

SANSUI

AU-4900

MODE D'EMPLOI
BETRIEBSANLEITUNG
OPERATING INSTRUCTIONS



AMPLIFICATEUR STÉRÉO INTÉGRÉ
INTEGRIERTER STEREOVERSTÄRKER
INTEGRATED STEREO AMPLIFIER



SANSUI ELECTRIC CO., LTD.

We are grateful for your choice of the AU-4900 stereo integrated amplifier. Before you begin operating your AU-4900, 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

IMPORTANT PRECAUTIONS	2-5
Details important cautions to be fully comprehended prior to operation. Even if you are an experienced audiophile, be sure to read this section.	
FUNCTIONAL FEATURES	6, 7
Outlines major capabilities of your unit.	
PANEL INFORMATION	8-11
Informs you of the name of each switch and terminal on the front and rear panels of the unit.	
CONNECTION	12-19
What to do and what not to do in connection are detailed. Useful hints are also suggested.	
BASIC OPERATING PROCEDURES	20-27
Details what switches and controls to use in playback operation.	
CONTROLLING SOUND TO YOUR TASTE	28, 29
Instructs how to use the switches and controls to adjust sound reproduction to your taste.	
SOURCE PLAYBACK PROCEDURES	30-35
Details playback, recording and dubbing procedures of program sources such as records, broadcasts and tapes. Also advice is suggested for cases where you perceive deteriorated reproduction.	
SOME USEFUL HINTS	36, 37
Some hints are suggested to assure years of safe and optimum operation.	
SPECIFICATIONS	38-41
Contains valuable information about the unit for those well versed in electronics.	

ATTENTION: Pour éviter les danger 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 obstruct the ventilation openings on the top and bottom of the unit.
- * If you place the unit on a shelf, be sure that the shelf board is thick and strong enough to support the weight of the unit.

Heat radiated by the unit

As transistors are sensitive to heat, the enclosure of this unit is designed to provide a good dissipation of the heat radiated inside this unit. Thus, if you place something on top of the ventilation opening of the enclosure, place the unit inside a closed box and operate it for many hours, it is possible that the unit will break down. Always try to provide sufficient circulation of air around the unit. But removing the enclosure or the bottom plate to allow better ventilation is not only dangerous but undesirable from the standpoint of electrical performance.

AC outlets

Of the two AC outlets provided on the rear panel, 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. If you keep the power switch of such a component turned on, then that component will be turned on and off as you operate the POWER switch of this unit. The other AC outlet, marked "UNSWITCHED" is not related to the unit POWER switch.

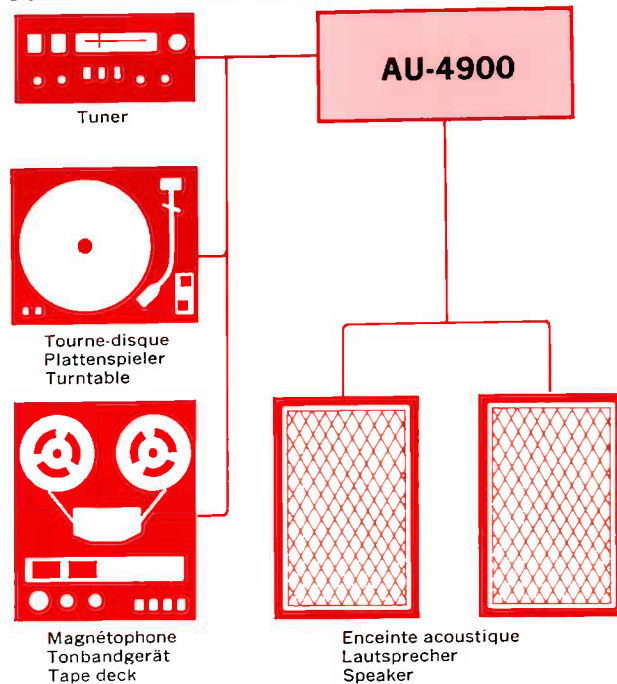
The "SWITCHED" outlet has a 100-watt capacity. The "UNSWITCHED" one has a capacity of 150 watts. Do not connect any equipment whose power consumption exceeds the capacity of each of the outlets, as it is extremely dangerous.



