

Receiver 1

Receiver 2

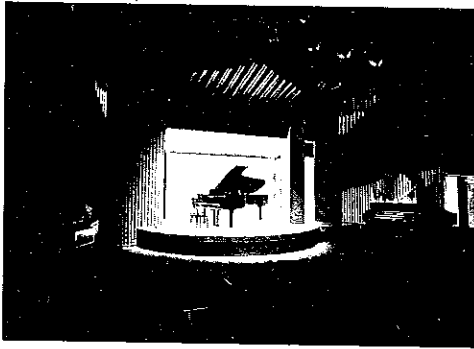
Owner's Manual/Bedienungsanleitung/Mode d'emploi

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Nakamichi



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Congratulations!

You have chosen a truly exceptional product. All Nakamichi audio components are created according to a simple but highly demanding philosophy: perfectly natural reproduction of the musical experience, without the slightest trace of coloration. Even the ambience of the stage and the heartbeat of the performers can be felt when hearing music reproduced the Nakamichi way. This is what has earned our products a dedicated following among discerning audio enthusiasts, music lovers and musicians the world over.

The Receiver1/Receiver2 is a high-quality component for unlimited music reproduction. It uses the unique Harmonic Time Alignment circuit in the power section, which combines ample current capacity with extraordinary musicality. The preamplifier features Nakamichi's innovative Isolated Ground principle for complete freedom from interference between various circuit stages. The high-precision PLL synthesizer tuner with 10 AM/FM presets boasts solid performance and lets you enjoy broadcasts in impeccable quality.

Equally impressive as the performance of these tuner amplifiers is their ease of operation. The supplied remote control lets you operate an entire system of Nakamichi components, and provisions for audiovisual components further enhance system expansion possibilities.

In order to take full advantage of this unit's superior performance, please read this manual in its entirety and retain it for future reference.

*Thank you,
Nakamichi Corporation*

Lieber Stereofreund!

Sie haben sich für ein in jeder Hinsicht hervorragendes Gerät entschieden. Alle Audio-Komponenten von Nakamichi folgen einem ebenso einfachen wie strikten Motto: absolut natürliche Musikwiedergabe, ohne jeden Anflug von Verfärbungen. Musik hören mit Nakamichi ist ein Erlebnis, das selbst die Raumdimension und die elektrisierende Atmosphäre auf der Bühne mit einschließt. Nicht umsonst genießt der Name Nakamichi bei Musikfreunden, HiFi-Liebhabern und Musikern auf der ganzen Welt einen so guten Ruf.

Der Receiver1/Receiver2 ist eine Komponente von kompromißloser Qualität. Im Leistungsverstärkerteil kommt eine neuartige "Harmonic Time Alignment"-Schaltung zum Einsatz, welche hohe Stromkapazität mit brillanter Musikalität verbindet. Im Vorverstärker verhindert Nakamichis "Isolated Ground"-Technik durch getrennte Massekreise gegenseitige Störeinflüsse zwischen den Schaltungsstufen. Der hochpräzise PLL-Synthesizer-Tuner mit 10 Stationstasten für UKW und MW bringt Rundfunksendungen in bester Qualität zu Gehör.

Genauso beeindruckend wie die technische Leistung dieser Geräte ist auch ihre Bedienungsfreundlichkeit. Eine mitgelieferte Fernbedienung erlaubt die Steuerung einer ganzen Nakamichi-Anlage, und Anschlüsse für AIV-Geräte bieten interessante Möglichkeiten zur Systemerweiterung.

Um die vorzügliche Leistung dieses Geräts voll zu nutzen, raten wir Ihnen, die Bedienungsanleitung vor Inbetriebnahme genau durchzulesen und für späteres Nachschlagen gut aufzubewahren.

*Vielen Dank,
Nakamichi Corporation*

Cher Client

Vous venez d'acquérir un produit réellement exceptionnel. Tous les éléments des chaînes Nakamichi sont conçus selon un principe simple mais des plus exigeants, à savoir: une reproduction parfaitement naturelle, exempte de la moindre coloration. Quand une musique est reproduite par Nakamichi, c'est toute l'ambiance du plateau que l'on ressent, jusqu'aux battements de coeur des musiciens. De nous être tenus à ce principe nous a valu des adeptes fidèles parmi les audiophiles, les mélomanes et les musiciens du monde entier.

Receiver1/Receiver2 offrent une conception d'avant-garde et sont équipés de circuits d'alignement du temps harmonique, permettant ainsi une reproduction du son supérieure. Le préamplificateur présente le principe de mise à la terre isolée innovateur de Nakamichi, pour une entière élimination de l'interférence entre les diverses étapes de circuit. Le tuner synthétiseur PLL de haute précision avec 10 préréglages AM/FM offre une grande performance et vous permet de tirer le maximum de plaisir des émissions de parfaite qualité.

La facilité de fonctionnement de ces amplificateurs tuners est aussi impressionnante que leur performance. La télécommande fournie vous permet d'opérer un système complet de composants Nakamichi, et des particularités pour les composants audiovisuels améliorent davantage les possibilités d'extension du système.

Afin de profiter pleinement des performances supérieures de cet appareil, nous vous conseillons vivement de lire d'abord ce mode d'emploi d'un bout à l'autre et de le conserver pour pouvoir vous y référer plus tard.

*Merci,
Nakamichi Corporation*

The photo on this page shows the concert hall in the Nakamichi Research Institute. Here every component must prove itself, above and beyond technical specifications. This hall helps us explore the realm of live music, which is the starting and end point in the development of all Nakamichi products.

Das Foto auf dieser Seite zeigt die Konzerthalle im Nakamichi-Forschungszentrum. Über die rein technische Seite hinaus gewinnen wir dort wichtige Impulse für unsere Arbeit. Jedes Gerät muß hier beweisen, was in ihm steckt, und live erlebte Musik steht am Anfang und Ende aller Entwicklungsarbeit.

La photo ci-dessus est une vue de la salle de concert qui se trouve dans l'institut de recherches de Nakamichi. Cette salle sert à "mesurer" les sensations qui, par définition même, sont immensurables et se situent au-delà des spécifications techniques. C'est dans ce royaume de la musique vivante que commence et qu'aboutit la création de tous les produits Nakamichi.



CAUTION

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



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



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

WARNING

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

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by

couraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- relocate this equipment with respect to the receiver
- move this equipment away from the receiver
- plug this equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

Nakamichi Corporation Certifies That This Equipment Conforms to DHHS Regulations No. 21 CFR, Chapter 1, Subchapter J.

This digital apparatus does not exceed the CLASS B Limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Please record the Model Number and Serial Number in the space provided below and retain these numbers.

Model Number and Serial Number are located on the rear panel of the unit.

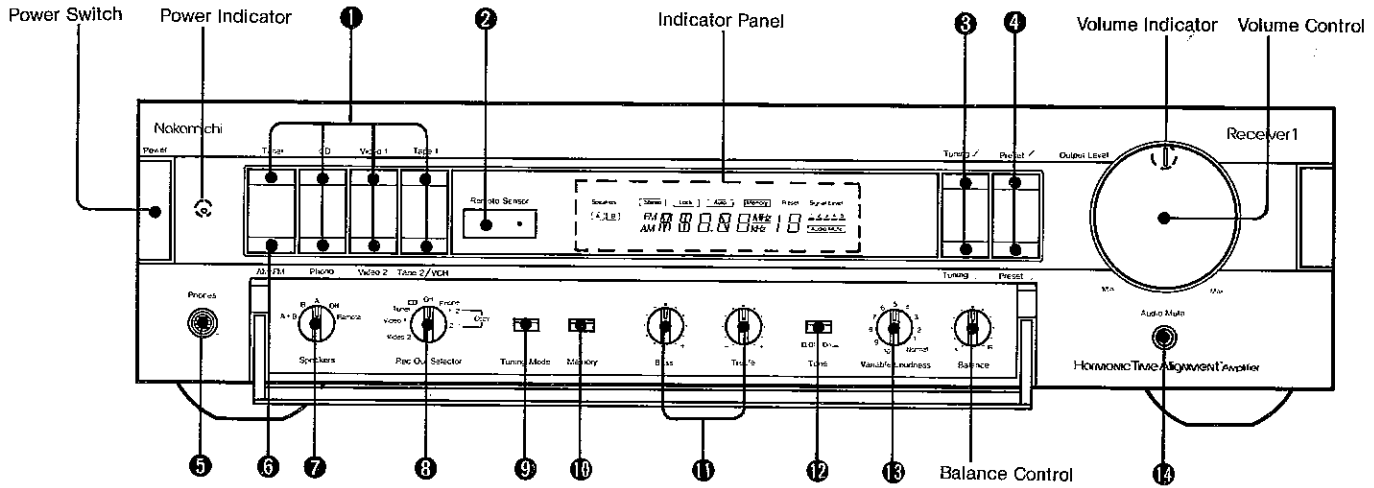
Model Number: Receiver1/Receiver2
Serial Number: _____

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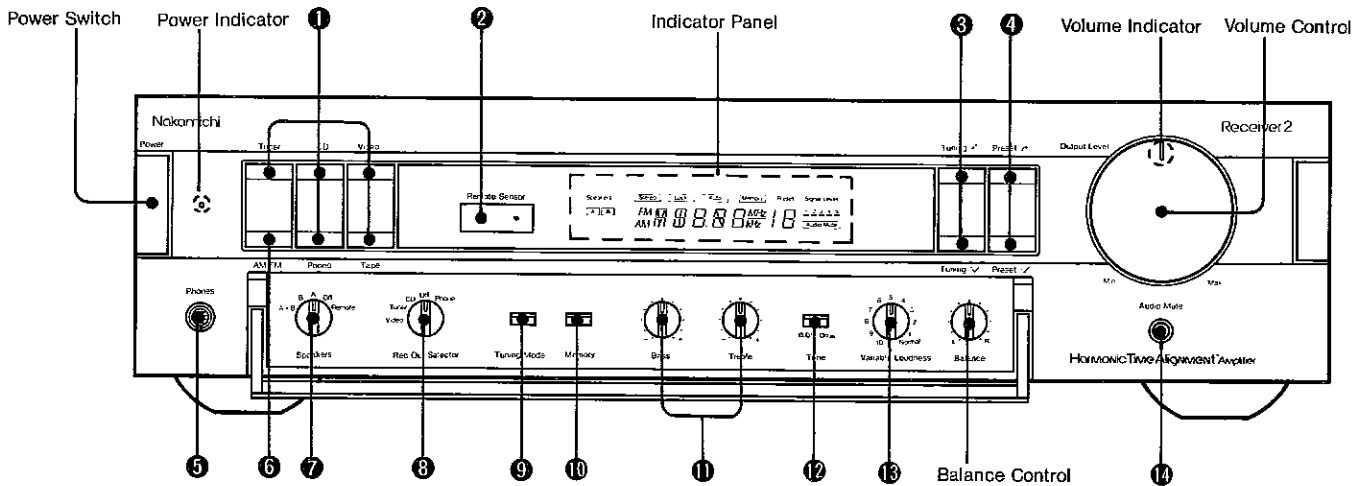
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Controls and Functions

