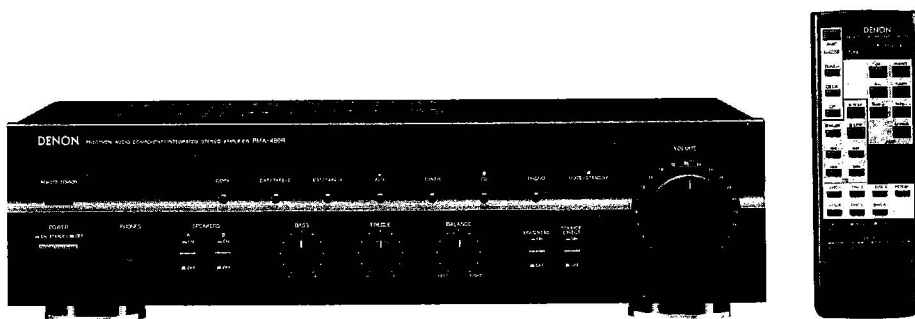


DENON

Hi-Fi Integrated Stereo Amplifier

SERVICE MANUAL MODEL PMA-480R INTEGRATED STEREO AMPLIFIER



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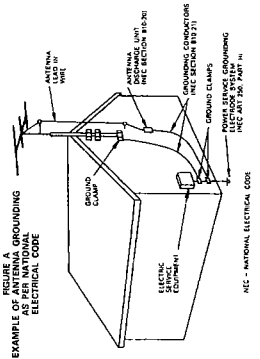
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NIPPON COLUMBIA CO., LTD.

SAFETY INSTRUCTIONS

12. Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
14. Cleaning – The appliance should be cleaned only as recommended by the manufacturer.
15. Power Lines – An outdoor antenna should be located away from power lines.
16. Outdoor Antenna Grounding – If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.
17. Nonuse Periods – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
18. Object and Liquid Entry – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
19. Damage Requiring Service – The appliance should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged, or
 - B. Objects have fallen, or liquid has been spilled into the appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped, or the enclosure damaged.
20. Servicing – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

1. Read Instructions – All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions – The safety and operating instructions should be retained for future reference.
3. Heed Warnings – All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions – All operating and use instructions should be followed.
5. Water and Moisture – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands – The appliance should be used only with a cart or stand that is recommended by the manufacturer.
- 6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
7. Wall or Ceiling Mounting – The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization – Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.



CAUTION

RISK OF ELECTRIC SHOCK

DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICE-ABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

ATTENTION

POUR PREVENIR LES CHOCES ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION

POUR LE MODELE CANADIEN UNIQUEMENT

• FOR U.S.A. & CANADA MODEL ONLY

• MUR FÜR EUROPAISCHE MODELLE

Konformitätserklärung

Die DENON Electronic GmbH
Halskestraße 32
4030 Ratingen 1

Erklärt als Hersteller/Importeur, daß das in dieser Bedienungsanleitung beschriebene Gerät den Technischen Vorschriften für Ton- und Fernseh-Rundfunkempfänger nach der Amtsblattverfügung 866/1989 (Amtsblatt des Bundesministers für Post und Telekommunikation vom 31. 8. 1989) entspricht.

• FOR UNITED KINGDOM MODEL ONLY

CONNECTING THE MAINS PLUG:
This unit operates from a 240V ac 50 Hz mains supply.

Fit a proper mains plug to the mains lead of this equipment. If a 13 amp (BS1363) plug is used, a 5 amp fuse must be fitted. The 13 amp fuse supplied in a new plug must NOT be used. If any other type of plug is used, a 5 amp fuse must be fitted either in the plug or adaptor or at the distribution board.

IMPORTANT

The wires in the mains lead are coloured in accordance with the following code:
Blue: Neutral
Brown: Live

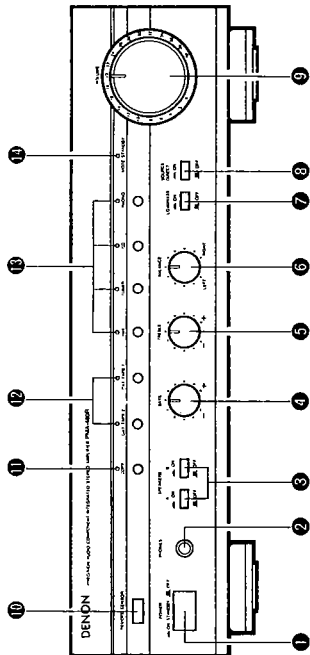
As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured red.

DO NOT MAKE ANY CONNECTION TO THE LARGER PIN MARKED WITH THE LETTER E OR BY THE SYMBOL ⚡ OR COLOURED GREEN OR GREEN-AND-YELLOW.

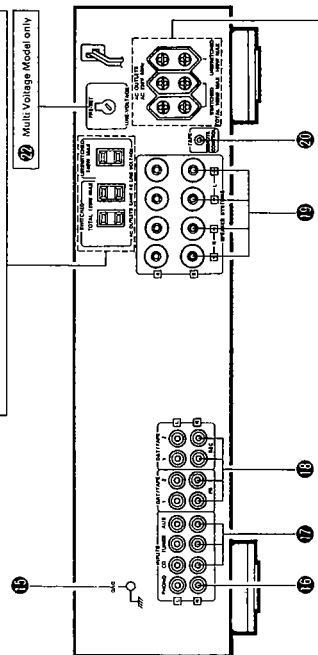
Disconnect the mains plug from the supply socket when not in use.

CONNECTIONS
ANSCHLÜSSE
CONNEXIONS
CONNESSIONI

FRONT PANEL
FRONTPLATTE
Panneau AVANT
PANNELLO ANTERIORE



REAR PANEL
RÜCKWAND
Panneau ARRIERE
PANNELLO POSTERIORE



21 USA, CANADA and Multi Voltage Models only
Nur für Modelle für die USA und KANADA und für Multispannungsmodelle
Seulement pour les modèles pour les U.S.A., le CANADA et à tension multiple
Solo per i modelli USA e CANADA e per il modello a voltaggio multiplo

22 Multi Voltage Model only

23 LINE VOLTAGE (Voltage select switch) . . . For Multi-voltage model only
The desired voltage may be set with the VOLTAGE SELECTOR KNOB on the back panel using a screw driver. The VOLTAGE SELECTOR KNOB must be turned with moderate force. It may be damaged if the voltage select switch does not turn smoothly, see qualified serviceman.

24 Europe model only (except for U.K.)
Nur für Europa-Modelle (mit Ausnahme Großbritannien)
Seulement pour le modèle européen (à l'exception du Royaume-Uni)
Solo per il modello destinato all'Europa (eccetto il Regno Unito)

Fig. 1
Abb. 1

25 GND	26 PHONO	27 CD, TUNER, AUX	28 DAT/TAPE-1, DAT/TAPE-2 TAPE REC	29 SPEAKERS	30 TAPE/REMOTE CONTROL
Phono Input Terminals (Phono)	Phono Terminals (Phono)	Input Terminals (CD, TUNER, AUX)	Playback and Recording Terminals (Playback Terminals, Recording Terminals, Auxiliary)	Speaker Terminals	Tape deck Remote control Jack
Schallplattenspieler-Eingangsanschlüsse (Phono)	Phono-Anschlüsse (Phono)	Eingangsbuchsen (CD, TUNER, AUX)	Tonband-Ein/Ausgänge (Wiedergabe-Terminals, Aufnahmeterminals, Hilfsanschlüsse)	Leiterschreiber-Terminals	Tapedeck-Fernbedienungs-buchse
Bornas d'entrata (phono)	Bornas d'entrata (phono)	Bornas de lecture (CD, TUNER, AUX)	Bornas de lecture et d'enregistrement (Bornas de lecture, Bornas d'enregistrement)	Bornes de haut-parleurs	Prise de télécommande de magnéto-cassette
Terminali di ingresso Phono	Terminali di ingresso Phono	Terminali di ingresso (CD, TUNER, AUX)	Terminali di riproduzione registrazione (Terminali di riproduzione, Terminali di registrazione)	Terminali degli altoparlanti	Pressa di controllo a distanza della pila

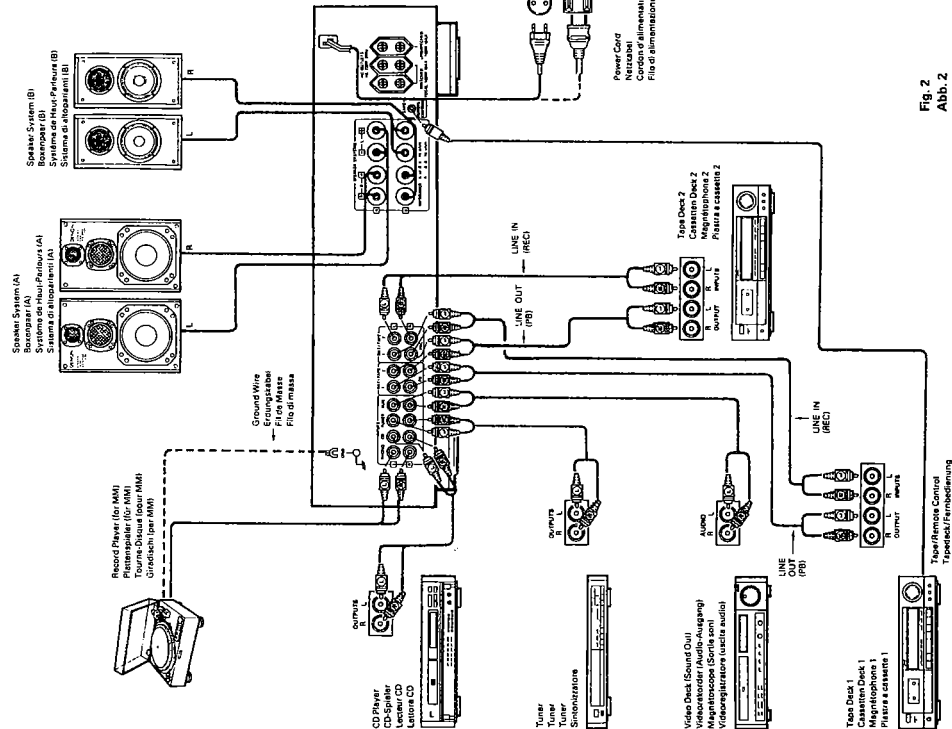


Fig. 2
Abb. 2

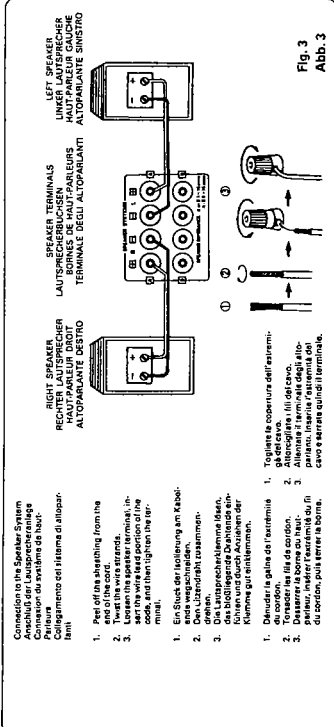


Fig. 3
Abb. 3

- Connection to the Speaker System
Connexion au système de haut-parleurs
Anschluss an die Lautsprecher
Anschluss an das Lautsprechersystem
1. Peel off the sheathing from the speaker wires.
 2. Loosen the speaker terminals, insert the speaker wires into the terminals, and then tighten the terminal screw.
 3. Do not touch the speaker terminals.
 4. Check the polarity of the speaker wires. The positive (+) terminal of the speaker must be connected to the positive (+) terminal of the receiver.
1. Togliere lo scudo dell'isolamento del cavo.
2. Allentare la vite del connettore, inserire i fili del cavo, e serrare il connettore.
3. Non toccare i terminali.
4. Controllare la polarità dei terminali. Il filo positivo (+) del cavo deve essere collegato al filo positivo (+) del ricevitore.

DESIGNATIONS AND FUNCTIONS OF PANEL CONTROLS

- 1 **POWER (Power Switch)**
When the power switch is turned ON (I), the MUTE/STANDBY LED (E) lights.
- 2 **PHONES (Headphone Jack)**
This jack is used to plug in the headphones.
- 3 **SPEAKERS (Speaker Selection Switch)**
The PMA-480R can be connected to two speaker systems: speaker system A and speaker system B.
When A is pressed, the speaker system connected to speaker output terminals A operates.
When B is pressed, the speaker system connected to speaker output terminals B operates.
When A and B are pressed on together, both speaker systems operate simultaneously. When the A and B switches are both off (in the out position), there is no output from the speaker terminals. This setting is used to listen to playback through the headphones.
- 4 **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 1000 Hz. The bass is emphasized as the knob is moved off center to the right (O), and reduced as it is moved to the left (A). When volume control (E) is set to the right of the center position, the effect of the other controls is reduced.
- 5 **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 1000 Hz. The treble is emphasized as the knob is moved off center to the right (O), and reduced as it is moved to the left (A). When volume control (E) is set to the right of the center position, the effect of the other controls is reduced.
- 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 to the right (O). If the volume on the left side is too low, turn the knob to the left (A). This will achieve an even balance on the left and right sides.
- 7 **LOUDNESS (Loudness Switch)**
When the volume is low, it is difficult for the human ear to clearly distinguish notes in the low and high frequency ranges. The loudness switch allows a simple "one-touch" correction of this difficulty. Press the loudness switch ON (I) when listening to music at a low volume. The low notes and high notes will be corrected to produce a natural sound.

