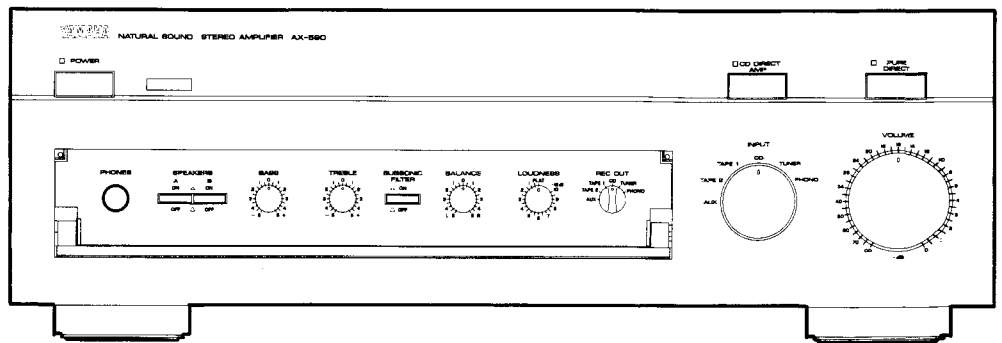
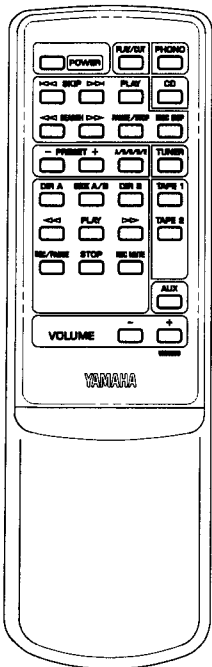


STEREO INTEGRATED AMPLIFIER

AX-590

SERVICE MANUAL

AX-590



IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

CONTENTS

TO SERVICE PERSONNEL	1	ADJUSTMENTS	5
REAR PANEL	1	BLOCK DIAGRAM	6
SPECIFICATIONS	3	PRINTED CIRCUIT BOARD	8-11
DIMENSIONS	3	SCHEMATIC DIAGRAM	12, 13
INTERNAL VIEW	4	PARTS LIST	14-22
DISASSEMBLY PROCEDURE	4	REMOTE CONTROL TRANSMITTER	23

1 00514

■ TO SERVICE PERSONNEL

1. Critical Components Information.
Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120 V Model Only).
When service has been completed. It is imperative that you verify that all exposed conductive surfaces are properly insulated from supply circuits.
 - Meter impedance should be equivalent to 1500 ohms shunted by 0.15 μ F.
 - Leakage current must not exceed 0.5 mA.
 - Be sure to test for leakage with the AC plug in both polarities.

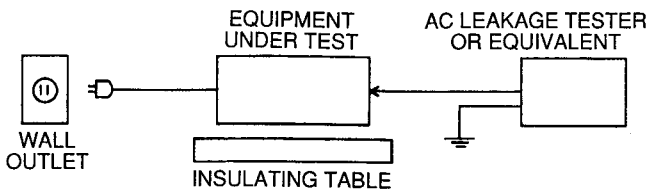
■ WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHAT SO EVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

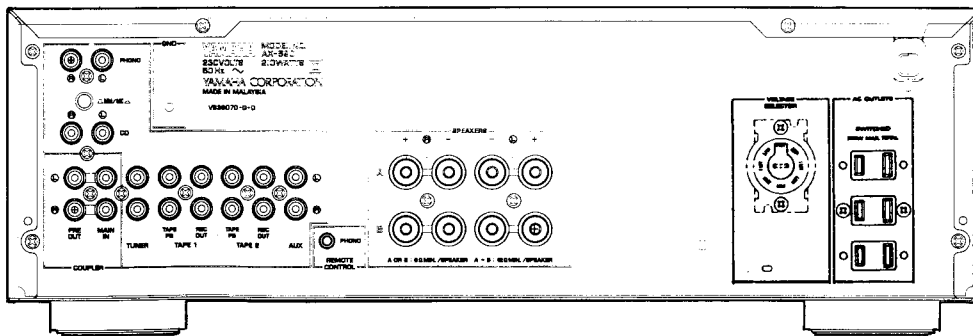
If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.



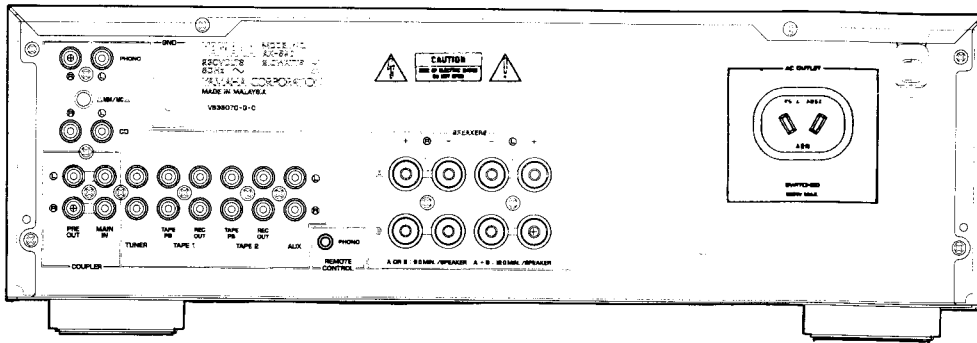
AX-590

■ REAR PANELS

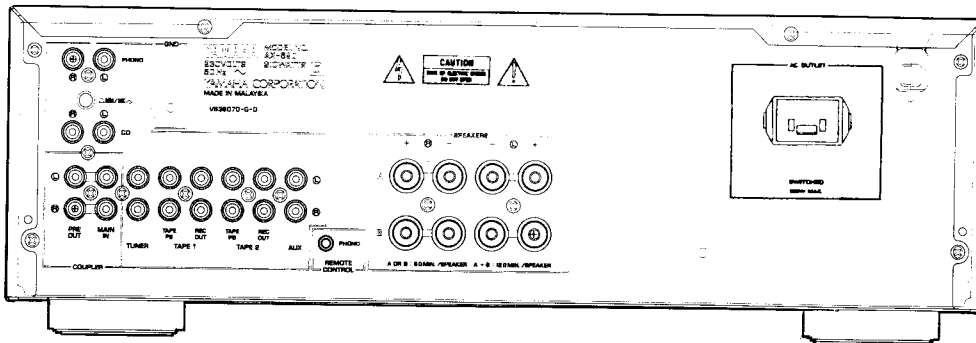
● R model



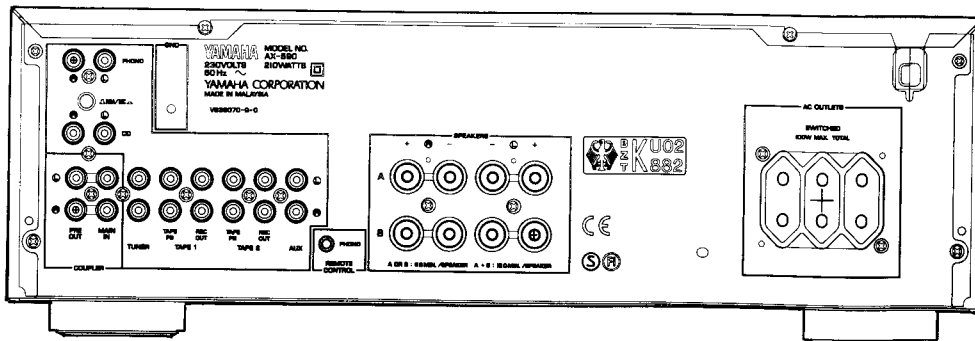
● A model



● B model



● G model



AX-590

■ SPECIFICATIONS

■ AUDIO SECTION

Minimum RMS Output Power per Channel		
8Ω, 20Hz to 20kHz, 0.015% THD	100W	
6Ω, 20Hz to 20kHz, 0.03% THD	120W	
Dynamic Power per Channel (IHF)		
8/6/4/2Ω	140/170/220/290W	
DIN Standard Output Power per Channel (G model)		
1kHz, 0.7% THD, 4Ω	150W	
IEC Power (G model)		
1kHz, 0.015% THD, 8Ω	110W	
Power Band Width		
8Ω, 50W, 0.03% THD	10Hz to 50kHz	
Damping Factor (A, B, G models)		
8Ω, 20Hz to 20kHz	320 or more	
Damping Factor (DIN)		
8Ω, 40Hz to 12.5kHz	160 or more	
EIAJ Maximum Power (R model)		
1kHz, 10% THD, 8Ω	145W	
1kHz, 10% THD, 6Ω	170W	
Input Sensitivity/Impedance		
PHONO MC	160μV/220kΩ	
PHONO MM	2.5mV/47kΩ	
CD etc.	150mV/47kΩ	
MAIN IN	1.0V/10kΩ	
Maximum Input Signal Level (1kHz, 0.007% THD)		
PHONO MC	10mV	
PHONO MM	150mV	
Output Level/Impedance		
REC OUT	150mV/470Ω	
PRE OUT	1.0V/1kΩ	
Headphone Jack Rated Output/Impedance		
0.015% THD, RL = 8Ω	0.33V/680Ω	
Frequency Response (20Hz to 20kHz)		
CD etc.	0±0.5dB	
MAIN IN	0±0.5dB	
RIAA Equalization Deviation (20Hz to 20kHz)		
PHONO MC	0±0.5dB	
PHONO MM	0±0.3dB	
Total Harmonic Distortion (20Hz to 20kHz)		
PHONO MC to REC OUT (3V)	0.007%	
PHONO MM to REC OUT (3V)	0.003%	
CD etc. to PRE OUT (1V)	0.005%	
CD etc. to SP OUT (50W/8Ω)	0.008%	
Signal-to-Noise Ratio (IHF-A Network)		
PHONO MC (500μV Input Shorted)	76dB	
PHONO MM (5mV Input Shorted)	92dB	
CD DIRECT AMP SW ON (Shorted)	110dB	
Residual Noise (IHF-A Network)		
CD DIRECT AMP SW ON	35μV	
PURE DIRECT SW ON	90μV	
Channel Separation		
CD etc. (Input 5.1kΩ Terminated) 1kHz/10kHz	65dB/50dB	
Tone Control Characteristics		
BASS : Boost/cut	±10dB (20Hz)	
Turnover Frequency	350Hz	
TREBLE : Boost/cut	±10dB (20kHz)	
Turnover Frequency	3.5kHz	
Filter Characteristics		-18dB/oct (15Hz)
Continuous Loudness Control		-30dB(1kHz)
Gain Tracking Error (0 to -60dB)		2dB
Remote Control Custom Code		7A

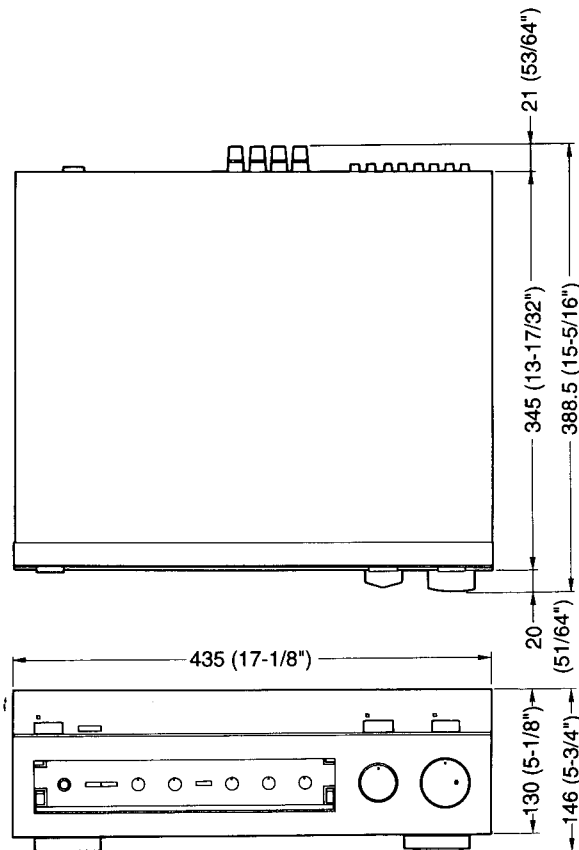
■ GENERAL

Power Supply		
A, B models	AC 240V, 50Hz	
G model	AC 230V, 50Hz	
R model	AC 110/120/220/240V, 60/50Hz	
Power Consumption		210W
AC Outlets		
Switched x 3		
G, R models	100W max. (Total)	
Switched x 1		
A, B models	100W max.	
Dimensions (W x H x D)		435 x 146 x 388.5mm (17-1/8" x 5-3/4" x 15-5/16")
Weight		10.4kg (22 lbs 14 oz)
Accessories		Remote Control Transmitter x 1 Battery (size "AA", R06) x 2

* Specifications subject to change without notice.

