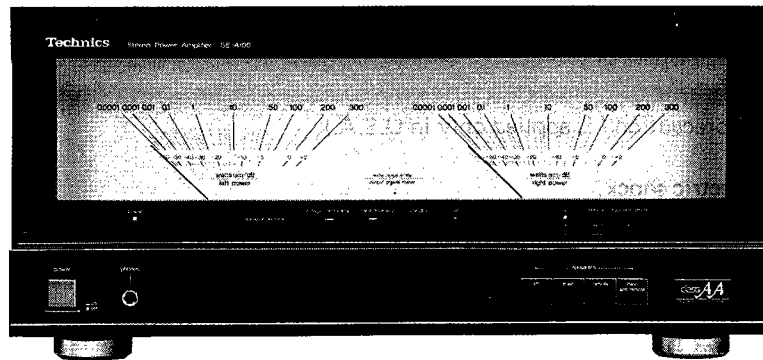


3963 Service Manual

ORDER NO. HAD8603425C1
A3

Amplifier SE-A100

Stereo Power Amplifier



Color

(K) Black Type	
Color	Area
(K)	[M] U.S.A.
(K)	[MC] . . . Canada

SPECIFICATIONS

(IHF '78)

■ AMPLIFIER SECTION

Rated minimum sine wave RMS power output

20 Hz~20 kHz both channels driven
0.0007% total harmonic distortion
170W per channel (8 ohms)

20 Hz~20 kHz both channels driven
0.002% total harmonic distortion
240W per channel (4 ohms)

1 kHz continuous power output
both channels driven
0.0007% total harmonic distortion

170W per channel (8 ohms)
0.002% total harmonic distortion
240W per channel (4 ohms)

Dynamic headroom 0.7 dB (8 ohms)
0.9 dB (4 ohms)

Total harmonic distortion
rated power at 20 Hz~20 kHz 0.0007% (8 ohms)
rated power at 20 Hz~20kHz 0.002% (4 ohms)
half power at 20 Hz~20 kHz 0.0007% (8 ohms)
half power at 1 kHz [less than 0.0002% (8 ohms)]

Power bandwidth
both channels driven, -3 dB T.H.D. 0.01%
5 Hz~100 kHz (8 ohms)

Transient intermodulation distortion unmeasurably small
SMPTE intermodulation distortion 0.002% (8 ohms)

Frequency response
20 Hz~20 kHz (+0 dB, -0.1 dB)
0.8 Hz~150 kHz (+0 dB, -3 dB)

Input sensitivity 75 mV (1V, IHF '66)
S/N (IHF, A) 97 dB (120 dB, IHF '66)
Residual hum and noise 0.3 mV
Input impedance 47 kilohms
Low frequency damping factor 120 (8 ohms)
60 (4 ohms)

Load impedance
MAIN or REMOTE 4~16 ohms
MAIN and REMOTE 8~16 ohms

Meter
reading range 0.0001W~300W
-60 dB~+2 dB
(logarithmic compression)

frequency response (reading accuracy)
20 Hz~20 kHz ± 3 dB (more than -40 dB)
20 Hz~20 kHz ± 5 dB (less than -40 dB)

attack time 100 μ sec
recovery time (0dB \rightarrow -20dB) 300msec

■ GENERAL

Power consumption 770W, 980 VA
Power supply AC 120V, 60 Hz
Dimensions (W×H×D) 430 x 209 x 475 mm
(16-15/16" x 8-1/4" x 18-11/16")
Weight 31.2 kg
(68.64 lb.)

Note:
Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

Specifications are subject to change without notice for further improvement.

Technics

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Secaucus,
New Jersey 07094

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SAFETY PRECAUTION

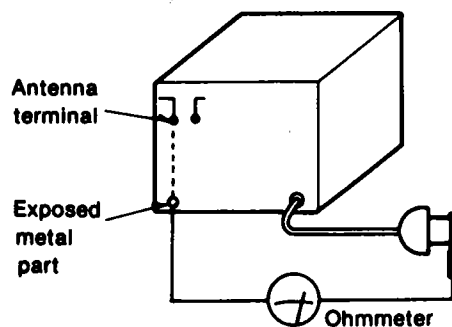
(This "safety precaution" is applied only in U.S.A.)

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

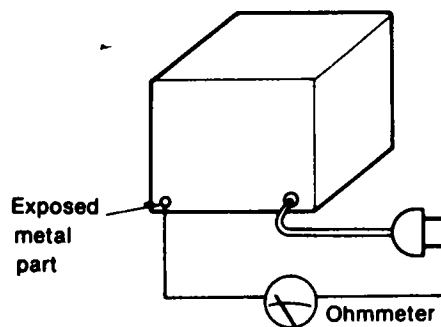
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with 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.

Explanation on the New "class AA" Circuit Technology/Service hint

● Background of the "class AA" circuit development

A new approach to better characteristics of an audio amplifier has been noted recently. It is shown as the measurement data where speakers may be used for the load of an amplifier instead of a conventional pure resistance load.

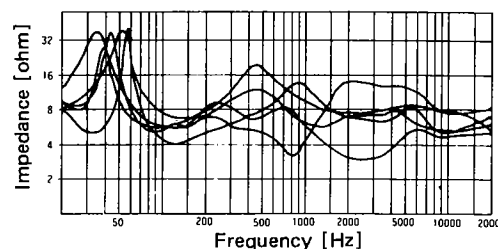
Some methods of evaluating the characteristics of an amplifier by changing the load conditions are being tried.

For instance, there are measurement data of the output (continuous output and instantaneous output) at load resistances of not only 8Ω but also 4Ω and 2Ω of lower resistance values.

There are also measurement data of the change of the output and distortion factor, when the phase of the drive voltage and current are changed by using a reactance load.

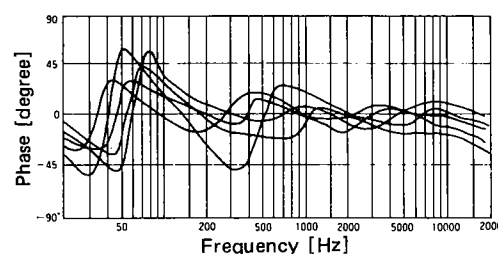
Furthermore, there are measurement data of the maximum drive power when various speakers are connected to an amplifier and a mixed signal of square wave and sine wave is applied to the input for sound reproduction by speakers.

These methods are used because speakers used for reproducing music exhibit completely different characteristics from a pure resistance load which has been used for the measurement of amplifiers. That is, the impedance changes greatly according to the frequency (refer to Fig. 1), and therefore the phase difference between the drive voltage and the drive current changes complicatedly (refer to Fig. 2).



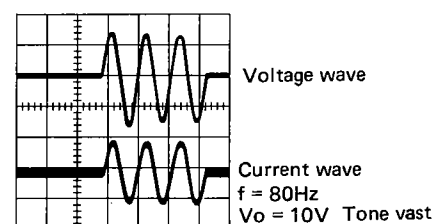
Frequency characteristic of speakers impedance

Fig. 1



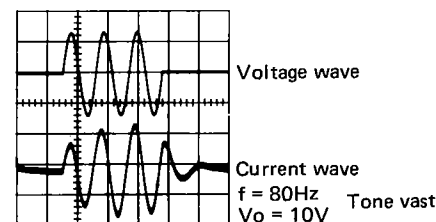
Frequency characteristic of phase of speaker

Fig. 2



Voltage and current wave-form at 8 ohms load

Fig. 3



Voltage and current wave-form at speaker load

Fig. 4

	Speaker	Pure Resistance
Impedance	The impedance change with the frequency (Fig. 1). There is a point of frequency where the impedance is considerably lower than the nominal impedance.	Does not change with the frequency.
Drive voltage-Drive current phase	Phase deviation occurs. The phase deviation changes with the frequency (Fig. 2).	No phase deviation occurs.
Drive voltage-Drive current waveform	Different (Fig. 4)	Same (Fig. 3)

Also, the voltage waveform differs from the current waveform due to the inverse electromotive force of the speaker, thus the speaker is a very complex load to the amplifier (refer to Fig. 3 and Fig. 4). For the improvement of the reproducing performance, therefore, it is important to observe the characteristics of an amplifier under conditions closer to the actual operation by changing the load conditions.

Measurement data recently taken by such new methods show that there are differences in the capability of reproduction between amplifiers. This is because change of the output current according to the load condition influences the voltage amplification characteristics of the amplifier.

It is also because the degree of the influence of the voltage amplification characteristics, as well as the current supply capacity of the amplifier, on the output current differs according to the amplifier.

Also, for an class A amplifier, it is known that the output signal voltage distortion is minimum at no load, increasing as the output current increases by changing the resistance load to 16Ω , 8Ω and 4Ω . The change in the characteristic will be more complicated in the case of a speaker load which exhibits complex characteristics.

As a result, for the ideal power amplifier, it is most important that two necessary functions: distortionless voltage amplification and sufficiently large energy-supplying current amplification, be made co-existent under the condition of speaker operation.

The new "Class AA" circuit fully satisfies these conditions.

The circuit has been developed by combining two amplifiers: a class A amplifier of no-load condition which can exhibit the ideal voltage characteristic and an amplifier which has great current drive power.

● Principle of the "class AA" operation

The "Class AA" system, as described previously, consists of two types of amplifiers: the voltage control amplifier of pure class A operation and the current supply amplifier to supply current to the speaker. The voltage control amplifier, being released from the heavy load of "current supply", controls the voltage exactly in accordance with the input signal, while the current drive amplifier supplies the required current with a margin, so that excellent transmission characteristics are obtained with a speaker load.

...a detailed explanation will be given using Fig. 5 about the principle of the "Class AA" operation.

The "Class AA" system consists of two amplifiers of different operation modes: a constant voltage amplifier and a constant current amplifier. They are combined by means of the "Class AA" bridge network.

The constant current amplifier, which is called the current drive amplifier, receives the input signal from the voltage source at both ends of the network bridge, and supplies the output current to the other end of the bridge. Therefore, it operates the constant current source to output the current which is proportional to the speaker output current as shown by Equation in Fig. 5.

The voltage control amplifier of pure class A operation works the constant voltage source where NFB is applied from the speaker output terminals by connecting the amplifier output

one end of the "Class AA" bridge. The conventional amplifier, which is shown in Fig. 6, uses the same circuit for the output circuit to supply the output current and for a circuit to control the output voltage. Therefore, the current from the output circuit influences the voltage amplifying stage, causing deterioration of the transmission characteristics, such as occurrence of distortion in the output signal.

In the "Class AA" operation, all the speaker driving current supplied from the current drive amplifier when the bridge is balanced as shown by Equation (3) in Fig. 5. Accordingly, a voltage control amplifier is released from the heavy load of current supply, so that it controls the voltage to obtain an output exactly in accordance with the input signal under the condition of "zero" output current.

The current drive amplifier, which has sufficient capacity with a margin to supply current required for driving the speaker, together with the voltage control amplifier which operates in the ideal condition of pure class A operation, achieves excellent transmission characteristics of original pure class A operation which have never been obtained in the conventional class A amplifier.

