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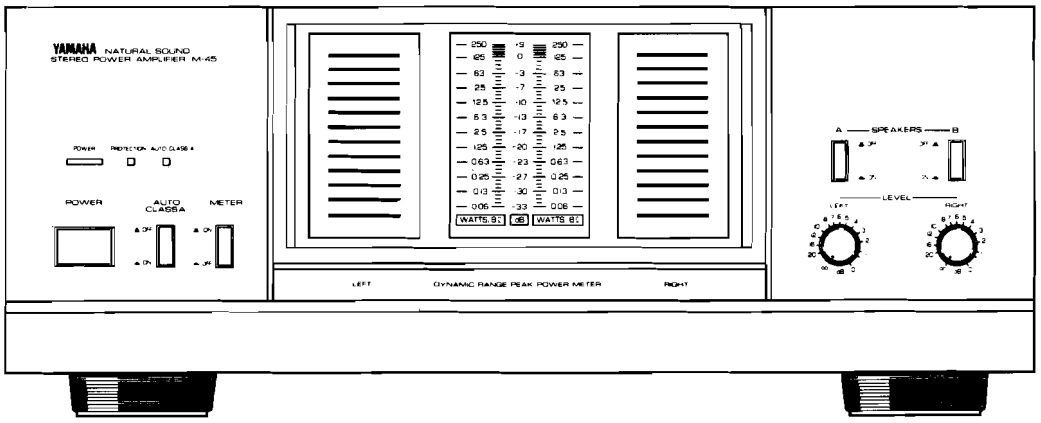
STEREO POWER AMPLIFIER

M-45

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 inherant 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.

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100029

SINCE 1887 YAMAHA

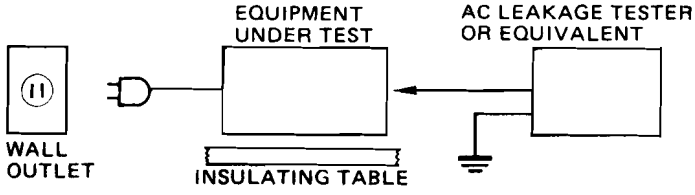
NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

2.8K-363 Printed in Japan '86.4

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 0.15μF.
- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.

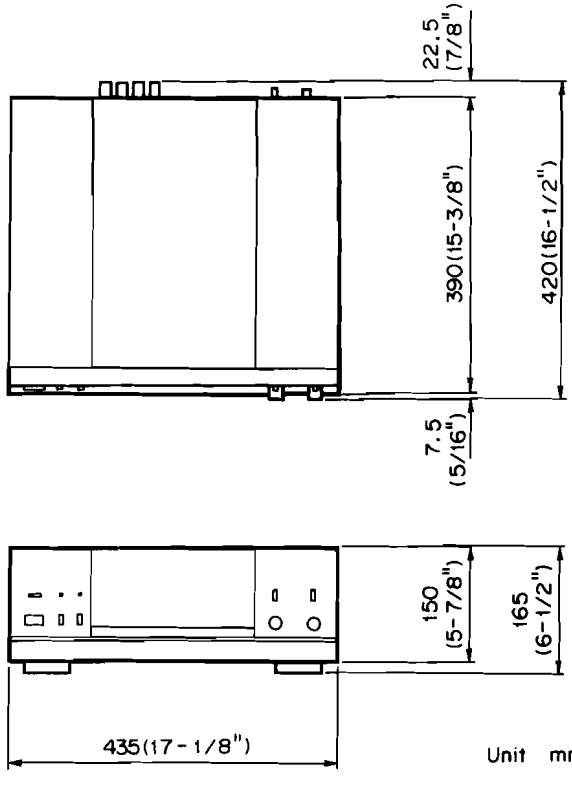


■ SPECIFICATIONS

Minimum RMS Output Power Channel (Auto class A 5W/8Ω)
20Hz ~ 20kH 0.003% THD 8 ohms 125W
0.007% 6 ohms 150W
0.02% 4 ohms 180W
Dynamic Power Per Channel
8 ohms 170W
6 ohms 210W
4 ohms 285W
2 ohms 390W
DIN Standard Output Power Per Channel
1kHz (1% THD 4 ohms) . . . . . 195W (A.G.B.)
Dynamic Headroom
8 ohms . . . . . 1.34dB (R.U.C.)
6 ohms . . . . . 1.46dB (R.U.C.)
4 ohms . . . . . 2.12dB (R.U.C.)
IEC Power
1kHz (0.01% THD) 8 ohms . . . . . 135W (A.G.B.)
6 ohms . . . . . 170W (A.G.B.)
Power Band Width
(0.03% THD 62.5W) 8 ohms . . . . . 10Hz ~ 60kHz
Dampina Factor
1kHz 8 ohms 70
Input Sensitity/Impedance
MAIN IN 1.14V/20kΩ
Frequency Response
MAIN IN . . . . . +0, −0.3dB
Total Harmonic Distortion
AUX/TAPE/TUNER (8Ω)
MAIN IN (62.5W/8Ω) 0.002%
Intermodulation Distortion
MAIN IN . . . . . 125 W 8 Ω 0.003%
Signal to Noise Ratio (IHF-A-Network)
MAIN IN (Shorted) 123dB
MAIN IN (5.1kohms terminated) 119dB
Residual Noise (IHF-A-Network) 16μV
Channel Separation (Vol −30dB)
1kHz/10kHz 89dB/70dB
Power Supply . . . . . AC120V, 60Hz (U.C.)
AC110/120/220/24 AC110/120/220/240V
60/50Hz (R)
Power Consumption . . . . . 500W/660VA (U.C.)
500W (R)
650W (A.G.B.)
AC Outlet Unswitched . . . . . 200W (max)
Dimensions (W x H x D) . . . . . 435 x 165 x 420 mm
(17-1/8") x (6-1/2") x (16-1/2")
Weight 12.5kg
(27 lbs) (8 oz)

**Specifications subject to change without notice.*
(U) . . . . . U.S.A. model
(C) . . . . . Canadian model
(A) . . . . . Australian model
(G) . . . . . European model
(B) . . . . . British model
(R) . . . . . Others model

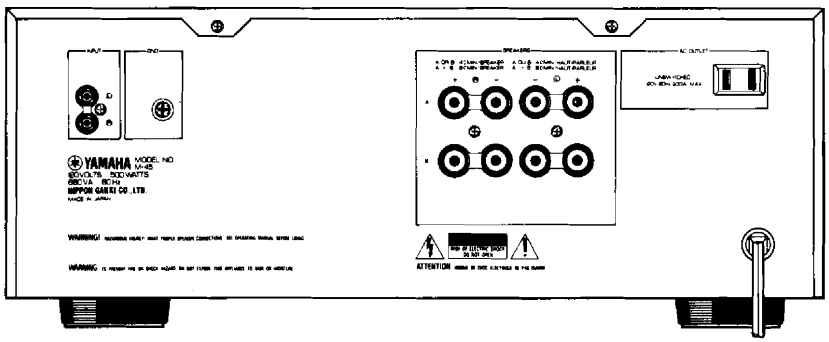
■ DIMENSIONS



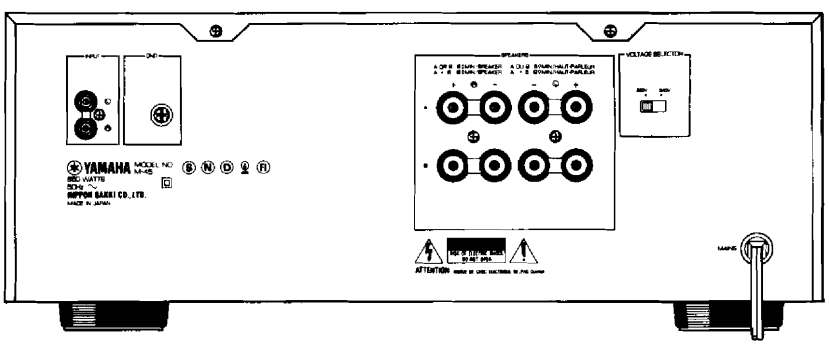
Unit mm(inch)

■ REAR PANELS

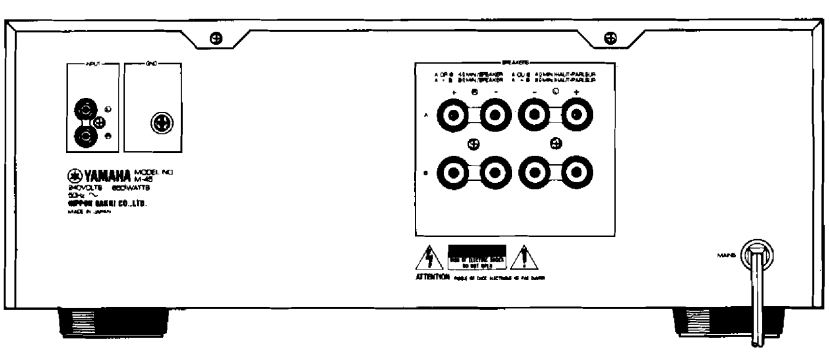
● U.S.A. & Canadian models



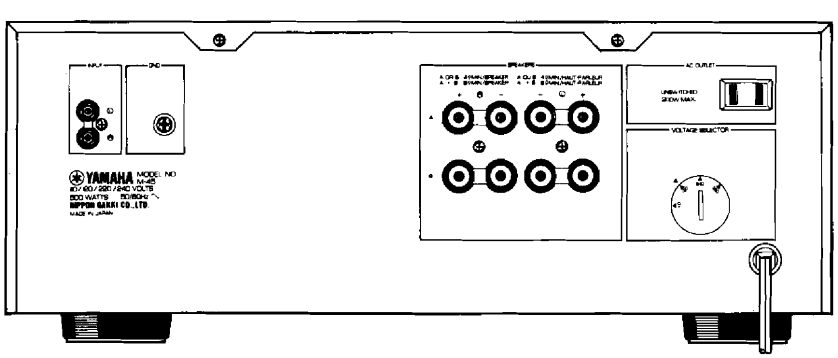
● European & British models



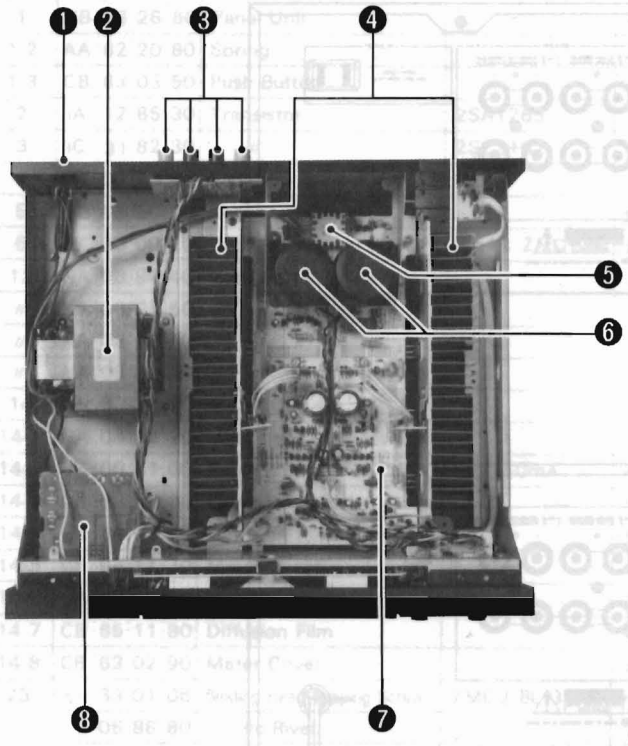
● Australian model



● Others model



■ INTERNAL VIEW



❶ AC OUTLET
❷ POWER TRANSFORMER
❸ SPEAKERS TERMINAL
❹ HEAT SINK
❺ DIODE BRIDGE: D5FB20
❻ ELECTROLYTIC CAP.
❼ MAIN CIRCUIT BOARD
❽ METER CIRCUIT BOARD

■ DISASSEMBLY PROCEDURES

1. Removal of Top Cover.
a. Remove 6 screws (①) in Fig. 1. and slide the Top Cover back.
2. Removal of Rear Panel.
a. Remove 15 screws (②) in Fig. 1.
3. Removal of Front Panel.
a. Remove 4 screws (③) in Fig. 1.
b. Remove 5 screws (④) LED Circuit Board.
and 15 screw screws Remove of the LED unit.
4. Removal of Bottom Cover.
Remove 11 screws (⑤) in Fig. 1.
and Heat seat Removal.

