

Service Manual

Stereo Integrated Amplifier

Amplifier



SU-X860

Color

(K) Black Type

Color	Areas
(K)	[EK] Continental Europe
(K)	[EH] Holland
(K)	[EB] Belgium
(K)	[EF] France
(K)	[EK] United Kingdom
(K)	[EG] F.R. Germany
(K)	[EW] Switzerland
(K)	[Ei] Italy
(K)	[XL] Australia
(K)	[XA] Asia, Latin America, Middle Near East, Africa & Oceania
(K)	[XB] Saudi Arabia

SPECIFICATIONS

(DIN 45 500)

■ AMPLIFIER SECTION

DIN power output 1 kHz THD: 1%	2 × 60W (8Ω)
Total harmonic distortion rated power at 1 kHz	1% (8Ω)
half power at 1 kHz	0.007% (8Ω)
Residual hum and noise	0.2 mV
Damping factor	30 (8Ω)
Input sensitivity and impedance	
PHONO	3 mV/47kΩ
TUNER, CD, AUX, TAPE 1, TAPE 2	200 mV/22kΩ
Maximum input voltage (1 kHz, RMS)	
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	
PHONO	RIAA standard curve ±0.8 dB (30 Hz~15 kHz)
TUNER, CD, AUX, TAPE 1, TAPE 2	10 Hz~60 kHz (-3 dB)
Tone controls	
BASS	50 Hz, +10 dB~-10 dB
TREBLE	20 kHz, +10 dB~-10 dB
Muting	-20 dB
Super bass	70 Hz, +10 dB
Output voltage	
TAPE 1, TAPE 2, REC OUT	200 mV
Channel balance, AUX 250 Hz~6,300 Hz	±1.0 dB
Channel separation, AUX 1 kHz	60 dB
Headphones output level and impedance	520 mV/330Ω
Load impedance	
MAIN or REMOTE	8Ω~16Ω
SURROUND	8Ω~16Ω

■ GENERAL

Power consumption	300W
Power supply	
For continental Europe	AC 50 Hz/60 Hz, 220V
For others	AC 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensions (W×H×D)	360 × 188 × 303 mm (14-3/16" × 5-1/32" × 11-30/32")
Weight	6.9kg (15.2 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.

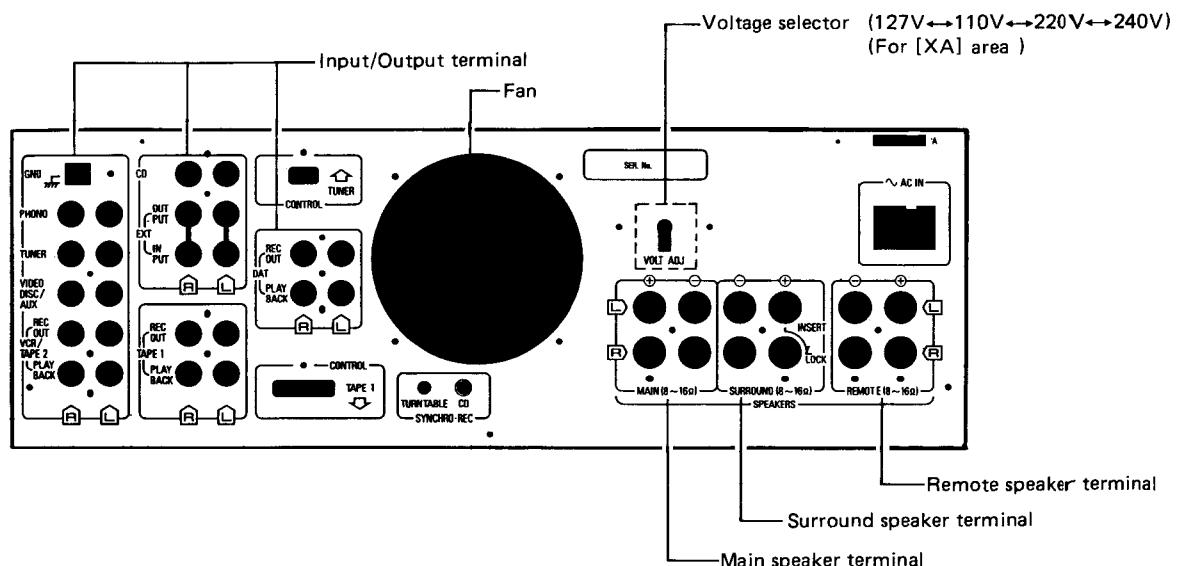
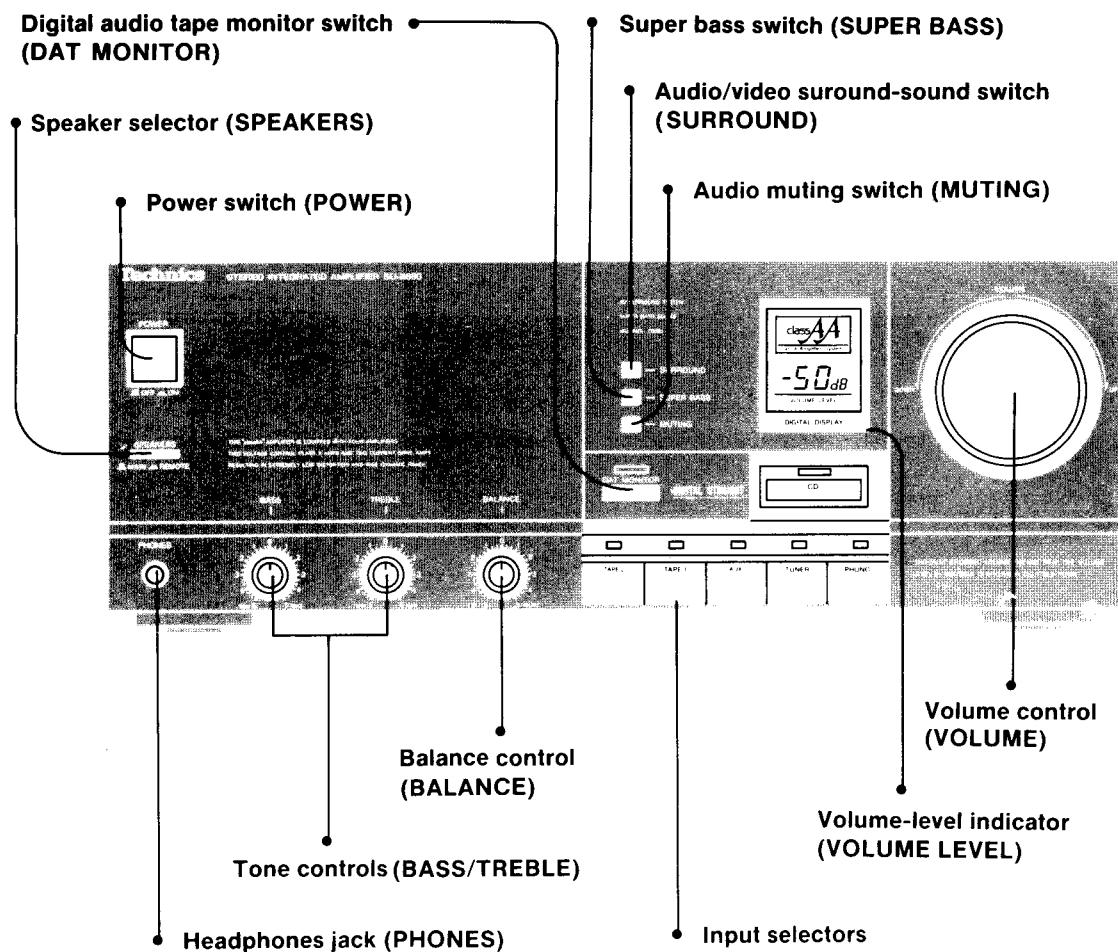
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Technics

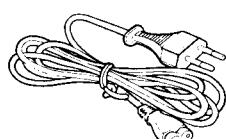
Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ LOCATION OF CONTROLS



■ ACCESSORY

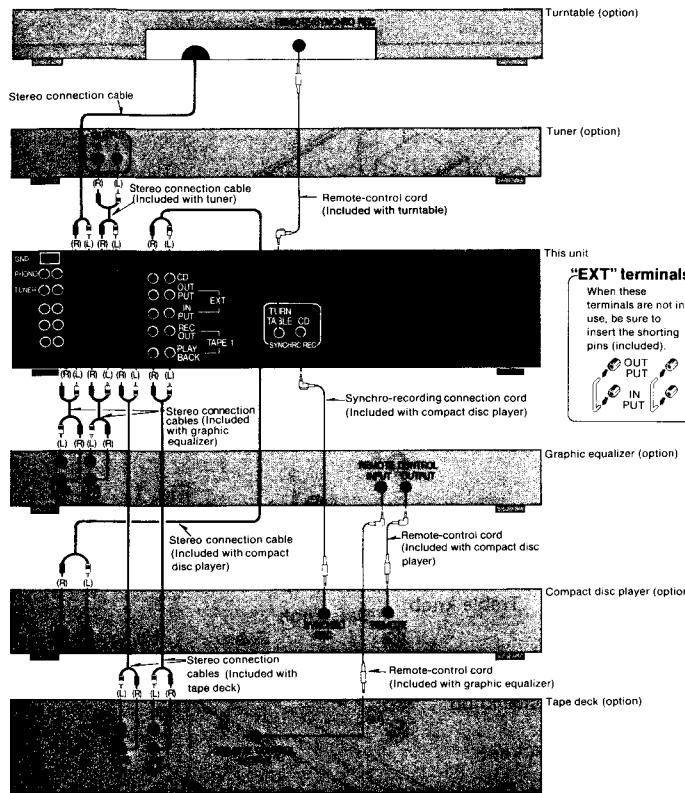
- AC power supply cord 1



■ CONNECTION

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

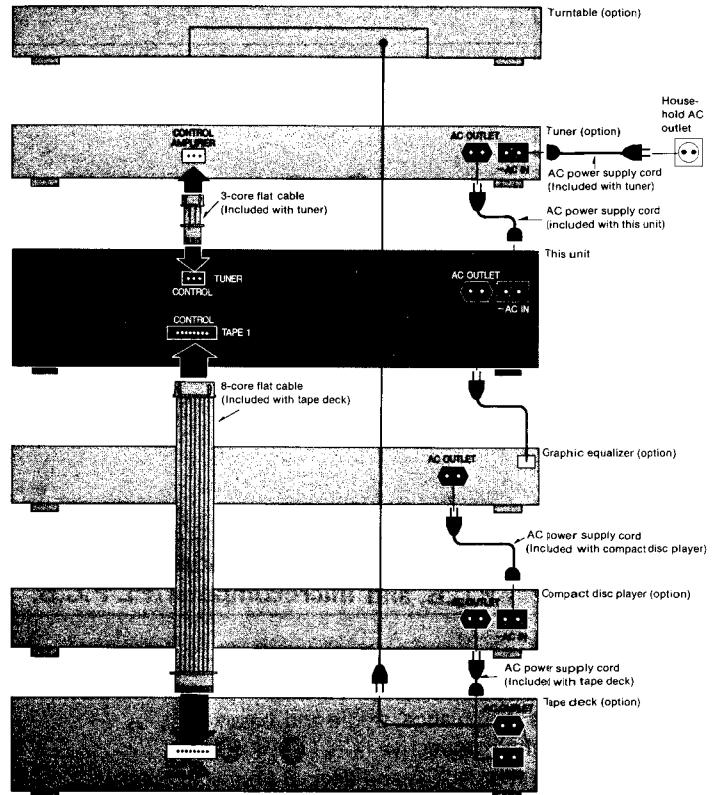
- Although the synchro-recording connection cords and the remote-control cords are differentiated in the figure below, actually they are the same shape.
- If the graphic equalizer is not used in combination with these components, connect the remote-control cord (Included with the compact disc player) to the "REMOTE CONTROL" terminal ("OUTPUT") of the cassette tape deck and to the "REMOTE" terminal of the compact disc player.
- For a turntable with a ground terminal, be sure to connect the ground wire to the "GND" terminal of the amplifier. (Refer to the operating instructions of the turntable.)



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" or "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

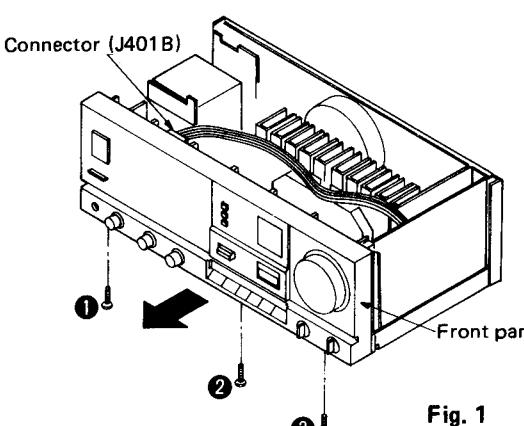
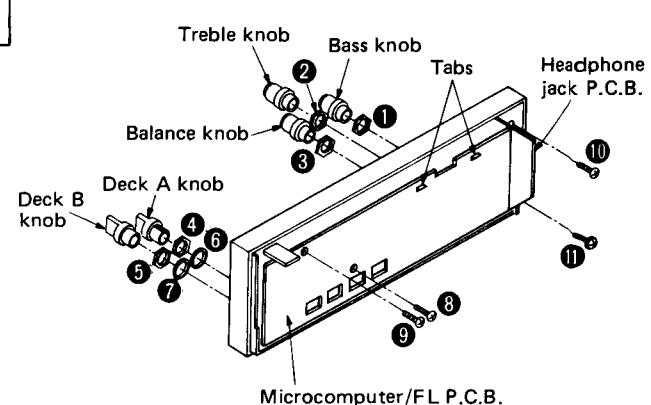
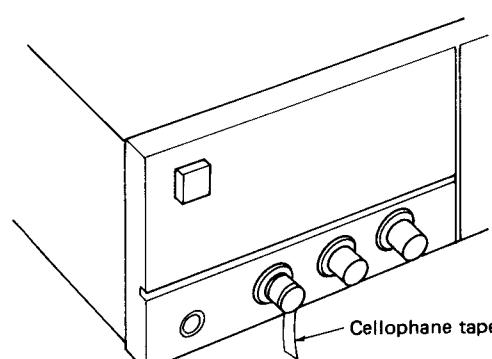
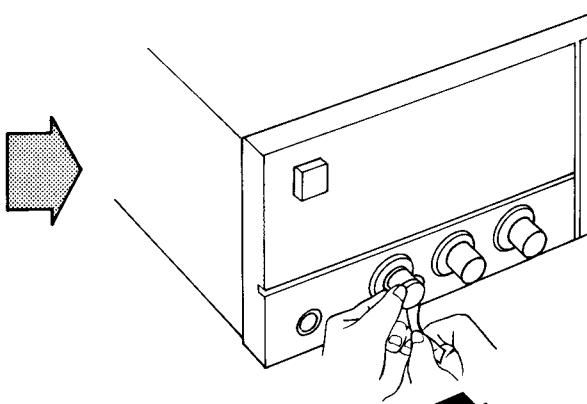
- Turn off the power supply. Using a 10Ω , 5W resistor, shortcircuit both ends of power supply capacitors ((C701, C702) in order to discharge the voltage.
- Before turning the power supply on, after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make 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 194 ~ 582mA	178 ~ 534mA	100 ~ 300mA	90 ~ 27mA
	60Hz 186 ~ 558mA	170 ~ 510mA	95 ~ 285mA	85 ~ 25mA

