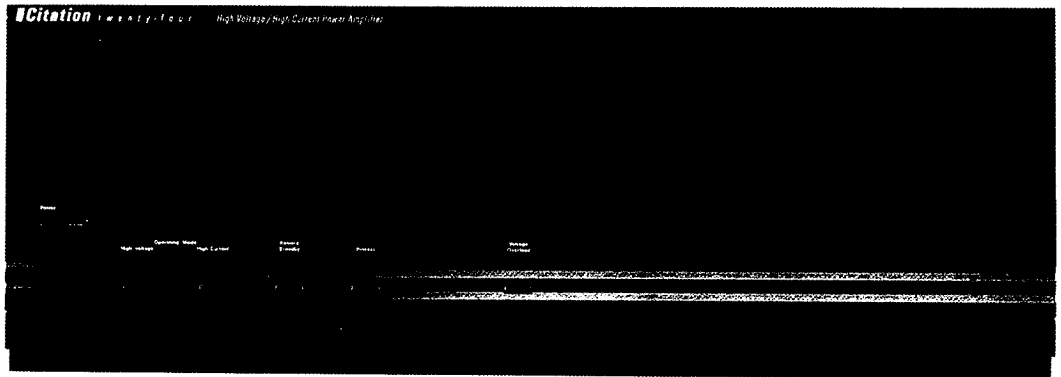


The Harman Kardon Model Citation24 STEREO POWER AMPLIFIER

Manual 118A

Citation24

Technical Manual



The following marks found in the parts list of this manual identify the models as follows.

- JA : North America area model
- G : General model
- N : Japan model

harman/kardon

240 Crossways Park West, Woodbury, N.Y. 11797
1112-3152118A2 P-088709 1500 Printed in Japan

SPECIFICATIONS

	Nominal	Limit		Nominal	Limit
Input Sensitivity	1.0V	± 0.15V	Power Bandwidth (1/2 rated power)	10Hz ~ 100kHz	
Input Impedance at 1kHz	22kΩ	± 2kΩ	IM Distortion Ratio at 1W	0.032% ≤ 0.08	
Frequency Response	0.07Hz ~ 490kHz		Damping Factor at 1kHz	90 ≥ 65	
Signal to Noise Ratio	101.4dB	≥ 95dB	DC Balance	0mV ± 60mV	
Channel Separation at 10kHz	90.8dB	≥ 75dB	Idling Current	32mV ± 3mV	
Total Harmonic Distortion			Dimensions (W × H × D)	17-3/8" × 6-1/8" × 15-11/16"	
20Hz	0.012%	≤ 0.08%	Weight	33 lbs. (15kg)	
1kHz	0.009%	≤ 0.08%	Power Supply		
20kHz	0.014%	≤ 0.089%	North America area model	AC 120V, 60Hz	
RMS Output Power			General model	AC 220V/240V, 50/60Hz	
8Ω, 1kHz, THD 0.08%/ch.	111W	≥ 100W	Japan model	AC 100V, 50/60Hz	
4Ω, 1kHz, THD 0.08%/ch.	114W	≥ 100W	Power Consumption	610W	

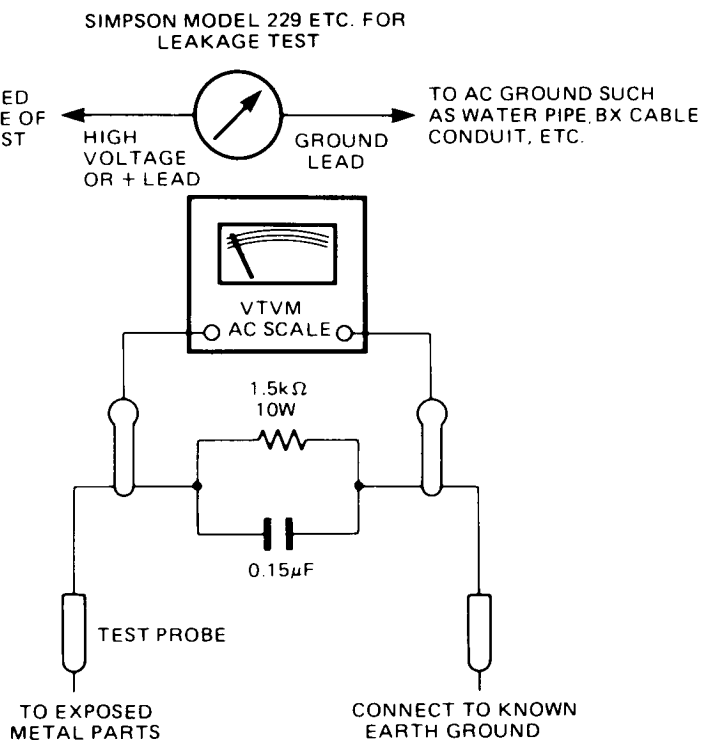
This specification is the target of servicing. But, there is a case that the specification is not applicable to the measurement condition and instrument.

Specifications and components subject to change without notice. Overall performance will be maintained or improved.

LEAKAGE TEST (FOR SERVICE ENGINEERS IN THE U.S.A.)

Before returning the unit to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc. which were removed for servicing are properly reinstalled.
3. Be sure that no shock hazard exists; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No. 21641, RCA Model WT540A or use alternate method as follows: Plug the power cord directly into a 120-volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connect a 1500 Ohm, 10-watt resistor paralleled by a 0.15 μF capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 Ohms per volt, or higher sensitivity to measure the AC voltage drop across the resistor. (See Diagram.) Move the resistor connection to each exposed metal part having a return path to the chassis (antenna, metal, cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor. (This test should be performed with the power switch in both the On and Off positions.)



A reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the unit to the owner.

DISASSEMBLY PROCEDURES (REFER TO PAGES 5 THROUGH 16)

① CABINET TOP (131) REMOVAL

Remove 10 screws (A) and then remove the Cabinet Top (131).

② FRONT PANEL ASS'Y REMOVAL

1. Remove the Cabinet Top (131), referring to the previous step ①.
2. Remove 5 screws (B) and then remove the Front Panel Ass'y (AA).

③ CABINET BOTTOM (133) REMOVAL

1. Remove 9 screws (C) and then remove the Cabinet Bottom (133).

④ MAIN P. C. BOARD (PCB-1) REMOVAL

1. Remove the Front Panel Ass'y (AA), referring to the previous step ②.
2. Open the lid of connectors (CN1 and CN2) on the Main P. C. Board (PCB-1) and then disconnect the lead wires.
3. Open the lid of connector (CN5) on the Overload Protect P. C. Board (PCB-9) and then disconnect the lead wire.
4. Unsolder the lead wires connected to the Main P. C. Board (PCB-1), Overload Protect P. C. Board (PCB-9) and Pre Driver P. C. Board (PCB-10).
5. Remove 9 screws (D) and then remove the Main P. C. Board (PCB-1) with Heat Sinks (179 and 180) and Pre Driver P. C. Board (PCB-10).
6. Remove 2 screws (E) and unsolder the connectors (CN10, CN11, CN12, CN13 and CN14) and then remove

the Pre Driver P. C. Board (PCB-10) from Main P. C. Board (PCB-1).

7. Unsolder the lead wires from PT1, PT2, D409 and D410.
8. Unsolder the transistors (Q437~Q442, 445, 446, 449 450, 453 and 454) and remove 6 screws (F) and then remove the Heat Sinks (179 and 180) with transistors, PT1, PT2, D409 and D410.

⑤ RELAY P. C. BOARD (PCB-12) REMOVAL

1. Remove the Front Panel Ass'y (AA), referring to the previous step ②.
2. Remove 3 screws (G) and then remove the Relay P. C. Board (PCB-12).
If necessary, unsolder the lead wires connected to the PCB-12.

⑥ OVERLOAD PROTECT P. C. BOARD (PCB-9) REMOVAL

1. Remove the Relay P. C. Board (PCB-12), referring to the previous step ⑤.
2. Remove 8 screws (H) and then remove the Chassis (161) with the Overload Protect P. C. Board (PCB-9), LED P. C. Board (PCB-13) and Power Switch P. C. Board (PCB-14).
3. Unbend 4 catches fixing the Overload Protect P. C. Board (PCB-9) and remove it.
If necessary, unsolder the lead wires connected to the PCB-9.

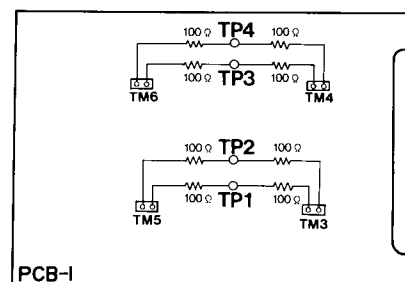
ALIGNMENT PROCEDURES (REFER TO PAGES 17 THROUGH 25 AND 37 THROUGH 40)

1. DC BALANCE ADJUSTMENT

- a) Set the Speaker Operating Mode switch for both L and R channels to the 4Ω position.
- b) Allow 20 minutes' aging.
- c) Connect a Digital Voltmeter to the speaker terminal and adjust VR401 (L ch) and VR402 (R ch) so that $\pm 0\text{mV}$ DC voltage is obtained.
- d) Set the Speaker Operating Mode switch for both L and R channels to the 8Ω position.
- e) Allow 10 minutes' aging.
- f) Connect a Digital Voltmeter to the speaker terminal and check to make sure that DC voltage is $\pm 60\text{mV}$.

2. IDLING CURRENT ADJUSTMENT

- a) Connect a 100Ω resistance as shown in the figure and adjust VR403 (L ch) and VR404 (R ch) so that TP1-to-TP2 voltage and TP3-to-TP4 voltage add up to $32\text{mV} \pm 3\text{mV}$.
- b) After adjusting the idling current, check again to ensure that the DC balance is properly maintained.



CIRCUIT DESCRIPTION

● Protection circuit by thermistors PT1 and PT2

As the temperature of the thermistors (PT1 and PT2) installed to the heat sink rises, their resistance reduces. Then Q8 turns OFF followed by Q7, Q6 and Q1 which all turn OFF, while Q2 and Q3 turn ON. As the level of Q3 collector becomes LOW in this state, Q401, Q417 (L ch) and Q402, Q418 (R ch) turn ON to mute the input signal. When in the monaural mode, the R ch is muted by Q87 and Q418.

● Remote power ON/OFF

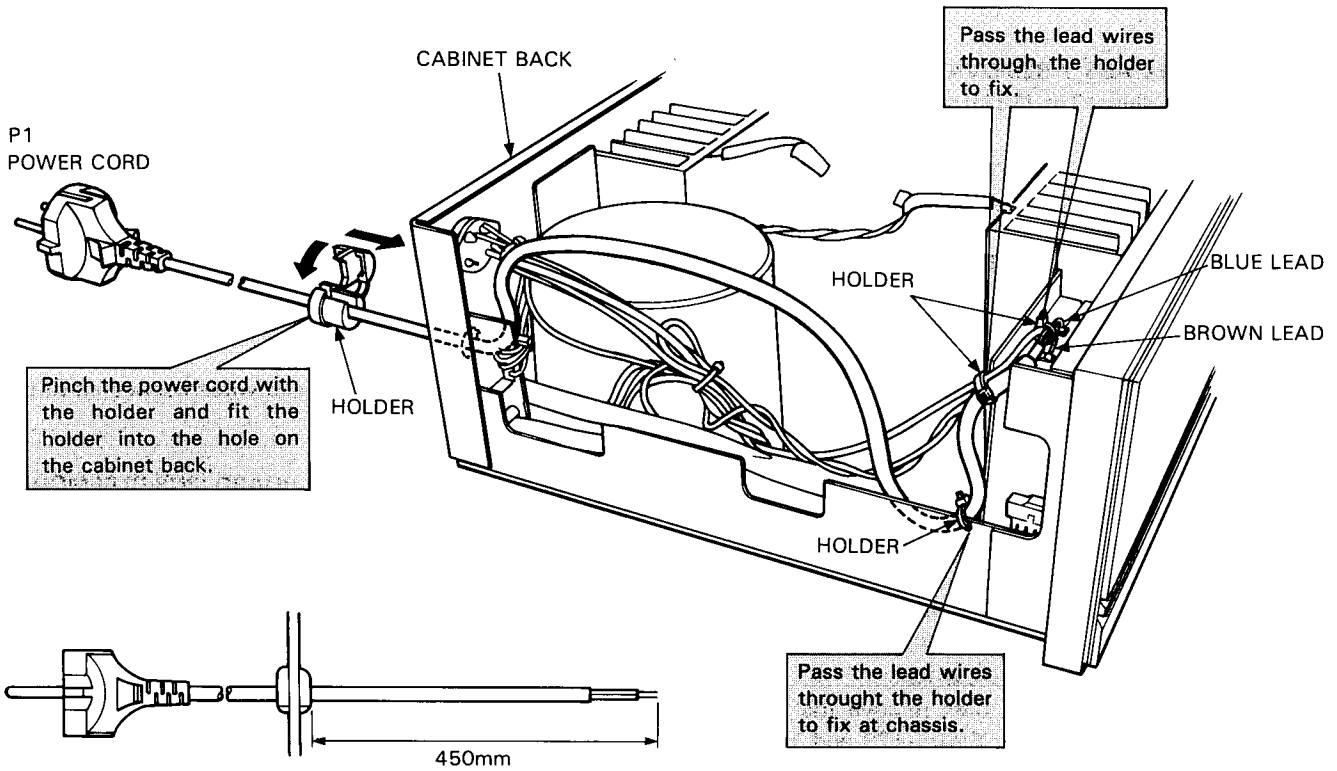
During stand-by, the input of the remote power is kept at LOW level, so HIGH level input is entered into 7 pin

(SET) of Flip-Flop IC201 and LOW level input into 4 pin (RESET), making the level of 1 pin (Q) HIGH. And this causes Q202 to turn ON and LED's D204 and D205 to light.

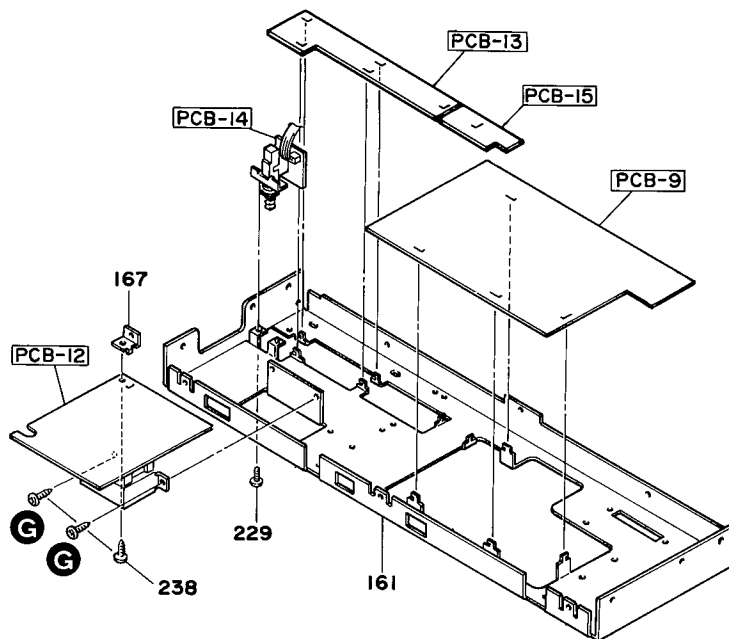
When HIGH level input is entered into the input of the remote power in this state, Q201 turns ON, the level of 7 pin (SET) becomes LOW and that of 4 pin (RESET) becomes HIGH. This then makes the level of 1 pin (Q) LOW and Q202 turn OFF. As a result, the LED turns OFF. As the same time the level of 2 pin (Q) becomes HIGH and Q204 turns ON, making the relay to operate to supply power to the amplifiers of both L ch and R ch.

POWER CORD REPLACEMENT (FOR SERVICE ENGINEERS OTHER THAN NORTH AMERICA)

In order to prevent fire or shock hazard when replacing the power cord, follow the procedure below to replace the parts with the standard supply parts.



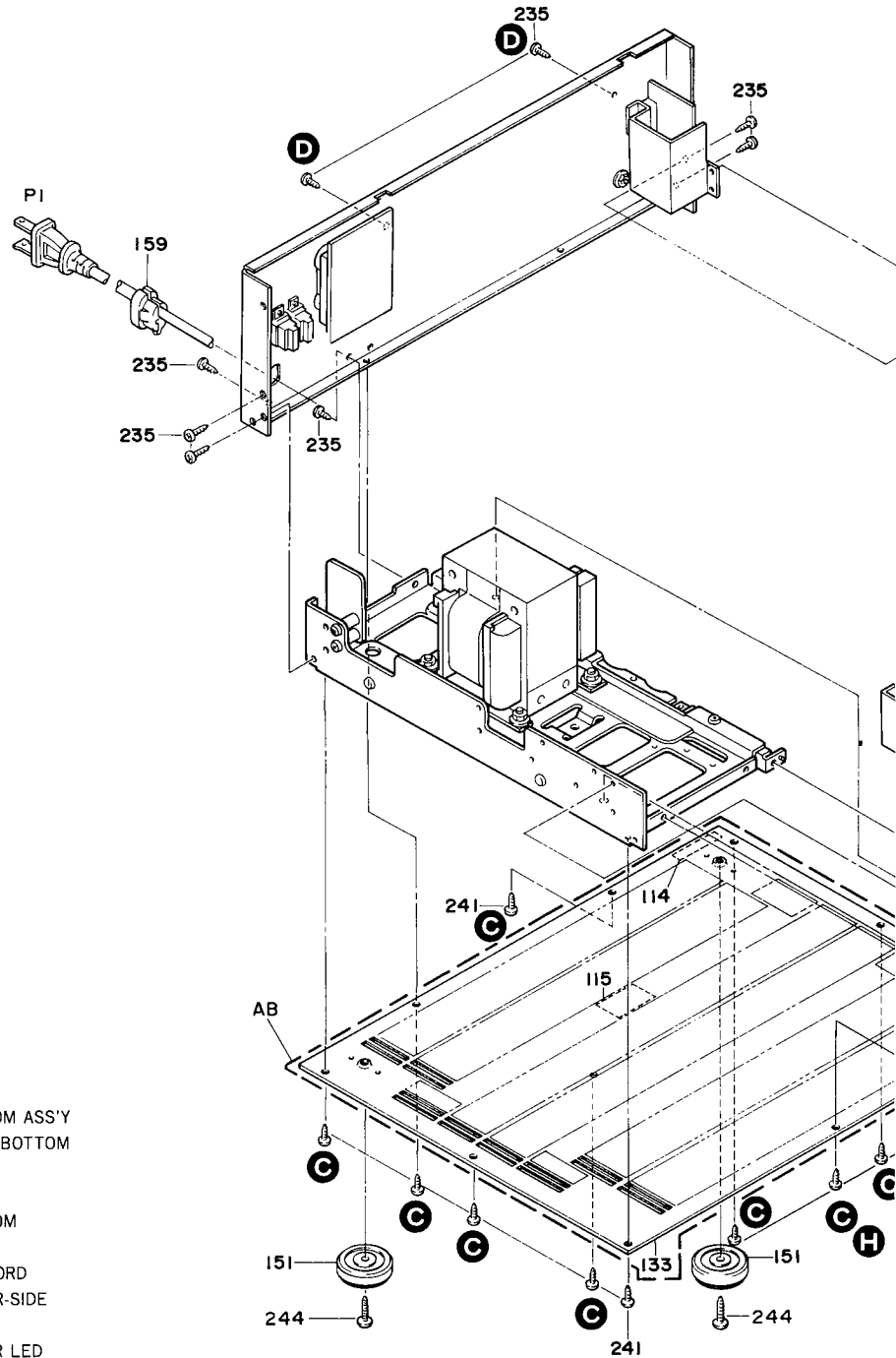
GENERAL UNIT EXPLODED VIEW (FRONT CHASSIS)



