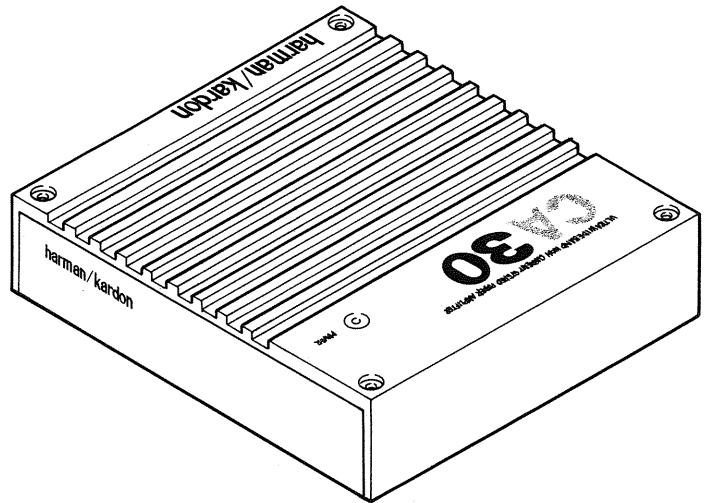


The Harman Kardon Model CA30 HIGH FIDELITY CAR AMPLIFIER

Manual 172A

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
1112-3152172A5 P-089105 1200 Printed in Japan

SPECIFICATIONS

Power Output, RMS	: 15 watts x2 4 Ohms, 20 — 20,000Hz
HCC (High instantaneous Current Capability)	: ±10A
THD	: No more than 0.2% (4 Ohms)
Negative Feedback	: 25dB
Power Bandwidth	: 10Hz to 100,000Hz
Frequency Response	: 10Hz to 100,000Hz (+0, -3dB)
Signal-to Noise Ratio	: 100dB
Input Sensitivity/Impedance	: 250mV/22k Ohms (variable)

Power Supply	: DC +14.4V (11 — 16V usable), negative ground
Typical Input Current Requirements	
At Idle	: 0.3A
Full Power Music Signal	: 1.2A (4 Ohms/ch.)
Full Power Sine Wave	: 3.6A (4 Ohms/ch.)
Dimensions (W x H x D)	: 7-4/14" x 1-9/10" x 6-9/13" (185 x 48.5 x 170 mm)
Weight	: 3 lbs. 1 oz (1.4 kg)

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

DISASSEMBLY PROCEDURES (REFER TO PAGES 4 AND 10)

1 CABINET BOTTOM ASS'Y (AA) REMOVAL

Remove 4 screws (A) and then remove the Cabinet Bottom Ass'y (AA) with spacers.

2 FRONT PANEL (133) REMOVAL

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

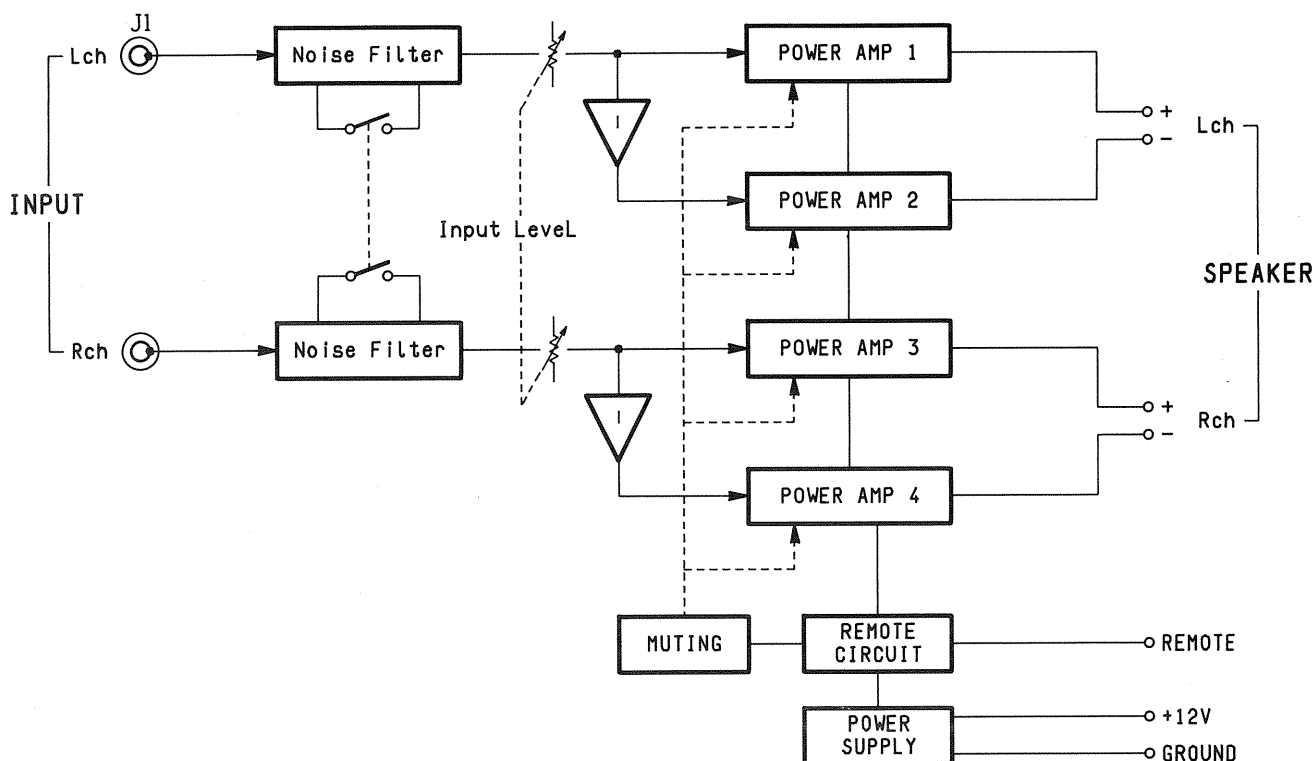
3 REAR PANEL (134) REMOVAL

1. Remove the Cabinet Bottom Ass'y (AA), referring to the previous step **1**.
2. Remove 9 screws (C) and then remove the Rear Panel (134).

