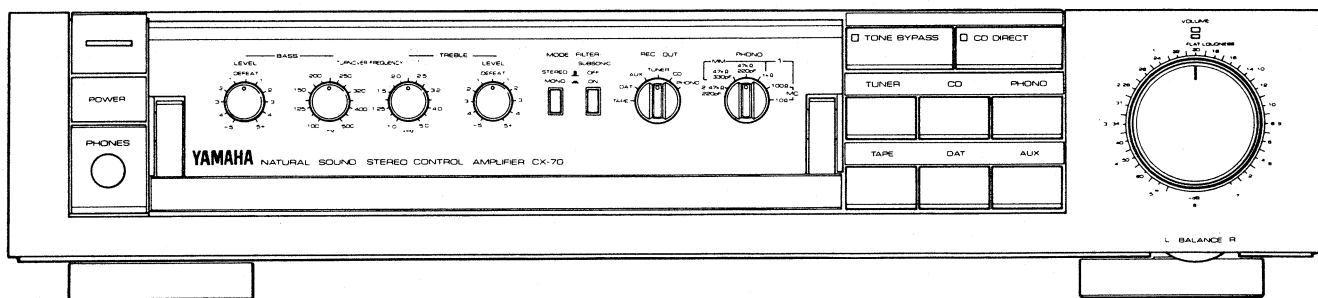


STEREO CONTROL AMPLIFIER

CX-70

SERVICE MANUAL

CX-70



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 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 or firm does not constitute authorization, certification, 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 parts replacement. Recheck all work before you apply power to the unit.

CONTENTS


TO SERVICE PERSONNEL	1	ADJUSTMENTS POINTS	3
SPECIFICATIONS	1	BLOCK DIAGRAM	4
DIMENSIONS	1	WIRING	5
REAR PANELS	2	PRINTED CIRCUIT BOARD	6 ~ 11
INTERNAL VIEW	2	SCHEMATIC DIAGRAM	12
DISASSEMBLY PROCEDURES	3	PARTS LIST	13 ~ 20
IC BLOCK	3		

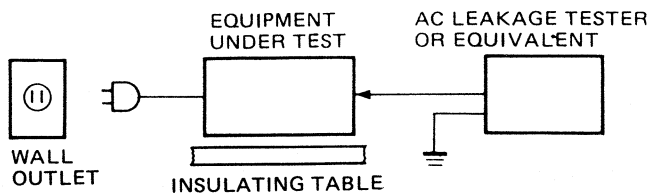
100172

YAMAHA

YAMAHA CORPORATION HAMAMATSU, JAPAN
2.05K-204 © Printed in Japan '88.6

■ TO SERVICE PERSONNEL

1. Critical Components Information.
Components having special characteristics are marked  and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V 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 ohm shunted by 0.15 μ F.
 - Leakage current must not exceed 0.5mA.
 - Be sure to test for leakage with the AC plug in both polarities.



■ SPECIFICATIONS

Input Sensitivity/Impedance

Phono MC	100 μ V/10, 100, 1 k Ω
Phono MM	2.5 mV/ 47 k Ω (220p, 330p)
CD	150 mV/40 k Ω
TAPE/DAT/AUX/TUNER	150 mV/47 k Ω

Input Sensitivity (New IHF)

Phono MC	33 μ V
Phono MM	0.83 mV
TAPE/DAT/AUX/TUNER/CD	50 mV

Maximum-Input Signal

1 kHz, 0.01% THD, Phono MC	6.5 mV
1 kHz, 0.01% THD, Phono MM	165 mV

Output Level/Impedance

REC OUT	150 mV/600 Ω
PRE OUT	1.5 V/82 Ω

Maximum Voltage Output

20 Hz ~ 20 kHz, 0.1% THD	8.5V
--------------------------	------

Headphone Jack Rated Output/Impedance

1 kHz, 0.01% THD, RL = 150 ohms	6V/100 Ω
---------------------------------	-----------------

Frequency Response

TAPE/DAT/AUX/TUNER/CD	(20 Hz ~ 20 kHz) +0, -0.2 dB
-----------------------	------------------------------

RIAA Equalization Deviation

20 Hz ~ 20 kHz, Phono MC/MM	\pm 0.2 dB
20 Hz ~ 100 kHz MC/MM	\pm 0.5 dB

Total Harmonic Distortion (20 Hz ~ 20 kHz)

Phono MC to REC OUT, 3V	0.002%
Phono MM to REC OUT, 3V	0.001%
TAPE/DAT/AUX/TUNER/CD to PRE OUT, 1.5V	0.001%

Intermodulation Distortion

PRE OUT, 5V	0.002%
-------------	--------

Signal to Noise Ratio (IHF-A-Network)

Phono MC (500 μ V Input Shorted)	90 dB
Phono MM (5 mV Input Shorted)	95 dB
TAPE/DAT/AUX/TUNER/CD (Shorted)	106 dB
CD DIRECT (Shorted)	108 dB

Signal to Noise Ratio (New IHF)

Phono MC	81 dB
Phono MM	83 dB
TAPE/DAT/AUX/TUNER/CD	103 dB

Input Equivalent Noise

Phono MC	-156 dBV (G)(B)
Phono MM	-138 dBV (G)(B)

Residual Noise

	2.0 μ V (R)
--	-----------------

Channel Separation

Phono MC, MM input shorted, 1 kHz/10 kHz	80 dB/70 dB
TAPE/DAT/AUX/TUNER/CD input	5.1 k Ω terminated, 1 kHz/10 kHz
	70 dB/50 dB

Tone Control Characteristics

BASS boost/cut	\pm 10 dB
turnover frequency	100 ~ 500 Hz
TREBLE boost/cut	\pm 10 dB
turnover frequency	1 k ~ 5 kHz

Filter Characteristics

Subsonic	- 12 dB/oct.(15 Hz)
----------	---------------------

Continuous Loudness Control (Level related equalization)

Attenuation	-40 dB (1 kHz)
-------------	----------------

Gain tracking error (0 ~ -60 dB)

	2 dB
--	------

Power Supply

	G model 220V, 50 Hz
	B model 240V, 50 Hz
	R model 110V ~ 240V, 50 Hz/60 Hz

Power Consumption

	30W
--	-----

AC Outlet

Switched	200W max.
Unswitched	800W max. (R)

Dimensions (W x H x D)

	435 x 95 x 380 mm
	(17-1/8" x 3-47/64" x 14-61/64")

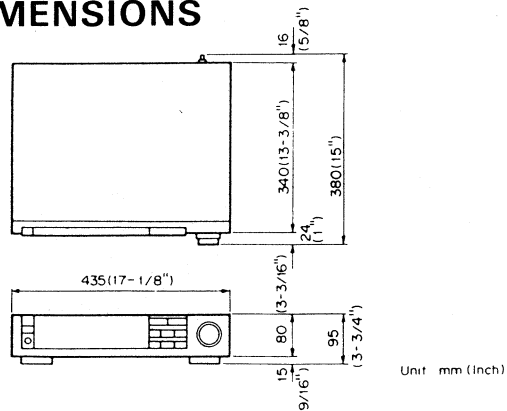
Weight

	6.9 kg
--	--------

Specifications subject to change without notice.

- (G) Europe model
- (B) British model
- (R) Other model

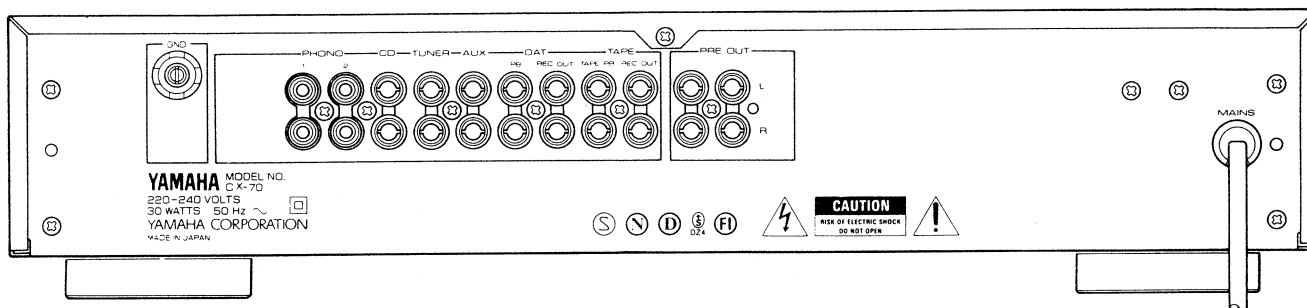
■ DIMENSIONS



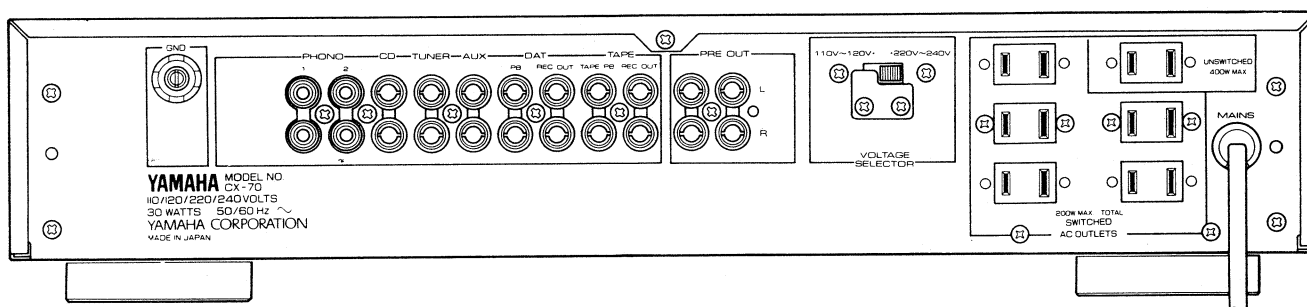
Unit: mm (Inch)

REAR PANELS

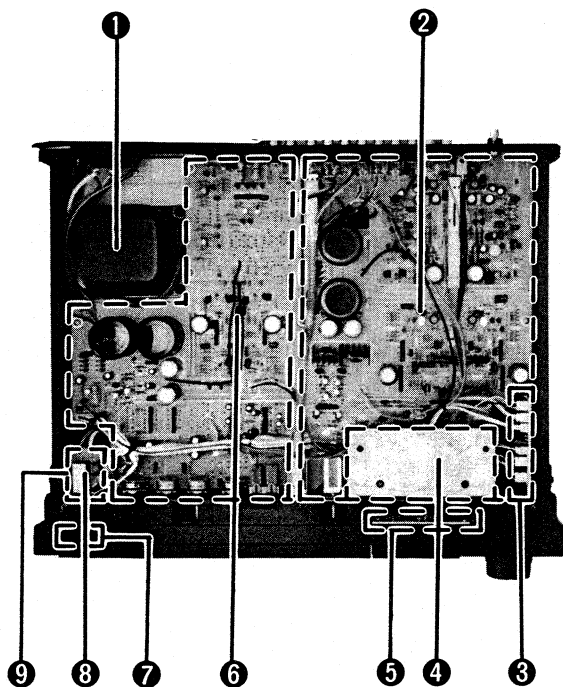
G.B models



R model



INTERNAL VIEW



- ① POWER TRANSFORMER
R Model: GA675400
G, B Models: GA678800
- ② EQUALIZER CIRCUIT BOARD
- ③ VOLUME CIRCUIT BOARD (1)
- ④ VOLUME CIRCUIT BOARD (2)
- ⑤ SWITCH UNIT
- ⑥ TONE CONTROL CIRCUIT BOARD (1)
- ⑦ TONE CONTROL CIRCUIT BOARD (4)
- ⑧ TONE CONTROL CIRCUIT BOARD (5)
- ⑨ TONE CONTROL CIRCUIT BOARD (3)

DISASSEMBLY PROCEDURES (Remove parts in disassembly order as numbered)

1. Removal of Top Cover

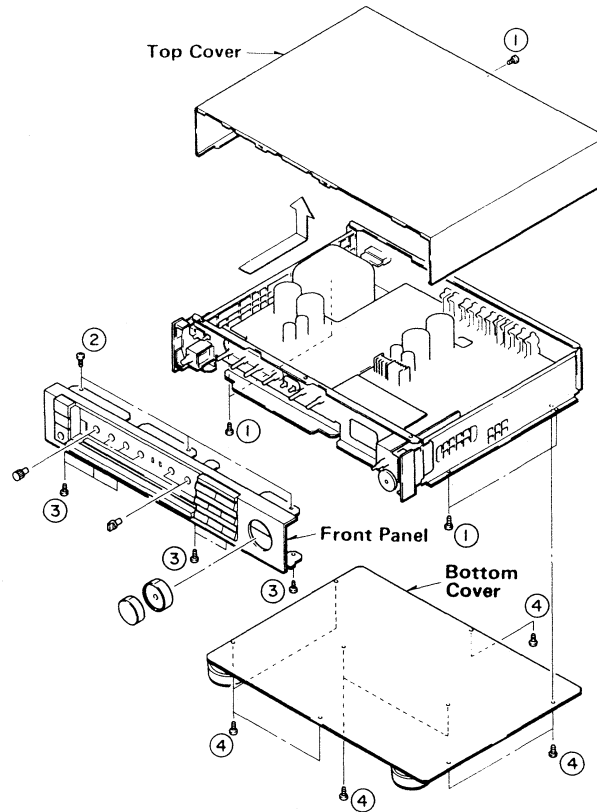
- a. Remove 5 screws ①, and slide the Top Cover back.

