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# OWNER'S MANUAL

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PLEASE READ BEFORE OPERATING THIS EQUIPMENT

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## STA-95

# SOLID STATE am/fm stereo receiver

CATALOG NO.31-2082



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CUSTOM MANUFACTURED FOR RADIO SHACK  A DIVISION OF TANDY CORPORATION

**REALISTIC**<sup>®</sup>

### RADIO SHACK LIMITED WARRANTY

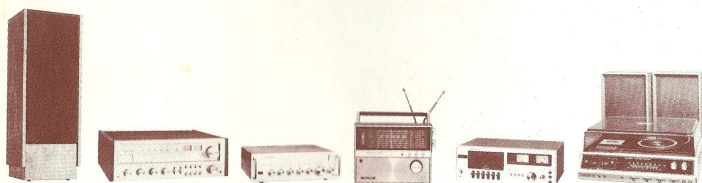
This equipment is warranted against defects for 2 years from date of purchase. Within this period, we will repair it without charge for parts and labor. Simply **bring your sales slip** as proof of purchase date to any Radio Shack store. Warranty does not cover transportation costs. Nor does it cover equipment subjected to misuse or accidental damage.

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

*We Service What We Sell*

For your own protection, we urge you to record the Serial Number of this unit in the space provided. You'll find the Serial Number on the back panel of the unit.

Serial Number



Speakers   Components   P.A. Products   Radios   Recorders   Phonographs

*REALISTIC AUDIO PRODUCTS* are the proud result of Radio Shack engineering, research, development, and over 50 years of experience in electronics. Laboratories and major testing facilities are maintained in Fort Worth, Los Angeles, Boston, Columbus Ohio, Burlington Iowa, Toronto and Tokyo. In every sense a national brand, the Realistic label is worn with equal distinction by our highly original Communications and Citizens Band (two way radio) products, and numerous other items, including: tape, headphones, antennas, intercoms and tubes.

## REALISTIC®

THE BRAND WITH OVER 1,000,000 CUSTOMERS

*In choosing this fine Realistic product you have demonstrated a rather acute awareness of "getting the most for your money". With Realistic this is not an idle boast.*

*The "line" was born in Boston, long famous for Yankee ingenuity—and thrift. Its original intent was to bridge a gap between \$100 equipment and \$25 equipment where, at the time, there was a real void in hi-fi merchandise.*

*Early products were a \$39.95 FM tuner, a \$29.95 preamp/amplifier, a \$19.95 speaker. Soon we found ourselves a unique niche as manufacturing retailers.*

*Capacity and ability grew simultaneously. Our Realistic Electrostat-3® electrostatic tweeter was called a "best buy" by the country's leading product-review magazine. Our 10TRF radio out-performed practically anything then available. And dealers from all over the world began requesting a Realistic franchise.*

*Recent "firsts" include: the first medium-cost DC/AC communications receiver totally engineered in solid state—the Realistic DX-150A; the first properly designed microprocessor-controlled UHF/VHF Scanner-Radio; the Realistic Mach One loudspeaker, making "theater-type sound" affordable; the first lifetime-guaranteed vacuum tube; and the Realistic STA-2000 stereo receiver, which combines massive power, modern styling and a host of new ideas—at a cost fully \$100-\$200 below its value under traditional marketing practices.*

*But of course!—Realistic marketing practices are NOT traditional. First: the line is restricted in distribution. Second: we do not have sales representatives and other normal "trade" costs, nor do we waste money and tools on frequent model changes to attract new dealers—a new model is a NEW model, a current model is one that gets a steady stream of improvements at no cost to you and without a lot of wild (and expensive) claims of novelty.*

## INTRODUCTION

Your new STA-95 is a highly versatile AM/FM Stereo Receiver which delivers enough power to drive almost any speaker system. The "honest" 45 watts per channel over the entire audio bandwidth will drive both "main" and "remote" speakers. And it has the performance and convenience features that distinguish a truly great receiver.

- A special button switches the FM de-emphasis circuits to let you enjoy Dolby\* FM broadcasts by using a Dolby NR decoder.
- With the FM tuner, the specifications tell the story. There's an FET front-end for excellent sensitivity and reduced noise. When you tune, muting eliminates interstation hiss.
- AM & FM IF sections use linear IC's which assure minimum noise and low distortion, combined with high gain.
- FM Multiplex circuit is a Phase Lock Loop IC (PLL-IC) which provides rock-stable stereo separation even with temperature changes.
- A linear IC is used in the Phono Preamp to obtain wide dynamic range and low distortion.
- Tape Dubbing switch allows two-way tape dubbing without troublesome rear panel connection changes.
- Full Tape Monitor control.
- The wideband tuner provides maximum AM fidelity.
- Front panel jacks let you listen to any source or make tape recordings without troublesome rear panel connections.
- Built-in automatic thermal and overload protection.

At Radio Shack we also believe a receiver should look as good as it sounds. The STA-95 comes with a beautiful genuine walnut veneer case—and it doesn't cost you a penny extra.

\*"Dolby" is a registered trademark of Dolby Laboratories.