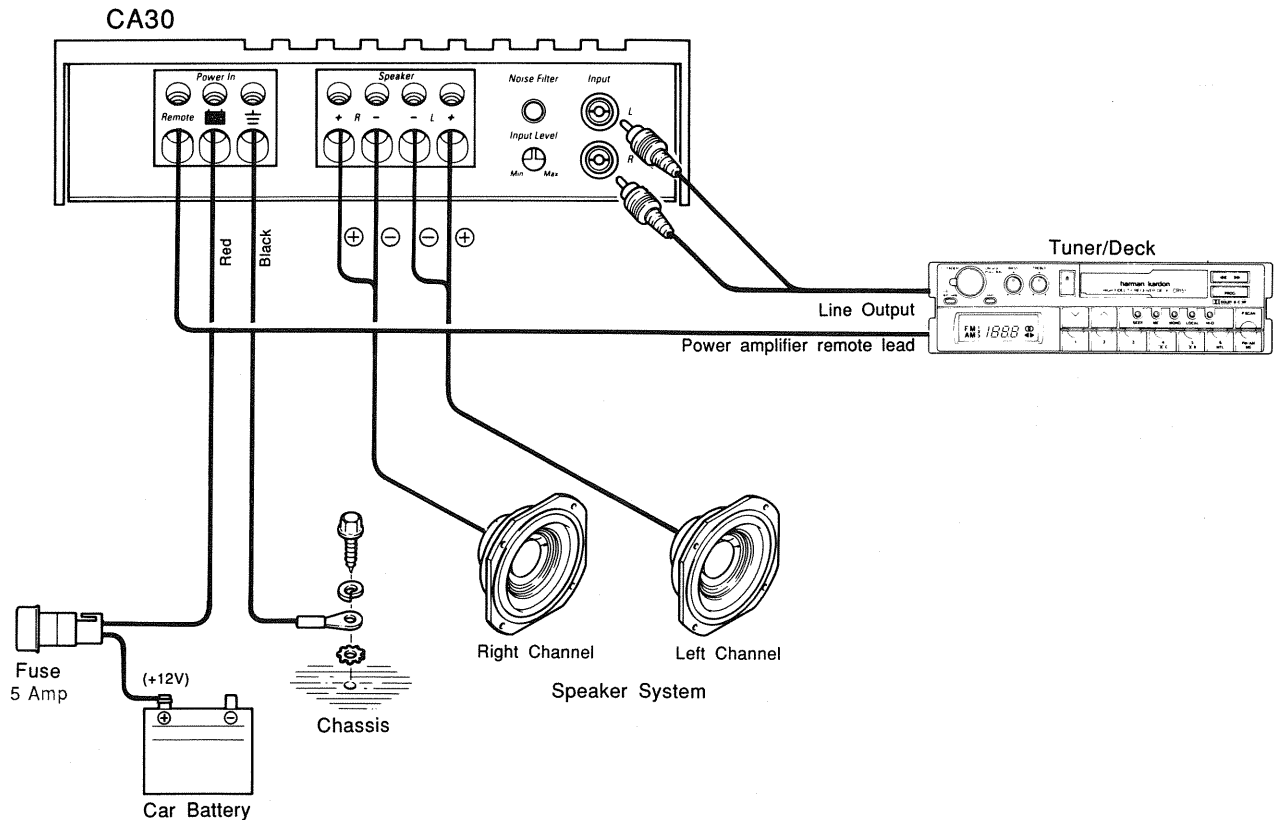
4 MAIN P.C. BOARD (PCB-1) REMOVAL

1. Remove the Cabinet Bottom Ass'y (AA), referring to the previous step **1**.
2. Remove the Front Panel (133), referring to the previous step **2**.
3. Remove the Rear Panel (134), referring to the previous step **3**.
4. Remove 8 screws (D) and then remove the Main P.C. Board (PCB-1) with Power and Volume P.C. Board (PCB-2 and PCB-3).
5. Disconnect the connector with lead wire from connector on the LED P.C. Board (PCB-4).

BLOCK DIAGRAM



CONNECTIONS



Before beginning to make connections, make certain that the ignition key switch is OFF. Be careful to install the amplifier so that it cannot become caught in the sliding seat, or contact the car chassis with its terminals or wiring.

REMOTE terminal

This terminal enables the power switch of the tuner/deck to also turn on the amplifier. Connect it to appropriate wire (power amplifier remote) on the tuner/deck.

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

Should no power antenna wire be provided, connect the wires from the REMOTE terminal to the ACC circuit of the car, so that the car ignition switch will turn the amplifier ON and OFF.

+B terminal (+12V)

The +B terminal is the positive power input terminal. It should be connected directly to the car battery. Use the accessory battery cable with its fuse located near the battery.

Ground terminal (—)

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.

SPEAKER SYSTEM terminals

Connect the speaker systems to these terminals. Be careful to connect the positive speaker terminals to the positive terminals of the amplifier. Do not connect the negative speaker terminals to the car chassis.

NOTE: Some cars are provided with speaker wires which often include a negative wire common to both left and right channels. This wire should not be used. Be sure to connect the negative speaker wires from left and right speakers to their respective terminals on the amplifier.

