OPERATING MANUAL

ROTEL®

RX-150A

SOLID STATE STEREO RECEIVER

INTRODUCTION

We would like to take this opportunity to thank you for purchasing our Stereo Receiver. With the high quality design and workmanship that goes into making this equipment, you can be assured of its flawless performance for many years to come.

We have fitted every control and feature you could conceivably need. Designed for both versatility and ease of operation, this piece of equipment will add professional studio flexibility to your Hi-Fi sound center. The performance is exceptional; it will allow you to experience true high fidelity as never before. Its full and natural stereophonic reproduction offers you musical entertainment approaching that of live performances. We sincerely hope you will treasure this professional equipment. In order to obtain the maximum use out of your unit, please read the following pages of this Operating Manual carefully.

Do not attempt to operate the unit until you have made all the necessary connections.

SPECIAL FEATURES

1) All Silicon Output Transistors.
2) Illuminated Dial Pointer with Stereo Indicator feature.
3) Illuminated AM/FM Signal Strength Tuning Meter.
4) Speaker Switches for simultaneous or independent operation of two pairs of stereo speaker systems.
5) Tape Monitor Switch for convenient tape recorder play back and monitoring.
6) Tone Controls for Bass and Treble offer easy and accurate tone adjustment.
7) Balance Control to insure perfect stereophonic effect regardless of faulty room accustics, poor recording or unmatched component outputs.
8) Connections for two tape recorders, so that you may "dubb" from one to the other.
9) Connections for two record players, one for magnetic cartridge and one for ceramic or crystal cartridge.
10) Front Panel Stereo Headphone Jack for easy use.
11) Handsome Wood Cabinet.

INSTALLATION

IMPORTANT

Do not apply power to this unit without first making sure that both speakers are connected properly. Before attempting to operate the receiver please read the following instructions carefully. When all the necessary connections are made, the power may be applied.

FM ANTENNA CONNECTION

Owing to the exceptionally high sensitivity of your receiver, the 48" wire that is supplied is sufficient for all but the most difficult locations. The balanced antenna input is designed to accept a 300 Ω antenna, indoor or outdoor type. When using the antenna supplied, connect one end of its 48" length to either of the FM antenna terminals. Horizontal placement of the wire antenna will yield optimum reception.

As FM signals are in the same broadcast frequency range as TV signals, they are affected by the same external conditions. Just as TV reception is improved, you may improve your FM reception with an external antenna. When using an external antenna, connect both of its leads to the two FM antenna terminals.

SPEAKER CONNECTIONS

The receiver has connections for two pairs of stereo speaker systems, one for connecting with an easy to use Pin plug and another for connecting with a regular Plus-Minus screw. Make sure that your main speakers are connected to the terminals marked "SPKR 1" and your remote speakers to the "SPKR 2".

NOTE: For the SPKR 2, make sure that all the speaker leads are fastened securely to the proper terminals and that there are no stray strands shorting one terminal with another.

PHASING

In a stereophonic music reproducing system, the two speakers must be properly connected to assure complementary functioning. Make sure that the terminals on the speakers are connected to the corresponding terminals on the rear chassis If the two speakers are out of phase with each other, the stereo effect will suffer and the low frequency response will be particularly poor. Check to make sure that your speakers (SPKR 2 only, SPKR 1 need not be checked) are in phase. For SPKR 1 perform the following test.

1. Set the SELECTOR to FM position.
2. Play a monophonic source with solo singing or instrument.
3. If the speakers are in phase, the sound will appear to come from the exact center between the two speakers, but if they are out of phase, the sound will appear to come from the two speakers separately.
4. If the speakers are out of phase, reverse the connections of the two speaker leads (from only one of the speakers, although it may be either one) at the SPKR 1 speaker terminals. The speakers will then be in phase with each other.

RECORD PLAYER CONNECTION

The shielded cables from your stereo record player should be terminated with Pin type phono plugs. To avoid loss in the high frequency sounds, the cables should not exceed 10 feet in length.

