JVC

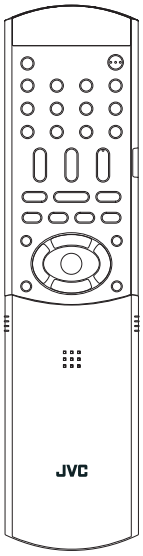
SERVICE MANUAL

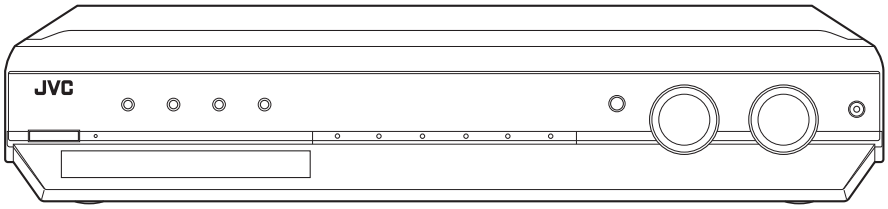
HOME CINEMA CONTROL CENTER

RX-ES1SL

Area suffix

B ---------- U.K.
E ---------- Continental Europe
EN ---------- Northern Europe





DOLBY DIGITAL PRO LOGIC II

DIGITAL dts SURROUND

R·D·S

TABLE OF CONTENTS

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No.22070
2003/7

SPECIFICATION

Amplifier	Output Power	At Stereo operation	Front ch		100 W per channel, min. RMS, both channels driven into 8 Ω at 1kHz with no more than 10% total harmonic distortion. (IEC268-3)
			At Surround operation	Front ch	100 W per channel, min. RMS, driven into 8 Ω at 1 kHz with no more than 0.8% total harmonic distortion.
				Center ch	100 W, min. RMS, driven into 8 Ω at 1 kHz, with no more than 0.8% total harmonic distortion.
				Surround ch	100 W per channel, min. RMS, driven into 8 Ω at 1 kHz, with no more than 0.8% total harmonic distortion.
Audio	Audio Input Sensitivity/ Impedance (1 kHz)	DVD IN, DVD MULTI IN, STB IN, VCR IN, TV IN			260 mV/47 kΩ
	Audio Input (DIGITAL IN)*	Coaxial	DIGITAL 1 (DVD)		0.5 V(p-p)/75 Ω
		Optical	DIGITAL 2/3 (STB/TV)		-21 dBm to -15 dBm (660 nm ±30 nm)
	* Corresponding to Linear PCM, Dolby Digital, and DTS Digital Surround (with sampling frequency -32 kHz, 44.1 kHz, 48 kHz).				
	Audio Output Level	VCR OUT, TV OUT			250 mV
	Signal-to-Noise Ratio ('66 IHF/DIN)				
	DVD MULTI IN				87 dB/62 dB
	Frequency Response (8 Ω)				
	DVD IN, STB IN, VCR IN, TV IN				
	Tone Control				
	Bass (100 Hz)				±10 dB ±2 dB
	Treble (10kHz)				±10 dB ±2 dB
	Bass boost				+4 dB ±1 dB at 100 Hz
Video	Video Input Sensitivity/ Impedance (1 kHz)	Composite video	DVD IN, STB IN, VCR IN		1 V(p-p)/75 Ω
	S-video	DVD IN, STB IN, VCR IN	(Y: luminance)		1 V(p-p)/75 Ω
			(C: chrominance)		0.286 V(p-p)/75 Ω
	RGB	DVD IN, STB IN, VCR IN	0.7 V(p-p)/75 Ω		
	Video Output Level/ Impedance (1 kHz)	Composite video	VCR OUT, TV OUT		1 V(p-p)/75 Ω
	S-video	VCR OUT, TV OUT	(Y: luminance)		1 V(p-p)/75 Ω
			(C: chrominance, burst)		0.286 V(p-p)/75 Ω
	RGB	TV OUT			0.7 V(p-p)/75 Ω
	Signal-to-Noise Ratio (S/N)				45 dB
	Synchronize				Negative
FM tuner (IHF)	Tuning Range				87.5 MHz to 108.0 MHz
	Usable Sensitivity	Monaural			17.0 dBf (1.95 μV/75 Ω)
	50 dB Quieting Sensitivity	Monaural			21.3 dBf (3.2 μV/75 Ω)
		Stereo			41.3 dBf (31.5 μV/75 Ω)
	Stereo Separation at REC OUT				35 dB at 1 kHz
AM (MW) tuner	Tuning Range	MW			522 kHz to 1629 kHz
General	Power Requirements				AC 230~, 50 Hz
	Power Consumption				105 W (at operation) 2 W (in standby mode)
	Dimensions (W × H × D)				435 mm × 69.5 mm × 330.5 mm
	Mass				6.6 kg

