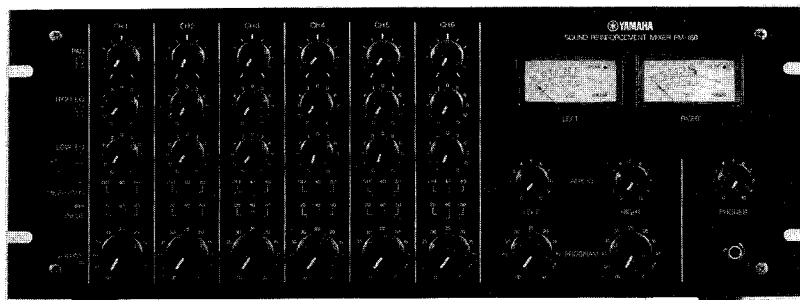


SERVICE MANUAL

PM-170-180 SOUND REINFORCEMENT MIXER



SINCE 1887



YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

006347

100 Printed in Japan 9.81

PM-170 SPECIFICATIONS

Frequency Response	± 0.5dB @50 ~ 15KHz $\begin{matrix} +0.5 \\ -3 \end{matrix}$ dB @20 ~ 30KHz
Total Harmonic Distorsion (T.H.D)	0.5% or less @+24dBm 30 ~ 20KHz 0.15% or less @+24dBm 100 ~ 10KHz
Ham and Noise	-120dBm (Equivaleet Input Noise) @20 ~ 20KHz -66dBm (Master & Channel VR, Input Level SW -50dBm) @20 ~ 20KHz
Maximum Voltage Gain	PGM OUT 66dB AUX IN 36dB
Maximum Input Level	+9dBm @-20dBm Input Level SW -21dBm @-50dBm Input Level SW
Crosstalk	-60dB @1KHz
Equalization	LOW ± 15dB @100Hz HIGH ± 15dB @10KHz
Hight-pass Filter	-12dB/Oct @40Hz & 80Hz
Input	6 x Input L & R x Aux In
Out Put	L & R x Program Out A L & R x Program Out B Head Phone
Controls	6 x Panpot 6 x Input Level SW (-50/-40/-20dBm) 6 x Channel Volume L & R x AUX IN Volume L & R x Master Program Volume Program Out Level Switch (+4/-20dBm) Head Phone Volume
Power Requirements	110, 117, 130, 220 or 240V. AC, 50/60Hz 15W (117V, 0.2A CSA Model)
Dimensions (WxHxD)	48 x 18.2 x 25.3 cm (18-7/8 x 7-1/8 x 10")
Weight	8 (kg) (17.6 lbs)

INPUT SPECIFICATIONS

CONNECTION	Impedance		SENSITIVITY* (at Max Gain)	INPUT LEVEL		CONNECTOR** IN CONSOLE
	ACTUAL	NOMINAL SOURCE		NOMINAL	MAX. before Clip	
INPUT (1-6) level sw-50	20 KΩ	150Ω ~ 600Ω MICS & LINES	-62dBm (0.6mV)	-50dBm (2.5mV)	-21dBm (69mV)	PHONE JACK
-40	30 KΩ	600Ω ~ 10kΩ	-52dBm (2.0mV)	-40dBm (7.8mV)	-11dBm (218mV)	
-20	35 KΩ	MICS & LINES	-32dBm (20mV)	-20dBm (78mV)	+9 dBm (2.18V)	
AUX IN L, R	30 KΩ	5 KΩ LINES	-32dBm (20mV)	-20dBm (78mV)		PHONE JACK

OUTPUT SPECIFICATIONS

CONNECTION	Impedance		POWER OUTPUT LEVEL		CONNECTOR** IN CONSOLE
	ACTUAL	NOMINAL LOAD	NOMINAL	MAX. before Clip	
PGM OUT A (L, R) level sw-20	5 Ω	600 Ω	+4 dBm (1.23V)	+24dBm (12.3V)	PHONE JACK
	100 Ω	600 Ω	-20dBm (78mV)	0 dBm (775mV)	
PGM OUT B (L, R)	5 Ω	600 Ω	+4 dBm (1.23V)	+24dBm (12.3V)	PHONE JACK
HEADPHONES	4.7Ω	8 Ω	-10dBm (250mV)	+4 dBm (1.23V)	STEREO PHONE JACK

*This is the level required to produce an out put of +4dBm (1.23V)

PM-180 SPECIFICATIONS

Frequency Response	$\pm 0.5\text{dB}$ @50 ~ 15KHz $\begin{matrix} +0.5 \\ -3 \end{matrix}\text{dB}$ @20 ~ 30KHz
Total Harmonic Distorsion (T.H.D)	0.5% or less @+24dBm 30 ~ 20KHz 0.15% or less @+24dBm 100 ~ 10KHz
Ham and Noise	-123dBm (Equivale Input Noise) @20 ~ 20KHz -69dBm (Master - VR, Channel - VR, Input Level SW -50dBm) @20 ~ 20KHz
Maximum Gain	PGM OUT 66dB AUX IN 36dB
Maximum Input Level	+9 dBm @-20dBm Input Level SW -21dBm @-50dBm Input Level SW
Crosstalk Equalizer	-60dB @1KHz LOW $\pm 15\text{dB}$ @100Hz HIGH $\pm 15\text{dB}$ @10KHz
Hight-pass Filter Input	-12dB/Oct @40Hz & 80Hz 6 x Input L & R x Aux In
Out Put	L & R x Program Out A L & R x Program Out B Head Phone
Controls	6 x Panpot 6 x High Pass Filter (Off/40/80Hz) 6 x Input Level SW (-50/-40/-20dBm) 6 x Channel Volume L & R x Aux In Volume L & R x Master Program Volume Program Out Level Switch (+4/-50dBm) Head Phone Volume
Power Requirements	110, 117, 130, 220 or 240V. AC, 50/60Hz 15W (117V, 0.2A CSA Model)
Dimensions (WxHxD)	48 x 18.2 x 25.3 cm (18-7/8 x 7-1/8 x 10")
Weight	9 (kg) (19.8 lbs)

INPUT SPECIFICATIONS

CONNECTION	Impedance		SENSITIVITY * (at Max Gain)	INPUT LEVEL		CONNECTOR ** IN CONSOLE
	ACTUAL	NOMINAL SOURCE		NOMINAL	MAX. before Clip	
INPUT (1 ~ 6) Level sw-50	8 5 0 Ω	150 Ω ~ 600 Ω	-62dBm (0.6mV)	-50dBm (2.5mV)	-21dBm (69mV)	XLR-3-31
	-40	3 K Ω	MICS & LINES	-52dBm (2.0mV)	-40dBm (7.8mV)	
	-20	5 K Ω		-32dBm (20mV)	-20dBm (78mV)	
AUX IN (L, R)	3 0 K Ω	5 K Ω LINES	-32dBm (20mV)	-20dBm (78mV)		PHONE JACK

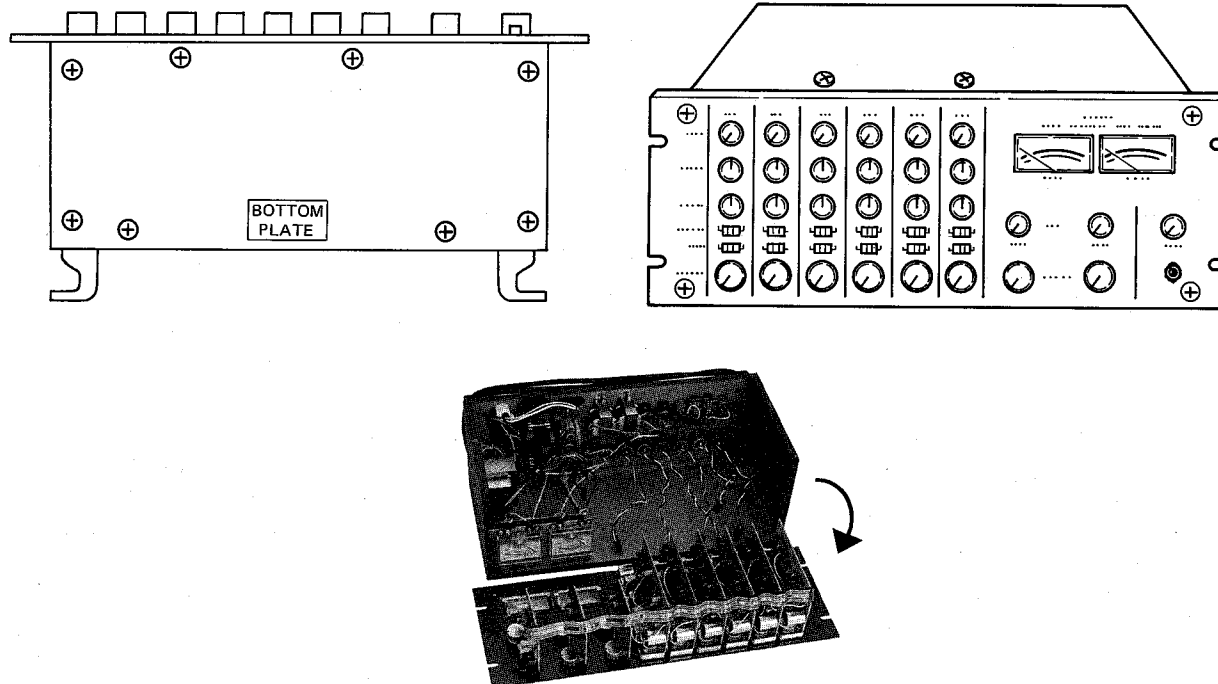
OUTPUT SPECIFICATIONS

CONNECTION	Impedance		POWER OUTPUT LEVEL		CONNECTOR ** IN CONSOLE
	ACTUAL	NOMINAL LOAD	NOMINAL	MAX. before Clip	
PGM OUT A (L, R) Level sw-50	1 2 0 Ω	6 0 0 Ω	+4 dBm (1.23V)	+24dBm (12.3V)	XLR-3-32
	8 0 Ω	6 0 0 Ω	-50dBm (2.5mV)	-30dBm (25mV)	
PGM OUT B (L, R)	5 Ω	6 0 0 Ω	+4 dBm (1.23V)	+24dBm (12.3V)	PHONE JACK
HEADPHONES	4.7 Ω	8 Ω	-10dBm (250mV)	+4 dBm (1.23V)	STEREO PHONE JACK

* This is the level required to produce an out put of +4 dBm (1.23V)

** ALL XLR connections are balanced and transeformer-isolated, FLOATING. Phone jacks are unbalanced.

■ HOW TO REMOVE THE PLATES



1. Remove the bottom plates (⊕ x 8)
2. Remove the control panels (Panel ⊕ x 4, Upper coated plate ⊕ x 2)

■ CONTROL AND TEST REQUIREMENTS FOR THE PM-170.180

1-1. Gain

When required values are set to the levels shown in Table 1 and a $-50\text{dBm}/1\text{KHz}$ signal is fed to the INPUT jack; the output levels should be those shown in Table 2. (The PGM output terminal should be with a 600-ohm load.)

The difference in level between L and Rch should be within 2dB.

