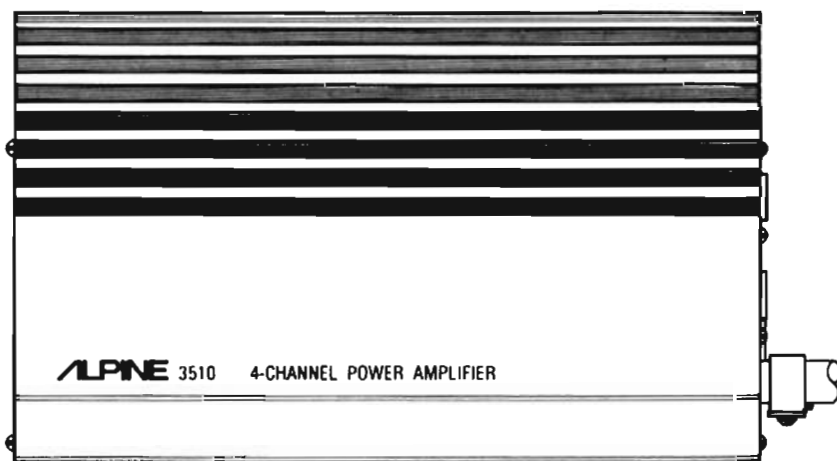


ALPINE

SERVICE MANUAL

MAIN AMPLIFIER



3510

Contents

Specifications	2
Parts Locations and Disassembly Instruction.	3 to 4
Block Diagram	5
Parts Layout on P.C. Board	6
Wiring Diagram	7 to 8
Schematic Diagram	9 to 10
Electrical Parts List	11 to 12
Exploded View (Cabinet)	13 to 14
Cabinet Assembly Parts List	14
Semi-Conductor Load Identifications	15
Packing Method View.	16

Specifications

Power Source	14.4V DC (11 ~ 16V)
Polarity	Negative ground
Current Drain	1000mA
Output Noise	2.0mV
Output Power	25 watts x 4 (max.)
Input Sensitivity (1000Hz)	Speaker: 2V \pm 2dB, DIN: 500mV \pm 2dB
Frequency Response (–3dB)	60Hz to 15,000Hz (at 1 watts)
Distortion	2.5%
Separation	55dB (at 1kHz)
Load Impedance	4 ohm
Input Impedance	Speaker: 15 ohm, DIN: 10K ohm
Semiconductors	4 ICs, 4 Transistors, 1 Zener Diode, 10 Diodes
Dimensions	180 (W) x 109 (D) x 30 (H) mm
Weight	1.0 Kg

