

COMPONENT 50 WATT AM-FM STEREO RECEIVER

SERVICE MANUAL



PRECISION CRAFTED BY BSR (USA) LTD.

DISASSEMBLY INSTRUCTIONS

- 1) Dismounting of Front Panel (aluminum panel)
 - a) Pull out the knobs "SELECTOR", "TREBLE" and "VOLUME".
 - b) Remove each nut which clamps the shaft of the switch and volume control resistor in the positions "SELECTOR", "TREBLE" and "VOLUME".
 - c) Remove other knobs.
 - d) Then the panel may be dismounted forward.
 - e) Unsolder three points and remove one screw from the heat sink.
 - f) The transistor may then be pulled out.
- 2) Dismounting of chassis out of Wooden Cabinet.
 - a) Remove the screws (4mm) from the four corners of the bottom of the wooden cabinet.
 - b) Push the chassis from the rear side of the cabinet so that the edge of the rear panel comes out without being hooked up by the pads equipped at the inside corners of the cabinet.

SEPARATION ADJUSTMENT

1) General

Phase adjustment on MPX SG must first be completed. Note that other adjustments on the set before 'perfecting SG adjustment will not effectuate good reception of stereo broadcast.

2) Adjustment by SG

- a) Connect the me instruments as shown above. Set MPX SG at L-modulation and turn T204 and T205 so that the L-output of McDONALD 40 becomes maximum.
- b) Turn VR201 so that the R-output of McDONALD 40 becomes minimum.
- c) Set MPX SG at R-modulation and make adjustments in the R-output or L-output condition in the same manner as above.
- d) In this process, check that the stereo-indicator lights.
- e) Make adjustments in the manner as above so that the separation of L vs. R and R vs. L is above the specified scope.
- 3) Adjustment by Reception of Stereo Broadcast.
 - a) Adjust T301 and T302 so that the indication lamp is in its lightest condition.
 - b) Turn VR201 to make adjustment where R (or L) output becomes minimum when stereo broadcast is in the condition of L (or R) modulation.

Symptom	Cause and Remedy
Pilot lamp not light nor is McDONALD 40 operative	 A) Faulty AC power cord § Replace the cord. B) Defect in the power switch SW4 (i. e., a switch with volume control resistor) § Replace the switch. C) Broken wire in the power transformer § Replace the transformer.
2) Fuse blown when power is on	 A) Damaged diode, either D603 or D604 in the rectifier circuit § Replace the damaged diode. B) Short-circuit in the rectifier circuit § Repair the short C) Short-circuit in the power transistor Q503AB or 504AB § Replace the defective transistor.
3) Pilot lamp not light	A) Broken lamp § Replace the lamp. B) Disconnection in the power transformer tertiary § Replace the transformer.
4) Pilot lamp lights but speakers in both channels not work	 A) Broken fuse § Replace the fuse. B) Resistor R601 or R602 damaged § Replace the damaged. C) Capacitor C601, C602 or C603 defective § Replace the defective capacitor. D) Either diode D603 or D604 damaged § Replace the damaged. E) Breakage in the power transformer secondary § Replace the transformer.
5)-1 One channel speaker not work in case "VOLUME" is maximum and "BALANCE" is on the center where a test signal is applied to the terminal of inoperated side channel of the balance control resistor VR 1	 A) Damage in Q401, Q501 or Q502 § Replace the damaged. B) Damage in Q503 or Q504 § Replace the damaged. C) Defect in driver transformer § Replace the transformer. D) Interruption in copper foil of the printed circuit board in the main amplifier or in the tone control § Repair or replace it. E) Faulty C509 § Replace it. F) Broken resistor R402, R403, R404, R405, R406, R501, R504, R505 or R507 § Replace the broken.
5)-2 Same as 5)-1 above but speaker works when test signal is applied as 5)-1	 A) Defective transistor Q301 or Q302 § Replace the defective transistor. B) Faulty resistor, R304, R305, R306, R308, R309, R310, R307 or R314 § Substitute the faulty one. C) Faulty capacitor C302, C304, C308, or C501 § Substitute the faulty one. D) Defective selector switch § Repair or replace it.

Symptom	Cause and Remedy
6) Speaker works normal but headphone not work	 A) Headphone plug not meet jack of the set § Replace the plug. B) Interruption in R515A (right) or R515B (left) § Change it.
7) All the inputs work normal except "AUX" input	 A) Poor contact in "AUX" input jack § Repair or replace it. B) Broken resistor R301 § Replace it. C) Poor contact in selector switch § Repair or replace the switch.
8) "PHONO" input not operative	A) Poor contact in "PHONO" input jack § Repair or replace it. B) Faulty selector switch § Repair or replace the switch.
9) "TAPE OUT" not operative	A) Imperfect contact in ''TAPE OUT'' output jack § Repair or replace the jack.
10) Both FM and AM not operate (TUNER + B voltage is not 11 - 12V)	 A) Broken tertiary winding (7VAC) in the power transformer § Replace the transformer. B) Damaged diode D601, or D604, § Change the damaged. C) Faulty capacitor C601, C607, C608, or C609 § Change it. D) Q601 defective § Substitute the transistor. E) Broken resistor R603 § Replace the resistor. F) Zener diode ZD601 defective § Change the diode. G) Short-Circuit in TUNER + B circuit § Repair the short. H) Poor contact in selector switch § Repair or change it.
11) Only FM not operate	 A) Poor contact in selector switch SW1 § Repair or replace it. B) Resistor R215 defective (MPX Board) § Change it. C) Capacitor C208 defective (MPX Board) D) Transistor, diode, IFT, resistor or capacitor of FM IF. Board defective § Replace the defective one. E) Front End defective § Repair or replace it. F) Faulty feeder § Repair or change the feeder.

Symptom	Cause and Remedy
12) Only AM not operate	 A) Poor contact in selector SW1 §Repair or change it. B) Transistor, diode, IFT, resistor or capacitor of AM IF BOARD defective § Substitute the defective. C) Front End defective § Repair or change it. D) Bar-Antenna coil defective § Repair or change it.
13) Multiplex separation not work	 A) Deviation in adjustment § Readjust it. B) Q202 of MPX Board defective § Change the transistor. C) Either one of diodes D201 through D206 defective § Change the defective diode. D) VR201 defective § Change it.
14) Stereo indicator lamp not light	 A) Broken ST. indicator lamp § Substitute the lamp B) Deviation in adjustment on T201, T202, T203 o MPX Board § Make readjustment. C) Defective Q204 MPX Board § Change the defective transistor.
15) Sound distorted in case FM	A) If sounds both of L and R channels distorted: de fective Q201 § Change the transistor.
16) Noise comes out-when FM	A) Front End defective § Replace it. B) Defective antenna or feeder in case FM § Repair o change it.
17) FM sound not sufficient	 A) If sound both of L and R channels not enough Front End defective, or faulty transistor, IFT of diode of Board or C201 § Substitute the defective one. B) If sound of one channel not enough: Defective CR201 in case of R channel, or defective CR202 in case of L channel § Change the defective one.
18) AM sound not sufficient	A) Either one of transistors, diodes, IFTs, resistors and capacitors of AM IF Board defective § Substitute the defective one.

Symptom	Cause and Remedy
19) ''LOUDNESS'' gives no effect	 A) Defective "LOUDNESS" switch SW3 § Substitute the switch. B) Defective C401, C402, or R401 § Change the Defective one. C) Defective VR1 § Change it.
20) "STEREO-MONO" not effective	A) Defective ''MODE'' switch SW2 § Change the switch.
21) ''BASS CONTROL'' gives no effect	A) VR3 defective § Change it. B) Defective C405, C406 or R409 of Tone Control Board § Substitute the defective one.
22) ''TREBLE CONTROL'' gives no effect	A) Faulty VR4 § Change it. B) Defective C407, C408 or R406 of Tone Control Board § Replace the defective.
23) Sound distorted	A) Broken R510 or R512 § Replace the broken one. B) Faulty Q401 § Change the transistor.
24) Noise comes out input of "AUX"	A) Faulty Q301 or Q302 § Change the faulty one. B) Faulty R301, R304, R306 or R308 § Change the faulty one.
25) Noise comes out when "VOLUME" is turned	A) Defective VR1 § Replace it. B) Defective C308 or C403 § Replace it.
26) Meter not deflected	A) Defective METER M § Replace the meter.
27) Noise comes out at input of "PHONO"	A) Faulty Q301 or Q302 § Change the faulty one. B) Faulty R303, R304, R306 or R308 § Change the faulty one.