■ DISASSEMBLY INSTRUCTIONS

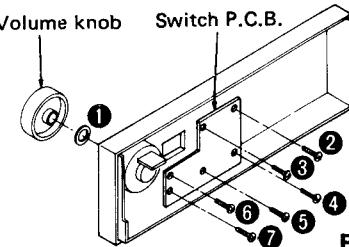
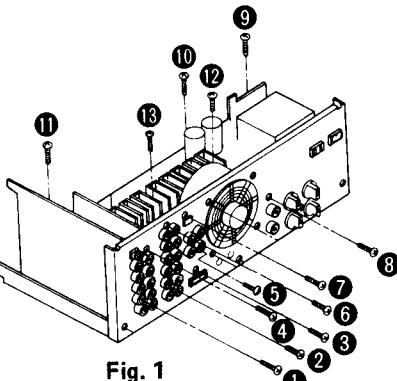
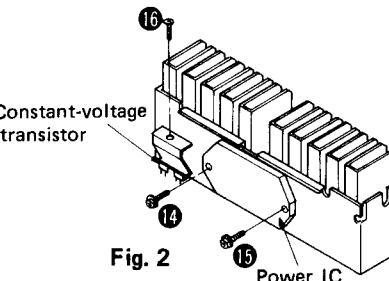
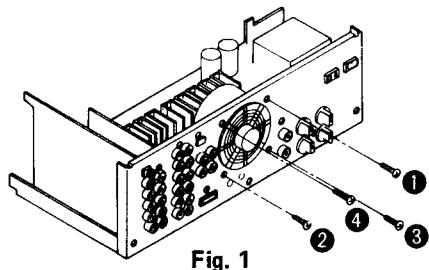
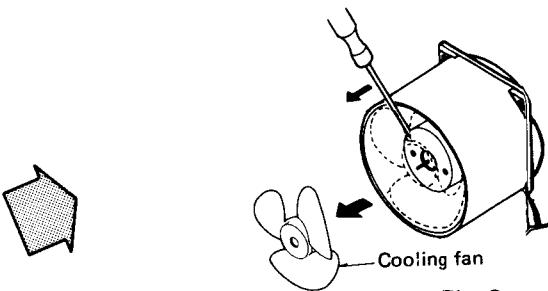
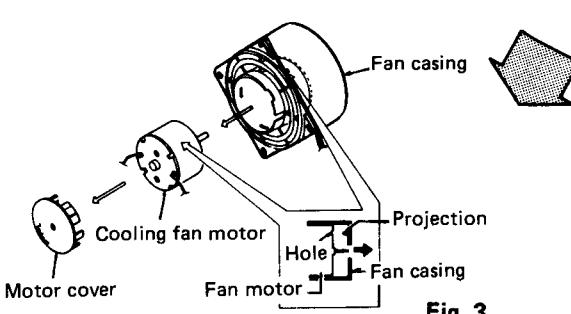
"ATTENTION SERVICER"

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

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

Remove the knob

Wind cellophane tape around the knob and put it the direction of the arrow as shown in Fig. 2 and Fig. 3.

Ref. No. 4	How to remove the volume control and switch P.C.B.
Procedure 1 → 2 → 3 → 4	<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>Fig. 1</p>
Ref. No. 5	How to remove the main P.C.B., power IC and constant-voltage transistor
Procedure 1 → 2 → 5	<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>Fig. 1</p> <p>4. Unsolder the power IC and the constant-voltage transistor. 5. Remove the 2 screws (⑭ , ⑮) from the power IC. 6. Remove the screw (⑯) from the constant-voltage transistor.</p>  <p>Fig. 2</p> <p>7. When mounting the power IC and the constant-voltage transistor, apply silicone grease (SZ0GYG6260) over their constant areas.</p>
Ref. No. 6	How to remove the cooling fan motor
Procedure 1 → 6	<p>1. Remove the 4 screws (① ~ ④) and the connector.</p>  <p>Fig. 1</p> <p>2. Insert a screwdriver at the root of the cooling fan. it out of the motor shaft.</p>  <p>Fig. 2</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>Fig. 3</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 7	S0 S2	Key matrix output.	Output Input	5	6			
10 13	K0 K3		10	S603 VIDEO DISC/AUX	S612 MUTE			
8	S3		11	—	S608 BALANCE(R)			
9	POWER ON		12	S602 TUNER	S605 VTR/TAPE 2			
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	Vss	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 _P	Power supply.						
52 60	S0 S8	Digital multi-display (FL) output.						
61	S music	Not used.						
62	S movie							
63	S mono							
64	V _{DD}	Power supply.						

■ RESISTORS & CAPACITORS

BLOC

Notes: * Important safety notice:

Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

* Bracketed indications in Ref. No. columns specify the area.

Parts without these indications can be used for all areas.

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 47×10^3 (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)	

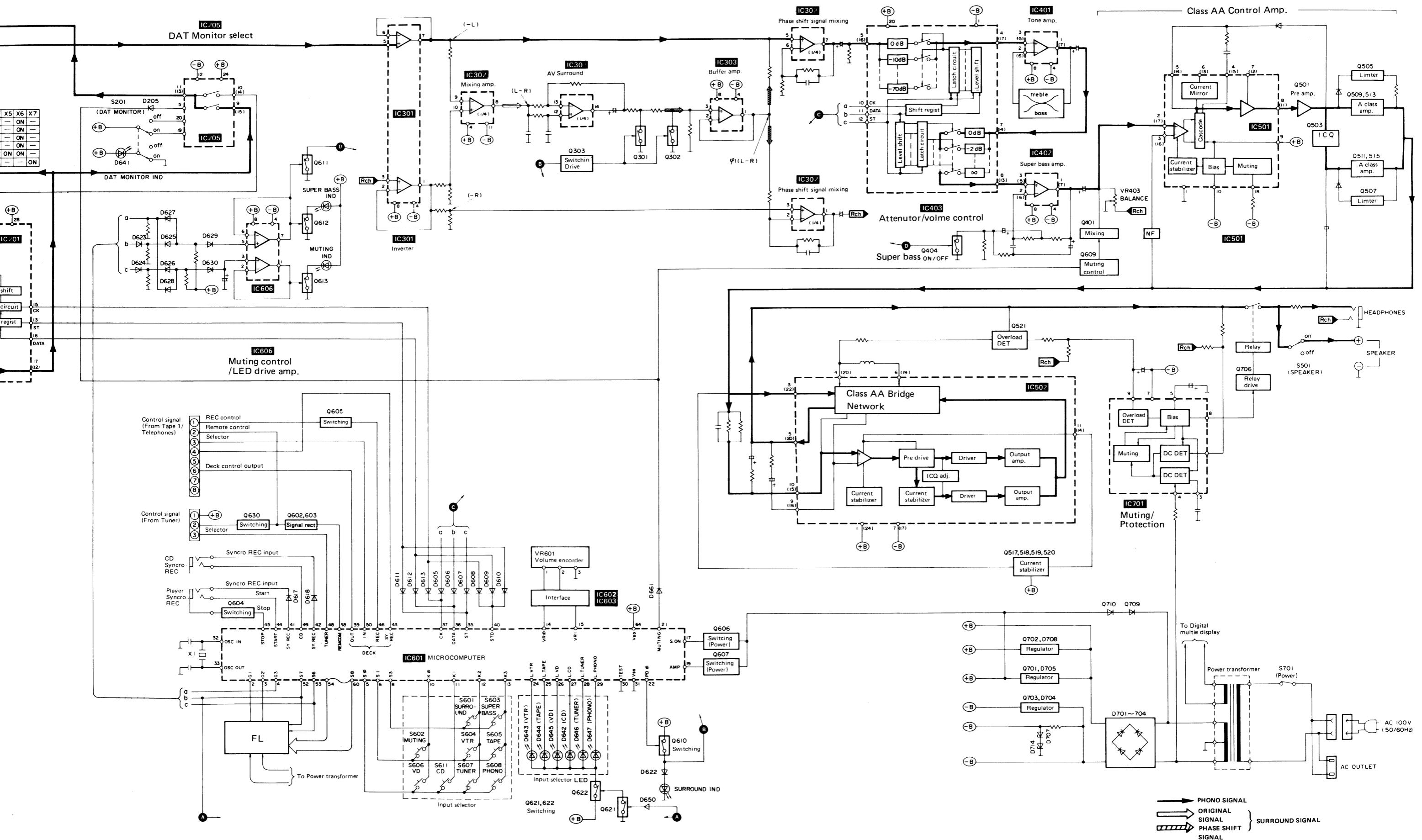
Resistor Type	Wattage	Tolerance
ERD : Carbon	10 : 1/8W	J : $\pm 5\%$
ERG : Metal Oxide	12 : 1/2W	F : $\pm 1\%$
ERX : Metal Film	25 : 1/4W	G : $\pm 2\%$
ERQ : Fuse Type Metal	1A : 1W	K : $\pm 10\%$
ERD [] L : Carbon (chip)	18 : 1/8W	
ERO [] K : Metal Film (chip)	S2 : 1/4W	
ERC : Solid	S1 : 1/2W	
	2F :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

Capacitor Type	Voltage	Tolerance
ECE : Electrolytic	0J : 6.3V	C : $\pm 0.25\mu F$
ECCD : Ceramic	1A : 10V	J : $\pm 5\%$
ECKD : Ceramic	1C : 16V	K : $\pm 10\%$
ECQM : Polyester	1E : 25V	Z : $+80\%$
ECQP : Polypropylene	1H : 50V	-20%
	1V : 35V	P : $+100\%$
	50 : 50V	-0%
ECG : Ceramic	05 : 50V	M : $\pm 20\%$
ECEA [] N : Non Polar	2H : 500V	
Electrolytic	2A : 100V	D : $\pm 0.5\mu F$
QCU [] : Ceramic (Chip Type)	1 : 100V	G : $\pm 2\%$
ECUX : Ceramic (Chip Type)	KC : 400V AC	
ECF : Semiconductor	KC : 125VAC (UL)	
EECW : Liquid electrolyte double layer capacitor	1J : 63V	

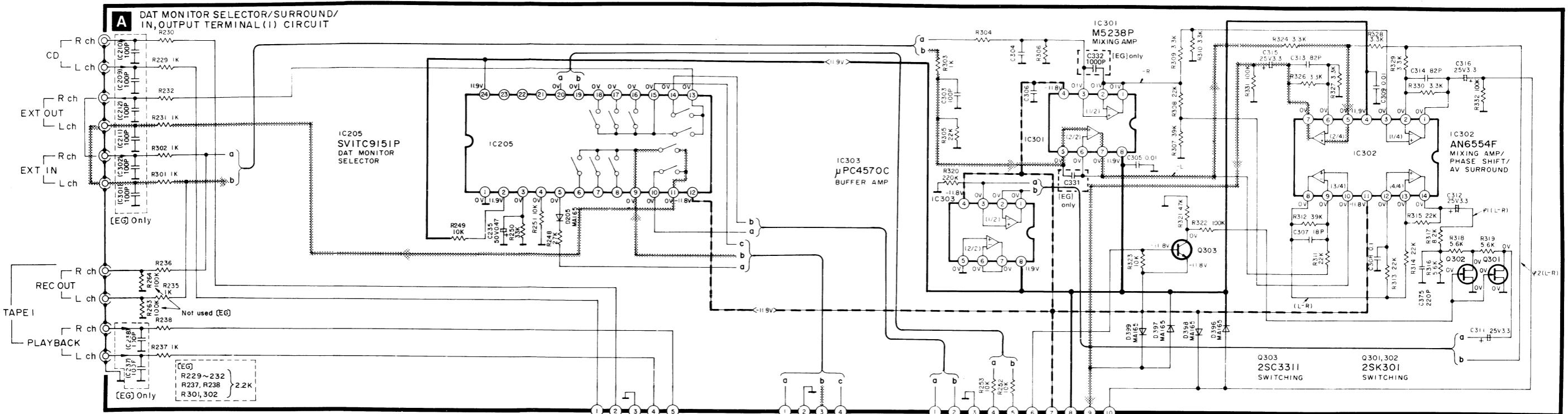
Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code	
RESISTORS									
R101, R102	ERDS2TJ471	001 152 2361 5	R231	ERDS2TJ222	001 152 2353 5	R322	ERDS2TJ104	001 152 2348 2	
(EG)			R232	ERDS2TJ103	001 152 2347 3	R323	ERDS2TJ332	001 152 2357 1	
R103, R104	ERDS2TJ391	001 152 2360 6	R236, R237	ERDS2TJ102	001 152 2346 4	R324, R326	ERDS2TJ332	001 152 2357 1	
R105, R106	ERDS2TJ224	001 152 2433 6	R237	ERDS2TJ222	001 152 2353 5	R327, R328	ERDS2TJ332	001 152 2357 1	
R107, R108	ERDS2TJ563	001 152 2446 1	R238	ERDS2TJ102	001 152 2346 4	R329, R330	ERDS2TJ332	001 152 2357 1	
R109, R110	ERDS2TJ221	001 152 2431 8	R239	ERDS2TJ222	001 152 2353 5	R331, R332	ERDS2TJ104	001 152 2348 2	
R111, R112	ERDS2TJ680	001 152 2448 9	(EG)	R407, R408	ERDS2TJ474	R409, R410	ERDS2TJ222	001 152 2455 0	
R113, R114	ERDS2TJ184	001 152 2588 8	R239, R240	ERDS2TJ102	001 152 2346 4	R413, R414	ERDS2TJ473	001 152 2363 3	
R115, R116	ERDS2TJ123	001 152 2424 7	R241	ERDS2TJ102	001 152 2346 4	R415, R416	ERDS2TJ182	001 152 2352 6	
R117, R118	ERDS2TJ563	001 152 2446 1	R241	ERDS2TJ222	001 152 2353 5	R417, R418	ERDS2TJ562	001 152 2445 2	
R119, R120	ERDS2TJ102	001 152 2346 4	(EG)	R242	ERDS2TJ102	001 152 2346 4	R419, R420	ERDS2TJ474	001 152 2443 4
R201	ERDS2TJ102	001 152 2346 4	R242	ERDS2TJ222	001 152 2353 5	R421, R422	ERDS2TJ223	001 152 2432 7	
R201, R202	ERDS2TJ222	001 152 2353 5	(EG)	R242	ERDS2TJ222	R423, R424	ERDS2TJ392	001 152 2439 0	
R202	ERDS2TJ102	001 152 2346 4	R248	ERDS2TJ273	001 152 2436 3	R425, R426	ERDS2TJ182	001 152 2352 6	
R202	ERDS2TJ222	001 152 2353 5	R249	ERDS2TJ103	001 152 2347 3	R427, R428	ERDS2TJ821	001 152 2454 1	
R203	ERDS2TJ102	001 152 2346 4	R250	ERDS2TJ333	001 152 2358 0	R429, R430	ERDS2TJ273	001 152 2346 3	
R203	ERDS2TJ222	001 152 2353 5	R251, R252	ERDS2TJ103	001 152 2347 3	R431, R434	ERDS2TJ104	001 152 2348 2	
R204	ERDS2TJ102	001 152 2346 4	R253	ERDS2TJ103	001 152 2347 3	R437, R438	ERDS2TJ224	001 152 2433 6	
R204	ERDS2TJ222	001 152 2353 5	R263, R264	ERDS2TJ104	001 152 2348 2	R439, R440	ERDS2TJ332	001 152 2357 1	
R205, R206	ERDS2TJ102	001 152 2346 4	(EG)	R265, R266	ERDS2TJ104	001 152 2348 2	R441, R442	ERDS2TJ103	001 152 2347 3
R207	ERDS2TJ102	001 152 2346 4	R301	ERDS2TJ102	001 152 2346 4	R443, R444	ERDS2TJ103	001 152 2347 3	
R207	ERDS2TJ222	001 152 2353 5	R301	ERDS2TJ222	001 152 2353 5	R445, R446	ERDS2TJ222	001 152 2353 5	
R207, R208	ERDS2TJ102	001 152 2346 4	R303, R304	ERDS2TJ102	001 152 2346 4	R447, R448	ERDS2TJ392	001 152 2439 0	
R208	ERDS2TJ222	001 152 2353 5	R305, R306	ERDS2TJ223	001 152 2342 7	R451	ERDS2TJ122	001 152 2423 8	
R209, R210	ERDS2TJ102	001 152 2346 4	R307	ERDS2TJ393	001 152 2440 7	R503, R504	ERDS2TJ102	001 152 2346 4	
R209, R210	ERDS2TJ152	001 152 2350 8	R308	ERDS2TJ223	001 152 2432 7	R505, R506	ERDS2TJ473	001 152 2363 3	
R219	ERDS2TJ182	001 152 2352 6	R309, R310	ERDS2TJ332	001 152 2357 1	R507, R508	ERDS2TJ272	001 152 2354 4	
R220, R221	ERDS2TJ562	001 152 2445 2	R311	ERDS2TJ223	001 152 2432 7	R509, R510	ERDS2TJ473	001 152 2363 3	
R222	ERDS2TJ562	001 152 2445 2	R312	ERDS2TJ393	001 152 2440 7	R511	ERD2FCG470	001 152 0197 7	
R229	ERDS2TJ102	001 152 2346 4	R313, R314	ERDS2TJ223	001 152 2432 7	R512	ERDS2TJ823	001 152 2456 9	
R229	ERDS2TJ222	001 152 2353 5	R315	ERDS2TJ223	001 152 2432 7	R513, R514	ERDS2TJ561	001 152 2364 2	
R230	ERDS2TJ102	001 152 2346 4	R316	ERDS2TJ562	001 152 2445 2	R515, R516	ERD25F470	001 152 0309 7	
R230	ERDS2TJ222	001 152 2353 5	R317	ERDS2TJ822	001 152 2455 0	R517, R532	ERDS2TJ182	001 152 2352 6	
R231	ERDS2TJ102	001 152 2346 4	R318, R319	ERDS2TJ562	001 152 2445 2	R533, R534	ERDS2TJ391	001 152 2360 6	
R231	ERDS2TJ102	001 152 2346 4	R320	ERDS2TJ224	001 15				

