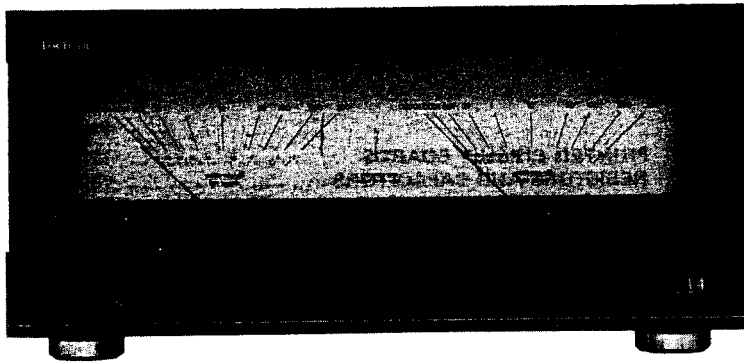


Service Manual

Amplifier

SE-A100

Stereo Power Amplifier



Color

(K) ... Black Type

Color	Areas
(K)	[D] ... Continental Europe
(K)	[EW] ... Switzerland
(K)	[EK] ... United Kingdom
(K)	[XL] ... Australia
(K)	[EGA] ... F.R. Germany
(K)	[EB] ... Belgium
(K)	[EH] ... Holland
(K)	[EF] ... France
(K)	[Ei] ... Italy
(K)	[XA] ... Asia, Oceania, Africa, Middle Near East and Latin America
(K)	[PA] ... Far East PX
(K)	[PE] ... European Military

SPECIFICATIONS (DIN 45 500)

■ AMPLIFIER SECTION

20 Hz~20 kHz continuous power output both channels driven	2 × 240W (4Ω) 2 × 170W (8Ω)
40 Hz~16 kHz continuous power output both channels driven	2 × 240W (4Ω) 2 × 170W (8Ω)
1 kHz continuous power output both channels driven	2 × 260W (4Ω) 2 × 180W (8Ω)
Total harmonic distortion	
rated power at 20 Hz~20 kHz	0.002% (4Ω) 0.0007% (8Ω)
rated power at 40 Hz~16 kHz	0.002% (4Ω) 0.0007% (8Ω)
rated power at 1 kHz	0.0004% (4Ω) unmeasurably small, less than 0.0002% (8Ω)
half power at 20 Hz~20 kHz	0.0007% (8Ω)
half power at 1 kHz	unmeasurably small, less than 0.0002% (8Ω)
-26 dB power at 1 kHz	0.001% (4Ω)
50 mW power at 1 kHz	0.003% (4Ω)
Intermodulation distortion	
rated power at 250 Hz: 8 kHz=4:1, 4Ω	0.002%
rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0.002%
TIM (Transient Intermodulation Distortion)	unmeasurably small

Power bandwidth

both channels driven, -3 dB (T.H.D. 0.01%)

5 Hz~100 kHz (8Ω)

Residual hum and noise

0.3 mV

Damping factor

50 (4Ω), 100 (8Ω)

Input sensitivity and impedance

1.0 V/47kΩ

S/N

110 dB (120 dB, IHF, A)

Frequency response

20 Hz~20 kHz, +0 dB, -0.1 dB

0.8 Hz~150 kHz, +0 dB, -3 dB

Channel balance, 250 Hz~6,300 Hz

0.5 dB

Channel separation, 1 kHz

60 dB

Headphones output level and impedance

870 mV/330Ω

Load impedance

MAIN or REMOTE

4Ω~16Ω

MAIN and REMOTE

8Ω~16Ω

Meter

reading range

0.0001 W~300 W (8Ω)

-60 dB~+2 dB

(logarithmic compression)

frequency response (reading accuracy)

±3 dB (more than -40 dB)

±5 dB (less than -40 dB)

attack time

100 μsec.

recovery time (0 dB - -20 dB)

300 msec.

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Panasonic Tokyo Office
Matsushita Electric Trading Co., Ltd.
6th Floor, World Trade Center Bldg.,
No. 4-1, Hamamatsu-cho 2-Chome,
Minato-ku, Tokyo 105, Japan

SE-A100

■ GENERAL

Power consumption	1350W
Power supply	AC 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensions (W×H×D)	430 × 209 × 475 mm
Weight	31.2 kg

Notes:

Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).
Specifications are subject to change without notice.
Weight and dimensions are approximate.

■ CONTENTS

	Page		Page
SAFETY PRECAUTION	2	PRINTED CIRCUIT BOARDS	12 ~ 17
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CIRCUIT BOARDS AND WIRING		REPLACEMENT PARTS LIST	26, 27
CONNECTION DIAGRAM	9 ~ 11	EXPLODED VIEWS	28 ~ 30

■ SAFETY PRECAUTION

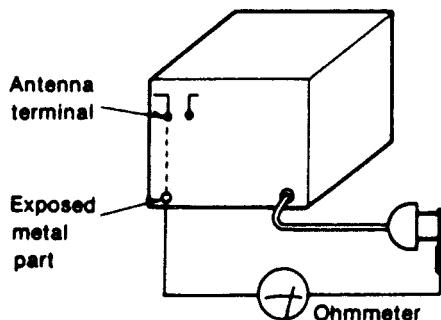
(This "safety precaution" is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

● INSULATION RESISTANCE TEST

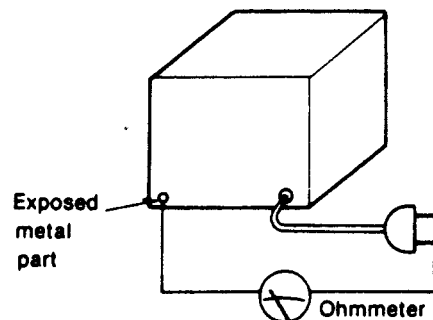
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between $3M\Omega$ and $5.2M\Omega$ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = $3M\Omega - 5.2M\Omega$



(Fig. B)

Resistance = Approx ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

FEATURE

The assigned mission of the power amplifier is to see that the speaker systems are driven exactly according to the input signals. This may seem simple, but in reality is all the more difficult for its seeming simplicity.

Moreover, this assignment has no real meaning unless it can be accomplished when sharp level fluctuations and various frequency components included in music signals are reproduced by speakers with various unstable elements.

Technics has cleared up these problems through the application of its vast technological resources and its new concepts.

The amazing answer is the **class A** SE-A100 amplifier with its pure class A sound and its overwhelming speaker drive capacity.

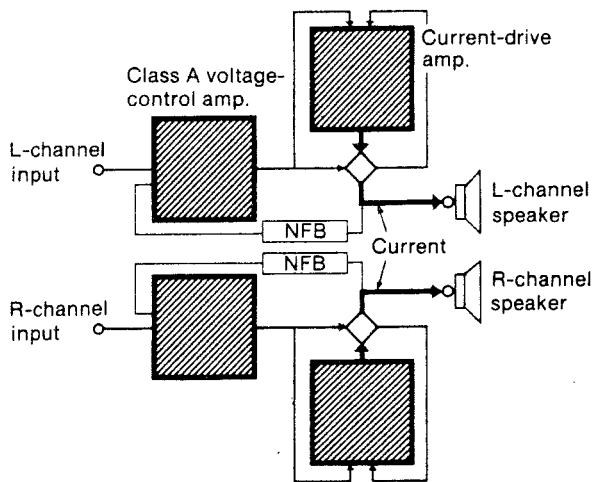
VC4 amplifier composition. class A

This unit has the VC4 amplifier composition ... with voltage-control amplification, class A operation in which the problems of switching distortion and crossover distortion are finally a thing of the past, plus current-drive amplification to supply the current necessary for dynamic drive of the connected speaker systems.

Thus, the voltage-control amplifier is freed of the burden of current supply, leaving it free to supply voltage faithful to incoming signals.

The characteristic of the amplification element is therefore displayed at its finest, and distortion is so low as to be virtually unmeasurable, even by highly precise instruments.

The current-drive amplifier is, on the other hand, free to supply all the current needed for speaker drive. Impedance fluctuations, phase shifts and reverse electromotive forces at every frequency point have no effect, all having been removed in order to assure a clear and stirring sound filled with high-fidelity power under any condition.



VC4 amplifier composition

170W + 170W/0.0007% ... truly high performance

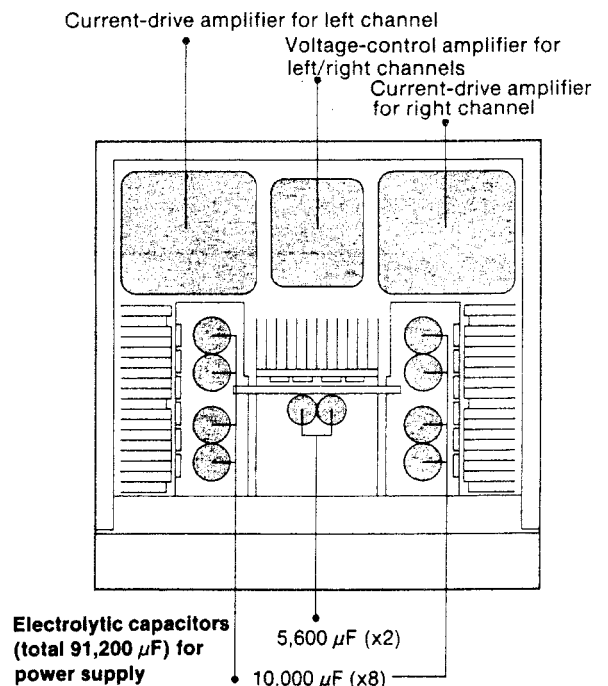
The high **class A** performance is plainly expressed by the specs: high power of 170W + 170W (20 Hz ~ 20 kHz, 8Ω), and low distortion of 0.0007% (20 Hz ~ 20 kHz, 8Ω), an unrivalled rating that tells it all.

The dynamism of music can freely express itself until the whole body vibrates ... and the subtle nuances of music are expressed until covered by reverberations.

Luxuriously furnished as only the finest amplifiers would be

Beginning with the highly precise, large power meter traditional to Technics power amplifiers, and continuing with such features as the powerful power supply which uses three large transformers and high-capacity electrolytic capacitors, the LC-OFC internal wiring material, the gold clad contact relays for electronic speaker switching, and the heavy top panel for minimizing magnetic radiation and mechanical vibration ... every part of every circuit has been made to the finest possible specifications to make this the finest and most luxurious power amplifier you could want.

