

model 38.1.M 512

Left output level



Right output level



-20dB Indicator

Left

Right

Protect

On

Off

Power

A control panel with three indicator lights labeled 'Left', 'Right', and 'Protect'. The 'Protect' light is enclosed in a rectangular box. To the right of these lights is a power switch with 'On' and 'Off' positions. Below the switch is a label 'Power'.

Steven Power Amplifier

RAM audio systems

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RAM AUDIO SYSTEMS

512

HOW TO GET SET UP QUICKLY

1. Connect input jacks to rear of your RAM512.
2. Connect speaker system leads to rear terminals.
3. Connect RAM512, to 120VAC power source.
4. Reduce Preamp volume control to minimum.
5. Turn on Preamp.
6. Turn on RAM512, poweramplifier.
7. Be sure a signal is supplied to the Preamp.
8. Wait 15 seconds, gradually increase volume control.
9. Note volume control setting to produce a desired sound level, also note RAM512 meter reading to produce that sound level.

WARNING: To prevent fire or shock hazard DO NOT expose this appliance to rain or moisture.

CAUTION: High voltages are contained within the covers DO NOT REMOVE COVER, refer servicing to qualified personnel.

MODEL RAM512 OPERATING INSTRUCTIONS

-FORWARD-

To obtain maximum performance and enjoyment from your RAM512 stereo power amplifier, please study these instructions carefully. It is essential that you read and understand these operating instructions before you connect your RAM512. Any amplifier with the power output capability of the RAM512 is able to damage almost any loudspeaker system if improperly used.

-AFTER UNPACKING-

It is wise to save all the packing materials; carton, fillers, cushions, etc. They will prove valuable in preventing damage should you transport or ship your amplifier.

Please inspect your amplifier for any damage incurred in transit. Your RAM512 has undergone very strict quality control inspection and electrical tests prior to packing. Thus it left the factory unmarred and in perfect operating condition. If the unit was shipped directly to you and you discover damage, notify the transportation company without delay. If you receive the unit directly from a dealer and you discover damage return it to him for adjustment. NOTE: save the carton as evidence of damage.

-WARRANTY-

Please fill out the warranty registration card and mail it to the factory. Your extended warranty protection will not go into effect unless you promptly return the registration card packed in the carton.

-INSTALLATION-

The RAM512 power amplifier can be installed in any three (3) basic ways: in an attractive case for placement on a table or wall shelf, installation in your own cabinet or built in installation, and relay rack mounted in a commercial equipment rack. (Rack adapters are available from your dealer as 512RA)

