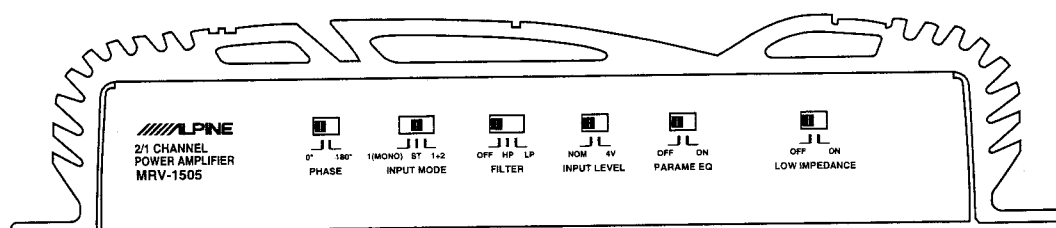


# ALPINE<sup>®</sup> SERVICE MANUAL

## 2 Channel Power Amplifier



サービス費用区分	B
技術資料No.	PM-63-O

# MRV-1505

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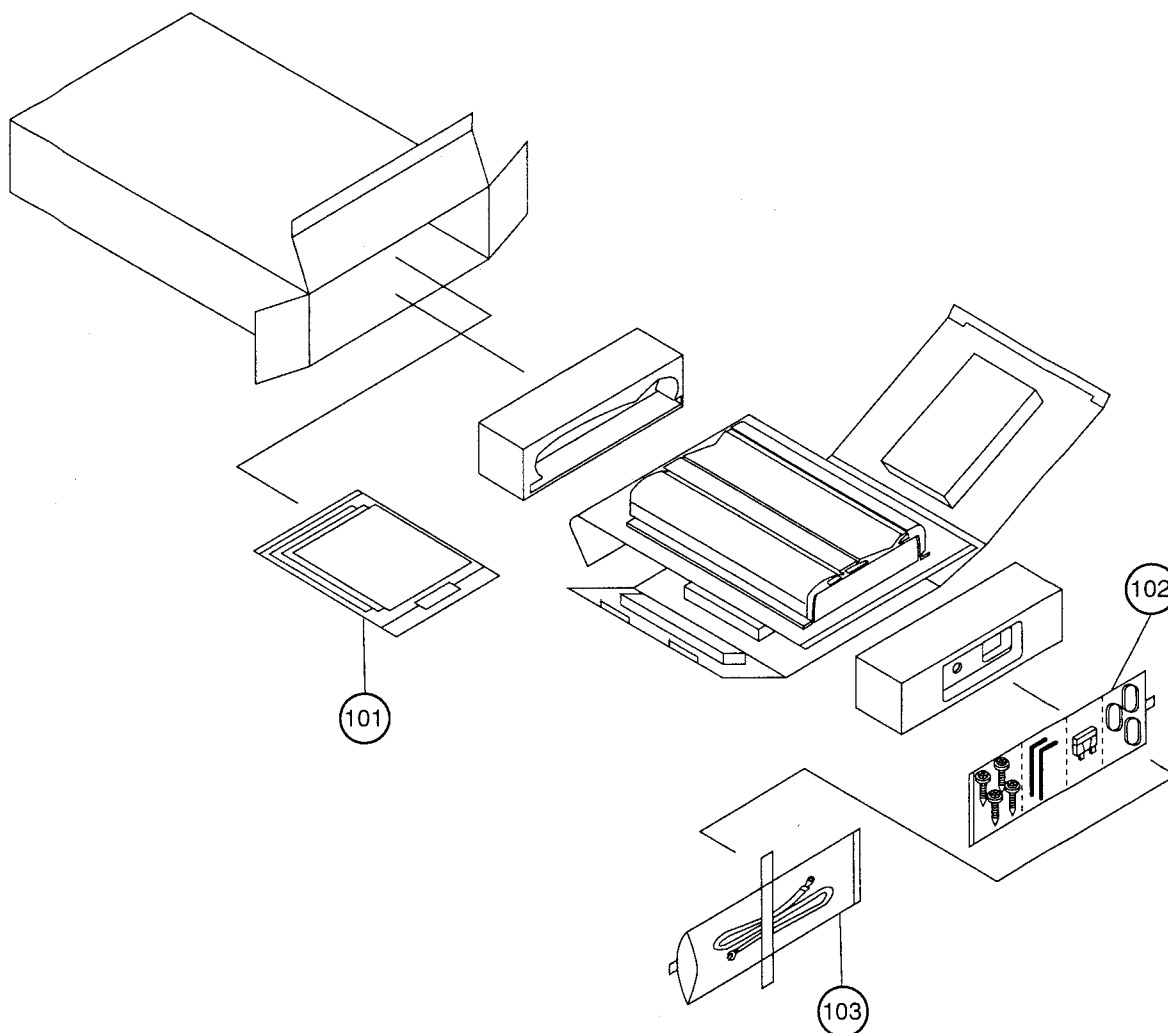
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# Packing Assembly Parts List

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
○	101-1	68P90664W82	Owner's Manual		
●	101-1	68P90664W91	Owner's Manual		
△	101-1	68P90664W85	Owner's Manual		
●	101-2	68P90664W83	Owner's Manual I/G/S		
	102-1	03E04893S01	Screw, Tapping (M4X14)		
	102-2	65E25747S01	Fuse, Auto 80A (For Battery Line)		
	102-3	75E25716S01	Housing Rubber (3P)		
	102-4	75E25717S01	Housing Rubber (2P)		
●	103	01E23488S01	Remote Cord		
△	103	01E23488S01	Remote Cord		

NOTE: ○: For North American Model Only, ●: For General Foreign Model Only,  
 △: For Japanese Model Only, Others: Common.

# Packing Method View



## Specifications

Power Output	4ohm-2channel, 0.2% (20Hz~20kHz) T.H.D., 14.4V : 200W 4ohm-2channel, 0.2% (20Hz~20kHz) T.H.D., 12V : 150W 2ohm-2channel, 0.8% (20Hz~20kHz) T.H.D., 14.4V : 350W 2ohm-2channel, 0.8% (20Hz~20kHz) T.H.D., 12V : 200W 4ohm-1channel, 0.8% (20Hz~20kHz) T.H.D., 14.4V, BRIDGE MONO : 600W 4ohm-1channel, 0.8% (20Hz~20kHz) T.H.D., 12V, BRIDGE MONO : 500W
S/N Ratio (Ref. Output 200W)	100dB
Input Sensitivity (220W Output)	Gain-Volume (Center) : 1V±3dB Gain-Volume (MAX.) : 0.2V±3dB Gain-Volume (MIN.) : 4V±3dB
Input Impedance	20k±6k ohm
Ferquency Response (-1dB, Ref. 1kHz)	20Hz~40kHz
Current Drain	Input Shorted : 1.7±0.7A 4ohm-2channel, 10% T.H.D. : 70±5A
Residual Noise (Input Shorted)	0.3mV
Remote on Voltage (Output Power : 1W)	7 ±0.5V (+20 °C) 6.5+1, -1.5V (-20 °C ~+60 °C)
Remote Current Drain	1±0.5mA
Back Up Current Drain	1.2mA
Fuse Requirement	80A (For Battery Line)
Power Source	DC14.4V (11 ~16V)
Semiconductors	16IC's, 56Transistors, 25Diodes, 21Zener Diodes, 20FET's
Dimensions (W×H×D)	260×58×500mm
Weight	5.7kg

NOTE : Due to Continuing product improvement, specifications and designs are subject to change without notice.

# Adjustment Procedures

## 1. Power Supply Voltage Adjustment

### 2次電源電圧調整

#### (1) Connection

接続

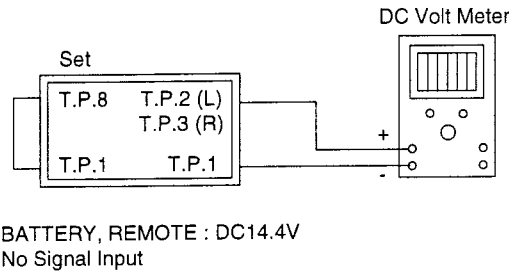


Figure 1  
1図

#### (2) Adjustment Procedures

調整方法

- ① First, rotate VR501, 502 fully counter clockwise.  
調整を始める前に VR501、502を反時計方向一杯に回転させる。
- ② Lch Adjustment : Adjust VR501 so that Voltage between T.P.2 and T.P.1 reaches 48.8~49.2V.  
T.P.2とT.P.1との間の電圧が48.8~49.2Vの間になる様にVR501で調整する。
- ③ Rch Adjustment : Adjust VR502 so that Voltage between T.P.3 and T.P.1 reaches 48.8~49.2V.  
T.P.3とT.P.1との間の電圧が48.8~49.2Vの間になる様にVR502で調整する。

## 2. Idling Adjustment

### アイドル電流調整

#### (1) Connection

接続

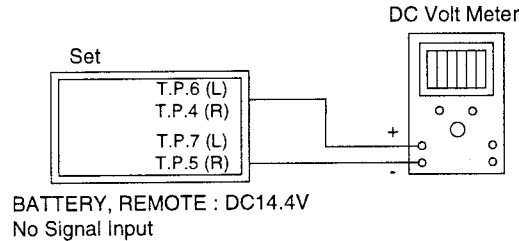


Figure 2  
2図

#### (2) Adjustment Procedures

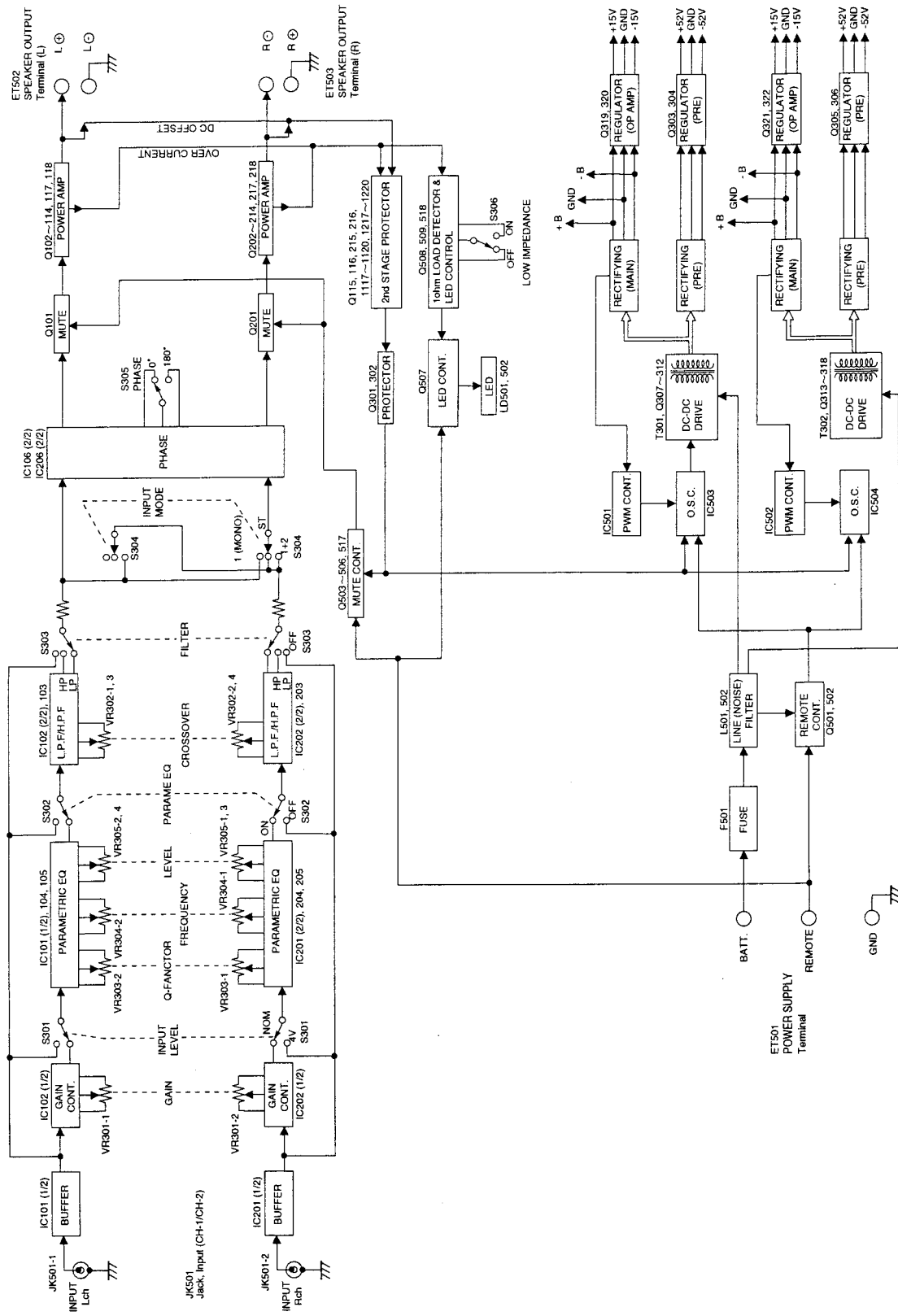
調整方法

- ① First, rotate VR101, 201 fully counter clockwise.  
調整を始める前に VR101、201を反時計方向一杯に回転させる。
- ② Lch Adjustment : Adjust VR101 so that Voltage between T.P.6 and T.P.7 reaches 3~7mV.  
T.P.6とT.P.7との間の電圧が3~7mVの間になる様にVR101で調整する。
- ③ Rch Adjustment : Adjust VR201 so that Voltage between T.P.4 and T.P.5 reaches 3~7mV.  
T.P.4とT.P.5との間の電圧が3~7mVの間になる様にVR201で調整する。

