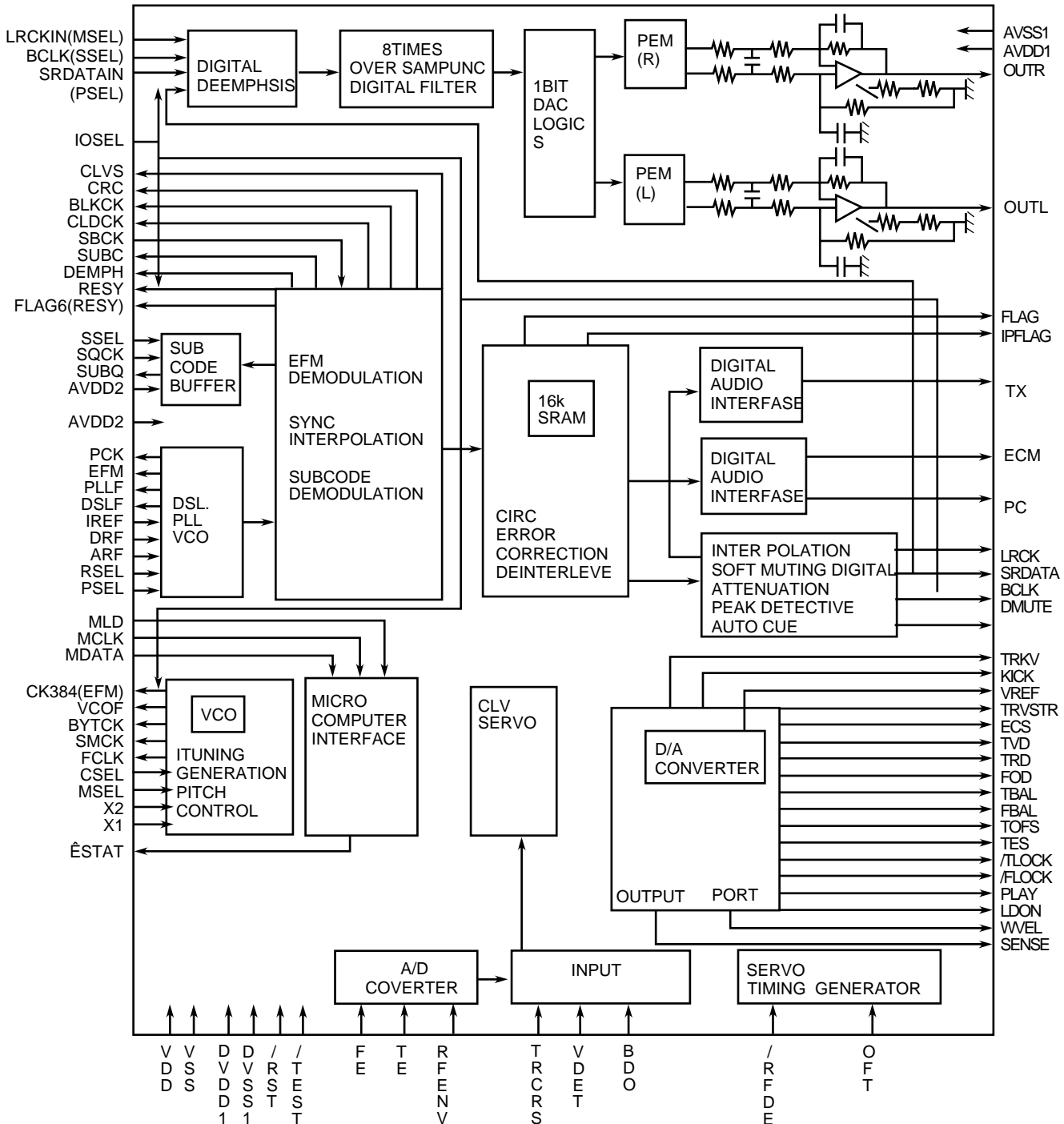
| Pin No. | Symbol | I/O | Function |
|---------|-----------|-----|------------------------------------------------------------|
| 1 | MT0 | O | CD door motor control signal 0 output |
| 2 | MT1 | O | CD door motor control signal 1 output |
| 3 | MTS | O | Motor speed control output (L:Normal, H:Slow) |
| 4 | BLCTL | O | Back light power supply control output |
| 5 | AHB | O | AHB ON/OFF control signal output (L:ON, H:OFF) |
| 6 | SMUTE | O | System mute control signal output |
| 7 | TUST | O | Tuner control strove output |
| 8 | CDLED | O | CD LED control signal output (L:OFF, H:ON) |
| 9 | VSS0 | - | Ground at port section |
| 10 | VDD0 | - | Power supply at port section |
| 11 | MPX | I | Stereo indicator control signal input (L:Stereo) |
| 12 | RDSDI | I | RDS data input |
| 13 | DRMUTE | O | Driver mute output |
| 14 | SCD | I | Voltage detection for safety of CD |
| 15 | TUDATA(I) | I | Tuner control data input |
| 16 | TUDATA(O) | O | Tuner control data output |
| 17 | TUCK | O | Tuner control clock output |
| 18 | SUBQ | I | CD control Q code input |
| 19 | XRST | O | CD control reset signal output |
| 20 | SQCK | O | CD control Q code clock signal output |
| 21 | MLD | O | CD control command load signal output |
| 22 | MDATA | O | CD control command data signal output |
| 23 | MCLK | O | CD control command clock signal output |
| 24 | VDD1 | - | Power supply without port section |
| 25 | AVSS | - | Ground of A/D converter |
| 26 | STAT | I | CD control status signal input |
| 27 | REST | I | CD rest switch detection signal input |
| 28 | KEY1 | I | Main body top section tact switch detection signal input |
| 29 | KEY2 | I | Main body top section tact switch detection signal input |
| 30 | KEY3 | I | Main body front section tact switch detection signal input |
| 31 | SAFETY | I | Voltage detection for safety |
| 32 | LDCK | I | CD door motor lock detection signal input |
| 33 | VERSION | I | Version detection |
| 34 | AVREF | I | Reference voltage input for A/D converter |
| 35 | AVDD | - | Analog power supply for A/D converter |
| 36 | RESET | I | System reset signal input |
| 37 | XT2 | - | Sub clock |
| 38 | XT1 | I | Sub clock signal input 32.768kHz |
| 39 | IC | I | Connect to VSS0 or VSS1 |
| 40 | X2 | - | Main clock |
| 41 | X1 | I | Main clock signal input 4.19MHz |
| 42 | VSS1 | - | Ground without port section |
| 43 | REM | I | Remote controller signal input |
| 44 | RDSCK | I | RDS clock signal input |
| 45 | XKILL | O | Sub clock OSC control signal output |
| 46 | BEAT | O | Main clock shift control signal output |
| 47 | BUP | I | Back up detection signal input |
| 48 | +BCTL | O | Power supply control at back up operating |
| 49 | VDATA | O | BD3861FS (VOL & FUNC IC) control data signal output |
| 50 | VCLK | O | BD3861FS (VOL & FUNC IC) control clock signal output |
| 51 | DOOR1 | I | Cd door position detection switch input |
| 52 | DOOR2 | I | CD door position detection switch input |
| 53 | DOOR3 | I | CD door position detection switch input |
| 54 | LOMUTE | O | LINE OUT muting control signal output |
| 55 | RS | O | LCD driver control resistor select signal output |
| 56 | E | O | LCD driver control enable signal output |
| 57 | D84 | O | LCD driver control data bus signal output |
| 58 | D85 | O | LCD driver control data bus signal output |
| 59 | D86 | O | LCD driver control data bus signal output |
| 60 | D87 | O | LCD driver control data bus signal output |
| 61 | DIMMER | O | Back light DIMMER control signal output |
| 62 | POUT | O | Power supply control signal output for amp section |
| 63 | FTU | O | Power supply control signal output for TUNER function |
| 64 | FCD | O | Power supply control signal output for CD function |

