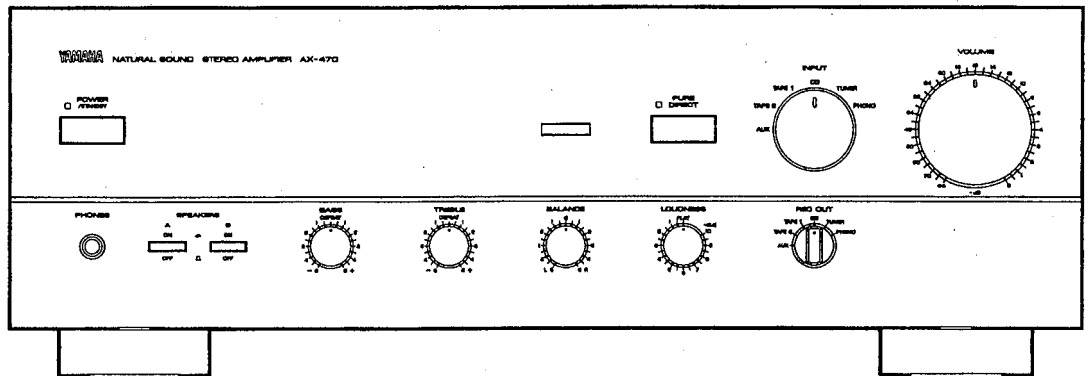
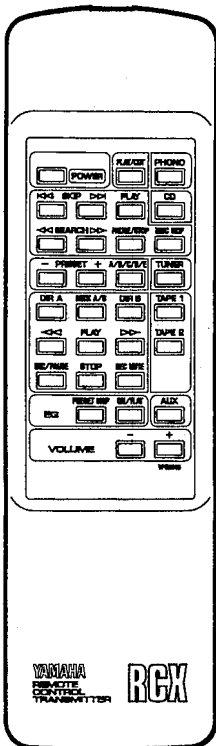


STEREO INTEGRATED AMPLIFIER AX-470

SERVICE MANUAL

FRONT PANEL



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 be 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 all 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 of 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 department 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 parts 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
DIMENSIONS	3	SCHEMATIC DIAGRAM	12
INTERNAL VIEW	4	PARTS LIST	16~23
DISASSEMBLY PROCEDURE	4	REMOTE CONTROL TRANSMITTER	24

100449

YAMAHA

YAMAHA CORPORATION
HAMAMATSU, JAPAN

3.13K-912 Printed in Japan '93.3

AX-470

TO SERVICE PERSONNEL

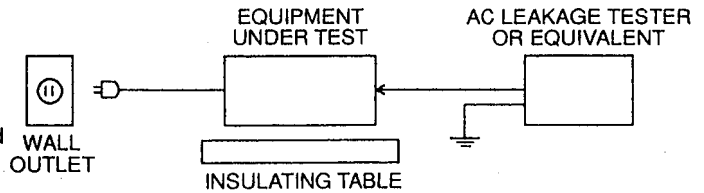
1. Critical Component Information

Components having special characteristics are marked 1/1 with and must be replaced with parts having specifications equal to those originally installed.

2. Leakage Current Measurement (For 120 V Model only).

When a service has been completed, it is imperative that you verify that all exposed conductive surfaces are properly insulated from supply circuit.

- Meter impedance should be equivalent to 1500 Ω shunted by 0.15 μF.
- 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.

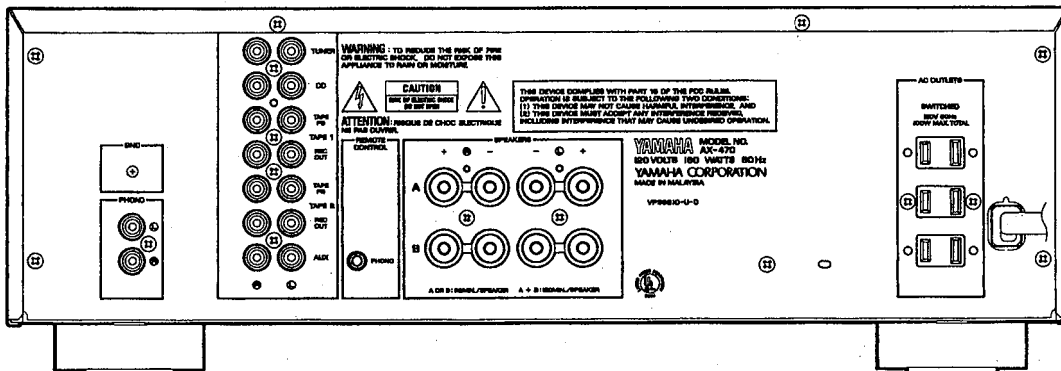
DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

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

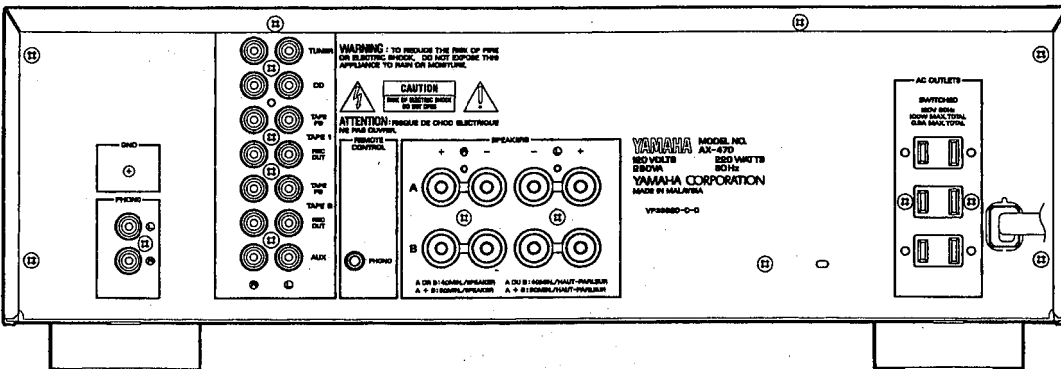
If you come in contact with solder or components located inside the enclosure or this product, wash your hands before handling food.

REAR PANELS

U.S.A. model

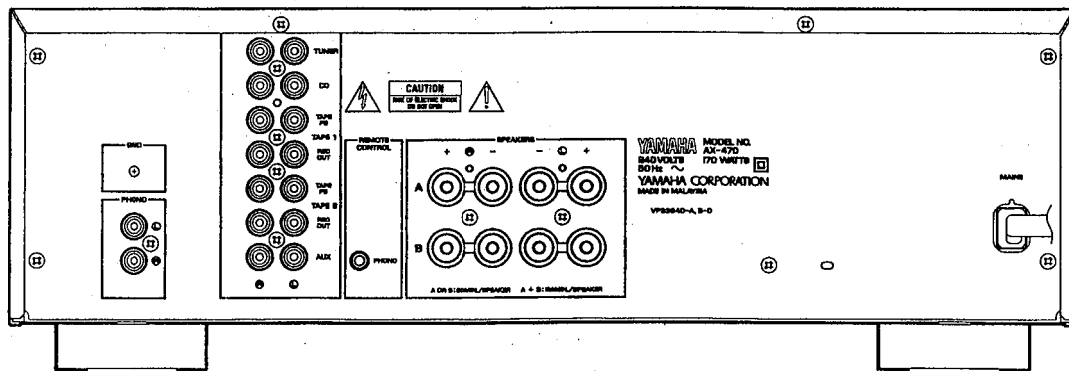


Canadian model

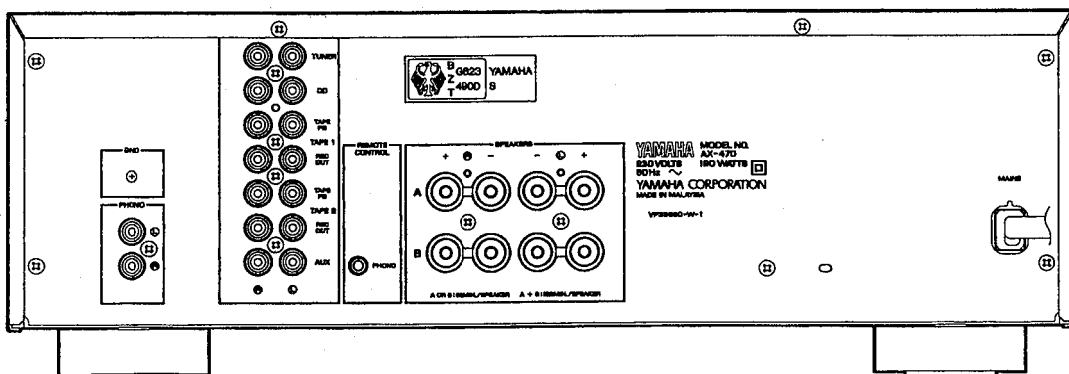


AX-470

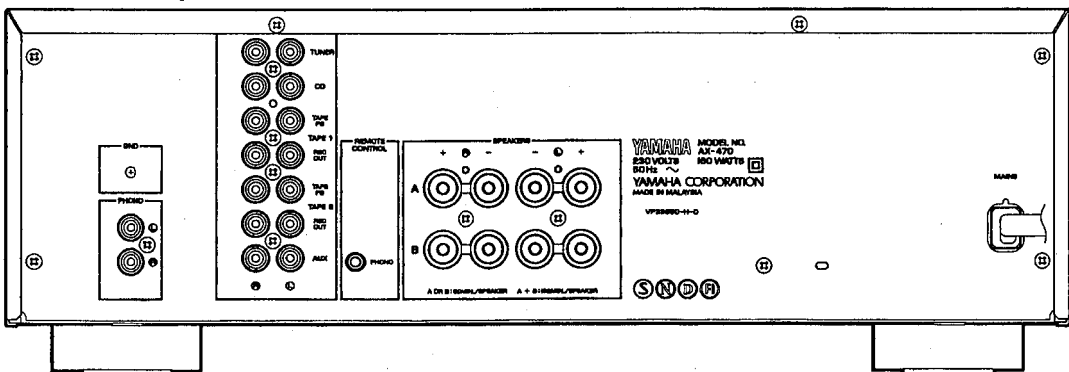
● Australian and British models



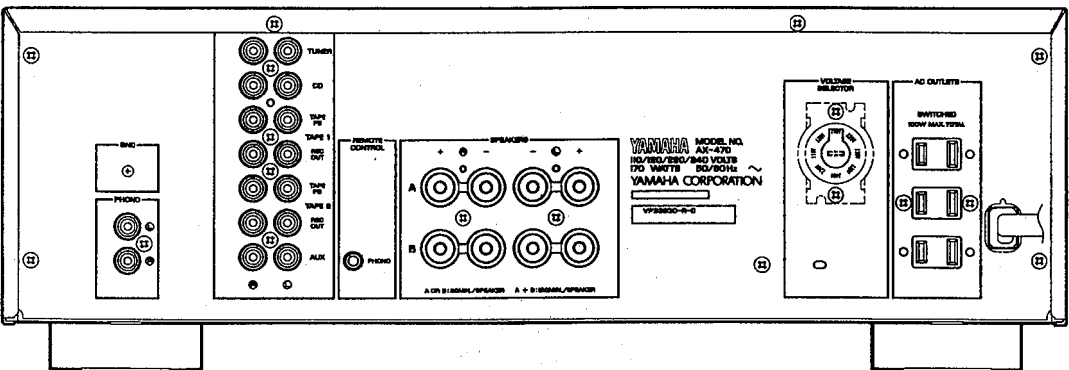
● German models



● North European model



● General model



AX-470

■ SPECIFICATIONS

Minimum RMS Output Power Per Channel

CD Pure Direct-ON	8 Ω
20 Hz - 20 kHz 0.015 % THD	8 Ω
U, C, R, A, B	65 W
H, W	75 W
20 Hz - 20 kHz 0.03 % THD	6 Ω
U, C	75 W
W	80 W
A, B, R	70 W

Dynamic Power Per Channel

(by IHF Dynamic Headroom measuring method)

U, C, R, A, B	8 Ω/6 Ω/4 Ω/2 Ω	95 W/115 W/135 W/160 W
H, W	8 Ω/6 Ω/4 Ω/2 Ω	115 W/135 W/160 W/180 W

DIN Standard Output Power Per Channel

1 kHz 0.7 % THD 4 Ω	H, W	110 W
---------------------	------	-------

IEC Power

1 kHz 0.015 % THD 8 Ω	H, W	85 W
-----------------------	------	------

Power Band Width

0.03 % THD 35 W 8 Ω	10 Hz - 50 kHz
---------------------	----------------

Damping Factor

20 Hz - 20 kHz 8 Ω	240
--------------------	-----

Damping Factor(DIN)

