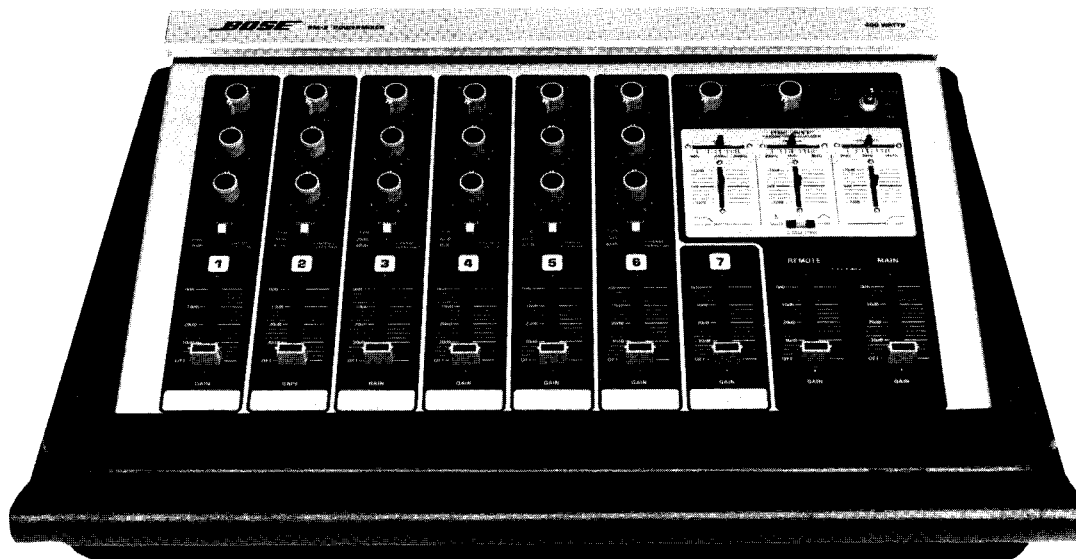




SPECIFICATIONS

Inputs

6 mic channels, each with a low impedance balanced XLR input & a high impedance $\frac{1}{4}$ " phone jack input

Pin 1 — Shield

Pin 2 — Low

Pin 3 — High

1 auxiliary channel with high impedance $\frac{1}{4}$ " jack inputs. Minimum input voltage .3 V.

Extrapatch™ Input

Pin 1 — Ground

Pin 2 — Main

Pin 3 — Effects

Input Impedance

5,000 ohm balanced, low impedance inputs.

15,000 ohm unbalanced, high impedance inputs.

Input Channel Controls

GAIN, RANGE, BASS, TREBLE, and R/E/M SEND.

Reverb

Low-impedance Accutronics Type 4 spring reverb device.

Range Switches

0 dB, -20 dB, and -40 dB Gain Control on input channels (low noise feedback-type switching)

Tone Controls

BASS ± 12 dB max., (250 Hz hinge point)

TREBLE ± 10 dB max., (3500 Hz hinge point)

Power Output

400 Watts (rms) into 4 ohms

250 Watts (rms) into 8 ohms

Frequency Response

± 2 dB 50 Hz — 15 kHz (all controls flat)

Distortion

<0.2% THD, 50 Hz — 15 kHz @ 100 Watts

Hum & Noise

≤ 120 dBV equivalent input noise with 20 kHz noise bandwidth

Equalization

Built-in BOSE 802 equalizer (switchable)

PARA-GRAPH™ Parametric Equalizer

BASS: ± 12 dB cut and boost, hinge point shiftable from 50 Hz to 600 Hz

PRESENCE: ± 12 dB cut and boost, center point shiftable from 200 Hz to 6 kHz, 3 position Q switch for varying bandwidth

BRILLIANCE: ± 12 dB cut and boost, hinge point shiftable from 2 kHz to 14 kHz.

Indicators

Red LEDs for channel overload, full power, high temperature, and reverb off. Green LED pilot light

Protection Circuits

High temperature sensing

DC output sensing speaker protection

turns unit off when power amplifier DC offset exceeds ± 1.2 V

Inputs & outputs protected against accidental overload

Power-line fuse (10 A slow-blow 100, 120V) (5 A slow-blow 220, 240V)

Internal power supply fuses

Amplifier cooling fan

Outputs

2 SPEAKER OUTPUTS

2 MAIN LINE OUTPUTS (6V, maximum)

2 REMOTELINE OUTPUTS (6V, maximum)

2 TAPE RECORDER OUTPUTS

1 MONITOR MIX OUT

1 EFFECTS OUT

Accessory Provisions

Connections provided for reverb foot-switch, external effects device, and input to internal power amplifier.

Master Controls

MASTER REVERB

MASTER EFFECTS/MONITOR

MAIN GAIN

REMOTE GAIN

Power Requirements

1000 watts, maximum

Dimensions

27" (68 cm) W x 21" (53 cm) D x 11" (28 cm) H

Weight

70 lbs. (32 kg)

DISASSEMBLY PROCEDURE

CONTROL PANEL ASSEMBLY

1. Loosen (3-5 revolutions) 4 Phillips-head screws with dress washers from front of case. Remove foam filters.
2. Remove 4 Phillips-head screws holding the control panel to the main chassis. The control panel assembly is now free to be lifted up and back.

INPUT BOARD

1. Pull off the control knobs. Remove hex nuts and lockwashers from R/E/M SEND, TREBLE and BASS controls. Remove 2 Phillips-head screws and washers from each GAIN slider control. The input board is now free to be removed.

MAIN PC BOARD

1. Remove all control knobs, hex nuts, washers, and screws from the following controls: Master Reverb, Master EFF/MON, Parametric Equalizer, Gain #7, Remote Gain and Master Gain. Remove 5 Phillips-head screws. The Main PC board is now free to be removed.

POWER AMPLIFIER AND FAN

1. The Power Amplifier housing is held by 4 screws: two on the chassis rear lip and two on the bottom plate. To remove assembly, remove 2 screws on the bottom and loosen the 2 screws on the rear lip. Before lifting out, remove both plug-in cables to the Power Amplifier, three cables to the power supply and fast-on cables to the thermostat. Entire fan and Power Amplifier assembly can be lifted out.

REVERB UNIT

1. Remove 4 Phillips screws and washers holding the Reverb assembly in place. When reinstalling be careful to route input and output cables so as not to touch outer channel of reverb.