■ BLOCK DIAGRAM

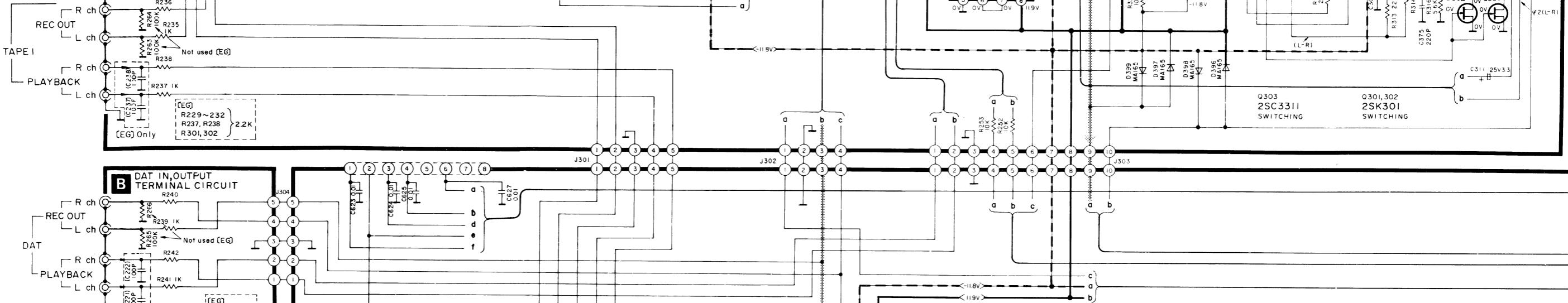
Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code
R737	ERG1ANJ681	001 151 0086 8	C507	ECEA2AU010	001 120 3578 4
R810	ERDS2TJ101	001 152 2421 0	C508	ECEA1HK010	001 120 0341 5
CAPACITORS					
C101, C102	RCBS1H180JLY	001 103 5592 5	C509, C510	ECEA1CPS220	001 120 6060 7
(EG)			C511, C512	RCBS1H180JLY	001 103 5592 5
C103	RCBS1H151KBY		C513, C514	ECBT1H681KB5	001 103 9167 2
(EG)			C515, C516	RCBS1H120JLY	001 103 5578 3
C104			C517, C518	ECBT1H102KB5	001 103 8123 8
(EG)			C520	ECKD1H102PF	001 103 1435 3
C105, C106	ECEA1HPS3R3	001 120 6064 3	C521, C522	ECKD1H103PF	001 103 1443 3
(EG)			C523	RCBS1H101KBY	001 103 5569 4
C107, C108			C524	ECFTD102KXL	001 108 0371 1
(EG)			C525	ECEA0JPS330	001 120 6059 0
C109, C110			C526	ECFTD223KXL	001 108 0342 6
(EG)			C527	ECEA1HK010	001 120 0341 5
C111, C112			C528	ECEA1VHK330	001 120 4800 3
(EG)			C529	RCBS1H680JLY	001 103 5640 4
C113, C114			C530	ECKD1H223PF	001 103 1510 9
(EG)			C531	ECBT1E103ZF5	001 103 8080 2
C115, C116			C532	RCBS1H101KBY	001 103 5569 4
(EG)			C533	ECBT1E103ZF5	001 103 8080 2
C117, C118			C534	RCBS1H101KBY	001 103 5569 4
(EG)			C535	ECEA1HPS3R3	001 120 6064 3
C119, C120			C536	ECEA1CKS100	001 120 2600 7
(EG)			C537	ECBT1E103ZF5	001 103 8080 2
C121, C122			C538	RCBS1H101KBY	001 103 5569 4
(EG)			C539	ECKD1H223PF	001 103 1510 9
C201, C202			C540	RCBS1H330JLY	001 103 5617 3
(EG)			C541	ECBT1E103ZF5	001 103 8080 2
C203, C204			C542	RCBS1H560JLY	001 103 5636 0
(EG)			C543	ECEA1AU101	001 120 2830 5
C209, C210			C544	ECEA1AU101	001 120 2830 5
(EG)			C545	ECBT1H821K5	001 103 9382 7
C211, C212			C546	ECFTD472KXL	001 108 0746 0
(EG)			C547	ECKD1H333PF	001 103 1539 6
C223, C224			C548	ECKD1H473ZF	001 103 5404 4
(EG)			C549	ECKD1H473ZF	001 103 5404 4
C235	ECEA1HHR47	001 120 0338 0	C550	ECEA0JS102	001 120 0152 8
(EG)			C551	RCBS1H101KBY	001 103 5569 4
C237, C238			C552	ECBT1E223ZF	001 103 7589 2
(EG)			C553	ECEA1HK010	001 120 0341 5
C301, C302			C554	RCBS1H21KBY	001 103 5603 9
(EG)			C555	ECEA1VHK330	001 120 4800 3
C303, C304			C556	ECBT1E103ZF5	001 103 8080 2
(EG)			C557	RCBS1H101KBY	001 103 5569 4
C305, C306			C558	ECKD1H103ZF5	001 103 8080 2
C307			C559	ECKD1H21KBY	001 103 5592 5
(EG)			C560	ECFTD104KXL	001 108 0793 1
C308			C561	ECEA1EIK3ZF5	001 103 8080 2
(EG)			C562	ECKD1H103ZF5	001 103 8080 2
C309			C563	ECKD1H103ZF5	001 103 8080 2
(EG)			C564	ECKD1H103ZF5	001 103 8080 2
C311			C565	ECKD1H103ZF5	001 103 8080 2
(EG)			C566	ECKD1H103ZF5	001 103 8080 2
C312	ECEA1EK3R3E	001 120 6273 6	C567	ECKD1H103ZF5	001 103 8080 2
(EG)			C568	ECKD1H103ZF5	001 103 8080 2
C313, C314			C569	ECKD1H103ZF5	001 103 8080 2
(EG)			C570	ECKD1H103ZF5	001 103 8080 2
C315, C316			C571	ECKD1H103ZF5	001 103 8080 2
(EG)			C572	ECKD1H103ZF5	001 103 8080 2
C317			C573	ECKD1H103ZF5	001 103 8080 2
(EG)			C574	ECKD1H103ZF5	001 103 8080 2
C322			C575	ECKD1H103ZF5	001 103 8080 2
(EG)			C576	ECKD1H103ZF5	001 103 8080 2
C323			C577	ECKD1H103ZF5	001 103 8080 2
(EG)			C578	ECKD1H103ZF5	001 103 8080 2
C324			C579	ECKD1H103ZF5	001 103 8080 2
(EG)			C580	ECKD1H103ZF5	001 103 8080 2
C325			C581	ECKD1H103ZF5	001 103 8080 2
(EG)			C582	ECKD1H103ZF5	001 103 8080 2
C326			C583	ECKD1H103ZF5	001 103 8080 2
(EG)			C584	ECKD1H103ZF5	001 103 8080 2
C327			C585	ECKD1H103ZF5	001 103 8080 2
(EG)			C586	ECKD1H103ZF5	001 103 8080 2
C328			C587	ECKD1H103ZF5	001 103 8080 2
(EG)			C588	ECKD1H103ZF5	001 103 8080 2
C329			C589	ECKD1H103ZF5	001 103 8080 2
(EG)			C590	ECKD1H103ZF5	001 103 8080 2
C330			C591	ECKD1H103ZF5	001 103 8080 2
(EG)			C592	ECKD1H103ZF5	001 103 8080 2
C331			C593	ECKD1H103ZF5	001 103 8080 2
(EG)			C594	ECKD1H103ZF5	001 103 8080 2
C332			C595	ECKD1H103ZF5	001 103 8080 2
(EG)			C596	ECKD1H103ZF5	001 103 8080 2
C333			C597	ECKD1H103ZF5	001 103 8080 2
(EG)			C598	ECKD1H103ZF5	001 103 8080 2
C334			C599	ECKD1H103ZF5	001 103 8080 2
(EG)			C600	ECKD1H103ZF5	001 103 8080 2
C335			C601	ECKD1H103ZF5	001 103 8080 2
(EG)			C602	ECKD1H103ZF5	001 103 8080 2
C336			C603	ECKD1H103ZF5	001 103 8080 2
(EG)			C604	ECKD1H103ZF5	001 103 8080 2
C337			C605	ECKD1H103ZF5	001 103 8080 2
(EG)			C606	ECKD1H103ZF5	001 103 8080 2
C338			C607	ECKD1H103ZF5	001 103 8080 2
(EG)			C608	ECKD1H103ZF5	001 103 8080 2
C339			C609	ECKD1H103ZF5	001 103 8080 2
(EG)			C610	ECKD1H103ZF5	001 103 8080 2
C340			C611	ECKD1H103ZF5	001 103 8080 2
(EG)			C612	ECKD1H103ZF5	001 103 8080 2
C341			C613	ECKD1H103ZF5	001 103 8080 2
(EG)			C614	ECKD1H103ZF5	001 103 8080 2
C342			C615	ECKD1H103ZF5	001 103 8080 2
(EG)			C616	ECKD1H103ZF5	001 103 8080 2
C343			C617	ECKD1H103ZF5	001 103 8080 2
(EG)			C618	ECKD1H103ZF5	001 103 8080 2
C344			C619	ECKD1H103ZF5	001 103 8080 2
(EG)			C620	ECKD1H103ZF5	001 103 8080 2
C345			C621	ECKD1H103ZF5	001 103 8080 2
(EG)			C622	ECKD1H103ZF5	001 103 8080 2
C346			C623	ECKD1H103ZF5	001 103 8080 2
(EG)			C624	ECKD1H103ZF5	001 103 8080 2
C347			C625	ECKD1H103ZF5	001 103 8080 2
(EG)			C626	ECKD1H103ZF5	001 103 8080 2
C348			C627	ECKD1H103ZF5	001 103 8080 2
(EG)			C628	ECKD1H103ZF5	001 103 8080 2
C349			C629	ECKD1H103ZF5	001 103 8080 2
(EG)			C630	ECKD1H103ZF5	001 103 8080 2
C350			C631	ECKD1H103ZF5	001 103 8080 2
(EG)			C632	ECKD1H103ZF5	