A, B, H, W	40 Hz 4 Ω	120
------------	-----------	-----

Input Sensitivity/Impedance

Phono MM	2.5 mV/47 kΩ
CD etc.	150 mV/47 kΩ

Maximum Input Signal 1 kHz

Phono MM	115 mV
----------	--------

Output Level Impedance

Rec Out	150 mV/1 kΩ
---------	-------------

Headphone Jack Rated Output/Impedance

RL = 8 Ω	0.46 V/390 Ω
----------	--------------

Frequency Response

20 Hz - 20 kHz CD etc.	0 ±0.5 dB
------------------------	-----------

RIAA Equalization Deviation

Phono MM	±0.3 dB
----------	---------

Total Harmonic Distortion

20 Hz - 20 kHz	
Phono MM 3 V	0.003 %
CD etc. to Sp Out 35 W/8 Ω	0.008 %

Intermodulation Distortion

CD etc. Rated Output/8 Ω	0.01 %
--------------------------	--------

Signal to Noise Ratio (IHF-A-Network)

Phono MM (5 mV Input Shorted)	88 dB
CD etc. Pure Direct Switch-ON (Shorted)	110 dB

Residual Noise (IHF-A-Network)

Pure Direct Switch-ON	70 μV
-----------------------	-------

Channel Separation Vol -30 dB

CD etc. input 5.1 kΩ terminated	
1 kHz/10 kHz	65 dB/50 dB

Tone Control Characteristics

Bass	
Boost/Cut	±10 dB (20 Hz)
Treble	
Boost/Cut	±10 dB (20 kHz)

Continuous Loudness Control

(Level Related Equalization)

Attenuation	-30 dB (1 kHz)
Gain Tracking Error (0 - -60 dB)	3 dB

Power Supply

U, C	AC 120 V 60 Hz
A, B	AC 240 V 50 Hz
H, W	AC 230 V 50 Hz
R	AC 110/120/220/240 V 60/50 Hz

Power Consumption

U	160 W
C	280 VA/220 W
R	170 W
W	190 W
A, B	170 W
H	160 W

AC Outlet

Switched	100 W Max.
----------	------------

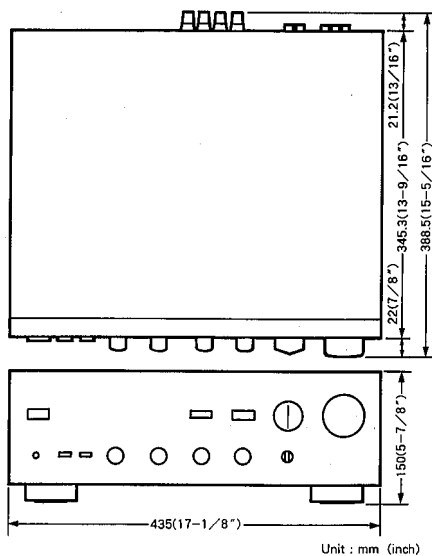
Dimensions

Width x Height x Depth	435 mm x 150 mm x 388.5 mm
	(17-1/8" x 5-7/8" x 15-5/16")
Weight	9.5 kg
	(20 lbs. 14 oz)
Accessories	Remote Control Transmitter and Batteries

The specifications are subject to change without notice.

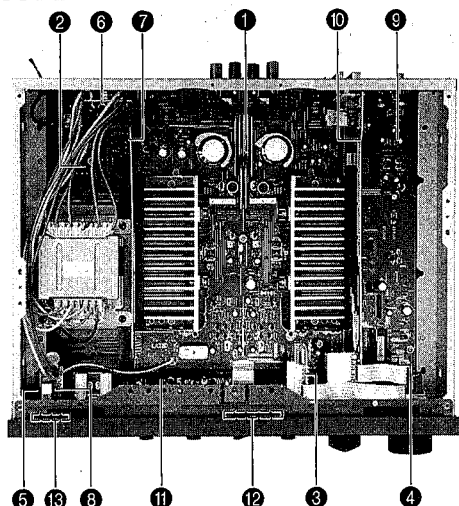
U	U.S.A model
C	Canadian model
A	Australian model
H	North European model
B	British model
R	General model
W	German model

■ DIMENSIONS



Unit : mm (inch)

INTERNAL VIEW



- ① Main Circuit Board (1)
- ② Main Circuit Board (2)
- ③ Main Circuit Board (3)
- ④ Main Circuit Board (4)
- ⑤ Main Circuit Board (5)
- ⑥ Main Circuit Board (6) R(General) model only
- ⑦ Main Circuit Board (7)
- ⑧ Main Circuit Board (8)
- ⑨ Function Circuit Board (1)
- ⑩ Function Circuit Board (2)
- ⑪ Function Circuit Board (3)
- ⑫ Function Circuit Board (4)
- ⑬ Function Circuit Board (5)

DISASSEMBLY PROCEDURE

(Remove parts in disassembly order as numbered.)

1. Removal of Top Cover

Remove 7 screws, ① to ③, in Fig. 1, and slide the Top Cover back.

2. Removal of Front Panel

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.

b. Remove 5 screws, ⑧, in Fig. 1.

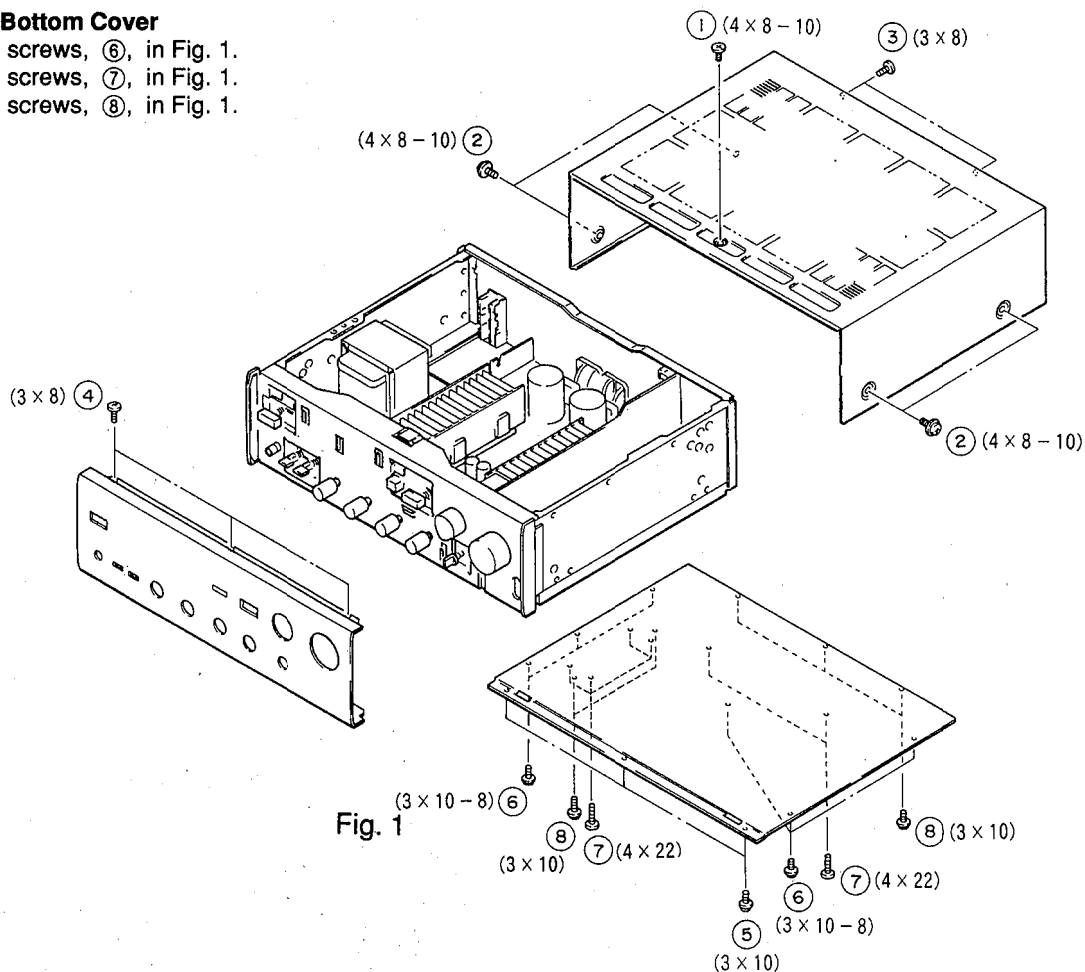
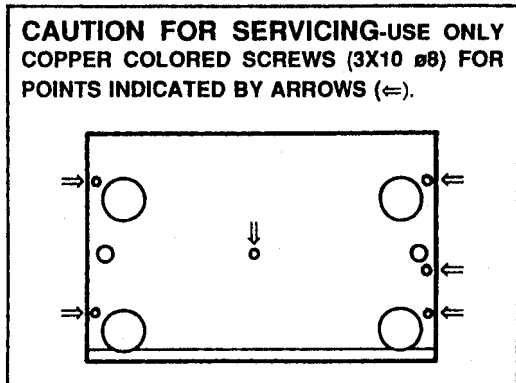


Fig. 1

AX-470

ADJUSTMENTS

1. Before Adjustment

- Make sure that AC line voltage is within:

Model	AC line voltage
U, C	120 V \pm 10 %
W, H	230 V \pm 10 %
A, B	240 V \pm 10 %

2. Instruments required

- AC VM or dual channel AC VM
- DC VM

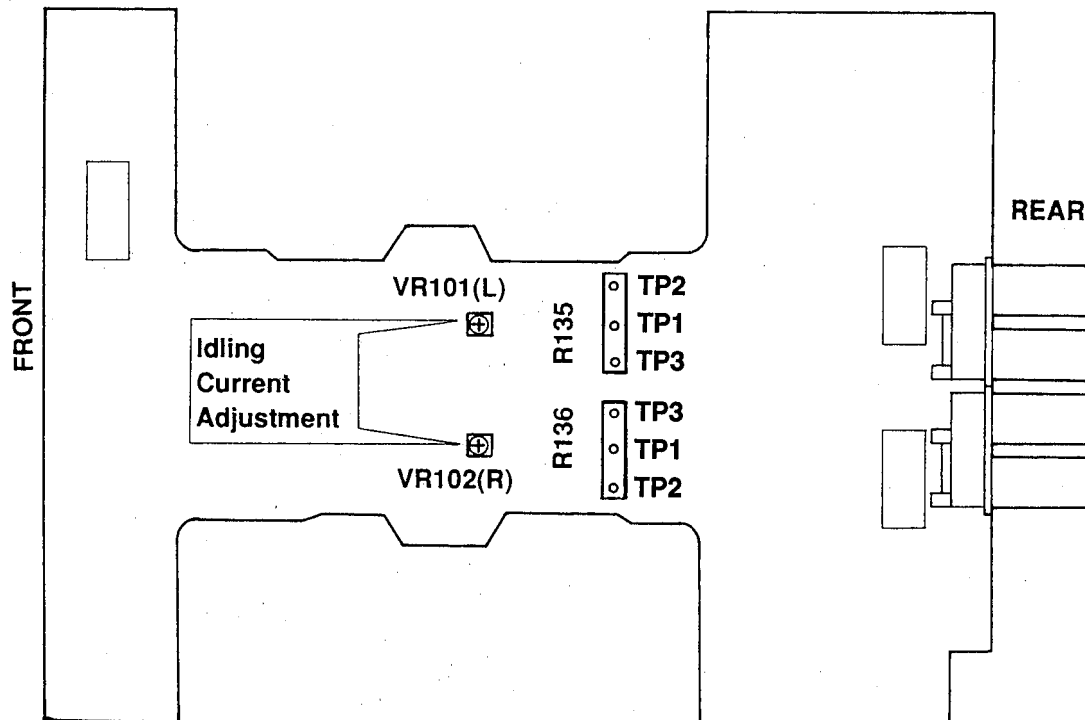
● IDLING CURRENT ADJUSTMENTS

- When replacing any of the power or drive transistors, adjust idling current.
- After the power has been turned on, age about 10 minutes in unloaded condition.
- Adjust VR101 (L ch.) and VR102 (R ch.) so that the voltages across the terminals become as shown below.

