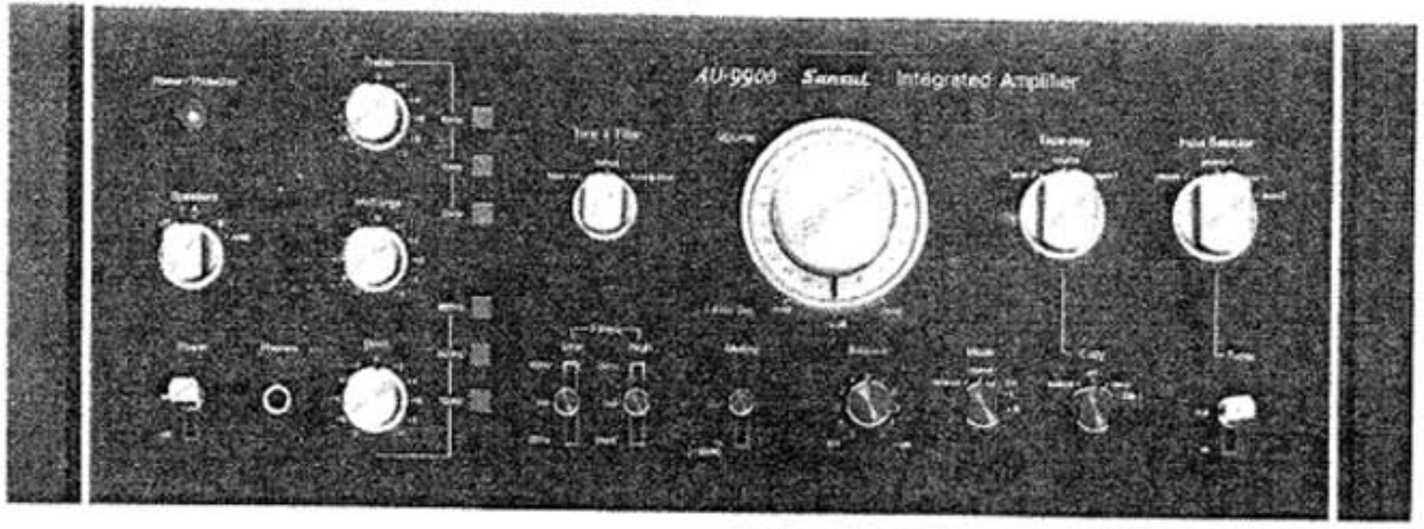
SANSUI

AU-9900

MODE D'EMPLOI
BETRIEBSANLEITUNG
OPERATING INSTRUCTIONS



AMPLIFICATEUR STÉRÉO INTÉGRÉ
INTEGRIERTER STEREOVERSTÄRKER
INTEGRATED STEREO AMPLIFIER

We are grateful for your choice of the AU-9900 stereo integrated amplifier. Before you begin operating your AU-9900, we suggest that you read this booklet of operating instructions once carefully. You will then be able to connect and operate it correctly, and enjoy its superb performance years to come.

Table of contents

ATTENTION: Pour éviter les dangers d'électrocution ou d'incendie, ne pas exposer cet appareil à la pluie ou à l'humidité.

WARNUNG: Setzen Sie dieses Gerät zur Verhütung von Feuer- und Stromschlaggefahr weder Regen noch Feuchtigkeit aus.

WARNING: To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

IMPORTANT PRECAUTIONS

To keep the unit in top condition at all times, observe the following precautions.

Installation locations

* Do not expose the unit to rain or sun. Such exposure is dangerous, since it may eventually be the cause of circuit burnout or fire, or give electric shock to whoever touches the unit.
* Avoid extremely dusty locations, or close proximity to heating appliances or placing it in direct sunlight.
* Never remove the side and bottom plates. Such removal is both physically and electrically dangerous.

Installation

You should mount the unit on a solid shelf or stand. Of the five feet on the unit's bottom board, the two, located near the rear panel, can be moved 4.5 cm (2 inches) toward the front panel, a feature useful when mounting the unit on a narrow shelf. The screws, located in the oval recesses in the bottom board, are provided for this purpose. Never remove the feet for mounting, since the ventilation outlets will be blocked, giving rise to the possible cause of breakdown.

Ventilation

Never obstruct the ventilation outlets on the unit's top, bottom boards, and on the rear panel. Take extra care about ventilation when placing equipment, etc. atop the unit or mounting the unit in a sealed box; using the unit in such a condition may lead to an eventual breakdown. There's a protection circuit inside the unit that cuts the output temporarily in case the internal temperature rises above a certain level.

AC outlets

Of the three AC outlets provided on the rear panal, the one, marked "SWITCHED," is controlled by the front-panel POWER switch. It is convenient to use it to power a program source component such as your turntable, etc.

The other two AC outlets, marked "UNSWITCHED," are not controlled by the unit's POWER switch; so long as the unit is connected to a wall outlet, the connected components are also powered.

The "SWITCHED" and "UNSWITCHED" outlets have a capacity of 100 watts and 250 watts respectively. Do not connect any component whose power consumption exceeds the capacity of each outlet, as it is extremely dangerous. The power consumption rating is usually listed in the specification chart of the component, or sometimes on the equipment itself; be sure to check the rating.

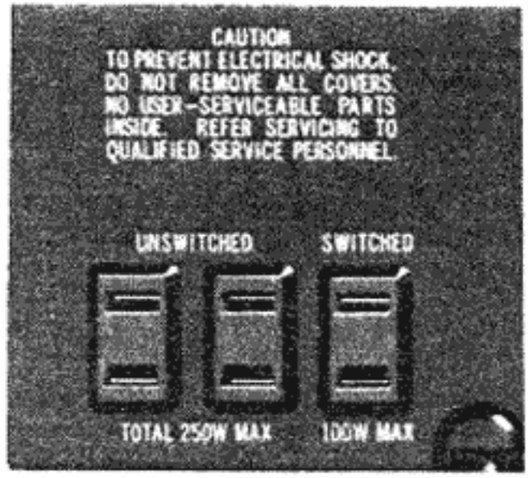
- In case you have connected a component to one of the unit's AC outlets and then another component to the first component's AC outlet, be sure to add the second component's rated power consumption to the consumption of the components connected to the unit itself.

Short pin-plugs

Pin-plugs are inserted in the PHONO-2 terminals of the unit to decrease noise prior to delivery from our factory. Since unused terminals without short pin-plugs can cause an increase in noise, be sure to keep them inserted when you use only one turntable. Never re-insert them into the TAPE REC. PRE OUT, or MAIN IN terminals, for then you will be unable to hear any sound at all.

Cable guides on side panels

Terminals for the inputs and outputs are provided on the side panels of the unit: inputs on the right panel and outputs on the left. Since they are located near the front panel, you can make connections easily after simply pulling the unit out toward you. Connection cables can be bundled neatly when they are run behind the cable guides.



NOTA: Aucune prise de puissance de sortie à courant alternatif n'est prévue sur le modèle vendu en Europe.

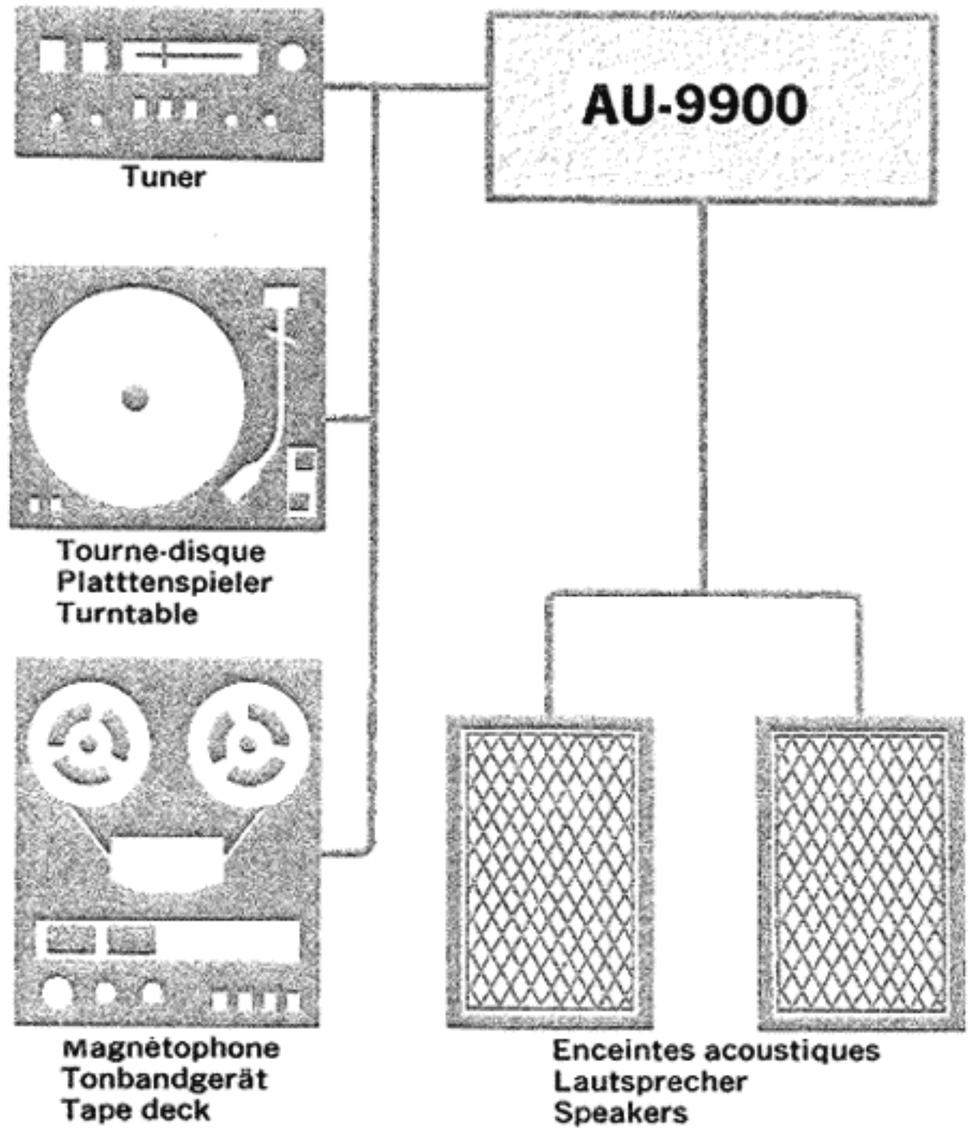
HINWEIS: Das in Europa verkaufte Modell hat keine Wechselstromsteckdose.