■ MN662748RPM (IC603) : Digital servo & digital signal processor

1. Pin layout



2. Block diagram



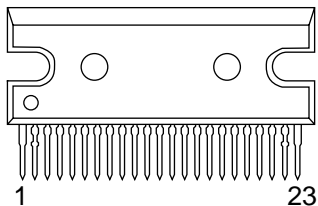
3. Pin function

MN662748RPM(2/2)

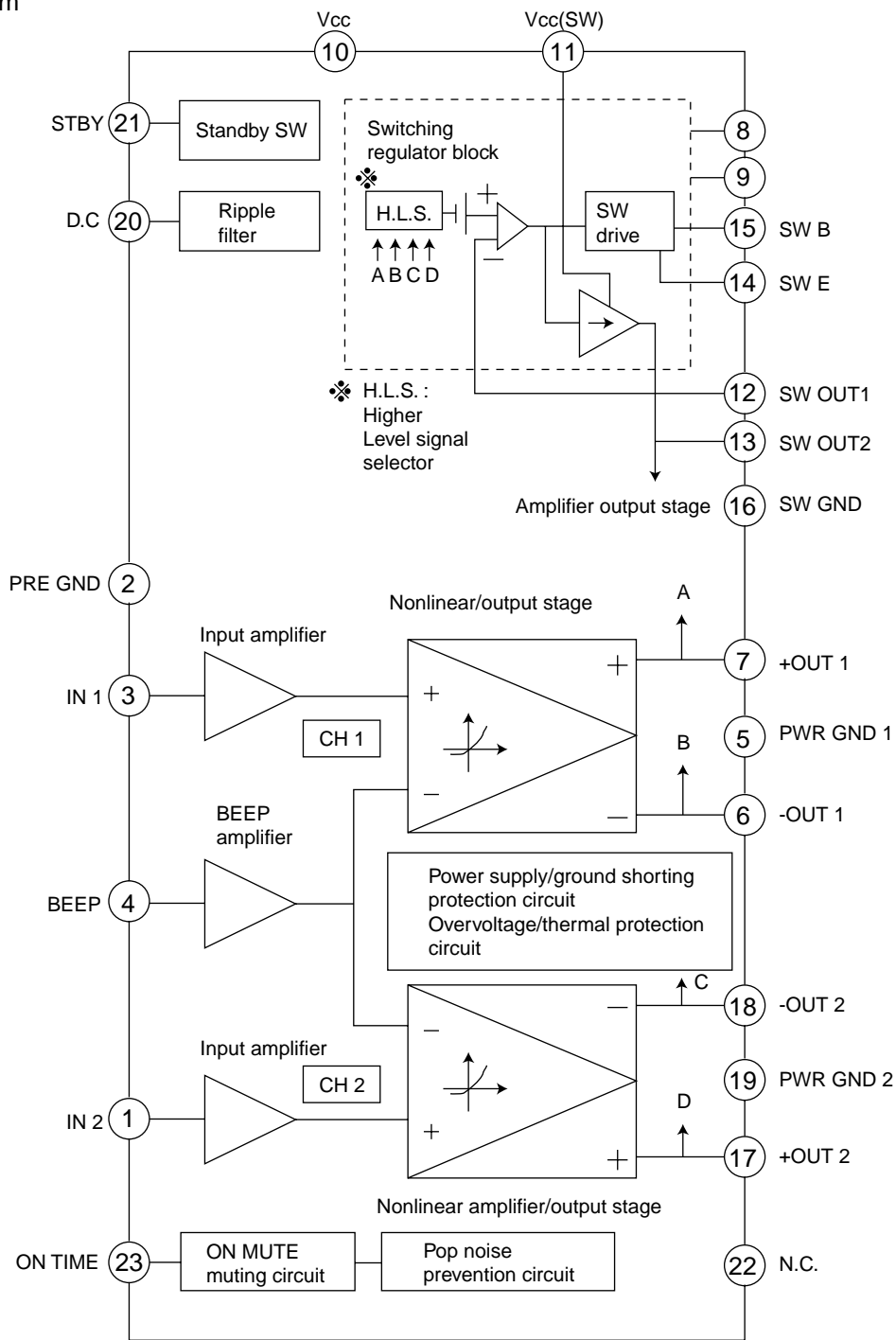
| Pin No. | Dymbol | I/O | Function | Pin No. | Symbol | I/O | Function |
|---------|--------|-----|------------------------------------------------------------------------------|---------|--------|-----|--------------------------------------------------|
| 1 | BCLK | O | Not used | 41 | TES | O | Tracking error shunt signal output (H:shunt) |
| 2 | LRCK | O | Not used | 42 | PLAY | — | Not used |
| 3 | SRDATA | O | Not used | 43 | WVEL | — | Not used |
| 4 | DVDD1 | — | Power supply (Digital) | 44 | ARF | I | RF signal input |
| 5 | DVSS1 | — | Connected to GND | 45 | IREF | I | Reference current input pin |
| 6 | TX | O | Digital audio interface output | 46 | DRF | I | Bias pin for DSL |
| 7 | MCLK | I | CPU command clock signal input (Data is latched at signal's rising point) | 47 | DSLIF | I/O | Loop filter pin for DSL |
| 8 | MDATA | I | CPU command data input | 48 | PLLF | I/O | Loop filter pin for PLL |
| 9 | MLD | I | CPU command load signal input | 49 | VCOF | — | Not used |
| 10 | SENSE | O | Sense signal output | 50 | AVDD2 | — | Power supply (Analog) |
| 11 | FLOCK | O | Focus lock signal output Active :Low | 51 | AVSS2 | — | Connected to GND (Analog) |
| 12 | TLOCK | O | Tracking lock signal output Active :Low | 52 | EFM | — | Not used |
| 13 | BLKCK | O | sub-code/block/clock signal output | 53 | PCK | — | Not used |
| 14 | SQCK | I | Outside clock for sub-code Q resister input | 54 | PDO | — | Not used |
| 15 | SUBQ | O | Sub-code Q -code output | 55 | SUBC | — | Not used |
| 16 | DMUTE | — | Connected to GND | 56 | SBCK | — | Not used |
| 17 | STATUS | O | Status signal (CRC,CUE,CLVS,TTSTOP,ECLV,SQOK) | 57 | VSS | — | Connected to GND (for X'tal oscillation circuit) |