Designs & specifications are subject to change without notice

SECTION 1
PRECAUTIONS

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.

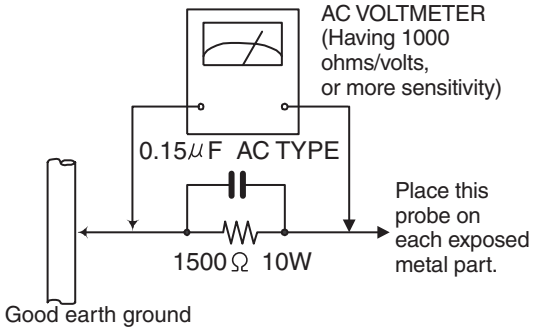
(2) Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturers warranty and will further relieve the manufacture of responsibility for personal injury or property damage 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 0.5μ 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 Safety Precautions (U.K only)

(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.
(2) Any unauthorised design alterations or additions will void the manufacturer's guarantee; furthermore the manufacturer cannot accept responsibility for personal injury or property damage resulting therefrom.
(3) Essential safety critical components are identified by (⚠) on the Parts List and by shading on the schematics, and must never be replaced by parts other than those listed in the manual. Please note however that many electrical and mechanical parts in the product have special safety related characteristics. These characteristics are often not evident from visual inspection. Parts other than specified by the manufacturer may not have the same safety characteristics as the recommended replacement parts shown in the Parts List of the Service Manual and 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.

1.5.1 Warning

(1) Service should be performed by qualified personnel only.
(2) This equipment has been designed and manufactured to meet international safety standards.
(3) It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
(4) Repairs must be made in accordance with the relevant safety standards.
(5) It is essential that safety critical components are replaced by approved parts.
(6) 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.**

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 top cover (See Figs.1 and 2)

(1) From the back side of the main body, remove the three screws **A** attaching the top cover.(See Fig.1)
(2) From the both sides of the main body, remove the four screws **B** attaching the top cover.
(3) Remove the top cover by moving up the back part of the top cover and release the six joints **a** using a longer driver from the inside. (See Fig.2.)

Note:

•Do not damage any part and board inside the main body when releasing the joints a using a longer driver.

3.1.2 Removing the front panel assembly (See Figs.2 to 4.)

- Prior to perform the following procedures, remove the top cover.
  (1) From the top side of the main body, cut the tie bands and disconnect the wire from the connector CN451 on the main board. (See Fig.2.)
  (2) From the bottom side of the main body, remove the four screws **C** attaching the front panel assembly. (See Fig.3.)
  (3) From the both sides of the main body, release the joints **b** and remove the front panel assembly in the direction of the arrow. (See Fig.4.)
  (4) From the top side of the main body, remove the screw **D** attaching the earth wire on the DC power board. (See Fig.2.)

References:

- After attaching the front panel assembly, bundling the wires using the new tie bands.
- When attaching the screw **D**, attach the earth wire with it.

