

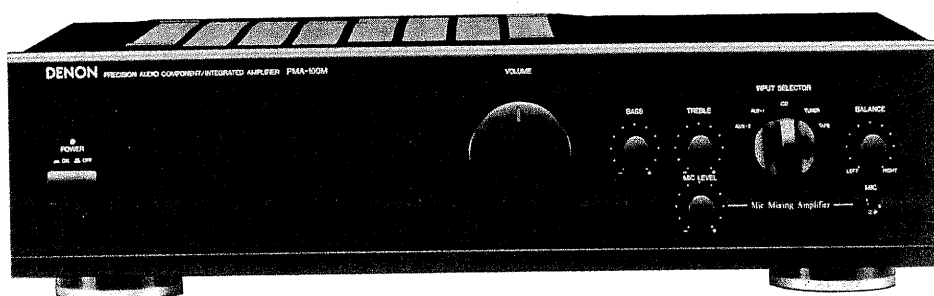
DENON

Hi-Fi Integrated Stereo Amplifier

SERVICE MANUAL

MODEL PMA-100M

INTEGRATED STEREO AMPLIFIER



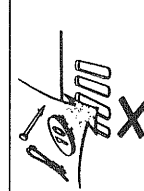
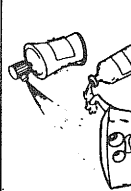


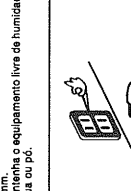
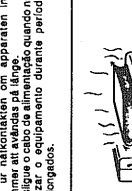
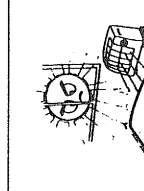
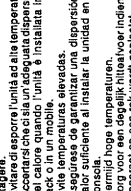
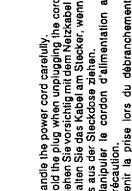
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• Some illustration using in this service manual is slightly different from the actual set.

NIPPON COLUMBIA CO., LTD.

NOTE ON USE / HINWEISE ZUM GEBRAUCH / OBSERVATIONS RELATIVES A L'UTILISATION NOTE SULL'USO / NOTAS SOBRE EL USO / ALVORENS TE GEBRUIKEN / OBSERVERA

 <ul style="list-style-type: none"> Do not let foreign objects in the set. Ne laissez pas d'objets étrangers dans l'appareil. Ne pas laisser des objets étrangers dans l'appareil. No inserte objetos extraños en el equipo. Laat geen vreemde voorwerpen in dit apparaat. Se illi alt främmande föremål inte rångrar in i apparaten. Evite deixar objectos estranhos sobre o aparelho. 	 <ul style="list-style-type: none"> Keep the set free from moisture, water and dust. Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern. Protéger l'appareil contre l'humidité, l'eau et la poussière. Mantener l'unità lontana da umidità, acqua e polvere. Mantenga el equipo libre de humedad, agua y polvo. Last geen vochtigheid, water of stof in het apparaat binnengedragen. Usalt! Iite apparatit ei lukt, vatten och ägga ou pó. 	 <ul style="list-style-type: none"> Never disassemble or modify the set in any way. Versuchen Sie niemals, das Gerät selbstständig auseinanderzunehmen oder auf jegliche Art zu verändern. Niet uit elkaar nemen of het apparaat op andere wijze wijzigen. Non smontare o modificare el equipo de ninguna manera. Nooli di apparatit demonitoren of op andere wijze modifieren. Nunca desmonte o modifique o equipamento de alguma forma.
 <ul style="list-style-type: none"> Avoid high temperatures. Vermeiden Sie hohe Temperaturen. Beachten Sie, daß eine ausreichende Lüftungsgewährleistung sein muß, wenn das Gerät in einem Regal aufgestellt werden soll. Eviter des températures élevées. Tenir compte d'une dispersion de chaleur adéquate lorsque l'appareil est installé dans un meuble. Evitar de expor a unidade a altas temperaturas. Assuresse de garantir una dispersion de calor suficiente al instalar la unidad en un mueble. Evite temperaturas elevadas. Asegúrese de garantizar una dispersión de calor suficiente al instalar la unidad en un mueble. Vermijd hoge temperaturen. Zorg voor een degelijk hitteafvoer indien het apparaat in een kast wordt geplaatst. Uunik hoga temperatur. Se illi ett det finns möjlighet till god värmeavledning vid montering i ett rack. Quando instalar o equipamento numa prateleira coloque-o de modo a permitir uma dissipação suficiente do calor. 	 <ul style="list-style-type: none"> Unplug the power cord when not using the set for long periods of time. Ziehen Sie das Netzkabel aus der Steckdose, wenn Sie das Gerät über einen längeren Zeitraum nicht benutzen. Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes. Proceda de não utilizar a unidade por longos períodos de tempo, desligando o cabo de alimentação da tomada. Desconecte el cordón de alimentación cuando no vaya a utilizar el equipo durante períodos prolongados. Neem altijd het net snoer uit het stopcontact wanneer het apparaat gedurende een lange tijd niet wordt gebruikt. Disconecte o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados. 	 <ul style="list-style-type: none"> Do not obstruct the ventilation holes. Die Lüftungsschlitze dürfen nicht verdeckt werden. Ne pas obstruer les trous d'aération. Non ostruire i fori per la ventilazione. Do not block the ventilation openings with anything. Nicht die Ventilationsöffnungen mit etwas blockieren. Não tape os orifícios de ventilação.
 <ul style="list-style-type: none"> Handle the power cord carefully. Hold the plug when unplugging the cord. Manipuler le cordon d'alimentation avec précaution. Maneje el cordón de alimentación con cuidado. Maneje o cabo de alimentação com cuidado. Maneja o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados. 	 <ul style="list-style-type: none"> Maneja o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados. Maneja o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados. Maneja o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados. Maneja o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados. Maneja o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados. Maneja o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados. 	 <ul style="list-style-type: none"> Maneja o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados. Maneja o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados. Maneja o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados. Maneja o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados. Maneja o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados. Maneja o cabo de alimentação quando não estiver a utilizar o equipamento durante períodos prolongados.

NOTA:

- Quando la unidad vaya a estar fuera de uso por un período prolongado de tiempo, desconecte el cable de alimentación.
- Deje al menos 10 cm de distancia a la izquierda y derecha así como en la parte posterior cuando vaya a instalar la unidad. Deje también 10 cm de espacio entre la unidad y el componente que quiera instalar encima de ésta.

OPMERKING:

- Trek het netsnoer uit wanneer u denkt het toestel gedurende een lange periode niet te gebruiken.
- Laat bij het installeren van de apparatuur ten minste 10 cm ruimte over aan de linker-, de rechter- en de achterkant van het apparaat, evenals tussen boven geplaatste apparatuur.

OBSERVERA:

- Koppla loss nätkabeln om apparaten inte skall användas under lång tid.
- Lämn minst 10 cm avstånd till vänster om, till höger om och på baksidan av enheten och i följande tillfall annan utrustning som placeras ovanpå, när du installerar den.

NOTA:

- Desconecte o fio eléctrico quando intentar não utilizar a unidade por longo tempo.
- Ao instalar a unidade deixe pelo menos 10 cm de distância à esquerda, à direita e atrás da unidade, bem como 10 cm de distância para qualquer outro componente colocado por cima desta.

NOTE:

- Unplug the power cord when you do not plan to use the unit for a long period of time.
- When installing the unit, leave at least 10 cm distance on the left and right and on the rear of the unit as well as 10 cm to any other component placed above.

HINWEIS:

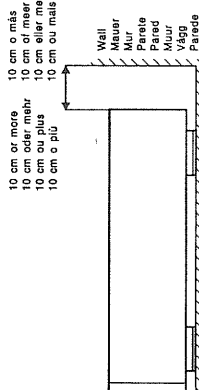
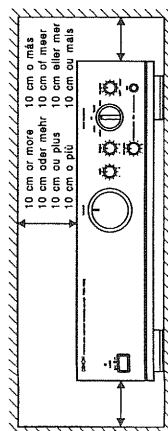
- Trennen Sie das Netzkabel vom Netz, wenn Sie beabsichtigen, das Gerät über einen längeren Zeitraum nicht zu benutzen.
- Lassen Sie beim Installieren des Gerätes einen Freiraum von mindestens 10 cm auf der linken, rechten und Rückseite des Gehäuses sowie weitere 10 cm Platz zu dem Gerät, das oberhalb der Einheit installiert werden soll.

REMARQUE:

- Débrancher le cordon d'alimentation lorsque l'appareil ne sera pas utilisé pendant une longue période.
- Lorsque vous installez l'appareil, laissez une distance libre d'au moins 10 cm distance sur les côtés de droite et gauche, ainsi qu'à l'arrière. De même, si vous placez un autre composant au-dessus de celui-ci, respectez un espace d'au moins 10 cm.

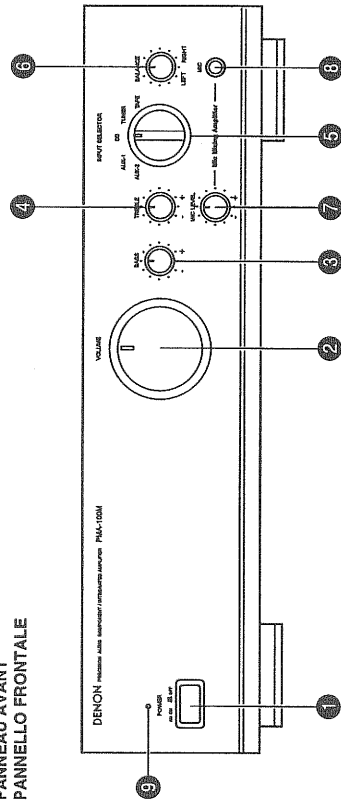
NOTA:

- Scollegate il cavo di alimentazione quando avete intenzione di non usare l'apparecchio per un lungo periodo.
- Quando si installa l'unità, lasciate almeno 10 cm di spazio a destra, a sinistra e sul retro dell'unità e 10 cm da tutti gli altri componenti che si trovano al di sopra dell'unità.