Parts Locations and Disassembly Instruction

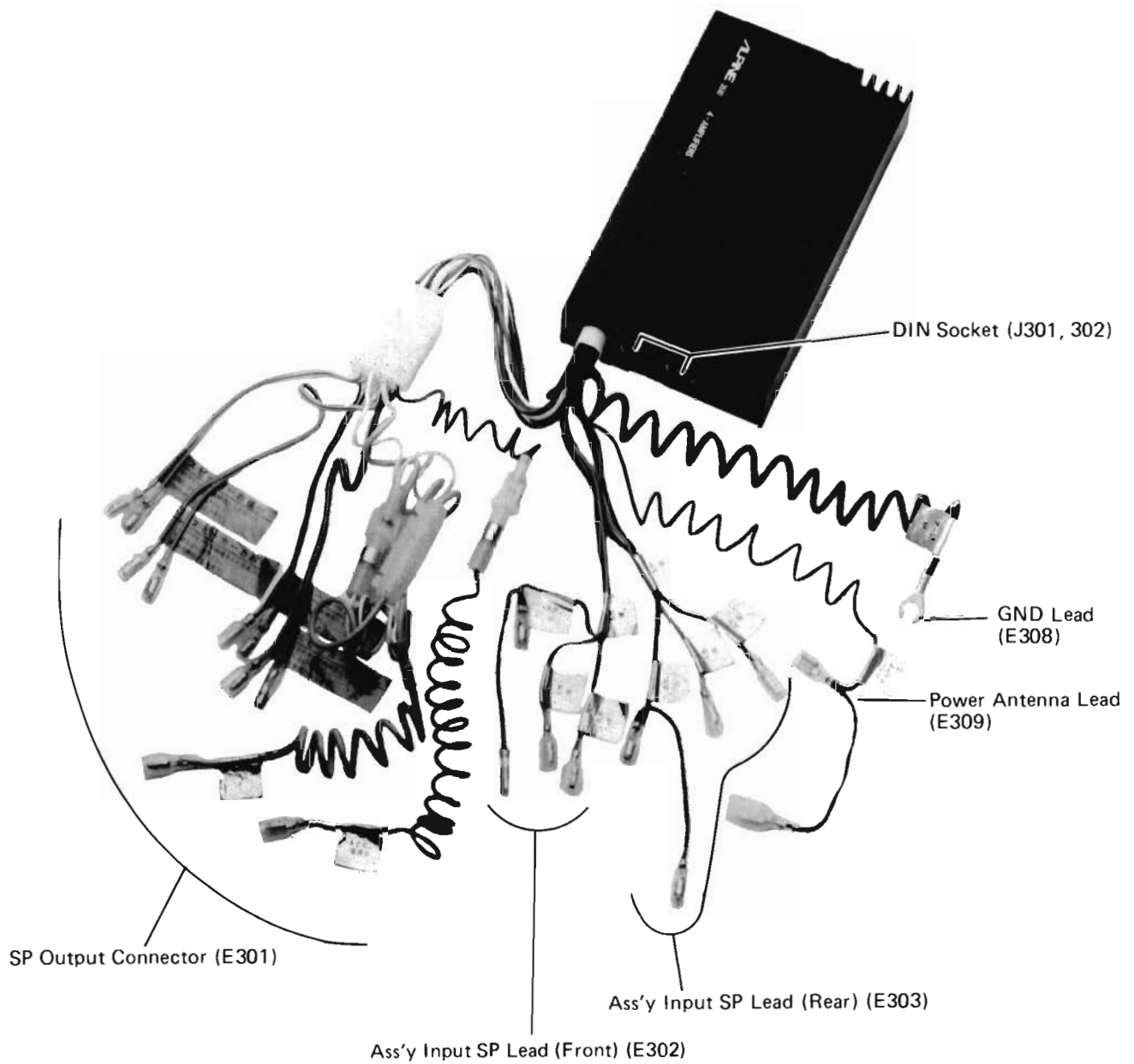


Figure 1

1. Removal of Heat Sink

- (1) Remove four screws marked "⊙" as shown Figures 2 and 3.
- (2) Remove eight screws marked "⊙" as shown Figure 3.
- (3) Pull out the Heat sink in the arrow direction as shown Figure 2.



Figure 2

2. Removal of Amp P.C. Board

- (1) Remove one screw marked "☆" and four screws marked "△" as shown Figure 4.
- (2) Remove two screws marked "●" as shown Figure 5.

