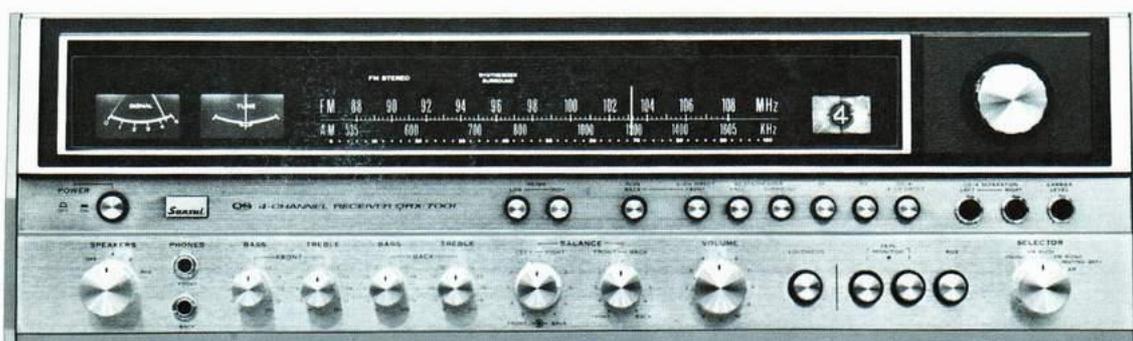


OPERATING INSTRUCTIONS

4-CHANNEL RECEIVER

SANSUI QRX-7001



Sansui

SANSUI ELECTRIC CO., LTD.

We are grateful for your choice of the Sansui QRX-7001 4-channel receiver. Before you begin to operate it, may we suggest that you read this booklet of operating instructions once carefully? You will then be able to connect and operate it correctly, and enjoy its superb performance for years.

●FUNCTIONAL FEATURES

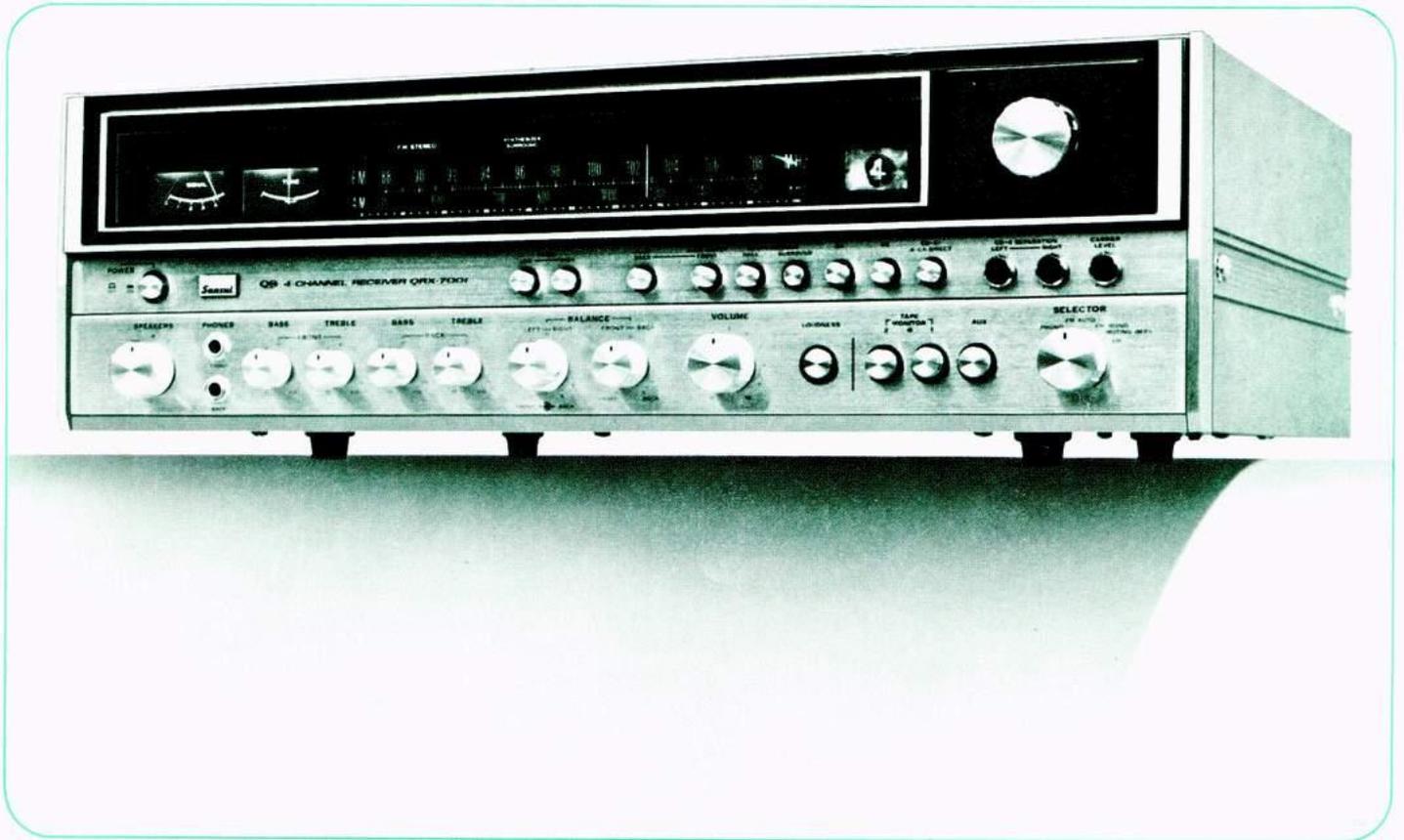
- ◆Incorporates a QS† Synthesizer circuit to reorganize conventional 2-channel stereo signals and create a 4-channel sound field.
- ◆The built-in QS regular matrix system 4-channel decoder decodes 4-channel records and tapes encoded with the regular matrix system such as the QS system, and their broadcasts, to reproduce them as a perfect 4-channel sound field.
- ◆The built-in Phase Matrix circuit, featuring Sansui's own front-back logic, decodes records and tapes encoded with the SQ* system to properly reproduce them in 4-channel stereo.
- ◆The new Sansui-improved built-in CD-4** demodulator makes it possible to reproduce CD-4 4-channel records, with increased inter-channel separation.
- ◆Incorporates PHONO inputs, two 4-channel tape record/playback circuits. The 4-channel front inputs can be in exactly the same manner as 2-channel inputs, for either ordinary 2-channel reproduction or 4-channel reproduction through the built-in 4-channel decoding circuit.

- ◆Facilities for independent adjustment of tonal quality in the front and back channels.
- ◆For the reception of FM broadcasts, provisions are made for both 75-ohm and 300-ohm FM antenna terminals. Connection is extremely simple when setting up an outdoor antenna using either a 75-ohm unbalanced coaxial type lead-in cable or a 300-ohm balanced feeder type lead-in cable.
- ◆Unpleasant noises heard in the lows and/or highs can be eliminated by activating the pushbutton FILTER switches on the front panel.

† TM Sansui, * TM CBS, Inc., ** TM JVC, Inc.

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IMPORTANT PRECAUTIONS

To keep the set in top condition all the time, observe these precautions:

1. Install the set where there is a good circulation of air.
2. Do not obstruct the ventilation opening of the cabinet.
3. Avoid an extremely hot or dusty place.
4. If the set is placed on a shelf, be sure that the shelf board is thick and strong.

