

NAD SERVICE MANUAL

Hi-Fi Television Service
 2014 Bath Avenue · Brooklyn, NY 11214

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SPECIFICATIONS

FEATURES

- A. Control and Switch**
- 1. AC Power switch : On-off
 - 2. Bridging switch : Normal-Bridging
 - 3. Soft Clipping (L/R) : On-off
 - 4. AC Line Cord (L/R) : UL-1 type/A-Version U.S.A., BS type (without plug)/B-Version U.K., CEE2 type/C-Version Europe, S type/B₁-Version Australia
 - 5. Main Input (L/R) : RCA Type Pin Jack (2p)
 - 6. Lab Input (L/R) : RCA Type Pin Jack (2p)
- B. 1. Speaker terminal (L/R)**
- : On-off
 - : 4P army type binding post for banana plug
 - : UL-1 type/A-Version U.S.A., BS type (without plug)/B-Version U.K., CEE2 type/C-Version Europe, S type/B₁-Version Australia
- C. Chassis and Circuit**
- 1. Display Power (Green), Soft clipping (Yellow), Overload (Red), Protection (Red)
 - 2. Output Load : 8 ohm/4 ohm
 - 3. Maximum Power Consumption : 770W
 - 4. AC Power Supply : 120V 60Hz/A-Version U.S.A., 240V 50Hz/B-Version U.K., 220V 50Hz/C-Version Europe, 240V 50Hz/B₁-Version Australia
 - 5. Netweight and Dimension (Approx.) : 12.5 Kg, W=420 H=129 D=385 (mm)

ELECTRICAL SPECIFICATION

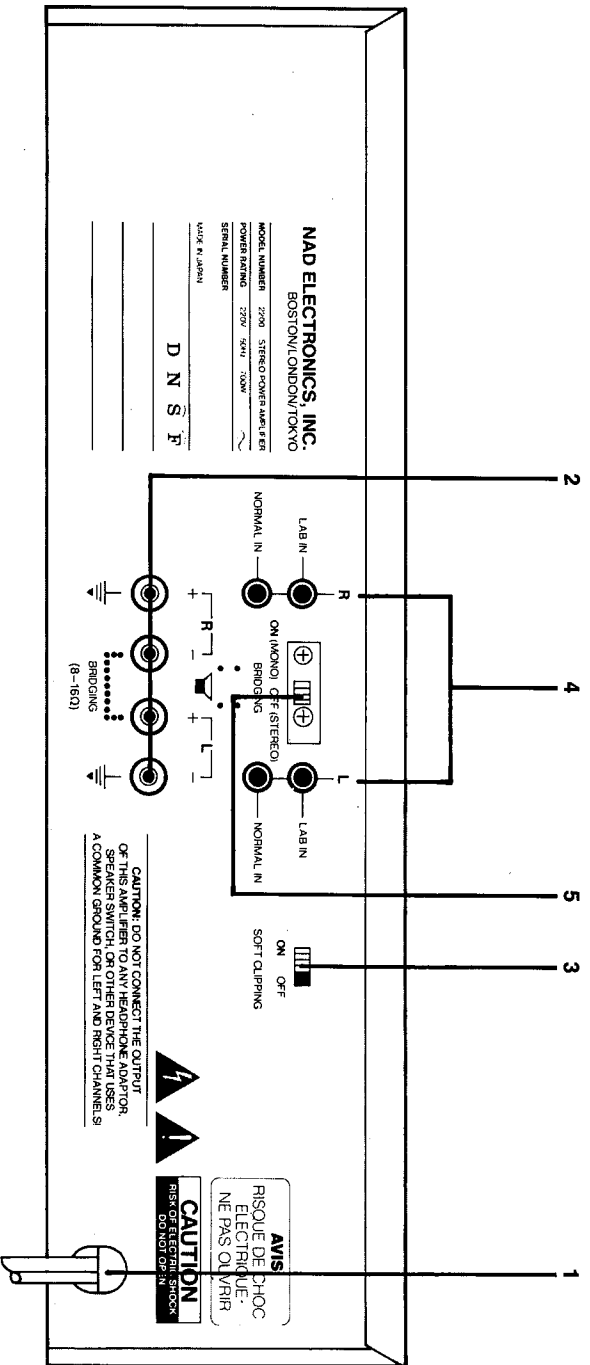
*Unless otherwise specified procedure shall be made in accordance with IHF-A202.

	Nominal	Limit	Unit
1. Sensitivity	0.775	±1.5dB	(V)
Input : 1000Hz			
Output : 100W			
2. Channel difference		less than 1	(dB)
3. Output power		More than 100	(W)
Input : Main in			
Output : 0.04% THD			
20-20000Hz continuous both CH. Driven			
4. Clipping Power	140	125	(W)
Input : Main in			
Output : 1% THD			
1 KHz continuous	200	180	(W)
Both CH. Driven			
5. Dynamic Power	400	350	(W)
Input : Main in			
Output : Clipping point	4 ohm	500	440 (W)
1 KHz 20ms IHF dynamic wave			
Both CH. Driven			
6. IM Distortion		less than 0.04(%)	
Input : Main in 60Hz:			
7000Hz=4:1			
Output : From 250mW-100W			
Both CH. Driven	8 ohm load		
250mW-100W			
7. THD		less than 0.04(%)	
Input : Main in			
Output : 20-20000Hz, from			
Both CH. Driven	8 ohm load		
250mW-100W			
8. Frequency response		±0.5dB	
Both CH. Driven	8 ohm load		
Input : LAB in			
Output : 10W			
20-20000Hz			
Input : Nor in	at 14 Hz	-3	-3±1.5 (dB)
Output : 10W	at 45KHz	-3	-3±1.5 (dB)
600 Ohm/Ch drive, Both 12dB/Octave			
9. Damping factor	120	100	
at 50Hz, 8 ohm Load			
10. Slew Rate	25	23	(V/μ.Sec.)
11. Signal to noise ratio	110	105	(dB)
Input shorted			
Normal input			
Ref. Rated power			
IHF-A weighted			
12. Residual noise	unweighted	0.3	0.5 (mV)
	weighted	0.1	0.2
13. Input Impedance		More than 20	(Kohm)
14. Crosstalk			
Between the channels of stereo equipment			
Input : Normal (shorted)	8 ohm load	80	76 (dB)
1000 Hz		63	56 (dB)
20000Hz			
15. Soft clip level (100W)			
(When switched in just at onset of clipping)	4 ohm	-0.5	-0.5±0.4 (dB)
	8 ohm	-0.5	-0.5±0.4 (dB)
16. Peak short term (1 msec) O/P current		50	45 (A)

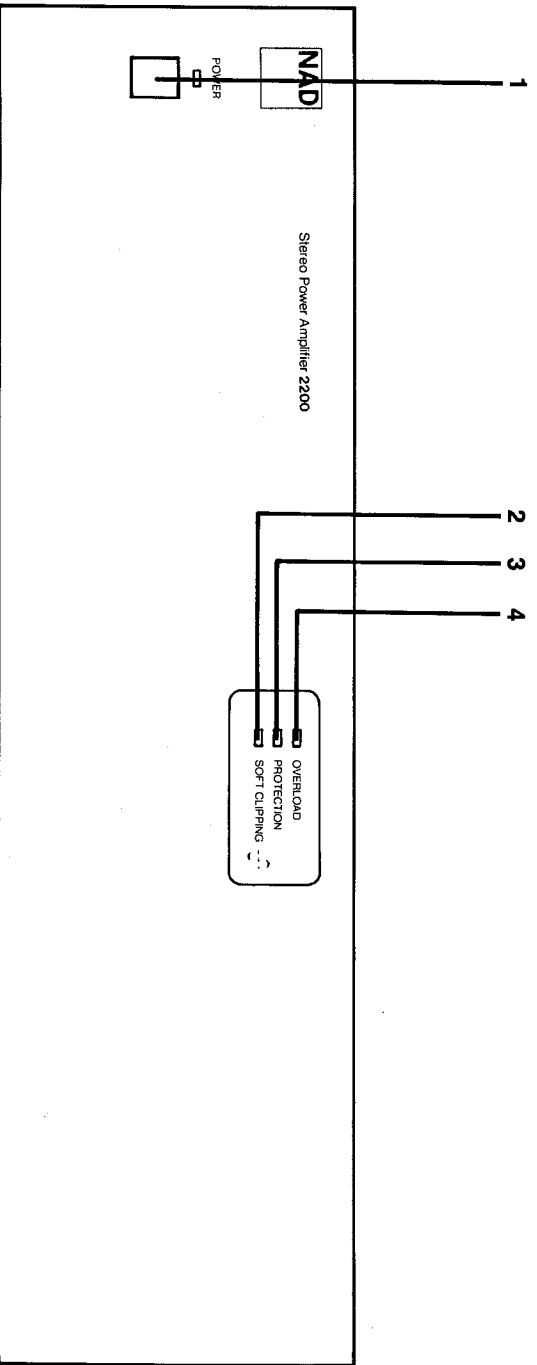
2200 STEREO POWER AMPLIFIER

- REAR PANEL**
1. AC Line Cord.
 2. Speaker terminals.
 3. Soft Clipping.
 4. Inputs (Normal and Lab).
 5. Bridging.

CAUTION: DO NOT CONNECT THE OUTPUT OF THIS AMPLIFIER TO ANY HEADPHONE ADAPTER, SPEAKER SWITCH, OR OTHER DEVICE THAT USES A COMMON GROUND FOR LEFT AND RIGHT CHANNELS.



- FRONT PANEL**
1. Power.
 2. Soft Clipping.
 3. Protection.
 4. Overload.



TECHNICAL NOTE: FOR TESTING, CONNECT TO ONE CHANNEL AT A TIME. THE RIGHT CHANNEL IS POLARITY-INVERTING. (R+) IS CHASSIS GROUND, (R-) IS SIGNAL "HOT".

THE (+) AND (-) SYMBOLS INDICATE THE CORRECT SPEAKER CONNECTIONS FOR STEREO. IF SPEAKER SWITCHING IS REQUIRED, USE FOUR-POLE SWITCHES THAT MAINTAIN INDEPENDENT (FLOATING) GROUNDS FOR LEFT AND RIGHT CHANNELS.

