JVC

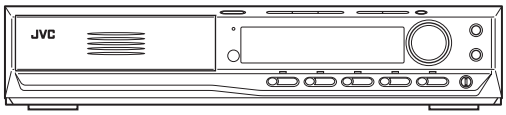
SERVICE MANUAL

DVD DIGITAL CINEMA SYSTEM

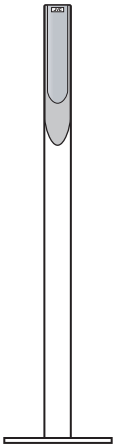
TH-M65

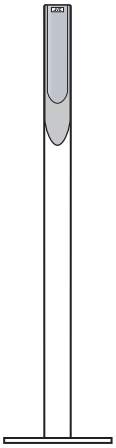
Area suffix

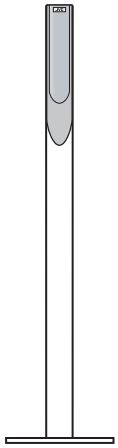
US ---------- Singapore
UW ---------- Brazil,Mexico,Peru
UJ ---------- U.S.Military
UG - Turkey,South Africa,Egypt

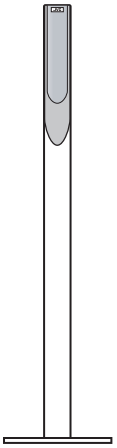


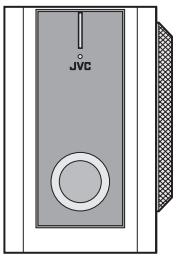
XV-THM65











SP-PWM65

SP-THM65C

SP-THM65F SP-THM65F SP-THM65F SP-THM65F

DVD VIDEO COMPACT disc SUPER VIDEO DOLBY DIGITAL PRO LOGIC II DIGITAL dts SURROUND AV COMPU LINK Digital Direct Progressive Scan

TABLE OF CONTENTS

No.MB112
2003/12

SPECIFICATION

Center unit (XV-THM65)			
Audio	Audio input sensitivity/Impedance (at 1 kHz), Total Harmonic Distortion 0.02 % NOTE : This value is measured at System cord CONNECTOR for reference.		
	Analog input	AUDIO IN (VCR)	290 mV/47 KΩ
		MIC	4.3 mV/600 Ω
	Digital input*	DIGITAL IN (DBS)	-21 dBm to -15 dBm
		(OPTICAL)	(660 nm E30 nm)
	* Corresponding to Linear PCM, Dolby Digital, and DTS Digital Surround (with sampling frequency - 32 kHz, 44.1 kHz, 48 kHz)		
	Digital output	DIGITAL OUT	-21 dBm to -15 dBm
		(OPTICAL)	(660 nm E30 nm)
Video	Color System		NTSC/PAL selectable
	Horizontal Resolution		500 lines
	Signal-to-Noise Ratio		64 dB
	Video output level	Composite	1.0 V(p-p)/75 Ω
		S-video-Y	1.0 V(p-p)/75 Ω
		S-video-C	0.286 V(p-p)/75 Ω
		Component-Y	1.0 V(p-p)/75 Ω
		Component-PB/PR	0.7 V(p-p)/75 Ω
	Video input sensitivity/ Impedance (VCR IN)	Composite	1.0 V(p-p)/75 Ω
		S-video-Y	1.0 V(p-p)/75 Ω
		S-video-C	0.286 V(p-p)/75 Ω
Tuner	Tuning Range	FM	87.50 MHz to 108.00 MHz
		AM	531 kHz to 1 602 kHz (at 9 kHz intervals) 530 kHz to 1 600 kHz (at 10 kHz intervals)
General	Power Requirements		AC 110 - 230 V , 50 Hz/60 Hz
	Power Consumption		20 W (at operation) 1.6 W (in standby mode)
	Dimensions (W × H × D)		400 mm × 85 mm × 386 mm
	Mass		4.6 kg
Subwoofer (SP-PWM65)			
Amplifier	Front/Center/Surround		80 W per channel, RMS at 6 Ω at 1 kHz, with 10 % total harmonic distortion.
	Subwoofer		120 W, RMS at 4 Ω at 100 Hz, with 10 % total harmonic distortion.
Speaker	Speaker unit		20 cm Bass-reflex, Magnetically Shielded
	Frequency Range		25 Hz to 200 Hz
General	Power Requirements		AC 110 V/127 V/220 - 230 V selectable with the voltage selector, 50 Hz/60 Hz
	Power Consumption		150 W (at operation) 0 W (in standby mode)
	Dimensions (W × H × D)		235 mm × 355 mm × 492 mm
	Mass		13.0 kg
Satellite Speakers (SP-THM65F)			
Speakers			5.5 cm × 2 Bass-reflex, Magnetically Shielded
Power Handling Capacity			80 W
Impedance			6 Ω
Frequency Range			90 Hz to 20 kHz
Dimensions (W × H × D)			250 mm × 1 103 mm × 250 mm
Mass			3.77 kg
Center Speaker (SP-THM65C)			
Speakers			5.5 cm × 2 Bass-reflex, Magnetically Shielded
Power Handling Capacity			80 W
Impedance			6 Ω
Frequency Range			90 Hz to 20 kHz
Dimensions (W × H × D)			258 mm × 75 mm × 81 mm
Mass			0.95 kg

Designs & specifications are subject to change without notice.

SECTION 1
PRECAUTION

1.1 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.

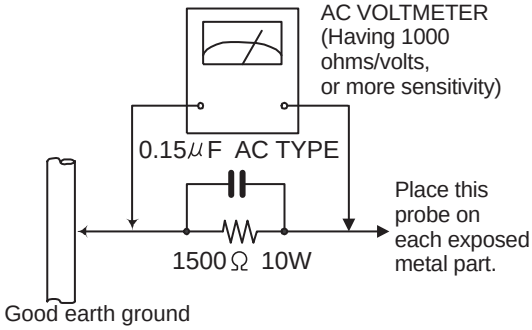
(2) Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturers warranty and will further relieve the manufacture of responsibility for personal injury or property damage 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 (⚠) 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 reassembling.

(5) Leakage shock hazard testing
After reassembling 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, 1,000Ω per volt or more sensitivity in the following manner. Connect a 1,500Ω 10W resistor paralleled by a 0.15μF 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.).



1.2 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.

1.3 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.

1.4 Critical parts for safety

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 " ⚠ " 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.
(This regulation dose not Except the J and C version)

1.5 Preventing static electricity

1.5.1 Grounding to prevent damage by static electricity

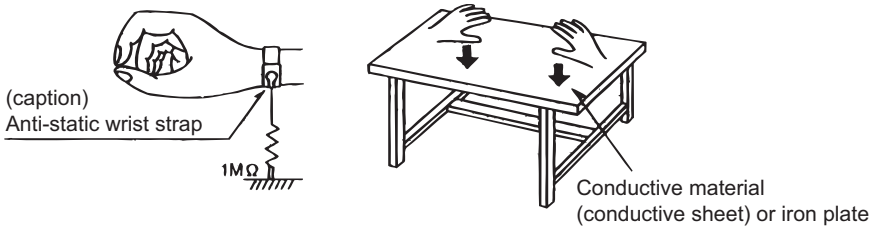
Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pickup). Take care to prevent this when performing repairs.

1.5.2 About the earth processing for the destruction prevention 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) Ground the workbench
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.

(2) Ground yourself
Use an anti-static wrist strap to release any static electricity built up in your body.



1.5.3 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 pick-up 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.

1.5.4 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) Remove solder of the short lands on the flexible wire 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.

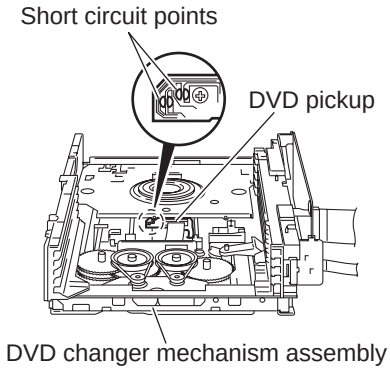
(3) Handle the flexible wire carefully as it may break when subjected to strong force.

(4) It is not possible to adjust the semi-fixed resistor that adjusts the laser power. Do not turn it.

1.5.5 Attention when traverse unit is decomposed

*Please refer to "Disassembly method" in the text for the DVD pickup.

- Apply solder to the short circuit points before the flexible wire is disconnected from the connector on the DVD pickup.
  (If the flexible wire is disconnected without applying solder, the DVD pickup may be destroyed by static electricity.)
- In the assembly, be sure to remove solder from the short circuit points after connecting the flexible wire.



1.6 Important for laser products

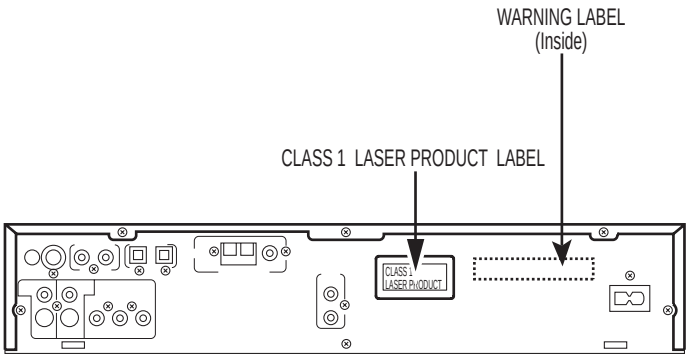
1.CLASS 1 LASER PRODUCT
2.DANGER : Invisible laser radiation when open and inter lock failed or defeated. Avoid direct exposure to beam.
3.CAUTION : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.
4.CAUTION : The compact disc player uses invisible laserradiation and is equipped with safety switches whichprevent emission of radiation when the drawer is open and the safety interlocks have failed or are de
feated. 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.

VARNING : Osynlig laserstrålning när 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 laserstråling ved åbning , når sikkerhedsafbrydere er ude af funktion. Undgåudsættelse for stråling.
ADVARSEL : Usynlig laserstråling ved åpning,når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

REPRODUCTION AND POSITION OF LABELS



SECTION 2
SPECIFIC SERVICE INSTRUCTIONS

This service manual does not describe SPECIFIC SERVICE INSTRUCTIONS.

SECTION 3
DISASSEMBLY

3.1 Main body section

3.1.1 Removing the metal cover (See Figs.1 to 4)

(1) From the right and left sides of the main body, remove the four screws **A** attaching the metal cover. (See Figs.1 and 2.)
(2) From the back side of the main body, remove the three screws **B** attaching the metal cover. (See Fig.3.)
(3) Lift the rear section of the metal cover in the direction of the arrow while extending the lower sections of the metal cover, release the claws **a** using a longer screwdriver from the inside as required. (See Fig.4.)

Note:

Do not damage any parts and boards inside the main body when releasing the joints **a** using a longer screwdriver.

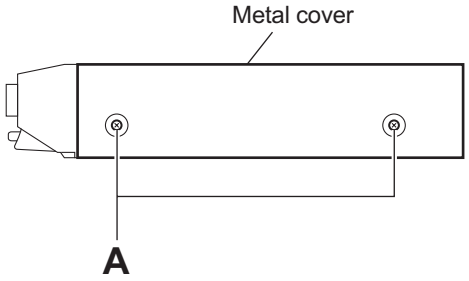


Fig.1

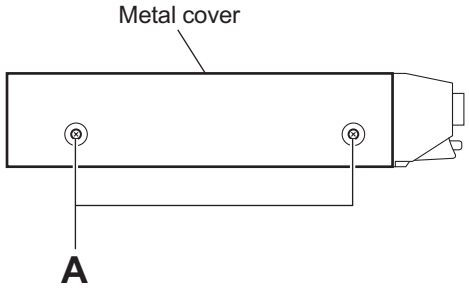


Fig.2

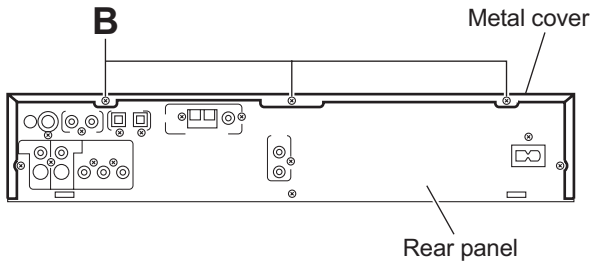


Fig.3

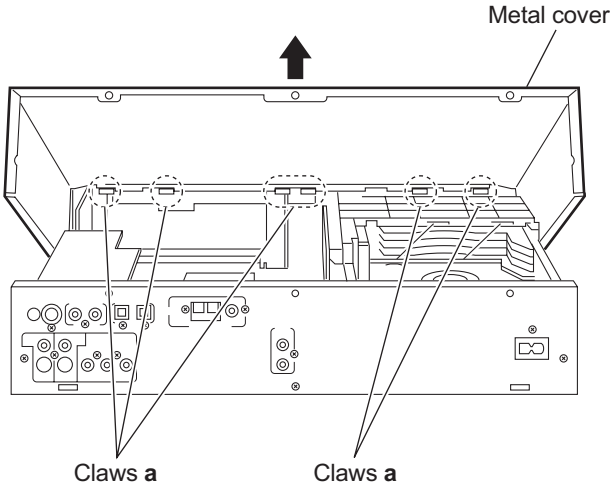


Fig.4

3.1.2 Removing the front panel assembly (See Figs.5 and 6)

- Prior to performing the following procedures, remove the metal cover.
  (1) From the top side of the main body, disconnect the parallel wires from the connectors (CN408,CN409) on the main board. (See Fig.5.)
  (2) Disconnect the card wires from the connectors (CN407, CN413) on the main board. (See Fig.5.) [US/UW/UG version]
  (3) Disconnect the card wires from the connectors (CN407, CN412) on the main board. (See Fig.5.) [UJ version]
  (4) Remove the screw **C** attaching the earth wire to the main board. (See Fig.5.)
  (5) From the bottom side of the main body, remove the three screws **D** attaching the front panel assembly. (See Fig.6.)
  (6) Release the two hooks **b** and hook **c** from the both and bottom sides of the main body, and remove the front panel assembly in the direction of the arrow. (See Figs.5 and 6.)

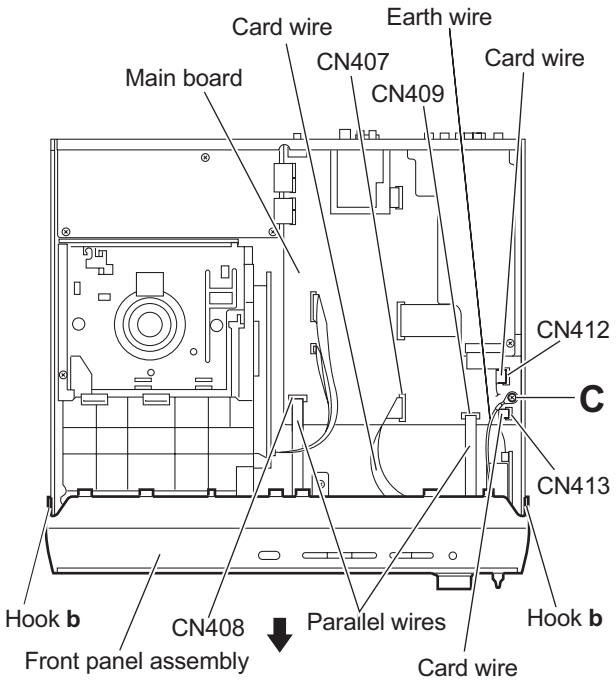


Fig.5

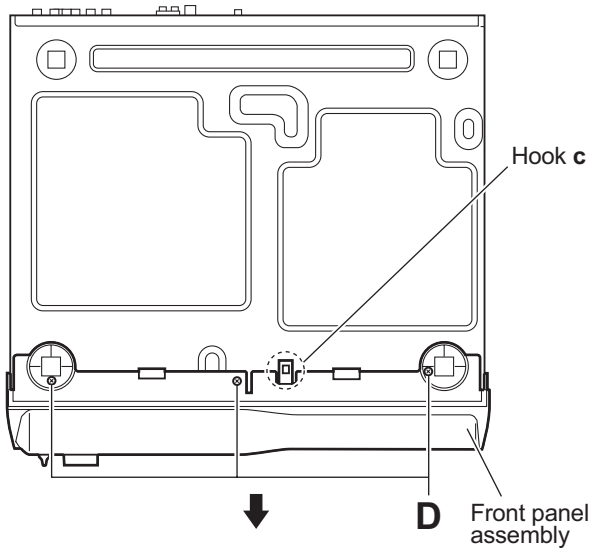


Fig.6

3.1.3 Removing the DVD changer mechanism assembly (See Fig.7)

- Prior to performing the following procedures, remove the metal cover and front panel assembly.
  (1) From the top side of the main body, disconnect the card wires from the connectors (CN405,CN415) on the main board.
  (2) Remove the four screws **E** attaching the DVD changer mechanism assembly to the bottom chassis.
  (3) Take out the DVD changer mechanism assembly in an upward direction.

Note:

When attaching the screw **E**, fit the hole of the DVD changer mechanism assembly to the bosses **d** on the bottom chassis.