HEAT RADIATED BY THE SET

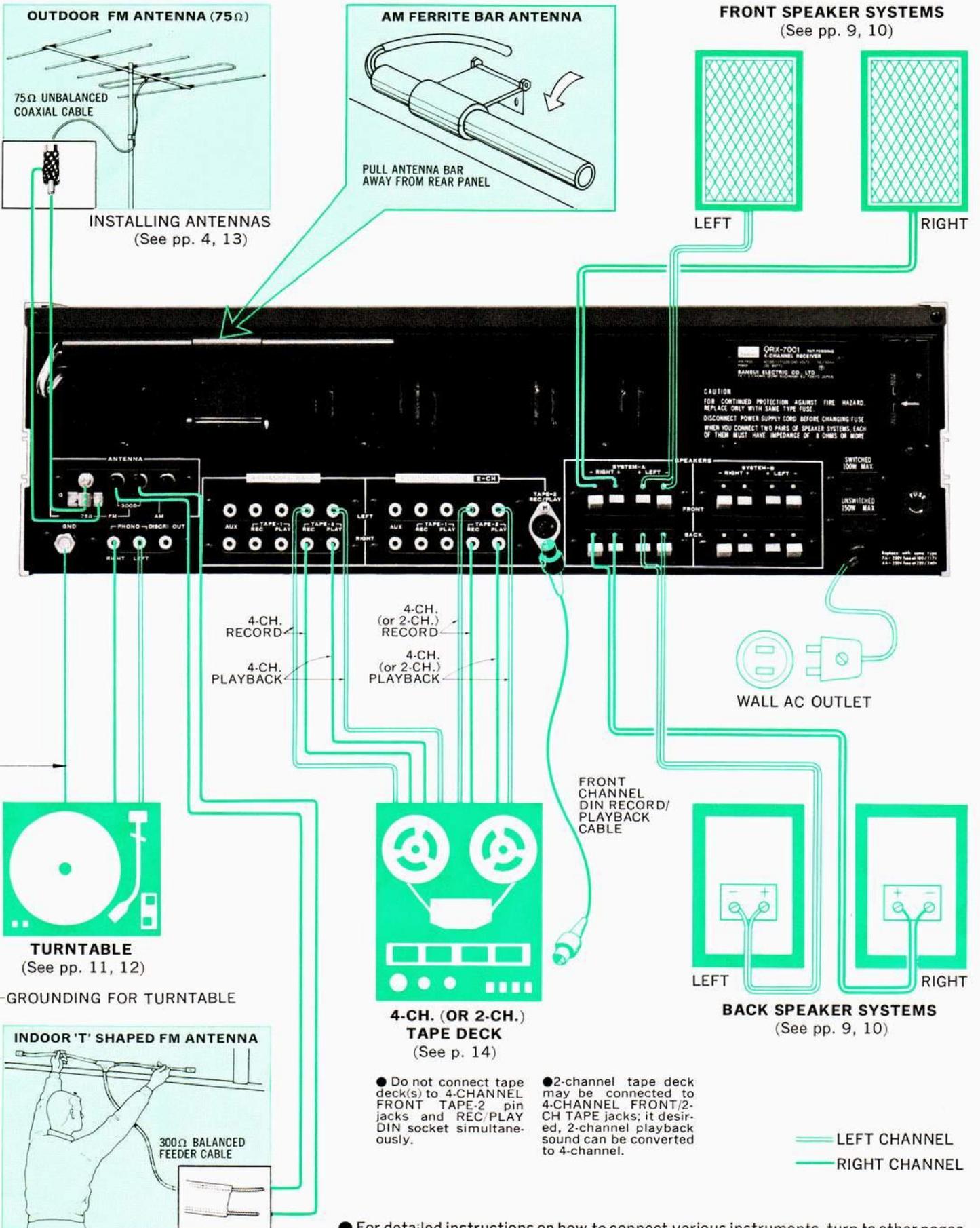
As transistors are sensitive to heat, the enclosure of this set is designed to provide a good dissipation of the heat radiated inside this set. Thus, if you place something on top of the ventilation opening of the enclosure, place the set inside a closed box and operate it for many hours, it is possible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

AC OUTLETS

Of the two AC outlets provided on the rear panel, the one marked 'SWITCHED' is controlled by the front-panel POWER switch. It is convenient powering a program source component, such as your turntable. If you keep the power switch of such a component turned on, then that component will be turned on and off as you operate the power switch of this set. The other AC outlet, marked 'UNSWITCHED' is not related to the set's power switch. The voltage delivered at these AC outlets is the same as the power supply voltage used.

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

REAR-PANEL CONNECTIONS

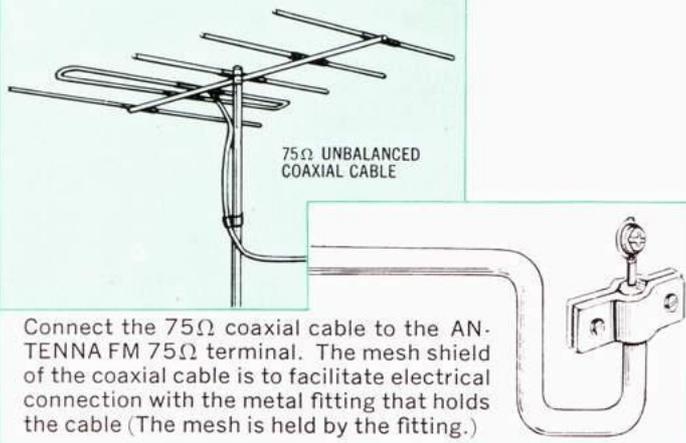


● For detailed instructions on how to connect various instruments, turn to other pages.

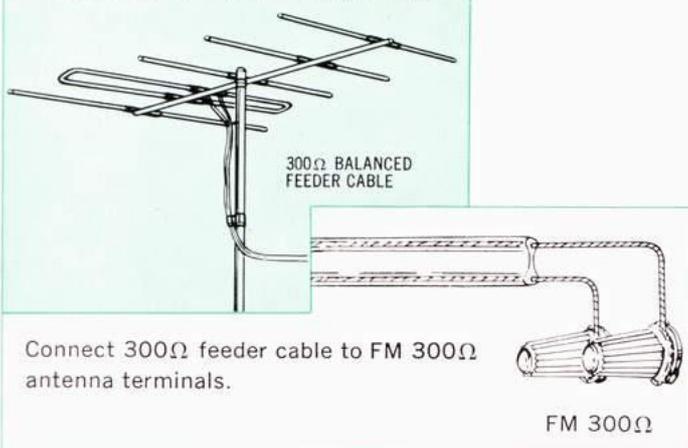
HINTS FOR BETTER RECEPTION

It is always recommended to install outdoor antennas so that you may receive noise-free FM and AM broadcasts with optimum tonal quality. You will find an outdoor antenna—especially one for FM—particularly effective if you are remote from broadcasting transmitters or surrounded by high mountains, buildings or other obstacles.

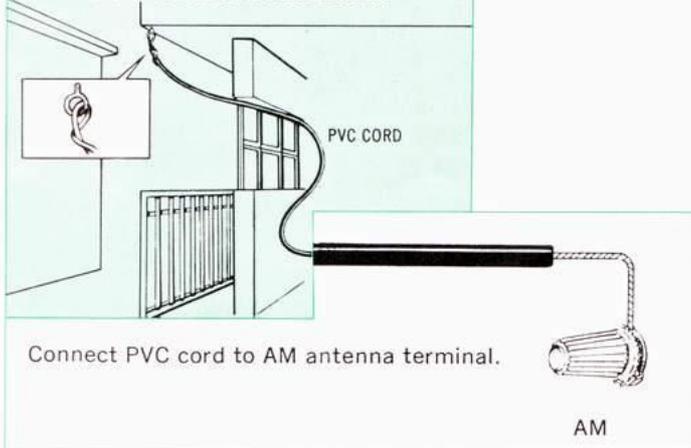
OUTDOOR FM ANTENNA (75Ω)



OUTDOOR FM ANTENNA (300Ω)



OUTDOOR AM ANTENNA



FM ANTENNAS

Outdoor FM antennas are commercially available with three, five or seven 'elements'. The more elements an antenna has, the greater distance it is generally intended to cover. You may connect an antenna to your set either by means of coaxial cable (75-ohm unbalanced) or feeder cable (300-ohm balanced). The former is more expensive but more effectively keeps out external noise—especially the ignition noise of nearby automobiles—and transmit the signals more efficiently.

It is advised that you decide on the type of antenna and cable to use after consultation with your Sansui dealer. Depending on the type of antenna, you may require an impedance matching transformer between the antenna and the connecting cable, and this too should be found out from the dealer.

How to connect: Connect the antenna to your set as illustrated in the diagram.

If you are using coaxial cable, connect it to the FM 75Ω terminals; if you are using feeder cable, connect it to the FM 300Ω terminals.

〈Note for Installing〉

- ◇ To avoid ignition noise produced by automobiles and motor-cycles, install the antenna as far away from the street as possible.
- ◇ As an antenna is directional, adjust its height and direction while actually receiving your favorite FM station.
- ◇ Be careful so that the antenna or the lead-in cable does not touch the electrical power line around your house.
- ◇ It is always advisable to keep the lead-in cable as short as possible.

AM ANTENNA

When you cannot obtain the desired results by using the AM ferrite bar antenna only, connect a PVC cord to the AM antenna terminal, extending it outdoors if possible.

GROUNDING

If you connect a grounding lead to the grounding terminal marked GND on the rear panel, the noise contained in radio broadcasts may decrease. It may also keep external noises from creeping into the set.