## SPECIFICATIONS AMPLIFIER

Audio Output Power at no more than 0.3% Total Harmonic Distortion into 8 ohms, from 20-20,000 Hz	: 45 watts per channel, minimum RMS power, both channels driven
Input Sensitivity	
Phono	: 2.5 mV
Phono Overload (1% THD)	: 150 mV
Aux	: 160 mV
Tape	: 160 mV
Frequency Response (at 1 watt)	: 30 ~ 20,000 Hz $\pm$ 1 dB
IM Distortion	: 0.1% (at 30 watts)
Signal-to-Noise Ratio	: 65 dB (phono) : 80 dB (Aux)

## FM TUNER

Sensitivity, for 30 dB S/N	: 2 $\mu$ V (IHF) : 5 dBf
Capture Ratio	: 2 dB
Signal-to-Noise Ratio	: 65 dB
Total Harmonic Distortion	
Mono	: 0.3%
Stereo	: 0.5%
Image Rejection	: 50 dB
Selectivity	: 50 dB
Separation at 1000 Hz	: 40 dB

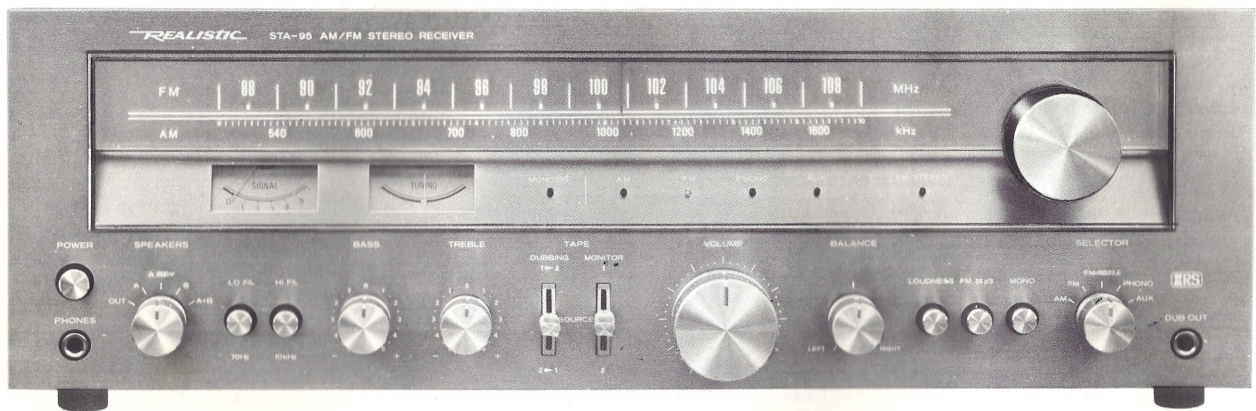
## AM TUNER

Sensitivity	: Terminal: 25 $\mu$ V : Radiated: 250 $\mu$ V/m (for 20 dB S+N/N)
Image Rejection	: 35 dB
RF Interference Rejection	: Rated Excellent

POWER REQUIREMENTS	: 120 VAC, 60 Hz (220/240 VAC, 50 Hz for European and Australian models as indicated on rear of unit)
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**NOTE:** Before operating your STA-95 for the first time, please read this manual carefully. It will tell you how to connect your receiver and how to get the most enjoyment from your system.

## CONTROL FUNCTIONS



### POWER

Turns the Receiver on when pushed in—off when pushed a second time.

### PHONES

Accepts any pair of low-impedance stereo headphones. The jack is always "live".

### SPEAKERS

**OUT** — Turns all speakers off for private headphone listening.

**A** — Connects main speakers only.

**A REV** — Reverses the left/right sound output from the "A" (or Main) speakers.

**B** — Connects remote speakers only.

**A+B** — Connects main and remote speakers.

### FILTER

The **LO** and **HI FILTER** buttons let you filter out noise. When pressed in, the high filter removes hiss and scratches. The low filter reduces turntable rumble when it is pressed in.

### BASS

Controls low frequencies. At the center position, it does not affect the sound. Turn clockwise to boost bass response, counterclockwise to de-emphasize the low frequencies.

### TREBLE

Controls high frequencies. At the center position, it does not affect the sound. Turn clockwise to boost treble response, counterclockwise to de-emphasize the high frequencies.

You'll notice that both tone controls are "stepped" for convenient reference (you can always return to a previous setting by referring to the numbered step-positions).

### TAPE DUBBING

Is a lever-type switch. Normally you'd leave it in the center or **SOURCE** position. If you want to make two recordings at one time—this switch will permit that. Use position 1 ► 2 to dub from **TAPE IN 1** to **TAPE OUT 2**. Use position 2 ► 1 to dub from **TAPE IN 2** to **TAPE OUT 1**.

## TAPE MONITOR

Is also a lever-type switch. It will let you hear a tape which you are recording—immediately after it has been made, assuming you are using a 3-head Tape Deck (one with Monitoring facilities). Use position 1 to monitor a deck connected to TAPE IN 1; use position 2 to monitor a deck connected to TAPE IN 2.

**CAUTION:** If you want to listen to the Receiver's sound, you must leave **MONITOR** in the center, **SOURCE**, position.

**VOLUME** — adjust for desired level of sound. It adjusts the sound level for both channels—from minimum to maximum.

**BALANCE** — use to provide best stereo balance of sound between channels. At the center position (you'll feel a slight "catch"), the sound will be equal from both channels.

## LOUDNESS

When pushed in, the switch introduces a special low and high-frequency emphasis into the amplifier circuitry. **LOUDNESS** enhances the sound quality at low volume levels by boosting bass and treble frequencies which the human ear does not hear as well as the mid-range frequencies. Use the switch position which provides the most pleasing sound reproduction.

## FM 25 $\mu$ S

Makes your Receiver "Dolby FM-compatible". By adding a Dolby noise reduction decoder or a Dolby tape deck, you can get the full benefit from superb Dolby FM broadcasts. (Check your local FM stations to see if any of them offer Dolby broadcasts.)

When listening to a non-Dolby FM (or if you do not have a Dolby decoder), leave **FM 25  $\mu$ S** button in out position.

## MONO

When pressed in, switches the amplifier and tuner from stereo to monaural operation. In the out position, the amplifier operates in stereo and the FM tuner automatically switches to stereo when there is a stereo signal.

## SELECTOR

Chooses one of five input positions.

