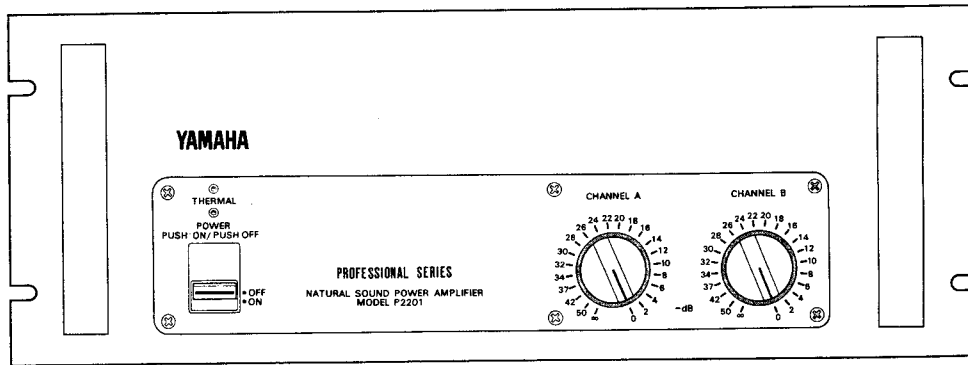


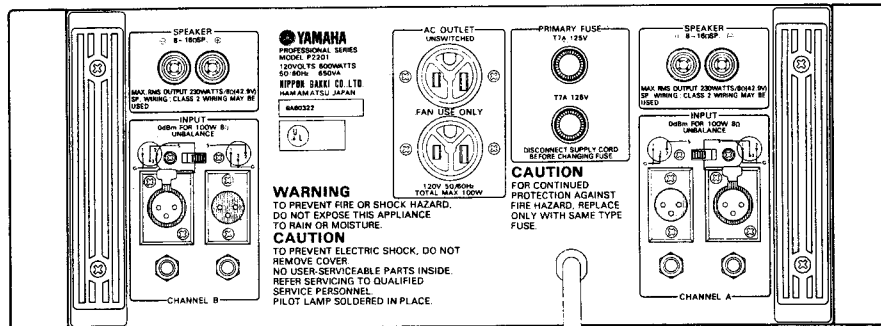
P2201

SERVICE MANUAL

FRONT PANEL



REAR PANEL



USA, CANADIAN MODEL

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SINCE 1887



YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

006391

Oct.'78 2K YS



printed in Japan

■ SPECIFICATIONS

Power Output Per Channel	200 Watts into 8-ohms with less than 0.05% T.H.D. (Total Harmonic Distortion), over a bandwidth of 20Hz to 20kHz, both channels driven. 350 Watts into 4-ohms with less than 0.05% T.H.D., over a bandwidth of 20Hz to 20kHz, both channels driven.
Frequency Response	10Hz to 100kHz, +0dB, -1dB.
Load Impedance	8 ~ 16 -ohms (USA & CANADIAN MODEL) 4 ~ 16 -ohms (GENERAL & AUSTRALIAN MODEL)
Total Harmonic Distortion (both channels driven)	Less than 0.01% at 100 Watts into 8-ohms, 20Hz to 20kHz. Less than 0.005% at 50 Watts into 8-ohms, 1kHz. Less than 0.01% at 150 Watts into 4-ohms, 20Hz to 20kHz. Less than 0.005% at 50 Watts into 4-ohms, 1kHz Less than 0.05% at 350 Watts into 4-ohms, 20Hz to 20kHz.
Intermodulation Distortion	Less than 0.05% using frequencies of 70Hz and 7kHz mixed in a ratio of 4 to 1, output level of 28.2dBm into 4-ohms. (or 8-ohms)
Input Sensitivity	An input of 0dB, ±0.5dB will produce an output of 100 Watts into 8-ohms if the ATTENUATOR is set at a minimum attenuation (maximum level).
Input Impedance	25k-ohms minimum; unbalanced.
Damping Factor (8-ohms load)	Greater than 300 at 1kHz
Hum and Noise	At least 100dB signal-to-noise ratio.
Channel Separation	At least 70dB at 20kHz. (L → R, R → L)

POWER SUPPLY

● U.S.A. MODEL

Rated Voltage	120V 50/60Hz
Rated Power Consumption	600W, 650VA
Primary Fuse	T7.0A 125V x 2

● CANADIAN MODEL

Rated Voltage	120V 50/60 Hz
Rated Power Consumption	650 VA
Primary Fuse	T7.0A 125V x 2

● AUSTRALIAN MODEL

Rated Voltage	240V 50/60 Hz
Rated Power Consumption	1,300W
Primary Fuse	T4.0A 250V x 2

● GENERAL MODEL

Rated Voltage	220/240V 50/60 Hz
Rated Power Consumption	1,300W
Primary Fuse	T4.0A 250V x 2

MISCELLANEOUS

Ambient Temperature	-10°C to +50°C
Dimensions	480 (W) x 376 (D) x 183 (H) mm (19 x 15 x 7-1/5 in)
Panel Size	480 (W) x 176 (H) mm (19 x 7 in)
Rack Mount	19" standard rack mount attachable
Weight	19 kg (42 lbs)

These specifications may differ according to the place of destination.

Specifications subject to change without notice.

■ DISASSEMBLY

(1) Remove top cover by unscrewing screws (1) ~ (13) shown in Fig. 1.

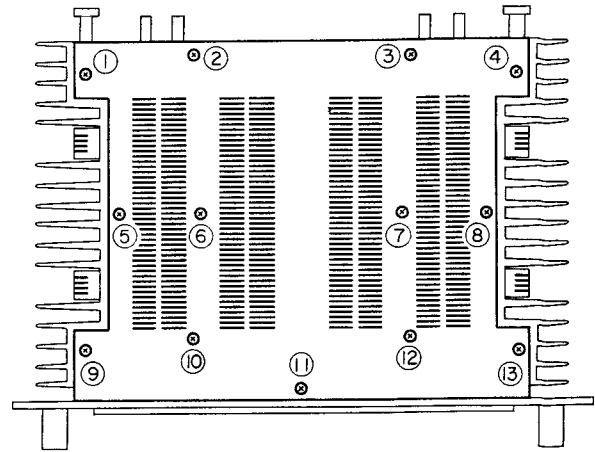


Fig.1

(2) Remove heat sink by removing screws (1) ~ (6) (Fig. 2)

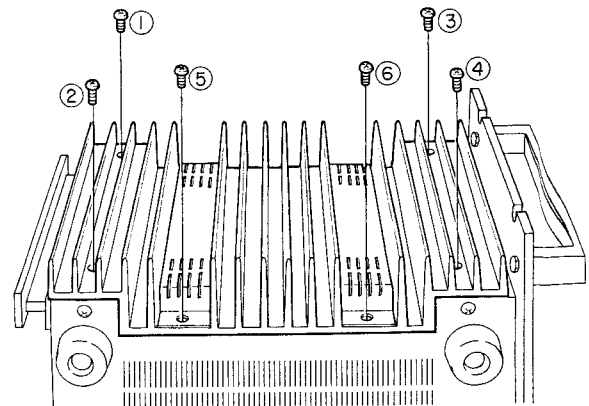


Fig.2

(3) Turn the heat sink around by 180° as shown in Fig. 3 and set it on the chassis. Parts replacement voltage measurements on the driver circuit board can now be made.