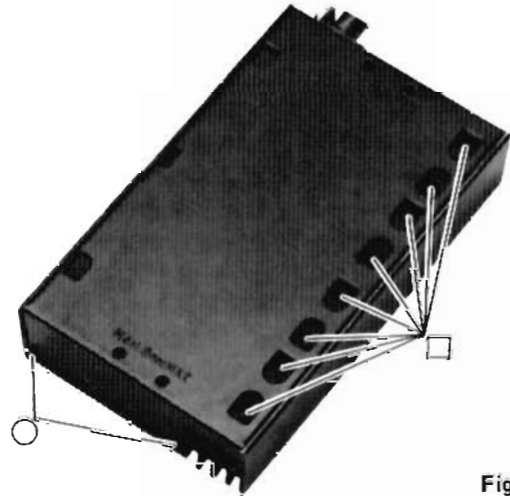


Figure 3

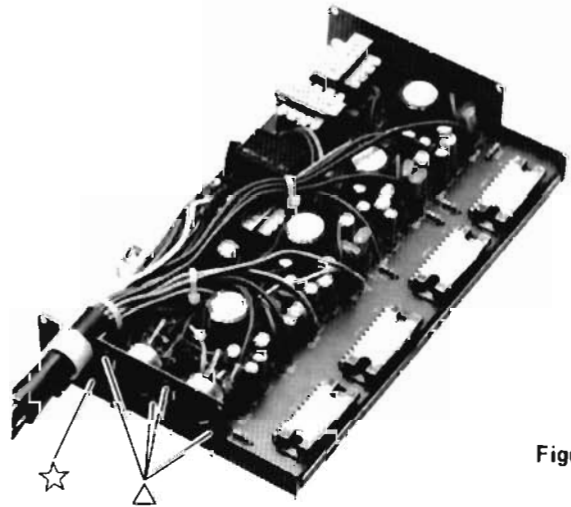


Figure 4

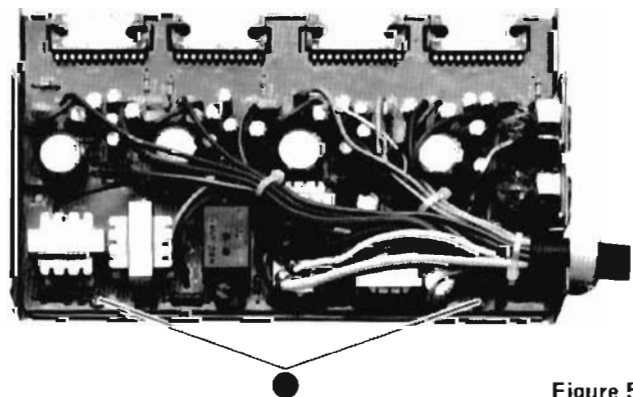
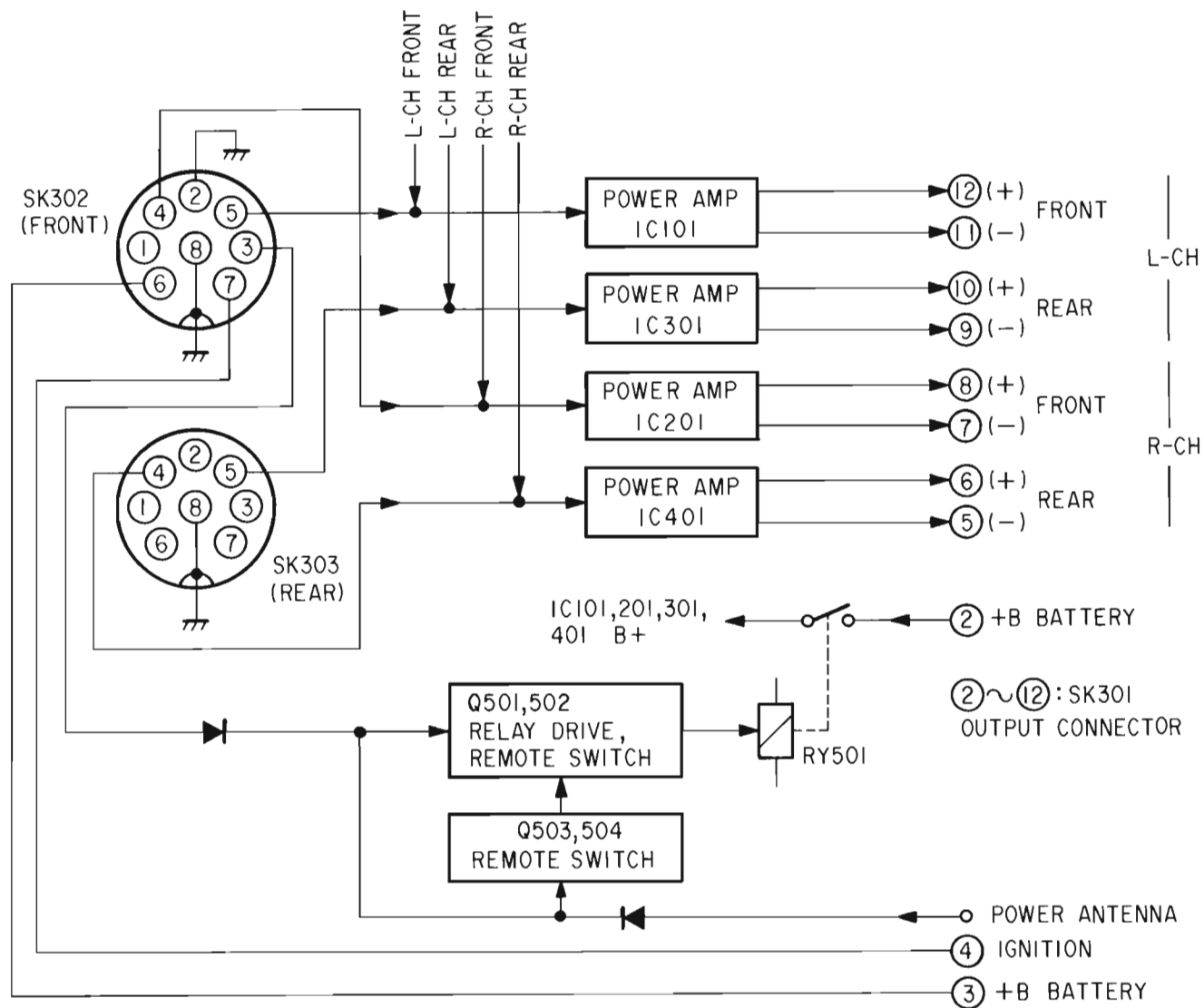
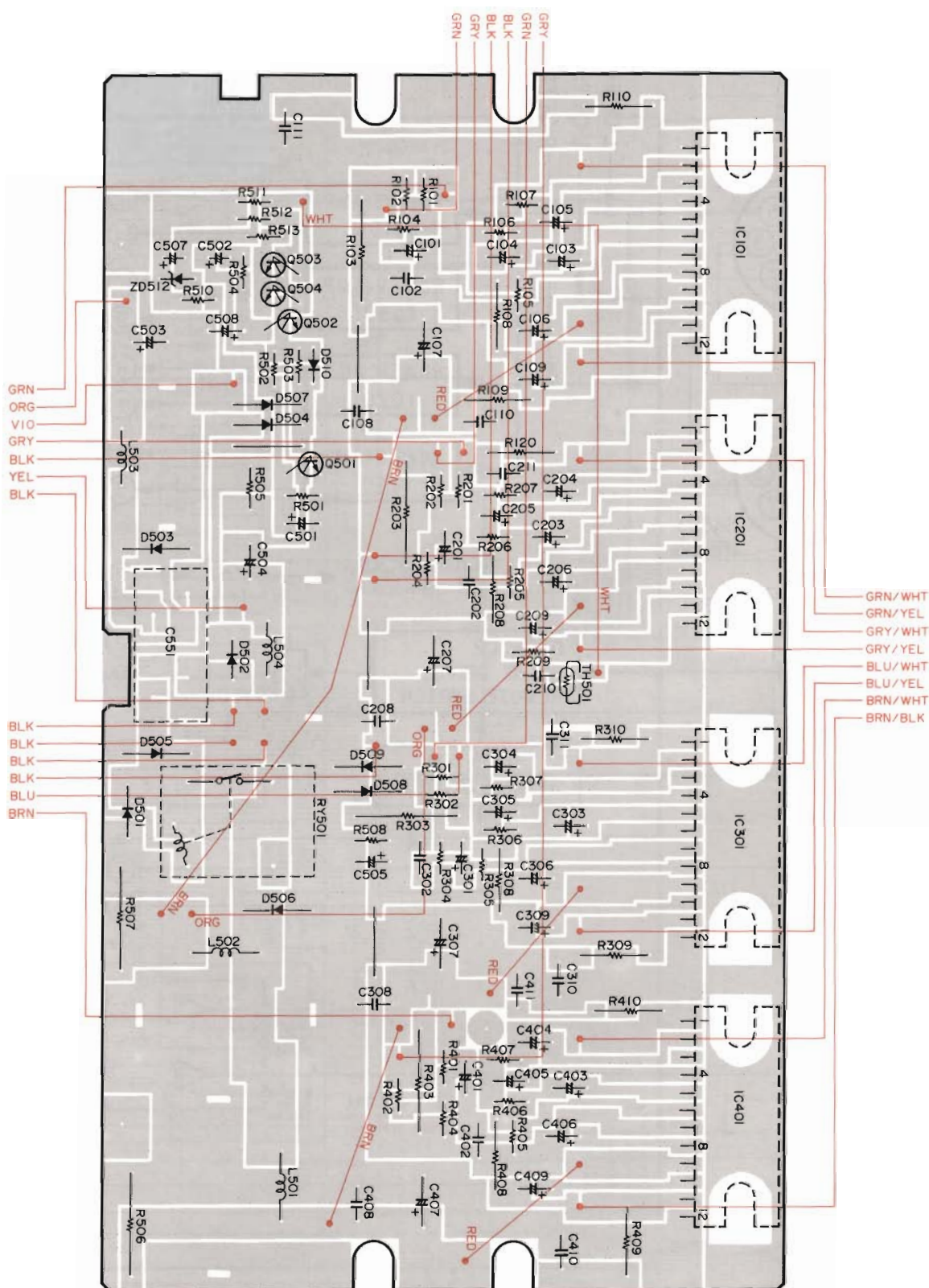