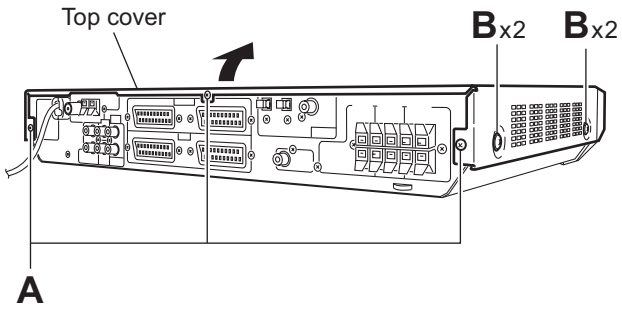


Fig.1

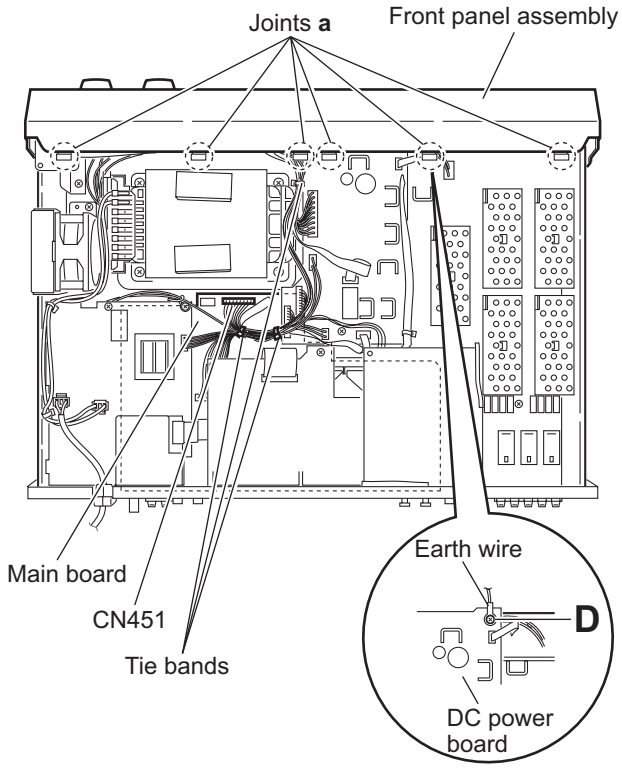


Fig.2

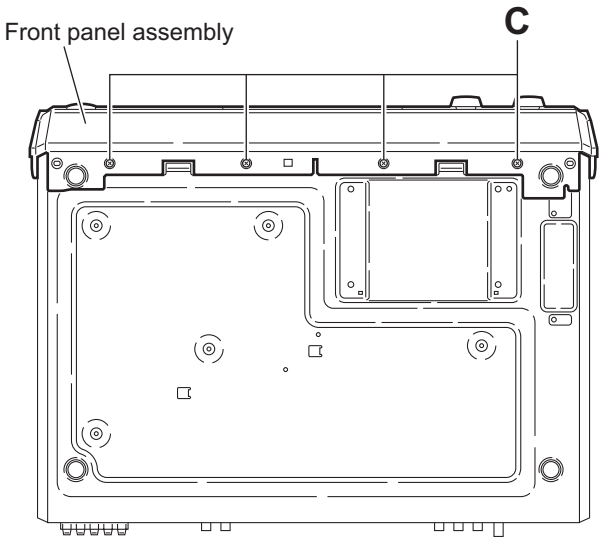


Fig.3

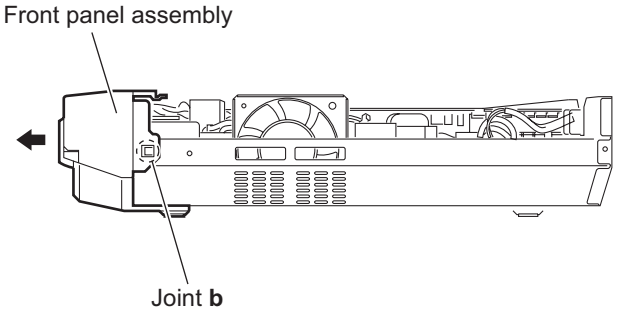


Fig.4

3.1.3 Removing the tuner (See Figs.5 and 6.)

- Prior to perform the following procedures, remove the top cover.
  (1) From the top side of the main body, disconnect the card wire from the connector CN1 on the tuner. (See Fig.5.)
  (2) From the back side of the main body, remove the two screws **E** attaching the tuner to the rear panel. (See Fig.6.)

