

# Stereo Integrated Amplifier RA-2040



# OWNER'S MANUAL

**WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

Write your SERIAL NUMBER here.  
The number is located near the name plate on  
the unit's rear panel.

SERIAL NUMBER

Quality. Uncompromised.

# ROTEL®

## はじめに

このたびはローテル・プリメインアンプRA-2040をお求めいただきましてありがとうございます。本機は永年の経験と最新の技術を駆使して高性能と高信頼性、すばらしい音楽性を実現した製品です。オーナーとなられた方々には必ずご満足いただけるものと確信しております。



## INTRODUCTION

We would like to take this opportunity to thank you for purchasing the Rotel RA-2040 Integrated Amplifier.

The RA-2040 offers superb audio quality, based on Rotel's many years of experience, and the newest and most advanced technology in electronics design.

We sincerely believe the RA-2040 will meet with the full satisfaction of the owner.

Before connecting your system to a power source, we hope you will read this instruction manual in its entirety, in order to enjoy the full performance of this component for many years to come.

## ご使用のまえに/電源について

安全にお使いいただけますよう次の事項にご注意ください。

### 1. 入力コードを抜き差しする場合

必ず電源を切ってから行なってください。

[POWER]電源スイッチをONにしたままで行なうとショックノイズによって大きな音が出たり、スピーカーを破壊することがあります。必ず電源スイッチをOFFにしてから行なってください。

### 2. キャビネットを開けないこと。

キャビネットや底板を開けて内部に手などを入れますと故障や感電事故を起すことが



## BEFORE ENJOYMENT/POWER SUPPLY

Follow the instructions below for maximum safety:

### 1. Use a wall outlet for power supply.

Be sure to connect the AC line cord directly to the household AC wall outlet.

Never connect the cord to a convenience outlet installed on a pre-amplifier or any other audio components.

The electrical ratings of this model are indicated on the name plate on the rear panel. Never use a outlet other than the one having the specified rated voltage.

### 2. Connecting and removing AC cord (mains cable).

Make sure to connect or disconnect the AC line cord only after turning off the power switch. Connecting or disconnecting the AC

cause shock noise or damage to the speaker units.

**3. Handle the AC line cord carefully.**

Do not pull the cord itself when removing it from the wall outlet. Always hold the plug and pull it.

Unplug the AC line cord from the outlet when you are not operating the amplifier for a long period.

**4. Ventilate the amplifier well.**

The RA-2040 is a big power output amplifier that may generate significant heat depending on operating conditions. Therefore, never block the ventilation holes on the top and bottom of the amplifier. Be sure also to provide an ample air space around the amplifier to obtain adequate ventilation. Poor ventilation may result in damages due to excessive increase in temperature inside the amplifier.

**5. Do not open the cabinet.**

Never open the cabinet and the bottom plate and insert your hand or an object, in order to avoid an electric shock or damage to the amplifier.

If a foreign object by mistake falls inside the amplifier, turn the power off, pull the AC plug out of the wall outlet, and consult a qualified electrician or your dealer.

**6. Do not exert excess force or pressure on the switches and controls.**

**7. Turn the volume control level to minimum (-∞).**

When lowering the tonearm of your turntable onto the record, an excess electric current of the lower frequency range may flow and cause damage to the speaker units, even if you do not feel so much acoustic pressure. To prevent this, be sure to minimize the volume control level (-∞).

**8. Moving the amplifier**

When transporting, remove the AC line cord from the wall outlet and all other cords connected to prevent short-circuits and breaking of wire.

**9. If the amplifier gets wet.**

If the amplifier gets wet by error such as splashed with water, immediately disconnect the AC line cord from the wall outlet and consult your dealer or a qualified electrician.

**10. Cleaning and maintenance.**

Do not use benzine, thinner or the like when cleaning the panel. Always use soft, dry cloth to wipe and clean the unit. Do not use spray-type insecticide near the amplifier.

**11. Keep the Owner's Manual permanently.**

Please keep the Owner's Manual near the amplifier (write down the serial number of your amplifier indicated on the rear panel, on the front cover).

## 設置場所について

本機の設置にあたっては湿気の多い場所、振動の多い場所、熱気や直射日光の当る場所、あるいは傾斜して不安定な場所はさけてください。また本棚や壁などに接近、あるいは密着して通風の状態が悪いと悪影響をおよぼしますのでご注意ください。



## INSTALLATION

Be sure to place the unit in a level and flat place where it is free from humidity, vibration, high temperature and not exposed to direct sunlight.

Be careful not to place the unit in a highly enclosed place such as near a wall or on a bookshelf. A poor ventilation will cause undesirable effects to the unit.

This unit can be mounted on a EIA/EIJ standard audio-rack. We recommend rack mounting for convenience in operation. Before mounting on the rack, be sure to read through the rack-mounting instruction. Secure the unit firmly to the rack.

## 接続するスピーカーについて

インピーダンスが4Ω～16Ωの範囲内のスピーカーシステムをご使用ください。スピーカーのインピーダンスは、そのスピーカーの背面のネームプレートに表示されています。



## SPEAKERS

Be sure to use only speakers rated at 4 ~ 16 ohms. The RA-2040 will accept 2 pairs of speaker systems, but if the 2 systems are to be driven simultaneously, each speaker should be rated at 8 ~ 16 ohms. The speaker impedance may be found on the rear panel of the speaker.

## リアパネルへの接続

オーディオソースからの入力、スピーカーへの出力のいずれにも左右の位相または⊕、⊖があります。本機のⓂと接続する機器



## CONNECTIONS TO THE REAR PANEL

There are right and left phases for all of the various source inputs and power output connections to the speaker systems. Be sure to connect terminals marked L or R to the corresponding terminals of other components.

## CONNECTING SPEAKERS

It is recommended that you use heavy-gauge speaker cable when connecting the speaker system. Be sure to twist the ends of the speaker wires before inserting them into the speaker terminals, to prevent short circuiting.

Be sure to properly connect the L, R (+) & (-) terminals of the speaker system to the L, R (+) (-) terminals of the RA-2040.

## ANSCHLUSS DER LAUTSPRECHER

Es wird empfohlen, für die Verbindung des Lautsprechersystems ein gut abgeschirmtes Lautsprecherkabel zu verwenden. Um Kurzschlüsse zu vermeiden, achten Sie darauf, dass die Fasern der abgemantelten Drahtenden zusammengedreht werden, bevor sie in die Lautsprecherklemmen eingeführt werden.

Achten Sie darauf, dass die Klemmen L, R (+) und (-) des Lautsprechersystems richtig mit den Klemmen L, R (+) und (-) des RA-2040 verbunden werden.

## Connexion des haut-parleurs

Il est recommandé que vous utilisiez le câble du haut-parleur de calibre pesant lors de coupler le système de haut-parleur. S'assurer de tordre les extrémités du câble du haut-parleur avant d'elles insérer dans les bornes du haut-parleur, pour prévenir le court-circuit.

S'assurer proprement de coupler les bornes L, R (+) & (-) du système de haut-parleur aux bornes L, R (+) & (-) du RA-2040.

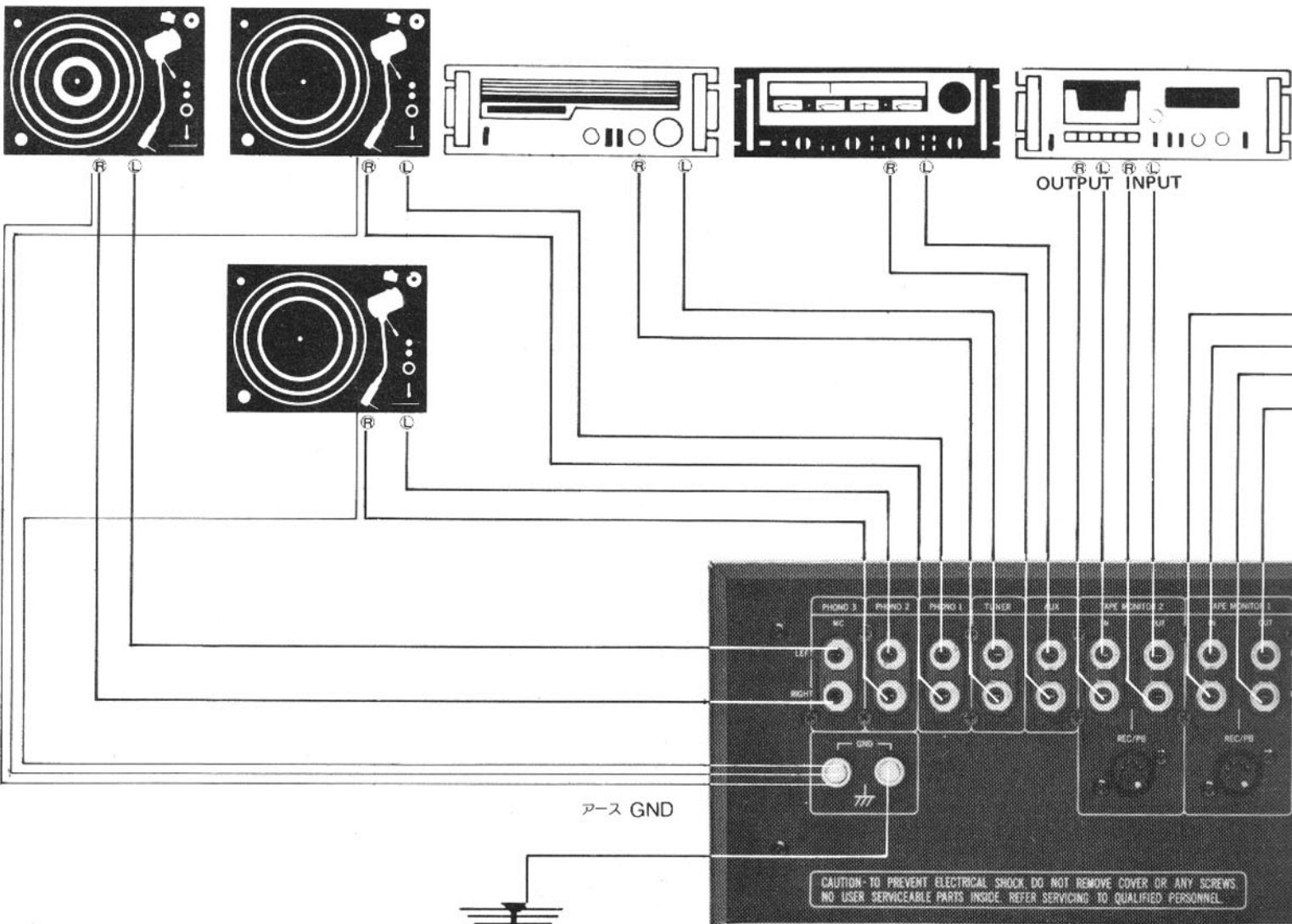
プレーヤー(MCカートリッジ付)  
TURNTABLE  
with MC cartridge