NOTE: No AC outlet is provided on the model sold in Europe.

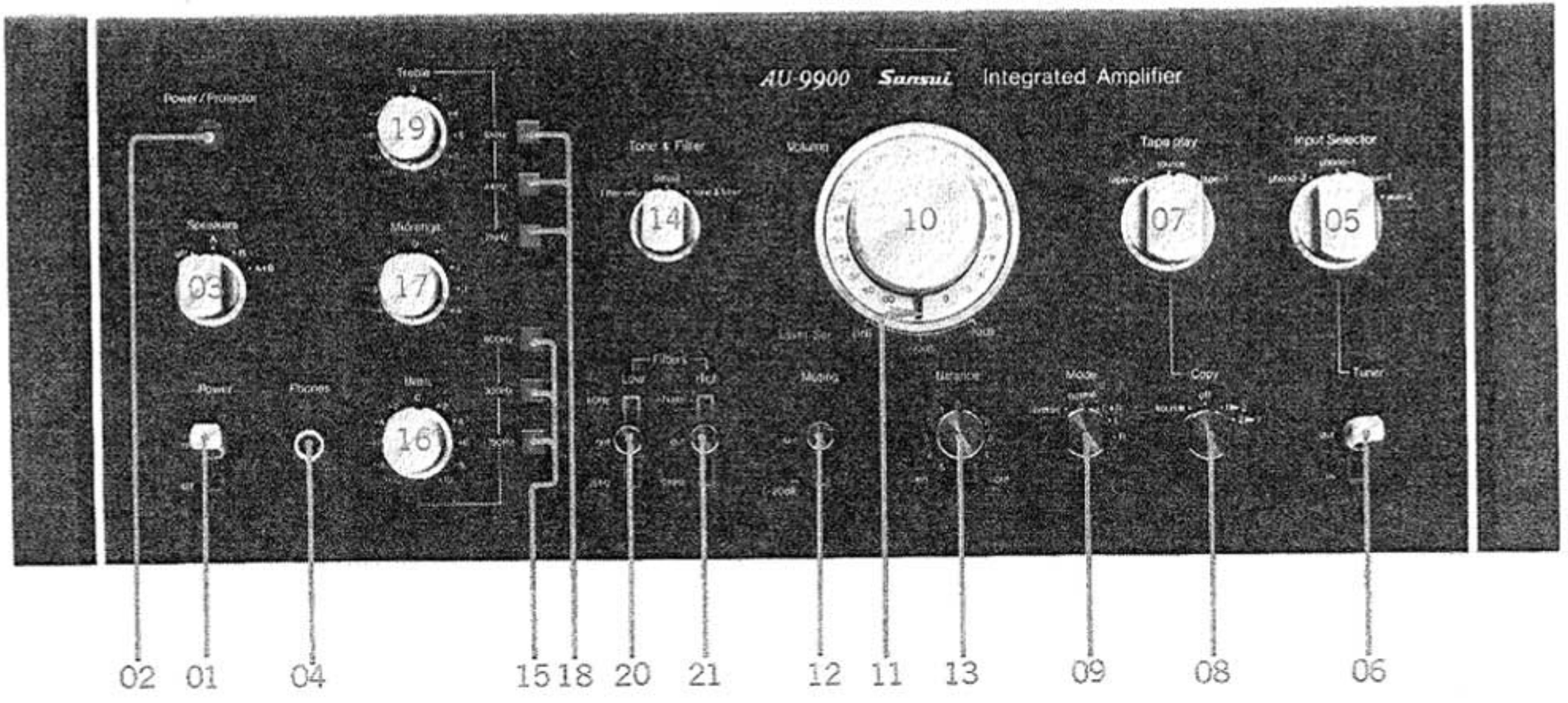
FUNCTIONAL FEATURES

* Versatile phono circuits
  Two PHONO inputs are provided on the unit, so that you can connect two turntables or two tonearms. To make the most of each of your cartridges/turntables, three types of input sensitivities and pickup loads are available with the PHONO-1.
* Circuits for two tape decks
  Two decks can be connected. It's possible to record into both at the same time or to dub one onto the other.
* Terminals for two pairs of speakers
  Driving either or both of two pairs of speakers or none can be selected by a switch.
* Versatile tone-adjusting and filtering controls
  Sansui exclusive TTC (Triple Tone Controls) are provided with a midrange control added. There are also three selectable turnover frequencies for BASS and TREBLE each. The TONE & FILTER switch has a DEFEAT position for an instant flat response.
* Pre/main amplifier-separating switch provided
  The unit's power amplifier and preamplifier sections can be separated for independent use by the PRE-MAIN separate switch. Use the "SEPARATED" position when connecting a separate control amplifier or power amplifier or when building an electronic crossover system.
* Fail-safe protection circuits
  Protection circuits are activated in cases of unusually high internal temperature, overloads or DC unbalance at the output. The output signals are not released to the speakers until the trouble is remedied.

MONTAGE D'UNE CHAINE AUDIO
AUFBAU EINES AUDIOSYSTEMS
CONSTRUCTION OF AN AUDIO SYSTEM



INDICATIONS SUR LE PANNEAU/SCHALTTAFELINFORMATION/ PANEL INFORMATION



- Les nombres entre parenthèses se réfèrent aux pages où sont données les descriptions correspondantes.

01 Bouton interrupteur (POWER) (pages 24, 25)
02 Indicateur protection/puissance (POWER/PROTECTOR) (pages 24, 25)
03 Bouton de haut-parleurs (SPEAKERS) (pages 24, 25)
04 Prise jack d'écouteurs (PHONES) (pages 24, 25)
05 Bouton sélecteur d'entrée (INPUT SELECTOR) (pages 26, 27)
06 Sélecteur de tuner (TUNER) (pages 26, 27)
07 Bouton de reproduction de bande (TAPE PLAY) (pages 26, 27)
08 Bouton de copie de bande (TAPE COPY) (pages 26, 27)
09 Bouton de mode (MODE) (pages 28, 29)
10 Bouton de volume (VOLUME) (pages 28, 29)
11 Sélecteur de réglage niveau (LEVEL SET) (pages 28, 29)
12 Commutateur d'atténuation (MUTING) (pages 28, 29)
13 Bouton d'équilibrage (BALANCE) (pages 30, 31)
14 Commutateur de filtrage et tonalité (TONE & FILTER) (pages 32-35)
15 Sélecteurs de tonalité grave (BASS) (pages 32, 33)
16 Bouton de réglage du grave (BASS) (pages 32, 33)
17 Bouton de réglage de fréquence moyenne (MIDRANGE) (pages 32, 33)
18 Bouton sélecteurs de tonalité aiguë (TREBLE) (pages 34, 35)
19 Bouton de réglage de l'aigu (TREBLE) (page 34, 35)
20 Commutateur de filtre bas (LOW FILTER) (pages 34, 35)
21 Commutateur de filtre haut (HIGH FILTER) (pages 34, 35)

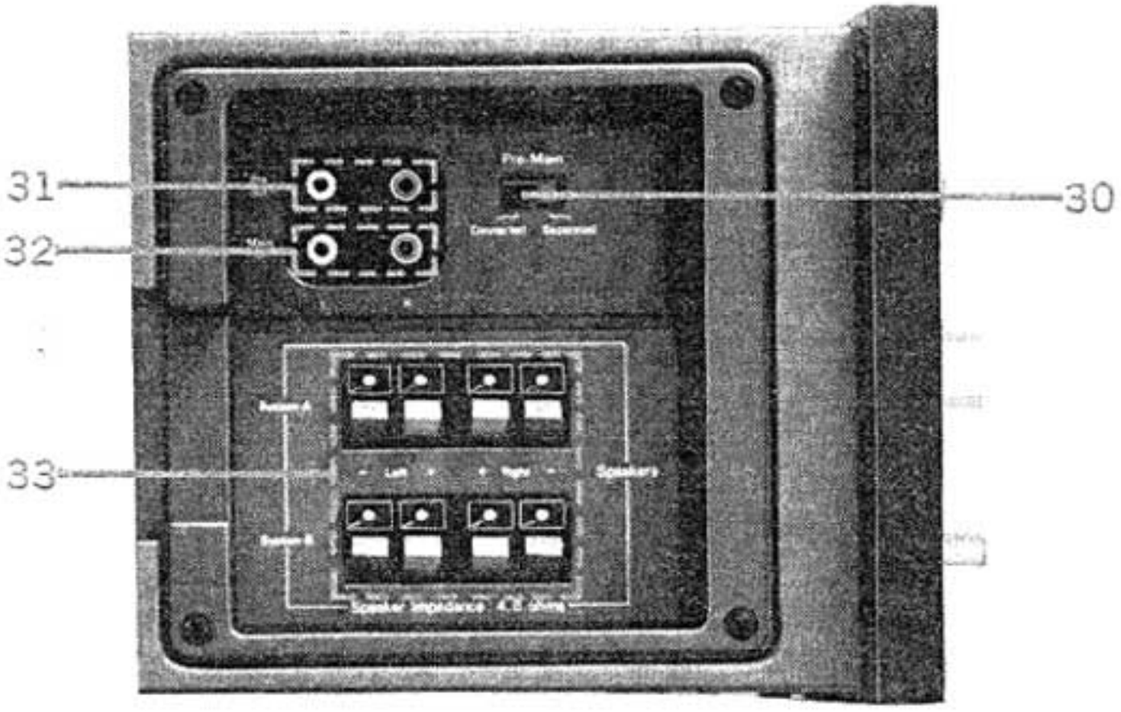
- Die Zahlen in Klammern bezeichnen die Seiten, auf denen die entsprechende Beschreibung gegeben ist.