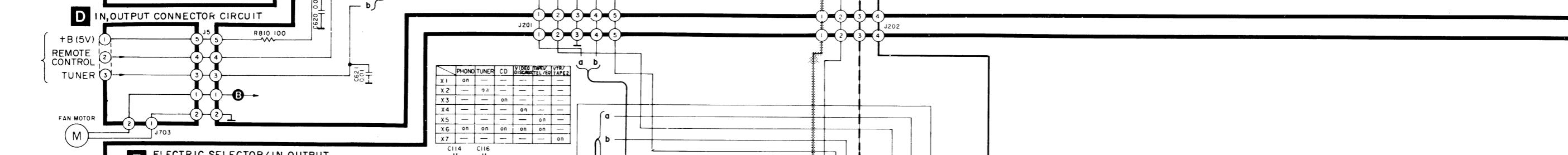
A



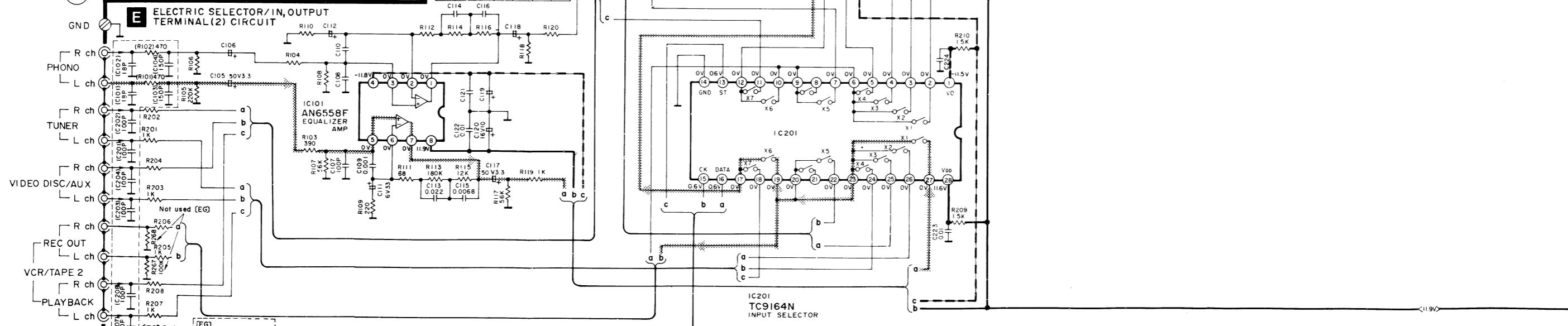
B



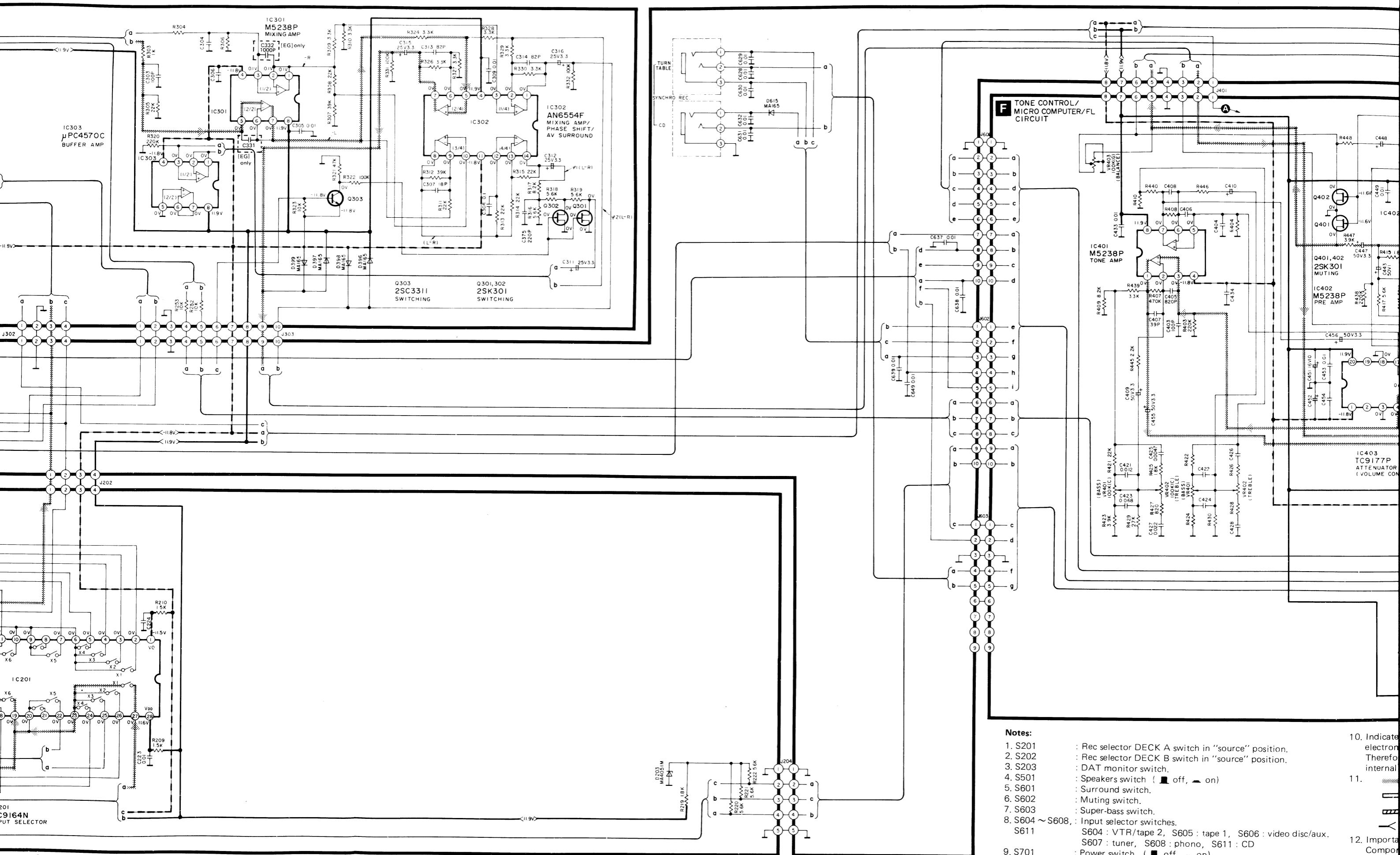
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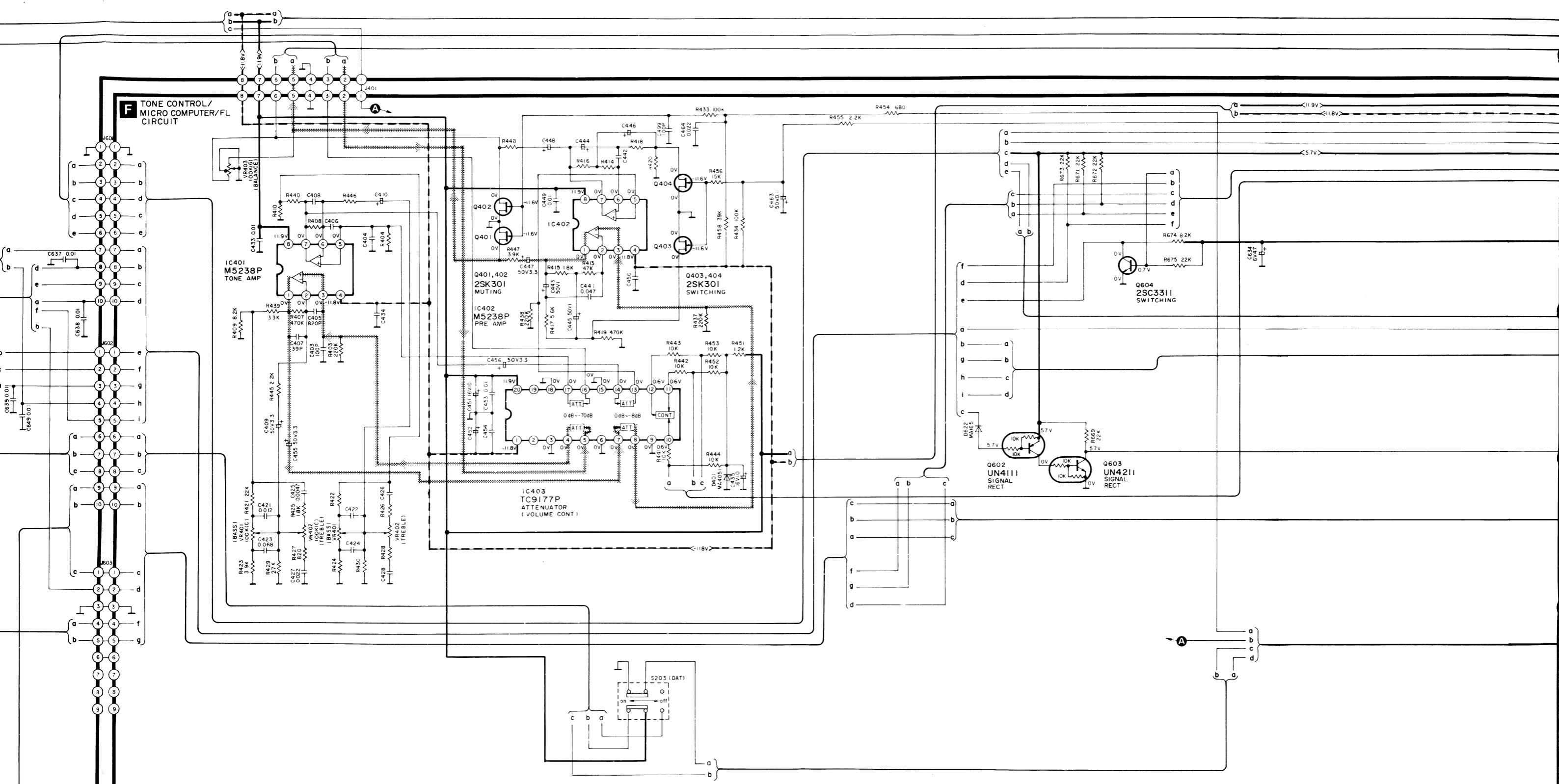


E



F



**Notes:**

1. S201 : Rec selector DECK A switch in "source" position.
2. S202 : Rec selector DECK B switch in "source" position.
3. S203 : DAT monitor switch.
4. S501 : Speakers switch (off, on)
5. S601 : Surround switch.
6. S602 : Muting switch.
7. S603 : Super-bass switch.
8. S604 ~ S608 : Input selector switches.
- S611 : S604 : VTR/tape 2, S605 : tape 1, S606 : video disc/aux.
- S607 : tuner, S608 : phono, S611 : CD
9. 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.

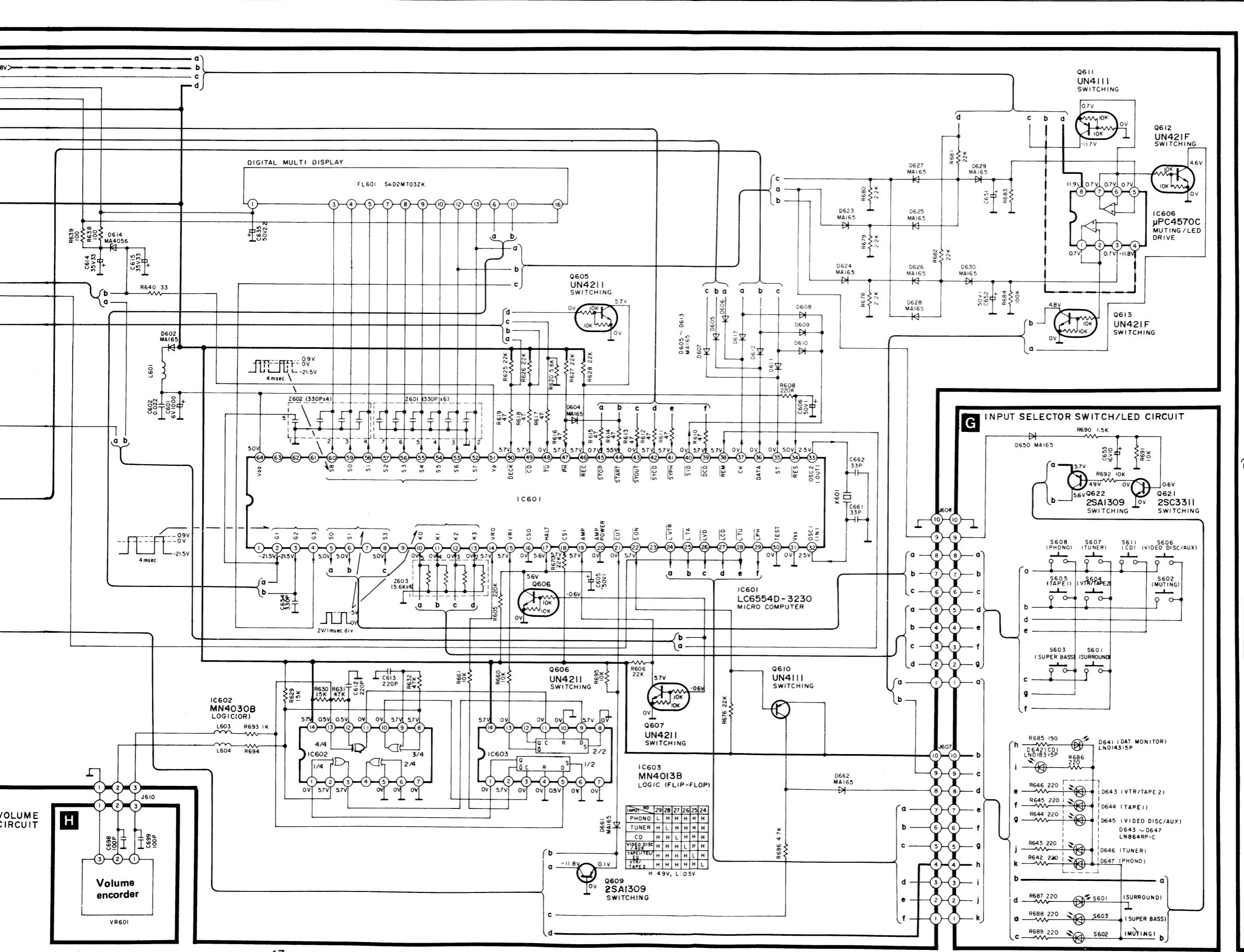
* Cover the parts boxes made of plastics with aluminum foil.

* Ground the soldering iron.

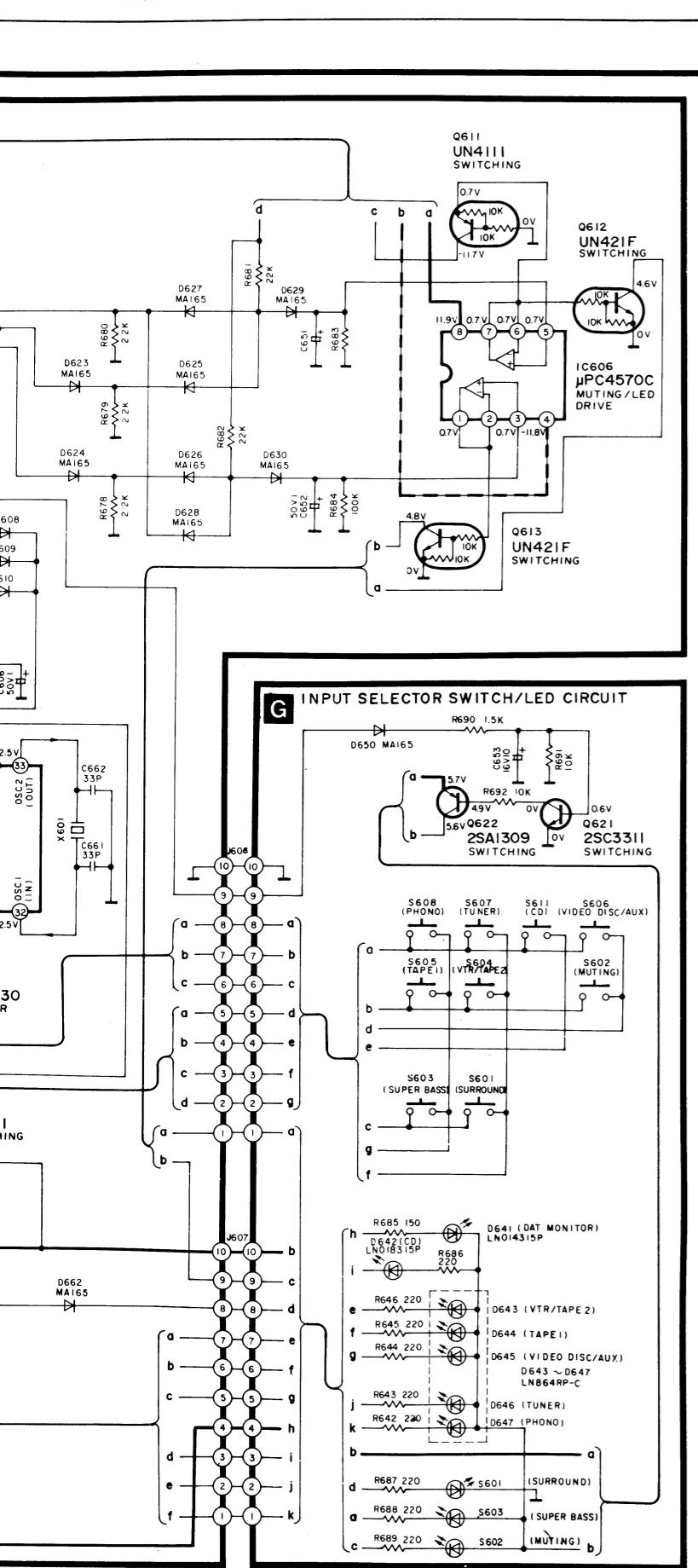
* Put a conductive mat on the work table.