MAIN CHASSIS

1. It is not necessary to remove the main chassis for servicing.

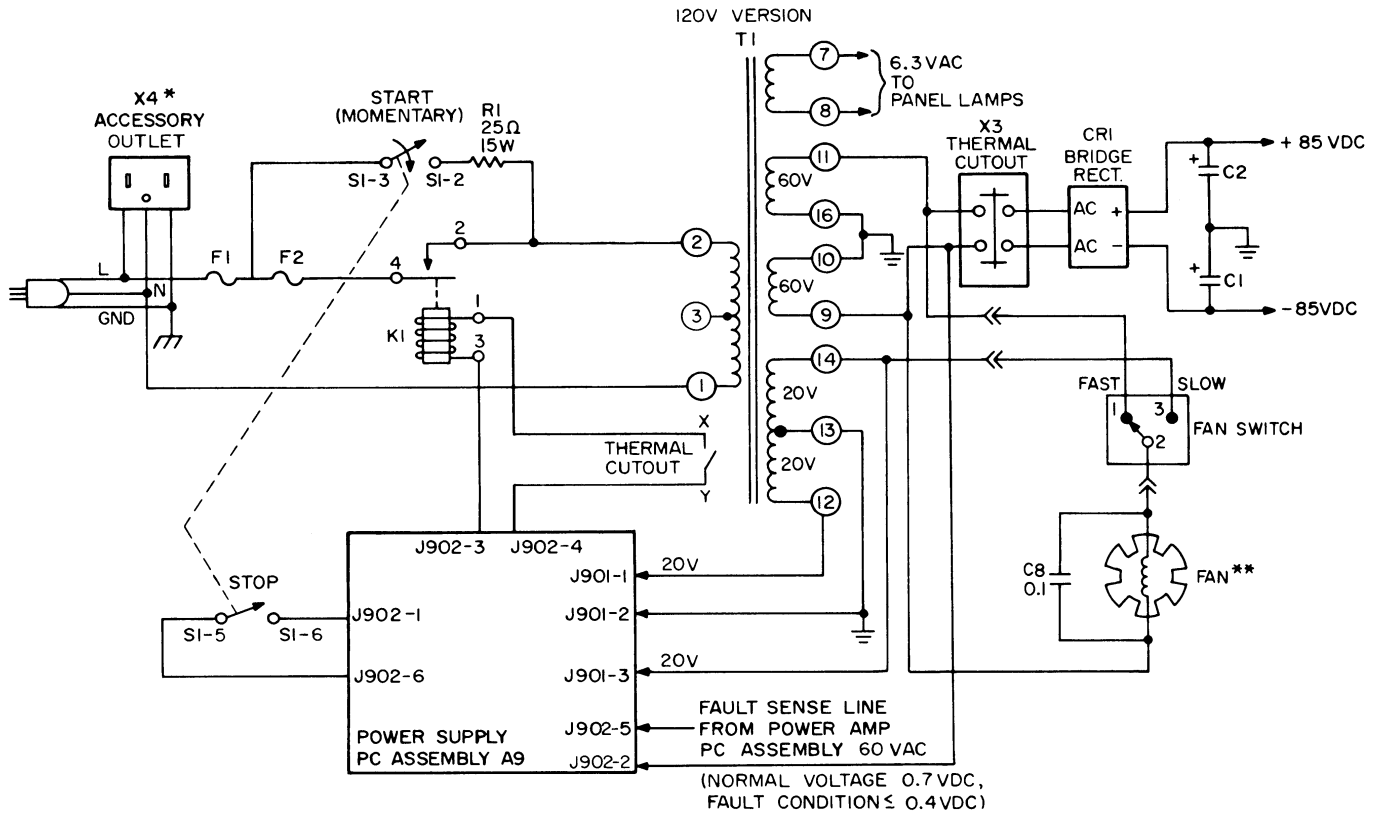
NOTE:

When replacing control panel assembly, front lip of front panel should be between case and front of chassis. Tighten the 4 Phillips-head screws with moderate torque. DO NOT OVERTIGHTEN.

