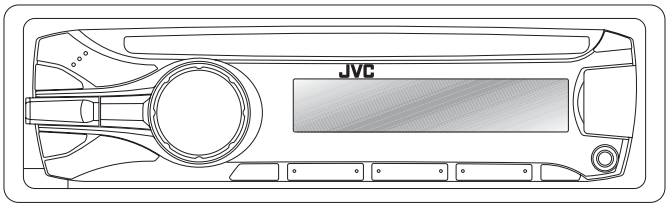
JVC

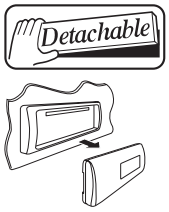
SERVICE MANUAL

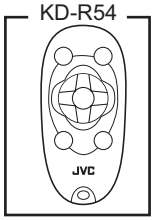
CD RECEIVER

KD-R430J, KD-R431E, KD-R431EN, KD-R431EU, KD-R431EY, KD-R432E, KD-R432EN, KD-R432EU, KD-R432EY, KD-R434UI, KD-R435U, KD-R435UN, KD-R436U, KD-R436UN, KD-R436UP, KD-R437EE, KD-R439UR, KD-R48EE, KD-R531E, KD-R531EN, KD-R531EU, KD-R531EY, KD-R54J



For KD-R430, KD-R434, KD-R435, KD-R435, KD-R436, KD-R436, KD-R439, KD-R54





WMA
MP3

COMPACT disc DIGITAL AUDIO TEXT

For KD-R430,KD-R431, KD-R432,KD-R435,KD-R436, KD-R437,KD-R48,KD-R531, KD-R54

Made for iPod iPhone

For KD-R531,KD-R432,KD-R431

Radio Data System

For KD-R430,KD-R54

Amplifier Power Standard CEA CEA-2006 Compliant

works with PANDORA internet radio

DETACH PANEL

Model	Parts number
KD-R430J	CP-R430JD
KD-R431E	CP-R431ED
KD-R431EN	CP-R431ED
KD-R431EU	CP-R431ED
KD-R431EY	CP-R431ED
KD-R432E	CP-R432ED
KD-R432EN	CP-R432ED
KD-R432EU	CP-R432ED
KD-R432EY	CP-R432ED
KD-R434UI	CP-R434UID
KD-R435U	CP-R435UD
KD-R435UN	CP-R435UD
KD-R436U	CP-R436UD
KD-R436UN	CP-R436UD
KD-R436UP	CP-R436UD
KD-R437EE	CP-R437EED
KD-R438J	CP-R438JD
KD-R438UF	CP-R438UFD
KD-R48EE	CP-R48EED
KD-R531E	CP-R531ED
KD-R531EN	CP-R531ED
KD-R531EU	CP-R531ED
KD-R531EY	CP-R531ED
KD-R54J	CP-R54JD

Lead free solder used in the board (material : Sn-Ag-Cu, melting point : 219 Centigrade)
Lead free solder used in the board (material : Sn-Cu, melting point : 230 Centigrade)

No.MA503<Rev.003>
2012/4

SPECIFICATION

For US

AUDIO AMPLIFIER SECTION		
Power Output		20 W RMS x 4 Channels at 4 Ω and ≤ 1% THD+N
Load Impedance		4 Ω (4 Ω to 8 Ω allowance)
Frequency Response		40 Hz to 20 000 Hz
Signal-to-Noise Ratio		80 dBA (reference: 1 W into 4Ω)
Line-Out or Subwoofer-Out Level/Impedance		2.5 V/20 kΩ load (full scale)
Output Impedance		≤ 600Ω
TUNER SECTION		
FM	Frequency Range	200 kHz step: 87.9 MHz to 107.9 MHz 50 kHz step: 87.5 MHz to 108.0 MHz
	Usable Sensitivity	9.3 dBf (0.8 μV/75Ω)
	50 dB Quieting Sensitivity	16.3 dBf (1.8 μV/75Ω)
	Alternate Channel Selectivity (400 kHz)	65 dB
	Frequency Response	40 Hz to 15 000 Hz
	Stereo Separation	40 dB
AM	Frequency Range	10 kHz step: 530 kHz to 1 700 kHz 9 kHz step: 531 kHz to 1 611 kHz
	Sensitivity/Selectivity	20 μV/40 dB
CD PLAYER SECTION		
Signal Detection System		Non-contact optical pickup (semiconductor laser)
Number of Channels		2 channels (stereo)
Frequency Response		5 Hz to 20 000 Hz
Signal-to-Noise Ratio		98 dB
Wow and Flutter		Less than measurable limit
USB SECTION		
USB Standard		USB 1.1, USB 2.0
Data Transfer Rate (Full Speed)		Max. 12 Mbps
Compatible Device		Mass storage class
Compatible File System		FAT 32/16/12
Playable Audio Format		MP3/WMA
Maximum Supply Current		DC 5 V ⎓ 1 A
GENERAL		
Power Requirement (Operating Voltage)		DC 14.4 V (11 V to 16 V allowance)
Grounding System		Negative ground
Allowable Operating Temperature		0°C to +40°C (32°F to 104°F)
Dimensions (W × H × D): (approx.)	Installation Size	182 mm × 52 mm × 158 mm (7-3/16" × 2-1/16" × 6-1/4")
	Panel Size	188 mm × 59 mm × 14 mm (7-7/16" × 2-3/8" × 9/16")
Mass		1.2 kg (2.7 lbs) (excluding accessories)

• Subject to change without notice.