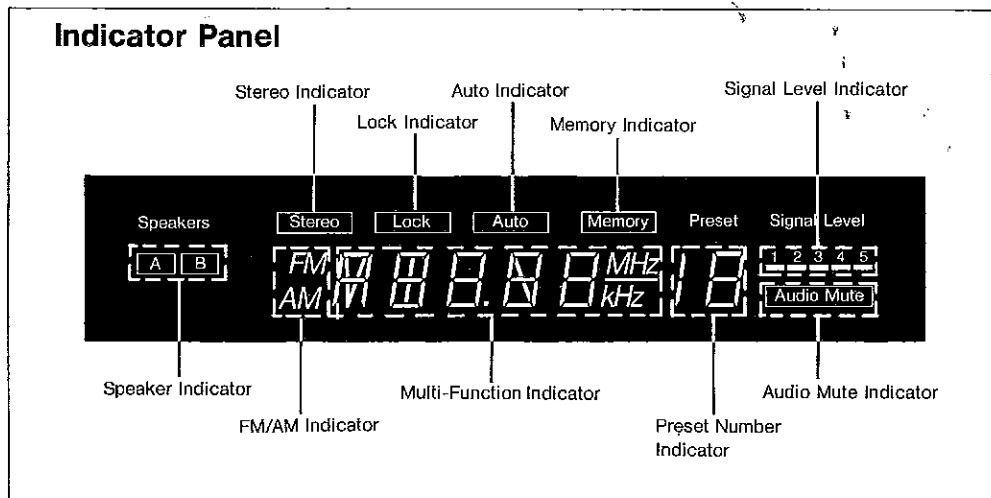
(Receiver 1)



(Receiver 2)



Indicator Panel



1 Listen Monitor Selector

The desired program source for listening can be chosen with these buttons, independent of the Rec Out Selector setting. When a source other than the tuner is selected, the position is shown as a character display on the indicator panel.

When the unit is in the standby mode (—p. 13), operating one of the selector buttons will activate the receiver and other equipment connected to the "Switched" AC outlets on the rear panel, and the selected source can be heard (direct operation).

2 Remote Control Sensor

The infrared signals from the supplied remote control unit are picked up by this sensor. The indicator lights up when a signal is being received (—p. 16).

3 Tuning Buttons

These buttons serve to tune in FM or AM Broadcast stations. Depending on the setting of the Tuning Mode selector, pressing a button either activates the Auto Seek function or causes a manual frequency change.

4 Preset Selector

Serves to select or recall broadcast stations. Each push of the \wedge or \vee button advances or decreases the number by one count in the range from 1 to 10 (—p. 13).

5 Headphone Jack

A pair of stereo headphones can be connected to this jack. The impedance of the headphones should be between 8 and 150 ohms.

6 FM/AM Band Selector

Serves to select the desired frequency band. When recalling a station stored in memory, the appropriate band will be selected automatically.

7 Speaker Selector

This switch controls two pairs of speakers (A and B) which can be connected to the receiver. Setting the selector to "A + B" permits parallel drive of both pairs. To listen with headphones only, set the selector to "Off".

When the selector is set to "Remote", the speakers can be selected with the supplied wireless remote control unit.

8 Rec Out Selector

This selector determines which signal is routed to the tape outputs. The chosen setting is completely independent from the position of the Listen Monitor.

• Off:

The tape output jacks carry no signal and are completely disengaged from the internal circuits, for further enhanced sonic purity. We recommend setting the selector to this position when tape recording is not being carried out.

• Phono/CD/Tuner/Video 1/Video 2 (Video):

The signal of the designated program source is supplied at the tape outputs.

• 1 - 2/2 - 1 Copy (Receiver1):

These positions serve to perform tape dubbing in the indicated direction.

9 Tuning Mode Selector

This button serves to select either the automatic or the manual tuning mode. In the automatic seek mode, the Auto indicator lights up, reception is in stereo and the FM muting circuit is activated. In the manual mode, reception is switched to mono and the FM muting circuit is defeated, to permit searching for weak stations. As interstation hiss will be heard during tuning, the volume control setting should be reduced to a safe level before using the manual mode.

10 Memory Button

This button is used to store broadcast stations into the memory for future recall (—p. 13).

11 Tone Controls

Serve to adjust the tonal balance. By turning a knob clockwise, the respective range is emphasized, and by turning it counterclockwise, the frequencies are attenuated.

• Bass

From the center clickstop position, adjustment is possible within the range of ± 10 dB (20 Hz).

• Treble

From the center clickstop position, adjustment is possible within the range of ± 10 dB (20 kHz).

12 Tone Switch

Setting this switch to "On" activates the tone control circuits.

In the "Off" position, the tone control circuitry is completely bypassed for enhanced sonic purity.

13 Variable Loudness Control

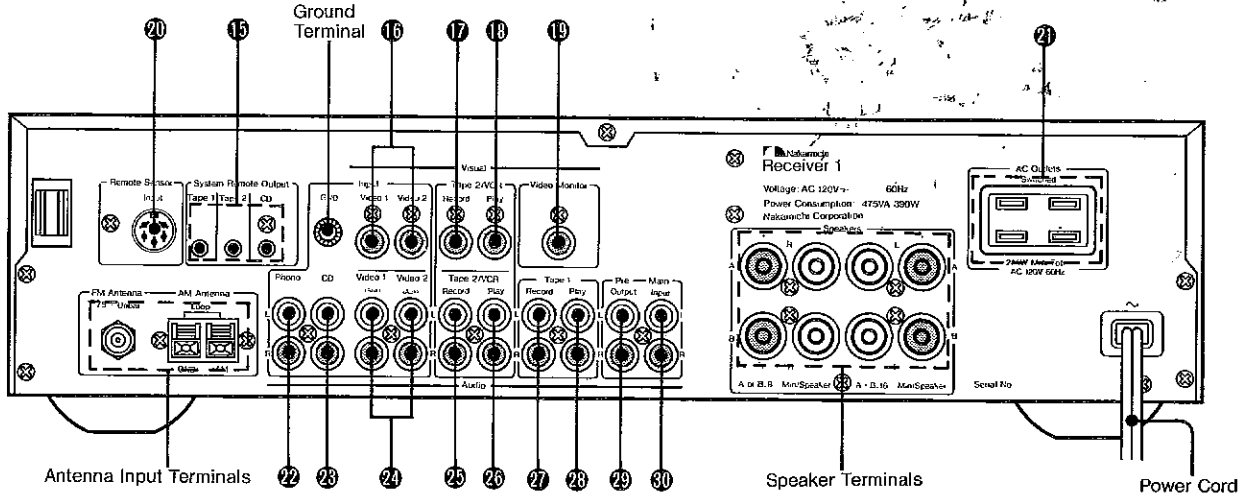
This control permits compensation of subjective bass and treble losses which occur at low listening levels. (Refer to "Use of the Variable Loudness Control" on page 7.)

14 Audio Mute Switch

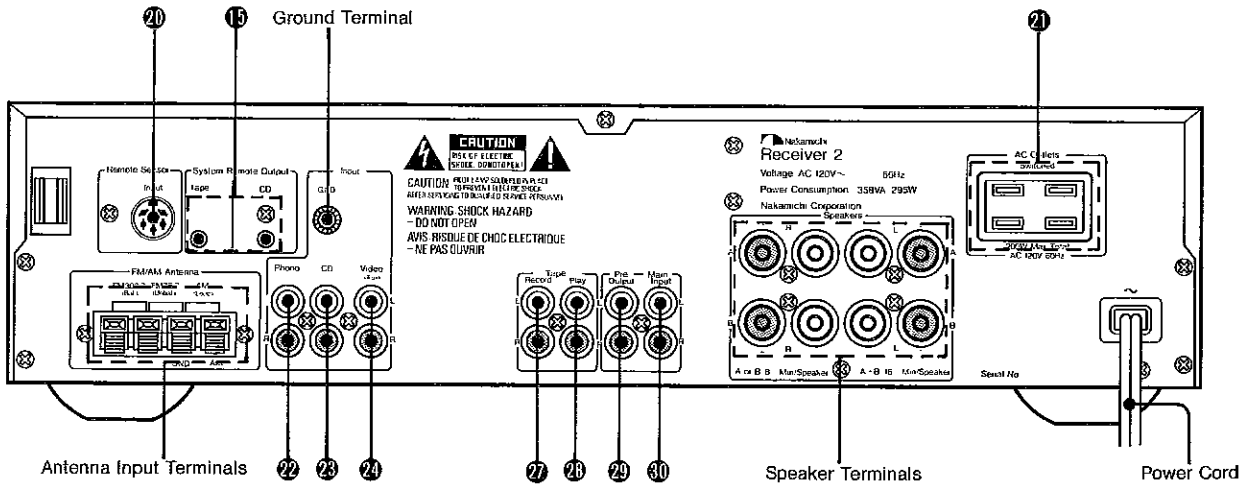
By pressing this switch, the listening level can be reduced to one tenth (—20 dB). While the muting circuit is active, the Muting indicator lights up. To disengage the muting mode, press the switch once more.

The Audio Mute will also be disengaged when the volume is increased via the Remote Control.

(Receiver1)



(Receiver2)



15 System Remote Output Connectors

Other Nakamichi components such as a tape deck and a CD player can be connected to these terminals, for integrated remote control of the entire system (→p. 12).

