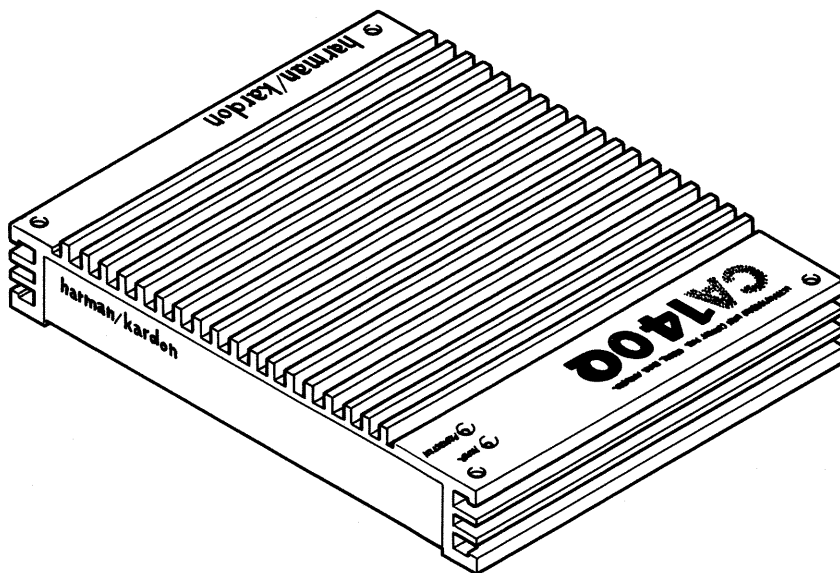


# The Harman Kardon Model CA140Q HIGH FIDELITY CAR AMPLIFIER

Manual 175A

## Technical Manual



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

- **UA** : North America area model
- **I** : International model
- **N** : Japan model

**harman/kardon**

Parts and Service Office  
240 Crossways Park West, Woodbury, N.Y. 11797  
1112-3152175A8 P-079106 1200 Printed in Japan

CA140Q

## SPECIFICATIONS

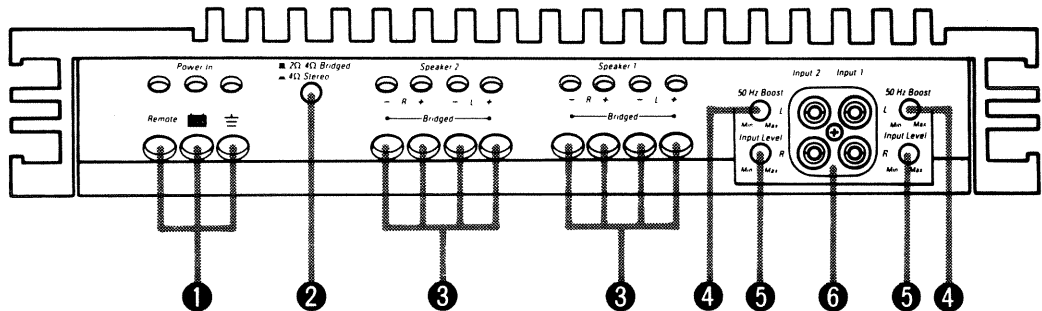
Number of Channels	: 4
Continuous Average Power per Channel, All Channels Driven from 20Hz — 20kHz	: 35 Watts @ <0.1% THD into 4 Ohms 35 Watts @ <0.3% THD into 2 Ohms 70 Watts @ <0.3% THD bridged into 4 Ohms
HCC	: $\pm 30$ Amps
Frequency Response	: 5Hz—100kHz (+0, -3dB)
Signal-to-Noise Ratio	: 100dB

Input Sensitivity/Impedance	: 250mV/22k $\Omega$ (variable)
Power Supply	: DC+14.4V (11—16V usable), negative ground
Dimensions (H x W x D)	: 2.25" x 12.6" x 9.4" (57 x 320 x 240 mm)
Weight	: 9 lbs. 1 oz (4.1 kg)

All specifications and features subject to change without notice.

## JACKS, TERMINALS AND CONTROLS

- ① Power input terminals
- ② 2 $\Omega$ /4 $\Omega$  switch
- ③ Speaker terminals
- ④ 50 Hz boost control
- ⑤ Input level control
- ⑥ Input jacks



## CONNECTIONS

### General

- Caution 1:** The ignition key switch should be turned off before any connections are made to the car electrical system.
- Caution 2:** Use a flat-bladed screwdriver with a blade width of less than 5 mm to connect the cables. Using a screwdriver with a blade width of more than 5 mm can damage the screw slot.
- Caution 3:** The last connection to be made should be to the positive terminal of the car battery.
- Caution 4:** Do not connect any of the CA140Q speaker terminals to the car chassis or to a common ground. Also, do not connect the speaker terminals of the CA140Q to the input terminals of another amplifier or signal processor.

Connect the CA140Q to the car electrical system and to the other components in the audio system as per the following instructions:

### Remote

This terminal enables the power switch of the car turner/CD or turner/deck to also turn on the CA140Q. Connect one end of the accessory yellow cord to the appropriate lead (power amplifier remote) on the car turner/CD or turner/deck and the other end to the remote terminal on the CA140Q.

If a specific wire for this purpose is not provided on the turner/deck, use the wire for controlling the power antenna. If that wire is already connected to the power antenna, the CA140Q can be connected in addition.

### +B

The +B terminal is the positive power input terminal. It should be connected to the positive (+) terminal of the car battery using the accessory red cord. The cord should be installed such that the attached fuse holder is located near the car battery.

### GND

This is the negative power input terminal. It should be connected directly to the car chassis using the accessory black cord. It is not necessary to connect this terminal to the negative battery terminal.

### Input Jacks

These input jacks are for connection to the line (preamplifier) output jacks on the car stereo or turner/deck. It is recommended that high quality shielded coaxial cables with tight-fitting RCA plugs be used for this connection.

If the car in-dash unit has a built-in power amplifier and does not have line (preamplifier) output jacks, connect the speaker wires to these input jacks. Male phono plugs (not provided) are required. If the built-in amplifier is the "High Power" type (rated 12 watts per channel or more), a power-line adaptor (not provided) must be used.

### Adjusting Input Level and 50 Hz Boost Controls

**Input level** — This continuously variable control allows the amplifier's sensitivity to be matched to the output level of the in-dash unit. Initially, set this control to a low position. Turn on the car audio system and attempt to play it at a comfortable listening level. If the volume control on the in-dash unit cannot increase the level sufficiently, increase the input level control setting accordingly.