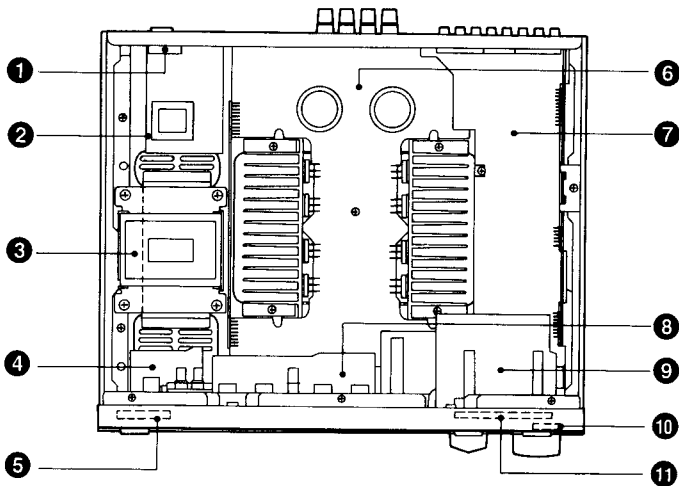
A Australian model **B** British model
G German model **R** General model

■ DIMENSIONS



unit: mm (inch)

INTERNAL VIEW

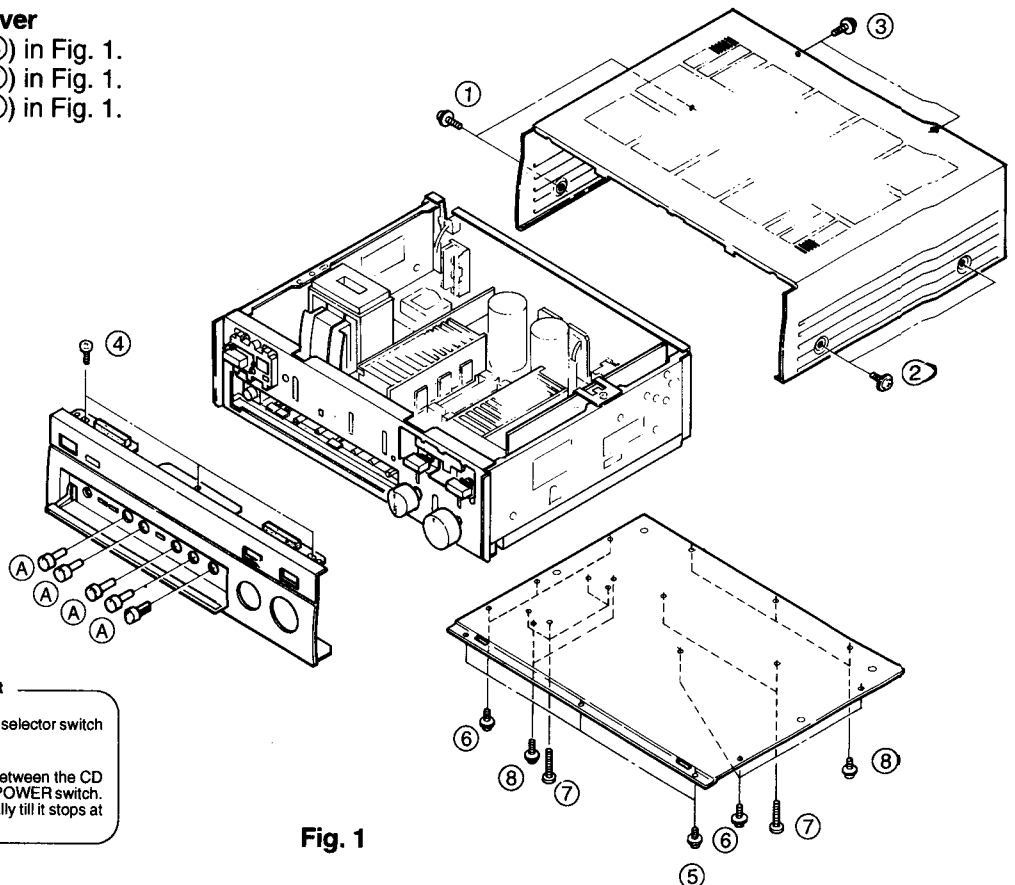
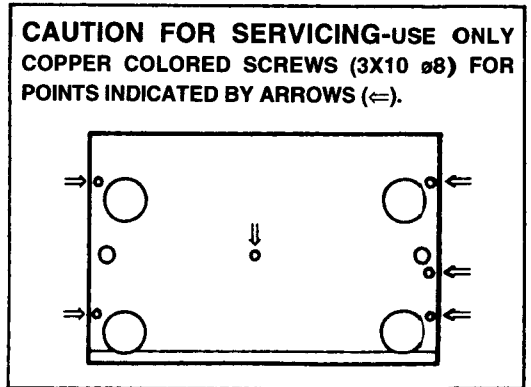


- ① MAIN CIRCUIT BOARD (6), (R model)
- ② MAIN CIRCUIT BOARD (2)
- ③ POWER TRANSFORMER
- ④ FUNCTION CIRCUIT BOARD (8)
- ⑤ FUNCTION CIRCUIT BOARD (5)
- ⑥ MAIN CIRCUIT BOARD (1)
- ⑦ FUNCTION CIRCUIT BOARD (1)
- ⑧ FUNCTION CIRCUIT BOARD (4)
- ⑨ FUNCTION CIRCUIT BOARD (3)
- ⑩ FUNCTION CIRCUIT BOARD (7)
- ⑪ FUNCTION CIRCUIT BOARD (6)

DISASSEMBLY PROCEDURES

(Remove parts in disassembly order as numbered)

1. **Removal of Top Cover**
Remove 6 screws (① to ③), in Fig. 1, and slide the Top Cover back.
2. **Removal of Front Panel**
 - a. Open the sub panel, and remove 5 knobs (A) in Fig. 1.
 - b. Remove 6 screws (④ and ⑤) in Fig. 1, and pull the Front Panel forward.
3. **Removal of Bottom Cover**
 - a. Remove 6 screws (⑥) in Fig. 1.
 - b. Remove 6 screws (⑦) in Fig. 1.
 - c. Remove 5 screws (⑧) in Fig. 1.



Precautions for Replacement of Input Selector Switch
Make sure to perform initial setting of the input selector switch after its replacement.

• **How to perform Initial setting**
Position the selector switch at the mid-point between the CD position and TUNER position and turn ON the POWER switch. Then the SELECTOR switch turns automatically till it stops at the "CD" position finally.

Fig. 1

AX-590

ADJUSTMENTS

1. Before Adjustment

- Make sure that AC line voltage is within:

Models	AC line voltage
R	110/120/220/240 V ± 10%
G	230 V ± 10%
A, B	240 V ± 10%

2. Instruments required

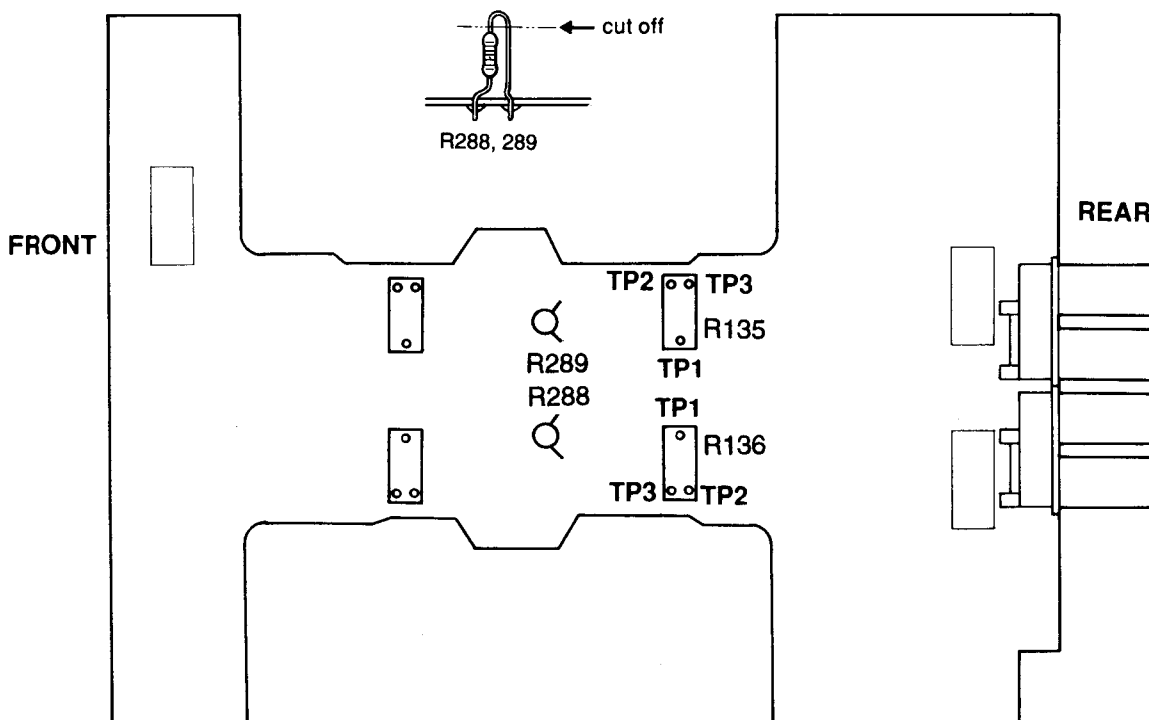
- AC VM or dual channel AC VM
- DC VM

● IDLING CURRENT CONFIRMATION

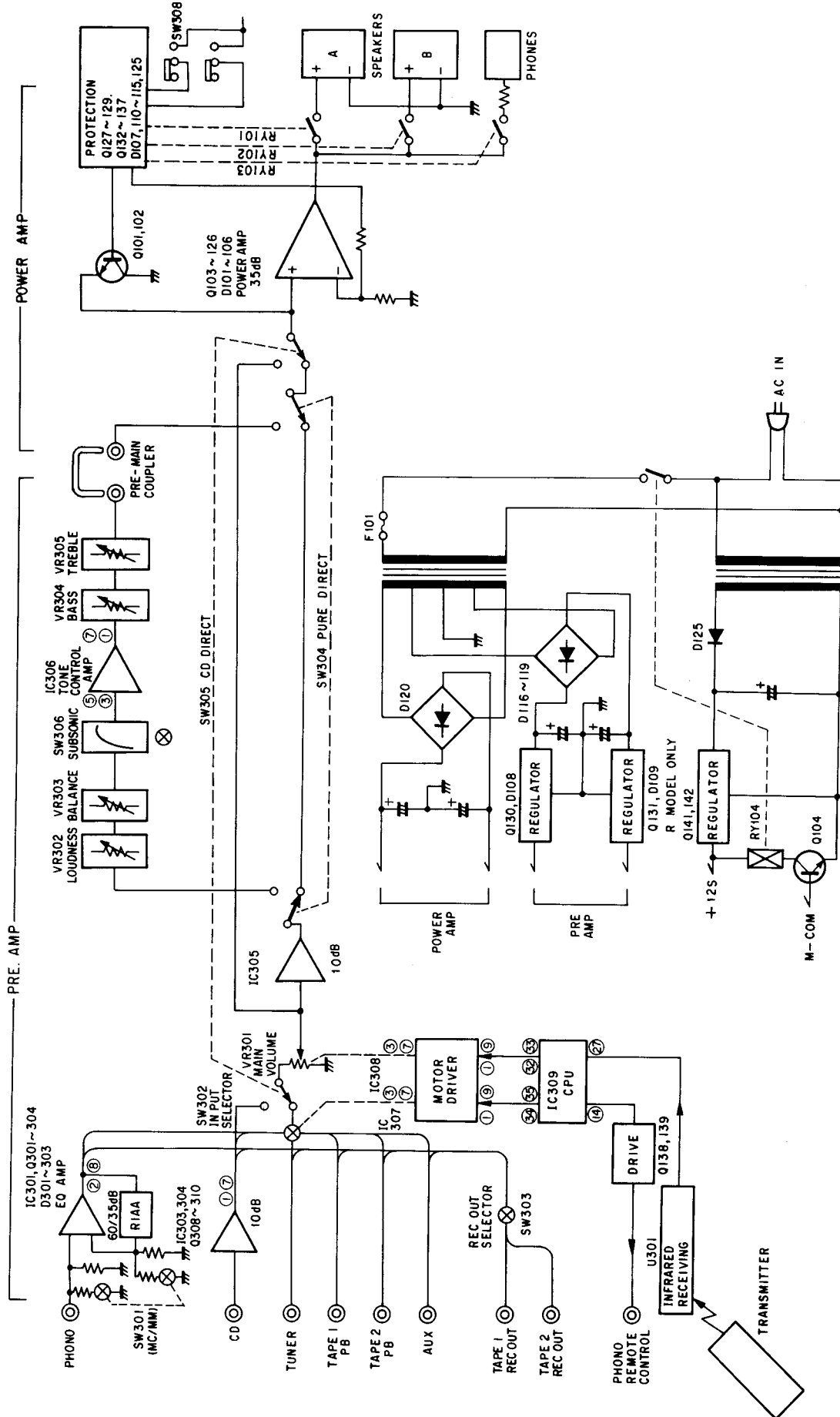
- After replacing the power and drive transistors, confirm idling current.
- After the power has been turned on, confirm that the voltage across R135 (Lch), R136 (Rch) is between 0.2 mV to 6 mV.
If it exceeds 6.1 mV, open (cut off) R289 (Lch) or R288 (Rch) and reconfirm it.
- If R289 (Lch) or R288 (Rch) have been already cut and the idling current does not flow, re-solder the resistor (680Ω) at R289 (Lch) or R288 (Rch).
- Q117 and Q118 are transistors for temperature correction. Apply silicone grease to the contact surface with the heat sink.

	Test points	Confirmation point	Rating
Lch	Across the terminals of R135 (TP1 and 2 or 1 and 3)	R289	0.2 ~ 6 mV
Rch	Across the terminals of R136 (TP1 and 2 or 1 and 3)	R288	0.2 ~ 6 mV

● TEST POINTS

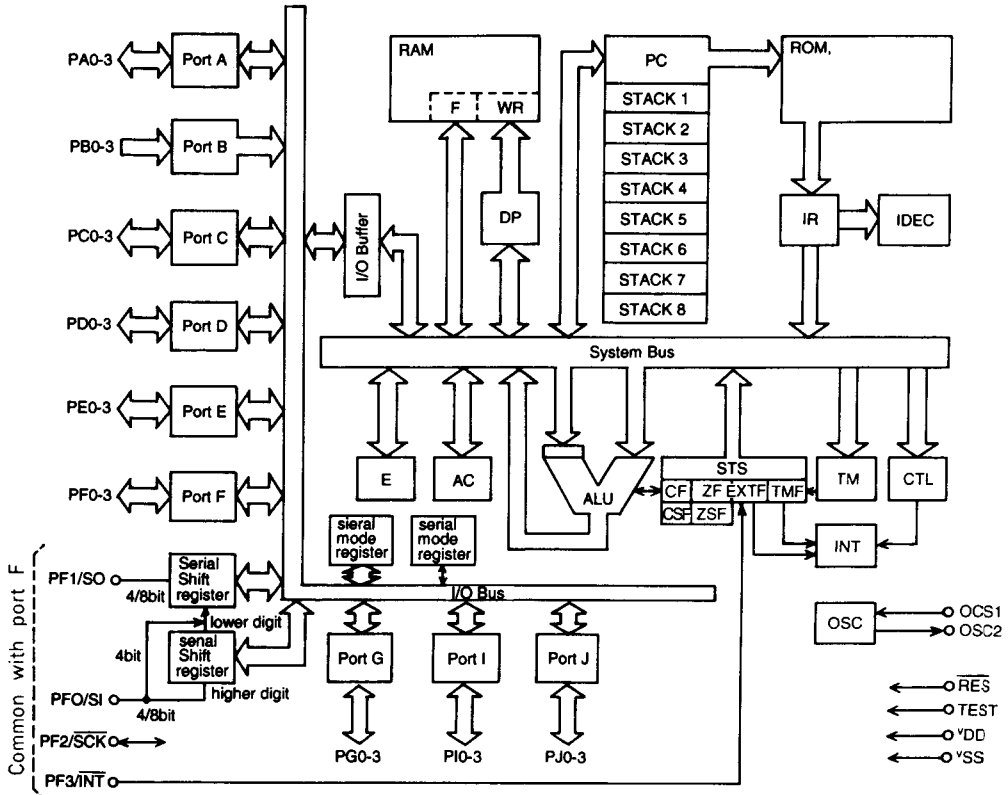
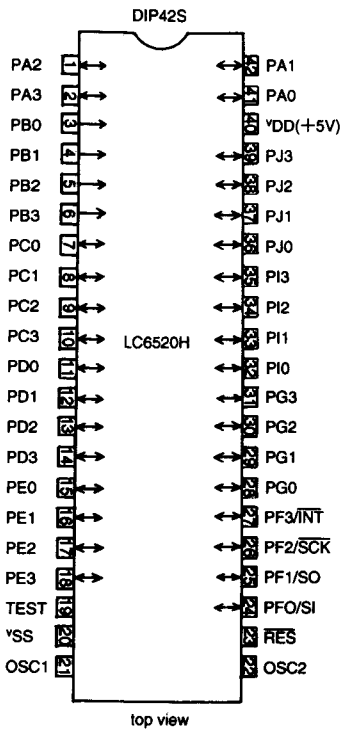