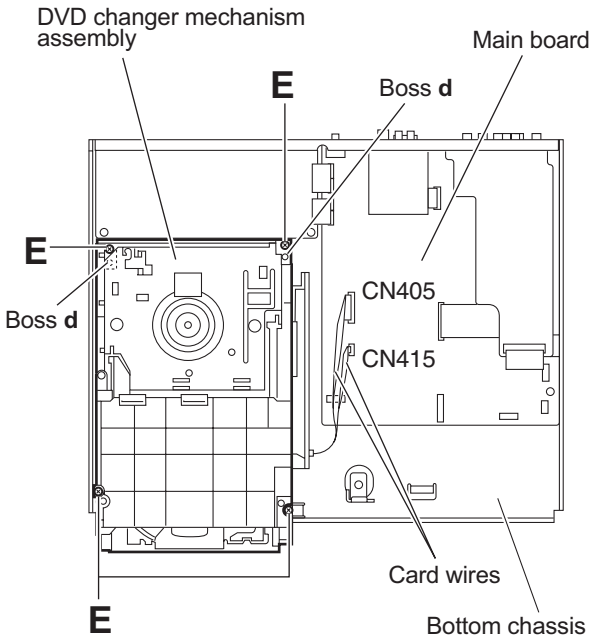


Fig.7

3.1.4 Removing the rear panel (See Fig.8)

- Prior to performing the following procedure, remove the metal cover.
  (1) From the back side of the main body, remove the screw **F**, ten screws **G** and three screws **H** attaching the rear panel.

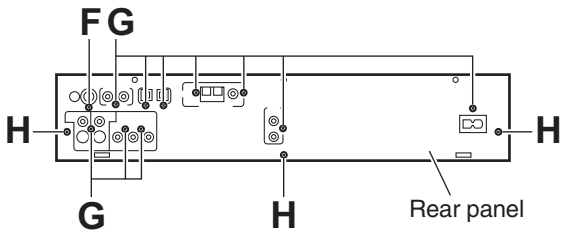


Fig.8

3.1.5 Removing the audio & digital input board (See Figs.9 and 10)

- Prior to performing the following procedures, remove the metal cover.
  (1) From the top side of the main body, disconnect the card wire from the connector CN401 on the audio & digital input board. (See Fig.9.)
  (2) Remove the screw **J** attaching the audio & digital input board. (See Fig.9.)
  (3) From the back side of the main body, remove the screw **K** and three screws **L** attaching the audio & digital input board to the rear panel. (See Fig.10.)
  (4) Take out the audio & digital input board from the main body.

3.1.6 Removing the tuner (See Figs.9 and 10)

- Prior to performing the following procedures, remove the metal cover.
  (1) From the top side of the main body, disconnect the card wire from the connector CN1 on the tuner. (See Fig.9.)
  (2) From the back side of the main body, remove the two screws **M** attaching the tuner to the rear panel. (See Fig.10.)
  (3) Take out the tuner from the main body.

3.1.7 Removing the power supply board (See Figs.9 and 10)

- Prior to performing the following procedures, remove the metal cover.
  (1) From the top side of the main body, disconnect the parallel wires from the connectors (CN416,CN402 to CN404) on the main board. (See Fig.9.)
  (2) Remove the three screws **N** attaching the power supply board. (See Fig.9.)
  (3) From the back side of the main body, remove the screw **P** attaching the power supply board to the rear panel. (See Fig.10.)
  (4) Take out the power supply board from the main body.

Reference:

Remove the rear panel as required. (See Fig.8.)

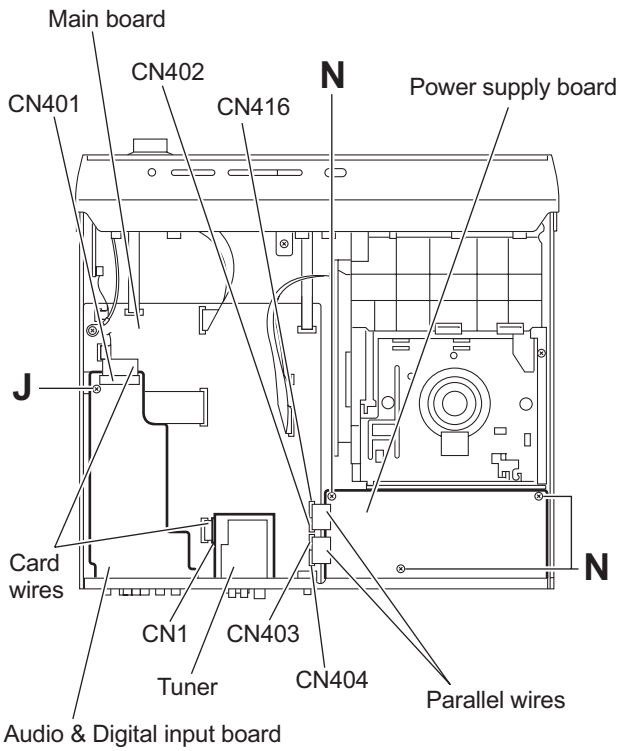


Fig.9

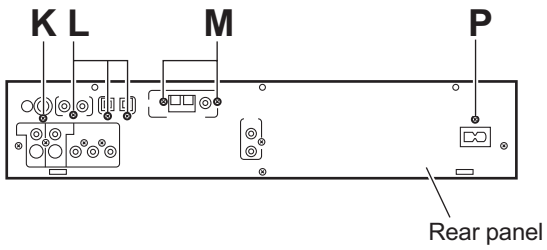


Fig.10

3.1.8 Removing the main board (See Figs.11 to 13)

- Prior to performing the following procedures, remove the metal cover.
  (1) From the top side of the main body, disconnect the card wires from the connectors (CN405, CN407, CN410, CN411, CN413, CN415) on the main board. (See Fig.11.) [US/UW/UG version]
  (2) From the top side of the main body, disconnect the card wires from the connectors (CN405, CN407, CN410, CN411, CN412, CN415) on the main board. (See Fig.11.) [UJ version]
  (3) Disconnect the parallel wires from the connectors (CN416, CN402 to CN404, CN408, CN409) on the main board. (See Fig.11.)
  (4) Remove the screw **Q** attaching the audio & digital input board. (See Fig.11.)
  (5) From the back side of the main body, remove the five screws **R** and three screws **S** attaching the rear panel. (See Fig.12.)
  (6) Take out the rear panel together the audio & digital input board and tuner.
  (7) From the top side of the main body, remove the screw **T** and two screws **U** attaching the main board to the bottom chassis. (See Fig.13.)

Note:
When attaching the screw **T**, attach the earth wire of the front panel assembly at the same time.

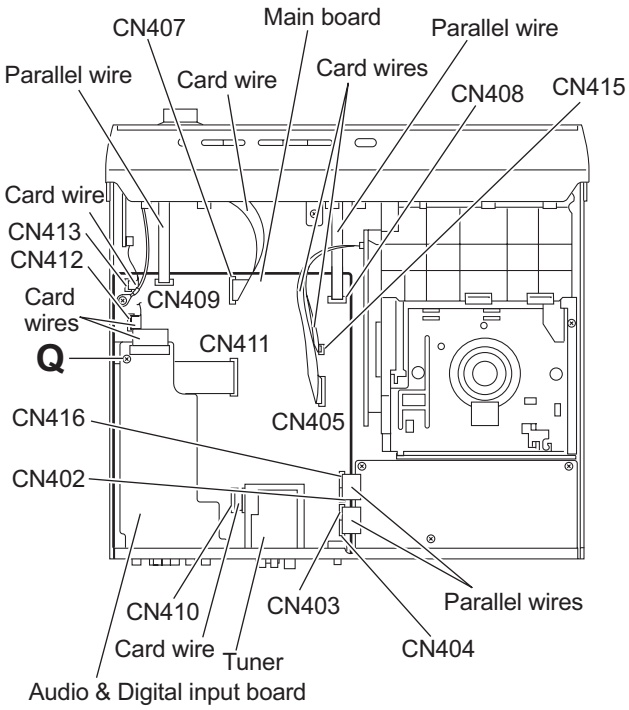


Fig.11

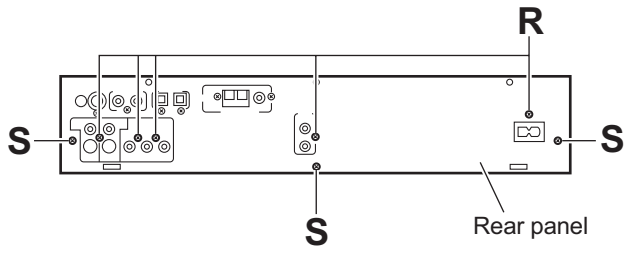


Fig.12

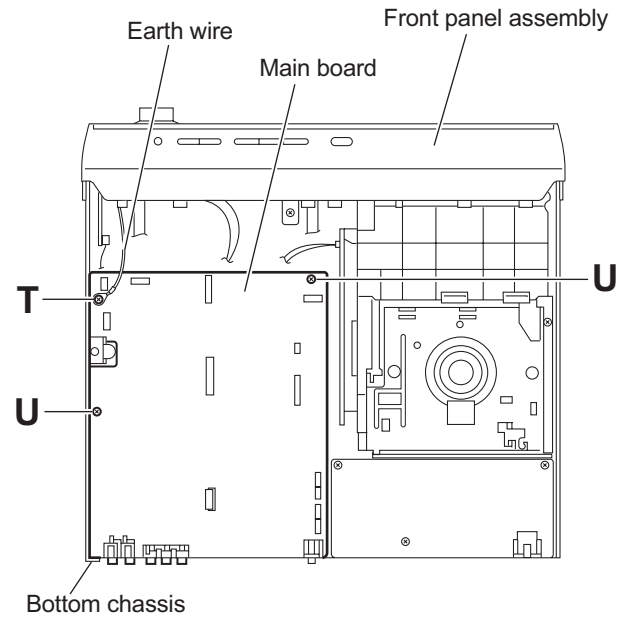


Fig.13

3.1.9 Removing the connect board (See Fig.14)

- Prior to performing the following procedures, remove the metal cover and front panel assembly.
  (1) From the inside of the front panel assembly, disconnect the card wire from the connector CN561 on the connect board.
  (2) Remove the screw **V** attaching the support board.
  (3) Take out the connect board.

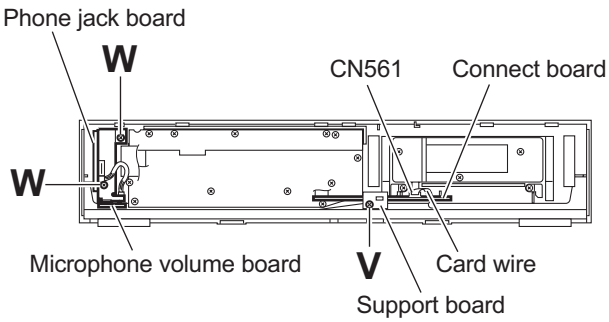


Fig.14

3.1.10 Removing the phone jack board and microphone volume board (See Figs.14,15 and 17)

- Prior to performing the following procedures, remove the metal cover and front panel assembly.
  (1) From the front side of the front panel assembly, pull out the microphone volume knob. (See Fig.17.) [US/UW/UG version]
  (2) From the inside of the front panel assembly, remove the two screws **W** attaching the phone jack board. (See Fig.14.)
  (3) Take out the phone jack board together the microphone volume board. [US/UW/UG version]
  (4) Take out the phone jack board. [UJ version]
  (5) From the forward side of the phone jack board, disconnect the wire from the connector CN702 on the phone jack board. (See Fig.15.) [US/UW/UG version]
  (6) From the reverse side of the microphone board, remove the screw **X** attaching the microphone board to the bracket(H.phone) on the phone jack board. (See Fig.15.) [US/UW/UG version]

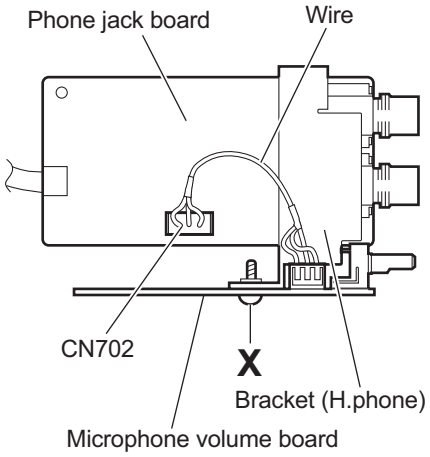


Fig.15

3.1.11 Removing the operation board (See Fig.16)

- Prior to performing the following procedures, remove the metal cover and front panel assembly.
  (1) Remove the two screws **Y** attaching the operation board.
  (2) Take out the operation board together the button(top).

Reference:
Remove the button(top) from the front board as required.

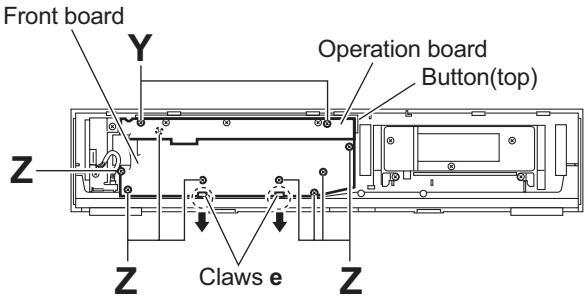


Fig.16

3.1.12 Removing the front board (See Figs.16 and 17)

- Prior to performing the following procedures, remove the metal cover, front panel assembly and connect board and operation board.
  (1) From the front side of the front panel assembly, pull out the volume knob. (See Fig.17.)
  (2) From the inside of the front panel assembly, remove the eight screws **Z** attaching the front board. (See Fig.16.)
  (3) Take out the front board while releasing the claws **e** in the direction of the arrow. (See Fig.16.)

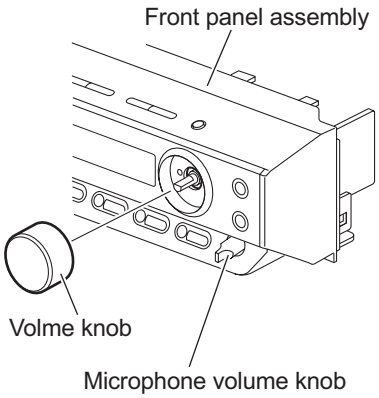


Fig.17

3.1.13 Removing the illumination board
(See Figs.18 and 19)

(1) Open the door assembly of the front panel assembly and remove the three screws **AA** attaching the door cover to the door assembly. (See Fig.18.)
(2) Disconnect the card wire from the connector CN551 on the illumination board. (See Fig.19.)
(3) Take out the illumination board from the door assembly.

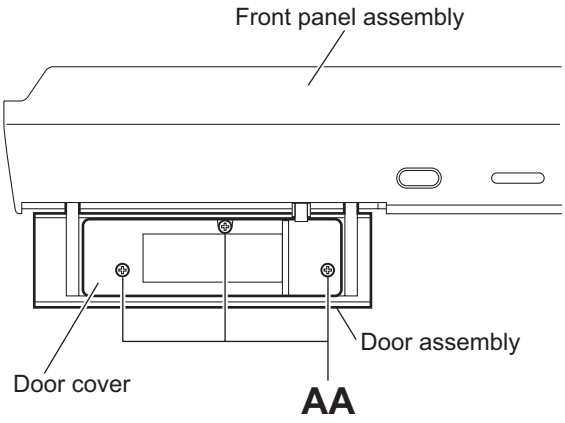


Fig.18

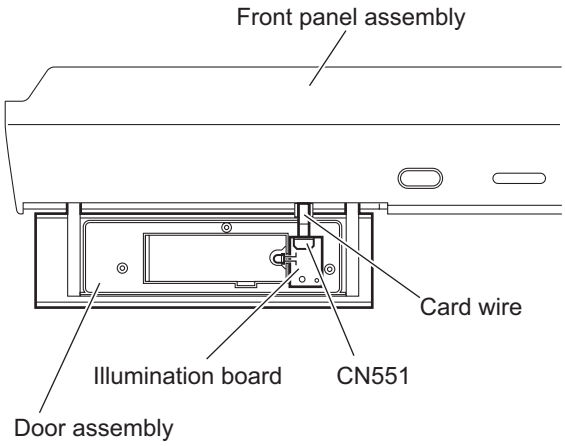


Fig.19

3.2 DVD changer mechanism assembly section

3.2.1 Removing the tray assemblies (See Figs.1 to 5)

(1) Remove the two screws **A** from the top cover and release the two joints **a** on the both sides of the DVD changer mechanism assembly. (See Figs.1 and 2.)
(2) Remove the two rods from the top cover and remove the top cover from the lifter assembly. (See Figs.1 and 2.)
(3) Remove the open det lever on the left side of the DVD changer mechanism assembly. (See Fig.3.)
(4) From the right side of the DVD changer mechanism assembly, draw out the tray assemblies toward the front while pushing the part b of the side (R) assembly. (See Fig.4.)

Attention:
The tray can be locked if all tray assemblies are attached.

(5) From the topside of the DVD changer mechanism assembly, move the stopper tabs c in the direction of the arrow and release them. Pull out the tray assemblies from the DVD changer mechanism assembly. (See Figs.4 and 5.)

Caution:
Remove the tray assembly from top tray 5 in order.

Attention:
When reattaching the tray assembly, or when removing the disc remaining inside, refer to another section "3.2.15 Taking out the disc in the play mode (See Fig.39 to 42)".