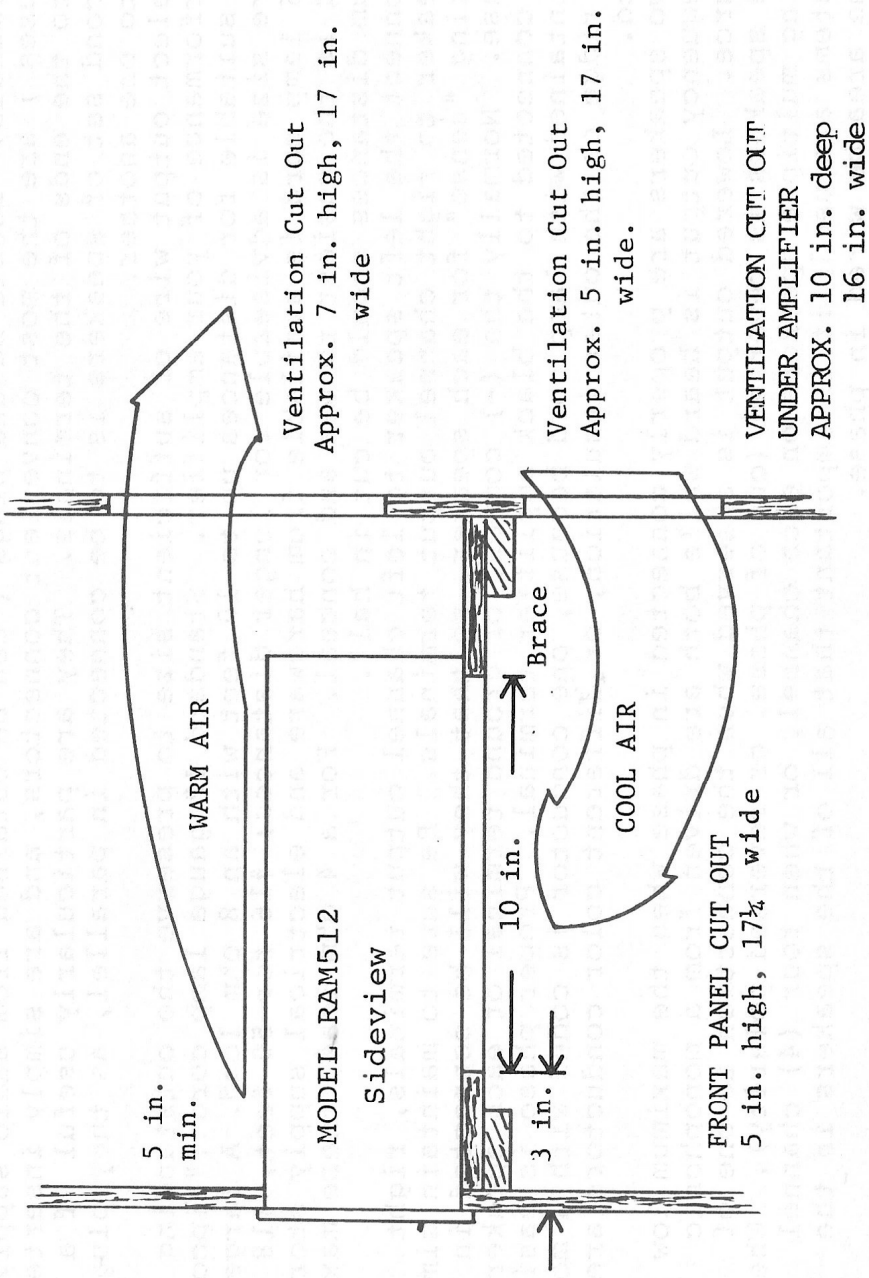
-ACCESSORY CABINET-

An attractive cabinet may be purchased from your dealer. To install, remove the plastic feet from the bottom of the amplifier chassis and slide the amplifier into the cabinet from the front. Fasten the RAM512 into place, using the four (4) screws packed with the cabinet. The accessory cabinet was designed to provide for the proper ventilation. NOTE: to avoid hum pickup, the amplifier, pre-amplifier and turntable should be kept at least six (6) inches apart.

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

-CUSTOM MOUNTING-

All custom installations must provide for a least five (5) inches of space in each direction of the amplifier in order to provide adequate ventilation and avoid unnecessary hum pickup. Your power amplifier can be mounted in a vertical or horizontal position and may be supported by the front panel alone.



CAUTION: DO NOT remove plastic bumper feet and place the amplifier on a flat surface. DO NOT place the amplifier on a rug or carpet, bottom cover ventilation holes will become blocked, resulting in the amplifier overheating.

-SIGNAL CONNECTION-

All input signal connections to your amplifier should be made with shielded audio cable. High quality cables are available at your dealer. NOTE: phone RCA plug adapters are supplied.

The left channel input and output terminals are to the right of the unit as viewed from the rear. The right channel input and output terminals are to the left of the unit as viewed from the rear. To avoid confusion, we suggest connecting one cable at a time between the RAM512 and the other components of your system. This will minimize mixing up channels. NOTE: it is desirable to keep the left and right input cables together throughout their length in order to avoid hum.

