

Model AA-620

1. DESCRIPTION

1.1 GENERAL

The Ampex Model AA-620 Amplifier/Loudspeaker (see Fig. 1) combines a 15 watt solid state power amplifier with a dual loudspeaker system to provide a professional quality unit. The two loudspeakers, one woofer and one tweeter, are capable of handling the full output from the amplifier without overloading, when the baffle is firmly mounted in the portable case or rack mounting enclosure.

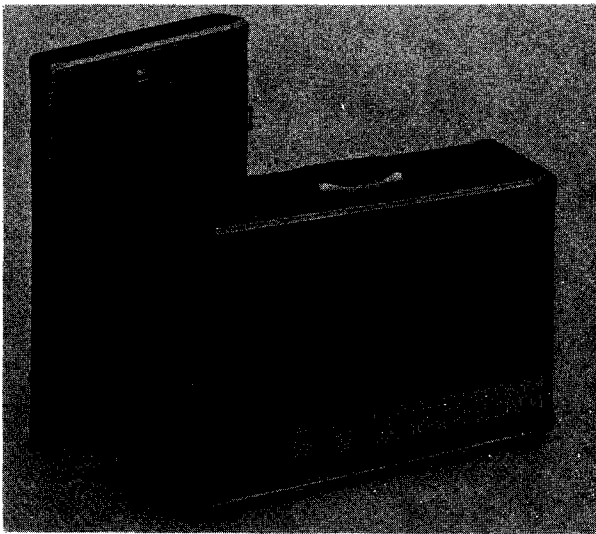


Fig. 1. Ampex Model AA-620 Speaker Amplifier

It is available either mounted in a portable carrying case, or unmounted for installation in a rack or custom console. All operating controls are located on the front panel, and connections are made at a connector panel (see Fig. 2)

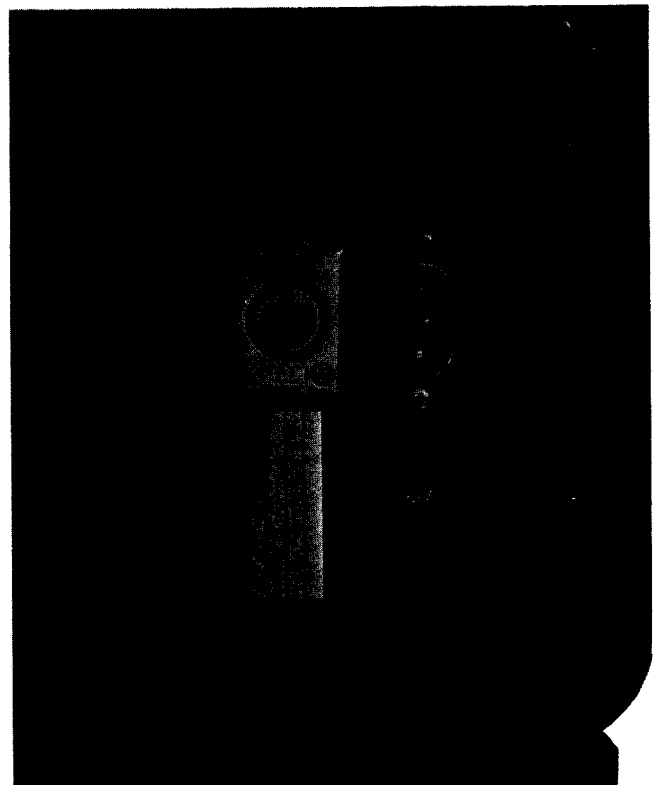


Fig. 2. Connector Panel

located on the right side of the portable case or on the back of unmounted units.

Unmounted amplifier/loudspeakers are

supplied in a vibration-insulated enclosure which will fit in a standard 19-inch rack. In such installations, the unit will occupy 12-1/2 inches of vertical rack space.

1.2 SPECIFICATIONS

Overall Frequency Response
(in free air)

Essentially flat acoustically.
Range better than 65 to 10,000 Hz.

Signal-To-Noise Ratio

Amplifier noise, including hum,
80 db below rated output.

Distortion (Amplifier)

Total harmonic distortion less than
1% at full rated output.

Input Impedance

100,000 ohms, unbalanced.

Equalization

Bass and treble controls on front
panel provide -6, -3, 0, +3, and +6
db at 100 Hz and 10,000 Hz.

Power Requirements

105-125 volts ac, 50 or 60 Hz.

Power Consumption

0.5 ampere with 117 volts a-c, at
full rated output.