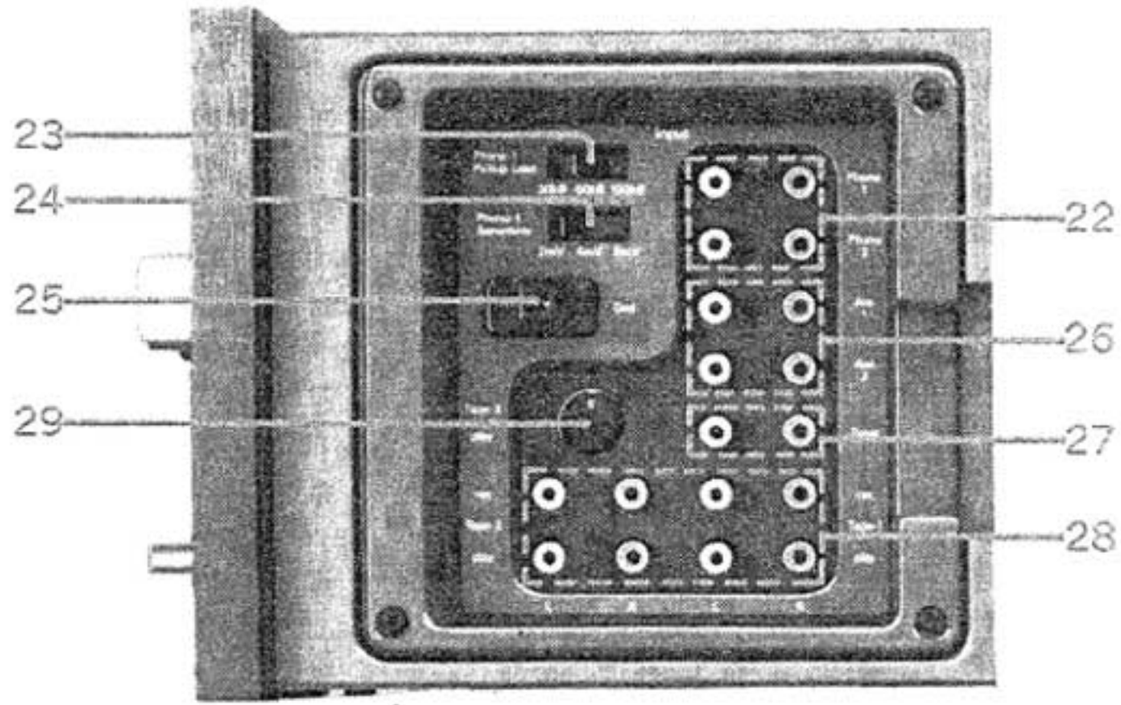
01 Netzschalter (POWER) (Seiten 24, 25)
02 Netz/Schutzstromkreisanzeiger (POWER/PROTECTOR) (Seiten 24, 25)
03 Lautsprecherschalter (SPEAKERS) (Seiten 24, 25)
04 Kopfhörerbuchse (PHONES) (Seiten 24, 25)
05 Eingangswähler (INPUT SELECTOR) (Seiten 26, 27)
06 Tunerschalter (TUNER) (Seiten 26, 27)
07 Tonbandschalter (TAPE PLAY) (Seiten 26, 27)
08 Tonbandkopierschalter (TAPE COPY) (Seiten 26, 27)
09 Betriebsartenschalter (MODE) (Seiten 28, 29)
10 Lautstärkeregler (VOLUME) (Seiten 28, 29)
11 Pegelwähler (LEVEL SET) (Seiten 28, 29)
12 Dämpfungsschalter (MUTING) (Seiten 28, 29)
13 Balanceregler (BALANCE) (Seiten 30, 31)
14 Klang- und Filterschalter (TONE & FILTER) (Seiten 32-35)
15 Baßklangwähler (BASS) (Seiten 32, 33)
16 Baßregler (BASS) (Seiten 32, 33)
17 Mittelbereichsregler (MIDRANGE) (Seiten 32, 33)
18 Höhenklangwähler (TREBLE) (Seiten 34, 35)
19 Höhenregler (TREBLE) (Seiten 34, 35)
20 Tieffilterschalter (LOW FILTER) (Seiten 34, 35)
21 Hochfilterschalter (HIGH FILTER) (Seiten 34, 35)

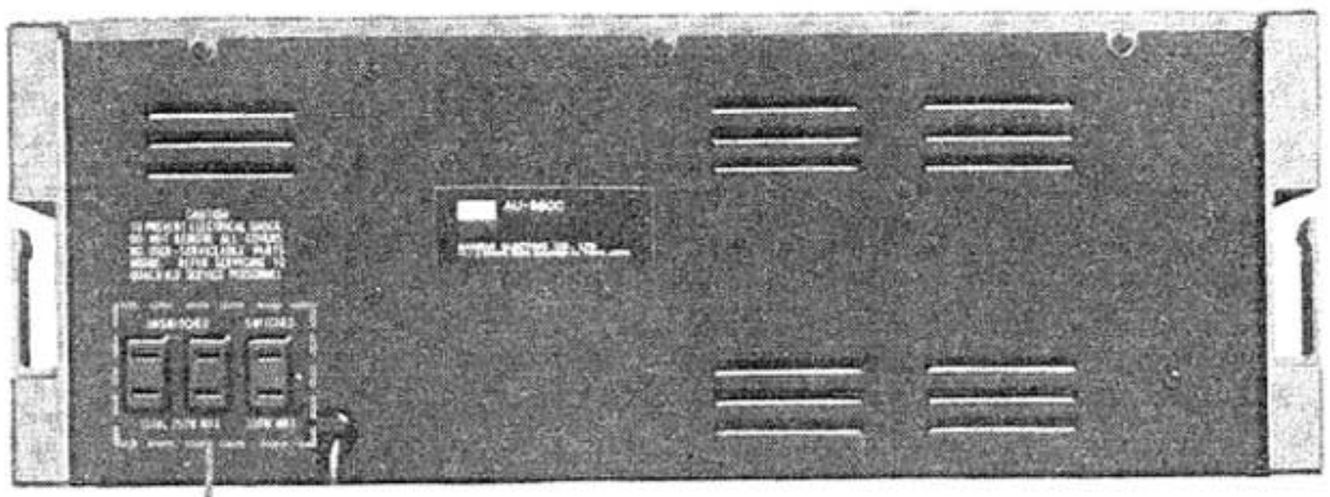
- Numbers in parentheses refer to pages on which related description appears.

01 POWER Switch (pages 24, 25)
02 POWER/PROTECTOR Indicator (pages 24, 25)
03 SPEAKERS Switch (pages 24, 25)
04 PHONES Jack (pages 24, 25)
05 INPUT SELECTOR Switch (pages 26, 27)
06 TUNER Selector (pages 26, 27)
07 TAPE PLAY Switch (pages 26, 27)
08 TAPE COPY Switch (pages 26, 27)
09 MODE Switch (pages 28, 29)
10 VOLUME Control (pages 28, 29)
11 LEVEL SET Selector (pages 28, 29)
12 MUTING Switch (pages 28, 29)
13 BALANCE Control (pages 30, 31)
14 TONE & FILTER Switch (pages 32-35)
15 BASS Tone Selectors (pages 32, 33)
16 BASS Control (pages 32, 33)
17 MIDRANGE Control (pages 32, 33)
18 TREBLE Tone Selectors (pages 34, 35)
19 TREBLE Contol (pages 34, 35)
20 LOW FILTER Switch (pages 34, 35)
21 HIGH FILTER Switch (pages 34, 35)

INDICATIONS SUR LE PANNEAU/SCHALTTAFELINFORMATION/ PANEL INFORMATION







- Les nombres entre parenthèses se réfèrent aux pages où sont données les descriptions correspondantes.

22 Bornes d'entrée PHONO (pages 16, 17)
23 Commutateur de charge de pick-up phono-1 (PHONO-1 PICK-UP LOAD) (pages 16, 17)
24 Commutateur de sensibilité phono-1 (PHONO-1 SENSITIVITY) (pages 16, 17)
25 Borne de terre (GND) (pages 22, 23)
26 Bornes auxiliaires (AUX) (pages 18, 19)
27 Bornes de tuner (TUNER) (pages 18, 19)
28 Bornes de reproduction/enregistrement de bande (TAPE REC/PLAY) (pages 20, 21)
29 Prise DIN de reproduction/enregistrement bande 2 (TAPE-2 REC/PLAY) (pages 20, 21)
30 Commutateur séparé préampli-ampli principal (PRE-MAIN) (pages 42, 43)
31 Bornes de sortie préampli (PRE OUT) (pages 42, 43)
32 Bornes d'entrée d'ampli principal (MAIN IN) (pages 42, 43)
33 Bornes de haut-parleurs (SPEAKERS) (pages 14, 15)
34 Prises de sortie de cour. alt. (pages 4, 5)

- Die Zahlen in Klammern bezeichnen die Seiten, auf denen die entsprechende Beschreibung gegeben ist.