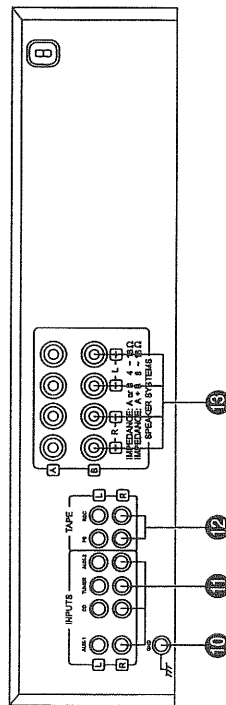


- 1 DESIGNATIONS AND FUNCTIONS OF PANEL CONTROLS (1)
 1 BEZEICHNUNG UND FUNKTION DER BEDIENELEMENTE (1)
 1 DÉSIGNATIONS ET FONCTIONS DES ÉLÉMENTS DU PANNEAU DE COMMANDE (1)
 1 SIGNIFICATO E FUNZIONAMENTO DEI COMANDI SUL PANNELLO (1)

FRONT PANEL
 VORDERSEITE
 PANNEAU AVANT
 PANNELLO FRONTALE

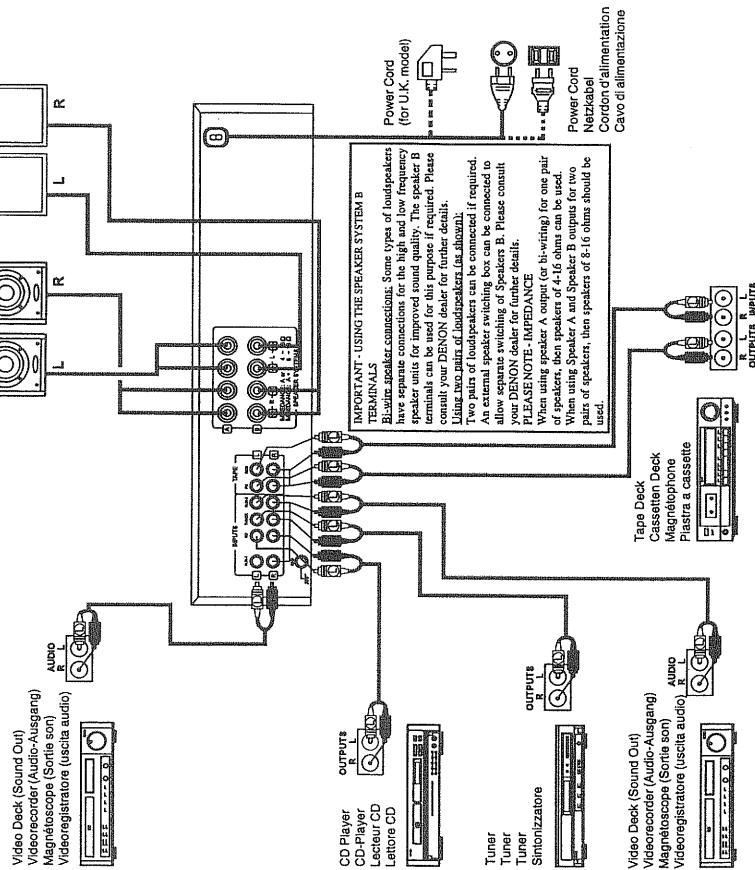


REAR PANEL
 RÜCKSEITE
 PANNEAU ARRIÈRE
 PANNELLO POSTERIORE



10 GND	11 AUX-1, CD, TUNER, AUX-2	12 TAPE PB, TAPE REC	13 SPEAKERS
GND	Input Terminals (AUX-1, CD, TUNER, AUX-2)	Playback and Recording Terminals • Playback Terminals • Recording Terminals	Speaker Terminals
GND	Eingangsbuchsen (AUX-1, CD, TUNER, AUX-2)	Tonband-Ein/Ausgänge • Abhören • Aufnehmen	Lausprecher- Klemmen
GND	Bornes d'entrée (AUX-1, CD, TUNER, AUX-2)	Bornes de lecture et d'enregistrement • Bornes de lecture • Bornes d'enregistrement	Bornes de haut- parleurs
GND	Terminali di ingresso (AUX-1, CD, TUNER, AUX-2)	Terminali di riproduzione/registrazione • Terminali di riproduzione • Terminali di registrazione	Terminali degli altoparlanti

- 2 CONNECTIONS
 2 ANSCHLÜSSE
 2 CONNEXIONS
 2 CONNESSIONI

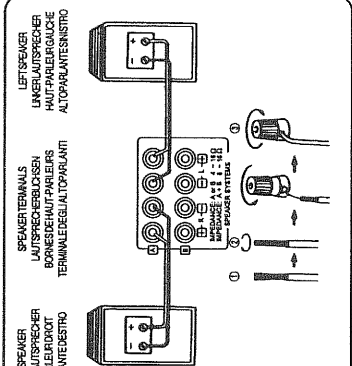


Connection to the Speaker System
 Anschluss der Lautsprecheranlage
 Connexion du système de haut-parleurs
 Collegamento del sistema di altoparlanti

1. Peel off the sheathing from the cable.
2. Twist the wire strands.
3. Loosen the speaker terminal, insert the wire lead portion of the cable, and then tighten the terminal.
1. Ein Stück der Isolierung am Kabelende wegschneiden.
2. Den Litzenstrahl zusammen-drehen.
3. Die Lautsprecherklemme lösen, das bloßliegende Drahtende ein-führen und durch Anziehen der Klemme gut einclammern.

1. Débarasser la gaine de l'extrémité du cordon.
2. Torsader les fils de cordon.
3. Desserrer la borne du haut-parleur, insérer l'extrémité du fil du cordon, puis serrer la borne.

1. Togliere la copertura dell'estremità del cavo.
2. Attorcigliare i fili del cavo.
3. Allentare il terminale degli altoparlanti. Inserire l'estremità del cavo e serrare quindi il terminale.



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5	TROUBLESHOOTING	13
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Please check to make sure the following items are included with the main unit in the carton:

- (1) Operating instructions 1

— INHALT —

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2	ANSCHLÜSSE	8
3	BEZEICHNUNG UND FUNKTION DER BEDIENELEMENTE (2)	14
4	BETRIEB	15
5	FEHLERSUCHE	16
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Bitte überprüfen Sie, ob die folgenden Teile vollständig in der Verpackung enthalten sind:

- (1) Bedienungsanleitung 1

— TABLE DES MATIÈRES —

1	DÉSIGNATIONS ET FONCTIONS DES ÉLÉMENTS DU PANNEAU DE COMMANDE (1) ..	6
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3	DÉSIGNATIONS ET FONCTIONS DES ÉLÉMENTS DU PANNEAU DE COMMANDE (2) 17	
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Veuillez vérifier que les articles suivants sont bien joints à l'équipement dans le carton:

- (1) Mode d'emploi 1


— INDICE —



1	SIGNIFICATO E FUNZIONAMENTO DEI COMANDI SUL PANNELLO (1)	6
2	CONNESSIONI	8
3	SIGNIFICATO E FUNZIONAMENTO DEI COMANDI SUL PANNELLO (2)	20
4	UTILIZZO	21
5	LOCALIZZAZIONE DEI GUASTI	22
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
Controllare che le parti seguenti si trovino imballate con l'apparecchio nella scatola di spedizione:



- (1) Istruzioni per l'uso 1

3 DESIGNATIONS AND FUNCTIONS OF PANEL CONTROLS (2) (SEE PAGE 6)



- 1 **POWER (Power Switch)**
When the power switch is turned ON (), the POWER LED lights.
When the power switch is turned ON, power is supplied to the unit. It takes a few seconds after the power is turned on for the unit to warm up. This is due to the built-in muting circuit that eliminates noise during the on/off operation.



- 2 **VOLUME (Volume Control)**
This knob controls the overall (Music and Mic) volume level. Turn the knob clockwise () to raise the volume and counterclockwise () to lower it.

- 3 **BASS (Bass control)**
This knob is used to control the bass quality of the sound. When the knob is set at the center position, the frequency characteristics are flattened in the range below 100 Hz. The bass is emphasized as the knob is moved off center clockwise (), and reduced as it is moved counterclockwise ().

- 4 **TREBLE (Treble control)**
This knob is used to control the treble quality of the sound. When the knob is set at the center position, the frequency characteristics are flattened in the range above 10 kHz. The treble is emphasized as the knob is moved off center clockwise (), and reduced as it is moved counterclockwise ().

- 5 **INPUT SELECTOR (Input Select Switch)**
The switch is used to select the input signal for the program source. The source to be recorded is also selected with this switch.
- CD: Use this position when using the CD player, etc., connected to the CD jacks.
 - TUNER: Use this position when using the tuner, etc., connected to the TUNER jacks.
 - AUX-1/2: Use this position when using the component connected to the AUX-1/2 jacks.
 - TAPE: Use this position, when using a tape deck connected to the TAPE jacks.

- 6 **BALANCE (Balance Control)**
This knob is used to adjust the balance between the left and right channels. When it is set to the center position, the amplitude of the amplifier is equal on both sides. If there is a difference in the left and right channel output voltages for a cartridge, move the knob to the left and the right to adjust it. If the volume on the right side is too low, turn the knob clockwise (). If the volume on the left side is too low, turn the knob counterclockwise (). This will achieve an even balance on the left and right sides.

- 7 **MIC LEVEL**
Use this knob to adjust the microphone input level. You can use this function to adjust the microphone level without changing the speakers output volume. Turn the knob clockwise () to raise the mic level and counterclockwise () to lower it.

8 **MIC JACK**

Use this jack to connect a microphone.

Attention: When connecting or disconnecting the microphone jack, always turn the volume control knob (2) counterclockwise, to the end.
It is impossible to adjust the balance between the left and right channels for the microphone input signal, if the BALANCE knob (6) is operated.

9 **POWER LED**

This LED lights when power is "ON".

4 OPERATION

PREPARATION

- CHECKING CONNECTIONS
 - Make sure that all the connections are proper by referring to the back panel. (See page 8)
 - Check the polarity (positive and negative) of the speaker connections, and the directivity of stereo separation (right cord to right channel terminal, and left cord to left channel terminal).
 - Check the left and right speaker connections are correct.

2. SETTING OF EACH KNOB

- Turn the volume control knob ② counterclockwise, to the end.
- Initially set the tone and balance controls to center position. After checking the above items, turn on the power, the amplifier is set in the ready mode in a few seconds.

PLAYBACK OF CD PLAYER

- Set the INPUT SELECTOR switch ⑤ to "CD".
- Operate the CD player.
- Turn the volume and tone controls to yield an appropriate volume and sound quality.

RECEPTION OF RADIO PROGRAMS

- Set the INPUT SELECTOR switch ⑤ to "TUNER".
- Operate the tuner to receive a radio program.
- Turn the volume and tone controls to yield an appropriate volume and sound quality.

CONNECTIONS OF AUDIO EQUIPMENT TO AUX-1/2 TERMINALS

- Set the INPUT SELECTOR switch ⑤ to "AUX-1" or "AUX-2" Position.
- Operate the Audio equipment Systems.
- Turn the volume and tone controls to yield an appropriate volume and sound quality.

PLAYBACK WITH TAPE DECK

- Set the INPUT SELECTOR switch ⑤ to "TAPE".
- Operate the Tape Deck.
- Turn the volume and tone controls to yield an appropriate volume and sound quality.

RECORDING WITH TAPE DECK

The source to be recorded is selected by the INPUT SELECTOR switch ⑤.

CAUTION

Protective Circuit

This set is equipped with a high speed protective circuit. This circuit protects the internal circuitry from damage due to large currents flowing when the speaker jacks are not completely connected or when an output is generated by a short circuit. This protective circuit's operation cuts off the output to the speakers. In such a case, be sure to turn the power to the set off and check the connections to the speakers. Then turn the power on again. After muting for a few seconds, the set will operate normally.

5 TROUBLESHOOTING

Check the following before assuming there is a problem with the set.

- Are all connections proper?
- Is the set being operated as described in the operating instructions?
- Are the speakers and input components being operated properly?

