AMPEG SERVICE MANUAL

A120 AMPLIFIER

A-120 AMPLIFIER SPECIFICATIONS

Power Output:
120 watts RMS minimum continuous @ less than 0.3% total harmonic distortion into 8 ohms.

Power at Clip Point:
Typically 130 watts into 8 Ohms;
70 watts into 16 Ohms.

Damping Factor:
Greater than 100.

Maximum Heat Sink Temperature Rise at Full Power Sinewave:
55°C.

Ambient Temperature Range:
−20° to +40°C.

DC Offset:
50 Millivolts or less.

Frequency Response (1 watt):
± 1 dB, 20 Hz to 20,000 Hz.

Power Band Width (120 watts RMS):
20 Hz to 20,000 Hz.

Signal to Noise Ratio (S/N):
−90 dB below full power.

Protection:
Complete circuit self-protection is provided. Shorted, mismatched or open loads have no adverse effect.

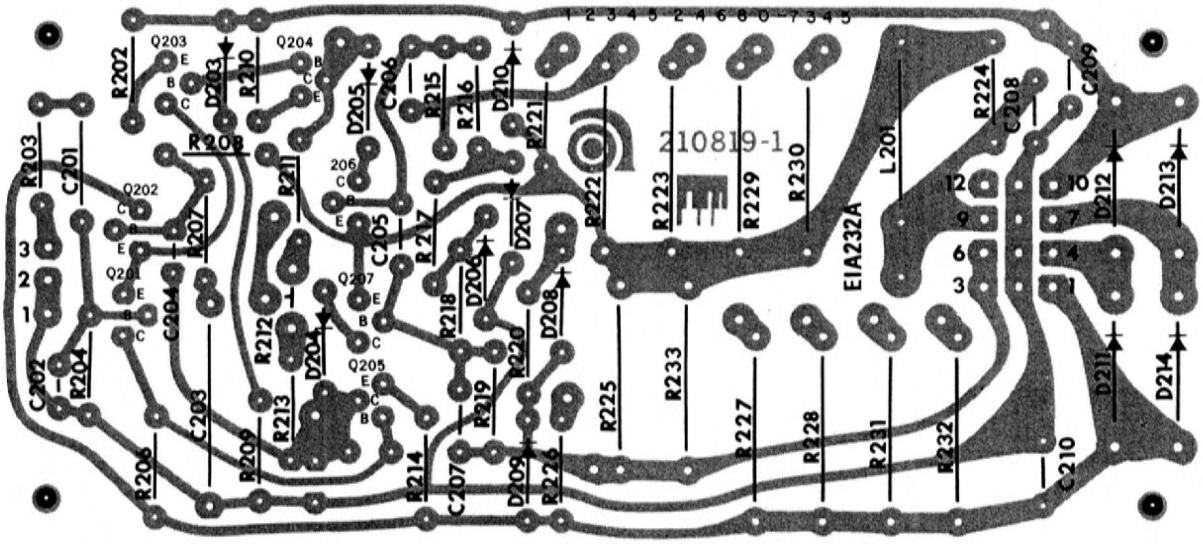
Overload recovery is instantaneous on any waveform.

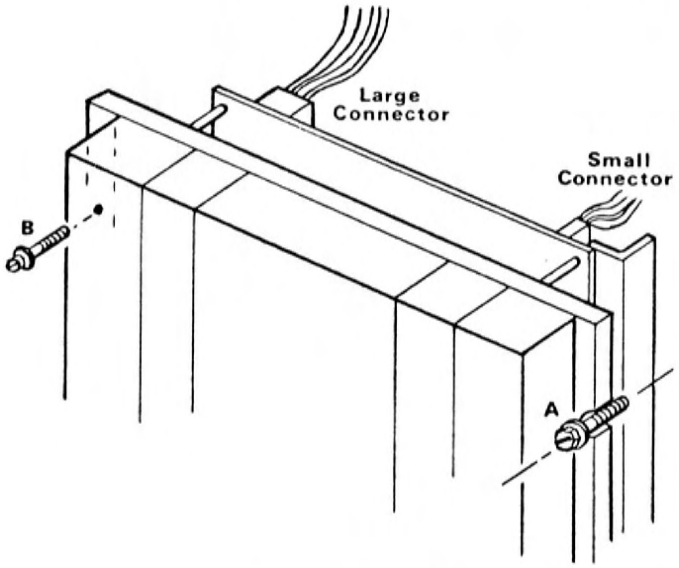
No thermal protection or forced air cooling is required due to the massive black anodized heat sink.