- 14 **MUTE/STANDBY LED**
This LED flashes while the muting circuit is activated when the power is turned on and when muting is turned on from the remote control unit, and remains lit (without flashing) while the power is on.
- 15 **TAPE/REMOTE CONTROL (Tape Deck Remote Control Jack): Rear Panel Side**
Enabled by connecting the tape deck remote control lead to this jack. The jack is a mini-jack designed to accept a 3.5 mm plug.
NOTE: Do not connect headphones or a microphone to this jack. Use this jack only to connect a DENON cassette deck with a remote control jack (wired).
- 16 **AC OUTLETS: Rear Panel Side**
For U.S.A., Canada and Multi-voltage models.
AC outlets are used for connecting amplifier component units, such as tuner, turntable, tape deck, etc.
SWITCHED (Total capacity: 120 W):
These outlets are turned ON/OFF when main power switch is turned ON/OFF.
UNSWITCHED (Capacity: 240 W)
This outlet is always ON whether power switch is on or OFF.
For Europe model, except the U.K. and Australia models.
AC outlets are used for connecting amplifier component units, such as tuner, turntable, tape deck, etc.
SWITCHED (Total capacity: 100 W):
These outlets are turned ON/OFF when main power switch and POWER button on the Remote Control Unit is turned ON/OFF.
UNSWITCHED (Capacity: 100 W)
This outlet is always ON whether power switch is on or OFF.

- PLAYING A RECORD
 1. Set the INPUT SELECTOR switch (E) to "PHONO".
 2. Operate the turntable and play the record.
 3. Turn the volume and tone controls to yield an appropriate volume and sound quality.
- PLAYBACK OF CD PLAYER
 1. Set the INPUT SELECTOR switch (E) to "CD".
 2. Operate the CD player.
 3. Turn the volume and tone controls to yield an appropriate volume and sound quality.
- RECEPTION OF RADIO PROGRAMS
 1. Set the INPUT SELECTOR switch (E) to "TUNER".
 2. Operate the tuner to receive a radio program.
 3. Turn the volume and tone controls to yield an appropriate volume and sound quality.
- CONNECTIONS OF AUDIO EQUIPMENT TO AUX TERMINALS
 1. Set the INPUT SELECTOR switch (E) to "AUX".
 2. Operate the Audio equipment Systems.
 3. Turn the volume and tone controls to yield an appropriate volume and sound quality.
- PLAYBACK WITH TAPE DECK
 1. Set the TAPE MONITOR switch (F) to "DAT/TAPE-1" or "DAT/TAPE-2".
 2. Operate the Tape Deck.
 3. 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 (E).
- COPYING FROM ONE TAPE TO ANOTHER
To copy from DAT/TAPE-1 to DAT/TAPE-2, press the TAPE COPY switch (G).

- 17 **SOURCE DIRECT (Source Direct Switch)**
The controls (BALANCE, LOUDNESS, and TONE) can be used when this switch is in the OFF (A) position. When set to the ON (I) position, the above controls are by-passed and the signals are input directly to the volume control circuit, providing high quality sound.
- 18 **VOLUME (Volume Control)**
This knob controls the overall volume level. Turn the knob to the right (O) to raise the volume and to the left (A) to lower it.
- 19 **REMOTE SENSOR (Remote Control Sensor)**
This sensor receives the infra-red light transmitted from the wireless remote control unit.
For remote control, point the wireless remote control unit towards the sensor.
- 20 **TAPE COPY (Tape copy switch)**
When this switch is pressed, the LED lights, and copying is possible from DAT/TAPE-1 to DAT/TAPE-2. When pressed again, the LED turns off, and copying from DAT/TAPE-1 to DAT/TAPE-2 is no longer possible.
This switch operates independently from the TAPE MONITOR (E) and INPUT SELECTOR (E) switches.
- 21 **TAPE MONITOR (Tape monitor switch)**
DAT/TAPE-1: When this switch is pressed, the LED lights, and the tape deck connected to the "DAT/TAPE-1" "PB" jacks can be played. When pressed again, the LED turns off, and the program source selected with the INPUT SELECTOR switches (E) is played.
DAT/TAPE-2: When this switch is pressed, the LED lights, and the tape deck connected to the "DAT/TAPE-2" "PB" jacks can be played. When pressed again, the LED turns off, and the program source selected with the INPUT SELECTOR switches (E) is played.
- 22 **INPUT SELECTOR (Input Select Switch)**
Use these to select the program source.
When the switch for the desired program source is selected, its LED lights. One program source only can be selected at a time, as follows:
PHONO: Use this position when using the record player connected to the PHONO jacks. The record player should have an "MM" cartridge.
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: Use this position when using the component connected to the AUX jacks.

- 23 **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 several seconds, the set will operate normally.

- MONITORING THE RECORDING
(If a 3-head tape deck is used, the sound being recorded can be monitored during the recording.)
Use the TAPE MONITOR switches (F) to select the tape deck onto which the sound is being recorded.
The LED for the selected tape deck lights.
- 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 several seconds, the set will operate normally.

NOTE:
Copying is not possible from DAT/TAPE-2 to DAT/TAPE-1.

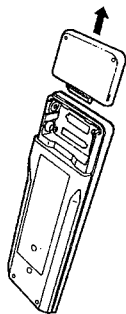
- OPERATION
- PREPARATION
 1. CHECKING CONNECTIONS
 - Make sure that all the connections are proper by referring to the back panel. (Fig. 2-3)
 - Check the polarity (positive and negative) of connections, and the directivity of stereo separation (right cord to right channel terminal, and left cord to left channel terminal).
 - Check the directivity of pin cord connection.
 2. SETTING OF EACH KNOB
 - Turn the volume control knob (E) counterclockwise, to "0".
 - Set the rotary knob to "flat".
 - Set SOURCE DIRECT (H) and LOUDNESS (I) to "OFF" (A).
 - Press the TAPE MONITOR switch (F) to turn the LED off.
 - Turn on the speaker selection switch for desired speaker system (A or B).

- After checking the above items, turn on the power, the amplifier is set in the ready mode in a few seconds.

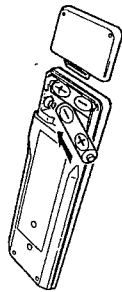
REMOTE CONTROL OPERATION

The accessory Remote Control Unit is used to control the amplifier from a convenient distance.

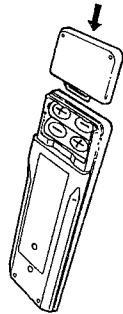
- (1) **Inserting the Dry Cell Batteries**
 1. Remove the battery cover on the Remote Control Unit.



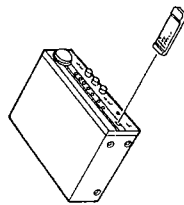
2. Insert two dry cell batteries as shown in the diagram on the battery supply unit.



3. Replace the battery cover.



- (2) **Directions for use**



Note on operation

- Do not press the operating buttons on the Amplifier and the Remote Control Unit at the same time. This will cause misoperation.
- Operation of the Remote Control Unit will become less effective or erratic if the Infrared Remote Control Sensor on the Amplifier is exposed to strong light or if there are obstructions between the Remote Control Unit and the sensor.
- In case you operate a VCR, TV or other components by remote control, do not operate buttons on two different remote control units at the same time. This will cause misoperation.

Besides being able to operate the PMA-480R amplifier with this Remote Control Unit, you can also operate a DENON cassette deck and CD player from this handy full-system Remote Control Unit.

Remote control section

Full-system Remote Control Unit

The full-system Remote Control Unit operates all major functions of the Amplifier, such as function switching, volume control. But that's not all! The same control pad can also control the major functions of a DENON CD player and cassette deck and tuner when combined with the PMA-480R to create a remarkably ergonomic and versatile DENON system with all the quality sound reproduction that the devoted audiophile expects.

Remote Control Unit RC-152 supplied with the PMA-480R

1 POWER buttons

These buttons can be used to turn on and off the power of the various components, including the amplifier, tuner, cassette tape deck, CD player, etc. However, the power for these components can only be turned on and off if they are in the power standby mode and the power cord is plugged in.

This button will not function if there is a power failure, if the power cord is not plugged in, or when using an audio timer.

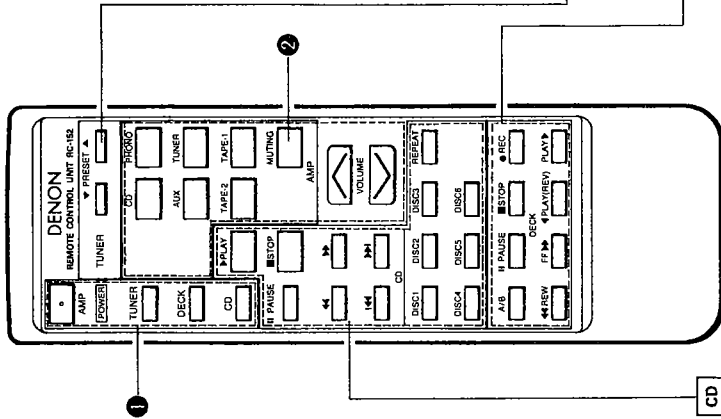
For some components, these buttons will not turn the power on and off. Read the manuals for the components before using the buttons.

2 MUTING button

Pressing this switch will activate the muting condition and no signals will be output to the speakers.

Other buttons

Other buttons are exclusively for the PMA-480R, and function in the same way as the corresponding buttons on the set.



▶ PLAY	▶ PLAY button
◀ PLAY (REV)	PLAY (REV) button
■ STOP	STOP button
◀◀ REW	REWIND button
▶▶ FF	FF button
● REC	Refer to the operating instructions of your DENON tape deck.
PAUSE	A/B DECK SELECT button
A/B W-DECK	

▶ PLAY	PLAY button
■ STOP	STOP button
◀◀	Reverse Track Search button
▶▶	Forward Track Search button
◀	Manual Search Reverse button
▶	Manual Search Forward button
PAUSE	PAUSE button

TUNER

PRESET X buttons
 Press this button to move up or down among the preset station numbers.

DECK

- The RC-152 Remote Control Unit can control all CD players (excluding the DCD-1800R) and cassette decks manufactured by DENON.
- Buttons are conveniently separated into groups, each group controlling one specific component. The groups are AMP, FUNCTION, CD, DECK and TUNER etc.

For details on operating other components, refer to the operating instructions for the CD player and/or cassette deck.

CAUTION:

- If the power is turned off with the Remote Control Unit, the set is switched to the power stand-by state. If you are absent for a long period of time, unplug the power cord.
- On the MUTE/STANDBY LED lights when in the power stand-by mode.
- You may experience erratic operation of the Remote Control Unit if it is operated in fluorescent light and direct sunlight, in particular, if this light strikes the Remote Control Sensor on the Amplifier. However, this is not a malfunction, and if this should happen, simply protect the sensor against such light.

Technical Data (typical value)	Technische Daten (typische Werte)	Caractéristiques techniques (valeur caractéristique)
<p>POWER AMPLIFIER SECTION</p> <p>Rated Output Power: * Both channel driven 20 Hz to 20 kHz, T.H.D. 0.08% (4 ohm Load) DIN, 1 kHz, T.H.D. 0.7%</p> <p>** Continuous 50W per channel min into 8 ohms from 20 Hz to 20 kHz with a harmonic distortion no more than 0.08% total</p> <p>Total Harmonic Distortion: 8.0 dB at rated output, 8 ohms</p> <p>PRE AMPLIFIER SECTION</p> <p>Recut (Recout Terminal)</p> <p>Input Sensitivity/ Recut Sensitivity: The value in parentheses () refers to the input impedance when SOURCE DIRECT is ON.</p> <p>PHONO: CD, TUNER, AUX TAPE-1, TAPE-2:</p> <p>RIAA Deviation: PHONO: ±0.5 dB Maximum Input:</p> <p>OVERALL CHARACTERISTICS</p> <p>SN Rate (IHF A Network): (input terminals short-circuited) SOURCE-DIRECT: ON</p> <p>Tone Control Adjustable Range: BASS TREBLE Loudness:</p> <p>OTHERS</p> <p>Power Supply</p> <p>AC Outlets Switchedx2:</p> <p>Unswitchedx1:</p> <p>Power Consumption</p> <p>Dimensions (W) x (H) x (D)</p> <p>Net Weight</p> <p>REMOTE CONTROL UNIT (RC-152) Control system: Infrared pulse system. Power supply: 3V DC, Two size R6 ("AA") dry cell batteries External dimensions: Weight:</p>	<p>LEISTUNGSSENDER VERSTÄRKER</p> <p>Nenn-Ausgangsleistung: * Beide Kanäle betrieben 20 Hz bis 20 kHz, T.H.D. 0,08% (4 Ohm Last) DIN, 1 kHz, T.H.D. 0,7%</p> <p>** Fortwährend 50W pro Kanal min. zu 8 Ohm von 20 Hz bis 20 kHz mit einem Gesamtharmonikfaktor von nicht mehr als 0,08%.</p> <p>Gesamtharmonikfaktor: 8,0 dB bei Nennausgang, 8 Ohm</p> <p>VORVERSTÄRKER</p> <p>Recut (Aufnahme-Ausgangsbuchse)</p> <p>Eingangsempfindlichkeit/ Recut-Empfindlichkeit: Die in Klammern () angegebene Wert bezieht sich auf die Eingangsimpedanz, wenn der Quelleneingangscharakter (ON) ist.</p> <p>PHONO: CD, TUNER, AUX TAPE-1, TAPE-2:</p> <p>Abweichung von der RIAA-Kennlinie: PHONO: ±0,5 dB Maximaler Eingang:</p> <p>GESAMTCHARAKTERISTIKEN</p> <p>Signal/Rauschabstand (IHF-A-Weiche): (Eingangskurzgeschlossen) SOURCE-DIRECT: ON</p> <p>Klangregelbereich: TIEFEN (BASS) HOHEN (TREBLE) Gehörliche Lautstärke:</p> <p>SONSTIGES</p> <p>Netzspannung und-frequenz</p> <p>Wechselstrom-Ausgänge Geschaltetx2: Ungeschaltetx1:</p> <p>Leistungsaufnahme</p> <p>Abmessungen (B) x (H) x (T)</p> <p>Nettogewicht</p> <p>FERNBEDIENUNGSGERÄT (RC-152) Steuersystem: Infrarotimpuls Stromversorgung: 3V Gleichstrom, zwei Trockenzellen-Elemente vom Format R6 (AA) Externe Abmessungen: Gewicht:</p>	<p>PARTIE AMPLIFICATEUR DEPUISSANCE</p> <p>Entrainement deux canaux (charge 4 ohms): 20 Hz à 20 kHz, T.H.T. 0,08% (charge 4 ohms) DIN, 1 kHz, D.H.T. 0,7%</p> <p>**Equiv. en continu, par canal sur min. 8 ohms de 20 Hz à 20 kHz avec une distorsion harmonique totale de 0,08% ou moins.</p> <p>Distorsion harmonique totale: 8,0 dB à la sortie nominale, 8 ohms</p> <p>PRE-AMPLI</p> <p>Prise de recoupe (Borne de sortie d'enregistrement)</p> <p>Sensibilité d'entrée/ Recut Sensibilité: La valeur en parenthèses () se rapporte à l'impédance d'entrée lorsque la touche de source directe (SOURCE DIRECT) est sur le PHONO.</p> <p>PHONO: CD, TUNER, AUX TAPE-1, TAPE-2:</p> <p>Variation RIAA: PHONO: ± 0,5 dB Entrée max.:</p> <p>CARACTÉRISTIQUES GÉNÉRALES</p> <p>Rapport signal/bruit (niveau IHF A): (Bornes d'entrée court-circuitées) SOURCE DIRECT: ON</p> <p>Gamme de réglage de tonalité: GRAVES AIGUS Compensation physiologique:</p> <p>AUTRES</p> <p>Alimentation</p> <p>Prises secteur (AC) Commutéessx2: Non commutéessx1: Consommation</p> <p>Dimensions (L) x (H) x (D)</p> <p>Poids</p> <p>UNITÉ DE TELECOMMANDE (RC-152) Système de télécommande: Infrarouge à impulsions Alimentation: 3V CC, deux piles sèches de format R6 ("AA") Dimensions extérieures: Poids:</p>