PARTS LIST

Ref. No.	Part No.	Description
161	2211-7286	CHASSIS
167	2219-8019	METAL FITTG, PCB-12
229	2327-R0130064	SCREW
238	2347-R0130064	SCREW

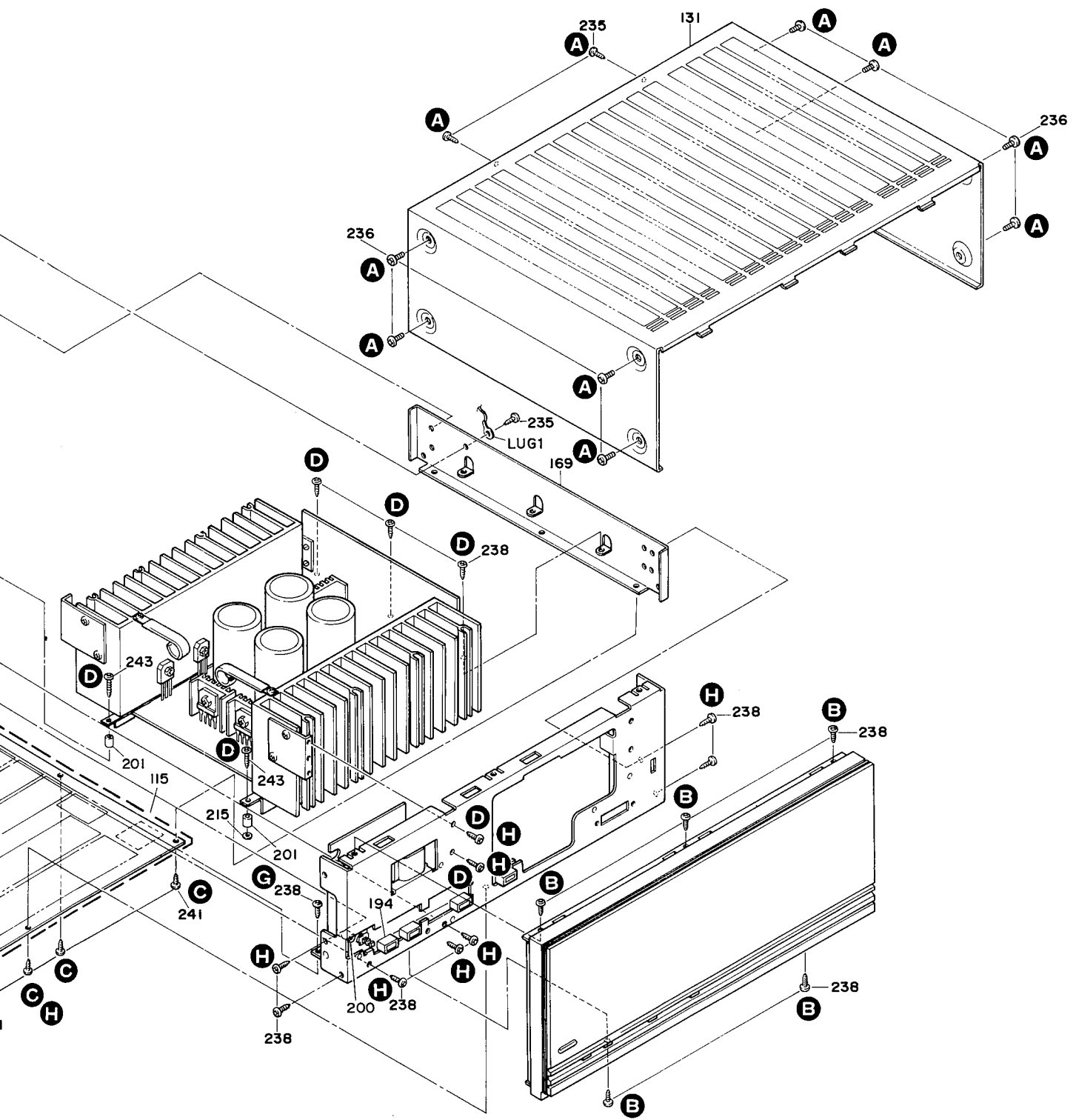
GENERAL UNIT
EXPLODED VIEW



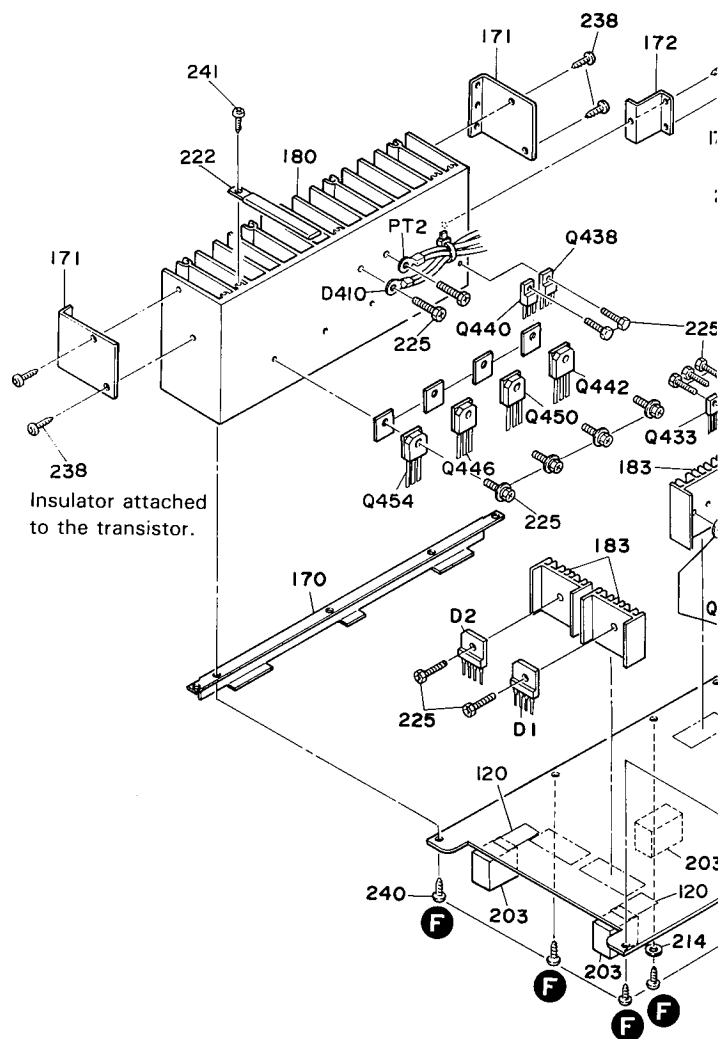
PARTS LIST

Ref. No.	Part No.	Description
AB	A423-H201A	CABINET BOTTOM ASS'Y
114	1117-78	SERIAL LABEL, BOTTOM
115	1751-01018	LABEL UA
131	1414-09201	CABINET TOP
133	1423-02901	CABINET BOTTOM
151	1319-7181	LEG
159	2114-71246	BUSHING, AC CORD
169	2219-8143	METAL FITTG, R-SIDE
194	2240-7299	HOLDER, LED
200	2132-7119	SPACER, POWER LED
201	2132-01702	SPACER
235	2340-7003	SPECIAL SCREW
236	2340-7008	SPECIAL SCREW, TOP COVER
238	2347-R0130064	SCREW
241	2347-R0130084	SCREW
243	2347-R0130164	SCREW
244	2347-R0140124	SCREW, LEG
LUG1	4211-5005	LUG, GND UA N
PI	4161-71154	CORD W/PLUG, POWER CORD UA
PI	4161-71150	CORD W/PLUG, POWER CORD G
PI	4161-72145	CORD W/PLUG, POWER CORD N

E F G H I J

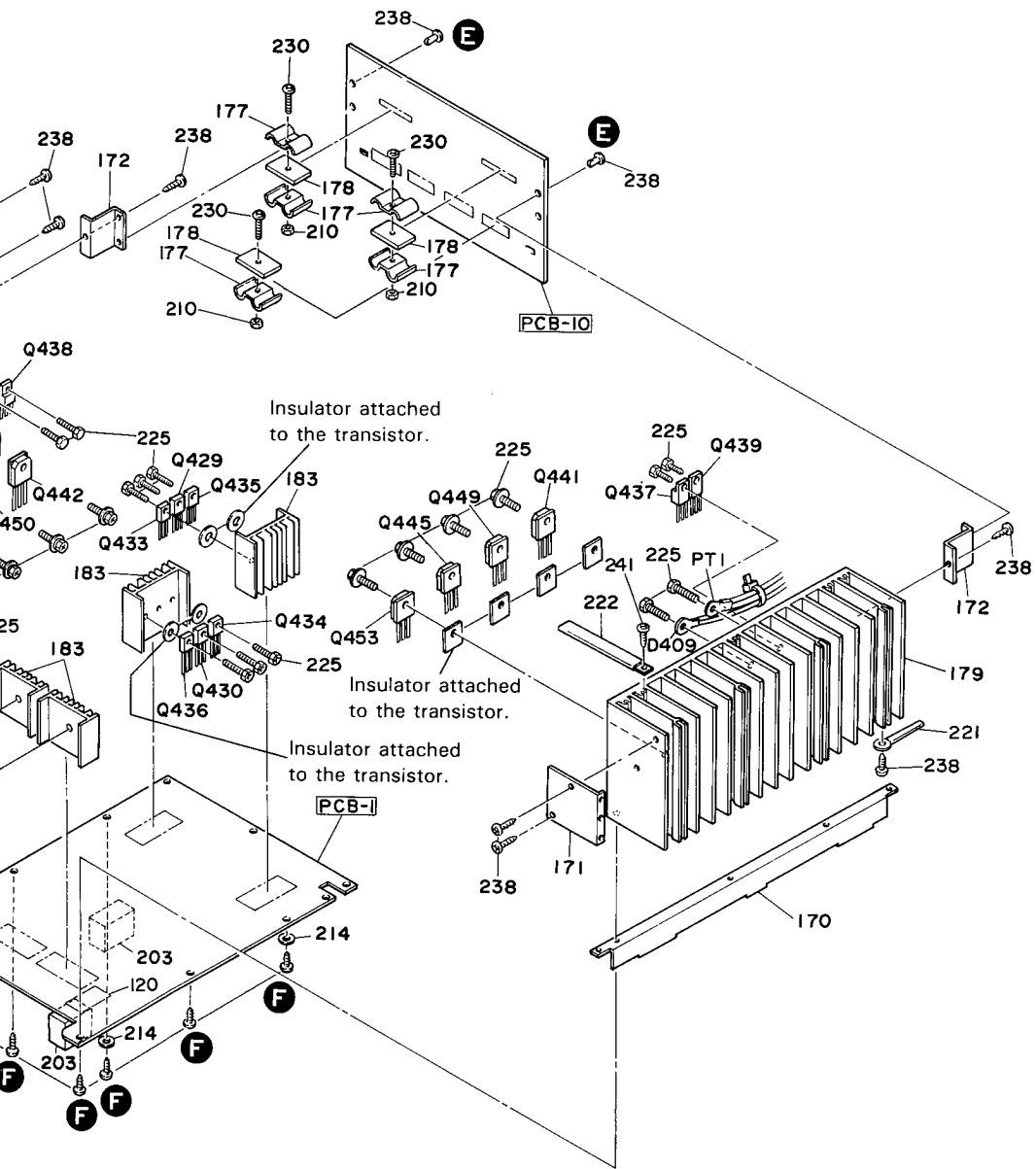


GENERAL UNIT
EXPLODED VIEW (HEAT SINK)



PARTS LIST

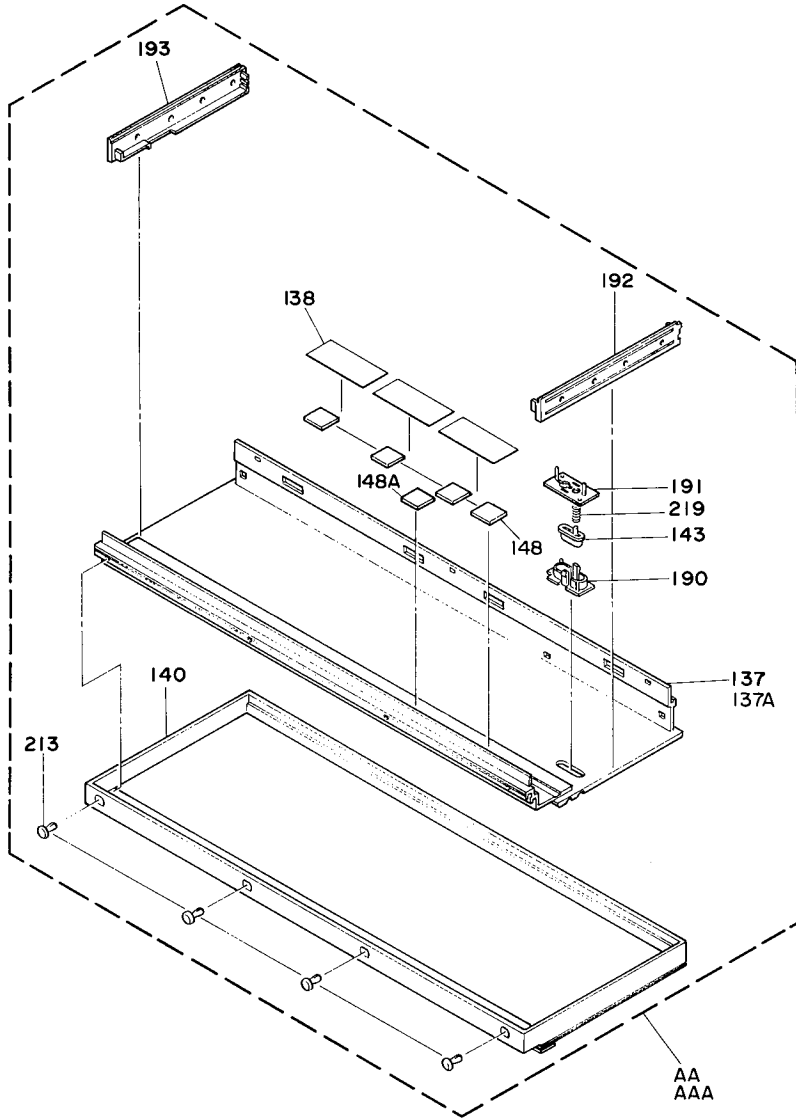
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
120	1756-01438	LABEL	Q434	5614-669A(C)	XISTOR, NPN A
170	2219-8144	METAL FITTG, PCB-I	Q435	5612-649A(C)	XISTOR, PNP A
171	2219-8145	METAL FITTG, HEAT SINK	Q436	5612-649A(C)	XISTOR, PNP A
172	2219-8146	METAL FITTG, PCB-10	Q437	5611-1306(Y)	XISTOR, PNP R
177	2222-7106	HEAT SINK, DC BALANCE	Q438	5611-1306(Y)	XISTOR, PNP R
178	2222-7221	HEAT SINK, DC BALANCE	Q439	5613-3298(Y)	XISTOR, NPN R
179	2222-7220	HEAT SINK, L-CHANNEL	Q440	5613-3298(Y)	XISTOR, NPN R
180	2222-7219	HEAT SINK, R-CHANNEL	Q441	5613-3907(O)or(R)	XISTOR, NPN R
183	2222-7215	HEAT SINK, SCR DRIVE	Q442	5613-3907(O)or(R)	XISTOR, NPN R
203	2132-7153	SPACER, BOTTOM	Q445	5613-3907(O)or(R)	XISTOR, NPN R
210	2440-7016	SPECIAL NUT	Q446	5613-3907(O)or(R)	XISTOR, NPN R
214	2402-0374	PLASTIC WASHER, PCB-I	Q449	5611-1516(O)or(R)	XISTOR, PNP R
221	2218-7001	BRACKET	Q450	5611-1516(O)or(R)	XISTOR, PNP R
222	2218-7011	BRACKET, WIRING	Q453	5611-1516(O)or(R)	XISTOR, PNP R
225	2320-34	SPECIAL SCREW, Tr, SCR	Q454	5611-1516(O)or(R)	XISTOR, PNP R
230	2327-R0130104	SCREW	D1	5685-D5SB20	SILICON, BRIG
238	2347-R0130064	SCREW	D2	5685-D5SB20	SILICON, BRIG
240	2347-R0130084	SCREW, PCB-I	D409	5641-MV12YM	VARISTOR
241	2347-R0130084	SCREW	D410	5641-MV12YM	VARISTOR
Q429	5613-3423(O)or(Y)	XISTOR, NPN R	PT1	5192-100TSI	POSISTOR
Q430	5613-3423(O)or(Y)	XISTOR, NPN R	PT2	5192-100TSI	POSISTOR
Q433	5614-669A(C)	XISTOR, NPN A			



A B C D E

GENERAL UNIT
EXPLODED VIEW (FRONT PANEL ASS'Y)