プレーヤー  
TURNTABLE  
with Magnetic type  
cartridge

チューナー(RT-2100)  
TUNER  
(RT-2100)

チューナーまたは8トラプレーヤーなど  
TUNER/ TAPE PLAYER

カセットデッキ(RD-2200)  
TAPE DECK  
(RD-2200)



## CONEXION DE LOS ALTOPARLANTES

Se recomienda que use el cable del altoparlante de calibre pesado al conectar el sistema de altoparlante. Asegúrese de torcer los extremos de los alambres del altoparlante antes de insertarlos en los terminales del altoparlante, para prevenir el cortocircuito.

Asegúrese de conectar propiamente los terminales L, R (+) & (-) del sistema de altoparlante a los terminales L, R (+) & (-) del RA-2040.

## COLLEGAMENTI DEGLI ALTOPARLANTI

Si raccomanda che usi il cavo dell'altoparlante di spessore pesante quando si collega il sistema di altoparlante. Assicurarsi di torcere gli estremi dei cavi dell'altoparlante prima d'inserirli nei morsetti dell'altoparlante, per prevenire il cortocircuito.

Assicurarsi di collegare propriamente i morsetti L, R (+) & (-) del sistema di altoparlante ai morsetti L, R (+) & (-) del RA-2040.

## ANSLUTNING TILL HÖGTALARNA

Vi rekommenderar att Ni använder kraftiga kablar vid anslutning till högtalarsystemen. Högtalarkablarnas ändrar skall tvinnas innan de införs i högtalaruttagen så att kortslutning undviks.

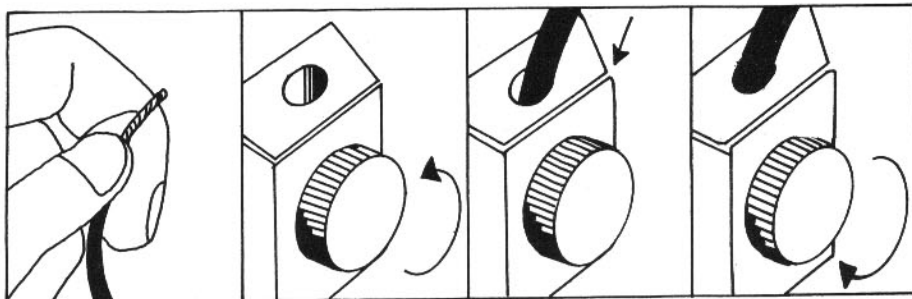
Kontrollera att sidorna (R) (+) och L (-) av högtalarnas intag är anslutna korrekt till de motsvarande sidorna av RA-2040:s högtalaruttag.

スピーカーターミナル  
SPEAKER TERMINAL

デッキ  
TAPE DECK

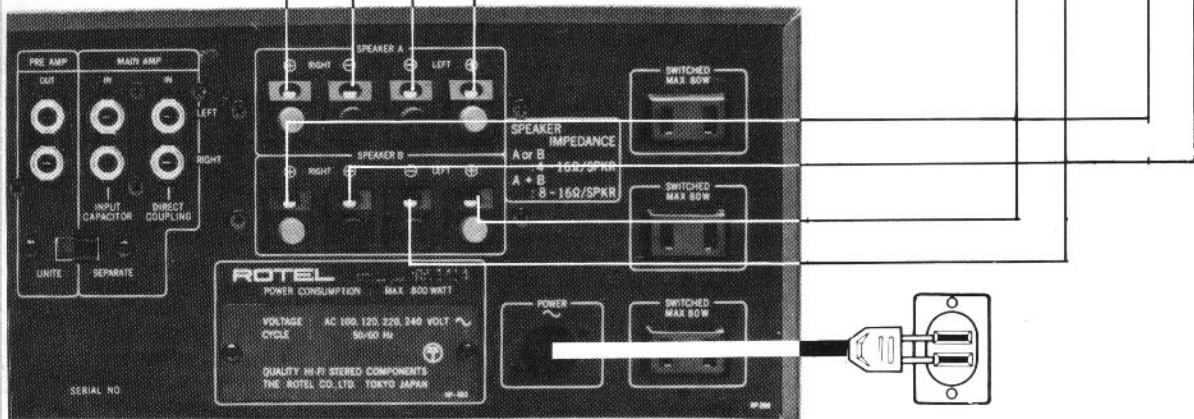
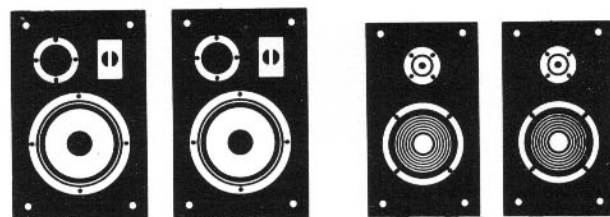


OUTPUT INPUT



スピーカーA  
SPEAKER A

スピーカーB  
SPEAKER B



## [PRE AMP (OUT)] and [MAIN AMP (IN)] Connections

When normally using the RA-2040 as a pre-main amplifier, set the [PRE-MAIN] switch on the rear panel in the [UNITE] position. In case you wish to separate the pre-amp section and the main amp section and use the unit as either a pre-amp or a main amp, set the switch in the [SEPARATE] position.

### 1. Make the following connections when using only the unit's main amp section:

Connect the unit's [MAIN IN] jack with the [OUTPUT] jack of the control amplifier using a pin jack cord. Be careful to connect the right (R) jack of the control amp to the right (R) of the RA-2040 unit, and likewise the left (L) jack of the control amp to the left (L) jack of this unit.

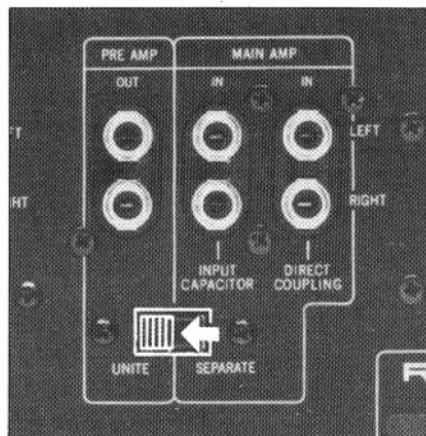
### ●通常の使用時のスイッチ位置 Normal use

## PRE AMP (OUT) - Vorverstärker (Aus) - und MAIN AMP (Ein) - Hauptverstärker (Ein)-Anschlüsse

Wenn Sie den RA-2040 als Vor-, Hauptverstärker gebrauchen, bringen Sie den PRE MAIN-Schalter auf der Geräterückseite in UNITE-Stellung. Wollen Sie den Vorverstärkerteil und den Hauptverstärkerteil trennen und das Gerät als Vorverstärker oder Hauptverstärker benutzen, bringen Sie den Schalter in SEPARATE-Stellung.

### 1. Wenn Sie nur den Hauptverstärkerteil benutzen, verbinden Sie die Anschlüsse wie folgt:

MAIN IN-Steckdose mit OUTPUT-Steckdose des Kontrollverstärkers durch ein entsprechendes Verbindungskabel. Achten Sie darauf, dass Sie die rechte [R] Steckdose des Kontrollverstärkers mit der rechten [R] Steckdose des RA-2040 verbinden und dementsprechend die linke [L] Steckdose des Kontrollverstärkers mit der linken [L] Steckdose des RA-2040.



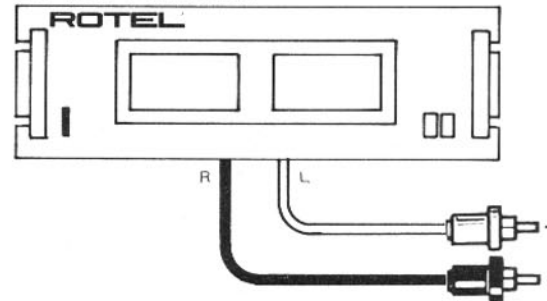
## Raccords [PRE AMP (OUT)] et [MAIN AMP (IN)]

Lors d'utiliser normalement le RA-2040 comme le préampli-principal, poser l'interrupteur [PRE-MAIN] sur le panneau d'arrière dans la position [UNITE]. Au cas où vous désirez séparer la section du préampli et la section de l'ampli principal et utiliser l'unité comme un préampli ou un ampli principal, poser l'interrupteur dans la position [SEPARATE].

