

# JVC

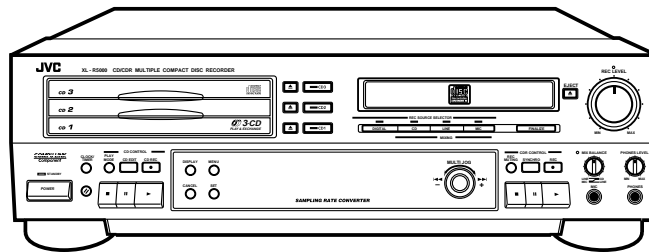
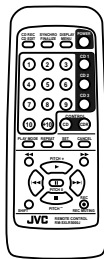
# SERVICE MANUAL

CD/CDR MULTIPLE COMPACT DISC RECORDER

## XL-R5000BK

**Area Suffix**

**U** ..... Other Areas



### Contents

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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.

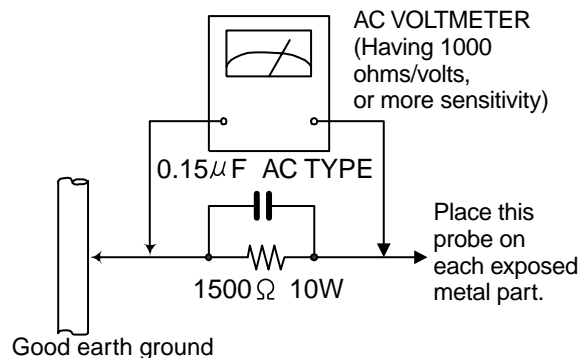
- Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA 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 $\Omega$  10W resistor paralleled by a 0.15 $\mu$ 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. voltage measured Any 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 preforming repair of this system.

# 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 laserradiation 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.

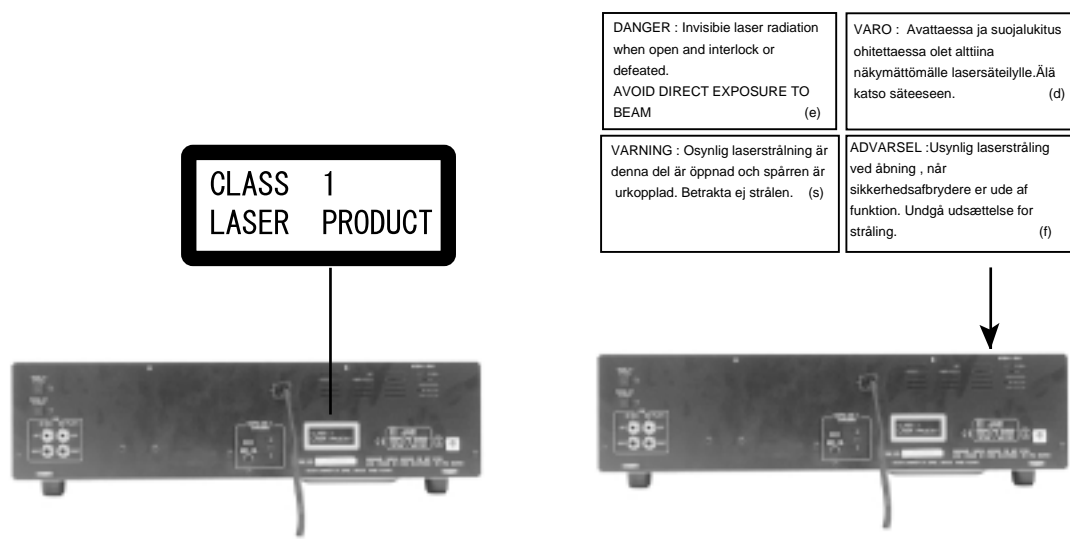
	<p><b>CAUTION</b> Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.</p>
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**VARNING :** Osynlig laserstrålning är denna del är öppnad och spårren är urkopplad. Betrakta ej strålen.  
**VARO :** Avattaessa ja suojalukitus ohitettaessa olet alltiina 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 sikkerhedsbryteren er avslott. unngå utsettelse for stråling.

## REPRODUCTION AND POSITION OF LABELS

### WARNING LABEL



## 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

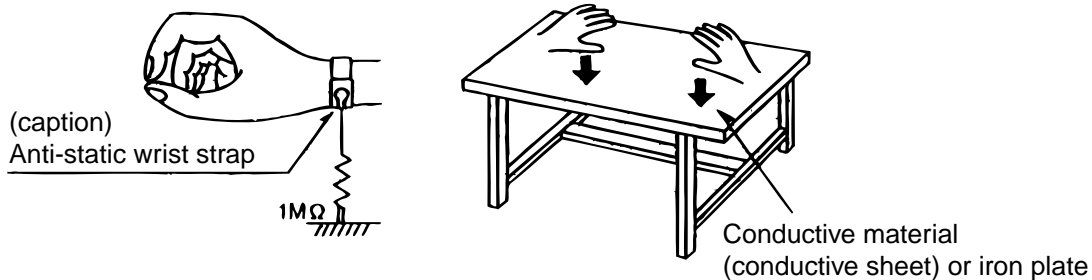
Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as DVD players. Be careful to use proper grounding in the area where repairs are being performed.

#### 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

# Disassembly method

## <Main Body>

### ■ Removing the top cover

(See Fig.1 and 2)

1. Remove the four screws A on both sides of the body.
2. Remove the two screws B on the back of the body.
3. Remove the top cover from behind in the direction of the arrow while pulling the lower part of the top cover sides outwards.

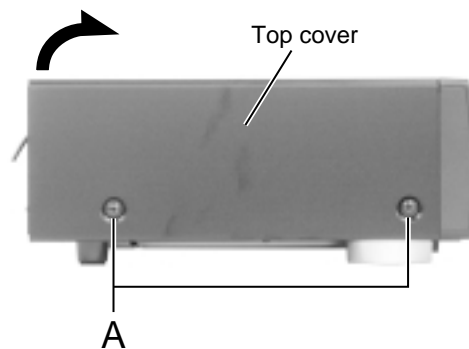


Fig.1

### ■ Removing the CD changer mechanism assembly (See Fig.3 and 4)

- Prior to performing the following procedure, remove the top cover.
1. Disconnect the card wire from connector CN811 on the main board.
  2. Remove the four screws C attaching the CD changer mechanism assembly.
  3. Remove the CD changer mechanism assembly backward, then upward.

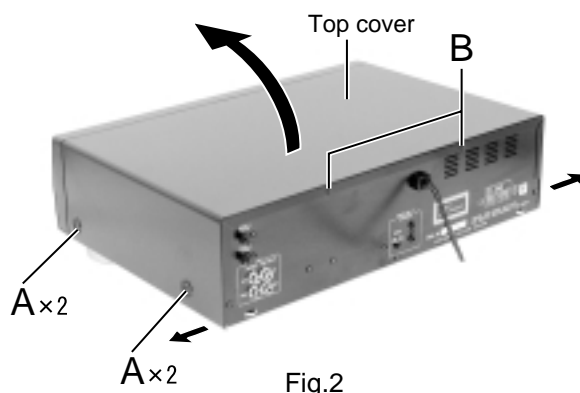


Fig.2

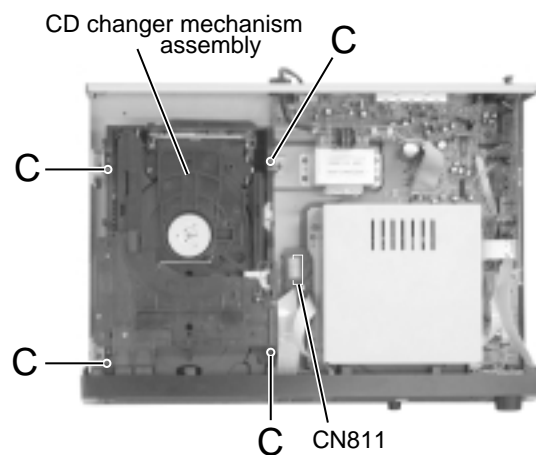


Fig.3

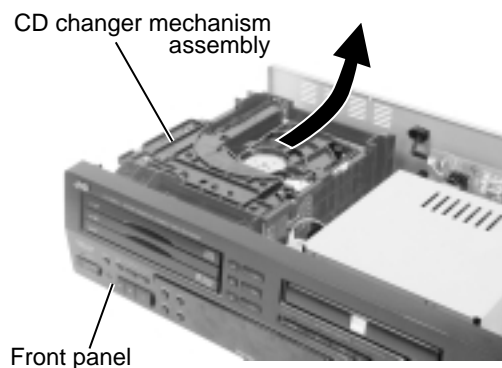


Fig.4

**■Removing the front panel assembly  
(See Fig.5 to 9)**

• Prior to performing the following procedure, remove the top cover.

1. Disconnect the card wires from connector CN501, CN502, CN841, CN842 and CN861 on the main board.
2. Remove the screw D attaching the microphone & headphone board to the base chassis.
3. Remove the five screws E attaching the front panel assembly at the bottom of the body.
4. Release the two joints a on both sides and the two joints b on the bottom of the front panel assembly using a screwdriver. Then remove the front panel assembly toward the front.

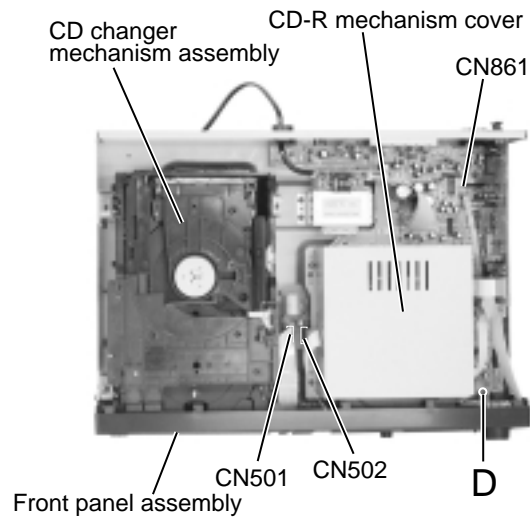


Fig.5

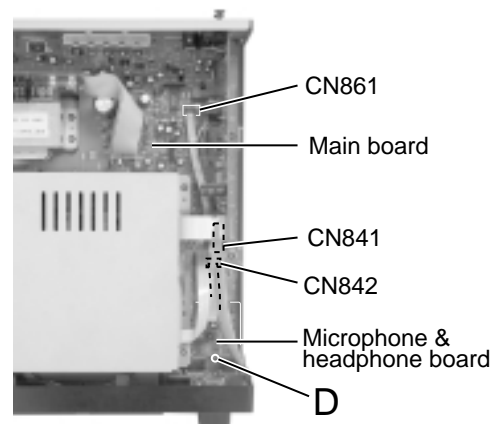


Fig.6

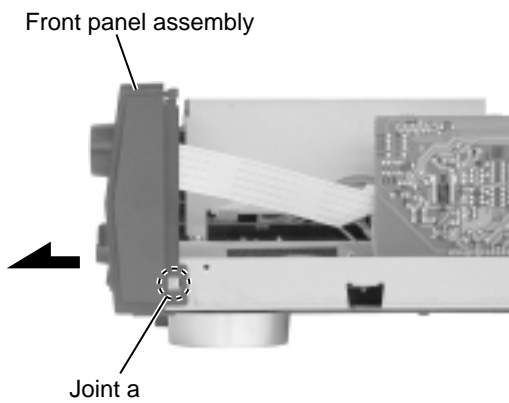


Fig.8

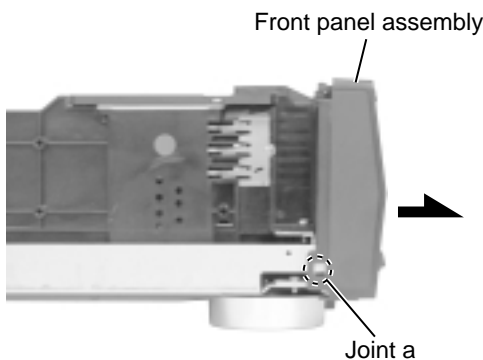


Fig.9

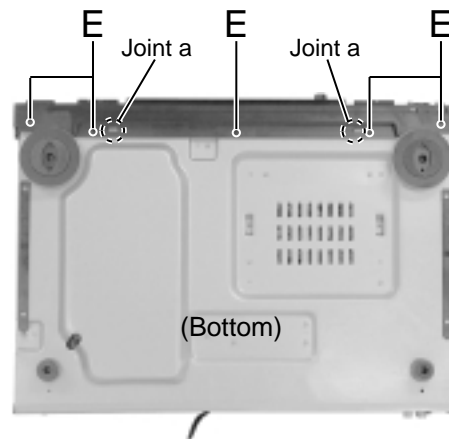


Fig.7

**■Removing the CD mechanism assembly  
(See Fig.10 to 13)**

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

1. Remove the four screws F attaching the CD-R mechanism cover.
2. Disconnect the card wires from connector CN501 and CN601, and the harnesses from CN502 and CN701 of the servo board on the left side of the CD mechanism assembly.
3. Spin the dial on the front of the CD-R mechanism assembly as shown in the figure and draw the tray assembly toward the front.
4. Move the tray assembly until it stops.
5. Remove the two screws G and the two screws H attaching the CD-R mechanism assembly.