**AM** — Activates the built-in wideband AM tuner.

**FM** — Activates the built-in FM tuner.

**FM MUTE** — Activates the built-in FM tuner and eliminates interstation hiss.

**PHONO** — For any turntable equipped with a magnetic cartridge.

**AUX** — For any high-output source—a second tuner, a crystal or ceramic phono cartridge, a second tape deck, TV, Ham radio, etc.

## DUB OUT

This stereo phone jack serves as an extra tape output. This makes it easy to copy tapes or record any program source without changing the rear-panel connections. The output should be connected to the Recorder's Auxiliary or Line inputs.

## Tuning Knob

Tunes AM and FM stations.

## TUNING Meters

The left meter is for FM and AM signal strength indication; tune for maximum deflection. The right meter functions on FM only—this is an FM "Center Tuning" meter.

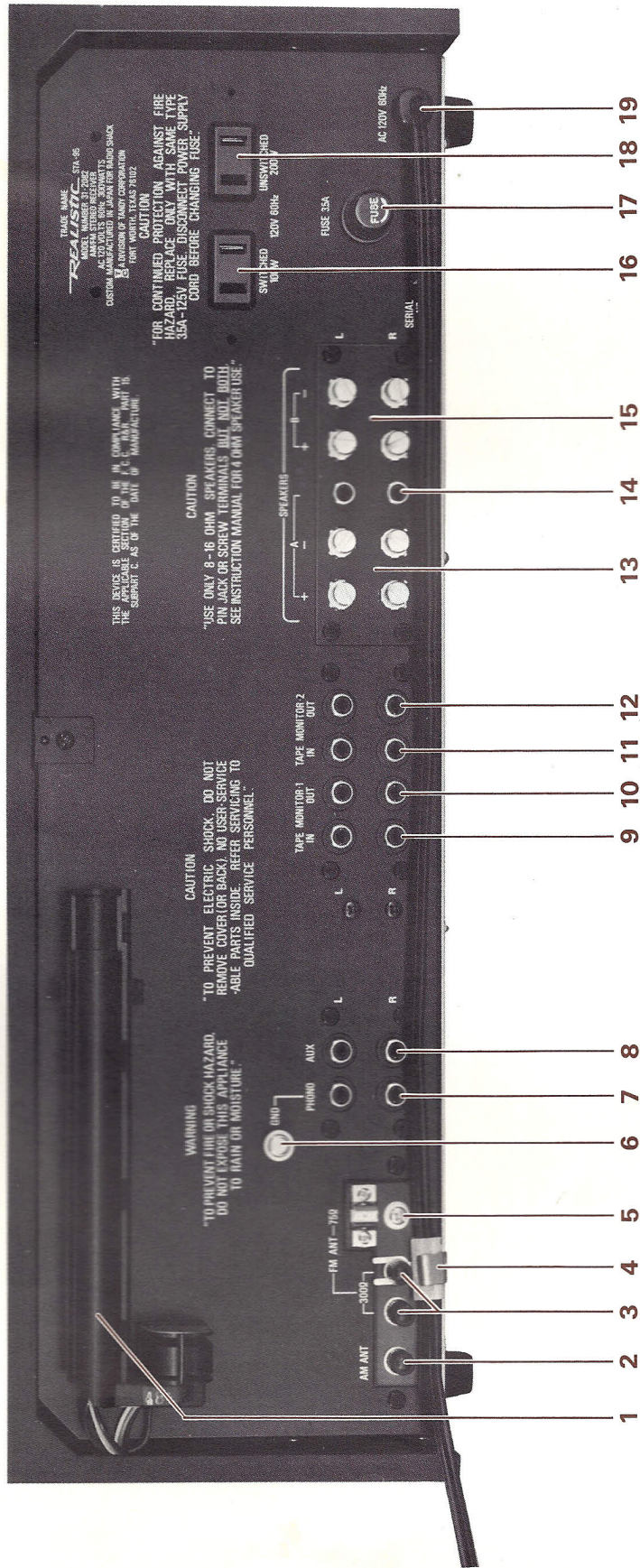
## FM STEREO Indicator

This bright red LED lights up when the **MONO** button is out and you are tuned to a stereo FM signal.