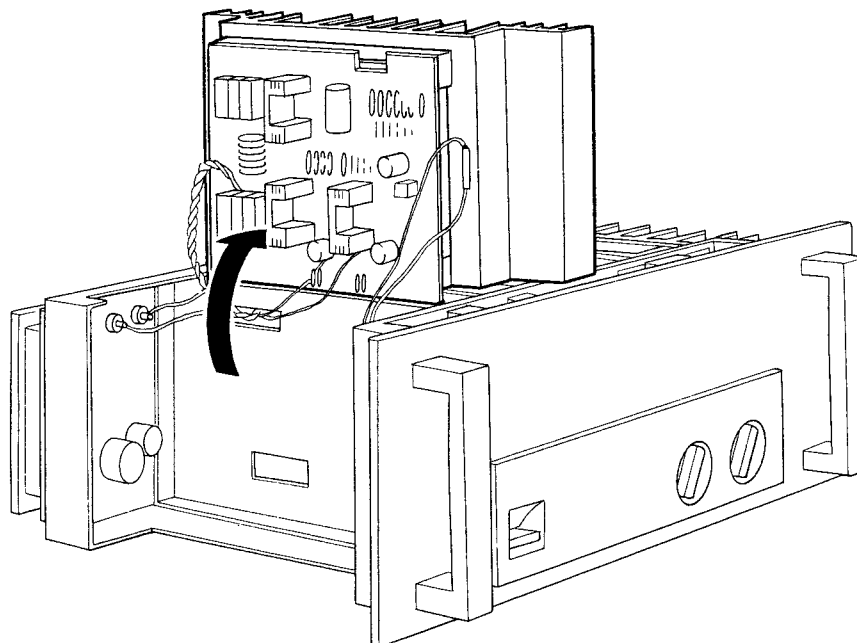


Fig.3

■ADJUSTMENT

PRIOR TO ADJUSTMENT

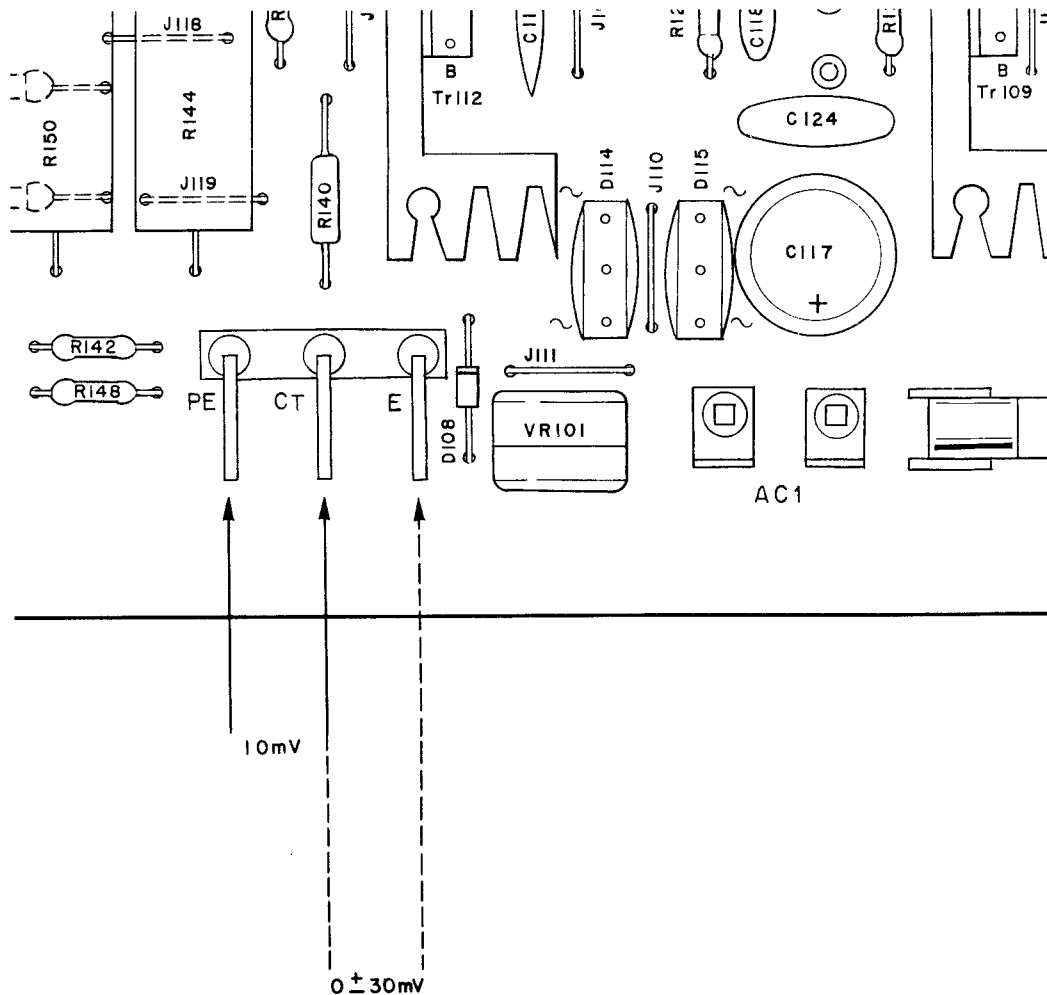
- (1) Allow several minutes of warm up before making adjustment.
- (2) There may be some residual electric charge in the electrolytic capacitors of the power supply section, after turning off. Before replacing parts discharge these capacitors using a resistor of about 8Ω , 100W.

IDLING CURRENT ADJUSTMENT

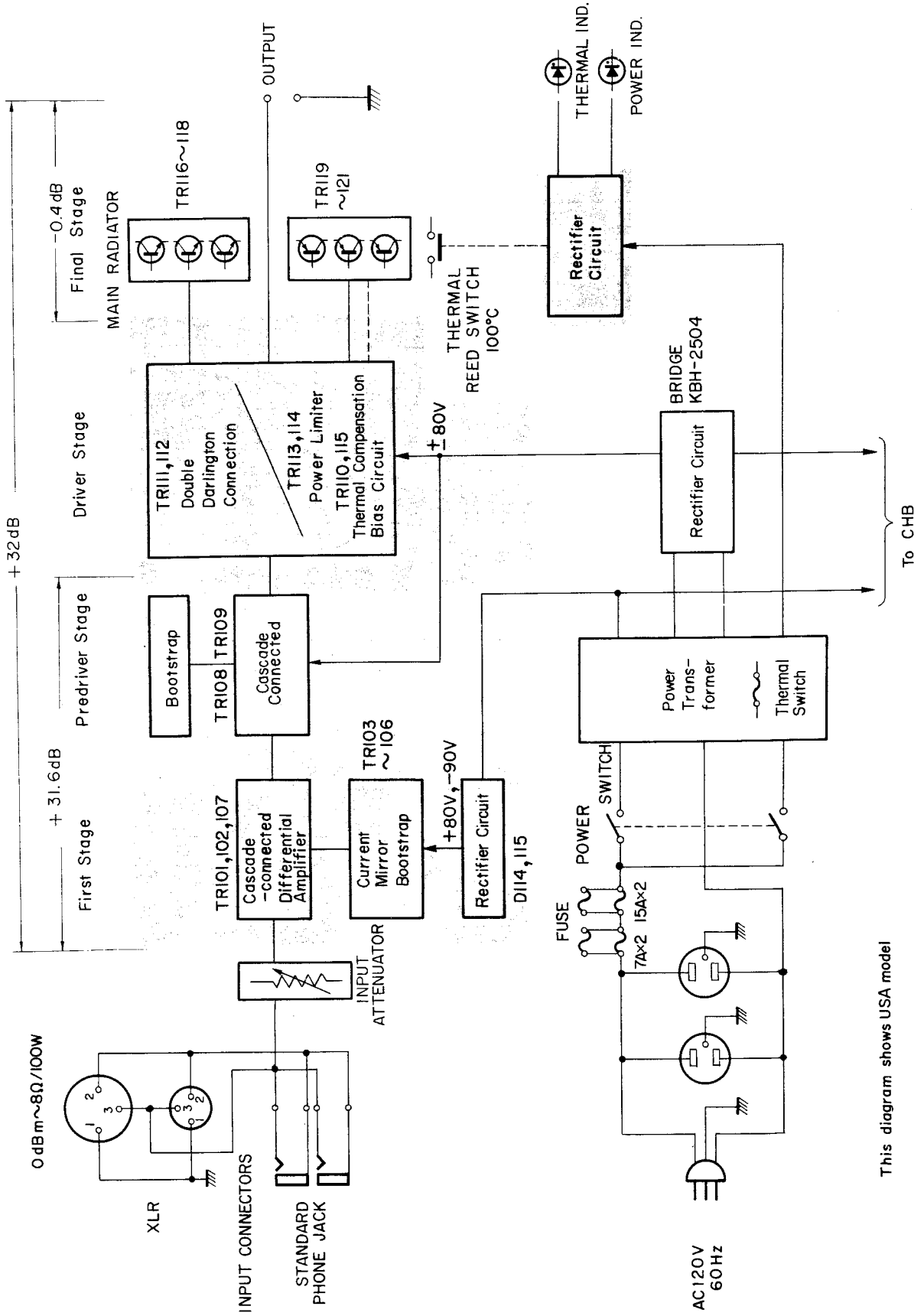
Idling current adjustment is the only adjustment necessary for the driver circuit.