FUNCTIONAL FEATURES

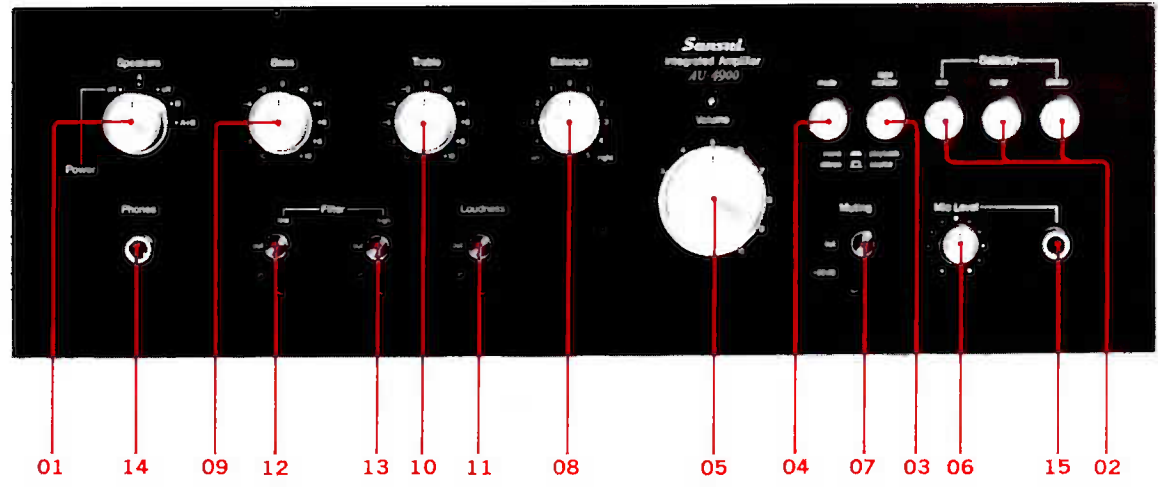
- * Terminals for two pairs of speakers
Driving either or both of two pairs of speakers or none can be selected by a switch.
- * Microphone circuit for extra convenience
Provides a built-in mic-mixing unit, thus gives you a pleasure of duet with your favorite singer.
- * Versatile control of tonal quality possible
The BASS and TREBLE tonal quality can be adjusted independently of each other. Together with the LOUDNESS switch, they provide for optimum control of tonal quality to suit your taste or room acoustics.
- * High and low filter switches provided
By operation of these switches unpleasant noise in the lows and highs can be eliminated.
- * Fail-safe protection circuits
Protection circuits are activated in cases of overloads or DC unbalance at the output. The output signals are not released to the speakers until the trouble is remedied.

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



INDICATIONS SUR LE PANNEAU/SCHALTAFELINFORMATION/ PANEL INFORMATION

8



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

- 01 Bouton interrupteur haut-parleurs (POWER SPEAKERS) (pages 20, 21)
- 02 Bouton sélecteur (SELECTOR) (pages 22, 23)
- 03 Bouton de contrôle de bande (TAPE MONITOR) (pages 22, 23)
- 04 Commutateur de mode (MODE) (pages 22, 23)
- 05 Bouton de volume (VOLUME) (pages 24, 25)
- 06 Contrôle du niveau de micro (MIC LEVEL) (pages 24, 25)
- 07 Bouton d'atténuation (MUTING) (pages 26, 27)
- 08 Bouton d'équilibrage (BALANCE) (pages 26, 27)
- 09 Bouton de réglage du grave (BASS) (pages 28, 29)
- 10 Bouton de réglage de l'aigu (TREBLE) (pages 28, 29)
- 11 Commutateur de contour sonore (LOUDNESS) (pages 28, 29)
- 12 Commutateur de filtre bas (LOW FILTER) (pages 28, 29)
- 13 Commutateur de filtre haut (HIGH FILTER) (pages 28, 29)
- 14 Prise jack d'écouteurs (PHONES) (pages 20, 21)
- 15 Prise jack micro (pages 22, 23)

