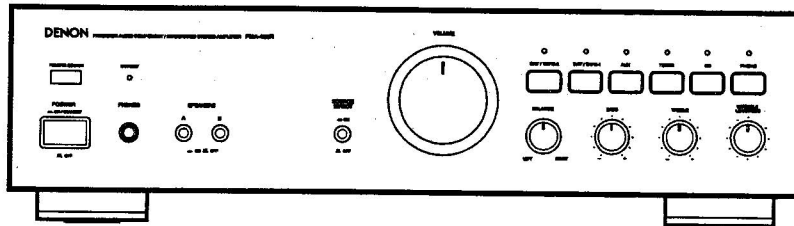


DENON

Hi-Fi Integrated Stereo Amplifier


SERVICE MANUAL MODEL PMA-425R INTEGRATED STEREO AMPLIFIER




CONTENTS

OPERATING INSTRUCTIONS	2-7
REMOVAL OF EACH SECTION	8, 9
BLOCK AND LEVEL DIAGRAM	10
METHOD OF ADJUSTMENTS	11
SEMICONDUCTORS	12, 13
PRINTED WIRING BOARD	14, 15
PARTS LIST OF P.W.B. ASS'Y	16, 17
EXPLODED VIEW OF CHASSIS AND CABINET	18
PARTS LIST OF EXPLODED VIEW	19
WIRING DIAGRAM	20
SCHEMATIC DIAGRAM	21

NIPPON COLUMBIA CO., LTD.



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE 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.

• FOR U.S.A. & CANADA MODEL ONLY

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.

• POUR LE MODELE CANADIEN UNIQUEMENT

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.

• NUR FÜR EUROPÄISCHE MODELLE

Konformitätserklärung

Die DENON Electronic GmbH
Halestraße 32
40880 Ratingen

Erklärt als Hersteller/Importeur, daß das in dieser Bedienungsanleitung beschriebene Gerät den Technischen Vorschriften für Ton- und Fernseh-Rundfunkempfänger nach der Amtsblattverfügung 868/1989 (Amtsblatt des Bundesministers für Post und Telekommunikation vom 31. 8. 1989) entspricht.

DECLARATION OF CONFORMITY

We declare under our sole responsibility that this product, to which this declaration relates, is in conformity with the following standards: EN55013, EN55020, EN60555-2 and EN60555-3.

ÜBEREINSTIMMUNGSERKLÄRUNG

Wir erklären unter unserer Verantwortung, daß dieses Produkt, auf das sich diese Erklärung bezieht, den folgenden Standards entspricht: EN55013, EN55020, EN60555-2 und EN60555-3.

DECLARATION DE CONFORMITE

Nous déclarons sous notre seule responsabilité que l'appareil, auquel se réfère cette déclaration, est conforme aux standards suivants: EN55013, EN55020, EN60555-2 et EN60555-3.

DICHIARAZIONE DI CONFORMITÀ

Dichiaro con piena responsabilità che questo prodotto, al quale la nostra dichiarazione si riferisce, è conforme alle seguenti normative: EN55013, EN55020, EN60555-2 e EN60555-3.

DECLARACIÓN DE CONFORMIDAD

Declaramos bajo nuestra exclusiva responsabilidad que este producto al que hace referencia esta declaración, está conforme con los siguientes estándares: EN55013, EN55020, EN60555-2 y EN60555-3.

EENVORMIGHEIDSVERKLARING

Wij verklaren uitsluitend op onze verantwoordelijkheid dat dit produkt, waarop deze verklaring betrekking heeft, in overeenstemming is met de volgende normen: EN55013, EN55020, EN60555-2 en EN60555-3.

ÖVERENSSTÄMMELSEINTYG

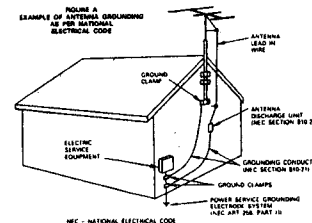
Härmed intygas helt på eget ansvar att denna produkt, vilken detta intyg avser, uppfyller följande standarder: EN55013, EN55020, EN60555-2 och EN60555-3.

DECLARAÇÃO DE CONFORMIDADE

Declaramos sob nossa exclusiva responsabilidade que este produto, ao qual esta declaração corresponde, está em conformidade com as seguintes normas: EN55013, EN55020, EN60555-2 e EN60555-3.

SAFETY INSTRUCTIONS

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.
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.



NOTE:

1. Always keep the POWER switch on the main unit turned on.
2. Turn the power on and off from the remote control unit.
3. Unplug the power cord when you do not plan to use the unit for a long period of time.

CAUTION:

If only the MUTE/STANDBY LED is lit, this means that the power is turned off from the remote control unit. Turn the power on from the remote control unit.

HINWEIS:

1. Lassen Sie den Netzschalter (POWER) am Hauptgerät stets eingeschaltet.
2. Schalten Sie den Strom mit dem Fernbedienungsgerät ein- und aus.
3. Trennen Sie das Netzkabel vom Netz ab, wenn Sie beabsichtigen, das Gerät über einen längeren Zeitraum hinweg nicht zu benutzen.

VORSICHT:

Wenn nur das Stummchalt-/Bereitschafts-LED (MUTE/STANDBY) leuchtet, so bedeutet dies, daß der Strom vom Fernbedienungsgerät aus ausgeschaltet worden ist. Schalten Sie den Strom vom Fernbedienungsgerät aus ein.

REMARQUE:

1. S'assurer que le commutateur d'alimentation (POWER) sur l'unité principale soit toujours dans la position activée.
2. Allumer et éteindre l'appareil avec la télécommande.
3. Débrancher le cordon d'alimentation lorsque l'appareil ne sera pas utilisé pendant une longue période.

ATTENTION:

Si seul le témoin (LED) de sourdine/veille (MUTE/STANDBY) est allumé, cela signifie que l'appareil est mis hors circuit par la télécommande. Allumer l'appareil avec la télécommande.

NOTA:

1. Tenete sempre l'interruttore della corrente (POWER) dell'unità principale nella posizione di attivazione.
2. Accendete e spegnete la corrente usando il telecomando.
3. Scollegate il filo di alimentazione quando avete intenzione di non usare l'apparecchio per un lungo periodo.

AVVERTIMENTO:

Se sono illuminati solo i LED di attenuazione/attesa (MUTE/STANDBY), questo significa che la corrente è stata spenta con il telecomando. Riaccendete la corrente usando il telecomando.

PRECAUTIONS FOR INSTALLATION

Leave at least 10cm of space between this unit and any other component placed above.

SICHERHEITSMASSNAHMEN BEIM EINBAU

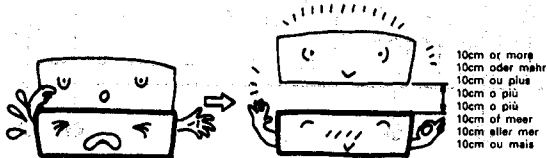
Lassen einen Mindestabstand von 10 cm zwischen diesem Gerät und der anderen Komponente, die daraufgestellt wird.

PRECAUTIONS D'INSTALLATION

Prévoir un espace d'au moins 10cm entre l'unité et tout autre appareil se trouvant au-dessus.

PRECAUZIONI PER L'INSTALLAZIONE

Lasciate uno spazio libero di almeno 10 cm fra quest'unità e qualsiasi altro componente che è collocato sopra la stessa.

**NOTA:**

1. Mantenga siempre activado el interruptor de alimentación (POWER) en la unidad principal.
2. Encienda y apague el equipo desde la unidad de control remoto.
3. Cuando la unidad vaya a estar fuera de uso por un periodo prolongado de tiempo, desconecte el cable de alimentación.

PRECAUCION:

Cuando sólo el indicador LED de silenciamiento/modo de espera (MUTE/STANDBY) esté encendido, significará que la alimentación a la unidad ha sido desconectada desde la unidad de control remoto. Conecte la alimentación desde la unidad de control remoto.

OPMERKING:

1. Zorg er altijd voor dat de stroomschakelaar (POWER) van het hoofdtoestel in de ingeschakelde stand staat.
2. Schakel de stroom in en uit m.b.v. de afstandsbediening.
3. Trek het net snoer uit wanneer u denkt het toestel gedurende een lange periode niet te gebruiken.

WAARSCHUWING:

Indien enkel de dempings-/MUTE/STANDBY LED brandt, betekent dit dat de spanning met de afstandsbediening is uitgeschakeld. Schakel de spanning in met de afstandsbediening.

OBSERVA:

1. Låt alltid strömbrytaren (POWER) på huvudentheten vara påslagen.
2. Slå till/från strömmen med hjälp av fjärrkontrollen.
3. Koppla loss nätkabeln om apparaten inte skall användas under lång tid.

VARNING:

Om endast MUTE/STANDBY-lampen lyser betyder det att strömmen har stängts av via fjärrkontrollen. Strömmen måste då slås på via fjärrkontrollen igen.

NOTA:

1. Mantenga o interruptor da Corrente (POWER) na unidade principal sempre ligado.
2. Ligue a desligue a corrente a partir da unidade de controle remoto.
3. Desconecte o fio de força quando intender não utilizar a unidade por longo tempo.

CAUTELA:

Se apenas se iluminar o LED de surdina/espera (MUTE/STANDBY), isto significa que a força se desligou a partir do controle remoto. Ligue a força a partir do controle remoto.

PRECAUCIONES PARA LA INSTALACION

Deje por lo menos 10 cm. de espacio entre esta unidad y cualquier otro componente situado sobre ella.

VOORZORGSMAATREGELEN

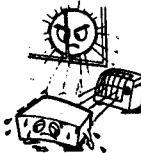
Bij plaatsing dient u een ruimte van minstens 10 cm open te laten tussen dit toestel en een ander erop geplaatst component.

FÖRSIKTIGHETSÅTGÄRDER VID INSTALLATIONEN

Se till att det finns minst 10 cm mellanrum mellan apparaten och en ev. annan apparat som ställs ovanpå.

CUIDADOS NA INSTALAÇÃO

Deixe um espaço de pelo menos 10 cm entre esta unidade e qualquer outro componente colocado acima.

**NOTE ON USE/HINWEISE ZUM GEBRAUCH/OBSERVATIONS RELATIVES A L'UTILISATION
NOTE SULL'USO/NOTAS SOBRE EL USO/ALVORENS TE GERBUIKEN/OBSERVERA
OBSERVAÇÕES QUANTO AO USO**


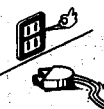
- Avoid high temperatures. Allow for sufficient heat dispersion when installed on a rack.
- Vermeiden Sie hohe Temperaturen. Beachten Sie, daß eine ausreichende Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird.
- Evitar das temperaturas elevadas. Tener cuenta d'una dispersión de calor suficiente lors de l'installation sur une étagère.
- Evitate di esporre l'unità a temperature alte. Assicuratevi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio.
- Evite altas temperaturas. Permita la suficiente dispersión del calor cuando está instalado en la consola.
- Vermeid hohe temperaturen. Zorg voor een degelijke hittevoor indien het apparaat op een rak wordt geplaatst.
- Undvik höga temperaturer. Se till att det finns möjlighet till god värmeavledning vid monteringen i ett rack.
- Evite temperaturas altas. Conceda suficiente dispersão de calor quando o equipamento for instalado numa prateleira.



- 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.
- Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere.
- Mantenga al equipo libre de humedad, agua y polvo.
- Laat geen vochtigheid, water of stof in het apparaat binnendringen.
- Uitsluit inte apparaten for fukt, vatten och damm.
- Mantenha o aparelho livre de qualquer umidade, água ou poeira.



- Do not let foreign objects in the set.
- Keine fremden Gegenstände in das Gerät kommen lassen.
- Ne pas laisser des objets étrangers dans l'appareil.
- E' importante che nessun oggetto è inserito all'interno dell'unità.
- No deje objetos extraños dentro del equipo.
- Laat geen vreemde voorwerpen in dit apparaat vallen.
- Se till att främmande föremål inte tränger in i apparaten.
- Não deixe objetos estranhos no aparelho.



- Unplug the power cord when not using the set for long periods of time.
- Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker.
- Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.
- Disinnestate il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo.
- Desconecte el cordón de energía cuando no utilice al equipo por mucho tiempo.
- Nøgm alltid het net snoer uit het stopkontakt wanneer het apparaat gedurende een lange periode niet wordt gebruikt.
- Koppla ur nätkabeln om apparaten inte kommer att användas i lång tid.
- Desligue o fio condutor de força quando o aparelho não tiver que ser usado por um longo período.



- Handle the power cord carefully. Hold the plug when unplugging the cord.
- Gehen Sie vorsichtig mit dem Netzsteckel um. Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen.
- Manipuler le cordon d'alimentation avec précaution. Tenir la prise lors du débranchement du cordon.
- Maneggiare il filo di alimentazione con cura. Agire per la spina quando scollegate il cavo dalla presa.
- Manaje el cordón de energía con cuidado. Sostenga el enchufe cuando desconecte el cordón de energía.
- Hanteret het net snoer voorzichtig. Houd het snoer bij de stekker vast wanneer deze moet worden aan- of losgeplaatst.
- Hantera nätkabeln varsamt. Håll i kabinen när den kopplas från eluttaget.
- Manuseie com cuidado o fio condutor de energia. Segure e tomada ao desconectar o fio.



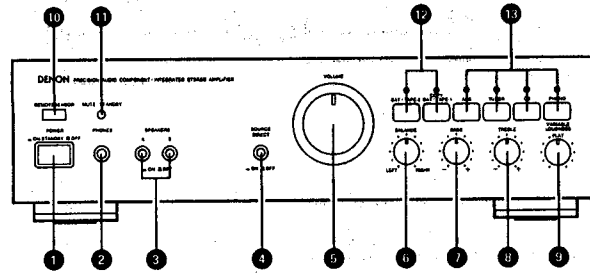
*For sets with ventilation holes

- Do not obstruct the ventilation holes.
- Die Belüftungsoffnungen dürfen nicht verdeckt werden.
- Ne pas obstruer les trous d'aération.
- Non coprire i fori di ventilazione.
- No obstruya los orificios de ventilación.
- De ventilationsåpningene mågen niet worden blokkeerd.
- Tåpp inte till ventilationsöppningarna.
- Não obstrua os orificios de ventilação.