■ BLOCK DIAGRAM



AX-590

μ-COM DATA (IC309: LC6520H - 4B14)



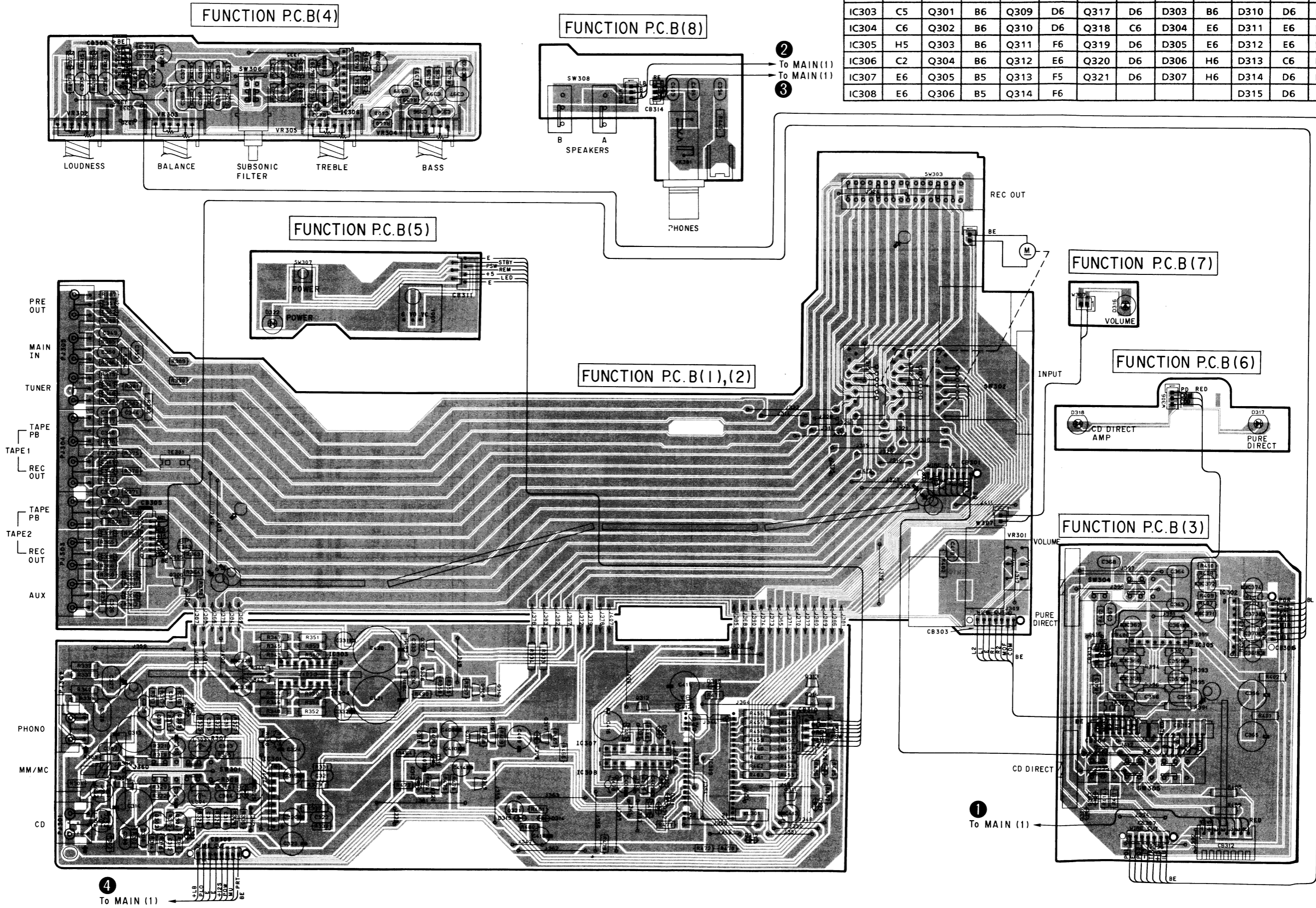
PIN NO.	PIN NAME	I/O	FUNCTION	PIN No.	PORT NAME	I/O	FUNCTION
1	PA2	-		22	OSC2		Crystal Oscillator (4MHz)
2	PA3	I	VDD	23	RES		Reset input
3	PB0	I	Selector position data	24	PF0		
4	PB1	I	Selector position data	25	PF1	I	Power on start H: Reset PON
5	PB2	I	Selector position data	26	PF2	I	Remote control power on/off H: on
6	PB3	I	Selector position data	27	PF3	I	Remote control data
7	PC0	I	Selector position data	28	PG0	I	Power switch data
8	PC1	I	Selector position data	29	PG1	I	Power control H: on L: off
9	PC2	I	Selector position data	30	PG2	O	Power output H: on
10	PC3	I	Selector position data	31	PG3	O	Stand-by H: on
11	PD0	I	Selector cam position data	32	PI0	O	Volume motor data
12	PD1	I	Selector 6 or 7 Select L: 6	33	PI1	O	Volume motor data
13	PD2	I	Audio mute key data	34	PI2	O	Selector motor data
14	PD3	O	PLAY/CUT(Player control)	35	PI3	O	Selector motor data
15	PE0	I	Power data H: G	36	PJ0	I	GND
16	PE1	I	Power down data	37	PJ1	O	
17	PE2			38	PJ2	O	
18	PE3	I	Stop select H: Non stop	39	PJ3	O	Muting control H: on
19	TEST	GND		40	VDD		+5V
20	VSS	GND		41	PA0		
21	OSC1		Crystall oscillator (4MHz)	42	PA1		

PRINTED CIRCUIT BOARD AX-590

● Component Location

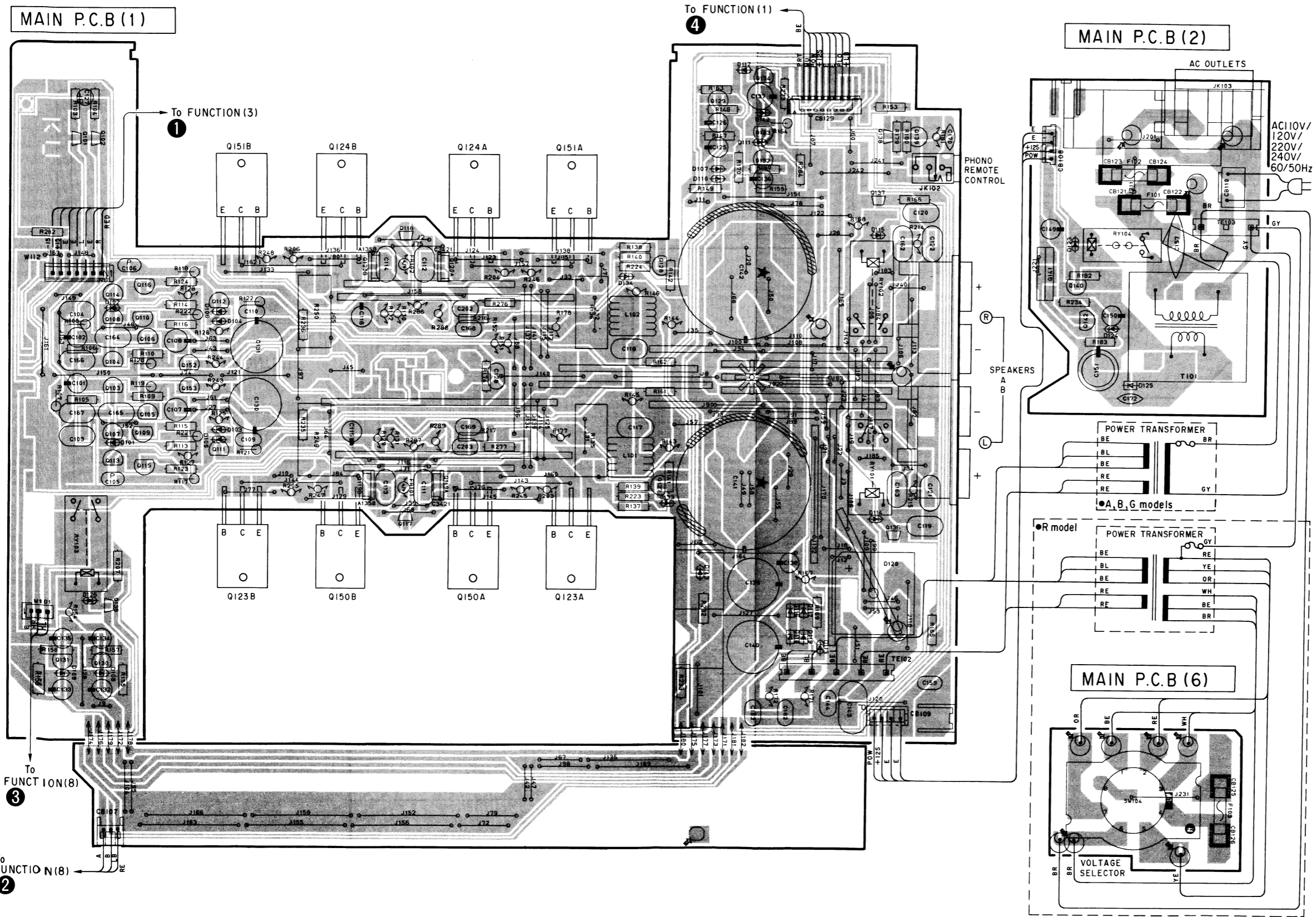
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
IC301	C6	IC309	E6	Q307	D5	Q315	D6	D301	B6	D308	E5	D316	H3
IC302	I5			Q308	D5	Q316	D6	D302	B6	D309	D6	D317	I4
IC303	C5	Q301	B6	Q309	D6	Q317	D6	D303	B6	D310	D6	D318	H4
IC304	C6	Q302	B6	Q310	D6	Q318	C6	D304	E6	D311	E6	D319	F6
IC305	H5	Q303	B6	Q311	F6	Q319	D6	D305	E6	D312	E6	D320	F6
IC306	C2	Q304	B6	Q312	E6	Q320	D6	D306	H6	D313	C6	D321	F6
IC307	E6	Q305	B5	Q313	F5	Q321	D6	D307	H6	D314	D6	D322	B3
IC308	E6	Q306	B5	Q314	F6					D315	D6		

1
2
3
4
5
6
7



■ PRINTED CIRCUIT BOARD AX-590

1
2
3
4
5
6
7



● Component Location

Ref. No.	Location	Ref. No.	Location
Q101	A2	Q150B	C5
Q102	A2	Q151A	D2
Q103	A3	Q151B	B2
Q104	A3	Q152	B3
Q105	B4	Q153	B4
Q106	B3	D101	A4
Q107	A4	D102	A3
Q108	A3	D103	B4
Q109	B4	D104	B3
Q110	B3	D105	B4
Q111	B4	D106	B3
Q112	B3	D107	E2
Q113	A4	D108	A5
Q114	A3	D109	A5
Q115	B4	D110	E2
Q116	B3	D111	E2
Q117	C4	D112	E2
Q118	C3	D113	F5
Q119A	C4	D114	F4
Q119B	C4	D115	F3
Q120A	C3	D116	E5
Q120B	C3	D117	F5
Q123A	D5	D118	E5
Q123B	B5	D119	F5
Q124A	D2	D120	F5
Q124B	C2	D123	G3
Q127	E4	D124	G3
Q128	E3	D125	G4
Q129	E2	D126	A5
Q130	A5	D133	E4
Q131	A5	D134	D3
Q132	E2	D142	E2
Q133	E2	D143	E5
Q134	E2		
Q135	A5		
Q136	F4		
Q137	F2		
Q138	F2		
Q139	F2		
Q140	G3		
Q141	G3		
Q142	G3		
Q150A	D5		

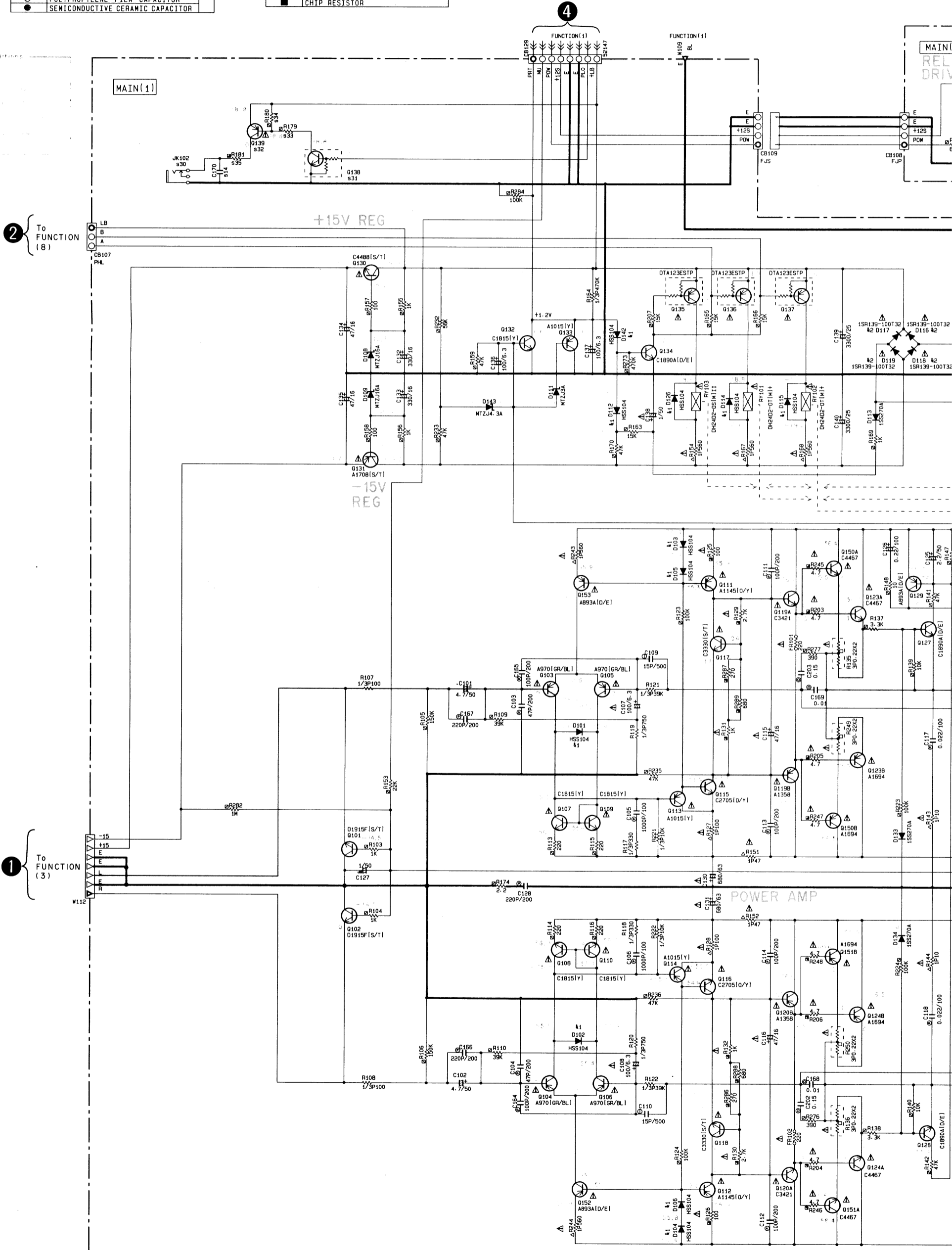
SCHEMATIC DIAGRAM (Main)