Note: *1 For Europe *2 For U.S.A., Canada and Multi-Voltage
 Hinweis: *1 Für Europa *2 Für U.S.A., Kanada und Mehrfach-Spannung

Specifications and contents are subject to change without notice for purposes of improvement.
 Les spécifications et le contenu sont sujets à modification sans préavis.

ENGLISH

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

- (1) Operating instructions
- (2) Remote Control Unit (RC-152)
- (3) Batteries R6P (AA)

DEUTSCH

Bitte überprüfen Sie, ob die folgenden Teile vollständig in der Verpackung enthalten sind:

- (1) Bedienungsanleitung
- (2) Fernbedienling (RC-152)
- (3) Batterien vom Typ R6P (AA)

FRANCAIS

Veuillez contrôler que les articles suivants sont bien joints à l'appareil principal dans le carton:

- (1) Mode d'emploi
- (2) Unité de télécommande (RC-152)
- (3) Piles R6P (AA)

ITALIANO

Controllare che le parti seguenti si trovino imballate con l'apparecchio nella scatola di spedizione:

- (1) Libretto delle istruzioni
- (2) Telecomando (RC-152)
- (3) Batterie R6P (AA)

ESPAÑOL

Por favor, verifique asegurándose de que los siguientes artículos son empacados en la caja pero separados de la unidad principal:

- (1) Manual de instrucciones
- (2) Unidad de control remoto (RC-152)
- (3) Pilas R6P (AA)

NEDERLANDS

Controleer of de volgende accessoires bij het hoofdtoestel in de doos zijn verpakt:

- (1) Gebruiksaanwijzing
- (2) Afstandsbediening (RC-152)
- (3) Batterijen R6P (AA)

SVENSKA

Kontrollera att följande, förutom huvudapparat, finns med i kartongen:

- (1) Bruksanvisning
- (2) Fjärrkontroll (RC-152)
- (3) Batterier R6P (AA)

PORTUGUÊS

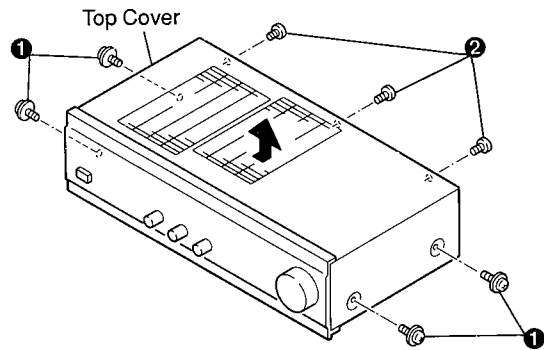
Certifique-se de que as seguintes peças estão incluídas na embalagem fora da unidade principal:

- (1) Instruções de operação
- (2) Unidade de controle remoto (RC-152)
- (3) Baterias R6P (AA)

REMOVAL OF EACH SECTION

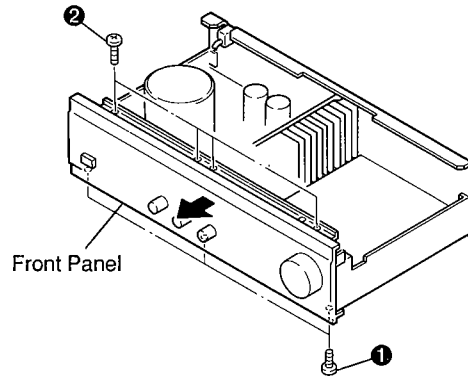
1. Top Cover

- ❶ Remove 4 screws on both side.
- ❷ Remove 3 screws on rear side.
- ❸ Pull up Top Cover in arrow direction.



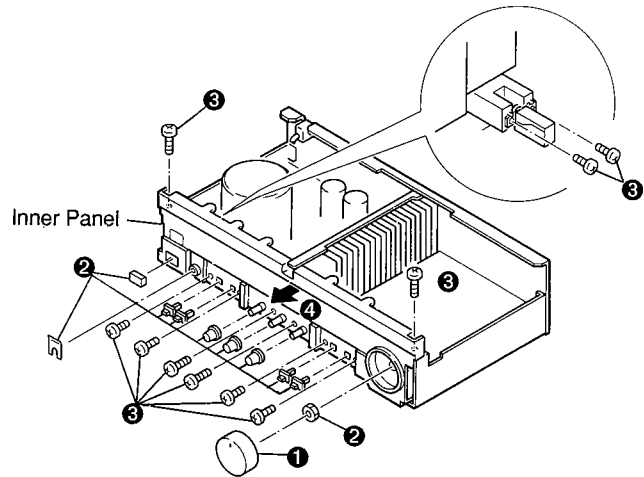
2. Front Panel

- ❶ Remove 3 lower screws.
- ❷ Remove 4 upper screws.
- ❸ Pull forward Front Panel in arrow direction.



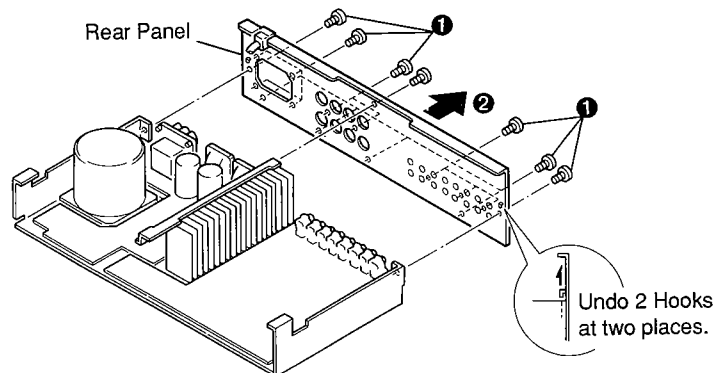
3. Inner Panel

- ❶ Remove volume control knob.
- ❷ Remove nuts and other knobs.
- ❸ Remove 10 screws.
- ❹ Detach Inner Panel in arrow direction.

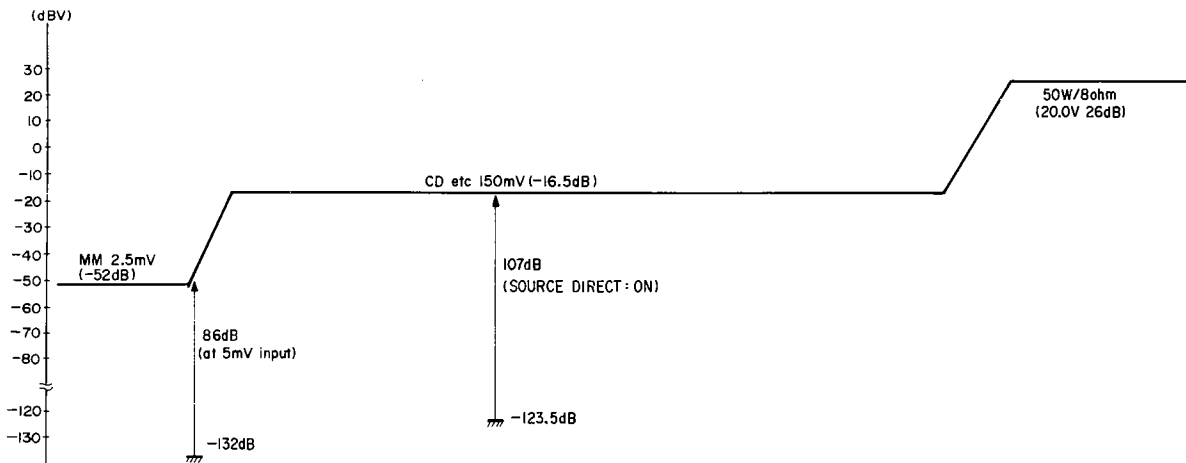
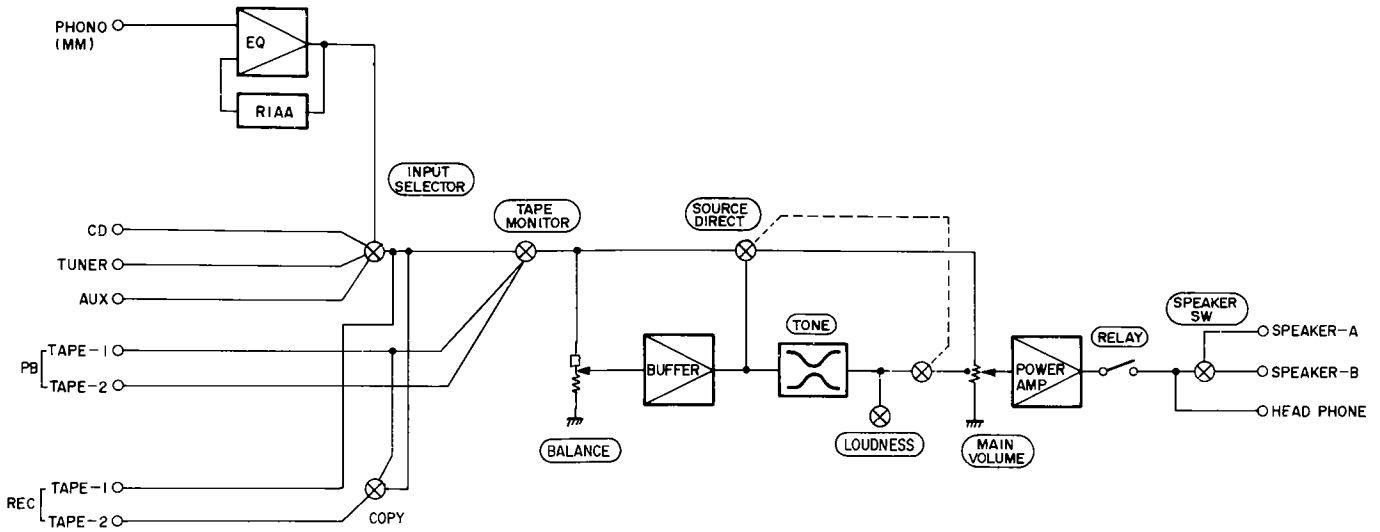


