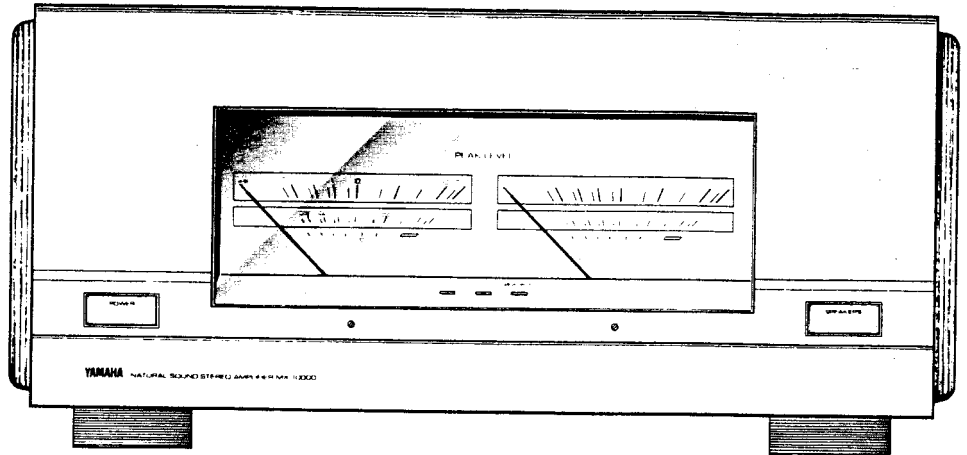


# STEREO POWER AMPLIFIER MX-10000

## SERVICE MANUAL

EUROPEAN VERSION



### 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 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 parts replacement. Recheck all work before you apply power to the unit.

### CONTENTS

TO SERVICE PERSONNEL .....	1	ADJUSTMENTS .....	5 ~ 6
SPECIFICATIONS .....	1	IC BLOCK DIAGRAM .....	7
INTERNAL VIEW .....	1	PRINTED CIRCUIT BOARD .....	8 ~ 12
REAR PANELS .....	2	WIRING .....	13
BLOCK DIAGRAM .....	3	SCHEMATIC DIAGRAM .....	14
DISASSEMBLY PROCEDURES .....	4	PARTS LIST .....	15 ~ 28

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SINCE 1887



# YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

1.82K-243 Printed in Japan '87.8

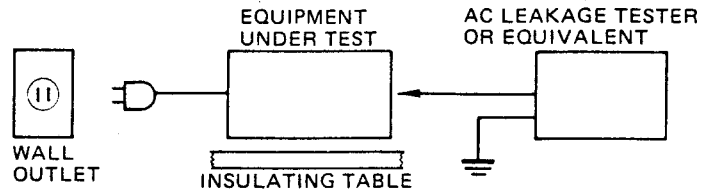
## TO SERVICE PERSONNEL

- Critical Components Information.**  
Components having special characteristics are marked  $\Delta$  and must be replaced with parts having specifications equal to those originally installed.
- 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 $\mu$ F.
  - Leakage current must not exceed 0.5mA.
  - Be sure to test for leakage with the AC plug in both polarities.

## SPECIFICATIONS

### AUDIO SECTION

<b>Minimum RMS Output Power Per Channel</b>	
20Hz ~ 20kHz	
0.001% THD 8 ohms	250W
0.001% THD 6 ohms	300W
0.002% THD 4 ohms	400W
<b>Dynamic Power Per Channel</b> (by IHF Dynamic Headroom measuring method)	
8 ohms	350W
.6 ohms	450W
4ohms	600W
2 ohms	900W
1 ohm	1200W
<b>Power Band Width</b>	
0.01% THD, 125W, 8 $\Omega$	10Hz ~ 100kHz
<b>Damping Factor</b>	
1kHz 8 ohms	1000
<b>Input Sensitivity/Impedance</b>	
MAIN IN	1.5V/25k $\Omega$
<b>Frequency Response</b>	
MAIN IN	+0, -2dB
2Hz ~ 300kHz	
<b>Total Harmonic Distortion</b>	
MAIN IN (125W/8 $\Omega$ )	0.0005%
<b>Signal to Noise Ratio (IHF-A-Network)</b>	
MAIN IN (Shorted)	132dB
<b>Channel Separation</b>	
MAIN IN (1kHz/20kHz)	100dB/90dB
Slew Rate	500V/ $\mu$ sec
<b>Power Supply</b>	
	AC 120V
	60Hz (U)
	AC220V
	50Hz (G)
<b>Power Consumption</b>	
AC Outlet Unswitched	600W
	100W (max) (U)



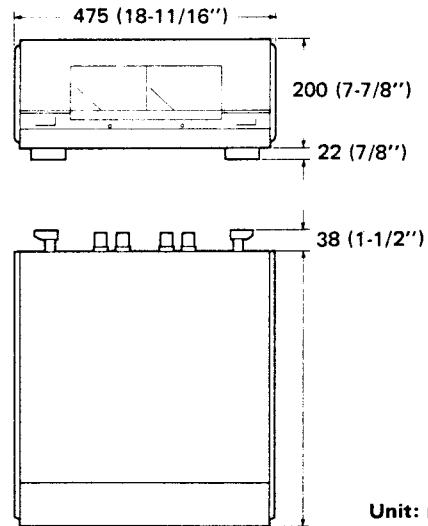
### POLARIZATION (U model only)

This amplifier product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature.

<b>Dimensions (W x H x D)</b>	475 x 220 x 543 mm (18-11/16")x(8-3/4")x(21-3/8")
<b>Weight</b>	43 kg (94 lbs 13 oz)
<b>Accessories</b>	Control Cable x 1 Slotted Screwdriver x 1 Polishing Cloth x 1

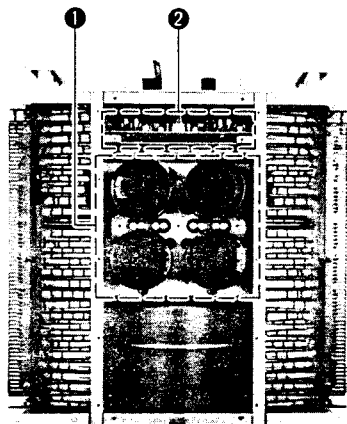
\*Specifications subject to change without notice.  
(U) ..... U.S.A. model  
(G) ..... European model

### DIMENSIONS

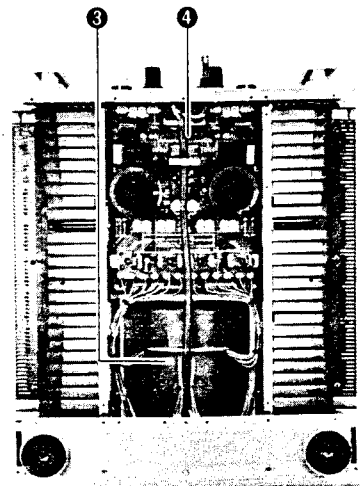


Unit: mm (inch)

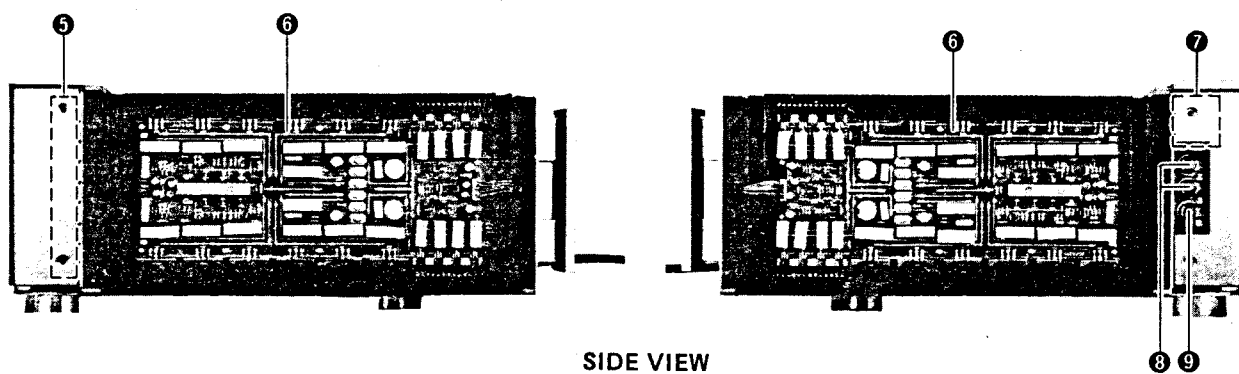
## INTERNAL VIEW



TOP VIEW



BOTTOM VIEW

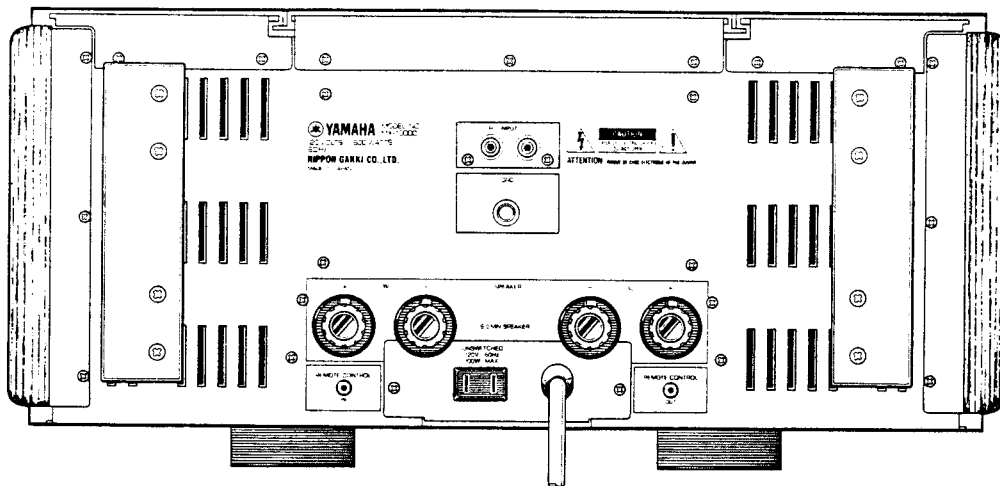


SIDE VIEW

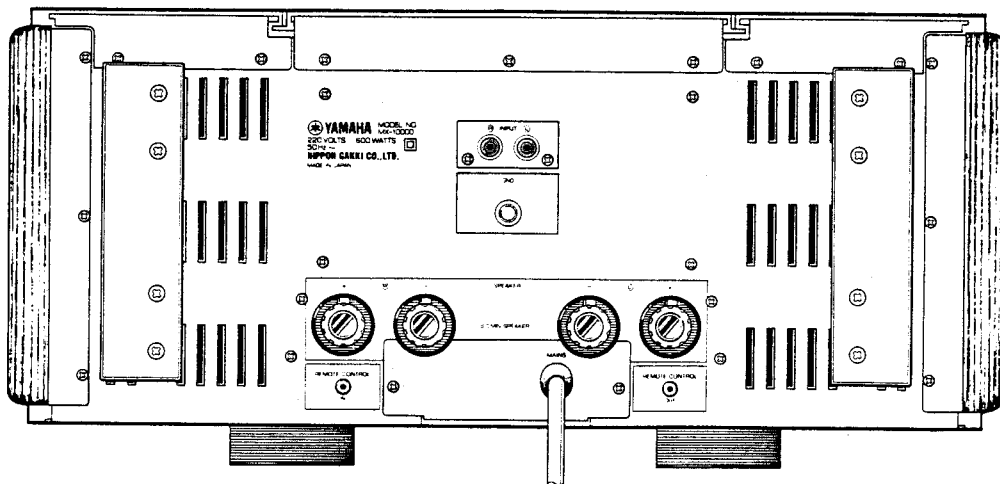
- ❶ Electrolytic Cap. (22000 $\mu$ F 100V): VC475100
- ❷ Relay Circuit Board (Amp.)
- ❸ Power Transformer Ass'y: VC800800 (U)  
VC801000 (G)
- ❹ Center Circuit Board
- ❺ Relay Circuit Board (Amp.)
- ❻ Main Circuit Board
- ❼ Sub Transformer: XB998002 (U)  
XB999002 (G)
- ❽ Fuse (10A 250V): KB001390 (U)  
Fuse (T4.0A 250V): KB000790 (G)
- ❾ Fuse (2.0A 250V): KB001030 (U)  
Fuse (T1.0A 250V): KB000730 (G)