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

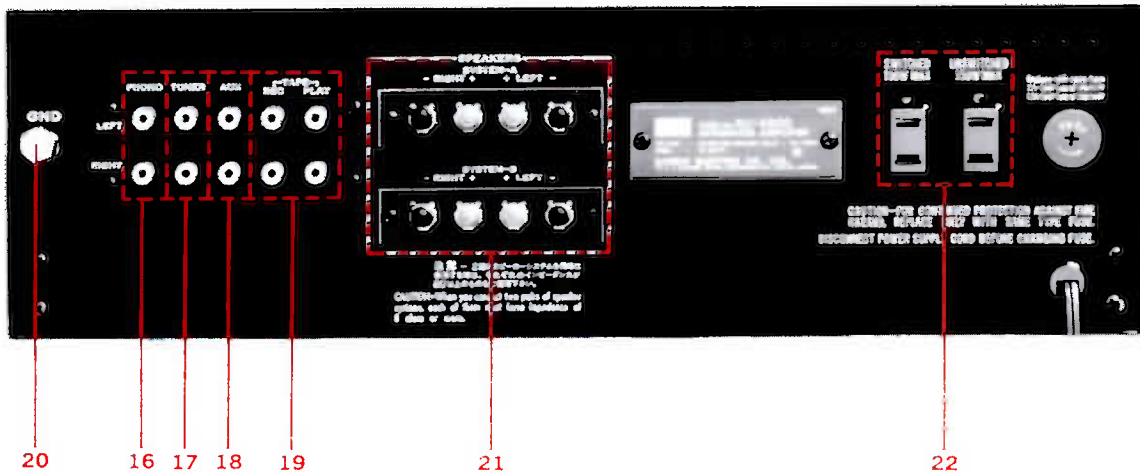
- 01 Netz Lautsprecherschalter (POWER SPEAKERS) (Seiten 20, 21)
- 02 Wahltasten (SELECTOR) (Seiten 22, 23)
- 03 Tonbandmithörschalter (TAPE MONITOR) (Seiten 22, 23)
- 04 Betriebsartenschalter (MODE) (Seiten 22, 23)
- 05 Lautstärkeregl. (VOLUME) (Seiten 24, 25)
- 06 Mikrofonpegelregler (MIC LEVEL) (Seiten 24, 25)
- 07 Dämpfungsschalter (MUTING) (Seiten 26, 27)
- 08 Balanceregler (BALANCE) (Seiten 26, 27)
- 09 Baßregler (BASS) (Seiten 28, 29)
- 10 Höhenregler (TREBLE) (Seiten 28, 29)
- 11 Lautstärkeschalter (LOUDNESS) (Seiten 28, 29)
- 12 Tieffilterschalter (LOW FILTER) (Seiten 28, 29)
- 13 Hochfilterschalter (HIGH FILTER) (Seiten 28, 29)
- 14 Kopfhörerbuchse (PHONES) (Seiten 20, 21)
- 15 Mikrofonbuchse (Seiten 22, 23)

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

- 01 POWER SPEAKERS Switch (pages 20, 21)
- 02 SELECTOR Switch (pages 22, 23)
- 03 TAPE MONITOR Switch (pages 22, 23)
- 04 MODE Switch (pages 22, 23)
- 05 VOLUME Control (pages 24, 25)
- 06 MIC LEVEL Control (pages 24, 25)
- 07 MUTING Switch (pages 26, 27)
- 08 BALANCE Control (pages 26, 27)
- 09 BASS Control (pages 28, 29)
- 10 TREBLE Control (pages 28, 29)
- 11 LOUDNESS Switch (pages 28, 29)
- 12 LOW FILTER Switch (pages 28, 29)
- 13 HIGH FILTER Switch (pages 28, 29)
- 14 PHONES Jack (pages 20, 21)
- 15 MIC Jack (pages 22, 23)