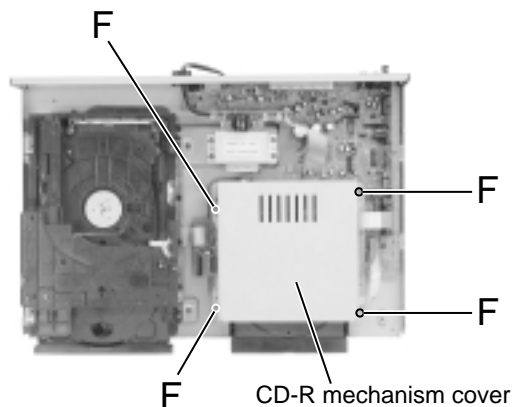


Fig.10

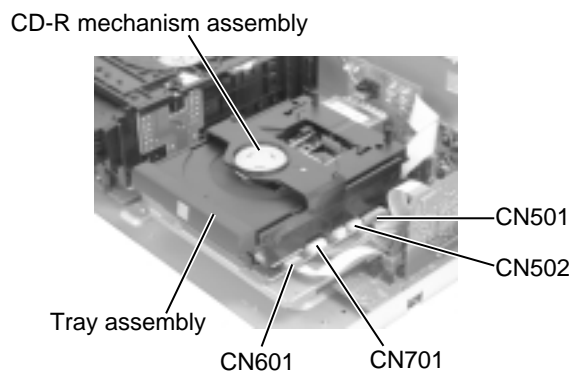


Fig.11

**■Removing the rear panel (See Fig.14)**

• Prior to performing the following procedure, remove the top panel.

1. Remove the seven screws I and the three screws J on the back of the body.

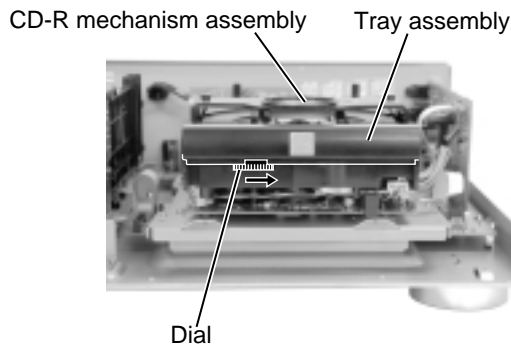


Fig.12

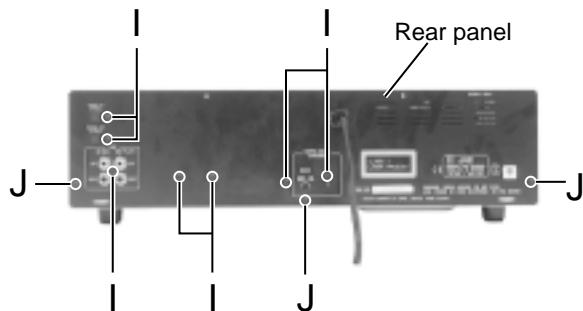


Fig.14

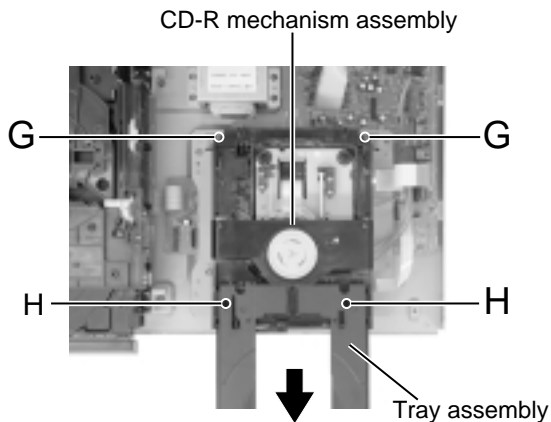


Fig.13

**■Removing the power transformer  
(See Fig.15)**

· Prior to performing the following procedure, remove the top panel.

1. Unsolder the terminal CN1 and CN2 on the power transformer board. Cut off the tie band and disconnect the power cord.
2. Disconnect the harness from connector CN901 and CN902 on the main board.
3. Remove the four screws K attaching the power transformer.

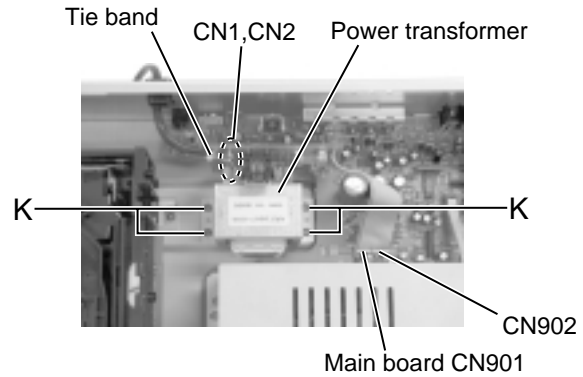


Fig.15

**■Removing the external control board  
(See Fig.16)**

· Prior to performing the following procedure, remove the top panel and the rear panel.

1. Disconnect the card wire from connector CN506 and the harness from CN802 on the external control board.
2. Disconnect connector CN351 and CN361 on the external control board from the main board.

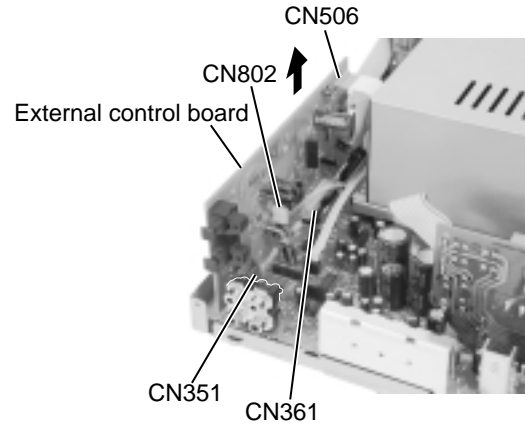


Fig.16

**■Removing the main board  
(See Fig.17 and 18)**

· Prior to performing the following procedure, remove the top panel, the front panel, the CD-R mechanism assembly and the rear panel.

1. Remove the four screws L attaching the CD-R mechanism base.
2. Disconnect the card wire from connector CN811 and the harnesses from CN901 and CN902 on the main board.
3. Remove the four screws M attaching the main board. If necessary, remove the external control board.

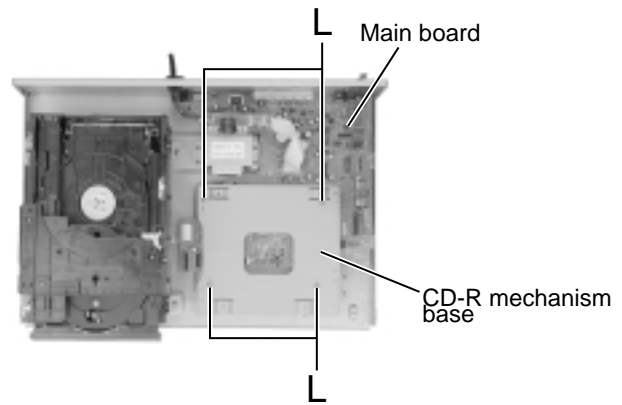


Fig.17

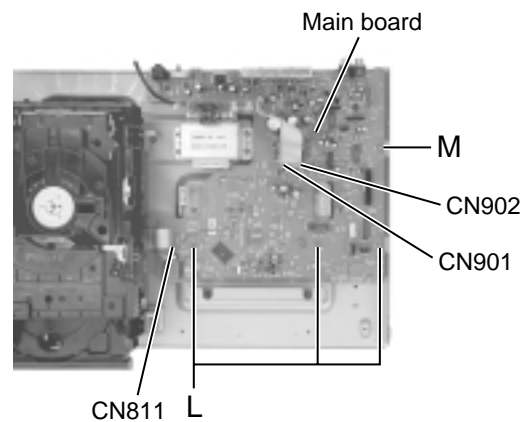


Fig.18



**<Front panel assembly>**

- Prior to performing the following procedure, remove the top cover and the front panel assembly.

**■Removing the operation switch board / the display board (See Fig.19 and 20)**

1. Disconnect the relay board.
2. Remove the five screws N and the operation switch board from the front panel.
3. Pull out the two control knobs, the REC LEVEL knob and the MULTI JOG knob respectively.
4. Remove the ten screws O and the display board from the front panel.

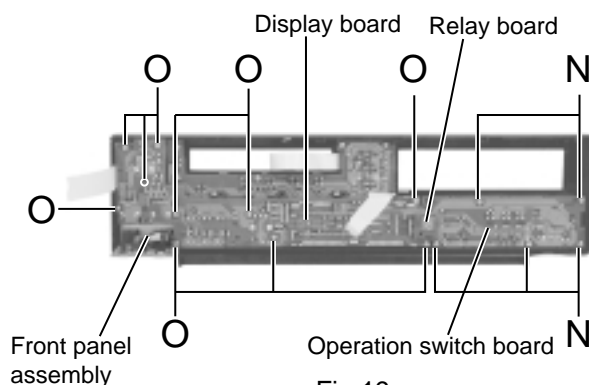


Fig.19

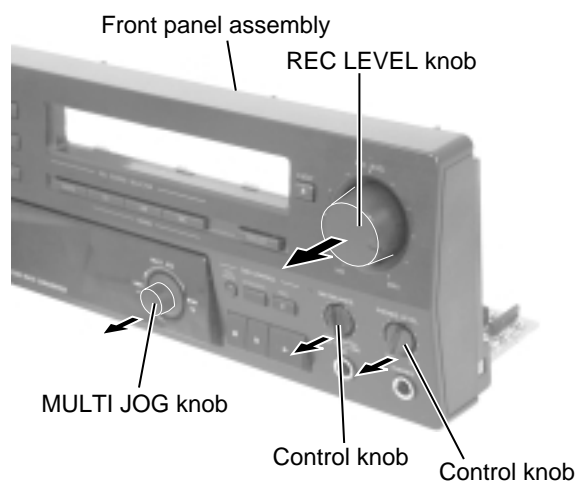


Fig.20

**■Removing the operation switch board (See Fig.21)**

- Prior to performing the following procedure, remove the relay board and the display board.

1. Remove the eight screws P and the operation switch board from the front panel.

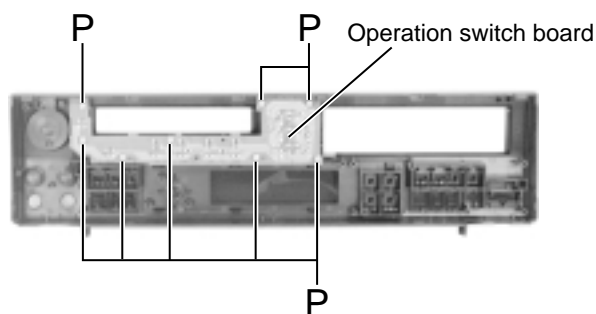
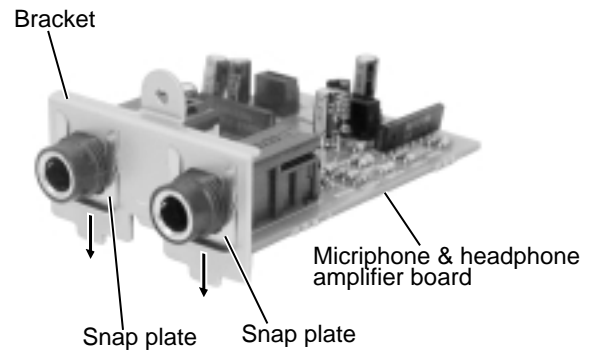
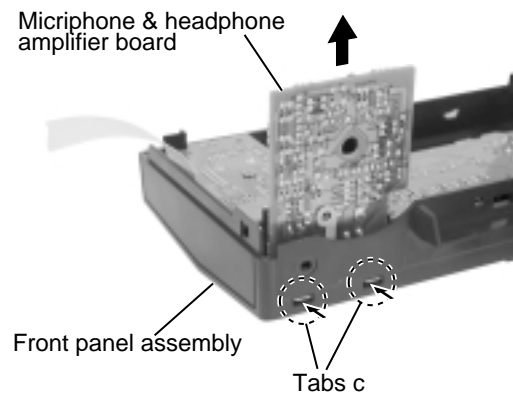
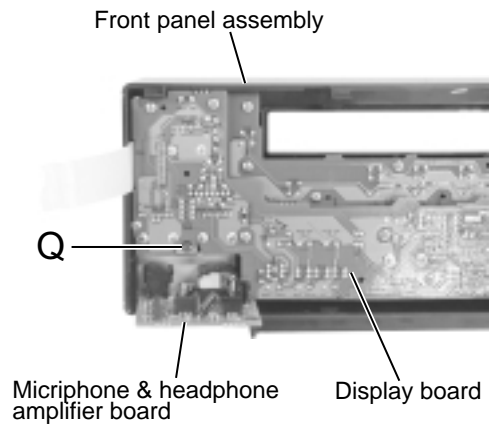


Fig.21

■ **Removing the microphone & headphone amplifier board (See Fig.22 to 24)**

1. Remove the screw Q attaching the microphone & headphone amplifier board.
2. Release the bracket tabs c from the bottom of the front panel.
3. Remove downwards the snap plate attaching the bracket to the microphone & headphone amplifier board as shown in the figure.