16 Video 1/2 Input Terminals (Receiver 1)

17 Tape 2/VCR Video Output Terminal (Receiver 1)

18 Tape 2/VCR Video Input Terminal (Receiver 1)

19 Video Monitor Terminal (video output) (Receiver 1)

When a video monitor or a TV with provisions for video input is connected to this jack, the video signals supplied from the "Video" or "Tape 2/VCR" input terminals can be switched by the receiver and viewed on the monitor.

20 Remote Sensor Input Connector

The optional remote sensor units RS-7 or RS-5 can be connected to this terminal, to expand remote control capabilities to other areas at a greater distance from the receiver or in separate rooms.

21 AC Outlets (Switched)

These convenience outlets are controlled by the Power switch on the unit's front panel. The total power consumption of equipment connected to these outlets may not exceed 200 watts.

Models for Europe and Oceania have only one switched AC outlet.

22 Phono Input Terminals

Serve for connection of moving-magnet (MM) cartridges only.

23 CD Player Input Terminals

24 Video 1 (Aux)/Video 2 (Aux) Input Terminals (Receiver 1)

Video (Aux) Input Terminals (Receiver 2) (audio input)

The audio signals of A/V equipment or of auxiliary audio equipment can be connected to these jacks.

25 Tape 2/VCR Output Terminals (audio output) (Receiver 1)

Audio signals can be supplied to a second tape recorder or to a videocassette recorder from these jacks.

26 Tape 2/VCR Input Terminals (audio input) (Receiver 1)

Audio signals from a second tape recorder or a videocassette recorder can be connected to these jacks.

27 Tape 1 (Receiver 1), Tape (Receiver 2) Output Terminals (audio output)

Audio signals can be supplied to a tape recorder from these jacks.

28 Tape 1 (Receiver 1), Tape (Receiver 2) Input Terminals (audio input)

Audio signals from a tape recorder can be connected to these jacks.

29 Pre Output Terminals

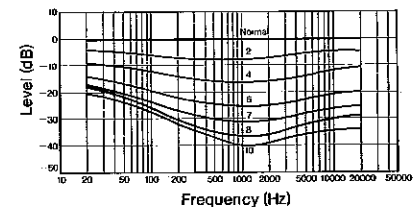
30 Main Input Terminals

These jacks can be used to insert a device such as a sound processor or graphic equalizer in the signal path. The preamplifier section and power amplifier section in this receiver can be used separately. If no external equipment is connected, the jumper plugs inserted in the jacks must be left in place (→p. 12).

■ Use of the Variable Loudness Control

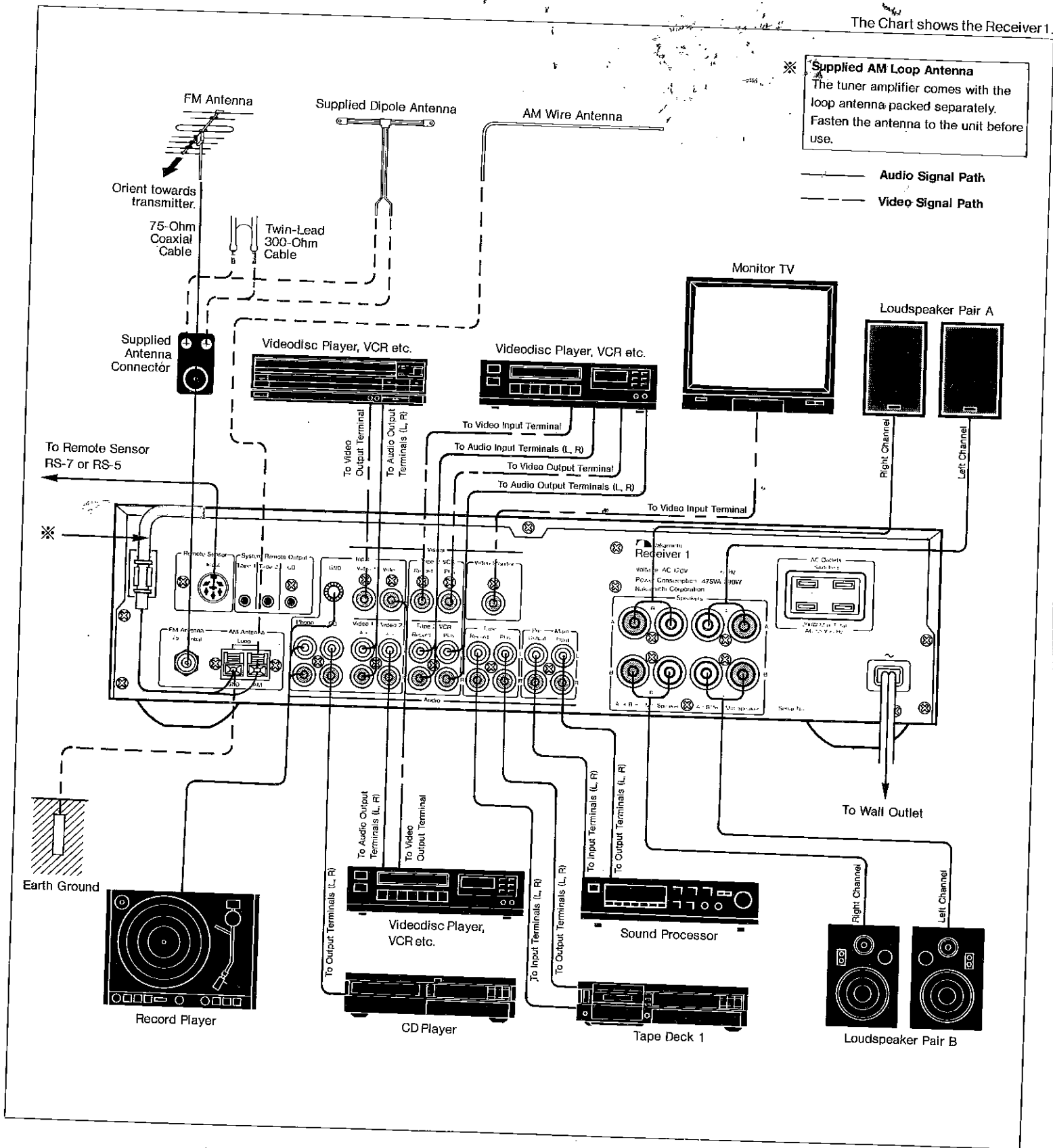
Because the human ear becomes less sensitive to low-frequency and high-frequency sounds with decreasing volume, the sound at low listening levels often tends to appear thin or lacking in brilliance. The Variable Loudness control of this receiver permits fine-tailored compensation, in order to maintain an equal perceived sound balance at all levels. When listening at fairly high settings under typical conditions, the control should be set to the "normal" position and slight volume and tonal adjustments should be made with the Volume and Tone controls to achieve the optimum aural impression. Then, when wishing to listen at a considerably softer volume, leave the Volume and Tone control settings unchanged and reduce the level by turning the Variable Loudness control counterclockwise. This reduces the volume and at the same time introduces the required amount of loudness compensation (bass and treble boost) for unaltered sonic balance.

Loudness Curves



Connections

The Chart shows the Receiver 1.



Establish connections to other system components as shown in the example. While making connections, the power switches of all components must be set to "OFF."

- For easy identification, the input and output terminals of this unit are color coded. Video signal input and output jacks are yellow. Audio

input and output jacks are white for the left channel and red for the right channel.

- When connecting A/V equipment to this unit, use only specially designed video cables for the video input and output connections. If other cables are used, impedance mismatching may impair picture quality.

- Except for the jumper plugs in the Pre Out/Main In terminals, never insert any shorting plugs or the like into unused input or output jacks, as this can interrupt the sound or cause damage to the unit.

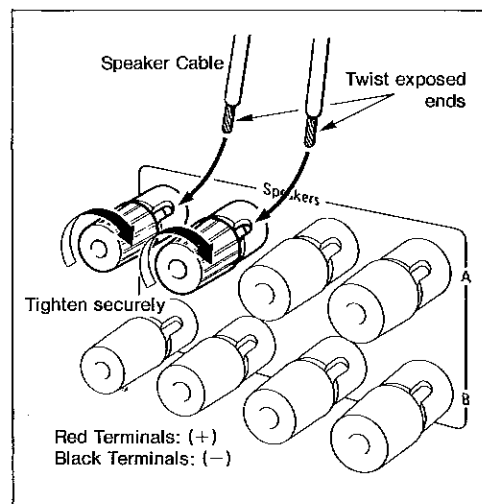
Speaker Connections

Connect the left-side loudspeaker to the left-channel speaker terminals and the right-side loudspeaker to the right-channel speaker terminals of this unit, taking care to observe correct (+) and (-) polarity. If the polarity of one speaker is reversed, the speakers will be out of phase, causing a loss in bass response and unstable, irregular stereo imaging. Double-check to make sure that both speakers are connected with the same polarity.

- It is recommended that you use high-quality, heavy-gauge speaker cable with low resistance, designed specially for audio applications. Using thin cable with high resistance may impair sound quality and prevent the unit from delivering its full potential.
- The speaker cables for both channels should be approximately equal in length, as a marked difference can result in improper left/right balance.

- Pay attention to the power handling capability of connected loudspeakers. If the power handling rating for the loudspeakers is lower than the maximum rated output of the receiver and the receiver is operated close to its full capacity, damage to the speakers may occur.
- The high-current design of this receiver permits stable operation over a fairly wide range of speaker load impedances.

However, if two pairs of speakers are driven in parallel, do not turn up the volume to excessive levels.



FM Antenna Connection

Using a properly designed high-quality FM antenna is an essential prerequisite for good FM reception. When choosing the type and location of the antenna, take the following points into consideration.

1. Choose the antenna which is best for your location.

< Areas in close proximity to strong stations >

In urban areas, buildings or other reflective objects may cause multipath interference, which notably degrades sound quality. In such cases, the use of a highly directive 2-element phase difference feed antenna is recommended. This type of antenna has relatively low sensitivity, but it can suppress unwanted reflections of the broadcast signal. In particularly problematic locations, such as near many tall buildings, a 5-element or 8-element antenna with even higher directivity may be required. As this type of antenna also has high gain, it may be desirable to use an attenuator in order to prevent overload of the tuner input stage.

