

JX50

SERVICE MANUAL

FRONT PANEL



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006421

SINCE 1887



YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

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SPECIFICATIONS

OUTPUT POWER		50W (8Ω T.H.D. 3%)	
INPUT SENSIVITY (at 1kHz)	PULL-GAIN HIGH (push)	LOW	-37 dB (11mV) -25 dB (44mV)
	PULL-GAIN HIGH (pull)	LOW	-51 dB (2.2mV) -39 dB (9mV)
MAS.VOL } max. EQ.VOL } VOLUME } FAT → 1			
INPUT IMPEDANCE		HIGH 340KΩ, LOW 60KΩ	
NOISE	-55dB (MAS. VOL → min, VOLUME → min.)		
	-35dB (MAS. VOL → max, VOLUME → max, PULL, G → push)		
	-25dB (MAS. VOL → max, VOLUME → max, PULL-G → pull)		
REVERB		Spring Type	

HEADPHONE JACK	-8 dB (0.3V) @ 50W 8Ω
SPEAKER	YAMAHA JA3066 (30 cm) x 1
POWER CONSUMPTION	Canadian Model 75W 1A Other Models 120W
POWER SOURCE	120V AC fixed, or 110, 130, 220 or 240V AC selectable, 50/60 Hz
DIMENSIONS W x H x D	544 x 450 x 210 mm 21.4" x 17.7" x 8.7"
WEIGHT	15.2 kg (33 lbs 8 oz)

Specifications subject to change without notice.

GENERAL ADJUSTMENT AND CHECK SPECIFICATIONS

For the measurements, use an oscillator with an output impedance of below 1KΩ, an oscilloscope and an AC voltmeter / dB meter with an input impedance of over 100KΩ.

I. GENERAL ADJUSTMENT

● Idling Current Adjustment

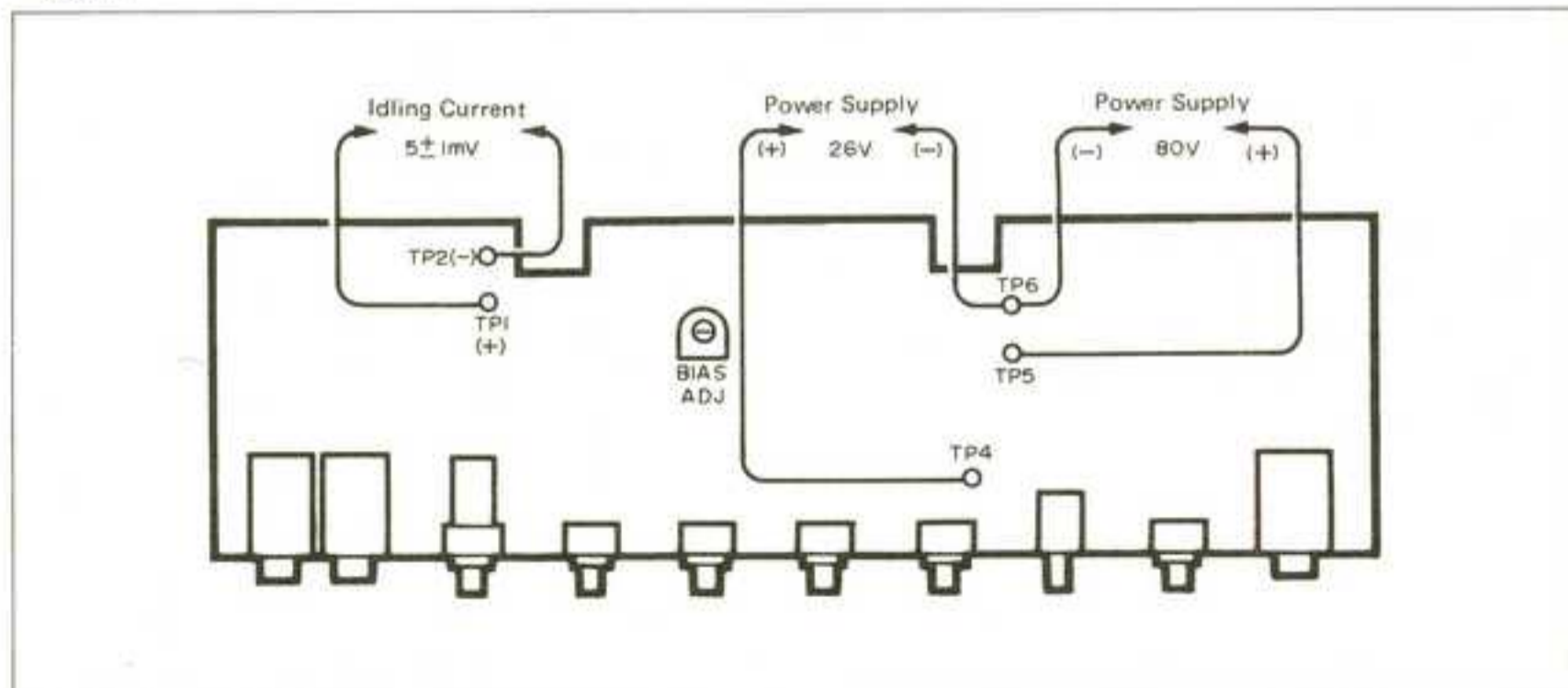
Adjust the pot (B500Ω) so that the voltage across the terminals TP1 (+) and TP2 (-) on PM circuit board is set to $5 \pm 1\text{mV}$.

*When readjusting all over again (e.g. when replacing the power transistor), make sure to turn the pot full counterclockwise.