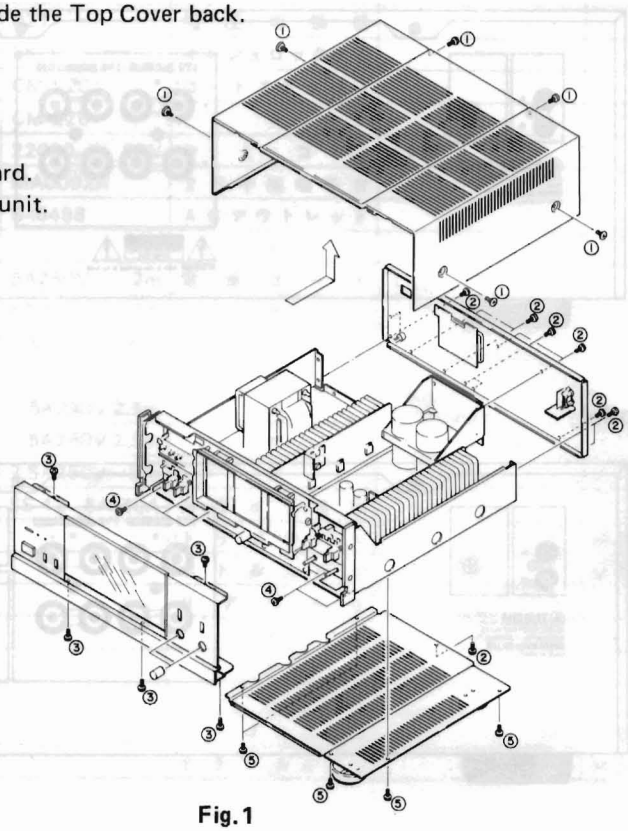
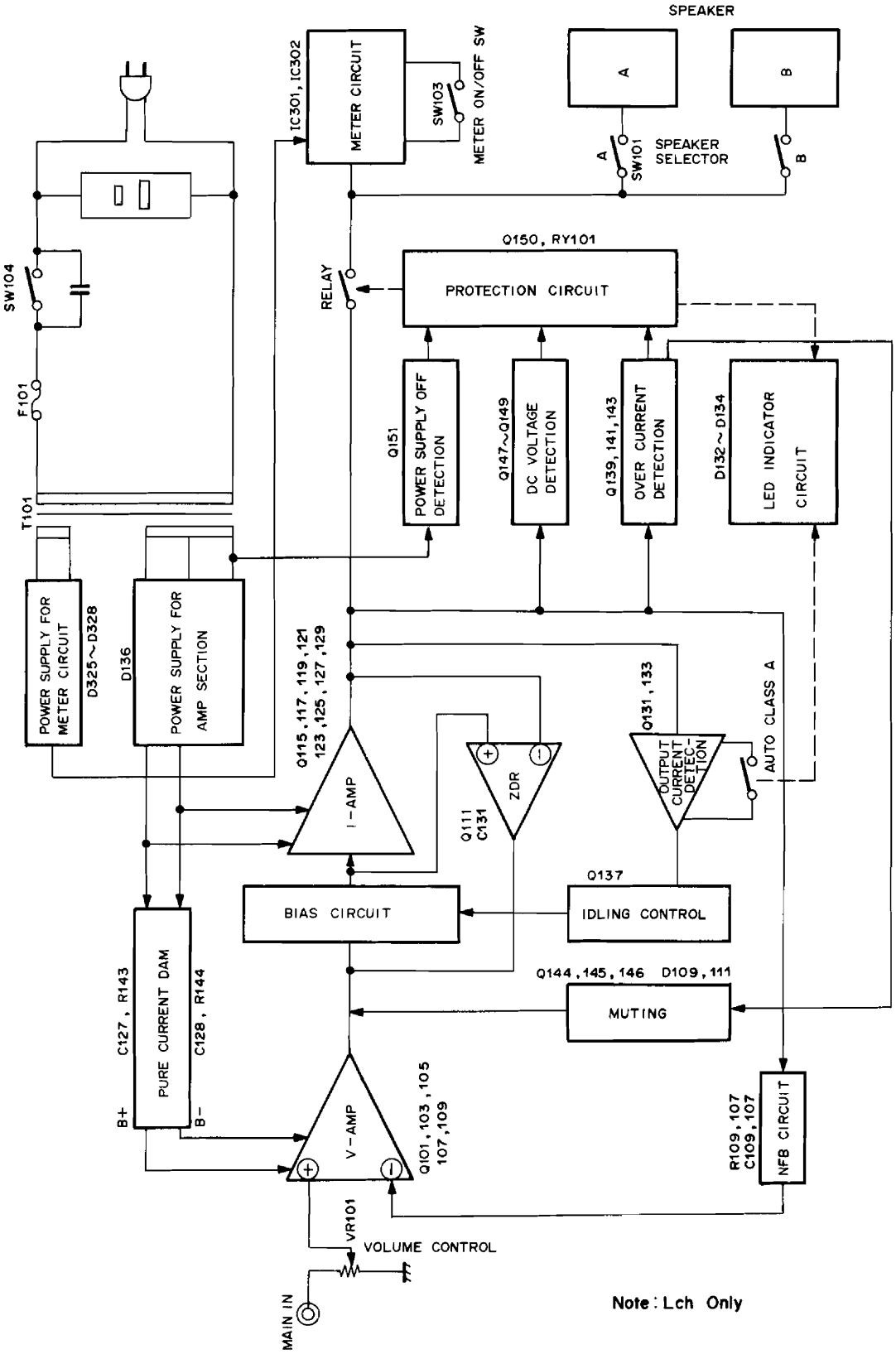


Fig. 1

■ BLOCK DIAGRAM

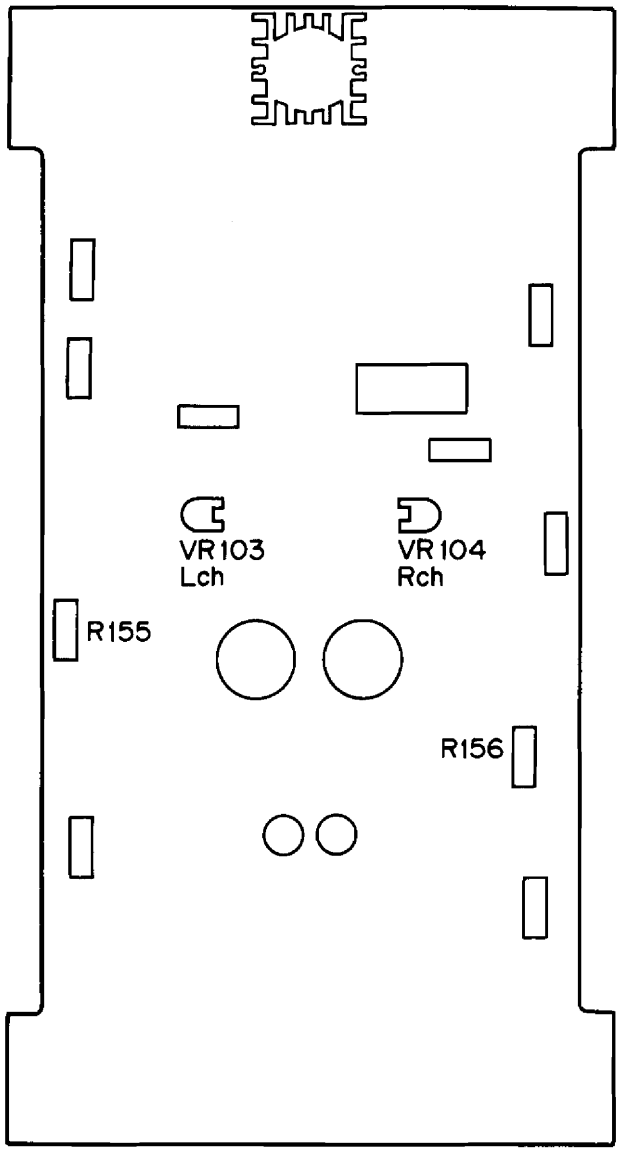


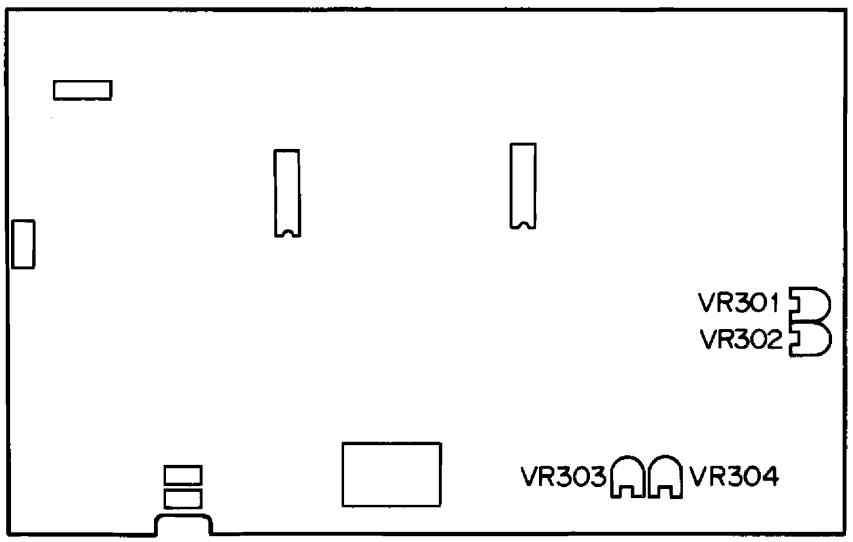
■ ADJUSTMENTS

Item		Condition or procedure	Check point	Adjust-ment	Direction	Equip-ment	Remarks
Idling adjustment		Before starting, leave M-45 about two minutes with: (a) AC POWER SWITCH – ON (b) AUTO CLASS-A SWITCH – OFF (c) NO signal input	*Voltage across R155 – Lch R156 – Rch	VR103 VR104	Adjust to 5 ± 1mV	DC VM	*Any of the power transistor's emitter resistor 3P 0.22Ω L-ch: R155,157, 159,161 R-ch: R156,158, 160,162
Confirming AUTO CLASS-A function		Leave M-45 about one minutes after activating AUTO CLASS-A SWITCH. NO signal input.	Same as above	Same as above	The readings 60 ± 30mV	DC VM	
Meter level setting	1	(a) Amplifier load: NO load or 8Ω (b) Input signal freq.: 1kHz (c) Output level: 0.69V	–33dB level LED	VR303-(L) VR304-(R)	Adjust the control to the LED lights up point		
	2	Reduce the signal level to 0.65V output (–0.5dB)	Same as above		Confirm the 0dB LED fades out		
	3	Increase the output level to 31.6V	0dB level LED	VR301-(L) VR302-(R)	Adjust to the LED lights up point		
	4	Reduce the signal level to 29.8V output (–0.5dB)	Same as above		Confirm the 0dB level LED fades out		
	5	Remove the input signal	–33dB level LED		Confirm its fading out		