## REAR PANELS

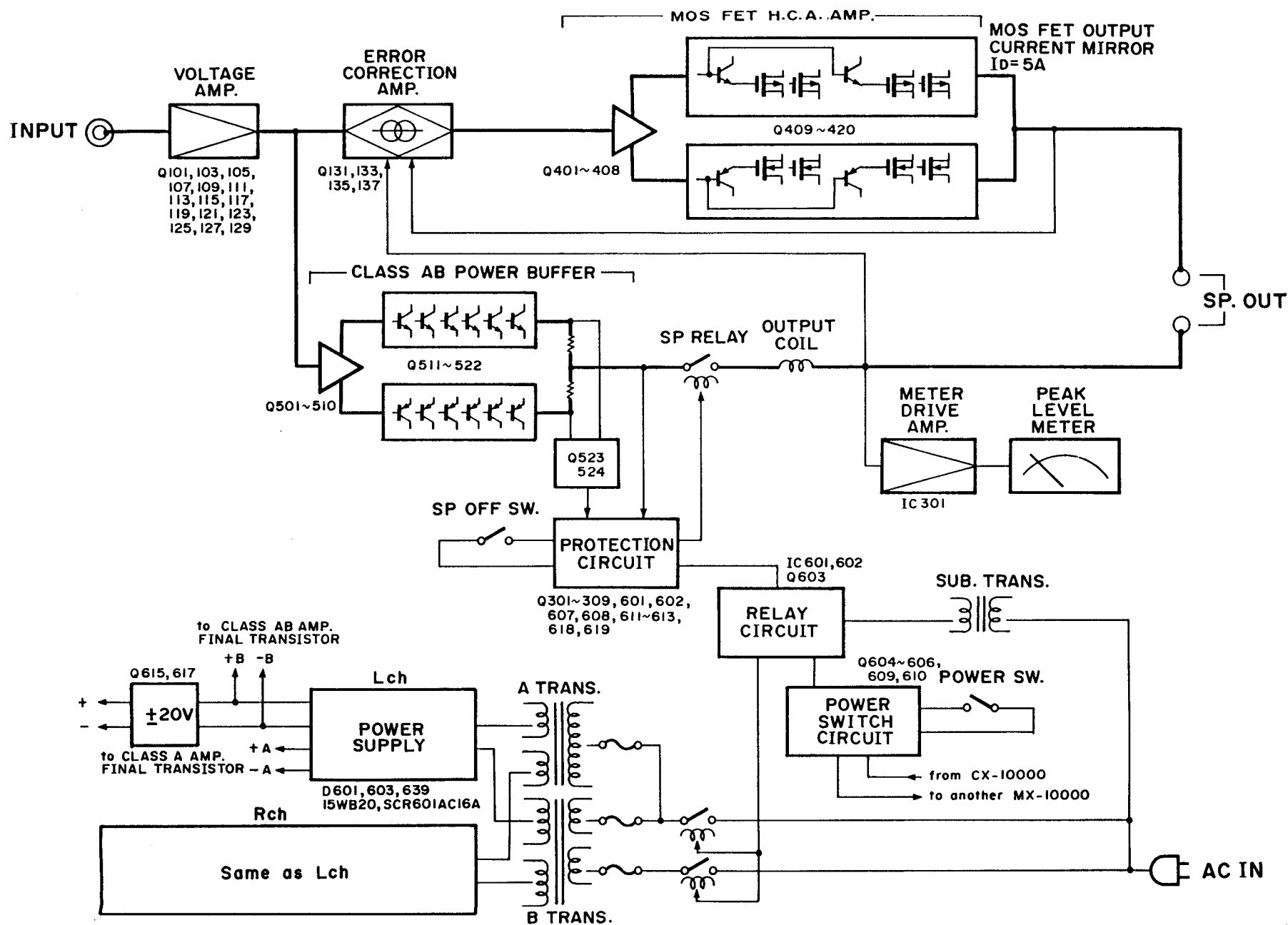
### ▼ U model



### ▼ G model



BLOCK DIAGRAM



## DISASSEMBLY PROCEDURES

### 1. Removal of Top Cover

- Remove 3 screws ( ① ) and slide the Top Cover back.

### 2. Removal of Side Top Panel and Side Wood Panel

- Remove 10 screws ( ② ).
- Remove 10 screws ( ③ ).
- Remove 14 screws ( ④ ) and remove the Side Top Panel and Side Wood Panel.

### 3. Removal of Input Circuit Board Cover

- Remove 4 screws ( ⑤ ) and remove the Input Circuit Board Cover.

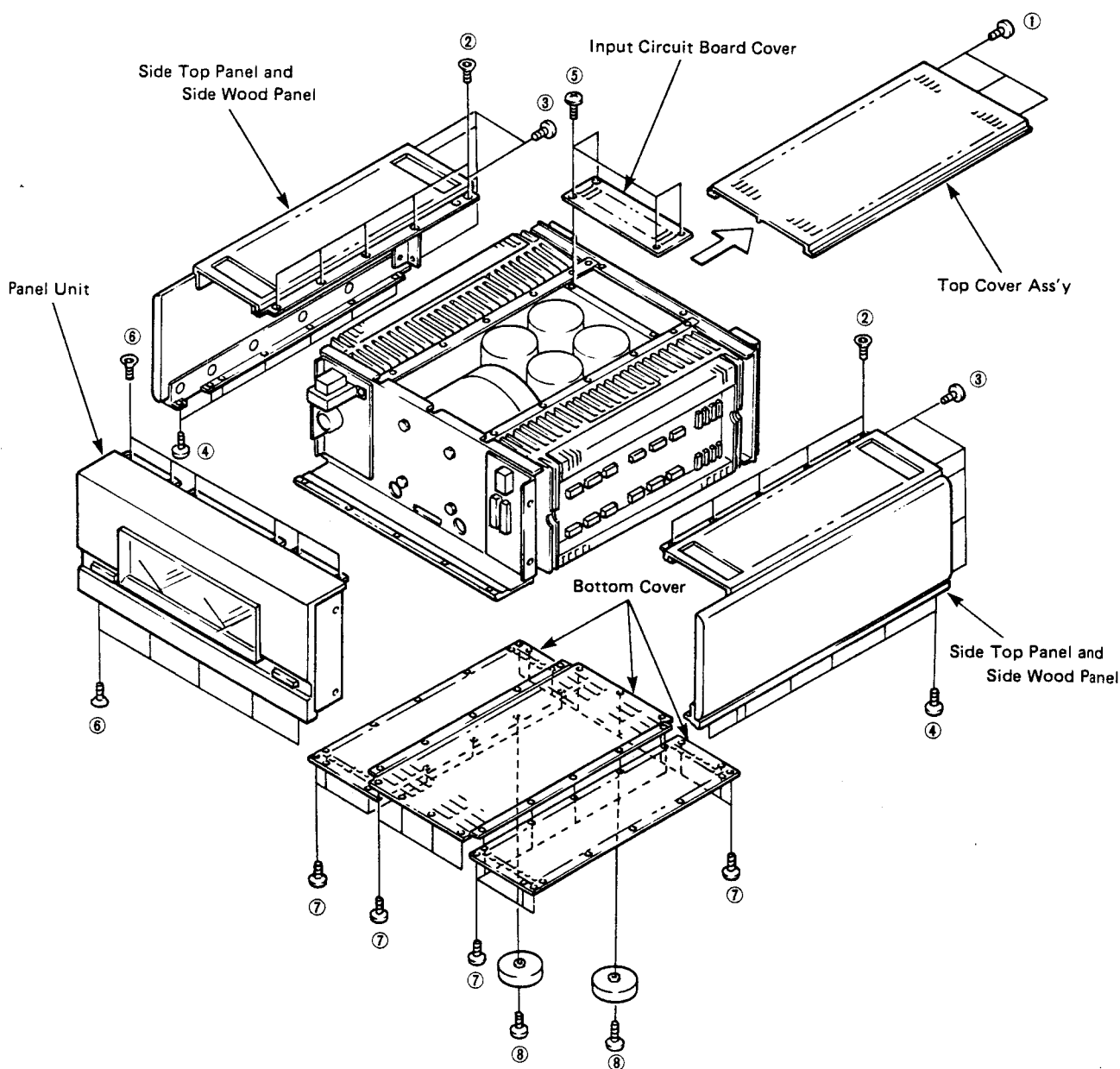
\*With this much disassembly done, adjustments can be made.

### 4. Removal of Panel Unit

- Remove 11 screws ( ⑥ ).
- Remove the Panel Unit toward the front, being cautions of the 14 pin connector of the Meter Ass'y.

### 5. Removal of Bottom Cover

- Remove 25 screws ( ⑦ ).
- Remove 2 screws ( ⑧ ) and remove the Bottom Cover.



**ADJUSTMENTS**

• **BEFORE ADJUSTMENT**

1. Make sure that primary supply voltage comes within \*AC120V ± 10% (U model).  
\*AC220V ± 10% (G model)
2. Before turning the power ON, check to ensure that the idle current control VR501 (both L and R) in the Main Circuit Board is at its minimum position (turned counterclockwise fully).
3. Wait 3 minutes after power ON to stabilize amplifier operation without signal.

**Main Circuit Board**

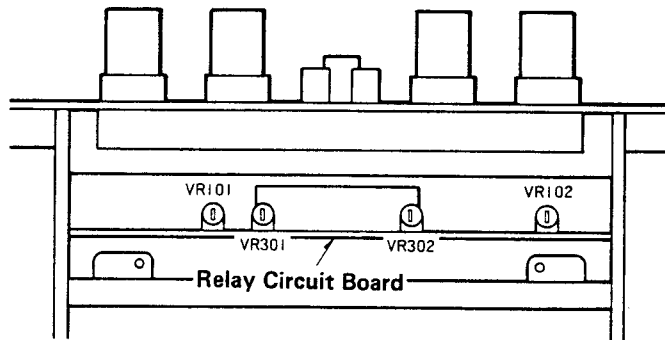
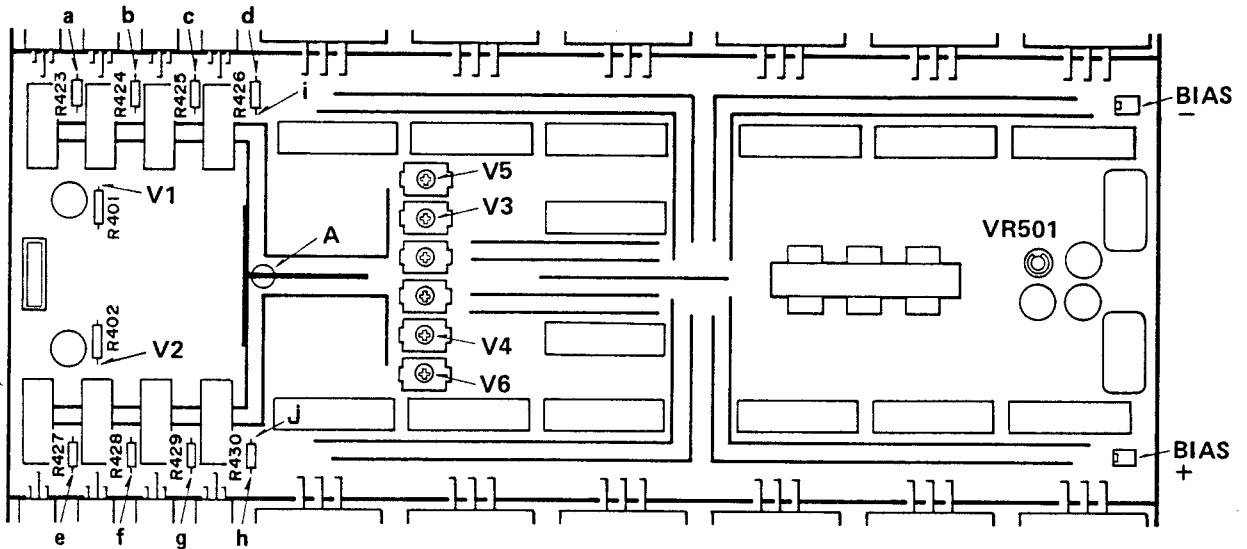
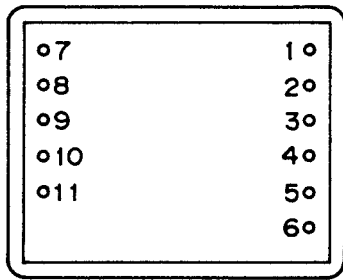


Fig. 1

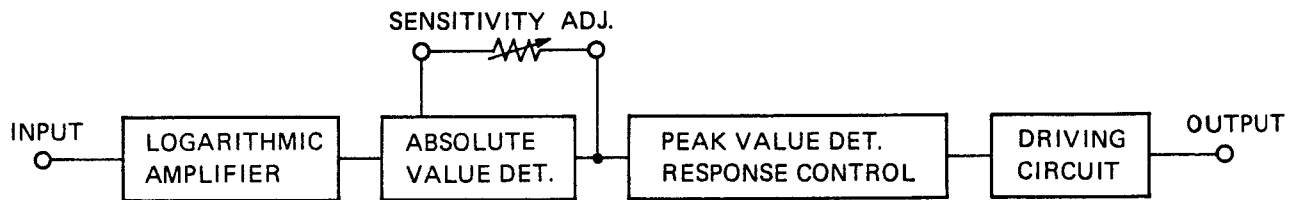
Step	Item	Adjustment/Confirmation	Reference
1	DC voltage check (1)	With negative input terminal of Digital Multi Meter connected to GND terminal in rear panel of unit and positive input terminal to V1 to V6 in Main Circuit Board, check voltage at each terminal. (Do the same for both L and R of Main Circuit Board.)	V1 = +20V $\pm$ 1V V2 = -20V $\pm$ 1V V3 = +4.5V $\pm$ 0.5V V4 = -4.5V $\pm$ 0.5V V5 = -85V $\pm$ 3V V6 = +85V $\pm$ 3V
2	DC voltage check (2)	Check DC voltage as follows to confirm "A" class power primary stage idle current. (Do the same for both L and R of Main Circuit Board.) With negative input terminal of Digital Multi Meter connected to A in Fig. 1 ("A" class power primary stage output bus bar), check voltage of "a" to "j" in Main Circuit Board.	a, b, c, d = +50mV $\sim$ +170mV e, f, g, h = -50mV $\sim$ -170mV i = +105mV $\pm$ 30mV j = -105mV $\pm$ 30mV
3	"A", "B" class power primary stage idle current	Adjust voltage between BIAS+ terminal and BIAS- terminal in Main Circuit Board with VR501. (Do the same for both L and R of Main Circuit Board.)	25mV $\pm$ 5mV *2-pin connectors are used for BIAS+ and BIAS- terminals. Their two pins have the same electric potential.
4	DC offset adjustment	Using VR101 and VR102 in Relay Circuit Board, adjust DC offset voltage at Speaker terminal.	$\pm$ 10mV or less
5	Meter adjustment	a) Make Meter "0" point adjustment without input signal. (Both L and R) b) With 1kHz input signal applied to input terminal, adjust input level so that output at Speaker terminal becomes 8 $\Omega$ 100W (28.3V) and check that meter pointer aligns with 100W scale. c) If meter pointer does not align as in b), adjust with VR301 and VR302 in Relay Circuit Board.	