### 1. Effectuer les raccords suivants lors d'utiliser seulement la section de l'ampli principal de l'unité:

Coupler la jack [MAIN IN] de l'unité avec la jack [OUTPUT] de l'ampli de contrôle en utilisant le cordon de jack de goupille. Faire attention de coupler la jack droite (R) de l'ampli de contrôle à la droite (R) de l'unité RA-2040, et pareillement la jack gauche (L) à l'ampli de contrôle à la jack gauche (L) de cette unité.

### パワーアンプ POWER AMP



### ●本機をプリアンプとして使用する する場合

When using only pre-amp section

The RA-2040 is equipped with 2 types of input terminals, the 'Direct Coupling' terminal, and the 'Input Capacitor' terminal. Use the 'Direct Coupling' terminals when connecting the RA-2040 to the Rotel RC-2000 or RC-5000.

As the 'Direct Coupling' circuit bypasses the input capacitor, one can achieve a very favorable sound quality. However, if the control amplifier should become unstable, the DC component may interfere with the power output of the control amplifier, and trigger the RA-2040's protection circuit. The 'Input Capacitor' employs the MPF (Metallized Polyester Film) capacitor, which maintains a high sound quality while cutting off the effect of the DC component, so this terminal can be used as the alternative. Accordingly, when connecting a control amplifier which is other than a Rotel product, be sure to read the instructions (or, to experiment) carefully and connect the two components properly in regard to which terminal to be used.

Der RA-2040 ist mit zwei Arten von Eingangsklemmen versehen: der DIRECT-COUPLING- und der INPUT-CAPACITOR-Anschluss. Verwenden Sie die DIRECT-COUPLING-Klemme, wenn Sie den RA-2040 an den Rotel-RC-2000 oder RC-5000 anschließen.

Da die direkt-gekoppelte Schaltung den Eingangskondensator umgeht, kann eine sehr vorteilhafte Tonqualität erreicht werden. Sollte jedoch der Steuerverstärker unbeständig werden, kann möglicherweise die Gleichstromkomponente den Leistungsausgang des Steuerverstärkers beeinträchtigen und die Schutzschaltung des RA-2040 auslösen. Der INPUT CAPACITOR verwendet einen MPF (metallisierte Polyesterfolie)-Kondensator, der eine hochwertige Tonqualität liefert und gleichzeitig die Wirkung der Gleichstromkomponente ausschließt, daher kann diese Klemme als Alternative verwendet werden. Demgemäß sollte beim Anschließen eines Steuerverstärkers, der nicht ein Rotel-Produkt ist,

Le RA-2040 est équipé avec 2 types des bornes d'entrée, la borne d' "accouplement direct" et la borne du "condensateur d'entrée". Utiliser les bornes d' "accouplement direct" lors de connecter le RA-2040 au RC-2000 ou RC-5000 de Rotel. Puisque le circuit d' "accouplement direct" dévie le condensateur d'entrée, on peut obtenir une qualité de son très favorable.

Cependant, si l'amplificateur de contrôle devient instable, le composant de CC peut gêner la sortie de puissance de l'amplificateur de contrôle, et détendre le circuit de protection du RA-2040. Le "condensateur d'entrée" emploie le condensateur de PPM (pellicule en polyester métallisé), qui maintient une qualité de haut son pendant que l'effet du composant de CC est coupé, donc cette borne si peut utiliser comme l'alternative.

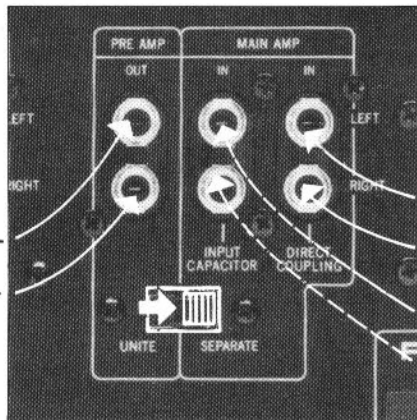
Donc, lors de connecter un amplificateur de contrôle qu'est autre que un produit

## CONEXIONES DE [PRE AMP (OUT)] y [MAIN AMP (IN)]

Al usar normalmente el RA-2040 como un preamplificador principal, ponga el interruptor [REM-MAIN] en el tablero trasero a la posición [UNITE]. En caso de que quiere Vd. separar la sección del preamplificador y la sección del amplificador principal y usar la unidad como un preamplificador o un amplificador principal, ponga el interruptor a la posición [SEPARATE].

### 1. Efectúe las conexiones siguientes al usar sólo la sección del amplificador principal de la unidad:

Conecte la jack [MAIN IN] de la unidad con la jack [OUTPUT] del amplificador de control que usa un cordón de la jack de clavija. Sea cuidadoso para conectar la jack derecha [R] del amplificador de control a la derecha [R] de la unidad del RA-2040 y asimismo la jack izquierda [L] del amplificador de control a la jack izquierda [L] de esta unidad.



El RA-2040 se equipa con 2 tipos de los terminales de entrada, el terminal de "acoplamiento directo" y el terminal del "condensador de entrada". Use los terminales de "acoplamiento directo" al conectar el RA-2040 al RC-200 o RC-5000 de Rotel. Puesto que el circuito de "acoplamiento directo" desvía el condensador de entrada, uno puede obtener una calidad de sonido muy favorable. Sin embargo, si el amplificador de control se hace inestable, el componente de CC puede interferir con la salida de potencia del amplificador de control, y poner en movimiento el circuito de protección del RA-2040.

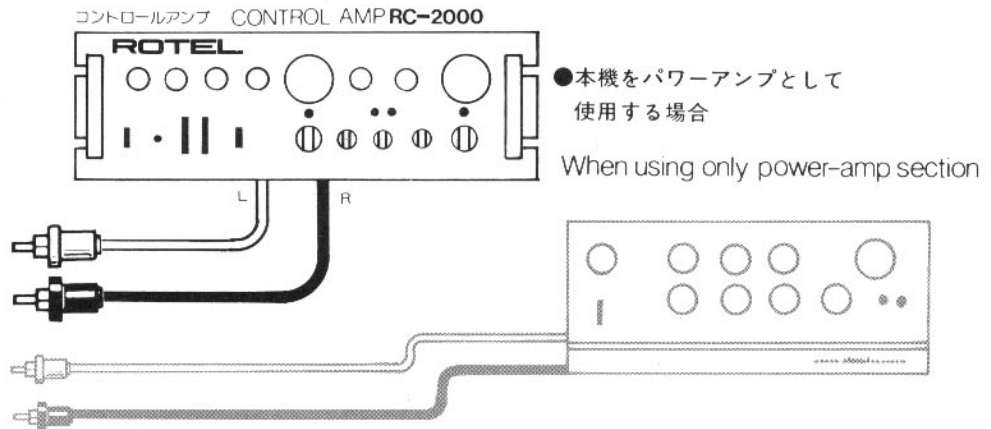
El "condensador de entrada" emplea el condensador de PPM (película de poliéster metalizado), que mantiene una calidad de alto sonido mientras se corta el efecto del componente de CC, de este modo este terminal se puede usar como la alternativa. Por consiguiente, Al conectar un amplifi-

## Collegamenti [PRE AMP (OUT)] e [MAIN AMP (IN)]

Quando si usa normalmente il RA-2040 come un preamplificatore principale, porre l'interruttore [PRE-MAIN] sul pannello posteriore nella posizione [UNITE]. In caso desidera separare la sezione del preamplificatore e la sezione dell'amplificatore principale, porre l'interruttore nella posizione [SEPARATE].

### 1. Fare i collegamenti seguenti quando si usa solamente la sezione dell'amplificatore principale dell'unità:

Collegare la presa [MAIN IN] dell'unità con la presa [OUTPUT] dell'amplificatore di controllo usando un cordone della spina. Tenere cura di collegare la spina destra (R) dell'amplificatore di controllo alla destra (R) dell'unità del RA-2040, ed ugualmente la spina sinistra (L) dell'amplificatore di controllo alla spina sinistra (L) di questa unità.



Il RA-2040 si equipaggia con 2 tipi dei morsetti di entrata, il morsetto di "accoppiamento diretto" ed il morsetto del "condensatore di entrata". Usare i morsetti di "accoppiamento diretto" quando si collega il RA-2040 al RC-2000 o RC-5000 di Rotel. Poichè il circuito di "accoppiamento diretto" deriva il condensatore di entrata, uno può ottenere una qualità di suono più favorevole. Ciononostante, se l'amplificatore di controllo diviene instabile, il componente di CC può contrastare l'uscita di potenza dell'amplificatore di controllo, e far scattare il circuito di protezione del RA-2040. Il "condensatore di entrata" impiega il condensatore di PPM (pellicola di poliester metalizzato), che mantiene una qualità di alto suono mentre si taglia l'effetto del componente di CC, così questo morsetto si può usare come l'alternativa.

Di conseguenza, quando si collega un amplificatore di controllo che è altro che un

## Anslutningar av [PRE AMP (OUT)] och [MAIN AMP (IN)]

Ni skall inställa PRE-MAIN omkopplaren i [UNITE] -läge, om denna förstärkare RA-2040 skall användas som för-förstärkare. Inställ ovannämnda omkopplare i [SEPARATE] -läge, om Ni önskar dela upp för-förstärkardelen och huvudförstärkardelen och använda apparaten som antingen för-förstärkare eller huvudförstärkare.