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	TRANSISTORS			D 202			
Q 10	1	2SC 7 7 2	D	silicon		D 203 D 204	
Q 10		2SC 7 7 2	D	silicon		D 205	
Q 10		2SC772	D	silicon		D 206	
	04	2SC772	D	silicon			
Q 10		2SC 7 7 2	D	silicon		D 601	
		200,,2				D 602	
Q 20	01	2SC 5 3 7	D	silicon		D 603	
Q 20	02	2SC 5 3 7	D	silicon		D 604	
Q 20	03 .	2SC 5 3 7	D	silicon		ZD 601	
Q 20	04	2SC 5 3 7	D	silicon			-
Q 30	01A	2SC458	LG	silicon		TH 501A	
Q 30	01B	2SC458	LG	silicon	,	TH 502B	
Q 30	02A	2SC458	LG	silicon		TH 502A	
Q 30	02B	2SC458	LG	silicon		TH 501B	
Q 40	01A	2SC458	В	silicon			ļ
Q 40	01B	2SC458	В	silicon		D 101	
Q 50	01A .	2SC458	В	silicon		R 101 R 102	
Q 50		2SC 4 5 8	В	silicon	ě	R 103	
Q 50		2SC 984	В	silicon		R 104	
Q 50	1	2SC 984	В	silicon		R 105	
Q 50		2SC 1061	В	silicon		R 106	
Q 50	03B	2SC 1 0 6 1	В	silicon		R 107	
Q 50	04A	2SC 1 0 6 1	В	silicon		R 108	
Q 50	04B	2SC 1 0 6 1	В	silicon		R 109	
	0.1	00000				R 110	
Q 60	U I	2SD30	Gre	en Germanium		R 111	
		DIO	DES			R 112	
	T			·		R 113	
D 10		1S188		Germanium		R 114	
D 10		1S188		Germanium		R 115	
D 10		1S188		Germanium		R 116	
D 10		1S188		Germanium		R 117	
D 10	06	1S188		Germanium		R 118	
D 10	07	1S188	AM	Germanium		R 119	
D 20	01	1S188	FM	Germanium		R 120	
			-			R 121	

D 202	1S188	FM Germanium
D 203	1S188	FM Germanium
D 204	1S188	FM Germanium
D 205	1S188	FM Germanium
D 206	1S188	FM Germanium
D 601	10D-1	silicon
D 602	10D-1	silicon
D 603	10D-1	silicon
D 604	10D-1	silicon
ZD 601	1S337	Zener Diode
	THERMIS	
	T T T L T T T T T	
TH 501A	D-1F	Black
TH 502B		Black
TH 502A	D-1F	Black
TH 501B	D-1F	Black
	RESISTOR	RS (Ω)
R 101	39 K	Carbon ¼ W R
R 102	120 K	Carbon ¼ W ELR
R 103	680	Carbon ¼ W ELR
R 104	330	Carbon ¼ W R
R 105	120 K	Carbon ¼ W ELR
R 106	10 K	Carbon ¼ W ELR
R 107	1 K	Carbon ¼ W ELR
R 108	82 K	Carbon ¼ W ELR
R 109	680	Carbon ¼ W ELR
R 110	1 K	Carbon ¼ W ELR
R 111	6.8 K	Carbon ¼ W R
R 112	47 K	Carbon ¼ W R
R 113	330	Carbon ¼ W R
R 114	680	Carbon ¼ W ELR
R 115	10 K	Carbon ¼ W ELR
R 116	15 K	Carbon ¼ W ELR
R 117	5.6 K	Carbon ¼ W ELR
R 118	220	Carbon ¼ W ELR
R 119	680	Carbon ¼ W ELR
R 120	2.2 K	Carbon ¼ W ELR
R 121	4.7 K	Carbon ¼ W ELR

R 122	1 K	Carbon ¼ W ELR
R 123	1 K	Carbon ¼ W R
R 124	2.2 K	Carbon ¼ W ELR
R 125	1 K	Carbon ¼ W ELR
R 126	1 K	Carbon ¼ W ELR
R 127	10 K	Carbon ¼ W ELR
R 128	10 K	Carbon ¼ W ELR
R 129	47	Carbon ¼ W R
R 130	47	Carbon ¼ W ELR
R 131	330 K	Carbon ¼ W ELR
R 132	4.7 K	Carbon ¼ W ELR
R 133	100	Carbon ¼ W ELR
R 134	. 220	Car bon¼ W ELR
R 201	330 K	Carbon ¼ W ELR
R 201	220 K	Carbon ¼ W ELR
R 203	2.7 K	Carbon 4 W ELR
R 204	10 K	Carbon 4 W ELR
R 205	39 K	Carbon 4 W ELR
R 206	270	Carbon 4 W ELR
R 207	10 K	Carbon ¼ W ELR
R 208	6.8 K	Carbon ¼ W ELR
R 209	820	Carbon ¼ W ELR
R 210	3.3 K	Carbon ¼ W ELR
R 211	18 K	Carbon ¼ W ELR
R 212	1 K	Carbon ¼ W ELR
R 213	120 K	Carbon ¼ W ELR
R 214	120 K	Carbon ¼ W ELR
R 215	100	Carbon ¼ W ELR
R 216	12 K	Carbon ¼ W ELR
R 217	12 K	Carbon ¼ W ELR
R 218	12 K	Carbon ¼ W ELR
R 219	12 K	Carbon ¼ W ELR
R 220	10 K	Carbon ¼ W ELR
R 221	10 K	Carbon ¼ W ELR
R 301A	100 K	Carbon ¼ W ELR
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R 301B	100 K	Carbon ¼ W ELR
R 302A	4.7 K	
R 302B	4.7 K	Carbon ¼ W ELR
R 303A	68 K	Carbon ¼ W ELR
		Carbon ¼ W ELR
R 303B	68 K	Carbon ¼ W ELR
R 304A	1 1	Carbon ¼ W ELR
R 304B	1 K	Carbon ¼ W ELR
R 305A	270	Carbon ¼ W ELR
R 305B	270	Carbon ¼ W ELR
R 306A	220 K	Carbon ¼ W ELR
R 306B	220 K	Carbon ¼ W ELR
R 307A	1.8 K	Cảrbon ¼ W ELR
R 307B	1.8 K	Carbon ¼ W ELR
R 308A	820 K	Carbon ¼ W ELR
R 308B	820 K	Carbon ¼ W ELR
R 309A	680	Carbon ¼ W ELR
R 309B	680	Carbon ¼ W ELR
R 310A	8.2 K	Carbon ¼ W ELR
R 310B	8.2 K	Carbon ¼ W ELR
R 311A	15 K	Carbon ¼ W ELR
R 311B	1.5 K	Carbon ¼ W ELR
R 312A	270 K	Carbon ¼ W ELR
R 312B	270 K	Carbon ¼ W ELR
R 313A	8.2 K	Carbon ¼ W ELR
R 313B	8.2 K	Carbon ¼ W ELR
R 314A	2.2 K	Carbon ¼W ELR
R 314B	2.2 K	Carbon ¼ W ELR
R 315A R 315B	22 K 22 K	Carbon ¼ W ELR Carbon ¼ W ELR
R 316A	22 K 10 K	Carbon 4 W ELR
R 316B	10 K	Carbon ¼ W ELR
R 401A	3.3 K	Carbon ¼ W K
R 401B	3.3 K	Carbon ¼ W K
R 402A	2.7 K	Carbon ¼ W K
R 402B	2.7 K	Carbon ¼ W K
R 403A	330 K	Carbon ¼ W K
R 403B	330 K	Carbon ¼ W K
R 404A	5.6 K	Carbon ¼ W K
R 404B	5.6 K	Carbon ¼ W K

R 405A	220	Carbon	¼ W K R
R 405B	220	Carbon	¼WKR
R 406A	47	Carbon	¼WKR
R 406B	47	Carbon	¼WKR
R 407A	270 K	Carbon	¼WKR
R 407B	270 K	Carbon	¼WKR
R 408A	3.9 K	Carbon	¼ W K R
R 408B	3.9 K	Carbon	¼ W K R
R 409A	1.2 K	Carbon	¼WKR
R 409B	1.2 K	Carbon	¼WKR
R 410A	6.8 K	Carbon	¼ W K R
R 410B	6.8 K	Carbon	¼WKR
R 501A	2.7 K	Carbon	¼ W R
R 501B	2.7 K	Carbon	¼ W R
R 502A	15 K	Carbon	¼ W R
R 502B	15 K	Carbon	¼ W R
R 503A	120	Carbon	¼ W R
R 503B	120	Carbon	¼ W R
R 504A	10 K	Carbon	¼ W R
R 504B	10 K	Carbon	¼ W R
R 505A	39 K	Carbon	¼ W R
R 505B	39 K	Carbon	¼ W R
R 506A	180	Carbon	¼ W R
R 506B	180	Carbon	¼ W R
R 507A	680	Carbon	1 W R K
R 507B	680	Carbon	1 W R K
R 508A	6.8 K	Carbon	¼ W R
R 508B	6.8 K	Carbon	¼ W R
R 509A	15	Carbon	⅓ W R
R 509B	15	Carbon	¼ W R
R 510A	300	Carbon	2 W
R 510B	300	Carbon	2 W
R 511A	0.5	Wirewoun	d ½ W
R 511B	0.5	Wirewoun	d ½ W
R 512A	300	Carbon	2 W
R 512B	300	Carbon	2 W
R 513A	15	Carbon	¼ W R
R 513B	15	Carbon	1/4 W R
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R 514A	0.5	Wirewound ½ W
R 514B	0.5	Wirewound ½ W
R 515A	220	Carbon ½ W K
R 515B	220	Carbon ½ W K
R 601	100	Carbon ½ W K
R 602	390	Carbon ¾ W K R
R 603	33	Carbon ¾ W K R
R 604	1.8 K	Carbon ¼ W K R
R 605	2.2 M	Carbon ¾ W K
	VARIABLE R	ESISTORS
VR 1	100 K	V16T2 (W)
VR 2	50 K	G24ST3 (B)
VR 3	50 K	G16R (A)
VR 4	50 K	G16R (A)
VR 201	5 K	V24JKZ (B)
	CAPACI	TORS
C 101	140p 50wv	Ceramic Condenser
C 102	680p 50wv	Ceramic Condenser
C 103	0 04 50wv	Ceramic Condenser
C 104	100 16wv	Electrolytic Condenser
C 105	0.01 50wv	Ceramic Condenser
C 106	0.01 50wv	Mylar Condenser
C 107	0.003 50wv	Mylar Condenser
C 109	0.005 50wv	Ceramic Condenser
C 110	0.04 50wv	Ceramic Condenser
C 111	0.04 50wv	Ceramic Condenser
C 112	0.02 50wv	Ceramic Condenser
C 113	10 10wv	Electrolytic Condenser
C 114	0.04 50wv	Ceramic Condenser
C 115	10 6wv	Electrolytic Condenser
C 116	0.02 50wv	Ceramic Condenser
C 117	0.01 50wv	Ceramic Condenser
C 118	0.01 50wv	Ceramic Condenser
C 119	200P 50wv	Ceramic Condenser