| 18 | RST | I | Reset signal input (L:Reset) | 58 | X1 | I | Input of 16.9344MHz X'tal oscillation circuit |
| 19 | SMCK | — | Not used | 59 | X2 | O | Output of X'tal oscillation circuit |
| 20 | PMCK | — | Not used | 60 | VDD | — | Power supply (for X'tal oscillation circuit) |
| 21 | TRV | O | Traverse enforced output | 61 | BYTCK | — | Not used |
| 22 | TVD | O | Traverse drive output | 62 | CLDCK | — | Not used |
| 23 | PC | — | Not used | 63 | FLAG | — | Not used |
| 24 | ECM | O | Spindle motor drive signal (Enforced mode output) 3-State | 64 | IPPLAG | — | Not used |
| 25 | ECS | O | Spindle motor drive signal (Servo error signal output) | 65 | FLAG | — | Not used |
| 26 | KICK | O | Kick pulse output | 66 | CLVS | — | Not used |
| 27 | TRD | O | Tracking drive output | 67 | CRC | — | Not used |
| 28 | FOD | O | Focus drive output | 68 | DEMPH | — | Not used |
| 29 | VREF | I | Reference voltage input pin for D/A output block (TVD,FOD,FBA,TBAL) | 69 | RESY | — | Not used |
| 30 | FBAL | O | Focus Balance adjust signal output | 70 | IOSEL | — | pull up |
| 31 | TBAL | O | Tracking Balance adjust signal output | 71 | TEST | — | pull up |
| 32 | FE | I | Focus error signal input (Analog input) | 72 | AVDD1 | — | Power supply (Digital) |
| 33 | TE | I | Tracking error signal input (Analog input) | 73 | OUT L | O | Lch audio output |
| 34 | RF ENV | I | RF envelope signal input (Analog input) | 74 | AVSS1 | — | Connected to GND |
| 35 | VDET | I | Vibration detect signal input (H:detect) | 75 | OUT R | O | Rch audio output |
| 36 | OFT | I | Off track signal input (H:off track) | 76 | RSEL | — | pull up |
| 37 | TRCRS | I | Track cross signal input | 77 | CSEL | — | Connected to GND |
| 38 | RFDET | I | RF detect signal input (L:detect) | 78 | PSEL | — | Connected to GND |
| 39 | BDO | I | BDO input pin (L:detect) | 79 | MSEL | — | Connected to GND |
| 40 | LDON | O | Laser ON signal output (H:on) | 80 | SSEL | — | Pull up |