2-1. AUX IN

When a $-20\text{dBm}/1\text{KHz}$ signal is fed to the AUX IN jack, while the controls in 1-1 are kept (the UX VOLUME needed to be maximal), the PGM OUT jack should obtain an output of $+16\text{dBm} \pm 2\text{dB}$.

1-3. Distortion

When the output level is $+4\text{dBm}$, while the controls in 1-1 are kept, the distortion factor should be within 0.3% (PM-180) and within 0.5% (PM-170), respectively.

Table 1

Volume	1 ~ 6ch	Maximum
High, Low-EQ	1 ~ 6ch	Center
Input Level SW	1 ~ 6ch	-50dBm
Panpot	1 ~ 6ch	Center
Master Volume	L & R	Maximum
Aux Volume	L & R	Minimum
Out Level SW		$+4\text{dBm}$
Phone Volume		Minimum
High Pass Filter		OFF

Table 2

Input Level SW	PGM OUT A	PGM OUT B
-50	$+16 \pm 2\text{dBm}$	$+16 \pm 2\text{dBm}$
-40	$+ 6 \pm 2\text{dBm}$	$+ 6 \pm 2\text{dBm}$
-20	$-14 \pm 2\text{dBm}$	$-14 \pm 2\text{dBm}$

1-4. Frequency characteristics

With the controls in 1-1 kept and a 1KHz signal as the reference, the frequency characteristics should be $\pm 3\text{dB}$ (50Hz) and within $\pm 1/3\text{dB}$ (15KHz), respectively.

1-5. Tone control

When the tone control knob is adjusted, while the controls in 1-1 are kept, the tone control characteristics should meet the levels shown in Table 3.

All of the references should be those of 1KHz at the FLAT (center) and the input levels are stably constant.

Table 3

EQ	100Hz	1KHz	10KHz
HIGH, LOW Center			
HIGH, LOW, MAX	$+14 \pm 3\text{dB}$	$+1 \pm 3\text{dB}$	$+14 \pm 3\text{dB}$
HIGH, LOW, MIN	$-14 \pm 3\text{dB}$	$-1 \pm 3\text{dB}$	$-14 \pm 3\text{dB}$

1-6. High-pass filter

When the High-pass filter is switched over to the 40Hz, 80Hz, while the controls in 1-1 are maintained, the output levels at 50Hz and 100Hz should be identical with those shown in Table 4. (The reference should be 0dBm/1KHz output)

Table 4

PM-170

HPF. SW	1KHz	50Hz	100Hz
40Hz	50Hz 0dBm	$-4 \pm 2.0\text{dBm}$	
30Hz	100Hz 0dBm		$-4 \pm 2.0\text{dBm}$

PM-180

40Hz	50Hz 0dBm	$-4 \pm 1.5\text{dBm}$	
80Hz	100Hz 0dBm		$-4 \pm 1.5\text{dBm}$

1-7. Maximum output

When a 1KHz signal is enlarged until its output waveform clips itself (distortion factor being 3%), while the controls in 1-1 kept, the level of output should be greater than $+24\text{dBm}$.

1-8. VU meter

With the controls in 1-1 kept, and the PGM OUT set to $+4\text{dB}$, the VU meter indication should be 0 \pm 1VU.

1-9. PGM OUT B

With the controls in 1-1 kept, and the PGM OUT A set to obtain an output of $+4\text{dBm}$, the PGM OUT B should have an output of $+4\text{dBm} \pm 1\text{dBm}$.

1-10. Output changeover switch

With the PGM OUT A's output switched over to the $+4\text{dBm}$, and the PGM OUT A terminal set to obtain an output of $+4\text{dBm}$, the output levels, when the switch is changed over to -20dBm (PM-170) and -50dBm (PM-180), should be identical with $-20 \pm 3\text{dBm}$ and $-50 \pm 3\text{dBm}$, respectively.

1-11. HEADPHONE

With the controls in 1-1 kept, connect an 8Ω load resistance to the HEADPHONE terminal, and then set the HEADPHONE VOLUME to the maximum level. In this case, both ends of the load resistance should obtain an output of $-1 \pm 3\text{dBm}$ by feeding an input of $-50\text{dBm}/1\text{KHz}$ from the INPUT terminal.

1-12. Separation

In the controls in 1-1, maximize the CHANNEL VOLUME of the channel for measurement alone, while setting those of other channels to the minimum level. At the same time, turn over the PAN VOLUME to the L side to control the output level to $+4\text{dBm}$. In this case, the R side of the PGM OUT should have a signal level of less than -46dBm . (The same signal level should be obtained when the PAN VOLUME is turned over to the R side.)

1-13. Noise level

With the controls in 1-1 kept, the noise level of the PGM OUT A should be less than -37dBm (PM-170) and less than -40dBm (PM-180), respectively. When the CHANNEL VOLUME of the measurement channel alone is controlled to the maximum level and those of other channels to the minimum, the noise levels should be less than -45dBm (PM-170) and less than -50dBm (PM-180), respectively. When both the HIGH-EQ and LOW-EQ are set to the maximum levels, the level of noise should be less than -20dBm . (The POWER SW is to be changed over to the side with the smaller noise level.)

1-14. Residual noise level

When the MASTER PGM VOLUME is controlled to the minimum, the noise level of the PGM OUT terminal should be less than -70dBm . When the MASTER PGM VOLUME is set to the maximum and the CHANNEL VOLUME set to the minimum, the level of noise is less than -55dBm .

1-15. LED flashing level (only for the PM-180)

With the controls in 1-1 kept, adjust the LED (light-emitting diode) of the meter to start flashing in the $+14\text{dBm} \pm 1\text{dBm}$ range by means of a fixing VR of the LED sheet. After the adjustment is over, fix down the VR with enamel.

2. Stability

2-1. The models should operate stably against the voltage fluctuation within $\pm 10\%$ of the specified level.

2-2. The models should operate stably within an ambient temperature range of $0^\circ\text{C} \sim 55^\circ\text{C}$.

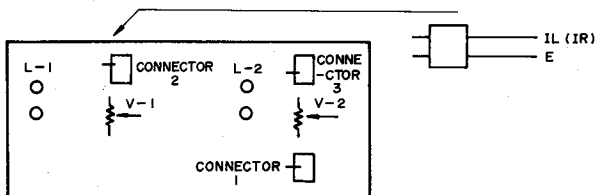
3. Measuring instruments

3-1. The output impedance of an oscillator should be less than 600Ω , and the distortion factor be less than 0.05% .

3-2. The input impedance of such measuring instruments as oscilloscope and voltmeter should be smaller than $100\text{K}\Omega$.

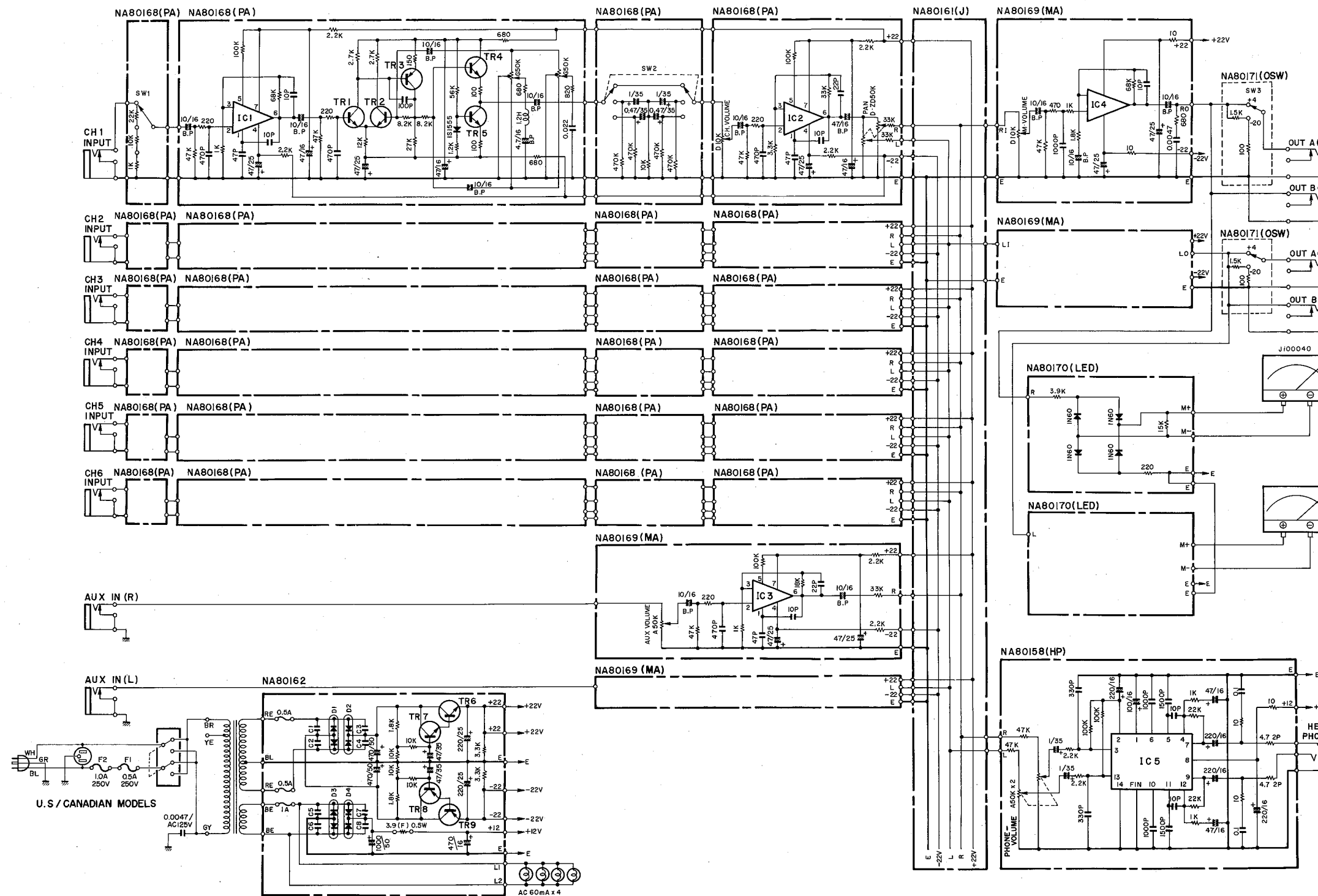
Control of the peak indicator's LED flashing level (only for the PM-180)

Although the peak indicator is adjusted to start flashing at the $+14\text{dBm} \pm 1\text{dBm}$ level, it can be further controlled, when necessary, in the $+4\text{dBm} \sim +24\text{dBm}$ range.



To control the LED flashing level of the peak indicator, connect the LED to L-1 and L-2, and feed a 1KHz signal between the connector 2's (3's) IL and E (IR-E), thereby adjusting the flash-starting level with a semi-fixed volume controller V-1, B47K (V-2).