INPUT jacks

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

INPUT LEVEL control

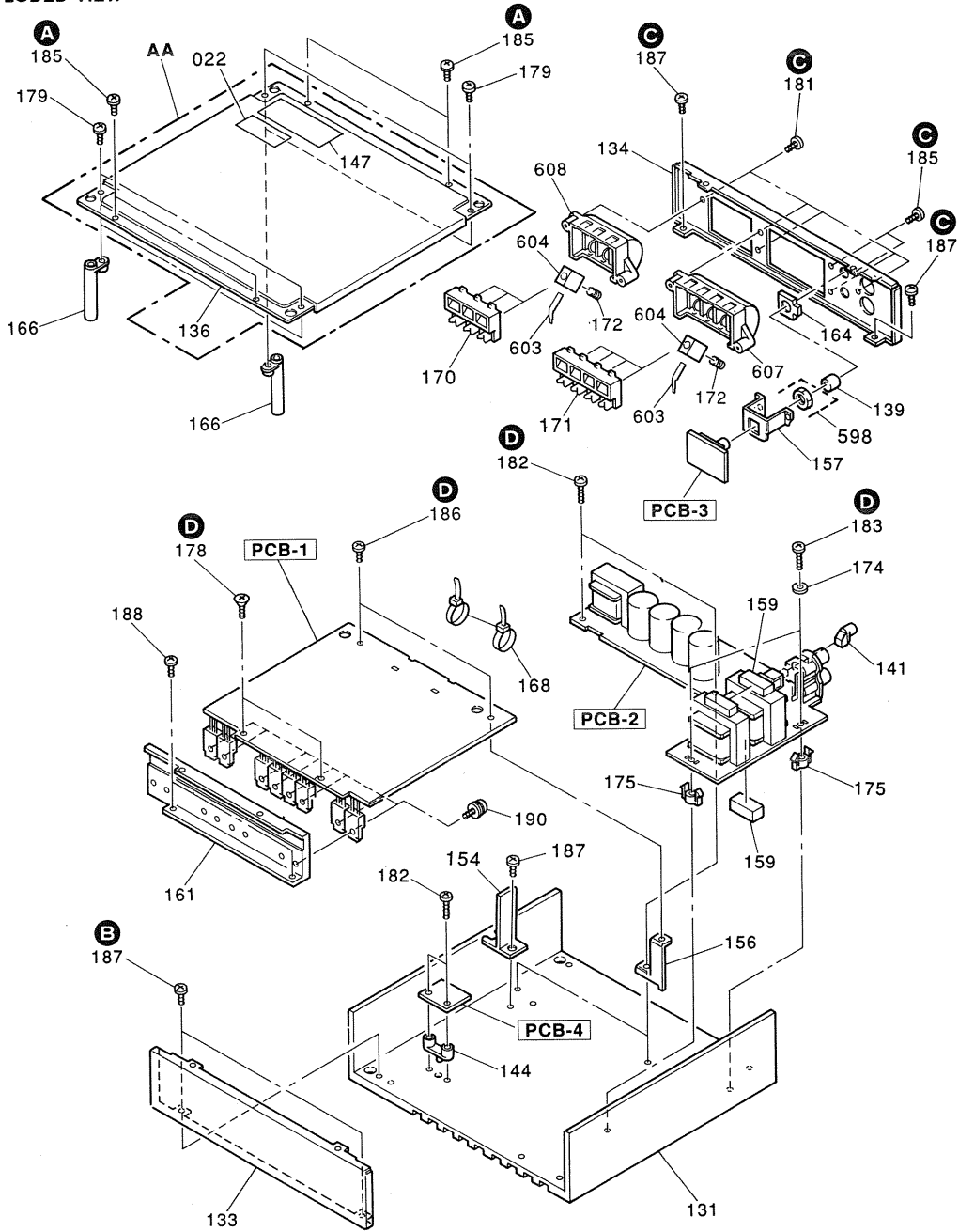
This control matches the input sensitivity of the amplifier to the output level of the head unit. In its "Max" (Full clockwise) position, the amplifier requires 250mV input voltage in order to provide its rated output power. If the head unit output level is much greater than 250mV, turn this control to a lower setting.

Noise filter

This is a unique feature that can eliminate engine noise due to grounding and wiring problems. It isolates the input signal from the amplifier chassis ground. We recommend listening to the total car audio system, while the engine is running, and switching the noise filter on and off to determine which setting results in the best overall sound quality.

NOTE: This filter does not replace the need for a power line filter! This is an input signal isolator!

GENERAL UNIT
EXPLODED VIEW



GENERAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
AA	A424-HC391AA	CABINET BOTTOM ASSEMBLY	171	2240-7389	HOLDER, 4P TERMINAL
022	1756-19313	LABEL, FTZ	172	2310-7039	SCREW, SPE (x7)
131	1413-00101	CABINET, MAIN HEAT SINK	174	2402-0374	WASHER, PLSTC (x2)
133	1444-05501	PANEL, FRONT	175	2360-7026	BOSS, SPE (x2)
134	1444-06001	PANEL, REAR	178	2343-300826	SCREW, CSK T+ (x2)
136	1424-34501	CABINET BACK	179	2347-R0126054	SCREW, BND T+ (x4)
139	1632-21101	ROTARY KNOB, INPUT VOLUME	181	2347-R0130084	SCREW, BND T+ (x5)
141	1662-66101	PUSH BUTTON, FILTER	182	2347-R0130102	SCREW, BND T+ (x4)
144	1732-08401	INDICATOR	183	2347-R0130122	SCREW, BND T+ (x2)
147	1751-10014	LABEL, SET BOTTOM	185	2347-260547	SCREW, BND T+ (x6)
154	2219-8335	METAL FITTG	186	2347-300627	SCREW, BND T+ (x2)
156	2219-8330	METAL FITTG, PCB (x2)	187	2347-300526	SCREW, BND T+ (x5)
157	2219-8331	METAL FITTG, VOLUME	188	2347-R0130062	SCREW, BND T+ (x2)
159	2112-11802	SPONGE (x3)	190	2557-300829	SCREW, B SPW+ (x8)
161	2222-7289	HEAT SINK, SUB	598	2440-62	NUT, SPE
164	2240-7390	HOLDER, REAR PANEL	603	4214-236	TERMINAL, POWER IN (x7)
166	2132-7170	SPACER, SCREW (x4)	604	4214-237	TERMINAL, SPEAKER (x7)
168	2240-R0101	HOLDER, WIRING (x3)	607	4215-09702	TERMINAL BRD, SPEAKER
170	2240-7388	HOLDER, 3P TERMINAL	608	4215-09802	TERMINAL BRD, POWER IN