### 1. Anslut på följande sätt när enbart huvudförstärkardelen skall användas:

Anslut [MAIN IN]-intaget på denna förstärkare till [OUTPUT]-uttaget på regleringsförstärkaren med en sladd försedd med kontaktstift. Se till att högersidan (R) av regleringsförstärkarens uttag anslutes till högersidan (R) av RA-2040:s intag och likadels vänstersidan (L) av regleringsförstärkarens uttag till vänstersidan (L) av RA-2040:s intag.

RA-2040 är försedd med två olika uttags-typer: "Direct Coupling" -uttaget och "Input Capacitor" -uttaget.

Använd det förra uttaget vid anslutning av RA-2040 till Rotel RC-2000 eller RC-5000. Eftersom "Direct Coupling" -kretsen förbigår ingångskondensatorn erhålls en fin tonkvalitet. Om styrförstärkaren trots allt blir ostabil kan likströmskomponenten motverka styrförstärkarens uteffekt och sätta RA-2040:s skyddkrets i funktion. "Input Capacitor" -kretsen har en MPF (Metallized Polyester Film) kondensator som ger en fin tonkvalitet och eliminerar likströmskomponentens ofördelaktiga effekt. På detta vis fungerar detta uttag som alternativuttag. Om en annan styrförstärkare än Rotel används bör Du läsa bruksanvisningen eller testa förstärkaren noggrant i förväg för att utföra en korrekt anslutning.



**2. Make the following connections when using only the unit's pre-amp section:**

Connect the unit's [PRE AMP OUT] jack with the [INPUT] jack of the power amplifier using a pin-jack cord. Be careful to connect the right (R) jack of the power amp to the right (R) of this unit, and likewise the left (L) jack of the power amp to the left (L) jack of this unit.

die Bedienungsanleitung sorgfältig durchgelesen (oder vorsichtig experimentiert) werden und die beiden Geräte, in bezug auf die Verwendung der passenden Klemmen, richtig verbunden werden.

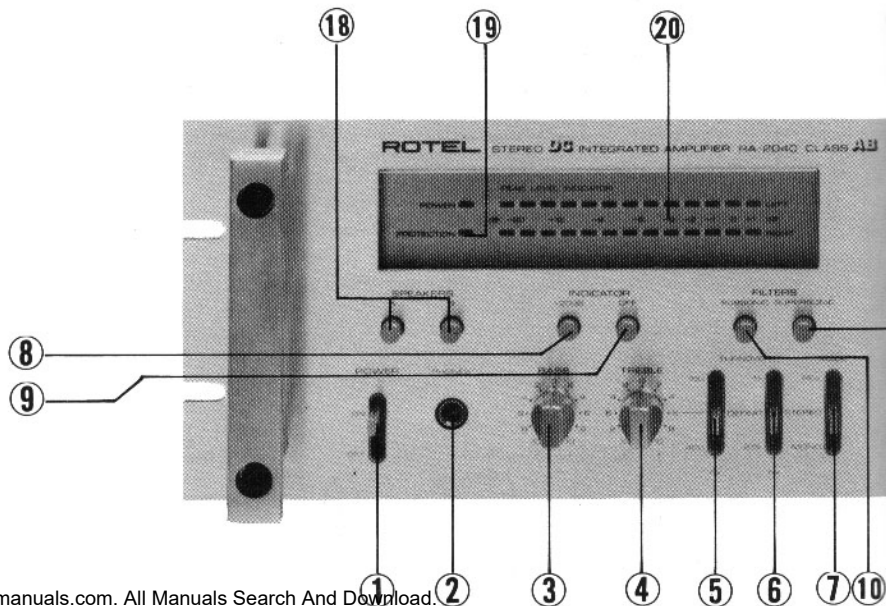
**2. Wenn Sie nur den Vorverstärker benutzen, verbinden Sie die Anschlüsse wie folgt:**

PRE AMP OUT-Steckdose des Vorverstärkers mit INPUT-Steckdose des Leistungsverstärkers durch ein entsprechendes Verbindungskabel. Achten Sie darauf, dass Sie die rechte [R] Steckdose des Leistungsverstärkers mit der rechten [R] Steckdose des Vorverstärkers und dementsprechend die linke [L] Steckdose des Leistungsverstärkers mit der linken [L] Steckdose des Vorverstärkers verbinden.

de Rotel, s'assurer de lire les instructions (ou, expérimenter) avec soin et connecter les deux composants proprement à l'égard de qui borne devra être utilisée.

**2. Effectuer les raccords suivants lors d'utiliser seulement la section du pré-ampli de l'unité:**

Coupler la jack [PRE AMP OUT] de l'unité avec la jack [INPUT] de l'ampli de puissance en utilisant le cordon de jack de goupille. Faire attention de coupler la jack droite (R) de l'ampli de puissance à la droite (R) de cette unité, et pareillement la jack gauche (L) de l'ampli de puissance à la jack gauche (L) de cette unité.



cador de control que es otra manera que un producto de Rotel, asegúrese de leer las instrucciones (o, experimentar) cuidadosamente y conecte los dos componentes propiamente con respecto a cuál terminal se deberá usar.

**2. Efectúe las conexiones siguientes al usar sólo la sección del preamplificador de la unidad:**

Conecte la jack [PRE AMP OUT] de la unidad con la jack [INPUT] del amplificador de potencia que usa un cordón de la jack de clavija. Sea cuidadoso para conectar la jack derecha [R] del amplificador de potencia a la derecha [R] de esta unidad, y asimismo la jack izquierda [L] del amplificador de potencia a la jack izquierda [L] de esta unidad.

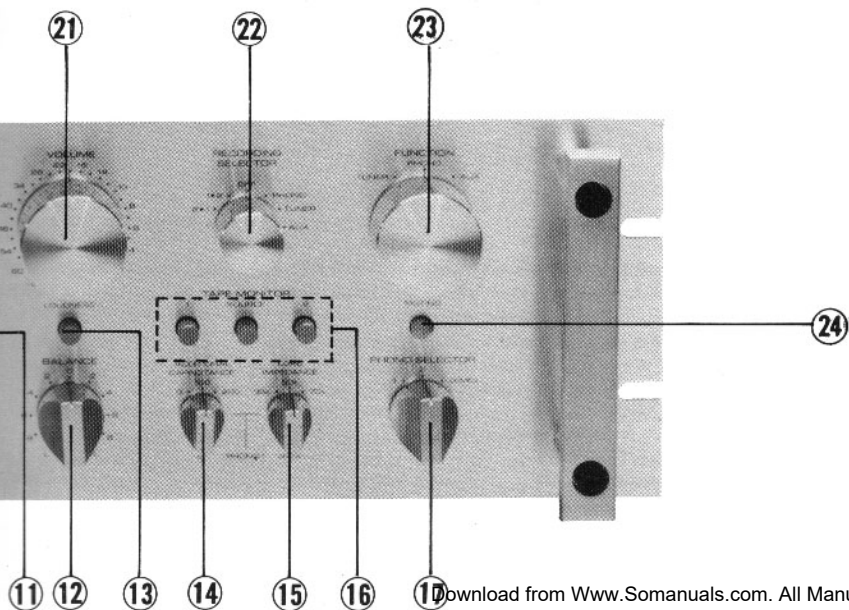
prodotto di Rotel, assicurarsi di leggere le istruzioni (o, sperimentare) accuratamente e collegare i due componenti propriamente rispetto a quale morsetti si devra usare.

**2. Fare i collegamenti seguenti quando si usa solamente la sezione del preamplificatore**

Collegare la spina [PRE AMP OUT] dell'unità con la spina [INPUT] dell'amplificatore di potenza usando un cordone della spina. Tenere cura di collegare la spina destra (R) dell'amplificatore di potenza alla destra (R) di questa unità, e ugualmente la spina sinistra (L) degli amplificatore di potenza alla spina sinistra (L) di questa unità.

**2. Anslut på följande sätt när enbart förstärkardelen skall användas:**

Anslut [PRE AMP OUT]-uttaget på denna förstärkare till [INPUT]-intaget på effektförstärkaren med en sladd försedd med kontaktstift. Se till att högersidan (R) av effektförstärkarens intag anslutes till högersidan (R) av RA-2040:s uttag och likadels vänstersidan (L) av effektförstärkarens intag till vänstersidan (L) av RA-2040:s uttag.



## THE FRONT PANEL

### 1. [POWER] Power Switch

Lifting this switch turns on the power for the unit. The green pilot indicator will come on at the same time to indicate that power is being supplied. Flipping the switch down will turn off the power.

NOTE: To avoid unpleasant pop noise when the power is turned on the protection circuit (relay) will be in action for approximately seven seconds after the power is turned on. During this period no sound will come out of the unit, but this does not represent a malfunction of the unit.

### 2. [PHONES] - headphone jack

You may connect headphones of 4 ~ 16 ohms into this outlet.

### 3. [BASS] Bass Control Knob

Turning the knob to the right will increase the bass and turning it to the left will decrease the bass.

A flat response will result when the knob is set at the center (0) position.

### 4. [TREBLE] Treble Control Knob

Turning the knob to the right will increase the treble frequencies, and turning it to the left will decrease the treble. A flat response will result when the knob is set at the center (0) position.