Dimensions

Portable: 14-3/4 inch (H) x 20-1/8
inch (L) x 9 inch (D)
Unmounted: 12-1/2 inch (H) x 19 inch
(L) x 9 inch (D)

Weight

Portable: 24-1/2 pounds
Unmounted: 15 pounds

2. INSTALLATION

Unmounted equipment can be installed on standard 19-inch racks or in custom cabinets.

All internal connections, for both portable and unmounted amplifier/loudspeakers, are completed at the factory. It is therefore necessary only to connect the power and signal cables. These connections are made at the connector panel shown in Fig. 2.

The power cable (provided) connects from

the POWER receptacle on the connector panel to a source of 105-125 volts, ac, either 50 or 60 Hz.

A mating plug is provided for the INPUT connector, which is a standard XL type. Use a single-conductor, shielded cable to connect the input signal. The shield ("low" side of signal line) can be connected to either pin 1 or pin 2, both of which are ground. The conductor ("high" side of signal line) is connected to pin 3. Connect the signal cable between the INPUT connector on the connector panel and the output of the equipment which is to supply the signal.

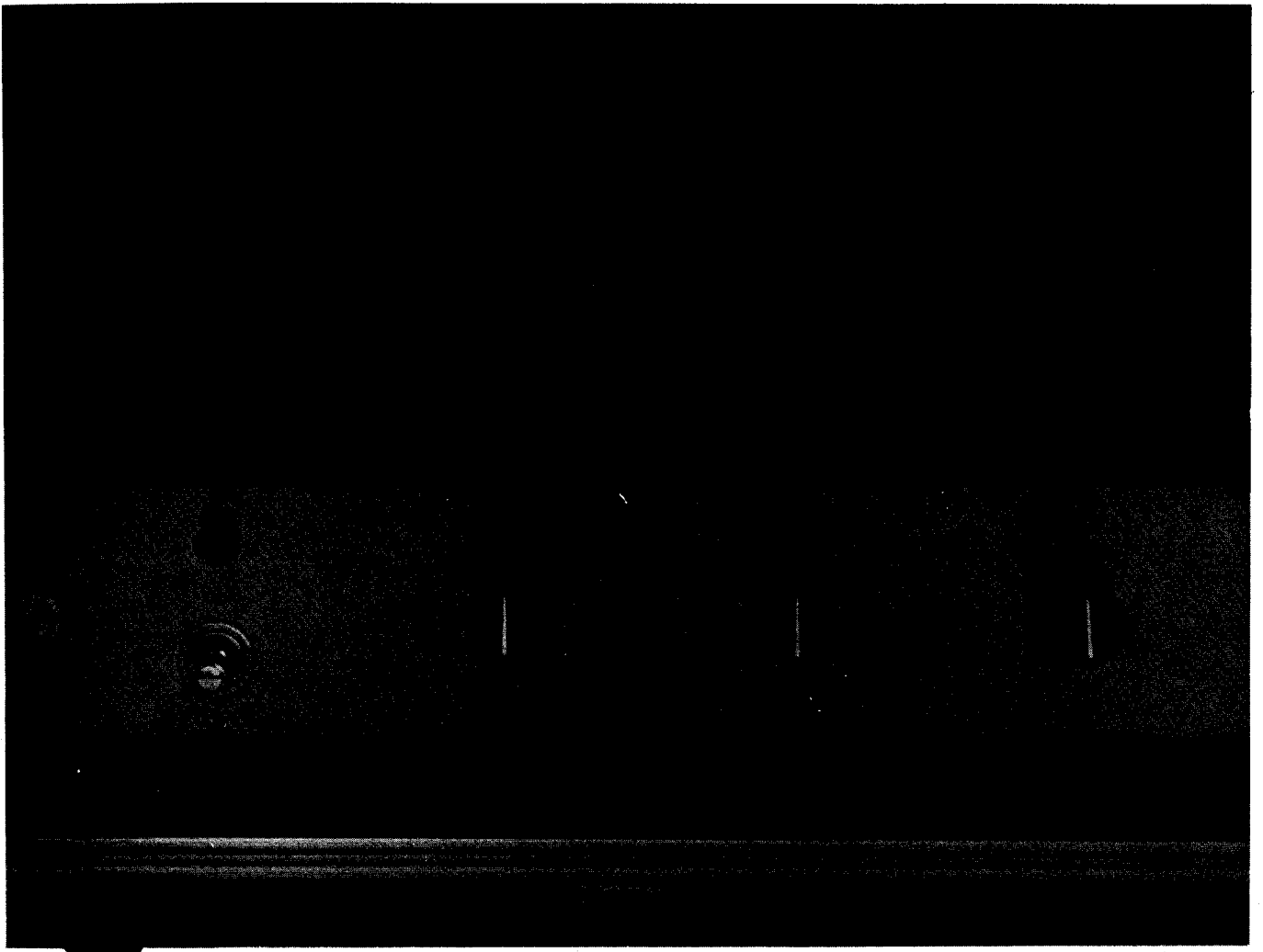


Fig. 3. Operating Controls and Indicators

3. OPERATION

Operating controls and indicators are shown on Fig. 3.