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PARTS LIST

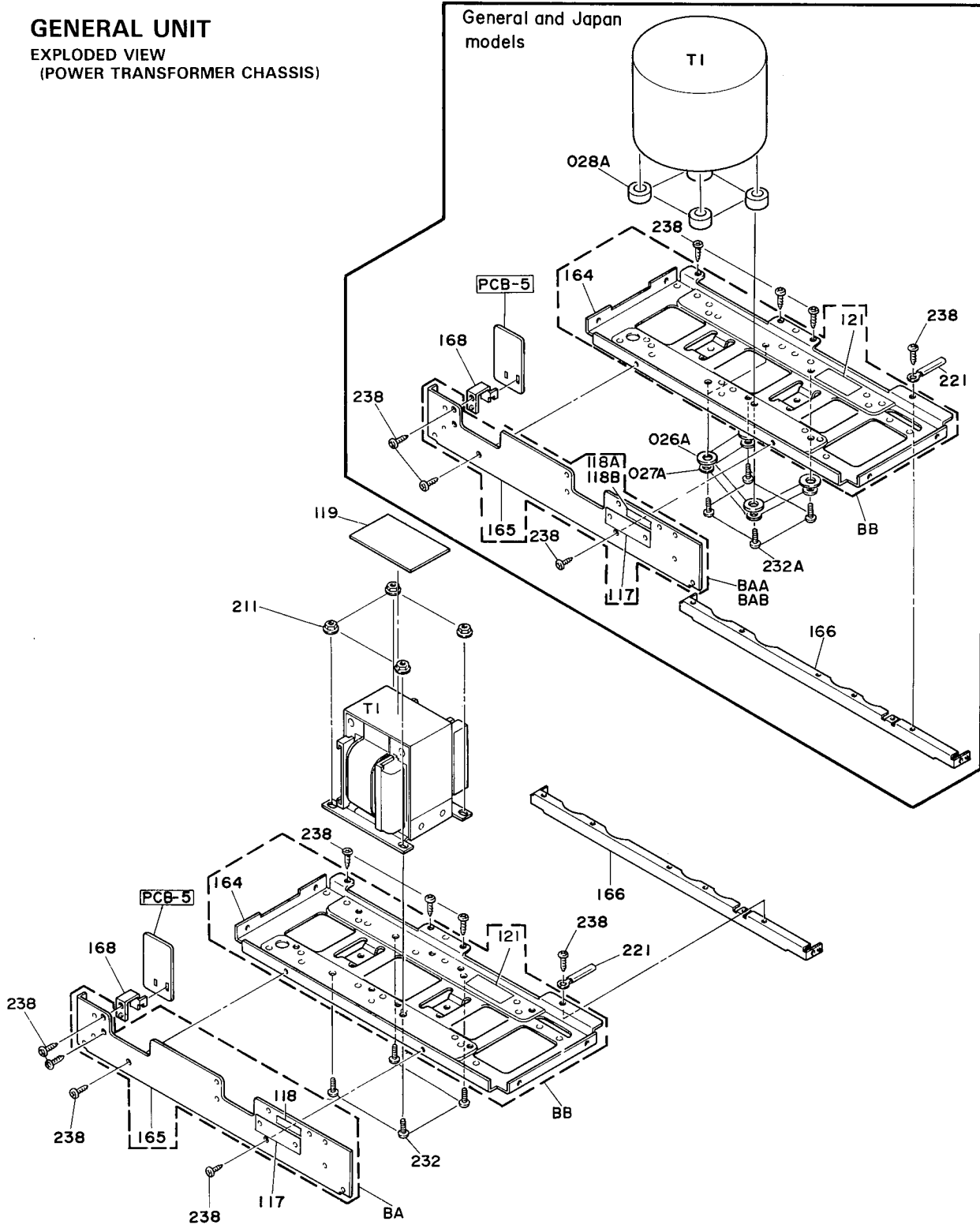
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
AA	A443-H201A	FRONT PANEL ASS'Y (JA N)	148A	1732-03701	INDICATOR (G)
AAA	A443-H201B	FRONT PANEL ASS'Y (G)	190	2240-7290	HOLDER, POWER
137	1443-10602	PANEL (JA N)	191	2240-7291	HOLDER, POWER
137A	1443-10603	PANEL (G)	192	2240-7292	HOLDER, L-SIDE
138	1223-11749	SOFT SHEET, PANEL	193	2240-7293	HOLDER, R-SIDE
140	1562-05401	FRAME	213	2459-3005511	PLASTIC RIVET, FRAME
143	1662-30401	PUSH BUTTON, POWER	219	2651-2101727	SPRING, POWER
148	1732-03701	INDICATOR			

GENERAL UNIT

EXPLODED VIEW
(POWER TRANSFORMER CHASSIS)

General and Japan
models

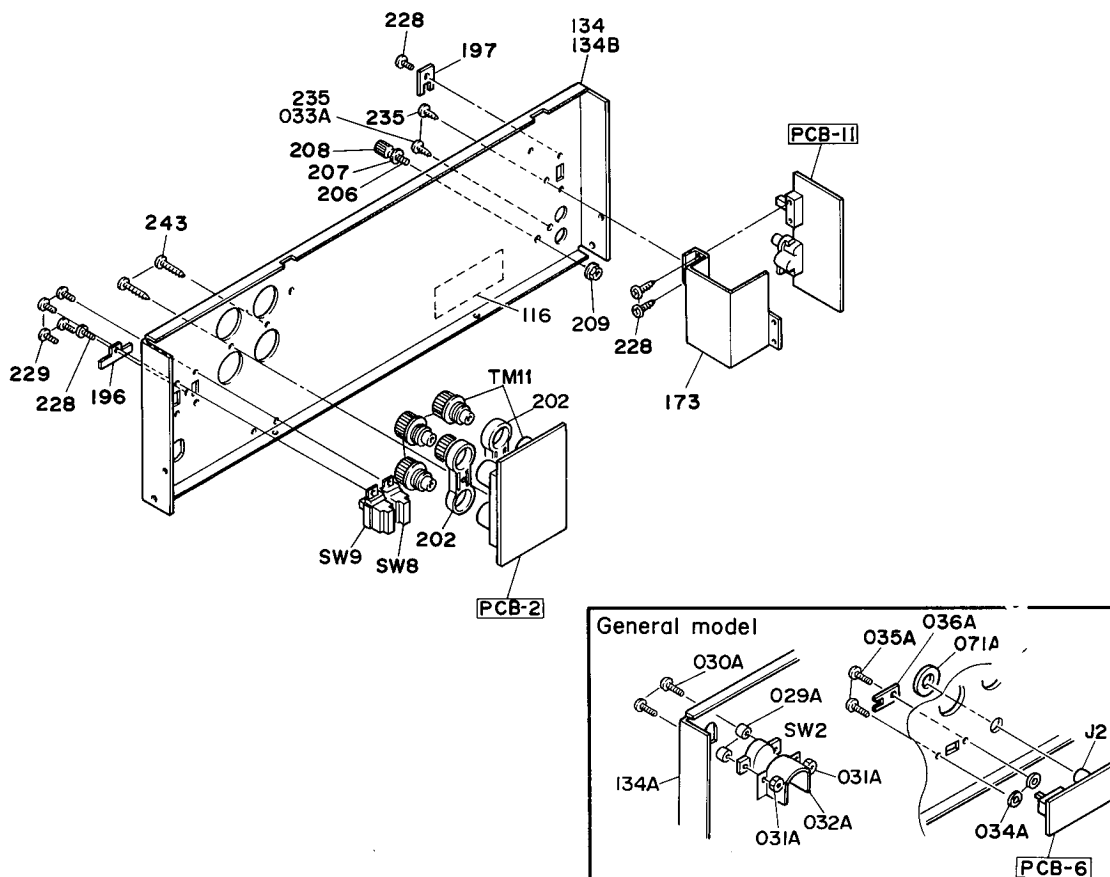
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PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
BA	B219-H201A	L-SIDE METAL FITTG ASS'Y (JA)	164	2219-8036	METAL FITTG, TRANS
BAA	B219-H201C	L-SIDE METAL FITTG ASS'Y (G)	165	2219-8010	METAL FITTG, L-SIDE
BAB	B219-H201D	L-SIDE METAL FITTG ASS'Y (N)	166	2219-8013	METAL FITTG
BB	B219-H201B	TRANS CHASSIS ASS'Y	168	2219-8035	METAL FITTG
O26A	2401-0571	WASHER, TRANS (G) (N)	211	2440-7019	SPECIAL NUT, TRANS (JA)
O27A	2412-5042	SPRING WASHER, TRANS (G) (N)	221	2218-7001	BRACKET
O28A	2132-7150	SPACER, TRANS (G) (N)	232	2327-R0140104	SCREW, TRANS (JA)
117	1756-05910	LABEL	232A	2327-502049	SCREW, TRANS (G) (N)
118	1756-01424	LABEL, FUSE	238	2347-R0130064	SCREW
118A	1756-01405	LABEL (G)	T1	5584-701557	XFORMER, POWER (JA)
118B	1756-01440	LABEL (N)	T1	5584-701558	XFORMER, POWER (G)
119	1756-06901	LABEL, TRANS (JA)	T1	5584-702558	XFORMER, POWER (N)
121	1756-05910	LABEL			

GENERAL UNIT
EXPLODED VIEW (CABINET BACK ASS'Y)

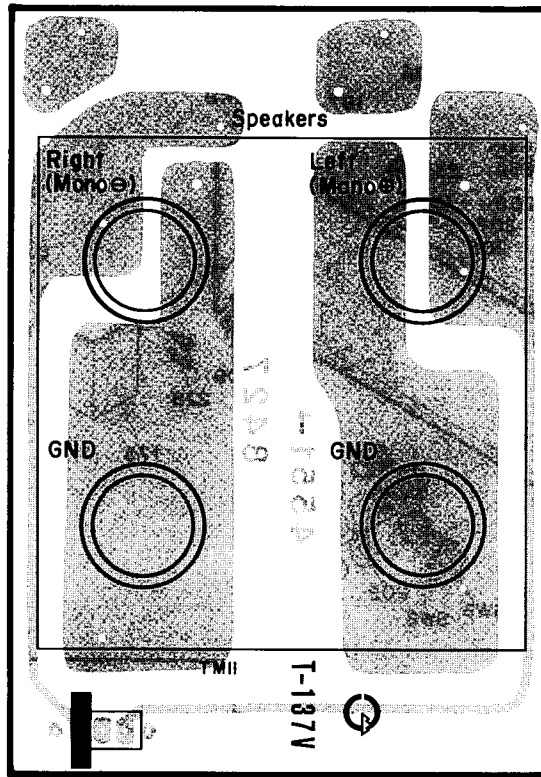


PARTS LIST

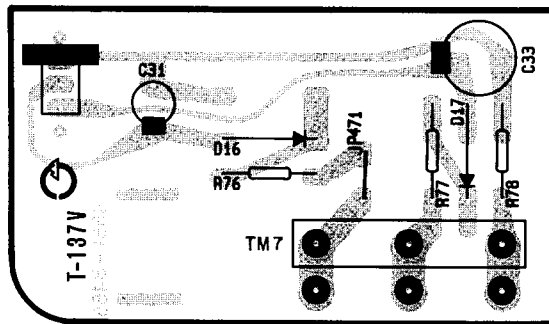
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
029A	2132-01405	SPACER, VOLT SELECT G	197	2240-7233	HOLDER
030A	2327-301649	SCREW, VOLT SELECT G	202	2132-7151	SPACER
031A	2440-7016	SPECIAL NUT, VOLT SELECT G	206	2310-7036	SPECIAL SCREW, GND
032A	2133-7030	PROTECTOR, VOLT SELECT G	207	2410-7018	SPECIAL WASHER, GND
033A	2340-7004	SPECIAL SCREW G	208	2440-7027	SPECIAL NUT, GND
034A	2402-0374	PLASTIC WASHER G	209	2440-7016	SPECIAL NUT, GND
035A	2327-260549	SCREW G	228	2327-260549	SCREW, SW8/SW9
036A	2240-7233	HOLDER G	229	2327-R0130064	SCREW
071A	2440-7028	SPECIAL NUT G	235	2340-7003	SPECIAL SCREW
116	1756-CSA	LABEL, CSA UA	243	2347-R0130164	SCREW
134	1424-21304	CABINET BACK UA	J2	4451-00177	JACK, IP G
134A	1424-21306	CABINET BACK G	SW2	4411-1047112	SWITCH, ROTARY G
134B	1424-21305	CABINET BACK N	SW8	4421-0227230	SWITCH, SLIDE
173	2219-8147	METAL FITTG, PCB-11	SW9	4421-0227230	SWITCH, SLIDE
196	2240-7311	HOLDER, SW8/SW9	TM11	4214-184	TERMINAL

P. C. BOARDS

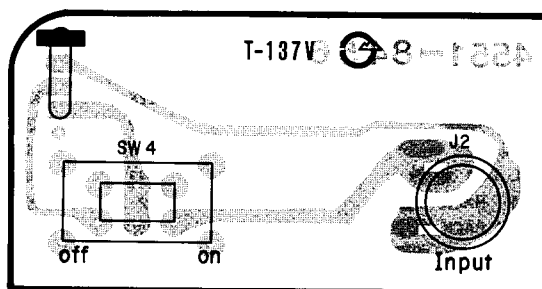
PCB-2 Speaker Terminal P. C. Board



PCB-5 Protection P. C. Board



PCB-6 Remote Power P. C. Board (General model only)

