

MCSTM
Series

Modular Component Systems

Stereo Receiver
Owner's Handbook



Dear Penney Customer:

The product you have purchased has been carefully engineered and manufactured to give you dependable operation. Read this handbook before operating your unit to become familiar with its features, and assure your obtaining the performance that will bring you continued enjoyment for many years. In the event you require technical assistance please contact your local retail store or catalog desk. Retain this handbook for future reference.

In the spaces provided below, record the model and serial numbers located on the back of the receiver cabinet.

MCS™ Modular Component Systems
Series Stereo Receiver

Model _____ SN _____

Retain this number for future reference.

WARNING . . .

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

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PRODUCT FEATURES/CAUTION

Product Features

- Pure Complementary Output-Capacitor-Less Circuit clears 53 Watts per channel at 8Ω 20 – 20K Hz with no more than 0.5% Total Harmonic Distortion.
- FM front end combines an FET (Field Effect Transistor) – known for its high sensitivity and superior interference rejection capabilities – and a precision 3-gang tuning capacitor. Accurate and sensitive FM reception is assured.
- FM IF amplifier utilizes a differential amplifier and ceramic filters for excellent FM selectivity.
- FM Multiplex demodulator employs a high-performance PLL (Phase-Locked-Loop) IC for stable FM reception with enhanced channel-to-channel separation at all times.
- Preamplifier section amplifies and controls minuscule musical signals and features an accurate phono equalizer, formed of a differential input and three-stage direct-coupled output. The use of select low-noise transistors has improved the signal-to-noise ratio to 75 dB.
- In addition to ordinary tone control Bass & Treble, this unit is provided with Presence control (Mid. Range Control). You can adjust the middle frequencies to increase or decrease the sound of the fundamentals of most musical instruments.

- Two logarithmically calibrated peak level power meters indicate exact instant by instant power output. You can know at a glance what your speakers are taking in.
- A power relay type protection circuit is provided to prevent the destruction or damage of power output transistor and speaker systems. (See Page 5)

Important

Fuse Replacement

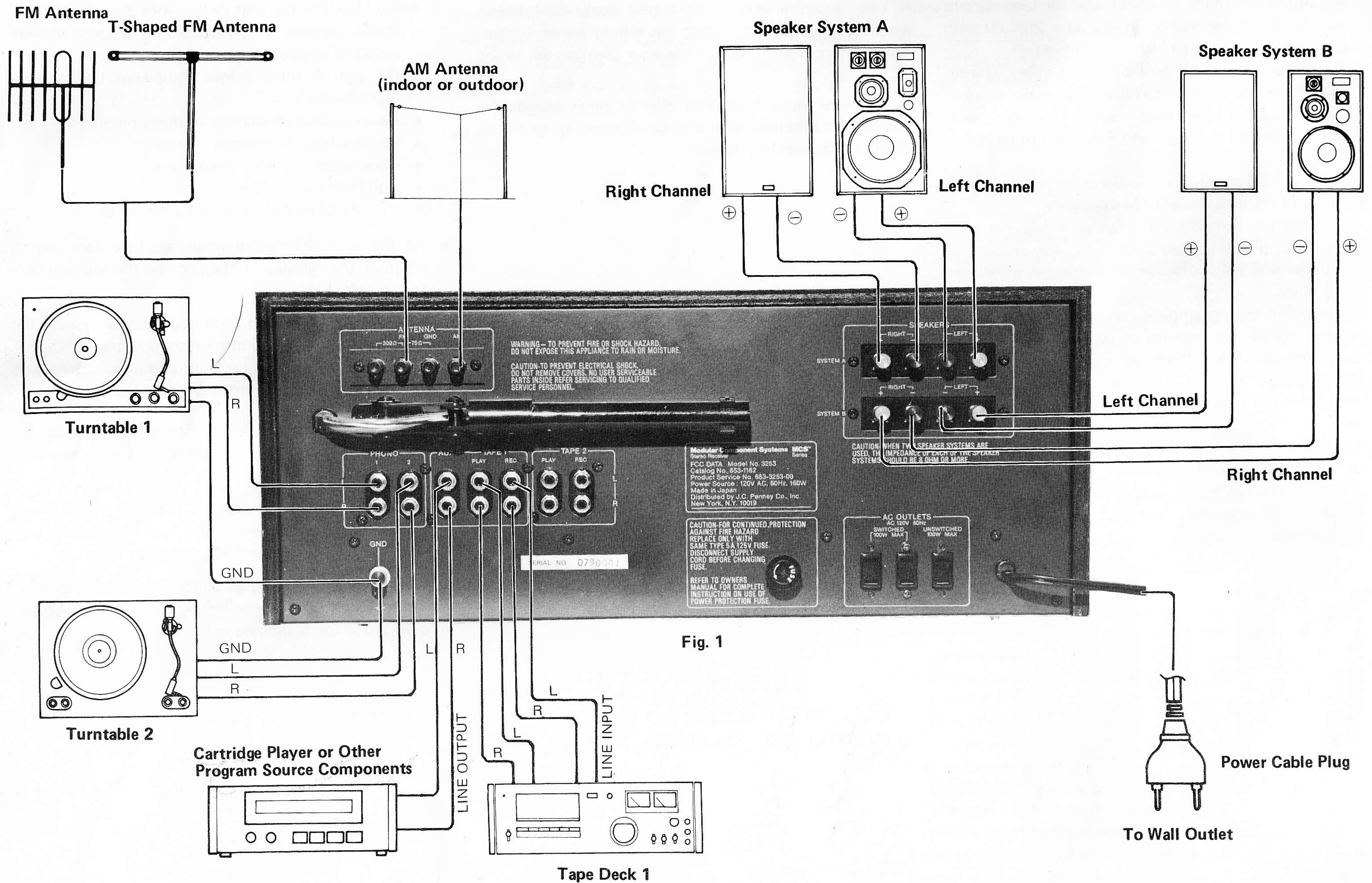
Fuse installed in the fuse holder on rear panel is connected to AC primary circuit. To prevent hazard, be sure to disconnect power supply cord before changing fuse.

And, for continued protection against fire hazard, replace with only same type 5A 125V fuse.

Caution

- Avoid installing the unit in locations described below:
 - Places exposed to direct sunlight or close to heat-radiating appliances such as electric heaters.
 - On top of other stereo equipment that radiates much heat.
 - Places lacking ventilation, or dusty places.
 - Places subject to constant vibration.
 - Places close to electric transformers.
 - Humid or moist places.
 - Vicinity of an AM radio or TV set in use.
- As this is a high-output amplifier, take care not to obstruct the ventilating openings on the top and bottom panels.
- No sound will be heard from your speaker systems for a few seconds after you turn on the amplifier's POWER switch. This is because the built-in muting circuit is at work, and not because the amplifier is faulty.
- Operate the switches and controls correctly as described in this manual. Do not apply undue stress to them.
- Use soft, dry cloth to wipe the cabinet. Never use thinner or similar solvents to clean the cabinet, and avoid spraying any insecticide containing thinner.
- Before turning the POWER switch on for the first time, make certain that all connecting cords and the power cable are properly plugged in.

DIAGRAM OF CONNECTIONS



CONNECTING INSTRUCTIONS

General Instructions

When making connections between your unit and other equipment, be sure to match the plus/minus polarities and left/right channels correctly —e.g., the amplifier's *left*-channel *plus* speaker terminal should be correctly connected to the *plus* terminal of your speaker system for the *left* channel.

About Protection Circuit

A protection circuit is built in this unit to avoid damage to your speaker systems when a DC voltage appears in the output for some reason, or damage to the power transistors when the speaker terminals are accidentally short-circuited. This circuit also works as a muting circuit to eliminate the unpleasant popping noise usually generated when the power switch is turned on. Thus, no sound will be heard from your speaker systems for three to five seconds after you turn the power switch on.

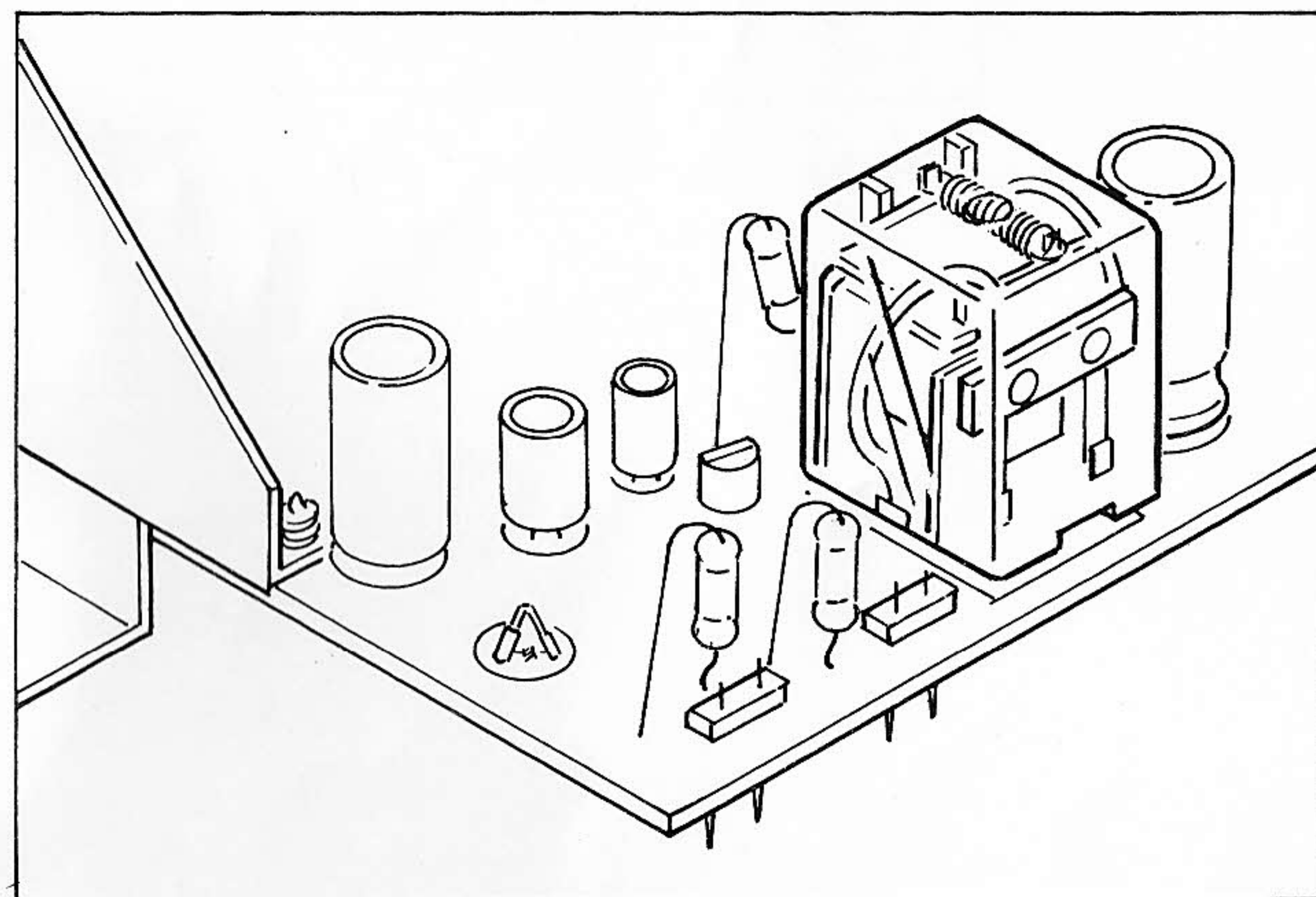


Fig. 2 Protection Circuit

Connecting Speaker Systems

This unit is equipped with two sets marked SYSTEM-A and SYSTEM-B of speaker output terminals. Connect your first pair of speaker systems to the SYSTEM-A terminals as follows:

- 1) As shown in Fig. 3, connect the speaker system placed on the right-hand side of your room to the red and black terminals marked RIGHT, and the one placed on the left-hand side of your room to the terminals marked LEFT.
- 2) The red terminal is electrically "plus", the black terminal "minus", and each of your speaker systems also has similar terminals. Make certain that the amplifier's plus terminal is connected with the speaker system's plus terminal, and the amplifier's minus terminal with the speaker system's minus terminal.