If the set does not seem to be operating properly, check the points listed below. If these points do not apply, the set may be damaged. Turn off the power immediately and contact your store of purchase.

Symptom	Cause	Measures	Page
POWER LED does not light and no sound is produced when POWER switch is turned on.	• Power cord is not connected.	• Check that the cord is plugged in.	8
POWER LED lights but no sound is produced.	• Speaker cords not properly connected. • INPUT SELECTOR not set to proper position. • VOLUME control turned down.	• Connect securely. • Set to the proper position. • Set to an appropriate level.	8 11 11
Sound is not produced from one side only.	• Speaker cords not properly connected. • Input cords not properly connected. • Left and right balance improperly adjusted.	• Connect securely. • Connect securely. • Adjust the BALANCE control.	8 8 11
*Volume level is different when listening to tuner and records.	• Tuner and record outputs different.	• Adjust the tuner output to the turntable's output (if the tuner is equipped with an output control).	-
Positions of instruments inverted for stereo sources.	• Left and right speakers or input cords inverted.	• Check the left/right connections.	8
Sound is not produced at connecting Microphone.	• Microphone's switch is "OFF". • Microphone's jack is not connected correctly. • Mic-volume control is turned down. • Not properly using Microphone.	• Turn on the Microphone's switch. • Connect it completely. • Adjust it to proper level. • See the operating instructions for the Microphone.	- - 11 -

Common problems existing when listening to the CD, records, tapes, and FM broadcasts

Problems occurring when using microphone

6 SPECIFICATIONS
6 TECHNISCHE DATEN
6 SPECIFICATIONS

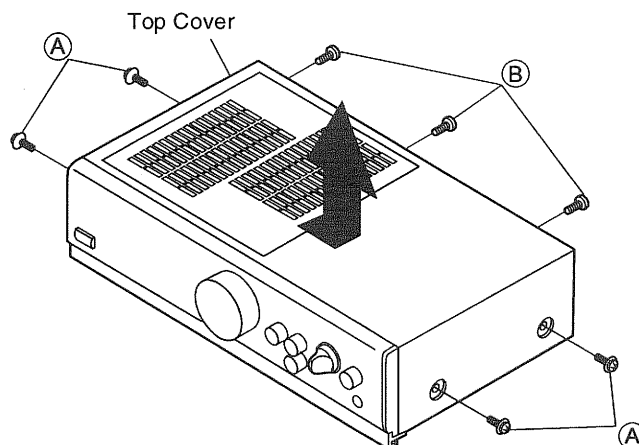
Technical Data (typical value)	Technische Daten (typische Werte)	Caractéristiques techniques (valeurs typiques)
<p>• POWER AMPLIFIER SECTION Rated Output Power: Both channels driven (8 Ω/ohms Load) 20 Hz to 20 kHz, T.H.D. 0.7% (4 Ω/ohms Load) DIN, 1 kHz, T.H.D. 0.7%</p> <p>Total Harmonic Distortion: (1 kHz/3 dB at rated output, 8 Ω/ohms)</p>	<p>• LEISTUNGS-VERSTÄRKER Nennleistung: Beide Kanäle belastet (8 Ω) 20 Hz bis 20 kHz, T.H.D. 0.7% (4 Ω) DIN, 1 kHz, T.H.D. 0.7%</p> <p>Klirrfaktor: (1 kHz/3 dB bei Nennleistung an 8 Ω)</p>	<p>• SECTION AMPLIFICATEUR Puissance nominale : en charge sur les deux canaux (avec charge de 8 Ω) 20 Hz à 20 kHz, T. D. H. 0.7% (avec charge de 4 Ω) DIN, 1 kHz, T. D. H. 0.7%</p> <p>Distorsion harmonique totale : (1 kHz/3 dB au niveau nominal, sur 8 Ω)</p>
<p>• PRE AMPLIFIER SECTION. Rated Output: (Recut Terminal)</p> <p>Input Sensitivity/ Input Impedance: CD, TUNER, AUX-1/2 TAPE MIC: (Maximum Input)</p>	<p>• VORVERSTÄRKER Nennspannung: (Recorderausgang)</p> <p>Eingangsempfindlichkeit/ Eingangsimpedanz: CD, TUNER, AUX-1/2 TAPE MIC: (Max. Eingangsspannung)</p>	<p>• SECTION PREAMPLIFICATEUR Voltage nominal : (aux bornes d'enregistrement)</p> <p>Sensibilité/ Impédance d'entrée : CD, TUNER, AUX-1/2 TAPE MIC: (Voltage d'entrée max.)</p>
<p>• OVERALL CHARACTERISTICS S/N Ratio (HF A Network): (Input terminals short-circuited) SOURCE DIRECT: ON</p> <p>Tone Control Adjustable Range: BASS TREBLE</p> <p>• OTHERS Power Supply Power Consumption Dimensions (W) x (H) x (D) Net Weight</p>	<p>• GESAMTEIGENSCHAFTEN S/N-Verhältnis (HF-A-Weiche): (Eingangsklemmen kurzgeschlossen) SOURCE DIRECT: EIN</p> <p>Klangregelbereich: BÄSSE HÖHEN</p> <p>• SONSTIGE Stromversorgung Leistungsaufnahme Abmessungen (B) x (H) x (T) Nettogewicht</p>	<p>• CARACTÉRISTIQUES GÉNÉRALES Rapport Signal/Bruit (HF A) : (Bornes d'entrée en court-circuit) SOURCE DIRECT: ON</p> <p>Gamme de réglage de tonalité: GRAVES AIGÜES</p> <p>• DIVERS Alimentation électrique Consommation électrique Dimensions (L) x (H) x (P) Poids net</p>
		<p>60 W + 60 W 100 W + 100 W 0.1 %</p> <p>150 mV 150 mV / 47 kΩ 0.6 mV/4.7 kΩ (110 mV/1 kHz)</p> <p>CD, TUNER, AUX-1/2, TAPE: 98 dB MIC: 55 dB</p> <p>100 Hz \pm 8 dB 10 kHz \pm 8 dB</p> <p>AC 230 V / 50 Hz (for Europe and Australia) 200 W MIC: 35 dB 434 (W) x 120 (H) x 286 (D) mm (17.08 x 4.72 x 11.332") 5.6 kg (12 lbz 0 oz)</p>

- Specifications and contents are subject to change without notice for purposes of improvement.
- Änderungen des Inhalts und der technischen Daten zum Zweck der Weiterentwicklung vorbehalten.
- Spécifications et contenu sont sujets à modifications sans préavis.

REMOVAL OF EACH SECTION

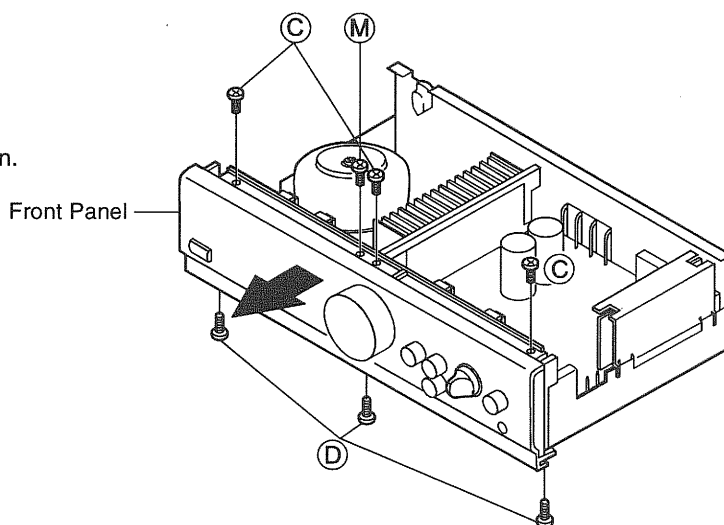
1. Top Cover

- 1) Remove 4 screws (A) and 3 screws (B).
- 2) Pull up the Top Cover in arrow direction.



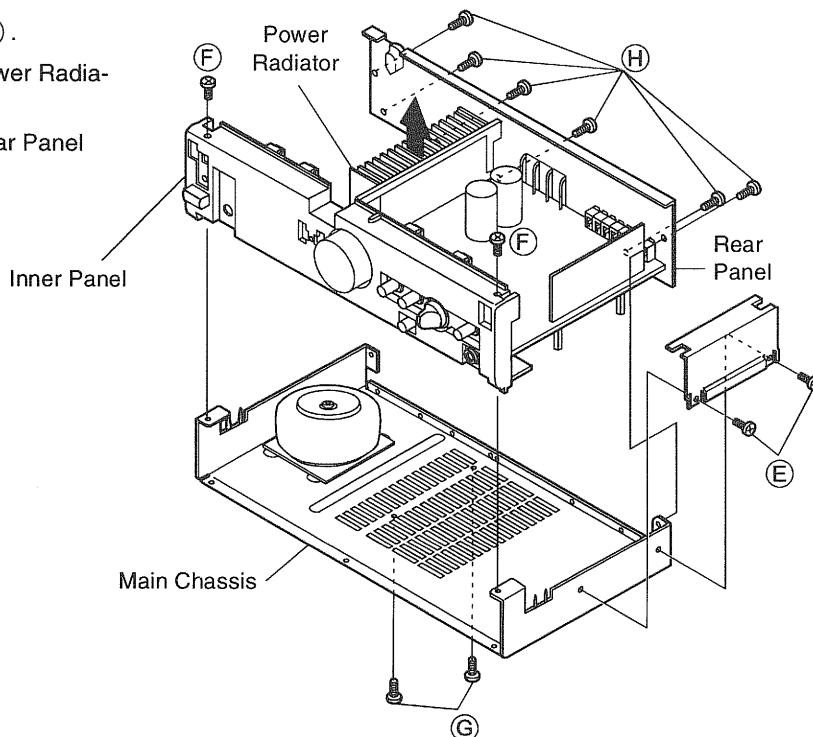
2. Front Panel

- 1) Remove 3 screws (C).
- 2) Remove 1 screw (M).
- 3) Remove 3 screws (D).
- 4) Detach the Front Panel in arrow direction.



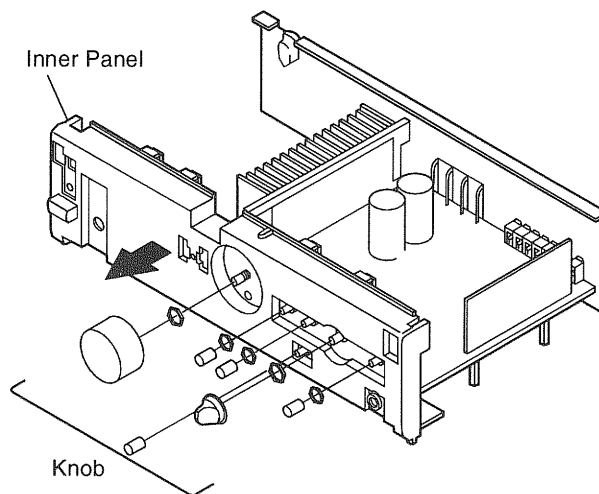
3. Main Chassis

- 1) Remove 2 screws (E) and 2 screws (F).
- 2) Remove 2 screws (G) securing the Power Radiator with the Main Chassis.
- 3) Remove 6 screws (H) securing the Rear Panel with the Main Chassis.