**IC BLOCK DIAGRAM**

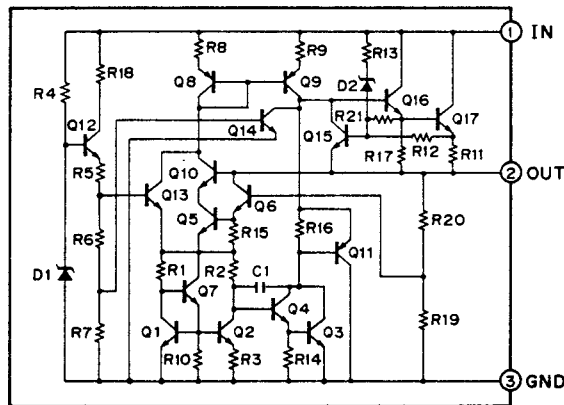
IC301: iG09910 (Meter Driver)



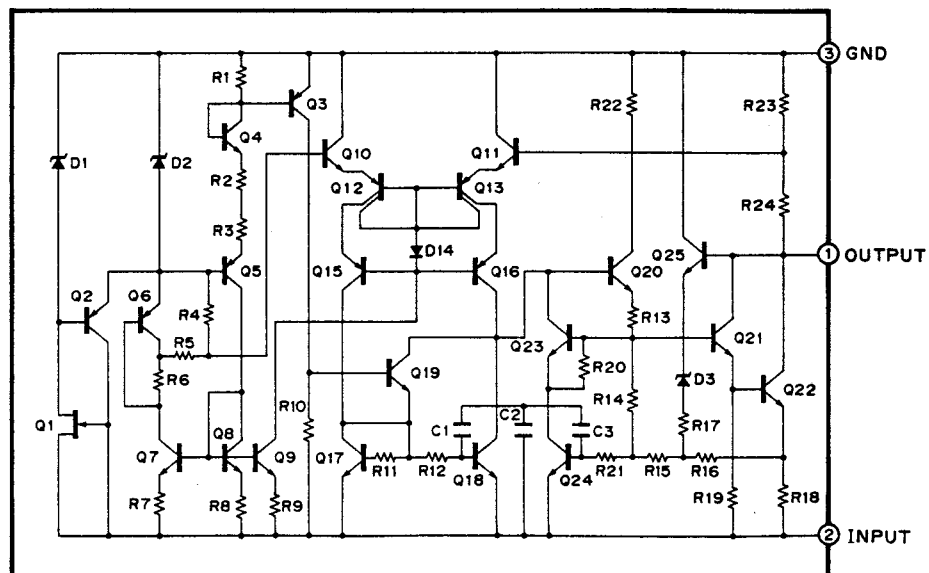
- |                               |                                |
|-------------------------------|--------------------------------|
| 1. INPUT A                    | 7. INPUT B                     |
| 2. -12V                       | 8. +12V                        |
| 3. ADJUSTMENT TERMINAL (VR A) | 9. ADJUSTMENT TERMINAL (VR B)  |
| 4. ADJUSTMENT TERMINAL (VR B) | 10. ADJUSTMENT TERMINAL (VR A) |
| 5. OUTPUT A (METER R)         | 11. OUTPUT B (METER L)         |
| 6. GND                        |                                |



IC601:  $\mu$ PC78M12H (Regulator)



IC602: NJM79M12A (Regulator)



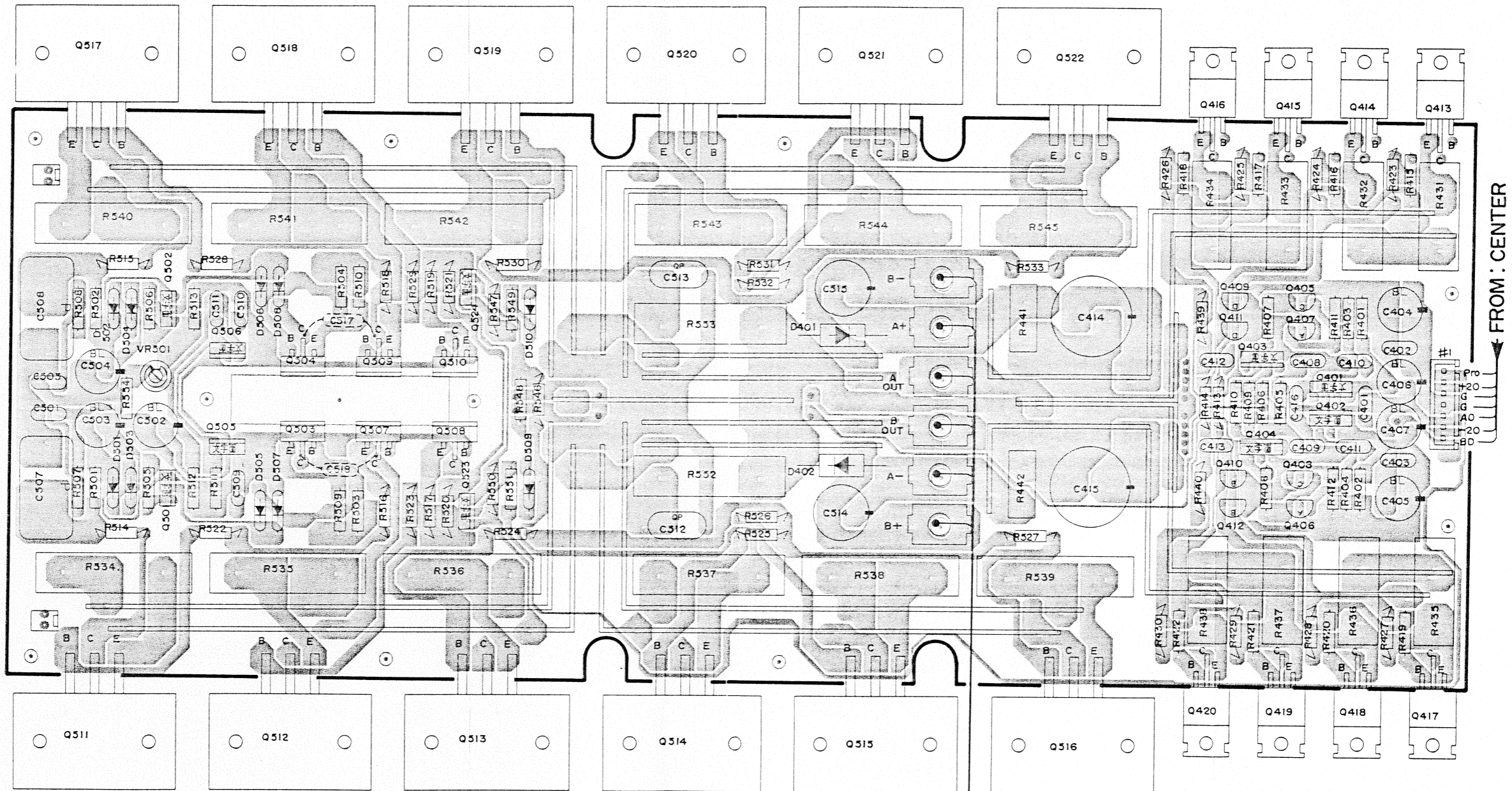


# PRINTED CIRCUIT BOARD (Pattern side)

- : Pattern of part side
- : Pattern of solder side
- : Through hole

Note) 文字面 : Component side

Main Circuit Board (L channel is the same as R channel)



FROM: CENTER

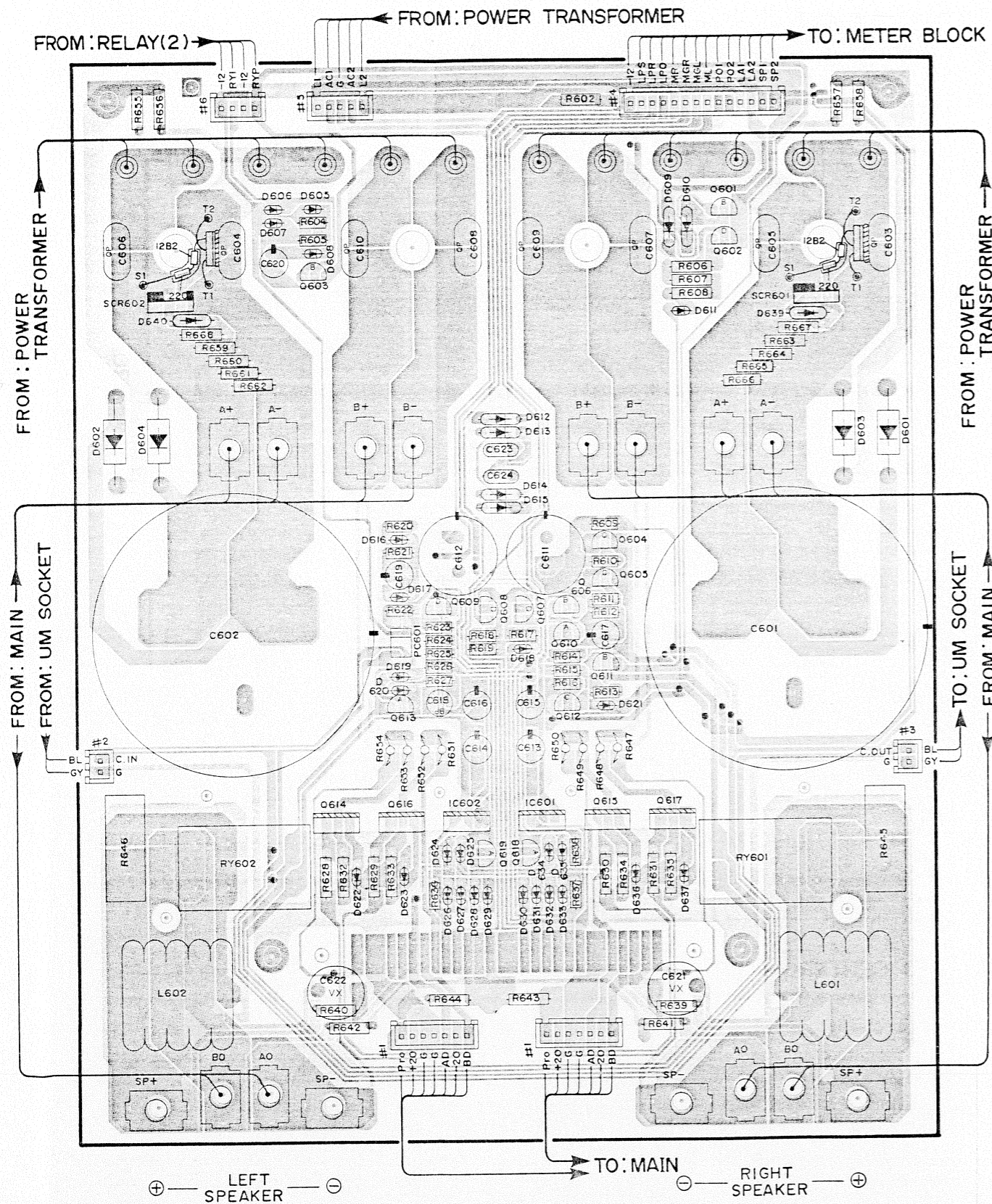
TO: CENTER

PRINTED CIRCUIT BOARD (Pattern side)

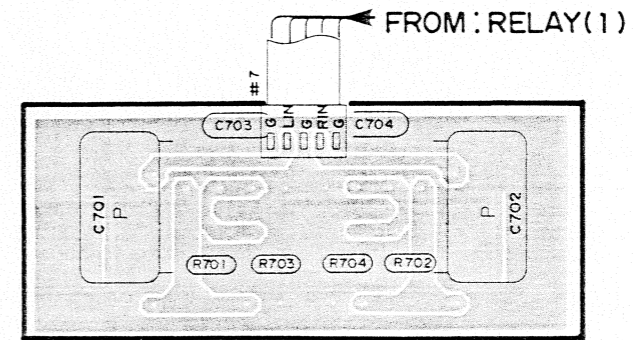
- : Pattern of part side
- : Pattern of solder side
- : Through hole

Note) 文字面 : Component side

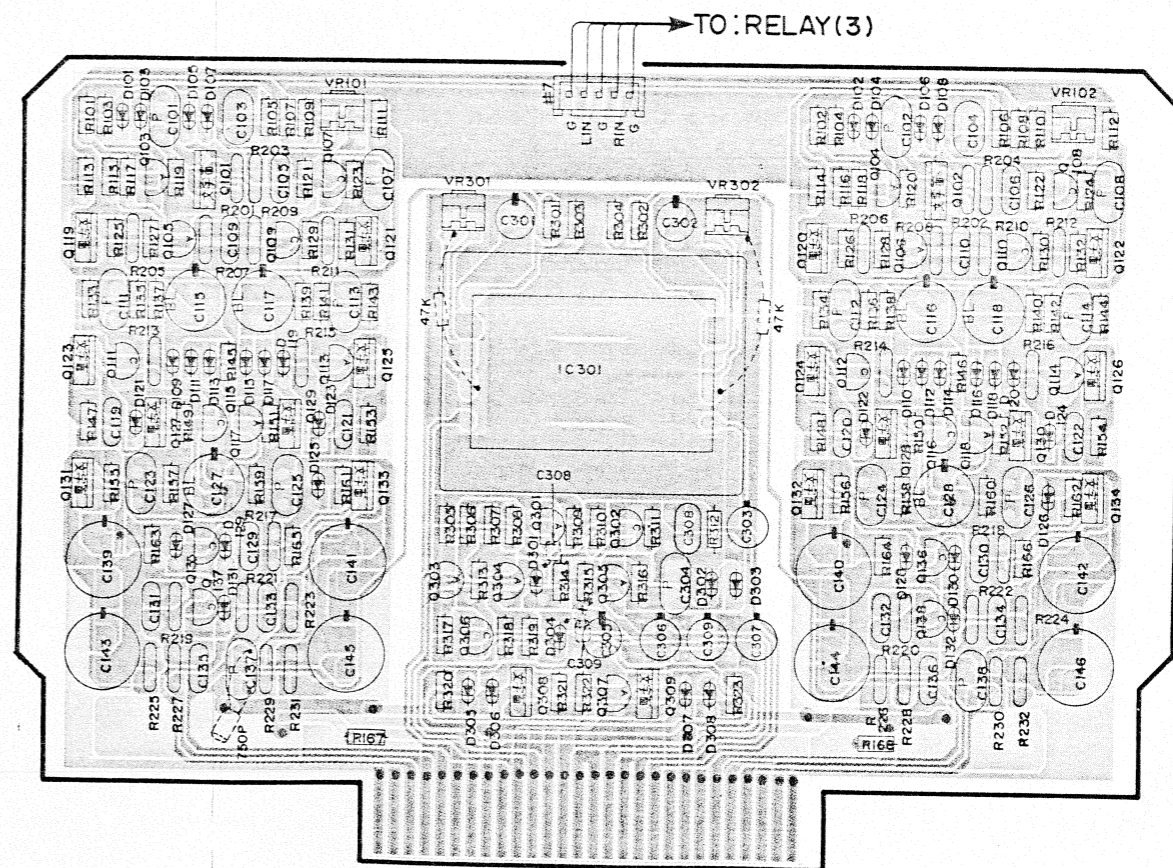
Center Circuit Board



Relay Circuit Board (2)