PM-170 SCHEMATIC DIAGRAM

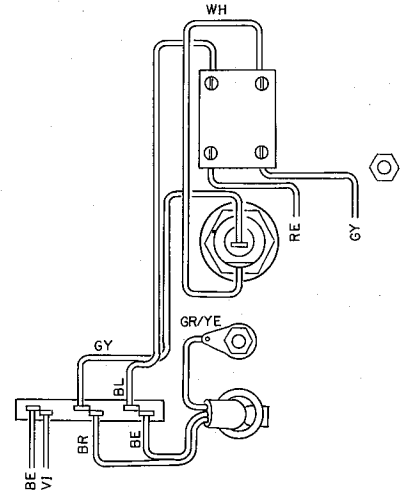
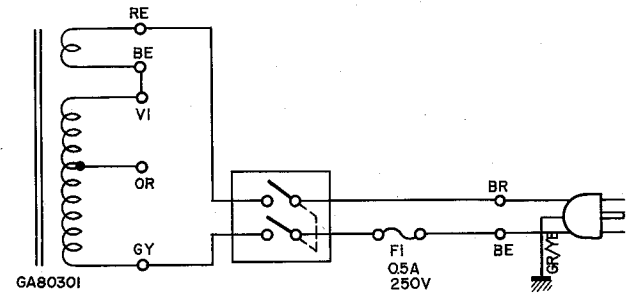


1. Transistors
 - Tr1,2,4,5 2SC1681 (BL)
 - Tr3,8 2SA 561 (Y)
 - Tr6 2SD 526 (R)
 - Tr7 2SC 734 (Y)
 - Tr9 2SB 596 (R)
2. Integrated Circuits
 - IC1,2,3 TA7136P
 - IC4 NE80100
 - IC5 TA7203P
3. Diodes
 - Di1,3 10DC-2R
 - Di2,4 10DC-2
4. Switch
 - SW1 Input Level SW
 - SW2 High Pass Filter SW
 - SW3 Output Level SW
 - SW4 Power SW

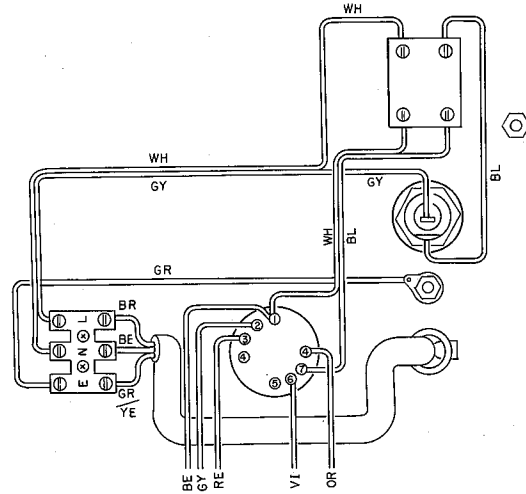
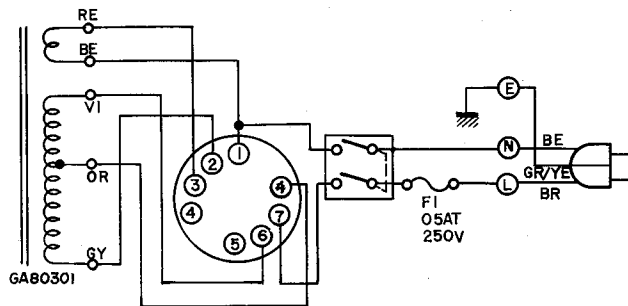
TA7136P IC 1, 2, 3		NE80100			2SC1681 2SA561 2SC734			2SB596 (R) Tr9			10DC-2 D2, 4	
TA7203P				2SD526 (R) Tr6			Cathode	Anode	10DC-2R D1, 3			

PM-170 POWER CIRCUIT ARRANGEMENT

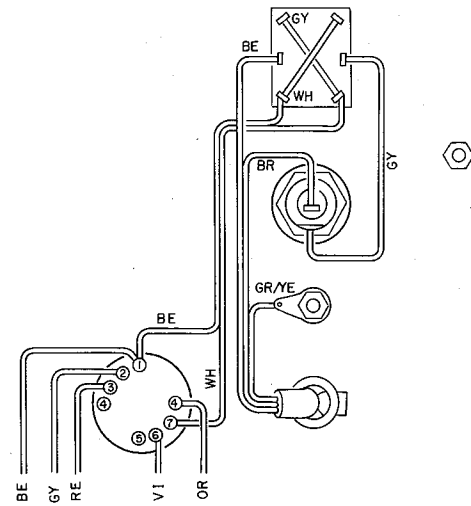
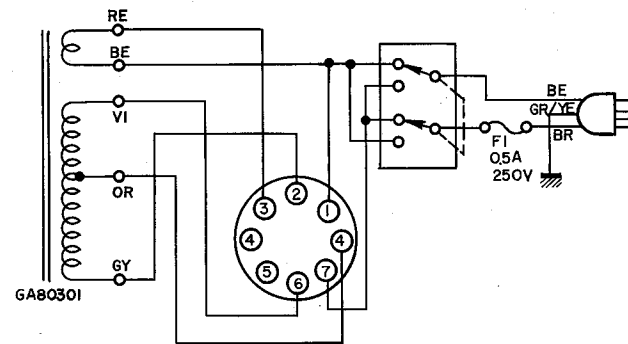
■ FOR AUSTRALIAN MODEL



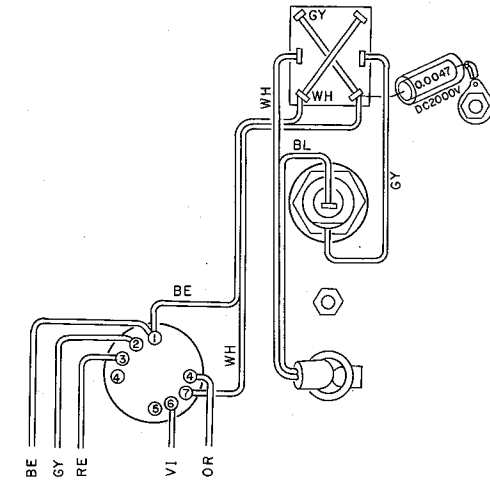
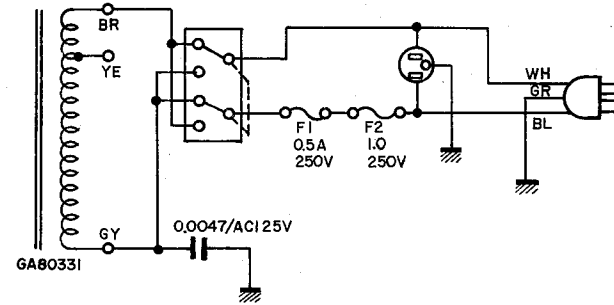
■ FOR BS/NORTH EUROPEAN MODELS



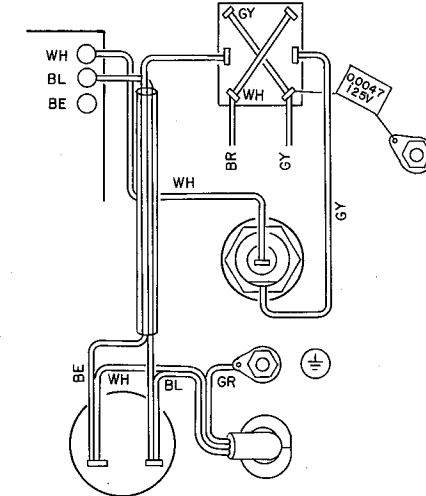
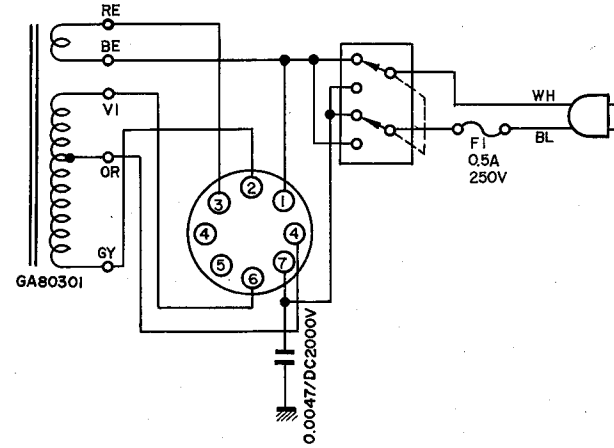
■ FOR SOUTH AFRICAN MODEL