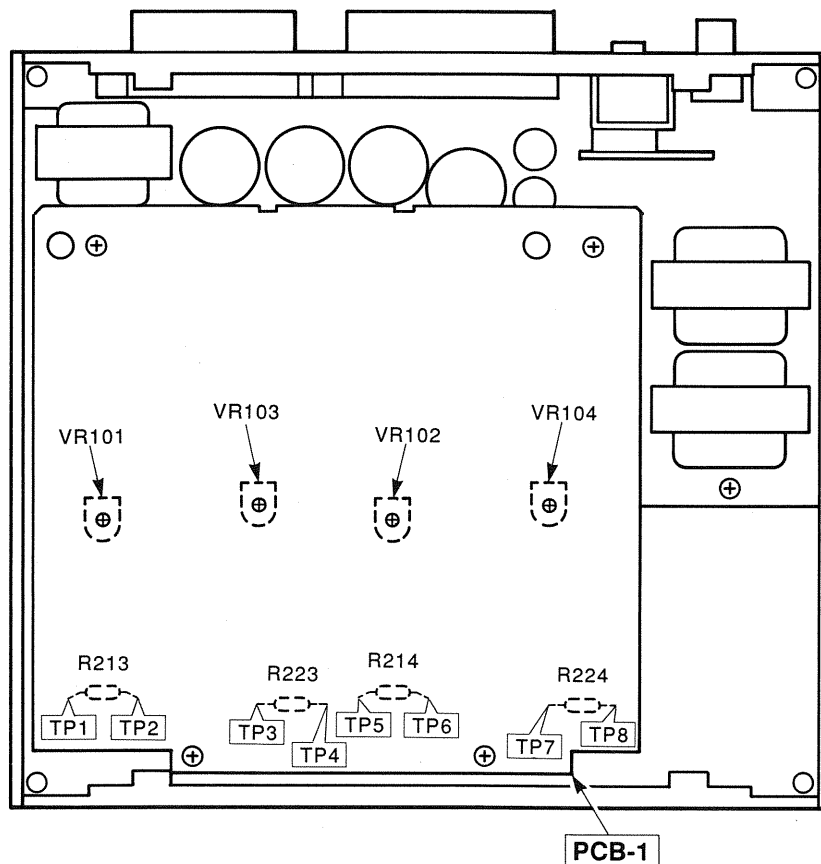
ALIGNMENT PROCEDURES (REFER TO PAGE 9 AND 10)

■ IDLING CURRENT ADJUSTMENT






Conditions:

- Connect a 13.8V power supply to the 12V BATTERY POWER IN terminal.
- After the power on, wait for 5 minutes before measuring to be sure of the most stable operation.

Step	Connections Equipments	Adjustment	For
1	Connect the Digital Voltmeter to TP1 and TP2 (across the terminals of R213)	VR101 (L ch +)	9mV to 11mV (DC)
2	Connect the Digital Voltmeter to TP3 and TP4 (across the terminals of R223)	VR103 (L ch -)	9mV to 11mV (DC)
3	Connect the Digital Voltmeter to TP5 and TP6 (across the terminals of R214)	VR102 (R ch +)	9mV to 11mV (DC)
4	Connect the Digital Voltmeter to TP7 and TP8 (across the terminals of R224)	VR104 (R ch -)	9mV to 11mV (DC)
5	Repeat steps 1 through 4 after again for 10 minutes.		



