

YAMAHA R-8

Natural Sound AM/FM Stereo Receiver

Low Impedance Drive

High Dynamic Power

Zero Distortion Rule Amplification

New Continuously Variable Loudness Control

New Computer Servo Lock Tuning System

Rec Out Selector

Digital Fine Tuning

16-Station Random Preset Tuning

Video Input Selectors

Wireless Remote Control Capability



OWNER'S MANUAL

Thank you for purchasing the YAMAHA R-8 AM/FM stereo receiver.

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IMPORTANT!

Please record the serial number of your unit in the space below:

Model : R-8

Serial No. :

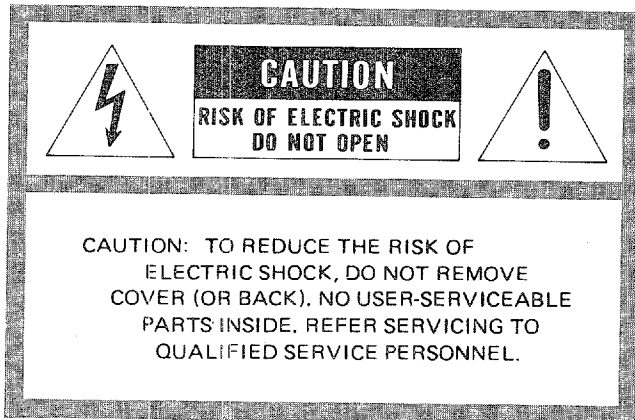
The serial number is located on the rear of the cabinet.

Retain this Owner's Manual in a safe place for future reference.

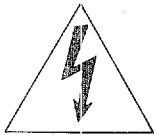
WARNING

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

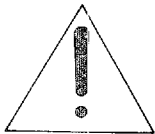
SAFETY INSTRUCTIONS



• Explanation of Graphical Symbols



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



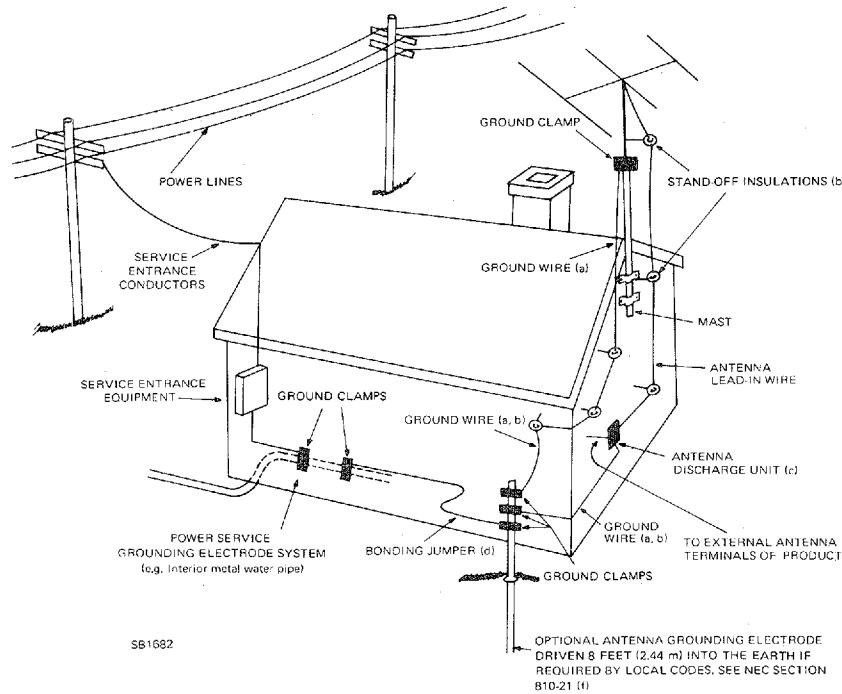
The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

- 1** Read Instructions – All the safety and operating instructions should be read before the appliance is operated.
- 2** Retain Instructions – The safety and operating instructions should be retained for future reference.
- 3** Heed Warnings – All warnings on the appliance and in the operating instructions should be adhered to.
- 4** Follow Instructions – All operating and other instructions should be followed.
- 5** Water and Moisture – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
- 6** Carts and Stands – The appliance should be used only with a cart or stand that is recommended by the manufacturer.
- 7** Wall or Ceiling Mounting – The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
- 8** Ventilation – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
- 9** Heat – The appliance should be situated away from heat sources such as radiators, stoves, or other appliances that produce heat.
- 10** Power Sources – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
- 11** Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
- 12** Cleaning – The appliance should be cleaned only as recommended by the manufacturer.
- 13** Nonuse Periods – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
- 14** Object and Liquid Entry – Care should be taken so that objects do not fall into and liquids not spilled into the inside of the appliance.
- 15** Damage Requiring Service – The appliance should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped, or the cabinet damaged.
- 16** Servicing – The user should not attempt to service the appliance beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.
- 17** Power Lines – An outdoor antenna should be located away from power lines.

18 Outdoor Antenna Grounding — If an outside antenna is connected to the tuner, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA

No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

EXAMPLE OF ANTENNA GROUNDING ACCORDING TO NATIONAL ELECTRICAL CODE INSTRUCTIONS (CONTAINED IN ARTICLE 810 — "RADIO AND TELEVISION EQUIPMENT")



SB1682

(a): Use No. 10 AWG (5.3mm^2) copper, No. 8 AWG (8.4mm^2) aluminium, No. 17 AWG (1.0mm^2) copper-clad steel or bronze wire, or larger, as a ground wire.

(b): Secure antenna lead-in and ground wire to house with stand-off insulators spaced from 4 — 6 feet (1.22 — 1.83 m) apart.

(c): Mount antenna discharge unit as closely as possible to where lead-in enters house.

(d): Use jumper wire not smaller than No. 6 AWG (13.3mm^2) copper, or the equivalent when a separate antenna-grounding electrode is used. See NEC Section 810-21 (j).

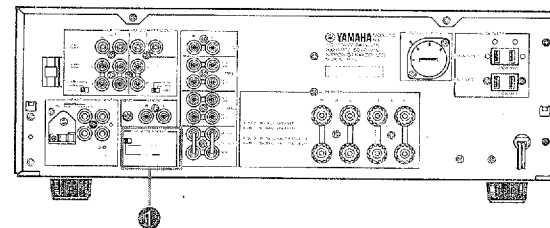
CAUTION · READ THIS BEFORE OPERATING YOUR R-8

- 1**
The R-8 is a sophisticated stereo receiver. To ensure proper operating for the best possible performance, please read this manual carefully.
- 2**
Choose the installation of your R-8 carefully. Avoid placing it in direct sunlight or close to a source of heat. Also avoid locations subject to vibration and excessive dust, heat, cold or moisture. Keep away from such sources of hum as transformers or motors.
- 3**
To ensure that the unit operates properly, be sure to set it on a level surface, and do not cover the heat vents on the top. If temperature becomes too high, a thermal protector will cut off the power.
- 4**
If speaker impedance is too low, a protection relay circuit will cut off the output signal. Use speakers inside the rated impedance range.
- 5**
Use only the supplied AM loop antenna in the AM antenna terminal.
- 6**
The back-up power supply will keep the preset stations memorized for one week if power fails or the set is unplugged. In order to keep the back-up power supply fully charged, turn the power switch on once a week even if you are not using the unit. Even if the preset stations are erased, the memory is still functional; merely preset the stations again.
- 7**
Do not open the cabinet as this might result in damage to the set or electrical shock. If a foreign object should get into the set, contact your dealer.
- 8**
Do not place records or other objects on top of the receiver so that the ventilation holes are blocked. This will cause the internal temperature to rise and may result in a failure.

- 9**
When removing the power plug from the wall outlet, always pull directly on the plug; never yank the cord.
- 10**
To prevent lightning damage, pull out the power cord and remove the antenna cable in case of an electrical storm.
- 11**
Do not use force when using the switches and knobs.
- 12**
When moving the set be sure to first pull out the power plug and remove cords connecting to other equipment.
- 13**
Always set the volume control to "0" while lowering the tonearm to play a record, then turn the volume up after the stylus is seated in the record groove.
- 14**
Do not attempt to clean the R-8 with chemical solvents as this might damage the finish. Use a clean, dry cloth.
- 15**
Do not input more than the maximum allowable level to the Input (Video), Tape 1 (Tape PB), and Tape 2 (Tape PB) terminals.
- 16**
Do not connect audio equipment to the AC outlets on the rear panel if that equipment requires more power than the outlets are rated to provide.
- 17**
Be sure to read the "troubleshooting" section for advice on common operating errors before concluding that your R-8 is faulty.
- 18**
Keep this manual in a safe place for future reference.