AX-590

CAPACITOR	
REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊙	CERAMIC TUBULAR CAPACITOR
⊖	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
⊕	MICA CAPACITOR
⊙	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

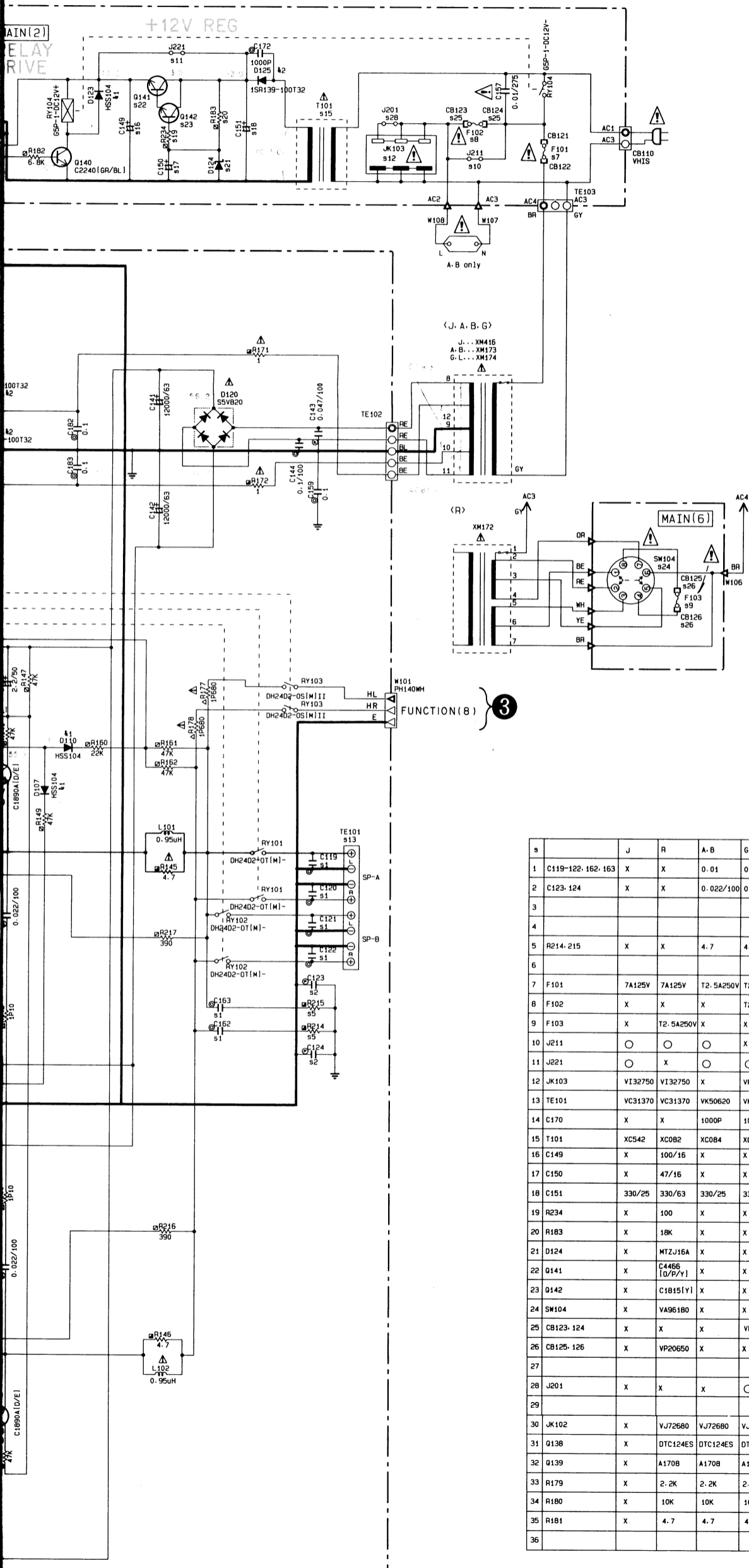
RESISTOR	
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
⊠	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊞	METAL PLATE RESISTOR
⊞	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊞	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

NOTICE
 (J)..... Japanese model
 (U)..... U.S.A model
 (C)..... Canadian model
 (A)..... Australian model
 (G)..... European model
 (B)..... British model
 (R)..... General model
 (P)..... RP model

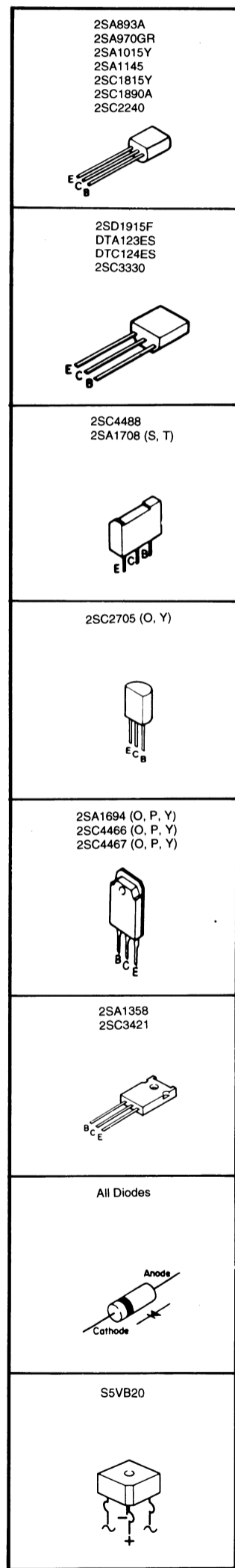


Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
41	D101-107, 110, 112, 114, 115 123, 126, 142	HSS104 1SS133 1SS176
42	D116, 119, 125	1SR139-100T32 11ES4-TA1
43		



PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICs.



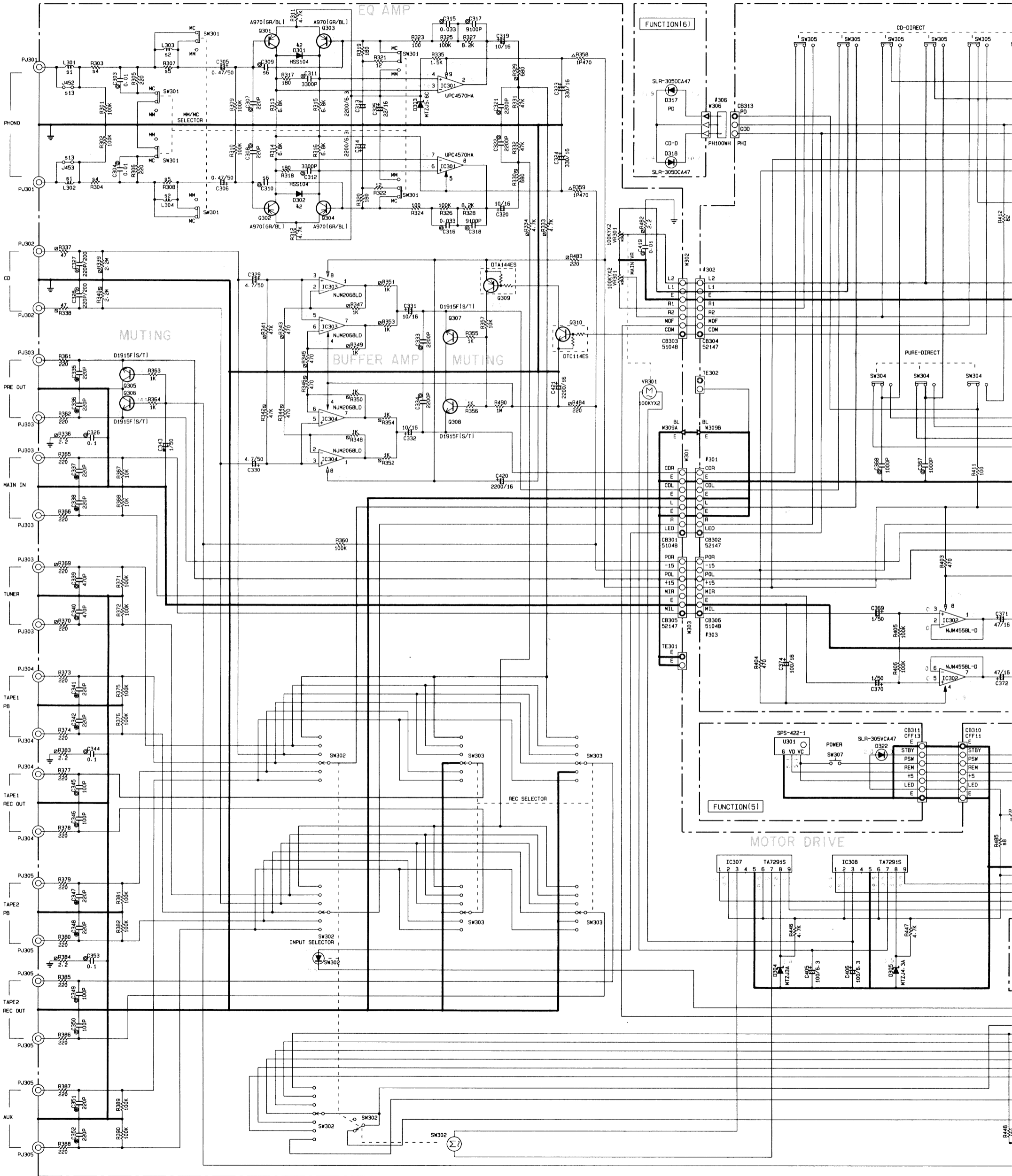
S	J	R	A-B	G
1	C119-122, 162, 163	X	X	0.01 0.01
2	C123-124	X	X	0.022/100 0.022/100
3				
4				
5	R214, 215	X	X	4.7 4.7
6				
7	F101	7A125V	7A125V	T2-5A250V T2-5A250V
8	F102	X	X	X T2-5A250V
9	F103	X	T2-5A250V	X X
10	J211	○	○	X
11	J221	○	X	○
12	JK103	VI32750	VI32750	X VP72660
13	TE101	VC31370	VC31370	VK50620 VK50620
14	C170	X	X	1000P 1000P
15	T101	XC542	XC082	XC084 XC084
16	C149	X	100/16	X X
17	C150	X	47/16	X X
18	C151	330/25	330/63	330/25 330/25
19	R234	X	100	X X
20	R183	X	18K	X X
21	D124	X	MTZJ16A	X X
22	Q141	X	C4466 [O/P/Y]	X X
23	Q142	X	C1815[Y]	X X
24	SW104	X	VA96180	X X
25	CB123-124	X	X	X VP20650
26	CB125-126	X	VP20650	X X
27				
28	J201	X	X	X ○
29				
30	JK102	X	VJ72680	VJ72680 VJ72680
31	Q138	X	DTC124ES	DTC124ES DTC124ES
32	Q139	X	A1708	A1708 A1708
33	R179	X	2-2K	2-2K 2-2K
34	R180	X	10K	10K 10K
35	R181	X	4.7	4.7 4.7
36				

- All voltages are measured with a 10MΩ/V DC electric volt meter.
- Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
- Schematic diagram is subject to change without notice.

SCHEMATIC DIAGRAM (Function) AX-590

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
□	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
■	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊗	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊙	CERAMIC TUBULAR CAPACITOR
⊖	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
⊕	MICA CAPACITOR
⊖	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR



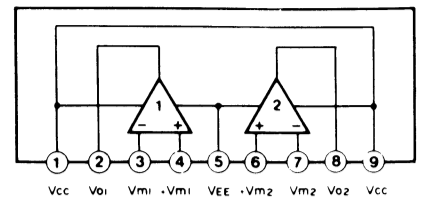
Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
41		
42	D301-302-306-309-311 312-314-315-319	HSS104 1SS133 1SS176

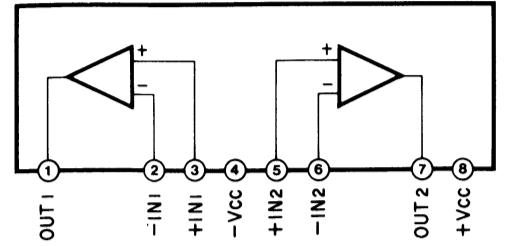
	J. R. A	B. G
1	L301-302	X 15μH
2	L303-304	X 220μH
3		
4	R303-304	10 33
5	R307-308	33 2-2K
6	C309-310	X 100P
7		
8	R485	1-5K X
9	R486	X 470
10	R487	X 1K
11	D320-321	X HSS104 1SS133 1SS176
12	J461	X ○
13	J451-453	○ X
14	C403-404	X 0.01 [VE32480]
15	C354	X 0.01 [V171670]
16	R445	X 2-2

IC BLOCK

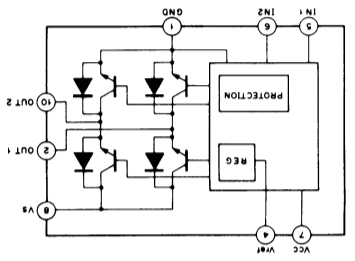
IC301 : μPC4570HA (Dual OP-amp)



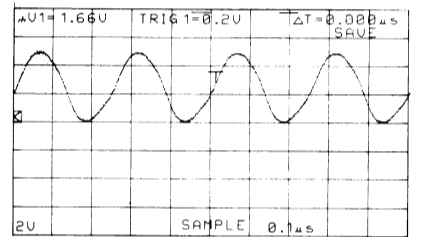
IC302, 304, 305, 306 : NJM2068LD (Dual OP-amp)



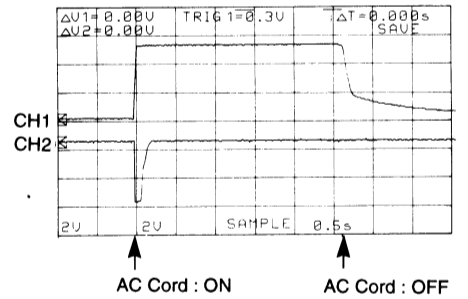
IC307, 308 : TA7291S (Motor Driver)



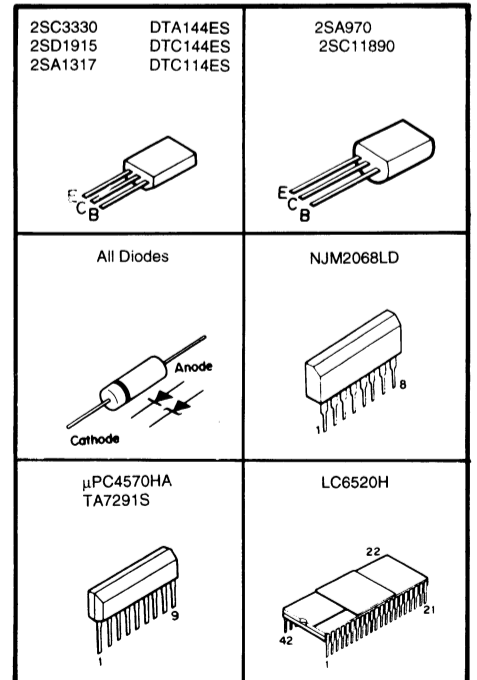
Point ① (Pin 22 of IC 309)
V : 2V/div H : 0.1μsec/div
DC range 1 : 1 probe



Point ② (CH1 : Pin 26 of IC 309)
(CH2 : Pin 23 of IC 309)
V : 2V/div H : 0.5sec/div
DC range 1 : 1 probe



PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICs.