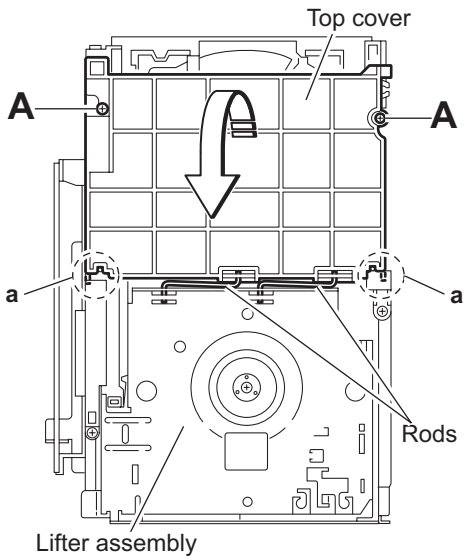


Fig.1

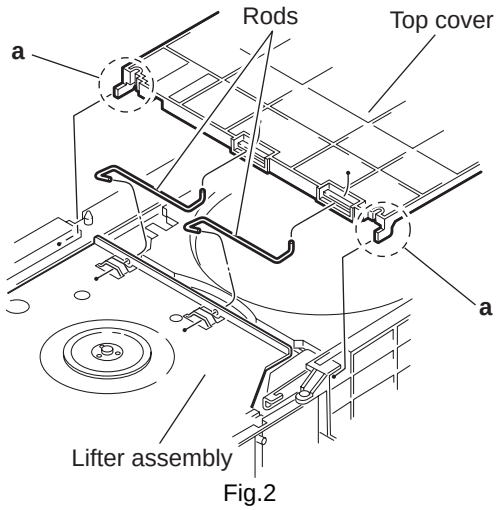


Fig.2

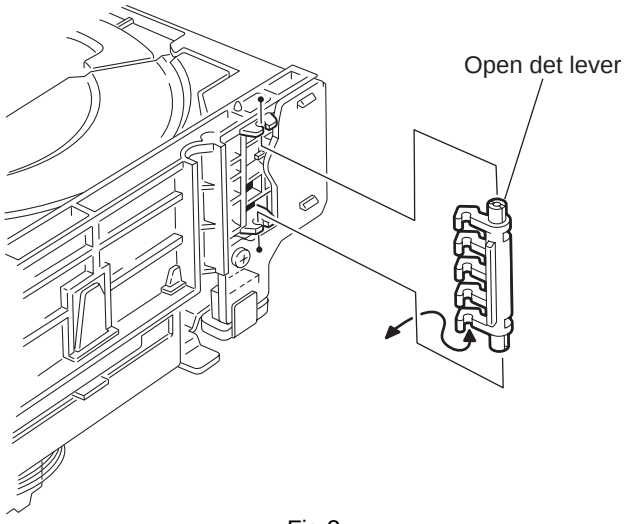


Fig.3

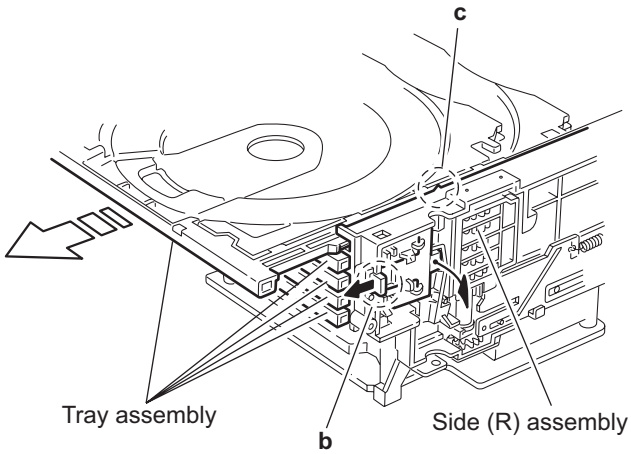


Fig.4

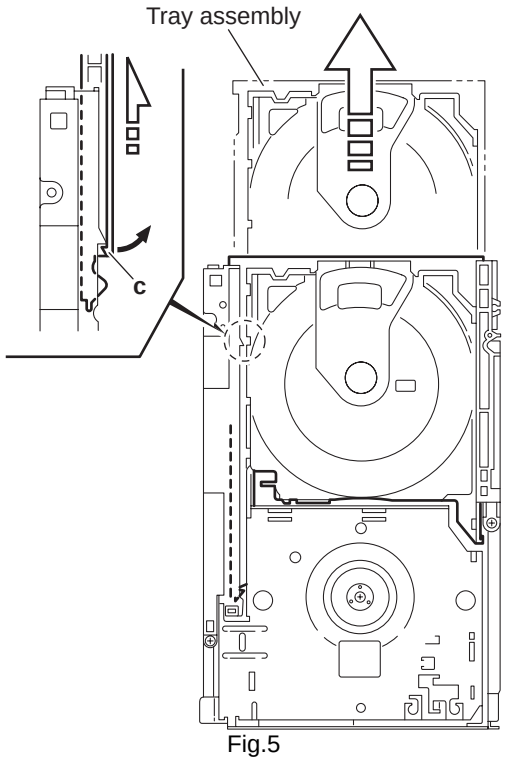


Fig.5

3.2.2 Removing the DVD servo board (See Figs.6 and 7)

- Prior to performing the following procedures, remove the tray assemblies.

(1) From the topside of the DVD changer mechanism assembly, solder the short-circuit points **d** on the DVD pick up. (See Fig.6.)

Caution:
Solder the short-circuit points **d** on the DVD pickup before disconnecting the flexible wire extending from the DVD pickup. If you do not follow this instruction, the DVD pickup may be damaged.

(2) From the right side of the DVD changer mechanism assembly, disconnect the card wires from the connectors (CN103, CN201) and the wires from the connectors (CN104, CN205) and the flexible wire from the connector CN101 on the DVD servo board. (See Fig.7.)

(3) Remove the screw **B** attaching the bracket to the DVD changer mechanism assembly. (See Fig.7.)

(4) Release the two sections **e** of the bracket from the DVD changer mechanism assembly and remove the DVD servo board with the bracket. (See Fig.7.)

(5) Remove the two screws **C** attaching the DVD servo board to the bracket. (See Fig.7.)

(6) Release the three sections **f** of the bracket and remove the DVD servo board. (See Fig.7.)

Caution:
Unsolder the solders from the short-circuit points **d** after reassembling.

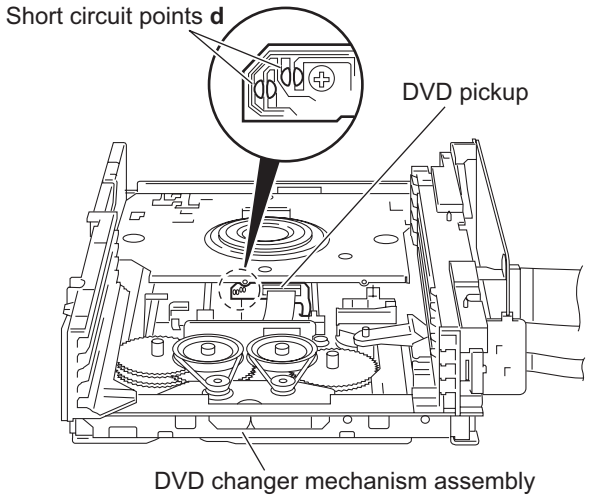


Fig.6

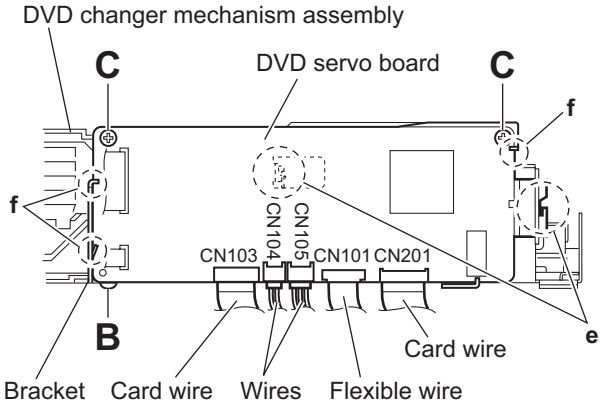


Fig.7

3.2.3 Removing the switch board (See Fig.8)

(1) From the bottom side of the DVD changer mechanism assembly, disconnect the wires from connectors CN104 and CN105 on the DVD servo board.

(2) Remove the screw **D** attaching the switch board to the DVD changer mechanism assembly.

(3) Release the wires from the slots g of the switch board.

Caution:
When reassembling, let the wires through the slots g of the switch board.

Reference:
When connecting the wires to the connectors on the DVD servo board, fix the wires with spacer.

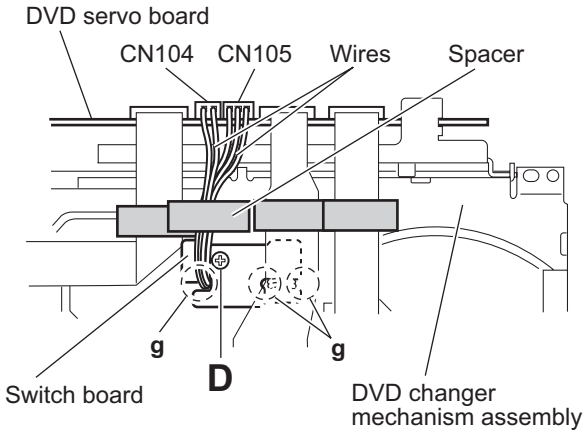


Fig.8

3.2.4 Removing the motor board (See Figs.9 and 10)

(1) From the top side of the DVD chnager mechanism assembly, remove the two belts from the motor pulleys. (See Fig.9.)

Caution:

Take care not to attach grease on the belt.

(2) Remove the four screws **E** attaching the motors to the chassis assembly. (See Fig.9.)

(3) From the bottom side of the DVD changer mechanism assembly, remove the two screws **F**. (See Fig.10.)

(4) Disconnect the connector CN2 on the motor board from the tray switch board and remove the motor board. (See Fig.10.)

(5) Disconnect the card wire from the connector CN1 on the motor board. (See Fig.10.)

Caution:

- When connecting the card wire, let the card wire through the slots h of the motor board. (See Fig.10.)
- When reattaching the motor, turn the side where the label should be put to the front side. (See Fig.10.)

Reference:

- You need not to remove the tray assemblies, and in such case, move it.
- After connecting the motor board, attach the spacer on the motor board. (See Fig.10.)

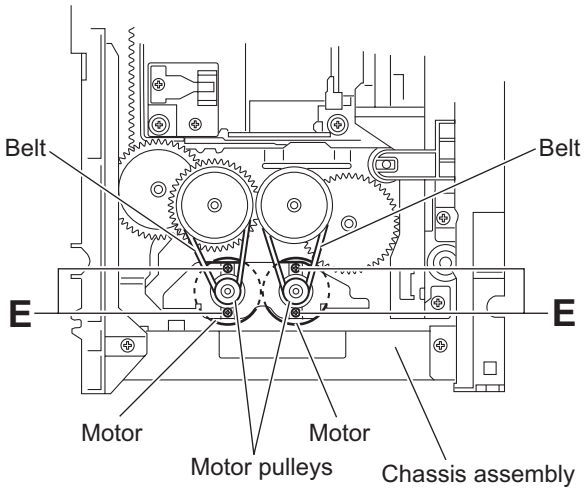


Fig.9

3.2.5 Removing the motor (See Fig. 10)

- Prior to performing the following procedures, remove the motor board.

(1) From the reverse side of the motor board, unsolder the four soldered sections **i** on the motor board.

(2) From the forward side of the motor board, remove the motors.

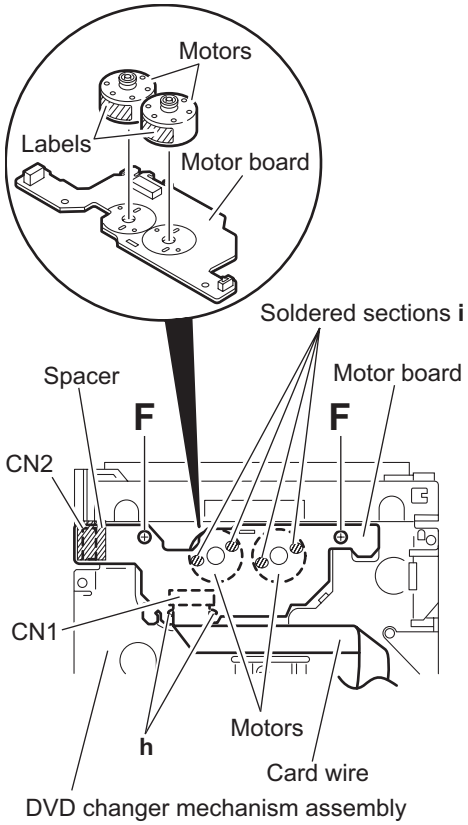


Fig.10

3.2.6 Removing the DVD traverse mechanism assembly (See Figs.6 and 11)

- Prior to performing the following procedures, remove the tray assemblies.
  (1) From the topside of the DVD changer mechanism assembly, solder the short-circuit points **d** on the DVD pick up. (See Fig.6.)

  Caution:
  Solder the short-circuit points **d** on the DVD pickup before disconnecting the flexible wire extending from the DVD pickup. If you do not follow this instruction, the DVD pickup may be damaged.
  (2) From the bottom side of the DVD changer mechanism assembly, disconnect the flexible wire from the connector CN101 on the DVD servo board. (See Fig.11.)
  (3) Disconnect the card wire from the connector CN201 on the DVD servo board. (See Fig.11.)
  (4) Remove the three screws **G** attaching the DVD traverse mechanism assembly. (See Fig.11.)
  (5) Take out the DVD traverse mechanism assembly from the DVD changer mechanism assembly.

Caution:
Unsolder the solders from the short-circuit points **d** after reassembling.

Reference:
When connecting the each wire to the connectors on the DVD servo board, fix the each wire with spacers.

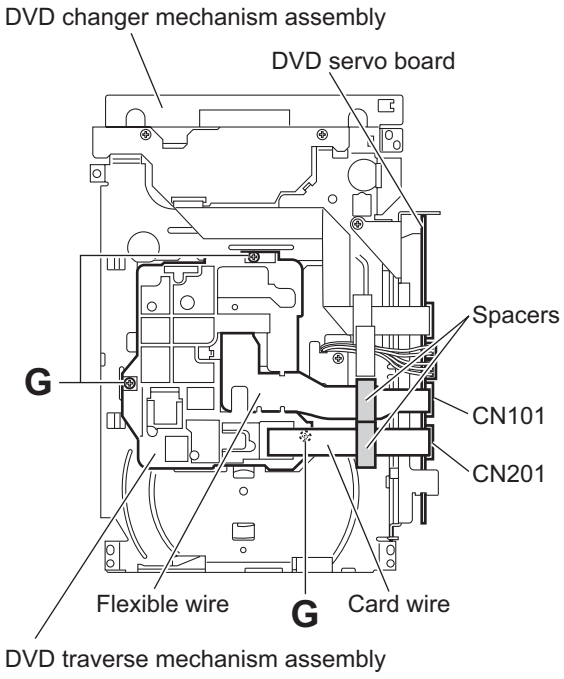


Fig.11

3.2.7 Removing the DVD pickup (See Figs.12 to 14)

- Prior to performing the following procedures, remove the tray assemblies and DVD traverse mechanism assembly.
  (1) From topside of the DVD traverse mechanism assembly, disconnect the flexible wire from the connector on the DVD pickup. (See Fig.12.)
  (2) Turn the screw shaft gear in the direction of the arrow 1 to move the DVD pickup in the direction of the arrow 2. (See Fig.12.)
  (3) Remove the screw **H** attaching the gear holder. (See Fig.12.)
  (4) Remove the screw **J** attaching the SS adj. spring. (See Fig.12.)
  (5) Move the DVD pickup in the direction of the arrow and remove the screw shaft from the section **j** on the screw shaft holder. (See Fig.13.)
  (6) Remove the section **k** of the DVD pickup from the guide shaft. (See Fig.13.)
  (7) Remove the two screws **K** attaching the rack arm to the DVD pickup. (See Fig.14.)
  (8) Pull the screw shaft from the DVD pickup in the direction of the arrow. (See Fig.14.)

3.2.8 Attaching the DVD pickup (See Figs.12 to 14)

(1) Attach the screw shaft to the DVD pickup and attach the rack arm with the screws **K**. (See Fig.14.)

Reference:

After attaching the screw shaft to the DVD pickup, attach the screw shaft collar to the screw shaft. (See Fig.14.)

(2) Attach the section **k** of the DVD pickup to the guide shaft first and attach the screw shaft to the section **j** on the screw shaft holder. (See Fig.14.)
(3) Attach the SS adj. spring and gear holder with the screws **H** and **J**. (See Fig.12.)
(4) Turn the screw shaft gear to move the DVD pickup toward the left. (See Fig.12.)
(5) Connect the flexible wire to the connector on the DVD pickup. (See Fig.12.)