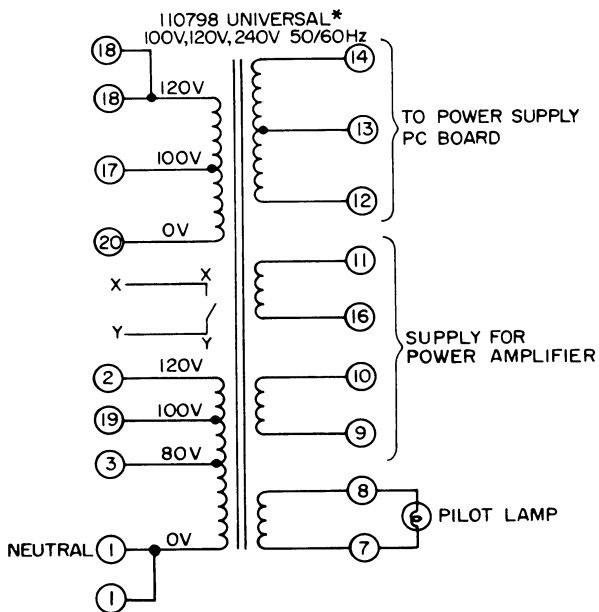
PARTS LIST

SYMBOL	DESCRIPTION	PART NUMBER	SYMBOL	DESCRIPTION	PART NUMBER	SYMBOL	DESCRIPTION	PART NUMBER
Capacitors								
C1, C2	7800 µF 100 VDC Elctlc.	106528	C716, 717	5 µF 25 VDC Elctlc.	108438	RT501	Semiconductors	111153
C3	0.1 µF 200V Film	110785	C718	1.0 µF 16 VDC Elctlc.	108438	U701, 702	Thermistor 10K	108568
C4	.0047 µF 1.4KV Cer Disc	103447	C901, 902	1000 µF 35 VDC Elctlc.	106959	Q701, 702	FET E112	111681
C101, 201, 151, 153, 154, 155, 156, 158			C903, 904	0.1 µF 100 VDC Film	102403	D701, 702, 703	Diode (Sim 1N4148)	116997
C102, 103, 117, 202, 203, 217			C905, 906	10 µF 25 VDC Elctlc.	106777	CR801-909, 911	Diode (Sim 1N4003)	106363-3
C106, 206	10 µF 10 VDC Elctlc.	106956	C907, 909	0.33 µF 100 VDC Film	110372	Q810, 912	Diode, Zener, 18 V	116995-4746A
C107, 107	0.015 µF 100 VDC Film	106510-153	C908	68 µF 100 VDC Elctlc.	110310	Q901	Transistor (Sim DA0N5)	111293
C108, 157, 204	100 µF 25 VDC Elctlc.	108439	Resistors			Q902	Transistor (Sim 2N3904)	102432
C109, 152, 209	330 pF 100 VDC Cer. Discs 106767-331		R1	25 Ohms 15 W 10"	106873	U901	IC Voltage Regulator (+ 15 V)	107410
C104, 207	100 µF 6.3 VDC Elctlc.	107496	R106, 107, 206, 207	1.21 K Ohms .25 W 1%	104095-1211	U902	IC Voltage Regulator (- 15 V)	107385
C110, 113, 115, 116, 210, 213, 215, 216	470 pF 100 VDC Cer. Disc 106541-471		R108, 109, 208, 209	7.5 K Ohms .25 W 1%	104095-7501	Complete Sub-Assemblies		
C111, 212, 211, 212	22 µF 10 VDC Elctlc.	106778	R301, 303, 305, 307, 309, 311, 317, 319, 321, 323, 325, 327, 337	150 Ohms .25 W 1%	107181-1500	Power Amp PC Board	106866	108226
C301, 305, 308	4.7 µF 10 VDC Elctlc.	106955	R302, 304, 306, 308, 310, 312, 318, 320, 322, 324, 326, 328	22 K Ohms .25 W 2%	107169-223	Main PC Board	110222	108227
C304, 333	22 µF 15 VDC Elctlc.	106778	R329	2.2 K Ohms .25 W 2%	107169-222	Input PC Board	108783	108224
C306, 337, 338	10 µF 10 VDC Elctlc. (Non-Polar)	108978	R339	470 Ohms .25 W 2%	107169-471	802 Equalizer PC Board	110285	108228
C307, 329	15 pF 200 VDC Cer. Disc 104413-150		R339, 381, 387	10 K Ohms .25 W 2%	107169-103	Power Supply PC Board	106898	102832
C302, 303, 309, 310, 321, 322, 324, 325, 330, 331, 335, 336, 340, 341			R340	20 K Ohms .25 W 2%	107169-203	Miscellaneous		
C311	0.01 µF 100 VDC Film	102399	R343	120 K Ohms .25 W 2%	107169-124	Fuse 10A, 120 V, External	102884	106894
C312, 313	0.33 µF 100 VDC Film	106511-334	R345, 424	4.7 K Ohms .25 W 2%	107169-472	Fuse 5A, 240 V, External	108190-500	
C314	100 µF 25V Elctlc.	108439	R373, 386	100 K Ohms .25 W 2%	107169-104	Fuse 15A, 120 V, Internal	110526	104877
C315	0.0082 µF 100 VDC Film	106510-822	R388	51 K Ohms .25 W 2%	107169-513	Air Filter	104714-012	
C316	0.0047 µF 100 VDC Film	106510-472	R420	30 K Ohms .25 W 2%	107169-303	Fan Shield	110118	106875
C317	3300 pF 100 VDC Film	106510-332	R421	3 K Ohms .25 W 2%	107169-302	Fan	110405	
C318	0.15 µF 100 VDC Film	106511-154	R423	47 K Ohms .25 W 2%	107169-473	Plug and Cord Set (Fan)	110006	102626
C319	0.0022 µF 100 VDC Film	106510-222	R517, 519	6.19 K Ohms .25 W 1%	104095-6191	Relay	110906	
C320	300 pF 100 VDC Cer. Disc 106767-301		R518, 520	23.7 K Ohms .25 W 1%	104095-2372	Reverberation Unit	110632	108704
C323	120 pF 100 VDC Cer. Disc 106767-121		R522, 528, 552	100 K Ohms .25 W 1%	104095-1003	Fuse Holder, Internal 2 required	110786	
C326, 327	47 pF 100 VDC Cer. Disc 106767-470		R525, 526	182 Ohms .25 W 1%	104095-1820	Transformer (115 V only)	110798	108104
C328, 334	2.2 µF 10 VDC Elctlc. (Non-Polar)	108979	R531-536, 541-546	0.8 Ohms WW 3W 5%	106965-088	Power Amp (Housing)	110119	
C332	0.01 µF 100 VDC Film	106510-103	R537, 538, 539	0.4 Ohms WW 6 W 5%	106966-044	Lamp Socket	106544	110846
C339, 342, 345, 346	150 pF 100 VDC Cer. Disc 106540-151		R547	8.2 Ohms 2 W 5%	102950-8R2	AC Outlet	106548	
C343	75 pF 100 VDC Cer. Disc	106540-750	R551	3.4 K Ohms .25 W 1%	104095-3401	Fuse Holder, External Body	109485	103832
C344	47 pF 100 VDC Cer. Disc	106540-470	R902	100 Ohms 2 W 5%	102950-101	Fuse Holder Cap (120V)	109484	
C347, 348	30 pF 100 VDC Cer. Disc	106798-300	Semiconductors			Fuse Holder Cap (240V)	109493	110877
C348, 350	22 pF 200 VDC Cer. Disc	104413-220	CR1	Bridge Rectifier	102578	Line Cord (115 V)	106919	
C501	470 pF 100 VDC Cer. Disc	106541-471	CR101-104, 201-204	Diode (Sim 2N4148)	116997	Line Cord 240V	106920	110364-1
C502, 503, 515	1.0 µF 100 VDC Film	106969	Q101-104, 201-206	Transistor (Sim 2N3906)	110338-2	Strain Relief (Line Cord)	106951	
C504, 514	5 µF 50 VDC Elctlc.	102403	Q105, 106	Transistor (Sim 2N3904)	102432	LED, Red	106864	109480
C506	0.1 µF 100 VDC Cer. Disc	106900	U1, 2	IC Dual OP Amp (4559)	108568	LED, Green	108217	
C508	4.7 pF 200 VDC Cer. Disc	104413-477	CR301-310, 317-320	Diode (Sim 1N4003)	108363-3	RL Network	102666	109219
C509	100 pF 100 VDC Cer. Disc 104382		CR312, 315	Diode (Sim 1N4148)	116997	Thermostat	107658	
C510	10 µF 50 VDC Elctlc.	106999	Q301, 304, 305, 306	Transistor (Sim 2N3904)	102432	Fuse 1A, 230 V Pigtail (Outer)	109221	110364-2
C511	0.01 µF 100 VDC Cer. Disc 106868		Q302	Transistor (Sim 2N3906)	102426	Transformer Shield (Inner)	111726	
C512, 516	200 pF 200 VDC Cer. Disc 106540-201		Q303	FET (Sim E111)	104019	Transformer Shield (Outer)	110120	110112
C513, 517	1000 pF 200 VDC Cer. Disc	106541-102	U301-U307	IC, Dual OP Amp (4559)	108568	Carton	110273	
C518	100 µF 3 VDC Elctlc.	102836	CR506, 507, 516, 517	Diode (Sim 1N4148)	116997	Reverb Shield (Upper)	111639	107644
C519	0.1 µF 25 VDC Cer. Disc	106881	CR508, 509, 510	Diode (Sim 1N4003)	108363-3	Reverb Shield (Lower)	111640	
C520, 521	1.0 µF 100 VDC Elctlc.	109283	CR518, 519	Diode (Sim 1N3070)	102411	Suspension Cord	111818	107119-2
C701, 702, 703	.15 µF 100 VDC Film	106511-154	Q501	Transistor (Sim MM4001)	102425			
C704, 705, 710, 711	0.1 µF 25 VDC Cer. Disc	106881	Q502, 503, 508, 527	Transistor (Sim 2N3906)	110338-2			106526
C707	.0033 µF 100 VDC Film	106510-332	Q524	Transistor (Sim MPS U10)	111654			
C708, 712, 713	.047 µF 100 VDC Film	106510-473	Q505	Transistor (Sim MJE350)	108974			106526
C709, 714	.0012 µF 100 VDC Film	106510-122	Q506	Transistor (Sim 2N3584)	102430			
C715	270 pF 100 VDC Cer. Disc	106767-271	Q504, 507, 525, 526, 528	Transistor (Sim 2N3904)	102432			106526
			Q509	Transistor (Sim 2N6211)	102431			
			Q510-523	Transistor (Sim 2N5840)	102433			