-OUTPUT CONNECTIONS-

For connection of your speaker(s) there are three way binding posts that will accept single or double "banana plugs" spade lugs, or simply stranded wire. If stranded lamp cord is used, the ends should be "tinned" with solder first to avoid fraying. To connect the wire, unscrew the terminal cap until the hole through the metal shaft is uncovered, push the wire end through the hole, and tighten the cap.

make certain that no wire strands can touch other than the intended terminals. Double banana plugs (can be obtained from audio supply houses) are the most convenient connectors, and are simply inserted into the ends of the terminals. They are particularly useful if a second set of speakers is to be connected in parallel, as they plug into one another.

Select output wire of sufficient size to preserve the outstanding performance of your amplifier. Standard 18 gauge lamp cord ("zipcord") is suitable for distances up to 10 feet with an 8 ohm load. A larger wire size is advisable for longer distances; #16 for 50 feet, #18 and #16 lamp cord is available from hardware and electrical supply stores, and is the easiest to use and conceal. For a 4 ohm load, these maximum distances should be cut in half.

Connect the left speaker to left channel output terminals, right speaker to right channel output terminals. Be sure to maintain similar wiring "sense" for each speaker, so that they will be connected in phase. Normally the (-) common, or ground terminal of each speaker is connected to the black amplifier terminal. Proper phase is easily maintained with lamp cord because, one conductor is coded with a molded ridge on the outer insulation, or different color conductors are used.

Two speakers are properly connected in phase when the maximum low frequency output is heard while both are driven from a monophonic source. Lowered output is observed when the connection to one of the speakers is reversed (out of phase, or reversed polarity). When using multiple speakers on each channel, or when four (4) channel systems are used; it is important that all of the speakers in the same area be wired in phase.

CAUTION: Never directly connect the loudspeakers of one channel in parallel with those of any other. The resulting damage is not covered under the warranty.

CAUTION: The RAM512 is designed to tolerate short circuits at the output terminals without damage to the amplifier, but it is wise not to tempt fate by deliberately shorting the output.

-AC POWER CONNECTIONS-

The power cord should be plugged into a wall outlet providing 120 volts 50/60Hz capable of 10 amps (minimum). DO NOT attempt to switch your RAM512 remotely by plugging it into a switched outlet on your control preamplifier, unless it is designed to switch a large power amplifier.

-OPERATING-

First, make sure that your preamplifier volume (level) control is turned down (fully counter-clockwise).

Second, turn on the preamplifier.

Third, turn on your RAM512 power amplifier, wait 10 to 15 seconds before increasing the preamplifiers volume control. The amplifier's output remains disconnected from your speakers until all circuits have stabilized. If the volume control is high when the relay is activated, the sound may suddenly "BLAST" from the loudspeakers.

Now you can slowly increase the volume control. Once you are familiar with the volume control setting versus sound level it will not be necessary to reduce the volume control every time you use your audio system.

-PROTECTION RELAY OPERATION-

The primary purpose of the protect relay is to disconnect the loudspeakers from the amplifier if potentially destructive signals or equipment malfunction imposes direct current to the loudspeakers. The relay control circuits are triggered independently for each channel. They are designed to sense both positive and negative deviations.

The relay control circuit parameters are design set to provide substantial protection, based on the premise of good quality input signals. Since subsonic signals appear similar to DC signals at high power levels, the relay may trip as a result of signals you previously did not know existed. Likewise, severe overload of the input will appear similar to a DC signal and may actuate the relay. The relay will automatically reclose when the overload is removed; likewise, the over temperature protection will reset when the amplifier has cooled sufficiently.

-METERS-

Your RAM512 is equipped with two, 5 inch illuminated, dB reference, ballistic-type meters for monitoring the relative output level of the left and right power amplifiers channels. Power level reference into an 8 ohm load is as follows:

-30dB	corresponds to approximately	100 miliwatts
-20dB	corresponds to approximately	1 watt
-10dB	corresponds to approximately	10 watts
0dB	corresponds to approximately	100 watts
+3dB	corresponds to approximately	200 watts

Since meter movements have a certain amount of mechanical inertia, their response tends to lag transient power demands. The meters indicate an average reading, useful for monitoring average power output and its balance between channels.