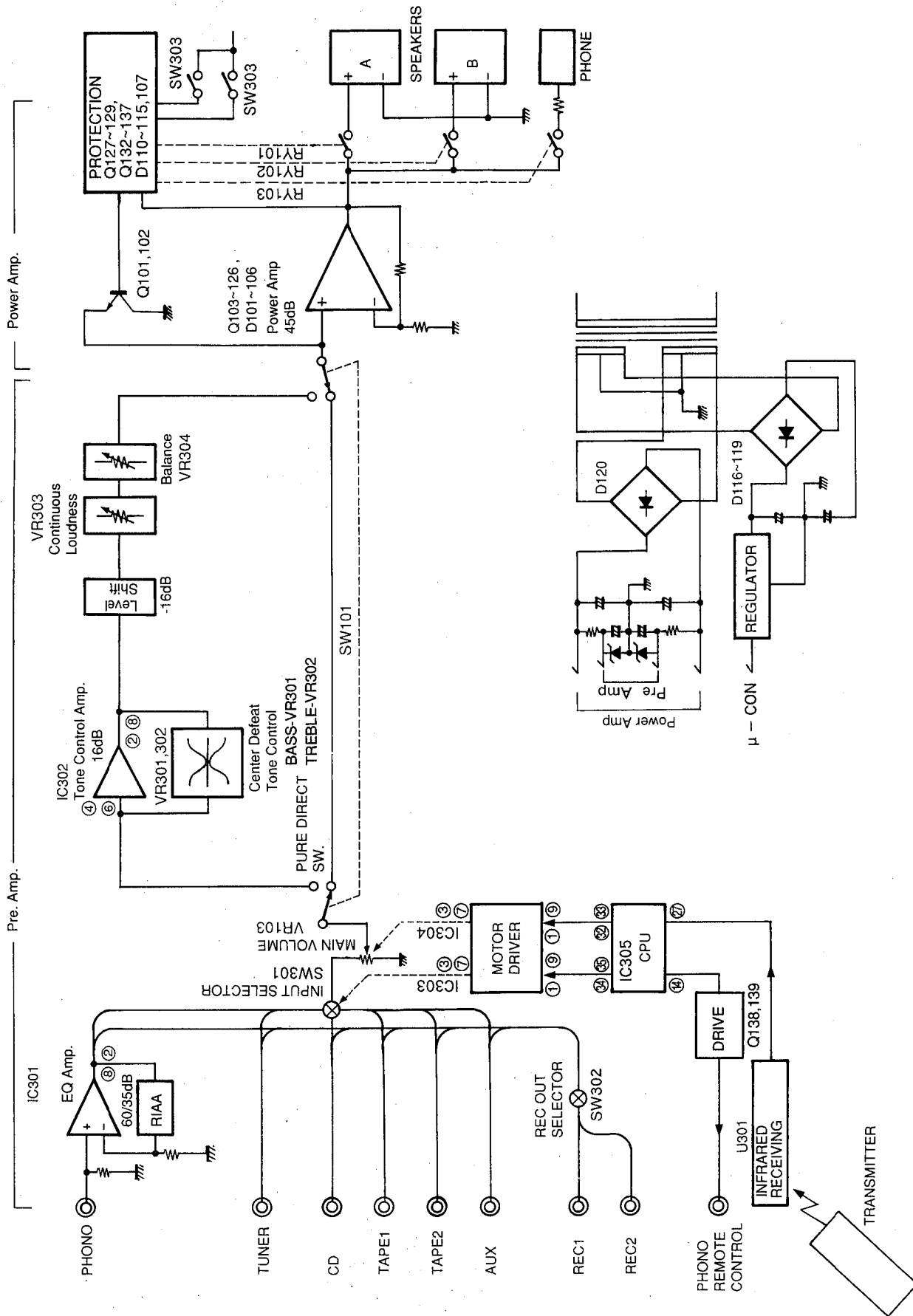
	Test Points	Adjustment Points	Rating
L ch	Across the terminals of R135 (TP1 and 2 or 1 and 3)	VR101	10 mV \pm 4 mV DC
	Across the terminals of R135 (TP2 and 3)	VR101	20 mV \pm 8 mV DC
R ch	Across the terminals of R136 (TP1 and 2 or 1 and 3)	VR102	10 mV \pm 4 mV DC
	Across the terminals of R136 (TP2 and 3)	VR102	20 mV \pm 8 mV DC

● TEST POINTS

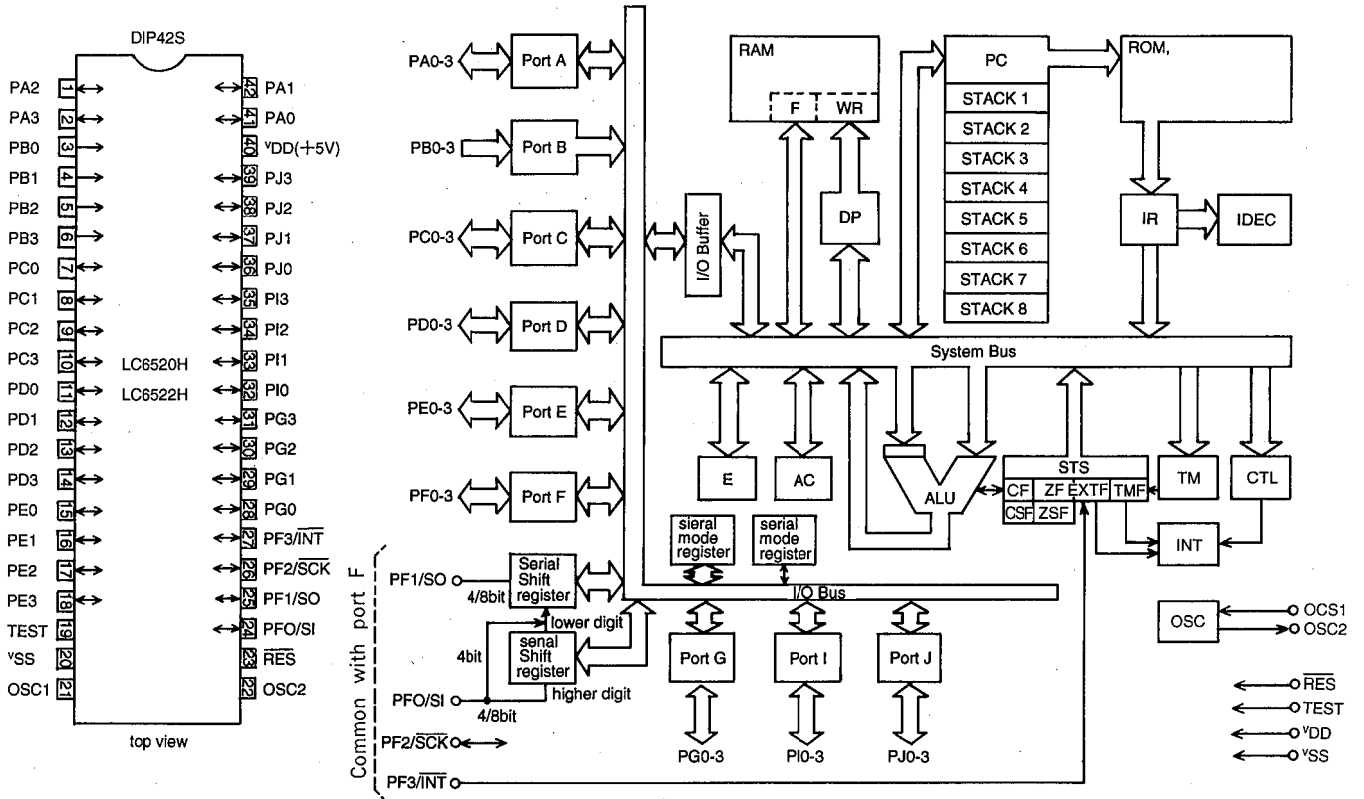
Idling Current Adjustment



BLOCK DIAGRAM

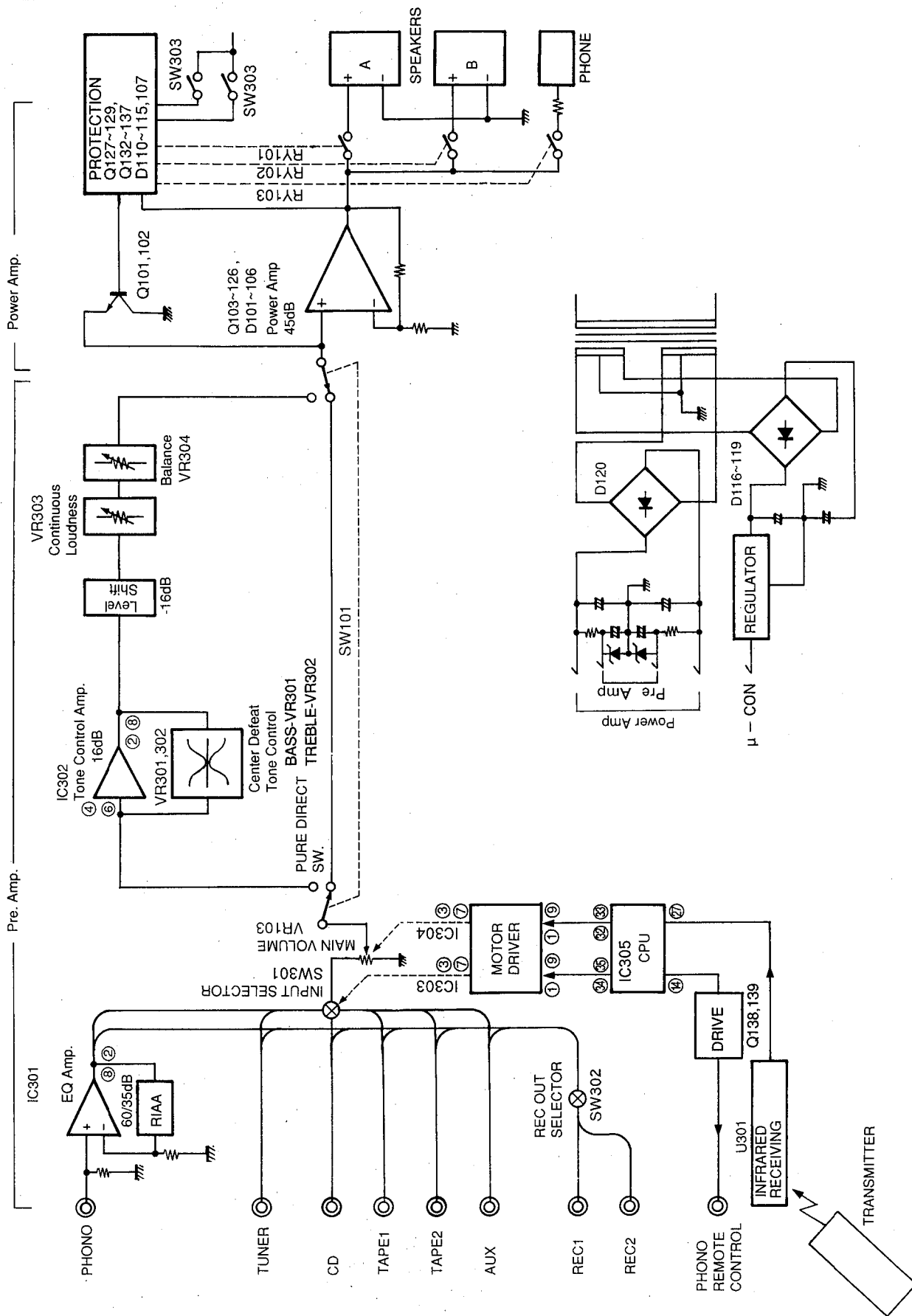


μ-COM DATA(IC305: LC6520H - 4B14)



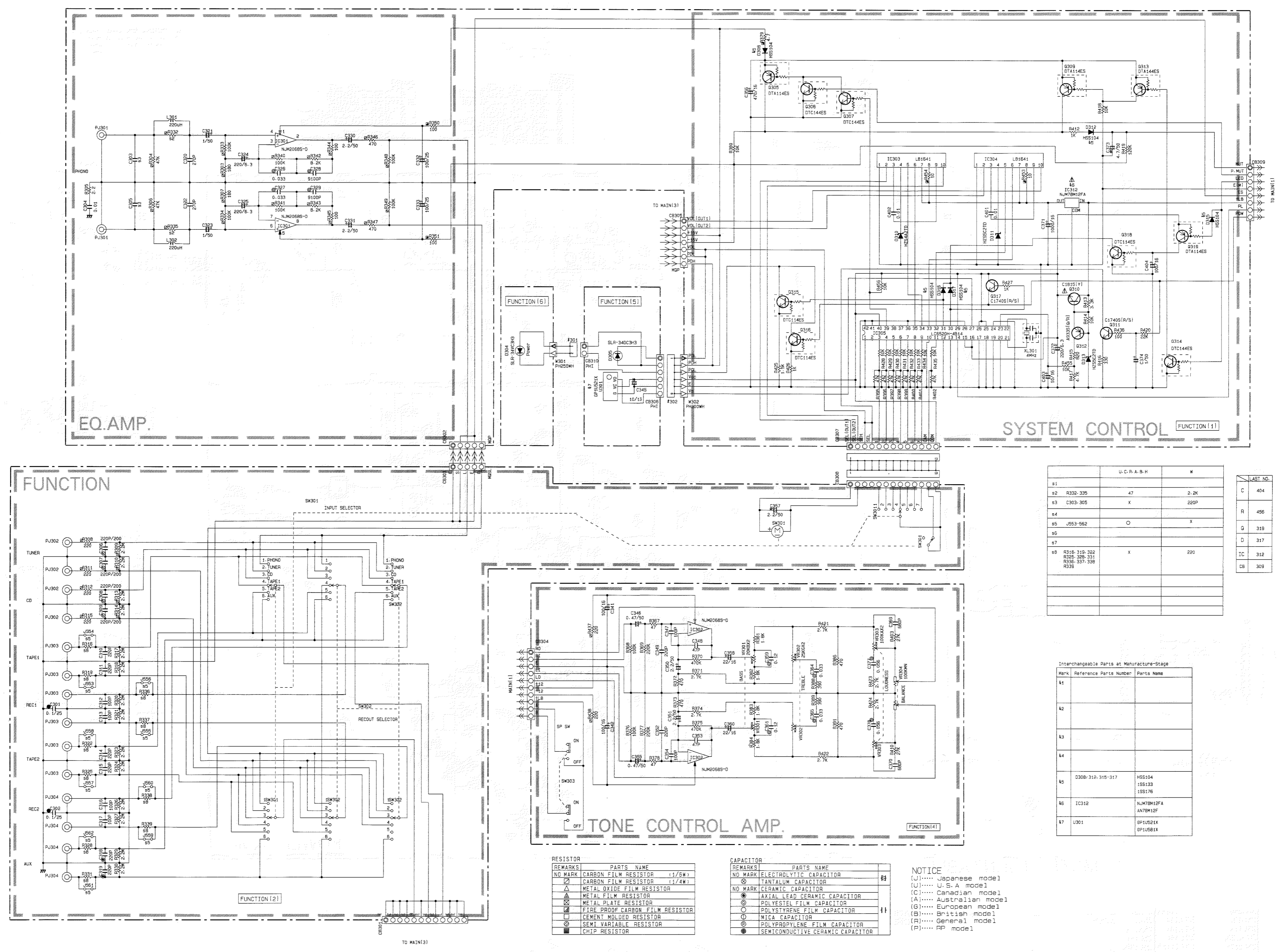
PIN NO.	PIN NAME	I/O	FUNCTION	PIN NO.	PIN NAME	I/O	FUNCTION
1	PA2	-	GND	22	OSC2		
2	PA3	I	VDD	23	RES		Reset input
3	PBO	I	Selector position data	24	PF0		GND
4	PB1	I	Selector position data	25	PF1	I	Power on start H: Reset PON
5	PB2	I	Selector position data	26	PF2	I	Remote control power on/off H: on
6	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	Power on audio muting H:on
16	PE1	I	Power down data	37	PJ1	O	Audio muting LED control
17	PE2		GND	38	PJ2	O	Audio muting control
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		GND
21	OSC1			42	PA1		GND