Figure 5

Block Diagram

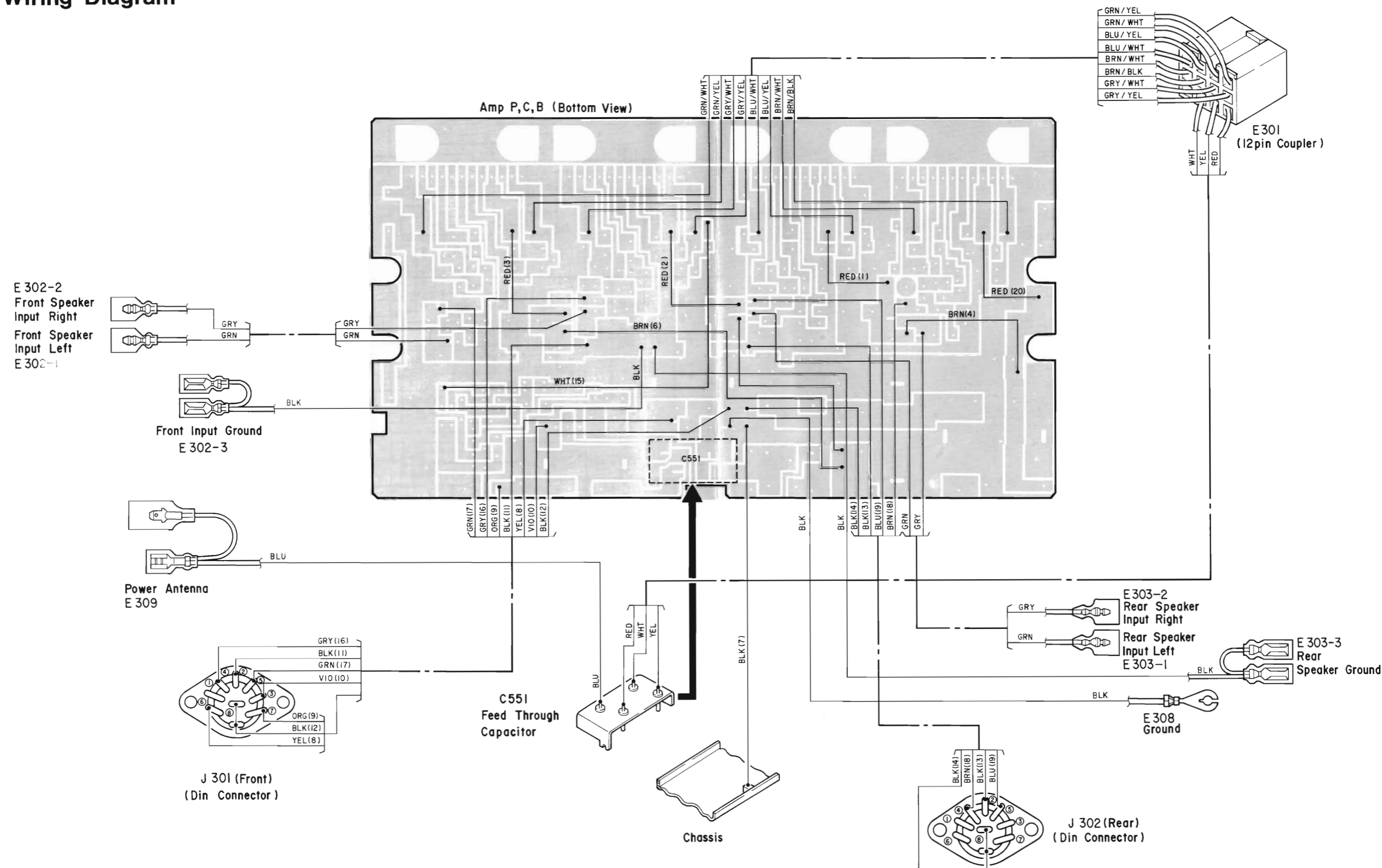


Parts Layout on P.C. Boards

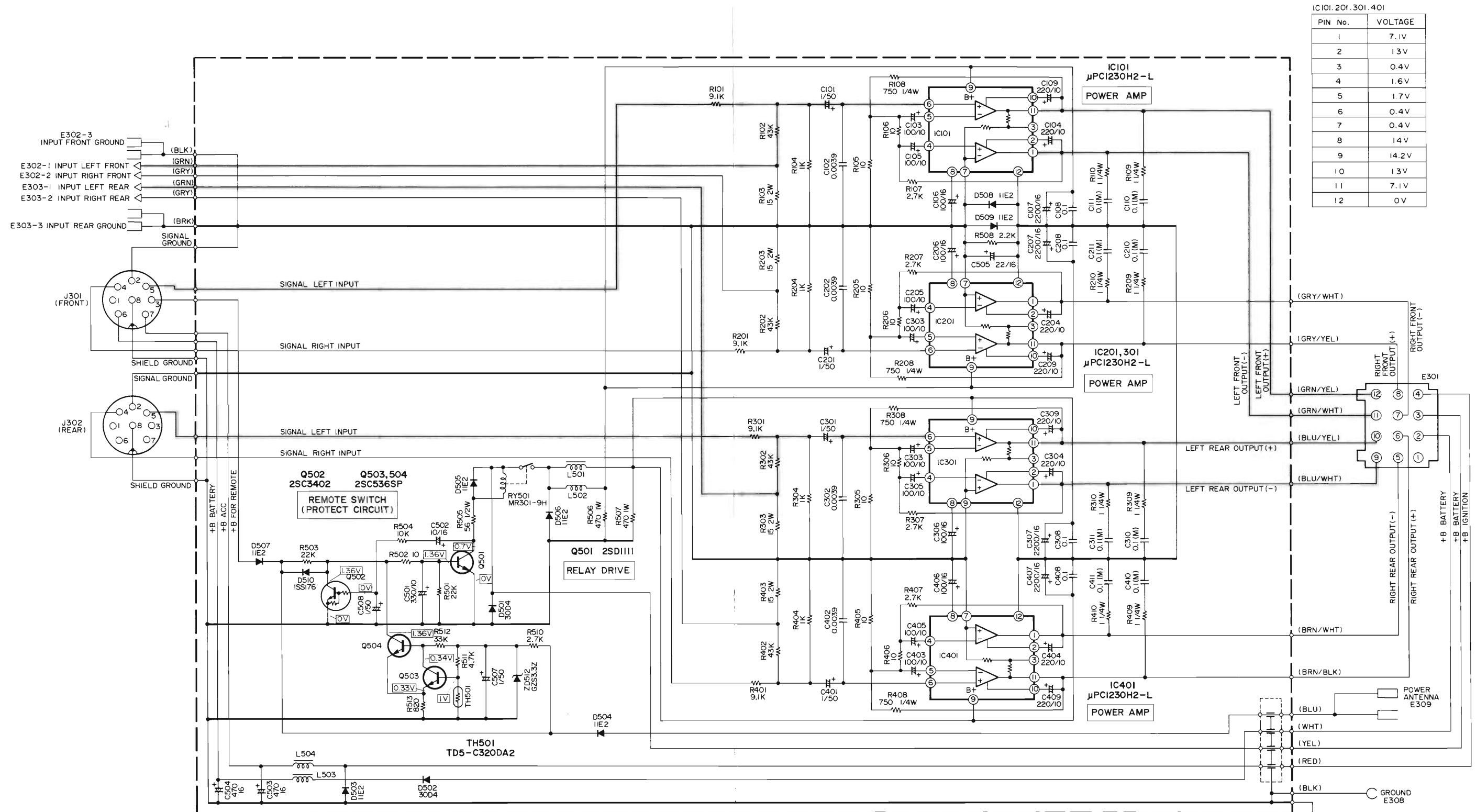


Bottom View

Wiring Diagram



Schematic Diagram



IC101, 201, 301, 401	
PIN No.	VOLTAGE
1	7.1V
2	1.3V
3	0.4V
4	1.6V
5	1.7V
6	0.4V
7	0.4V
8	1.4V
9	14.2V
10	1.3V
11	7.1V
12	0V

NOTES:

1. ALL resistance values are in ohms. K=1,000 ohm.