Relay Circuit Board (1)

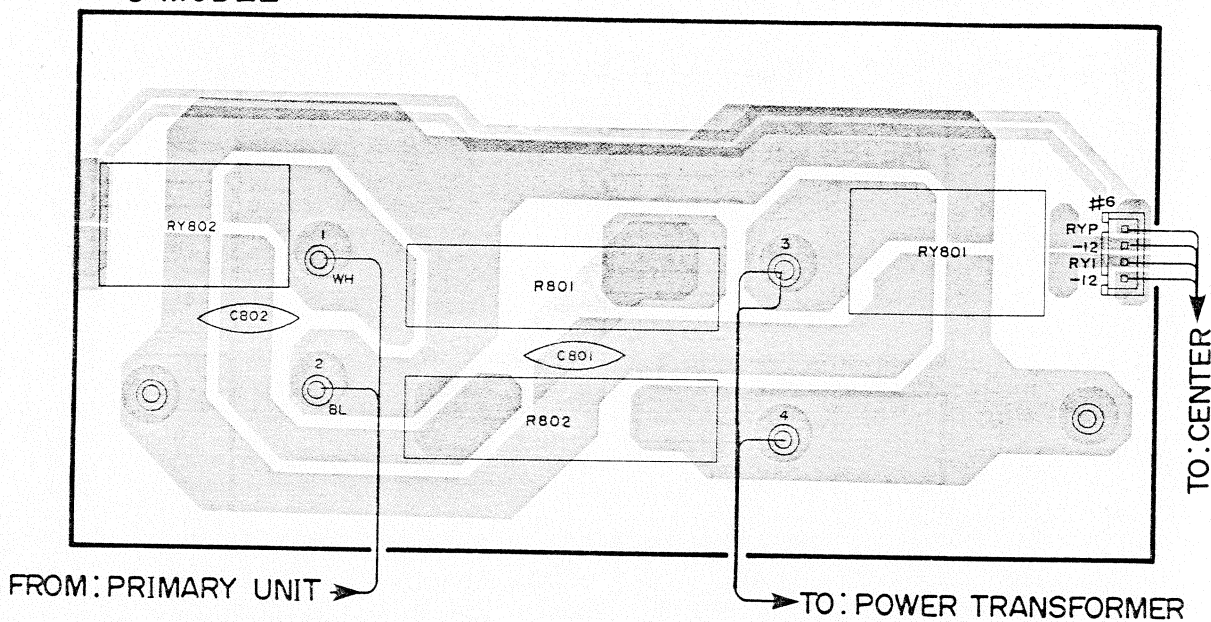


# PRINTED CIRCUIT BOARD (Pattern side)

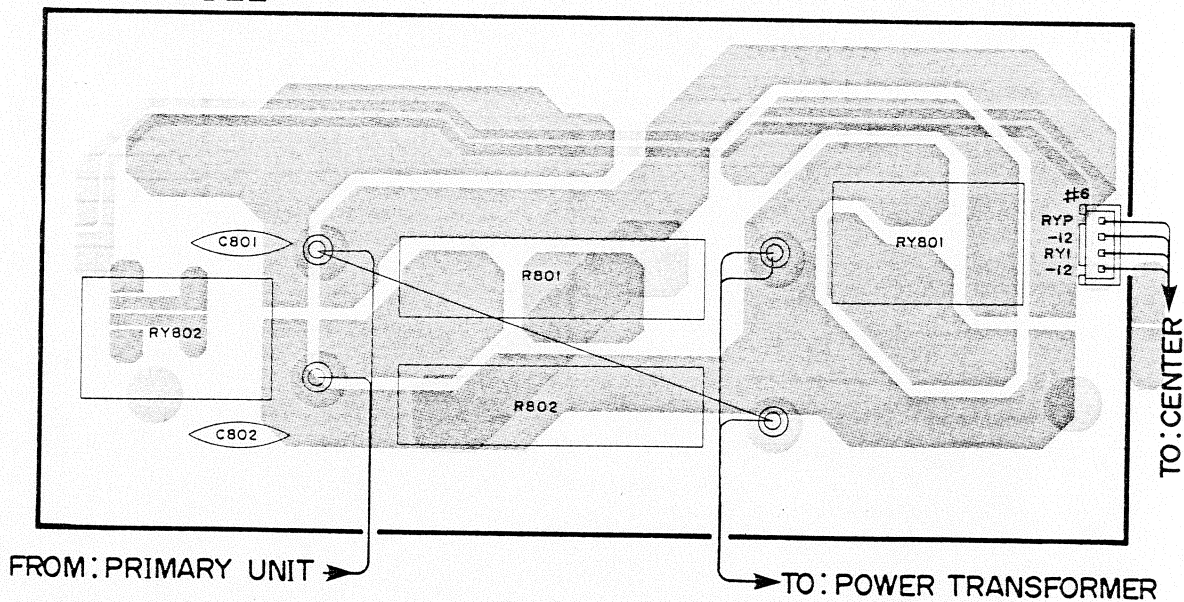
- ▨ : Pattern of part side
- ▩ : Pattern of solder side
- : Through hole

## Relay Circuit Board (2)

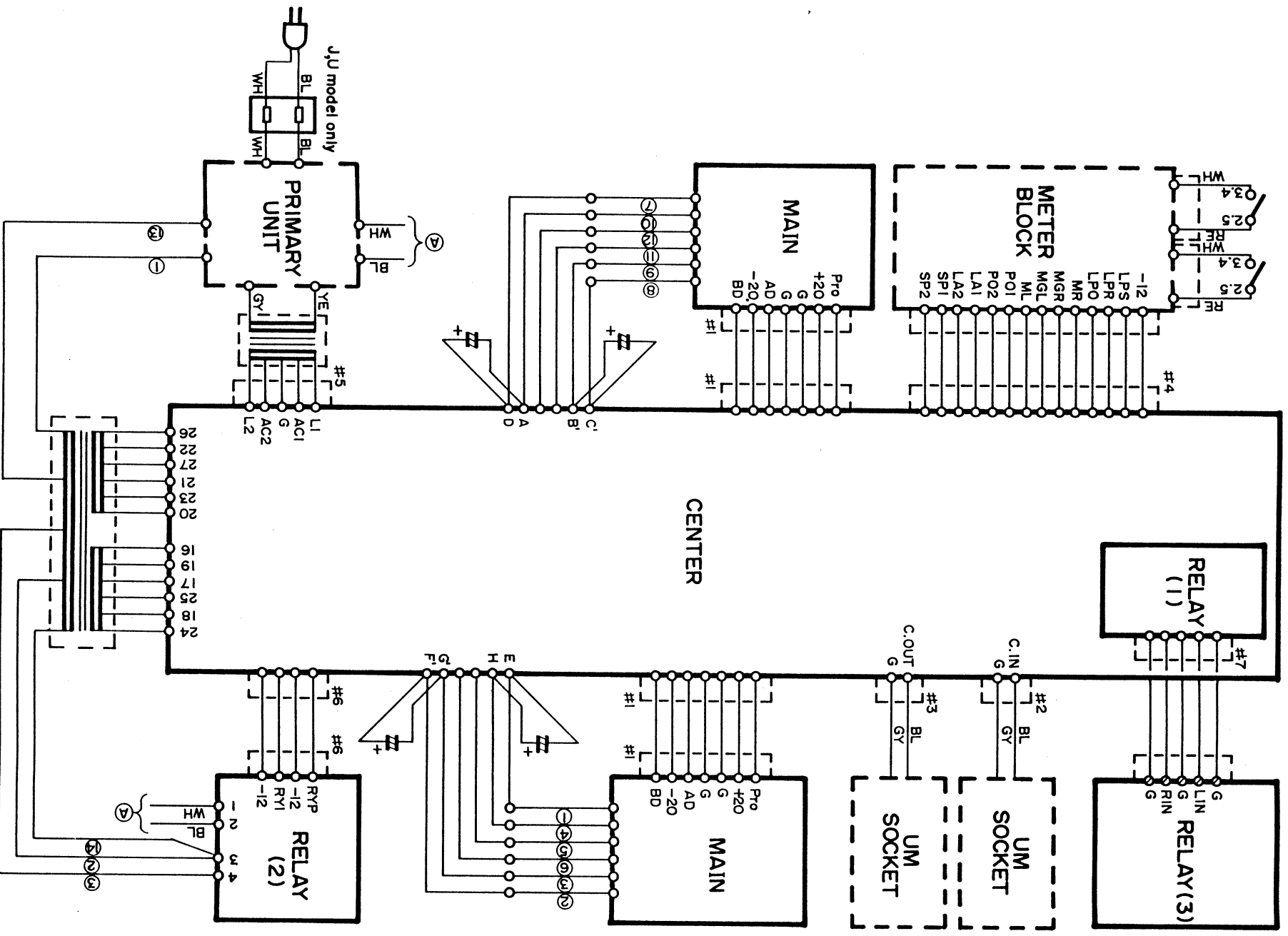
### U MODEL



### G MODEL



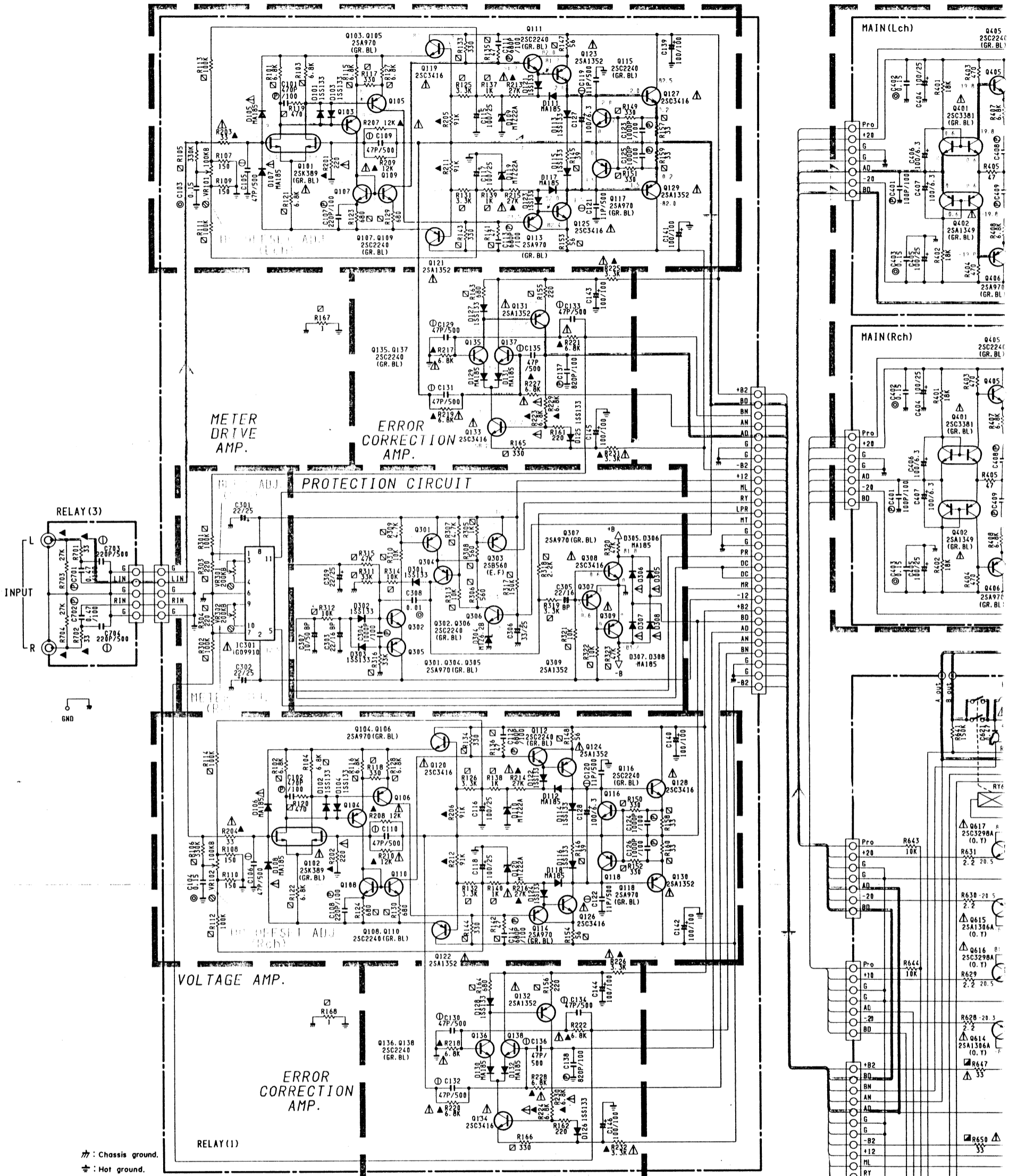
■ WIRING



# SCHEMATIC DIAGRAM

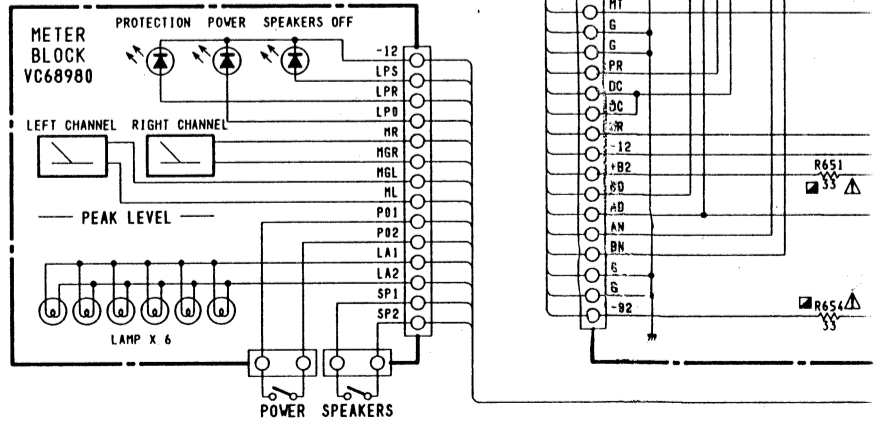
VOLTAGE AMP.