NOTE : For the Adjustment Parts (VR101, 201, 501, 502) and Test Points (T.P.1~8), refer to the Parts Layout on P.C. Boards and Wiring Diagram.

注記: 調整部品 (VR101, 201, 501, 502) 及びテストポイント (T.P.1~8) の詳細については、  
「Parts Layout on P.C. Boards and Wiring Diagram」を参照願います。

# Block Diagram



# Parts Layout on P.C. Boards and Wiring Diagram (1/2)

All P.C. Boards viewed from soldered side.

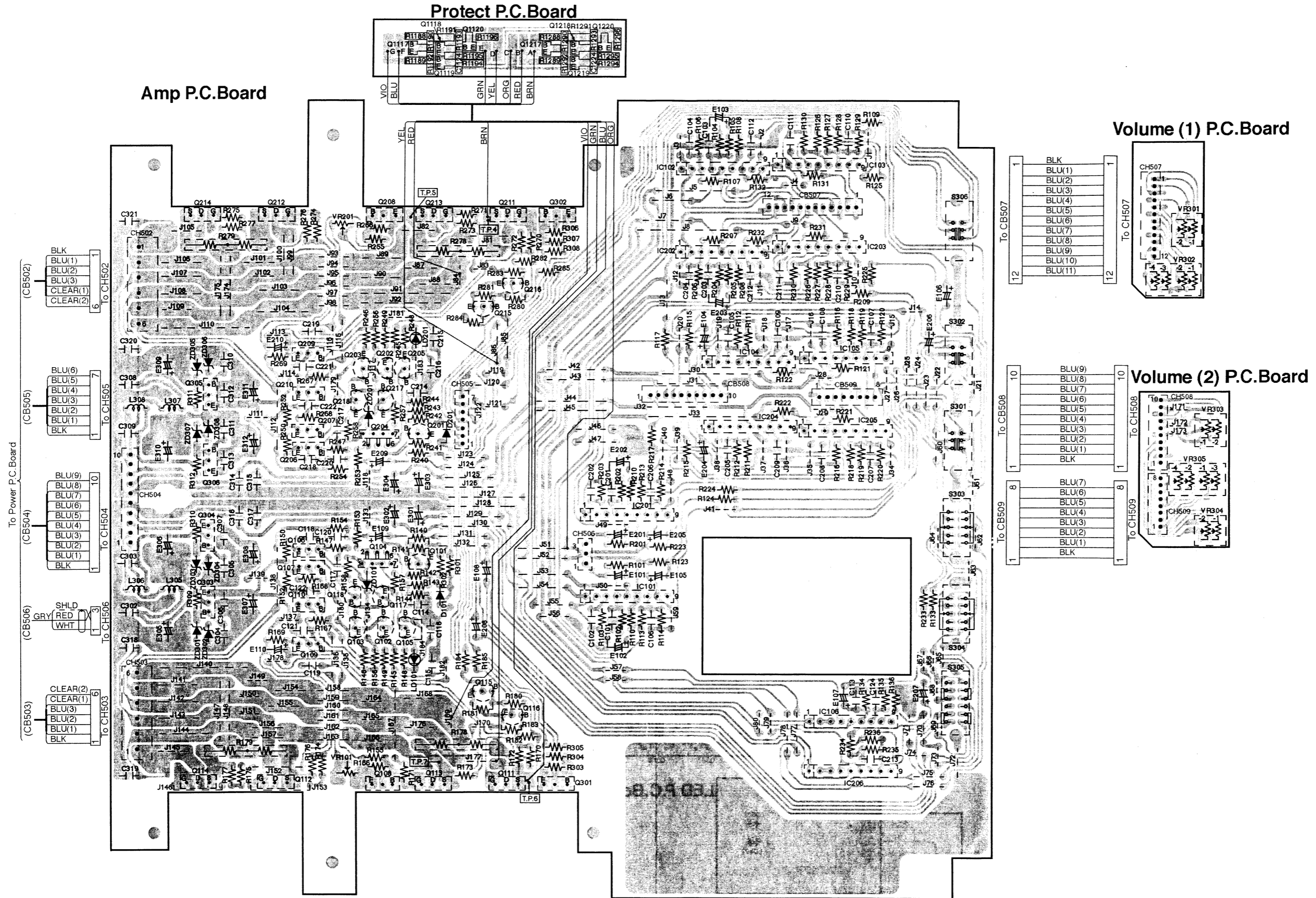
1

2

3

4

5



Blue Color Pattern : Foil Side Pattern

A

B -7-

C

D

E

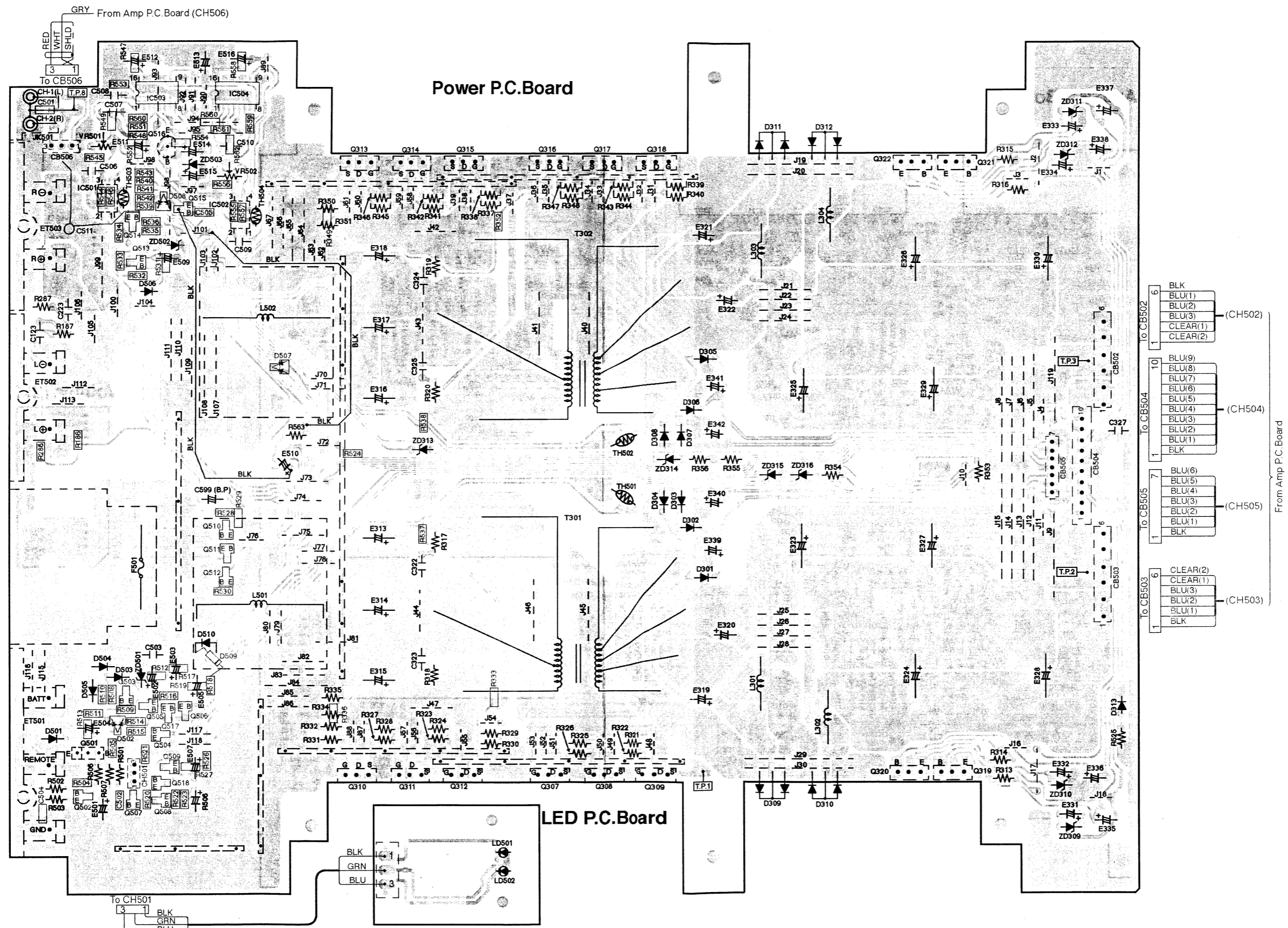
F -8-

G

# Parts Layout on P.C. Boards and Wiring Diagram (2/2)

All P.C. Boards viewed from soldered side.