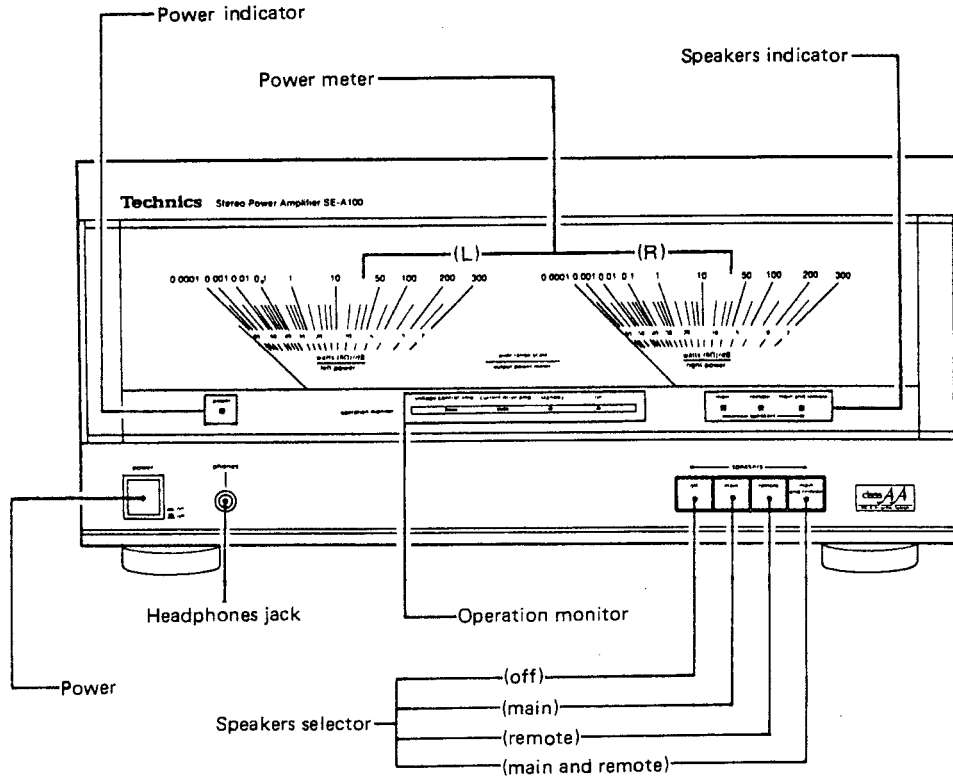
Three transformers



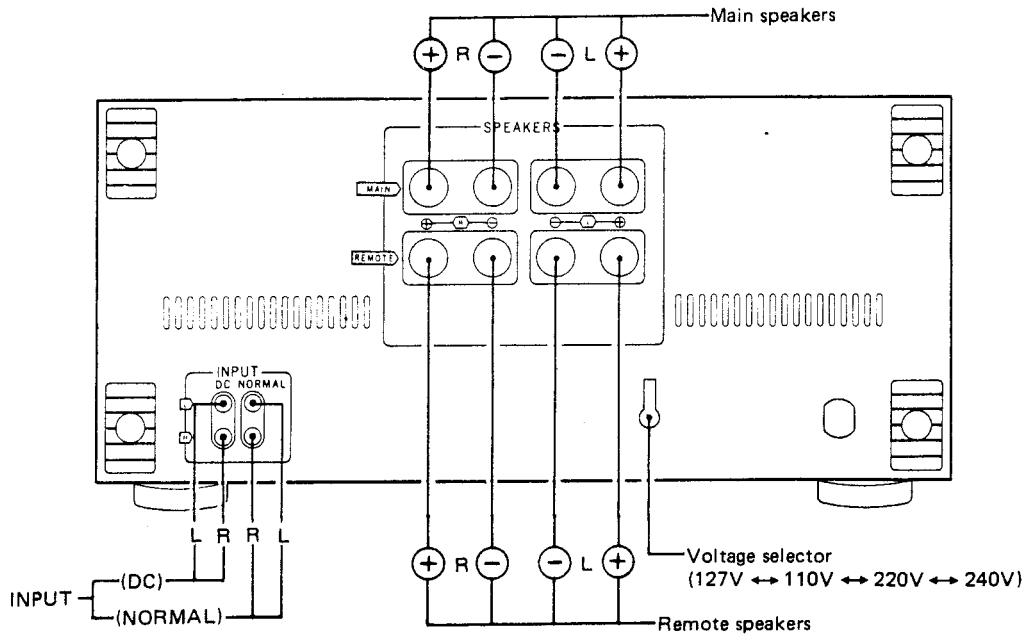
SE-A100 internal construction

SE-A100

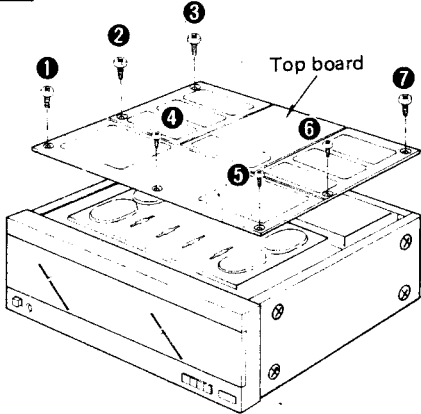
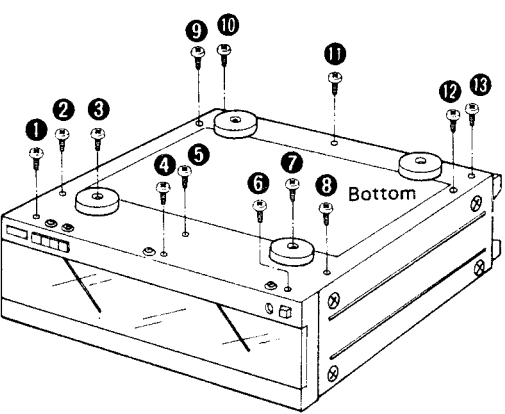
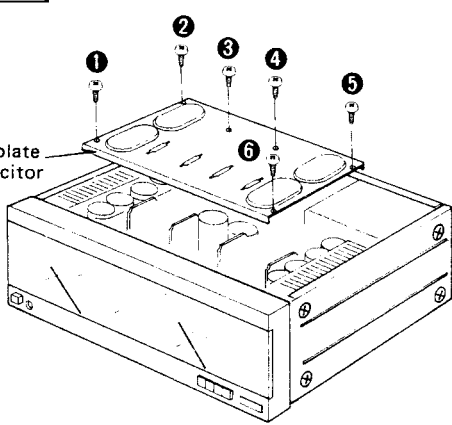
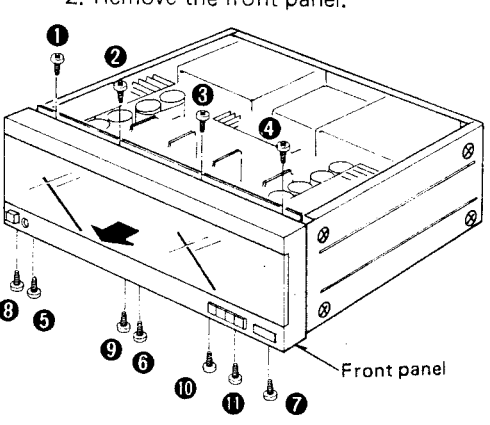
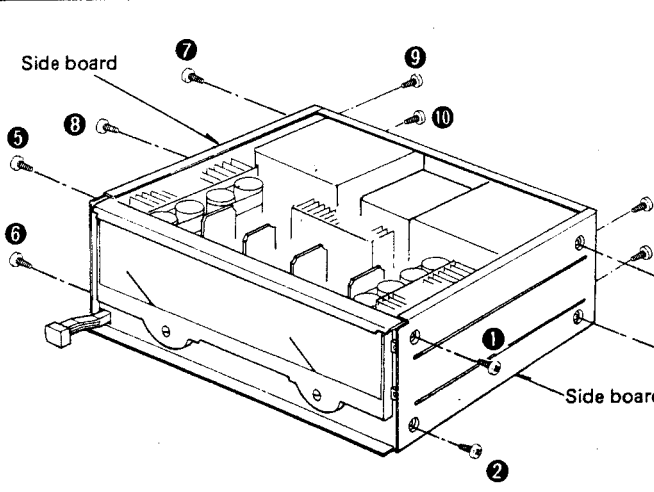
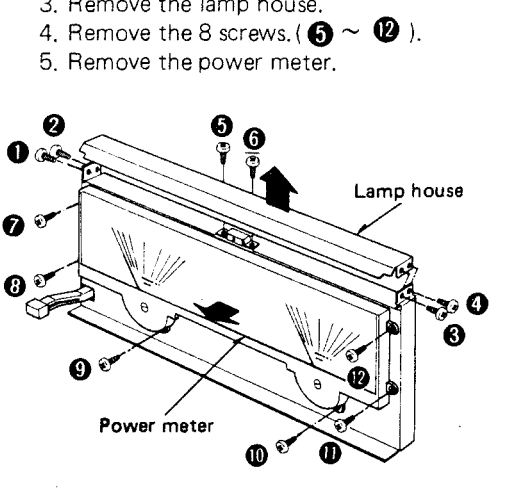
LOCATION OF CONTROLS



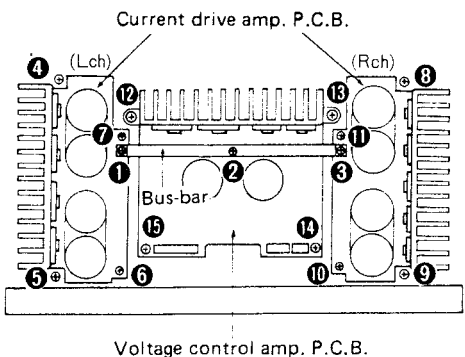
- If only the main or the remote speaker system is used (4 ~ 16Ω)
- If both the main and remote speaker system are used (8 ~ 16Ω)



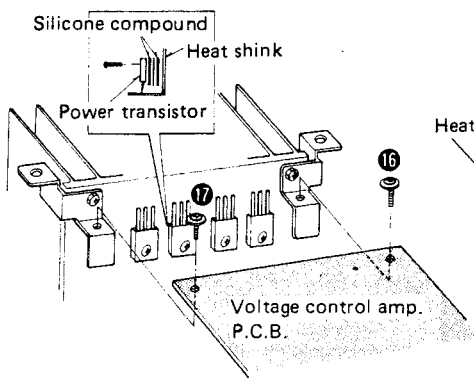
DISASSEMBLY INSTRUCTIONS

<p>Ref. No. 1</p>	<p>How to remove the top board</p>	<p>Ref. No. 2</p>	<p>How to remove the bottom board</p>
<p>Procedure 1</p>	<p>● Remove the 7 setscrews (❶ ~ ❷).</p>	<p>Procedure 1 → 2</p>	<p>● Remove the 13 screws (❶ ~ ❸).</p>
			
<p>Ref. No. 3</p>	<p>How to remove the fitting plate for capacitor</p>	<p>Ref. No. 4</p>	<p>How to remove the front panel</p>
<p>Procedure 1 → 2 → 3</p>	<p>● Remove the 6 screws (❶ ~ ❹).</p>	<p>Procedure 1 → 4</p>	<p>1. Remove the 11 screws (❶ ~ ❸). 2. Remove the front panel.</p>
			
<p>Ref. No. 5</p>	<p>How to remove the side board, lamp house and power meter</p>		
<p>Procedure 1 → 4 → 5</p>	<p>1. Remove the 4 screws (❶ ~ ❸).</p>		<p>2. Remove the 4 screws. (❶ ~ ❹). 3. Remove the lamp house. 4. Remove the 8 screws. (❶ ~ ❸). 5. Remove the power meter.</p>
			

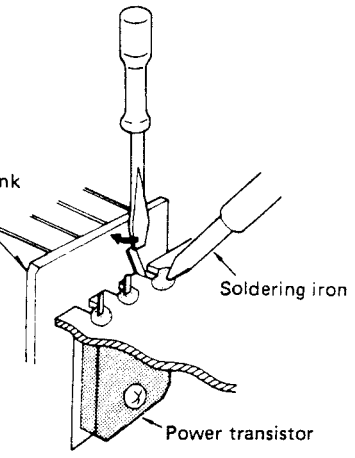
Ref. No. 6	How to remove the power transistor, voltage control amp. P.C.B. and current drive amp. P.C.B.	
Procedure 1 → 6	<ol style="list-style-type: none"> 1. Remove the 3 screws. (① ~ ③) 2. Remove the bus-bar. 3. Remove the 12 screws. (④ ~ ⑮) 4. Remove the voltage control amp. block and current drive amp. block. [Fig. 1] 5. Un solder the power transistor. [Fig. 3] 	<ol style="list-style-type: none"> 6. Remove the 2 screws. (⑯ ~ ⑰) 7. Remove the voltage control amp. P.C.B. 8. When mounting the power transistor apply silicone compound (SZZ0L15) to the rear side of power transistor.



[Fig. 1]



[Fig. 2]



[Fig. 3]

Note: When you check up with the bus bar disconnected, first connect ①, ② and ③ to the ground point and turn on the machine.

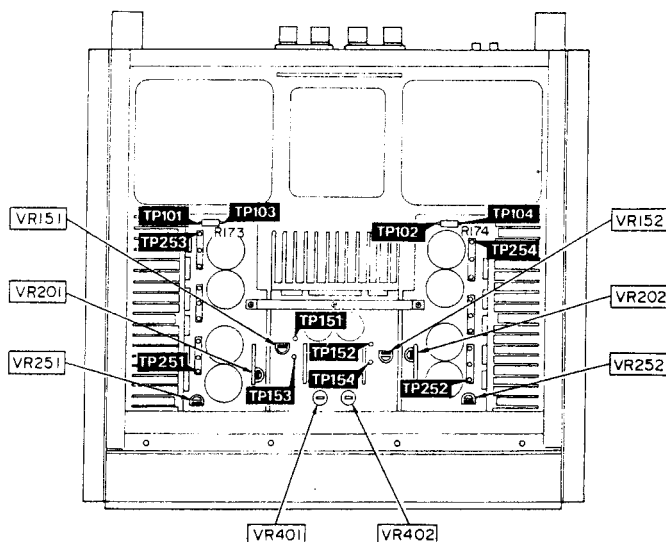
BEFORE REPAIR AND ADJUSTMENT

- (1) Turn off the power supply. Using a 10Ω, 10W resistor, shortcircuit both ends of power supply capacitors (C301~C308, 10,000μF, C309, C310, 5600μF) in order to discharge the voltage.
- (2) Before turning the power supply on, after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current at 50/60Hz in NO SIGNAL mode should be shown below with respect to supply voltage 110V/127V/220V/240V.

Power supply voltage	AC 110V	AC 127V	AC 220V	AC 240V
Consumed current 50/60Hz	0.5~1.4A	0.4~1.1A	0.3~0.7A	0.2~0.6A

MEASUREMENTS AND ADJUSTMENTS

- Adjustment points



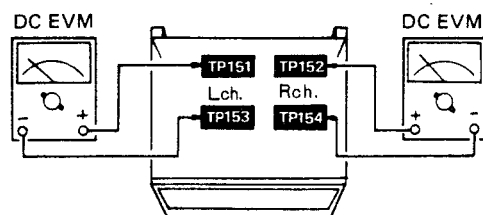
Adj. points	Adjustment
TP151, 153	Lch ICQ adj. of voltage control amp.
VR151	
TP152, 154	Rch ICQ adj. of voltage control amp.
VR152	
TP251, 253	Lch ICQ adj. of current drive amp.
VR251	
TP252, 254	Rch ICQ adj. of current drive amp.
VR252	
TP101, 103	Lch bridge-balance adj.
VR201	
TP102, 104	Rch bridge-balance adj.
VR202	
VR401	Lch power meter adj.
VR402	Rch power meter adj.

Equipment used

- AC and DC electronic voltmeter (EVM)
- Audio frequency oscillator (AF OSC)
- Dummy resistor or speaker (8Ω , 100W)

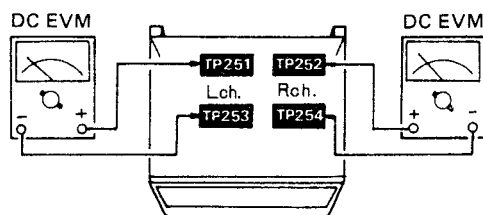
VOLTAGE CONTROL (V) AMP. IDLING (ICQ) ADJUSTMENT

1. Test equipment connection is shown in figure. (Connect the DC EVM. on both channels.)
2. Completely turn the (V) amp. adjusting volumes (**VR151, VR152**) counter-clockwise.
3. Turn ON the set when it is cold, and 30 sec. later, adjust **VR151** and **VR152** so that the voltage is **3mV**. Also, check that the voltage is **10 – 18mV** (standard: **12mV**) after lapse of **10 – 15 minutes**. (Below **50mV** after lapse of **60 min.**)



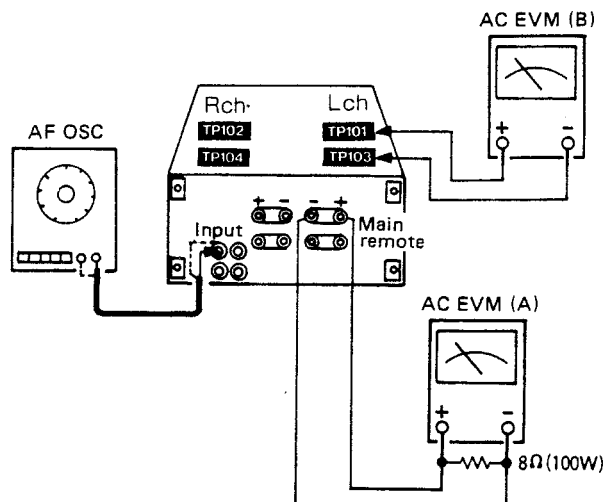
CURRENT DRIVE (C) AMP. IDLING (ICQ) ADJUSTMENT

1. Test equipment connection is shown in figure. (Connect the DC EVM. on both channels.)
2. Completely turn the (C) amp. adjusting volumes (**VR251, VR252**) counterclockwise.
3. Turn ON the set when it is cold, and 30 sec. later, adjust **VR251** and **VR252** so that the voltage is **0.7mV**. Also, check that the voltage is **2 – 4mV** (standard: **2.5mV**) after lapse of **10 – 15 minutes**. (Below **20mA** after lapse of **60 min.**)



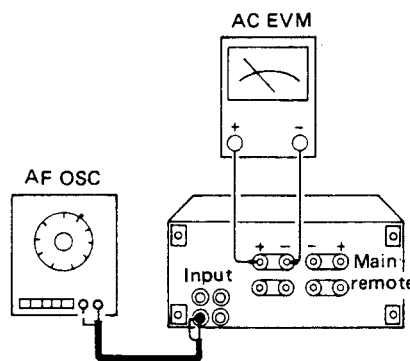
BRIDGE-BALANCE ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Turn the **VR201** (Lch) and **VR202** (Rch) to the central positions before turning ON the set.
3. Apply 1kHz signal to the input terminal so that the output voltage of speaker terminal is **10V**. (It can be changed by the attenuator of the AF OSC)
4. Adjust **VR201** so that the voltage is minimum in the 3mV range of AC EVM (B).
5. Also for **R** channel, change the connection and make the same adjustment by **VR202**.