Adjust VR101 (CH-A) and VR201 (CH-B) to set the voltage between terminals CT (+) and PE (-) to 10mV with no signal applied. Idling current should be 21.2mA per power transistor. During this adjustment, also confirm that the voltage between E and CT is within $0 \pm 30\text{mV}$. (Confirmation of mid-point voltage)

■ADJUSTING POINTS



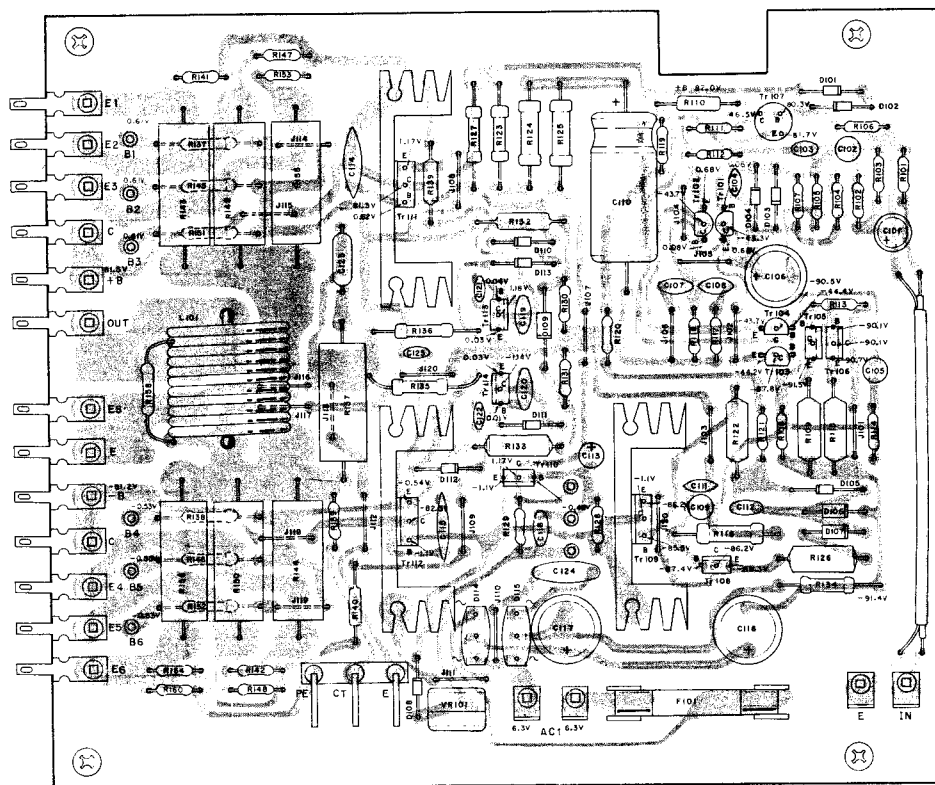
■ BLOCK DIAGRAM



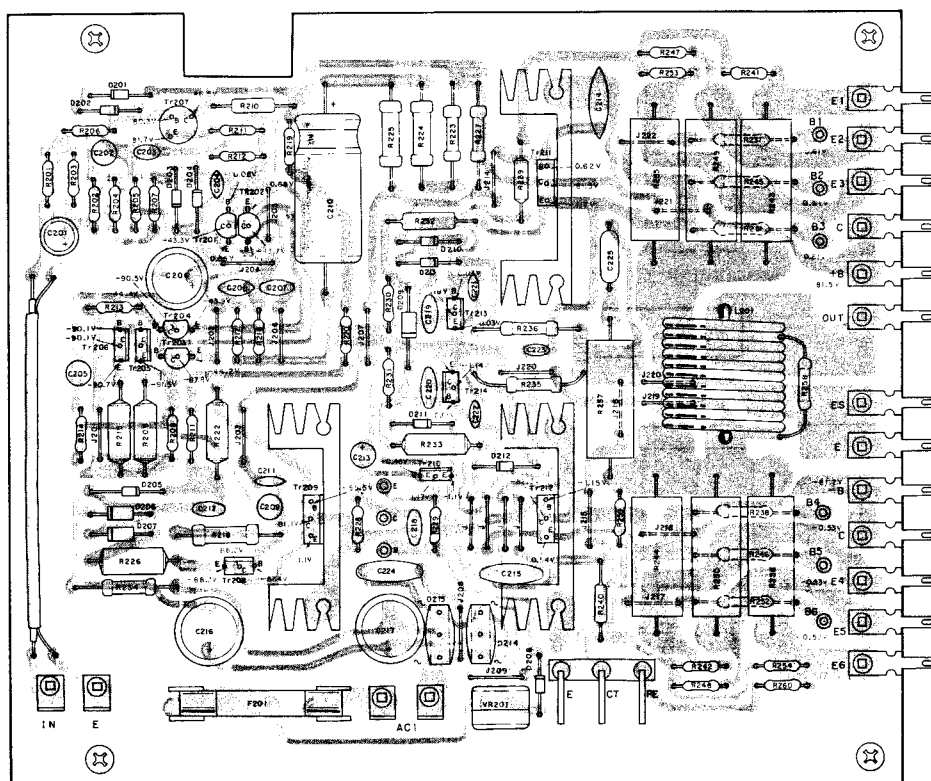
This diagram shows USA model

PRINTED CIRCUIT BOARD

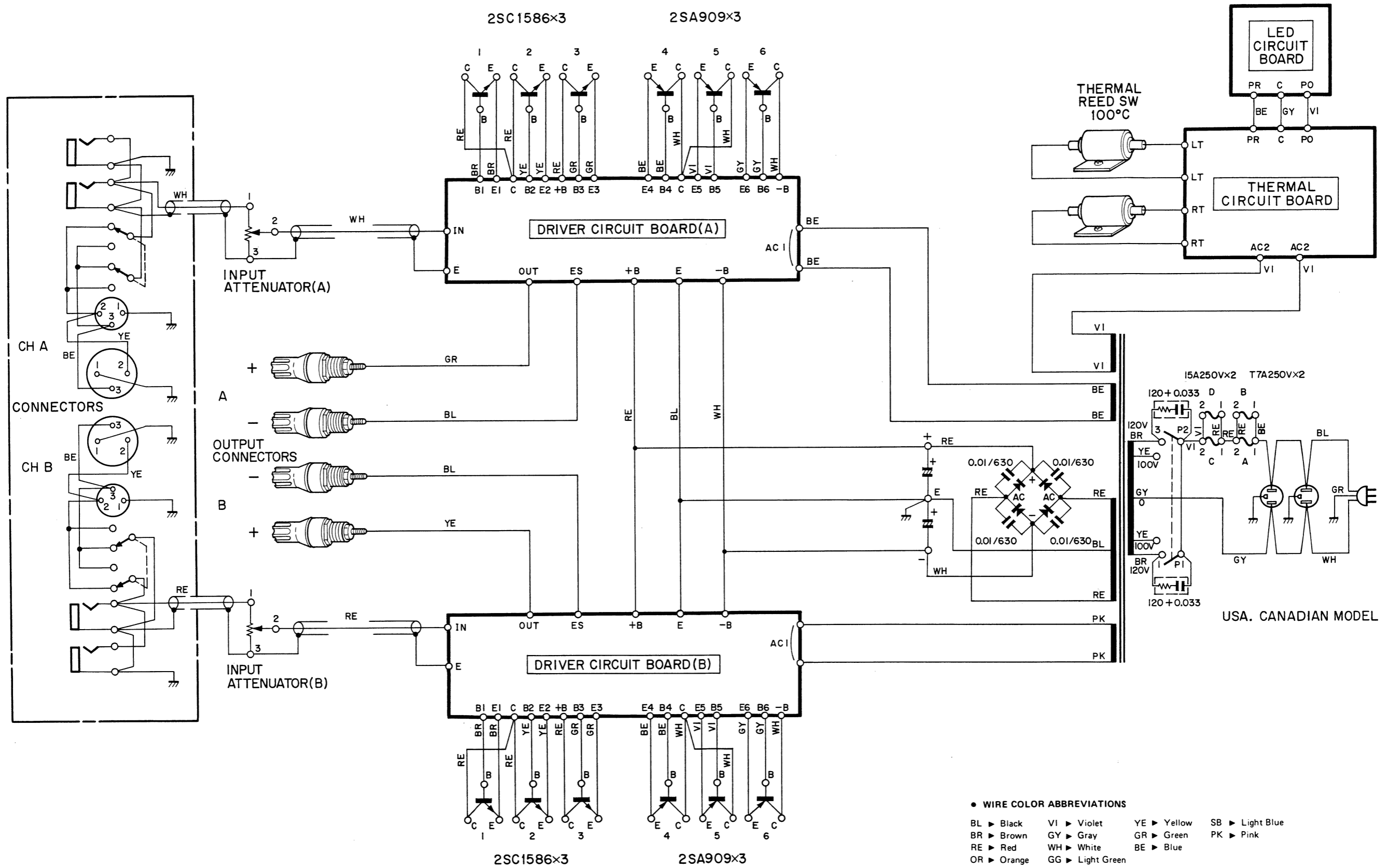