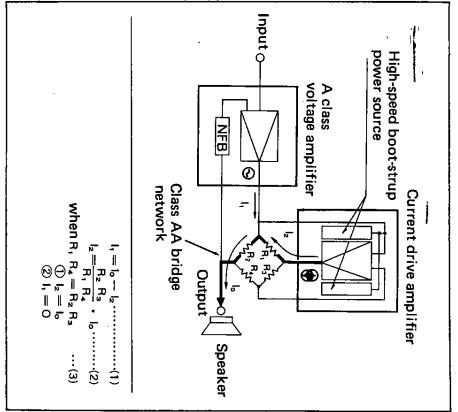
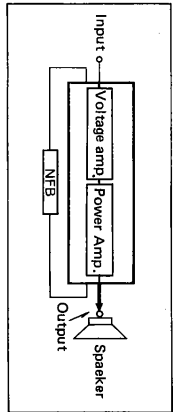


Fig. 5



Conventional amplifier
Fig. 6

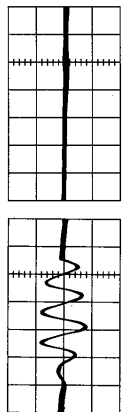


Fig. 7

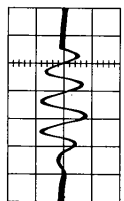


Fig. 8

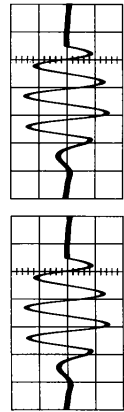


Fig. 9

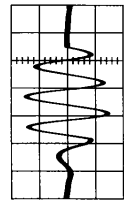
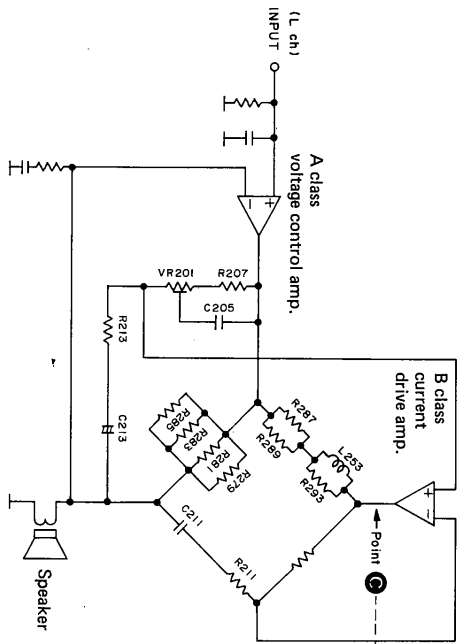


Fig. 10

• Bridge Circuit

The SE-A100 amplifier has a current drive amplifier circuit consisting of a high through-rate input stage, a 4-stage Darlington output stage, and a newly developed feed-forward type bootstrap power source circuit. It is a high-power-output constant-current amplifier with 50A/us high speed and ultra-low distortion.

Fig. 7 to Fig. 10 show the output current of the voltage amplifier and current drive amplifier.



SERVICE HINT

Equipment used

Oscilloscope
Voltage controller (Variable AC power supply)
Audio frequency oscillator (AF OSC)
Electronic voltmeter (EVM)
Dummy resistor (8Ω, 100W)
Resistor (10Ω, 10W)

Check Procedure when Output Signal is Not Delivered or Distorted

Switch off the power supply. (Set the voltage controller to 0 V.)

Remove the top and bottom boards.

Remove the PCBs **F**, **G**, **E**, and **H**.

Raise the primary power supply voltage gradually and

check voltages at the pins **31A**, **31B**, **317**, **31D**, **31G**, **32D**, and **32G**.

check if voltages at the pin **31A**, **317**, and **32D** are about

33 V and those at the pins **31B**, **31G**, and **32G** are about

33 V when the primary power supply voltage is 60 V.

If yes, the PCBs **A**, **B**, and **C** are normal.

If voltages at the pins **31A** and **31B** are not about ±33 V,

check the PCB **A** and the power source.

If voltages at the pins **317** and **31G** are not about ±33 V,

check the PCB **C** and the power source.

If voltages at the pins **32D** and **32G** are not about ±33 V,

check the PCB **E** and the power source.

If the above step 5 check is satisfactory, set the

primary voltage to 0 V and discharge the capacitors

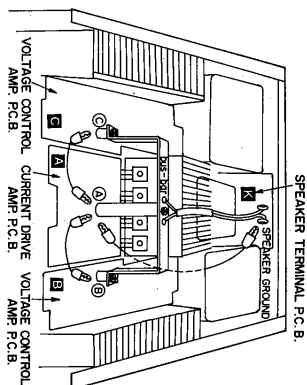
C301 to C308, C309, and C310).

Install the PCBs **F** and **G**.

Raise the primary power supply voltage gradually to 60 V

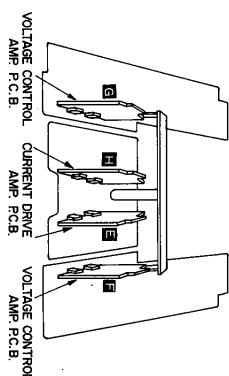
and check voltages at the pins **31A** and **31B**. If the vol-

tages do not rise, check the PCBs **E** and **A** or **G** and **A**.

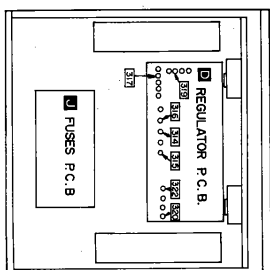


[Fig. 1]

Note: When the bus-bar is removed at checking, connect the **A**, **B**, **C**, and the loudspeaker ground terminal with clips as shown in Fig. 1.



[Fig. 2]

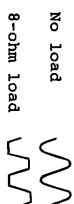


[Fig. 3]

9. If the voltages at the pins **31A** and **31B** are about ±33 V, raise the primary power supply voltage to 120 V and apply a signal 1 KHz 0.3 V to the input terminal. Check waveforms at the loudspeaker terminals.

(Output voltage: About 11 V)

The PCBs **A**, **F** and **G** are normal if the following waveforms are obtained.



10. Set the primary power supply voltage to 0 V and discharge the capacitors (C301 to C308, C309, and C310).

11. Install the PCBs **E** and **H**.

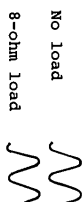
12. Raise the primary power supply voltage gradually to 60 V, and check if the voltages at the pins **317** and **32D** are about 33 V and those at the pins **31D** and **32G** are about -33 V.

If the voltages do not rise, check the PCBs **E** and **B** or

H and **C**.

13. If the step 12 check is satisfactory, apply a signal as in the step No. 9.

The circuits are normal if the following waveforms are obtained.



Check the PCBs **E** and **B**, or **H** and **C** again if the following waveform is developed.



Cautions: •Be sure that the earth (grounding) line (bus-bar) is positively connected when conducting the above checks.

•Don't install the PCBs **E** and **H** when the PCBs **F** and **G** are removed.

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 **AA** SE-A100 amplifier with its pure class A sound and its overwhelming speaker drive capacity.

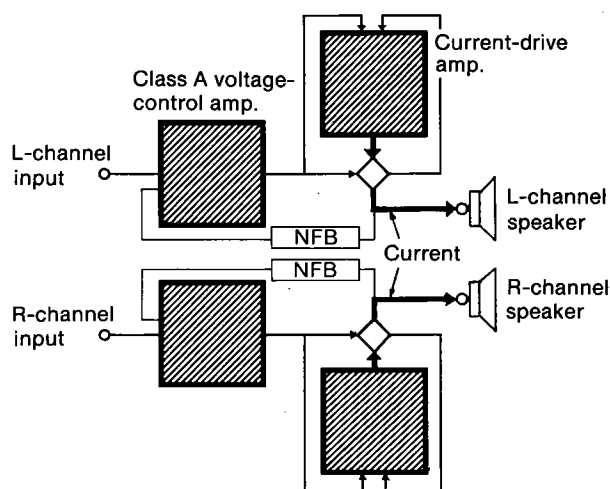
VC4 amplifier composition. class **AA** equipped.

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

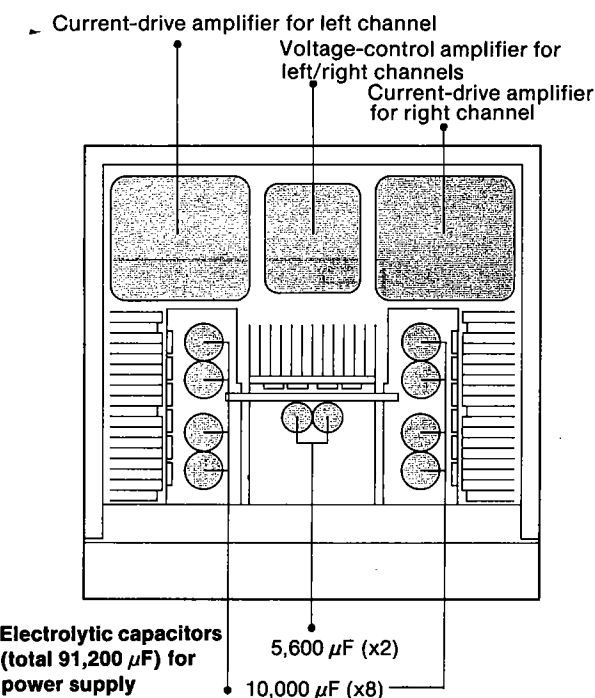
The high class **AA** performance is plainly expressed by the specs: high power of 170W + 170W (20 Hz ~ 20 kHz, 8Ω), and low distortion of 0.0007% (20 Hz ~ 20 kHz, 8Ω), an unrivalled rating that tells it all.