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

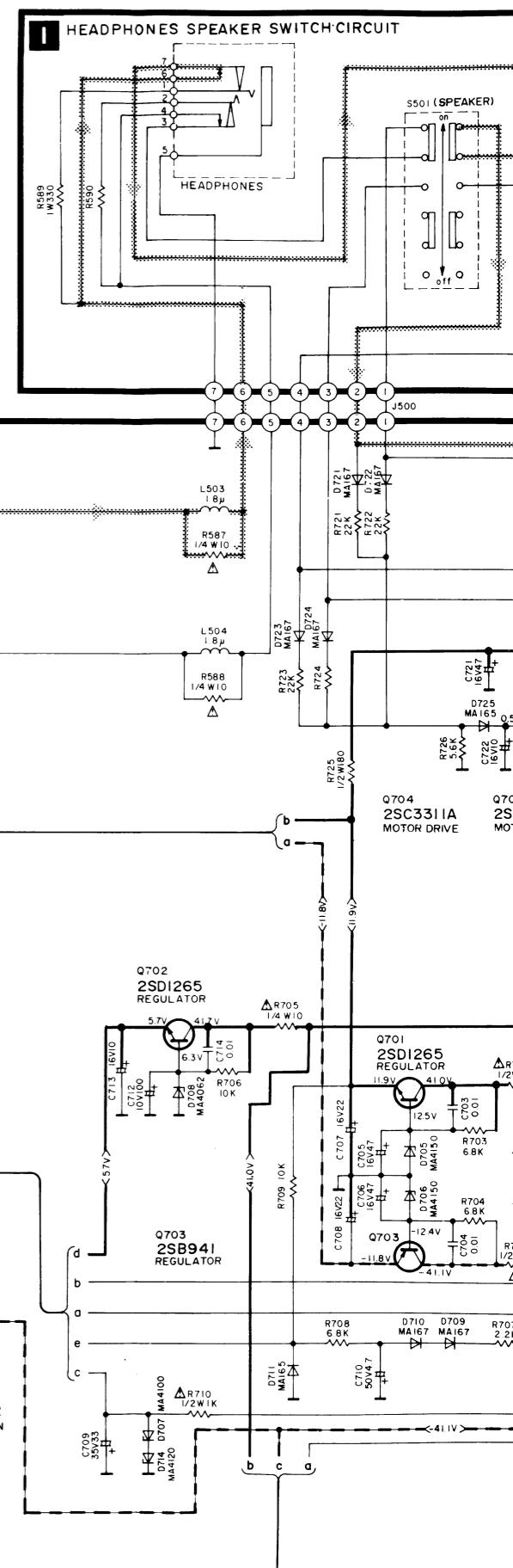
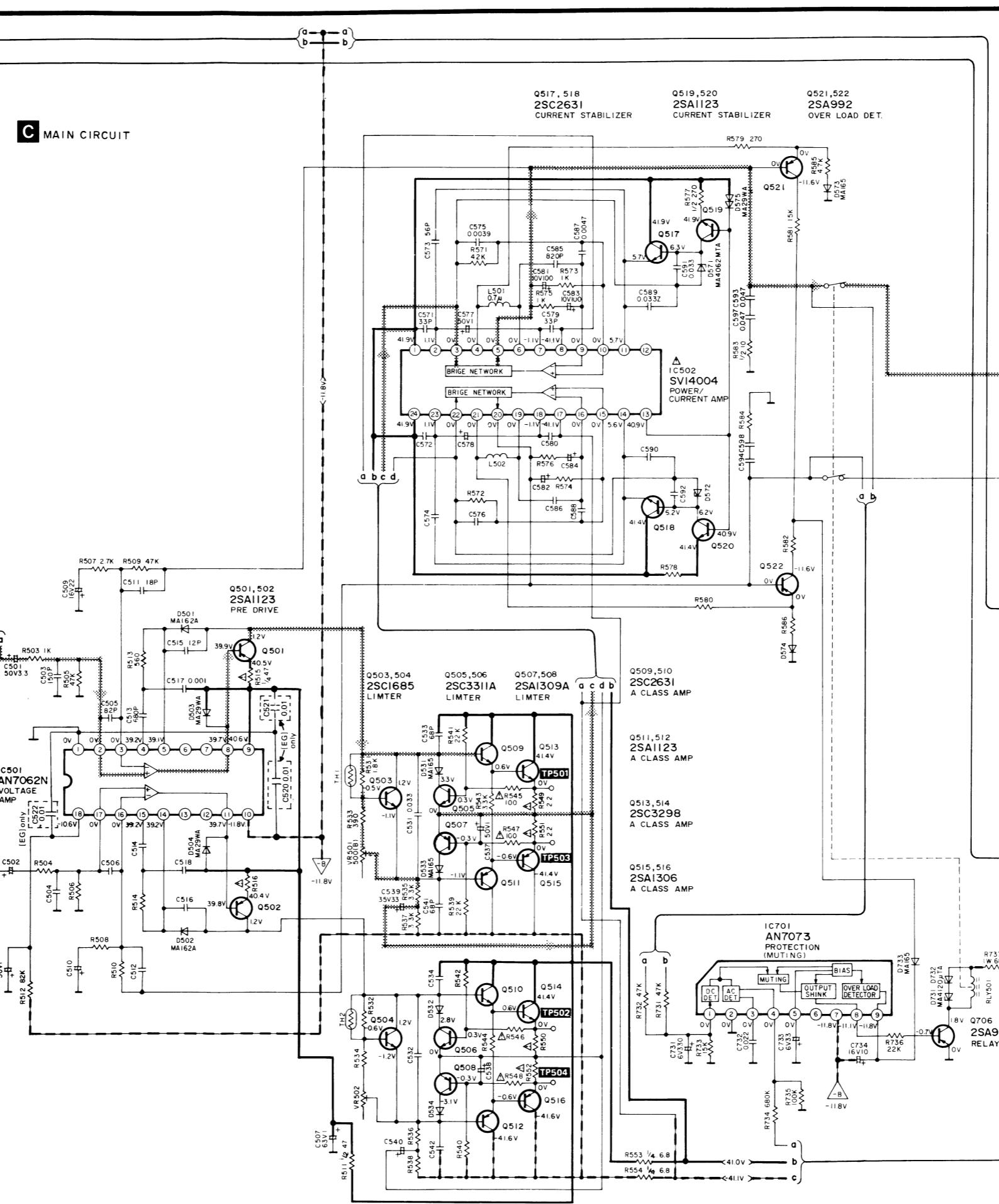
C MAIN CIRCUIT



- 17 -

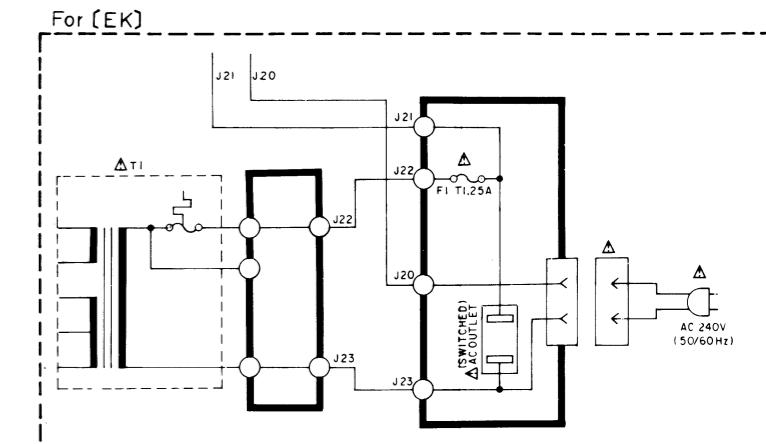
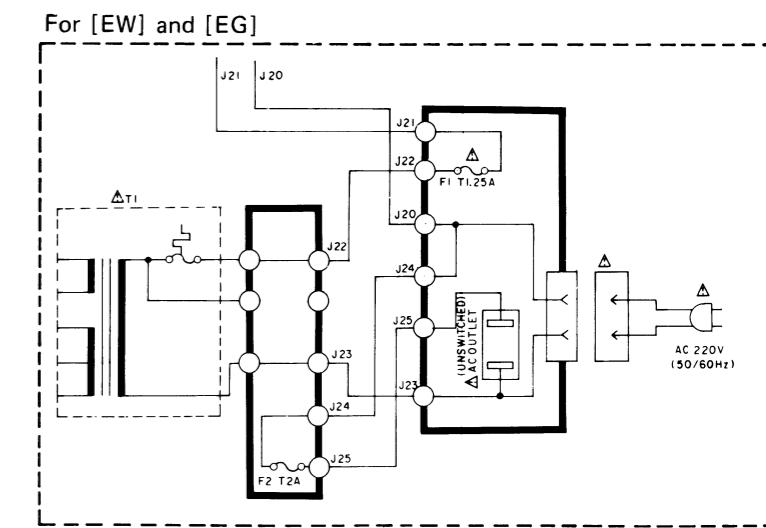
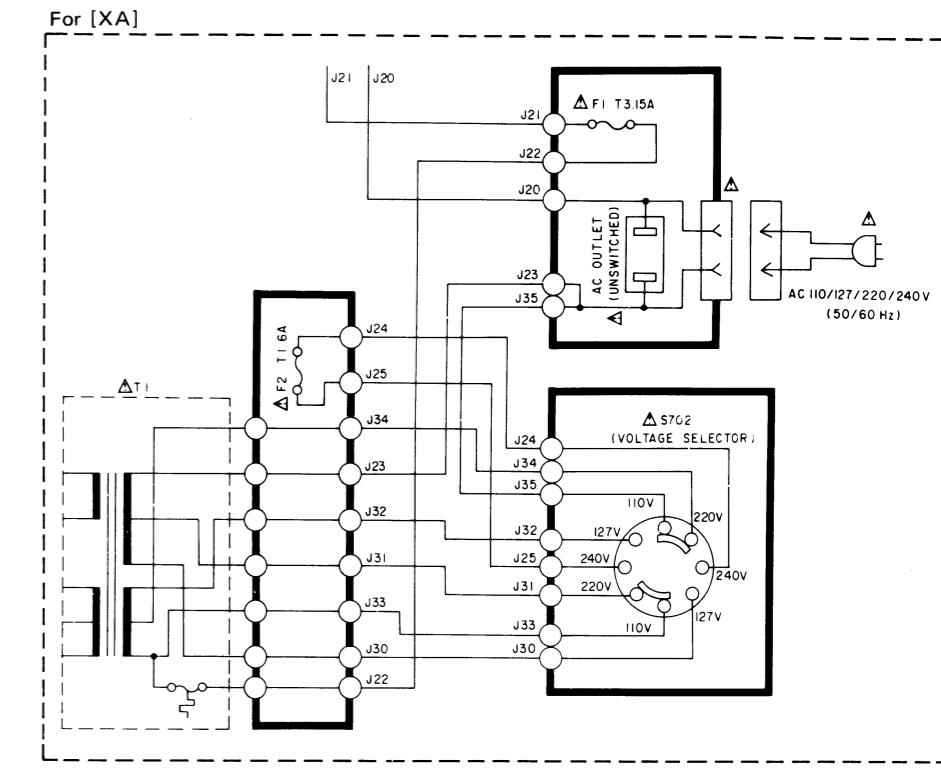
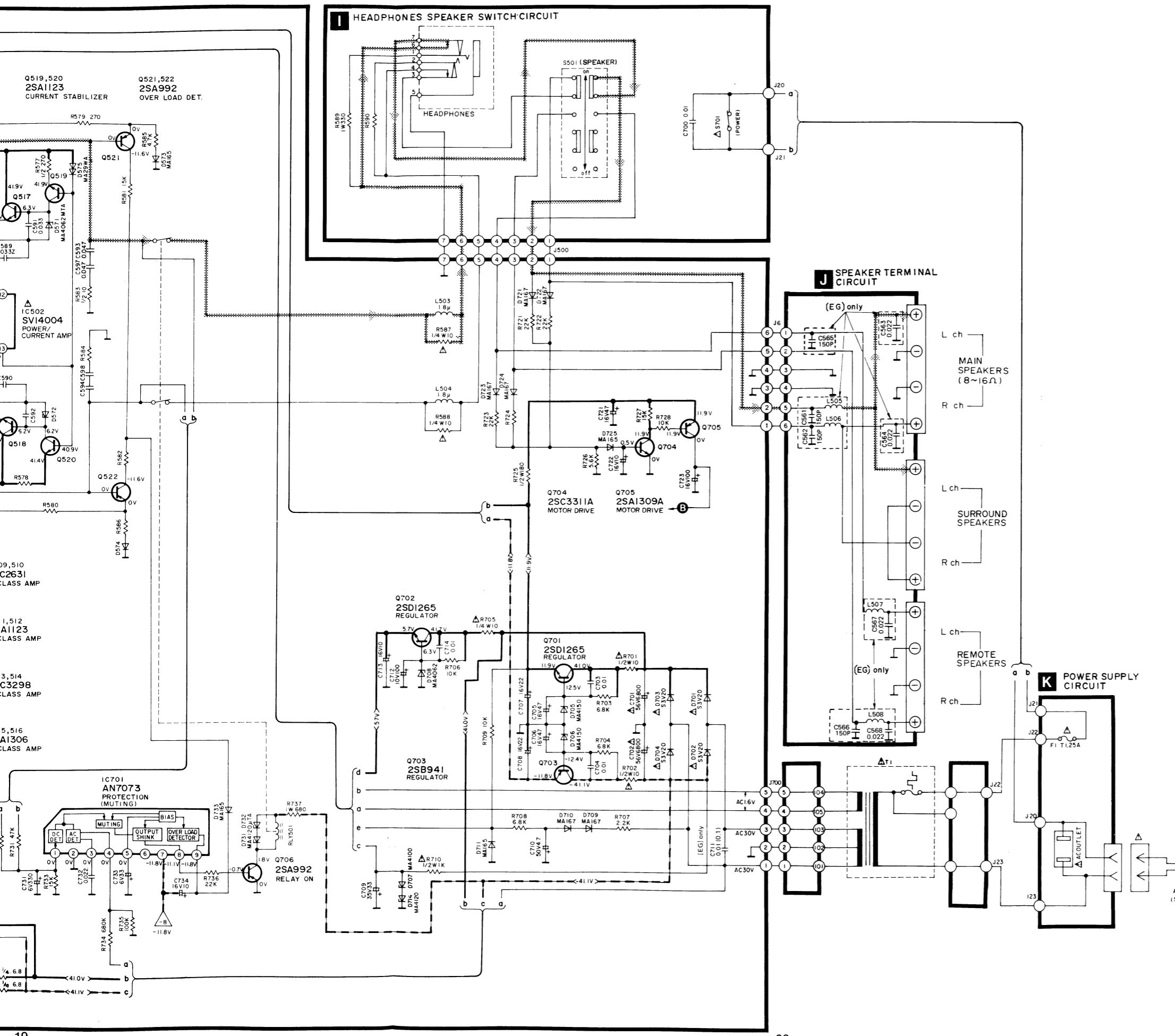