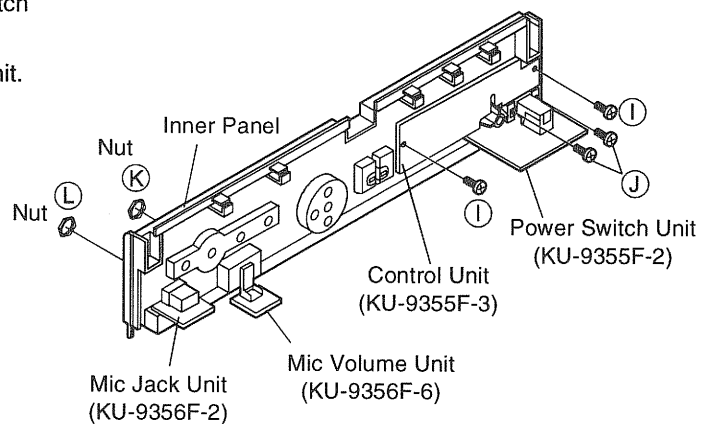
4. Inner Panel

- 1) Remove 6 Knobs and 5 nuts.
- 2) Detach the Inner Panel in arrow direction.



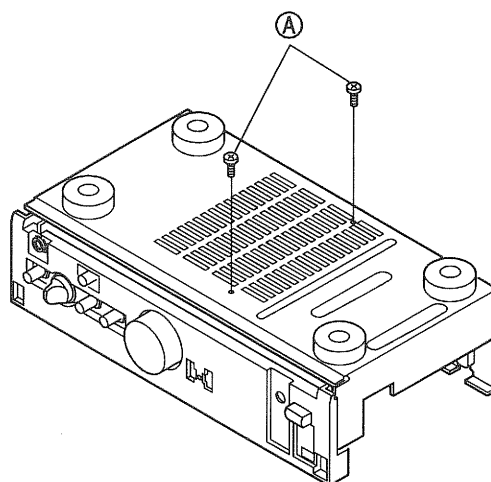
5. Each Unit of Inner Panel

- 1) Remove 2 screws (I), and detach the Control Unit.
- 2) Remove 2 screws (J), and detach the Power Switch Unit.
- 3) Remove 1 nut (K), and detach the Mic Volume Unit.
- 4) Remove 1 nut (L), and detach the Mic Jack Unit.

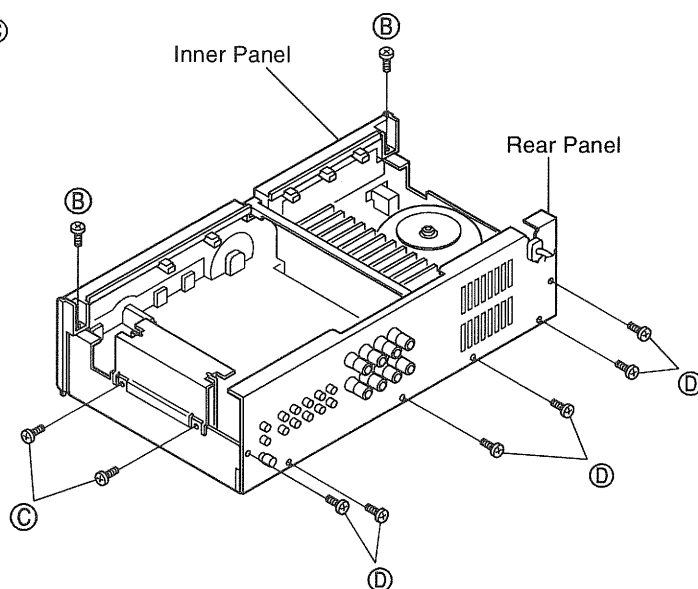


REMOVAL FOR SERVICING

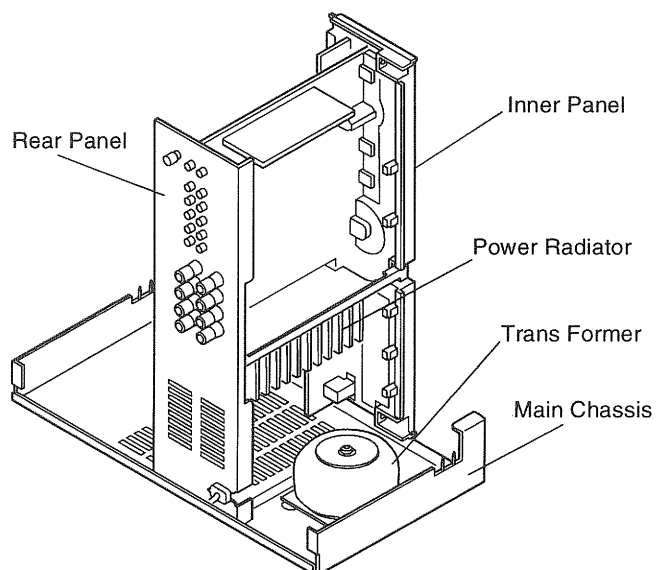
1. Remove the Top Cover and the Front Panel.
(Please refer to the remove of each section.)
2. Remove 2 screws (A) on the bottom.



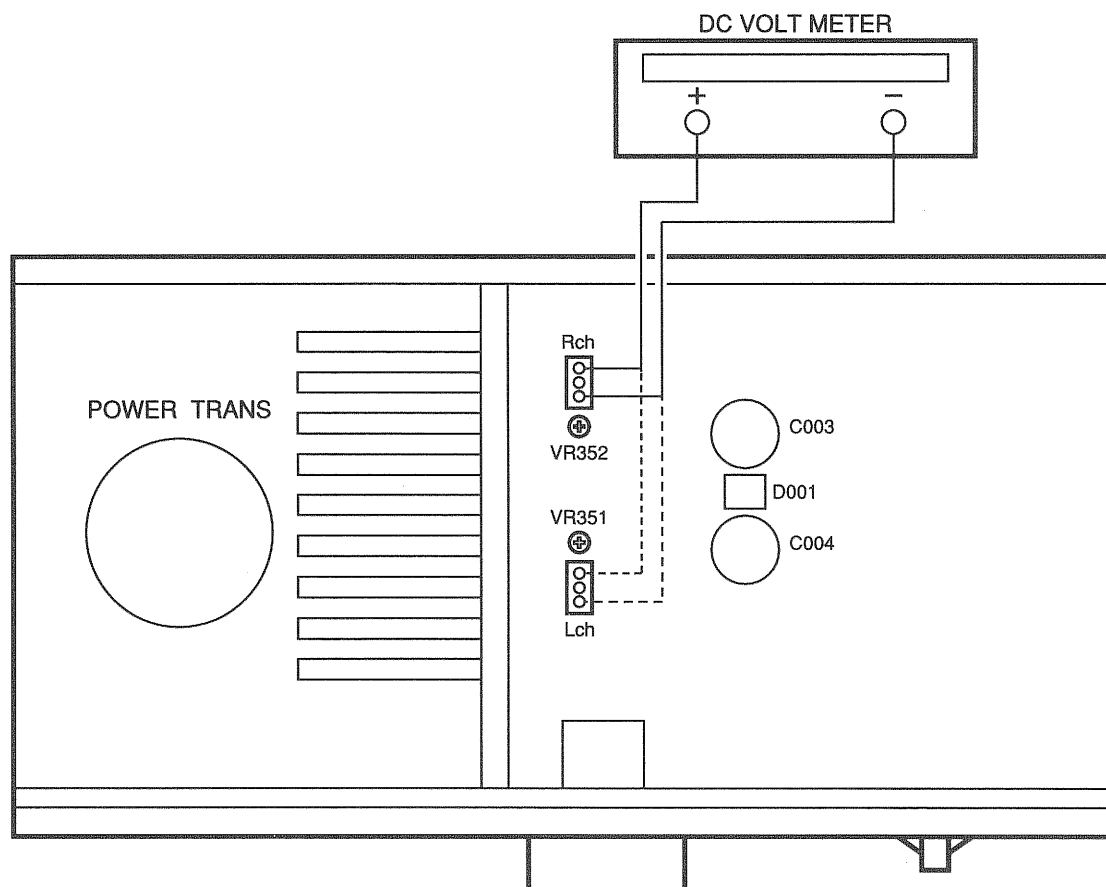
3. Remove 2 screws (B) fixing the Inner panel, 2 screws (C) and 6 screws (D) securing the Rear Panel.



4. Pull out the Rear Panel, and the Power Radiator together, and the Main Chassis as shown in the figure for servicing.
5. When completed service, please assemble with reverse process.





METHOD OF ADJUSTMENTS




IDLING CURRENT

● Setup

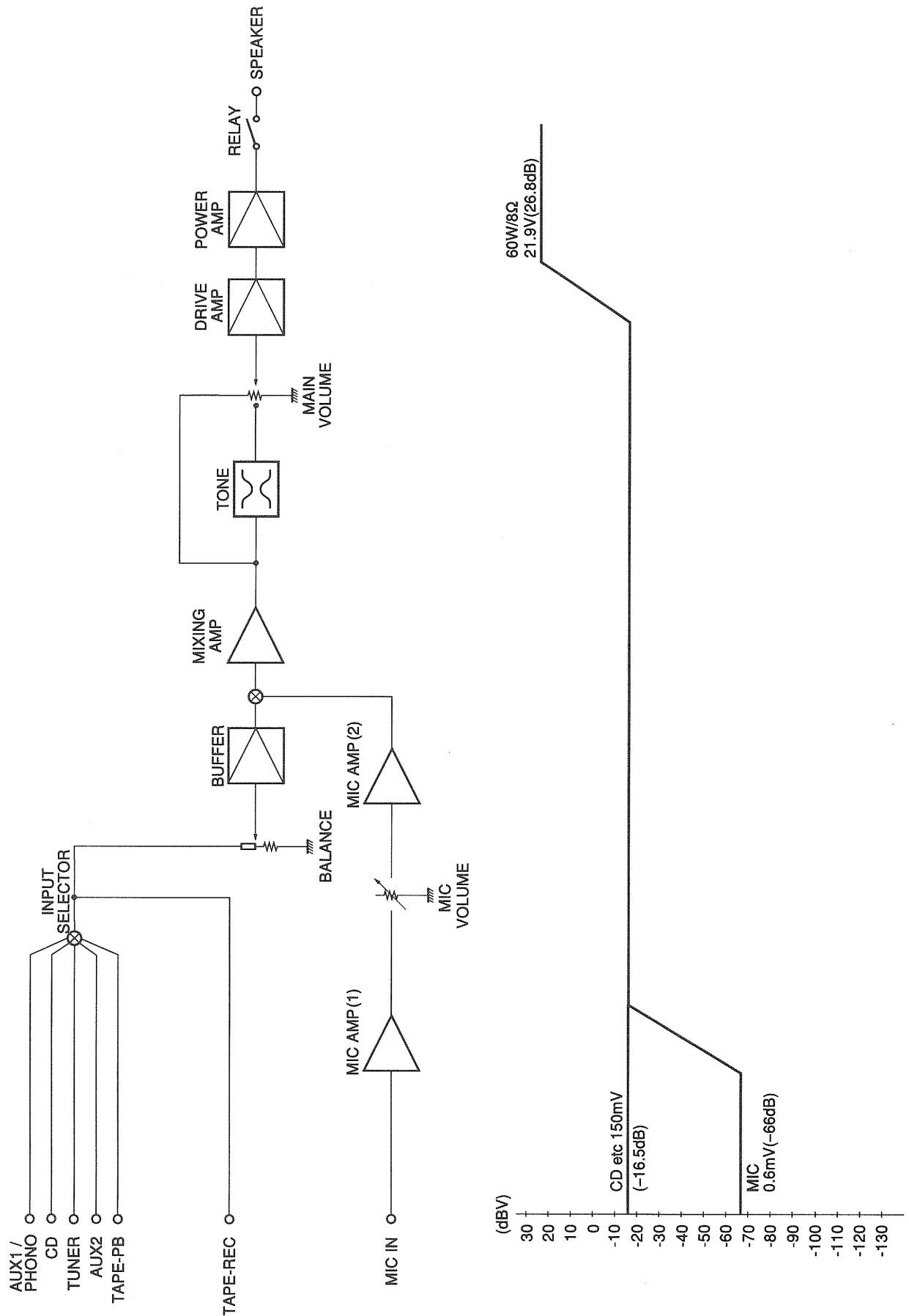
1. Lay the unit at an ordinary position away from a direct current from an air condition or fan. Do the adjustment at a temperature between 15°C (59°F) and 30°C (86°F).
2. Set controls as follows.