2. Removal of Front Panel

- a. Remove 7 knobs.
- b. Remove 3 screws ②.
- c. Remove 6 screws ③.

3. Removal of Bottom Cover

- a. Remove 8 screws ④.



IC BLOCK

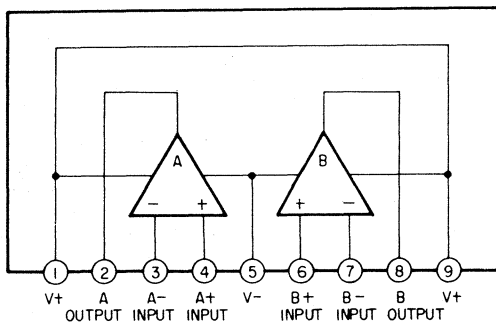
IC101, 102: NJM2041S (R Model)

IC103, 104, 601: NJM2041S

IC105, 106: NJM2043S

IC311: NJM4556S-A

(Dual Ope-Amp.)



ADJUSTMENT POINTS

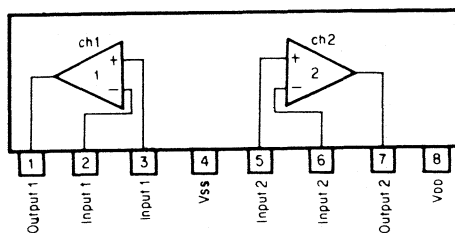
- Set the controls to the following positions.

PHONO → MC
REC OUT → PHONO

IC101, 102 (G, B Models); M5219L

IC107: M5220L

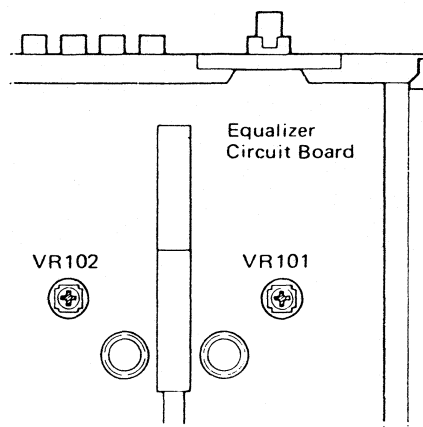
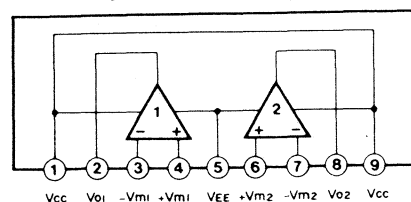
(Dual Low Noise Pre-Amp.)



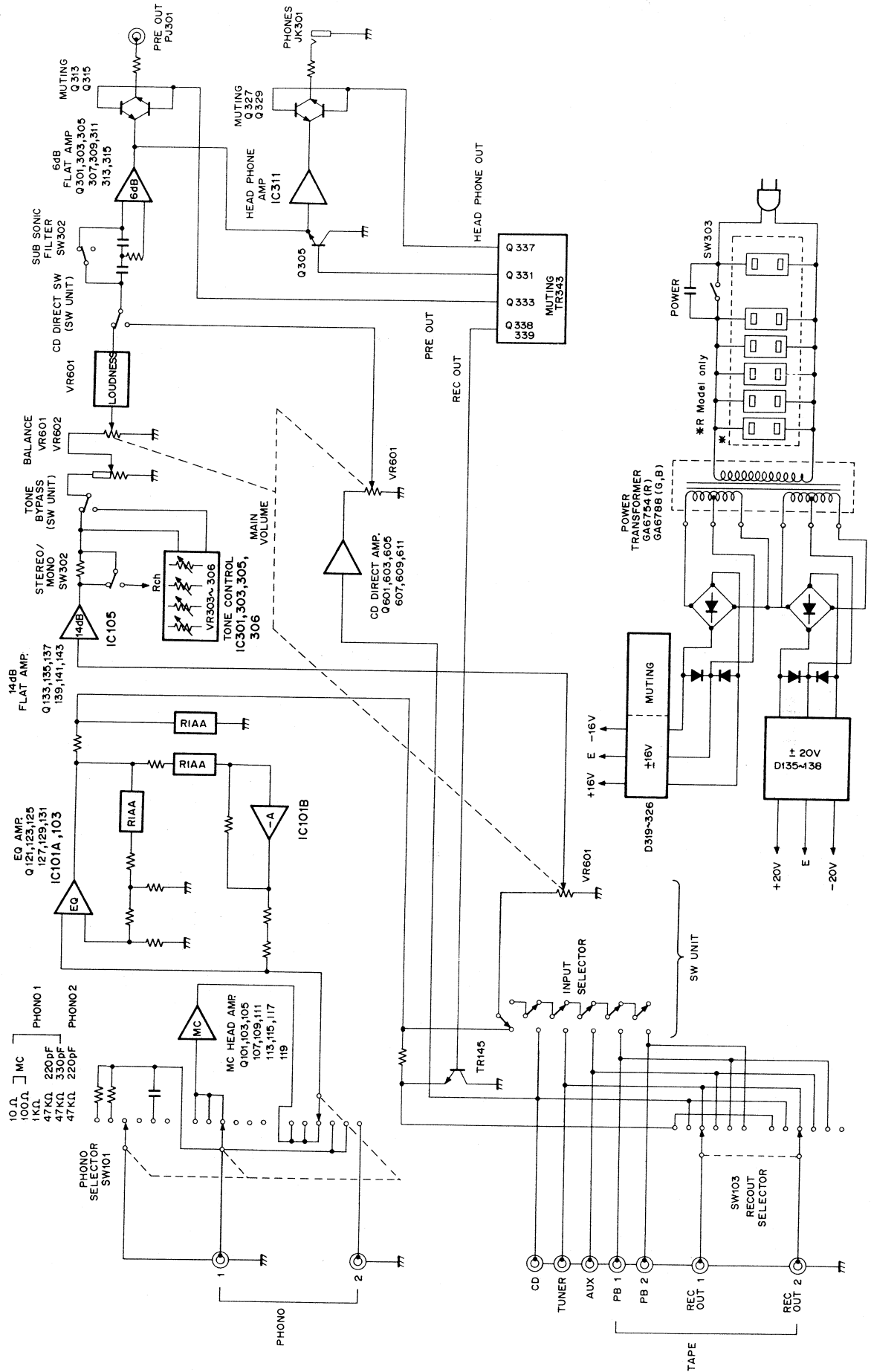
Adjustment item	Test point	Instrument required	Adjustment points	Rating
MC AMP DC offset	REC OUT	DCVM	VR101 (Lch) VR102 (Rch) [EQUALIZER]	0V±100mV

IC301, 303, 305 ~ 308: NJM2068S

(Dual Ope-Amp.)

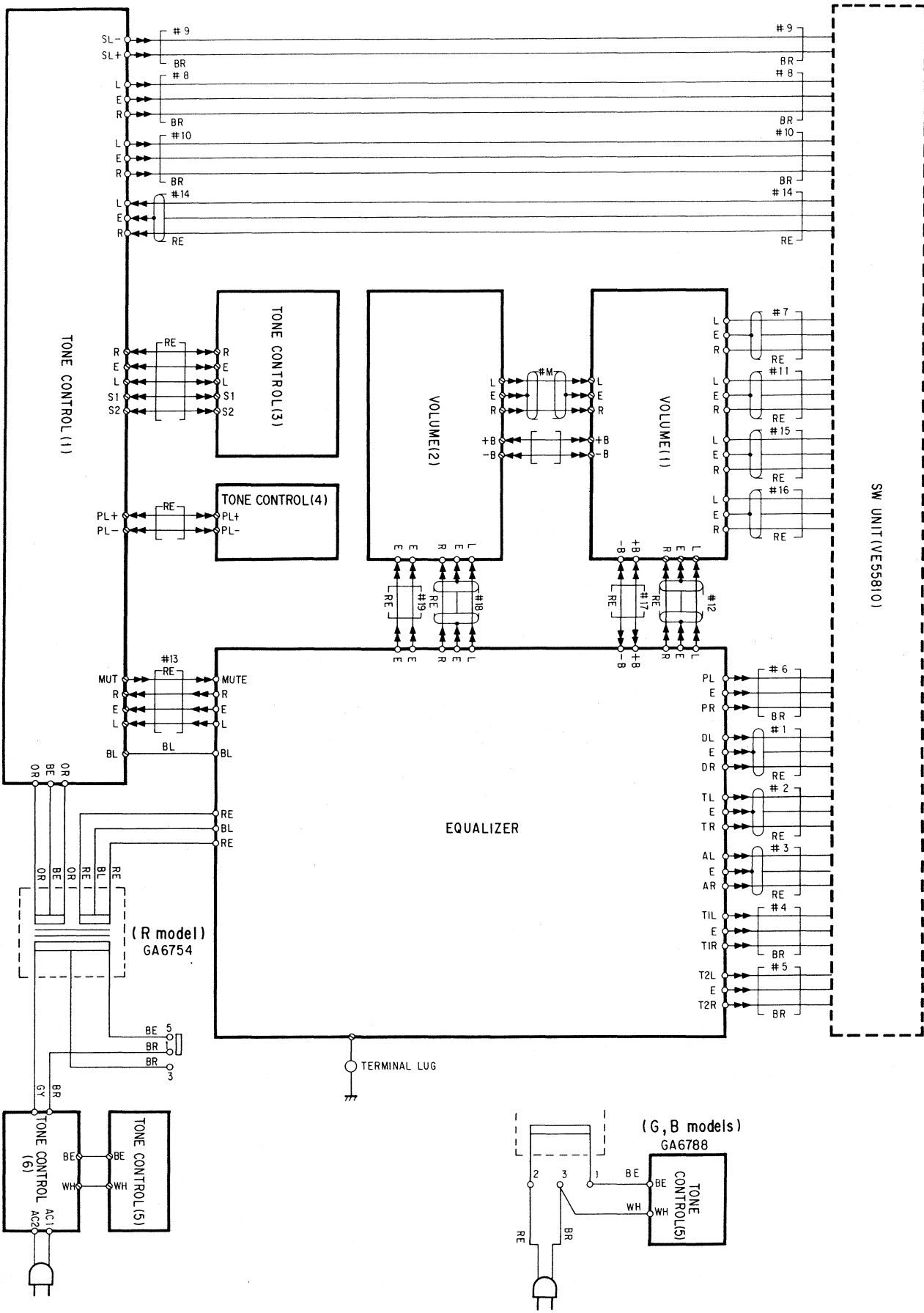


BLOCK DIAGRAM



CX-70

WIRING



A

B

C

D

E

F

G

H

I

CX-70

PRINTED CIRCUIT BOARD (Pattern Side) (Note) 文字面 : Component Side

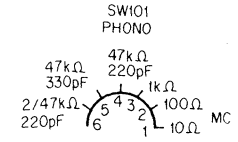
Note * marked

#	R	B,G
1. C166, 187	OPEN	0.01
2. C193~200 C215~218	OPEN	220P
3. L101, 102	OPEN	15 μH
4. R107, 108	SHORT	220
5. R155, 156	220	1.5K
6. C109, 110	⊕ 0.01/100	OPEN
7. C109, 110	OPEN	⊕ 0.018/100
8. C188	OPEN	0.01/500
9. C219, 220	OPEN	82P/500
10. C105, 106	OPEN	⊕ 2200P/100
11. IC101, 102	NUM2041S	M5219L
12. R295	OPEN	4.7
13. C191, 192	OPEN	⊕ 220P/100
14. C350	OPEN	0.01/500
15. C349, 376	OPEN	0.01
16. PJ301	LB40129	LB40131
17. Wrapping Terminal L-Type	○	—
18. AC Outlet	○	—
19. Cover	—	○
20. C374	F14141(0.01)	F138410(0.01)