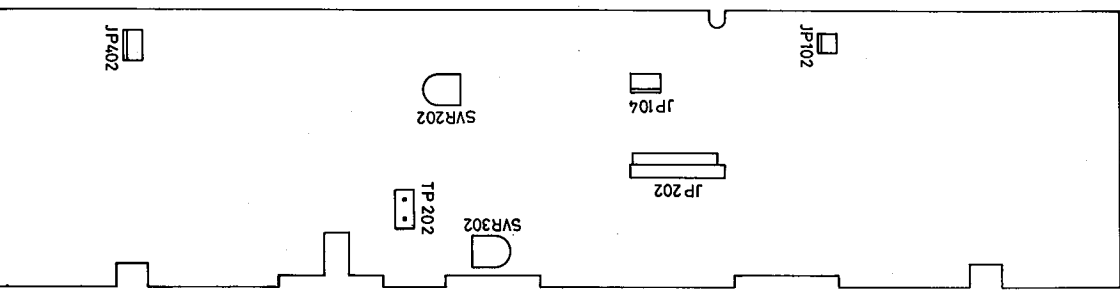
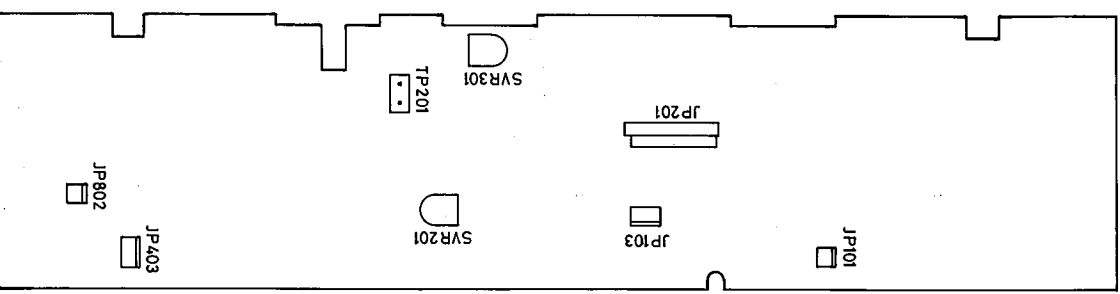
ALIGNMENT PROCEDURES

- Condition**
- Preheat more than 15 minutes
- Speaker load 8 ohms (dummy or speaker)
- Input No signal

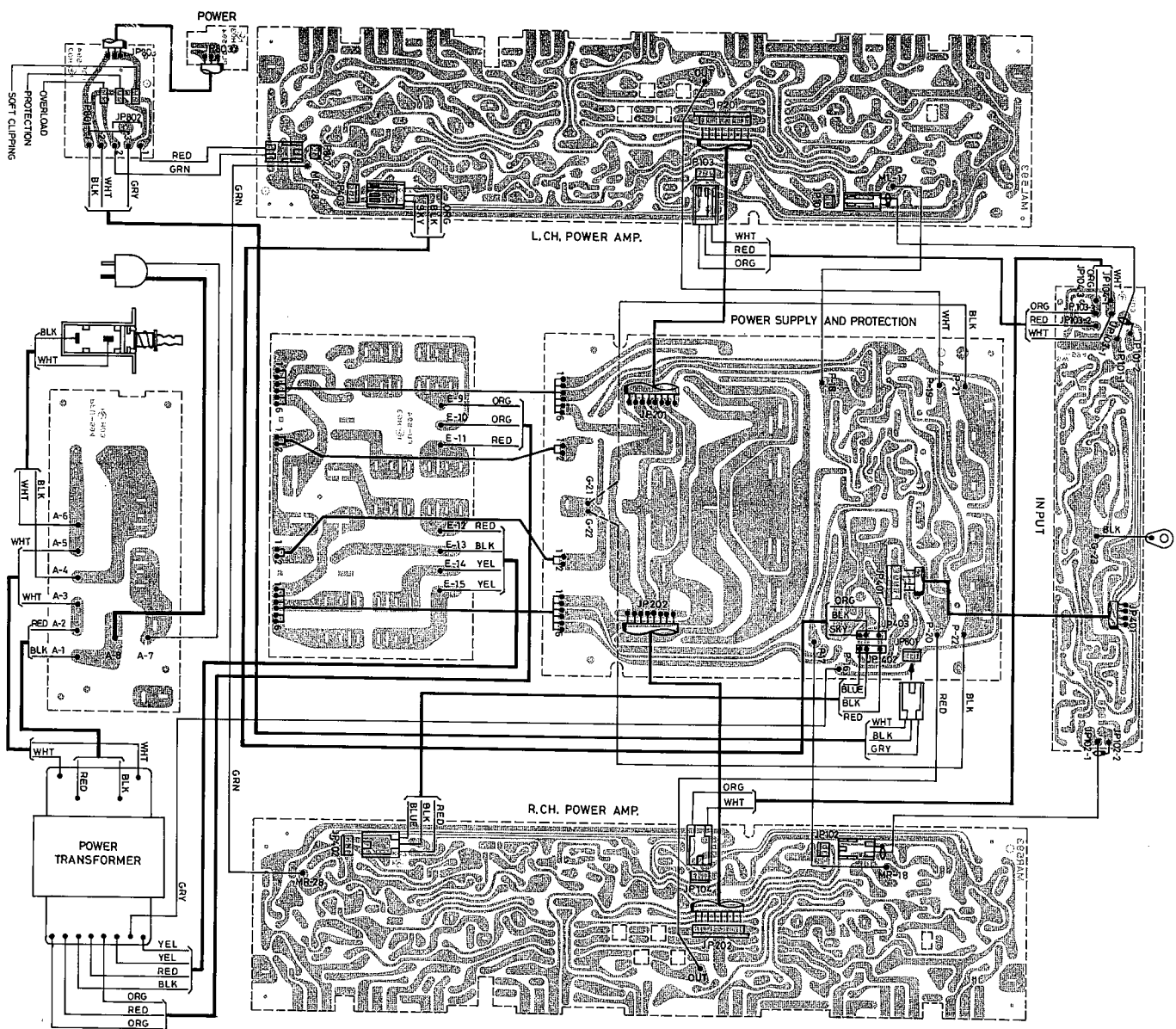
Step	Output Indication Connection	Adjustment	Adjust for
CENTER DC VOLTAGE			
1	DC digital voltmeter Speaker terminals	SVR201 (L ch) SVR202 (R ch)	0±5 mV
IDLING			
2	DC digital voltmeter TP201/TP202 (L/R)	SVR301 (L ch) SVR302 (R ch)	7.5±0.5mV

MAL.P.C. Board

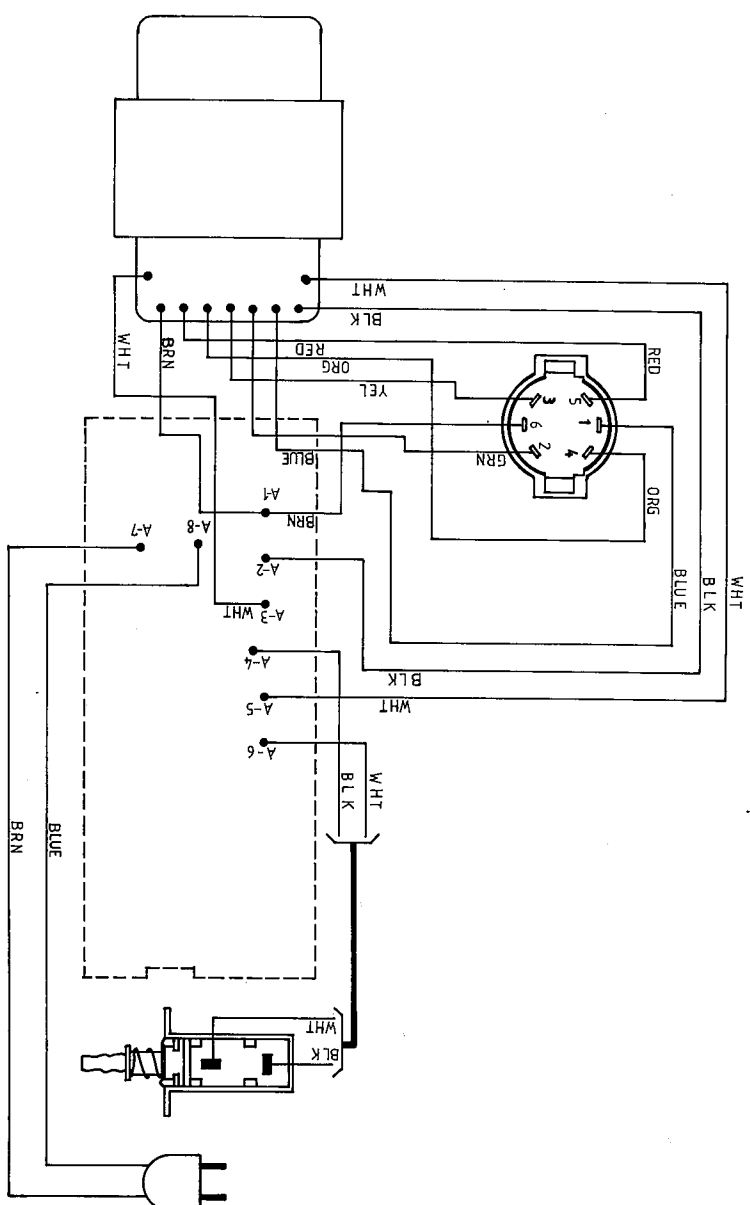
MAR.P.C. Board



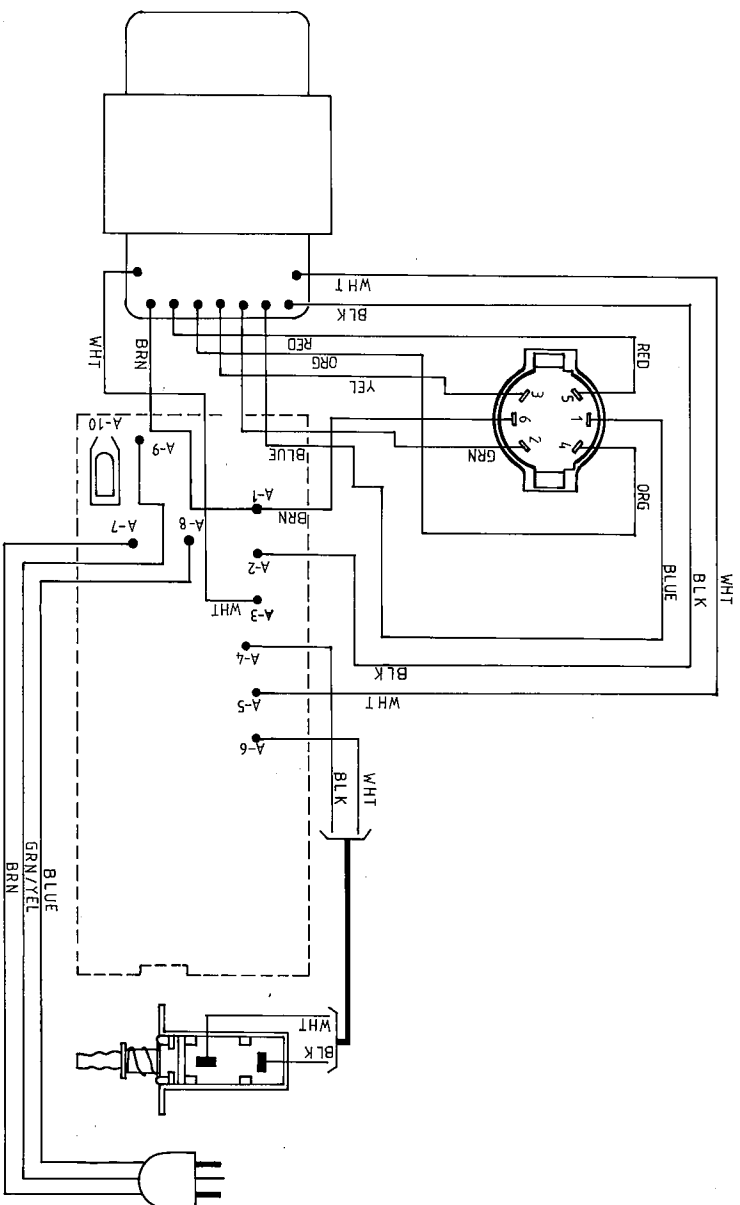
WIRING DIAGRAM (Component side)