**50 Hz boost** — This continuously variable control can add up to 12 dB of boost to low frequencies in the 50 Hz range. This can be used to compensate for the poor low frequency response from some car speaker systems. Set the bass and treble controls on the in-dash unit to their center positions. Defeat or bypass an equalizer, if used. While the car audio system is playing at a comfortable listening level, increase the setting of the 50 Hz boost control until the desired low frequency effect is achieved.

**DISASSEMBLY PROCEDURES (REFER TO PAGES 3 AND 10)**

**1 CABINET BOTTOM ASS'Y (AA) REMOVAL**

Remove 7 screws (A) and then remove the Cabinet Bottom Ass'y (AA).

**2 FRONT PANEL (134) REMOVAL**

1. Remove the Cabinet Bottom Ass'y (AA), referring to the previous step 1.
2. Remove 3 screws (B) and then remove the Front Panel (134).

**3 REAR PANEL (133) REMOVAL**

1. Remove the Cabinet Bottom Ass'y (AA), referring to the previous step 1.
2. Remove 3 screws (C) and then remove the Rear Panel (133).

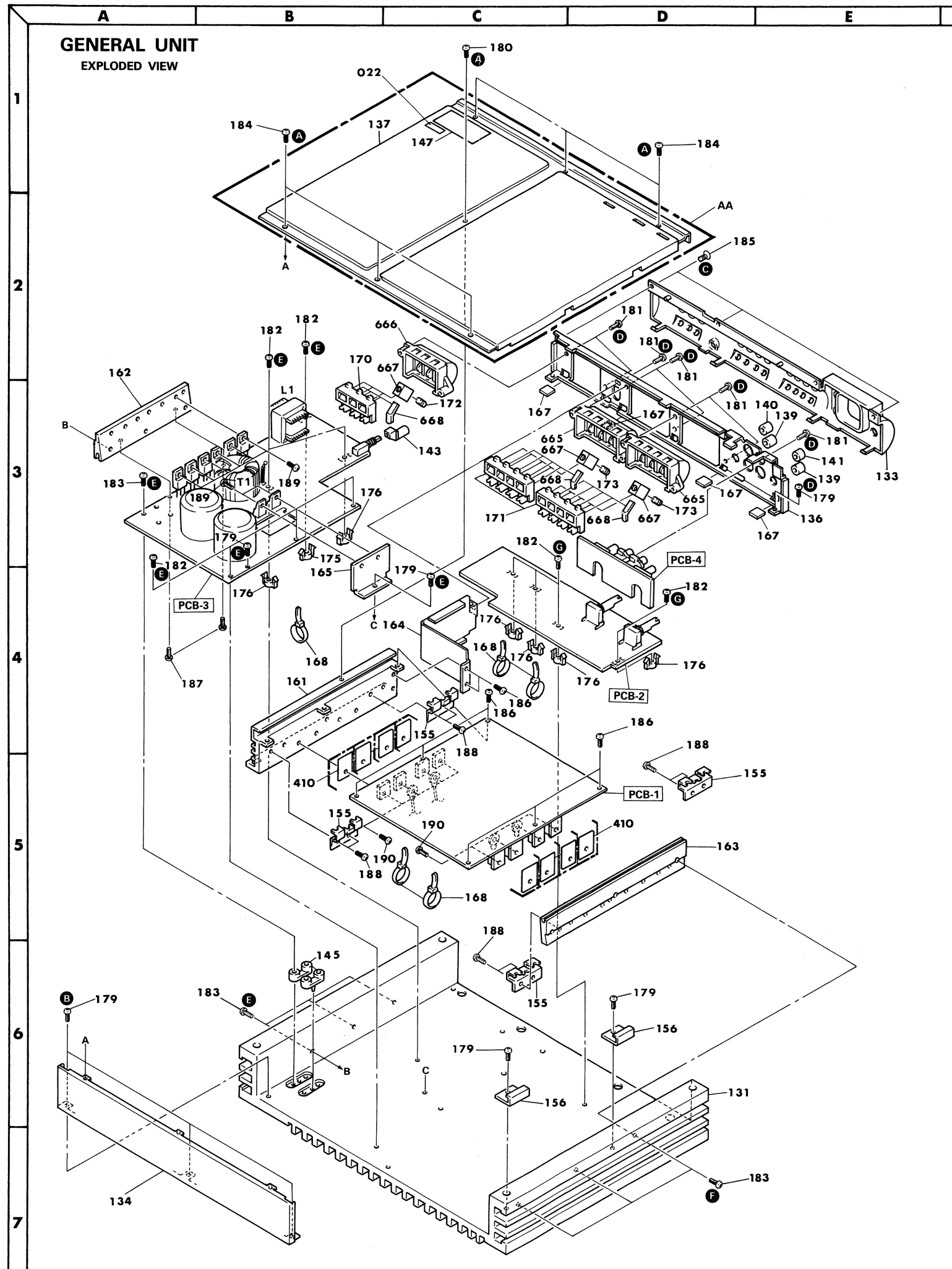
**4 P.C. BOARDS REMOVAL**

1. Remove the Cabinet Bottom Ass'y (AA), referring to the previous step 1.
2. Remove the Rear Panel (133), referring to the previous step 3.
3. Remove 9 screws (D) and then remove the cabinet back (136).
4. Remove 12 screws (E) and then remove the Power P.C. Board (PCB-3).
5. Remove 3 screws (F) and then remove the Main P.C. Board (PCB-1).
6. Remove 4 screws (G) and then remove the Input P.C. Board (PCB-2).

**GENERAL UNIT PARTS LIST**

Ref. No.	Part No.	Description
AA	A424-HC395A	CABINET BOTTOM ASSEMBLY
022	1756-19318	LABEL, DBP No. 1
131	1413-00401	CABINET
133	1442-27101	PANEL, REAR
134	1444-05801	PANEL, FRONT
136	1424-35001	CABI BACK, REAR
137	1424-35101	CABI BACK, BOTTOM
139	1632-21201	ROTARY KNOB, BASS BOOST
140	1632-21101	ROTARY KNOB, INPUT Rch
141	1632-21301	ROTARY KNOB, INPUT Lch
143	1662-66101	PUSH BUTTON, 2/4 OHM
145	1732-08401	INDICATOR (x2)
147	1751-10017	LABEL, SET
155	2219-8333	METAL FITTG (x4)
156	2219-8334	METAL FITTG (x2)
161	2222-7293	HEAT SINK
162	2222-7294	HEAT SINK
163	2222-7295	HEAT SINK
164	2222-7300	HEAT SINK
165	2222-7296	HEAT SINK
167	2112-11804	SPONGE (x4)
168	2240-R0101	HOLDER (x5)
170	2240-7388	HOLDER, TERMINAL