CONNECTION DIAGRAM

REGULAR MODEL (rear panel)

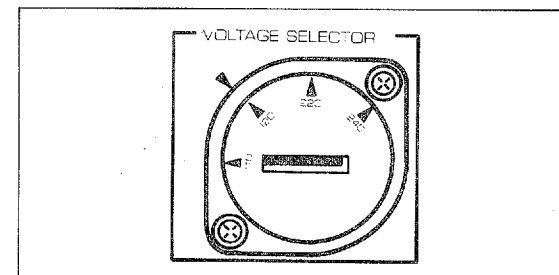


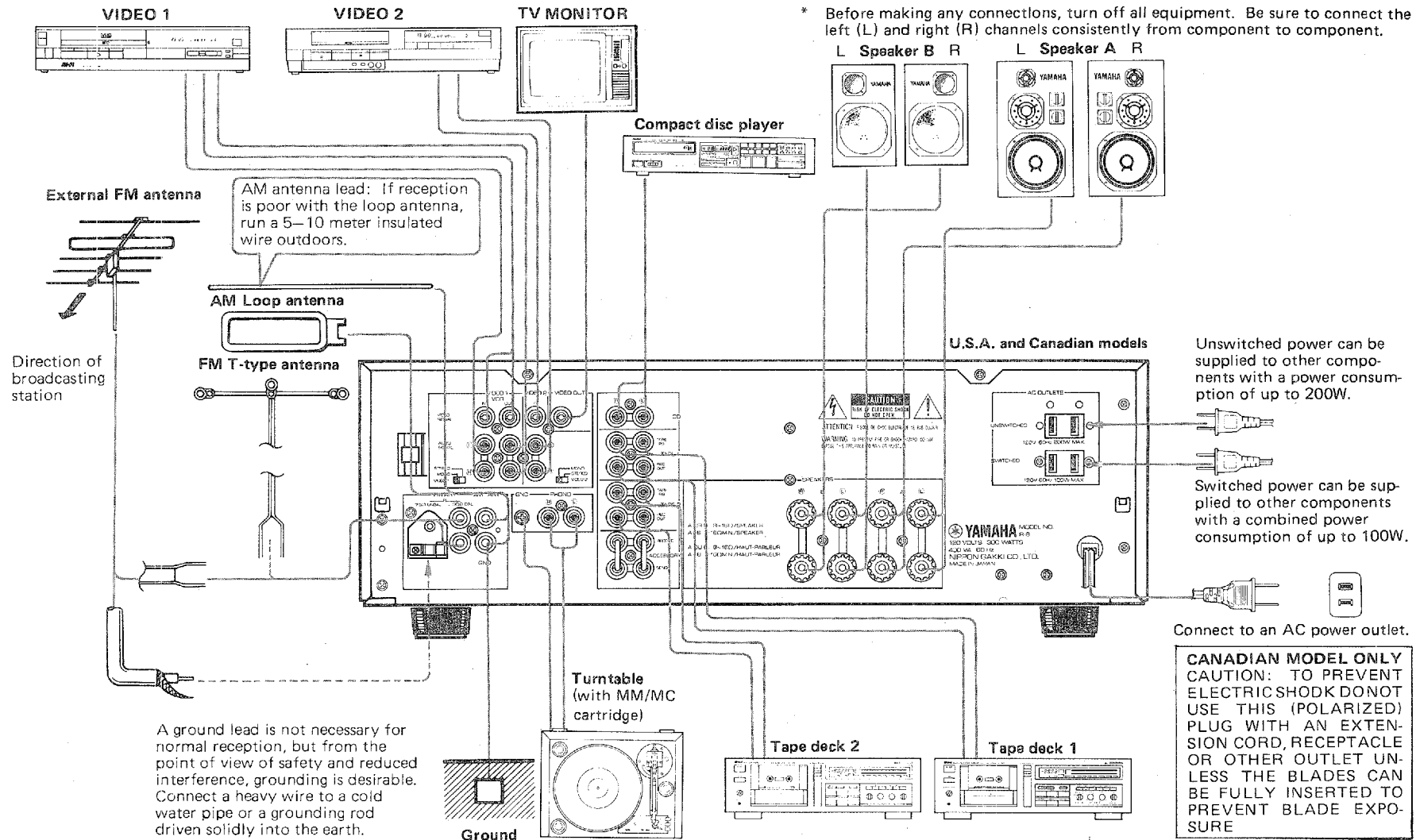
About The Frequency Spacing Switch

Areas other than the United States and Canada; because interstation frequency spacing is different in different areas, please set rear panel switch **11** to agree with the station spacing in your area (50 kHz FM/9 kHz AM or 100 kHz FM/10 kHz AM)

Voltage Selector

The voltage selector switch on the rear panel of the R-8 must be set for your local voltage BEFORE plugging in the AC main supply. Voltages are 110/120/220/240 V AC, 50/60 Hz.





* Before making any connections, turn off all equipment. Be sure to connect the left (L) and right (R) channels consistently from component to component.

AM antenna lead: If reception is poor with the loop antenna, run a 5-10 meter insulated wire outdoors.

Unswitched power can be supplied to other components with a power consumption of up to 200W.

Switched power can be supplied to other components with a combined power consumption of up to 100W.

Connect to an AC power outlet.

A ground lead is not necessary for normal reception, but from the point of view of safety and reduced interference, grounding is desirable. Connect a heavy wire to a cold water pipe or a grounding rod driven solidly into the earth.

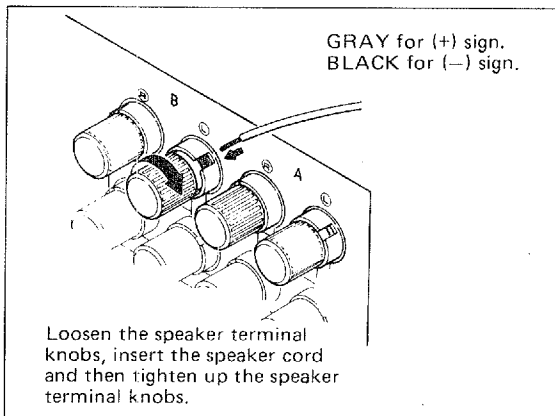
CONNECTIONS

CONNECTING THE SPEAKERS

The matching impedance of this receiver is 6Ω.

Either one or two pairs of speakers may be connected. If only one pair is connected the recommended speaker impedance may be anywhere between 4Ω and 16Ω. If two pairs are connected, however, it is advisable to use speakers with at least a 8Ω impedance for optimum performance.

1. Connect the cords going to the left speakers to the L terminals and the right speaker cords to the R terminals, making sure that the "+" and "-" markings are observed. If the "+" and "-" wires are reversed at either speaker, the sound will be unnatural and lack bass. Speaker cords should be cut as short as possible; do not coil up excess wire on the floor. Also, do not bundle with cords from other system components.
2. Push in on the lever at the terminal, insert the exposed wire of the speaker cord into the hole and then release the lever. The cord will be locked into position. If these connections are faulty, no sound will be heard from the speakers.
3. A second pair of speakers may connected in the same way if desired. Use the speaker "B" terminals provided.

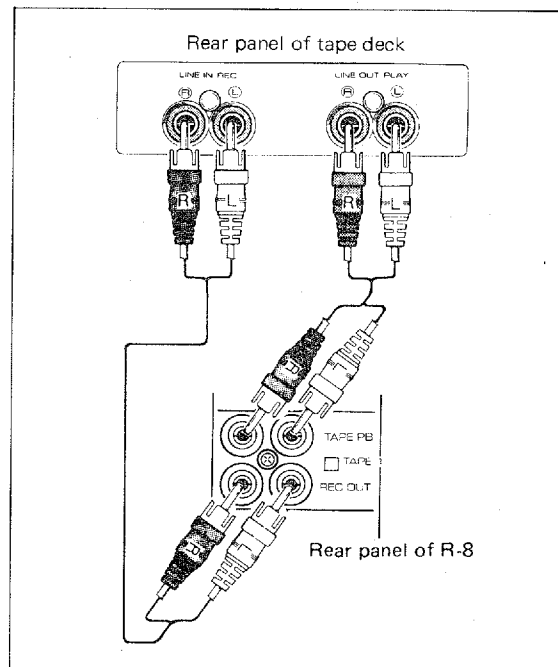


CONNECTING A TURNTABLE

Connect the output cords of the turntable to the receiver's Phono jacks, and connect the ground wire to the Gnd terminal. Normally, connecting the ground wire produces minimum hum, but in some cases better results are obtained with the ground wire disconnected. The cartridge and the turntable's output cords should be positioned well away from such sources of hum as power cords or power transformers of other system components.