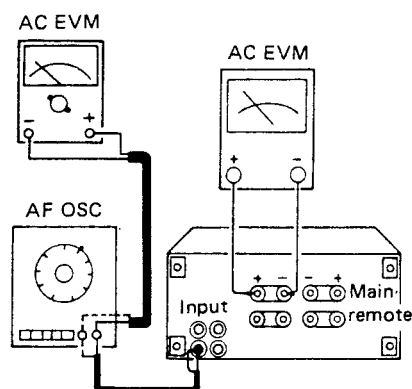
POWER METER ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Turn the **VR401** (Lch) and **VR402** (Rch) to the central positions before turning **ON** the set.
3. Before adjusting make sure that the power meter is mechanically adjusted to **0** point.
4. Apply 1kHz signal to the input terminal so that the output voltage of speaker terminal is **28.3V** (It can be changed by the attenuator of the AF OSC.)
5. Adjust the **VR401** (Lch) and **VR402** (Rch) so that the power meter indicates **100W**.



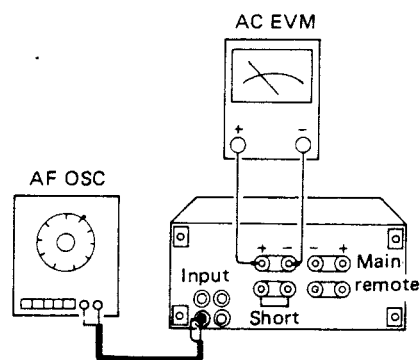
CHECK OF MUTING CIRCUIT DURING POWER "ON" – "OFF" OPERATION

1. Test equipment connection is shown in figure.
2. Apply **1kHz, 0.5V** signal to the input terminal.
3. Check that the output is given **7 – 8.5 sec.** after power **ON**, and that the output goes out immediately with power **OFF**.



CHECK OF OVERLOAD DETECTION AND PROTECTION CIRCUIT

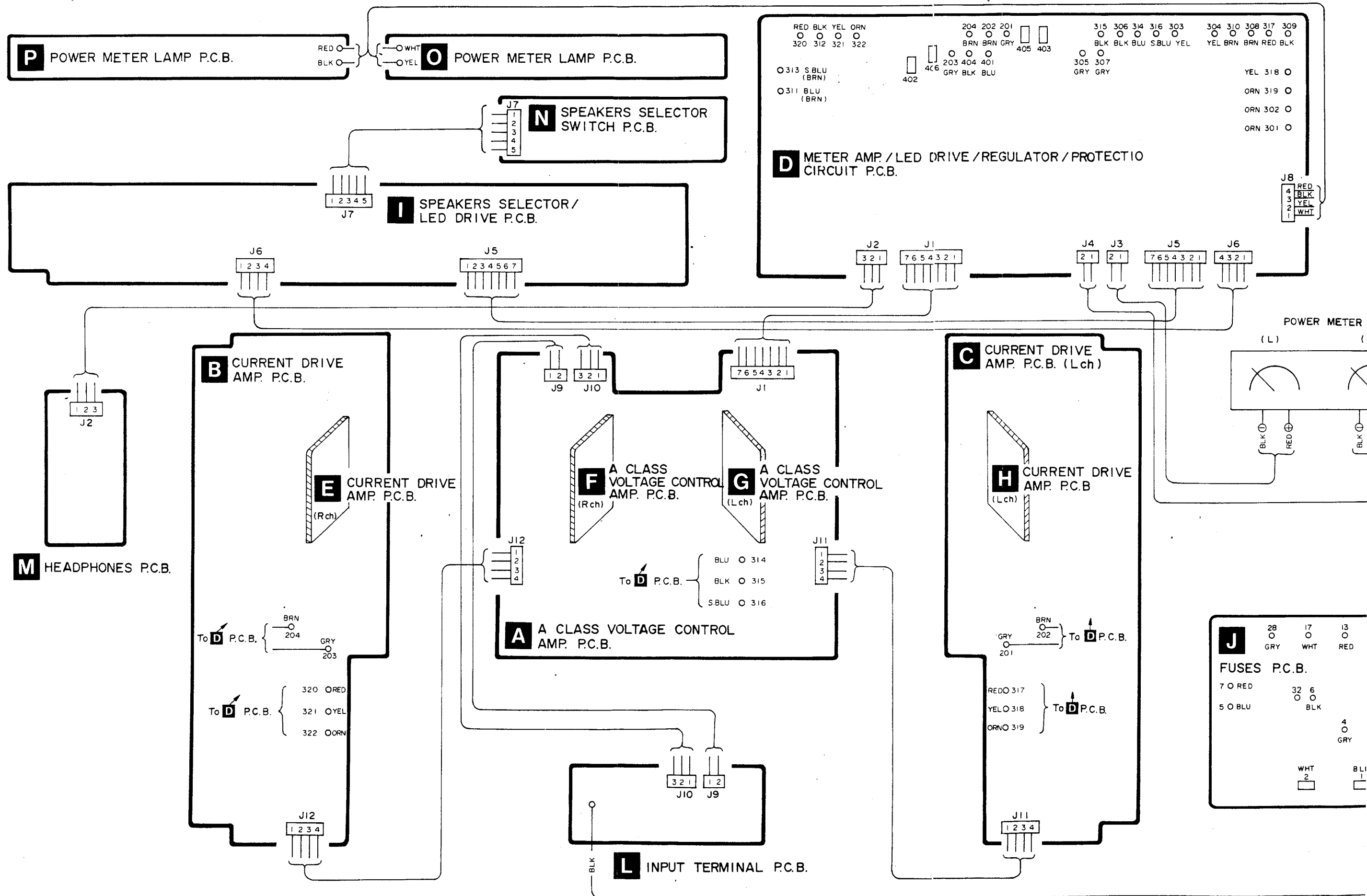
1. Test equipment connection is shown in figure.
2. Set the speaker select switch to **"main"**.
3. Short-circuit the speaker terminals on the **"remote"** side.
4. Apply 1kHz signal to the input terminal so that the output voltage of speaker terminal is **1.2V**.
(It can be changed by the attenuator of the AF OSC.)
5. Check that the relay turns off and the output stops when the speaker select switch is shifted to **"remote"**, and that the condition is held even with the speaker select switch is set to **"OFF"**.
6. Perform the same check on **L** channel.



Note

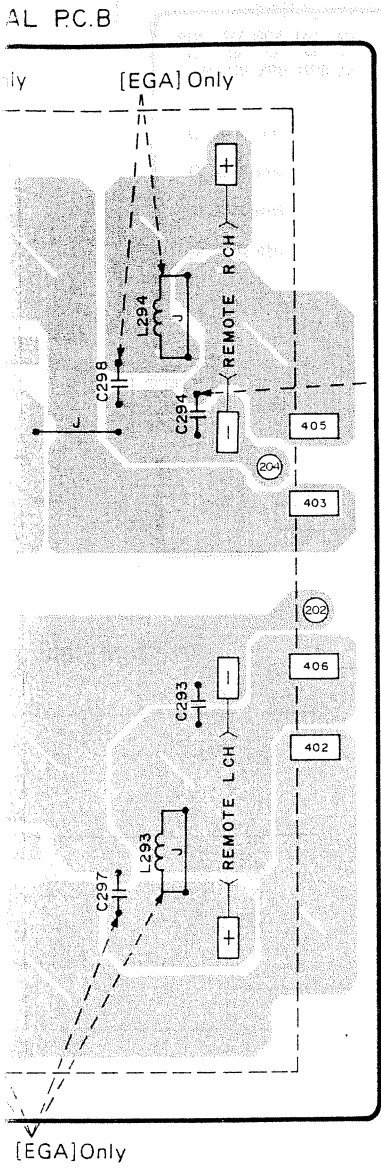
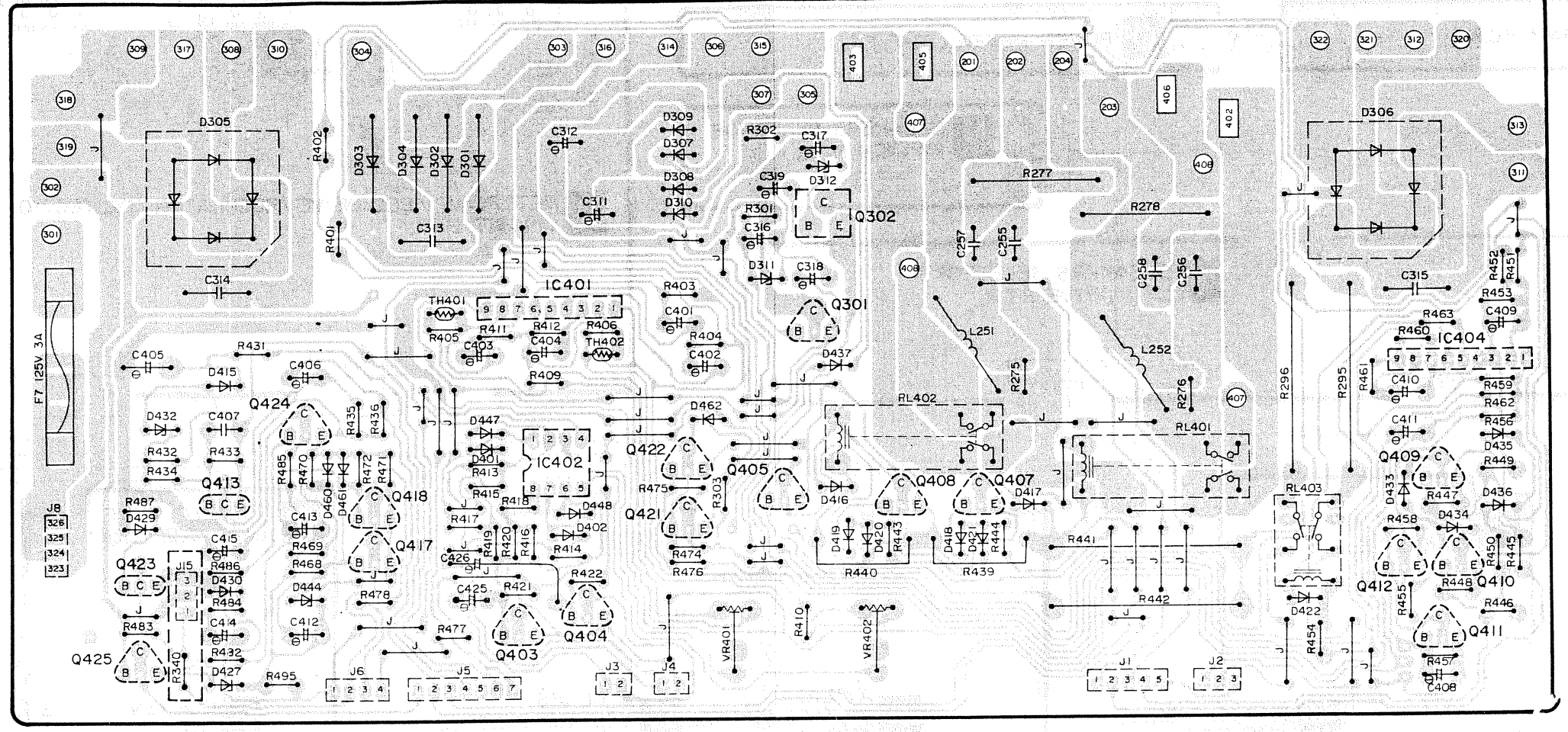
- * Check the protection circuit separately on each of the channels.
- * The protection relay, if operated, will not reset itself. So, turn off the power supply and again turn it on.
- * When the protection circuit is in operation, the indicator "stand by" is blinking.

CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

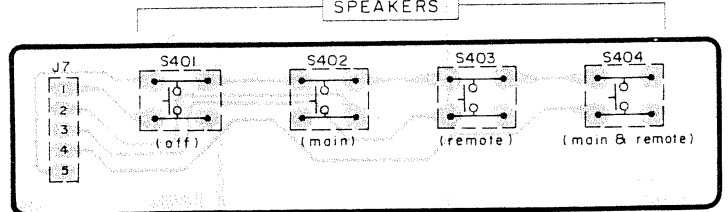


MARSHAL NOTORBRADO JUNIOR VIA RONALD REAGAN

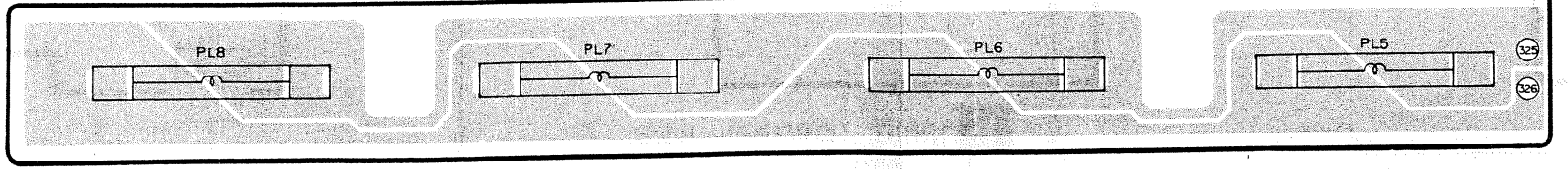
D METER AMP / LED DRIVE / REGULATOR / PROTECTION CIRCUIT P.C.B.



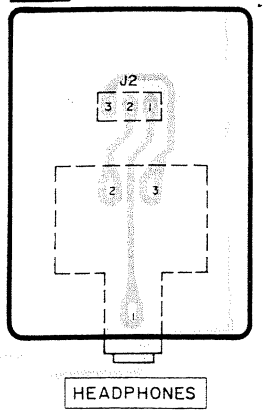
N SPEAKERS SELECTOR SWITCH P.C.B.