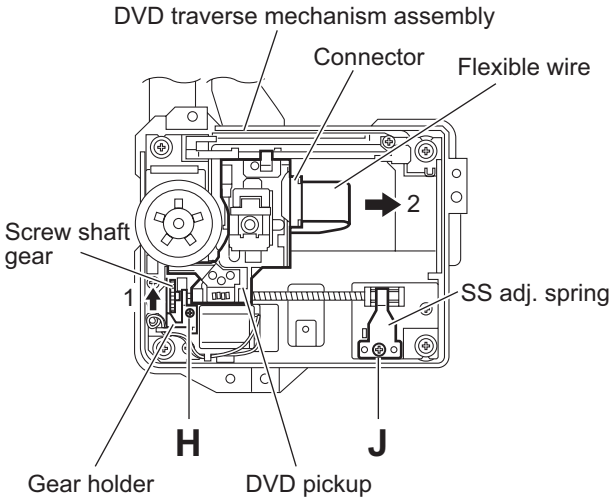


Fig.12

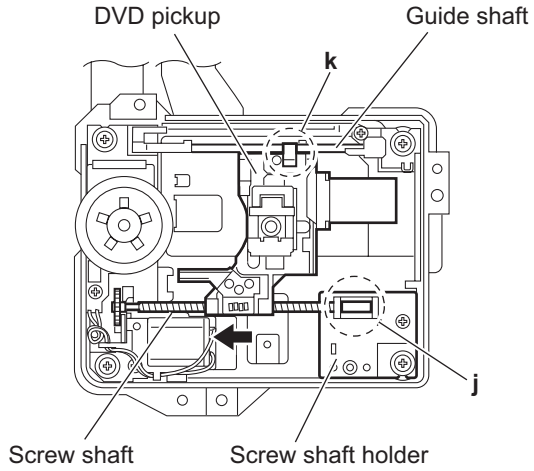


Fig.13

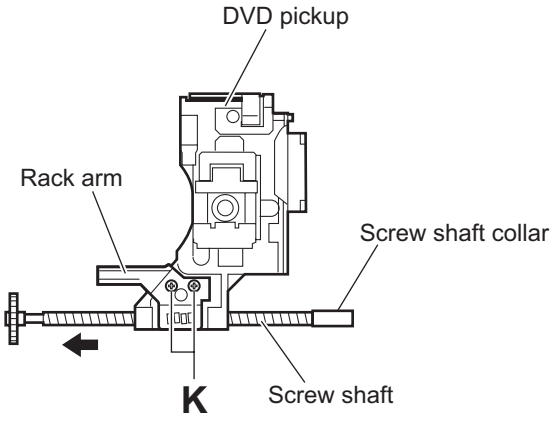


Fig.14

3.2.9 Removing the spindle motor board (See Figs.15 and 16)

- Prior to performing the following procedures, remove the tray assemblies and DVD traverse mechanism assembly.
  (1) From the topside of the DVD traverse mechanism assembly, remove the four screws **L** attaching the DVD traverse mechanism assembly to the DVD traverse mechanism base. (See Fig.15.)
  (2) Remove the wires from the solered section **m** on the spindle motor board. (See Fig.15.)
  (3) Remove the screw **M** attaching the spindle motor board. (See Fig.15.)
  (4) From the bottom side of the DVD traverse mechanism assembly, remove the three screws **N** attaching the spindle motor board. (See Fig.16.)

Reference:

When attaching the spindle motor board, let the card wire through the hole n on the motor base. (See Fig.15.)

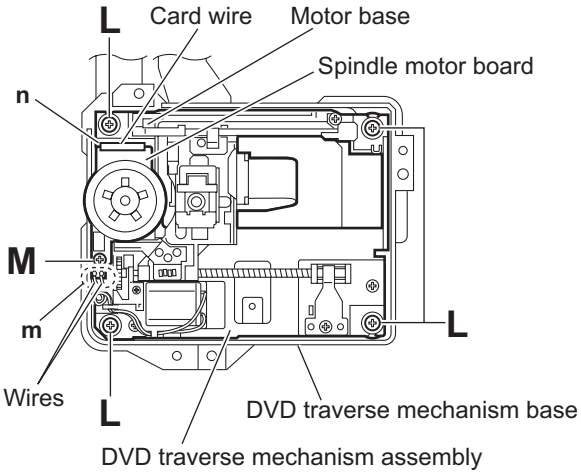


Fig.15

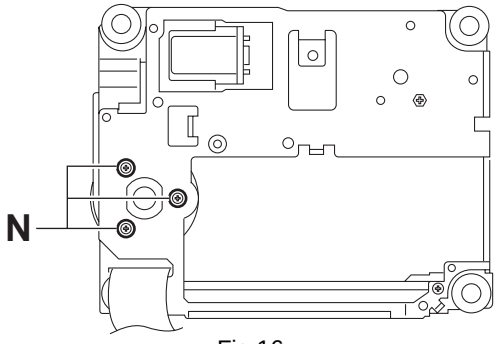


Fig.16

3.2.10 Removing the feed moter (See Figs.17 and 18)

- Prior to performing the following procedures, remove the tray assemblies, DVD traverse mechanism assembly, DVD pickup and spindle motor board.
- Remove the wires of the feed motor as required.
  (1) Remove the middle gear in the direction of the arrow. (See Fig.17.)
  (2) Remove the screw **P** and screw **Q** attaching the motor base.
  (3) Remove the screw **R** attaching the feed motor to the motor base. (See Fig.18.)
  (4) Take out the feed motor from the motor base.

Reference:

After attaching the feed motor, let the wires through the sections **p** and **q** on the motor base. (See Fig.17.)

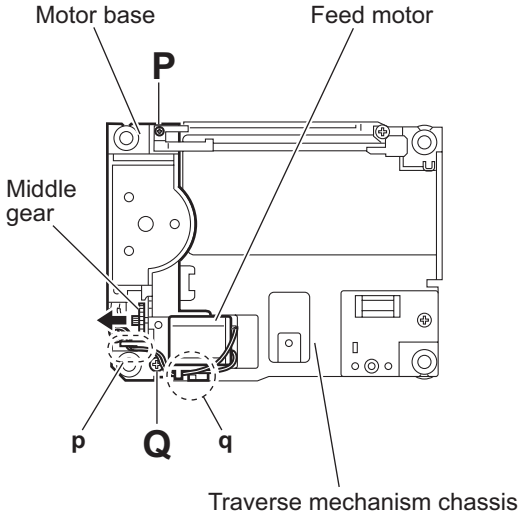


Fig.17

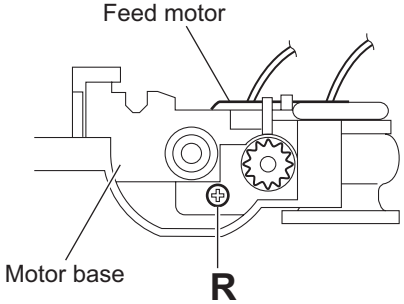


Fig.18

3.2.11 Removing the side (L) assembly and tray switch board (See Figs.19 to 21)

- Prior to performing the following procedures, remove the tray assemblies.
  (1) From the topside of the DVD changer mechanism assembly, remove the two screws **S** attaching the side (L) assembly. (See Fig.19.)
  (2) From the left side of the DVD changer mechanism assembly, removing the spacer fixing the tray switch board and motor board. (See Fig.20.)
  (3) Disconnect the connector CN3 on the tray switch board from the motor board and detach the side (L) assembly in an upward direction. (See Fig.20.)
  (4) Remove the screw **T** attaching the tray switch board to the side (L) assembly. (See Fig.21.)
  (5) Release the joint tab **r** of the side (L) assembly in the direction of the arrow 1 and release the joint tab **s** while removing the tray switch board in the direction of the arrow 2. (See Fig.21.)

Reference:

After attaching the tray switch board to the motor board, fix them with spacers.

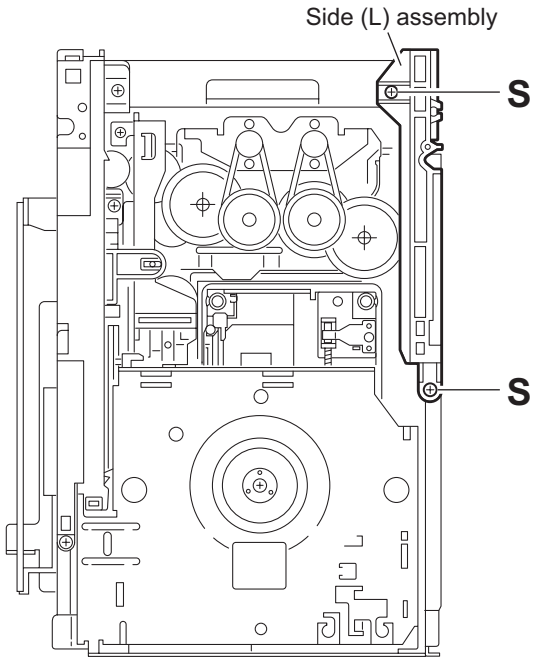


Fig.19

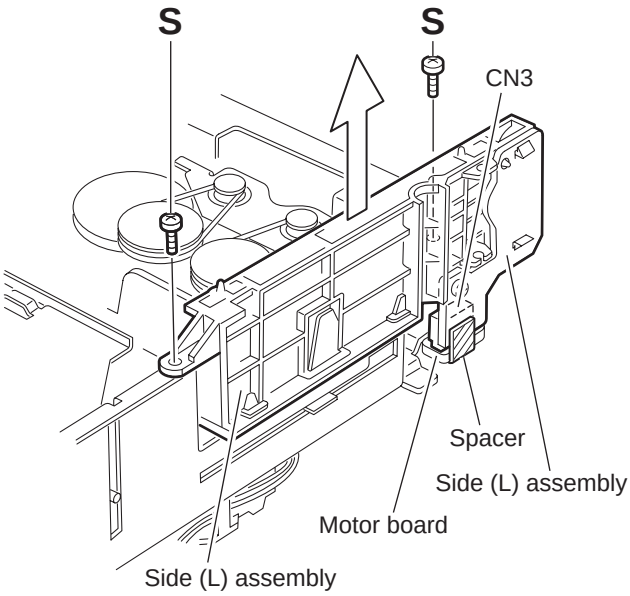


Fig.20

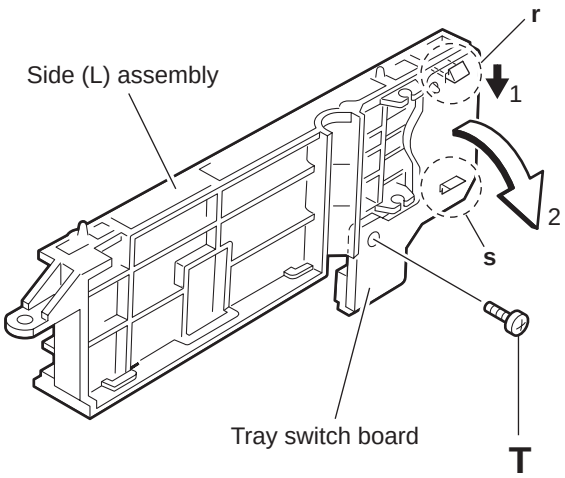


Fig.21

3.2.12 Removing the side (R) assembly (See Fig.22 to 26)

- Prior to performing the following procedures, remove the tray assemblies and DVD servo board.
- When removing the DVD servo board, it is not necessary to remove the DVD servo board from the bracket.
  (1) From the inside of the side (R) assembly, release the two tabs t of the gear cover and remove the gear cover outward. (See Figs.22 and 23.)
  (2) From the right side of the DVD changer mechanism assembly, remove the elevator spring attached to the hook **u** of the chassis assembly. (See Figs.23 and 24.)
  (3) From the topside of the DVD changer mechanism assembly, turn the gear 1 clockwise to move the elevator cam rearward. (See Fig.24.)
  (4) Move the two slots v and joint **w** of the elevator cam and remove the elevator cam outward. (See Fig.24.)
  (5) Remove the three screws **U** and detach the side (R) assembly upward. (See Figs.25 and 26.)

Caution:

When reattaching the side (R) assembly, make sure to fit the shaft (part x) into the slot of the select lever. (See Fig.25.)

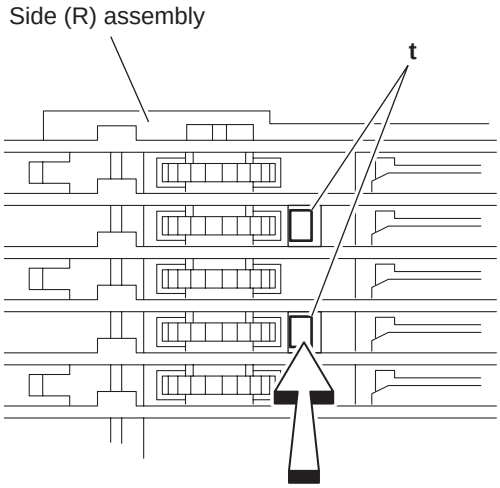


Fig.22

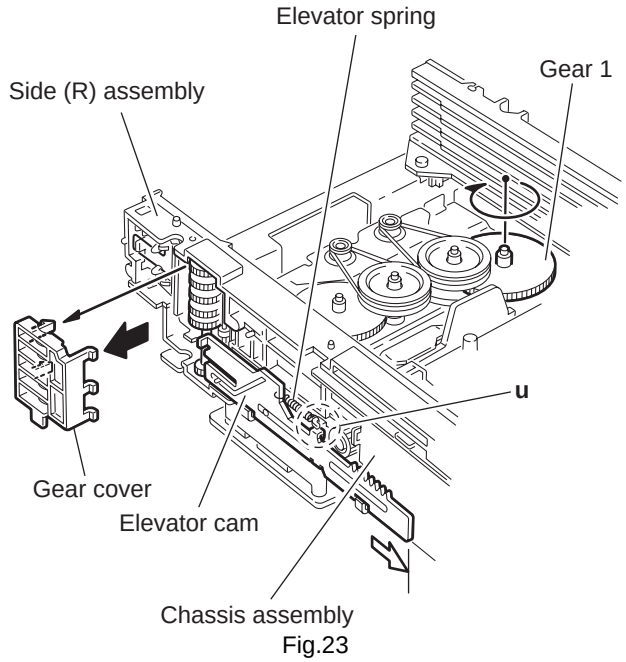


Fig.23

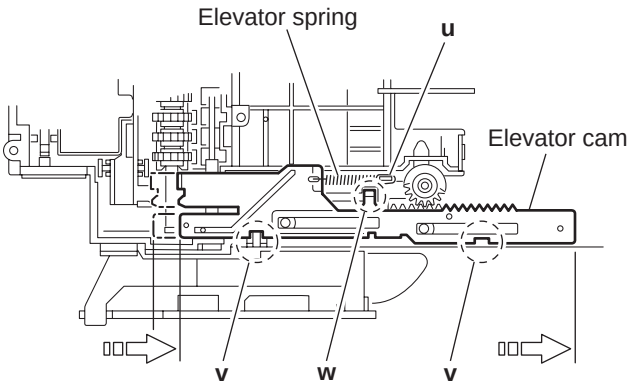


Fig.24

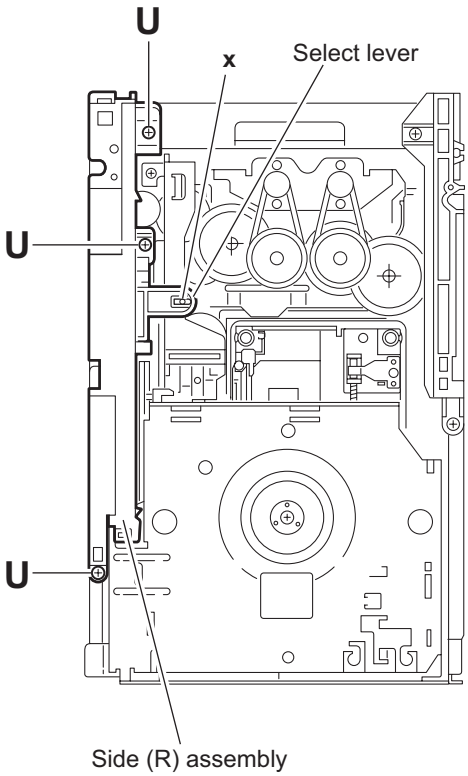


Fig.25

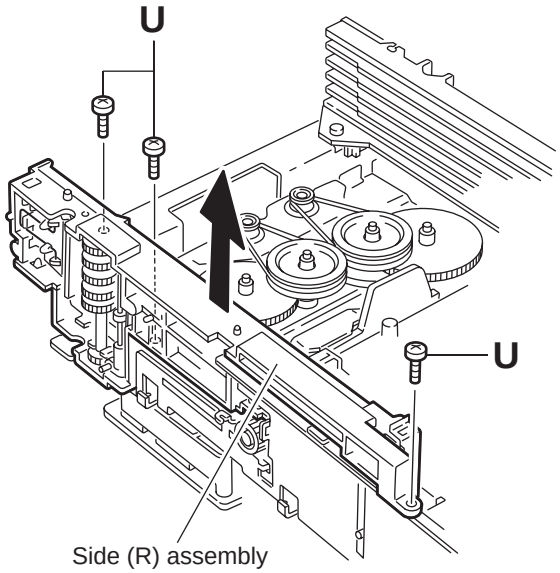


Fig.26

3.2.13 Removing the lifter assembly (See Figs.27 to 31)

- Prior to performing the following procedures, remove the tray assembies, DVD servo board, side (L) assembly and side (R) assembly.
- When removing the DVD servo board, it is not necessary to remove the DVD servo board from the bracket.
  (1) From the topside of the DVD changer mechanism assembly, turn the gear 1 clockwise to move the lifter assembly upward. (See Figs.27 and 28.)
  (2) Turn the gear 2 clockwise to move the hook toward the front until it stops. (See Figs.27 and 28.)
  (3) Move the hook stopper in the direction of the arrow 2 while pushing the tab y of the hook stopper to unlock it in the direction of the arrow 1 and release four joints **z** to detach from the rack holder. (See Fig.29.)
  (4) Release the rod from part aa. (See Fig.29.)
  (5) Turn the gear 1 clockwise again to move the lifter assembly upward. (See Fig.30.)
  (6) Remove the lifter assembly from the DVD changer mechanism assembly upward at the positions ab where the four pins on the both sides of the lifter assembly fit to the notches of the chassis assembly. (See Fig.30.)
  (7) Move the lifter assembly in the direction of the arrow and release it from the hook. (See Fig.31.)