CONNECTING A TAPE DECK

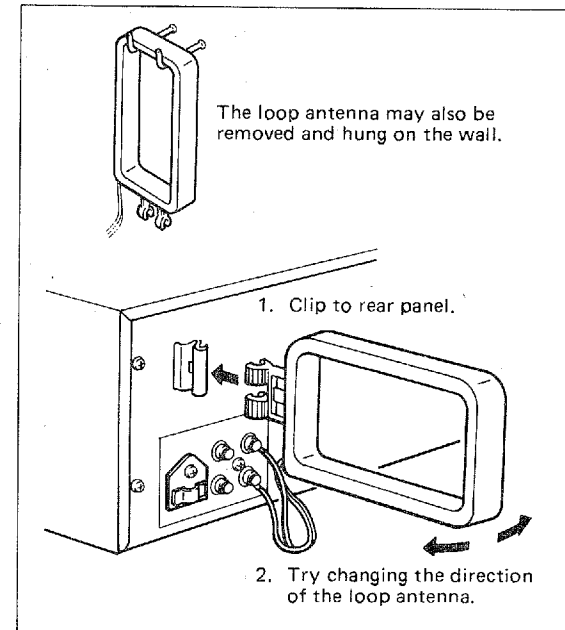
Two tape decks can be connected to this receiver as it has two sets of jacks (Tape 1 and Tape 2). Connect the Tape PB jacks to the tape deck's Line Out jacks, and the Rec Out jacks to the tape deck's Line in jacks.



CONNECTING THE AM ANTENNA

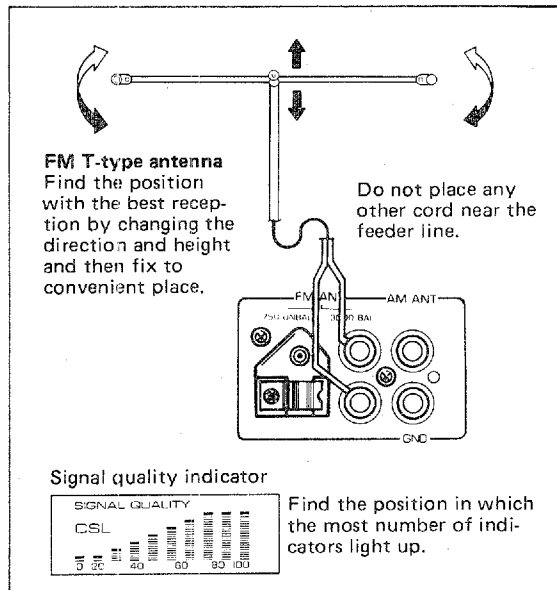
In many cases it will be possible to get excellent AM reception with the provided AM loop antenna. Attach the antenna leads to the Gnd and AM ANT terminals and rotate the antenna in its bracket for best reception. The loop antenna may also be removed and hung on the wall. Because video signals pass through the receiver and are emitted in AM broadcasts as pulse noises, the AM loop antenna should be used farther away.

If necessary, an outdoor antenna may be used for improved AM reception. Connect a 5–10 meter length of insulated wire to the AM ANT terminal and run it outdoors.



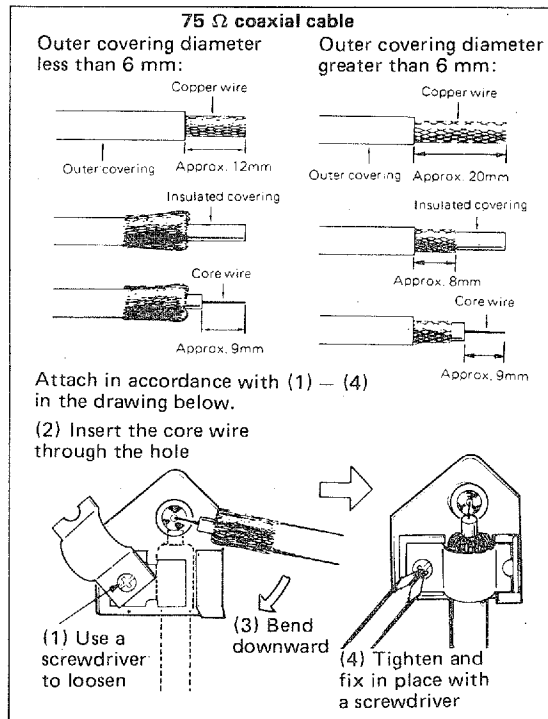
■ CONNECTING THE FM ANTENNA

Choose an FM antenna that is appropriate to the local reception conditions. Consider the distance from the broadcast station and possible interfering objects such as surrounding tall buildings. In cases where there is a strong signal from a local station, a portable T-type antenna is usually adequate. Connect the feeder wire to the 300Ω terminal, stretch the wire out tight, and turn to obtain optimum reception. Attach to a suitable support such as a wall.



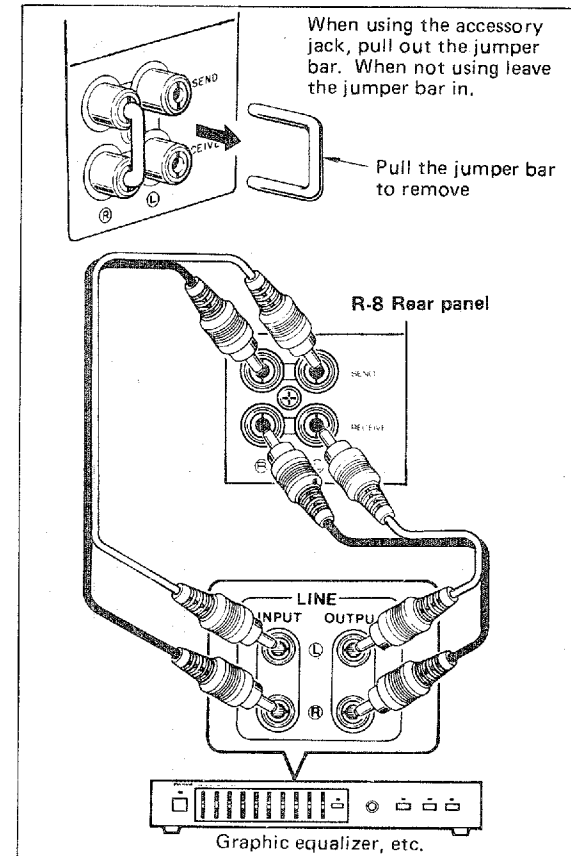
In all but the best reception conditions, an outdoor FM antenna is necessary for best results. Either 300Ω flat twin-lead wire or 75Ω coaxial cable may be used. In locations where electrical interference is a problem, coaxial cable is preferable.

Note: Connect either an indoor FM T-type antenna or an outdoor FM antenna but not both.