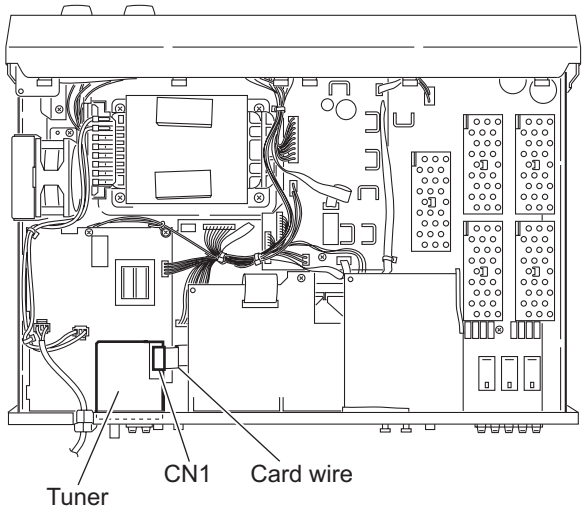


Fig.5

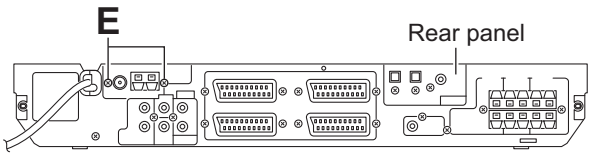


Fig.6

3.1.4 Removing the rear panel (See Fig.7)

- Prior to perform the following procedures, remove the top cover.
  (1) From the back side of the main body, remove strain relief from the rear panel in the direction of the arrow.
  (2) Remove the twenty screws **F** attaching the rear panel.

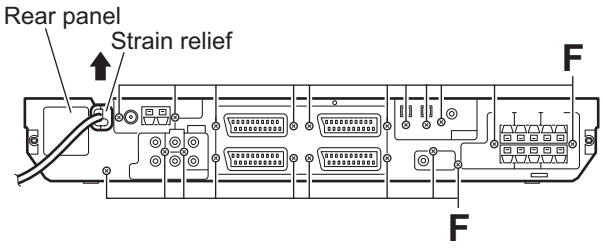


Fig.7

3.1.5 Removing the digital input board (See Fig.8)

- Prior to perform the following procedures, remove the top cover, tuner and rear panel.

Reference:

- Remove the tuner as required.

(1) From the top side of the main body, remove the connector CN521 on the digital input board in an upward direction.
(2) From the reverse side of the digital input board, disconnect the card wire from the connector CN522 on the digital input board.

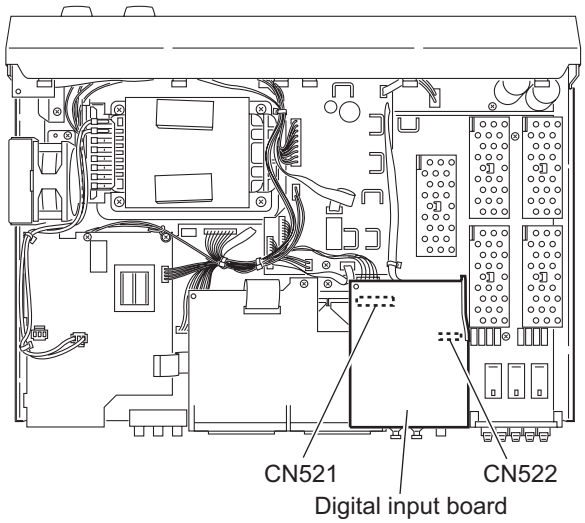


Fig.8

3.1.6 Removing the digital output board (See Fig.9)

- Prior to perform the following procedures, remove the top cover, tuner, rear panel and digital input board.

Reference:

- Remove the tuner as required.

(1) Disconnect the card wires from the connectors CN513 and CN514 on the digital output board.
(2) Remove the screw **G** attaching the digital output board.