SPECIFICATION

For ASIA

AUDIO AMPLIFIER SECTION		
Maximum Power Output		50 W per channel
Continuous Power Output (RMS)		20 W per channel into 4Ω, 40 Hz to 20 000 Hz at less than 1% total harmonic distortion.
Load Impedance		4 Ω (4 Ω to 8 Ω allowance)
Frequency Response		40 Hz to 20 000 Hz
Signal-to-Noise Ratio		70 dB
Line-Out or Subwoofer-Out Level/Impedance		4.8 V/20 kΩ load (full scale)
Output Impedance		≤ 600Ω
TUNER SECTION		
FM	Frequency Range	87.5 MHz to 108.0 MHz
	Usable Sensitivity	9.3 dBf (0.8 μV/75Ω)
	50 dB Quieting Sensitivity	16.3 dBf (1.8 μV/75Ω)
	Alternate Channel Selectivity (400 kHz)	65 dB
	Frequency Response	40 Hz to 15 000 Hz
	Stereo Separation	40 dB
AM	Frequency Range	531 kHz to 1 611 kHz
	Sensitivity/Selectivity	20 μV/40 dB
CD PLAYER SECTION		
Signal Detection System		Non-contact optical pickup (semiconductor laser)
Number of Channels		2 channels (stereo)
Frequency Response		5 Hz to 20 000 Hz
Signal-to-Noise Ratio		98 dB
Wow and Flutter		Less than measurable limit
USB SECTION		
USB Standard		USB 1.1, USB 2.0
Data Transfer Rate (Full Speed)		Max. 12 Mbps
Compatible Device		Mass storage class
Compatible File System		FAT 32/16/12
Playable Audio Format		MP3/WMA
Maximum Supply Current		DC 5 V ⎓ 1 A
GENERAL		
Power Requirement (Operating Voltage)		DC 14.4 V (11 V to 16 V allowance)
Grounding System		Negative ground
Allowable Operating Temperature		0°C to +40°C
Dimensions (W × H × D)	Installation Size	approx. 182 mm × 52 mm × 158 mm
	Panel Size	approx. 188 mm × 59 mm × 14 mm
Mass		1.2 kg (excluding accessories)

• Subject to change without notice.

SPECIFICATION

For EUROPE

AUDIO AMPLIFIER SECTION		
Maximum Power Output		50 W per channel
Continuous Power Output (RMS)		20 W per channel into 4Ω, 40 Hz to 20 000 Hz at less than 1% total harmonic distortion.
Load Impedance		4 Ω (4 Ω to 8 Ω allowance)
Frequency Response		40 Hz to 20 000 Hz
Signal-to-Noise Ratio		70 dB
Line-Out or Subwoofer-Out Level/Impedance		2.5 V/20 kΩ load (full scale)
Output Impedance		≤ 600Ω
TUNER SECTION		
FM	Frequency Range	FM : 87.5 MHz to 108.0 MHz
		FM-LO : 65.0 MHz to 74.0 MHz (EE model only)
	Usable Sensitivity	9.3 dBf (0.8 μV/75Ω)
	50 dB Quieting Sensitivity	16.3 dBf (1.8 μV/75Ω)
	Alternate Channel Selectivity (400 kHz)	65 dB
	Frequency Response	40 Hz to 15 000 Hz
	Stereo Separation	40 dB
AM	Frequency Range	MW : 531 kHz to 1 611 kHz
		LW : 153 kHz to 279 kHz
	Sensitivity/Selectivity	MW : 20 μV/40 dB
		LW : 50 μV
CD PLAYER SECTION		
Signal Detection System		Non-contact optical pickup (semiconductor laser)
Number of Channels		2 channels (stereo)
Frequency Response		5 Hz to 20 000 Hz
Signal-to-Noise Ratio		98 dB
Wow and Flutter		Less than measurable limit
USB SECTION		
USB Standard		USB 1.1, USB 2.0
Data Transfer Rate (Full Speed)		Max. 12 Mbps
Compatible Device		Mass storage class
Compatible File System		FAT 32/16/12
Playable Audio Format		MP3/WMA
Maximum Supply Current		DC 5 V ⎓ 1 A
GENERAL		
Power Requirement (Operating Voltage)		DC 14.4 V (11 V to 16 V allowance)
Grounding System		Negative ground
Allowable Operating Temperature		0°C to +40°C
Dimensions (W × H × D)	Installation Size	approx. 182 mm × 52 mm × 158 mm
	Panel Size	approx. 188 mm × 59 mm × 14 mm
Mass		1.2 kg (excluding accessories)

• 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.

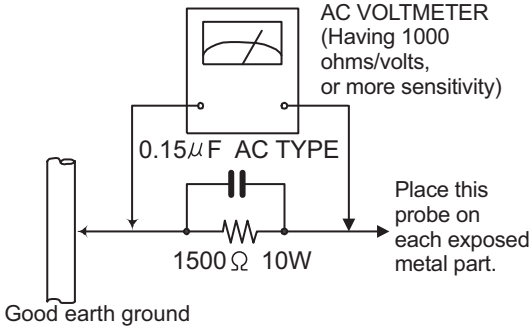
(2) Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturers warranty and will further relieve the manufacture of responsibility for personal injury or property damage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

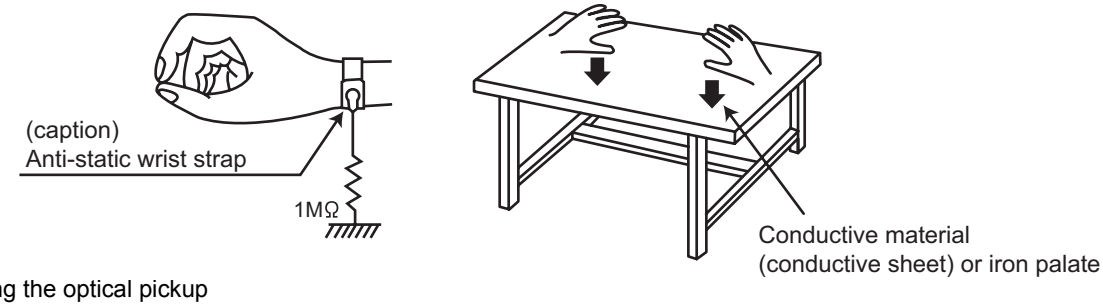
Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pickup). Take care to prevent this when performing repairs.

1.5.1 Grounding to prevent damage by static electricity

Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as laser products.
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.



(3) Handling the optical pickup
- In order to maintain quality during transport and before installation, both sides of the laser diode on the replacement optical pickup are shorted. After replacement, return the shorted parts to their original condition. (Refer to the text.)
- 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.