-20dB INDICATORS-

The contents of most program material (music) contains peak transients, that can exceed the average power level by +10dB to +20dB. The -20dB indicators will peak respond (illuminate) when the program material instantaneously reaches a level of -20dB (ref) or greater. (1 watt to 200 watts).

-MAINTENANCE-

The model RAM512 amplifier is protected by a 6½ amp slo-blo fuse (120 volt operation). In the event the fuse has blown, replace ONLY with the same type and rating as follows: for 120 volt, 50/60Hz; 6½ amp. 250 volt, slo-blo, 3 AG type.

The satin anodized finish of the heavy aluminum panel and case will last indefinitely with proper care and cleaning. Clean with a soft, lint-free cloth dampened with a mild solution of detergent and water. A liquid furniture waxer and spray-cleaner may also be used if desired.

NOTE: NEVER use scouring pads, steel wool, scouring powders, or harsh chemical agents to clean the amplifier panel, case or meters.

CAUTION: HIGH VOLTAGES ARE CONTAINED WITHIN THE COVERS. REMOVE POWER SUPPLY CORD FROM THE OUTLET BEFORE ATTEMPTING ANY COVER OR PANEL REMOVAL.

-INTERNAL FUSE REPLACEMENT-

1. Move front panel power switch into the off position.
2. Remove power cord from power outlet source.
3. Remove four (4) screws in top of cover.
4. Remove six (6) screws on each side of cover above side seam. Remove cover.
5. Fuses (5 amp 8 AG instrument type) are located on the front edge of each amplifier driver board. NOTE: viewed from the front the amplifier unit, to your left is the left channel. Replace defective fuse(s) with the same type and rating only, 5 amp 8 AG, AGX5.
6. Replace cover and screws before attempting to place the amplifier back into use.

-METER LAMP REPLACEMENT-

1. Follow above steps 1 thru 4 to remove the cover, this will provide access to meter lamp sockets.
2. Unscrew lamp by turning in a counter-clockwise direction.
3. Replace lamp with any similar 7 watt 120V lamp or use same type Sylvania 7C7WH lamp.
4. Replace cover and screws before attempting to place the amplifier back into use.

RAM audio systems inc.

SPECIFICATIONS

RAM 512

POWER AMPLIFIER

MINIMUM CONTINUOUS AVERAGE
POWER OUTPUT PER CHANNEL,
WITH BOTH CHANNELS DRIVEN:

..... 4 ohms 8 ohms 16 ohms
..... 300 Watts 180 Watts 90 Watts

POWER BANDWIDTH: 20Hz-20KHz 20Hz-20KHz 20Hz-20KHz

TOTAL HARMONIC DISTORTION: 0.3% .07% .05%

Intermodulation Distortion: At or less than rated power
SMPTE method; less than .1%

Frequency Response: ± 0.1 dB, 15Hz to 20KHz rated power
 ± 0.5 dB, 5Hz to 120KHz at 1 watt.

Input Sensitivity: 1.69V for 180W into 8 ohms
(27dB gain).

Input Impedance: 47,000 ohms shunted by 220 mmf.

Overload Recovery: For a 10dB over clipping level;
less than 1 microsecond.

Slewing Rate: Better than 20 volts per
microsecond.

Phase Shift: 10° lagging at 20Hz.

Damping Factor: Greater than 1000 at 8 ohms
20Hz to 20KHz.

Propagation Delay: Less than 0.2 microseconds.

Group Delay: Less than 0.02 microseconds.

Step Response: Less than 1% overshoot, or
undershoot, 8 ohms, at rated
power.

Hum and Noise: 100dB below rated output (8 ohms)

Speaker Protection: D.C. offset relay, and dual
instrument type fuses.