LA4905 (IC301) : 2ch BTL power IC

1. Pinlayput

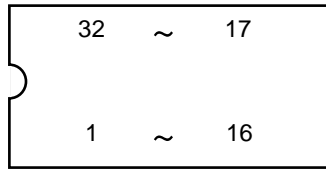


2. Block diagram

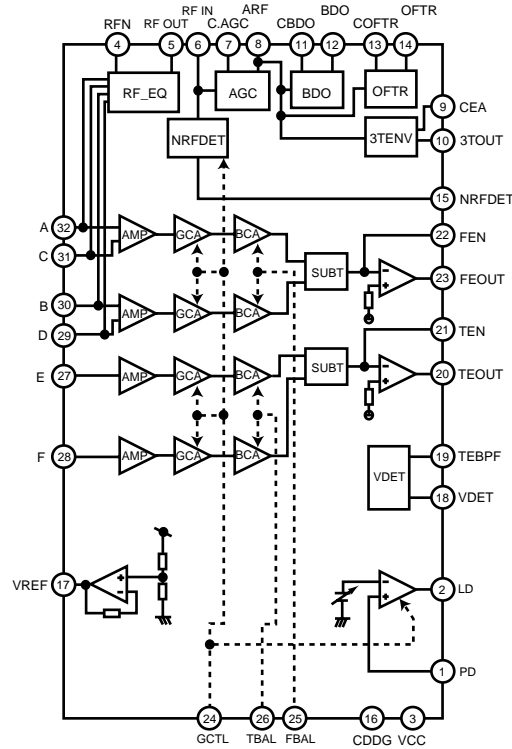


■AN22000A(IC601):RF & SERVO AMP

1. Pin layout



2. Block diagram

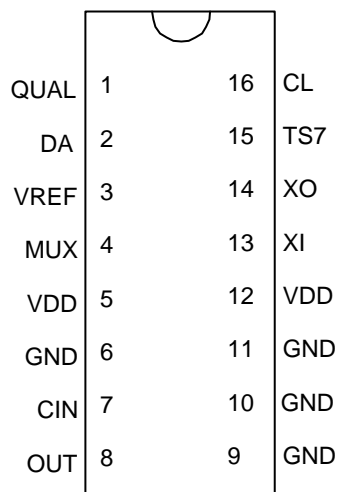


3. Function

| Pin No. | Symbol | Function | Pin No. | Symbol | Function |
|---------|--------|-------------------------------------------------------------------------|---------|--------|----------------------------------|
| 1 | PD | APC Amp. Input terminal | 16 | CDDG | Earth terminal |
| 2 | LD | APC Amp. Output terminal | 17 | VREF | VREF output terminal |
| 3 | VCC | Power supply terminal | 18 | VDET | VDET output terminal |
| 4 | RFN | RF addition Amp. Reversing input terminal | 19 | TEBPF | VDET input terminal |
| 5 | RF OUT | RF addition Amp. Output terminal | 20 | TEOUT | TE Amp. output terminal |
| 6 | RF IN | AGC input terminal | 21 | TEN | TE Amp. reversing input terminal |
| 7 | C.AGC | Terminal of connection of capacity of AGC loop filter. | 22 | FEN | FE Amp. reversing input terminal |
| 8 | ARF | AGC output terminal | 23 | FEOUT | FE Amp. output terminal |
| 9 | CEA | Capacity connection terminal for HPF-Amp. | 24 | GCTL | Terminal GCTL & APC |
| 10 | 3TOUT | 3TENV output terminal | 25 | FBAL | FBAL control terminal |
| 11 | CBDO | Capacity connection terminal for RF shade side envelope detection | 26 | TBAL | TBAL control terminal |
| 12 | BDO | BDO output terminal | 27 | E | Tracking signal input terminal 1 |
| 13 | COFTR | Capacity connection terminal for RF discernment side envelope detection | 28 | F | Tracking signal input terminal 2 |
| 14 | OFTR | OFTR output terminal | 29 | D | Focus signal input terminal 4 |
| 15 | NRFDET | NRFDET output terminal | 30 | B | Focus signal input terminal 2 |
| | | | 31 | C | Focus signal input terminal 3 |
| | | | 32 | A | Focus signal input terminal 1 |

