

REALISTIC[®]

**SOLID STATE
HI-FI COMPONENTS**

**Operating Instruction
and Service Data**

Model SA-175

Cat. No. 30-1973



**A PRODUCT OF RADIO SHACK[®]
DIVISION OF TANDY CORPORATION**

SECTION I

INTRODUCTION

The **REALISTIC** amplifier you have just purchased is a high quality stereophonic instrument using the newest solid state devices throughout. Its careful design, quality construction and workmanship are combined with a rational arrangement of controls gracefully styled to give long and satisfying service.

For maximum satisfaction, please read and observe the instructions governing INSTALLATION.

You will notice the smooth, clean transient response your speakers will reproduce. The boomy juke box bass so often predominating in tube amplifiers will be lacking; reproduction of your record or tape library or favorite AM or FM radio programs will now take on a new dimension. All this due to the inherent "low impedance" characteristics of transistors versus that of the "high impedance" vacuum tube.

Your loudspeaker is a "low impedance" device and is connected directly into the transistor circuitry without the necessity of a transformer to match the high impedance of vacuum tubes. Every transformer regardless of price will have limited range. Eliminating the output transformers allows the speakers to operate without limitation throughout the range and power the transistors are capable of. Loudspeakers are devices for converting electrical energy to mechanical acoustic energy (sound).

The loudspeaker cone, the part that moves, should come to a stop as soon as the electrical impulse stops or goes to zero voltage. The inertia of the speaker cone will resist this stop and come to rest only when the inertia or bouncing back and forth dies down due to its own "damping". Just as the automobile safety belt provides a restraining force (damping) to overcome the inertia of the rider at a sudden

stop, so does the transistor amplifier of extremely low internal impedance act as a safety belt to prevent the loudspeaker from override or false reproduction.

You will notice the freedom from loss of high frequencies as the volume control is reduced to even the lowest volume. Here again, the low impedance of the transistor shows its superiority over the high impedance vacuum tube. Vacuum tube circuits utilize high resistance volume controls which are prone to loss of high frequencies at reduced volume setting. The low resistance volume controls as used in this transistor amplifier reduce this loss to an insignificant amount.

The reduction of hum level is quite noticeable as transistors not having any filaments do not require filament power. Most vacuum tube amplifiers use alternating current to light the filaments which always presents a problem of residual background hum.

This transistor amplifier is almost one third the weight of a corresponding tube amplifier as the output transformers have been eliminated. The efficiency of the transistor is much higher than the vacuum tube, hence a smaller power supply will suffice for a given output power. This results in reduction of heat and power consumed from the line.

It is an accepted fact that heat and humidity are the major reasons of failure in electronic equipment. This is especially true when dealing with high voltage, high impedance circuits. The maximum voltage applied to any of the transistors in this amplifier is no greater than 50 volts DC. Corresponding vacuum tube amplifiers might use as high as 350 to 400 volts DC. With the possibility of high voltage breakdown of components under humid conditions eliminated, and reduction of heat as explained in the previous paragraph, this transistor amplifier should give you many years of trouble-free enjoyment. Additionally, transistors, solid state devices, do not embody filaments or cathodes

that gradually lose their emission or gain relative to the number of hours in use.

SECTION II

SPECIFICATIONS

Output Power—8 Ohms	12 watts/channel
Harmonic Distortion	Less than 1 %
Frequency Response	± 1 db (30-15000 cps)
Sensitivity :	
Ceramic Phono	500 MV
Mag Phono	5 MV
Aux	250 MV
Tuner	250 MV
Equalization—RIAA	± 1 db
Loudness Compensation	
50 cps	+ 10 db
@—40 db volume	
Hum (below rated output)	Residual 70 db
	Aux 70 db
	Phono 60 db

SECTION III

INSTALLATION

The efficient solid state devices used in the construction of your transistor amplifier generate little excess heat despite its compact dimensions and generous power capability. Hence only ordinary logical provisions for ventilation need be made, and the amplifier may be situated in almost any convenient location, and may be mounted with its front panel in any direction.

When custom mounting your amplifier into an equipment cabinet, the following precautions must be observed.

1. Allow at least 3 inches above the top of the unit.

2. Allow at least 1 inch on each side of the chassis.
3. Leave the back of your equipment cabinet open to insure proper ventilation.

POWER REQUIREMENTS

Connect the AC line cord into any outlet furnishing 117 volts 50-60 cycles AC current. The voltage may vary between 105 and 125 volts.