ELECTRICAL PARTS LIST

Ser.No	Ref. No.	Part No.	Description	Ser.No	Ref. No.	Part No.	Description
PCB-1 MAIN P.C. BOARD							
CAPACITORS							
548	C20	5354-104593	CAP, MYL .1μ 	566	R127	5135-122522	RES, CBN 1/2P 1.2K
045A	C81	5361-223ZF	CAP, CER .022μ 	566	R128	5135-122522	RES, CBN 1/2P 1.2K
045A	C82	5361-223ZF	CAP, CER .022μ 	567	R129	5135-271522	RES, CBN 1/2P 270
044A	C84	5359-S010J223	CAP, PPP .022μ 	567	R130	5135-271522	RES, CBN 1/2P 270
044A	C85	5359-S010J223	CAP, PPP .022μ 	567	R131	5135-271522	RES, CBN 1/2P 270
531	C101	5345-226B0951	CAP, MINI ELE 22μ/10V	567	R132	5135-271522	RES, CBN 1/2P 270
531	C102	5345-226B0951	CAP, MINI ELE 22μ/10V	567	R133	5135-271522	RES, CBN 1/2P 270
531	C103	5345-226B0951	CAP, MINI ELE 22μ/10V	567	R134	5135-271522	RES, CBN 1/2P 270
531	C104	5345-226B0951	CAP, MINI ELE 22μ/10V	567	R135	5135-271522	RES, CBN 1/2P 270
531	C105	5345-226B0951	CAP, MINI ELE 22μ/10V	567	R136	5135-271522	RES, CBN 1/2P 270
531	C106	5345-226B0951	CAP, MINI ELE 22μ/10V	568	R137	5135-181522	RES, CBN 1/2P 180
539	C109	5353-680534	CAP, MCA 68p	568	R138	5135-181522	RES, CBN 1/2P 180
539	C110	5353-680534	CAP, MCA 68p	568	R139	5135-181522	RES, CBN 1/2P 180
539	C113	5353-680534	CAP, MCA 68p	568	R140	5135-181522	RES, CBN 1/2P 180
539	C114	5353-680534	CAP, MCA 68p	569	R141	5135-202522	RES, CBN 1/2P 2K
533	C115	5345-226C041	CAP, MINI ELE 22μ/16V	569	R142	5135-202522	RES, CBN 1/2P 2K
533	C116	5345-226C041	CAP, MINI ELE 22μ/16V	569	R143	5135-202522	RES, CBN 1/2P 2K
533	C117	5345-226C041	CAP, MINI ELE 22μ/16V	569	R144	5135-202522	RES, CBN 1/2P 2K
533	C118	5345-226C041	CAP, MINI ELE 22μ/16V	570	R145	5135-273522	RES, CBN 1/2P 27K
545	C119	5359-1015851	CAP, PPP 100p	570	R146	5135-273522	RES, CBN 1/2P 27K
545	C120	5359-1015851	CAP, PPP 100p	570	R147	5135-273522	RES, CBN 1/2P 27K
545	C121	5359-1015851	CAP, PPP 100p	570	R148	5135-273522	RES, CBN 1/2P 27K
545	C122	5359-1015851	CAP, PPP 100p	572	R149	5135-561522	RES, CBN 1/2P 560
534	C123	5345-477C045	CAP, MINI ELE 470μ/16V	572	R150	5135-561522	RES, CBN 1/2P 560
534	C124	5345-477C045	CAP, MINI ELE 470μ/16V	572	R151	5135-561522	RES, CBN 1/2P 560
534	C125	5345-477C045	CAP, MINI ELE 470μ/16V	572	R152	5135-561522	RES, CBN 1/2P 560
534	C126	5345-477C045	CAP, MINI ELE 470μ/16V	572	R153	5135-561522	RES, CBN 1/2P 560
535	C127	5345-477C045	CAP, MINI ELE 470μ/16V	572	R154	5135-561522	RES, CBN 1/2P 560
535	C128	5345-477C045	CAP, MINI ELE 470μ/16V	572	R155	5135-561522	RES, CBN 1/2P 560
535	C129	5345-477C045	CAP, MINI ELE 470μ/16V	572	R156	5135-561522	RES, CBN 1/2P 560
535	C130	5345-477C045	CAP, MINI ELE 470μ/16V	572	R157	5135-561522	RES, CBN 1/2P 560
543	C135	5354-823593	CAP, MYL .082μ	572	R158	5135-561522	RES, CBN 1/2P 560
543	C136	5354-823593	CAP, MYL .082μ	572	R159	5135-561522	RES, CBN 1/2P 560
543	C137	5354-823593	CAP, MYL .082μ	572	R160	5135-561522	RES, CBN 1/2P 560
543	C138	5354-823593	CAP, MYL .082μ	572	R161	5135-561522	RES, CBN 1/2P 560
536	C139	5345-104F0951	CAP, MINI ELE .1μ/50V	572	R162	5135-561522	RES, CBN 1/2P 560
536	C140	5345-104F0951	CAP, MINI ELE .1μ/50V	572	R163	5135-561522	RES, CBN 1/2P 560
536	C141	5345-104F0951	CAP, MINI ELE .1μ/50V	573	R164	5135-561522	RES, CBN 1/2P 560
536	C142	5345-104F0951	CAP, MINI ELE .1μ/50V	573	R165	5135-560522	RES, CBN 1/2P 56
540	C143	5353-020934	CAP, MCA 2p	573	R166	5135-560522	RES, CBN 1/2P 56
540	C144	5353-020934	CAP, MCA 2p	573	R167	5135-560522	RES, CBN 1/2P 56
540	C145	5353-020934	CAP, MCA 2p	573	R168	5135-560522	RES, CBN 1/2P 56
540	C146	5353-020934	CAP, MCA 2p	573	R169	5135-560522	RES, CBN 1/2P 56
532	C151	5345-107B041	CAP, MINI ELE 100μ/10V	573	R170	5135-560522	RES, CBN 1/2P 56
532	C152	5345-107B041	CAP, MINI ELE 100μ/10V	573	R171	5135-560522	RES, CBN 1/2P 56
RESISTORS							
561	R101	5135-331522	RES, CBN 1/2P 330	573	R172	5135-560522	RES, CBN 1/2P 56
561	R102	5135-331522	RES, CBN 1/2P 330	565	R173	5135-102522	RES, CBN 1/2P 1K
562	R105	5135-104522	RES, CBN 1/2P 100K	565	R174	5135-102522	RES, CBN 1/2P 1K
562	R106	5135-104522	RES, CBN 1/2P 100K	565	R175	5135-102522	RES, CBN 1/2P 1K
562	R107	5135-104522	RES, CBN 1/2P 100K	565	R176	5135-102522	RES, CBN 1/2P 1K
562	R108	5135-104522	RES, CBN 1/2P 100K	574	R177	5135-821522	RES, CBN 1/2P 820
556	R109	5232-154J16P	RES, CBN 1/6P 150K	574	R178	5135-821522	RES, CBN 1/2P 820
556	R110	5232-154J16P	RES, CBN 1/6P 150K	574	R179	5135-821522	RES, CBN 1/2P 820
562	R111	5135-104522	RES, CBN 1/2P 100K	574	R180	5135-821522	RES, CBN 1/2P 820
562	R112	5135-104522	RES, CBN 1/2P 100K	580	R185	5135-563522	RES, CBN 1/2P 56K
561	R113	5135-331522	RES, CBN 1/2P 330	580	R186	5135-563522	RES, CBN 1/2P 56K
561	R114	5135-331522	RES, CBN 1/2P 330	580	R187	5135-563522	RES, CBN 1/2P 56K
564	R115	5135-103522	RES, CBN 1/2P 10K	580	R188	5135-563522	RES, CBN 1/2P 56K
564	R116	5135-103522	RES, CBN 1/2P 10K	580	R189	5135-563522	RES, CBN 1/2P 56K
563	R119	5135-182522	RES, CBN 1/2P 1.8K	580	R197	5135-563522	RES, CBN 1/2P 56K
563	R120	5135-182522	RES, CBN 1/2P 1.8K	580	R198	5135-563522	RES, CBN 1/2P 56K
566	R121	5135-122522	RES, CBN 1/2P 1.2K	580	R199	5135-563522	RES, CBN 1/2P 56K
566	R122	5135-122522	RES, CBN 1/2P 1.2K	580	R200	5135-563522	RES, CBN 1/2P 56K
566	R123	5135-122522	RES, CBN 1/2P 1.2K	575	R201	5135-121522	RES, CBN 1/2P 120
566	R124	5135-122522	RES, CBN 1/2P 1.2K	575	R202	5135-121522	RES, CBN 1/2P 120
566	R125	5135-122522	RES, CBN 1/2P 1.2K	575	R203	5135-121522	RES, CBN 1/2P 120
566	R126	5135-122522	RES, CBN 1/2P 1.2K	575	R204	5135-121522	RES, CBN 1/2P 120
				576	R205	5135-470522	RES, CBN 1/2P 47
				576	R206	5135-470522	RES, CBN 1/2P 47
				576	R207	5135-470522	RES, CBN 1/2P 47
				576	R208	5135-470522	RES, CBN 1/2P 47
				576	R209	5135-470522	RES, CBN 1/2P 47
				576	R210	5135-470522	RES, CBN 1/2P 47