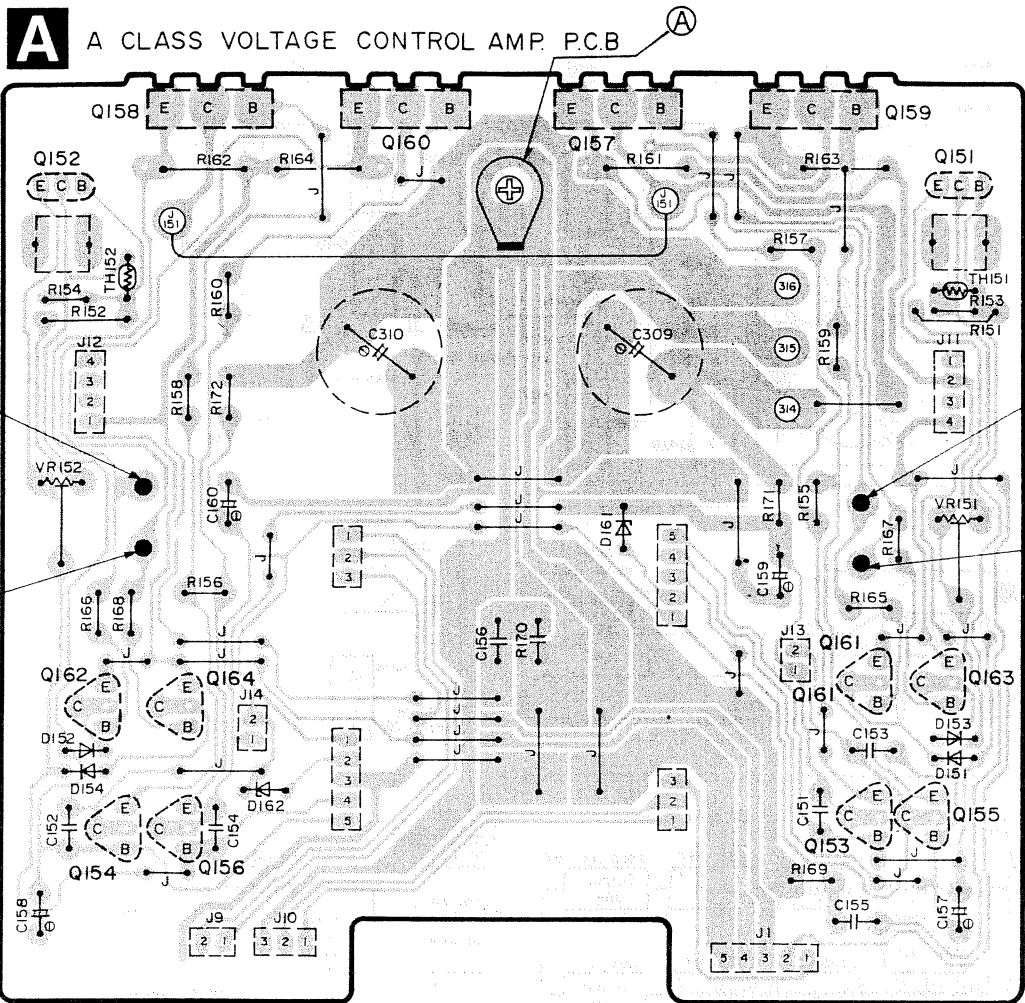


P POWER METER LAMP P.C.B.



M HEADPHONES P.C.B.





TP152
Voltage control amp. ICQ adj. (Rch)

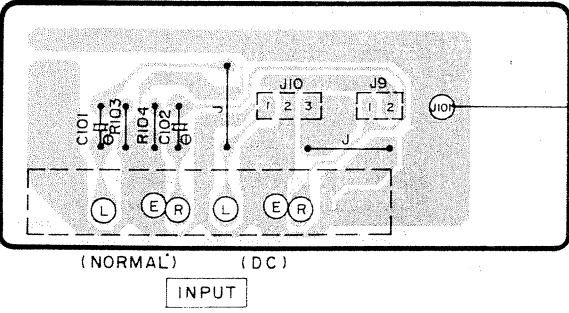
TP154
Voltage control amp. ICQ adj. (Rch)

TP151
Voltage control amp. ICQ adj. (Lch)

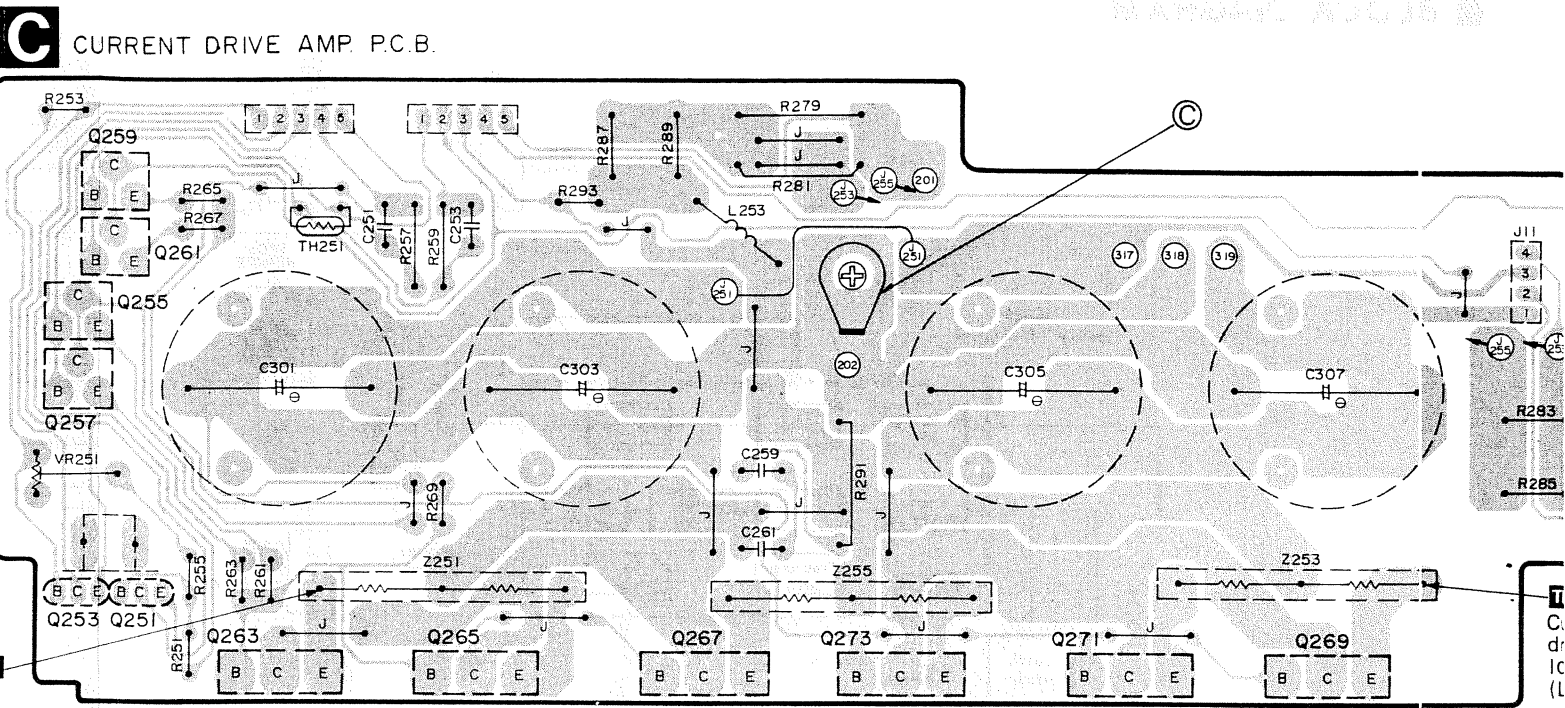
TP153
Voltage control amp. ICQ adj. (Lch)

TP251
Current drive amp. ICQ adj. (Lch)

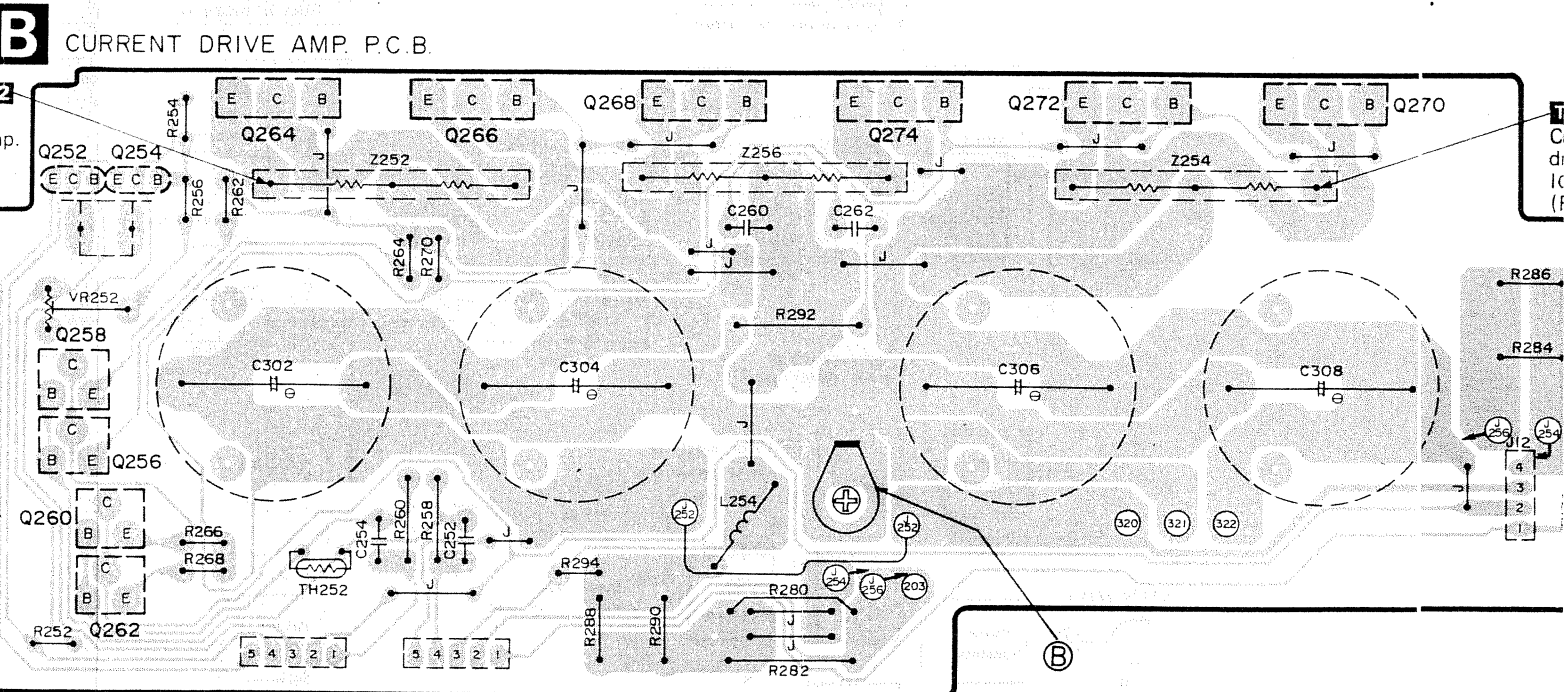
L INPUT TERMINAL P.C.B.



(NORMAL) (DC)
INPUT



TP252
Current drive amp. ICQ adj. (Rch)



RESISTORS & CAPACITORS

- Notes:**
- Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
 - Important safety notice: Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

- The "S" mark is service standard parts and may differ from production parts.
- The unit of resistance is Ω (ohm),
K = 1000 Ω , M = 1000k Ω .
- The unit of capacitance is μ F (microfarad).
P = 10⁻⁶ μ F
- Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Resistor Type	Wattage	Tolerance
ERD : Carbon	1A : 1W	J : \pm 5%
ERG : Metal Oxide	2F : 1/2W	G : \pm 5%
ERO : Metal Film	2A : 2W	K : \pm 10%
ERF : Non-flammable	S1 : 1/2W	
ERX	3A : 3W	
	S2 : 1/4W	
	5A : 5W	

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
ECEA : Electrolytic	0J : 6.3V	1H : 50V	K : \pm 10%
ECCD : Ceramic	1A : 10V	2H : 500V	Z : +80%, -20%
ECKD : Ceramic	1C : 16V	KC : 400VAC	P : \pm 100%
ECQM : Polyester	1E : 25V		J : \pm 5%
ECET : Electrolytic	1V : 35V		
	1H : 50V		
	1K : 80V		
	2A : 100V		

