

Operating Instructions

COMPUTER CONTROLLED
STEREO RECEIVER

SX-60



Thank you for buying this Pioneer product.

Please read through these operating instructions and then you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.

These operating instructions are based on the model KU, and they can be used for the KC, S, S/G models. The differences between the models are given below.

KU and KC models:

For U.S.A. and Canada ('KU' or 'KC' stamped on packing case): power line voltage is AC120 volts.

S and S/G models:

For destinations excluding above ('S' or 'S/G' stamped on packing case): A 4-point (AC110V/120V/220V/240V) voltage selector switch is provided.

IMPORTANT NOTICE [For KU and KC models]

The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep in a secure area. This is for your security.

- Depending upon the model, the design of the power plug and the power outlet differs.

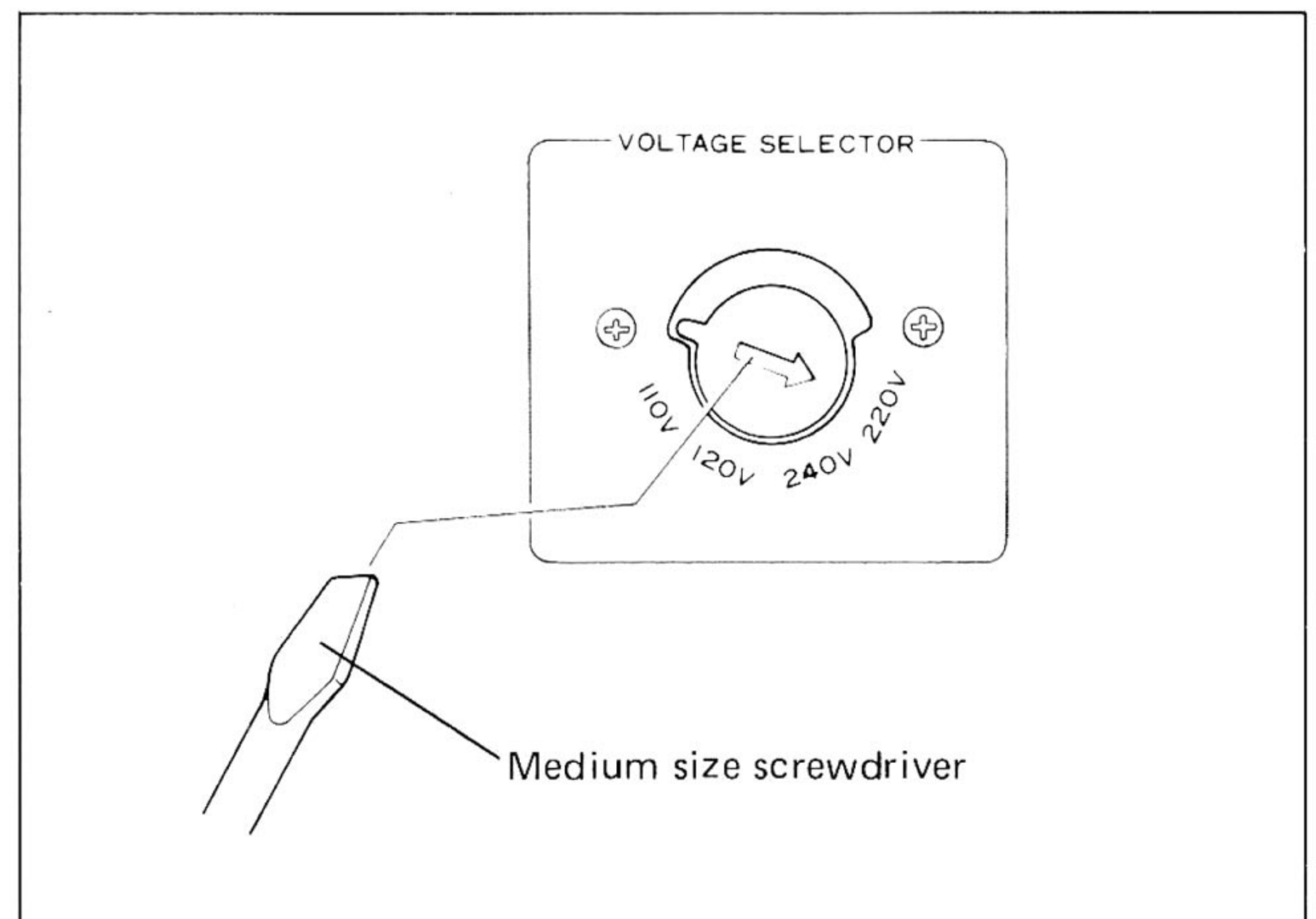
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

LINE VOLTAGE SELECTOR SWITCH

[Only S and S/G models are provided with this switch but KU and KC models are not provided with this switch.]

You will find the line voltage selector switch on rear panel. Before your model is shipped from the factory, the switch is set to the power requirements of the destination; nevertheless, you should check that it is set properly before plugging the power cord into the AC outlet. If the voltage is not properly set or if you move to an area where the voltage requirements differ, adjust the selector switch as follows. Before adjusting, disconnect the power cord.

1. Prepare a medium size screwdriver.
2. Insert the screwdriver into the arrow on the voltage selector and adjust so that the tip of the arrow points to the voltage value of your area.



 **PIONEER**

SAFETY INSTRUCTIONS [FOR KU and KC models]

READ INSTRUCTIONS — All the safety and operating instructions should be read before the appliance is operated.

RETAIN INSTRUCTIONS — The operating instructions should be retained for future reference.

HEED WARNING — All warnings on the appliance and in the operating instructions should be adhered to.

FOLLOW INSTRUCTIONS — All operating and use instructions should be followed.

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.

LOCATION — The appliance should be installed in a stable location.

WALL OR CEILING MOUNTING — The appliance should not be mounted to a wall or ceiling.

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.

HEAT — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

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.

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.

CLEANING — The appliance should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzene, insecticides or other volatile liquids since they may corrode the cabinet.

POWER LINES — An outdoor antenna should be located away from power lines.

NONUSE PERIODS — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

OBJECT AND LIQUID ENTRY — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

DAMAGE REQUIRING SERVICE — The appliance should be serviced by Pioneer authorized service center or qualified service personnel when:

- The power-supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped; or the enclosure damaged.

SERVICING — The user should not attempt to service the appliance beyond that described in the operating instructions. For all other servicing, contact the nearest Pioneer authorized service center.

OUTDOOR ANTENNA GROUNDING — If an outside antenna is connected to the antenna terminal, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.

In the U.S.A. section 810 of the National Electrical Code, ANSI/NEPA No. 70-1981, 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. See Fig. A.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS

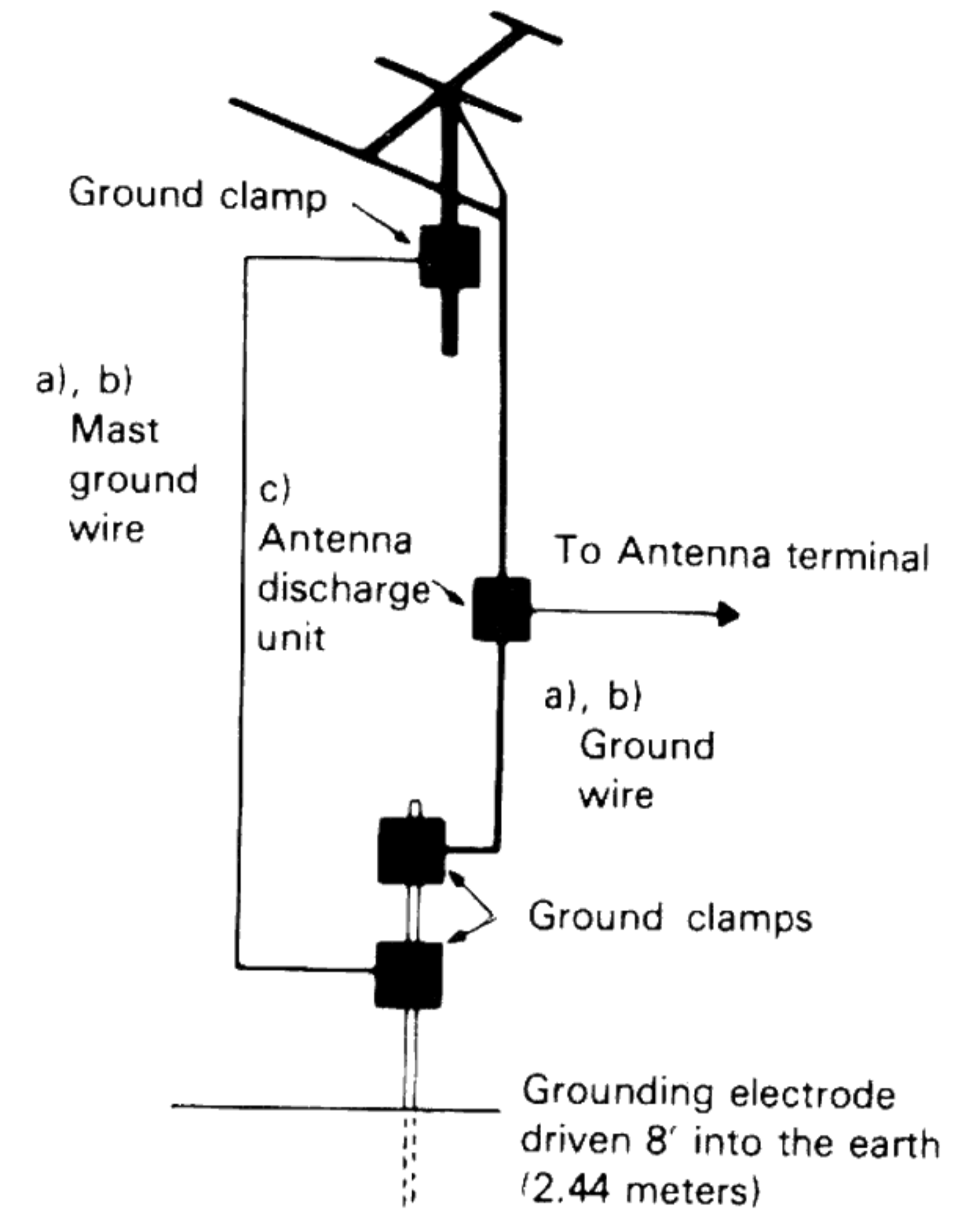


Fig. A

- Use No. 10 AWG (5.3 mm²) copper or No. 8 AWG (8.4 mm²) aluminum or No. 17 AWG (1.0 mm²) copper-clad steel or bronze wire, or larger as ground wires for both mast and lead-in.
- Secure lead-in wire from antenna to antenna discharge unit and mast ground wire to house with stand-off insulators, spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.
- Mount antenna discharge unit as closely as possible to where lead-in enters house.

IMPORTANT [FOR KU and KC models]



The lightning flash with arrowhead, 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.



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



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.

CONTENTS

Connections	4	Using the PRE AMP OUT and POWER AMP IN Jacks	16
Front Panel Facilities	6	Hints for Better Reception	17
Listening to the Broadcast	9	Changing the Dry Batteries	18
How to Preset the Station	12	Troubleshooting	19
Other Program Source	14	Specifications	20
Tape Deck Operations	15		

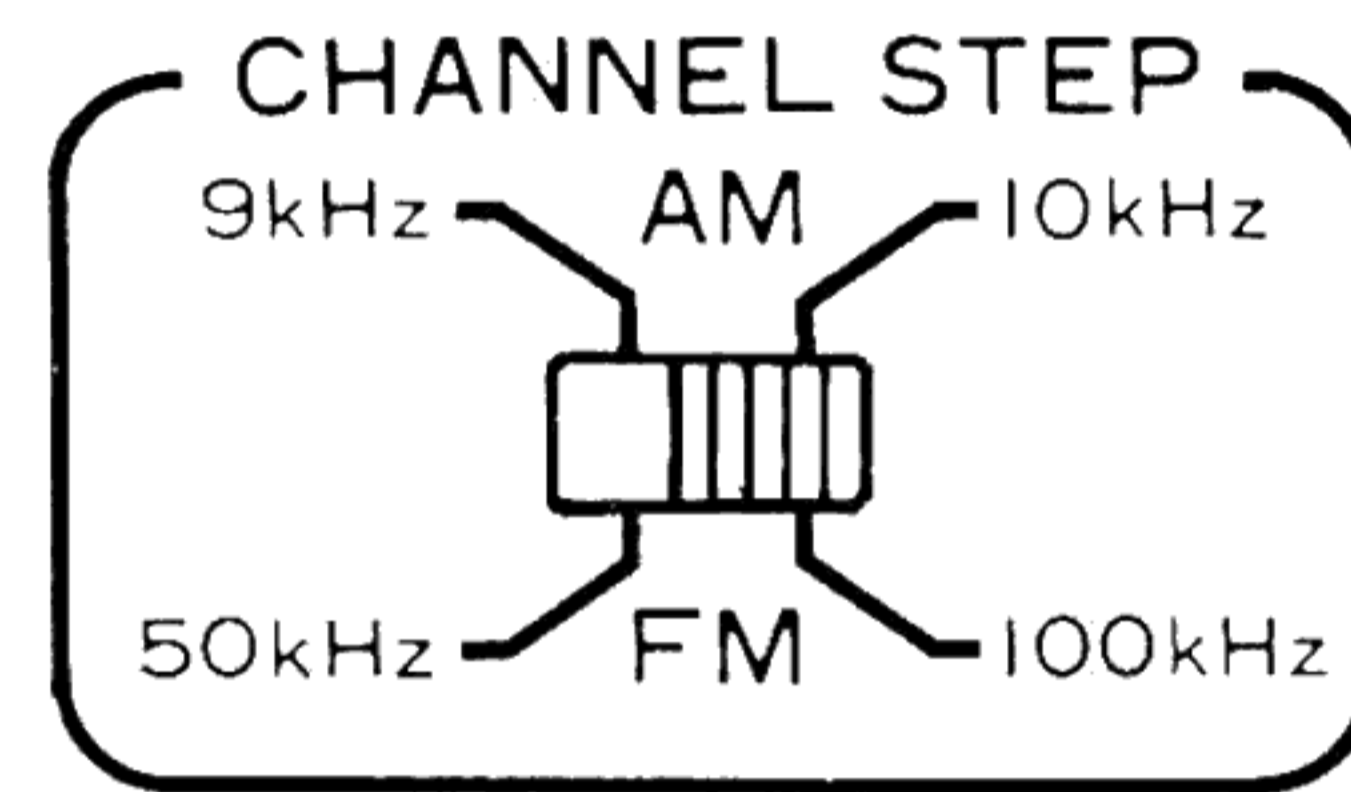
CHANNEL STEP SWITCH

Before the receiver leaves the manufacturing plant, this switch is set to the channel allotment plan of the receiver's destination. For the U.S.A., it is set to 10kHz (AM)/100kHz (FM). Check that the switch is set properly before use.

If the switch is set to the wrong position, figures on the frequency display will not stop with AM or FM tuning.