**Function LED's** These bright red LED's light up to indicate the function you are using—AUX, PHONO, AM, FM or FM MUTE.

**TAPE MONITOR Indicator** — This bright green LED lights up when TAPE MONITOR switch is in the 1 or 2 position.

# REAR PANEL



1. **Built-in adjustable ferrite AM antenna** — is adequate for most areas for AM reception. Swing down and move around for best reception.
2. **AM ANTenna Screw Terminal** — Connect an external AM/short-wave antenna to this screw for long-distance AM reception. In most areas the built-in antenna will provide excellent reception.
3. **FM ANTenna 300Ω Screw Terminals** — Connect antennas using standard 300-ohm lead-in to these screws.
4. **FM Line Cord Antenna** — Connect to the 300Ω FM screw terminal illustrated to provide FM reception in most metropolitan areas. Disconnect the line cord antenna when using an external FM antenna.
5. **FM ANTenna 75Ω Screw Terminals** — Connect to antenna using 75-ohm coaxial lead-in. Coaxial cable provides extremely high resistance to static and other noise.
6. **PHONO GND** — Accepts the green or black ground wire found on most turntables. Making this "ground" connection reduces or eliminates hum.
7. **PHONO** — Accepts output from any turntable equipped with a magnetic cartridge. These jacks are active when SELECTOR is set to PHONO.
8. **AUX** — Accepts output from any high-level source—a second tape deck or tuner, a ceramic or crystal phono cartridge, etc. These jacks are active when SELECTOR is set to AUX.
9. **TAPE MONITOR 1 IN** — Accepts output from any tape deck or recorder for tape playback. These jacks are active when front panel TAPE MONITOR Switch is set to 1.
10. **TAPE MONITOR 1 OUT** — Permits tape recording any source chosen by the SELECTOR switch. The output from these jacks is unaffected by the front panel controls. Also use for duplicating (or Dubbing) tapes being played through the Amplifier from another Recorder/Player connected to TAPE MONITOR 2 IN.
11. **TAPE MONITOR 2 IN** — Accepts output from a second tape deck or recorder for tape playback. These jacks are active when front panel TAPE MONITOR Switch is set to 2.
12. **TAPE MONITOR 2 OUT** — Permits recording with a second tape recorder. Also use for duplicating (or Dubbing) tapes being played through the Amplifier from another Recorder/Player connected to TAPE MONITOR 1 IN.
13. **A SPEAKERS Screw Terminals** — Powers main speakers which do not have phono jack connectors.  
NOTE: Use either phono jack or screw terminals for A speakers, not both.
14. **A SPEAKERS Phono Jacks** — Connects to speakers with phono jack connectors.  
NOTE: Use either phono jacks or screw terminals for A speakers, not both.
15. **B SPEAKERS Screw Terminals** — Powers remote speakers.
16. **SWITCHED Convenience Outlet** — Plug in an audio accessory which you want turned on and off by the front panel POWER switch. For example, connect a Tuner to this receptacle; thus, when you turn the Receiver on and off, the Tuner will automatically be turned on and off at the same time. Power drawn from this receptacle should not exceed 100 watts.
17. **POWER FUSE** — Protects the Receiver from voltage surges, short circuits and other abnormal operating conditions. If the dial lights do not go on when POWER is on, check the fuse. If it is blown, replace it with an identical size and value (3.5A).
18. **UNSWITCHED Convenience Outlet** — Powers any audio accessory up to 200 watts. The front panel POWER switch does not affect this receptacle.
19. **AC Cord** — Supplies the Receiver's power. Plug the cord into any 120 VAC, 60 Hz outlet (220/240 VAC, 50 Hz power where the sets are so marked on the rear for European and Australian models).

## CONNECTIONS

### BEFORE MAKING CONNECTIONS:

1. Do **not** plug in the Receiver's power cord.
2. Be sure **POWER** is off.

**NOTE:** To reduce hum, use shielded audio cables for all connections except speakers.

### SPEAKERS

The STA-95 has two sets of A (main) speaker outputs — **use only one set**. If your speakers have phono plug inputs, use the Receiver's phono plug outputs and a set of unshielded speaker cables. Otherwise use the Receiver's screw terminal outputs.

For maximum bass response, be sure to observe proper phasing. Connect the + Receiver speaker output to the speaker terminal labeled A, 1 or +; and the - output to the speaker terminal labeled B, 2 or -. Most speaker wire is marked with a ridge along one conductor or has one color-coded conductor. If you use preassembled phono plugs, phasing will automatically be correct.

Connect B (remote) speakers following the instructions above. Be sure the speakers are phased properly.

- NOTES:**
1. The STA-95's outputs are designed for 4-16 ohm speakers. However, when more than one set of speakers is being connected, use only 8-16 ohm systems. This will prevent the amplifier from being overloaded.
  2. When using the screw terminals, be sure no stray strands of wire touch a second terminal or the chassis—a harmful short could result.
  3. Connect no more than two sets of speakers to the receiver.
  4. Use only as much wire as necessary to connect the speakers.

If you are using 4 ohm speakers, connect only one set of speakers, or use only one set of speakers at a time. That is, don't use A+B if one set is 4 ohms. Low impedance speaker systems will tend to trip the automatic circuit protection/amplifier shut-down circuitry when operating at high volume levels (to prevent damage from amplifier overdrive).

### TURNTABLE

Connect the turntable leads to the **PHONO** inputs. If the turntable has a ground wire (usually green or black), connect it to the **PHONO GND** screw. Plug the turntable's power cord into an AC outlet or the Receiver's **UNSWITCHED** convenience outlet.

(NOTE: If the turntable has a ceramic or crystal cartridge, connect it to the **AUX** jacks.)

### TAPE DECK

For recording, connect the Receiver's **TAPE MONITOR 1 OUT** jacks to a Recorder's **AUX** or **Line Input**. For playback, connect the deck's **PRE AMP Output** or **Line Out** jacks to the Receiver's **TAPE MONITOR 1 IN** jacks. You can Connect a second deck to the **TAPE MONITOR 2 IN/OUT** jacks.

For playback only, you can connect a 3rd deck to the **AUX** jacks (assuming you are not already using them).

### ANTENNAS

Be sure the line cord FM antenna is connected to the **FM ANT 300Ω** terminal. The built-in AM antenna requires no attention.