Ref. No.	Part No.	Description
171	2240-7389	HOLDER TERMINAL (x2)
172	2310-7039	SCREW, SPE (x3)
173	2310-7039	SCREW, SPE (x8)
175	2360-7025	BOSS, SPE
176	2360-7026	BOSS, SPE (x6)
179	2347-R0130062	SCREW, BND T (+) (3x6mm) (x6)
180	2347-R0126054	SCREW, BND T (+) (2.6x5mm)
181	2347-R0130084	SCREW, BND T (+) (3x8mm) (x8)
182	2347-R0130102	SCREW, BND T (+) (3x10mm) (x10)
183	2347-R0130124	SCREW, BND T (+) (3x12mm) (x7)
184	2347-260547	SCREW, BND T (+) (2.6x5mm) (x6)
185	2343-260527	SCREW, CSK T (+) (2.6x5mm) (x3)
186	2347-R0130062	SCREW, BND T (+) (3x6mm) (x8)
187	2347-R0130062	SCREW, BND T (+) (3x6mm) (x2)
188	2557-300629	SCREW, B SPW (+) (3x6mm) (x8)
189	2557-300829	SCREW, B SPW (+) (3x8mm) (x8)
190	2557-301029	SCREW, B SPW (+) (3x10mm) (x8)
410	2224-7134	INSULATOR
665	4215-09701	TERMINAL BRD, SPEAKER (x2)
666	4215-09801	TERMINAL BRD, POWER
667	4214-237	TERMINAL (x11)
668	4214-236	TERMINAL (x11)







Ser. No.	Ref. No.	Part No.	Description
<b>PCB-3 POWER P.C. BOARD</b>			
<b>CAPACITORS</b>			
641	C1	5345-104F0951	CAP, MINI ELE .1 $\mu$ /50V
642	C7	5345-S14DM226	CAP, MINI ELE 22 $\mu$ /25V
643	C9	5359-S010J103	CAP, PPP .01 $\mu$
653	C10	5345-106C0951	CAP, MINI ELE 10 $\mu$ /16V
644	C11	5345-S15CM108	CAP, MINI ELE 1000 $\mu$ /16V
644	C12	5345-S15CM108	CAP, MINI ELE 1000 $\mu$ /16V
645	C13	5361-102ZF	CAP, CER 1000p
646	C14	5345-S14FM475	CAP, MINI ELE 4.7 $\mu$ /50V
647	C15	5359-S010J102	CAP, PPP 1000p
648	C16	5345-S14CM337	CAP, MINI ELE 330 $\mu$ /16V
649	C17	5345-S14CM107	CAP, MINI ELE 100 $\mu$ /16V
650	C18	5359-S010J223	CAP, PPP .022 $\mu$
650	C19	5359-S010J223	CAP, PPP .022 $\mu$
651	C20	5359-S010J332	CAP, PPP 3300p
651	C21	5359-S010J332	CAP, PPP 3300p
652	C22	5341-S22EM109	CAP, ELE 10000 $\mu$ /35V
652	C23	5341-S22EM109	CAP, ELE 10000 $\mu$ /35V
644	C25	5345-S15CM108	CAP, MINI ELE 1000 $\mu$ /16V
644	C26	5345-S15CM108	CAP, MINI ELE 1000 $\mu$ /16V
<b>RESISTORS</b>			
615	R1	5135-332522	RES, CBN 1/2P 3.3K
616	R2	5232-472J16P	RES, CBN 1/6P 4.7K
619	R27	5232-333J16P	RES, CBN 1/6P 33K
616	R28	5232-472J16P	RES, CBN 1/6P 4.7K
620	R29	5232-103J16P	RES, CBN 1/6P 10K
621	R30	5232-332J16P	RES, CBN 1/6P 3.3K
620	R31	5232-103J16P	RES, CBN 1/6P 10K
620	R32	5232-103J16P	RES, CBN 1/6P 10K
620	R33	5232-103J16P	RES, CBN 1/6P 10K
619	R34	5232-333J16P	RES, CBN 1/6P 33K
619	R35	5232-333J16P	RES, CBN 1/6P 33K
619	R36	5232-333J16P	RES, CBN 1/6P 33K
616	R37	5232-472J16P	RES, CBN 1/6P 4.7K
616	R38	5232-472J16P	RES, CBN 1/6P 4.7K
634	R39	5232-122J16P	RES, CBN 1/6P 1.2K
620	R40	5232-103J16P	RES, CBN 1/6P 10K
618	R41	5232-102J16P	RES, CBN 1/6P 1K
618	R42	5232-102J16P	RES, CBN 1/6P 1K
616	R43	5232-472J16P	RES, CBN 1/6P 4.7K
616	R44	5232-472J16P	RES, CBN 1/6P 4.7K
623	R45	5232-682J16P	RES, CBN 1/6P 6.8K
624	R46	5232-183J16P	RES, CBN 1/6P 18K
625	R47	5232-271J16P	RES, CBN 1/6P 270
620	R48	5232-103J16P	RES, CBN 1/6P 10K
618	R49	5232-102J16P	RES, CBN 1/6P 1K
626	R50	5232-822J16P	RES, CBN 1/6P 8.2K
623	R51	5232-682J16P	RES, CBN 1/6P 6.8K
632	R52	5135-331522	RES, CBN 1/2P 330
632	R53	5135-331522	RES, CBN 1/2P 330
627	R54	5232-105J16P	RES, CBN 1/6P 1M
628	R55	5232-821J16P	RES, CBN 1/6P 820
615	R56	5135-332522	RES, CBN 1/2P 3.3K
629	R57	5171-4R7571	RES, MTL 1P 4.7
629	R58	5171-4R7571	RES, MTL 1P 4.7
633	R59	5135-220522	RES, CBN 1/2P 22
635	R60	5232-274J16P	RES, CBN 1/6P 270K
631	$\Delta$ R61	5102-2205116	RES, FUSE 22
631	$\Delta$ R62	5102-2205116	RES, FUSE 22
631	$\Delta$ R63	5102-2205116	RES, FUSE 22
631	$\Delta$ R64	5102-2205116	RES, FUSE 22
631	$\Delta$ R65	5102-2205116	RES, FUSE 22
631	$\Delta$ R66	5102-2205116	RES, FUSE 22
622	R67	5232-471J16P	RES, CBN 1/6P 470
617	R71	5135-152522	RES, CBN 1/2P 1.5K
618	R72	5232-102J16P	RES, CBN 1/6P 1K
<b>INTEGRATED CIRCUITS</b>			
661	IC1	5653-UPC494C	IC, LINEAR
662	IC2	5654-TC4069UB	IC, DIGITAL
<b>TRANSISTORS</b>			
581	Q9	5613-C124ES	XISTOR, NPN R
582	Q10	5611-1359(Y)	XISTOR, PNP R
583	Q11	5613-1740S(S)	XISTOR, NPN R