4. Rear Panel

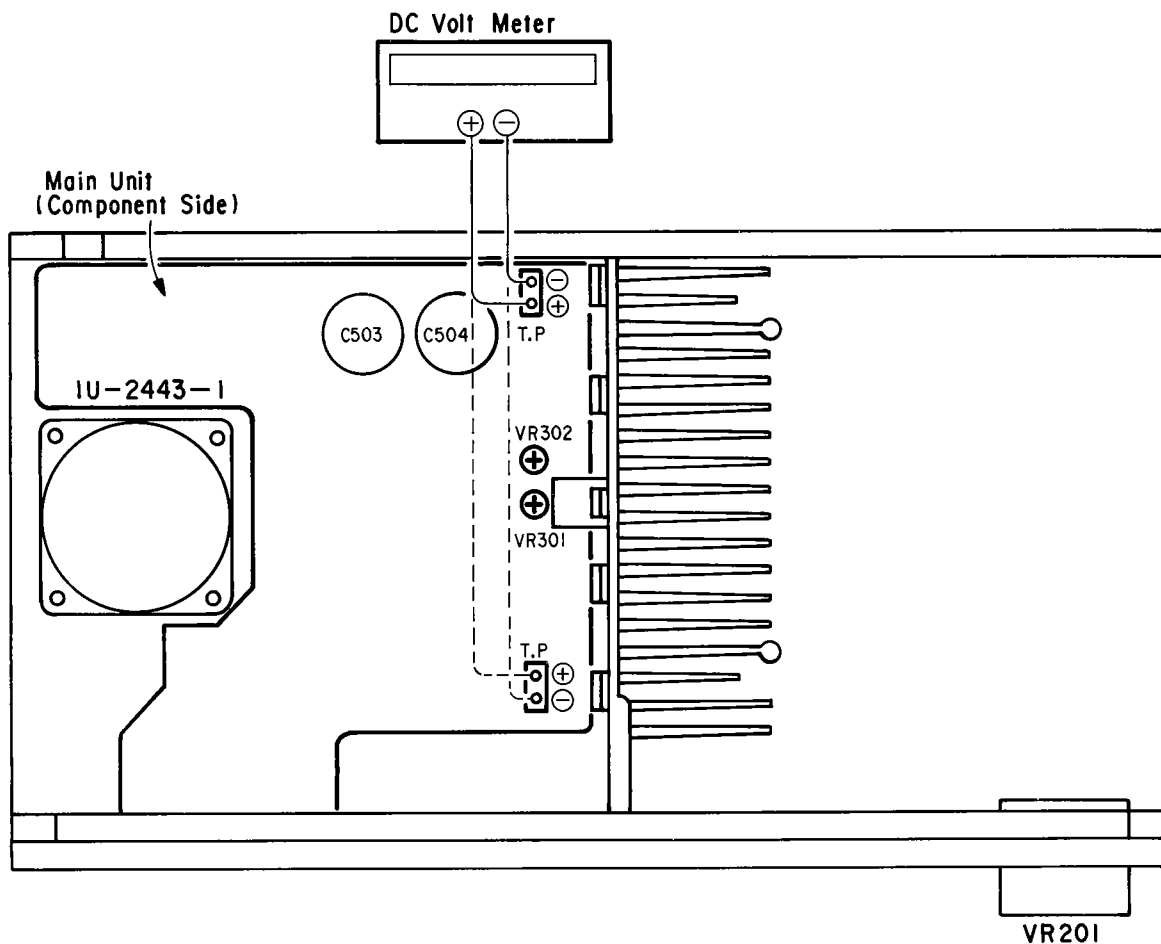
- ❶ Remove 16 screws.
- ❷ Detach Rear Panel in arrow direction.



BLOCK AND LEVEL DIAGRAM



METHOD OF ADJUSTMENTS



IDLING CURRENT

● Setup

1. Lay the unit at an ordinary position away from a direct current from a cooler 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 (VR201) and Semifixed resistors] (VR301...Lch, VR302...Rch)
 - SPEAKER Terminals → open: do not connect the speakers, dummy load etc.

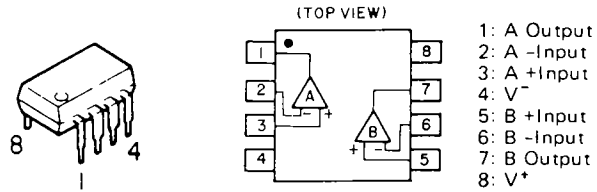
● Adjustment

1. Remove Top cover. And then connect DC Voltmeter to Test points of 1U-2443-1 (Main Unit).
2. Connect Power cord to AC wall outlet, and turn Power Switch "on" (■). Within 10 seconds turn VR301 (Lch) and VR302 (Rch) clockwise so that the DC voltmeter reads 1.0 ± 0.2 mV DC.
3. Then after 2 minutes warmup adjust VR301 and VR302 so that the DC Voltmeter reads 3.0 ± 0.2 mV DC.
4. And after 10 minutes warmup adjust VR301 and VR302 so that the DC Voltmeter reads 3.0 ± 0.2 mV DC.

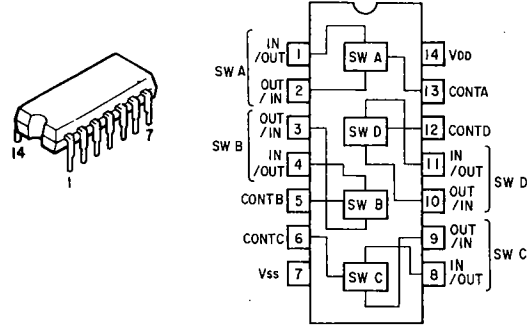
SEMICONDUCTORS

● IC's

RC4558D-D (IC201)
RC2068DDC (IC601)

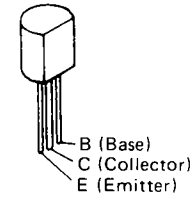


LC4966 (IC101, 102, 103, 104, 105)

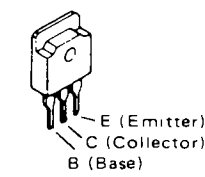


● TRANSISTORS

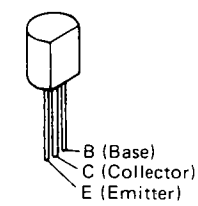
2SA988 (E/F)
2SC1841 (E/F)
2SC1815 (BL)
2SA970 (BL)



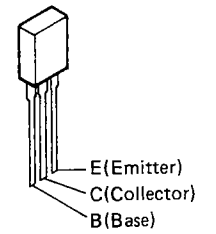
2SA1490 (O)/(P)/(Y)/Z
2SC3854 (O)/(P)/(Y)/Z



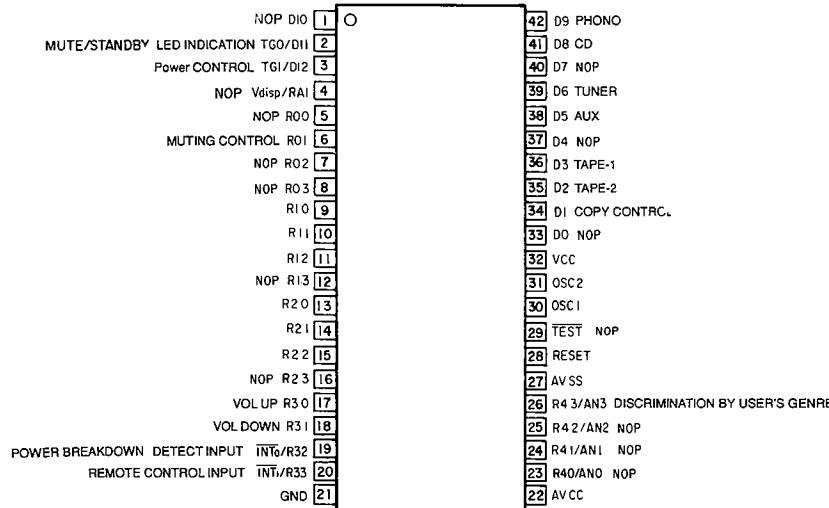
2SB647A (C)
2SD667A (C)
2SC4208A



2SB1328 (P)
2SD2004 (P)



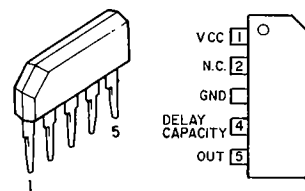
HD404304A13P (IC801)



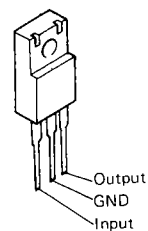
HD404304P Terminal Function

Pin No.	Name	I/O	Contents	Active
1	D10	O	NOP	
2	TG0/D11	O	MUTE/STANDBY LED Indication	H
3	TG1/D12	O	Power Control (REMOTE Power-ON/OFF)	L
4	Vdisp/RA1	I	NOP	
5	R00	O	NOP	
6	R01	O	Muting Control (Power ON-OFF, Function Shifting, MUTING)	L
7	R02	O	NOP	
8	R03	O	NOP	
9	R10	O		H
10	R11	O	Key scan strobe	H
11	R12	O		H
12	R13	O	NOP	
13	R20	I		
14	R21	I	Key scan receive	
15	R22	I		
16	R23	I	NOP	
17	R30	O	Volume Control "UP" → "H"	H
18	R31	O	Volume Control "DOWN" → "H"	H
19	INT0/R32	I	Power Breakdown detect Input	
20	INT1/R33	I	Remote control signal decoding Input	
21	GND		GND	
22	AVcc		AVcc (Vcc)	
23	R40/AN0		NOP	
24	R41/AN1	I	NOP	
25	R42/AN2	I	NOP	
26	R43/AN3	I	Discrimination port by user's genre	
27	AVss		AVss (GND)	
28	RESET		M51954A; External	
29	TEST		Vcc	
30	OSC1		Coller Fill Oscillator 4MHz; External	
31	OSC2		Coller Fill Oscillator 4MHz; External	
32	Vcc		Vcc	
33	D0	O	NOP	
34	D1	O	TAPE1 → TAPE2 Copy control (momentary)	H
35	D2	O	TAPE-2 Control	momentary
36	D3	O	TAPE-1 Control	momentary
37	D4	O	NOP	
38	D5	O	AUX Control	Mutually reset;
39	D6	O	TUNER Control	Mutually reset;
40	D7	O	NOP	
41	D8	O	CD Control	
42	D9	O	PHONO Control	

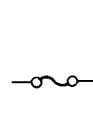
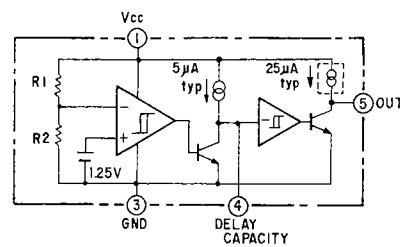
M51954A (IC803)



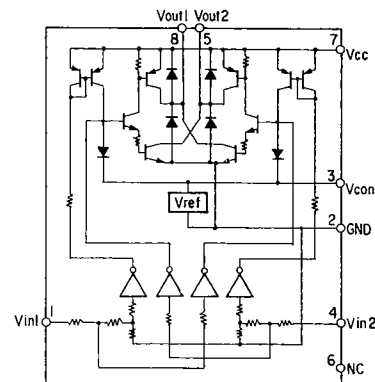
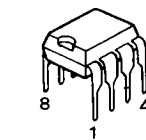
NJM7806FA (IC502)



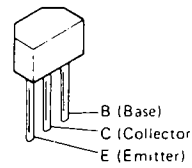
● IC PROTECTOR
ICP-N15 (IC501)



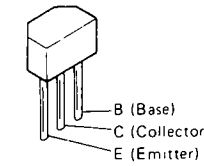
LB1639 (IC802)



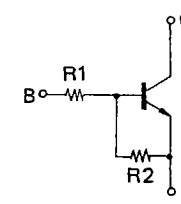
2SC2458 (BL)
2SA1048 (GR)



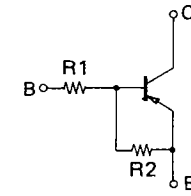
RN1202 NPN
RN1204 NPN
RN2202 PNP



RN1202
RN1204



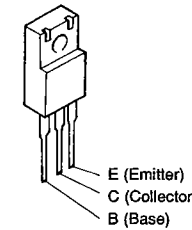
RN2202



	R1	R2
RN1202	10 Kohm	10 Kohm
RN1204	47 Kohm	47 Kohm

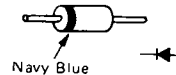
	R1	R2
RN2202	10 Kohm	10 Kohm

2SD1913 (R/S)



● DIODES (including LED)

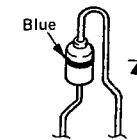
1S2076A
1SS270A



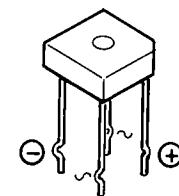
HZS7C-1
HZS16-1
HZS18-1
HZS-27-1



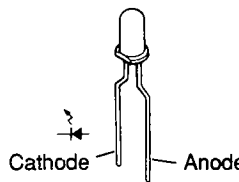
1SR35-200A



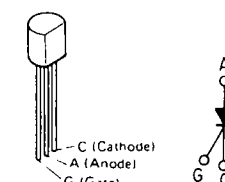
S4VB20



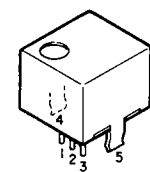
SEL-1810A (Orange)
SEL-1210S (Red)



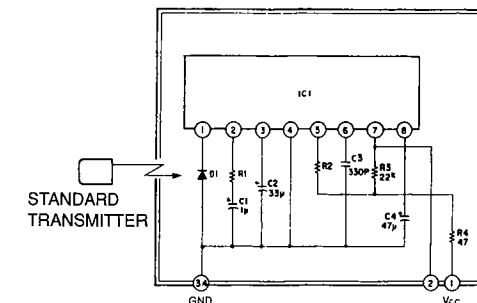
Thyristor
SFOR1A42



SBX1610-52 (Remote Control Receiver)