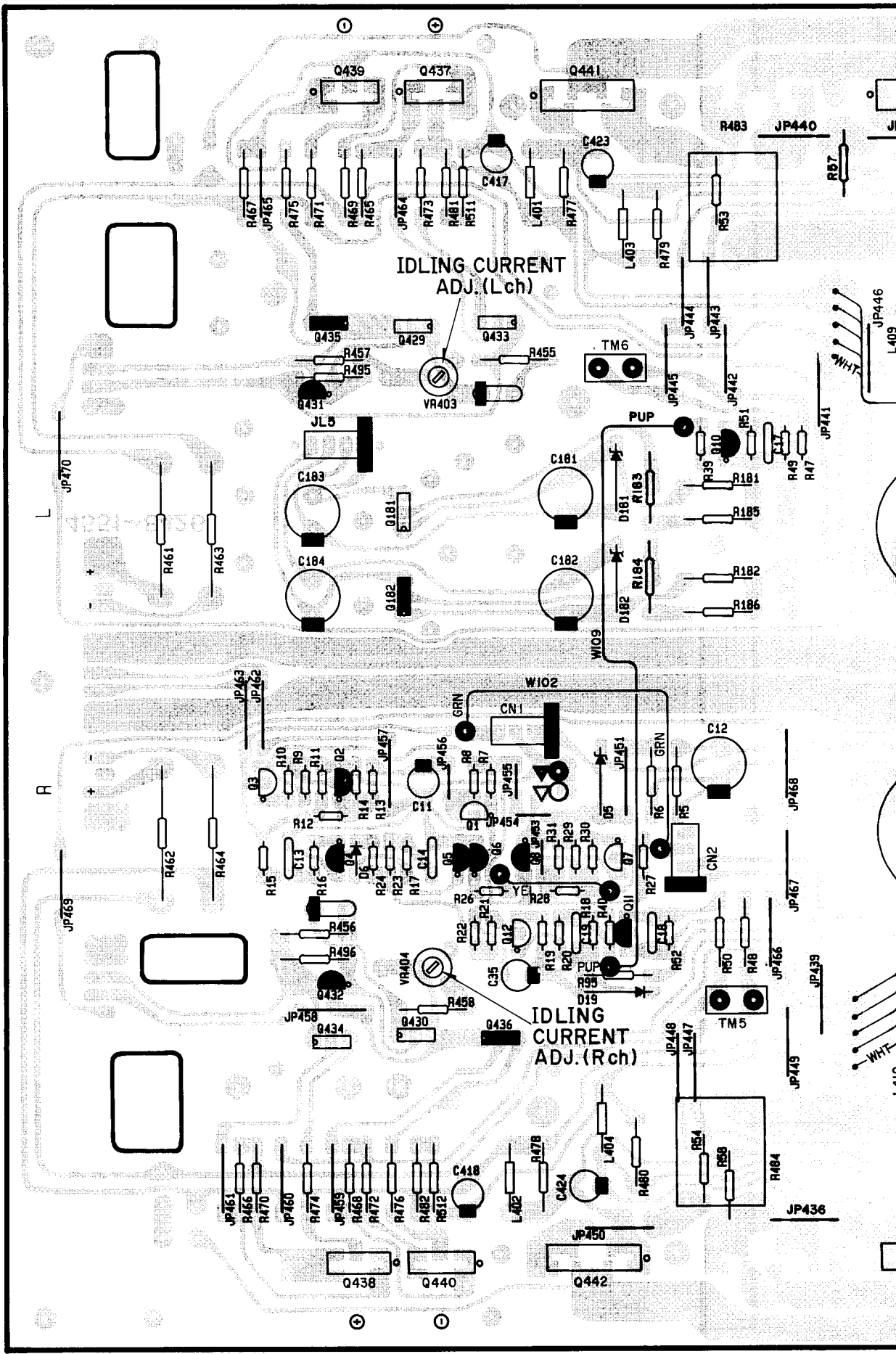


Remote Power On

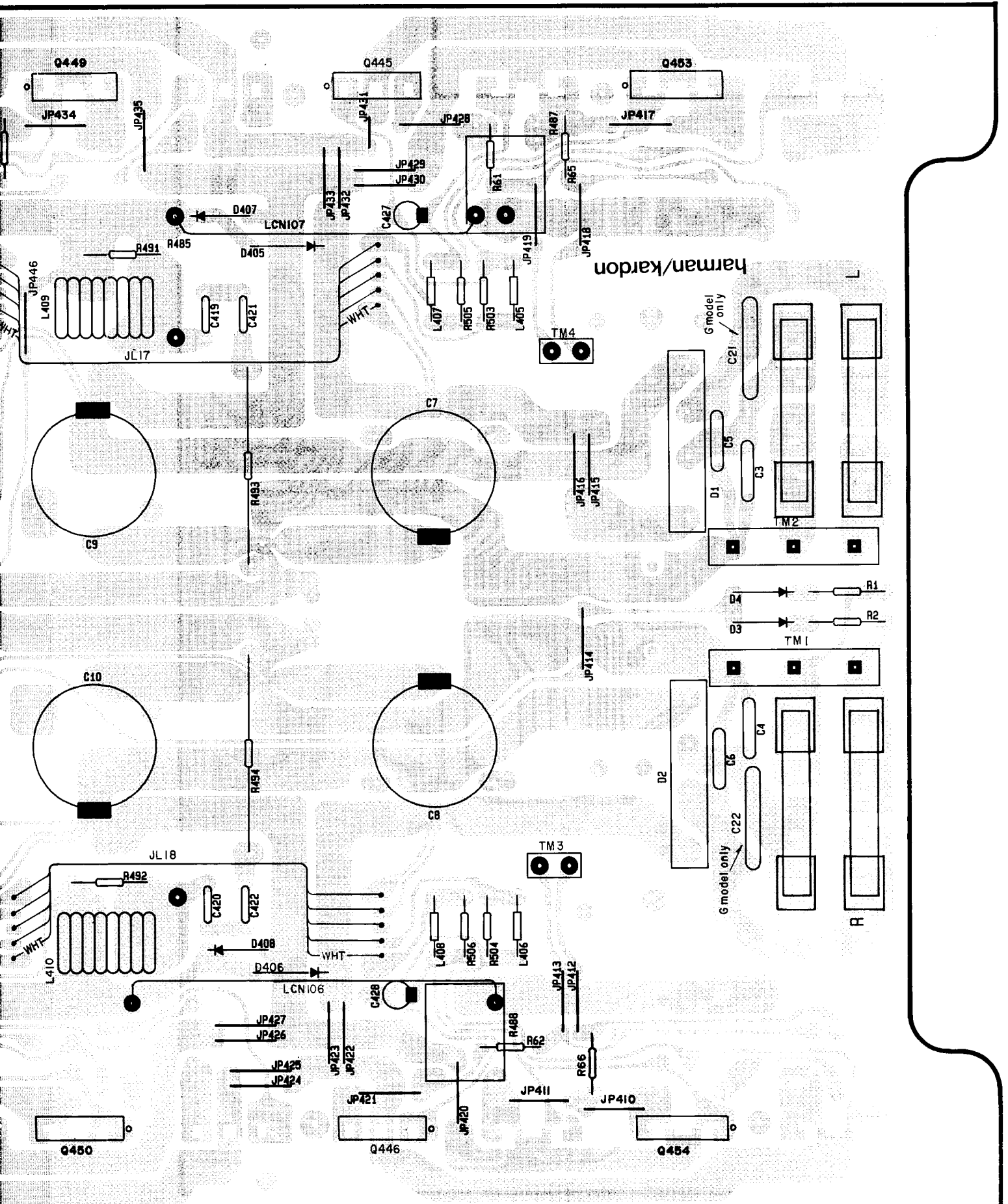
P. C. BOARDS

PCB-1 Main P. C. Board

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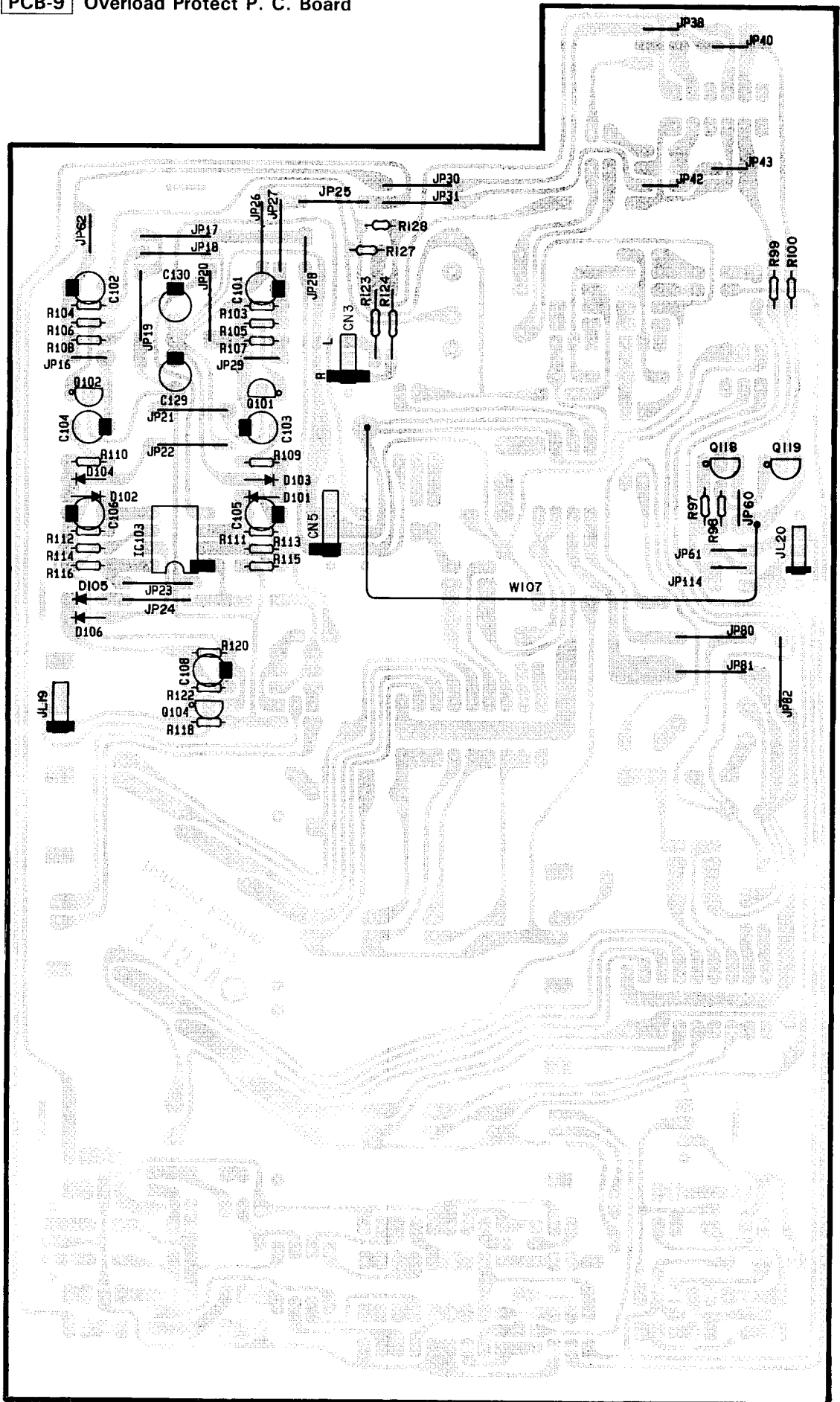


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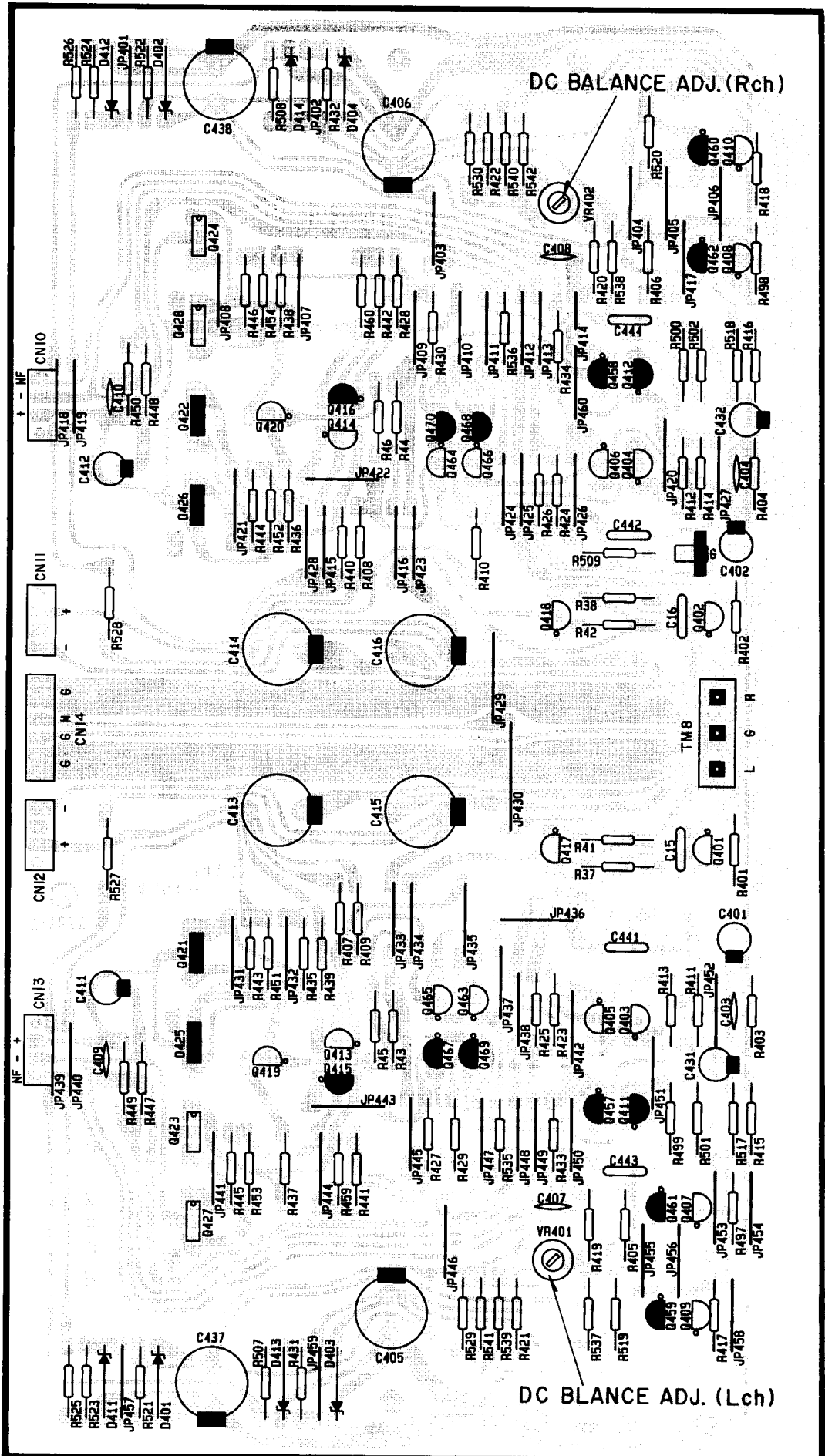
P. C. BOARDS

PCB-9 Overload Protect P. C. Board

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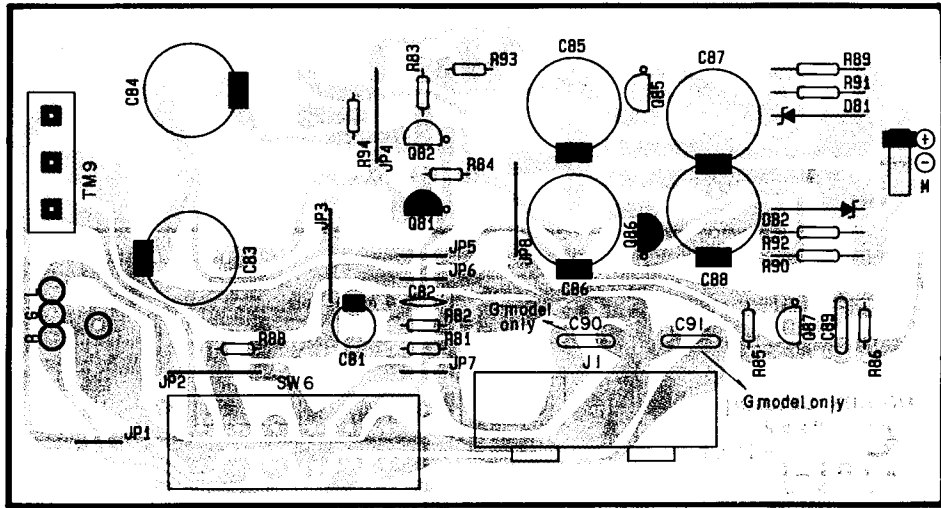


PCB-10 Pre Driver P. C. Board



P. C. BOARDS

PCB-11 Input Jack P. C. Board

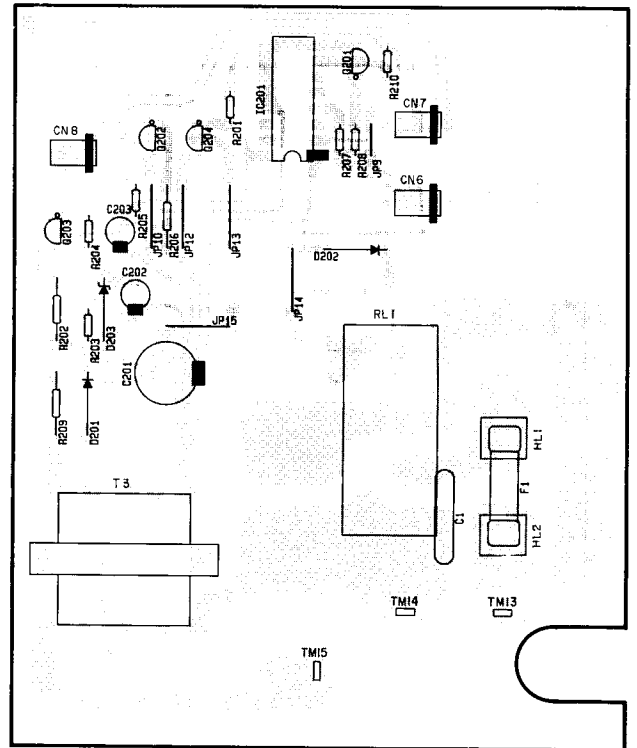
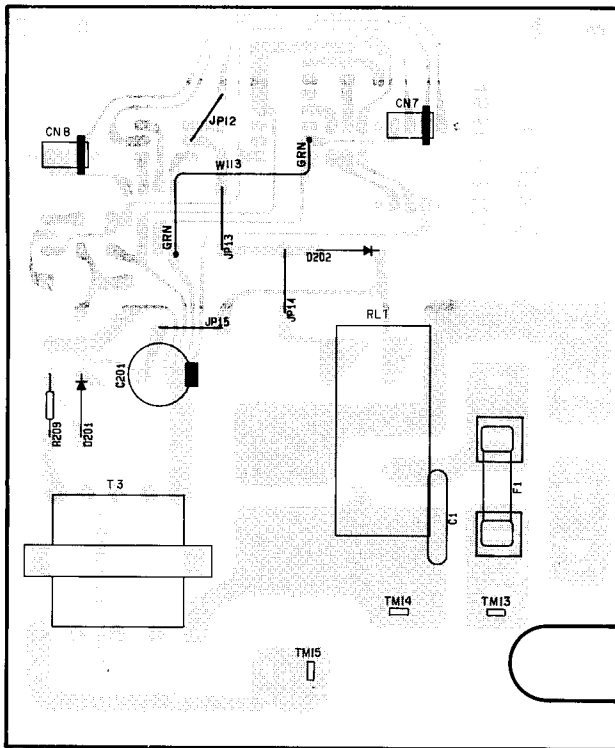