The grounding lead may either be standard PVC cord or enameled wire. Attach a small copper plate or carbon rod to its end, and bury it deep underground. Or if there is a special grounding wire or terminal in your room, or if your water piping is of iron, the grounding lead may be connected to them. NEVER connect it to your gas piping.

BASIC OPERATING PROCEDURES

● When you operate the various switches, it is suggested that you reduce the volume first by turning the VOLUME Control counterclockwise.

1. POWER

① POWER Switch

Push the POWER switch once to turn the set on, once more to turn it off.

2. SELECTING SPEAKER SYSTEMS

② SPEAKERS Switch

Selects the speaker systems of the front and back channels.

OFF: To cut off the sound from all speaker systems when listening with headphones.

A: To drive the four speaker systems connected to the SPEAKER SYSTEM-A terminals on the rear panel.

B: To drive the ones connected to the SPEAKER SYSTEM-B terminals.

A+B: To drive both SYSTEM-A and SYSTEM-B pairs.

3. SELECTING PROGRAM SOURCES

③ SELECTOR Switch

Adjust to program source (except tape) you wish to hear.

PHONO: For playing records.

FM AUTO: For receiving FM stereo or mono broadcasts. When an FM stereo broadcast is received, the legend FM STEREO appears in the dial window.

FM MONO (MUTING OFF): For reception of weak FM stations.

When tuning in a station on the FM band, setting this switch to FM AUTO cuts interstation noise allowing you tune quietly. If however, you try to tune a weak FM station with this switch set to FM AUTO there is a possibility that you may bypass the desired station. In such a case set the switch to the FM MONO (MUTING OFF) position and tune in the desired station.

If the reception of the tuned FM stereo station is too noisy for pleasant listening, set this switch to the FM MONO position. The broadcast will now be in mono, but the noise will substantially decreased.

AM: For receiving AM broadcasts.

④ AUX Selector Button

Push this button to reproduce whatever program source is connected to the rear-panel 4-CHANNEL AUX inputs. Whenever reproducing a 4-channel discrete source, be sure to push the CD-4/ 4-CH DIRECT button of the front-panel FUNCTION switch.

⑤ TAPE MONITOR Switches

Use them to reproduce a recorded tape or to monitor a recording that you are making. Push the one that governs the record/playback circuit connecting the particular tape deck in use at the moment. At all other times, push it once more to restore it to the normal position.

HEADPHONE JACKS

Accommodate two stereo headphone sets for monitoring or private listening. The upper jack is for the front channels and the lower one for the back. When listening with headphones only, turn the SPEAKERS switch to 'OFF'.

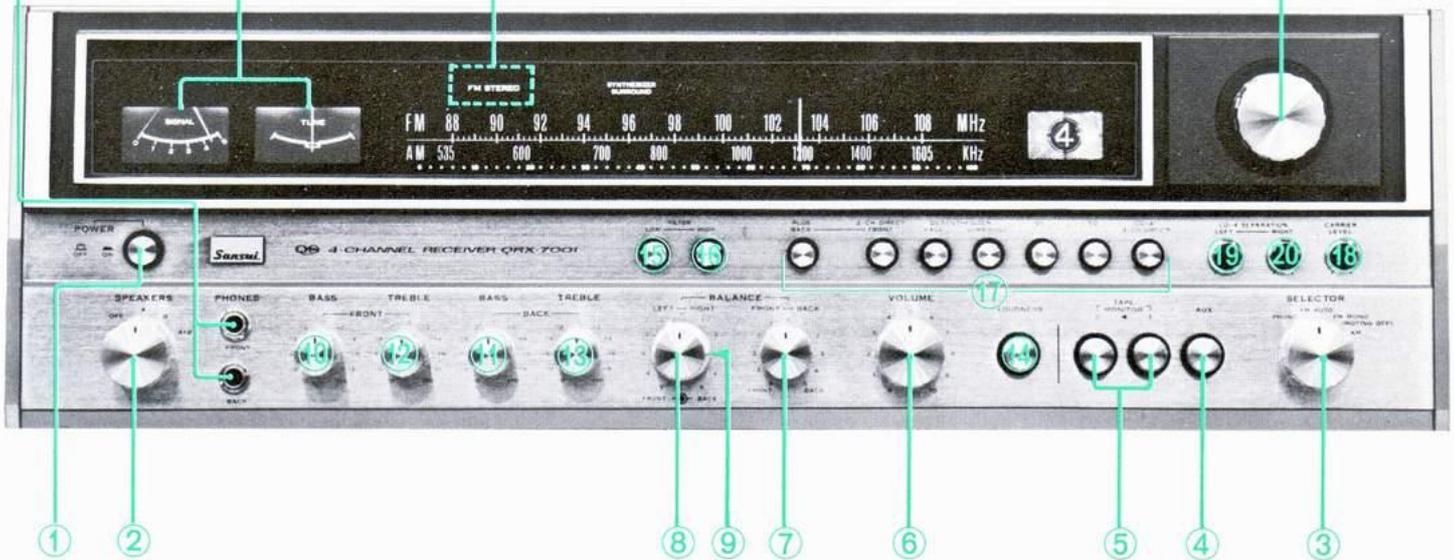
SIGNAL AND TUNE METERS

The desired FM station is pinpointed when the SIGNAL meter pointer has swung as far to the right as possible, and then TUNE meter pointer is perfectly centered. An AM station, in contrast, is correctly tuned in when the SIGNAL meter pointer has swung as far to the right as it will go.

FM STEREO INDICATOR

Lights when set is tuned in on an FM station broadcasting in stereo.

TUNING CONTROL



- The numbers indicated in the photograph above coincide with the colored switch designations.

4. VOLUME & BALANCE

⑥ VOLUME Control

Use to adjust the overall sound volume. Turn it clockwise to raise it.

⑦ MAIN BALANCE Control

⑧ FRONT/⑨ BACK LEFT-RIGHT BALANCE Controls

The standard practice in listening to 4-channel stereo sound is for you to sit at the center of the approximate square formed by your four speakers placed in the so-called 2-2 arrangement. This way you will be seated roughly at identical distances to each speaker. Accordingly, the two balance controls are both usually set to their center positions. If necessary, however, they should be adjusted to suit the particular arrangement of your speakers, your listening position, the nature of the program sources being placed, or your personal preference.

The optimum balance among the four channels is most quickly obtained by adjusting the front left-right balance, then the back left-right balance, and finally, the overall front-back balance.

Needless to say, the left-right balance can be separately adjusted for the two front and the two back speaker systems utilizing the respective balance control. Turning each control counterclockwise from the center raises the sound volume from the left speaker system, and turning it clockwise increases the sound volume from the right speaker system. On the other hand, the front-back balance is adjusted with the MAIN BALANCE control. Tuning it counterclockwise from the center increases the sound volume from the front speaker systems, while turning it clockwise increases that from the back speaker system.