EQUALIZER Circuit Board

From VOLUME Circuit Board (1)

From VOLUME Circuit Board (2)



To TONE CONTROL Circuit Board (1)

To SWITCH UNIT

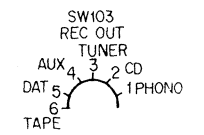
To TONE CONTROL Circuit Board (1)

From VOLUME Circuit Board (1)

To POWER TRANSFORMER

From SWITCH UNIT
From VOLUME Circuit Board (2)

To SWITCH UNIT



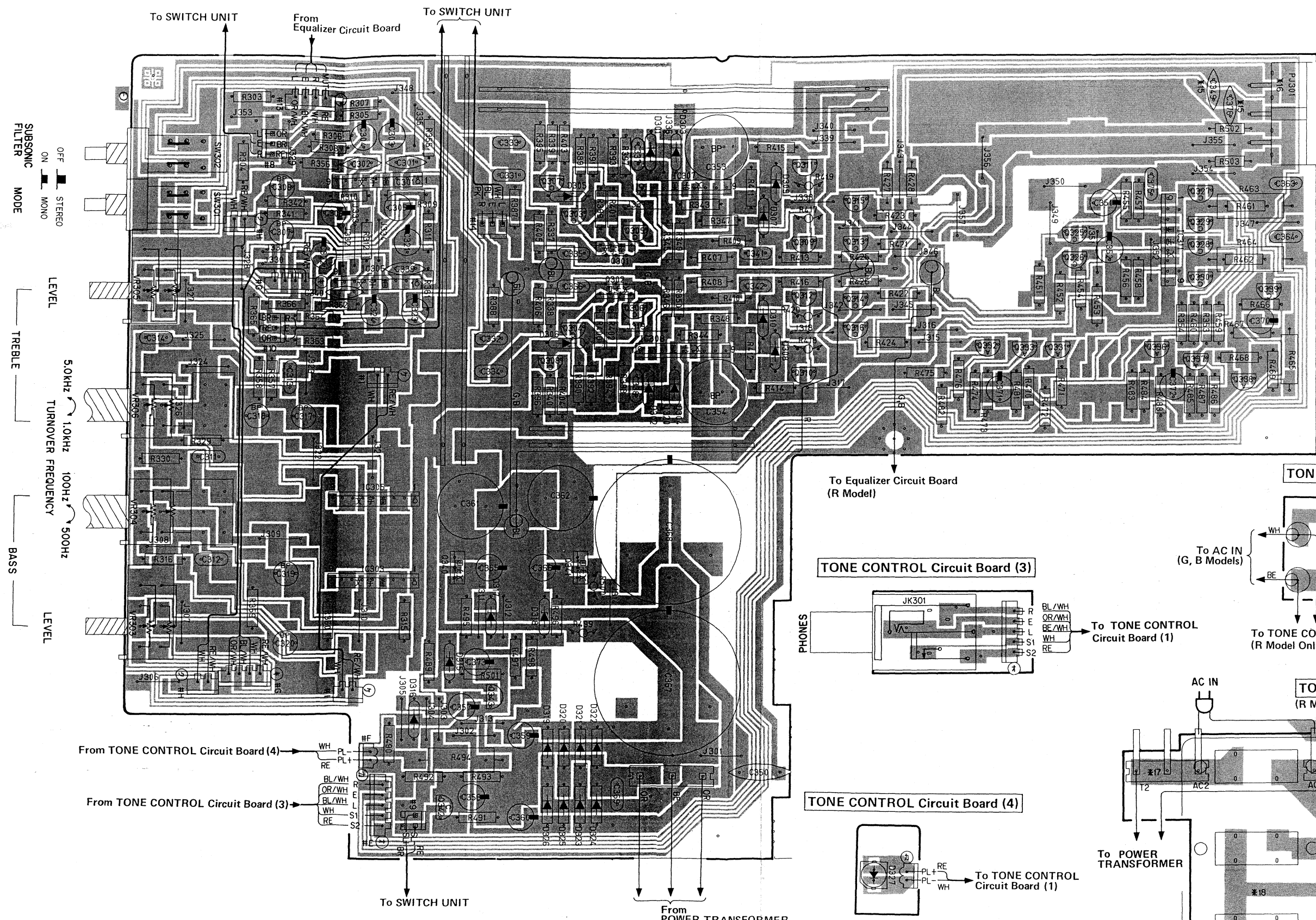
PHONO
CD
TUNER
AUX
DAT
REC OUT
TAPE P.B
REC OUT
TAPE

CX-70

7

CX-70
PRINTED CIRCUIT BOARD (Pattern Side) (Note) 文字面: Component Side

TONE CONTROL Circuit Board (1)

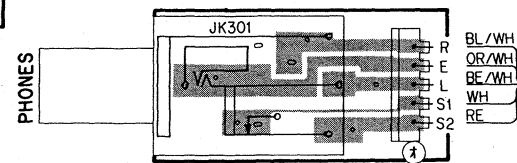


Note # marked

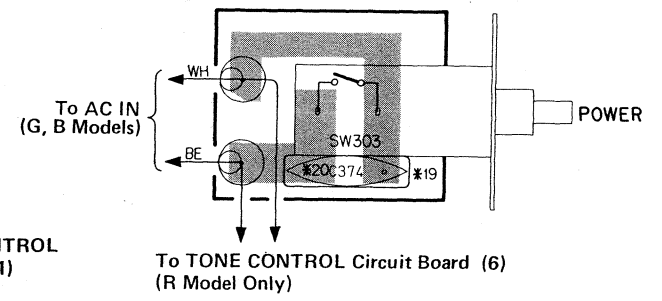
#	R	B, G
1. C186, 187	OPEN	0.01
2. C193~200 C215~218	OPEN	220P
3. L101, 102	OPEN	15 μH
4. R107, 108	SHORT	220
5. R155, 156	220	1.5K
6. C109, 110	⊕ 0.01/100	OPEN
7. C109, 110	OPEN	⊕ 0.018/100
8. C188	OPEN	0.01/500
9. C219, 220	OPEN	82P/500
10. C105, 106	OPEN	⊕ 2200P/100
11. IC101, 102	NUM2041S	M5219L
12. R295	OPEN	4.7
13. C191, 192	OPEN	⊕ 220P/100
14. C350	OPEN	0.01/500
15. C349, 376	OPEN	0.01
16. PJ301	LB40129	LB40131
17. Wrapping Terminal L-Type	○	—
18. AC Outlet	○	—
19. Cover	—	○
20. C374	F141410(0.01)	F138410(0.01)

To Equalizer Circuit Board (R Model)

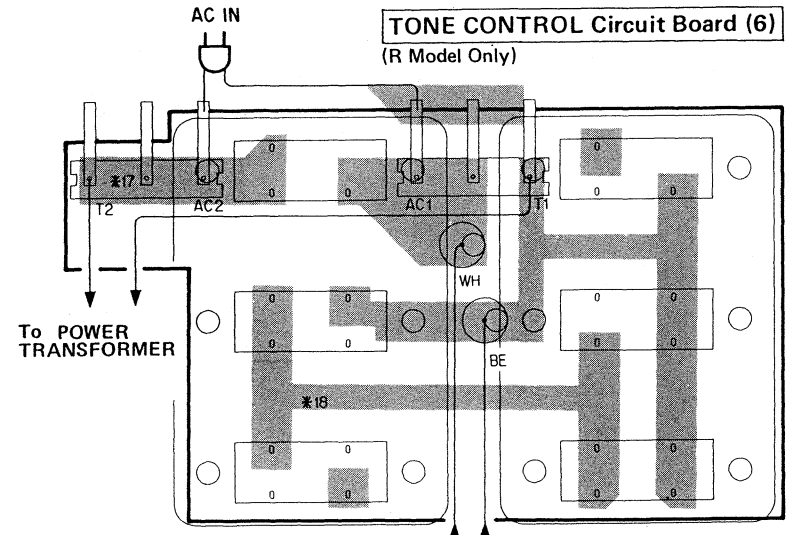
TONE CONTROL Circuit Board (3)



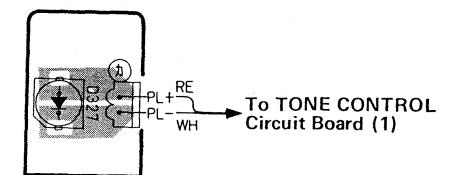
TONE CONTROL Circuit Board (5)



TONE CONTROL Circuit Board (6) (R Model Only)



TONE CONTROL Circuit Board (4)



1
2
3
4
5
6
7
8

Subsonic Filter
 OFF STEREO
 ON MONO

MODE

LEVEL

5.0kHz
 1.0kHz
 100Hz
 500Hz

TREBLE
 TURNOVER FREQUENCY

BASS
 LEVEL

From TONE CONTROL Circuit Board (5)