Connect both leads from your record player to the LEFT and RIGHT PHONO input receptacles on the rear chassis. If your record player is equipped with a magnetic cartridge, use the inputs marked "MAG," and if it is equipped with a ceramic (or crystal) cartridge, use the "CERA" inputs.

If your record player has a ground cable emerging besides two input cables, connect this ground cable to the ground terminal post marked GND on the rear chassis.

AUX CONNECTION

Your receiver has a pair of AUX input receptacles for use with high level program sources: tape recorder, cassette recorder, 8-track cartridge player, TV sound or a ceramic microphone. It should be noted that AUX is used only for the playback purpose.

When connecting a stereo tape recorder, connect both output cables to the AUX LEFT and RIGHT input jacks on the rear of the receiver. For recording purpose, connect input cables to the TAPE OUT LEFT and RIGHT. For cassette or 8-track cartridge, similar procedure is followed. When connecting a monophonic equipment, connect the single output lead to either of the AUX LEFT or RIGHT input jack.

TAPE RECORDER CONNECTION

Terminals are supplied for connecting one tape recorder (which incorporate playback preamplifier) with a separate playback head (i.e. Monitor facilities). Connect its right and left output cables to the TAPE MONITOR terminals marked IN, and connect its right and left input cables to the TAPE MONITOR terminals marked OUT.