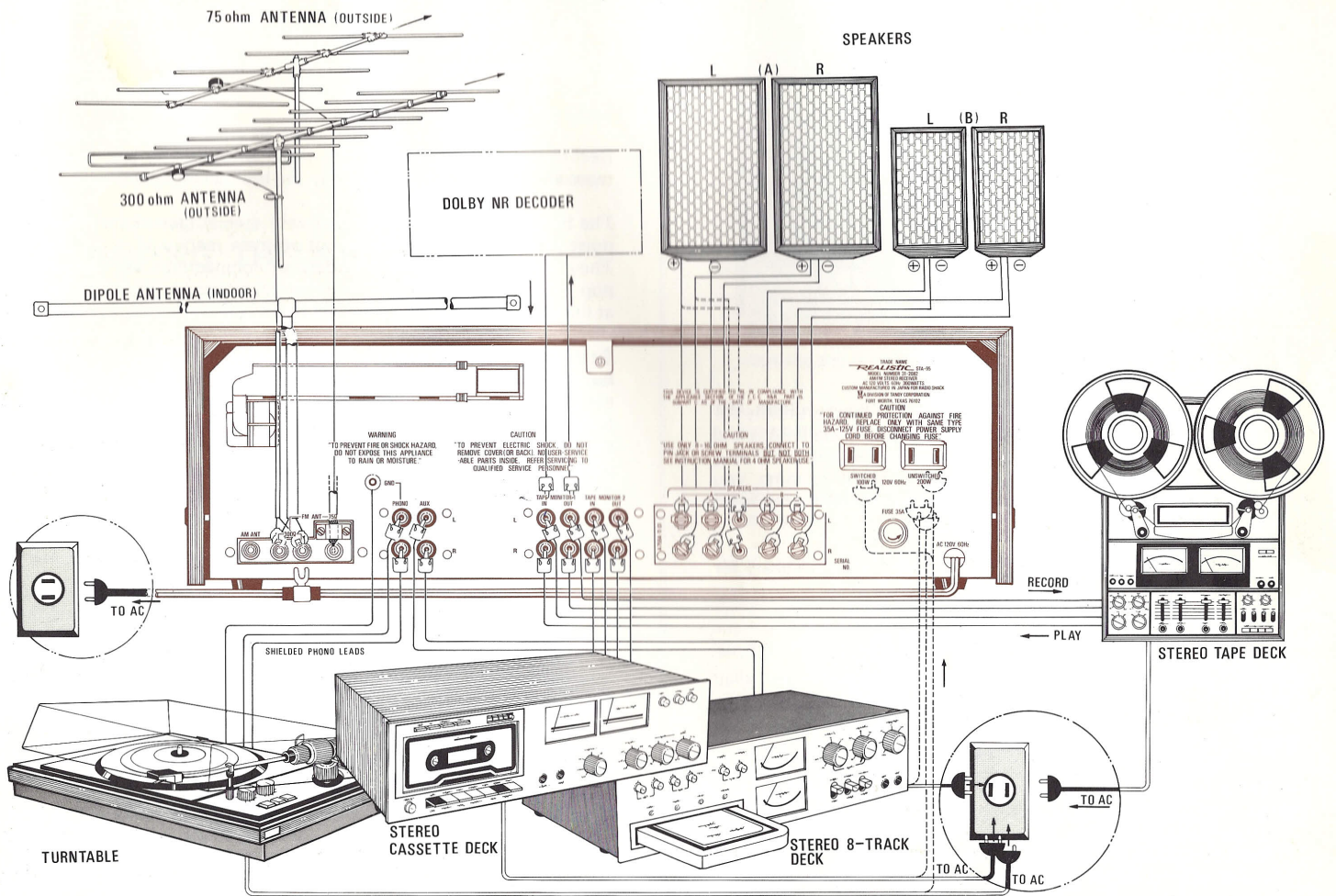
If you think you need an external antenna, see **HINTS FOR BETTER SOUND**.

### AUXILIARY

Plug the output from any high level source into the **AUX** jacks. This input is ideal for a second tuner, TV audio, ceramic or crystal phono cartridges, a tape player, shortwave radio, etc.



# TYPICAL STA-95 SYSTEM

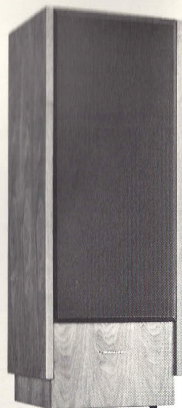


## CHOOSING THE REST OF YOUR SYSTEM

### SPEAKERS

No stereo system sounds better than its speakers, so choose the best you can afford for your main speakers.

With a high quality receiver like the STA-95, you should carefully consider Radio Shack's Optimus and Nova-series speakers. To be able to hear your new receiver's superior performance, we recommend one of the Minimus speakers as a minimum investment.



Of course there are a wide variety of speakers intended primarily for remote use. Some are weather-proofed for outdoor installations and others offer the convenience of a built-in volume control. Naturally, if you plan to use your remote speakers for critical listening, you should consider using the same type of speakers for both your main and remote installations.

Your nearest Radio Shack has a complete selection of speakers for every application and budget.

### TURNTABLE

For convenience, most people prefer a record changer (often called an automatic turntable) to a manual turntable. A changer will play an entire stack of records and returns the tonearm to its rest at the end of the last record.

For the best sound, your turntable should be equipped with a magnetic cartridge. Cartridges equipped with conical styli (needles) are usually inexpensive and have good sound. But a cartridge with an elliptical stylus follows the record groove more accurately and, so, produces better sound. Your Radio Shack store has a selection of changer systems which come with factory-mounted bases and cartridges.

### TAPE DECKS

Until very recently, reel-to-reel tape decks were the only possible choice for those interested in true high-fidelity. Recent technological advances have made 8-track and cassette recorders approach the sound quality of reel-to-reel machines.

Reel-to-reel decks are a must for those who want to edit their own tapes and they still have marginally the best performance.

The best cassette decks, equipped with special tape bias settings and noise reduction circuitry, will out-perform many reel-to-reel decks. They have the additional advantage of compactness and convenient pop-in loading. In addition, cassettes can be used in the car as well as at home.

8-track cartridges provide slightly less fidelity than cassettes or reels, but have several advantages. An 8-track recorder plays pre-recorded car tapes at home and can save money by recording new auto tapes. In addition, an 8-track cartridge uses a continuous tape loop which can provide hours of uninterrupted music. Many 8-track playback decks are less expensive than record changers and let you use car tapes at home.

### HEADPHONES

Any system can benefit from a good pair of stereo headphones. They provide convenient private listening and many people find the heightened stereo very exciting.

Your STA-95's front-panel headphone jack will accept any low impedance stereo headphones. When shopping, wear each pair of headphones long enough to be sure they will be comfortable.