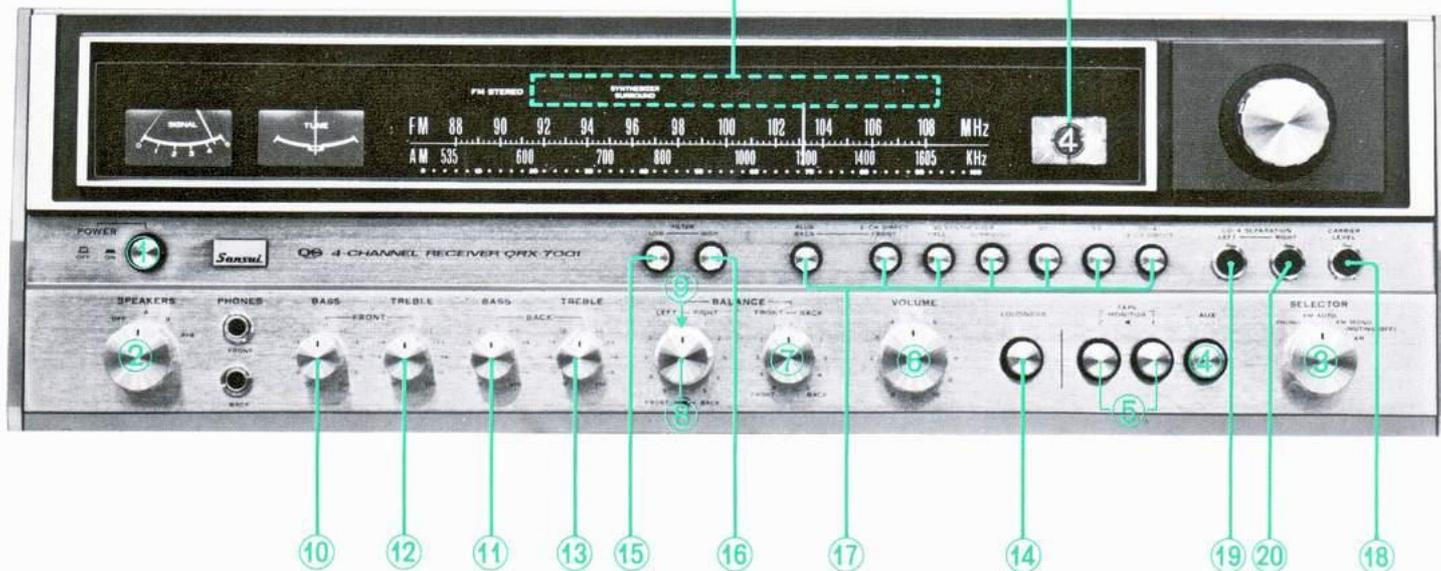
CONTROLLING SOUND TO YOUR TASTE

● When you wish to hear the 4-channel sound, a reminder that you must always push only one of the 2-CH DIRECT FRONT and five 4-channel function buttons. If none is pushed, or if two or more buttons are pushed simultaneously, you can not obtain the desired function mode.

The CD-4 indicator of 4-channel function indicator lights when the particular signal from CD-4 record is received by the built-in CD-4 demodulator of the set.

2-4 DIGITAL INDICATOR
Indicates whether the set is operating in the 2- or 4-channel mode.

4-CHANNEL FUNCTION INDICATOR



● The numbers indicated in the photograph above coincide with the colored switch designations.

TONAL QUALITY

10 FRONT BASS / 11 BACK BASS Tone Control

12 FRONT TREBLE / 13 BACK TREBLE Tone Control

The strength of low-frequency sound, such as is produced by a bass, is adjusted separately for the front two and the back two speaker systems, utilizing the BASS tone controls. On each control, the outer knob part controls the left channel, and the inner ring part the right channel, hold the other channel still with the fingers of one hand.

The strength of high-frequency sound, such as is produced by cymbals, is similarly adjusted with the TREBLE tone controls.

14 LOUDNESS Switch

Pushing this switch when listening at a low volume level accents the lows and highs properly to render the reproduced sound more realistic. This compensates for the fact that the human ear becomes insensitive to the lows and highs as the sound volume is reduced.

ELIMINATING NOISE

15 LOW FILTER Switch
16 HIGH FILTER Switch

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

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

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

2-CHANNEL VS. 4-CHANNEL

⑰ FUNCTION Switch

Use to select the sound reproduction mode most appropriate for your 2-channel or 4-channel program source.

2-CH DIRECT FRONT: To hear 2-channel stereo program sources in stereo, utilizing your two front speakers only. Push this button also to hear AM and FM mono broadcasts, mono records and tapes. The built-in QS Synthesizer converts 2-channel signals to 4-channel, but does not work with mono signals.

PLUS BACK: To hear 2-channel stereo program sources from two back speakers in addition to two front speakers.

QS SYNTHESIZER—To convert (synthesize) conventional 2-channel stereo program sources to 4-channel stereo sound. The built-in QS Synthesizer operates to transform your room into a concert hall, theater and so forth.

HALL: Use this mode for program sources in which the musical instruments and the singers are gathered in the front. The QS Synthesizer will acoustically reconstruct the orchestra or band in front of you.

SURROUND: For program sources which sound effective when the musical instruments are all arranged around you, making you feel as if you were participating in the performance as a conductor or player.

SQ: To reproduce 4-channel program sources encoded with the CBS SQ matrix system. Sansui's unique Phase Matrix Circuit will reproduce them with excellent front-back separation.

CD-4/4-CH DIRECT: When wishing to hear discrete 4-channel tapes or CD-4 records, it is necessary to operate the TAPE MONITOR switch, SELECTOR switch or AUX selector button in addition to pushing the CD-4/4-CH DIRECT button of the FUNCTION switch. When reproducing CD-4 records switch the SELECTOR switch to the PHONO position.

If you wish to hear CD-4 records in 2-channel stereo, push the 2-CH DIRECT button of the FUNCTION switch.

⑱ CD-4 CARRIER LEVEL control

⑲ CD-4 SEPARATION LEFT control

⑳ CD-4 SEPARATION RIGHT control

This control, used when playing CD-4 records, lets you carry out adjustments to facilitate matching between the built-in CD-4 demodulator and your turntable. For adjustment procedures, refer to ADJUSTMENTS FOR PLAYING CD-4 RECORDS on page 12 of this manual.

OPERATING PROCEDURES

1. Operate the SELECTOR switch, AUX selector button or the appropriate tape monitor switch, depending on the program source (record, radio broadcast or tape) you wish to hear.
2. Operate the FUNCTION switch to obtain the desired 4-channel function mode.
3. Adjust the volume and balance, to suit your taste prior to listening.

OPERATION OF FUNCTION Switch

Type of Program	Production Mode	FUNCTION Switch
Mono	Mono	2-CH DIRECT
	2-channel	2-CH DIRECT
2-channel stereo	4-channel (2-channel to 4-channel conversion)	QS SYNTHESIZER
QS-encoded 4-channel	4-channel	QS
CBS SQ-encoded 4-channel	4-channel	SQ
Discrete 4-channel tape or CD-4 record	4-channel	CD-4/4-CH DIRECT (To play CD-4 records, it is necessary to use a turntable provided with a cartridge and appropriate output cables capable of reproducing such records).

PLACEMENT OF SPEAKER SYSTEMS

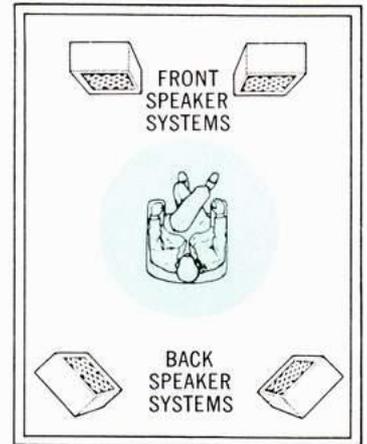
The placement of your four speaker systems is a very important consideration to enjoy 4-channel sound at its very best. Three basic placement systems will be described below. Experiment with them and find one that best suits the type of music or the layout of your room.

2-2 System

This is the standard speaker placement for 4-channel listening. In this system the four speakers are placed two in the front and two at the back roughly equidistance from your listening position.

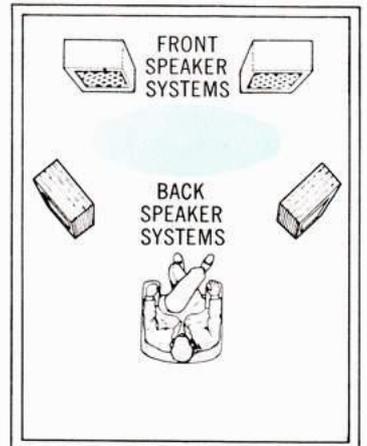
The sounds reproduced from the front and back speakers will let you feel the magnificent scale of a performance by an orchestra or the vitality of the music felt by the audience at some in-jazz spot.

It is generally accepted that the 2-2 system is the optimum speaker placement when reproducing 4-channel program sources (either discrete or matrix encoded records and tapes).



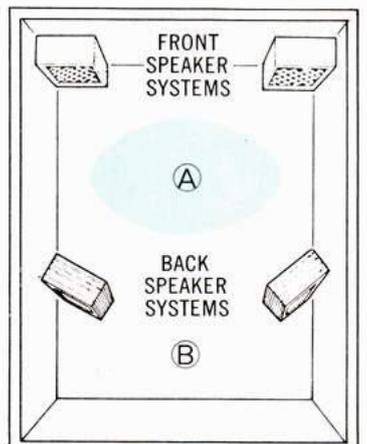
Front 2-2 System

This system moves the back two speakers to your front, and is good for objective appreciation of music.