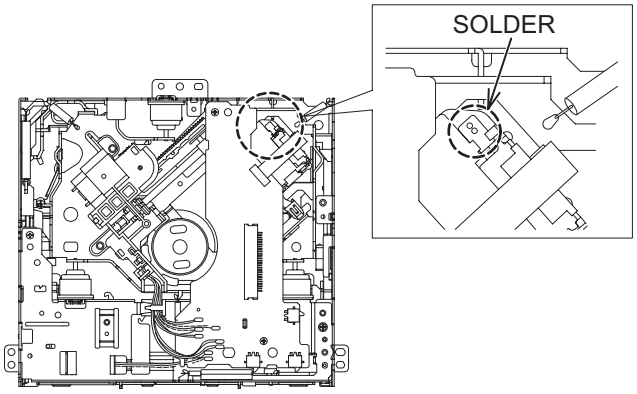
1.6 Handling the traverse unit (optical pickup)

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

1.7 Attention when traverse unit is decomposed

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

- Apply solder to the short land sections before the card wire is disconnected from the connector on the servo board. (If the card wire is disconnected without applying solder, the pickup may be destroyed by static electricity.)
- In the assembly, be sure to remove solder from the short land sections after connecting the card wire.



1.8 Important for laser products

1.CLASS 1 LASER PRODUCT

2.CAUTION :
(For U.S.A.) Visible and/or invisible class II laser radiation when open. Do not stare into beam.
(Others) Visible and/or invisible class 1M laser radiation when open. Do not view directly with optical instruments.

3.CAUTION : Visible and/or invisible laser radiation when open and inter lock failed or defeated. Avoid direct exposure to beam.

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

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

6.CAUTION : Use of controls, adjustments or performance of procedures other than those specified here in 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.**

(For U.S.A.)
CAUTION : Visible and/or invisible class II laser radiation when open. Do not stare into beam.
(Others)
CAUTION : Visible and/or invisible class 1M laser radiation when open. Do not view directly with optical instruments

ACHTUNG: Sichtbare und/oder unsichtbare Laserstrahlung der Klasse 1M bei offenen Abdeckungen. Nicht direkt mit optischen Instrumenten betrachten.

ATTENTION: Rayonnement laser visible et/ou invisible de classe 1M une fois ouvert. Ne pas regarder directement avec des instruments optiques.

VOORZICHTIG: Zichtbare en/of onzichtbare klasse 1M laserstralen indien geopend. Bekijk niet direct met optische instrumenten.

ATTENZIONE: Radiazione laser in classe 1M visibile e/o invisibile quando aperto. Non osservare direttamente con strumenti ottici.

VARNING: Synlig och/eller osynlig laserstrålning, klass 1M, när denna del är öppnad. Betrakta ej strålen med optiska instrument.

VARO!: Avattaessa olet alttiina nakyvalle ja/tai näkymättömälle luokan 1M lasersateilylle. Älä tarkastele sitä optisen laitteen läpi.

ADVARSEL: Synlig og/eller usynlig klasse 1M-laserstråling ved åbning. Se ikke direkte med optiske instrumenter.

AVISO: Radiación láser de clase 1M visible y/o invisible cuando está abierto. No mirar directamente con instrumental óptico.

PRECAUÇÃO: Radiação laser de classe 1M visível e/ou invisível quando aberto. Não olhe directamente com instrumentos ópticos.

PRECAUÇÃO: Radiação laser de classe 1M visível e/ou invisível quando aberto. Não olhe diretamente com instrumentos óticos.

ПРЕДУПРЕЖДЕНИЕ: В открытом состоянии происходит видимое и/или невидимое излучение лазера класса 1M. Не смотрите непосредственно в оптические инструменты.

UWAGA: Otwarcie spowoduje narażenie na widzialne i/lub niewidzialne promieniowanie lasera klasy 1M. Nie patrzeć bezpośrednio w przyrządy optyczne.

UPOZORNĚNÍ: Při otevření vydává viditelné popř. neviditelné laserové ozáření třídy 1M. Nedívejte se do otvoru přímo s optickými nástroji.

FIGYELMEZTETÉS: Látható és/vagy láthatatlan 1M osztályú sugárzás nyitott állapotban. Ne nézze közvetlenül optikai műszerekkel.

注意：打開蓋板可能會產生可見或不可見的 1M 級鐳射。不要使用光學儀器直接進行窺視。

注意：打开盖板可能会产生可见或不可见的 1M 级镭射。不要使用光学仪器直接进行窥视。

تنبيه: يوجد إشعاع ليزري مرئي و/أو غير مرئي من الفئة 1M عندما يكون الجهاز مفتوحا. تجنب النظر مباشرة داخل الجهاز باستخدام أدوات بصرية.

احتیاط: هنگامی که باز گردد، تشعشع مرئی و یا نامرئی کلاس 1M لیزر وجود دارد. با لوازم چشمی مستقیماً به آن نگاه نکنید.

주의: 개방하면 가시 및/또는 비가시 클래스 1M 레이저 방사선이 나옵니다. 광학 기구로 직접 들여다보지 마십시오.

REPRODUCTION AND POSITION OF LABELS and PRINT

WARNING LABEL and PRINT

CAUTION	ATTENTION	AVISO	VARNING	注意	CAUTION
VISIBLE AND/OR INVISIBLE CLASS 1M LASER RADIATION WHEN OPEN. DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS. IEC60825-1:2001 (ENG)	RAYONNEMENT LASER VISIBLE ET/OU INVISIBLE DE CLASSE 1M UNE FOIS OUVERT. NE PAS REGARDER DIRECTEMENT AVEC DES INSTRUMENTS OPTIQUES. (FRA)	RADIACIÓN LÁSER DE CLASE 1M VISIBLE Y/O INVISIBLE CUANDO ESTÁ ABIERTO. NO MIRAR DIRECTAMENTE CON INSTRUMENTAL ÓPTICO. (ESP)	SYNLIG OCH/ELLER OSYNLIG LASERSTRÅLNING, KLASS 1M, NÄR DENNA DEL ÄR ÖPPNAD. BETRAKTA EJ STRÅLEN MED OPTISKA INSTRUMENT. (SWE)	ここを開くと可視及び/または不可視のクラス1M レーザー放射が出ます。光学装置で直接見ないでください。 (JPN)	VISIBLE AND/OR INVISIBLE CLASS II LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM. FDA 21 CFR (ENG) LV44603-003A

SECTION 2
SPECIFIC SERVICE INSTRUCTIONS

This service manual does not describe SPECIFIC SERVICE INSTRUCTIONS.