CONNECTING SPEAKERS

For best results, the two speakers should be identical and of 4 or more ohms impedance rating. Place them about 8 to 15 feet apart against one wall of the listening room. Whether to face the speakers straight out or slant them slightly depends on room size, acoustic effect and the listening area of the room. For best results, experiment with speaker placement. Ordinary lamp (zip) cord type wire should be used to connect speakers. Please take care when using stranded or solid wire that no wires touch the adjacent terminal. Speaker terminal leads on the amplifier, as well as the leads on the speaker itself, should be stripped of insulation approximately 1/2" and twisted or tinned to prevent fraying. The bare ends should be formed into a ? mark shape and secured under the terminal screws. Failure in exercising this care will short circuit the output of the amplifier.

Neither conductor of the speaker lines should be connected to a ground. Speaker wires must not inadvertently be shorted together by stapling or chafing during installation.

The speaker output terminals for each channel of the amplifier are marked + and -. Best sound and maximum bass response in stereo will result when the speakers are connected in the same polarity to both channels. Speakers usually have a mark indicating the polarity of their termi-

nals. If speaker terminals are not marked, assume the left terminal of each speaker to be + and the right terminal -. Connect the + terminal of each speaker to the + terminal of the amplifier. Connect the - terminal of each speaker to the - terminal of the amplifier. Use the colored cotton tracer usually imbedded with one of the leads in the zip cord to aid in maintaining polarity.

TUNER

If an FM multiplex or AM/FM multiplex tuner is used, connect the left output of the tuner to the LEFT TUNER input jack on the amp. Follow the same procedure for right output.

STEREO RECORD PLAYER

A stereo cartridge is really two cartridges in one and uses two output connecting plugs. When using a low level magnetic cartridge, plug output leads into left and right inputs marked PHONO. Be sure switch on back panel is in MAG Position.

CERAMIC PHONO

If a ceramic cartridge is used, plug phono output leads into jacks marked PHONO and place switch on back panel in CER position.

STEREO TAPE PLAYER (Tape deck with preamplifier)

Connect output plugs of tape player to LEFT and RIGHT AUX input jacks. Place selector switch in AUX position.

STEREO TAPE RECORDER

Since most stereo tape recorders include their own record and playback preamplifiers, it is not desirable to connect the output of the recorder into any low level input jacks. This will result in overloading of the low level stages and cause distortion.

Connect the two tape recorder output leads to the LEFT and RIGHT AUX jacks on the rear panel of the amplifier. This will enable you to play back your stereo tapes.

To make a recording, connect the inputs of your recorder to the LEFT and RIGHT TAPE OUT jacks on the rear panel of the amplifier. This will enable you to make a stereophonic recording with the proper recording equalization as determined by your recorder, while simultaneously listening to the program material through your speaker system. The recording signals from the TAPE OUT jacks are unaffected by the tone control or volume setting of the amplifier, insuring an absolutely flat response.

SECTION IV OPERATION

A stereo amplifier is actually two amplifiers in one. The number of operating controls would, therefore, normally be doubled. Since this would make the operation unnecessarily cumbersome, some of the duplicating controls of the Model SA-175 amplifier are mechanically tied together (ganged) and operated by a single knob.

POWER SWITCH

This switch controls the 117V AC 50/60 cycles power into the amplifier. A fuse, located on the rear panel of the amplifier, is incorporated into the power supply circuitry for protection of the amplifier should any defect occur.

MONO-STEREO SWITCH

This switch allows mono or stereo mode of operation of any stereo program source.

AUTOMATIC LOUDNESS

Human hearing has a tendency to lose sensitivity to very low pitched sound as volume is reduced. The SA-175 with built in or Automatic Loudness, compensates for this effect, eliminating the necessity of high listening levels for full enjoyment of reproduced music.

FUNCTION SELECTOR SWITCH

The Function Selector switch selects the desired type of program source.

1. MAG — This position selects your record player (magnetic or ceramic pickup) for playback and includes RIAA equalization.
2. AUX— This position selects any high level equipment such as the output of your tape recorder, television set, or any other high level signal which is connected to the AUX jacks on the rear of the amplifier.
3. TUNER—This position selects inputs from your FM, FM MPX, or AM/FM MPX tuner.

TONE CONTROL

The range of tonal adjustment is provided for by the TONE control. It increases or decreases the treble tone and should be set in accordance with listening preference, speaker characteristics, and room acoustics. For normal program, the control should be set at 12 o'clock.