- All voltages are measured with a 10MΩ/V DC electric volt meter.
- Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
- Schematic diagram is subject to change without notice.

PARTS LIST

■ ELECTRICAL PARTS

■ WARNING

Components having special characteristics are marked \triangle and must be replaced with parts having specifications equal to those originally installed.

- Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS List. For the parts No. of the carbon resistors, refer to last page.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS :

C.A.EL.CHP	: CHIP ALUMI. ELECTROLYTIC CAP	L.EMIT	: LIGHT EMITTING MODULE
C.CE	: CERAMIC CAP	LED.DSPLY	: LED DISPLAY
C.CE.ARRAY	: CERAMIC CAP ARRAY	LED.INFRD	: LED, INFRARED
C.CE.CHP	: CHIP CERAMIC CAP	MODUL.RF	: MODULATOR, RF
C.CE.ML	: MULTILAYER CERAMIC CAP	PHOT.CPL	: PHOTO COUPLER
C.CE.M.CHP	: CHIP MULTILAYER CERAMIC CAP	PHOT.INTR	: PHOTO INTERRUPTER
C.CE.SAFTY	: RECOGNIZED CERAMIC CAP	PHOT.RFLCT	: PHOTO REFLECTOR
C.CE.TUBLR	: CERAMIC TUBULAR CAP	PIN.TEST	: PIN, TEST POINT
C.CE.SMI	: SEMI CONDUCTIVE CERAMIC CAP	PLST.RIVET	: PLASTIC RIVET
C.EL	: ELECTROLYTIC CAP	R.ARRAY	: RESISTOR ARRAY
C.MICA	: MICA CAP	R.CAR	: CARBON RESISTOR
C.ML.FLM	: MULTILAYER FILM CAP	R.CAR.CHP	: CHIP RESISTOR
C.MP	: METALLIZED PAPER CAP	R.CAR.FP	: FLAME PROOF CARBON RESISTOR
C.MYLAR	: MYLAR FILM CAP	R.FUS	: FUSABLE RESISTOR
C.MYLAR.ML	: MULTILAYER MYLAR FILM CAP	R.MTL.CHP	: CHIP METAL FILM RESISTOR
C.PAPER	: PAPER CAPACITOR	R.MTL.FLM	: METAL FILM RESISTOR
C.PLS	: POLYSTYRENE FILM CAP	R.MTL.OXD	: METAL OXIDE FILM RESISTOR
C.POL	: POLYESTER FILM CAP	R.MTL.PLAT	: METAL PLATE RESISTOR
C.POLY	: POLYETHYLENE FILM CAP	RSNR.CE	: CERAMIC RESONATOR
C.PP	: POLYPROPYLENE FILM CAP	RSNR.CRYS	: CRYSTAL RESONATOR
C.TNTL	: TANTALUM CAP	R.TW.CEM	: TWIN CEMENT FIXED RESISTOR
C.TNTL.CHP	: CHIP TANTALUM CAP	R.WW	: WIRE WOUND RESISTOR
C.TRIM	: TRIMMER CAP	SCR.BND.HD	: BIND HEAD B-TITE SCREW
CN	: CONNECTOR	SCR.BW.HD	: BW HEAD TAPPING SCREW
CN.BS.PIN	: CONNECTOR, BASE PIN	SCR.CUP	: CUP TITE SCREW
CN.CANNON	: CONNECTOR, CANNON	SCR.TERM	: SCREW TERMINAL
CN.DIN	: CONNECTOR, DIN	SCR.TR	: SCREW, TRANSISTOR
CN.FLAT	: CONNECTOR, FLAT CABLE	SUPRT.PCB	: SUPPORT, P.C.B.
CN.POST	: CONNECTOR, BASE POST	SURG.PRTCT	: SURGE PROTECTOR
COIL.MX.AM	: COIL, AM MIX	SW.TACT	: TACT SWITCH
COIL.AT.FM	: COIL, FM ANTENNA	SW.LEAF	: LEAF SWITCH
COIL.DT.FM	: COIL, FM DETECT	SW.LEVER	: LEVER SWITCH
COIL.MX.FM	: COIL, FM MIX	SW.MICRO	: MICRO SWITCH
COIL.OUTPT	: OUTPUT COIL	SW.PUSH	: PUSH SWITCH
DIOD.ARRAY	: DIODE ARRAY	SW.RT.ENC	: ROTARY ENCODER
DIODE.BRG	: DIODE BRIDGE	SW.RT.MTR	: ROTARY SWITCH WITH MOTOR
DIODE.CHP	: CHIP DIODE	SW.RT	: ROTARY SWITCH
DIODE.VAR	: VARACTOR DIODE	SW.SLIDE	: SLIDE SWITCH
DIOD.Z.CHP	: CHIP ZENER DIODE	TERM.SP	: SPEAKER TERMINAL
DIODE.ZENR	: ZENER DIODE	TERM.WRAP	: WRAPPING TERMINAL
DSCR.CE	: CERAMIC DISCRIMINATOR	THRMST.CHP	: CHIP THERMISTOR
FER.BEAD	: FERRITE BEADS	TR.CHP	: CHIP TRANSISTOR
FER.CORE	: FERRITE CORE	TR.DGT	: DIGITAL TRANSISTOR
FET.CHP	: CHIP FET	TR.DGT.CHP	: CHIP DIGITAL TRANSISTOR
FL.DSPLY	: FLUORESCENT DISPLAY	TRANS	: TRANSFORMER
FLTR.CE	: CERAMIC FILTER	TRANS.PULS	: PULSE TRANSFORMER
FLTR.COMB	: COMB FILTER MODULE	TRANS.PWR	: POWER TRANSFORMER ASS'y
FLTR.LC.RF	: LC FILTER, EMI	TUNER.AM	: TUNER PACK, AM
GND.MTL	: GROUND PLATE	TUNER.FM	: TUNER PACK, FM
GND.TERM	: GROUND TERMINAL	TUNER.PK	: FRONT-END TUNER PACK
HOLDER.FUS	: FUSE HOLDER	VR	: ROTARY POTENTIOMETER
IC.PRTCT	: IC PROTECTOR	VR.MTR	: POTENTIOMETER WITH MOTOR
JUMPER.CN	: JUMPER CONNECTOR	VR.SW	: POTENTIOMETER WITH ROTARY SW
JUMPER.TST	: JUMPER, TEST POINT	VR.SLIDE	: SLIDE POTENTIOMETER
L.DTCT	: LIGHT DETECTING MODULE	VR.TRIM	: TRIMMER POTENTIOMETER

Note) Those parts marked with "#" are not included in the P.C.B. ass'y.

MAIN P.C.B.

Schm	Ref.	PART NO.	Description
*		VS972500	P. C. B. MAIN(R)
*		VS972600	P. C. B. MAIN(AB)
*		VS972700	P. C. B. MAIN(G)
	CB107	VB858200	CN. BS. PIN 3P
	CB108	VS839400	CN 4P
	CB110	VG879900	CN. BS. PIN 2P
	CB121	VP206500	HOLDER. FUS EYF-52BC
	CB122	VP206500	HOLDER. FUS EYF-52BC
	CB123	VP206500	HOLDER. FUS EYF-52BC(G)
	CB124	VP206500	HOLDER. FUS EYF-52BC(G)
	CB125	VP206500	HOLDER. FUS EYF-52BC(R)
	CB126	VP206500	HOLDER. FUS EYF-52BC(R)
	CB129	VK025200	CN. BS. PIN 8P
	C101	VE021900	C. EL 4.7uF 100V
	C102	VE021900	C. EL 4.7uF 100V
	C103	VK533800	C. PP 47pF 200V
	C104	VK533800	C. PP 47pF 200V
	C105	VP917800	C. PP 1000pF 100V
	C106	VP917800	C. PP 1000pF 100V
Δ	C107	VK679700	C. EL 100uF 6.3V
Δ	C108	VK679700	C. EL 100uF 6.3V
	C109	FU451150	C. MICA 15pF 500V
	C110	FU451150	C. MICA 15pF 500V
	C111	VK533900	C. PP 100pF 200V
	C112	VK533900	C. PP 100pF 200V
	C113	VK533900	C. PP 100pF 200V
	C114	VK533900	C. PP 100pF 200V
Δ	C115	VE742600	C. EL 47uF 25V
Δ	C116	VE742600	C. EL 47uF 25V
	C117	VP918300	C. PP 0.022uF 100V
	C118	VP918300	C. PP 0.022uF 100V
	C119	Vi716700	C. MYLAR 0.01uF 50V(G)
	C119	Vi716700	C. MYLAR 0.01uF 50V(ABG)
	C120	Vi716700	C. MYLAR 0.01uF 50V(ABG)
	C120	Vi716700	C. MYLAR 0.01uF 50V(G)
	C121	Vi716700	C. MYLAR 0.01uF 50V(ABG)
	C121	Vi716700	C. MYLAR 0.01uF 50V(G)
	C122	Vi716700	C. MYLAR 0.01uF 50V(ABG)
	C122	Vi716700	C. MYLAR 0.01uF 50V(G)
	C123	VK534200	C. PP 0.022uF 100V(G)
	C123	VK534200	C. PP 0.022uF 100V(ABG)
	C124	VK534200	C. PP 0.022uF 100V(G)
	C124	VK534200	C. PP 0.022uF 100V(ABG)
	C125	VG290600	C. EL 2.2uF 50V
	C126	UJ895220	C. EL 0.22uF 100V
	C127	VN283200	C. EL 1uF 50V
	C128	VK534000	C. PP 220pF 200V
Δ	C130	VP918500	C. EL 680uF 63V
Δ	C131	VP918500	C. EL 680uF 63V
	C132	VG287800	C. EL 330uF 16V
	C133	VG287800	C. EL 330uF 16V
	C134	VG291200	C. EL 47uF 50V
	C135	VG291200	C. EL 47uF 50V
	C136	VF760000	C. EL 100uF 10V

Schm	Ref.	PART NO.	Description
	C137	VK679700	C. EL 100uF 6.3V
Δ	C138	VG290500	C. EL 1uF 50V
	C139	VG289400	C. EL 3300uF 25V
	C140	VG289400	C. EL 3300uF 25V
	C141	VK574600	C. EL 12000uF 63V
	C142	VK574600	C. EL 12000uF 63V
	C143	VK534400	C. PP 0.047uF 100V
	C144	VR325400	C. MYLAR 0.1uF 100V
	C149	VG290900	C. EL 10uF 50V(R)
	C150	VG290900	C. EL 10uF 50V(R)
	C151	VG289100	C. EL 330uF 25V
	C151	VG289100	C. EL 330uF 25V(ABG)
	C151	VK699400	C. EL 330uF 63V(R)
	C157	VS741700	C. CE. SAFTY 0.01uF 275V
	C159	VE326000	C. MYLAR. ML 0.1uF 50V
	C162	Vi716700	C. MYLAR 0.01uF 50V(ABG)
	C162	Vi716700	C. MYLAR 0.01uF 50V(G)
	C163	Vi716700	C. MYLAR 0.01uF 50V(G)
	C163	Vi716700	C. MYLAR 0.01uF 50V(ABG)
	C164	VK533900	C. PP 100pF 200V
	C165	VK533900	C. PP 100pF 200V
	C166	VK534000	C. PP 220pF 200V
	C167	VK534000	C. PP 220pF 200V
	C168	Vi716700	C. MYLAR 0.01uF 50V
	C169	Vi716700	C. MYLAR 0.01uF 50V
	C170	FG213100	C. CE 1000pF 50V(G)
	C170	FG213100	C. CE 1000pF 50V(ABG)
	C172	UA253100	C. MYLAR 1000pF 50V
	C182	VE326000	C. MYLAR. ML 0.1uF 50V
	C183	VE326000	C. MYLAR. ML 0.1uF 50V
	C202	VE326200	C. MYLAR. ML 0.15uF 50V
	C203	VE326200	C. MYLAR. ML 0.15uF 50V
	D101	VD631600	DIODE 1SS133,176,HSS104
	D102	VD631600	DIODE 1SS133,176,HSS104
	D103	VD631600	DIODE 1SS133,176,HSS104
	D104	VD631600	DIODE 1SS133,176,HSS104
	D105	VD631600	DIODE 1SS133,176,HSS104
	D106	VD631600	DIODE 1SS133,176,HSS104
	D107	VD631600	DIODE 1SS133,176,HSS104
	D108	VG441000	DIODE. ZENR MTZJ16A 16V
	D109	VG441000	DIODE. ZENR MTZJ16A 16V
	D110	VD631600	DIODE 1SS133,176,HSS104
	D111	VG435800	DIODE. ZENR MTZJ3.0A 3.0V
	D112	VD631600	DIODE 1SS133,176,HSS104
	D113	VN008700	DIODE 1SS270A
	D114	VD631600	DIODE 1SS133,176,HSS104
	D115	VD631600	DIODE 1SS133,176,HSS104
Δ	D116	VH770800	DIODE 1SR139-100
Δ	D117	VH770800	DIODE 1SR139-100
Δ	D118	VH770800	DIODE 1SR139-100
Δ	D119	VH770800	DIODE 1SR139-100
Δ	D120	VM702000	DIODE. BRG S5VB20 3.5A 200V
	D123	VD631600	DIODE 1SS133,176,HSS104
	D124	VG440300	DIODE. ZENR MTZJ12C 12V(R)

* New Parts

AX-590

MAIN P.C.B.

