

# Service Manual

# Stereo Integrated Amplifier

# Amplifier

**SU-X880**

## Color

(K) . . . Black Type



## SPECIFICATIONS

(DIN 45 500)

## ■ AMPLIFIER SECTION

<b>DIN power output</b>	
1 kHz THD: 1%	2 × 80W (8Ω)
<b>Total harmonic distortion</b>	
rated power at 1 kHz	1% (8Ω)
half power at 1 kHz	0.007% (8Ω)
<b>Residual hum and noise</b>	0.2 mV
<b>Damping factor</b>	30 (8Ω)
<b>Input sensitivity and impedance</b>	
PHONO	3 mV/47kΩ
TUNER, CD, AUX, TAPE 1, TAPE 2	200 mV/22kΩ
<b>Maximum input voltage (1 kHz, RMS)</b>	
PHONO	120 mV
S/N (rated power 8Ω)	
PHONO	75 dB (IHF, A: 79 dB)
TUNER, CD, AUX, TAPE 1, TAPE 2	82 dB (IHF, A: 83 dB)

### Frequency response

<b>PHONO</b>	RIAA standard curve ±0.8 dB (30 Hz~15 kHz)
<b>TUNER, CD, AUX, TAPE 1, TAPE 2</b>	10 Hz~60 kHz (-3 dB)
<b>Tone controls</b>	
<b>BASS</b>	50 Hz, +10 dB~-10 dB
<b>TREBLE</b>	20 kHz, +10 dB~-10 dB
<b>Muting</b>	-20 dB
<b>Super bass</b>	70 Hz, +10 dB
<b>Output voltage</b>	
<b>TAPE 1, TAPE 2, REC OUT</b>	200 mV
Channel balance, AUX 250 Hz~6,300 Hz	±1.0 dB
Channel separation, AUX 1 kHz	60 dB
<b>Headphones output level and impedance</b>	
	590 mV/330Ω
<b>Load impedance</b>	
<b>MAIN or REMOTE</b>	8Ω~16Ω
<b>SUPER GND</b>	10~100Ω

■ GENERAL

<b>Power consumption</b>	370W
<b>Power supply</b>	
For continental Europe	AC 50 Hz/60 Hz, 220V
For others	AC 50 Hz/60 Hz, 110V/127V/220V/240V
<b>Dimensions (W×H×D)</b>	360 × 128 × 303 mm (14-3/16" × 5-1/32" × 11-30/32")
<b>Weight</b>	7.7 kg (17 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.

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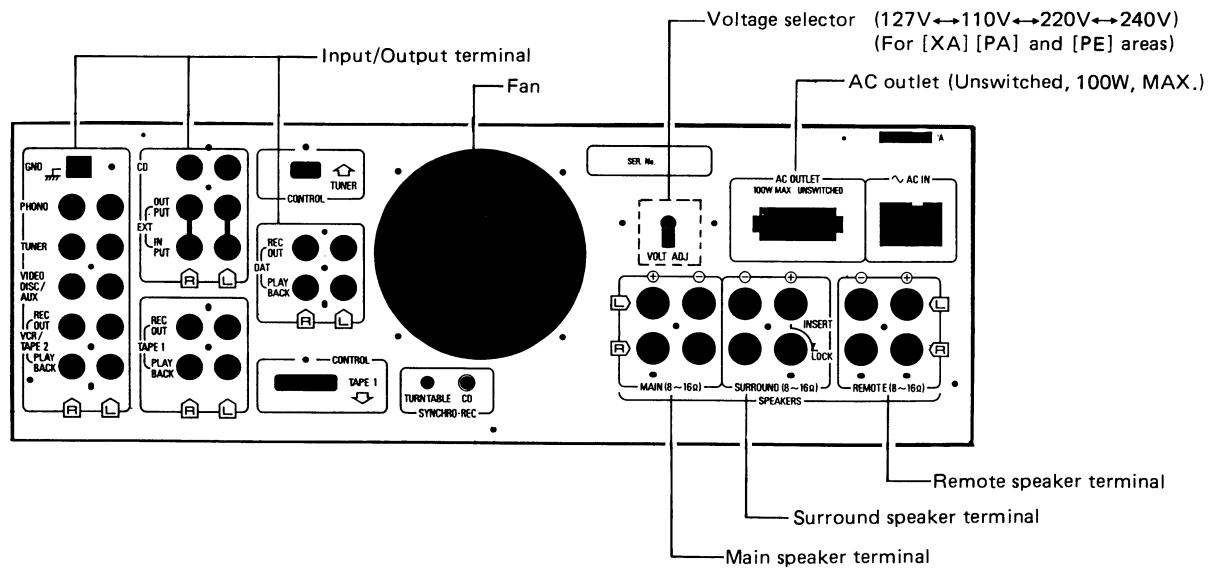
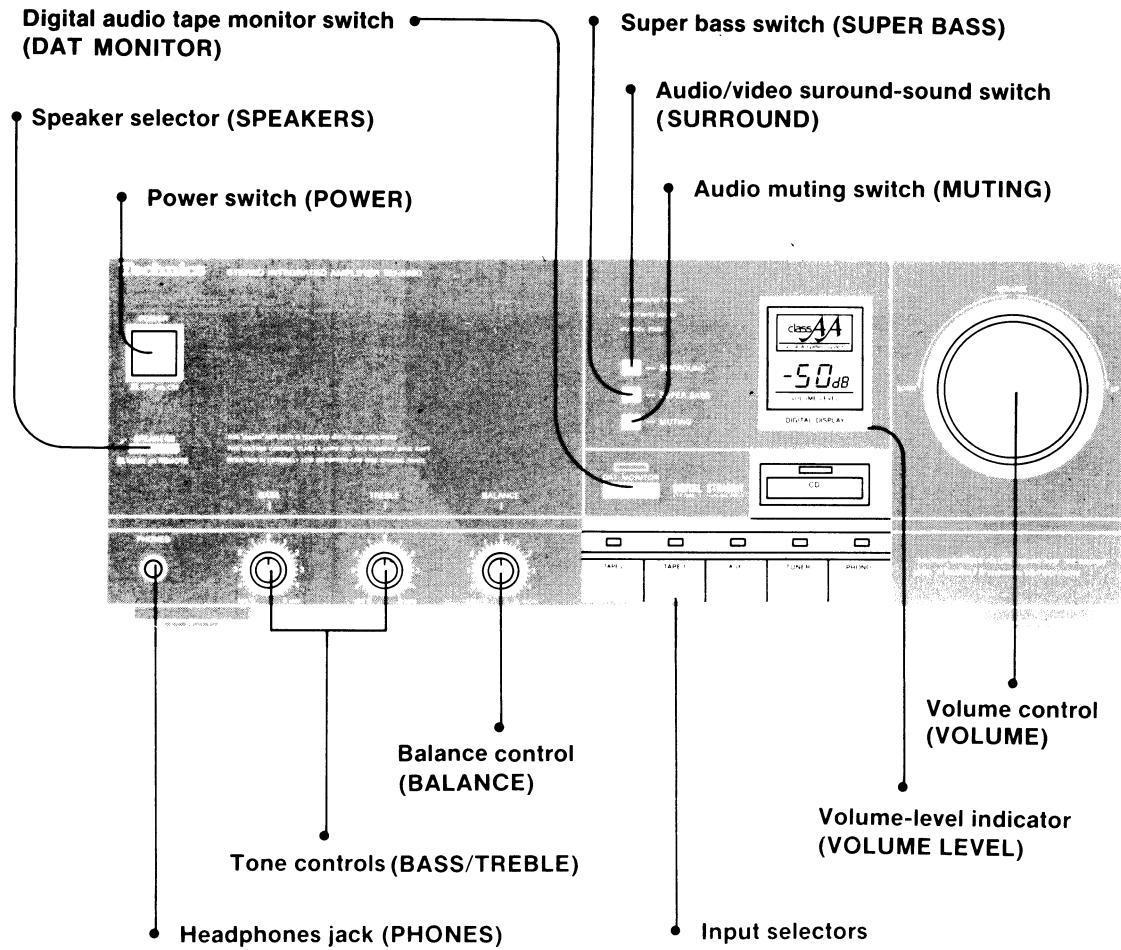
	Page
BLOCK DIAGRAM . . . . .	9 ~ 11
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# Technics

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

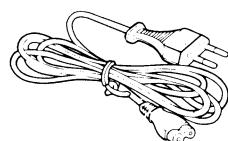
**Panasonic Tokyo Office**  
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No. 4-1, Hamamatsu-cho 2-Chome, Minato-ku,  
Tokyo 105, Japan

## ■ LOCATION OF CONTROLS



## ■ ACCESSORY

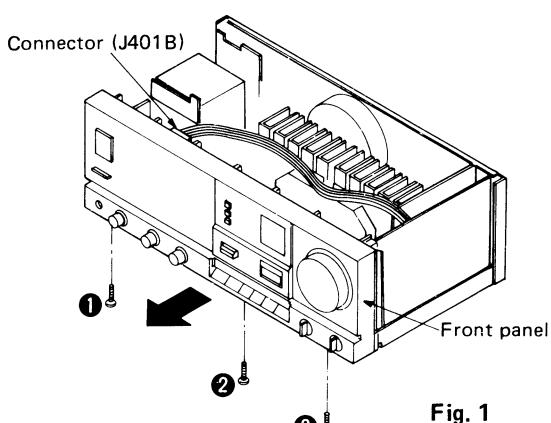
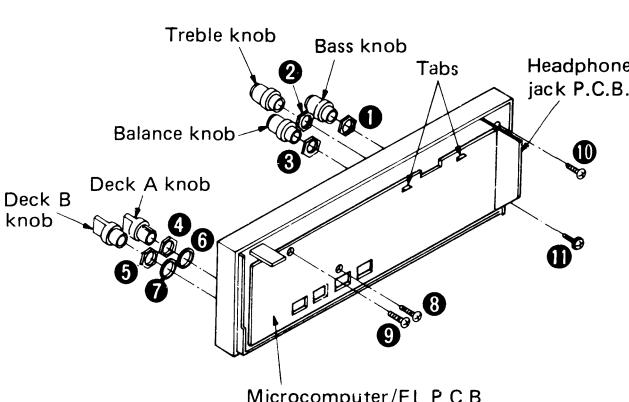
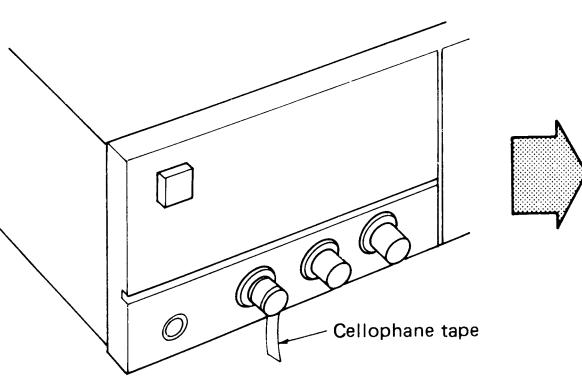
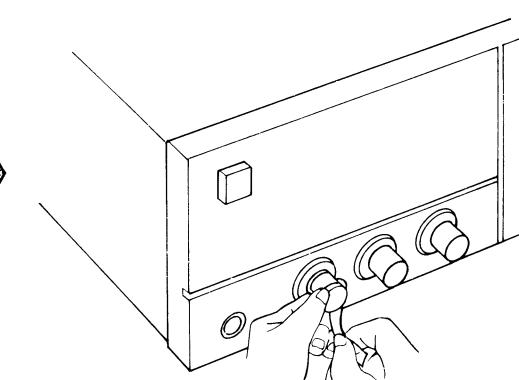
- AC power supply cord ..... 1



## ■ DISASSEMBLY INSTRUCTIONS

### "ATTENTION SERVICER"

SOME CHASSIS COMPONETS MAY HAVE SHARP EDGES. BE CAREFUL WHEN DISASSEMBLING AND SERVICING.

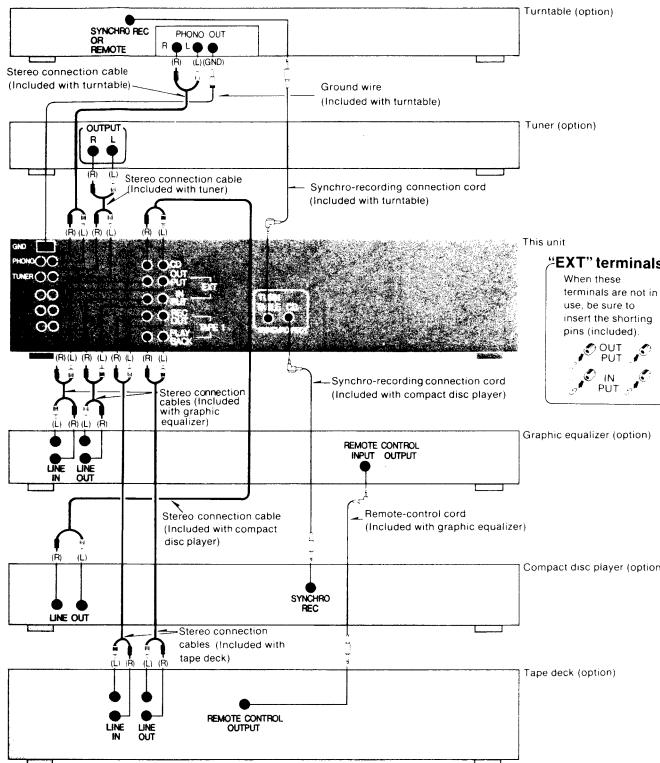
Ref. No. 1	<b>How to remove the cabinet</b>
Procedure 1	1. Remove the 4 screws from both sides of the cabinet and the 2 screws from its back.
Ref. No. 2	<b>How to remove the front panel</b>
Procedure 1 → 2	1. Remove the 3 screws (① ~ ③) from the front panel. 2. Remove the connector (J401B).
Ref. No. 3	<b>How to remove the headphone jack P.C.B. and microcomputer/FL P.C.B.</b>
Procedure 1 → 2 → 3	<ol style="list-style-type: none"> <li>1. Remove the balance, treble and bass knobs, as well as their respective nuts (① ~ ③).</li> <li>2. Remove the deck A and deck B knobs, as well as their respective nuts (④, ⑤) and washers (⑥, ⑦).</li> <li>3. Remove the 2 screws (⑧, ⑨) from the microcomputer/FL P.C.B., and undo the 2 tabs.</li> <li>4. Remove the 2 screws (⑩, ⑪) from the headphone jack P.C.B.</li> </ol>
 <p style="text-align: center;"><b>Fig. 1</b></p>	
 <p style="text-align: center;"><b>Fig. 1</b></p>	
 <p style="text-align: center;"><b>Fig. 2</b></p>	
 <p style="text-align: center;"><b>Fig. 3</b></p>	
<p><b>Remove the knob</b></p> <p>Wind cellophane tape around the knob and put it the direction of the arrow as shown in Fig. 2 and Fig. 3.</p>	

## ■ CONNECTION

### 1. Make the connections of the stereo connection cables, the synchro-recording connection cords, and the remote-control cords.