INDICATIONS SUR LE PANNEAU / SCHALTAFELINFORMATION / PANEL INFORMATION

10



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

- 16 Bornes d'entrée PHONO (pages 16, 17)
- 17 Bornes de tuner (TUNER) (pages 16, 17)
- 18 Bornes auxiliaires (AUX) (pages 16, 17)
- 19 Bornes de reproduction enregistrement de bande (TAPE REC PLAY) (pages 16, 17)
- 20 Borne de terre (GND) (pages 18, 19)
- 21 Bornes de haut-parleurs (SPEAKERS) (pages 14, 15)
- 22 Prises de sortie de cour. alt. (pages 4, 5)

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

- 16 Phonoklemmen (PHONO) (Seiten 16, 17)
- 17 Tunerklemmen (TUNER) (Seiten 16, 17)
- 18 AUX-Klemmen (AUX) (Seiten 16, 17)
- 19 Tonbandklemmen (TAPE REC, PLAY) (Seiten 16, 17)
- 20 Erdungsklemmen (GND) (Seiten 18, 19)
- 21 Lautsprecherklemmen (SPEAKERS) (Seiten 14, 15)
- 22 Steckdosen (Seiten 4, 5)

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

- 16 PHONO Input Terminals (pages 16, 17)
- 17 TUNER Terminals (pages 16, 17)
- 18 AUX (Auxiliary) Terminals (pages 16, 17)
- 19 TAPE REC PLAY Terminals (pages 16, 17)
- 20 GND (Grounding) Terminal (pages 18, 19)
- 21 SPEAKERS Terminals (pages 14, 15)
- 22 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.
- * Perform speaker terminal connections properly. If speaker cord leads contact both + and - terminals, damage or speaker fuse opening can be caused.

Connecting cords

Pin-plug cords: These are shielded cables with RCA type pin-plugs soldered to each end. They are employed for connecting program source components, such as turntable, tape deck, etc. Keep cable lengths as short as possible to avoid attenuation of high frequencies; under 2 meters (7 feet) is recommended. If such cords have been supplied as accessories of the turntable or other equipment, they should be employed when connecting.

Vinyl covered cord: This is the same as standard lamp cord and is used for connecting the speakers. Strip a small amount of insulation from the ends and twist the stranded conductor to prevent fraying before connecting. Separate colors are suggested for each wire to prevent misconnection. For example, red covered cord for + and black for -, or red and black for the left channel and brown and white for the right channel. Color coded speaker cord is also available at a high fidelity dealer.

Turntable connections

Connect it to the PHONO terminals on the rear. For best results, use a turntable with a magnetic pickup cartridge.

If you use a turntable with a crystal or ceramic cartridge, connect it to the AUX terminals.

Tuner connections

Connect the output terminals of a tuner to the TUNER input terminals on the rear panel.

Tape deck connections

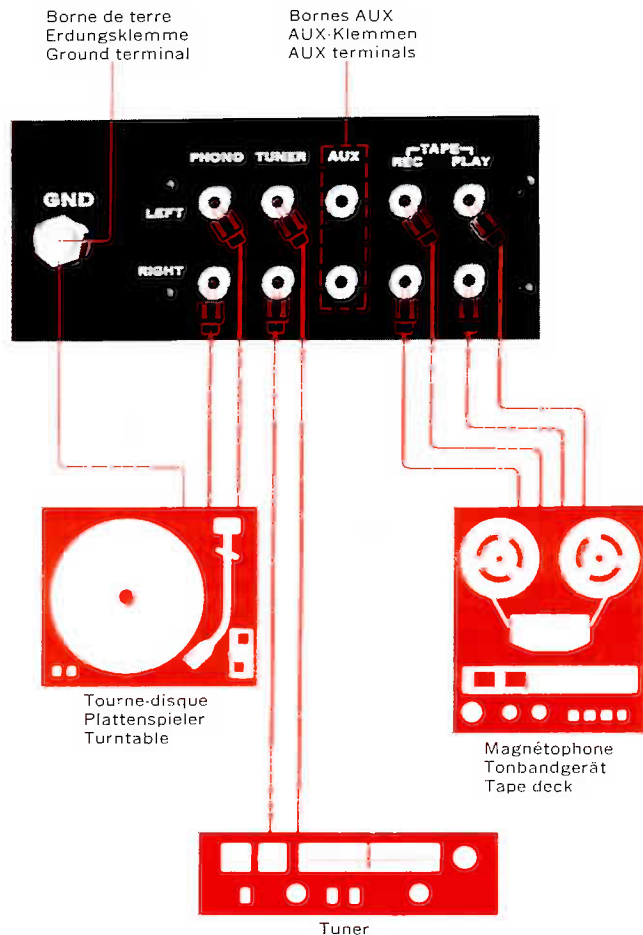
Connect rear panel TAPE REC jacks to the tape deck recording input (INPUT) terminals, and the rear panel TAPE PLAY jacks to the tape deck playback output (OUTPUT) terminals. Carefully observe recording (REC) and playback (PLAY) sides when performing connections.