■ ADJUSTMENT POINTS

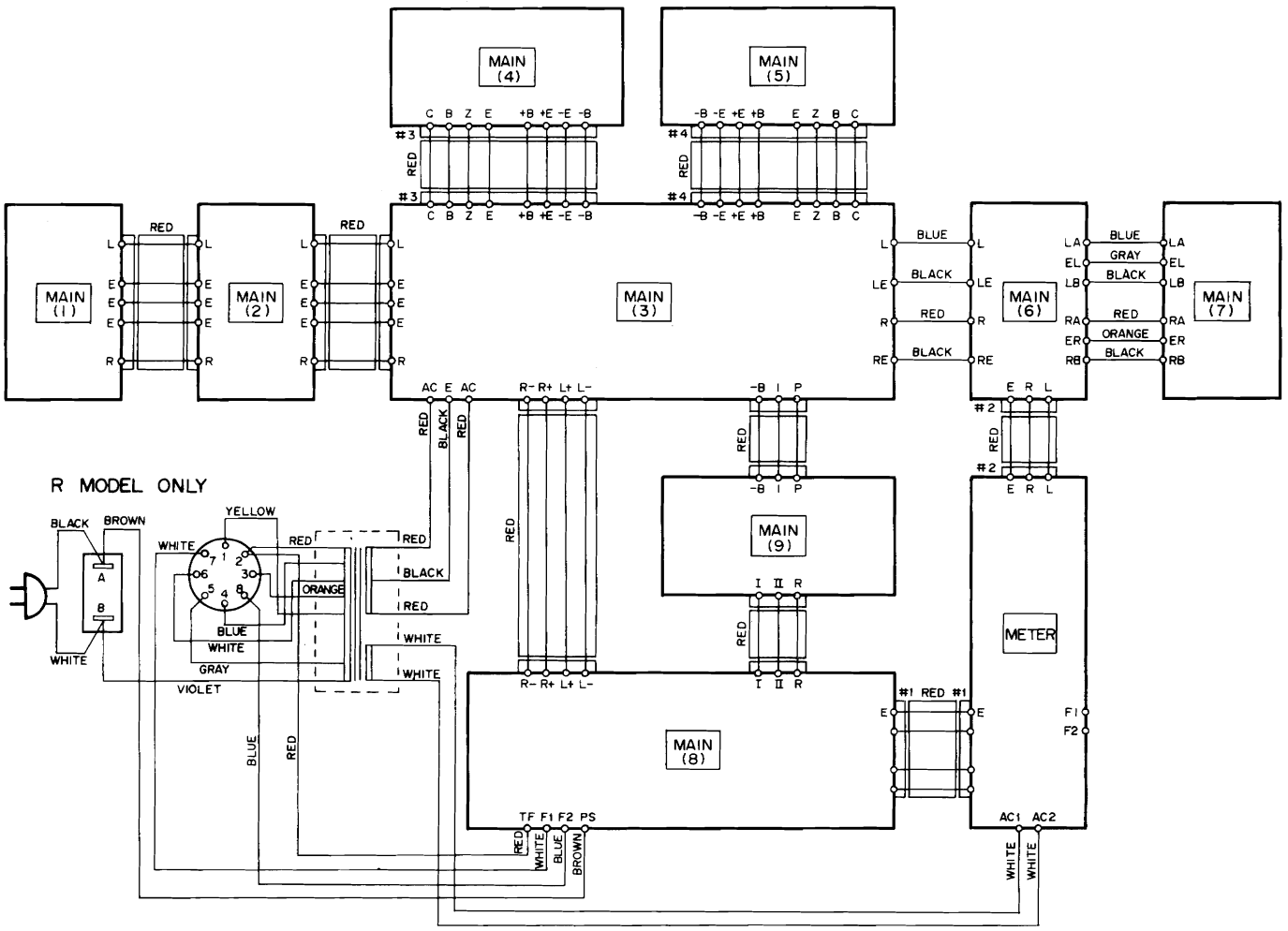
MAIN CIRCUIT BOARD



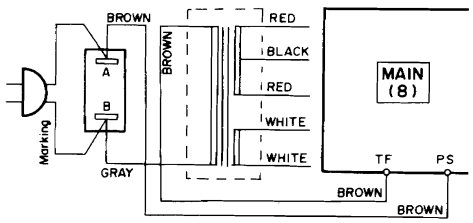


METER CIRCUIT BOARD

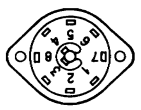
■ WIRING



U, C MODELS ONLY

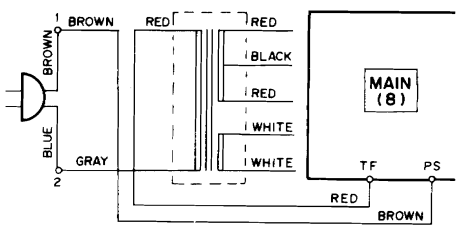


R MODEL LB201480

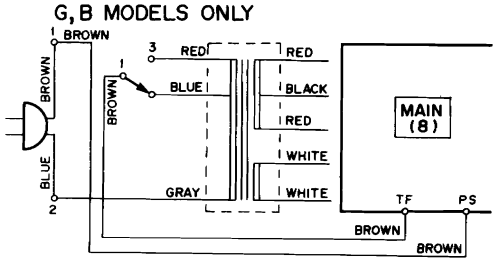


AC IN	CONNECT (Terminal No.)	
100V	5-4	2-1
120V	6-5	3-2
220V	7-1	8-4
240V	7-6	8-3

A MODEL ONLY



G, B MODELS ONLY

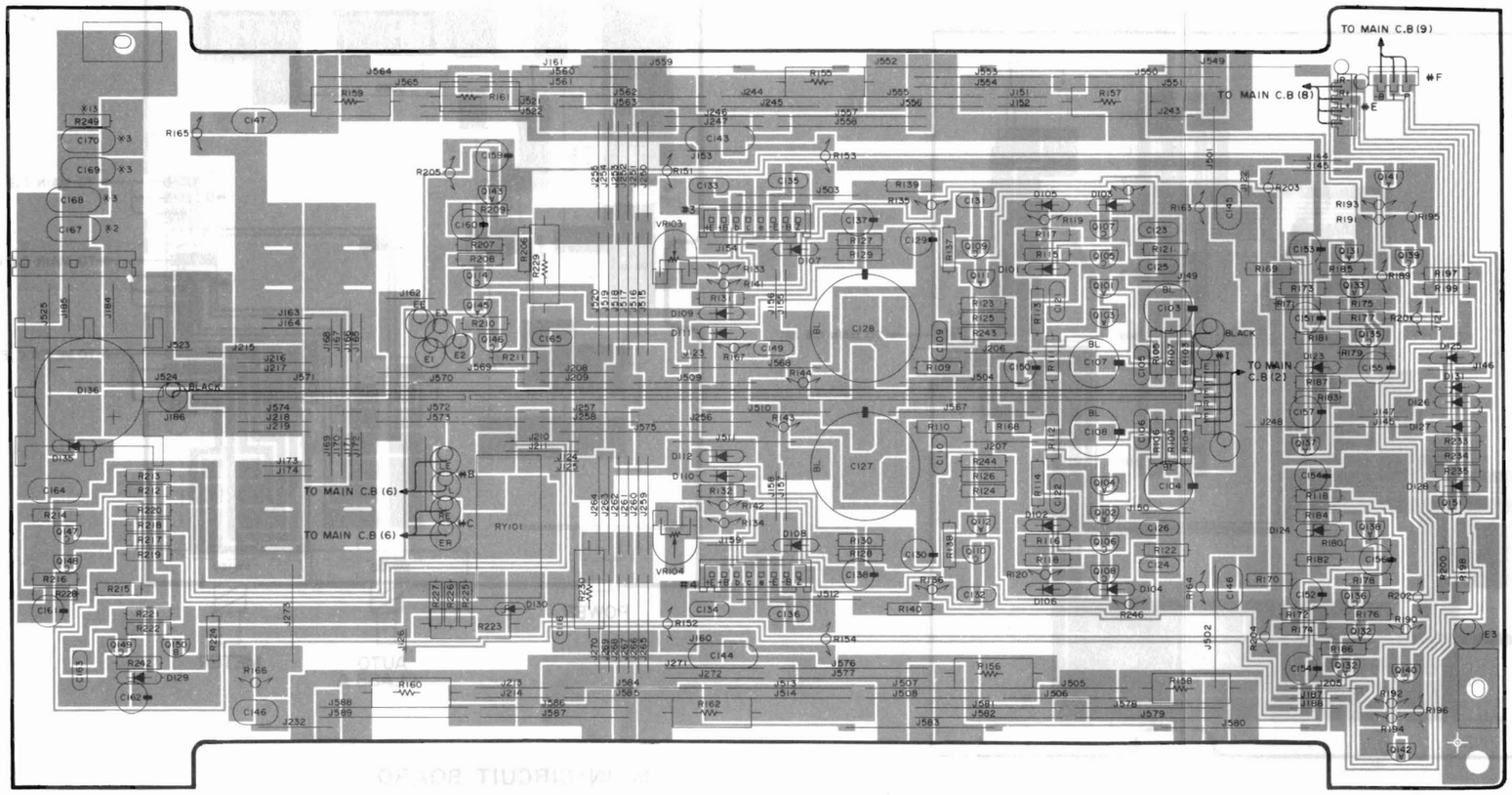


M-45

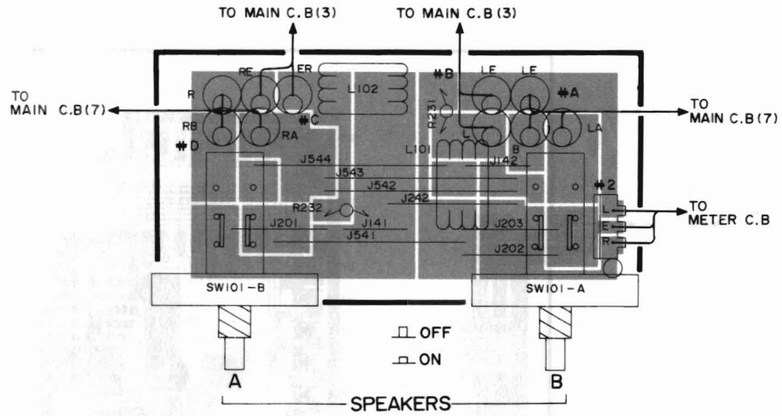
■PRINTED CIRCUIT BOARD (Pattern Side)

Note)
文字面：Component Side

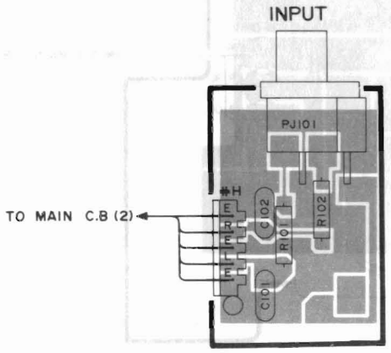
MAIN CIRCUIT BOARD (3)



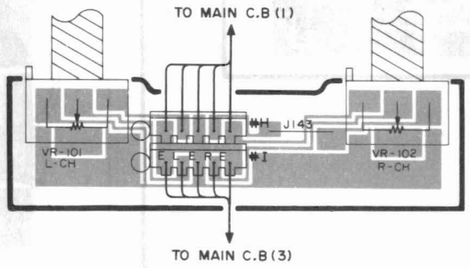
MAIN CIRCUIT BOARD (6)



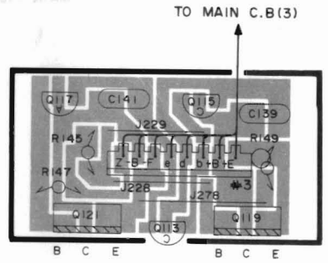
MAIN CIRCUIT BOARD (1)



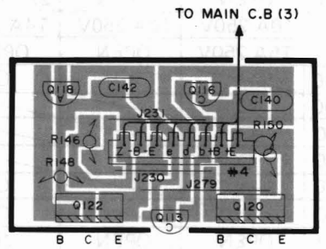
MAIN CIRCUIT BOARD (2)



MAIN CIRCUIT BOARD (4)