C 120	0.02	50wv	Ceramic Condenser
C 121	1	10wv	Electrolytic Condenser
C 122	0.04	50wv	Ceramic Condenser
C 123	100p	50wv	Ceramic Condenser
C 124	100p	50wv	Ceramic Condenser
C 125	100p	50wv	Ceramic Condenser
C 126	100p	50wv	Ceramic Condenser
C 127	10	10wv	Electrolytic Condenser
C 128	100p	50wv	Ceramic Condenser
C 129	0.04	50wv	Ceramic Condenser
C 130	0.04	50wv	Ceramic Condenser
C 131	0.02	50wv	Ceramic Condenser
C 133	0.04	50wv	Ceramic Condenser
C 134	0.04	50wv	Ceramic Condenser
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C 201	10	10wv	Electrolytic Condenser
C 202	10	10wv	Electrolytic Condenser
C 203	4700p	50wv	Polystyren Condenser
C 204	390p	50wv	Polystyren Condenser
C 205	4700p	50wv	Polystyren Condenser
C 206	0.03	50wv	Mylar Condenser
C 207	4700p	50wv	Polystyren Condenser
C 208	100	16wv	Electrolytic Condenser
C 209	0.003	50wv	Mylar Condenser
C 210	2200p	50wv	Polystyren Condenser
C 211	10	16wv	Electrolytic Condenser
C 212	0.001	50wv	Mylar Condenser
C 213	0.001	50wv	Mylar Condenser
C 214	0.0015	50wv	Mylar Condenser
C 215	0.0015	50wv	Mylar Condenser
C 216	0.01	50wv	Ceramic Condenser
C 301A	.47	50wv	Electrolytic Condenser
C 301B	47.	50wv	Electrolytic Condenser
C 302A	10	16wv	Electrolytic Condenser
C 302B	10	16wv	Electrolytic Condenser
C 303A	47p	50wv	Ceramic Condenser
C 303B	47p	50wv	Ceramic Condenser
C 304A	220	6.3wv	Electroly Condenser
C 304B	220	6.3wv	Electrolytic Condenser
C 305A	10	16wv	Electrolytic Condenser
C 305B	10	16wv	Electrolytic Condenser
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C 306A	0.0047	50wv	Mylar Condenser
C 306B	0.0047	50wv	Mylar Condenser
C 307A	0.015	50wv	Mylar Condenser
C 307B	0.015	50wv	Mylar Condenser
C 308A	4.7	25wv	Electrolytic Condenser
C 308B	4.7	25wv	Electrolytic Condenser
C 309A	200p	50wv	Ceramic Condenser
C 309B	200p	50wv	Ceramic Condenser
C 310A	0.005	50wv	Ceramic Condenser
C 310B	0.005	50wv	Ceramic Condenser
C 311A	0.005	50wv	Ceramic Condenser
	•		
C 401A	0.001	50wv	Mylar Condenser
C 401B	0.001	50wv	Mylar Condenser
C 402A	0.15	50wv	Mylar Condenser
C 402B	0.15	50wv	Mylar Condenser
C 403A	4.7	25wv	Electrolytic Condenser
C 403B	4.7	25wv	Electrolytic Condenser
C 404A	10	16wv	Electrolytic Condenser
C 404B	10	16wv	Electrolytic Condenser
C 405A	0.022	50wv	Mylar Condenser
C 405B	0.022	50wv	Mylar Condenser
C 406A	0.22	50wv	Mylar Condenser
C 406B	0.22	50wv	Mylar Condenser
C 407A	0.0033	50wv	Mylar Condenser
C 407B	0.0033	50wv	Mylar Condenser
C 408A	0.022	50wv	Mylar Condenser
C 408B	0.022	50wv	Mylar Condenser
C 501A	10	10wv	Electrolytic Condenser
	10	10wv	Electrolytic Condenser
C 501B C 502A	30p	50wv	Ceramic Condenser
C 502A	30p	50wv	Ceramic Condenser
C 502B	220	6.3wv	
C 503A	220	6.3wv	
C 503B	220	0.5wv	Electrolytic Condenser
C 504B	220	16wv	Electrolytic Condenser
C 505A	680p	50wv	Ceramic Condenser
C 505B	680p	50wv	Ceramic Condenser
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C 506A	100 25wv	Electrolytic Condenser			
C 506B	100 25wv	Electrolytic Condenser			
C 507A	0.01 50wv	Mylar Condenser			
C 507B	0.01 50wv	Mylar Condenser			
C 508A	0.01 50wv	Mylar Condenser			
C 508B	0.01 50wv	Mylar Condenser			
C 509A	1000 30wv	Electrolytic Condenser			
C 509B	1000 30wv	Electrolytic Condenser			
C 510A	100p 50wv	Ceramic Condenser			
C 510B	100p 50wv	Ceramic Condenser			
C 601	1000 35wv	Electrolytic Condenser			
C 602	1000 35wv	Electrolytic Condenser			
C 603	2200 50wv	Electrolytic Condenser			
C 604	0.01 500wv	Oil Condenser			
C 605	0.01 500wv	Oil Condenser			
C 606	470 16wv	Electrolytic Condenser			
C 607	470 16wv	Electrolytic Condenser			
C 608	100 16wv	Electrolytic Condenser			
C 609	100 16wv	Electrolytic Condenser			
TF	TRANSFORMERS & COILS				
T 1	D				
	Power 1.5A 27.5v, 0.75A Transformer 8v				
T 101	FM IFT A 1st				
T 102	FM IFT B 2nd				
T 103	FM IFT	C 3rd			
T 104	FM IFT D/E				
T 105	AM OSC Coil				
T 106	AM IFT A				
T 107	AM IFT B				
T 108	AM IFT C				
T 201	FM19KHz Coil				
T 202	FM19KHz Coil				
T 203	FM38KHz Coil				
T 204	FM 19KHz TRAP Coil				
T 205	FM SCA TRAP Coil				
T 501A	Input Transformer				
T 501B					
	Input Transformer				

	SWITCHES				
	Rotary Switch				
	Leve	r Switch	Stereo mode Loudness		
	Leve	r Switch			
	Pow	er Switch	(with VR)		
PI	LOT	(INDICA	TOR) LAMPS		
PL 1	8V	150mA	Dial Light		
PL 2	8V	150mA	Dial Light		
PL 3	8V	150mA	Dial Light		
PL 4	8V	150mA	Dial Light		
PL 5	8V	150mA	Meter Light		
ST	8V	30mA	ST. Indicator Lamp		
		MET	ERS		
M 130 uA		ıΑ	Center Stop		
	FRONT END				
32SN		12F1-3U	FM/AM		
PR	PRINTED CIRCUIT BOARDS				
AIF - 01 AM/		AM/FM	IF		
AMX-01		Multiplex Adaptor			
APR-01 F		Pre-Amp	Pre-Amplifier		
ATN-01		Tone Co	ntrol		
AMA-01		Main Amplifier			
APW-(APW-01		Power Supply		
CON	COMBINATION COMPONENTS				
CR-201		38KHz Filter			
CR-20	CR-202 38KHz Filter		ilter		

McDONALD 40 MECHNICAL PARTS LIST

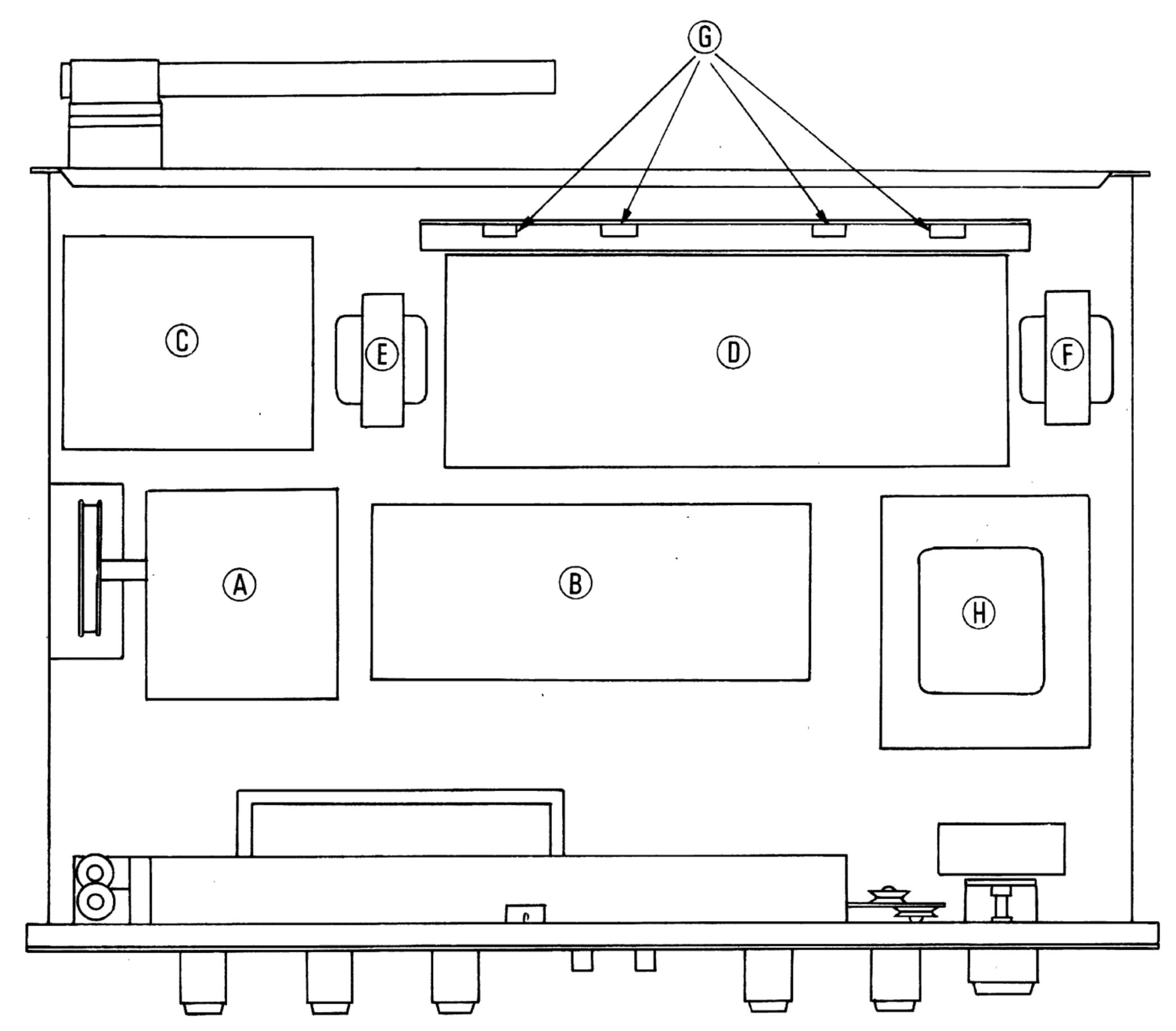
Dial Drum	1
Dial Spring	1
Dial String	1
Dial Back Board	1
Dial Reflector	1
Dial Pointer	1
Dial Scale	1
Dial Sub-Pully	4
Pully Spacer	1
Dial Plate	1
Plastic Spacer	17
Bar Antenna	1
Dipole Antenna (Indoor)	1
Line Antenna Couplar	1
Mold Bracket for Bar Antenna	1
Metal Bracket for Antenna	1
Main Chassis	1
Rear Panel	1
Bracket for Cabinet Fitting	2
Selector Switch Fitting Metal	1
Metal Shaft for Selector Switch	1
Metal Adaptor for Selector Switch	1
Metal Bracket for Capacitor	
Metal Wire Holder	2
Meter Holder	1
Heat Sink (A)	1
Heat Sink (B)	2
Thermistor Holder	2
Wooden Cabinet	1.
Front Panel	1
Smoked Board	1
Bottom Cover	1
Plastic Feet	4
Sealed Board	
Tuning Shaft	
Flywheel	
Bushing for Tunning Shaft	
E-ring for Tunning Shaft	4