2. ALL capacitance values are in microfarads. P=1,000,000 μF .
3. Voltage measuring Condition
 - Power supply voltage : DC14.4V
 - Measuring equipment : Digital multi voltmeter
 - Measuring point reference : Between ground
 - Measuring conditions : NO signal

Electrical Parts List

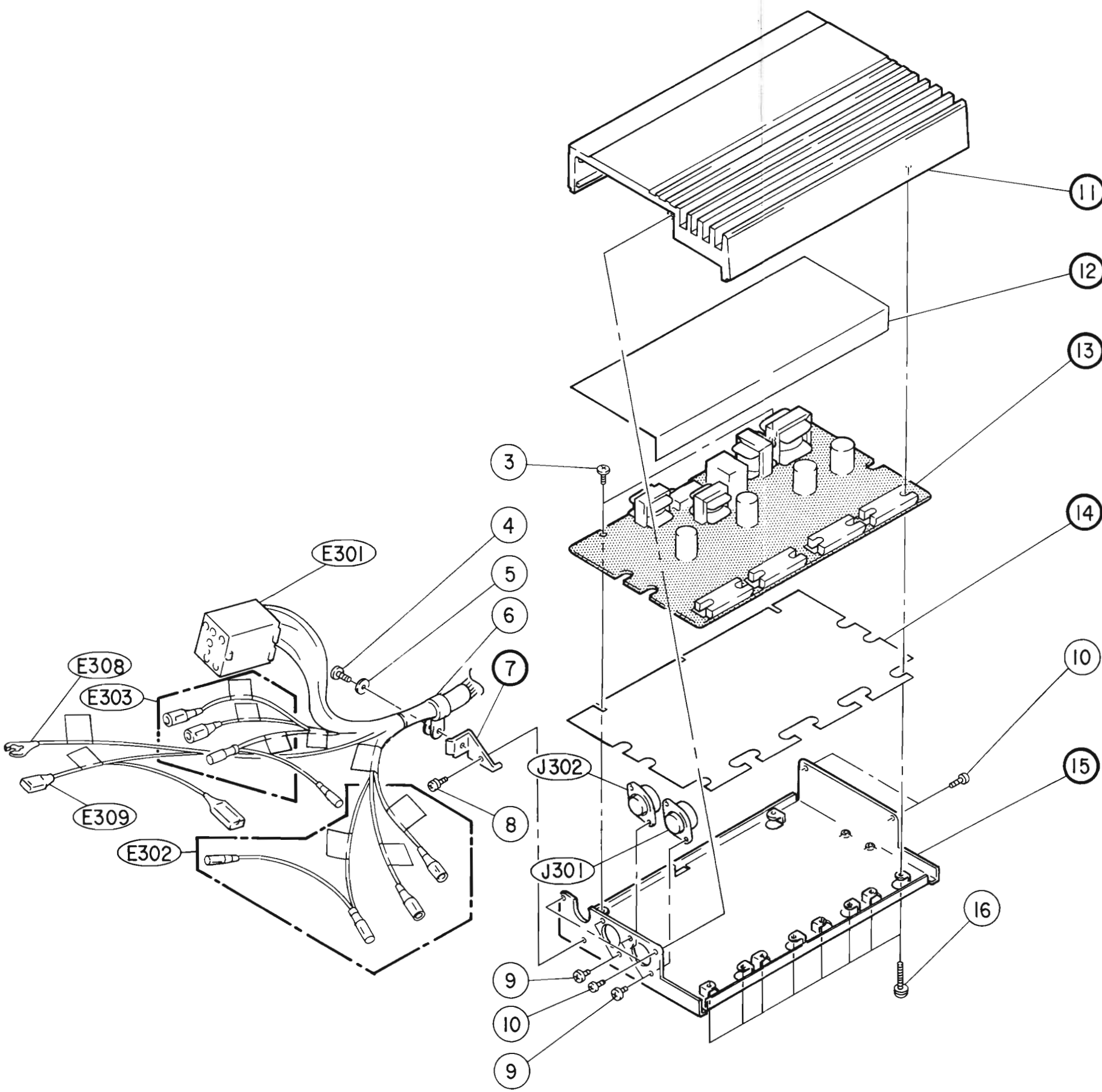
Resistors (Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.)
uF = microfarads, pF = picofarads