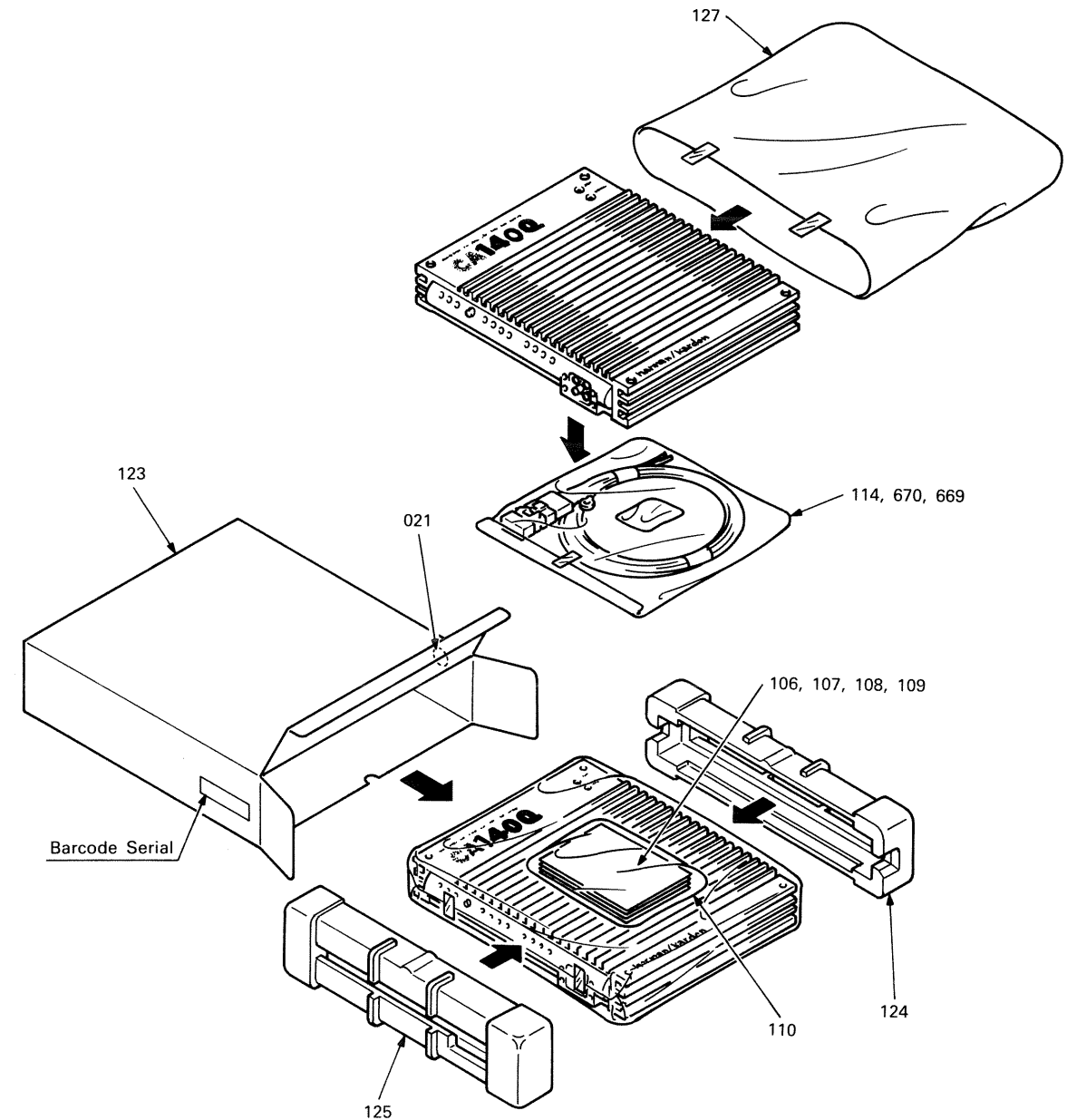
Ser. No.	Ref. No.	Part No.	Description
584	Q12	5611-A124ES	XISTOR, PNP R
584	Q13	5611-A124ES	XISTOR, PNP R
581	Q14	5613-C124ES	XISTOR, NPN R
581	Q15	5613-C124ES	XISTOR, NPN R
584	Q16	5611-A124ES	XISTOR, PNP R
583	Q17	5613-1740S(S)	XISTOR, NPN R
585	Q18	5613-2655(Y)	XISTOR, NPN R
585	Q19	5613-2655(Y)	XISTOR, NPN R
586	Q20	5611-1020(Y)	XISTOR, PNP R
586	Q21	5611-1020(Y)	XISTOR, PNP R
587	Q22	5616-2SK943	FET, N-CH
587	Q23	5616-2SK943	FET, N-CH
587	Q24	5616-2SK943	FET, N-CH
587	Q25	5616-2SK943	FET, N-CH
587	Q26	5616-2SK943	FET, N-CH
587	Q27	5616-2SK943	FET, N-CH
<b>DIODES</b>			
590	D1	5631-1S2473	DIODE, DET
591	D2	5635-HZ6A-2L	DIODE, ZENER
592	D3	5635-HZ12B2L	DIODE, ZENER
593	D4	5637-SLR33VC	LED
594	D5	5637-SLR33YC	LED
595	D6	5637-SLR33MC	LED
596	D7	5636-1S2471	DIODE, SWITCH
597	D8	5632-RM4AM	DIODE, RECT
598	D9	5631-1SS133	DIODE, DET
598	D10	5631-1SS133	DIODE, DET
599	D11	5632-F10P20F	DIODE, RECT
600	D12	5632-F10P20FR	DIODE, RECT
601	D13	5635-HZ22P-B	DIODE, ZENER
<b>COILS AND TRANSFORMER</b>			
604	L1	5583-51201	COIL, AF CH
607	L2	5995-S220M450	COIL W/CORE
607	L3	5995-S220M450	COIL W/CORE
606	T1	5591-00201	CORE, RND
<b>CONTROL</b>			
613	VR1	5101-10201930	RES, SEMI FIX 1K
<b>MISCELLANEOUS</b>			
640	LCN1	4163-02902003	CONNECTOR W/W
663	PH1	5624-TLP531	PHOTO COUPLR
657	PT1	5192-00701	POSISTOR
657	PT2	5192-00701	POSISTOR
657	PT3	5192-00701	POSISTOR
657	PT4	5192-00701	POSISTOR
658	PT5	5192-00601	POSISTOR
611	SW1	4431-S0601102	SWITCH, PUSH
664	TM1	4214-5021	TERMINAL