DRIVER CIRCUIT BOARD (CH A)



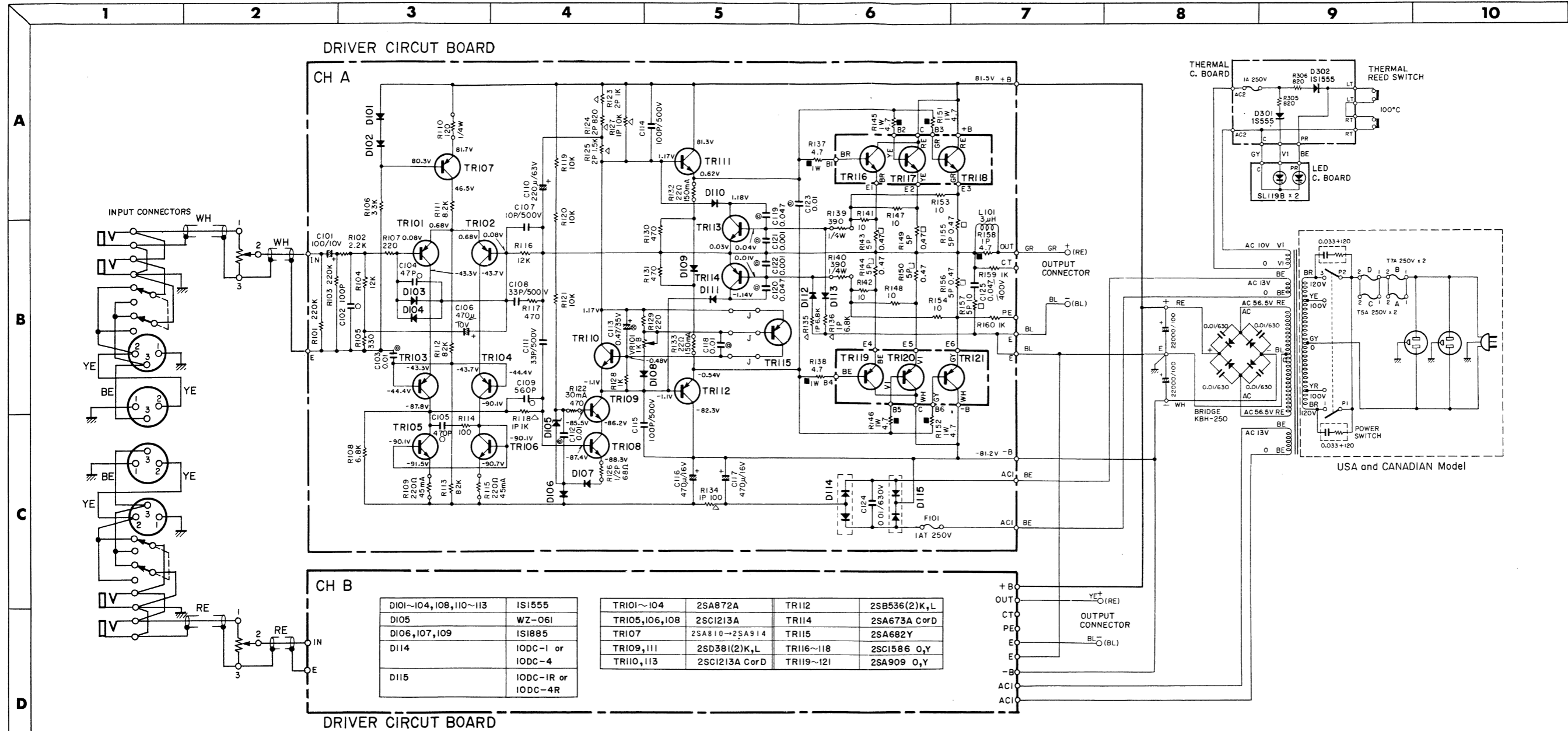
DRIVER CIRCUIT BOARD (CH B)



WIRING



SCHEMATIC DIAGRAM



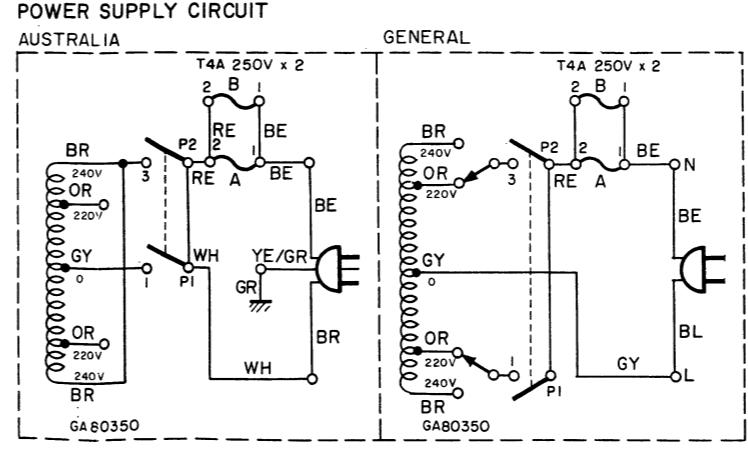
D101~104, 108, 110~113	IS1555	TR101~104	2SA872A	TR112	2SB536(2)K,L
D105	WZ-061	TR105, 106, 108	2SC1213A	TR114	2SA673A CorD
D106, 107, 109	IS1885	TR107	2SA810→2SA914	TR115	2SA682Y
D114	I0DC-1 or I0DC-4	TR109, 111	2SD381(2)K,L	TR116~118	2SC1586 O,Y
D115	I0DC-1R or I0DC-4R	TR110, 113	2SC1213A CorD	TR119~121	2SA909 O,Y