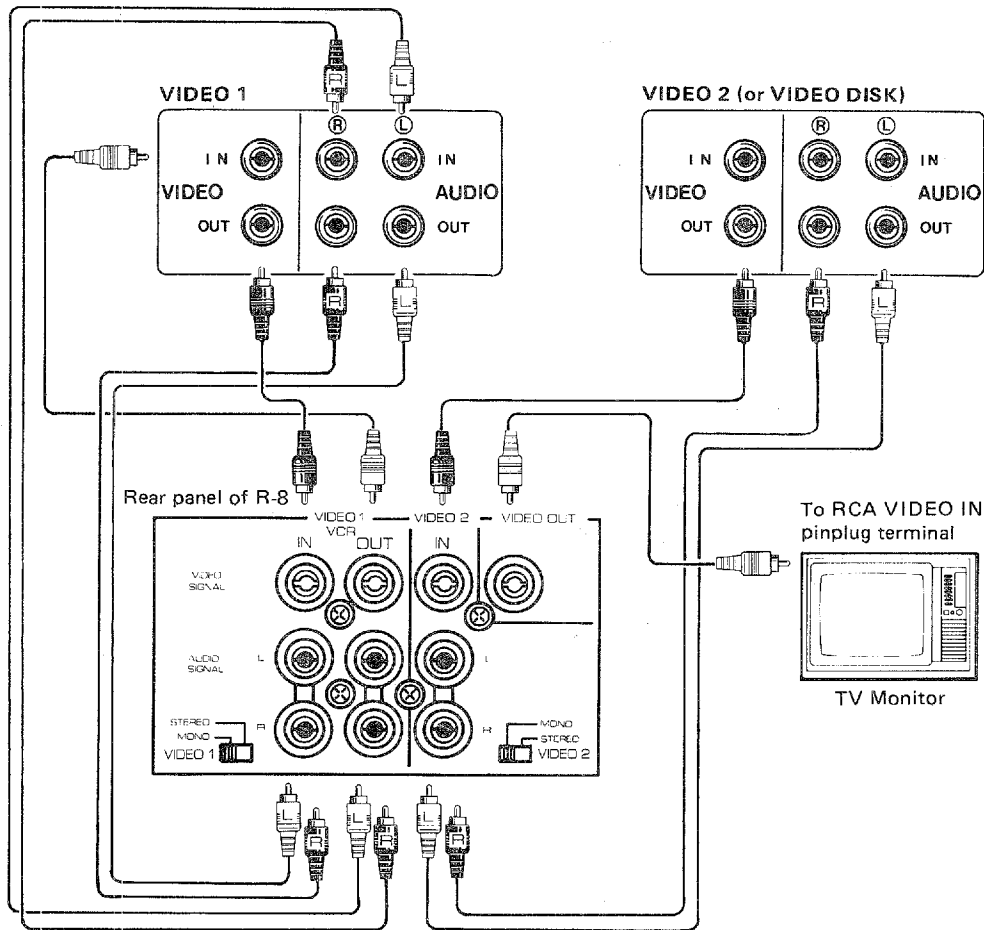


● ACCESSORY JACKS

For extra system flexibility, this amplifier allows you to connect a signal processing system such as an equalizer in the signal path prior to the tone control. Connect the Accessory Send terminals to the inputs of the equalizer and the outputs of the equalizer to the Accessory Receive terminals.



CONNECTING VIDEO COMPONENTS



VIDEO SOURCE CONNECTION AND CONTROL

The R-8 allows you to integrate previously separate audio and video systems into a true A/V home entertainment system, with high-fidelity reproduction of video sources in stereo. Rear panel input/output terminals and front panel input selectors are provided for both the video and audio signals of two separate video sources, and one-way dubbing of both the video and audio signal between the two sources is possible. This allows you, for example, to connect two video tape decks, or a video disc player to one input and a video tape deck to another, for one-touch tape-to-tape or disc-to-tape dubbing. Audio inputs and outputs are provided in stereo for both video sources, for full compatibility with today's high-fidelity stereo video components. Monaural video tape decks may also be connected. Yamaha's Simulated Stereo circuit also allows you to convert the audio portion of any monaural program source—TV broadcasts, monaural video tapes or discs—into a simulated stereo signal, for added depth, imaging and impact.

CONNECTING VIDEO COMPONENTS

Please refer to the rear panel connection diagrams while reading and implementing the following connection procedures.

Connecting a Single Video Component

When connecting a single video tape deck or video disc player, you may use either the VIDEO 1 or VIDEO 2 rear panel connection terminals. The terminals for both the audio and video signal are RCA pin plug type terminals, identical to those for connection of all your audio components.

Note: Some television models may cause noise interference during reception of AM broadcasts or while playing records on the turntable. If this occurs, either turn off the television or position it as far away as possible. Also, the use of an AM loop antenna may eliminate the noise interference.

• **Connecting Two Video Sources**

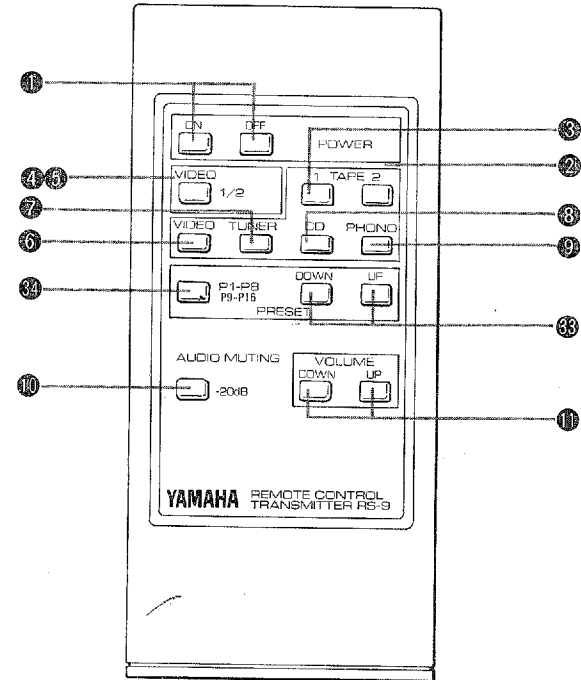
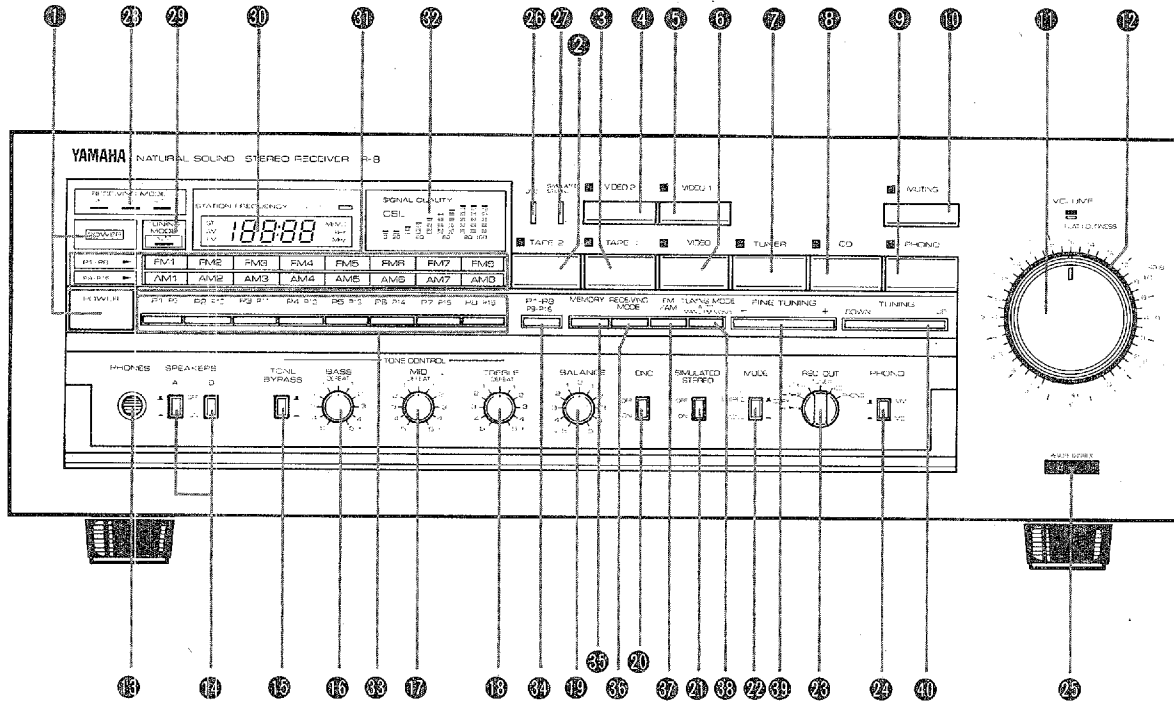
If you connect two video components, you will be able to copy tapes between them in one direction, from VIDEO 2 to VIDEO 1. For this reason, VIDEO 2 will always be your "source program", and VIDEO 1 your "copied program" when dubbing. The VIDEO OUT terminal for the VIDEO 2 source should thus be connected to your video monitor or TV set. Connections are made in the same way as for a single deck. When selecting a video source for monitoring, first press the VIDEO input selector, then either the VIDEO 1 or VIDEO 2 selector above that, according to which source you want to monitor.

Connect the VIDEO OUT terminal of your video component to the VIDEO IN terminal for either VIDEO 1 or VIDEO 2. Connect the AUDIO OUT terminals of your video deck to the AUDIO IN terminals of the R-8. Make sure left and right channel connections are properly observed. If your video deck is a stereo component, make sure the MONO/STEREO selector on the rear panel is set to STEREO. Connect the VIDEO OUT terminal of the R-8 to the VIDEO IN terminal on your video monitor, making sure the video and audio connections are consistent with the same source (VIDEO 1 or VIDEO 2).

If you have a video monitor with an RCA VIDEO IN pin plug terminal, this connects directly to the R-8 VIDEO OUT terminal. If you are using a standard home color TV with only an antenna input which receives both the audio and video signal from your video tape deck, a commercially available adaptor will be necessary to make the connection between the R-8 and your TV set.