Schm	Ref.	PART NO.	Description
	D125	VH770800	DIODE 1SR139-100
	D126	VD631600	DIODE 1SS133,176,HSS104
	D133	VN008700	DIODE 1SS270A
	D134	VN008700	DIODE 1SS270A
	D142	VD631600	DIODE 1SS133,176,HSS104
	D143	VG436700	DIODE. ZENR MTZJ4. 3A 4.3V
Δ	F101	KB000690	FUSE T2.5A 250V(ABG)
Δ	F101	KB000690	FUSE T2.5A 250V(G)
Δ	F101	VP909900	FUSE T7.0A 125V(R)
Δ	F102	KB000690	FUSE T2.5A 250V(G)
Δ	F103	KB000690	FUSE T2.5A 250V(R)
Δ	FR101	VK188200	R. FUS 220Ω 1/4W
Δ	FR102	VK188200	R. FUS 220Ω 1/4W
	JK102	VJ726800	JACK. MNI
	JK102	VJ726800	JACK. MNI (G)
	JK103	Vi327500	OUTLET. AC 3P(R)
	JK103	VP728600	OUTLET. AC 3P(G)
	L101	VR906600	COIL 0.95uH
	L102	VR906600	COIL 0.95uH
	Q101	VK432900	TR 2SD1915F S,T
	Q102	VK432900	TR 2SD1915F S,T
Δ	Q103	iA097000	TR 2SA970 GR,BL
Δ	Q104	iA097000	TR 2SA970 GR,BL
Δ	Q105	iA097000	TR 2SA970 GR,BL
Δ	Q106	iA097000	TR 2SA970 GR,BL
Δ	Q107	iC1815C0	TR 2SC1815 Y
Δ	Q108	iC1815C0	TR 2SC1815 Y
Δ	Q109	iC1815C0	TR 2SC1815 Y
Δ	Q110	iC1815C0	TR 2SC1815 Y
Δ	Q111	VE198700	TR 2SA1145 O,Y
Δ	Q112	VE198700	TR 2SA1145 O,Y
Δ	Q113	iA101521	TR 2SA1015 Y
Δ	Q114	iA101521	TR 2SA1015 Y
Δ	Q115	VE198800	TR 2SC2705 O,Y
Δ	Q116	VE198800	TR 2SC2705 O,Y
Δ	Q117	VC218900	TR 2SC3330 R,S,T
Δ	Q118	VC218900	TR 2SC3330 R,S,T
Δ	Q119	iX603580	TR 2SA1358
Δ	Q119	iX603590	TR 2SC3421
Δ	Q120	iX603580	TR 2SA1358
Δ	Q120	iX603590	TR 2SC3421
Δ #	Q123B	iX615750	TR 2SA1694 O,P,Y
Δ #	Q123A	iX615760	TR 2SC4467 O,P,Y
Δ #	Q124B	iX615750	TR 2SA1694 O,P,Y
Δ #	Q124A	iX615760	TR 2SC4467 O,P,Y
	Q127	VP883100	TR 2SC1890A D,E
Δ	Q128	VP883100	TR 2SC1890A D,E
	Q129	VP883000	TR 2SA893A D,E
Δ	Q130	VP872700	TR 2SC4488 S,T
Δ	Q131	VP872600	TR 2SA1708 S,T
	Q132	iC1815C0	TR 2SC1815 Y
	Q133	iA101521	TR 2SA1015 Y
	Q134	VP883100	TR 2SC1890A D,E
Δ	Q135	VF325300	TR. DGT DTA123ESTP

Schm	Ref.	PART NO.	Description
Δ	Q136	VF325300	TR. DGT DTA123ESTP
Δ	Q137	VF325300	TR. DGT DTA123ESTP
	Q138	VF331200	TR. DGT DTC124ES
	Q138	VF331200	TR. DGT DTC124ES(G)
Δ	Q139	VP872600	TR 2SA1708 S,T(G)
	Q139	VP872600	TR 2SA1708 S,T
	Q140	iC224030	TR 2SC2240 GR,BL
	Q141	VP768300	TR 2SC4466 O,P,Y(R)
	Q142	iC1815C0	TR 2SC1815 Y(R)
Δ #	Q150B	iX615750	TR 2SA1694 O,P,Y
Δ #	Q150A	iX615760	TR 2SC4467 O,P,Y
Δ #	Q151B	iX615750	TR 2SA1694 O,P,Y
Δ #	Q151A	iX615760	TR 2SC4467 O,P,Y
Δ	Q152	VP883000	TR 2SA893A D,E
Δ	Q153	VP883000	TR 2SA893A D,E
Δ	R125	HV455100	R. CAR. FP 100Ω 1/4W
Δ	R126	HV455100	R. CAR. FP 100Ω 1/4W
Δ	R127	HL315100	R. MTL. OXD 100Ω 1W
Δ	R128	HL315100	R. MTL. OXD 100Ω 1W
Δ	R129	HV456270	R. CAR. FP 2.7KΩ 1/4W
Δ	R130	HV456270	R. CAR. FP 2.7KΩ 1/4W
Δ	R131	HV456100	R. CAR. FP 1KΩ 1/4W
Δ	R132	HV456100	R. CAR. FP 1KΩ 1/4W
Δ	R135	VJ695400	R. WW 0.22Ω x2 3W
Δ	R136	VJ695400	R. WW 0.22Ω x2 3W
Δ	R143	HL314100	R. MTL. OXD 10Ω 1W
Δ	R144	HL314100	R. MTL. OXD 10Ω 1W
Δ	R145	HV453470	R. CAR. FP 4.7Ω 1/4W
Δ	R146	HV453470	R. CAR. FP 4.7Ω 1/4W
Δ	R151	HL314470	R. MTL. OXD 47Ω 1W
Δ	R152	HL314470	R. MTL. OXD 47Ω 1W
Δ	R154	HL315560	R. MTL. OXD 560Ω 1W
Δ	R167	HL315560	R. MTL. OXD 560Ω 1W
Δ	R168	HL315560	R. MTL. OXD 560Ω 1W
Δ	R171	HV453100	R. CAR. FP 1Ω 1/4W
Δ	R172	HV453100	R. CAR. FP 1Ω 1/4W
Δ	R177	HL315680	R. MTL. OXD 680Ω 1W
Δ	R178	HL315680	R. MTL. OXD 680Ω 1W
	R181	HV453470	R. CAR. FP 4.7Ω 1/4W(G)
	R181	HV453470	R. CAR. FP 4.7Ω 1/4W
Δ	R203	HV453470	R. CAR. FP 4.7Ω 1/4W
Δ	R204	HV453470	R. CAR. FP 4.7Ω 1/4W
Δ	R205	HV453470	R. CAR. FP 4.7Ω 1/4W
Δ	R206	HV453470	R. CAR. FP 4.7Ω 1/4W
	R214	VP939700	R. MTL. FLM 4.7Ω 1W(G)
	R214	VP939700	R. MTL. FLM 4.7Ω 1W(ABG)
	R215	VP939700	R. MTL. FLM 4.7Ω 1W(G)
	R215	VP939700	R. MTL. FLM 4.7Ω 1W(ABG)
Δ	R243	HL315560	R. MTL. OXD 560Ω 1W
Δ	R244	HL315560	R. MTL. OXD 560Ω 1W
Δ	R245	HV453470	R. CAR. FP 4.7Ω 1/4W
Δ	R246	HV453470	R. CAR. FP 4.7Ω 1/4W
Δ	R247	HV453470	R. CAR. FP 4.7Ω 1/4W
Δ	R248	HV453470	R. CAR. FP 4.7Ω 1/4W

* New Parts

MAIN & FUNCTION P.C.B.

Schm	Ref.	PART NO.	Description		
Δ	R249	VJ695400	R. WW	0.22Ω x2	3W
Δ	R250	VJ695400	R. WW	0.22Ω x2	3W
	R286	HV455270	R. CAR. FP	270Ω	1/4W
	R287	HV455270	R. CAR. FP	270Ω	1/4W
	R288	HV455680	R. CAR. FP	680Ω	1/4W
	R289	HV455680	R. CAR. FP	680Ω	1/4W
Δ	RY101	VK438300	RELAY	DH24D2-OTM- II	
Δ	RY102	VK438300	RELAY	DH24D2-OTM- II	
Δ *	RY103	VT561500	RELAY	DC JW2ASN-DC24V	
	RY104	VH230800	RELAY	G5P-1-DC12V	
	SW104	VA961800	VOLT. SELCT	ESE-37247-F(R)	
Δ	T101	XC082A00	TRANS. PWR	(R)	
Δ	T101	XC084A00	TRANS. PWR	(G)	
Δ	T101	XC084A00	TRANS. PWR	(ABG)	
	TE101	VC313700	TERM. SP	8P(JR)	
	TE101	VK506200	TERM. SP	8P(G)	
	TE101	VK506200	TERM. SP	8P(ABG)	
	TE102	LA002340	TERM. WRAP	5P	
	TE103	LA002320	TERM. WRAP	3P	
		VJ828000	PIN	IMSA-6024-03E	
		BB071360	SCR. TERM	8. 3x13	
		BB070700	GND. MTL		
*	VS972320 P.C.B. FUNCTION(JR)				
*	VS972320 P.C.B. FUNCTION(BG)				
	CB301	Vi878600	CN. BS. PIN	8P	
	CB302	VK025200	CN. BS. PIN	8P	
	CB303	Vi878500	CN. BS. PIN	7P	
	CB304	VK025100	CN. BS. PIN	7P	
	CB305	VK025100	CN. BS. PIN	7P	
	CB306	Vi878500	CN. BS. PIN	7P	
	CB307	Vi878500	CN. BS. PIN	7P	
	CB308	VK025100	CN. BS. PIN	7P	
	CB309	Vi878600	CN. BS. PIN	8P	
	CB310	VR357800	CN. BS. PIN	7P	
	CB311	VR361400	CN. BS. PIN	7P	
	CB312	LB919070	CN. BS. PIN	7P	
	CB313	VD004600	CN. BS. PIN	3P	
	CB314	VD004600	CN. BS. PIN	3P	
	C303	Vi716700	C. MYLAR	0.01uF	50V
	C304	Vi716700	C. MYLAR	0.01uF	50V
	C305	VG290300	C. EL	0.47uF	50V
	C306	VG290300	C. EL	0.47uF	50V
	C307	VQ462600	C. MYLAR	220pF	50V
	C308	VQ462600	C. MYLAR	220pF	50V
	C309	UA652100	C. MYLAR	100pF	50V(BG)
	C310	UA652100	C. MYLAR	100pF	50V(BG)
	C311	UA653330	C. MYLAR	3300pF	50V
	C312	UA653330	C. MYLAR	3300pF	50V
	C313	Vi460900	C. EL	2200uF	6. 3V
	C314	Vi460900	C. EL	2200uF	6. 3V
	C315	UA654330	C. MYLAR	0.033uF	50V

Schm	Ref.	PART NO.	Description		
	C316	UA654330	C. MYLAR	0.033uF	50V
	C317	UA653910	C. MYLAR	9100pF	50V
	C318	UA653910	C. MYLAR	9100pF	50V
	C319	VG290900	C. EL	10uF	50V
	C320	VG290900	C. EL	10uF	50V
	C321	Vi715900	C. MYLAR	2200pF	50V
	C322	Vi715900	C. MYLAR	2200pF	50V
	C323	VG287800	C. EL	330uF	16V
	C324	VG287800	C. EL	330uF	16V
	C325	VG291000	C. EL	22uF	50V
	C326	VE326000	C. MYLAR. ML	0.1uF	50V
	C327	VK534000	C. PP	220pF	200V
	C328	VK534000	C. PP	220pF	200V
	C329	VE021900	C. EL	4.7uF	100V
	C330	VE021900	C. EL	4.7uF	100V
	C331	VQ082700	C. EL	10uF	16V
	C332	VQ082700	C. EL	10uF	16V
	C333	Vi715900	C. MYLAR	2200pF	50V
	C334	Vi715900	C. MYLAR	2200pF	50V
	C335	VG278400	C. CE. TUBLR	220pF	50V
	C336	VG278400	C. CE. TUBLR	220pF	50V
	C337	VG278400	C. CE. TUBLR	220pF	50V
	C338	VG278400	C. CE. TUBLR	220pF	50V
	C339	UA652470	C. MYLAR	470pF	50V
	C340	UA652470	C. MYLAR	470pF	50V
	C341	VG278400	C. CE. TUBLR	220pF	50V
	C342	VG278400	C. CE. TUBLR	220pF	50V
	C343	VG722100	C. EL	1uF	50V
	C344	VE326000	C. MYLAR. ML	0.1uF	50V
	C345	UA652100	C. MYLAR	100pF	50V
	C346	UA652100	C. MYLAR	100pF	50V
	C347	VG278400	C. CE. TUBLR	220pF	50V
	C348	VG278400	C. CE. TUBLR	220pF	50V
	C349	UA652100	C. MYLAR	100pF	50V
	C350	UA652100	C. MYLAR	100pF	50V
	C351	VG278400	C. CE. TUBLR	220pF	50V
	C352	VG278400	C. CE. TUBLR	220pF	50V
	C353	VE326000	C. MYLAR. ML	0.1uF	50V
	C354	Vi716700	C. MYLAR	0.01uF	50V(BG)
	C355	VK533800	C. PP	47pF	200V
	C356	VK533800	C. PP	47pF	200V
	C357	VE021900	C. EL	4.7uF	100V
	C358	VE021900	C. EL	4.7uF	100V
	C359	VF760000	C. EL	100uF	10V
	C360	VF760000	C. EL	100uF	10V
	C361	VQ082700	C. EL	10uF	16V
	C362	VQ082700	C. EL	10uF	16V
	C363	UA653330	C. MYLAR	3300pF	50V
	C364	UA653330	C. MYLAR	3300pF	50V
	C365	VG288000	C. EL	1000uF	16V
	C366	VG288000	C. EL	1000uF	16V
	C367	UA653100	C. MYLAR	1000pF	50V
	C368	UA653100	C. MYLAR	1000pF	50V
	C369	VG290500	C. EL	1uF	50V

* New Parts

FUNCTION P.C.B.