Ser.No	Ref. No.	Part No.	Description
TRANSISTORS			
517	Q1	5611-A124ES	XISTOR, PNP R
518	Q2	5613-C144ES	XISTOR, NPN R
519	Q3	5613-C143ES	XISTOR, NPN R
517	Q4	5611-A124ES	XISTOR, PNP R
DIODES			
521	D1	5631-1S2473	DIODE, DET
522	D2	5632-S5566B	DIODE, RECT
520	D4	5635-HZ6A2L	DIODE, ZENER
521	D5	5631-1S2473	DIODE, DET
COIL AND TRANSFORMERS			
592	L1	5583-51101	COIL, AF CH
594	T101	5581-17601	XFORMER, IPT
594	T102	5581-17601	XFORMER, IPT
MISCELLANEOUS			
600	J1	4489-00505002	PIN JACK, MLT
596	S101	4431-S0612106	SWITCH, PUSH
596	S102	4431-S0612106	SWITCH, PUSH

PCB-3 VOLUME P.C. BOARD

CONTROLS			
598	VR105/ 106	5109-S0501303	RES, V CBN 30K, INPUT LEVEL

PCB-4 LED P.C. BOARD

RESISTOR			
589	R8	5135-821522	RES, CBN 1/2P 820
DIODE			
527	D3	5637-SLR33MC3	LED

Ser.No	Ref. No.	Part No.	Description
--------	----------	----------	-------------

ABBREVIATIONS IN PARTS LIST

CAPACITORS

CAP, MINI ELE	: Electrolytic
CAP, CER	: Ceramic
CAP, PPP	: Polypropylene
CAP, MYL	: Mylar
CAP, MCA	: Mica
CAP, MINI BP	: Bipolar
CAP, ELE BP	: Electrolytic Bipolar
CAP, STY	: Polystyrene Film
CAP, SPE	: Special
CAP, TAN	: Tantalum
	470 μ : 470 μ F
	6800p : 6800pF
	.047 μ : 0.047 μ F

RESISTORS

RES, CBN 1/6P	: Carbon 1/6W
RES, FUSE	: Fuse
RES, CEM 5P	: Cement 5W
RES, MTL 1P	: Metal 1W
	2.2K : 2.2K Ω
	220 : 220 Ω

TRANSISTORS

XISTOR	: Transistor
FET	: Field Effect Transistor

CONTROLS

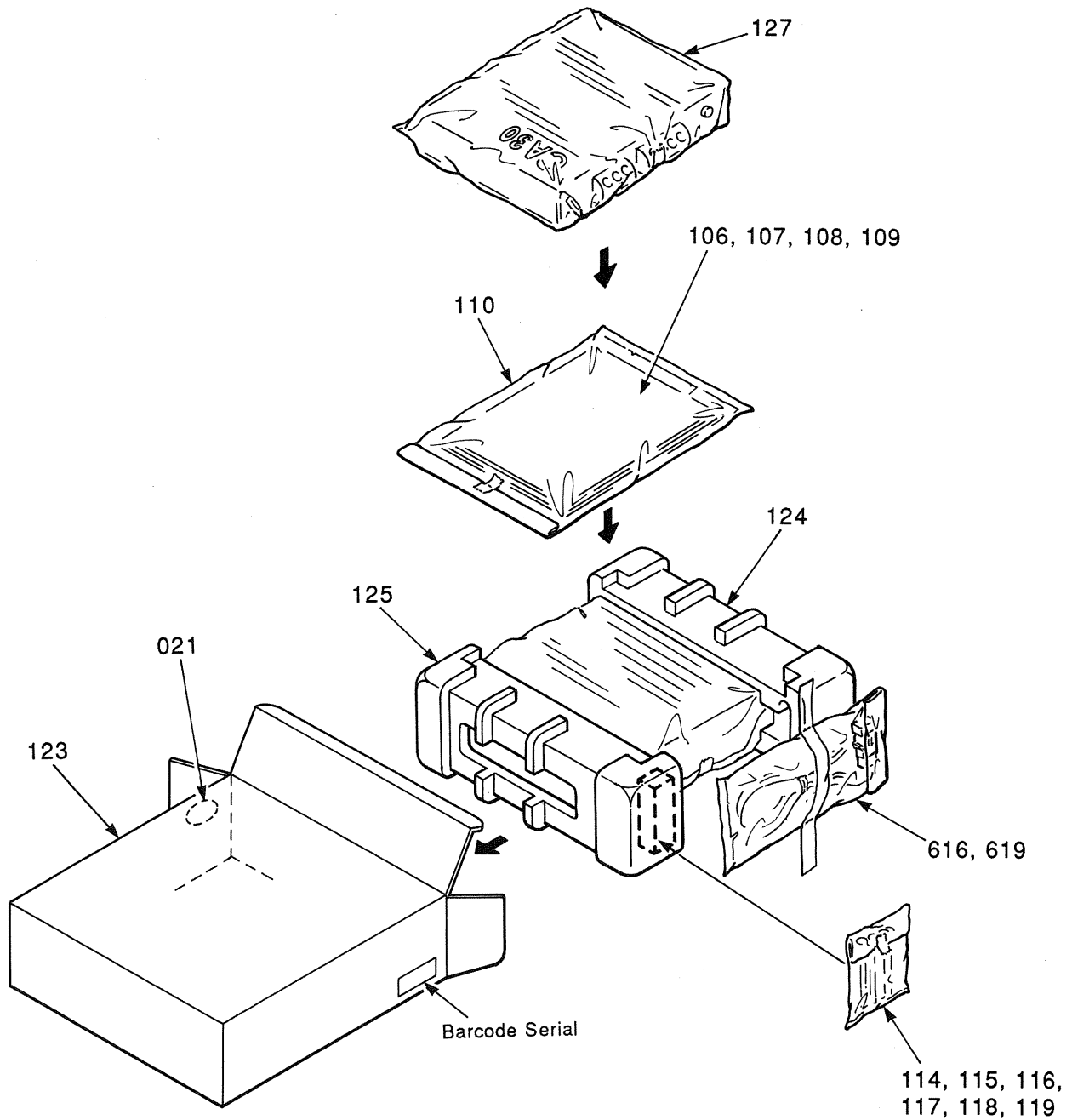
RES, V CBN	: Variable Carbon Resistor
RES, SEMI FIX	: Semi-fixed Resistor