22 Phonoklemmen (PHONO) (Seiten 16, 17)
23 PHONO-1 Tonabnehmerlastschalter (PHONO-1 PICKUP LOAD) (Seiten 16, 17)
24 PHONO-1 Empfindlichkeitsschalter (PHONO-1 SENSITIVITY) (Seiten 16, 17)
25 Erdungsklemme (GND) (Seiten 22, 23)
26 AUX-Klemmen (AUX) (Seiten 18, 19)
27 Tunerklemmen (TUNER) (Seiten 18, 19)
28 Tonbandklemmen (TAPE REC/PLAY) (Seiten 20, 21)
29 DIN-Buchse (TAPE-2 REC/PLAY) (Seiten 20, 21)
30 Trennschalter für Vor- und Hauptverstärker (PRE-MAIN) (Seiten 42, 43)
31 Vorverstärkerausgangsklemmen (PRE OUT) (Seiten 42, 43)
32 Hauptverstärkereingangsklemmen (MAIN IN) (Seiten 42, 43)
33 Lautsprecherklemmen (SPEAKERS) (Seiten 14, 15)
34 Steckdosen (Seiten 4, 5)

- Numbers in parentheses refer to pages on which related description appears.

22 PHONO Input Terminals (pages 16, 17)
23 PHONO-1 PICKUP LOAD Switch (pages 16, 17)
24 PHONO-1 SENSITIVITY Switch (pages 16, 17)
25 GND (Grounding) Terminal (pages 22, 23)
26 AUX (Auxiliary) Terminals (pages 18, 19)
27 TUNER Terminals (pages 18, 19)
28 TAPE REC/PLAY Terminals (pages 20, 21)
29 TAPE-2 REC/PLAY DIN Socket (pages 20, 21)
30 PRE-MAIN Separate Switch (pages 42, 43)
31 PRE OUT Terminals (pages 42, 43)
32 MAIN IN Terminals (pages 42, 43)
33 SPEAKERS Terminals (pages 14, 15)
34 AC Outlets (pages 4, 5)

CONNECTION

Note

* Prior to any connection, be sure that the POWER switch is at the OFF position.
* When using the "SWITCHED" and "UNSWITCHED" AC outlets of the unit, never connect components whose total power consumption exceeds the capacity of each outlet.
* In connecting tape decks, do not use the TAPE-2 pin-jack terminals and the DIN socket simultaneously.
* Noise and breakdown may be caused when defective cords are used, when connection is imperfectly made or when loose ends of connection cord lead wires are in contact with the unit or other components. Therefore, when connections are completed, check that they are correctly made and that the plugs and connection cords are in proper working condition.

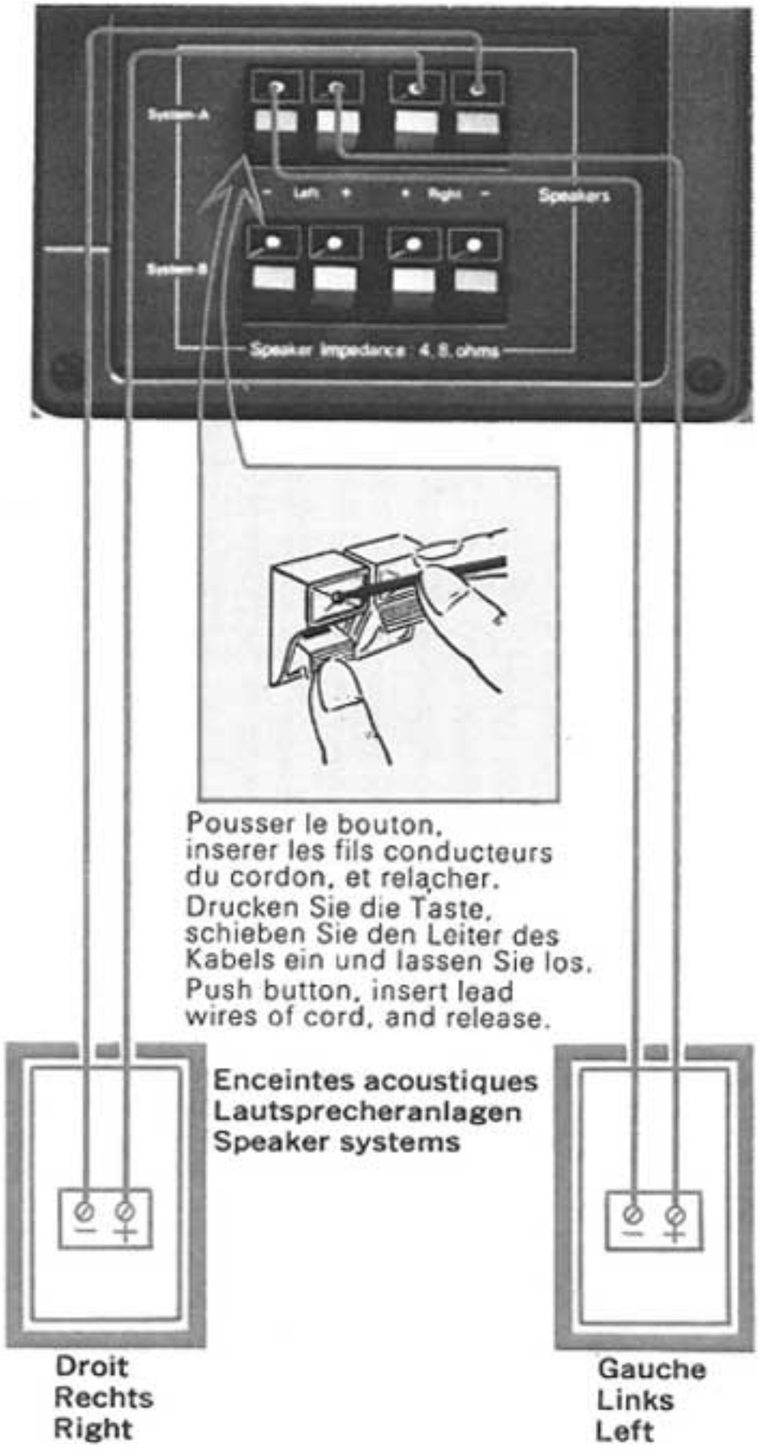
Connection of speaker systems

When you are connecting one pair of speakers:
They may have any impedance from 4 to 16 ohms. However, you can enjoy the unit's rated (maximum) power if they are systems with an impedance between 4 and 8 ohms. Connect them to the SPEAKERS SYSTEM-A or B terminals on the left side panel, making sure not to confuse the left and right cables or the plus and minus leads on the unit and speaker ends. To drive the SYSTEM-A speakers, turn the front-panel SPEAKERS switch to "A", to drive the SYSTEM-B speakers, turn it to "B."

When you are connecting two pairs of speakers:
They must have an impedance of over 8 ohms when both stereo pairs connected to the SYSTEM-A and B terminals are to be driven simultaneously. For impedance of your speaker system, check its specification chart. Note that the breakdown may result when even only one of the four speakers has an impedance of less than 8 ohms. And two speakers with less than 8 ohms connected in parallel may cause a breakdown just as if they had an impedance of less than 4 ohms. To drive both pairs, turn the front-panel SPEAKERS switch to "A+B."

If speaker systems are out of phase

If you were careless when connecting the speaker systems and if the plus and minus polarities are not in the same order for the left speaker system and the right speaker system, they would be out of phase with each other. This will cause a "dropout" of sound at the middle of the line between the two speaker systems, creating a sense of discontinuity and damaging the sense of stereo perspective. Also, the bass sound would lose much of its powerfulness and become rather unnatural. Once that condition is corrected and the polarities are in order, sound will seem to come from a point midway between the speakers.



Connecting turntables

Your turntable should be connected to the unit's PHONO-1 or PHONO-2 terminals. You can change input sensitivity and pick-up load of the PHONO-1 circuit. Therefore, if you are using one turntable (or one tonearm), it is recommended that you use the PHONO-1 terminals for a more subtle change in response. Be sure to insert the short pin-plugs supplied in the unused PHONO pin-jack terminals (refer to "IMPORTANT PRECAUTIONS: Short pin-plugs"). If your turntable has a grounding cable or a grounding terminal, connect it with the unit's GND terminal provided it does not increase hum noise.