SECTION 3
DISASSEMBLY

3.1 Main body (Used model: KD-R431)

3.1.1 Removing the Bottom chassis (See Fig.1)

(1) Disengage the 7 hooks **a** engaging the Bottom chassis.
(2) Slide the Bottom chassis backward to remove it.

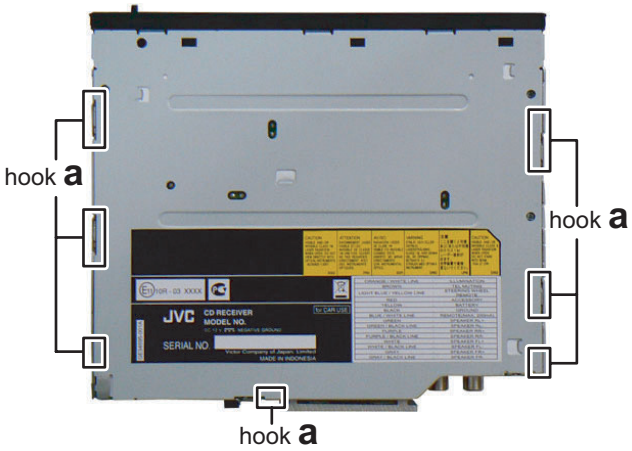


Fig.1

3.1.2 Removing the Front chassis (See Fig.2)

(1) Disengage the 4 hooks **b** engaging both sides of the Front chassis.

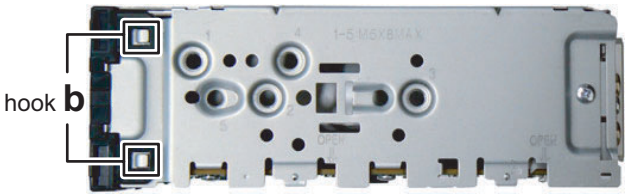


Fig.2

3.1.3 Removing the Erectric unit (See Fig.3, 4 and 5)

(1) Remove the 1 screw **A** attaching the Rear bracket. (See Fig.3)

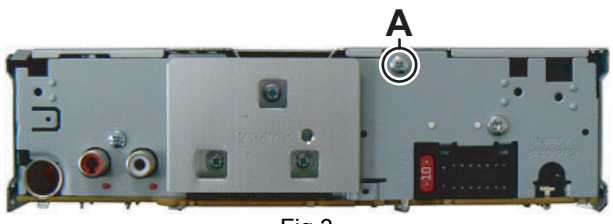


Fig.3

(2) Remove the 2 screws **B** attaching both sides of the Top chassis. (See Fig.4)

Fig.4

(3) Remove the 3 screws **C** attaching the Main board. (See Fig.5)
(4) Disconnect the board to board connector CN502 connecting the Main board and the CD mechanism. (See Fig.5)

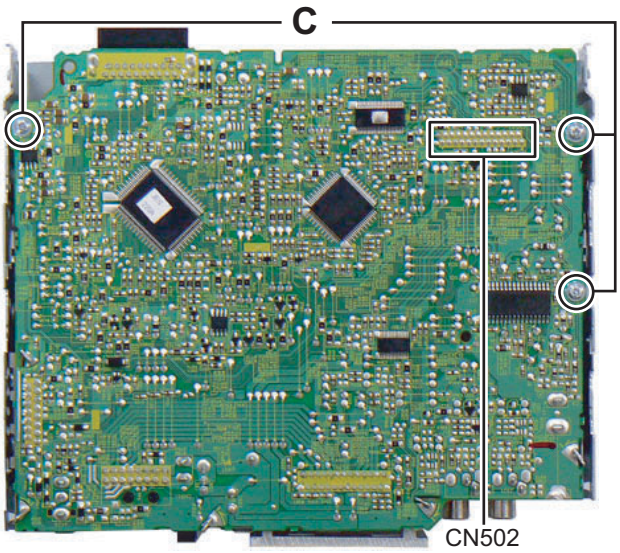


Fig.5

3.1.4 Removing the CD mechanism (See Fig.6)

(1) Remove the 3 screws **D** attaching the CD mechanism.

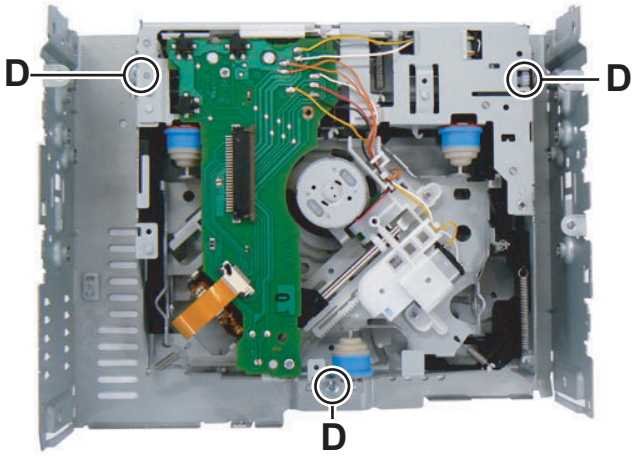


Fig.6

3.1.5 Removing the Switch unit (See Fig.7)

(1) Remove the Volume knob.
(2) Remove the 4 screws **E** attaching the Rear cover.
(3) Disengage the 14 hooks **c** engaging the Rear cover.

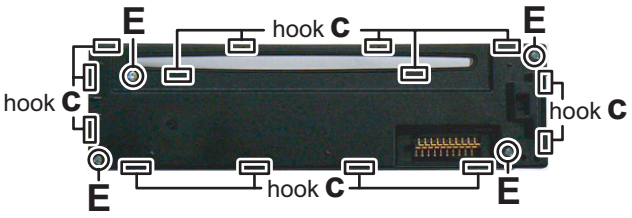


Fig.7

3.2 CD mechanism assembly section

3.2.1 Removing the Mecha control board

(1) Solder the short land on the pickup. (See Fig. 1)