AC Outlet Socket Fuse Holder Fuse (2A) Line Cord Stopper Stereo Phone Jack Stereo Lamp Socket Stereo Indicator Jewel 8P Pin Jack (RCA) Pilot Lamp Socket Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Line Antenna Window Cover for Lever Switch	Fuse (2A) Line Cord Stopper Stereo Phone Jack Stereo Lamp Socket Stereo Indicator Jewel 8P Pin Jack (RCA) Pilot Lamp Socket Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Line Antenna	AC Line Cord	1
Fuse (2A) Line Cord Stopper Stereo Phone Jack Stereo Lamp Socket Stereo Indicator Jewel 8P Pin Jack (RCA) Pilot Lamp Socket Screw Terminal Board for Antenna 1 Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Line Antenna 1 Stereo Lamp Socket 5 Screw Terminal Board for Speaker 1 Tuning Knob 1 Tuning K	Fuse (2A) Line Cord Stopper Stereo Phone Jack Stereo Lamp Socket Stereo Indicator Jewel 8P Pin Jack (RCA) Pilot Lamp Socket Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Line Antenna	AC Outlet Socket	1
Line Cord Stopper Stereo Phone Jack Stereo Lamp Socket Stereo Indicator Jewel 8P Pin Jack (RCA) Pilot Lamp Socket Screw Terminal Board for Antenna 1 Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna 1	Line Cord Stopper Stereo Phone Jack Stereo Lamp Socket Stereo Indicator Jewel 8P Pin Jack (RCA) Pilot Lamp Socket Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna	Fuse Holder	1
Stereo Phone Jack Stereo Lamp Socket Stereo Indicator Jewel 8P Pin Jack (RCA) Pilot Lamp Socket Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna 1 1 1 1 1 1 1 1 1 1 1 1 1	Stereo Phone Jack Stereo Lamp Socket Stereo Indicator Jewel 8P Pin Jack (RCA) Pilot Lamp Socket Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna	Fuse (2A)	1
Stereo Lamp Socket Stereo Indicator Jewel 8P Pin Jack (RCA) Pilot Lamp Socket Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna 1 1 1 1 1 1 1 1 1 1 1 1 1	Stereo Lamp Socket Stereo Indicator Jewel 8P Pin Jack (RCA) Pilot Lamp Socket Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna	Line Cord Stopper	1
Stereo Indicator Jewel 1 8P Pin Jack (RCA) 1 Pilot Lamp Socket 5 Screw Terminal Board for Antenna 1 Screw Terminal Board for Speaker 1 Tuning Knob 1 Control Knob 5 Rubber for Light Shield 2 Fiber Piece for Antenna Wire 1 Fiber Piece for Input Capacitor 1 Fiber Piece for Line Antenna 1	Stereo Indicator Jewel 8P Pin Jack (RCA) Pilot Lamp Socket Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna	Stereo Phone Jack	1
8P Pin Jack (RCA) Pilot Lamp Socket Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna 1 1 1 1 1 1 1 1 1 1 1 1 1	Pilot Lamp Socket Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna	Stereo Lamp Socket	1
Pilot Lamp Socket Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Tiber Piece for Line Antenna 1	Pilot Lamp Socket Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna	Stereo Indicator Jewel	1
Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna 1 1 1 1 1 1 1 1 1 1 1 1 1	Screw Terminal Board for Antenna Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna	8P Pin Jack (RCA)	1
Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire 1 Fiber Piece for Input Capacitor Tiber Piece for Line Antenna 1	Screw Terminal Board for Speaker Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna	Pilot Lamp Socket	5
Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna 1	Tuning Knob Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna	Screw Terminal Board for Antenna	1
Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire 1 Fiber Piece for Input Capacitor Fiber Piece for Line Antenna 1	Control Knob Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna	Screw Terminal Board for Speaker	1
Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna 1	Rubber for Light Shield Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna	Tuning Knob	1
Fiber Piece for Antenna Wire 1 Fiber Piece for Input Capacitor 1 Fiber Piece for Line Antenna 1	Fiber Piece for Antenna Wire Fiber Piece for Input Capacitor Fiber Piece for Line Antenna	Control Knob	
Fiber Piece for Input Capacitor 1 Fiber Piece for Line Antenna 1	Fiber Piece for Input Capacitor Fiber Piece for Line Antenna	Rubber for Light Shield	2
Fiber Piece for Line Antenna 1	Fiber Piece for Line Antenna	Fiber Piece for Antenna Wire	1
		Fiber Piece for Input Capacitor	1
Window Cover for Lever Switch 2	Window Cover for Lever Switch	Fiber Piece for Line Antenna	1
		Window Cover for Lever Switch	2
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-			
	1 · · · · · · · · · · · · · · · · · · ·		