■ BU1923(IC4) : RDS detector

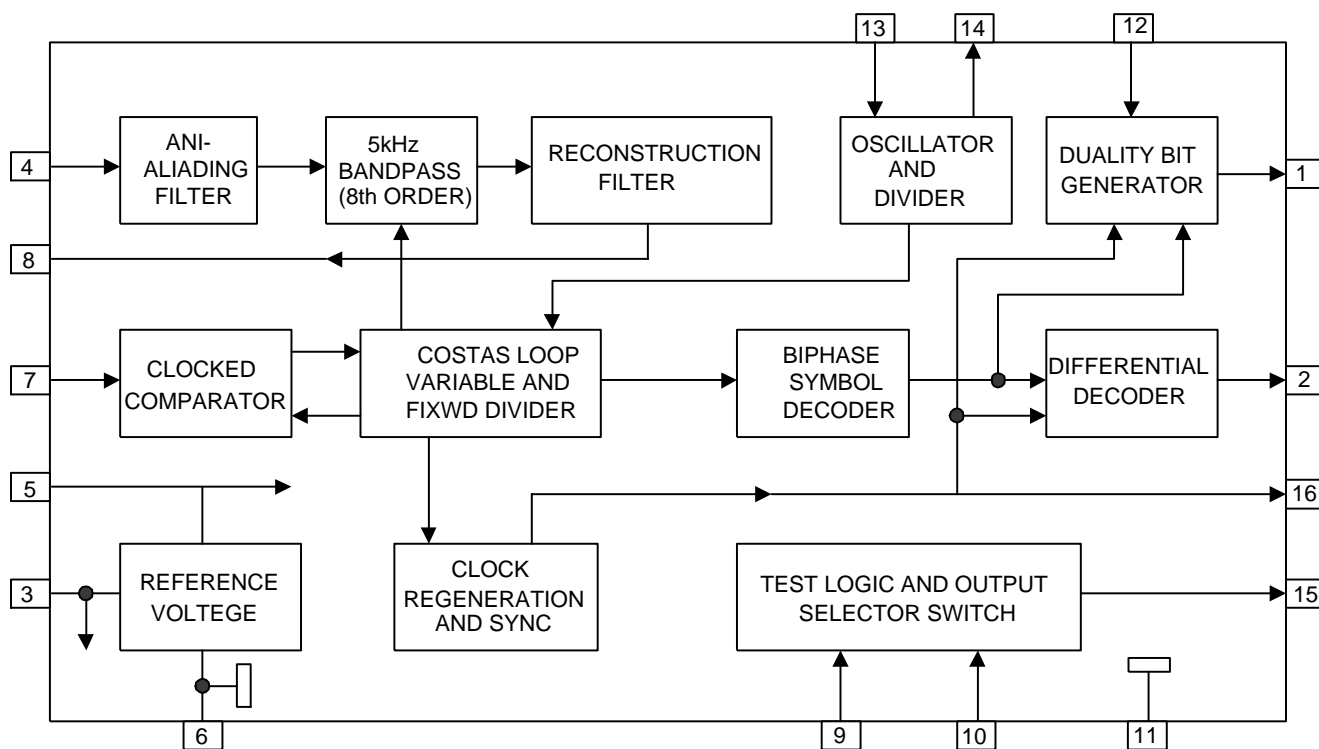
1.Terminal Layout



2.Pin Function

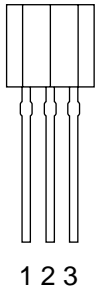
| Pin No | Symbol | I/O | Function |
|--------|--------|-----|---------------------------------------------|
| 1 | QUAL | -- | Non connection |
| 2 | DA | O | RDS data output |
| 3 | VREF | O | Reference voltage output |
| 4 | MUX | I | Multiplex signal input |
| 5 | VDD | -- | +5Vsupply voltage for analog |
| 6 | GND | -- | Ground for analog part(0V) |
| 7 | CIN | I | Sub carrier output of reconstruction filter |
| 8 | OUT | O | Ground for digital part(0V) |
| 9 | GND | -- | Ground for digital part(0V) |
| 10 | GND | -- | Ground for digital part(0V) |
| 11 | GND | -- | Ground for digital part(0V) |
| 12 | VDD | -- | +5Vsupply voltage for digital part |
| 13 | XI | I | Oscillator input |
| 14 | XO | O | Oscillator output |
| 15 | TS7 | -- | Non connection |
| 16 | CL | O | RDS clock output |