RESISTORS

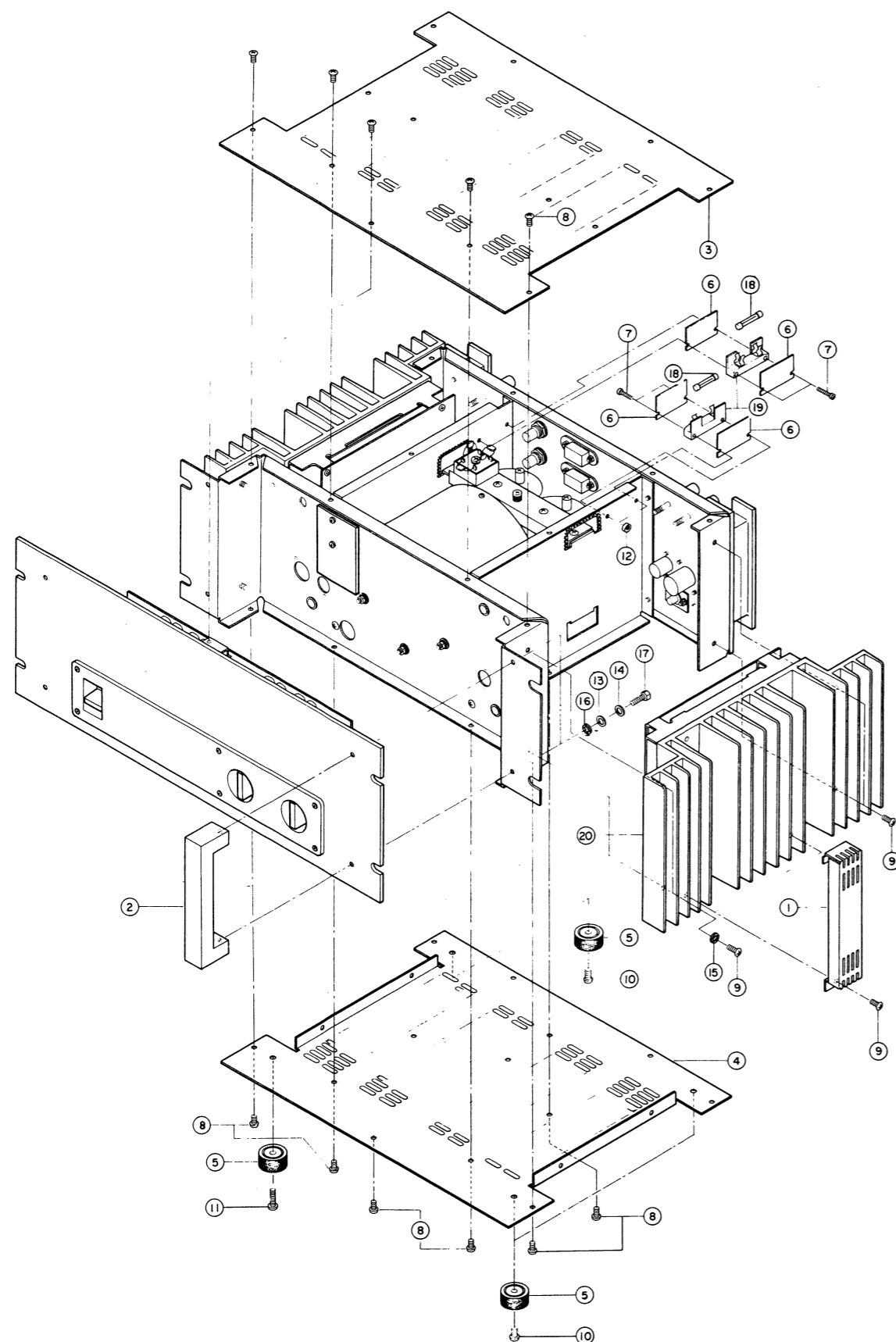
SYMBOL	DESCRIPTION
	FUSE RESISTOR
	METALIZED OXIDATION RESISTOR
	FLAME PROOF RESISTOR
	CARBON RESISTOR
	CEMENT MOLDED RESISTOR
	METALIZED FILM RESISTOR

CAPACITORS

SYMBOL	DESCRIPTION	REMARKS
	MYLAR CAPACITOR	
NO MARK	CERAMIC CAPACITOR	
	POLYSTYRENE CAPACITOR	
	SBL CAPACITOR	
NO MARK	ELECTROLYTIC CAPACITOR	
	LOW LEAKAGE ELECTROLYTIC CAPACITOR	
	TANTALUM CAPACITOR	
RB	RB CAPACITOR	
BP	BIPOLAR CAPACITOR	