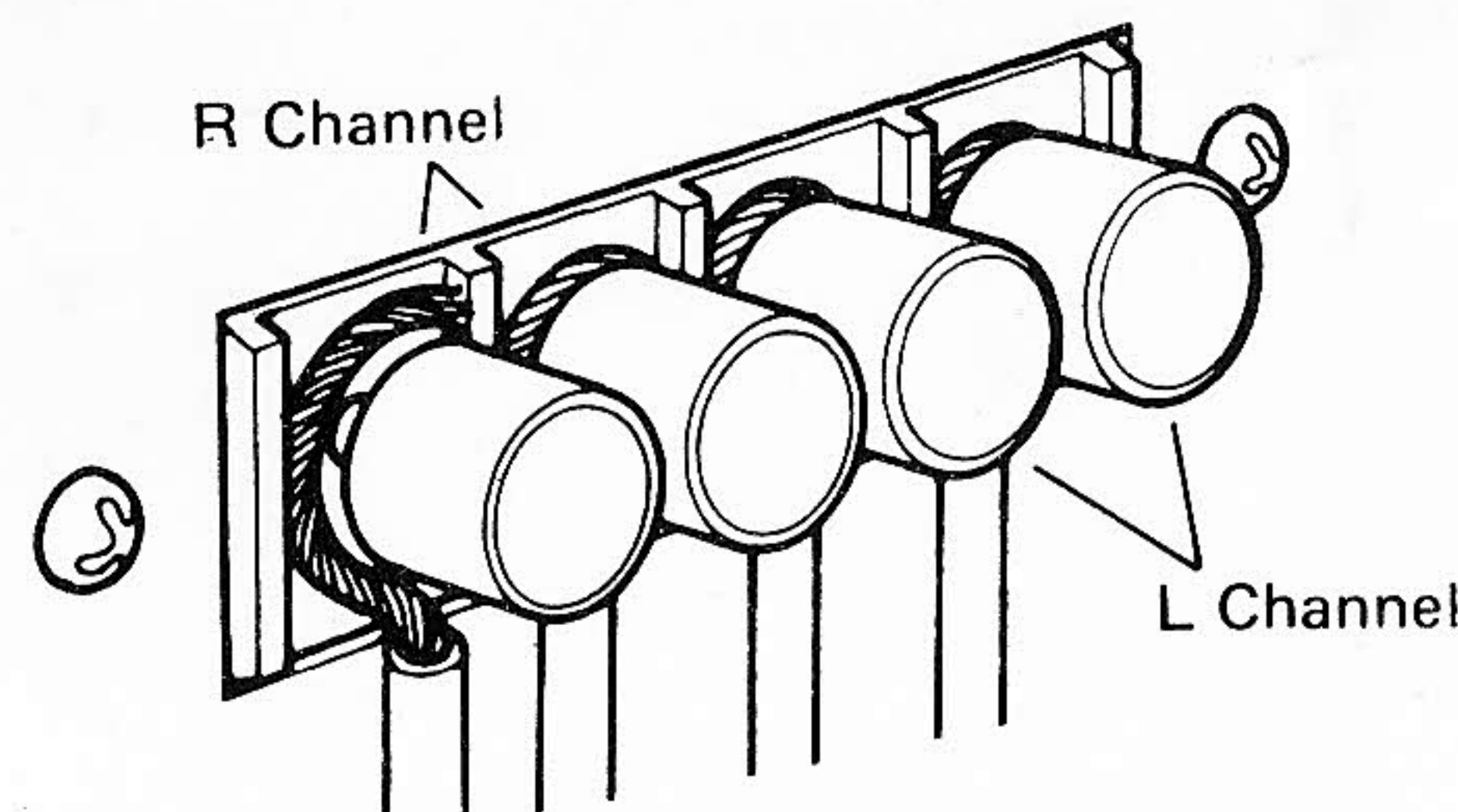


Fig. 3 Connecting Speaker Systems

- 3) If you wish to use a second pair of speaker systems, connect them to the SYSTEM-B terminals. In this case, however, each of the four speaker systems connected must have an impedance of at least 8 ohms. If you connect speaker systems having an impedance of less than 8 ohms, the built-in protection circuit may be activated to protect the amplifier from overloading.

Connecting Tape Decks

This unit is equipped with two sets of record/playback terminals for tape decks on the rear panel. To connect an open reel (reel-to-reel) or cassette tape deck, connect its recording input terminals with the amplifier's REC terminals, and its playback output terminals with the amplifier's PLAY terminals. Take care to connect the tape deck's left-channel terminals to the amplifier's left-channel terminals, and the tape deck's right-channel terminals to the amplifier's right-channel terminals. (See Fig. 4)

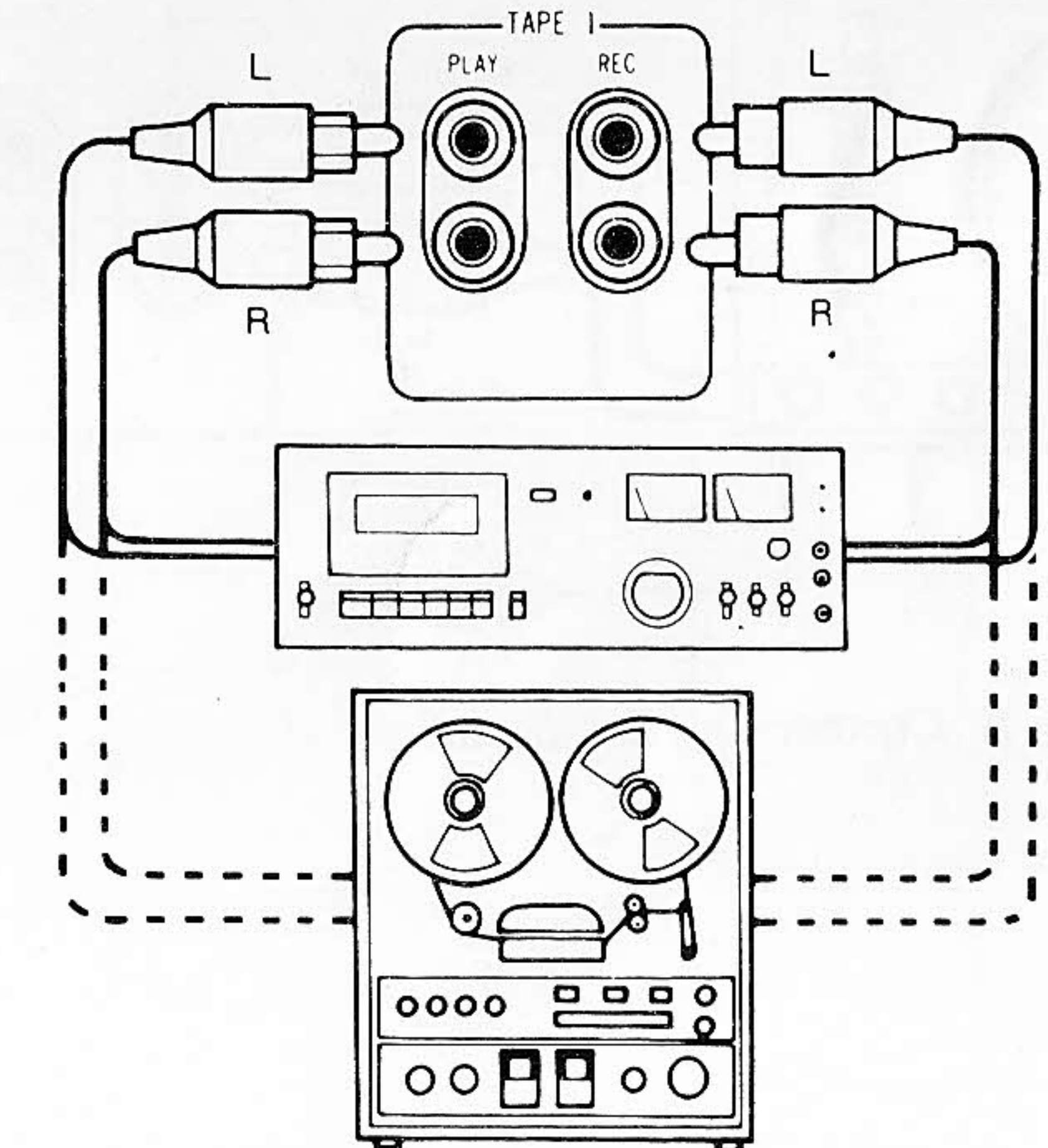


Fig. 4 Connecting Tape Decks

Connecting a Turntable

This unit is equipped with two pairs of input terminals for turntables (record players, phonographs). Connect the output cords of your turntable to the PHONO 1 terminals, taking care to connect the left-channel output cord to the amplifier's "L" terminal, and the right-channel output cord to the "R" terminal. Also, connect the grounding lead of your turntable to the amplifier's grounding terminal marked GND. (See Fig. 5)

If you wish to connect another turntable, connect it to the PHONO 2 terminals after removing the short-circuit pin plugs inserted in them.

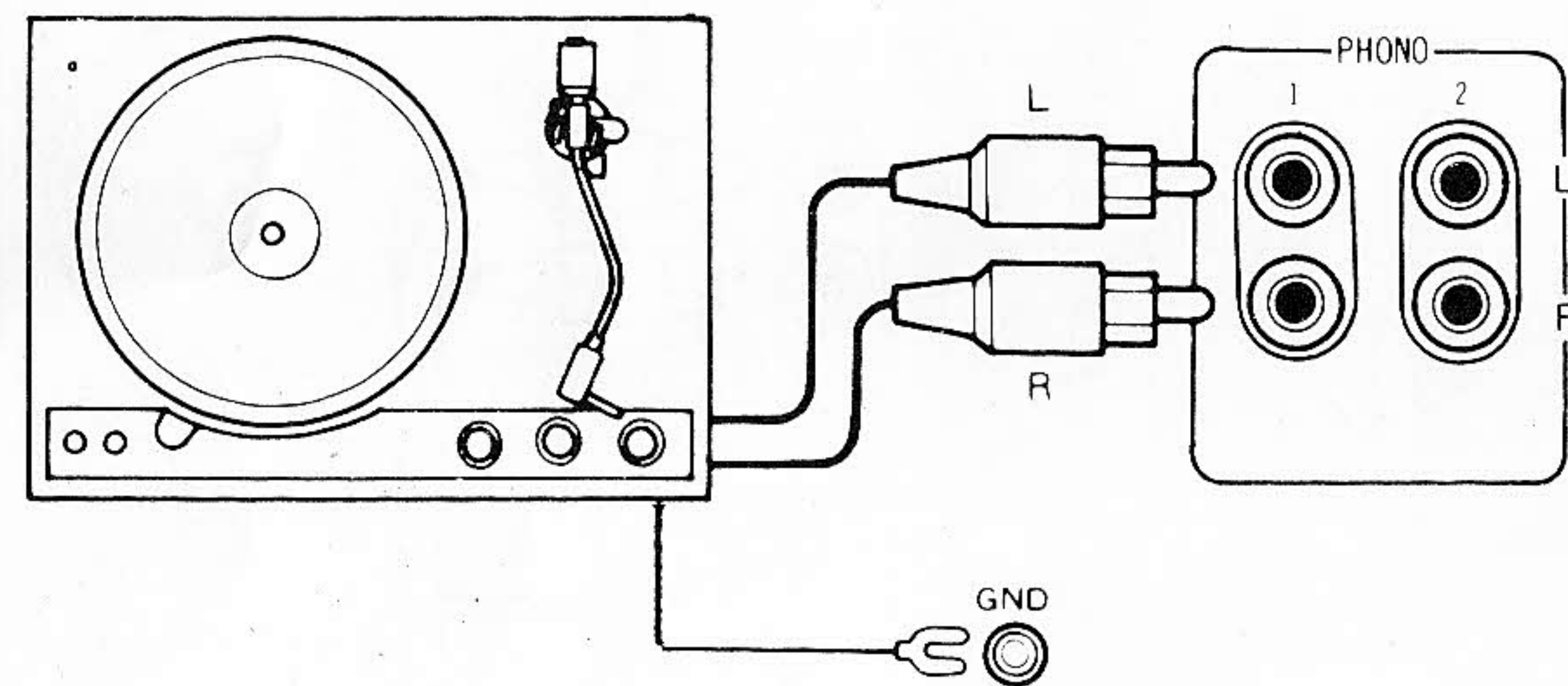


Fig. 5 Connecting a Turntable

Connecting to AUX Terminals

The AUX terminals are provided so that you can connect other program source components—a cartridge tape player, or second tuner, etc.