Employing the AUX jacks

The AUX jacks permit connection of an auxiliary program source component, such as a tape player or second tape deck (in event the TAPE PLAY jacks are already occupied). Playback only can be performed through these jacks. Also use the AUX jacks to connect a turntable that is equipped with a crystal or ceramic cartridge. Other equipment that can be connected to these jacks includes a tuner, or amplifier-equipped adapter (for guitar, etc.).

Input sensitivity of the AUX jacks is 130mV. Nearly all audio products with output voltages of more than about 130mV can be connected. To determine whether a particular component can be connected to the AUX jacks, refer to its operating instructions and specifications.

Depress the AUX button of the SELECTOR switch when employing a playback component connected to the AUX jacks.



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 is grounded to earth.

BASIC OPERATING PROCEDURES

When you operate the various switches, it is suggested that you reduce the volume first by turning the VOLUME control counter-clockwise.

1. Power and speaker selection

01 POWER/SPEAKERS Switch

This switch has the double function of switching the unit on and off and selecting the speaker systems.

POWER-OFF: When the switch is turned clockwise from this position the power is switched on, energizing the unit.

A: To drive speakers connected to the rear-panel SPEAKER SYSTEM-A terminals.

OFF: To cut the sounds from the speakers when listening with headphones.

B To drive speakers connected to rear-panel SPEAKER SYSTEM-B terminals.

A+B: To drive speakers connected simultaneously to the rear-panel SPEAKER SYSTEM-A and -B terminals.

Employing headphones: Insert headphone plug into the PHONES jack. If the POWER/SPEAKERS switch is set to A, B, or A+B sound will also be obtained from the corresponding speakers. At the OFF position, sound will not be heard from the speakers.



2. Program source selection

02 SELECTOR Switch

03 TAPE MONITOR Switch

Employ for selecting desired program source (turntable, tape deck, tuner, etc.)

Listening to records: Connect turntable to the rear panel PHONO jacks and depress the PHONO button of the SELECTOR switch. Employ a magnetic cartridge when using these jacks.

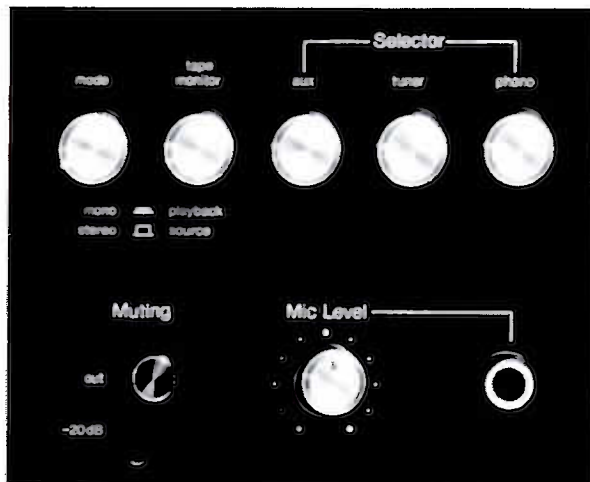
If the turntable is equipped with a crystal or ceramic cartridge, connect it to the rear panel AUX jacks and depress the AUX button of the SELECTOR switch.