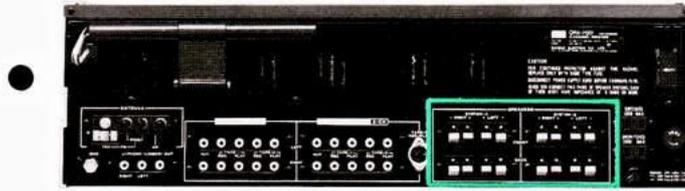
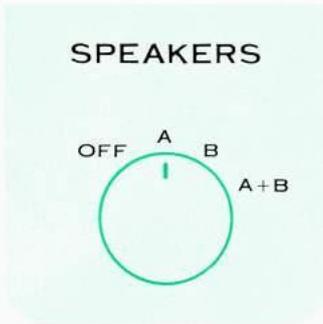


2-2/ Front 2-2 Compatible System

If your room is deep, you can place the back speaker systems as illustrated and enjoy either system. To create the 2-2 system, situate yourself near point (A); to enjoy the front 2-2 system, sit near point (B).



CONNECTION OF SPEAKER SYSTEMS



CONNECTION AND SELECTION OF SPEAKER SYSTEMS

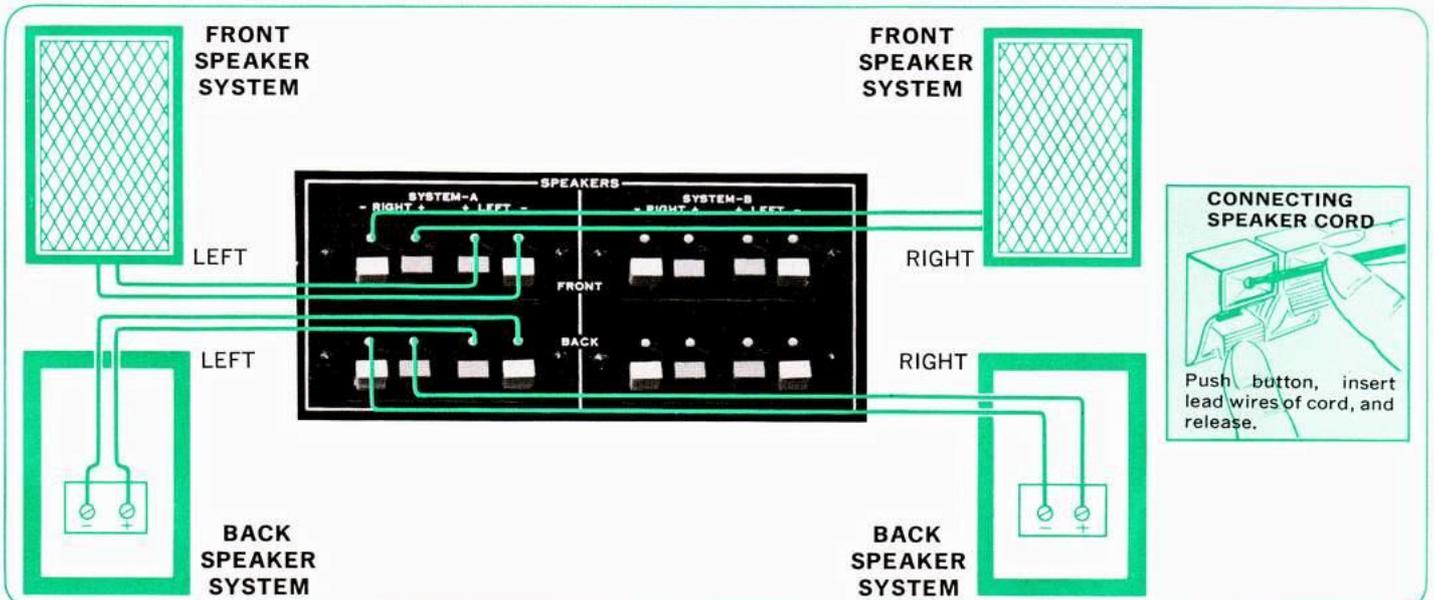
Connection of a pair of speaker systems (total of four speaker systems): this set provides as many output terminals as the number of channels for connecting speaker systems with available impedances of 4 to 16 ohms. Connect a pair of speaker systems to the appropriate terminals in the SPEAKER SYSTEM-A or -B group.

Connection of two pairs of speaker systems: When you want to enjoy the same sound produced simultaneously from two sets of speaker systems by setting the SPEAKERS switch to the A+B position, use the speaker system with an impedance of 8 ohms or more. If a speaker system with a lower impedance is ever connected, it could eventually cause the set to break down. This is because connecting two speaker systems in parallel, one or both of which has a impedance lower than 8 ohms, is equivalent to connecting a speaker system having an impedance lower than 4 ohms to the set.

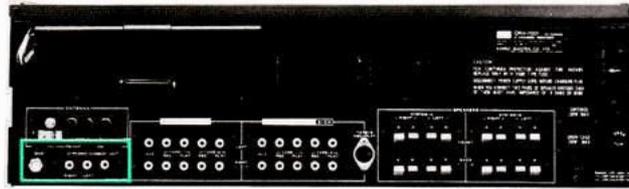
CONNECTING HEADPHONES

Headphones are connected to the PHONES jacks on the front panel. To hear the front-channel sound, plug a pair of headphones into the FRONT jack. To hear back-channel sound, plug one into the BACK jack. But be sure to turn the SPEAKERS switch to OFF first unless someone is listening to the sound from speaker systems in another room.

CONNECTIONS



PLAYING RECORDS



1. Set the SELECTOR switch to PHONO.
2. Operate your turntable to play the record of your choice.
3. Push the appropriate button of the FUNCTION switch to hear the record in either 2-channel or 4-channel stereo. In other words:

If you want to listen to 2-channel stereo using only the front speaker systems, push the 2-CH DIRECT FRONT button. To use the back speakers in addition to the front speakers, push the PLUS BACK button also. Use the same button for any monophonic record also.

If you want to convert your stereo record to 4-channel, push either the HALL or SURROUND button.

To listen to a 4-channel record produced with the regular matrix system, push the QS button.

To hear a 4-channel record produced with the CBS SQ system, push the SQ button.

To reproduce a CD-4 record in 4-channel, push the CD-4/4-CH DIRECT button.

TO PLAY CD-4 RECORDS

Prior to listening to a CD-4 record, it is necessary to adjust the built-in CD-4 demodulator of this set using the CD-4 ADJUSTMENT RECORD supplied as an accessory. Also, when any change has been made to the turntable, such as replacement of the cartridge (or stylus) and/or output signal cables, the built-in CD-4 demodulator will require some adjustments which should be carried out in accordance with ADJUSTMENTS FOR PLAYING CD-4 RECORDS on page 12 of this operating manual.

Since these adjustments are imperative for matching your turntable with the CD-4 demodulator built into the set, they should be carried out only after completion of turntable adjustments (tonearm balance, stylus pressure, etc).

Once the adjustments are completed, further adjustments are unnecessary provided that the turntable conditions such as cartridge, stylus, output signal cables, etc. are not changed.

CONNECTIONS



GROUNDING FOR TURNTABLE

Connect grounding lead of turntable to this GND terminal. But if hum noise is generated then, disconnect it.

RIGHT
LEFT



TURNTABLE
(with Magnetic Cartridge)

● If your turntable has crystal or ceramic cartridge, connect it to AUX inputs instead of PHONO inputs.

ADJUSTMENT FOR PLAYING CD-4 RECORDS

SOME FACTS ABOUT CD-4 REPRODUCTION

Signals covering a frequency range from 30kHz to 45kHz are cut into both sides of the groove of a CD-4 record. This range far exceeds the frequency range of conventional stereo and mono records which is usually from 30Hz to 15kHz. It is therefore imperative that a turntable capable of reproducing frequencies as high as 45kHz be used to play CD-4 records. A conventional turntable when playing a CD-4 record will of course reproduce sounds from each of the four speakers, but they will reproduce an unbearable degree of noise together with very poor interchannel separation among the four speakers.

In order to obtain optimum results from discrete 4-channel records processed by the CD-4 system, your turntable must fulfil the following conditions, if not the parts in question should be replaced.

1. The cartridge (and stylus) should be capable of responding to frequencies up to the region of 45kHz.
2. The output signal cable of your turntable should be of the shielded, lowcapacitance type (about 40 pico Farads/meter).

Special styli (and stylus-equipped cartridges) and low-capacitance output cables capable of reproducing CD-4 records can be purchased today from most audio stores. If you are not sure whether your turntable meets the above conditions, consult the store from which you purchased it or contact the manufacturer.

Precautions On Playing a CD-4 Record or CD-4 ADJUSTMENT RECORD

1. Use a turntable capable of reproducing CD-4 records.
2. Be sure to remove any dust or other foreign matter that may have adhered to the stylus.
3. Clean any dust, etc. from the surface of the record you are going to play with a suitable record cleaner. For optimum reproduction of CD-4 records avoid using spray type cleaners and anti-static agents.
4. Set the stylus pressure exactly as designated by the cartridge manufacturer and if the stylus tip is worn, replace it with a new one immediately.