BLOCK DIAGRAM



SCHEMATIC DIAGRAM

1
2
3
4
5
6
7
8



#	U. C. P. A. S. H.	W.	LAST NO.
#1			C 404
#2	R332-335	47	R 496
#3	C303-305	X	G 319
#4			D 317
#5	J553-562	0	IC 312
#6	J316-319, 322, 326, 328, 331, 332, 337, 338, 339	X	CB 309
#7		220	

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
k1		
k2		
k3		
k4		
k5	D30B-312, 315-317	HSS104, 15S128, 15S176
k6	IC312	NLM78M12FA, AN78M12F
k7	U301	BP1UB21X, BP1UB61X

- | RESISTOR | | CAPACITOR | |
|----------|---------------------------------|-----------|----------------------------------|
| REMARKS | PARTS NAME | REMARKS | PARTS NAME |
| NO MARK | CARBON FILM RESISTOR (1/8W) | NO MARK | ELECTROLYTIC CAPACITOR |
| ⊘ | CARBON FILM RESISTOR (1/4W) | ⊙ | TANTALUM CAPACITOR |
| △ | METAL OXIDE FILM RESISTOR | NO MARK | CERAMIC CAPACITOR |
| ⊞ | METAL PLATE RESISTOR | ⊙ | AXIAL LEAD CERAMIC CAPACITOR |
| ⊞ | FIRE PROOF CARBON FILM RESISTOR | ⊙ | POLYESTER FILM CAPACITOR |
| ⊞ | CEMENT WOUND RESISTOR | ⊙ | POLYSTYRENE FILM CAPACITOR |
| ⊞ | SEMI-VARIABLE RESISTOR | ⊙ | MICA CAPACITOR |
| ⊞ | CHIP RESISTOR | ⊙ | POLYPROPYLENE FILM CAPACITOR |
| | | ⊙ | SEMICONDUCTIVE CERAMIC CAPACITOR |

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)..... PP model

NOTICE

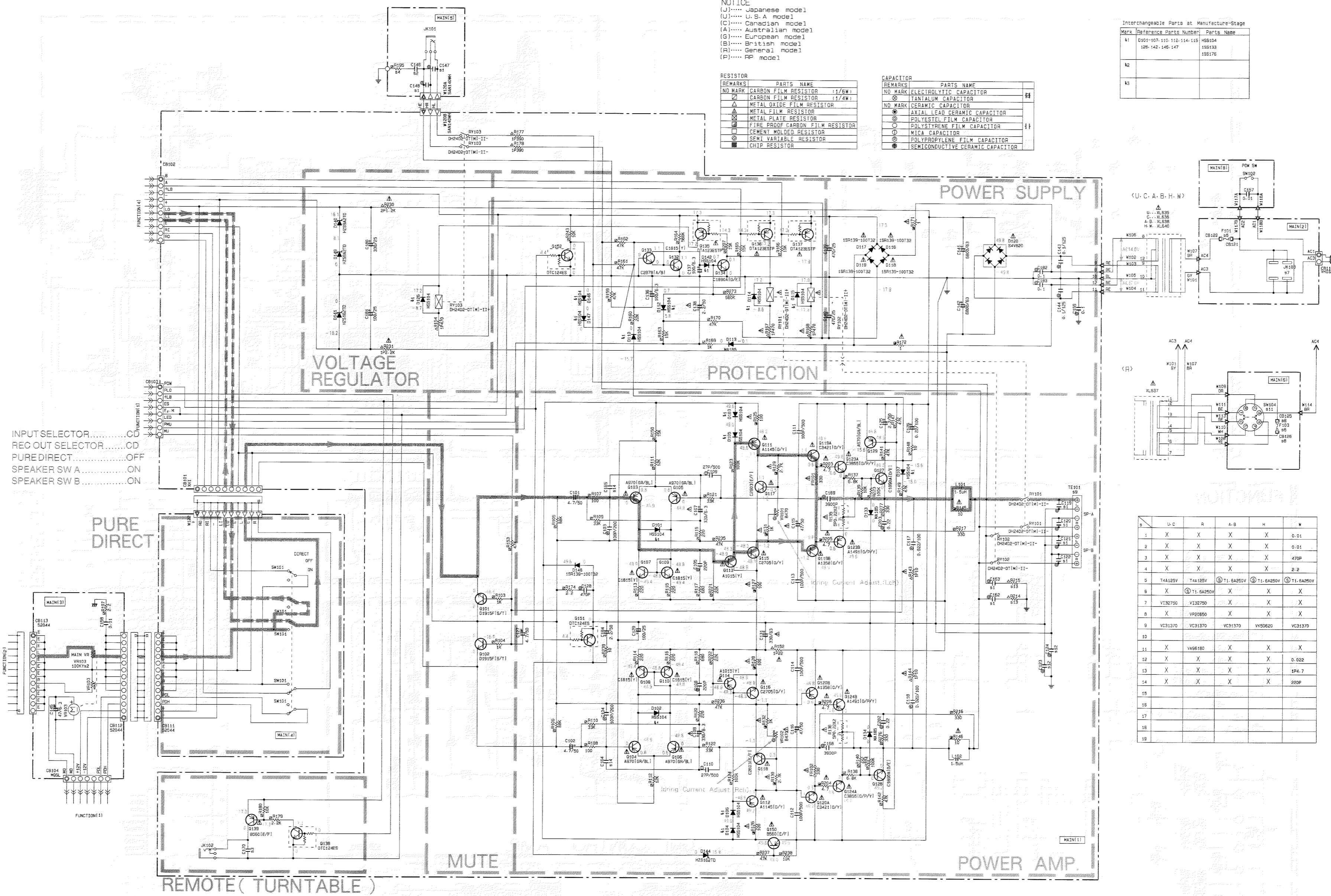
(J)..... Japanese model
 (U)..... U.S.A. model
 (C)..... Canadian model
 (A)..... Australian model
 (G)..... European model
 (B)..... British model
 (R)..... General model
 (P)..... PP model

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/4W)
□	CARBON FILM RESISTOR (1/4W)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
⊞	FIRE PROOF CARBON FILM RESISTOR
⊞	CEMENT MOLDED RESISTOR
⊞	SEMI VARIABLE RESISTOR
⊞	CHIP RESISTOR

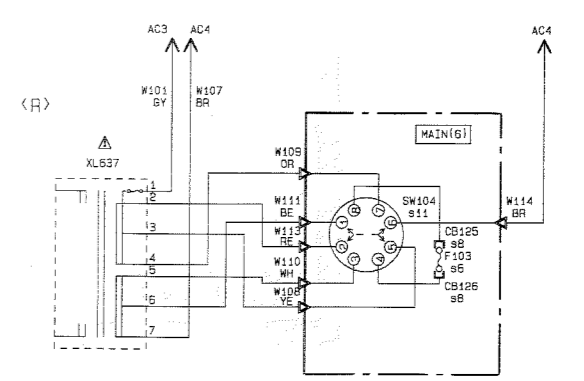
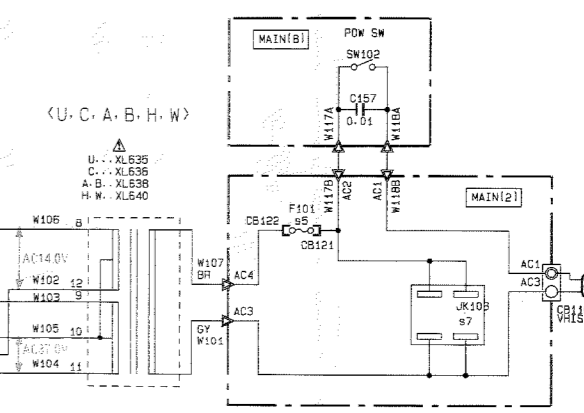
REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊞	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
▲	AXIAL LEAD CERAMIC CAPACITOR
⊞	POLYESTER FILM CAPACITOR
⊞	POLYSTYRENE FILM CAPACITOR
⊞	MICA CAPACITOR
⊞	POLYPROPYLENE FILM CAPACITOR
⊞	SEMICONDUCTIVE CERAMIC CAPACITOR

Interchangeable Parts at Manufacture-Stage

MARK	Reference Parts Number	Parts Name
k1	0301-107-110-110-114-115	H55104
k2	126-143-146-147	H55133
k3		H55176



INPUT SELECTOR.....ON
 REC OUT SELECTOR.....OFF
 PURE DIRECT.....OFF
 SPEAKER SW A.....ON
 SPEAKER SW B.....ON



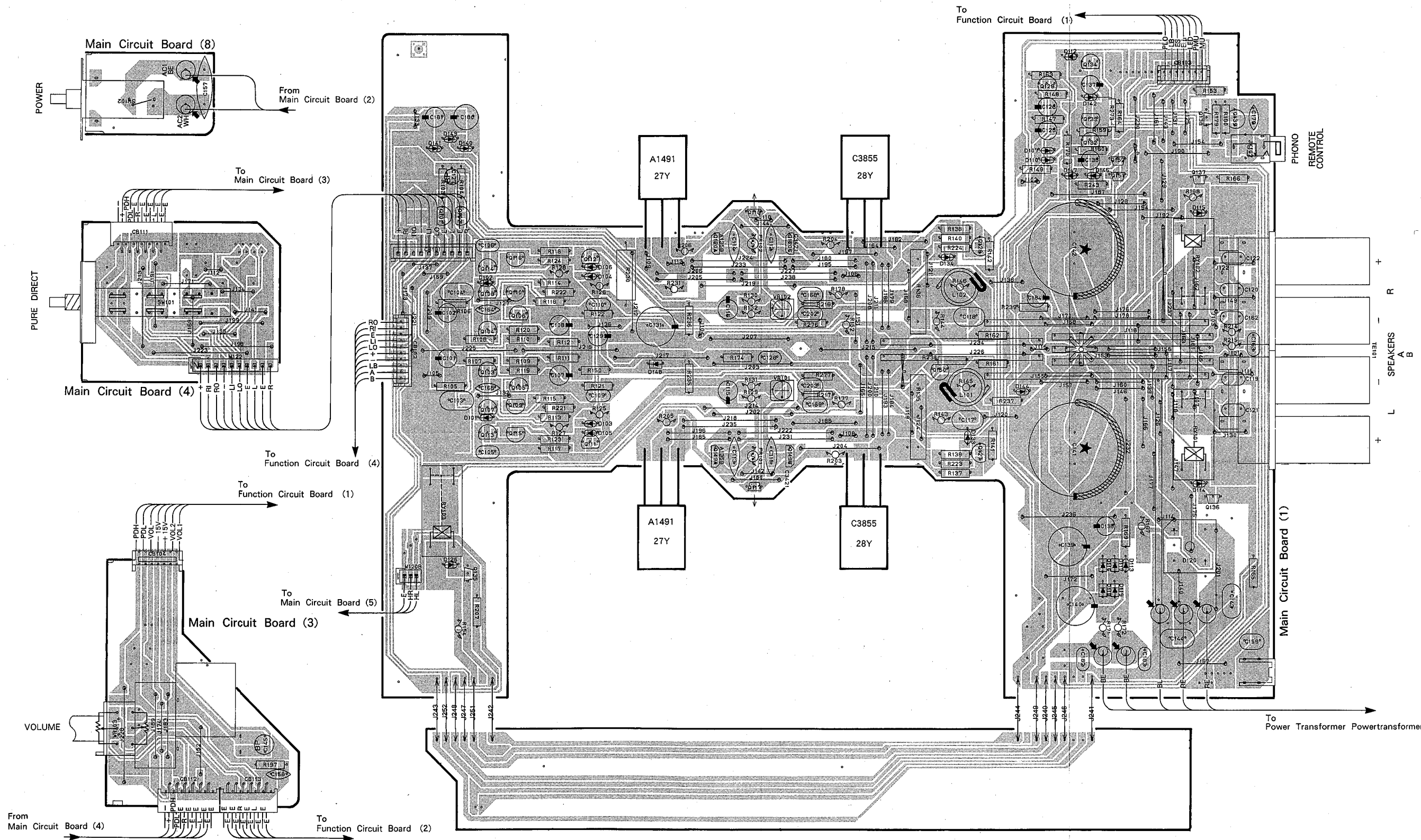
	U-C	R	A-B	H	W
1	X	X	X	X	0.01
2	X	X	X	X	0.01
3	X	X	X	X	470P
4	X	X	X	X	2.2
5	T44125V	T44125V	Ⓢ T1: 6A250V	Ⓢ T1: 6A250V	Ⓢ T1: 6A250V
6	X	Ⓢ T1: 6A250V	X	X	X
7	V132750	V132750	X	X	X
8	X	V920850	X	X	X
9	VC31370	VC31370	VC31370	VK50620	VC31370
10					
11	X	VAS180	X	X	X
12	X	X	X	X	0.022
13	X	X	X	X	1P4.7
14	X	X	X	X	22P
15					
16					
17					
18					
19					