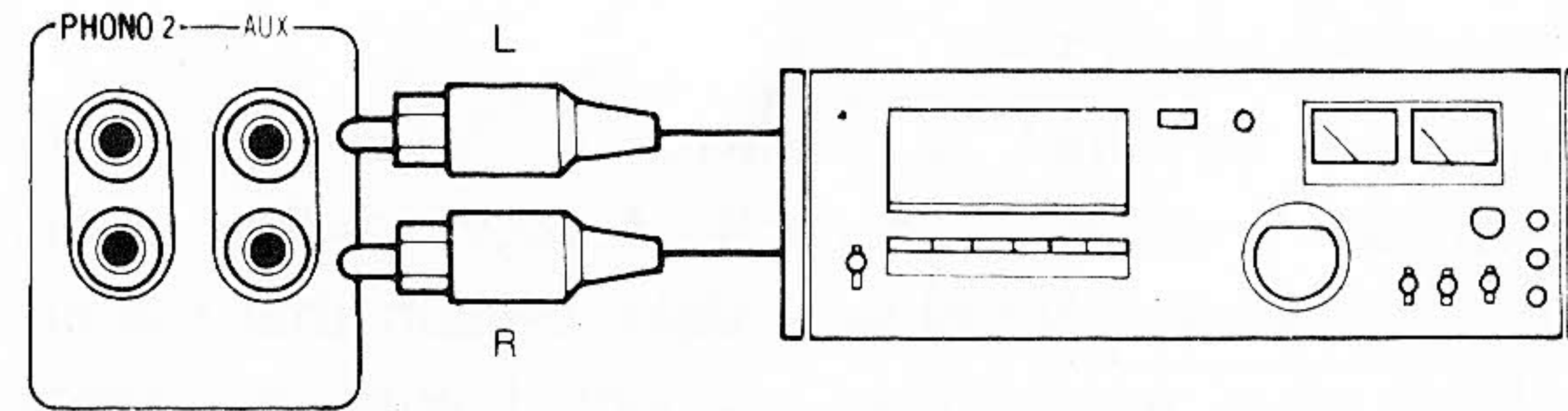


Fig. 6 Connecting to AUX Terminals

Connecting a Simple T-shaped FM Antenna

Connect the T-shaped feeder cable antenna to the tuner's 300-ohm antenna terminals, then operate the tuner for receiving an FM broadcast and fix the antenna on a wall or ceiling in the location that gives you the best reception.

In areas close to FM stations, this simple antenna gives you clean reception. But, if you live far from broadcast stations, it is recommended that you install an exclusive FM outdoor antenna.

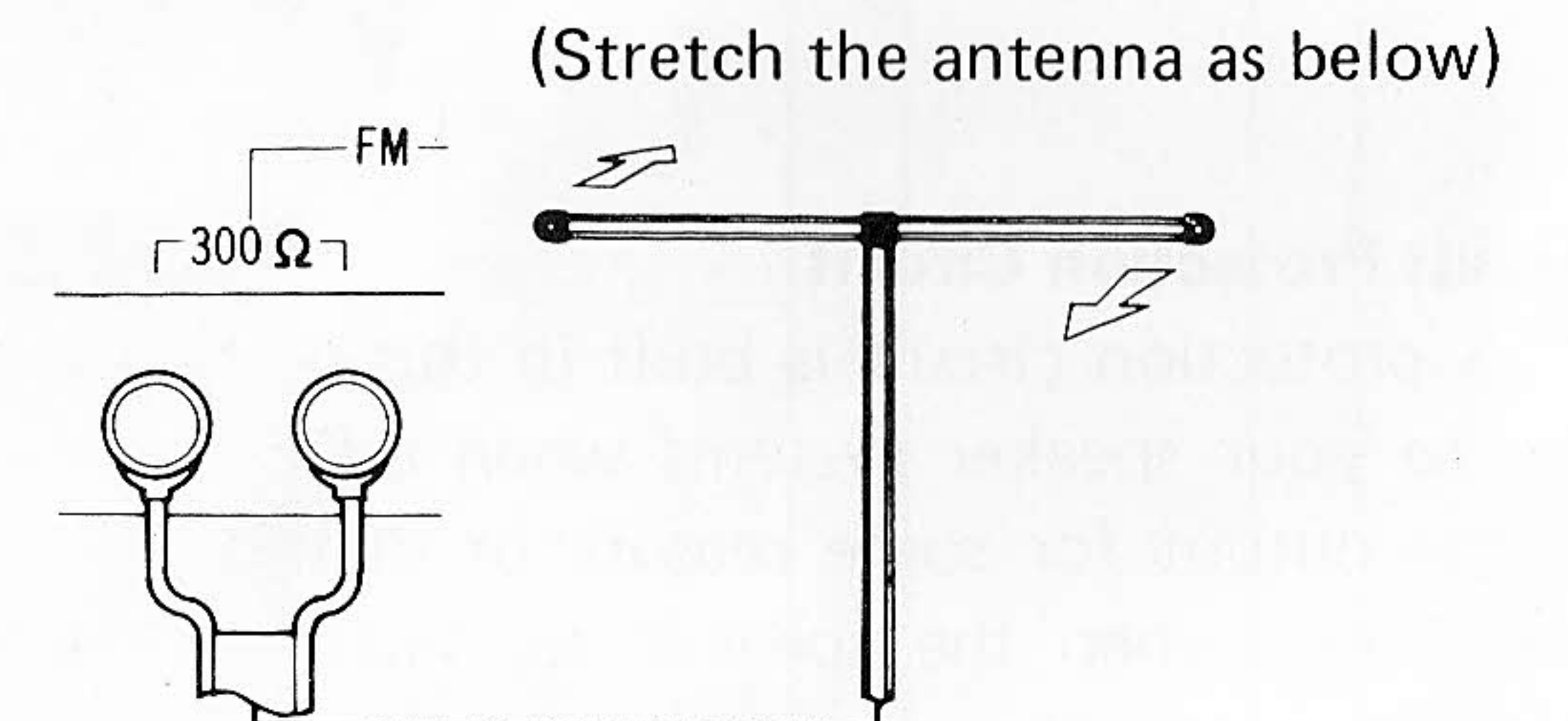


Fig. 7 Connecting a T-Shaped FM Feeder Cable Antenna

Connecting an FM Antenna

If your FM antenna has feeder cable, connect it to the 300-ohm antenna terminals (see Diagram of Connections on p. 4). Operate the tuner for receiving your favorite FM stations, and fix the antenna firmly in the location that gives you the best reception quality.

- Connecting with Coaxial Cable:

If you live in an industrial area with many manufacturing factories, close to high tension power lines, or near heavy-traffic streets, the use of an FM antenna as described above may not sufficiently reduce the noise. In this case, use 75-ohm coaxial cable to connect the antenna to the receiver. The cable should be connected to the receiver's antenna terminals marked 75-ohms. (See Fig. 8)

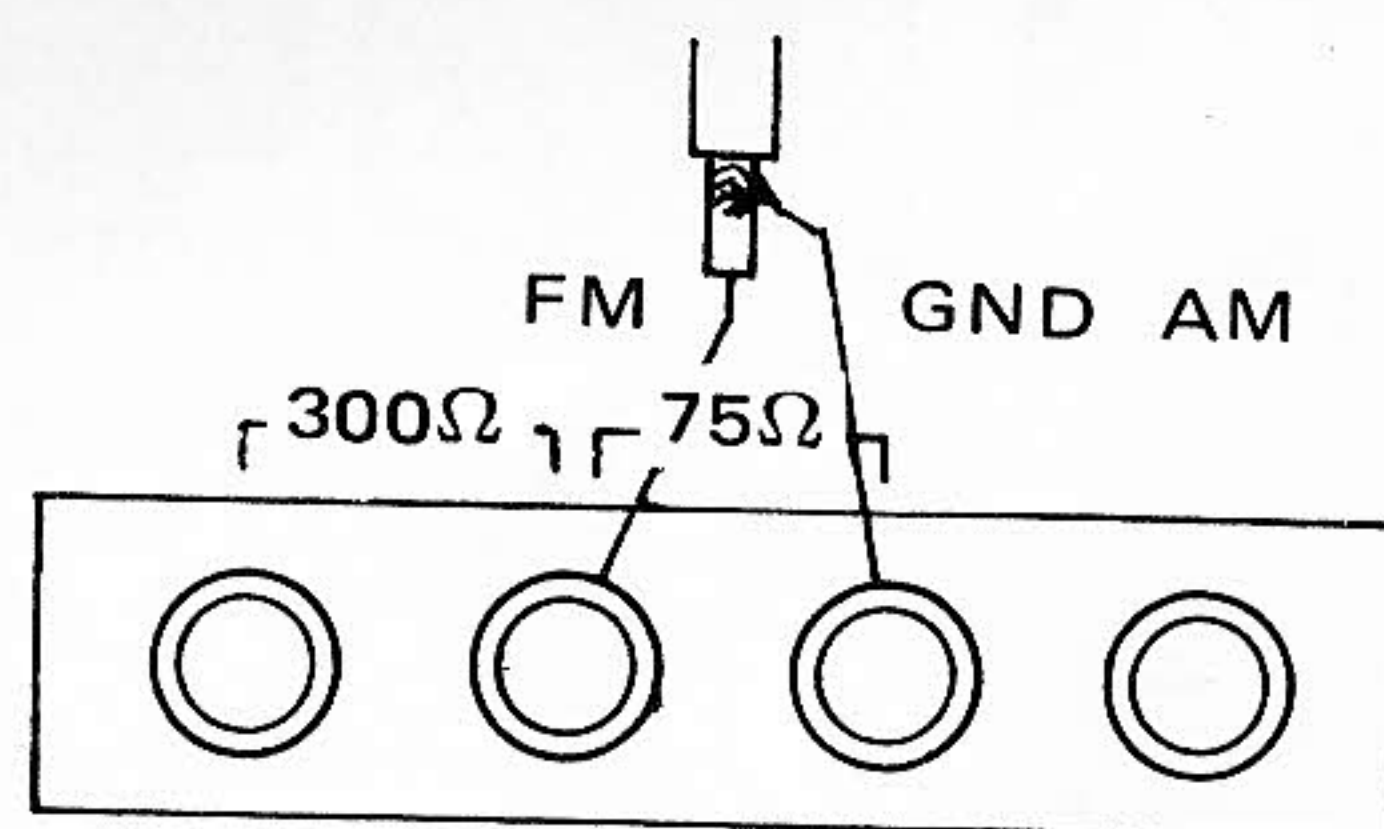


Fig. 8 Connecting Coaxial Cable

Connecting an AM Antenna

Adjust the direction of the built-in ferrite bar antenna for the best AM reception quality. This should give you sufficient reception results in most areas.