Note:

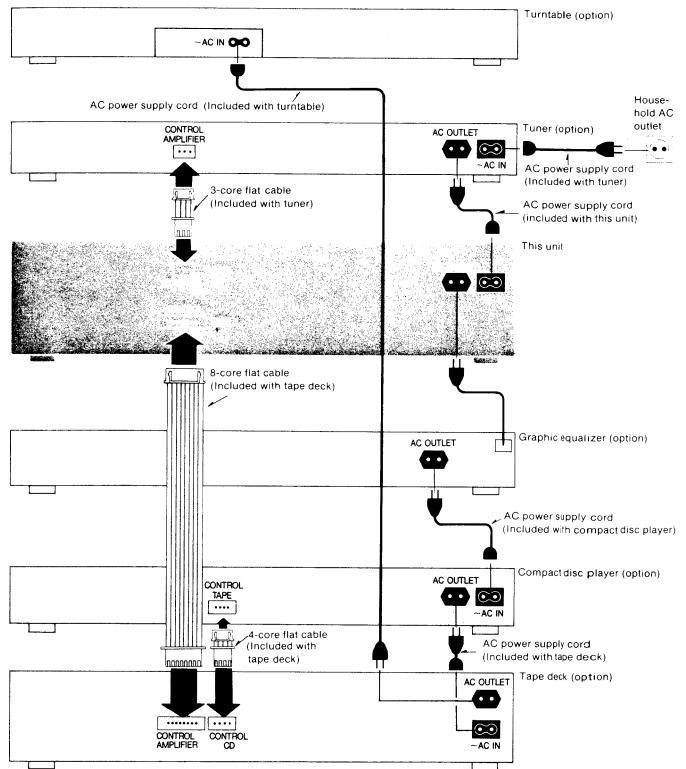
Although the synchro-recording connection cords and the remote-control cords are differentiated in the figure below, actually they are the same shape.



### 2. Make the connections of the flat cables and the AC power supply cords.

- Do not connect video-related equipment (such as a TV etc.) to the power outlets of these components. (These outlets are especially for audio equipment.) Also do not exceed the indicated (as shown in the figure) power ratings when connecting to these outlets.
- The tuner's power outlet is interlocked with the power "STAND BY → ON" switch of the tuner.
- If the graphic equalizer is not used in combination with these components, connect the AC power supply cord of the compact disc player to the AC outlet of the amplifier. If the compact-disc player is not used in combination with these components, connect the AC power supply cord of the cassette tape deck to the AC outlet of the graphic equalizer.

Note: The configurations of the AC outlets and AC power supply cords differ according to area.



## ■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of this unit are used.

If this occurs, follow the procedure outlined below:

- Turn off the power.
- Determine the cause of the problem and correct it.
- Turn on the power once again after one minute.

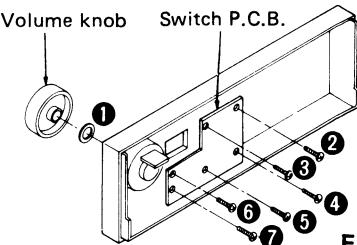
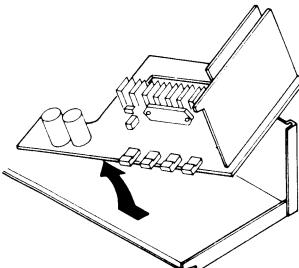
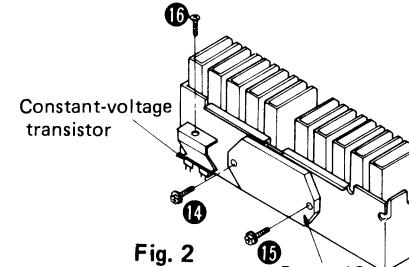
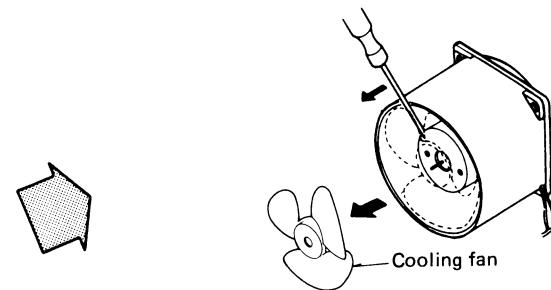
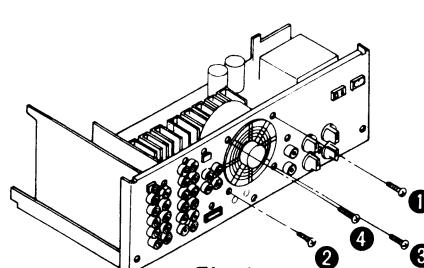
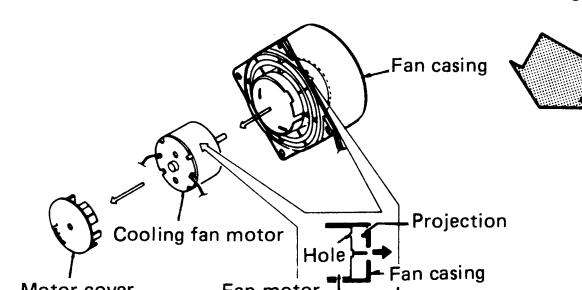
### Note

When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

## ■ BEFORE REPAIR AND ADJUSTMENT

- Turn off the power supply. Using a  $10\Omega$ , 5W resistor, shortcircuit both ends of power supply capacitors ((C701, C702) in order to discharge the voltage.
- 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 50Hz/60Hz in NO SIGNAL mode should be shown below with respect to supply voltage 110V/127V/220V/240V.

Power supply voltage	AC110V	AC127V	AC220V	AC240V
Consumed current	50Hz 50Hz	210 ~ 630mA 195 ~ 585mA	106 ~ 320mA 100 ~ 302mA	98 ~ 294mA 93 ~ 279mA
	60Hz 60Hz	199 ~ 597mA 184 ~ 552mA		

Ref. No. 4	<b>How to remove the volume control and switch P.C.B.</b>
<b>Procedure</b> <b>1 → 2 → 3 → 4</b>	<p>1. Remove the volume knob and the nut ( 1 ).      2. Remove the 6 screws ( 2 ~ 7 ) from the switch P.C.B .</p>
	 <p><b>Fig. 1</b></p>
Ref. No. 5	<b>How to remove the main P.C.B., power IC and constant-voltage transistor</b>
<b>Procedure</b> <b>1 → 2 → 5</b>	<p>1. Remove the 8 screws ( 1 ~ 8 ) from the rear panel.      2. Remove the 3 screws ( 9 ~ 11 ) from the main P.C.B .      3. Remove the 2 screws ( 12 , 13 ) from the heat-sink.</p>
	 <p><b>Fig. 3</b></p>
Ref. No. 6	<b>How to remove the cooling fan motor</b>
<b>Procedure</b> <b>1 → 6</b>	<p>7. When mounting the power IC and the constant-voltage transistor, apply silicone grease (SZ0GYG6260) over their constant areas.</p>
	 <p><b>Fig. 2</b></p>
	<p>2. Insert a screwdriver at the root of the cooling fan. it out of the motor shaft.</p>
	 <p><b>Fig. 2</b></p>
	<p>1. Remove the 4 screws ( 1 ~ 4 ) and the connector.</p>
	 <p><b>Fig. 1</b></p>
	<p>3. Remove the motor cover.      4. Remove the motor from the fan casing.      5. When mounting the fan motor, align the fan casing's projection with the hole of the fan motor.</p>
	 <p><b>Fig. 3</b></p>

## FUNCTION OF IC TERMINAL • IC601 (LC6554D-3230)

Pin No.	Symbol	Function Description						
1 4	G0 G3	Grid drive output for digital multi-display (FL).						
5 6 7	S0 S1 S2	Key matrix output.	Output Input	5	6			
10 11	K0 K1 K3		10	S603 VIDEO DISC/AUX	S612 MUTE			
12			11	—	S608 BALANCE(R) S607 BALANCE(L)			
13			12	S602 TUNER	S605 VTR/TAPE 2			
8	S3	Not used.						
9	POWER ON	Not used.						
14	VR0	Rotary encoder input of volume control (VR601).						
15	VR1							
16	CS0	Not used.						
17	HALT	Input for power detection.						
18	CS1	Not used.						
19	AMP	Input for power detection.						
20	AMP POWER	Not used.						
21	CUT	Input selector noise cut muting output.						
22	S.ON	Not used.						
23	DTS	Not used.						
24	LVTR	LED selector display (VTR) output.						
25	LTA	LED selector display (TAPE) output.						
26	LVD	LED selector display (VIDEO DISC/AUX) output.						
27	LCD	LED selector display (CD) output.						
28	LTU	LED selector display (TUNER) output.						
29	LPH	LED selector display (PHONO) output.						
30	TEST	Not used.						
31	V <sub>SS</sub>	Grounding.						
32	OSC1	Clock oscillation input/output.						
33	OSC2							
34	RES	Reset signal input.						
35	ST	ST signal control output.						
36	DATA	DATA signal control output.						
37	CK	CK signal control output.						
38	REM	Remote control data input.						
39	DCD	Deck control output.						
40	SID	ST, CK and DATA signal control.						
41	SYPH	Player synchronized recording input.						
42	SYCD	CD synchronized recording input.						
43	SY OUT	Deck synchronized recording output.						
44	START	Player STOP/START signal output.						
45	STOP							
46	REC	Deck on-recording signal input.						
47	PH	Input selection by phono unit signal.		Direct operation input.				
48	TU	Input selection by tuner unit signal.						
49	CD	Input selection by CD unit signal.						
50	DECK	Input selection by tape unit signal.						
51	V <sub>P</sub>	Power supply.						
52 60	S0 S8	Digital multi-display (FL) output.						
61	S music	Not used.						
62	S movie							
63	S mono							
64	V <sub>DD</sub>	Power supply.						

# ■ RESISTORS & CAPACITORS

## Notes: \* Important safety notice:

Components identified by  $\Delta$  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.

## Numbering System of Resistor

### Example

ERD	25	F	J	102
Type	Wattage	Shape	Tolerance	Value
ERX	2	AN	J	471
Type	Wattage	Shape	Tolerance	Value $47 \times 10^1$ (ohm)

## Numbering System of Capacitor

### Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity
ECEA	50	M		330
Type	Voltage	Peculiarity		Value $(33 \times 10^{-9}$ microfarad)

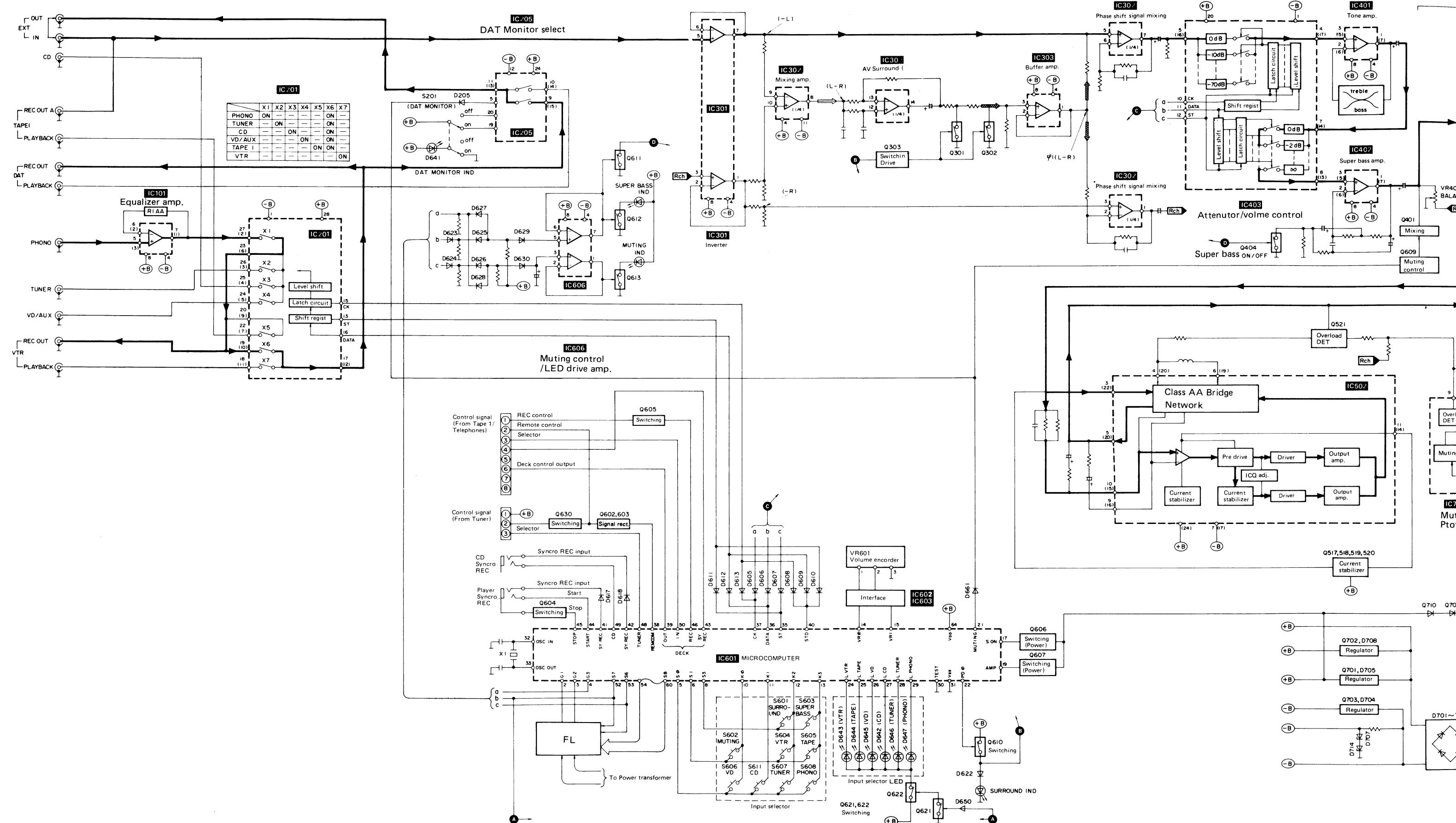
Resistor Type	Wattage	Tolerance
ERD : Carbon	10 : 1/8W	J : $\pm 5\%$
ERG : Metal Oxide	12 : 1/2W	F : $\pm 1\%$
ERX : Metal Film	25 : 1/4W	G : $\pm 2\%$
ERQ : Fuse Type Metal	1A : 1W	K : $\pm 10\%$
ERD [ ] L : Carbon (chip)	18 : 1/8W	
ERO [ ] K : Metal Film (chip)	S2 : 1/4W	
ERC : Solid	S1 : 1/2W	
	2F : 1/4W	
	50 : 1/2W	
	2A : 2W	