on off Left Right
Bridged Mono (Mono) Input

PCB-12 Relay P. C. Board

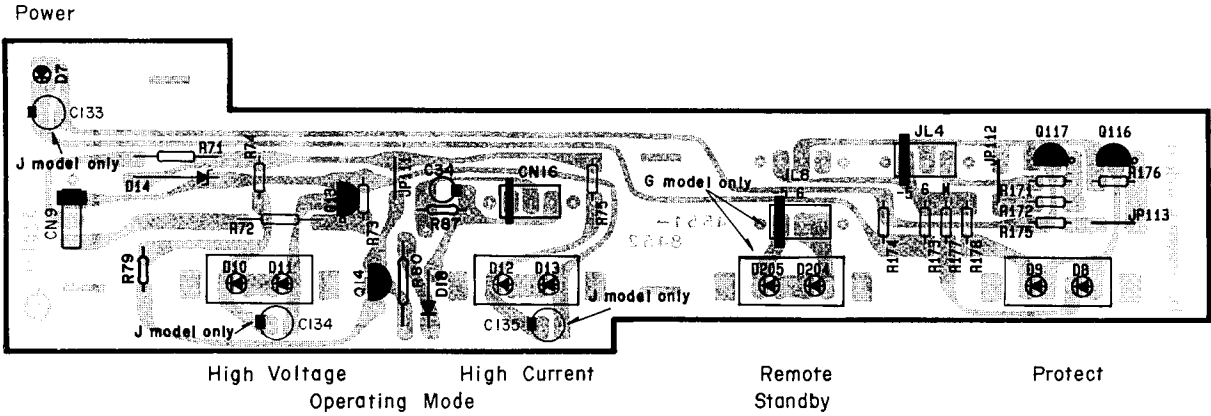
North America area and Japan model

General model

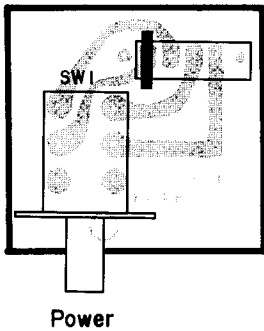


P. C. BOARDS

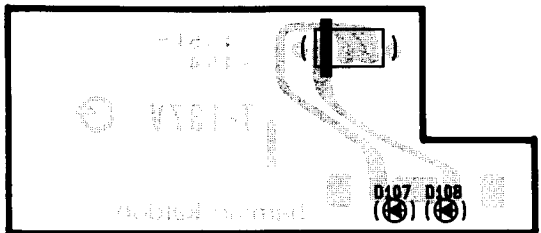
PCB-13 LED P. C. Board



PCB-14 Power Switch P. C. Board



PCB-15 Overload LED P. C. Board



ELECTRICAL PARTS LIST

Ser. No.	Ref. No.	Part No.	Description	Ser. No.	Ref. No.	Part No.	Description
PCB-1 MAIN P.C.BOARD							
CAPACITORS							
583	C3	5352-1041957	CAP, MTL .1 μ	727	R48	5135-562522	RES, CBN 1/2P 5.6K
583	C4	5352-1041957	CAP, MTL .1 μ	721	R49	5232-562J16P	RES, CBN 1/6P 5.6K
583	C5	5352-1041957	CAP, MTL .1 μ	727	R50	5135-562522	RES, CBN 1/2P 5.6K
583	C6	5352-1041957	CAP, MTL .1 μ	722	R51	5232-202J16P	RES, CBN 1/6P 2K
798	C7	5341-688G0967	CAP, ELE 6800 μ /63V UA G	722	R52	5232-202J16P	RES, CBN 1/6P 2K
798B	C7	5341-688G0286	CAP, ELE 6800 μ /63V N	728	R53	5135-101522	RES, CBN 1/2P 100
798	C8	5341-688G0967	CAP, ELE 6800 μ /63V UA G	728	R54	5135-101522	RES, CBN 1/2P 100
798B	C8	5341-688G0286	CAP, ELE 6800 μ /63V N	728	R57	5135-101522	RES, CBN 1/2P 100
798	C9	5341-688G0967	CAP, ELE 6800 μ /63V UA G	728	R58	5135-101522	RES, CBN 1/2P 100
798B	C9	5341-688G0286	CAP, ELE 6800 μ /63V N	728	R61	5135-101522	RES, CBN 1/2P 100
798	C10	5341-688G0967	CAP, ELE 6800 μ /63V UA G	728	R62	5135-101522	RES, CBN 1/2P 100
798B	C10	5341-688G0286	CAP, ELE 6800 μ /63V N	728	R65	5135-101522	RES, CBN 1/2P 100
693	C11	5345-336B0951	CAP, MINI ELE 33 μ /10V	728	R66	5135-101522	RES, CBN 1/2P 100
694	C12	5345-106F0951	CAP, MINI ELE 10 μ /50V	696	Δ R95	5102-1014715	RES, FUSE 100
697	C13	5354-334593	CAP, MYL .33 μ	677	R181	5135-183522	RES, CBN 1/2P 18K
697	C14	5354-334593	CAP, MYL .33 μ	677	R182	5135-183522	RES, CBN 1/2P 18K
698	C17	5354-104593	CAP, MYL .1 μ	680	Δ R183	5102-4714715	RES, FUSE 470
698	C18	5354-104593	CAP, MYL .1 μ	680	Δ R184	5102-4714715	RES, FUSE 470
700	C19	5354-683K1HM	CAP, MYL .068 μ	680	Δ R185	5102-4714715	RES, FUSE 470
052A	C20	5361-6820423	CAP, CER 6800p G	680	Δ R186	5102-4714715	RES, FUSE 470
051A	C21	5352-1040962	CAP, MTL .1 μ G	570	R455	5135-391522	RES, CBN 1/2P 390
051A	C22	5352-1040962	CAP, MTL .1 μ G	570	R456	5135-391522	RES, CBN 1/2P 390
692	C35	5345-105J0962	CAP, MINI ELE 1 μ /100V	560	R457	5174-2215Y8	RES, MTL 1/4P 220
674	C181	5345-337C041	CAP, MINI ELE 330 μ /16V	560	R458	5174-2215Y8	RES, MTL 1/4P 220
674	C182	5345-337C041	CAP, MINI ELE 330 μ /16V	551	Δ R461	5102-1005711	RES, FUSE 10
674	C183	5345-337C041	CAP, MINI ELE 330 μ /16V	551	Δ R462	5102-1005711	RES, FUSE 10
674	C184	5345-337C041	CAP, MINI ELE 330 μ /16V	551	Δ R463	5102-1005711	RES, FUSE 10
535	C417	5345-106C041	CAP, MINI ELE 10 μ /16V	551	Δ R464	5102-1005711	RES, FUSE 10
535	C418	5345-106C041	CAP, MINI ELE 10 μ /16V	550	Δ R465	5102-1014715	RES, FUSE 100
539	C419	5352-4731960	CAP, MTL .047 μ	550	Δ R466	5102-1014715	RES, FUSE 100
539	C420	5352-4731960	CAP, MTL .047 μ	550	Δ R467	5102-1014715	RES, FUSE 100
539	C421	5352-4731960	CAP, MTL .047 μ	550	Δ R468	5102-1014715	RES, FUSE 100
539	C422	5352-4731960	CAP, MTL .047 μ	549	Δ R469	5102-3R35116	RES, FUSE 3.3
535	C423	5345-106C041	CAP, MINI ELE 10 μ /16V	549	Δ R470	5102-3R35116	RES, FUSE 3.3
535	C424	5345-106C041	CAP, MINI ELE 10 μ /16V	549	Δ R471	5102-3R35116	RES, FUSE 3.3
535	C427	5345-106C041	CAP, MINI ELE 10 μ /16V	549	Δ R472	5102-3R35116	RES, FUSE 3.3
535	C428	5345-106C041	CAP, MINI ELE 10 μ /16V	571	R473	5135-150522	RES, CBN 1/2P 15
RESISTORS							
701	R1	5171-681572	RES, MTL IP 680	571	R474	5135-150522	RES, CBN 1/2P 15
701	R2	5171-681572	RES, MTL IP 680	571	R475	5135-150522	RES, CBN 1/2P 15
703	R5	5135-103522	RES, CBN 1/2P 10K	571	R476	5135-150522	RES, CBN 1/2P 15
702	R6	5135-221522	RES, CBN 1/2P 220	572	R477	5135-100522	RES, CBN 1/2P 10
706	R7	5232-472J16P	RES, CBN 1/6P 4.7K	572	R478	5135-100522	RES, CBN 1/2P 10
707	R8	5232-334J16P	RES, CBN 1/6P 330K	572	R479	5135-100522	RES, CBN 1/2P 10
708	R9	5232-104J16P	RES, CBN 1/6P 100K	572	R480	5135-100522	RES, CBN 1/2P 10
708	R10	5232-104J16P	RES, CBN 1/6P 100K	559	R481	5174-270381	RES, MTL 1/4P 27
705	R11	5232-103J16P	RES, CBN 1/6P 10K	559	R482	5174-270381	RES, MTL 1/4P 27
709	R12	5232-225J16P	RES, CBN 1/6P 2.2M	541	R483	5275-R27671	RES, CEM 5P .27
710	R13	5232-684J16P	RES, CBN 1/6P 680K	541	R484	5275-R27671	RES, CEM 5P .27
711	R14	5232-184J16P	RES, CBN 1/6P 180K	541	R487	5275-R27671	RES, CEM 5P .27
708	R15	5232-104J16P	RES, CBN 1/6P 100K	541	R488	5275-R27671	RES, CEM 5P .27
712	R16	5232-473J16P	RES, CBN 1/6P 47K	543	R491	5171-100572	RES, MTL IP 10
713	R17	5232-223J16P	RES, CBN 1/6P 22K	543	R492	5171-100572	RES, MTL IP 10
712	R18	5232-473J16P	RES, CBN 1/6P 47K	542	R493	5175-100571	RES, MTL 3P 10
714	R19	5232-152J16P	RES, CBN 1/6P 1.5K	542	R494	5175-100571	RES, MTL 3P 10
713	R20	5232-223J16P	RES, CBN 1/6P 22K	573	R495	5135-221522	RES, CBN 1/2P 220
715	R21	5232-393J16P	RES, CBN 1/6P 39K	573	R496	5135-221522	RES, CBN 1/2P 220
705	R22	5232-103J16P	RES, CBN 1/6P 10K	572	R503	5135-100522	RES, CBN 1/2P 10
713	R23	5232-223J16P	RES, CBN 1/6P 22K	572	R504	5135-100522	RES, CBN 1/2P 10
712	R24	5232-473J16P	RES, CBN 1/6P 47K	572	R505	5135-100522	RES, CBN 1/2P 10
724	R26	5232-102J16P	RES, CBN 1/6P 1K	572	R506	5135-100522	RES, CBN 1/2P 10
705	R27	5232-103J16P	RES, CBN 1/6P 10K	559	R511	5174-270381	RES, MTL 1/4P 27
725	R28	5232-153J16P	RES, CBN 1/6P 15K	559	R512	5174-270381	RES, MTL 1/4P 27
708	R29	5232-104J16P	RES, CBN 1/6P 100K	TRANSISTORS			
708	R30	5232-104J16P	RES, CBN 1/6P 100K	681	Q1	5613-2603(E)or(F)	XISTOR, NPN R
726	R31	5232-823J16P	RES, CBN 1/6P 82K	682	Q2	5611-1115(E)or(F)	XISTOR, PNP R
702	R32	5135-221522	RES, CBN 1/2P 220	681	Q3	5613-2603(E)or(F)	XISTOR, NPN R
077A	R36	5232-222J16P	RES, CBN 1/6P 2.2K G	682	Q4	5611-1115(E)or(F)	XISTOR, PNP R
706	R39	5232-472J16P	RES, CBN 1/6P 4.7K	682	Q5	5611-1115(E)or(F)	XISTOR, PNP R
706	R40	5232-472J16P	RES, CBN 1/6P 4.7K	682	Q6	5611-1115(E)or(F)	XISTOR, PNP R
721	R47	5232-562J16P	RES, CBN 1/6P 5.6K	681	Q7	5613-2603(E)or(F)	XISTOR, NPN R
				682	Q8	5611-1115(E)or(F)	XISTOR, PNP R
				683	Q10	5611-970(BL)	XISTOR, PNP R
				683	Q11	5611-970(BL)	XISTOR, PNP R
				684	Q12	5613-2240(BL)	XISTOR, NPN R
				668	Q181	5614-667A(C)	XISTOR, NPN A

Ser. No.	Ref. No.	Part No.	Description
670	Q182	5612-647A(C)	XISTOR, PNP A
524	Q429	5613-3423(O)or(Y)	XISTOR, NPN R
524	Q430	5613-3423(O)or(Y)	XISTOR, NPN R
520	Q431	5611-970(BL)	XISTOR, PNP R
520	Q432	5611-970(BL)	XISTOR, PNP R
510	Q433	5614-669A(C)	XISTOR, NPN A
510	Q434	5614-669A(C)	XISTOR, NPN A
512	Q435	5612-649A(C)	XISTOR, PNP A
512	Q436	5612-649A(C)	XISTOR, PNP A
514	Q437	5611-1306(Y)	XISTOR, PNP R
514	Q438	5611-1306(Y)	XISTOR, PNP R
515	Q439	5613-3298(Y)	XISTOR, NPN R
515	Q440	5613-3298(Y)	XISTOR, NPN R
516	Q441	5613-3907(O)or(R)	XISTOR, NPN R
516	Q442	5613-3907(O)or(R)	XISTOR, NPN R
516	Q445	5613-3907(O)or(R)	XISTOR, NPN R
516	Q446	5613-3907(O)or(R)	XISTOR, NPN R
518	Q449	5611-1516(O)or(R)	XISTOR, PNP R
518	Q450	5611-1516(O)or(R)	XISTOR, PNP R
518	Q453	5611-1516(O)or(R)	XISTOR, PNP R
518	Q454	5611-1516(O)or(R)	XISTOR, PNP R
DIODES			
764	△D1	5685-D5SB20	SILICON, BRIG
764	△D2	5685-D5SB20	SILICON, BRIG
687	D3	5632-S5566B	DIODE, RECT
687	D4	5632-S5566B	DIODE, RECT
689	D5	5635-HZ6A-2L	DIODE, ZENER
690	D6	5631-ISS133	DIODE, DET
687	D19	5632-S5566B	DIODE, RECT
672	D181	5635-HZ12B2L	DIODE, ZENER
672	D182	5635-HZ12B2L	DIODE, ZENER
527	D405	5632-10DF2	DIODE, RECT
527	D406	5632-10DF2	DIODE, RECT
527	D407	5632-10DF2	DIODE, RECT
527	D408	5632-10DF2	DIODE, RECT
528	D409	5641-MV12YM	VARISTOR
529	D410	5641-MV12YM	VARISTOR
COILS			
530	L401	5597-45502	CORE, BEADS
530	L402	5597-45502	CORE, BEADS
530	L403	5597-45502	CORE, BEADS
530	L404	5597-45502	CORE, BEADS
530	L405	5597-45502	CORE, BEADS
530	L406	5597-45502	CORE, BEADS
530	L407	5597-45502	CORE, BEADS
530	L408	5597-45502	CORE, BEADS
540	L409	5991-7165	SPRING COIL
540	L410	5991-7165	SPRING COIL
CONTROLS			
562	VR403	5101-3317674	RES, SEMI FIX 330
562	VR404	5101-3317674	RES, SEMI FIX 330
MISCELLANEOUS			
861	CN1	4443-030185	CONNECTOR
861	CN2	4443-030185	CONNECTOR
844	JL5	4242-R0404351	JUMPER LEAD
851	JL17	4242-R0105101	JUMPER LEAD
851	JL18	4242-R0105101	JUMPER LEAD
686	PT1	5192-100TS1	POSISTOR
686	PT2	5192-100TS1	POSISTOR
855	TM1	4214-11034	TERMINAL
855	TM2	4214-11034	TERMINAL
856	TM3	4214-11021	TERMINAL
856	TM4	4214-11021	TERMINAL
856	TM5	4214-11021	TERMINAL
856	TM6	4214-11021	TERMINAL
816	LCN101	4163-0145024	CONNECTOR W/W
817	LCN102	4163-0145025	CONNECTOR W/W
818	LCN103	4163-0145026	CONNECTOR W/W
819	LCN104	4163-0145027	CONNECTOR W/W
821	LCN106	4163-0110024	CONNECTOR W/W
821	LCN107	4163-0110024	CONNECTOR W/W
776	△	4472-7113	HOLDER, FUSE

Ser. No.	Ref. No.	Part No.	Description
PCB-2 SPEAKER TERMINAL P.C.BOARD			
847	JL3	4242-R0403651	JUMPER LEAD
838	TM11	4214-184	TERMINAL
PCB-5 PROTECTION P.C.BOARD			
CAPACITORS			
761	C31	5345-107D041	CAP, MINI ELE 100μ/25V
763	C32	5345-107C041	CAP, MINI ELE 100μ/16V
762	C33	5345-476C041	CAP, MINI ELE 47μ/16V
RESISTORS			
758	△R76	5102-5604715	RES, FUSE 56
759	△R77	5102-2204715	RES, FUSE 22
760	△R78	5102-5R64715	RES, FUSE 5.6
DIODES			
757	D15	5632-S5566B	DIODE, RECT
757	D16	5632-S5566B	DIODE, RECT
757	D17	5632-S5566B	DIODE, RECT
MISCELLANEOUS			
852	JL6	4242-R0404451	JUMPER LEAD
074A	JL9	4242-R0403501	JUMPER LEAD G
857	TM7	4214-11034	TERMINAL
822	LCN108	4163-0110022	CONNECTOR W/W
823	LCN109	4163-0110021	CONNECTOR W/W
824	LCN110	4163-0110023	CONNECTOR W/W
PCB-6 REMOTE POWER P.C.BOARD G			
070A	J2	4451-00177	JACK, 1P G
072A	SW4	4421-0227142	SWITCH, SLIDE G
PCB-9 OVERLOAD PROTECT P.C.BOARD			
CAPACITORS			
631	C101	5345-106C041	CAP, MINI ELE 10μ/16V
631	C102	5345-106C041	CAP, MINI ELE 10μ/16V
631	C103	5345-106C041	CAP, MINI ELE 10μ/16V
631	C104	5345-106C041	CAP, MINI ELE 10μ/16V
634	C105	5345-104F041	CAP, MINI ELE .1μ/50V
634	C106	5345-104F041	CAP, MINI ELE .1μ/50V
635	C107	5345-336C041	CAP, MINI ELE 33μ/16V
631	C129	5345-106C041	CAP, MINI ELE 10μ/16V
631	C130	5345-106C041	CAP, MINI ELE 10μ/16V
RESISTORS			
667	R97	5232-103J16P	RES, CBN 1/6P 10K
667	R98	5232-103J16P	RES, CBN 1/6P 10K
666	R99	5232-363J16P	RES, CBN 1/6P 36K
666	R100	5232-363J16P	RES, CBN 1/6P 36K
642	R103	5232-153J16P	RES, CBN 1/6P 15K
642	R104	5232-153J16P	RES, CBN 1/6P 15K
643	R105	5232-102J16P	RES, CBN 1/6P 1K
643	R106	5232-102J16P	RES, CBN 1/6P 1K
640	R107	5232-123J16P	RES, CBN 1/6P 12K
640	R108	5232-123J16P	RES, CBN 1/6P 12K
644	R109	5232-101J16P	RES, CBN 1/6P 100
644	R110	5232-101J16P	RES, CBN 1/6P 100
645	R111	5232-103J16P	RES, CBN 1/6P 10K
645	R112	5232-103J16P	RES, CBN 1/6P 10K
646	R113	5232-101J16P	RES, CBN 1/6P 100
646	R114	5232-101J16P	RES, CBN 1/6P 100
645	R115	5232-103J16P	RES, CBN 1/6P 10K
645	R116	5232-103J16P	RES, CBN 1/6P 10K
647	R117	5232-122J16P	RES, CBN 1/6P 1.2K
648	R119	5232-333J16P	RES, CBN 1/6P 33K
649	R121	5232-222J16P	RES, CBN 1/6P 2.2K
650	R123	5134-823J25P	RES, CBN 1/4P 82K
650	R124	5134-823J25P	RES, CBN 1/4P 82K
663	R127	5232-754J16P	RES, CBN 1/6P 750K
663	R128	5232-754J16P	RES, CBN 1/6P 750K

Ser. No.	Ref. No.	Part No.	Description	Ser. No.	Ref. No.	Part No.	Description
INTEGRATED CIRCUITS							
622	IC103	5653-TA75558P	IC, LINEAR	547	△R409	5102-1024715	RES, FUSE 1K
TRANSISTORS							
624	Q101	5613-2603(E)or(F)	XISTOR, NPN R	547	△R410	5102-1024715	RES, FUSE 1K
624	Q102	5613-2603(E)or(F)	XISTOR, NPN R	565	R411	5135-221522	RES, CBN 1/2P 220
624	Q103	5613-2603(E)or(F)	XISTOR, NPN R	565	R412	5135-221522	RES, CBN 1/2P 220
625	Q118	5611-1115(E)or(F)	XISTOR, PNP R	565	R413	5135-221522	RES, CBN 1/2P 220
625	Q119	5611-1115(E)or(F)	XISTOR, PNP R	565	R414	5135-221522	RES, CBN 1/2P 220
DIODES							
629	D101	5631-ISS133	DIODE, DET	566	R415	5135-222522	RES, CBN 1/2P 2.2K
629	D102	5631-ISS133	DIODE, DET	566	R416	5135-222522	RES, CBN 1/2P 2.2K
629	D103	5631-ISS133	DIODE, DET	552	R417	5174-241381	RES, MTL 1/4P 240
629	D104	5631-ISS133	DIODE, DET	552	R418	5174-241381	RES, MTL 1/4P 240
629	D105	5631-ISS133	DIODE, DET	567	R419	5135-563522	RES, CBN 1/2P 56K
629	D106	5631-ISS133	DIODE, DET	567	R420	5135-563522	RES, CBN 1/2P 56K
MISCELLANEOUS							
862	CN3	4443-030185	CONNECTOR	564	R421	5135-223522	RES, CBN 1/2P 22K
863	CN5	4443-040185	CONNECTOR	564	R422	5135-223522	RES, CBN 1/2P 22K
PCB-10 PRE DRIVER P.C.BOARD							
CAPACITORS							
699	C15	5354-104593	CAP, MYL .1μ	579	R423	5174-561381	RES, MTL 1/4P 560
699	C16	5354-104593	CAP, MYL .1μ	554	R424	5174-561381	RES, MTL 1/4P 560
531	C401	5345-107B0951	CAP, MINI ELE 100μ/10V	555	R425	5174-300381	RES, MTL 1/4P 30
531	C402	5345-107B0951	CAP, MINI ELE 100μ/10V	555	R426	5174-300381	RES, MTL 1/4P 30
536	C403	5353-680534	CAP, MCA 68p	547	△R427	5102-1024715	RES, FUSE 1K
055A	C403	5359-5615851	CAP, PPP 560p	547	△R428	5102-1024715	RES, FUSE 1K
536	C404	5353-680534	CAP, MCA 68p	547	△R429	5102-1024715	RES, FUSE 1K
055A	C404	5359-5615851	CAP, PPP 560p	547	△R430	5102-1024715	RES, FUSE 1K
532	C405	5345-337C041	CAP, MINI ELE 330μ/16V	579	R431	5135-152522	RES, CBN 1/2P 1.5K
532	C406	5345-337C041	CAP, MINI ELE 330μ/16V	579	R432	5135-152522	RES, CBN 1/2P 1.5K
537	C407	5353-040934	CAP, MCA 4p	556	R433	5174-223381	RES, MTL 1/4P 22K
537	C408	5353-040934	CAP, MCA 4p	556	R434	5174-223381	RES, MTL 1/4P 22K
536	C409	5353-680534	CAP, MCA 68p	568	R435	5135-223522	RES, CBN 1/2P 22K
536	C410	5353-680534	CAP, MCA 68p	568	R436	5135-223522	RES, CBN 1/2P 22K
538	C411	5345-476B0951	CAP, MINI ELE 47μ/10V	581	R437	5135-183522	RES, CBN 1/2P 18K
538	C412	5345-476B0951	CAP, MINI ELE 47μ/10V	581	R438	5135-183522	RES, CBN 1/2P 18K
534	C413	5345-477J0962	CAP, MINI ELE 470μ/100V	557	R439	5174-222381	RES, MTL 1/4P 2.2K
534B	C413	5345-477J0266	CAP, MINI ELE 470μ/100V	557	R440	5174-222381	RES, MTL 1/4P 2.2K
534	C414	5345-477J0962	CAP, MINI ELE 470μ/100V	557	R441	5174-222381	RES, MTL 1/4P 2.2K
534B	C414	5345-477J0266	CAP, MINI ELE 470μ/100V	557	R442	5174-222381	RES, MTL 1/4P 2.2K
534	C415	5345-477J0962	CAP, MINI ELE 470μ/100V	548	△R443	5102-1514715	RES, FUSE 150
534B	C415	5345-477J0266	CAP, MINI ELE 470μ/100V	548	△R444	5102-1514715	RES, FUSE 150
534	C416	5345-477J0962	CAP, MINI ELE 470μ/100V	548	△R445	5102-1514715	RES, FUSE 150
534B	C416	5345-477J0266	CAP, MINI ELE 470μ/100V	548	△R446	5102-1514715	RES, FUSE 150
533	C431	5345-106C041	CAP, MINI ELE 10μ/16V	569	R447	5135-123522	RES, CBN 1/2P 12K
533	C432	5345-106C041	CAP, MINI ELE 10μ/16V	569	R448	5135-123522	RES, CBN 1/2P 12K
532	C437	5345-337C041	CAP, MINI ELE 330μ/16V	569	R449	5135-123522	RES, CBN 1/2P 12K
532	C438	5345-337C041	CAP, MINI ELE 330μ/16V	569	R450	5135-123522	RES, CBN 1/2P 12K
544	C441	5354-103K1HM	CAP, MYL .01μ	548	△R451	5102-1514715	RES, FUSE 150
544	C442	5354-103K1HM	CAP, MYL .01μ	548	△R452	5102-1514715	RES, FUSE 150
544	C443	5354-103K1HM	CAP, MYL .01μ	548	△R453	5102-1514715	RES, FUSE 150
544	C444	5354-103K1HM	CAP, MYL .01μ	548	△R454	5102-1514715	RES, FUSE 150
RESISTORS							
575	R37	5135-105522	RES, CBN 1/2P 1M	558	R459	5174-131381	RES, MTL 1/4P 130
575	R38	5135-105522	RES, CBN 1/2P 1M	558	R460	5174-131381	RES, MTL 1/4P 130
574	R41	5135-223522	RES, CBN 1/2P 22K	564	R497	5135-223522	RES, CBN 1/2P 22K
574	R42	5135-223522	RES, CBN 1/2P 22K	564	R498	5135-223522	RES, CBN 1/2P 22K
577	R43	5135-473522	RES, CBN 1/2P 47K	565	R499	5135-221522	RES, CBN 1/2P 220
577	R44	5135-473522	RES, CBN 1/2P 47K	565	R500	5135-221522	RES, CBN 1/2P 220
578	R45	5135-104522	RES, CBN 1/2P 100K	565	R501	5135-221522	RES, CBN 1/2P 220
578	R46	5135-104522	RES, CBN 1/2P 100K	565	R502	5135-221522	RES, CBN 1/2P 220
563	R401	5135-102522	RES, CBN 1/2P 1K	580	R507	5135-122522	RES, CBN 1/2P 1.2K
566A	R401	5135-222522	RES, CBN 1/2P 2.2K	580	R508	5135-122522	RES, CBN 1/2P 1.2K
563	R402	5135-102522	RES, CBN 1/2P 1K	553	R509	5174-301381	RES, MTL 1/4P 300
566A	R402	5135-222522	RES, CBN 1/2P 2.2K	566	R517	5135-222522	RES, CBN 1/2P 2.2K
556	R403	5174-223381	RES, MTL 1/4P 22K	566	R518	5135-222522	RES, CBN 1/2P 2.2K
556	R404	5174-223381	RES, MTL 1/4P 22K	552	R519	5174-241381	RES, MTL 1/4P 240
564	R405	5135-223522	RES, CBN 1/2P 22K	552	R520	5174-241381	RES, MTL 1/4P 240
564	R406	5135-223522	RES, CBN 1/2P 22K	579	R521	5135-152522	RES, CBN 1/2P 1.5K
547	△R407	5102-1024715	RES, FUSE 1K	579	R522	5135-152522	RES, CBN 1/2P 1.5K
547	△R408	5102-1024715	RES, FUSE 1K	580	R523	5135-122522	RES, CBN 1/2P 1.2K
				580	R524	5135-122522	RES, CBN 1/2P 1.2K
				580	R525	5135-122522	RES, CBN 1/2P 1.2K
				580	R526	5135-122522	RES, CBN 1/2P 1.2K
				580	R527	5135-122522	RES, CBN 1/2P 1.2K
				580	R528	5135-122522	RES, CBN 1/2P 1.2K
				564	R529	5135-223522	RES, CBN 1/2P 22K
				564	R530	5135-223522	RES, CBN 1/2P 22K
				576	R535	5135-103522	RES, CBN 1/2P 10K
				576	R536	5135-103522	RES, CBN 1/2P 10K
				576	R537	5135-103522	RES, CBN 1/2P 10K
				576	R538	5135-103522	RES, CBN 1/2P 10K

