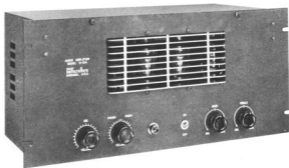


# INSTRUCTIONS FOR INSTALLATION, OPERATION AND SERVICE

## MODEL S-31A

### HIGH FIDELITY AUDIO AMPLIFIER



### SPECIFICATIONS

#### TUBE LINEUP:

- 1 - 6F5 Microphone input stage
- 1 - 6SQ7 Phono-Radio input stage
- 1 - 6SC7 Phase inverter
- 2 - 6L6G Power amplifier
- 1 - 5Z3 Rectifier

NOTE: Use highest quality tubes obtainable.

#### POWER OUTPUT:

25 watts undistorted

#### NORMAL FIDELITY:

± 1 D.B. from 40 to 15000 c.p.s.

#### OVERALL GAIN:

90 D.B. from Microphone input  
50 D.B. from Phono-Radio input

#### POWER CONSUMPTION:

100 watts

#### POWER SOURCE:

115 volts 60 cycle A.C.

#### PANEL DIMENSIONS:

19" x 8-3/4"

#### CHASSIS DIMENSIONS:

16-3/4" long - 9 1/2" wide

#### OUTPUT:

500 ohms  
8 ohms and 4 ohms

**CONTROLS:** From left to right -

Microphone Gain Control -

Phono-Radio Gain Control -

Allows fading between radio and phonograph.

Power Switch - with pilot light

Bass Control -

Treble Control - The effects of these controls is illustrated in the "FIDELITY CURVE".

### INSTALLATION

**IMPORTANT:** This amplifier, unless otherwise marked must be operated from 115-125 volts, 60 cycles, alternating current. If you are in doubt, phone your electric light company. Be sure all tubes are in their sockets before inserting plug in receptacle.

**RADIO:** Although the S31A was designated as a companion unit to our MODEL S-31 Tuner for Frequency Modulated and Amplitude Modulated Broadcast Reception, any suitable tuner having an output impedance of 500 ohms may be connected to the RADIO input strip. The upper terminal is grounded.

**PHONO:** Any high impedance phonograph pickup may be used in conjunction with the S31A by connecting to it the PHONO strip. Again, the top terminal is grounded.

**MICROPHONE:** The microphone circuit is designed for high impedance microphones such as the crystal and dynamic types. The microphone receptacle is located on the rear apron of the chassis.

**SPEAKER:** The full high fidelity capabilities of the S31A amplifier will not be realized unless a speaker system is used which is capable of reproducing the full range of the amplifier. The frequency range offered by high fidelity FM extends from 40 to 15,000 cycles per second.

It is recommended that P.M. dynamic speakers be used to eliminate the necessity of

obtaining external field supplies. The S-31A was not designed to supply field excitation.

Additional speakers may either be connected in series or in parallel, depending upon their impedances - parallel connection being preferred when possible. Since the available output impedances are 4, 8, and 500 ohms, it will be necessary to find a combination matching these values as close as possible. Ohm's law follows in that 2- 8 ohm speakers in parallel gives 4 ohms, 2- 4 ohm speakers in series gives 8 ohms, 4- 8 ohm speakers in series parallel gives 8 ohms, etc.

When the speaker is located remotely from the amplifier the output line between it and the amplifier should be of sufficient cross section to minimize power loss. If speakers are to be located much more than 100 feet from the amplifier, the 500 ohm winding should be used with a matching transformer at the speaker end.

All speakers should have ample baffling both for fidelity and as a protection to the speaker cone.

**A WORD OF CAUTION -** Do not operate the amplifier without a speaker load, otherwise the output tubes may be damaged.

**GROUND CONNECTION:** To reduce the possibility of hum and noise pickup in the high gain input stage from extraneous sources the S31A chassis should be connected to a good ground.