PRINTED CIRCUIT BOARD (Pattern Side) (Note) 文字面 : Component Side

CX-70

1

2

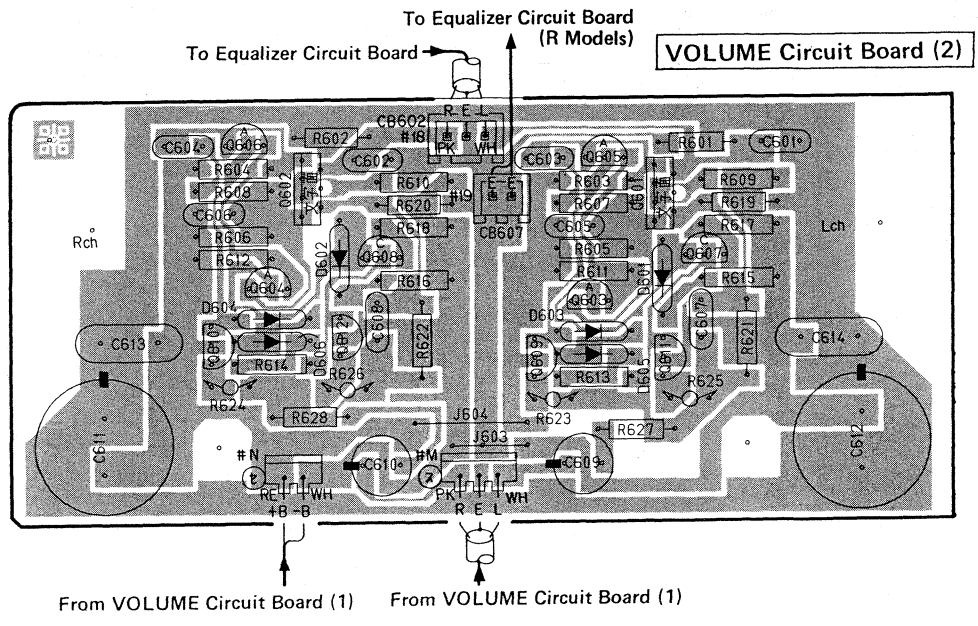
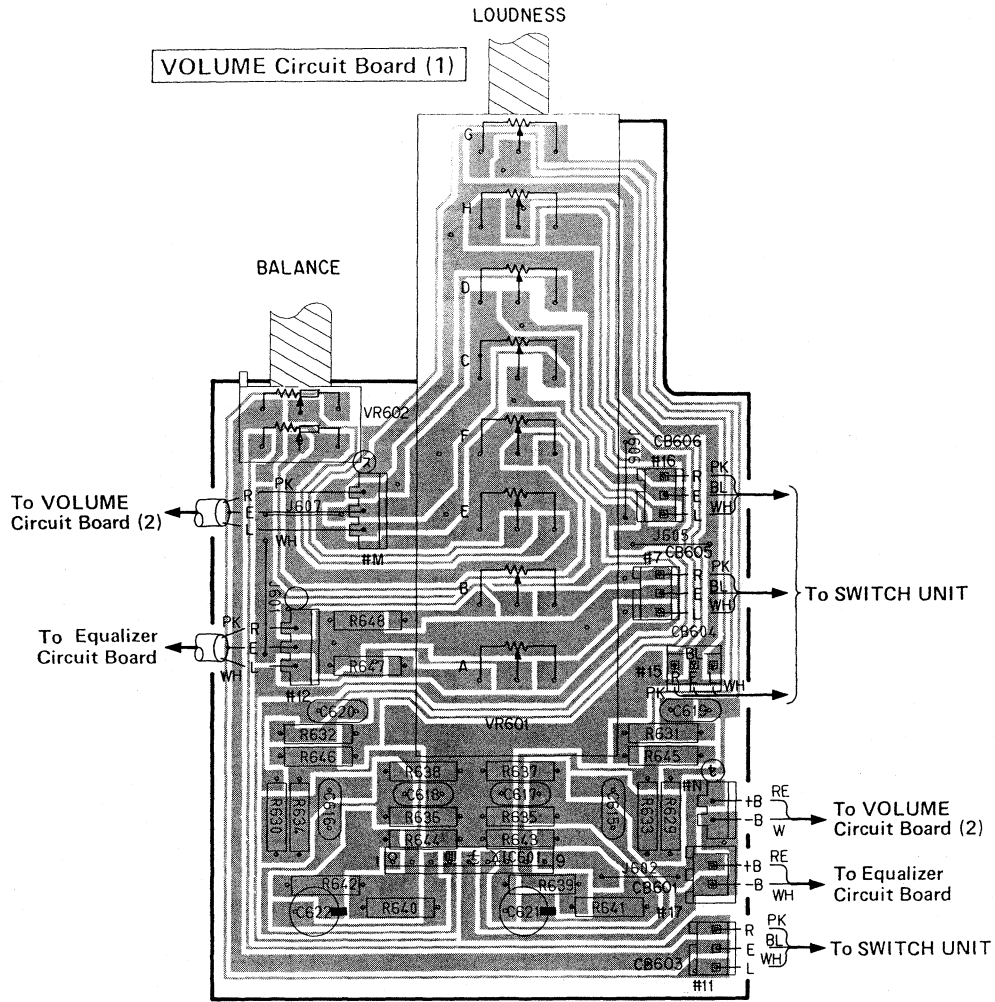
3

4

5

6

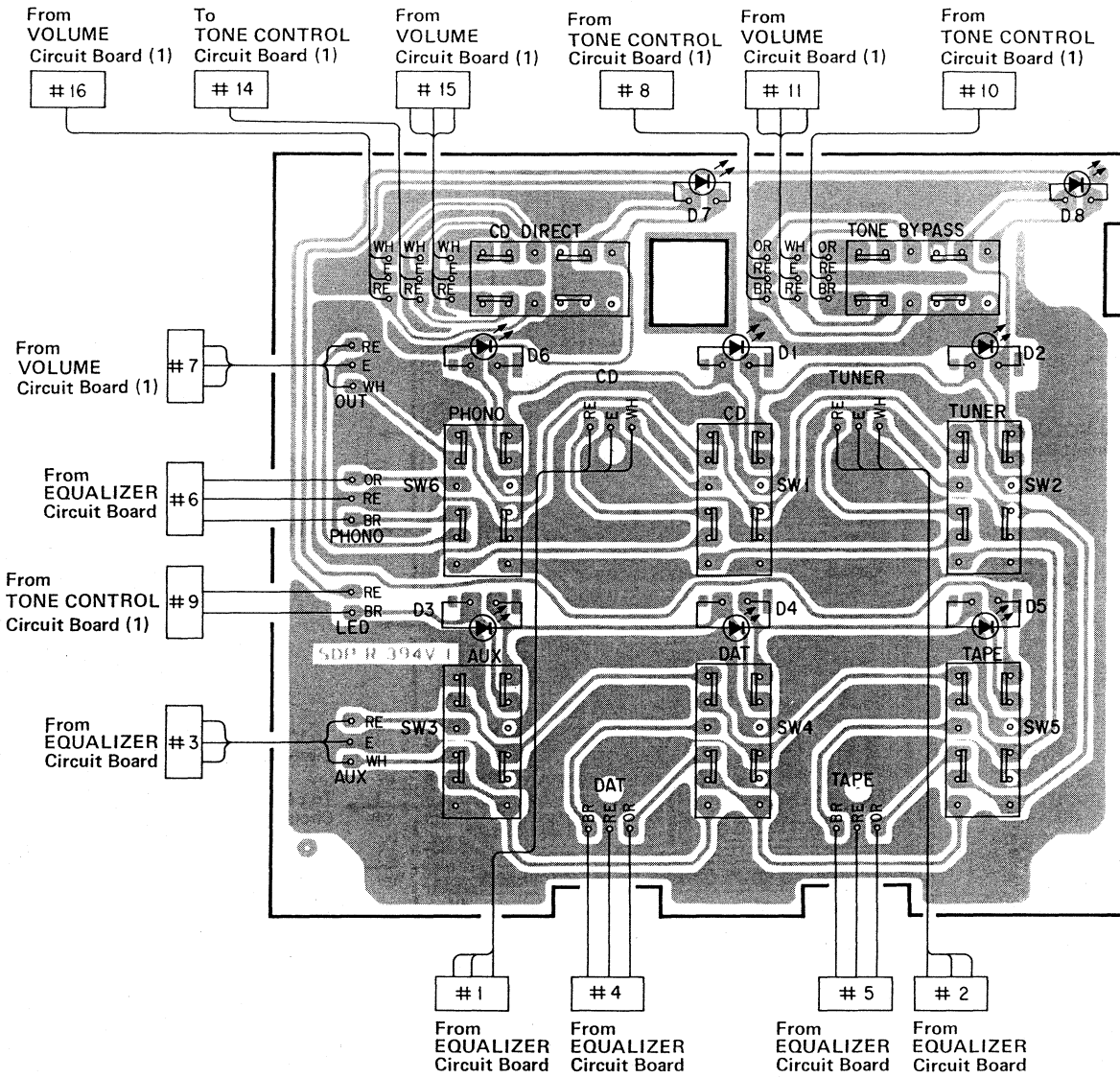
7



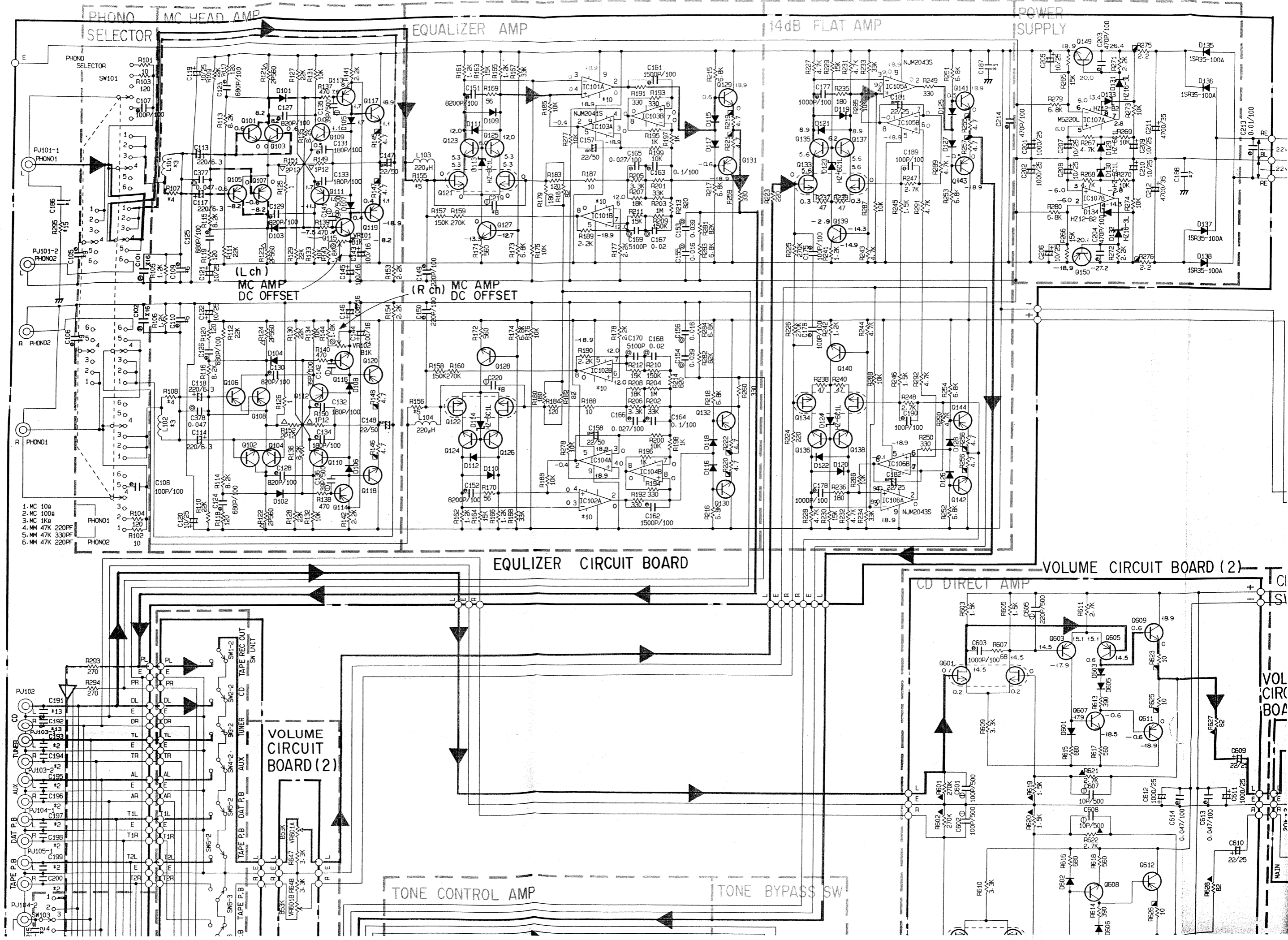
CX-70

PRINTED CIRCUIT BOARD (Pattern Side) (Note) 文字面 : Component Side

SWITCH UNIT



SCHEMATIC DIAGRAM

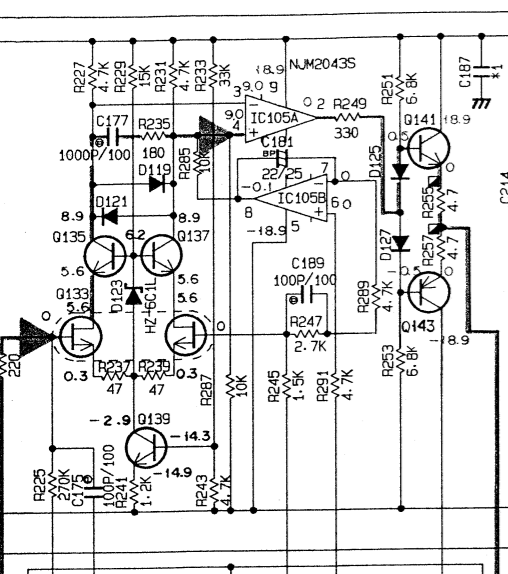


- 1. MC 10 μ
- 2. MC 100 μ
- 3. MC 1K
- 4. MM 47K 220PF
- 5. MM 47K 330PF
- 6. MM 47K 220PF

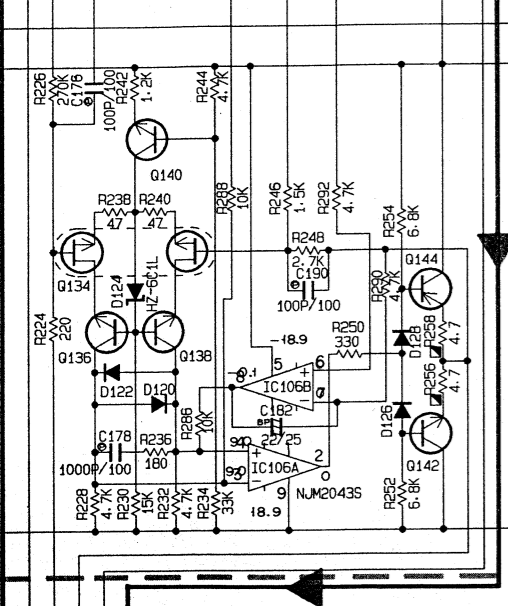
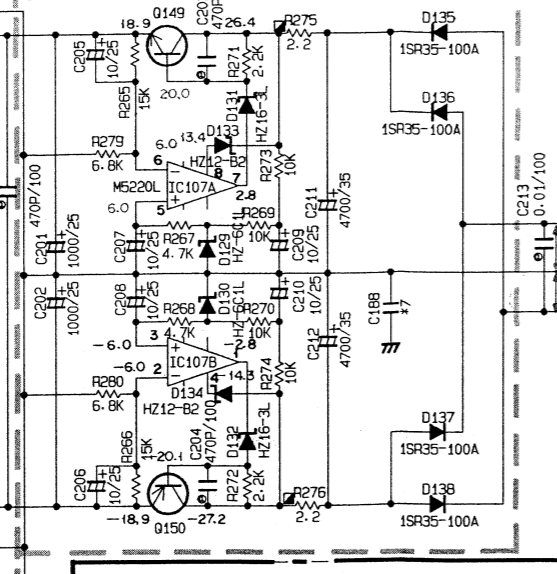
1
2
3
4
5
6