McDONALD 40 SPECIFICATIONS

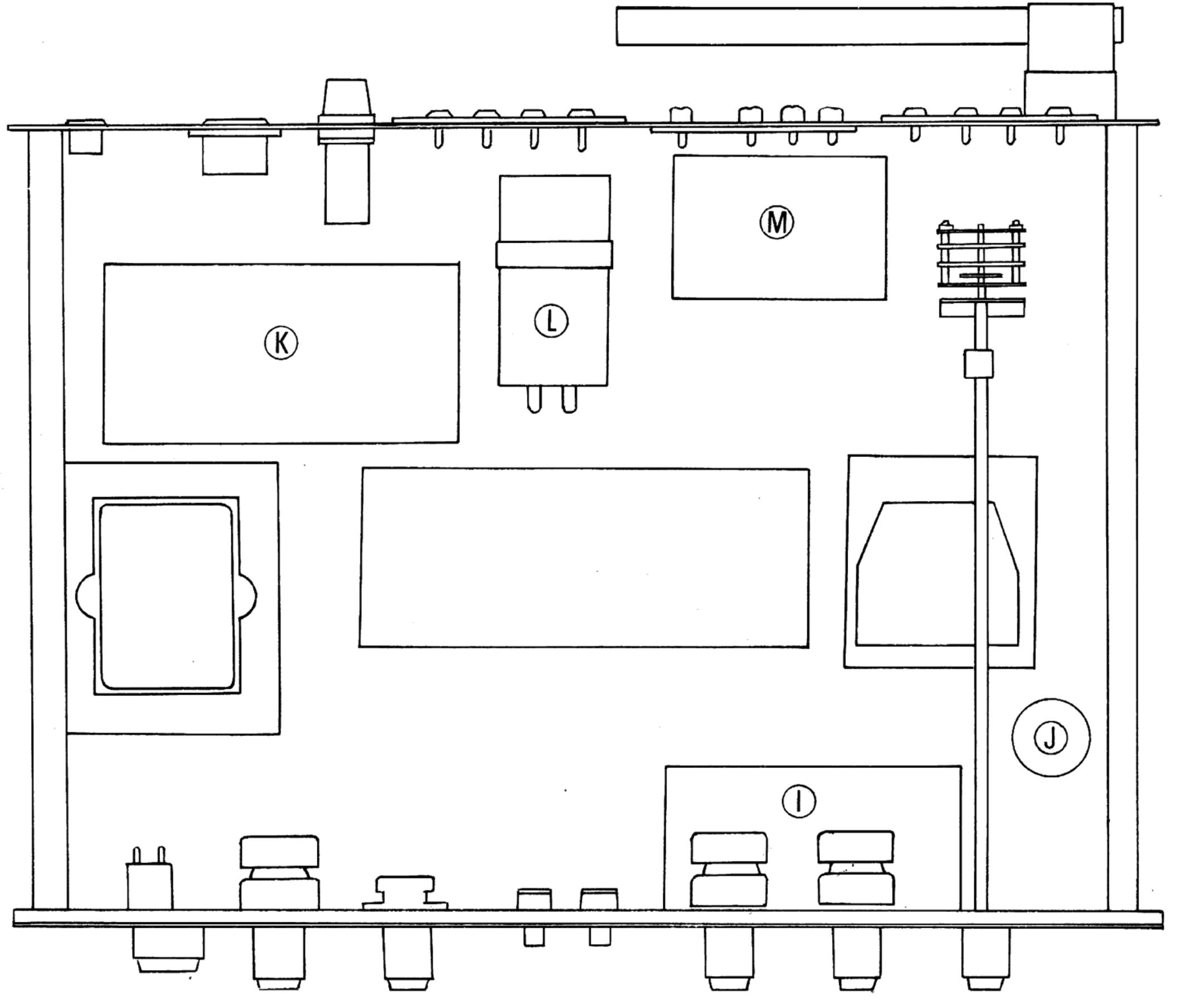
	NOMINAL	LIMIT
FM SECTION		
1. TUNING RANGE		$88 \sim 108 MHz$
2. SENSITIVITY (75KHz Dev. 20db S/N)	1.5 µ V	3 µ V
3. I H F SENSITIVITY (3% Distortion)	5 µ V	۷48
4. AFC HOLDING RANGE (1mV input-3db)	± 200 KHz	± 150KHz
5. DIAL CALIBRATION	,	
90MHz		± 300KHz
98MHz		± 300KHz
106MHz		± 300KHz
6. DEEMPHASIS		
7. OUTPUT VOLTAGE	1V	$1V \pm 2db$
8. LIMITING VOLTAGE	20 µ V	30µV
9. SIGNAL TO NOISE RATIO (at 1 mV Signal)	50db	45db
10. STEREO SEPARATION (100% mod. 1 mV input)		
10. STEREO SEL ARATION (100% mod. 1 mv input)	25db	20db
1KHz	35db	27db
	22db	15db
11 CTEDEO DEACON CENCITIVITY (Dilot 10%)	30 µ V	40µV
11. STEREO BEACON SENSITIVITY (Pilot 10%)	50db	45db
12. IMAGE REJECTION	5000	4300
AM SECTION		
1. TUNING RANGE	,	$535 \sim 1605 \text{KHz}$
2. SENSITIVITY (1KHz 30% mod. 10db S/N)		
600KHz	100 µ V / m	250 µ V/m
1000KHz	100 µ V/m	250 µ V/m
1400KHz	100 µ V/m	250 µ V/m
3. IMAGE REJECTION (at 1400KHz)	40db	32db
4. OUTPUT VOLTAGE(1KHz 30% mod. 5mV input)	0.4V	0.3V
AUDIO SECTION		
1. POWER OUTPUT	17W	within 10% 15W
2. HARMONIC DISTORTION (at 8W)		
100Hz	0.7%	1%
1KHz	0.7%	1%
10KHz	1%	2%
3. FREQUENCY RESPONSE (at 8W)	1 /0	_ / 0
	- 2db	— 6db
20Hz	- 2db - 1db	— 3db
— 20KHz 4. INDUT SENSITIVITY	100	
4. INPUT SENSITIVITY	2.5mV	4mV
PHONO	2.5mv 200mV	200mV
AUX E COLLALIZED	2001110	$100 \text{Hz} + 13.5 \text{db} \pm 2 \text{db}$
5. EQUALIZER		100Hz + 13.5db ± 2db 10KHz - 14.5db ± 2db
6. TONE CONTROL(at — 30db)		
100Hz	+ 8 db	$+$ 8db \pm 2db
10KHz	+ 8db	+ 8db ± 2db
7. LOUDNESS CONTROL (-30db)		
100Hz	+ 8db	$+$ 8db \pm 2db
10KHz	+ 3.5db	+ 3.5 db <u>+</u> 2db
8. SIGNAL TO NOISE RATIO		
PHONO	55db	55db
AUX	60db	55db
9. RESIDUAL NOISE (VR mini)	· 4mV	5mV
	1	

CHASIS RAYOUT (TOP VIEW)



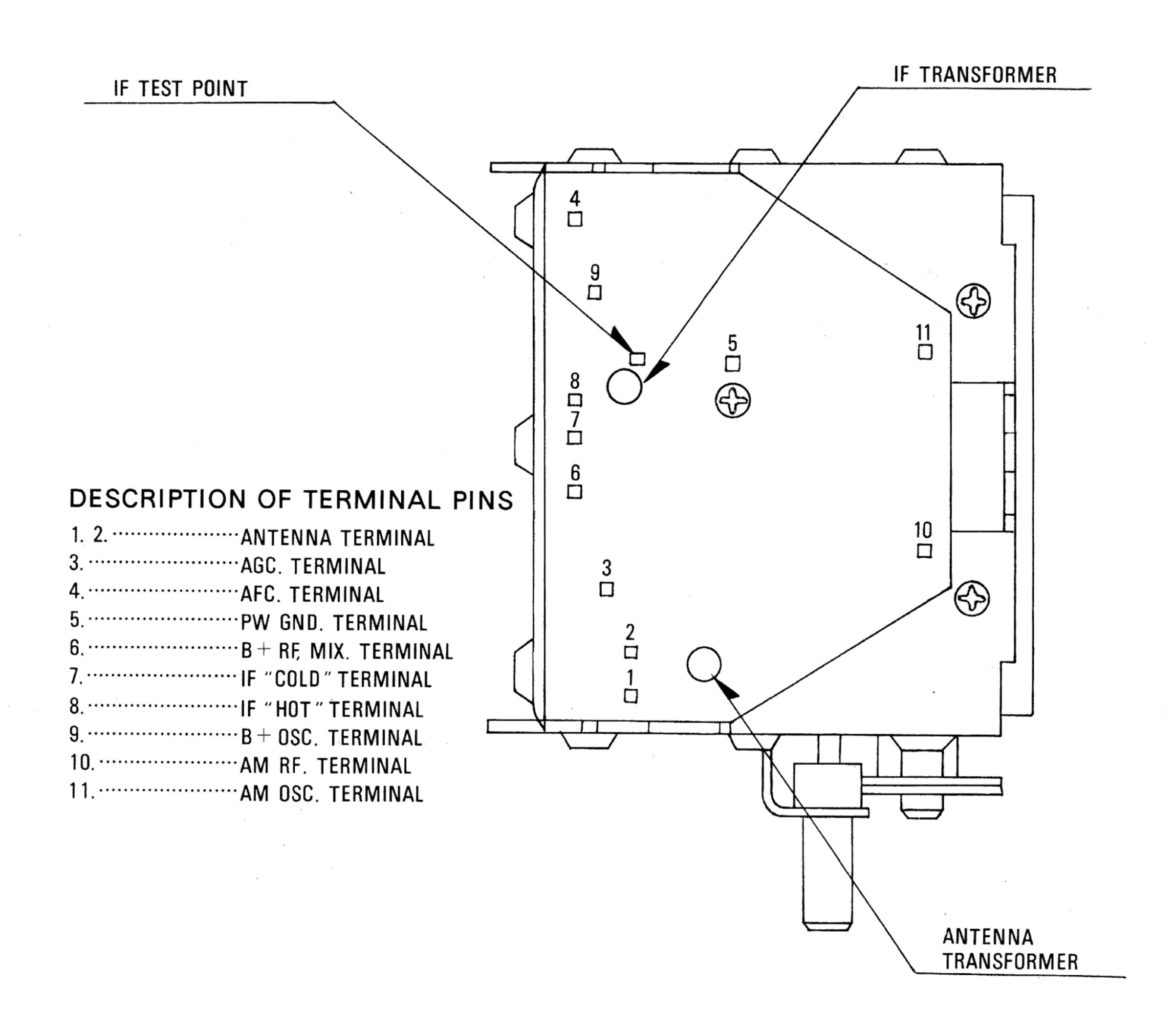
- TUNER FRONT END
- **B** AM FM IF BOARD
- © MULTIPLEX BOARD
- (D) MAIN AMP. BOARD
- **E** L CH DRIVER TRANS
- © R CH DRIVER TRANS
- © POWER TRANSISTOR
- (H) POWER TRANSFORMER

CHASIS RAYOUT (BOTTOM VIEW)