1. Vcc
2. Output
3. GND
4. Case Fin
5. Case Fin

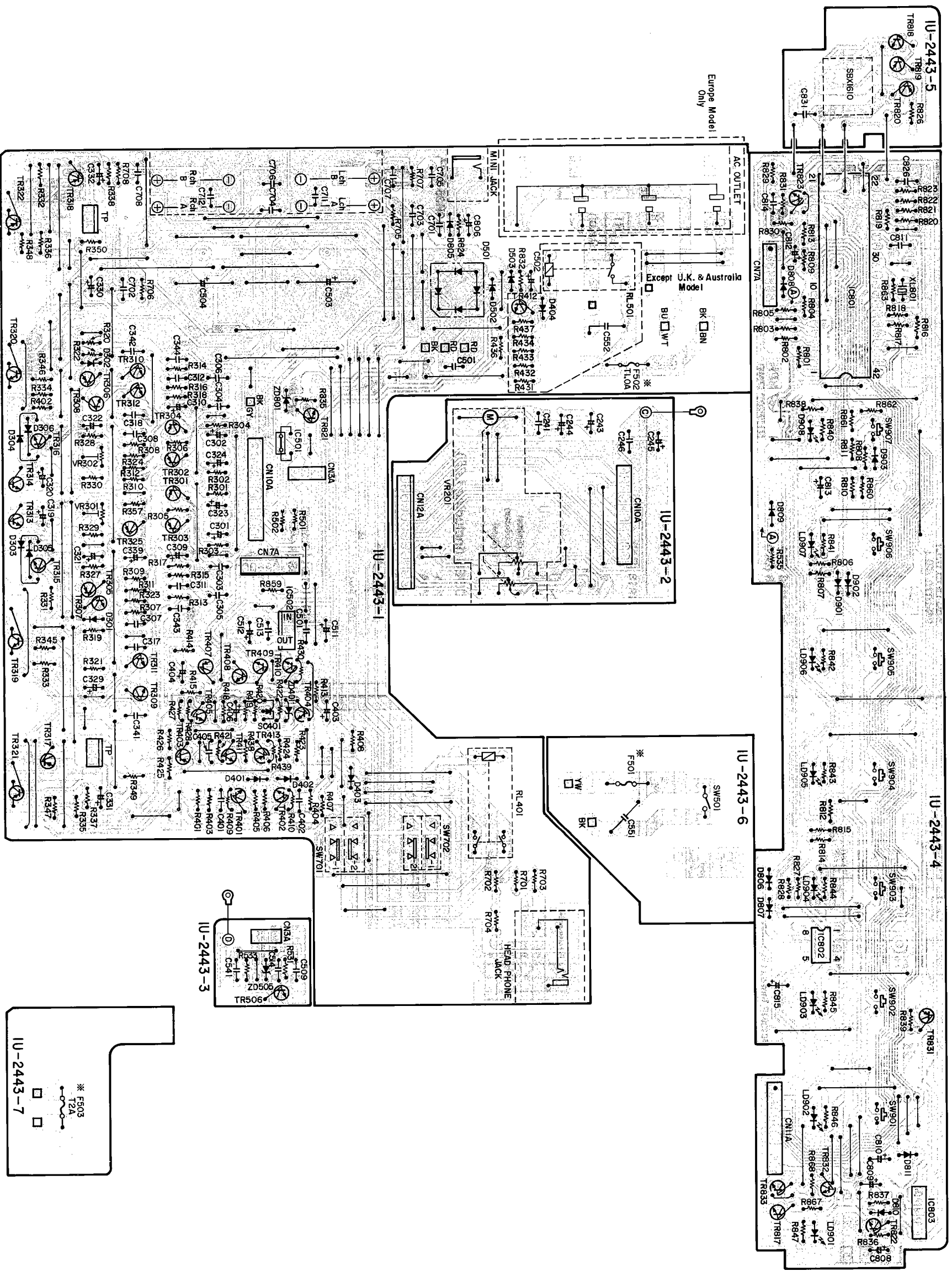


- IC1 : CX20106A Chip
- D1 : PIN Photo Diode Chip
- C1, C2, C4 : Aluminum Electrolytic Capacitor
- C3 : SL Characteristic ±5%
- R1 : Gain Adjuster
- R2 : fo Adjuster ±1% USE
- R3, R4 : ±5%

PRINTED WIRING BOARD (Pattern Side)

1 2 3 4 5 6 7 8

1U-2443A MAIN UNIT ASS'Y

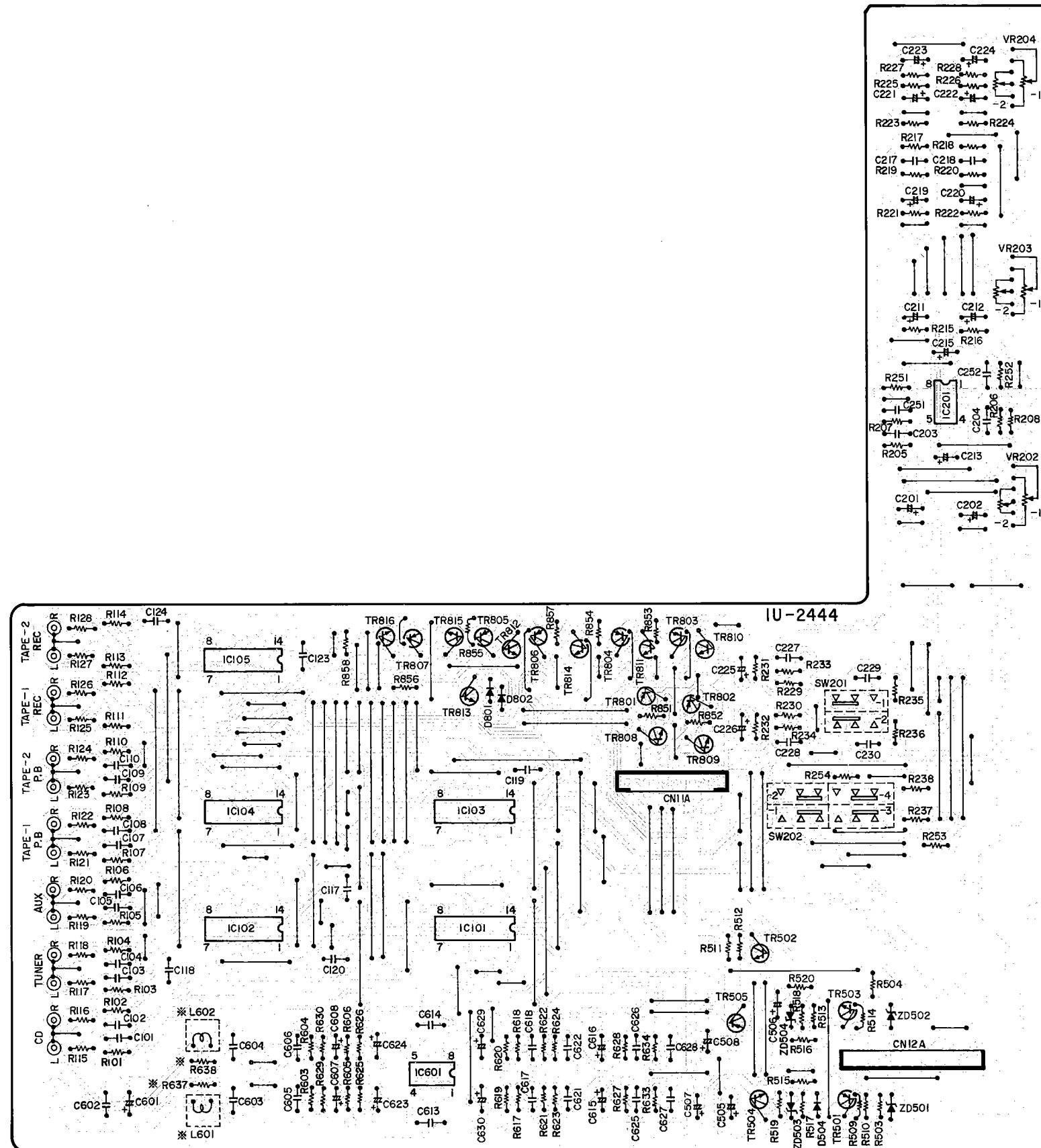


Version	Unit No.	F501	F502	F503	AC Outlet	H/P Jack	SP Terminal
Black for Europe	1U-2443A	1.6A	1A (T)	—	203 3950 002	204 8297 006	205 0484 001
Gold for Europe	1U-2443B	1.6A	1A (T)	—	203 3950 002	204 8279 008	205 0484 001
Canada	1U-2443E	4AT	Jumper	—	—	204 8297 006	205 0472 013
Multi-Voltage	1U-2443D	4A/250V	Jumper	2A/250V	—	204 8297 006	205 0472 013
U.K. & Australia	1U-2443C	1.6A	—	—	—	204 8297 006	205 0472 013

*

1U-2444A INPUT & CONTROL UNIT ASS'Y

1 2 3 4 5 6 7 8



Version	R637, 638	L601, 602
Europe	4.7k	150μH
U.K. & Australia	Jumper	—
Multi-Voltage	Jumper	—
Canada	Jumper	—

Table 1

Version	Unit No.	L601, 602
Europe Black	1U-2444A	235 9003 002
Europe Gold	1U-2444A	235 9003 002
Canada	1U-2444C	—
Multi-Voltage	1U-2444C	—
Australia, UK	1U-2444C	—

Table 2

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 ±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

Type	Shape and performance	Power	Resistance	Allowable error	Others
RD : Carbon	2B : 1/8W	F : ±1%	P : Pulse-resistant type		
RC : Composition	2E : 1/4W	G : ±2%	NL : Low noise type		
RS : Metallic film	2H : 1/2W	J : ±5%	NB : Non-burning type		
RW : Winding	3A : 1W	K : ±10%	FR : Fuse-resistor		
RN : Metal film	3D : 2W	M : ±20%	F : Lead wire forming		
RK : Metal mixture	3F : 3W				
	3H : 5W				

Resistance

1 8 2 ⇒ 1800 ohm = 1.8 kohm

↑ ↑ ↑

Indicates number of zeros after effective number
2-digit effective number, decimal point indicated by R.
• Units: ohm

● **Capacitors**

Ex.: CE 04W 1H 2R2 M BP

Type	Shape and performance	Dielectric strength	Capacity	Allowable error	Others
CE : Aluminum foil electrolytic	0J : 6.3V	F : ±1%	HS : High stability type		
CA : Aluminum solid electrolytic	1A : 10V	G : ±2%	BP : Non-polar type		
CS : Tantalum electrolytic	1C : 16V	J : ±5%	HR : Ripple-resistant type		
CQ : Film	1E : 25V	K : ±10%	DL : For charge and discharge		
CK : Ceramic	1V : 35V	M : ±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 : ±0.25pF			
	2E : 250V	D : ±0.5pF			
	2H : 500V	= : Others			
	2J : 630V				

Capacity

2 R 2 ⇒ 2.2μF

↑ ↑ ↑

1-digit effective number, decimal point indicated by R.
2-digit effective number, decimal point indicated by R.
• Units: μF, (for P, pF (μμF))
• When the dielectric strength is indicated in AC, "AC" is included after the dielectric
Units: μF, (for P, pF (μμF))

**PARTS LIST OF P.W. BOARD
1U-2443A MAIN UNIT**

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC501	268 0073 905	IC ICP-N15	IC Protector
IC502	262 0793 002	IC NJM7806FA(S)	Regulator
* IC801	262 1579 303	IC HD404304A13P	μ-Com
IC802	263 0476 002	IC LB1639	
IC803	263 0535 008	IC M51954AL	
TR301-304	271 0094 919	Transistor 2SA970(BL)	
TR305,306	271 0131 924	Transistor 2SA988 (E/F)	
TR307-312	273 0235 923	Transistor 2SC1841 (E/F)	
TR313,314	273 0380 001	Transistor 2SC4208A	
TR315,316	274 0060 900	Transistor 2SD667A (C)	
TR317,318	272 0053 908	Transistor 2SB647A (C)	
TR325	271 0191 906	Transistor 2SA1048 (GR)	
TR401,402	273 0235 923	Transistor 2SC1841 (E/F)	
TR403	271 0191 906	Transistor 2SA1048 (GR)	
TR404,405	273 0317 906	Transistor 2SC2458 (BL)	
TR407	271 0191 906	Transistor 2SA1048 (GR)	
TR408-410	273 0317 906	Transistor 2SC2458 (BL)	
TR411	269 0025 901	Transistor RN1202 (10K-10K)	Built in Resistor
TR412	273 0317 906	Transistor 2C2458 (BL)	
TR413	271 0191 906	Transistor 2SA1048 (GR)	
TR506	274 0136 012	Transistor 2SD1913 (R/S)	
TR817	273 0317 906	Transistor 2SC2458 (BL)	
TR818	269 0025 901	Transistor RN1202 (10K-10K)	Built in Resistor
TR819,820	269 0026 900	Transistor RN2202 (10K-10K)	Built in Resistor
TR821-823	273 0317 906	Transistor 2SC2458 (BL)	
TR831	271 1019 906	Transistor 2SC1048 (GR)	
TR832	269 0029 907	Transistor RN1204 (47K-47K)	Built in Resistor
TR833	273 0317 906	Transistor 2SC2458 (BL)	
D301,302	276 0432 903	Diode 1SS270A	
D303-306	276 0049 011	Diode 1S2076A	
D401-404	276 0432 903	Diode 1SS270A	
△ D501	276 0305 001	Diode S4VB20	Bridge
D502,503	276 0553 905	Diode 1SR35-200A	
D805-811	276 0432 903	Diode 1SS270A	
D901-903	276 0432 903	Diode 1SS270A	
ZD401	276 0466 908	Zener Diode HZS7C-1	7V
ZD505	276 0477 900	Zener Diode HZS16-1	16V
ZD801	276 0466 908	Zener Diode HZS7C-1	7V
LD901	393 9453 903	LED SEL1810A	Orange
LD902-907	393 9434 906	LED SEL1210S	Red
LD908	393 9453 903	LED SEL1810A	Orange
SC401	279 0016 904	Thyristor SF0R1A42	
RESISTORS GROUP			
(Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those Parts.)			
△ R309-312	241 2380 963	Carbon Film 2.2 Kohm, 1/4W (N.B)	RD14B2E222JNBS
△ R319-322	241 2377 976	Carbon Film 130ohm, 1/4W (N.B)	RD14B2E131JNBS
△ R323,324	241 2315 967	Fusible 68 ohm, 1/4W	RD14B2E680GFRS
△ R331,332	241 2378 920	Carbon Film 220ohm, 1/4W (N.B)	RD14B2E221JNBS
△ R333-336	244 2043 982	Metal Oxide 0.22 ohm, 1W	RS14B3AR22JNBS(S)
△ R345-348	244 2043 982	Metal Oxide 0.22 ohm, 1W	RS14B3AR22JNBS(S)
△ R357	241 2379 987	Carbon Film 1 Kohm, 1/4W (N.B)	RD14B2E102JNBS