Listening to tuner: Connect tuner to the rear panel TUNER jacks and depress the TUNER button of the SELECTOR switch.

Employing microphone: Insert microphone plug into the front panel MIC jack.

Listening to tape: Connect tape deck to the rear panel TAPE REC (for recording) and PLAY (for playback) jacks. To play a tape, or to monitor a recording, depress the TAPE MONITOR button.

Monitoring of the recorded sound while a recording is being made can be performed with a 3-head type tape deck which possesses separate record and playback heads.



3. Stereo vs. mono

04 MODE Switch

When you are going to hear a stereo program source: Leave this switch at STEREO.

When you are going to hear a mono program source: Set the switch to MONO, then the monophonic mixture of the left and right channel signals is heard from both speaker systems. The switch should be in this position to hear a monophonic source (record or tape) on a turntable or tape deck, connected to either the left or right input terminals on the rear panel.

4. Adjustment of volume and balance

- 05 VOLUME Control
- 06 MIC LEVEL Control
- 07 MUTING Switch
- 08 BALANCE Control

Overall volume is adjusted by the VOLUME control and increases with clockwise rotation of the control. Adjust the MIC LEVEL control when using a microphone. When turned clockwise to maximum, the volume will become about equal to that of the VOLUME control setting. It is suggested to normally set the MIC LEVEL control to maximum and adjust the loudness with the VOLUME control. If the microphone sound becomes distorted, reduce the MIC LEVEL control setting to a suitable level.

During mic mixing operation, using another program source (records, tuner, etc.) together with a microphone, first adjust the program source volume with the VOLUME control, then adjust the MIC LEVEL control. The microphone volume can be adjusted within the range of the VOLUME control setting.

- In order to employ a microphone together with prerecorded tape, connect the tape deck OUTPUT jacks to the AUX jacks of this amplifier, then press the AUX selector button. To use the deck for recording, again connect its OUTPUT jacks to the PLAY jacks. Set the Power/Speakers switch to OFF or unplug the power cord before changing the connections.
- When not using the microphone, turn the MIC LEVEL control counterclockwise and disconnect the microphone.



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. Adjustment of the volume of very low sounds is easily carried out by adjusting the VOLUME control after the MUTING switch has been set to the '-20dB' position.

Left/right balance

The volume of the right and left speakers can be adjusted by the BALANCE control. As the control is turned counter-clockwise from the center position, the sound from the left speaker becomes louder than that from the right speaker, and vice versa.

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 power supply connected?
2. If tape playback cannot be heard, is the TAPE MONITOR switch in the depressed position?
3. Is the proper SELECTOR switch button depressed?
4. Has the VOLUME control been set to a suitable position?
5. Has the POWER/SPEAKERS switch been set to a suitable position?

Check list of connection

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

Tone adjustments

09 BASS Control

10 TREBLE Control

Employ the BASS control to adjust low frequency tone. Clockwise rotation from center enhances bass, while counter-clockwise rotation decreases it.

High frequency tones, such as cymbals, can be adjusted by the TREBLE control. Operation is the same as for the BASS control.

To enhance mid-range sounds, such as human voice, turn both BASS and TREBLE controls counter-clockwise for suitable reduction. Since this an apparent decrease in volume, increase the overall volume with the VOLUME control.

11 LOUDNESS Switch

Set this switch to IN when listening at low volume level to enhance low and high frequencies and provide more natural sound. The switch compensates for the human ear response to low and high frequencies at low volume.

Eliminating noise

12 LOW FILTER Switch

13 HIGH FILTER Switch

Use the LOW FILTER switch to eliminate low-frequency noise. Pushing it reduces disturbing low-frequency noise such as may be produced by a turntable motor.

If high-frequency noise disturbs you, push the HIGH FILTER switch. Surface noise from a worn record, fluorescent lamp noise and other kinds of high-frequency noise will be reduced.

If no low- or high-frequency noise disturbs you, be sure to keep both switches OUT.



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. Depress the PHONO button of the SELECTOR switch.
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.