RESISTORS

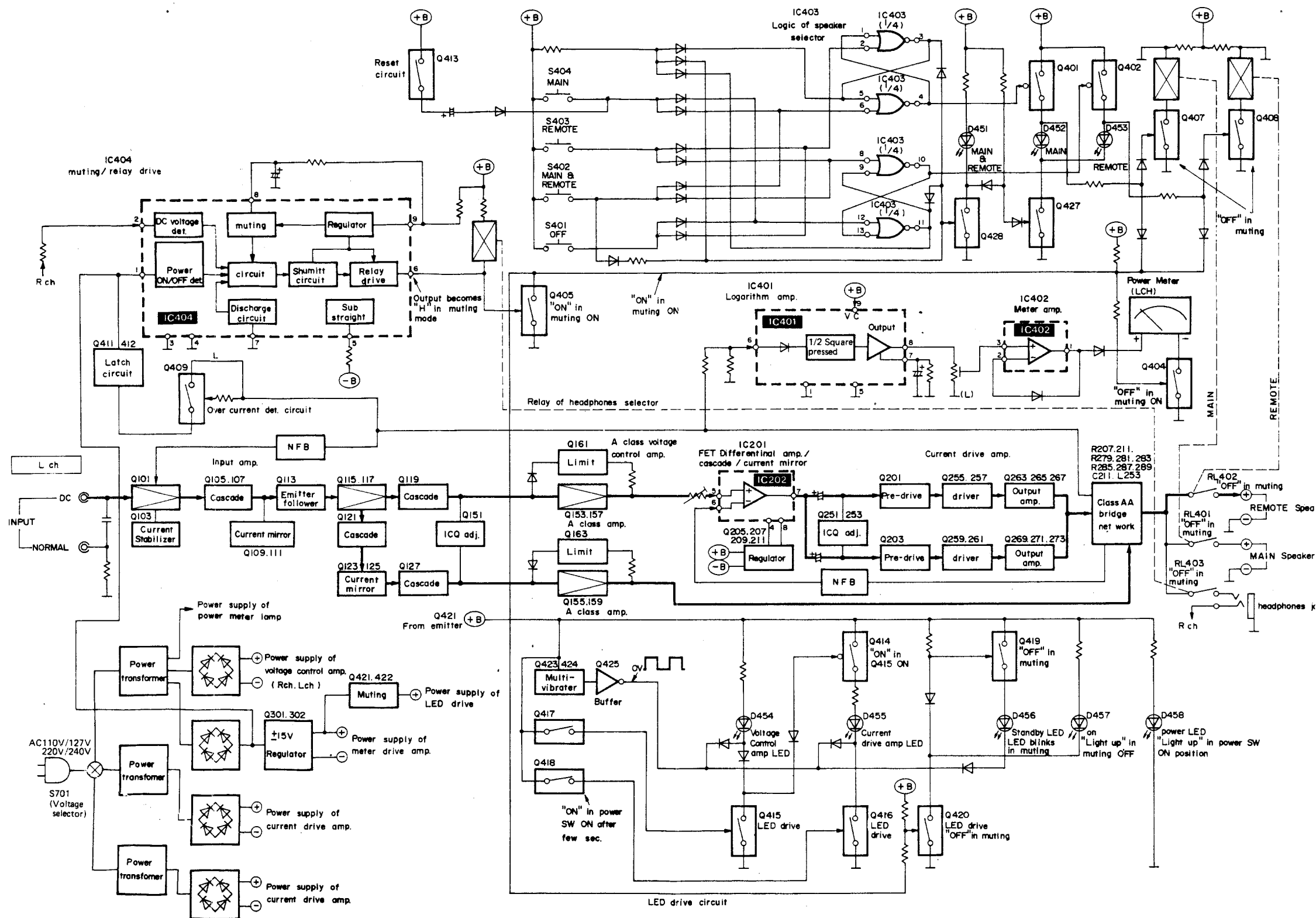
Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
R101, 102	ERDS2TJ332	3.3K	R201, 202	ERD25FJ332	3.3K	R301, 302	ERDS2TJ222	2.2K	R462	ERDS2TJ153	15K
R103, 104	ERDS2TJ224	220K	$\text{\textcircled{S}} \Delta$			R303	ERDS2TJ222	2.2K	R463	ERDS2TJ392	3.9K
R105, 106	ERDS2TJ473	47K	R203, 204	ERD25FJ332	3.3K	R340	ERDS2TJ472	4.7K	R468	ERDS2TJ394	390K
R107, 108	ER0S2TKG8200	820	$\text{\textcircled{S}} \Delta$			R351, 352	ERF5AJ220	22	R469	ERDS2TJ274	270K
R109, 110	ER0S2TKG2702	27K	R205, 206	ERD25FJ391	390	R353, 354	ERF5AJ220	22	R470	ERDS2TJ334	330K
R111, 112	ERDS2TJ272	27K	$\text{\textcircled{S}} \Delta$			R355, 356	ERF5AJ220	22	R471	ERDS2TJ332	3.3K
R113, 114	ERDS2TJ102	1K	R207, 208	ERDS2TJ392	3.9K	R357, 358	ERF5AJ220	22	R472	ERDS2TJ154	150K
R115, 116	ERDS2TJ563	56K	R209, 210	ERDS2TJ102	1K	R359	ERD25FJ560	56	R473	ERDS2TJ682	6.8K
R117, 118	ERDS2TJ223	22K	R211, 212	ERDS2TJ221	220	R401, 402	Δ ERDS1FJ392	3.9K	R474	ERDS2TJ392	3.9K
R119, 120	ERDS2TJ124	120K	R213, 214	ERDS2TJ221	220	R403, 404	ERDS2TJ271	270	R475	ERDS2TJ223	22K
R121, 122	ERDS2TJ101	100	R215, 216	ERDS2TJ224	220K	R405, 406	ERDS2TJ682	6.8K	R476	ERDS2TJ153	15K
R123, 124	ERDS2TJ681	680	R217, 218	ERD25FJ271	270	R409, 410	ERDS2TJ182	1.8K	R477	ERDS2TJ103	10K
R125, 126	ERDS2TJ681	680	$\text{\textcircled{S}} \Delta$			R411, 412	ERDS2TJ155	1.5M	R478, 479	ERDS2TJ223	22K
R127, 128	ERDS2TJ472	4.7K	R219, 220	ERD25FJ271	270	R413, 414	ERDS2TJ123	12K	R480, 481	ERDS2TJ473	47K
R129, 130	ERDS2TJ221	220	$\text{\textcircled{S}} \Delta$			R415, 416	ERDS2TJ154	150K	R482, 483	ERDS2TJ682	6.8K
R131, 132	ERDS2TJ470	47	R251	ERDS2TJ472	4.7K	R417, 418	ERDS2TJ223	22K	R484, 485	ERDS2TJ682	6.8K
R133, 134	ERDS2TJ821	820	R252	$\text{\textcircled{S}} \Delta$ ERD25FJ472	4.7K	R419, 420	ERDS2TJ102	1K	R486, 487	ERDS2TJ682	6.8K
R135, 136	ERDS2TJ102	1K	R253, 254	ERDS2TJ472	4.7K	R421, 422	ERDS2TJ104	100K	R489, 490	ERDS2TJ223	22K
R137, 138	ERDS2TJ102	1K	R255, 256	ERDS2TJ472	4.7K	R423, 424	ERDS2TJ473	47K	R492, 493	ERDS2TJ103	10K
R139, 140	ERDS2TJ563	56K	R257, 258	ERD2FCG681	680	R425, 426	ERDS2TJ473	47K	R494	ERDS2TJ473	47K
R141, 142	ERDS2TJ563	56K	R259, 260	ERD2FCG681	680	R431	ERDS2TJ681	680	R495	Δ ERDS1FJ821	820
R143, 144	ERDS2TJ563	56K	R261, 262	ERD25FJ477	4.7	R432	ERDS2TJ332	3.3K	R496	ERDS2TJ562	5.6K
R145, 146	ERDS2TJ272	2.7K	$\text{\textcircled{S}} \Delta$			R409, 410	ERDS2TJ103	10K	R497	ERDS2TJ224	220K
R147, 148	ERDS2TJ101	100	R263, 264	ERD25FJ477	4.7	R433, 434	ERDS2TJ103	10K	R501, 502	ERDS2TJ331	330
R149, 150	ERDS2TJ101	100	$\text{\textcircled{S}} \Delta$			R435	ERDS2TJ223	22K	R503	ERDS2TJ391	390
R151, 152	ERD2FCG471	470	R265, 266	ERD25FJ477	4.7	R436	ERDS2TJ104	100K	R504, 505	ERDS2TJ331	330
R153, 154	ERDS2TJ182	1.8K	$\text{\textcircled{S}} \Delta$			R439, 440	ERG2ANJ272	2.7K	R506	ERDS2TJ391	390
R155, 156	ERD25FJ391	390	R267, 268	ERD25FJ477	4.7	R441, 442	ERG3ANJ122	1.2K	R507, 508	ERDS2TJ331	330
$\text{\textcircled{S}} \Delta$			$\text{\textcircled{S}} \Delta$			R443, 444	ERDS2TJ183	18K	R509	ERDS2TJ391	390
R157, 158	ERD25FJ2R2	2.2	R269, 270	ERD25FJ221	220	R445, 446	ERD25FJ151	150	R510, 511	ERDS2TJ331	330
$\text{\textcircled{S}} \Delta$			$\text{\textcircled{S}} \Delta$			R447, 448	ERD25FJ471	470	R512	ERDS2TJ331	330
R159, 160	ERD25FJ2R2	2.2	R275, 276	Δ ERDS1FJ477	4.7	R449, 450	ERDS2TJ272	2.7K	R513	ERDS2TJ471	470
$\text{\textcircled{S}} \Delta$			R277, 278	ERG2ANJ100	10	R451	ERDS2TJ184	180K	R514, 515	ERDS2TJ391	390
R161, 162	ERX1SJR33	0.33	R279, 280	ERX2SJR33	0.33	R452	ERDS2TJ154	150K	R516	ERDS2TJ471	470
R163, 164	ERX1SJR33	0.33	R281, 282	ERX2SJR33	0.33	R453	ERDS2TJ223	22K	R517, 518	ERDS2TJ391	390
R165, 166	ERD25FJ151	150	R283, 284	ERF3AKR22	0.22	R454	ERD25FJ471	470	R519	ERDS2TJ151	150
$\text{\textcircled{S}} \Delta$			R285, 286	ERF3AKR22	0.22	R455, 456	ERDS2TJ223	22K	R520, 521	ERDS2TJ181	180
R167, 168	ERD25FJ151	150	R287, 288	ERF3AKR22	0.22	R457	ERDS2TJ822	8.2K	R522	ERDS2TJ181	180
$\text{\textcircled{S}} \Delta$			R289, 290	ERF3AKR22	0.22	R458	ERDS2TJ473	47K	R523	ERDS2TJ471	470
R169, 170	ERDS1FJ100	10	R291, 292	ERG2S100	10	R459	ERDS2TJ223	22K	R524, 525	ERDS2TJ391	390
R171, 172	ERD25FJ100	10	R293, 294	Δ ERDS1FJ477	4.7	R460	ERDS2TJ822	8.2K			
$\text{\textcircled{S}} \Delta$			R295, 296	ERG3ANJ331	330	R461	ERDS2TJ334	330K			
R173, 174	ERX1ANJR22	0.22									

CAPACITORS

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
C1	Δ ECKDKC103PF2	0.01	C205, 206	$\text{\textcircled{S}}$ ECQM1H472JZ	0.0047	C295, 296	$\text{\textcircled{S}}$ ECQM1H103JZ	0.01	C403, 404	ECEA1HUR47	0.47
C2	Δ ECKDKC103PF2	0.01	C211, 212	ECEA1AU221	220	[EGA] only			C405	ECEA1CU472	4700
C3, 4	ECKDKC222MFZ	0.0022	C213, 214	ECEA1AU221	220	C297, 298	$\text{\textcircled{S}}$ ECQM1H103JZ	0.01	C406	ECEA1HUR22	0.22
C5, 6	ECKDKC222MFZ	0.0022	C215, 216	ECEA1AU101	100	[EGA] only			C407	$\text{\textcircled{S}}$ ECKD1H103ZF	0.01
C101, 102	ECEA1HU2R2	2.2	C217, 218	ECEA1AU101	100	C301, 302	ECET1KV103LU	10000	C408	ECEA1EU3R3	3.3
C103, 104	$\text{\textcircled{S}}$ ECCD1H221K	220P	C219, 220	ECEA1AU330	33	C303, 304	ECET1KV103LU	10000	C409	ECEA0JU101	100
C105, 106	ECEA1CU221	220	C221, 222	ECEA1AU330	33	C305, 306	ECET1KV103LU	10000	C410	ECEA0JU330	33
C107, 108	$\text{\textcircled{S}}$ ECCD1H120KC	12P	C251, 252	$\text{\textcircled{S}}$ ECKD1H681KB	680P	C307, 308	ECET1KV103LU	10000	C411	ECEA1VU100	10
C109, 110	$\text{\textcircled{S}}$ ECKD1H391KB	390P	C253, 254	$\text{\textcircled{S}}$ ECKD1H681KB	680P	C309, 310	ECES1KU582U	5800	C412	ECEA1CU100	10
C151, 152	$\text{\textcircled{S}}$ ECCD2H101K	100P	C255, 256	$\text{\textcircled{S}}$ ECQM1H104JZ	0.1	C311	ECEA1VU102	1000	C413	ECEA1CU470	47
C153, 154	$\text{\textcircled{S}}$ ECCD2H101K	100P	C257, 258	$\text{\textcircled{S}}$ ECQM1H104JZ	0.1	C312	ECEA1VU471	470	C414, 415	ECEA1EU100	10
C155, 156	$\text{\textcircled{S}}$ ECQM1H472JZ	0.0047	C259, 260	$\text{\textcircled{S}}$ ECQM1H104JZ	0.1	C313	ECKD2H103PE	0.01	C421, 422	$\text{\textcircled{S}}$ ECKD1H103ZF	0.01
C157, 158	ECEA2AU100	10	C261, 262	$\text{\textcircled{S}}$ ECQM1H104JZ	0.1	C314, 315	ECQE2104KZ	0.1	C423, 424	$\text{\textcircled{S}}$ ECKD1H103ZF	0.01
C159, 160	ECEA2AU100	10	C291, 292	$\text{\textcircled{S}}$ ECKD1H681KB	680P						
C201, 202	ECEA1EU3R3	3.3	[EGA] only			C316, 317	ECEA1EU3R3	3.3	C425, 426	ECEA1AU220	22
C203, 204	ECEA1EU3R3	3.3	C293, 294	$\text{\textcircled{S}}$ ECKD1H681KB	680P	C318, 319	ECEA1EU3R3	3.3			
			[EGA] only			C401, 402	ECEA1HU47	4.7			