POWER SUPPLY BLOCK DIAGRAM



VOLTAGE CONVERSION FOR UNIVERSAL VERSION

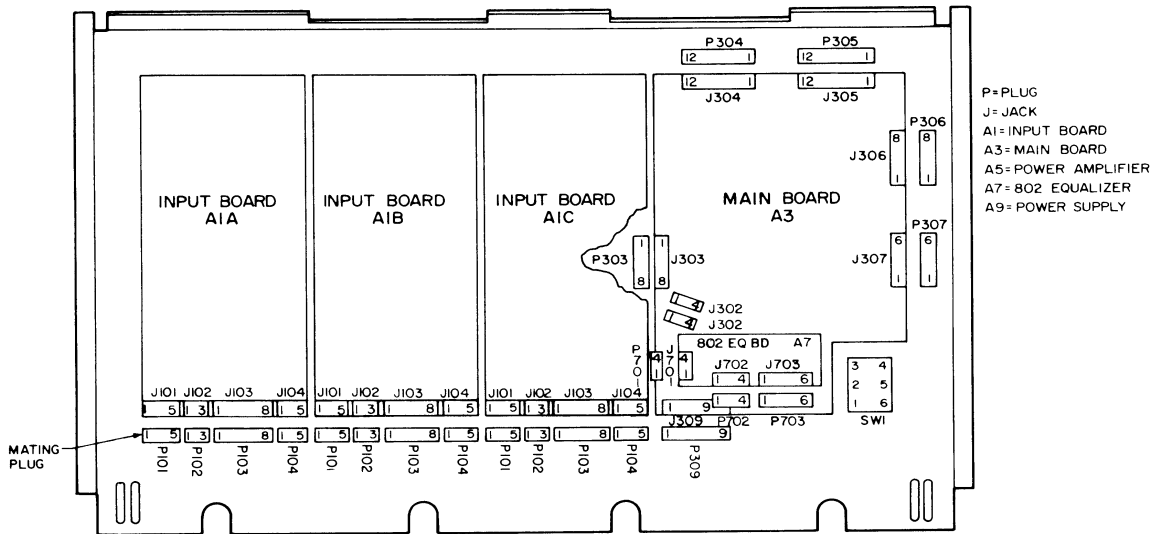


NOTES:

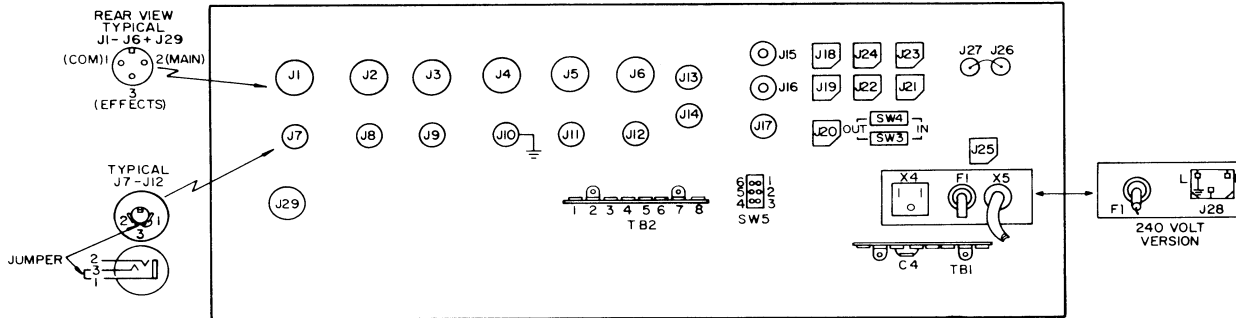
1. FOR A 120V OPERATE: CONNECT PIN 1 TO PIN 20 and PIN 2 TO PIN 18. INPUT TO PIN 1 and PIN 2.
2. FOR A 240V OPERATE: CONNECT PIN 20 TO PIN 2, INPUT TO PIN 1 and 18.
3. FOR 220V OPERATION: CONNECT PIN 19 TO PIN 20 AC LINE INPUT IS CONNECTED TO PIN 1 and PIN 18.
4. FOR 100V (JAPAN) OPERATE: CONNECT PIN 19 TO PIN 17 and PIN 1 TO PIN 20. INPUT TO PINS 1 and 19.
5. * UNIVERSAL VERSION (NOT SOLD IN U.S.A. or CANADA): HAS NO ACCESSORY OUTLET.
6. ** EARLY PRODUCTION 120V UNITS HAVE THE FAN CONNECTED TO THE TRANSFORMER PRIMARY. FAST SPEED, PINS 1 & 2; SLOW SPEED, PINS 1 & 3.