**PCB-4 JACK P.C. BOARD**

Ser. No.	Ref. No.	Part No.	Description
<b>CAPACITORS</b>			
500	C501	5353-680534	CAP, MCA 68p
500	C502	5353-680534	CAP, MCA 68p
500	C701	5353-680534	CAP, MCA 68p
500	C702	5353-680534	CAP, MCA 68p
<b>RESISTORS</b>			
514	R501	5232-821J16P	RES, CBN 1/6P 820
514	R502	5232-821J16P	RES, CBN 1/6P 820
514	R701	5232-821J16P	RES, CBN 1/6P 820
514	R702	5232-821J16P	RES, CBN 1/6P 820
<b>MISCELLANEOUS</b>			
551	J101	4489-00201004	PIN JACK, MLT

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

**PACKAGE**

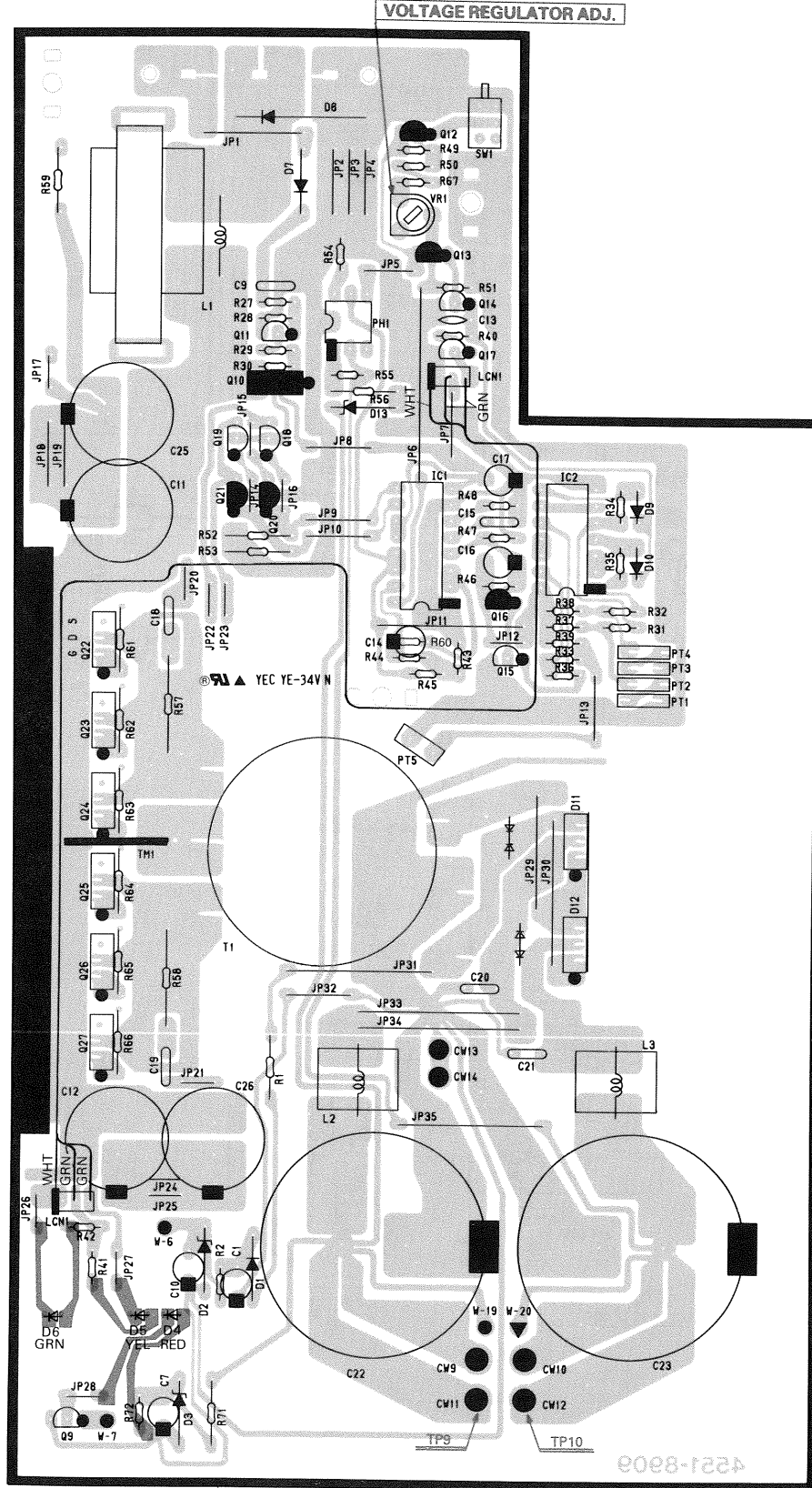


**PACKING PARTS LIST**

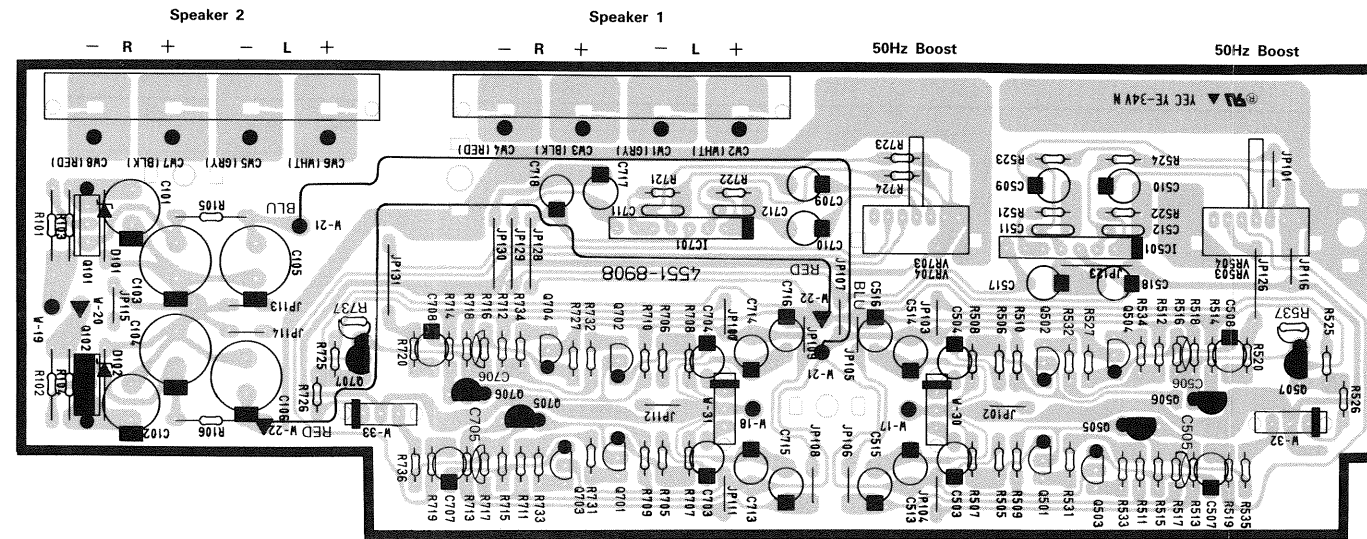
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
021	1756-03108	LABEL <b>I</b>	109	1119-04401	ATTACH SHEET <b>UA</b>
021	1756-03113	LABEL <b>N</b>	110	1241-R0118250	POLYETHY BAG
106	1111-J30349	OWNER GUIDE <b>UA</b>	114	2310-7041	SCREW, SPE
106	1111-J30350	OWNER GUIDE <b>I</b>	123	1221-29701	CARTON BOX
106	1111-J2057	OWNER GUIDE <b>N</b>	124	1222-7376	CUSHION
107	1113-717004	OWNER CARD <b>UA</b>	125	1222-7377	CUSHION
107	1113-OC	OWNER CARD <b>N</b>	127	1241-R0140350	POLYETHY BAG
108	1116-03901	GUARANT CARD <b>UA</b>	$\Delta$ 669	4472-7936	HOLDER, FUSE (W/FUSE P/N: 5732-01401303)
108	1116-GC	GUARANT CARD <b>N</b>	670	4171-01301	WIRING KIT