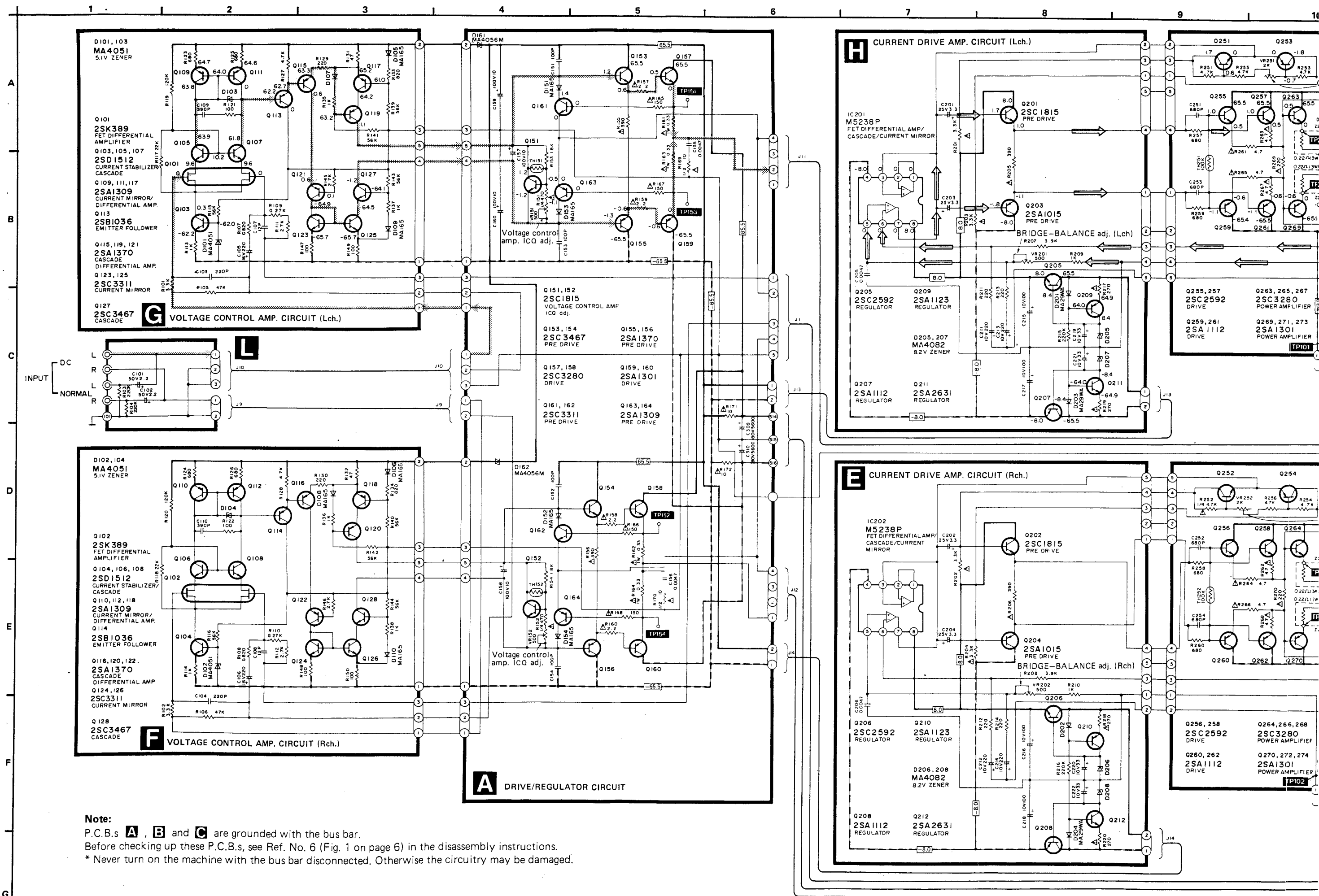
SE-A100 SE-A100

■ BLOCK DIAGRAM

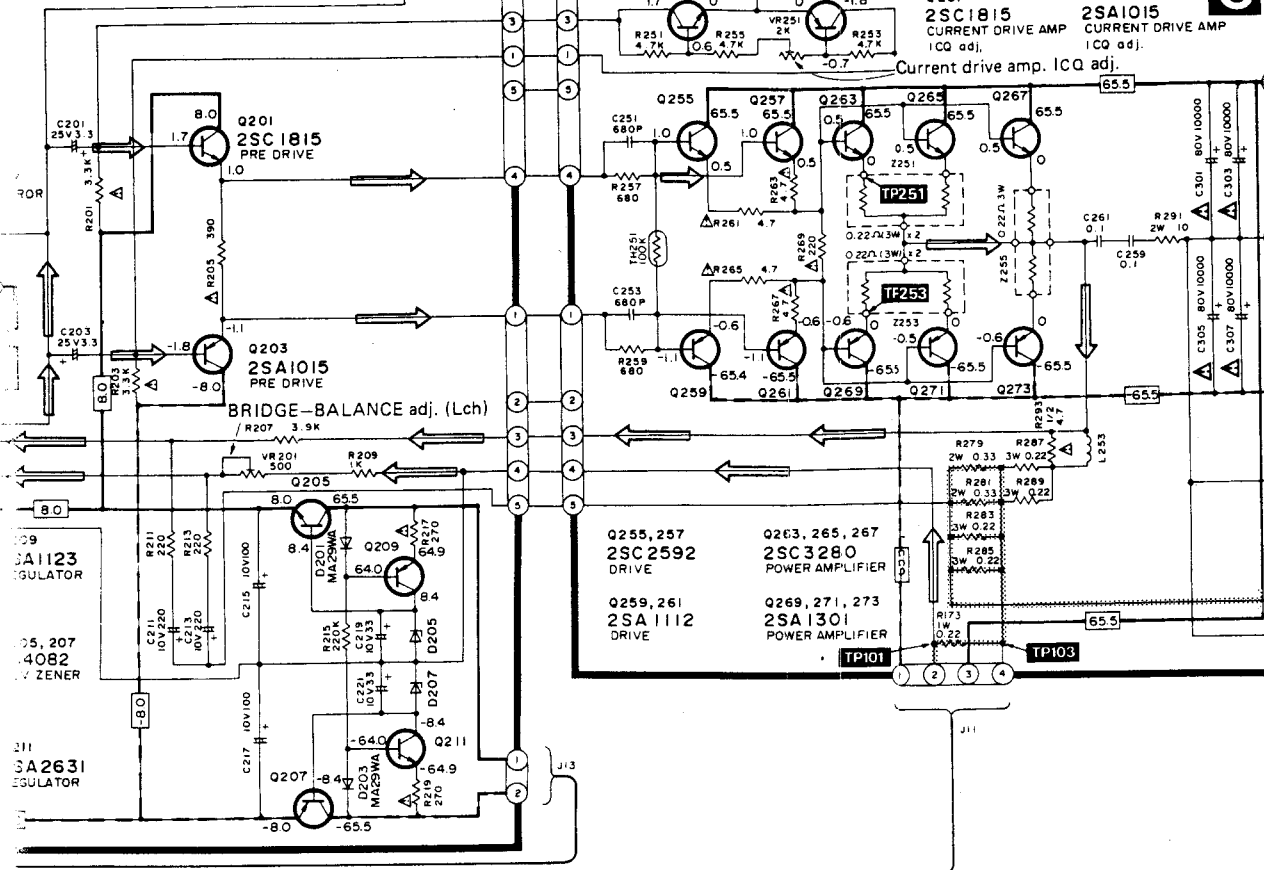


■ TERMINAL GUIDE OF IC'S TRANSISTORS, AND DIODES

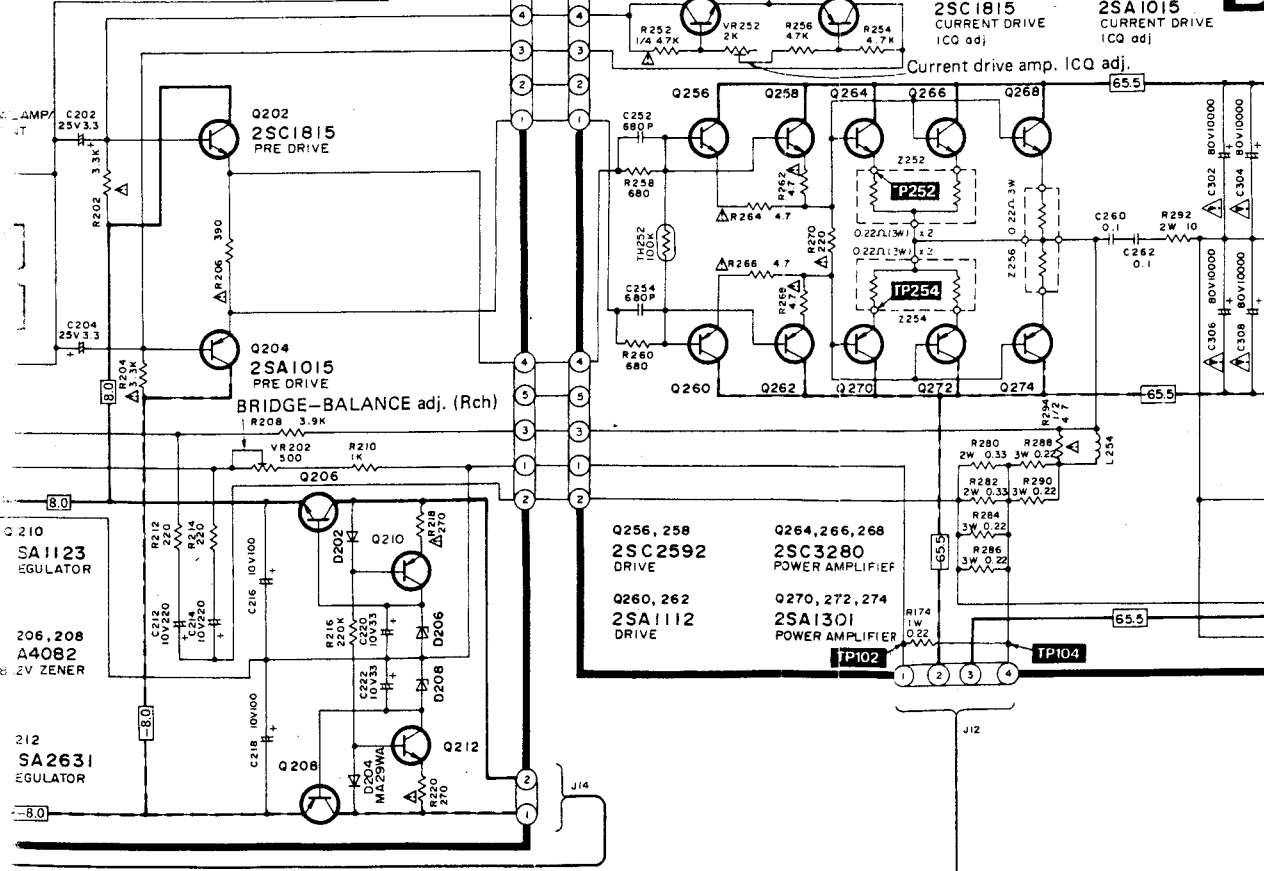
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MN4001B	14Pin																	
M5218P	8Pin																	
M5238P	8Pin																	



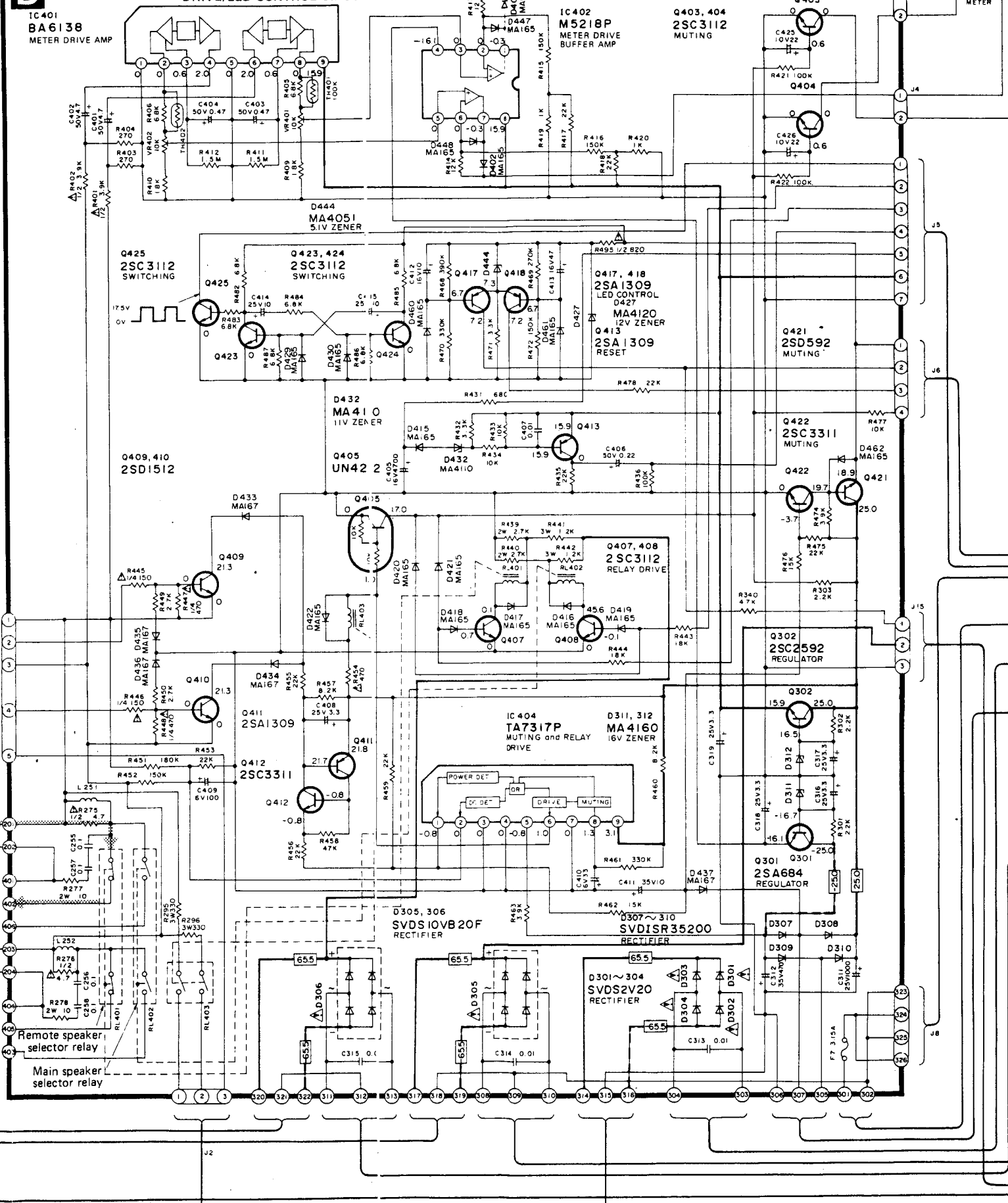
DRIVE AMP. CIRCUIT (Lch.)