If you have a monaural video tape deck with only one audio signal connection cable, connect this to either the left or right AUDIO IN terminal, and set the MONO/STEREO selector on the rear panel to MONO.

FRONT PANEL PARTS AND FUNCTIONS



• Option (RS-9)

❶ POWER SWITCH

This is a "push-on, push-off" power switch. When power is turned on, the power indicator, digital frequency display and other relevant indicators will light.

❷ TAPE 2

Depress this switch to listen to the sound from the tape recorder connected to the Tape 2 terminals. The red LED above it will light.

❸ TAPE 1

Depress this switch to listen to the sound from the tape recorder connected to the Tape 1 terminals. The red LED above it will light.

❹ VIDEO 2

By pressing this button, the video deck connected to VIDEO TERMINAL 2 can be seen and heard. The red LED above it will light.

5 VIDEO 1

By pressing this button, the video deck connected to VIDEO TERMINAL 1 can be seen and heard. The red LED above it will light.

6 VIDEO

By pressing this button, video deck program can be seen and heard. After pressing this button, select VIDEO 1 (5) or VIDEO 2 (4). The red LED above it will light.

* For additional information, refer to CONNECTION and LISTENING TO A PROGRAM SOURCE.

7 TUNER

Depress this switch to listen to the tuner. The red LED above it will light.

8 CD

Depress this switch to listen to the CD. The red LED above it will light.

9 PHONO

Depress this switch to listen to the turntable. The red LED above it will light. Use the PHONO BUTTON for selection of the MM or MC cartridge type.

10 MUTING SWITCH

Pressing this switch lights the above indicator and lowers the volume level by 20dB. Pressing the switch again extinguishes the indicator and restores normal volume. This switch is very convenient for lowering the volume temporarily (for instance, to answer a phone call) without disturbing the original volume setting. Also, when listening at low volume levels, turning on Muting makes it easier to control fine gradations of volume.

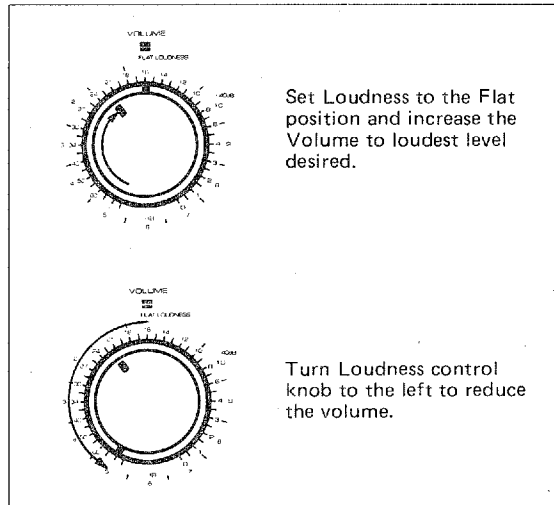
* Turning the Muting switch off when the volume is turned up could result in a very loud volume that could damage your speakers.

11 VOLUME

Used to adjust overall sound level.

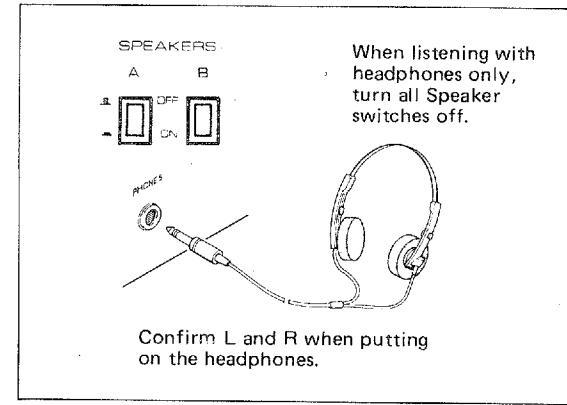
12 LOUDNESS CONTROL

Compensates for our ears' reduced sensitivity to the extreme high and low frequencies at low volumes. Set it to the Flat position with the Volume control set to the loudest level at which you listen. Then, when you want to listen at lower volume levels, rotate the Loudness control to the left instead of using the Volume control. This will retain the natural balance of the high and low frequencies.



13 PHONES JACK

Used for plugging in headphones. When it is desired to listen to headphones only, Speaker switches A and B should both be set to the OFF () position.



14 SPEAKER SELECTORS

With these switches you can select either or both of two pairs of speakers. The in position is the on position.

15 TONE BYPASS SWITCH

Bass, midrange and treble are bypassed when this button is pressed. When none of these controls are being used it is desirable to turn on the Tone Bypass switch from the point of view of music reproduction accuracy, but remember to turn it off again before adjusting controls. Note that the Tone Bypass switch can also be used as a convenient way of disabling all the tone controls at once to check their total effect on the sound.

16 BASS CONTROL

Lets you adjust bass response. The center, detented, Flat position is for normal response.

17 MID CONTROL

Lets you adjust Mid response. The center, detented, Flat position is for normal response.

18 TREBLE CONTROL

Lets you adjust treble response. The center, detented, Flat position is for normal response.

19 BALANCE CONTROL

Used to adjust the relative volume fo the left and right speakers. You can thus compensate for imbalances caused by speaker placement, room furniture, or your listening position.

20 DNC SWITCH

The Dynamic Noise Canceller is an exclusive Yamaha noise reduction system that increases the S/N ratio of any source. With conventional "dual process" NR systems, only previously encoded sources can be decoded during playback to effect noise reduction. The result is exceptionally quiet, noise-free reproduction from tapes, discs, tuner, VTR or video discs.

21 SIMULATED STEREO

A simulated stereo circuit dramatically improves the depth and imaging of a monaural audio signal on Video sources, TV broadcasts. The simulated effect creates a live, theater atmosphere for added impact. The use of the DNC gives the user an exciting home A/V entertainment experience.

22 MODE SELECTOR

Allows switching between stereo and mono operation. Normally it should be set to the stereo position; mono is useful for setting the balance between speakers, checking speaker phasing, checking stereo effect, etc.

23 REC OUT SELECTOR

Used for recording, this switch sends the signal from the selected source to the Rec Out jacks (regardless of the position of the Input Selector switch). Set the Input Selector to the same source if you wish to monitor the source as you record, or to any other source to listen to that source while recording. If your tape deck has three-head monitoring capability, you can monitor the signal just recorded on the tape by setting the Input Selector switch to Tape.

Independent Recording and Listening Examples

Rec Out selector	Input selector	Action
Tuner	Phono	Listening to a record with the speakers while recording an AM or FM broadcast.
Tuner	Tuner	Listen to an AM or FM broadcast with the speakers while recording it.
Phono	Phono	Listen to a record with the speakers while recording it.
Phono	Tuner	Listen to an FM or AM broadcast with the speakers while recording a record.

Example of recording FM or AM broadcast while listening to disc.

Tape Dubbing

Dubbing from the deck connected to the rear panel Tape 1 connectors to the deck connected to the Tape 2 connectors.

1. Set the Rec Out selector to the Tape Copy 1 \blacktriangleright 2 position.
 2. Set deck 1 to Play and deck 2 to Record.
- To dub from deck 2 to deck 1, set the Rec Out selector to the Tape Copy 2 \blacktriangleright 1 position, set deck 2 to Play and 1 to Record.

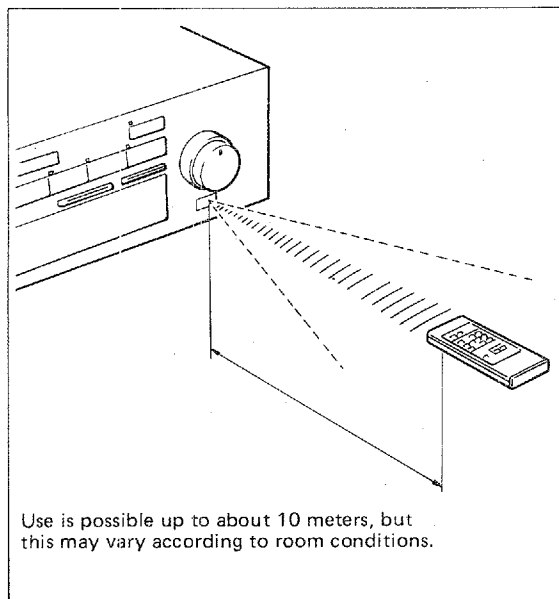
Example of dubbing from tape deck 1 to tape deck 2.

24 PHONO BUTTON

Set to MM (moving magnet) or MC (moving coil) to match the type of cartridge you are using.