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

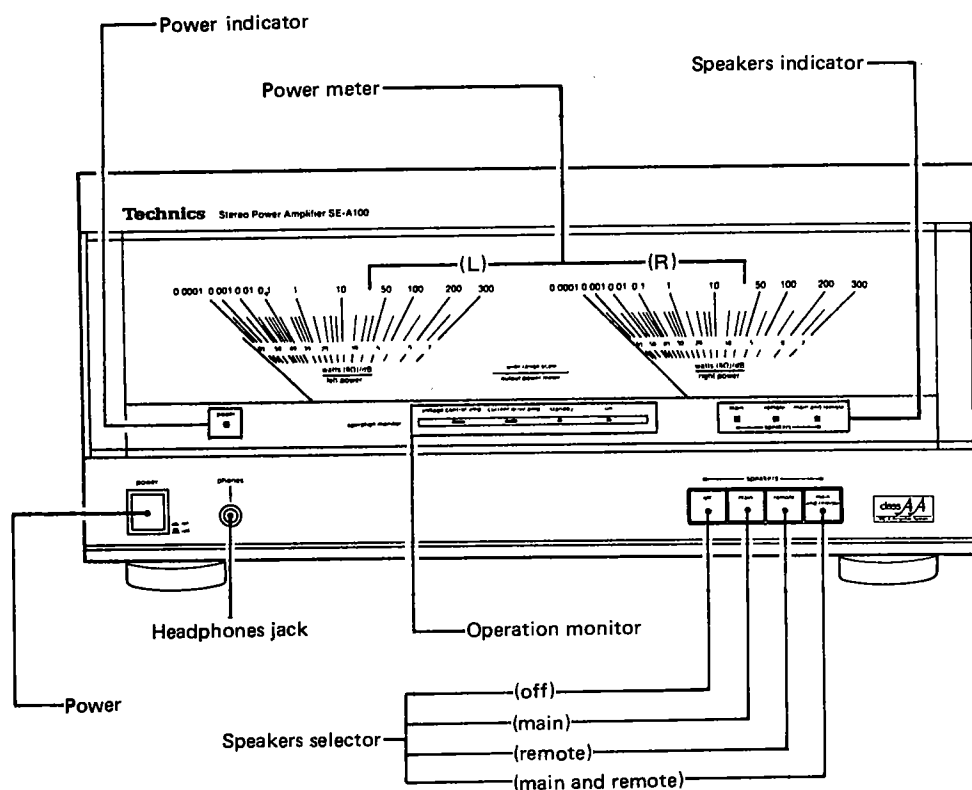
Beginning with the highly precise, large power meter traditional to Technics power amplifiers, and continuing with such features as the powerful power supply which uses three large transformers and high-capacity electrolytic capacitors, the LC-OFC internal wiring material, the gold clad contact relays 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

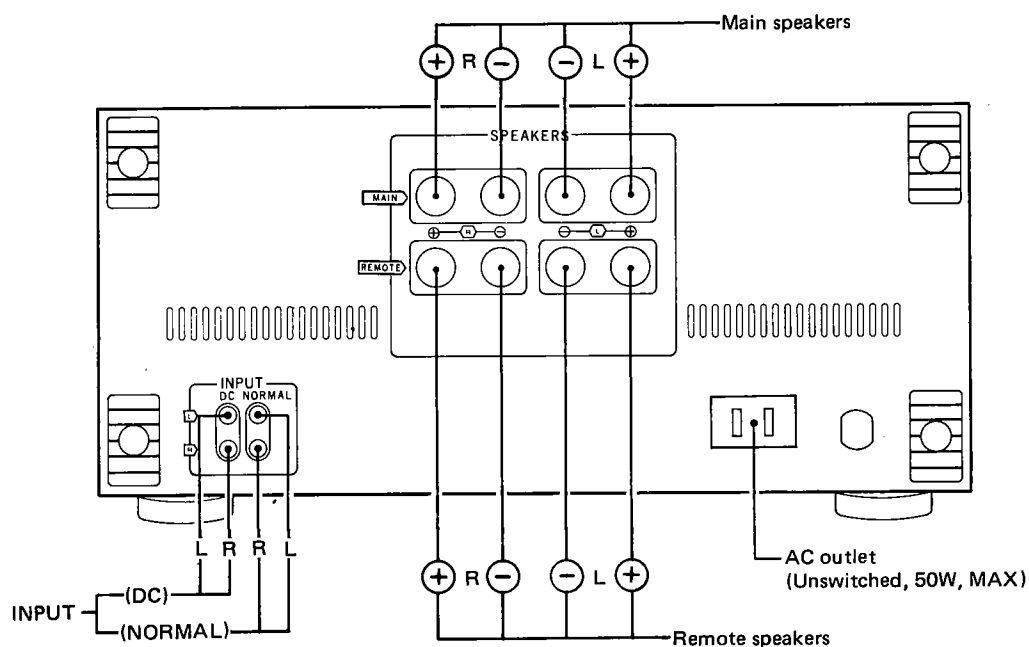


SE-A100 internal construction

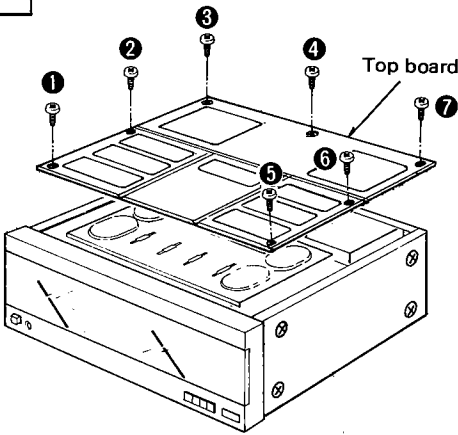
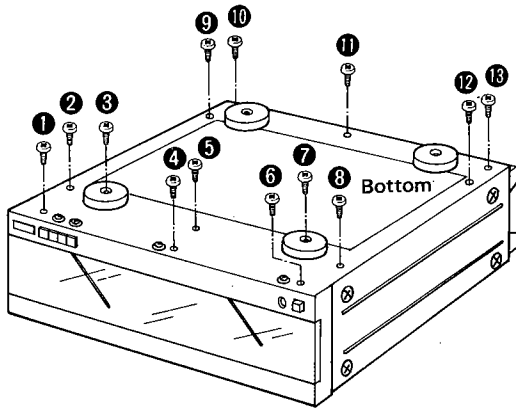
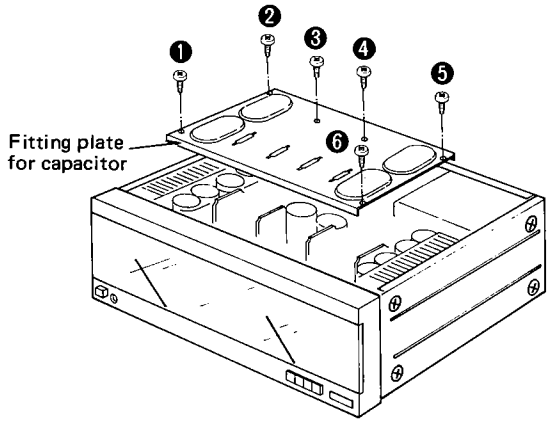
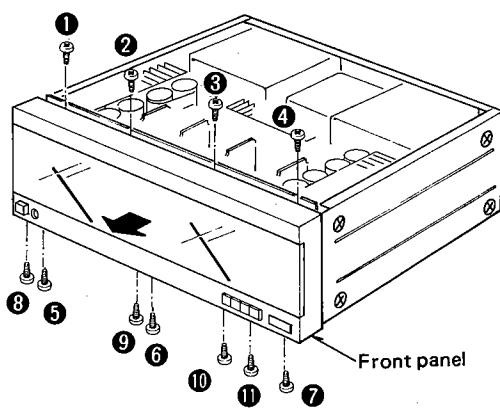
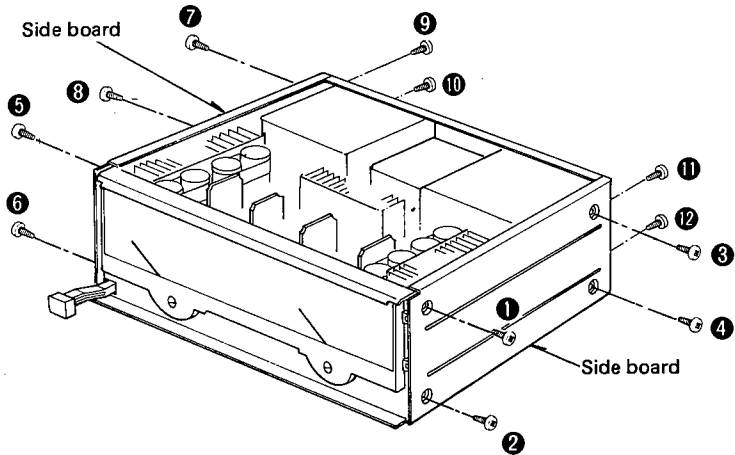
LOCATION OF CONTROLS



- If only the main or the remote speaker system is used ($4 \sim 16\Omega$)
- If both the main and remote speaker system are used ($8 \sim 16\Omega$)



DISASSEMBLY INSTRUCTIONS

Ref. No. 1	How to remove the top boards	Ref. No. 2	How to remove the bottom board
Procedure 1	<ul style="list-style-type: none"> Remove the 7 setscrews (① ~ ⑦). 	Procedure 1 → 2	<ul style="list-style-type: none"> Remove the 13 screws (① ~ ⑬).
			
Ref. No. 3	How to remove the fitting plate for capacitor	Ref. No. 4	How to remove the front panel
Procedure 1 → 2 → 3	<ul style="list-style-type: none"> Remove the 6 screws (① ~ ⑥). 	Procedure 1 → 4	<ol style="list-style-type: none"> Remove the 11 screws (① ~ ⑪). Remove the front panel.
			
Ref. No. 5	How to remove the side board, lamp house and power meter		
Procedure 1 → 4 → 5	<ol style="list-style-type: none"> Remove the 4 screws (① ~ ④). Remove the 4 screws. (① ~ ④). Remove the lamp house. Remove the 8 screws. (⑤ ~ ⑫). Remove the power meter. 		
			

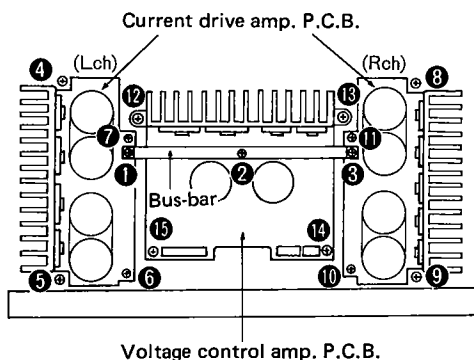
Ref. No.
6

How to remove the power transistor, voltage control amp. P.C.B. and current drive amp. P.C.B.

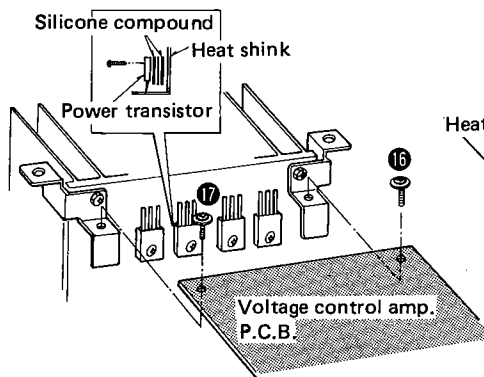
Procedure
1 → 6

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]

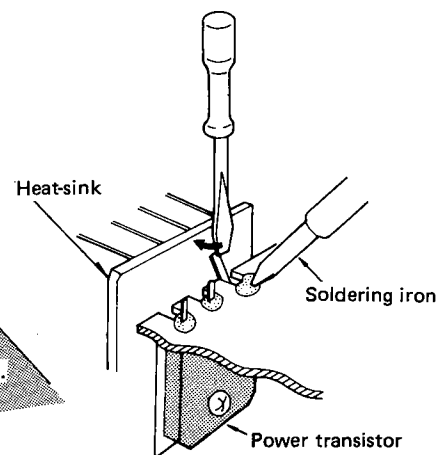
6. Remove the 2 screws. (⑯ ~ ⑰)
7. Remove the voltage control amp. P.C.B.
8. When mounting the power transistor apply silicone compound (SZZ0L15) to the rear side of power transistor.