### ANTENNAS

Under most conditions your receiver's built-in antennas should provide adequate AM and FM reception. If you have difficulty see **HINTS FOR BETTER SOUND.**

## BEFORE PLUGGING IN THE STA-95

1. Double-check all connections — especially the speaker connections—to assure that all connections are firm and that there are no shorts.
2. Set the VOLUME control to minimum.
3. All pushbuttons should be out.

## OPERATING THE STA-95

### SPEAKERS/HEADPHONES

Select any speaker or combination of speakers with the SPEAKERS switch. In the A position, the Receiver's power goes to the main speakers only and in the B position to the remote speakers only. A + B puts the same stereo signal through both sets of speakers. In the A REV position, the left/right sound output from the A/Main speakers will be reversed. Sometimes this reversing of channels can give interesting effects from various sound sources.

The PHONES jack permits headphone listening with any or all of the speakers. For private listening, turn the SPEAKERS switch to OUT.

### POWER

Press POWER button in to turn the Receiver on. Press a second time to turn the Receiver off.

### VOLUME

Adjust VOLUME for a pleasant listening level.

### BALANCE

Adjust for best stereo sound. Normally this will be at the center position of this control. However, depending on your speakers, the program source and/or your listening position, you may find that other settings provide better stereo sound. Adjust as you see fit.

## SELECTOR

Choose the input you want by turning the SELECTOR switch.

AM — Use the Tuning knob to select a station. Tune for the highest reading of the SIGNAL meter. Adjust the front-panel controls for best sound.

FM — Use the Tuning knob to select a station. Tune for the highest reading of the SIGNAL meter and rotate tuning knob until TUNING meter is at null or center position. If the station is broadcasting stereo, FM STEREO LED will light up. Adjust the front-panel controls for best sound.

If the signal is noisy, try either or both of these solutions:

1. Press the HI FILTER button. (This will filter out some treble, but the signal will still be stereo.)
2. Press the MONO button. (This will leave the fidelity unimpaired, but the signal will no longer be stereo.)

FM MUTE — Use as FM (above), but a special circuit eliminates interstation hiss. When listening to very weak stations, it may be necessary to set the SELECTOR to FM.

PHONO — Put on a record and adjust the front-panel controls for best sound.

AUX — Adjust VOLUME, BASS and TREBLE for best sound.

NOTE: If the TAPE MONITOR switch is in the 1 or 2 position, the SELECTOR switch will have no effect on the sound. The MONITOR LED will light up to remind you that TAPE MONITOR is being used.

## TAPE

Playback — Regardless of the input SELECTOR position, set the TAPE MONITOR switch to the appropriate position (if your Tape Deck is connected to TAPE MONITOR 1 IN and OUT, set the TAPE MONITOR switch to 1 position; if connections are to "2", use 2 position). When you have finished listening to the tape, set the TAPE MONITOR switch to SOURCE position.

**Recording** — Set the input **SELECTOR** to the source you want to record. Adjust **VOLUME** and **Tone** for your listening pleasure — they will not affect the output to the recorder. If you have a three-head tape deck, you can set the **TAPE MONITOR** switch to the appropriate position to hear the recording immediately after it passes the record head.

Furthermore, rear panel **TAPE MONITOR 1** and **2 OUT** are always "live" with **TAPE DUBBING** and **TAPE MONITOR** switches in the **SOURCE** position (that is, whatever signal is being heard in your speakers is also available at these jacks); thus you can make 2 recordings at one time. (Also, the front panel **DUB OUT** jack is always "live", so you can make recordings via this convenient jack.)

**Recording from another tape (dubbing or duplicating a tape)** — Your Amplifier has two Recording/Playback circuits built-in. Connect the "master" Tape Deck to **TAPE MONITOR 1 IN** and **OUT**; connect the 2nd Tape Deck to **TAPE MONITOR 2 IN** and **OUT**.

Now, if you want to play the "master" tape and duplicate it — set the **TAPE DUBBING** switch to **1 ► 2** position; to check the quality of your new recording, you can set the **TAPE MONITOR** switch to **2** position and hear the new recording (assuming the 2nd Tape Deck has 3-head Tape Monitoring feature).

With these same connections, you can make dubbings in the reverse way with the "master" tape on 2nd Tape Deck, set the **TAPE DUBBING** switch to **2 ► 1** position. Then you can set the **TAPE MONITOR** switch to position **1** to hear the new recording (assuming the Tape Deck connected to "1" has 3-head Tape Monitoring feature).

## Filters

The **LO** and **HI FILTERS** eliminate noise on any program source. The **HI FILTER** removes FM hiss and record noise while the **LO FILTER** reduces turntable rumble. Both filters are activated when pressed in.

## BASS

Turn the **BASS** control toward "+" to boost the low frequencies or toward "-" to de-emphasize them. In the center position, the control has no effect on the sound.

## TREBLE

Turn the **TREBLE** control toward "+" to boost high frequencies or toward "-" to de-emphasize them. In the center position, the control has no effect on the sound.

## LOUDNESS

Press in the **LOUDNESS** button—the bass and treble are boosted to compensate for the ear's reduced sensitivity at low listening levels. In the normal (out) position, there is no loudness compensation in the circuit at any volume level.

## FM 25 $\mu$ S

For normal FM listening, leave **FM 25 $\mu$ S** button out. If you want to record a signal being broadcast by an FM station using Dolby NR system, press this button in. Then, when you play back the tape, you must use a Dolby Decoder (that is, record with a Dolby-type tape recorder, but with Dolby circuit "off"; then play back with the Tape Deck's Dolby circuitry "on"). If you press the **FM 25 $\mu$ S** button in when listening to a Dolby FM signal, its sound will be excessively "bright" (too much high-frequency emphasis).