1  
2  
3  
4  
5



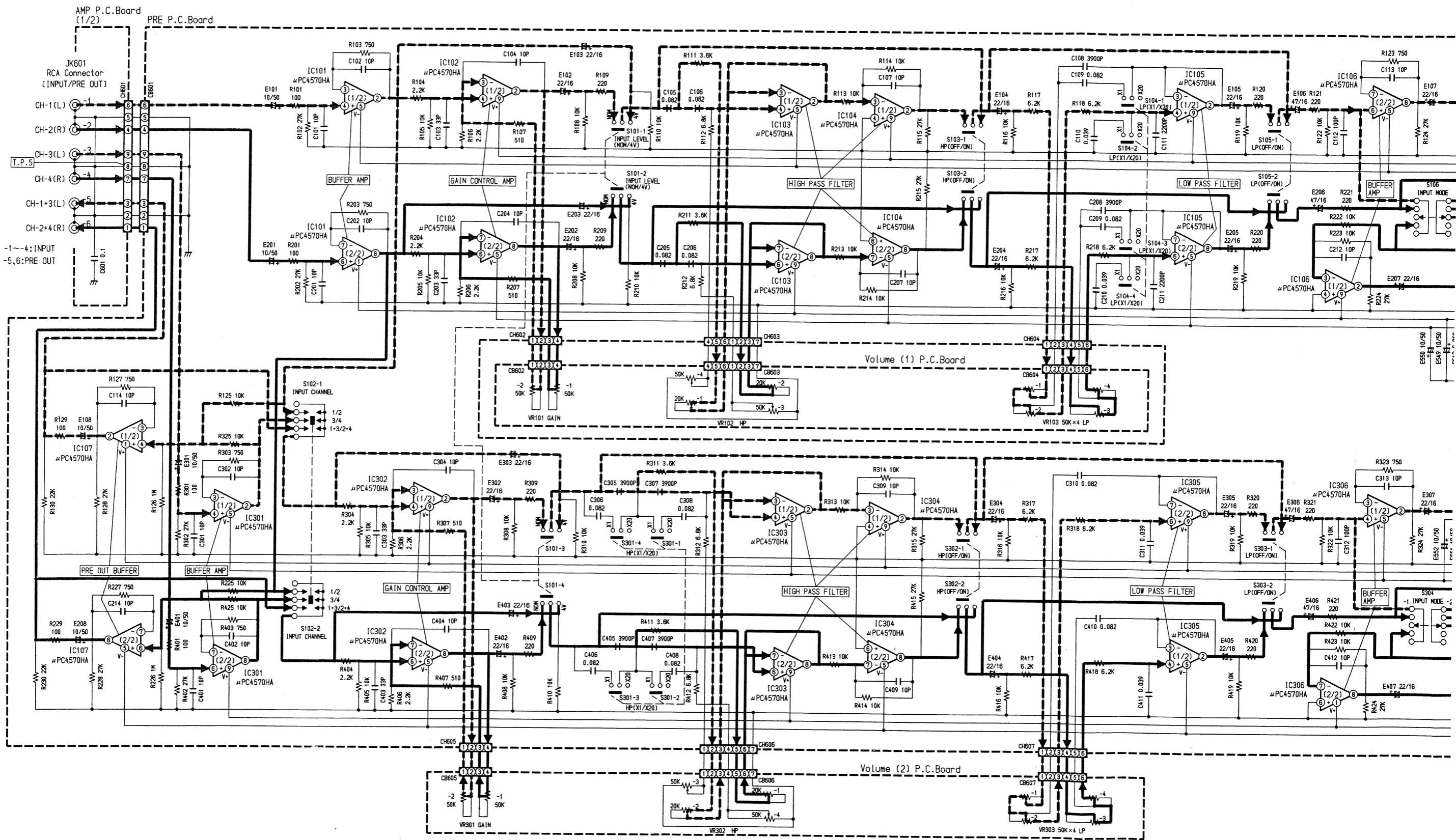
A | B - 9 - | C | D | E | F - 10 - | G

Blue Color Pattern : Foil Side Pattern



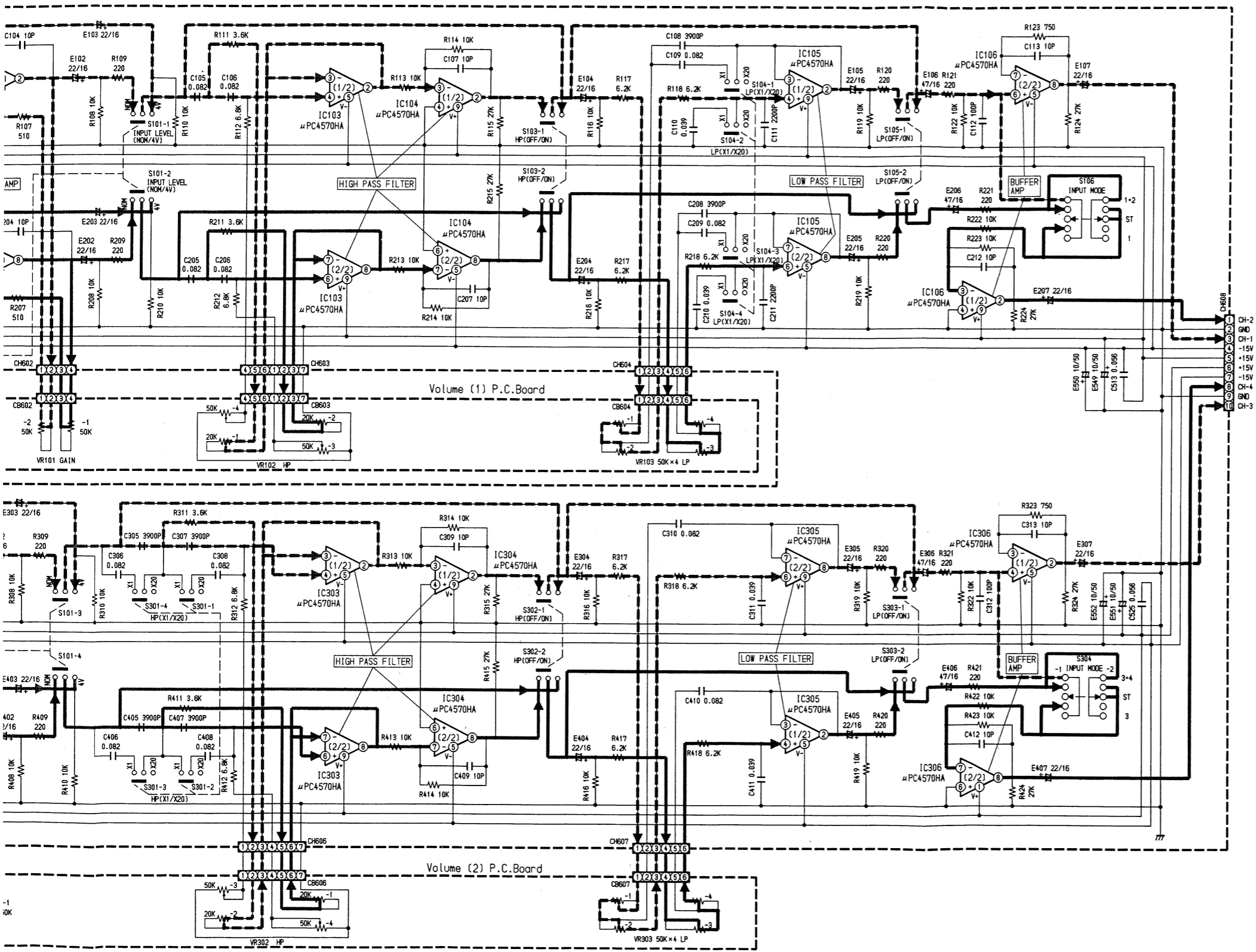
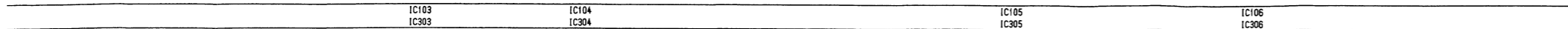
# Schematic Diagram (1/2)

IC	IC107	IC301	IC101	IC302	IC102	IC103 IC303	IC104 IC304	IC105 IC305	IC106 IC306
----	-------	-------	-------	-------	-------	----------------	----------------	----------------	----------------



1  
2  
3  
4  
5

A | B - 11 - | C | D | E | F - 12 - | G | H |



IC101, 103, 105, 106, 201, 203, 205, 206

1	15.1V
2-4	0V
5	-15.1V
6-8	0V
9	-

IC102, 104, 202, 204

1	-
2-4	0V
5	-15.1V
6-8	0V
9	15.1V

Q104, 204

1	9.1V
2	0V
3	0.4V
4	NC
5	0.4V
6	0V
7	9.1V

	E	C	B
Q101	0V	0V	0V
Q102	51.7V	51.2V	51.2V
Q103	51.7V	51.2V	51.2V
Q105	-51.3V	0.4V	-50.8V
Q106	51.9V	3.6V	51.2V
Q107	-51.3V	-3.9V	-50.8V
Q108	-3.9V	3.6V	3.6V
Q109	3V	51.7V	3.6V
Q110	-3.3V	-51.7V	-3.9V
Q115	0V	0V	0V
Q116	0V	49V	0V
Q117	9.22V	51.2V	9.83V
Q118	9.22V	51.2V	9.83V
Q201	0V	0V	0V
Q202	51.7V	51.2V	51.2V
Q203	51.7V	51.2V	51.2V
Q205	-51.3V	0.4V	-50.8V
Q206	51.9V	3.6V	51.2V
Q207	-51.3V	-3.9V	-50.8V
Q208	-3.9V	3.6V	3.6V
Q209	3V	51.7V	3.6V
Q210	-3.3V	-51.7V	-3.9V
Q215	0V	0V	0V
Q216	0V	49V	0V
Q217	9.22V	51.2V	9.83V
Q218	9.22V	51.2V	9.83V

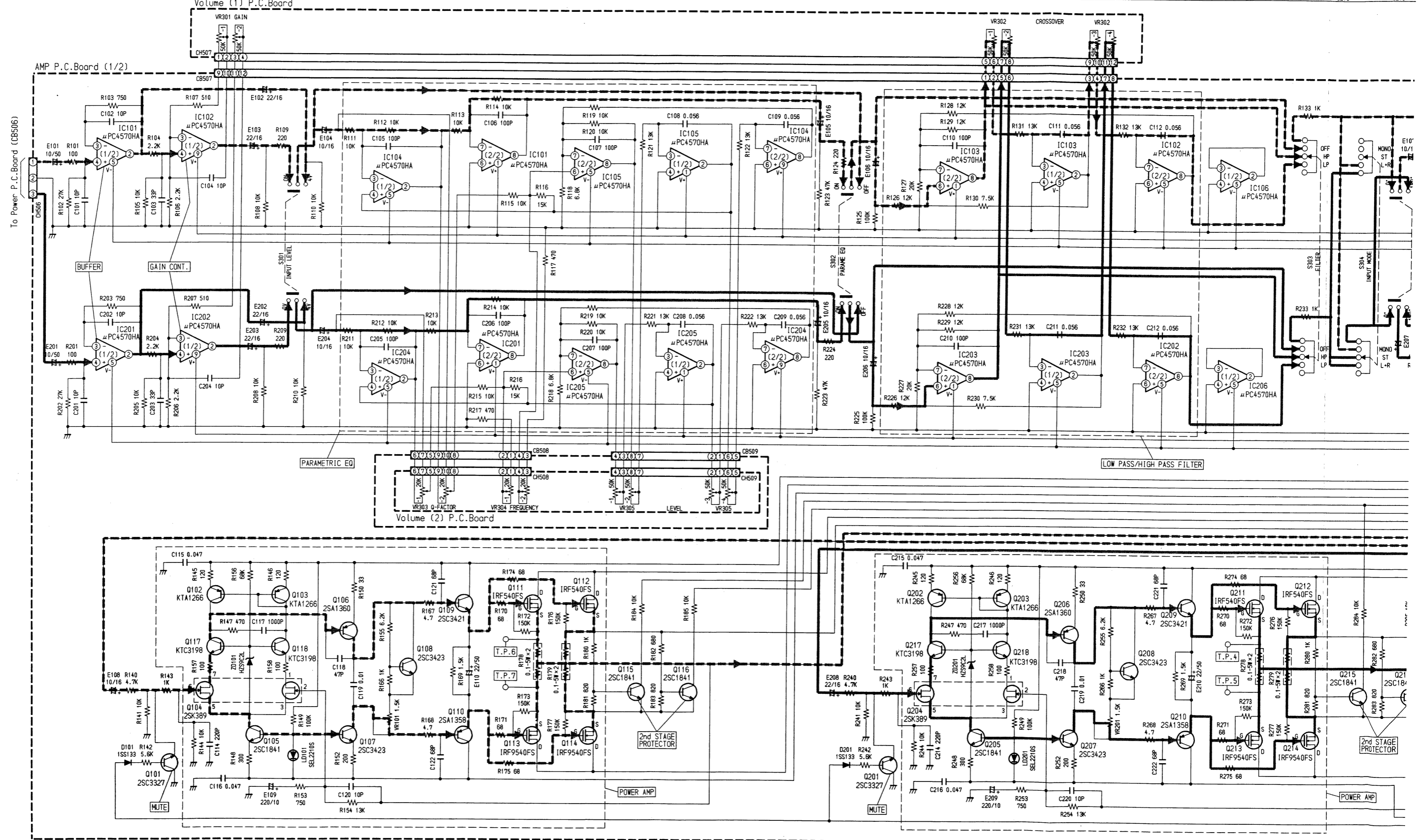
	G	D	S
Q111	3V	49V	0V
Q112	3V	49V	0V
Q113	-3.3V	-49V	0V
Q114	-3.3V	-49V	0V
Q211	3V	49V	0V
Q212	3V	49V	0V
Q213	-3.3V	-49V	0V
Q214	-3.3V	-49V	0V