MOS FET H. C. A. AMP.

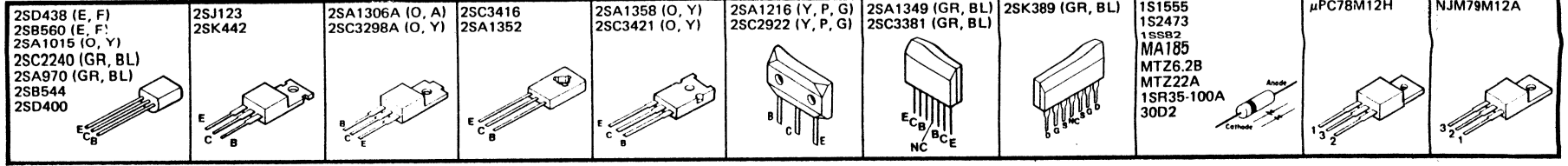


REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR
□	CARBON FILM RESISTOR (1/6W)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
⊞	FIRE PROOF CARBON FILM RESISTOR
⊞	CEMENT MOLDED RESISTOR
⊞	SEMI VARIABLE RESISTOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
NO MARK	CERAMIC CAPACITOR
○	POLYESTER FILM CAPACITOR (MyLar)
⊙	POLYSTYRENE FILM CAPACITOR
⊖	MICA CAPACITOR
⊖	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

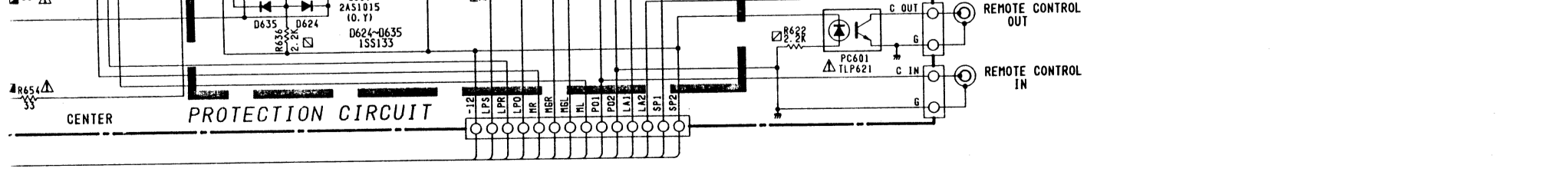
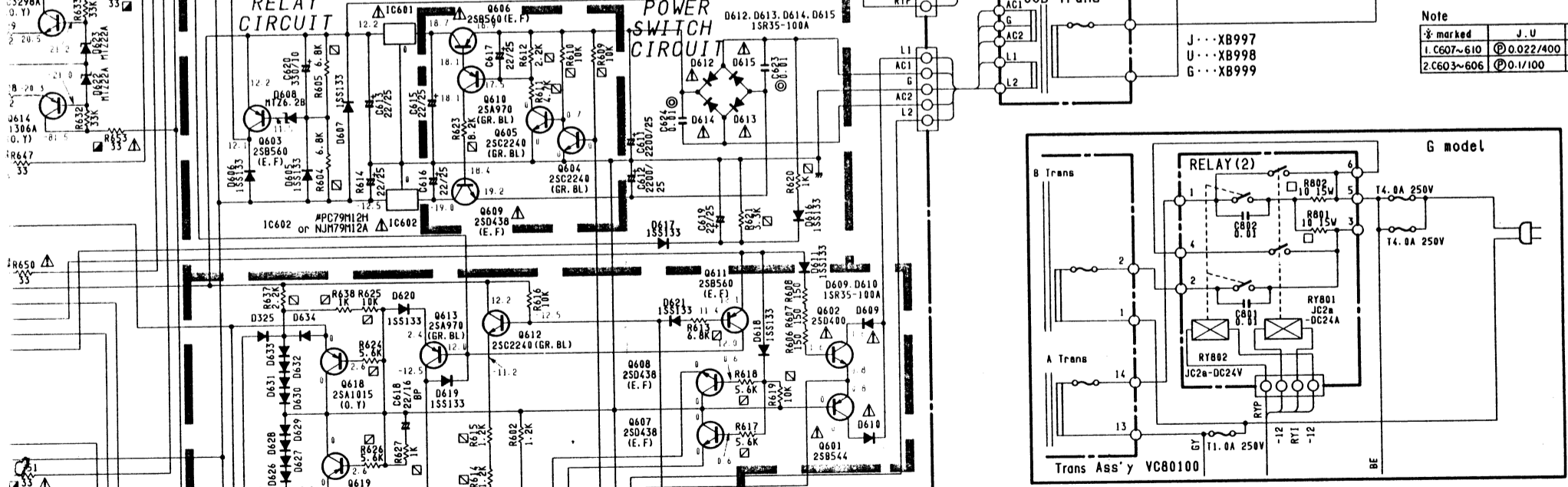
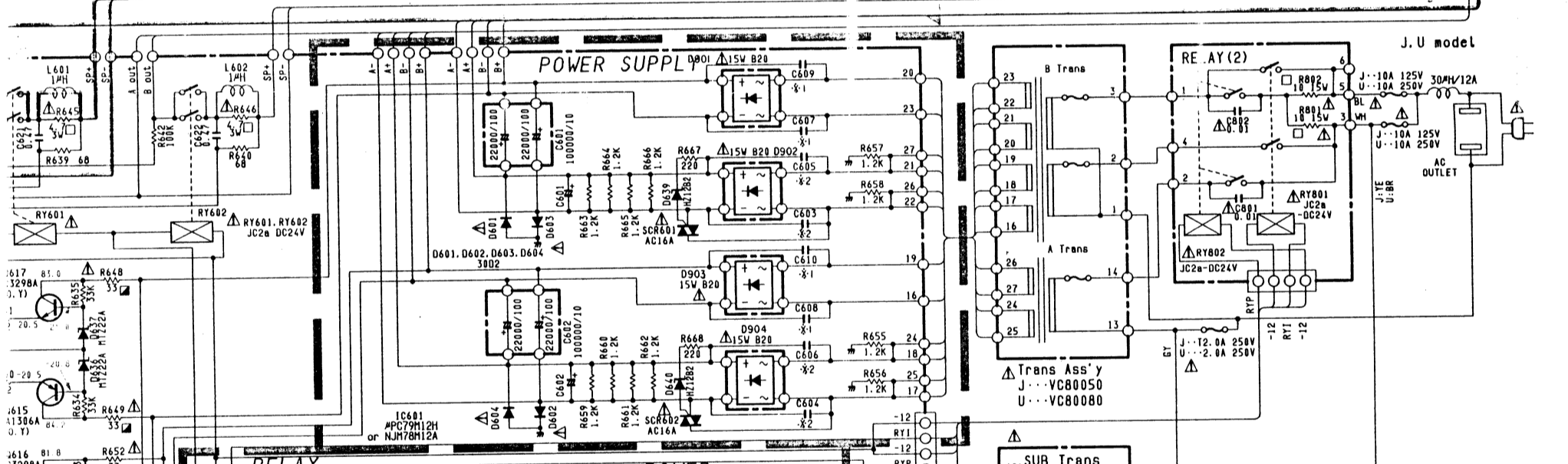
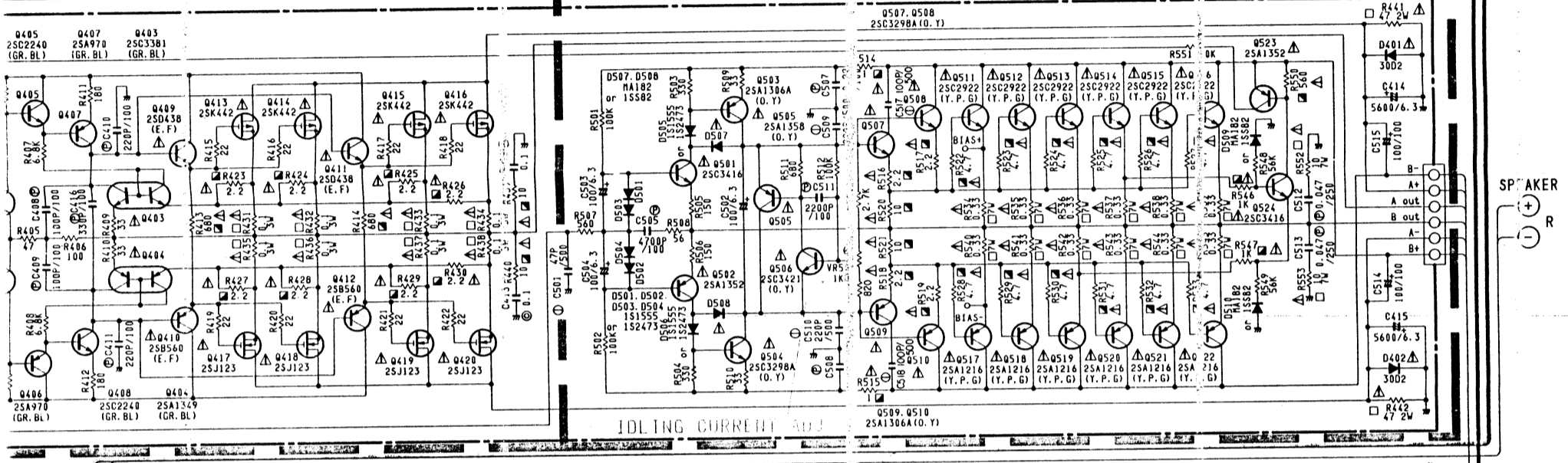
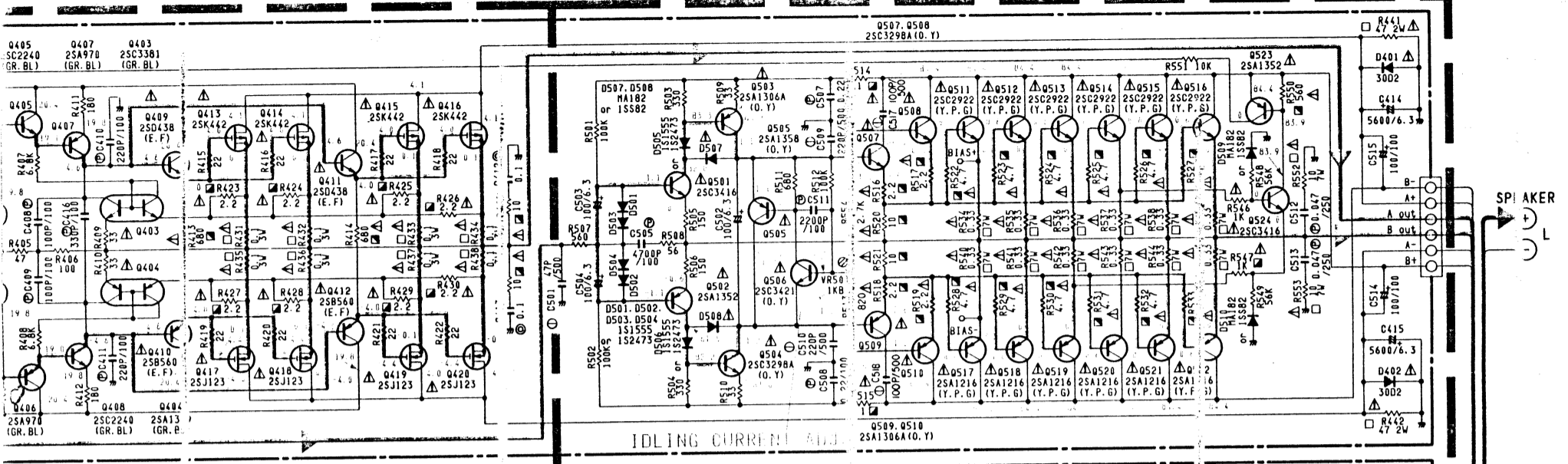


PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICs.



10V/10A/30W

CLASS AB POWER BUFFER



Note

Symbol	J. U	G
⊗	marked	
⊙	C607-610	0.022/400
⊙	0.1/400	
⊙	C603-606	0.1/100
⊙		1/100

\* All voltages are measured with a 10MS/DC electric volt meter.  
 \* Components having special characteristics are marked  $\Delta$  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  $\Delta$  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 resistor, refer to p. 28.