Amplifier Protection: 6.25 amp. slow blow fuse for
120 volt line mains.

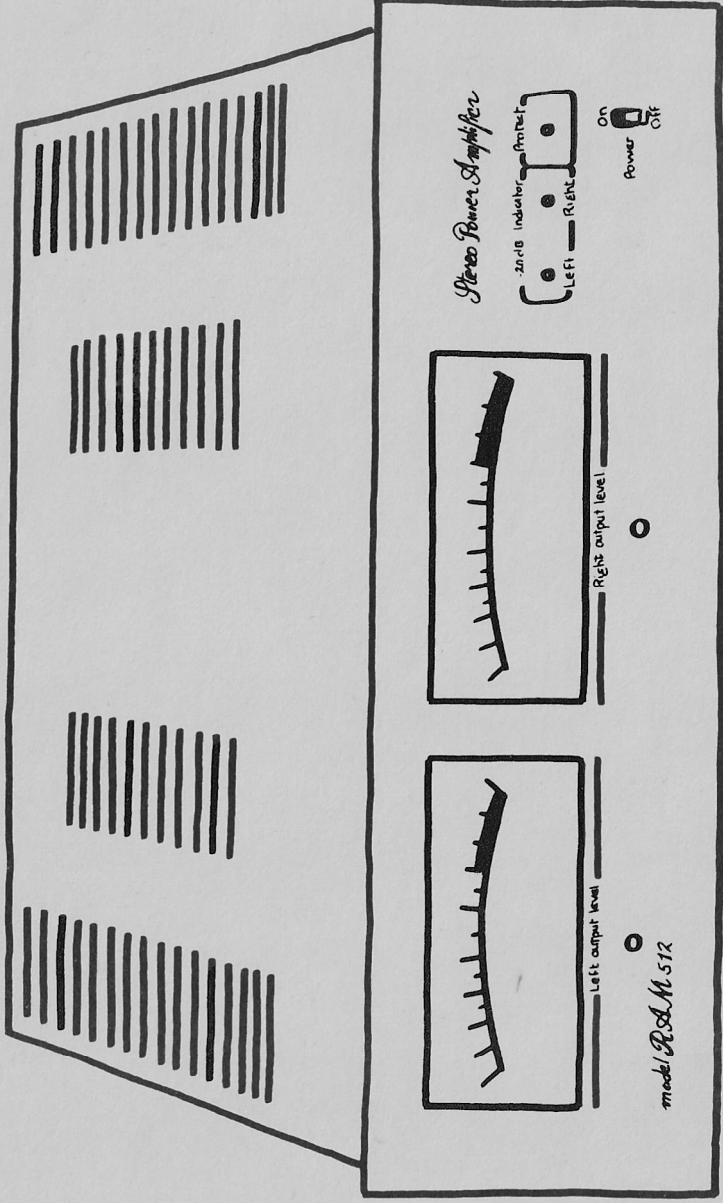
Dimension: Width: 17.5 in. (44.5cm)
Height: 5.25 in. (13.3cm)
Depth: 14 in. (35.5cm)

Weight: 40 lbs. shipping weight.