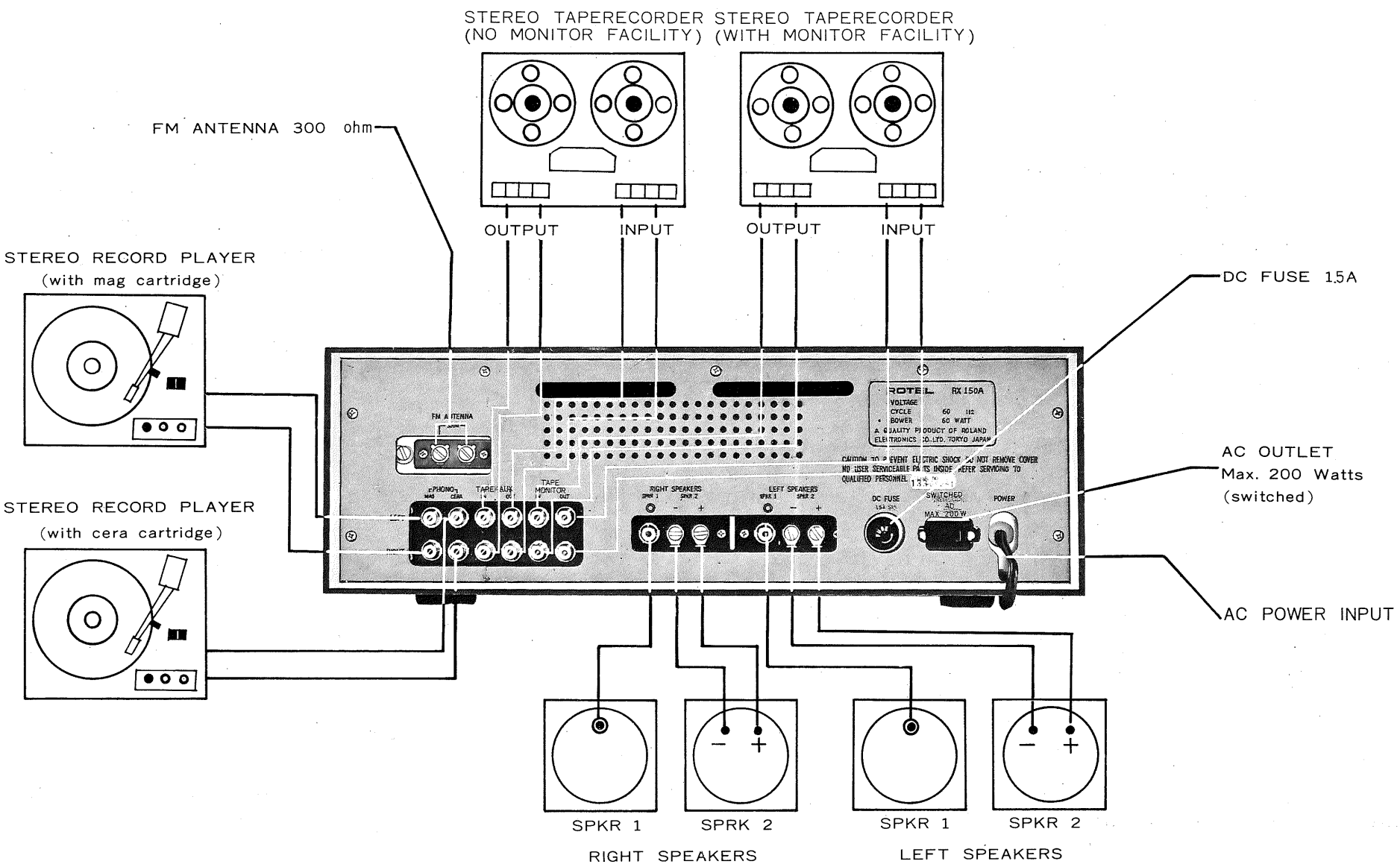
AC OUTLET

Your receiver is equipped with an AC Outlet (switched) to provide power and switching control to whatever component you may wish to connect to the unit. However, the total load of equipment connected to the AC Outlet must not exceed 200 watts.

FUSE

The receiver is protected with one 1.5-amp fuse in the DC output circuits. Replacing with a fuse of higher rating will not protect the unit any more effectively, rather it may result in a severe damage to the unit.

INTERCONNECTING DIAGRAM



OPERATION

When all the necessary connections have been made according to the preceding instructions, you may apply the power by turning "ON" the POWER switch. Select the speaker system you wish to activate by setting the SPEAKER switch either to "MAIN" for SPKR 1 speakers or "REMOTE" for SPKR 2 speakers. By setting both SPEAKER switches to "MAIN" and "REMOTE," you may activate SPKR 1 and SPKR 2 speakers simultaneously.

NOTE: If the Dial Board fails to light, remove and check the fuse. If no sound can be heard even when all the controls and switches are placed at their correct positions, chech all the rear panel connections, and if there is still no sound, check the fuse. If the fuse is blown, check for possible reasons for the blow-out (e.g., short at the speaker leads, etc.) and replace the fuse.

BASS AND TREBLE CONTROLS

The BASS and TREBLE tone controls on your receiver provide the full range of tonal adjustment necessary for stereo high fidelity listening. At the center position, they are for normal listening, but you may freely vary them to suit your personal taste, music and speaker characteristics.

BALANCE CONTROL

The BALANCE control is used to adjust the sound level of each channel in relation to each other. The nature of stereophonic reproduction is such that it requires two matched channel outputs to obtain the optimum stereo effect. As there may be slight differences between the location of the two speakers with respect to the listener, irregular room acoustics and etc., the BALANCE control is provided to permit proper re-balancing of the overall system even in extreme cases of unbalance. The BALANCE control should be set where the resulting sound from the two speakers appear equally loud.

RECEIVING FM AND AM BROADCASTS

Under normal use for all FM broadcasts the function selector control should be placed in the FM STEREO position.

Your receiver is equipped with a stereo sensing circuit which will automatically determine whether your unit is receiving monophonic or stereophonic broadcasts, and then automatically adjust the mode of operation.

If the station is transmitting stereo, your receiver will automatically switch on the multiplex section and you will hear the broadcast in full stereo. Should the station conclude broadcasting in stereo, your receiver will automatically switch back to monophonic reception.

Should you receive a weak stereo signal whose quality has been degraded by noise or poor signal conditions, and you wish to listen to this stereo broadcast monophonically, place the function selector control in the FM position.