### 5. [TURNOVER/BASS] - bass turnover switch

The bass frequencies are adjusted jointly by knob 3. In the '150Hz' position, frequencies of less than 150Hz may be accentuated or decreased. In the '400Hz' position, frequencies of less than 400Hz may be accentuated or decreased. In the central 'Defeat' position, a flat response is produced, and the position of the knob has no effect on the sound produced.

### 6. [TURNOVER/TREBLE] - treble turnover switch

The treble frequencies are adjusted jointly by knob 4. In the '7kHz' position, frequencies above 7kHz may be accentuated or decreased. In the '2.5kHz' position, frequencies above 2.5kHz may be accentuated or decreased. In the central 'Defeat' position, a flat response is produced, and the position of the knob has no effect on the sound produced.

### 7. [MODE] - mode switch

14 In the 'STEREO' position, the signal is re-

produced in the normal right/left order. In the 'Rev' position, the right and left channels are reversed. In the 'Mono' position, the right and left channels are mixed and reproduced as monaural sound.

**8. [INDICATOR -20dB] Indicator Sensitivity switch**

This switch allows selection of the sensitivity of the peak indicator, making it easier to read when using low output. When the button is depressed, the actual dB levels displayed by the peak level indicator will be 20dB less than the marked values. For example, when the peak level indicator displays [0dB], the actual level is [-20dB]. To release the button, push it once again; it will return to its original position and the indicator will resume the normal operations. In other words, the indicator can display the peak level from -40dB to +1dB (-40dB to -19dB with the button on, and -20dB to +1dB with the button out).

**9. [INDICATOR OFF] Indicator Off Switch**

This switch can be used when the peak level indicator display is not wanted. Depressing the button will turn off the indicator, and the indicator's LED's will not light up. Pushing the button again to release it when activating the peak level indicator.

**10. [SUBSONIC FILTER] - subsonic filter**

Pushing this switch cuts subsonic frequencies below 15Hz by -12dB/oct. When playing records, resonance of cartridge and tonearm often induces peaks in the frequency range below 10Hz, resulting in increased intermodulation distortion, so employing the filter in this type of situation will produce a desirable effect. Further, in cutting out such peaks in the low frequency range, undesirable fluctuation of the speaker woofer caused by motor rumble or warped records is prevented. To cancel the filter, push the switch again.

**11. [SUPERSONIC FILTER] - supersonic filter**

Pushing this switch cuts supersonic frequencies above 24kHz by -12dB/oct. This filter is effective in removing unwanted high frequency noise caused by record scratches, tape hiss and FM background noise.

**12. [BALANCE] - balance control**

This knob controls the balance of sound between the left and right channels. Turning it to the left emphasizes the sound of the left channel, while turning it to the right emphasizes that of the right channel.

**13. [LOUDNESS] - loudness switch**

This switch is used to compensate for the human ear's loss of sensitivity to bass and treble responses at low volume levels. By pushing this switch, natural sound quality can be obtained even at low volume levels. Pressing the switch again cancels the effect.

**14. [ADDITIONAL CAPACITANCE] - additional capacitance selector switch**

This switch selects the input capacitance for the phono cartridge. Set the selector to the 0, 100 pf or 200pf position according to the capacitance of the cartridge of the turntable connected to 'Phono 1' on the rear panel.

**15. [LOAD IMPEDANCE] - load impedance selector switch**

This switch selects the load impedance in relation to the phono cartridge. Set the switch to the 35, 50 or 70 kohm position, according to the designated value for the cartridge connected to 'Phono 1' on the rear panel.

## **16. [TAPE MONITOR] Switches**

The [TAPE MONITOR] switches consist of three buttons. Pressing the [SOURCE] switch will allow you to listen to the program source chosen by the Function Selector (23). [1] and [2] are used to listen to playback from the tape decks connected to the rear panel's [TAPE MONITOR 1] terminals and [TAPE MONITOR 2] terminals, respectively.

## **17. [PHONO SELECTOR] - phono selector**

The RA-2040 will accept connection of 1 to 3 turntables at the rear panel. This switch selects which of those is to be used. Moreover, as each position has its own particular specifications as listed below, be sure to connect your turntable to the appropriate terminal and set the switch to the appropriate position.

'Phono 1' — Use control knobs 11 & 12 to adjust to the cartridge specifications.

'Phono 2' — as this position is fixed at 50 kohms load impedance and 2mV input sensitivity, you may use any standard high quality MM type magnetic cartridge.

'Phono 3' — This position is especially for use with MC (moving coil) type cartridges. Use this position for turntables equipped with MC type cartridges. As the RA-2040 has a built-in MC head amplifier, there is no need for an external adapter.

## **18. [SPEAKER] - speaker switches**

These switches are used to select the speaker systems connected to the rear panel. Pressing button 'A' will drive the speaker system connected at the rear 'A' terminals, while pressing it again will disconnect it, the same being the case for the 'B' system. While 2 speaker systems may be driven simultaneously, make certain that all of the speakers are rated at 8 ohms or over. (Refer to the "Connecting Speakers" section)

## **19. [PROTECTION] - protection indicator**

This lights up when the protection circuit has gone into effect, as is intended to protect the speakers and components in the event of a speaker short, a malfunction in the component, or a surge in electric current. (When the power is first turned on, the protection circuit will light up for about 7 seconds to prevent a loud pop-noise due to power transient. This does not indicate a malfunction.)

Should the indicator go on, immediately turn the power switch off and investigate the source of the trouble. After correction, turn the power on once again. Hence the protection circuit will not be deactivated until the power is turned off.

While using the RA-2040 in the separated state as a power amplifier, the protection circuit may come on and off. In such case, something may be wrong with a control amplifier or another component connected. First turn off the power to both the RA-2040 and the control amplifier, and then remove the cords connected to the [DIRECT COUPLING] terminals on the rear panel and reconnect them to the [INPUT CAPACITOR] terminals. These two types of terminals are explained in detail in the above "Connections to [PRE AMP (OUT)] and [MAIN AMP (IN)]."

## **20. [PEAK LEVEL INDICATOR] Peak Level Indicator Display**

The indicator is composed of two rows of LED's, the top row for the left channel and the bottom row for the right channel, and displays the peak levels of the unit's POWER output. Since this indicator uses the Peak Hold Display Method (DIN standard), it provides simple, accurate readings of

power as any instantaneous level is held for one or two seconds.

The indicator can display over a range of  $-40\text{dB}$  to  $+1\text{dB}$ , and the  $[0\text{dB}]$  point indicates output of  $120\text{W}$ .

### **21. [VOLUME] - volume control**

This knob adjusts the level of volume. Turning the knob to the right increases the volume. The dB guide on the panel is convenient in aiding you to obtain the proper level of volume you desire.

### **22. [RECORDING SELECTOR] - recording selector switch**

This switch is used to select the mode of recording signals to the tape deck. In the 'OFF' position, no signal is fed to the rear panel 'Tape Monitor Out' terminal. Set to 'OFF' when not recording.

'1→2' is the setting used when copying or dubbing from tape deck 1 to tape deck 2.

'2→1' is used when copying or dubbing from tape deck 2 to tape deck 1.

The 'PHONO' setting is used when recording from a record onto a tape deck. By selecting phono 1-3 with the 'Phono Selector' switch any of these signals can be fed to the 'TAPE MONITOR' 1,2 OUT terminals for recording.

The 'AUX' position is used when recording the 'AUX' signal into a tape deck. The 'AUX' signal can be sent to the 'TAPE MONITOR' 1,2 OUT terminals for recording.

### **23. [FUNCTION] - function selector**

This switch is used to select all programs other than those of the tape decks. The 'TUNER' position is used to receive AM/FM broadcasts. The 'AUX' position is used to reproduce the sound of whatever component is connected to that terminal, while the 'PHONO' position is used when listening to records. Any of the 3 connected turntables can be chosen by using the 'PHONO' selector.

### **24. [MUTING] - muting switch**

This switch is used when one wishes to momentarily reduce the volume level without employing the main volume control. When set to the  $-15\text{dB}$  position, a  $15\text{dB}$  attenuation in volume is effected. When returned to the 'Off' position, the original volume level, is produced. This feature is convenient when one is changing records, attending a telephone call, etc.

## OPERATIONS

When all connections have been completed, the RA-2040 is ready for operation. The functions of the various switches have already been explained, so please refer back to the relative sections in this manual if you have any doubts.

**NOTE:** Please follow the procedures given below in order to prevent any possible damage to your amplifier and speakers.

**1. Before Turning On the [POWER] Switch**  
Make sure the two speaker switches are in the OFF position.

**2. Turn On the [POWER] Switch.** The [PROTECTION] indicator will come on and the unit will begin to warm up.

**3. When the [PROTECTION] indicator goes out, which will be about 5 ~ 7 seconds after the power is turned on, the warming up is completed.**

**4. Before Turning the Speakers On**

The [PEAK LEVEL INDICATOR] will display the power output. Check that the power does not exceed the speakers' rated power handling capacity.

**5. After you confirm that the output power is not excessive, push the speaker switch to the ON position.**

You will then be able to hear the sound from the speakers. Adjust the volume and the tone controls to your taste and make any other necessary adjustments to enjoy the unit to the full.

## POWER SOURCE

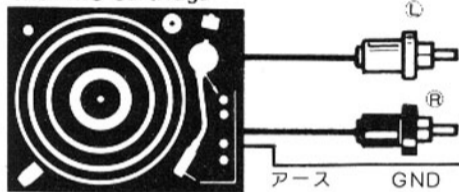
The power for the unit should be taken from an ordinary household electrical outlet.