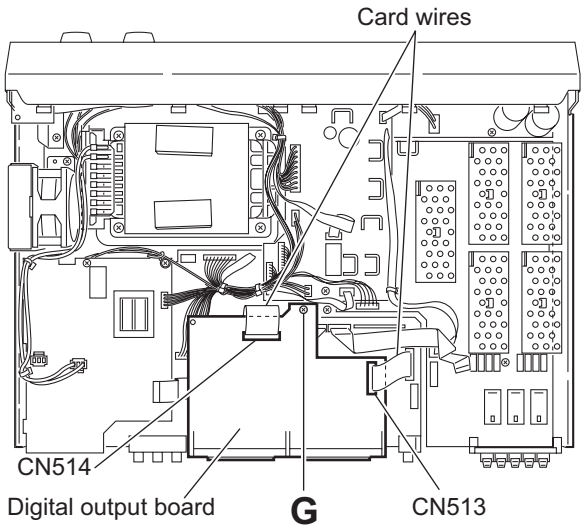


Fig.9

3.1.7 Removing the AC power supply board (See Fig.10)

- Prior to perform the following procedures, remove the top cover and tuner.

(1) From the top side of the main body, disconnect the power cord from the connector CN203 on the AC power supply board and remove it from the rear panel.
(2) Cut the tie bands and disconnect the wire from the connector CN218 on the DC power board.
(3) Remove the three screws **H** attaching the AC power supply board.
(4) Disconnect the wire from the connector CN202 on the AC power supply board and remove the wire holders from the reverse side of the AC power supply board.

Reference:

- When attaching the three screws H, attach the wire holder with it.

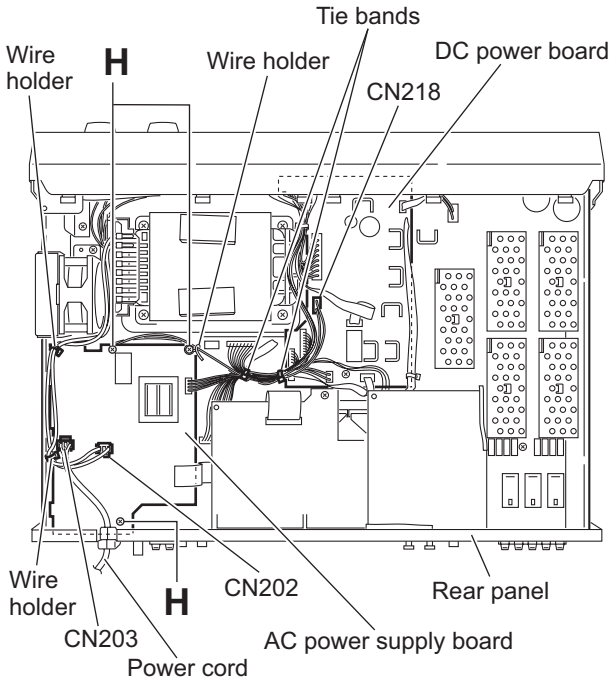


Fig.10

3.1.8 2.1.8 Removing the power transformer (See Fig.11)

- Prior to perform the following procedures, remove the top cover and front panel assembly.
  (1) From the top side of main body, disconnect the wire from the connector CN202 on the AC power supply board.
  (2) Remove the strain relief holding the power cord and remove the three screws H attaching the AC power supply board.
  (3) Lift the AC power supply board and remove the wire holders from the reverse side of the AC power board.
  (4) Cut the tie band.
  (5) Disconnect the wire from the connector CN201 on the DC power board.
  (6) Disconnect the wire from the connector CN702 on the rectifier board.
  (7) Remove the four screws **J** attaching the power transformer.

Reference:

- After attaching the front panel assembly, bundling the wires using the new tie bands.