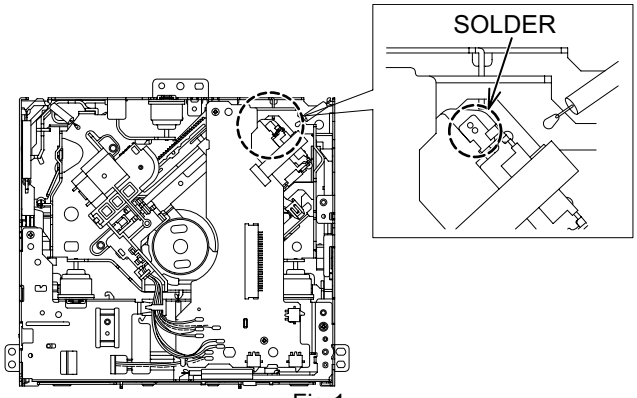


Fig.1

(2) Remove the 8 wires from the Mecha control board. (See Fig.2)

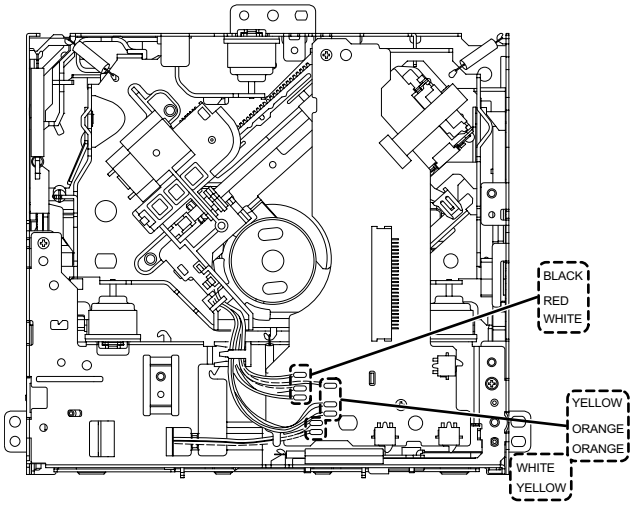


Fig.2

(3) Disconnect the flexible wire from the pickup connected to the connector CN102 on the Mecha control board. (See Fig.3)
(4) Remove the 2 screws **A** attaching the Mecha control board. (See Fig.3)

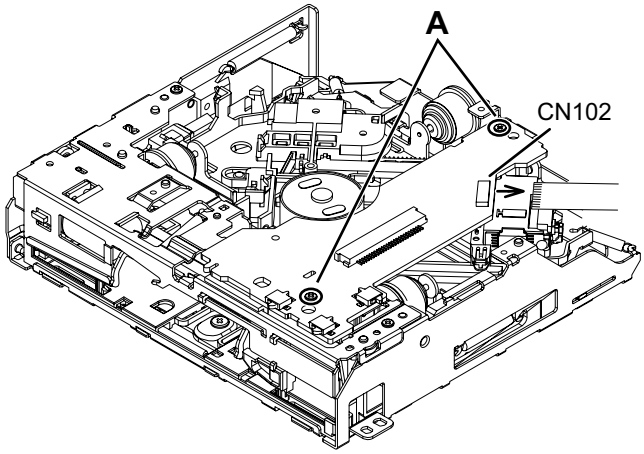


Fig.3

3.2.2 Removing the Traverse mechanism (See Fig.4, 5)

(1) Remove the 5 springs from the traverse mechanism. (See Fig.4)

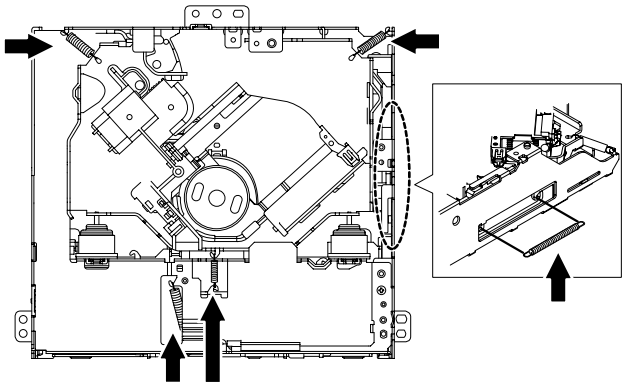


Fig.4

(2) Remove the 3 screws **B** attaching the bottom frame assembly. (See Fig.5)

(3) Remove the 3 dumpers from the bottom frame assembly. (See Fig.5)

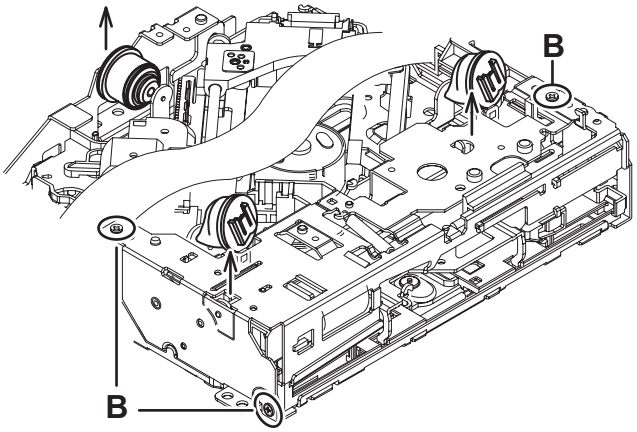


Fig.5

3.2.3 Removing the Pickup (See Fig.6, 7)

(1) Remove the 2 screws **C** attaching the feed bracket assembly. (See Fig.6)

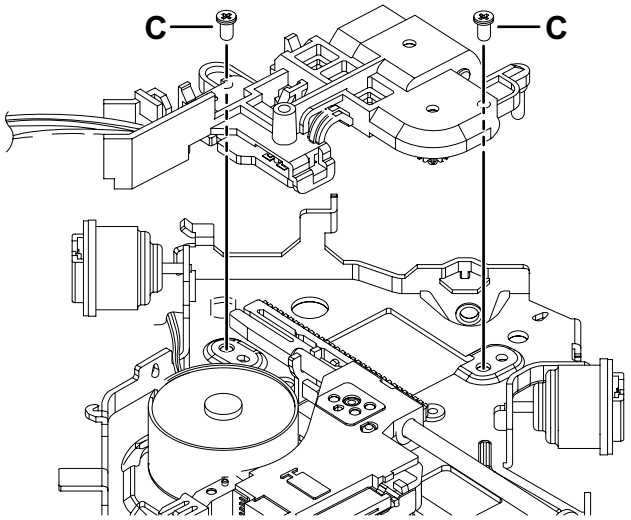


Fig.6

(2) Remove the shaft from the TM base. (See Fig.7)

(3) Disengage the hook **a** on the pickup from the TM base. (See Fig.7)