For AM broadcasts the function selector control should be placed in the AM position.

RECORD PLAYER

Set the FUNCTION SELECTOR to "PHONO." If you have two record players connected to the receiver the output from whichever record player that you are operating will be amplified by the receiver

PLAYBACK OF TAPE RECORDINGS

1. When using AUX inputs

Turn the function selector control to the AUX position, and set the MODE to your choice.

2. When using TAPE MONITOR inputs

To listen to a playback of pre-recorded tape, push the TAPE MONITOR button "IN". The setting of the function selector control is irrelevant in this case and may be left at any position.

MAKING TAPE RECORDINGS

To make off-the-air recordings, turn the function selector to AM, FM or FM Stereo, and to record off phono records, set to PHONO. To "dub" off another tape recorder, set to AUX. (The back panel connections should be made so that the "recording" tape recorder is connected to the TAPE MONITOR IN and OUT jacks and the "playback" tape recorder to the AUX jacks.) Same procedure applies for recording off cassette or 8-track cartridge.

If your tape recorder is equipped with a separate playback head, pushing "IN" the TAPE MONITOR button will cause the input source to be bypassed and will permit you to listen to the recording being made on the tape. Leaving the TAPE MONITOR button "OUT" will permit you to listen to the input source. Thus, with the TAPE MONITOR button you may "monitor" or compare the recording being made with the source being recorded.

HEADPHONES

To listen through a pair of headphones, simply plug the headphone lead into the PHONES jack on the front panel. If you wish to listen to the headphones exclusively, you may deactivate the external SPKR 1 and SPKR 2 speaker systems by turning "OFF" the two SPEAKER switches.

CONTROLS AND THEIR FUNCTIONS

TUNING METER indicates the strength of the signal being received. It is used to tune for best possible reception of both AM and FM broadcasts.

ILLUMINATED DIAL POINTER brightens up to indicate whenever an FM stereo broadcast is tuned in.

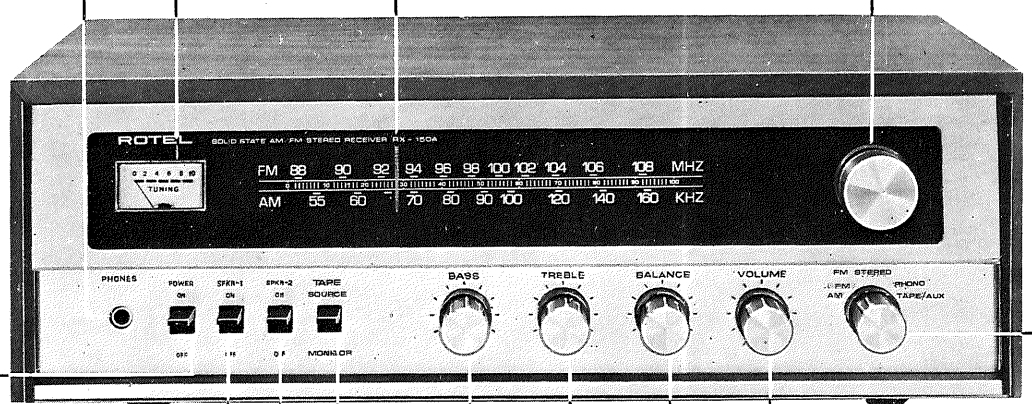
PHONES allows you to listen to your headphones by simply plugging in the lead.

TUNING KNOB allows you to tune for whatever AM or FM station you wish to hear.

POWER activates the system.

FUNCTION SELECTOR allows you to select whatever function you wish to operate at, whether "AM," "FM" "FM STEREO" "PHONO" or "AUX

SPEAKER, MAIN activates the Main speaker systems.



SPEAKER, REMOTE activates the Remote speaker systems.

VOLUME modifies the sound level of the system. Set to suit your taste.