P.C. BOARDS

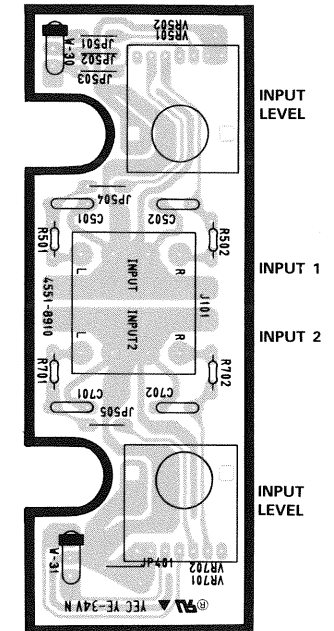
PCB-3 Power P.C. BOARD



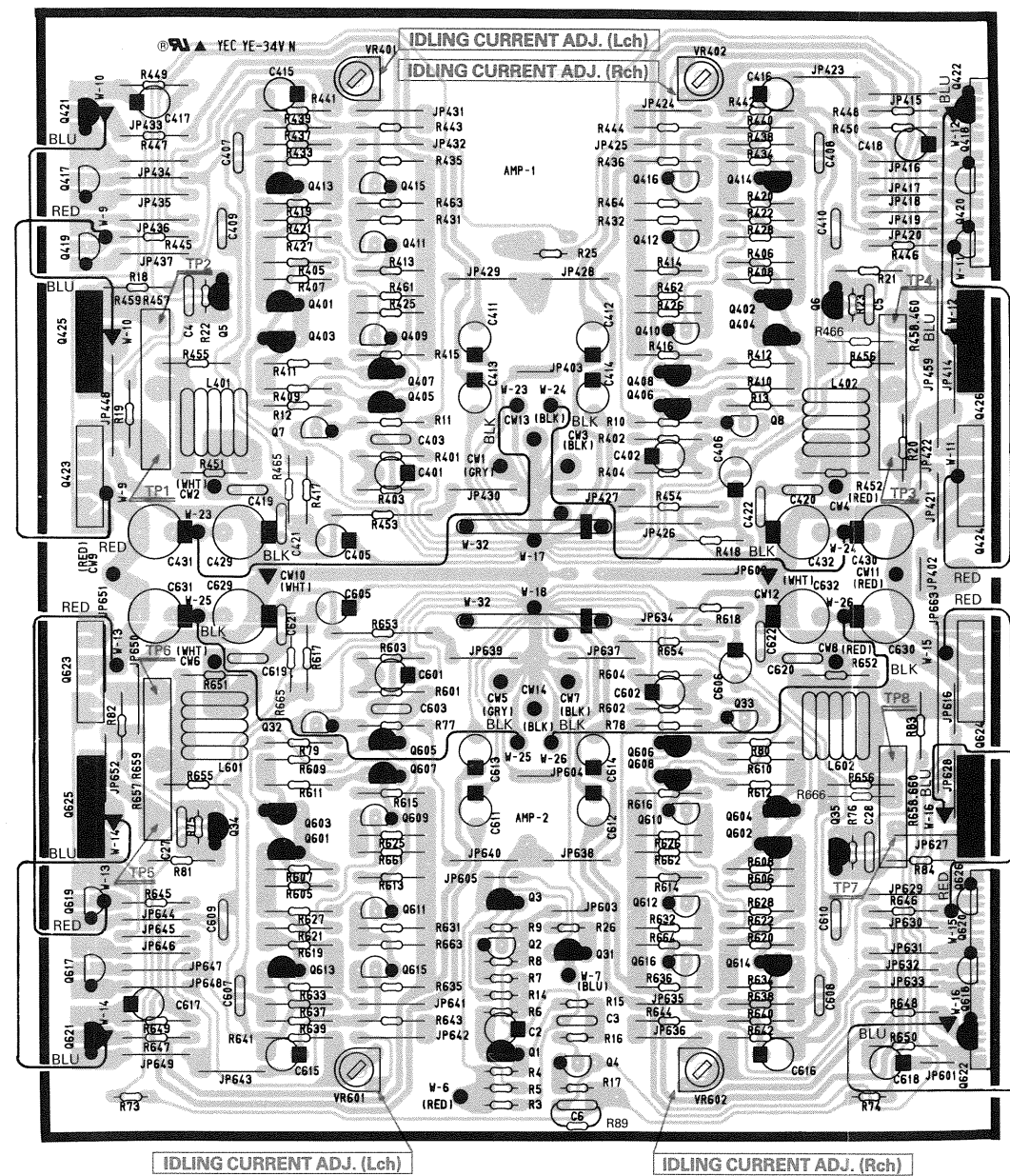
PCB-2 Input P.C. BOARD



PCB-4 Jack P.C. BOARD



PCB-1 Main P.C. BOARD

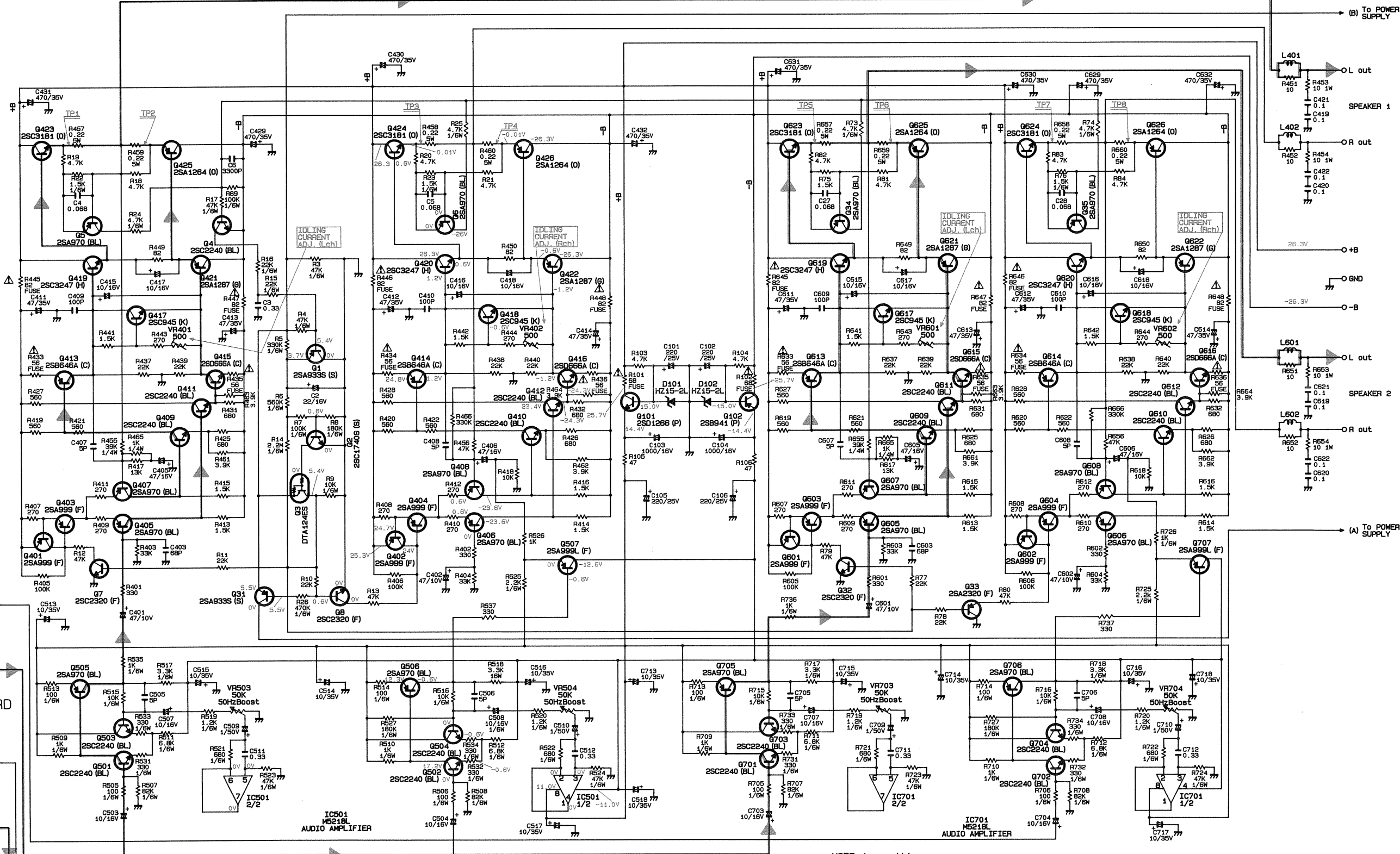


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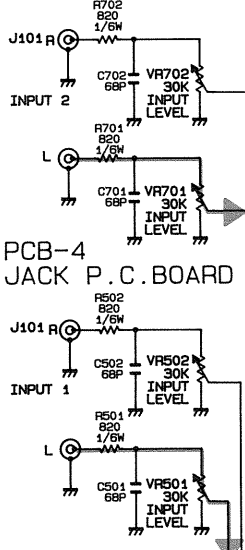
**SCHEMATIC DIAGRAM**

PCB-1 MAIN P.C. BOARD

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7



PCB-4 JACK P.C. BOARD



PCB-2 INPUT P.C. BOARD

NOTE: 4a position



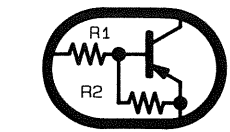
**SCHEMATIC DIAGRAM**

**PCB-3 POWER P.C. BOARD**

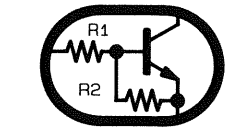