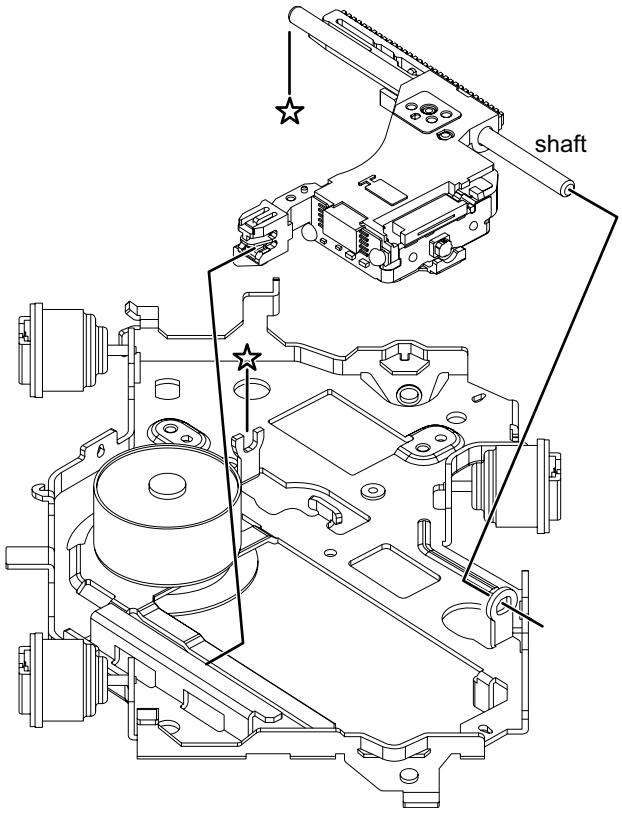


Fig.7

3.2.4 Removing the Spindle motor (See Fig.8. 9)

(1) Remove the HC CL. Spring from the HC CL. base and the TM base, and then lift up the HC CL. base. (See Fig.8)

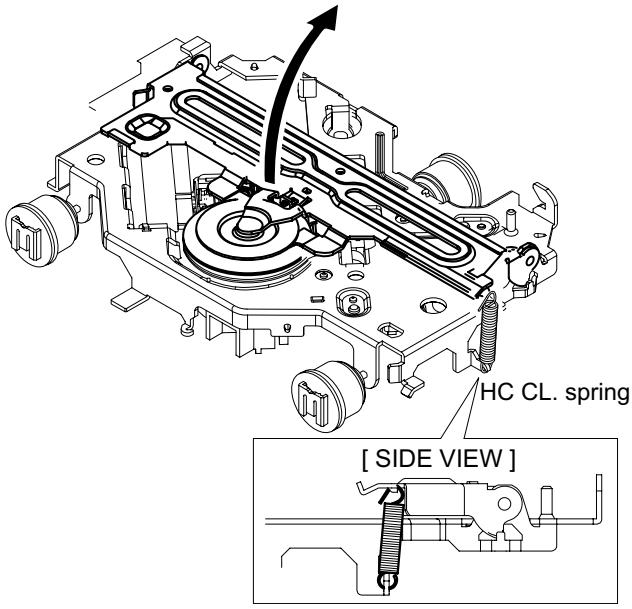


Fig.8

(2) Remove the HC CL. base from the holes on the TM base. (See Fig.9)

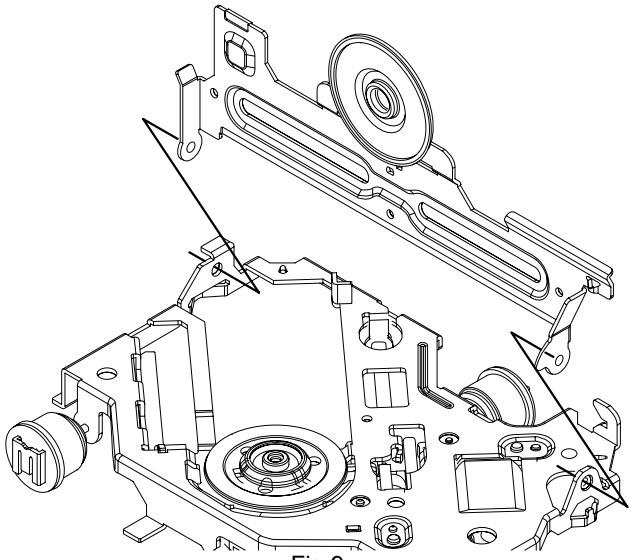


Fig.9

(3) Remove the 2 screws **D** attaching the spindle motor. (See Fig.10)

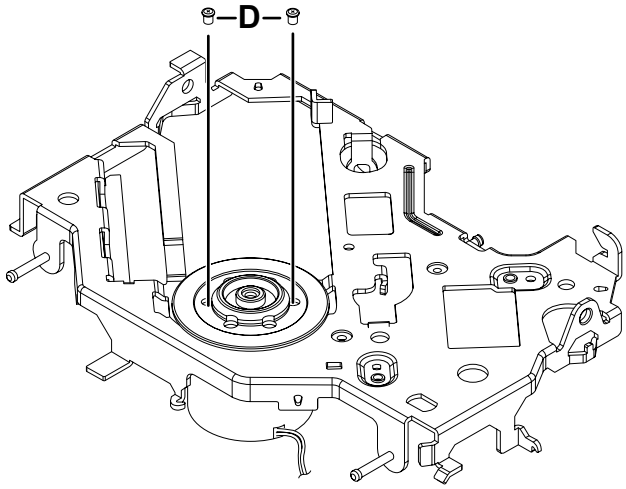


Fig.10

3.2.5 Removing the Loading motor

(1) Remove the roller arm assembly from the bottom frame assembly. (See Fig.11)