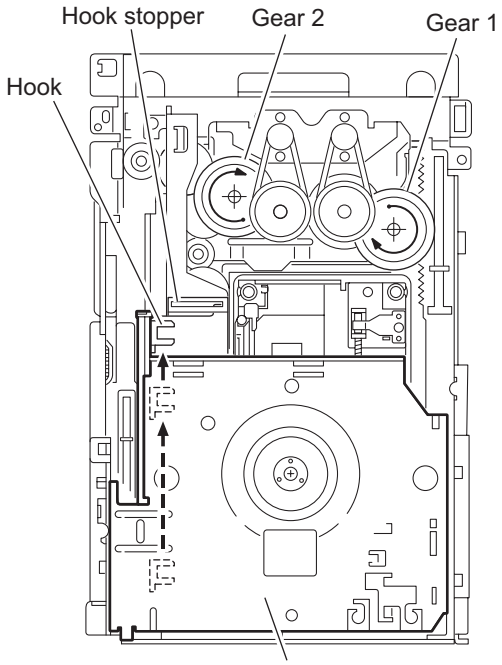


Fig.27

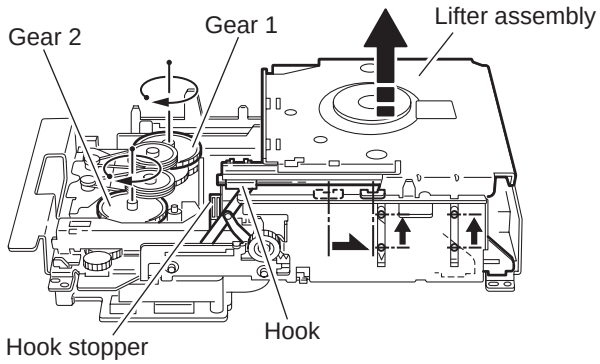


Fig.28

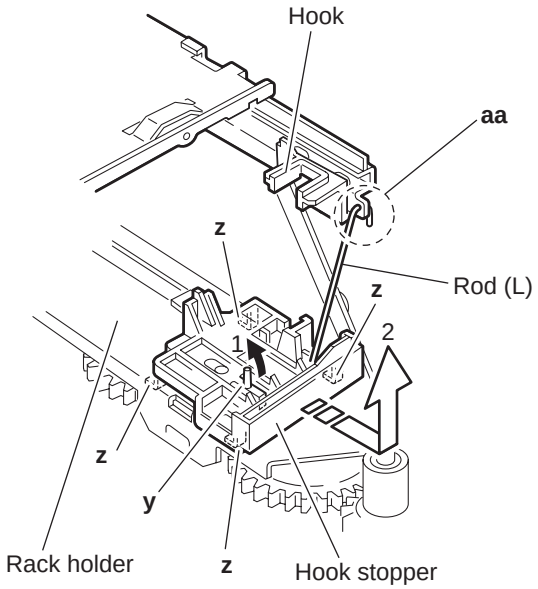


Fig.29

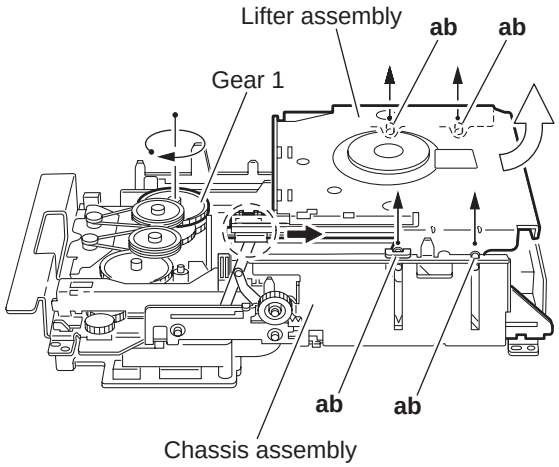


Fig.30

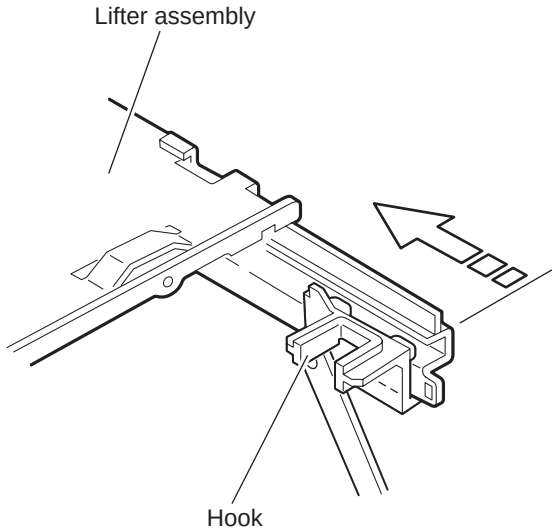


Fig.31

3.2.14 Removing the rack holder assembly and sensor assembly (See Figs.32 to 38)

- Prior to performing the following procedures, remove the tray assemblies, side (L) assembly, side (R) assembly and lifter assembly.

Reference:

If the slide gear of the DVD changer mechanism assembly places at joint **ac** of the rack holder assembly, turn the gear 1 counterclockwise to move the slide gear in the direction of the arrow. Then Remove the rack holder assembly. (See Figs.32 and 33.)

(1) Remove the three screws **V** attaching the rack holder assembly and release joint **ac** from the notch ad. (See Figs.32 and 34.)

Caution:

When reattaching the rack holder assembly, do not nip the wires extending from the sensor assembly. (See Fig.32.)

(2) Remove the two screws **W** attaching the sensor assembly. (See Figs.35 and 38.)

(3) Move the sensor assembly in the direction of the arrow to release from the joint section **ae**. (See Figs.35 and 38.)

(4) Remove the sensor spring attached to the bottom of the sensor assembly from the boss af on the sensor slider. (See Figs.35 and 36.)

(5) Remove the screw **X** and **Y** attaching the sensor board and SV. resister respectively. (See Fig.37.)

Reference:

Remove the soldered section **ai** on the sensor board as required. (See Fig.37.)

Caution:

- When reattaching the SV. resister, attach the sensor slider to the sensor bracket and fit the lever on the bottom of the SV. resister into slot aj of the sensor slider. (See Figs.36 and 37.)
- When reattaching the rack holder assembly, turn the gear 1 clockwise to move the slide gear and slide lever inside the body in the direction of the arrow. (See Figs.32 and 38.)
- Let the wire extending from the sensor assembly through notch ag to the bottom of the DVD changer mechanism assembly. (See Figs.35 and 38.)
- Fit pin ak of the slide lever into hole ah of the sensor slider on the bottom of the sensor assembly while attaching the sensor spring to the boss af of the sensor slider. (See Figs.36 and 38.)
- Joint section **ae** of the sensor assembly to the notch am of the DVD changer mechanism assembly. (See Figs.35 and 38.)

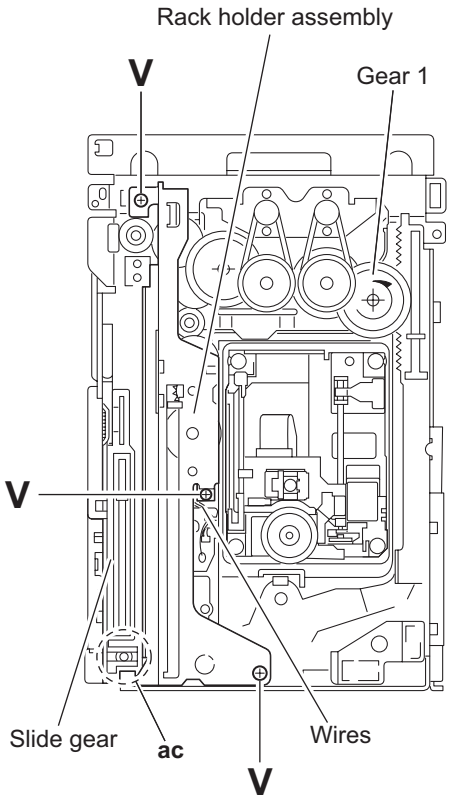


Fig.32

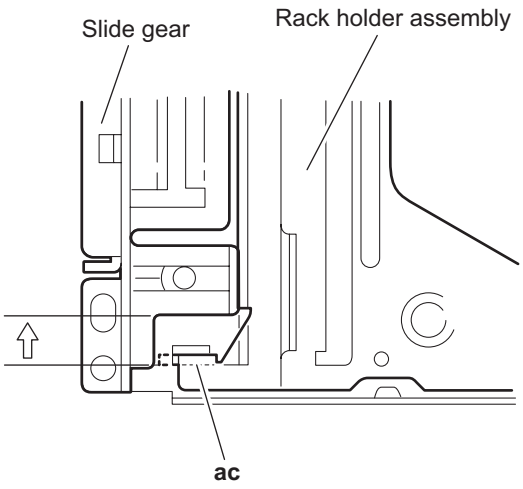


Fig.33

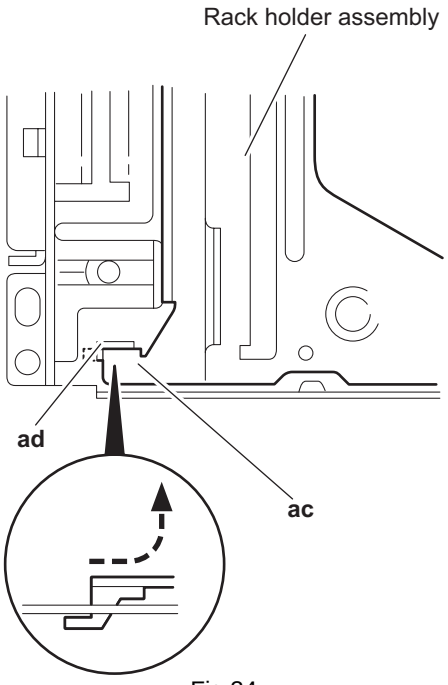


Fig.34

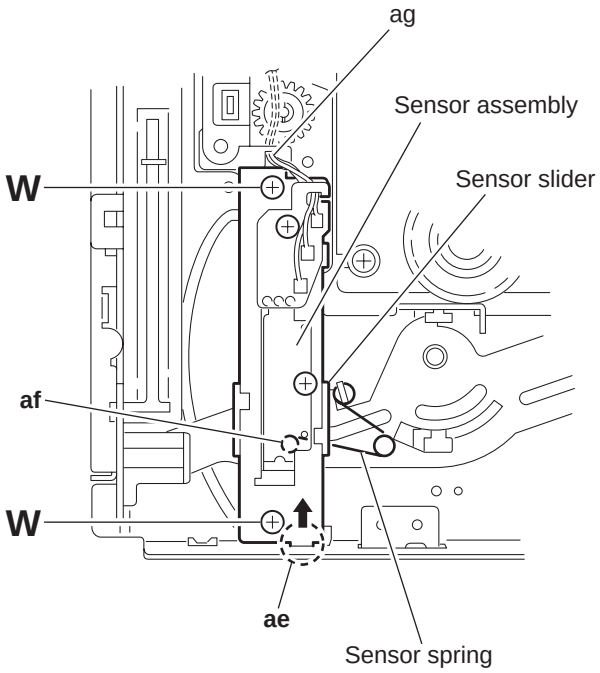


Fig.35

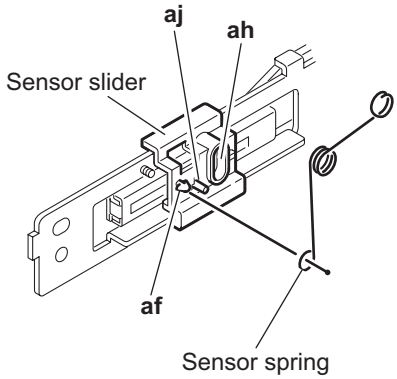


Fig.36

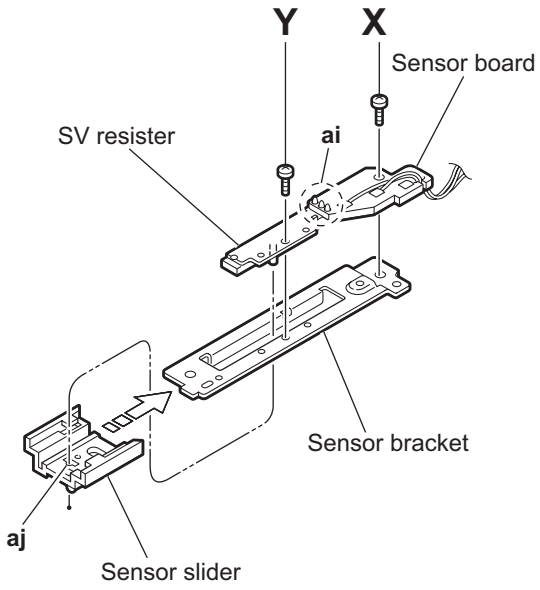


Fig.37

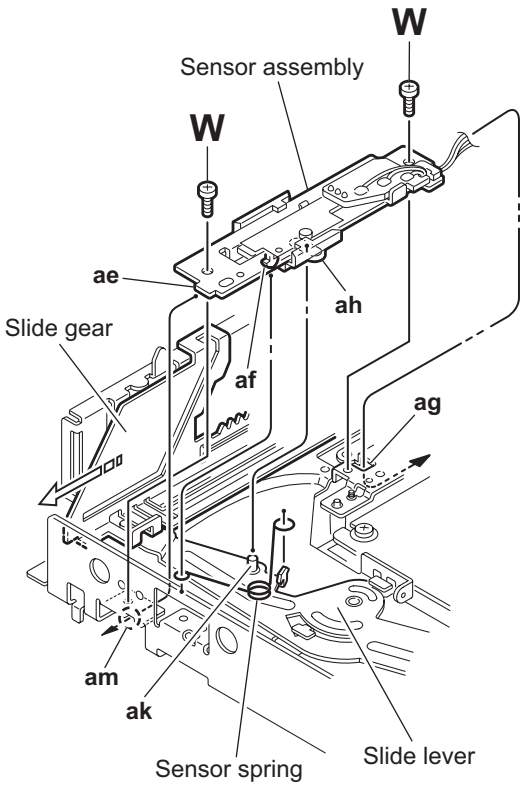


Fig.38

3.2.15 Taking out the disc in the play mode (See Fig.39 to 42)

Reference:

Refer to "Removing the tray assemblies".

(1) From the topside of the DVD mechanism assembly, remove the top cover.
(2) Unlock the tray assemblies and draw out the tray assemblies toward the front.
(3) From the top side of the DVD mechanism assembly, turn the gear 1 clockwise to move the lifter assembly upward. (See Fig.39.)
(4) Turn the gear 2 clockwise to move the sub tray remaining inside the lifter assembly toward the front, then pull out. (See Fig.39.)
(5) Take out the disc on the sub tray. (See Fig.40.)
(6) After clearing away the disc, insert the sub tray into the main tray. (See Fig.41.)

Caution:

When reattaching the sub tray, move the tray stopper on the bottom of the main tray in the direction of the arrow to lock the sub tray certainly. (See Figs.41 and 42.)

(7) Push the tray assembly toward the body and reattach.