2SC2603	DTC124ES	2SA970	2SC2705	All Diodes	NJM78M12FA	2SA1491	2SA1358	LB1641	NJM2068S	LC6520H
2SD1915	DTA114	2SA1015	2SB560			2SC3855	2SC3421			
2SC1740S	DTA144	2SA1145	2SC1815							
DTA123ES	DTC144	2SC1890A								
2SC2878	DTC114ES									
2SA933S										

PRINTED CIRCUIT BOARD

AX-470

AX-470



A

B

C

D

E

F

G

H

I

J

AX-470

AX-470

PRINTED CIRCUIT BOARD

1

2

3

4

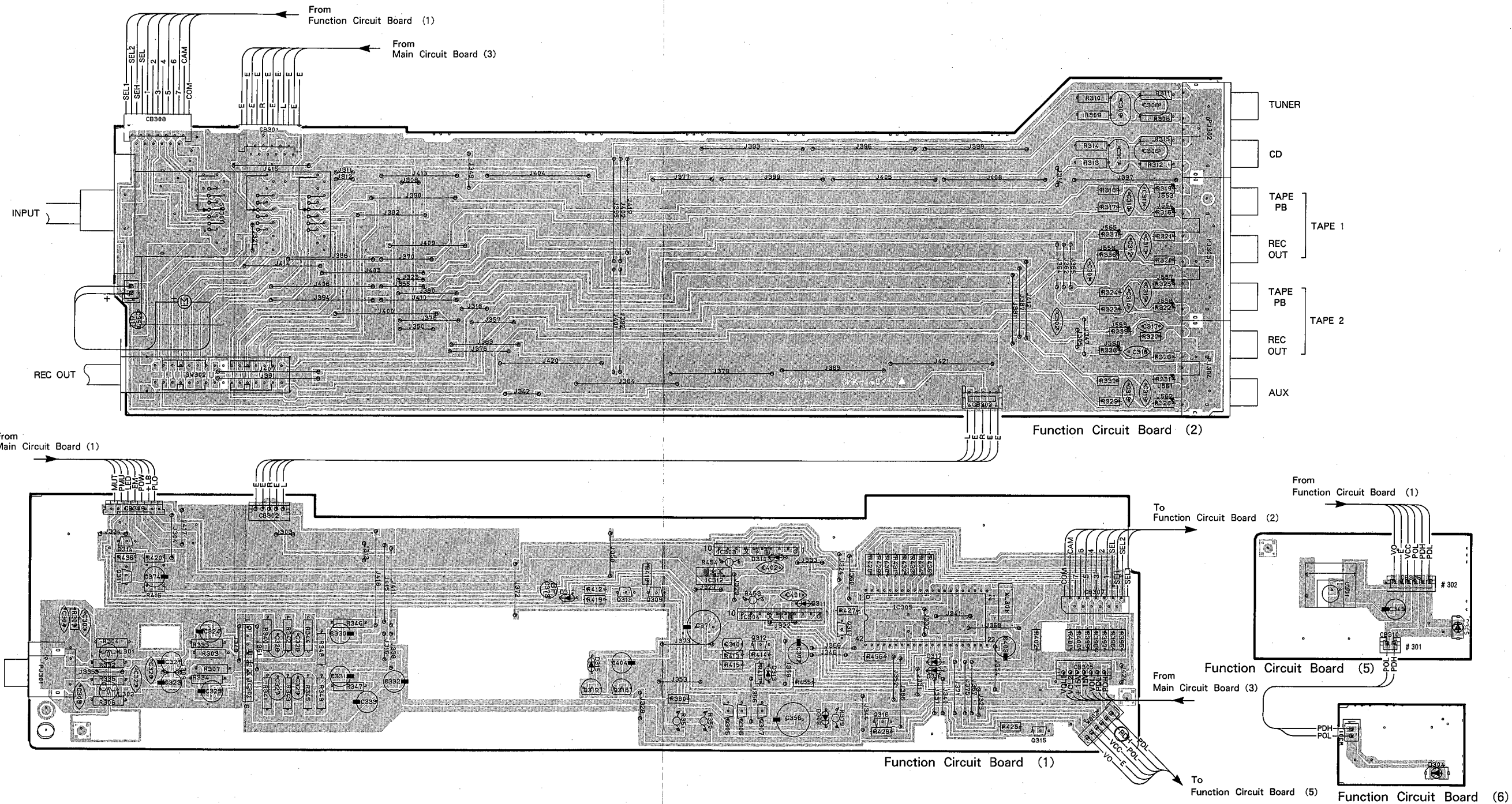
5

6

7

10

11



10

11

PRINTED CIRCUIT BOARD

1

2

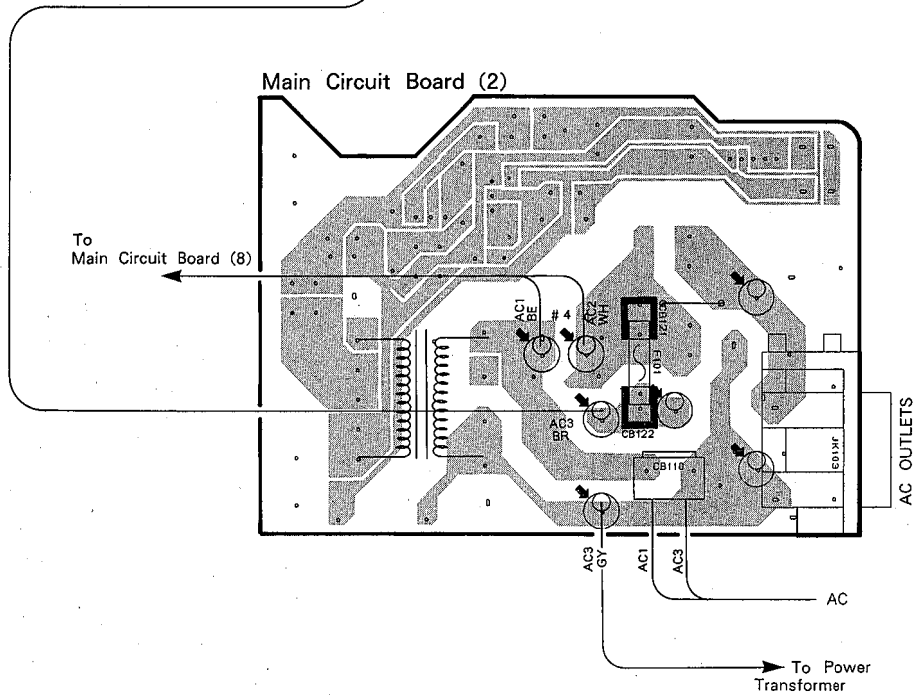
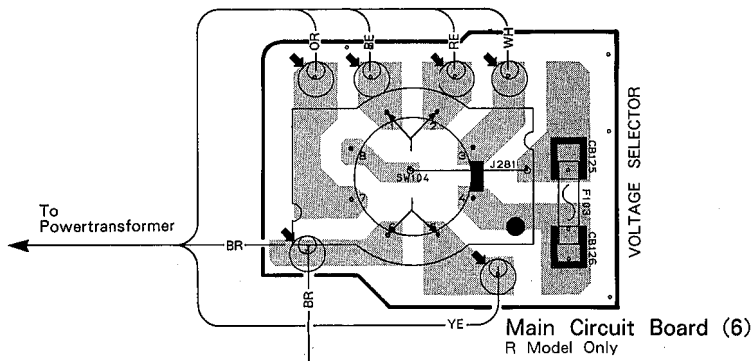
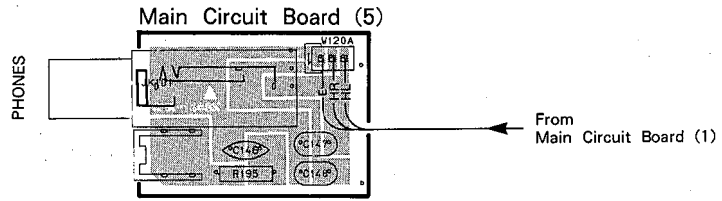
3

4

5

6

7



AX-470

A

B

C

D

E

AX-470

PRINTED CIRCUIT BOARD

IC BLOCK

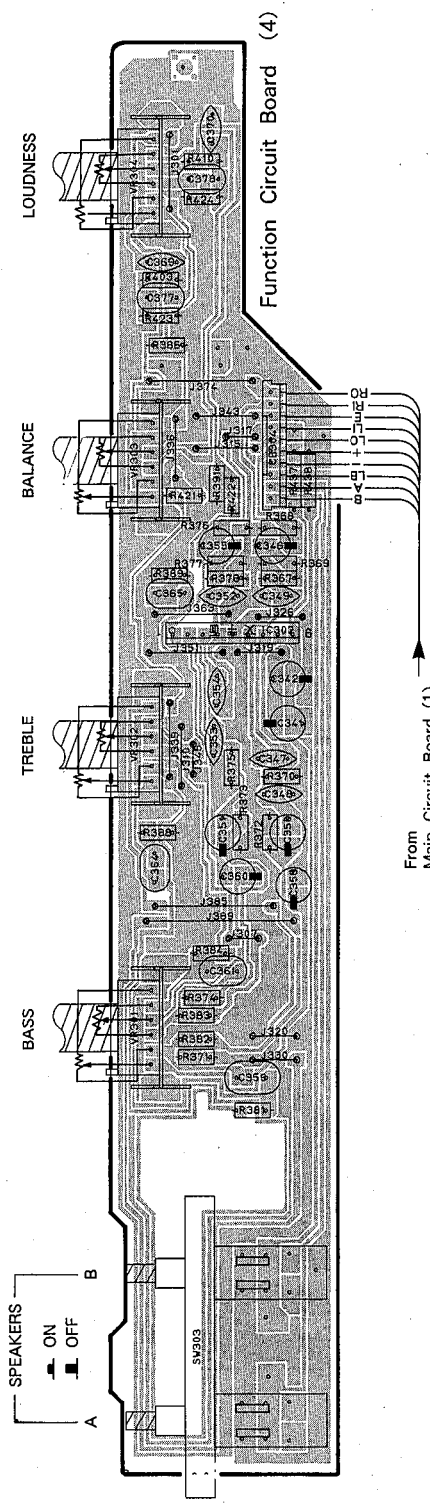
1

2

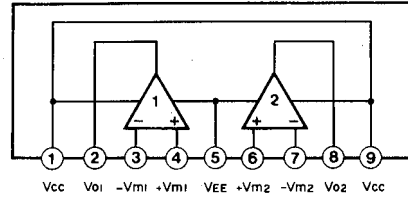
3

4

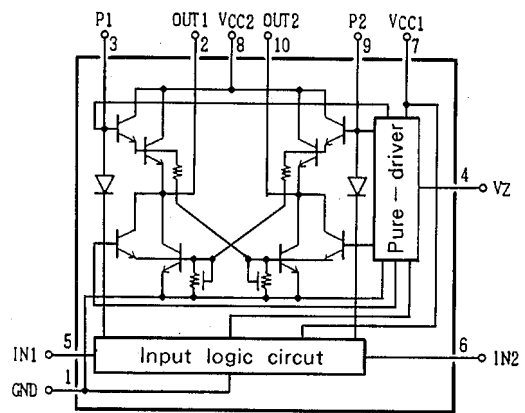
5



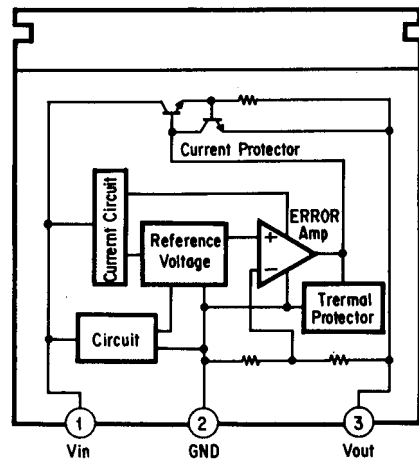
IC301, IC302: NJM2068S-D (Dual Op-amp)



IC303, 305: LB1641 (Motor Drive)



IC312: NJM78M12FA1 (Regulator)



IC305: LC6520H-4B14 (See page 7.)