- If the supplied 300-ohm twin-lead folded dipole is used, extend the cable leads and orient them for best reception. However, keep in mind that the directivity and sensitivity of this dipole usually is not sufficient for satisfactory FM stereo reception. The dipole is intended mainly as a temporary solution, until a regular FM antenna can be installed.

< Fringe areas at a considerable distance from stations >

In such areas, an outdoor FM antenna with 5 to 8 elements is required. Usually, the antenna should be mounted as high as possible for best results.

2. Install the antenna correctly.

To prevent the possibility of noise interference, the antenna should be kept as far away as possible from noise sources, such as roads with heavy traffic, high-voltage power lines, etc. Adjust the height and direction of the antenna carefully for best reception.

3. Use a good antenna cable and keep cable runs short.

The longer the antenna cable, the higher its internal loss and susceptibility to noise pickup. Using a short run of high-quality coaxial cable (such as RG-6 or RG-59) is the most desirable solution. If long cable runs are necessary, a low-loss coaxial cable should be chosen.

Using the Antenna Adapter (Receiver 1 and European Model of Receiver 2)

The supplied antenna adapter should be used to establish the connection to an FM antenna. 75-ohm coaxial cable as well as 300-ohm twin-lead cable can be terminated with this adapter plug. In the latter case, the adapter converts the impedance to the 75 ohms required for the unit's input terminal.

1. Connection of 75-Ohm Coaxial Cable

- (1) Prepare the coaxial cable as shown in Fig. 1.
- (2) Release the lock claws on the side of the antenna connector in the direction of the arrows and pull the cover off. (Fig. 2)

(3) Receiver 1 Except European Model

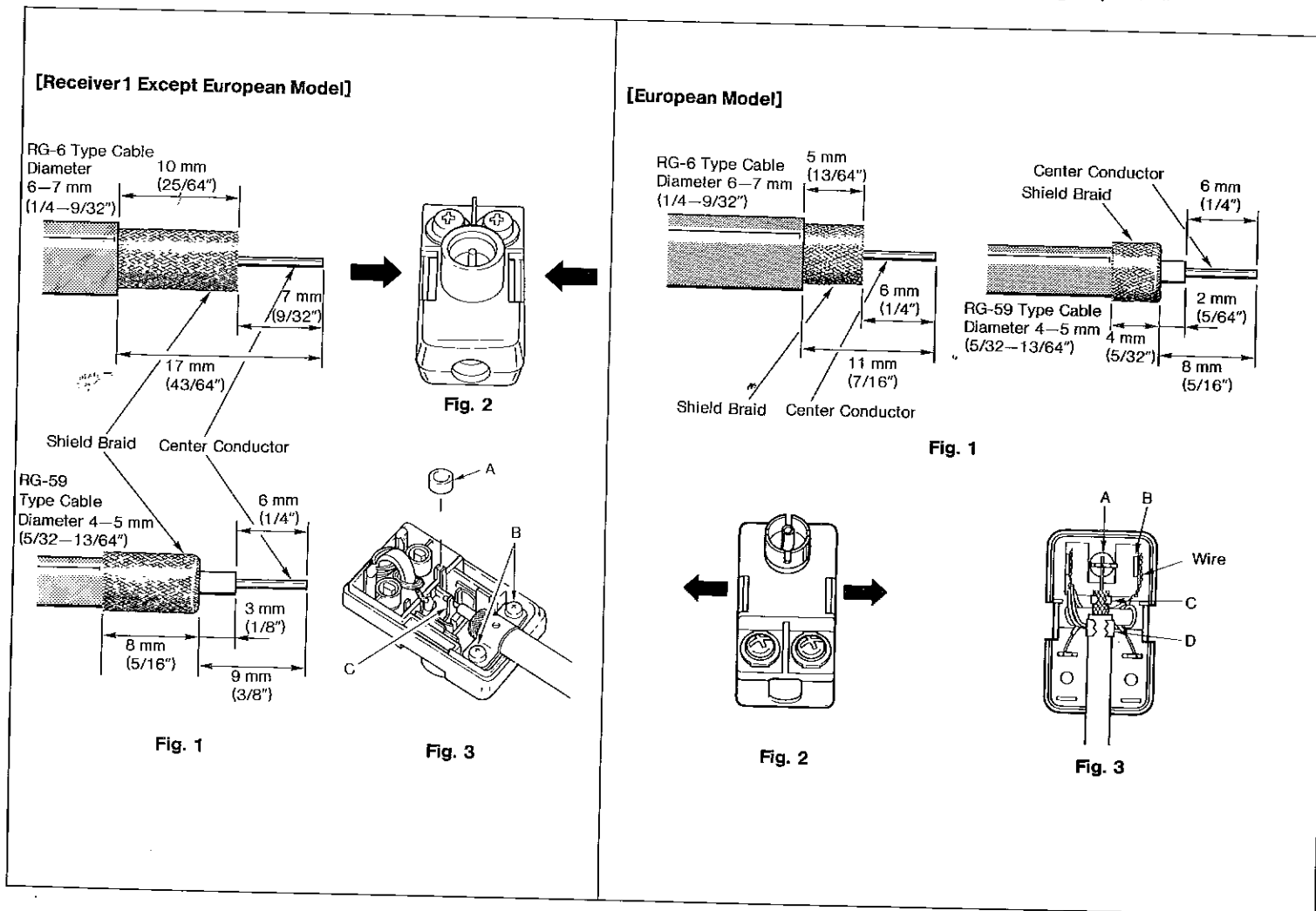
Remove ring A and slide it onto the boss on the inside of the cover. Loosen screws B, insert the coaxial cable, and fasten the center conductor firmly with clamp C. Then tighten screws B and replace the cover. (Refer to Fig. 3)

- When 300-ohm twin-lead cable is to be used, replace ring A in its original position.

European Model

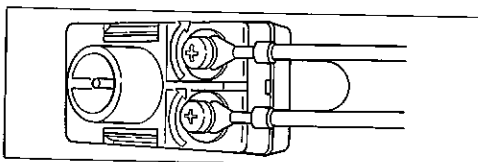
Remove the wire from clamp A and place it to the outside of partition B, using needlenose pliers or the like. Then insert the center conductor of the coaxial cable into clamp A, squeeze claws C and D with the pliers to fasten the shield braid and insulation, and replace the cover. (Refer to Fig. 3.)

- When 300-ohm twin-lead cable is to be used, replace the wire removed from clamp A in its original position.



2. Connection of 300-Ohm Twin-Lead Cable

Connect the feeder cable to the screw terminals on the outside of the adapter, as shown in the illustration.



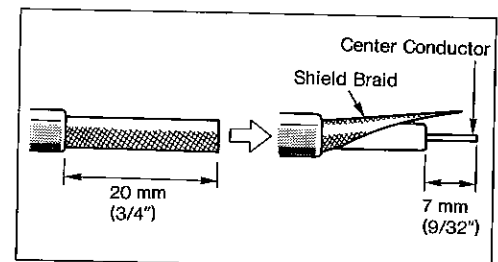
Rear-Panel Connections (Receiver 2 Except European Model)

<75-Ohm Coaxial Cable>

Prepare the coaxial cable as shown in the illustrations. Connect the center conductor to the terminal marked "FM 75Ω" and the shield braid to the "GND" terminal.

<300-Ohm Twin-Lead Cable>

Connect one lead of the feeder cable to the terminal marked "FM 300Ω" and the other lead to the terminal marked "FM 75Ω".

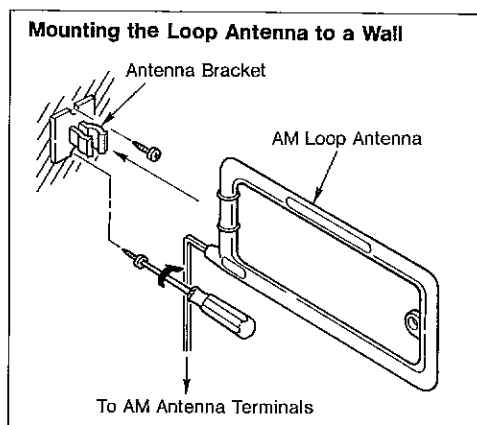


AM Antenna Connection

Connect the cable of the supplied AM loop antenna to the AM antenna terminal of the receiver and attach the antenna to the bracket on the rear of the unit. Orient the loop antenna for maximum number of signal-strength meter segments lit when receiving a desired station. The loop antenna may also be removed from the bracket and fastened for example to a wall with the supplied wall-mounting bracket (refer to the illustration). If reception conditions with the loop antenna are unsatisfactory, extend an additional antenna wire (ordinary vinyl-coated lead wire) about 4 to 5 meters outdoors and connect one end of the wire to the AM antenna terminal marked "AM." The loop antenna should remain connected also when using an outdoor antenna wire.

- If video equipment or a monitor is connected to the unit and AM reception is carried out while the power switches of the video components are set to "On", noise interference may occur. In such a case, move the AM loop antenna and

feeder cable as far as possible from the receiver, the TV set and the video connecting cables, or switch the video equipment off.



Ground Connection

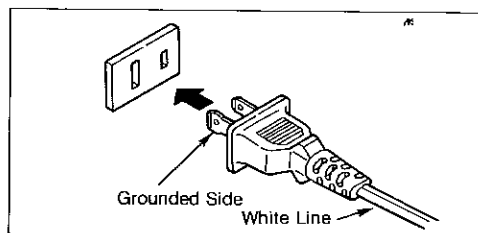
When reception with the AM loop antenna is satisfactory, there is no need to establish a separate ground connection. If reception suffers from excessive hum or noise, a ground wire may help to reduce such problems. Connect one end of the wire to the AM antenna terminal marked "GND" and the other end to an earth ground, i.e. more than 50 cm length of exposed wire or a copper bar buried in the ground, or a metal water pipe with complete grounding. **To avoid fire hazard: Never connect the ground wire to a gas pipe!**

- If an outdoor AM antenna wire is used, grounding must be provided for protection against lightning.

Power Supply Connections

(North American Model)

The plug and cable of this unit's power cord are polarity coded. The plug should be inserted into a wall outlet so that the prong with the wide lip (connected to the lead marked by a white line) enters the longer slot, which is the grounded side of the outlet.