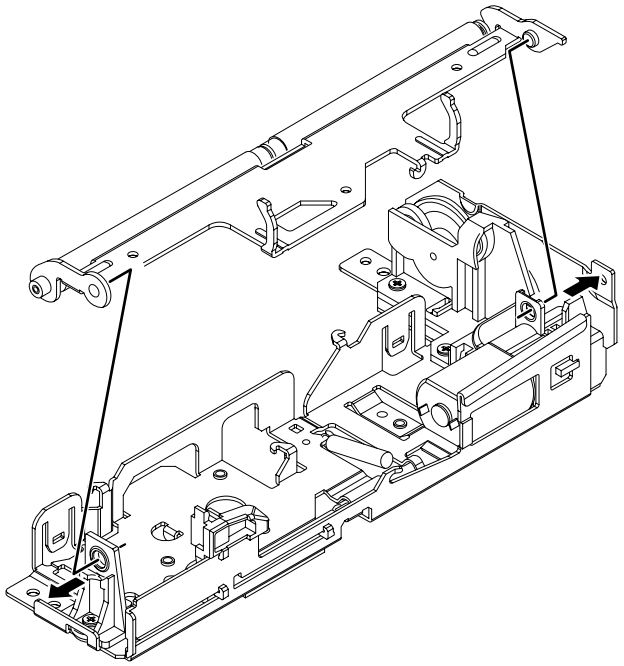


Fig.11

(2) Remove the 2 screws **E** attaching the loading motor assembly, and then remove the loading motor assembly in the direction of the arrow. (See Fig.12)

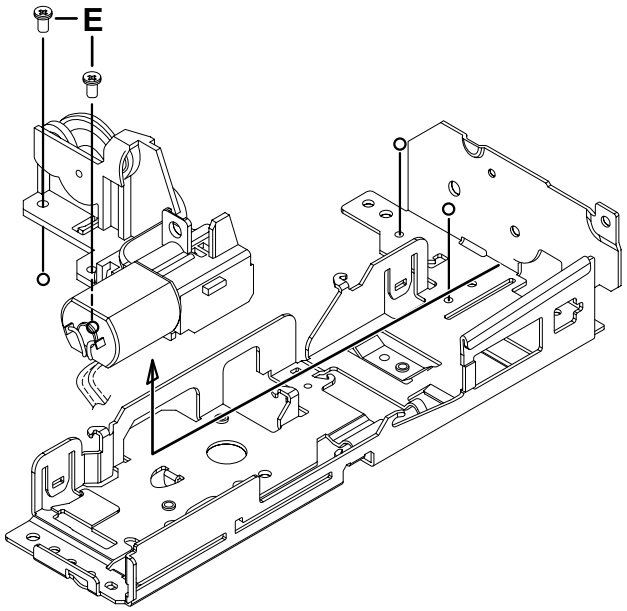


Fig.12

SECTION 4
ADJUSTMENT

4.1 Service Test mode

Default status immediately after the mode activation
Operating Key : [MENU] → [DOWN] (7sec)

4.1.1 Mode content
Syscon shall display the following information after entering this mode. The operation shown below shall be workable.

Display content	Detail
S R V ☐ T E S T ☐ ☐ ☐	The display is released when another operation is executed.

4.1.2 Common operation mode for all sources.
■means Press aud hold.

Operation	Display content		Detail
EQ	CD error information display mode	Transit to CD error information display mode	
MENU	Syscon version display	S Y S ☐ # @ @ @ ☐ ☐ ☐	# = Display of destination. J = USA R = EUROPE E = EASTERN-EUROPE U = OTHERS(e.g. ASIA) @@@ = Syscon version number
UP	Power ON duration display	P O N T M ☐ 0 H X X ☐	00 - 50 are displayed in " XX ". For less than 1 hour, the display is indicated per 10 minutes.
		P O N T M ☐ X X X X X	00001 - 10922 are displayed in " XXXXX ". MAX 10922 (hours).
DOWN	Disc operation duration display	C D T M ☐ ☐ 0 H X X ☐	00 - 50 are displayed in " X X ". For less than 1 hour, the display is indicated per 10 minutes.
		C D T M ☐ ☐ X X X X X	00001 - 10922 are displayed in " XXXXX ". MAX 10922 (hours).
BRIGHTNESS / TAG / iPod / SD	Disc eject number of times	E J C N T ☐ X X X X X	00001 - 99999 are displayed in "XXXXX"
■BRIGHTNESS / TAG / iPod / SD	Disc eject number of times clear	E J C N T ☐ 0 0 0 0 0	Clear Disc Eject number of times by pressing for 2 seconds when it is displayed.
⏮	Force Power OFF information display	P O F F ☐ - - - ☐ ☐ ☐	No force Power OFF
		P O F F ☐ P N L ☐ ☐ ☐	Force Power OFF due to Syscon-Panel commnication error. Will not show in JK12 Models.
■⏮	Force Power OFF information clear	P O F F ☐ - - - ☐ ☐ ☐	Clear Force Power OFF information by pressing for 2 seconds when it is displayed. Will not show in JK12 Models.

4.1.3 CD error information display mode

Operation	Display content		Detail
Move between DISP (Forward search) item with ⏮ / ⏭	CD mecha error log display	M E C H A □ E R # X X	Mecha error history 1,2,3 (latest) # = History No. (1,2,3) XX : kind of errors, " -- " when there is none. 00: No Error 04: TOC read Error 05: Unknown CD 06: Heat Error 0A: Update Error 0D: Hold Error 15: Unknown Disc 99: Mecha Error
	CD load error information display	L O A D □ □ E R # X X	Load error switch 1,2 # = History No. (1,2) XX: numbers of errors, " -- " when there is none History No. 2 is un-used
	CD eject error information display	E J E C T □ E R # X X	Eject error switch 1,2,3,4 # =History No. (1,2,3,4) XX: numbers of errors, " -- "when there is none History No.3 is un-used History No.1: Eject before SW1 is on. History No.2: Eject until SW1 and SW2 is on. History No.3: Eject between SW2 on and Eject end
	CD time code error count information display (count skip)	C N T □ L O S E □ □ □	CD-DA error count number information
		C D D A □ □ □ □ □ X X	CD-DA error count numbers XX: numbers of errors and " -- " when there is none Can only be checked via debugger by jap member
		C D R O M □ □ □ □ X X	CD-ROM (compressed file) error count numbers XX: numbers of errors and " -- " when there is none Can only be checked via debugger by jap member
	CD time code error count information display (no count update)	C N T □ S T A Y □ □ □	CD time code error count information (count not updated) mode display
		C D D A □ □ □ □ □ X X	CD-DA error count numbers XX: numbers of errors and " -- " when there is none
		C D R O M □ □ □ □ X X	CD-ROM (compressed file) error count numbers XX: numbers of errors and " -- " when there is none
■EQ	CD error informationclear	CD error information all clear M E C H A □ E R 1 - -	Clear CD error information by pressing for 2 seconds when it is displayed.
EQ	Mode release	CD error information display mode release	Back to default status, All lights on

4.2 DC error information mode

* The receiver is connected with the DC power supply (with the power supply turned off).
Operating Key : [MENU] → [UP] → [DC power supply turned ON]

4.2.1 Mode content

Syscon shall display the following information after entering this mode. The operation shown below shall be workable.