Ser. No.	Ref. No.	Part No.	Description
574	R539	5135-223522	RES, CBN 1/2P 22K
574	R540	5135-223522	RES, CBN 1/2P 22K
574	R541	5135-223522	RES, CBN 1/2P 22K
574	R542	5135-223522	RES, CBN 1/2P 22K

TRANSISTORS

501	Q401	5616-2SK364(V)or(BL)	FET, N-CH
501	Q402	5616-2SK364(V)or(BL)	FET, N-CH
502	Q403	5613-2240(BL)	XISTOR, NPN R
502	Q404	5613-2240(BL)	XISTOR, NPN R
502	Q405	5613-2240(BL)	XISTOR, NPN R
502	Q406	5613-2240(BL)	XISTOR, NPN R
503	Q407	5613-2603(E)or(F)	XISTOR, NPN R
503	Q408	5613-2603(E)or(F)	XISTOR, NPN R
503	Q409	5613-2603(E)or(F)	XISTOR, NPN R
503	Q410	5613-2603(E)or(F)	XISTOR, NPN R
508	Q411	5611-970(BL)	XISTOR, PNP R
508	Q412	5611-970(BL)	XISTOR, PNP R
506	Q413	5613-2320L(F)	XISTOR, NPN R
506	Q414	5613-2320L(F)	XISTOR, NPN R
507	Q415	5611-999L(F)	XISTOR, PNP R
507	Q416	5611-999L(F)	XISTOR, PNP R
508	Q417	5611-970(BL)	XISTOR, PNP R
508	Q418	5611-970(BL)	XISTOR, PNP R
509	Q419	5613-2705(O)or(Y)	XISTOR, NPN R
509	Q420	5613-2705(O)or(Y)	XISTOR, NPN R
504	Q421	5611-1145(O)or(Y)	XISTOR, PNP R
504	Q422	5611-1145(O)or(Y)	XISTOR, PNP R
522	Q423	5613-2705(O)or(Y)	XISTOR, NPN R
522	Q424	5613-2705(O)or(Y)	XISTOR, NPN R
504	Q425	5611-1145(O)or(Y)	XISTOR, PNP R
504	Q426	5611-1145(O)or(Y)	XISTOR, PNP R
522	Q427	5613-2705(O)or(Y)	XISTOR, NPN R
522	Q428	5613-2705(O)or(Y)	XISTOR, NPN R
508	Q457	5611-970(BL)	XISTOR, PNP R
508	Q458	5611-970(BL)	XISTOR, PNP R
521	Q459	5611-1115(E)or(F)	XISTOR, PNP R
521	Q460	5611-1115(E)or(F)	XISTOR, PNP R
521	Q461	5611-1115(E)or(F)	XISTOR, PNP R
521	Q462	5611-1115(E)or(F)	XISTOR, PNP R
502	Q463	5613-2240(BL)	XISTOR, NPN R
502	Q464	5613-2240(BL)	XISTOR, NPN R
502	Q465	5613-2240(BL)	XISTOR, NPN R
502	Q466	5613-2240(BL)	XISTOR, NPN R
508	Q467	5611-970(BL)	XISTOR, PNP R
508	Q468	5611-970(BL)	XISTOR, PNP R
508	Q469	5611-970(BL)	XISTOR, PNP R
508	Q470	5611-970(BL)	XISTOR, PNP R

DIODES

526	D401	5635-HZ12B2L	DIODE, ZENER
526	D402	5635-HZ12B2L	DIODE, ZENER
526	D403	5635-HZ12B2L	DIODE, ZENER
526	D404	5635-HZ12B2L	DIODE, ZENER
525	D411	5635-HZ18-2L	DIODE, ZENER
525	D412	5635-HZ18-2L	DIODE, ZENER
525	D413	5635-HZ18-2L	DIODE, ZENER
525	D414	5635-HZ18-2L	DIODE, ZENER

CONTROLS

561	VR401	5101-4738775	RES, SEMI FIX 47K
561	VR402	5101-4738775	RES, SEMI FIX 47K

MISCELLANEOUS

879	CN10	4443-047175	CONNECTOR
879	CN11	4443-047175	CONNECTOR
879	CN12	4443-047175	CONNECTOR
879	CN13	4443-047175	CONNECTOR
880	CN14	4443-067175	CONNECTOR
858	TM8	4214-11031	TERMINAL

PCB-11 INPUT JACK P.C.BOARD

CAPACITORS

599	C81	5345-107B0951	CAP, MINI ELE 100μ/10V
598	C82	5353-680534	CAP, MCA 68p UA N
598A	C82	5359-1025851	CAP, PPP 1000p G

Ser. No.	Ref. No.	Part No.	Description
600	C83	5345-228A0952	CAP, MINI ELE 2200μ/6.3V
600	C84	5345-228A0952	CAP, MINI ELE 2200μ/6.3V
613	C85	5345-337C041	CAP, MINI ELE 330μ/16V
613	C86	5345-337C041	CAP, MINI ELE 330μ/16V
613	C87	5345-337C041	CAP, MINI ELE 330μ/16V
613	C88	5345-337C041	CAP, MINI ELE 330μ/16V
597	C89	5354-104593	CAP, MYL .1μ
053A	C90	5359-4715851	CAP, PPP 470p G
053A	C91	5359-4715851	CAP, PPP 470p G

RESISTORS

602	R81	5232-331J16P	RES, CBN 1/6P 330 UA N
602A	R81	5232-222J16P	RES, CBN 1/6P 2.2K G
603	R82	5232-224J16P	RES, CBN 1/6P 220K
604	R83	5232-471J16P	RES, CBN 1/6P 470
604	R84	5232-471J16P	RES, CBN 1/6P 470
605	R85	5232-104J16P	RES, CBN 1/6P 100K
606	R86	5232-105J16P	RES, CBN 1/6P 1M
607	R88	5232-221J16P	RES, CBN 1/6P 220
615	ΔR89	5102-1024715	RES, FUSE 1K
615	ΔR90	5102-1024715	RES, FUSE 1K
617	R91	5135-223522	RES, CBN 1/2P 22K
617	R92	5135-223522	RES, CBN 1/2P 22K
608	R93	5232-472J16P	RES, CBN 1/6P 4.7K
608	R94	5232-472J16P	RES, CBN 1/6P 4.7K

TRANSISTORS

591	Q81	5611-970(BL)	XISTOR, PNP R
592	Q82	5613-2240(BL)	XISTOR, NPN R
609	Q85	5614-667(C)	XISTOR, NPN A
610	Q86	5612-647(C)	XISTOR, PNP A
595	Q87	5616-2SK364(V)or(BL)	FET, N-CH

DIODES

611	D81	5635-HZ15-1L	DIODE, ZENER
611	D82	5635-HZ15-1L	DIODE, ZENER

MISCELLANEOUS

831	J1	4482-7135	PIN JACK, 2P
846	JL2	4242-R0403251	JUMPER LEAD
835	SW6	4421-0427226	SWITCH, SLIDE
859	TM9	4214-11031	TERMINAL
820	LCN105	4163-0125020	CONNECTOR W/W

PCB-12 RELAY P.C.BOARD

CAPACITORS

789	C1	5352-1030961	CAP, MTL .01 UA N
789A	C1	5352-1030958	CAP, MTL .01 G
782	C201	5345-477D041	CAP, MINI ELE 470μ/25V
060A	C202	5345-227B041	CAP, MINI ELE 220μ/10V G
060A	C203	5345-227B041	CAP, MINI ELE 220μ/10V G

RESISTORS

062A	R201	5232-102J16P	RES, CBN 1/6P 1K G
068A	ΔR202	5102-1004715	RES, FUSE 10 G
063A	R203	5232-472J16P	RES, CBN 1/6P 4.7K G
064A	R204	5232-470J16P	RES, CBN 1/6P 47 G
065A	R205	5232-561J16P	RES, CBN 1/6P 560 G
061A	R206	5135-223522	RES, CBN 1/2P 22K G
066A	R207	5232-223J16P	RES, CBN 1/6P 22K G
066A	R208	5232-223J16P	RES, CBN 1/6P 22K G
786	ΔR209	5102-4R75116	RES, FUSE 4.7
067A	R210	5232-104J16P	RES, CBN 1/6P 100K G

INTEGRATED CIRCUITS

056A	IC201	5654-TC4027BP	IC, DIGITAL G
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TRANSISTORS

057A	Q201	5613-2603(E)or(F)	XISTOR, NPN R G
057A	Q202	5613-2603(E)or(F)	XISTOR, NPN R G
058A	Q203	5614-667(C)	XISTOR, NPN A G
058A	Q204	5614-667(C)	XISTOR, NPN A G

DIODES

777	D201	5632-S5566B	DIODE, RECT
778	D202	5631-1S2473	DIODE, DET
059A	D203	5635-HZ9C-2L	DIODE, ZENER G

Ser. No.	Ref. No.	Part No.	Description
MISCELLANEOUS			
790	△T3	5584-702550	XFORMER, POWER UA
790A	△T3	5584-701550	XFORMER, POWER G
790B	△T3	5584-703550	XFORMER, POWER N
866	CN7	4443-040185	CONNECTOR
788	RL1	4331-10120137	RELAY, DC UA N
788A	RL1	4331-10120237	RELAY, DC G
796	TM12	4214-122	TERMINAL
796	TM13	4214-122	TERMINAL
796	TM14	4214-122	TERMINAL
796	TM15	4214-122	TERMINAL
796	TM16	4214-122	TERMINAL
800	△	4472-7113	HOLDER, FUSE

PCB-13 LED P.C.BOARD

Ser. No.	Ref. No.	Part No.	Description
CAPACITORS			
632	C34	5345-476C041	CAP, MINI ELE 47 μ /16V
051B	C133	5345-106C095J	CAP, MINI ELE 10 μ /16V N
051B	C134	5345-106C095I	CAP, MINI ELE 10 μ /16V N
051B	C135	5345-106C095I	CAP, MINI ELE 10 μ /16V N

Ser. No.	Ref. No.	Part No.	Description
RESISTORS			
752	R71	5135-271522	RES, CBN 1/2P 270
753	R72	5135-153522	RES, CBN 1/2P 15K
748	R73	5232-332J16P	RES, CBN 1/6P 3.3K
749	R74	5232-391J16P	RES, CBN 1/6P 390
749	R75	5232-391J16P	RES, CBN 1/6P 390
750	R79	5232-472J16P	RES, CBN 1/6P 4.7K
754	R80	5135-103522	RES, CBN 1/2P 10K
751	R87	5232-102J16P	RES, CBN 1/6P 1K
733	R171	5232-103J16P	RES, CBN 1/6P 10K
734	R172	5232-332J16P	RES, CBN 1/6P 3.3K
738	R173	5232-271J16P	RES, CBN 1/6P 270
736	R174	5232-102J16P	RES, CBN 1/6P 1K
737	R175	5232-472J16P	RES, CBN 1/6P 4.7K
734	R176	5232-332J16P	RES, CBN 1/6P 3.3K
735	R177	5232-391J16P	RES, CBN 1/6P 390
735	R178	5232-391J16P	RES, CBN 1/6P 390

Ser. No.	Ref. No.	Part No.	Description
TRANSISTORS			
741	Q13	5611-1115(E)or(F)	XISTOR, PNP R
742	Q14	5613-2240(BL)	XISTOR, NPN R
729	Q116	5611-1115(E)or(F)	XISTOR, PNP R
729	Q117	5611-1115(E)or(F)	XISTOR, PNP R

Ser. No.	Ref. No.	Part No.	Description
DIODES			
801	D7	5637-GL5EG21	LED
802	D8	5637-GL5HD10	LED
802	D9	5637-GL5HD10	LED
802	D10	5637-GL5HD10	LED
802	D11	5637-GL5HD10	LED
802	D12	5637-GL5HD10	LED
802	D13	5637-GL5HD10	LED
744	D14	5635-HZ7B-2L	DIODE, ZENER
630	D18	5632-S5566B	DIODE, RECT
069A	D204	5637-GL5HY10	LED G
069A	D205	5637-GL5HY10	LED G

Ser. No.	Ref. No.	Part No.	Description
MISCELLANEOUS			
075A	CN6	4443-030185	CONNECTOR G
075A	CN8	4443-030185	CONNECTOR G
865	CN9	4443-030185	CONNECTOR
865	CN10	4443-030185	CONNECTOR
845	JL4	4242-R040355I	JUMPER LEAD
073A	JL8	4242-R040310I	JUMPER LEAD G

PCB-14 POWER SWITCH P.C.BOARD

Ser. No.	Ref. No.	Part No.	Description
843	JL7	4242-R040410I	JUMPER LEAD
811	△SW1	4431-A027170	SWITCH, PUSH

PCB-15 OVERLOAD LED P.C.BOARD

Ser. No.	Ref. No.	Part No.	Description
805	D107	5637-GL5HD10	LED

Ser. No.	Ref. No.	Part No.	Description
805	D108	5637-GL5HD10	LED
867	CN11	4443-030185	CONNECTOR
CHASSIS MISCELLANEOUS			
799	△F1	5732-502028	FUSE
775	△F3	5732-632029	FUSE
775	△F4	5732-632029	FUSE
775	△F5	5732-632029	FUSE
775	△F6	5732-632029	FUSE
787	△T1	5584-701557	XFORMER, POWER UA
787A	△T1	5584-701558	XFORMER, POWER G
787B	△T1	5584-702558	XFORMER, POWER N
836	SW8	4421-0227230	SWITCH, SLIDE
836	SW9	4421-0227230	SWITCH, SLIDE
187		2240-385	HOLDER WIRING
054A	△SW2	4411-1047112	SWITCH, ROTARY G
841	△P1	4161-71154	CORD W/PLUG, POWER CORD UA
841A	△P1	4161-71150	CORD W/PLUG, POWER CORD G
841B	△P1	4161-72145	CORD W/PLUG, POWER CORD N

Ser. No.	Ref. No.	Part No.	Description
PACKAGE PARTS LIST			
021A		1756-03108	LABEL, INT G
021B		1756-03113	LABEL, N N
022A		1756-06303	LABEL, 220V/50Hz G
025A		1119-026	ATTACH SHEET, FTZ SHEET G
105		1111-J90195	OWNER GUIDE, UL UA
106		1111-J30257	OWNER GUIDE, OG UA
106A		1111-J30262	OWNER GUIDE, OG G
106B		1111-J2037	OWNER GUIDE, OG N
107		1113-717004	OWNER CARD, REPLY CARD UA
107B		1113-OC	OWNER CARD N
108		1119-047	ATTACH SHEET, WARRANTY UA
108B		1119-GC	ATTACH SHEET, WARRANTY N
109		1119-0137	ATTACH SHEET UA
111		1241-C12732	POLYETHY BAG, OG
122		1221-727198	CARTON BOX
123		1222-7307	CUSHION, R
124		1222-7308	CUSHION, L
125		1223-11747	SOFT SHEET, SET
126		1223-11115	SOFT SHEET, AC CORD
127		1241-C1494	POLYETHY BAG, SET
026B		1241-PB	POLYETHY BAG, OG N