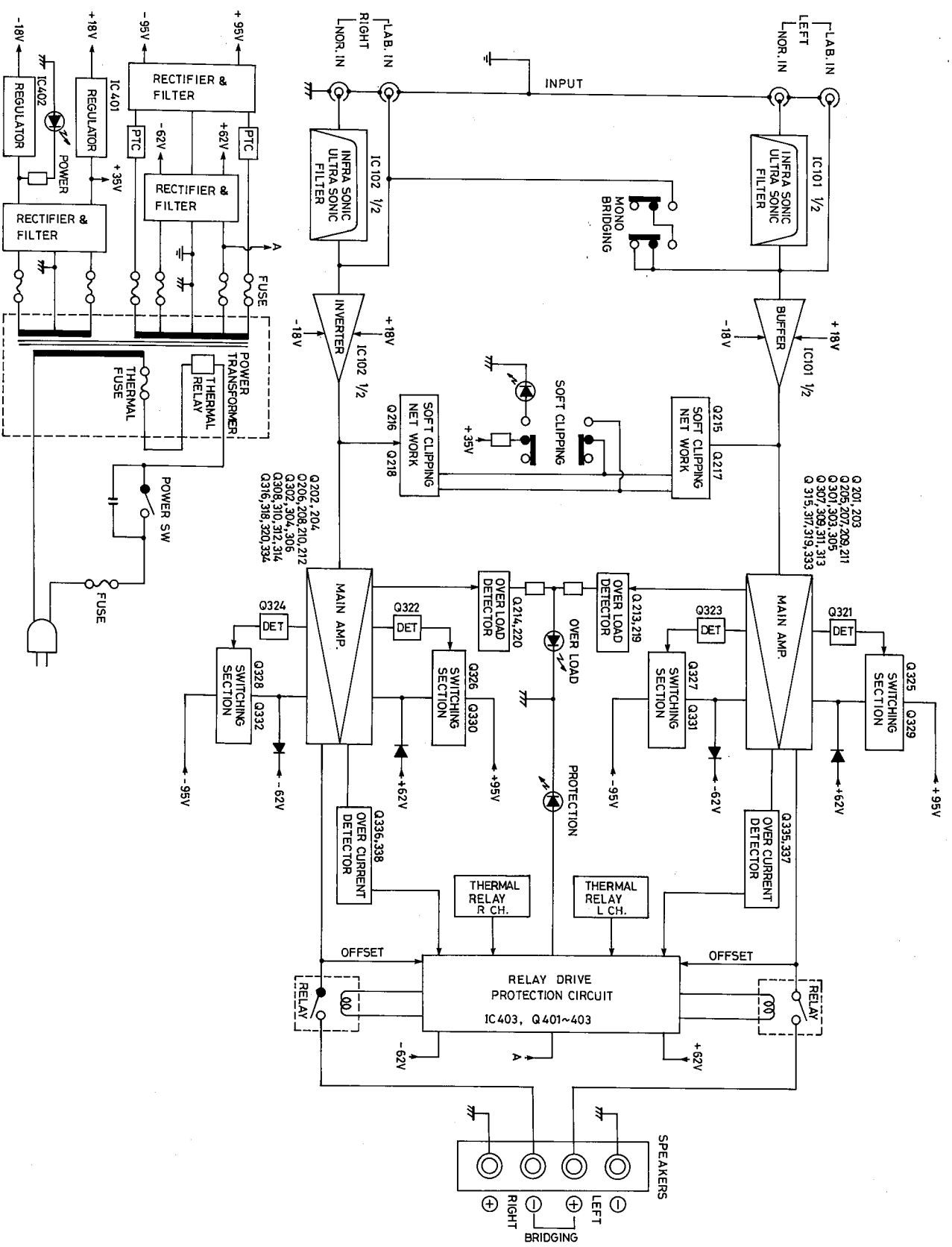
B-Version U.K.
C-Version Europe



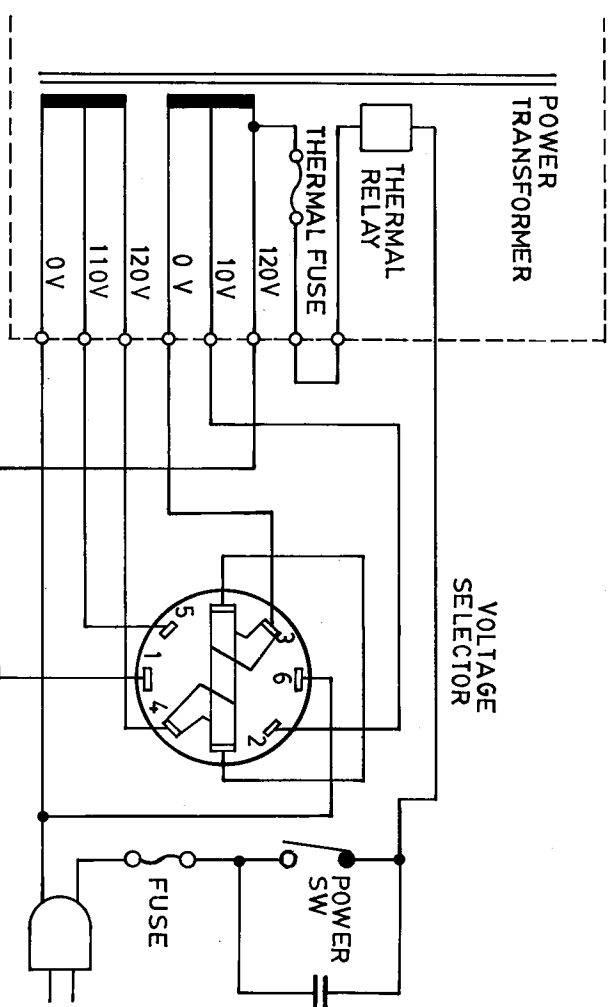
B1-Version Australia



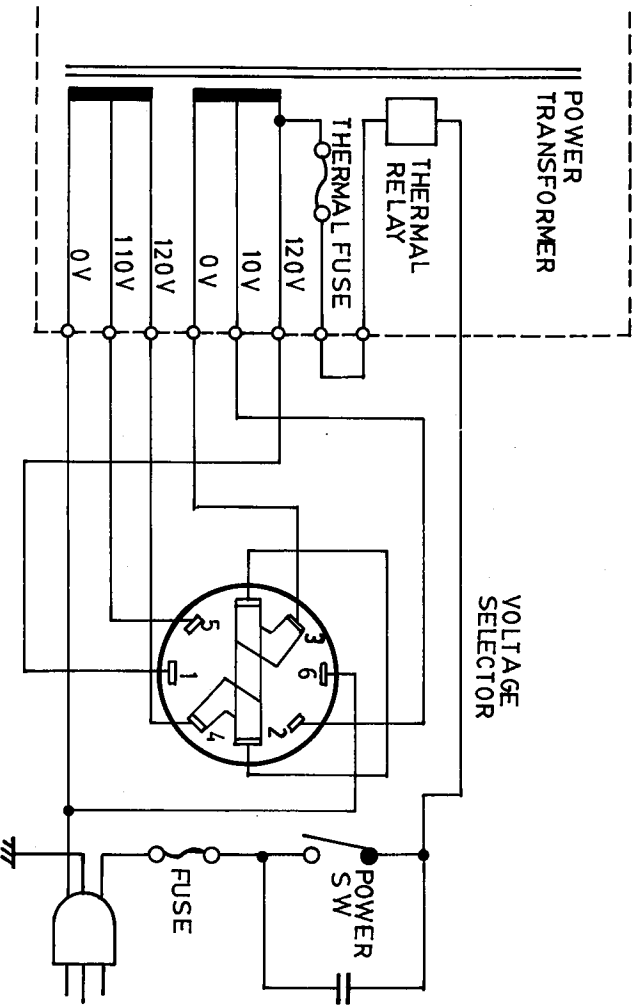
BLOCK DIAGRAM



B-Version U.K.
C-Version Europe

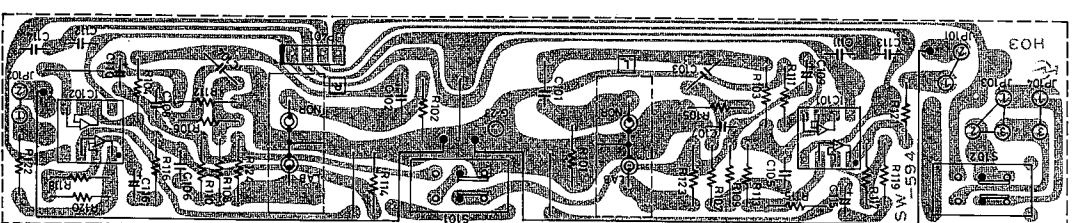
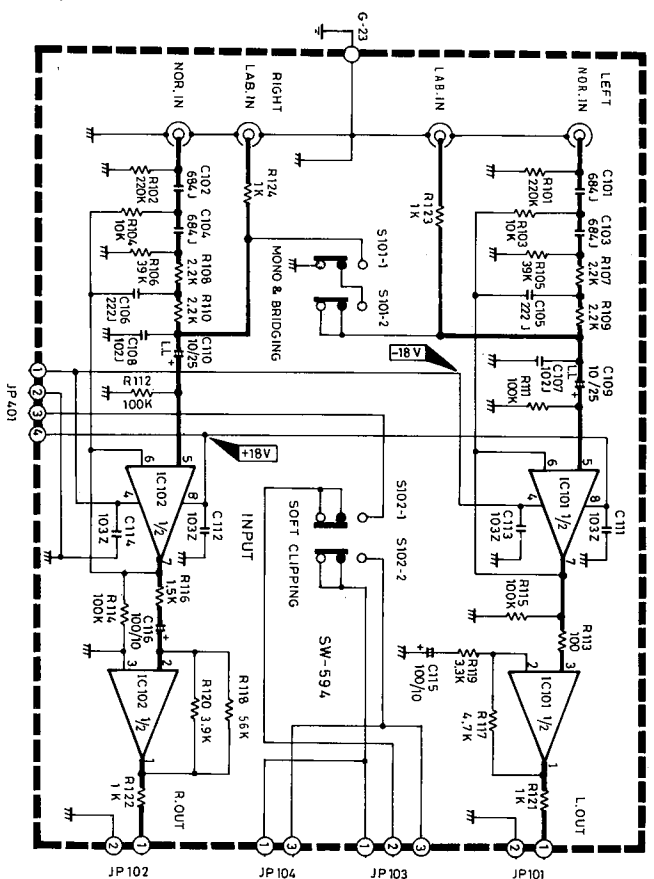


B₁-Version Australia

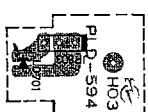
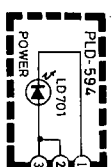
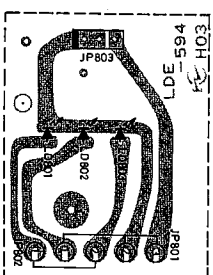
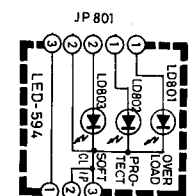


SCHEMATIC AND PCB LAYOUT (Foil side)

Input Circuit (SW-594)