TAPE is used in conjunction with a tape recorder connected to the TAPE MONITOR terminals on the rear panel, and serves a dual function. For playback, set the switch to MONITOR. This overrides the function selected on the function switch. For recording on a machine with a separate playback head, setting the switch to SOURCE allows you to hear the program being recorded, and setting to MONITOR allows a comparison with your tape recording.

BASS modifies the low frequency sounds. Set to suit your taste.

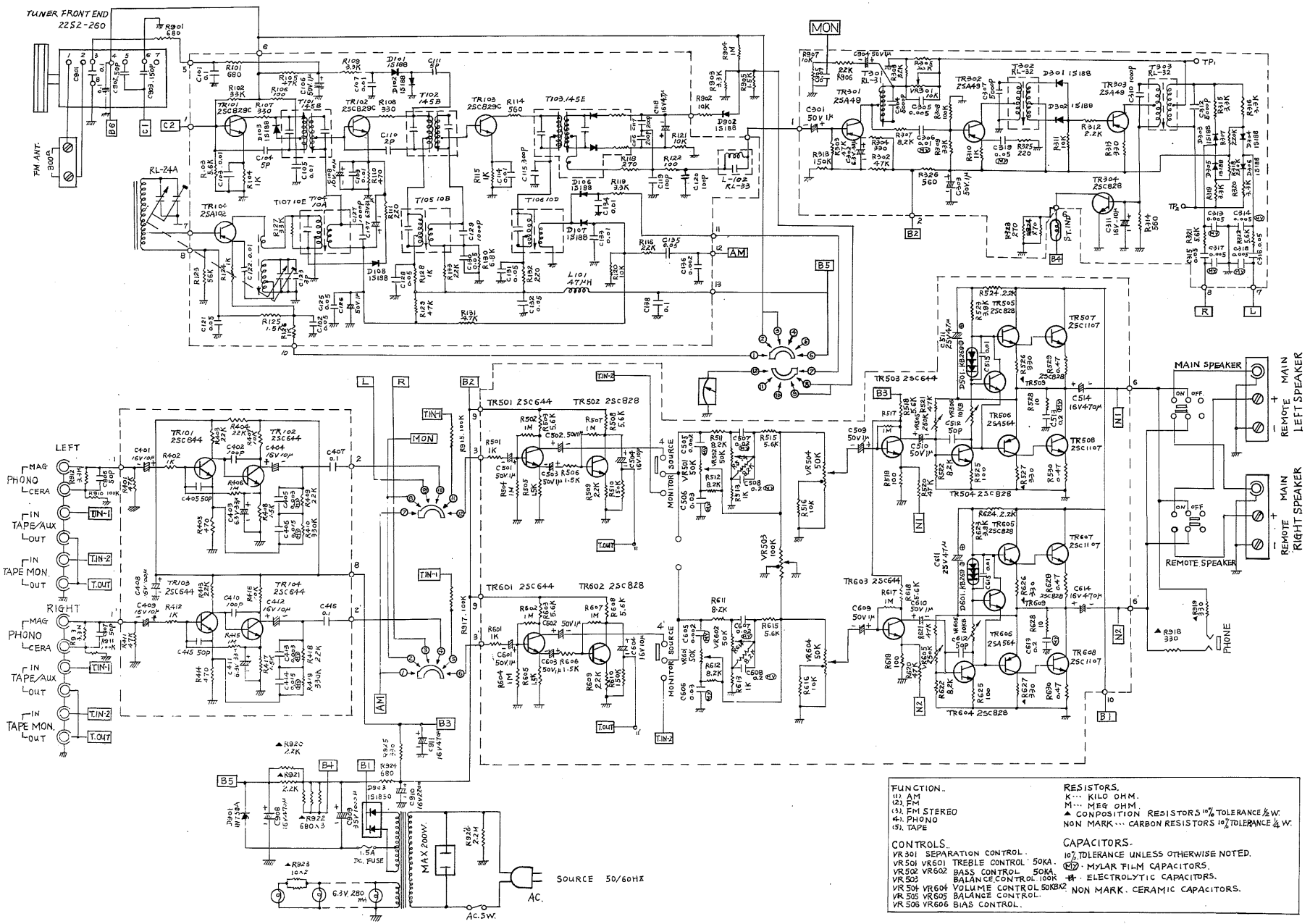
TREBLE modifies the high frequency sounds. Set to suit your taste.