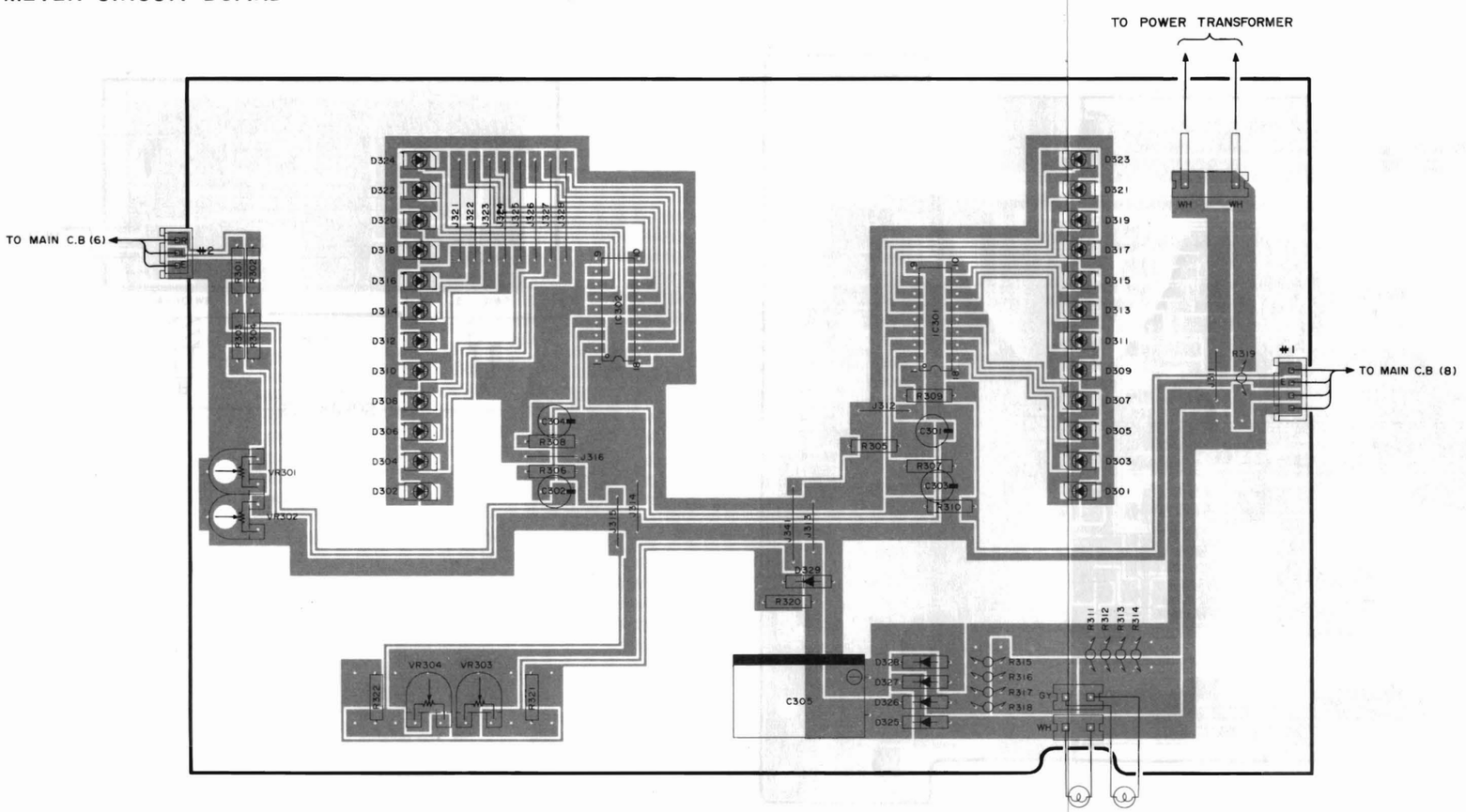
MAIN CIRCUIT BOARD (5)



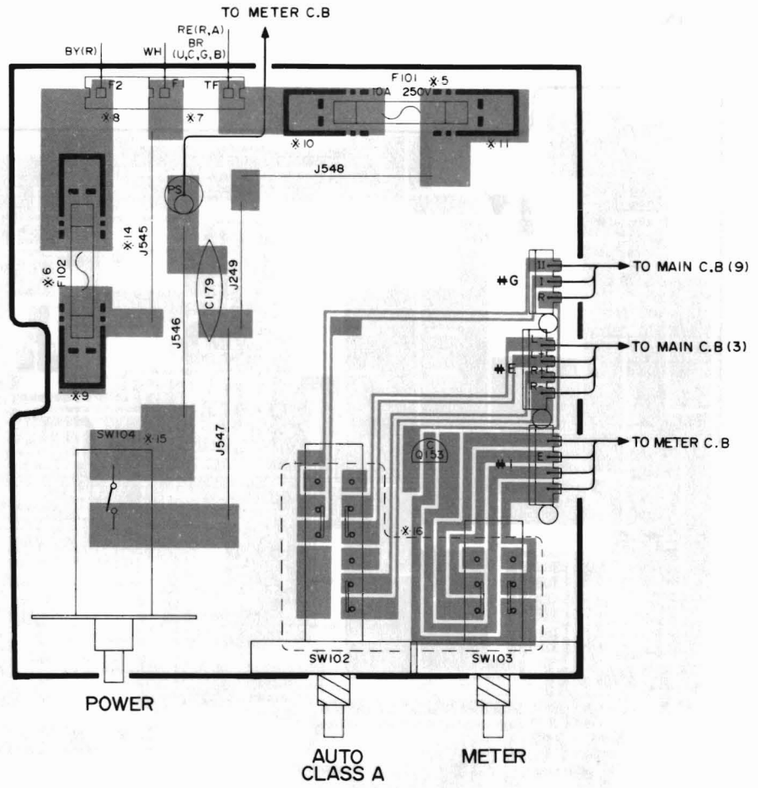
■ PRINTED CIRCUIT BOARD (Pattern Side)

Note)
文字面：Component Side

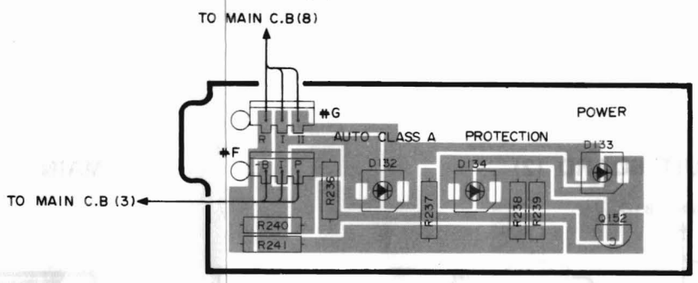
METER CIRCUIT BOARD



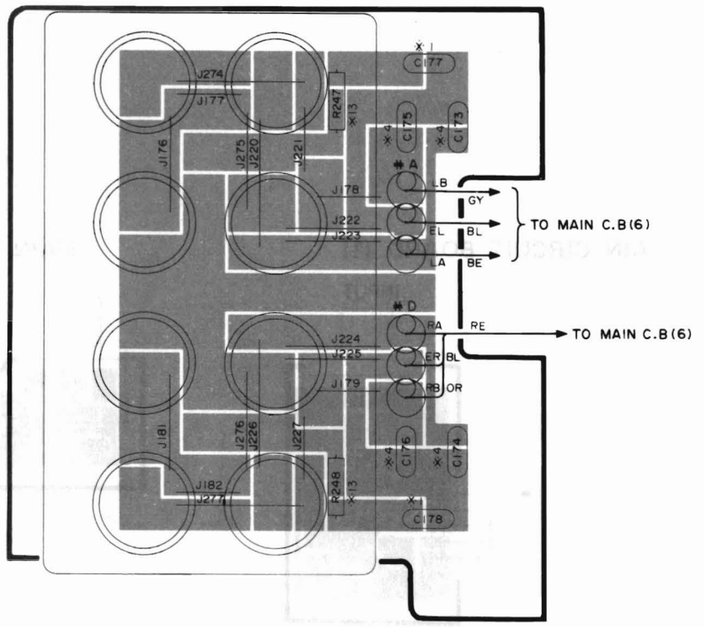
MAIN CIRCUIT BOARD (8)



MAIN CIRCUIT BOARD (9)



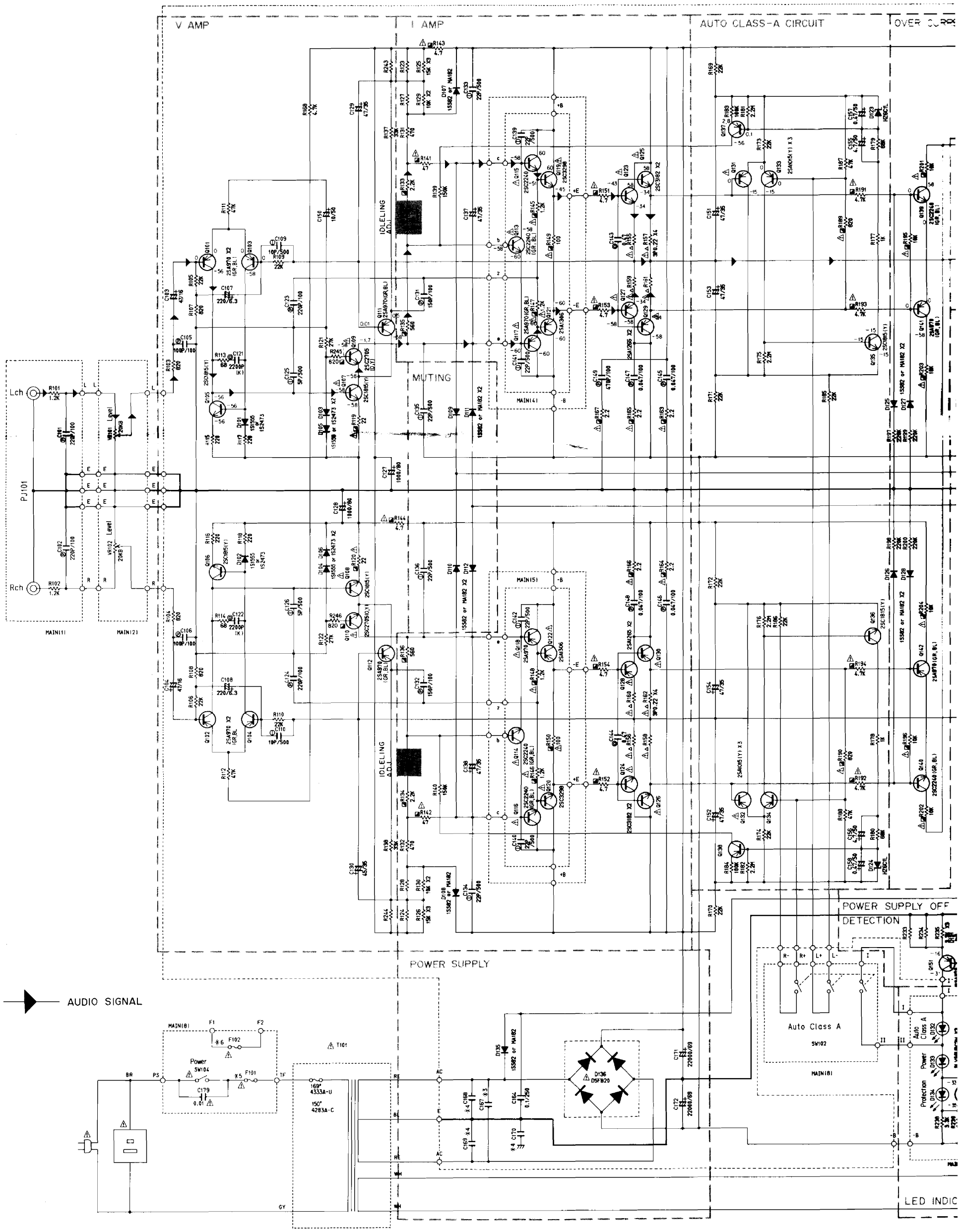
MAIN CIRCUIT BOARD (7)



Note: ※marked

※		R	U	A, G, B	C
1	C177, 178	OPEN	OPEN	0.01 (K)	OPEN
2	C167	0.1/250	0.1/250	OPEN	0.1/250
3	C168~170	OPEN	OPEN	0.1/250	OPEN
4	C173~176	OPEN	OPEN	2700P/100	OPEN
5	F101	10A 250V	10A 250V	T4A 250V	10A 250V
6	F102	T5A 250V	OPEN	OPEN	OPEN
7	LA002480		○	○	○
8	LA002490	○			
9	LB201970	○			
10	LB201970	○	○		○
11	LB201060			○	
12	BB068370			○	
13	R247~249	OPEN	OPEN	10	OPEN
14	J545	○			
15	SW104	KA80352	KA80352	KA80352	KA80430
16	CA085260				○