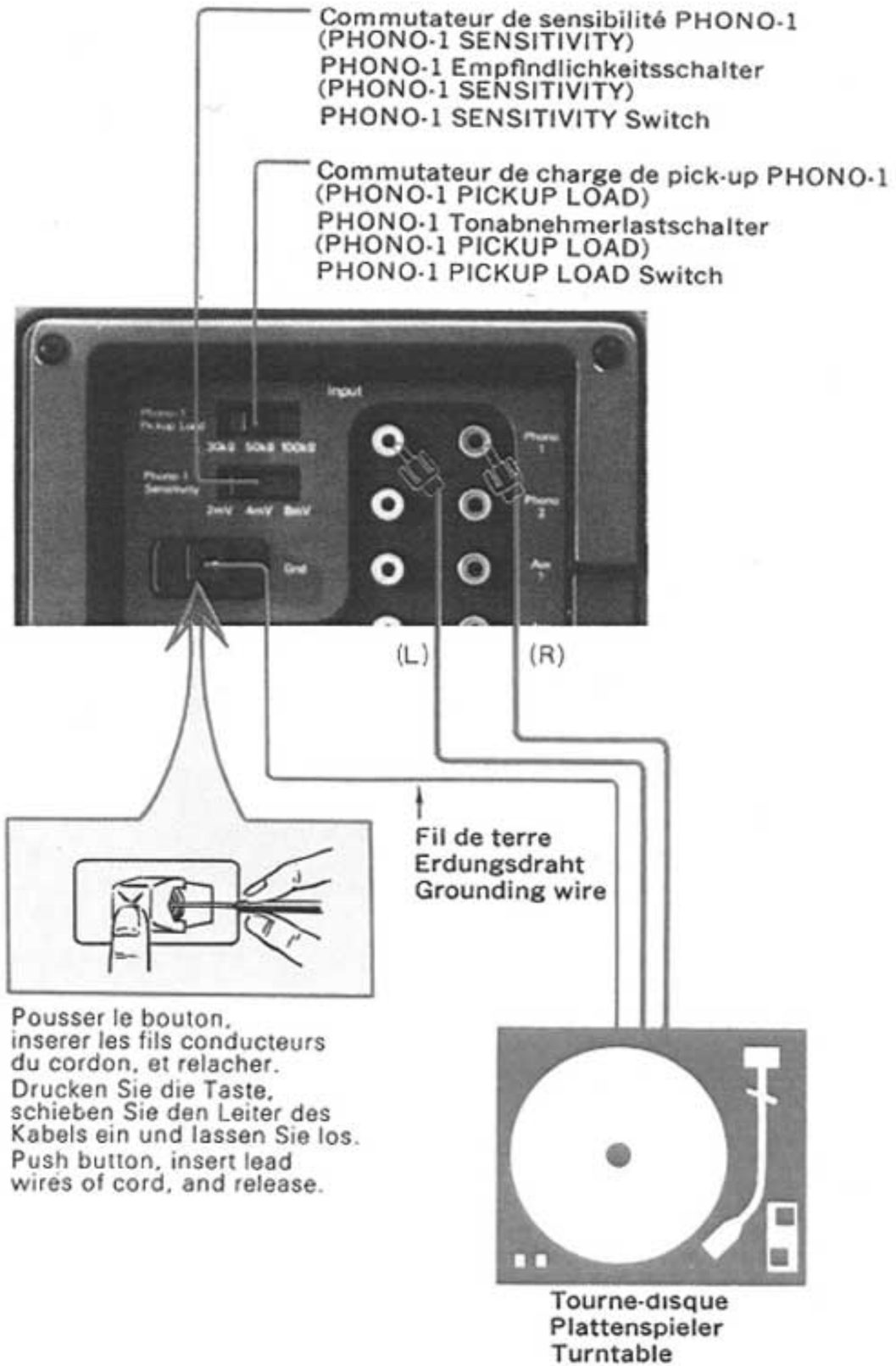
Changing response according to the cartridge in use

PHONO-1 SENSITIVITY Switch

Set this switch to the position which roughly corresponds to the output voltage (rated) of the cartridge in use or the output voltage of a step-up transformer if one is used. (The rated output voltage of a cartridge is usually listed in its specification chart.) The switch changes the input sensitivity of the PHONO-1 circuit only.

PHONO-1 PICKUP LOAD Switch

With the PHONO-1 circuit, you can change the input resistance (or load resistance of the cartridge in use) from 50 kilo-ohms to 30 kilo-ohms to 100 kilo-ohms. The result you will obtain is a subtle change in level in the high-frequency response. Select the position to best suit the response to your taste.

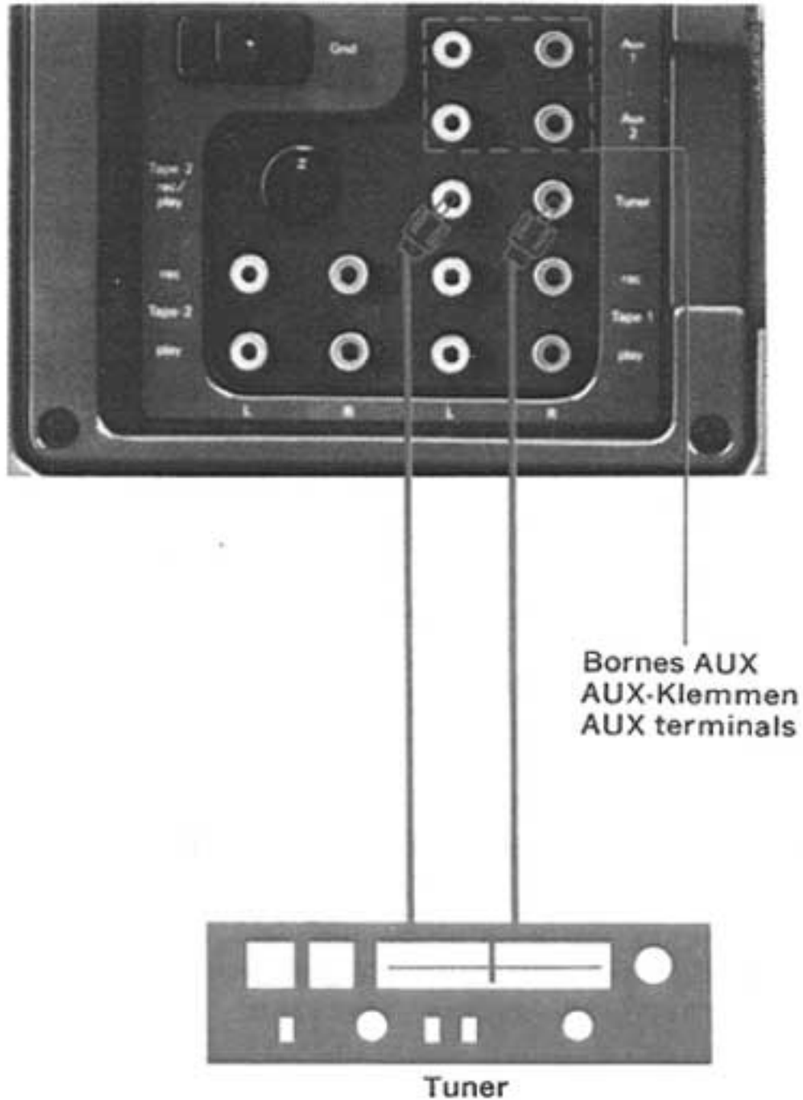


Connecting a tuner

A tuner should be connected to the TUNER terminals on the right side panel. If there's an output level control on your tuner, adjust it so that the tuner output level matches the phono output level; you will then be saved the trouble of adjusting the volume each time you change the program sources.
Since an antenna is indispensable for good radio reception, especially of FM broadcasts, you are advised to install a quality antenna and, moreover, use quality cords for connection.

How to use AUX terminals

The term AUX is an abbreviation of auxiliary. The AUX terminals have the same electrical function as TUNER and TAPE PLAY terminals. So you can connect a tape deck or tape player to them if your TAPE PLAY terminals are already occupied. Almost any audio component such as a tuner or adaptor may also be connected to the AUX terminals so long as it has an output level which roughly equals the unit's input sensitivity.



Connection of tape decks

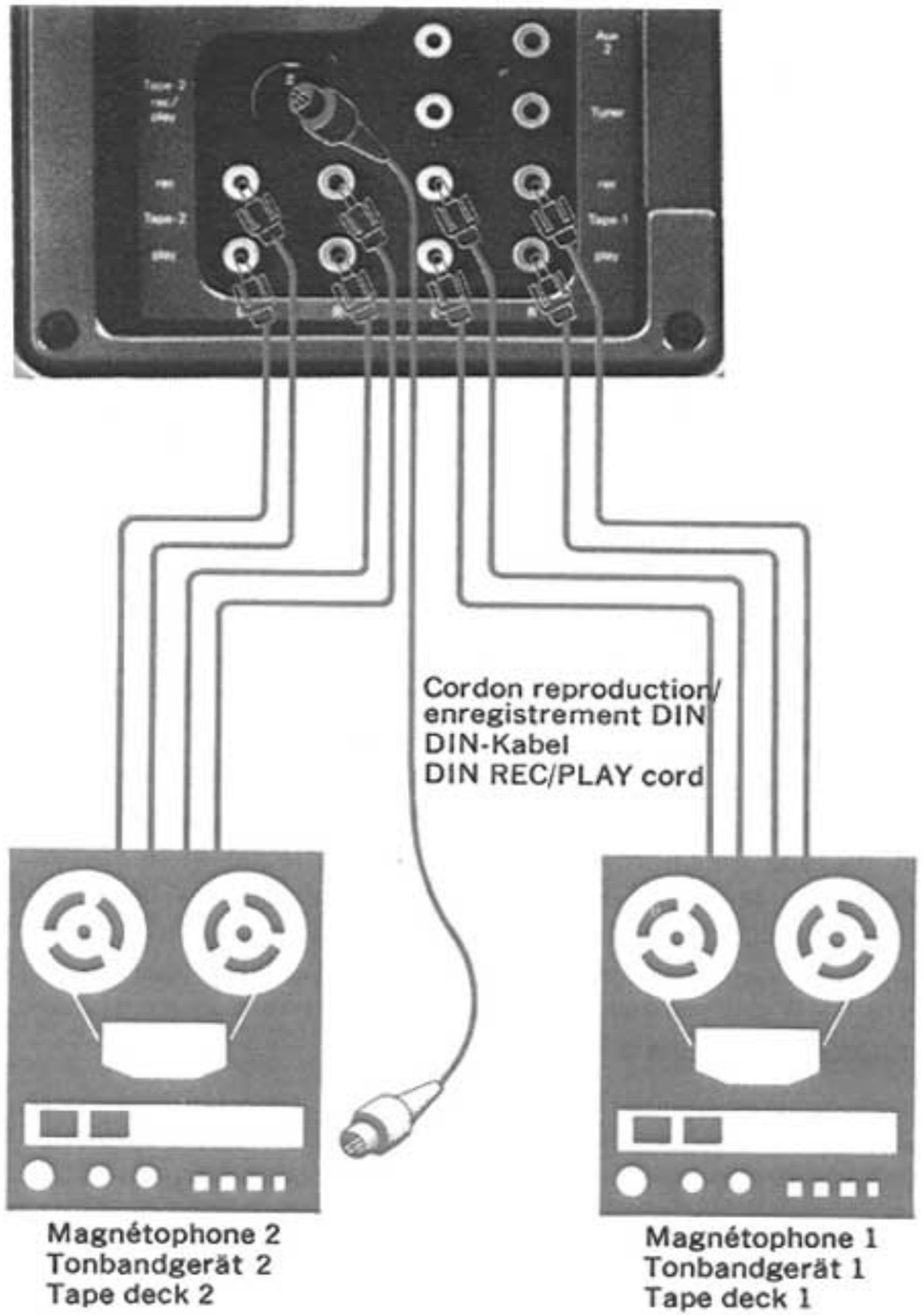
Your unit is provided with two tape record/playback circuits. With two tape decks connected, you can record into both of them, play either one and dub one to the other.
Or you can connect an adaptor such as the one for matrix 4-channel stereo to the TAPE REC/PLAY terminals; connection should be made between the unit's TAPE REC terminals and the adaptor's input terminals, and between the unit's TAPE PLAY terminals and the adaptor's output terminals.