Symbol No.	Part No.	Description
Amp P.C. Board		
ICs		
IC101	51E00649S02	IC, μ PC1230H2-L
IC201	51E00649S02	IC, μ PC1230H2-L
IC301	51E00649S02	IC, μ PC1230H2-L
IC401	51E00649S02	IC, μ PC1230H2-L
Transistors		
Q501	48E01621S01	2SD1111
Q502	48E01620S01	2SC3402
Q503	48T68942F01	2SC536SP(F)
Q504	48T68942F01	2SC536SP(F)
Diodes		
D501	48T68079F01	30D4
D502	48T68079F01	30D4
D503	48E01627S01	11E2
or	48E00497S03	DSF10C
D504	48E01627S01	11E2
or	48E00497S03	DSF10C
D505	48E01627S01	11E2
or	48E00497S03	DSF10C
D506	48E01627S01	11E2
or	48E00497S03	DSF10C
D507	48E01627S01	11E2
or	48E00497S03	DSF10C
D508	48E01627S01	11E2
or	48E00497S03	DSF10C
D509	48E01627S01	11E2
or	48E00497S03	DSF10C
D510	48E01626S01	1SS176
or	48E01902S01	GMA-01
ZD512	48E01905S01	Zener GZS3.3Z
Trans/Relay/Thermistor		
L501	25E01622S01	Choke, Trans
L502	25E01622S01	Choke, Trans

Symbol No.	Part No.	Description
L503	25E01623S01	Choke, Trans
L504	25E01623S01	Choke, Trans
RY501	80E00645S02	Relay, MR301-9H
TH501	48S52337F32	Thermistor, TD5-C320D
Capacitors		
C101	23E01888S01	Electrolytic 1 μ F/50V
C102	08E01896S01	Ceramic 3900pF
C103	23E01890S01	Electrolytic 100 μ F/10V
C104	23E01906S01	Electrolytic 220 μ F/10V
C105	23E01890S01	Electrolytic 100 μ F/10V
C106	23E01891S01	Electrolytic 100 μ F/16V
C107	23E01898S01	Electrolytic 2200 μ F/16V
C108	08E01895S01	Ceramic 0.1 μ F
C109	23E01906S01	Electrolytic 220 μ F/10V
C110	08E01894S02	Mylar 0.1 μ F
C111	08E01894S02	Mylar 0.1 μ F
C201	23E01888S01	Electrolytic 1 μ F/50V
C202	08E01896S01	Ceramic 3900pF
C203	23E01890S01	Electrolytic 100 μ F/10V
C204	23E01906S01	Electrolytic 220 μ F/10V
C205	23E01890S01	Electrolytic 100 μ F/10V
C206	23E01891S01	Electrolytic 100 μ F/16V
C207	23E01898S01	Electrolytic 2200 μ F/16V
C208	08E01895S01	Ceramic 0.1 μ F
C209	23E01906S01	Electrolytic 220 μ F/10V
C210	08E01894S02	Mylar 0.1 μ F
C211	08E01894S02	Mylar 0.1 μ F
C301	23E01888S01	Electrolytic 1 μ F/50V
C302	08E01896S01	Ceramic 3900pF
C303	23E01890S01	Electrolytic 100 μ F/10V
C304	23E01906S01	Electrolytic 220 μ F/10V
C305	23E01890S01	Electrolytic 100 μ F/10V
C306	23E01891S01	Electrolytic 100 μ F/16V
C307	23E01898S01	Electrolytic 2200 μ F/16V
C308	08E01895S01	Ceramic 0.1 μ F
C309	23E01906S01	Electrolytic 220 μ F/10V
C310	08E01894S02	Mylar 0.1 μ F
C311	08E01894S02	Mylar 0.1 μ F
C401	23E01888S01	Electrolytic 1 μ F/50V
C402	08E01896S01	Ceramic 3900pF

Symbol No.	Part No.	Description
C403	23E01890S01	Electrolytic 100 μ F/10V
C404	23E01906S01	Electrolytic 220 μ F/10V
C405	23E01890S01	Electrolytic 100 μ F/10V
C406	23E01891S01	Electrolytic 100 μ F/16V
C407	23E01898S01	Electrolytic 2200 μ F/16V
C408	08E01895S01	Ceramic 0.1 μ F
C409	23E01906S01	Electrolytic 220 μ F/10V
C410	08E01894S02	Mylar 0.1 μ F
C411	08E01894S02	Mylar 0.1 μ F
C501	23E02304S01	Electrolytic 330 μ F/10V
C502	23E01889S02	Electrolytic 10 μ F/16V
C503	23E01897S01	Electrolytic 470 μ F/16V
C504	23E01897S01	Electrolytic 470 μ F/16V
C505	23E01893S01	Electrolytic 22 μ F/16V
C507	23E01888S01	Electrolytic 1 μ F/50V
C508	23E01888S01	Electrolytic 1 μ F/50V
Resistors		
R103	06E02122S01	Film 15 ohm 2W
R203	06E02122S01	Film 15 ohm 2W
R303	06E02122S01	Film 15 ohm 2W
R403	06E02122S01	Film 15 ohm 2W
R505	06E02119S02	Metal Film 56 ohm 1/2W
R506	06E02119S03	Metal Film 470 ohm 1W
R507	06E02119S03	Metal Film 470 ohm 1W
Miscellaneous Parts		
J301	09E01625S01	DIN Socket, 8 Pin
J302	09E01625S01	DIN Socket, 8 Pin
C551	08E02123S01	Capacitor Array
E301	01E02124S01	Assembly, Power Output Cord
E302	01E01633S01	Assembly, Input SP Lead (Rear)
E303	01E01632S01	Assembly, Input SP Lead (Front)
E308	01E01631S01	Ground Cord
E309	01E01628S01	Power Antenna Cord