Ref. No.	Part No.	Part Name	Remarks
△ R401-404	241 2380 950	Carbon Film 2 Kohm, 1/4W (N.B)	RD14B2E202JNBS
△ R423	244 2050 988	Metal Oxide 2 Kohm, 1W	RS14B3A202JNBS(S)
△ R424	244 2052 915	Metal Oxide 1.8 Kohm, 1W	RS14B3A182JNBS(S)
△ R431,432	244 2052 902	Metal Oxide 2.7 Kohm, 1W	RS14B3A272JNBS(S)
△ R433,434	244 2051 932	Metal Oxide 3.3 Kohm, 1W	RS14B3A332JNBS(S)
△ R501,502	241 2387 940	Carbon Film 4.7 ohm, 1/4W (N.B)	RD14B2E4R7JNBS
△ R535	241 2387 940	Carbon Film 4.7 ohm, 1/4W (N.B)	RD14B2E4R7JNBS
△ R701-704	244 2050 933	Metal Oxide 180 ohm, 1W	RS14B3A181JNBS(S)
△ R705-708	244 2043 937	Metal Oxide 10 ohm, 1W	RS14B3A100JNBS(S)
VR201	211 0770 008	Variable Resistor 30 Kohm	Main
VR301,302	211 6064 048	Semi Fixed Resistor 5 Kohm	
CAPACITORS GROUP			
C241	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z
C243,244	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M (SME)
C245	254 4260 045	Electrolytic 1μF/50V	CE04W1H010M (SME)
C246	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z
C301,302	254 4260 058	Electrolytic 2.2μF/50V	CE04W1H2R2M (SME)
C303,304	255 6177 948	Plastic Film 100pF/50V	CQ09S1H101J (SMT)
C305,306	253 1179 042	Ceramic 220pF/50V	CK45B1H221K
C307,308	255 4199 986	Plastic Film 0.001μF/50V	CQ92M1H102J (MRZ)
C309,310	254 4256 059	Electrolytic 220μF/25V	CE04W1E221M (SME)
C311,312	253 4536 022	Ceramic 12pF/50V	CC45SL1H120J
C317,318	253 4470 900	Ceramic 10pF/500V	CC45SL2H100D
C319,320	254 4260 045	Electrolytic 1μF/50V	CE04W1H010M (SME)
C321,322	254 4260 090	Electrolytic 22μF/50V	CE04W1H220M (SME)
C323,324	254 4260 058	Electrolytic 2.2μF/50V	CE04W1H2R2M (SME)
C329-332	254 4262 001	Electrolytic 4.7μF/63V	CE04W1J4R7M (SME)
C339	254 4262 043	Electrolytic 47μF/63V	CE04W1J470M (SME)
C341,342	253 1179 042	Ceramic 220pF/50V	CK45B1H221K
C343,344	253 4538 046	Ceramic 100pF/50V	CC45L1H101J
C401,402	253 1181 001	Ceramic Film 0.01μF/50V	CK45F1H103Z
C403	254 4250 042	Electrolytic 330μF/6.3V	CE04W0J331M (SME)
C404	254 4252 037	Electrolytic 100μF/10V	CE04W1A101M (SME)
C405	253 1181 014	Ceramic Film 0.022μF/50V	CK45F1H223Z (SME)
C406	254 4252 008	Electrolytic 22μF/10V	CE04W1A220M (SME)
C501	256 1042 000	Metalized 0.1μF/250V	CF93A2E104K
C502	254 4263 013	Electrolytic 0.22μF/100V	CE04W2AR22M (SME)
C503,504	254 4374 708	Electrolytic 8200μF/56V	CE04W==822MC (DL)
C509	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z
C510	253 1181 001	Ceramic 0.01μF/50V	CK45F1H103Z
C511	254 4260 087	Electrolytic 10μF/50V	CE04W1H100M (SME)
C512	254 4260 045	Electrolytic 1μF/50V	CE04W1H010M (SME)
C513	253 1181 001	Ceramic 0.01μF/50V	CK45F1H103Z
C514	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z
C541	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z
△ C551,552	253 8003 713	Ceramic 4700pF/400V (AC)	CK45E2GAC472MC
C701,702	256 1034 076	Metalized 0.1μF/50V	CF93A1H104J
C703,704	255 6179 946	Plastic Film 0.0047μF/50V	CQ09S1H472J (SMT)
C705,706	255 1251 940	Plastic Film 0.0047μF/50V	CQ92M1H472J (MRZ)
C707,708	256 1034 076	Metalized 0.1μF/50V	CF93A1H104J
C711,712	253 1181 001	Ceramic 0.01μF/50V	CK45F1H103Z
C806	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M (SME)
C808	254 4196 070	Electrolytic 4.7μF/50V	CE04W1H4R7M (SRA)
C809	254 4196 041	Electrolytic 1μF/50V	CE04W1H010M (SRA)
C810	254 4196 025	Electrolytic 0.33μF/50V	CE04W1HR33M (SRA)
C811	256 1034 089	Metalized 0.12μF/50V	CF93A1H124J
C812	254 4250 042	Electrolytic 330μF/6.3V	CE04W0J331M (SME)
C813	259 0007 003	Back Up Cap. 8200μF	SB CAP==822=
C814	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z

Ref. No.	Part No.	Part Name	Remarks	Q'ty
C815	254 4250 026	Electrolytic 100μF/6.3V	CE04W0J101M (SME)	
C826	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z	
C831	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z	
OTHER GROUP				
		(P.W. board)		(1)
	202 0040 909	Fuse Clip		4
△ SW501	212 1101 006	Power Switch (TV-5)		1
SW901-907	212 5604 910	Tact Switch		7
* F501	206 1015 058	Fuse 1.6A		1
* F502	206 1015 029	Fuse 1AT		1
RL401	214 9003 005	Relay		1
△ RL501	214 0142 004	Relay (TV-5)		1
△ *	203 3950 002	AC Outlet (3P)		1
	204 8260 004	Mini Jack		1
	499 0150 008	Remoon Receiver	SBX1610-52	1
	204 8297 006	Head Phone Jack	Black Version	1
	204 8279 008	Head Phone Jack	Gold Version	1
SW701,702	212 9532 004	2P Push SW (SP)		1
	205 0484 001	8P SP Terminal		1
XL801	399 9018 003	Ceramic Vibrator CST4.00MGW		1
	415 0309 055	PVC Tube (L=07)		4
CN12A	205 0667 022	12P Conn. Base-L		2
	205 0190 036	3P NH Conn. Base		1
CN10A	205 0275 003	10P EH Conn. Base		2
CN3A	205 0233 032	3P EH Conn. Base		1
CN7A	205 0343 074	7P Conn. Base (KR-PH)		1
CN11A	204 6349 011	11P KR-DS Conn. Cord		1
CN7A	204 2193 054	7P KR-DS Conn. Cord		1
CN3A	203 4877 003	3P EH-SCN Conn. Cord		1
A-A	203 0378 072	1P Contact Ass'y		1
B	203 0418 000	1P SIN Cord Ass'y		2
	461 0415 007	Rubber Sheet		1
	415 0299 000	Condenser Cover		1

**1U-2443E for Canada Model PARTS LIST
(Except the following 1U-2433A for Europe Black)**

Ref. No.	Part No.	Part Name	Remarks	Q'ty
OTHER GROUP				
△ F501	202 0040 909	Fuse Clip		2
	206 1039 092	Fuse (4AT)		1
	205 0472 013	8P SP Terminal		1
△ F502	206 1015 029	Fuse 1AT	Delete	0
△ XL801	203 3950 002	AC Outlet (3P)	Delete	0
	399 9018 003	Ceramic Vibrator CST4.00MGW	Delete	0

**1U-2443D for Multi Voltage Model PARTS LIST
(Except the following 1U-2443A for Europe Black)**

Ref. No.	Part No.	Part Name	Remarks	Q'ty
OTHER GROUP				
△ F501	206 1061 031	Fuse (4A/250V)		1
△ F503	206 1061 002	Fuse (2A/250V)		1
	205 0472 013	8P SP Terminal		1
△ F502	206 1015 029	Fuse 1AT	Delete	0
△ XL801	203 3950 002	AC Outlet (3P)	Delete	0
	399 9018 003	Ceramic Vibrator CST4.00MGW	Delete	0

**1U-2443C for Australia, U.K Models PARTS LIST
(Except the following 1U-2443A for Europe Black)**

Ref. No.	Part No.	Part Name	Remarks	Q'ty
SEMICONDUCTORS GROUP				
TR412	273 0317 906	Transistor 2SC2458(BL)	Delete	0
D404	276 0432 903	Diode 1SS270A	Delete	0
RESISTORS GROUP				
△ R431,432	244 2052 902	Metal Oxide 2.7kohm, 1W	RS14B3A272JNBS(S) Delete	0
△ R433,434	244 2051 932	Metal Oxide 3.3kohm, 1W	RS14B3A332JNBS(S) Delete	0
OTHER GROUP				
	202 0040 907	Fuse Clip		2
	205 0472 013	8P SP Terminal		1
△ F502	206 1015 029	Fuse 1AT	Delete	0
△ XL801	203 3950 002	AC Outlet (3P)	Delete	0
	399 9018 003	Ceramic Vibrator CST4.00MGW	Delete	0
△ RL501	214 0142 004	Relay (TV-5)	Delete	0