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. Depress the TUNER button of the SELECTOR switch.
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. Set the TAPE MONITOR switch to PLAYBACK (depressed position).
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.

Tape recording

1. Prepare the desired program source for normal listening operation and set the SELECTOR switch accordingly. When recording from tape to tape (dubbing), connect the tape deck for playback to the rear panel AUX jacks and depress the AUX button of the SELECTOR switch.
2. Begin recording. Adjust the recording level with the controls of the tape deck. The VOLUME and tone controls of the set do not affect the recorded sound.
3. To monitor playback during recording, depress the TAPE MONITOR switch. Confirm also that the tape deck is set to allow playback.

When employing a tape deck with a combined record/playback head, set the TAPE MONITOR switch to SOURCE (undepressed position) and listen to the sound prior to recording.

Using a microphone

Microphones are available in high impedance (approximately $10K\Omega\sim 50K\Omega$) and low impedance (about 600Ω) types. High impedance types should be employed with this unit.

A low impedance microphone is effective when a long extension cord is planned. However, when a low impedance type low output microphone (dynamic type etc.) is to be used, a matching transformer is required between the microphone cord and the unit's MIC jack.

SOME USEFUL HINTS

Howling while using a microphone

Loud oscillating noise may be heard from your speaker systems when using a microphone. This is a phenomenon called howling, and happens because the sound from your speakers is fed back to the microphone and amplified again, repeating the process infinitely. It is more likely to take place in an acoustically reflective room especially if you raise the sound volume.

It can be avoided either by directing or moving the microphone away from the speaker systems. Also, it may stop if you manipulate the HIGH FILTER switch.

Connection of an adaptor

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

4-channel system

In a matrix 4-channel system, the 4-channel adaptor should be connected to the TAPE 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 40 to 20,000 Hz, with no more than 0.15% total harmonic distortion

35 watts per channel into 8 ohms

Min. RMS, both channels driven, at 1,000 Hz, with no more than 0.15% total harmonic distortion
38 watts per channel into 8 ohms

Load impedance 8 ohms (SYSTEM-A or B)

Power bandwidth 40 to 20,000 Hz at or below
rated min. RMS power output
and total harmonic distortion

Total harmonic distortion less than 0.15% at or below
rated min. RMS power output

Intermodulation distortion (70 Hz : 7 kHz = 4 : 1 SMPTE method)
. less than 0.2%

Frequency response (at 1 watt) 10 to 40,000 Hz ± 1.5 dB

Damping factor approximately 50 at 8 ohm
load

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

PHONO 2.5 mV/50 kilohms

(Max. input capability: 230 mV at 1 kHz, less than 0.2% total harmonic distortion)

MIC 2.5 mV/10 kilohms

TUNER 130 mV/50 kilohms

AUX 130 mV/50 kilohms

TAPE PLAY (pin jacks) 130 mV/50 kilohms

Output level (1,000 Hz)

TAPE REC (pin jacks) 100 mV

Channel separation (1 kHz, at rated power output)

PHONO better than 60 dB

TUNER better than 65 dB

AUX. better than 65 dB

TAPE PLAY better than 65 dB

Hum and noise (IHF)

PHONO better than 75dB

TUNER better than 90dB

AUX better than 90dB

TAPE PLAY better than 90dB

MIC better than 65dB

Controls

BASS +12dB, -12dB (50Hz)

TREBLE +12dB, -12dB (15kHz)

LOUDNESS (volume control: -30dB)+10dB (50Hz)

+8dB (10kHz)

LOWER FILTER -3dB (100Hz, 6dB/oct.)

HIGH FILTER -3dB (7kHz, 6dB/oct.)

Power requirements

Power voltage 100, 120, 220, 240 V
50/60 Hz
120 V (Usable 110-130 V)
(for U.S.A. & Canada
only)

Power consumption 90 watts (rated)
210 watts (max.)

Dimensions 400 mm (15-3/4") W
120 mm (4-3/4") H
240 mm (9-1/2") D

Weight 6.3 kg (14.8 lbs) net
7.7 kg (17.0 lbs) packed

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



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