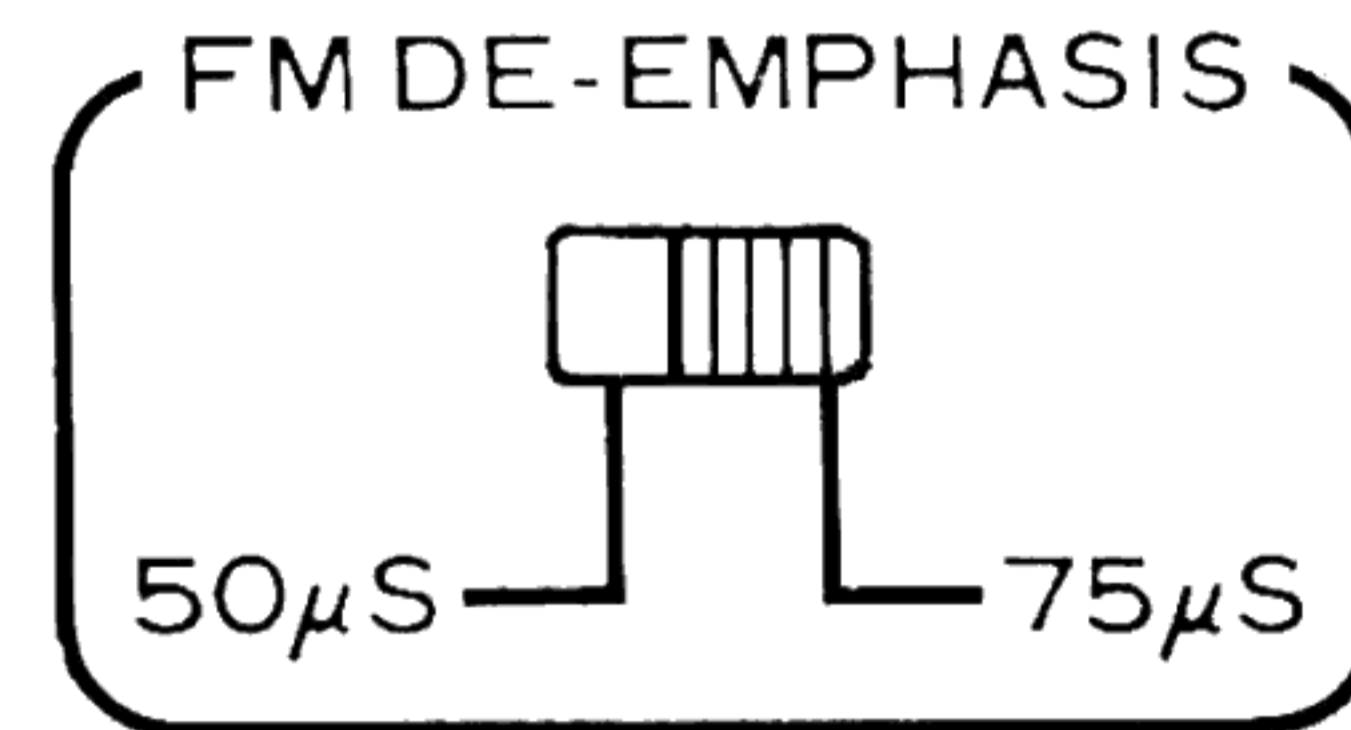
NOTE:

Contact your dealer and inquire if you are not sure about the channel allotment plan.



FM DE-EMPHASIS SWITCH (S and S/G models only)

This switch is used to select the de-emphasis value. Before the receiver leaves the manufacturing plant, it is set to the de-emphasis of the receiver's destination. For the United States and Canada, it is set 75 μ s, and for other countries to 50 μ s. Check that the switch is set properly before use. If the switch is set to the wrong position, the high-frequency range sound will appear distorted during the reception of an FM broadcast. Contact your dealer and inquire if you are not sure about the de-emphasis in your area.

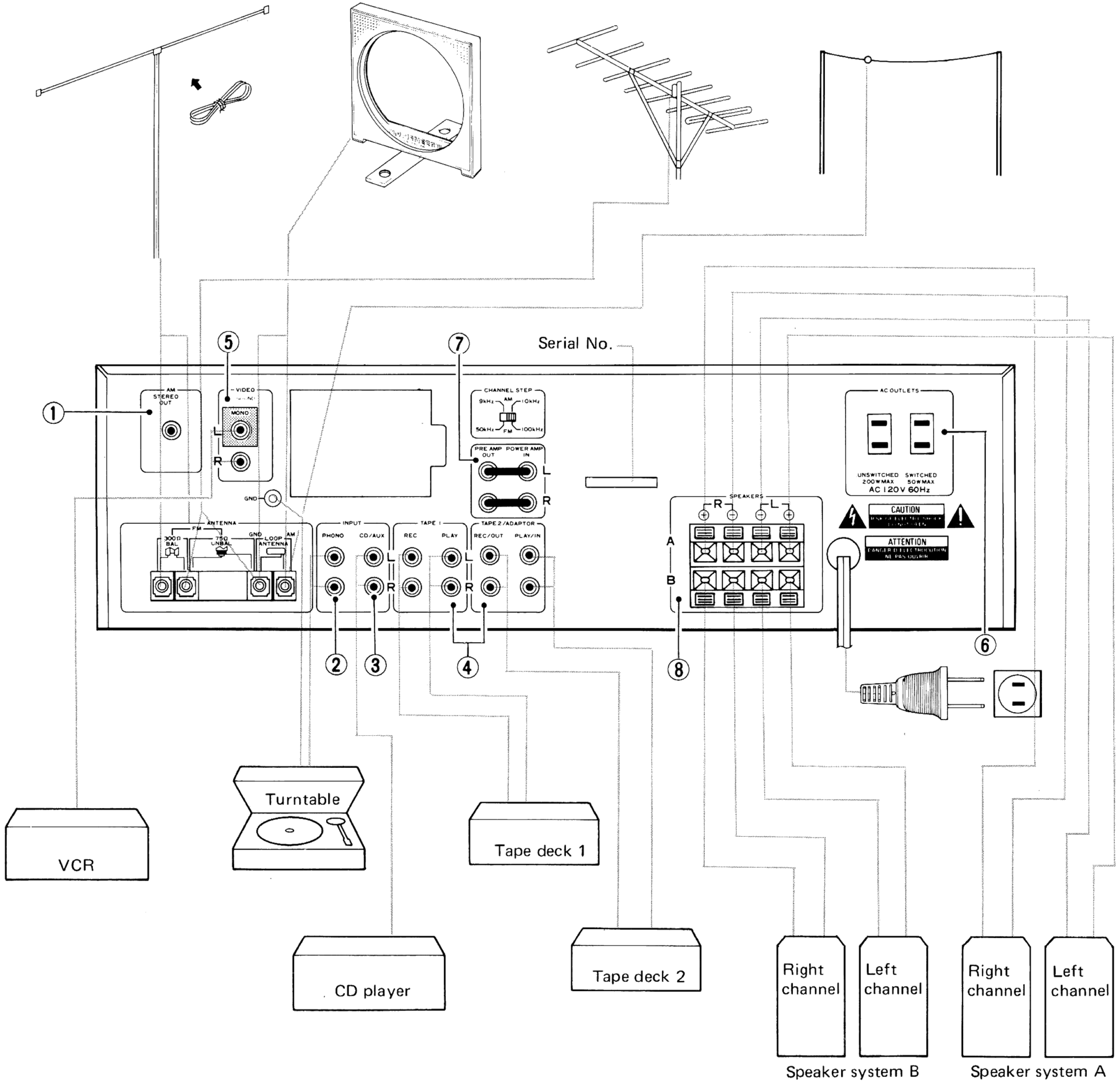


LINE VOLTAGE SELECTOR SWITCH (S and S/G models only)

Refer to the front page about switching LINE VOLTAGE SELECTOR.

CONNECTIONS

Antenna must be connected for radio broadcast.



Cautions When Connecting

- Turn on the stereo receiver and component power switches only after completing all connections between the stereo system.
- For connecting, use the cords accompanying the various components (tape deck, turntable, etc.). No accessory cords are included with the stereo receiver.

- On the stereo receiver input/output jacks, L (white) is the left channel and R (red) is the right channel. Be sure you do not get the left and right channels mixed up when connecting.
- Plug in the connecting cord pin plug firmly. If the plug is not in properly, it can cause an absence of sound or static.

① AM STEREO OUTPUT JACK

This jack is for AM stereo broadcasts. When listening to the AM stereo broadcasts, connect the adaptor component to this jack. For further details, refer to the operating instructions of the AM stereo adaptor component.

② PHONO JACK CONNECTION

Connect the output cords of a turntable to the PHONO input jacks. Be sure to connect left (L) channel and right (R) channel correctly. Connect the ground lead of the turntable to the GND terminal on the receiver.

③ CD/AUX JACK CONNECTIONS

These jacks can be connected to the OUTPUT jacks on a compact disc player, TV tuner, playback-only tape deck, etc.

④ TAPE JACK CONNECTIONS

The receiver is provided with two sets of recording output jacks and two sets of playback input jacks. Connect each of the jacks in the following way using the connecting cords which come with the tape deck.

Connections for recording

Connect the recording input jacks REC (INPUT) on the tape deck to the TAPE 1 REC jacks on the receiver.

Connections for playback

Connect the playback output jacks PLAY (OUTPUT) on the tape deck to the TAPE 1 PLAY jacks on the receiver.

NOTE:

Connect your second tape deck or other adaptor component to the TAPE 2/ADAPTOR jacks.

⑤ VIDEO SOUND JACK CONNECTIONS

These jacks are used to connect VCR, laser disc player and other video equipment.

NOTE:

If you have stereo video equipment, make sure that you connect to L and R correctly. If your equipment is monaural, always connect to the L (MONO) side. When connected to the L side, the receiver switches automatically and the sound is heard from both L and R speakers. If the equipment is connected to the R side, sound is only heard from the right speaker.

⑥ AC OUTLET (SWITCHED)

Power supplied through these outlets is turned on and off by the receiver's POWER switch. Total electrical power consumption of connected equipment should not exceed 50W.

(UNSWITCHED)

Power flow continually to this outlet, regardless of whether the receiver is switched ON or OFF. Electrical power consumption of the connected equipment should not exceed 200W.

The equipment should be disconnected by removing the mains plug from the wall socket when not in regular use,

e.g. when on vacation.

NOTE:

Do not connect appliances with high power consumption such as heaters, irons, or television sets to the AC OUTLETS in order to avoid overheating or fire risk.

This can cause the receiver to malfunction.

⑦ PREAMPLIFIER/POWER AMPLIFIER CONNECTOR BARS

When the connector bars are disconnected from the jacks, you can separate the receiver's preamplifier and power amplifier. For normal use, however, they are connected. For further details on how to use these bars, refer to page 16.

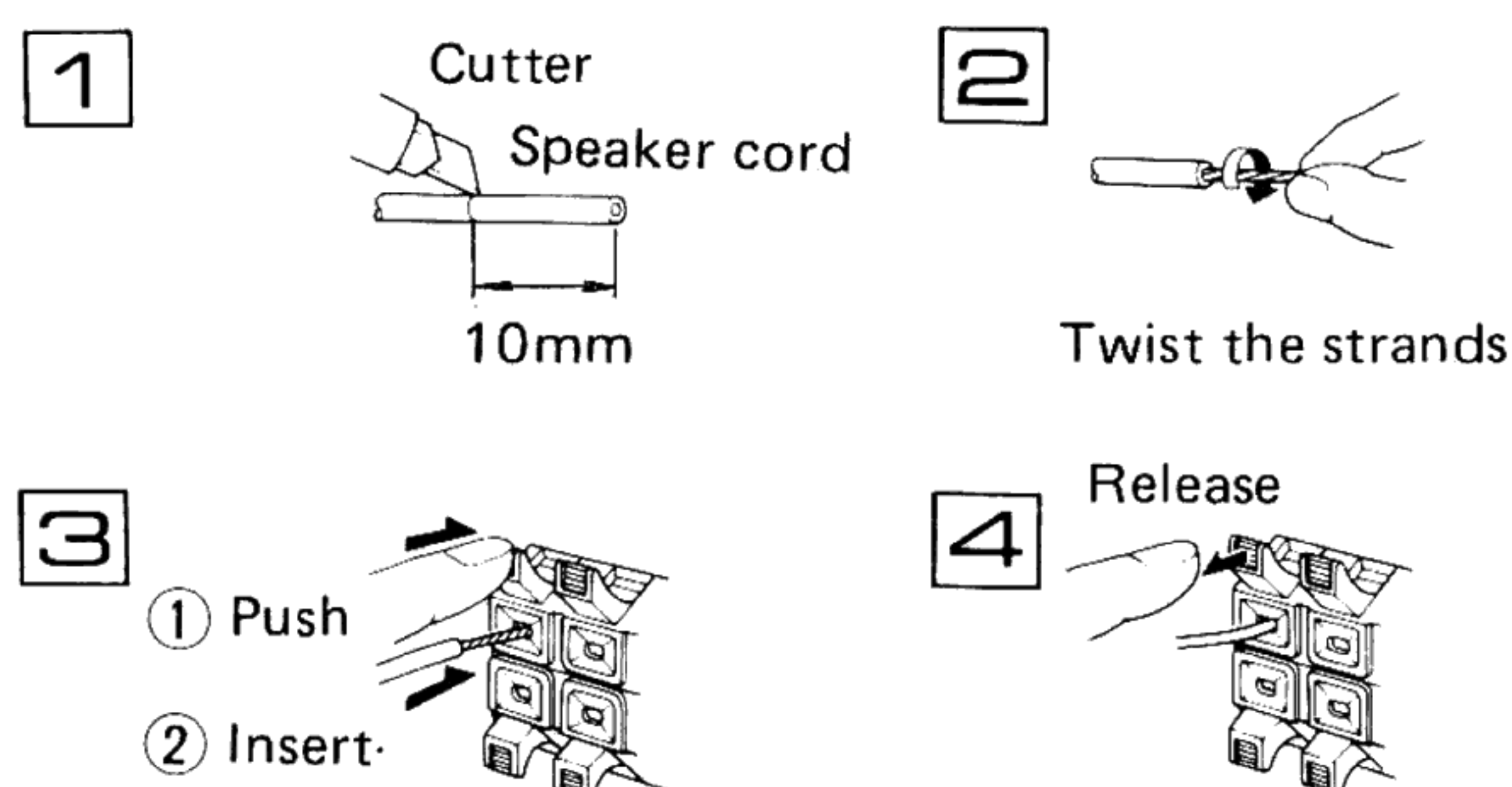
NOTE:

If these bars are not connected properly, you will not hear any sound from the speakers connected to the SPEAKERS terminals.

⑧ PROCESSING AND CONNECTING THE SPEAKER CORDS

1. Cut off the covering of the speaker cords as shown in figure.
2. Twist the strands together with your thumb and forefinger, otherwise some of the strands may come into contact with other terminals and cords, and cause a short circuit.
3. Push the minus (black) lever of the speaker terminals with your finger and insert the minus speaker lead into the hole.
The lead is locked into position when the lever is released. Check that the lead is connected firmly.
4. In the same way, connect the plus speaker lead (red) to the plus terminal (red).
5. Check that the core wires of the speaker cords are not projecting from the terminals. If they should project and come into contact, this will give rise to a short-circuit.

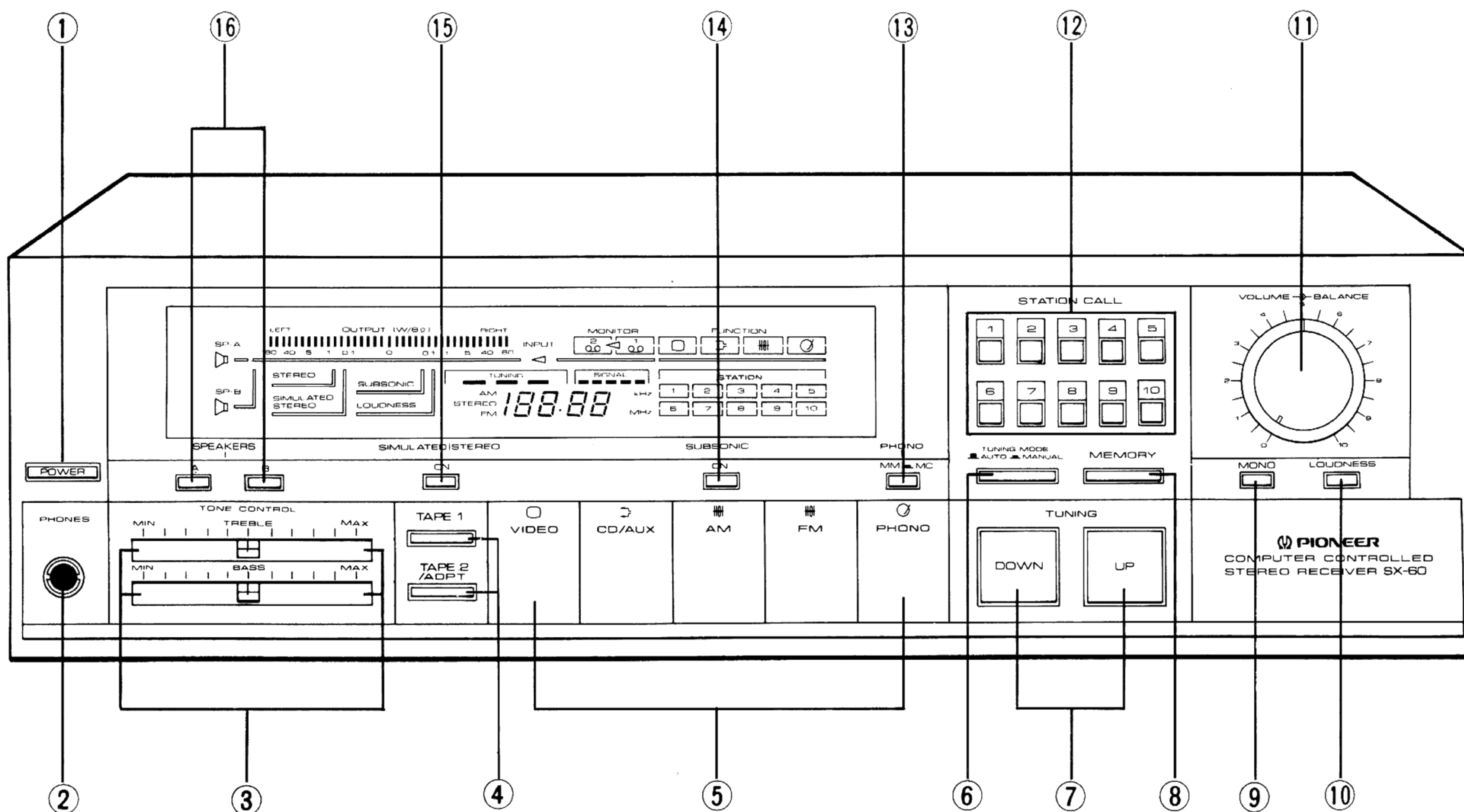
Speaker lead wire preparation and connection



Cautions when connecting the speakers

1. Make sure that the polarities of the SPEAKERS terminals and the input jacks on the speaker system are aligned: plus to plus and minus to minus.
2. Use speakers with a nominal impedance ranging from 6 ohms to 16 ohms.
3. Never use the speakers with the speaker output terminals shorted (minus and plus jacks connected) since this may damage the power transistors in the receiver.