■ SCHEMATIC DIAGRAM

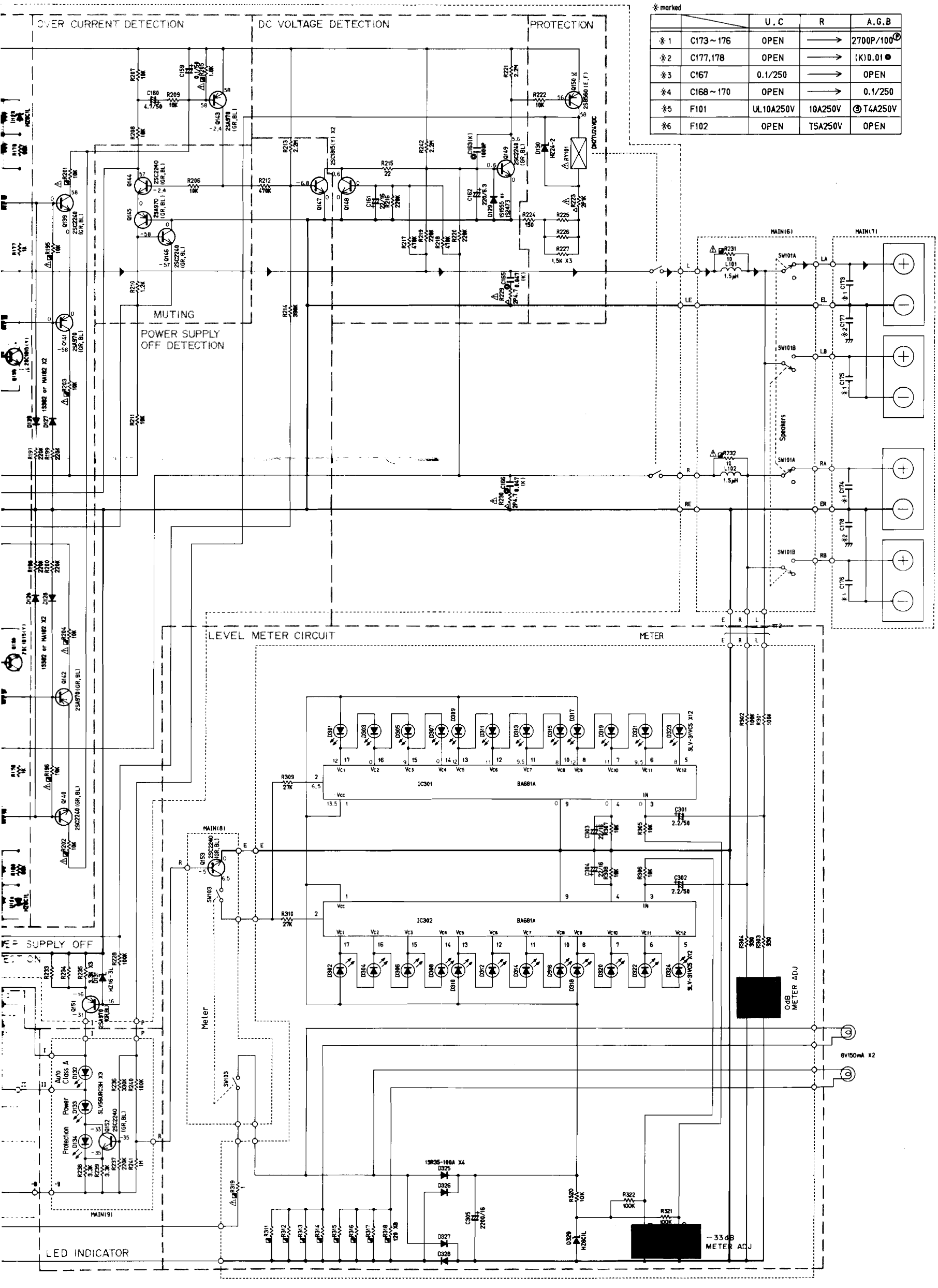


■ PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODE AND ICS.

2SA970 2SC2240 2SA1015 2SC2705 2SB560 2SC1815 E C B	2SA1306 2SC3298 B C E	2SA1265 2SC3182 B C E	1S1555 HZ6C1L or 1S2473 HZ16L3 1SS82 or MA182 1SR35-100A Anode Cathode	D5FB20	BA681A 10 9 18 1

※ marked

		U.C	R	A.G.B
※1	C173~176	OPEN	⟶	2700P/100Ⓟ
※2	C177,178	OPEN	⟶	(K)0.01●
※3	C167	0.1/250	⟶	OPEN
※4	C168~170	OPEN	⟶	0.1/250
※5	F101	UL10A250V	10A250V	③T4A250V
※6	F102	OPEN	T5A250V	OPEN



CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	⊣⊢
NO MARK	CERAMIC CAPACITOR	⊣⊢
◎	POLYESTEL FILM CAPACITOR (MYLAR)	⊣⊢
○	POLYSTYRENE FILM CAPACITOR	⊣⊢
ⓘ	MICA CAPACITOR	⊣⊢
Ⓟ	POLY PROPYLENE FILM CAPACITOR	⊣⊢
●	SEMICONDUCTIVE CERAMIC CAPACITOR	⊣⊢

RESISTOR

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

CAUTION

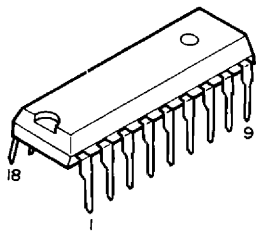
- Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.

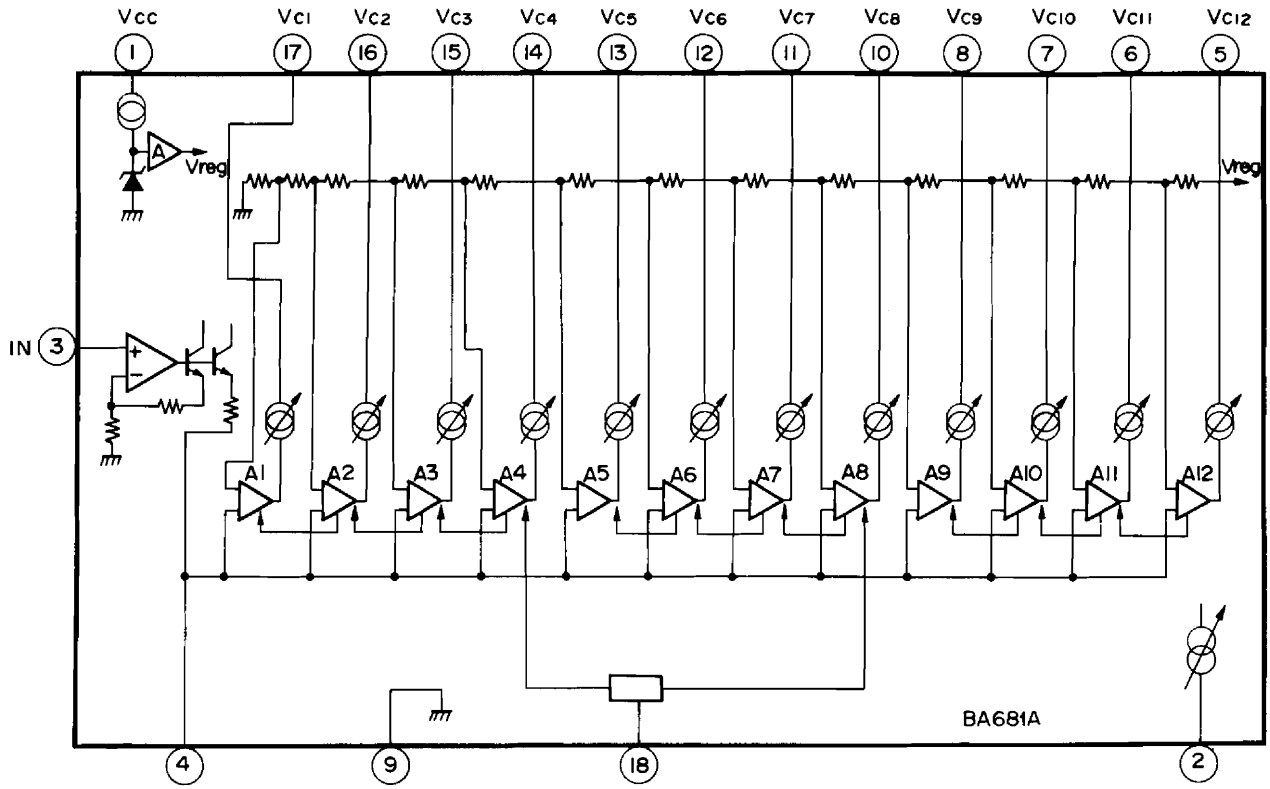
* *All voltages are measured with a 10MΩ/V DC electric volt meter.*

* *Schematic diagram is subject to change without notice.*

■ IC BLOCK DIAGRAM

IC301, 302
BA681A





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 1/4 W are not included in the ELECTRICAL PARTS list. For the parts No. of the carbon resistor, refer to P. 20.

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク
※		***NA 08 94 40***	***Main Circuit Board Ass'y***		メインシート			R	
※		***NA 08 94 50***	〃		〃			U	
※		***NA 08 94 60***	〃		〃			A,G,B	
※		***NA 08 99 80***	〃		〃			C	
		FC 44 31 00	Mylar CaP.	1000P 50V	マイラーコン	C163			
		FC 34 32 20	〃	2200P 50V	〃	C121,122			
		FC 44 41 00	〃	0.01μF 50V	〃	C177,178		A,G,B	
		FC 44 44 70	〃	0.047μF 50V	〃	C165,166			
		Fi 41 41 00	Ceramic Cap.	0.01μF VA-1	セラコン	C179 } Inter-changeable			
		Fi 51 41 00	〃	0.01μF DNS	〃	〃 }			
		FU 35 05 00	FE Mica Cap.	5P 500V	FEマイカコン	C125,126			
		FU 35 11 00	〃	10P 500V	〃	C109,119			
		FU 35 12 00	〃	22P 500V	〃	C133~136,139~142			
		FZ 00 46 60	Metallized Mylar Cap.	0.1μF 250V	MMコン	C164			
		FZ 00 46 60	〃	0.1μF 250V	〃	C167		R,U,C	
		FZ 00 46 60	〃	0.1μF 250V	〃	C168~170		A,G,B	
		FZ 00 59 80		1000μF 80V	オーディオコン(UKJ)	C127,128			
		FZ 00 61 30	Electrolytic Cap.	220μF 6.3V	ブラックゲートコン	C107,108			
		FZ 00 63 00	〃	47μF 16V	〃	C103,104			
		UA 25 54 70	Mylar Cap.	0.47μF 50V	マイラーコン	C143,144			
		UH 01 82 20	Electrolytic Cap.	220μF 6.3V	ケミコン	C162			
		UH 13 72 20	〃	22μF 16V	〃	C161			
		UH 15 74 70	〃	47μF 35V	〃	C129,130,137,138 151~154			
		UJ 16 51 00	〃	0.1μF 50V	〃	C159			
		UH 16 54 70	〃	0.47μF 50V	〃	C157,158			
		UH 16 64 70	〃	4.7μF 50V	〃	C155,156,160			
		UJ 16 71 00	〃	10μF 50V	〃	C150			
		UT 45 44 70	Polypropylene Film Cap.	0.047μF 100V	ポリプロコン	C145~148			
		UT 65 21 00	〃	100P 100V	〃	C105,106			
		UT 65 22 20	〃	220P 100V	〃	C101,102,123,124			
		UT 45 21 50	〃	150P 100V	〃	C131,132			
		UT 65 24 70	〃	470P 100V	〃	C149			
		UT 46 32 70	〃	2700P 100V	〃	C173~176		A,G,B	
		HL 32 34 70	Metal Oxide Film Resistor	4.7Ω 2W	酸金抵抗	R229,230			
		HL 22 61 00	〃	1kΩ 2W	〃	R223			
※		VA 87 21 00	〃	0.22Ω 3W	〃	R155~162			
		HV 45 32 20	Flame Proof Carbon Resistor	2.2Ω 1/4W	不燃化カーボン抵抗	R163~167			
		HV 45 34 70	〃	4.7Ω 1/4W	〃	R143,144,151~154			
		HV 45 41 00	〃	10Ω 1/4W	〃	R231,232			
		HV 45 42 20	〃	22Ω 1/4W	〃	R119,120			
		HV 45 44 70	〃	47Ω 1/4W	〃	R141,142			
		HV 45 51 00	〃	100Ω 1/4W	〃	R149,150			
		HV 45 55 60	〃	560Ω 1/4W	〃	R135,136			
		HV 45 58 20	〃	820Ω 1/4W	〃	R189,190,245,246			
		HV 45 61 20	〃	1.2kΩ 1/4W	〃	R145~148			
		HV 45 61 80	〃	1.8kΩ 1/4W	〃	R205			
		HV 45 62 20	〃	2.2kΩ 1/4W	〃	R133,134			
		HV 45 64 70	〃	4.7kΩ 1/4W	〃	R191~194			
		HV 45 71 00	〃	10kΩ 1/4W	〃	R195,196,201~204			
※		VA 99 40 00	Potentiometer	20kΩ-B	可変抵抗器	VR101,102			
		HT 37 03 40	Pre-Set Potentiometer	1kΩ-B	半固定抵抗	VR103,104			