- [Measuring Conditions]
- Power Supply Voltage : DC14.4V
  - Measuring Meter : Digital Multi Meter
  - Measuring Point Reference : Between Ground
  - Measuring Conditions : No Signal Input

NOTE:  
 1. All resistance values are in ohms. K = 1,000  
 2. All capacitance values are in microfarads. P = 1,000,000

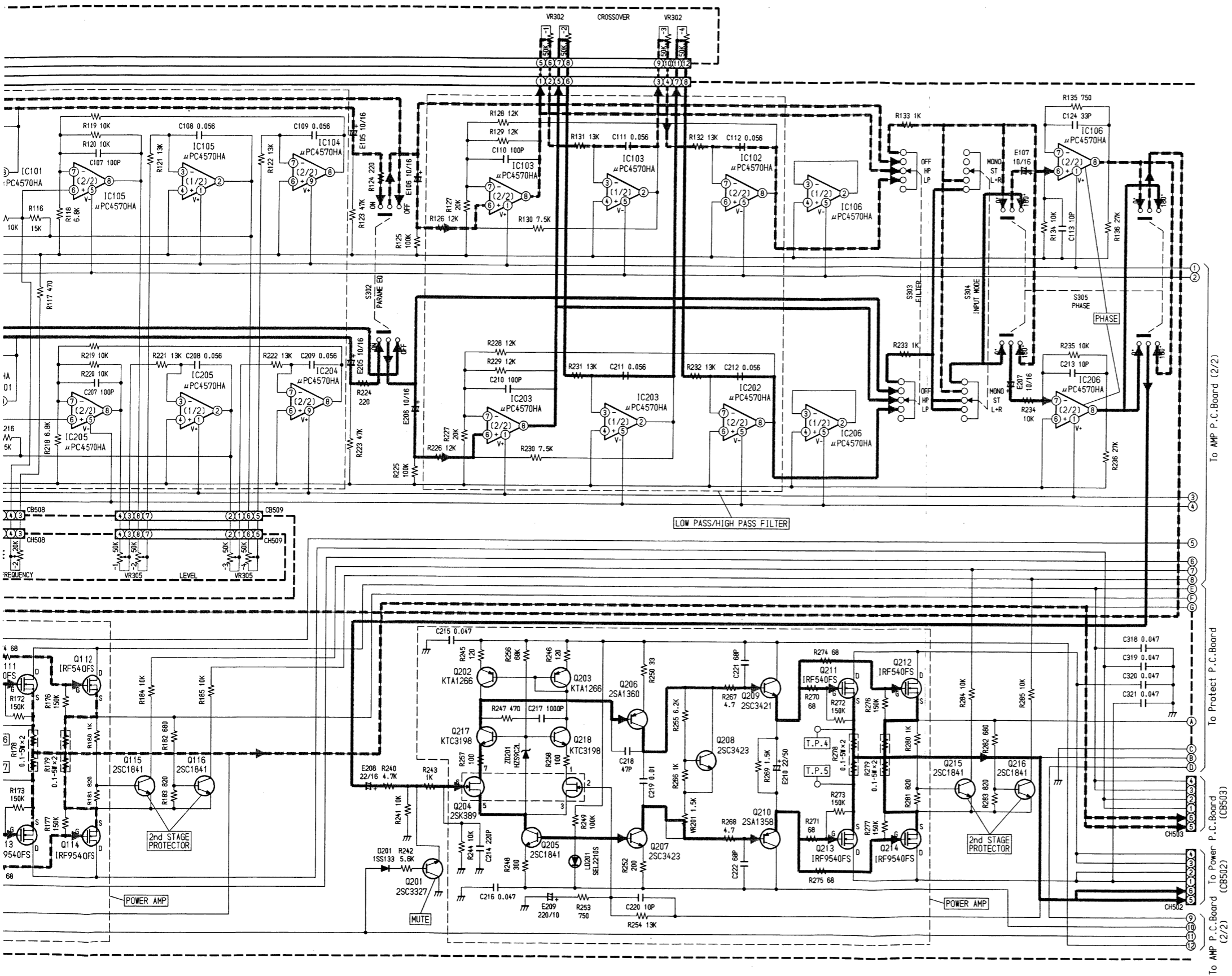
# Schematic Diagram (1/2) *CORRECTION*

IC	IC101(1/2) IC201(1/2)	IC102(1/2) IC202(1/2)	IC104(1/2) IC204(1/2)	IC101(2/2) IC201(2/2)	IC105(2/2) IC205(2/2)	IC105(1/2) IC205(1/2)	IC104(2/2) IC204(2/2)	IC103(2/2) IC203(2/2)	IC103(1/2) IC203(1/2)	IC102(2/2) IC202(2/2)	IC106(1/2) IC206(1/2)						
Transistor (Q)	Q101	Q102 Q117 Q104	Q105 Q103 Q118	Q106 Q107	Q108 Q109 Q110	Q111 Q113	Q112 Q114	Q115	Q116	Q201 Q204 Q202 Q217	Q205 Q203 Q218	Q206 Q207	Q208 Q209 Q210	Q211 Q213	Q212 Q214	Q215	Q216



N

IC105(2/2)	IC105(1/2)	IC104(2/2)	IC103(2/2)	IC103(1/2)	IC102(2/2)	IC106(1/2)	IC106(2/2)
IC205(2/2)	IC205(1/2)	IC204(2/2)	IC203(2/2)	IC203(1/2)	IC202(2/2)	IC206(1/2)	IC206(2/2)
Q111 Q113	Q112 Q114	Q115	Q116	Q201	Q204 Q202 Q217	Q205	Q203 Q218
Q206	Q207	Q208	Q209 Q210	Q211 Q213	Q212 Q214	Q215	Q216



IC101, 103, 105, 106, 201, 203, 205, 206

1	15.1V
2-4	0V
5	-15.1V
6-8	0V
9	-

IC102, 104, 202, 204

1	-
2-4	0V
5	-15.1V
6-8	0V
9	15.1V

Q104, 204

1	9.1V
2	0V
3	0.4V
4	NC
5	0.4V
6	0V
7	9.1V

	E	C	B
Q101	0V	0V	0V
Q102	51.7V	51.2V	51.2V
Q103	51.7V	51.2V	51.2V
Q105	-51.3V	0.4V	-50.8V
Q106	51.9V	3.6V	51.2V
Q107	-51.3V	-3.9V	-50.8V
Q108	-3.9V	3.6V	3.6V
Q109	3V	51.7V	3.6V
Q110	-3.3V	-51.7V	-3.9V
Q115	0V	0V	0V
Q116	0V	49V	0V
Q117	9.22V	51.2V	9.83V
Q118	9.22V	51.2V	9.83V
Q201	0V	0V	0V
Q202	51.7V	51.2V	51.2V
Q203	51.7V	51.2V	51.2V
Q205	-51.3V	0.4V	-50.8V
Q206	51.9V	3.6V	51.2V
Q207	-51.3V	-3.9V	-50.8V
Q208	-3.9V	3.6V	3.6V
Q209	3V	51.7V	3.6V
Q210	-3.3V	-51.7V	-3.9V
Q215	0V	0V	0V
Q216	0V	49V	0V
Q217	9.22V	51.2V	9.83V
Q218	9.22V	51.2V	9.83V

	G	D	S
Q111	3V	49V	0V
Q112	3V	49V	0V
Q113	-3.3V	-49V	0V
Q114	-3.3V	-49V	0V
Q211	3V	49V	0V
Q212	3V	49V	0V
Q213	-3.3V	-49V	0V
Q214	-3.3V	-49V	0V

- [Measuring Conditions]
- Power Supply Voltage : DC14.4V
  - Measuring Meter : Digital Multi Meter
  - Measuring Point Reference : Between Ground
  - Measuring Conditions : No Signal Input

**NOTE:**  
 1. All resistance values are in ohms. K = 1,000  
 2. All capacitance values are in microfarads. P =  $\frac{1}{1,000,000}$