VOLUME CONTROL

The volume level of any program fed into the amplifier can be adjusted by the VOLUME control. The large knob controls the right channel, the small knob controls the left channel.

BALANCE

To attain the greatest degree of faithfulness and space distribution in stereo reproduction, it is necessary to use two identical channels. A variation in the efficiency of one of the channels will disturb this relationship. Since there is apt to be a slight difference between the two speakers, tape heads, etc., a way must be provided for balancing one channel against the other. The friction clutch type volume control covers a sufficient range to allow balancing the over-all system, even where major unbalance exists. To check for over-all channel balance, use any stereo or monaural source. Place STEREO-MONO switch in MONO position. Turn both VOLUME control knobs to maximum counter clockwise position. Advance VOLUME control in a clockwise direction by turning either the large or small knob. The friction clutch will track the other knob along with the one you are turning. Turning the large knob clockwise, while holding the small knob, will increase or shift the sound to the right. Turning the small knob clockwise, while holding the large knob, will shift the sound to the left. When the sound appears to come from an area between the speakers, the over-all system is in balance. (Under average conditions you will find that both indicator lines of the large and small VOLUME control knobs will be in line.) STEREO-MONO switch may now be placed in either position depending on the program source.

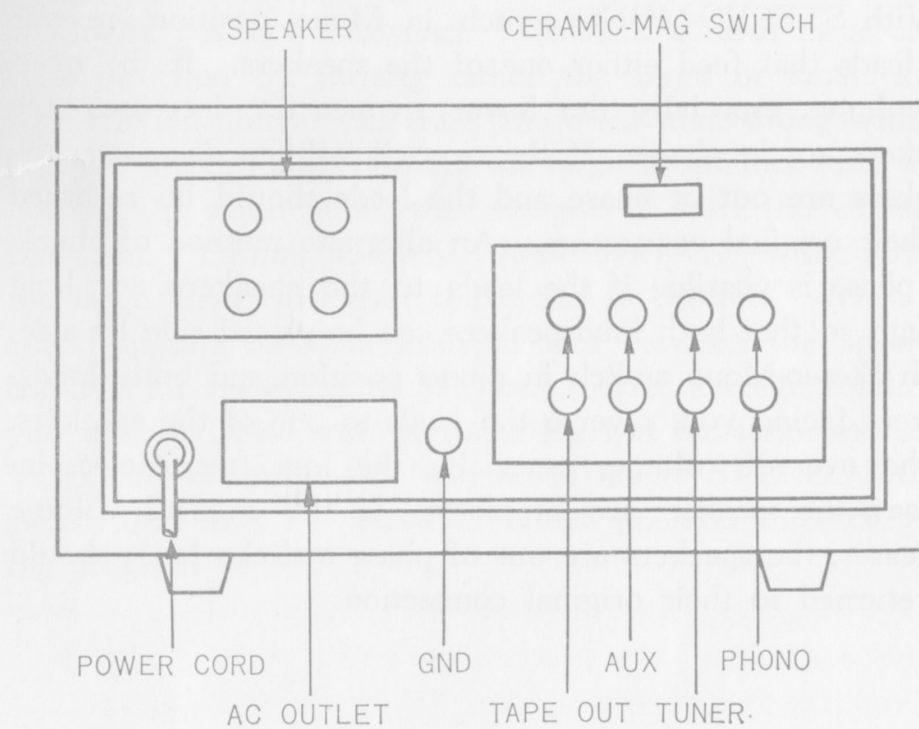
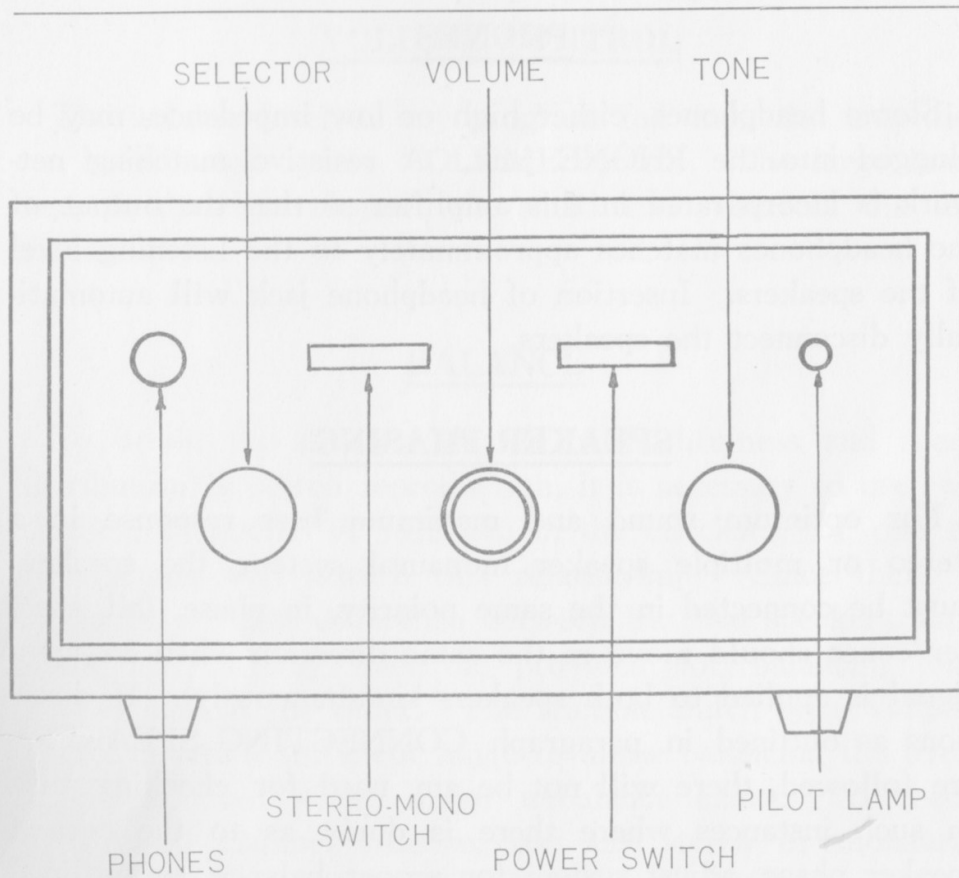
PHONES