CD-4 DEMODULATOR ADJUSTMENTS

Prior to adjustments, set the SELECTOR switch to the PHONO position and push the CD-4/4-CH DIRECT button of the FUNCTION switch. Next, set the VOLUME control to the volume level of your choice.

Turn the CD-4 demodulator adjustment controls (CARRIER LEVEL, CD-4 SEPARATION LEFT and SEPARATION RIGHT) using a coin that fits into the slot on the head of the control shafts.

30kHz Carrier Level Adjustments

1. Play band 2 (30kHz Carrier Level Adjustment Tone) of the CD-4 ADJUSTMENT RECORD.
2. Turn the CARRIER LEVEL control slowly clockwise until the reproduced sounds are crystal clear and free of distortion.

CD-4 Channel Separation Adjustments

1. Turn the MAIN BALANCE control fully counterclockwise so that the sounds will be heard only from the back speakers.
2. Turn the BACK LEFT-RIGHT BALANCE control fully counterclockwise.
3. Play band 3 (CD-4 Adjustment Tone) of the CD-4 ADJUSTMENT RECORD.
4. Turn the CD-4 SEPARATION LEFT control so that the sounds emanating from the left back speaker are minimum.
5. Turn the BACK LEFT-RIGHT BALANCE control fully clockwise, then turn the CD-4 SEPARATION RIGHT control so that the sounds from the right back speaker are minimum.

Channel Balance Adjustments

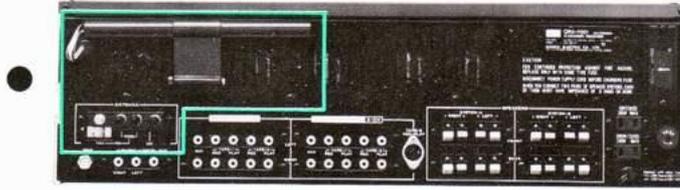
1. Play band 4 (Channel Balance Adjustment Tone) of the CD-4 ADJUSTMENT RECORD.
2. Adjust the MAIN, FRONT and BACK BALANCE controls so that the sounds emanating from the four speakers are of equal volume (Refer to page 6, 5 VOLUME & BALANCE, of this operating manual.)

Channel Identification

1. Play band 5 of the CD-4 ADJUSTMENT RECORD and confirm that the chimes are heard in the sequence of left front, left back, right back and right front. The level at which you hear the chimes from each speaker will not necessarily be equal. Listen for correct location of the chimes rather than their volume levels.
2. If there is a mistake in channel connections it should be corrected at once.
3. Carry out CD-4 Channel Separation Adjustments and Channel Balance Adjustments once again.

RECEIVING RADIO BROADCASTS

SELECTOR



1. Set the SELECTOR switch to FM AUTO or AM (to FM AUTO to receive an FM broadcast, to AM to receive an AM broadcast). If the received broadcast is stereophonic, the legend FM STEREO will appear in the black dial window.

If you are trying to tune in a weak FM station, set the SELECTOR switch to FM MONO (MUTING OFF) and then tune.

2. Tune in the desired station by adjusting the Tuning Control.

If the FM stereo reception is too noisy for pleasant listening, set the SELECTOR switch to FM MONO (MUTING OFF). The broadcast will be received in mono but the noise will be substantially decreased.

3. Push the appropriate button of the FUNCTION switch to hear the broadcast in 2-channel or 4-channel stereo.

INSTALLING ANTENNAS

AM ANTENNA: Once the set is in place, simply slide out the ferrite bar antenna built into the rear panel.

Since AC power supply cords and speaker cables are often the causes of noise, be sure that they are not allowed to come close to the antenna.

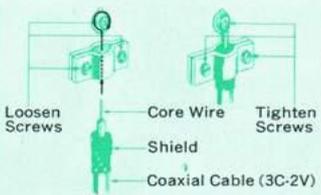
FM ANTENNA: When ever possible, a special outdoor FM antenna should be installed for stable, noise-free reception of your favorite FM stations.

If the antenna input signals are very weak, then really good hi-fi reception cannot be expected, even with sets of the highest performance efficiency. To get the very best performance out of your set it is necessary to use an FM antenna similar to those used for television pick up. Install the outdoor FM antenna referring to "HINTS FOR BETTER RECEPTION."

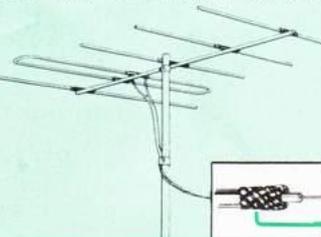
When using the "T" shaped feeder FM antenna, supplied with this set, as a temporary measure, connect it to the FM 300Ω ANTENNA terminals on the rear panel of the set. Spread the antenna out in the shape of a "T". Then while listening to your favorite FM station change the direction and location until the position where optimum, noise-free reception is found. Then secure the antenna (avoid contact with metal fasteners).

CONNECTIONS

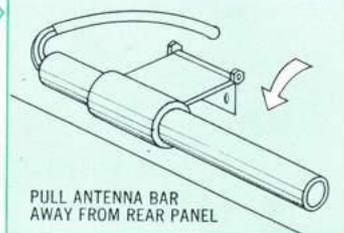
HOW TO CONNECT COAXIAL CABLE TO FM 75Ω TERMINAL



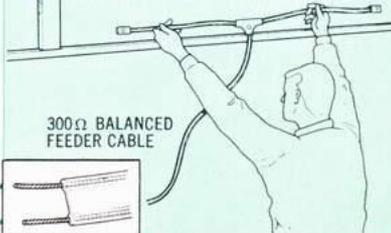
OUTDOOR FM ANTENNA (75Ω)



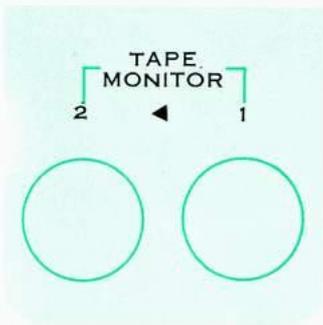
AM FERRITE BAR ANTENNA



INDOOR 'T'-SHAPED FM ANTENNA



TAPE RECORDING & PLAYBACK



Playback Procedure: 1. Push the one of the TAPE MONITOR switches, depending on which tape playback circuit is connecting the tape deck in use.

2. Operate your tape deck to start playback.

3. Push the appropriate button of the FUNCTION switch to suit the type of program source you are reproducing.

Recording Procedure: 1. Prepare the program source you wish to record and keep it ready for operation. The SELECTOR switch, TAPE MONITOR switch or the AUX button must be operated. If you wish to copy a recorded tape, connect the tape deck that you wish to use for recording to the TAPE-2 circuit.

2. Operate the tape deck and start recording. Adjust the record levels with the controls provided on the tape deck. The FUNCTION switch, the volume and tone controls on the set do not affect the sound to be recorded.

3. To monitor the sound being recorded, follow the same procedure as for playback after making certain that the tape deck itself is adjusted to permit monitoring. If the tape deck only has a combined record/playback head, keep the TAPE MONITOR switches off (protruding) and hear the sound before it is recorded.