CAUTION:

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

AC Convenience Outlet(s)

On the rear panel of this unit, one or two convenience outlets are provided which can be used to supply AC power to other components of the system. **Make sure that the total power consumption of equipment connected to the Switched outlet(s) does not exceed 200 watts.**

- **Do not connect TV sets, color monitors etc. to these outlets.** The switch-on current of such devices is considerably higher than their normal rated power consumption, so that the capacity of the outlets may be exceeded, even if the rated consumption seems to be within permissible limits.

- **Never connect any ordinary household appliances to these outlets,** as the power capacity may be exceeded and a fire risk will be incurred.

Protection Circuits

To guard against possible damage to the receiver and connected equipment, this unit incorporates separate circuits for the left and right channel, which constantly monitor operating conditions. If the temperature of the internal heat sinks exceeds approx. 100°C, if the unit is driven to excessive levels or if DC current has leaked into the output, a relay cuts off the output in both channels. In this condition, the power supply is not deactivated, i.e.

the unit is not completely switched off. When normal conditions are restored, the receiver automatically reverts to normal operation. The above mentioned cases may result from unsuitable connections, improper installation (restricted air flow prevents heat exchange), or abnormal use (such as driving very low-impedance speakers at high levels for an extended period).

If the protection circuits are activated frequently,

first turn down the volume control, then switch off the power and check connections of all components as well as installation conditions. If these checks reveal no particular problem and the protection circuit is activated again after the unit was switched on, contact an authorized service station.

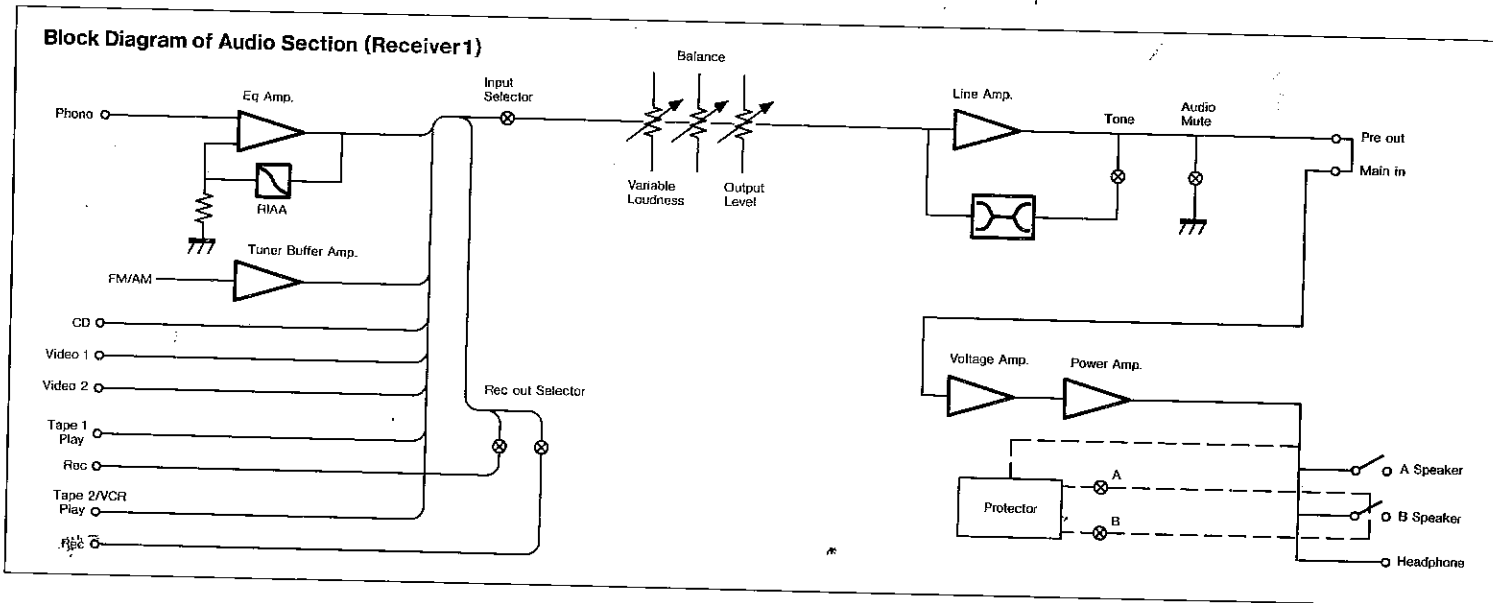
Use of the Pre Output/Main Input Terminals

The Pre Output/Main Input terminals on the rear panel of the unit permit connection of signal-processing equipment such as a sound processor or graphic equalizer. To use the terminals, first remove the jumper plugs joining the Main Input and Pre Output jacks. Then connect the input

terminals of the equipment to the Pre Output jacks and the output terminals of the equipment to the Main Input jacks on the unit.

- When these terminals are not used, the supplied jumper plugs must be inserted in the jacks, as otherwise the sound is interrupted.

- If jumper plugs are removed or inserted while the unit is switched on, noise bursts may damage the speakers. Be sure to set the Power switch to "Off" before altering any connection.



System Remote Control Connections

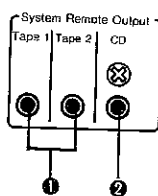
By connecting the System Remote outputs on the rear panel of the receiver to the remote control

input terminals of other Nakamichi products, the wireless remote control unit supplied with the re-

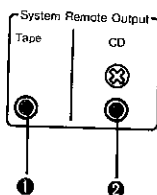
ceiver can be used to operate all essential functions of the other components (→p. 16).

Connector Designations and Required Cables

(Receiver1)



(Receiver2)



1 Tape Deck Transport Connections

Serve to operate the basic functions of Nakamichi tape decks with remote control input (except for the 480 series). Use the supplied control cable for connection to the Remote input jack of the tape deck.

- For models other than the Cassette Deck 1/2 and the Model 1000 (DAT), the serial-to-parallel converter RC-4 and the control cable SRC-1 (sold separately) are required. Please contact your dealer.
- For the Nakamichi models 1000, 1000II, 700, or 700II, the control cable SRC-3 is required in addition to the RC-4 converter.
- When synchro recording in conjunction with the CD Player 2/3 is carried out, do not use the "Tape 1" terminal for system remote control.

2 CD Player Control Connector

This connector serves for system remote control when the remote sensor units RS-7 or RS-5 are used to operate the system for example from another room. Use the optional control cable SRC-2 for connection to the Remote input jack of the CD player.

- With the models OMS-7, OMS-7II, OMS-5, or OMS-5II, this connector must be used in any case (also in systems without the remote sensor units RS-7 or RS-5). The serial-to-parallel converter RC-2 (sold separately) is required. Please contact your dealer.
- For models other than the OMS-7, OMS-7II, OMS-5, or OMS-5II, this connector is required only in systems with the remote sensor units RS-7 or RS-5). For remote control of a player in the same room, simply point the remote control unit supplied with the receiver at the CD player.

Operation

[Before Operation]

Before operating the unit, make sure that the Volume control is fully turned to minimum. For a brief period after power to this unit is switched on, the output remains muted and no sound will be heard.

- Make sure that all connections are properly established.
 - (1) Turn the Volume control fully to minimum.
 - (2) Set the Power switch to "On".
 - (3) Select the desired program source and loudspeaker pair.
 - (4) Adjust the listening volume and tonal balance as desired.

Power On/Off Switching

When the Power switch on the front panel of the receiver is pressed, the unit will enter the regular operating condition after a brief muting period (to allow all internal circuits to stabilize). The operating status is shown by the Power indicator.

Power Indicator condition	Operating condition of the unit
Out	Power is off
Amber (lit)	Standby mode
Green (flashing)	Power is on (muting interval)
Green (lit)	Power is on (regular operation)

Power On/Off Switching With the Remote Control

When wishing to control power On/Off with the wireless remote control unit, set the Power switch of the receiver to "On" and then operate the Power On/Off button of the remote control. When the power is switched off with the remote control, the receiver enters the **standby mode** (waiting for input from the remote control). Pressing the Power On/Off button of the remote control once more will activate the receiver again. Operating the Listen Monitor selector (either on the unit itself or on the remote control) will also activate the unit. Leaving the unit in the standby mode and using the remote control for power On/Off switching is convenient for everyday operation. However, in case of a longer absence or if the unit is not to be used for an extended period, set the Power switch on the unit to "Off".

FM/AM Broadcast Reception

Set the Listen Monitor selector to "Tuner" and choose the automatic or manual tuning mode with the Tuning Mode selector.

Automatic Tuning

- (1) Select automatic tuning with the Tuning Mode selector (Auto indicator lights up).
- (2) Choose the desired frequency band with the FM/AM Band selector.
- (3) If the desired station broadcasts on a higher frequency than currently shown on the frequency display, press the " ^ " (Up) Tuning button, otherwise the " v " (Down) button.

- (4) The receiver automatically searches for the next available station and locks onto its frequency. The Lock indicator then comes on. However, with very weak stations, the Lock indicator may not light. If an FM stereo broadcast is being received, the Stereo indicator also lights up.
- (5) If the received station is not the desired one, press the Tuning button again. The frequency lock is released and the seek function resumes.

- During FM or AM seek tuning, the muting function is automatically activated to suppress interstation noise.
- If an FM stereo broadcast sounds excessively noisy, pressing the Tuning Mode selector to set the unit to monaural reception (manual tuning mode) may help to make the signal more listenable.

Manual Tuning

When wishing to receive weak broadcast stations which are below the threshold of the automatic seek function, perform manual tuning as follows:

- (1) Select manual tuning with the Tuning Mode selector. The Auto indicator goes out, reception is switched to mono, and FM muting is defeated.
- (2) Choose the desired frequency band with the FM/AM Band selector.

- (3) Use the Tuning buttons to adjust the receiver to the desired frequency. When a station is tuned in exactly, the Lock indicator comes on. However, with very weak stations, the Lock indicator may not light.

Memory Tuning

This receiver incorporates two kinds of memory functions.

1. Preset Station Memory

A total of 10 FM/AM stations can be programmed at random for instant recall. To store a station, proceed as follows.