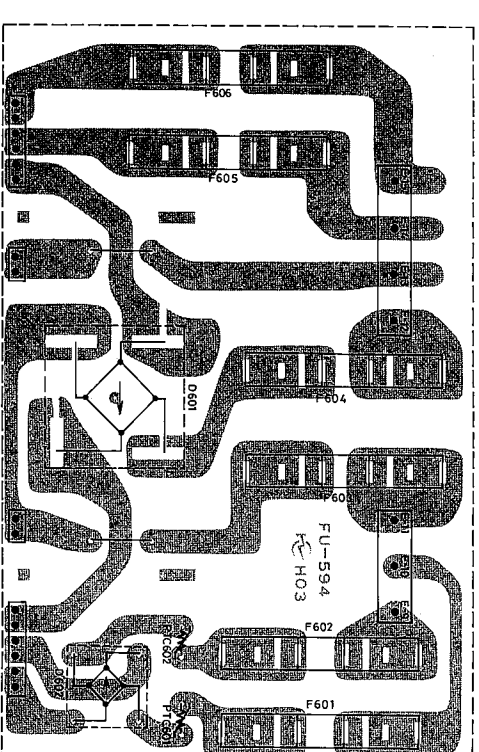
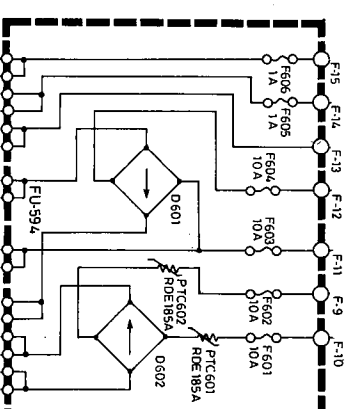


Indicators Circuit (LED-594)

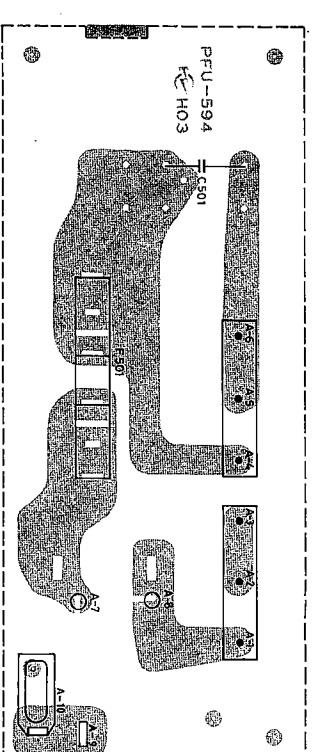
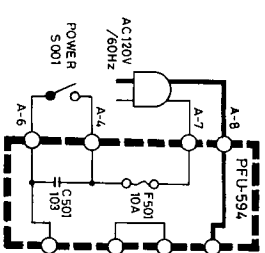


Power Indicator Circuit (PLD-594)

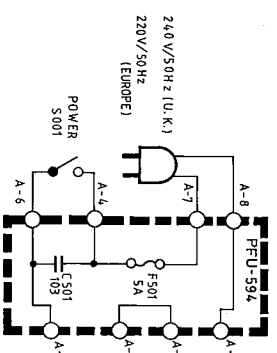
Fuse Circuit (FU-594)



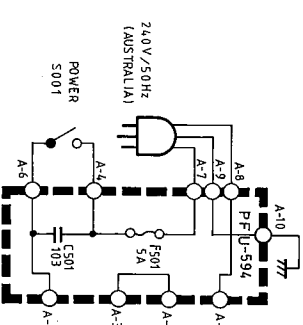
Primary Fuse Circuit (PFU-594)

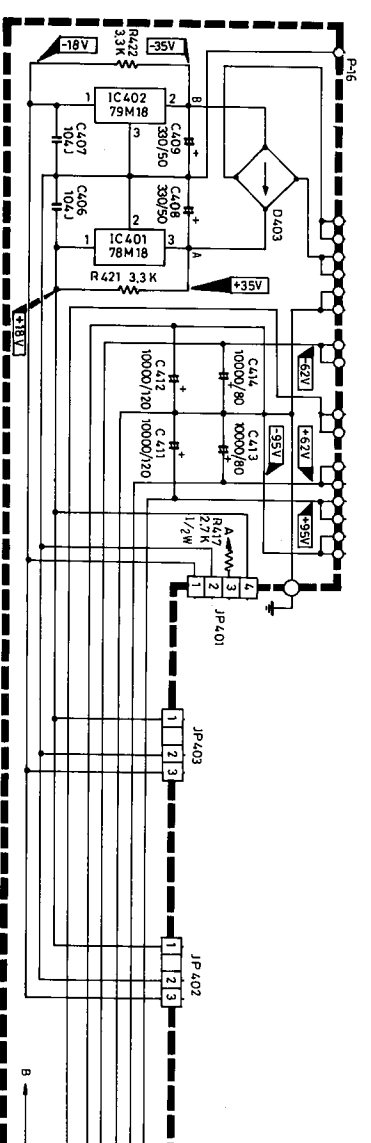
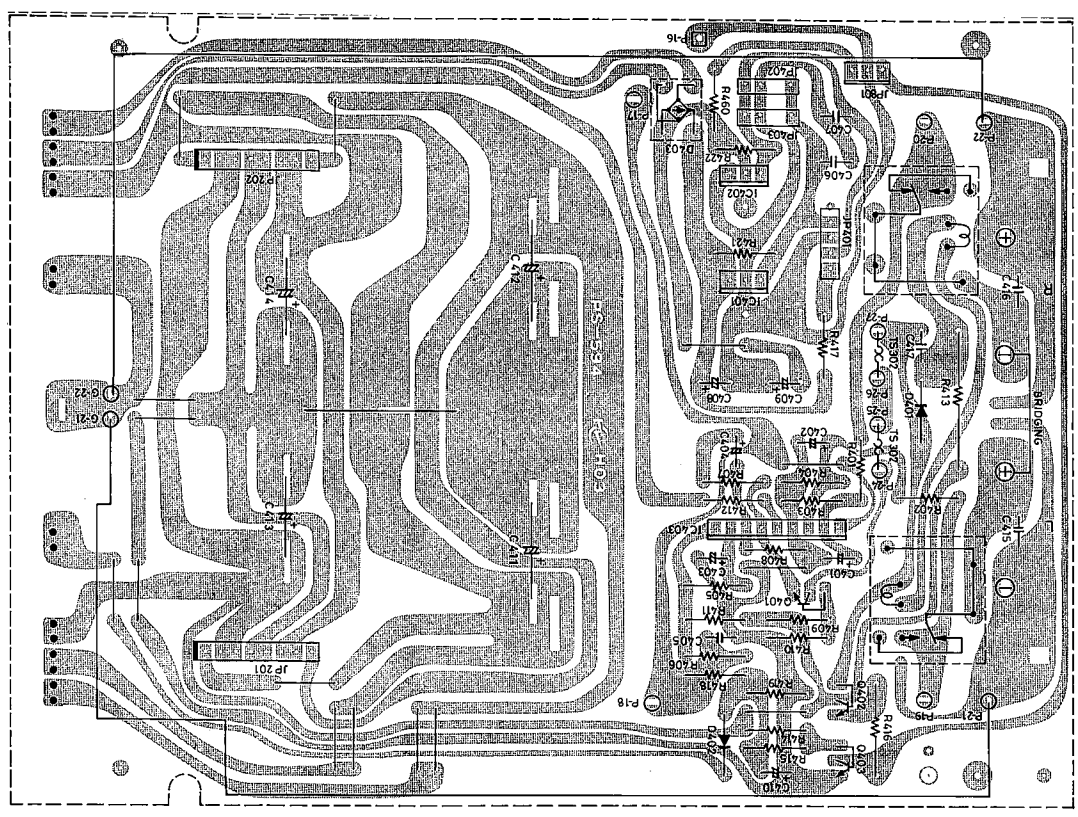


B-Version U.K.
C-Version Europe

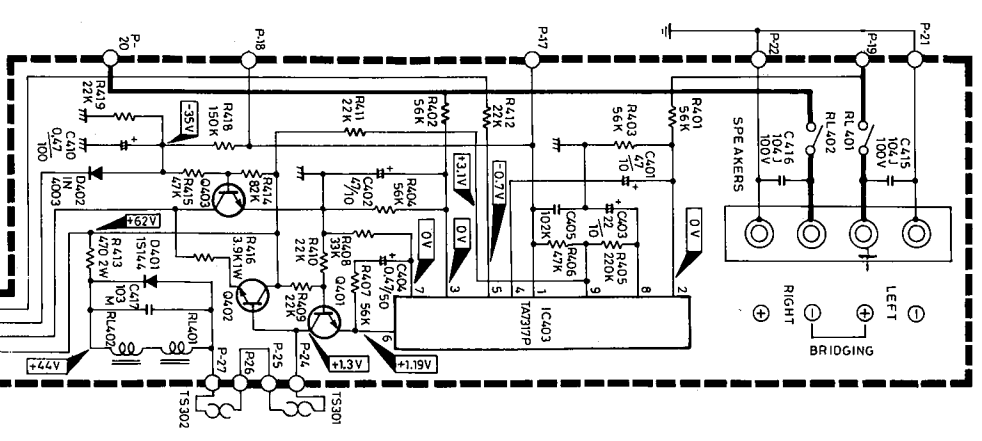
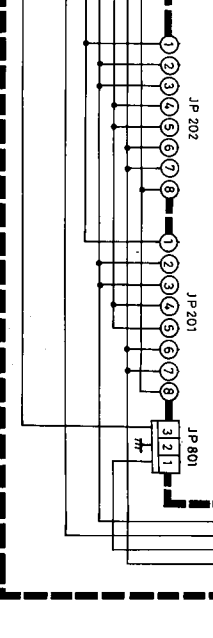