Connection through pin-plug cords

Connect the unit's TAPE REC terminals to the record input terminals of your tape deck, and the unit's TAPE PLAY terminals to the play output terminals of the deck. The pin-plug cords to be used should be as thick as possible. Use the ones supplied with your deck if provided.

Connection through a DIN REC/PLAY cord

Connection should be made between the unit's TAPE-2 REC/PLAY DIN socket and the identical socket on your tape deck. When the DIN socket of the unit is used, do not use the TAPE-2 REC/PLAY pin-jack terminals; it is not advisable to use the DIN socket and the pin-jack terminals simultaneously.



Grounding

Grounding the unit may reduce hum during record playback and noise during AM reception.

Grounding the unit with other components

Grounding of audio components such as amplifiers is made with their chassis directly. Therefore, when connecting and grounding audio components, care must be taken that the chassis of each component is at the same potential. Since proper grounding is done when the input and output terminals of the components are connected via connection cables, it is usually unnecessary to ground the unit with other components.

Most turntables have a grounding cable or a grounding terminal. Connect it with the unit's GND terminal. Disconnect it, however, if you hear increased hum noise.

Grounding the unit to earth

Connect one end of a vinyl cord or enameled cord to the GND terminal of the unit and the other end to a copper plate or carbon bar. Then bury the plate or bar deep underground. The other end of the cord may be connected to a water pipe unless it's made of vinyl. Never connect it to gas pipe, since it is dangerous. Grounding to earth is unnecessary when the component with which the unit is grounded to earth.

BASIC OPERATING PROCEDURES

- Excessive volume, when suddenly applied to the unit, may cause speaker breakdown or become a nuisance to other people. To avoid this, be sure to turn the VOLUME control to the minimum position prior to operating the unit's POWER switch or INPUT SELECTOR switch.

1. Power

01 POWER Switch
02 POWER/PROTECTOR Indicator

Raise the switch to ON to turn the unit on, flip it down to OFF to turn it off.

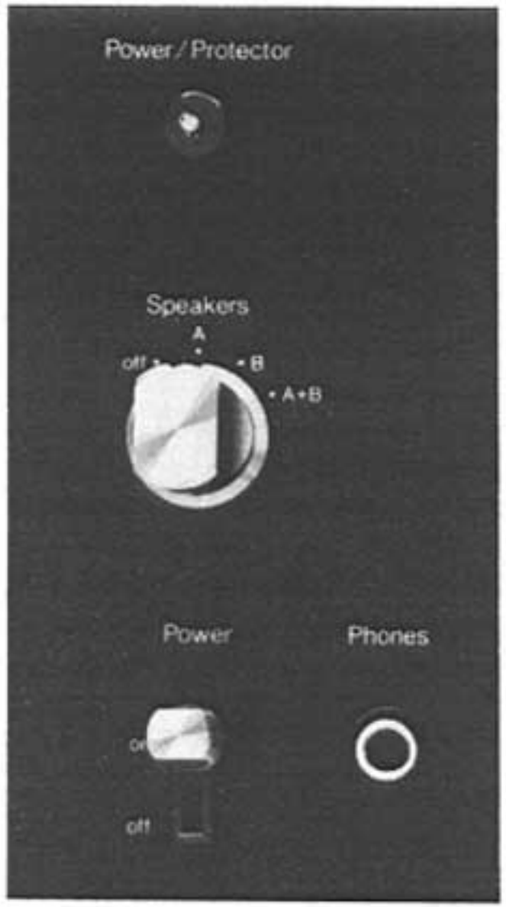
When the POWER switch is set to ON, the indicator glows red, and it turns green a few seconds later to indicate safe operation of the unit. Where there is some malfunction somewhere in the unit's circuitry during operation, the indicator turns red. Should the indicator turn red during operation, turn the power off and check for possible cause.

2. Selecting speaker systems and headphones

03 SPEAKERS Switch
04 PHONES Jack

The SPEAKERS switch selects the speaker system(s) you want to hear. When listening through a headset, insert its plug into the PHONES Jack.

OFF: To cut off the source from the speaker systems when listening with headphones.
A or B: To drive the speaker systems connected to the SPEAKER SYSTEM-A or B terminals.
A+B: To drive both sets of speaker systems simultaneously.



3. Selecting program source

- The TAPE PLAY switch should be at the SOURCE position at all times except for when you listen to tapes; check this switch when you hear no sound while trying to play records or radio broadcasts. Also check that the TUNER switch is OUT when playing records.

Listening to records

05 INPUT SELECTOR Switch

Use this switch to hear a component connected to the PHONO or AUX terminals.

PHONO-1, 2: To play records.

With the PHONO-1 circuit, you can change the input sensitivity and pickup load. For details, refer to pp. 16, 17.

AUX-1, 2: To hear a component connected to the AUX terminals.

Listening to radio broadcasts

06 TUNER Selector

Flip this switch down to IN to hear radio broadcasts through the tuner connected to the TUNER terminals.

Tape play (and recording)

07 TAPE PLAY Switch

Turn this switch to TAPE-1 or TAPE-2 only when you operate the tape deck(s) (for playback or recording) connected to the TAPE terminals. At all other times, it should be at the SOURCE position.

TAPE-1, 2: To hear playback of a tape or monitor sounds as they are recorded.

SOURCE: To hear sources other than tapes.

Tape recording

08 TAPE COPY Switch

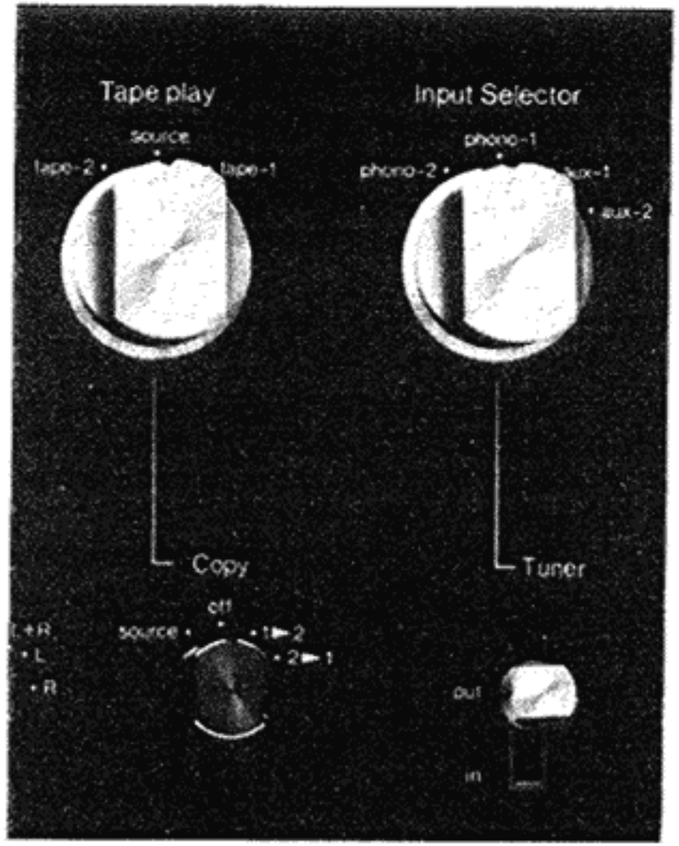
Use this switch when recording. When not recording, keep it at the OFF position.

SOURCE: To record disc records and radio broadcasts.

OFF: To hear a program source without recording it.

With the switch set at OFF, the unit's TAPE REC terminals are separated from the connected tape decks. Thus you can avoid harmful electrical interference of the tape decks while you listen to records and radio broadcasts without recording.

1▶2, 2▶1: To facilitate tape dubbing.



4. Stereo vs. mono

09 MODE Switch

Select the reproduction mode with this switch.

NORMAL: To hear sound reproduction in normal stereo.

REVERSE: To hear sound reproduction in reverse stereo (left channel from right speakers and vice versa).

L+R: To hear sound reproduction in mono (the mixed left and right sound from all the connected speakers).

L: To hear a left-channel sound from all connected speakers.

R: To hear a right-channel sound from all connected speakers.

- To hear left-channel sound from left speakers, or right-channel sound from right speakers, use the BALANCE control.