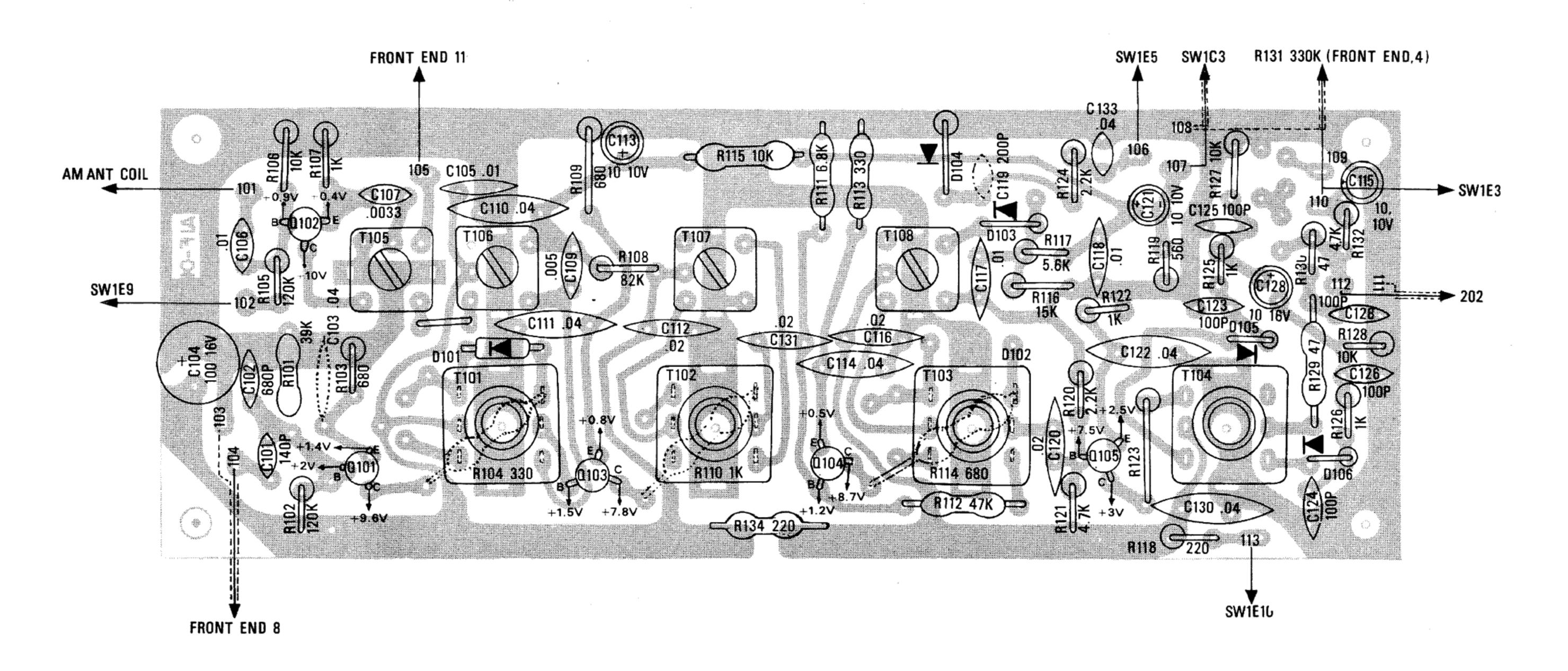


- TONE CONTROL BOARD
- SEPARATION CONTROL VR.
- **®** POWER SUPPLY BOARD
- © ELECTROLYTIC CAPACITOR C 603
- M PRE AMP. BOARD

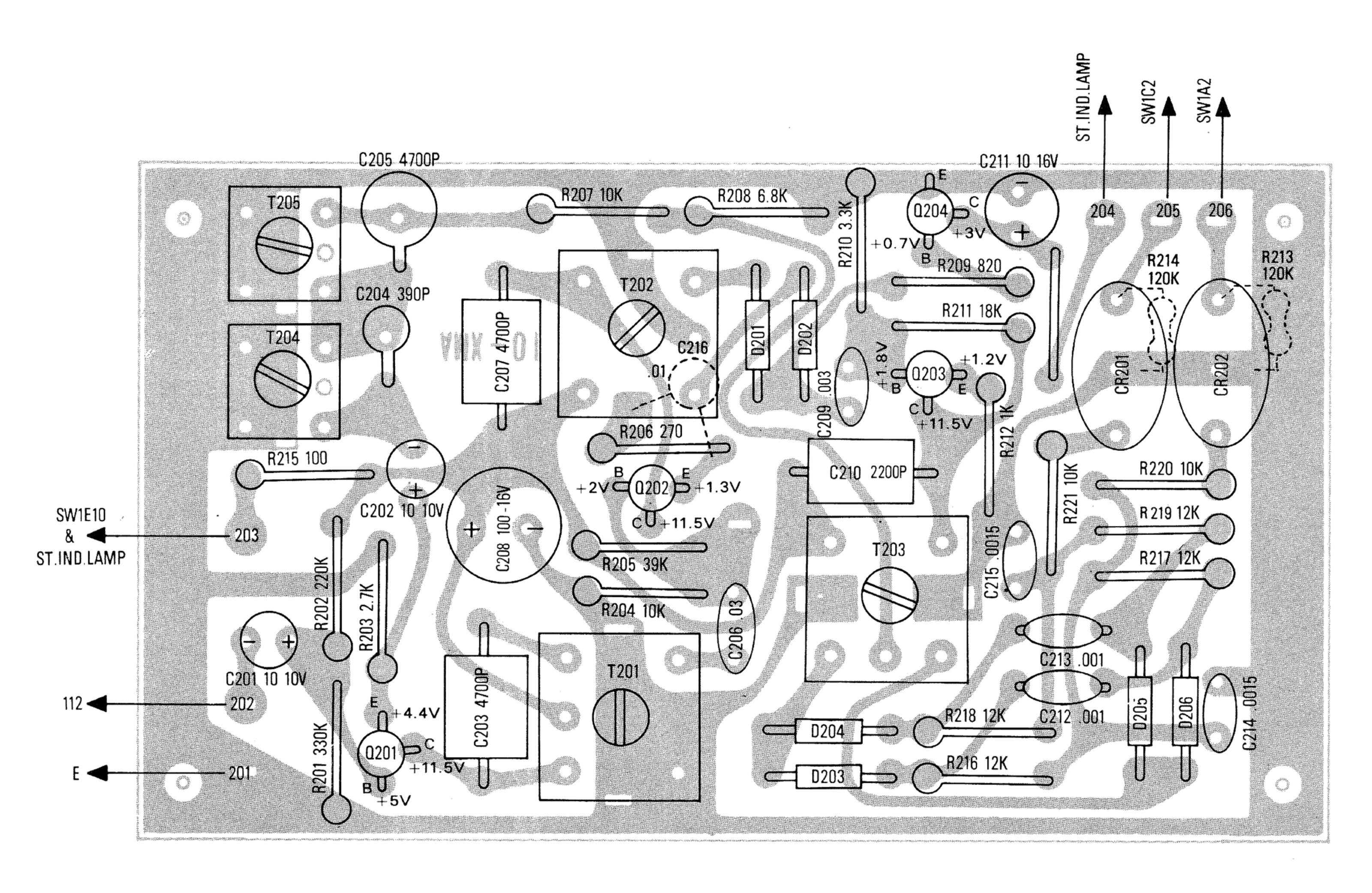
TUNER FRONT END



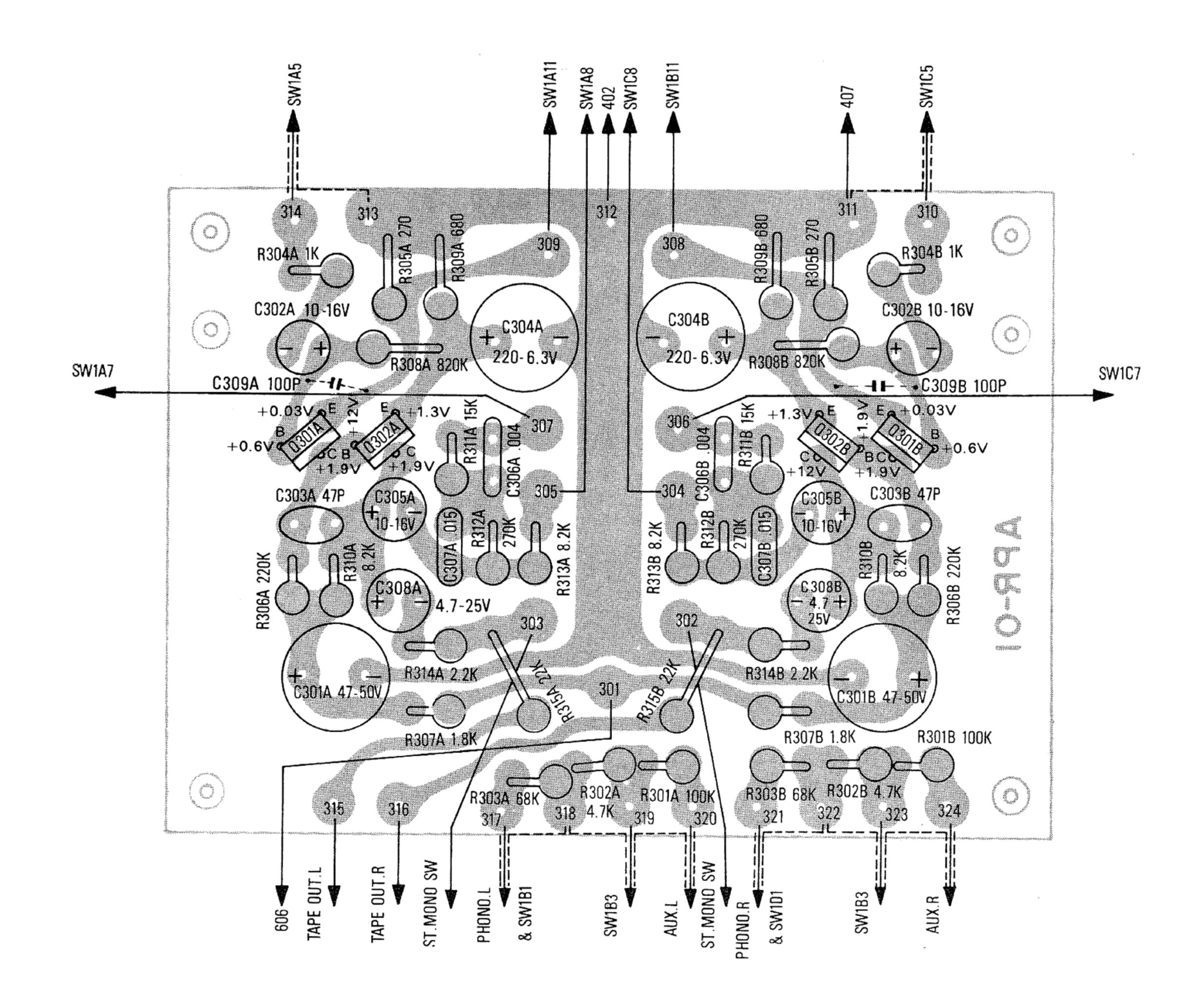
AM/FM IF. (TOP VIEW)