※New Parts (新規部品)

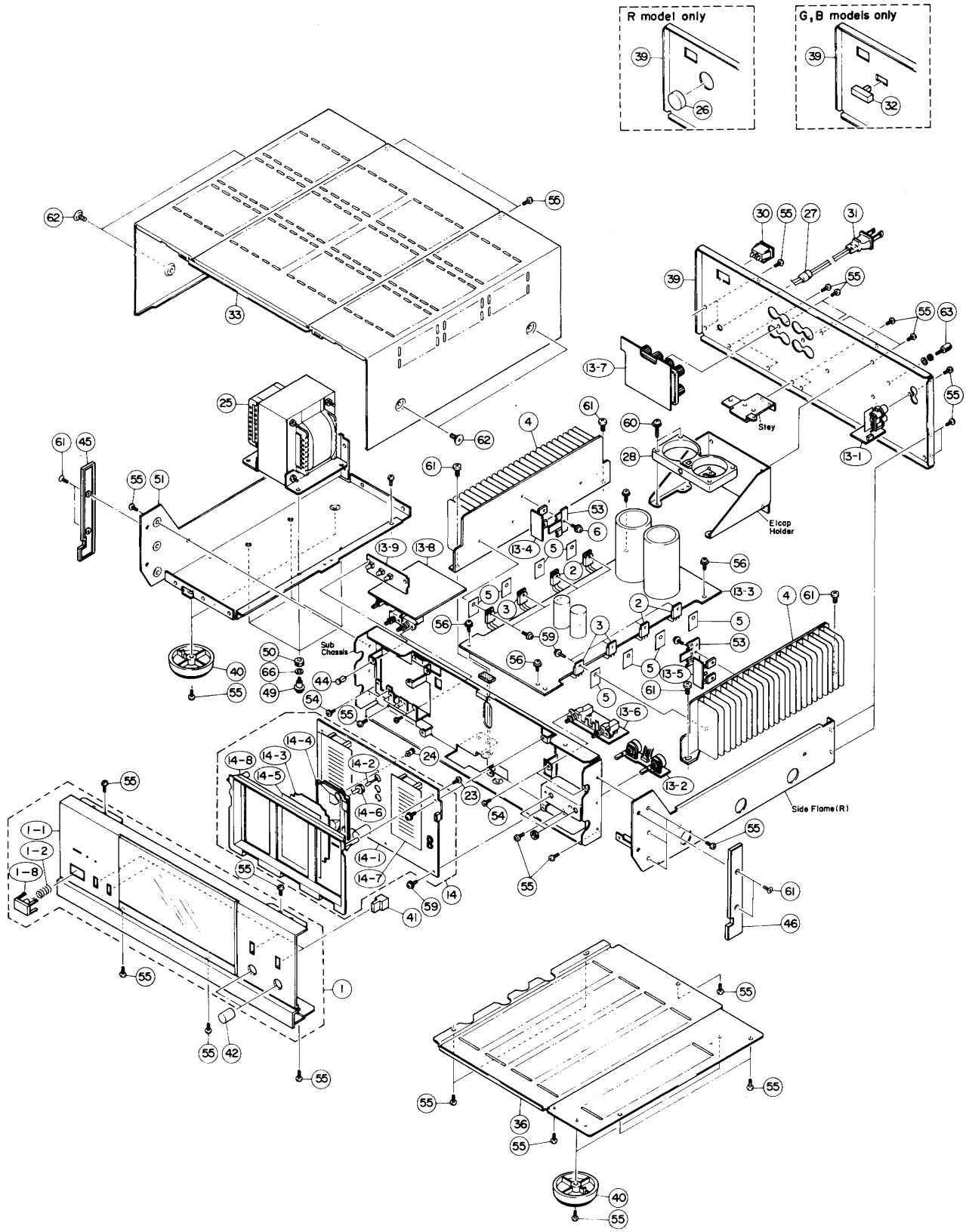
Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク
	GD 90 03 40	Coil	1.5μH	アウトプットコイル	L101,102			
	iA 09 70 00	Transistor	2SA970(GR,BL)	トランジスタ	Q101~104,111,112,117, 118,141~143,145,151			
	iA 10 15 11	〃	2SA1015(Y)	〃	Q131~134,137,138			
	iA 13 06 40	〃	2SA1306	〃	Q121,122			
	iB 05 60 00	〃	2SB560(E,F)	〃	Q150			
	iC 22 40 00	〃	2SC2240(GR,BL)	〃	Q113~116,139,140,144, 146,149,152,153			
	iC 18 15 11	〃	2SC1815(Y)	〃	Q105~108,135,136, 147,148			
	iC 27 05 00	〃	2SC2705(O,Y)	〃	Q109,110			
	iC 32 98 40	〃	2SC3298	〃	Q119,120			
	iF 00 06 70	Diode	1S2473	ダイオード	D101~106,129	Inter-changeable		
	iF 00 00 40	〃	1S1555	〃	〃	Inter-changeable		
	iF 00 55 60	〃	1SS82	〃	D107~112,125~128,135			
	iF 00 19 40	Zener Diode	HZ24-2	ツェナーダイオード	D130			
	iF 00 15 10	〃	HZ6C1L	〃	D123,124			
	iF 00 20 80	〃	HZ16-3L	〃	D131			
	iF 00 44 40	LED(Red)	SLV56URC3H	LED	D132~134			
	iH 00 11 30	Diode	D5FB20	ダイオードブリッジ	D136			
	KA 80 43 00	Power Switch	TV-8	パワーSW	SW104		C	
	KA 80 35 20	Push Switch	SDL TV-5	プッシュSW	〃		R,U,A,G,B	
※	VA 87 19 00	〃	2-2SPUF	〃	SW103			
※	VA 87 20 00	〃	4-2SPUN	〃	SW102			
※	VA 87 60 00	〃	2-2 2-Ganged	〃	SW101			
	KB 00 04 00	Fuse	T5A 250V	ヒューズ	F102		R	⚠
	KB 00 07 90	〃	T4A 250V	〃	F101		A,G,B	⚠
	KB 00 13 90	〃	10A 250V	〃	〃		U,C	⚠
	KB 00 14 90	〃	10A 250V	〃	〃		R	⚠
	KC 00 19 40	Relay	DH2TU 24VPC	リレー	RY101			
	LB 20 25 60	Pin Jack	2P	ピンジャック	PJ101			
	LA 00 24 80	Wrapping Terminal	2P P=10	ラッピングタンシバン			U,A,G,C,B	
	LA 00 24 90	〃	3P P=10	〃			R	
	LA 00 46 80	Terminal	8P	ネジターミナル				
	LB 20 10 60	Fuse Holder	YSH403T	ヒューズホルダー			A,G,B	
	LB 20 19 70	〃	23165081	〃			R,U,C	
	LB 91 80 80	Base Holder Pin	8P	ベースピン				
	BB 06 83 70	Ground Terminal		アースカナグ				
	BB 07 04 10	Bus Ber	l=55mm	バスバー				
	BB 07 04 30	〃	l=145mm	〃				
	CA 08 52 60	Speacer		スペーサー	SW102,103		C	
	NA 08 94 70	***Meter Circuit Board Ass'y***		メーターシート				
	UH 13 72 20	Electrolytic Cap.	22μF 16V	ケミコン	C303,304			
	UH 16 62 20	〃	2.2μF 50V	〃	C301,302			
	UJ 13 92 20	〃	2200μF 16V	〃	C305			

※New Parts（新規部品）

Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク
	HT 37 03 40	Pre-Set Potemtiometer	1KΩ-B	半固定抵抗	VR301,302			
	HT 37 03 30	〃	500Ω-B	〃	VR303,304			
	HV 45 31 00	Flame Proof Carbon Resister	1Ω 1/4W	不燃化カーボン抵抗	R319			
	HV 45 51 20	〃	120Ω 1/4W	〃	R311~318			
※	XA 51 40 01	IC	BA681A	I C	IC301,302			
	iF 00 84 80	Diode	1SR35-100A	ダイオード	D325~328			
	iF 00 15 10	Zener Diode	HZ6C1L	ツェナーダイオード	D329			
	iF 00 77 10	LED	SLV-31VC5	L E D	D301~324			
	LA 00 21 10	Wrapping Terminal I-Type	2P P=5	I型ラッピングタンシバン				
	LA 00 26 50	〃 L-Type	2P P=10	L型 〃				
	LB 91 80 30	Base Pin XH-Type	3P	XH型ベースピン				
	LB 91 80 40	〃	4P	〃				
	CB 65 11 20	Reflector		リフレクター				