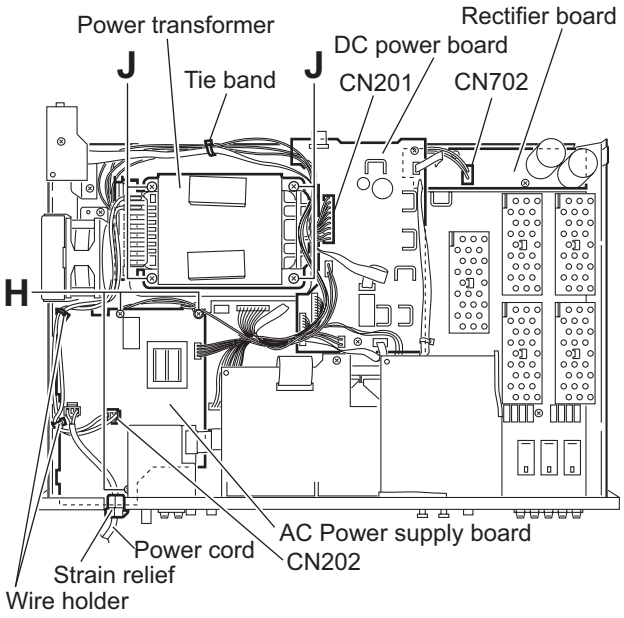


Fig.11

3.1.9 Removing the fan (See Figs.12 and 13)

- Prior to perform the following procedures, remove the top cover.
  (1) From the top side of the main body, cut the tie bands and disconnect the wire from the connector CN207 on the DC power board. (See Fig.12.)
  (2) Remove the screw **K** and screw **K'** attaching the fan assembly, then remove the fan assembly. (See Fig.12.)
  (3) Remove the two screws **L** attaching the fan to the fan bracket. (See Fig.13.)

Reference:

- After attaching the screw **K'**, attach the wire holder with it.

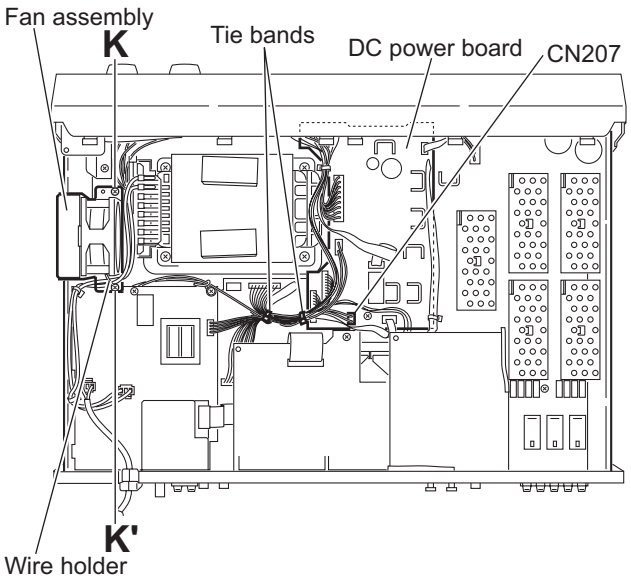


Fig.12

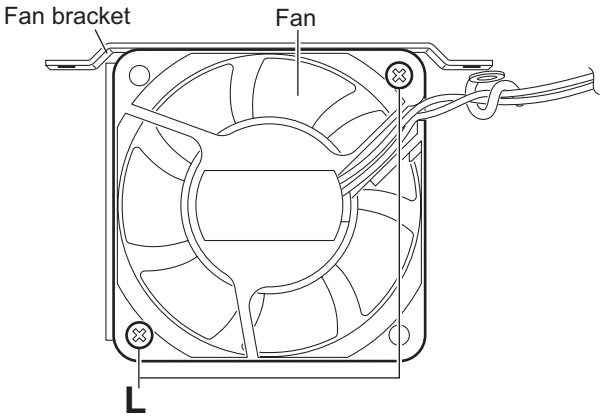


Fig.13

3.1.10 Removing the DC power board (See Fig.14)

- Prior to perform the following procedures, remove the top cover, front panel assembly, rear panel and digital input board.
  (1) From the top side of the main body, disconnect the wires from the connectors (CN201, CN206, CN207, CN211, CN218, CN510, CN520, CN711) on the DC power board.
  (2) Disconnect the parallel wire from the connector CN712 on the amp. board.
  (3) Remove the two screws **M** attaching the DC power board.