## RESISTORS

R1	- 500,000- 500,000 vol. control 425-084	R14	- 100,000 ohm, 1/2 watt
R2	- 500,000 1/2 watt	R15	- 1000 ohm "
R3	- 1 meg. "	R16	- 50,000 ohm 1 watt
R4	- 3000 ohm "	R17	- 100,000 1/2 watt
R5	- 250,000 "	R18	- 100,000 1/2 watt
R6	- 500,000 vol. control #25-083	R19	- 250,000 "
R7	- 500,000 1/2 watt	R20	- 250,000 "
R8	- 1.0 meg. "	R21	- 30,000 ohm 20 watt
R9	- 3000 ohm "	R22	- 250,000 1/2 watt
R10	- 10,000 ohm "	R23	- 250,000 "
R11	- 500,000- 500,000 Bass Control #25-082	R24	- 250 ohm 10 watt
R12	- 500,000- 500,000 Treble Control #25-082	R25	- 3500 ohm 10 watt
R13	- 50,000 ohm 1 watt	R26	- 500 ohm 1/2 watt
		R27	- 15,000 ohm 1/2 watt
		R28	- 3000 ohm 1/2 watt

## CONDENSERS

C1	- 30 Mfd. - 25 volt	Electrolytic	C10-C11	- 8- 8 Mfd. - 475 V.	Electrolytic
C2	- 0.1 Mfd. 600 V.	Paper	C12	- 8- 8 Mfd. - 475 V.	Electrolytic
C3	- 0.05 Mfd. - 200 V.	Paper	C13	- 30 Mfd. - 25 V.	Electrolytic
C4	- 30 Mfd. - 25 V.	Electrolytic	C14	- 0.1 Mfd. - 600 V.	Paper
C5	- 1.0 Mfd. - 200 V.	Paper	C15	- 0.1 Mfd. - 600 V.	Paper
C6	- 0.01 Mfd. - 600 V.	Paper	C16	- 0.01 Mfd. - 600 V.	Paper
C7	- 0.1 Mfd. - 600 V.	Paper	C17	- 0.01 Mfd. - 600 V.	Paper
C8-C9	- 8- 8 Mfd. - 475 V.	Electrolytic			

## MISCELLANEOUS

T1	- Output transformer A5349	CH2	- Filter Choke C1003
TE	- Power " P5229	PL	- 6.3 v. - 0.15 amp. pilot lite
CH1	- Bass Choke #55-010	F	- 2 amp. fuse

### GUARANTEE

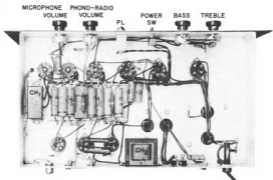
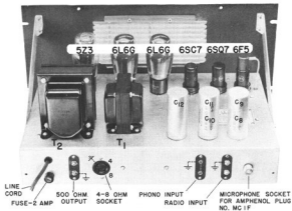
This amplifier is guaranteed to be free from any defect in workmanship and material that may develop within a period of ninety (90) days from date of purchase, under the terms of the standard guarantee, as designated by the Radio Manufacturers Association. Any part or parts that prove defective within this period will be replaced without charge when subjected to examination at our factory, providing such defect, in our opinion, is due to faulty material or workmanship, and not caused by tampering, abuse or normal wear. All such adjustments to be made FOB the factory.

Should this amplifier require any adjustments, your dealer or distributor has complete technical service information, or the factory will be glad to assist you in any problem direct.

Should it be necessary to return any part or parts to the factory, a "Return Material Permit" must be obtained in advance by first writing the Adjustment Department, who will issue due authorization under the terms of the guarantee.

The Hallicrafters Co. reserves the right to make changes in design or add improvements to instruments manufactured by them, without incurring any obligation to install the same in any instrument previously purchased.

All Hallicrafters amplifiers are built under patents of Radio Corporation of America and Hazeltine Corporation.



A.F. AMPLIFIER RESPONSE - MODEL S-31A

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