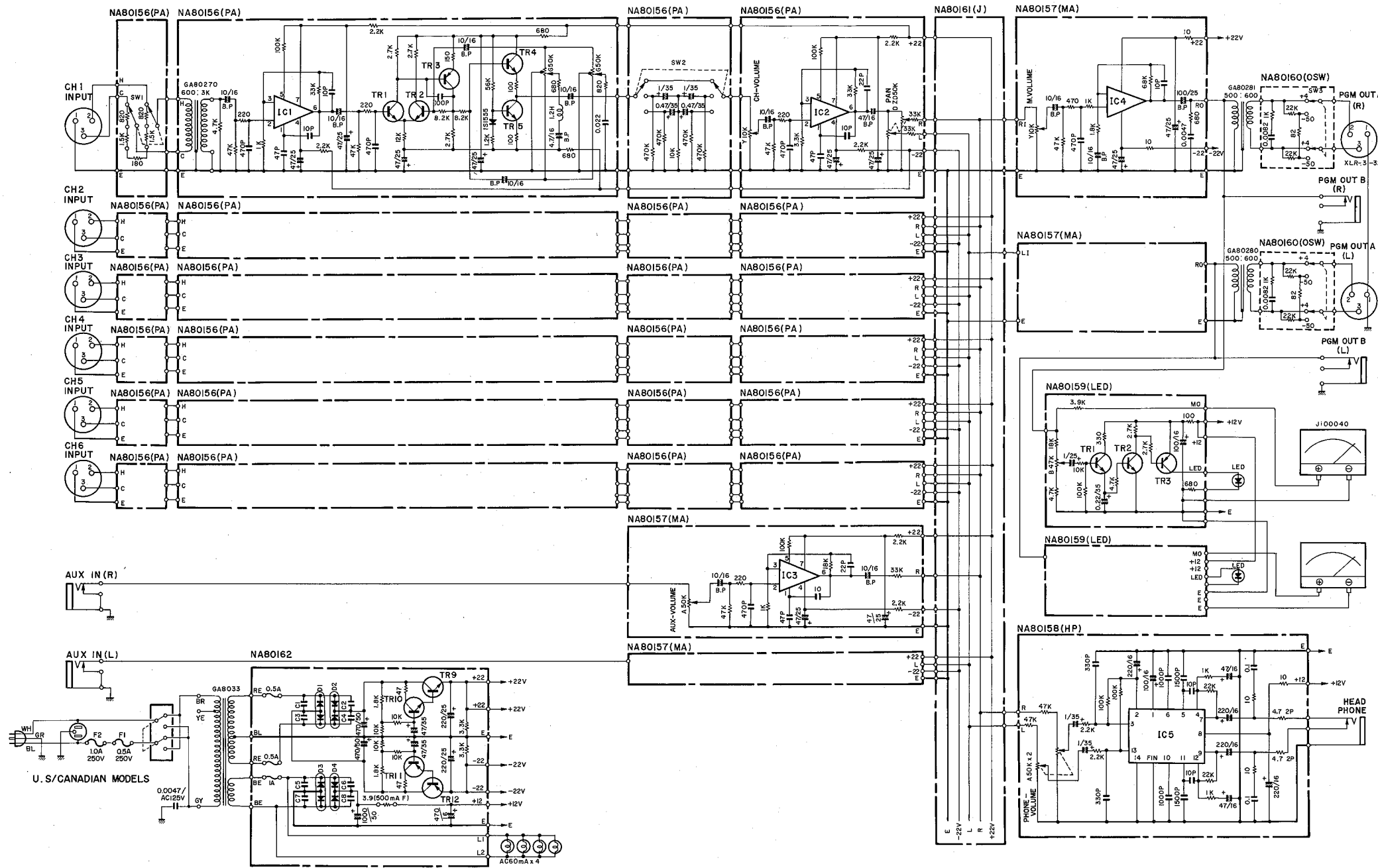
■ FOR US/CANADIAN MODELS



■ FOR GENERAL MODEL



PM-180 SCHEMATIC DIAGRAM

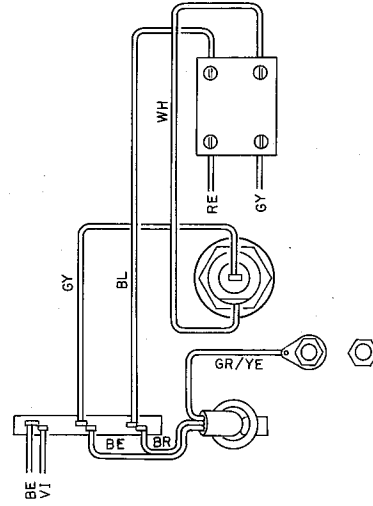
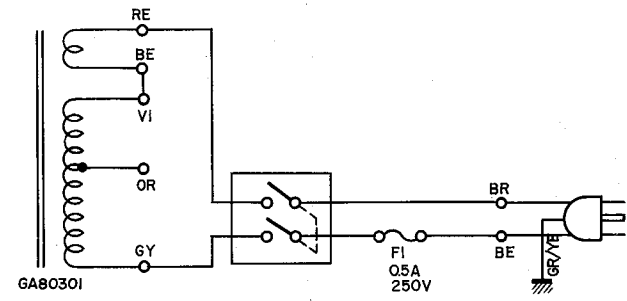


1. Transistors
 - Tr1,2,4,5,6,7 2SC 1681 (BL)
 - Tr3,8,11 2SA 561 (Y)
 - Tr9 2SD 526 (R)
 - Tr10 2SC 734 (Y)
 - Tr12 2SB 596 (R)
2. Integrated Circuits
 - IC1,2,3 TA7136P
 - IC4 NE80100
 - IC5 TA7203P
3. Diodes
 - Di1,3 10DC-2R
 - Di2,4 10DC-2
4. Switch
 - SW1 Input Level SW
 - SW2 High Pass Filter SW
 - SW3 Output Level SW
 - SW4 Power SW

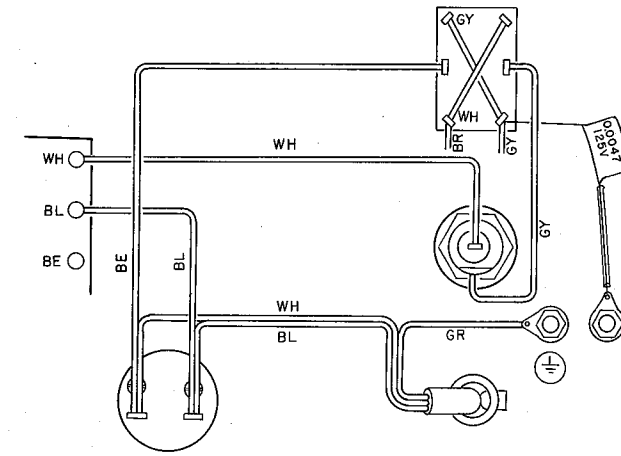
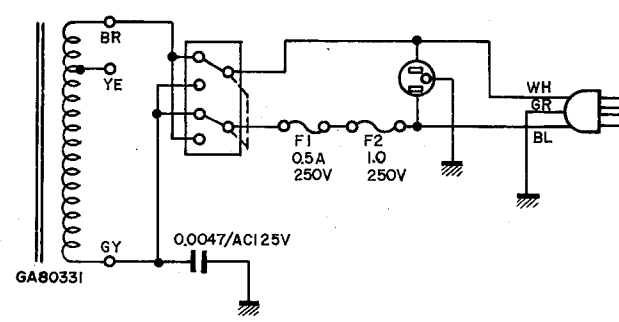
TA7136P		NE80100			2SC1681 2SA561 2SC734		2SB596 (R) Tr12		10DC-2 D2, 4	
		TA7203P			2SD526 (R) Tr9				10DC-2R D1, 3	

PM-180 POWER CIRCUIT ARRANGEMENTS

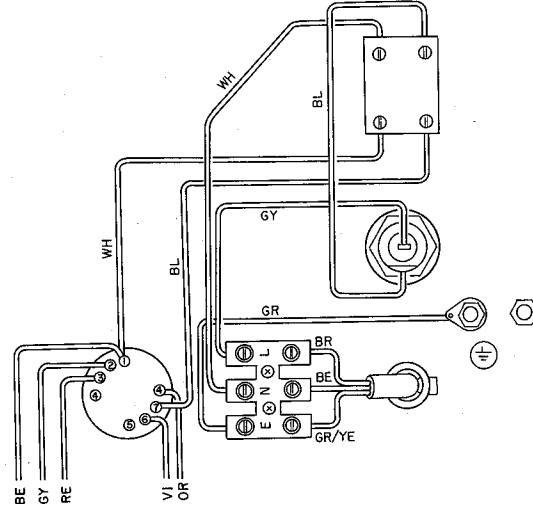
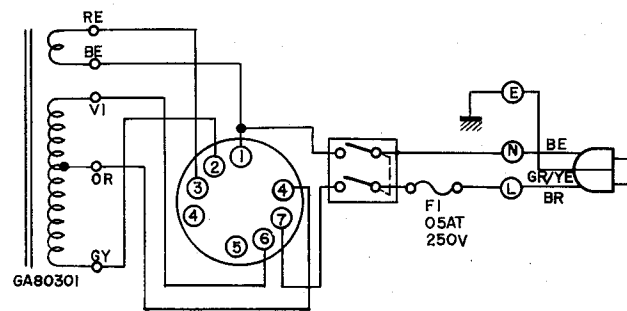
FOR AUSTRALIAN MODEL



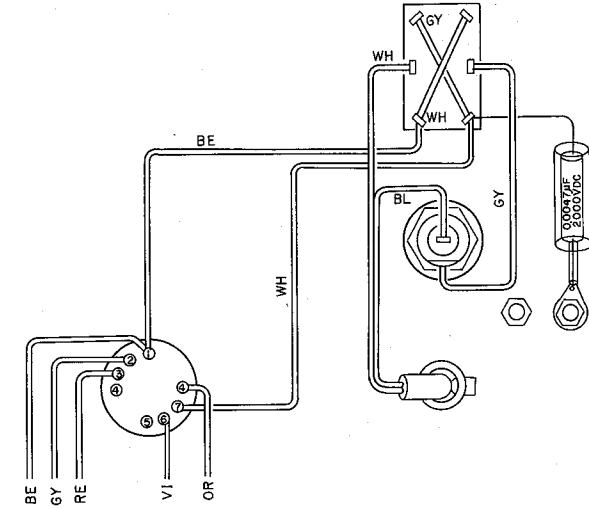
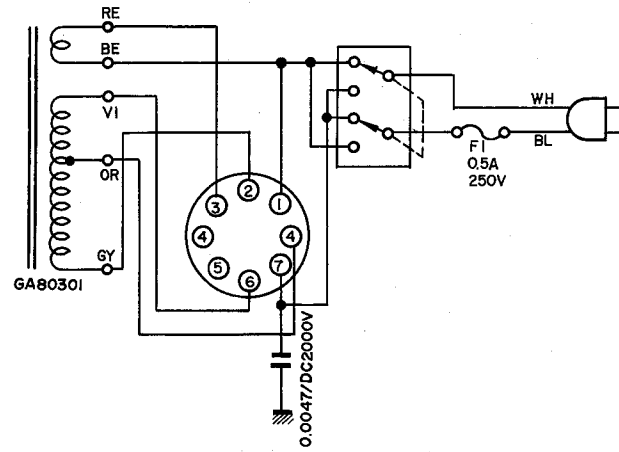
FOR US/CANADIAN MODELS



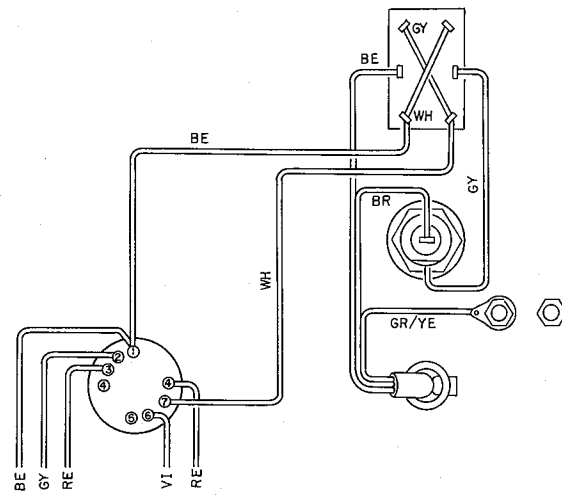
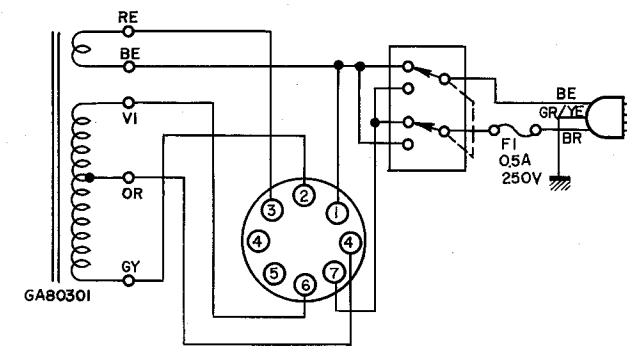
FOR BS/NORTH EUROPEAN MODELS