FRONT PANEL FACILITIES



① POWER SWITCH

Power is supplied to the unit when this switch is depressed. To turn off the power, release the switch.

② PHONES JACK

Plug the headphones into this jack when you want to listen to a performance alone.

- When listening through the headphones alone, set both SPEAKERS SWITCHES A and B to OFF.

③ TONE CONTROL

This control is used to adjust the tone quality.

BASS Use this control to adjust the bass of the sound. When the control is moved from the central position towards "MIN", the bass is attenuated and when it is moved towards "MAX", the bass is emphasized.

TREBLE . . Use this control to adjust the treble of the sound.

When the control is moved from the central position towards "MIN", the treble is attenuated and when it is moved towards "MAX", the treble is emphasized.

④ TAPE MONITOR SWITCHES

Use these switches when playing back tapes or monitoring a recording. There are tape terminals for two systems on this receiver. Two tape decks can be attached and record-

ing or playback performed. The two tape decks can also be used for recording simultaneously or for copying from one tape to another (but only from tape deck 1 to tape deck 2).

TAPE 1 . . Press when performing with a tape deck connected to the TAPE 1 jacks on the rear panel. Also, press when copying a tape from tape deck 1 to tape deck 2.

TAPE 2 . . Press when performing with a tape deck or other adaptor connected to the TAPE 2 jacks on the rear panel.

⑤ FUNCTION SWITCHES

VIDEO SWITCH:

Press this switch when listening to a video unit such as a VCR or laser disc player connected to the VIDEO SOUND jacks on the rear panel.

CD/AUX SWITCH:

Press this switch when listening to a compact disc player (CD player) or TV tuner connected to the CD/AUX jacks on the rear panel.

AM SWITCH:

Press this switch for AM reception.

FM SWITCH:

Press this switch for FM reception.

PHONO SWITCH:

Press this switch when listening to a record on a turntable connected to the PHONO jacks on the rear panel.

⑥ TUNING MODE SWITCH

This switch is used to select either AUTO search or MANUAL tuning.

■ AUTO (released position):

When the TUNING switch is pressed, the broadcasting stations are automatically scanned. Once a station has been found, the scanner stops at that frequency. To listen to another station, press the TUNING switch once again and the procedure is repeated. The procedure stops as soon as another station is found.

■ MANUAL (depressed position):

For normal manual tuning.

Press the TUNING switch and tune in to the desired station manually.

NOTES:

- If the broadcasting station is distant and its signals weak, you may not be able to find the station with AUTO tuning. In such an event, tune in to the desired station using MANUAL mode (■ depressed position).
- If the AUTO mode stops frequently when trying to tune into an AM broadcast because of city interference or weak nighttime stations, tune in using the MANUAL mode (■ depressed position).

⑦ TUNING SWITCHES

These are used to select the broadcasting station.

During MANUAL tuning, if the TUNING switch is depressed once, the frequency changes one step at a time. If the TUNING switch is kept depressed, the frequency changes continuously.

NOTE:

During AUTO SEARCH tuning, intermittent noise may occur, but this is not a malfunction.

⑧ MEMORY SWITCH

This switch is used to preset the broadcasting stations into the STATION CALL switches.

When this switch is depressed, the STATION indicators light up from 1 to 10 in sequence. To preset the station, press the STATION CALL switch when the indicator lights up.

⑨ MONO SWITCH

This switch is depressed to mix the L and R channel stereo input signals and listen to them in mono through both the left and right speakers.

⑩ LOUDNESS SWITCH

When listening to a performance when the VOLUME level is low, depress this switch and the bass and treble will be accentuated.

When the volume is low, the human ear finds it harder to hear the bass and treble than when the volume is high. The LOUDNESS switch is thus designed to compensate for this deficiency.

⑪ VOLUME/BALANCE CONTROL

The inside knob is the VOLUME control and the outside knob the BALANCE control.

VOLUME:

This control is used to adjust the volume of the speakers and headphones. To increase the output level, turn the knob slowly clockwise (↻).

BALANCE:

This control is used to balance the volume of the left and right channels. If the sound appears to be weaker from the right speaker, turn the BALANCE control clockwise (↻), If the sound is weaker from the left speaker, turn the control counterclockwise (↺).

NOTE:

When operating the VOLUME control, be careful not to turn the BALANCE control at the same time.

⑫ STATION CALL SWITCHES

Once the broadcasting stations are preset to these STATION CALL switches, the desired station can be received merely by pressing the appropriate switch and without having to operate the TUNING switch each time.

⑬ PHONO SELECTOR SWITCH

When playing a record on a turntable, adjust this switch in accordance with the cartridge type being used.

Depress the switch (■ MC) when listening to a performance from an MC cartridge turntable. Release the switch (■ MM) when using an MM cartridge turntable.

⑭ SUBSONIC SWITCH

When this switch is depressed, the subsonic filter operates. The filter attenuates frequencies lower than 20Hz by 6dB/oct and can be used to suppress the ultra low range noise generated by record warp and other factors. This noise cannot actually be heard by the ear, but it can cause intermodulation distortion and even damage to the speaker systems. Use therefore as required.

⑮ SIMULATED STEREO SWITCH

This turns monaural signals into simulated stereo sound. Use this when you wish to experience the sense of stereo presence with AM broadcasts, VCR or other monaural signal sources.

NOTE:

This function can also be used with stereo sources, but it will result in a different sound from the normal stereo sound.

⑯ SPEAKERS SWITCHES

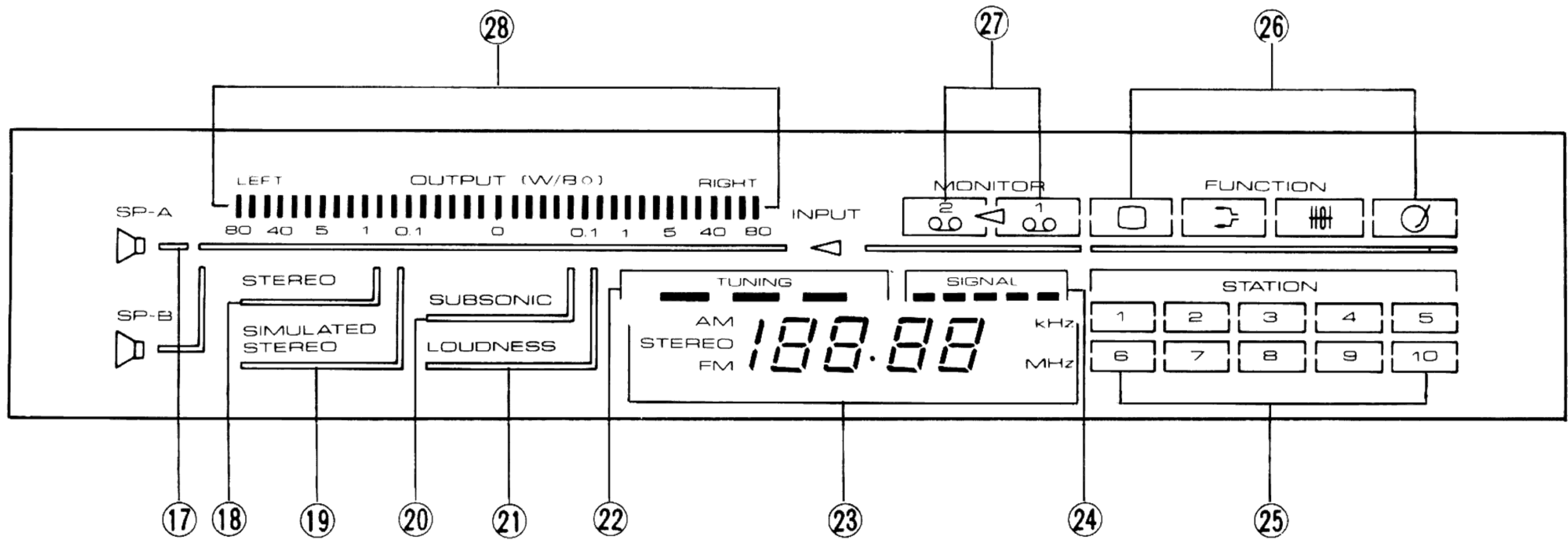
Depress the switch corresponding to the speakers connected to the SPEAKERS terminals (A and B) on the rear panel. "A" refers to the speakers which have been connected to the A SPEAKERS terminals, while "B" refers to the speakers which have been connected to the B SPEAKERS terminals.

NOTE:

No sound will be heard through the speakers when both A and B switches are depressed if only one set of speakers has been connected to either A or B SPEAKERS terminals.

See the following page for details of the display panel.

DISPLAY PANEL

**17 SPEAKERS A/B INDICATORS**

The indicator corresponding to the selected SPEAKERS switch lights up.

18 STEREO INDICATOR

This turns off when the MONO switch is depressed.

19 SIMULATED STEREO INDICATOR

This lights up when the SIMULATED STEREO switch is depressed.

20 SUBSONIC INDICATOR

This lights up when the SUBSONIC switch is depressed.

21 LOUDNESS INDICATOR

This lights up when the LOUDNESS switch is depressed.

22 TUNING INDICATOR

When a broadcast is received, the middle indicator lights up. When reception is received with AUTO SEARCH and the AUTO SEARCH is carried out to the low frequency side, the indicator flashes from right to left.

Conversely, when the AUTO SEARCH is carried out to the high frequency side, it flashes from left to right.

23 FREQUENCY DISPLAY

This indicates the frequency of the tuned-in station.

During an FM broadcast, the "FM" and "MHz" indicators light up.

During an FM stereo broadcast, the "STEREO" indicator lights up.

During an AM broadcast, the "AM" and "kHz" indicators light up.

24 SIGNAL INDICATOR

This indicates the strength of the incoming signals when tuned into a broadcasting station. The more light up, the better the reception.

NOTE:

If the input from the antenna is weak, the indicator may not light up. If such is the case, change the direction of the antenna or change to an outside antenna.

25 STATION INDICATORS

These light up when a broadcasting station has been preset to the STATION CALL switch and when the preset station is called. The indicator that lights up corresponds to the number of the STATION CALL switch. In addition, if the MEMORY switch is depressed, the indicators flash from 1 to 10 in sequence.

26 FUNCTION INDICATORS

The indicator corresponding to the selected FUNCTION switch lights up.

. . . . Video indicator

. . . . CD/AUX indicator

. . . . Broadcast (FM or AM) indicator

. . . . PHONO indicator

27 TAPE MONITOR INDICATORS

The indicator corresponding to the selected tape switch lights up.

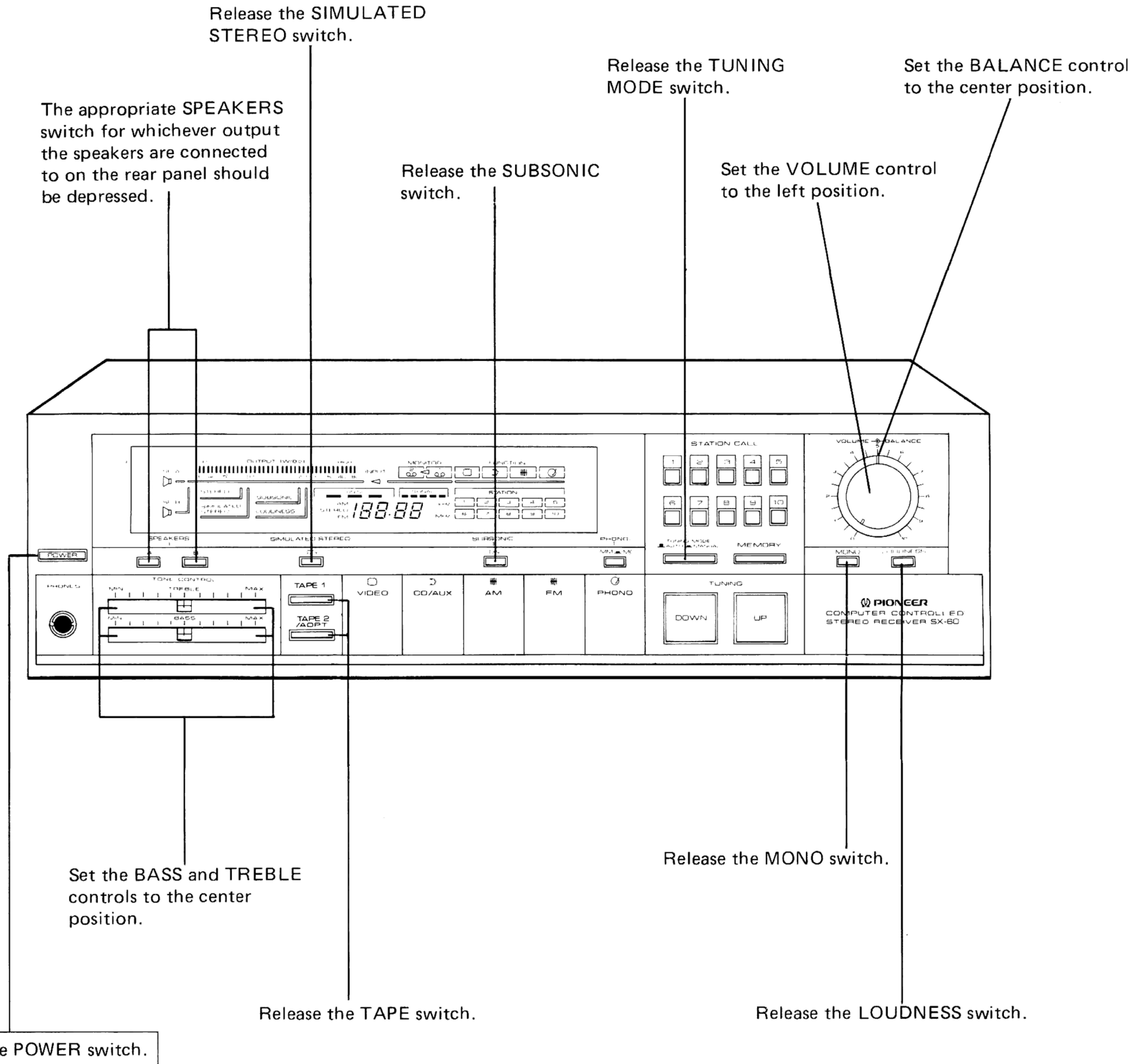
28 OUTPUT (W/8Ω) INDICATOR

This indicates the output of the RIGHT channel and LEFT channel separately.