POWER SWITCH	→ OFF ()
VOLUME CONTROL	→ fully counterclockwise. () min. [Main volume (VR751) and Semifixed volume (VR351...Lch, VR352...Rch).]
SPEAKER Terminals	→ Open: do not connect the speakers, dummy load etc.

● Adjustment

1. Remove top cover. And then connect DC Voltmeter to Test points of KU-9355-1 Printed Wiring Board (Main Unit).
2. Connect Power cord to AC wall outlet, and turn Power Switch "ON" (). Within 10 seconds turn VR351 (Lch) and VR352 (Rch) clockwise so that the DC Voltmeter reads 10 ± 0.5 mV DC.
3. Then after 2 minutes warmup adjust VR351 and VR352 so that the DC Voltmeter reads 10 ± 0.5 mV DC.
4. And after 10 minutes warmup adjust VR351 and VR352 so that the DC Voltmeter reads 10 ± 0.5 mV DC.

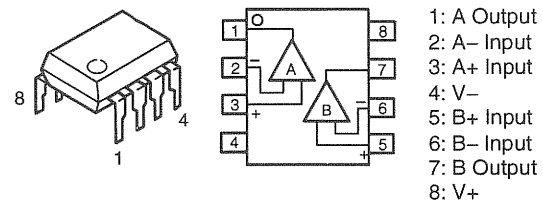
BLOCK AND LEVEL DIAGRAM



SEMICONDUCTORS

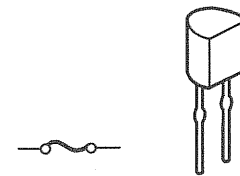
● IC's

NJM2068DD (IC251,252,301,701)
BA15218 (IC302)

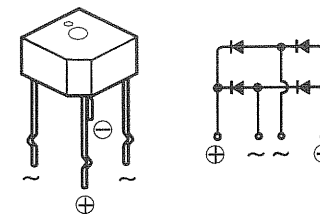


● IC PROTECTOR

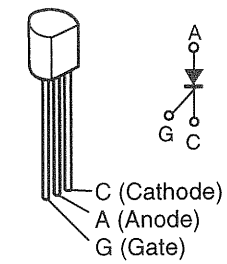
ICP-N10
(IP401, 402)



S4VB20F (D001)

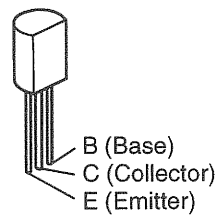


SF0R1A42 (Thyristor)
(SC401)

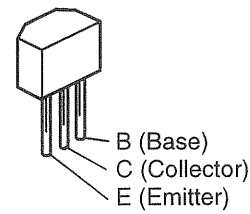


● TRANSISTORS

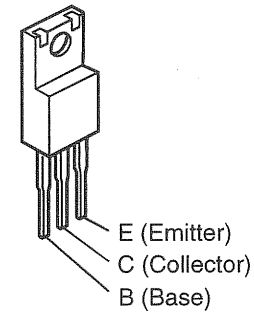
2SA988(E/F)
2SC1815(Y)
2SC1841(E/F)



2SA933AS(R)
2SC1740S(R)



2SB1655E
2SD2396K



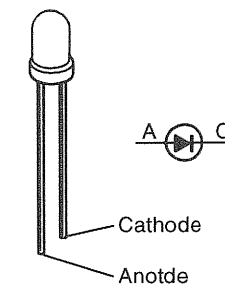
● POSISTOR

PTH9M04BD222TS2F333 (P751)

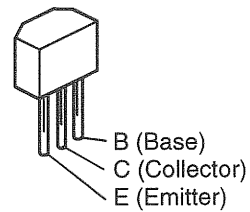


● LED

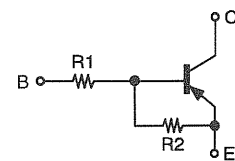
SEL1810A (LE751)



DTA114ES
DTC114ES
DTC123JS
RN1241(A/B)

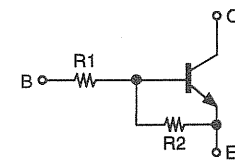


PNP Type



	R1	R2
DTA114ES	10kohm	10kohm

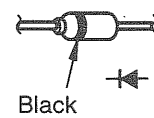
NPN Type



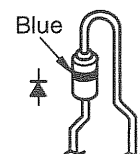
	R1	R2
DTC114ES	10kohm	10kohm
DTC123JSA	2.2kohm	47kohm
RN1241(A/B)	5.6kohm	—

● DIODES

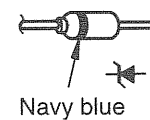
1SS252



1SR35-200A



MTZ2.0A
MTZJ3.0A
MTZJ3.3A



PRINTED WIRING BOARD (Pattern Side)

1

2

3

4

5

6

7

8

KU-9355F MAIN P.W.B. UNIT ASS'Y

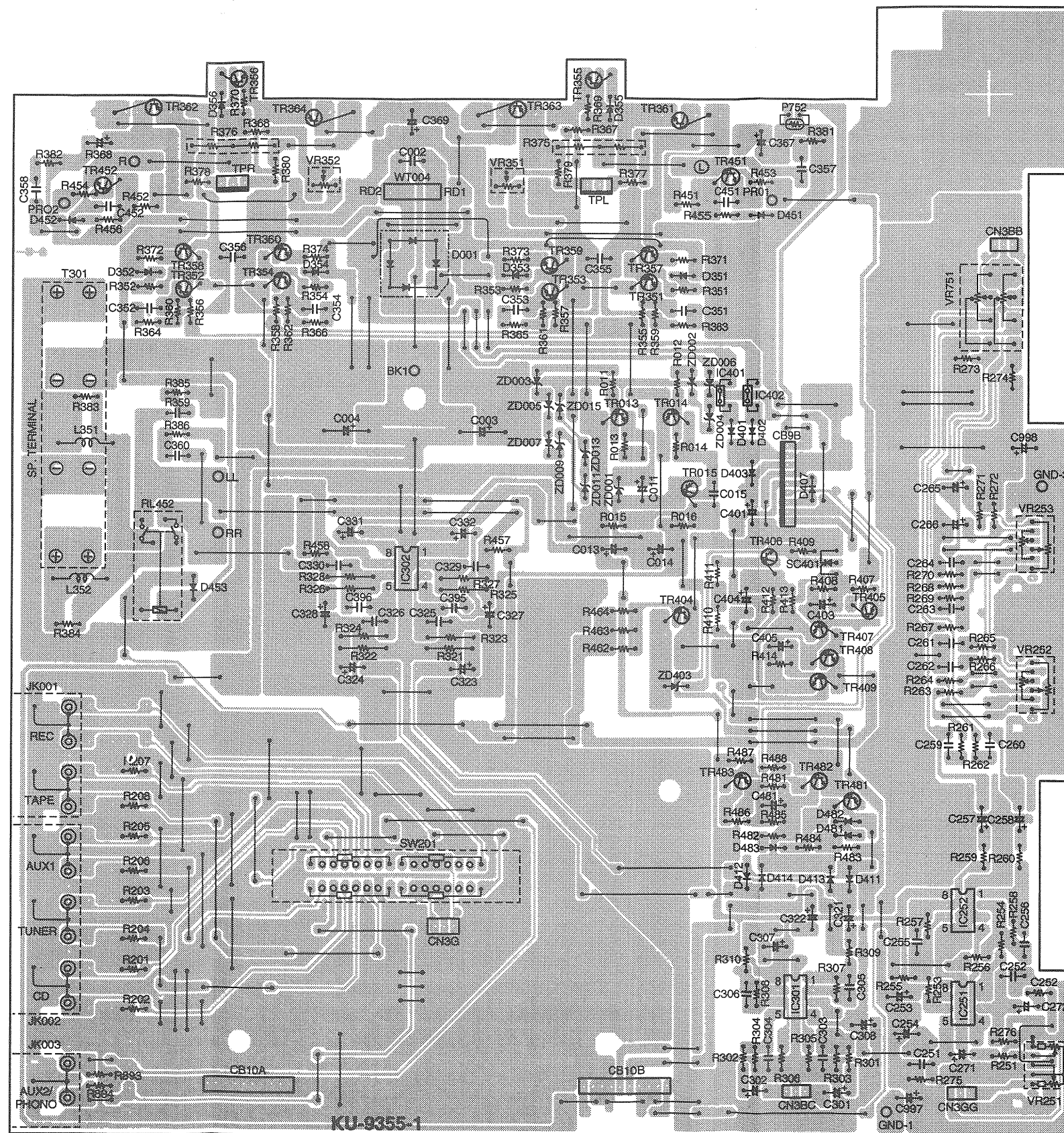
A

B

C

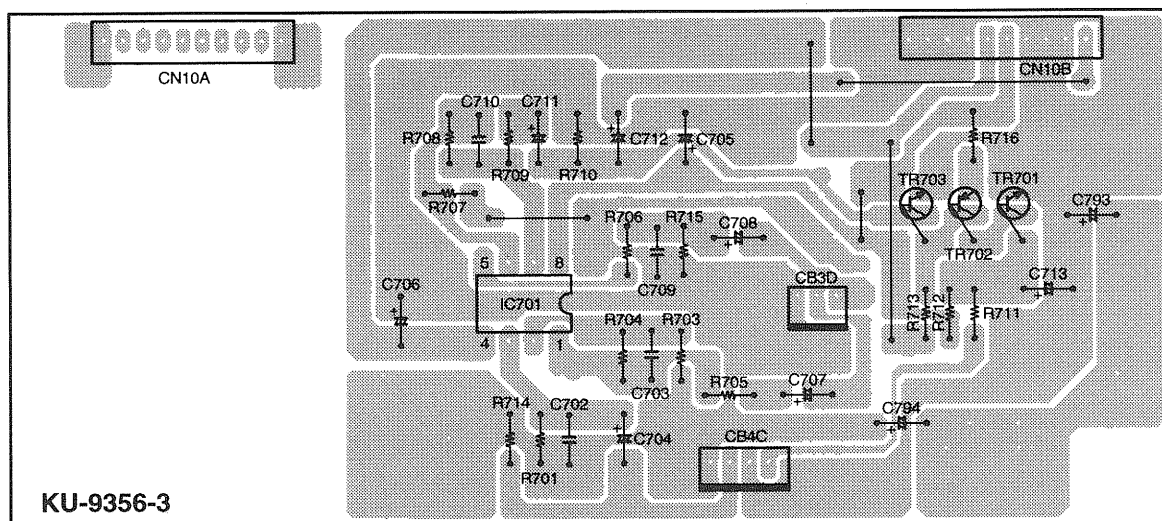
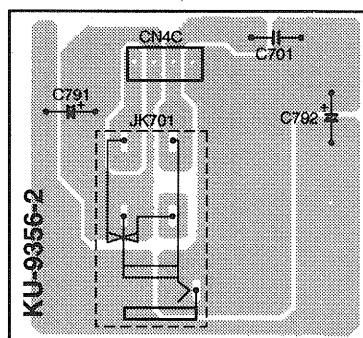
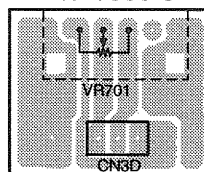
D