To apply power to the equipment, place the POWER switch on the front panel in the "on" (up) position.

As the signal is received from the associated equipment, adjust the VOLUME control to achieve the desired output level.

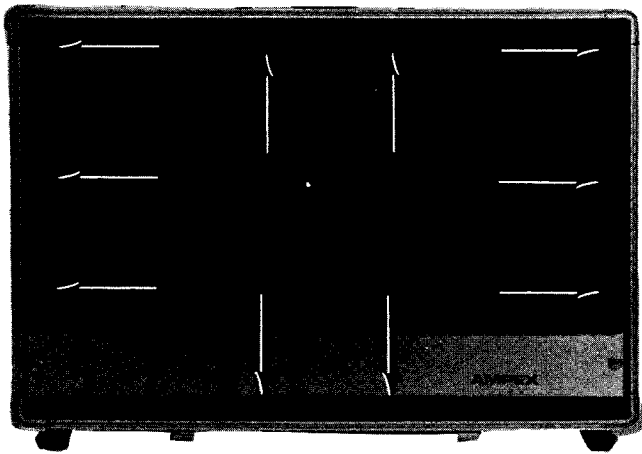
BASS and TREBLE controls allow attenuating or emphasizing bass tones at approximately 100 Hz and treble tones at approximately 10,000 Hz. Attenuation and emphasis are in 3 db steps

from -6 to +6 db. Set the controls to achieve the desired output tone.

4. MAINTENANCE

4.1 FREEING FROM PORTABLE CASE

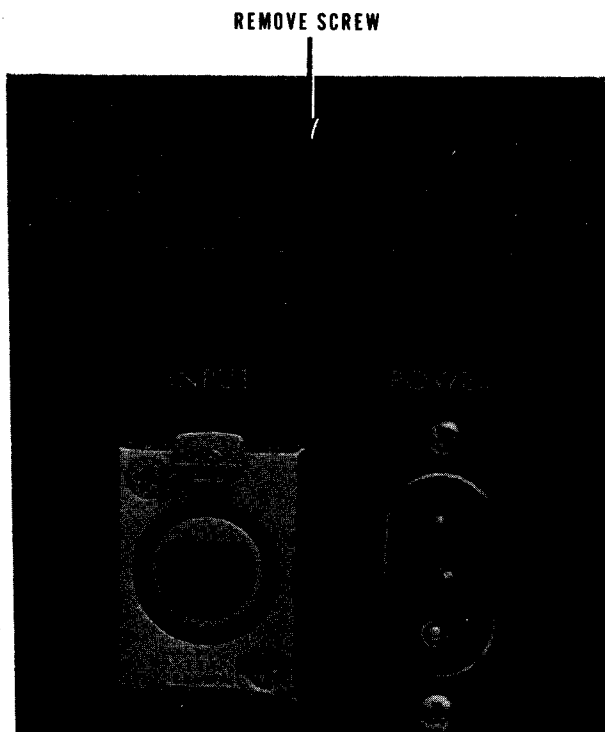
To free the equipment from a portable case, remove the ten black crosshead screws, two each on the top and bottom edge and three each on both sides (see Fig. 4). (Do not remove the two chrome plated screws, one at each end of the control panel.) The complete baffle assembly can now be lifted from the case, but the interconnecting cable to the connector panel will limit the distance it can be moved from the case. There is sufficient slack to allow the baffle assembly to be turned upside down on the case.



REMOVE SCREWS

Fig. 4. Freeing from Portable Case

If it is necessary to remove the complete equipment, the connector panel can be freed by removing one black cross head screw, located directly above the connector panel on the outside of the case (see Fig. 5). There is a slotted member attached to the inside of the case on the opposite end from the screw. Simply move the end of the panel out of the slot, and it will be completely free.