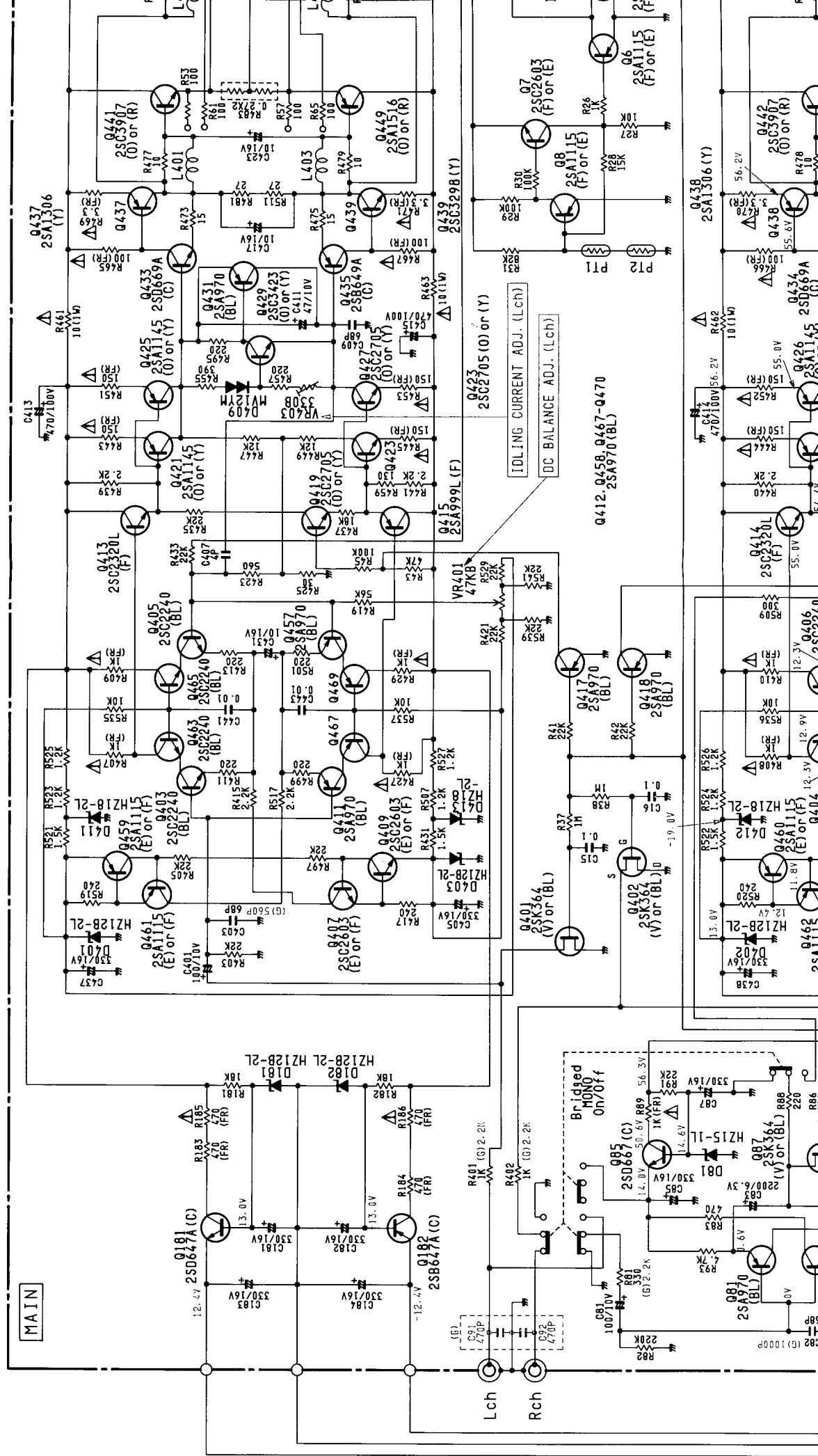
ABBREVIATIONS IN PARTS LIST

CAPACITORS	RESISTORS
CAP, MINI ELE : Electrolytic	RES, CBN 1/6P : Carbon 1/6W
CAP, CER : Ceramic	RES, FUSE : Fuse
CAP, PPP : Polypropylene	RES, CEM 5P : Cement 5W
CAP, MYL : Mylar	RES, MTL 1P : Metal 1W
CAP, MCA : Mica	2.2K : 2.2k Ω
CAP, MINI BP : Bipolar	220 : 220 Ω
CAP, ELE BP : Electrolytic Bipolar	TRANSISTORS
470 μ : 470 μ F	XISTOR : Transistor
6800p : 6800pF	FET : Field Effect Transistor
.047 μ : 0.047 μ F	CONTROLS
	RES, V CBN : Variable Carbon Resistor

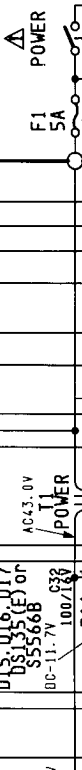
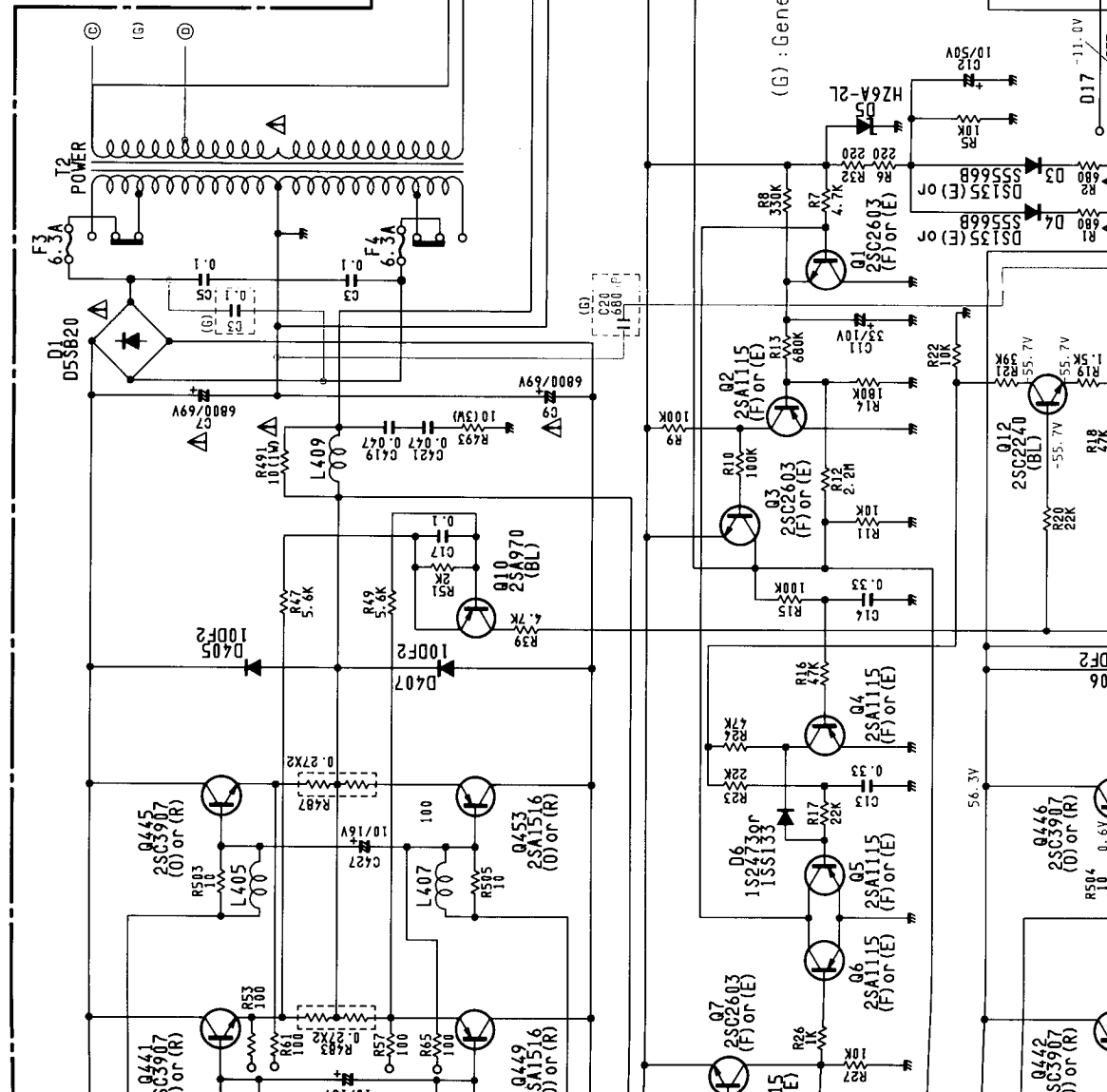
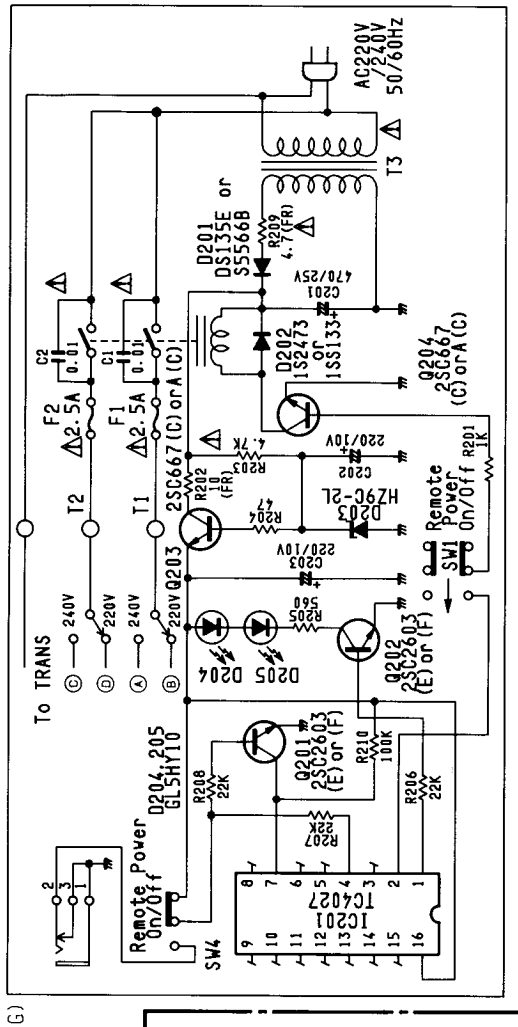
NOTE

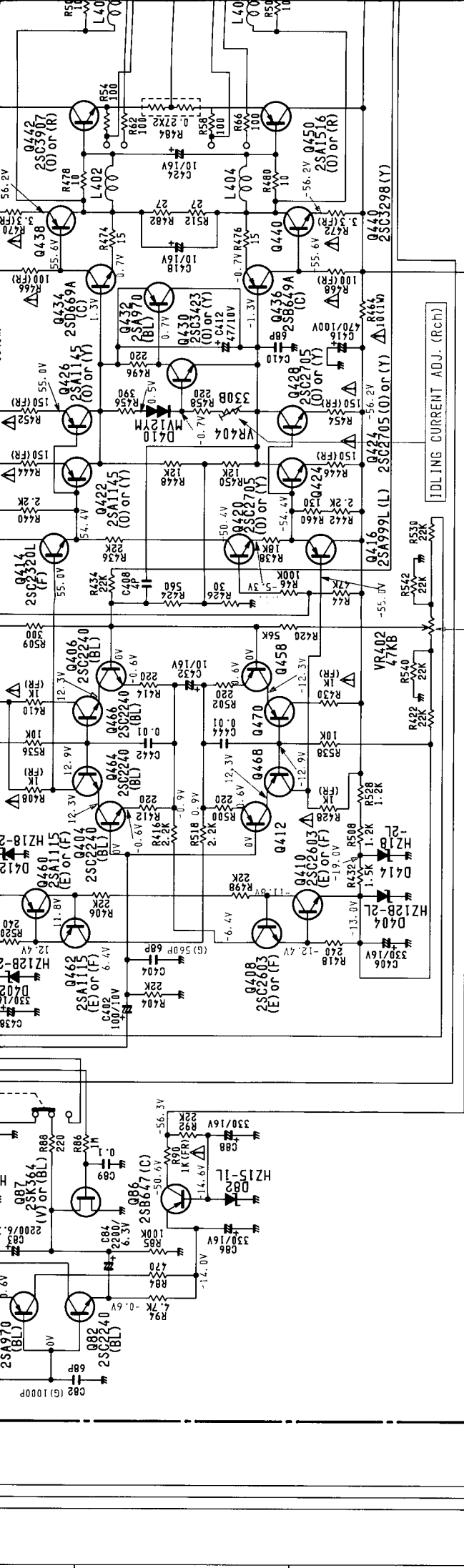
SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

SCHEMATIC DIAGRAM



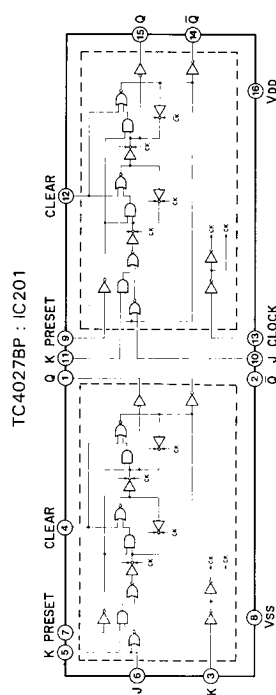
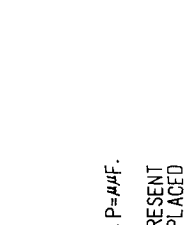
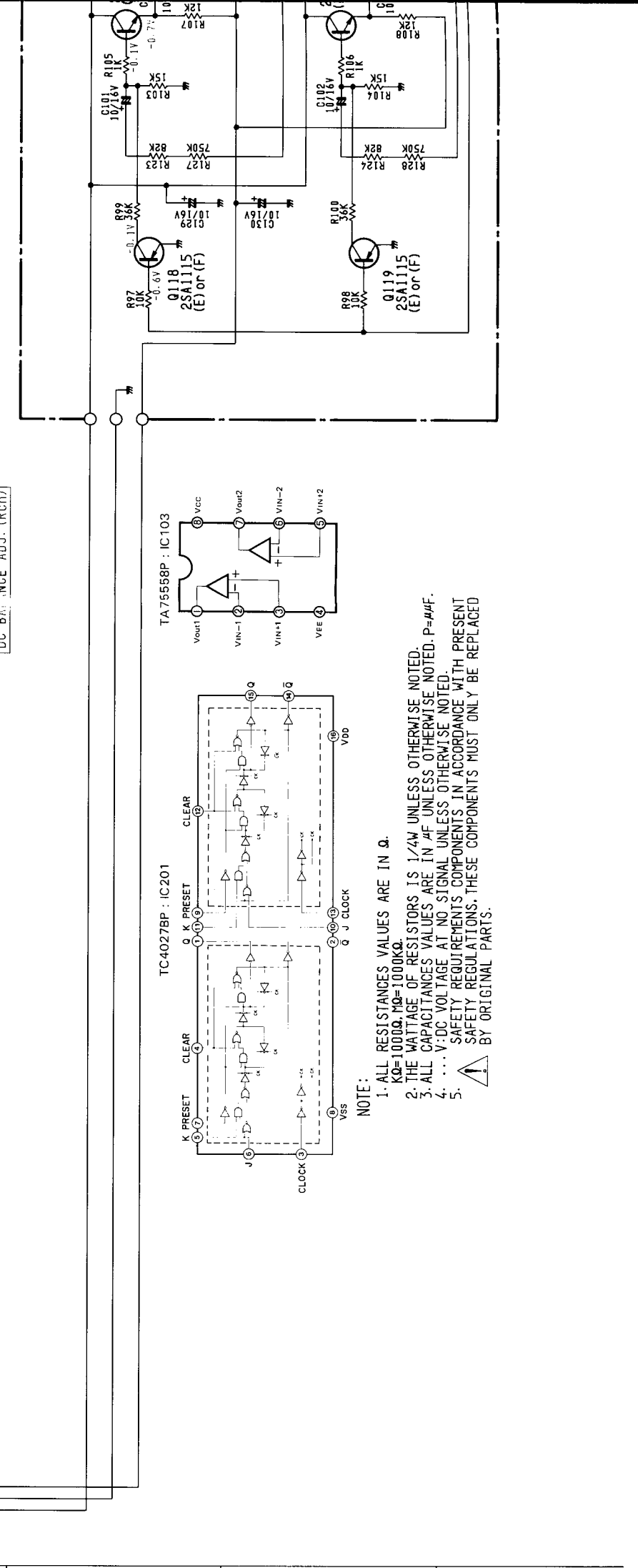
N M L K J I H