For still better results, you can purchase a special AM antenna from your dealer and connect it to AM antenna terminal. (See Diagram of Connections)

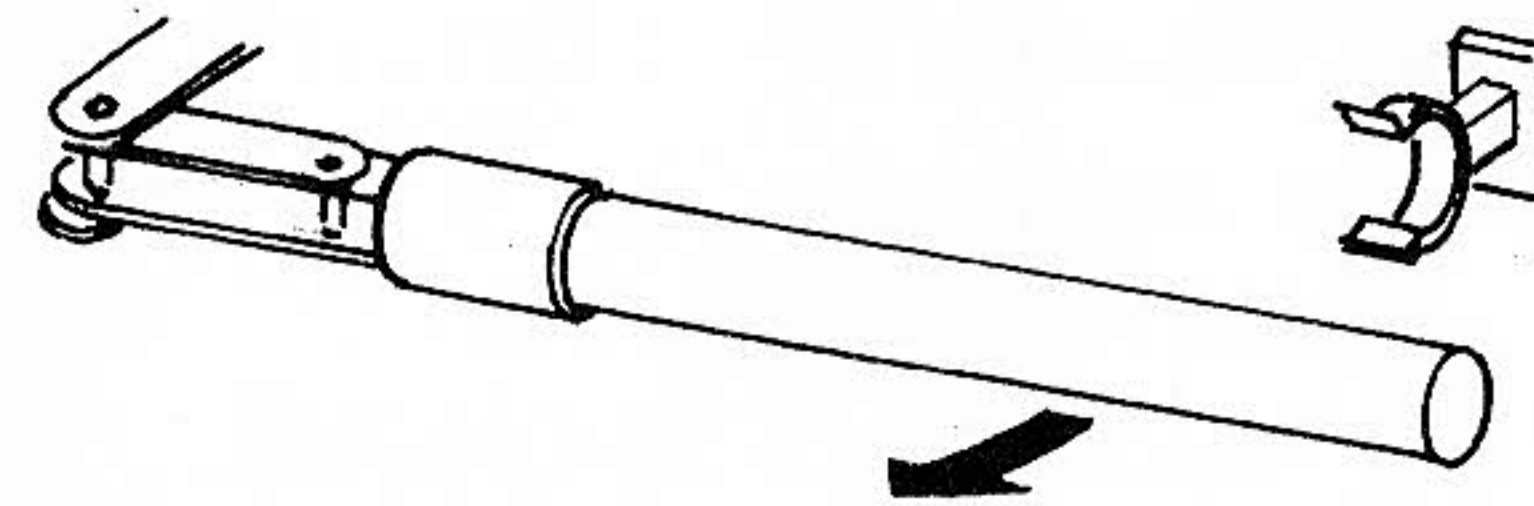


Fig. 9 AM Bar Antenna

SWITCHES & CONTROLS

TONE CONTROL

Use these volumes and switches according to your preference in tone. See page 11.

SPEAKERS SWITCH

- A: To listen to speaker systems connected to the SYSTEM-A terminals
 - B: To listen to speaker systems connected to the SYSTEM-B terminals.
 - A + B: To listen to both A and B pairs of speaker systems.
- (Caution: If using two pairs of speaker systems, make certain that each system has an impedance of at least 8 ohms.)

POWER SWITCH

Turn this switch on to supply power to the unit.

POWER METERS

Indicate the continuous RMS power output being delivered into your speaker systems.

ATTENUATOR

Use to adjust the sound volume. Turn clockwise to increase it.

DIAL POINTER

FM STEREO

Glows red at tuner is tuned broadcast, with switch set to F

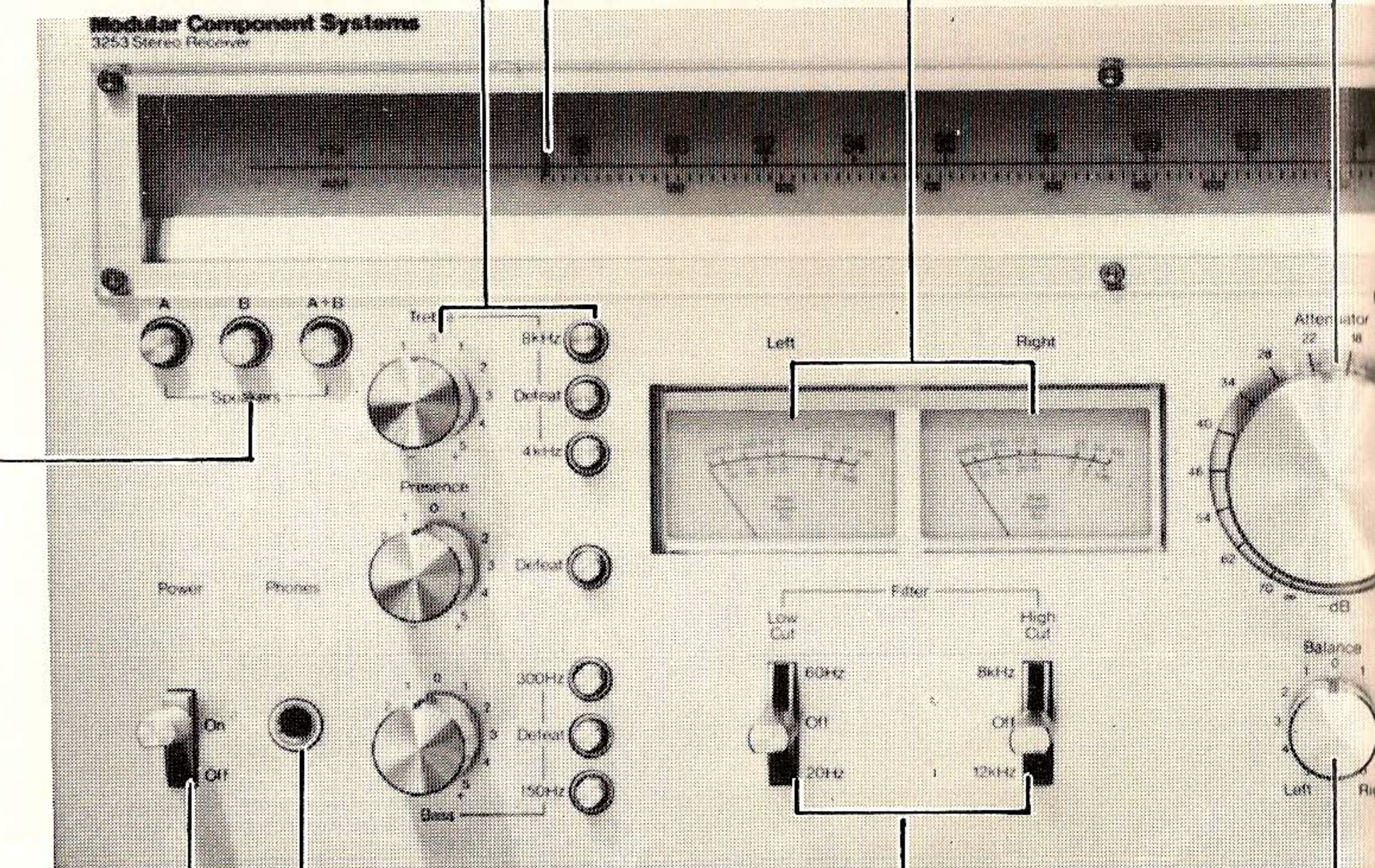


Fig. 10

HEADPHONE JACK

Connect your headphones here to listen with them instead of through your speaker systems.

FILTER SWITCHES

HIGH CUT

To cut high frequency noise.

LOW CUT.

To cut low frequency noise. See page 12.

BALANCE

Use to balance channels of sound from your speaker

INDICATOR

Automatically when the
in to an FM stereo
th the FUNCTION
M.

FUNCTION INDICATOR

Indicates what program is being listen-
ed to.

FUNCTION SWITCH

FM: To listen to FM broadcast.
AM: To listen to AM broadcast.
PHONO 1: To operate the turntable
connected to the PHONO
1 terminals.
PHONO 2: To operate the turntable
connected to the PHONO
2 terminals.
AUX: To operate the program
source component connect-
ed to the AUX terminals.

TUNING METER

TUNING CONTROL

MUTING SWITCH

Push this switch to avoid the annoy-
ing noise heard between stations
during FM tuning.

MODE SWITCH

STEREO: For normal stereo repro-
duction.
MONO: For monophonic repro-
duction with the left and
right channels blended.

LOUDNESS SWITCH

Turn this switch on only when listen-
ing at a low volume level. See P. 12.

TAPE MONITOR SWITCH

1: To reproduce a tape re-
cording on the tape deck
connected to the TAPE 1
terminals.

SOURCE: To listen to program sources
other than tape recordings.

2: To reproduce a tape re-
cording on the tape deck
connected to the TAPE 2
terminals.

(Caution: Be sure that this switch is
set to SOURCE if you wish to listen to
program sources other than tape re-
cordings, such as records and radio
broadcasts.)

TAPE DUBBING SWITCH

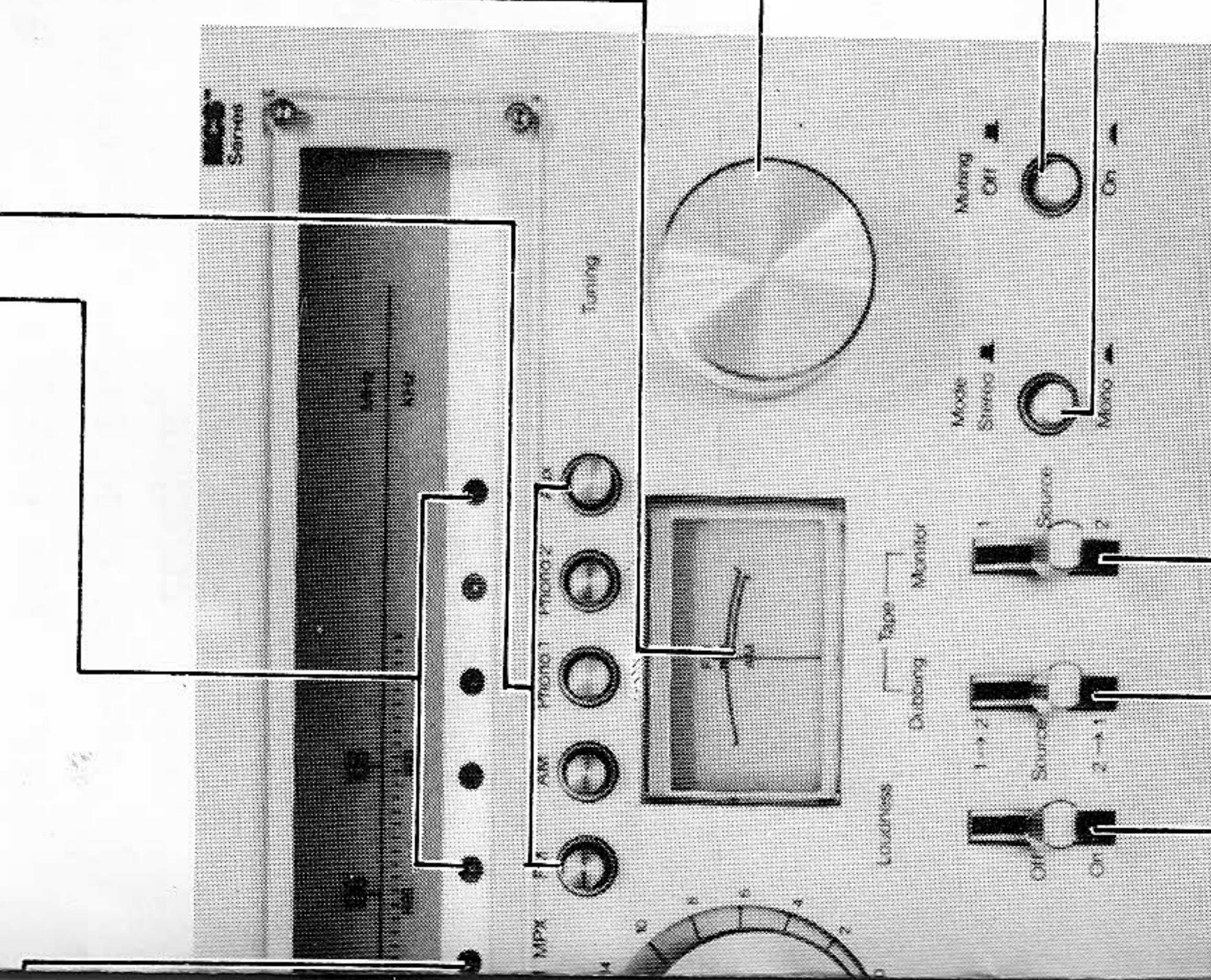
1 → 2: To duplicate or re-record a
tape recording from the
tape deck connected to
the TAPE 1 terminals to
the one connected to the
TAPE 2 terminals.