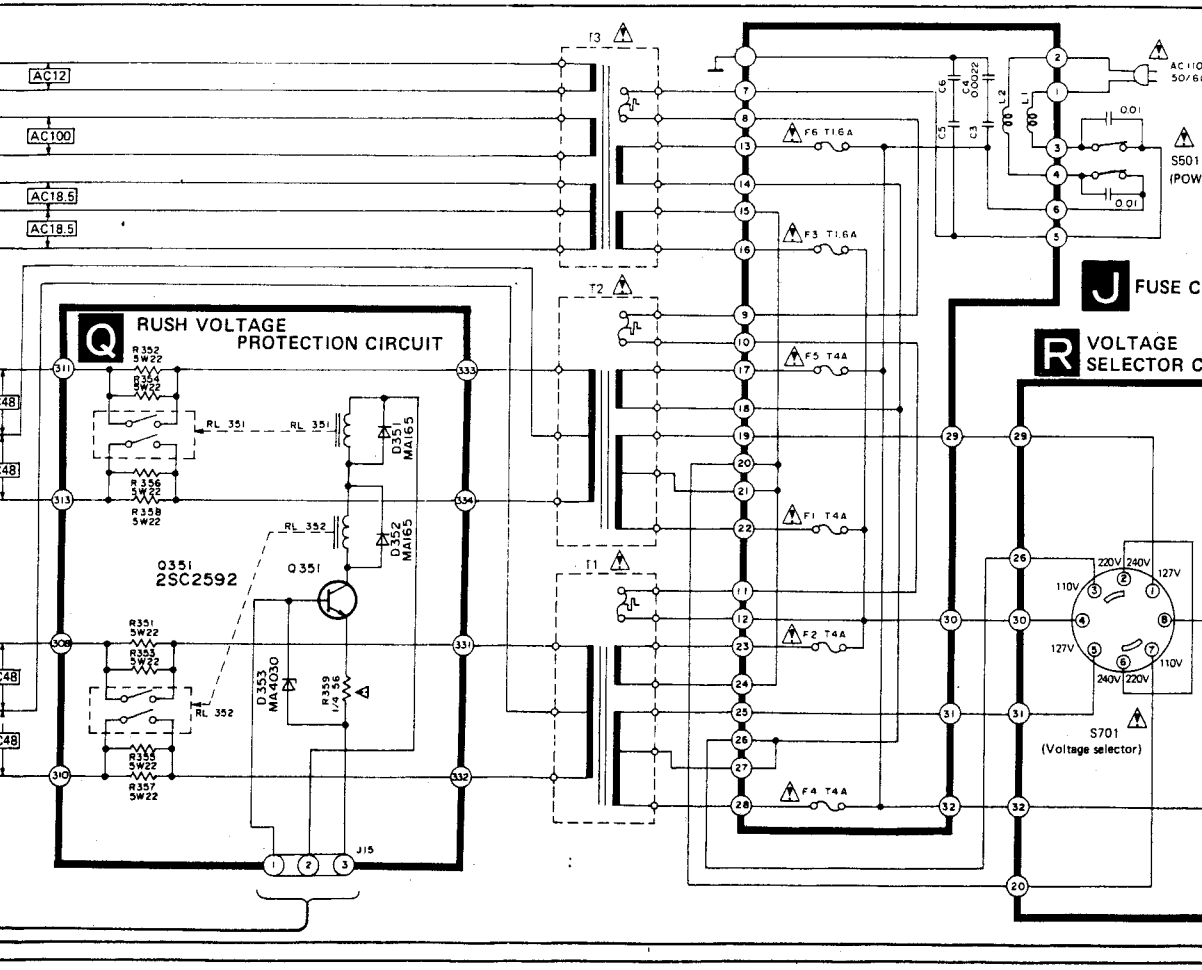
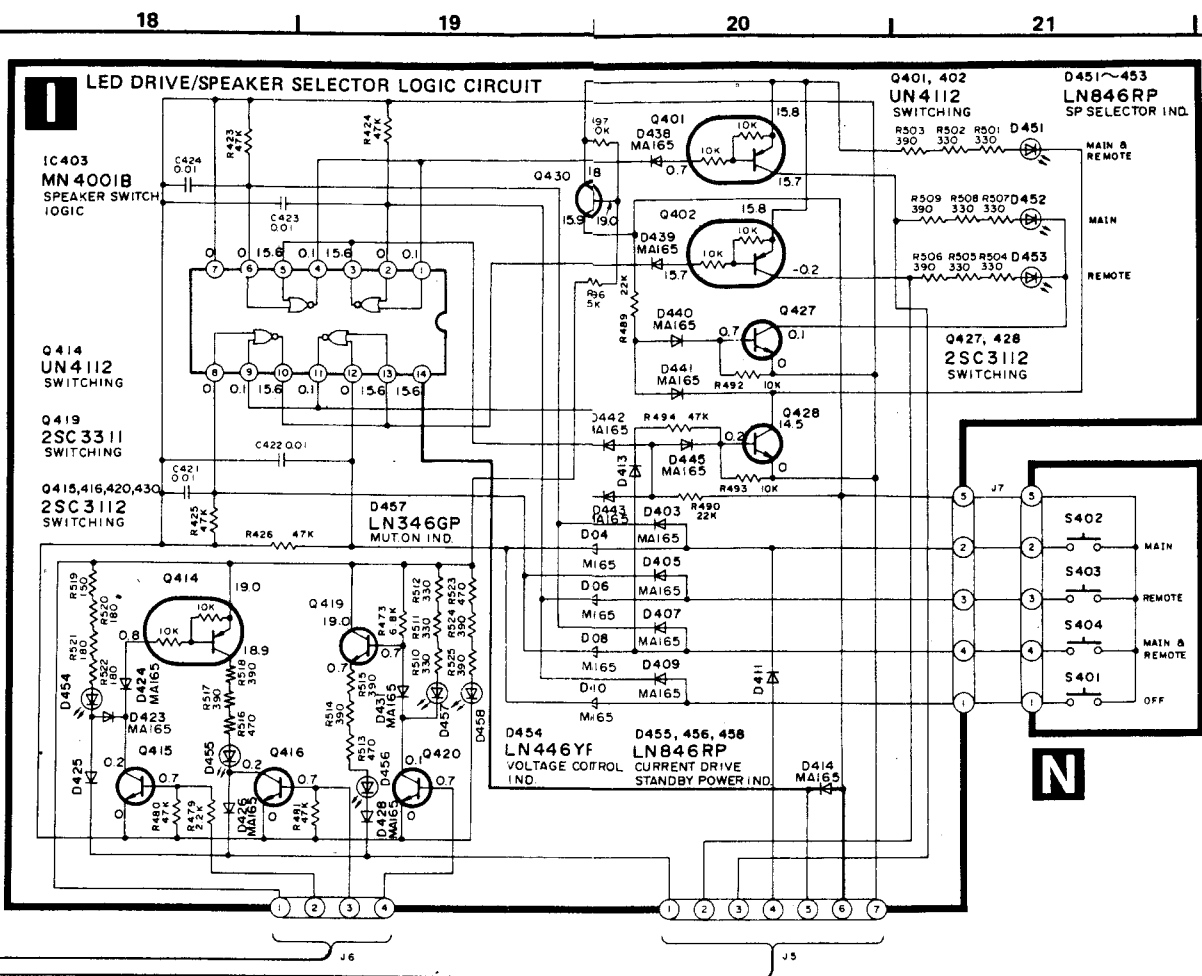
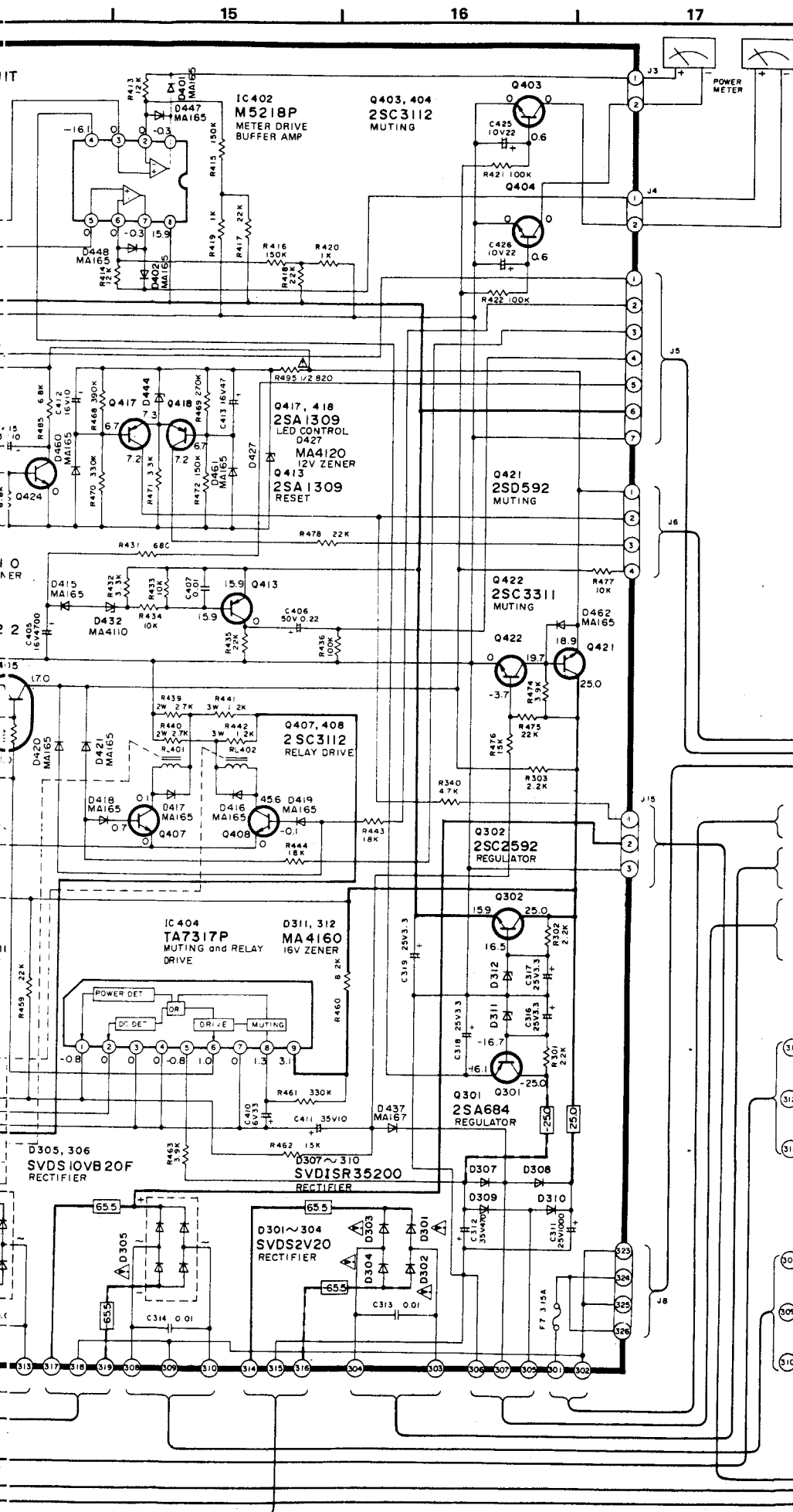


DRIVE AMP. CIRCUIT (Rch.)



METER DRIVE/REGULATOR/PROTECTION/RELAY DRIVE/LED CONTROL CIRCUIT

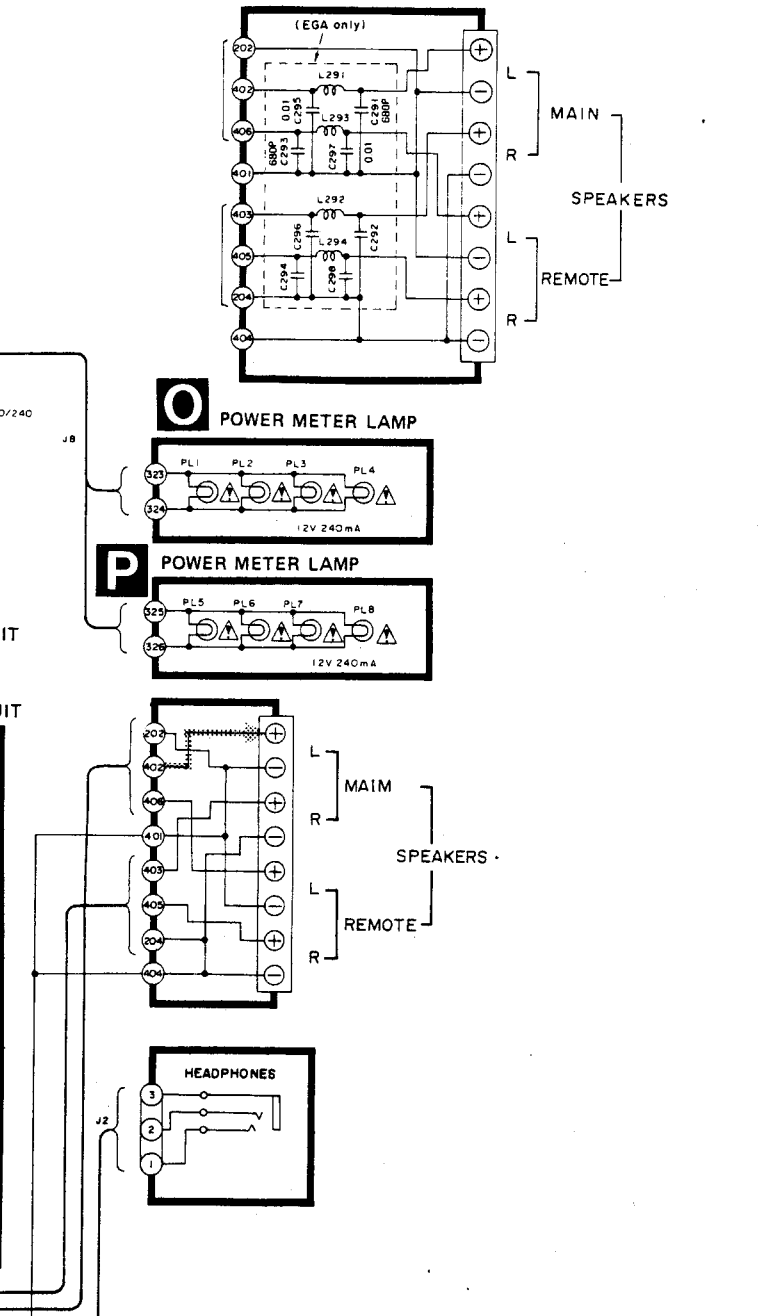




SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

- Notes:**
- S401 ~ S404** : Speaker selector SW in "main" position.
S401: Off, S402: main, S403: remote
S404: main and remote
 - S501** : Power switch in "on" position.
 - S701** : Voltage selector switch in "220V" position.
127V ↔ 110V ↔ 220V ↔ 240V
 - Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage value values, depending on the internal impedance of the DC circuit tester.
 - Phono signal lines of left channel.
 - Current drive amp. signal lines of left channel.
 - Positive (+B) voltage lines.
 - Negative (-B) voltage lines.
 - Important safety notice: Components identified by mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.



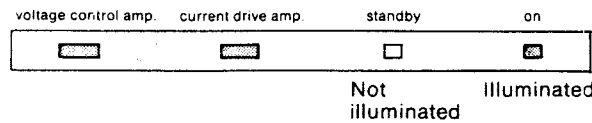
PROTECTION CIRCUITRY

The protection circuitry functions under the following conditions, the "on" operation indicator illumination stops, and the "standby" indicator flashes.

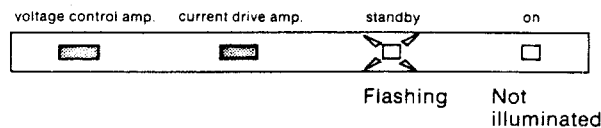
Probable causes: E08AA01C E08BB03A E08BD03A

- The protection circuitry has functioned because the positive (+) and negative (-) speaker connection wires are short-circuited.
- The protection circuitry has functioned due to a malfunction of other equipment (such as the control amplifier, etc.), thus resulting in a DC component being applied to the input of this unit.
- The protection circuitry has functioned because of a malfunction of this unit.

During normal operation
(Sound is heard from speakers)



When protection circuitry functions
(No sound is heard from speakers)



If the protection circuitry functions, the following steps should be taken.

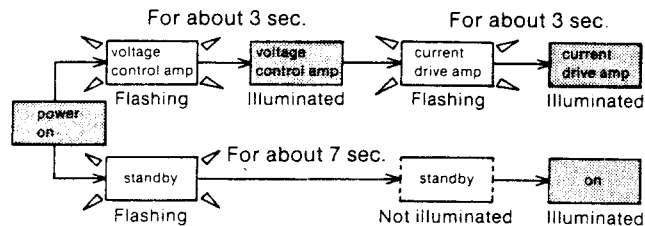
- First check whether or not speaker connection wires have short circuited.**
If they have, be sure to first switch OFF the power. Then, after correcting the connections, once again switch ON the power.
- If the speaker connection wires are not short-circuited ...**
 - Turn off the power.
 - Disconnect the control amplifier and speaker system connections.
 - Turn on the power once again.

If at this time the "standby" indicator continues to flash, the problem is probably with this unit. Please consult with the store where the unit was purchased or with a nearby Authorized Service Center (list enclosed).
- If the steps taken in 2. above result in illumination of the "on" indicator ...**
 - Turn off the power.
 - Reconnect the connections of the input terminals from "DC" to "NORMAL", and connect the speaker systems.
 - Turn on the power once again.

If, at this time, the "on" indicator illuminates, there may be a malfunction of the control amplifier.
If the "standby" indicator continues to flash, the problem is probably with the speaker system. Please consult with the store where the speaker systems were purchased or with a nearby Authorized Service Center (list enclosed).

HOW TO OPERATION INDICATORS

These indicators illuminate to indicate the operation condition of this unit.



voltage control amp:

When the power is switched ON, illumination begins after flashing for about three seconds.

This indicates that the voltage-control amplifier can be used.

current drive amp:

When the voltage-control amplifier indicator illuminates, illumination begins after flashing for about three seconds.

This indicates that the current-drive amplifier can be used.