SUB-ASSEMBLY LOCATION

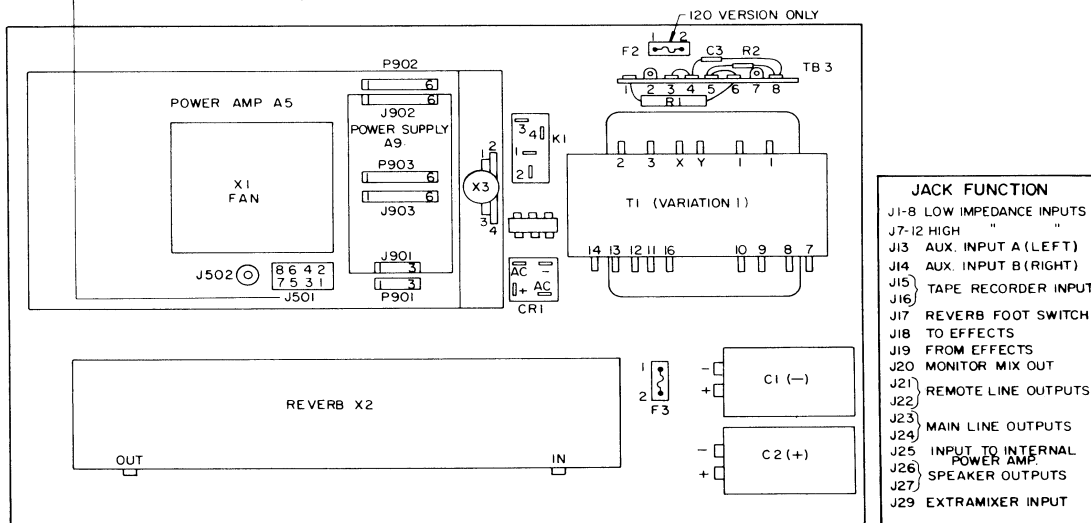
FRONT PANEL



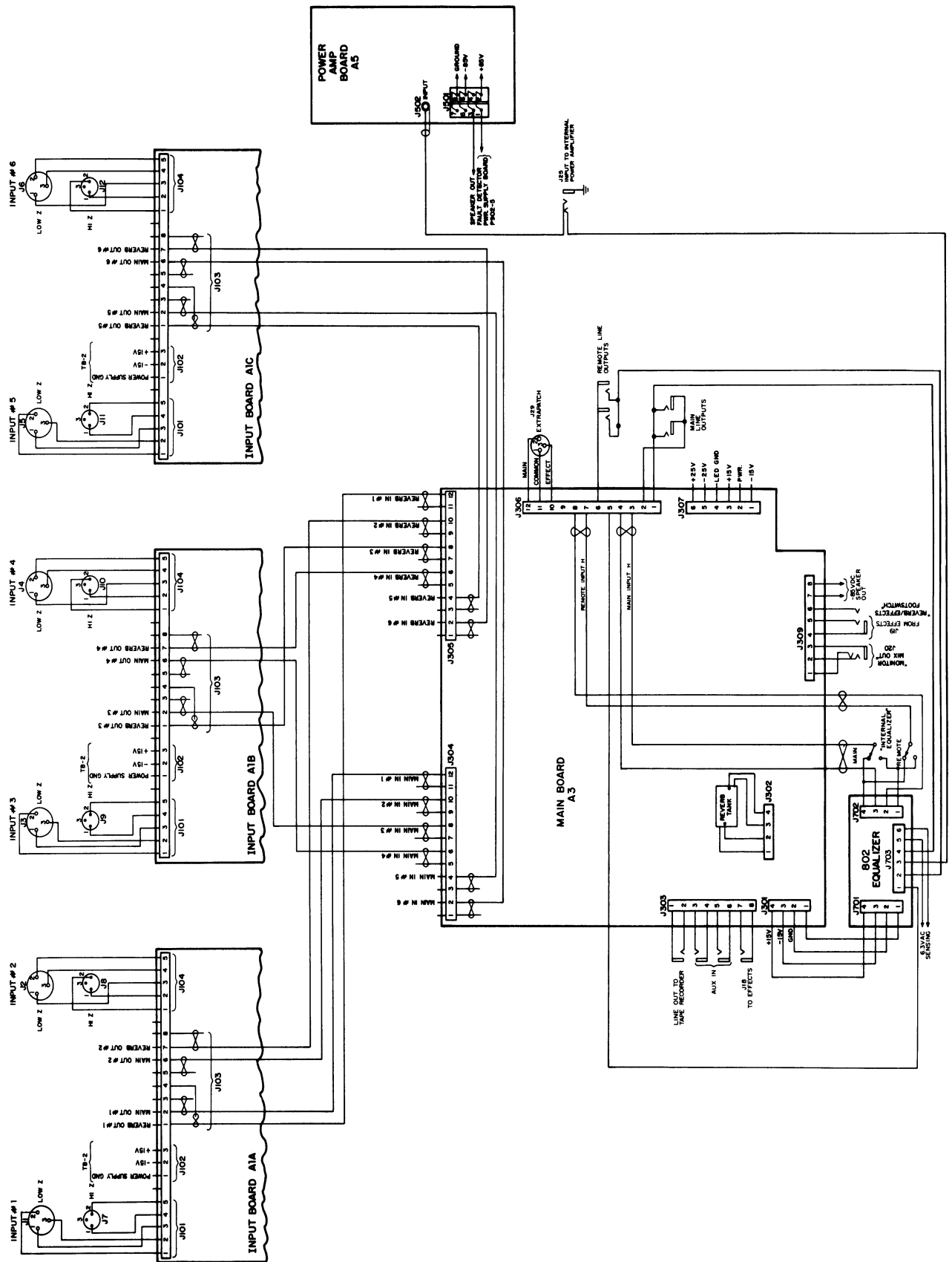
REAR PANEL



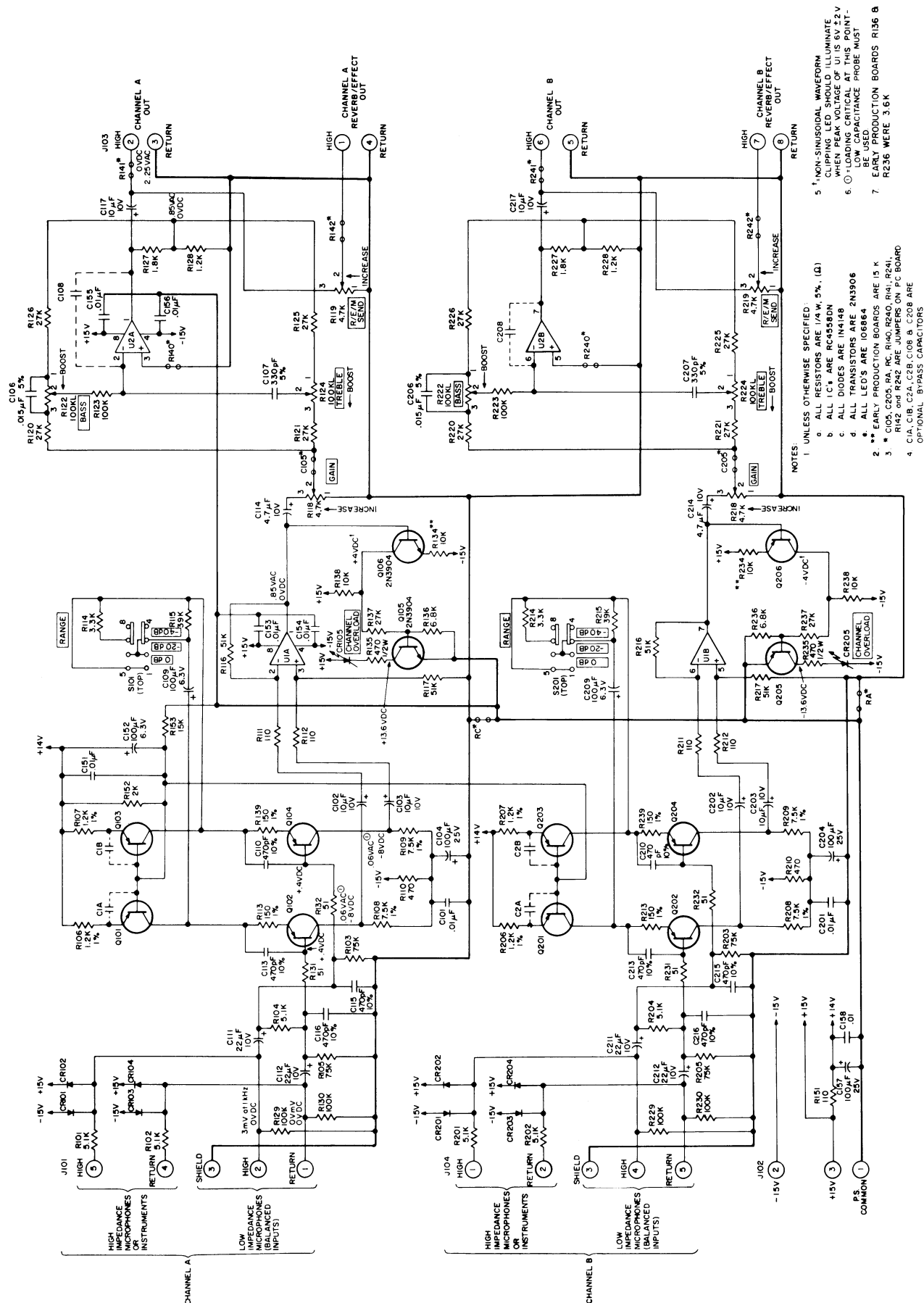