Sensitivity:
0.257 volts produces 100 watts RMS.

Dimensions:
22¼" W x 6⅝" H x 10" D.

A120 PC BOARD
(VIEWED FROM COPPER SIDE)



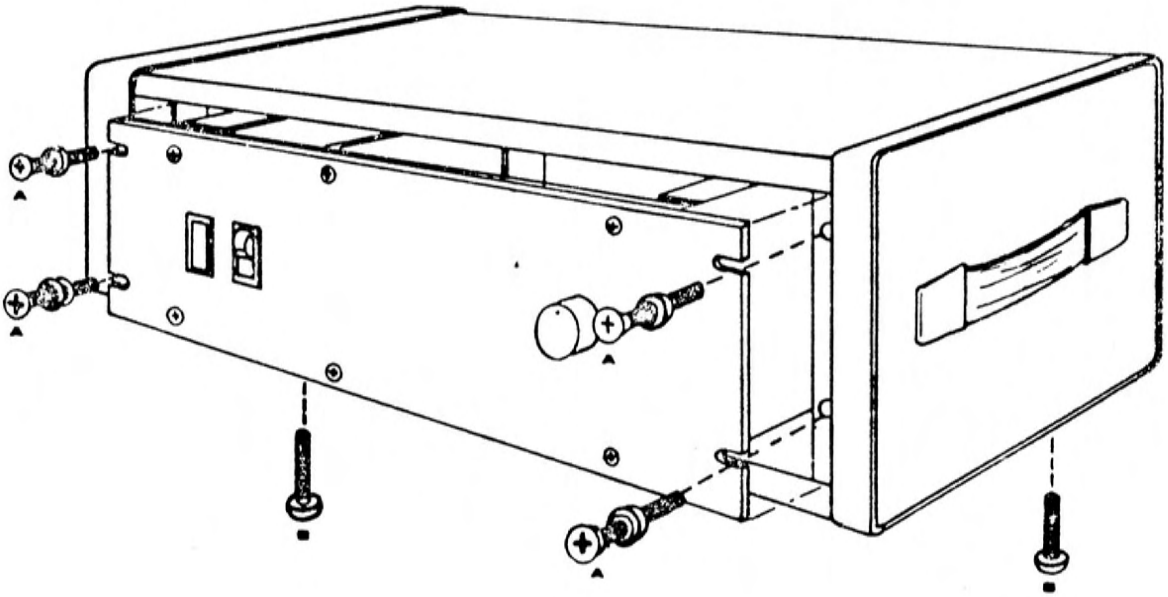


DISASSEMBLY OF POWER MODULE

1. Place amplifier so module is in position shown.
2. Loosen drum lug 'A' and completely remove drum lug 'B'.
3. Remove power module from chassis by sliding to the left and out, to allow for disassembly of connectors.
4. Disconnect small connector on right hand side first.
5. Turn right side of module out about 75° from chassis. Disconnect larger connector. If firmly seated use rocking motion to loosen connector.

A120 MECHANICAL DISASSEMBLY

To remove chassis from cabinet for servicing, remove 4 screws marked "A" from front of unit and 2 screws marked "B" from bottom of unit, as shown, then pull chassis forward.



MODEL A120
TEST PROCEDURE

1. Connect a 60W incandescent lamp in series with the transformer primary winding. With no load a dull glow is normal and bright glow indicates short circuit.
2. Remove lamp and adjust R212 for 0.011 VDC between pins 6 and 9 on connector P2.
3. Connect an 8 ohm load. With a 0.26 VRMS 400Hz sine wave input the output should be 28.28 VRMS ± 10%.
4. Raise input to 0.50 VRMS and line voltage to 130V. Remove load for no less than one minute for open circuit test.
5. Reconnect 8 ohm load and reduce line voltage to 120V. Check amplifier for proper operation.
6. Load line limiter test — verifies protection circuit operation:
   A. Connect oscillator, oscilloscope, 0.1 ohm 10W resistor, and 20MFD oil capacitor capable of 20 amps. ripple as shown in Figure 1.
   B. Set the horizontal channel of oscilloscope at 10V/cm to monitor voltage across entire load. Set the vertical channel at 0.5V/cm to monitor current.
   C. With a 0.5VRMS 100Hz sine wave input signal the "Bowtie" trace in Figure 2 should appear. Figure 3 shows typical abnormal trace. **With normal trace do not operate more than one minute. With abnormal trace discontinue operation at once.**