IMPORTANT

1. A stereo tape deck should be connected to the 4-CHANNEL FRONT/2-CH TAPE-1 (or TAPE-2) jacks.

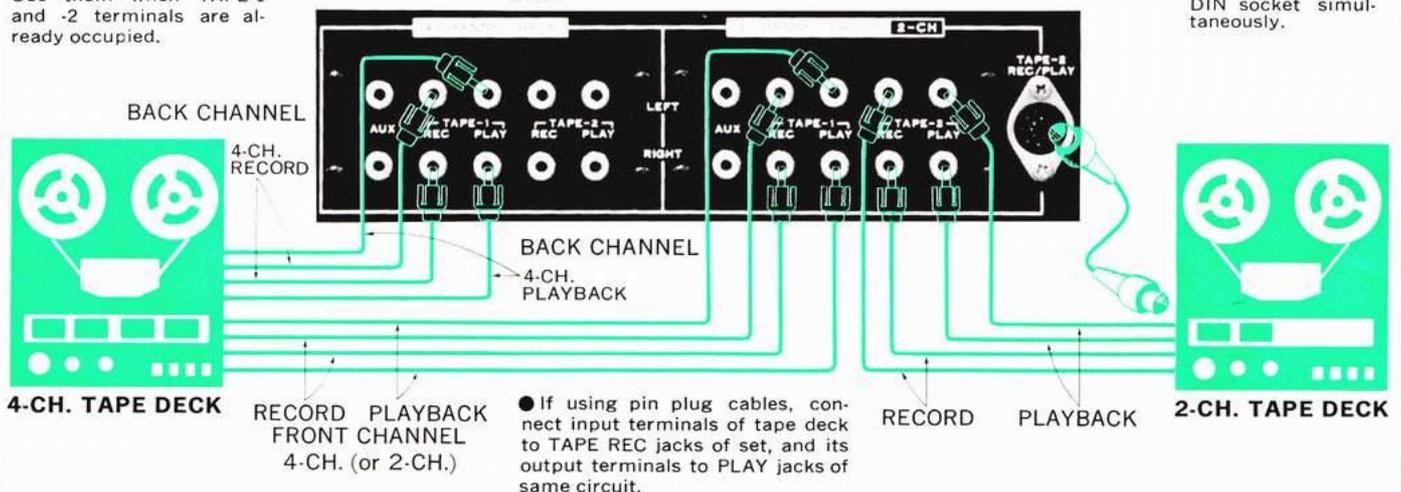
2. The FUNCTION switch has nothing to do with the sound signal to be recorded on the recording tape. Therefore the 4-channel stereo sound from 2-channel sources cannot be recorded. If you wish to convert 2-channel sound to 4-channel, it should be done at the time of playback.

CONNECTIONS

● AUX terminals may be used to connect tape player (or deck) for playback only. Use them when TAPE-1 and -2 terminals are already occupied.

● When reproducing 2-channel stereo tape, connect tape deck to 4-CHANNEL FRONT/2-CH TAPE-1 (or TAPE-2) jacks.

● DO NOT connect tape deck to TAPE-2 REC and PLAY pin jacks and REC/PLAY DIN socket simultaneously.



CONDITIONS MISTAKEN FOR BREAKDOWNS

PROGRAM SOURCE	SYMPTOM	PROBABLE CAUSE	WHAT TO DO
Tuner.	* Noise during AM reception.	* Interference by adjacent stations (called beat interference). * TV set is being used simultaneously.	* Peculiar to AM waves, and unavoidable to some extent. * Move TV set away from tuner and amplifier.
	* Noise heard at certain hours, in certain areas or over part of dial during AM reception.	* Interference by nearby electrical appliances.	* Attach noise limiter to appliance producing noise. * In some cases, can be eliminated by reversing power cord plug-AC outlet connections.
	* Pop noise during FM reception.	* Ignition noise from nearby automobile, motorcycle, etc. Note: In many cases, high-frequency noise during radio reception cannot be entirely eliminated. Try turning on set's HIGH FILTER switch or turning TREBLE control counterclockwise.	* Adjust antenna location and height for maximum sensitivity. * Keep antenna away from streets.
Turntable.	* Hum noise.	* Unshielded cables used to connect turntable. * Minus (ground) wire of connecting cable is not connected completely. * Turntable motor or tonearm is not grounded.	* Use regular shielded cables. * Examine connecting cables, especially their plugs. * Connect grounding lead of turntable to set's GND terminal.
	* Loud oscillating noise.	* Turntable is placed on top of or too close to speaker systems.	* Place thick cushion between turntable and speaker systems. * Change location of turntable and speaker systems.
	* Sound is shaky.	* Dust on record or pickup stylus. * Worn pickup stylus. * Improper stylus pressure.	* Clean record and pickup stylus. * Replace pickup stylus. * Adjust stylus pressure.
Tape Deck.	* Hiss noise.	* Magnetic heads are magnetized.	* Demagnetize heads. * Turn on HIGH FILTER switch. * Connect noise reduction adaptor.
	* Sound is not clear.	* Dust on magnetic heads. * Tape is not pressed tight to heads.	* Clean heads. * Align tape transport mechanism.
General.	* When left and right channel sound volumes are balanced with Set's BALANCE control, it does not come to center position.	* Left and right channel signal strengths vary with program source. * Left and right speaker systems have different efficiencies.	* Never mind. Optimum stereo effect is obtained by adjusting BALANCE control so that sound comes from midway point between two speaker systems.
	* Musical instruments and singer not located clearly.	* Left-right, plus-minus connections of speaker systems input cables are wrong.	* Examine connections.

SIMPLE MAINTENANCE HINTS

CONNECTION CORDS

Be sure to connect your turntable, tape deck and speakers firmly. Be careful that the connection plugs are not loose from the jacks or the leads of the connection cords are not touching other parts. If the connections are imperfect, noise may be generated and, eventually, the set may break down. It is advisable to follow the instructions given by the manufacturer of the equipment you are connecting.

CONNECTION CORDS WITH RCA TYPE PLUGS: These are shielded cords with a RCA type plug soldered to each end. They are used to connect a turntable, tape deck and other program source components. Try to keep the cords as short as possible. If you use long cords, the high-frequency signals tend to be attenuated. Their maximum length should be two meters (8 feet). If such cords are already supplied with your tape deck or turntable, it is advisable to use them.

DIN RECORD/PLAYBACK CORD: This is a combined 2-channel stereo record/playback cord, standardized in Germany. This set has a special 5-pin socket marked TAPE REC/PLAY on the panel to accept such a cord. It can be used only if your tape deck has an identical socket.

PVC CORDS: These are used to connect your speakers, and are basically the same type of vinyl-covered cords as the power cords for your TV set or radio. Peel the vinyl covering off each end of the cord, carefully intertwine the lead wires, then connect it to your speaker and the set. To prevent mis-connection, it is advisable to paint color to each cord. Color-coded cords are available at some appliance stores.

DISCRIMINATOR OUTPUT TERMINAL

Four-channel stereo is fast becoming popular as a means of reproduction of the live sound field. Four-channel FM broadcasts are already underway in many areas of the world using Sansui QS and other matrix 4-channel systems. The discrete 4-channel system is also expected to be introduced to FM in the not to distant future. To receive discrete 4-channel FM broadcasts, you will need an adaptor in addition to the set itself. The DISCRIMINATOR OUTPUT terminal on the set's rear panel is for connecting such adaptor.



ABOUT THE SPEAKER PROTECTION CIRCUIT

This set offers double protection for the important power transistors and your speakers. One, an electronic relay-equipped protection circuit; two, special quick-acting fuses that instantly blow should an abnormal condition occur inside the set or at the speaker terminals. Together, they protect the power transistors and your speakers from such accidents as a careless short-circuit of the speaker terminals, a mis-connection of the speaker cords.

The relay-equipped protection circuit also serves to cancel the unpleasant popping noise that is generated when the power switch is turned on. It also works the same way when a stereo headphone set is inserted to the set's front-panel jack. To allow stable operation of the electronics involved, the set itself is designed so that sound will be heard after a few seconds pause after the POWER switch is turned on.

IF SPEAKER SYSTEMS ARE OUT OF PHASE

If you were careless when connecting the speaker systems and the plus and minus polarities are not in the same order for the left speaker system and the right speaker system, they would be reverse-phased. This will cause a 'drop-out' of sound at the extreme ends and the middle of the line between the two speaker systems, creating a sense of discontinuation and damaging the sense of stereo perspective. Also, the bass sound would lose much of its powerfulness and become rather unnatural.

While wrong connection of plus and minus polarities is most commonly seen at the speaker terminals, it could also happen in the phono cartridge or at the time of connecting various program source components.

Once that condition is corrected and the polarities are in order, you can detect it by reproducing a mono source (such as AM broadcast). Sound will seem to come from a point halfway between the two speakers.

HOWLING AND HUM

Take care never to place a turntable on or too near a speaker system, or the vibration produced by the speaker system is transmitted and causes an oscillating phenomenon called howling. It is best to keep these components completely separated, but if this is impossible, place a thick cushion between them. Humming, in contrast, is a phenomenon caused by incomplete or incorrect turntable-amplifier connections. Should this occur, check to see if all connections are completely made and if the connecting cables are sufficiently thick. Hum noise may sometimes be eliminated by connecting the grounding lead of the turntable to the GND terminal on the rear panel.

SIMPLE MAINTENANCE HINTS

BEFORE SENDING THE SET OUT FOR SERVICING

Some of the symptoms and conditions which seem to indicate a breakdown of the set are caused by wrong operation or by external components. These can be spotted with a simple examination and restored to normal. If you suspect a breakdown, please confirm the connections and your operating procedure once more.