If you have a Dolby NR Decoder, you can connect it to the **TAPE MONITOR 1 IN/OUT** jacks and set the **TAPE MONITOR** switch to the **1** position. When an FM station is broadcasting a Dolbyized FM signal, you will enjoy the following advantages (with a Dolby NR Decoder):

- Improved signal-to-noise ratio
- Full program dynamic range, even at high frequencies
- Improved reception in weak-signal areas

## MONO

Press the **MONO** button to defeat normal stereo operation. The result is a composite signal (left + right). When you listen to weak FM stereo stations, pressing the **MONO** button will reduce the hiss, but the signal will no longer be stereo.

## HINTS FOR BETTER SOUND

### POSITIONING YOUR SPEAKERS

Where you put your speakers is a highly personal matter, depending largely on the arrangement of your listening room and the way you listen to music. Where you put your speakers does make a difference in how your system will sound, so before settling on a final arrangement, try several alternatives.

Bass response is highly dependent on speaker location. For maximum bass, place the speakers in the corners of your room. Putting the speakers directly on the floor will make the bass even stronger. If the bass sounds boomy and exaggerated, move the speakers away from the corner slightly, pull them out from the wall a little or raise them 6 to 18 inches (15 – 45 cm) off the floor.

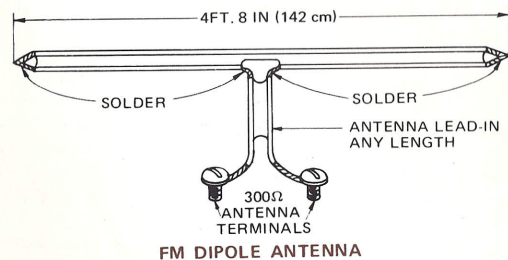
### Stereo

Stereo speakers should be 6 to 8 feet (1.8 – 2.4 m) apart. Putting them too close together reduces the stereo effect, while placing them too far apart reduces bass response and creates a "hole in the middle". Also, most speakers have a tweeter dispersion angle of about  $60^\circ$ . Ideally your listening position should be in the overlap, so you may want to angle the speakers slightly toward you for better stereo.

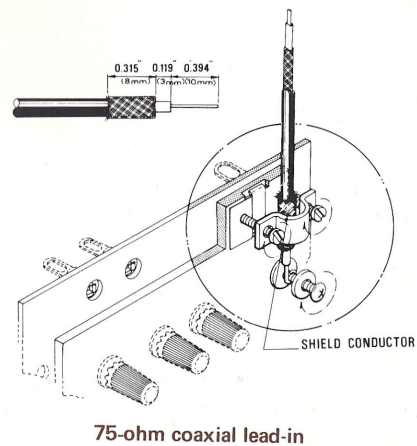
### ANTENNAS

Under most conditions your STA-95's built-in antennas should be adequate for AM and FM reception. If you are not satisfied with the reception, try one of the arrangements listed below.

For FM, build the low-cost folded dipole (illustrated); or buy one ready-made from Radio Shack (42-2385). Just splice regular 300-ohm lead-in wire as shown. Apply a small amount of solder and heat the twisted ends until solder flows evenly over each strand of wire. Attach the lead-in to the 300 $\Omega$  terminals on the back of the receiver. The antenna itself can be tacked to the back of a record cabinet or onto a wall—the higher the better.



A set of VHF-TV rabbit ears or ones made specially for FM reception work well in suburban areas. Some deluxe models feature electronic "tuning" for better directionality. Connect such antennas to the 300 $\Omega$  terminals.



An outside VHF-TV antenna provides excellent FM reception. An inexpensive "splitter" permits you to connect a TV set and your Receiver to the same antenna. In fringe areas, a special outdoor FM antenna may be the only solution. Such antennas can pick up stations up to 175 miles (280 Km) away over flat terrain. If you use 300-ohm lead-in, connect it to the 300Ω terminals and if you use 75-ohm lead-in, connect it to the 75Ω terminals. (Attach the braided ground wire of 75-ohm lead-in to the terminal common to the 75Ω and 300Ω antenna terminals or connect the braid under the clamp as illustrated.) For AM, a long piece of wire hung outdoors between two insulators can greatly improve long-distance AM reception.

**NOTE:** To protect your Receiver, use a lightning arrester on any outdoor antenna.

## CARING FOR THE STA-95

The STA-95's genuine walnut case looks best when it is polished occasionally with lemon oil. Waxing produces a glossier finish, but can eventually cause a dull wax buildup.

Clean the metal parts of the front panel and the dial face with a soft, damp cloth (do not use abrasives or solvents).