《CD Changer Mechanism Type:VC3 Section》

**■Removing the CD Servo control board  
(See Fig.1)**

- 1.Remove the metal cover.
- 2.Remove the CD changer mechanism assembly.
- 3.From bottom side the CD changer mechanism assembly, remove the two screws 1 retaining the CD servo control board.
- 4.Absorb the four soldered positions "M" of the right and left motors with a soldering absorber.
- 5.Pull out the earth wire on the CD changer mechanism assembly.
- 6.The two screws A is removed and C.B.holder is detached.
- 7.Disconnect the connector CN854 on the CD servo control board.
- 8.Disconnect the card wire CN601 and the connector CN801 on the CD servo control board.

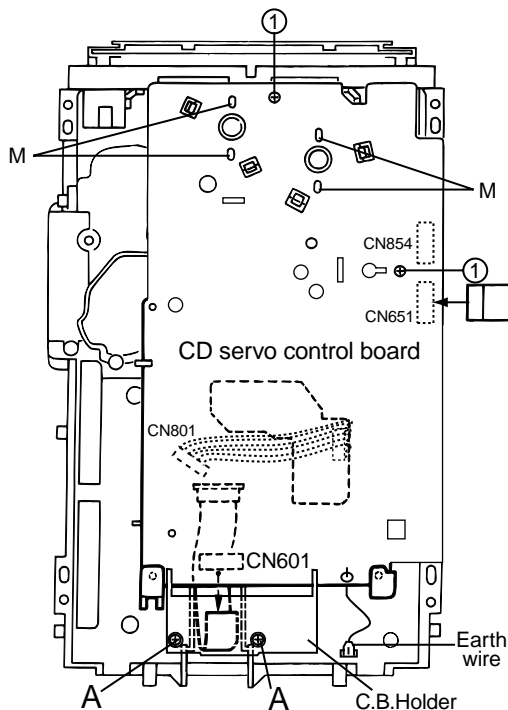


Fig.1

**■Removing the CD tray assembly  
(See Fig.2~4)**

1. Remove the front panel assembly.
2. Remove the CD changer mechanism assembly.
3. Remove the CD Servo control board.
4. From the T.bracket section "B" and clamber base section "C", remove both of the edges fixing the rod(See Fig.2 and 3).
5. Remove the screw 2 retaining the Disc stopper (See Fig.3).
6. Remove the three screws 3 retaining the T.bracket (See Fig.3).
7. Remove the screws 4 retaining the clamber assembly (See Fig.3).
8. From the left side face of the chassis assembly, remove the one screw 5 retaining both of the return spring and lock lever(See Fig. 4).
9. By removing the pawl at the section "D" fixing the return spring, dismount the return spring(See Fig.4).
10. Remove the three lock levers(See Fig.4).

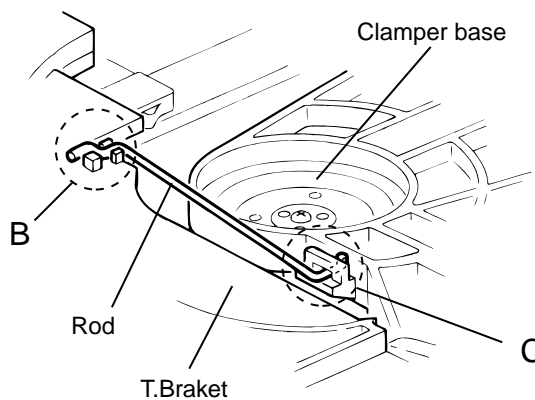


Fig.2

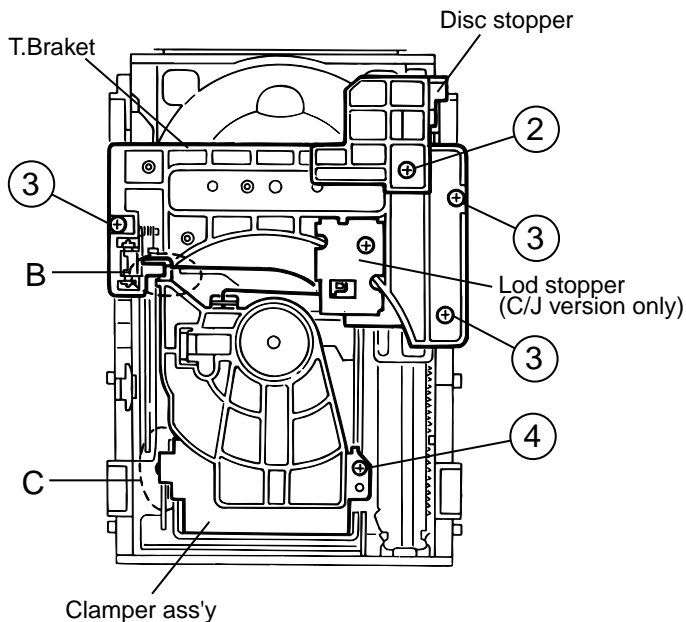


Fig.3

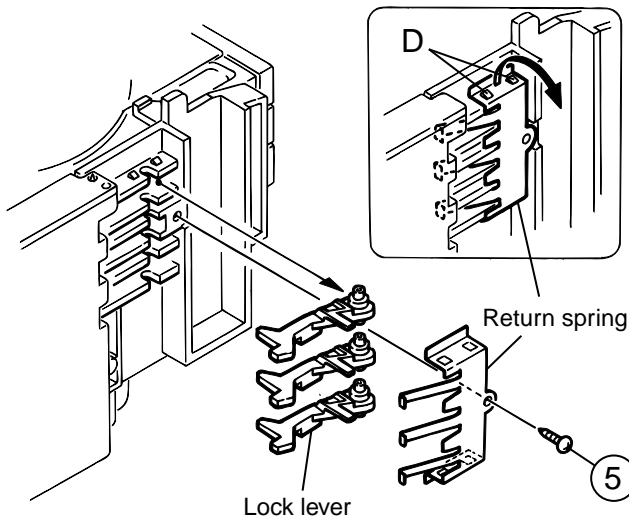


Fig.4

11. Check whether the lifter unit stopper has been caught into the hole at the section "E" of CD tray assembly as shown in Fig.5.
12. Make sure that the driver unit elevator is positioned as shown in Fig.6 from to the second or fifth hole on the left side face of the CD changer mechanism assembly.

**[Caution]** In case the driver unit elevator is not at above position, set the elevator to the position as shown in Fig.7 by manually turning the pulley gear as shown in Fig.8.

13. Manually turn the motor pulley in the clockwise direction until the lifter unit stopper is lowered from the section "E" of CD tray assembly(See Fig.8).
14. Pull out all of the three stages of CD tray assembly in the arrow direction "F" until these stages stop (See Fig.6).
15. At the position where the CD tray assembly has stopped, pull out the CD tray assembly while pressing the two pawls "G and G'" on the back side of CD tray assembly(See Fig.9). In this case, it is easy to pull out the assembly when it is pulled out first from the stage CD tray assembly.

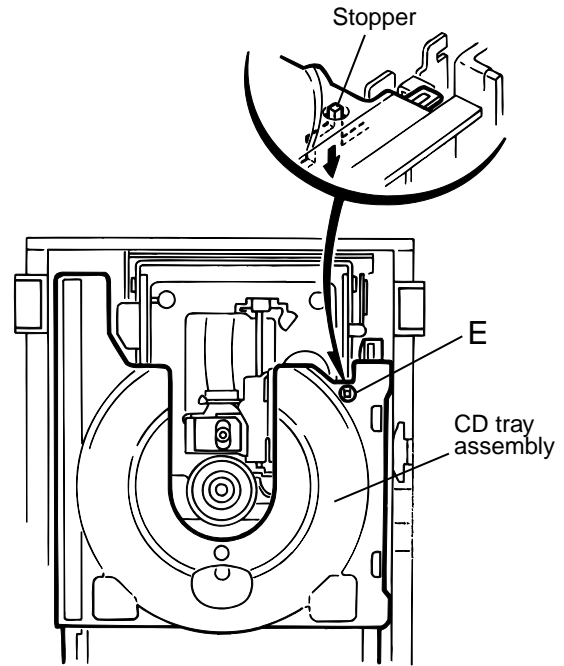


Fig.5

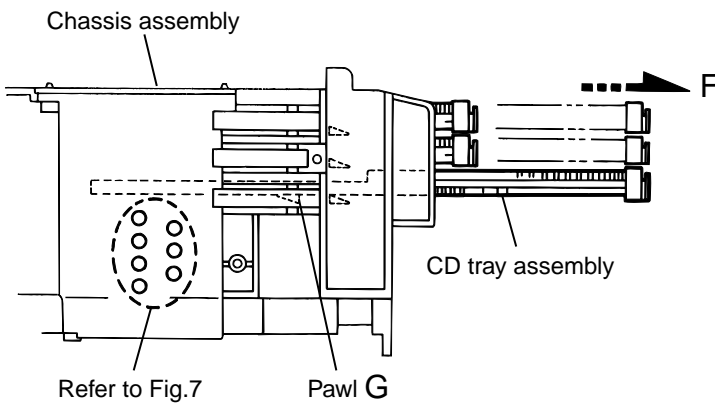


Fig.6

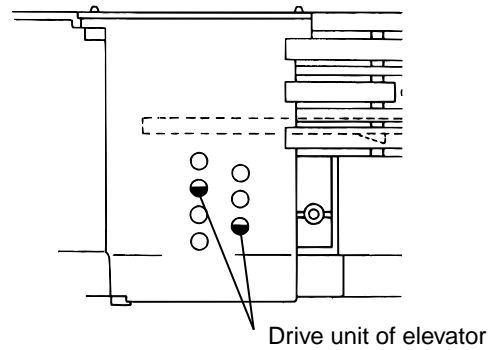


Fig.7

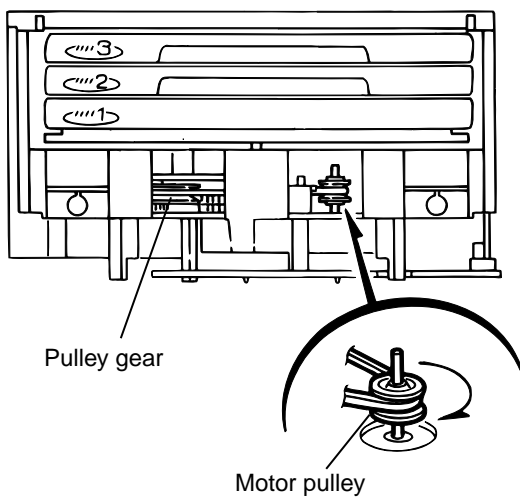


Fig.8

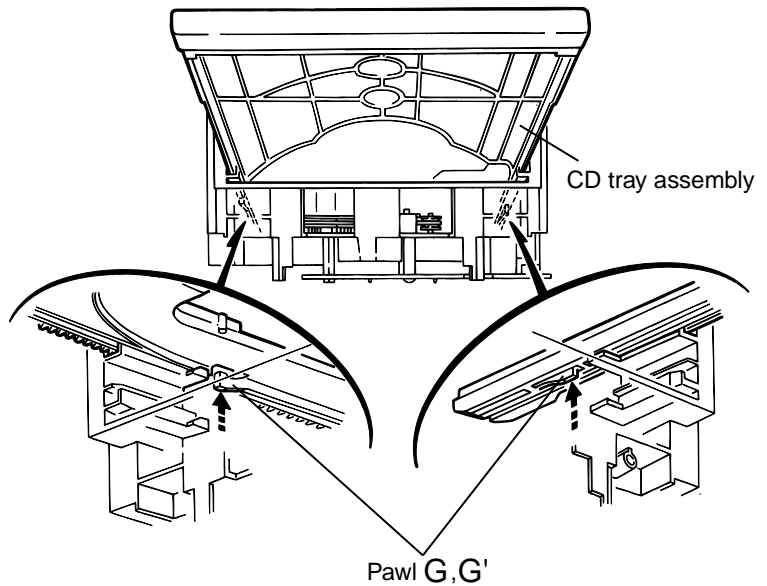


Fig.9

**Removing the CD loading mechanism assembly(See Fig.10)**

1. While turning the cams R1 and R2 assembly in the arrow direction "H" , align the shaft "I" of the CD loading mechanism assembly to the position shown in 2. Fig.10.  
Remove the four screws 6 retaining the CD loading mechanism assembly.