[Fig. 1]



[Fig. 2]



[Fig. 3]

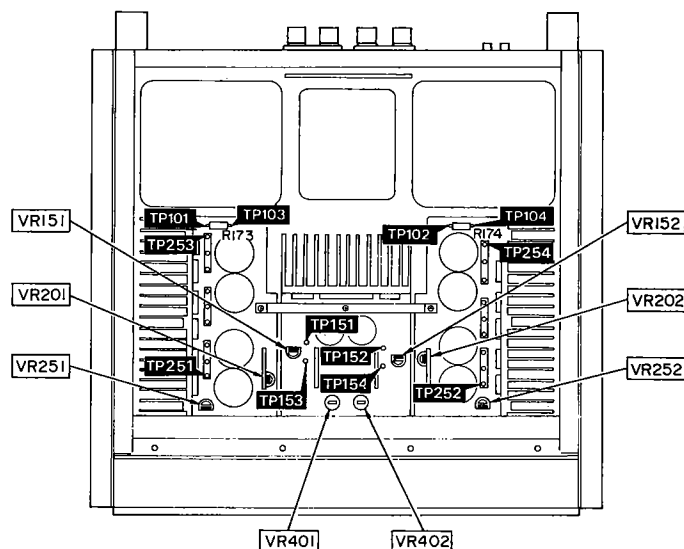
Note: When you check up with the bus bar disconnected, first connect ①, ② and ③ to the ground point and turn on the machine.

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 120V, 60Hz in NO SIGNAL mode is 0.4 ~ 1.1A.

MEASUREMENTS AND ADJUSTMENTS

Adjustment points



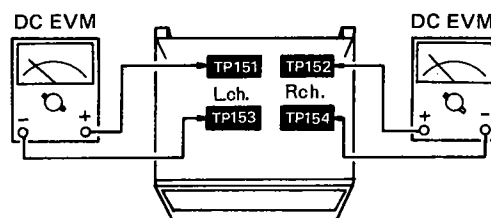
Adj. points	Adjustment
TP151, 153	Lch ICQ adj. of voltage control amp.
VR151	
TP152, 154	Rch ICQ adj. of voltage control amp.
VR152	
TP251, 253	Lch ICQ adj. of current drive amp.
VR251	
TP252, 254	Rch ICQ adj. of current drive amp.
VR252	
TP101, 103	Lch bridge-balance adj.
VR201	
TP102, 104	Rch bridge-balance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

Equipment used

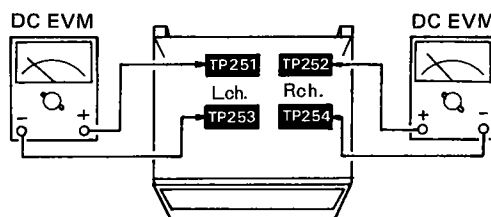
- AC and DC electronic voltmeter (EVM)
- Audio frequency oscillator (AF OSC)
- Dummy resistor or speaker (8Ω , 100W)

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

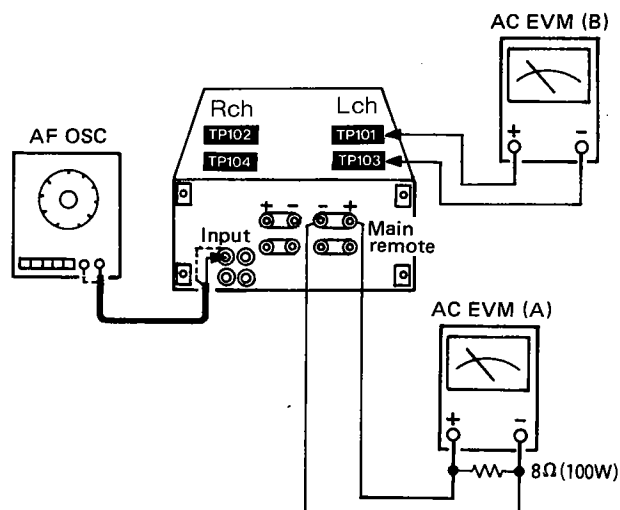
1. Test equipment connection is shown in figure.
(Connect the DC EVM. on both channels.)
2. Completely turn the (V) amp. adjusting volumes (**VR151**, **VR152**) counter-clockwise.
3. Turn ON the set when it is cold, and 30 sec. later, adjust **VR151** and **VR152** so that the voltage is **3mV**. Also, 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.**)

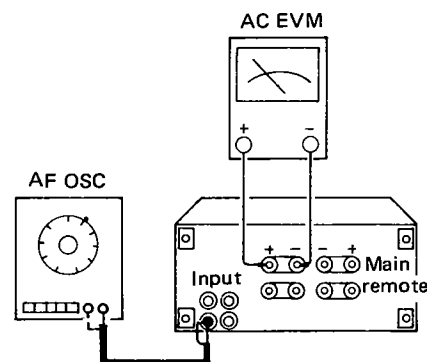
**BRIDGE-BALANCE ADJUSTMENT**

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**.



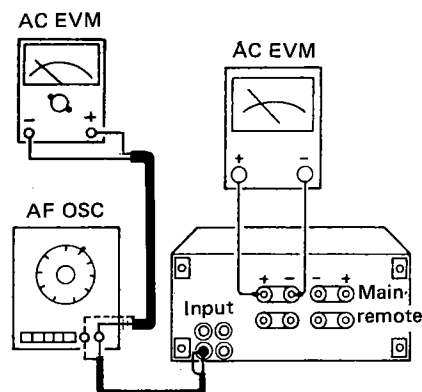
POWER METER ADJUSTMENT

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**.



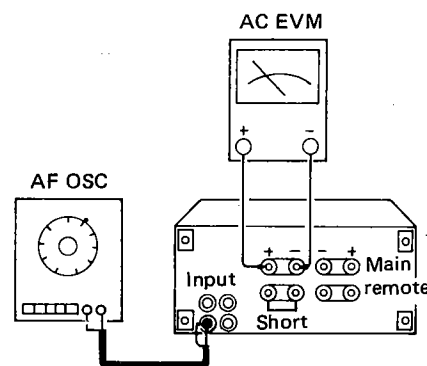
CHECK OF MUTING CIRCUIT DURING POWER "ON" – "OFF" OPERATION

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

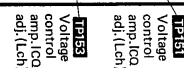
- * Check the protection circuit separately on each of the channels.
- * The protection relay, if operated, will not reset itself. So, turn off the power supply and again turn it on.
- * When the protection circuit is in operation, the indicator "stand by" is blinking.

100





A diagram of a headpiece with a microphone and earpiece, labeled "HEADPHONES". The headpiece is shown in profile, with a microphone at the top and an earpiece at the bottom. A dashed line indicates the area around the earpiece.



- 16 -

- 17 -

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 unit of resistance is Ω (ohm).
 - K = 1000, M = 10000.
 - The unit of capacitance is μF (microfarad).
 - P = 10^{-6} μF .
 - Bracketed indications in Ref. No. columns specify the area.
 - Parts without these indications can be used for all areas.

Resistor Type	Wattage	Tolerance	Capacitor Type	Voltage	Other	Tolerance
ERO : Carbon	1A : 1W	J : $\pm 5\%$	ECGA : Electrolytic	0J : 6.3V	1H : 50V	K : $\pm 10\%$
ERD : Metal Oxide	2E : 1/4W	G : $\pm 5\%$	ECCD : Ceramic	1A : 10V	2H : 50VAC	Z : $+80\%$, -20%
ERF : Metal Film	2A : 2W	K : $\pm 10\%$	ECCO : Organic	1C : 16V	KC : 400VAC	P : $\pm 10\%$
ERX : Non-flammable	3A : 3W		ECOT : Polyester	1E : 25V		J : $\pm 5\%$
	5A : 5W		ECET : Electrolytic	1V : 35V		
				1H : 50V		
				1K : 80V		
				2A : 100V		