### Overload Protection

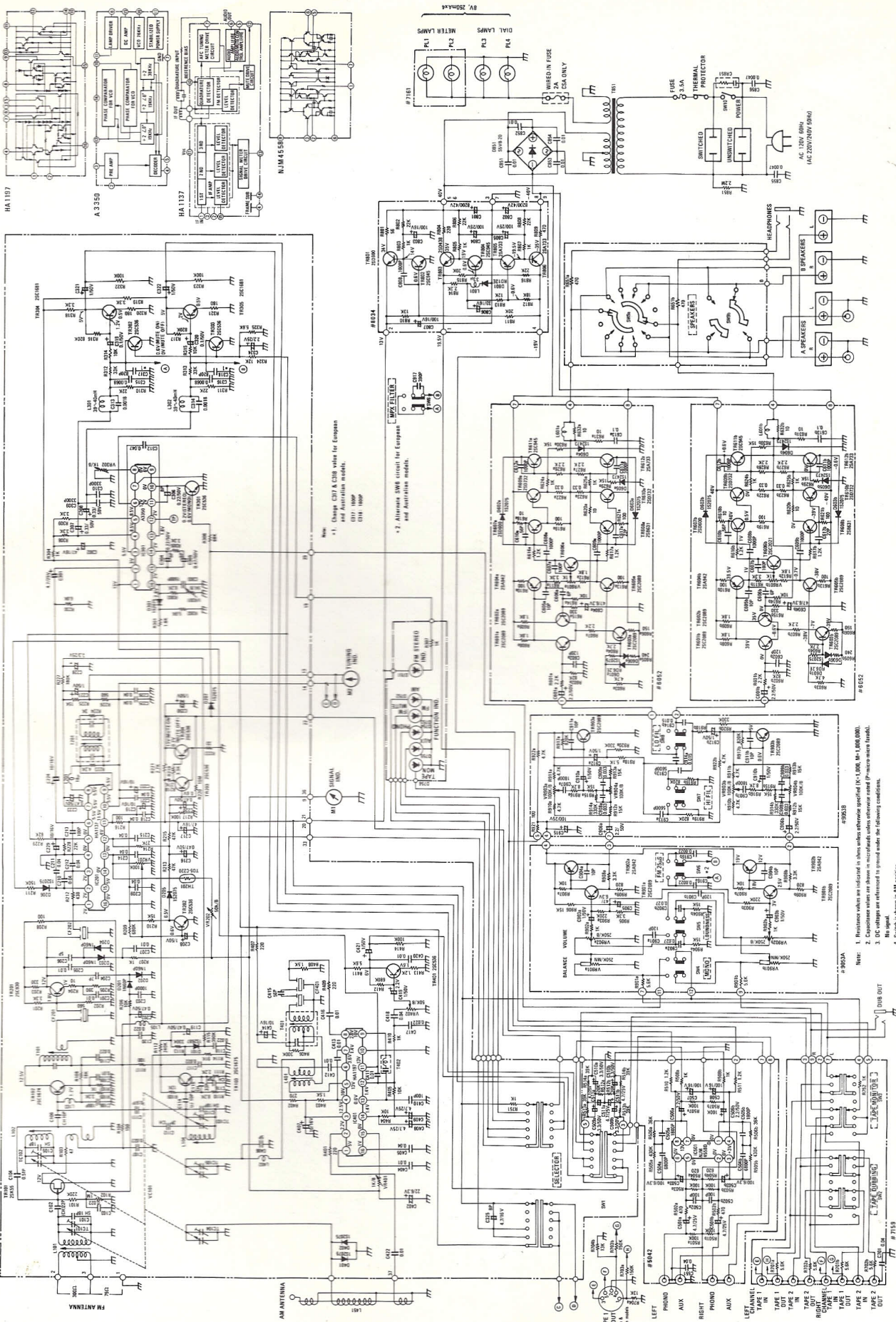
We've built-in an important protection circuit—which protects the Receiver from overload. If too much current flows in the output circuit (from excessively low impedance [combinations less than 4 ohms], shorted speaker terminals, etc.) a protection circuit activates immediately and the output drops. In such a case, carefully check the output connections and the speaker impedance (don't use 4-ohm speakers if you use more than one pair).

### Thermal Protection

Your Receiver also has built-in thermal overload protection. That means that it can not become abnormally hot and damage some portion of the circuitry. If internal temperatures do rise abnormally, the Receiver will automatically silence itself. If this happens, check to be sure you have not placed something over the ventilation holes—if you have, remove it. If you are using speakers with excessively low impedance, the amplifier circuit may be over-driven and thus producing excessive heat. This can be caused by using 4-ohm speakers on main and remote—if you use remote with main speakers, be sure to use either 8 or 16 ohm speakers.

In any case, if the Receiver does turn itself off, set POWER to off, check ventilation and then check to be sure your speakers are properly connected and that you are not using a combination of 4-ohm speakers for both main and remote. The protective circuit is triggered by temperature, thus it may take a few minutes for the circuitry to cool down and allow the unit to come back on. If everything is OK, turn power back on. If the Receiver does not come back on, you may have to wait a few more minutes for everything to cool adequately—it should never take more than about 20 – 30 minutes for this cool-down cycle. If Receiver still does not come on, check the fuse (3.5A) on the rear panel. Replace only with the same size and rating.

# SCHEMATIC DIAGRAM



Note: Change C21A & C21B value for European and Australian models.  
 C21: 100P  
 C1B: 100P

Note: \* 2. Alternate SWR circuit for European and Australian models.

Note: 1. Resistance values are indicated in ohms unless otherwise specified (K = 1,000, M = 1,000,000).  
 2. Capacitance values are shown in microfarads unless otherwise stated (P = picofarads).  
 3. DC voltages are referenced to ground unless the following conditions.  
 4. Switch is shown in AM position.

## SPEAKERS — FOR THE MUSIC MINDED

For years Radio Shack has been known for its line of speakers. Back in the days when speakers often were priced higher than a good receiver — Radio Shack brought out the Optimus line which proved a speaker didn't have to be expensive to sound expensive.

And today we are **THE** place to go for speakers. Whether you are looking for a real-wood piece of furniture that sounds good or just a small bookshelf-type. Everything from our big sound Mach One to our Sophisticated Optimus Tower to our handsome Minimus-5.

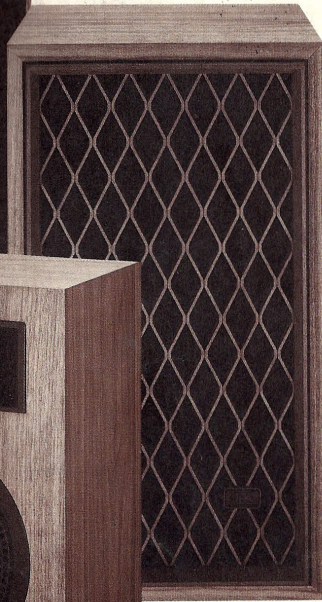
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