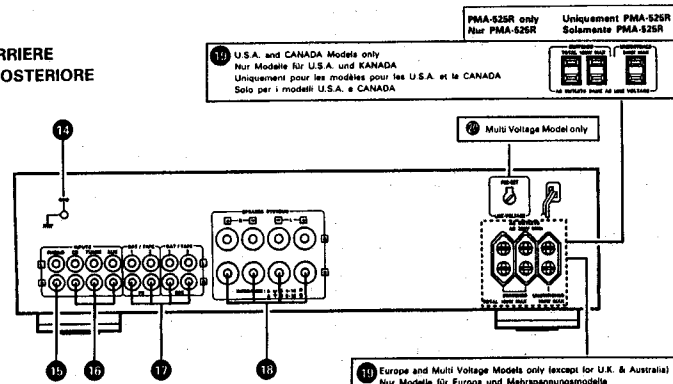


- Never disassemble or modify the set in any way.
- Versuchen Sie niemals das Gerät auseinander zu nehmen oder auf jegliche Art zu verändern.
- Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre.
- Non smontare mai, né modificare l'unità in nessun modo.
- Nunca desarme o modifique el equipo de ninguna manera.
- Nooit dit apparaat demonteren of op andere wijze modifieren.
- Te inte når apparaten och försök inte bygga om den.
- Nunca desmonte o modifique o aparelho de alguma forma.

**FRONT PANEL
FRONTPLATTE
PANNEAU AVANT
PANNELLO ANTERIORE**



**REAR PANEL
RÜCKWAND
PANNEAU ARRIERE
PANNELLO POSTERIORE**



20 **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.
- Do not twist the VOLTAGE SELECTOR KNOB with excessive force. It may be damaged.
- If the voltage select switch does not turn smoothly, see qualified serviceman.

19 U.S.A. and CANADA Models only
Nur Modelle für U.S.A. und CANADA
Uniquement pour les modèles pour les U.S.A. et le CANADA
Solo per i modelli U.S.A. e CANADA

18 Multi Voltage Model only

17 Europe and Multi Voltage Models only (except for U.K. & Australia)
Nur Modelle für Europa und Mehrspannungsmodelle (außer: Vereinigtes Königreich und Australien)
Uniquement pour les modèles pour l'Europe et les modèles multi-tension (excepté pour le Royaume-Uni et l'Australie)
Solo per i modelli Europa e per quelli a voltaggio multiplo (eccetto il Regno Unito e l'Australia)

Sole PMA-525R Endast PMA-525R
Einzel PMA-525R Apenas o PMA-525R

Fig. 1
Abb. 1

10 GND	11 PHONO	12 CD, TUNER, AUX	13 DAT/TAPE-1, DAT/TAPE-2 - TAPE PB - TAPE REC	14 SPEAKERS
GND	Phono Input Terminals (Phono)	Input Terminals (CD, TUNER, AUX)	Playback and Recording Terminals • Playback Terminals • Recording Terminals	Speaker Terminals
GND	Schellplattenspieler-Eingangsbuchsen (Phono)	Eingangsbuchsen (CD, TUNER, AUX)	Tonband-Ein/Ausgänge • Wiedergabe • Aufnahme	Lautsprecher-Terminen
GND	Bornes d'entrée (Phono)	Bornes de lecture (CD, TUNER, AUX)	Bornes de lecture et d'enregistrement • Bornes de lecture • Bornes d'enregistrement	Bornes de haut-parleurs
GND	Terminali di ingresso Phono	Terminali di ingresso (CD, TUNER, AUX)	Terminali di riproduzione registrazione • Terminali di riproduzione • Terminali di registrazione	Terminali degli altoparlanti

**CONNECTIONS
ANSCHLÜSSE
CONNEXIONS
CONNESSIONI**

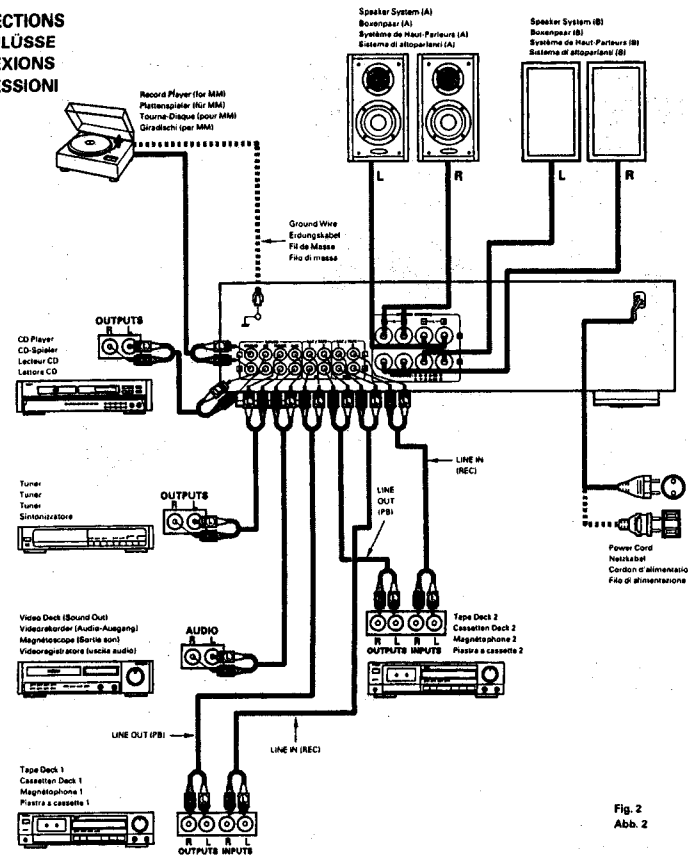


Fig. 2
Abb. 2

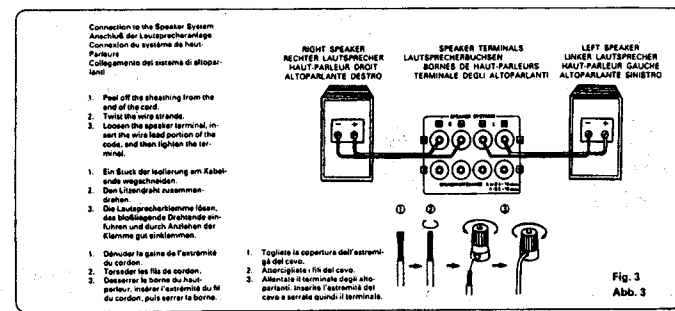


Fig. 3
Abb. 3

DESIGNATIONS AND FUNCTIONS OF PANEL CONTROLS

1 POWER (Power Switch)

When the power switch is turned ON (—), the MUTE/STANDBY 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 PHONES (Headphone Jack)

This jack is used to plug in the headphones.

3 SPEAKERS (Speaker Selection Switch)

The PMA-525R 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 SOURCE DIRECT (Source Direct Switch)

The controls (BALANCE, VARIABLE LOUDNESS, and TONE) can be used when this switch is in the OFF (—) position.

When set to the ON (—) position, the above controls are by-passed and the signals are input directly to the volume control circuit, providing high quality sound.

5 VOLUME (Volume Control)

This knob controls the overall volume level.

Turn the knob to the right (↻) to raise the volume and to the left (↻) to lower it.

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 (↻). If the volume on the left side is too low, turn the knob to the left (↻). This will achieve an even balance on the left and right sides.

7 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 (↻), and reduced as it is moved to the left (↻).

8 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 (↻), and reduced as it is moved to the left (↻).

9 VARIABLE LOUDNESS (Loudness Control)

At low volumes, the human ear is less sensitive to low (BASS) and high (TREBLE) frequencies. Use this control to compensate for this deficiency when listening at low volume levels. Turn this control counter-clockwise until a natural balance of bass and treble sound has been restored.

10 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.

11 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. In addition, this LED flashes rapidly when the protection circuit is activated.

12 TAPE SELECTOR (Tape Selector/Monitor Buttons)

• COPY/DAT/TAPE-1:

Press this button once, COPY/DAT/TAPE-1 indicator will light up and then you can play tape source on DAT/TAPE-1 terminal. In this state you can copy COPY/DAT/TAPE-1 source to DAT/TAPE-2 terminal. Press again the button currently accessed, to play sources selected by input selector ④, indicator goes out.

• DAT/TAPE-2:

Press this button once, DAT/TAPE-2 indicator will light up and then you can play tape or video source of DAT/TAPE-2 terminal. Press again the button currently accessed, to play sources selected by input selector ④, indicator goes out.

13 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.

PMA-525R only

14 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 and POWER button on the Remote Control Unit 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.

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 ④ counterclockwise, to left.
- Set the rotary knob to "flat" or "center position".
- Set SOURCE DIRECT ④ to "OFF (—)".
- Press the TAPE MONITOR switch ⑤ 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.

PLAYING A RECORD

1. Set the INPUT SELECTOR switch ⑬ 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 ⑬ 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 ⑬ 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 ⑬ to "AUX" Position.
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 ⑤ to "COPY/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 ⑬.

COPYING FROM ONE TAPE TO ANOTHER

To copy from COPY/DAT/TAPE-1 to DAT/TAPE-2, press the COPY/DAT/TAPE-1 switch ④.

NOTE:

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

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 ⑤ to select the tape deck onto which the sound is being recorded.

The LED for the selected tape deck lights.

CAUTION

Protective Circuit

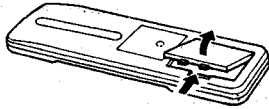
This set is equipped with a high speed protective circuit. This circuit protects the internal circuitry from damage due to large currents flowing when the speaker jacks are not completely connected or when an output is generated by a short circuit. This protective circuit's operation cuts off the output 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 a few seconds, the set will operate normally.

REMOTE CONTROL OPERATION

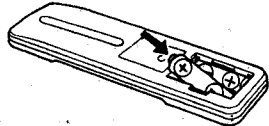
The accessory Remote Control Unit is used to control the amplifier from a convenient distance.

(1) Inserting the Dry Cell Batteries

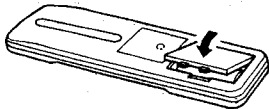
1. Remove the battery cover on the Remote Control Unit.



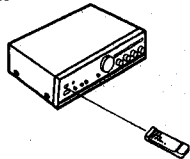
2. Insert two dry cell batteries as shown in the diagram on the battery supply unit.



3. Replace the battery cover.



(2) Directions for use



Notes on Battery Usage

- RC-176 uses the size R6P (AA) dry cell batteries.
- The batteries will need to be replaced approximately once a year. This will depend upon how often the Remote Control Unit is used.
- If, in less than a year from the time new batteries were inserted, the Remote Control Unit fails to operate the Amplifier from a near-by position, it is time to replace the batteries.
- Insert the batteries properly, following the polarity diagram inside the battery compartment.
- Batteries are prone to damage and leakage. Therefore:
 - Do not mix new batteries with used ones.
 - Do not mix different types of batteries.
 - Do not jumper opposite poles of the batteries, expose them to heat, break them open, nor expose them to open fire.
- If the batteries have leaked, remove any traces of battery fluid from the battery compartment wiping thoroughly with a dry cloth. Then insert new batteries.

- Operate the Remote Control Unit while pointing it towards the Remote Control Sensor on the Amplifier as shown in the diagram on the left.
- The Remote Control Unit can be used at distances up to about 8 meters in a straight line from the amplifier. This distance will decrease if there are obstructions blocking the infra-red light transmission or if the Remote Control Unit is not directed straight at the amplifier.

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.

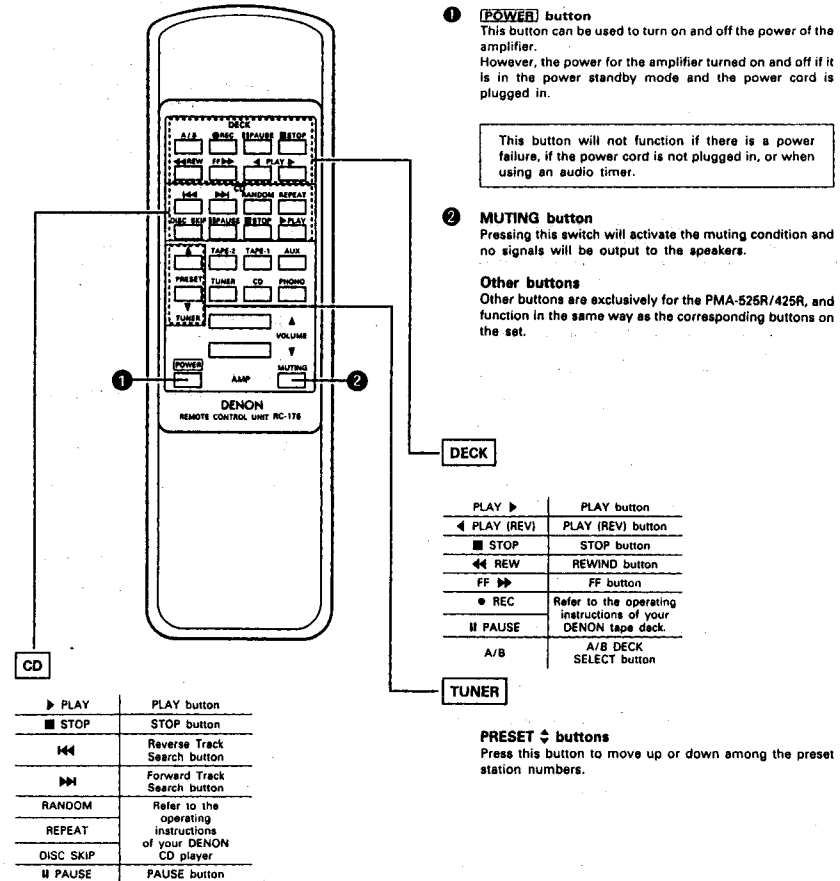
Besides being able to operate the PMA-525R/425R amplifier with this Remote Control Unit, you can also operate a DENON cassette deck and CD player from this handy full-system Remote Control Unit.