④ REMOTE CONTROL (OPTION)

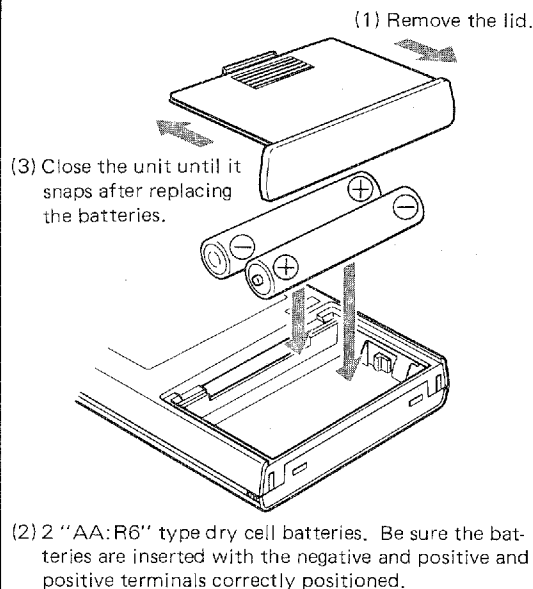
When the main unit's power is ON, remote-control operation is possible by the RS-9 while the indicator is illuminated. This enables remote control of power ON/OFF, input signal switching, selection of preset stations, and increase/decrease of the volume level. If the main unit's power switch is left ON and the power of the remote-control unit is left OFF, the power will be switched ON when the power is resumed after a power failure.



■ WHEN TO CHANGE THE BATTERY

When the battery gets weak, the distance at which the remote control operates becomes shorter. When this occurs, the battery should be changed. When battery power is totally exhausted, the remote indicator will not light when the button is pressed.

Battery Replacement



④ DNC INDICATOR

The indicator will illuminate when the DNC (Dynamic Noise Canceller) is operating. The red LED will light.

④ SIMULATED STEREO INDICATOR

The indicator will illuminate when the simulated stereo is operating. The red LED will light.

④ RECEIVING MODE INDICATOR

Indicates which RECEIVING mode the tuner is in. Refer to RECEIVING MODE SELECTOR ④.

④ TUNING MODE INDICATOR

The AUTO indicator lights when the TUNING MODE key ④ is set to AUTO, and remains off when the TUNING MODE key is set to MAN'L.

④ DIGITAL FREQUENCY INDICATOR

This displays the frequency of the station tuned in with the TUNING key ④ or with the PRESET STATION keys ④. The display covers a range of 87.5–108.0 MHz on FM and 510–1620 kHz on AM.

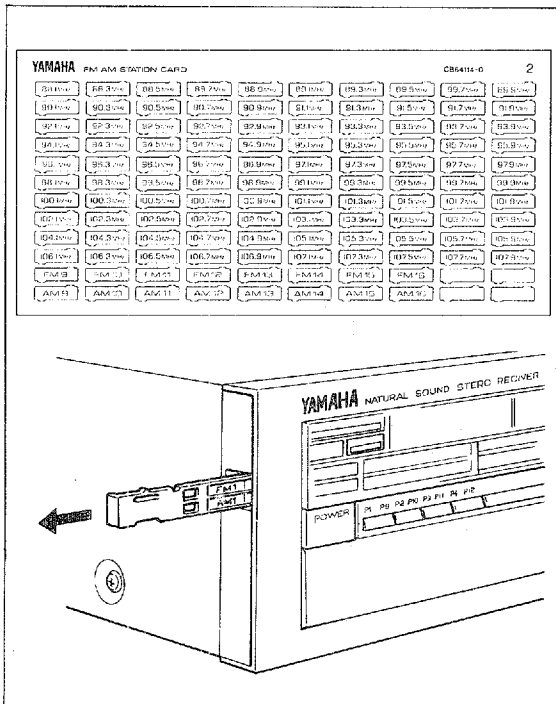
- When on FM stereo broadcast is being received STEREO indicator automatically lights.
- Pressing the memory button lights MEMORY indicator for 5 seconds. During this interval memory presetting may be performed.

④ P1–P8/P9–P16 SELECTION INDICATOR

Pressing the P1–P8/P9–P16 SELECTION key will cause the unlit indicator to flicker for 5 seconds, after which the flickering will change to a steady glow, indicating the range has been selected. Pressing a PRESET STATION keys ④ while either indicator is flickering will cause the flickering to change to a steady glow, which means that the preset stations can be tuned in instantaneously.

FM AM STATION CARD

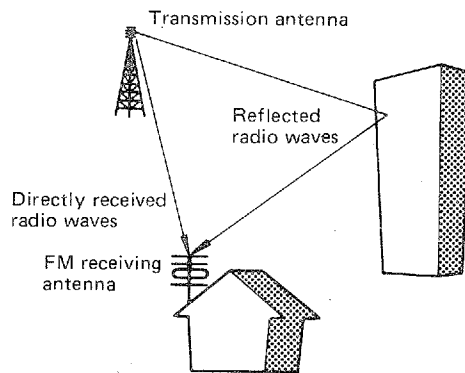
These cards can be used to mark preset station. Slip out the holder (under the preset buttons) and change the cards as desired.



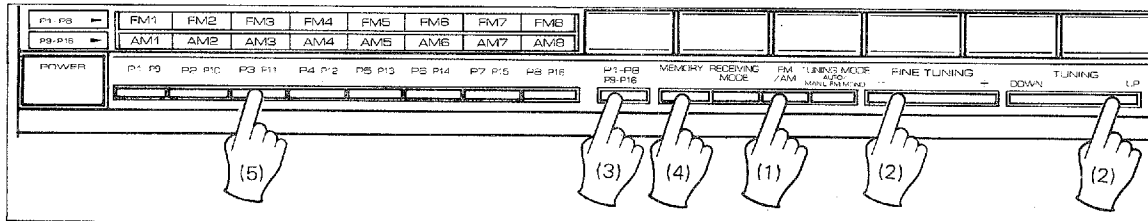
SIGNAL QUALITY INDICATOR

This indicator shows the strength of the received station. When tuning in a station, adjust the antenna's height and direction for maximum signal indication.

Multipath is an effect similar to television ghosting; it distorts the received signal and also causes poor stereo separation and noise. Radio waves which travel directly from the transmitter to the receiving antenna are mixed with waves which reflect off nearby objects such as buildings.



PRESET STATION KEYS



Up to 16 preset stations (selectable between FM only: 16 stations; AM only: 16 stations; or FM and AM combined: 16 stations) can be programmed by using the PRESET STATION keys together with the P1-P8/P9-P16 SELECTION key.

P1-P8/P9-P16 SELECTION KEY

Each time this key is pressed, the preset station range will be switched between the P1-P8 range and the P9-P16 range.

MEMORY KEY

Use to preset station frequencies into the programmable memory. Pressing the key lights the Memory indicator for about 5 seconds. While the indicator is lit, press the numbered preset station key corresponding to the memory location it is desired to set. The frequency currently displayed will be set into the memory.

RECEIVING MODE SELECTOR

Pushing this button allows you to switch between DX (distant), Local, and Auto tuner reception modes. In the Auto position, the strength of the received signal is continuously monitored, and if it falls below a certain level a high gain, high selectivity circuit is switched in to provide the best possible reception of weak, noisy stations. When the signal is strong, this circuit is deactivated, for lower distortion and better stereo separation. The Local position provides best reception from strong, local stations. Accurate music reproduction with low distortion and good stereo separation will be achieved. In the DX position, the high selectivity circuit is switched in for best possible reception from weak, distant stations.

②⑦ FM AND AM SELECTOR

Push to select FM or AM.

②⑧ TUNING MODE SELECTOR

In the Auto mode, the tuner will automatically scan the frequency band when the Up or Down side of the tuning button is pushed, and the Auto LED indicator ②⑨ will light up. In the Manual mode, the tuner will advance one step at a time when the tuning button is pushed once, and continuously when it is pushed continuously. In addition, when set to the Auto position, any stereo FM broadcast will be received in stereo. If the station is weak, however, and interference is heard, setting the selector to the Mono position will help to bring the station in clearer- -without, of course, the stereo effect.

②⑨ FINE TUNING KEY

When this key is pressed, the words "FINE TUNING" will illuminate in the frequency indicator, and the FM frequency will be displayed to a precision of 0.01 MHz (= 10 kHz). Thus, FM tuning to a precision of 0.01 MHz is possible when the FINE TUNING key is pressed intermittently. For AM, 1-kHz step tuning will be possible. (The frequency can be continuously changed in steps of this width if the key is pressed continuously.) This key, then, can be used for even more precise tuning.