## VENTILATION

### VENTILATION

When placing tuners, tape decks, or other components on top of the RA-2040, do not remove the rubber legs of such components and place them directly on the RA-2040. Care must be taken to ensure sufficient ventilation.

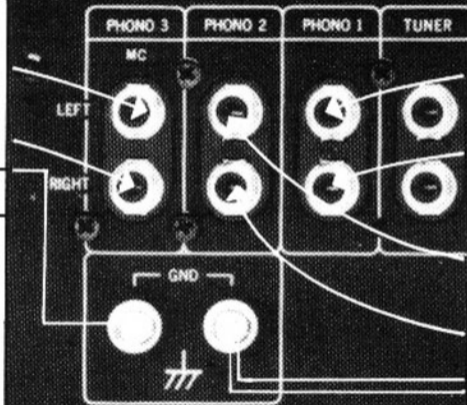
MCカートリッジ付  
with MC Cartridge



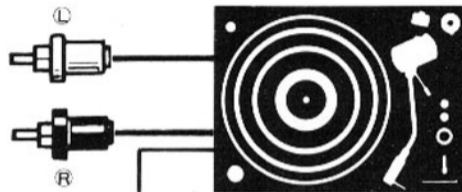
プレーヤーを接続したポジションに。

②プレーヤーを操作して演奏をスタートさせてください。

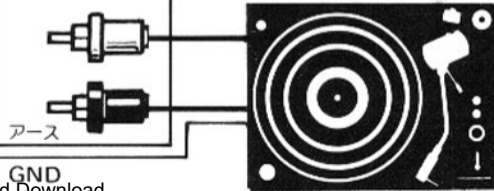
③音量ボリュームを右にまわすと演奏がきこえてきます。お好みの音量、音質に調整してください。



プレーヤー(1)  
TURNTABLE (1)

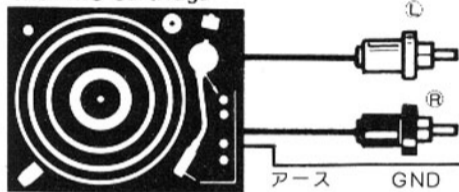


(2)





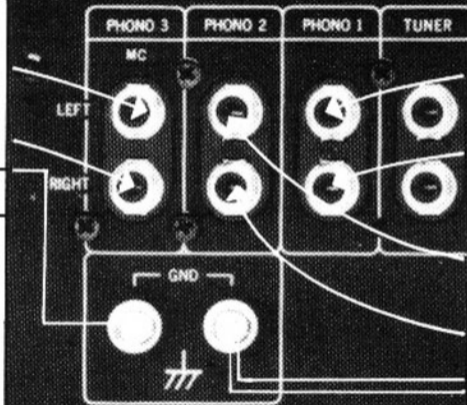
MCカートリッジ付  
with MC Cartridge



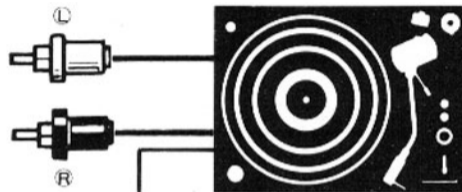
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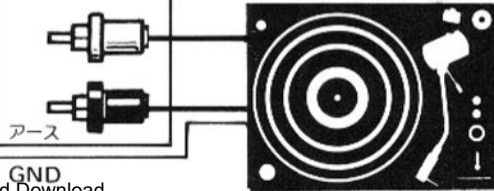
③音量ボリュームを右にまわすと演奏がきこえてきます。お好みの音量、音質に調整してください。



プレーヤー(1)  
TURNTABLE (1)



(2)



## II. TUNER

### A) Connection

Connect output terminals on the tuner to TUNER terminals on the RA-2040 with RCA type cords matching L to L and R to R respectively. Use high quality shielded cables with a length as short as possible.

### B) Receiving broadcast

1. Press the [SOURCE] button of the [TAPE MONITOR] switches.
2. Set function to TUNER.
3. Tune in to receive broadcasting signal.
4. Turn the volume control clockwise to raise the level. Set all other controls at the appropriate positions or according to your taste.

## 3. 補助入力端子(AUX)に接続した機器

### A) 接続

2台目のチューナーや再生のみのテーププレーヤーなどを①、②正しく、ピンジャックコードで[AUX]端子に接続してください。

### B) 演奏

- ①[TAPE MONITOR]テープモニタースイッチは[SOURCE]にセットします。
- ②[FUNCTION]ファンクションセレクター



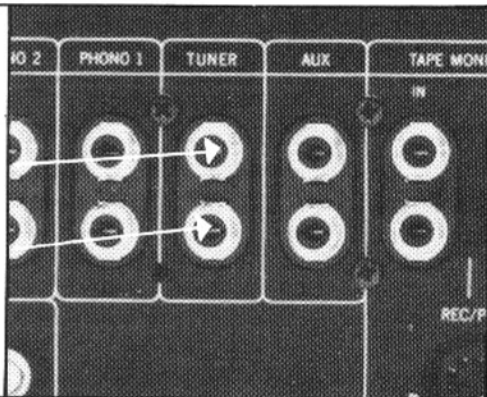
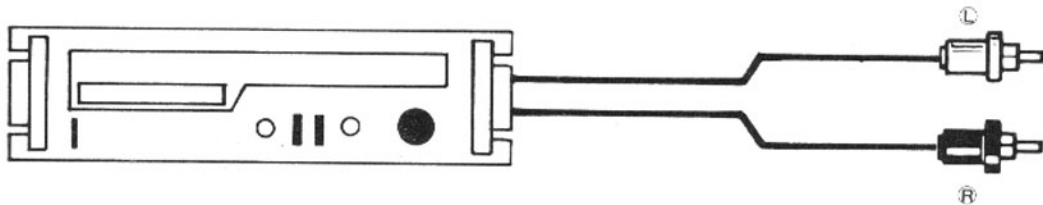
## III. AUDIO COMPONENT CONNECTED TO AUXILIARY INPUT TERMINALS (AUX)

### A) Connection

Connect secondary tuner or tapedeck for playback use only to AUX terminal on the rear panel using pin-jack cords.

### B) Playback

1. Press the [SOURCE] button of the [TAPE MONITOR] switches.
2. Set FUNCTION to AUX.
3. Start the operation of the unit connected to the RA-2040.



Es

1

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## II. SINTONIZADOR

### A) Conexión

Conecte los terminales de salida en el sintonizador a los terminales "TUNER" en el RA-2040 con los cordones de tipo RCA que concordan la L a la L y la R a la R, respectivamente. Use los cables blindados de alta calidad con logitud tanto corto como posible.

### B) Recepción de la radiodifusión

1. Oprima el botón [SOURCE] del interruptor [TAPE MONITOR].
2. Ponga el selector de función a la "TUNER".
3. Sintonícese para recibir la señal de radiodifusión.
4. Haga girar el control de volumen en el sentido de las agujas del reloj para elevar el nivel. Ponga todos otros controles en las posiciones apropiadas o según su gusto.

## II. SINTONIZZATORE

### A) Collegamento

Collegare i morsetti d'uscita nel sintonizzatore ai morsetti TUNER nel RA-2040 con cordoni di tipo RCA che concorda la L alla L e la R alla R, rispettivamente. Usare i cavi schermati di alta qualità con lunghezza la più corta possibile.

### B) Ricezione della radiodiffusione

1. Premere il bottone [SOURCE] dell'interruttore [TAPE MONITOR].
2. Porre il selettore di funzione alla TUNER.
3. Sintonizzarsi per ricevere le segnale di radio-diffusione.
4. Girare il comando di volume in senso orario per elevare il livello. Porre tutti altri comandi nelle posizioni appropriate o secondo il vostro gusto.

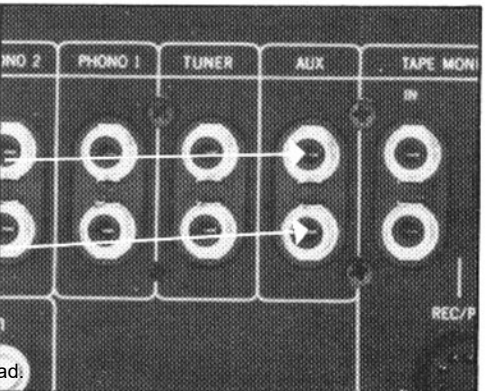
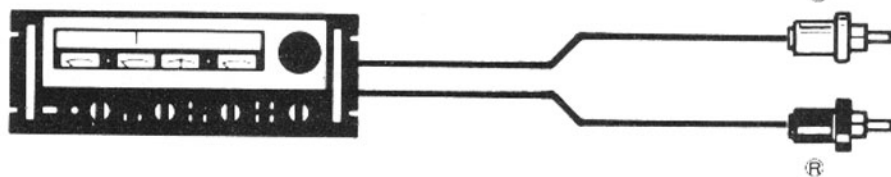
## II. TUNER

### A) Anslutning

Anslut tunerns utgång till RA-2040:s (TUNER)-intag med RCA-kablar. Observera att L och R på tunerns utgång skall anslutas till samma sidor på RA-2040:s intag. Använd skärmade kablar av hög kvalitet. Kablarna skall vara så korta som möjligt.

### B) Sändningsmottagning

1. Nedtryck [TAPE MONITOR]-omkopplarens [SOURCE]-knapp.
2. Inställ funktionsväljaren i TUNER-läge.
3. Avstäm för mottagning av sändningssignaler.
4. Vrid volymkontrollen medurs för att höja volymnivån. Inställ alla andra kontroller på önskade lägen.