PHONO SELECTOR
PHONO MC HEAD AMP
EQUALIZER AMP
14dB FLAT AMP
POWER SUPPLY
SELECTOR
MC AMP DC OFFSET (L ch)
MC AMP DC OFFSET (R ch)
EQULZER CIRCUIT BOARD
VOLUME CIRCUIT BOARD (2)
CD DIRECT AMP
TONE CONTROL AMP
TONE BYPASS SW
VOL CIR BOA

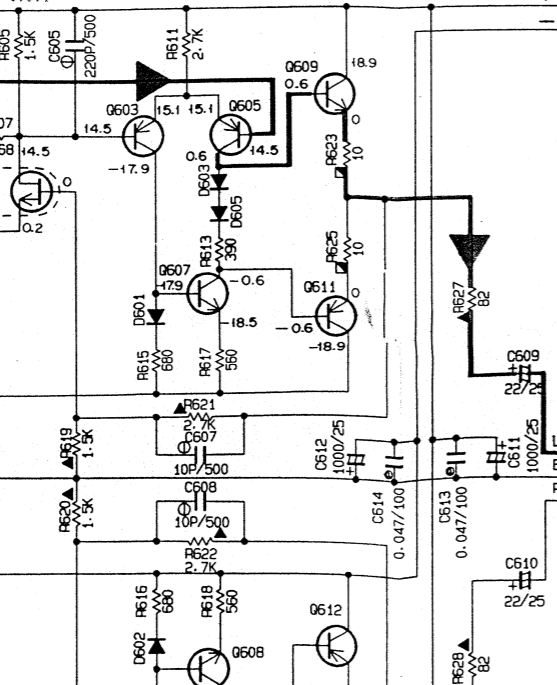
4dB FLAT AMP



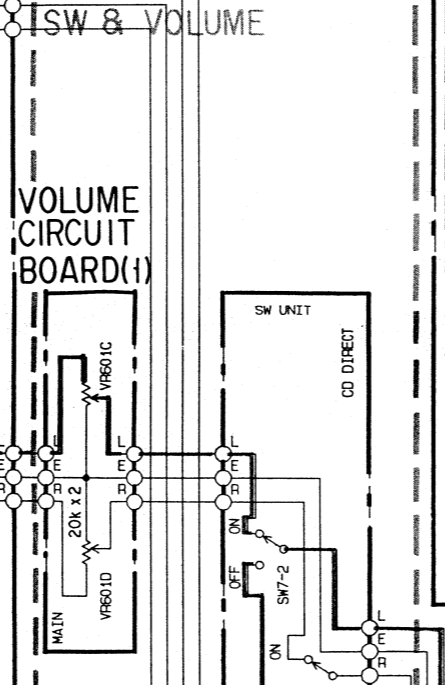
POWER SUPPLY



VOLUME CIRCUIT BOARD (2)



CD DIRECT SW & VOLUME

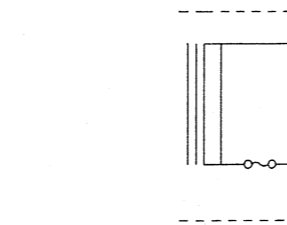


BYPASS SW

TO POWER TRANSFORMER

TO POWER TRANSFORMER

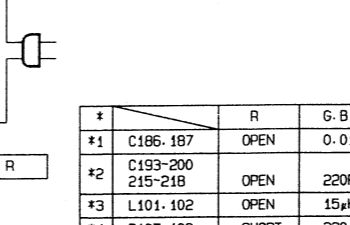
TONE CONTROL BOARD (5)



TONE CONTROL CIRCUIT BOARD(5)



TONE CONTROL CIRCUIT BOARD(6)

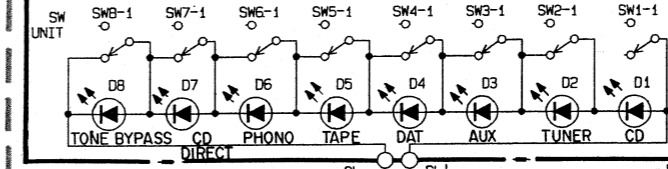


#	R	G.B
*1	C186-187	OPEN 0.01
*2	C193-200 215-218	OPEN 220P
*3	L101-102	OPEN 15µH
*4	R107-108	SHORT 220
*5	R155-156	220 1.5K
*6	C109-110	0.01/100 OPEN
*7	C188	OPEN 0.01/500
*8	C219-220	OPEN 82P/500
*9	C105-106	OPEN 2200P/100
*10	IC101-102	NUM2041S M5219L
*11	C350	OPEN 0.01/500
*12	C349-376	OPEN 0.01
*13	C191-192	OPEN 220P/100
*14	PJ301	LB40129 LB40131
*15	R295	OPEN 4.7
*16	C101-102	OPEN 0.018/100

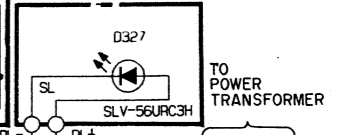
→ PB SIGNAL

- - - REC OUT SIGNAL

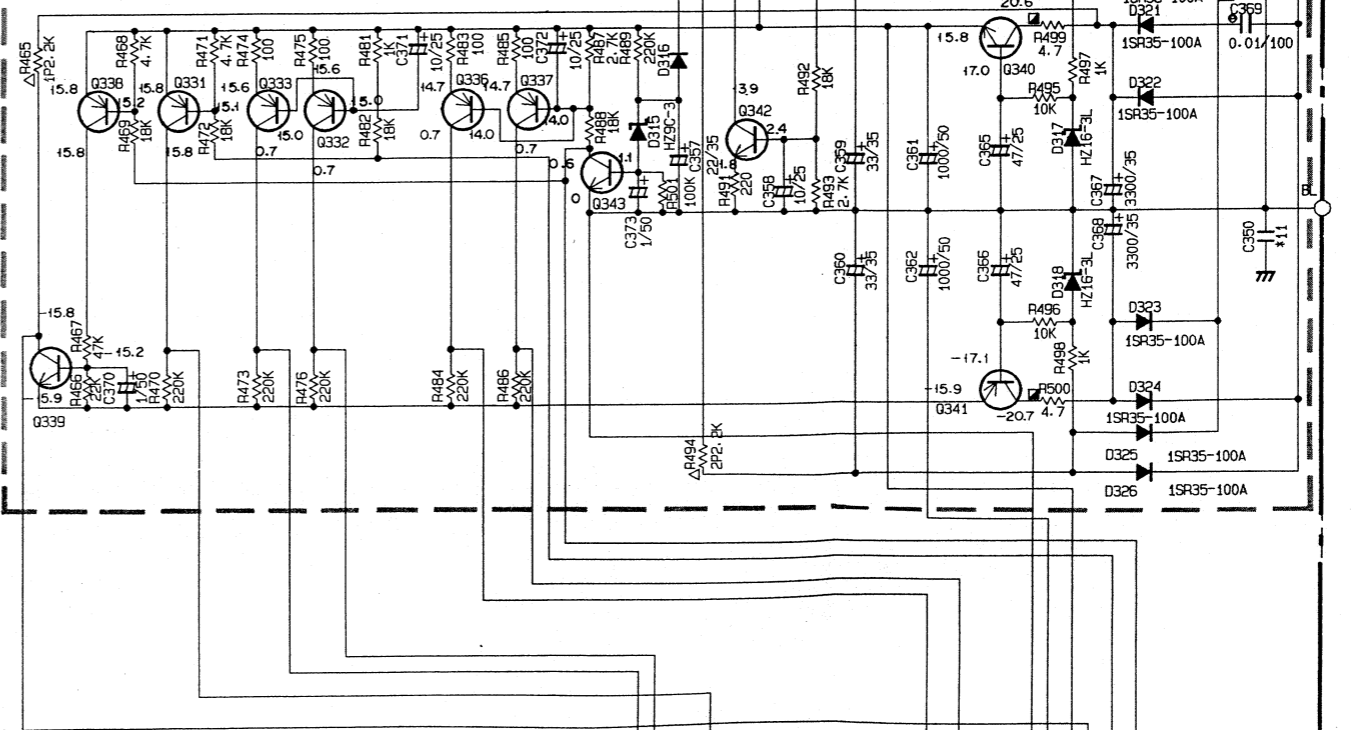
INPUT SELECTOR



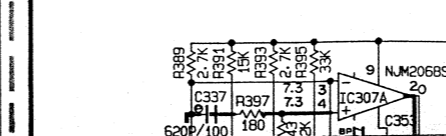
TONE CONTROL CIRCUIT BOARD (4)



MUTING & POWER SUPPLY



6dB FLAT AMP



TONE CONTROL

Q311-312	2SB560 or 2SA935
Q309-310	2SD438 or 2SC2061
Q331-333, 336-338	2SA1015Y
Q341	2SB786 or 2SB937
Q343	2SC982
Q303-308, 339-342	2SC1815Y
Q313-316, 325-330	2SC2878(A, B) or 2SC3327
Q340	2SD947 or 2SD1260
Q301-302	2SK389(BL, V)