NOTE



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

PACKAGE

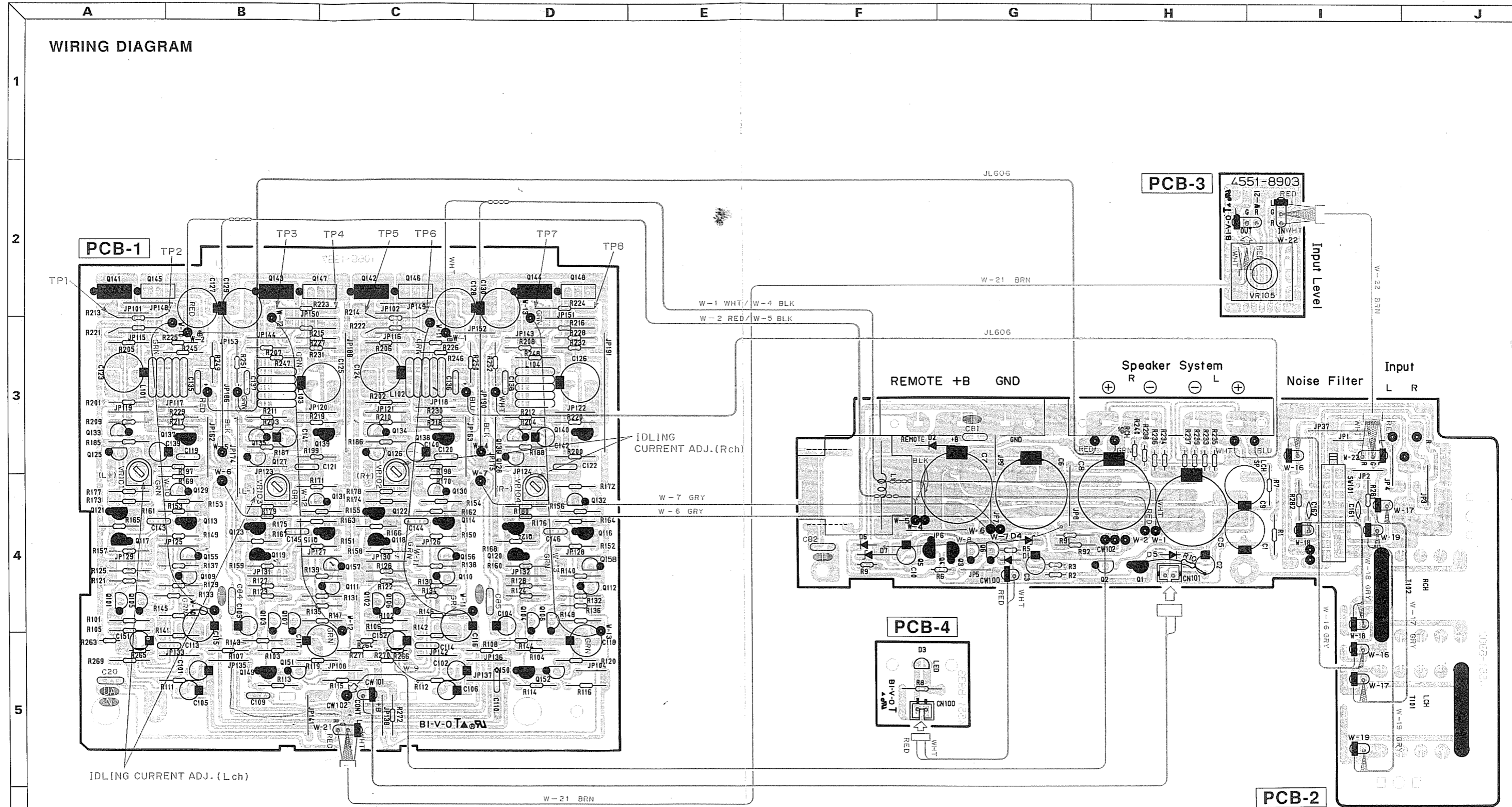


PACKING PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
021	1756-03108	LABEL (I)	115	2342-506041	SCREW, PAN T+ (x4)
021	1756-03113	LABEL (N)	116	2346-501221	SCREW, HEX T+
106	1111-J30347	OWNER GUIDE (UA)	117	2412-5022	WASHER, SPRG
106	1111-J30348	OWNER GUIDE (I)	118	2414-502	WASHER, OT
106	1111-J2056	OWNER GUIDE (N)	119	2310-7039	SCREW, SPE
107	1113-02501	OWNER CARD, REPLY (UA)	123	1221-29401	CARTON BOX
107	1113-OC	OWNER CARD, REPLY (N)	124	1222-7372	CUSHION
108	1116-03901	GUARANTY CARD, WARRANTY (UA)	125	1222-7373	CUSHION
108	1116-GC	GUARANTY CARD, WARRANTY (N)	127	1241-R0125300	POLYETHY BAG
109	1119-04401	ATTACH SHEET, SERVICE GUIDE (UA)	616	4171-00901	WIRING KIT
110	1241-R0118250	POLYETHY BAG	619	4472-7336	FUSE HOLDER (W/FUSE 5A, P/N: 5732-01401502)
114	2310-7040	SCREW, SPE			