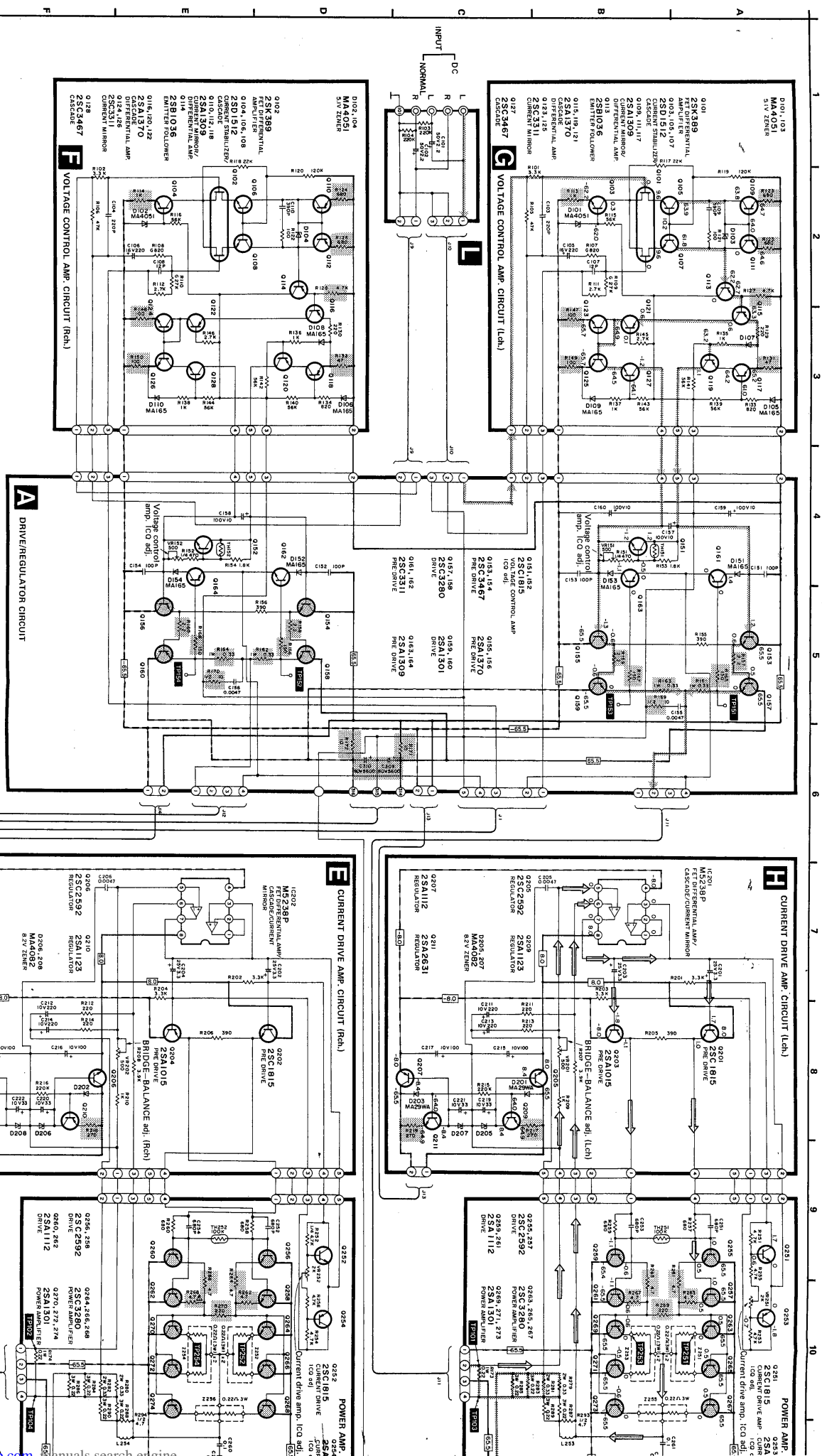
RESISTORS

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
R101, 102	EROSTJ232	22K	R201, 202	EROSTJ232	22K	R401, 402	EROSTJ232	22K	R601, 602	EROSTJ232	22K
R103, 104	EROSTJ232	22K	R203, 204	EROSTJ232	22K	R403, 404	EROSTJ232	22K	R603, 604	EROSTJ232	22K
R105, 106	EROSTJ232	22K	R205, 206	EROSTJ232	22K	R405, 406	EROSTJ232	22K	R605, 606	EROSTJ232	22K
R107, 108	EROSTJ232	22K	R207, 208	EROSTJ232	22K	R407, 408	EROSTJ232	22K	R607, 608	EROSTJ232	22K
R109, 110	EROSTJ232	22K	R209, 210	EROSTJ232	22K	R409, 410	EROSTJ232	22K	R609, 610	EROSTJ232	22K
R111, 112	EROSTJ232	22K	R211, 212	EROSTJ232	22K	R411, 412	EROSTJ232	22K	R611, 612	EROSTJ232	22K
R113, 114	EROSTJ232	22K	R213, 214	EROSTJ232	22K	R413, 414	EROSTJ232	22K	R613, 614	EROSTJ232	22K
R115, 116	EROSTJ232	22K	R215, 216	EROSTJ232	22K	R415, 416	EROSTJ232	22K	R615, 616	EROSTJ232	22K
R117, 118	EROSTJ232	22K	R217, 218	EROSTJ232	22K	R417, 418	EROSTJ232	22K	R617, 618	EROSTJ232	22K
R119, 120	EROSTJ232	22K	R219, 220	EROSTJ232	22K	R419, 420	EROSTJ232	22K	R619, 620	EROSTJ232	22K
R121, 122	EROSTJ232	22K	R221, 222	EROSTJ232	22K	R421, 422	EROSTJ232	22K	R621, 622	EROSTJ232	22K
R123, 124	EROSTJ232	22K	R223, 224	EROSTJ232	22K	R423, 424	EROSTJ232	22K	R623, 624	EROSTJ232	22K
R125, 126	EROSTJ232	22K	R225, 226	EROSTJ232	22K	R425, 426	EROSTJ232	22K	R625, 626	EROSTJ232	22K
R127, 128	EROSTJ232	22K	R227, 228	EROSTJ232	22K	R427, 428	EROSTJ232	22K	R627, 628	EROSTJ232	22K
R129, 130	EROSTJ232	22K	R229, 230	EROSTJ232	22K	R429, 430	EROSTJ232	22K	R629, 630	EROSTJ232	22K
R131, 132	EROSTJ232	22K	R231, 232	EROSTJ232	22K	R431, 432	EROSTJ232	22K	R631, 632	EROSTJ232	22K
R133, 134	EROSTJ232	22K	R233, 234	EROSTJ232	22K	R433, 434	EROSTJ232	22K	R633, 634	EROSTJ232	22K
R135, 136	EROSTJ232	22K	R235, 236	EROSTJ232	22K	R435, 436	EROSTJ232	22K	R635, 636	EROSTJ232	22K
R137, 138	EROSTJ232	22K	R237, 238	EROSTJ232	22K	R437, 438	EROSTJ232	22K	R637, 638	EROSTJ232	22K
R139, 140	EROSTJ232	22K	R239, 240	EROSTJ232	22K	R439, 440	EROSTJ232	22K	R639, 640	EROSTJ232	22K
R141, 142	EROSTJ232	22K	R241, 242	EROSTJ232	22K	R441, 442	EROSTJ232	22K	R641, 642	EROSTJ232	22K
R143, 144	EROSTJ232	22K	R243, 244	EROSTJ232	22K	R443, 444	EROSTJ232	22K	R643, 644	EROSTJ232	22K
R145, 146	EROSTJ232	22K	R245, 246	EROSTJ232	22K	R445, 446	EROSTJ232	22K	R645, 646	EROSTJ232	22K
R147, 148	EROSTJ232	22K	R247, 248	EROSTJ232	22K	R447, 448	EROSTJ232	22K	R647, 648	EROSTJ232	22K
R149, 150	EROSTJ232	22K	R249, 250	EROSTJ232	22K	R449, 450	EROSTJ232	22K	R649, 650	EROSTJ232	22K
R151, 152	EROSTJ232	22K	R251, 252	EROSTJ232	22K	R451, 452	EROSTJ232	22K	R651, 652	EROSTJ232	22K
R153, 154	EROSTJ232	22K	R253, 254	EROSTJ232	22K	R453, 454	EROSTJ232	22K	R653, 654	EROSTJ232	22K
R155, 156	EROSTJ232	22K	R255, 256	EROSTJ232	22K	R455, 456	EROSTJ232	22K	R655, 656	EROSTJ232	22K
R157, 158	EROSTJ232	22K	R257, 258	EROSTJ232	22K	R457, 458	EROSTJ232	22K	R657, 658	EROSTJ232	22K
R159, 160	EROSTJ232	22K	R259, 260	EROSTJ232	22K	R459, 460	EROSTJ232	22K	R659, 660	EROSTJ232	22K
R161, 162	EROSTJ232	22K	R261, 262	EROSTJ232	22K	R461, 462	EROSTJ232	22K	R661, 662	EROSTJ232	22K
R163, 164	EROSTJ232	22K	R263, 264	EROSTJ232	22K	R463, 464	EROSTJ232	22K	R663, 664	EROSTJ232	22K
R165, 166	EROSTJ232	22K	R265, 266	EROSTJ232	22K	R465, 466	EROSTJ232	22K	R665, 666	EROSTJ232	22K
R167, 168	EROSTJ232	22K	R267, 268	EROSTJ232	22K	R467, 468	EROSTJ232	22K	R667, 668	EROSTJ232	22K
R169, 170	EROSTJ232	22K	R269, 270	EROSTJ232	22K	R469, 470	EROSTJ232	22K	R669, 670	EROSTJ232	22K
R171, 172	EROSTJ232	22K	R271, 272	EROSTJ232	22K	R471, 472	EROSTJ232	22K	R671, 672	EROSTJ232	22K
R173, 174	EROSTJ232	22K	R273, 274	EROSTJ232	22K	R473, 474	EROSTJ232	22K	R673, 674	EROSTJ232	22K
R175, 176	EROSTJ232	22K	R275, 276	EROSTJ232	22K	R475, 476	EROSTJ232	22K	R675, 676	EROSTJ232	22K
R177, 178	EROSTJ232	22K	R277, 278	EROSTJ232	22K	R477, 478	EROSTJ232	22K	R677, 678	EROSTJ232	22K
R179, 180	EROSTJ232	22K	R279, 280	EROSTJ232	22K	R479, 480	EROSTJ232	22K	R679, 680	EROSTJ232	22K
R181, 182	EROSTJ232	22K	R281, 282	EROSTJ232	22K	R481, 482	EROSTJ232	22K	R681, 682	EROSTJ232	22K
R183, 184	EROSTJ232	22K	R283, 284	EROSTJ232	22K	R483, 484	EROSTJ232	22K	R683, 684	EROSTJ232	22K
R185, 186	EROSTJ232	22K	R285, 286	EROSTJ232	22K	R485, 486	EROSTJ232	22K	R685, 686	EROSTJ232	22K
R187, 188	EROSTJ232	22K	R287, 288	EROSTJ232	22K	R487, 488	EROSTJ232	22K	R687, 688	EROSTJ232	22K
R189, 190	EROSTJ232	22K	R289, 290	EROSTJ232	22K	R489, 490	EROSTJ232	22K	R689, 690	EROSTJ232	22K
R191, 192	EROSTJ232	22K	R291, 292	EROSTJ232	22K	R491, 492	EROSTJ232	22K	R691, 692	EROSTJ232	22K
R193, 194	EROSTJ232	22K	R293, 294	EROSTJ232	22K	R493, 494	EROSTJ232	22K	R693, 694	EROSTJ232	22K
R195, 196	EROSTJ232	22K	R295, 296	EROSTJ232	22K	R495, 496	EROSTJ232	22K	R695, 696	EROSTJ232	22K
R197, 198	EROSTJ232	22K	R297, 298	EROSTJ232	22K	R497, 498	EROSTJ232	22K	R697, 698	EROSTJ232	22K
R199, 200	EROSTJ232	22K	R299, 300	EROSTJ232	22K	R499, 500	EROSTJ232	22K	R699, 700	EROSTJ232	22K
R201, 202	EROSTJ232	22K	R301, 302	EROSTJ232	22K	R501, 502	EROSTJ232	22K	R701, 702	EROSTJ232	22K
R203, 204	EROSTJ232	22K	R303, 304	EROSTJ232	22K	R503, 504	EROSTJ232	22K	R703, 704	EROSTJ232	22K
R205, 206	EROSTJ232	22K	R305, 306	EROSTJ232	22K	R505, 506	EROSTJ232	22K	R705, 706	EROSTJ232	22K
R207, 208	EROSTJ232	22K	R307, 308	EROSTJ232	22K	R507, 508	EROSTJ232	22K	R707, 708	EROSTJ232	22K
R209, 210	EROSTJ232	22K	R309, 310	EROSTJ232	22K	R509, 510	EROSTJ232	22K	R709, 710	EROSTJ232	22K
R211, 212	EROSTJ232	22K	R311, 312	EROSTJ232	22K	R511, 512	EROSTJ232	22K	R711, 712	EROSTJ232	22K
R213, 214	EROSTJ232	22K	R313, 314	EROSTJ232	22K	R513, 514	EROSTJ232	22K	R713, 714	EROSTJ232	22K
R215, 216	EROSTJ232	22K	R315, 316	EROSTJ232	22K	R515, 516	EROSTJ232	22K	R715, 716	EROSTJ232	22K
R217, 218	EROSTJ232	22K	R317, 318	EROSTJ232	22K	R517, 518	EROSTJ232	22K	R717, 718	EROSTJ232	22K
R219, 220	EROSTJ232	22K	R319, 320	EROSTJ232	22K	R519, 520	EROSTJ232	22K	R719, 720	EROSTJ232	22K
R221, 222	EROSTJ232	22K	R321, 322	EROSTJ232	22K	R521, 522	EROSTJ232	22K	R721, 722	EROSTJ232	22K
R223, 224	EROSTJ232	22K	R323, 324	EROSTJ232	22K	R523, 524	EROSTJ232	22K	R723, 724	EROSTJ232	22K
R225, 226	EROSTJ232	22K	R325, 326	EROSTJ232	22K	R525, 526	EROSTJ232	22K	R725, 726	EROSTJ232	22K
R227, 228	EROSTJ232	22K	R327, 328	EROSTJ232	22K	R527, 528	EROSTJ232	22K	R727, 728	EROSTJ232	22K
R229, 230	EROSTJ232	22K	R329, 330	EROSTJ232	22K	R529, 530	EROSTJ232	22K	R729, 730	EROSTJ232	22K
R231, 232	EROSTJ232	22K	R331, 332	EROSTJ232	22K	R531, 532	EROSTJ232	22K	R731, 732	EROSTJ232	22K
R233, 234	EROSTJ232	22K	R333, 334	EROSTJ232	22K	R533, 534	EROSTJ232	22K	R733, 734	EROSTJ232	22K
R235, 236	EROSTJ232	22K	R335, 336	EROSTJ232	22K	R535, 536	EROSTJ232	22K	R735, 736	EROSTJ232	22K
R237, 238	EROSTJ232	22K	R337, 338	EROSTJ232	22K	R537, 538	EROSTJ232	22K	R737, 738	EROSTJ232	22K
R239, 240	EROSTJ232	22K	R339, 340	EROSTJ232	22K	R539, 540	EROSTJ232	22K	R739, 740	EROSTJ232	22K
R241, 242	EROSTJ232	22K	R341, 342	EROSTJ232	22K	R541, 542	EROSTJ232	22K	R741, 742	EROSTJ232	22K
R243, 244	EROSTJ232	22K	R343, 344	EROSTJ232	22K	R543, 544	EROSTJ232	22K	R743, 744	EROSTJ232	22K
R245, 246	EROSTJ232	22K	R345, 346	EROSTJ232	22K	R545, 546	EROSTJ232	22K	R745, 746	EROSTJ232	22K
R247, 248	EROSTJ232	22K	R347, 348	EROSTJ232	22K	R547, 548	EROSTJ232	22K	R747, 748	EROSTJ232	22K
R249, 250	EROSTJ232	22K	R349, 350	EROSTJ232	22K	R549, 550	EROSTJ232	22K	R749, 750	EROSTJ232	22K
R251, 252	EROSTJ232	22K	R351, 352	EROSTJ232	22K	R551, 552	EROSTJ232	22K	R751, 752	EROSTJ232	22K
R253, 254	EROSTJ232	22K	R353, 354	EROSTJ232	22K	R553, 554	EROSTJ232	22K	R753, 754	EROSTJ232	22K
R255, 256	EROSTJ232	22K	R355, 356	EROSTJ232	22K	R555, 556	EROSTJ232	22K	R755, 756	EROSTJ232	22K
R257, 258	EROSTJ232	22K	R357, 358	EROSTJ232	22K	R557, 558	EROSTJ232	22K	R757, 758	EROSTJ232	22K
R259, 260	EROSTJ232	22K	R359, 360	EROSTJ232	22K	R559, 560	EROSTJ232	22K	R759, 760	EROSTJ232	22K
R261, 262	EROSTJ232	22K	R361, 362	EROSTJ232	22K	R561, 562	EROSTJ232	22K	R761, 762	EROSTJ232	22K
R263, 264	EROSTJ232	22K	R363, 364	EROSTJ232	22K	R563, 564	EROSTJ232	22K	R763, 764	EROSTJ232	22K
R265, 266	EROSTJ232	22K	R365, 366	EROSTJ232	22K	R565, 566	EROSTJ232	22K	R765, 766	EROSTJ232	22K
R267, 268	EROSTJ232	22K	R367, 368	EROSTJ232	22K	R567, 568	EROSTJ232	22K	R767, 768	EROSTJ232	22K
R2											