17 Jansen st.

Danbury, CT 06810

(203) 743 7698



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- OVER 600 WATTS RMS BOTH CHANNELS AT 4 OHMS.
- LESS THAN .07% THD 20HZ-20KHZ AT 8 OHMS.
- FULLY COMPLEMENTARY DIRECTLY COUPLED SEMICONDUCTOR COMPLEMENT.
- METERS CALIBRATED TO READ A 43dB TOTAL DYNAMIC RANGE WITHOUT MANUAL RANGE CHANGE.
- INDEPENDENT - 20dB (1 WATT) PEAK L.E.D. INDICATORS.
- PROTECTION RELAY CIRCUIT WITH L.E.D. INDICATOR.
- NO CURRENT LIMITERS TO COMPRESS DYNAMIC RANGE.
- CONVECTION COOLING DESIGNED FOR COOL AND QUIET AMPLIFIER OPERATION.
- OPEN LOOP GAIN 60dB; 3dB POINTS 5Hz and 12KHZ.
- ONLY ONE (1) NEGATIVE FEED BACK LOOP TO SET GAIN AT 27dB
- BOTH R.F. PROTECTION AND SLEW RATE LIMITING, TO PROTECT BOTH THE AMPLIFIER AND SPEAKER SYSTEMS FROM ULTRA-SONIC SIGNALS.
- INPUT A.C. COUPLED TO SAFELY ATTENUATE SUBSONIC SIGNALS WITH A MINIMUM OF LOW FREQUENCY PHASE SHIFT.
- LOWEST TRANSIENT I.M. DISTORTION.
- HIGH DAMPING FACTOR (>1000) AT FULL BANDWIDTH, FROM RATED POWER TO 10mw.
- NO RISE IN DISTORTION AT LOW POWER LEVELS, THROUGH THE USE OF A PROPRIETARY "CLASS A" THERMAL AND CURRENT TRACKING BIAS CIRCUIT.

RAM audio systems inc.

LIMITED WARRANTY

RAM AUDIO SYSTEMS, INC. warrants all RAM Audio Systems electronics to be free of manufacturing defects in both material and workmanship for a period of three (3) years during that period both parts and labor are warranteed.

NO OTHER WARRANTY, WHETHER EXPRESSED OR IMPLIED, IS GIVEN OR MADE WITH ANY ACCESSORY SUPPLIED WITH THIS PRODUCT OR ANY OTHER EQUIPMENT THAT MAY BE CONNECTED TO THIS PRODUCT. TO THE EXTENT NOT IN CONFLICT WITH APPLICABLE LAW, THIS WARRANTY EXTENDS ONLY IN FAVOR OF THE ORIGINAL, REGISTERED OWNER AND SHALL BE VALID ONLY IF THE PRODUCT IS PURCHASED WITHIN THE UNITED STATES OF AMERICA, INCLUDING POSSESSIONS AND TERRITORIES. IT IS THE OWNER'S RESPONSIBILITY TO ESTABLISH THE DATE AND PLACE OF PURCHASE BY ACCEPTABLE EVIDENCE, AT THE TIME SERVICE IS SOUGHT, TO VALIDATE YOUR WARRANTY, YOU MUST FILL OUT AND MAIL THE WARRANTY REGISTRATION CARD TO RAM AUDIO SYSTEMS, INC., WITHIN TEN (10) DAYS FOLLOWING THE DATE OF PURCHASE, USING THE PRE-ADDRESSED ENVELOPE PROVIDED.

This warranty is void if the serial number has been removed or altered; if the product is modified in any manner in which RAM Audio Systems, Inc., concludes; after inspection, affects the reliability or safety of this product; if this product has been repaired or serviced; if the product is damaged because it is not operated in accordance with the instruction manual; if the product is damaged because it is not properly maintained or installed as set forth in the instruction manual.

For warranty service, send the product prepaid to: RAM AUDIO SYSTEMS, INC. if requested repair or service are within the terms of the limited warranty, RAM Audio Systems, Inc. will pay the return shipping charges. When shipping the entire unit, it must be shipped in the original package. No accessories should be shipped with this unit, RAM Audio Systems, Inc. shall have no liability for loss or damage to any accessories.

This warranty is not a service contract, it does not include cleaning, maintenance, or periodic check-up. RAM Audio Systems, Inc. under this warranty shall be limited to the repair of, including parts, or the replacement of, this product at the discretion of RAM Audio Systems, Inc.

RAM AUDIO SYSTEMS, INC. reserves the right to make changes in design and/or improvements to its products without any obligation to include these changes in any product theretofore manufactured.

EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ALL IMPLIED WARRANTIES MADE BY RAM AUDIO SYSTEMS, INC. IN CONNECTION WITH PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS, ARE LIMITED IN DURATION TO THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE, AND NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS, SHALL APPLY TO THIS PRODUCT AFTER SAID PERIOD HAS EXPIRED. THE CONSUMER'(S) SOLE REMEDY SHALL BE SUCH REPAIR OR REPLACEMENT AS IS EXPRESSLY PROVIDED ABOVE; DIRECT OR CONSEQUENTIAL, ARISING OUT OF THE USE; OR INABILITY TO USE.

PLEASE RECORD THE FOLLOWING AS YOUR RECORD OF A VALUABLE PURCHASE.

MODEL 512 SERIAL NUMBER 10547

PURCHASER'S NAME _____

PURCHASED FROM _____

CITY _____

STATE _____

ZIP _____

PURCHASE PRICE _____

WARRANTY DATE _____

17 Jansen st.

Danbury, CT 06810

(203) 743 7698

RAM AUDIO SYSTEMS EXTENDED WARRANTY REGISTRATION

MODEL 512
DATE PURCHASED _____

SERIAL NUMBER 10547

WARRANTY IS VOID UNLESS THIS INFORMATION IS MAILED AND POSTMARKED WITHIN TEN (10) DAYS AFTER PURCHASE DATE, FROM AN AUTHORIZED DEALER, BY ORIGINAL PURCHASER.

PURCHASER'S NAME _____

PURCHASER'S ADDRESS _____

CITY _____

STATE _____

ZIP _____

I HAVE FILLED IN ALL OF THE ABOVE INFORMATION ACCURATELY. I HAVE READ AND UNDERSTAND THE RAM AUDIO SYSTEMS, INC. WARRANTY. I AM AWARE THAT THE WARRANTY IS VOID IF THIS EQUIPMENT IS MISUSED, MISHANDLED OR RECEIVES UNAUTHORIZED SERVICE. THIS EQUIPMENT WAS PURCHASED ON THE ABOVE DATE.

SIGNED: _____

Please take a minute to answer the following questions, it will help us produce a better product and help other audiophiles like yourself, to enjoy the better equipment to the fullest.

1. Was your equipment in satisfactory condition? Yes No
COMMENT: _____
2. Your age? Under 21 _____ 21-30 _____ 31-40 _____ Over 40 _____
3. Your F.M. listening time is? 50% or more _____ Less than 50% _____ Not at all _____
4. Do you own a tape recorder? Reel to reel _____ Cassette NO
5. How did you hear about RAM Audio Systems? Dealer Demonstration _____ Audio Show _____ Advertising _____ A Friend _____
6. Was the RAM Audio equipment properly demonstrated? Yes No
7. Did the dealer influence your choice? No Yes Somewhat
8. What is your musical preference? Classical _____ Rock _____ Popular _____ Jass _____ Other _____
9. Your occupation is? _____
10. What audio magazines do you read? _____
11. What radio stations do you listen to most? _____
12. What other brands did you consider? _____
13. What speaker system do you own? _____
14. What features do you consider important to RAM Audio equipment? _____
15. What features would you like to see in your electronic equipment? _____
16. What turntable and cartridge are you using? _____
17. If you were to tell a friend about your system what would you list as its advantages? _____