E



KU-9356F CONTROL P.W.B. UNIT ASS'Y

KU-9356-6



A

B

C

D

E

NOTE FOR PARTS LIST

- Part indicated with the mark "⊙" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film $\pm 5\%$, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:

Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

● Resistors

Ex.: RN 14K 2E 182 G FR Others
Type Shape Power Resist- Allowable Others
 and ance error

RD : Carbon	2B : 1/8W	F : $\pm 1\%$	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : $\pm 2\%$	NL : Low noise type
RS : Metal oxide film	2H : 1/2W	J : $\pm 5\%$	NB : Non-burning type
RW : Winding	3A : 1W	K : $\pm 10\%$	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : $\pm 20\%$	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

* Resistance

$\overset{1}{\text{---}} \overset{8}{\text{---}} \overset{2}{\text{---}} \Rightarrow 1800 \text{ ohm} = 1.8 \text{ kohm}$
Indicates number of zeros after effective number.
2-digit effective number.

• Units: ohm

$\overset{1}{\text{---}} \overset{R}{\text{---}} \overset{2}{\text{---}} \Rightarrow 1.2 \text{ ohm}$
1-digit effective number.
2-digit effective number, decimal point indicated by R.

• Units: ohm

● Capacitors

Ex.: CE 04W 1H 2R2 M BP Others
Type Shape Dielectric Capacity Allowable Others
 and strength error

CE : Aluminum foil electrolytic	0J : 6.3V	F : $\pm 1\%$	HS : High stability type
CA : Aluminum solid electrolytic	1A : 10V	G : $\pm 2\%$	BP : Non-polar type
CS : Tantalum electrolytic	1C : 16V	J : $\pm 5\%$	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : $\pm 10\%$	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : $\pm 20\%$	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : $+80\%$	U : UL part
CP : Oil	2A : 100V	-20%	C : CSA part
CM : Mica	2B : 125V	P : $+100\%$	W : UL-CSA type
CF : Metallized	2C : 160V	-0%	F : Lead wire forming
CH : Metallized	2D : 200V	C : $\pm 0.25\text{pF}$	
	2E : 250V	D : $\pm 0.5\text{pF}$	
	2H : 500V	= : Others	
	2J : 630V		

* Capacity (electrolyte only)

$\overset{2}{\text{---}} \overset{2}{\text{---}} \overset{2}{\text{---}} \Rightarrow 2200\mu\text{F}$
Indicates number of zeros after effective number.
2-digit effective number.

• Units: μF .

$\overset{2}{\text{---}} \overset{R}{\text{---}} \overset{2}{\text{---}} \Rightarrow 2.2\mu\text{F}$
1-digit effective number.
2-digit effective number, decimal point indicated by R.

• Units: μF .

* Capacity (except electrolyte)

$\overset{2}{\text{---}} \overset{2}{\text{---}} \overset{2}{\text{---}} \Rightarrow 2200\text{pF} = 0.0022\mu\text{F}$
(More than 2) — Indicates number of zeros after effective number.
2-digit effective number.

• Units: pF.

$\overset{2}{\text{---}} \overset{2}{\text{---}} \overset{1}{\text{---}} \Rightarrow 220\text{pF}$
(0 or 1) — Indicates number of zeros after effective number.
2-digit effective number.

• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

PARTS LIST OF P.W.B. UNIT ASS'Y KU-9355F MAIN P.W.B. UNIT ASS'Y

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC251	263 0609 002	IC NJM2068DDC	IC protector
IC252	263 0609 002	IC NJM2068DDC	
IC301	263 0609 002	IC NJM2068DDC	
IC302	263 0565 007	IC BA15218	
IP401,402	268 0072 906	IC ICP-N10	
TR013	274 0183 007	Transistor 2SD2396K	
TR014	272 0146 006	Transistor 2SB1655E	
TR015	271 0287 904	Transistor 2SA933AS(R)	
TR351,352	273 0235 923	Transistor 2SC1841(E/F)	
TR353,354	271 0131 924	Transistor 2SA988(E/F)	
TR355,356	273 0198 905	Transistor 2SC1815(Y)	
TR357,358	271 0131 924	Transistor 2SA988(E/F)	
TR359,360	273 0235 923	Transistor 2SC1841(E/F)	
TR401	273 0303 907	Transistor 2SC1740S(R)	
TR402	269 0020 906	Transistor DTC114ES(10K-10K)	
TR403	273 0303 907	Transistor 2SC1740S(R)	
TR404	269 0169 906	Transistor DTC123JS(2.2K-47K)	
TR405	269 0046 906	Transistor DTA114ES(10K-10K)	
TR406	273 0317 906	Transistor 2SC2458(BL)	
TR407	271 0287 904	Transistor 2SA933AS(R)	
TR408,409	273 0303 907	Transistor 2SC1740S(R)	
TR411	273 0303 907	Transistor 2SC1740S(R)	
TR451,452	273 0235 923	Transistor 2SC1841(E/F)	
TR481	271 0287 904	Transistor 2SA933AS(R)	
TR482	273 0303 907	Transistor 2SC1740S(R)	
TR483	271 0287 904	Transistor 2SA933AS(R)	
△ D001	276 0338 007	Diode S4VB20F	
D351-354	276 0616 907	Diode 1SS252	18V
D355,356	276 0616 907	Diode 1SS252	
D401-403	276 0553 905	Diode 1SR35-200A	
D404,405	276 0616 907	Diode 1SS252	
D411-414	276 0616 907	Diode 1SS252	
D451-453	276 0616 907	Diode 1SS252	
D481-483	276 0616 907	Diode 1SS252	
ZD001	276 0645 907	Diode MTZJ18A	
ZD002	276 0643 938	Diode MTZJ3.0A	
ZD003	276 0624 902	Diode MTZJ2.0A	
ZD004	276 0643 938	Diode MTZJ3.0A	
ZD005	276 0624 902	Diode MTZJ2.0A	
ZD006	276 0643 938	Diode MTZJ3.0A	
ZD007	276 0624 902	Diode MTZJ2.0A	
ZD008	276 0643 938	Diode MTZJ3.0A	

Ref. No.	Part No.	Part Name	Remarks
ZD011	276 0624 902	Diode MTZJ2.0A	2.0V
ZD013	276 0624 902	Diode MTZJ2.0A	2.0V
ZD015	276 0624 902	Diode MTZJ2.0A	2.0V
ZD401,402	276 0635 904	Diode MTZJ7.5C	7.5V
ZD403	276 0645 907	Diode MTZJ18A	18V
ZD408	276 0643 938	Diode MTZJ3.0A	3.0V
ZD409	276 0624 902	Diode MTZJ2.0A	2.0V
SC401	279 0016 904	Thyristor SF0R1A42	
P752	279 0034 041	Posistor PTH9M04BD222TS2F333	
LE751	393 9453 916	LED SEL1810A	
RESISTORS GROUP (Not included carbon film ±5% 1/4W)			
△ R011,012	241 2387 908	Carbon film 10ohm 1/4W(NB)	RD14B2E010JNBS(S)
R321,322	245 2118 904	Metal film 120kohm 1/4W	RN14K2E124G
R323,324	245 2068 902	Metal film 1kohm 1/4W	RN14K2E102G
R325,326	245 2074 909	Metal film 1.8kohm 1/4W	RN14K2E182G
R327,328	245 2099 900	Metal film 20kohm 1/4W	RN14K2E203G
△ R351-354	241 2371 998	Fusible resistor 560ohm 1/4W	RD14B2E561GFRS
△ R371-374	241 2378 904	Carbon film 180ohm 1/4W(NB)	RD14B2E181JNBS(S)
△ R375,376	243 2026 032	Winding 2.2ohm 3W	RW-----3FR22R22K
△ R381,382	244 2050 904	Metal oxide 22ohm 1W	RS14B3A220JNBS(S)
△ R385,386	244 2043 937	Metal oxide 10ohm 1W	RS14B3A100JNBS(S)
△ R401,402	244 2051 974	Metal oxide 1kohm 1W	RS14B3A102JNBS(S)
△ R410,411	244 2052 915	Metal oxide 1.8kohm 1W	RS14B3A182JNBS(S)
△ R451,452	241 2380 963	Carbon film 2.2kohm 1/4W(NB)	RD14B2E222JNBS(S)
△ R462-464	244 2051 932	Metal oxide 3.3kohm 1W	RS14B3A332JNBS(S)
VR251	211 0798 103	Variable resistor 100kohm	Balance
VR252	211 9141 010	Variable resistor 50kohm	Treble
VR253	211 9141 007	Variable resistor 100kohm	Bass
VR351,352	211 6093 941	Semi fixed resistor 10kohm	V06PB103
VR751	211 9138 007	Variable resistor 100kohm	Main
CAPACITORS GROUP			
△ C001	253 8003 713	Ceramic 4700pF/400VAC	CK45E2GAC472M
C002	256 1042 916	Metallized 0.22 μF/250V	CF93A2E224K
C003,004	254 6207 006	Electrolytic 8200 μF/63V	CE68W1J822MC(DL)
C011	254 4260 980	Electrolytic 10 μF/50V	CE04W1H100M
C012	253 1179 903	Cramic 100pF/50V	CK45B1H101K
C013,014	254 4260 948	Electrolytic 1 μF/50V	CE04W1H010M