B1-Version Australia

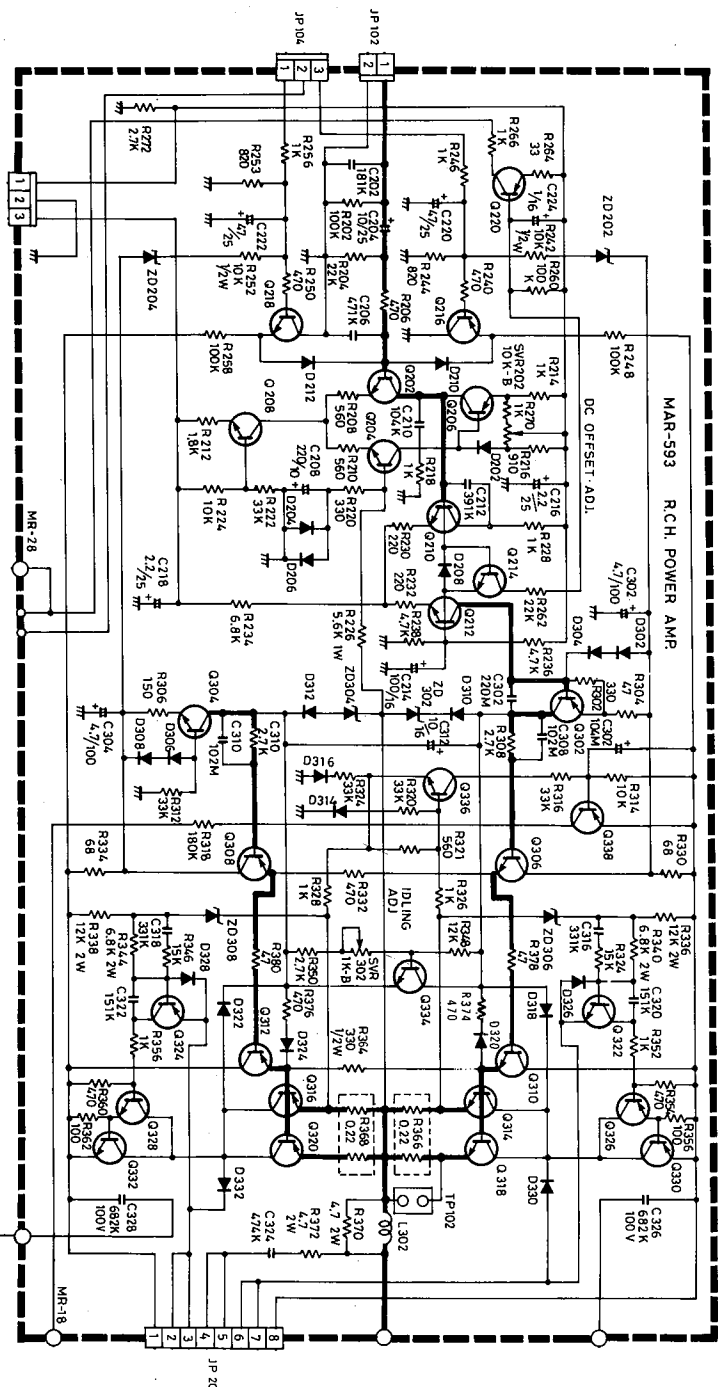
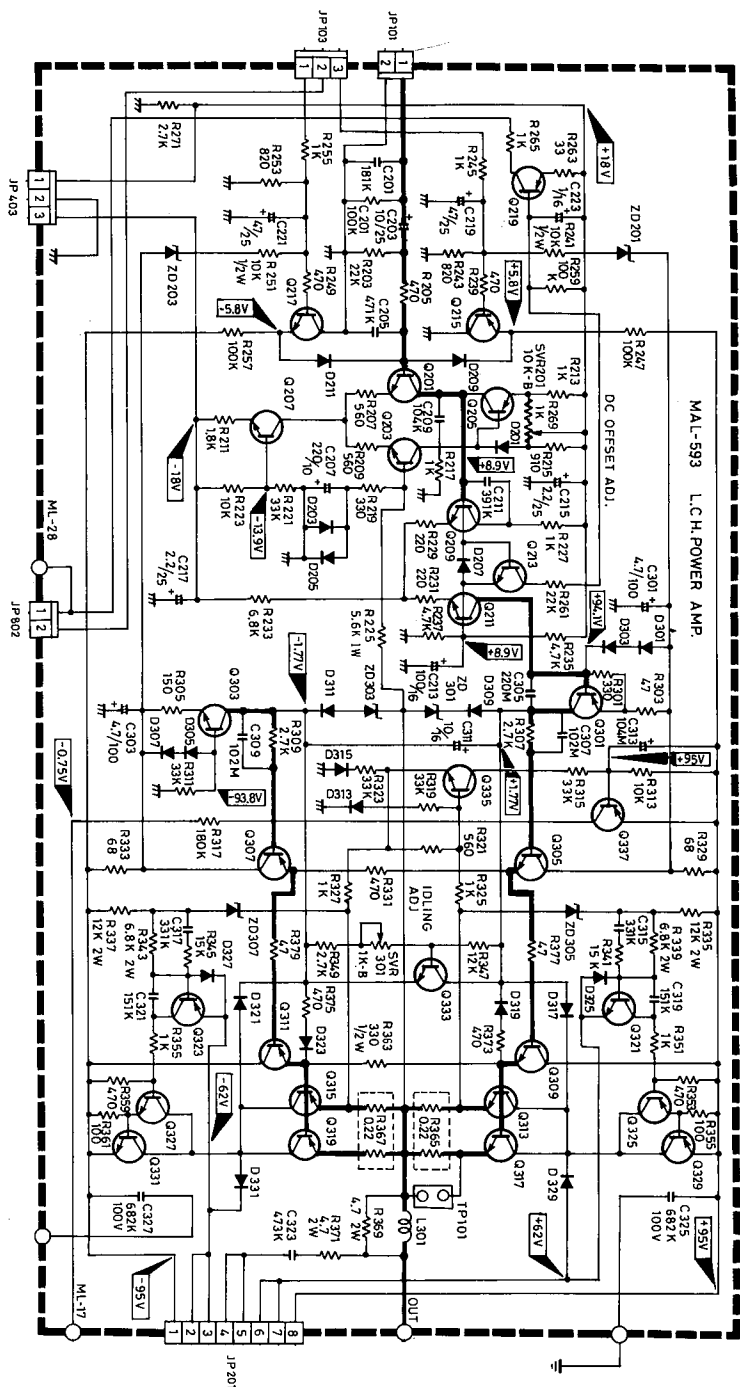
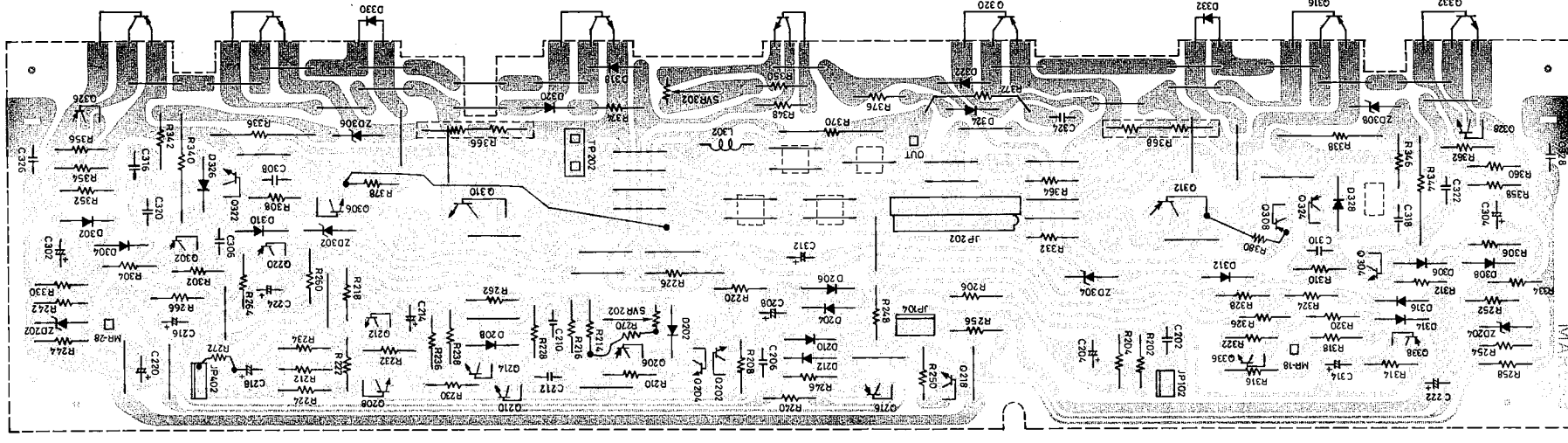
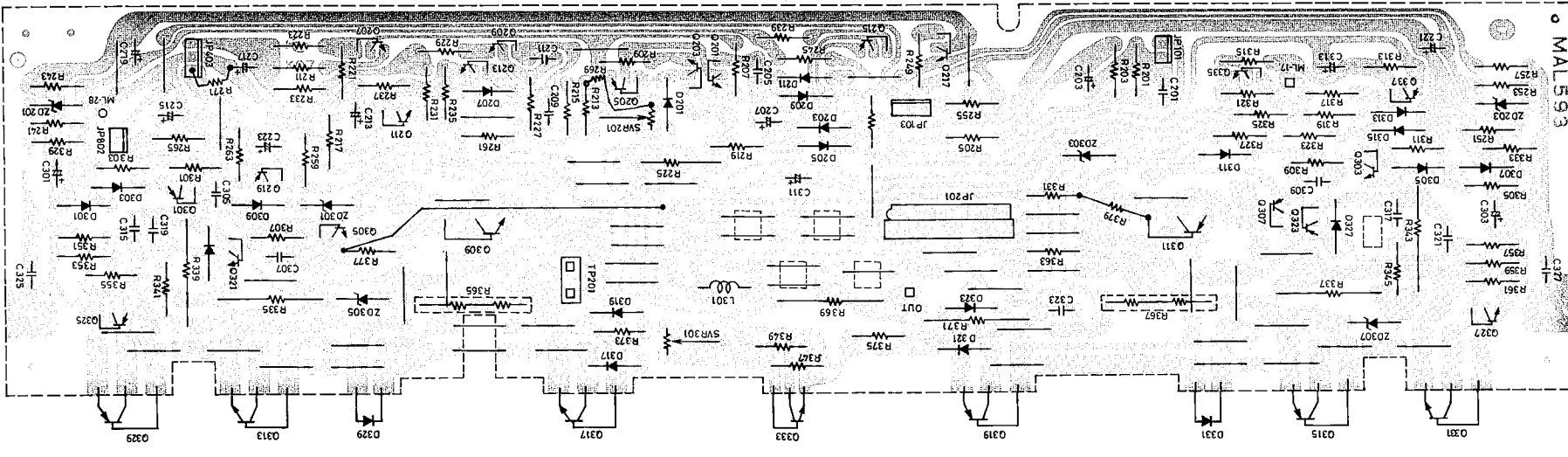