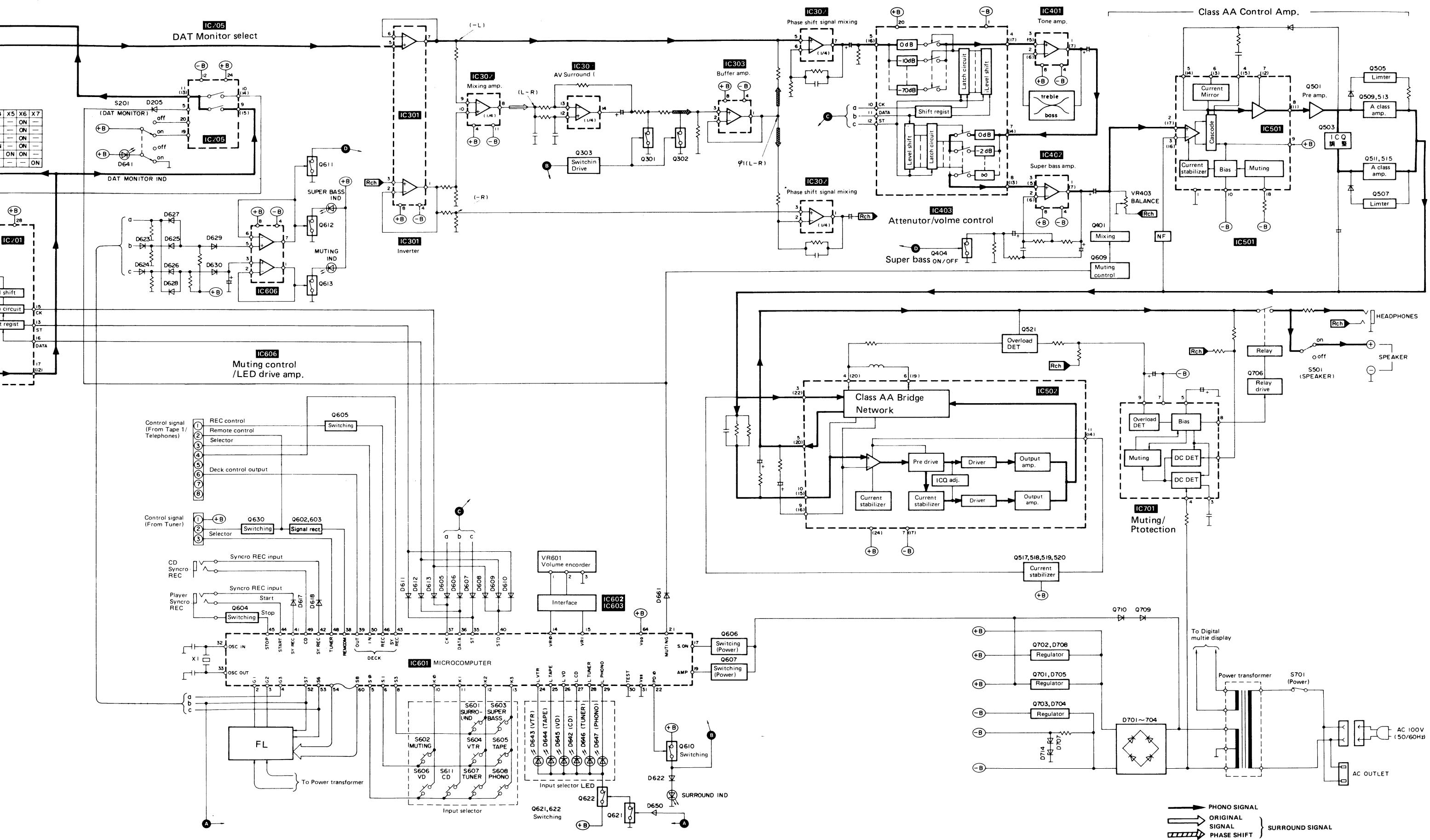
Capacitor Type	Voltage	Tolerance
ECE : Electrolytic	0J : 6.3V	C : $\pm 0.25\text{pF}$
ECCD : Ceramic	1A : 10V	J : $\pm 5\%$
ECKD : Ceramic	1C : 16V	K : $\pm 10\%$
ECQM : Polyester	1E : 25V	Z : $-20\%$
	1H : 50V	
ECQP : Polypropylene	1V : 35V	P : $+100\%$
	50 : 50V	-0%
ECG : Ceramic	05 : 50V	M : $\pm 20\%$
ECEA [ ] D : Non Polar	2H : 500V	
	2A : 100V	D : $\pm 0.5\text{pF}$
ECU [ ] : Ceramic (Chip Type)	1 : 100V	
ECUX : Ceramic (Chip Type)	KC : 400V AC	G : $\pm 2\%$
ECF : Semiconductor	KC : 125VAC (UL)	
EECW : Liquid electrolyte double layer capacitor	1J : 63V	

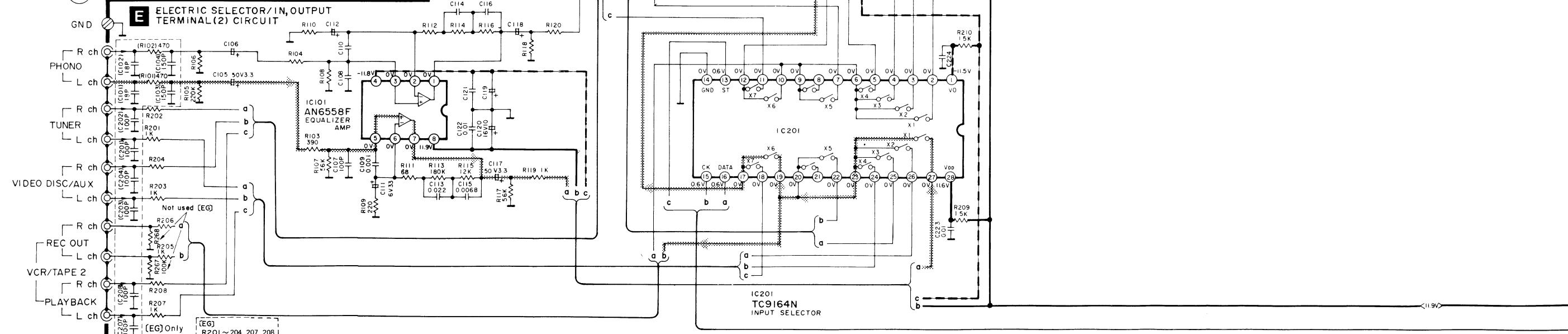
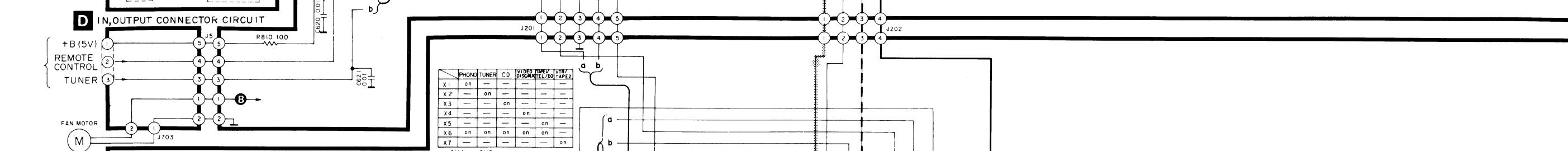
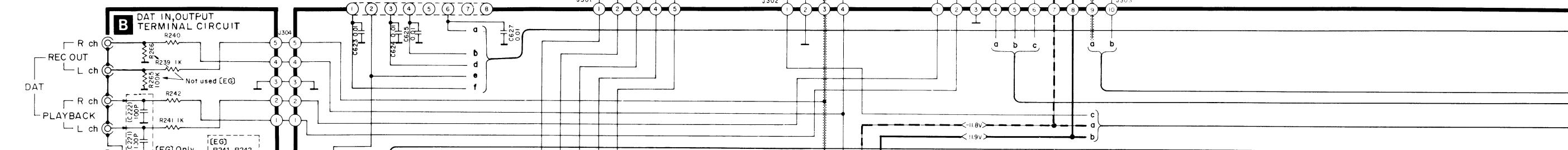
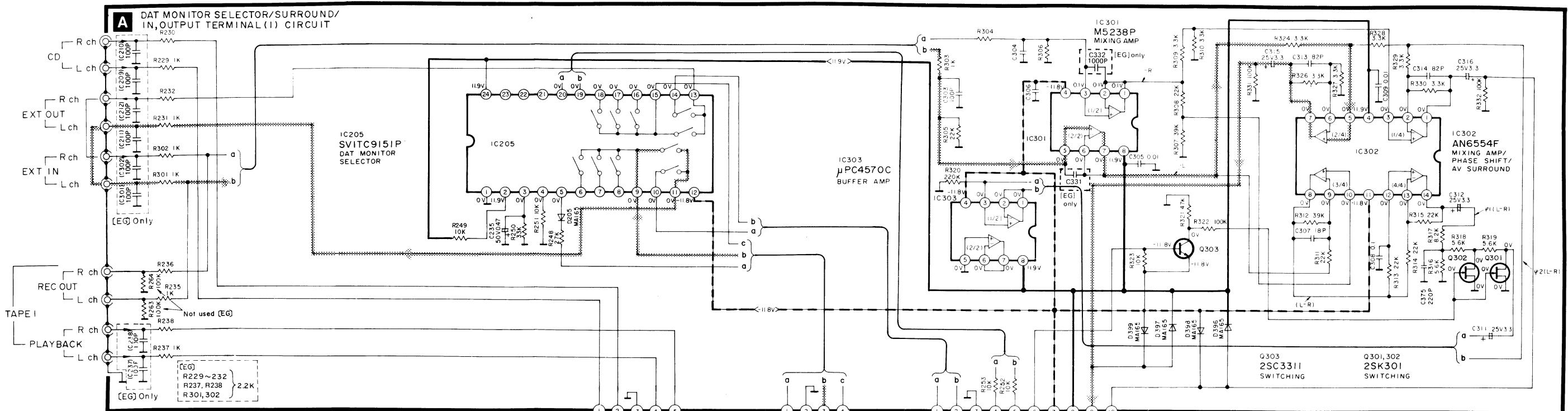
Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code
<b>RESISTORS</b>								
R101, R102 [EG] ERDS2TJ471		R239	ERDS2TJ102	001 152 2346 4	R320	ERDS2TJ224	001 152 2433 6	
R103, R104 ERDS2TJ391	001 152 2360 6	(EG)	ERDS2TJ222	001 152 2353 5	R321	ERDS2TJ473	001 152 2363 3	
R105, R106 ERDS2TJ224	001 152 2433 6	R240	ERDS2TJ102	001 152 2346 4	R322	ERDS2TJ104	001 152 2348 2	
R107, R108 ERDS2TJ563	001 152 2446 1	(EG)	ERDS2TJ222	001 152 2353 5	(EG)	ERDS2TJ104	001 152 2348 2	
R109, R110 ERDS2TJ221	001 152 2431 8	R241	ERDS2TJ102	001 152 2346 4	R323	ERDS2TJ103	001 152 2347 3	
R111, R112 ERDS2TJ680	001 152 2448 9	R241	ERDS2TJ222	001 152 2353 5	R324, R326	ERDS2TJ332	001 152 2357 1	
R113, R114 ERDS2TJ184	001 152 2588 8	(EG)			R327, R328	ERDS2TJ332	001 152 2357 1	
R115, R116 ERDS2TJ123	001 152 2424 7	R242	ERDS2TJ102	001 152 2346 4	R329, R330	ERDS2TJ332	001 152 2357 1	
R117, R118 ERDS2TJ563	001 152 2446 1	R242	ERDS2TJ222	001 152 2353 5	R331, R331	ERDS2TJ104	001 152 2348 2	
R119, R120 ERDS2TJ102	001 152 2346 4	(EG)			R332	ERDS2TJ104	001 152 2348 2	
R201, R202 ERDS2TJ102	001 152 2346 4	R248	ERDS2TJ273	001 152 2436 3	(EG)	ERDS2TJ104	001 152 2348 2	
R201, R202 [EG] ERDS2TJ222		R249	ERDS2TJ103	001 152 2347 3	R403, R404	ERDS2TJ224	001 152 2433 6	
R203, R204 ERDS2TJ102	001 152 2346 4	R250	ERDS2TJ333	001 152 2358 0	R407, R408	ERDS2TJ474	001 152 2443 4	
R203, R204 [EG] ERDS2TJ222		R251, R252	ERDS2TJ103	001 152 2347 3	R409, R410	ERDS2TJ822	001 152 2455 0	
R205, R206 ERDS2TJ102	001 152 2346 4	R253	ERDS2TJ103	001 152 2347 3	R413, R414	ERDS2TJ473	001 152 2363 3	
R207, R208 ERDS2TJ102	001 152 2346 4	R263, R264	ERDS2TJ104	001 152 2348 2	R415, R416	ERDS2TJ182	001 152 2352 6	
R209, R210 ERDS2TJ152	001 152 2350 8	R265, R266	ERDS2TJ104	001 152 2348 2	R417, R418	ERDS2TJ562	001 152 2445 2	
R219 ERDS2TJ182	001 152 2352 6	R267, R268	ERDS2TJ104	001 152 2348 2	R419, R420	ERDS2TJ474	001 152 2443 4	
R220, R221 ERDS2TJ562	001 152 2445 2	R301	ERDS2TJ102	001 152 2346 4	R421, R422	ERDS2TJ223	001 152 2432 7	
R222 ERDS2TJ562	001 152 2445 2	R301	ERDS2TJ222	001 152 2353 5	R423, R424	ERDS2TJ392	001 152 2439 0	
R229 ERDS2TJ102	001 152 2346 4	(EG)			R425, R426	ERDS2TJ182	001 152 2352 6	
R229 (EG) ERDS2TJ222	001 152 2353 5	R302	ERDS2TJ102	001 152 2346 4	R427, R428	ERDS2TJ821	001 152 2454 1	
R230 ERDS2TJ102	001 152 2346 4	R302	ERDS2TJ222	001 152 2353 5	R429, R430	ERDS2TJ273	001 152 2436 3	
R230 (EG) ERDS2TJ222	001 152 2353 5	(EG)			R433, R434	ERDS2TJ104	001 152 2348 2	
R231 ERDS2TJ102	001 152 2346 4	R303	ERDS2TJ102	001 152 2346 4	R437, R438	ERDS2TJ224	001 152 2433 6	
R231 (EG) ERDS2TJ222	001 152 2353 5	R303	ERDS2TJ102	001 152 2346 4	R439, R440	ERDS2TJ332	001 152 2357 1	
R232 ERDS2TJ102	001 152 2346 4	(EG)			R441, R442	ERDS2TJ103	001 152 2347 3	
R232 ERDS2TJ222	001 152 2353 5	R304	ERDS2TJ102	001 152 2346 4	R443, R444	ERDS2TJ103	001 152 2347 3	
(EG)		R304	ERDS2TJ102	001 152 2346 4	R445, R446	ERDS2TJ222	001 152 2353 5	
R235 ERDS2TJ102	001 152 2346 4	(EG)			R447, R448	ERDS2TJ392	001 152 2439 0	
R235 ERDS2TJ222	001 152 2353 5	R305, R306	ERDS2TJ223	001 152 2432 7	R451	ERDS2TJ122	001 152 2423 8	
(EG)		R307	ERDS2TJ393	001 152 2440 7	R452, R453	ERDS2TJ103	001 152 2347 3	
R236 ERDS2TJ102	001 152 2346 4	R308	ERDS2TJ223	001 152 2432 7	R454	ERDS2TJ681	001 152 2449 8	
R236 ERDS2TJ222	001 152 2353 5	R309, R310	ERDS2TJ332	001 152 2357 1	R455	ERDS2TJ222	001 152 2353 5	
(EG)		R311	ERDS2TJ223	001 152 2432 7	R456	ERDS2TJ153	001 152 2351 7	
R237 ERDS2TJ102	001 152 2346 4	R312	ERDS2TJ393	001 152 2440 7	R458	ERDS2TJ393	001 152 2440 7	
R237 ERDS2TJ222	001 152 2353 5	R313, R314	ERDS2TJ223	001 152 2432 7	R503	ERDS2TJ102	001 152 2346 4	
(EG)		R315	ERDS2TJ223	001 152 2432 7	R503	ERDS2TJ102	001 152 2346 4	
R238 ERDS2TJ102	001 152 2346 4	R316	ERDS2TJ562	001 152 2445 2	(EG)			
R238 ERDS2TJ222	001 152 2353 5	R317	ERDS2TJ822	001 152 2455 0	R504	ERDS2TJ102	001 152 2346 4	
(EG)		R318, R319	ERDS2TJ562	001 152 2445 2	R504	ERDS2TJ102	001 152 2346 4	