③⑩ TUNING KEY

This key is used to scan the FM or AM band for stations. In the Auto mode, pushing the Up side of the key causes the tuner to scan to progressively higher frequencies until a station is found and then to lock the station in. Pushing the Down side causes it to scan down the band. If the end of the band is reached without finding a station, the auto-search circuit instantly shifts to the opposite end of the band and the search continues in the same direction. In the Man'l mode, pushing the tuning key once will cause the tuner to move one step in the up or down direction (one step equals 0.1 MHz in FM and 10 kHz in AM). Pushing continuously will cause the tuner to scan continuously.

- * Push the key firmly on one end or the other, not in the middle.
- * This tuner incorporates a last station memory. When turned on, it will tune to the last station that was tuned is before it was turned off.

LISTENING TO A PROGRAM SOURCE

■ LISTENING TO FM BROADCASTS

1. Set the input selector to Tuner.
2. Press the Function key to select FM.
3. Set the Tuning Mode key to "Auto".
4. Press either the Up or the Down side of the Tuning key for 2 or 3 seconds. The receiver will automatically scan the FM band in the selected direction. When a station is found, the scan will stop and the station will be locked in automatically. Use the Tuning key repeatedly to tune in your desired station. Stations may also be selected with the preset tuning keys.
5. When the station is in stereo the ST indicator will light, while for mono stations the indicator will remain off.
6. When listening to a weak, distant station or when there is interference from another station, setting the Tuning Mode key to MAN'L FM MONO position will cause the station to be received in mono and considerably reduce noise.
7. Adjust the volume, tone, balance, and loudness levels to your preference.

■ LISTENING TO AM BROADCASTS

1. Set the Input selector to Tuner.
2. Press the Function key to select AM.
3. Set the Tuning mode switch to Auto.
4. Press either the Up or the Down side of the Tuning key for 2 or 3 seconds. The receiver will automatically scan the AM band in the selected direction. When a station is found, the scan will stop and the station will be locked in automatically. Use the Tuning key repeatedly to tune in your desired station. Stations may also be selected with the preset tuning keys.
5. Adjust the volume, tone, balance, and loudness levels to your preference.

■ PRESET TUNING

In addition to the auto-search tuning feature, a convenient programmable preset tuning system allows you to tune in your favorite stations with the touch of a key. To preset a station into the memory, first tune the station in. After pressing the Memory key, press one of the numbered preset tuning keys. The tuner will then

memorize the station's frequency. Any time the appropriate numbered key is pressed, the station will be automatically tuned in. After you have preset a station, it is a good idea to manually change to another frequency and then push the newly memorized station's key again to see that it is tuned in correctly. Up to 16 stations can be preset—16 AM, 16 FM, or any combination of AM and FM. The band is memorized together with the station. To tune in a previously memorized station, press the numbered key corresponding to the desired station. The station will be automatically tuned in. The preset tuning key will light to indicate automatic station selection. There may be cases where static electricity or electrical noise from fluorescent lamps or television sets prevents successful preset tuning. Set the tuner away from such sources of interference.

■ LISTENING TO RECORDS

1. Set the Input selector to Phono.
2. Set the Phono button to MM or MC to match your cartridge.
3. Place a record on the turntable and start it playing.
 - * When lowering the stylus to the record or raising the stylus from the record, turn the volume control all the way to "0".

■ RECORDING TAPES

1. Select the source to be recorded (Phono, Video, or Tuner).
2. Start the music from the selected source.
3. Set the recording level, etc. of the tape deck, and begin recording.
4. If your tape deck has three heads, pushing the appropriate Tape Monitor button will allow you to monitor the recorded material.
 - * Adjusting the tone controls or the volume control during recording has no effect on the material being recorded.
 - * Tapes can be dubbed from deck 1 to deck 2 by setting deck 1 to play and deck 2 to record. Press both Tape Monitor buttons at the same time to begin dubbing.

■ SELECTING THE VIDEO SOURCE FOR PLAYBACK

Once all connections are properly made, playback from your video tape deck or video disc player is selected in the same way you select phono, tuner, CD playback.

1. First, press the front panel VIDEO input selector.
2. Next, press either the VIDEO 1 or VIDEO 2 selector, whichever is appropriate according to the connections you have made.
3. Make sure your video monitor or TV set is turned on, and the proper channel setting is made for monitoring a VIDEO IN signal.
4. Start playback of your video source.
5. The R-9 volume, loudness, tone controls, etc. will be effective in controlling the response of the audio signal for your video source.

● Dubbing Video Sources

To copy a video program from VIDEO 2 to VIDEO 1, press both the VIDEO 1 and VIDEO 2 selectors on the front panel. Then, put the VIDEO 1 tape deck into the Rec mode, and begin playback of the VIDEO 2 source. If you wish to monitor the source while dubbing, you will be able to monitor only the VIDEO 2 source. Use of the R-9 volume and tone controls will not affect the audio signal portion of the program being copied.

● Recording Audio Sources on HiFi Video Decks

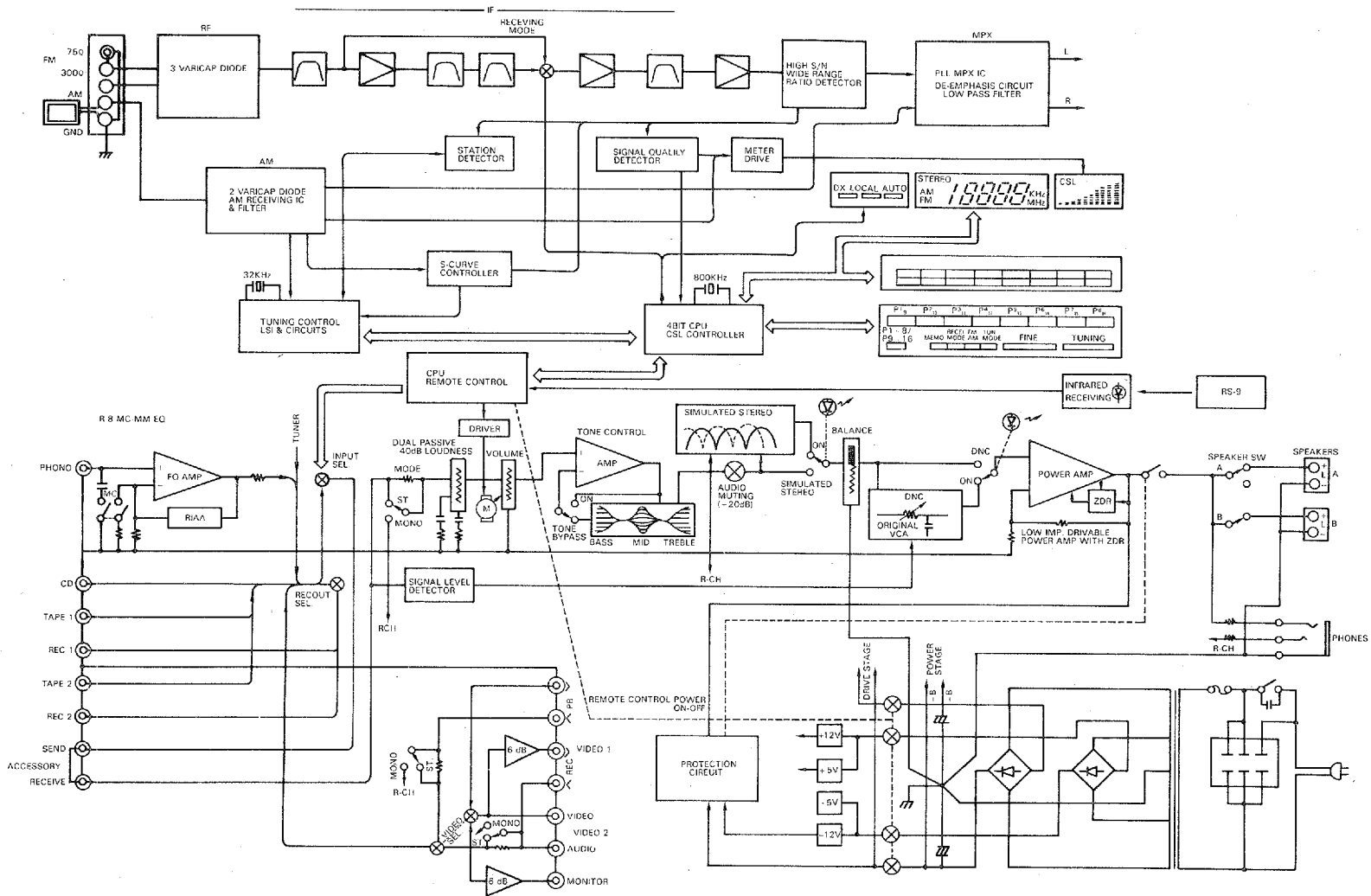
If you wish to use a HiFi video tape deck for recording purely audio sources, you must reconnect the audio signal terminals of the HiFi video deck to either the TAPE 1 or TAPE 2 Line in terminals. The Rec Out Selector will not send an audio program signal (Phono, Tuner, etc.) to the VIDEO terminals, so you must reconnect the video deck in this way to record an audio source.