※New Parts（新規部品）

■MECHANISM EXPLODED VIEW



■ MECHANISM PARTS

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク	
※	1	NB 63 26 60	Panel Unit		パネルユニット					
	1-2	AA 62 20 80	Spring		スプリング		M-80			
	1-3	CB 63 03 50	Push Button		プッシュボタン	POWER	M-80			
	2	iA 12 65 30	Transistor	2SA1265	トランジスター	Q127,128,129,130				
	3	iC 31 82 30	//	2SC3182	//	Q123,124,125,126				
※	4	BA 09 43 00	Radiator		ラジエータ					
※	5	VB 43 50 00	Radiation Sheet		放熱ベース					
	6	EK 33 00 20	BW Head Tapping Screw	3×14 ZMC 2-Bl	BWヘッドタッピンネジ					
	13	NA 08 94 40	Main Circuit Board Ass'y		メインシート			R		
	//	NA 08 94 50	//		//			U,C		
	//	NA 08 94 60	//		//			A,G,B		
※	//	NA 08 99 80	//		//			C		
	14	NB 63 26 90	Meter Unit		メーターユニット					
	14-1	NA 08 94 70	Meter Circuit Board Ass'y		メーターシート					
	14-2	JB 00 11 00	Pilot Lamp	8V 150mA	パイロットランプ					
	14-3	CB 63 05 30	Lamp Reflector		ランプリフレクター		M-80			
	14-4	CB 63 05 50	Diffusion Plate		拡散プレート		M-80			
※	14-5	CB 65 11 70	Meter Sheet		メーターシート					
	14-6	CB 63 07 50	Lamp Cap.		ランプキャップ		M-80			
	14-7	CB 65 11 80	Diffusion Film		拡散フィルム					
	14-8	CB 63 02 90	Meter Cover		メーターカバー		M-80			
	23	Ei 33 01 06	Binding Head Tapping Screw	ZMC 2-BL 3×10	バインドタッピン					
	24	CB 06 88 80	Plastic Rivet		プラスチックリベット					
※	25	XA 57 80 01	Power Transformer		電源トランス			U		⚠
※	//	XA 57 90 01	//		//			A		⚠
※	//	XA 58 00 01	//		//			G,B		⚠
※	//	XA 58 10 01	//		//			C		⚠
※	//	XA 57 70 01	//		//			R		⚠
	26	LB 20 14 80	Voltage Selector	0211	電圧切換器			R		⚠
		CB 06 92 50	Binding Tie	BK-1	インシュロックタイ					
	27	CB 62 02 00	Cord Stopper	CM-22C	コードストッパー			U,C		
	//	CB 62 01 90	//	CM-22B	//			R,A,G,B		
	28	FZ 00 62 50	Electrolitic Cap.	22000μF 69V	ケミコン	a pair				
	29	LA 00 29 50	2P Relay Terminal	MA0092A	2P中継端子台			A,G,B		
	30	LB 20 18 10	AC OUTLET	S-i6498	ACアウトレット			R		⚠
	//	LB 20 30 60	//		//			U,C		⚠
※	31	MG 00 23 40	Power Cord	6A250V 2m	電源コード	Inter-changeable		R		⚠
	//	MG 00 16 30	//	6A250V 2m	//			R		⚠
※	//	MG 00 22 20	//	10A125V 1.98m	//			U,C		⚠
※	//	MG 00 23 10	//	7.5A250V 2.5m	//	Inter-changeable		A		⚠
	//	MG 00 09 20	//	7.5A250V 2.5m	//			A		⚠
	//	MG 00 14 90	//	7.5A250V 2.5m	//			A		⚠
	//	MG 00 16 20	//	2.5A250V 2m	//			G,B		⚠
	32	KA 40 12 60	Slide Switch	SS-12 5A/40A	スライドSW			G,B		⚠
	33	AA 62 19 80	Top Cover		トップカバー		M-80			
	36	AA 62 20 30	Bottom Cover		ボトムカバー		M-80			
※	39	AA 62 91 00	Rear Panel		リアパネル			R		
※	//	AA 62 91 10	//		//			U,C		
※	//	AA 62 91 20	//		//			G,B		
※	//	AA 62 91 30	//		//			A		
	40	NB 62 03 20	Leg Ass'y		レッグAss'y		M-80			
	41	NB 62 04 60	Button Ass'y		ボタンAss'y		M-80			

※New Parts (新規部品)

Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク
42	BA 08 58 70	Knob		ツマミ	LEVEL	A-05		
43	CB 60 14 40	Voltage Selection Stoppar		VSストッパー		A-760	R	
44	CB 06 88 80	Plastic Rivet		プラスティックリベット				
45	CB 63 03 70	Side Plate L		サイドプレートL		M-80		
46	CB 63 03 80	Side Plate R		サイドプレートR		M-80		
47	CB 63 07 60	Damper		ダンパー (M)		M-80		
48	CB 60 13 40	Spacer		スペーサー		T-760		
49	AA 60 38 50	Special Screw		ダンツキネジ		A-760		
50	CB 09 99 10	Rubber Cushion		防振ゴム		A-760		
※ 51	AA 62 91 60	Side Frame L		サイドフレームL				
52	CB 61 90 40	Rubber		オサエゴム		T-700		
53	AA 62 49 20	TR Pusher		TRプッシャー		A-1020		
54	ED 33 00 66	Binding Head Screw	M3×6 FCRM3-BI	バインド小ネジ	PACK			
55	Ei 33 00 86	Bind Head Tapping Screw	M3×8 FCRM3-BI	バインドタッピンネジ	PACK			
56	EX 60 02 40	BW Head Tapping Screw	3×8(φ10)FCRM3-BI	BWヘッドタッピン2	PACK			
58	EB 34 01 00	Flat Head Screw	4×10 FCM3-BI	ネジSタイト				
59	EK 33 00 30	BW Heard Screw	3×10 FCRM3-BI	BWヘッドタッピン2				
60	EJ 03 01 86	PAN Head Tapping Screw	3×18 ZMC2-Y	バインドタッピンネジ	PACK			
61	ED 34 00 86	Bind Head Screw	4×8 FCRM3-BI	バインド小ネジ	PACK			
62	AX 60 01 50	Screw	4×8 FCRM3-BI	化粧ネジ				
63	AA 62 73 10	Ground Terminal	STG3×13 MFNi-II	GNDターミナル				
64	EV 90 13 60	Plain Washer	3.6×10×0.8FNM3-3g	鉄セムス平座金				
65	EV 41 30 36	Toothed Locked Washer	φ3 FCRM3-BI	歯付座金	PACK			
66	EV 20 30 66	Plain Washer	φ6 FCRM3-BI	平座金	PACK			

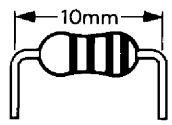
※New Parts (新規部品)

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	※	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	※
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			

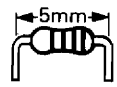
1/4W Type

HJ35○○○○



1/6W Type

HF85○○○○



JUL. '85

STEREO POWER AMPLIFIER

M-45

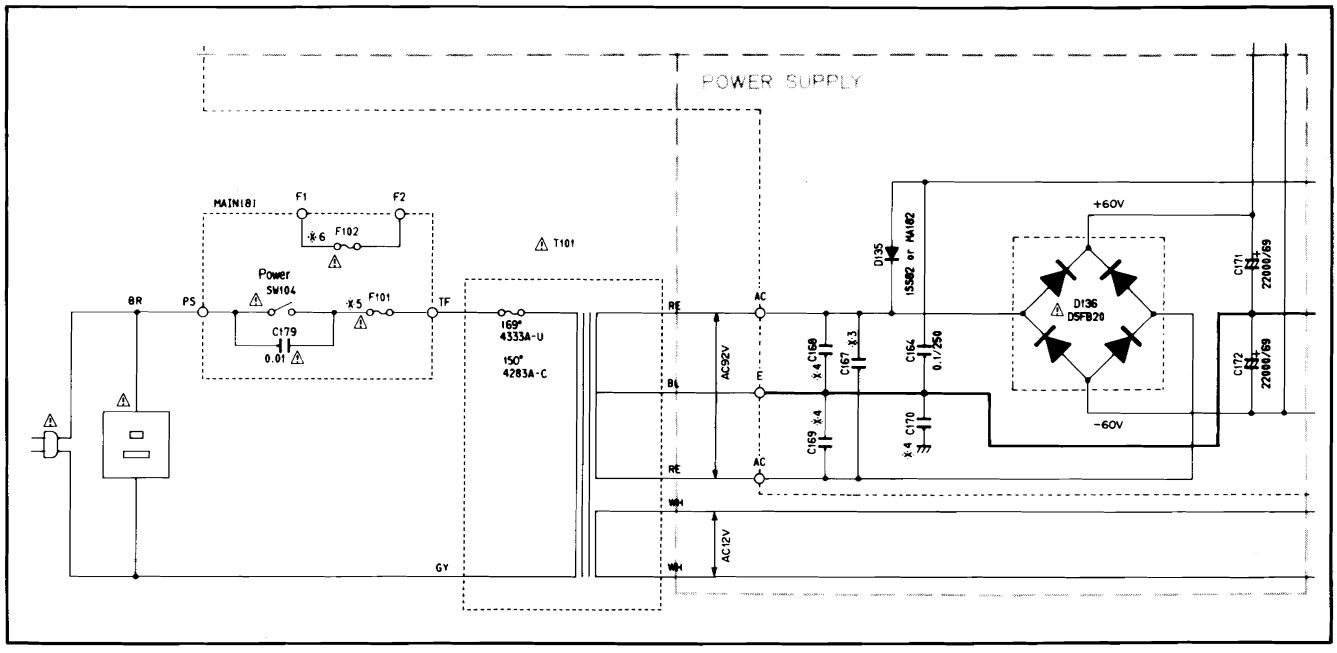
SERVICE MANUAL

CORRECTIONS

- **There are additions to and mistakes in the voltaged in the M-45 circuit diagram, which should be corrected.**

- **This is the correct circuit diagram for the M-45. Disregard the previous circuit diagram M-45 (100029) printed in the service manual.**

1. ADDITIONAL VOLTAGES (Power source section)



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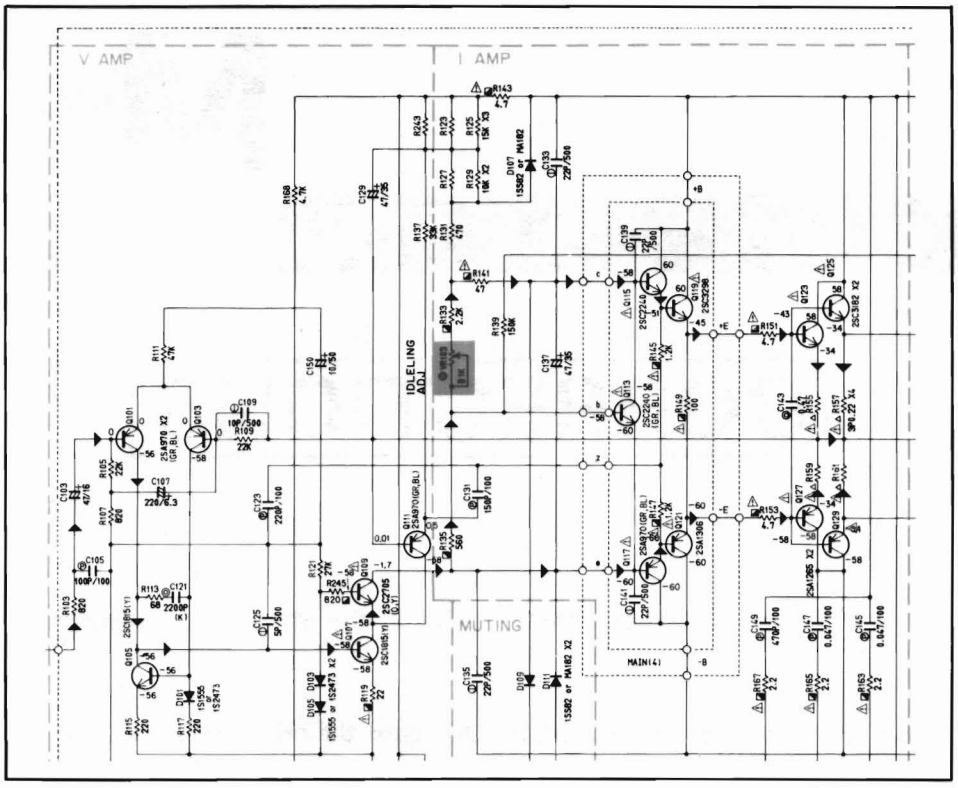
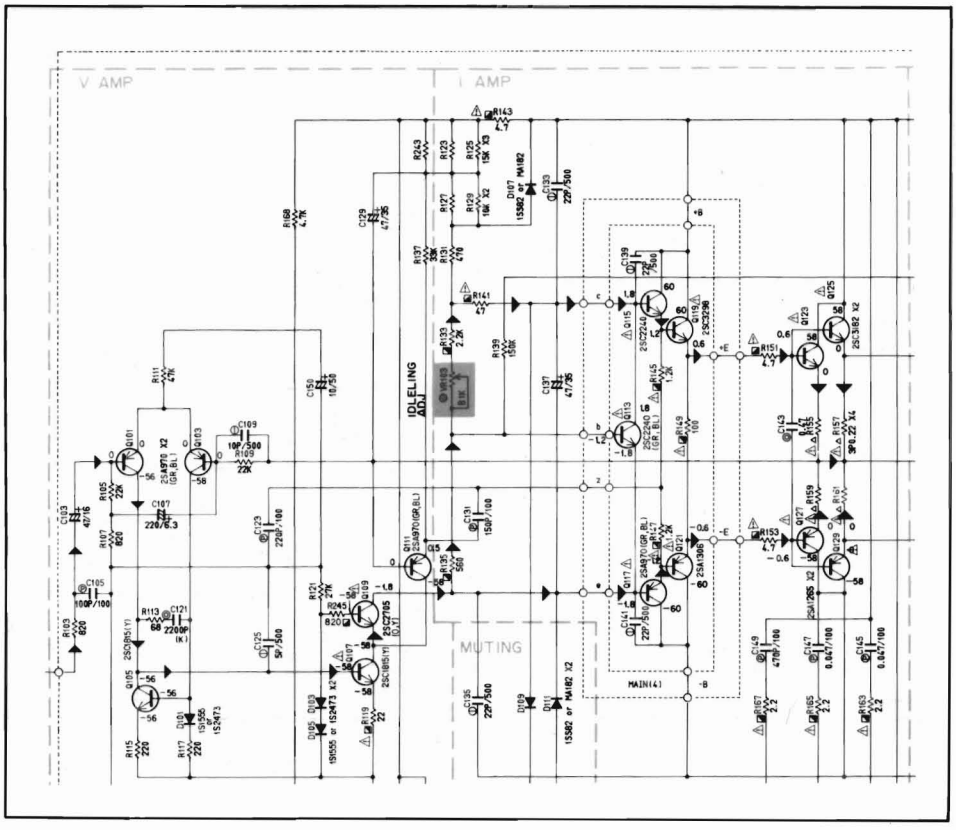
2.8K-56 ⊖ Printed in Japan '86.9