SOURCE: Leave the switch at this
position when not dupli-
cating.

2 → 1: To duplicate or re-record
from the TAPE 2 tape
deck to the TAPE 1 tape
deck.

CONTROL

the left and right chan-
volume coming from
systems or headphones.



OPERATING INSTRUCTIONS

Playing a Record on The Connected Turntable

- 1) Set the FUNCTION switch to PHONO 1 (or PHONO 2 if using your second turntable).
- 2) Operate your turntable to begin to play the record.
- 3) Use the VOLUME, BASS and TREBLE controls as required.

(Caution: Let the stylus descend on the record surface carefully. The noise generated when the stylus contacts the record surface can be minimized by turning the VOLUME control completely counterclockwise. Do not turn off your turntable with the stylus left on the record surface. Avoid giving vibrations of any kind to the turntable while playing a record. If the turntable is placed close to your speaker systems and you raise the sound volume, an oscillating phenomenon called howling may occur, creating a loud noise. You can prevent this by not placing your turntable too close to your speaker systems.)

Listening to FM Broadcasts

- 1) Set the FUNCTION switch to FM (Fig 11).
- 2) Set the MUTING switch to OFF.
- 3) Use Tuning Control to tune in the desired FM Station. Adjust so that the pointer of the Tuning Meter indicates exact center of its scale. The FM STEREO indicator will automatically glow red if an FM stereo broadcast is received.
- 4) Set the Muting Switch to ON.

If an FM stereo broadcast contains much noise, reset the MODE switch to MONO. The stereo broadcast will then be received in mono, but the noise will be noticeably reduced, making the broadcast much more pleasant to hear.

Listening to AM Broadcasts

- 1) Set the FUNCTION switch to AM (Fig. 11).
- 2) Tune in the desired AM station by adjusting the Tuning Control so that the pointer of the Tuning meter will swing to the right as far as it will go. If the quality of the reception is not satisfactory, try adjusting the position of the AM ferrite bar antenna on the rear panel.

Listening to Equipment Connected to AUX

- 1) Set the FUNCTION switch to AUX.
- 2) Operate the equipment connected to the AUX terminals.
- 3) Use the VOLUME, BASS and TREBLE controls as required.

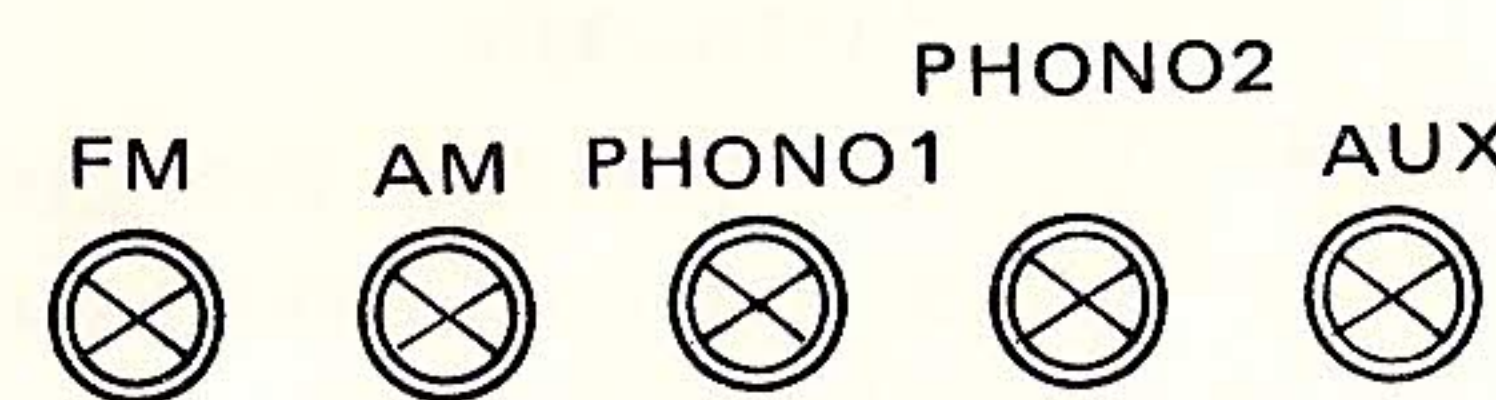


Fig. 11 Function Switch

Recording/Playback on a Connected Tape Deck

Playback

- 1) To playback a recorded tape using the tape deck connected to the TAPE 1 terminals, set the TAPE MONITOR switch to 1; to play it back using the tape deck connected to the TAPE 2 terminals, set the switch to 2.
- 2) Operate the proper tape deck.
- 3) Use the VOLUME, BASS and TREBLE controls as required.

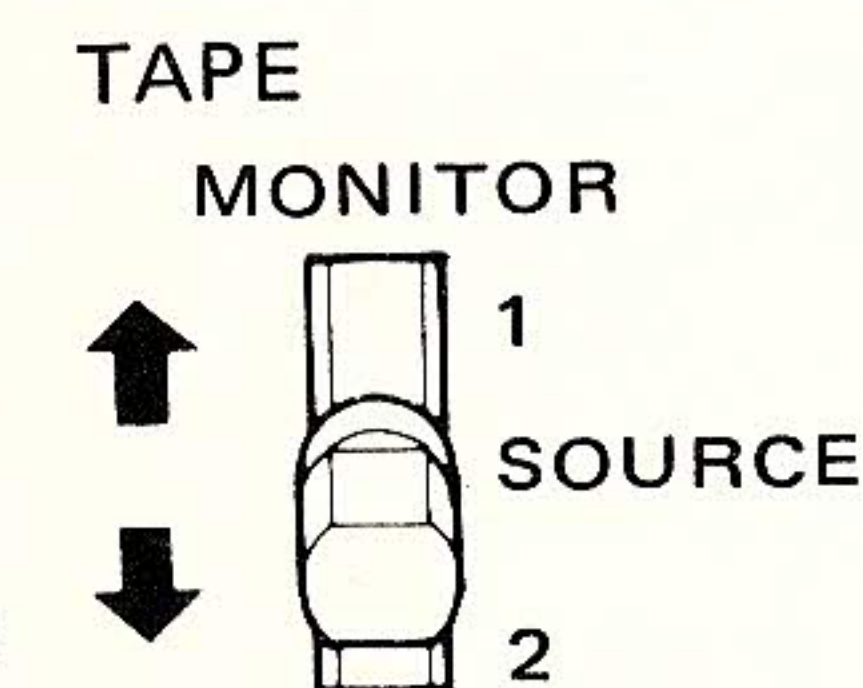


Fig. 12 To Use a Tape Deck

Recording

- 1) Set the FUNCTION switch to the program source you wish to record into your tape deck (e.g., TUNER or PHONO).
- 2) Operate the program source component you have selected.
- 3) Adjust the recording levels on your tape deck, then begin to record.

Listening with Headphones

Plug your headphones into the HEADPHONES jack on the receiver's front panel, then set the SPEAKERS switch to OFF. You'll only hear the sound through your headphones; no sound will come from your speaker systems. If you wish to listen with both your headphones and speaker systems, set the SPEAKERS switch to the proper position representing the speaker systems you wish to hear.

To switch OFF all speakers, push one of the unpushed speakers button gently so that all knobs come out toward you.

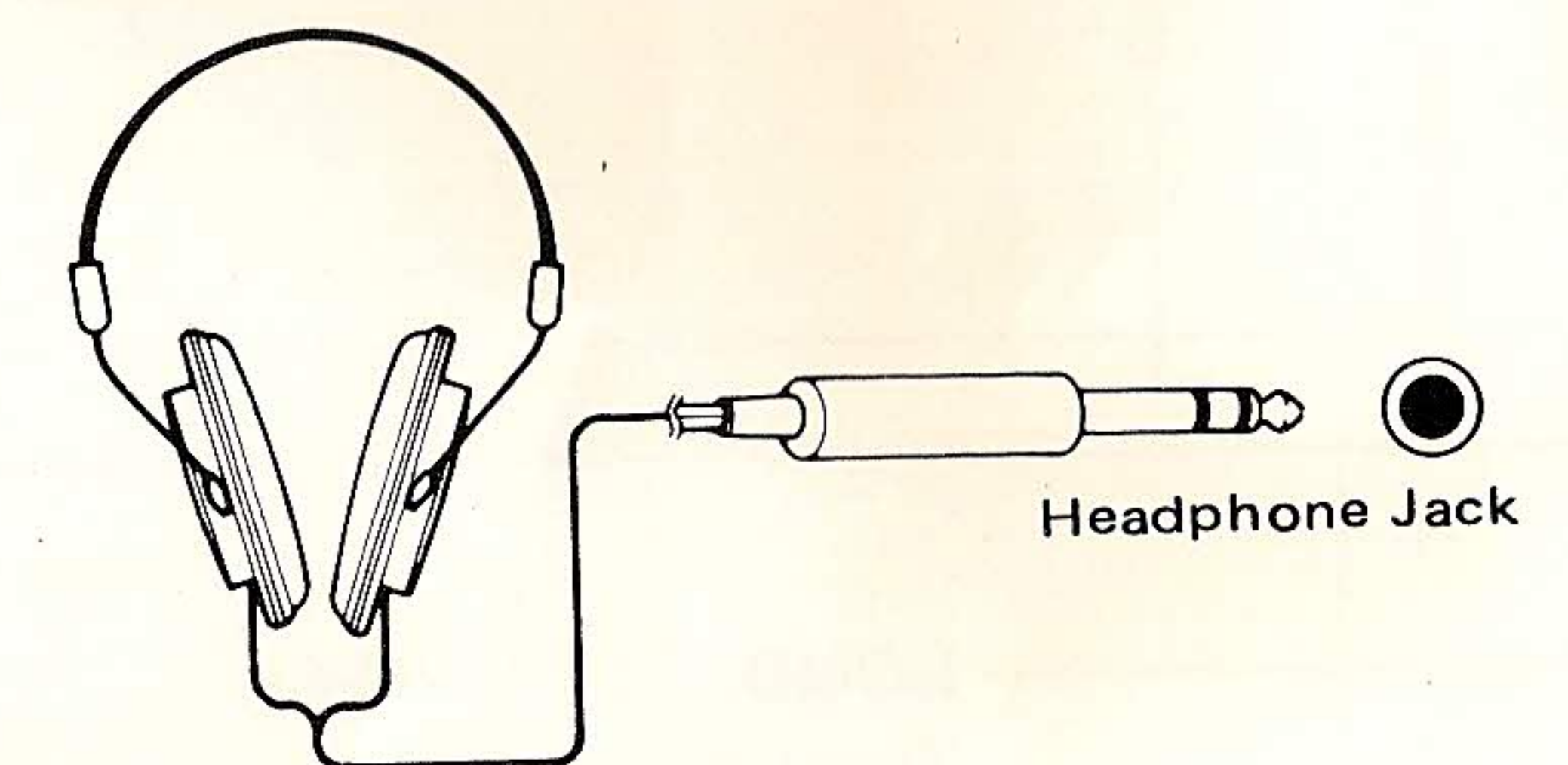


Fig. 13 Connecting Headphones

INSTRUCTIONS ON SPECIAL SWITCHES & CONTROLS

Tone Control

Broadcast stations, professional recording studios and high performance Hi-Fi systems customarily divide the audio frequency spectrum into several frequency bands. A graphic equalizer is then used to emphasize or de-emphasize each of these bands independently.

The BASS, TREBLE and PRESENCE controls of this unit permit independent control of three frequency bands. In addition, BASS and TREBLE turnover switches allow selection of 2 turnover frequency modes each for the BASS and TREBLE controls. As shown in Fig. 14, the resulting tone control functions are similar to those of a graphic equalizer.

You can thus choose among numerous tone variations according to acoustic conditions of your listening room or your personal tastes.

BASS, TREBLE and PRESENCE controls are also each provided with DEFEAT (Tone Off) switches that let you obtain flat frequency characteristics whenever desired, without the need for resetting BASS, TREBLE and PRESENCE control knobs.