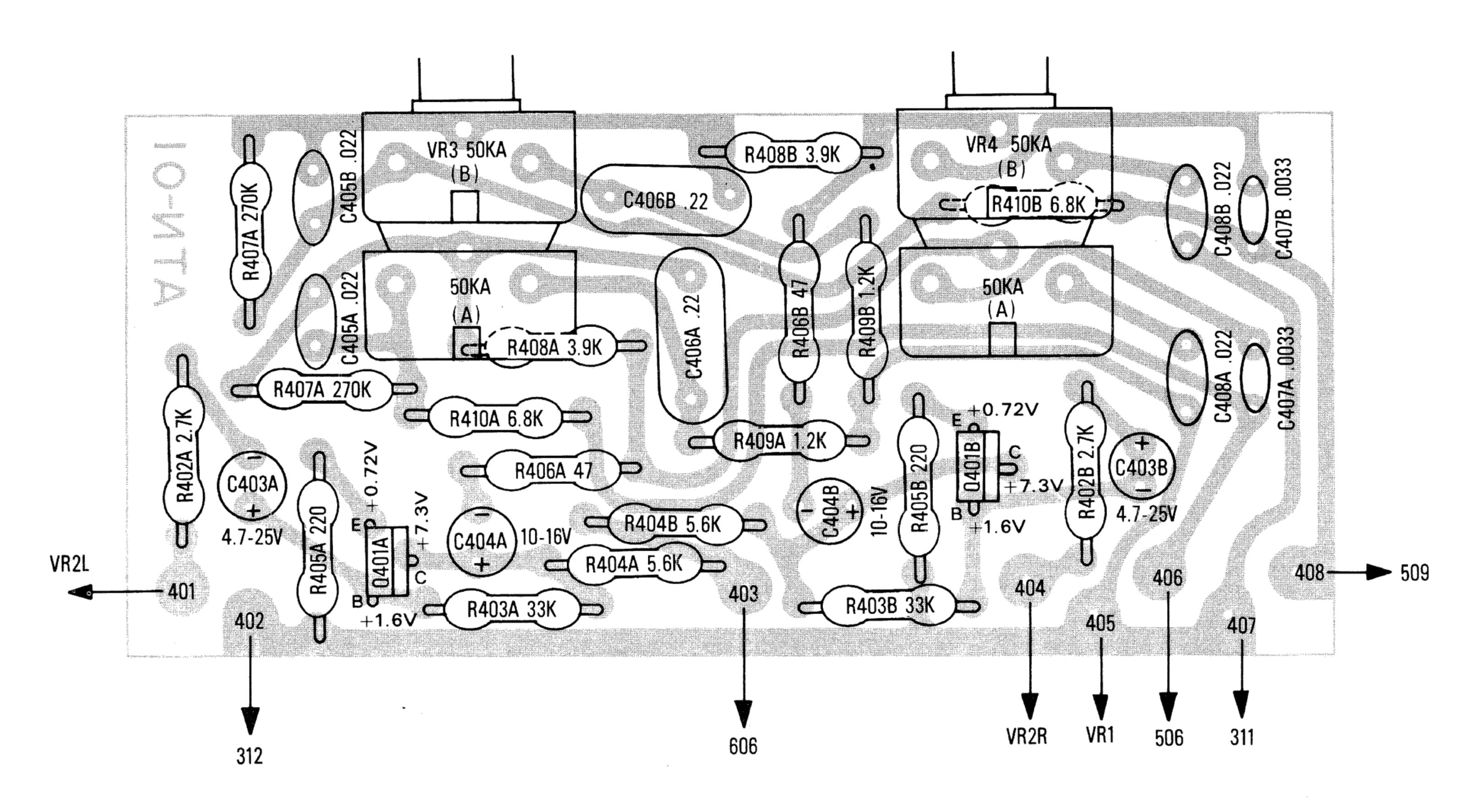
MPX. (TOP VIEW)



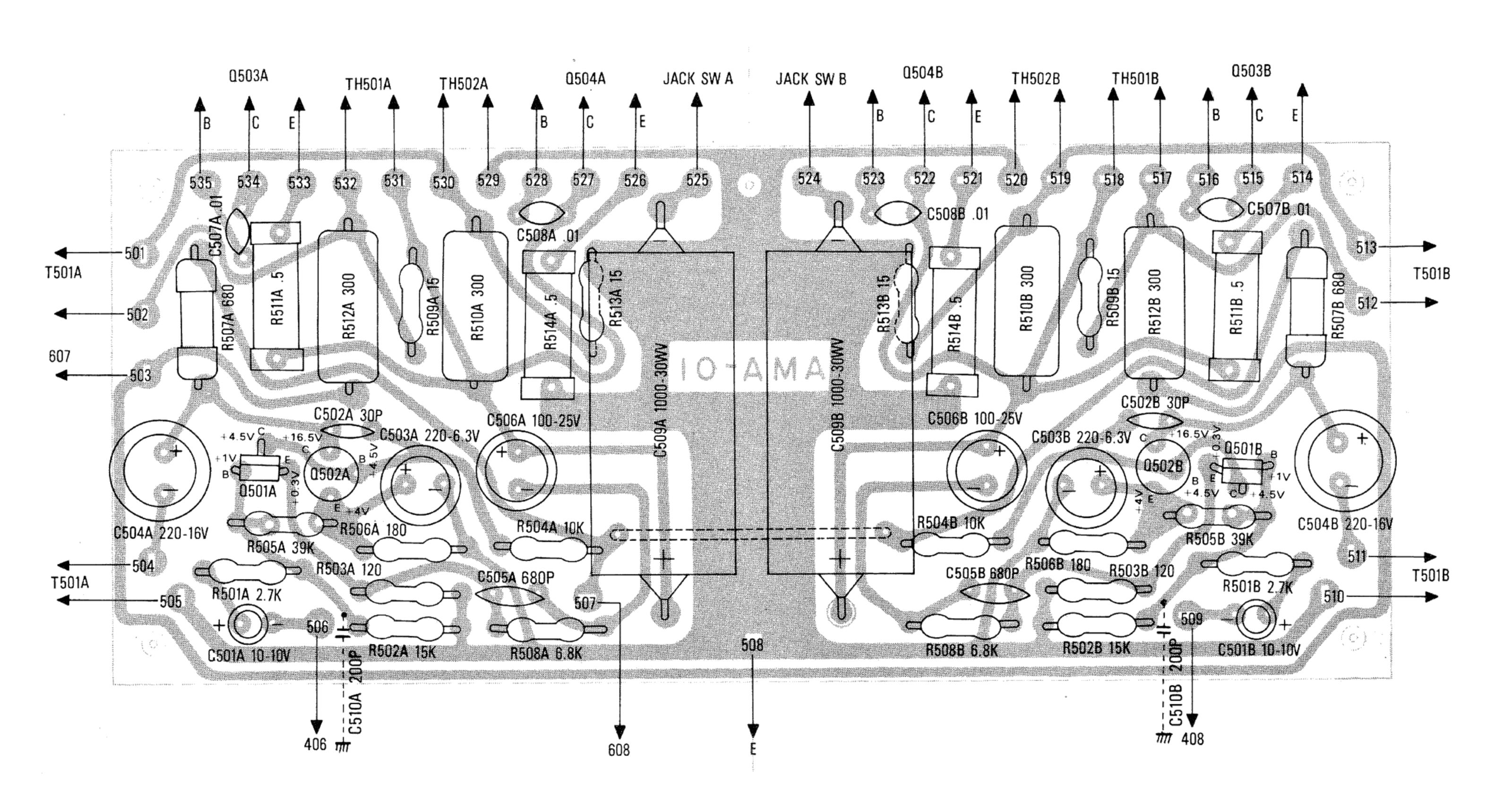
PRE. AMP. (TOP VIEW)



TONE CONTROL (TOP VIEW)