S 200-0300

WIRING DIAGRAM



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

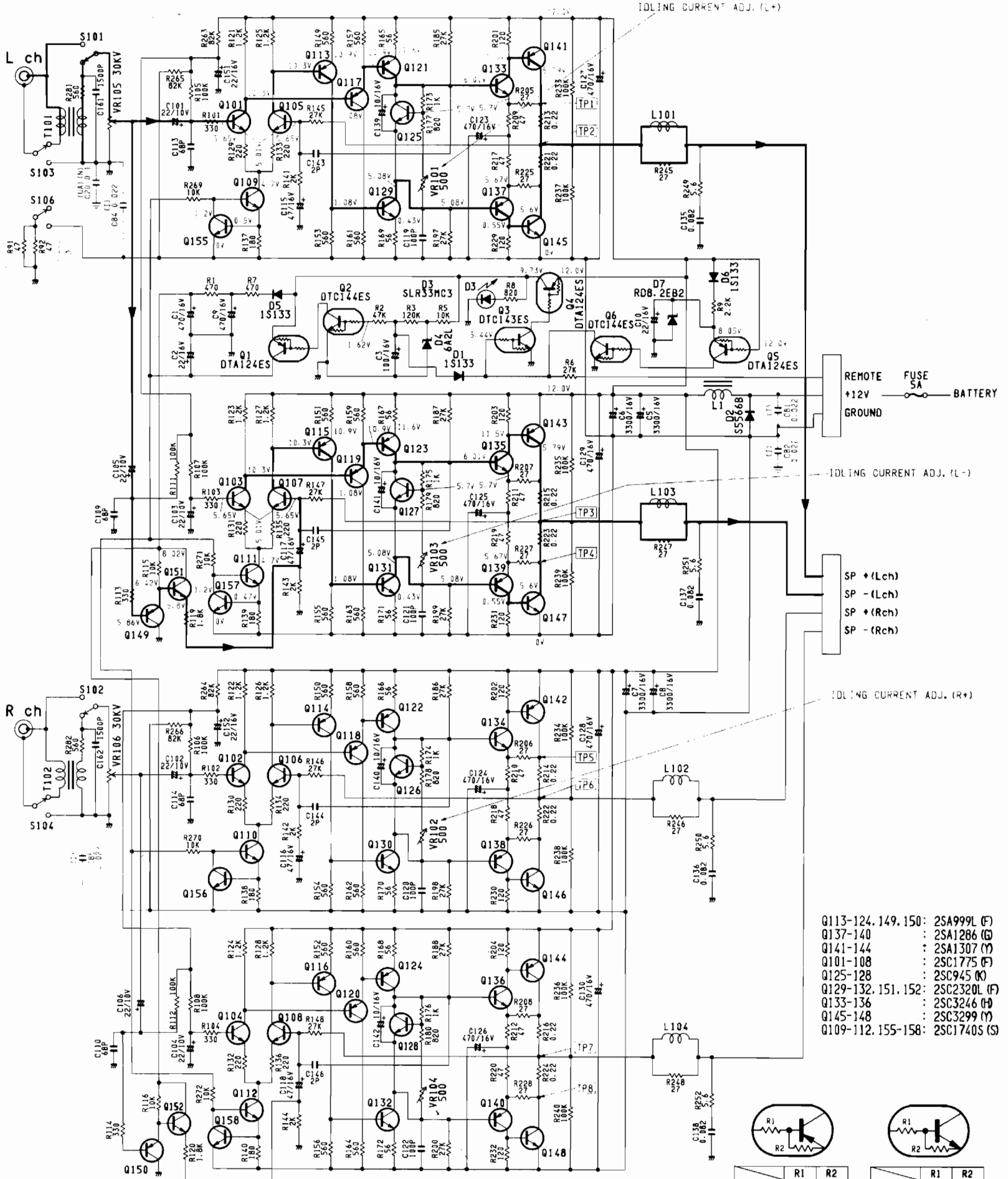
SCHEMATIC DIAGRAM

NOTE:

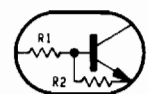
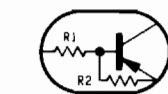
1. ALL RESISTANCES VALUES ARE IN Ω .
K Ω =1000 Ω , M Ω =1000K Ω .
2. THE WATTAGE OF RESISTORS IS 1/6W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCES VALUES ARE IN μ F UNLESS OTHERWISE NOTED. P= μ F.
4. ...V:DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
5. SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS. THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

(JA) : North America Area model
(I) : International model
(N) : Japan model

SIGNAL GROUND
 CHASSIS GROUND



- Q113-124, 149, 150: 2SA999L (F)
- Q137-140 : 2SA1286 (G)
- Q141-144 : 2SA1307 (M)
- Q101-108 : 2SC1775 (F)
- Q125-128 : 2SC945 (K)
- Q129-132, 151, 152: 2SC2320L (F)
- Q133-136 : 2SC3246 (H)
- Q145-148 : 2SC3299 (M)
- Q109-112, 155-158: 2SC1740S (S)



	R1	R2
DTA124ES	22K	22K

	R1	R2
DTC143ES	4.7K	4.7K
DTC144ES	47K	47K