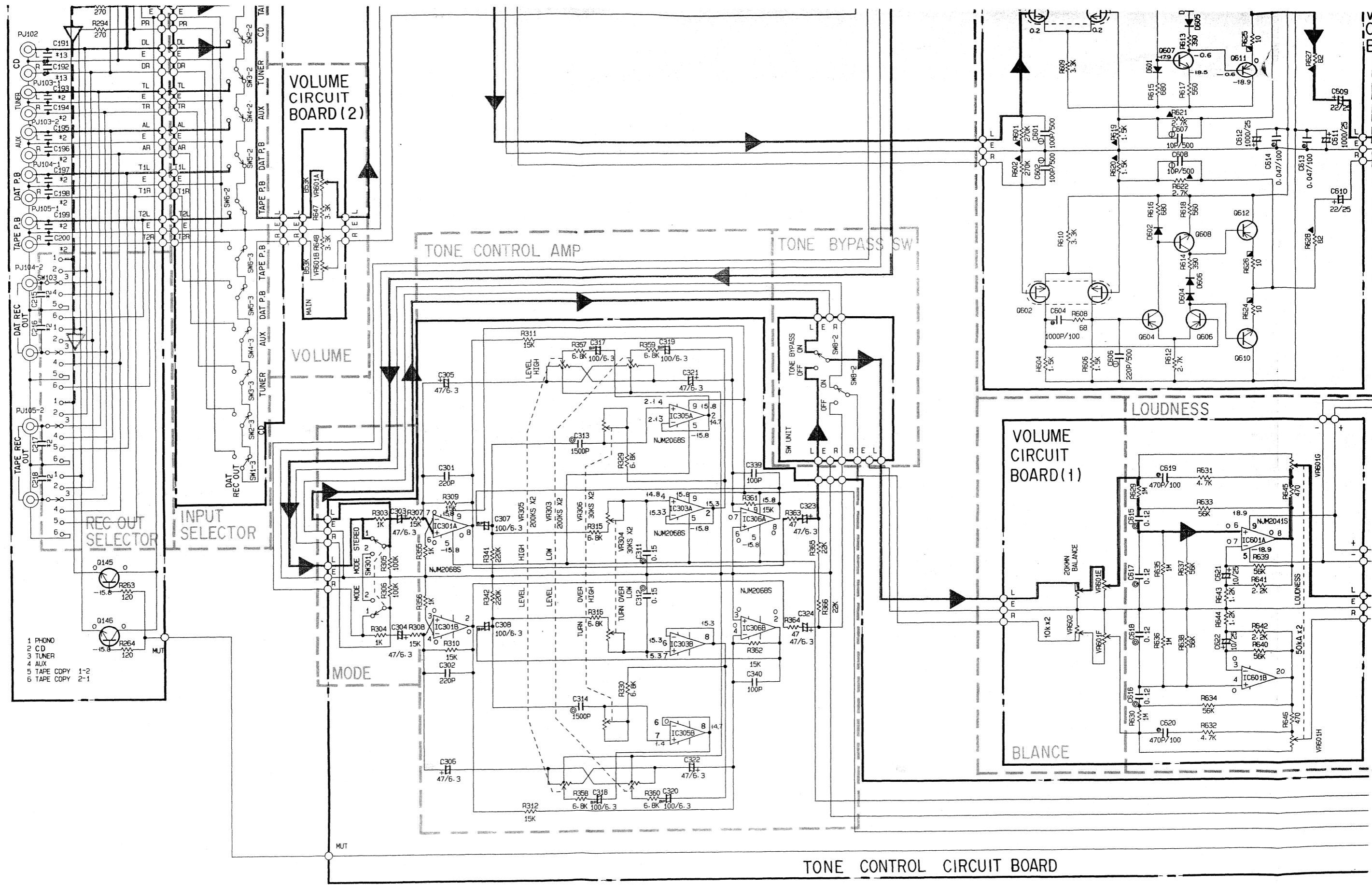
VOLUME

Q603-606	2SA1015(Y)
Q611-612	2SB560(E, F)
Q607-608	2SC1815(Y)
Q609-610	2SD438(D, E, F, G)
Q601-602	2SK389(BL, V)

EQUALIZER

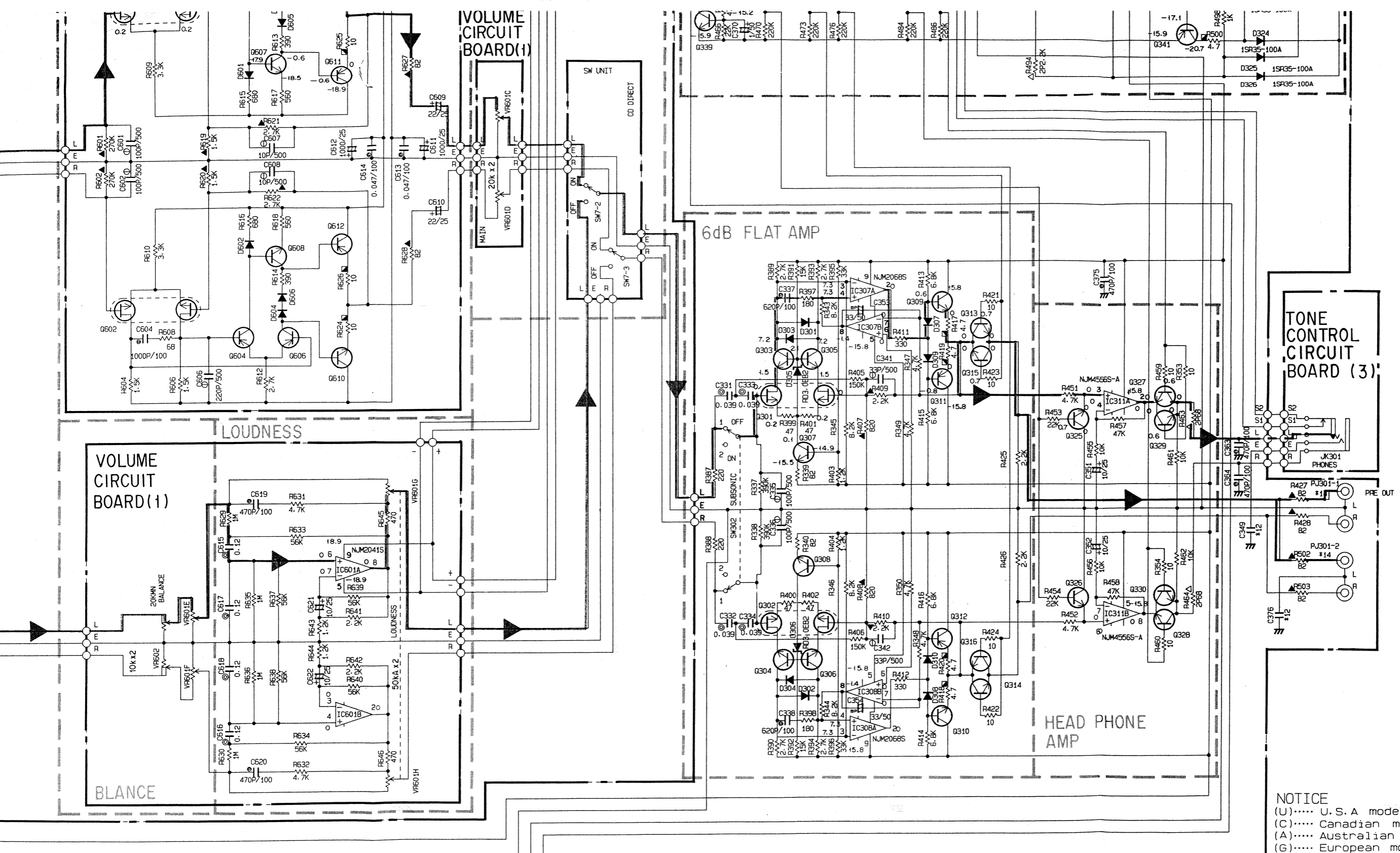
Q111-114	2SA1015(Y)
Q150	2SB949 or 2SB750
Q109, 110, 115, 116	
Q123-128, 135-140	2SC1815(Y)
Q145, 146	2SC2878(A, B) or 2SC3327
Q149	2SD836 or 2SD837 or 2SD1275
Q121, 122	2SK146(GR, BL, V)
Q133, 134	2SK389(BL, V)
Q119, 120, 131, 132	
Q143, 144	2SB560 or 2SA935
Q117, 118, 129, 130	
Q141, 142	2SD438 or 2SC2061
Q105-108	2SB737(Q, R, S)
Q101-104	2SD786(Q, R, S)

5
6
7
8
9
10



2SA935	2SD438	2SB786	2SB750	2SK146 (GR.BL.V)	2SK389 (BL.V)	1S1555	HZ16-3L	SLV-56URC3H	NJM2041S	M5219L
2SA1015 (Y)	2SD786 (Q.R.S)	2SB937	2SB949			1S2473	RD3.0EB2		NJM2043S	
2SB560		2SD947	2SD836			1SR35-100A			NJM2068S	
2SB737 (Q.R.S)		2SD1260	2SD837			HZ6C1L			NJM4556S-A	
2SC982			2SD1275			HZ9C-3				
2SC1815 (Y)						HZ12B2				
2SC2061										
2SC2878 (A, B)										
2SC3327										

UNLESS SHOWN OTHERWISE
PNP TRANSISTOR
NPN TRANSISTOR
DIODE



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

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/6W)
□	CARBON FILM RESISTOR
△	METAL OXIDE FILM RESISTOR
▲	METEL FILM RESISTOR
▣	METEL PLATE RESISTOR
⊠	FIRE PROOF CARBON FILM RESISTOR
□	SEMENT MOLDED RESISTOR
⊙	SEMI VARIABLE RESISTOR

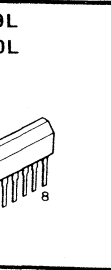
CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊙	POLYESTEL FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
⊖	MICA CAPACITOR
⊕	POLYPROPYLENE FILM CAPACITOR
⊗	SEMICONDUCTIVE CERAMIC CAPACITOR

Unless otherwise specified

PNP TRANSISTOR	
NPN TRANSISTOR	1S2473 or 1S1555
DIODE	


CIRCUIT BOARD



PARTS LIST

ELECTRICAL PARTS

■ WARNING

- Components having special characteristics are marked  and must be replaced with parts having specifications equal to those originally installed.
- Carbon resistors 1/6 W are not included in the ELECTRICAL PARTS list. For the parts No. of the carbon resistor, refer to the last Page.

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	NA:09:80:80	Equalizer Circuit Board Ass'y	イコライザシート			R	
※	NA:09:80:90	//	//			B,G	
	FH:23:41:00	Ceramic Cap.	セラコン	CI88		B,G	
	FG:21:22:20	//	//	CI93~200,215~218		B,G	
	FG:24:41:00	//	//	CI86,187		B,G	
	FU:35:13:90	FE Mica Cap.	F E マイカコン	CI35,136,141,142			
	FU:35:18:20	//	//	C219,220		B,G	
	UJ:14:91:00	Electrolytic Cap.	ケミコン	C201,202			
※	VE:80:24:00	//	ブロックケミコン	C211,212			
	FA:15:35:10	Mylar Cap.	マイラーコン	CI69,170			
	FA:15:41:60	//	//	CI55,156			
	FA:15:42:00	//	//	CI67,168			
	FA:15:43:90	//	//	CI53,154			
	FZ:00:55:80	//	ドゥリードマイラー	C377,378			
	UJ:13:81:00	Electrolytic Cap.	ケミコン	CI43~146			
	UJ:24:71:00	//	//	CI19~122,205~210			
	UJ:11:82:20	//	//	CI13,114,117,118			
	UK:14:72:20	//	B P コ ン	CI81,182			
※	VE:80:26:00	//	//	CI47,148,157,158			
	UT:46:42:70	Polypropylene Film Cap.	ポリプロコン	CI65,166			
	UT:46:51:00	//	//	CI63,164			
	UT:45:21:00	//	//	CI07,108,189,190			
	UT:45:21:80	//	//	CI31~134			
	UT:45:22:20	//	//	CI49,150,175,176			
	UT:45:22:20	//	//	CI91,192		B,G	
	UT:45:24:70	//	//	C203,204,214			
	UT:45:26:80	//	//	CI23~126			
	UT:45:28:20	//	//	CI27~130			
	UT:45:31:00	//	//	CI77,178			
	UT:45:31:50	//	//	CI61,162			
	UT:45:32:20	//	//	CI05,106		B,G	
	UT:65:38:20	//	//	CI51,152			
	UT:45:41:00	//	//	C213			
	UT:45:41:00	//	//	CI09,110		R	
	UT:65:41:80	//	//	CI01,102		B,G	
	GE:90:03:30	Coil	チョークコイル	LI03,104			
	GE:90:08:40	//	コイル	LI01,102		B,G	
	HV:45:31:00	Carbon Film Resistor	カーボン抵抗	R125,126			
	HV:45:32:20	Flame Proof Carbon Resistor	不燃化カーボン抵抗	R275,276			
	HV:45:34:70	//	//	R145~148,219~222,255~258			
	VF:21:37:00	Metal Film Resistor	金属被膜抵抗	R149~152			
	VF:21:35:00	//	//	R121~124			
	HT:41:00:20	Pre-set Potentiometer	半固定抵抗	VR101,102			
	iA:10:15:21	Transistor	トランジスタ	Q111~114			
	iB:09:49:10	//	//	Q150	} Inter-changeable		
	iB:07:50:00	//	//	2SB750			
	iC:18:15:20	//	//	2SC1815(Y)	Q109,110,115,116,123~128,135~140		
	iC:28:78:20	//	//	2SC2878(A,B)	} Inter-changeable		
	iC:33:27:00	//	//	2SC3327			