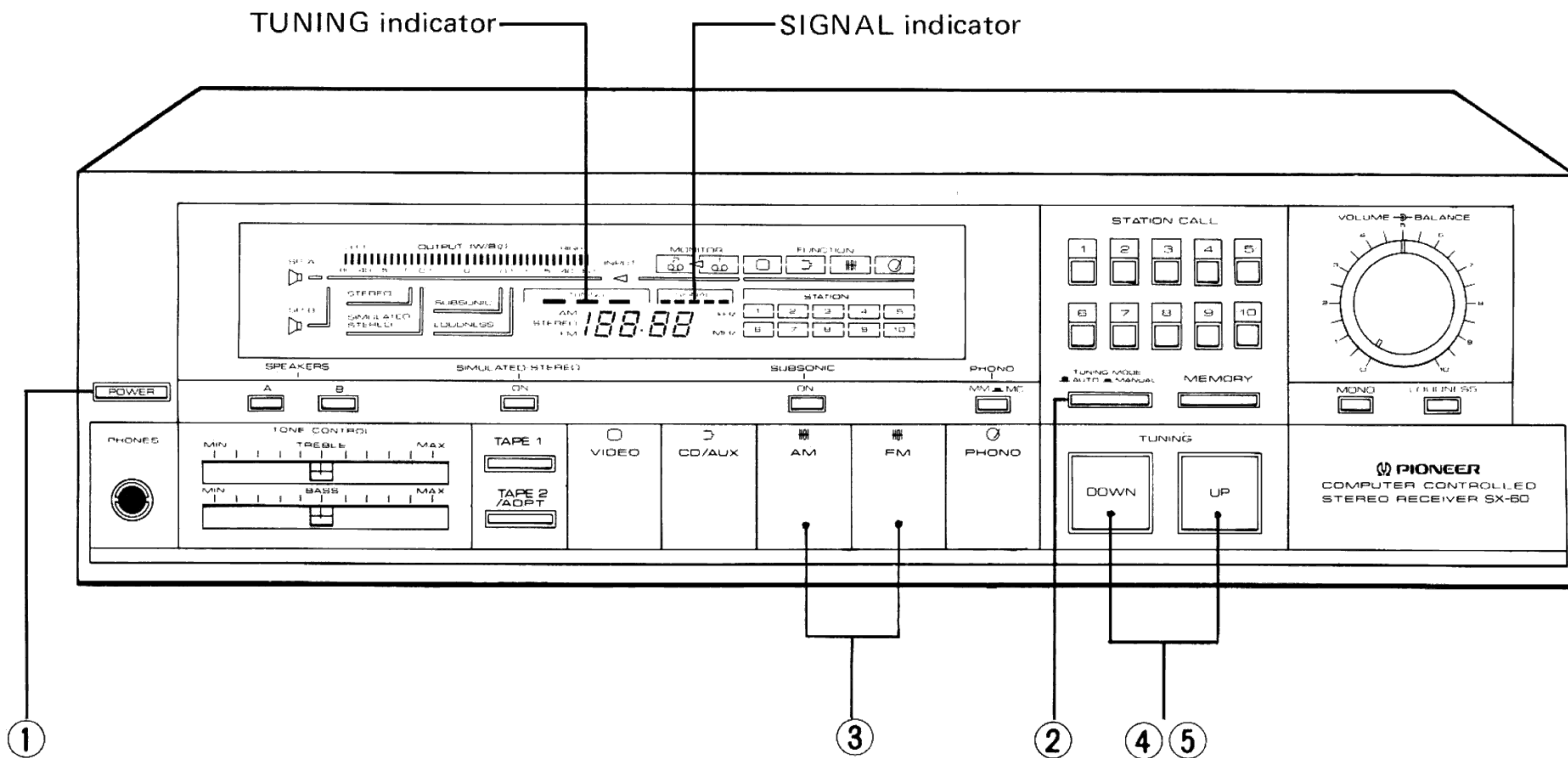
The figure below the indicator shows the output level when speakers with a nominal impedance of 8Ω are connected.

LISTENING TO THE BROADCAST

Before switching the power on, set the various controls as follows.



AUTO SEARCH TUNING



The electronic tuning circuit built into the receiver automatically locates the broadcasting station.

- ① Depress the POWER switch to ON.
- ② Set the TUNING MODE switch at the released position (■ AUTO).
- ③ Press the FUNCTION switch (AM or FM) in line with the frequency band of the desired broadcasting station.
- ④ Press either the TUNING (UP or DOWN) switch. Once the frequency changes and the broadcasting station is located, the procedure automatically stops. (When the broadcast is received, the TUNING indicator lights up. The SIGNAL indicator shows the strength of the signal picked up by the receiver).

- ⑤ If you wish to find a different broadcasting station, press the TUNING switch once again. Once the station has been picked up, the procedure stops automatically.

NOTE:

If the station is distant and its signals are weak, it may not be received by AUTO SEARCH tuning. In such an event, use the MANUAL tuning.

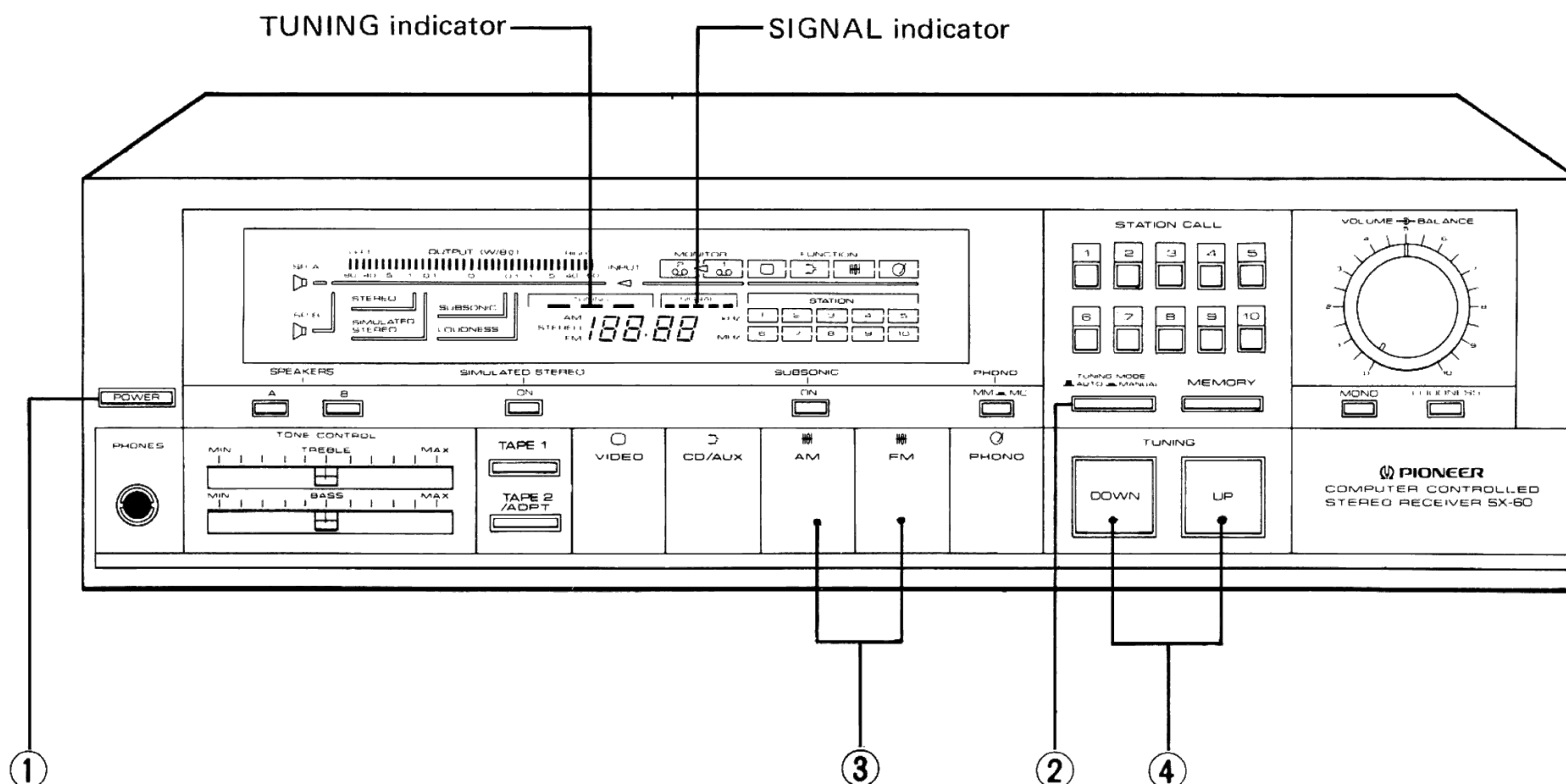
Caution with Auto-Search:


- *Since this is a highly sensitive mechanism, the frequency search operation may stop even with weak foreign broadcasts, particularly at night. Also, frequency noise in large cities may also cause the search operation to stop.*
- *When using Auto-Search to preset AM station, if the frequency search operation stops too frequently, changing the*

position of the AM loop antenna may be of help in reducing its sensitivity so that only powerful, nearby stations are received. After tuning in the station, be sure to reposition the antenna to its best position for reception.

- *For very weak station, use the manual tuning mode to preset station.*

MANUAL TUNING



- ① Depress the POWER switch to ON.
- ② Depress the TUNING MODE switch (MANUAL ).
- ③ Press the FUNCTION switch (AM or FM) in line with the frequency band of the desired broadcasting station.
- ④ Press either the TUNING (UP or DOWN) switch and align with the frequency of the desired broadcasting station.

- When the broadcasting station is picked up, the TUNING indicator lights up. Also, the SIGNAL indicator shows the strength of the input signal during reception. The more indicator light up, the better the reception.

NOTES:

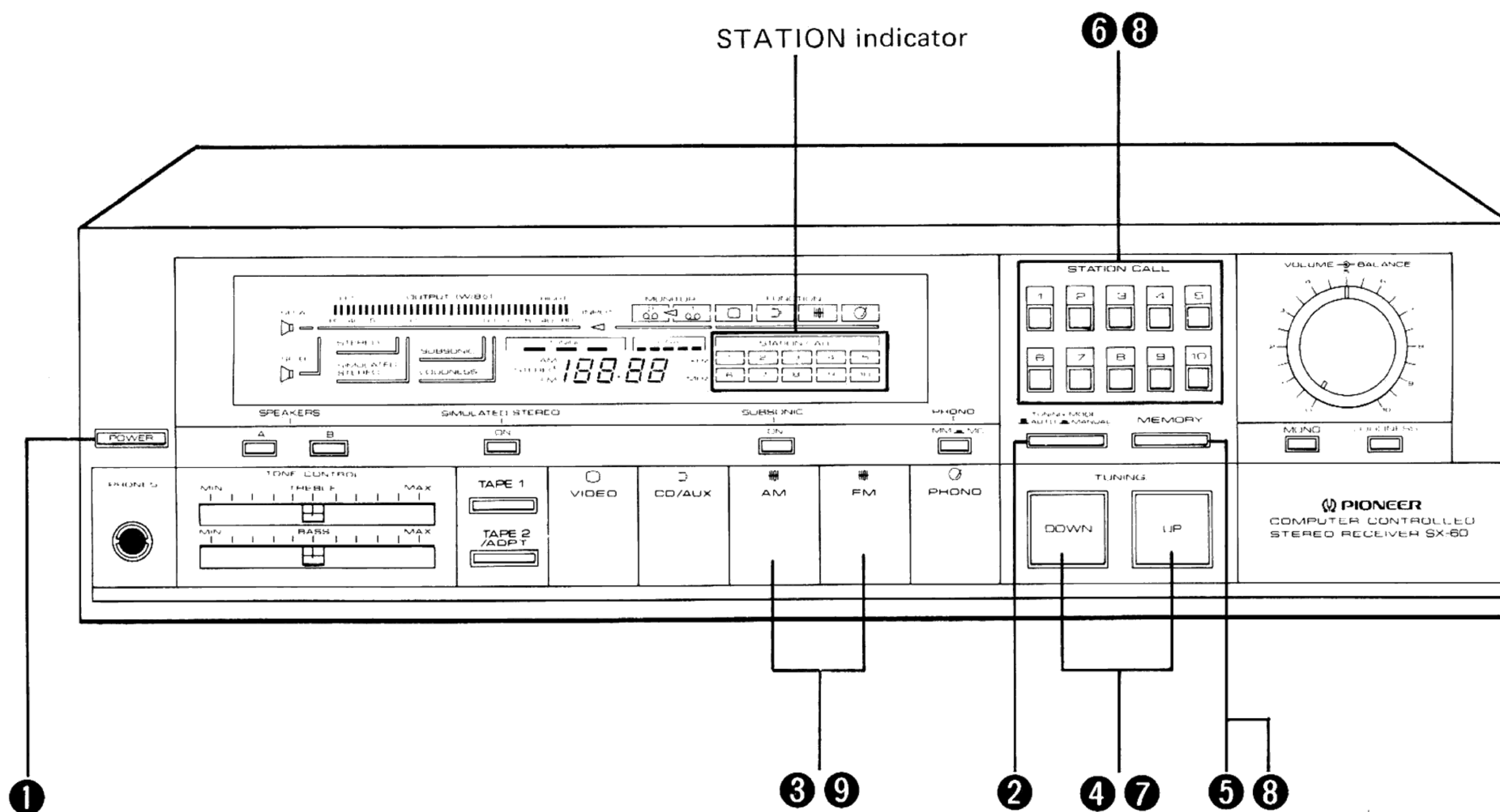
- If the station is distant and the signal weak, these indicators may not light up.
- The frequency scanning stops in the manual tuning mode at the upper or lower limit.

HOW TO PRESET THE STATION

PRESETTING WITH AUTO SEARCH TUNING

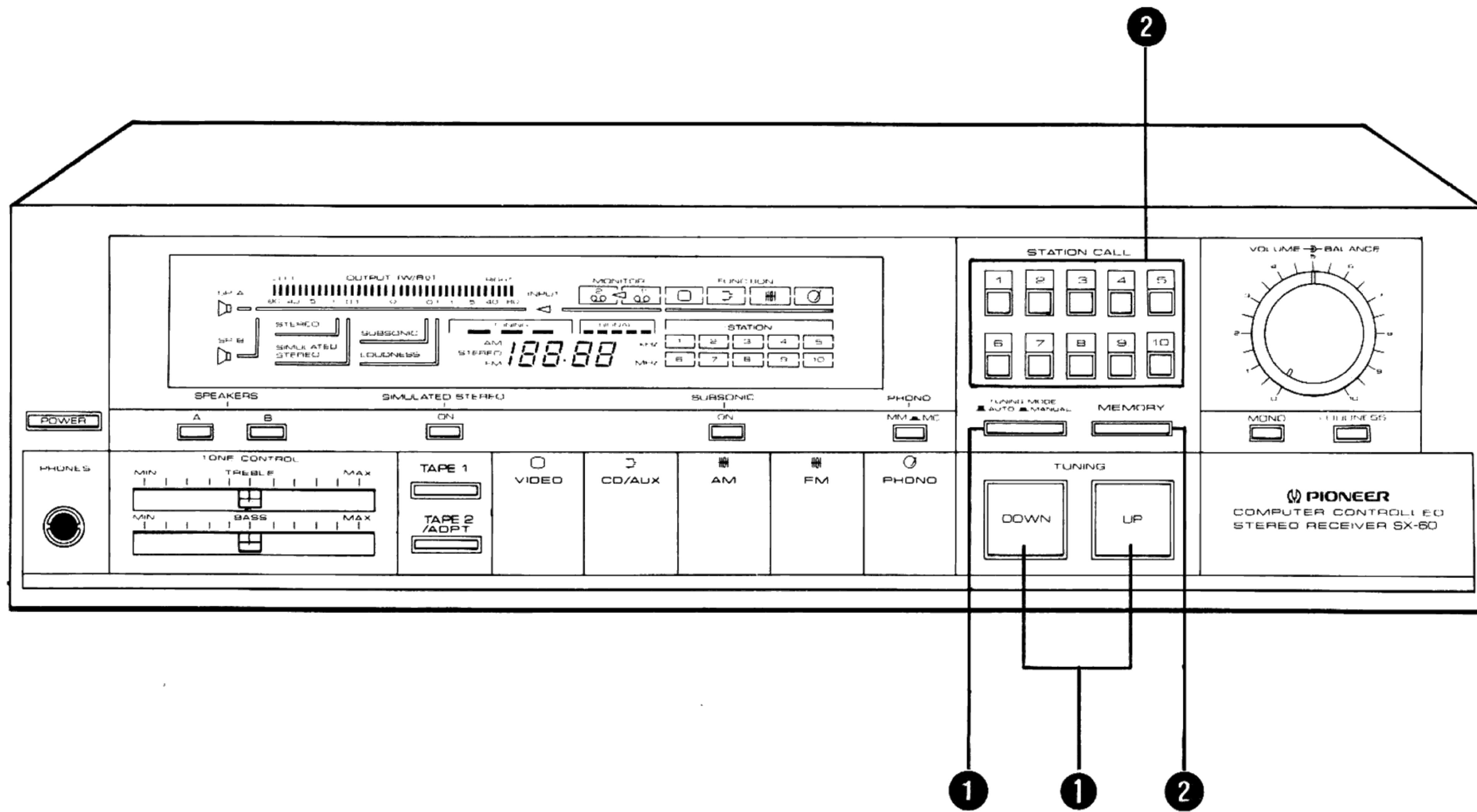
- This unit is fitted with a presetting function for memorizing stations independently on both FM and AM bands. Once the stations have been preset, all you

have to do to recall them is push the STATION CALL switches. A total of 20 stations can be preset, a maximum of 10 for each band.