Exploded View (Cabinet)



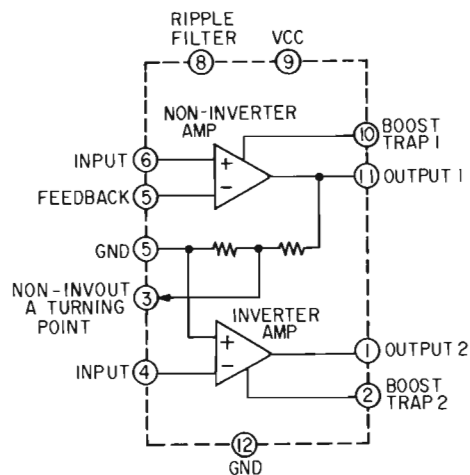
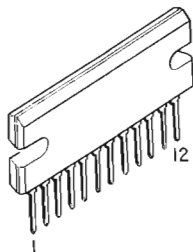
Cabinet Assembly Parts List

Symbol No.	Index	Part No.	Description
3	3-C	03E01883S01	Scr., Bind (M2.6x4)
4	3-C	03E01886S01	Scr., Bind (M3x8)
5	3-C	04E01887S01	Washer (M3)
6	3-C	42E01880S01	Clamp, Cord
8	4-C	03E01885S01	Scr., w/Washer (M2.5x5)
9	5-C	03E01883S01	Scr., Bind (M2.6x4)
10	5-C	03E01884S01	Scr., Pan (M2.6x5)
16	5-E	03E01882S01	Scr., w/Washer (M3x12)

Note: For those not listed on the parts list will not be supplied.

Semi-Conductor Lead Identifications

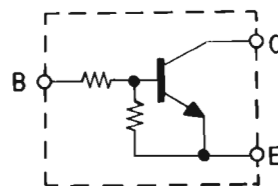
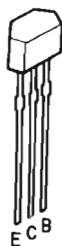
μ PC1230H2-L : IC101, 201, 301, 401