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-525R/425R to create a remarkably ergonomic and versatile DENON system with all the quality sound reproduction that the devoted audiophile expects.

Remote Control Unit RC-176 supplied with the PMA-525R/425R



- The RC-176 Remote Control Unit can control CD players and cassette decks manufactured by DENON.
- Note that operation may not be possible for some models.
- 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.
- Only 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 values)	Technische Daten (typische werte)	MODEL: PMA-525R	MODEL: PMA-425R
POWER AMPLIFIER SECTION Rated Output Power: * Both channel driven (8 Ω/ohms Load) 20 Hz to 20 kHz, T.H.D. 0.08% (4 Ω/ohms Load) DIN, 1 kHz, T.H.D. 0.7% **Continuous 52W per channel min into 8 Ω/ohms from 20 Hz to 20 kHz with no more than 0.08% total harmonic distortion. Total Harmonic Distortion: ±3 dB at rated output, 8 Ω/ohms	LEISTUNGSENDEN VERSTÄRKER Nenn-Ausgangsleistung: * Beide Kanäle betriebsbereit (an 8 Ω/Ohm) 20 Hz bis 20 kHz, T.H.D. 0,08% (an 4 Ω/Ohm) DIN, 1 kHz, T.H.D. 0,7% **Fortlaufend 52W pro Kanal min. zu 8 Ω/Ohm von 20 Hz bis 20 kHz mit einem Gesamtklirrfaktor von nicht mehr als 0,08%. Gesamtklirrfaktor: ±3 dB bei Nennausgang, 8 Ω/Ohm	52 W + 52 W 85 W + 85 W 52 W	45 W + 45 W 70 W + 70 W 45 W
PRE AMPLIFIER SECTION Rated Output: (Recout Terminal) Input Sensitivity/ input impedance: The value in parentheses () refers to the input impedance when SOURCE DIRECT is ON. PHONO: CD, TUNER, AUX TAPE-1, TAPE-2: RIAA Deviation: PHONO: Within ±0.5 dB Maximum input:	VORVERSTÄRKER Nenn-Ausgangsleistung: (Aufnahme-Ausgangsbuchse) Eingangsempfindlichkeit/ Eingangsimpedanz: Der in Klammern () angegebene Wert bezieht sich auf die Eingangs- impedanz, wenn der Quellen- Direktschalter (SOURCE DIRECT) eingeschaltet (ON) ist PHONO: CD, TUNER, AUX TAPE-1, TAPE-2: Abweichung von der RIAA-Kennlinie: PHONO: innerhalb ±0,5 dB Maximaler Eingang:	150 mV 2,5 mV / 47 kΩ/ohms 150 mV / 30 kΩ/ohms (150 mV / 25 kΩ/ohms)	150 mV 2,5 mV / 47 kΩ/ohms 150 mV / 30 kΩ/ohms (150 mV / 25 kΩ/ohms)
OVERALL CHARACTERISTICS SN Ratio (HF A Network): (input terminals short- circuited) SOURCE-DIRECT: ON Tone Control Adjustable Range: BASS TREBLE Variable Loudness:	GESAMTEIGENSCHAFTEN Signal/Rauschabstand (HF-A-Weiche): (Eingänge kurzgeschlossen) SOURCE DIRECT: ON Klangregelbereich: TIEFEN (BASS) HÖHEN (TREBLE) Physiologischer Lautstärkerregler:	PHONO: MM: 86 dB (at 5 mV input) CD, TUNER, AUX TAPE-1, TAPE-2: 107 dB 100 Hz ± 8 dB 10 kHz ± 8 dB 50 Hz ± 10 dB 10 kHz ± 5 dB	PHONO: MM: 86 dB (at 5 mV input) CD, TUNER, AUX TAPE-1, TAPE-2: 105 dB 100 Hz ± 8 dB 10 kHz ± 8 dB 50 Hz ± 10 dB 10 kHz ± 5 dB
OTHERS Power Supply AC Outlets (PMA-525R only) Switched×2: (PMA-525R only) Unswitched×1: (PMA-525R only) Power Consumption Dimensions (W)×(H)×(D) Net Weight	SONSTIGES Netzspannung und-frequenz Wechselstrom-Ausgänge (Nur PMA-525R) Geschaltet×2: (Nur PMA-525R) Ungeschaltet×1: (Nur PMA-525R) Leistungsaufnahme Abmessungen (B)×(H)×(T) Nettogewicht	AC 230V / 50 Hz (For Europe and Australia) AC 120V / 60 Hz (For U.S.A. and Canada) AC 110 / 220 / 230V, 50 / 60 Hz (For Multiple) 100W (Total) (For Europe and Multi voltage models, except the U.K. model) 120W (Total) (For U.S.A. and Canada models) 100W (For Europe and Multi Voltage models, except the U.K. model) 240W (For U.S.A. and Canada models) 185 W (IEC) 3.0A (U.S.A., and Canada models) 434(W)×120(H)×282(D)mm (17-3/32"×4-22/32"×11-3/32") 6.2 kg (13 lbs 11 oz)	AC 230V / 50 Hz (For Europe and Australia) AC 120V / 60 Hz (For U.S.A. and Canada) AC 110 / 220 / 230V, 50 / 60 Hz (For Multiple) 170W (IEC) 2.3 A (U.S.A., and Canada models) 434(W)×120(H)×282(D)mm (17-3/32"×4-22/32"×11-3/32") 6.0 kg (13 lbs 4 oz)
REMOTE CONTROL UNIT (RC-178) Remote control system: Infrared pulse system Power supply: 3V DC, Two size R6P ("AA") dry cell batteries External dimensions: Weight:	FERNBEDIENUNGSGERÄT (RC-178) Fernbedienungs-System: Infrarot-impulse Stromversorgung: 3V Gleichstrom, zwei Trockenzele- Batterien vom format R6 (AA) Äußere Abmessungen: Gewicht:	55(W)×194(H)×18(D)mm (2-11/64"×7-41/64"×45/64") 100 g (about 3.5 oz) (including batteries)	55(W)×194(H)×18(D)mm (2-11/64"×7-41/64"×45/64") 100 g (about 3.5 oz) (including batteries)

Note: *1 For Europe and Multi-Voltage
*2 For U.S.A. and Canada

Hinweis: *1 Für Europa und Mehrspannung
*2 Für die USA und Kanada

- Specifications and contents are subject to change without notice for purposes of improvement.
- Änderungen des Inhalts und der technischen Daten zum Zwecke der Verbesserung vorbehalten.

ENGLISH

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

- (1) Operating Instructions 1
- (2) Remote Control Unit (RC-178) 1
- (3) Batteries R6P (AA) 2

DEUTSCH

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

- (1) Bedienungsanleitung 1
- (2) Fernbedienung (RC-178) 1
- (3) Batterien vom Typ R6P (AA) 2

FRANCAIS

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

- (1) Mode d'emploi 1
- (2) Unité de télécommande (RC-178) 1
- (3) Piles R6P (AA) 2

ITALIANO

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

- (1) Libretto delle istruzioni 1
- (2) Telecomando (RC-178) 1
- (3) Batterie R6P (AA) 2

MEMO:

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 1
- (2) Unidad de control remoto (RC-178) 1
- (3) Pilas R6P (AA) 2

NEDERLANDS

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

- (1) Gebruiksaanwijzing 1
- (2) Afstandsbediening (RC-178) 1
- (3) Batterijen R6P (AA) 2

SVENSKA

Kontrollera att följande, förutom huvudapparaten, finns med i kartongen.

- (1) Bruksanvisning 1
- (2) Fjärrkontroll (RC-178) 1
- (3) Batterier R6P (AA) 2

PORTUGUÊS

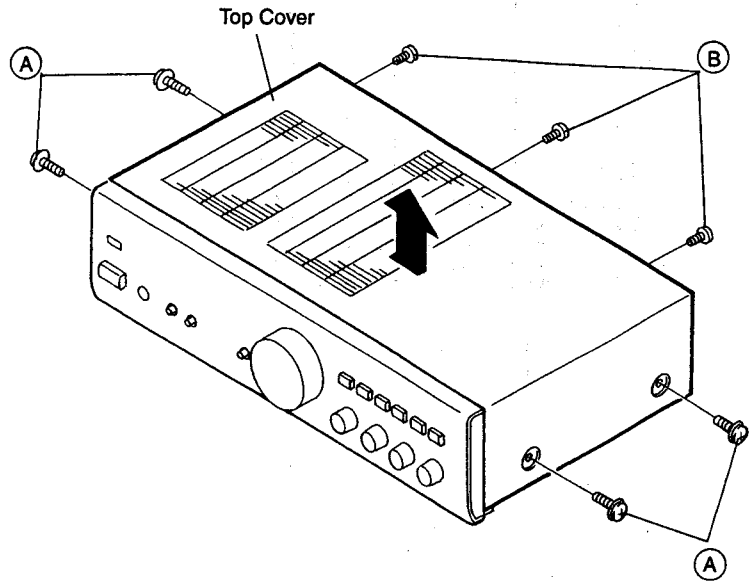
Certifique-se de que as seguintes peças estão incluídas na embalagem fora da unidade principal:

- (1) Instruções de operação 1
- (2) Unidade de controle remoto (RC-178) 1
- (3) Baterias R6P (AA) 2

REMOVAL OF EACH SECTION

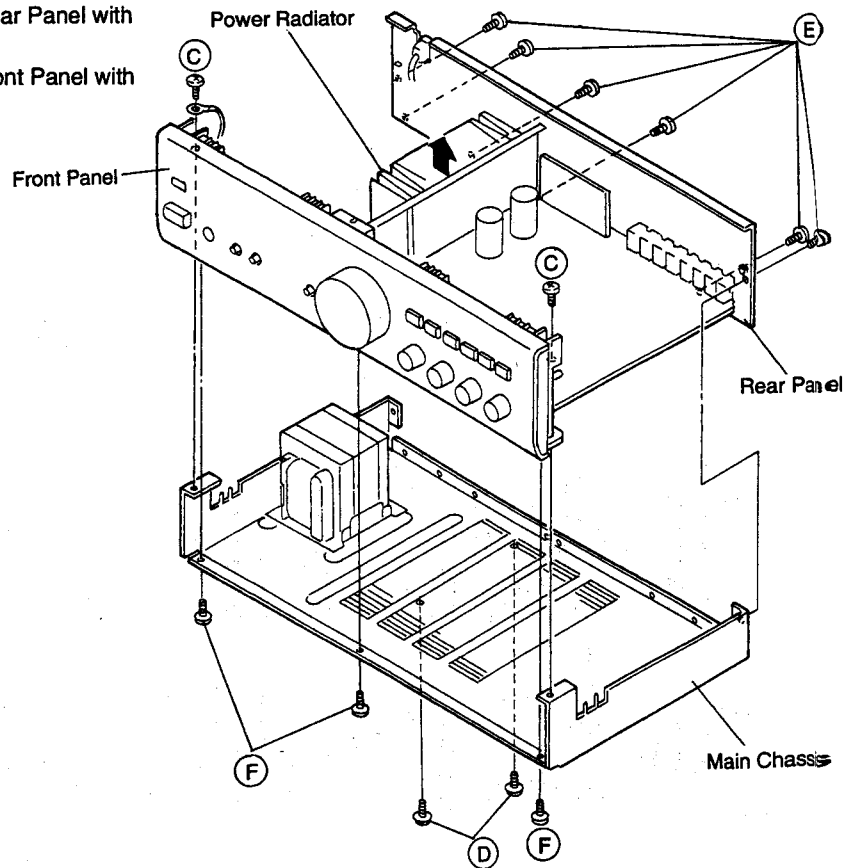
● Top Cover

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



● Main Chassis

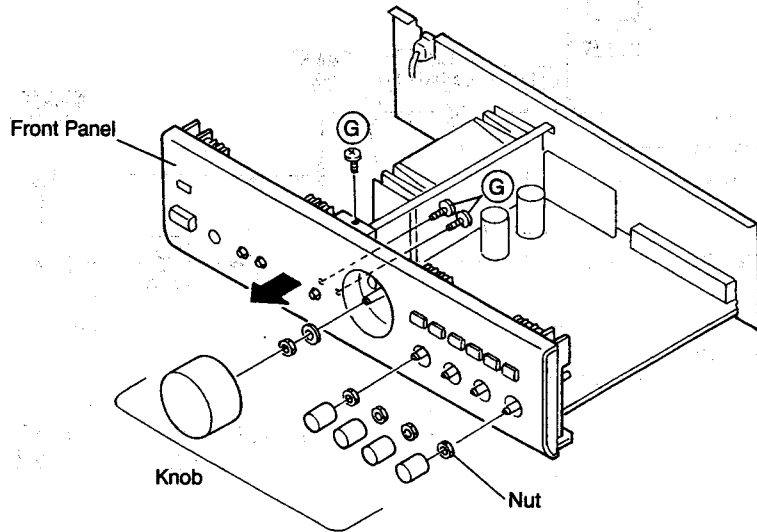
- 1) Remove 2 screws (C).
- 2) Remove 2 screws (D) securing Power Radiator with Main Chassis.
- 3) Remove 6 screws (E) securing Rear Panel with Main Chassis.
- 4) Remove 3 screws (F) securing Front Panel with Main Chassis.