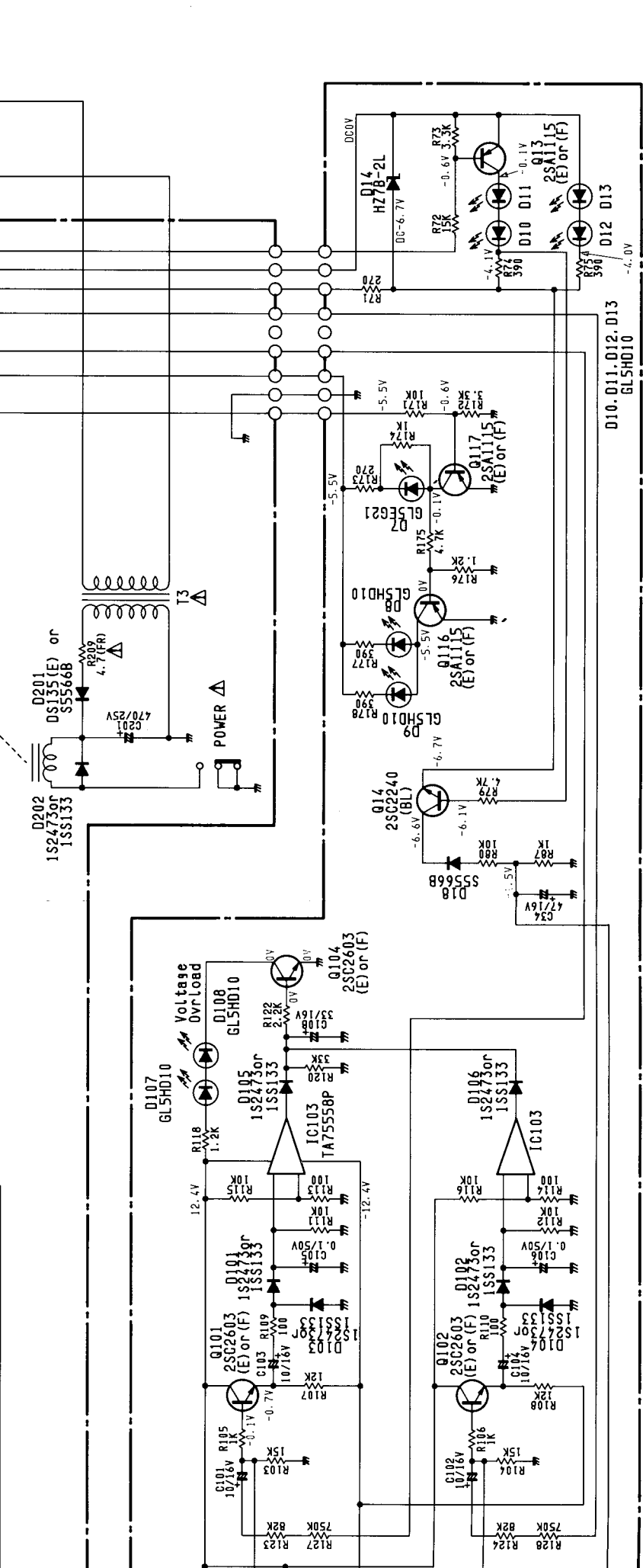
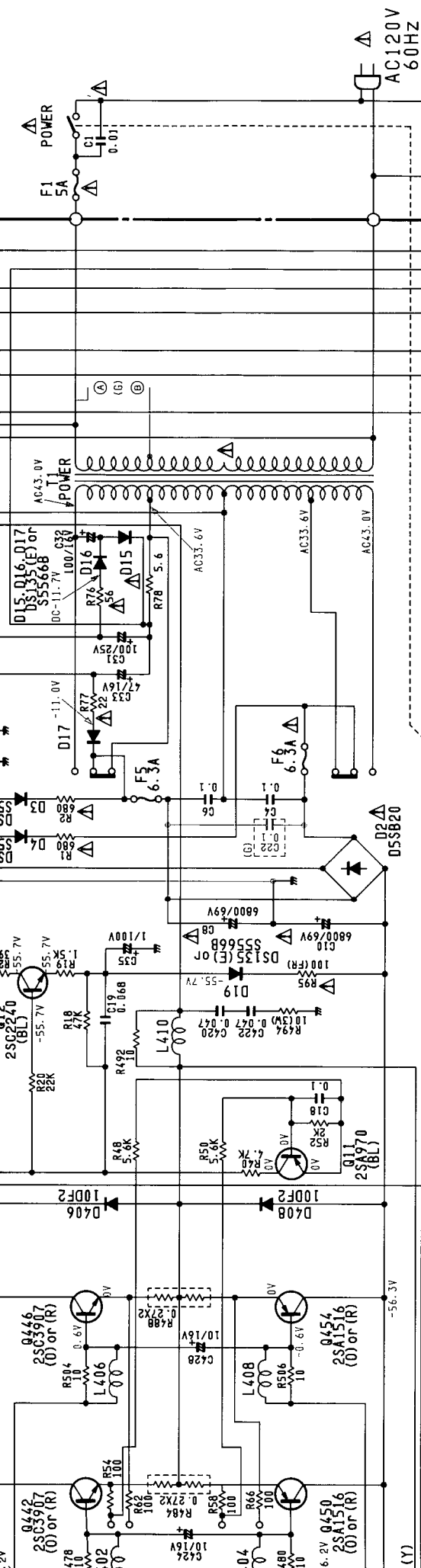


DC BALANCE ADJ. (Rch)

IDLING CURRENT ADJ. (Rch)



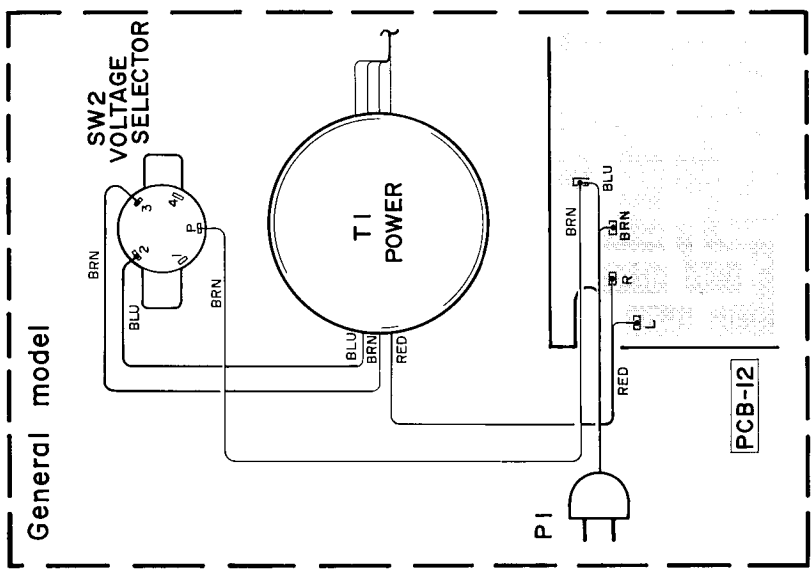
NOTE:
 1. ALL RESISTANCE VALUES ARE IN Ω .
 2. THE CAPACITANCE VALUES ARE IN μF UNLESS OTHERWISE NOTED.
 3. ALL CAPACITANCE VALUES ARE IN pF UNLESS OTHERWISE NOTED.
 4. ... V: DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
 5. SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS, THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.



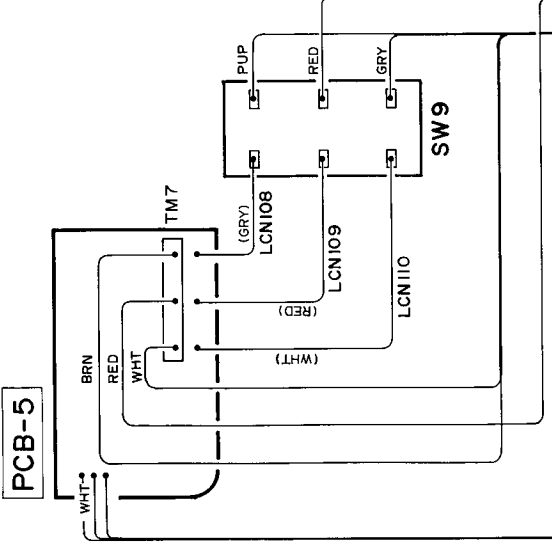
A B C D E F G

WIRING DIAGRAM

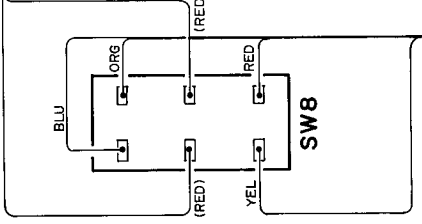
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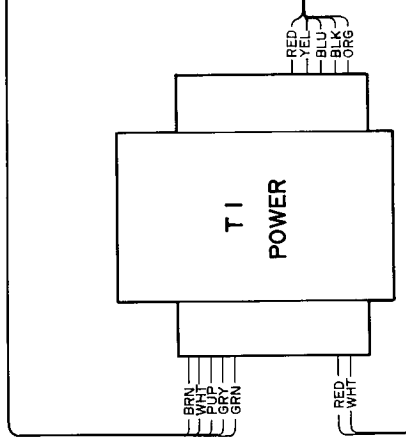
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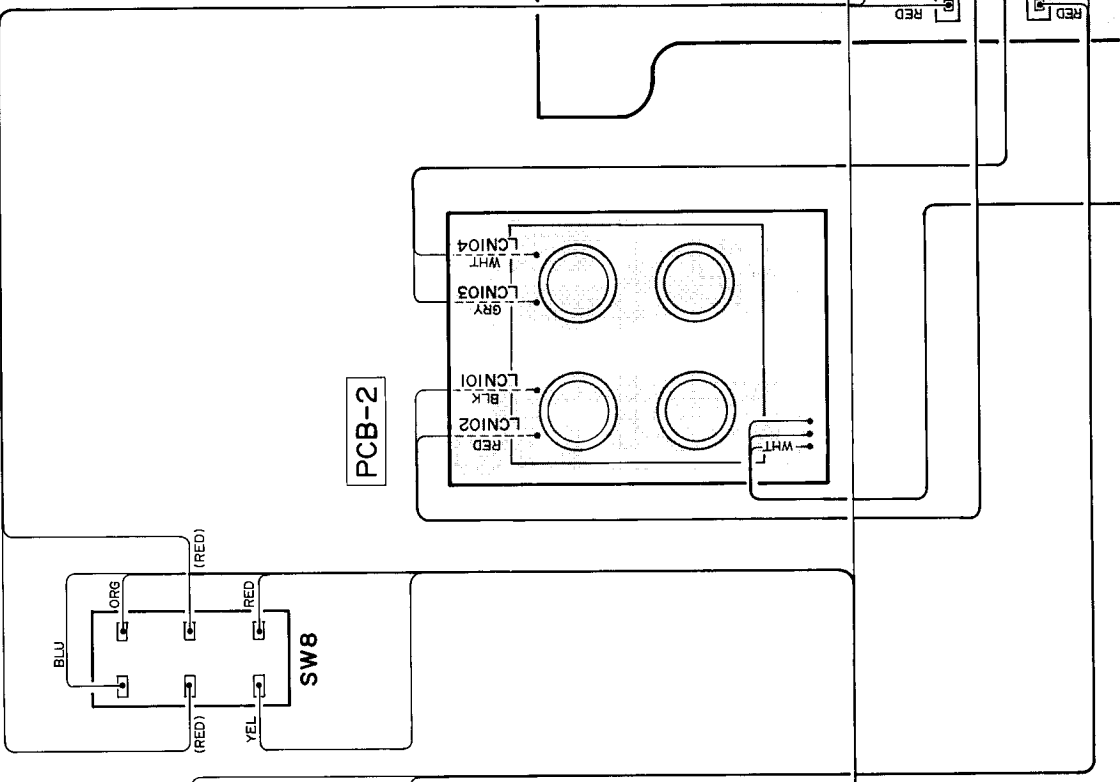
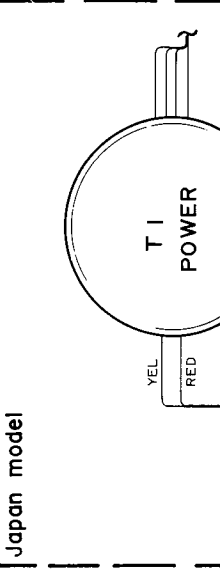
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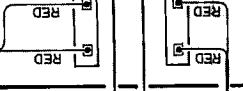
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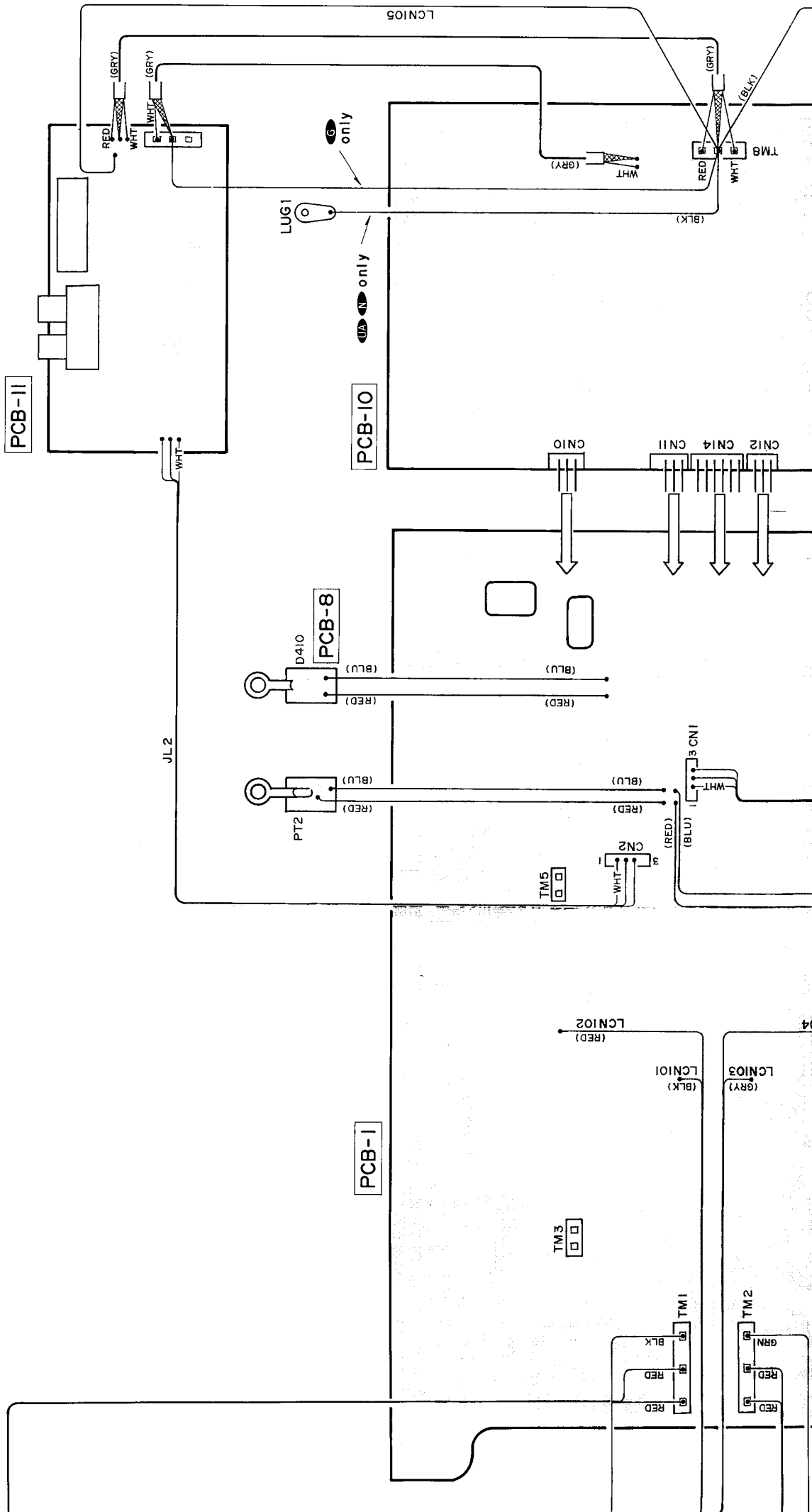


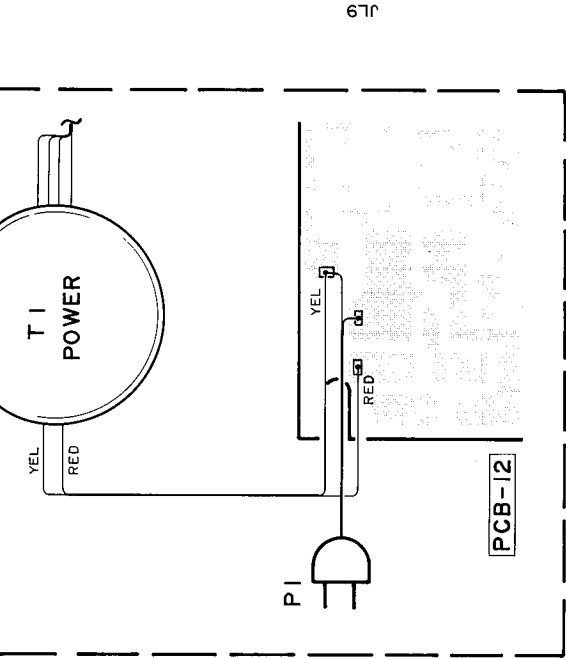
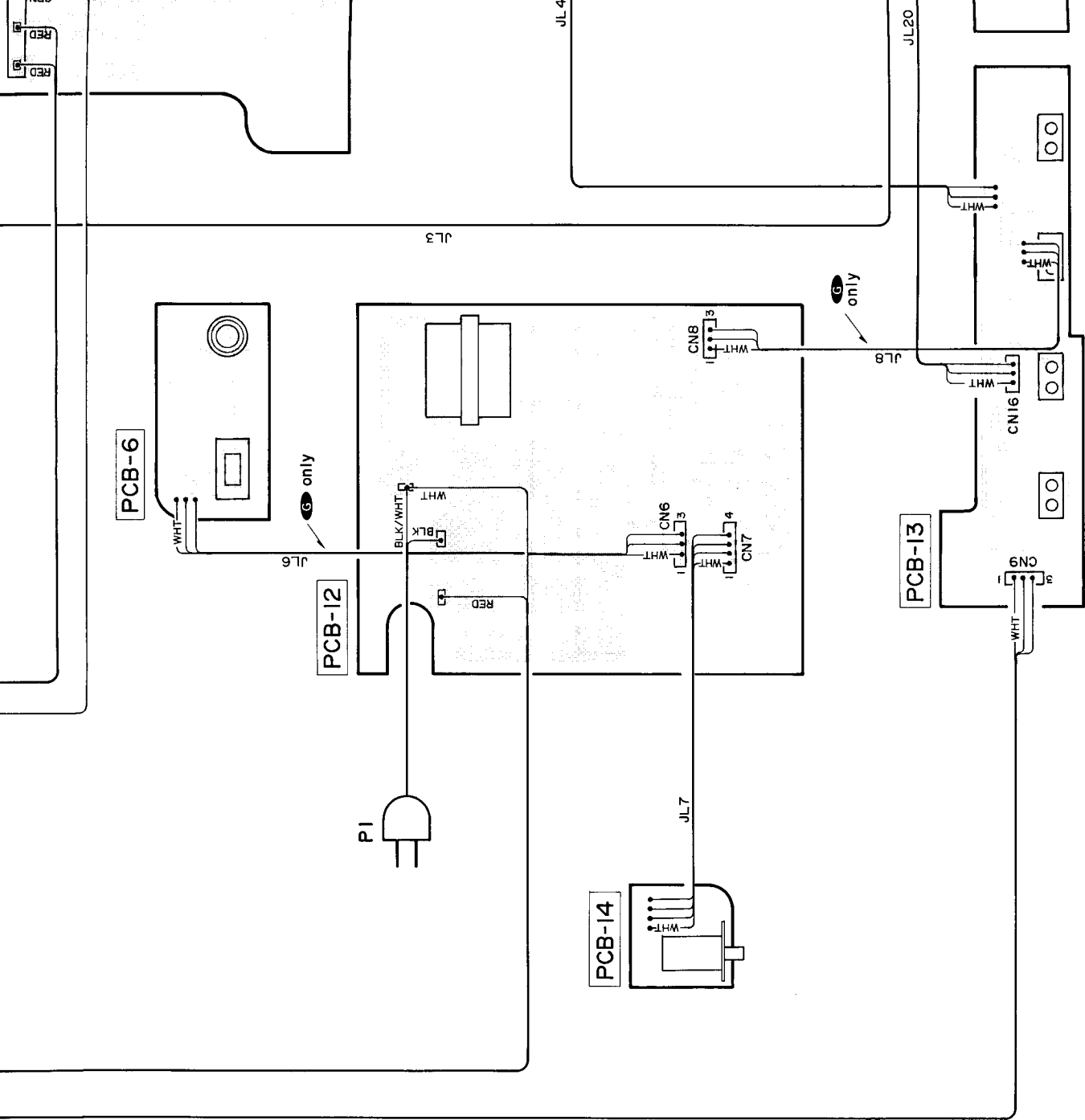
5



6







- **WIRE COLOR ABBREVIATIONS**
- RED : Red
- YEL : Yellow
- ORG : Orange
- BLU : Blue
- WHT : White
- GRN : Green
- BLK : Black
- PUP : Purple
- PIK : Pink
- GRY : Gray
- BRN : Brown

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