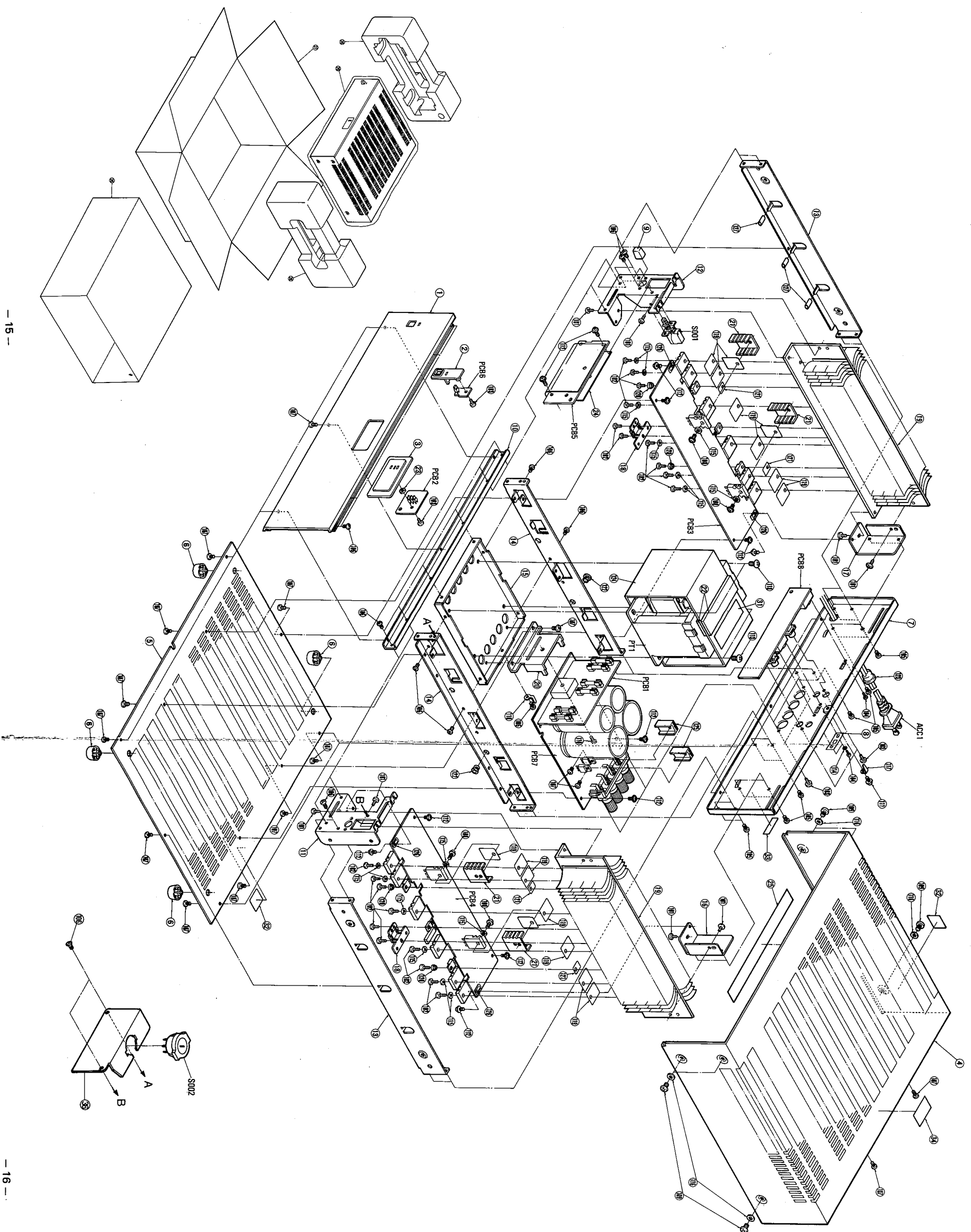
PS-594
 R220 22K 1/2W
 POWER SUPPLY & PROTECTION



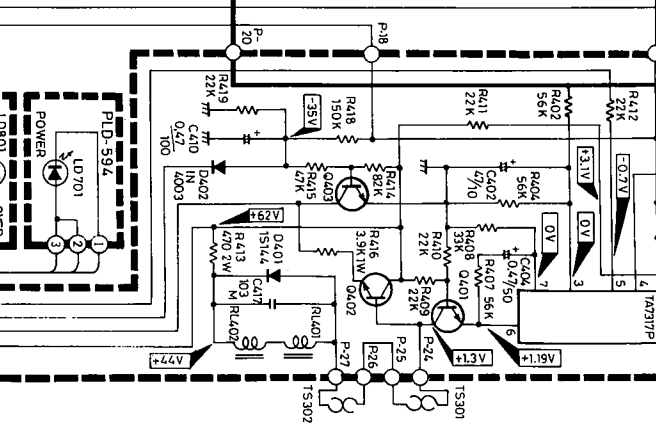
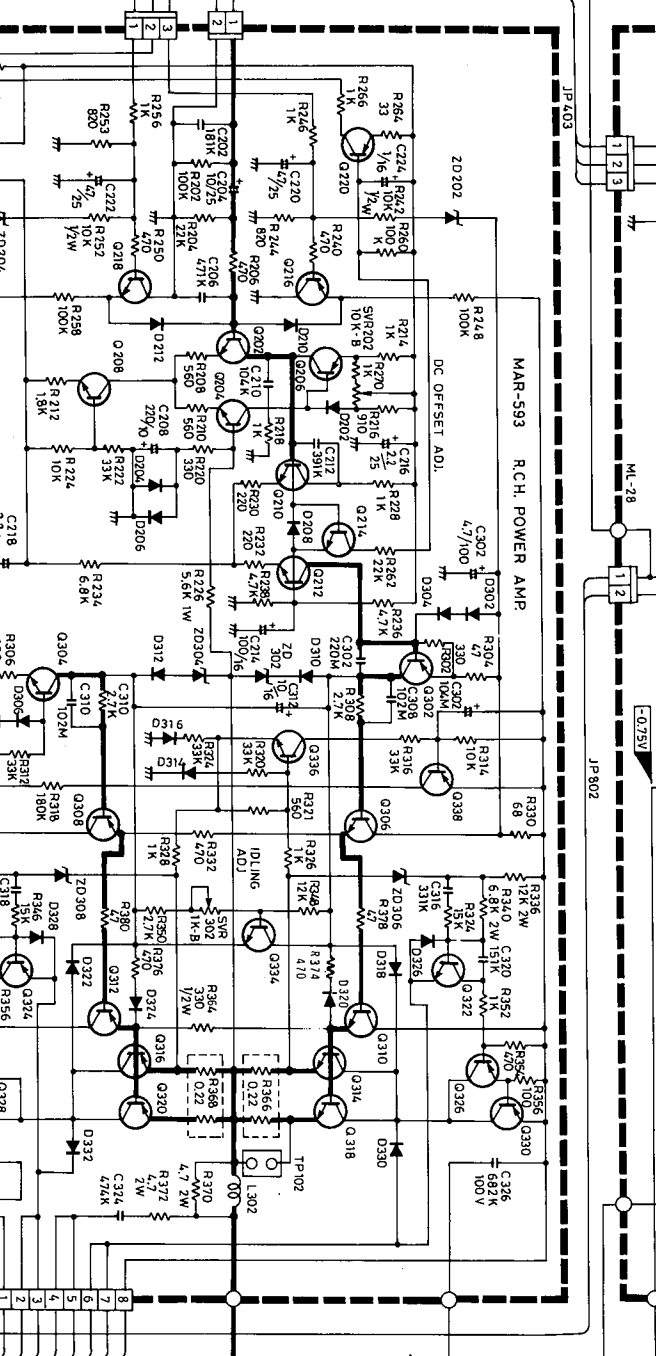
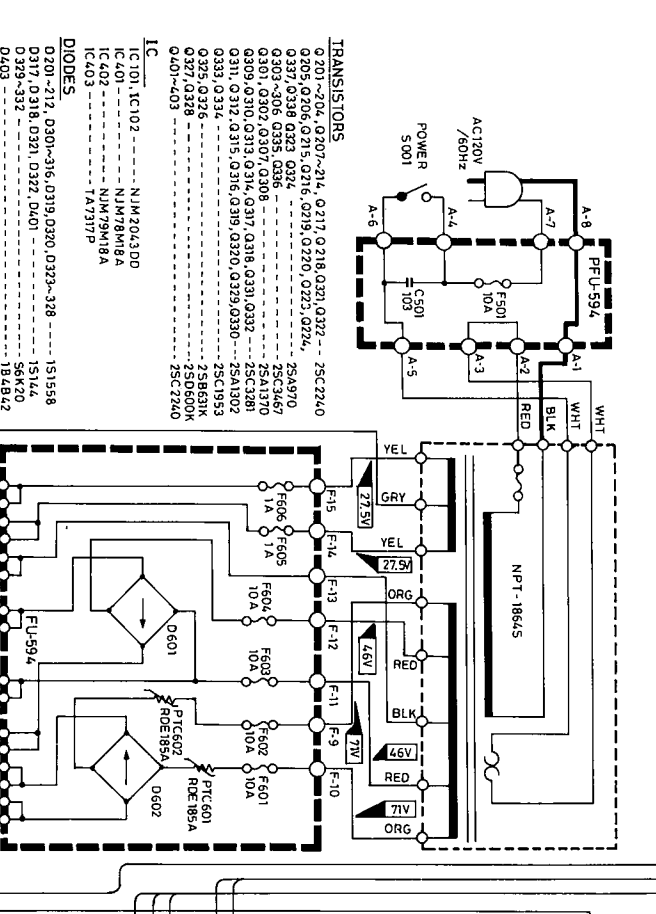
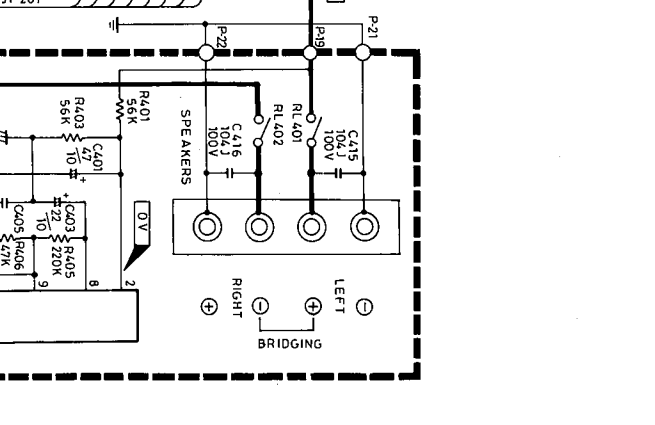
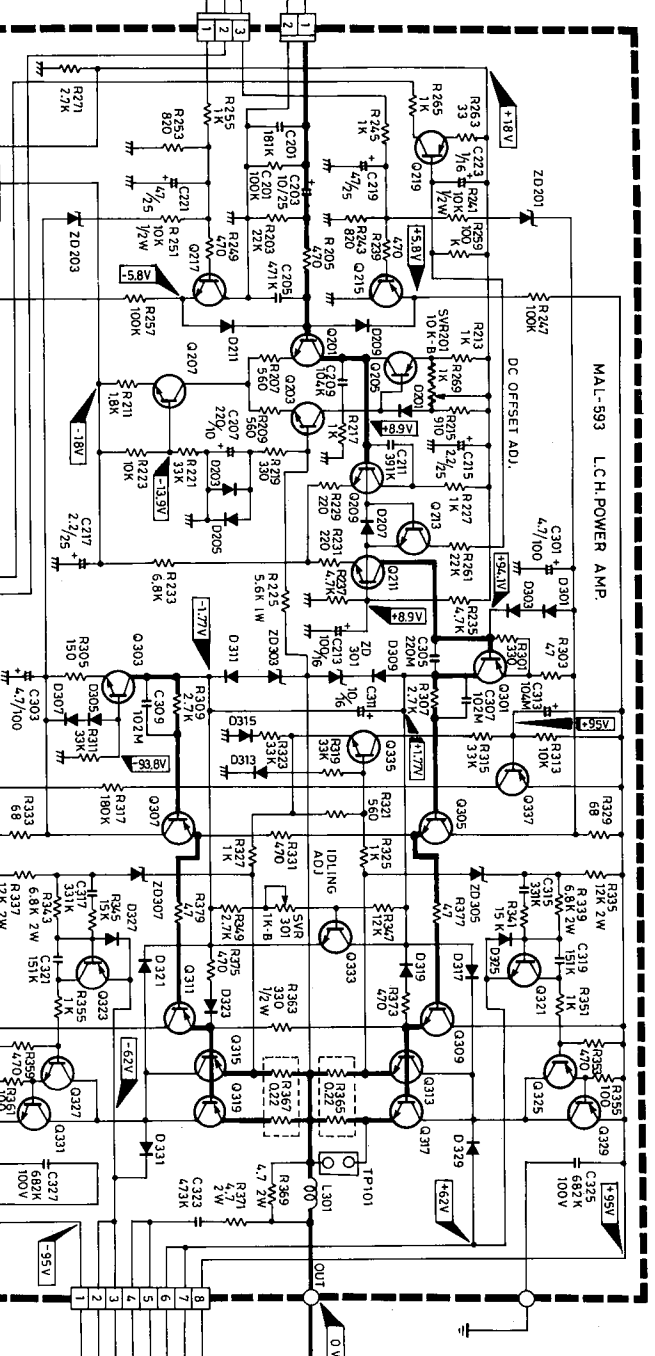
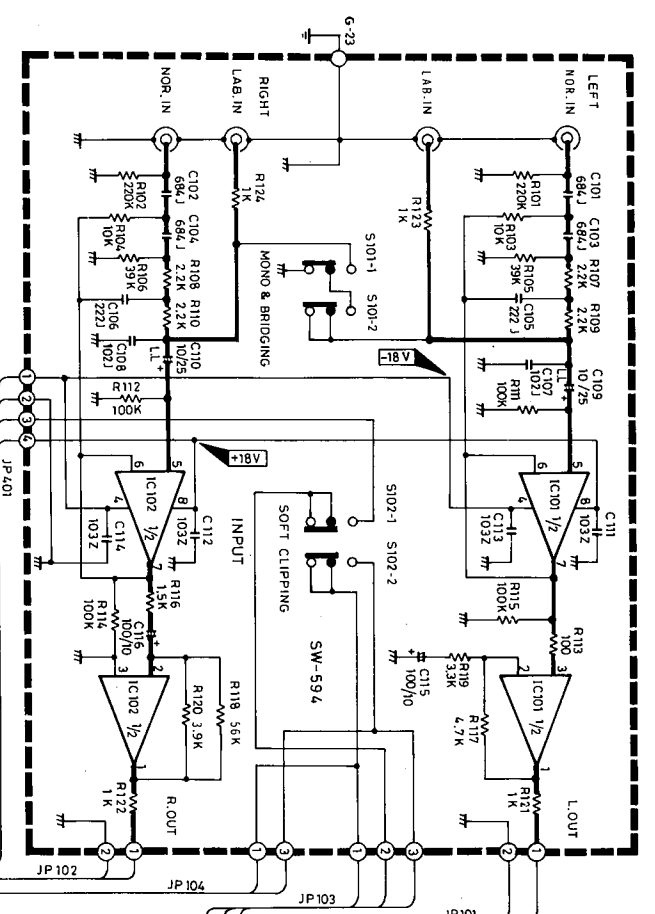
Handwritten markings: a series of plus signs (+) and minus signs (-) arranged in two rows, likely indicating polarity or test points.