Schm Ref.	PART NO.	Description		
C370	VG290500	C. EL	1uF	50V
C371	VG291200	C. EL	47uF	50V
C372	VG291200	C. EL	47uF	50V
C373	VG288900	C. EL	100uF	25V
C374	VG288900	C. EL	100uF	25V
C375	UA654560	C. MYLAR	0.056uF	50V
C376	UA654560	C. MYLAR	0.056uF	50V
C377	VG278900	C. CE. TUBLR	680pF	50V
C378	VG278900	C. CE. TUBLR	680pF	50V
C379	UA654470	C. MYLAR	0.047uF	50V
C380	UA654470	C. MYLAR	0.047uF	50V
C381	VE325800	C. POL. MLT	0.068uF	50V
C382	VE325800	C. POL. MLT	0.068uF	50V
C383	VE325800	C. POL. MLT	0.068uF	50V
C384	VE325800	C. POL. MLT	0.068uF	50V
C385	VG290300	C. EL	0.47uF	50V
C386	VG290300	C. EL	0.47uF	50V
C387	VG278400	C. CE. TUBLR	220pF	50V
C388	VG278400	C. CE. TUBLR	220pF	50V
C389	VG290600	C. EL	2.2uF	50V
C390	VG290600	C. EL	2.2uF	50V
C391	VF466700	C. CE. TUBLR	47pF	50V
C392	VF466700	C. CE. TUBLR	47pF	50V
C393	VG291000	C. EL	22uF	50V
C394	VG291000	C. EL	22uF	50V
C395	UA655120	C. MYLAR	0.12uF	50V
C396	UA655120	C. MYLAR	0.12uF	50V
C397	UA655120	C. MYLAR	0.12uF	50V
C398	UA655120	C. MYLAR	0.12uF	50V
C399	UA654330	C. MYLAR	0.033uF	50V
C400	UA654330	C. MYLAR	0.033uF	50V
C401	VG288900	C. EL	100uF	25V
C402	VG288900	C. EL	100uF	25V
C403	VE324800	C. MYLAR. ML	0.01uF	50V(BG)
C404	VE324800	C. MYLAR. ML	0.01uF	50V(BG)
C405	VF760000	C. EL	100uF	10V
C406	VF760000	C. EL	100uF	10V
C407	VG290900	C. EL	10uF	50V
C408	VG290900	C. EL	10uF	50V
C409	VG287100	C. EL	470uF	10V
C410	VG291200	C. EL	47uF	50V
C411	VF992600	C. EL	4700uF	5.5V
C412	VH053100	C. CE. TUBLR	0.1uF	50V
C413	VG290900	C. EL	10uF	50V
C414	VG290500	C. EL	1uF	50V
C415	VH053100	C. CE. TUBLR	0.1uF	50V
C416	VG289100	C. EL	330uF	25V
C417	VH053100	C. CE. TUBLR	0.1uF	50V
C418	VG291200	C. EL	47uF	50V
C419	VE324800	C. MYLAR. ML	0.01uF	50V
C420	UM049220	C. EL	2200uF	16V
C421	UM049220	C. EL	2200uF	16V
D301	VD631600	DIODE	1SS133,176,HSS104	
D302	VD631600	DIODE	1SS133,176,HSS104	

* New Parts

Schm Ref.	PART NO.	Description		
D303	VG437800	DIODE. ZENR	MTZJ5.6C	5.6V
D304	VG435800	DIODE. ZENR	MTZJ3.0A	3.0V
D305	VG436700	DIODE. ZENR	MTZJ4.3A	4.3V
D306	VD631600	DIODE	1SS133,176,HSS104	
D307	VD631600	DIODE	1SS133,176,HSS104	
D308	VD631600	DIODE	1SS133,176,HSS104	
D309	VD631600	DIODE	1SS133,176,HSS104	
D310	VG437800	DIODE. ZENR	MTZJ5.6C	5.6V
D311	VD631600	DIODE	1SS133,176,HSS104	
D312	VD631600	DIODE	1SS133,176,HSS104	
D313	VG437800	DIODE. ZENR	MTZJ5.6C	5.6V
D314	VD631600	DIODE	1SS133,176,HSS104	
D315	VD631600	DIODE	1SS133,176,HSS104	
D316	VP593800	LED(or)	SLR-305DCA47	
D317	VP593800	LED(or)	SLR-305DCA47	
D318	VP593800	LED(or)	SLR-305DCA47	
D319	VD631600	DIODE	1SS133,176,HSS104	
D320	VD631600	DIODE	1SS133,176,(BG)	
D321	VD631600	DIODE	1SS133,176,(BG)	
D322	VP594000	LED(re)	SLR-305VCA47	
IC301	XB247301	IC	uPC4570HA	
IC302	XQ212A00	IC	NJM4558LD	
IC303	XM356A00	IC	NJM2068LD	
IC304	XM356A00	IC	NJM2068LD	
IC305	XM356A00	IC	NJM2068LD	
IC306	XM356A00	IC	NJM2068LD	
IC307	XF557A00	IC	TA7291S	
IC308	XF557A00	IC	TA7291S	
IC309	XM088B00	IC	LC6520H-4B14	
JK301	VS899700	JACK. PHONE	JY-6317-02-030	
L301	VF541100	COIL	15uH(BG)	
L302	VF541100	COIL	15uH(BG)	
L303	VB056900	COIL	220uH(BG)	
L304	VB056900	COIL	220uH(BG)	
PJ301	VR765100	JACK. PIN	2P	
PJ302	VF645900	JACK. PIN	2P	
PJ303	VJ794600	JACK. PIN	6P	
PJ304	VT029000	JACK. PIN	4P	
PJ305	VJ794600	JACK. PIN	6P	
Q301	iA097000	TR	2SA970 GR,BL	
Q302	iA097000	TR	2SA970 GR,BL	
Q303	iA097000	TR	2SA970 GR,BL	
Q304	iA097000	TR	2SA970 GR,BL	
Q305	VK432900	TR	2SD1915F S,T	
Q306	VK432900	TR	2SD1915F S,T	
Q307	VK432900	TR	2SD1915F S,T	
Q308	VK432900	TR	2SD1915F S,T	
Q309	VG721700	TR. DGT	DTA144ES	
Q310	VD678700	TR. DGT	DTC114ES	
Q311	VD678700	TR. DGT	DTC114ES	
Q312	VD678700	TR. DGT	DTC114ES	
Q313	VC218900	TR	2SC3330 R,S,T	
Q314	VG721700	TR. DGT	DTA144ES	
Q315	VG721700	TR. DGT	DTA144ES	

18

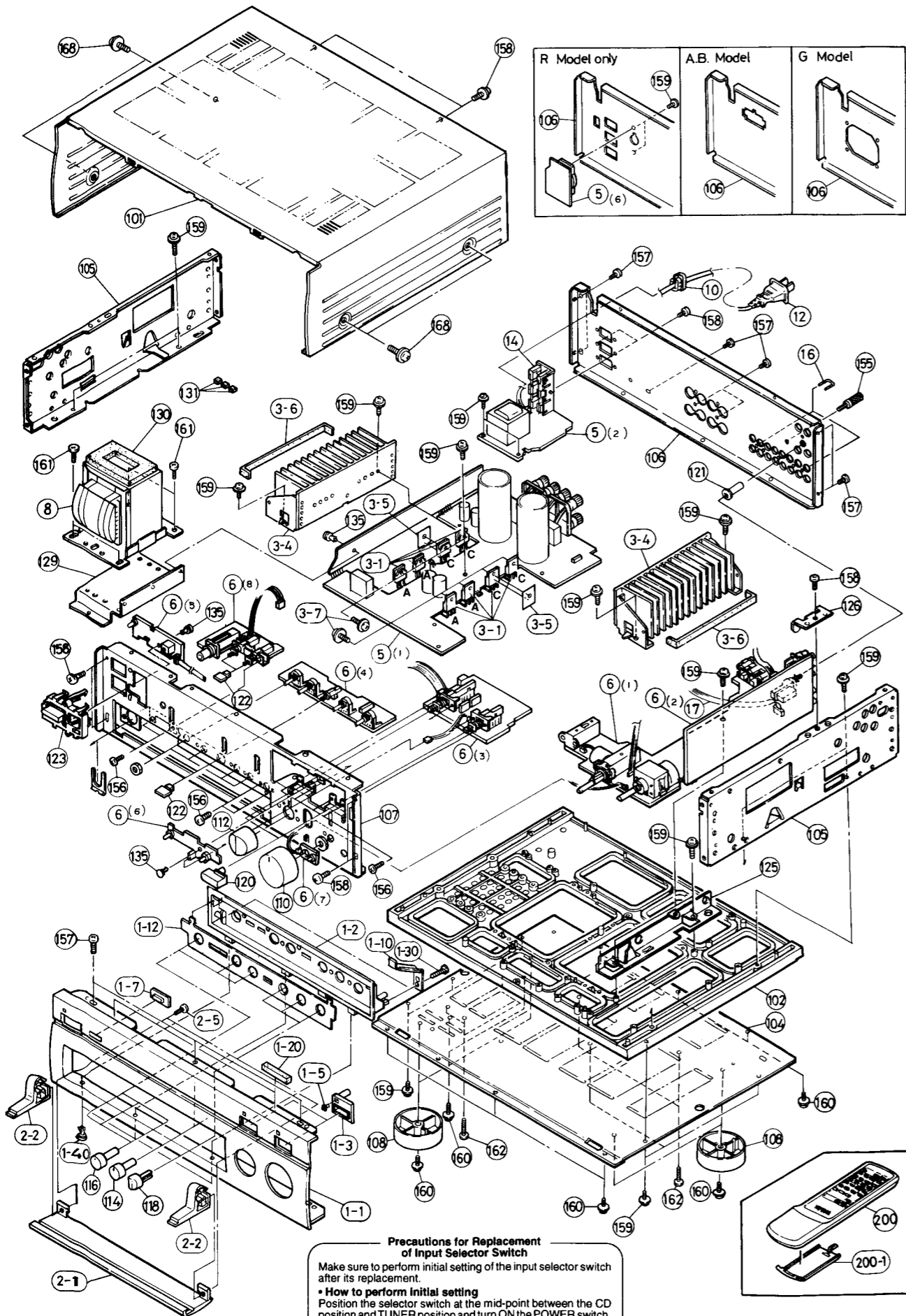
FUNCTION P.C.B.

Schm Ref.	PART NO.	Description		
Q316	VP883100	TR	2SC1890A D,E	
Q317	VG721700	TR. DGT	DTA144ES	
Q318	VC218900	TR	2SC3330 R,S,T	
Q319	VG722000	TR. DGT	DTC144ES	
Q320	VC218700	TR	2SA1317 R,S,T	
Q321	VP883100	TR	2SC1890A D,E	
R358	HL314470	R. MTL. OXD	47Ω	1W
R359	HL314470	R. MTL. OXD	47Ω	1W
R478	HV454100	R. CAR. FP	10Ω	1/4W
SW301	VK333500	SW. PUSH	SPUN19	
* SW302	VS892300	SW. RT	SRBAA46	
SW303	VT021200	SW. RT	RS003-A046BHN-20F4	
SW304	VP870900	SW. PUSH	SPUL12	
SW305	VP870800	SW. PUSH	SPUL12	
SW306	VJ850300	SW. PUSH	PSEOYP-CF2KX	
SW307	VG392900	SW. TACT	SKHVAA	
SW308	VJ850200	SW. PUSH	PSE021A2KP 2	
TE301	LA002110	TERM. WRAP	2P	
TE302	LA002110	TERM. WRAP	2P	
U301	VR860700	L. DTCT	SPS-422-1	
* VR301	VS405800	VR	Y100KΩ	
VR302	VP700700	VR	A100KΩ	
VR303	VP742000	VR	MN50KΩ	
VR304	VP741800	VR	B20KΩ	
VR305	VP741900	VR	G25KΩ	
W301	VR759300	CN. FLAT	8P 200mm	
W305	VR759300	CN. FLAT	8P 200mm	
XL301	VB759100	RSNR. CE	4MHz	
	VJ828000	PIN	1MSA-6024-03E	
	BB071360	SCR. TERM	8.3x13(BG)	

* New Parts

19

EXPLODED VIEW AX-590



Precautions for Replacement of Input Selector Switch
 Make sure to perform initial setting of the input selector switch after its replacement.
• How to perform initial setting
 Position the selector switch at the mid-point between the CD position and TUNER position and turn ON the POWER switch. Then the SELECTOR switch turns automatically till it stops at the "CD" position finally.

AX-590

MECHANICAL PARTS Note) ø : Diameter

Ref. No.	PART NO.	Description	Remarks	Markets
*	1- 1	VS359300 FRONT PANEL BL		BL
*	1- 1	VS359400 FRONT PANEL TI		TI
*	1- 2	VS363000 SUB PANEL		BL
*	1- 2	VS363100 SUB PANEL		TI
	1- 3	VH816700 BUTTON GUIDE	10x25	
	1- 3	VH816800 BUTTON GUIDE	10x25	
	1- 5	VH897700 LENS	2.2Lx2.2	
	1- 7	VH897500 LENS		
*	1-10	VS586100 SPRING	HINGE	
*	1-12	VS363400 PLATE, SP		BL
*	1-12	VS363500 PLATE, SP		TI
	1-20	VQ122400 CUSHION, TOP		
	1-30	EX600310 BIND HEAD P-TITE SCREW	3x8 FCRM3-BL	
	1-40	VQ368600 PUSH RIVET	P3555-B	
*	2- 1	VS360100 PANEL, LID		BL
*	2- 1	VS360200 PANEL, LID		TI
*	2- 2	VS585900 HINGE, LID		BL
*	2- 2	VS586000 HINGE, LID		TI
	2- 5	EX601590 BIND HEAD P-TITE SCREW	2.6x8 FCRM3-BL	
Δ #	3- 1	iX615750 TRANSISTOR	2SA1694 O,P,Y	Q123B,Q124B,
Δ #	3- 1	iX615750 TRANSISTOR	2SA1694 O,P,Y	Q150B,Q151B
Δ #	3- 1	iX615760 TRANSISTOR	2SC4467 O,P,Y	Q123A,Q124A,
Δ #	3- 1	iX615760 TRANSISTOR	2SC4467 O,P,Y	Q150A,Q151A
	3- 4	VP492400 HEAT SINK ASS'Y		
	3- 5	VK195900 SHEET	19x24	
	3- 6	VP922500 DAMPER	2x10x170	
	3- 7	VK173200 SCREW, TRANSISTOR	3x15 SP FCM3	
*	5	VS972500 P.C.B. ASS'Y	MAIN	(R)
*	5	VS972600 P.C.B. ASS'Y	MAIN	(AB)
*	5	VS972700 P.C.B. ASS'Y	MAIN	(G)
*	6	VS972200 P.C.B. ASS'Y	FUNCTION	(RA)
*	6	VS972300 P.C.B. ASS'Y	FUNCTION	(BG)
Δ	8	XM172A00 POWER TRANSFORMER		(R)
Δ	8	XM173A00 POWER TRANSFORMER		(AB)
Δ	8	XM174A00 POWER TRANSFORMER		(G)
	10	VN158600 CORD STOPPER	No. 2104	
Δ	12	VQ508500 POWER CORD ASS'Y		(R)
Δ	12	VQ508600 POWER CORD ASS'Y		(A)
Δ *	12	VS168400 POWER CORD ASS'Y		(G)
Δ *	12	VS680700 POWER CORD ASS'Y		(B)
Δ	14	VJ775000 AC OUTLET	2P	(B)
Δ	14	VP418700 AC OUTLET	2P	(A)
	16	VQ194100 SHORT PLUG	CNT31-0	
*	17	VT020000 CONNECTOR, FLAT CABLE	7P 400mm	
*	101	VS001200 TOP COVER		BL
*	101	VS001300 TOP COVER		TI
	102	VN946400 CHASSIS		
	104	VL664700 BOTTOM COVER		
	105	VL664800 FRAME, SIDE		
*	106	VS360500 REAR PANEL		(R)
*	106	VS360600 REAR PANEL		(AB)
*	106	VS360700 REAR PANEL		(G)
*	107	VS362800 SUB CHASSIS		
	108	VQ780300 LEG	D60xH16	
	110	VQ945500 KNOB WITH LED	D42	BL