- Depress the POWER switch to ON.
- Release the TUNING MODE switch (■ AUTO).
- Select the desired frequency band (AM or FM) using the FUNCTION switch.
- Press the TUNING (UP or DOWN) switch to receive the broadcast.
- When the broadcast is received, press the MEMORY switch. The STATION CALL indicators flash for about 5 seconds.
- Press the STATION CALL switch while the indicators are flashing.
 - The STATION CALL indicator corresponding to the selected STATION CALL switch lights up.
- When the preset operation is finished, pick up the broadcast once again with the TUNING (UP or DOWN) switch.
- Press the MEMORY switch and preset to the STATION CALL switch.
 - 10 presettings can be made to the STATION CALL switches.
- Selecting another band.
Each 10 stations for AM and FM broadcasting bands, a total of 20 stations can be preset.

PRESETTING WITH MANUAL TUNING

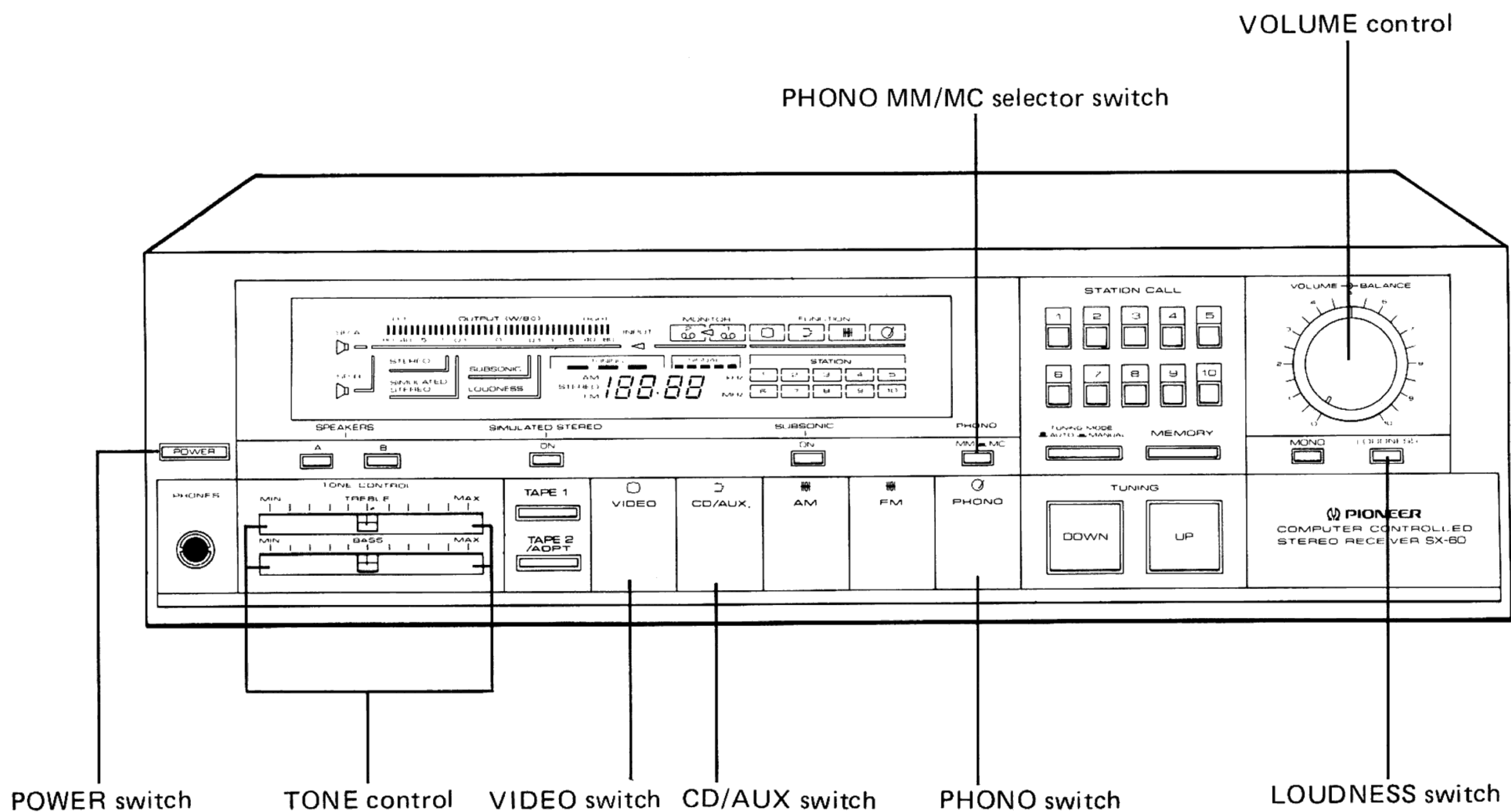


- ① When presetting with MANUAL tuning, pick up the broadcast referring to the section entitled MANUAL TUNING (see page 11).
- ② Press the MEMORY switch and preset to the STATION CALL switch.
 - Each 10 stations for AM and FM broadcasting bands, a total of 20 stations can be preset.
 - When selecting a station on a different broadcasting band, press the STATION CALL switch after changing to the new band with the FUNCTION switch.

LAST STATION RECALL FUNCTION

When the PHONO, CD/AUX or VIDEO function switch is depressed while an FM or AM broadcast is being received and the FM or AM switch is then depressed again, the station which was received before is recalled. The last station is also recalled when the power is switched off and then switched on again.

OTHER PROGRAM SOURCE



PLAYING RECORDS

1. Depress the POWER switch to ON.
2. Press the PHONO switch.
3. Select the PHONO MM/MC selector according to the cartridge to be used.
4. Operate the turntable to play the record.
5. Adjust the volume with the VOLUME controls.

NOTE:

Depress the SUBSONIC switch if there is a great deal of noise or if the speaker cone paper is seen to be moved despite the fact that you cannot hear the sound during a performance.

PLAYING VIDEO SOUND

1. Depress the power switch.
2. Press the VIDEO switch.
3. Operate the video cassette recorder controls for playback.
4. Adjust the volume with the VOLUME controls.

PLAYING A STEREO COMPONENT CONNECTED TO THE CD/AUX JACKS

1. Depress the POWER switch to ON.
2. Press the CD/AUX switch.
3. Operate the component which you have connected to the CD/AUX jacks on the rear panel.
4. Adjust the volume with the VOLUME controls.

ADJUSTMENT OF THE SOUND QUALITY

After adjusting the volume level, you can adjust the BASS controls, TREBLE controls and LOUDNESS switch to the preferred positions.

TAPE DECK OPERATIONS

PLAYBACK

- ① Depress the TAPE 1 switch if the tape deck is connected to the TAPE 1 jacks. Depress the TAPE 2 switch if it is connected to the TAPE 2/ADAPTOR jacks.
- ② Operate the tape deck controls for playback.
- ③ Adjust the volume with the VOLUME controls.
- ④ Adjust the tone with the BASS and TREBLE controls.

NOTE:

Always release the TAPE 1 and 2 switches, when you are not playing back a tape.

RECORDING

- ① Set the FUNCTION switch to the program source you want to record.
 - ② Play the program source (record, FM broadcast, etc.)
 - ③ Set the recording level on the tape deck.
 - ④ Start the recording by following the tape deck's recording procedure.
- It is possible to record onto two tape decks at the same time from the same source.
 - The volume, balance and tone controls have no effect on the recording.

NOTE:

When recording onto two decks simultaneously, avoid using the tape 1 monitor switch. If the monitor switch for Tape Deck 1 is depressed, Tape Deck 2 will record from Tape Deck 1.

REGARDING THE INSTALLATION OF TAPE DECK

Do not install a tape deck on the left side of this receiver, or magnetic flux leakage from the receiver's transformer may cause the production of humming sounds.

TAPE MONITORING

If a recording is being made on a 3-head tape deck, the recorded sound can be monitored through the speaker systems if the TAPE 1 or 2 switch is depressed, depending on which TAPE jacks the tape deck is connected to. In this case, both recording and playback connections must be made.

NOTE:

If you have a 2-head open-reel deck or cassette deck, you will not be able to monitor the recorded sound even if you depress the TAPE 1 or 2 switch. However, you will be able to hear the sound as the playback.

COPYING TAPES

- ① Connect the tape deck used for playback to the TAPE 1 jack on the rear panel and tape deck used for recording to the TAPE 2 jack.
 - If the tape decks are connected in reverse order, tape copying cannot be performed.
- ② Press the TAPE 1 switch.
 - Set the playback deck to the playback mode and set the recording deck to the recording mode.
 - When the recording tape deck has a monitor unit attached, the recording can be monitored by depressing the TAPE 2 switch.

NOTE:

Do not set both tape deck to the recording mode at the same time.

USING THE PRE AMP OUT AND POWER AMP IN JACKS

If the connector bars between the PREAMP OUT and POWER AMP IN jacks are removed (see Fig. A), it is possible to use the preamplifier section and the power amplifier section independently. However, for normal use always keep these connector bars in place because once you remove them, no sound will be heard through the speakers. Always switch power off when removing or replacing these connector bars.

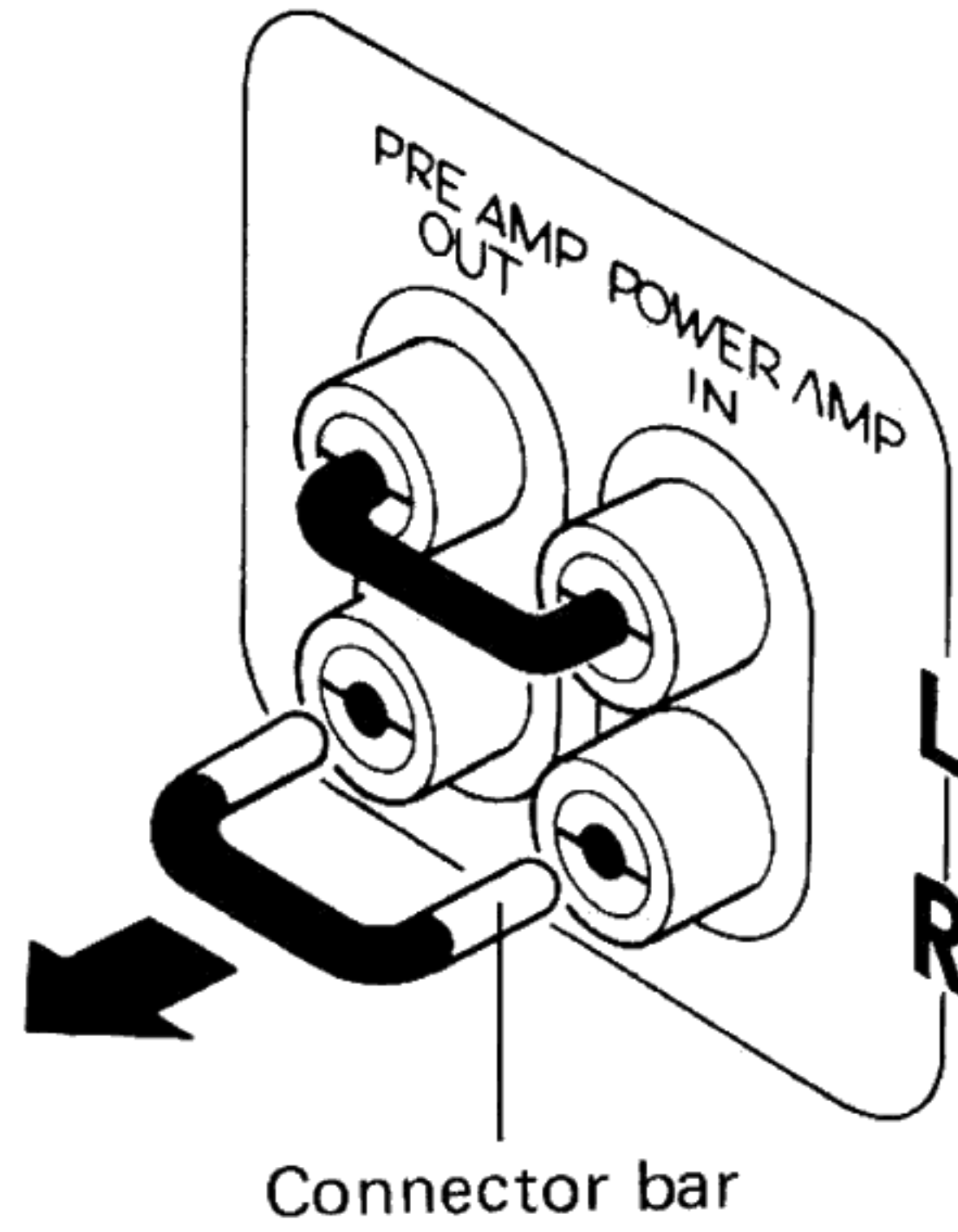


Fig. A

INDEPENDENT POWER AMPLIFIER SECTION

As shown in Fig. C, you can connect a stereo preamplifier which you may have to the POWER AMP IN jacks and compose your own stereo system.

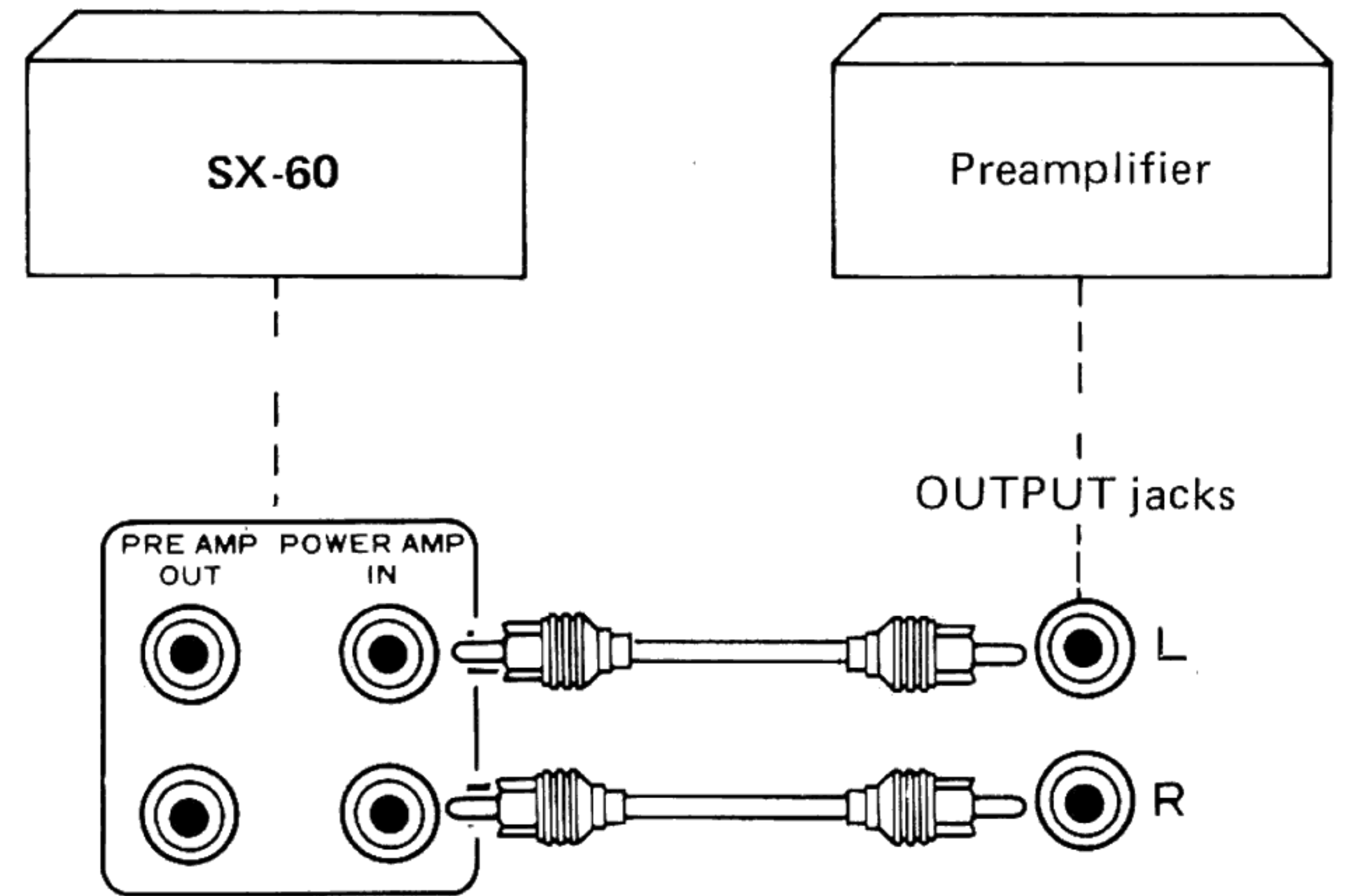


Fig. C

INDEPENDENT PREAMPLIFIER SECTION

As shown in Fig. B, you can connect a high output power stereo power amplifier or a homebuilt power amplifier to the PREAMP OUT jacks and compare the sound with the power amplifier section of the stereo receiver.