LOWER CHASSIS



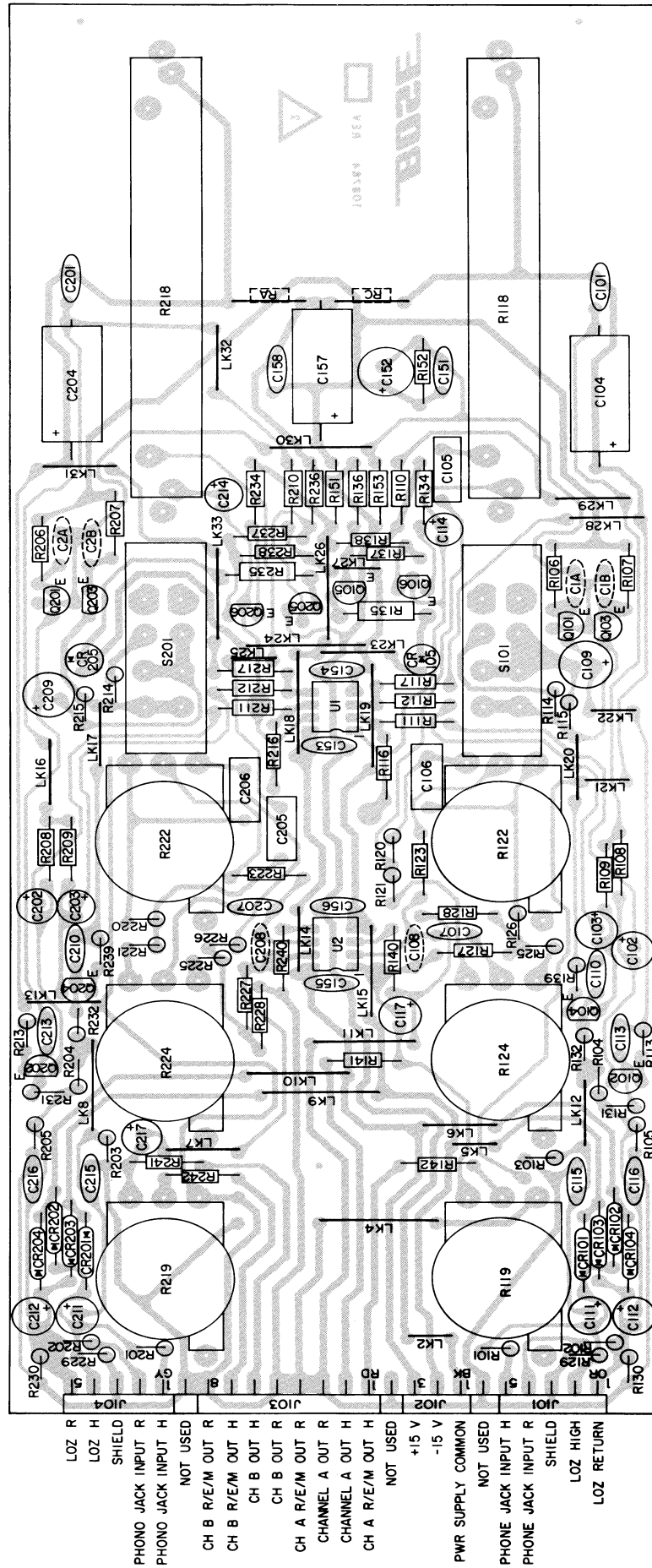
WIRING DIAGRAM



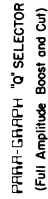
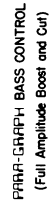
INPUT SCHEMATIC