18. What specifications and/or features are important to you for the following?

TONE ARM _____

TURNTABLE _____

CARTRIDGE _____

PREAMPLIFIER _____

FM TUNER _____

TAPE RECORDER _____

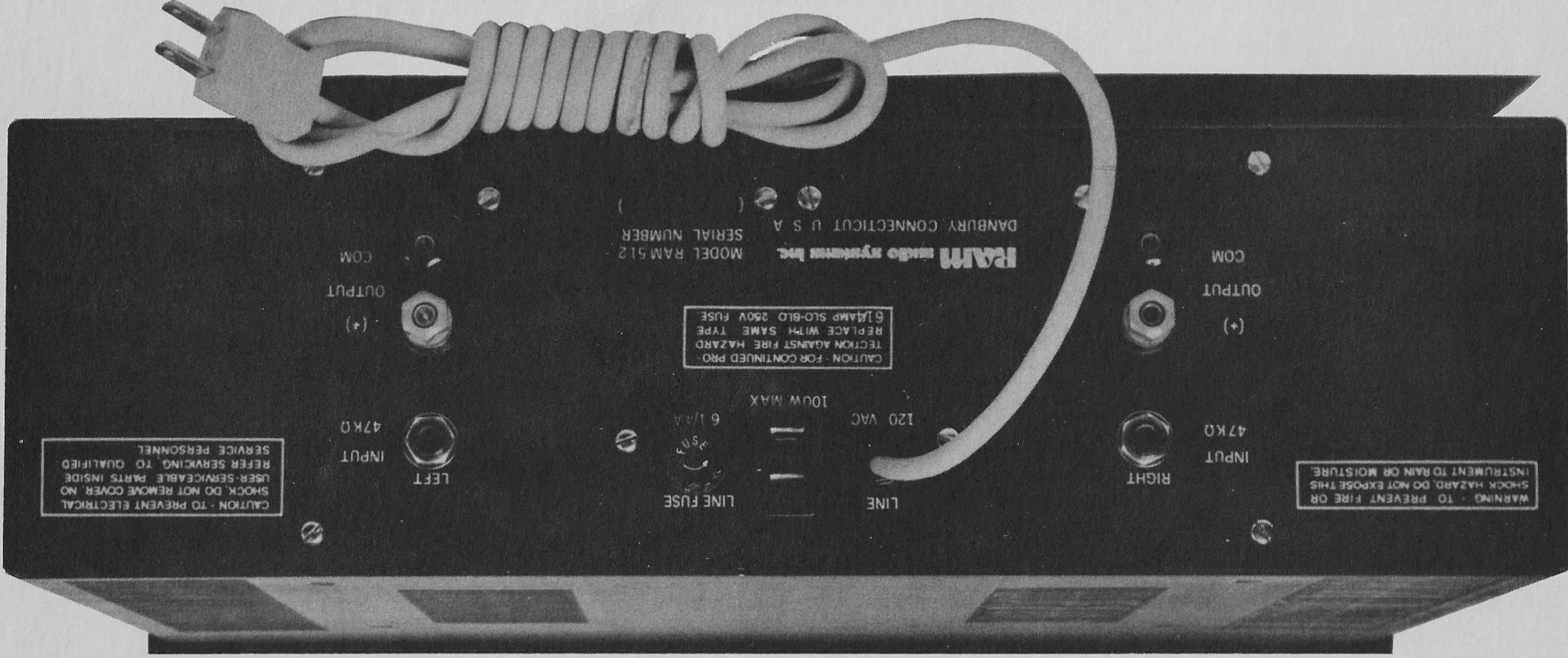
POWER AMPLIFIER _____

SPEAKER SYSTEM _____

Thank you for helping us understand better what features you would look for, it helps us design a better product.



RAM audio systems inc.
17 Hansen st.
Danbury. CT 06810



RAHN audio systems inc.
MODEL RAM 512
SERIAL NUMBER
DANBURY CONNECTICUT U S A

CAUTION - FOR CONTINUED PRO-
TECTION AGAINST FIRE HAZARD
REPLACE WITH SAME TYPE
6 AMP SLO-BLO 250V FUSE

LINE
120 VAC
100W MAX
6/1A
LINE FUSE

CAUTION - TO PREVENT ELECTRICAL
SHOCK DO NOT REMOVE COVER. NO
USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED
SERVICE PERSONNEL

WARNING - TO PREVENT FIRE OR
SHOCK HAZARD DO NOT EXPOSE THIS
INSTRUMENT TO RAIN OR MOISTURE

COM
OUTPUT (+)
47KΩ
INPUT
LEFT

COM
OUTPUT (+)
47KΩ
INPUT
RIGHT