REMOVE SCREW

Fig. 5. Freeing from Portable Case

4.2 FREEING FROM RACK MOUNT ENCLOSURE

To free unmounted units from the enclosure, the complete unit must first be removed from the rack or custom mounting.

First, remove four machine screws (with nuts at the back); two of these are along the top front edge, two along the bottom front edge. Then from the back of the enclosure, remove five screws -- one at each corner and one in the middle. The complete baffle assembly can now be lifted from the enclosure, with sufficient slack in the cable from the connector panel to allow the baffle assembly to be turned upside down on the enclosure.

If it is necessary to remove the complete equipment, the connector panel can be freed by removing four screws from the back of the enclosure. This frees the panel from the enclosure.

4.3 FREEING AMPLIFIER ASSEMBLY

After the equipment is removed from the portable case or enclosure, the amplifier assembly can be removed from the baffle. Remove the knobs from the VOLUME, BASS and TREBLE controls at the front of the control panel. Then remove the bushing nuts from the shafts of the POWER, BASS, and TREBLE controls. At the back of the baffle, remove the two cross head screws indicated as item 18, Fig. 6. The amplifier assembly is now free, except for interconnecting wiring, and can be turned over to allow testing.

WARNING

Dangerous voltage exists at several points beneath the power supply bracket. Only those persons thoroughly experienced with working on "Hot" circuits should attempt trouble shooting when power is applied.

4.4 TROUBLE SHOOTING

Typical dc voltages, measured with a 20,000 ohms-per-volt voltmeter, are indicated at key points on the schematic diagram (Fig. 7). These voltages, together with normal audio signal tracing procedures, should suffice to quickly isolate troubles to the malfunctioning component.