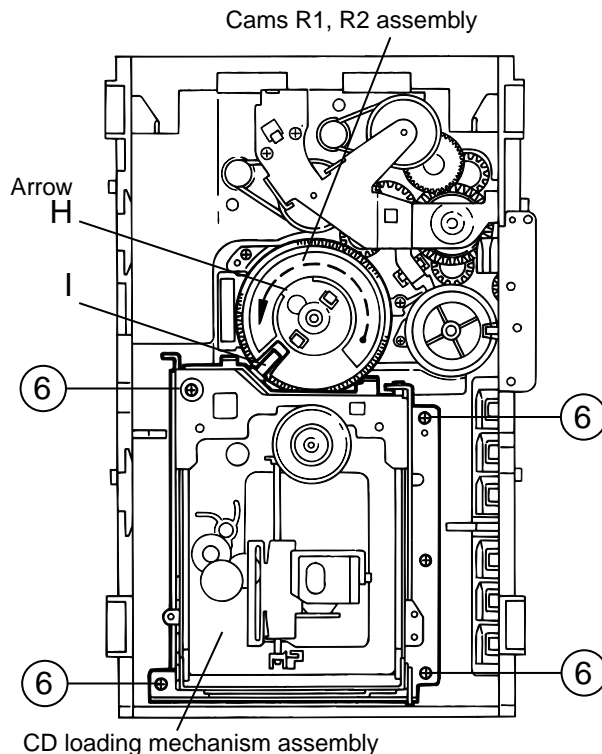


Fig.10

**Removing the CD traverse mechanism (See Fig.11 and 12)**

1. For dismantling only the CD traverse mechanism without removing the CD loading mechanism assembly, align the shaft "J" of the CD loading mechanism assembly to the position shown Fig.11 while turning the cam R1 and R2 assembly in the arrow direction "K" .
2. By raising the CD loading mechanism assembly in the arrow direction "L" , remove the assembly from the lifter unit

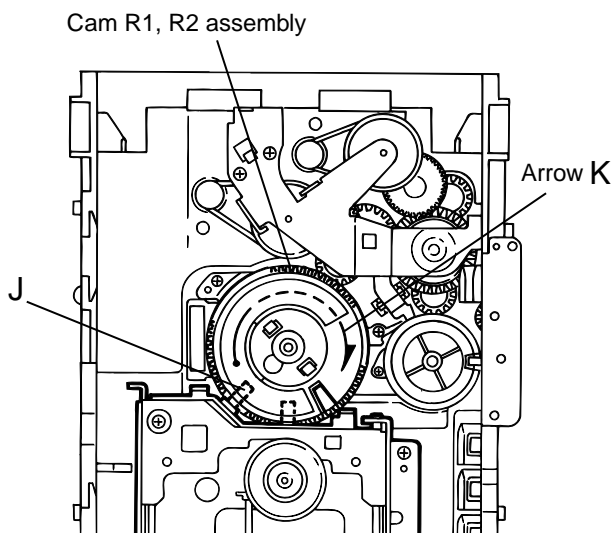


Fig.11

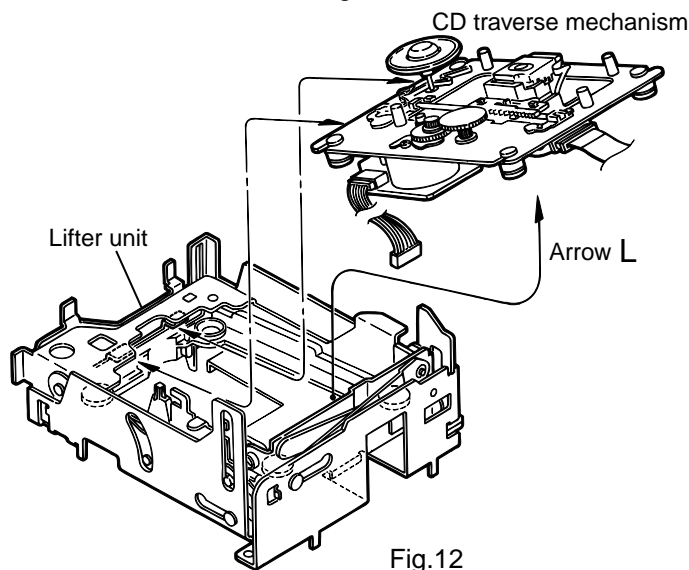


Fig.12

**Removing the CD pick unit (See Fig.13)**

1. Move the cam gear in the arrow direction a . Then, the CD pickup unit will be moved in the arrow direction b .
2. According to the above step, shift the CD pickup unit to the center position.
3. While pressing the stopper retaining the shaft in the arrow direction c , pull out the shaft in the arrow direction d .
4. After dismantling the shaft from the CD pickup unit, remove the CD pickup unit

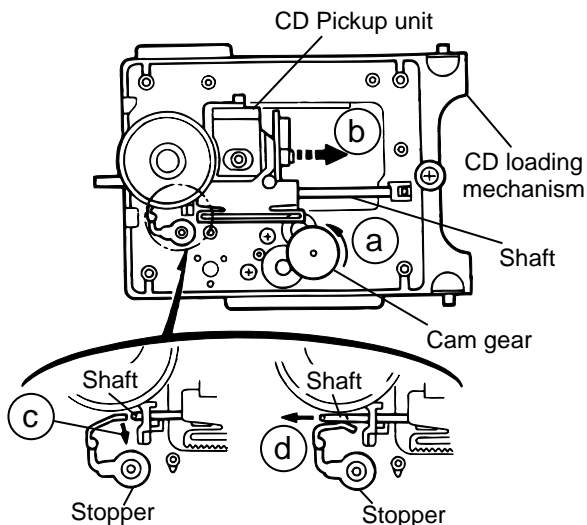


Fig.13

**■ Removing the cam unit**  
**(See Fig.14 to 17 )**

1. Remove the CD loading mechanism assembly.
2. While turning the cam gear L, align the pawl "N" position of the drive unit to the notch position(Fig.16) on the cam gear L.
3. Pull out the drive unit and cylinder gear(See Fig.16).
4. While turning the cam gear L, align the pawl "O" position of the select lever to the notch position(Fig.17) on the cam gear L.
5. Remove the four screws 9 retaining the cam unit(cam gear L and cams R1/R2 assembly)(See Fig.17)

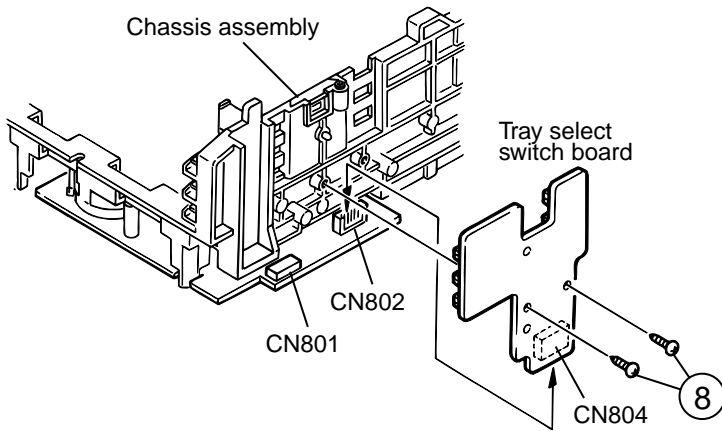


Fig.14

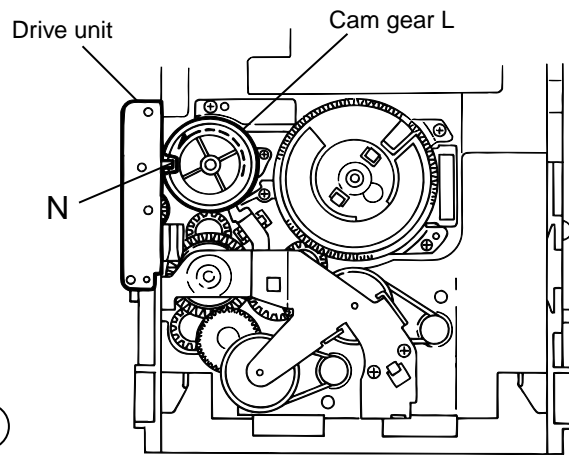


Fig.15

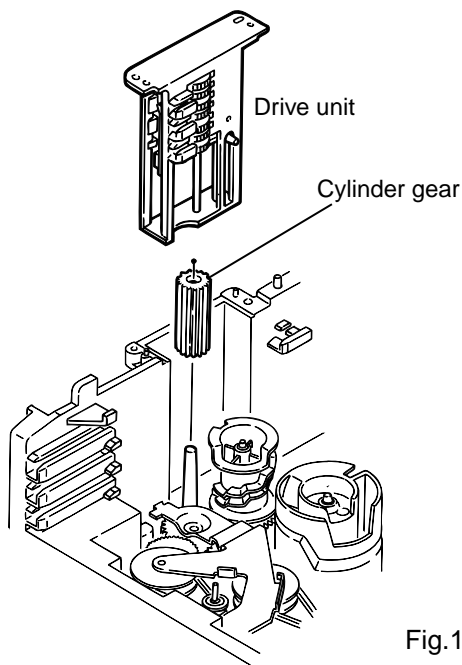


Fig.16

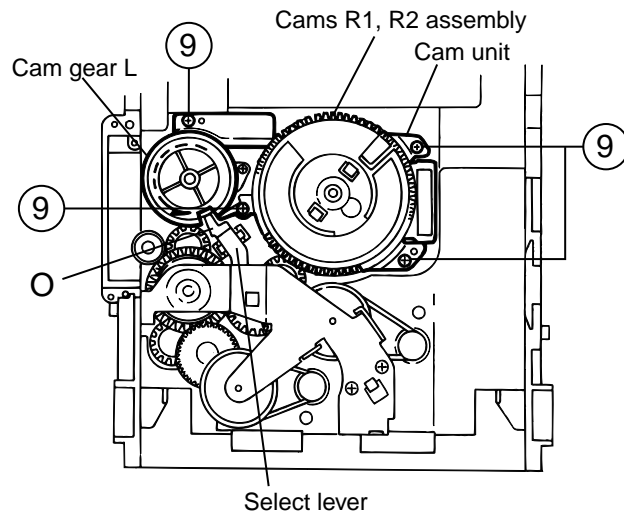


Fig.17

**■Removing the actuator motor and belt  
(See Fig.18~21)**

1. Remove the two screws 10 retaining the gear bracket  
(See Fig.18).
2. While pressing the pawl “P” fixing the gear bracket in the arrow direction, remove the gear bracket  
(See Fig.18).
3. From the notch “Q section” on the chassis assembly fixing the edge of gear bracket, remove and take out the gear bracket(See Fig. 19).
4. Remove the belts respectively from the right and left actuator motor pulleys and pulley gears(See Fig. 19).
5. After turning over the chassis assembly, remove the actuator motor while spreading the four pawls “R” fixing the right and left actuator motors in the arrow direction(See Fig. 20).

**[Note]** When the chassis assembly is turned over under the conditions wherein the gear bracket and belt have been removed, then the pulley gear as well as the gear, etc. constituting the gear unit can possibly be separated to pieces. In such a case, assemble these parts by referring to the assembly and configuration diagram in Fig. 21.