2. CORRECTING VOLTAGES (V-AMP and I-AMP sections)

- **Wrong voltage**



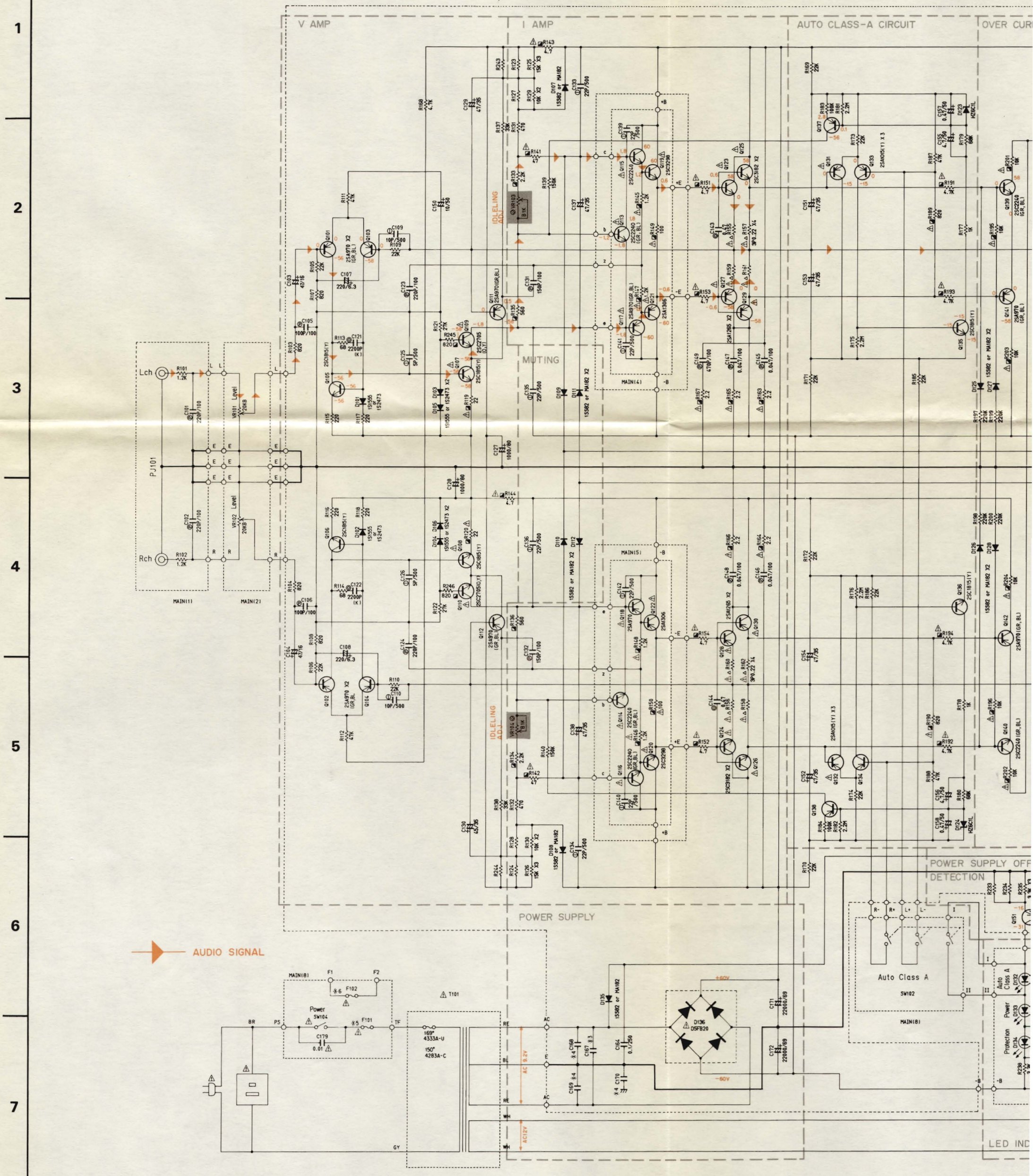
- **Correct voltage**



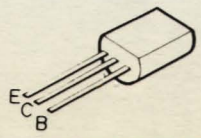
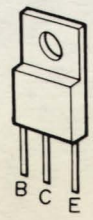
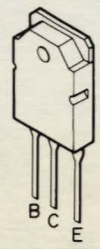
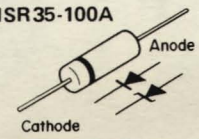
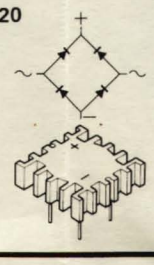
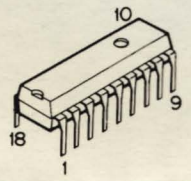
- **Table of errata**

	Q109			Q111			Q113			Q115			Q117			Q119			Q121			Q123			Q125			Q127			Q129		
	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
Wrong voltage	-58	-1.7	-58	0.5	-58	0.01	-60	-58	-58	-51	60	-58	-60	-60	-60	-45	60	-51	-60	-60	-60	-34	58	-45	-34	58	-45	-34	-58	-58	-34	-58	-58
Correct voltage	-58	-1.8	-58	0.5	-58	0	-1.8	1.8	-1.2	1.2	60	1.8	-1.2	-60	-1.8	0.6	60	1.2	-0.6	-60	-1.2	0	58	0.6	0	58	0.6	0	-58	-0.6	0	-58	-0.6

■ SCHEMATIC DIAGRAM

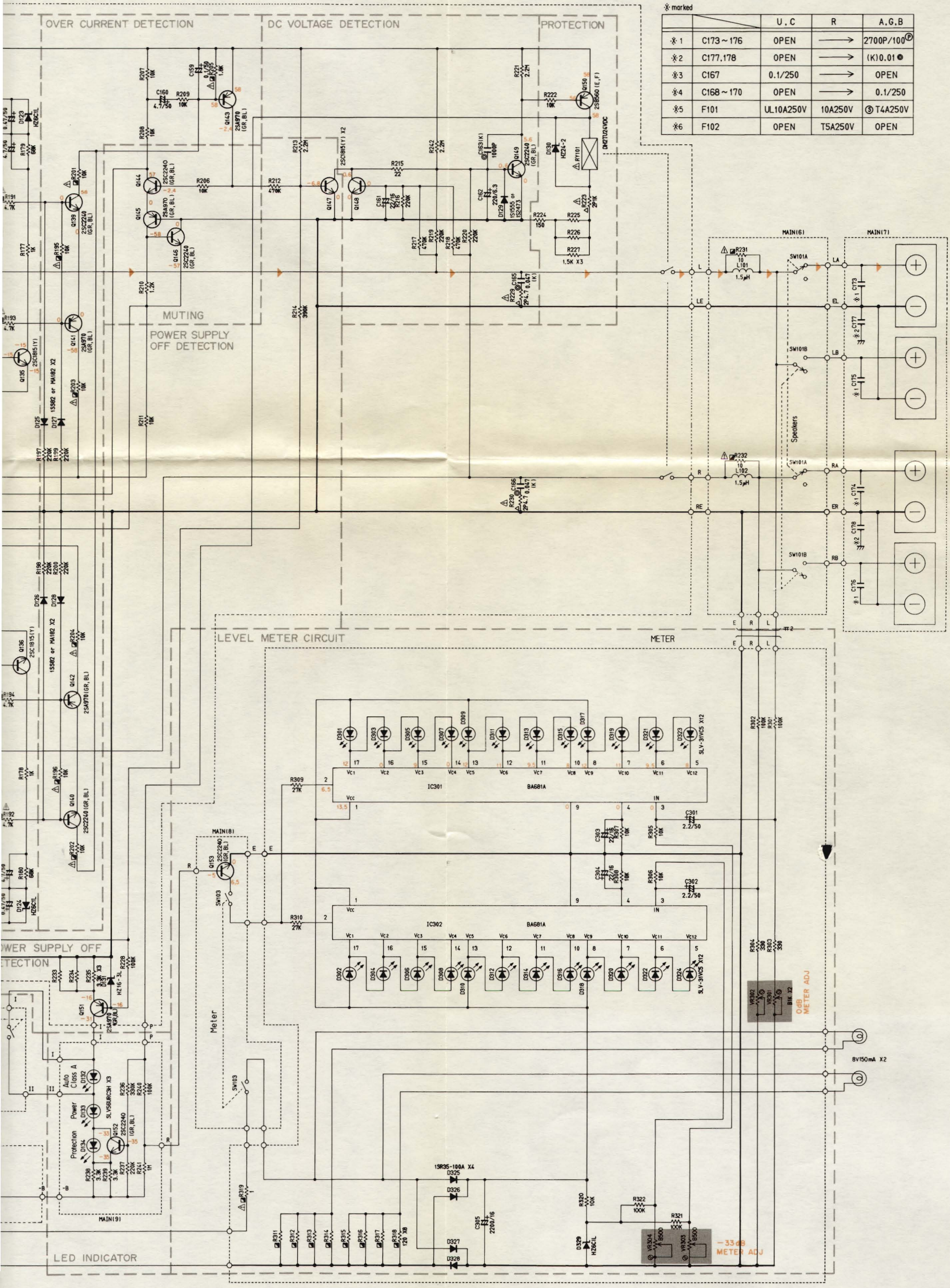


■ PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODE AND ICS.

2SA970 2SC2240 2SA1015 2SC2705 2SB560 2SC1815 	2SA1306 2SC3298 	2SA1265 2SC3182 	1S1555 HZ6C1L or 1S2473 HZ16L3 1SS82 or MA182 1SR35-100A 	D5FB20 	BA681A 

※ marked

		U.C	R	A,G,B
※1	C173~176	OPEN	⟶	2700P/100Ⓟ
※2	C177,178	OPEN	⟶	(K)0.01Ⓟ
※3	C167	0.1/250	⟶	OPEN
※4	C168~170	OPEN	⟶	0.1/250
※5	F101	UL10A250V	10A250V	Ⓢ T4A250V
※6	F102	OPEN	T5A250V	OPEN



CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	⊣⊢
NO MARK	CERAMIC CAPACITOR	⊣⊢
Ⓞ	POLYESTEL FILM CAPACITOR (MYLAR)	⊣⊢
◯	POLYSTYRENE FILM CAPACITOR	⊣⊢
Ⓘ	MICA CAPACITOR	⊣⊢
Ⓟ	POLY PROPYLENE FILM CAPACITOR	⊣⊢
●	SEMICONDUCTIVE CERAMIC CAPACITOR	⊣⊢

RESISTOR

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

CAUTION

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

* *All voltages are measured with a 10MΩ/V DC electric volt meter.*

* *Schematic diagram is subject to change without notice.*