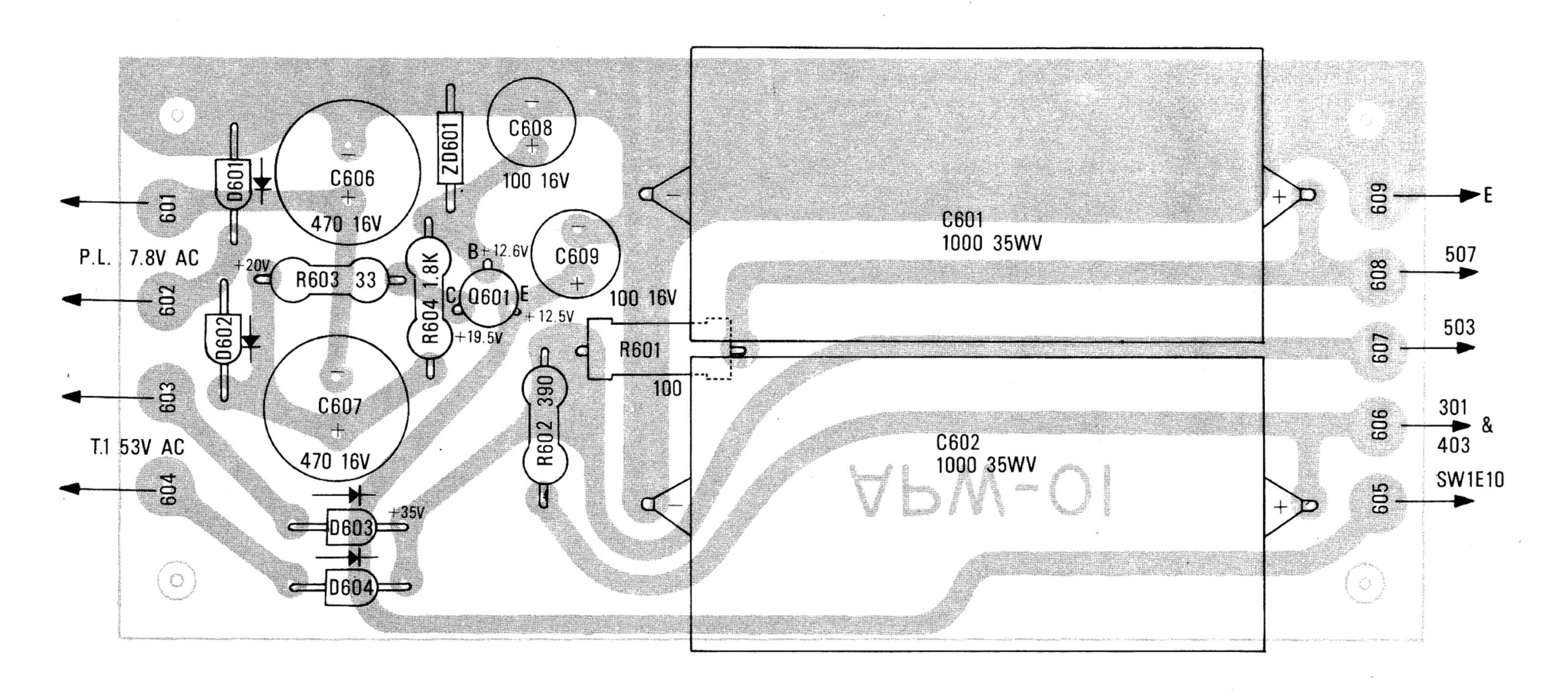


MAIN AMP. (TOP VIEW)

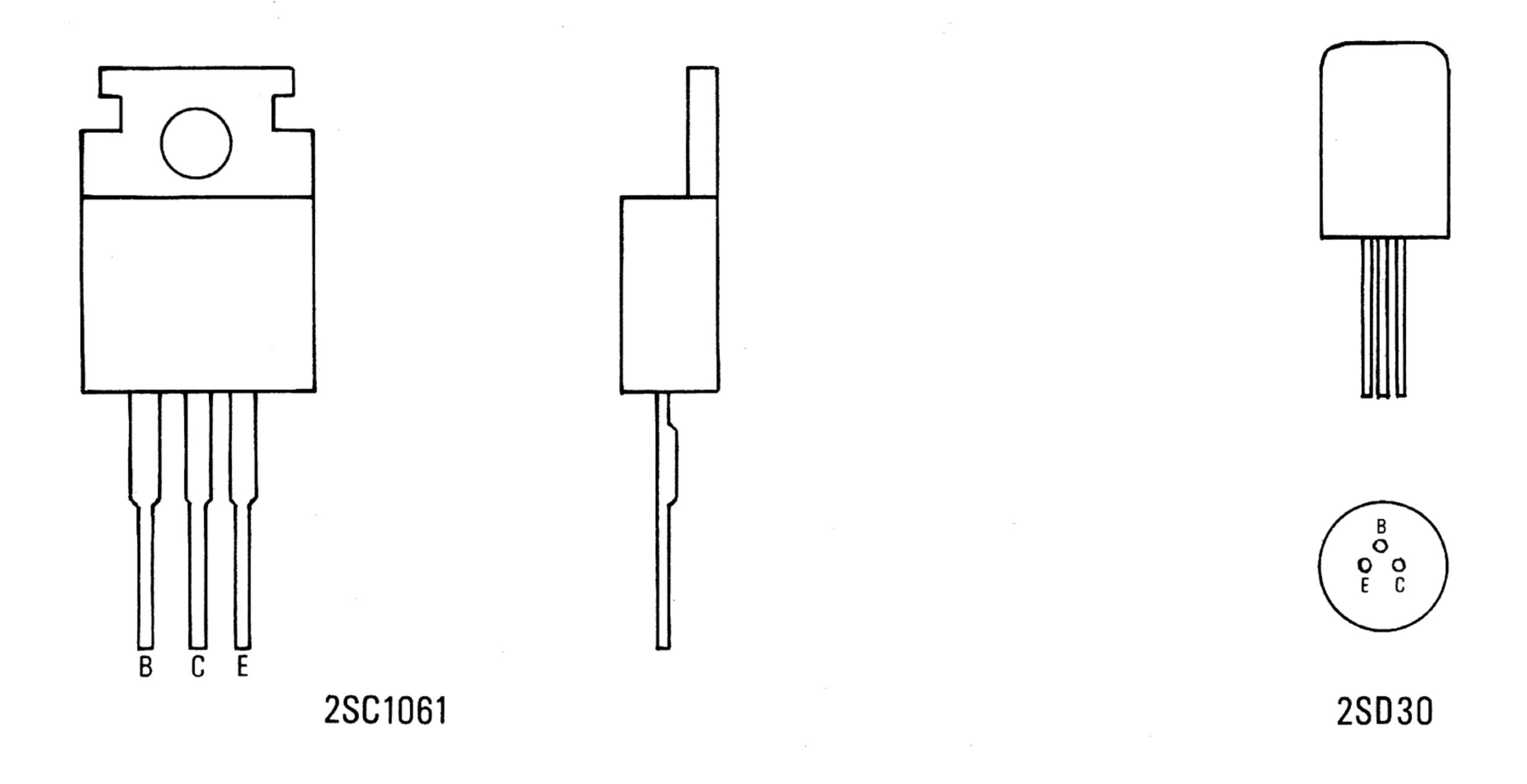


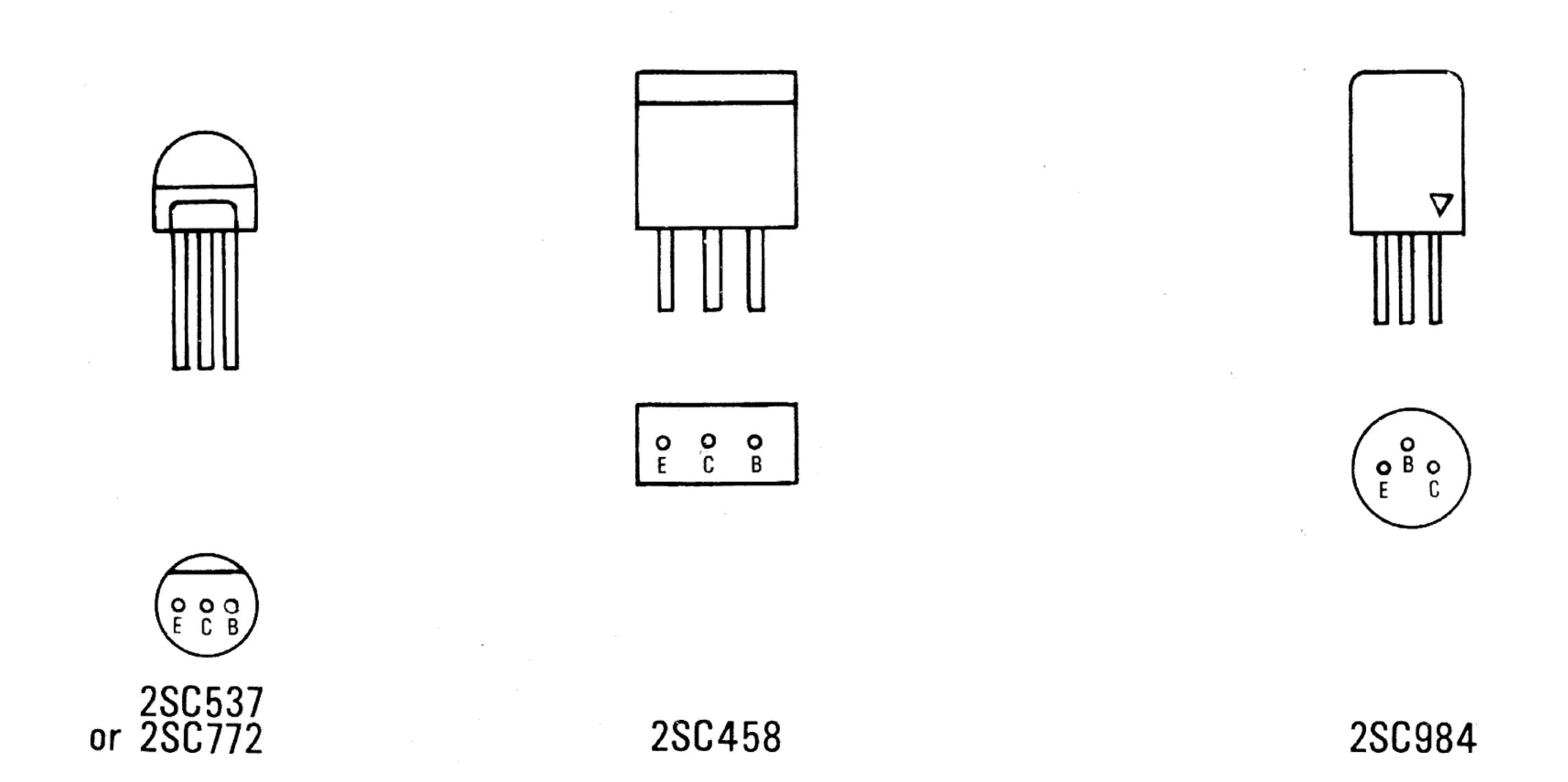
www.hifiengine.com

POWER SUPLY (TOP VIEW)



TRANSISTOR CONNECTIONS





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SCHEMATIC DIAGRAM