KU-9356F CONTROL P.W.B. UNIT ASS'Y

Ref. No.	Part No.	Part Name	Remarks
C251,252	253 1179 903	Cramic 100pF/50V	CK45B1H101K
C253,254	254 4260 948	Electrolytic 1 μF/50V	CE04W1H010M
C255,256	253 1179 903	Cramic 100pF/50V	CK45B1H101K
C257,258	254 4254 909	Electrolytic 100 μF/16V	CE04W1C100M
C259,260	253 9031 988	Cramic 5600pF/25V	CK45-1E562K
C261,262	256 1034 940	Metalized 0.056 μF/50V	CF93A1H563J
C263,264	256 1034 911	Metalized 0.033 μF/50V	CF93A1H333J
C265,266	254 4260 919	Electrolytic 0.22 μF/50V	CE04W1HR22M
C271,272	254 4260 948	Electrolytic 1 μF/50V	CE04W1H010M
C301,302	254 4260 948	Electrolytic 1 μF/50V	CE04W1H010M
C303,304	253 1179 903	Cramic 100pF/50V	CK45B1H101K
C305,306	253 1179 903	Cramic 100pF/50V	CK45B1H101K
C307,308	254 4260 948	Electrolytic 1 μF/50V	CE04W1H010M
C321-324	254 4260 948	Electrolytic 1 μF/50V	CE04W1H010M
C325,326	253 1179 945	Cramic 220pF/50V	CK45B1H221K
C327,328	254 4254 941	Electrolytic 100 μF/16V	CE04W1C101M
C329,330	253 4537 940	Cramic 39pF/50V	CC45SL1H390J
C331,332	254 4260 948	Electrolytic 1 μF/50V	CE04W1H010M
C351-354	253 1179 903	Cramic 100pF/50V	CK45B1H101K
C355,356	256 1034 937	Metalized 0.047 μF/50V	CF93A1H473J
C357,358	256 1034 979	Metalized 0.1 μF/50V	CF93A1H104J
C359,360	256 1034 937	Metalized 0.047 μF/50V	CF93A1H473J
C367-369	254 4260 948	Electrolytic 1 μF/50V	CE04W1H010M
C395,396	253 4537 966	Cramic 47pF/50V	CC45SL1H470J
C401	254 4263 916	Electrolytic 22 μF/100V	CE04W2AR22M
C402	254 4254 909	Electrolytic 100 μF/16V	CE04W1C100M
C403	254 4252 927	Electrolytic 47 μF/10V	CE04W1A470M
C404	254 4306 925	Electrolytic 100 μF/50V	CE04W1H100M(SRE)
C405	254 4250 932	Electrolytic 220 μF/6.3V	CE04W0J221M
C451,452	253 1181 904	Cramic 0.01 μF/50V	CK45F1H103Z
OTHER PARTS GROUP			Q'ty
L351,352	235 0104 007	Inductor(1μH)	2
△ SW001	212 1030 009	Power switch(TV-5)	1
SW201	212 2620 007	Slide switch	1
JK001	204 8497 000	4P pin jack (GND)(K)	1
JK002	204 8538 008	6P pin lack(S-GND)	1
JK003	204 8509 008	2P pin jack(C-GND)	1
△ F001	206 1075 056	Fuse(3.15A)	1
T301	205 0472 000	8P sp terminal(EU)	1
WT002,003	205 1035 006	1P terminal(1687)	2
RL452	214 0167 005	Relay(G5Z-2A)	1
CB10A,10B	205 0535 057	10P connector base	2
TRL,TPR	205 0190 036	3P NH connector base	2
CB9B,CN9B	205 0343 090	9P connector base(KR-PH)	2
△	202 0040 909	Fuse clip	2
	205 1005 007	1P terminal	1
	205 1004 011	6P pin header	4
WT001	205 0692 000	2P wrapping terminal	2
	415 0309 026	PVC tube (L=20)	2
	415 0299 000	Condenser cover	1

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC701	263 0609 002	IC NJM2068DDC	
TR701	273 0303 907	Transistor 2SC1740S(R)	
TR702	269 0046 906	Transistor DTA114ES(10K-10K)	
TR703	269 0107 900	Transistor RN1241(A/B)	
TR751	274 0183 007	Transistor 2SD2396K	
ZD752	276 0644 966	Zener diode MTZJ2A	2.0V
RESISTORS GROUP (Not included carbon film ±5% 1/4W)			
VR701	211 9110 009	Variable resistor 10kohm	Mic
CAPACITORS GROUP			
C701-703	253 1180 921	Ceramic 1000pF/50V	CK45B1H102K
C704-707	254 4305 968	Electrolytic 1 μF/50V	CE04W1H010M(SRE)
C708	254 4305 968	Electrolytic 1 μF/50V	CE04W1H010M(SRE)
C709,710	253 4538 949	Ceramic 100pF/50V	CC45SL1H101J
C711-713	254 4305 968	Electrolytic 1 μF/50V	CE04W1H010M(SRE)
C791,792	254 4254 909	Electrolytic 10 μF/16V	CE04W1C100M
C793,794	254 4299 906	Electrolytic 10 μF/16V	CE04W1C100M(SRE)
OTHER PARTS GROUP			Q'ty
JK701	204 8550 002	Mic jack	1
CN10A,10B	205 0536 056	10P Connector socket	2
CB3A,3D	205 0343 032	3P Connector base (KR-PH)	2
CB4C	205 0343 045	4P Connector base (KR-PH)	1