Display content	Detail
D C □ □ E R R □ □ □ □	When DC error is detected (in case that one of capacitor leakage, wrong connection or other detection is found).
D C □ □ O K □ □ □ □ □	When DC error is not detected (in case that none of capacitor leakage, wrong connection or other detection is found).

4.2.2 Mode operation specification

■means Press aud hold

Operation	Display content		Detail
UP	DC ERR1 display	D C 1 □ E R R □ □ □ □	When wrong connection & DC error in other detection duration is detected.
		D C 1 □ O K □ □ □ □ □	When wrong connection & DC error in other detection duration is not detected.
■UP	DC ERR1 clear	D C 1 □ O K □ □ □ □ □	Clear detection information when wrong connection & DC error in other detection duration is displayed.(Clear data flash)
DOWN	DC ERR2 display	D C 2 □ 4 □ □ □ □ □ □	Display detecting number of times in capacitor leakage detection duration (0~4)
■DOWN	DC ERR2 clear	D C 2 □ 0 □ □ □ □ □ □	Clear number of times for detection information in capacitor leakage detection duration.(Clear data flash)

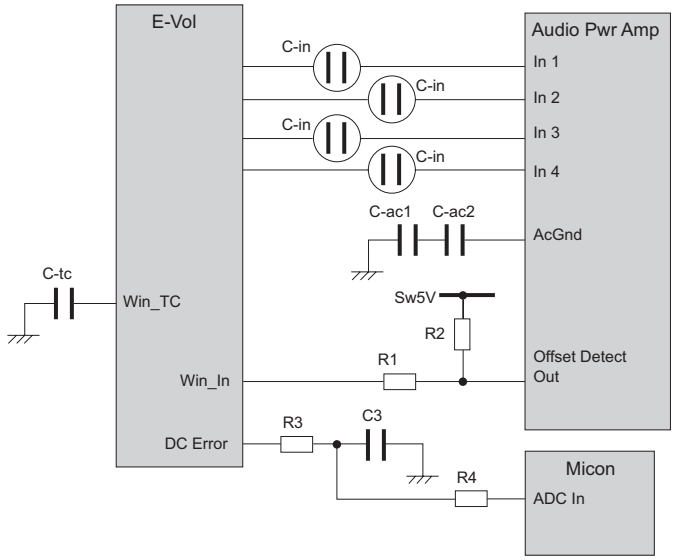
4.3 DC Offset error description

4.3.1 DC Offset detection circuit design

- Purpose:
  To prevent breakdown, burning and emitting smoke from customer's car speaker when occur DC offset between speaker output "+" and "-".
- Target:
  Detect DC offset, then stop the Power Amp operation and shift to specified condition.

4.3.2 Possible causes of DC offset at speaker output lines

(1) Mis-connection for Speaker output for example touch to car body or battery line.
(2) Current leak of coupling capacitor for Power IC input.
(3) Current leak of Ac-GND capacitor for Power IC Ac-GND.
(4) Capacitor shorted of above parts due to foreign object.



4.3.3 Type of checking

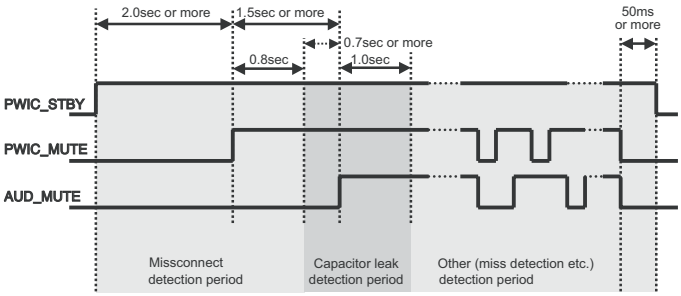
4.3.3.1 To detect DC Offset Error

- Mis-connection
  - Short any one speaker out line to GND or Vcc
- Capacitor leak
  - Parallel 330kΩ to either any one of coupling cap or Ac-GND cap (to simulate current leakage of capacitor)
  - Shorted either any one of coupling cap or Ac-GND cap.

4.3.3.2 To avoid mis-judge music as DC offset error

- Low frequency signal (17Hz or 20Hz) is more prone to cause mis-detection.
  - Play 17Hz (or 20Hz) signal and make sure micon will not detect and judge this as happen DC offset error.

4.3.4 Detection Timing chart



4.3.5 Manipulate after detect DC Offset

- If detected error 10 consecutive times, and 10th error occurred in "Mis-connect detection period", judge as "Mis-connect".
- If detected error 10 consecutive times, and 10th error occurred in "Capacitor leak detection period", judge as "Capacitor leak ".
- If detected error 10 consecutive times, and 10th error occurred in "Other detection period" and detected another 10 errors consecutively, then judge as "Other".
- If judge as "Mis-connect".
  - turn off speaker output.
  - display "MIS WIRING" → "CHK WIRING" → "THEN RESET" → "UNIT".
  - key access disable except button of Eject, Reset and service mode
  - record error in EEPROM "DC1 ERR"
  - Set is able to be recovered by Reset button.
- If judge as "Capacitor leak ".
  - turn off speaker output.
  - display "WIRING" → "CHK WIRING" → "THEN RESET" → "UNIT".
  - key access disable except button of Eject, Reset and service mode
  - record error in EEPROM "DC2 #" (# means counter number)
  - Set can be recovered by pressing the Reset button before the capacitor leak error counter reach "DC2 4".
    After that, only clear the counter back to "0" can recover the set.
- If judge as "Other" (manipulation same as mis-connect)

4.3.6 How to clear the DC offset error recorded in EEPROM

Refer to "DC error information mode".

SECTION 5
TROUBLESHOOTING

This service manual does not describe TROUBLESHOOTING.

JVC

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