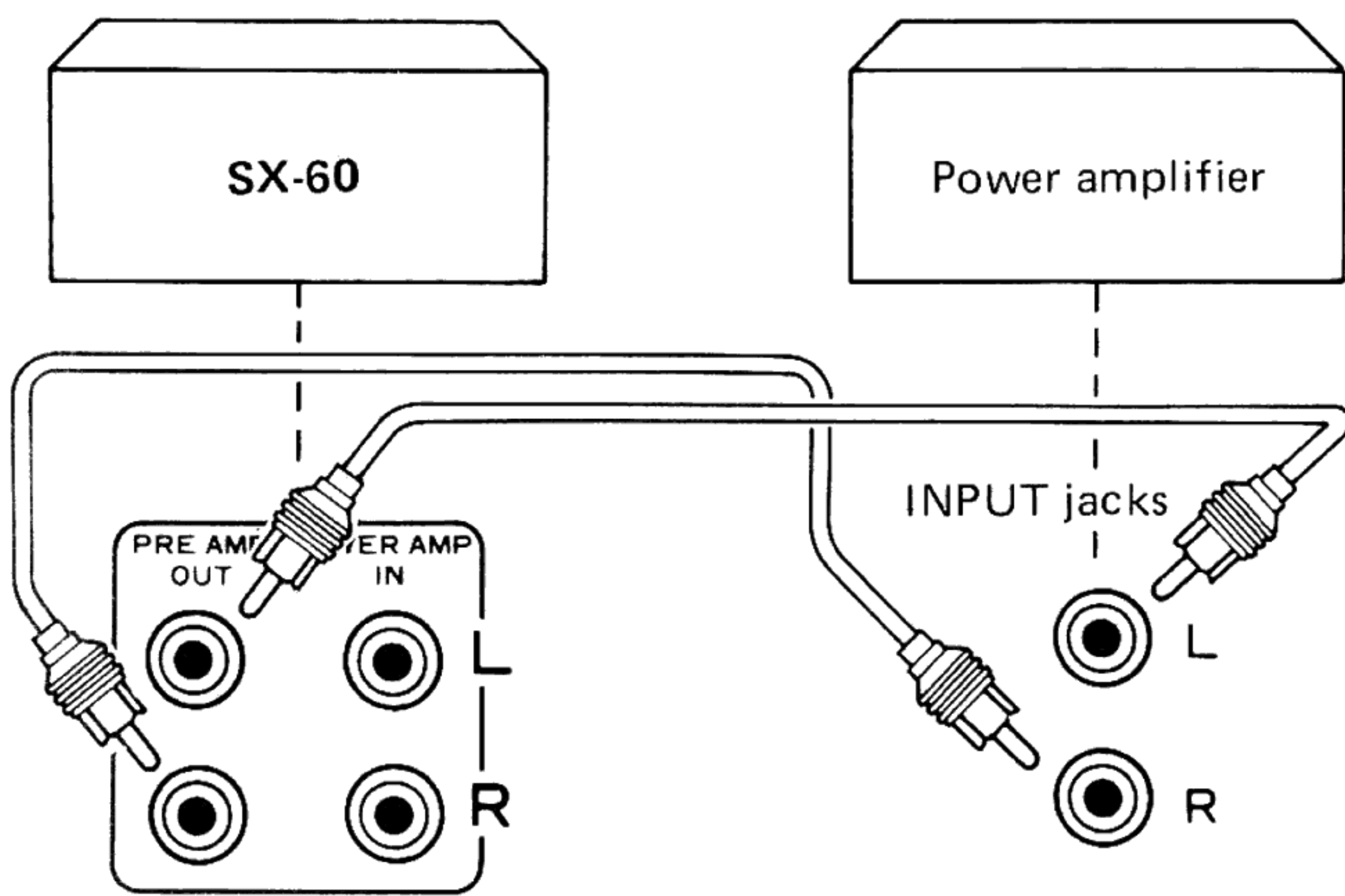


Fig. B

NOTE:

When using this unit's PRE-OUT terminals for connection to other power amplifiers with a multi-amplifier system configuration, the following points should be borne in mind for connection.

Noise may be heard through the speakers when the unit's power switch is set to ON or OFF with the power switches of the other power amplifiers at the ON position.

In this case, connect the power plugs of the other power amplifiers to the SWITCHED AC outlets on this unit or, if this is not possible, set this unit's power switch to ON first and then set the power switches of the other power amplifiers to ON. When switching the power off, the power switches of the other power amplifiers should be set to the OFF position first.

COMPOSING A MULTI-AMPLIFIER SYSTEM

As shown in Fig. D, you can compose your own multi-amplifier system if you connect an optional stereo power amplifier and crossover network. A multi-amplifier system splits up the audible frequency range into different frequency bands. Each of these bands is then amplified by the amplifiers and so this has the advantage of reducing intermodulation distortion.

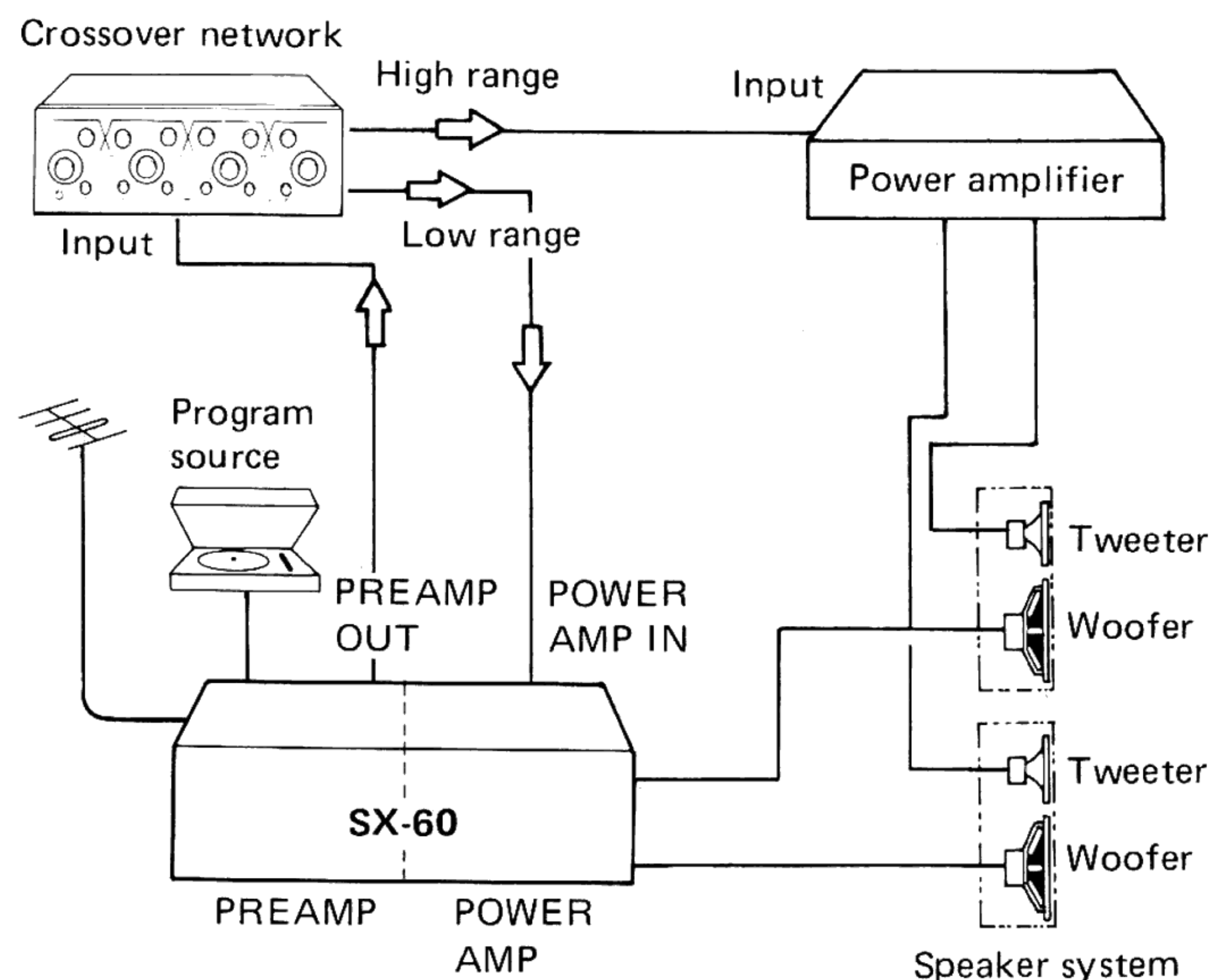


Fig. D

HINTS FOR BETTER RECEPTION

If the antenna is not connected, no broadcasts will be received.

ANTENNA INSTALLATION

If reception is still poor even with the accessory T-type antenna, it means that the signals in your area are not being picked up satisfactorily and that an outdoor antenna should be erected.

NOTE:
Consult your dealer as to the selection and installation of the FM antenna.

FM ANTENNA CONNECTIONS

There are two ways of connecting the FM antenna to the antenna input terminals: with a 300-ohm twin-lead feeder or with a 75-ohm coaxial cable. If full justice is to be done to the tuner's performance, a 75-ohm coaxial cable is recommended since it is more immune than the twin-lead feeder to noise and interference from external sources. If an FM antenna has already been erected outdoors, connect it, referring to the figure.

GROUNDING

Grounding is recommended if reception of FM programs is impaired by noise. To ground, connect a thick polyvinyl wire to the GND terminal and attach the other end to a metal water pipe or grounding bar or wind it around a copper plate and bury it.

NOTE:
Never connect a wire to a gas pipe for grounding since sparks may ignite the gas.

OUTDOOR AM ANTENNAS

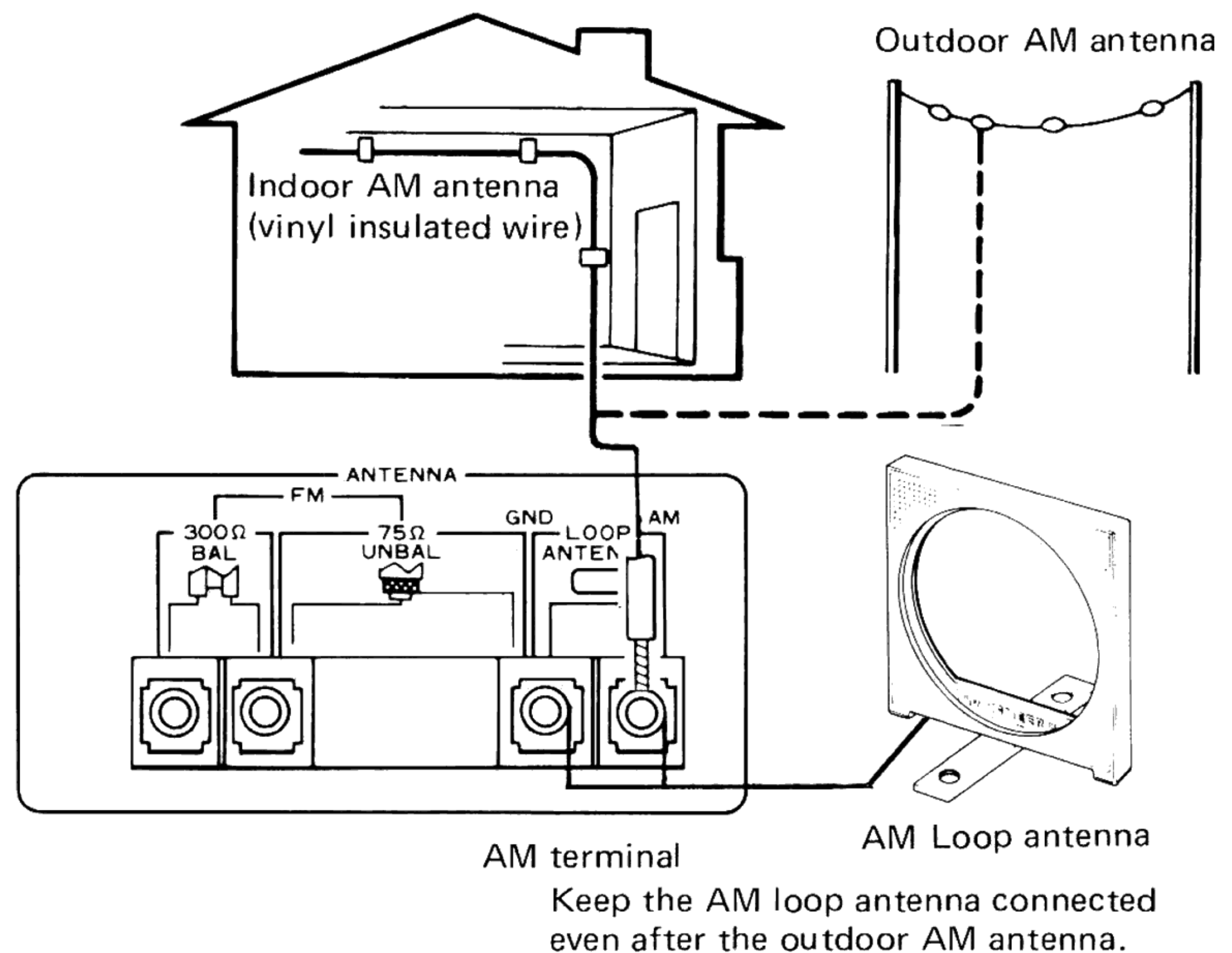
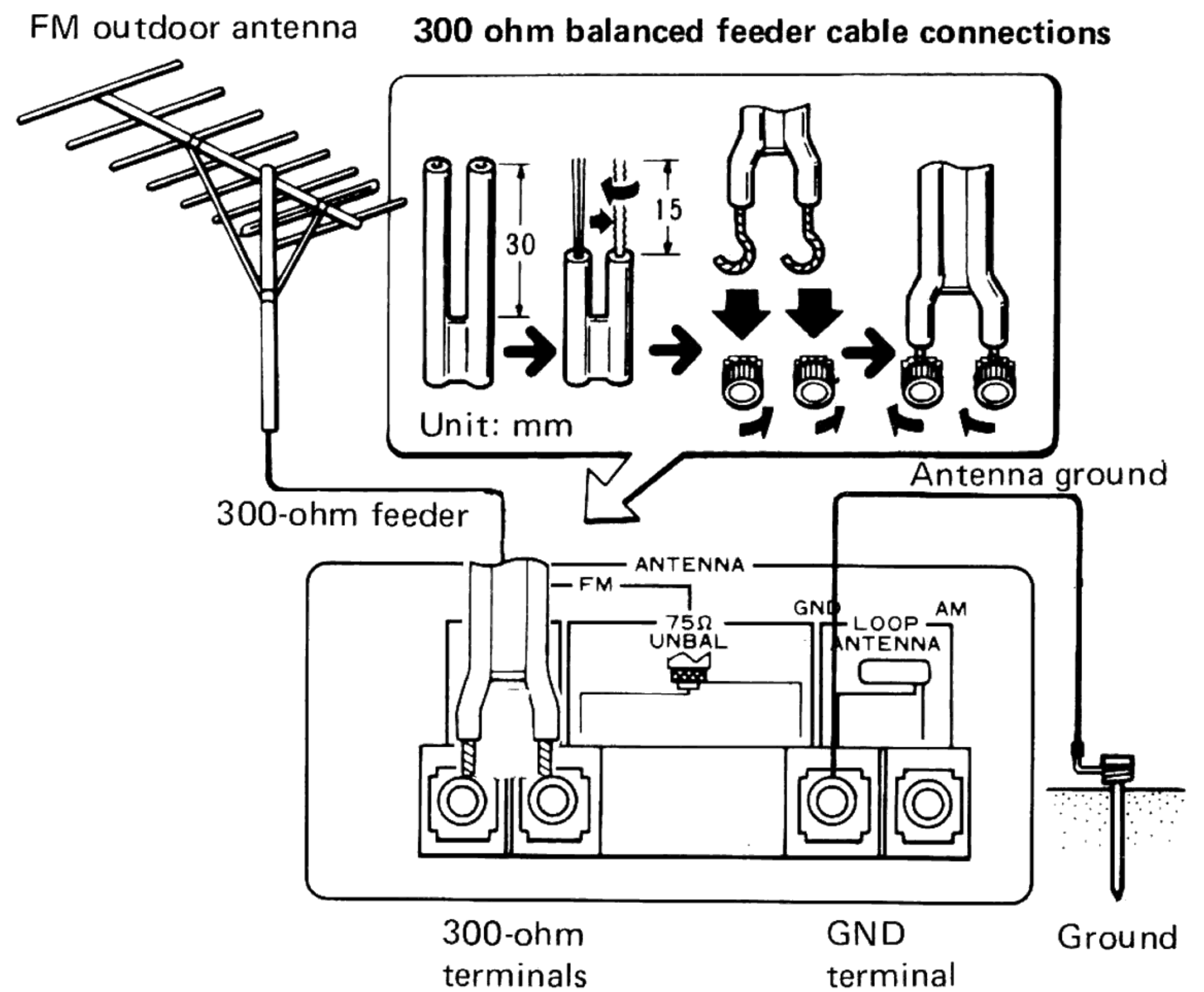
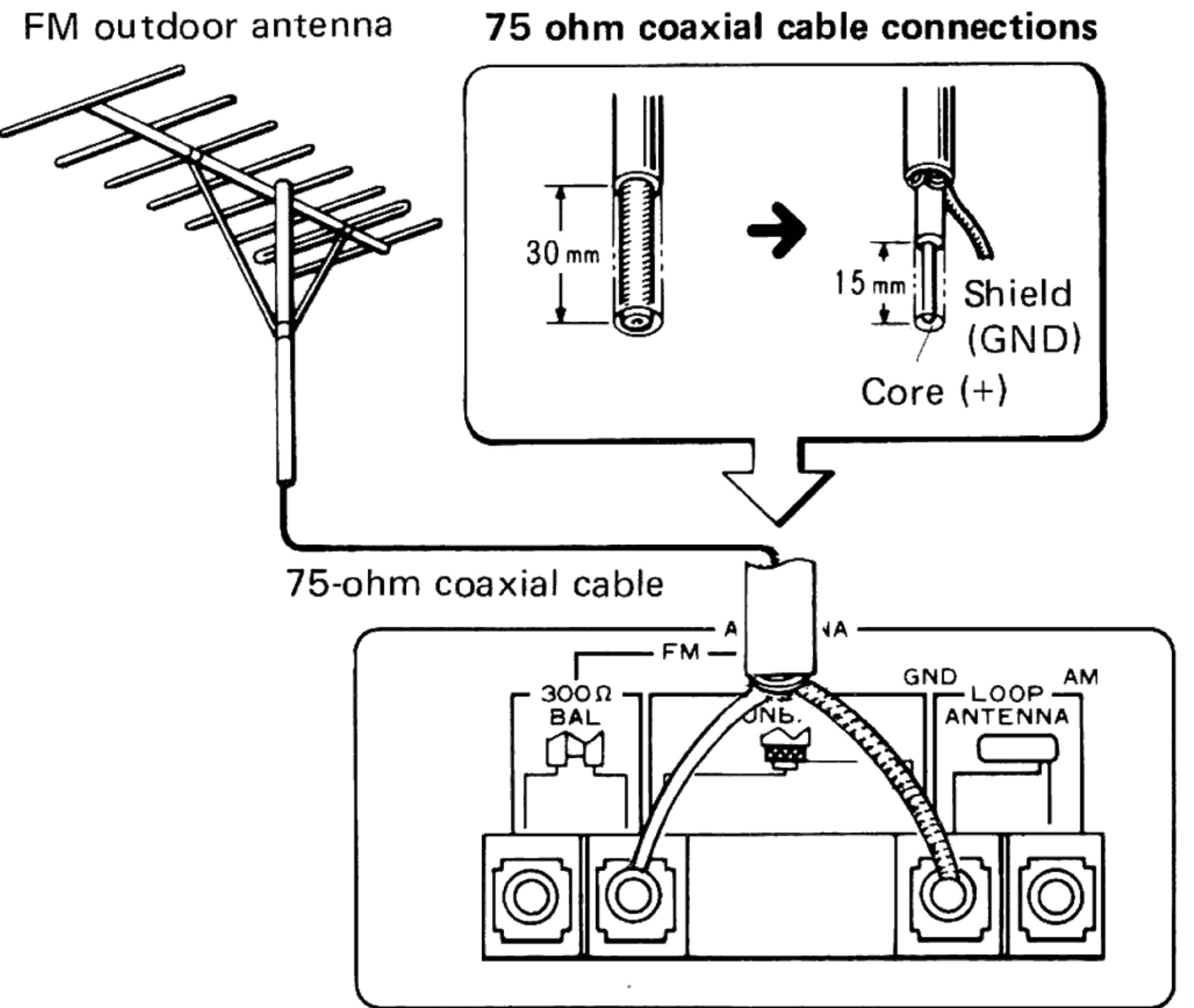
The accessory AM loop antenna is quite sufficient if you live in a strong-signal area. However, an outdoor AM antenna should be erected if surrounding objects are interfering with reception or if the stations are distant and their signals are weak.