AMPLIFIER/LOUDSPEAKER ASSEMBLY
Catalog No. 4010070

Fig. No.	Ref	-01	-02		LOCATION	Ampex Part No.
			x	Amplifier/Loudspeaker, portable case		4010070-01
			x	Amplifier/Loudspeaker, unmounted		4010070-02
6	1			Baffle Assembly		4020190-01
6		1		Baffle Assembly		4020190-02
6	1			Amplifier Assembly		4020189-03
6		1		Amplifier Assembly		4020189-04
7	1	1		Printed Circuit Board Assembly		4050424-01
7	C1	4	4	Capacitor, mylar; 0.22 mfd, ±10%, 50 vdcw		055-154
7	C2	3	3	Capacitor, electrolytic; 50 mfd, -10+75%, 50 vdcw		031-187
7	C3	1	1	Capacitor, electrolytic; 2 mfd, -10+75%, 25 vdcw		031-646
7	C4	1	1	Capacitor, mica; 560 pfd, ±5%, 300 vdcw		034-93T
7	C5	1	1	Capacitor, mylar; .0068 mfd, ±5%, 100 vdcw		055-103
7	C6	x	x	Same as C1		
7	C7	x	x	Same as C1		
7	C8	1	1	Capacitor, mylar; .022 mfd, ±10%, 50 vdcw		055-268
7	C9	x	x	Same as C1		
7	C10	1	1	Capacitor, electrolytic; 15 mfd, -10+75%, 50 vdcw		031-250
7	C11	1	1	Capacitor, tantalum; 0.68 mfd, ±5%, 25 vdcw		037-495
7	C12	x	x	Same as C2		
7	C13	x	x	Same as C2		
7	CR1	1	1	Diode, silicon; large signal		013-678
7	Q1	1	1	Transistor, silicon, npn; low noise, low level		014-698
7	Q2	1	1	Transistor, silicon, pnp		014-652
7	Q3	1	1	Transistor, silicon, npn; 40409		014-742
7	R1	1	1	Resistor, fixed, comp; 2.2 meg ohms, ±10%, 1/2w; RC20GF225K		041-086
7	R2	1	1	Resistor, fixed, comp; 220,000 ohms, ±10%, 1/2w; RC20GF224K		041-076
7	R3	3	3	Resistor, fixed, comp; 47,000 ohms, ±10%, 1/2w; RC20GF473K		041-068
7	R4	x	x	Same as R3		
7	R5	2	2	Resistor, fixed, comp; 4,700 ohms, ±5%, 1/2w; RC20GF472J		041-013
7	R6	2	2	Resistor, fixed, comp; 7,500 ohms, ±5%, 1/2w; RC20GF752J		041-361
7	R7	2	2	Resistor, fixed, comp; 39,000 ohms, ±5%, 1/2w; RC20GF393K		041-018
7	R8	x	x	Same as R6		
7	R9	x	x	Same as R7		
7	R10	x	x	Same as R5		
7	R11	1	1	Resistor, fixed, comp; 2,400 ohms, ±5%, 1/2w; RC20GF242J		041-316
7	R12	1	1	Resistor, fixed, comp; 6,200 ohms, ±5%, 1/2w; RC20GF622J		041-455
7	R13	1	1	Resistor, fixed, comp; 22,000 ohms, ±5%, 1/2w; RC20GF223J		041-016
7	R14	1	1	Resistor, fixed, comp; 68,000 ohms, ±5%, 1/2w; RC20GF683J		041-022
7	R15	x	x	Same as R3		
7	R16	1	1	Resistor, fixed, comp; 27,000 ohms, ±10%, 1/2w; RC20GF273K		041-065
7	R17	1	1	Resistor, fixed, comp; 100,000 ohms, ±10%, 1/2w; RC20GF104K		041-072
7	R18	1	1	Resistor, fixed, comp; 2,200 ohms, ±10%, 1/2w; RC20GF222K		041-052
7	R19	1	1	Resistor, fixed, comp; 10,000 ohms		041-060
7	R20	1	1	Resistor, fixed, comp; 1,500 ohms, ±10%, 1/2w; RC20GF152K		041-050
7	R21	2	2	Resistor, fixed, comp; 100 ohms, ±10%, 1/2w; RC20GF101K		041-038
7	R22	2	2	Resistor, fixed, comp; 270 ohms, ±10%, 2w; RC42GF271K		041-196
7	R23	x	x	Same as R22		
7	S1	2	2	Switch, SP5T		4620069-01
7	S2	x	x	Same as S1		
7		1	1	Transistor pad		280-130
				COMPONENTS NOT ON PRINTED CIRCUIT BOARD		
7	C14	1	1	Capacitor, electrolytic; 1,500 mfd, 40 vdcw	Chassis	4550147-04
7	C15	1	1	Capacitor, electrolytic, 5 mfd, ±20%, 25 vdcw	Bet. Speakers	031-866
7	C16	1	1	Capacitor, electrolytic; 2,000 mfd, 80 vdcw	Chassis	4550147-03
7	C17	2	2	Capacitor, ceramic disc; .005 mfd, -20+80%, 1400 vdcw	Con. Panel	030-465
7	C18	x	x	Same as C17	Con. Panel	
7	CR2	4	4	Diode, silicon, rectifier; large signal	Chassis	013-678
7	CR3	x	x	Same as CR2	Chassis	
7	CR4	x	x	Same as CR2	Chassis	
7	CR5	x	x	Same as CR2	Chassis	
7	F1	1	1	Fuse, 1 ampere, slo-blo	Con. Panel	070-004
7	DS1	1	1	Lamp, pilot	Chassis	4610081-01
7	Q4	1	1	Transistor, silicon, npn; power	Chassis	014-630
7	Q5	1	1	Transistor, germanium, pnp; T13031	Chassis	014-604
		1	1	Transistor Pad	Q4	014-703
7	R24	1	1	Resistor, variable, carbon; 100,000 ohms, ±10%, 2w	Chassis	058-181
7	R25	1	1	Resistor, fixed, comp; 100 ohms, ±10%, 13; RC32GF101K	Chassis	041-137
7	R26	2	2	Resistor, wirewound; 0.47 ohm, ±5%, 2w	Chassis	047-364

AMPLIFIER/LOUDSPEAKER ASSEMBLY (Cont.)
 Catalog No. 4010070

Fig No.	Ref.	-01	-02		LOCATION	Amper Part. No.
7	R27	x	x	Same as R26	Chassis	120-655
7	S3	1	1	Switch, power; SPST, Bat Lever	Chassis	4580052-01
7	T1	1	1	Transformer, power	Chassis	4580052-01
7		1	1	Connector, power; 3 pin, male	Con. Panel	147-396
7		1	1	Connector, input, audio; 3 socket, female; XL type	Con. Panel	146-998
7		1	1	Loudspeaker, woofer	Baffle	4680039-01
7		1	1	Loudspeaker, tweeter	Baffle	4680040-01
		3	3	Knob, pointer	Fr. Panel	6000005-20
		1	1	Duct, tuned	Baffle	4170197-20
		1		Portable Case		4041028-02
			1	Enclosure		4150181-02
		1	1	Cord Set, power, 8 foot		084-027
		1	1	Connector, audio, 3 pin, male (mates with input connector)		145-009
		1	1	Instruction Manual		4890177