● Power Supply Voltage Check

Check to ensure that a voltage of 80V is obtained across TP5 (+) and TP6 (-) and 26V across TP4 (+) and TP6 (-).

FIG. 1



Check item	Set position of control	Measurement conditions	Point of measurement	Specifications	Remarks
1 Gain	TABLE 1	Apply a 1kHz, -60dB sine wave signal to INPUT.	PM circuit board, across "O" and "E" (8Ω load)	Output level listed in TABLE 2.	
2 Maximum output power	TABLE 1	Apply a 1kHz sine wave signal to HIGH INPUT.	PM circuit board, across "O" and "E" (8Ω load)	50W (28.2dB) with T.H.D. less than 3%.	
3 Frequency response	TABLE 1	Apply a 1kHz, -60dB sine wave signal to HIGH INPUT.	PM circuit board, across "O" and "E" (8Ω load)	Within ±3dB of the basic curve in FIG. 2 with 1kHz as a standard.	
4 TREBLE response	TABLE 1	Apply a 7kHz, -60dB sine wave signal to HIGH INPUT and turn TREBLE control from its minimum to maximum positions.	PM circuit board, across "O" and "E" (8Ω load)	Output variation: 17 ± 3dB	
5 MIDDLE response	TABLE 1	Apply a 400Hz, -60dB sine wave signal to HIGH INPUT and turn MIDDLE control from its minimum to maximum positions.	PM circuit board, across "O" and "E" (8Ω load)	Output variation: 4 ± 3dB	
6 BASS response	TABLE 1	Apply a 70Hz, -60dB sine wave signal to HIGH INPUT and turn BASS control from its minimum to maximum positions.	PM circuit board, across "O" and "E" (8Ω load)	Output variation: 12 ± 3dB	
7 FAT response	TABLE 1	Apply a 1kHz, -60dB sine wave signal to HIGH INPUT and turn FAT switch from 1 → 2 → 3.	PM circuit board, across "O" and "E" (8Ω load)	Output variation 3 ± 1dB (FAT switch 1 → 2) 2 ± 0.5dB (FAT switch 2 → 3)	
8 PHONES output power	TABLE 1	Apply a 1kHz, -60dB sine wave signal to HIGH INPUT.	PHONES jack (8Ω load)	-30dB output level at both L and R.	Connect the load resistance given in FIG. 3.
9 REVERB drive circuit	TABLE 1	Remove REVERB unit and apply a 1kHz, -60dB sine wave signal to HIGH INPUT.	PM circuit board, across Do and E (600Ω load)	Output level: -2 ± 2dB	
10 Reverberation output amplification circuit	TABLE 1 except REVERB → Max	Remove REVERB unit and apply a 1kHz, -60dB sine wave signal across P1 and E on PM circuit board.	PM circuit board, across "O" and "E" (8Ω load)	Output level: -6 ± 3dB	
11 Noise level	TABLE 1	(1) PULL - GAIN → pull (2) PULL - GAIN → push (3) MASTER VOL → Min	PM circuit board, across "O" and "E" (8Ω load)	(1) less than -28dB (2) less than -37dB (3) less than -55dB	

● TABLE 1

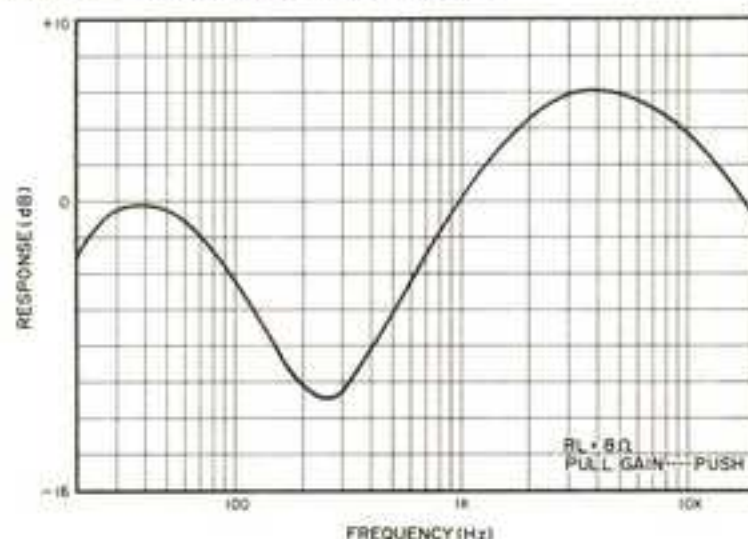
Knob	Set Position
PULL - GAIN/VOLUME	PULL - GAIN → Push VOLUME max.
MASTER VOL.	max.
TREBLE	max.
MIDDLE	max.
BASS	max.
FAT	1
REVERB	min.

● TABLE 2

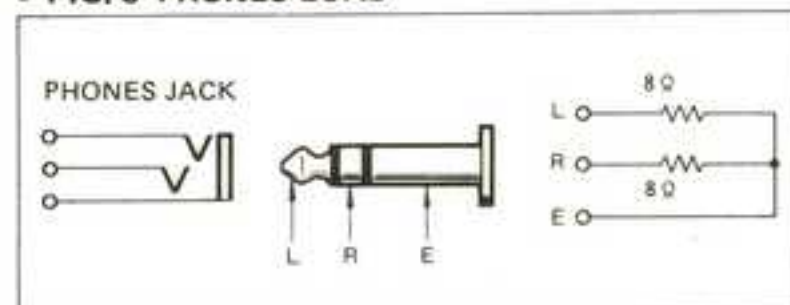
HIGH INPUT	PULL - GAIN → Pull	19 ± 3dB
	PULL - GAIN → Push	5 ± 3dB
LOW INPUT	PULL - GAIN → Pull	7 ± 3dB
	PULL - GAIN → Push	-7 ± 3dB

Note: 0dB is referenced to 0.775 V RMS.

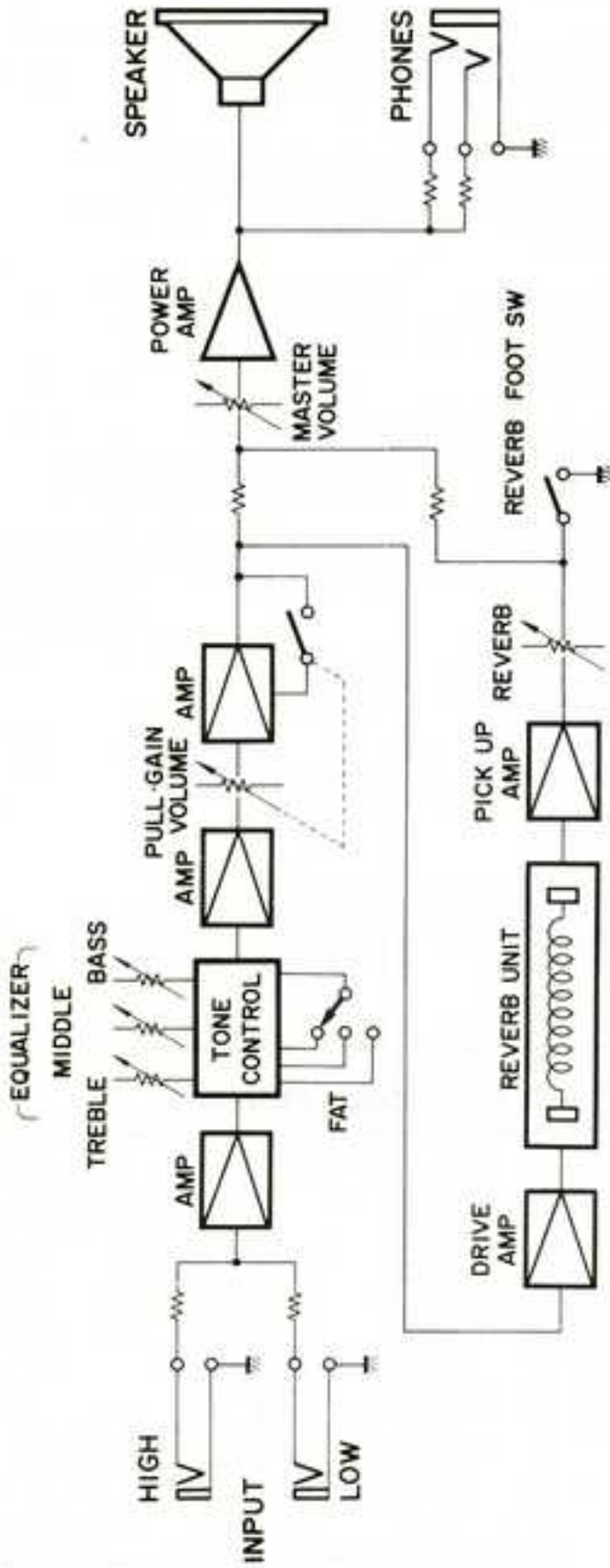
● FIG. 2 FREQUENCY RESPONSE



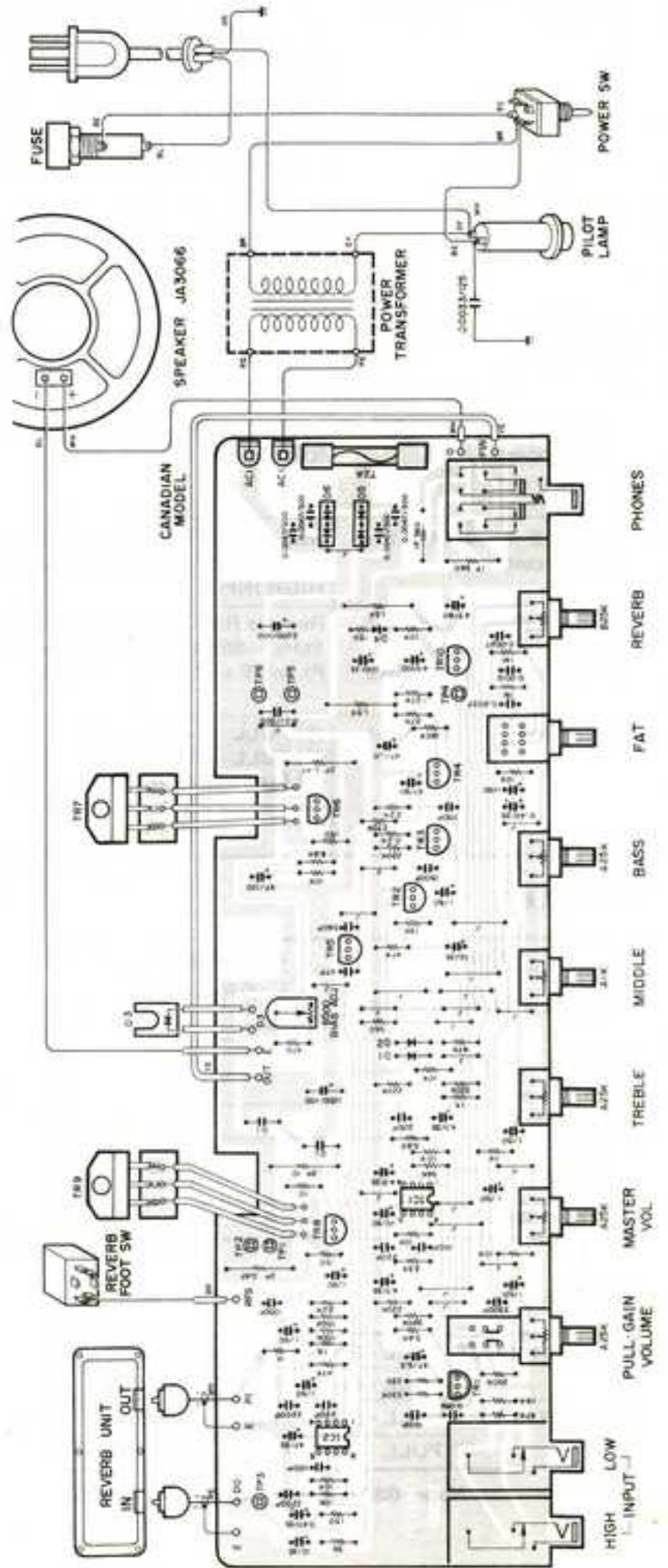
● FIG. 3 PHONES LOAD



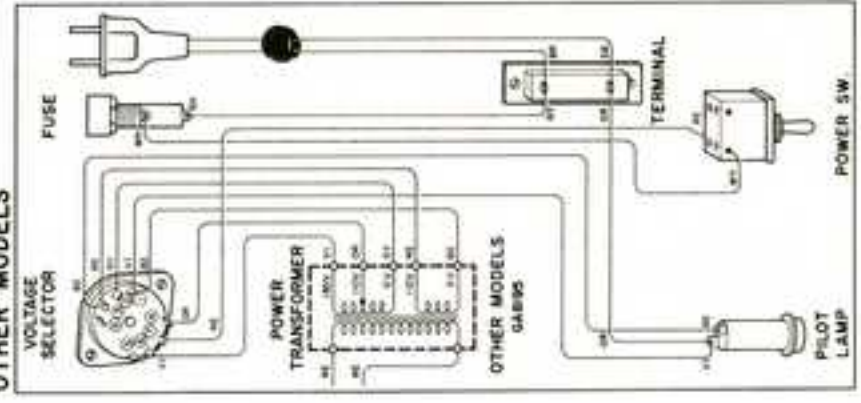
BLOCK DIAGRAM



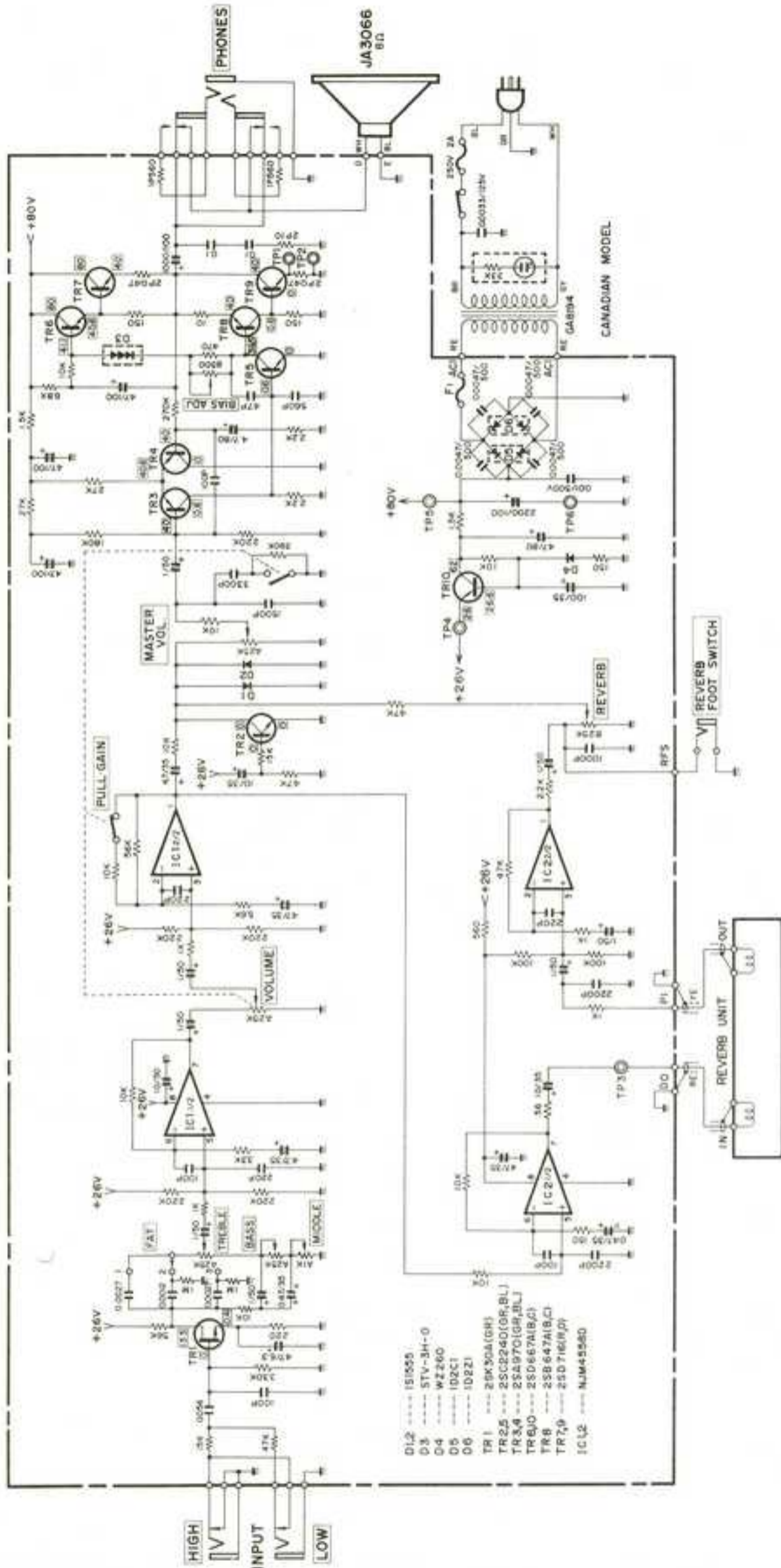
PRINTED CIRCUIT BOARD



OTHER MODELS

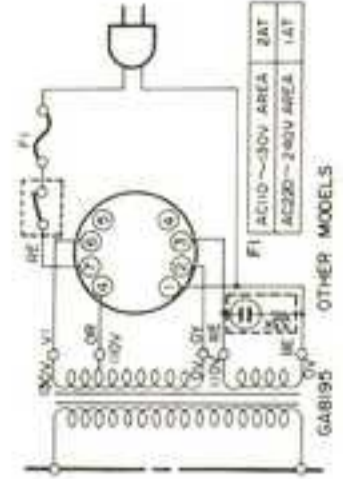
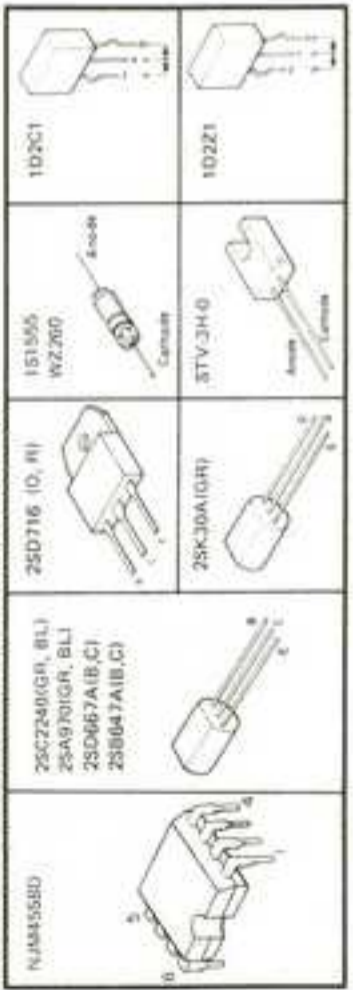


SCHEMATIC DIAGRAM

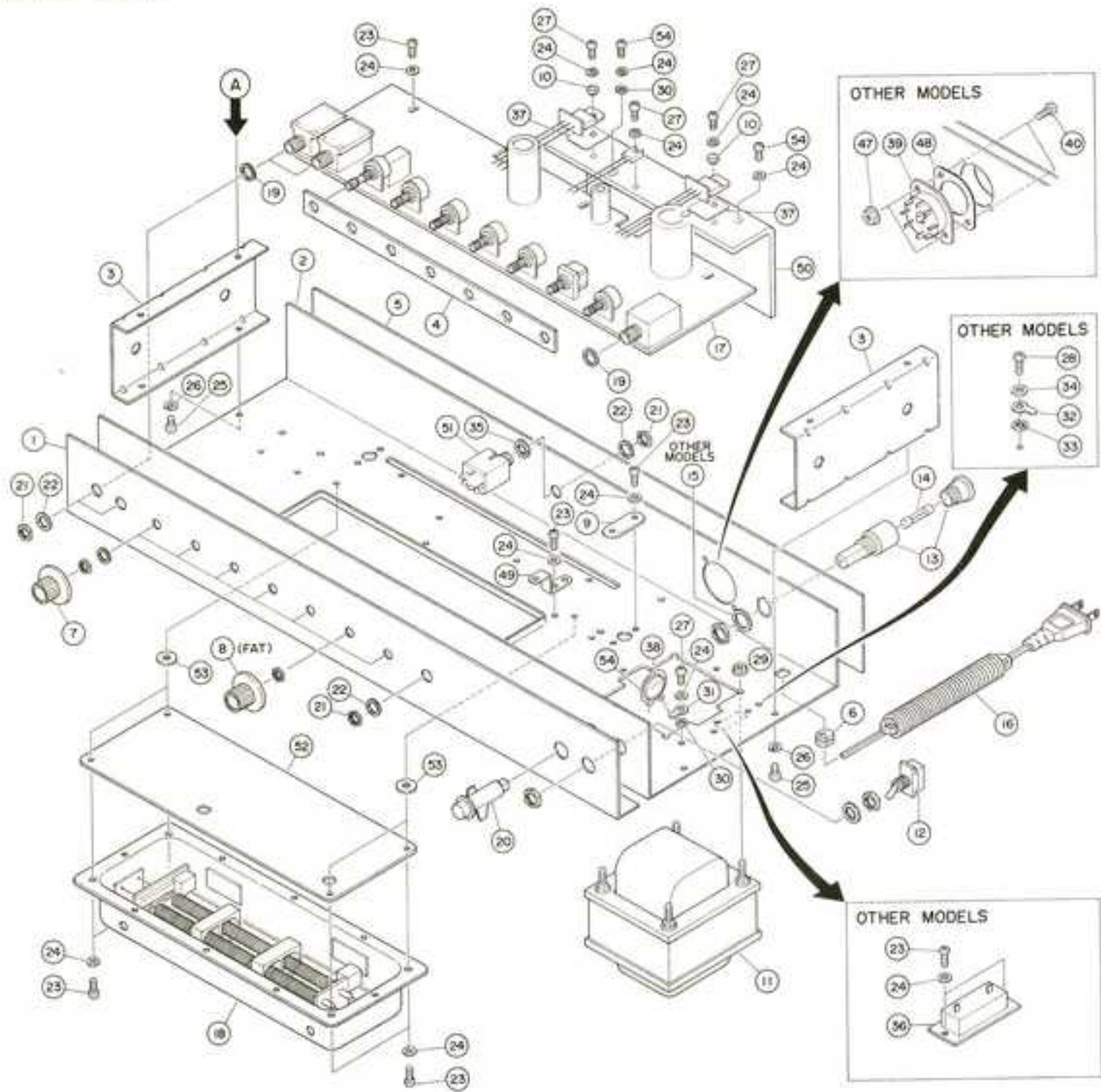


- D1,2 ---- 1S1555
- D3 ---- STV-3H-0
- D4 ---- WZ260
- D5 ---- 102C1
- D6 ---- 102Z1
- TR1 ---- 28K30A(GH)
- TR2,5 ---- 25C2240(GR,BL)
- TR3,4 ---- 25A970(GR,BL)
- TR6,9 ---- 25D667A(B,C)
- TR8 ---- 25B647A(B,C)
- TR7,9 ---- 25D716(R,D)
- IC1,2 ---- NJM4558D

PIN-CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND IC.



■ PARTS LIST



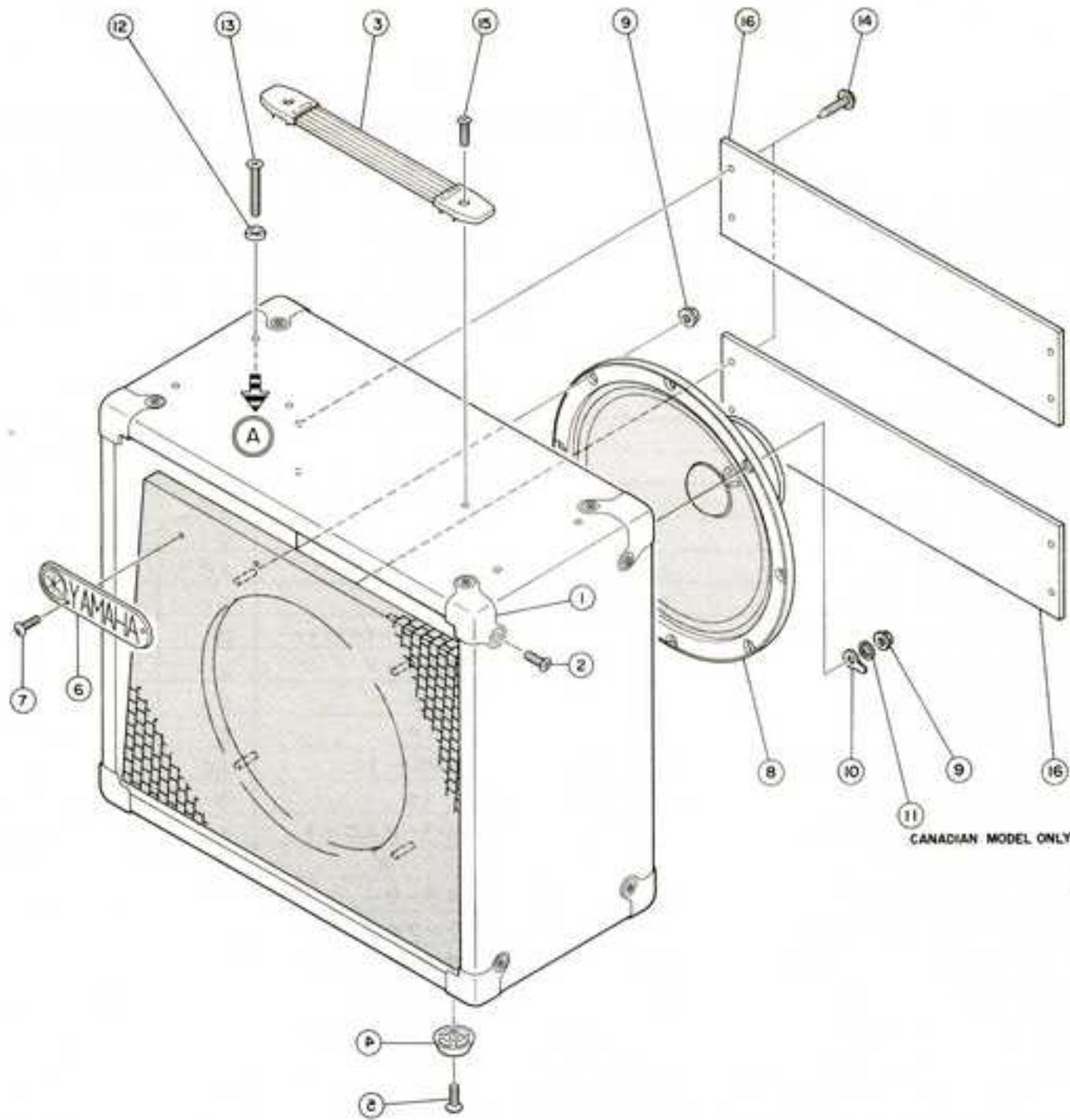
J : Japan Model
 C : Canadian Model
 O : Other Models

Ref No.	Part No.	Description	(部 品 名)	Remarks	Common model
* 1	30 54 00 AA 81 27 50	Front Panel	フロントパネル	J,C	
* 1	30 54 00 AA 81 27 60	"	"	O	
* 2	30 54 00 AA 81 21 20	Chassis	シャーシ	J	
* 2	30 54 00 AA 81 21 70	"	"	C	
* 2	30 54 00 AA 81 22 20	"	"	O	
* 3	30 54 00 AA 81 25 50	Side Stay	サイドステー		
* 4	30 54 00 AA 81 30 80	Spacer	スペーサー		
* 5	30 54 00 AA 81 24 30	Rear Panel	リアパネル	J	
* 5	30 54 00 AA 81 24 50	"	"	C	
* 5	30 54 00 AA 81 24 60	"	"	O	
* 6	40 10 00 CB 06 86 30	Cord Bush	コードブッシュ	J	
* 6	40 10 00 CB 80 68 50	"	"	C	
* 6	40 10 00 CB 07 27 50	"	"	O	
* 7	30 54 00 CB 81 46 40	Knob	ツマミ		

* NEW PARTS

Ref No.	Part No.	Description	(部 品 名)	Remarks	Common model
8	30:54:00:CB:81:52:30	Knob (FAT)	ツマミ		
9	30:54:00:CB:81:46:50	Wire Push	線材押え		
10	40:10:00:IL:00:04:00	Bush	絶縁ブッシュ		
※	40:10:00:GA:81:93:00	Power Transformer	電源トランス	J	
※	40:10:00:GA:81:94:00	"	"	C	
※	40:10:00:GA:81:95:00	"	"	O	
12	40:10:00:KA:30:04:30	Toggle Switch	トグルスイッチ	J	
	40:10:00:KA:30:05:50	"	"	C	
	40:10:00:KA:30:03:00	"	"	O	
13	40:10:00:LB:20:04:90	Fuse Holder	ヒューズホルダー	J,C	
	40:10:00:LB:20:05:90	"	"	O	
14	40:10:00:KB:00:03:50	Fuse 2A 250V	ヒューズ	J,C	
	40:10:00:KB:00:07:50	" Mini 2AT 250V	"	O	
15	40:10:00:AA:03:15:80	Fuse Holder Washer	ヒューズホルダーワッシャー	O	
16	40:10:00:MG:00:06:00	AC Cord	電源コード	J	
	40:10:00:MG:00:10:10	"	"	C	
	40:10:00:MG:00:09:90	"	"	O	
※	30:54:00:NA:80:55:90	PM C. Board #84941	PMシート	J,C	
※	30:54:00:NA:80:56:00	" #84941	"	O	
18	40:10:00:JH:00:01:20	Reverb Unit	リバーブユニット	J	
	40:10:00:JH:00:01:60	"	"	C,O	
19	30:10:00:AA:80:58:20	Spacer 9S	スペーサー		
20	40:10:00:JB:00:07:20	Lamp Holder	ランプホルダー		
21	40:10:00:LX:20:00:60	Hexagonal Nut 9S	特殊六角ナット		
22	40:10:00:LX:20:00:10	Flat Washer 9S	特殊平座金		
23	40:10:00:EJ:03:00:80	Pan Head Tapping Screw 3 x 8 ZMC2-Y	ナベタッピングネジ		
24	40:10:00:EV:20:00:30	Flat Washer φ3 ZMC2-Y	平座金		
25	40:10:00:ED:35:00:80	Bind Head Screw M5 x 8 ZMC2-B	バインド小ネジ		
26	40:10:00:EV:30:30:50	Spring Lock Washer φ5 ZMC2-B	バネ座金		
27	40:10:00:EA:03:00:80	Pan Head Screw M3 x 8 ZMC2-Y	ナベ小ネジ		
28	40:10:00:EA:04:00:80	" M4 x 8 ZMC2-Y	"	C	
29	40:10:00:EK:80:06:20	Flange Nut M4 ZMC2-Y	六角フランジナット		
30	40:10:00:EV:42:00:30	Toothed Lock Washer B3S ZMC2-Y	歯付座金		
31	40:10:00:LA:00:02:80	Ground Lug φ3	アースラグ		
32	40:10:00:LA:00:02:90	" φ4	"		
33	40:10:00:EV:46:00:40	Toothed Lock Washer B4S ZMC2-Y	歯付座金		
34	40:10:00:EV:30:00:40	Spring Lock Washer φ4 ZMC2-Y	バネ座金		
35	40:10:00:EV:40:00:90	Toothed Lock Washer A9S ZMC2-Y	歯付座金		
36	40:10:00:LA:00:29:50	Terminal 2P	2P端子板	O	
37	40:10:00:IL:00:04:60	Mica Base	マイカベース		
38	40:10:00:Fi:18:33:30	Ceramic Cap. 0.0033μF 125V	セラコン	J,C	
39	40:10:00:LB:20:02:50	Voltage Selector	電圧切換器	O	
40	40:10:00:ED:33:01:00	Bind Head Screw M3 x 10 FCM3-B	バインド小ネジ	O	
47	40:10:00:EK:80:11:20	Flange Nut M3 ZMC2-Y	六角フランジナット	O	
48	40:10:00:CB:07:64:00	VS Insulator	V S 絶縁板	O	
49	30:59:00:AA:81:25:90	P.C. Board Holder	シートホルダー		
50	30:54:00:BA:80:40:90	Heat Sink	放熱板	J,C	
	30:54:00:BA:80:45:10	"	"	O	
51	40:10:00:LB:20:15:40	Jack	ジャック		
52	30:54:00:AA:81:27:30	Shield Cover	シールドカバー		
53	40:10:00:CB:80:15:90	Rubber Bush	ゴムブッシュ		
54	40:10:00:CB:07:21:90	Condenser Cover	コンデンサカバー		
55	40:10:00:EJ:03:01:00	Pan Head Tapping Screw 3 x 10 ZMC2-Y	ナベタッピングネジ		

※ NEW PARTS



Ref No.	Part No.	Description	(部 品 名)	Remarks	Common model
	30:54:02:00:00:00:10	Cabinet	外装組上がり		
1	30:54:00:AA:80:76:60	Corner Angle	コーナー金具		
2	40:10:00:ER:23:51:30	Oval Head Wood Screw 3.5 x 13 FNM3-3g	丸皿木ネジ		
3	30:54:00:NB:81:26:40	Handle Ass'y	取手Ass'y		
4	30:10:00:CB:02:32:00	Leg	滑り座		PM-400
5	40:10:00:EP:33:82:50	Flat Head Wood Screw 3.8 x 25 ZMC2-Bx	皿木ネジ		1
6	30:54:00:CB:81:46:30	Name Plate	ネームプレート		
7	40:10:00:ER:33:11:30	Oval Head Wood Screw 3.1 x 13 FCM3-Bx	丸皿木ネジ		
8	30:54:00:JA:30:66:00	Speaker 30 cm (12") 8Ω	スピーカー		
9	40:10:00:EK:80:06:20	Flange Nut M4 ZMC2-Y	フランジナット		
10	40:10:00:LA:00:02:90	Ground Lug 4φ	アースラグ	C	
11	40:10:00:EV:46:00:40	Toothed Lock Washer B4S ZMC2-Y	歯付座金	C	
12	40:10:00:EK:80:00:30	Washer 5φ ZMC2-Bx	山型ワッシャー		
13	40:10:00:EF:35:04:00	Oval Head Screw 5 x 40 ZMC2-Bx	丸皿小ネジ		
14	40:10:00:EM:84:02:50	Oval Head Tapping Screw 4 x 25 FNM3-3g	山型ワッシャー付 丸皿タッピングネジ		
15	40:10:00:EF:24:02:50	Oval Head Screw M4 x 25 FNM3-3g	丸皿小ネジ		
16	30:54:02:DB:81:31:50	Back Board	裏板		

* NEW PARTS

ELECTRICAL PARTS

Ref No.	Part No.	Description	(部 品 名)	Remarks	Common model
※	30 54:00 NA 80 55:90	PM C. Board #84941	PMシート	J,C	
※	30 54:00 NA 80 56:00	" #84941	"	O	
	40 10:00 FH 23 41:00	Ceramic Cap. 0.01 μ F 500V	セラコン		
	40 10:00 FH 22 34:70	" 0.0047 μ F 500V	"		
※	40 10:00 FM 78 91:00	Electrolytic Cap. 1000 μ F 100V	ケミコン		
※	40 10:00 FM 78 92:20	" 2200 μ F 100V	"		
	40 10:00 FP 35 54:70	Tantalum Cap. 0.47 μ F 35V	タンタルコン		
	40 10:00 HL 31 55:60	Metal Oxide Film Resistor 560 Ω 1W	酸化膜抵抗		
	40 10:00 HL 32 41:00	" 10 Ω 2W	"		
	40 10:00 HM 52 24:70	Cement Resistor 0.47 Ω 2W	セメント抵抗		
※	40 10:00 HV 35 61:50	Fire Proof Resistor 1.5k Ω	不燃化カーボン抵抗		
	40 10:00 HS 31 07:50	Variable Resistor A1k Ω	可変抵抗器		
	40 10:00 HS 31 07:60	" A25k Ω	"		
	40 10:00 HS 31 07:70	" (with SW.) A25k Ω	"		
	40 10:00 HS 31 08:60	" B25k Ω	"		
	40 10:00 HT 77 00:20	Semi-Fixed Variable Resistor B500 Ω	半固定抵抗		
	40 10:00 iA 09 70:00	Transistor 2SA970 (GR,BL)	トランジスタ		
※	40 10:00 iB 06 47:20	" 2SB647A (B,C)	"		
	40 10:00 iC 22 40:00	" 2SC2240 (GR,BL)	"		
※	40 10:00 iD 06 67:20	" 2SD667A (B,C)	"		
※	40 10:00 iD 07 16:10	" 2SD716 (R,O)	"		
	40 10:00 iE 00 00:20	FET 2SK30A (GR)	F E T		
	40 10:00 iG 00 13:90	IC NJM4558D	I C		
	40 10:00 iF 00 00:40	Diode 1S1555	ダイオード		
	40 10:00 iH 00 02:89	" 1D2C1	"		
	40 10:00 iH 00 02:90	" 1D2Z1	"		
	40 10:00 iF 00 02:50	Zener Diode WZ260	ツェナーダイオード		
	40 10:00 iF 00 04:50	Varistor Diode STV-3H-0	バリスタ		
	40 10:00 KB 00 03:50	Fuse 2A 250V	ヒューズ	J,C	
	40 10:00 KB 00 07:50	" Mini 2AT 250V	"	O	
	40 10:00 LB 10 05:00	Jack (INPUT)	ジャック		
	40 10:00 LB 30 10:80	" Stereo (PHONES)	"		
	40 10:00 LB 20 15:30	Fuse Holder Pin	ヒューズホルダーピン		
	40 10:00 KA 50 15:00	Rotary Switch	ロータリースイッチ		

※ NEW PARTS