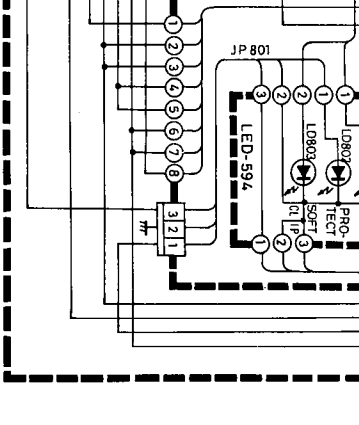
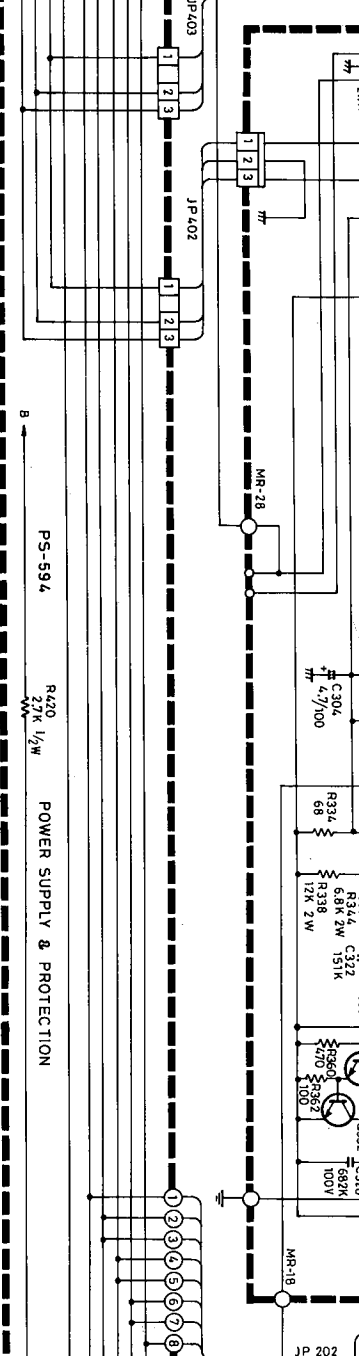
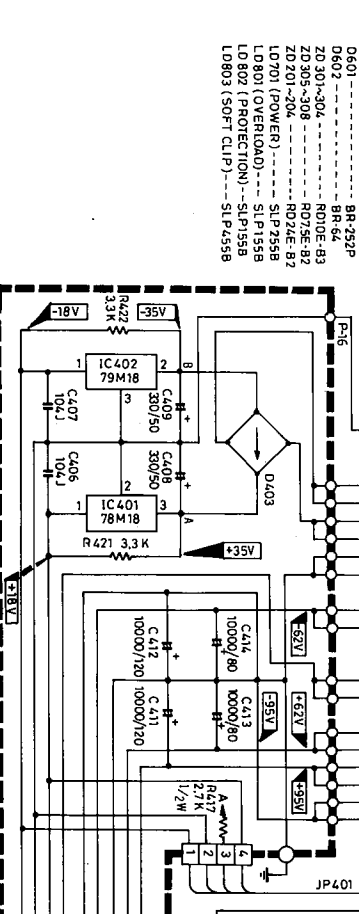
EXPLODED VIEW AND PARTS LIST



Ref. No.	Parts No.	Description
1	N21235-1	Front Panel
2	N30815	Button Guide
3	62.3470-1-0	Indicator Panel
4	N21237	Cabinet
5	N21239	Bottom Board
6	2299-1	Foot
7	N21238-1A	Rear Panel [A, B,]
7	N21238-3A	Rear Panel [A, B,]
7	N21238-2B	Rear Panel [C]
8	N44236	Lock Plate
9	62-1105-1-0	Push Button
10	N30813	Front Sub Chassis
11	N44230	Front Sub Chassis R
12	N44231	Front Sub Chassis L
13	N30814	Side Chassis
14	N30812	Center Chassis
15	N30811	Support Chassis (P.T.)
16	N44232	Fittings R (Heat Sink)
17	N44233	Fittings L (Heat Sink)
18	N44235	Fittings (Thermal Relay)
19	N21240	Heat Sink
20	N44234	Heat Sink
21	SH-1230-1	Heat Sink
22	N44360	Cushion (P.T.)
23	N41945A	Washer
24	N44336	Shield Cover
25	N44295	Cabinet Mat
26	N30841	Shipings Sleeve
27	N21287	Packing Carton
28	N21242	Packing Pad
29	N41318	Polyethylene Bag (Unit)
30	N40487	Polyethylene Bag (Accessories)
31	N41939	Label, Fuse [A]
32	N44043	Label, SA1965 (Lighting Flash) [A]
33	SL-1024	Label, Serial No.
34	N44339	Label, SP Caution
35	OM-534	Instruction Manual
36	N44441	Metal Fittings (Voltage Sele.) [B, B., C]
101	TSB-30X08-Y	Tap Screw B, Bind Head, Y
102	TBB-30X12-Y	Tap Screw B, Bind Head, Y
103	TBM-30X08-B	Tap Screw P, Round Head, Y
104	TSB-26X05-B	Tap Screw S, Bind Head, B
105	TSB-30X06-B	Tap Screw S, Bind Head, B
106	TSB-30X06-Y	Tap Screw S, Bind Head, Y
107	TSB-30X08-B	Tap Screw S, Bind Head, B
108	TSB-30X10-Y	Tap Screw S, Bind Head, Y
109	TSB-40X08-B	Tap Screw S, Bind Head, B
110	TSB-40X16-Y	Tap Screw S, Bind Head, Y
111	TSC-30X06-N	Tap Screw S, Washer, Faced, N
112	TSC-30X08-Y	Tap Screw S, Washer, Faced, Y
113	TST-40X08-Y	Tap Screw S, Tuss, Y
114	2AWX0826-05-B	Plain Washer, B
115	2AWX0830-05-B	Plain Washer, Y
116	2AWX1040-05-B	Plain Washer, B
117	2AE-03	Lug
118	2AE-05	Lug
119	AC-261	Mica
120	B-10	Bushing
121	M-10	Mica
122	NO-5219	Bus
123	SR-4N-4	Cord Stopper [A]
123	SR-5N-4	Cord Stopper [B, B., C]
124	4B48503T	Shield Case
125	5E-25-BSB	Heat Sink
126	59BS1892	Gnd Lug
127	U9-#09B02	UL Type Tube
ACC1	ACC-036C5-9EK1	Line Cord [A]
ACC1	ACC-037D3-9EK1	Line Cord [B, C]
ACC1	ACC-038D3-9EK1	Line Cord [B,]
PCB1	32A1P02A-1	P.C.Board Ass'y (FU-594)
PCB2	32A1P02A-2	P.C.Board Ass'y (LED-594)
PCB3	32A1P01A	P.C.Board Ass'y (MAL-593)
PCB4	32A1P01A-1	P.C.Board Ass'y (MAR-593)
PCB5	32A1P02A-3	P.C.Board Ass'y (PFU-594)
PCB6	32A1P02A-4	P.C.Board Ass'y (PLD-594)
PCB7	32A1P02A	P.C.Board Ass'y (RS-594)
PCB8	32A1P02A-5	P.C.Board Ass'y (SW-594)
PT1	NPT-1864S	Power Transformer [A]
PT1	NPT-1862S	Power Transformer [B, B., C]
S001	ESB-99713V	Power Switch
S002	YKS11-0010	Voltage Selector [B, B., C]