MANUAL REPAIR GUIDE

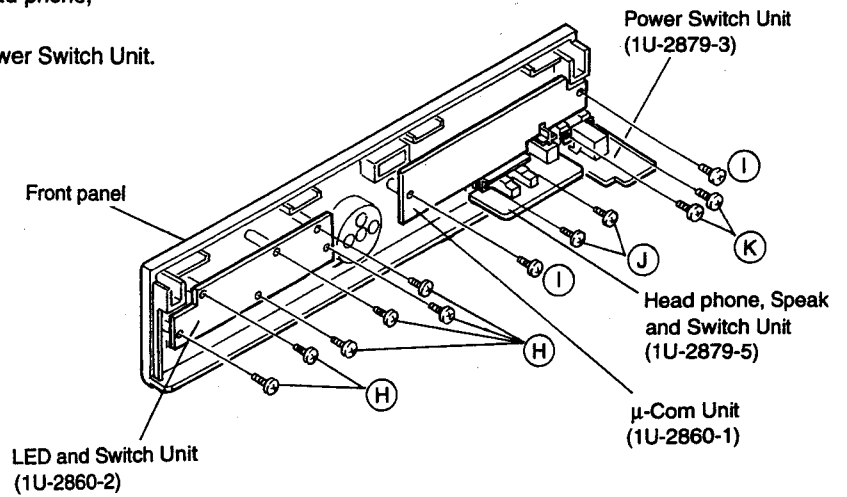
● Front Panel

- 1) Remove 5 Knobs and 5 nuts.
- 2) Remove 3 screws (G), and detach Front Panel in arrow direction.

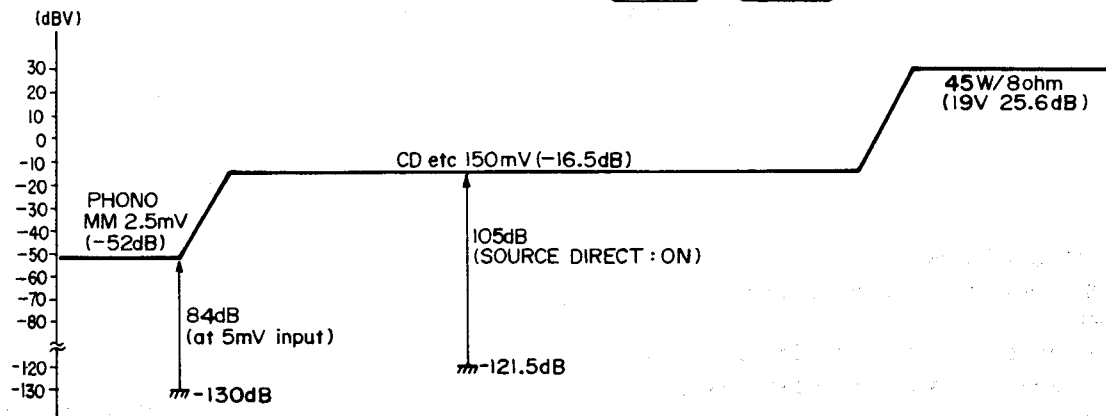
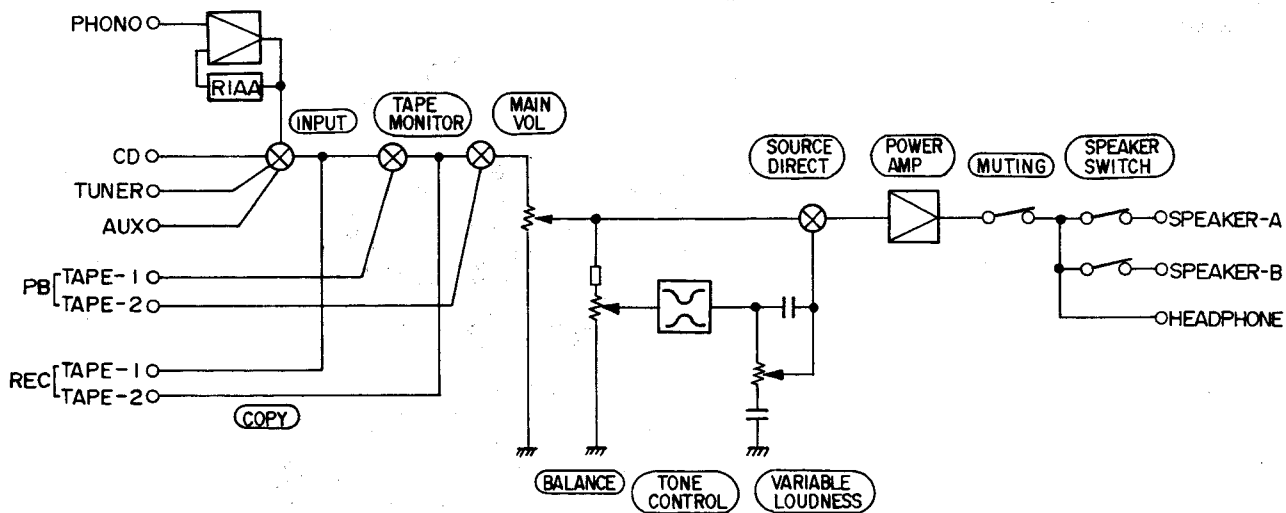


● Each Unit of Front Panel

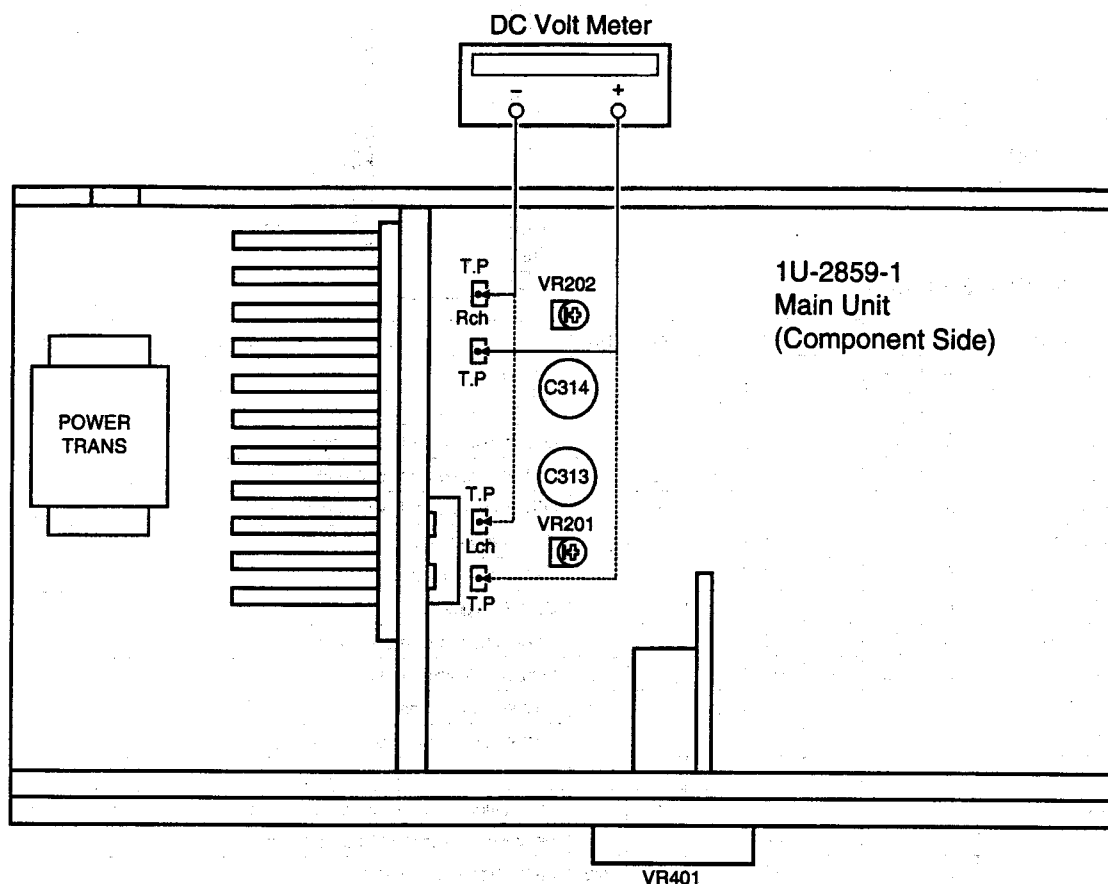
- 1) Remove 6 screws (H), and detach LED and Switch Unit.
- 2) Remove 2 screws (I), and detach μ -Com Unit.
- 3) Remove 2 screws (J), and detach Head phone, SP Switch Unit.
- 4) Remove 2 screws (K), and detach Power Switch Unit.



BLOCK AND LEVEL DIAGRAM



METHOD OF ADJUSTMENTS



IDLING CURRENT

● Setup

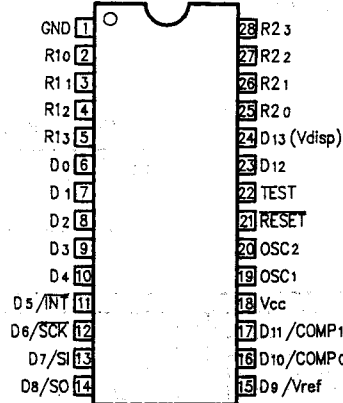
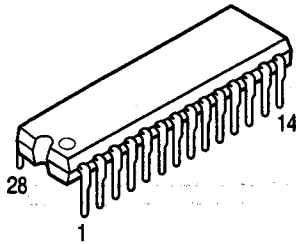
1. Lay the unit at an ordinary position away from a direct current from a cooler or fan. Do the adjustment at a temperature between 15°C (59°F) and 30°C (86°F).
2. Set controls as follows.
 - POWER SWITCH → OFF (■)
 - VOLUME CONTROL → fully counterclockwise. (⤴) min. [Main volume (VR401) and Semifixed resistors] (VR201...Lch, VR202...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-2859-1 (Main Unit).
2. Connect Power cord to AC wall outlet, and turn Power Switch "on" (■). Within 10 seconds turn VR201 (Lch) and VR202 (Rch) clockwise so that DC voltmeter reads $17 \pm 3\text{mV DC}$.
3. Then after 2 minutes warm up adjust VR201 and VR202 so that the DC Voltmeter reads $17 \pm 3\text{mV DC}$.
4. And after 10 minutes warm up adjust VR201 and VR202 so that the DC Voltmeter reads $11 \pm 3\text{mV DC}$.

SEMICONDUCTORS

● IC's
HD404222 (IC101)



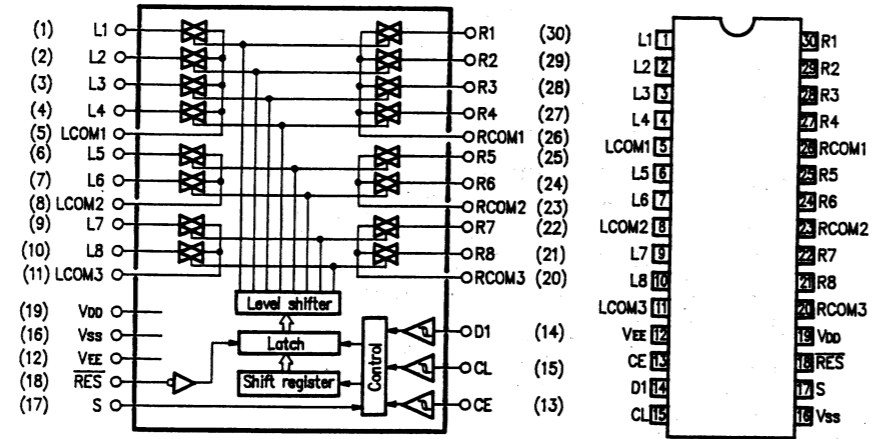
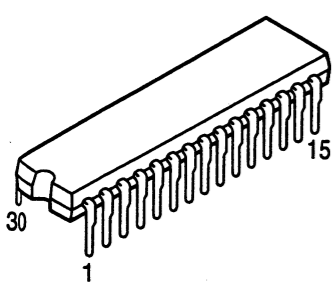
HD404222 Terminal Function

Pin No.	Symbol	Typ	Opt	I/O	Res	Ini	Act	Det	Function
1	GND	—	—	—	—	—	—	—	Ground.
2	PHONO	B	IU	O	HZ	H	L	—	LED drive output for function indication.
3	CD	B	IU	O	HZ	H	L	—	LED drive output for function indication.
4	TUNER	B	IU	O	HZ	H	L	—	LED drive output for function indication.
5	AUX	B	IU	O	HZ	H	L	—	LED drive output for function indication.
6	VOLUME UP	B	IU	O	HZ	L	H	—	Volume drive output.
7	VOLUME DOWN	B	IU	O	HZ	L	H	—	Volume drive output.
8	NC	B	IU	I	HZ	L	—	—	Connect to ground.
9	B-DOWN	B	IU	I	HZ	H	L	Lv	Power supply stop detection input.
10	PROTECTION	B	IU	I	HZ	H	L	Lv	Protecting detection input.
11	REMOCON	B	IU	I	HZ	H	L	Ed	Remote control signal input.
12	CK	B	IU	O	HZ	L	H	—	Analog function switch control output (clock).
13	ST	B	IU	O	HZ	L	H	—	Analog function switch control output (chip select).
14	DATA	B	IU	O	HZ	L	H	—	Analog function switch control output (data).
15	VREF	—	—	—	—	—	—	—	Reference voltage input for comparator.
16	KEY IN	B	IU	I	HZ	—	—	Alg	Button signal input (analog).
17	NC	B	IU	I	HZ	L	—	—	Connect to ground.
18	Vcc	—	—	—	—	—	—	—	Power supply.
19	OSC1	—	—	I	—	—	—	—	Xtal input.
20	OSC2	—	—	O	—	—	—	—	Xtal output.
21	RESET	—	EU	I	L	H	H	—	Reset signal input.
22	—	—	—	I	—	—	—	—	
23	POWER ON/OFF	B	IU	O	HZ	H	L	—	Power ON/OFF shift output (L: Power ON).
24	MUTING	B	IU	O	HZ	H	H	—	Mute signal output (H: mute ON).
25	NC	B	IU	O	HZ	L	—	—	Connect to ground.
26	MUTE/STANDBY	B	IU	O	HZ	H	L	—	LED drive output for Mute/Standby indication.
27	TAPE2	B	IU	O	HZ	H	L	—	LED drive output for function indication.
28	TAPE1	B	IU	O	HZ	H	L	—	LED drive output for function indication.