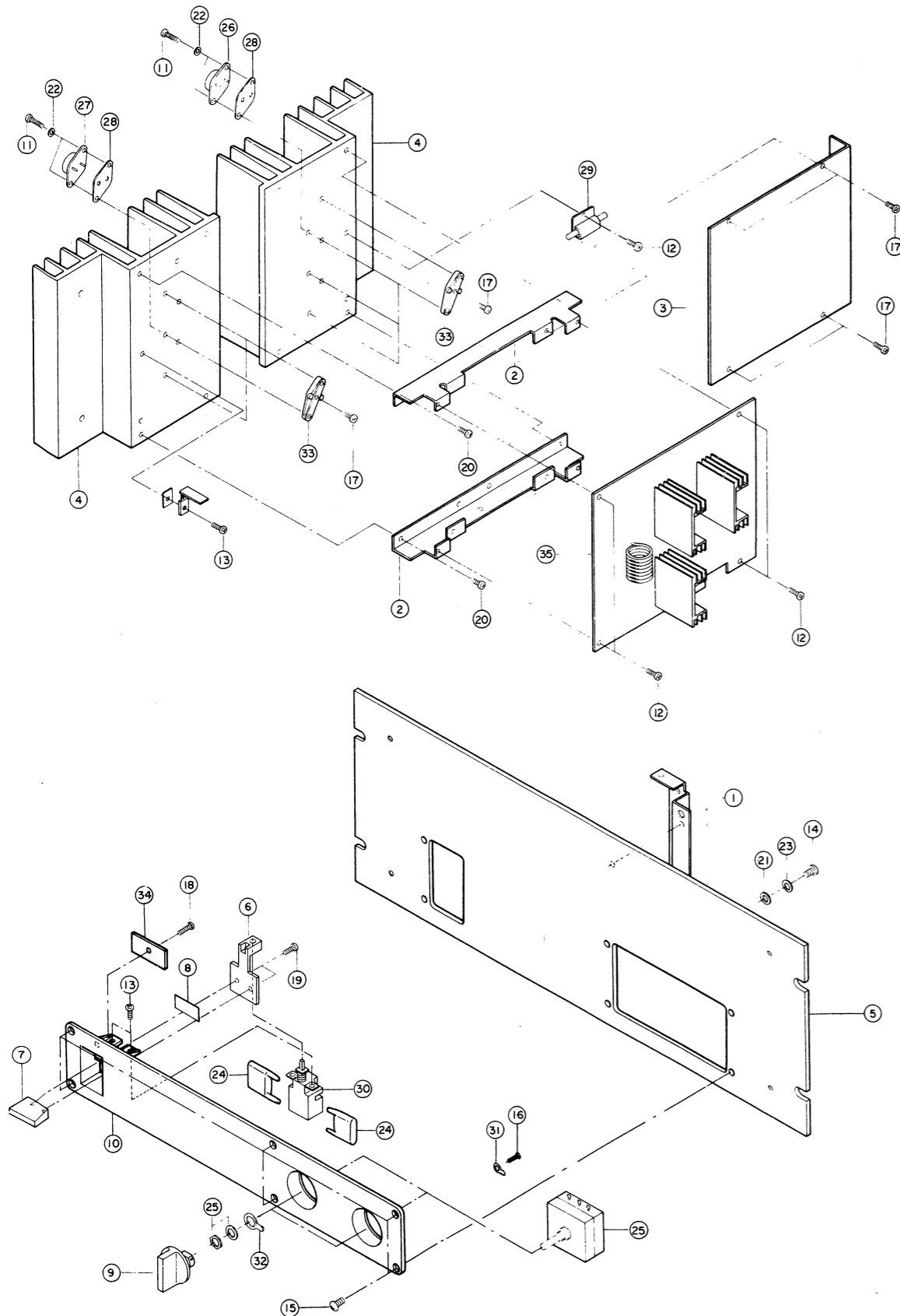
EXPLODED VIEW



PARTS LIST

Ref. No.	Part No.	Description	(部 品 名)	Markets	Remarks
1	30:54:00:AA:80:31:40	TR Cover	TRカバー	G,A	P2200
	30:54:00:AA:80:31:50	-do.- (P)	"	U.S.A,CSA (Print)	P2200
2	30:54:00:BA:80:12:00	Handle	アンブハンドル		P2200
3	30:54:00:BA:80:12:10	Top Cover	トップカバー	G,A	P2200
	30:54:00:BA:80:12:20	-do.- (P)	"	U.S.A,CSA (Print)	P2200
4	30:54:00:BA:80:12:60	Bottom Cover	ボトムカバー		P2200
5	30:54:00:CB:80:65:90	Leg	アンブレッグ		P2200
6	40:10:00:CB:80:66:20	Insulator	FH インシュレーター	U.S.A, CSA	
7	40:10:00:ED:03:01:80	Bind Head Screw 3×18	ZMC2-Y	U.S.A, CSA	
8	40:10:00:ED:34:00:80	-do.- 4×8	FCM3-BL		
9	40:10:00:ED:34:01:20	-do.- 4×12	-do.-		
10	40:10:00:ED:35:01:00	-do.- 5×10	-do.-		
11	40:10:00:ED:35:03:60	-do.- 5×36	-do.-		
12	40:10:00:EV:10:00:30	Hexagonal Nut M3	ZMC2-Y	U.S.A, CSA	
13	40:10:00:EV:20:30:60	Flat Washer 6φ	ZMC2-BL		
14	40:10:00:EV:30:30:60	Spring Lock Washer 6φ	-do.-	except CSA	
15	40:10:00:EV:41:00:40	Toothed Lock Washer A4S	-do.-		
16	40:10:00:EV:41:00:60	-do.- A6S	-do.-	CSA	
17	40:10:00:EZ:36:01:80	Hexagonal Bolt 6×18	-do.-		
18	40:10:00:KB:00:13:80	Fuse 15A,250V UL Little	UL ヒューズ	U.S.A,CSA	
19	40:10:00:LB:20:12:10	Fuse Holder 1P-FM	ヒューズホルダー	U.S.A, CSA	
20	30:54:37:NB:80:49:00	Heat Sink Unit (A)	メインラジエターユニット(A)	CSA,A	P2200
	30:54:37:NB:80:49:10	-do.-	"	U.S.A,	P2200
	30:54:37:NB:80:49:20	-do.-	"	G	P2200
	30:54:37:NB:80:49:40	Heat Sink Unit (B)	メインラジエターユニット(B)	CSA,A	P2200
	30:54:37:NB:80:49:50	-do.-	"	U.S.A,	P2200
	30:54:37:NB:80:49:60	-do.-	"	G	P2200
U.S.A : U.S.A Model CSA : Canadian Model G : General Export Model A : Australian Model					