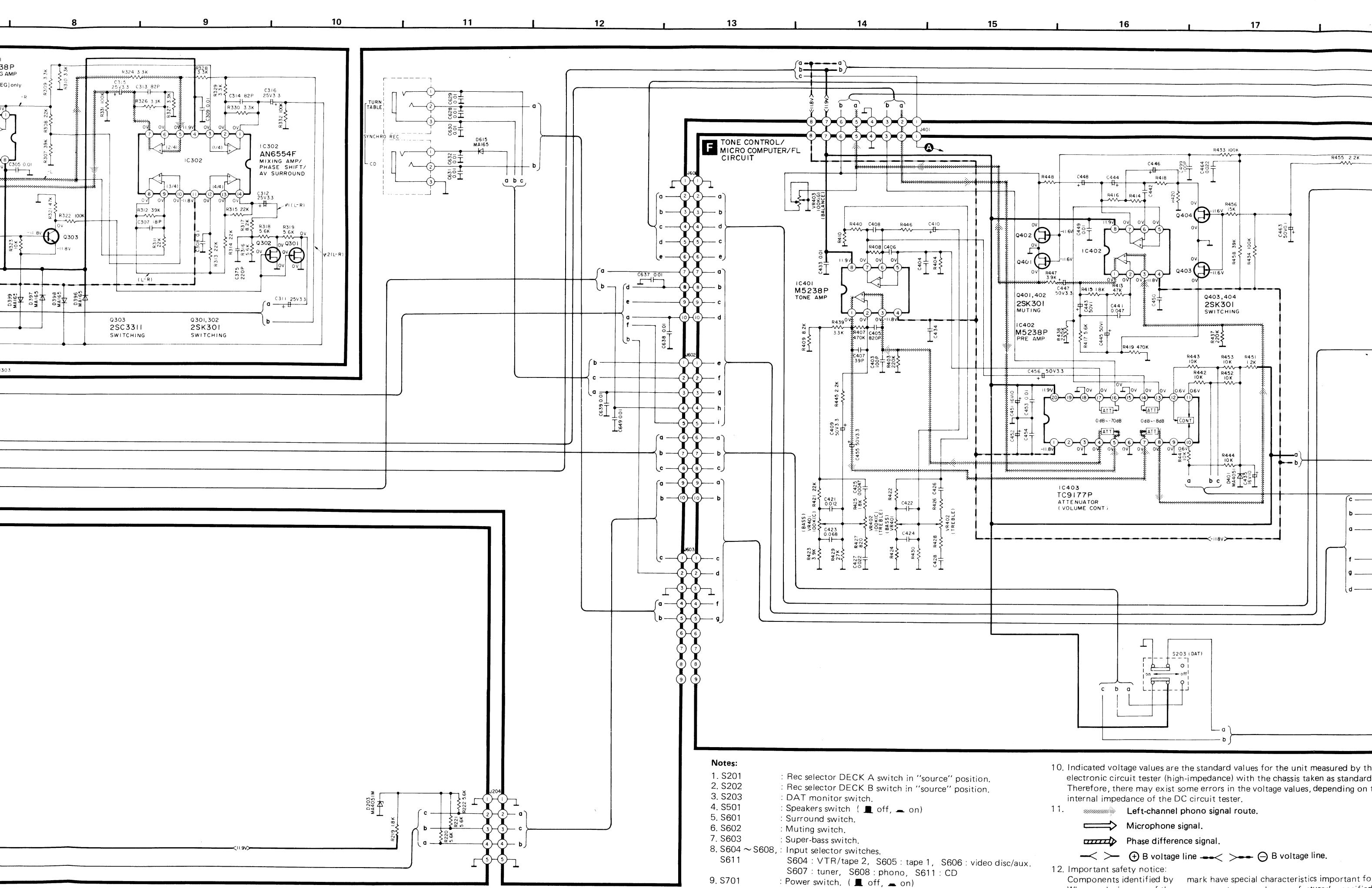
Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code
R505, R506	ERDS2TJ473	001 152 2363 3	R723, R724	ERDS2TJ223	001 152 2432 7	C503, C504	RCBS1H151KBY	
R507, R508	ERDS2TJ272	001 152 2354 4	R725	ERDS1FJ181	001 152 2621 4	C505, C506	RCBS1H820KBY	001 103 5646 8
R509, R510	ERDS2TJ473	001 152 2363 3	R726	ERDS2TJ562	001 152 2445 2	C507	ECEA2AU010	001 120 3578 4
R511	ERD2FCG470	001 152 0197 7	R727	ERDS2TJ153	001 152 2351 7	C508	ECEA1HK010	001 120 0341 5
R512	ERDS2TJ823	001 152 2456 9	R728	ERDS2TJ103	001 152 2347 3	C509, C510	ECEA1CPS220	001 120 6060 7
R513, R514	ERDS2TJ561	001 152 2364 2	R731, R732	ERDS2TJ473	001 152 2363 3	C511, C512	RCBS1H180JLY	001 103 5592 5
R515, R516	ERD25FJ470	001 152 0309 7	R733	ERDS2TJ153	001 152 2351 7	C513, C514	ECBT1H681KBY	001 103 9167 2
R531, R532	ERDS2TJ182	001 152 2352 6	R734	ERDS2TJ684	001 152 2451 4	C515, C516	RCBS1H120JLY	001 103 5578 3
R533, R534	ERDS2TJ391	001 152 2360 6	R735	ERDS2TJ104	001 152 2348 2	C517, C518	ECBT1H102KBY	001 103 8123 8
R535, R536	ERDS2TJ332	001 152 2357 1	R735	ERDS2TJ104	001 152 2348 2	C520, C521	ECKD1H102PF	
R537, R538	ERDS2TJ332	001 152 2357 1	(EG)			C522	ECKD1H102PF	
R539, R540	ERDS2TJ223	001 152 2432 7	R736	ERDS2TJ223	001 152 2432 7	C531, C532	ECKD1H333PF	001 103 1539 6
R541, R542	ERDS2TJ223	001 152 2432 7	R737	ERG1ANJ681	001 151 0086 8	C533, C534	RCBS1H680JLY	001 103 5640 4
R543, R544	ERDS2TJ332	001 152 2357 1	R810	ERDS2TJ101	001 152 2421 0	C537, C538	ECEA1HK010	001 120 0341 5
R545, R546	ERD25FJ101	001 152 0214 3				C539, C540	ECEA1VK330	001 120 4800 3
R547, R548	ERD25FJ101	001 152 0214 3				C541, C542	RCBS1H680JLY	001 103 5640 4
R549, R550	ERD25FJ2R2	001 152 0251 8	C101, C102 [EG]	RCBS1H180JLY		C561, C562	RCBS1H151KBY	
R551, R552	ERD25FJ2R2	001 152 0251 8	C103, C104 [EG]	RCBS1H151KBY		C563, C564	ECKD1H223PF	001 103 1449 7
R553, R554	ERD25FJ6R8	001 152 0335 5	C105, C106	ECEA1HPS3R3	001 120 6064 3	C565, C566	RCBS1H151KBY	
R571, R572	EROS2TFK4220	001 151 5327 2	C107, C108	RCBS1H101KBY	001 103 5569 4	C567, C568	ECKD1H223PF	001 103 1449 7
R573, R574	EROS2TFK1000	001 151 5727 8	C109, C110	ECFTD102KXL	001 108 0371 1	C571, C572	RCBS1H330JLY	001 103 5617 3
R575, R576	EROS2TFK1000	001 151 5727 8	C111, C112	ECEA0JPS330	001 120 6059 0	C573, C574	RCBS1H560JLY	001 103 5636 0
R577, R578	ERD2FCG271	001 152 6537 3	C113, C114	ECFTD223KXL	001 108 0342 6	C575, C576	ECQMI1H392JZ	001 06 0790 6
R579, R580	ERDS2TJ271	001 152 2435 4	C115, C116	ECFTD682KXL	001 108 0363 1	C577, C578	ECEA1HK010	001 120 0341 5
R581, R582	ERDS2TJ153	001 152 2351 7	C117, C118	ECEA1HPS3R3	001 120 6064 3	C579, C580	RCBS1H330JLY	001 103 5617 3
R583, R584	ERDS1FJ100	001 152 2612 5	C119, C120	ECEA1CKS100	001 120 2600 7	C581, C582	ECEA1AU101	001 120 2830 5
R585, R586	ERDS2TJ472	001 152 2362 4	C121, C122	ECBT1E103ZF5	001 103 8080 2	C583, C584	ECEA1AU101	001 120 2830 5
R587, R588	ERD25FJ100	001 152 0213 4	C201, C202	RCBS1H101KBY	001 103 5621 7	C585, C586	ECBT1H882KBY	001 103 9382 7
R589, R590	ERG1ANJ331	001 151 0062 6	(EG)			C587, C588	ECFTD472KXL	001 108 0746 0
R605	ERDS2TJ224	001 152 2433 6	C203, C204	RCBS1H101KBY	001 103 5621 7	C589, C590	ECKD1H333PF	001 103 1539 6
R606	ERDS2TJ223	001 152 2432 7	(EG)			C591, C592	ECKD1H333PF	001 103 1539 6
R608	ERDS2TJ224	001 152 2433 6	C209, C210	RCBS1H101KBY	001 103 5569 4	C593, C594	ECKD1H473ZF	001 103 5404 4
R610, R611	ERDS2TJ470	001 152 2442 5	(EG)			C597, C598	ECKD1H473ZF	001 103 5404 4
R612, R613	ERDS2TJ470	001 152 2442 5	C211, C212	RCBS1H101KBY	001 103 5569 4	C601	ECEA0JS102	001 120 0152 8
R614, R615	ERDS2TJ470	001 152 2442 5	(EG)			C602	ECBT1E223ZF	001 103 7589 2
R616, R617	ERDS2TJ470	001 152 2442 5	C221, C222	RCBS1H101KBY	001 103 5569 4	C605, C606	ECEA1HK010	001 120 0341 5
R618, R619	ERDS2TJ470	001 152 2442 5	(EG)			C612, C613	RCBS1H221KBY	001 103 5603 9
R620	ERDS2TJ562	001 152 2445 2	C223, C224	ECBT1E103ZF5	001 103 8080 2	C614, C615	ECEA1VK330	001 120 4800 3
R625, R626	ERDS2TJ223	001 152 2432 7	C235	ECEA1HKR47	001 120 0338 0	C620, C621	ECBT1E103ZF5	001 103 8080 2
R627, R628	ERDS2TJ223	001 152 2432 7	C237, C238	RCBS1H101KBY	001 103 5569 4	C623, C624	ECBT1E103ZF5	001 103 8080 2
R629, R630	ERDS2TJ153	001 152 2351 7	(EG)			C625, C627	ECBT1E103ZF5	001 103 8080 2
R631, R632	ERDS2TJ473	001 152 2363 3	C301, C302	RCBS1H101KBY	001 103 5569 4	C628, C629	ECBT1E103ZF5	001 103 8080 2
R638, R639	ERDS2TJ101	001 152 2421 0	(EG)			C630, C631	ECBT1E103ZF5	001 103 8080 2
R640	ERDS2TJ330	001 152 2355 3	C303, C304	RCBS1H101KBY	001 103 5569 4	C632	ECBT1E103ZF5	001 103 8080 2
R642, R643	ERDS2TJ221	001 152 2431 8	C305, C306	ECBT1E103ZF5	001 103 8080 2	C634	ECEA0JK470	001 120 0143 9
R644, R645	ERDS2TJ221	001 152 2431 8	C307	RCBS1H180JLY	001 103 5592 5	C635	ECEA1HK2R2B	001 120 0346 0
R646	ERDS2TJ221	001 152 2431 8	C308	ECFTD104KXL	001 108 0793 3	C637, C638	ECBT1E103ZF5	001 103 8080 2
R660, R661	ERDS2TJ103	001 152 2347 3	C309	ECBT1E103ZF5	001 103 8080 2	C639, C649	ECBT1E103ZF5	001 103 8080 2
R669, R670	ERDS2TJ223	001 152 2432 7	C311	ECEA1EK3R3B	001 120 0232 7	C651, C652	ECEA1HK010	001 120 0341 5
R671, R672	ERDS2TJ223	001 152 2432 7	C312	ECEA1EK3R3E	001 120 6273 6	C653	ECEA1CKS100	001 120 2600 7
R673	ERDS2TJ223	001 152 2432 7	C313, C314	RCBS1H820KBY	001 103 5646 8	C654	RCBS1H331KBY	001 103 5619 1
R674	ERDS2TJ822	001 152 2455 0	C315, C316	ECEA1EK3R3B	001 120 0232 7	C661, C662	RCBS1H330JLY	001 103 5617 3
R675, R676	ERDS2TJ223	001 152 2432 7	C331, C332 [EG]	ECKD1H103PF		C698, C699	RCBS1H101KBY	001 103 5569 4
R678, R679	ERDS2TJ222	001 152 2353 5	C375	ECKD1H271KB	001 103 1515 4	C700	ECKDKC103PF2	001 103 3734 7
R680	ERDS2TJ222	001 152 2353 5	C403, C404	RCBS1H101KBY	001 103 5569 4	C701, C702	ECETS56V682V	001 120 2771 1
R681, R682	ERDS2TJ223	001 152 2432 7	C405, C406	ECBT1H821KBY	001 103 9382 7	C703, C704	ECKD1H103PF	001 103 1449 7
R683, R684	ERDS2TJ104	001 152 2348 2	C407, C408	RCBS1H330JLY	001 103 5621 7	C705, C706	ECEA1CK470	001 120 0227 6
R685	ERDS2TJ151	001 152 2426 5	C409, C410	ECEA1HPS3R	001 120 6064 3	C707, C708	ECEA1CK220	001 120 0225 8
R686, R687	ERDS2TJ221	001 152 2431 8	C421, C422	ECFTD123KXL	001 108 0745 1	C709	ECEA1VK330	001 120 4800 3
R688, R689	ERDS2TJ221	001 152 2431 8	C423, C424	ECFTD683KXL	001 108 0346 2	C710	ECEA1HK4R7	001 120 2640 9
R690	ERDS2TJ152	001 152 2350 8	C425, C426	ECFTD472KXL	001 108 0746 0	C711	ECKD2H103PF	001 103 1626 8
R691, R692	ERDS2TJ103	001 152 2347 3	C427, C428	ECFTD223KXL	001 108 0342 6	C711 [EG]	ECKD2H2101PF	
R693, R694	ERDS2TJ102	001 152 2346 4	C433, C434	ECBT1E103ZF5	001 103 8080 2	C712	ECEA1AU101	001 120 2830 5
R695	ERDS2TJ103	001 152 2347 3	C435	ECEA1CKS100	001 120 2600 7	C713	ECEA1CKS100	001 120 2600 7
R696	ERDS2TJ472	001 152 2362 4	C441, C442	ECFTD473KXL	001 108 0361 3	C714	ECKD1H103PF	001 103 1449 7
R701, R702	ERD2FCG100	001 152 0185 1	C443, C444	ECEA1HPS010	001 120 6063 4	C721	ECEA1CK470	001 120 0227 6
R703, R704	ERDS2TJ682	001 152 2365 1	C445, C446	ECEA1HPS010	001 120 6063 4	C722	ECEA1CKS100	001 120 2600 7
R705	ERD2FCG100	001 152 0185 1	C447, C448	ECEA1HPS3R	001 120 6064 3	C723	ECEA1CU101	001 120 2926 8
R706	ERDS2TJ103	001 152 2347 3	C449, C450	ECBT1E103ZF5	001 103 9080 2	C731	ECEA0JS331	001 120 2975 9
R707	ERDS2TJ222	001 152 2353 5	C451, C452	ECEA1CKS100	001 120 2600 7	C732	ECFTD223KXL	001 108 0342 6
R708	ERDS2TJ682	001 152 2365 1	C453, C454	ECBT1E103ZF5	001 103 8080 2	C733	ECEA0JK330	001 120 0141 1
R709	ERDS2TJ103	001 152 2347 3	C455, C456	ECEA1HPS3R	001 120 6064 3	C734	ECEA1CKS100	001 120 2600 7
R710	ERDS1FJ102	001 152 2614 3	C463	ECEA1HK0R1	001 120 0340 6			
R721, R722	ERDS2TJ223	001 152 2432 7	C464	ECBT1E223ZF	001 103 7589 2			
			C499	RCBS1H101KBY	001 103 5569 4			
			C501, C502	ECEA1HPS3R	001 120 6064 3			