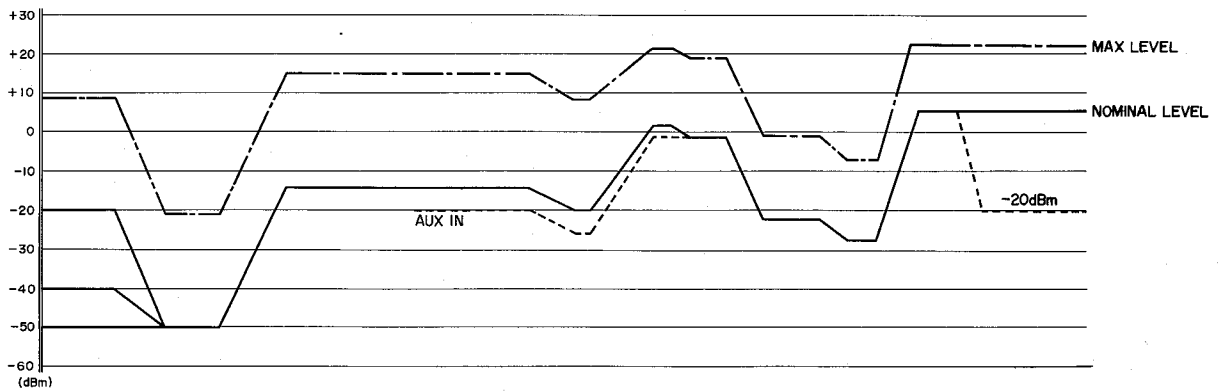
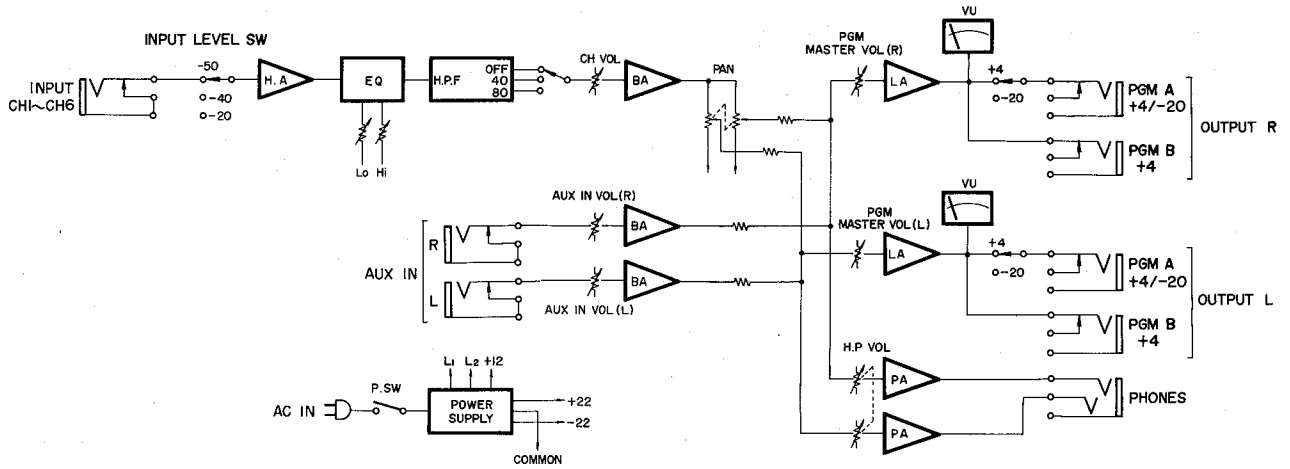
FOR GENERAL MODELS



FOR SOUTH AFRICAN MODEL

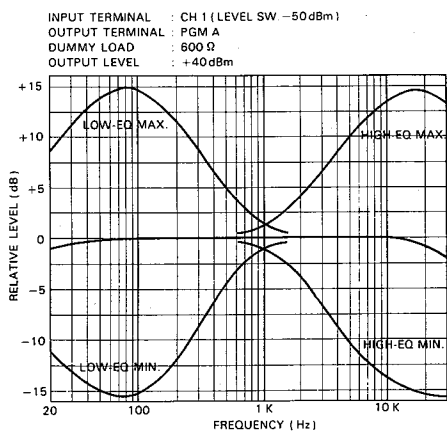


PM-170 BLOCK & LEVEL DIAGRAM

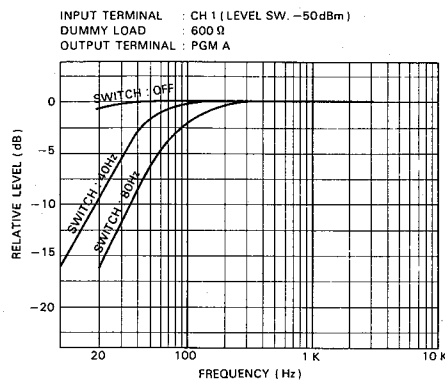


FREQUENCY RESPONSE

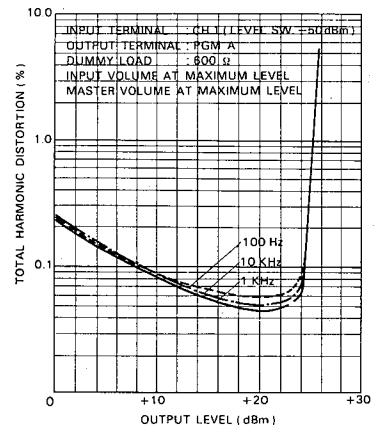
Frequency Response



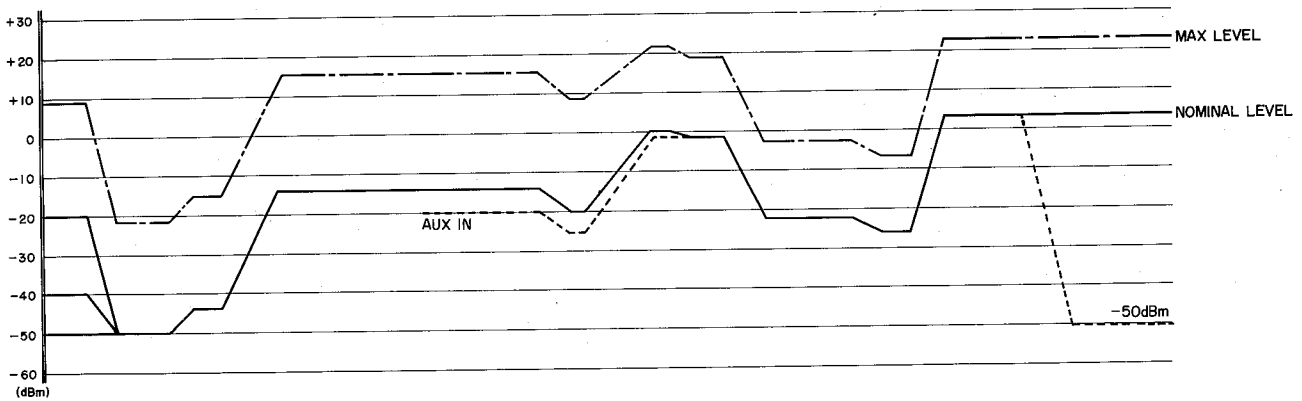
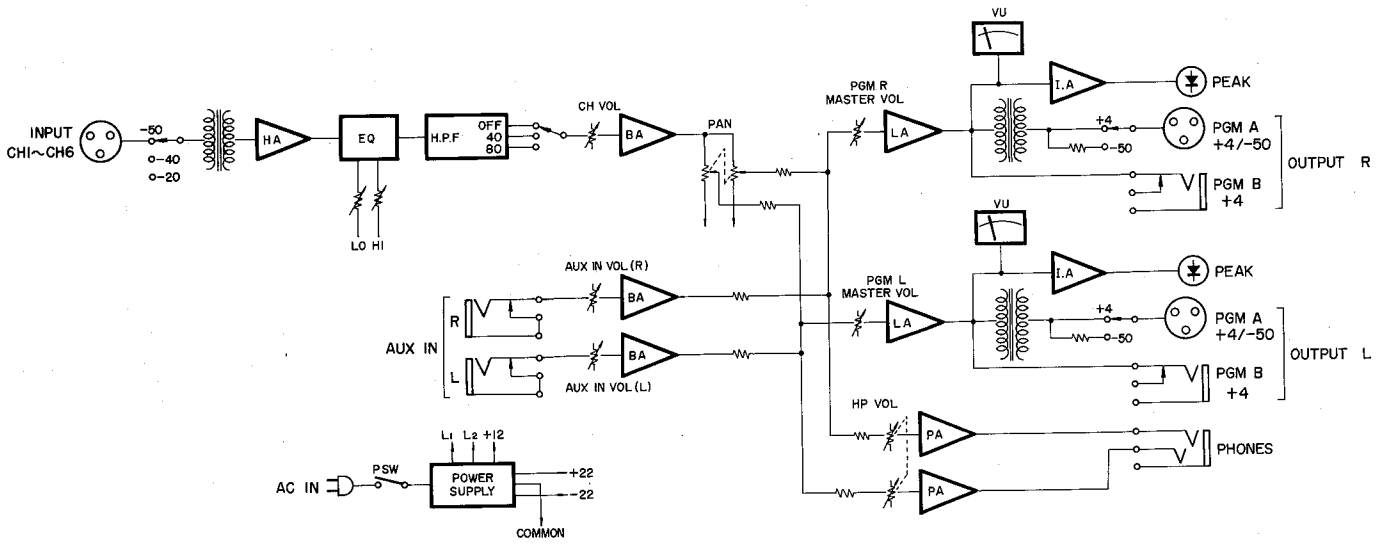
High-pass Filter