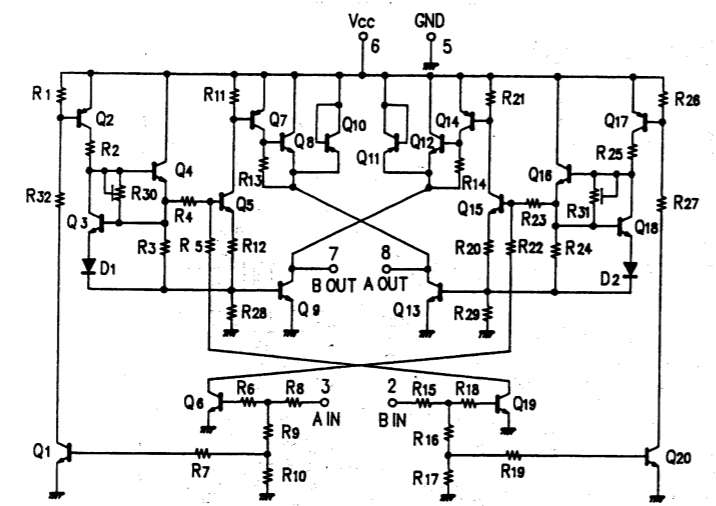
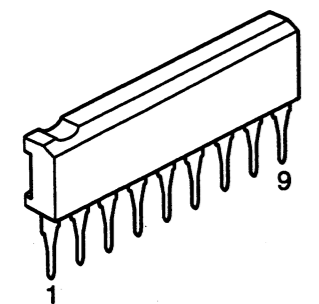
Note:

- Typ (Type): B=NMOS open drain.
- Opt (Option): IU=internal pull up, EU=external pull up.
- Port state: Res=reset, Ini=standby, Act=active.
- Det: Lv=level, Ed=edge, Alg=analog.
- I/O: Port input / output for defined name (I: Input, O: Output).
- Res: Show port state at reset (H: High level, L: Low level, HZ: High impedance).
- Opt: ★U: Pull up, ★D: Pull down.
- Det: Show operating condition of input port (Lv: Detect level, Ed: Detect edge).
- Ini: Show input / output port initialization (H: High level, L: low level).
- Act: Show port state at operating.

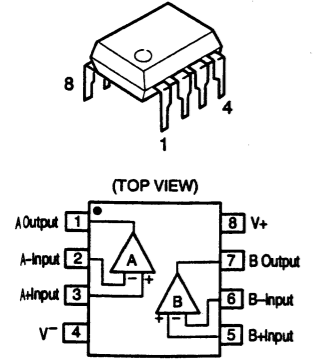
LC7821 (IC002)



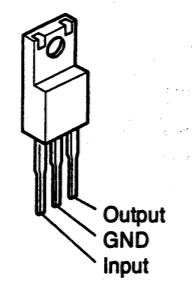
BA6208S (IC103)



**BA15218 (IC007)
NJM2068DDC (IC001, 201)**

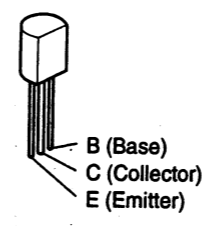


NJM7806FA (IC104)

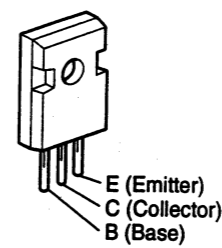


TRANSISTORS

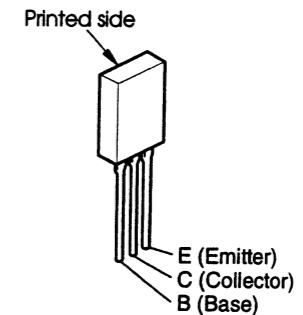
2SA988 (E/F)
2SC1815 (BL)
2SC1841 (E/F)



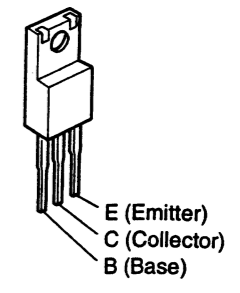
2SA1633 (E/F) (TR217,218)
2SC4278 (E/F) (TR215,216)



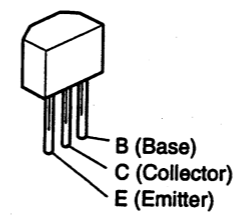
2SB1328 (P)
2SD2004 (P)



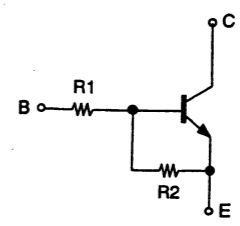
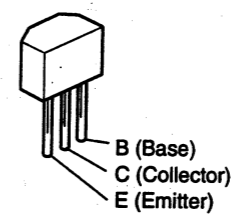
2SD1762 (E/F)



2SA933S (S)
2SC1740S (S), (E)



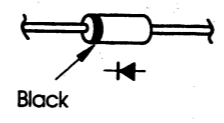
DTC114ES NPN
DTC143ZSA NPN



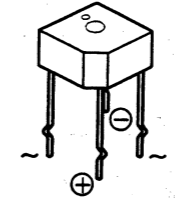
	R1	R2
DTC114ES	10kohm	10kohm
DTC143ZSA	4.7ohm	47ohm

DIODES (including LED)

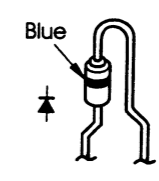
1SS252
1S2471



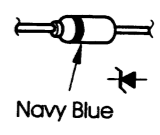
S4VB20 (D306)



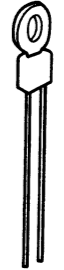
1SR35-200A



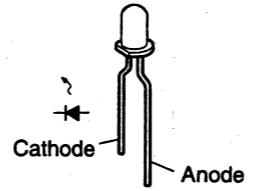
MTZ6.2A MTZJ18A
MTZJ3.3A MTZJ27A
MTZJ7.5C



**POSISTOR
PTH9M04BB222TS2F333
(P401)**

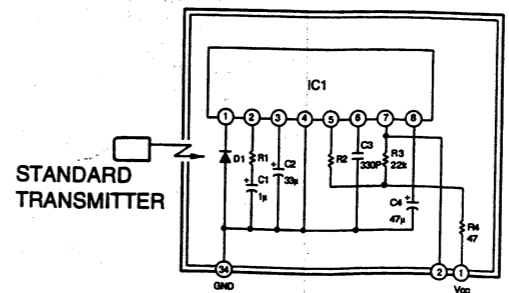
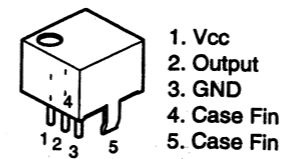


SLR-56DU (Orange)
SLR-56VR (Red)



OTHER

SBX1610-52 (Remote Control Receiver) (IC105)



- 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
- R3,4 : ±5%

PRINTED WIRING BOARD (Pattern Side)

1U-2859E MAIN UNIT ASS'Y

1

2

3

4

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6

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8

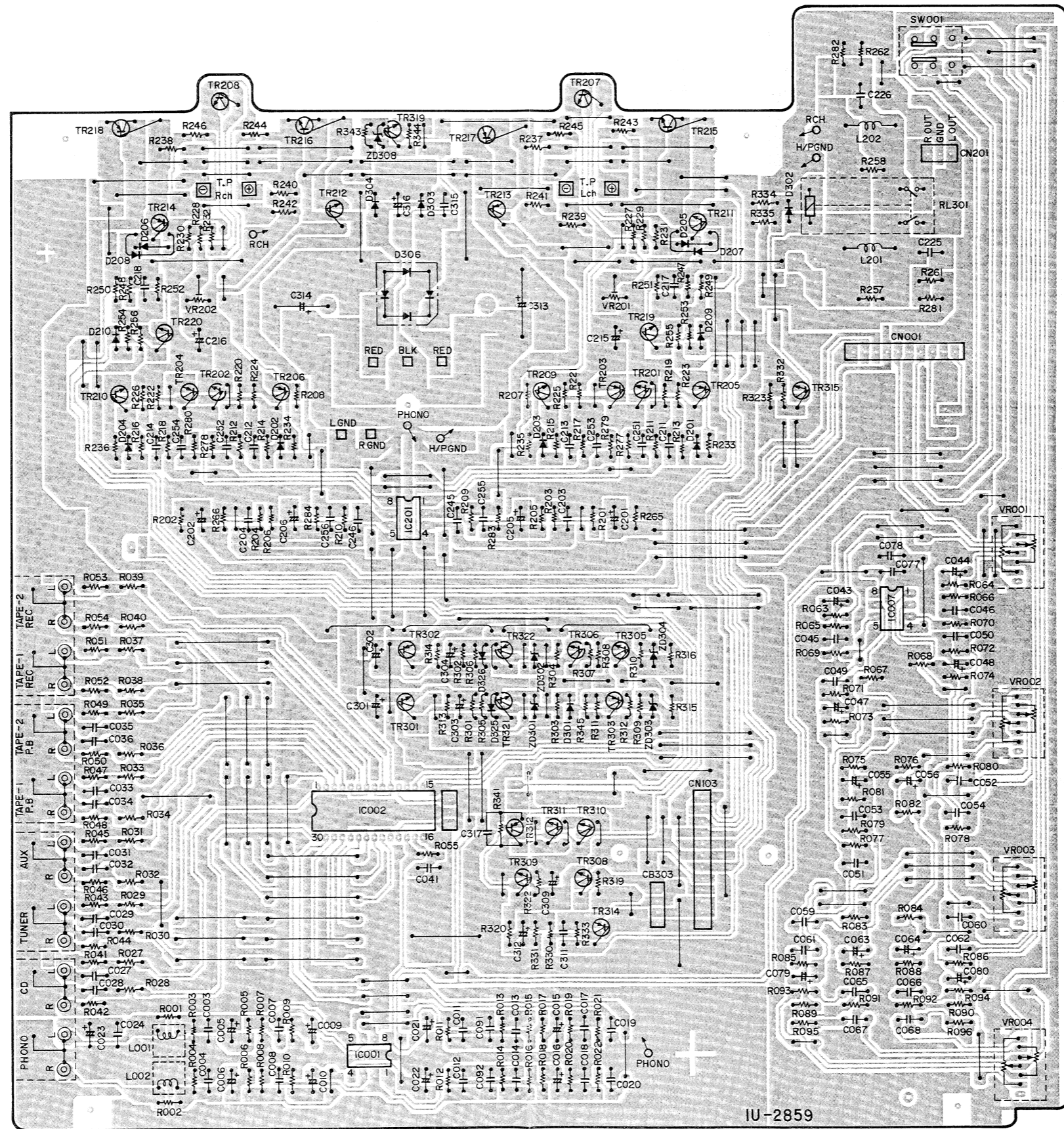
A

B

C

D

E



IU-2859

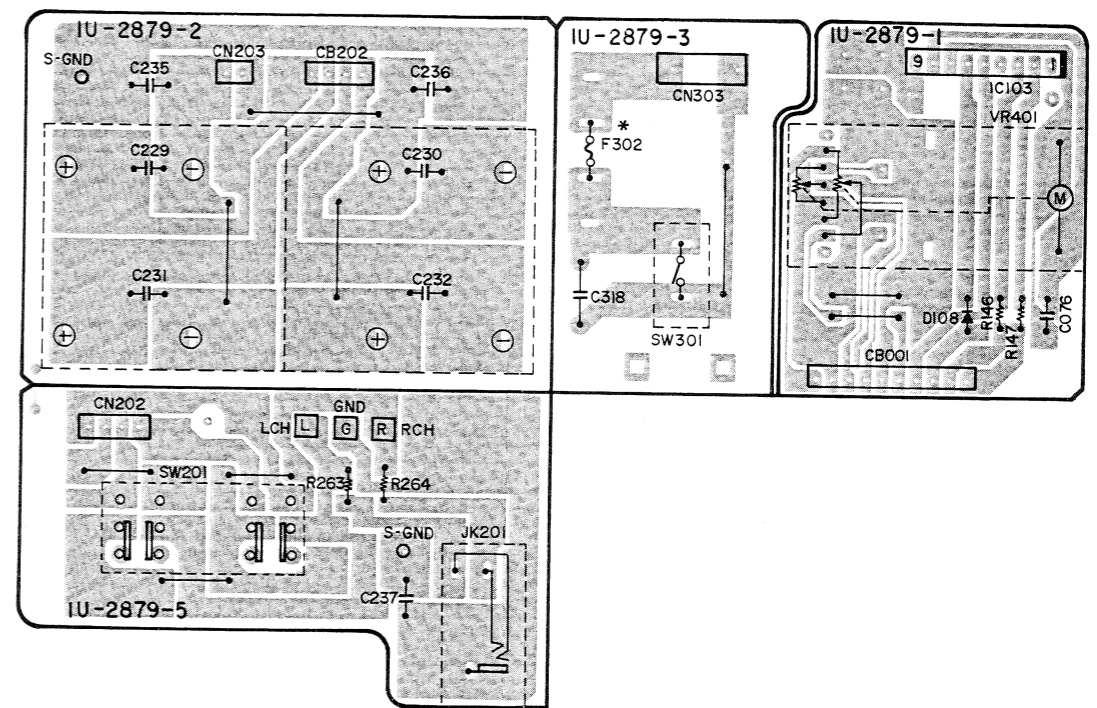
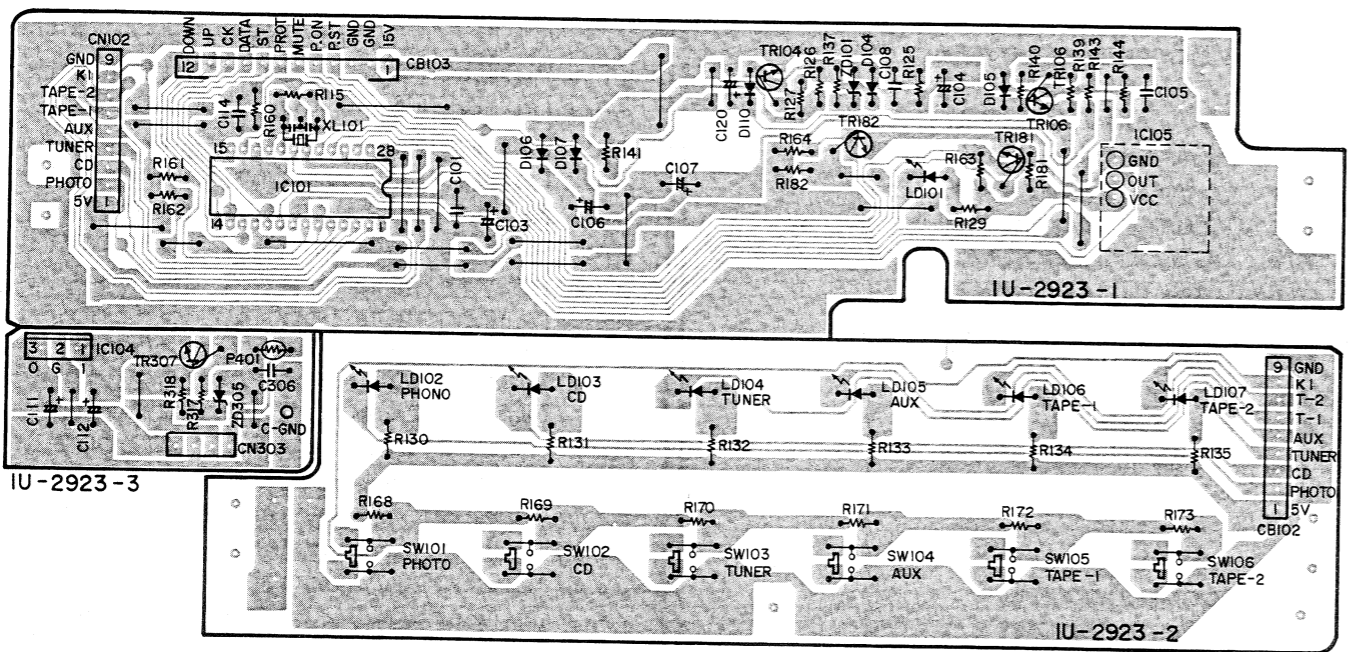
1 2 3 4 5 6 7 8