- SCHEMATIC DIAGRAM NOTES:**
1. ALL RESISTANCES VALUES ARE IN  $\Omega$ .  
K=1000 $\Omega$ , M=1000K $\Omega$ .
  2. THE WATTAGE OF RESISTORS IS 1/2W UNLESS OTHERWISE NOTED.
  3. ALL CAPACITANCES VALUES ARE IN  $\mu$ F UNLESS OTHERWISE NOTED. P=PPF.
  4. ... V: DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
  5. SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS. THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

⏏ Chassis Ground  
⏏ Signal Ground

NOTE: 4 $\mu$ /2 $\mu$  position



	R1	R2
DTA124ES	22K	22K



	R1	R2
DTC124ES	22K	22K

Page 8

5

Page 8

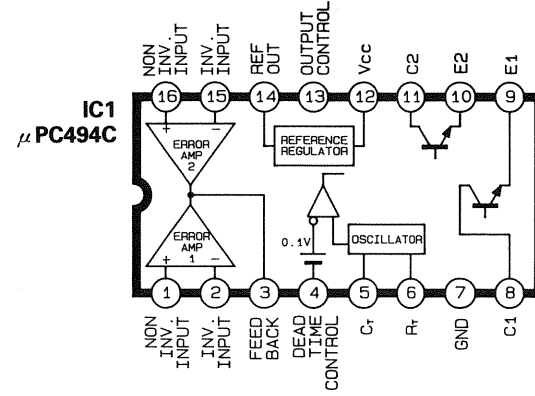
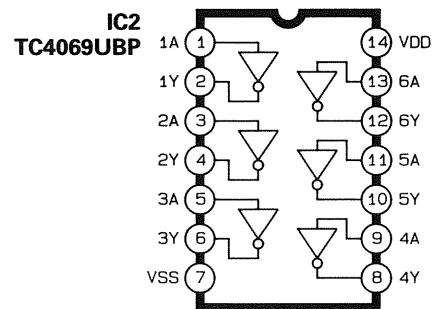
1