TROUBLESHOOTING

Before assuming that your receiver is faulty, check the following troubleshooting list which details the corrective action you can take yourself without having to call a service engineer. If you have any doubts or questions, get in touch with your nearest Yamaha dealer.

	FAULT	CAUSE	CURE
AUDIO	Power is not applied even though the Power switch is turned on.	The power cord is not plugged in.	Plug in the power cord.
	There is no sound with any position of the input selector.	The speaker connections are not secure.	Set them correctly.
		The input cords are not connected securely.	Plug them in securely.
	There is no sound from one speaker.	The speaker connections are not secure.	Secure the connections.
		The Balance control is set all the way to the left or right.	Adjust the Balance control correctly.
	There is a lack of bass and no ambience.	The + and - cords have been reversed at the amp or the speakers.	Connect the speaker wires in the correct phase (+ and -).
There is a humming sound when playing records.	The input cords are not connected securely.	Plug the input cords in securely.	
	The turntable's ground wire is not connected.	Connect the ground wire.	
There is a howling sound when playing records at high volume.	The turntable and the speakers are too close together or the turntable is not mounted on a firm surface.		Change the location of the turntable or the speakers.
	Crackling sounds from time to time (especially in weak signal areas).	Ignition noise from vehicles.	The FM antenna should be put up as high as possible, away from the road, and a coaxial cable used.
		Noise from thermostats and other electrical equipment.	Attach a noise suppressor to the equipment causing the noise.
FM	FM stereo reception is noisy.	Because of the characteristics of FM stereo broadcasts, this is limited to cases where the transmitter is far away or the antenna input is poor.	Check the antenna connections. Try using a multiple element FM antenna. Set the FM Muting switch to the Off/Mono position.
	The FM Stereo indicator flickers on and off and reception is noisy.	Insufficient antenna input.	Use an antenna appropriate for the reception conditions in your area.
		Not tuned correctly.	Tune again.
	There is distortion and clear reception cannot be obtained even with a good FM antenna.	There is multipath interference.	Adjust antenna placement to eliminate multipath interference.
	No stereo effect even with a stereo broadcast.	The Mode switch is set to Mono or the FM Muting switch is set to Off/Mono.	Set these switches properly.
	A desired station can not be tuned in with Auto Tuning.	The station is too weak.	Use a high-quality directional FM antenna.
Previously preset stations can no longer be tuned in.	The tuner has been unplugged for a long period.	Repeat the preset procedure.	
AM	Insufficient sensitivity.	Weak signal or loose antenna connections.	Tighten the AM loop antenna connections and rotate it for best reception. Use an outdoor antenna.
	There are continuous crackling and hissing noises.	These noises result from lightning, fluorescent lamps, motors, thermostats and other electrical equipment.	Use an outdoor antenna and a ground wire. This will help somewhat but it is difficult to eliminate all noise.
		Another station is interfering with the received station.	This is impossible to remedy.
There are buzzing and whining noises.	A television set is being used nearby.	Move the television a distance away.	

BLOCK DIAGRAM



SPECIFICATIONS

AUDIO SECTION

Continuous Power Per Channel

8 ohms, 20 Hz to 20 kHz,
0.015% THD 85 W

6 ohms, 20 Hz to 20 kHz,
0.03% THD 100 W

8 ohms, 1 kHz, 0.01% THD
(IEC Rated Power) 95 W

Dynamic Headroom
(IHF, 8 ohms) 1.84 dB

Power Bandwidth

8 ohms, 0.08% THD,
42.5 W 10 Hz to 50 kHz

Damping Factor

8 ohms, 1 kHz 60

Input Sensitivity/Impedance

Phono MC 160 μ V/220 ohms

MM 2.5 mV/47 k-ohms

CD/Tape/Video 150 mV/47 k-ohms

Input Sensitivity (New IHF)

Phono MC 17 μ V

MM 0.27 mV

Aux/Tape/Tuner 16.3 mV

Maximum Input Signal

(0.01% THD)

Phono MC 8 mV

MM 110 mV

Output Level/Impedance

Rec Out 150 mV/470 ohms

Headphone Output/Impedance

(0.015% THD) 0.75 V/270 Ω .

Frequency Response

CD/Tape/Video

(20 Hz to 20 kHz) ± 0.3 dB

RIAA Equalization Deviation

Phono MC

(30 Hz to 20 kHz) ± 0.5 dB

MM

(20 Hz to 20 kHz) ± 0.3 dB

Total Harmonic Distortion (20 Hz to 20 kHz)

Phono MC to Rec Out

(3V) 0.005%

MM to Rec Out

(3V) 0.003%

CD/Tape to Sp Out

(42.5 W/8 ohms) 0.015%

Video to Sp Out (1 kHz)

(42.5 W/8 ohms) 0.02%

Intermodulation Distortion

CD/Tape/Tuner
(Rated Output/8 ohms) 0.01%

Signal-to-Noise Ratio (IHF-A-Network)

Phono MC (500 μ V,
Input Shorted) 75 dB

MM (5 mV,
Input Shorted) 92 dB

CD/Tape (Input Shorted) 103 dB

Video (Input Shorted) 91 dB

Signal-to-Noise Ratio (New IHF)

Phono MC 75 dB

MM 75.5 dB

CD/Tape 81 dB

Residual Noise

(IHF-A-Network) 120 μ V

Channel Separation (1 kHz)

Phono MM

(Input Shorted) 60 dB

CD/Tape/Video

(5.1 k-ohms Shorted) 60 dB

Filter Characteristics

Low (Subsonic, Built-in) 10 Hz, -12 dB/oct

Tone Control Characteristics

Bass Boost/Cut ± 10 dB (50 Hz)

Turnover Frequency 350 Hz

Treble Boost/Cut ± 10 dB (20 kHz)

Turnover Frequency 3.5 kHz

Mid Boost/Cut ± 12 dB (1 kHz)

Center Frequency 1 kHz

Continuous Loudness Control (1 kHz)

(Level-related Equalization)

Attenuation -40 dB

FM SECTION

Tuning Range 87.5 to 108.0 MHz

50 dB Quieting Sensitivity (IHF, 75 ohms)

Mono 1.5 μ V (14.8 dBf)

Stereo 20 μ V (37.3 dBf)

Usable Sensitivity (30 dB S/N Quieting,

75 ohms, Mono) 0.75 μ V (8.8 dBf)

Image Response Ratio 40 dB

IF Response Ratio 90 dB

Spurious Response Ratio 70 dB

AM Suppression Ratio 55 dB

Capture Ratio

Local 1.2 dB

DX 2.5 dB

Alternate Channel Selectivity

(IHF) 85 dB

Signal-to-Noise Ratio (IHF)

Mono 85 dB

Stereo 81 dB

Harmonic Distortion

Mono 100 Hz 0.05%

1 kHz 0.05%

6 kHz 0.1%

Stereo 100 Hz 0.07%

1 kHz 0.07%

6 kHz 0.15%

Stereo Separation (IHF)

50 Hz/1 kHz/10 kHz 45 dB/50 dB/45 dB

Frequency Response

30 Hz to 13 kHz ± 0.5 dB

AM SECTION

Tuning Range 510 to 1.620 kHz (U.C.R)

513 to 1.620 kHz (R)

Usable Sensitivity 250 μ V/m

Selectivity 24 dB

Signal-to-Noise Ratio 50 dB

Image Response Ratio 40 dB

Spurious Response Ratio 50 dB

Harmonic Distortion (400 Hz) 0.3%

Output Level/Impedance

FM 100% mod. 1 kHz 500 mV/2.8 k-ohms

AM 30% mod. 400 Hz 150 mV/2.8 k-ohms

GENERAL

Power Supply 120 V/60 Hz (U.C.)

110 · 120 · 220 · 240 V/

50/60 Hz (R)

Power Consumption 300 W

AC Outlet

Switched x 1 100 W max.

Unswitched x 1 200 W max.

Dimensions (W x H x D) 435 x 151 x 423 mm

(17-1/8" x 5-

15/16" x 16-5/8")

Weight 11 kg (24 lbs. 4 oz.)

Specifications subject to change without notice.

SINCE 1887



YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

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