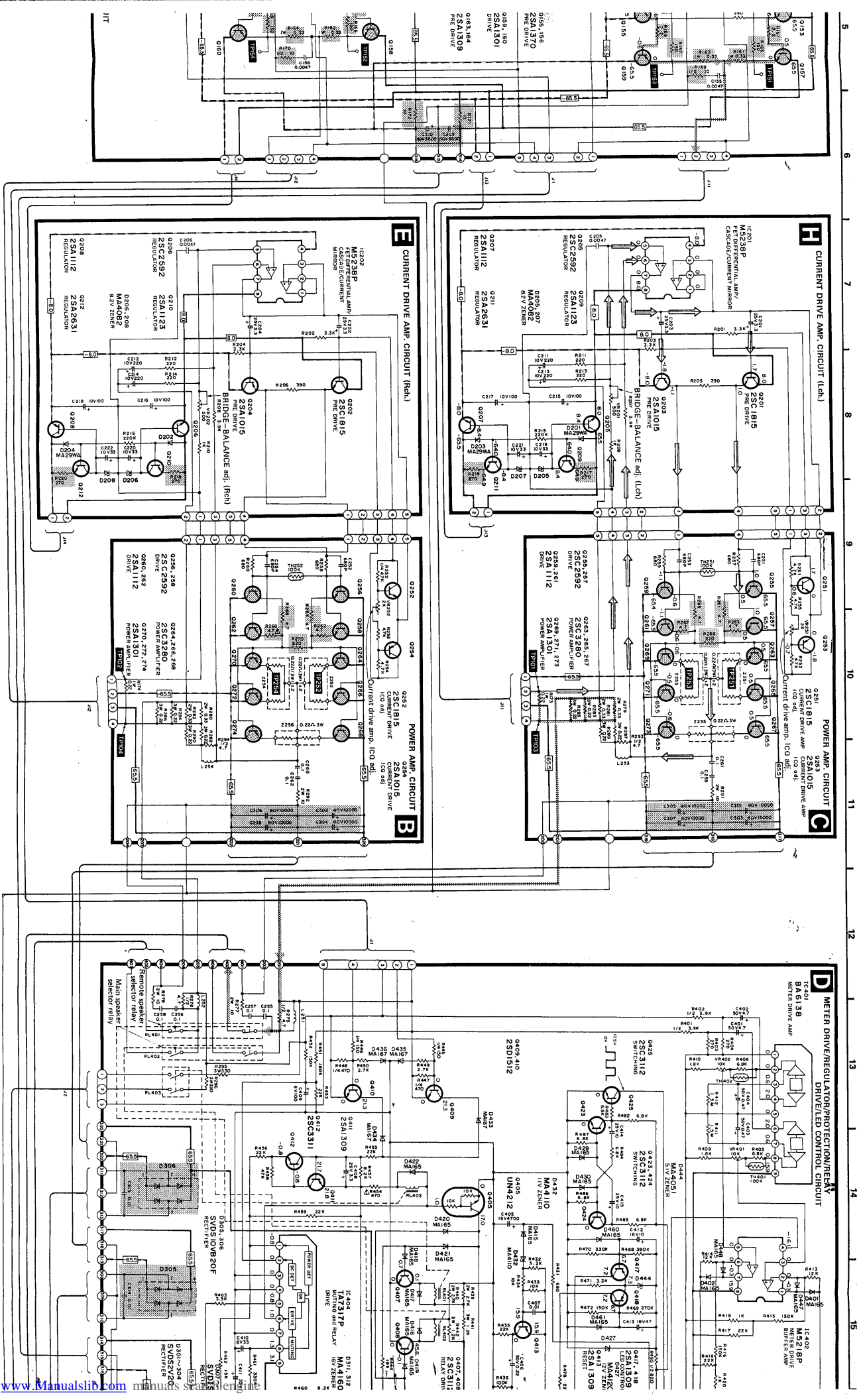
■ BLOCK DIAGRAM

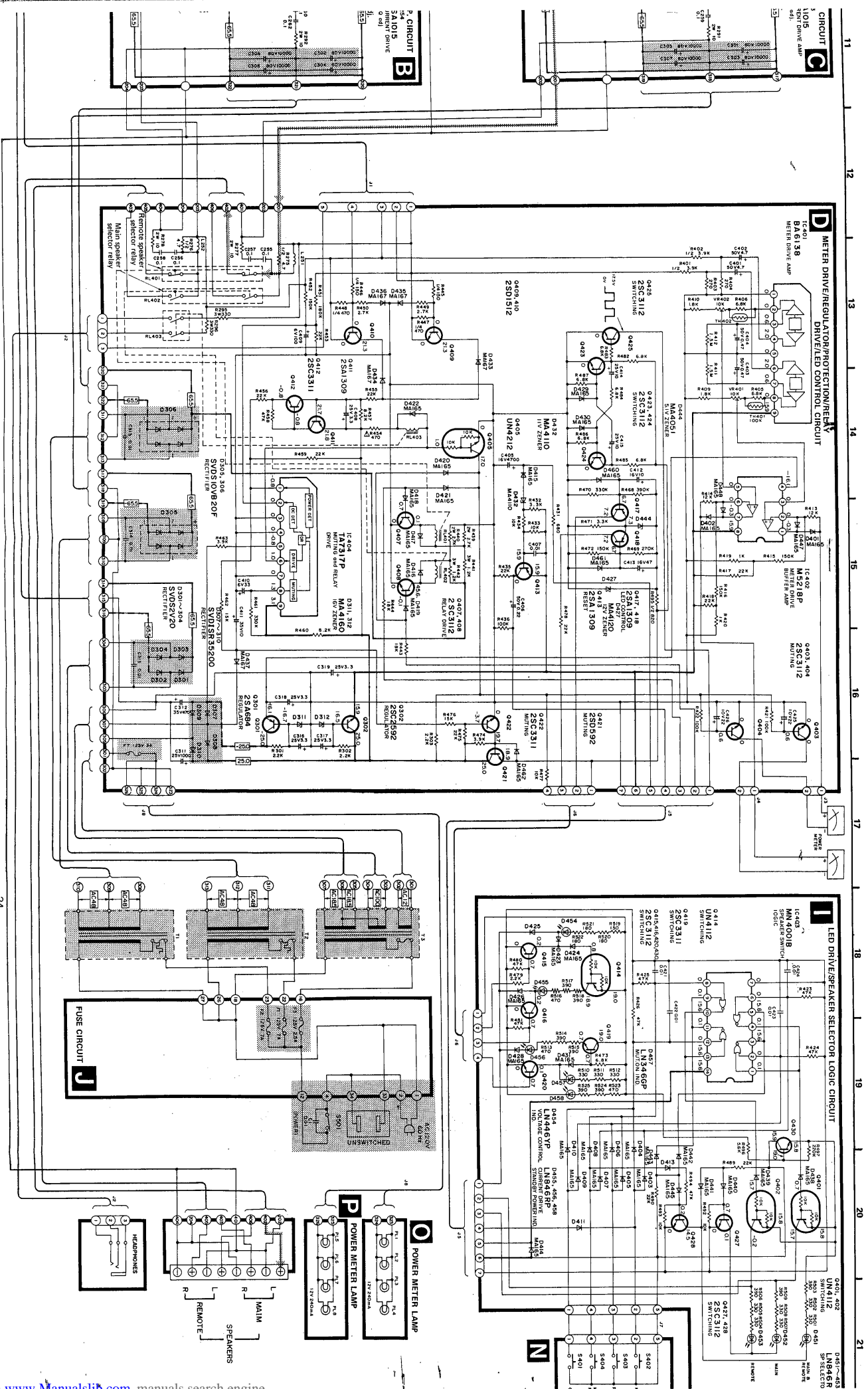
Tolerance

[illegible][illegible]



Note:
P.C.B.s A, B and C are grounded with the bus bar.
Before checking up these P.C.B.s, see Ref. No. 6 (Fig. 1 on page 6) in the disassembly instructions.
* Never turn on the machine with the bus bar disconnected. Otherwise the circuitry may be damaged.