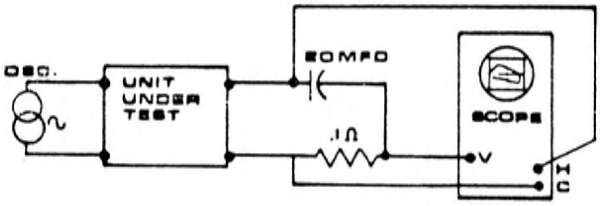


FIG. 1

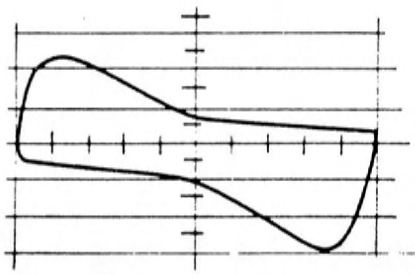


FIG. 2

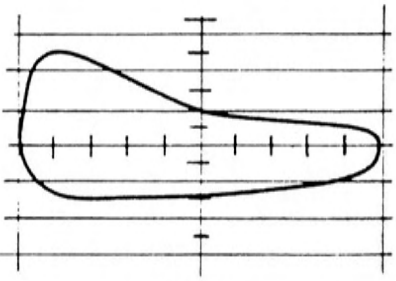


FIG. 3

SERVICE TIPS

SYMPTOM	POSSIBLE CAUSE
Blows Fuses or has excessive high hum.	Any transistor or diode may be shorted or open. Especially check drive transistors Q302 & Q303, Power transistors Q304 to Q307 and rectifier diodes D211, D214.
No output or large DC voltage at speaker terminals.	Open transistors Q201, Q202, or Q203. Defective 1.9 volt reference diode D203.
High Distortion.	Shorted D204 or D205. R202 open. Q302 or Q303 open. Bias out of adjustment.
R221 is burned.	Open R222, R223, and Q301, Q302, Q303, Q304, Q305.
Heat Sink Too Hot.	Bias is misadjusted.

MODEL A120
REPLACEMENT PARTS LIST

Note: Replacement parts may differ in part number or value from the factory installed part. In either event the replacement part has been chosen to provide equal or improved performance.

REF.	DESCRIPTION	PART NO.
	SWITCHES	
SW301	Interlock	160809-1
SW302	Power	160804-10
	FUSES	
	4 Amp	181021-1400
	6 Amp	181574-7
	Fuse Holder	181576-1
	JACKS	
J301	Input	181573-3
J302	Input	181573-3
J303	Speaker	181573-3
J304	Speaker	181573-3
	CONTROLS	
R301	Volume	220667-1
R212	Bias	220299-4723
	WIREWOUND RESISTORS	
R222	0.33 Ohm, 5W	240080-513
R223	0.33 Ohm, 5W	240080-513
R225	0.16 Ohm, 5W	240080-506
R227	0.33 Ohm, 5W	240080-513
R228	0.33 Ohm, 5W	240080-513
R229	0.33 Ohm, 5W	240080-513
R230	0.33 Ohm, 5W	240080-513
R231	0.33 Ohm, 5W	240080-513
R232	0.33 Ohm, 5W	240080-513
R233	0.16 Ohm, 5W	240080-506
	ELECTROLYTIC CAPACITORS	
C201	2.2MFD, 25V	270117-2025
C203	300MFD, 10V	270117-3210
C303	4800MFD, 60V	270564-1
C304	4800MFD, 60V	270564-1

REF.	DESCRIPTION	PART NO.
	SEMICONDUCTORS	
D203	1.9V Ref. Diode	530556-2
D204	IN456 Diode	530072-1011
D205	IN456 Diode	530072-1011
D206	IN456 Diode	530072-1011
D207	IN456 Diode	530072-1011
D208	1A, 800PIV	530555-1
D209	1A, 800PIV	530555-1
D210	1A, 800PIV	530555-1
Q201	Differential Amp	610270-1
Q202	Differential Amp	610270-1
Q203	Current Source	610270-1
Q204	Current Source	610264-2
Q205	Voltage Amp	610264-1
Q206	Protection	610263-3
Q207	Protection	610263-4
Q301	Bias	610263-6
Q302	Driver	610262-10
Q303	Driver	610262-9
Q304	Power	610259-2
Q305	Power	610259-2
Q306	Power	610259-2
Q307	Power	610259-2
	MISCELLANEOUS	
	Glide	121465-1
	Handle	121467-4
	Knob	142745-2
	Pilot Light	181572-4
	AC Outlet	181581-2
	Power Transformer	300714-4
L201	5MH Inductor	361602-2