REPLACEMENT PARTS LIST (Electric, cabinet & chassis parts)

Notes:

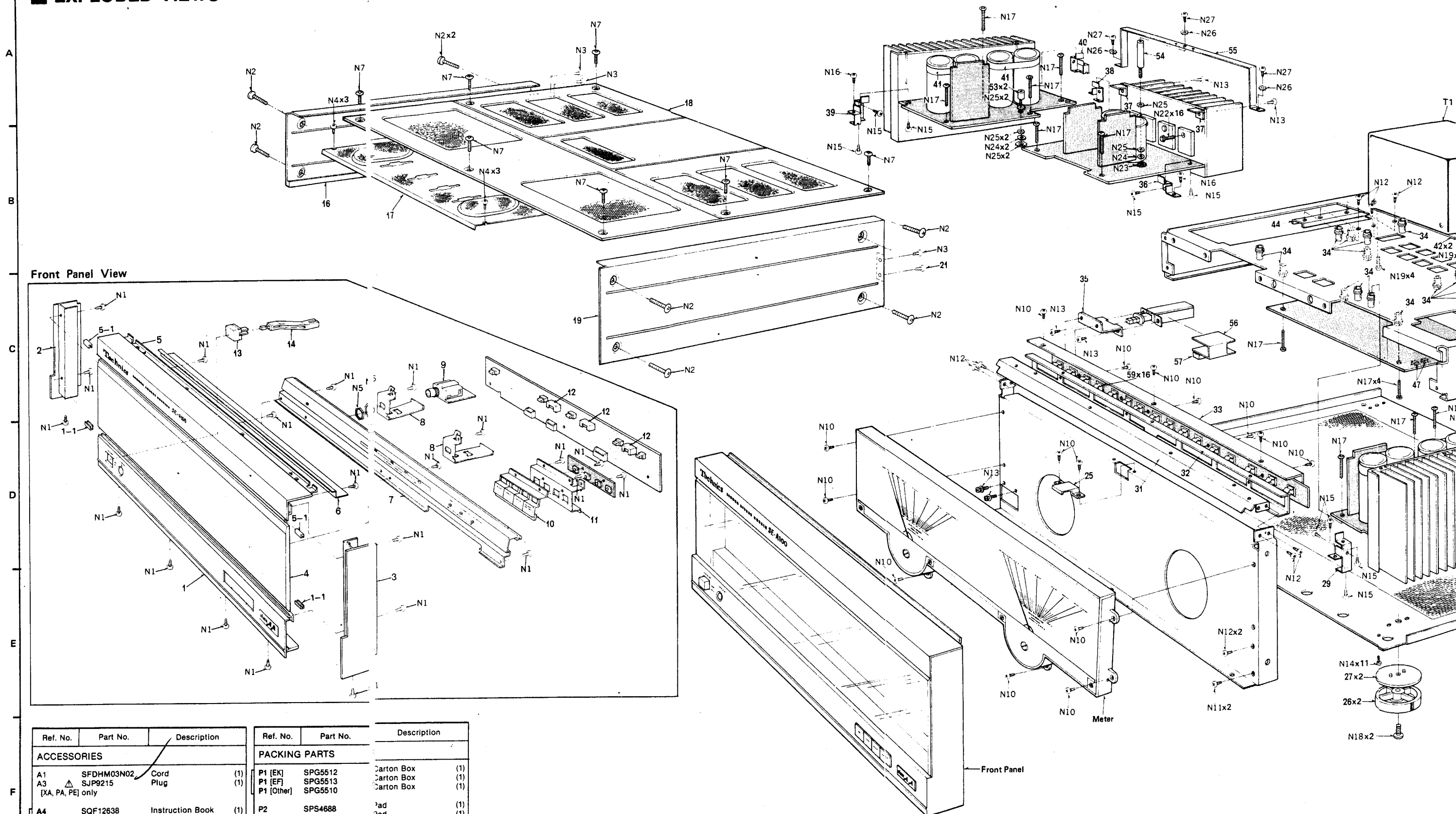
- Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
- Important safety notice: Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
- The "Ⓢ" mark is service standard parts and may differ from production parts.
- The parenthesized numbers in the column of description stand for the quantity per set.

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC201, 202	M5238P	Integrated Circuit
IC401	BA6138	Integrated Circuit
IC402	M5218P	Integrated Circuit
IC403	MN4001B	Integrated Circuit
IC404	SVITA7317P	Integrated Circuit
TRANSISTORS		
Q101, 102	2SK389-GR	Transistor (FET)
Q103-108	2SD1512R	Transistor
Q109-112, 117, 118	2SA1309Q	Transistor
Q113, 114	2SB1036R	Transistor
Q115, 116, 119-122, 155, 156	2SA1370-D	Transistor
Q123-126, 419	2SC3311-Q	Transistor
Q127, 128, 153, 154	2SC3467-D	Transistor
Q151, 152, 201, 202, 251, 252	2SC1815Y	Transistor
Q157, 158, 263-268	2SC3280R	Transistor
Q159, 160, 269-274	2SA1301R	Transistor
Q161, 162, 412, 422	2SC3311-Q	Transistor
Q163, 164, 411, 413, 417, 418	2SA1309Q	Transistor
Q203, 204, 253, 254	2SA1015Y	Transistor
Q205, 206, 255-258	2SC2592-R	Transistor
Q207, 208, 259-262	2SA1112-R	Transistor
Q209, 210	2SA1123-R	Transistor
Q211, 212	2SC2631-R	Transistor
Q301	2SA684-QNC	Transistor
Q302	2SC2592-R	Transistor
Q351	2SC2592-R	Transistor
Q401, 402, 414	UN4112	Transistor
Q403, 404, 407, 408, 415, 416, 420, 423-425, 427, 428, 430	2SC3112	Transistor
Q405	UN4212	Transistor
Q409, 410	2SD1512R	Transistor
Q421	2SD592ANCQ	Transistor
DIODES		
D101-104, 444	MA4051M	Diode
D105-110, 151-154, 401-411, 413-422, 423-426, 428, 429, 430, 431, 438-443, 445, 447, 448, 460-462	MA165	Diode
D161, 162	MA4056-M	Diode
D201-204	MA29WA	Diode
D205-208	MA4082M	Diode
D301-304	Δ SVD52V20	Rectifier
D305, 306	Δ SVD510VB20F	Rectifier
D307-310	Δ 1SR35200	Rectifier
D311, 312	MA4160M	Diode
D351, 352	MA165	Diode
D353	MA4030M	Diode
D427	MA4120-M	Diode
D432	MA4100M	Diode
D433-437	MA167	Diode
D451-453, 455, 456, 458	LN846RP	Diode (L.E.D.)
D454	LN446YP	Diode (L.E.D.)
D457	LN346GP	Diode (L.E.D.)
COILS		
L1, 2	ELQ050D15	Choke
L251, 252	SLQY18G-10	Choke
L253, 354	SLQY07G-30	Choke
L291-294	SLQY07G-30	Choke
	[EGA] only	
TRANSFORMERS		
T1	Δ SLT5R67-1	Power Transformer
T2	Δ SLT5R67-2	Power Transformer

Ref. No.	Part No.	Description
T3	Δ SLT5N458	Power Transformer
VARIABLE RESISTORS		
VR151, 152	EVNK6AA00B52	Variable Resistor, 500 Ω (B)
VR201, 202	EVNK0AA00B52	Variable Resistor, 500 Ω (B)
VR251, 252	EVNK6AA00B23	Variable Resistor, 2k Ω (B)
VR401, 402	EVNK6AA00B14	Variable Resistor, 10k Ω (B)
THERMISTORS		
TH251, 252, 401, 402	ERTD2ZHK104S	100k Ω
COMPONENT COMBINATIONS		
Z251-256	ERF3GBKR22N	0.22 Ω x 2
RELAYS		
RL351, 352	SSY129	Speaker Headphone
RL401, 402	SSY126	Speaker Headphone
RL403	SFDY5A237P	Speaker Headphone
LAMPS		
PL1-8	Δ XAMS19P	Meter
FUSES		
F1, 2 [EK]	Δ XBA2C40TB0	250V, T 4 A
F1, 2 [Other]	Δ XBA2C40TR0	250V, T 4 A
F3 [EK]	Δ XBA2C16TB0	250V, T 1.6 A
F3 [Other]	Δ XBA2C16TR0	250V, T 1.6 A
F4, 5 [EK]	Δ XBA2C40TB0	250V, T 4 A
F4, 5 [Other]	Δ XBA2C40TR0	250V, T 4 A
F6 [EK]	Δ XBA2C16TB0	250V, T 1.6 A
F6 [Other]	Δ XBA2C16TR0	250V, T 1.6 A
F7 [EK]	Δ XBA2C31TB0	250V, T 3.15 A
F7 [Other]	Δ XBA2C31TR0	250V, T 3.15 A
SWITCHES		
S401-404	SSG13	Speaker Selector
S501	Δ ESB9997S	Power Source
S701	Δ ESE37263	Voltage Selector
METER		
	SSMEA100-KN	Power Meter
Ref. No. Part No. Description		
CABINET and CHASSIS PARTS		
1	SGWEA100-KM	Panel Ass'y (Down)
1-1	(SHG6379)	Rubber
2	SGXEA100-KM	Ornament Ass'y (Left)
3	SGXEA100-KM	Ornament Ass'y (Right)
4	SGUEA100-KN	Transparent Plate (Glass)
5	SGWEA100-KN1	Panel Ass'y (Upper)
5-1	(SHG6379)	Rubber
6	SUWEA100-KN	Bracket
7	SGWEA100-KN2	Indicator Panel Ass'y
8	SUW2981	Bracket
9	SJJ63B	Jack
10	SBCEA100-KN	Button Ass'y
11	SUW2980	Bracket
12	SHG6382	Rubber
13	SBC686-3	Button, Power Switch Connection Rod
14	SUB161-1	Power Switch
16	SUHEA100-KM	Side Plate (Left)
17	SMN1997	Net
18 [EK]	SKCEA100-KK	Upper Cover
18 [Other]	SKCEA100-KD	Upper Cover
19	SUHEA100-KM1	Side Plate (Right)

Ref. No.	Part No.	Description
25	SUW2987	Bracket
26	SKL295	Foot
27	SHG3018	Rubber
28 [EK]	SKUEA100-KK	Bottom Board
28 [Other]	SKU11370	Bottom Board
29	SUW2977	Bracket
30	SUW2977-1	Bracket
31	SUW1621-1	Bracket
32	SMPEA100-KN	Plate
33	SMZ319	Plate
34	SHE161	Spacer
35	SUW2827-2	Bracket
36	SUW2978-1	Bracket
37	SUW2905-1	Bracket
38	SUW2978	Bracket
39	SUW2977-1	Bracket
40	SUW2977	Bracket
41	SHS2445	Sheet
42	SHG6355	Rubber
43	SHG6137	Rubber
44	SUW2988	Bracket
45	SJF4817	Terminal Board (Speaker)
46	SJF3431-9A	Terminal Board (Input)
47	SJT347	Fuse Holder
48 [D]	SGPEA100-KD	Rear Panel
48 [EW]	SGPEA100-KW	Rear Panel
48 [EK]	SGPEA100-KK	Rear Panel
48 [XL]	SGPEA100-KL	Rear Panel
48	SGPEA100-KX	Rear Panel
[XA, PA, PE]		
48	SGPEA100-KF	Rear Panel
[EF, EH, EB, EI, EGA]		
49	SKL241	Foot
50 [EW]	SJA111	AC Cord
50 [EK]	QFC1205M	AC Cord
50 [XL]	SJAG23	AC Cord
50	SJA121	AC Cord
[XA, PA, PE]		
50	SJA123	AC Cord
[Other]		
51	SHR127	Bushing AC Cord
[EW, XL, XA, PA, PE]		
51 [Other]	SHR131	Bushing AC Cord
53	SUX41	Spacer
54	SUX40	Spacer
55	SMT4	Bracket
56	SMX908	Cover
57	SHG6388	Rubber
59	SJT345	Lamp Holder
60	SHR301	Clamp
SCREWS, WASHERS and NUTS		
N1	XTB3+8FFZ	Tapping, \oplus 3 x 8
N2	XSS5+12F1S	\oplus 5 x 12
N3	XTBS3+8FFZ1	Tapping with Washer, \oplus 3 x 8
N4	XTW3+8HFZ	Tapping with Washer, \oplus 3 x 8
N5	XNS12	Nut, ϕ 12
N6	SNE59-1	Washer (Headphone)
N7	SNE2095-6	Upper Cover
N10	XTB3+8FFZ	Tapping, \oplus 3 x 8
N11	XTBS3+8FFZ1	Tapping with Washer, \oplus 3 x 8
N12	XTB4+8FFZ	Tapping, \oplus 4 x 8
N13	XYN3+C8FZS	\oplus 3 x 8
N14	XTB4+18FFZ	Tapping, \oplus 4 x 18
N15	XTW3+8T	Tapping with Washer, \oplus 3 x 8
N16	XTW3+8LFR	Tapping with Washer, \oplus 3 x 8
N17	XTV3+20F	Tapping, \oplus 3 x 20
N18	XTB4+16FFZ	Tapping, \oplus 3 x 16
N19	XTB4+10FFZ	Tapping, \oplus 4 x 10
N20	XTB3+8GFZ	Tapping, \oplus 3 x 8
N21	XTB4+12FFZ	Tapping, \oplus 4 x 12
N22	SNE2117-1	Transistor
N23	XNG4ES	Nut, ϕ 4
N24	XWA4B	Washer, ϕ 4
N25	XWC4B	Washer, ϕ 4
N26	XWC3B	Washer, ϕ 3
N27	XYN3+C8S	\oplus 3 x 8
N29	XYN3+C8FZS	\oplus 3 x 8

EXPLODED VIEWS



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
ACCESSORIES			PACKING PARTS		
A1	SFDHM03N02	Cord (1)	P1 [EK]	SPG5512	Carton Box (1)
A3	SJP9215	Plug (1)	P1 [EF]	SPG5513	Carton Box (1)
	[XA, PA, PE] only		P1 [Other]	SPG5510	Carton Box (1)
A4	SQF12638	Instruction Book (1)	P2	SPS4688	Pad (1)
	[D, EW, XA, EF, EH, EB, EI]		P3	SPS4689	Pad (1)
A4 [EGA]	SQF12639	Instruction Book (1)	P4	SPH219	Sheet (1)
A4 [PA, PE]	SQF12640	Instruction Book (1)	P5	SPH6279	Sheet (1)
A4 [EK, XL]	SQF12641	Instruction Book (1)	P6	SPJ15	Polyethylene Bag (1)
				AC Cord)	
A5	SQX4651-1	Label (AC Cord) (1)	Except [EK]		
	[EK, XL, XA, PE]		P7	SPB1035	Polyethylene Bag (1)
A5 [PA]	SQX4653-1	Label (AC Cord) (1)			Cord)
A5 [EK]	SQX4361	Label (AC Cord) (1)			
A5	SQX4699-1	Label (AC Cord) (1)			
	[D, EF, EH, EB, EI, EW, EGA]				

SE-A100 SE-A100