SCHEMATIC DIAGRAM

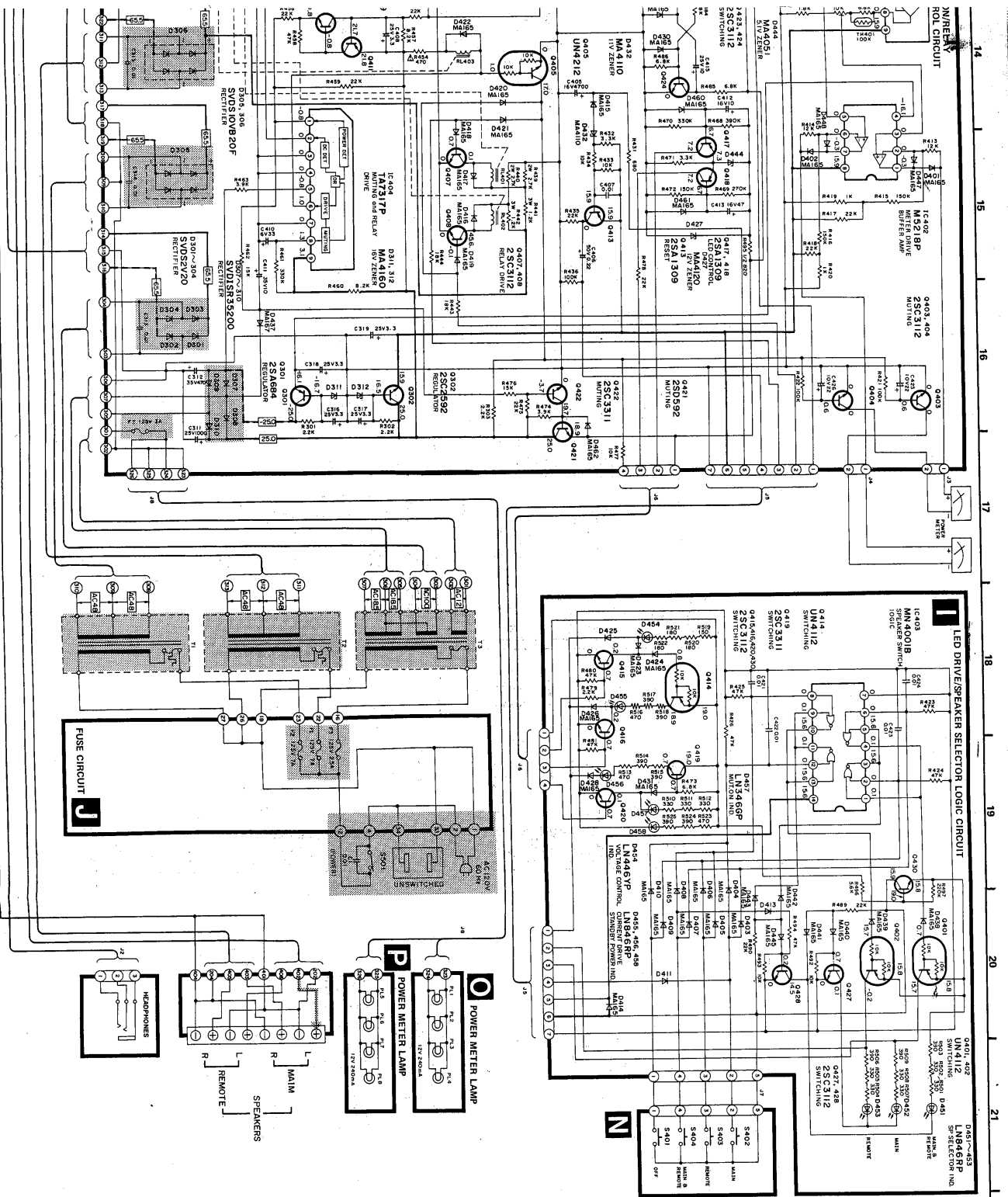
(This schematic diagram may be modified at any time with the development of new technology.)

Notes:

1. S401 ~ S404 : Speaker selector SW in "main" position.
S401: Off, S402: main, S403: remote
2. S501 : Power switch in "on" position.
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 values, depending on the internal impedance of the DC circuit tester.
3. S501 : Power signal lines of left channel.
4. S501 : Current drive amp. signal lines of left channel.
5. S501 : Positive (+B) voltage lines.
6. S501 : Negative (-B) voltage lines.

IMPORTANT SAFETY NOTICE

The shaded area on the schematic diagram indicates special features important for protection from fire and electric shock hazards. When servicing it is essential that only manufacturer's original parts be used for the critical components in the shaded areas of the schematic.



PROTECTION CIRCUITRY

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

Probable causes: E5A401C E5A603A E5B200A

1. The protection circuitry has functioned because the positive (+) and negative (-) speaker connection wires are short-circuited.
2. 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.
3. The protection circuitry has functioned because of a malfunction of this unit.

During normal operation

(Sound is heard from speakers)

Standby control amp.	Current drive amp.
standby	on
Not illuminated	illuminated

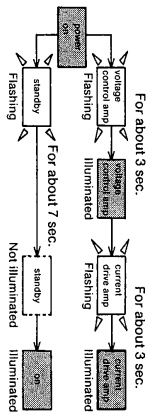
When protection circuitry functions

(No sound is heard from speakers)

Standby control amp.	Current drive amp.
standby	on
Flashing	Not illuminated

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:

1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. 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.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The "S" mark is service standard parts and may differ from production parts.
5. The parenthesized numbers in the column of description stand for the quantity per set.

Ref. No.	Part No.	Description
INTERFACED CIRCUITS		
IC201, 202	M528P	Integrated Circuit
IC401	BA138	Integrated Circuit
IC402	M218P	Integrated Circuit
IC403	MN4001B	Integrated Circuit
IC404	SVTA317P	Integrated Circuit
TRANSISTORS		
Q101, 102	2SC939-GR	Transistor (FT)
Q103-106	2SD1528	Transistor
Q109-112, 117	2SA1300	Transistor
Q113	2SB1088	Transistor
Q115, 116	2SA1370-D	Transistor
Q118-122, 155	2SC3311-O	Transistor
Q127, 128, 153	2SC3467-D	Transistor
Q154	2SC1819V	Transistor
Q155, 152, 201	2SC1819V	Transistor
Q157, 158	2SC2380A	Transistor
Q159, 160	2SA1301R	Transistor
Q163, 162, 412	2SC3311-O	Transistor
Q164, 164, 411	2SA1300	Transistor
Q203, 204, 253	2SA1019V	Transistor
Q204	2SC2982-R	Transistor
Q205, 206	2SC2982-R	Transistor
Q207, 208	2SA1112-R	Transistor
Q209, 210	2SA1123-R	Transistor
Q211, 212	2SA1019V	Transistor
Q213, 214	2SC2982-ONC	Transistor
Q215, 216	2SC2982-R	Transistor
Q217, 218	2SC3312	Transistor
Q219, 220	2SC3312	Transistor
Q221, 222	2SC3312	Transistor
Q223, 224	2SC3312	Transistor
Q225, 226	2SC3312	Transistor
Q227, 228	2SC3312	Transistor
Q229, 230	2SC3312	Transistor
Q231, 232	2SC3312	Transistor
Q233, 234	2SC3312	Transistor
Q235, 236	2SC3312	Transistor
Q237, 238	2SC3312	Transistor
Q239, 240	2SC3312	Transistor
Q241, 242	2SC3312	Transistor
Q243, 244	2SC3312	Transistor
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Q247, 248	2SC3312	Transistor
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Q251, 252	2SC3312	Transistor
Q253, 254	2SC3312	Transistor
Q255, 256	2SC3312	Transistor
Q257, 258	2SC3312	Transistor
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Q263, 264	2SC3312	Transistor
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Q267, 268	2SC3312	Transistor
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Q275, 276	2SC3312	Transistor
Q277, 278	2SC3312	Transistor
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Q291, 292	2SC3312	Transistor
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Q297, 298	2SC3312	Transistor
Q299, 300	2SC3312	Transistor
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Q315, 316	2SC3312	Transistor
Q317, 318	2SC3312	Transistor
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Q351, 352	2SC3312	Transistor
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Q369, 370	2SC3312	Transistor
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Q395, 396	2SC3312	Transistor
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Q399, 400	2SC3312	Transistor
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Q403, 404	2SC3312	Transistor
Q405, 406	2SC3312	Transistor
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Q421, 422	2SC3312	Transistor
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Q437, 438	2SC3312	Transistor
Q439, 440	2SC3312	Transistor
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Q455, 456	2SC3312	Transistor
Q457, 458	2SC3312	Transistor
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Q473, 474	2SC3312	Transistor
Q475, 476	2SC3312	Transistor
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Q479, 480	2SC3312	Transistor
Q481, 482	2SC3312	Transistor
Q483, 484	2SC3312	Transistor
Q485, 486	2SC3312	Transistor
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Q493, 494	2SC3312	Transistor
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Q499, 500	2SC3312	Transistor
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Q519, 520	2SC3312	Transistor
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Q527, 528	2SC3312	Transistor
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Q541, 542	2SC3312	Transistor
Q543, 544	2SC3312	Transistor
Q545, 546	2SC3312	Transistor
Q547, 548	2SC3312	Transistor
Q549, 550	2SC3312	Transistor
Q551, 552	2SC3312	Transistor
Q553, 554	2SC3312	Transistor
Q555, 556	2SC3312	Transistor
Q557, 558	2SC3312	Transistor
Q559, 560	2SC3312	Transistor
Q561, 562	2SC3312	Transistor
Q563, 564	2SC3312	Transistor
Q565, 566	2SC3312	Transistor
Q567, 568	2SC3312	Transistor
Q569, 570	2SC3312	Transistor
Q571, 572	2SC3312	Transistor
Q573, 574	2SC3312	Transistor
Q575, 576	2SC3312	Transistor
Q577, 578	2SC3312	Transistor
Q579, 580	2SC3312	Transistor
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Q583, 584	2SC3312	Transistor
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Q589, 590	2SC3312	Transistor
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Q593, 594	2SC3312	Transistor
Q595, 596	2SC3312	Transistor
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Q601, 602	2SC3312	Transistor
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Q607, 608	2SC3312	Transistor
Q609, 610	2SC3312	Transistor
Q611, 612	2SC3312	Transistor
Q613, 614	2SC3312	Transistor
Q615, 616	2SC3312	Transistor
Q617, 618	2SC3312	Transistor
Q619, 620	2SC3312	Transistor
Q621, 622	2SC3312	Transistor
Q623, 624	2SC3312	Transistor
Q625, 626	2SC3312	Transistor
Q627, 628	2SC3312	Transistor
Q629, 630	2SC3312	Transistor
Q631, 632	2SC3312	Transistor
Q633, 634	2SC3312	Transistor
Q635, 636	2SC3312	Transistor
Q637, 638	2SC3312	Transistor
Q639, 640	2SC3312	Transistor
Q641, 642	2SC3312	Transistor
Q643, 644	2SC3312	Transistor
Q645, 646	2SC3312	Transistor
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Q649, 650	2SC3312	Transistor
Q651, 652	2SC3312	Transistor
Q653, 654	2SC3312	Transistor
Q655, 656	2SC3312	Transistor
Q657, 658	2SC3312	Transistor
Q659, 660	2SC3312	Transistor
Q661, 662	2SC3312	Transistor
Q663, 664	2SC3312	Transistor
Q665, 666	2SC3312	Transistor
Q667, 668	2SC3312	Transistor
Q669, 670	2SC3312	Transistor
Q671, 672	2SC3312	Transistor
Q673, 674	2SC3312	Transistor
Q675, 676	2SC3312	Transistor
Q677, 678	2SC3312	Transistor
Q679, 680	2SC3312	Transistor
Q681, 682	2SC3312	Transistor
Q683, 684	2SC3312	Transistor
Q685, 686	2SC3312	Transistor
Q687, 688	2SC3312	Transistor
Q689, 690	2SC3312	Transistor
Q691, 692	2SC3312	Transistor
Q693, 694	2SC3312	Transistor
Q695, 696	2SC3312	Transistor
Q697, 698	2SC3312	Transistor
Q699, 700	2SC3312	Transistor
Q701, 702	2SC3312	Transistor
Q703, 704	2SC3312	Transistor
Q705, 706	2SC3312	Transistor
Q707, 708	2SC3312	Transistor
Q709, 710	2SC3312	Transistor
Q711, 712	2SC3312	Transistor
Q713, 714	2SC3312	Transistor
Q715, 716	2SC3312	Transistor
Q717, 718	2SC3312	Transistor
Q719, 720	2SC3312	Transistor
Q721, 722	2SC3312	Transistor
Q723, 724	2SC3312	Transistor
Q725, 726	2SC3312	Transistor
Q727, 728	2SC3312	Transistor
Q729, 730	2SC3312	Transistor
Q731, 732	2SC3312	Transistor
Q733, 734	2SC3312	Transistor
Q735, 736	2SC3312	Transistor
Q737, 738	2SC3312	Transistor
Q739, 740	2SC3312	Transistor
Q741, 742	2SC3312	Transistor
Q743, 744	2SC3312	Transistor
Q745, 746	2SC3312	Transistor
Q747, 748	2SC3312	Transistor
Q749, 750	2SC3312	Transistor
Q751, 752	2SC3312	Transistor
Q753, 754	2SC3312	Transistor
Q755, 756	2SC3312	Transistor
Q757, 758	2SC3312	Transistor
Q759, 760	2SC3312	Transistor
Q761, 762	2SC3312	Transistor
Q763, 764	2SC3312	Transistor
Q765, 766	2SC3312	Transistor
Q767, 768	2SC3312	Transistor
Q769, 770	2SC3312	Transistor
Q771, 772	2SC3312	Transistor
Q773, 774	2SC3312	Transistor
Q775, 776	2SC3312	Transistor
Q777, 778	2SC3312	Transistor
Q779, 780	2SC3312	Transistor
Q781, 782	2SC3312	Transistor
Q783, 784	2SC3312	Transistor
Q785, 786	2SC3312	Transistor
Q787, 788	2SC3312	Transistor
Q789, 790	2SC3312	Transistor
Q791, 792	2SC3312	Transistor
Q793, 794	2SC3312	Transistor
Q795, 796	2SC3312	Transistor
Q797, 798	2SC3312	Transistor
Q799, 800	2SC3312	Transistor
Q801, 802	2SC3312	Transistor
Q803, 804	2SC3312	Transistor
Q805, 806	2SC3312	Transistor
Q807, 808	2SC3312	Transistor
Q809, 810	2SC3312	Transistor
Q811, 812	2SC3312	Transistor
Q813, 814	2SC3312	Transistor
Q815, 816	2SC3312	Transistor
Q817, 818	2SC3312	Transistor
Q819, 820	2SC3312	Transistor
Q821, 822	2SC3312	Transistor
Q823, 824	2SC3312	Transistor
Q825, 826	2SC3312	Transistor
Q827, 828	2SC3312	Transistor
Q829, 830	2SC3312	Transistor
Q831, 832	2SC3312	Transistor
Q833, 834	2SC3312	Transistor
Q835, 836	2SC3312	Transistor
Q837, 838	2SC3312	Transistor
Q839, 840	2SC3312	Transistor
Q841, 842	2SC3312	Transistor
Q843, 844	2SC3312	Transistor
Q845, 846	2SC3312	Transistor
Q847, 848	2SC3312	Transistor