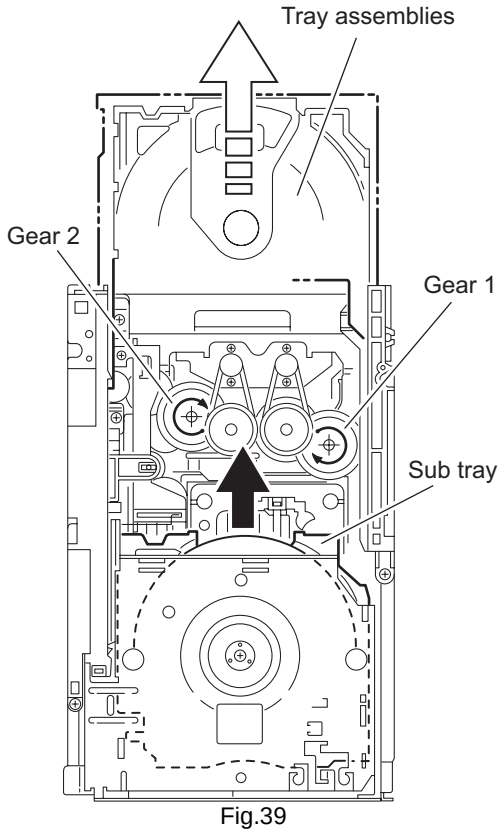


Fig.39

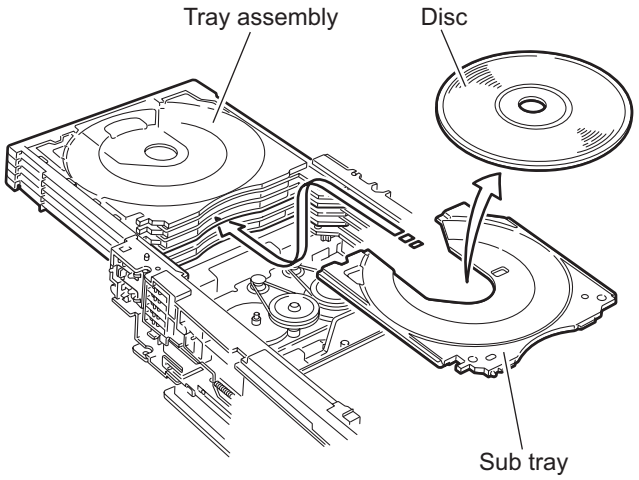


Fig.40

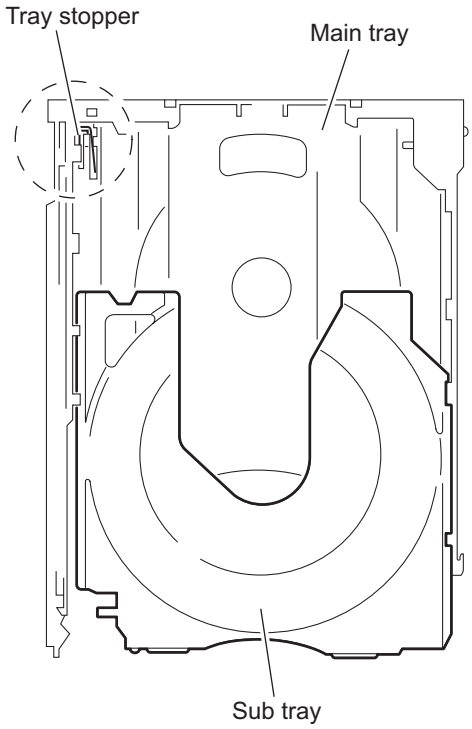


Fig.41

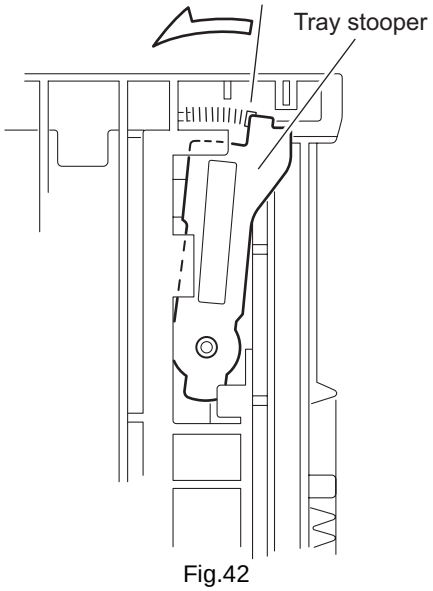


Fig.42

3.3 Speaker section

3.3.1 Removing the amplifier assembly (See Figs.1 and 2)

(1) From the rear side of the speaker main body, remove four screws **A** attaching the heat sink cover. (See Fig.1.)
(2) Remove the nine screws **B** attaching amplifier assembly. (See Fig.2.)
(3) Move the amplifier assembly backward and disconnect the wire from connector CN402 in the lower part of the amplifier assembly. (See Fig.2.)

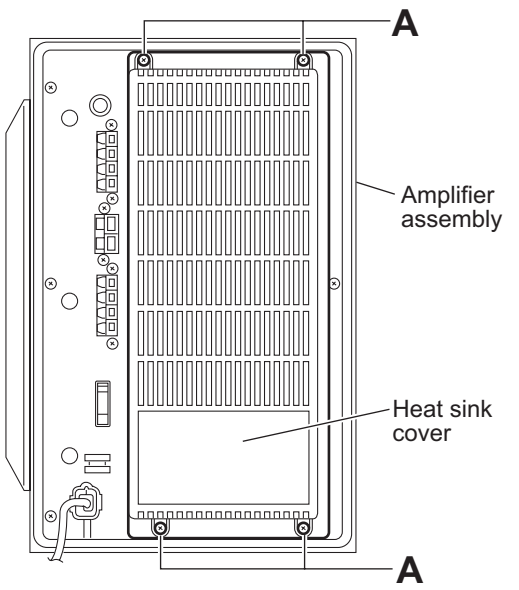


Fig.1

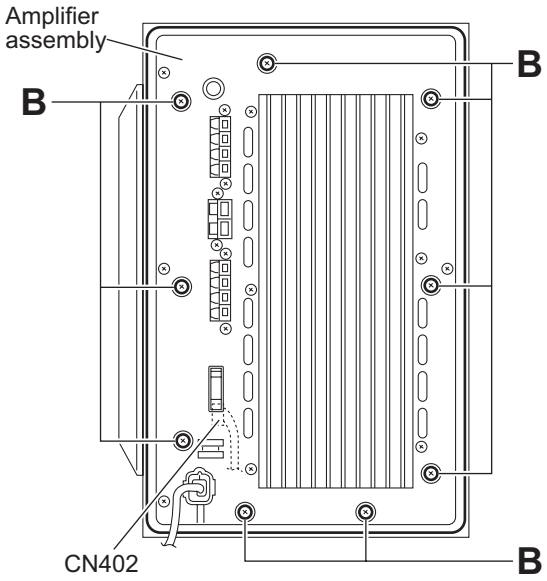


Fig.2

3.3.2 Removing the rear panel (See Fig.3)

- Prior to performing the following procedures, remove the amplifier assembly.
  (1) Remove the four screws **C**, twelve screws **D** and screw **E** attaching the rear panel.
  (2) Take out the rear panel from the amplifier assembly.

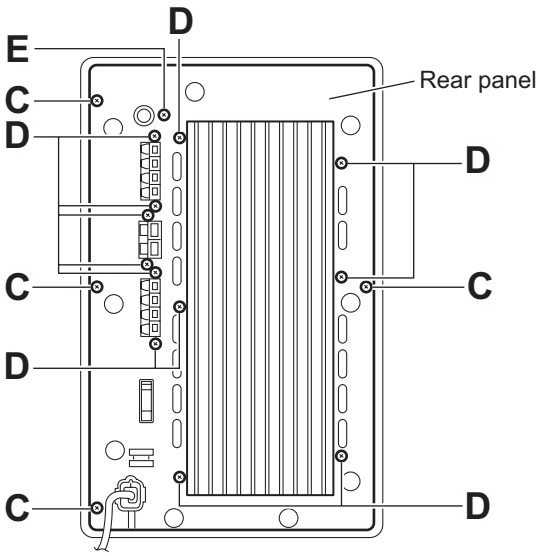


Fig.3

3.3.3 Removing the SP terminal board (See Figs.4 and 5)

- Prior to performing the following procedures, remove the amplifier assembly and rear panel.
  (1) From the top side of the amplifier assembly, disconnect the card wires from the connectors CN101 and CN102 on the mother board (See Figs.4 and 5.)
  (2) Disconnect the connectors CN401, CN403 and CN404 on the SP terminal board from the connectors CN501, CN503 and CN504 on the mother board while lifting the SP terminal board upward. (See Fig.5.)
  (3) Take out the SP terminal board from the amplifier assembly.

Reference:

When attaching the SP terminal board, insert the SP terminal board in the section **a** of the barrier.

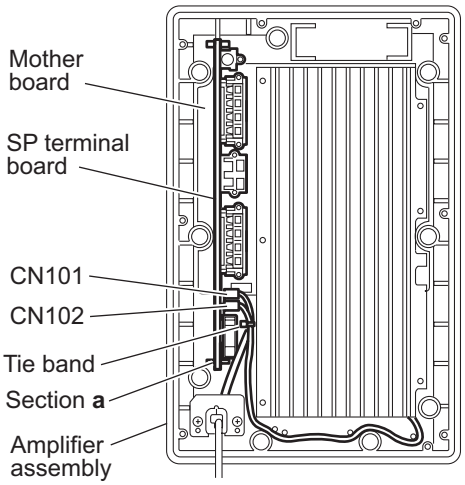


Fig.4

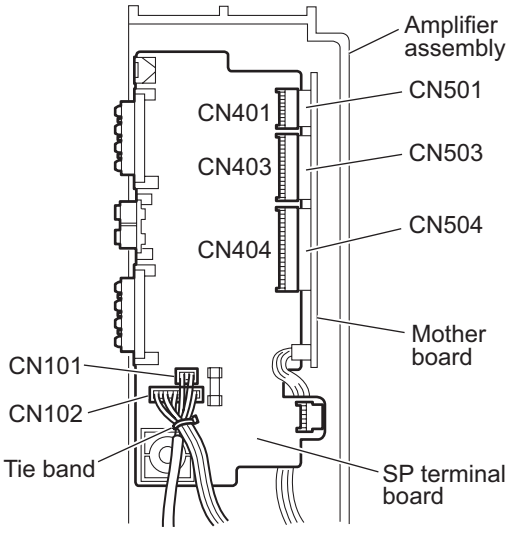


Fig.5

3.3.4 Removing the mother board assembly (See Fig.6)

- Prior to performing the following procedures, remove the amplifier assembly, rear panel and SP terminal board.
  (1) From the top side of the amplifier assembly, disconnect the card wires from the connectors CN151 on the mother board.
  (2) From the top side of the amplifier assembly, remove the five screws **F** attaching the mother board.
  (3) Take out the mother board assembly from the amplifier assembly.

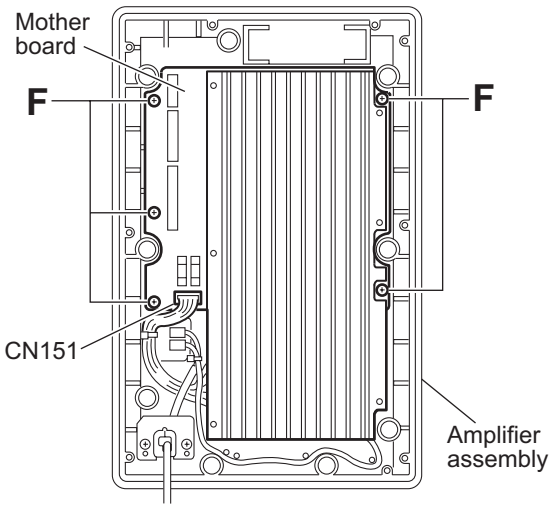


Fig.6

3.3.5 Removing the mother board (See Fig.7)

- Prior to performing the following procedures, remove the amplifier assembly, rear panel, SP terminal board and mother board assembly.
  (1) From the bottom side of the mother board, remove the two screws **G** and two screws **H** attaching the mother board.
  (2) Disconnect the connectors CN521, CN522, CN531 and CN532 on the mother board while lifting the mother board upward, and take out the mother board.

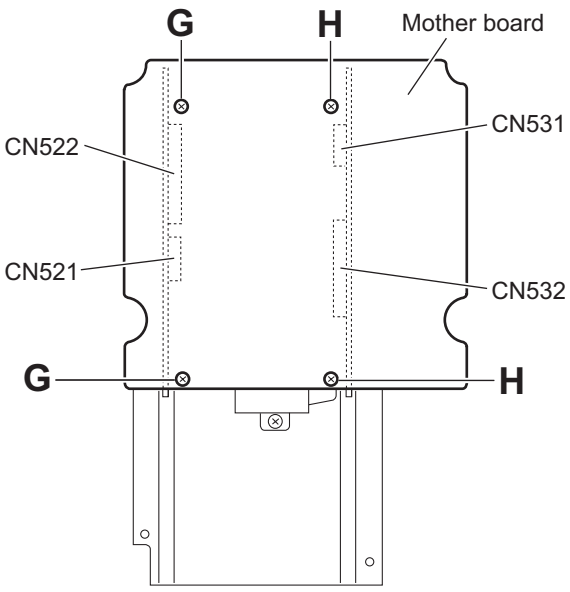


Fig.7

3.3.6 Removing the power amplifier board (A) (See Figs.8 and 9)

- Prior to performing the following procedures, remove the amplifier assembly, rear panel, SP terminal board, mother board assembly and mother board.
  (1) Remove the three screws **J** attaching the heat sink to the power amplifier board (A). (See Fig.8.)
  (2) From the bottom side of the power amplifier board (A), disengage the four sections **b** of the engagement. (See Fig.9.)
  (3) From the top side of the power amplifier board (A), disengage the section **c** of the engagement to the direction of the arrow. (See Fig.9.)
  (4) Remove the power amplifier board (A) from the P.TR holder (A).

3.3.7 Removing the power amplifier board (B) (See Figs.8 and 10)

- Prior to performing the following procedures, remove the amplifier assembly, rear panel, SP terminal board, mother board assembly and mother board.
  (1) Remove the three screws **K** attaching the heat sink to the power amplifier board (B). (See Fig.8.)
  (2) From the bottom side of the power amplifier board (B), disengage the four sections **c** of the engagement. (See Fig.9.)
  (3) From the top side of the power amplifier board (B), disengage the section **d** of the engagement to the direction of the arrow. (See Fig.9.)
  (4) Remove the power amplifier board (B) from the P.TR holder (B).

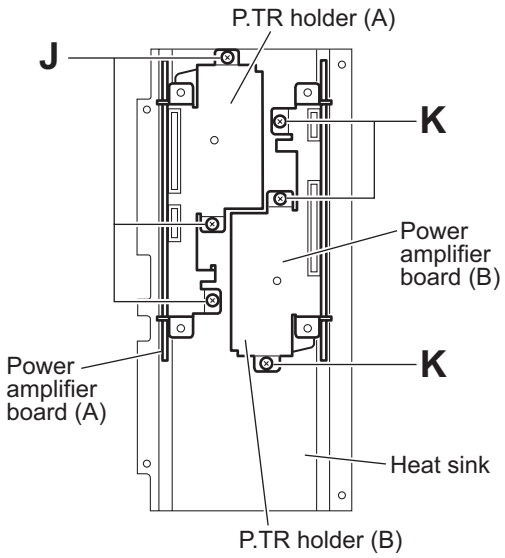


Fig.8

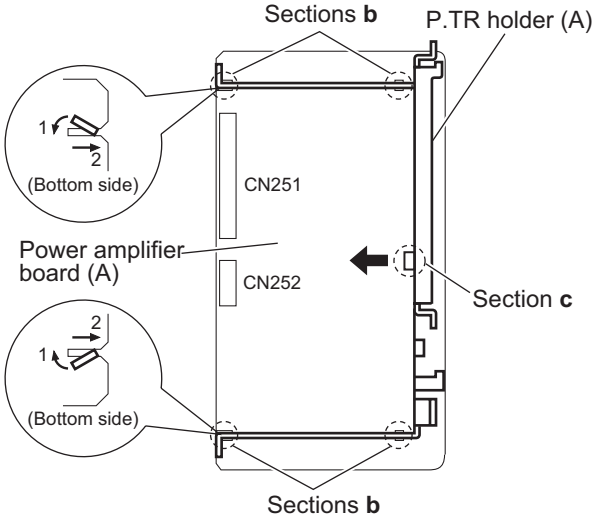


Fig.9

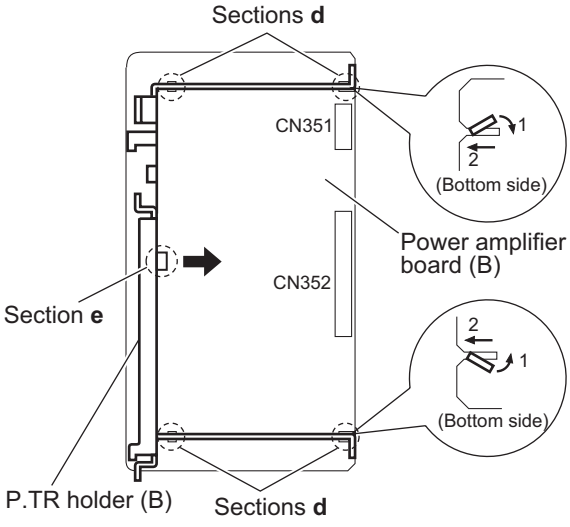


Fig.10

3.3.8 Removing the power transformer (See Fig.11)

- Prior to performing the following procedures, remove the amplifier assembly, rear panel, SP terminal board and mother board assembly.
  (1) Remove the tie band, and remove the four screws **L** attaching the power transformer.
  (2) Take out the power transformer from the amplifier assembly.