Bass Control

Use to adjust the relative intensity of BASS notes in the reproduced sound. Turn the control clockwise to emphasize, and counterclockwise to de-emphasize BASS. Control adjustment range can be selected by pressing the 300 Hz to 150 Hz button. In Fig. 15, 300 Hz is shown as curve 1, and 150 Hz as curve 2.

If there is an overall impression of either insufficient or excessive bass in the music, press the 300 Hz button.

When there is insufficient or excessive emphasis of sounds in the extremely low frequency range, such as a tuba, contrabass, or the lower registers of a piano, press the 150 Hz button and adjust by turning the BASS control knob.

BASS DEFEAT switch can restore flat characteristics without resetting BASS control knob.

Presence Control

Use to adjust the middle frequency range to increase or decrease the sound of the fundamentals of most musical instruments or voice. This control characteristic is shown as curve 3 in Fig. 15. Presence DEFEAT switch can restore flat characteristics without resetting PRESENCE Control.

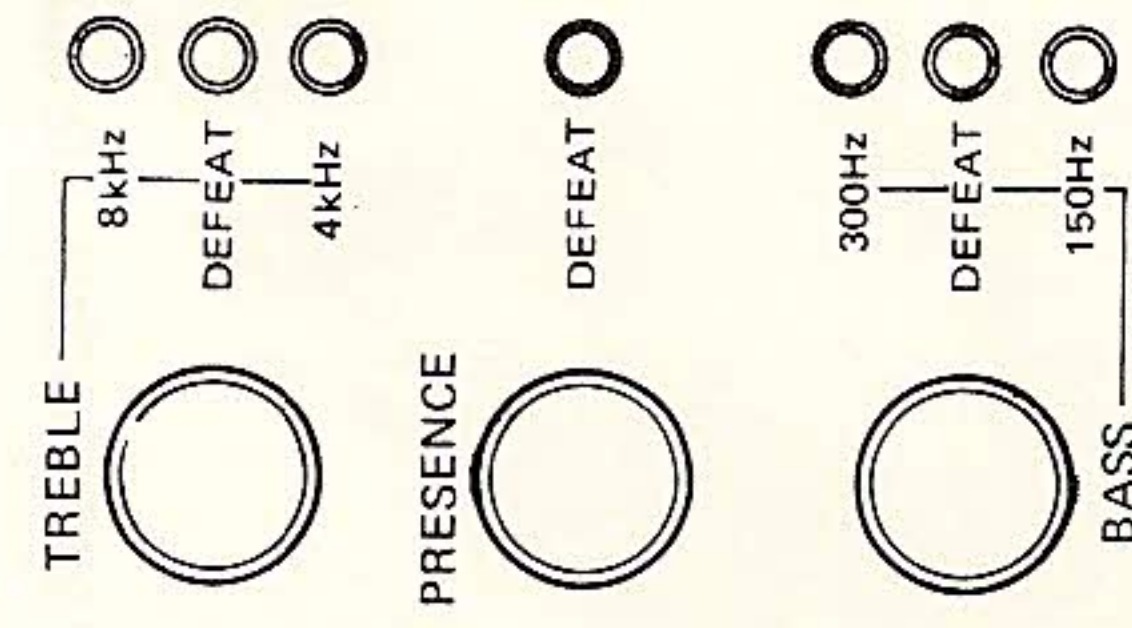


Fig. 14

Treble Control

Use to adjust the relative intensity of treble notes in reproduced sound. Turn clockwise to emphasize, and counterclockwise to de-emphasize treble. Control adjustment range can be selected by pressing either the 4 KHz or 8 KHz button.

In Fig. 15, 4 KHz is shown as curve 4 and 8 KHz as curve 5.

If there is an overall impression of either insufficient or excessive treble in the music, press the 4 KHz button and adjust by turning the TREBLE control knob.

When there is insufficient or excessive emphasis of sounds in the extremely high frequency range, such as a piccolo or violin, or if tape hiss, record scratches, etc., detract from sound quality, press the 8 KHz button and adjust by turning the TREBLE control knob.

TREBLE DEFEAT switch can restore flat characteristics without resetting TREBLE control knob.

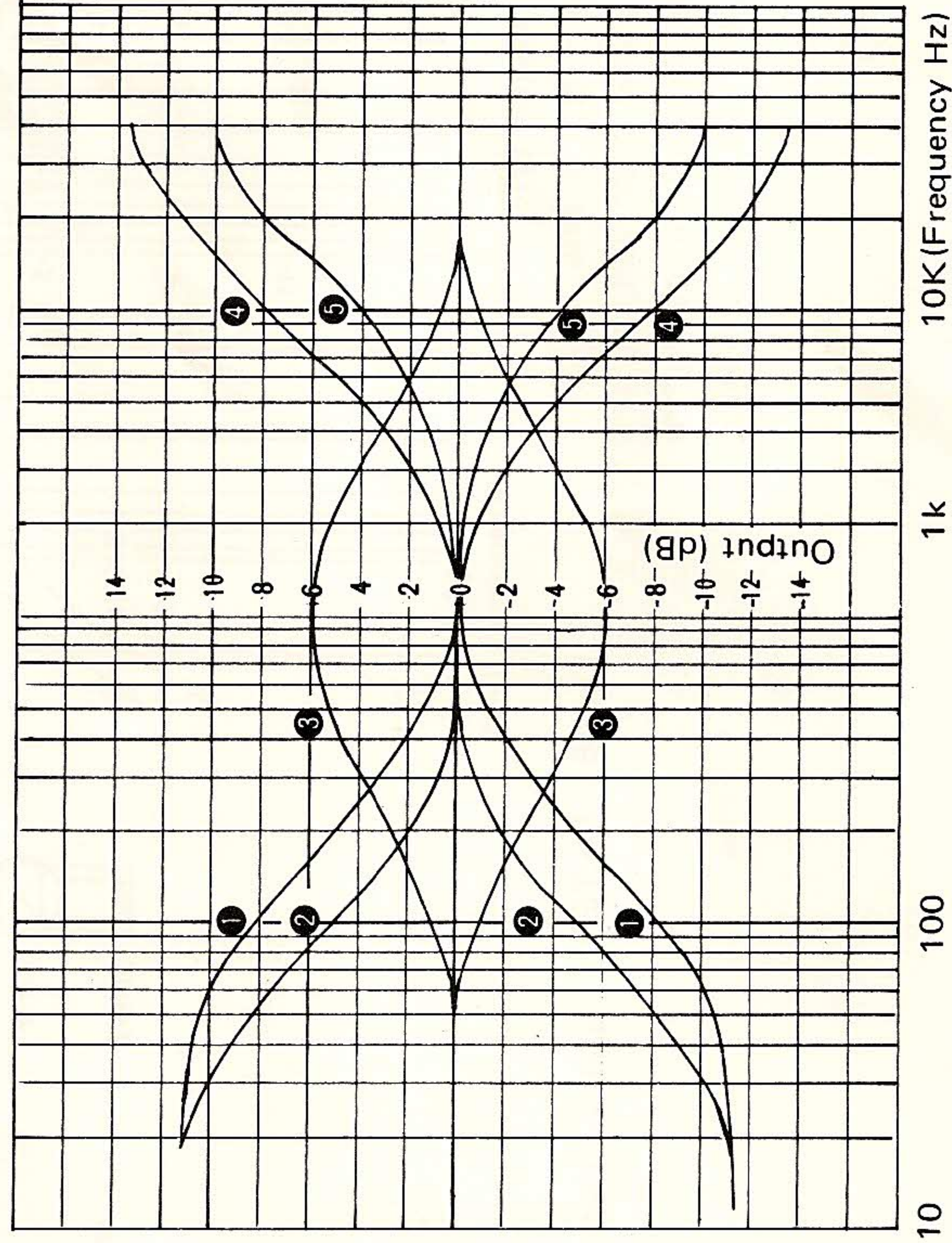


Fig. 15 TONE CONTROL

Filters

Low Filter

This unit is provided with 2 steps LOW FILTER switch. One is indicated as 60 Hz, the other is 20 Hz. These characteristics are shown in Fig. 16.

When turned to 60 Hz, low frequency noise such as turntable's rumble noise or turntable's feedback noise, etc. can be eliminated. When turned to 20 Hz, it will work as a subsonic filter. Use this switch to cut out low-frequency noise beyond the lower limit of the audible frequency range, as is caused by warped records. Spurious low-frequency movement of the woofer cones in your speaker systems will be avoided, and clearer sound will result.

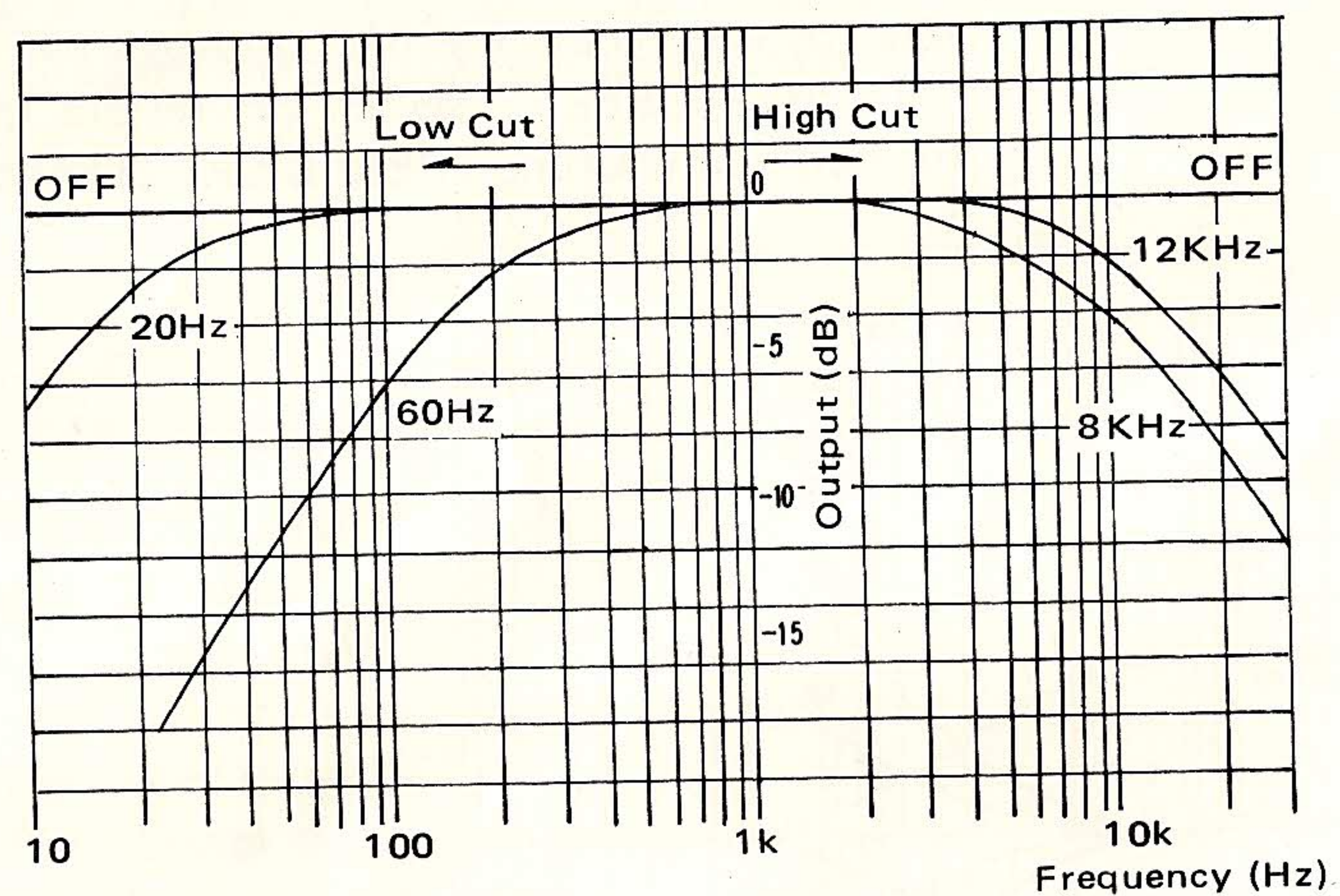
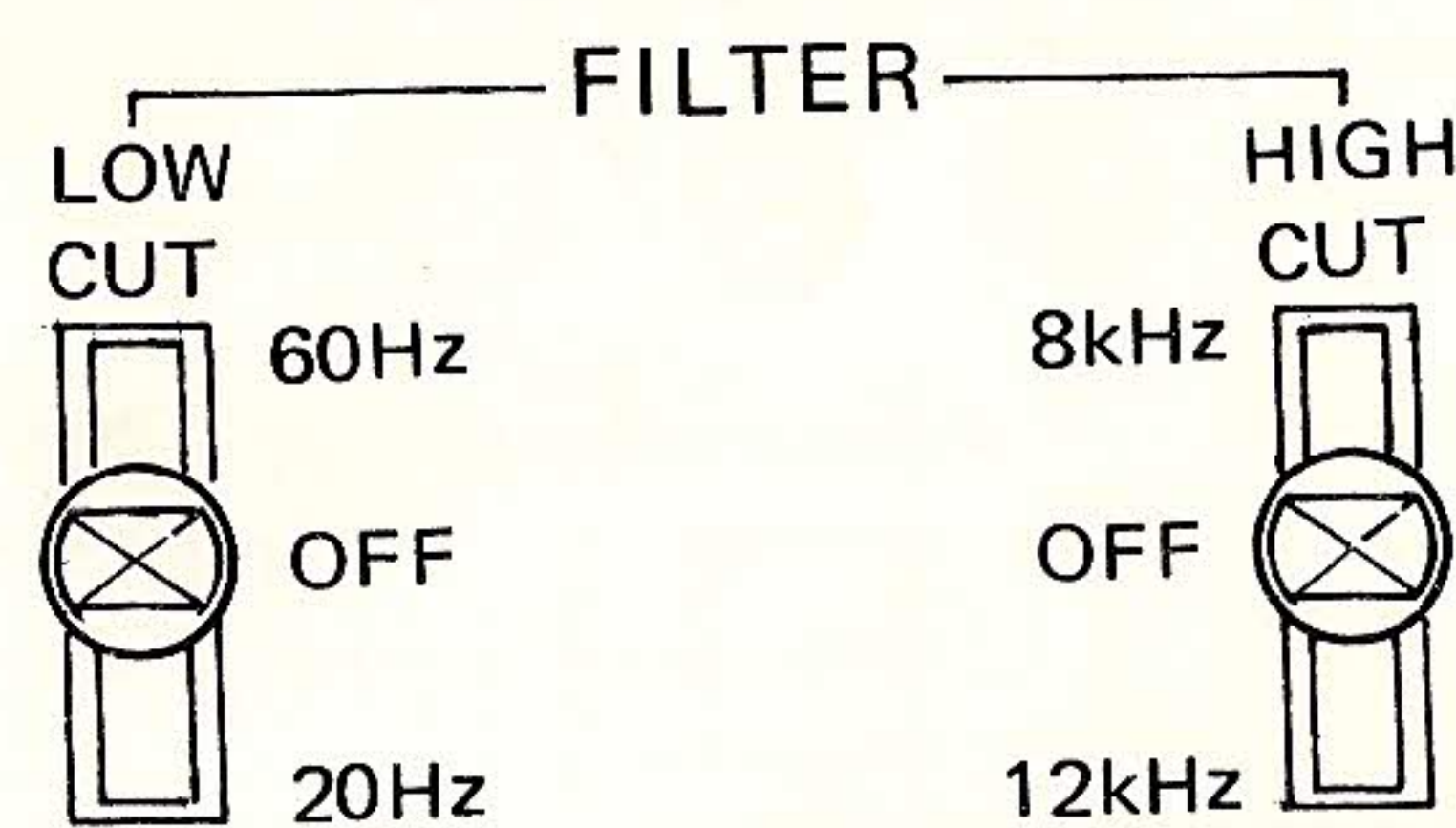