SE-AT100 SE-AT100

EXPLODED VIEWS

VARIABLE RESISTORS		
Part No.	Part No.	Description
VR151, 152	EVNKA00B52	Variable Resistor, 5000(1B)
VR201, 202	EVNKA00B52	Variable Resistor, 5000(1B)
VR251, 252	EVNKA00B52	Variable Resistor, 5000(1B)
VR401, 402	EVNKA00B14	Variable Resistor, 20K(1B)
THERMISTORS		
TV251, 252, 401, 402	ERTDZMK10MS	100KΩ
COMPONENT COMBINATIONS		
Z251 - Z256	EPF3GBR22N	0.220 × 2
RELAYS		
RL401, 402	SSY126	Speaker
RL403	SFVGA5A237P	Headphone
LAMPS		
PL1 - 8	XAMS19P	Meter
FUSES		
F1, 2	XBA1F70N14	125V, 7A
F3	XBA1F50N14	125V, 2.5A
F7	XBA1F50N14	125V, 3A
SWITCHES		
SW1 - 404	SSG13	Speaker Selector
SS91	ESB98397	Power Source
METER		
	SSMEA100-KN	Power Meter
CABINET and CHASSIS PARTS		
Part No.	Part No.	Description
1	SSMEA100-KM	Panel Assy (Down)
1-1	(SHG6379	Rubber Ornament Assy
2	SSMEA100-KM	Ornament Assy
3	SSMEA100-KM1	Ornament Assy
4	SSMEA100-KN	(right)
5	SSMEA100-KN1	(Panel Assy Up)
5-1	(SHG6379	Rubber Ornament Assy
6	SSMEA100-KN2	Indicator Panel
6	SUW2981	Bracket
9	SLK258	Jack
10	SSCEA100-KN	Button Assy
11	SSW2980	Bracket
12	SSG6382	Rubber Power Switch
13	SSG6386-3	Power Switch
14	SUB161-1	Connection Rod
15	SSMEA100-KM	Side Plate (Left)
16	SSMEA100-KK	Upper Cover
17	SSMEA100-KN1	Side Plate (Right)
18	SUW2987	Bracket
25	SSW2987	Bracket
26	SSW2987	Bracket
28	SSCEA100-KM	Button Board
29	SUW2977-1	Bracket
30	SUW2977-1	Bracket
31	SUW2977-1	Bracket
32	SSMEA100-KN	Plate
33	SSW2979	Plate
34	SHE181	Spacer
		[24]
CABINET and CHASSIS PARTS		
Part No.	Part No.	Description
35	SUW2977-2	Bracket
36	SUW2979-1	Bracket
37	SUW2979-1	Bracket
38	SUW2979-1	Bracket
39	SUW2977-1	Bracket
40	SUW2977	Bracket
41	SSS245-1	Sheet
42	SSS245-1	Sheet
43	SSS6137	Rubber
44	SUW2988	Bracket
45	SU24617	Terminal Board
46	SU23431-9A	(Speaker Terminal) Board
47	SSCEA100-KM	Input Panel
48	SKL241	Foot Panel
49	SKL241	Foot Panel
50	SLA174	AC Cord
51	SLA173	AC Cord
52	SLA173	AC Cord
53	SLV41	Spacer
54	SLV40	Spacer
55	SLM4	Bracket
59	SLT345	Lamp Holder
60	SHS301	Clamp
SCREWS, WASHERS and NUTS		
N1	XTB3-8FFZ	Tapping, Ø3×8
N2	XTB3-8FFZ	Tapping with
N3	XTB3-8FFZ1	Tapping with
N4	XTB3-8FFZ	Tapping with
N5	XNS12	Nut, Ø12
N6	SSN69-1	(Washer)
N7	SSN69-6	(Washer)
N8	XTB3-8FFZ	Tapping, Ø3×8
N9	XTB3-8FFZ1	Tapping with
N10	XTB3-8FFZ1	Tapping with
N11	XTB3-8FFZ	Tapping with
N12	XTB4-8FFZ	Tapping, Ø4×8
N13	XYW3-CBZ5	Tapping, Ø3×8
N14	XTB4-8FFZ	Tapping, Ø4×8
N15	XTW3-191	Washer, Ø3×8
N16	XTW3-8LFR	Tapping with
N17	XTY3-20F	Washer, Ø3×8
N18	XTY4-10FFZ	Tapping, Ø3×16
N19	XTY4-10FFZ	Tapping, Ø3×16
N20	XTY3-80FFZ	Tapping, Ø3×8
N21	XTY3-80FFZ	Tapping, Ø3×8
N22	SSN2177-1	Transistor
N23	XN4D5	Nut, Ø4
N24	XN4D5	Nut, Ø4
N25	XN4C8	Washer, Ø4
N26	XN4C8	Washer, Ø4
N27	XYW3-CDS	Ø3×8
ACCESSORIES		
A1	SSGMA002	Cord
A2	SFPA002	Driver Part Assy
A3 [M]	SCF1-1635	Instruction Book
A4 [M]	SCF1-1635	Instruction Book
PACKING PARTS		
P1 [M]	SSP2510	Carton Bag
P2 [M]	SSP2511	Carton Box
P3	SSP4688	Pad
P4	SSP4688	Pad
P5	SSP4688	Sheet
P6	SSP4679	Sheet
P7	SSP4679	Polyethylene Bag
P8	SSP4679	Polyethylene Bag
P9	SSP4679	Polyethylene Bag
P10	SSP4679	Polyethylene Bag
P11	SSP4679	Polyethylene Bag
P12	SSP4679	Polyethylene Bag
P13	SSP4679	Polyethylene Bag
P14	SSP4679	Polyethylene Bag
P15	SSP4679	Polyethylene Bag
P16	SSP4679	Polyethylene Bag
P17	SSP4679	Polyethylene Bag
P18	SSP4679	Polyethylene Bag
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P95	SSP4679	Polyethylene Bag
P96	SSP4679	Polyethylene Bag
P97	SSP4679	Polyethylene Bag
P98	SSP4679	Polyethylene Bag
P99	SSP4679	Polyethylene Bag
P100	SSP4679	Polyethylene Bag