C MAIN CIRCUIT

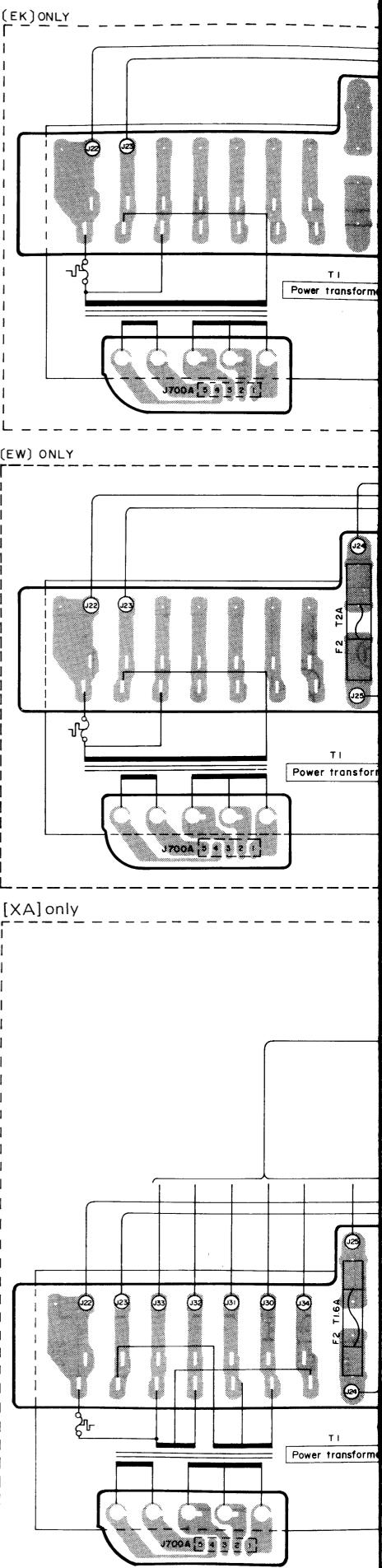
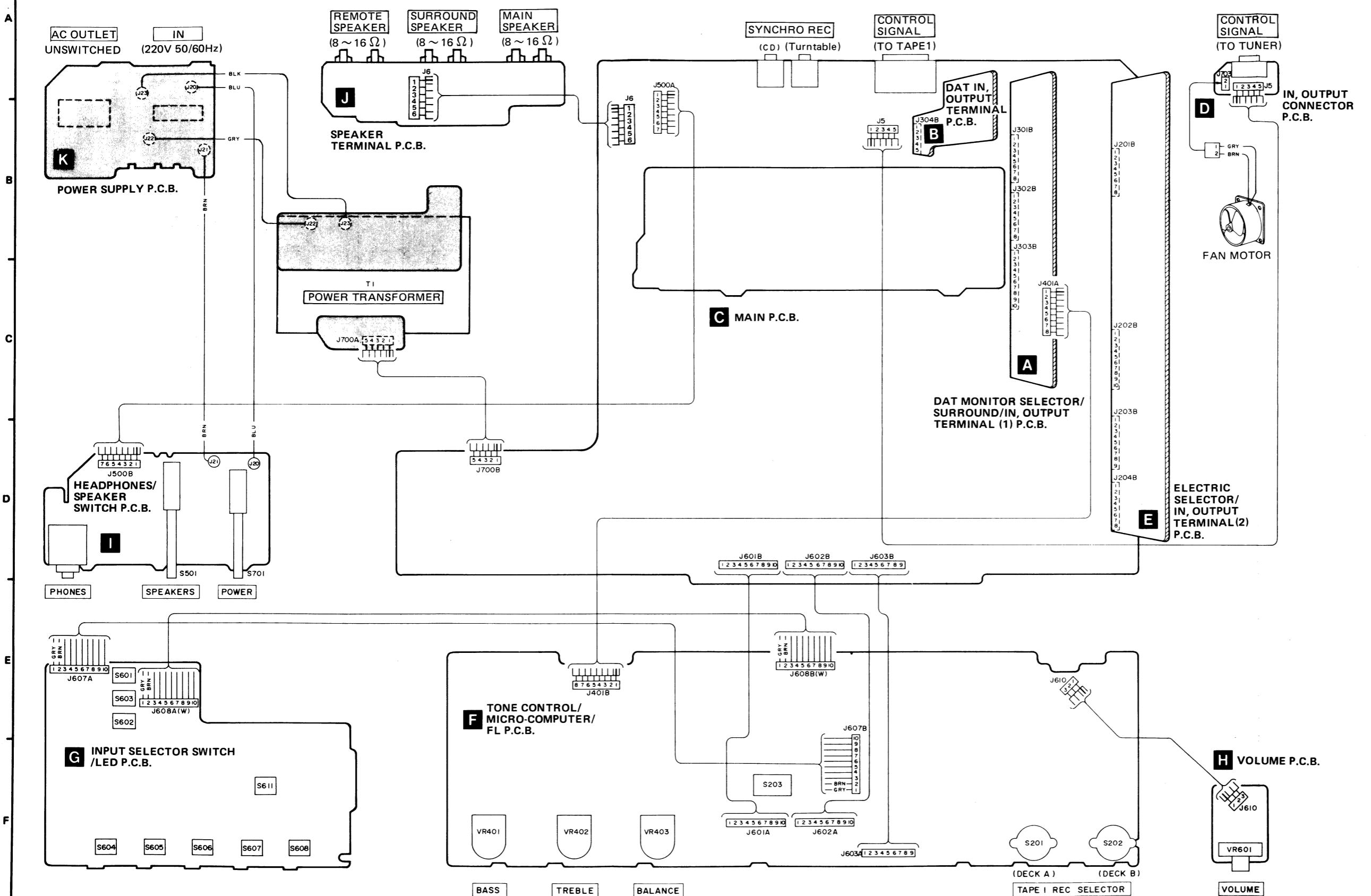


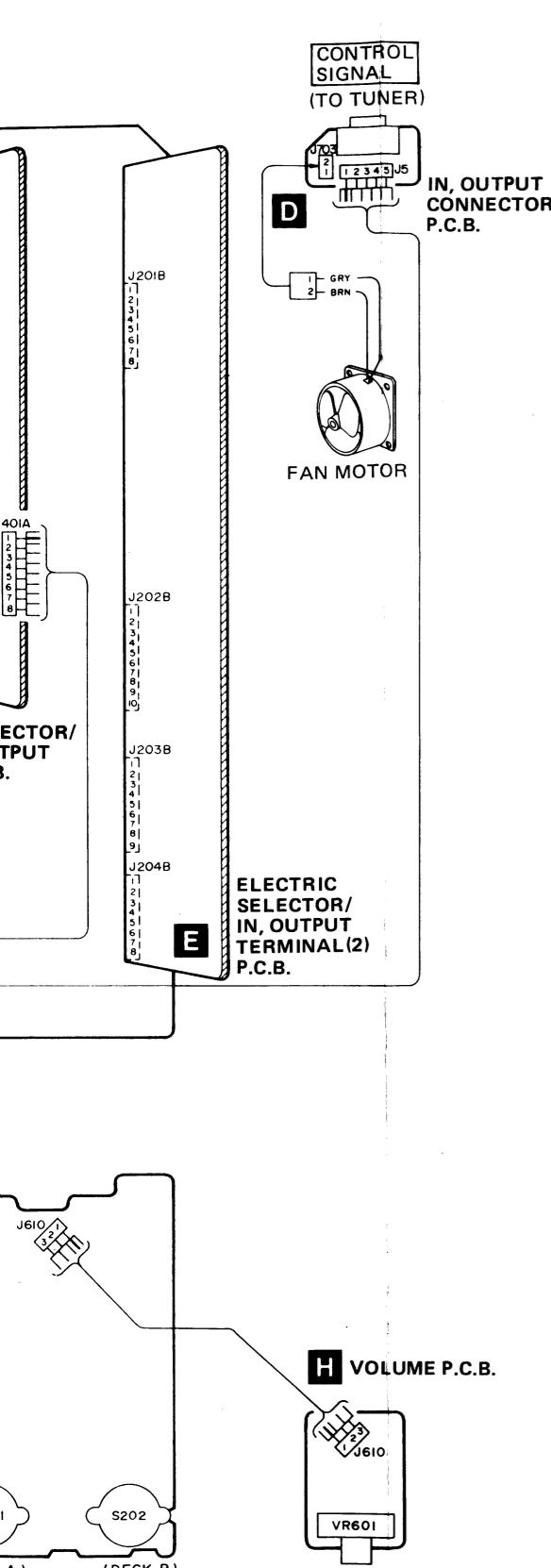
■ SCHEMATIC DIAGRAM

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



■ WIRING CONNECTION DIAGRAM





(EK) ONLY

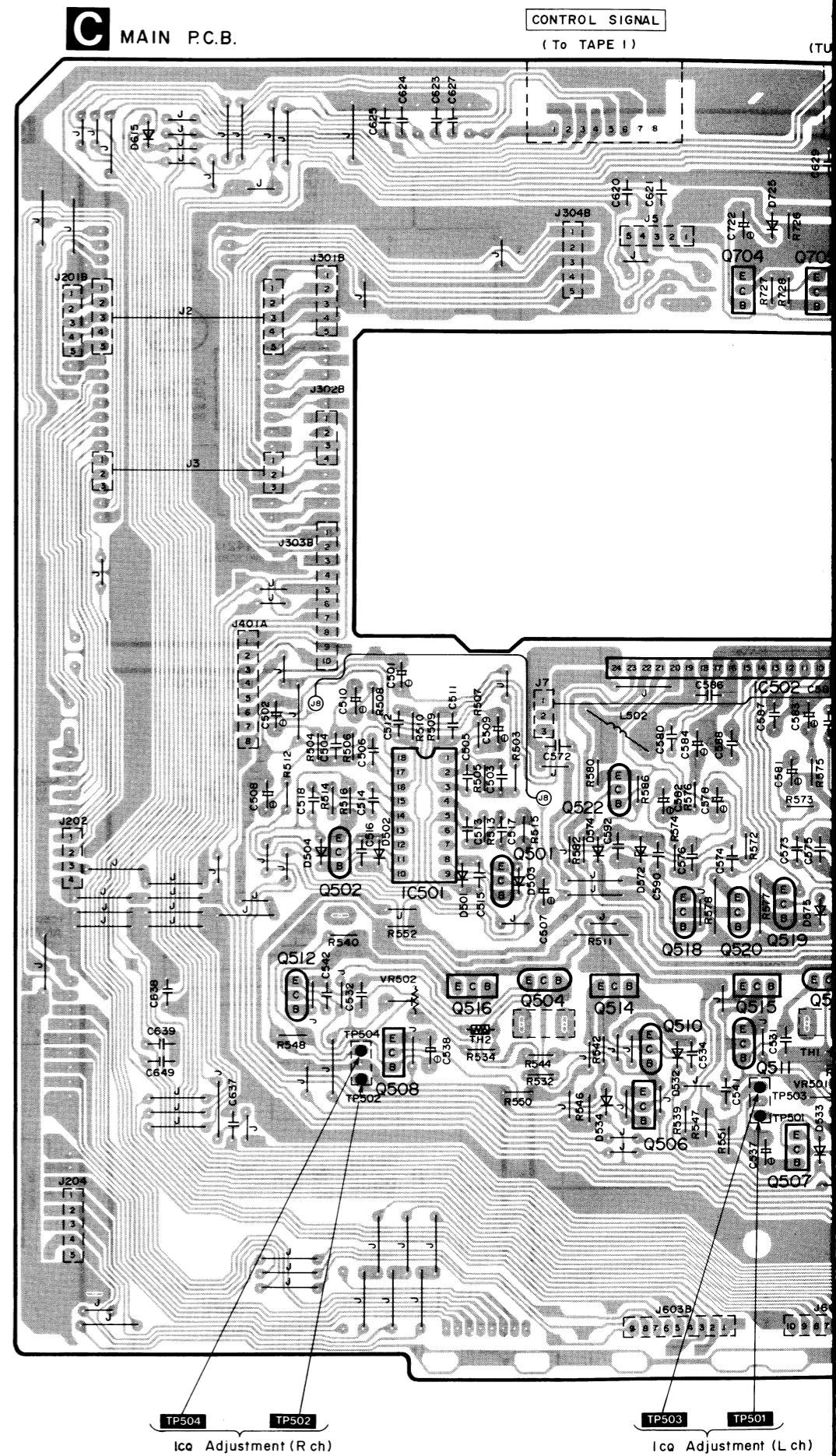
(EW) ONLY

[XA] only

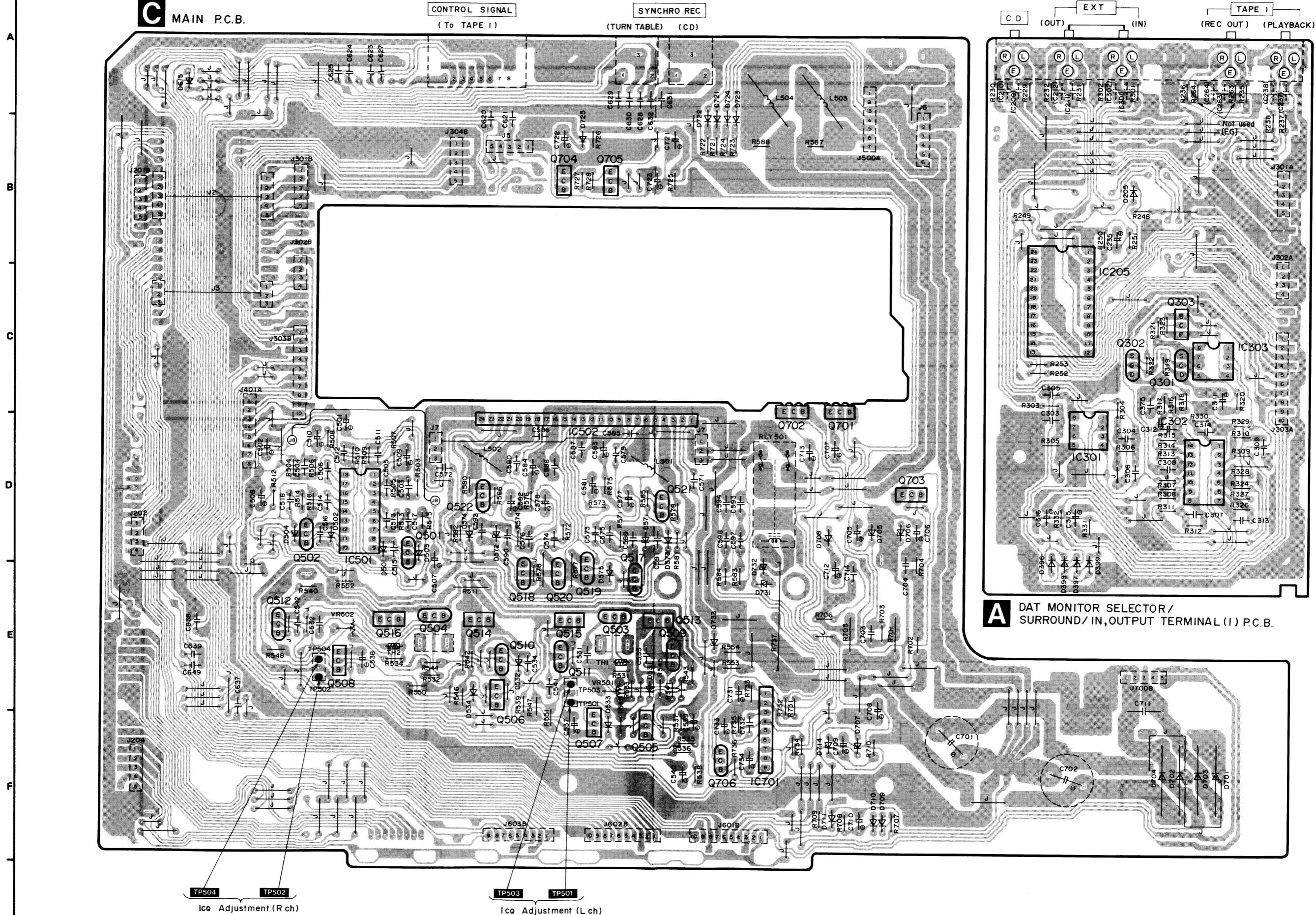
The diagrams illustrate the power supply section for three different models. Each section includes a power transformer (T1), AC input (AC IN), AC outlets (AC OUTLET), fuses (F1, F2, T2A, T3.15A), and a power switch connection (TO POWER SWITCH). The [XA] model also features a voltage selector switch (S702) with multiple terminal options for 110V, 127V, 220V, and 240V.