AX-470

7

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

MAIN P.C.B.

#: Marked Transistors are not included in P.C.B. ass'y.
See the MECHANICAL PARTS list and EXPLODED VIEW.

Schm Ref.	PART NO.	Description
*	VP410000	P. C. B. MAIN(UC)
*	VP410100	P. C. B. MAIN(R)
*	VP410200	P. C. B. MAIN(AB)
*	VP410300	P. C. B. MAIN(H)
*	VP410400	P. C. B. MAIN(W)
* CB101	VL845400	CN XH 10P TE
CB102	VK217300	CN FJ 10P
CB110	VG879900	CN. BS. PIN VH 2P TE
* CB111	VQ044600	CN. BS. PIN 52044 13P SE
* CB112	VQ044600	CN. BS. PIN 52044 13P SE
* CB113	VN066500	CN. BS. PIN 52044-1210
* CB121	VP206500	HOLDER. FUS EYF-52BC
* CB122	VP206500	HOLDER. FUS EYF-52BC
* CB125	VP206500	HOLDER. FUS EYF-52BC(R)
* CB126	VP206500	HOLDER. FUS EYF-52BC(R)
C101	VE021900	C. EL 4.7uF 100V
C102	VE021900	C. EL 4.7uF 100V
C103	VK533900	C. PP 100pF 200V
C104	VK533900	C. PP 100pF 200V
△ C105	VK984200	C. MYLAR 220pF 50V
C106	VK984200	C. MYLAR 220pF 50V
△ C107	Vi531500	C. EL 330uF 6.3V
△ C108	Vi531500	C. EL 330uF 6.3V
C109	FU351270	C. MICA 27pF 500V
C110	FU351270	C. MICA 27pF 500V
* C111	VP907200	C. CE 100pF 500V
* C112	VP907200	C. CE 100pF 500V
* C113	VP907200	C. CE 100pF 500V
* C114	VP907200	C. CE 100pF 500V
△ C115	VG291200	C. EL 47uF 50V
△ C116	VG291200	C. EL 47uF 50V
C117	VK534200	C. PP 0.022uF 100V
C118	VK534200	C. PP 0.022uF 100V
C119	VE324800	C. MYLAR. ML 0.01uF 50V(W)
C120	VE324800	C. MYLAR. ML 0.01uF 50V(W)
C121	VE324800	C. MYLAR. ML 0.01uF 50V(W)
C122	VE324800	C. MYLAR. ML 0.01uF 50V(W)
C123	UA654220	C. MYLAR 0.022uF 50V(W)
C124	UA654220	C. MYLAR 0.022uF 50V(W)
C125	VG290600	C. EL 2.2uF 50V
C126	UJ895220	C. EL 0.22uF 100V
C127	VD929600	C. EL 4.7uF 50V
C128	UA652470	C. MYLAR 470pF 50V
C129	VG288900	C. EL 100uF 25V
△ C131	VK699400	C. EL 330uF 63V
C136	VF760000	C. EL 100uF 10V
C137	VF760000	C. EL 100uF 10V
△ C138	VG290600	C. EL 2.2uF 50V
C139	VG289200	C. EL 470uF 25V
C140	VG289200	C. EL 470uF 25V
* C141	VP865100	C. EL 6800uF 63V
* C142	VP865100	C. EL 6800uF 63V
* C143	VP907300	C. PP 0.1uF 125V

*New Parts

Schm Ref.	PART NO.	Description
* C144	VP907300	C. PP 0.1uF 125V
* C145	VN508100	C. EL 47uF 6.3V
C146	UG444100	C. CE 0.01uF 50V(R)
C147	VE324800	C. MYLAR. ML 0.01uF 50V(R)
C148	VE324800	C. MYLAR. ML 0.01uF 50V(R)
C157	Fi514100	C. CE. SAFTY 0.01uF VA-1
C158	UG444100	C. CE 0.01uF 50V
C159	VK398700	C. MYLAR. ML 0.1uF 50V
C162	VE324800	C. MYLAR. ML 0.01uF 50V(W)
C163	VE324800	C. MYLAR. ML 0.01uF 50V(W)
C164	FG212220	C. CE 220pF 50V(W)
C165	FG212220	C. CE 220pF 50V(W)
C168	UA653390	C. MYLAR 3900pF 50V
C169	UA653390	C. MYLAR 3900pF 50V
C170	FG212470	C. CE 470pF 50V(W)
C180	VG289100	C. EL 330uF 25V
C181	VG288900	C. EL 100uF 25V
C182	VK398700	C. MYLAR. ML 0.1uF 50V
C183	VK398700	C. MYLAR. ML 0.1uF 50V
C184	VG290600	C. EL 2.2uF 50V
* C202	VE326400	C. MYLAR. ML 0.22uF 50V
* C203	VE326400	C. MYLAR. ML 0.22uF 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
D110	VD631600	DIODE 1SS133,176,HSS104
D112	VD631600	DIODE 1SS133,176,HSS104
D113	VC398400	DIODE MA185
△ D114	VD631600	DIODE 1SS133,176,HSS104
△ D115	VD631600	DIODE 1SS133,176,HSS104
△ D116	VH770800	DIODE 1SR139-100 T-32
△ D117	VH770800	DIODE 1SR139-100 T-32
△ D118	VH770800	DIODE 1SR139-100 T-32
△ D119	VH770800	DIODE 1SR139-100 T-32
△ D120	iH001090	DIODE. BRG S4VB20 2.6A 200V
D126	VD631600	DIODE 1SS133,176,HSS104
D133	VC398400	DIODE MA185
D134	VC398400	DIODE MA185
* D140	VM974900	DIODE. ZENR HZS9A2TD 9.0V
D141	VM975900	DIODE. ZENR HZS162TD 16V
D142	VD631600	DIODE 1SS133,176,HSS104
D144	VM975900	DIODE. ZENR HZS162TD 16V
D146	VD631600	DIODE 1SS133,176,HSS104
D147	VD631600	DIODE 1SS133,176,HSS104
D148	VH770800	DIODE 1SR139-100 T-32
* D149	VM974900	DIODE. ZENR HZS9A2TD 9.0V
* F101	KB003060	FUSE TL1.6A 250V(ABHW)
* F101	KB003620	FUSE T4.0A 125V(UCR)
* F103	KB003060	FUSE TL1.6A 250VR)

*New Parts

AX-470

MAIN P.C.B.

Schm Ref.	PART NO.	Description
△ FR101	VK188400	R. FUS 330 Ω 1/4W
△ FR102	VK188400	R. FUS 330 Ω 1/4W
JK101	LB301720	JACK. PHONE M1669-A
JK102	VJ726800	JACK. MNI
JK103	Vi327500	OUTLET. AC 3P(UCR)
* L101	VP575600	COIL 1.5uH
* L102	VP575600	COIL 1.5uH
Q101	VK432900	TR 2SD1915F S,T
Q102	VK432900	TR 2SD1915F S,T
△ Q103	iA097000	TR 2SA970 GR,BL
△ Q104	iA097000	TR 2SA970 GR,BL
△ Q105	iA097000	TR 2SA970 GR,BL
△ Q106	iA097000	TR 2SA970 GR,BL
△ Q107	iC1815C0	TR 2SC1815 Y
△ Q108	iC1815C0	TR 2SC1815 Y
△ Q109	iC1815C0	TR 2SC1815 Y
△ Q110	iC1815C0	TR 2SC1815 Y
△ Q111	VE198700	TR 2SA1145 O,Y
△ Q112	VE198700	TR 2SA1145 O,Y
△ Q113	iA101521	TR 2SA1015 Y
△ Q114	iA101521	TR 2SA1015 Y
△ Q115	VE198800	TR 2SC2705 O,Y
△ Q116	VE198800	TR 2SC2705 O,Y
△ Q117	iC260320	TR 2SC2603 E,F
△ Q118	iC260320	TR 2SC2603 E,F
△ Q119A	iX603580	TR 2SA1358
△ Q119B	iX603590	TR 2SC3421
△ Q120A	iX603580	TR 2SA1358
△ Q120B	iX603590	TR 2SC3421
# △ Q123B	iX620970	TR 2SA1491 O,P,Y
# △ Q123A	iX620980	TR 2SC3855 O,P,Y
# △ Q124B	iX620970	TR 2SA1491 O,P,Y
# △ Q124A	iX620980	TR 2SC3855 O,P,Y
* Q127	VP883100	TR 2SC1890A D,E
* Q128	VP883100	TR 2SC1890A D,E
Q129	iA097000	TR 2SA970 GR,BL
Q132	iC1815C0	TR 2SC1815 Y
Q133	iC287820	TR 2SC2878 A,B
* Q134	VP883100	TR 2SC1890A D,E
△ Q135	VF325300	TR. DGT DTA123ESTP
△ Q136	VF325300	TR. DGT DTA123ESTP
△ Q137	VF325300	TR. DGT DTA123ESTP
Q138	VF331200	TR. DGT DTC124ES
△ Q139	iB056020	TR 2SB560 E,F
△ Q150	iB056020	TR 2SB560 E,F
Q151	VF331200	TR. DGT DTC124ES
Q152	VF331200	TR. DGT DTC124ES
△ R125	HV455100	R. CAR. FP 100 Ω 1/4W
△ R126	HV455100	R. CAR. FP 100 Ω 1/4W
△ R127	HV455100	R. CAR. FP 100 Ω 1/4W
△ R128	HV455100	R. CAR. FP 100 Ω 1/4W
△ R129	HV456270	R. CAR. FP 2.7K Ω 1/4W
△ R130	HV456270	R. CAR. FP 2.7K Ω 1/4W

*New Parts

Schm Ref.	PART NO.	Description
△ R131	HV456100	R. CAR. FP 1K Ω 1/4W
△ R132	HV456100	R. CAR. FP 1K Ω 1/4W
△* R135	HZ003780	R. MTL. PLAT 0.22 Ω+0.22 5W
△* R136	HZ003780	R. MTL. PLAT 0.22 Ω+0.22 5W
△ R143	HL314100	R. MTL. OXD 10 Ω 1W
△ R144	HL314100	R. MTL. OXD 10 Ω 1W
△ R145	HV454100	R. CAR. FP 10 Ω 1/4W
△ R146	HV454100	R. CAR. FP 10 Ω 1/4W
△ R152	HL314220	R. MTL. OXD 22 Ω 1W
R154	HL315470	R. MTL. OXD 470 Ω 1W
△ R167	HL315470	R. MTL. OXD 470 Ω 1W
△ R168	HL315470	R. MTL. OXD 470 Ω 1W
△ R171	HV453100	R. CAR. FP 1 Ω 1/4W
R172	HV453100	R. CAR. FP 1 Ω 1/4W
R177	VP944500	R. MTL. OXD 390 Ω 1W
R178	VP944500	R. MTL. OXD 390 Ω 1W
△ R203	HV453470	R. CAR. FP 4.7 Ω 1/4W
△ R204	HV453470	R. CAR. FP 4.7 Ω 1/4W
△ R205	HV453470	R. CAR. FP 4.7 Ω 1/4W
△ R206	HV453470	R. CAR. FP 4.7 Ω 1/4W
* R214	VP939700	R. MTL. OXD 4.7 Ω 1W
* R215	VP939700	R. MTL. OXD 4.7 Ω 1W
△ R230	HL326120	R. MTL. OXD 1.2K Ω 2W
△ R231	HL416220	R. MTL. OXD 2.2K Ω 1W
RY101	VK438300	RELAY DH24D2-OTM-II
RY102	VK438300	RELAY DH24D2-OTM-II
RY103	VK438300	RELAY DH24D2-OTM-II
* SW101	VP870800	SW. PUSH SPUL12
SW102	VD948800	SW. PUSH TV-5
SW104	VA961800	VOLT. SELCT ESE-37247-F(R)
TE101	VC313700	TERM. SP 8P
TE101	VK506200	TERM. SP 8P
VR101	VJ692800	VR. TRIM B470 Ω
VR102	VJ692800	VR. TRIM B470 Ω
* VR103	VP766900	VR Y100K Ω
	BB071360	SCR. TERM 8.3x13
	BB070700	GND. MTL
* VP410600	P. C. B.	FUNCTION(UCRABH)
* VP410700	P. C. B.	FUNCTION(Q)
* CB301	VN066500	CN. BS. PIN 52044-1210
CB302	VA252300	CN MQ 5P
CB305	VB994800	CN MQ 7P
CB306	VD004900	CN. BS. PIN PH i-TYPE 6P TE
CB307	VM923600	CN. BS. PIN 52045 13P TE
* CB308	VQ044600	CN. BS. PIN 52044 13P SE
CB310	VD004500	CN. BS. PIN PH i-TYPE 2P TE
C301	VD930900	C. CE. SMI 0.1uF 25V
C302	VD930900	C. CE. SMI 0.1uF 25V
C303	FG212220	C. CE 220pF 50V(W)
C304	UG444100	C. CE 0.01uF 50V

*New Parts

FUNCTION P.C.B.