※ New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名		Remarks	Common Model	Markets	ランク
	iD : 12 : 75 : 10	Transistor	2SD1275	ト ラ ン ジ ス タ	Q149			
	iE : 10 : 22 : 40	FET	2SK146(GR,BL,V)	F E T	Q121,122			
	iE : 10 : 45 : 10	Dual FET	2SK389(BL,V)	デュアル F E T	Q133,134			
	iF : 00 : 06 : 70	Diode	1S2473	ダ イ オ ー ド	D101~112,115~122 125~128 } Inter-changeable			
	iF : 00 : 00 : 40	//	1S1555	//		//		
	iH : 00 : 14 : 30	//	1SR35-100A	//	D135~138			
	iF : 00 : 35 : 30	Zener Diode	HZ6C1L	ツェナーダイオード	D113,114,123,124,129,130			
	iF : 00 : 35 : 40	//	HZ16-3L	//	D131,132			
	iF : 00 : 35 : 50	//	HZ12B2	//	D133,134			
	iG : 07 : 69 : 00	IC	NJM2041S	I C	IC101,102		R	
	iG : 09 : 21 : 00	//	M5219L	//	//		B,G	
	iG : 07 : 69 : 00	//	NJM2041S	//	IC103,104			
	iG : 09 : 20 : 00	//	M5220L	//	IC107			
	iG : 08 : 02 : 00	//	NJM2043S	//	IC105,106			
	iX : 60 : 32 : 80	Pair Transistor	2SA935	ペアトランジスタ	Q119,120,131 132,143,144 } Pair			
	iX : 60 : 32 : 90	//	2SC2061	//		Q117,118,129 130,141,142 } Pair		
	iB : 07 : 37 : 00	//	2SB737(Q,R,S)	//	Q105~108			
	iD : 07 : 86 : 00	//	2SD786(Q,R,S)	//	Q101~104			
	KA : 90 : 69 : 10	Remote Rotary Switch	4-6 NS	リモートロータリースイッチ	SW103			
	KA : 90 : 69 : 20	//	8-6 NS	//	SW101			
	LB : 20 : 25 : 60	Pin Jack	2P	ピンジャック	PJ102			
	LB : 40 : 12 : 90	//	4P	//	PJ104,105			
	LB : 40 : 13 : 00	//	4P	//	PJ101			
	LB : 40 : 13 : 10	//	4P	//	PJ103			
	LA : 00 : 21 : 20	Wrapping Terminal i-Type	P=5	3P ラッピング端子板 i 型				
	LB : 91 : 80 : 30	Base Pin i-Type		3P X H ベースピン i 型				
	LB : 91 : 80 : 40	//		4P //				
	LB : 92 : 10 : 30	Connector Plug		3P LPコネクタープラグ				
	LA : 00 : 21 : 10	Wrapping Terminal i-Type	P=5	2P ラッピング端子板 i 型				
	BB : 07 : 04 : 10	Bus Ber	# 7041 I=55	バ ス バ ー				
	BB : 07 : 04 : 20	//	# 7042 I=100	//				
	BA : 09 : 29 : 70	Heat Shink		放 熱 器				
	ED : 33 : 00 : 66	Binding Head Screw	3×6 FCRM3-BI	バイ ン ド 小 ネ ジ	PACK			
※	NA : 09 : 81 : 00	Tone Control Circuit Board		トーンコントロールシート			R	
※	NA : 09 : 81 : 10	//		//			B,G	
	FH : 23 : 41 : 00	Ceramic Cap.	0.01μF 500V	セ ラ コ ン	C350		B,G	
	Fi : 41 : 41 : 00	//	0.01μF VA-1	//	C374			
	FG : 21 : 21 : 00	//	100pF 50V	//	C339,340			
	FG : 21 : 22 : 20	//	220pF 50V	//	C301,302			
	FG : 24 : 41 : 00	//	0.01μF 50V	//	C349,376		B,G	

※ New Parts (新規部品)

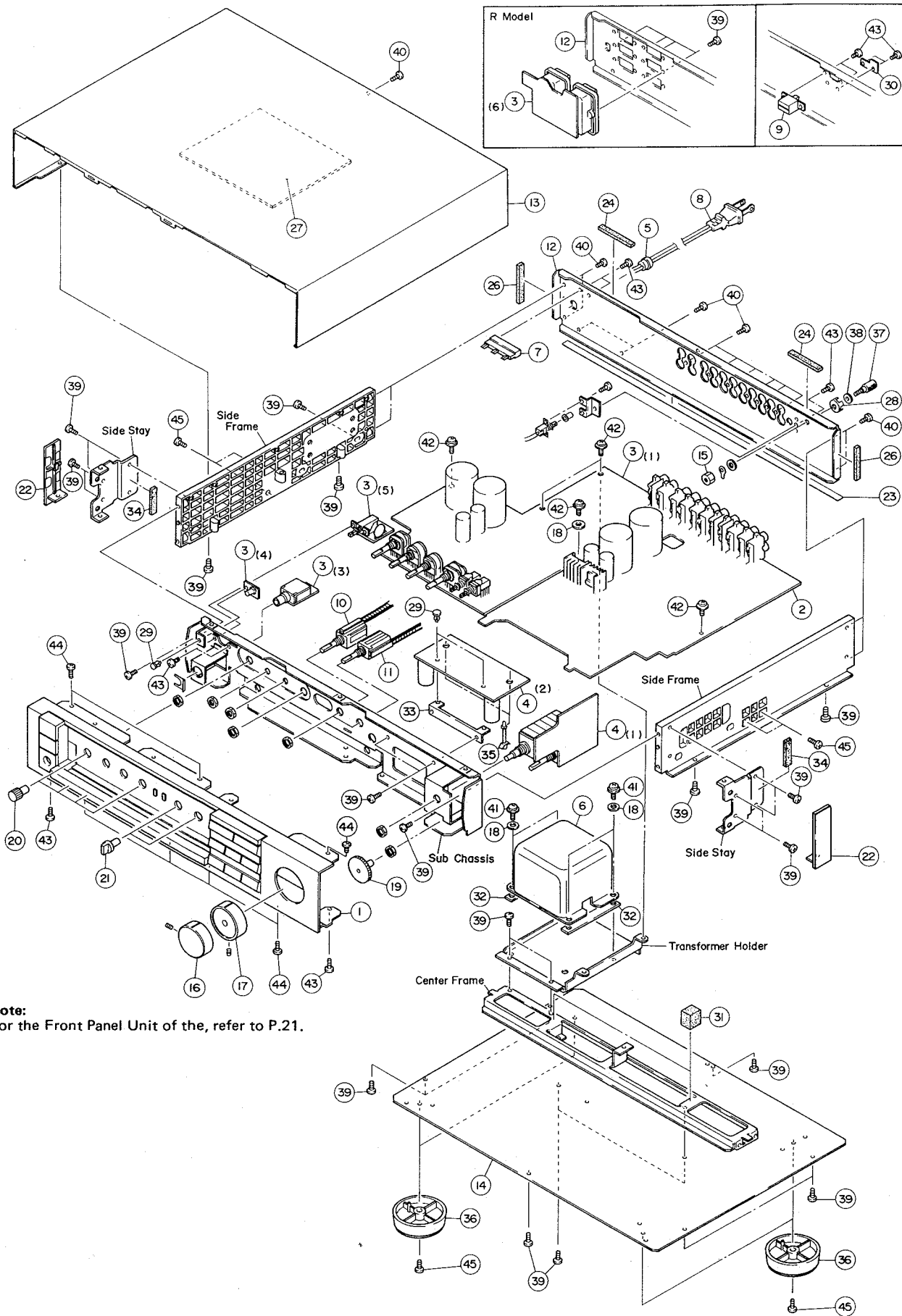
Ref. No.	Part No.	Description	部 品 名		Remarks	Common Model	Markets	ランク
※	UJ 16 91 00	Electrolytic Cap.	1000 μ F	50V	ケ ミ コ ン	C361,362		
		//	3300 μ F	35V	ブ ロ ッ ク ケ ミ コ ン	C367,368		
	FA 15 31 50	Mylar Cap.	1500pF	50V	マ イ ラ ー コ ン	C313,314		
	FA 15 43 90	//	0.039 μ F	50V	//	C331~334		
	FA 15 51 50	//	0.15 μ F	50V	//	C311,312		
※	UJ 11 74 70	Electrolytic Cap.	4 μ F	6.3V	ケ ミ コ ン	C303~306,321~324		
	UJ 24 71 00	//	10 μ F	25V	//	C351,352,358,371,372		
	UJ 14 74 70	//	47 μ F	25V	//	C365,366		
	UH 05 72 20	//	22 μ F	35V	//	C357		
	UJ 15 73 30	//	33 μ F	35V	//	C359,360		
	UJ 16 61 00	//	1 μ F	50V	//	C370,373		
	UK 11 81 00	//	100 μ F	6.3V	B P コ ン	C307,308,317~320		
	VE 80 27 00	//	33 μ F	50V	//	C353,354		
	UT 45 24 70	Polypropylene Film Cap.	470pF	100V	ポ リ プ ロ コ ン	C364,375,363		
	UT 45 26 80	//	680pF	100V	//	C337,338		
	UT 45 41 00	//	0.01 μ F	100V	//	C369		
	FU 35 13 30	FE Mica Cap.	33pF	500V	F E マ イ カ コ ン	C341,342		
	FU 35 21 00	//	100pF	500V	//	C335,336		
	HL 32 46 80	Metal Oxide Film Resistor	68 Ω	2W	酸 金 抵 抗	R463,464		
HL 32 62 20	//	2.2k Ω	2W	//	R494			
HL 31 62 20	//	2.2k Ω	1W	//	R465			
※	HS 41 22 10	Potentiometer	30k Ω ×2		可 変 抵 抗 器	VR304,306		
	VE 91 83 00	//	200k Ω ×2		//	VR303,305		
	HU 59 58 20	Metal Film Resistor	820 Ω		金 属 被 膜 抵 抗	R407,408		
	HU 57 62 20	//	2.2k Ω		//	R409,410		
	HU 57 48 20	//	82 Ω		//	R427,428,502,503		
	HV 45 34 70	Flame Proof Resistor	4.7 Ω	1/4W	不 燃 化 カ ー ボ ン 抵 抗	R417~420,499,500		
※	iA 10 15 21	Transistor	2SA1015(Y)		ト ラ ン ジ ス タ	Q331~333,336~338		
	iB 07 86 00	//	2SB786		//	Q341 } Inter-		
	iB 09 37 00	//	2SB937		//	// } changeable		
	iC 09 82 00	//	2SC982		//	Q343		
	iC 18 15 20	//	2SC1815(Y)		//	Q303~308,339,342		
	iC 28 78 20	//	2SC2878(A,B)		//	Q313~316 } Inter-		
	iC 33 27 00	//	2SC3327		//	325~330 } changeable		
	iD 09 47 00	//	2SD947		//	Q340 } Inter-		
	iD 12 60 00	//	2SD1260		//	// } changeable		
	iE 10 45 10	Dual FET	2SK389(BL,V)		デュアル F E T	Q301,302		
	iF 00 07 10	Diode	1S2473		ダ イ オ ー ド	D301~304 } Inter-		
	iF 00 00 40	//	1S1555		//	307~310,316 } changeable		
iF 00 35 40	Zener Diode	HZ16-3L		ツェナーダイオード	D317,318			
iF 00 36 10	//	RD3.0EB2		//	D305,306			
iF 00 33 20	//	HZ9C-3		//	D315			
iF 00 44 40	LED (Red)	SLV-56URC3H		L E D (アカ)	D327			
XA 95 60 01	IC	NJM2068S		I C	IC301,303,305~308			
iG 07 74 10	//	NJM4556S-A		//	IC311			
iF 00 84 80	Diode	1SR35-100A		ダ イ オ ー ド	D319~326			

※New Parts (新規部品)