# Schematic Diagram (2/2)

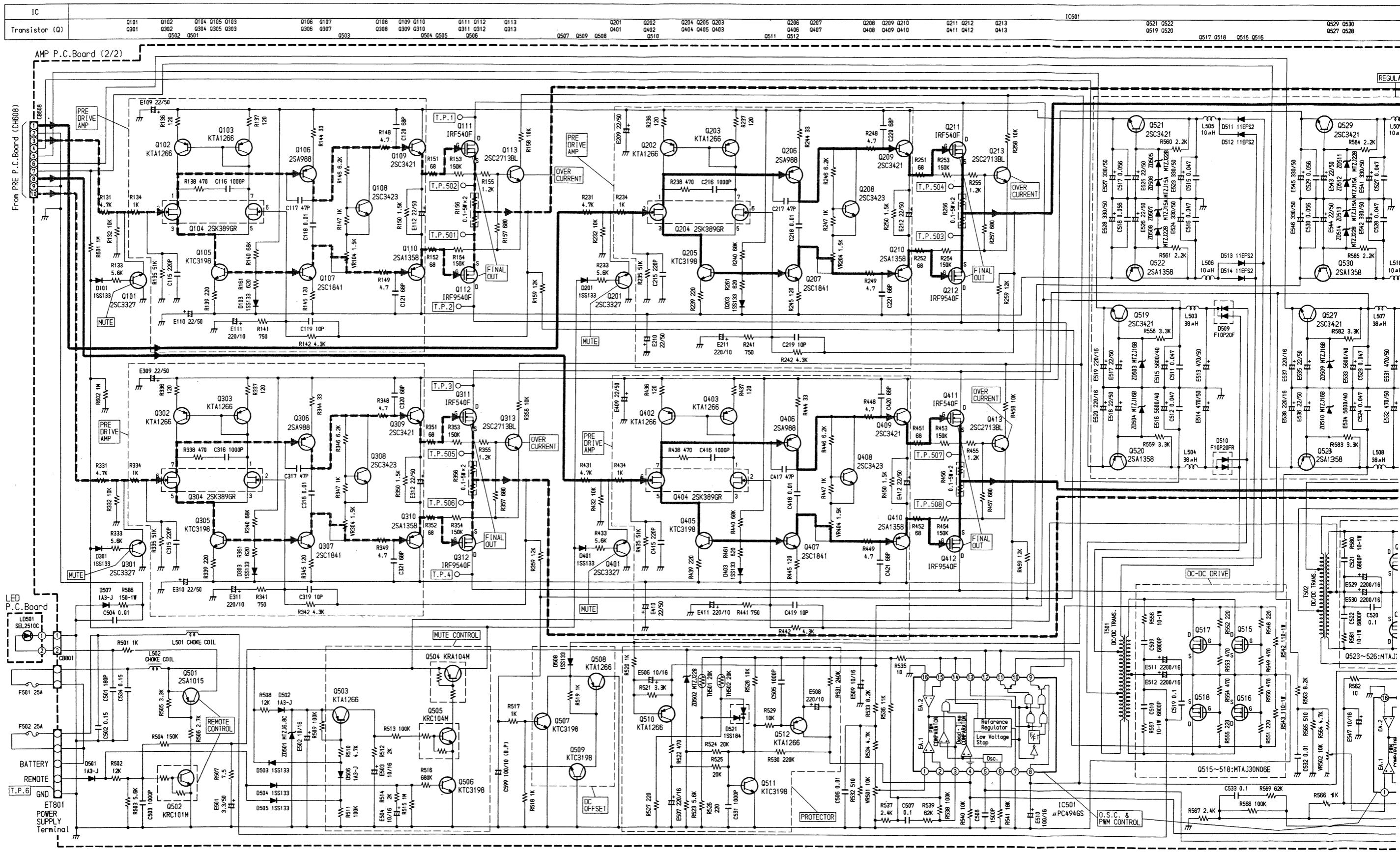
1

2

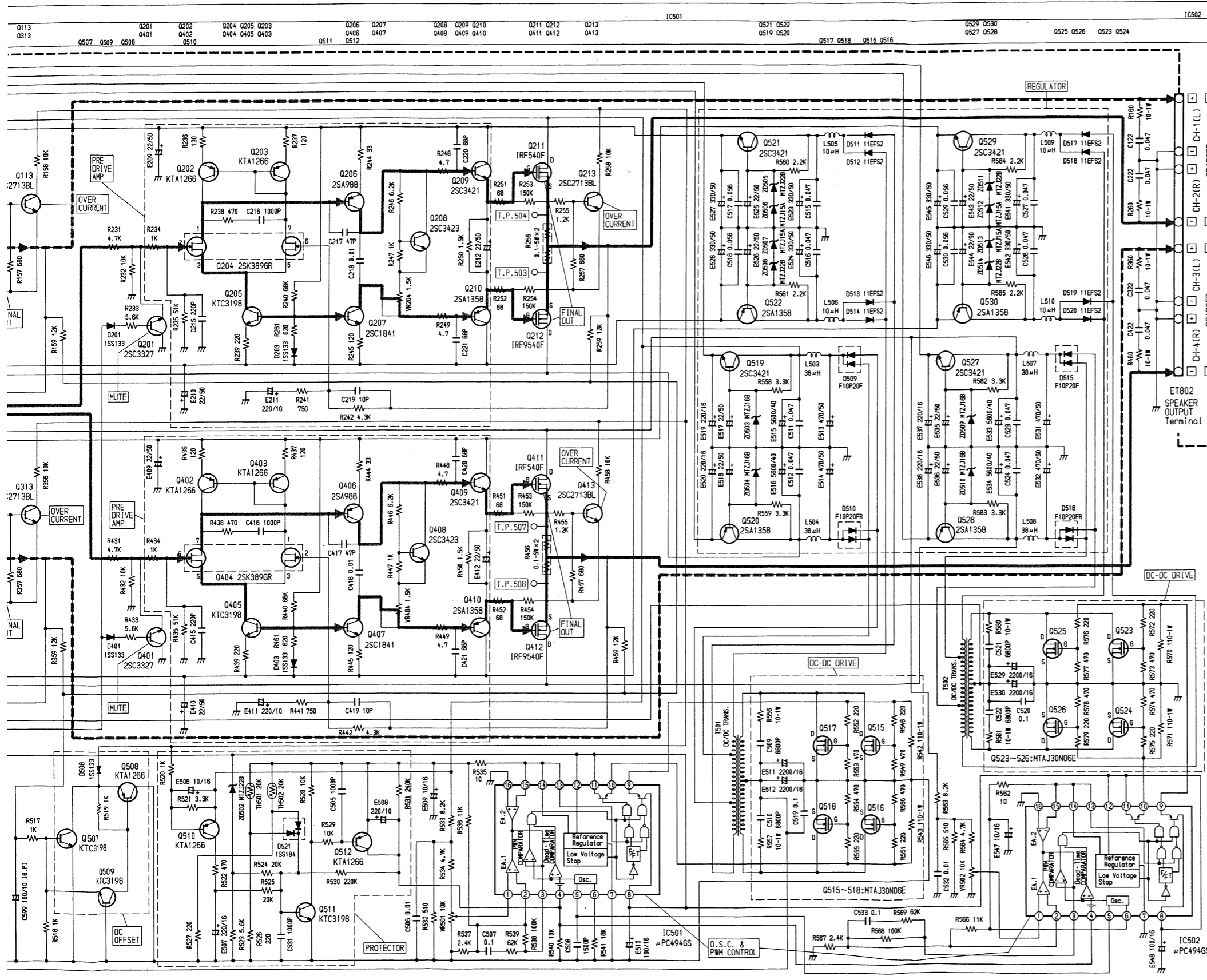
3

4

5







IC501, 502

1	49V
2	47.9V
3	3.4V
4	8.2V

IC503, 504

1, 2	0.96V/0V	(PROTECT/MUTE)
3	3.8V/0V	(PROTECT/MUTE)
4	0.2V/4.1V	(PROTECT/MUTE)
5	1.7V	
6	3.7V	
7	0V	
8	14.3V	
9, 10	0.5V	
11, 12	14.3V	
13-15	5V	
16	0V	

	E	C	B	E	C	B
Q301	8.2V	0V	7.9V	Q509	49V	0V/48.9V 49V/48.4V
Q302	8.2V	0V	7.9V	Q510	0V	48.4V/0V 0V
Q303	51.7V	57V	51.1V	Q511	0V	48V/0V 0V
Q304	-51.7V	-57V	-51.1V	Q512	48.4V/0V	0V 48V/0V
Q305	51.7V	57V	51.1V	Q513	49V	0V/4.8V 49V/48.4V
Q306	-51.7V	-57V	-51.1V	Q514	0V	14.3V/0V 0V/0.6V
Q319	15.1V	49V	15.7V	Q515	14.3V	0V/14.3V 14.3V/13.7V
Q320	-15.1V	-49V	-15.7V	Q516	8.2V	14.3V 8.8V
Q321	15.1V	49V	15.7V	Q517	0V	14.4V/0.1V 0V/2.5V
Q322	-15.1V	-49V	-15.7V	Q518	0V	0V 0V/4.3V
Q501	14.4V	14.2V	13.6V	Q1117	0V	49V 0V
Q502	0V	0V	3.7V	Q1118	49V	0V 49V
Q503	6.76V	0V/6.75V	6.7V/6.15V	Q1119	0V	0V 0V
Q504	14.4V	-3V/14.3V	14.4V/0.1V	Q1120	0V	49V 0V
Q505	0V	0V	0.6V	Q1217	0V	49V 0V
Q506	0V	14.4V/0.1V	0V/0.5V	Q1218	49V	0V 49V
Q507	0V	0V/14.3V	0.6V/0V	Q1219	0V	0V 0V
Q508	0V	11.7V/0V	0V/0.6V	Q1220	0V	49V 0V

	G	D	S
Q307	0.4V	14.4V	0V
Q308	0.4V	14.4V	0V
Q309	0.4V	14.4V	0V
Q310	0.4V	14.4V	0V
Q311	0.4V	14.4V	0V
Q312	0.4V	14.4V	0V
Q313	0.4V	14.4V	0V
Q314	0.4V	14.4V	0V
Q315	0.4V	14.4V	0V
Q316	0.4V	14.4V	0V
Q317	0.4V	14.4V	0V
Q318	0.4V	14.4V	0V

[Measuring Conditions]

- Power Supply Voltage : DC14.4V
- Measuring Meter : Digital Multi Meter
- Measuring Point Reference : Between Ground
- Measuring Conditions : No Signal Input

NOTE:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. P =  $\frac{1}{1,000,000}$

# Schematic Diagram (2/2) CORRECTION

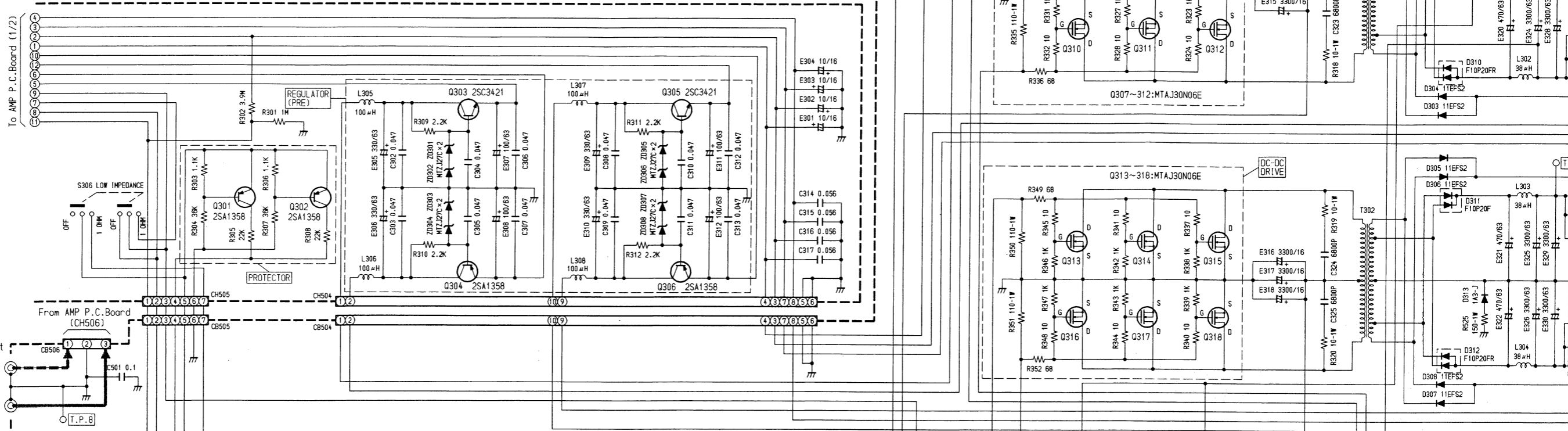
1

IC	Q1117	Q1119	Q1118	Q1120	Q1217	Q1219	Q1218	Q1220	IC501	Q308	Q311	Q309	Q312	IC503					
Transistor (Q)	Q502	Q501	Q301	Q302	Q503	Q303	Q304	Q505	Q518	Q511	Q512	Q513	Q313	Q316	Q314	Q317	Q315	Q318	Q516