EXPLODED VIEW

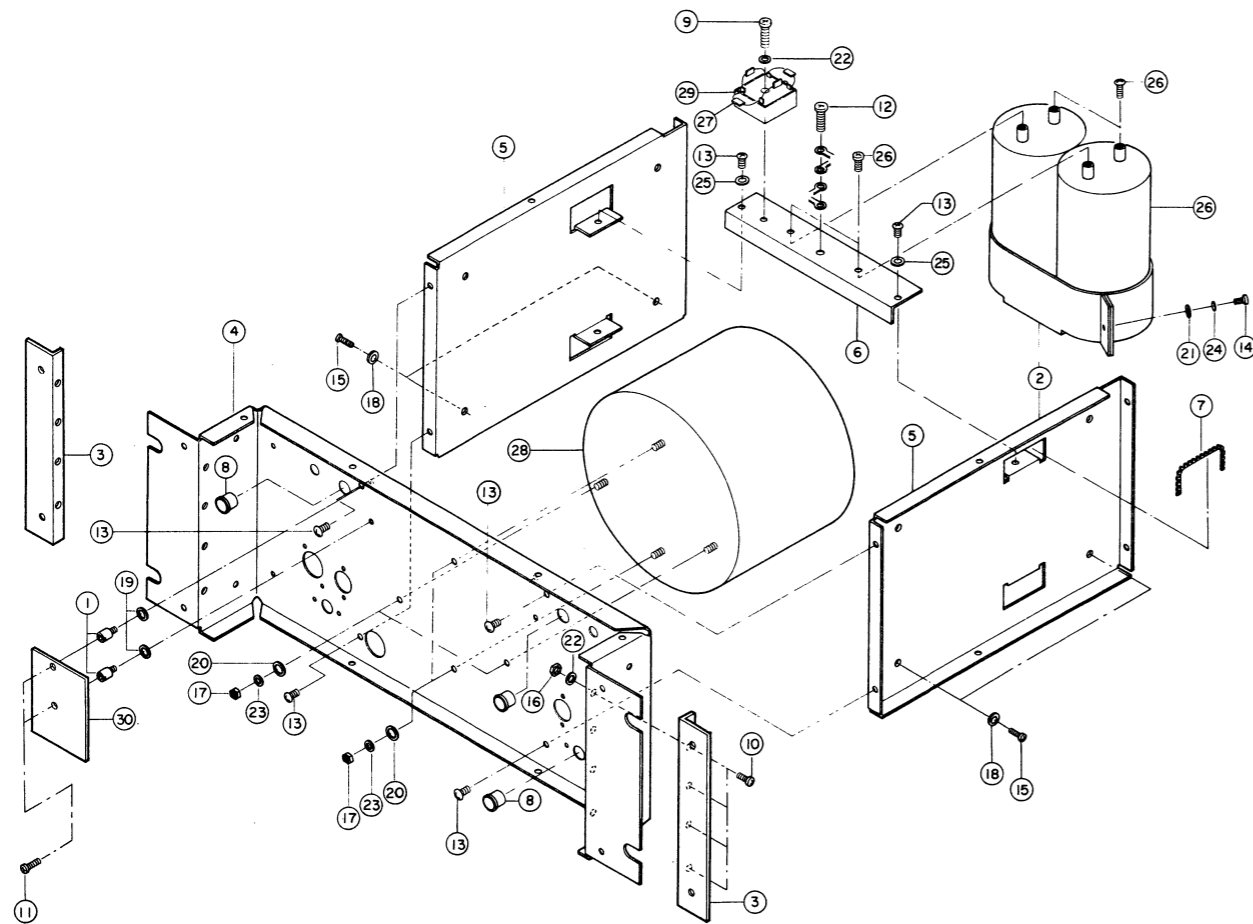


PARTS LIST

* New Parts

Ref. No.	Part No.	Description	(部 品 名)	Markets	Remarks
1	30:54:00:AA:80:31:60	Lamp Board Holder	ランプシートホルダー		P2200
2	30:54:00:AA:80:32:20	Driver Board Holder	Dシートホルダー		P2200
3	30:54:00:AA:80:32:30	Shield Plate	シールドプレート		P2200
4	30:54:00:BA:80:13:40	Main Radiator	メインラジエター		P2200
* 5	30:54:00:BA:80:31:50	Panel	パネル		
6	30:54:00:CB:80:66:90	Switch Actuator	P.SWスライダ		P2200
7	30:54:00:CB:80:67:00	Knob	P.SWノブ		P2200
8	30:54:00:CB:80:67:10	Tape	P.インジケータテープ		P2200
9	30:54:00:CB:80:81:40	Attenuator Knob	アッテネーターノブ		P2200
* 10	30:54:00:CB:81:21:20	Trim Panel	パネルエスカッション		
11	40:10:00:EA:23:01:60	Pan Head Screw 3×16	BNM3-3g		ナベ小ネジ
12	40:10:00:ED:33:00:60	Bind Head Screw 3×6	FCM3-BL		バインド小ネジ
13	40:10:00:ED:33:00:80	-do.- 3×8	-do.-		"
14	40:10:00:ED:34:00:80	-do.- 4×8	-do.-		"
15	40:10:00:EF:34:01:00	Oval Head Screw 4×10	-do.-		丸皿小ネジ
16	40:10:00:EI:03:00:60	Bind Head Tapping Screw 3×6	ZMC2-Y		バインドタッピングネジ
17	40:10:00:EI:33:00:60	-do.- 3×6	FCM3-BL		"
18	40:10:00:EI:33:00:80	-do.- 3×8	ZMC2-BL		"
19	40:10:00:EI:33:01:60	-do.- 3×16	FCM3-BL		"
20	40:10:00:EI:34:00:80	-do.- 4×8	-do.-		"
21	40:10:00:EV:20:30:40	Flat Washer 4φ	-do.-		平座金
22	40:10:00:EV:30:20:30	Spring Lock Washer 3φ	BNM3-3g		バネ座金
23	40:10:00:EV:30:30:40	-do.- 4φ	FCM3-BL		"
24	40:10:00:FZ:00:01:10	Spark Killer 500V 0.033μF+120Ω		U.S.A	
	40:10:00:FZ:00:09:50	-do.- 2CA120033	-do.-		CSA
25	40:10:00:HY:00:05:30	Attenuator VH50E20C	33KΩ		ディテントボリューム
26	40:10:00:IA:09:09:00	Transistor 2SA909			トランジスタ Oor Y
27	40:10:00:IC:15:86:00	-do.- 2SC1586			" Use Same Lank
28	40:10:00:IL:00:02:30	Base AC201			ベース
29	40:10:00:KA:00:00:20	Thermal Reed Switch 100°C	TRSS-100BLR		サーマルリードSW
30	40:10:00:KA:80:02:00	Push Switch SDG5P001		U.S.A, CSA	
	40:10:00:KA:80:06:90	-do.- SDG5P-E			A,G
31	40:10:00:LA:00:02:80	Lug 3φ			アースラグ
32	40:10:00:LA:00:17:70	Lug 8φ			"
33	40:10:00:LB:30:02:70	TR Socket S2-110M-02			TRソケット
* 34	40:10:00:LC:83:32:00	PC Board, LED			LEDシートプリント基板
35	30:54:00:NA:80:17:20	Driver Board (A)		CSA,A	P2200
	30:54:00:NA:80:17:30	-do.-		U.S.A	P2200
	30:54:00:NA:80:17:40	-do.-		G	P2200
	30:54:00:NA:80:17:50	Driver Board (B)		CSA,A	P2200
	30:54:00:NA:80:17:60	-do.-		U.S.A	P2200
	30:54:00:NA:80:17:70	-do.-		G	P2200

EXPLODED VIEW

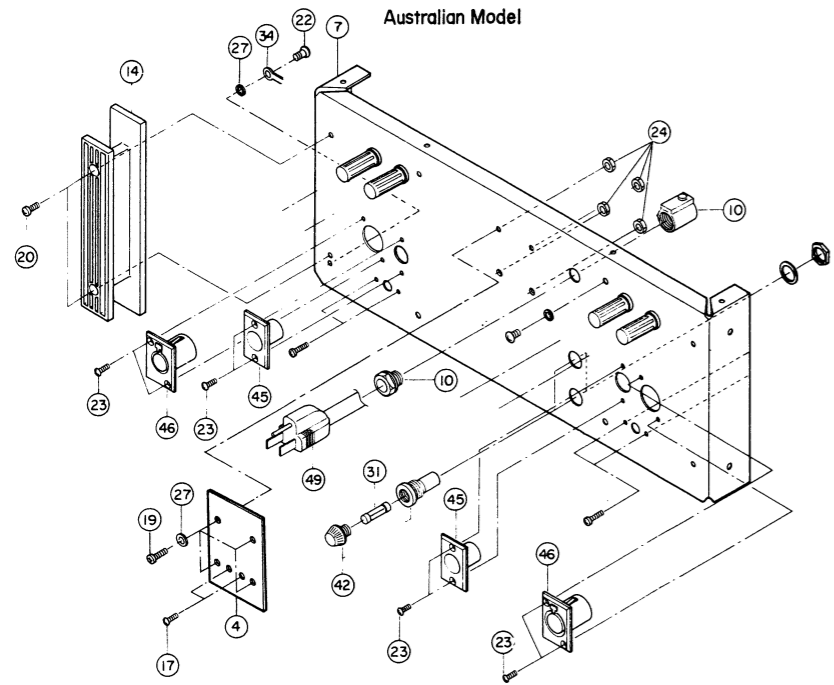


PARTS LIST

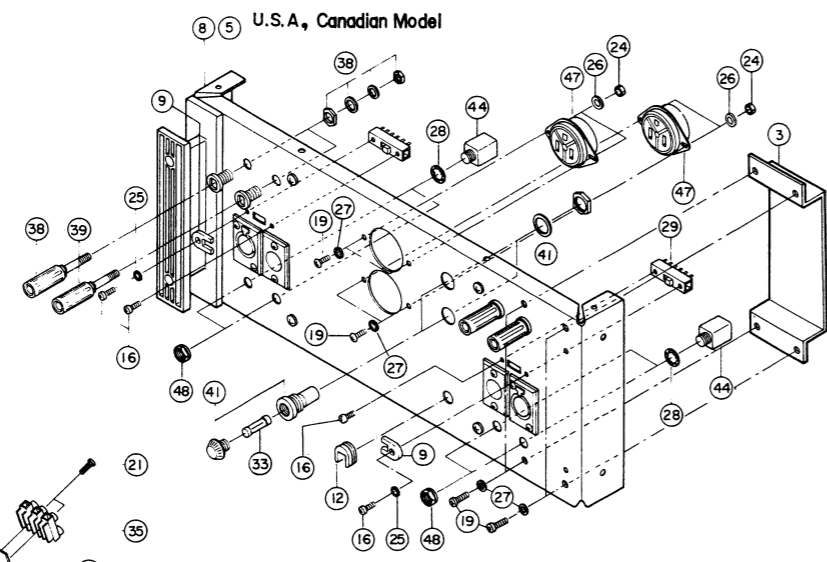
* New Parts

Ref. No.	Part No.	Description	(部 品 名)	Markets	Remarks
1	30:54:00:AA:07:75:90	Post	支柱		
2	30:54:00:AA:80:32:10	Holder, Electrolytic Cap.	ケミコンホルダー		
* 3	30:54:00:AA:80:89:30	Angle Bracket	アングル		
4	30:54:00:BA:80:12:40	Main Frame	メインフレーム		P2200
5	30:54:00:BA:80:12:50	Side Frame	サイドフレーム		P2200
6	30:54:00:BA:80:13:30	Plate, Electrolytic Cap.	ケミコンプレート		
7	30:54:00:CB:07:71:60	Insulator	自在ブッシュ		
8	40:10:00:CB:07:77:60	Bushing	スナップブッシング	G	
9	40:10:00:EA:04:01:80	Pan Head Screw 4×18	ZMC2-Y ナベ小ネジ		
10	40:10:00:EB:34:01:20	Flat Head Screw 4×12	ZMC2-BL サラ小ネジ		
11	40:10:00:ED:03:00:60	Bind Head Screw 3×6	ZMC2-Y バインド小ネジ		
12	40:10:00:ED:25:01:60	-do.- 5×16	BNM3-3g		
13	40:10:00:ED:34:00:80	-do.- 4×8	FCM3-B1		
14	40:10:00:ED:34:01:20	-do.- 4×12	-do.-		
15	40:10:00:EI:03:00:80	Bind Head Tapping Screw 3×8	ZMC2-Y バインドタッピングネジ		
16	40:10:00:EV:10:00:40	Hexagonal Nut 4φ	ZMC2-Y 六角ナット		
17	40:10:00:EV:10:00:50	-do.- 5φ	-do.-		
18	40:10:00:EV:20:00:30	Flat Washer 3φ	-do.- 平座金		
19	40:10:00:EV:20:00:40	-do.- 4φ	-do.-		
20	40:10:00:EV:20:00:50	-do.- 5φ	-do.-		
21	40:10:00:EV:20:30:40	-do.- 4φ	FCM3B1		
22	40:10:00:EV:30:00:40	Spring Lock Washer 4φ	ZMC2-Y バネ座金		
23	40:10:00:EV:30:00:50	-do.- 5φ	-do.-		
24	40:10:00:EV:30:30:40	-do.- 4φ	FCM3-B1		
25	40:10:00:EV:41:00:40	Toothed Lock Washer 4φ	-do.- 歯付座金		
26	40:10:00:FZ:00:05:00	Electrolytic Cap. Terminal Type 22000μF	ケミコンターミナル型		Made by Matsushita
	40:10:00:FZ:00:05:10	-do.-	"		Made by Nippon KemiKon
27	40:10:00:FZ:00:06:50	Mylar Capacitor 0.01μF	マーラーコン		
28	40:10:00:GA:80:34:00	Power Transformer	電源トランス	U.S.A, CSA	P2200
	40:10:00:GA:80:35:00	-do.-	"	A, G	P2200
29	40:10:00:IH:00:03:90	Bridge-Rectifier KBH-2504	整流ブリッジ		
30	40:10:00:LC:83:44:00	PC Board	サーマルシートプリント基板		