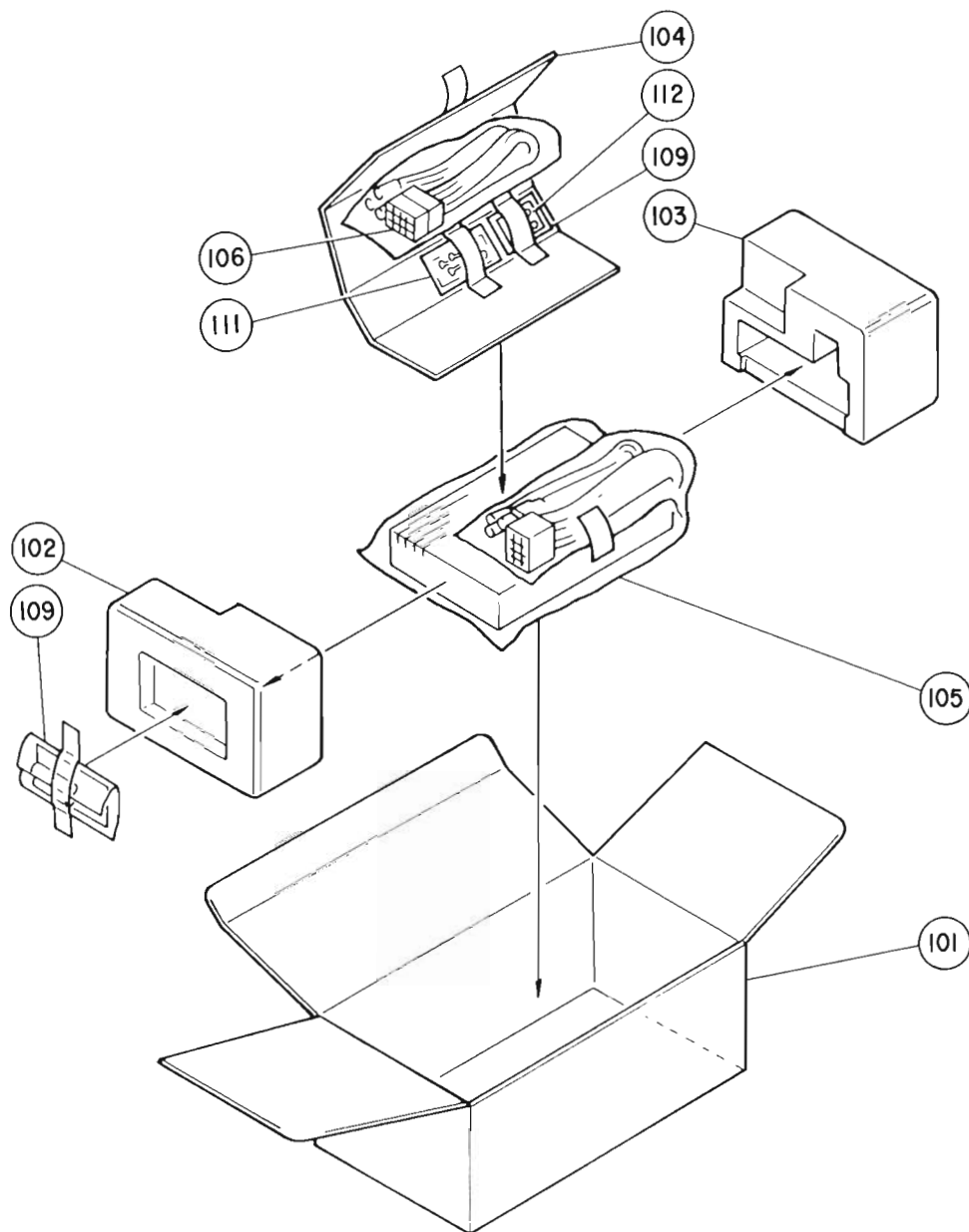
2SD1111 : Q501
2SC536SP : Q503, 504



2SC3402 : Q502

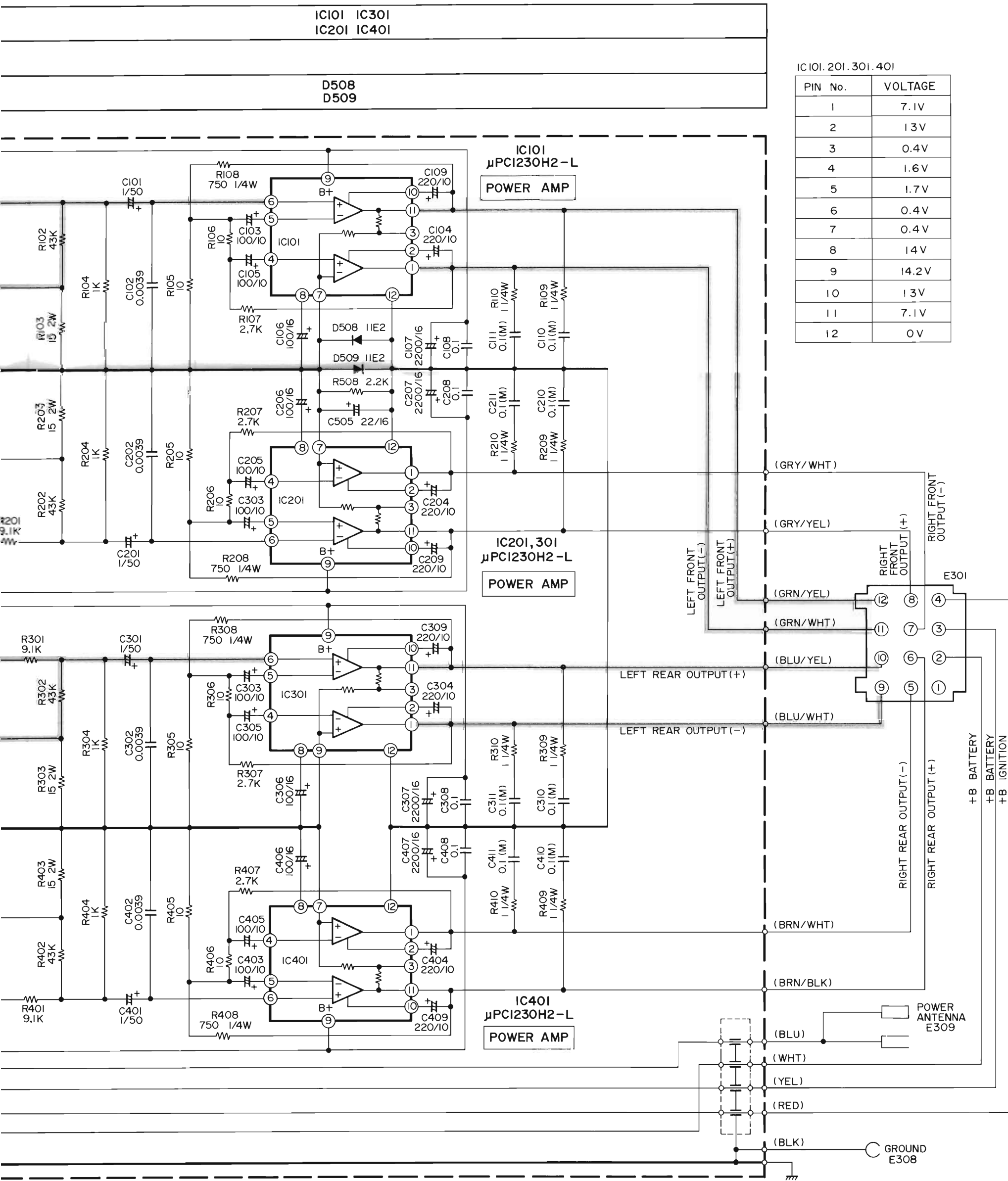


Packing Method View



Packing Assembly Parts List

Symbol No.	Part No.	Description
101	56E01760S01	Carton, Pkg.
102	56E01646S01	Tray, Pkg (L)
103	56E01647S01	Tray, Pkg (R)
104	75E01761S01	Pad. Inner
105	56E01762S01	Sack, Polyethylene
106	01E01629S01	Assy., SP. Output Connector
109	01E01763S01	Assy., Fuse
110	01E01645S01	Assy, Pamphlet
111	01E01765S01	Assy, Kit Installation
112	01E01764S01	Bracket



- NOTES :
1. ALL resistance values are in ohms. K=1,000ohm
 2. ALL capacitance values are in microfarads. P= 1,000,000 μF
 3. Voltage measuring Condition
 - Power supply voltage : DC14.4V
 - Measuring equipment : Digital multi voltmeter
 - Measuring point reference : Between ground
 - Measuring conditions : NO signal

IC						
Transistor (Q)	Q502		Q504	Q503	Q501	
Diode (D, ZD)	D510	D507	D503	D502	D505	D501
					ZD512	D506