BALANCE modifies the sound level of each channel in relation to each other. Set to adjust for unequal sounds caused by room acoustics or faulty program material.

SPECIFICATIONS

TUNER SECTION:	
FM: ANTENNA IMPEDANCE:	300 ohms balanced.
SENSITIVITY (IHF):	5μV.
HARMONIC DISTORTION:	less than 1.5% (400 Hz 100% Mod).
SIGNAL TO NOISE RATIO:	60 db.
CAPTURE RATIO:	8 db.
IMAGE REJECTION:	better than 35 db.
IF REJECTION:	70 db.
SELECTIVITY:	25 db.
STEREO SEPARATION:	35 db at 1,000 Hz.
SPURIOUS RESPONSE REJECTION:	70 db.
AM: SENSITIVITY (IHF):	30μV at 1,000 kHz.
IMAGE REJECTION:	35 db at 1,000 kHz.
SELECTIVITY:	better than 20 db.
AMPLIFIER SECTION:	
TOTAL MUSIC POWER (IHF):	30 watts at 4 ohms, 22 watts at 8 ohms.
CONTINUOUS POWER (RMS):	11 watts/Ch at 4 ohms, 7.5 watts/Ch at 8 ohms.
DISTORTION, IM:	less than 1.1% at rated output,
HARMONIC:	less than 0.6 % at rated output.
FREQUENCY RESPONSE:	30 – 20,000 Hz at 7.5 watts.
POWER BANDWIDTH (IHF):	35 – 20,000 Hz.
INPUT SENSITIVITY:	MAG 2.8 mV, X'TAL 170 mV, TAPE 250 mV.
INPUT IMPEDANCE:	MAG 45 kohm, X'TAL 190 kohm, TAPE 125 kohm.
HUM AND NOISE:	PHONO 60 db, TAPE 70 db, RESIDUAL 1 mV.
SQUARE WAVE RISE TIME:	7.5 Microseconds.
DAMPING FACTOR:	15 at 8 ohms.
SPEAKER IMPEDANCE:	4, 8, 16 ohms.
BASS CONTROL:	$\pm$12 db at 50 Hz.
TREBLE CONTROL:	$\pm$12 db at 10,000 Hz.
POWER VOLTAGE:	AC 120 V, or 200V, or 220V, or 230V, or 240V, 50/60 Hz.
DIMENSIONS:	16 1/3" W, 6 5/6" H, 5 1/4" D.
WEIGHT:	9.9 lbs.

SCHEMATIC DIAGRAM



FUNCTION.
(1). AM
(2). FM
(3). FM STEREO
(4). PHONO
(5). TAPE

CONTROLS.
VR 301 SEPARATION CONTROL.
VR 501 VR601 TREBLE CONTROL 50KA.
VR 502 VR602 BASS CONTROL 50KA.
VR 503 BALANCE CONTROL 100K.
VR 504 VR604 VOLUME CONTROL 50KBX2
VR 505 VR605 BALANCE CONTROL.
VR 506 VR606 BIAS CONTROL.

RESISTORS.
K··· KILO OHM.
M··· MEG OHM.
▲ CONPOSITION RESISTORS 10% TOLERANCE ½W.
NON MARK··· CARBON RESISTORS 10% TOLERANCE ¼ W.

CAPACITORS.
10% TOLERANCE UNLESS OTHERWISE NOTED.
(MY) · MYLAR FILM CAPACITORS.
⊣⊢ · ELECTROLYTIC CAPACITORS.
NON MARK. CERAMIC CAPACITORS.