Total Harmonic Distortion

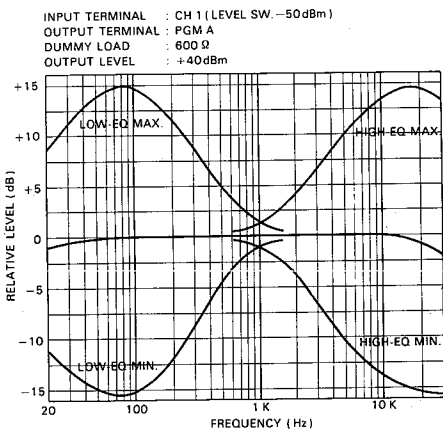


PM-180 BLOCK & LEVEL DIAGRAM

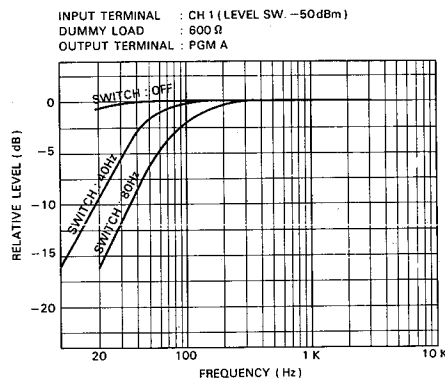


FREQUENCY RESPONSE

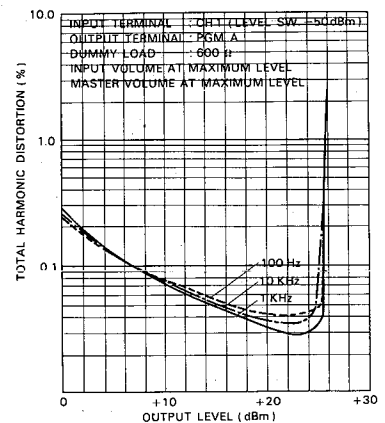
Frequency Response



Hight-pass Filter

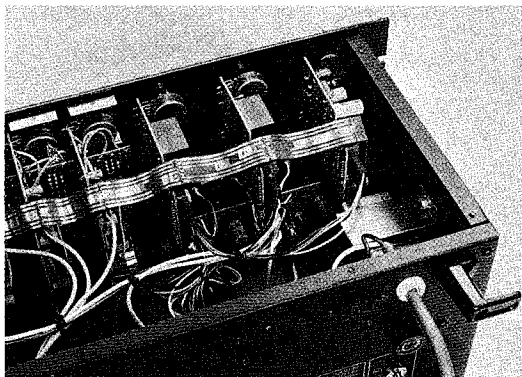
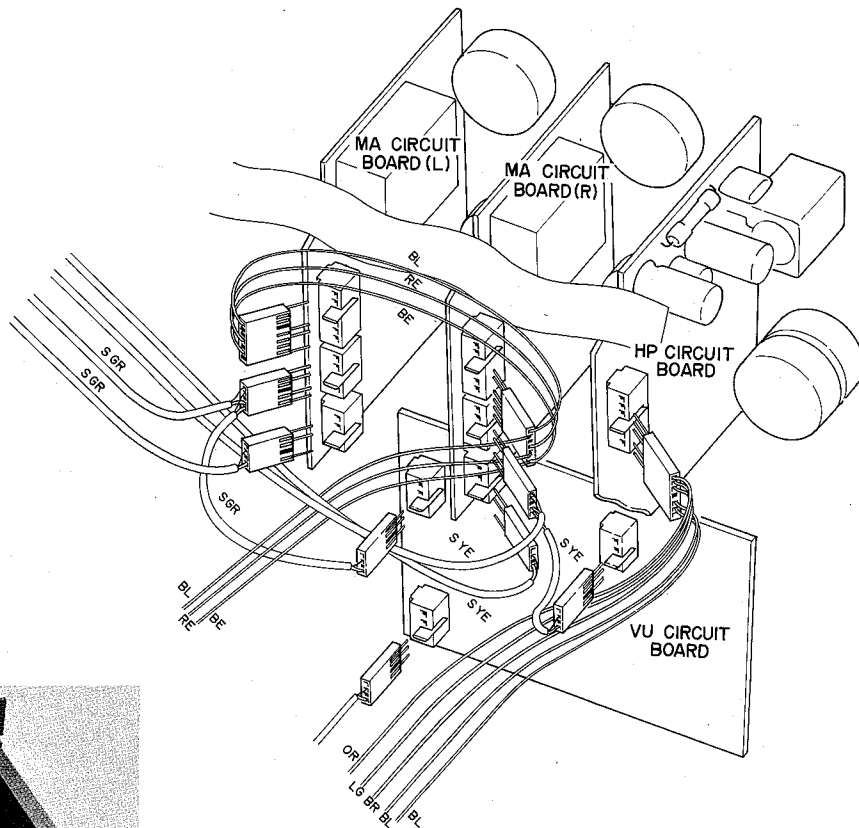


Total Harmonic Distortion

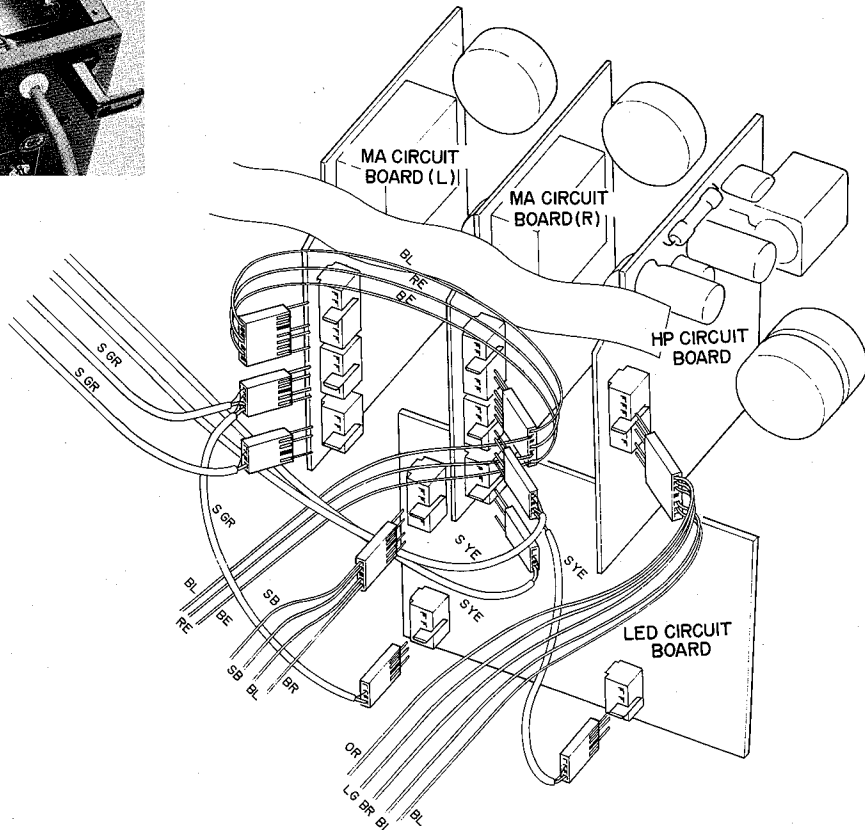


CONNECTING DIAGRAM

PM-170

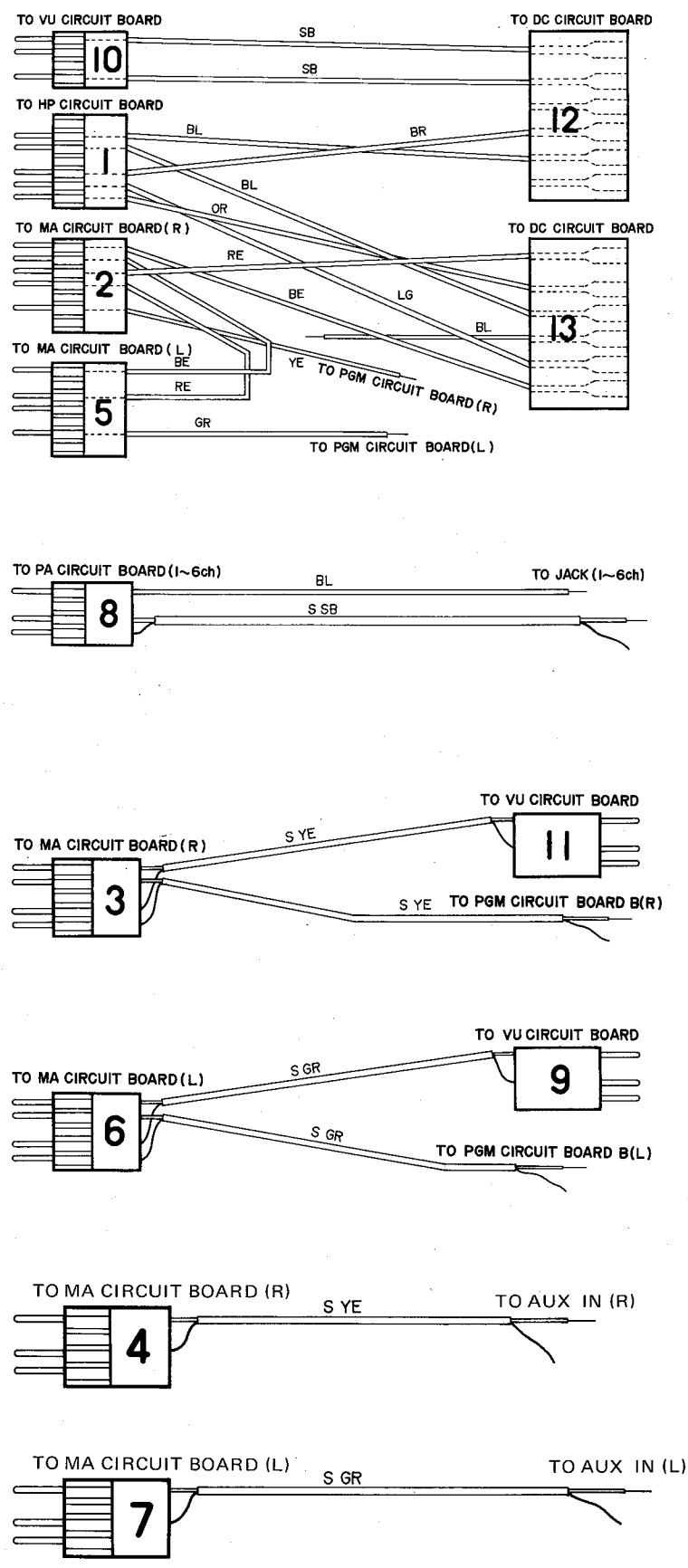


PM-180



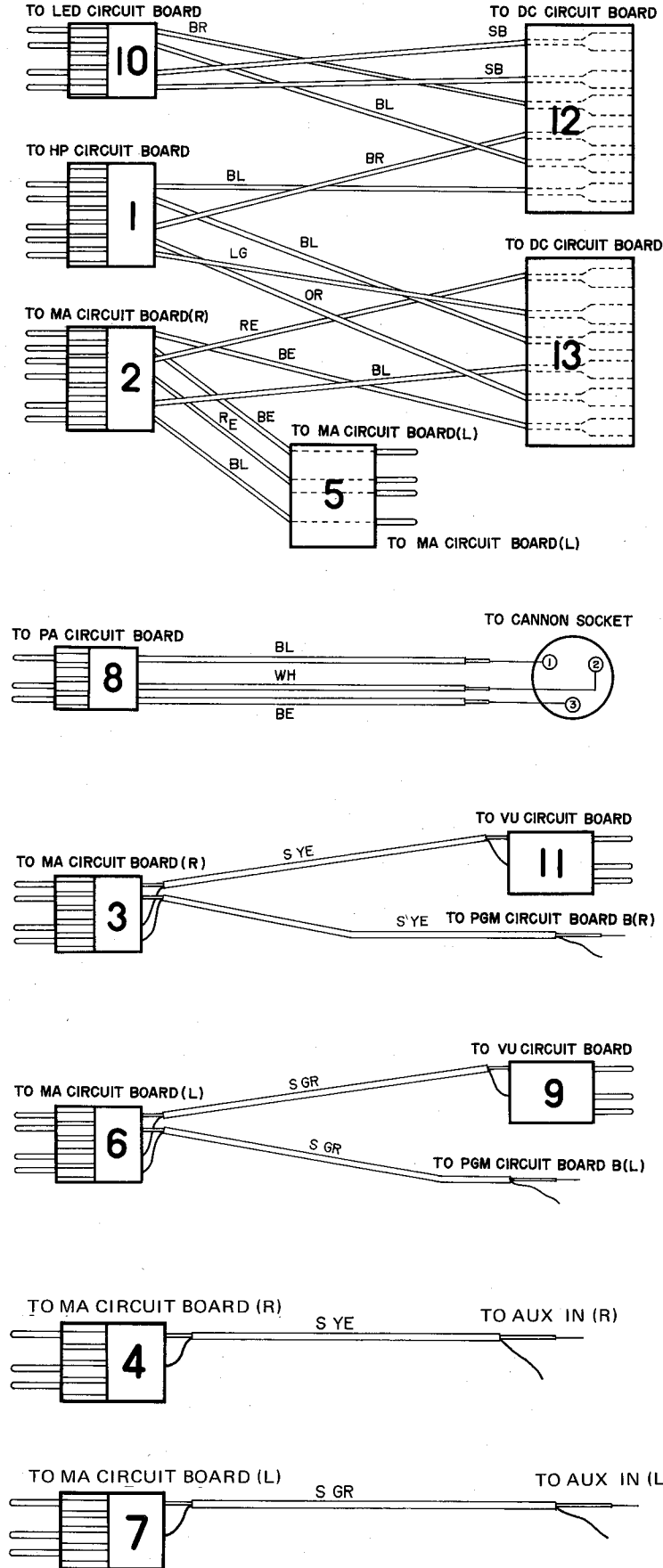
Connectors are noted temporarily for the service manual, and these connected with those connector number the circuit board.