■ PRINTED CIRCUIT BOARDS

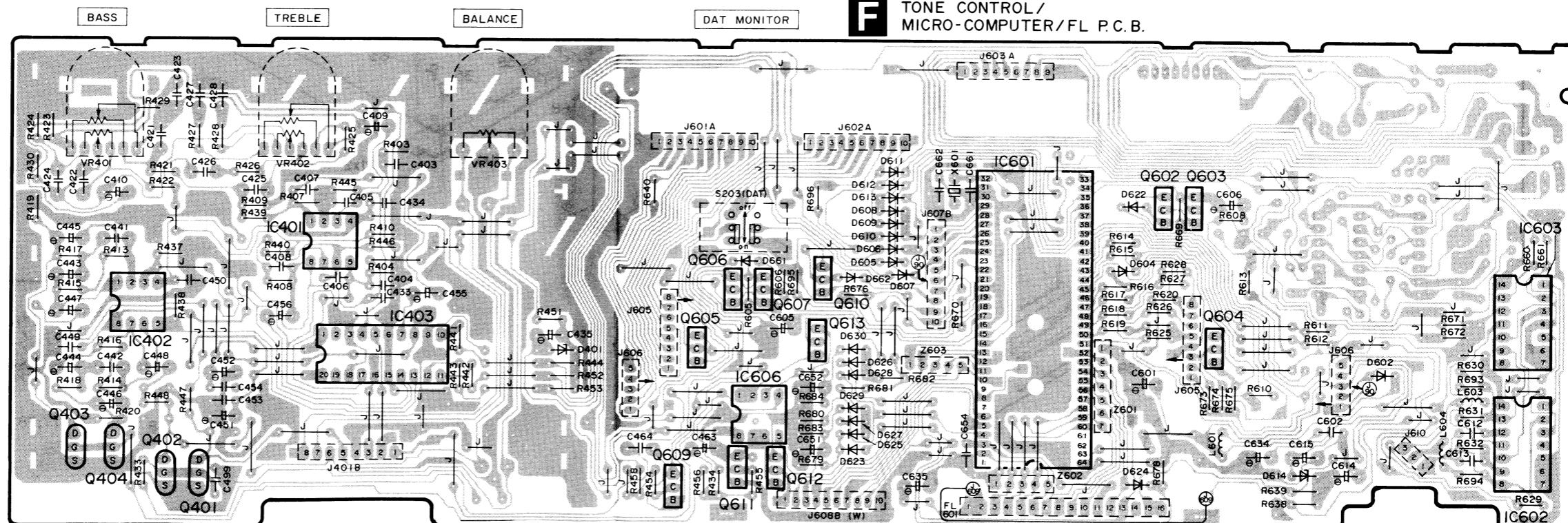
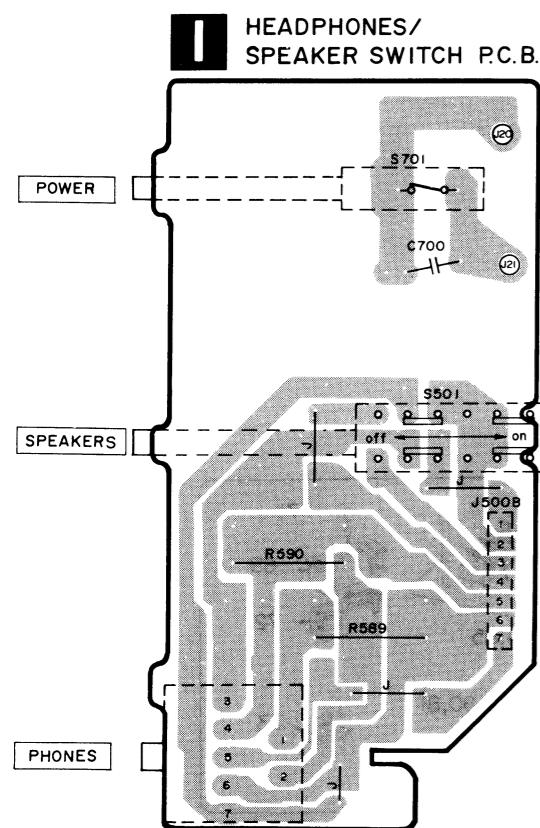
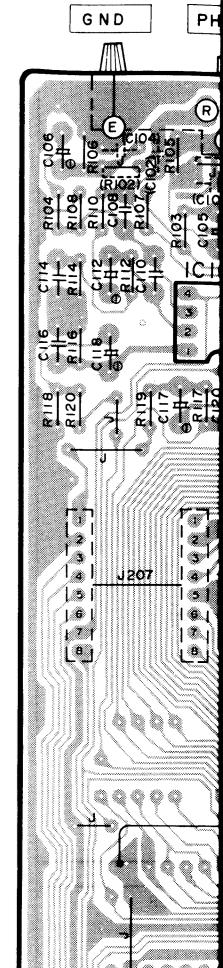
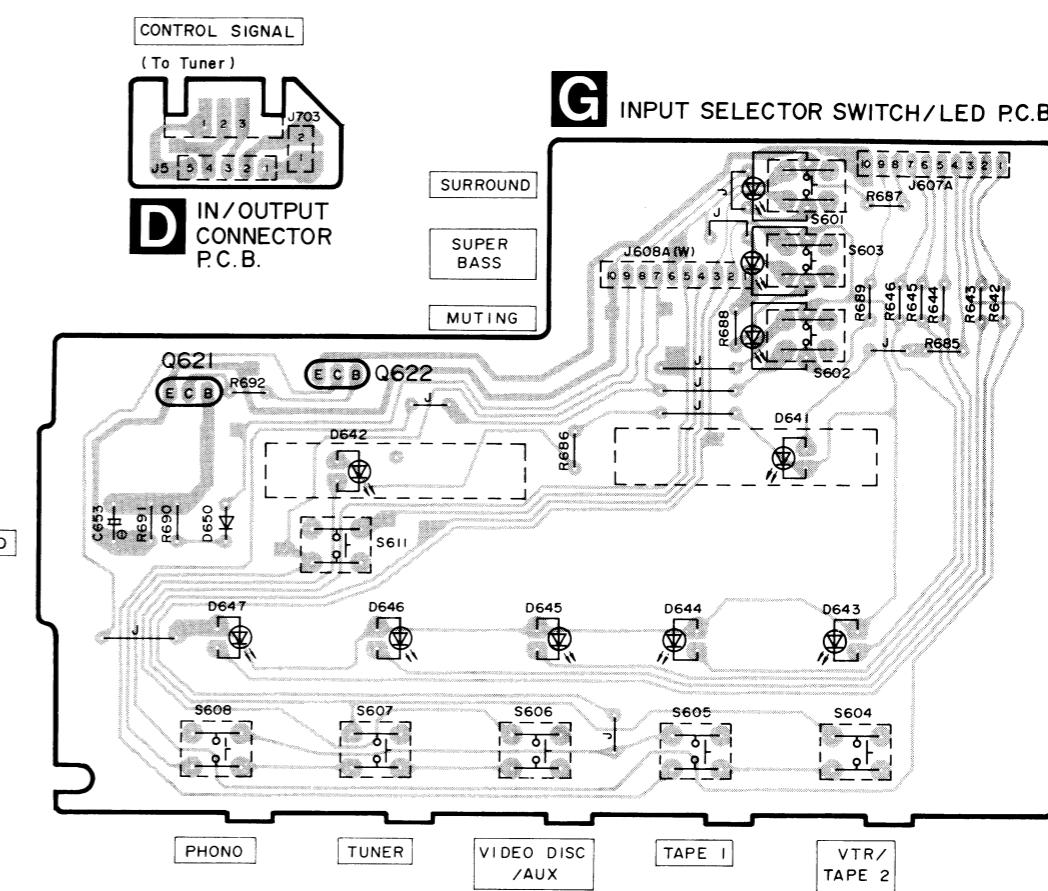
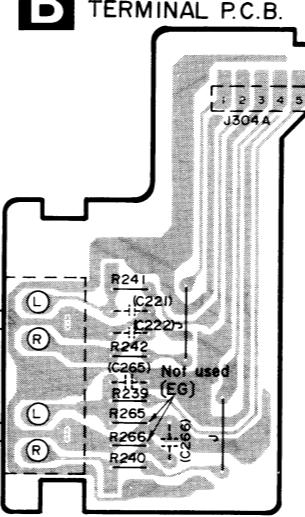
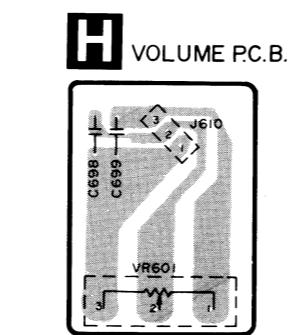
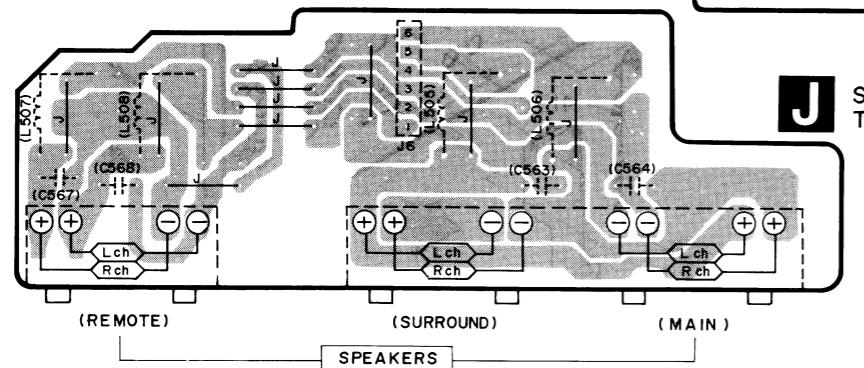
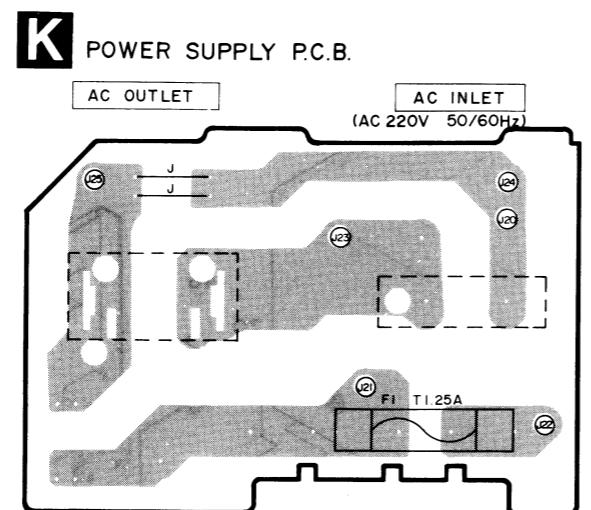
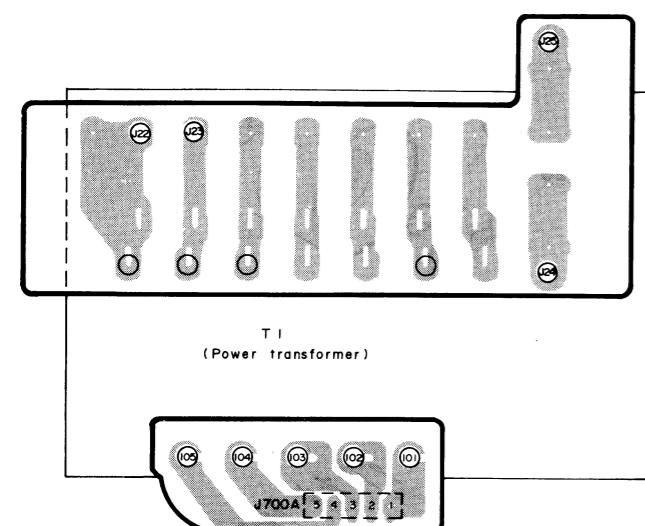
C MAIN P.C.B.