4. Turn the volume control clockwise to increase level. Adjust all other controls to suit your taste.

## 4. テープデッキ

### A) 接続

テープデッキの出力端子と本機の〔TAPE MONITOR-1〕の〔IN〕端子とをⒶ、Ⓑ正しく接続します。次にデッキの入力端子と本機の〔TAPE MONITOR-1〕の〔OUT〕端子とをⒶ、Ⓑ正しく接続します。

もう一台、テープデッキを接続するときは同じ要領で、本機の〔TAPE MONITOR-2〕へ接続してください。

DIN録再コネクターを備えているデッキは、MONITOR の〔IN〕、〔OUT〕の端子の下にある〔REC/PB〕ソケットに DIN録再コードで接続ができます。このとき、使用しないピンジャックの方へ、他のテープデッキを接続してはいけません。

### B) 再生

- ①〔TAPE MONITOR〕テープモニタースイッチの〔1〕、または〔2〕をプッシュしてください。〔1〕は〔TAPE MONITOR-1〕に接続したテープデッキを、〔2〕は〔TAPE MONITOR-2〕に接続したデッキを再生できます。
- ②〔RECORDING SELECTOR〕レコーディングセレクターを〔OFF〕に合わせてください。
- ③テープデッキを再生状態にしてください。
- ④ボリュームを上げてお好みの音量でお楽しみください。



## IV. TAPE DECK

### A) Connection

Connect output terminals of the tape deck to IN terminal of TAPE MONITOR 1 (or 2) on the RA-2040, matching R to R and L to L respectively.

Connect input terminals of the tape deck to OUT terminals of TAPE MONITOR on the RA-2040, matching R to R and L to L. Tape deck furnished with DIN REC/PB connector is connected to REC/PB terminal of the RA-2040 using a single DIN cord, (both recording and playback)

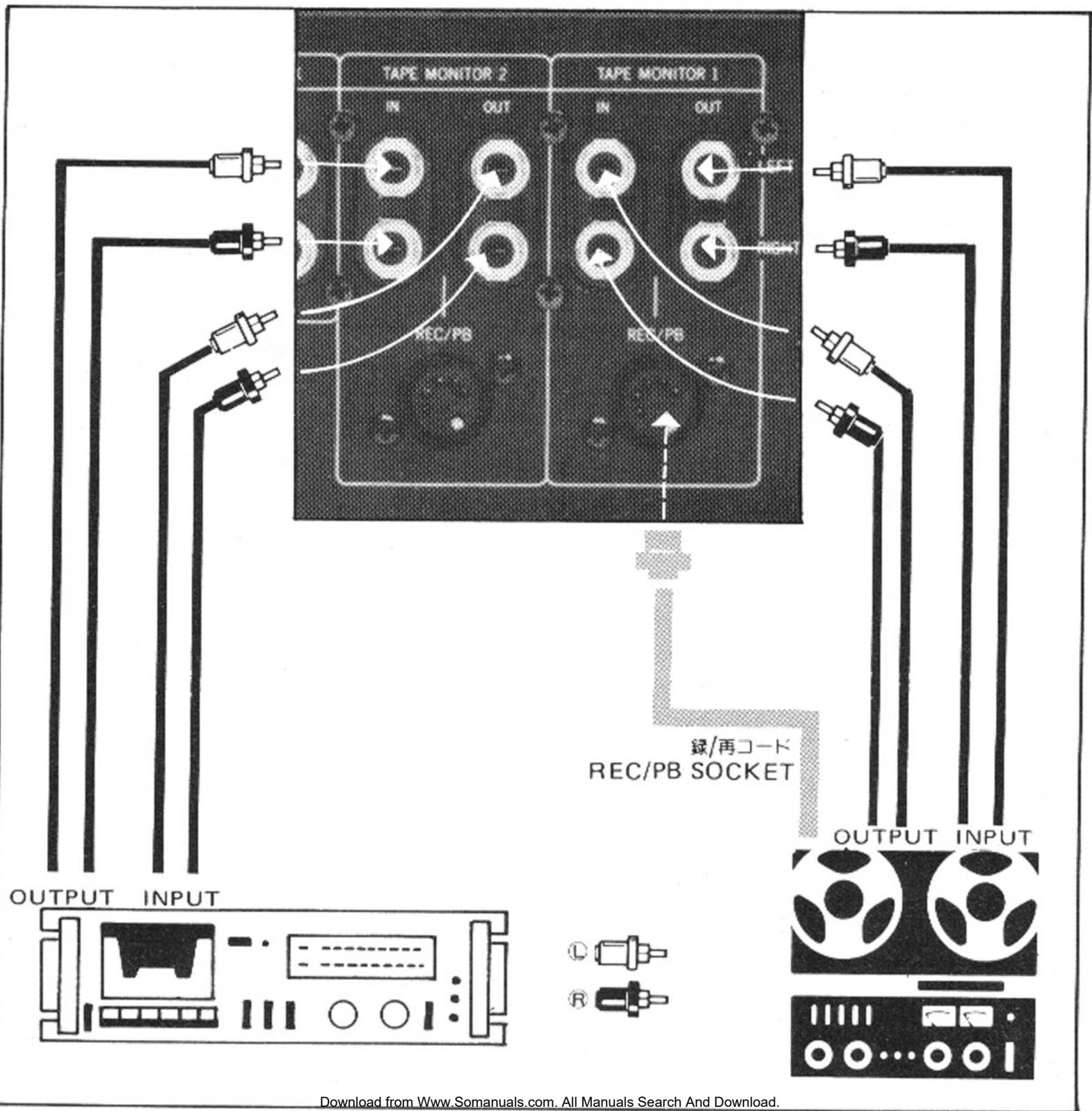
In this setting, do not connect other tape decks to pin jack terminals.

### B) Playback

1. Press either button [1] or [2] under the [TAPE MONITOR] to permit playback of the tape deck connected to [TAPE MONITOR 1] or [TAPE MONITOR 2], respectively.
2. Set the [RECORDING SELECTOR] in the [OFF] position.
3. Start the playback operation of the tape deck.
4. Adjust the volume to your taste.

### C) Recording

Set the [RECORDING SELECTOR] to the program source you wish to record. This will enable the RA- to feed the desired



program source signal to the [TAPE MONITOR] output terminals on the rear panel. (Please note that no signal will be provided at the output terminals when the selector is in the [OFF] position.) This signal for recording is not affected by the position of the volume, balance, filter, tone control, or other controls, not by the position of the [FUNCTION] control either.

1. Press the [SOURCE] button of the [TAPE MONITOR] switch.

2. Set the [RECORDING SELECTOR] to the program source you wish to record. Recording mistakes can be prevented by setting the program source to be recorded, putting the tape deck into operation, and adjusting the output level ahead of time.

3. When the tape deck operation is started in the recording mode, recording will begin. If the tape deck being used is a three-head model (having one head especially for playback), it is possible to monitor the recorded sound by pressing [1] or [2] of the [TAPE MONITOR] switch, as appropriate. Pressing the [SOURCE] button will allow you to hear the original sound of the program source that is being output to the tape deck for recording.

#### **D) Tape Dubbing**

The RA-2040 permits dubbing (tape copying) from tape deck 1 to tape deck 2 or vice versa.

#### **DUBBING FROM TAPE DECK 1 TO TAPE DECK 2**

1. Set the [RECORDING SELECTOR] in the [1 ► 2] position.

2. Operate tape deck 1 in the playback mode and tape deck 2 in the record mode. The recording may be checked by setting the [TAPE MONITOR] switch in the [1] or [2] position. In other words, you can monitor the sound being played back by tape deck, and the sound that has been recorded by tape deck 2.

#### **DUBBING FROM TAPE DECK 2 TO TAPE DECK 1**

1. Set the [RECORDING SELECTOR] in the [1 ► 2] position.

2. Operate tape deck 2 in the playback mode and tape deck 1 in the record mode. The recording may be checked by setting the [TAPE MONITOR] switch in the [1] or [2] position. In other words, you can monitor the sound being played back by tape deck 2, and the sound that has been recorded by tape deck 1.

#### **LISTENING TO OTHER SOURCES DURING RECORDING**

During recording or dubbing, if the [SOURCE] button of the [TAPE MONITOR] switch is pushed, it is possible to enjoy a program source (record, FM, etc.) other than that being recorded by setting the [FUNCTION] selector to the appropriate program source.

## PROTECTION

The RA-2040 incorporates all possible safety measures by combining multiple protection circuits to prevent accident or damage:

If for some reason the protection circuit is activated, there will be a sudden cut-off of sound from the speakers and the protection indicator will light up.

When the protection indicator light up, the cause of the trouble may be due to a short circuit in the speaker wires. The wall outlet, and make an examination of the speaker wires.

While separating the RA-2040 and using it as a power amplifier, if it appears that DC signals are reaching the speaker system, disconnect the pin-jack cord connecting the control amplifier to the rear panel of the RA-2040 and reconnect to the terminals labeled [INPUT CAPACITOR].

After completing the above checks, you may resume operation again "OPERATION" 1 ~ 5.

If you cannot locate the cause of the trouble, or the amplifier does not reactivate, switch the power off, disconnect the plug from the wall outlet and consult the Rotel Service Center or your dealer.