3.Block Diagram

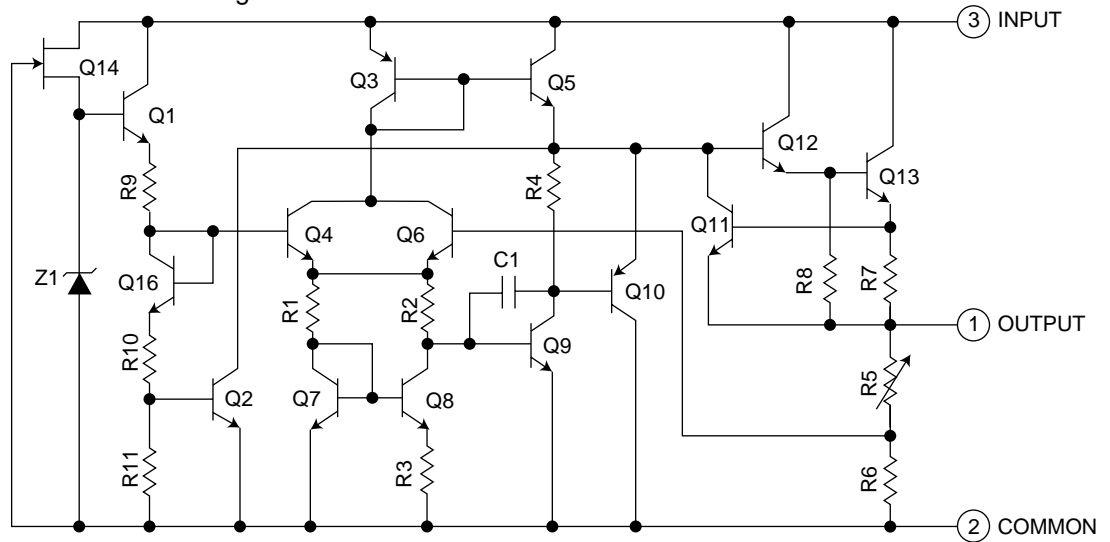


■ KIA78S06P-T (IC702) : Regulator

1. Pin layout

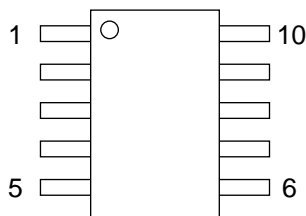


2. Block diagram



■ TA8409F-W (IC108) : Bridge driver

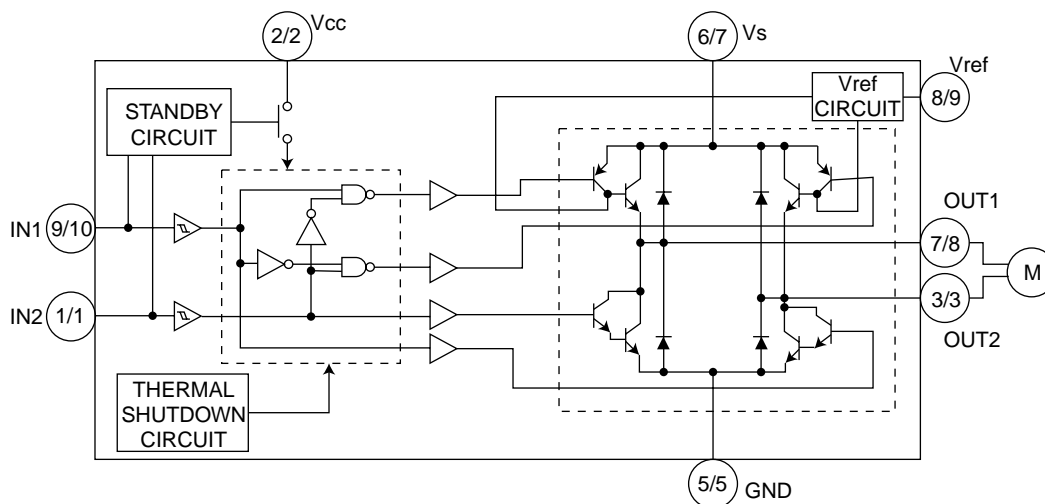
1. Pin layout



2. Pin function

| Pin No. | SYMBOL | FUNCTION |
|---------|--------|------------------------------------------------|
| 1 | IN2 | Input terminal |
| 2 | Vcc | Supply voltage terminal for logic |
| 3 | OUT2 | Output terminal |
| 4 | NC | Non connection |
| 5 | GND | GND terminal |
| 6 | NC | Non connection |
| 7 | Vs | Supply voltage terminal for motor driver |
| 8 | OUT1 | Output terminal |
| 9 | Vref | Reference voltage terminal for control circuit |
| 10 | IN1 | Input terminal |

3. Block diagram

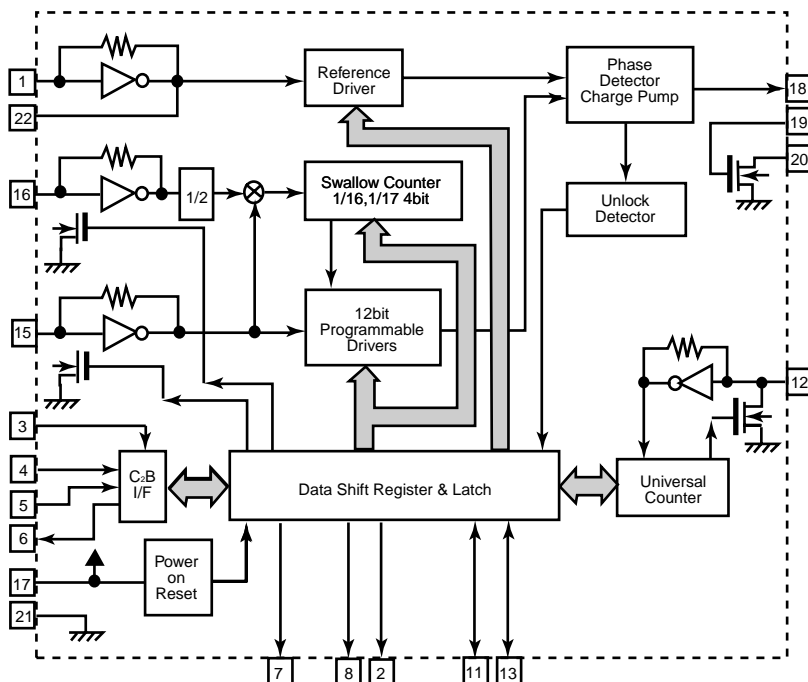


■ LC72136N (IC2) : PLL Frequency synthesizer

1. Pin layout

| | | | |
|-----------|----|----|--------|
| XT | 1 | 22 | XT |
| FM/AM | 2 | 21 | GND |
| CE | 3 | 20 | LPFOUT |
| DI | 4 | 19 | LPFIN |
| CLOCK | 5 | 18 | PD |
| DO | 6 | 17 | VCC |
| FM/ST/VCO | 7 | 16 | FMIN |
| AM/FM | 8 | 15 | AMIN |
| | 9 | 14 | |
| | 10 | 13 | IFCONT |
| SDIN | 11 | 12 | IFIN |