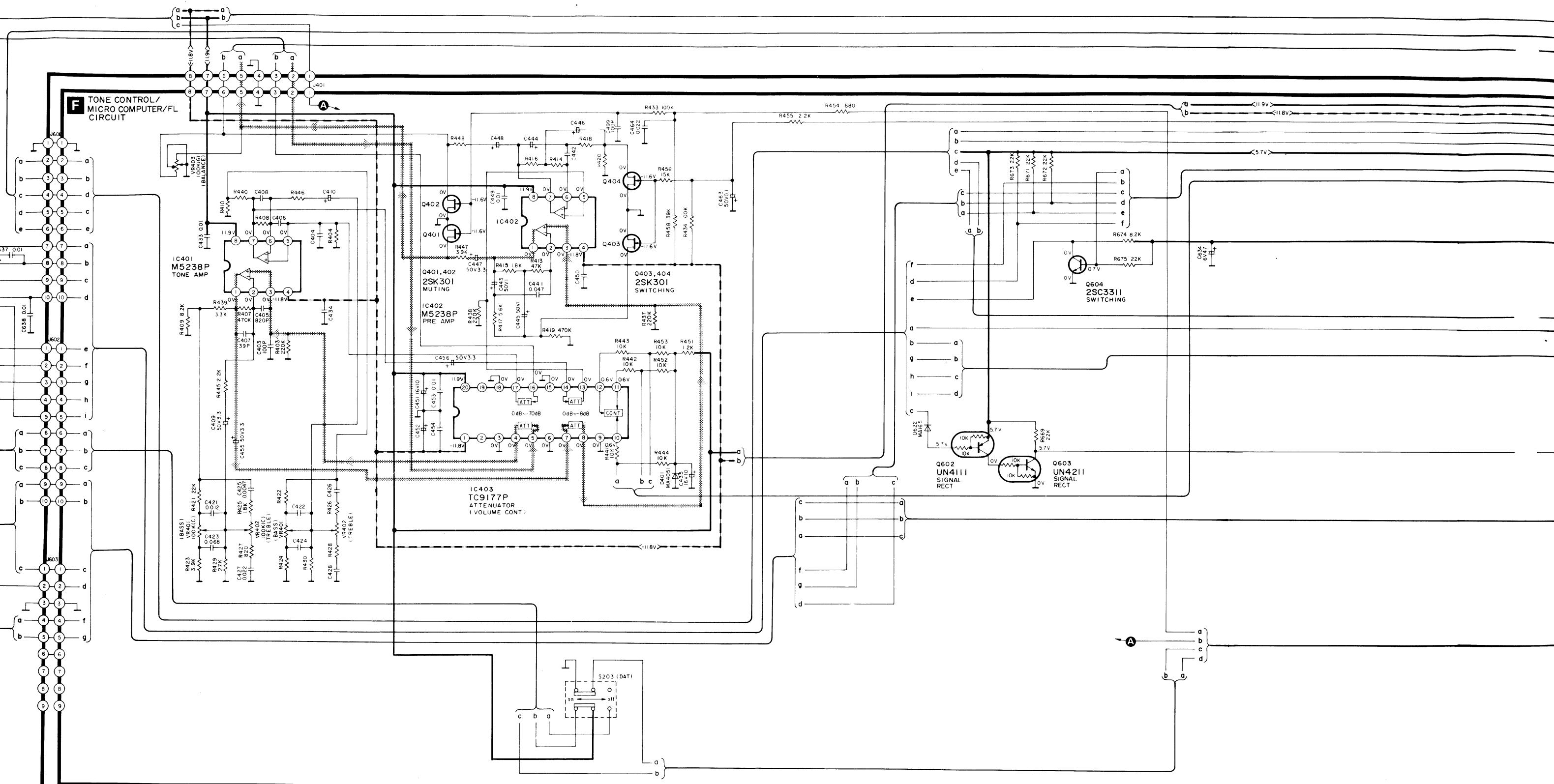
## BLOCK DIAGRAM









**Notes:**

- S201 : Rec selector DECK A switch in "source" position.
- S202 : Rec selector DECK B switch in "source" position.
- S203 : DAT monitor switch.
- S501 : Speakers switch ( off, on )
- S601 : Surround switch.
- S602 : Muting switch.
- S603 : Super-bass switch.
- S604 ~ S608 : Input selector switches.  
S604 : VTR/tape 2, S605 : tape 1, S606 : video disc/aux.  
S607 : tuner, S608 : phono, S611 : CD
- S701 : Power switch. ( off, on )

10. 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.

11. Left-channel phono signal route.

Microphone signal.

Phase difference signal.

+ B voltage line - B voltage line.

12. 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.

**\* Caution!**

IC and LSI are sensitive to static electricity.

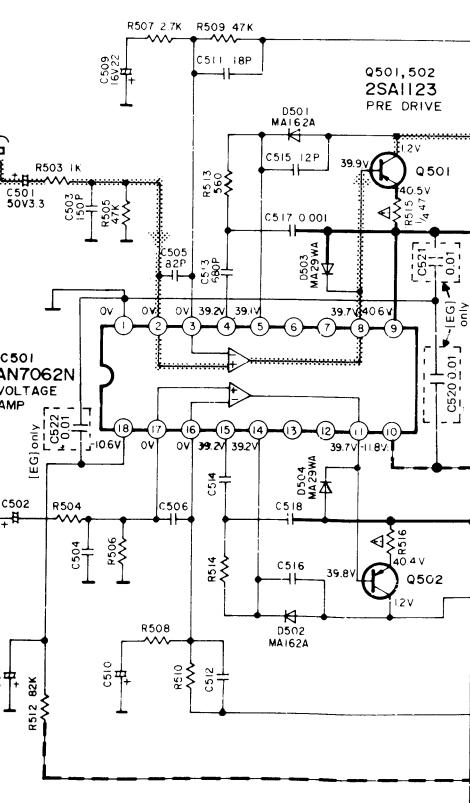
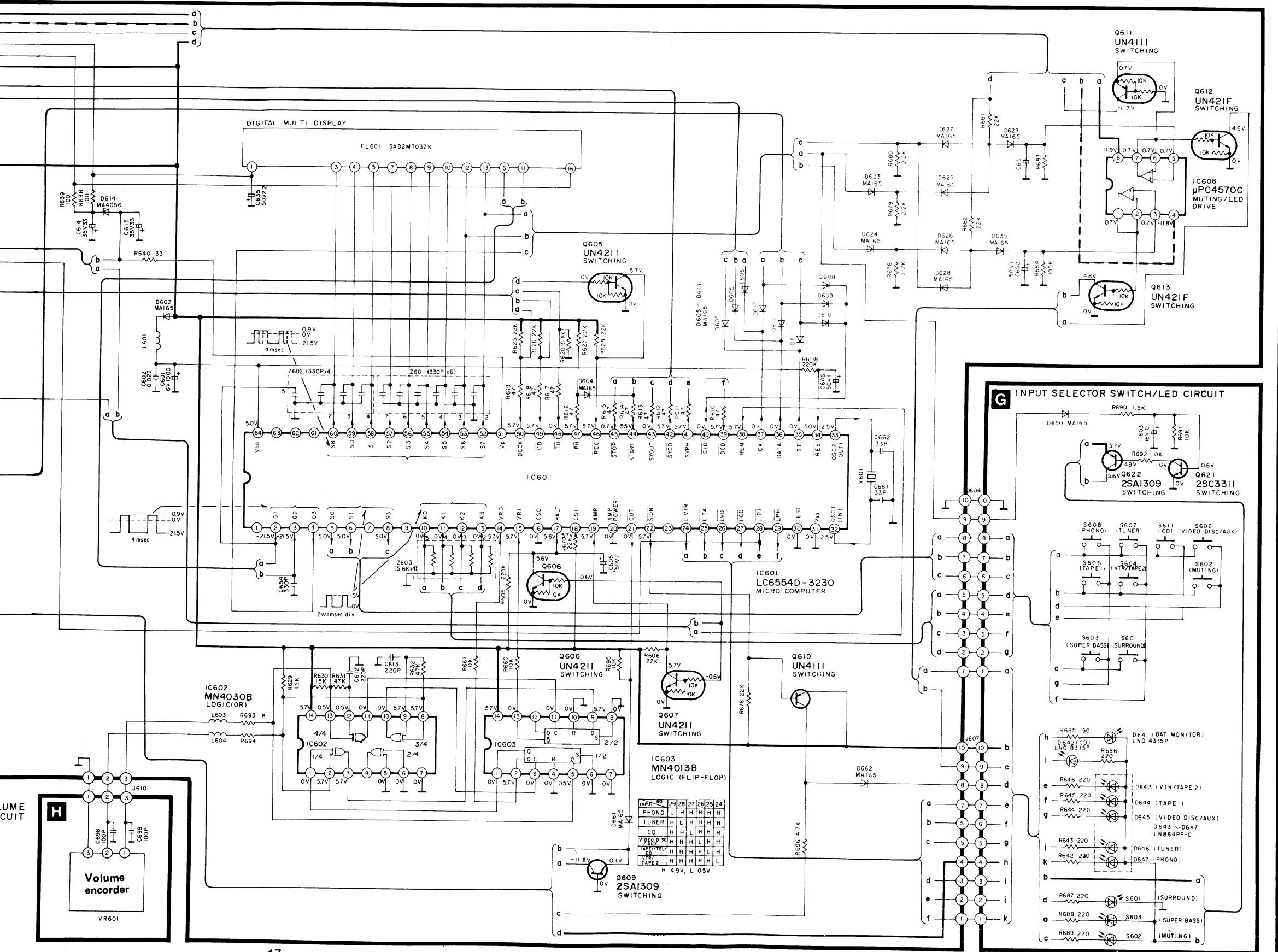
Secondary trouble can be prevented by taking care during repair.

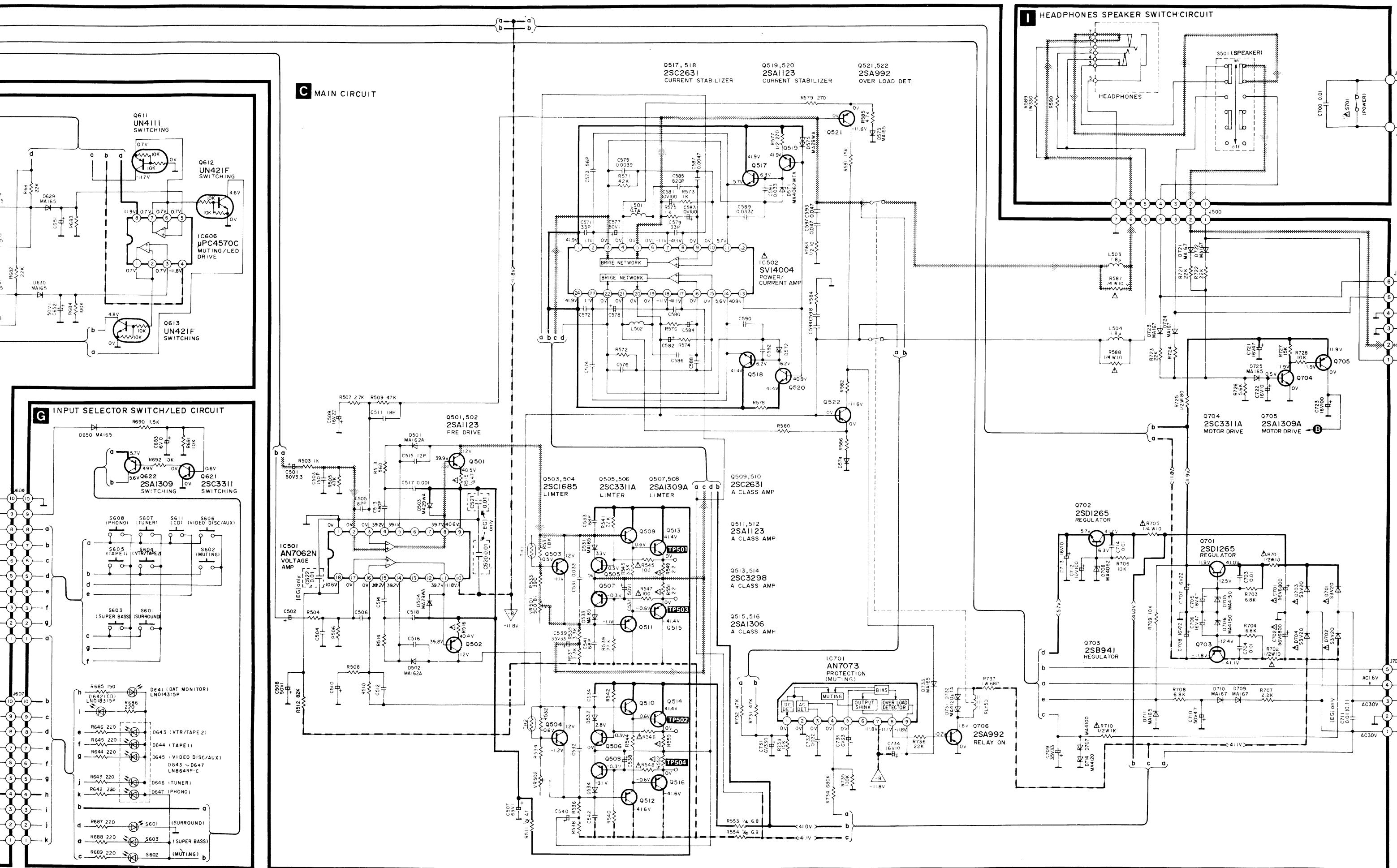
\* Cover the parts boxes made of plastics with aluminum foil.

\* Ground the soldering iron.

\* Put a conductive mat on the work table.