1U-2923 μ-COM UNIT ASS'Y

1U-2879 VOLUME UNIT ASS'Y
 1U-2879E : Europe, U.K., Australia and Asia models.
 1U-2879F : U.S.A., Canada and Taiwan R.O.C. models

1U-2923 μ-Com Unit Ass'y	
1	μ-Com Unit
2	LED, Switch Unit
3	Regulator Unit

1U-2879 Volume Unit Ass'y	
1	Volume Unit
2	SP terminal Unit
3	Power Switch Unit
4	-
5	Head Phone, SP SW Unit



*

Version	Unit No.	F302
Europe, U.K., Australia & Asia	1U-2879E	T1.6A/250V
U.S.A., Canada & Taiwan R.O.C.	1U-2879F	5A/125V

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 : Metal oxide 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.

• Units: ohm

1 R 2 ⇒ 1.2 ohm
1-digit 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 (electrolyte only)
2 2 2 ⇒ 2200µF
Indicates number of zeros after effective number.
2-digit effective number.

• Units: µF.

2 R 2 ⇒ 2.2µF
1-digit effective number.
2-digit effective number, decimal point indicated by R.

• Units: µF.

Capacity (except electrolyte)
2 2 2 ⇒ 2200pF = 0.0022µF
(More than 2) — Indicates number of zeros after effective number.
2-digit effective number.

• Units: pF.

2 2 1 ⇒ 220pF
(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. ASS'Y 1U-2859E MAIN UNIT ASS'Y

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC001	263 0609 002	IC NJM2068DDC	
IC002	262 1227 008	IC LC7821	
IC007	263 0565 007	IC BA15218	
IC201	263 0609 002	IC NJM2068DDC	
TR201,202	273 0235 923	Transistor 2SC1841(E/F)	
TR203-206	271 0131 924	Transistor 2SA988(E/F)	
TR207,208	273 0198 918	Transistor 2SC1815(BL)	
TR209,210	273 0235 923	Transistor 2SC1841(E/F)	
TR211,212	274 0151 000	Transistor 2SD2004(P)	
TR213,214	272 0107 906	Transistor 2SB1328(P)	
TR219,220	273 0235 923	Transistor 2SC1841(E/F)	
TR301	274 0151 000	Transistor 2SD2004(P)	
TR302	272 0107 906	Transistor 2SB1328(P)	
TR303	271 0131 924	Transistor 2SA988(E/F)	
TR305	269 0160 002	Transistor DTC143ZSA	Built in resistor
TR306	273 0235 923	Transistor 2SC1841(E/F)	
TR308-311	273 0303 910	Transistor 2SC1740S(S)	
TR312	271 0192 905	Transistor 2SA933S(S)	
TR314	271 0131 924	Transistor 2SA988(E/F)	
TR315	273 0235 923	Transistor 2SC1841(E/F)	
TR319	273 0303 910	Transistor 2SC1740S(S)	
TR321	273 0303 910	Transistor 2SC1740S(S)	
TR322	271 0192 905	Transistor 2SA933S(S)	
D201-204	276 0616 907	Diode 1SS252	
D205-208	276 0619 904	Diode 1S2471	
D209,210	276 0616 907	Diode 1SS252	
D301	276 0553 905	Diode 1SR35-200A	
D302	276 0616 907	Diode 1SS252	
D303,304	276 0553 905	Diode 1SR35-200A	
▲ D306	276 0305 901	Diode S4VB20	Bridge
D325,326	276 0616 907	Diode 1SS252	
ZD301,302	276 0637 902	Zener diode MTZJ6.2A	6.2 V
ZD303,304	276 0645 949	Zener diode MTZJ27A	27 V
ZD308	276 0635 904	Zener diode MTZJ7.5C	7.5 V
RESISTORS GROUP			
▲ R213-216	241 2379 932	Carbon film 620 ohm 1/4 W(NB)	RD14B2E621JNBS
▲ R233-236	241 2377 989	Carbon film 150 ohm 1/4 W(NB)	RD14B2E151JNBS
▲ R237,238	244 2051 958	Metal oxide film 220 ohm 1 W	RS14B3A221JNBS(S)
▲ R239-242	244 2043 982	Metal oxide film 0.22 ohm 1 W	RS14B3AP22JNBS(S)
▲ R261,262	244 2043 937	Metal oxide film 10 ohm 1 W	RS14B3A100JNBS(S)
▲ R281,282	244 2043 937	Metal oxide film 10 ohm 1 W	RS14B3A100JNBS(S)

Ref. No.	Part No.	Part Name	Remarks
▲ R309,310	244 2051 958	Metal oxide film 220 ohm 1 W	RS14B3A221JNBS(S)
▲ R315,316	241 2387 940	Carbon film 4.7 ohm 1/4 W(NB)	RD14B2E47JNBS
▲ R334	244 2052 944	Metal oxide film 1.5 kohm 1 W	RS14B3A152JNBS(S)
▲ R335	244 2050 988	Metal oxide film 2 kohm 1 W	RS14B3A202JNBS(S)
VR001	211 0798 103	Variable resistor 100 kohm	Balance
VR002	211 0797 117	Variable resistor 30 kohm	Bass
VR003	211 0797 133	Variable resistor 10 kohm	Treble
VR004	211 0830 003	Variable resistor 100 kohm	Loudness
VR201,202	211 6064 048	Semi fixed resistor 5 kohm	V06PB502
CAPACITORS GROUP			
C003,004	253 1179 945	Ceramic cap. 220 pF /50 V	CK45B1H221K
C005,006	254 4254 909	Electrolytic 10 µF/16 V	CE04W1C100M
C007,008	253 1179 903	Ceramic cap. 100 pF /50 V	CK45B1H101K
C009,010	254 4256 952	Electrolytic 220 µF/25 V	CE04W1E221M
C011,012	255 1265 978	Mylar film cap. 0.022µF/50 V	CQ93M1H223J(B)
C013,014	255 1265 907	Mylar film cap.0.0068µF/50 V	CQ93M1H682J(B)
C015,016	254 4254 909	Electrolytic 10 µF/16 V	CE04W1C100M
C017-020	253 1179 945	Ceramic cap. 220 pF /50 V	CK45B1H221K
C021-023	254 4260 948	Electrolytic 1 µF/50 V	CE04W1H010M
C024	253 1181 904	Ceramic cap. 0.01µF/50 V	CK45F1H103Z
C027-036	253 4537 982	Ceramic cap. 56 pF /50 V	CC45SL1H560J
C041	255 1265 936	Mylar film cap. 0.01µF/50 V	CQ93M1H103J(B)
C043,044	254 4254 909	Electrolytic 10 µF/16 V	CE04W1C100M
C045,046	253 1179 903	Ceramic cap. 100 pF /50 V	CK45B1H101K
C047,048	254 4254 938	Electrolytic 47 µF/16 V	CE04W1C470M
C049,050	253 1179 903	Ceramic cap. 100 pF /50 V	CK45B1H101K
C051,052	255 1264 940	Mylar film cap.0.0022µF/50 V	CQ93M1H222J(B)
C053,054	256 1035 907	Metalized cap. 0.18µF/50 V	CF93A1H184J
C055,056	254 4260 948	Electrolytic 1 µF/50 V	CE04W1H010M
C059,060	255 1265 949	Mylar film cap. 0.012µF/50 V	CQ93M1H123J(B)
C061,062	256 1034 940	Metalized cap. 0.056µF/50 V	CF93A1H563J
C063,064	254 4260 922	Electrolytic 0.33µF/50 V	CE04W1HR33M
C065,066	253 1179 990	Ceramic cap. 560 pF /50 V	CK45B1H561K
C067,068	255 1265 978	Mylar film cap. 0.022µF/50 V	CQ93M1H223J(B)
C077,078	253 1181 904	Ceramic cap. 0.01µF/50 V	CK45F1H103Z
C079,080	254 4254 909	Electrolytic 10 µF/16 V	CE04W1C100M
C091,092	255 1264 940	Mylar film cap.0.0022µF/50 V	CQ93M1H222J(B)
C201,202	254 4260 964	Electrolytic 3.3 µF/50 V	CE04W1H3R3M
C203,204	253 4538 907	Ceramic cap. 68 pF /50 V	CC45SL1H680J
C205,206	254 4256 936	Electrolytic 47 µF/25 V	CE04W1E470M
C211-214	253 4538 910	Ceramic cap. 75 pF /50 V	CC45SL1H750J
C215,216	254 4260 948	Electrolytic 1 µF/50 V	CE04W1H010M
C217,218	255 1265 936	Mylar film cap. 0.01µF/50 V	CQ93M1H103J(B)
C225,226	256 1034 979	Metalized cap. 0.1µF/50 V	CF93A1H104J
C245,246	253 4537 982	Ceramic cap. 56 pF /50 V	CC45SL1H560J

1U-2923 μ-COM UNIT ASS'Y

Ref. No.	Part No.	Part Name	Remarks
C251-254	255 1264 982	Mylar film cap.0.0047μF/50 V	CQ93M1H472J(B)
C255,256	253 4537 924	Ceramic cap. 33 pF /50 V	CC45SL1H330J
C301,302	254 4260 948	Electrolytic 1 μF/50 V	CE04W1H010M
C303,304	254 4260 980	Electrolytic 10 μF/50 V	CE04W1H100M
C309	254 4250 945	Electrolytic 330 μF/6.3 V	CE04W0J331M
C311	253 1181 904	Ceramic cap. 0.01μF/50 V	CK45F1H103Z
C312	254 4256 936	Electrolytic 47 μF/25 V	CE04W1E470M
C313,314	254 6197 006	Electrolytic 8200 μF/56 V	CE68W=822MC(DL)
C315	256 1042 903	Metalized cap. 0.1μF/250 V	CF93A2E104K
C316	254 4263 916	Electrolytic 0.22μF/100 V	CE04W2AR22M
C317	253 9039 906	BC ceramic cap. 0.1μF/25 V	CK45=1E104Z
OTHER GROUP			
		(P.W.board)	Q'ty
L001,002	235 9003 002	FTZ choke coil	2
L201,202	235 0104 007	Inductor 1 μH	2
SW001	212 4797 006	1 p push switch	1
RL301	214 0129 001	Relay(DH2TU)	1
	204 8497 000	4 p pin jack(GND)(K)	4
CN001	205 0666 007	10 p conn. base(9130)	1
	205 0233 045	4 p EH conn. base	1
	203 5115 007	3 p SCN conn. cord	1
	203 0632 022	1 p SIN cord Ass'y	1
	203 0632 006	1 p SIN cord Ass'y	1
	203 0632 019	1 p SIN cord Ass'y	1
	205 0275 029	12 p EH conn. base	1
EP- 5667 H2		Terminal	L=20 10
415 0309 071		PVC tube (L=10)	for TR207,208 4