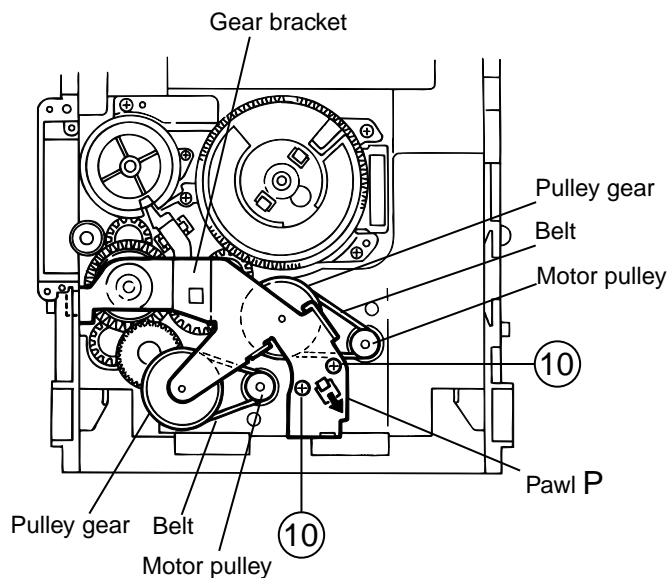


Fig.18

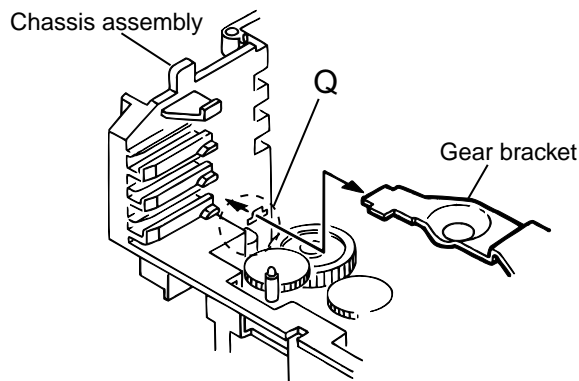


Fig.19

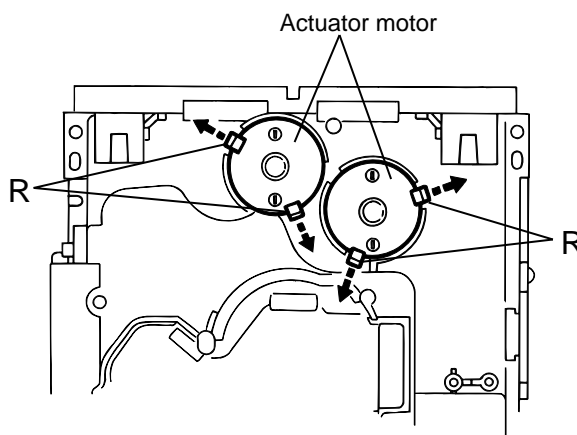


Fig.20

**Assembly and Configuration Diagram**

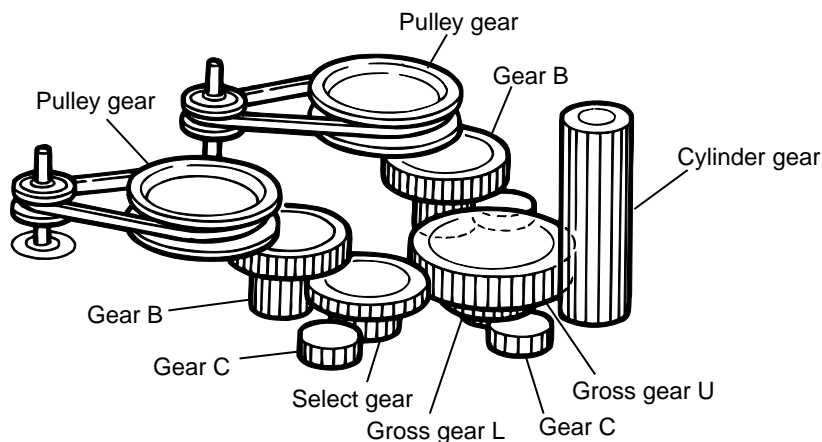


Fig.21

**■ Removing the cams R1/R2 assembly and cam gear L(See Fig.22)**

1. Remove the slit washer fixing the cams R1 and R2 assembly.
2. By removing the two pawls “S” fixing the cam R1, separate R2 from R1.
3. Remove the slit washer fixing the cam gear L.
4. Pull out the cam gear L from the C.G. base assembly.

**■ Removing the C.G. base assembly (See Fig.22 and 23)**

Remove the three screws 11 retaining the C.G. base assembly.

**[Caution]** To reassemble the cylinder gear, etc.with the cam unit (cam gear and cans R1/R2 assembly), gear unit and drive unit, align the position of the pawl “N” on the drive unit to that of the notch on the cam gear L. Then, make sure that the gear unit is engaged by turning the cam gear L (See Fig. 23).

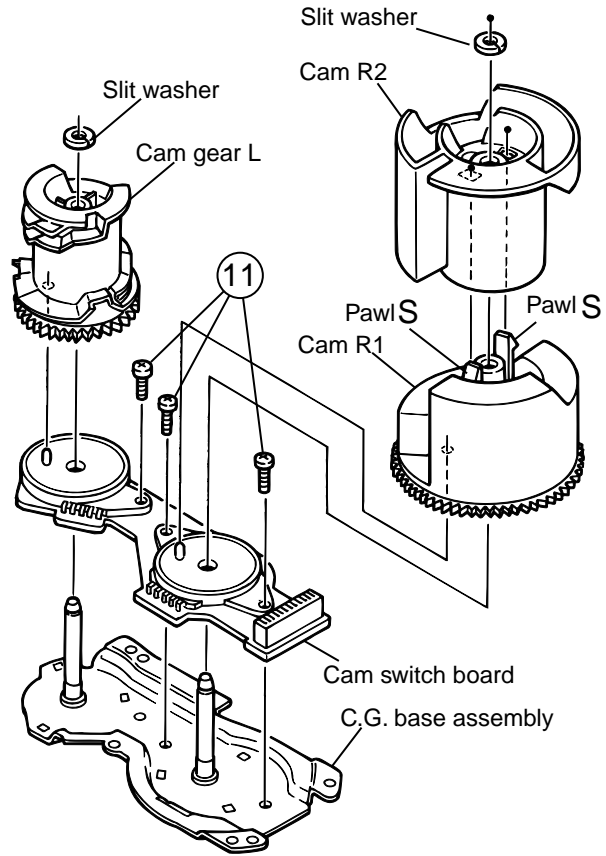


Fig.22

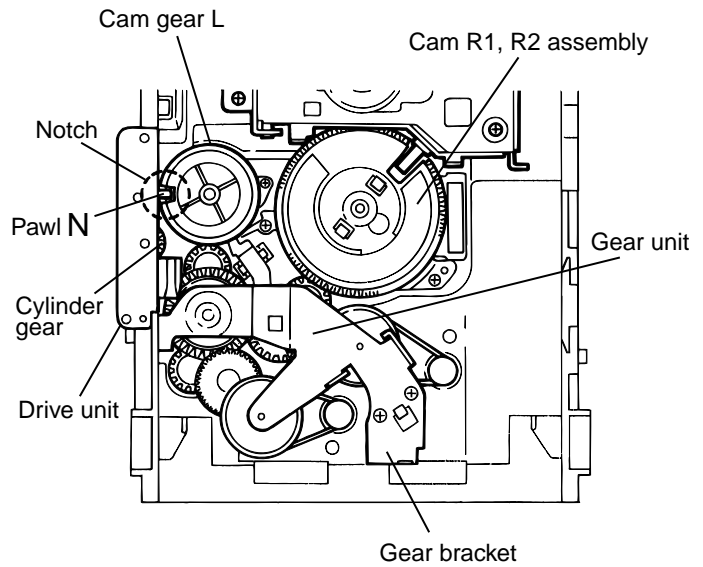


Fig.23



## ■ CDR Unit Tray Replacement Procedure

Refer to the separate figure.

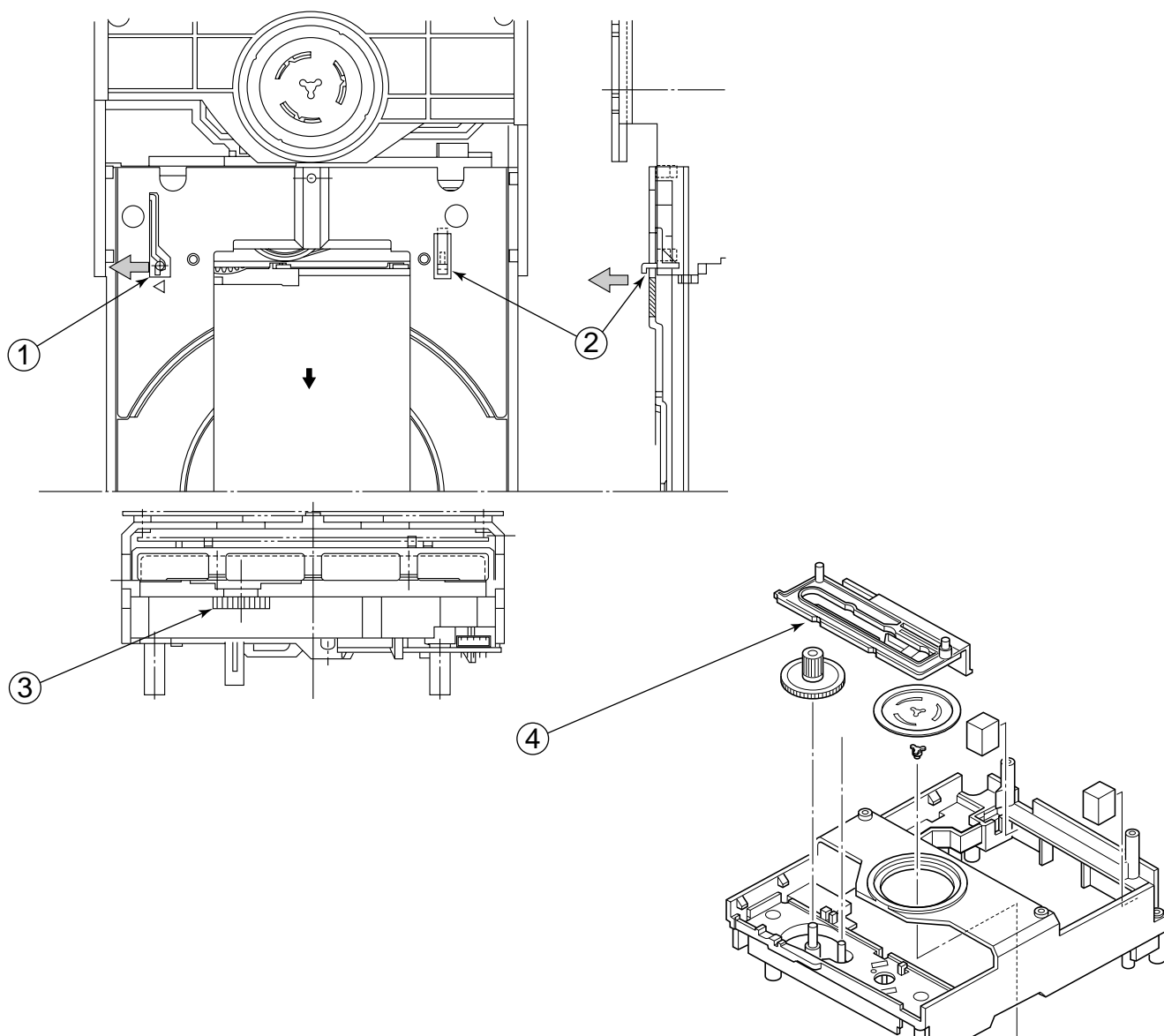
When removing the tray:

1. Make sure that the pickup is located in the innermost position (usual position).  
If the pickup is out of the innermost position, locate it in the innermost position with care not to touch the lens.
2. While turning the gear drive (③ in the figure) clockwise to lower the mechanism, draw the tray towards the front side.  
Pull out the tray to the full extent (as shown in the figure).
3. Press the lever (① in the figure) in the direction of the arrow (leftward).
4. Holding the lever (①) in the status of the above step ③, raise the lever (② in the figure) in the direction of the arrow (upward).
5. Pull the tray out of the CDR unit with the levers held in the above-mentioned status.

When setting a new tray:

- ① Slide the slide gear (④ in the figure) rightwards to lower the mechanism before inserting a new tray.
- ② Insert a new tray into the CDR unit front the front side.
- ③ Going through the procedure for removing the tray in the reverse order, turn the gear drive counterclockwise to raise the mechanism upwards and check to see if it is in the topmost position.