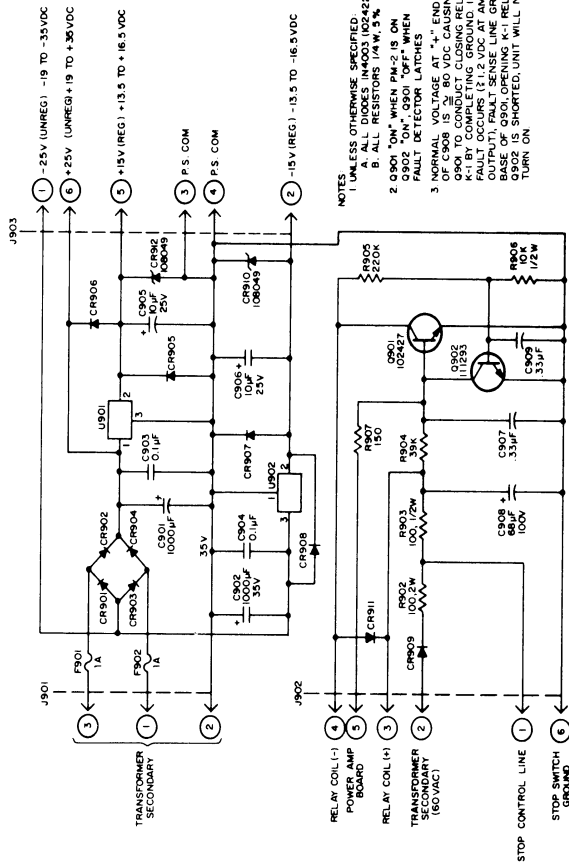
INPUT (COMPONENT SIDE)



FREQUENCY RESPONSE GRAPHS

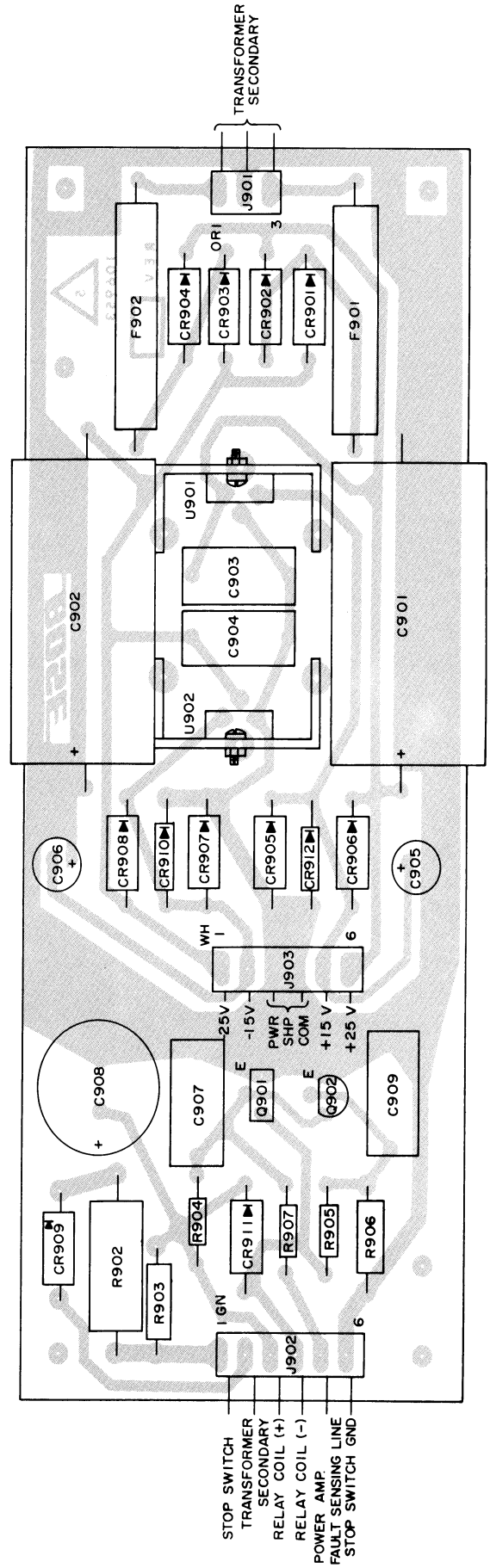


POWER SUPPLY SCHEMATIC



- NOTES
1. ALL RESISTORS UNLESS OTHERWISE SPECIFIED
 2. ALL DIODES IN 4003 (100V 422)
 3. ALL RESISTORS 1/4W 5%
 4. Q901 "ON" WHEN PM-2 IS ON
 5. Q902 "ON" Q901 "OFF" WHEN FAULT DETECTOR LATCHES
 6. NORMAL VOLTAGE AT "+" END OF Q901 IS 15V
 7. Q901 TO CONDUCT CLOSING RELAY K-1 BY COMPLETING GROUND IF FAULT LATCHES (15V CLAMP OUTPUT). FAULT SENSE LINE GROUND BASE OF Q901 OPENING K-1 RELAY IF Q902 IS SHORTED. UNIT WILL NOT TURN ON

POWER SUPPLY (COMPONENT SIDE)