* New Parts

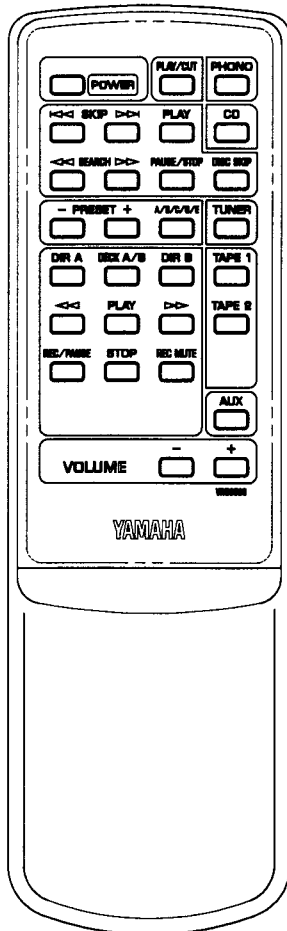
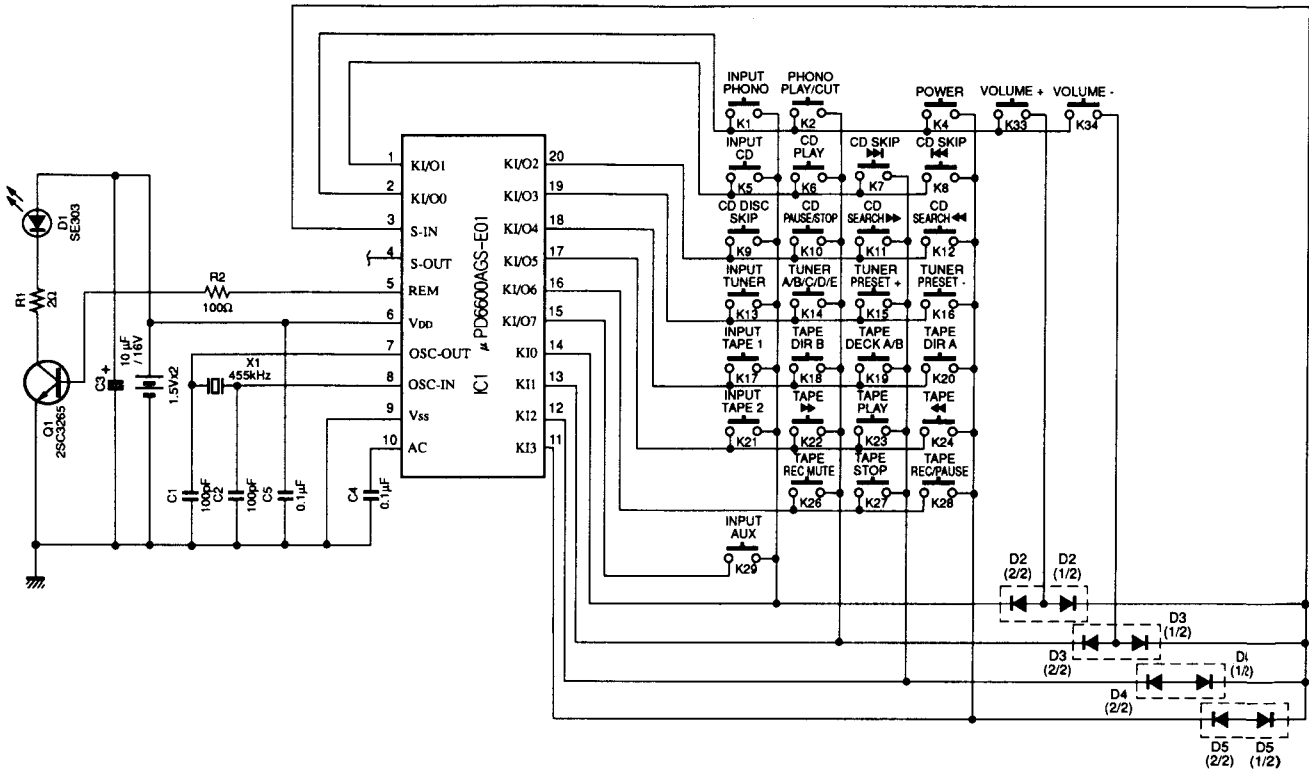
Ref. No.	PART NO.	Description	Remarks	Markets
* 110	VS983900	KNOB, LED	D42	
112	VK219900	KNOB, LED	D32	
112	VK220000	KNOB, LED	D32	
* 114	VS757400	KNOB, PL	D12	BL
* 114	VS757500	KNOB, PL	D12	TI
* 116	VS757200	KNOB, P	D12	BL
* 116	VS757300	KNOB, P	D12	TI
* 118	VT275100	KNOB, R	D12	
* 118	VT275200	KNOB, R	D12	TI
120	VQ780000	BUTTON		BL
120	VQ780100	BUTTON		TI
* 121	VS048300	BUTTON	D7	BL
122	VQ779000	BUTTON	3x14	BL
122	VQ779100	BUTTON	3x14	TI
* 123	VS363200	BUTTON, POWER		BL
* 123	VS363300	BUTTON, POWER		TI
* 125	VS362900	SUPPORT, PCB		
* 126	VS757100	SUPPORT, PCB-2		
129	VP596200	FRAME		
130	VP922800	DAMPER	10x50x80	
131	VP857700	DAMPER	4x6x5	
135	VQ368500	PUSH RIVET	P3545-B	
155	AA627310	GROUND TERMINAL		
156	ED330066	BIND HEAD SCREW	3x6	FCRM3-BL
157	EN301010	BIND HEAD BONDING TAP. SCREW	3x8	FCRM3-BL
158	Ei330086	BIND HEAD B-TITE SCREW	3x8	FCRM3-BL
159	VB770200	BW HEAD P-TITE SCREW	3x10-8	FCM3
160	EX602240	BW HEAD B-TITE SCREW	3x10	FCRM3-BL
161	EN330060	BIND HEAD B-TITE SCREW	4x16	FCRM3-BL
162	VL184400	BIND HEAD B-TITE SCREW	4x22	FCRM3-BL
168	EL300470	BW HEAD S-TITE SCREW	4x8-10	FCRM3-BL BL
168	EX601150	BW HEAD S-TITE SCREW	4x8-10	FNM3-BL TI
ACCESSORIES				
200	VR505900	REMOTE CONTROL TRANSMITTER	CX675300	
200-1	CX675300	LID	70x31BLSMK	103RRS-028-01MR
		BATTERY, MANGANESE	SUM-3,AA,R06	

* New Parts

AX-590

REMOTE CONTROL TRANSMITTER

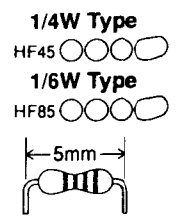
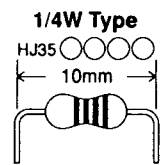
■ SCHEMATIC DIAGRAM AX-590



Key No.	Function	HEX	
		CUSTOM	DATA
1	INPUT PHONO	7A	14
2	PHONO PLAY/CUT	7A	0E
4	POWER	7A	1F
5	INPUT CD	7A	15
6	CD PLAY	7A	08
7	CD SKIP ►►	7A	0A
8	CD SKIP ◄◄	7A	0B
9	CD DISC SKIP	7A	4F
10	CD PAUSE/STOP	7A	09
11	CD SEARCH ►►	7A	0C
12	CD SEARCH ◄◄	7A	0D
13	INPUT TUNER	7A	16
14	TUNER A/B/C/D/E	7A	12
15	TUNER PRESET +	7A	10
16	TUNER PRESET -	7A	11
17	INPUT TAPE 1	7A	18
18	TAPE DIR B	7A	40
19	TAPE DECK A/B	7A	06
20	TAPE DIR A	7A	07
21	INPUT TAPE 2	7A	19
22	TAPE ►►	7A	02
23	TAPE PLAY	7A	00
24	TAPE ◄◄	7A	01
26	TAPE REC MUTE	7A	05
27	TAPE STOP	7A	03
28	TAPE REC/PAUSE	7A	04
29	INPUT AUX	7A	17
33	VOLUME +	7A	1A
34	VOLUME -	7A	1B

Parts List for Carbon Resistors

Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0 Ω	HJ35 3100	HF85 3100	10 kΩ	HF45 7100	HF45 7100
1.8 Ω	HJ35 3180	*	11 kΩ	HF45 7110	HF45 7110
2.2 Ω	HJ35 3220	HF85 3220	12 kΩ	HJ35 7120	HF85 7120
3.3 Ω	HJ35 3330	HF85 3330	13 kΩ	HF45 7130	HF45 7130
4.7 Ω	HJ35 3470	HF85 3470	15 kΩ	HF45 7150	HF45 7150
5.6 Ω	HJ35 3560	HF85 3560	18 kΩ	HF45 7180	HF45 7180
10 Ω	HF45 4100	HF45 4100	22 kΩ	HF45 7220	HF45 7220
15 Ω	HJ35 4150	HF85 4150	24 kΩ	HF45 7240	HF45 7240
22 Ω	HF45 4220	HF45 4220	27 kΩ	HJ35 7270	HF85 7270
27 Ω	HJ35 4270	HF85 4270	30 kΩ	HF45 7300	HF45 7300
33 Ω	HF45 4330	HF45 4330	33 kΩ	HF45 7330	HF45 7330
39 Ω	HJ35 4470	HF85 4390	36 kΩ	HF45 7360	HF45 7360
47 Ω	HF45 4470	HF45 4470	39 kΩ	HF45 7390	HF45 7390
56 Ω	HF45 4560	HF45 4560	47 kΩ	HF45 7470	HF45 7470
68 Ω	HF45 4680	HF45 4680	51 kΩ	HF45 7510	HF45 7510
75 Ω	HF45 4750	HF45 4750	56 kΩ	HF45 7560	HF45 7560
82 Ω	HF45 4820	HF45 4820	62 kΩ	HF45 7620	HF45 7620
91 Ω	HF45 4910	HF45 4910	68 kΩ	HF45 7680	HF45 7680
100 Ω	HF45 5100	HF45 5100	82 kΩ	HF45 7820	HF45 7820
110 Ω	HJ35 5110	HF85 5110	91 kΩ	HF45 7910	HF45 7910
120 Ω	HF45 5120	HF45 5120	100 kΩ	HF45 8100	HF45 8100
150 Ω	HF45 5150	HF45 5150	110 kΩ	HF45 8110	HF45 8110
160 Ω	HJ35 5160	*	120 kΩ	HF45 8120	HF45 8120
180 Ω	HF45 5180	HF45 5180	150 kΩ	HF45 8150	HF45 8150
200 Ω	HF45 5200	HF45 5200	180 kΩ	HF45 8180	HF45 8180
220 Ω	HF45 5220	HF45 5220	220 kΩ	HJ35 8220	HF85 8220
270 Ω	HF45 5270	HF45 5270	270 kΩ	HF45 8270	HF45 8270
330 Ω	HF45 5330	HF45 5330	300 kΩ	HF45 8300	HF45 8300
390 Ω	HF45 5390	HF45 5390	330 kΩ	HF45 8330	HF45 8330
430 Ω	HF45 5430	HF45 5430	390 kΩ	HJ35 8390	HF85 8390
470 Ω	HF45 5470	HF45 5470	470 kΩ	HF45 8470	HF45 8470
510 Ω	HF45 5510	HF45 5510	560 kΩ	HJ35 8560	HF85 8560
560 Ω	HF45 5560	HF45 5560	680 kΩ	HJ35 8680	HF85 8680
680 Ω	HF45 5680	HF45 5680	820 kΩ	HJ35 8820	HF85 8820
820 Ω	HF45 5820	HF45 5820	1.0 MΩ	HF45 9100	HF45 9100
910 Ω	HF45 5910	HF45 5910	1.2 MΩ	HJ35 9120	*
1.0 kΩ	HF45 6100	HF45 6100	1.5 MΩ	HJ35 9150	HF85 9150
1.2 kΩ	HF45 6120	HF45 6120	1.8 MΩ	HJ35 9180	HF85 9180
1.5 kΩ	HF45 6150	HF45 6150	2.2 MΩ	HJ35 9220	HF85 9220
1.8 kΩ	HF45 6180	HF45 6180	3.3 MΩ	HJ35 9330	HF85 9330
2.0 kΩ	HJ35 6200	HF85 6200	3.9 MΩ	HJ35 9390	*
2.2 kΩ	HF45 6220	HF45 6220	4.7 MΩ	HJ35 9470	HF85 9470
2.4 kΩ	HJ35 6240	HF85 6240			
2.7 kΩ	HF45 6270	HF45 6270			
3.0 kΩ	HF45 6300	HF45 6300			
3.3 kΩ	HF45 6330	HF45 6330			
3.6 kΩ	HJ35 6360	HF85 6360			
3.9 kΩ	HF45 6390	HF45 6390			
4.7 kΩ	HF45 6470	HF45 6470			
5.1 kΩ	HF45 6510	HF45 6510			
5.6 kΩ	HF45 6560	HF45 6560			
6.8 kΩ	HF45 6680	HF45 6680			
8.2 kΩ	HF45 6820	HF45 6820			
9.1 kΩ	HF45 6910	HF45 6910			



AX-590