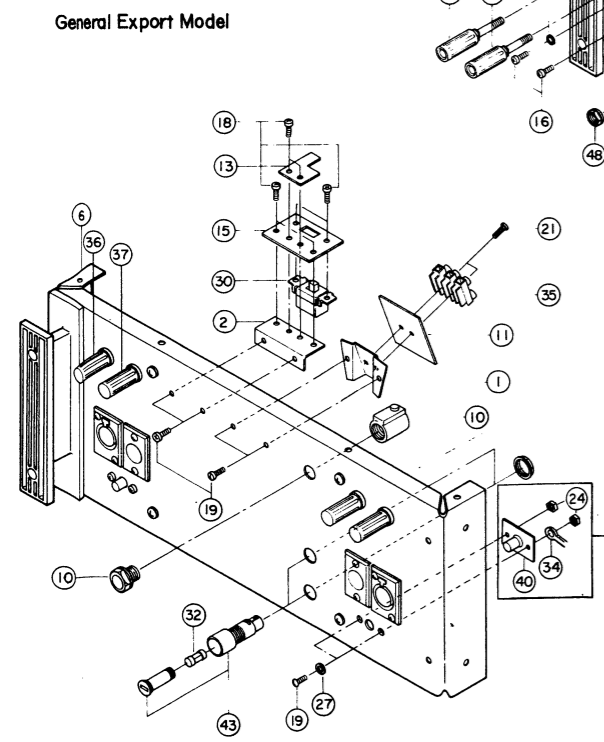
EXPLODED VIEW



Australian Model

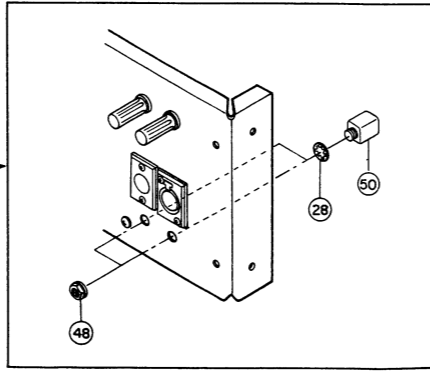


U.S.A., Canadian Model



General Export Model

Change from pinjack to phonejacks.



PARTS LIST

* New Parts

Ref. No.	Part No.	Description	(部 品 名)	Markets	Remarks
1	30 54 00 AA 08 13 70	Connection Terminal Plate	中継端子台	G	
2	40 10 00 AA 80 32 00	Holder, Voltage Selector	VSホルダー	G	
3	40 10 00 AA 80 45 60	Shield Plate	シールド板	U.S.A, CSA, A	
4	40 10 00 AA 80 64 30	Blind Plate	盲板	A	
* 5	30 54 00 BA 80 31 70	Rear Panel	リアパネル	CSA	
* 6	30 54 00 BA 80 31 80	-do.-	"	G	
* 7	30 54 00 BA 80 32 00	-do.-	"	A	
* 8	30 54 00 BA 80 32 20	-do.-	"	U.S.A,	
9	40 10 00 CB 02 24 30	Stopper, Slide Switch	スライドSWストッパー	U.S.A, CSA, A	
10	40 10 00 CB 07 06 90	Cord Stopper	コードストッパー	A, G	
11	30 54 00 CB 07 49 70	Insulation Plate	絶縁板	G	
12	40 10 00 CB 07 77 30	Cord Stopper	コードストッパー	U.S.A, CSA	
13	40 10 00 CB 80 66 30	Stopper, Voltage Selector	VSストッパー	G	
14	30 54 00 CB 80 66 40	Cord Reel	コードリール		
15	40 10 00 CB 80 68 40	Insulator, Voltage Selector	VSインシュレーター	G	
16	40 10 00 EA 32 60 50	Pan Head Screw 2.6x5	FCM3-BL ナベ小ネジ	U.S.A, CSA, A	
17	40 10 00 EA 33 00 50	-do.- 3x5	-do.- "	A	
18	40 10 00 ED 03 00 60	Bind Head Screw 3x6	ZMC2-Y バインド小ネジ	G	
19	40 10 00 ED 33 00 80	-do.- 3x8	FCM3-BL "		
20	40 10 00 ED 34 00 80	-do.- 4x8	-do.- "		
21	40 10 00 ED 33 01 80	-do.- 3x18	FCM3-BL "	G	
22	40 10 00 EI 03 00 60	Bind Head Tapping Screw 3x6	ZMC2-Y バインドタッピングネジ		
23	40 10 00 EM 23 00 80	Oval Head Tapping Screw 3x8	FcrM3-3g 丸皿タッピングネジ		
24	40 10 00 EV 10 00 30	Hexagonal Nut 3φ	ZMC2-Y 六角ナット		
25	40 10 00 EV 20 30 30	Flat Washer	FCM3-BL 平座金	U.S.A, CSA	
26	40 10 00 EV 30 00 30	Spring Lock Washer 3φ	ZMC2-Y バネ座金	U.S.A, CSA	
27	40 10 00 EV 43 00 30	Toothed Lock Washer 3φ	FCM3-BL 歯付座金		
28	40 10 00 EV 43 00 90	-do.- 9φ	ZMC2-Y "	U.S.A, CSA, A	
29	40 10 00 KA 40 02 50	Slide Switch	スライドSW	U.S.A, CSA, A	
30	40 10 00 KA 40 04 10	-do.-	"	G	
31	40 10 00 KB 00 03 80	Fuse 4.0A 250V	ヒューズ	A	
32	40 10 00 KB 00 07 90	-do.- Miniature 4.0AT 250V	"	G	
33	40 10 00 KB 00 15 20	-do.- UL 7A 125V	"	U.S.A, CSA	
34	40 10 00 LA 00 02 80	Lug 3φ	アースラグ		
35	40 10 00 LA 00 10 40	Terminal	ボイゴ端子	G	
36	40 10 00 LA 00 17 30	Speaker Terminal (Red)	スピーカターミナル(アカ)	G	
37	40 10 00 LA 00 17 40	-do.- (Black)	" (クロ)	G	
38	40 10 00 LA 00 18 40	-do.- (Red) For Banana Tip	" (アカ)	U.S.A, CSA, A	
39	40 10 00 LA 00 18 50	-do.- (Black) -do.-	" (クロ)	U.S.A, CSA, A	
40	40 10 00 LB 10 03 30	Pin Jack 1P	1Pピンジャック	G	
41	40 10 00 LB 20 04 80	Fuse Holder	ヒューズホルダー	U.S.A, CSA	
42	40 10 00 LB 20 04 90	-do.-	"	A	
43	40 10 00 LB 20 05 90	-do.-	"	G	
44	40 10 00 LB 20 11 20	Phone Jack	ホーンジャック	U.S.A, CSA, A	
45	40 10 00 LB 30 01 50	Canon Socket XLR-3-31	キャノンソケット		