- NOTES:**
- Do not detach the AM loop antenna when using an outdoor AM antenna.
 - If you have connected an outdoor AM antenna, during AUTO SEARCH tuning, the AUTO SEARCH mechanism may stop near to, but not directly on, the frequency of stations with very powerful broadcasting waves.

INSTALLING THE AM LOOP ANTENNA

If the AM loop antenna is placed in a poor location, noise will result, making it uncomfortable to listen to the program. In this case, change the mounting position. As far as possible, you should avoid mounting the antenna in places such as the following:

- Directly next to or on the receiver.
- Directly next to a TV or other electric appliance (turntable, VCR, etc.).



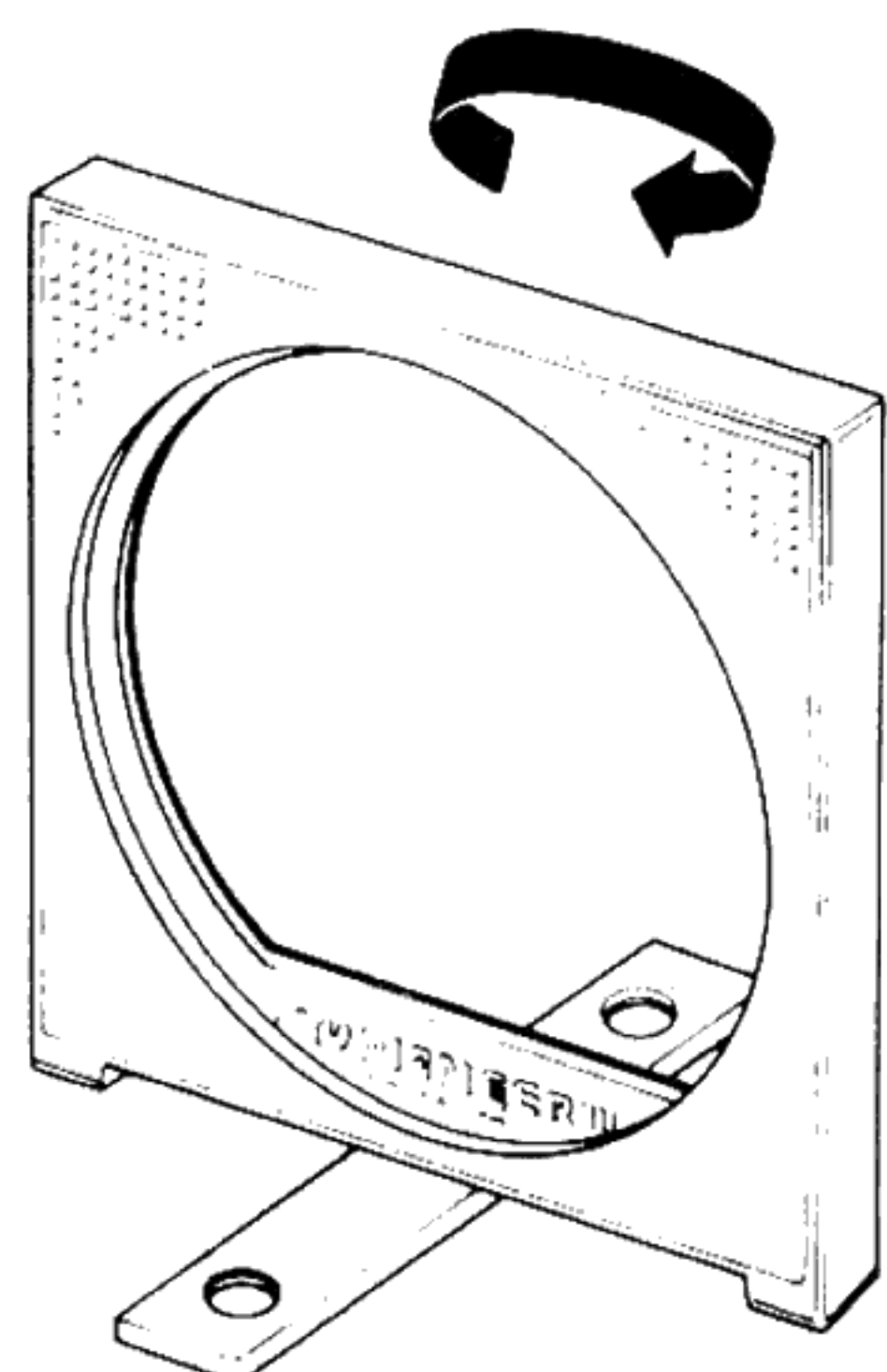
AM LOOP ANTENNA

Connect the AM loop antenna and position it so that it does not come into contact with the unit or with any metal objects.

Free standing

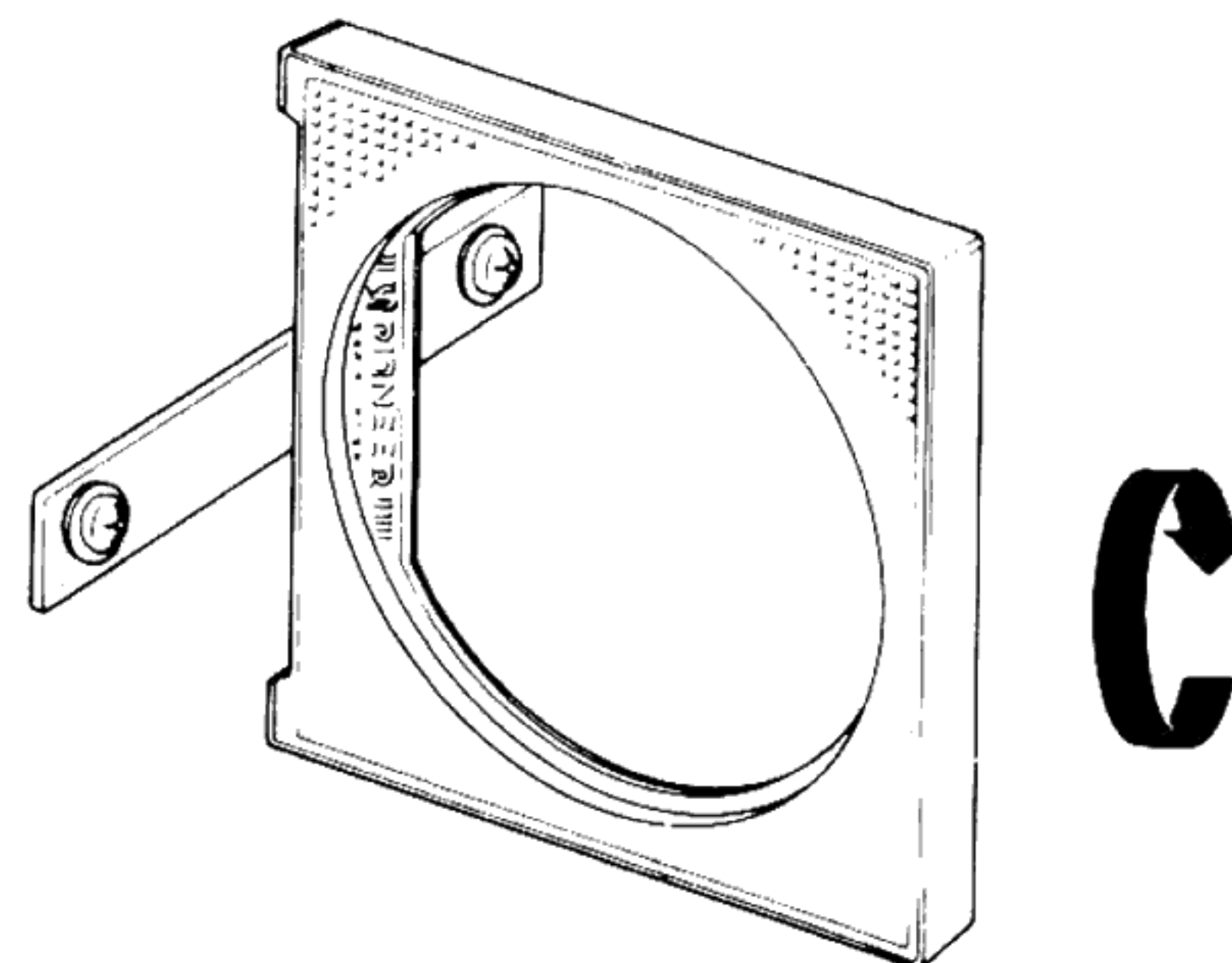
When standing the AM loop antenna on a horizontal surface position it facing the direction that will give the best reception.

Avoid mounting the antenna directly on the receiver.



Hanging

When hanging the AM loop antenna from a wall or vertical surface fix it with wood screws or thumbtacks then rotate it so that it is facing the direction that will give the best reception.



AM Loop Antenna
Can be fixed to a wall using wood screws.

CHANGING THE DRY BATTERY

INSERT THE DRY BATTERIES

The dry batteries are used to retain the station presetting memory function.

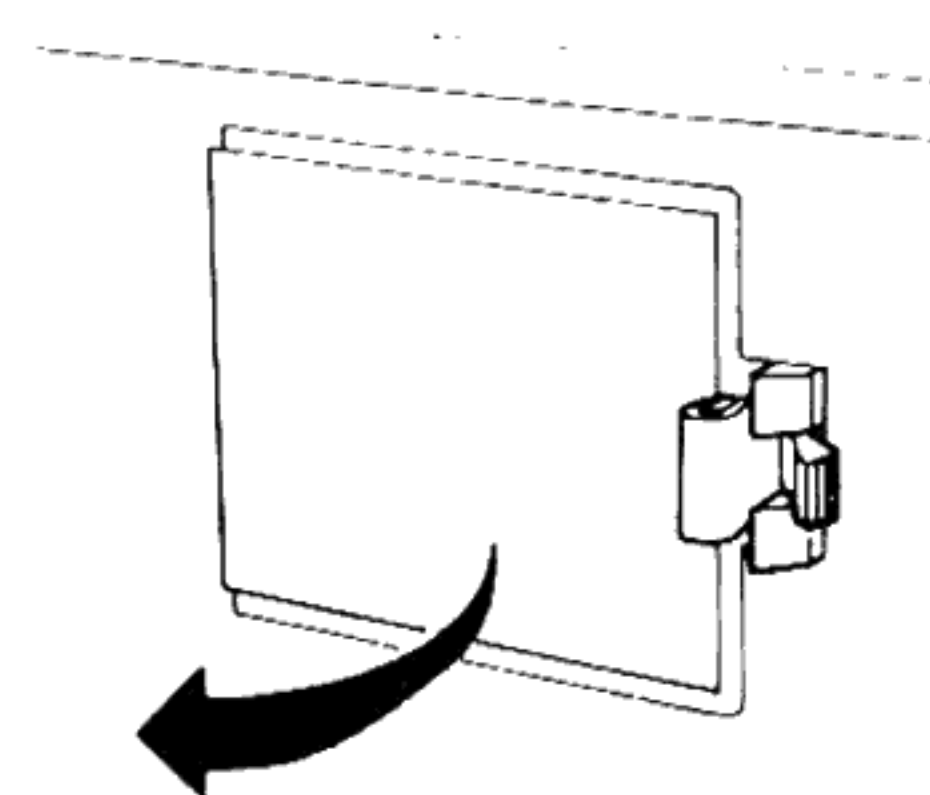
Dry batteries have already been installed in the receiver. If the batteries go dead, the presetting memory function will fail to operate, thus erasing the stations you have programmed. In this case, the batteries should be changed in the following way:

Disconnect the power cord when loading the batteries. The batteries are inserted in the rear panel.