2. Block

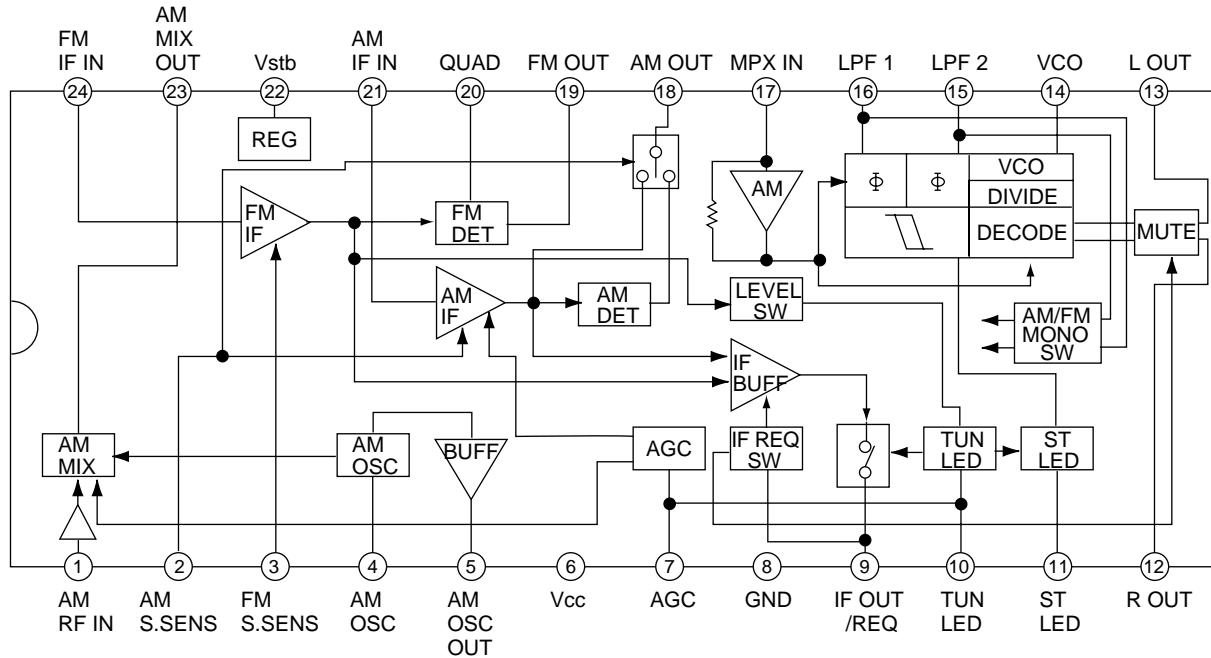


3. Function

| Pin No. | Symbol | I/O | Function | Pin No. | Symbol | I/O | Function |
|---------|-----------|-----|------------------------------------------------------------|---------|--------|-----|-----------------------------------------------------------------------------------------------------------------------|
| 1 | XT | I | X'tal oscillator connect (75kHz) | 12 | IFIN | I | IF counter signal input |
| 2 | FM/AM | O | LOW:FM mode | 13 | IFCONT | O | IF signal output |
| 3 | CE | I | When data output/input for 4pin(input) and 6pin(output): H | 14 | - | - | Not use |
| 4 | DI | I | Input for receive the serial data from controller | 15 | AMIN | I | AM Local OSC signal output |
| 5 | CLOCK | I | Sync signal input use | 16 | FMIN | I | FM Local OSC signal input |
| 6 | DO | O | Data output for Controller Output port | 17 | VCC | - | Power supply(VDD=4.5-5.5V) When power ON:Reset circuit move |
| 7 | FM/ST/VCO | O | "Low": MW mode | 18 | PD | O | PLL charge pump output(H: Local OSC frequency Height than Reference frequency. L: Low Agreement: Height impedance) |
| 8 | AM/FM | O | Open state after the power on reset | 19 | LPFIN | I | Input for active lowpassfilter of PLL |
| 9 | LW | I/O | Input/output port | 20 | LPFOUT | O | Output for active lowpassfilter of PLL |
| 10 | MW | I/O | Input/output port | 21 | GND | - | Connected to GND |
| 11 | SDIN | I/O | Data input/output | 22 | XT | I | X'tal oscillator(75KHz) |