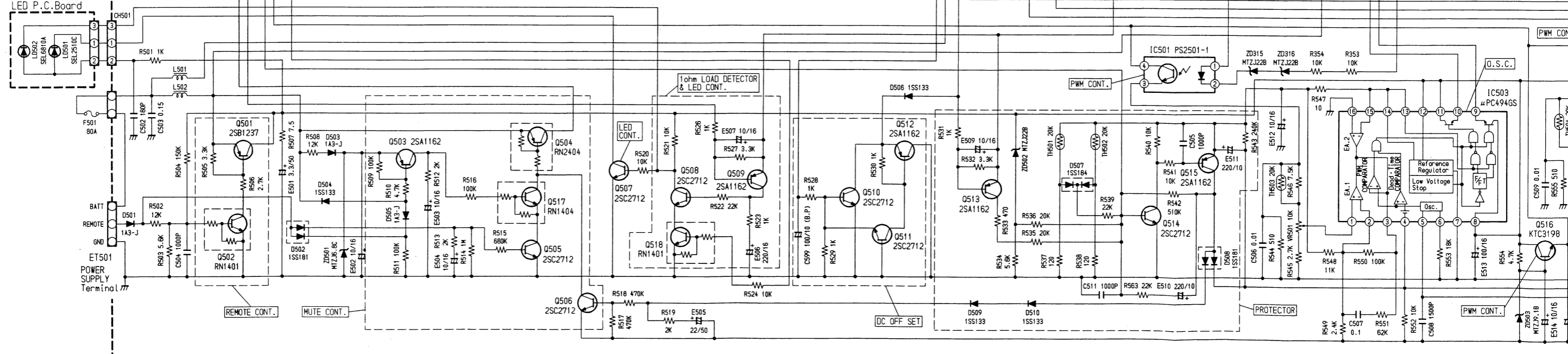
2



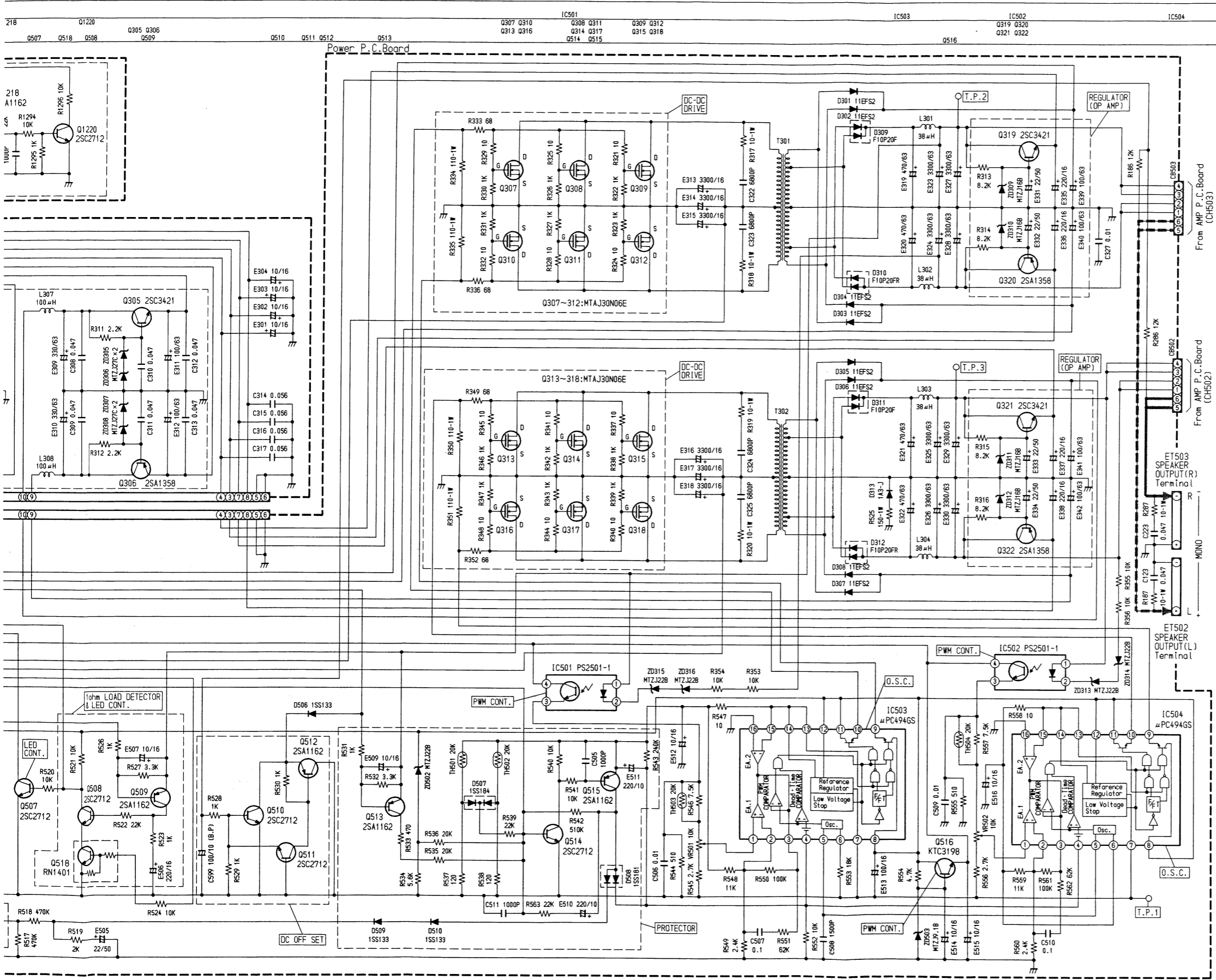
3



4



5



IC501, 502		IC503, 504	
1	49V	1, 2	0.96V/0V (PROTECT/MUTE)
2	47.9V	3	3.8V/0V (PROTECT/MUTE)
3	3.4V	4	0.2V/4.1V (PROTECT/MUTE)
4	8.2V	5	1.7V
		6	3.7V
		7	0V
		8	14.3V
		9, 10	0.5V
		11, 12	14.3V
		13-15	5V
		16	0V

	E	C	B		E	C	B
Q301	8.2V	0V	7.9V	Q509	49V	0V/48.9V	49V/48.4V
Q302	8.2V	0V	7.9V	Q510	0V	48.4V/0V	0V
Q303	51.7V	57V	51.1V	Q511	0V	48V/0V	0V
Q304	-51.7V	-57V	-51.1V	Q512	48.4V/0V	0V	48V/0V
Q305	51.7V	57V	51.1V	Q513	49V	0V/4.8V	49V/48.4V
Q306	-51.7V	-57V	-51.1V	Q514	0V	14.3V/0V	0V/0.6V
Q319	15.1V	49V	15.7V	Q515	14.3V	0V/14.3V	14.3V/13.7V
Q320	-15.1V	-49V	-15.7V	Q516	8.2V	14.3V	8.8V
Q321	15.1V	49V	15.7V	Q517	0V	14.4V/0.1V	0V/2.5V
Q322	-15.1V	-49V	-15.7V	Q518	0V	0V/4.3V	0V/4.3V
Q501	14.4V	14.2V	13.6V	Q1117	0V	49V	0V
Q502	0V	0V	3.7V	Q1118	49V	0V	49V
Q503	6.76V	0V/6.75V	6.7V/6.15V	Q1119	0V	0V	0V
Q504	14.4V	-3V/14.3V	14.4V/0.1V	Q1120	0V	49V	0V
Q505	0V	0V	0.6V	Q1217	0V	49V	0V
Q506	0V	14.4V/0.1V	0V/0.5V	Q1218	49V	0V	49V
Q507	0V	0V/14.3V	0.6V/0V	Q1219	0V	0V	0V
Q508	0V	11.7V/0V	0V/0.6V	Q1220	0V	49V	0V

	G	D	S
Q307	0.4V	14.4V	0V
Q308	0.4V	14.4V	0V
Q309	0.4V	14.4V	0V
Q310	0.4V	14.4V	0V
Q311	0.4V	14.4V	0V
Q312	0.4V	14.4V	0V
Q313	0.4V	14.4V	0V
Q314	0.4V	14.4V	0V
Q315	0.4V	14.4V	0V
Q316	0.4V	14.4V	0V
Q317	0.4V	14.4V	0V
Q318	0.4V	14.4V	0V

- [Measuring Conditions]
- Power Supply Voltage : DC14.4V
  - Measuring Meter : Digital Multi Meter
  - Measuring Point Reference : Between Ground
  - Measuring Conditions : No Signal Input

NOTE:  
 1. All resistance values are in ohms. K = 1,000  
 2. All capacitance values are in microfarads. P =  $\frac{1}{1,000,000}$



Symbol No.	Part No.	Description
<b>Coils</b>		
L305	24E25729S01	Inductor, 100µH
L306	24E25729S01	Inductor, 100µH
L307	24E25729S01	Inductor, 100µH
L308	24E25729S01	Inductor, 100µH
<b>Switches</b>		
S301	40E09464S01	Slide, SSSF12 (INPUT LEVEL)
S302	40E09464S01	Slide, SSSF12 (PARAME EQ)
S303	40E22319S01	Slide, SSSF12 (FILTER)
S304	40E22319S01	Slide, SSSF12 (INPUT MODE)
S305	40E09137S01	Slide, SSSF12 (PHASE)
S306	40E09464S01	Slide, SSSF12 (LOW IMPEDANCE)
<b>Capacitors</b>		
C101	08E21461S01	CER., 10pF
E101	23E21187S01	ELY., 10µF / 50V
C102	08E21461S01	CER., 10pF
E102	23E21150S01	ELY., 22µF / 16V
C103	08E21987S01	CER., 33pF
E103	23E21150S01	ELY., 22µF / 16V
C104	08E21461S01	CER., 10pF
E104	23E20773S01	ELY., 10µF / 16V
C105	21E06640S01	CER., 100pF
E105	23E20773S01	ELY., 10µF / 16V
C106	21E06640S01	CER., 100pF
E106	23E20773S01	ELY., 10µF / 16V
C107	21E06640S01	CER., 100pF
E107	23E20773S01	ELY., 10µF / 16V
C108	08E23756S01	POLY., 0.056µF
E108	23E21150S01	ELY., 22µF / 16V
C109	08E23756S01	POLY., 0.056µF
E109	23E20800S01	ELY., 220µF / 10V
C110	21E06640S01	CER., 100pF
E110	23E22188S01	ELY., 22µF / 50V
C111	08E23756S01	POLY., 0.056µF
C112	08E23756S01	POLY., 0.056µF
C113	08E21461S01	CER., 10pF
C114	08E21463S01	CER., 220pF
C115	08E25724S01	POLY., 0.047µF
C116	08E25724S01	POLY., 0.047µF
C117	08E21991S01	CER., 1000pF
C118	08E21462S01	CER., 47pF
C119	08E23754S01	POLY., 0.01µF
C120	08E21461S01	CER., 10pF

Symbol No.	Part No.	Description
C121	08E25723S01	CER., 68pF
C122	08E25723S01	CER., 68pF
C124	08E21987S01	CER., 33pF
C201	08E21461S01	CER., 10pF
E201	23E21187S01	ELY., 10µF / 50V
C202	08E21461S01	CER., 10pF
E202	23E21150S01	ELY., 22µF / 16V
C203	08E21987S01	CER., 33pF
E203	23E21150S01	ELY., 22µF / 16V
C204	08E21461S01	CER., 10pF
E204	23E20773S01	ELY., 10µF / 16V
C205	21E06640S01	CER., 100pF
E205	23E20773S01	ELY., 10µF / 16V
C206	21E06640S01	CER., 100pF
E206	23E20773S01	ELY., 10µF / 16V
C207	21E06640S01	CER., 100pF
E207	23E20773S01	ELY., 10µF / 16V
C208	08E23756S01	POLY., 0.056µF
E208	23E21150S01	ELY., 22µF / 16V
C209	08E23756S01	POLY., 0.056µF
E209	23E20800S01	ELY., 220µF / 10V
C210	21E06640S01	CER., 100pF
E210	23E22188S01	ELY., 22µF / 50V
C211	08E23756S01	POLY., 0.056µF
C212	08E23756S01	POLY., 0.056µF
C213	08E21461S01	CER., 10pF
C214	08E21463S01	CER., 220pF
C215	08E25724S01	POLY., 0.047µF
C216	08E25724S01	POLY., 0.047µF
C217	08E21991S01	CER., 1000pF
C218	08E21462S01	CER., 47pF
C219	08E23754S01	POLY., 0.01µF
C220	08E21461S01	CER., 10pF
C221	08E25723S01	CER., 68pF
C222	08E25723S01	CER., 68pF
E301	23E20773S01	ELY., 10µF / 16V
C302	08E25724S01	POLY., 0.047µF
E302	23E20773S01	ELY., 10µF / 16V
C303	08E25724S01	POLY., 0.047µF
E303	23E20773S01	ELY., 10µF / 16V
C304	08E25724S01	POLY., 0.047µF
E304	23E20773S01	ELY., 10µF / 16V
C305	08E25724S01	POLY., 0.047µF
E305	23E25728S01	ELY., 330µF / 63V
C306	08E25724S01	POLY., 0.047µF
E306	23E25728S01	ELY., 330µF / 63V
C307	08E25724S01	POLY., 0.047µF
E307	23E25725S01	ELY., 100µF / 63V
C308	08E25724S01	POLY., 0.047µF

# Electrical Parts List

Resistor : Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.