**MX-10000**

Ref. No.	Part No.	Description			部 品 名	Remarks	Common Model	Markets	ランク
*	NA 09 25 80	Main Circuit Board			メ イ ン シ ー ト				
	FU 35 14 70	Mica Cap.	47pF	500V	マイカコン	C501			
	FU 35 21 00	//	100pF	500V	//	C517,518			
	FU 35 22 20	//	220pF	500V	//	C509,510			
	FA 15 51 50	Mylar Cap.	0.15 $\mu$ F	50V	マイラーコン	C402,403			
	FA 15 51 00	//	0.1 $\mu$ F	50V	//	C412,413			
*	FC 29 44 70	Polypropylene Film Cap.	0.047 $\mu$ F	250V	Q P コ ン	C512,513			
*	FC 27 52 20	//	0.22 $\mu$ F	100V	//	C507,508			
	UT 45 21 00	//	100pF	100V	ポリプロコン	C401,408,409			
	UT 45 22 20	//	220pF	100V	//	C410,411			
	UT 45 23 30	//	330pF	100V	//	C416			
	UT 45 32 20	//	2200pF	100V	//	C511			
	UT 45 34 70	//	4700pF	100V	//	C505			
	FZ 00 54 10	Electrolytic Cap.	100 $\mu$ F	6.3V	ブラックゲートコン	C406,407,502~504			
	FZ 00 61 40	//	100 $\mu$ F	25V	//	C404,405			
	VD 21 57 00	//	100 $\mu$ F	100V	ケ ミ コ ン	C514,515			
*	VC 68 92 00	//	5600 $\mu$ F	6.3V	オーディオケミコン	C414,415			
	HJ 35 42 20	Carbon Resistor	22 $\Omega$	1/4W	カーボン抵抗	R415~422			
	HJ 35 43 30	//	33 $\Omega$	1/4W	//	R409,410,509,510			
	HJ 35 44 70	//	47 $\Omega$	1/4W	//	R405			
	HJ 35 45 60	//	56 $\Omega$	1/4W	//	R508			
	HJ 35 51 00	//	100 $\Omega$	1/4W	//	R406			
	HJ 35 51 50	//	150 $\Omega$	1/4W	//	R505,506			
	HJ 35 51 80	//	180 $\Omega$	1/4W	//	R411,412			
	HJ 35 53 30	//	330 $\Omega$	1/4W	//	R503,504			
	HJ 35 54 70	//	470 $\Omega$	1/4W	//	R403,404			
	HJ 35 55 60	//	560 $\Omega$	1/4W	//	R507			
	HJ 35 56 80	//	680 $\Omega$	1/4W	//	R511			
	HJ 35 58 20	//	820 $\Omega$	1/4W	//	R513			
	HJ 35 62 70	//	2.7k $\Omega$	1/4W	//	R554			
	HJ 35 66 80	//	6.8k $\Omega$	1/4W	//	R407,408			
	HJ 35 71 00	//	10k $\Omega$	1/4W	//	R551			
	HJ 35 71 80	//	18k $\Omega$	1/4W	//	R401,402			
	HJ 35 75 60	//	56k $\Omega$	1/4W	//	R548,549			
	HJ 35 81 00	//	100k $\Omega$	1/4W	//	R501,502,512			
	HV 45 31 00	Flame Proof Carbon Resistor	1 $\Omega$	1/4W	不燃化カーボン抵抗	R514,515			$\Delta$
	HV 45 32 20	//	2.2 $\Omega$	1/4W	//	R423~430, 516~519			$\Delta$
	HV 45 34 70	//	4.7 $\Omega$	1/4W	//	R522~533			$\Delta$
	HV 45 41 00	//	10 $\Omega$	1/4W	//	R439,440,520,521			$\Delta$
	HV 45 55 60	//	560 $\Omega$	1/4W	//	R550			$\Delta$
	HV 45 56 80	//	680 $\Omega$	1/4W	//	R413,414			$\Delta$
	HV 45 61 00	//	1k $\Omega$	1/4W	//	R546,547			$\Delta$
*	VC 47 38 00	Wire Wound Resistor	47 $\Omega$	2W	セメント抵抗	R441,442			$\Delta$
*	VC 47 31 00	//	0.1 $\Omega$	3W	セメント無誘導抵抗	R431~438			$\Delta$
*	VC 47 24 00	//	0.33 $\Omega$	7W	//	R534~545			$\Delta$
*	VC 47 26 00	//	10 $\Omega$	7W	//	R552,553			$\Delta$
	VC 68 94 00	Pre-Set Potentiometer	81k $\Omega$		半固定抵抗	VR501			$\Delta$
	IA 09 70 00	Transistor	2SA970(GR,BL)		トランジスタ	Q406,407			
	IB 05 60 10	//	2SB560(E,F)		//	Q410,412			$\Delta$
	IC 22 40 00	//	2SC2240(GR,BL)		//	Q405,408			

\*New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
	iD 04 38 10	Transistor	2SD438(E,F)	ト ラ ン ジ ス タ	Q409,411		
	iX 60 85 10	//	2SA1358(O,Y)	//	Q505		
	iX 60 85 20	//	2SC3421(O,Y)	//	Q506		
	iA 13 52 00	//	2SA1352	//	Q502,523		
	iC 34 16 00	//	2SC3416	//	Q501,524		
	iA 13 06 00	//	2SA1306A(O,Y)	//	Q503,509,510		
	iC 32 98 00	//	2SC3298A(O,Y)	//	Q504,507,508		
	iX 60 87 40	//	2SA1216(Y,P,G)	//	Q517~522		
	iX 60 87 50	//	2SC2922(Y,P,G)	//	Q511~516		
	iA 13 49 00	Dual Transistor	2SA1349(GR,BL)	デュアルトランジスタ	Q402,404		
	iC 33 81 00	//	2SC3381(GR,BL)	//	Q401,403		
※	VC 69 80 00	MOS FET	2SJ123	M O S F E T	Q417~420		
※	VC 69 44 00	//	2SK442	//	Q413~416		
	iF 00 00 40	Diode	1S1555	ダ イ オ ー ド	D501~506		
	iF 00 06 70	//	1S2473	//	//	inter-changeable	
	iF 00 14 00	//	1SS82	//	D507~510		
※	VC 68 91 00	//	30D2	//	D401,402		
※	VC 70 21 00	Heat Sink	4-T0-220	放 熱 シ ー ト			
※	VD 21 63 00	Base Pin	7P	X H ベ ー ス ピ ン			
※	VC 37 58 00	Terminal Plate		ターミナルプレート			
※	VC 68 99 00	Bus Bar	1L	バ ス バ ー			
※	VC 46 88 00	//	1L-L	ベンテッドバスバー			
※	VC 41 04 00	//	1L-R	//			
※	VC 46 89 00	//	2L-L	//			
※	VC 41 05 00	//	2L-R	//			
※	VC 46 90 00	//	3L-L	//			
※	VC 41 06 00	//	3L-R	//			
	ED 33 00 66	Binding Head Screw	3×6 FCRM3-BI	バ イ ン ド 小 ネ ジ	PACK		
	EH 13 00 80	Pan Head Sems Screw	3×8 FNM3-3g	セ ム ス ナ ベ 小 ネ ジ			
※	VC 41 71 00	Transistor Block		ト ラ ン ジ ス タ ブ ロ ッ ク			
	EK 35 00 20	Pan Head Sems Screw	3×8 ZMC2-BI	セ ム ス ナ ベ 小 ネ ジ			
	ED 33 01 06	Binding Head Screw	3×10 FCRM3-BI	バ イ ン ド 小 ネ ジ	PACK		

※ New Parts (新規部品)



Ref. No.	Part No.	Description	部品名		Remarks	Common Model	Markets	ランク
※	NA 09 34 00	Relay Circuit Board			リレーシート		J,U	
※	NA 09 34 10	"			"		G	
	Fi 38 41 00	Ceramic Cap.	0.01 $\mu$ F	250V	セラコン	C801,802		△
※	FC 27 54 70	Polypropylene Film Cap.	0.47 $\mu$ F	100V	ポリプロコン	C701,702		
	FU 45 11 10	Mica Cap.	11pF	500V	マイカコン	C119~122		
	FU 35 14 70	"	47pF	500V	"	C105,106,109,110, 129~136		
	FU 35 22 20	"	220pF	500V	"	C703,704		
	FA 15 51 50	Mylar Cap.	0.15 $\mu$ F	50V	マイラーコン	C103,104		
	FA 15 41 00	"	0.01 $\mu$ F	50V	"	C308		
	UT 45 28 20	Polypropylene Film Cap.	820pF	100V	ポリプロコン	C137,138		
	UT 45 22 20	"	220pF	100V	"	C107,108		
	UT 45 24 70	"	470pF	100V	"	C101,102		
	UT 45 26 80	"	680pF	100V	"	C111~114		
	UT 45 31 00	"	1000pF	100V	"	C123~126,304		
	UJ 14 72 20	Electrolytic Cap.	22 $\mu$ F	25V	ケミコン	C301,302,309		
	UJ 14 73 30	"	33 $\mu$ F	25V	"	C306		
	FM 11 71 00	"	10 $\mu$ F	50V	B P コン	C307		
	UK 13 72 20	"	22 $\mu$ F	16V	"	C303,305		
	VC 69 23 00	"	100 $\mu$ F	100V	オーディオケミコン	C139~146		
	FZ 00 54 10	"	100 $\mu$ F	6.3V	ブラックゲートコン	C127,128		
	FZ 00 61 40	"	100 $\mu$ F	25V	"	C115~118		
	HU 07 43 30	Metal Film Resistor	33 $\Omega$	1/4W	金属皮膜抵抗	R203,204,701,702		△
	HU 07 52 20	"	220 $\Omega$	1/4W	"	R201,202		
	HU 57 63 30	"	3.3k $\Omega$	1/4W	"	R225,226,231,232		△
	HU 07 66 80	"	6.8k $\Omega$	1/4W	"	R217~224, 227~230		△
	HU 57 71 20	"	12k $\Omega$	1/4W	"	R207~210		△
※	HU 07 72 70	"	27k $\Omega$	1/4W	"	R213~216,703,704		△
	HU 07 79 10	"	91k $\Omega$	1/4W	"	R205,206,211,212		
	VC 68 97 00	Wire Wound Resistor	10 $\Omega$	15W	セメント抵抗	R801,802		△
	VC 68 95 00	Pre-Set Potentiometer	B100k $\Omega$		半固定抵抗	VR101,102		
	VD 29 49 00	"	B200k $\Omega$		"	VR301,302		
	iA 09 70 00	Transistor	2SA970(GR,BL)		トランジスタ	Q103~106,113,114,117,118, 301,304,305,307		
	iA 13 52 00	"	2SA1352		"	Q121~124, 129~132,309		△
	iB 05 60 10	"	2SB560(E,F)		"	Q303		
	iC 22 40 00	"	2SC2240(GR,BL)		"	Q107~112,115,116, 135~138,302,306		
	iC 34 16 00	"	2SC3416		"	Q119,120,125~128, 133,134,308		△
	iE 10 45 00	Dual FET	2SK389(GR,BL)		デュアル F E T	Q101,102		△
	iF 00 34 50	Diode	ISS133		ダイオード	D101~104,113~116,121~128, 301~303		
	VC 39 84 00	"	MA185		"	D105~108,111,112,117,118,129 ~132,305~308		△
	iF 01 07 40	Zener Diode	MTZ6.2B		ツェナーダイオード	D304		
	iF 00 90 30	"	MTZ22A		"	D109,110,119,120		
	iG 09 91 00	IC	iG099:0		I C	IC301		△
※	VD 45 02 00	Relay	JC2a-DC24V		リレー	RY801,802		△
※	VD 21 61 00	Base Pin	5P		X H ベースピン			
	LB 91 80 40	"	4P	i-Type	"			
※	VC 41 07 00	Terminal Post			ターミナルポスト			

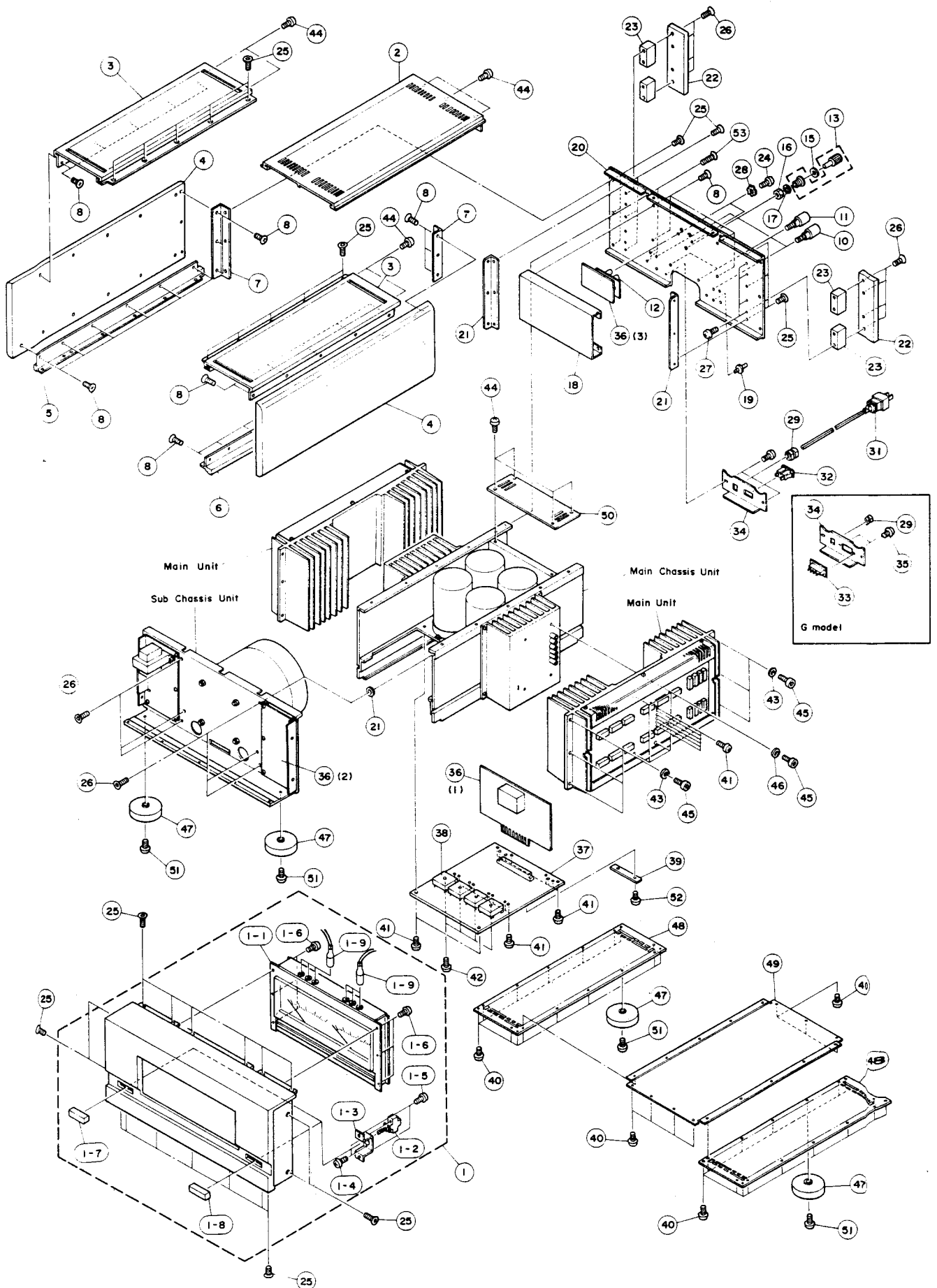
\*New Parts (新規部品)