Ref. No.	Part No.	Description	部品名		Remarks	Common Model	Markets	ランク
iX	60:32:80	Pair Transistor	2SA935	ペアトランジスタ	Q311,312	Pair		
iX	60:32:90	//	2SC2061	//	Q309,310			
KA	80:32:90	Power Switch	SDLCP002	パワースイッチ	SW303			
KA	80:44:80	Push Switch		プッシュスイッチ	SW301,302			
LB	40:12:90	Pin Jack	4P	ピンジャック	PJ301		R	
LB	40:13:10	//	4P	//	//		B,G	
VA	98:44:00	Phone Jack		ホーンジャック	JK301			
LA	00:24:00	Wrapping Terminal	P=7.5 3P L-Type	ラッピング端子板L型			R	
LA	00:23:20	//	P=7.5 3P i-Type	ラッピング端子板I型				
LB	60:71:90	AC Outlet		AC アウトレット			R	
LB	92:10:20	Connector Plug	2P i-Type	コネクタプラグI型				
LB	92:10:30	//	3P i-Type	//				
BB	07:04:10	Bus Bar	# 7041 l=55	バスバー				
BB	07:04:20	//	# 7042 l=100	//				
CB	64:46:70	Cover. Cap.		コンデンサーカバー			B,G	
※	NA:09:66:90	Volume Circuit Board		ボリュームシート				
FU	35:11:00	FE Mica Cap.	10pF 500V	FE マイカコン	C607,608			
FU	35:21:00	//	100pF 500V	//	C601,602			
FU	35:22:20	//	220pF 500V	//	C605,606			
FZ	00:64:10	Electrolytic Cap.	22μF 25V	ブラックゲートコン	C609,610			
FZ	00:74:10	//	1000μF 25V	//	C611,612			
FA	15:51:20	Mylar Cap.	0.12μF 50V	マイラーコン	C615~618			
※	UJ:14:71:00	Electrolytic Cap.	10μF 25V	ケミコン	C621,622			
※	UT:45:24:70	Polypropylene Film Cap.	470pF 100V	ポリプロコン	C619,620			
※	UT:	//	1000pF 100V	//	C603,604			
※	UT:	//	0.047μF 100V	//	C613,614			
HU	57:48:20	Metal Film Resistor	82Ω 1/4W	金属被膜抵抗	R627,628			
HU	57:61:50	//	1.5kΩ 1/4W	//	R619,620			
※	HU:59:62:70	//	2.7kΩ 1/4W	//	R621,622			
HU	57:82:70	//	270kΩ 1/4W	//	R601,602			
HV	45:41:00	Flame Proof Carbon Resistor	10Ω 1/4W	不燃化カーボン抵抗	R623~626			
HS	41:22:50	Potentiometer	20KMN	可変抵抗器	VR602			
※	VE:35:96:00	//		//	VR601			
iB	05:60:00	Pair Transistor	2SB560(E,F)	ペアトランジスタ	Q611,612	Pair		
iD	04:38:00	//	2SD438(D,E,F,G)	//	Q609,610			
iA	10:15:21	Transistor	2SA1015(Y)	トランジスタ	Q603~606			
iC	18:15:20	//	2SC1815(Y)	//	Q607~608			
iE	10:45:10	//	2SK389(BL,V)	デュアルFET	Q601,602			
iF	00:07:10	Diode	1S2473	ダイオード	D601~606	Inter-changeable		
iF	00:00:40	//	1S1555	//	//			
iG	07:69:00	IC	NJM2041S	I C	IC601			

※ New Parts (新規部品)

CX-70 EXPLODED VIEW

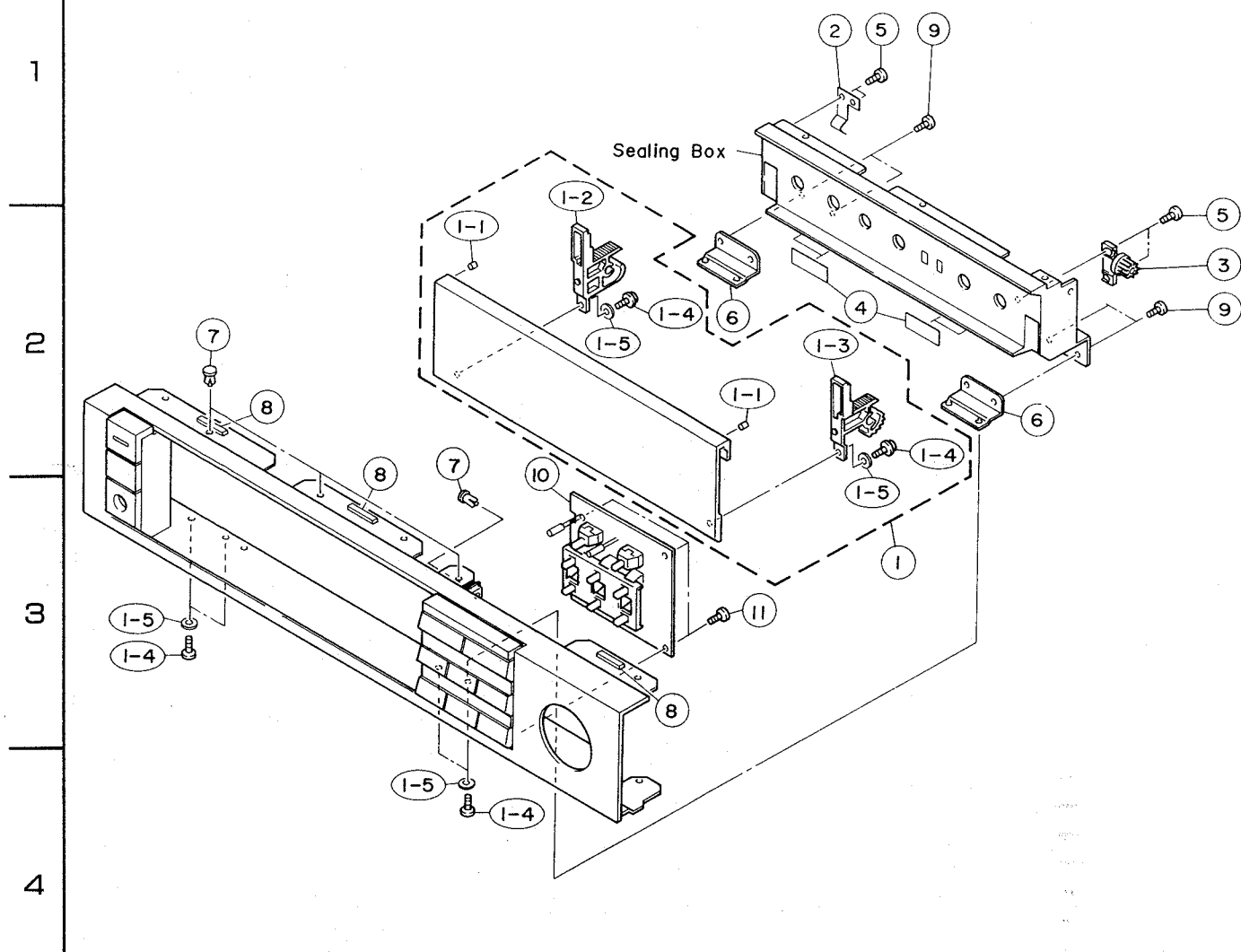


Note:
For the Front Panel Unit of the, refer to P.21.

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	1	VF 01 75 00	Panel Unit				
※	2	NA 09 80 80	Equalizer Circuit Board			R	
※	//	NA 09 80 90	//			B,G	
※	3	NA 09 81 00	Tone Control Circuit Board			R	
※	//	NA 09 81 10	//			B,G	
※	4	NA 09 66 90	Volume Circuit Board				
	5	CB 62 01 90	Cord Stopper	CM-22B			
	6	GA 67 54 00	Power Transformer			C-80	R
	//	GA 67 88 00	//			C-80	B,G
	7	LA 00 10 00	Terminal Lug	CV-3P 94V-0			B,G
	8	MG 00 16 30	Power Cord	6A 250V 2m			R
	//	MG 00 23 20	//	2.5A 250V 2m			G
	//	MG 00 23 30	//	2.5A 300/300V 2m			B
	9	KA 40 12 60	Slide Switch	SS-12 5A/40A			R
	10	KA 90 68 70	Remote Rotary Actuator				
	11	KA 90 68 80	//				
※	12	VE 89 23 00	Rear Panel				R
※	//	VE 89 24 00	//				B,G
	13	AA 62 18 00	Top Cover				
	14	AA 62 18 10	Bottom Cover				
	15	AA 09 57 20	Bonding Nut				
	16	BA 08 98 40	Knob				
	17	BA 08 98 50	//				
	18	CB 62 30 40	Isolation Bush				C-65
	19	CB 62 99 30	Knob				C-80
	20	CB 62 08 20	//				A-950
	21	CB 62 08 40	//				A-950
	22	CB 60 76 90	Side Plate				C-70
	23	CB 62 33 60	Isolation Spacer				
※	24	VF 58 83 00	Damper	5×25×2			
※	26	VF 58 84 00	//	10×25×3			
	27	CB 61 84 40	//				K-2000
	28	CB 07 81 70	Saucer				
	29	CB 06 88 80	Plastic Rivet				
	30	CB 60 14 40	Stopper, Voltage Selector				A-760
	31	CB 63 29 60	Damper				C-80
	32	CA 07 59 40	Spacer, Transformer				C-80
※	33	VE 89 25 00	Support				
	34	CA 08 52 70	Spacer				C-80
	35	VD 83 70 00	Support, PCB				KX-W900
	36	NB 62 01 40	Leg Ass'y				C-80
	37	NB 08 14 80	Terminal Unit				
	38	EV 90 13 60	Sems Plain Washer	φ3.6, φ10, t=0.8 FNM3-3g			
	39	Ei 33 00 86	Binding Head Tapping Screw	3×8 FCRM3-BI			PACK
	40	EN 30 10 10	Binding Head Bonding Tapping Screw	3×8 FCRM3-BI			
	41	EX 60 08 50	Cup Screw	4×10 FCRM3-BI			Bタイト
	42	EK 33 60 10	BW Head Tapping Screw	3×8φ10 FCRM3-BI			BWヘッドタッピング2種ミゾ
	43	ED 33 00 66	Binding Head Screw	3×6 FCRM3-BI			PACK
	44	EX 60 09 50	Cup Screw	3×6 FCRM3-BI			Bタイト
	45	EK 33 60 10	BW Head Tapping Screw	3×8φ8 FCRM3-BI			BWヘッドタッピングネジ
		CB 06 92 50	Binding Tie	BK-1			

※New Parts (新規部品)

EXPLODED VIEW (FRONT PANEL UNIT)



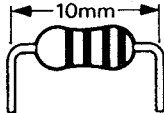
Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets	ランク
※	VF 01 75 00	Panel Unit	パネルユニット				
1	VF 01 76 00	Sealing Panel Unit	シーリングパネルユニット				
1-1	CB 63 97 50	Rubber, Damper	ダンパーゴム		C-80		
1-2	CB 62 99 80	Hinge (L)	ヒンジ (L)		C-80		
1-3	CB 62 99 90	// (R)	// (R)		C-80		
1-4	ED 33 00 66	Binding Head Screw	3×6 FCRM3-BI	バインド小ネジ	PACK		
1-5	EV 20 30 36	Plain Washer	φ3 FCRM3-BI	平座金	PACK		
2	BB 07 06 50	Spring, Hinge Hold		ヒンジ押えバネ		C-80	
3	CB 63 00 30	Damper		グリスダンパー		C-80	
4	CB 62 34 40	//		パネルダンパー		A-950	
5	Ei 33 01 06	Binding Head Tapping Screw	3×10 ZMC2-BI	バインドタッピングネジ	PACK		
6	AA 62 18 20	Support Angle		サポート金具		C-80	
7	CB 06 88 80	Plastic Rivet		プラスチックリベット			
※	8	VE 58 85 00	Damper	5×25×4	ダンパー		
9	Ei 33 00 66	Binding Head Tapping Screw	3×6 FCRM3-BI	バインドタッピングネジ	PACK		
※	10	VE 55 81 00	Switch Unit	T-119723	スイッチユニット		
11	ED 02 60 46	Binding Head Screw	2.6×4 ZMCZ-Y	バインド小ネジ	PACK		

※New Parts (新規部品)

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			

1/4W Type
HJ35○○○○
←10mm→



1/6W Type
HF85○○○○
←5mm→