1U-2444A INPUT & CONTROL UNIT

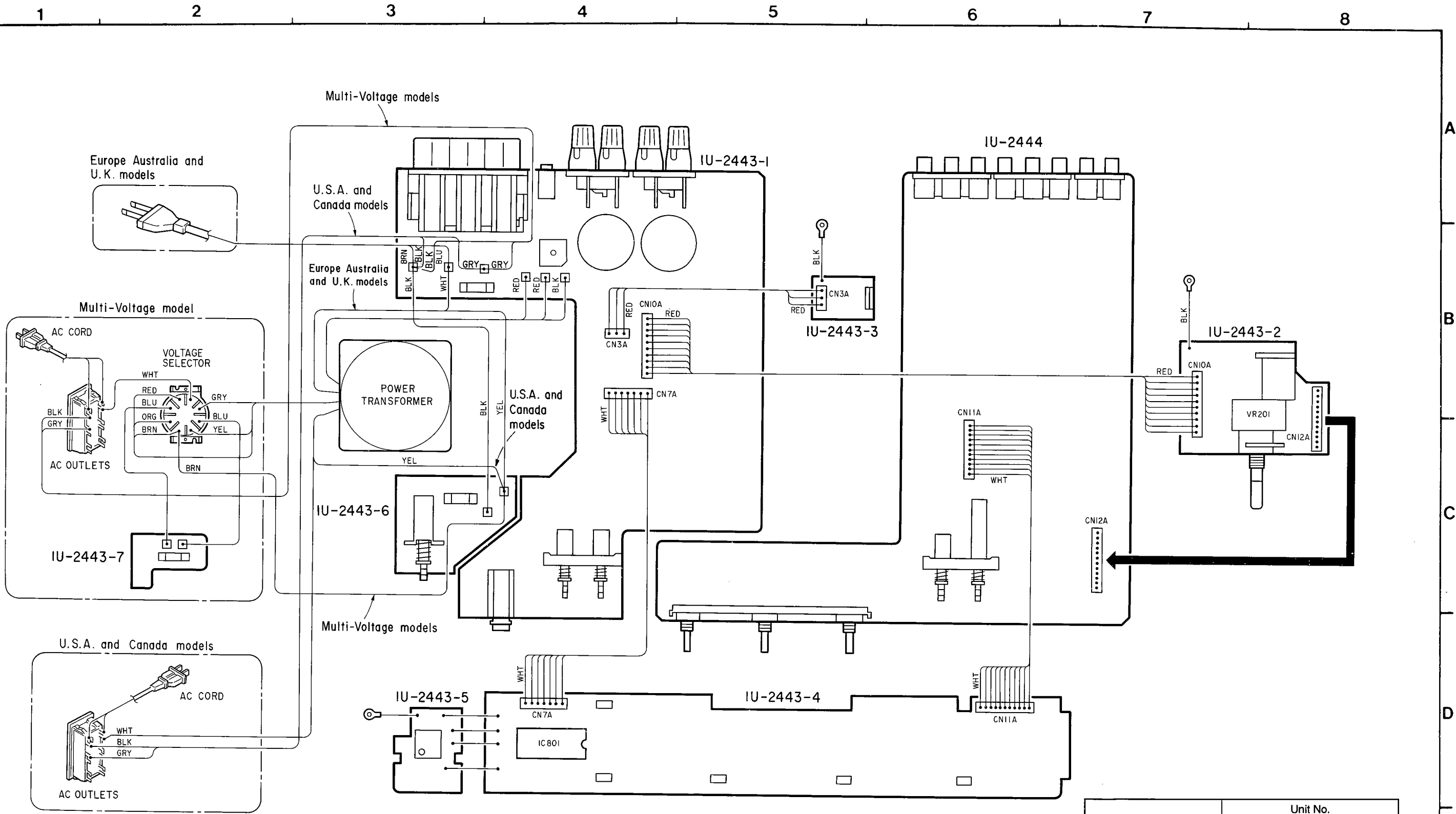
Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC101-105	263 0359 006	IC LC4966	
IC201	263 0774 005	IC RC4558D-D (RAY)	
IC601	263 0775 004	IC RC2068DDC (RAY)	
TR501	271 0131 924	Transistor 2SA988 (E/F)	
TR502	273 0317 906	Transistor 2SC2458 (BL)	
TR503	273 0198 918	Transistor 2SC1815 (BL)	
TR504	274 0151 903	Transistor 2SD2004 (P)	
TR505	272 0107 906	Transistor 2SB1328 (P)	
TR801-807	269 0026 900	RN2202 (10k-10k)	Built in Resistor
TR808-816	269 0025 901	RN1202 (10k-10k)	Built in Resistor
D504	276 0553 905	Diode 1SR35-200A	
D801,802	276 0432 903	Diode 1SS270A	
ZD501,502	276 0482 908	Zener Diode HZS27-1	27V
ZD503,504	276 0478 909	Zener Diode HZS18-1	18V
RESISTORS GROUP			
(Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those Parts.)			
△ R503,504	244 2050 946	Metal Oxide 240 ohm,1W	RS14B3A241JNBS(S)
VR202-204	211 0762 003	Variable Resistor	3 Gang
CAPACITORS GROUP			
C101-110	253 4537 089	Ceramic 56pF/50V	CC45SL1H560J
C117-120	253 1181 001	Ceramic 0.01µF/50V	CK45F1H103Z
C123,124	253 1181 001	Ceramic 0.01µF/50V	CK45F1H103Z
C201,202	254 4260 045	Electrolytic 1µF/50V	CE04W1H010M (SME)
C203,204	253 4537 089	Ceramic 56pF/50V	CC45SL1H560J
C211,212	254 4254 006	Electrolytic 10µF/16V	CE04W1C100M (SME)
C213	254 4260 045	Electrolytic 1µF/50V	CE04W1H010M (SME)
C215	254 4260 045	Electrolytic 1µF/50V	CE04W1H010M (SME)
C217,218	256 1034 018	Metalized 0.033µF/50V	CF93A1H333J
C219,220	254 4260 016	Electrolytic 0.22µF/50V	CE04W1HR22M (SME)
C221,222	254 4260 003	Electrolytic 0.1µF/50V	CE04W1H0R1M (SME)
C223,224	254 4260 032	Electrolytic 0.47µF/50V	CE04W1HR47M (SME)
C225,226	254 4260 029	Electrolytic 0.33µF/50V	CE04W1HR33M (SME)
C227,228	256 1034 050	Metalized 0.068µF/50V	CF93A1H683J
C229,230	256 1034 018	Metalized 0.033µF/50V	CF93A1H333J
C251,252	253 4539 046	Ceramic 100pF/50V	CC45SL1H101J
C505,506	254 4256 059	Electrolytic 220µF/25V	CE04W1E221M (SME)
C507,508	254 4260 045	Electrolytic 1µF/25V	CE04W1H010M (SME)
C601	254 4260 045	Electrolytic 1µF/50V	CE04W1H010M (SME)
C602	253 1181 014	Ceramic 0.022µF/50V	CK45F1H223Z
C603,604	253 4537 063	Ceramic 47pF/50V	CC45SL1H470J
C605,606	253 1179 026	Ceramic 150pF/50V	CK45B1H151K
C607,608	254 4254 006	Electrolytic 10µF/16V	CE04W1C100M (SME)
C613,614	253 4534 046	Ceramic 100pF/50V	CC45SL1H101J
C615,616	254 4254 006	Electrolytic 10µF/16V	CE04W1C100M (SME)
C617,618	255 6179 962	Plastic Film 0.0068µF/50V	CQ09S1H682J (SMT)
C621,622	255 4199 999	Plastic Film 0.024µF/50V	CQ92M1H243J (MRZ)
C623,624	254 4256 059	Electrolytic 220µF/25V	CE04W1E221M (SME)
C625-628	253 1179 042	Ceramic 220pF/50V	CK45B1H221K
C629,630	254 4260 045	Electrolytic 1µF/50V	CE04W1H010M (SME)

Ref. No.	Part No.	Part Name	Remarks	Q'ty
OTHER GROUP				
		(P.W. Board)		(1)
SW201,202	212 1098 009	2P Push Switch LOUD/S. DIRECT		1
	204 8266 008	4P Pin Jack (S-GND)		1
	204 8278 009	6P Pin Jack (S-GND)		2
* L601,602	235 9003 002	FTZ Choke Coil		4
CN11A	205 0375 013	11P Conn. Base (KR-PH)		1
CN12A	205 0666 023	12P Conn. Base		1

1U-2444C for Canada, Multi-Voltage,
Australia & U.K. Models PARTS LIST
(Except the following 1U-2444A for Europe Model)

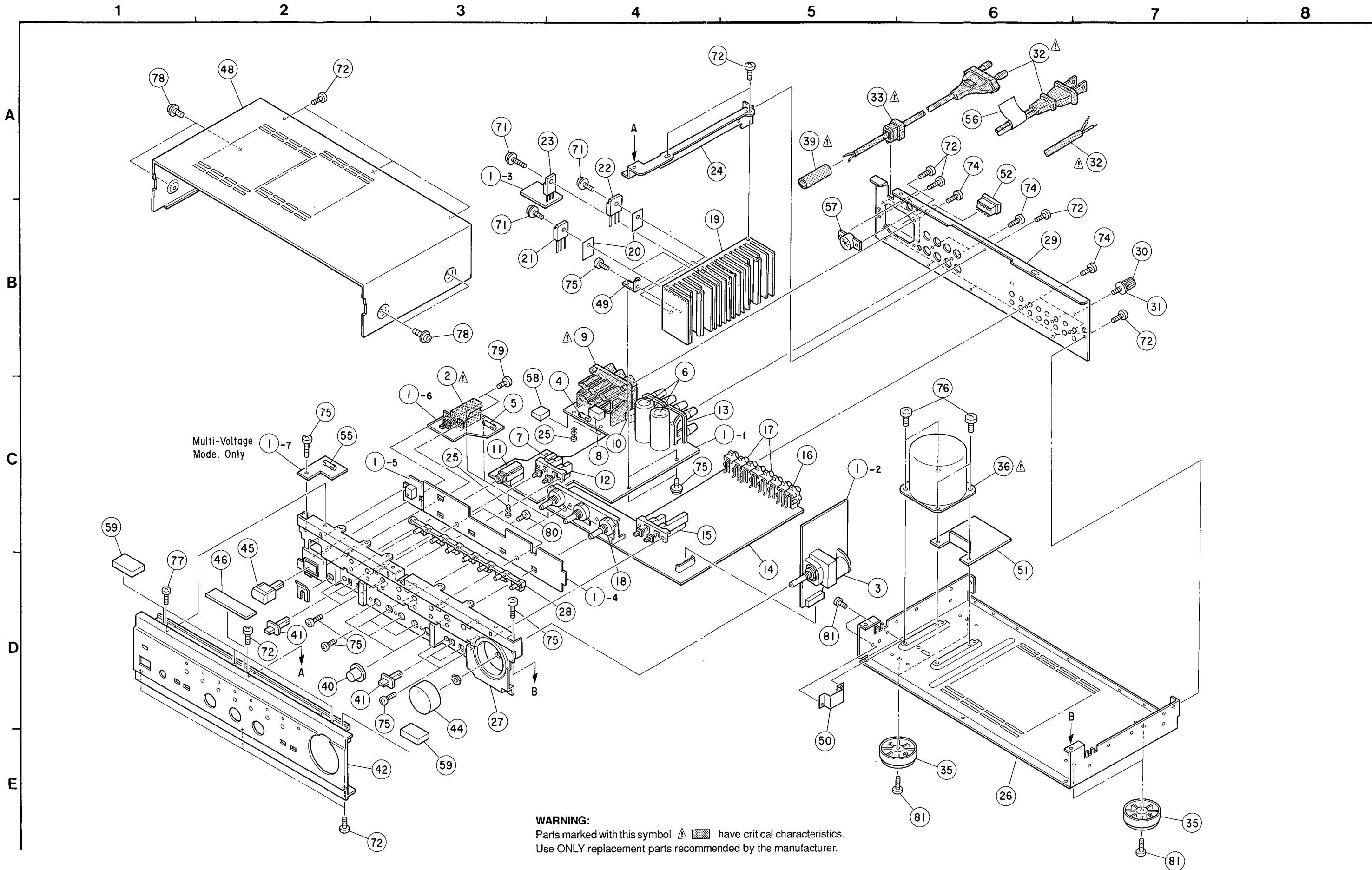
Ref. No.	Part No.	Part Name	Remarks	Q'ty
OTHER GROUP				
L601,602	235 9003 002	FTZ Choke Coil	Delete	0

WIRING DIAGRAM



Version	Unit No.	
	Main	Control
Black for Europe	1U-2443A	1U-2444A
Gold for Europe	1U-2443B	1U-2444A
Black for Canada	1U-2443E	1U-2444C
Black for Australia	1U-2443C	1U-2444C
Black for Multi Voltage	1U-2443D	1U-2444C
Black for U.K.	1U-2443C	1U-2444C

EXPLODED VIEW OF CHASSIS AND CABINET



PARTS LIST OF EXPLODED VIEW

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◎ * 1	Note	Main Unit Ass'y		1 ^S
-1-1	—	Main Unit		(1)
-1-2	—	Volume Unit		(1)
-1-3	—	16V Unit		(1)
-1-4	—	μ-Corn Unit		(1)
-1-5	—	Sensor Unit		(1)
-1-6	—	Power SW Unit		(1)
-1-7	—	Fuse Unit		(1)
△ * 2	212-1101 006	Power SW (TV-5)		1
3	211 0770 008	Variable Resistor 30 Kohm	Main	1
△ * 4	Note	Fuse	F502	1
△ * 5	Note	Fuse	F501	1
6	254 4374 708	Chemicon 8200μF/56V	C503,504	2
7	214 9003 005	Relay	RL401	1
△ 8	214 0142 004	Relay (TV-5)	RL501	1
△ * 9	Note	AC Outlet (3P)		1
10	204 8260 004	Mini Jack		1
* 11	Note	Head Phone Jack		1
12	212 9532 004	2P Push SW	SP	1
* 13	Note	8P SP Terminal		1
◎ * 14	Note	Input & Control Unit Ass'y		1 ^S
15	212 1098 009	2P Push Switch	LOUD/ S. DIRECT	1
16	204 8266 008	4P Pin Jack (S-GND)		1
17	204 8278 009	6P Pin Jack (S-GND)		2
18	211 0762 003	Variable Resistor	3 Gang	1
19	417 0461 106	Power Radiator		1
20	415 0234 007	Insulating Sheet		4
21	273 0386 005	Transistor 2SC3854 (O/P/Y) (Z)	TR319,320	2
22	271 0237 006	Transistor 2SA1490 (O/P/Y) (Z)	TR321,322	2
23	274 0136 012	Transistor 2SD1913 (R/S)	TR506	1
24	412 3528 009	Radiator Bracket		1
◎ 25	Note	Card Spacer (L = 10)		()
◎ 26	411 0941 301	Chassis		1
* 27	Note	Inner Panel		1
* 28	Note	Function Knob		1
◎ * 29	Note	Rear Panel		1
30	205 0071 016	Terminal Ass'y	GND	1
31	477 0018 001	Washer (P-87)		1
△ * 32	Note	AC Cord		1
△ 33	445 0056 008	Cord Bush		1
* 34	Note	Masking Sheet		1
35	104 0194 001	Foot Ass'y		4
△ * 36	Note	Power Trans		1
△ * 39	Note	UL Tube	for AC Cord	1
* 40	Note	Maru Knob (S)		3
* 41	Note	Push Knob (Kaku)		4
◎ * 42	Note	Front Panel Ass'y		1
★ 43	445 8004 007	Wire Clamper		10
* 44	Note	VR Knob Ass'y		1
* 45	Note	Push Knob (P) Ass'y		1
46	122 0183 007	Spacer	100×10×T0.5	1
47	—	—		—
* 48	Note	Top Cover		1
49	412 3225 108	P.W.B. Bracket (A)		2
50	Note	Side Bracket		1
51	Note	Insulating Sheet		1
52	Note	AC Outlet (Polarized)		1
53	—	—		—
54	—	—		—
△ 55	Note	Fuse	F503	1
56	Note	Preset Label		1
△ 57	Note	Voltage Sel. Switch		1
58	Note	Rubber Sheet		1
59	122 0202 001	Spacer	32 × 14 × T2	2

Ref. No.	Part No.	Part Name	Remarks	Q'ty
SCREWS				
71	473 8007 009	Cup Screw 3×12		5
72	Note	Tapping Screw (S) 3×8	Black	()
73	—	—		
74	Note	Fixing Screw		()
75	473 7002 018	Tapping Screw (S) 3×8		12
76	473 7004 016	Tapping Screw (S) 4×6		4
77	473 7508 017	Tapping Screw (P) 3×10	Black	3
* 78	Note	3P Swelling Screw		4
79	473 7508 004	Tapping Screw (P) 3 × 6	Black	2
80	473 7501 001	Tapping Screw (P) 3 × 10		2
81	Note	Tapping Screw (S) 3 × 6	Black	()
82	—	—		
PACKING & ACCESSORIES (Not included EXPLODED VIEW)				
101	505 8006 019	Envelope		1
102	511 2343 003	Inst. Manual		1
103	499 0240 002	Remote Control (RC-152)		1
104	—	Battery	R6P/AA	2
105	504 0079 012	Styrene Paper		1
106	505 0075 006	Cabinet Cover		1
107	504 0092 060	Styrene Paper	for AC Cord	1
108	503 0858 104	Cushion		2
109	501 1616 022	Carton Case		1