Here are some useful hints:

First, if you hear absolutely no sound from the set, inspect your turntable, tape deck and other program source components, then examine this set and your speakers in that order, paying attention to both their connections and operation. Be sure to reduce the volume beforehand.

Second, if the sound fails to come out only when you play records, reproduce a recorded tape or receive broadcasts, then chances are that only the particular program source component may be wrongly connected.

If loud hum noise of constant loudness is heard, it may be suppressed by connecting the grounding lead or terminal of your turntable or tape deck to the set's GND terminal, using PVC cord. Or, more simply, reversing the connection between the set's power cord plug and the wall AC outlet may stop it.

CHECK LIST OF OPERATION

1. Is the power switch turned on?
2. Are tape monitor switches not set to PLAYBACK although you do not wish to reproduce a recorded tape?
3. Is the SELECTOR switch turned to the correct position?
4. Is the volume control turned to an appropriate level?

CHECK LIST OF CONNECTIONS

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

ABOUT THE QUICK-ACTING FUSES

When a Selector Indicator is glowing, if no sound comes out of one or more of the four speaker systems, examine their connections and operation once. If nothing is wrong with them, it is possible that the quick-acting fuse or fuses protecting the power transistor have blown.

If this should happen, disconnect the power cord from the wall AC outlet immediately and check the four quick-acting fuses inside the set. To reach them, remove the wood case from the set. If you find any of them blown, discover and eliminate the cause of the blowout, and replace it with a 4-ampere quick-acting fuse supplied. Probable causes of the blowout include excessively large input signals and a short-circuit at the speaker terminals.

SHOULD THE POWER FUSE BLOW

If no Function Indicator should glow and the set simply remains dead even after you have turned on its POWER Switch, it is possible that its power fuse has blown.

If this happens, disconnect the power cord from the wall AC outlet at once and examine the power fuse on the rear panel. If you find it blown, replace it with a new glass-tubed fuse of the rated capacity (7-ampere for 100 to 117 volts, 4-ampere for 220 to 240 volts).

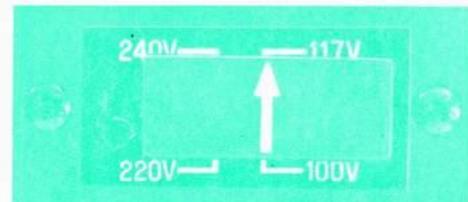
Never use a fuse of a different capacity or a piece of wire, even as a stop-gap measure, or serious danger could result.

ABOUT THE VOLTAGE ADJUSTMENT

Your set is adjusted to operate at the correct power supply voltage of your area prior to shipment from our factory.

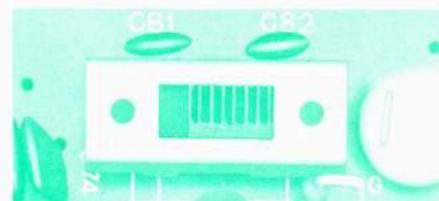
If you move after purchasing it or send it as a gift to a friend living in an area where the voltage is different, it may be necessary to adjust its Voltage Selector.

To adjust it, remove the two screws securing the name plate on the rear panel, then set the arrow mark on the Voltage Selector Plug to the correct voltage indication (100, 117, 220 or 240 volts). It may be necessary to replace the power fuse as well whenever the voltage has changed. For operation at 100 to 117 volts, use a 7-ampere fuse. For operation at 220 to 240 volts, use a 4-ampere one.



THE FM DE-EMPHASIS SWITCH

Use this switch inside the set only if you move to an area where the FM de-emphasis characteristic is different. It is adjusted to the correct de-emphasis characteristic of your area in our factory prior to shipment, so there is normally no need to touch it. The correct de-emphasis is 50 μ sec for Japan and Europe, and 75 μ sec for the U.S.A. and Southeast Asia.



SPECIFICATIONS

AUDIO SECTION

CONTINUOUS RMS POWER OUTPUT	35W per channel × 4 (four channels driven)
LOAD IMPEDANCE	8Ω
POWER BAND	20 to 20,000Hz
TOTAL HARMONIC DISTORTION	less than 0.4% (from AUX)
Music power(IHF)	280W (4Ω 1,000Hz) 220W (8Ω 1,000Hz)
Continuous rms power output	45×4 (8Ω 1,000Hz) 45×2W (two channels driven, 8Ω 1,000Hz)
INTERMODULATION DISTORTION (at rated power output 70Hz:7,000Hz=4:1 SMPTE method)	less than 0.4% (from AUX)
FREQUENCY RESPONSE (at 1 Watt output)	15 to 30,000Hz ±1dB
EQUALIZATION	(RIAA curve) 30 to 15,000Hz ±1dB
DAMPING FACTOR	10 (8Ω)
INPUT SENSITIVITY AND IMPEDANCE (1,000Hz, for rated output)	
2-CHANNEL PHONO	2.5mV 50KΩ (max. input capability; more than 150mV at 0.5% distortion)
4-CH./2-CH. AUX	100mV 50KΩ
4-CH./2-CH. TAPE-1 PLAY Pin Jacks	100mV 50KΩ
4-CH./2-CH. TAPE-2 PLAY Pin Jacks	100mV 50KΩ
REC/PLAY DIN Socket	100mV 50KΩ
RECORDING OUTPUT	
4-CH./2-CH. TAPE-1 REC Pin Jacks	100mV
4-CH./2-CH. TAPE-2 REC Pin Jacks	100mV
REC/PLAY DIN Socket	30mV
CHANNEL SEPARATION (at 1,000Hz)	
2-CH. PHONO	better than 50dB
4-CH./2-CH. AUX	better than 50dB
HUM AND NOISE (IHF)	
2-CH. PHONO	better than 70dB
4-CH./2-CH. AUX	better than 80dB
SWITCHES AND CONTROLS	
BASS	+10dB, -10dB, at 50Hz
TREBLE	+10dB, -10dB, at 10,000Hz
LOUDNESS	+8dB at 50Hz +3dB at 10,000Hz
FILTERS	
LOW (front & back)	-10dB at 50Hz (6dB/oct.)
HIGH (front & back)	-10dB at 10,000Hz (6dB/oct.)
QS SYNTHESIZER/DECODER	QS regular matrix system with QS Vario-Matrix circuit
CD-4 DEMODULATOR	
Input Sensitivity	2.5mV (1 to 10mV adjustable)
Input Impedance	50KΩ
Separation (standard test signal at 1,000Hz)	
Left to Right	40dB
Front to Back	25dB
Frequency Response (standard test signal at REC output)	30 to 15,000Hz (main-channel)

TUNER SECTION

<FM>	
TUNING RANGE	88 to 108MHz
SENSITIVITY (IHF)	1.9μV (max. input capability: more than 120dB)
TOTAL HARMONIC DISTORTION	
MONO	less than 0.3%
STEREO	less than 0.5%
SIGNAL TO NOISE RATIO (mono)	better than 70dB
SELECTIVITY	better than 70dB
CAPTURE RATIO (IHF)	less than 1.5dB
IMAGE REJECTION	better than 75dB
IF REJECTION	better than 90dB
SPURIOUS RESPONSE	better than 80dB
STEREO SEPARATION (at 1,000Hz)	better than 40dB
FREQUENCY RESPONSE	30 to 15,000Hz $^{+0.5}_{-3.0}$ dB
FM DE-EMPHASIS	50μS, 75μS
ANTENNA INPUT IMPEDANCE	300Ω Balanced, 75Ω Unbalanced
<AM>	
TUNING RANGE	535 to 1,605KHz
SENSITIVITY (bar antenna)	53dB/m
SELECTIVITY	better than 30dB
IMAGE REJECTION	better than 80dB/m
IF REJECTION	better than 80dB/m
GENERAL	
POWER REQUIREMENTS	
Voltage	100, 117, 220, 240V 50/60Hz
Consumption	220W (rated), 530W (max.), 610VA (max.)
DIMENSIONS	540mm (21 $\frac{5}{16}$ " W 161mm (6 $\frac{3}{8}$ " H 403mm (15 $\frac{7}{8}$ " D
WEIGHT	23.8 Kg (52.5 lbs) net 26.5 Kg (58.4 lbs) packed

LIST OF ACCESSORIES

1. FM ANTENNA	1
2. QUICK-ACTING FUSES (4A)	4
3. OPERATING INSTRUCTIONS	1
4. OPERATING INSTRUCTIONS SHEET	1

Operating Instructions Stock No. 9208400

The Sansui logo consists of the word "Sansui" in a white, italicized serif font, set against a solid black rectangular background.

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