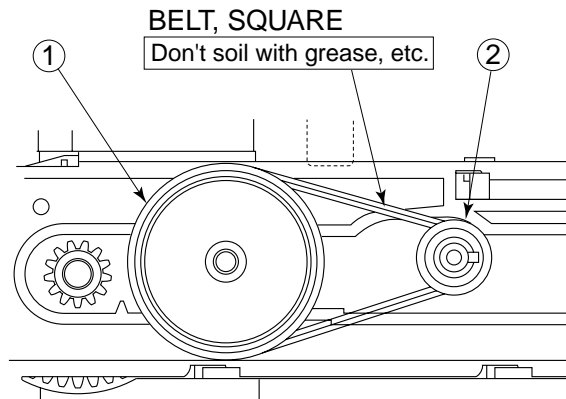
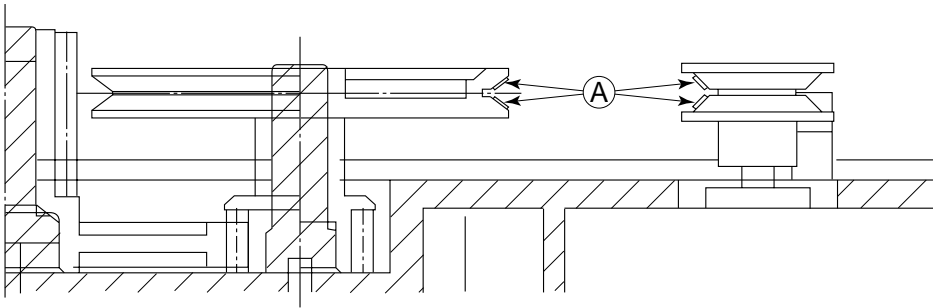
That is all for the tray replacement procedure.



## ■ CRD-Unit Belt Replacement Procedure

Refer to the figure below.

1. Remove the tray following to the tray removal procedure.
2. Remove the belt with the tweezers or the like.
3. Wipe over the belt creep (A in the figure) of the pulley gear (① in the figure) and pulley motor (② in the figure) with alcohol.
4. Engage a new belt with ① first and ② next by use of tweezers or the like.
5. Make sure that the belt is neither twisted nor soiled with grease, etc.
6. Restore the tray to the original position.



# CD-R unit and 3CD changer check mode

## ■ How to check for 3CD and CD-R

### 1. Special tools and CDR & CDRW Disc.

- CD TEST DISC:CTS-1000
- CD-R for Audio
- CD-RW for Audio

Note: 1. Be sure to use general audio CD-R and CD-RW disks available on the market for this set.  
 2. This set is incapable of playing any CD-R or CD-RW disk for the personal computer.  
 3. The CD-RW disk can be played only by the player compatible with the CD-RW disk.  
 4. The CD-R disk that has not been finalized after writing can be played by the CD-R unit only.

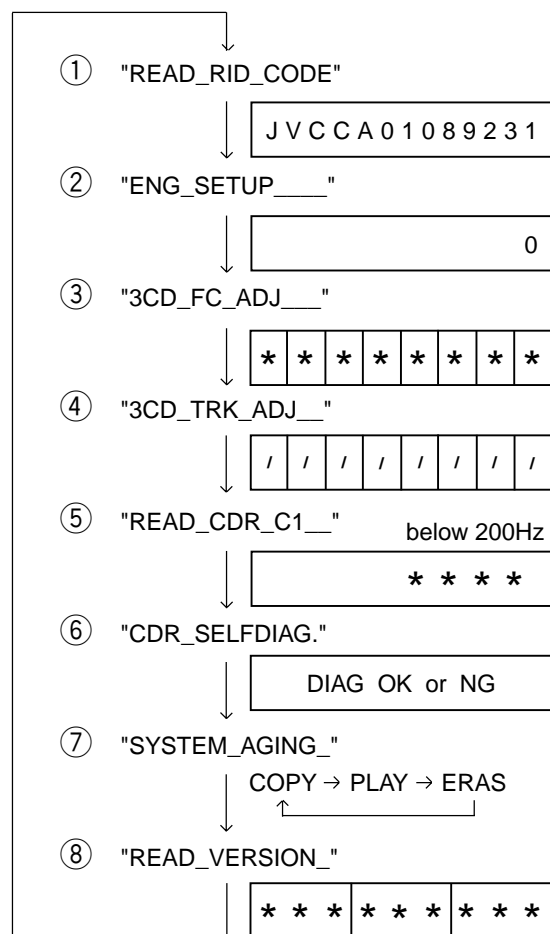
## ■ How to check up the CD-R unit whether it is normal (OK) or defective (NG).

\* For checking up the CD-R unit for normal or abnormal status, open the Service Menu.

### 1. How to open the Service Menu.

- 1) Press both the DIGITAL key and POWER key simultaneously.
- 2) Press the MENU key.

The following menu items appear one after another on the FL Display.



• The menu items from ① to ⑧ can be repeatedly shown on the display by the JOG dial or the FWD/BWD key on the remote controller.

• If the SET key is pressed while a menu item is shown on the display, the setting value of the item appears on the display.

• The menu item ⑥ shows the self-diagnosing result of the CD-R unit. After the self-diagnosing result appears on the display, quit the Service Menu by turning off the set, otherwise you cannot access the further menu items.

• For details of each menu item, refer to the next page.

→ If "DIAG NG" message appears, replace the CD-R unit with new one.

## ■ Explanation of Service menu

### 1. READ RID CODE

When this menu item is executed, the RID code is read out and it is shown by the FL tube for 5 seconds. This selection is automatically cleared after the 5-second display.

Example of display: JVCCA01089231

Manufacturer code: JVC

Type code: CA01

Unique No.: 089231

### 2. ENG SETUP

Explanation of this item is omitted because of the confidential function.

### 3. 3CD FC ADJ (3CD focus automatic adjustment value readout) (00000F7)

When this menu item is executed, the 3CD unit focus automatic adjustment value (hexadecimal number in six figures) is displayed by the FL tube for 3 seconds. This selection is automatically cleared after the 3-second display. When the set fails in reading out the 3CD unit focus automatic adjustment value, a message "NG" is shown for the value to be read.

### 4. 3CD TRK ADJ (3CD tracking automatic adjustment value readout) (00000FA)

When this menu item is executed, the 3CD unit tracking automatic adjustment value (hexadecimal number in six figures) is displayed by the FL tube for 3 seconds. This selection is automatically cleared after the 3-second display. When the set fails in reading out the 3CD unit tracking automatic adjustment value, a message "NG" is shown for the value to be read.

### 5. READ CDR C1 (CDR C1 error rate readout)

When this menu item is executed, the CDR is set to the play mode with display of the C1 error rate. To escape from this menu item, switch off the set.

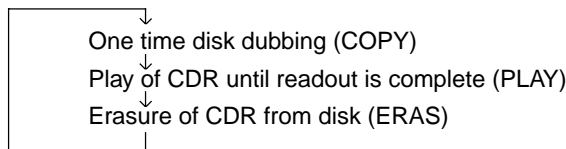
### 6. CDR SELFDIAG (CDR self-diagnosing)

When this menu item is executed, the set carries out self-diagnosing of the CDR. When nothing wrong is detected by the self-diagnosis, a message "DIAG OK" appears on the display. To quit this self-diagnosing mode, switch off the set.

### 7. SYSTEM AGING (Running operation)

When this menu item is executed, the set automatically starts the following running operation. For executing this item, it is required to set a blank CD-RW disk in the CDR beforehand. The time required for a running operation or number of times of pick movement can be controlled by changing the data written on the disc set on the current tray of the 3CD.

(When the running operation starts without disk, "000CD 1ACOPY" is shown on the display.)



If the set receives an effective input from the key, remote controller or DCS, it immediately stops the running operation. If the running operation is suspended by the STOP key or because of an error, the following message is continuously displayed until the set is switched off.

Classification of the unit in which an error breaks out	Error code (hexadecimal number in two figures)	Operation executed last COPYorPLAYorERAS	Number of execution times (4-digits decimal number)
CDorCDR	000CD		1ACOPY

### 8. READ VERSION (Version number readout)

When this menu item is executed, version numbers of the syscon, CDR farm and 3CD farm are shown by the FL tube for 5 seconds. This selection is automatically cleared after the 5-second display.

Syscon version No. (in 3 digits)	CDR farm version No. (in 3 digits)	3CD farm version No. (in 3 digits)

Each version No. is set apart from the other(s) by a space.

A 3-digit number is shown as \*.\*. The last two digits are shown in the decimal places.

When the set fails in reading out a version number, "000" (three zeros) is shown for the version number to be read.

## ■ Check mode Method

### 1. Check Mode

The Check Mode is prepared for checking timer operation and display with the FL tube.

### 2. Check mode setup method

Setup: In the status that the set is turned off, press the POWER key together with the DISPLAY key to turn on the set.

Cancel: Shift the mode to the backup mode, or press the POWER key together with the DISPLAY key to turn on the set again for resetting.

### 3. Operation

The set is switched on and all segments of the FL tube go on. Adjust the clock so that its indication gains one minute per one real second.

If the set is operated anyhow other than for check mode canceling, the FL indication reverts to the normal status. After that, the set continues normal operation except the speeded up clock operation.

## ■ Clearing all settings

This operation clears all of settings and restore them to the default values, for example, settings of the menu items are restored to the respective default values or registered programs are cleared by this operation. In short, this operation restores every setting to the initial status on shipment.

- In the status that the set is switched off, press the POWER key together with the LINE key to turn on the set.

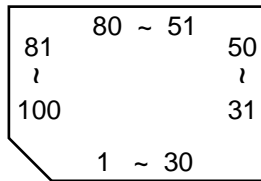
### Items subject to this clearing/resetting operation

Clearance of clock setting AM12:00  
 Clearance of timer setting OFF  
 Clearance of program for playing back programs OFF  
 Clearance of registered listening edit and program edit programs OFF  
 Switching off repeat setting OFF  
 Clearance of child lock Free  
 Setting the current unit for 3 CD's and DNO (DISK NO) for the tray 1  
 Resetting the 3CD play mode to the normal mode  
 Switching off pitch control setting OFF  
 Setting the recording source selection to 3CD digital recording  
 Setting the dubbing speed double  
 Switching on the AUTO TRK setting OFF  
 Switching on the TRK space OFF  
 Switching on the FS CON setting OFF  
 Switching on the DIG (Digital) IN SYNC setting OFF