Capacitor :  $\mu$ F=microfarads,pF=picofarads

Abbreviations			Symbol No.	Part No.	Description
RES.= Resistor	CAP.= Capacitor		Q202	48E25656S01	KTA1266
C.F.= Carbon Film	ELY.= Electrolytic		Q203	48E25656S01	KTA1266
M.F.= Metal Film	CER.= Ceramic		Q204	48E23418S01	FET, 2SK389
M.O.= Metal Oxide Film	MYL.= Mylar		Q205	48E21467S01	2SC1841
M.P.= Metal Plate	TAN.= Tantalum		Q206	48E23415S01	2SA1360
TR. = Transistor	POLY.= Polystyrol		Q207	48E23414S01	2SC3423
TRANS.= Transformer	PP. = Polypropylene		Q208	48E23414S01	2SC3423
CP. = Chip	PLT.= Polyethylene		Q209	48E04071S01	2SC3421
	PF. = Polyester Film		Q210	48E04070S01	2SA1358
			Q211	48E25732S01	FET, IRF540FS
			Q212	48E25732S01	FET, IRF540FS
			Q213	48E25731S01	FET, IRF9540FS
			Q214	48E25731S01	FET, IRF9540FS
			Q215	48E21467S01	2SC1841
			Q216	48E21467S01	2SC1841
			Q217	48E23761S01	KTC3198
			Q218	48E23761S01	KTC3198
			Q301	48E04070S01	2SA1358
			Q302	48E04070S01	2SA1358
			Q303	48E04071S01	2SC3421
			Q304	48E04070S01	2SA1358
			Q305	48E04071S01	2SC3421
			Q306	48E04070S01	2SA1358
Symbol No. Part No. Description					
Amp P.C.Board					
IC's					
IC101	51E03808S01	$\mu$ PC4570HA			
IC102	51E03808S01	$\mu$ PC4570HA			
IC103	51E03808S01	$\mu$ PC4570HA			
IC104	51E03808S01	$\mu$ PC4570HA			
IC105	51E03808S01	$\mu$ PC4570HA			
IC106	51E03808S01	$\mu$ PC4570HA			
IC201	51E03808S01	$\mu$ PC4570HA			
IC202	51E03808S01	$\mu$ PC4570HA			
IC203	51E03808S01	$\mu$ PC4570HA			
IC204	51E03808S01	$\mu$ PC4570HA			
IC205	51E03808S01	$\mu$ PC4570HA			
IC206	51E03808S01	$\mu$ PC4570HA			
Transistors / FET's					
Q101	48E21466S01	2SC3327			
Q102	48E25656S01	KTA1266			
Q103	48E25656S01	KTA1266			
Q104	48E23418S01	FET, 2SK389			
Q105	48E21467S01	2SC1841			
Q106	48E23415S01	2SA1360			
Q107	48E23414S01	2SC3423			
Q108	48E23414S01	2SC3423			
Q109	48E04071S01	2SC3421			
Q110	48E04070S01	2SA1358			
Q111	48E25732S01	FET, IRF540FS			
Q112	48E25732S01	FET, IRF540FS			
Q113	48E25731S01	FET, IRF9540FS			
Q114	48E25731S01	FET, IRF9540FS			
Q115	48E21467S01	2SC1841			
Q116	48E21467S01	2SC1841			
Q117	48E23761S01	KTC3198			
Q118	48E23761S01	KTC3198			
Q201	48E21466S01	2SC3327			
Diodes					
D101	48E21188S01	1SS133			
D201	48E21188S01	1SS133			
ZD101	48E25727S01	Zener, HZS9C2L			
ZD201	48E25727S01	Zener, HZS9C2L			
ZD301	48E25726S01	Zener, MTZJ27C			
ZD302	48E25726S01	Zener, MTZJ27C			
ZD303	48E25726S01	Zener, MTZJ27C			
ZD304	48E25726S01	Zener, MTZJ27C			
ZD305	48E25726S01	Zener, MTZJ27C			
ZD306	48E25726S01	Zener, MTZJ27C			
ZD307	48E25726S01	Zener, MTZJ27C			
ZD308	48E25726S01	Zener, MTZJ27C			
LED's					
LD101	48E25701S01	SEL2210S (RED)			
LD201	48E25701S01	SEL2210S (RED)			

Symbol No.	Part No.	Description
D504	48E21188S01	1SS133
D505	48E23768S01	1A3-J
D506	48E21188S01	1SS133
D507	48E20137S01	CP., 1SS184
D508	48E20139S01	CP., 1SS181
D509	48E25741S01	1SS133
D510	48E21188S01	1SS133
ZD309	48E23766S01	Zener, MTZJ16B
ZD310	48E23766S01	Zener, MTZJ16B
ZD311	48E23766S01	Zener, MTZJ16B
ZD312	48E23766S01	Zener, MTZJ16B
ZD313	48E23396S01	Zener, MTZJ22B
ZD314	48E23396S01	Zener, MTZJ22B
ZD315	48E23396S01	Zener, MTZJ22B
ZD316	48E23396S01	Zener, MTZJ22B
ZD501	48E23767S01	Zener, MTZJ6.8C
ZD502	48E23396S01	Zener, MTZJ22B
ZD503	48E07119S01	Zener, MTZJ9.1B
<b>Thermistors</b>		
TH501	48E22322S01	20K ohm
TH502	48E22322S01	20K ohm
TH503	48E22322S01	20K ohm
TH504	48E22322S01	20K ohm
<b>Coils</b>		
L301	24E25698S01	Inductor, 38μH
L302	24E25698S01	Inductor, 38μH
L303	24E25698S01	Inductor, 38μH
L304	24E25698S01	Inductor, 38μH
L501	24E25699S01	Choke
L502	24E25699S01	Choke
<b>Transformers</b>		
T301	25E25737S01	DC/DC Trans.
T302	25E25737S01	DC/DC Trans.
<b>Capacitors</b>		
C123	08E23755S01	POLY., 0.047μF
C223	08E23755S01	POLY., 0.047μF
E313	23E22308S01	ELY., 3300μF / 16V
E314	23E22308S01	ELY., 3300μF / 16V

Symbol No.	Part No.	Description
E315	23E22308S01	ELY., 3300μF / 16V
E316	23E22308S01	ELY., 3300μF / 16V
E317	23E22308S01	ELY., 3300μF / 16V
E318	23E22308S01	ELY., 3300μF / 16V
E319	23E25736S01	ELY., 470μF / 63V
E320	23E25736S01	ELY., 470μF / 63V
E321	23E25736S01	ELY., 470μF / 63V
C322	08E23753S01	POLY., 6800pF
E322	23E25736S01	ELY., 470μF / 63V
C323	08E23753S01	POLY., 6800pF
E323	23T95403W06	ELY., 3300μF / 63V
C324	08E23753S01	POLY., 6800pF
E324	23T95403W06	ELY., 3300μF / 63V
C325	08E23753S01	POLY., 6800pF
E325	23T95403W06	ELY., 3300μF / 63V
E326	23T95403W06	ELY., 3300μF / 63V
C327	08E23754S01	POLY., 0.01μF
E327	23T95403W06	ELY., 3300μF / 63V
E328	23T95403W06	ELY., 3300μF / 63V
E329	23T95403W06	ELY., 3300μF / 63V
E330	23T95403W06	ELY., 3300μF / 63V
E331	23E22188S01	ELY., 22μF / 50V
E332	23E22188S01	ELY., 22μF / 50V
E333	23E22188S01	ELY., 22μF / 50V
E334	23E22188S01	ELY., 22μF / 50V
E335	23E21996S01	ELY., 220μF / 16V
E336	23E21996S01	ELY., 220μF / 16V
E337	23E21996S01	ELY., 220μF / 16V
E338	23E21996S01	ELY., 220μF / 16V
E339	23E25733S01	ELY., 100μF / 63V
E340	23E25733S01	ELY., 100μF / 63V
E341	23E25733S01	ELY., 100μF / 63V
E342	23E25733S01	ELY., 100μF / 63V
C501	21E20505S01	CP., 0.1μF
E501	23E21994S01	ELY., 3.3μF / 50V
C502	08E21199S01	CP., 180pF
E502	23E20773S01	ELY., 10μF / 16V
C503	08E09008S09	POLY., 0.15μF
E503	23E20773S01	ELY., 10μF / 16V
C504	08E21200S01	CP., 1000pF
E504	23E20773S01	ELY., 10μF / 16V
C505	08E21200S01	CP., 1000pF
E505	23E22188S01	ELY., 22μF / 50V
C506	08E23754S01	POLY., 0.01μF
E506	23E21996S01	ELY., 220μF / 16V
C507	08E23757S01	POLY., 0.1μF
E507	23E20773S01	ELY., 10μF / 16V
C508	08E23752S01	POLY., 1500pF
C509	08E23754S01	POLY., 0.01μF

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
E308	23E25725S01	ELY., 100µF / 63V	Q312	48E25211S01	MTAJ30N06E
C309	08E25724S01	POLY., 0.047µF	Q313	48E25211S01	MTAJ30N06E
E309	23E25728S01	ELY., 330µF / 63V	Q314	48E25211S01	MTAJ30N06E
C310	08E25724S01	POLY., 0.047µF	Q315	48E25211S01	MTAJ30N06E
E310	23E25728S01	ELY., 330µF / 63V	Q316	48E25211S01	MTAJ30N06E
C311	08E25724S01	POLY., 0.047µF	Q317	48E25211S01	MTAJ30N06E
E311	23E25725S01	ELY., 100µF / 63V	Q318	48E25211S01	MTAJ30N06E
C312	08E25724S01	POLY., 0.047µF	Q319	48E04071S01	2SC3421
E312	23E25725S01	ELY., 100µF / 63V	Q320	48E04070S01	2SA1358
C313	08E25724S01	POLY., 0.047µF	Q321	48E04071S01	2SC3421
C314	08E23756S01	POLY., 0.056µF	Q322	48E04070S01	2SA1358
C315	08E23756S01	POLY., 0.056µF	Q501	48E21999S01	2SB1237
C316	08E23756S01	POLY., 0.056µF	Q502	48E20144S01	CP., RN1401
C317	08E23756S01	POLY., 0.056µF	Q503	48E22858S01	CP., 2SA1162
C318	08E25724S01	POLY., 0.047µF	Q504	48E20184S01	CP., RN2404
C319	08E25724S01	POLY., 0.047µF	Q505	48E20148S01	CP., 2SC2712
C320	08E25724S01	POLY., 0.047µF	Q506	48E20148S01	CP., 2SC2712
C321	08E25724S01	POLY., 0.047µF	Q507	48E20148S01	CP., 2SC2712
<b>Resistors</b>			Q508	48E20148S01	CP., 2SC2712
R178	06E22328S01	Cement, 0.1 ohm 5W X2	Q509	48E22858S01	CP., 2SA1162
R179	06E22328S01	Cement, 0.1 ohm 5W X2	Q510	48E20148S01	CP., 2SC2712
R278	06E22328S01	Cement, 0.1 ohm 5W X2	Q511	48E20148S01	CP., 2SC2712
R279	06E22328S01	Cement, 0.1 ohm 5W X2	Q512	48E22858S01	CP., 2SA1162
VR101	18E25664S01	Variable, 1.5K ohm	Q513	48E22858S01	CP., 2SA1162
VR201	18E25664S01	Variable, 1.5K ohm	Q514	48E20148S01	CP., 2SC2712
<b>Power P.C.Board</b>			Q515	48E22858S01	CP., 2SA1162
<b>IC's</b>			Q516	48E23761S01	KTC3198
IC501	51E09178S01	PS2501-1	Q517	48E07111S02	CP., RN1404
IC502	51E09178S01	PS2501-1	Q518	48E20144S01	CP., RN1401
IC503	51E11412S01	µPC494GS	<b>Diodes</b>		
IC504	51E11412S01	µPC494GS	D301	48E25655S01	11EFS2
<b>Transistors</b>			D302	48E25655S01	11EFS2
Q307	48E25211S01	MTAJ30N06E	D303	48E25655S01	11EFS2
Q308	48E25211S01	MTAJ30N06E	D304	48E25655S01	11EFS2
Q309	48E25211S01	MTAJ30N06E	D305	48E25655S01	11EFS2
Q310	48E25211S01	MTAJ30N06E	D306	48E25655S01	11EFS2
Q311	48E25211S01	MTAJ30N06E	D307	48E25655S01	11EFS2
			D308	48E25655S01	11EFS2
			D309	48E09190S01	F10P20F
			D310	48E09190S02	F10P20FR
			D311	48E09190S01	F10P20F
			D312	48E09190S02	F10P20FR
			D313	48E23768S01	1A3-J
			D501	48E23768S01	1A3-J
			D502	48E20139S01	CP., 1SS181
			D503	48E23768S01	1A3-J