Fig. 16 FILTER

High Cut Filter

This unit is provided with 2 steps HIGH FILTER switch. One is indicated as 8 KHz and the other is 12 KHz. These characteristics are shown in Fig. 16.

When turned to 8 KHz, it will eliminate high frequency noises such as the scratch of a record or the hissing sound of a tape. When turned to 12 KHz, it will eliminate very high frequency noise such as tape hiss.



Loudness Switch

At low sound volume levels, the human ear has a natural tendency to become less sensitive to high- and low-frequency sounds. Thus, to your ears, the sound will lose much of its brilliance, and become less realistic. Turning this switch on corrects this situation, automatically boosting the treble and bass sounds to the degree the ear has become insensitive, and thus restoring a natural tonal balance among the treble, midrange and bass sounds. Use only when listening at low sound volume levels.

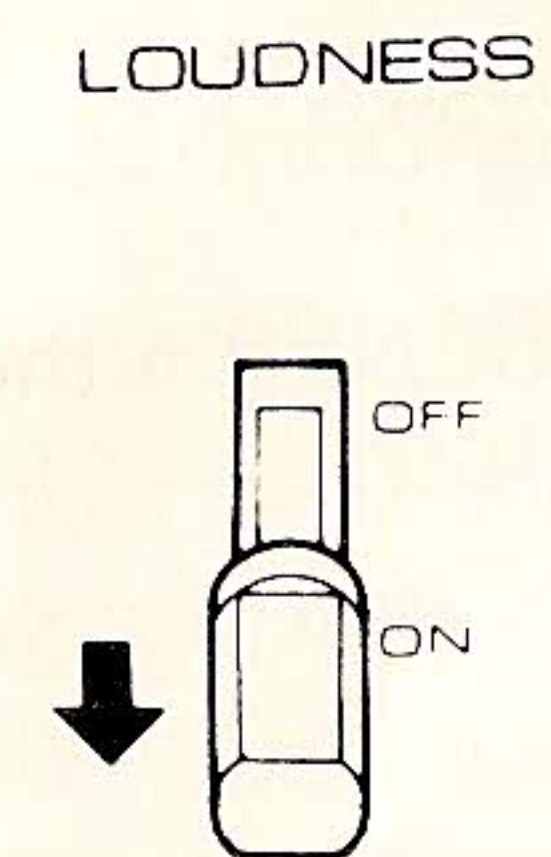


Fig. 17 LOUDNESS Switch

SPECIAL CONNECTIONS

Duplicating Tape Recordings Between Tape Decks

This unit offers a TAPE DUBBING switch to permit duplicating (copying, re-recording, dubbing) a tape recording between two connected tape decks—from the tape deck connected to the TAPE 1 terminals to the one connected to the TAPE 2 terminals, or vice versa. Take advantage of this feature when you wish to re-record a favorite musical selection from a recorded tape, or transfer certain selections from a recorded tape to another tape. To do this, follow the procedure below:

- 1) Connect your second tape deck to the TAPE 2 terminals.
- 2) Set the TAPE DUBBING switch to either 1 → 2 or 2 → 1. Use the former position to record from the tape deck connected to the TAPE 1 terminals into the tape deck connected to the TAPE 2 terminals. In this case, the first tape deck should be engaged in the playback mode, and the second tape deck in the recording mode. The recorded tape is reproduced on the first tape deck, and the recording is re-recorded into the blank tape loaded on the second tape deck. Use the latter position to record from the tape deck connected to the TAPE 2 terminals to the one connected to the TAPE 1 terminals. (See Fig. 18)
- 3) To monitor the tape recording being re-recorded, set the TAPE MONITOR switch to 1 if you have set the TAPE DUBBING switch to 1 → 2; set it to 2 if you have set the TAPE DUBBING switch to 2 → 1. If you wish to listen to some other program source while re-recording, set the TAPE MONITOR switch to SOURCE. The tape deck engaged in the recording mode will not record the selected program source.

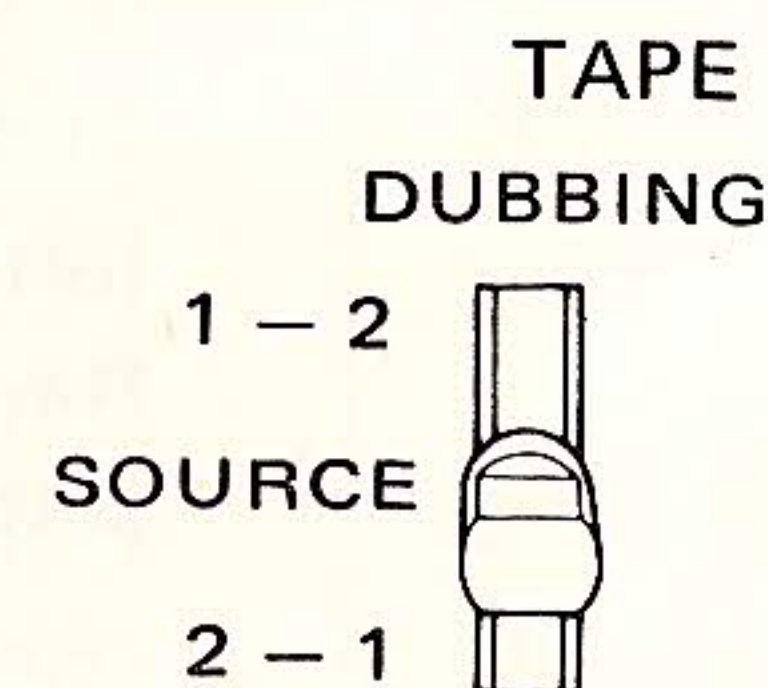


Fig. 18 TAPE DUBBING Switch

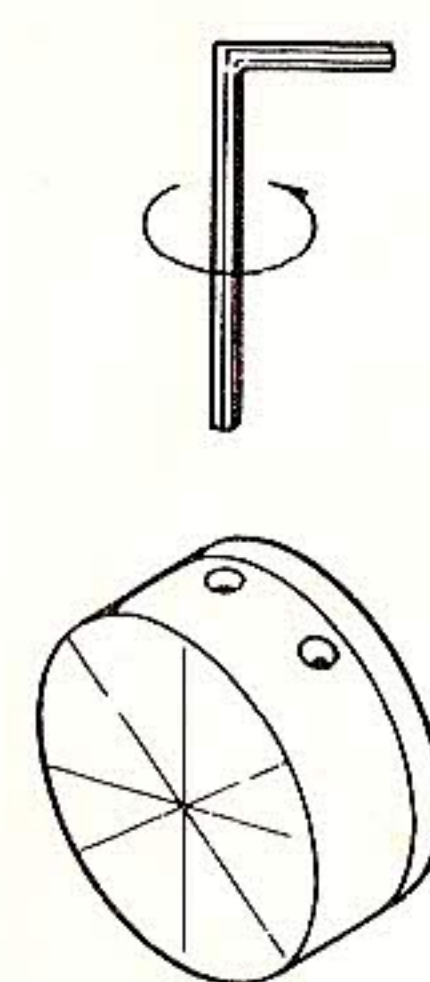


Fig. 19 How to Use Hex-Head Wrench

Avoiding FM Multipath Phenomenon

This is a phenomenon that happens when your FM antenna receives two radio waves simultaneously — one directly from the FM station, and another reflected, and time-delayed, by mountains and high-rise buildings. The slight time difference between the two waves, upon entering your tuner, creates phase distortion in the broadcast signal, which in turn results in distortion of the reproduced sound.

Thus a strong multipath phenomenon harms the quality of the FM reception. However, its effect can be minimized by using a quality outdoor FM antenna and carefully adjusting its direction and height.