■ PRINTED CIRCUIT BOARDS

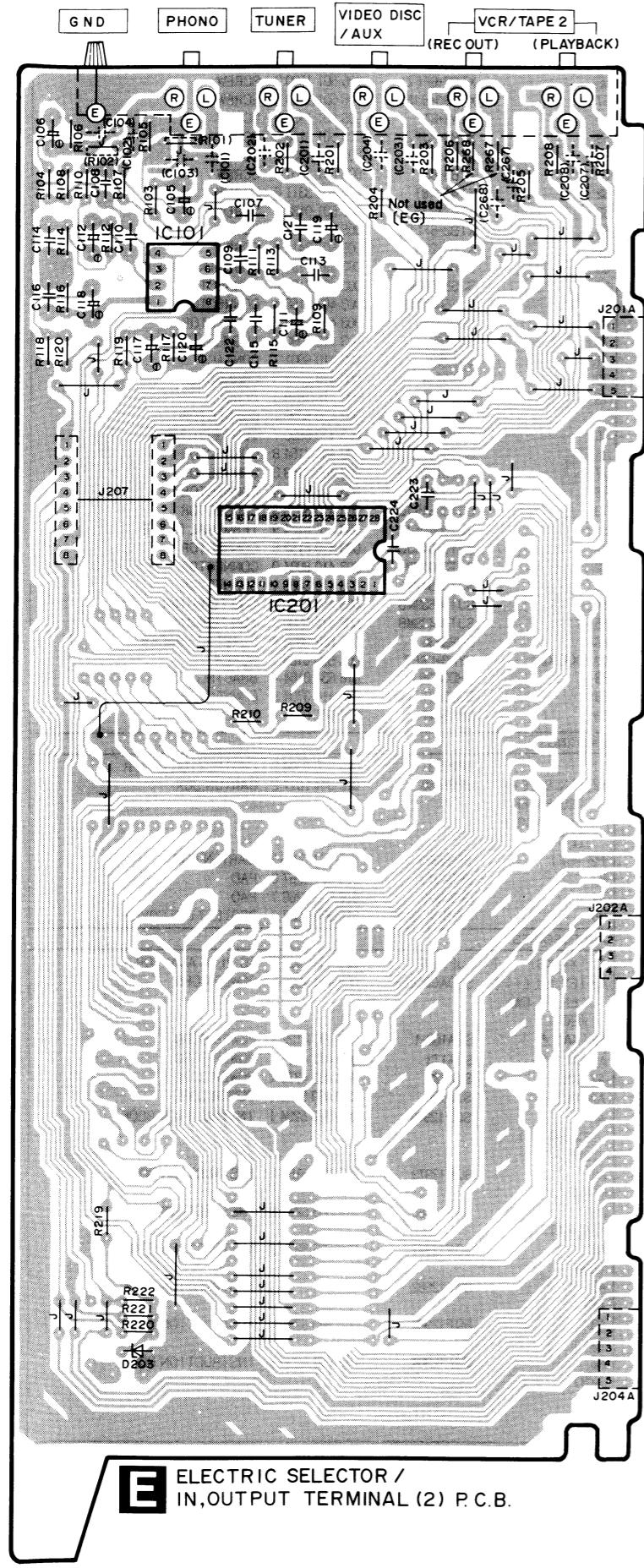
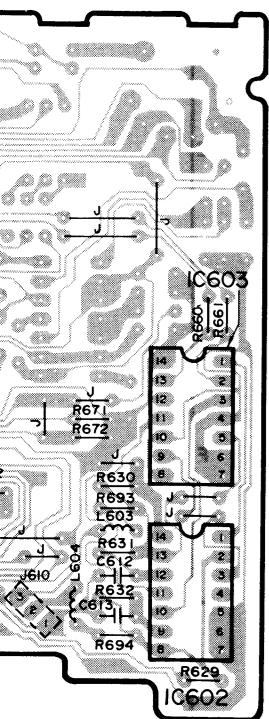
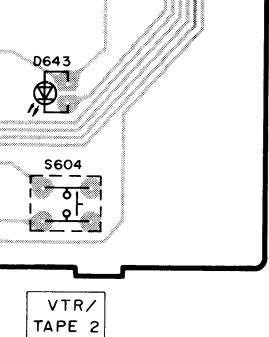


10 11 12 13 14 15 16 17 18 19

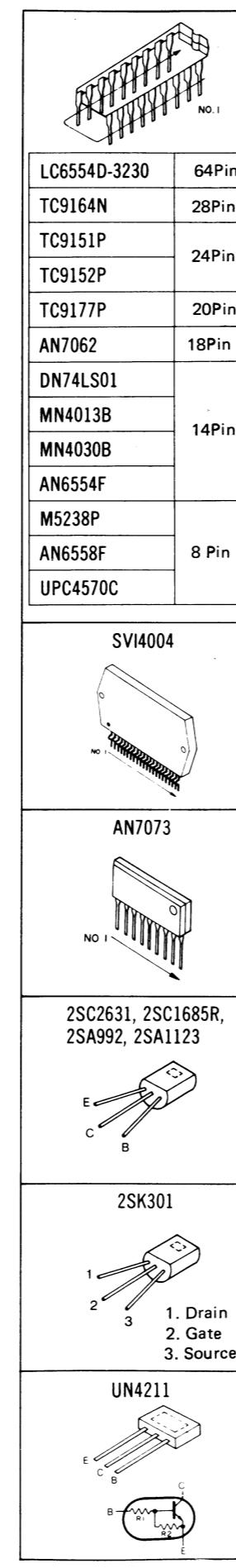


• Terminal guide of
transistors, diodes and IC's

SWITCH/LED P.C.B.



E ELECTRIC SELECTOR /
IN,OUTPUT TERMINAL (2) P.C.B.



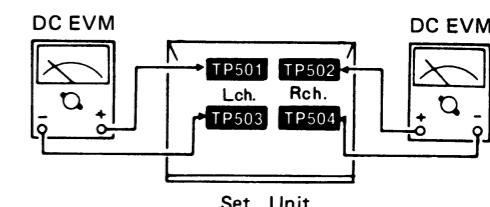
MEASUREMENTS AND ADJUSTMENTS

Control positions and equipment used.

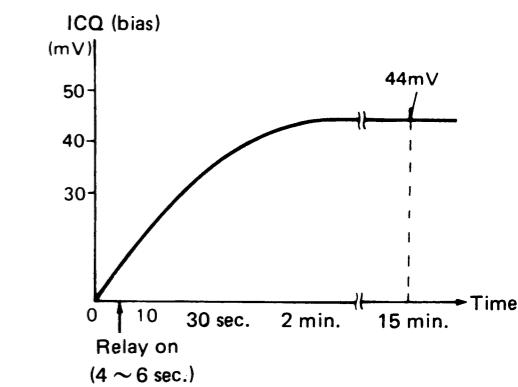
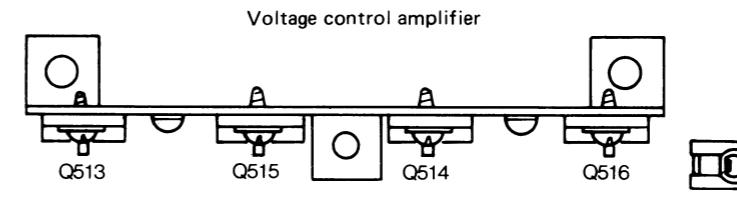
- Volume control Minimum
- Speaker switch off
- DC electronic voltmeter (EVM) (2 units)

Idling (ICQ) adjustment

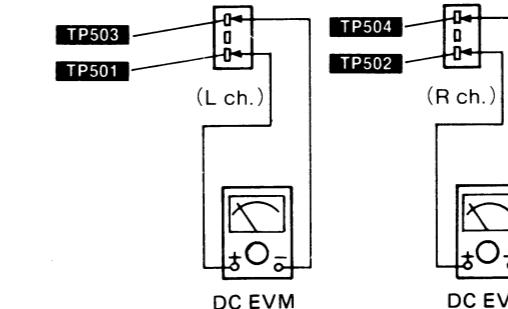
1. Connect the set and the test instruments as shown at right.
2. (Hook up the DC EVMs for both channels.)
3. Turn on the set when it is cold enough, and adjust the controls VR501 and VR502 so that the voltage of 30mV be reached 15 seconds after the relay is activated.
(Adjust for both channels at a 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



REPLACEMENT PARTS LIST

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 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	D642	LN018315P	001 032 9292 2	LED
IC201	TC9164N	001 061 0204 1	I.C., INPUT SELECTOR	D643, D644	LN846RP-C	001 032 8341 4	LED
IC205	SV1TC9151P	001 060 8344 3	I.C., DAT MONITOR SELECTOR	D645, D646	LN846RP-C	001 032 8341 4	LED
IC301	M5238P	001 060 8887 7	I.C., MIXING	D647	LN846RP-C	001 032 8341 4	LED
IC302	AN6554F	001 060 2992 1	I.C., MIXING	D650, D661	MA165	001 032 0494 0	DIODE
IC303	SV1UPC4570C	001 060 8992 7	I.C., AMP	D662	MA165	001 032 0494 0	DIODE
IC401, IC402	M5238P	001 060 8887 7	I.C., TONE/PRE	D701, D702 Δ	SVDSV40	001 032 1347 6	RECTIFIER
IC403	TC9177P	001 061 0639 2	I.C., VOLUME CONTROL	D703, D704 Δ	SVDSV40	001 032 1347 6	RECTIFIER
IC501	AN7062N	001 060 8240 0	I.C., AMP	D705, D706	MA4150-L	001 032 4620 6	DIODE
IC502	SV14003	001 061 0887 4	I.C., POWER AMP	D707	MA4100M	001 032 4722 1	DIODE
IC601	LC6554D-3230	001 061 4016 7	I.C., MICRO COMPUTER	D708	MA4062-M	001 032 7211 7	DIODE
IC602	MN4030B	001 060 6553 4	I.C., LOGIC	D709, D710	MA167	001 032 4142 5	DIODE
IC603	MN4013B	001 060 3656 0	I.C., LOGIC	D711	MA165	001 032 0494 0	DIODE
IC606	SV1UPC4570C	001 060 8992 7	I.C., MUTING	D714	MA4120	001 032 7292 0	DIODE
IC701	AN7073	001 060 8241 9	I.C., PROTECTION	D721, D722	MA167	001 032 4142 5	DIODE
TRANSISTORS							
Q301, Q302	2SK301	001 030 2428 2	TRANSISTOR	D723, D724	MA167	001 032 4142 5	DIODE
Q303	2SC3311A-Q	001 030 5279 5	TRANSISTOR	D725	MA165	001 032 0494 0	DIODE
Q401, Q402	2SK301	001 030 2428 2	TRANSISTOR	D731, D732	MA4120	001 032 7292 0	DIODE
Q403, Q404	2SK301	001 030 2428 2	TRANSISTOR	D733	MA165	001 032 0494 0	DIODE
THYRISTORS							
TH1, TH2	ERTD2ZH104S	001 191 0182 5	TERMISTOR	VARIABLE RESISTORS			
Q405, Q502	2SA1123-R	001 030 0242 8	TRANSISTOR	VR401, VR402	EWC2XA000C15	001 174 9012 3	V.R., BASS/TRE
Q503, Q504	2SC1685-QNC	001 030 2729 2	TRANSISTOR	VR403	EWHFDA014G15	001 174 9013 2	V.R., BALANCE
Q505, Q506	2SC3311A-Q	001 030 5279 5	TRANSISTOR	VR501, VR502	EVND4AA00B52	001 180 2318 0	V.R., 500 Ω (B)
Q507, Q508	2SA1309Q	001 030 4058 0	TRANSISTOR	VR601	EVQWX2F2040B	001 174 8803 4	VR, ENCODER
Q509, Q510	2SC2631-Q	001 030 2505 6	TRANSISTOR	COILS AND TRANSFORMERS			
Q511, Q512	2SA1123-R	001 030 0242 8	TRANSISTOR	L501, L502	SLQY07G-40	001 211 2149 9	CHOKE COIL
Q513, Q514	2SC3298AY	001 030 4986 9	TRANSISTOR	L503, L504	SLQY18G-10	001 211 2185 5	CHOCK COIL
Q515, Q516	2SA1306AY	001 030 4845 1	TRANSISTOR	L601	ELEXT101KA	001 211 3878 9	COIL
Q517, Q518	2SC2631-Q	001 030 2505 6	TRANSISTOR	L603, L604	ELEXT330KA	001 211 3880 5	COIL
Q519, Q520	2SA1123-R	001 030 0242 8	TRANSISTOR	T1	SLT5N470-W	001 202 9024 4	POWER TRANSFORMER
Q521, Q522	2SA992E	001 030 0513 4	TRANSISTOR	COMPONENT COMBINATIONS			
Q602	UN4111	001 030 2899 5	TRANSISTOR	Z601	EXFP6331MDW	001 230 2830 2	COMPONENT COMBINATION
Q603	UN4211	001 030 4033 9	TRANSISTOR	Z602	EXFP4331MDW	001 230 2829 5	COMPONENT COMBINATION
Q604	2SC3311A-Q	001 030 5279 5	TRANSISTOR	Z603	EXBF5E562J	001 230 1576 1	COMPONENT COMBINATION
Q605, Q606	UN4211	001 030 4033 9	TRANSISTOR	OSCILLATORS			
Q607	UN4211	001 030 4033 9	TRANSISTOR	X601	SVFCSA300MG	001 241 1296 5	CERAMIC FILTER
Q609	2SA1309Q	001 030 4058 0	TRANSISTOR	DISPLAYS			
Q610, Q611	UN4111	001 030 2899 5	TRANSISTOR	FL	SAD2MT03ZK	001 001 0501 1	DISPLAY
Q612, Q613	UN421FTA	001 061 3186 4	TRANSISTOR	FUSES			
Q621	2SC3311A-Q	001 030 5279 5	TRANSISTOR	F1	XBA2C12TB0	002 380 1310 0	FUSE, T1.2A250V
Q622	2SA1309Q	001 030 4058 0	TRANSISTOR	F1	XBA2C12TR0	002 380 1545 3	FUSE, T1.2A250V
Q701, Q702	2SD1265-0	001 030 2652 6	TRANSISTOR	(E, EH, E1)			
Q703	2SB941-P	001 030 2696 4	TRANSISTOR	(EF, EB, EW)			
Q704	2SC3311A-Q	001 030 5279 5	TRANSISTOR	(XL, XA, XB)			
Q705	2SA1309Q	001 030 4058 0	TRANSISTOR	(EG)			
Q706	2SA992E	001 030 0513 4	TRANSISTOR	F1	XBA2C25TR0	002 380 0412 9	FUSE, T2.5A250V
DIODES							
D203	MA4051-M	001 032 4947 6	DIODE	MA165	001 032 4949 0	DIODE	
D205, D396	MA165	001 032 4949 0	DIODE	MA165	001 032 4949 0	DIODE	
D397, D398	MA165	001 032 4949 0	DIODE	MA165	001 032 4949 0	DIODE	
D399	MA165	001 032 4949 0	DIODE	MA165	001 032 4949 0	DIODE	
D401	MA4051-M	001 032 4947 6	DIODE	MA162A	001 032 0493 1	DIODE	
D501, D502	MA162A	001 032 0493 1	DIODE	MA29WA	001 032 7250 0	DIODE	
D503, D504	MA29WA	001 032 7250 0	DIODE	MA165	001 032 4949 0	DIODE	
D531, D532	MA165	001 032 4949 0	DIODE	MA165	001 032 4949 0	DIODE	
D533, D534	MA165	001 032 4949 0	DIODE	MA165	001 032 4949 0	DIODE	
D571, D572	MA4062-M	001 032 7211 7	DIODE	MA165	001 032 4949 0	DIODE	
D573, D574	MA165	001 032 4949 0	DIODE	MA29WA	001 032 7250 0	DIODE	
D575	MA29WA	001 032 7250 0	DIODE	F2 Δ	XBAS2A2001	002 380 0410 1	FUSE, T2A250V
D602, D604	MA165	001 032 4949 0	DIODE	(EW)			
D605, D606	MA165	001 032 4949 0	DIODE	SWITCHES			
D607, D608	MA165	001 032 4949 0	DIODE	S203	SSH1198	003 435 5171 7	SW
D609, D610	MA165	001 032 4949 0	DIODE	S501	SSH1073	003 435 3186 8	SW
D611, D612	MA165	001 032 4949 0	DIODE	S601, S602	EVQQLY07K	003 439 2173 7	SPECIAL SW
D613	MA165	001 032 4949 0	DIODE	S603	EVQQLY07K	003 439 2173 7	SPECIAL SW
D614	MA4056-M	001 032 7209 1	DIODE	S604, S605	EVQQAC05G	003 439 2072 1	SW
D615, D622	MA165	001 032 4949 0	DIODE	S606, S607	EVQQAC05G	003 439 2072 1	SW
D623, D624	MA165	001 032 4949 0	DIODE	S701 Δ	ESB0249V	003 435 5877 0	POWER SW
D625, D626	MA165	001 032 4949 0	DIODE	S702	ESE37263	003 430 2327 2	SW
D627, D628	MA165	001 032 4949 0	DIODE	RELAYS			
D629, D630	MA165	001 032 4949 0	DIODE	RY501	SSY126	003 450 2686 0	RELAY
D641	LN014315P	001 032 9961 8	DIODE, GAASP				

■ EXPLODED VIEWS