PM-170 CIRCUIT DIAGRAM



PM-180 CIRCUIT DIAGRAM

Connectors are noted temporarily for the service manual, and these connected with those connector number the circuit board.

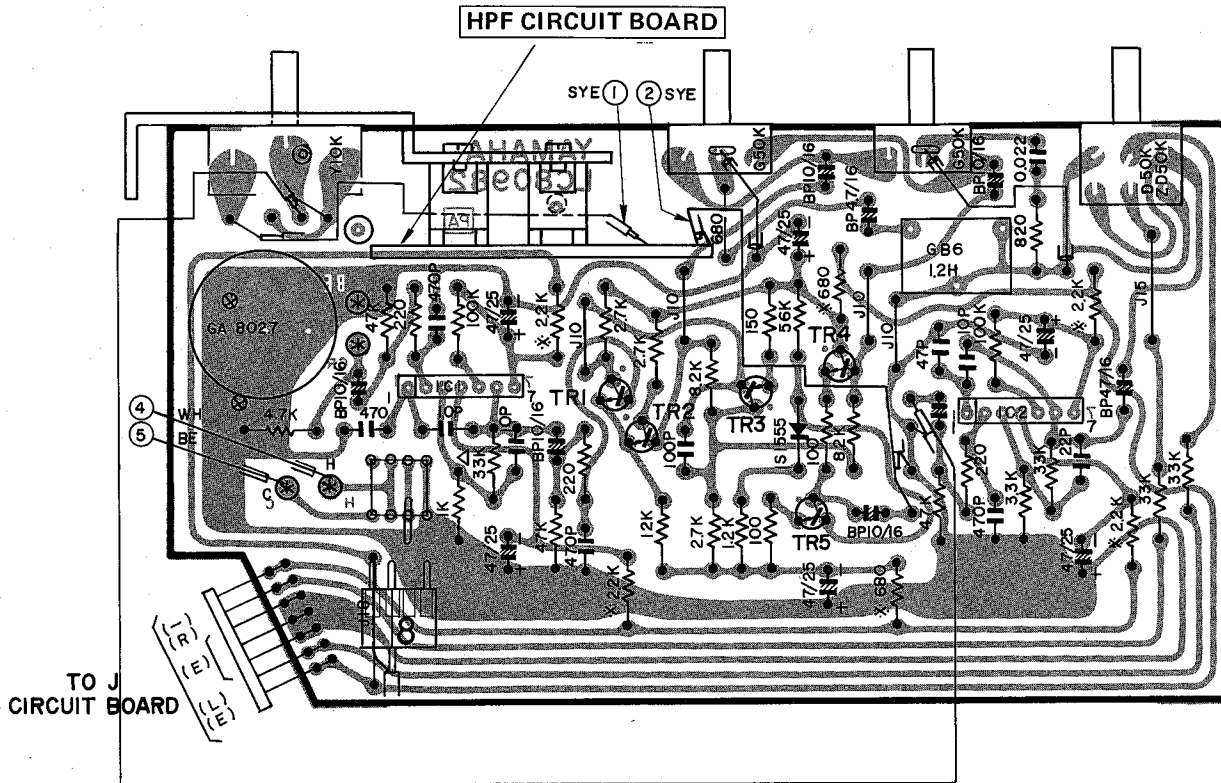


CIRCUIT BOARD

J Circuit Board (NA80161)



PA Circuit Board (PM-170 NA80168) (PM-180 NA80156)

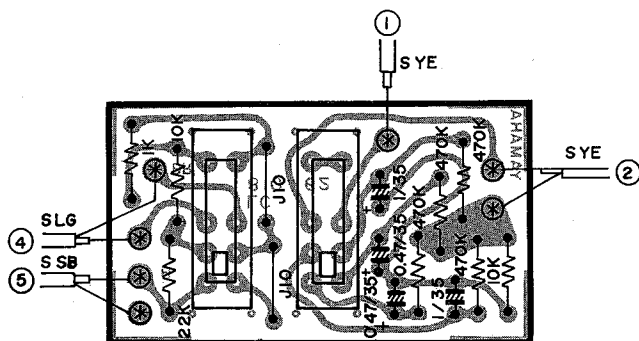


⊗	PM-170	CUT
⊙	PM-170	DIOK
△	PM-170	68K

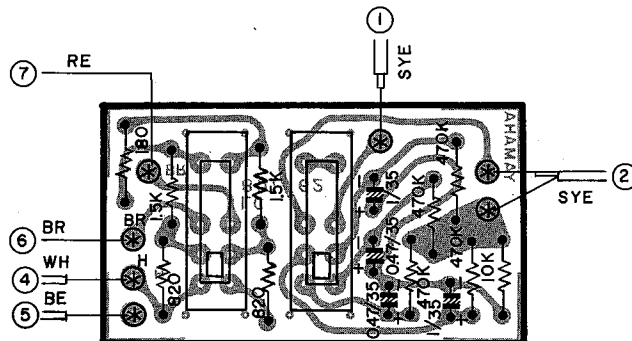
③ SBE

Make 7 mm to 8 mm of clearance between resistor and wire with varnish tube.

HPF Circuit Board (PM-170 NA80168) (PM-180 NA80156)

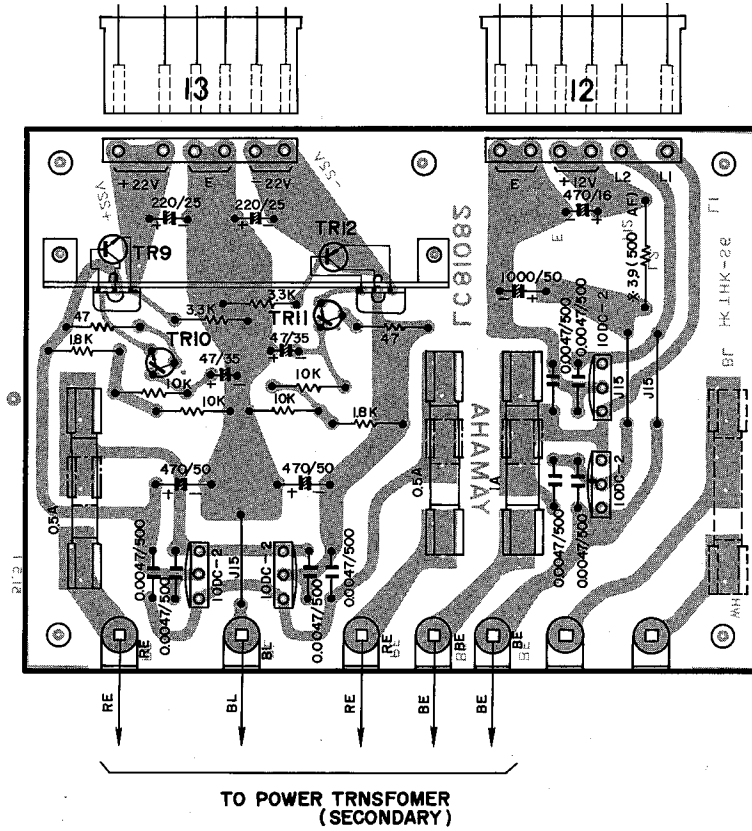


PM-170



PM-180

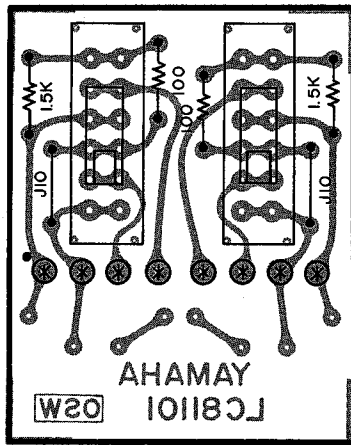
DC Circuit Board (NA80163)
(NA80164)
(NA80162)



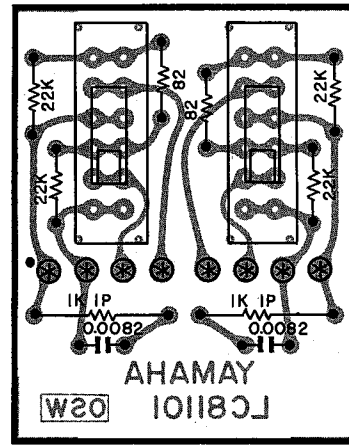
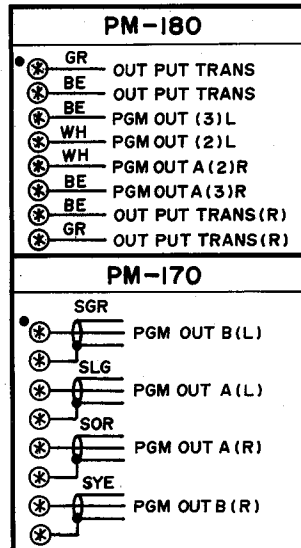
	Circuit No.	Fuse	
For General, South African, Australian models	NA80162	250V	0.5AT 2 1AT 1
For U.S./Canadian models	NA80163	250V	0.5AT 2 1AT 2
For B.S./North European models	NA80164	Ⓢ fuse	0.5AT 2 250V 1AT 1

Objective end of connector, refer to the Circuit Diagram P.16, 17.