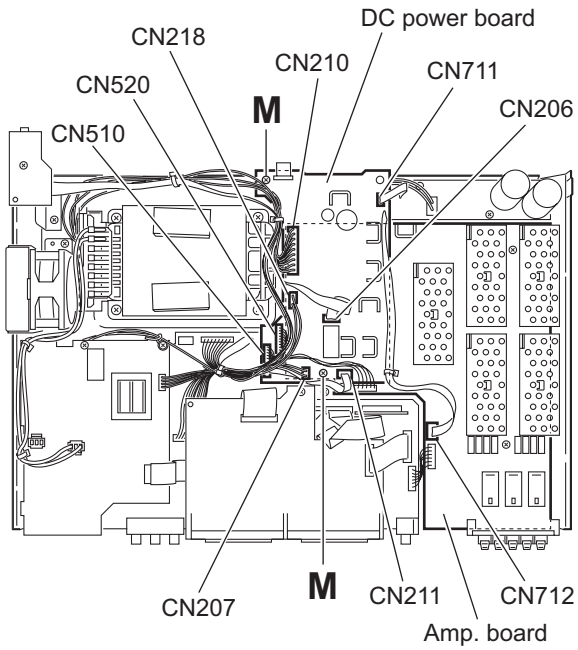


Fig.14

3.1.11 Removing the main board (See Fig.15)

- Prior to perform the following procedures, remove the top cover, front panel assembly, rear panel, digital input board, digital output board, AC power supply board and DC power board.
  (1) From the top side of the main body, disconnect the wires from the connector CN525 on the main board.
  (2) Disconnect the wires from the connectors CN516 and CN519 on the amp board.
  (3) Remove the two screws **N** attaching the main board.

Reference:

- When attaching the two screws **N**, attach the wire holder with it.

3.1.12 Removing the amp. board (See Fig.15)

- Prior to perform the following procedures, remove the top cover, front panel assembly, rear panel, digital input board, digital output board, AC power supply board and DC power board.
  (1) From the top side of the main body, disconnect the wires from the connectors CN516 and CN519 on the amp. board.
  (2) Disconnect the wire from the connector CN525 on the main board.
  (3) Disconnect the wire from the connector CN703 on the rectifier board.
  (4) Remove the four screws **P** attaching the amp. board.

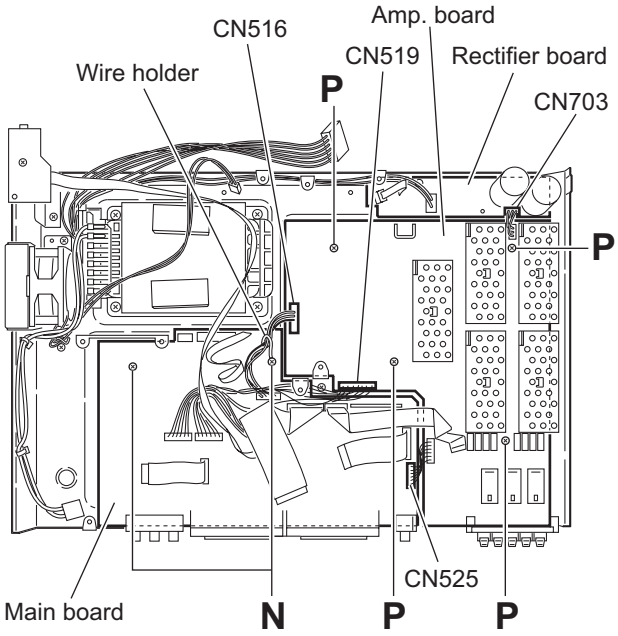


Fig.15

3.1.13 Removing the rectifier board
(See Fig.16)

- Prior to perform the following procedures, remove the top cover and front panel assembly.
  (1) From the top side of the main body, disconnect the wires from the connectors CN702 and CN703 on the rectifier board.
  (2) Disconnect the parallel wire from the connector CN711 on the DC power board.
  (3) Remove the two screws **Q** attaching the rectifier board.