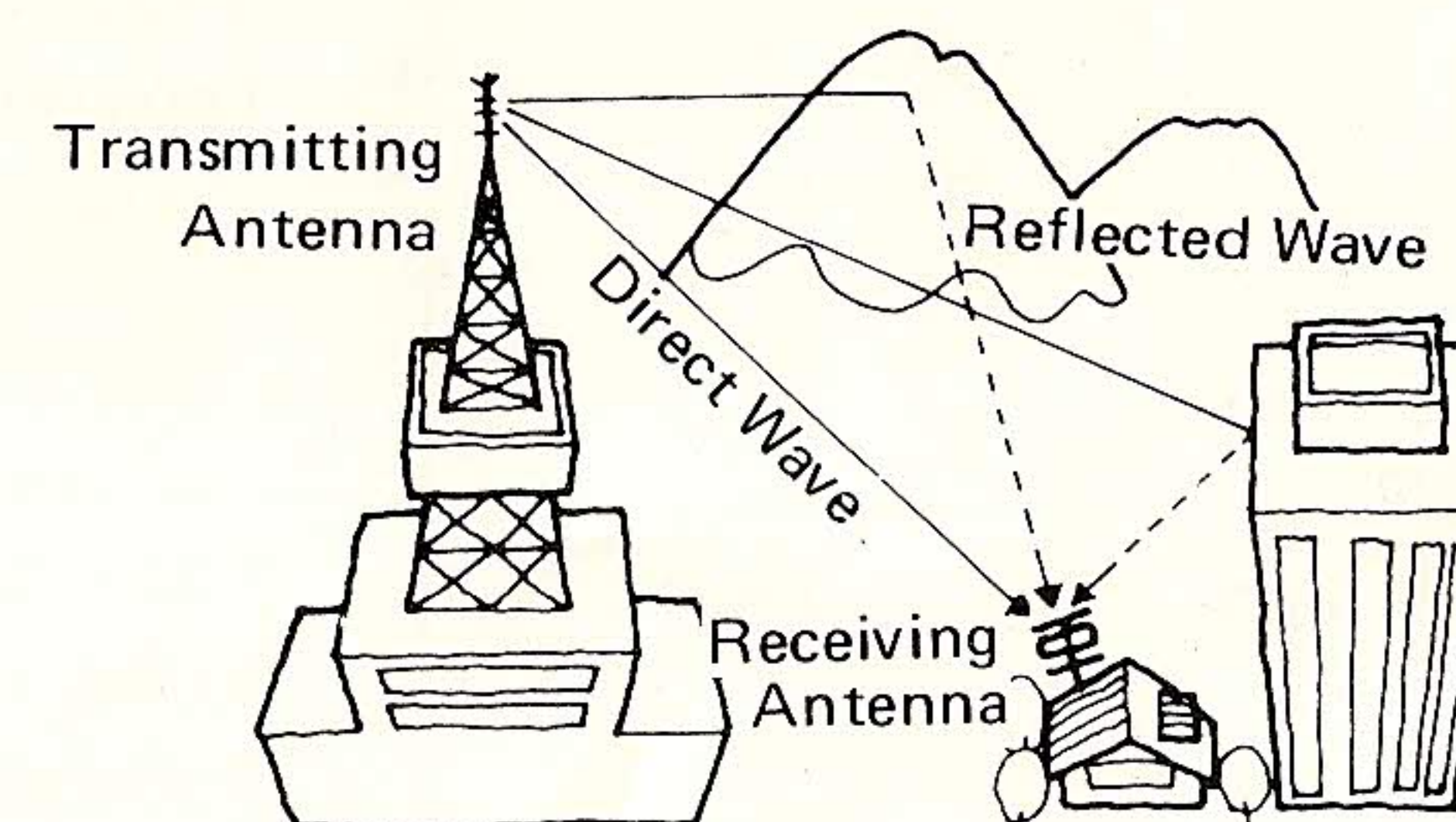


Fig. 20 FM Multipath Phenomenon

How to Use The Hex-Head Wrench Provided

When and if the volume control knob should loosen, use the hex-head wrench provided with the amplifier to re-tighten it. Be sure to align the angle of the control correctly.

TABLE OF TROUBLESHOOTING INSTRUCTIONS

	CAUSE	REMEDY
Power is not supplied	Power cable is unplugged from wall outlet. Power fuses have been blown.	Re-insert power plug firmly. Replace power fuses.
No sound	SPEAKER switch is set to OFF. DC Voltage has appeared at speaker output terminals, and protection circuit has been activated. Power fuses have been blown.	Reset SPEAKERS switch to A or B. When voltage is restored to normal, built-in relay will operate to re-activate amplifying circuits. Turn POWER switch off once and wait a few minutes. Replace power fuses.
Sound level is different between L & R.	BALANCE control is off center.	Re-adjust BALANCE control.
Recorded tape cannot be reproduced.	TAPE MONITOR switch is set to wrong position. Recorded tape is faulty (not recorded properly). Tape deck is not properly operated for playback.	If tape deck is connected to TAPE 1 terminals, set TAPE MONITOR switch to 1; set it to 2 if tape deck is connected to TAPE 2 terminals. Replace tape. Follow owner's manual for tape deck and operate tape deck correctly.
Can not hear a record being played.	TAPE MONITOR switch is set to 1 or 2. FUNCTION switch is set to wrong position. Turntable is not connected properly.	Set TAPE MONITOR switch to SOURCE. Set FUNCTION switch to PHONO. Connect turntable properly.
Cannot hear an FM or AM broadcast.	TAPE MONITOR switch is set to 1 or 2. FUNCTION switch is set to wrong position.	Set TAPE MONITOR switch to SOURCE. Set FUNCTION switch to TUNER.
Sound Image is blurred.	Plus/minus polarities of speaker systems are connected wrongly.	Re-connect speaker cords to match polarities correctly.
Much noise while playing a record.	There is dust/dirt on the record. There is dust/dirt on the stylus. Stylus is worn out. Grounding lead is not connected.	Clean record surface. Clean stylus tip. Replace stylus. Connect grounding lead of turntable to amplifier's GND terminal.
Much noise while receiving an AM or FM broadcast.	Antenna is not properly oriented. Tuner is not correctly tuned in to desired station. Ignition noise from passing cars. Amateur radio operator is operating in neighborhood. Unit is located close to TV set.	Change direction of antenna so tuner's signal meter will deflect most. Tune in desired station correctly while watching tuner's signal and tuning meters. Move antenna away from streets. Move unit away from TV set.

Service . . . Contact your JCPenney store or Product Service Center if any service is ever necessary.

SPECIFICATIONS

	Nominal	Limit	Unit		Nominal	Limit	Unit
AF Section				FM Section			
Output Power [Both channel driven 20 Hz – 20 KHz 0.5% THD 8Ω Load]	55 + 55	53 + 53	Watt	Quieting Sensitivity -30 dB IHFM at 90, 98, 106 MHz	1.8	2.5	μV
Signal to Noise Ratio				Usable Sensitivity -20 dB S/N (Mono) at 90, 98, 106 MHz	1.3	2.0	μV
Phono (Magnetic) Input	75	70	dB	Signal to Noise Ratio 1mV Input at 98 MHz (Mono)	65	60	dB
AUX, Tape 1, Tape 2 Input	100	90	dB	Image Rejection at 106 MHz	50	45	dB
IHF A-Network, short circuit				Selectivity (±400 KHz) at 98 MHz, 100μV input	60	50	dB
Input Sensitivity				Capture Ratio at 98 MHz, 1mV input	1.5	2.0	dB
Phono (Magnetic) Input	2.5	2.5 ±2	mV ±dB	Frequency Response -3 dB at 98 MHz, 1mV input	20 – 15,000	35 – 12,000	Hz
AUX, Tape 1, Tape 2 Input	150	150 ±2	mV ±dB	Stereo Separation at 98 MHz, 1mV input			
Frequency Response -3dB				100 Hz	40	30	dB
AUX, Tape1, Tape 2 Input	7 – 50,000	10 – 40,000	Hz	1 KHz	45	35	dB
Frequency Response [Phono (Magnetic) Input Deviation from standard RIAA Curve				10 KHz	30	20	dB
30 Hz – 20 KHz]	±0.5	±1	dB	Stereo Sensitivity	3	5	μV
Tone Control Response				Distortion -Mono at 98 MHz, 1mV input	0.2	0.3	%
Bass Boost at 100 Hz				Distortion -Stereo at 98 MHz, 1mV input	0.35	0.5	%
Switch 300 Hz	±9	±9 ±2	dB	AM Section			
Switch 150 Hz	±5	±5 ±2	dB	Usable Sensitivity -20 dB, S/N	300	500	μV/m
Presence (Mid-Range) Boost at 1 KHz	±6	±6 ±2	dB	Signal to Noise Ratio	50	40	dB
Treble Boost at 10 KHz				Selectivity	30	25	dB
Switch 4 KHz	±8	±8 ±2	dB	Image Rejection	50	40	dB
Switch 8 KHz	±4	±4 ±2	dB	Freq. Response -6 dB	100 – 3,000	200 – 2,000	Hz
Filter Response				Detector Distortion	1.0	2.0	%
Low Cut Filter				Dimensions	18-1/2" (W) x7-13/16" (H) x 15-3/8" (D)		
Switch 20 Hz at 10 Hz	-8	-8 ±2	dB	Weight	14.3 Kg (31.5 lbs)		
Switch 60 Hz, at 60 Hz	-11	-11 ±2	dB				
High Cut Filter							
Switch 8 KHz, at 20 KHz	-9	-9 ±2	dB				
Switch 12 KHz, at 20 KHz	-6	-6 ±2	dB				
Loudness at -40 dB Volume							
100 Hz	+6	+6 ±2	dB				
10 KHz	+3	+3 ±2	dB				
Phono Input Capability for 0.5% THD	200	180	mV				

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JCPenney

Catalog Department

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INVOICE

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CUSTOMER PHONE NO.	W	PKGS.	PACKER	SEQUENCE	D.E.	DOOR	STORE NO.	PULL TIME	D.C.	JCP CHARGE ACCOUNT NUMBER	INVOICE NUMBER	I.D. NO.
691-3329	1			699801	L	46	0652-8	1700	M		211-24246	4093

LOCATION	CLASS	QUANTITY	CATALOG NUMBER	SKU	DESCRIPTION	COOL/PAT	AMOUNT	ADJUSTMENT FACTORS
I8809M3A		1	GR853-1162A	0000	53 WATT RECEIVER		224.95	5221151 400

* = ITEM IN STOCK, BUT NOT SHIPPED BECAUSE A RELATED ITEM WAS NOT AVAILABLE
 z = ITEM YOU ORDERED HAS A NEW CATALOG NUMBER
 * = ITEM SUBSTITUTED - SORRY THE ORIGINAL ITEM IS NOT AVAILABLE. IF NOT SATISFIED WITH THE SUBSTITUTION, YOU MAY RETURN THIS MERCHANDISE FOR A CREDIT OR REFUND.

ORDER PERIOD	BIN	TICKETS	STATE & LOCAL TAX %
00		0	500

SUMMARY OF YOUR ORDER

INVOICE DATE	11-24-79	MERCHANDISE TOTAL	224.95	ASSOC.		STATE & LOCAL TAXES	11.51	INVOICE TOTAL	241.68
INVOICE DATE		TRANSPORTATION & HANDLING	5.22						

FOR PROMPT ADJUSTMENT -
PLEASE BRING THIS INVOICE WHEN RETURNING ANY ITEM LISTED ABOVE.

DATE 11-30-79 PER AA

DELIVERY TERMS:
 JCP CHARGE
 JCP TIME PAY
 BANK CARD
 CASH RECEIVED
 CASH REFUND

AMT OWED **241.68**

DELIVERY TOTAL 241.68

Thank You!

FOR SHOPPING PENNEYS CATALOG

INVENTORY ADJ. SERIAL NO.

JCPenney

Full Three Year Warranty

Within three years of purchase, we will, at our option, repair or replace the single or multiple play Turntable, Receiver, Tuner, Amplifier or Tape Deck of this Modular Component System if defective in material or workmanship. Parts and labor are included. Just return it to the nearest JCPenney facility for prompt service.

For the addresses of JCPenney facilities in your area, refer to your local telephone directory. If there is no JCPenney facility in your area, write to Carole Winslowe, J.C.Penney Co., Inc., Product Service Department, 1301 Avenue of the Americas, New York, New York 10019.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

For Modular Component Systems purchased through the catalog, should service be needed during the warranty period, contact a JCPenney Product Service Center or JCPenney Catalog Center. If JCPenney service is not available in your area, have any reputable serviceman do the repair. Send the receipted repair bill itemized as to parts and labor to the Catalog Distribution Center listed in the catalog for your state, attention: Customer Service Department, or bring the bill to any JCPenney Catalog Department, and we will reimburse you for the repair costs.

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