## ハムおよび雑音について

各コンポーネントを完璧に接続しても、場合によってはそれぞれの位置関係とか、アースのとり方、あるいは接続コードそのものがハムの原因となることがあります。万一、ハムが発生したら、スピーカーを除くすべてのコンポーネントを取外してみてください。それでもハムが出るときはコン



## HUM AND NOISE

In any high fidelity installation, hum may be caused by the interconnection of a record player, tuner and amplifier, and speakers as result of the cables different grounds or locations of components. If hum is experienced with your unit, disconnect everything but the speakers from the unit. If the hum persists, reverse the power plug at the power source.

Plug in the record player and if hum or

howling appears, move the record player away from the speakers as much as possible. Note: Hum may also be induced by defective connection cables or by running these cables too close to a strong AC field. In the event you cannot find the causes, consult your dealer or a qualified electrician.



# SPECIFICATIONS

## POWER AMPLIFIER SECTION

### Continuous Power Output:

**120 watts\* per channel min. RMS both channels driven at 8 ohms from 20 to 20,000Hz with no more than 0.01% total harmonic distortion.**

Total Harmonic Distortion. . . . .	No more than 0.01% (20 to 20,000Hz) (continuous rated power output)
	No more than 0.006% (60 watts per channel power output, 8 ohms)
	No more than 0.008 % (1 watt per channel power output, 8 ohms)
Intermodulation Distortion . . . . .	No more than 0.01% (70 Hz: 7,000Hz = 4 : 1) (continuous rated power output)
	No more than 0.015% (60 watts per channel power output, 8 ohms)
	No more than 0.008% (1 watt per channel power output, 8 ohms)
Frequency Response . . . . .	DC IN 4 – 100,000Hz (+0dB, -1dB) DC IN 2 – 200,000Hz (+0dB, -3dB) AC IN 5 – 100,000Hz (+0dB, -1dB) (1 watt per channel power output, 8 ohms)

Input Sensitivity/Impedance. . . . .	.15V/50 Kohms
Output: Speaker. . . . .	A, B (4 ~ 16 ohms) A + B (8 ~ 16 ohms)
Damping Factor. . . . .	.65 (20 to 20,000Hz, 8 ohms) 100 (1kHz, 8 ohms)
Hum & Noise . . . . .	.110dB (IHF, short-circuited A network)
Crosstalk. . . . .	.10kHz 65dB (reverse channel short)

## EQUALIZER AMPLIFIER SECTION

Output Voltage/Impedance (at 1kHz)	
Rated Output DIN output	
50mV. . . . .	.150mV
Max Output 0.5% T.H.D . . . . .	.25V
Harmonic Distortion (5V output 20 to 20,000Hz)	
PHONO 1, 2 (MAG) . . . . .	.0005%
PHONO 3 (MC) . . . . .	.0006%
Phono Equalization (20 to 20,000Hz)	
PHONO 1, 2 RIAASTD. . . . .	±0.3dB
PHONO 3 RIAA STD . . . . .	±0.3dB
Hum and Noise (IHF A network, 1V output)	
PHONO 1, 2 (MAG) . . . . .	.75dB
PHONO 3 (MC) . . . . .	.64dB
Input Sensitivity/Impedance (ref. rated output)	
PHONO 1 (MAG) . . . . .	.2mV/35, 50, 70 kohms 0, 100, 200PF
PHONO 2 (MAG) . . . . .	.2mV/50 kohms
PHONO 3 (MC) . . . . .	.100μV/33 ohms
Crosstalk (at 20,000Hz, reverse channel short) . . . . .	.55dB
Over Load (1kHz, 0.5% T.H.D)	
PHONO 1 (MAG) . . . . .	.400mV
PHONO 2 (MAG) . . . . .	.400mV
PHONO 3 (MC) . . . . .	.15mV

## PRE AMPLIFIER SECTION (AT PRE-OUTPUT)

Output Voltage/Impedance	
rated output. . . . .	.15V/600 ohms
max. output (0.5% T.H.D.) . . . . .	.7V
Harmonic Distortion (rated output, 20 to 20,000Hz). . . . .	.0008%
Frequency Response	
(+0dB, -1dB) . . . . .	.4 ~ 160,000Hz
Hum and Noise (IHF. A network)	
TUNER, AUX. . . . .	.95 dB
TAPE MONITOR 1, 2 . . . . .	.95dB
RESIDUAL (volume level at min) . . . . .	.6μV/100dB
Input Sensitivity/Impedance (ref. rated output)	
TUNER, AUX. . . . .	.150mV ±1dB/50 Kohms
TAPE MONITOR 1, 2 . . . . .	.150mV ±1dB/50 Kohms
Overload (1kHz, 0.5% T.H.D.)	
TUNER, AUX. . . . .	.15V
TAPE MONITOR 1, 2 . . . . .	.15V
Crosstalk (at 1kHz) . . . . .	.1kHz, 70dB AVE
Intermodulation Distortion (70Hz : 7kHz - 4:1). . . . .	.001%

## CONTROL CHARACTERISTICS

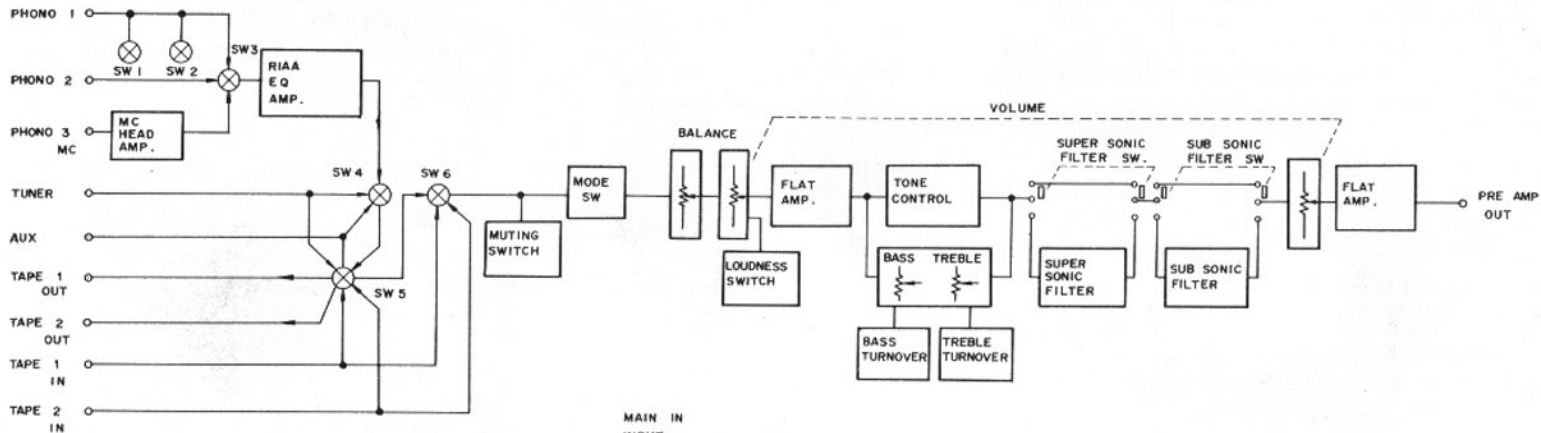
Tone Controls	
BASS (at 100Hz)	
turnover . . . . .	.150Hz ±5dB
turnover . . . . .	.400Hz ±10dB
TREBLE (at 1kHz)	
turnover . . . . .	.7kHz ±5dB
turnover . . . . .	.25kHz ±10dB
Loudness (at 100Hz, 10kHz) . . . . .	±8dB/±4dB
Supersonic Filter (at 24kHz) . . . . .	.12dB/oct.
Subsonic Filter (at 16Hz) . . . . .	.12dB/oct.
Audio Muting . . . . .	—15dB ±1dB

## MISCELLANEOUS

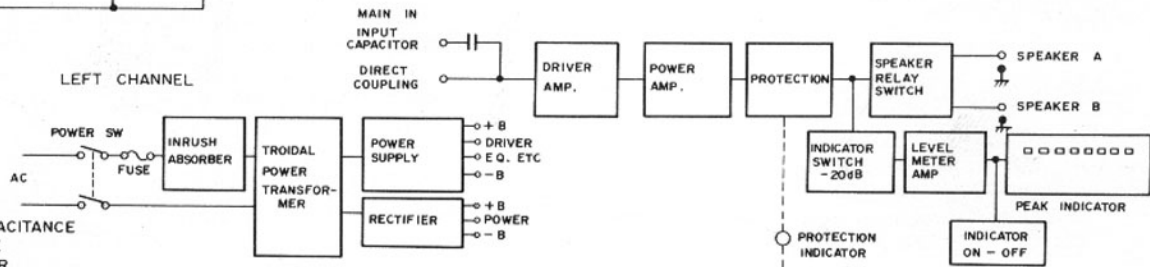
Power Requirements . . . . .	.120V/60Hz or 220V/50Hz or 240V/50Hz or 100, 120, 220, 240V/50-60Hz (switchable)
Power Consumption . . . . .	.900 watts (Max.)
Dimensions (Overall) . . . . .	.482(W) x 143(H) x 408(D) mm
Weight (Net) . . . . .	.22kg

NOTE: Specifications and design subject to possible modification without notice.

\* Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Claims for Amplifiers. (Applicable to the U.S.A. only)



LEFT CHANNEL



- SW 1 ADDITIONAL CAPACITANCE
- SW 2 LOAD IMPEDANCE
- SW 3 PHONO SELECTOR
- SW 4 FUNCTION
- SW 5 RECORDING SELECTOR
- SW 6 TAPE MONITOR

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