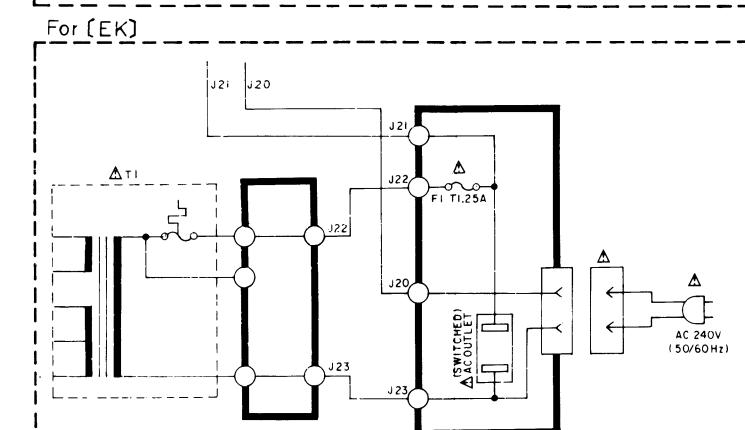
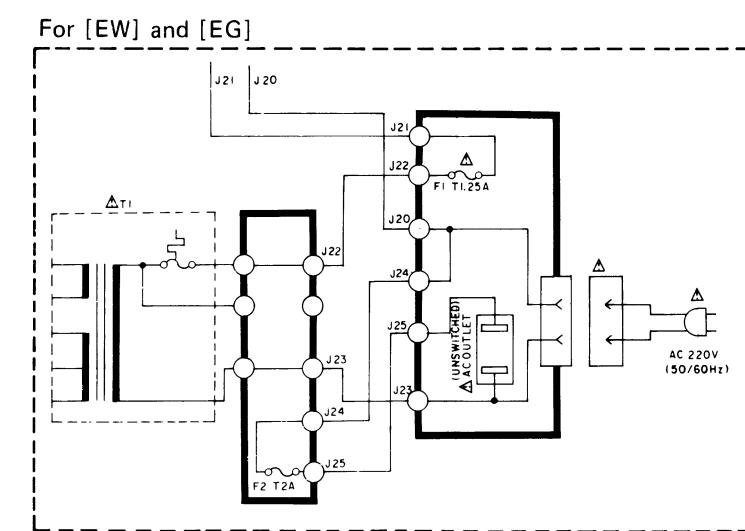
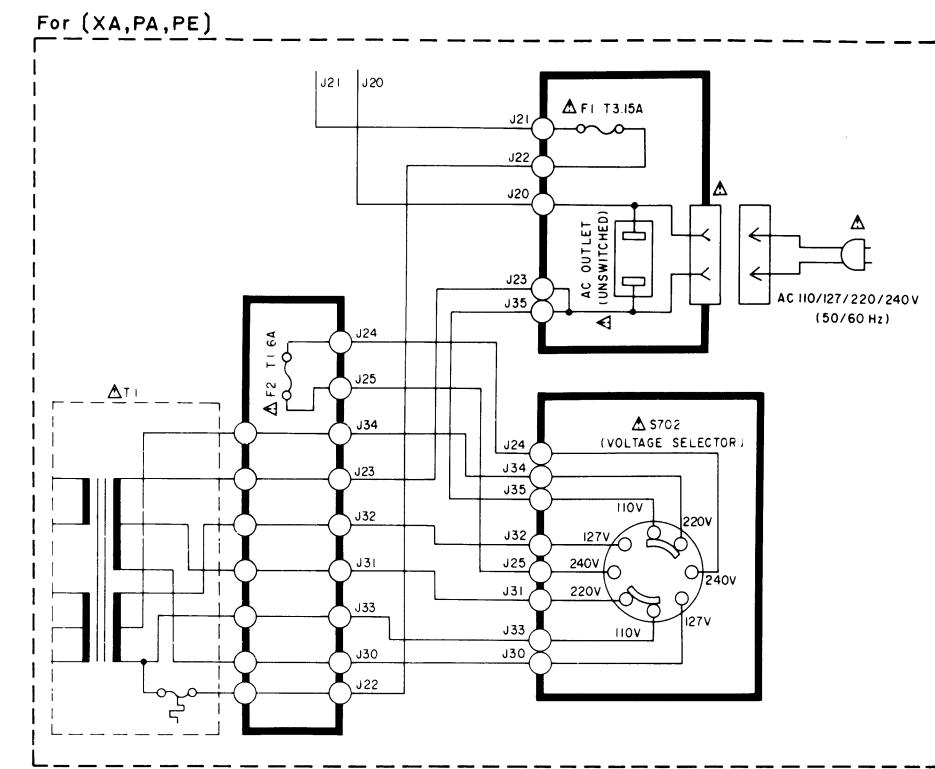
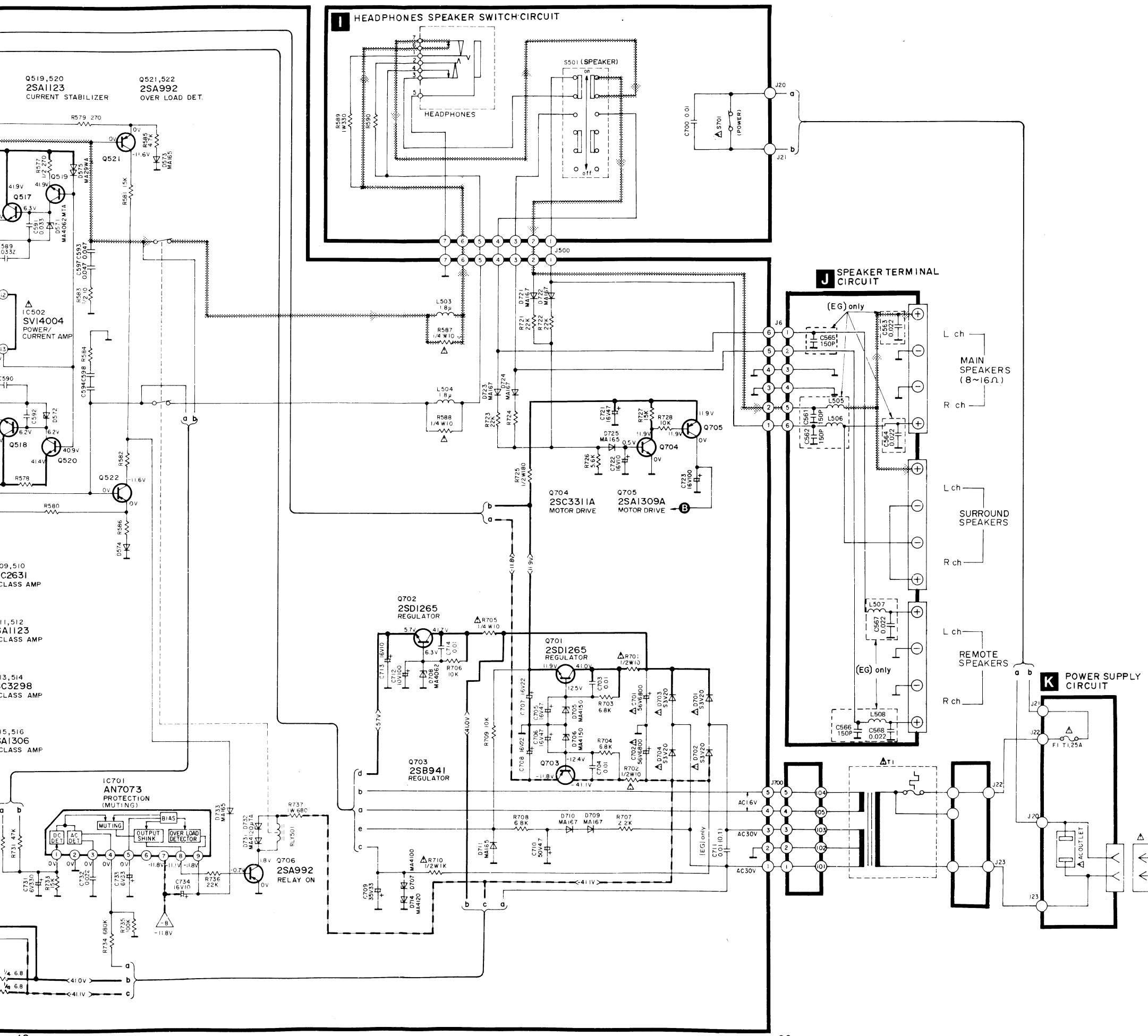
\* Do not touch the legs of IC or LSI with the fingers directly.

**C MAIN CIRCUIT**

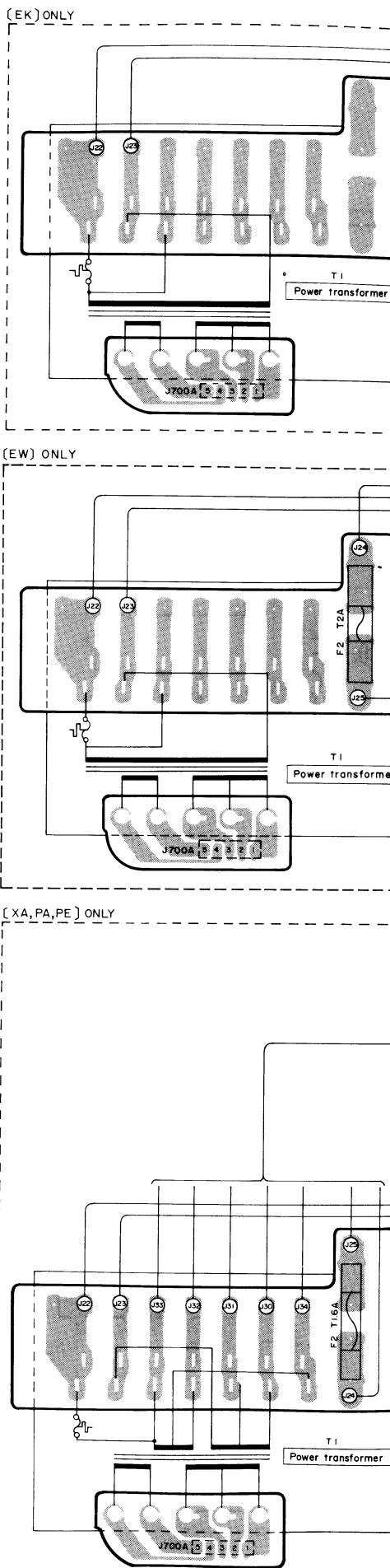
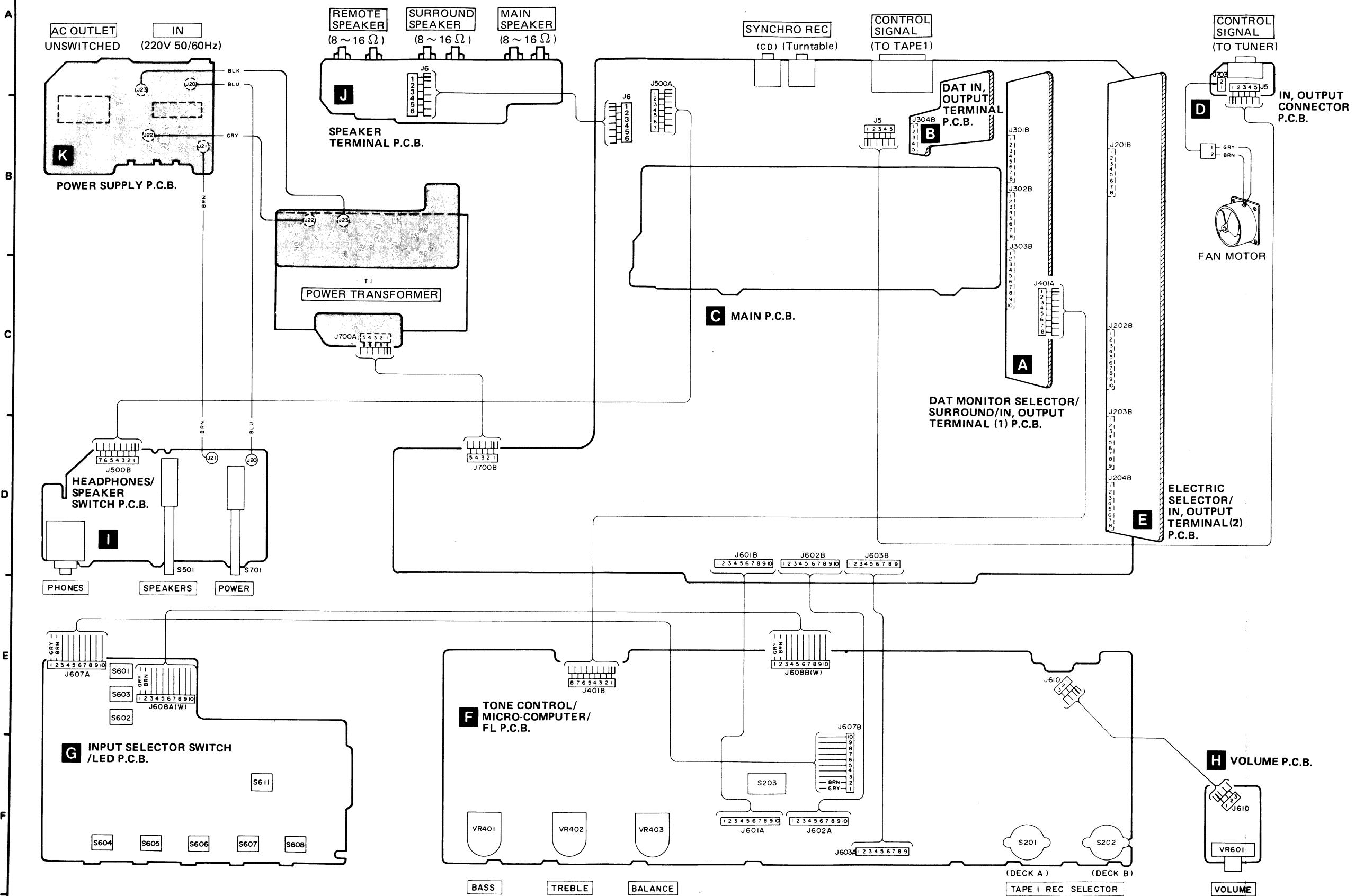