5. Adjustment of volume

10 VOLUME Control
11 LEVEL SET Selector
12 MUTING Switch

Adjustment of volume

The LEVEL SET selector presets the approximate maximum volume you can get, while the VOLUME control lets you obtain the usual listening level. Set the level while actually listening to music. Be careful not to increase the volume excessively. For usual listening, set the LEVEL SET selector to the -10dB position. For late-night listening, use the -20dB position. The -10dB and -20dB positions mean the levels are reduced by 10dB and 20dB respectively in reference to the maximum (rated) level obtained when the VOLUME control is at its maximum (0) position. When you use either of these two positions, you can fine-adjust the overall volume for subtler decrease or increase. Use the 0dB position only when you need an extra high volume.

How to use the MUTING switch

With this switch, you can reduce the volume by 20dB instantly. It is most convenient when you reduce the volume temporarily on such occasions as when you answer a phone call or place a stylus on the record surface. Coupled with the LEVEL SET selector, it facilitates further fine-adjustment during very low level listening, for instance, late at night.

6. Left & right balance adjustments

13 BALANCE Control

The volume of the left and right channels can be adjusted by the BALANCE control; turn it clockwise to increase the right-channel volume or turn it counterclockwise to increase the left-channel volume. The farther away it is turned from its center position, the louder the corresponding channel. Stereo balancing is made easily: first set the MODE switch to the L+R position, adjust the BALANCE control so that the sound can be heard from the exact center between the two speakers, and set the MODE switch to NORMAL. If then you notice much difference in volume between the left and right channels, chances are the playback component may have unbalanced left and right output levels. Though you can rectify this with the BALANCE control on the unit, it is recommended that you check the component. Unbalanced tracking force is one of the often experienced causes of channel unbalance.

When you hear no sound

Some of the symptoms which seem to indicate a breakdown of the unit are caused by wrong operation of the unit or other connected components. Confirm the connections and your operating procedure once more. Be sure to turn the power off or reduce the volume beforehand.

Check list of operation

1. Is the POWER switch turned ON?
2. Is the TAPE PLAY switch set to SOURCE when you do not wish to reproduce a tape? .
3. Are the INPUT SELECTOR switch and TUNER selector turned to the correct positions?
4. Is the SPEAKERS switch turned to the correct position?
5. Is the PRE-MAIN separate switch set to CONNECTED?

Check list of connections

1. Is the power cord inserted in a wall AC outlet?
2. Are the connection cords for your turntable and tape deck loose or touching some other object?
3. Are the speaker connection cords loose from the unit or the speakers?

CONTROLLING SOUND TO YOUR TASTE

Adjustment of tone

14 TONE & FILTER Switch

To adjust tone with the tone selectors and tone controls, first set the TONE & FILTER switch to the TONE & FILTER position. To obtain a flat response, set it to the DEFEAT position. Then the tone control circuits are switched out of circuit irrespective of the positions of the tone selectors and tone controls.

Bass adjustment

15 BASS Tone Selectors

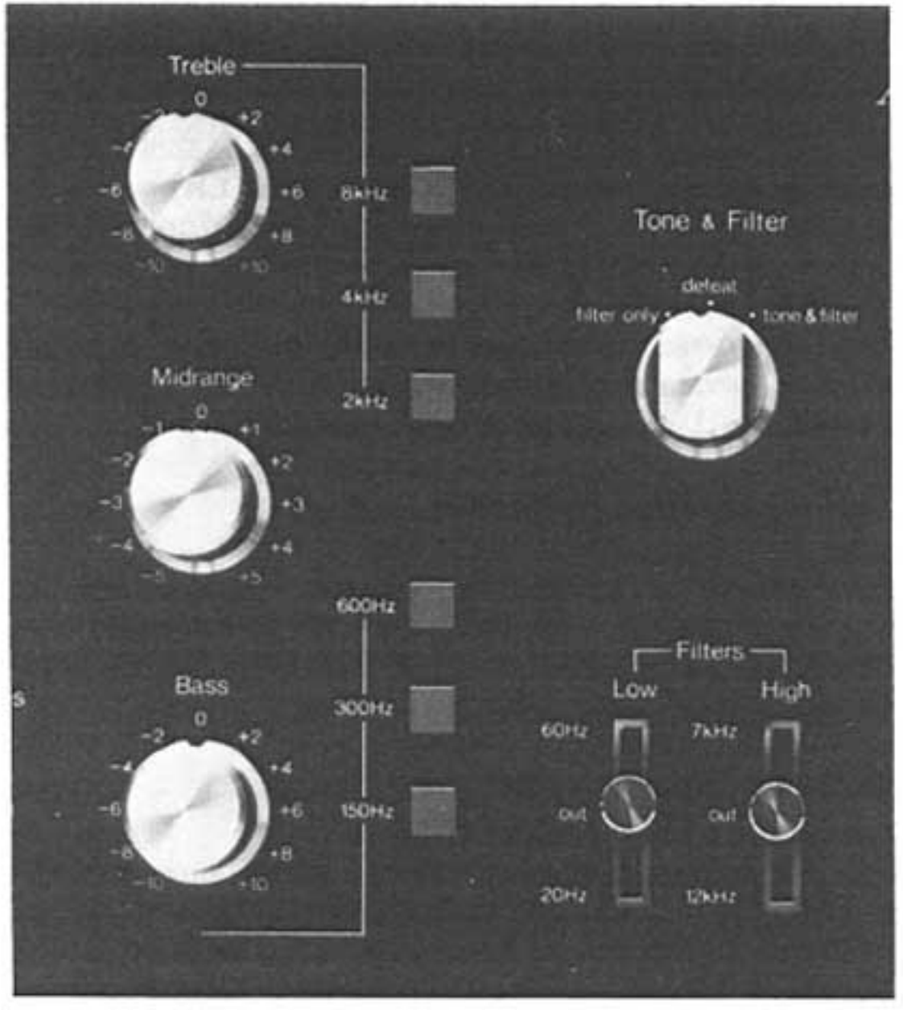
16 BASS Tone Control

Use the BASS tone selectors and control to adjust the bass or low-frequency response of such an instrument as a bass. The BASS tone selector select the frequency below that to which the BASS tone control has been adjusted; use one of the three positions (600Hz, 300Hz or 150Hz).

Midrange adjustment

17 MIDRANGE Tone Control

Use this control to adjust the midrange or middle-frequency response of the human voice, etc. Its adjustment affects the frequencies centered around 1,500Hz.



Treble adjustment

18 TREBLE Tone Selectors

19 TREBLE Tone Control

Use the TREBLE tone selectors and control to adjust the treble or high-frequency response of instruments such as cymbals. The TREBLE tone selectors select the frequency above that to which the TREBLE tone control has been adjusted; use one of the three positions (2kHz, 4kHz or 8kHz).

Eliminating noise

14 TONE & FILTER Switch

To eliminate noise, set the switch to the FILTER ONLY position. To eliminate noise and adjust tone, set it to the TONE & FILTER position.

- If noise in the low or high frequency range is not irritating, set the LOW FILTER and HIGH FILTER switches to the OUT positions.

Eliminating low-frequency noise

20 LOW FILTER Switch

This switch eliminates superlow-frequency noise such as hum, turntable rumble and other noise that warped and off-centered records cause. Two cut-off frequencies, 20Hz and 60Hz, are available.

Eliminating high-frequency noise

21 HIGH FILTER Switch

You can eliminate with this switch the noise in the high-frequency range or hiss that is audible when scratchy records, FM stereo broadcasts or tapes are played. Use either the 7kHz or the 12kHz position, depending on which is the more effective.

SOURCE PLAYBACK PROCEDURES

Listening to records

1. Confirm that the VOLUME control is not turned too far to the right; it should be at a position where you can obtain the normal listening level.
2. Turn the INPUT SELECTOR switch to the PHONO-1 or 2 position. Confirm that the TUNER selector is at OUT, the TAPE PLAY switch at SOURCE, and the TAPE COPY switch at OFF.
3. Operate your turntable to play a record.
4. Adjust the unit's other controls and switches to suit the type of music you are going to listen to.

- With the unit's PHONO-1 circuit, you can change the input sensitivity and pickup load. Use the proper switches to obtain the response that best suits your taste or the cartridge in use. See pp. 16, 17 for more information.

Poor-quality record reproduction

* When you hear hum continuously, check the grounding of your turntable.
* You may hear howling or acoustic feedback, caused when the pickup of your turntable is affected by the vibrating sound waves from the speakers, and undesired signals are amplified. To avoid howling, move the turntable away from the speakers or install the turntable on a solid, non-resonating stand. It can also be reduced when the turntable is placed at one of the corners of your room.
* When you hear unstable, "shallow" reproduction during record playback, it is suggested that you check if there is dust accumulated on the surface of the record and on the stylus tip. The cause may be a worn stylus tip. When you use a record cleaner, be sure to always use one of high quality.

Listening to radio broadcasts

1. Confirm that the VOLUME control is not turned too far to the right; it should be at a position where you can obtain the normal listening level.
2. Set the TUNER selector to the IN position. Confirm that the TAPE PLAY switch is at the SOURCE position and the TAPE COPY switch at the OFF position.
3. Operate the tuner to receive the desired station.
4. Adjust the unit's other controls and switches to suit the type of music you are hearing.

Noise during radio reception

* Weak FM signals are often disturbed by ignition noise from nearby automobiles and other noise. Therefore, for better FM reception, installation of an outdoor FM antenna is suggested. For antenna connection, be sure to use a coaxial cable, not a feeder-type cable.
* When you hear noise during AM reception, there are innumerable conceivable causes, which makes it almost impossible to eliminate all AM noises. Use the unit's filters when both grounding the unit and mounting a noise-eliminating device fail to reduce such noise.