3.1.14 Removing the headphone jack board
(See Fig.16)

- Prior to perform the following procedures, remove the top cover and the front panel.
  (1) From the top side of the main body, cut the tie bands.
  (2) Disconnect the wire from the connector CN206 on the DC power board.
  (3) Remove the screw **R** attaching the headphone jack board.

Reference:

- After attaching the front panel assembly, bundling the wires using the new tie bands.

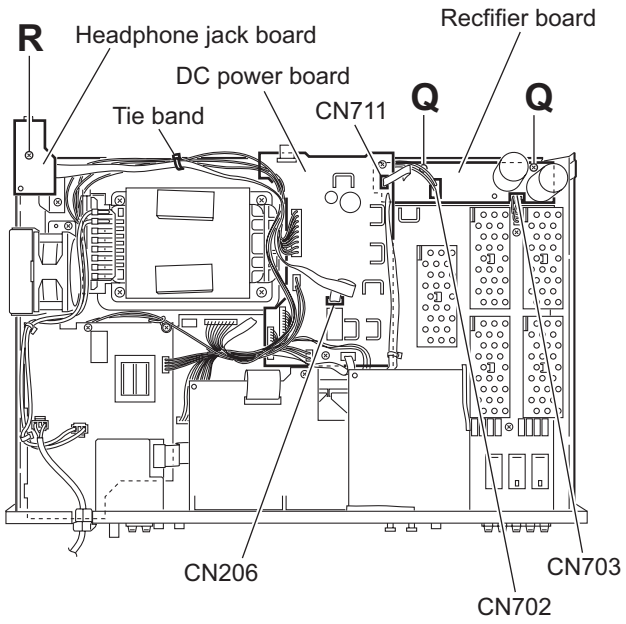


Fig.16

3.1.15 Removing the FL board
(See Fig.17)

- Prior to perform the following procedures, remove the top cover and front panel assembly.
  (1) From the inside of the front panel assembly, remove the six screws **S** attaching the FL board.
  (2) Disconnect the wire from the connector CN403 on the FL board.
  (3) Disconnect the connector CN401 on the FL board in an upward direction.

3.1.16 2.1.16 Removing the volume board
(See Fig.17)

- Prior to perform the following procedures, remove the top cover and front panel assembly.
  (1) From the inside of the front panel assembly, remove three screws **T** attaching the volume board.
  (2) Disconnect the wire from the connector CN403 on the FL board.

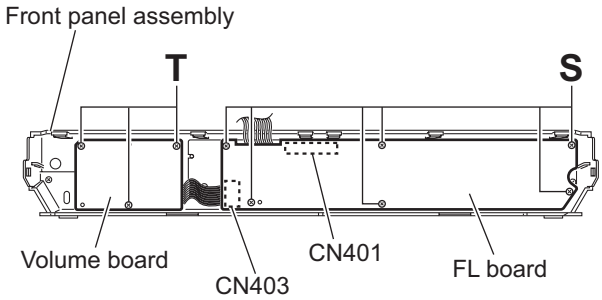


Fig.17

3.1.17 Removing the SW board
(See Fig.18)

- Prior to perform the following procedure, remove the top cover, front panel assembly and FL board.
  (1) From the inside of the front panel assembly, remove the seven screws **U** attaching the SW board.

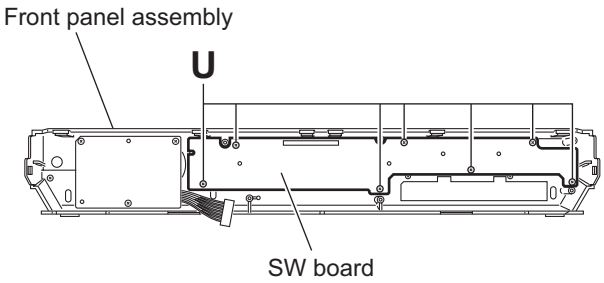


Fig.18

SECTION 4
ADJUSTMENT

This service manual does not describe ADJUSTMENT.

SECTION 5
TROUBLE SHOOTING

This service manual does not describe TROUBLE SHOOTING.

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