- (1) Tune to the desired broadcast station.
- (2) Press the Memory button. The Memory indicator lights up for about 5 seconds.
- (3) While the indicator is lit, select the desired number with the Preset selector and then press the Memory button once more.

- (4) The Memory indicator goes out, and the station is stored.
- (5) To call up a memorized station, select the desired number with the Preset selector.
 - To change the memory content of a preset station number, simply perform the above steps (1) - (3) for the new station. When the Preset selector is pressed, the number that was last programmed is displayed. Change the number to the one whose contents you want to alter.

- When the Preset selector is pressed after manual tuning was performed, the unit automatically switches to the Auto tuning mode (Auto indicator lights), to permit stereo reception (Stereo indicator lights if a stereo broadcast is received).

- If a very weak station (which can be received only with manual tuning) has been programmed, the output may be muted when the respective number is selected. In such a case, switch the unit back to the manual tuning mode with the Tuning Mode selector.

2. Last Station Memory

This unit's last station memory operates in two ways.

- (1) When the frequency band is changed with the AM/FM Band selector, the last station received in each band is memorized. Therefore when switching back to a band, the unit automatically reverts to the previous station.
- (2) The station received immediately before the power was turned off is also memorized. When power is switched on again, the unit will be tuned to this station. This also applies if power is supplied via an external timer.

This unit possesses a built-in lithium battery for memory backup. The contents of the preset station memory and the last station memory will be preserved for about five years even if the AC cord of the unit is unplugged.

For replacement of the lithium battery, contact your dealer. Never perform the replacement yourself, as this may lead to damage of the unit.

Phono Playback

Set the Listen Monitor to "Phono". Then operate the turntable. After the stylus is lowered onto the record, turn up the Volume control of this unit to obtain the desired listening level. If required, adjust the tonal and left/right balance with the controls of the receiver.

- To protect the loudspeakers from possible damage, always turn the Volume control fully to minimum when lowering or lifting the stylus.
- The phono input of this receiver has an integrated subsonic filter which serves to remove harmful low-frequency noise.

Listening to a CD Player or Other Audio Program Sources

To listen to a CD player or to other audio components, set the Listen Monitor selector to the required position. Then operate the source equipment and adjust the desired volume level and balance at the receiver.

Recording and Playback With a Tape Deck

■ Playback

Set the Listen Monitor selector to the required tape position.

Set the tape deck to the playback mode and adjust the desired volume level and balance at the receiver.

■ Recording

Set the Rec Out selector to the program source you wish to record and set the tape deck to the recording mode.

If the connected tape deck possesses three heads and monitoring capability, the quality of the actual recorded signal can be checked by setting the Listen Monitor selector of the receiver to the respective tape position.

- As the same signal from the program source is supplied at all audio output terminals of the Receiver1, recording can also be carried out on several tape decks simultaneously.
- The signal supplied to the tape output terminals is completely unaffected by the volume and balance settings of the receiver.

■ Tape Dubbing

The Receiver1 provides two sets of tape input and output terminals. When two tape decks are connected, tape dubbing in both directions can be easily carried out. To play back a tape on tape deck 1 and record it on tape deck 2, set the Rec Out selector to "1 - 2." To reverse the process choose the "2 - 1" position.

With the Receiver2, tape dubbing can be carried out by connecting the source tape deck to the Video (Aux) input terminals. Set the Rec Out selector to "Video" and record on the tape deck connected to the regular tape deck jacks.

- The signal supplied to the tape input terminals of the tape recorder during dubbing is completely unaffected by the volume and balance settings of the receiver.

Recording and Playback With A/V Equipment (Receiver1)

Receiver1 permits connection and switching of audio-visual components, so that the unit can be used as an A/V control center.

The model has two sets of inputs for connections from stereo A/V sources ("Video 1", "Video 2") and one set of input/output terminals for connections with a stereo video recorder.

Receiver1 also provides a separate video output ("Video Monitor") for connection of a color monitor for high-quality viewing.

The possibilities afforded by this system are wide and varied.

■ Playback

Set the Listen Monitor selector to the position for the audio-visual source component. Set the TV or monitor to the video input mode to view the picture. Start playback with the audio-visual component, and adjust volume and tonal balance with the controls of the receiver.

■ Recording (Dubbing)

Set the Rec Out selector to "Video 1" or "Video 2", depending on the source to be used. Then set the A/V source to the playback mode and the VCR to the recording mode. It is possible to monitor the video signal on a connected TV or color monitor while dubbing is carried out.

- The audio and video signal supplied to the VCR is completely unaffected by the volume and balance settings of the receiver.

Rec Out and Listen Monitor Selectors

The Rec Out selector and Listen Monitor selector of this unit operate completely independent of each other.

For example, you can listen to a radio broadcast while recording the sound of a CD player on a tape deck, or you might carry out tape dubbing while listening to a CD. It is also possible to set the Listen Monitor selector to an audio-output position such as CD and the Rec Out selector to a video output position for monitoring a video signal on a connected TV. This lets you for example watch a videodisc while supplying the music from a CD player. Please refer to the signal flow table below to explore the various system possibilities.

■ Signal Flow Table (Receiver1)

Listen Monitor selector	Rec Out selector	Audio Signal			Video Signal	
		Speaker Terminals	Tape 1 Record (Output) Terminals	Tape 2/VCR Record (Output) Terminals	Video Monitor Terminals	Tape 2/VCR Record (Output) Terminals
Phono/Tuner/CD/ Tape 1	Phono	*Phono/Tuner/CD/ Tape 1	Phono	Phono	—	—
	Tuner	"	Tuner	Tuner	—	—
	CD	"	CD	CD	—	—
	Video 1	"	Video 1	Video 1	Video 1	Video 1
	Video 2	"	Video 2	Video 2	Video 2	Video 2
	1 - 2 Copy	"	—	Tape 1	—	—
	2 - 1 Copy	"	Tape 2/VCR	—	—	—
	Off	"	—	—	—	—
Video 1/Video 2/ Tape 2/VCR	Phono	*Video 1/Video 2/ Tape 2/VCR	Phono	Phono	*Video 1/Video 2/ Tape 2/VCR	—
	Tuner	"	Tuner	Tuner	"	—
	CD	"	CD	CD	"	—
	Video 1	"	Video 1	Video 1	"	Video 1
	Video 2	"	Video 2	Video 2	"	Video 2
	1 - 2 Copy	"	—	Tape 1	"	—
	2 - 1 Copy	"	Tape 2/VCR	—	"	—
	Off	"	—	—	"	—

* : The signal from the program source selected with the Listen Monitor selector is supplied.

— : No output.

Use of the Wireless Remote Control Unit

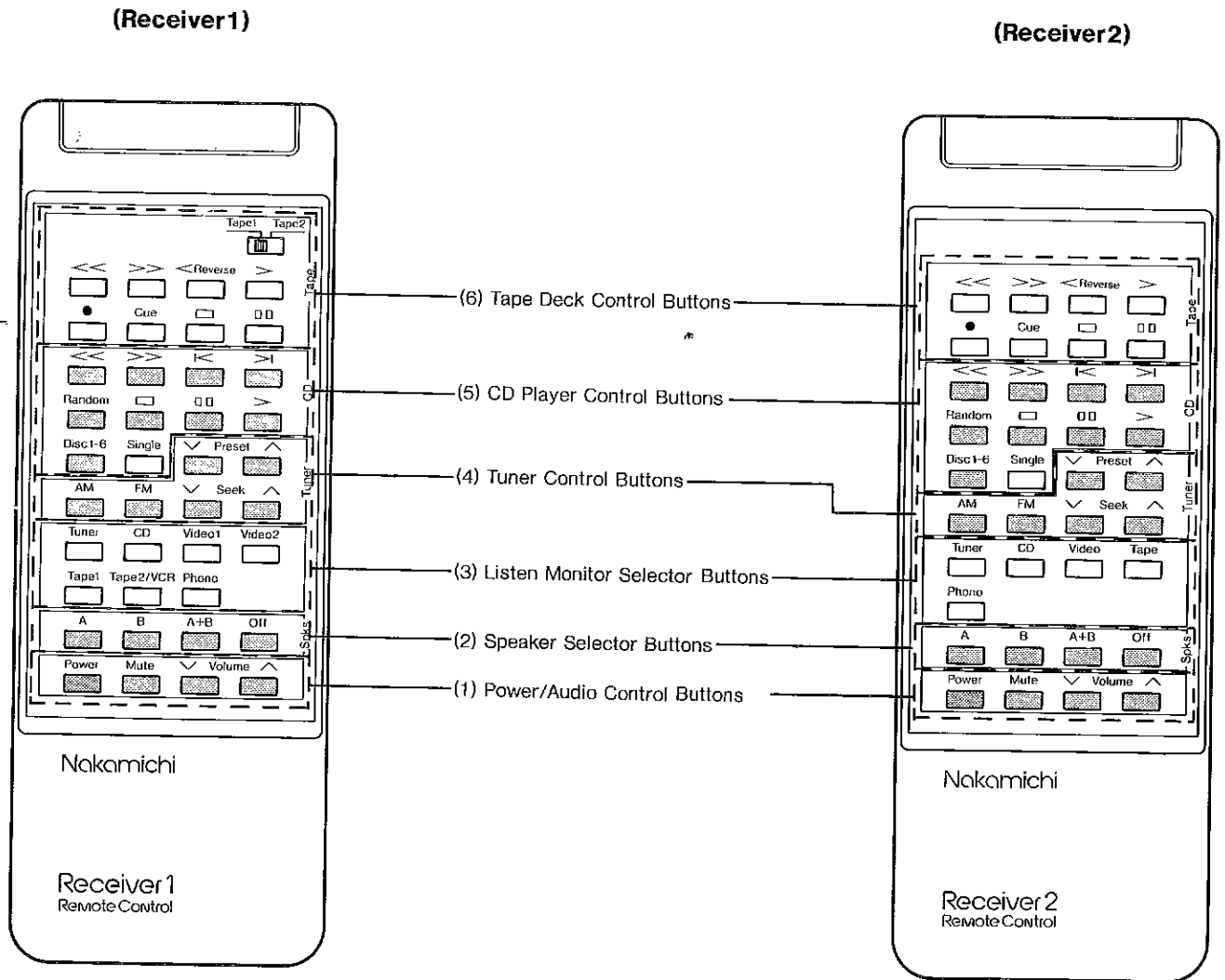
The wireless remote control unit supplied with the unit permits power on/off switching, Listen Monitor selection, volume adjustment and Mute on/off operation of the receiver, and it can also be used to control basic functions of other Nakamichi components equipped for System Remote control. (For a

list of cassette decks and functions which can be operated, please refer to page 18.) To use the remote control, leave the Power switches of the receiver and the other components set to "On", and point the infrared transmitter window towards the remote control sensor on the unit. (For control of a

CD player, point the remote control towards the player.)