ADDENDUM LIST

Ref. No.	Parts Name & Descriptions		Parts No.					
			EUROPE BLACK	EUROPE GOLD	CANADA BLACK	MULTI-VOLTAGE BLACK	AUSTRALIA BLACK	U.K. BLACK
◎ 1	Main Unit Ass'y	1 ^S	1U-2443A	1U-2443B	1U-2443E	1U-2443D	1U-2443C	1U-2443C
△ 4	Fuse (F502)	1	206 1015 029 (1AT)	206 1015 029 (1AT)	—	—	—	—
△ 5	Fuse (F501)	1	206 1015 058 (1.6A)	206 1015 058 (1.6A)	206 1039 092 (4A)	206 1061 031 (4A/250V)	206 1015 058 (1.6A)	206 1015 058 (1.6A)
△ 9	AC Outlet (3P)	1	203 3950 002	203 3950 002	—	—	—	—
11	Headphone Jack	1	204 8297 006	204 8279 008	204 8297 006	204 8297 006	204 8297 006	204 8297 006
13	8P SP Terminal	1	205 0484 001	205 0484 001	205 0472 013	205 0472 013	205 0472 013	205 0472 013
◎ 14	Input & Control Unit	1 ^S	1U-2444A	1U-2444A	1U-2444C	1U-2444C	1U-2444C	1U-2444C
25	Card Spacer (L=10)	()	412 2814 028 (3)	412 2814 028 (3)	412 2814 028 (6)	412 2814 028 (6)	412 2814 028 (4)	412 2814 028 (4)
27	Inner Panel	1	146 1382 405	146 1382 418	146 1382 405	146 1382 405	146 1382 405	146 1382 405
28	Function Knob	1	113 1538 026	113 1538 039	113 1538 026	113 1538 026	113 1538 026	113 1538 026
29	Rear Panel	(1)	105 1039 207	105 1039 207	105 1039 265	105 1039 249	105 1039 223	105 1039 223
△ 32	AC Cord	(1)	206 2063 009	206 2063 009	206 2060 002 (Polarized)	206 2054 005	206 2025 005	206 2024 103
34	Masking Sheet	1	513 1144 005	513 1144 005	—	—	—	—
△ 36	Power Trans.	1	233 5959 002	233 5959 002	233 5982 008	233 5975 002	233 5976 001	233 5976 001
△ 39	UL Tube	1	415 0364 032	415 0364 032	—	415 0364 032	415 0364 032	415 0364 032
40	Maru Knob(s)	3	112 0646 000	112 0646 013	112 0646 000	112 0646 000	112 0646 000	112 0646 000
41	Push Knob (Kaku)	4	113 1493 103	113 1493 116	113 1493 103	113 1493 103	113 1493 103	113 1493 103
42	Front Panel Ass'y	1	144 2206 102	144 2206 115	144 2206 102	144 2206 102	144 2206 102	144 2206 102
44	VR Knob Ass'y	1	112 0569 145	112 0569 158	112 0569 145	112 0569 145	112 0569 145	112 0569 145
45	Push Knob(P) Ass'y	1	113 1180 005	113 1180 021	113 1180 005	113 1180 005	113 1180 005	113 1180 005
48	Top Cover	1	102 0514 203	102 0514 216	102 0514 203	102 0514 203	102 0514 203	102 0514 203
50	Side Bracket	1	412 2955 107	412 2955 107	—	—	—	—
51	Insulating Sheet	1	415 0672 009	415 0672 009	—	—	415 0672 009	415 0672 009
△ 52	AC Outlet (Polarized)	1	—	—	203 3926 007	203 3926 007	—	—
△ 55	Fuse (F-503)	1	—	—	—	206 1061 002 (2A/250V)	—	—
56	Preset Label	1	—	—	—	515 8030 008	—	—
△ 57	Voltage Sel. Switch	1	—	—	—	212 9555 007	—	—
58	Rubber Sheet	1	461 0696 004	461 0696 004	—	—	461 0696 004	461 0696 004
SCREWS								
72	Tapping Screw (S) 3 × 8	()	473 7015 018 (16)	473 7015 018 (16)	473 7015 018 (16)	473 7015 018 (18)	473 7015 018 (16)	473 7015 018 (16)
73	Fixing Scerw	()	477 0064 107 (9)	477 0064 107 (9)	477 0064 107 (5)	477 0064 107 (5)	477 0064 107 (5)	477 0064 107 (5)
78	3P Swelling Screw	4	477 0263 005	477 0263 018	477 0263 005	477 0263 005	477 0263 005	477 0263 005
81	Tapping Screw (S) 3 × 6	()	473 7002 034 (6)	473 7002 034 (6)	473 7002 034 (4)	473 7002 034 (4)	473 7002 034 (4)	473 7002 034 (4)
PACKING & ACCESSORIES								
115	Color Label (Gold)	2	—	513 9111 001	—	—	—	—
116	DCI Warranty Form	1	—	—	515 0569 001	—	—	—
117	CSA Label DCI	1	—	—	LL-64064	—	—	—
118	DAI Warranty	1	—	—	—	—	—	—

NOTE FOR PARTS LIST

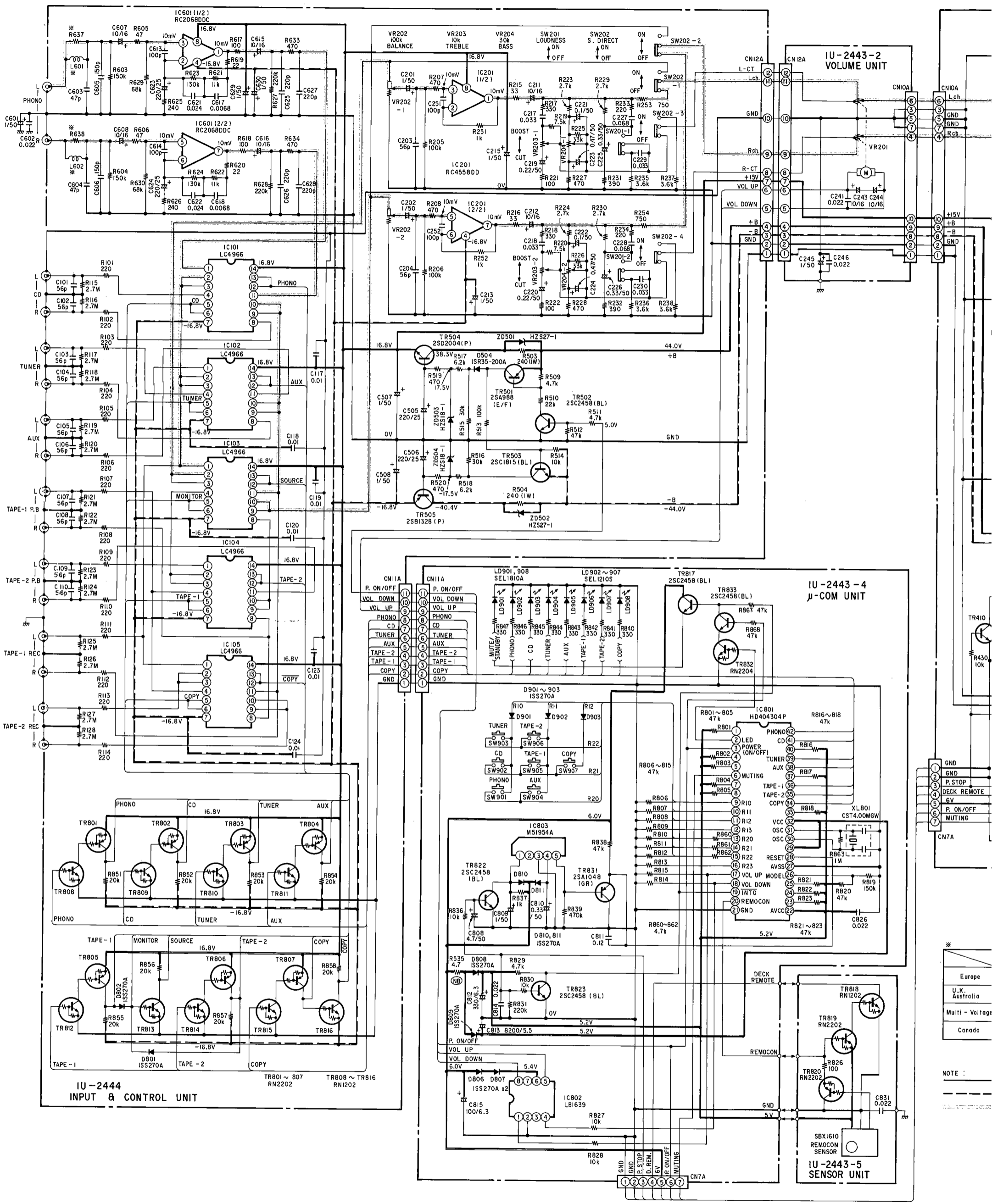
- Part indicated with the mark " ◎ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "1" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:

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

SCHEMATIC DIAGRAM

1 2 3 4 5 6



- Europe
- U.K. Australia
- Multi-Voltage
- Canada

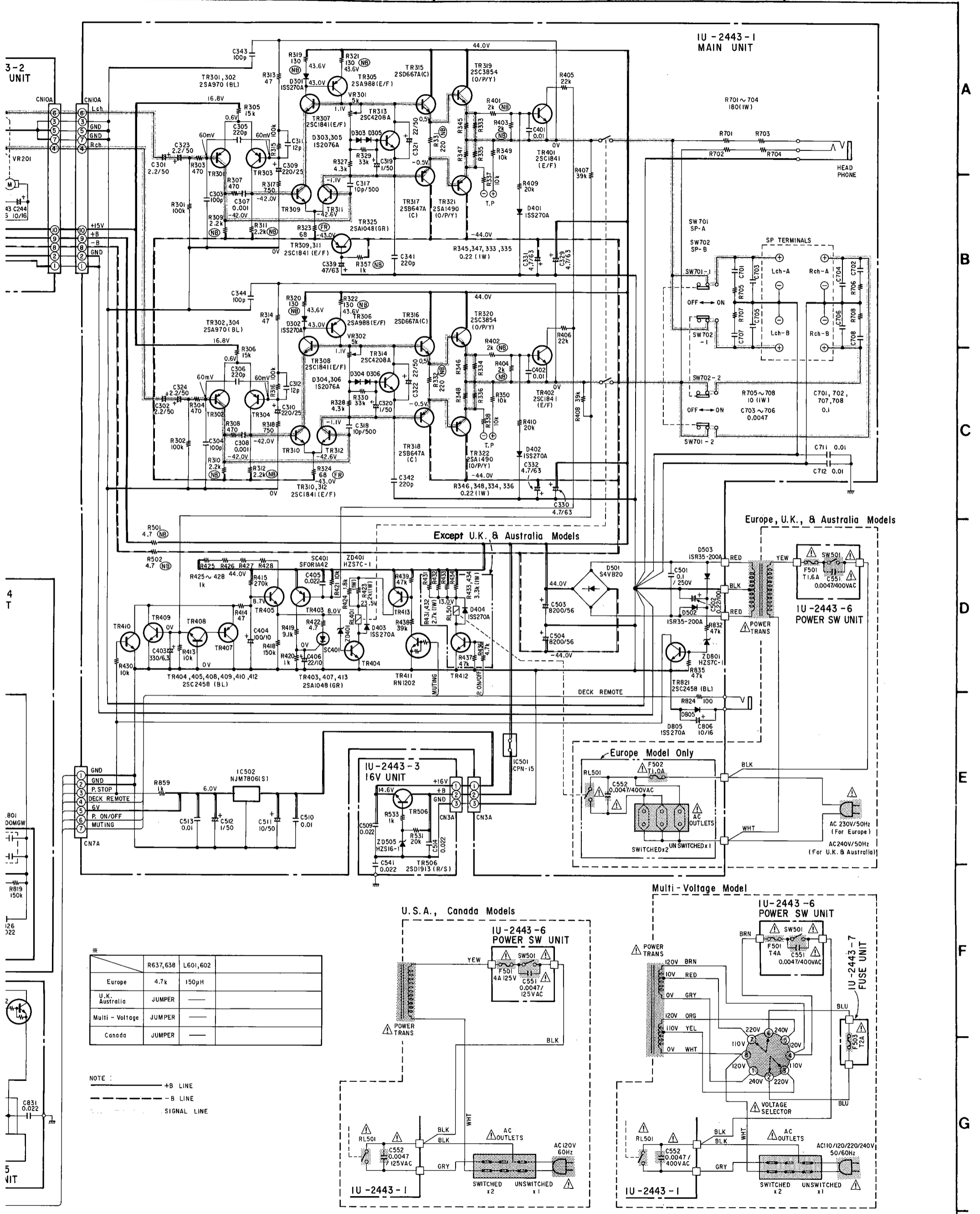
NOTE:

with this symbol have critical characteristics.
 placement parts recommended by the manufacturer.

ing the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If
 rrent exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is

n the unit to the customer until the problem is located and corrected.

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.



	R637,638	L601,602
Europe	4.7k	150µH
U.K. Australia	JUMPER	—
Multi-Voltage	JUMPER	—
Canada	JUMPER	—

NOTE :
 ——— +B LINE
 - - - - - -B LINE
 ······ SIGNAL LINE

A
B
C
D
E
F
G
H