# Description of major ICs

## ■ UPD784214AGF501-620(IC501):Micon

### 1. Pin layout

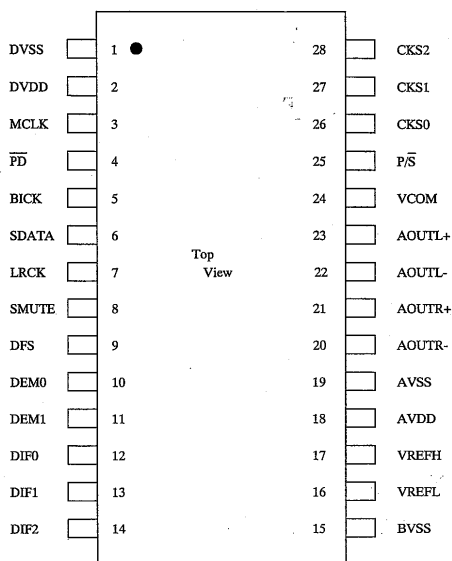


### 2. Pin function

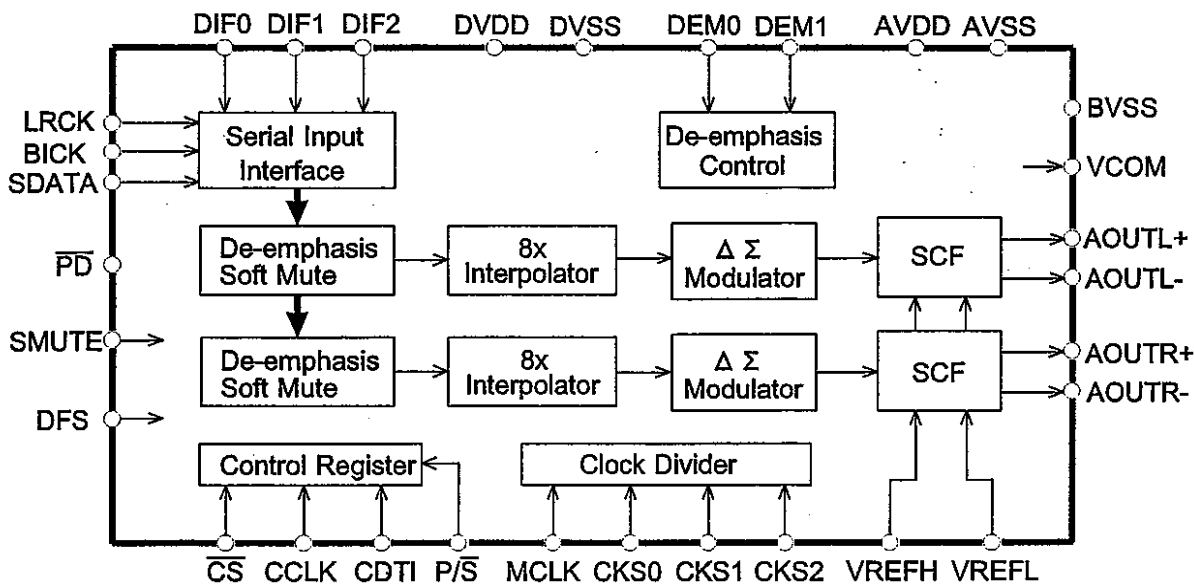
Pin No.	Symbol	I/O	Description	Pin No.	Symbol	I/O	Description
1~3	NC	-	Non connect	51	AVDD	-	Power supply
4	TEST-	-	Connect to GND upon normal use.	52	AVREF0	-	Power supply
5~8	NC	-	Non connect	53~56	KEY1~KEY4	I	Key matrix signal input
9	VDD	-	Power supply	57	NC	-	Non connect
10,11	CS1,CS2	I	Chip select terminal	58	MIN2	I	External control input (NC)
12,13	JOGA,JOGB	I	Jog signal input	59	MIN3	I	External control input (NC)
14	FLDAT	O	Serial data output	60	MODE	I	Mode select signal input
15	FLCLK	O	Shift clock signal output	61	AVSS	-	Connect to GND
16	FLCS-	O	Chip select signal input	62	DCSI	I	DCS input signal
17	MPLAY	I	External control input (NC)	63	DCSO	O	dcs output signal
18	MREC	I	External control input (NC)	64	AVREF1	-	Power supply
19	NSTOP	I	External control input (NC)	65	NBUSI	I/O	External control databus (NC)
20	HKPDF-	I	External control input (NC)	66	NBUSO	I/O	External control databus (NC)
21	NC	-	Non connect	67	ASCK2	I	GND
22	VPP	-	Power supply	68	STAT	O	Status signal output to IC251
23	DIG_LED-	O	DIGITAL LED control signal output	69	COMD	O	Commnd signal output to IC251
24	CD_LED-	O	CD LED control signal output	70	ASCK1		
25	LIN_LED-	O	LINE IN LED control signal output	71	SRST-	O	Reset signal input
26	MIC_LED-	O	MIC LED control signal output	72	POWER (PON-)	O	Power on/off control signal output
27	MIXBL	I	Mix balance signal input				
28	LLEVE	O	Rec level LED signal output	73	CDR_DTI	I	CDR digital signal input
29	NC	-	Non connect	74	CDR.DTO	O	CDR digital signal output
30	SMUTE-	O	System mute output	75	CDR.ACLK	O	CDR clock signal output
31	NC	-	Non connect	76	CDR.SREQ-	O	CDR Q-code signal output
32	CD.DRT-	O	CD direct sw control signal output	77	SYS.RDY-	I	CDR system input signal
33	SCD-	I	Single CD control signal input	78~91	NC	-	Non connect
34	SLIN1-	O	Rec souce1 select signal output	92	CD1.LED1-	O	CD1 LED control signal output
35	SLIN2-	O	Rec souce2 select signal output	93	CD1.LED2-	O	CD1 LED control signal output
36	SMIC-	O	Rec mic signal output	94	CD2.LED1-	O	CD2 LED control signal output
37	VDD	-	Power supply	95	CD2.LED2-	O	CD2 LED control signal output
38,39	X2,X1	I/O	Oscillation terminal (10MHz)	96	CD3.LED1-	O	CD3 LED control signal output
40	VSS	-	Connect to GND	97	CD3.LED2-	O	CD3 LED control signal output
41,42	XT2,XT1	I/O	Sub clock (32MHz)	98	CDRRST-	O	CDR reset signal output
43	RESET-	O	Reset signal output	99	STBY.LED	O	STBY LED control signal output
44	REM	I	Remote control signal input	100	VSS	-	Connect to GND
45	NC	-	Non connect				
46	ACON	I	AC on input				
47	CDR.RREQ-	O	CDR reset signal output				
48	NC	-	Non connect				
49	DOCD	I	CD digital input signal				
50	DOCDR	I	CDR digital input signal				

■ AK4393VF-X (IC361): DAC

1. Pin layout



2. Block diagram



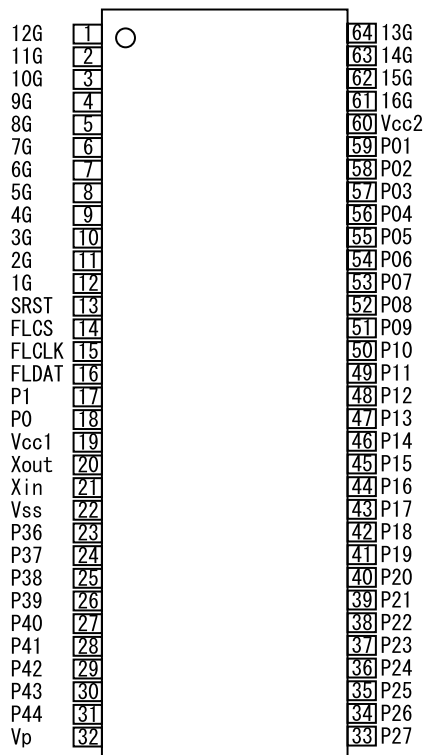
## 3. Pin function

Pin No.	Symbol	I/O	Function
1	DVSS	-	Digital Ground Pin
2	DVDD	-	Digital Power Supply Pin, 3.3V or 5.0V
3	MCLK	I	Master Clock Input Pin
4	$\overline{\text{PD}}$	I	Power-Down Mode Pin When at "L", the AK4393 is in power-down mode and is held in reset. The AK4393 should always be reset upon power-up.
5	BICK	I	Audio Serial Data Clock Pin The clock of 64fs or more than is recommended to be input on this pin.
6	SDATA	I	Audio Serial Data Input Pin 2's complement MSB-first data is input on this pin.
7	LRCK	I	L/R Clock Pin
8	SMUTE	I	Soft Mute Pin When this pin goes "H", soft mute cycle is initiated. When returning "L", the output mute releases.
	$\overline{\text{CS}}$	I	Chip Select Pin in serial mode
9	DFS	I	Double speed sampling mode Pin (Internal pull-down pin) "L": Normal Speed, "H": Double Speed
10	DEM0	I	De-emphasis Enable Pin
	CCLK	I	Control Data Clock Pin in serial mode
11	DEM1	I	De-emphasis Enable Pin
	CDTI	I	Control Data Input Pin in serial mode
12	DIF0	I	Digital Input Format Pin
13	DIF1	I	Digital Input Format Pin
14	DIF2	I	Digital Input Format Pin
15	BVSS	-	Substrate Ground Pin, 0V
16	VREFL	I	Low Level Voltage Reference Input Pin
17	VREFH	I	High Level Voltage Reference Input Pin
18	AVDD	-	Analog Power Supply Pin, 5V
19	AVSS	-	Analog Ground Pin, 0V
20	AOUTR-	O	Rch Negative analog output Pin
21	AOUTR+	O	Rch Positive analog output Pin
22	AOUTL-	O	Lch Negative analog output Pin
23	AOUTL+	O	Lch Positive analog output Pin
24	VCOM	O	Common Voltage Output Pin, 2.6V
25	$\text{P}/\overline{\text{S}}$	I	Parallel/Serial Select Pin (Internal pull-up pin) "L": Serial control mode, "H": Parallel control mode
26	CKS0	I	Master Clock Select Pin
27	CKS1	I	Master Clock Select Pin
28	CKS2	I	Master Clock Select Pin