When the remote control is operated, the remote control sensor indicator of the receiver lights up

■ Controls and Functions



(1) Power/Audio Control Buttons

◆ Power On/Off Button

Pressing this button toggles the unit between "On" and the standby mode.

◆ Mute Button

Pressing the button once activates audio muting, and pressing the button once more restores the normal volume setting.

◆ V (Volume) ^ (Up/Down) Buttons

These buttons permit adjustment of the listening level. When the "^" button is pressed while audio muting is activated, the muting is automatically disengaged and the volume is raised.

(2) Speaker Selector Buttons

(To use these buttons, set the Speaker selector on the main unit to "Remote".)

◆ A, B, A+B, Off

With these buttons, the desired loudspeakers can be selected.

(3) Listen Monitor Selector Buttons

◆ Phono, CD, Tuner, Video 1, Video 2, Tape 1, Tape 2/VCR (Receiver 1)

Phono, CD Tuner, Video, Tape (Receiver 2)

By pressing one of these buttons, the desired program source can be chosen.

When the unit is in the standby mode, operating one of these selectors will activate the unit and the selected source will automatically be heard (direct operation).

(4) Tuner Control Buttons

◆ FM, AM Band Selector Buttons

The desired frequency band can be selected with these buttons.

◆ V Seek ^ Buttons

These buttons initiate the automatic tuning function.

◆ V Preset ^ (Preset Number) Buttons

With these buttons, stations stored in the preset station memory can be selected.

(5) CD Player Control Buttons

◆ □ (Stop) Button

Pressing this button during playback or in the pause mode cancels the present operation and returns the CD player to the standby mode.

◆ □ □ (Pause) Button

Press this button to temporarily interrupt playback.

◆ > (Play) Button

Press this button to start playback or to resume playback from the pause mode.

◆ <<< (Reverse) Button

Serves to rapidly move the laser pickup in the reverse direction. Pressing the button during playback permits reverse cueing.

◆ >>> (Fast Forward) Button

Serves to rapidly move the laser pickup in the forward direction. Pressing the button during playback permits forward cueing.

◆ << (Reverse Skip) Button

This button can be used to skip to the start of the present or an earlier track.

◆ >> (Forward Skip) Button

This button can be used to skip to the start of a later track.

◆ Random Button (only for CDC-4/CDC-3 and CD Player 2/3)

Serves to start random-order playback.*

◆ Disc 1-6 Button (only for CDC-4/CDC-3 and CD Player 2/3)

Serves to select the disc number for playback. With each push of the button the disc number is switched in the order 1→2...6→1→2 etc.

◆ Single Button (only for CD Player 2/3)

Serves to switch to the CD inserted in the CD Single tray.

• The operation of the buttons is identical to the controls on the CD player. For detailed instructions, please refer to the Owner's Manual of the CD player.

(6) Tape Deck Control Buttons

◆ Tape 1/Tape 2 Selector Switch (Receiver 1)

This switch determines which of the connected cassette decks is to be remote-controlled.

◆ <<< (Rewind) Button

Serves to rewind the tape.

◆ >>> (Fast Forward) Button

Serves to fast-forward the tape.

◆ < Reverse Button

With the DRAGON cassette deck, this button functions as the Reverse Play button. With a cassette deck of the RX series, it functions as Direction Reversal button.

◆ > (Play) Button

This button initiates tape playback or starts recording from the recording standby mode.

◆ ● (Record) Button

Serves to set the tape deck to the recording mode. (With some models, pressing this button once more during recording activates the Rec Mute function. Refer to the chart on the next page.)

◆ Cue Button

This button serves for cueing. (On decks without cueing capability, the button initiates fast-forward or stop. Refer to the chart on the next page.)

◆ □ (Stop) Button

Pressing this button terminates the present mode and stops the tape.

◆ □ □ (Pause) Button

This button is used to temporarily interrupt tape travel during recording or playback. To restart the tape, press the Play button once more.

• The operation of the buttons is almost identical to the controls on the tape deck. For detailed instructions, please refer to the Owner's Manual of the tape deck.

For a list of models which can be used with the remote control and functions which can be operated, please refer to the chart on the next page.

Batteries

Remove the cover of the battery compartment as shown in the illustration and insert the supplied two IEC R6 batteries (size AA) into the compartment, taking care to observe correct polarity.

When the batteries are nearing exhaustion, the effective range of the remote control decreases or the remote control may fail to operate. In this case, **replace both batteries with fresh ones.**

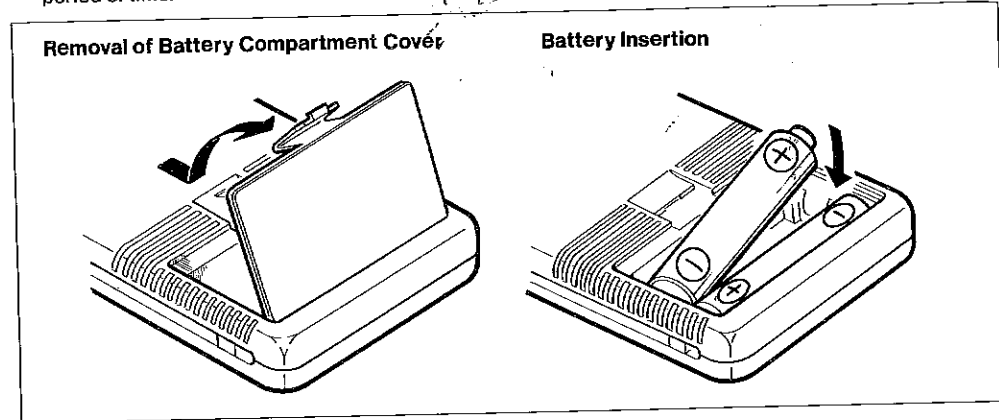
(A good indication that the batteries need replacing is when the indicator on the remote control begins to grow dim.)

Note:

- Do not use a mixture of old and new batteries, and make sure that both batteries are of the same type.
- Only batteries specially designed and clearly marked as such are rechargeable. Carefully read and observe the instructions printed on the batteries.

- To prevent damage caused by possible battery leakage, remove the batteries from the remote control unit if it is not to be used for an extended period of time.

- Never dismantle batteries or dispose of them in fire, as they may explode. Dispose of batteries only in an appropriate way as indicated by your community.



Tape Deck Operation Chart

Remote control button Tape deck model	<<	>>	< Reverse	>	●	Cue	□	□ □
CR-7	Rewind	Fast-Forward	—	Play	Record* Standby	Fast-Forward	Stop	Pause
CR-5	"	"	—	"	**	"	"	"
CR-4/CR-3/CR-2	"	"	—	"	"	"	"	"
Cassette Deck 1/2	"	"	—	"	**	—	"	"
1000 (DAT)	"	"	—	"	Record*	Cueing	"	"
1000ZXL	"	"	Reverse- Direction Play	Forward- Direction Play	**	"	"	"
DRAGON	"	"	Tape Direction Reversal	Play	**	"	"	"
RX-505	"	"	"	"	**	Fast-Forward	"	"
RX-303	"	"	—	"	Record* Standby	Stop	"	"
BX-300	"	"	—	"	**	"	"	"
MR-1	"	"	—	"	Record	"	"	"
MR-2	"	"	—	"	"	Fast-Forward	"	"
1000/1000II*	"	"	—	"	"	"	"	"
700/700II*	"	"	—	"	**	Cueing	"	"
700ZXL/700ZXE	"	"	—	"	"	"	"	"
ZX-9/ZX-7	"	"	—	"	"	Fast-Forward	"	"
LX-5/LX-3	"	"	—	"	**	Cueing	"	"
682ZX/681ZX/680ZX/680	"	"	—	"	**	"	"	"
670ZX/660ZX	"	"	—	"	**	"	"	"
582Z/581Z	"	"	—	"	**	"	"	"
582/581/580M/580	"	"	—	"	"	"	"	"

— : Not available.

" : As above.

* : When Rec button is pressed again during recording, Record Mute is activated.

* : Optional Tape Deck Control cable SRC-3 for the models 1000/1000II/700/700II required.

• Except for the Cassette Deck 1/2 and the Model 1000 (DAT), the RC-4 (sold separately) is required. Please contact your dealer.