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
E509	23E20773S01	ELY., 10µF / 16V	R524	06E08433S10	10K ohm
C510	08E23757S01	POLY., 0.1µF	R525	06E25668S01	M.F., 150 ohm 1W
E510	23E21787S01	ELY., 220µF / 10V	R526	06E08433S03	1K ohm
C511	08E21991S01	CER., 1000pF	R527	06E08433S21	3.3K ohm
E511	23E20800S01	ELY., 220µF / 10V	R528	06E08433S03	1K ohm
E512	23E20773S01	ELY., 10µF / 16V	R529	06E08433S03	1K ohm
E513	23E20774S01	ELY., 100µF / 16V	R530	06E08433S03	1K ohm
E514	23E20773S01	ELY., 10µF / 16V	R531	06E08433S03	1K ohm
E515	23E20773S01	ELY., 10µF / 16V	R532	06E08433S21	3.3K ohm
E516	23E20773S01	ELY., 10µF / 16V	R533	06E20498S01	470 ohm
C599	23E21997S01	ELY., (B.P) 100µF / 10V	R534	06E08433S25	5.6K ohm
(All resistors are chip 1/10W±5% unless otherwise noted.)			R535	06E08433S65	20K ohm
<b>Resistors</b>			R536	06E08433S65	20K ohm
R186	06E08433S45	12K ohm	R537	06E25734S01	120 ohm
R187	06E21985S01	M.F., 10 ohm 1W	R538	06E25734S01	120 ohm
R286	06E08433S45	12K ohm	R539	06E08433S12	22K ohm
R287	06E21985S01	M.F., 10 ohm 1W	R540	06E08433S10	10K ohm
R317	06E21985S01	M.F., 10 ohm 1W	R541	06E08433S10	10K ohm
R318	06E21985S01	M.F., 10 ohm 1W	R542	06E08433S74	510K ohm
R319	06E21985S01	M.F., 10 ohm 1W	R543	06E21980S01	240K ohm
R320	06E21985S01	M.F., 10 ohm 1W	R544	06E08433S69	510 ohm
R333	06E08433S20	68 ohm	R545	06E08433S06	2.7K ohm
R334	06E21986S01	M.F., 110 ohm 1W	R546	06E08433S41	7.5K ohm
R335	06E21986S01	M.F., 110 ohm 1W	R547	06E08433S19	10 ohm
R336	06E08433S20	68 ohm	R548	06E08433S51	11K ohm
R349	06E08433S20	68 ohm	R549	06E08433S16	2.4K ohm
R350	06E21986S01	M.F., 110 ohm-1W	R550	06E08433S29	100K ohm
R351	06E21986S01	M.F., 110 ohm 1W	R551	06E08433S73	62K ohm
R352	06E08433S20	68 ohm	R552	06E08433S10	10K ohm
R504	06E08433S14	150K ohm	R553	06E08433S11	18K ohm
R505	06E08433S21	3.3K ohm	R554	06E08433S07	4.7K ohm
R508	06E08433S45	12K ohm	R555	06E08433S69	510 ohm
R509	06E08433S29	100K ohm	R556	06E08433S06	2.7K ohm
R510	06E08433S07	4.7K ohm	R557	06E08433S41	7.5K ohm
R511	06E08433S29	100K ohm	R558	06E08433S19	10 ohm
R512	06E08433S44	2K ohm	R559	06E08433S51	11K ohm
R513	06E08433S44	2K ohm	R560	06E08433S16	2.4K ohm
R514	06E20117S01	1M ohm	R561	06E08433S29	100K ohm
R515	06E08433S55	680K ohm	R562	06E08433S73	62K ohm
R516	06E08433S29	100K ohm	VR501	18E21381S01	Variable, 10K ohm
R517	06E08433S43	470K ohm	VR502	18E21381S01	Variable, 10K ohm
R518	06E08433S43	470K ohm	<b>Volume (1) P.C.Board</b>		
R519	06E08433S44	2K ohm	<b>Resistors</b>		
R520	06E08433S10	10K ohm	VR301	18E25743S01	Volume, 50K ohm (GAIN)
R521	06E08433S10	10K ohm			
R522	06E08433S12	22K ohm			
R523	06E08433S03	1K ohm			

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
VR302	18E25746S01	Volume, 50K ohm (CROSSOVER)	R1191	06E08433S10	10K ohm
<b>Volume (2) P.C.Board</b>			R1192	06E08433S04	1.5K ohm
<b>Resistors</b>			R1193	06E07321S01	22K ohm 1/4W
VR303	18E25745S01	Volume, 20K ohm (Q-FACTOR)	R1194	06E08433S10	10K ohm
VR304	18E25744S01	Volume, 20K ohm (FREQUENCY)	R1195	06E08433S03	1K ohm
VR305	18E25746S01	Volume, 50K ohm (LEVEL)	R1196	06E20126S01	10K ohm 1/4W
<b>LED P.C.Board</b>			R1288	06E08433S03	1K ohm
<b>LED's</b>			R1289	06E20126S01	10K ohm 1/4W
LD501	48E23780S01	SEL2510C (GRN)	R1290	06E20126S01	10K ohm 1/4W
LD502	48E25742S01	SEL6810A (ORG)	R1291	06E08433S10	10K ohm
<b>Protect P.C.Board</b>			R1292	06E08433S04	1.5K ohm
<b>Transistors</b>			R1293	06E07321S01	22K ohm 1/4W
Q1117	48E25696S01	CP., 2SC2713	R1294	06E08433S10	10K ohm
Q1118	48E22858S01	CP., 2SA1162	R1295	06E08433S03	1K ohm
Q1119	48E20148S01	CP., 2SC2712	R1296	06E20126S01	10K ohm 1/4W
Q1120	48E20148S01	CP., 2SC2712	<b>Miscellaneous</b>		
Q1217	48E25696S01	CP., 2SC2713	ET501	01E23409S01	POWER SUPPLY Terminal
Q1218	48E22858S01	CP., 2SA1162	ET502	01E23408S01	SPEAKER OUTPUT Terminal (L)
Q1219	48E20148S01	CP., 2SC2712	ET503	01E23408S01	SPEAKER OUTPUT Terminal (R)
Q1220	48E20148S01	CP., 2SC2712	F501	65E25747S01	Fuse, Auto 80A (For Battery Line)
<b>Capacitors</b>			JK501	09E25739S01	Jack, Input (CH-1/CH-2)
C1124	08E23750S01	CP., 1000pF			
C1224	08E23750S01	CP., 1000pF			
<b>Resistors</b>			(All resistors are chip 1/10W±5% unless otherwise noted.)		
R1188	06E08433S03	1K ohm			
R1189	06E20126S01	10K ohm 1/4W			
R1190	06E20126S01	10K ohm 1/4W			

# Exploded View (Cabinet)

1

2

3

4

5

A

B - 23 -

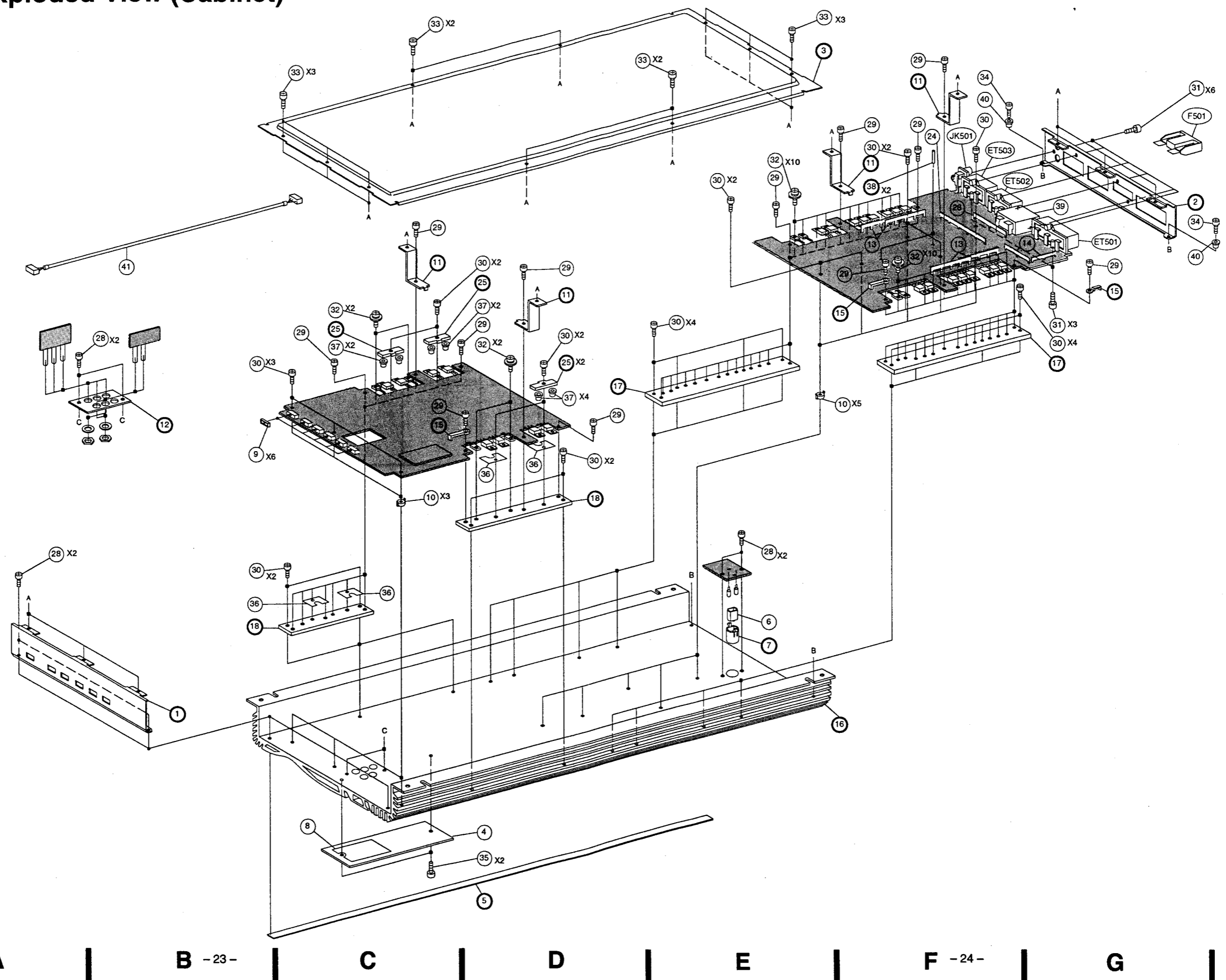
C

D

E

F - 24 -

G



# Cabinet Assembly Parts List

NOTE: No parts number on parts list are not supplied.

Symbol No.	Index	Part No.	Description	Symbol No.	Index	Part No.	Description
○ 4	5-D	15E25610S01	Badge A				
● 4	5-D	15E25611S01	Badge B				
△ 4	5-D	15E25610S01	Badge A				
6	4-E	15E25478S01	Cover, LED				
8	5-C	15E25720S01	Badge Window				
9	3-B	15E21973S01	Cover, Switch				
10		43E08008S01	Support P.C.Board				
13	2-F	45E22370S01	Bas Bar (2)				
14	2-G	45E25713S01	Bas Bar (Power Supply)				
24	1-F	45E25714S01	Bas Bar PC				
26	2-F	45E25715S01	Bas Bar D				
28		03E06492S02	Screw, Bind (M3X5)				
29		03E08429S02	Screw, Bind (M3X6)				
30		03E06967S01	Screw, Bind (M3X10)				
31		03E23371S01	Screw, Bind (M3X8)				
32		03E08304S01	Screw, W/Double Washer (M3X8.5)				
33		03E22347S01	Screw, Bind (M3X5)				
34		03E08429S01	Screw, Bind (M3X6)				
35	5-D	03E25622S01	Screw, Hex. Socket (M2.6X10)				
36		26E25705S01	Mica Sheet				
37		43E25706S01	Bushing U				
39	2-G	15E25740S01	Holder, Fuse				
40		43E25765S01	Bushing V				
41	2-B	01E25764S01	Assy., Shield Wire				

NOTE ○: For North American Model Only, ●: For General Foreign Model Only,  
 △: For Japanese Model Only, Others: Common.