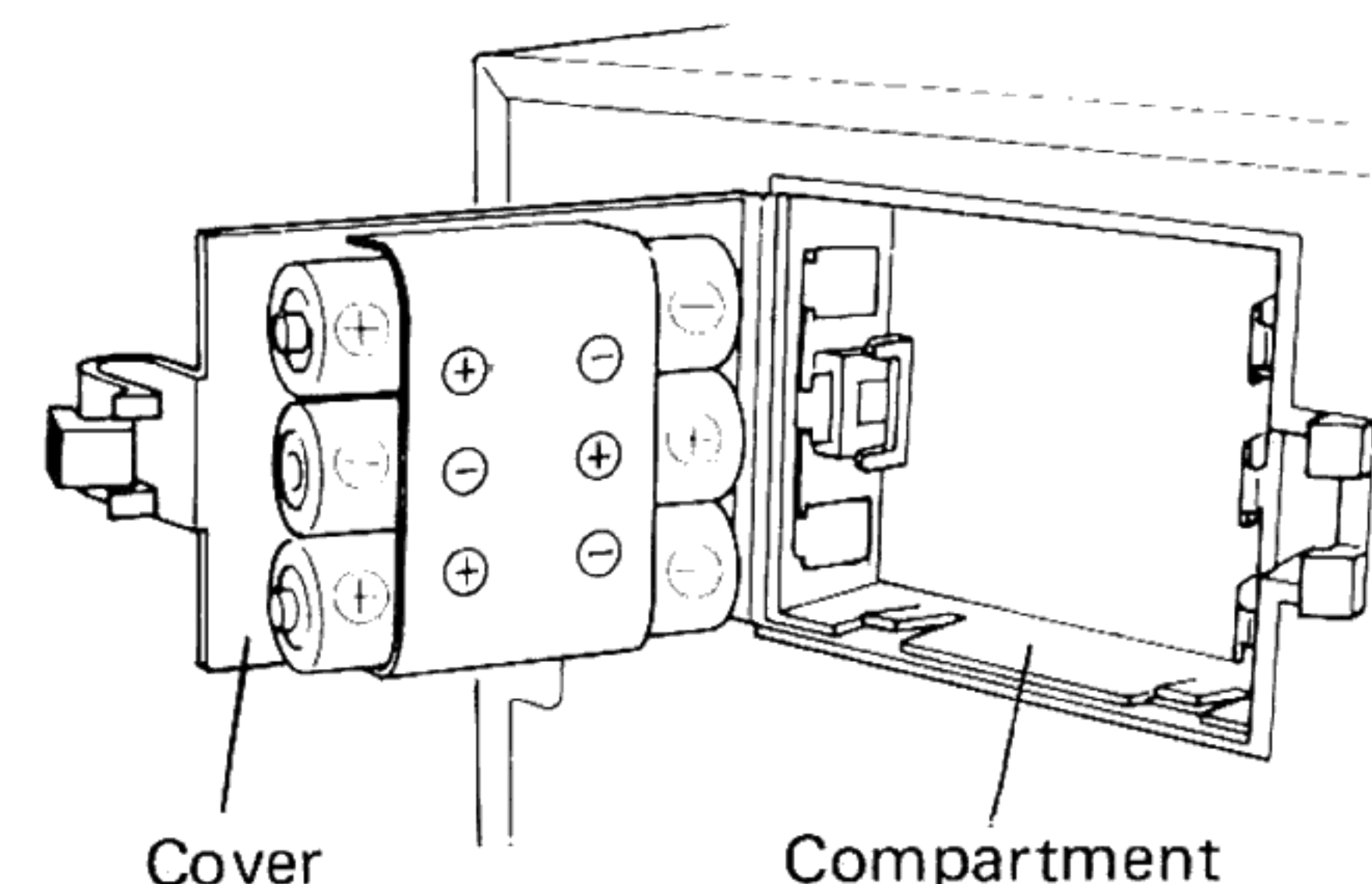
- ① Push the end of the cover and open.
- ② Remove the old batteries.
- ③ Insert the batteries in the cover side from the bottom up, making sure to align the ⊕ and ⊖ polarities correctly.
- ④ When the 3 batteries are securely fixed in the cover side, insert as such into the battery compartment.

The dry batteries are used to preserve the preset memory function when the power cord is disconnected and the power is turned off. The memory is erased when the batteries run out. Disconnect the power cord and replace the batteries with new ones. Carry out the preset procedure once again in accordance with the operating instructions.

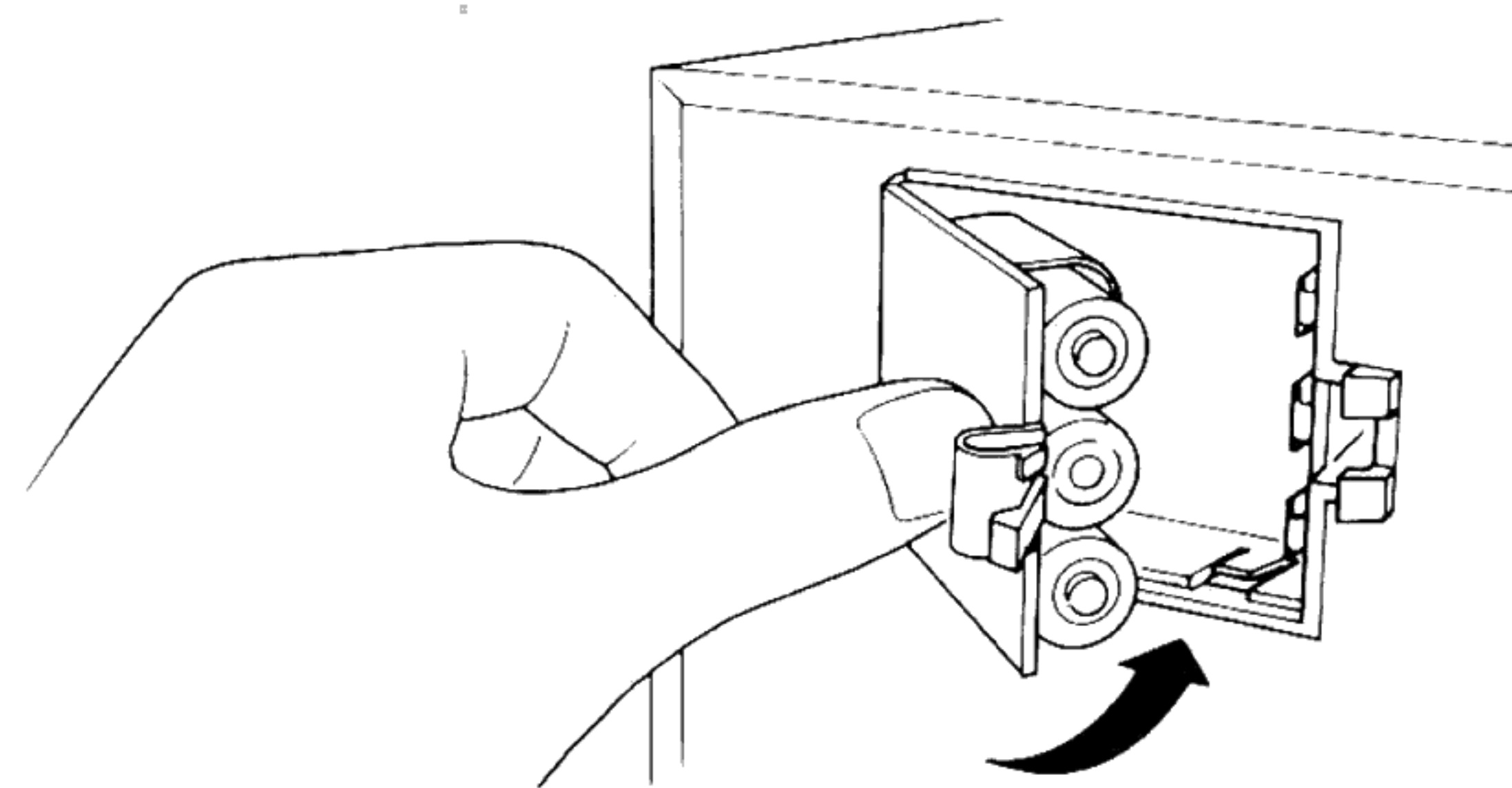
Open the battery cover.



Insert the batteries.



Close the battery cover.



BATTERY PRECAUTIONS

If the batteries are incorrectly used, they may leak or even break open inside the battery compartment. Observe the following precautions:

- Always make sure that the ⊕ and ⊖ poles of the batteries are properly aligned with the corresponding marking inside the battery compartment.
- Do not use new batteries and partly used batteries at the same time.

- Batteries come with different voltage ratings even though they may be the same size. Do not use different types of batteries at the same time.
- Some batteries are rechargeable while others cannot be recharged. Always read the notes on the batteries to make sure which kind you are using and do not use different types of batteries together.

TROUBLESHOOTING

If you think the unit is malfunctioning, perform a check following the instructions listed below prior to contacting a service facility. The problem may be in a maintenance procedure or attempting an erroneous operation, or a defective or unsuitable tape rather than a problem with the unit itself. If the problem persists after performing the check below, contact the store where you bought the unit or Pioneer Service Center/Service Station.

Symptom	Cause	Remedy
No power (even with POWER switch at ON).	<ul style="list-style-type: none"> • Disconnected power cord plug. 	<ul style="list-style-type: none"> • Re-connect cord properly.
No sound even when FUNCTION switch is set.	<ul style="list-style-type: none"> • VOLUME control at "0". • Connecting cords have worked free of speaker terminals. • One or both input cords have worked free. • Antenna has not been connected or has become disconnected. • The tape switch is depressed. 	<ul style="list-style-type: none"> • Rotate VOLUME control clockwise. • Connect securely. • Connect cords securely. • Connect the antenna securely. • Release the switch to the OFF position (TAPE MONITOR indicator goes off).
Sound through one speaker only.	<ul style="list-style-type: none"> • BALANCE control is at "LEFT" or "RIGHT" position. • One of input cords has worked free. • One of speaker connecting cords has worked free. 	<ul style="list-style-type: none"> • Set control to center position. • Connect cords securely. • Connect securely.
Sound is distorted.	<ul style="list-style-type: none"> • VOLUME control is too high. 	<ul style="list-style-type: none"> • Rotate VOLUME control counterclockwise.
High noise level.	<ul style="list-style-type: none"> • Station has not been tuned into correct frequency. 	<ul style="list-style-type: none"> • Tune the station in correctly.
	<ul style="list-style-type: none"> • Antenna has not been connected or has become disconnected. 	<ul style="list-style-type: none"> • Connect the antenna securely.
	FM reception: <ul style="list-style-type: none"> • Accessory T-type antenna remains bundled up or it is not pointing in right direction. 	<ul style="list-style-type: none"> • Stretch both ends of antenna taut and locate direction yielding optimum reception.
	<ul style="list-style-type: none"> • Weak broadcasting station signals. 	<ul style="list-style-type: none"> • Replace accessory T-type antenna with outdoor FM antenna.
	<ul style="list-style-type: none"> • Noise picked up from other equipment (or, in particular, from passing automobiles) or generation of multipath distortion. • Multipath results when signals from broadcasting station entering antenna directly are mixed with signals which have been reflected by mountains or high buildings on their way to antenna. This results in distorted sound and noise. 	<ul style="list-style-type: none"> • Try altering direction and mounting position of antenna. If an outdoor antenna has been erected, place it as far away as possible from passing traffic and replace connecting cable with 75-ohm coaxial cable.
	AM reception: <ul style="list-style-type: none"> • AM antenna not pointing in right direction. 	<ul style="list-style-type: none"> • Change AM antenna's direction and find a position where reception is improved.
	<ul style="list-style-type: none"> • Weak broadcasting station signals. 	<ul style="list-style-type: none"> • Erect outdoor AM antenna or connect ground wire.
	<ul style="list-style-type: none"> • Noise being picked up from other equipment (especially electrical appliances using motor or fluorescent lights). 	<ul style="list-style-type: none"> • Stop using appliances generating noise or remove them from vicinity of stereo equipment.
No auto stop.	<ul style="list-style-type: none"> • Input signals are not strong enough. 	<ul style="list-style-type: none"> • If the T-type antenna is being used, change over to an FM outdoor antenna.
No FM stereo with stereo reception.	<ul style="list-style-type: none"> • MONO switch is depressed. 	<ul style="list-style-type: none"> • Release the switch.

SPECIFICATIONS

Amplifier Section

Continuous Average Power Output is 80 watts* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.005% total harmonic distortion.**

Intermodulation Distortion (50 Hertz; 7,000 Hertz = 4:1, 8 ohms, from POWER IN)

continuous rated power output No more than 0.005%

Input (Sensitivity/Impedance)

PHONO MM 2.5mV/50kilohms

PHONO MC 0.25mV/100ohms

CD/AUX, TAPE PLAY 1, 2, VIDEO

. 150mV/50kilohms

Phono Overload Level (T.H.D. 0.007% 1,000Hz)

PHONO MM 150mV

PHONO MC 14mV

Output (Level/Impedance)

TAPE REC 1, 2 150mV/2.2kilohms

SPEAKER A, B, A series B, off (6 to 16 ohms)

Frequency Response

PHONO (RIAA Equalization) 20Hz to 20,000Hz \pm 0.3dB

CD/AUX, TAPE PLAY 1, 2, VIDEO

. 5Hz to 100,000Hz $^{+0}_{-3}$ dB

Tone control

BASS \pm 8dB (100Hz)

TREBLE \pm 8dB (10kHz)

Loudness Contour (Volume control set at -40dB position)

. +6dB (100Hz), +3dB (10,000Hz)

Filter

SUBSONIC 20Hz (6dB/oct)

Hum and Noise (IHF, short circuited, A network)

PHONO MM 86dB

PHONO MC 67dB

CD/AUX, TAPE PLAY 1, 2, VIDEO 95dB

FM Tuner Section

Frequency range 87.5MHz to 108MHz

Usable Sensitivity 10.3 dBf, IHF (0.9 μ V/75ohms)

50dB Quieting Sensitivity

MONO 15.7dBf, IHF (1.6 μ V/75ohms)

STEREO 37dBf, IHF (19.5 μ V/75ohms)

Signal-to-Noise Ratio

MONO 83dB (at 65dBf)

STEREO 80dB (at 85dBf)

Distortion (at 65dBf)

MONO 100Hz 0.1%

1kHz 0.07%

6kHz 0.15%

STEREO 100Hz 0.2%

1kHz 0.1%

6kHz 0.25%

Capture Ratio 1.0dB

Alternate Channel Selectivity 400kHz; 80dB

Stereo Separation 1kHz; 50dB

30Hz to 15kHz; 35dB

Frequency Response 20Hz to 15kHz $^{+0}_{-1.0}$ dB

AUTO TUNING threshold 29.3dBf (8 μ V/75 ohms)

Antenna Input 300ohms balanced, 75 ohms unbalanced

AM Tuner Section

Frequency range 522kHz to 1620kHz

(When 10kHz step) 520kHz to 1620kHz

Sensitivity (IHF, Loop antenna) 220 μ V/m

(IHF, EXT. antenna) 10 μ V

Selectivity 60dB

Signal-to-Noise Ratio 50dB

Antenna High sensitivity Loop Antenna

Miscellaneous

Power Requirements KU and KC model; AC 120V, 60Hz

S and S/G model; AC 110V/120V/220V/240V (switchable),

50/60Hz

Power Consumption KU model; 310W (UL)

KC model; 380VA (CSA)

S and S/G models; 180W

Dimensions 420(W) x 130(H) x 364(D) mm

16-9/16(W) x 5-2/16(H) x 14-5/16(D) in

Weight (without package) 10.3kg (22lb 11oz)

Furnished Parts

FM T-type Antenna 1

AM Loop Antenna 1

Operating Instructions 1

* Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifier.

** Measured by Audio Spectrum Analyzer.

NOTE:

Specifications and the design subject to possible modifications without notice due to improvements.

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan

PIONEER ELECTRONICS (USA) INC. 1925 E. Dominguez St., Long Beach, California 90810 U.S.A.

PIONEER ELECTRONIC (EUROPE) N.V. Keetberglaan 1, 2740 Beveren, Belgium

PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia