

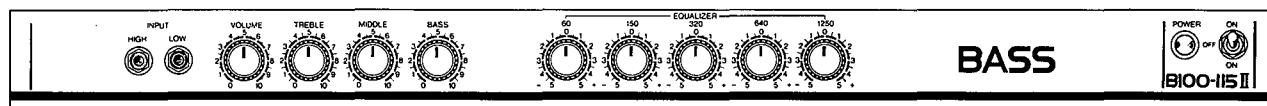
GA

# B100-115II B100-115SE

## SERVICE MANUAL

### FRONT PANEL

#### B100-115II (B100-115SE)



006414

SINCE 1887



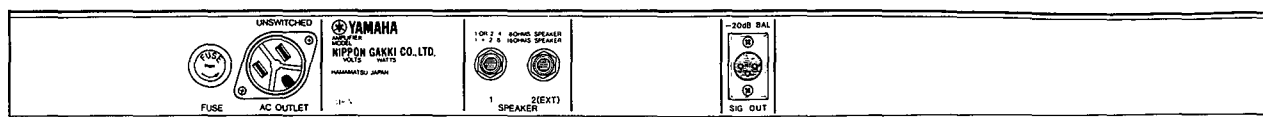
**YAMAHA**

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

'79.10.2.5K Printed in Japan



## REAR PANEL



The illustration shows the U.S. and CANADIAN models. Other models are equipped with voltage selectors instead of AC outlets. So be sure to check for desired voltage.

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## GENERAL SPECIFICATIONS

### GENERAL SPECIFICATIONS

Model		B100-115 II	B100-115SE
Output Power		100 Watts RMS @ 10% THD into 8 ohms	
Speaker		1 x JA3807 (38 cm)	
Gain (To Speaker Output @ 1kHz, loaded 4 or 8 ohms)		High : 70 dB Low : 58 dB	
Input Impedance		High : 330 kohms Low : 60 kohms	
Noise (All Volume Controls at min.)		-52 dB (1.9mV)	
Signal Output (For 600 ohms balanced line)		Nominal : -20 dB (77.5 mV) Maximum : 0 dB (0.775 V)	
Circuitry		Solid State	
Power Consumption	U.S. Model	180 W	
	Canadian Model	120V 2A	
	Other Models	250 W	
Power Source		120V AC fixed, or 110, 130, 220 or 240V AC selectable, 50/60 Hz	
Dimensions	Width	687 mm	
	Height	950 mm*	790 mm*
	Depth	370 mm	400 mm
Net Weight		52 kg	44 kg

In above specifications, when dB represents a specific voltage, 0 dB is referenced to 0.775V RMS.

\* Height includes detachable castors.

### LOUDSPEAKER SPECIFICATIONS

Speaker	System	Cone Diameter	Nominal Impedance ( $\Omega$ )	Sensitivity (dB/W,m)	Max. RMS Power (W)	Max. Peak Power (W)
JA3807	B100-115 II B100-115SE	15" (38 cm)	8	100	120	360

Specifications subject to change without notice.

## ADJUSTMENTS AND PERFORMANCE CHECKS

### Measuring Instruments

- The impedance of the oscillator shall be no more than  $1k\Omega$ .
- The impedance of such instruments, as the oscilloscope and AC Voltmeter/dB meter shall be  $100K\Omega$  or more.

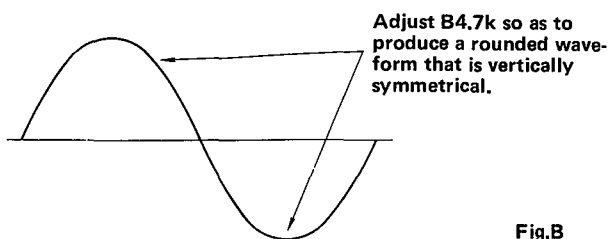
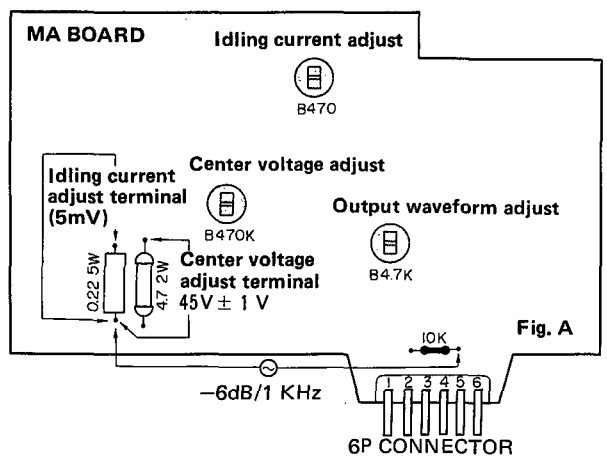
### MA BOARD Adjustment

1. Adjust the B470k and B4.7k pots to somewhere around the middle.
2. With the unit in the condition of Table 1, apply a  $-6dB/1kHz$  signal between the 6P connector pin ③ and ① and adjust the B4.7k pot so as to produce a rounded output waveform which is vertical as shown in Fig. A. (Load resistance : 8 ohms)
3. With the unit in the condition of Table 1, adjust the B470k pot so that the center voltage (measured at the 6P connector pin ⑤, ) of the output circuit will be  $45\pm 1V$ .

NOTE: By performing adjustments 2 and 3 alternately, adjust the MA circuit board to the optimum condition. Adjustments should be performed as swiftly as possible.

### Idling Current Adjustment

With the unit in a no-signal condition, adjust the B470 pot so as to bring the voltage between the 6P connector pin ④ and ① ( $0.22\Omega$  at both ends) to 5mV.



After completing the above adjustments (performed on a circuit board basis), proceed to performance checks.

### • Prior to Performing Adjustments

- Set each control as shown in Table 1.
- Apply the signal to HIGH INPUT.

Table 1

Identification of Controls	Position of Controls
VOLUME	Maximum
TREBLE	Maximum
MIDDLE	Maximum
BASS	Maximum
5-BAND EQUALIZER	All to center

- Connect the load specified in Table 2 to SP OUT.

Table 2

Model No.	Load Resistance
G100-115SE	8 $\Omega$
G100-115II	8 $\Omega$

### 1. GAIN

- With the unit in the condition specified in Tables 1 & 2, feed in the input signal. Outputs as shown in Table 3 should be obtained.

Table 3

INPUT	JACK	OUTPUT
$-60dB/1 KHz$	HIGH	$9 \pm 3 dB$
- do. -	LOW	$-3 \pm 3 dB$

### 2. MAXIMUM OUTPUT

- Put the unit in the condition specified in Tables 1 & 2. When the output is 100W, and the T.H.D. is at 10%, the condition as shown in Table 4 should be satisfied.

Table 4

OUT PUT	Load (8 ohms)	
	At 100W output (31.2dBm)	T.H.D. (@10%)
INPUT		
1 KHz	T.H.D.: Less than 10%	140W, or less (32.7dB)

### 3. FREQUENCY RESPONSE

- Regarding the frequency response of the set in the condition specified in Tables 1&2, please refer to Fig.1 when the output level for a 1kHz input is set as the reference level(0dB). The tolerance shall be within  $\pm 3dB$ , respectively.

Table 5

SIGNAL INPUT LEVEL	FREQUENCY(Hz)		
	70	400	7 K
$-60dB$	$-1 \pm 3 dB$	$-8 \pm 3dB$	$4 \pm 3dB$

#### 4. TONE CONTROL

- Put the unit in the condition specified in Tables 1 & 2.
- When each tone control knob is turned from maximum to minimum, the output variation should stay within the range specified in Table 6.

Table 6

Control	INPUT		Variation
	Freq.	Signal	
TREBLE	7 KHz	-60dB	$16 \pm 3$ dB
MIDDLE	400Hz	-60dB	$6 \pm 3$ dB
BASS	70Hz	-60dB	$11 \pm 3$ dB

#### 5. VARIATION CHARACTERISTICS OF 5-BAND EQ

- Put the unit in the condition specified in Tables 1 & 2.
- When each 5-BAND EQ knob is turned from maximum to minimum, the output variation should stay within the range specified in Table 7.

Table 7

EQ Control	INPUT		Variation
60Hz	-60dB	60Hz	$\pm 10 \pm 2$ dB
150Hz	-do.-	150Hz	$\pm 10 \pm 2$ dB
320Hz	-do.-	320Hz	$\pm 10 \pm 2$ dB
640Hz	-do.-	640Hz	$\pm 10 \pm 2$ dB
1250Hz	-do.-	1250Hz	$\pm 10 \pm 2$ dB

#### 6. NOISE LEVEL

- Put the unit in the condition specified in Tables 1 & 2.
- No plug should be inserted into INPUT.
- When the unit is set as shown in Table 8, the output level should stay within the range specified in Table 8.
- Change the polarities of the POWER switch, measurement should be taken at the one whose noise level has been found to be lower.

Table 8

Condition	Noise Level
Set the Tables 1 & 2	No more than -42dB
Volume: MIN.	No more than -52dB

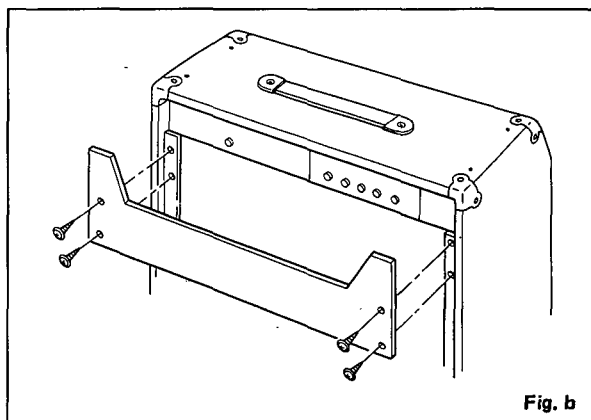
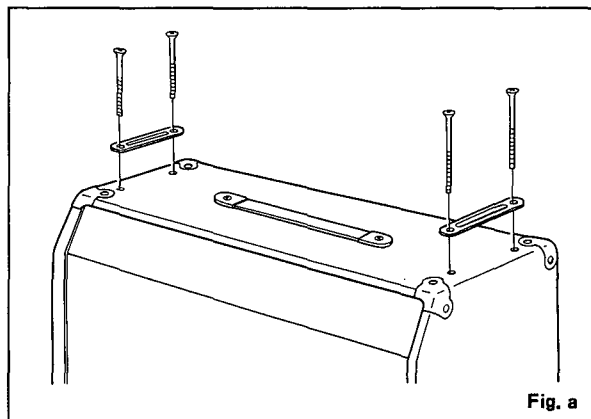
#### 7. SIGNAL OUT TERMINAL

- Put the unit in the condition specified in Tables 1 & 2.
- Connect a  $560\Omega$  load between terminals ② and ③ of SIG. OUT (Cannon Connector).
- When an input signal of 1kHz/-60dB is fed in, outputs in the range of  $-36 \pm 3$  dB should be obtained at both ends of  $560\Omega$ .

NOTE: When dB represents a specific voltage, 0dB is referenced to 0.775V.

#### DISMANTLING PROCEDURE

- Remove the screws shown in Figs. a and b. Remove the back panel and the chassis body.



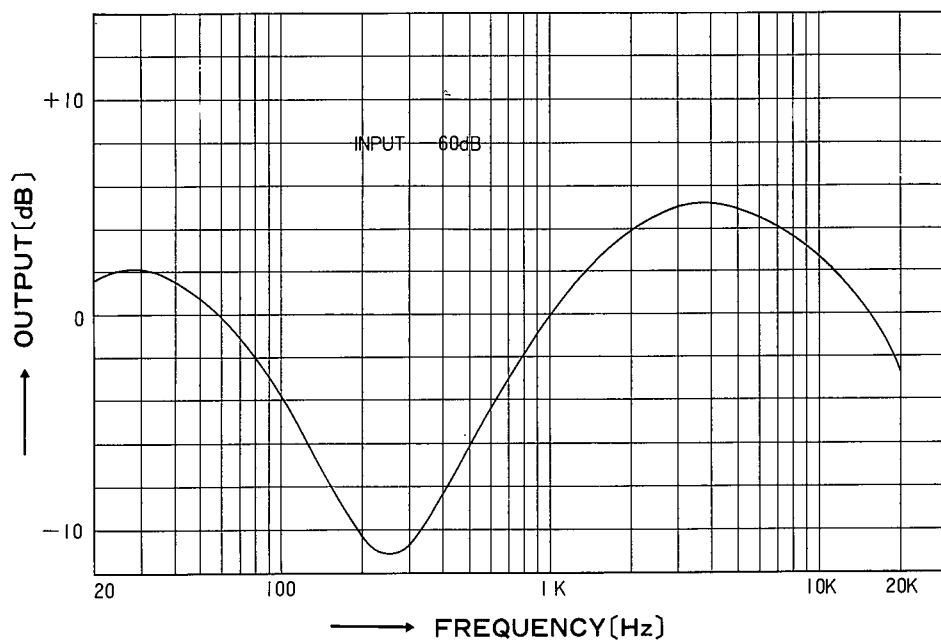


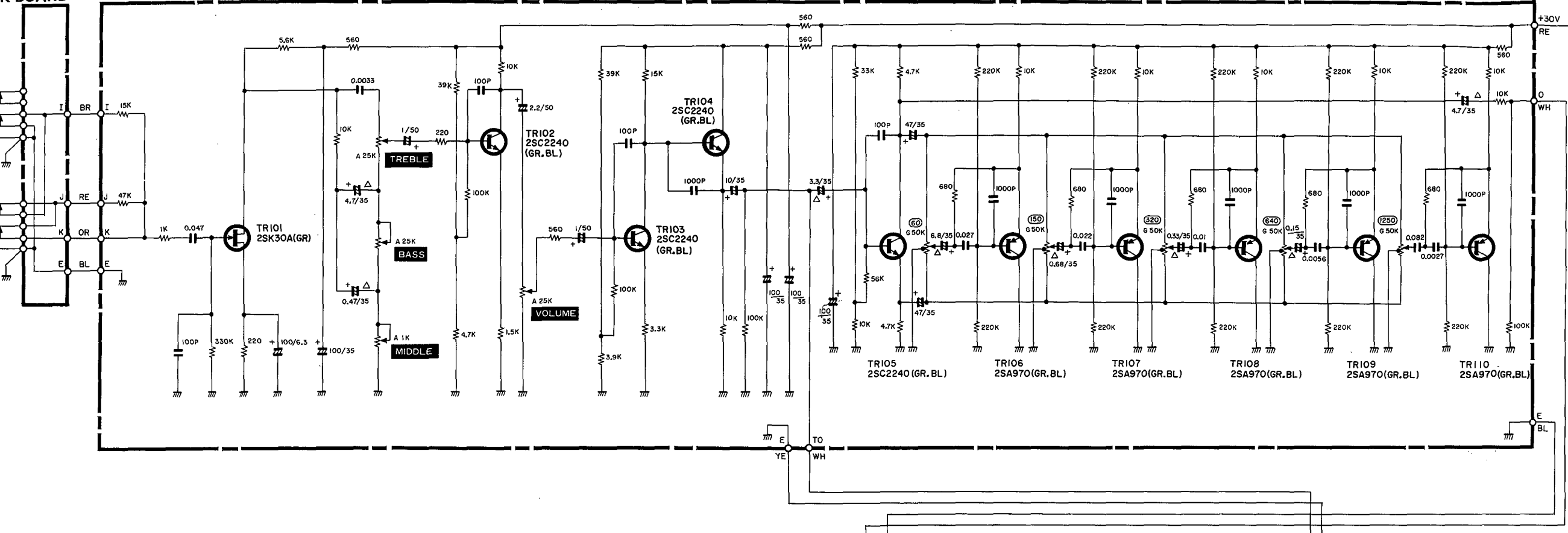
Fig. 1

# SCHEMATIC DIAGRAM

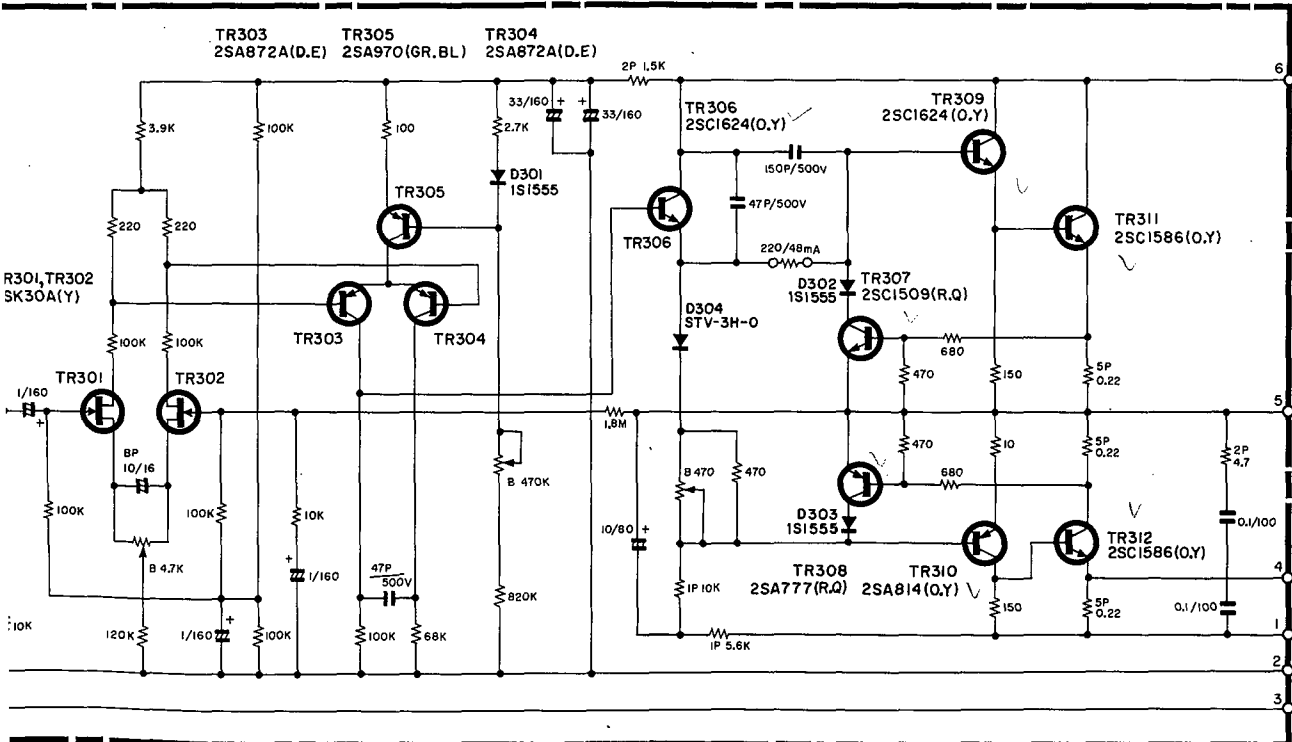
B100-115II, B100-115SE

## K BOARD

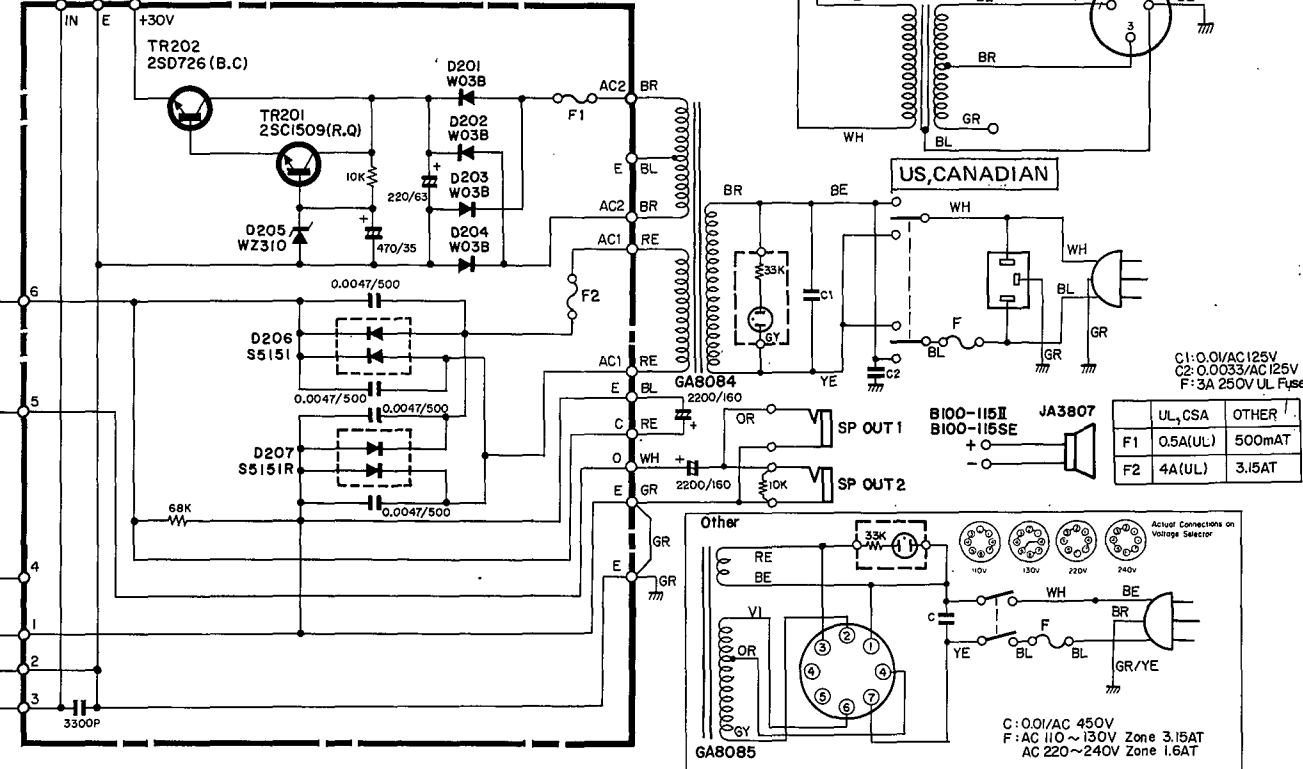
## PA BOARD



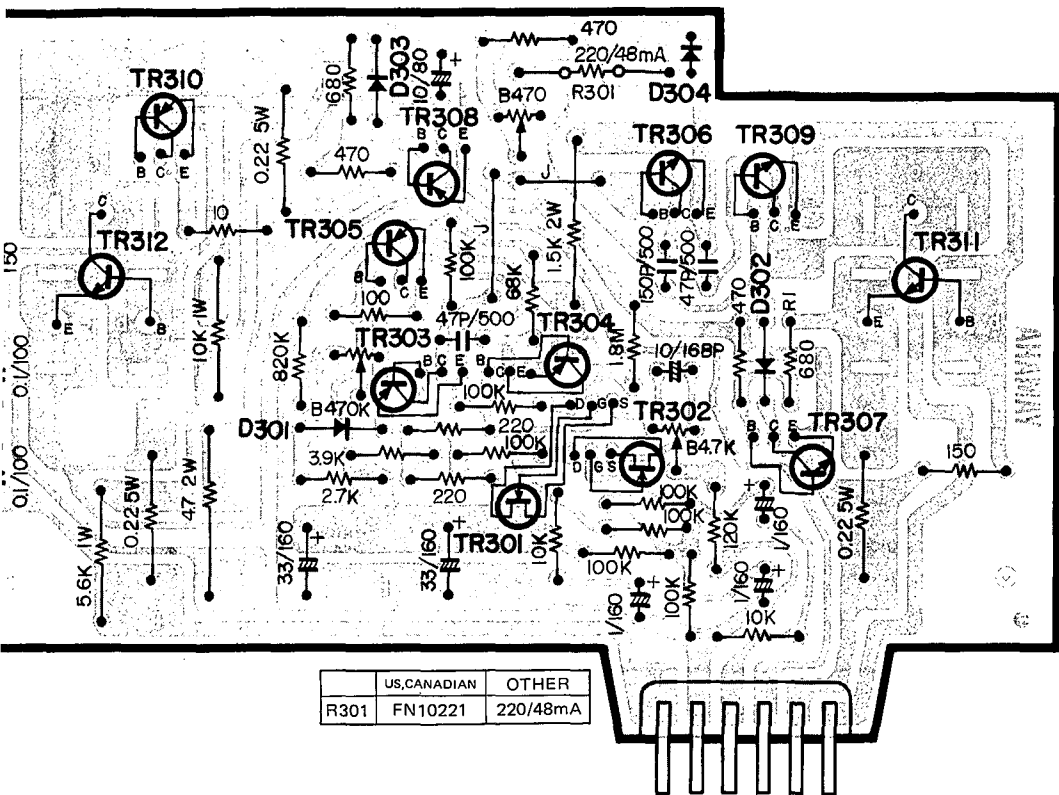
## A BOARD



## DC BOARD

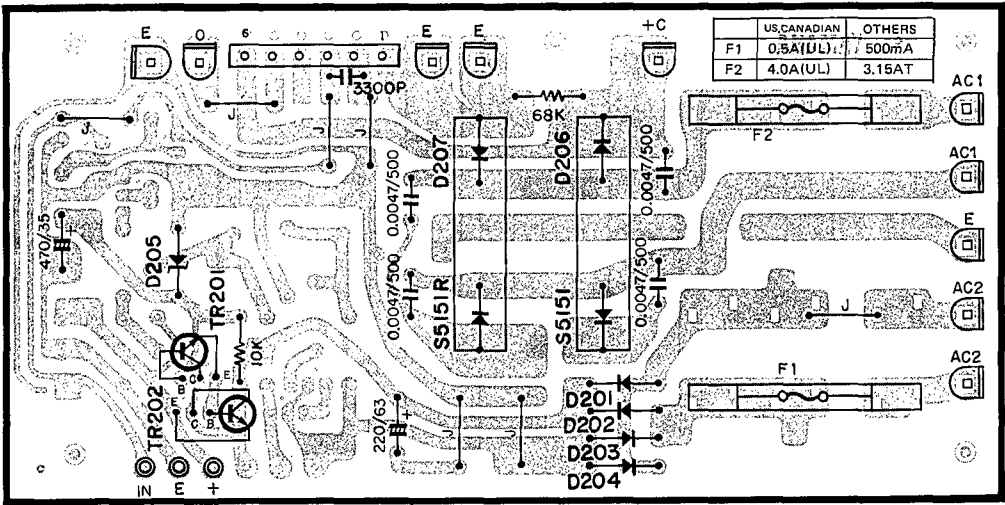


Parts side view



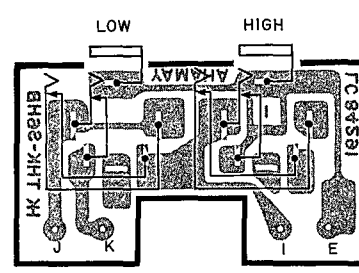
	US, CANADIAN	OTHER
R301	FN10221	220/48mA

DC Parts side view



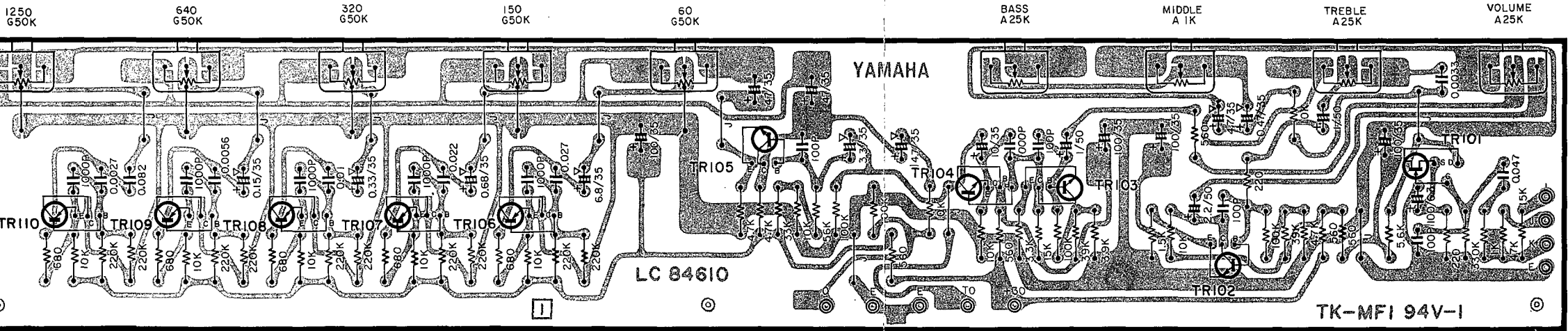
	US, CANADIAN	OTHERS
F1	0.5A(UL)	500mA
F2	4.0A(UL)	3.15AT

JK Parts side view



Board	Markets	B100-115II B100-115SE
MA	U.S.A	NA805150
	Canadian	-do.-
	Others	NA805160
DC	U.S.A	NA805300
	Canadian	NA805290
	Others	NA805310
PA	U.S.A	NA805280
	Canadian	-do.-
	Others	-do.-

Pattern side view



LC 84610

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TK-MFI 94V-I



## ■ PARTS LIST    MA Unit, MA Board

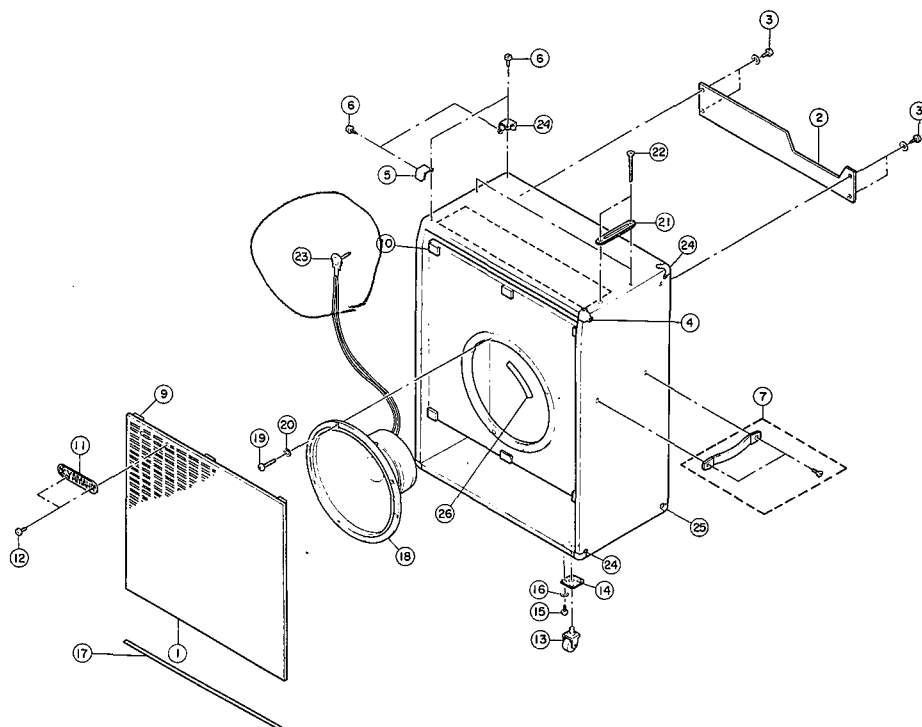
※ : New Part (新部品)      DESTINATION ABBREVIATIONS      U : US, C : Canada, O : Other (except for US, Canada models)

# PA Board/JK Writing Board

Ref. No.	Part No.						Description	(部 品 名)	Remarks	Common model	Markets
※	30	54	00	NA	80	52	90	DC BOARD	#84801	DCシート	C
※	30	54	00	NA	80	53	00	"	#84811	"	U
※	30	54	00	NA	80	53	10	"	#84791	"	O
	40	10	00	i H	00	07	20	Diode	W03B	ダイオード	
	40	10	00	i H	00	02	10	"	S5151	"	
	40	10	00	i H	00	02	20	"	S5151R	"	
	40	10	00	i F	00	02	20	Zener Diode	WZ310	ツェナーダイオード	
	40	10	00	i C	15	09	30	Transistor	2SC1509(R,Q)	トランジスタ	
	40	10	00	i D	07	26	00	"	2SD726(B,C)	"	
	40	10	00	LB	20	15	30	Fuse Holder Pin		ヒューズホルダーピン	
	40	10	00	KB	00	03	10	Fuse	0.5A,250V	ヒューズ	C
	40	10	00	KB	00	03	80	"	4.0A,250V	"	C
	40	10	00	KB	00	10	10	" UL	0.5A,250V	ULヒューズ	U
	40	10	00	KB	00	10	50	" "	4.0A,250V	"	U
	40	10	00	KB	00	07	10	" Mini	500mA,250V	ミニヒューズ	O
	40	10	00	KB	00	07	60	" "	3.15A,250V	"	O
	40	10	00	LB	60	05	20	Connector Housing		コネクタハウジング	
※	30	54	00	NA	80	52	80	PA BOARD	#84611	PAシート	
	40	10	00	FP	35	51	50	Tantalum Capacitor	0.15/35	タンタルコン	
	40	10	00	FP	35	53	30	"	0.33/35	"	
	40	10	00	FP	35	54	70	"	0.47/35	"	
	40	10	00	FP	35	56	80	"	0.68/35	"	
	40	10	00	FP	35	63	30	"	3.3/35	"	
	40	10	00	FP	35	64	70	"	4.7/35	"	
	40	10	00	FP	35	66	80	"	6.8/35	"	
	40	10	00	i A	09	70	00	Transistor	2SA970(GR,BL)	トランジスタ	
	40	10	00	i C	22	40	00	"	2SC2240(GR,BL)	"	
	40	10	00	i E	00	00	20	FET	2SK30A(GR)	FET	
	40	10	00	HS	31	07	50	Variable Resistor	A1K $\Omega$	ボリューム	
	40	10	00	HS	31	07	60	"	A25K $\Omega$	"	
	40	10	00	HS	31	08	00	" Center Click	G50K $\Omega$	" (センタークリック)	
	40	10	00	L C	84	29	10	JK WRITEING BOARD		JK 基板	
	40	10	00	L B	20	15	40	Jack		ホーンジャック	

※ : New Part (新部品)

# EXPLODED VIEW

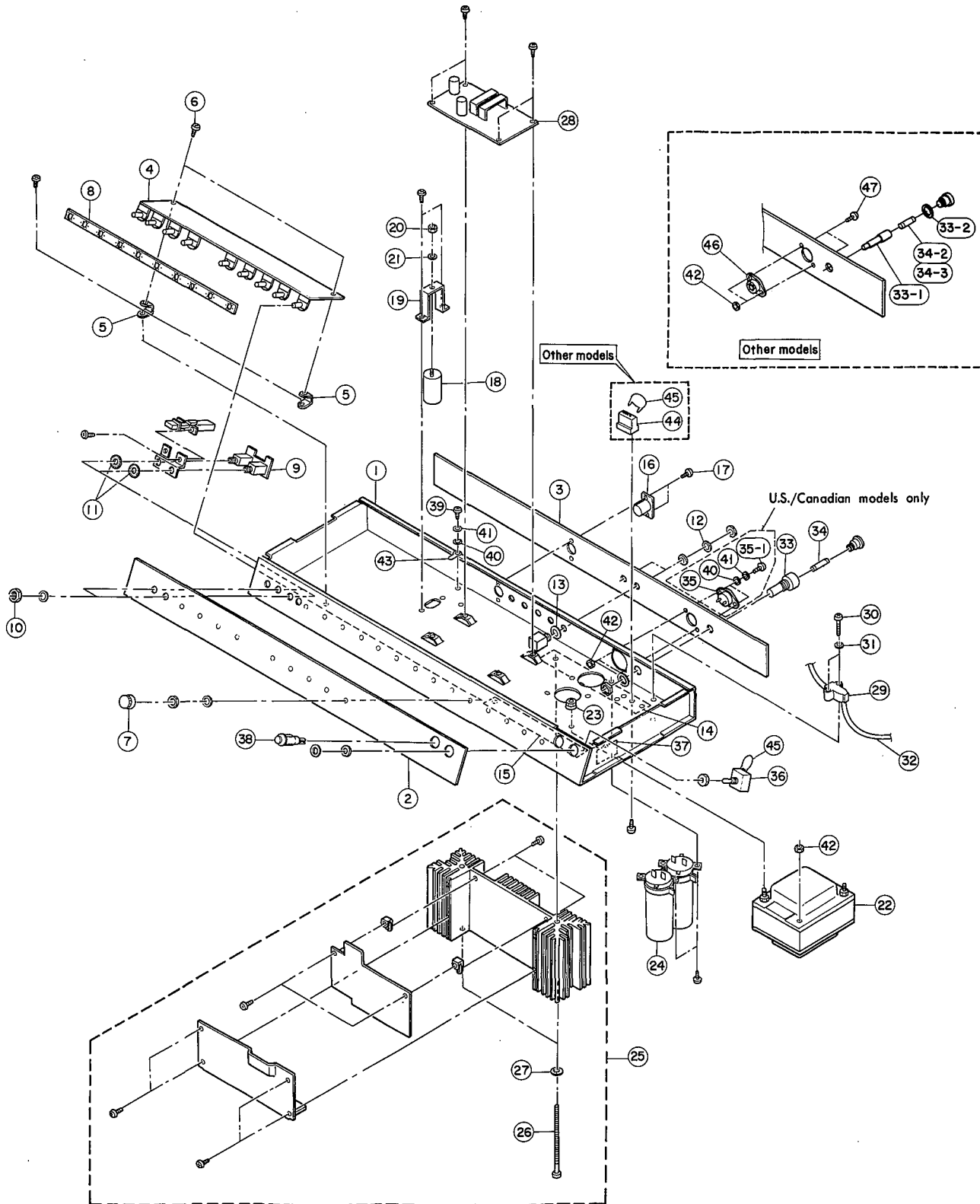


## PARTS LIST

Ref. No.	Part No.	Description	(部 品 名)	Remarks	Common model	Markets
※	30:54:43 00:00:00:10	Cabinet	外装組上り	B100-115 II		
	30:54:44 00:00:00:10	"	"	B100-115 SE		
※ 1	30:54:43 DA:80:40:50	Front Grille	前板集成	B100-115 II		
	30:54:44 DA:80:42:10	"	"	B100-115 SE		
※ 2	30:54:43 DB:81:19:50	Back Board	裏板 (小)	B100-115 II		
	30:54:44 DB:81:19:50	"	"	B100-115 SE		
3	40:10:10 EK:80:08:80	Screw 4×25 FNM3-3g	山型ワッシャ付タッピン グネジ			
4	30:54:00 AA:80:76:40	Metal Corner (Right)	コーナー金具 (右)			
5	30:54:00 AA:80:76:50	" (Left)	" (左)			
6	40:10:00 ER:23:51:30	Oval Head Wood Screw 3.5×13 FNM3-3g	丸皿木ネジ			
7	30:54:00 NB:81:26:40	Handle Assembly	取手Ass'y			
9	40:10:00 CA:80:15:20	Velcro Tape	マジックテープ (オス)			
10	40:10:00 CA:80:15:30	"	" (メス)			
11	30:54:00 CB:81:37:90	Name Plate	ネームプレート			
12	40:10:00 ER:33:11:30	Oval Head Wood Screw 3.1×13 FCM3-B	丸皿木ネジ			
13	30:54:00 AA:80:16:80	Caster	キャスター			
14	30:54:00 AA:80:16:90	Caster Socket	キャスターソケット			
15	40:10:00 ED:35:02:00	Bind Head Screw 5×20 ZMC2-B	バインド小ネジ			
16	40:10:00 FV:30:35:00	Spring Lock Washer 5S	バネ座金			
17	30:54:00 CB:80:19:20	Trim	バッフルボードトリム			
※ 18	30:54:00 JA:38:07:00	Speaker	スピーカー	9800		
19	40:10:00 EA:05:03:00	Pan Head Screw 5×30 ZMC2-B	ナベ小ネジ			
20	40:10:00 EV:30:05:00	Spring Lock Washer 5S	バネ座金			
21	30:54:00 AA:80:76:70	Fixing Plate	ユニット吊り金具			
22	40:10:00 EK:80:08:70	Sharp Tip Oval Head Screw 5×90 FNM3-3g	尖先丸皿小ネジ			
※ 23	40:10:00 MI:80:10:70	Speaker Cord W/Jack	L型プラグ付コード			
24	30:54:00 AA:80:76:60	Metal Corner	コーナー金具			
25	30:54:00 AA:80:90:05	"	" (後下)			
26	40:10:00 CB:80:19:10	Spacer	スピーカーパッキン			

※ : New Part (新部品)

# EXPLODED VIEW



01

02

03

04

05

06

07

# PARTS LIST

Ref. No.	Part No.	Description	(部 品 名)	Remarks	Common model	Markets
1	30:54:00 AA:80:98:50	Chassis	シャーシ			
※ 2	Refer to page 14 Note 1	Panel	パネル			
※ 3	Refer to page 14 Note 2	Back Panel	バックパネル			
※ 4	30:54:00 NA:80:52:80	PA Board	PAシート			
5	30:54:00 AA:81:04:50	Fixing Metal For C,B	シート固定金具			
6	40:10:00 E:03:00:60	Bind Head Tapping Screw 3×6 ZMC2-Y	バインドタッピングネジ			
7	30:54:00 CB:81:17:80	Knob	ツマミ			
8	30:54:00 AA:81:04:40	Spacer	スペーサー			
9	40:10:00 LC:84:29:10	JK Writing Board	JK基板			
10	40:10:00 LX:20:00:60	Hexagonal Nut 9S	特殊六角ナット			
11	40:10:00 LX:20:00:10	Plain Washer 9S	特殊平座金			
12	30:54:00 CB:81:40:00	Insulation Nut	絶縁ナット			
13	30:56:00 CB:81:00:90	"	"			
14	40:10:00 CB:81:37:50	Damper	緩衝材			
15	40:10:00 CB:81:37:60	"	"			
16	40:10:00 LB:30:01:60	Cannon Socket XLR-3-32	キャノンソケット			
17	40:10:00 EM:23:00:80	Oval Head Tapping Screw 3×8 FCrM3-3g	丸皿タッピングネジ			
18	30:54:00 GA:80:07:10	Input Transformer	マッチングトランス			
※ 19	30:54:00 AA:81:11:20	Transformer Holder	トランス固定金具			
20	40:10:00 EV:10:00:30	Hexagonal Nut 3S ZMC2-Y	六角ナット			
21	40:10:00 EV:41:00:30	Toothed Lock Washer A3S ZMC2-Y	歯付座金			
22	40:10:00 GA:80:84:00	Power Transformer	電源トランス			U,C
"	40:10:00 GA:80:85:00	"	"			O
23	40:10:00 EK:80:06:20	Flange Nut M4	フランジナット			
24	40:10:00 FL:10:92:20	Electrolytic Capacitor 2200/160	コンデンサ			
25	30:54:00 NB:81:26:20	MA Unit	MAユニット			U,C
"	30:54:00 NB:81:26:30	"	"			O
26	40:10:00 EK:00:09:80	Sharp Tip Pan Head Screw 5×10 7S	尖先ナベ小ネジ			
27	40:10:00 EV:43:00:50	Toothed Lock Washer AB5S ZMC2-Y	歯付座金			
※ 28	30:54:00 NA:80:53:00	DC Board	DCシート			U
"	30:54:00 NA:80:52:90	"	"			C
"	30:54:00 NA:80:53:10	"	"			O
29	30:54:00 CB:81:37:70	Cord Stopper	コード押え			
30	40:10:00 E:03:02:00	Bind Head Tapping Screw 3×20 ZMC2-Y	バインドタッピングネジ			
31	40:10:00 EV:20:00:30	Flat Washer 3S ZMC2-Y	平座金			
32	40:10:00 MG:00:02:70	AC Cord	電源コード			U,C
"	40:10:00 MG:00:04:50	"	"			O
33	40:10:00 LB:20:04:90	Fuse Holder	ヒューズホルダー			U,C
33-1	40:10:00 LB:20:05:90	"	"			O
33-2	40:10:00 AA:03:15:80	Washer for Fuse Holder	ヒューズホルダーワッシャ			O
34	40:10:00 KB:00:03:60	Fuse 3A 250V	ヒューズ(タイラッシュ)	100V		C
34-1	40:10:00 KB:00:10:40	" UL SS-2 3A 250V	ULヒューズ			U
34-2	40:10:00 KB:00:07:40	" 1.6AT 250V	ヒューズSタイムラグ	200V		O
34-3	40:10:00 KB:00:07:60	" 3.15AT 250V	"	100V		O
35	40:10:00 LB:30:02:50	3P AC Outlet	AC Outlet(3P)			U,C
35-1	40:10:00 EA:30:10:30	Pan Head Screw 3×10S FCM3-B	ナベ小ネジ			U,C
36	40:10:00 KA:30:03:50	Power Switch	パワースイッチ			U
36	40:10:00 KA:30:04:40	Power Switch	パワースイッチ			C
"	40:10:00 KA:30:37:00	"	"			O
37	40:10:00 CA:80:20:00	Isolation Paper	絶縁紙			
38	40:10:00 JB:00:00:72	Lamp Holder	ランプホルダー			
39	40:10:00 ED:04:00:80	Bind Head Screw 4×8 ZMC2-Y	バインド小ネジ			
40	40:10:00 EV:46:00:40	Toothed Lock Washer B4S	歯付座金			

※ : New Part (新部品)

Ref. No.	Part No.				Description		(部 品 名)	Remarks	Common model	Markets				
41	40	10	00	EV	30	00	40	Spring Lock Washer	4S	〃	バネ座金			
42	40	10	00	EV	10	00	40	Hexagonal Nut	4S	〃	六角ナット			
43	40	10	00	LA	00	02	90	Ground Lug	4φ		アースラグ			
44	40	10	00	LA	00	07	60	Lug Terminal			カラー端子板			
45	40	10	00	FZ	00	20	30	Spark Killer			スパークキラーコンデンサ			
46	40	10	00	LB	20	02	50	Voltage Selector			電圧切替器			O
47	40	10	00	EA	30	08	20	Pan Head Screw	3×8S ZMC2-B 2		ナベ小ネジ			O
48	40	10	00	CA	80	19	90	Isolation Cover			絶縁カバー			U,C

※ : New Part (新部品)