Ref No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC101	262 2168 001	IC HD404222	μ-com
IC104	263 0793 002	IC NJM7806FA(S)	Regulator +6 V
IC105	499 0150 008	IC SBX1610-52	Remocon sensor
TR104	269 0020 906	Transistor DTC114ES	Built in resistor
TR106	273 0388 906	Transistor 2SC1740S(E)	
TR181,182	269 0160 002	Transistor DTC143ZSA	Built in resistor
TR307	274 0120 002	Transistor 2SD1762(E/F)	
D104,105	276 0616 907	Diode 1SS252	
D106,107	276 0553 905	Diode 1SR35-200A	
D110	276 0616 907	Diode 1SS252	
ZD101	276 0634 905	Zener diode MTZJ3.3A	3.3 V
ZD305	276 0645 907	Zener diode MTZJ18A	18 V
LD101	393 9559 904	LED (SLR-56DU)	Orange
LD102-107	393 9515 906	LED (SLR-56VR)	Red
P401	279 0034 067	Posistor PTH9M04BB222TS2F333	
RESISTORS GROUP			
Δ R141	241 2387 940	Carbon Film 4.7 ohm 1/4 W(NB)	RD14B2E4R7JNBS
CAPACITORS GROUP			
C101	253 1181 904	Ceramic cap. 0.01μF/50 V	CK45F1H103Z
C103	254 4250 929	Electrolytic 100 μF/6.3 V	CE04W0J101M
C104	254 4260 951	Electrolytic 2.2 μF/50 V	CE04W1H2R2M
C105	256 1034 982	Metalized cap. 0.12μF/50 V	CF93A1H124J
C106	254 4250 932	Electrolytic 220 μF/6.3 V	CE04W0J221M
C107	254 4250 084	Electrolytic 3300 μF/6.3 V	CE04W0J332M
C108	255 1265 936	Mylar Film cap. 0.01μF/50 V	CQ93M1H103J(B)
C111,112	254 4260 948	Electrolytic 1 μF/50 V	CE04W1H010M
C114	253 9039 906	BC Ceramic cap. 0.1μF/25 V	CK45=1E104Z
C120	254 4260 919	Electrolytic 0.22 μF/50 V	CE04W1HR22M
C306	253 1181 904	Ceramic cap. 0.01μF/50 V	CK45F1H103Z

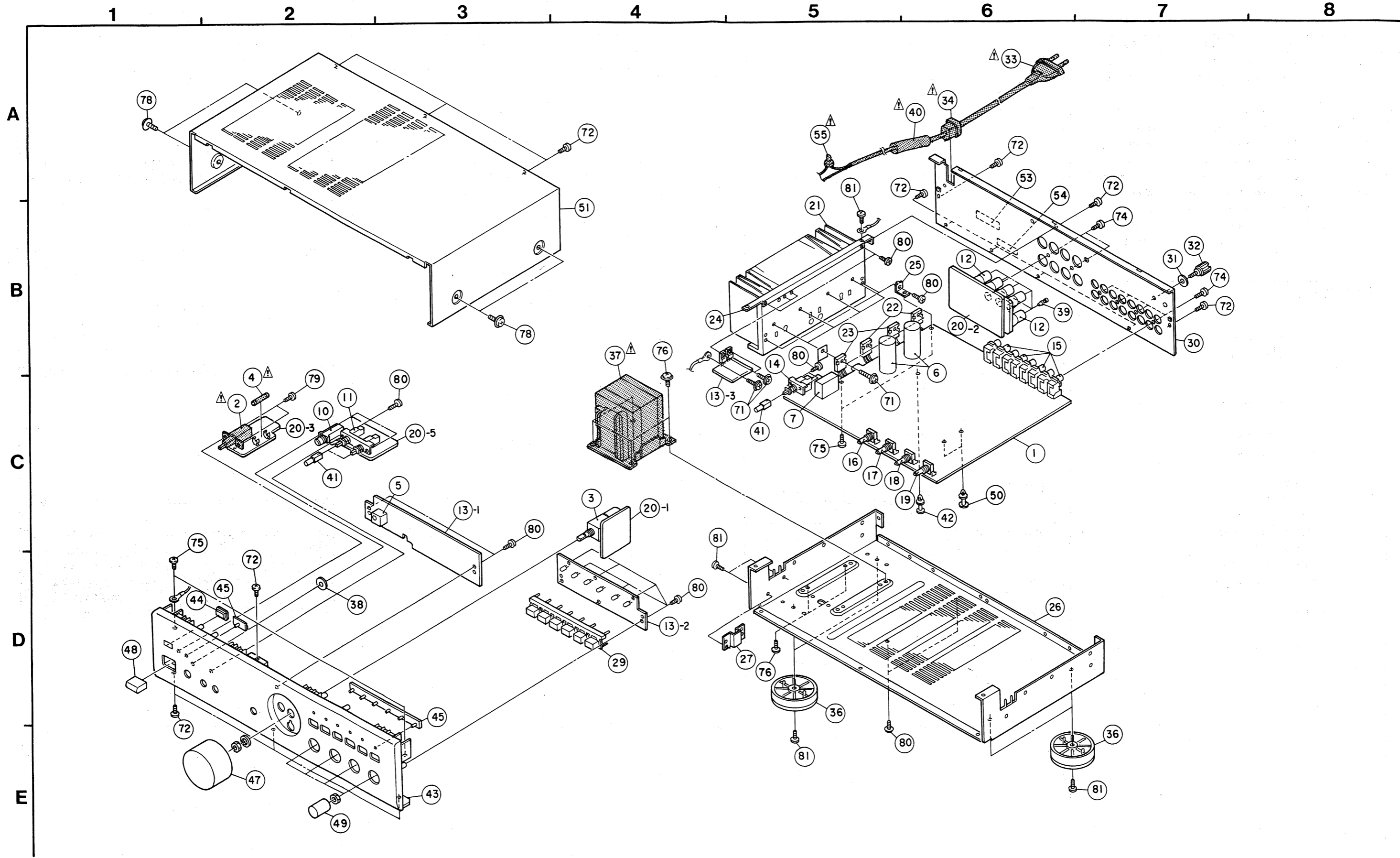
1U-2879 VOLUME UNIAST ASS'Y

1U-2879E : Europe ,U.K., Australia & Asia models.
1U-2879F : U.S.A.,Canada & Taiwan R.O.C. models.

Ref. No.	Part No.	Part Name	Remarks
OTHER GROUP			
		(P.W.board)	Q'ty
SW101-106	212 4789 001	Tact switch(kyung)	6
XL101	399 0191 903	Ceramic resonator	CST4.00MGW-TF01 1
	205 0233 090	9 p EH connector base	1
	205 0275 029	12 p EH connector base	1
	204 2747 002	9 p EH connector cord	1
	204 6475 005	4 p EH connector cord	1
	203 0633 018	1 p cotact Ass'y	1
	415 0309 026	PVC tube (L=20)	for P401 2

Ref No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC103	263 0927 001	IC BA6208S	
D108	276 0616 907	Diode 1SS252	
RESISTORS GROUP (Not included carbon film ±5%,1/4 W type.)			
Δ R263,264	244 2052 931	Metal oxide film 390 ohm 1 W	RS14B3A391JNBS(S)
VR401	211 0857 002	Variable resister 100 kohm	Main
CAPACITORS GROUP			
C076	253 1181 904	Ceramic cap. 0.01μF/50 V	CK45F1H103Z
C229-232	255 1264 982	Mylar film cap.0.0047μF/50 V	CQ93M1H472J(B)
C235,236	253 1181 904	Ceramic cap. 0.01μF/50 V	CK45F1H103Z
C237	253 9039 906	BC ceramic cap. 0.1μF/25 V	CK45=1E104Z
Δ C318	256 8003 713	Ceramic cap. 4700 pF /400 V	CK45E2GAC472MC
OTHER GROUP			
		(P.W.board)	Q'ty
SW201	212 4798 005	2 p push switch	Speaker 1
Δ SW301	212 1030 009	Power switch (TV-5)	Power 1
Δ F302	206 1015 058	Fuse 1.6 A	Europe,U.K., Australia, & Asia models 1
Δ F302	206 1046 027	Fuse 5 A	U.S.A., Canada, & Taiwan R.O.C. models 1
	202 0022 008	Fuse holder	2
	204 8503 004	:Headphone jack(K)	1
	205 0952 009	4 p sp terminal	2
CB001	205 0667 006	10 p conn. base-L(9130)	1
CB002	203 5122 003	3 p EH-SCN conn. cord	1
CN303	205 0692 000	2 p wrapping terminal	1
	203 0633 005	1 p contact Ass'y	2
	203 6476 004	4 p SCN-SCN conn. cord	1
	203 5116 006	3 p EH-SCN conn. cord	1
	EP- 5667 H2	Terminal (L=20)	3

EXPLODED VIEW OF CHASSIS AND CABINET



PARTS LIST OF EXPLODED VIEW


Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	1U-2859 E	Main P.W.B. unit Ass'y		1s
2	212 1030 009	Power switch (TV-5)	SW301	1
3	211 0857 002	Variable resistor 100k ohm	Main VR401	1
4	206 1015 058	Fuse 1.6 A	F302 Europe, U.K., Australia, & Asia models	1
4	206 1046 027	Fuse 5A/125V	F302 U.S.A., Canada, & Taiwan R.O.C. models	1
5	499 0150 008	Remocon sensor SBX1610-52	IC105	1
6	254 6197 006	Chemicon 8200µF/56 V	C313,314	2
7	214 0129 001	Relay (DH2TU)	RL301	1
8	—	—	—	—
9	—	—	—	—
10	204 8503 004	Headphone jack	Speaker SW201	1
11	212 4798 005	2 p push switch	Speaker SW201	1
12	205 0952 009	4 p speaker terminal	Speaker SW201	2
13	1U-2923	µ-com P.W.B. unit Ass'y		1s
13-1	—	µ-com unit		(1)
13-2	—	LED & switch unit		(1)
13-3	—	Regulator unit		(1)
14	212 4797 006	1 p push switch	S.Direct SW001	1
15	204 8497 000	4 p pin jack(GND)(K)		4
16	211 0798 103	Variable resistor 100k ohm	Balance VR001	1
17	211 0797 117	Variable resistor 30k ohm	Bass VR002	1
18	211 0797 133	Variable resistor 10k ohm	Treble VR003	1
19	211 0830 003	Variable resistor 100k ohm	Loudness VR004	1
20	1U-2879 E	Volume P.W.B. unit Ass'y	Europe, U.K., Australia, & Asia models	1s
20	1U-2879 F	Volume P.W.B. unit Ass'y	U.S.A., Canada, & Taiwan R.O.C. models	1s
20-1	—	Volume unit		(1)
20-2	—	SP terminal unit		(1)
20-3	—	Power switch unit		(1)
20-4	—	—		—
20-5	—	Headphone, sp sw unit		(1)
21	417 0519 003	*Power radiator		1
22	271 0283 005	Transistor 2SA1633 (E/F)	TR217,218	2
23	273 0443 003	Transistor 2SC4278 (E/F)	TR215,216	2
24	412 3999 104	*Radiator bracket		1
25	412 4000 005	*P.W.B. bracket(A)		2
26	411 0941 602	*Chassis		1
27	412 4001 004	*Side bracket		1
28	—	—		—
29	113 1739 003	*Function button		1
30	105 1191 006	*Rear panel	Europe, U.K., Australia, & Asia models	1
30	105 1191 019	*Rear panel	U.S.A., Canada, & Taiwan R.O.C. models	1
31	477 0018 001	Washer (P-87)		1
32	205 0071 016	Terminal Ass'y	GND	1

Ref. No.	Part No.	Part Name	Remarks	Q'ty
33	206 2063 009	AC cord with plug	Europe model	1
33	206 2131 009	AC cord with plug	U.K. model	1
33	206 2050 009	AC cord with plug	U.S.A., Canada, & Taiwan R.O.C. models	1
34	445 0056 008	Cord bush		1
35	—	—		—
36	104 0282 007	*Foot Ass'y		4
37	233 6197 009	*Power transformer	Europe, U.K., Australia, & Asia models	1
37	233 6204 002	*Power transformer	U.S.A., Canada, & Taiwan R.O.C. models	1
38	475 1175 002	Washer		1
39	477 0096 007	Push rivet		8
40	415 0461 003	UL tube (φ14.3)	for AC cord	1
41	113 1745 107	*Push button (Round)		3
42	412 1979 029	P.C.B. holder		1
43	146 1614 005	*Front panel		1
44	143 0983 000	*Remocon window		1
45	143 0971 009	*Lens		1
46	445 8004 007	Wire clasper		10
47	112 0761 008	*VR knob		1
48	113 1738 101	*Power button		1
49	112 0762 007	*Knob(Round)		4
50	412 2814 015	Card spacer (L=14)		2
51	102 0567 001	*Top cover		1
52	—	—		—
53	513 2433 003	Serial No. sheet		1
54	513 2444 002	Label (China)	Put on R/panel	1
55	203 0150 009	Wire connector		1
SCREWS				
71	473 8007 009	Cup screw 3x12		7
72	473 7015 018	Tapping screw(S)3x8 Black		14
73	—	—		—
74	477 0064 107	Fixing screw		6
75	473 7002 018	Tapping screw(S)3x8		4
76	473 7004 016	Tapping screw(S)4x6		6
77	—	—		—
78	477 0263 005	3 P Swelling screw		4
79	473 7508 004	Tapping screw(P)3x6 Black		2
80	473 7500 044	Tapping screw(P)3x8 Black		19
81	473 7002 034	Tapping screw(S)3x6 Black		7
82	—	—		—