Playback of tapes

1. Confirm that the VOLUME control is not turned too far to the right; it should be at a position where you can obtain the normal listening level.
2. Turn the TAPE PLAY switch to the TAPE-1 or TAPE-2 position, depending on which TAPE PLAY terminals the corresponding deck is connected to.
3. Operate the tape deck to start playback.
4. Adjust the unit's other controls and switches to suit the type of music you are going to hear.

Poor-quality tape playback

High-frequency hiss is noise inherent in tape. Eliminate it with the unit's HIGH FILTER switch. The noise increases when the heads of your tape deck are magnetized. For elimination of such noise, refer to the instruction book of that tape deck.

Recording disc records and radio broadcasts

You can record disc records or radio broadcasts on one or two connected tape decks at the same time. Recording level adjustments should be made with the tape decks.

1. Prepare a program source (records or radio broadcasts) you want to record.
2. Set the TAPE COPY switch to the SOURCE position.
3. Operate the tape deck(s) on which you are going to make a recording.
4. If you want to monitor the sound as you record it, simply follow exactly the same instructions as for tape playback (described above). Also operate the tape deck(s) for monitoring. Monitoring is possible with a tape deck with independent heads for record and play. If your tape deck has a combined head for record and play, however, you cannot monitor; set the TAPE PLAY switch to the SOURCE position and listen to the sound before it is recorded.

- Recordings dubbed from disc records or radio broadcasts should not be used in public without prior consent of the original copyright owners.

Tape-to-tape copying

1. Adjust the TAPE COPY switch to one of its two position: 1►2 or 2►1, depending on which tape deck you wish to use for playback and which tape deck for recording.
2. Operate the tape decks, one for playback and the other for recording.
3. If you wish to monitor the sound as you record it, follow the same instructions as for tape playback.
   To hear the sound before it is dubbed, turn the TAPE PLAY switch to the circuit (TAPE-1 or TAPE-2) to which the deck in playback mode is connected. To monitor the sound after it is dubbed, turn the switch to the circuit to which the deck in record mode is connected.

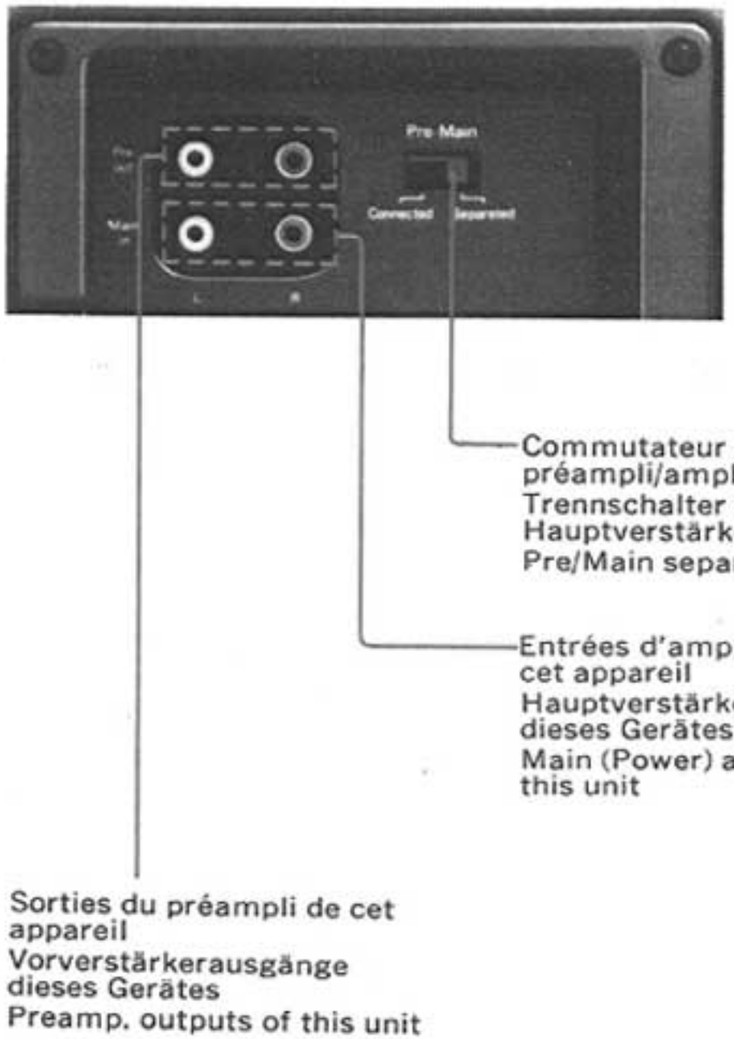
- When you turn the TAPE PLAY switch to the SOURCE position during tape-to-tape copying or dubbing, you can enjoy other program sources (records or radio broadcasts) without interrupting the dubbing process.

SOME USEFUL HINTS

Separation of preamplifier and power amplifier sections

With your unit, you can separate the preamplifier (control) section from the main (power) amplifier section for independent uses; you can connect a separate preamplifier or power amplifier to the unit, or construct a multi-amplifier (electronic crossover) system. To separate these two sections, set the PRE-MAIN separate switch on the left side panel to SEPARATED. Be sure to set the POWER switch to OFF beforehand. Connect the PRE OUT terminals to the input terminals of the separate power amplifier or, in constructing an electronic crossover system, to the input terminals of a channel divider. The MAIN IN terminals should be connected with the output terminals of a separate preamplifier or of a channel divider.

- In an electronic crossover (multi-amplifier) system, the entire audio frequency spectrum is divided into several ranges, and each range is amplified by a separate amplifier and reproduced by a separate speaker unit. This system allows you to improve tonal quality better suited to your taste. Ask your Sansui dealer for further information.



Connection of an adaptor

Use the AUX or TAPE PLAY terminals for connection of a CD-4† demodulator, the adaptor of special cartridges, etc. †TM JVC, Inc.

4-channel system

In a matrix 4-channel system, the 4-channel adaptor should be connected to the TAPE-2 REC/PLAY terminals. You can use the unit's tone control circuits for tonal adjustments of the front channels.

SPECIFICATIONS

Power output

Min. RMS, both channels driven, from 20 to 20,000 Hz, with no more than 0.08% total harmonic distortion

80 watts per channel into 8 ohms
80 watts per channel into 4 ohms

Min. RMS, both channels driven, at 1,000 Hz, with no more than 0.08% total harmonic distortion
90 watts per channel into 8 ohms
90 watts per channel into 4 ohms

Load impedance . . . . . 4, 8 ohms (SYSTEM-A or B)
8 ohms (SYSTEM A+B)

Power bandwidth . . . . . 20 to 20,000 Hz at or below rated min. RMS power output and total harmonic distortion

Total harmonic distortion . . . . . less than 0.08% at or below rated min. RMS power output

Intermodulation distortion (70 Hz : 7 kHz = 4 : 1 SMPTE method) . . . . . less than 0.08%

Frequency response (at 1 watt) . . . . . 10 to 50,000 Hz $^{+0}_{-1}$dB

Damping factor . . . . . approximately 80 at 8 ohm load

RIAA curve deviation (PHONO) . . . . +0.3dB, –0.3dB (30 Hz to 15 kHz)

Input sensitivity and impedance (1 kHz, for rated power output)

PHONO-1 . . . . . 2, 4, 8 mV / 30, 50, 100 kilo-ohms

(Max. input capability: 1,000 mV at 1 kHz, less than 0.1% total harmonic distortion and PHONO-1 SENSITIVITY switch at 8 mV)

PHONO-2 . . . . . 2 mV / 50 kilo-ohms

(Max. input capability: 300 mV at 1 kHz, less than 0.1% total harmonic distortion)

TUNER . . . . . 130 mV / 50 kilo-ohms

AUX-1, 2 . . . . . 130 mV / 50 kilo-ohms

TAPE-1, 2 PLAY (pin jacks) . . . . . 130 mV / 50 kilo-ohms

TAPE-2 REC/PLAY (DIN socket) . . 130 mV

MAIN IN . . . . . 700 mV / 100 kilo-ohms

Output level (1,000 Hz)

TAPE-1, 2 REC (pin jacks) . . . . . 130 mV

TAPE-2 REC/PLAY (DIN socket) . . 30 mV

PRE OUT . . . . . 700 mV

Channel separation (1 kHz, at rated power output)

PHONO-1, 2 . . . . . better than 55dB

TUNER . . . . . better than 60dB

AUX-1, 2 . . . . . better than 60dB

TAPE-1, 2 PLAY . . . . . better than 60dB

MAIN IN . . . . . better than 70dB

Hum and noise (IHF)

PHONO-1, 2 . . . . . better than 65dB

TUNER . . . . . better than 80dB

AUX-1, 2 . . . . . better than 80dB

TAPE-1, 2 PLAY . . . . . better than 80dB

MAIN IN . . . . . better than 100dB

Controls

BASS	±10dB (30 Hz)
Tone selector (turnover frequency)	150, 300, 600 Hz
MIDRANGE	±5dB (1.5 kHz)
TREBLE	±10dB (20 kHz)
Tone selector (turnover frequency)	2, 4, 8 kHz
LOW FILTER	−3dB (20, 60 Hz), 12dB/oct.
HIGH FILTER	−3dB (7 kHz), 6dB/oct. −3dB (12 kHz), 12dB/oct.
MUTING	0, −20 dB
LEVEL SET	0, −10, −20 dB

Power requirements

Power voltage	100, 120, 220, 240 V 50/60 Hz 120 V (Usable 110−130 V) 60 Hz (for U.S.A. & Canada only)
Power consumption	180 watts (rated) 515 watts, 560 VA (max.)
Dimensions	460 mm (18 1/8") W 160 mm (6 5/16") H 375 mm (14 13/16") D
Weight	17.9 kg (39.5 lbs) net 20.0 kg (44.1 lbs) packed

*** Design and specifications subject to change without notice for improvements.**

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