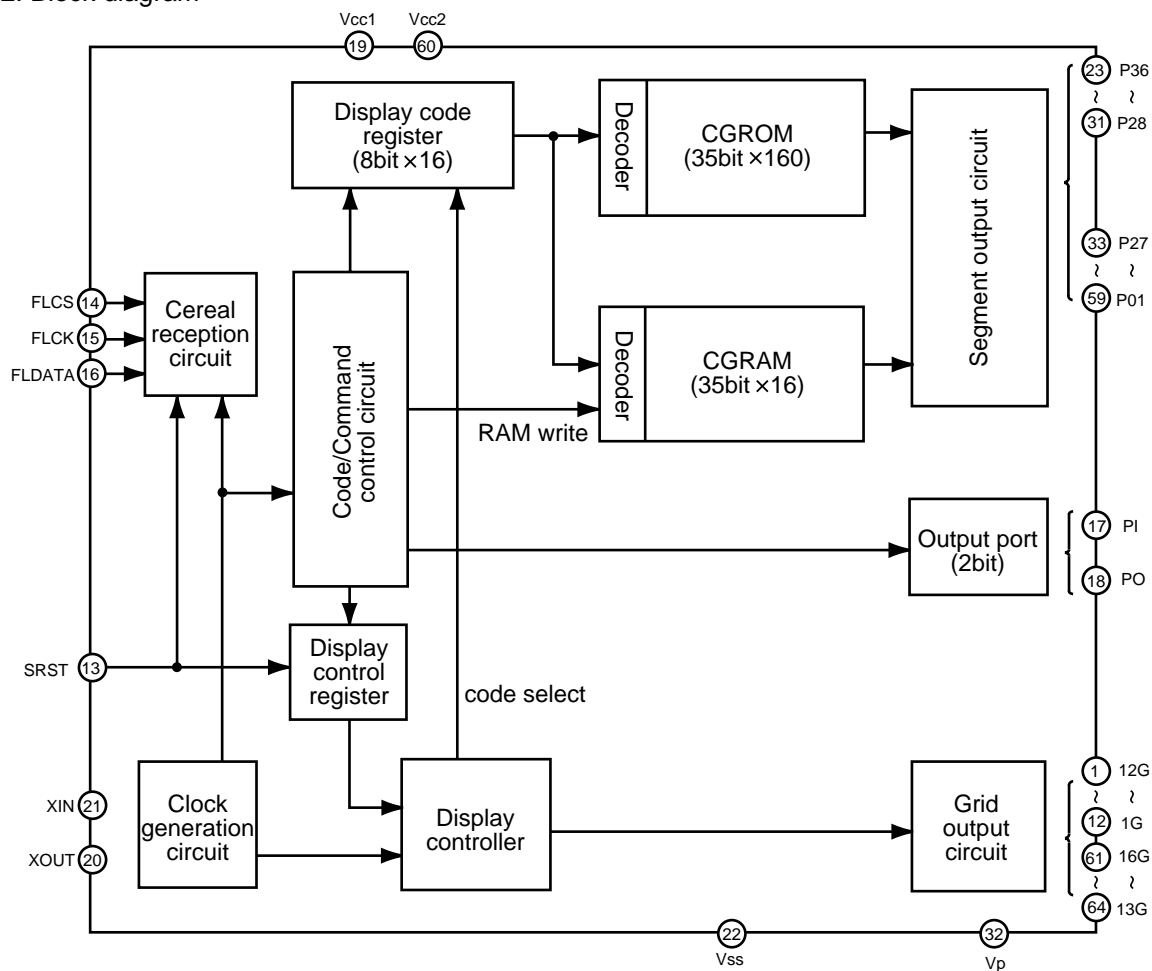


■ M66004SP(IC721): FL driver

1. Pin layout



2. Block diagram

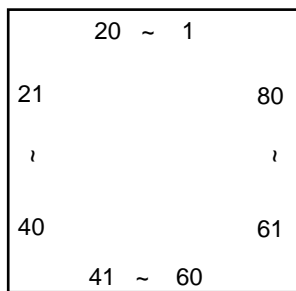


## 3. Pin function

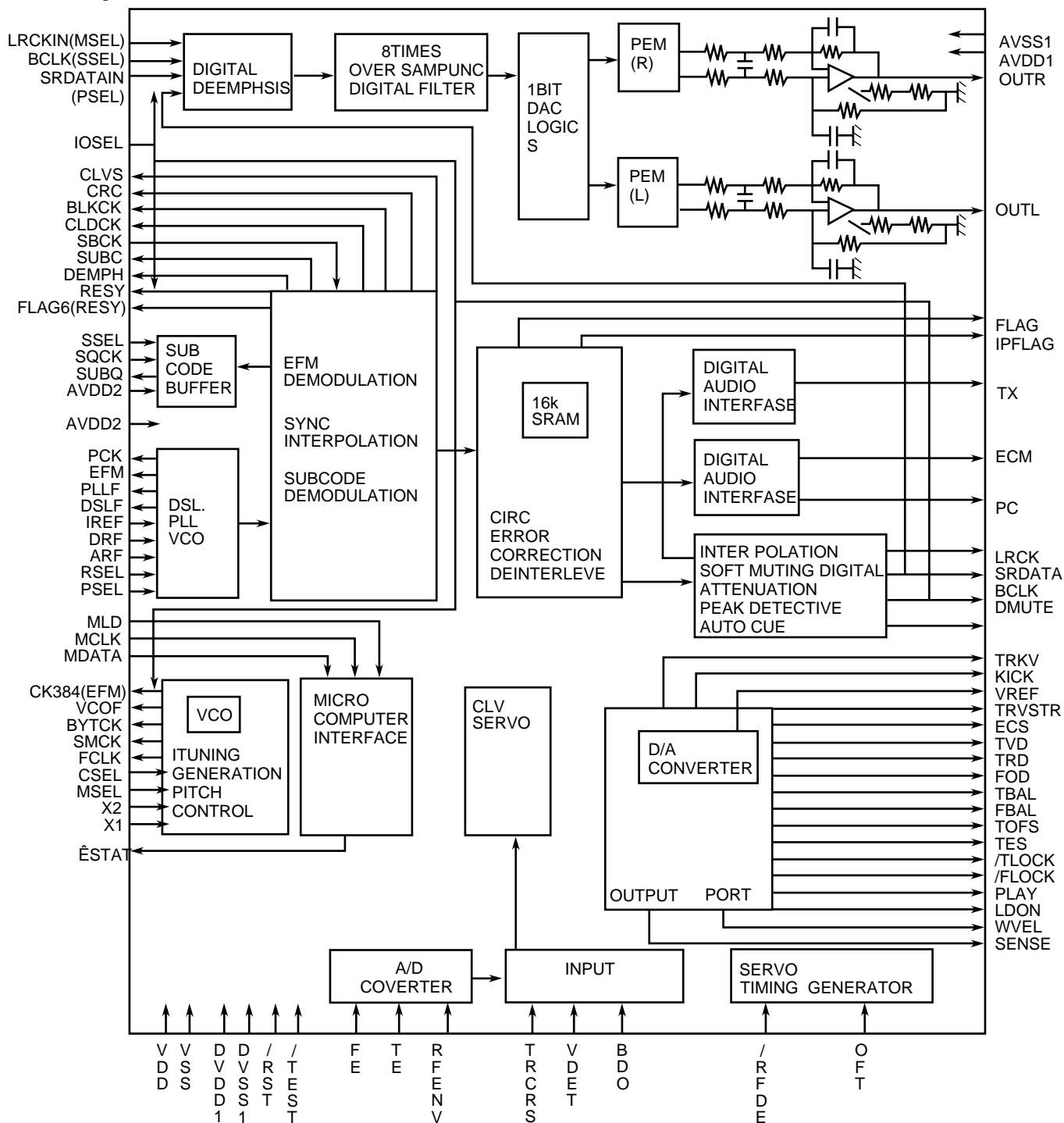
Pin.No.	Symbol	I/O	Function
1~12	12G~1G	O	FL grid control signal output.
13	SRST	I	FL Driver chip select.
14	FLCS	I	Chip select signal input.
15	FLCK	I	Shift clock signal input.
16	FLDATA	I	Serial data input.
17	PI	O	Indicator control signal output.
18	PO	O	Indicator control signal output.
19	VCC1	-	Power supply for internal logic.
20	XOUT	O	Clock signal output.
21	XIN	I	Clock signal input.
22	VSS	-	Connect to GND.
23~31	P36~P28	O	FL Segment control signal output.
32	VP	-	Power supply.
33~59	P27~PO	O	FL Segment control signal output.
60	VCC2	-	Power supply for grid output and segment output.
61~64	16G~13G	O	FL grid control signal output.

**MN35510(IC651): Digital servo & digital signal processor**

1. Pin layout



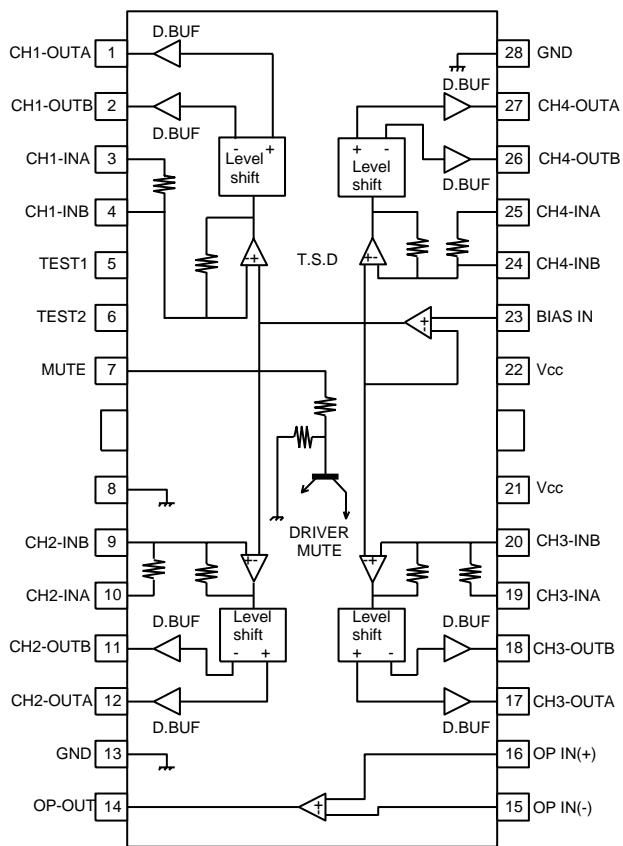
2. Block diagram



## 3. Pin function

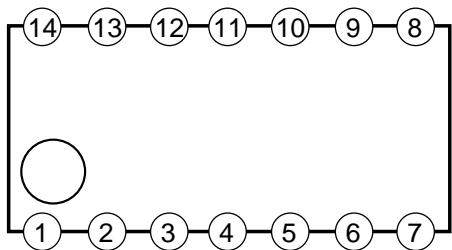
Pin No.	symbol	I/O	Description	Pin No.	symbol	I/O	Description
1	BCLK	O	Not used	41	TES	O	Tracking error shunt signal output(H:shunt)
2	LRCK	O	Not used	42	PLAY	-	Not used
3	SRDATA	O	Not used	43	WVEL	-	Not used
4	DVDD1	-	Power supply (Digital)	44	ARF	I	RF signal input
5	DVSS1	-	Connected to GND	45	IREF	I	Reference current input pin
6	TX	O	Digital audio interface output	46	DRF	I	Bias pin for DSL
7	MCLK	I	$\mu$ com command clock signal input (Data is latched at signal's rising point)	47	DSLFL	I/O	Loop filter pin for DSL
8	MDATA	I	$\mu$ com command data input	48	PLLFL	I/O	Loop filter pin for PLL
9	MLD	I	$\mu$ com command load signal input	49	VCOF	-	Not used
10	SENSE	O	Sence 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 resistor 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	XI	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 cscillation 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

■ BA6897FP(IC801):4channel driver

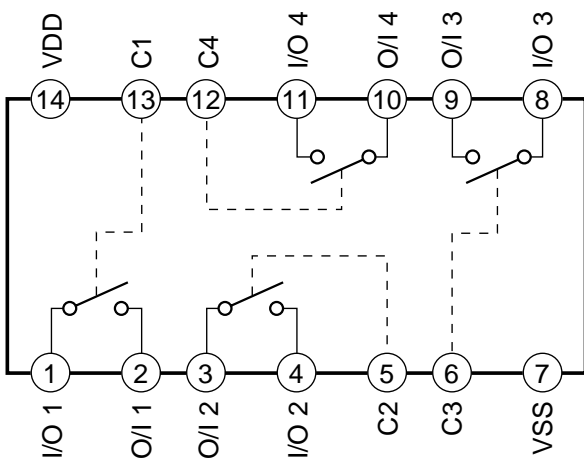


■ BU4066BC (IC821,IC831,IC841) : Line out sel, Rec souce SEL1, SEL2

1.Pin layout

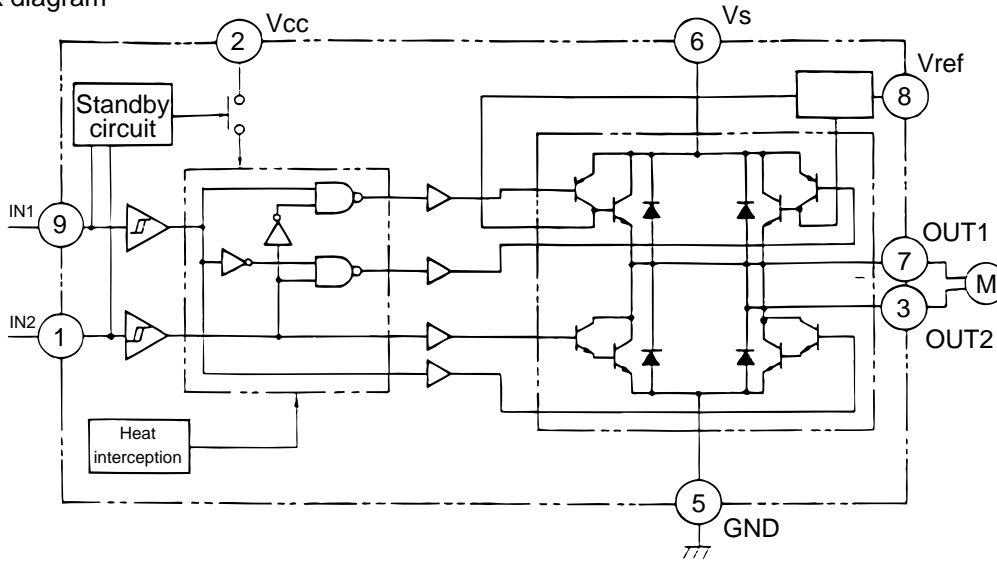


2.Block diagram



■ TA8409S (IC851.IC852.IC853) : Motor Driver

1. Block diagram

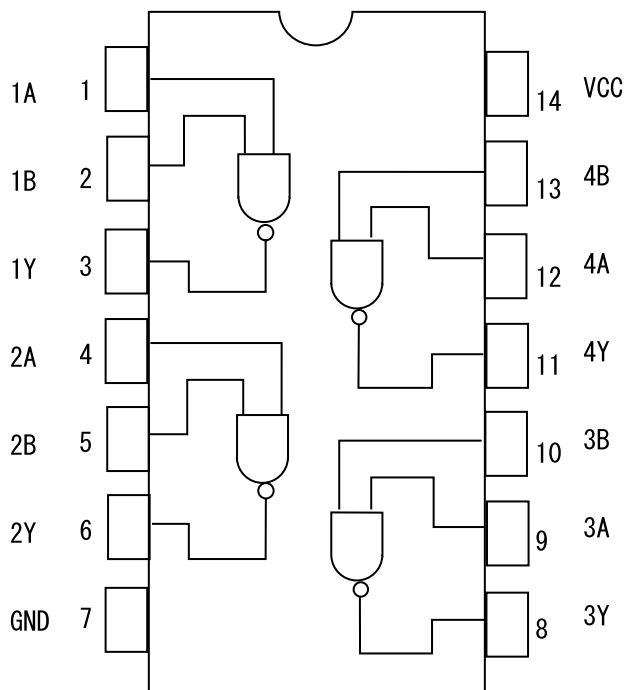


2. Pin function

INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	MOTOR
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

■ TC74HC00AP (IC501) : Digital out sel

1. Block diagram



2. Function

A	B	Y
L	L	H
L	H	H
H	L	H
H	H	C



## 3. Anode connection

	1G	2G~14G	15G	16G
P1	S5	1-1	B10	1
P2	S4	2-1	B11	2
P3	S3	3-1	B12	3
P4	S2	4-1	B13	4
P5	S1	5-1	B14	5
P6	1 (ディスク)	1-2	B15	6
P7	S10	2-2	B16	7
P8	S9	3-2	B17	8
P9	S8	4-2	B18	9
P10	S7	5-2	B1	10
P11	S6	1-3	B2	11
P12	2	2-3	B3	12
P13	S15	3-3	B4	13
P14	S14	4-3	B5	14
P15	S13	5-3	B6	15
P16	S12	1-4	B7	16
P17	S11	2-4	B8	17
P18	3	3-4	B9	18
P19	PROGRAM	4-4	S17	19
P20	RANDOM	5-4	FINALIZED	20
P21	REPEAT	1-5	CD-RW	S16
P22	ALL	2-5	CD-R	-
P23	CD (ALL)	3-5	CD	48kHz
P24	1 (ALL)	4-5	(OVER)	44.1kHz
P25	+	5-5	FADER	32kHz
P26	PITCH	1-6	▷	(DIGITAL)
P27	—	2-6		(ANALOG)
P28	1 (CD REC)	3-6	(REC)	▷ (ONCE)
P29	CD (CD REC)	4-6	HIGH SPEED	○ (ONCE)
P30		5-6	AUTO TRACK	ONCE
P31	▷	1-7	(CD RECORDER)	▷ (DAILY)
P32	(CD REC)	2-7	SYNCHRO	○ (DAILY)
P33	PROGRAM EDIT	3-7	1	DAILY
P34	LISTENING EDIT	4-7	ALL	S18
P35	(CD PLAYER)	5-7 ..	ERASE	SKIP ON



**JVC**

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