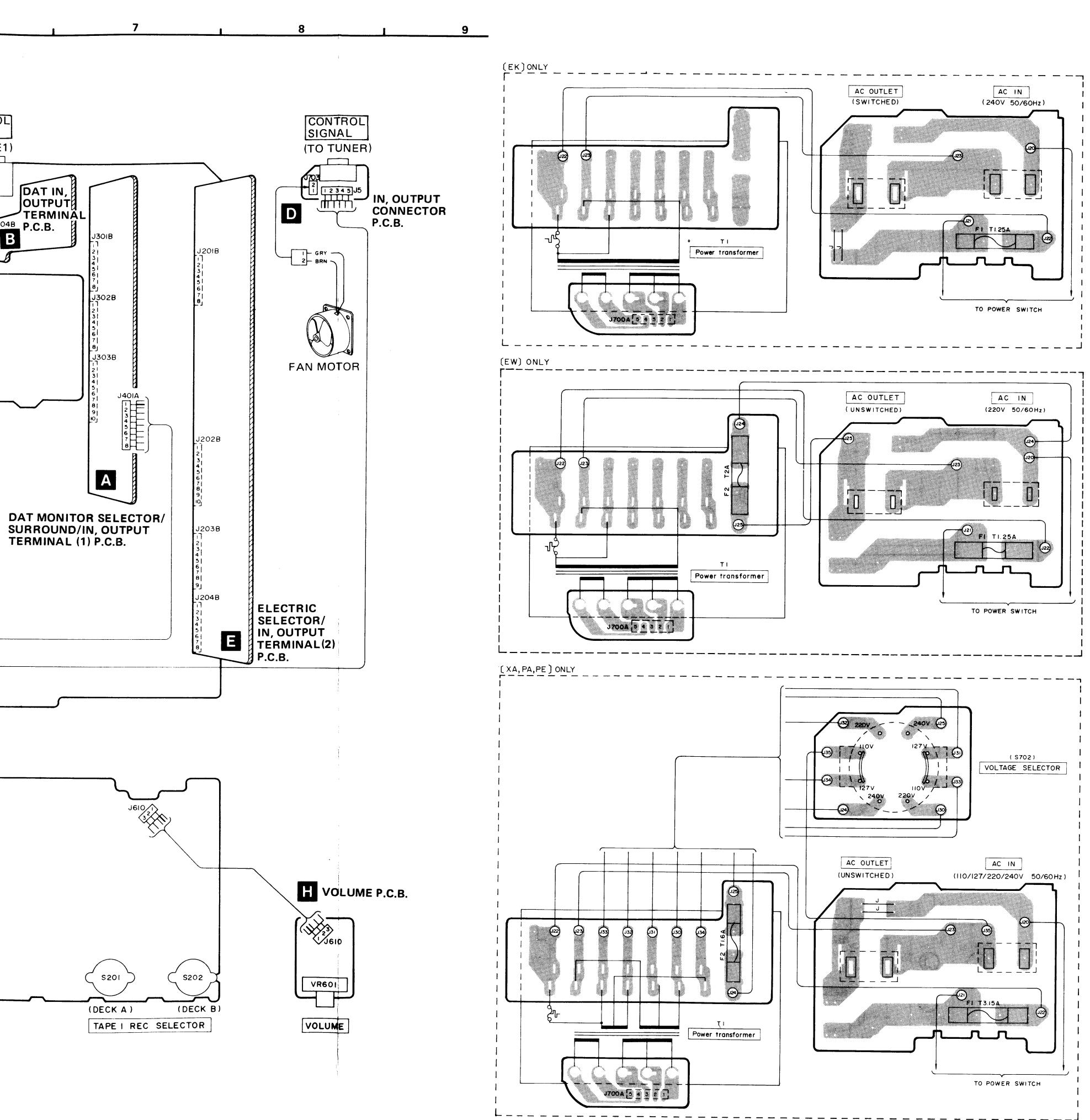
## **SCHEMATIC DIAGRAM**

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

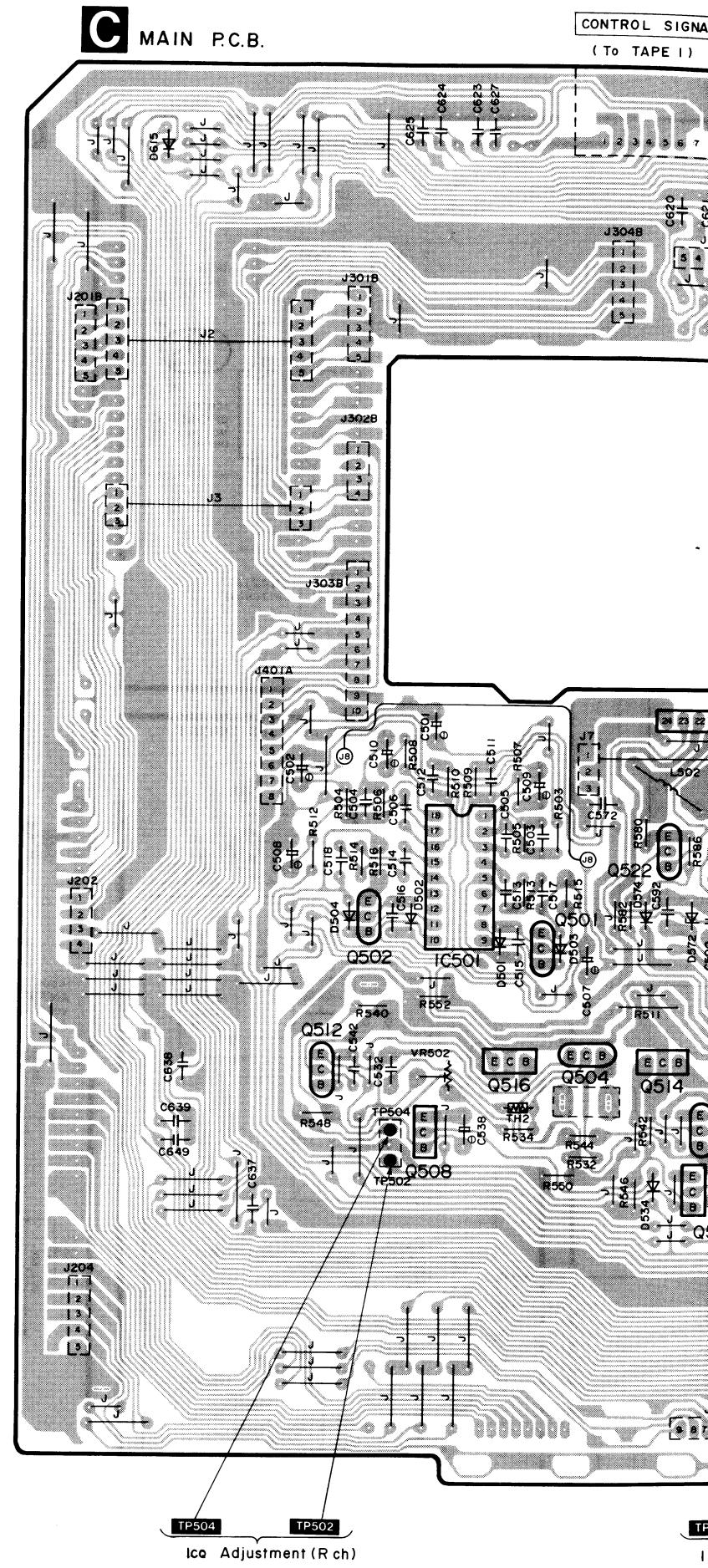


## ■ WIRING CONNECTION DIAGRAM

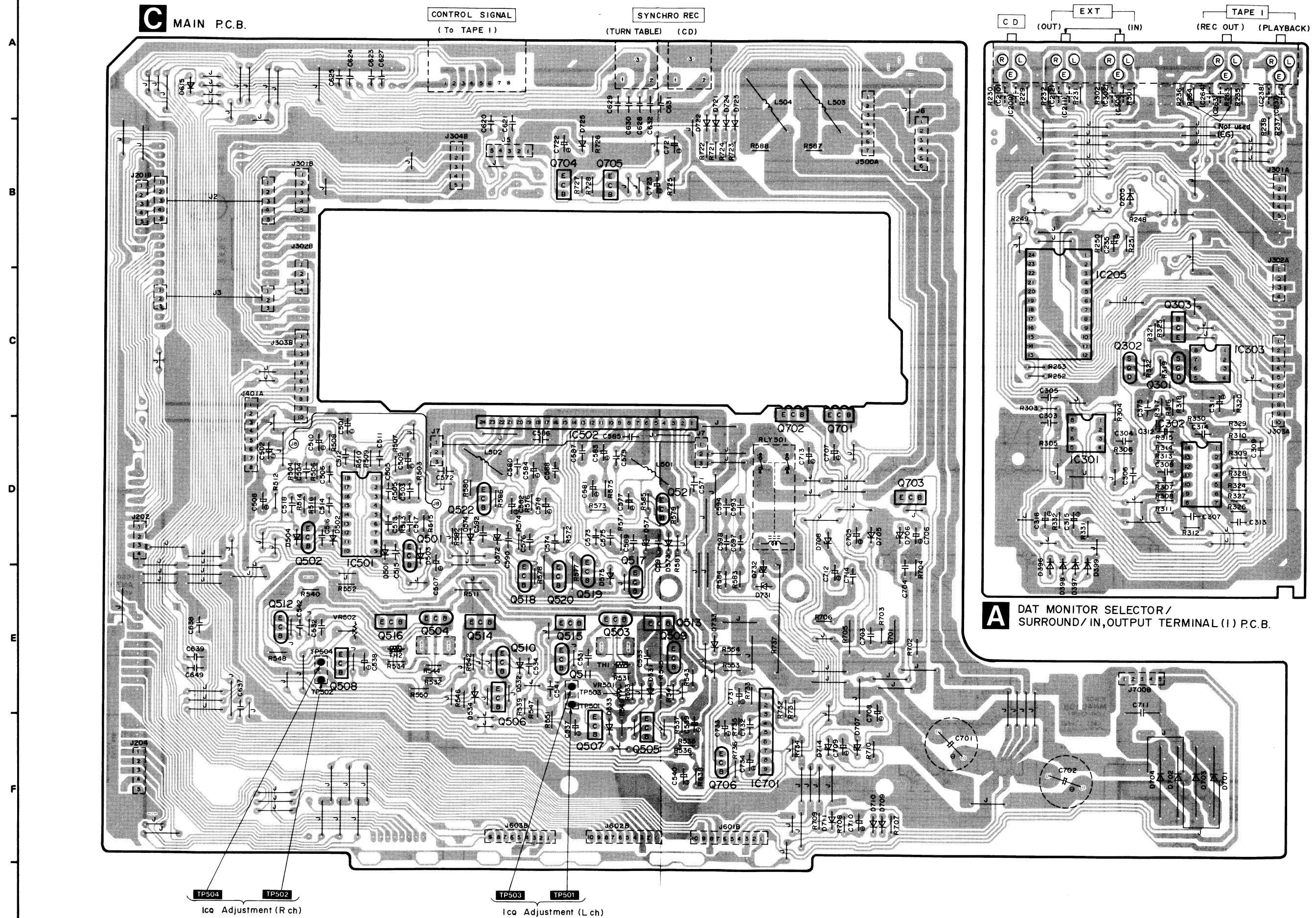




## ■ PRINTED CIRCUIT BOARDS



## ■ PRINTED CIRCUIT BOARDS



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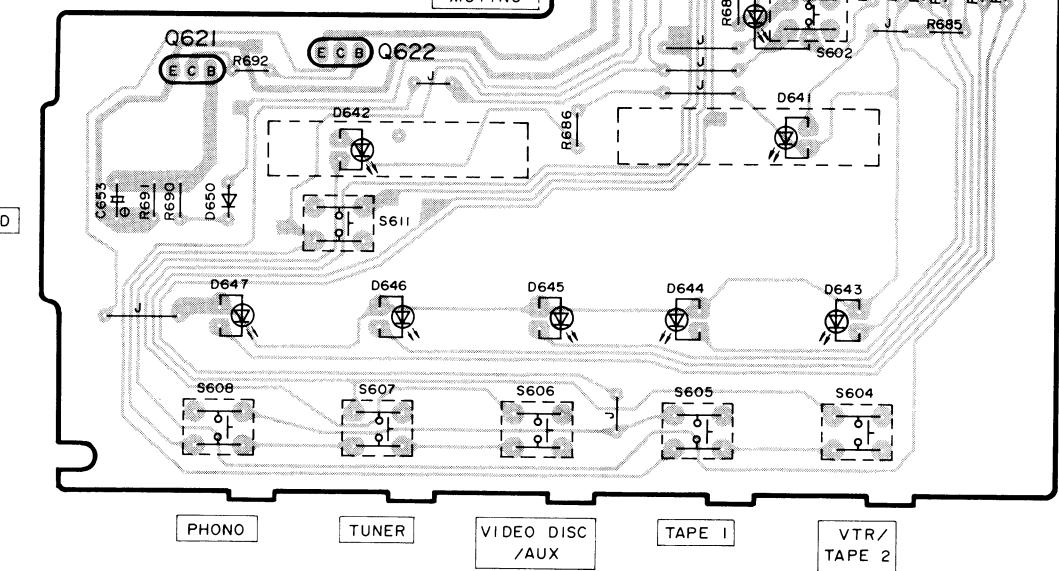
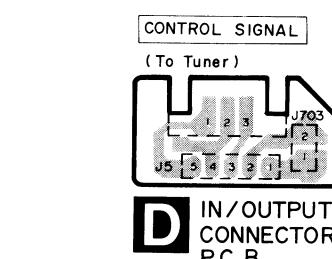
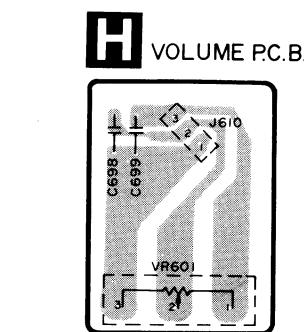
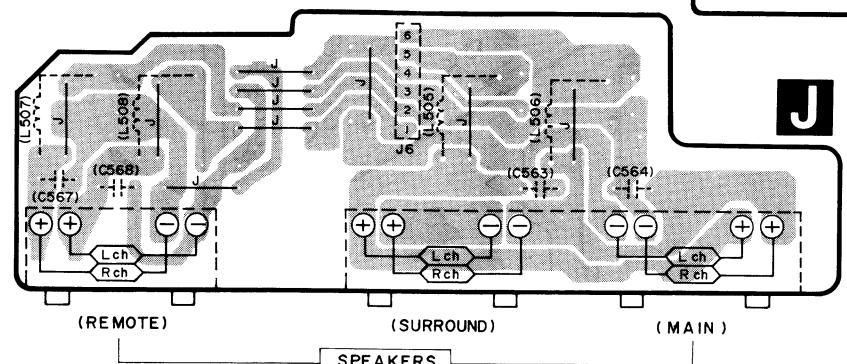
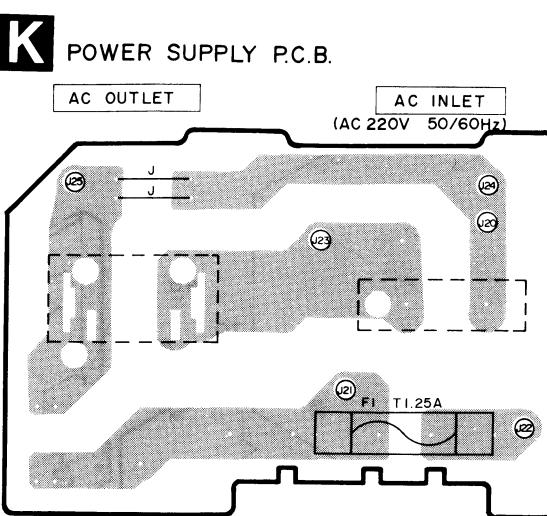
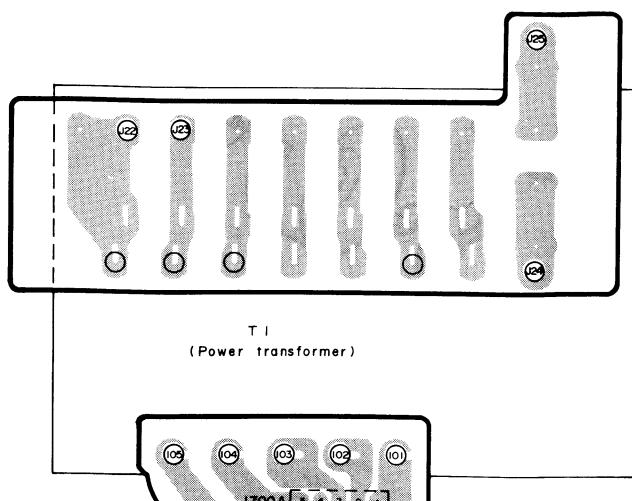
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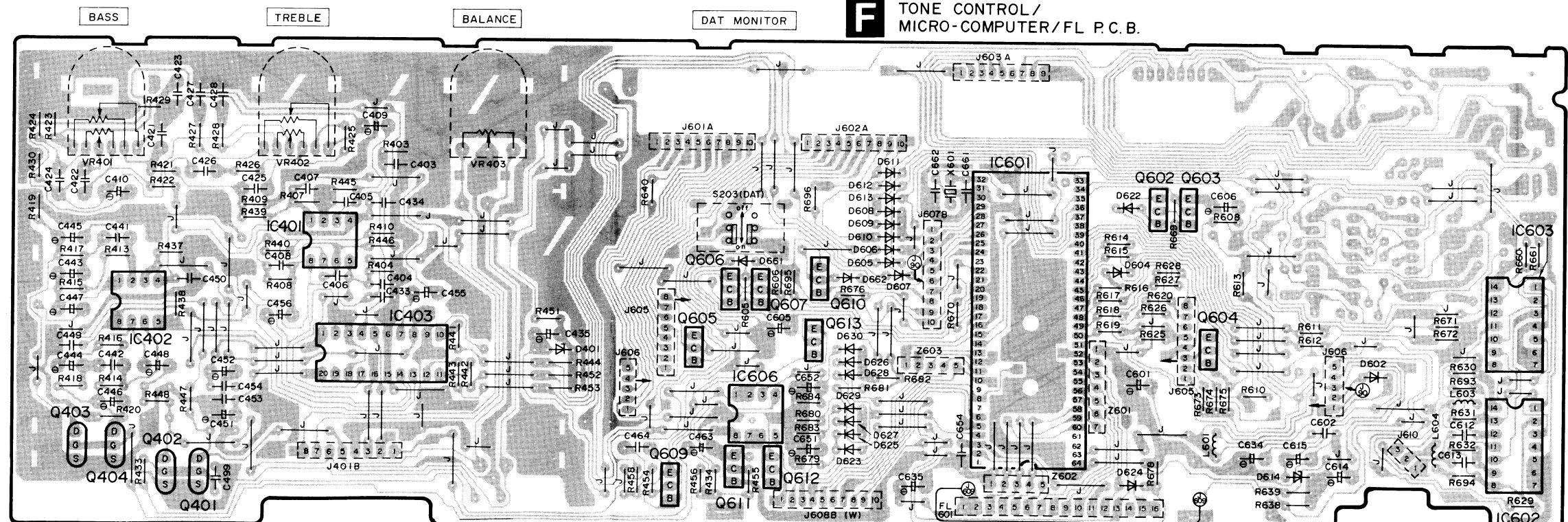
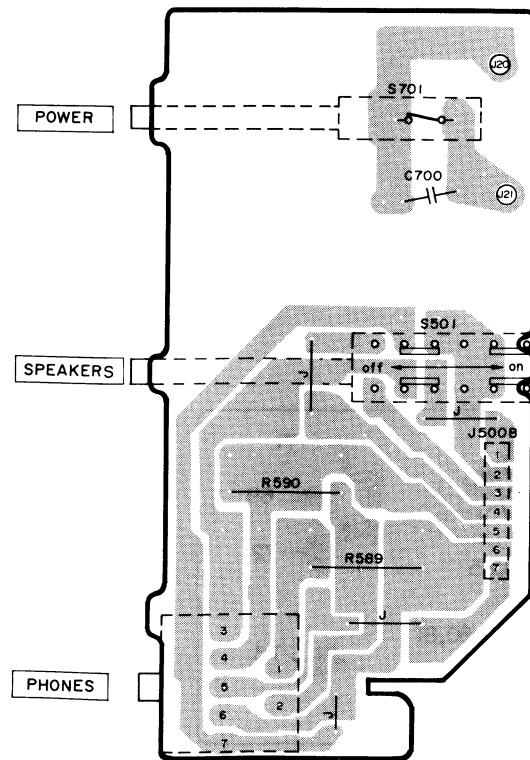
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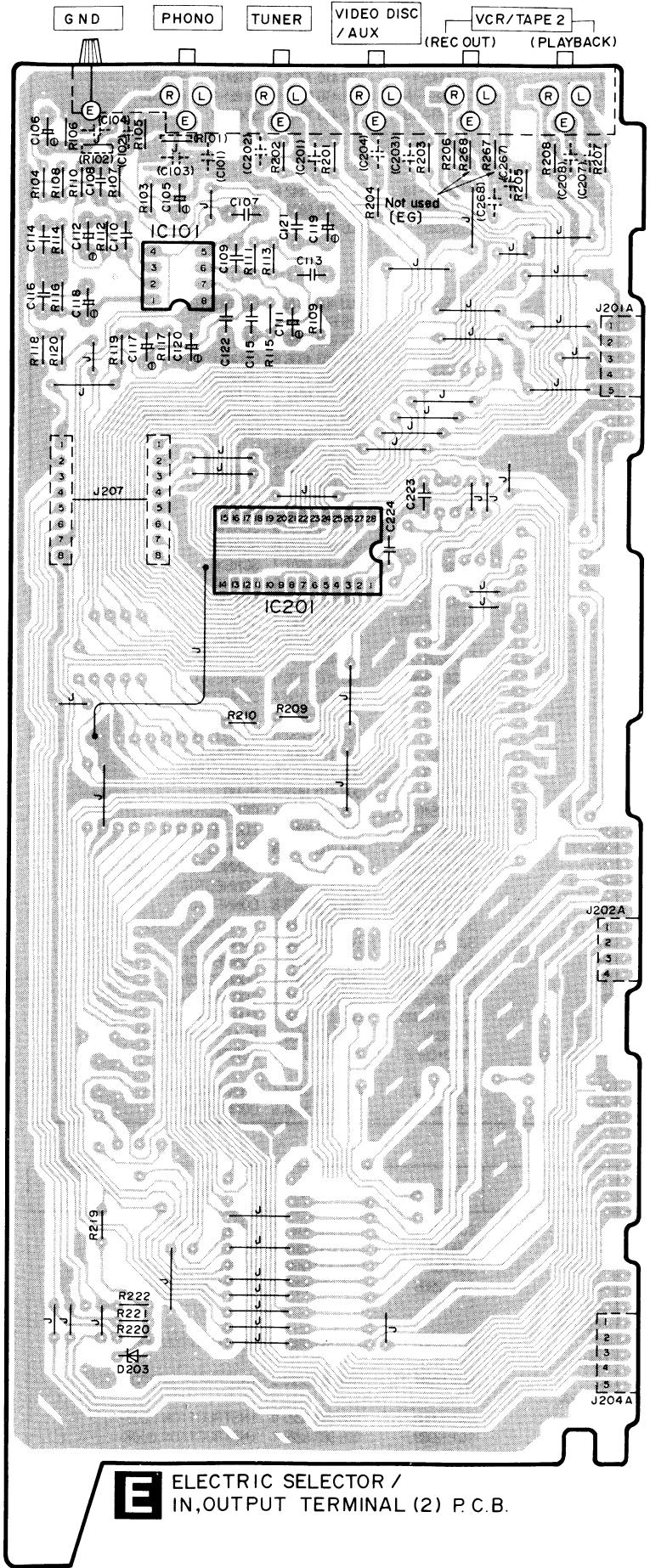
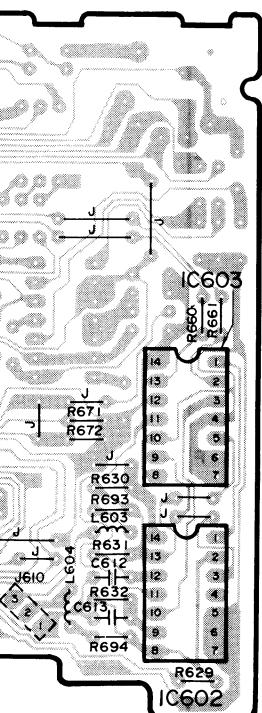
**I HEADPHONES/SPEAKER SWITCH P.C.B.**