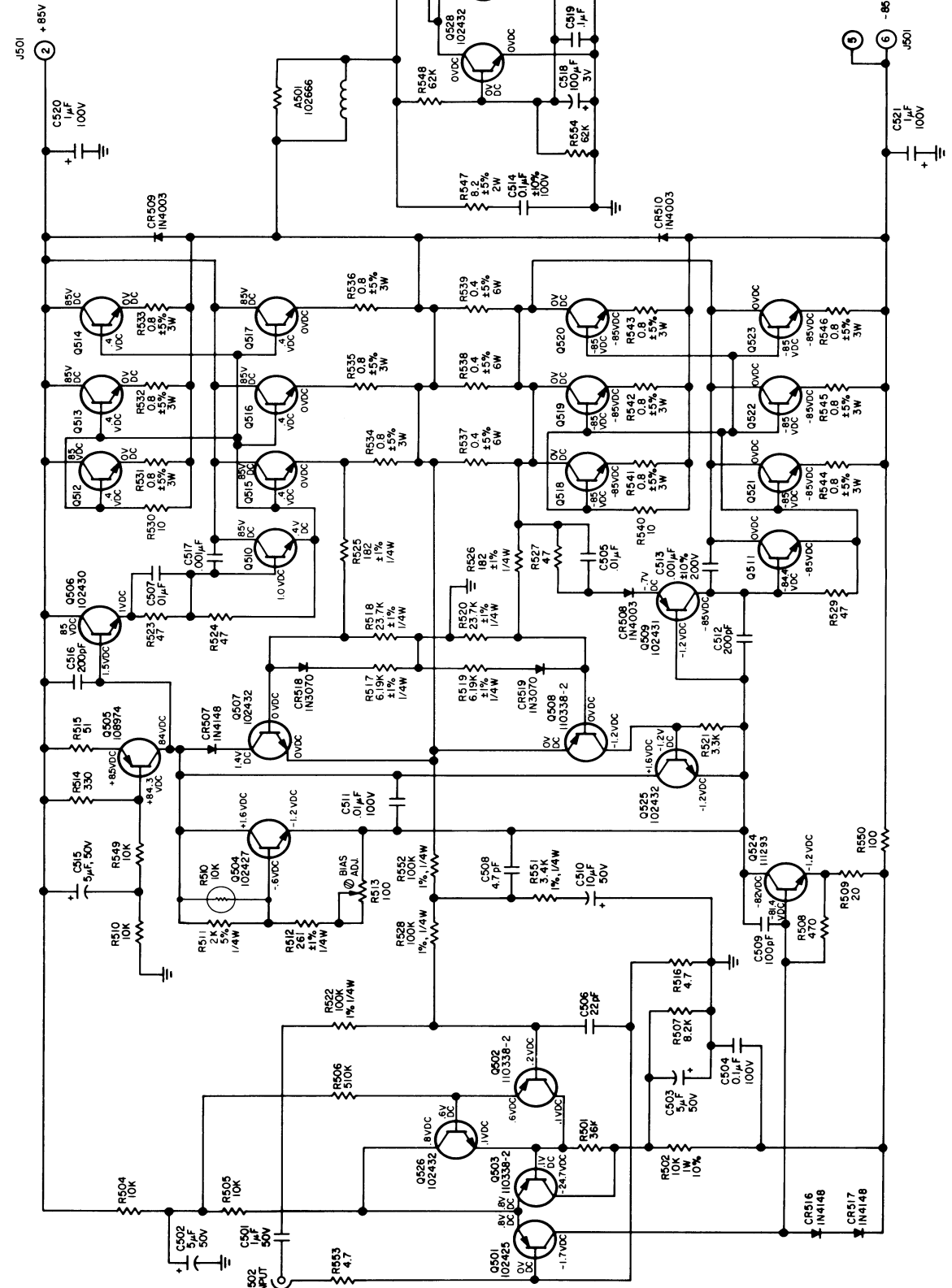


14

POWER AMPLIFIER SCHEMATIC

AC VOLTAGE AT 14Hz, V INPUT = 32V
10 V OUTPUT INTO 4 OHM LOAD

COMP.	E	B	C
Q501	0	0	.36
Q502	0	0	0
Q503	0	0	0
Q504	10.6	10.6	10.6
Q505	10.6	10.6	10.6
Q506	10.6	10.6	10.6
Q507	10.2	10.2	10.2
Q508	10.2	10.2	10.2
Q509	10.5	10.5	10.5
Q510	10.5	10.5	10.5
Q511	10.3	10.3	10.3
Q512	10.3	10.3	10.3
Q513	10.3	10.3	10.3
Q514	10.3	10.3	10.3
Q515	10.3	10.3	10.3
Q516	10.3	10.3	10.3
Q517	10.3	10.3	10.3
Q518	10.3	10.3	10.3
Q519	10.3	10.3	10.3
Q520	10.3	10.3	10.3
Q521	10.3	10.3	10.3
Q522	10.3	10.3	10.3
Q523	10.3	10.3	10.3
Q524	10.3	10.3	10.3
Q525	10.3	10.3	10.3
Q526	10.3	10.3	10.3
Q527	10.3	10.3	10.3
Q528	10.3	10.3	10.3



- NOTES:
- UNLESS OTHERWISE SPECIFIED:
a. RESISTORS ARE $\pm 5\%$, 1/2W (Q)
b. TRANSISTORS ARE 102433
2. NO LOAD DC VOLTAGES V SUPPLY
= +85VDC
3. BIAS INSTRUCTIONS:
DISCONNECT 85V+ LEAD FROM
C2 TO POWER AMPLIFIER BOARD.
INSERT A MILLIAMPERE METER
IN SERIES. ADJUST R513 FOR
85mA QUIESCIENT CURRENT
WITH BOARD COLD.



PRODUCT SERVICE BULLETIN

Product 2 Power Mixer

PM-2-81-01

Subject MODIFICATION TO FET CIRCUIT AND EQUALIZER CIRCUIT

Effective Date AUGUST 6, 1981

S/N Below:
110V: 5500 3120
220V: 5600 2800

SUPERSEDES BULLETIN #28, DATED MARCH 4, 1981

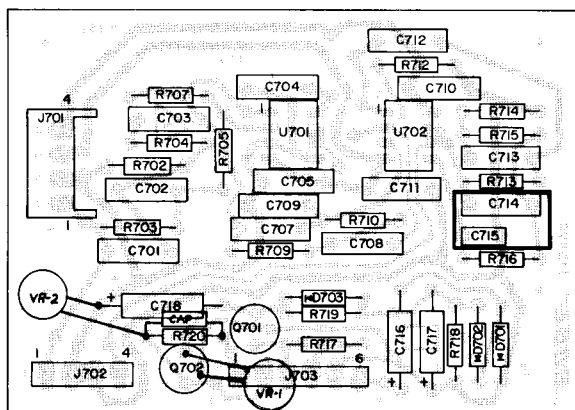
BOSE Corporation has modified it's PM-2 units with a varistor to prevent damaging the FET's Q-701 and Q-702 from possible internal voltage spikes during turn-on of the unit. We have found that certain accessory equipment connected to the PM-2 can also cause voltage spikes, damaging the FET circuits. For this reason, we have added an additional varistor to protect against such occurrences. This modification is to be performed on all PM-2 equipment below serial numbers listed above. Additional varistor (VR-2) and relocation of original varistor (VR-1) should be performed as follows:

1. Solder VR-1 (BOSE Part Number 116561 or Panasonic ERZ-C 10DK180) from the GATE to DRAIN of FET Q-702. (AS SHOWN ON PICTORAL REPRESENTATION. TERMINOLOGY IS INCORRECT ON PCB)
2. Solder VR-2 (Same Part Number) from the POSITIVE (+) side of C-718 to R-720 (See Location Diagram)
3. Add a .1 μ F capacitor across R-720.

Modification to PM-2 equalizer must also be performed to slightly reduce the high frequency boost of the PM-2 equalizer. This modification will now match the frequency response curve to the external 802 equalizer. Modification is as follows:

- | | | |
|-----------------|---------------------|--|
| 1. Change C-714 | FROM: .0018 μ F | TO: .0012 μ F. (Bose P/N 106510-122) |
| 2. Change C-715 | FROM: 180pF | TO: 270pF. (Bose P/N 106767-271) |

802 EQUALIZER (COMPONENT SIDE)



802 EQUALIZER SCHEMATIC