IC2

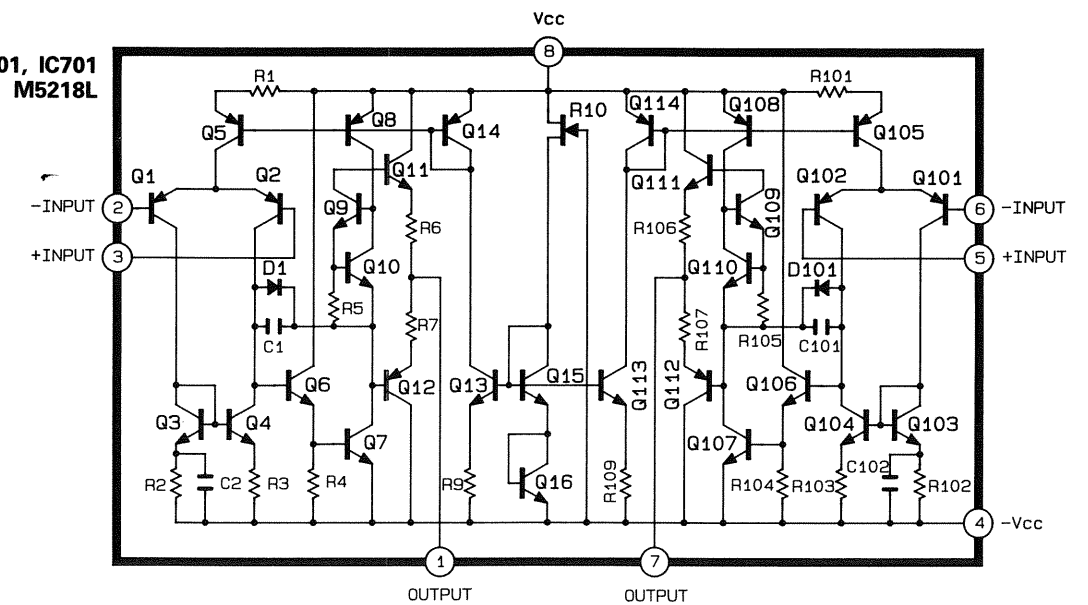
PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
VOLT.	0V	5V	5V	0V	0V	5V	0V	0V	5V	0V	5V	5V	0V	5V

IC1

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
VOLT.	0V	0.2V	0.2V	0V	1.7V	3.7V	0V	14.3V	5.8V	5.8V	14.3V	14.3V	5.0V	5.0V	2.1V	2.1V



**IC501, IC701 M5218L**



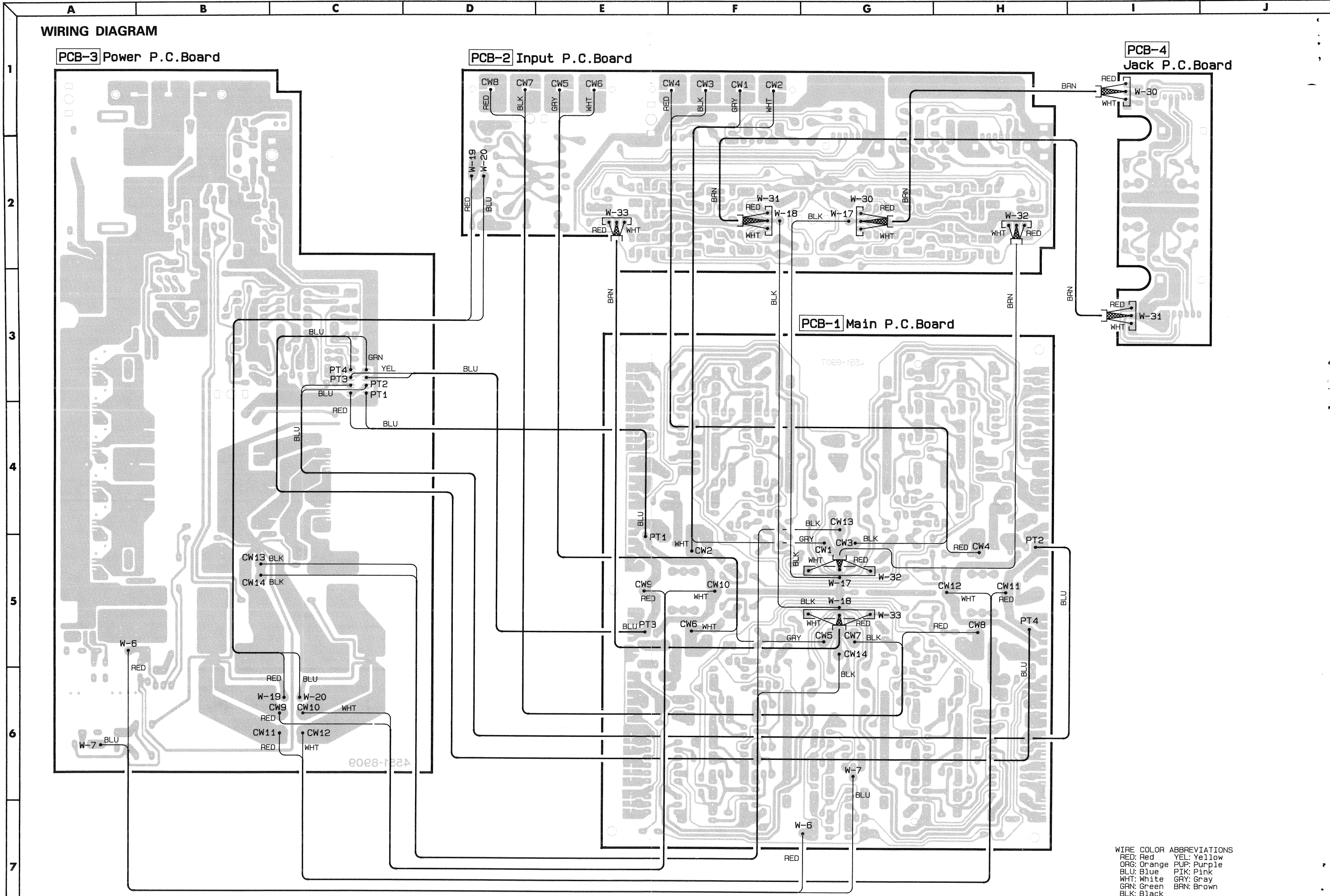
WIRING DIAGRAM

PCB-3 Power P.C.Board

PCB-2 Input P.C.Board

PCB-4 Jack P.C.Board

PCB-1 Main P.C.Board



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