• Terminal guide of  
transistors, diodes and IC's

OR SWITCH/LED P.C.B.

VTR/TAPE 2



## MEASUREMENTS AND ADJUSTMENTS

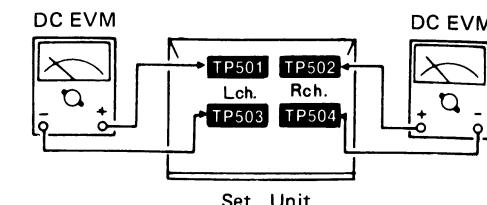
Control positions and equipment used.

- Volume control ..... Minimum
- Speaker switch ..... off

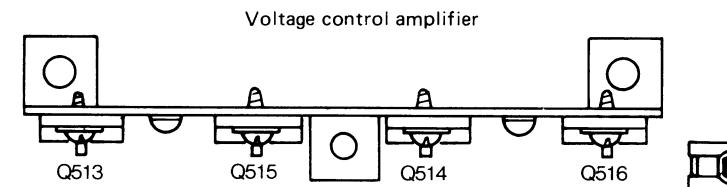
- DC electronic voltmeter (EVM) (2 units)

Idling (ICQ) adjustment

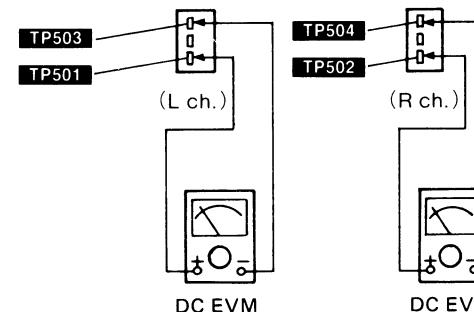
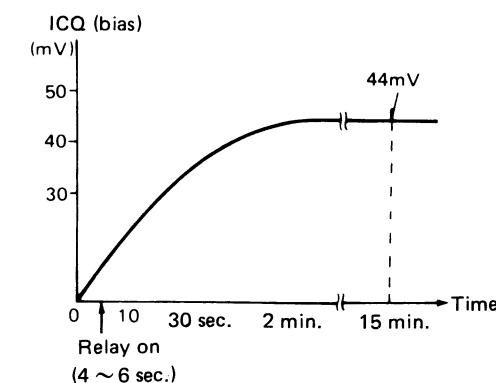
1. Connect the set and the test instruments as shown at right.
2. (Hook up the DC EVMs for both channels.)
3. Turn on the set when it is cold enough, and adjust the controls VR501 and VR502 so that the voltage of 30mV be reached 15 seconds after the relay is activated.  
(Adjust for both channels at a time.)  
Make sure the voltage is 18 ~ 47 mV (standard 44mV)  
in 10 ~ 15 minutes.  
(It should be below 50mV 60 minutes later.)



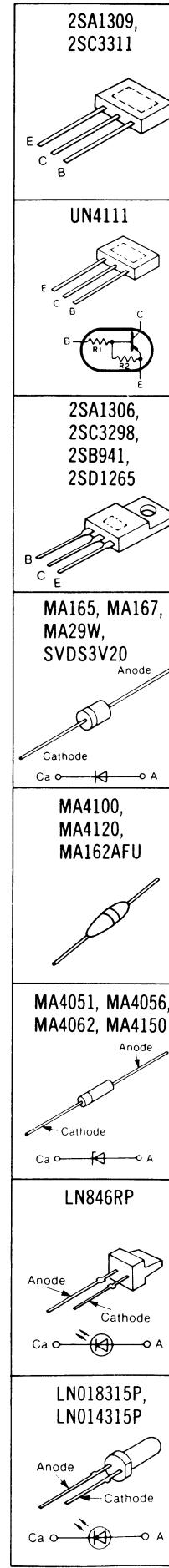
• Adjustment points



VR501



DC EVM



# REPLACEMENT PARTS LIST

## Notes:

- Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
- Important safety notice: Components identified by  $\Delta$  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 parenthesized numbers in the column of description stand for the quantity per set.

Ref. No.	Part No.	Part Code	Description	Ref. No.	Part No.	Part Code	Description								
INTEGRATED CIRCUITS															
IC101	AN6558F	001 060 4009 1	I.C., EQUALIZER	D643, D644	LN846RP-C	001 032 8341 4	LED								
IC201	TC9164N	001 061 0204 1	I.C., INPUT SELECTOR	D645, D646	LN846RP-C	001 032 8341 4	LED								
IC205	SV1TC9151P	001 060 8344 3	I.C., DAT MONITOR SELECTOR	D647	LN846RP-C	001 032 8341 4	LED								
IC301	M5238P	001 060 8887 7	I.C., TONE AMP	D650, D661	MA165	001 032 0494 0	DIODE								
IC302	AN6554F	001 060 2992 1	I.C., MIXING	D662	MA165	001 032 0494 0	DIODE								
IC303	SV1UPC4570C	001 060 8992 7	I.C., AMP	D701, D702 $\Delta$	SVDSV340	001 032 1347 6	RECTIFIER								
IC401, IC402	M5238P	001 060 8887 7	I.C., TONE/PRE	D703, D704 $\Delta$	SVDSV340	001 032 1347 6	RECTIFIER								
IC403	TC9177P	001 061 0839 2	I.C., VOLUME CONTROL	D705, D706	MA4150-L	001 032 4620 6	DIODE								
IC501	AN7062N	001 060 8240 0	I.C., AMP, AMP	D707	MA4100M	001 032 4722 1	DIODE								
IC502	SV1004	001 061 1230 5	I.C., POWER AMP	D708	MA4062-M	001 032 7211 7	DIODE								
IC601	LC6554D-3230	001 061 4016 7	I.C., MICRO COMPUTER	D709, D710	MA167	001 032 4142 5	DIODE								
IC602	MN4030B	001 060 6553 4	I.C., LOGIC	D711	MA165	001 032 0494 0	DIODE								
IC603	MN4013B	001 060 3656 0	I.C., LOGIC	D714	MA4120	001 032 7292 0	DIODE								
IC606	SV1UPC4570C	001 060 8992 7	I.C., MUTING	D721, D722	MA167	001 032 4142 5	DIODE								
IC701	AN7073	001 060 8241 9	I.C., PROTECTION	D723, D724	MA167	001 032 4142 5	DIODE								
TRANSISTORS															
Q301, Q302	2SK301	001 030 2428 2	TRANSISTOR	D725	MA165	001 032 0494 0	DIODE								
Q303	2SC3311A-Q	001 030 5279 5	TRANSISTOR	D731, D732	MA4120	001 032 7292 0	DIODE								
Q401, Q402	2SK301	001 030 2428 2	TRANSISTOR	D733	MA165	001 032 0494 0	DIODE								
VARIABLE RESISTORS															
VR401, VR402	EWC2XA000C15	001 174 9012 3	V.R., BASS, TRE	THERMISTORS AND VARISTORS											
VR403	EWHFDA014G15	001 174 9013 2	V.R., BALANCE	TH1, TH2	ERTD2ZHK104S	001 191 0182 5	TERMISTOR								
VR501, VR502	EVND4AA00B52	001 180 2318 0	V.R., 500Ω(B), 1CQ	COILS AND TRANSFORMERS											
VR601	EVQWX2F2040B	001 174 8803 4	VR, ENCODER	L501, L502	SLQY07G-40	001 211 2149 9	CHOKE COIL								
Q501, Q502								L503, L504	SLQY18G-10	001 211 2185 5	CHOKE COIL				
Q511, Q512	2SA1123-R	001 030 0242 8	TRANSISTOR	L601	ELEXT101KA	001 211 3878 9	COIL								
Q513, Q514	2SC3298AY	001 030 4986 9	TRANSISTOR	L603, L604	ELEXT330KA	001 211 3880 5	COIL								
Q515, Q516	2SA1306AY	001 030 4845 1	TRANSISTOR	T1	SLT5P271	001 202 9064 6	POWER TRANSFORMER								
Q517, Q518	2SC2631-Q	001 030 2505 6	TRANSISTOR	(EX, EH, E1) (EF, EB, EW)											
Q519, Q520	2SA1123-R	001 030 0242 8	TRANSISTOR	T1	SLT5P272	001 202 9026 2	POWER TRANSFORMER								
Q521, Q522	2SA992E	001 030 0513 4	TRANSISTOR	T1	SLT5P273	001 202 9065 5	POWER TRANSFORMER								
Q602	UN4111	001 030 2899 5	TRANSISTOR	(EG)											
Q603	UN4211	001 030 4033 9	TRANSISTOR	(PA, PE)											
Q604	2SC3311A-Q	001 030 5279 5	TRANSISTOR	(PA, PE)											
Q605, Q606	UN4211	001 030 4033 9	TRANSISTOR	(PA, PE)											
Q607	UN4211	001 030 4033 9	TRANSISTOR	(PA, PE)											
Q609	2SA1309Q	001 030 4058 0	TRANSISTOR	(PA, PE)											
Q610, Q611	UN4111	001 030 2899 5	TRANSISTOR	(PA, PE)											
Q612, Q613	UN421FTA	001 061 3186 4	TRANSISTOR	(PA, PE)											
Q621	2SC3311A-Q	001 030 5279 5	TRANSISTOR	(PA, PE)											
Q622	2SA1309Q	001 030 4058 0	TRANSISTOR	(PA, PE)											
Q701, Q702	2SD1265-0	001 030 2652 6	TRANSISTOR	Z601	EXFP6331MDW	001 230 2830 2	COMPONENT COMBINATION								
Q703	2SB941-P	001 030 2696 4	TRANSISTOR	Z602	EXFP4331MDW	001 230 2829 5	COMPONENT COMBINATION								
Q704	2SC3311A-Q	001 030 5279 5	TRANSISTOR	Z603	EXBF5E562J	001 230 1576 1	COMPONENT COMBINATION								
Q705	2SA1309Q	001 030 4058 0	TRANSISTOR	OSCILLATORS											
Q706	2SA992E	001 030 0513 4	TRANSISTOR	X601	SVFCSA300MG	001 241 1296 5	CERAMIC FILTER								
DIODES								DISPLAYS							
D203	MA4051-M	001 032 4947 6	DIODE	F1	SAD2MT03ZK	001 001 0501 1	DISPLAY								
D205, D396	MA165	001 032 0494 0	DIODE	FUSES											
D397, D398	MA165	001 032 0494 0	DIODE	F1 (E1)	XBA2C16TB0	002 380 1377 1	FUSE								
D399	MA165	001 032 0494 0	DIODE	F1 (EX, EH, E1)	XBA2C16TR0	002 380 0408 5	FUSE								
D401	MA4051-M	001 032 4947 6	DIODE	(EF, EB, EW)											
D501, D502	MA162A	001 032 0493 1	DIODE	F1 (XL, XA, XB)	XBA2C31TR0	002 380 0415 6	FUSE 250V, T3.15A								
D503, D504	MA29WA	001 032 7250 0	DIODE	(PA, PE, EG)											
D531, D532	MA165	001 032 0494 0	DIODE	F2 (EX, EH, E1)	XBAS2A2001	002 380 0410 1	FUSE								
D533, D534	MA165	001 032 0494 0	DIODE	(PA, PE)											
D571, D572	MA4062-M	001 032 7211 7	DIODE	(PA, PE)											
D573, D574	MA165	001 032 0494 0	DIODE	(PA, PE)											
D575	MA29WA	001 032 7250 0	DIODE	(PA, PE)											
D602, D604	MA165	001 032 0494 0	DIODE	(PA, PE)											
D605, D606	MA165	001 032 0494 0	DIODE	(PA, PE)											
D607, D608	MA165	001 032 0494 0	DIODE	(PA, PE)											
D609, D610	MA165	001 032 0494 0	DIODE	(PA, PE)											
D611, D612	MA165	001 032													

## ■ EXPLODED VIEWS