Schm Ref.	PART NO.	Description		
C305	FG212220	C. CE	220pF	50V(W)
C306	VK534000	C. PP	220pF	200V
C307	VK534000	C. PP	220pF	200V
C308	VK534000	C. PP	220pF	200V
C309	VK534000	C. PP	220pF	200V
C310	FG212220	C. CE	220pF	50V
C311	FG212220	C. CE	220pF	50V
C312	VE551900	C. CE	100pF	50V
C313	VE551900	C. CE	100pF	50V
C314	FG212220	C. CE	220pF	50V
C315	FG212220	C. CE	220pF	50V
C316	VE551900	C. CE	100pF	50V
C317	VE551900	C. CE	100pF	50V
C318	VG278400	C. CE, TUBLR	220pF	50V
C319	VG278400	C. CE, TUBLR	220pF	50V
C320	FG252270	C. CE	270pF	50V
C321	VG290500	C. EL	1uF	50V
C322	FG252270	C. CE	270pF	50V
C323	VG290500	C. EL	1uF	50V
C324	VG286900	C. EL	220uF	10V
C325	VG286900	C. EL	220uF	10V
C326	UA654330	C. MYLAR	0.033uF	50V
C327	UA654330	C. MYLAR	0.033uF	50V
C328	UA653910	C. MYLAR	9100pF	50V
C329	UA653910	C. MYLAR	9100pF	50V
C330	VG290600	C. EL	2.2uF	50V
C331	VG290600	C. EL	2.2uF	50V
C332	VG288900	C. EL	100uF	25V
C333	VG288900	C. EL	100uF	25V
C341	VG288900	C. EL	100uF	25V
C342	VG288900	C. EL	100uF	25V
C345	VG290900	C. EL	10uF	50V
C346	VG290300	C. EL	0.47uF	50V
C347	VE551900	C. CE	100pF	50V
C348	VE551500	C. CE	47pF	50V
C349	FG212220	C. CE	220pF	50V
C350	VG290600	C. EL	2.2uF	50V
C351	VG290600	C. EL	2.2uF	50V
C352	FG212220	C. CE	220pF	50V
C353	VE551500	C. CE	47pF	50V
C354	VE551900	C. CE	100pF	50V
C355	VG290300	C. EL	0.47uF	50V
C356	VG287900	C. EL	470uF	16V
C357	VD916400	C. EL	2.2uF	50V
C358	VG291000	C. EL	22uF	50V
C359	UA655120	C. MYLAR	0.12uF	50V
C360	VG291000	C. EL	22uF	50V
C361	UA655120	C. MYLAR	0.12uF	50V
C364	UA654330	C. MYLAR	0.033uF	50V
C365	UA654330	C. MYLAR	0.033uF	50V
C369	FG212680	C. CE	680pF	50V
C370	FG212680	C. CE	680pF	50V
C371	VG288000	C. EL	1000uF	16V

*New Parts

Schm Ref.	PART NO.	Description		
C372	VG286900	C. EL	220uF	10V
C373	VD929600	C. EL	4.7uF	50V
C374	VG290500	C. EL	1uF	50V
C377	UA654560	C. MYLAR	0.056uF	50V
C378	UA654560	C. MYLAR	0.056uF	50V
C401	UG444100	C. CE	0.01uF	50V
C402	UG444100	C. CE	0.01uF	50V
C403	VG290900	C. EL	10uF	50V
C404	VG288900	C. EL	100uF	25V
D304	Vi013600	LED(re)	SLR-34VC3H3	
D305	VF402500	LED(or)	SLR-34DC3H3	
D308	VD631600	DIODE	1SS133,176,HSS104	
D310	VM973700	DIODE, ZENR	HZS4A2TD 4.0V	
* D311	VM974200	DIODE, ZENR	HZS5C2TD 5.0V	
D312	VD631600	DIODE	1SS133,176,HSS104	
* D313	VM974200	DIODE, ZENR	HZS5C2TD 5.0V	
D315	VD631600	DIODE	1SS133,176,HSS104	
D316	VD631600	DIODE	1SS133,176,HSS104	
D317	VD631600	DIODE	1SS133,176,HSS104	
IC301	XE322001	IC	NJM2068S-D	
IC302	XE322001	IC	NJM2068S-D	
IC303	XF494A00	IC	LB1641	
IC304	XF494A00	IC	LB1641	
* IC305	XM088B00	IC	LC6520H-4B14	
△ IC312	XJ602A00	IC	NJM78M12FA	
L301	VB056900	COIL	220uH(W)	
L302	VB056900	COIL	220uH(W)	
* PJ301	VP768000	JACK, PIN	2P	
PJ302	VJ249500	JACK, PIN	4P	
* PJ303	VP767900	JACK, PIN	6P	
PJ304	VJ249500	JACK, PIN	4P	
Q305	VD678500	TR. DGT	DTA114ES	
Q306	VG722000	TR. DGT	DTC144ES	
Q307	VG722000	TR. DGT	DTC144ES	
Q309	VD678500	TR. DGT	DTA114ES	
△ Q310	iC1815C0	TR	2SC1815 Y	
Q311	iC174020	TR	2SC1740S R,S	
Q312	iA093320	TR	2SA933S Q,R	
Q313	VG721700	TR. DGT	DTA144ES	
Q314	VG722000	TR. DGT	DTC144ES	
Q315	VD678700	TR. DGT	DTC114ES	
Q316	VD678700	TR. DGT	DTC114ES	
Q317	iC174020	TR	2SC1740S R,S	
Q318	VD678700	TR. DGT	DTC114ES	
Q319	VD678500	TR. DGT	DTA114ES	
R350	HV455100	R. CAR. FP	100 Ω	1/4W
R351	HV455100	R. CAR. FP	100 Ω	1/4W
R379	HV453470	R. CAR. FP	4.7 Ω	1/4W
R453	HV454100	R. CAR. FP	10 Ω	1/4W
R454	HV454100	R. CAR. FP	10 Ω	1/4W
SW301	VK475200	SW. RT	SRBA	
SW302	VJ786400	SW. RT	SRRZS4	
* SW303	VP924100	SW. PUSH	PSC02 CF4K2K	

*New Parts

FUNCTION P.C.B.

Schm Ref.	PART NO.	Description	
U301	VG990800	L. DTCT	GP1U521X
* VR301	VP741800	VR	B20K Ω
* VR302	VP741900	VR	G25K Ω
* VR303	VP700700	VR	A100K Ω
* VR304	VP742000	VR	MN50K Ω
XL301	VB759100	RSNR. CE	4MHz

*New Parts

A

B

C

D

E

AX-470

EXPLODED VIEW

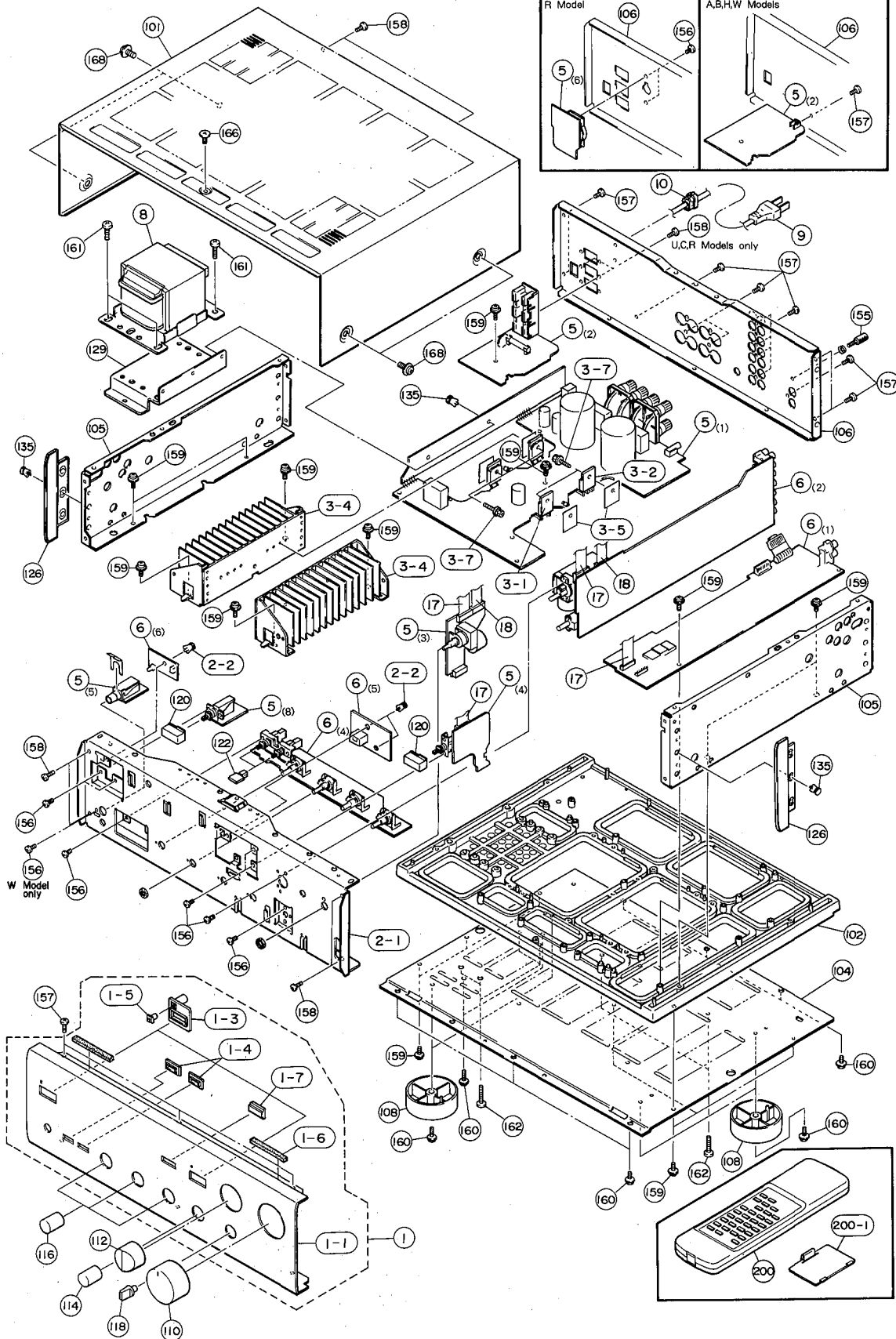
1

2

3

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5



AX-470

7

MECHANICAL PARTS

Ref. No.	PART NO.	Description	Remarks	Markets
* 1	VP409800	FRONT PANEL UNIT	BL	
* 1	VP411700	FRONT PANEL UNIT	TI	
* 1-1	VP335400	FRONT PANEL	BL	
* 1-1	VP335500	FRONT PANEL	TI	
1-3	VH816700	BUTTON GUIDE	BL	10x25
1-3	VH816800	BUTTON GUIDE	TI	10x25
1-4	VJ833200	BUTTON GUIDE	TI	2P
1-4	VJ833300	BUTTON GUIDE	BL	2P
1-5	VH897700	LENS		
* 1-6	VP857700	DAMPER		4x6x55
1-7	VH897500	LENS		
* 2-1	VP338700	SUB CHASSIS		
2-2	CB099600	PLASTIC RIVET		No. 920
2-3	ED330066	BIND HEAD SCREW		3x6 FCRM3-BL
△ 3-1	ix620970	TRANSISTOR	Q123B,Q124B	2SA1491 O,P,Y
△ 3-2	ix620980	TRANSISTOR	Q123A,Q124A	2SC3855 O,P,Y
* 3-4	VP493200	HEAT SINK ASS'y		
3-5	VK195900	SHEET		19x24
3-7	VK173200	SCREW, TRANSISTOR		3x15 SP FCM3
* 5	VP410000	P. C. B. ASS'y, MAIN		(UC)
* 5	VP410100	P. C. B. ASS'y, MAIN		(R)
* 5	VP410200	P. C. B. ASS'y, MAIN		(AB)
* 5	VP410300	P. C. B. ASS'y, MAIN		(H)
* 5	VP410400	P. C. B. ASS'y, MAIN		(W)
* 6	VP410600	P. C. B. ASS'y, FUNCTION		(UCRABH)
* 6	VP410700	P. C. B. ASS'y, FUNCTION		(W)
* 8	XL635A00	POWER TRANSFORMER		(U)
△* 8	XL636B00	POWER TRANSFORMER		(C)
△* 8	XL637A00	POWER TRANSFORMER		(R)
△* 8	XL638A00	POWER TRANSFORMER		(AB)
△* 8	XL640A00	POWER TRANSFORMER		(HW)
△ 9	VL012900	POWER CORD ASS'y		(UC)
△ 9	VL238100	POWER CORD ASS'y		(R)
△* 9	VL238400	POWER CORD ASS'y		(A)
△ 9	VL238900	POWER CORD ASS'y		(HW)
△ 9	VN804500	POWER CORD ASS'y		(B)
10	VN158600	CORD STOPPER		No. 2104
15	CB069250	BINDING TIE		BK-1
* 17	VQ469000	CONNECTOR, FLAT CABLE		13P 130mm
* 18	VP918700	CONNECTOR, FLAT CABLE		12P 80mm
* 101	VL664300	TOP COVER	BL	
* 101	VL664400	TOP COVER	TI	
* 102	VN946400	CHASSIS		
* 104	VL664700	BOTTOM COVER		
* 105	VL664800	FRAME, SIDE		
* 106	VP338100	REAR PANEL		(U)
* 106	VP338200	REAR PANEL		(C)
* 106	VP338300	REAR PANEL		(R)
* 106	VP338400	REAR PANEL		(AB)
* 106	VP338500	REAR PANEL		(H)
* 106	VP338600	REAR PANEL		(W)
108	VK016500	LEG		φ 60/H21
110	VK219700	KNOB	BL VOLUME	φ 45