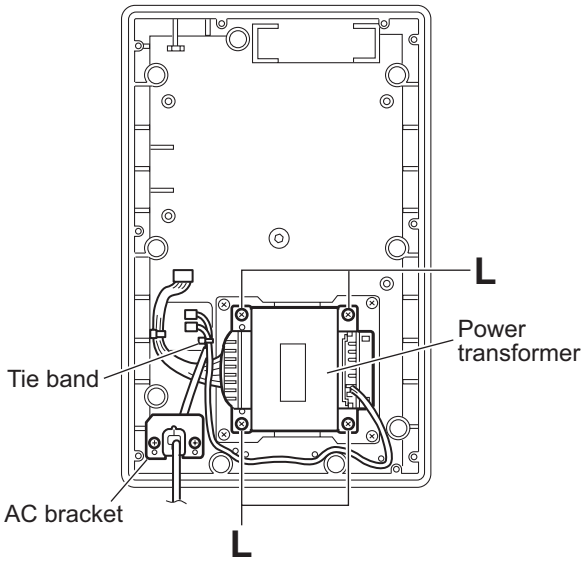


Fig.11

3.3.9 Removing the speaker net (See Figs.12 and 13)

(1) Insert the tip of a flat-bladed screwdriver or similar tool into the space between the speaker main body and speaker net, and lift the speaker net little by little to remove. (See Figs.12 and 13.)

Note:

To prevent damaging the speaker net and speaker main body, insert cushioning plates etc. to the section **f** and below the tip of the flat-bladed screwdriver or similar tool.

(2) Take out the speaker net from the speaker main body.

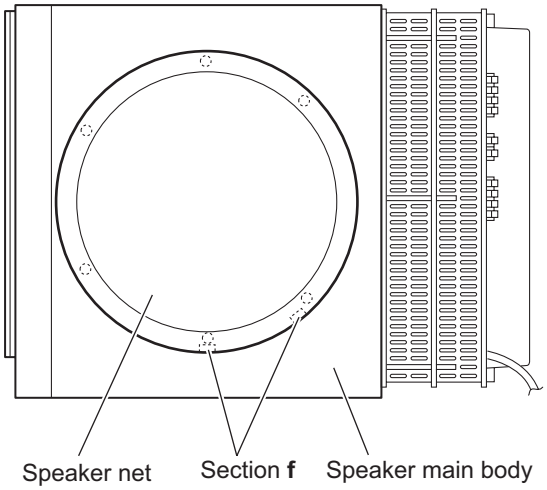


Fig.12

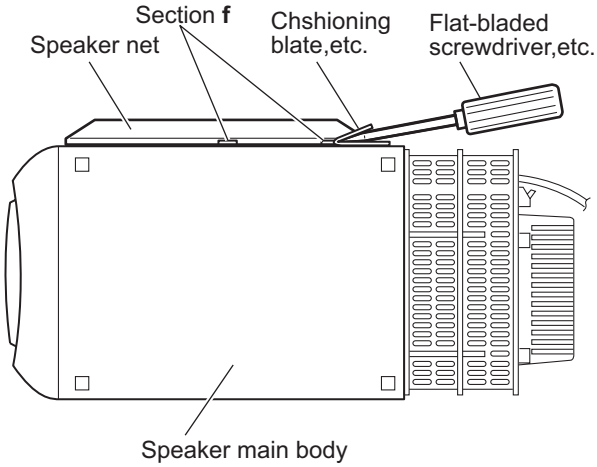


Fig.13

3.3.10 Removing the speaker
(See Figs.14 and 15)

(1) From right side of the speaker main body, remove the eight screws **M** attaching the speaker. (See Fig.14)
(2) Take out the speaker from the speaker main body. (See Fig.15.)
(3) Disconnect the wires from the terminal of the speaker. (See Fig.15.)

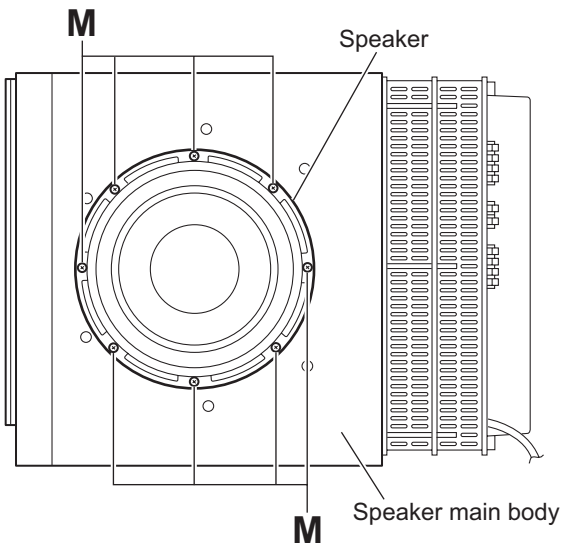


Fig.14

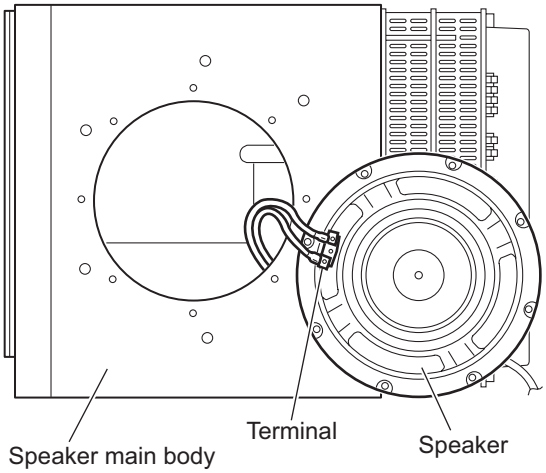


Fig.15

3.4 Satellite speaker section

- Before disassembling the main body, lay down it first.

3.4.1 Removing the cabinet assembly (See Figs.1 and 2)

(1) From the bottom side of the main body, remove the four screws **A** attaching the stand assembly. (See Fig.1.)

CAUTION:

The speaker wire assembly is connected with the speaker terminals at this time. Be careful not to damage the speaker terminal and the speaker wire.

(2) From the top side of the stand assembly, disconnect the speaker wire assembly on the speaker terminals. (See Fig.2.)

(3) Remove the seven hooks a attaching the net assembly to the cabinet assembly. (See Fig.2.)

CAUTION:

When removing the net assembly, be careful not to damage the speakers and the cabinet assembly.

Reference:

- As the net assembly is fixed with the adhesive and the two-sided tape, remove the net assembly by using a minus driver or similar tool.
- Attach the net assembly after applying the adhesive to the hooks **a**.

(4) Remove the two screws **B** and screw **C**. (See Fig.2.)

(5) Pull out the stand from the cabinet assembly while peeling off the adhesive section **b**. (See Fig.2.)

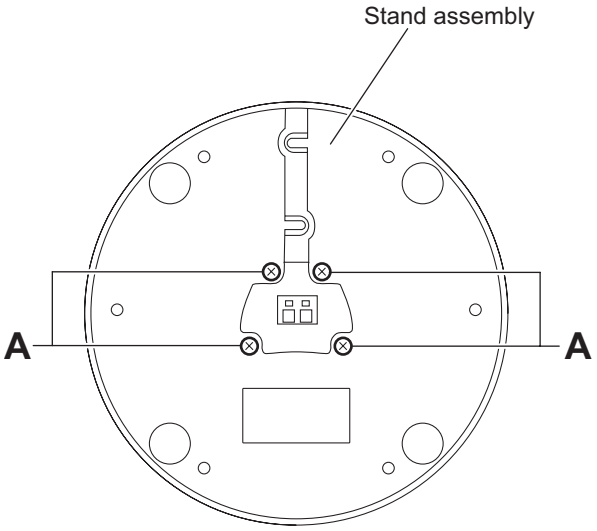


Fig.1

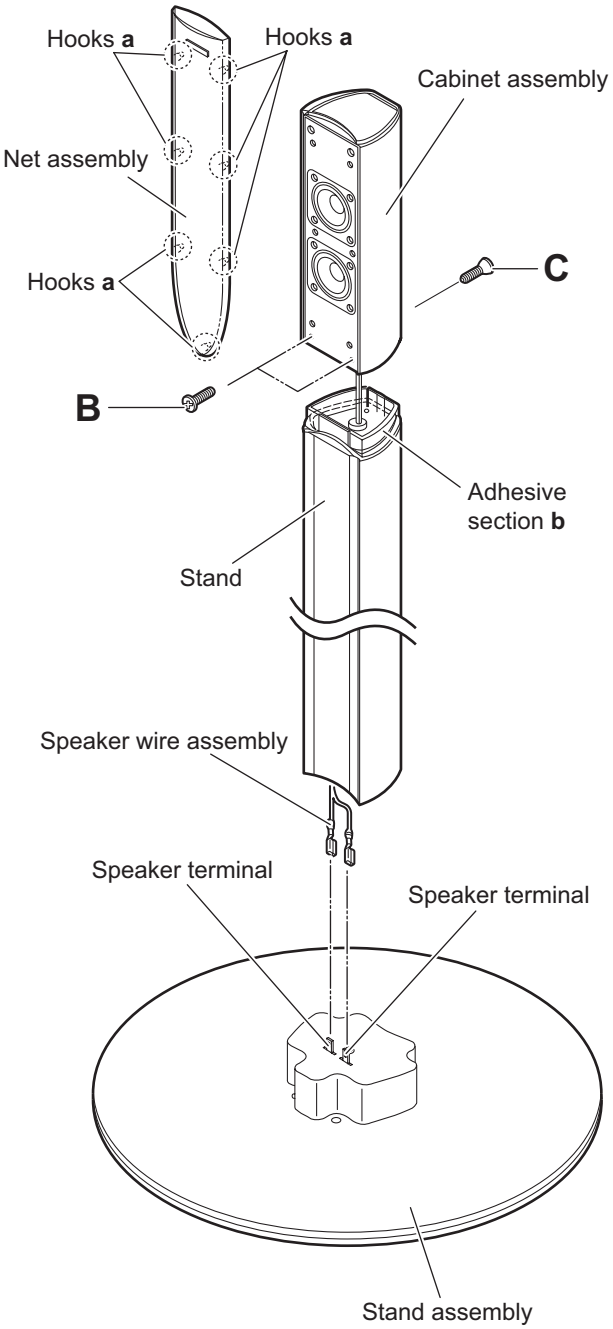


Fig.2

3.4.2 Removing the Speakers (See Fig.3)

- Remove the net assembly from the cabinet assembly. (See Fig2.)
  (1) Remove the eight screws **D** attaching the two speakers.
  (2) Take out the two speakers from the cabinet assembly.
  (3) From the back side of the speakers, disconnect the speaker wires from the speaker terminals.

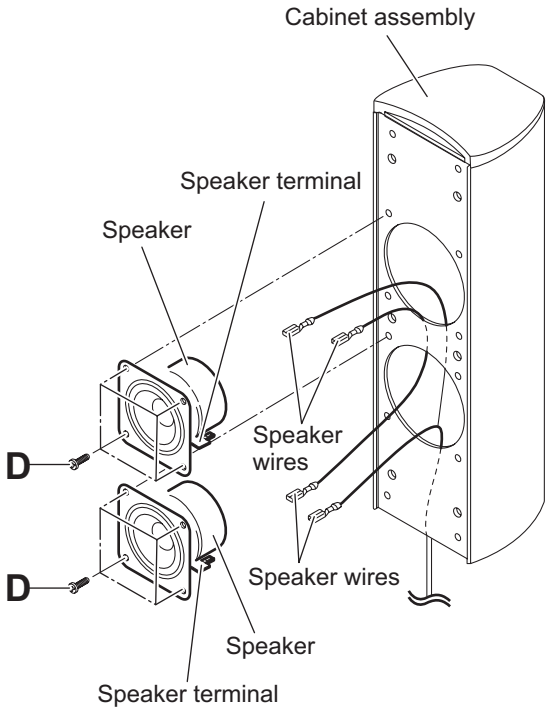


Fig.3

3.5 Center speaker section

3.5.1 Removing the Center Speakers (See Fig.1)

(1) From the front side of the cabinet assembly, remove the six hooks **a** attaching the net assembly.

CAUTION:

When removing the net assembly, be careful not to damage the speakers and the cabinet assembly.

Reference:

- As the net assembly is fixed with the adhesive and the two-sided tape, remove the net assembly by using a minus driver or similar tool.
- Attach the net assembly after applying the adhesive to the hooks **c**.

(2) Remove the eight screws **A** attaching the center speakers.
(3) Take out the center speakers from the cabinet assembly.
(4) From the back side of the center speakers, disconnect the speaker wires on the speaker terminals.

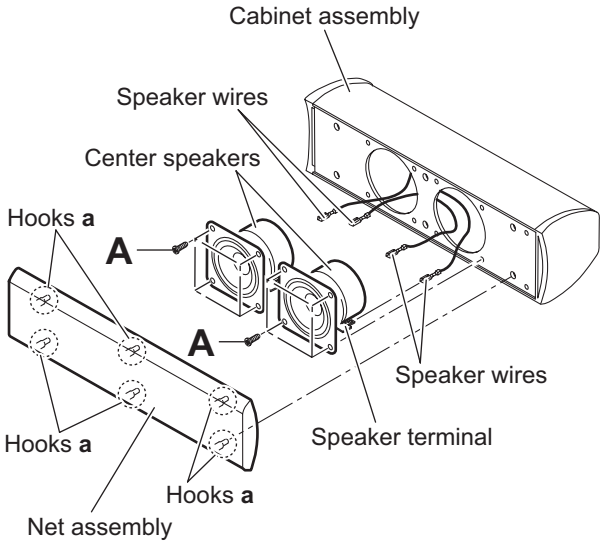


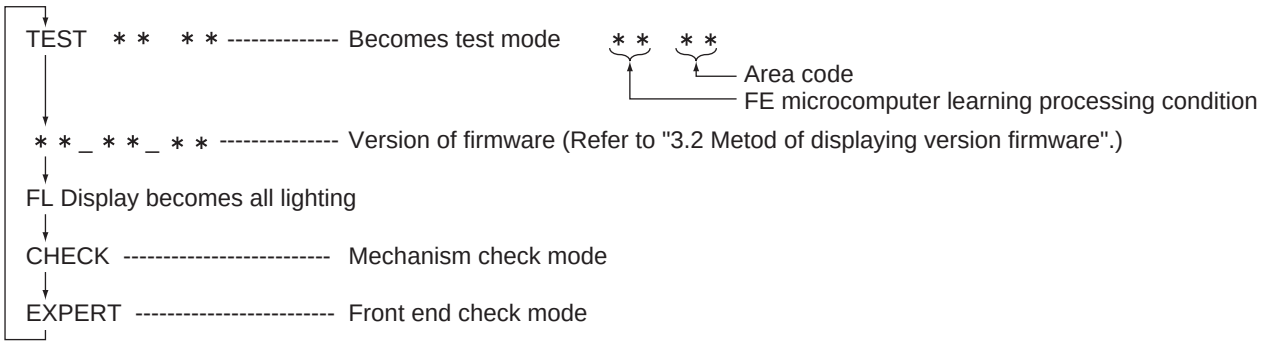
Fig.1

SECTION 4
ADJUSTMENT

4.1 Test mode setting method

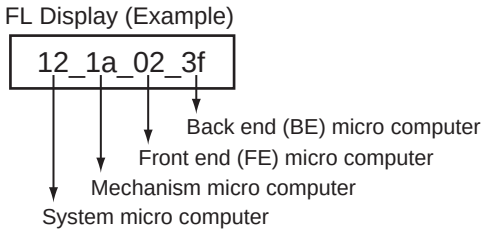
(1) Unplug the power plug.
(2) Insert power plug into outlet while pressing both "STOP" key and "OPEN/CLOSE" key (for DISC 1) of the main body.
(3) "Area code" is indicated at the upper left of display.
(4) To release test mode, press "STANDBY/ON" key of the main body.

NOTE:
Each pressing of "CHOICE" key of the remote controller in test mode changes the mode as follows.



4.2 Method of displaying version of firmware

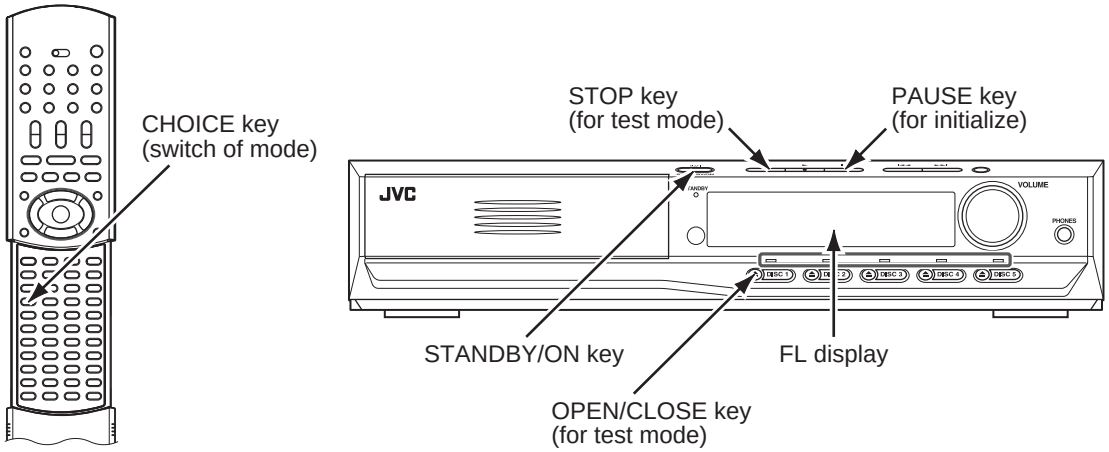
(1) Set the main body at test mode.
(2) Press "CHOICE" key of the remote controller once. Then, version number and alphabetical letter of the system controller and the back end are displayed in the FL display as follows.