■ TA2057N (IC1) : FM/AM IF AMP & Detector

1. Block Diagrams

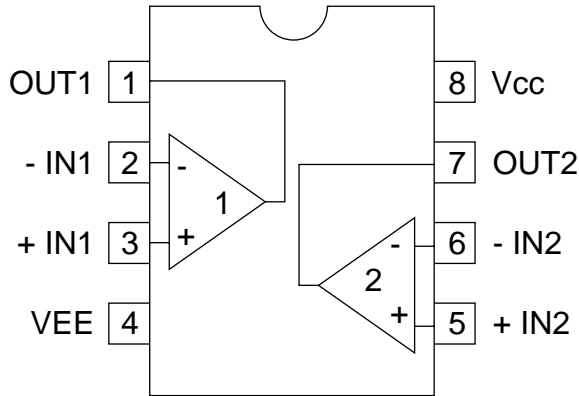


2. Pin Function

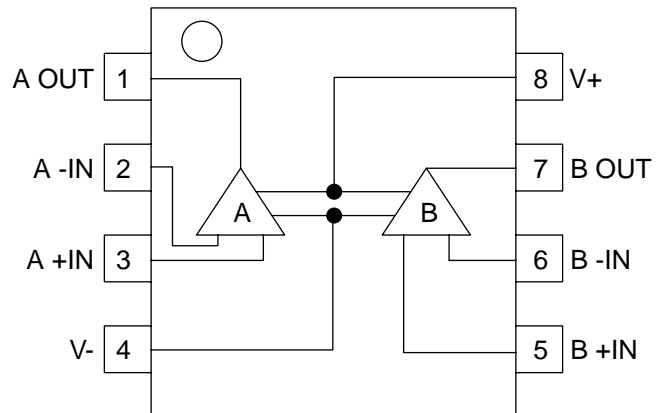
| Pin No. | I/O | Symbol | Function | Pin No. | I/O | Symbol | Function |
|---------|-----|------------|------------------------------------------------|---------|-----|------------|-------------------------------------------------------|
| 1 | I | AM RF | AMRF signal input | 13 | O | Lch OUT | Output Lch |
| 2 | | AM S.SENS | | 14 | O | VCO | Voltage controlled terminal |
| 3 | | FM S.SENS | | 15 | O | LPF2 | When voltage of terminal is MONO at "H" and ST at "L" |
| 4 | - | AM OSC | AM local oscillation circuit | 16 | O | LPF1 | When voltage of terminal is AM at "H" and FM at "L" |
| 5 | O | AM OSC OUT | AM local oscillation signal output | 17 | I | MPX IN | Multi plex signal input |
| 6 | - | VCC | Power supply | 18 | O | AM OUT | AM detection signal output |
| 7 | I | AGC | AGC voltage input terminal | 19 | O | FM OUT | FM detection signal output |
| 8 | - | GND | Connect to GND | 20 | I | FM QUAD | Bypass to FMIF |
| 9 | O | IF OUT | IF REQ signal output to IC2 | 21 | I | AM IF IN | Input of AMIF signal |
| 10 | O | TU IND | Indicator drive output when tuning | 22 | - | Vst | Fixed voltage output terminal |
| 11 | O | ST IND | Stereo indicator output "H"mono . "L"stereo | 23 | O | AM MIX OUT | Output terminal for AM mixer |
| 12 | O | Rch OUT | Output Rch | 24 | I | FM IF IN | Input of FMIF signal |

■ **BA15218F-XE (IC102) : Dual op. amp.** ■ **NJM4580D-D (IC101) : Dual op. amp.**

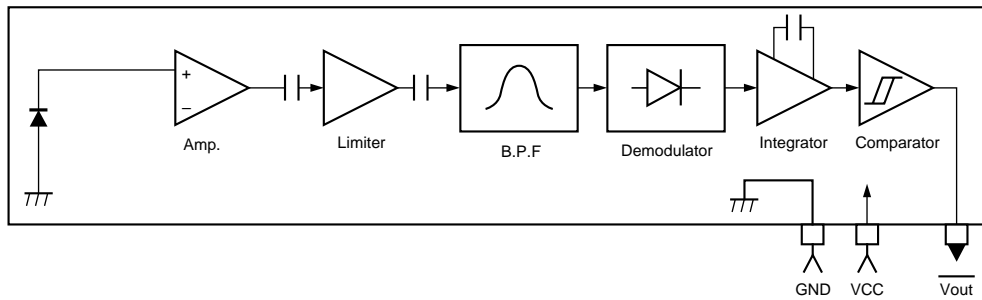
1. Pin layout & Block diagram



1. Pin layout & Block diagram

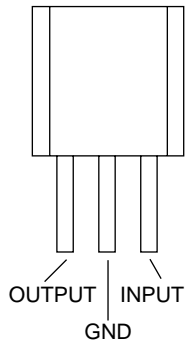


■ **GP1U271X (IC801) : Receiver for remote**

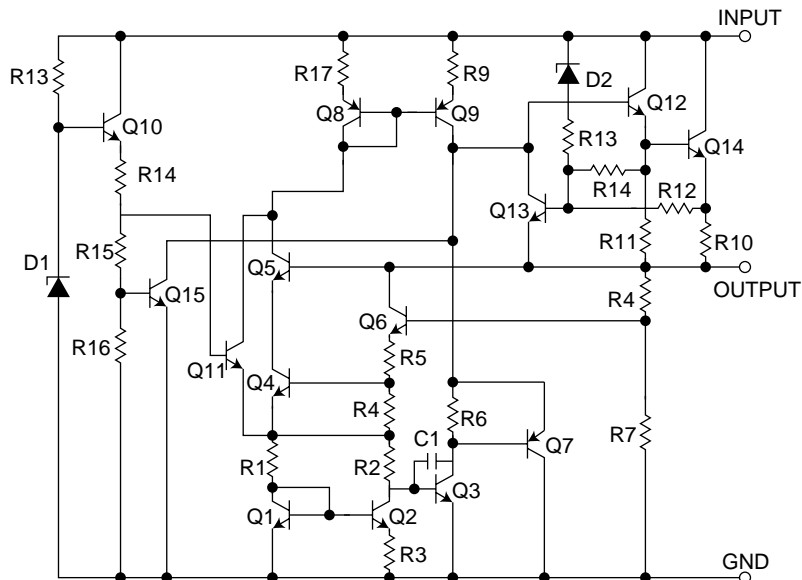


■ **UPC78L05J-T (IC191) : Regulator**

1. Pin layout



2. Block diagram



FS-SD990R / FS-SD770R
FS-SD550R

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