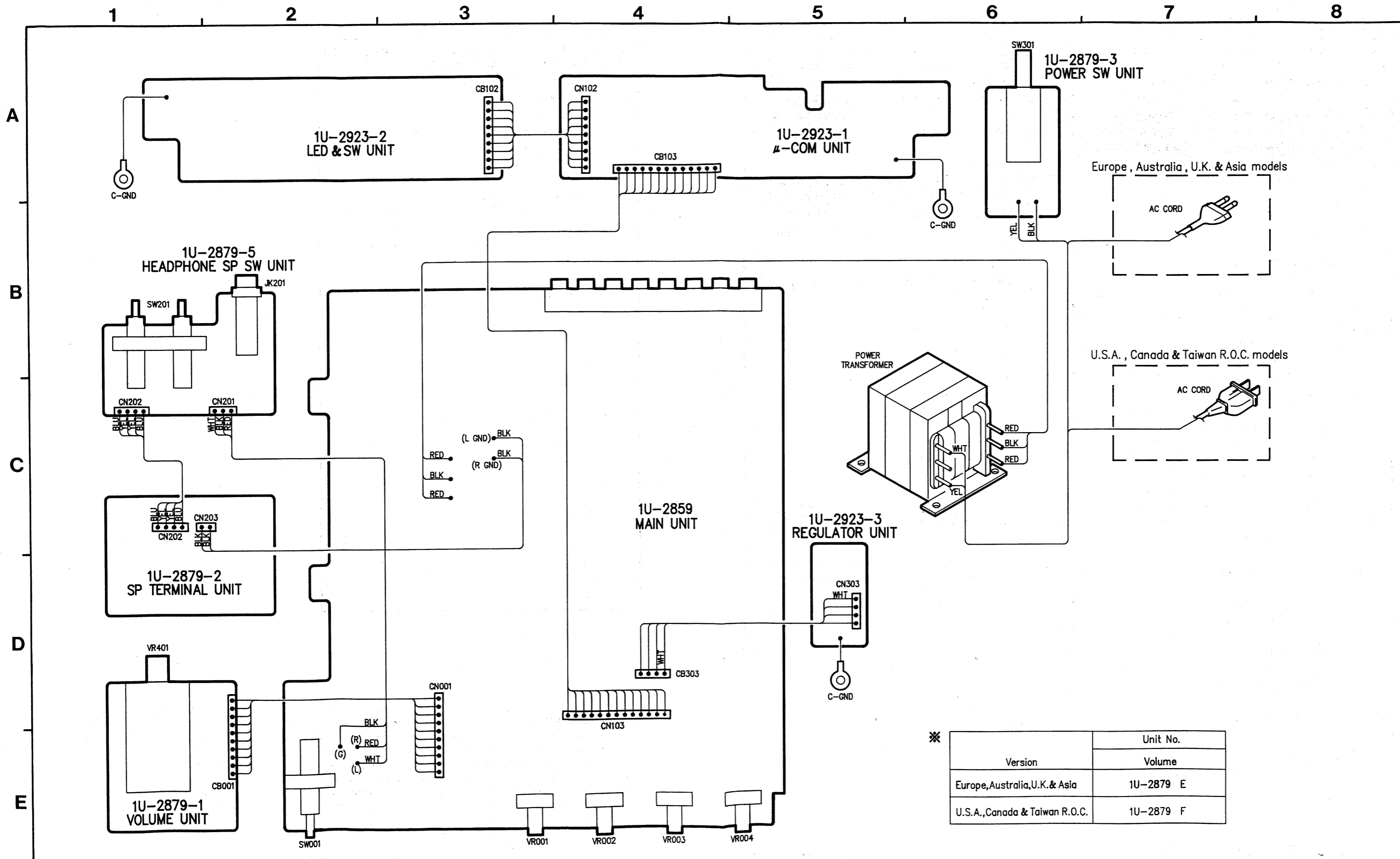
Ref. No.	Part No.	Part Name	Remarks	Q'ty
PACKING & ACCESSORIES (Not included EXPLODED VIEW.)				
101	GEN 3466	Envelope sub. Ass'y		1s
101-1	505 8006 019	Envelope		(1)
101-2	511 2849 xxx	*Inst. manual	E, G, F, I, ES, NL, S, PO	(1)
101-3	499 0277 004	Remote control	RC-176	(1)
101-4	—	Batteries		(2)
102	505 8092 010	Laminate envelope		1
103	503 1191 103	*Cushion		2
104	501 1904 006	*Carton case		1
105	513 2446 003	China label (E)	Put on carton case	1
106	513 2447 002	China label (F)	Put on carton case	1
107	504 0168 004	AC protect sheet	U.K. model only	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 "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.

WIRING DIAGRAM



※

Version	Unit No.
	Volume
Europe, Australia, U.K. & Asia	1U-2879 E
U.S.A., Canada & Taiwan R.O.C.	1U-2879 F

SCHEMATIC DIAGRAM

1

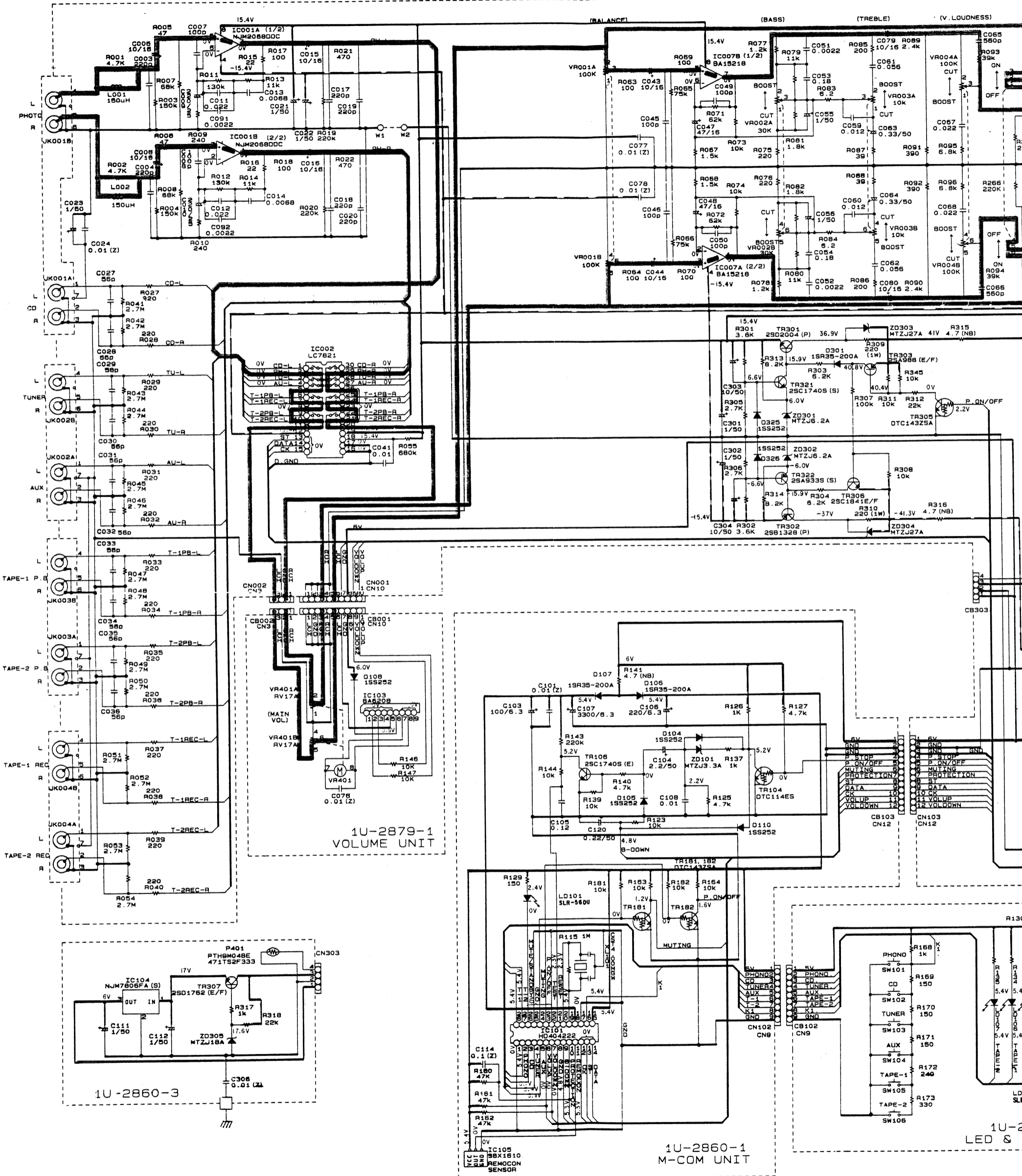
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3

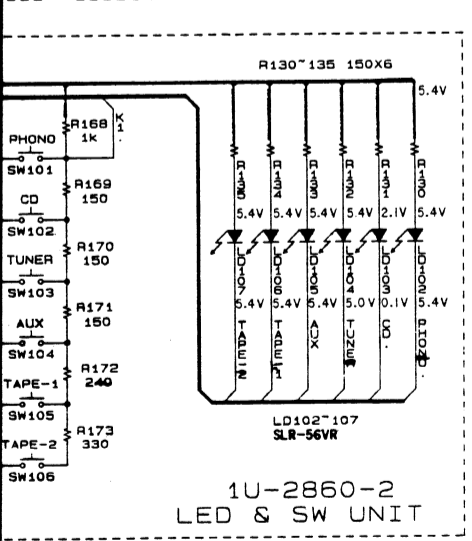
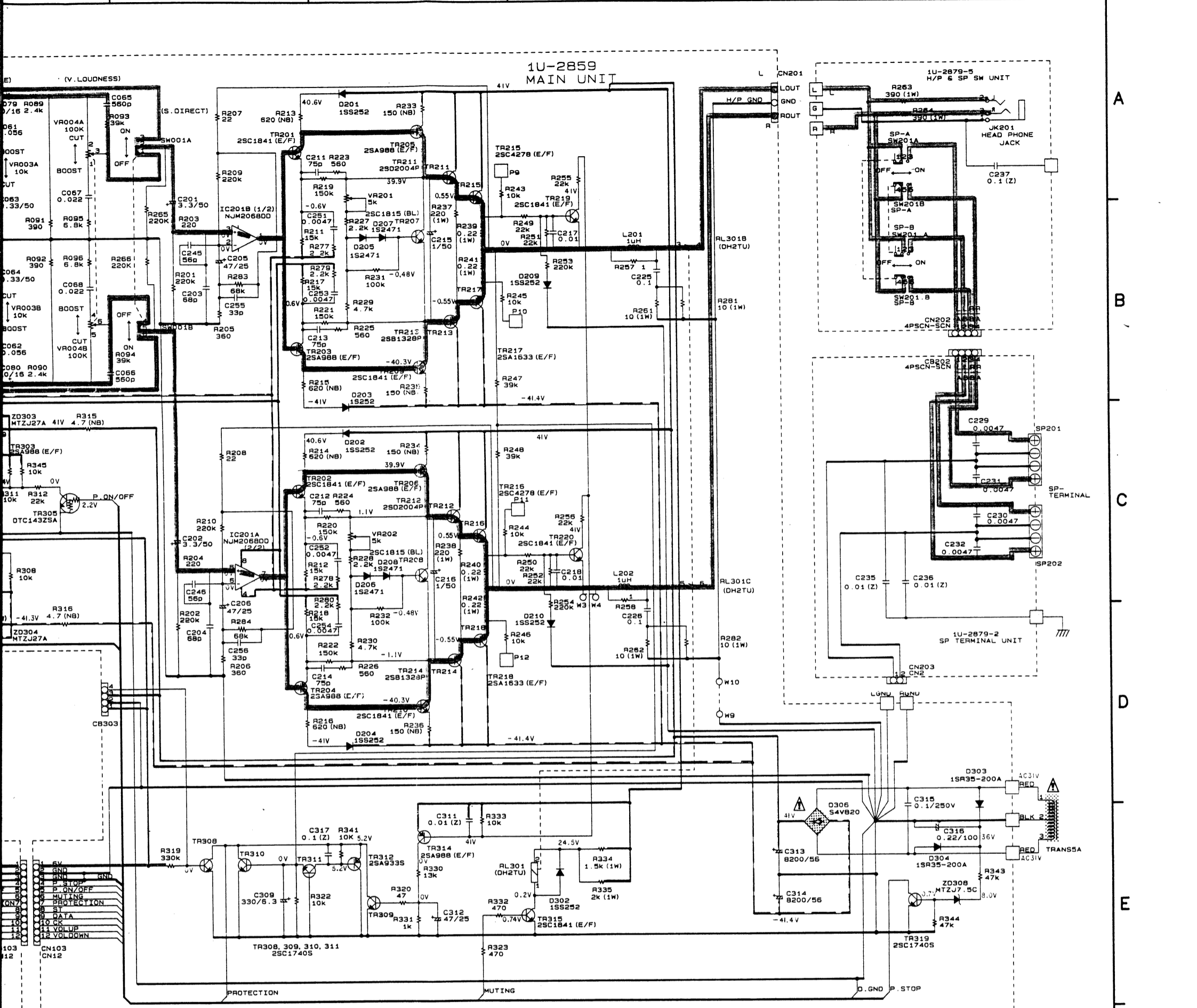
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5

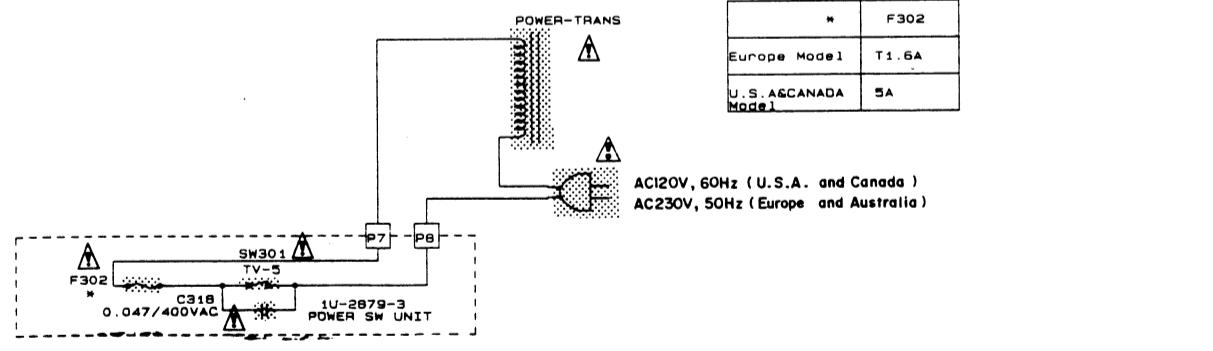
6



6 7 8 9 10 11



— +B LINE
 - - - -B LINE
 ——— SIGNAL LINE



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 either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 millamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

WARNING:
 DO NOT return 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.

A
 B
 C
 D
 E
 F
 G
 H