Ref. No.	Part No.	Description	部品名		Remarks	Common Model	Markets	ランク
*	NA 09 26 00	Center Circuit Board			センターシート		J,U	
*	NA 09 56 80	〃			〃		G	
*	FC 31 42 20	Polypropylene Film Cap.	0.022 $\mu$ F	400V	Q P コ ン	C607~610	J,U	
	VE 01 30 00	Mylar Cap.	0.1 $\mu$ F	400V	マイラーコン	〃	G	
*	FC 27 51 00	Polypropylene Film Cap.	0.1 $\mu$ F	100V	Q P コ ン	C603~606		
	VE 01 29 00	Mylar Cap.	1 $\mu$ F	100V	マイラーコン	〃	G	
	FA 15 41 00	〃	0.01 $\mu$ F	50V	〃	C623,624		
	FZ 00 37 40	〃	0.47 $\mu$ F		〃	C621,622		
	UJ 14 92 20	Electrolytic Cap.	2200 $\mu$ F	25V	ケ ミ コ ン	C611,612		
	UJ 14 72 20	〃	22 $\mu$ F	25V	〃	C613~617,619		
	UJ 42 83 30	〃	330 $\mu$ F	10V	〃	C620		
*	VC 47 52 00	〃	100000 $\mu$ F	10V	〃	C601,602		
	UK 13 72 20	〃	22 $\mu$ F	16V	B P コ ン	C618		
	HJ 35 32 20	Carbon Resistor	2.2 $\Omega$	1/4W	カーボン抵抗	R628~631		
	HJ 35 46 80	〃	68 $\Omega$	1/4W	〃	R639,640		
	HJ 35 51 50	〃	150 $\Omega$	1/4W	〃	R606~608		
	HJ 35 52 20	〃	220 $\Omega$	1/4W	〃	R667,668		
	HJ 35 61 20	〃	1.2k $\Omega$	1/4W	〃	R602,655~666		
	HJ 35 71 00	〃	10k $\Omega$	1/4W	〃	R643,644		
	HJ 35 73 30	〃	33k $\Omega$	1/4W	〃	R632~635		
	HJ 35 81 00	〃	100k $\Omega$	1/4W	〃	R642		
	HJ 35 81 50	〃	150k $\Omega$	1/4W	〃	R641		
*	VC 47 27 00	Wire Wound Resistor	4.7 $\Omega$	3W	セメント抵抗	R645,646		△
	HV 45 43 30	Flame Proof Carbon Resistor	33 $\Omega$	1/4W	不燃化カーボン抵抗	R647~654		△
	GD 90 03 20	Coil	1 $\mu$ H		出力コイル	L601,602		
	iA 13 06 00	Transistor	2SA1306A(O,Y)		トランジスタ	Q614,615		△
	iC 32 98 00	〃	2SC3298A(O,Y)		〃	Q616,617		△
	iB 05 44 10	〃	2SB544		〃	Q601		△
	iB 05 60 10	〃	2SB560(E,F)		〃	Q603,606,611		△
	iD 04 00 10	〃	2SD400		〃	Q602		△
	iD 04 38 10	〃	2SD438(E,F)		〃	Q607~609		△
	iA 10 15 21	〃	2SA1015(Y)		〃	Q618,619		
	iA 09 70 00	〃	2SA970(GR,BL)		〃	Q610,613		
	iC 22 40 00	〃	2SC2240(GR,BL)		〃	Q604,605,612		
	iG 04 67 00	IC	$\mu$ PC78M12H		I C	IC601		△
	XB 25 00 01	〃	NJM79M12A		〃	IC602		△
	iH 00 14 30	Diode	1SR35-100A		ダイオード	D609,610,612~615		△
*	VC 68 91 00	〃	30D2		〃	D601~604		△
	iF 01 07 40	Zener Diode	MT26.2B		ツェナーダイオード	D608		
	iF 00 90 30	〃	MT222A		〃	D622,623,636,637		
	iF 00 23 50	〃	HZ12B2		〃	D639,640		
	iF 00 34 50	Diode	ISS133		ダイオード	D605~607,611,616~621,624~635		
*	VC 69 46 00	Photo Coupler	TLP621		フォトカブラ	PC601		△
	KC 00 16 10	Relay	JC2a-DC24V		リレ	RY601,602		△
	iH 00 10 50	Triac	AC16DGML		トライアック	SCR601,602		△

\*New Parts (新規部品)



1 ■ EXPLODED VIEW



MECHANISM PARTS

Note) φ : Diameter

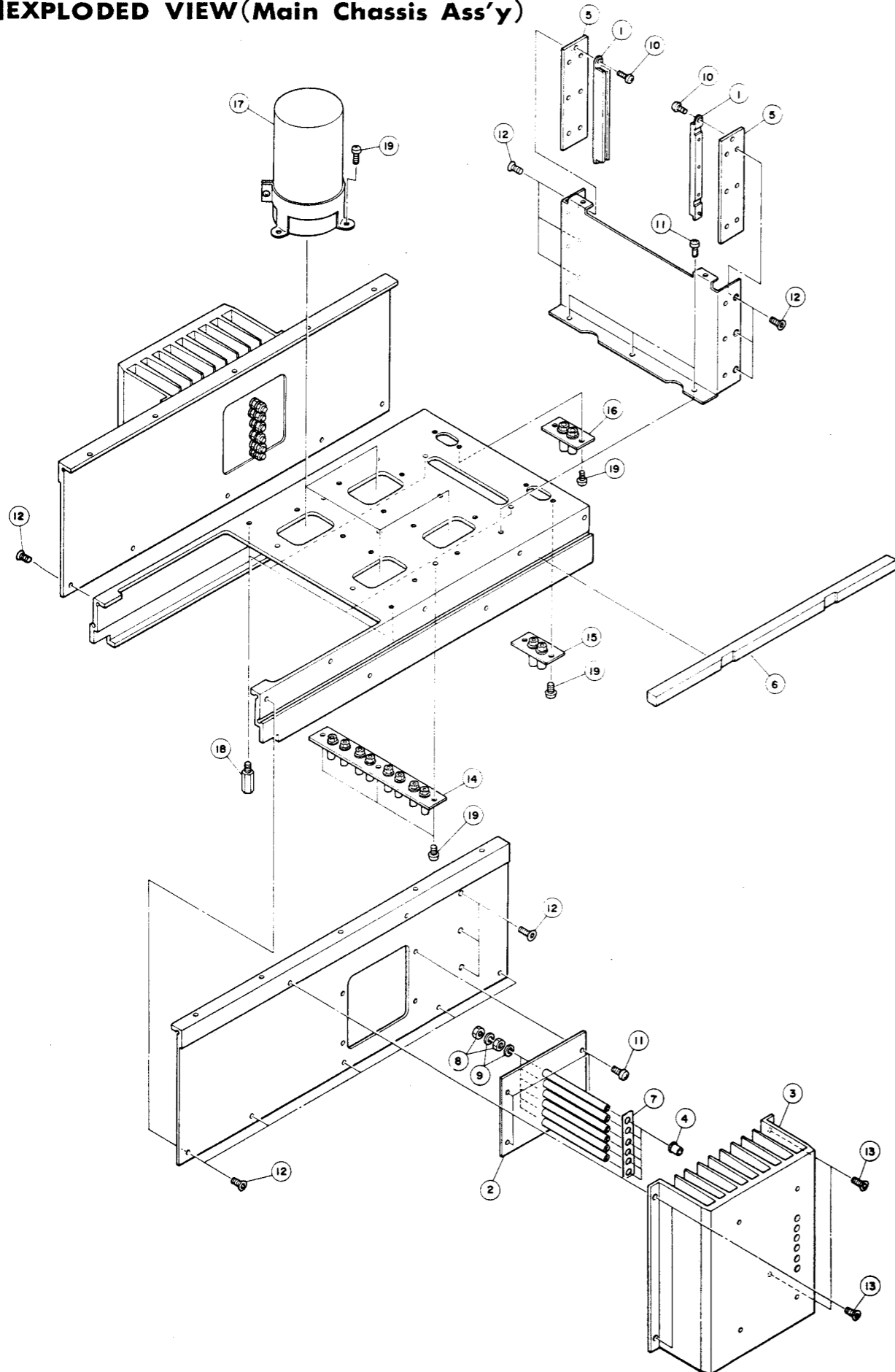
Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets	ランク
* 1	VC 54 90 00	Panel Unit	パネルユニット				
* 1-1	VC 68 98 00	Meter Ass'y	メーター Ass'y				
* 1-2	VC 78 30 00	Push Switch	プッシュスイッチ	POWER, SPEAKERS			
* 1-3	VC 41 24 00	Holder, Switch	スイッチホルダー	POWER, SPEAKERS			
* 1-4	ED 33 00 66	Binding Head Screw	3×6 FCRM3-BI	バインド小ネジ			
* 1-5	ED 34 00 66	//	4×6 FCRM3-BI	//			
* 1-6	EX 60 05 70	Flat Head Screw with Hex. Hole	4×8 FCRM	六角穴付皿小ネジ	PACK		
* 1-7	VC 41 13 00	Push Button	プッシュボタン	POWER			
* 1-8	VC 41 14 00	//	//	SPEAKERS			
* 1-9	JB 00 11 00	Lamp, Meter	150mA 8V	メーターランプ			
* 2	VC 54 93 00	Top Cover Ass'y	トップカバー Ass'y				
* 3	VC 54 92 00	Side Top Panel L & R	サイドトップパネル				
* 4	VD 30 43 00	Side Wood Panel (L,R set)	サイドウッドパネル (L,R セット)				
* 5	VC 41 26 00	Side Escutcheon L	サイドエスカッションL				
* 6	VC 41 27 00	// R	// R				
* 7	VC 41 15 00	Holder, Side Panel	サイドパネルホルダー				
* 8	ER 33 11 66	Flat Head Wood Screw	3.1×16 FCRM3	皿木ネジ			
* 10	VC 68 39 00	Speaker Terminal +	スピーカーターミナル+				
* 11	VC 68 40 00	// -	// -				
* 12	VC 69 49 00	Pin Jack	2P	ピンジャック			
* 13	VC 68 77 00	Ground Terminal Ass'y	アース端子 Ass'y				
* 15	EX 60 06 00	Plain Washer	φ4 AUメッキ	平座金			
* 16	EX 60 06 20	Hexagonal Nut	8×0.75 AUメッキ	六角ナット			
* 17	EX 60 06 40	Toothed Lock Washer	8S AUメッキ	歯付座金			
* 18	VC 68 42 00	Shield Plate	シールドプレート				
* 19	VC 78 31 00	UM Socket	UMソケット				
* 20	VC 41 42 00	Rear Panel	リアパネル				
* //	VC 41 43 00	//	//		J		
* //	VC 41 45 00	//	//		U		
* 21	VC 41 48 00	Holder, Heat Sink	ラジエターホルダー		G		
* 22	VC 86 93 00	Protector, Rear Panel	リアパネルプロテクター				
* 23	VC 86 95 00	Protector Base	プロテクターベース				
* 24	EJ 33 00 86	Binding Head Tapping Screw	3×8 FCRM3-BI	バインドタッピングネジ	PACK		
* 25	EX 60 05 70	Flat Head Screw with Hex. Hole	4×8 FCRM3	六角穴付皿小ネジ			
* 26	EX 60 05 80	//	4×20 FCRM3	//			
* 27	ED 34 01 66	Binding Head Screw	4×16 FCRM3-BI	バインド小ネジ	PACK		
* 28	EV 42 20 35	Toothed Lock Washer	φ3	歯付座金	PACK		
* 29	CB 80 68 50	Cord Stopper	SR-6N3-4	コードストッパー			
* //	CB 07 27 50	//	SR-4N-4	//		U	
* 31	VE 01 31 00	Power Cord	13A 125V	電源コード		G	
* //	MG 00 09 10	//	6A 250V 2m	//		U	
* //	MG 00 21 70	//	15A 125V 2m	//		G	
* 32	LB 20 30 60	AC Outlet	ACアウトレット			J	
* 33	VB 45 17 00	Lug Terminal	2P	ラグ端子		J,U	
* 34	VC 42 14 00	AC Cord Panel	ACコードパネル			G	
* //	VC 42 15 00	//	//			J	
* //	VC 42 17 00	//	//			U	
* 35	ED 33 00 86	Binding Head Screw	3×8 FCRM3	バインド小ネジ	PACK		
* 36	NA 09 34 00	Relay Circuit Board (Amp.)	リレーシート			J,U	
* //	NA 09 34 10	//	//			G	
* 37	NA 09 26 00	Center Circuit Board	センターシート			J,U	
* //	NA 09 56 80	//	//			G	
* 38	VC 68 93 00	Diode	15WB20	ダイオード			

\*New Parts (新規部品)

Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets	ランク
* 39	VC 78 63 00	Holder, Cord	コードホルダー				
* 40	EC 34 00 86	Truss Head Screw	4×8 ZMC2-BI	トラス小ネジ	PACK		
* 41	EX 60 05 60	Sems Pan Head Screw	4×8 BS-AUメッ	セムスナベ小ネジ			
* 42	EX 60 05 50	//	4×14 BNM3	//			
* 43	EV 20 30 46	Flat Washer	φ4	皿ワッシャー	PACK		
* 44	EC 34 00 86	Truss Head Screw	4×8 FCRM3-BI	トラス小ネジ	PACK		
* 45	EX 60 06 50	Cap Screw	4×14 クロ染メ	キャップスクリュー			
* 46	EX 60 06 10	Sems Plain Washer	φ4	セムス平座金			
* 47	VC 41 39 00	Amp. Leg Ass'y	アンブレッグ Ass'y				
* 48	VC 41 41 00	Bottom Cover (Side)	ボトムカバー				
* 49	VC 41 40 00	// C	// C				
* 50	VC 42 20 00	Cover, Input Circuit Board	インプットシートカバー				
* 51	EX 60 06 80	Cap Screw	4×20 クロ染メ	キャップスクリュー			
* 52	EX 60 04 90	Sems Pan Head Screw	2.6×8 FCRM3-BI	セムスナベ小ネジ			
* 53	EX 60 06 70	Flat Head Screw with Hex. Hole	4×14 FCRM3	六角穴付皿小ネジ			
* CB 06 92 50		Binding Tie	BK-1	インシュロックタイ			
* VD 95 90 00		Insulator		インシュレーター			
<b>Accessories</b>				付属品			
* VC 78 13 00		- Slotted Screwdriver	- 時計ドライバー				
* VC 78 39 00		Control Cable	コントロールケーブル				
* PB 06 53 30		Polishing Cloth	ポリッシングクロス				