Troubleshooting

	Condition	Probable Cause	Remedy
Audio Section	No power.	1. Power cord not plugged properly into AC wall outlet.	1. Plug in power cord firmly.
	No sound.	2. Faulty connections of RCA-type plugs, shielded cables between components, or speaker cables. 3. Listen Monitor selector not set correctly. 4. Protection circuits are activated. 5. Nothing connected to the Pre Output/Main Input terminals.	2. Check connections. 3. Select correct positions. 4. Refer to the paragraph "Protection Circuits" on page 11. 5. If no sound processor equipment is used, the jumper plugs must be inserted in the jacks.
	Left/right channels reversed, no sound from one channel.	6. Faulty connections of RCA-type plugs, shielded cables between components, or speaker cables. 7. Balance control turned fully to one side.	6. Check connections. 7. Adjust Balance control.
	Bass response deficient, unstable stereo imaging.	8. Speaker cable connected with reversed (+) (-) polarity in one channel.	8. Connect speaker cable correctly.
	Hum noise is heard during record playback.	9. Faulty or incomplete connection of RCA-type plugs. 10. Faulty or incomplete connection of ground cable. 11. Output cable from turntable routed too close to AC power cord. 12. Unit is placed too close to turntable and cartridge.	9. Insert plugs firmly. 10. Check ground connection. 11. Route AC power lines as far as possible from output cables and cartridge. 12. Increase distance between unit and cartridge.
	Hum noise is heard.	13. Faulty or incomplete connection of RCA-type plugs. 14. Unit is placed too close to a TV set.	13. Insert plugs firmly. 14. Increase distance between unit and TV set.
Tuner Section	General	Desired station not received when Preset selector is pushed.	15. Station not stored correctly in the memory. 15. Store station as described in "Memory Tuning" on page 13.
		Auto tuning not possible.	16. Insufficient antenna signal. 16. Change antenna height or orientation, or use a multiple-element FM antenna.
	FM Reception	Noise level increases notably when stereo broadcasts are received.	17. Insufficient antenna signal. 17. Change antenna height or orientation, or use a multiple-element FM antenna.
		Intermittent crackling noise.	18. Interference caused by ignition systems of cars etc. 18. Remove antenna as far as possible from roads etc. Use a 75-ohm coaxial cable for antenna connection.
		Broadcast is supposed to be in stereo, but Stereo indicator does not light and sound is monaural.	19. Tuning Mode selector set to manual tuning. 19. Set selector to auto tuning.
	AM Reception	Buzzing noise.	20. Interference caused by fluorescent lights, motors or thermostats of electrical appliances etc. 20. Using an outdoor wire antenna and ground connection may reduce noise (complete removal is sometimes not possible).
Chirping noise.		21. Interference from adjacent stations. 22. Interference from a TV set. 21. Reorient loop antenna. 22. Increase distance between receiver and TV set.	
AV Section	No picture or sound (Receiver 1).	23. Faulty connections. 24. Listen Monitor selector or Rec Out selector set to incorrect position.	23. Check connections. 24. Refer to the signal flow table on page 15 to determine the correct position for all switches.
Others	Remote control does not operate.	25. Power switch of the receiver is set to "Off". 26. Batteries are inserted with wrong polarity. 27. Batteries are exhausted. 28. Remote control unit is outside of effective range. 29. An obstacle is placed between remote control and the receiver. 30. Another wireless remote control is operated at the same time.	25. Set Power switch to "On". 26. Insert batteries correctly. 27. Replace both batteries with fresh ones. 28. Operate unit within effective range. 29. Remove obstacle. 30. Avoid simultaneous use of several remote control devices.

Specifications

Power Amplifier Section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202 measured from any high-level input (CD/VIDEO/TAPE) to the speaker output.

	Receiver1	Receiver2
Continuous Average Output Power	80 watts per channel into 8 ohms, both channels driven, 20—20,000 Hz, at no greater than 0.1% THD	55 watts per channel into 8 ohms, both channels driven, 20—20,000 Hz, at no greater than 0.1% THD
Dynamic Output Power	110 watts per channel into 8 ohms 140 watts per channel into 4 ohms	75 watts per channel into 8 ohms 95 watts per channel into 4 ohms
Power Bandwidth	5—40,000 Hz *5—30,000 Hz	5—40,000 Hz *5—30,000 Hz
Frequency Response	20—20,000 Hz; +0, -0.5 dB 5—75,000 Hz; +0, -3 dB *20—20,000 Hz; +0, -1 dB *5—45,000 Hz; +0, -3 dB	20—20,000 Hz; +0, -0.5 dB 5—75,000 Hz; +0, -3 dB *20—20,000 Hz; +0, -1 dB *5—45,000 Hz; +0, -3 dB
Signal-to-Noise Ratio (A-WTD, input shorted)	Better than 100 dB re rated power Better than 83 dB (IHF-A-202)	Better than 100 dB re rated power Better than 83 dB (IHF-A-202)
Total Harmonic Distortion (8 ohms, rated power, 20 Hz—20 kHz)	Less than 0.1%	Less than 0.1%
Headphone Rated Output (40 ohms)	187 mW	129 mW
Output Current Capability	18 A peak per channel	14 A peak per channel

Preamplifier Section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202. Except for sensitivity, S/N, tone control and loudness characteristics (which are measured to the speaker outputs), measurements are made from the specified input to Rec Out.

	Receiver1	Receiver2
Sensitivity (for rated output)		
Phono MM	2.5 mV	2.5 mV
CD/Tape/Video	150 mV	150 mV
Main in	1.0 V	1.0 V
Sensitivity (for 1-watt output, IHF-A-202)		
Phono MM	0.28 mV	0.34 mV
CD/Tape/Video	17 mV	20 mV
Main in	111 mV	135 mV
Input Impedance		
Phono MM	47 kohms	47 kohms
CD/Tape/Video	20 kohms	20 kohms
Main in	20 kohms	20 kohms
Maximum Input Level (1 kHz)		
Phono MM	180 mV	180 mV
Pre Output Level/Impedance	1.0V/1 kohms	1.0V/1 kohms
Record Output Level/Impedance	150 mV/15 kohms	150 mV/15 kohms
Total Harmonic Distortion (1 kHz, to Rec Out, at 1 V)		
Phono MM	Less than 0.008%	Less than 0.008%
RIAA Deviation		
Phono MM	30—20,000 Hz ±0.5 dB	30—20,000 Hz ±0.5 dB
Signal-to-Noise Ratio (to speaker output, IHF-A-202)		
Phono MM	Better than 78 dB *Better than 76 dB	Better than 78 dB *Better than 76 dB
Tone Controls		
Bass	20 Hz, ±10 dB	20 Hz, ±10 dB
Treble	20 kHz, ±10 dB	20 kHz, ±10 dB
Variable Loudness (re maximum attenuation: -40 dB at 1 kHz)	20 Hz, +20 dB; 20 kHz, +6 dB	20 Hz, +20 dB; 20 kHz, +6 dB
Subsonic Filter (Phono only)	Cutoff Frequency 20 Hz, -6 dB/octave	Cutoff Frequency 20 Hz, -6 dB/octave

Tuner Section

[FM] **Note:** All RF levels in microvolts given re 300-ohm antenna input.
 Modulation: Mono 100%, Stereo Pilot 9%, Stereo Audio Signal 91%.
 (European Model; Mono 60%, Stereo Pilot 9%, Stereo Audio Signal 51%)
 All measurements made at Rec Out jack.

	Receiver1	Receiver2
Frequency Range	87.5—107.9 MHz in 200 kHz steps *87.50—108.00 MHz in 50 kHz steps	87.5—107.9 MHz in 200 kHz steps *87.50—108.00 MHz in 50 kHz steps
IHF Usable Sensitivity (Mono)	11 dBf/1.9 μ V	12 dBf/2.2 μ V
50-dB Quieting Sensitivity		
Mono	14.7 dBf/3.0 μ V, *23.0 dBf/7.7 μ V	15.7 dBf/3.3 μ V, *23.0 dBf/7.7 μ V
Stereo	37.5 dBf/41.1 μ V, *44.0 dBf/86.8 μ V	38.5 dBf/46.1 μ V, *44.0 dBf/86.8 μ V
Signal-to-Noise Ratio at 65 dBf		
Mono	Better than 79 dB *Better than 72 dB	Better than 79 dB *Better than 72 dB
Stereo	Better than 72 dB *Better than 67 dB	Better than 72 dB *Better than 67 dB
Muting Threshold	30 dBf/17.3 μ V	30 dBf/17.3 μ V
Frequency Response	20—15,000 Hz \pm 1 dB	20—15,000 Hz \pm 1 dB
Total Harmonic Distortion (1 kHz)		
Mono	Less than 0.07% *Less than 0.20%	Less than 0.10% *Less than 0.20%
Stereo	Less than 0.07% *Less than 0.25%	Less than 0.10% *Less than 0.25%
Capture Ratio	2.0 dB	2.0 dB
Alternate Channel Selectivity	55 dB (\pm 400 kHz) *70 dB (\pm 300 kHz)	55 dB (\pm 400 kHz) *70 dB (\pm 300 kHz)
Stereo Separation at 1 kHz	Better than 50 dB *Better than 40 dB	Better than 50 dB *Better than 40 dB
Spurious Response Rejection	Better than 90 dB	Better than 90 dB
Image Rejection	Better than 75 dB	Better than 75 dB
IF Rejection	Better than 80 dB	Better than 80 dB
AM Suppression	Better than 60 dB	Better than 60 dB

[AM] **Note:** Modulation—400 Hz, 30%

	Receiver1	Receiver2
Frequency Range	520—1,710 kHz in 10 kHz steps *522—1,611 kHz in 9 kHz steps	520—1,710 kHz in 10 kHz steps *522—1,611 kHz in 9 kHz steps
Sensitivity	53 dB μ /m	53 dB μ /m
Signal-to-Noise Ratio at 90 dB μ /m	Better than 52 dB	Better than 52 dB
Total Harmonic Distortion at 90 dB μ /m	Less than 0.5%	Less than 0.5%
Selectivity	Better than 20 dB (\pm 10/*9 kHz)	Better than 20 dB (\pm 10/*9 kHz)

General

	Receiver1	Receiver2
Power Source	120, 230 or 240 V AC, 50/60 Hz (According to country of sale)	120, 230 or 240 V AC, 50/60 Hz (According to country of sale)
Power Consumption	390 W max.	295 W max.
Convenience Outlets	Switched: 2 (General Model) Switched: 1 (European and Oceanian Model)	Switched: 2 (General Model) Switched: 1 (European and Oceanian Model)
Dimensions*	430(W) \times 100(H) \times 370(D) mm 16-15/16(W) \times 3-15/16(H) \times 14-9/16(D) inches	430(W) \times 100(H) \times 370(D) mm 16-15/16(W) \times 3-15/16(H) \times 14-9/16(D) inches
Approximate Weight	11.5 kg 25 lbs. 6 oz.	9.0 kg 19 lbs. 13 oz.

<Remote Control Unit>

	Receiver1	Receiver2
Principle	Infrared pulse system	Infrared pulse system
Power Supply	3 V DC (1.5 V \times 2)	3 V DC (1.5 V \times 2)
Dimensions*	64(W) \times 18(H) \times 176(D) mm 2-1/2(W) \times 11/16(H) \times 6-15/16(D) inches	64(W) \times 18(H) \times 176(D) mm 2-1/2(W) \times 11/16(H) \times 6-15/16(D) inches
Approximate Weight	130 g 5 oz. (including batteries)	130 g 5 oz. (including batteries)

*: Dimensions do not include protruding parts. High is the panel height without feet.

*: European Model

• Specifications and design are subject to change for further improvement without notice.