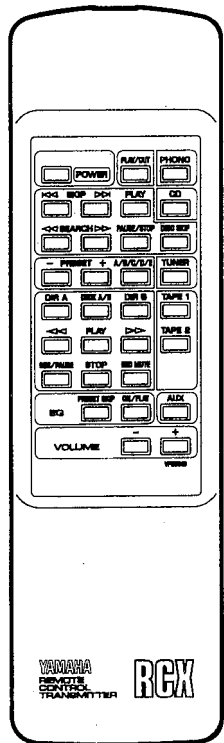
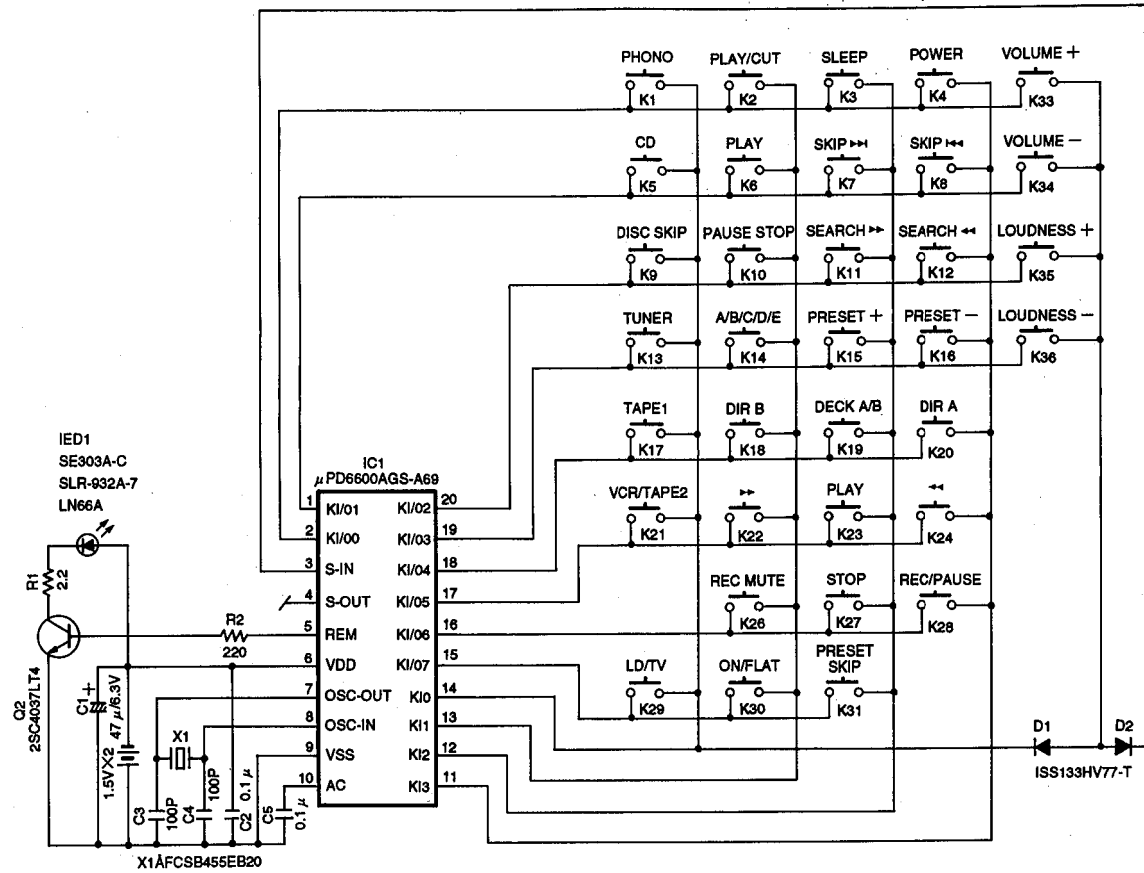
*New Parts

Ref. No.	PART NO.	Description	Remarks	Markets
110	VK219800	KNOB		φ 45
112	VK220100	KNOB		φ 32
112	VK220200	KNOB		φ 32
* 114	VP461000	KNOB		φ 16
* 114	VP461100	KNOB		φ 16
116	VP511900	KNOB		φ 16
116	VP512000	KNOB		φ 16
118	VP587700	KNOB		φ 16
* 118	VP587800	KNOB		φ 16
120	VH841900	BUTTON		10x25
120	VP663400	BUTTON		10x25
122	VM736600	BUTTON		3x14
122	VP564500	BUTTON		3x14
126	VK234600	PLATE SIDE		
126	VK234700	PLATE SIDE		
* 129	VP596200	FRAME		
* 132	VP859400	SHEET, PROTECTOR		
135	CB099600	PLASTIC RIVET		No. 920
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 TAPPING SCREW		3x10
161	EN330060	BIND HEAD B-TITE SCREW		4x16 FCRM3-BL
162	VL184400	BIND HEAD B-TITE SCREW		4x22 FCRM3-BL
166	EX601850	SPECIAL SCREW S-TITE		4x8-10 FCRM3-BL BL
166	EX601860	SPECIAL SCREW S-TITE		4x8-10 FNM3-BL TI
168	EK365090	BW HEAD SCREW		4x8 ZMC2-BL BL
168	EX601150	BW HEAD S-TITE SCREW		4x8-10 FNM3-BL TI
		ACCESSORIES		
* 200	VP590400	REMOTE CONTROL TRANSMITTER		SBAR20013A 36KEY
200-1	CX674370	LID		54x32.9 N3ALPS
		BATTERY, MANGANESE		SUM-3,AA,R06

*New Parts

REMOTE CONTROL TRANSMITTER

CUSTOM CODE C0 C1 C2 C3 C4 C5 C6 C7



KEY NO.	HEX	D0	D1	D2	D3	D4	D5	D6	D7	FUNCTION
K1	14	0	0	1	0	1	0	0	0	PHONO
K2	0E	0	1	1	1	0	0	0	0	PLAY/CUT
K4	1F	1	1	1	1	1	0	0	0	POWER
K5	15	1	0	1	0	1	0	0	0	CD
K6	08	0	0	0	0	1	0	0	0	PLAY
K7	0A	0	1	0	1	0	0	0	0	SKIP >>
K8	0B	1	1	0	1	0	0	0	0	SKIP <<
K9	4F	1	1	1	1	0	0	0	1	DISK SKIP
K10	09	1	0	0	1	0	0	0	0	PAUSE/STOP
K11	0C	0	0	1	1	0	0	0	0	SEARCH >>
K12	0D	1	0	1	1	0	0	0	0	SEARCH <<
K13	16	0	1	1	0	1	0	0	0	TUNER
K14	12	0	1	0	0	1	0	0	0	A/B/C/D/E
K15	10	0	0	0	0	1	0	0	0	PRESET +
K16	11	1	0	0	0	1	0	0	0	PRESET -
K17	18	0	0	0	0	1	1	0	0	TAPE 1
K18	40	0	0	0	0	0	0	1	0	DIR B
K19	06	0	1	1	0	0	0	0	0	DECK A/B
K20	07	1	1	1	0	0	0	0	0	DIR A
K21	19	1	0	0	1	1	0	0	0	TAPE 2
K22	02	0	1	0	0	0	0	0	0	>>
K23	00	0	0	0	0	0	0	0	0	PLAY
K24	01	1	0	0	0	0	0	0	0	<<
K26	05	1	0	1	0	0	0	0	0	REC MUTE
K27	03	1	1	0	0	0	0	0	0	STOP
K28	04	0	0	1	0	0	0	0	0	REC/PAUSE
K29	17	1	1	1	0	1	0	0	0	AUX
K30	5A	0	1	0	1	1	0	1	0	ON/FLAT
K31	5B	1	1	0	1	1	0	1	0	PRESET SKIP
K33	1A	0	1	0	1	1	0	0	0	VOLUME +
K34	1B	1	1	0	1	1	0	0	0	VOLUME -

PARTS LIST

Parts List for Carbon Resistor

Parts List for Carbon Resistor

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	HJ353100	HF853100	12K Ω	HJ357120	HF857120
1.8 "	HJ353180	*	15 "	HJ357150	HF857150
2.2 "	HJ353220	HF853220	18 "	HJ357180	HF857180
3.3 "	HJ353330	HF853330	22 "	HJ357220	HF857220
4.7 "	HJ353470	HF853470	27 "	HJ357270	HF857270
5.6 "	HJ353560	HF853560	33 "	HJ357330	HF857330
10 "	HJ354100	HF854100	39 "	HJ357390	HF857390
15 "	HJ354150	HF854150	47 "	HJ357470	HF857470
22 "	HJ354220	HF854220	56 "	HJ357560	HF857560
27 "	HJ354270	HF854270	68 "	HJ357680	HF857680
33 "	HJ354330	HF854330	82 "	HJ357820	HF857820
39 "	HJ354390	HF854390	91 "	HJ357910	HF857910
47 "	HJ354470	HF854470	100 "	HJ358100	HF858100
56 "	HJ354560	HF854560	120 "	HJ358120	HF858120
68 "	HJ354680	HF854680	150 "	HJ358150	HF858150
82 "	HJ354820	HF854820	180 "	HJ358180	HF858180
100 "	HJ355100	HF855100	220 "	HJ358220	HF858220
110 "	HJ355110	HF855110	270 "	HJ358270	HF858270
120 "	HJ355120	HF855120	330 "	HJ358330	HF858330
150 "	HJ355150	HF855150	390 "	HJ358390	HF858390
160 "	HJ355160	*	470 "	HJ358470	HF858470
180 "	HJ355180	HF855180	560 "	HJ358560	HF858560
220 "	HJ355220	HF855220	680 "	HJ358680	HF858680
270 "	HJ355270	HF855270	820 "	HJ358820	HF858820
330 "	HJ355330	HF855330	1.0M Ω	HJ359100	HF859100
390 "	HJ355390	HF855390	1.2 "	HJ359120	*
470 "	HJ355470	HF855470	1.5 "	HJ359150	HF859150
510 "	*	HF855510	1.8 "	HJ359180	HF859180
560 "	HJ355560	HF855560	2.2 "	HJ359220	HF859220
680 "	HJ355680	HF855680	3.3 "	HJ359330	HF859330
820 "	HJ355820	HF855820	3.9 "	HJ359390	*
910 "	HJ355910	HF855910	4.7 "	HJ359470	HF859470
1.0K Ω	HJ356100	HF856100			
1.2 "	HJ356120	HF856120			
1.5 "	HJ356150	HF856150			
1.8 "	HJ356180	HF856180			
2.0 "	HJ356200	HF856200			
2.2 "	HJ356220	HF856220			
2.4 "	HJ356240	HF856240			
2.7 "	HJ356270	HF856270			
3.0 "	HJ356300	HF856300			
3.3 "	HJ356330	HF856330			
3.6 "	HJ356360	HF856360			
3.9 "	HJ356390	HF856390			
4.7 "	HJ356470	HF856470			
5.1 "	HJ356510	HF856510			
5.6 "	HJ356560	HF856560			
6.8 "	HJ356680	HF856680			
8.2 "	HJ356820	HF856820			
9.1 "	HJ356910	HF856910			
10 "	HJ357100	HF857100			