4.3 Initialization method

Please initialize according to the following procedures in the following case:
- Just after you upgrade the firmware.
- After you confirm the symptoms that a customer points out. First Initialize, and then confirm whether the symptoms are improved or not.
- After servicing, before returning the main body to a customer. (Initialized main body should be returned to a customer.)

(1) Set the main body at test mode.
(2) Press "PAUSE" key of the main body.
(3) When initialization is completed, "30" and "RDS" is displayed in the FL display



4.4 All-initialization method

Please perform all-initialization according to the following procedures in the following case:

- Just after you exchange the pick-up.
- Just after you exchange the spindle motor.
- Just after you exchange the traverse mechanism base.

NOTE:

Please perform all-initialization when you exchange the parts above and also when you remove the parts above.

- Just after the flap adjustment of the pick-up guide shaft.

(1) Set the main body at test mode.
(2) Press and hold "REVERSE SKIP" key of the main body for more than 1.5 seconds.
(3) When all-initialization is completed, "33" and "RDS" is displayed in the FL display.
(4) To release test mode, press "STANDBY/ON" key of the main body

NOTE:

After all-initialization, be sure to perform optimization adjustment of Front End parameter.

4.5 Optimization adjustment of Front End parameter

Adjustment to optimize Front End parameter must be performed in each mechanism assembly of this model for high-speed starting. Please perform optimization according to the following procedures just after all-initialization is completed and when FL display shows anything except "0" (For example when FL display shows "1", "2", and "3") at test mode

(1) Press "STANDBY/ON" key of the main body to turn the main body on (not to set the main body at test mode).
(2) Insert the test disc VT-501 or commercial dual-layer DVD software.
(3) Remove the disc when the FL display changes from "READING" to disc information.
(4) Perform the same procedures as in (2) and (3) above by using the test disc CTS-1000 or commercial CD-DA software.
(5) Set the main body at test mode, and check that the FL display shows "0".

NOTE:

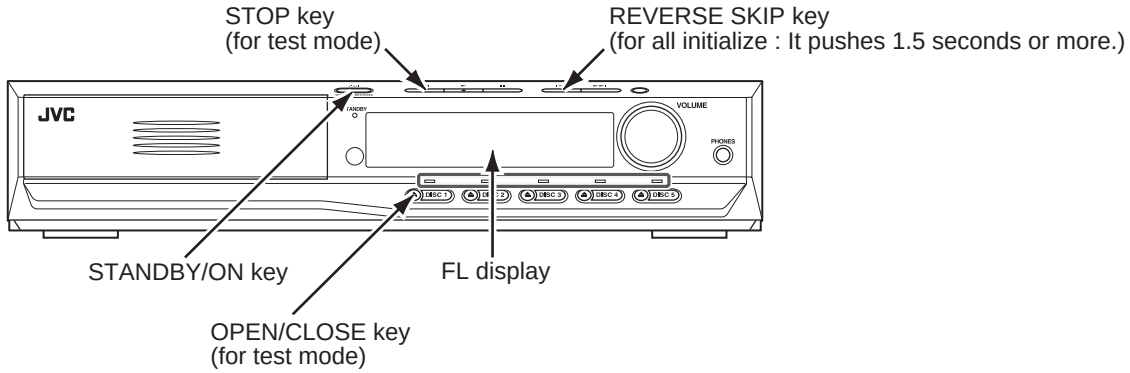
Status of this adjustment can be judged by the number displayed at test mode as follows:

DVD adjustment	CD adjustment	FL display at test mode
Adjusted	Adjusted	0
Not adjusted	Adjusted	1
Adjusted	Not adjusted	2
Not adjusted	Not adjusted	3

NOTE:

As for a disc used for adjustment,

- Disc should be mounted. ("Mounting" means to display "READING" after the disc is inserted and then display the disc information.) Disc need not be played.
- If you do not have test disc either VT-501 (DVD) or CTS-1000 (CD-DA), use a commercial disc (for DVD, dual-layer software) after seeing and checking that the disc is neither curved nor foreseen that it may shake at the time of playback. If you use a disc with bad features, starting time may be slow or disc may not be read.



4.6 Display of current value of laser

(1) Set the main body at test mode.
(2) Press "CHOICE" key of the remote controller three times. Then, FL display is displayed "CHECK".
(3) The laser current value can be switched between the value of CD and that of DVD by pressing the following key of the remote controller.

FL Display (Example)

1419 0000

Remote controller "4" key --- Laser of CD
Remote controller "5" key --- Laser of DVD

- The number shown in the FL display shows mA of current value of laser.
- The first two numbers ("14" in "1419") shows current value of laser at the time of adjustment after the latest all-initialization, 14mA in this example.
- The last two numbers ("19" in "1419") shows the present current value of laser, 19mA in this example.
- The first two numbers ("14" in "1419") usually shows current value of laser at the time of shipment, so you can see how the product has been deteriorated by comparing the first two numbers ("14" in "1419") and the last two numbers ("19" in "1419").

CD and DVD:

The laser current value of 80mA or less in normal. The laser current value of over 81mA is not normal. Laser diode of the pickup has been deteriorated.

- To return to test mode, press "STOP" key of the main body.

4.7 Flap adjustment of the pick-up guide shaft

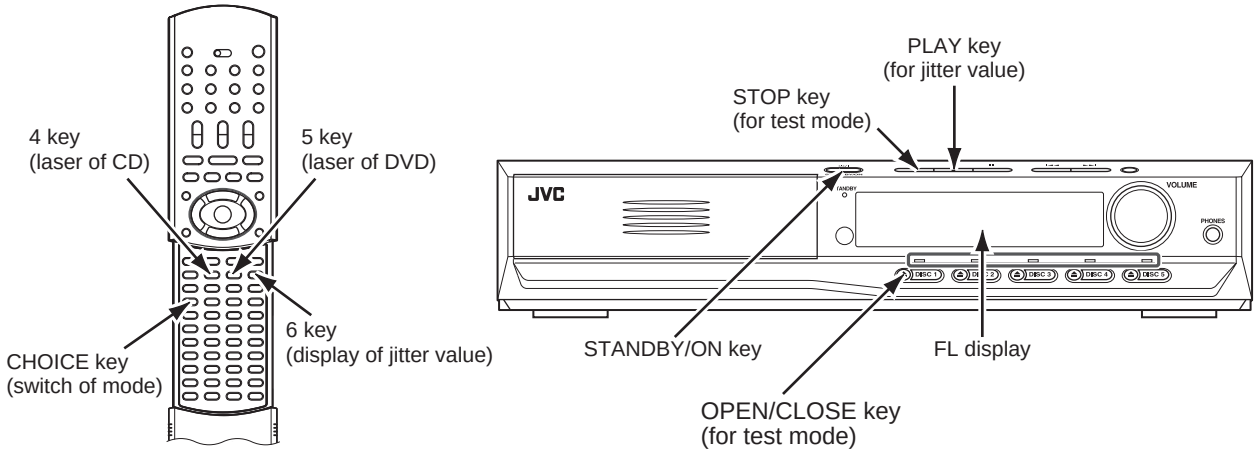
Please perform flap adjustment of the pick-up guide shaft in the following case:

- Just after you exchange the pick-up.
- Just after you exchange the spindle motor.
- Just after you exchange the traverse mechanism base.

NOTE:

Please perform flap adjustment of the pick-up guide shaft when you exchange the parts above and also when you remove the parts above.

- When the reading accuracy of the signal is bad (There is a block noise in the screen, Screen stops in the outer circumference of a disc, etc.)

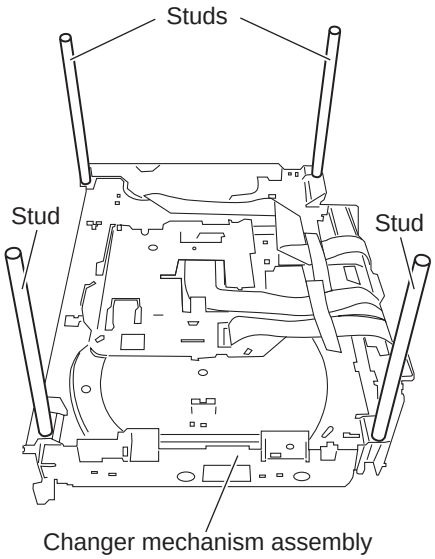


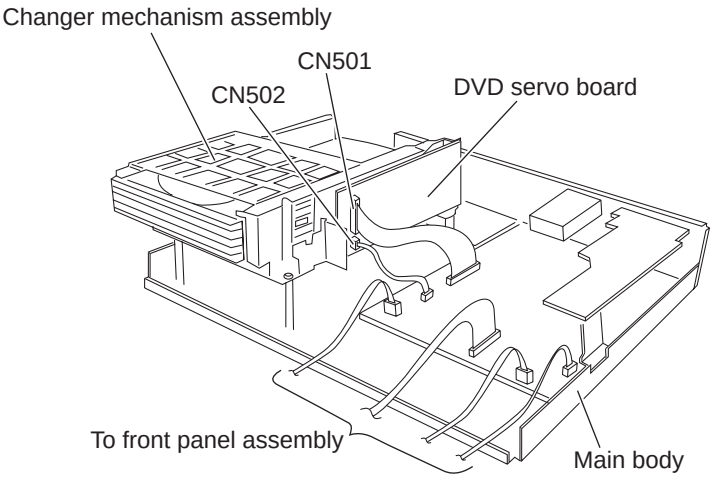
4.7.1 Tool for adjustment

*Stud: One set (four studs), Part number: JIGXVS40

4.7.2 Preparation for adjustment

(1) Set the disassembly procedure, and remove the changer mechanism assembly from the main body.
(2) Disconnect the card wires from the connectors CN501 and CN502 on the DVD servo board.
(3) Attach the four studs to the changer mechanism assembly.
(4) Put the changer mechanism assembly in the main body, and connect the card wires to the connector CN501 and CN502 on the DVD servo board.



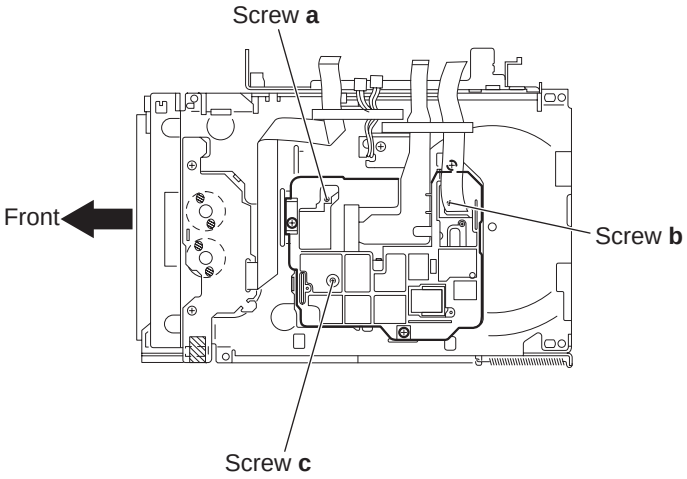


4.7.3 Adjustment

(1) Set the unit to test mode.
(2) Press the "CHOICE" key of the remote controller three times, and the FL display is displayed "CHECK".
(3) A "PLAY" key is pushed after insert a test disc (VT-501), and press the numeric key "1" of the remote controller for automatic adjustment.
(4) After a few seconds, press the numeric key "6" of the remote controller. Then, the FL display displays a jitter value.
(5) Turn the adjustment screws on the underside of the traverse mechanism with Phillips screw driver until the maximum jitter value is displayed on the FL display. (In this model, a bigger jitter value means a better result.)

NOTE:

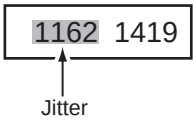
Reference values to judge whether the jitter is allowable or not are displayed, instead of actual jitter values.



POINT:

Turn the adjustment screws **a** and **b** to the same angle in the right direction. And turn the adjustment screws **a** and **b** to the same angle in the left direction. Then, turn the screws **a** and **b** in either the right or the left direction to increase the number of jitter. Don't turn the adjustment screw **c**.

FL Display (Example)



4.8 Confirmation of region

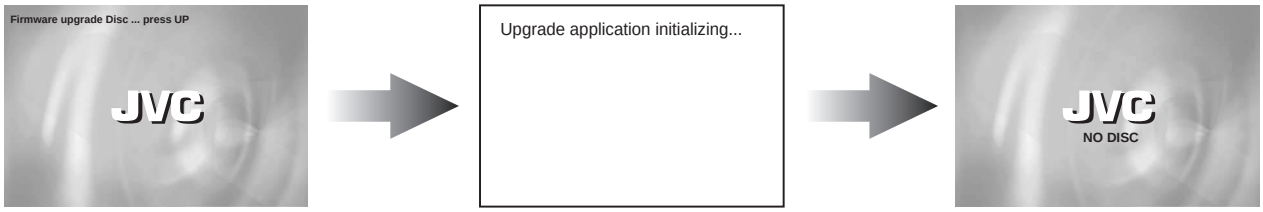
(1) Unplug the power plug.
(2) Insert power plug into outlet while pressing both "PAUSE" key and "FORWARD SKIP" key of the main body.
About 3 seconds later, FL display indicates "REGION ".
(3) Push the "OPEN/CLOSE" key (for DISC 1) and confirm the tray of DISC 1 is ejected.
(4) To release test mode, press "STANDBY/ON" key of the main body.

NOTE:
Until the tray is completely close up and the sound of mechanism movement disappears, do not pull the power plug from the outlet.

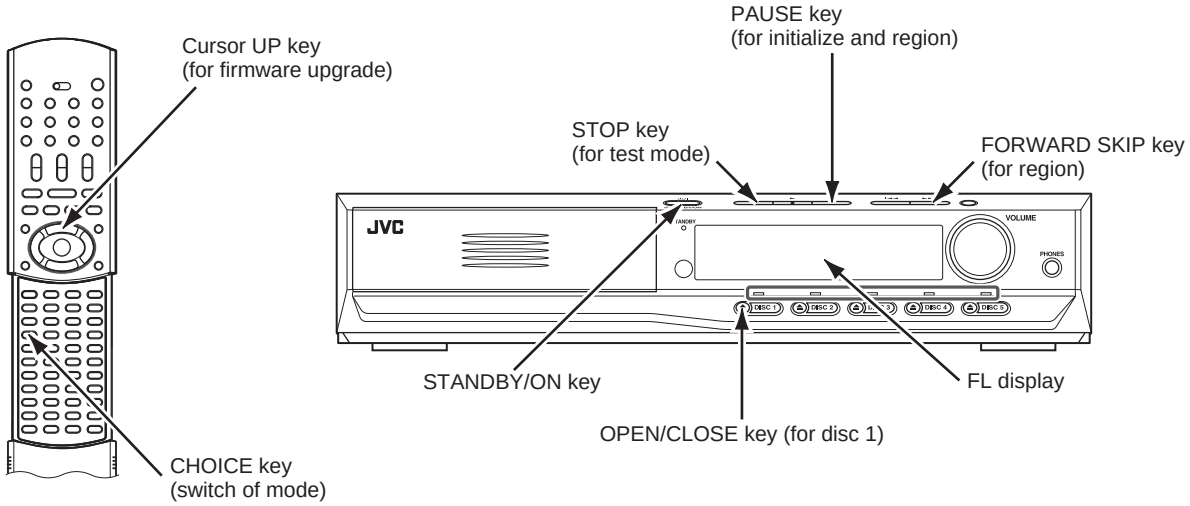
4.9 Upgrading of firmware

The latest firmware for upgrading is updated in "Optical disc CSG" page in JS-net. At the time of service, compare the version of the product and the latest version, and upgrade the old version into the latest version.

(1) Press the "STANDBY/ON" key of the main body to turn the main body on.
(2) A disc button is pushed after inserting an upgrade disc in a tray 1.
(3) When FL display of the main body changes from "READING" to "UPGRADE", press "cursor UP" key ( ) of the remote controller.
(4) The entire screen becomes blue, and upgrading starts.
(5) The tray opens automatically. Remove the upgrade disc.
(6) The screen returns to the normal screen. Then, press the "STANDBY/ON" key of the main body. When the stand-by indicator is lighted, upgrading is completed.
(7) Set the main body at test mode, and perform initialization. Then, confirm the version of the firmware.



After inserting the up-grade disc | While upgrading (blue screen) | When up-grade is completed



SECTION 5
TROUBLESHOOTING

This service manual does not describe TROUBLESHOOTING.

JVC
VICTOR COMPANY OF JAPAN, LIMITED
AV & MULTIMEDIA COMPANY AUDIO/VIDEO SYSTEMS CATEGORY 10-1,1chome,Ohwatari-machi,Maebashi-city,371-8543,Japan

(No.MB112)

Printed in Japan
WPC