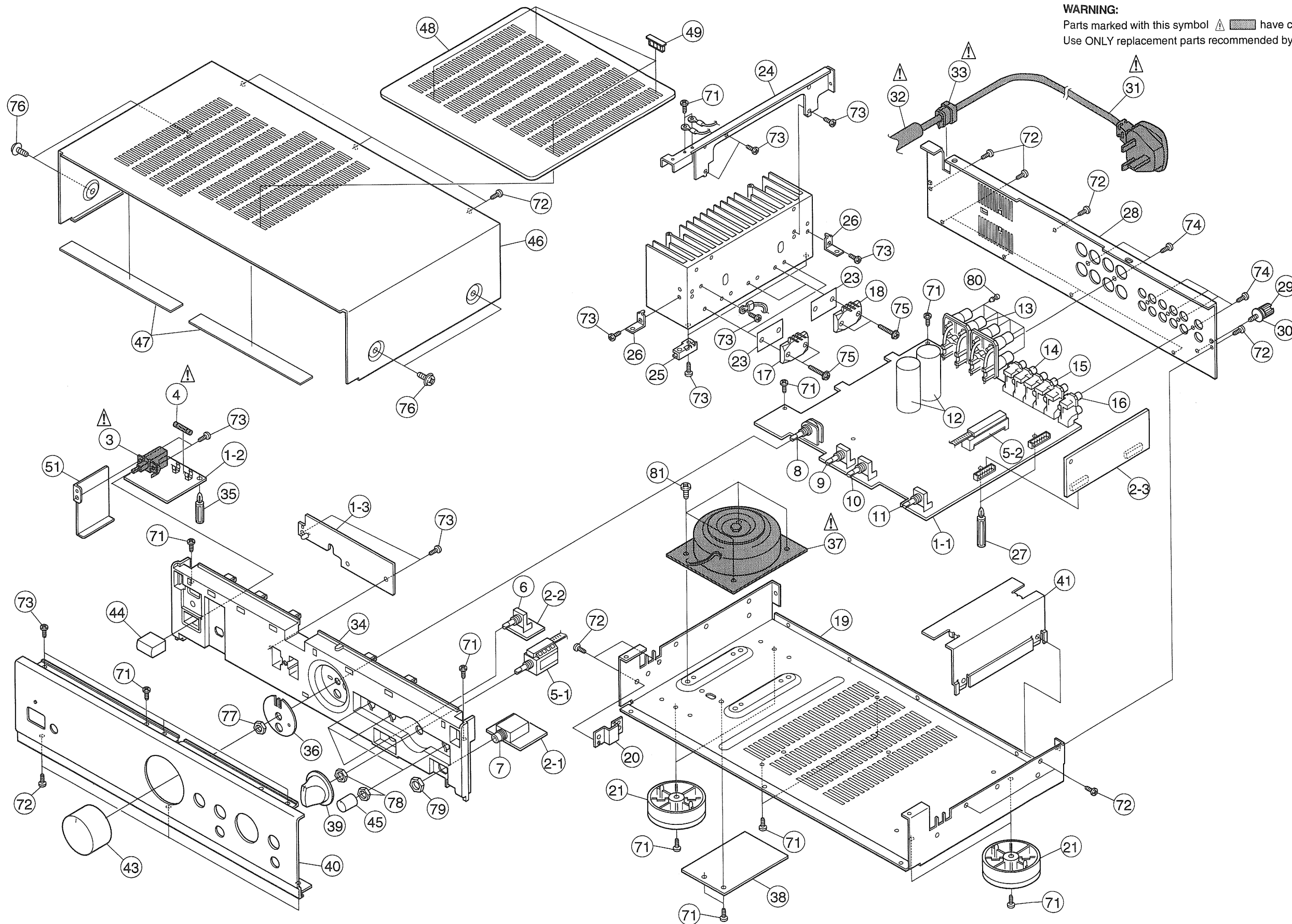
PARTS LIST OF EXPLODED VIEW

Ref. No.	Part No.	Part Name	Remarks	Qty	Ref. No.	Part No.	Part Name	Remarks	Qty
● 1	KU- 9355F	Main P.W.B. unit Ass'y		1s	43	112 0761 008	Volume knob	Volume	1
1-1	KU- 9355F-1	Power amp P.W.B. unit		(1)	44	113 1738 101	Power button		1
1-2	KU- 9355F-2	Power switch unit		(1)	45	112 0555 007	Volume knob (B)		4
1-3	KU- 9355F-3	Control P.W.B. unit		(1)	● 46	102 9054 010	Top cover		1
● 2	KU- 9356F	Control P.W.B. unit Ass'y		1s	● 47	122 9041 001	Himeron sheet	Top cover	2
2-1	KU- 9356F-2	Mic jack P.W.B. unit		(1)	● 48	414 0791 107	Safety cover	Top cover	1
2-2	KU- 9356F-6	Mic volume unit		(1)	● 49	449 0139 008	Cover holder	Top cover	4
2-3	KU- 9356F-3	Mic amp P.W.B. unit		(1)	★ 50	513 1642 002	No.sheet		1
					● 51	415 9110 009	Insulating sheet (Po)		1
△ 3	212 1030 009	Power switch (TV-5)		1	SCREWS				
△ 4	206 1075 056	Fuse (3.15A)	F001	1	71	473 7002 018	Screw 3x8	CBTS (S)-Z	15
5-1	212 2621 006	Remote rotary switch		1	72	473 7002 018	Screw 3x8	CBTS (S)-B	17
5-2	212 2620 007	Slide switch		1	73	473 7500 044	Screw 3x8	CBTS (P)-B	14
6	211 9110 009	Variable resistor 10kohm	Mic VR701	1	74	477 0064 107	Fixing screw		6
7	204 8550 002	Mic jack		1	75	473 8007 038	Cup screw 3x14		8
8	211 9138 007	Variable resistor 100kohm	Main VR751	1	76	477 0263 005	3P swelling screw		4
9	211 9141 007	Variable resistor 100kohm	Bass VR253	1	77	475 6138 015	Volume nut M7		1
10	211 9141 010	Variable resistor 50kohm	Treble VR252	1	78	475 6138 031	Volume nut M9		5
11	2110798 103	Variable resistor 100kohm	Balance VR251	1	79	475 6138 028	Volume nut M12		1
12	254 6197 019	Chemicon 8200 μF/63V	C003,004	2	80	477 0096 007	Push rivet		8
13	205 0472 000	8P speaker terminal	T301	1	81	473 7007 000	Screw 4x8	CBTS (S)-B	4
14	204 8497 000	4P pin jack	JK001	1	PAKING & ACCESSORIES (Not included EXPLODED VIEW.)				
15	204 8538 008	6P pin jack	JK002	1	101	511 9469 003	Inst. manual	E, G, F, I, ES, NL, S, Po	1
16	204 8509 008	2P pin jack	JK003	1	102	504 0125 005	Stylen paper		1
17	274 0182 011	Transistor 2SD2489LF202	TR361,362	2	103	509 9120 006	Speacer carton		1
18	272 0145 010	Transistor 2SB1621LF202	TR363,364	2	104	505 0131 050	Cabinet cover		1
● 19	411 0941 709	Chassis		1	105	503 9306 000	Cushion		2
● 20	412 4001 004	Side bracket		1	106	501 9299 085	Carton case		1
● 21	104 0228 401	Foot Ass'y	H=20	4	107	GEN 0225	Control card sub Ass'y		1
● 22	417 9099 126	Power radiator		1	108	509 9122 004	Sub carton		2
● 23	415 9044 007	Insulating sheet		4	109	509 0105 004	Top carton		1
● 24	412 9506 106	Radiator bracket		1					
● 25	412 9507 008	Fix bracket		2					
● 26	412 4000 005	P.W.B. Bracket(A)		2					
● 27	415 9107 012	Tapping card spacer	L=35.7	2					
● 28	105 9277 016	Rear panel		1					
29	205 0071 016	Terminal Ass'y		1					
30	477 0018 001	Washer(P-87)		1					
△ 31	206 2132 008	AC cord with plug		1					
△ 32	415 0364 003	UL tube (φ8)	L=50	1					
△ 33	445 0056 008	Cord bush		1					
● 34	146 9365 000	Inner panel		1					
● 35	415 9107 009	Tapping card spacer	L=22	1					
● 36	412 9521 000	Volume plate		1					
△ 37	233 9684 001	Power trans		1					
● 38	129 9037 003	Blind sheet		1					
39	112 9149 003	Knob (Fuji)		1					
● 40	144 9257 222	Front panel Ass'y		1					
● 41	412 9522 009	Support bracket		1					
★ 42	445 8004 007	Wire clamber		10					

PARTS LIST OF EXPLODED VIEW

1 2 3 4 5 6 7 8

WARNING:
Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.



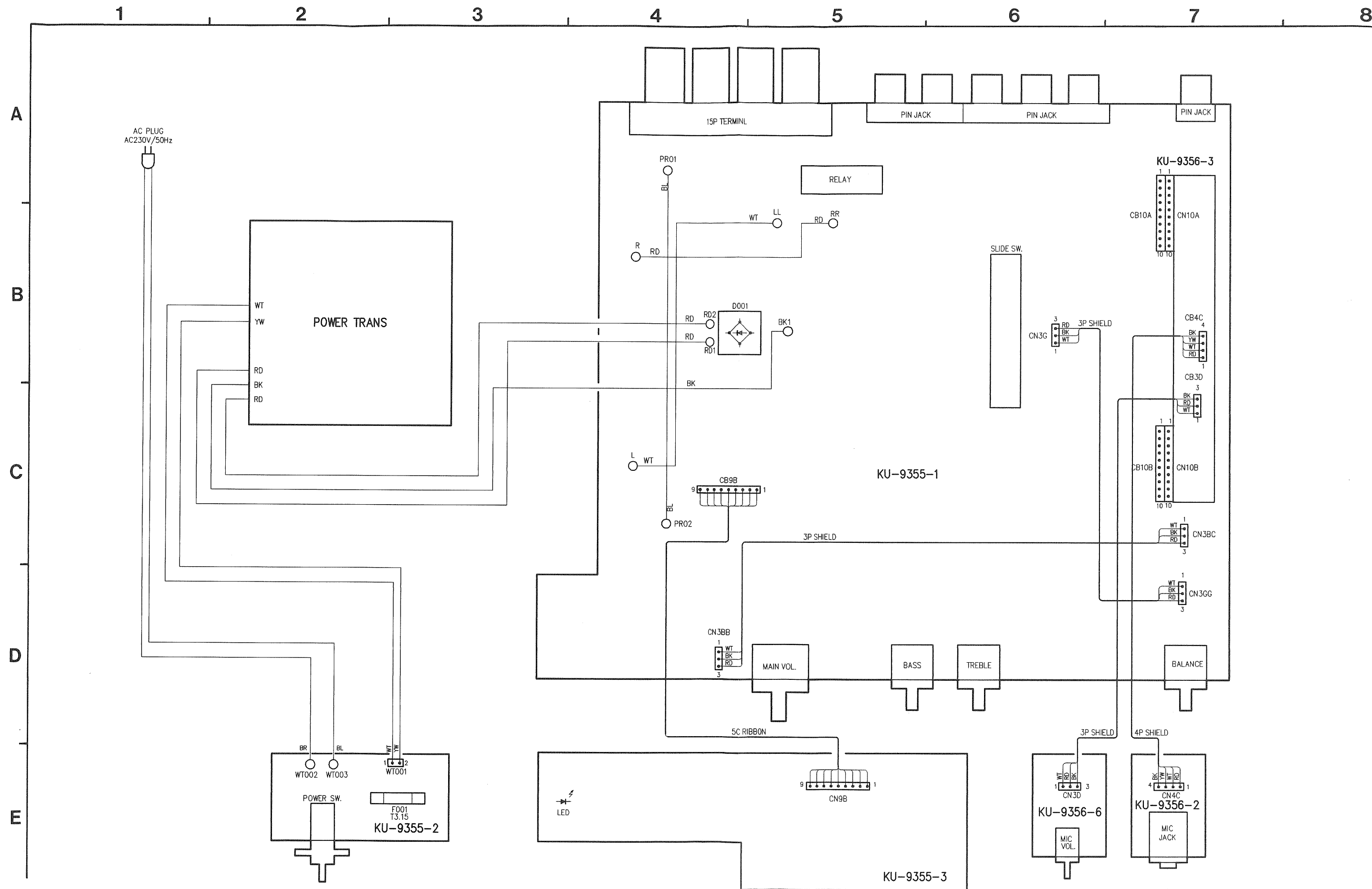
A

B

C

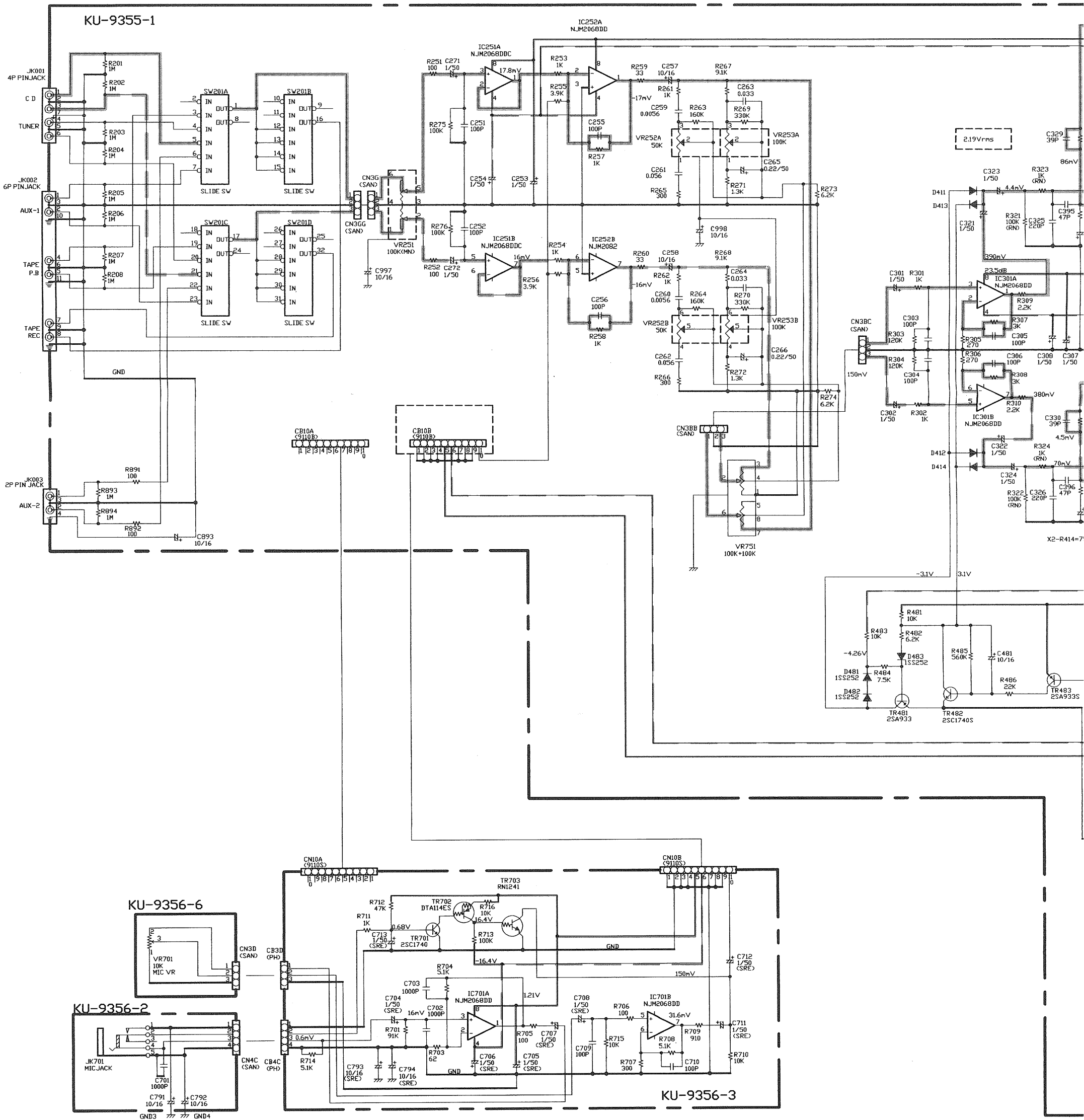
D

E





SCHEMATIC DIAGRAM

6



NOTES

NOTES
ALL RESISTANCE VALUES IN OHM. K=1,000 OHM, M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT
CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR
NOTICE.

WARNING:
Parts marked with this symbol   have critical characteristics.
Use **ONLY** replacement parts recommended by the manufacturer.

CAUTION:
Before returning the unit to the customer, make sure you make a leakage current check or (2) a line to chassis resistance check. If the current exceeds 0.5 milliamps, or if the resistance from chassis to power cord is less than 240 kohms, the unit is defective.

WARNING:
DO NOT return the unit to the customer until the problem is corrected.



ner until the problem is located and