Stereo headphones, either high or low impedance, may be plugged into the PHONE jack. A resistive matching network is incorporated in this amplifier so that the output of the headphones matches approximately to the listening level of the speakers. Insertion of headphone jack will automatically disconnect the speakers.

SPEAKER PHASING

For optimum sound and maximum bass response in a stereo or multiple speaker monaural system, the speakers must be connected in the same polarity, in phase, (all speaker cones should move in the same direction when an equal signal is applied to both speakers simultaneously). If directions as outlined in paragraph CONNECTING SPEAKERS are followed, there will not be any need for checking this. In such instances where there is doubt as to the correct speaker phase, adjust system for proper balance as outlined in paragraph BALANCE.

With STEREO-MONO switch in Mono position, reverse the leads that feed either one of the speakers. If the over-all volume, especially the lower frequencies, increases, the speakers are in phase. If the over-all volume decreases, the speakers are out of phase and the leads should be returned to their original connection. An alternate method of checking phase is possible if the leads to the speakers are long enough so that both loudspeakers can be placed side by side. With Stereo-Mono switch in mono position and both loudspeakers facing you, reverse the leads to one of the speakers. If the over-all volume, especially the low frequencies, increases, the speakers are in phase. If the over-all volume decreases, the speakers are out of phase and the leads should be returned to their original connection.



WARRANTY and SERVICE

Your **REALISTIC** SA-175 is warranted to be free from defects in materials and workmanship for a period of 90 days from date of purchase. To assure your rights under this warranty, be certain to mail the enclosed Warranty Registration Card within 10 days of your purchase.

Your Warranty may be voided for any of the following reasons :

1. Damage in transit due to inadequate packing for shipment, or shipment by any carrier other than prepaid REA Express.

DO NOT SHIP BY PARCEL POST.

2. Abuse in handling or repair by unqualified persons.
3. Short-circuiting of the speaker output terminals.
4. Replacement of fuse with ratings higher than the original fuse. (2 ampere for the power line fuse).

To obtain service under the warranty, contact the store from which purchased, giving Model Number and Serial Number and a description of the fault in operation. If your amplifier was purchased by mail send this information instead to :

Service Department
RADIO SHACK
730 Commonwealth Avenue
Boston, Massachusetts 02215

Instructions for obtaining warranty service will be sent to you. If factory service is judged necessary, a letter authorizing you to send amplifier for repair will be sent to you, together with shipping instructions. DO NOT SHIP YOUR AMPLIFIER WITHOUT FIRST OBTAINING WRITTEN AUTHORIZATION from Radio Shack.

If service is required after the free warranty service period has expired, follow same procedure as above for warranty service. Fair charges will be made for factory service by skilled personnel using original parts.