\*New Parts (新規部品)

EXPLODED VIEW(Main Chassis Ass'y)

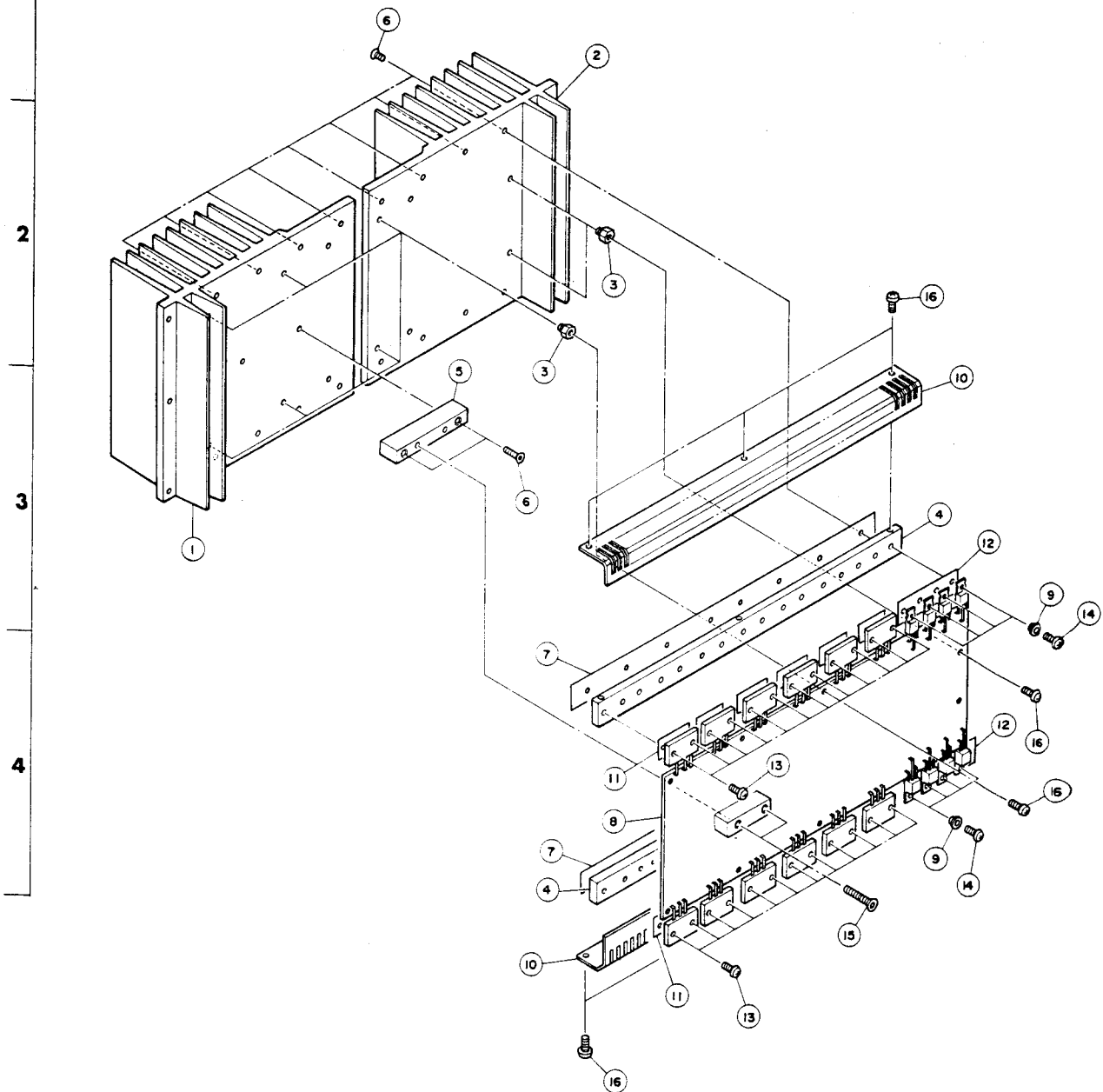


MECHANISM PARTS(Main Chassis Ass'y)

Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets	ランク
* 1	VC 69 03 00	Card Rail	カードレール				
* 2	VC 55 04 00	Terminal, Long	ターミナル Long				
* 3	VC 41 53 00	Sub Heat Sink	サブラジエター				
* 4	VC 41 74 00	Insulation Washer	絶縁座金				
* 5	VC 41 73 00	Spacer, Card Rail	カードレールスペーサー				
* 6	VC 78 41 00	Cork Damper	コルクダンパー				
* 7	VD 05 74 00	Post Adjuster	ポストアジャスター				
* 8	EX 60 06 30	Hexagonal Nut	M4 AUメッキ 六角ナット				
* 9	EX 60 06 10	Sems Plain Washer	φ4 AUメッキ セムス平座金				
10	ED 33 00 66	Binding Head Screw	3×6 FCRM3-BI バインド小ネジ	PACK			
11	EC 34 00 86	Truss Head Screw	4×8 FCRM3-BI トラス小ネジ	PACK			
12	EX 60 05 70	Flat Head Screw with Hex. Hole	4×8 FCRM3-3g 六角穴付皿小ネジ				
13	EX 60 05 90	// //	4×10 クロ染メ //				
* 14	VC 55 05 00	Terminal Post	8P ターミナルポスト				
* 15	VC 55 07 00	//	SPL //				
* 16	VC 55 09 00	//	SPR //				
* 17	VC 47 51 00	Electrolytic Cap.	22000μF 100V ブロックケミコン				
* 18	VC 41 75 00	P.C.B. Post	P. C. B. ポスト				
19	ED 34 00 66	Binding Head Screw	4×6 FCRM3-BI バインド小ネジ	PACK			

\*New Parts (新規部品)

# EXPLODED VIEW (Main Unit)



Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets	ランク
※	1	VC 41 56 00	Heat Sink A				
※	2	VC 41 60 00	// B				
※	3	VD 03 26 00	P.C.B. Post	L=8.4			
※	4	VC 41 70 00	Transistor Block	Long			
※	5	VC 68 41 00	Joint Plate				
※	6	EX 60 05 90	Flat Head Screw with Hex. Hole	4×10			
※	7	VD 30 17 00	Radiation Sheet	TR Block			
※	8	NA 09 25 80	Main Circuit Board				
※	9	CB 62 35 10	Insulation Bush				
※	10	VC 41 76 00	Main Cover				
※	11	VC 70 22 00	Radiation Sheet	TO-3 ジャンボ			
※	12	VC 70 21 00	//	4-TO-220			
	13	EX 60 05 40	Sems Pan Head Screw	3×10 BNM3-3g			
	14	EX 60 04 90	//	2.6×8 BNM3-3g			
	15	EB 04 04 06	Flat Head Screw	4×40 ZMC2-Y	皿小ネジ	PACK	
	16	ED 33 00 66	Binding Head Screw	3×6 FCRM3-BI	バインド小ネジ	PACK	

※New Parts (新規部品)

1 ■EXPLODED VIEW(Sub Chassis Unit)

1

2

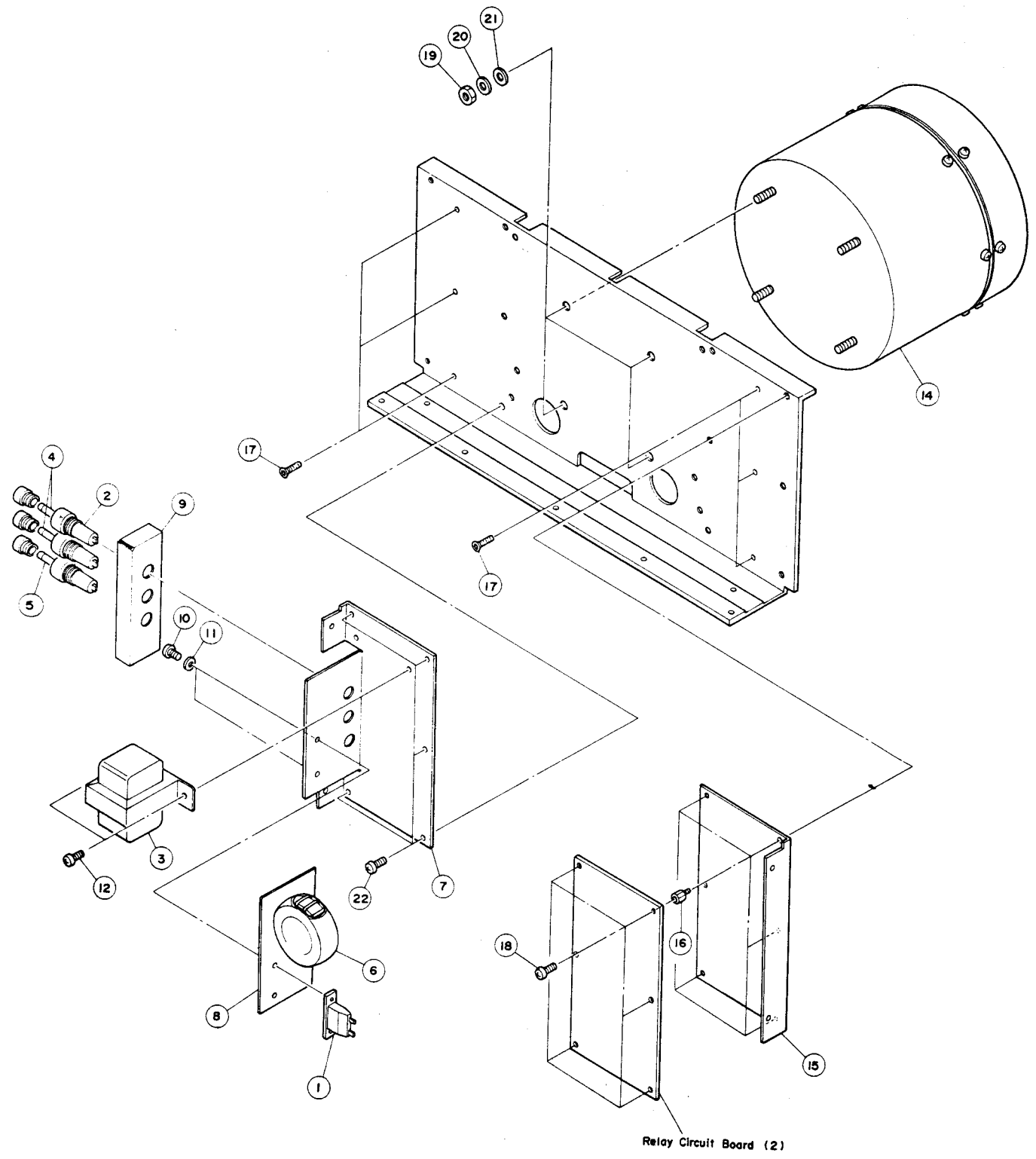
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7



Relay Circuit Board (2)



**MECHANISM PARTS(Sub Chassis Unit)**

Ref. No.	Part No.	Description	部品名		Remarks	Common Model	Markets	ランク
1	VB 45 17 00	Lug Terminal	2P	ラグ端子			J,U,G	
2	VC 78 33 00	Holder, Fuse	FH032	VU ヒューズホルダー			J,U	
※	// VC 78 34 00	//	FH033	VG //			G	
3	XB 99 70 02	Sub Transformer		サブトランス			J	△
※	// XB 99 80 02	//		//			U	△
※	// XB 99 90 02	//		//			G	△
4	KB 00 01 80	Fuse	10A 125V	ヒューズ			J	△
※	// KB 00 13 90	//	10A 250V	//			U	△
※	// KB 00 07 90	//	T4.0A 250V	//			G	△
5	KB 00 02 30	//	T2.0A 125V	//			J	△
※	// KB 00 10 30	//	2.0A 250V	//			U	△
※	// KB 00 07 30	//	T1.0A 250V	//			G	△
6	VD 04 78 00	Choke Coil	30μH 12A	チョークコイル				
7	VC 41 25 00	AC PRIM. Board		AC PRIM. ボード				
8	VD 02 13 00	Coil Insulator		コイルインシュレーター			J,U	
9	VC 72 03 00	Panel, Fuse		ヒューズパネル				
10	Ei 33 00 86	Binding Head Tapping Screw	3×8 FCRM3-BI	バインドタッピングネジ	PACK			
11	EV 20 30 36	Plain Washer	φ3 ZMC2-BI	平座金	PACK			
12	ED 34 00 86	Binding Head Tapping Screw	4×8	バインドタッピングネジ	PACK			
14	VC 80 05 00	Power Transformer Ass'y		電源トランス Ass'y			J	△
※	// VC 80 08 00	//		//			U	△
※	// VC 80 10 00	//		//			G	△
15	VC 72 04 00	Insulator Sheet		絶縁シート				
16	VC 72 01 00	P.C.B. Post	L=7	P. C. B. ポスト				
17	EX 60 05 70	Flat Head Screw with Hex. Hole	4×8 FCRM3	六角穴付皿小ネジ	PACK			
18	ED 33 00 66	Binding Head Screw	3×6 FCRM3	バインド小ネジ	PACK			
19	EV 10 30 66	Hexagonal Nut	M6 FCRM3	六角ナット	PACK			
20	EV 30 30 66	Sems Plain Washer	φ6 FCRM3	セムス平座金	PACK			
21	EV 20 30 66	Plain Washer	φ6 FCRM3-BI	平座金	PACK			
22	ED 34 00 66	Binding Head Screw	4×6 FCRM3-BI	バインド小ネジ	PACK			

※New Parts (新規部品)

MX-10000

# 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	12KΩ	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	1.0MΩ	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
1.0KΩ	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			