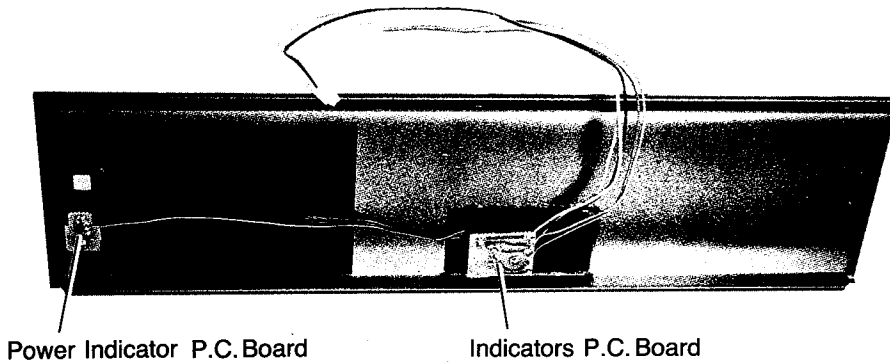
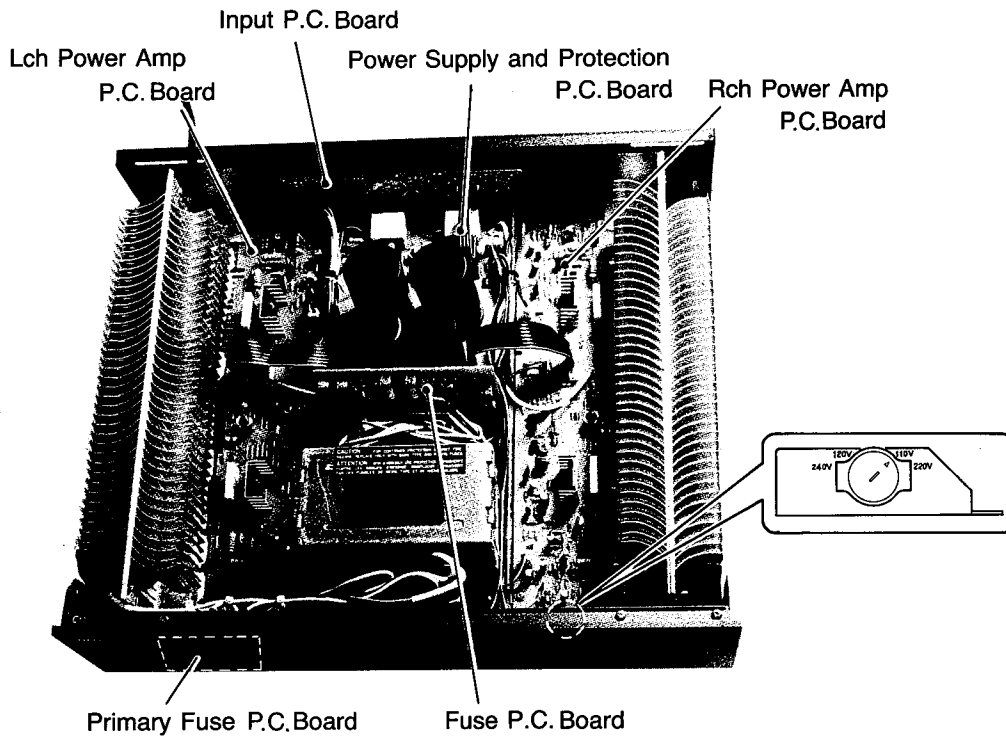


- TRANSISTIONS**
- Q201-Q204, Q207-Q214, Q217, Q218, Q221, Q222, Q223, Q224, Q225, Q226, Q215, Q216, Q219, Q220, Q227, Q228, Q229, Q230, Q231, Q232, Q233, Q234, Q235, Q236, Q237, Q238, Q239, Q240, Q241, Q242, Q243, Q244, Q245, Q246, Q247, Q248, Q249, Q250, Q251, Q252, Q253, Q254, Q255, Q256, Q257, Q258, Q259, Q260, Q261, Q262, Q263, Q264, Q265, Q266, Q267, Q268, Q269, Q270, Q271, Q272, Q273, Q274, Q275, Q276, Q277, Q278, Q279, Q280, Q281, Q282, Q283, Q284, Q285, Q286, Q287, Q288, Q289, Q290, Q291, Q292, Q293, Q294, Q295, Q296, Q297, Q298, Q299, Q300, Q301, Q302, Q303, Q304, Q305, Q306, Q307, Q308, Q309, Q310, Q311, Q312, Q313, Q314, Q315, Q316, Q317, Q318, Q319, Q320, Q321, Q322, Q323, Q324, Q325, Q326, Q327, Q328, Q329, Q330, Q331, Q332, Q333, Q334, Q335, Q336, Q337, Q338, Q339, Q340, Q341, Q342, Q343, Q344, Q345, Q346, Q347, Q348, Q349, Q350, Q351, Q352, Q353, Q354, Q355, Q356, Q357, Q358, Q359, Q360, Q361, Q362, Q363, Q364, Q365, Q366, Q367, Q368, Q369, Q370, Q371, Q372, Q373, Q374, Q375, Q376, Q377, Q378, Q379, Q380, Q381, Q382, Q383, Q384, Q385, Q386, Q387, Q388, Q389, Q390, Q391, Q392, Q393, Q394, Q395, Q396, Q397, Q398, Q399, Q400, Q401, Q402, Q403, Q404, Q405, Q406, Q407, Q408, Q409, Q410, Q411, Q412, Q413, Q414, Q415, Q416, Q417, Q418, Q419, Q420, Q421, Q422, Q423, Q424, Q425, Q426, Q427, Q428, Q429, Q430, Q431, Q432, Q433, Q434, Q435, Q436, Q437, Q438, Q439, Q440, Q441, Q442, Q443, Q444, Q445, Q446, Q447, Q448, Q449, Q450, Q451, Q452, Q453, Q454, Q455, Q456, Q457, Q458, Q459, Q460, Q461, Q462, Q463, Q464, Q465, Q466, Q467, Q468, Q469, Q470, Q471, Q472, Q473, Q474, Q475, Q476, Q477, Q478, Q479, Q480, Q481, Q482, Q483, Q484, Q485, Q486, Q487, Q488, Q489, Q490, Q491, Q492, Q493, Q494, Q495, Q496, Q497, Q498, Q499, Q500, Q501, Q502, Q503, Q504, Q505, Q506, Q507, Q508, Q509, Q510, Q511, Q512, Q513, Q514, Q515, Q516, Q517, Q518, Q519, Q520, Q521, Q522, Q523, Q524, Q525, Q526, Q527, Q528, Q529, Q530, Q531, Q532, Q533, Q534, Q535, Q536, Q537, Q538, Q539, Q540, Q541, Q542, Q543, Q544, Q545, Q546, Q547, Q548, Q549, Q550, Q551, Q552, Q553, Q554, Q555, Q556, Q557, Q558, Q559, Q560, Q561, Q562, Q563, Q564, Q565, Q566, Q567, Q568, Q569, Q570, Q571, Q572, Q573, Q574, Q575, Q576, Q577, Q578, Q579, Q580, Q581, Q582, Q583, Q584, Q585, Q586, Q587, Q588, Q589, Q590, Q591, Q592, Q593, Q594, Q595, Q596, Q597, Q598, Q599, Q600, Q601, Q602, Q603, Q604, Q605, Q606, Q607, Q608, Q609, Q610, Q611, Q612, Q613, Q614, Q615, Q616, Q617, Q618, Q619, Q620, Q621, Q622, Q623, Q624, Q625, Q626, Q627, Q628, Q629, Q630, Q631, Q632, Q633, Q634, Q635, Q636, Q637, Q638, Q639, Q640, Q641, Q642, Q643, Q644, Q645, Q646, Q647, Q648, Q649, Q650, Q651, Q652, Q653, Q654, Q655, Q656, Q657, Q658, Q659, Q660, Q661, Q662, Q663, Q664, Q665, Q666, Q667, Q668, Q669, Q670, Q671, Q672, Q673, Q674, Q675, Q676, Q677, Q678, Q679, Q680, Q681, Q682, Q683, Q684, Q685, Q686, Q687, Q688, Q689, Q690, Q691, Q692, Q693, Q694, Q695, Q696, Q697, Q698, Q699, Q700, Q701, Q702, Q703, Q704, Q705, Q706, Q707, Q708, Q709, Q710, Q711, Q712, Q713, Q714, Q715, Q716, Q717, Q718, Q719, Q720, Q721, Q722, Q723, Q724, Q725, Q726, Q727, Q728, Q729, Q730, Q731, Q732, Q733, Q734, Q735, Q736, Q737, Q738, Q739, Q740, Q741, Q742, Q743, Q744, Q745, Q746, Q747, Q748, Q749, Q750, Q751, Q752, Q753, Q754, Q755, Q756, Q757, Q758, Q759, Q760, Q761, Q762, Q763, Q764, Q765, Q766, Q767, Q768, Q769, Q770, Q771, Q772, Q773, Q774, Q775, Q776, Q777, Q778, Q779, Q780, Q781, Q782, Q783, Q784, Q785, Q786, Q787, Q788, Q789, Q790, Q791, Q792, Q793, Q794, Q795, Q796, Q797, Q798, Q799, Q800, Q801, Q802, Q803, Q804, Q805, Q806, Q807, Q808, Q809, Q810, Q811, Q812, Q813, Q814, Q815, Q816, Q817, Q818, Q819, Q820, Q821, Q822, Q823, Q824, Q825, Q826, Q827, Q828, Q829, Q830, Q831, Q832, Q833, Q834, Q835, Q836, Q837, Q838, Q839, Q840, Q841, Q842, Q843, Q844, Q845, Q846, Q847, Q848, Q849, Q850, Q851, Q852, Q853, Q854, Q855, Q856, Q857, Q858, Q859, Q860, Q861, Q862, Q863, Q864, Q865, Q866, Q867, Q868, Q869, Q870, Q871, Q872, Q873, Q874, Q875, Q876, Q877, Q878, Q879, Q880, Q881, Q882, Q883, Q884, Q885, Q886, Q887, Q888, Q889, Q890, Q891, Q892, Q893, Q894, Q895, Q896, Q897, Q898, Q899, Q900, Q901, Q902, Q903, Q904, Q905, Q906, Q907, Q908, Q909, Q910, Q911, Q912, Q913, Q914, Q915, Q916, Q917, Q918, Q919, Q920, Q921, Q922, Q923, Q924, Q925, Q926, Q927, Q928, Q929, Q930, Q931, Q932, Q933, Q934, Q935, Q936, Q937, Q938, Q939, Q940, Q941, Q942, Q943, Q944, Q945, Q946, Q947, Q948, Q949, Q950, Q951, Q952, Q953, Q954, Q955, Q956, Q957, Q958, Q959, Q960, Q961, Q962, Q963, Q964, Q965, Q966, Q967, Q968, Q969, Q970, Q971, Q972, Q973, Q974, Q975, Q976, Q977, Q978, Q979, Q980, Q981, Q982, Q983, Q984, Q985, Q986, Q987, Q988, Q989, Q990, Q991, Q992, Q993, Q994, Q995, Q996, Q997, Q998, Q999, Q1000.



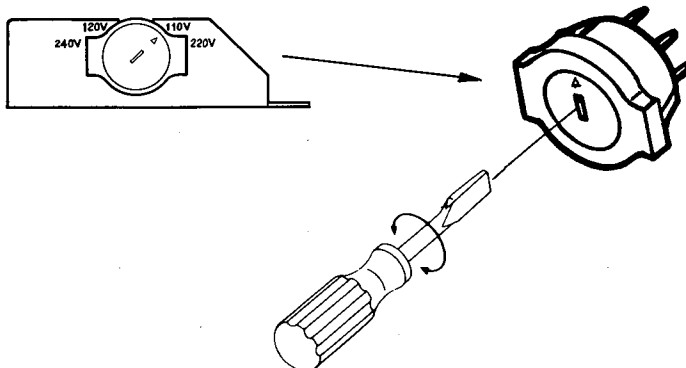
DRAWING NO. C-D-554
MODEL NO. 2200A

P.C.BOARDS AND Vol. Sel. SW LOCATION



VOLTAGE CONVERSION

The units for U.K., Australia, and Europe are incorporated with voltage selectors. When changing the voltage, set up the mark "▷" of the selector to an appropriate indication voltage as shown in the figure.



SERVICE MANUAL

SM-554 8505

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2200
STEREO POWER AMPLIFIER

NAD ELECTRONICS
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