OSW Circuit Board (PM-170 NA80171)
(PM-180 NA80160)

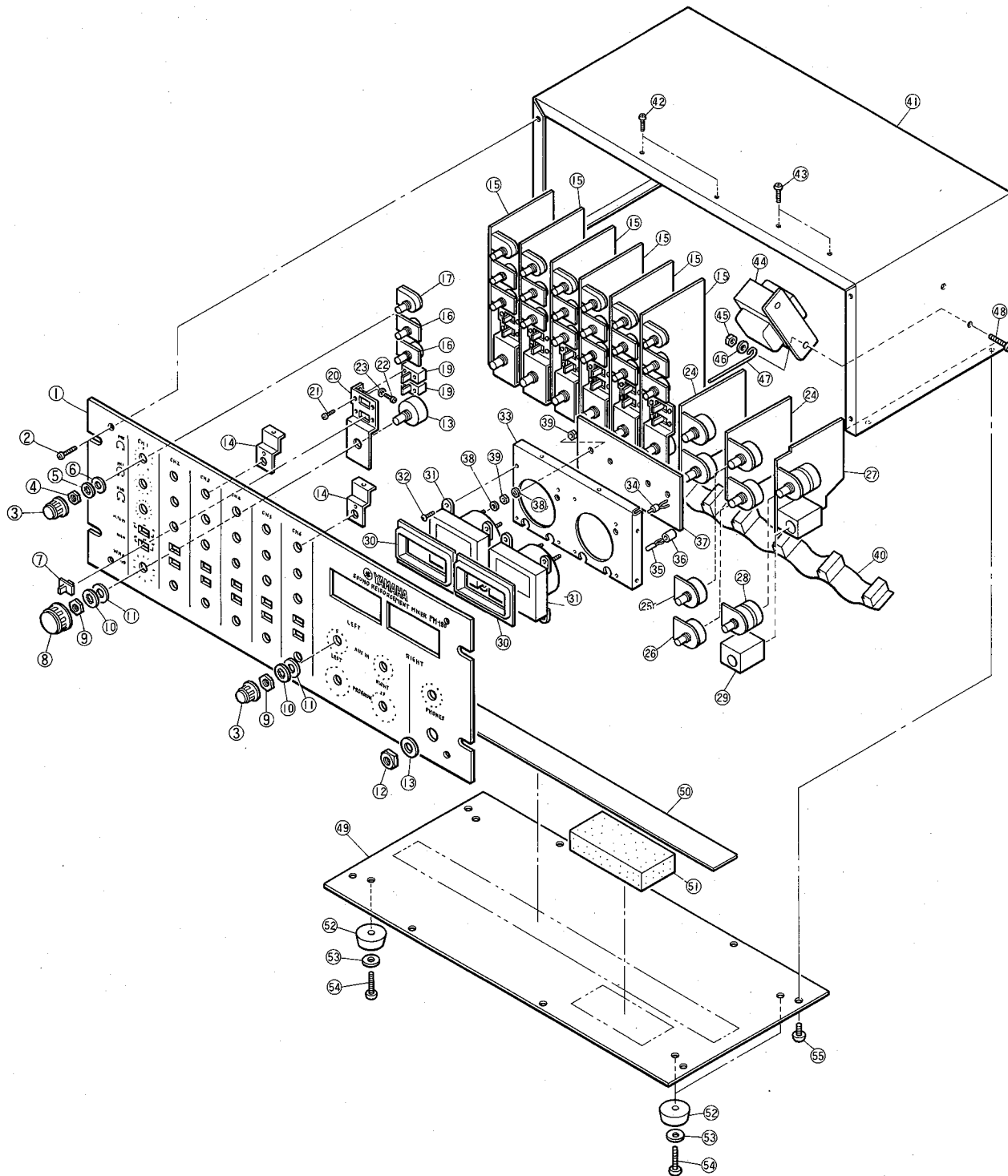


PM-170

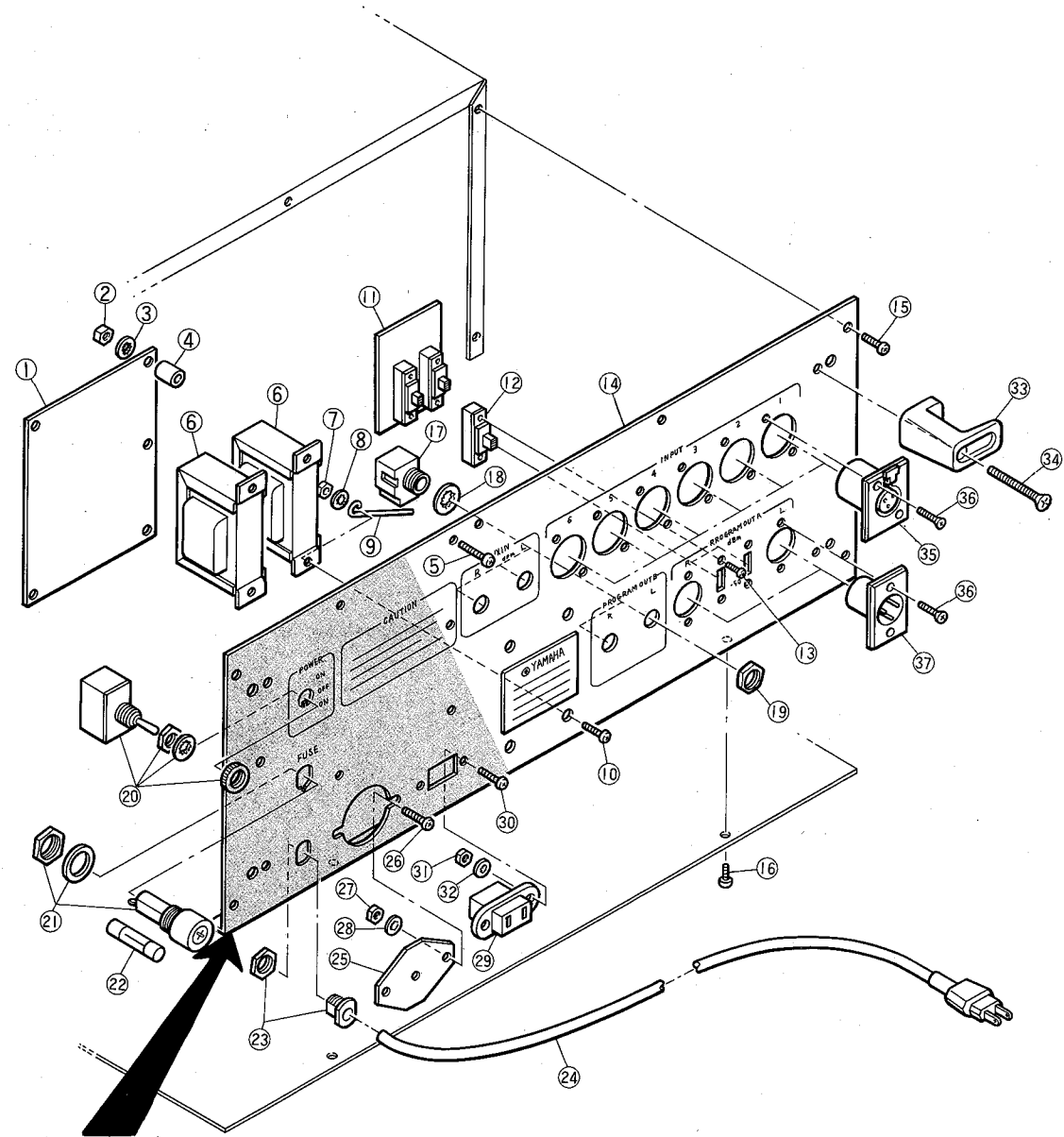


PM-180

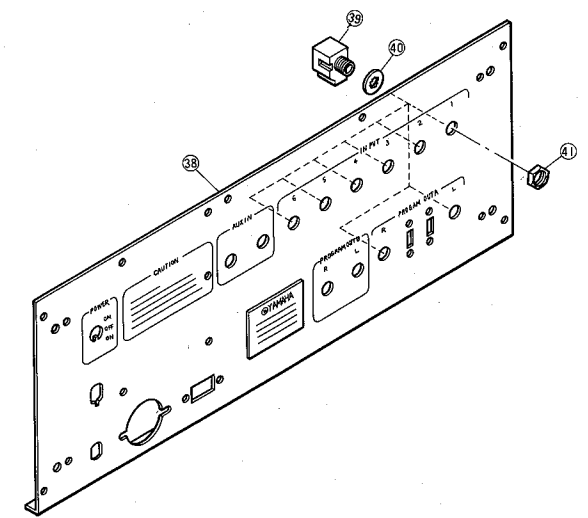
PARTS LIST



Ref. No.	Parts No.	Description	Remarks	Common Models
1	30:54:00:BA:80:15:10	Front Panel	パネ ル	PM-170
1	30:54:00:BA:80:11:70	-do.-	"	PM-180
2	40:10:00:ED:34:00:80	Binding Head Screw M4 x 8	バインド小ネジM4x8	FCM-BL
3	30:54:00:CB:80:63:60	Knob	ツ マ ミ	
4		For Variable Resistor M7	特殊六角ナットM7	
5		-do.- A7S	歯付座金	ZMC2-Y
6		-do.- φ7	特殊平座金	
7		Knob HIGH-PASS, INPUT For Slide Switch		
8	30:54:00:CB:80:63:70	Knob		
9		For Variable Resistor M8	特殊六角ナットM8	
10	40:10:00:EV:41:00:80	-do.- A8S	歯付座金 A8S	ZMC2-Y
11		-do.- φ8	特殊平座金 φ8	
12	30:56:00:CB:06:20:10	Phone Nut #06201	ホンナット#06201	EM-90
13	40:10:00:EK:00:23:70	Fiber Washer 4S	ファイバーワッシャー	
14	30:54:00:AA:80:30:60	Fixing Metal	ケース固定用	
15	30:54:00:NA:80:16:80	PA Circuit Board	P A シ ー ト	PM-170
15	30:54:00:NA:80:15:60	-do.-	"	PM-180
		HPF Circuit Board	H P F シ ー ト	
16	40:10:00:HS:31:01:00	Variable Resistor 16φ G50K	ボリューム16φ G50K	
17	40:10:00:HS:31:00:90	-do.- D50K + ZD50K	ボリューム D50K + ZD50K	
18	40:10:00:HS:32:03:90	-do.- 24φ D10K	ボリューム24φ D10K	PM-170
18	40:10:00:HS:32:03:80	-do.- 24φ Y10K	ボリューム Y10K	PM-180
19	40:10:00:KA:40:03:60	Slide Switch	スライドスイッチ	
20	30:54:00:AA:80:30:30	Switch	スイッチ取付金具	
21	40:10:00:EA:03:00:50	⊕ Pan Head Screw M3 x 5	⊕ナベ小ネジM3x5	ZMC2-Y
22	40:10:00:EA:02:60:50	-do.- M2.6 x 5	" M2.6x5	-do.-
23	40:10:00:EV:41:00:30	For Variable Resistor 3φ A3S	歯付座金 3φ A3S	-do.-
24	30:50:00:NA:80:16:90	MA Circuit Board	M A シ ー ト	PM-170
24	30:54:00:NA:80:15:70	-do.-	"	PM-180
25	40:10:00:HS:32:02:10	Variable Resistor 24φ A50K	ボリューム24φ A50K	
26	40:10:00:HS:32:03:90	-do.- 24φ D10K	ボリューム24φ D10K	PM-170
26	40:10:00:HS:32:03:80	-do.- 24φ Y10K	ボリューム24φ Y10K	PM-180
27	30:54:00:NA:80:15:80	HP Circuit Board	H P シ ー ト	
28	40:10:00:HS:32:03:60	Variable Resistor 24φ A50 x 2	ボリューム24φ A50x2	
29	40:10:00:LB:30:03:70	Head Phone Jack		
30	30:54:00:CB:80:63:50	Meter Excursion #80635	メーターエスカッション	
31	40:10:00:Ji:00:04:00	VU Meter #00040	V U 計	PM-180
	40:10:00:Ji:00:05:30	-do.- #00053	"	PM-170
32	40:10:00:El:03:00:80	Binding Tapping Screw 3 x 8	バインドタッピングネジ 2種 3x8	ZMC2-Y
33	30:54:00:AA:80:30:50	Meter Panel #80305	メーターパネル	PM-180
	30:54:00:AA:80:31:10	-do.- #80311	"	PM-170
34	30:54:00:MZ:80:16:50	LED Ass'y #80165	LED ASS'Y	PM-180
35	40:10:00:JB:00:02:30	Lamp with Lead Wire #00023	リード付ランプ	
36	30:54:00:CB:06:86:20	Lamp Holder #06862	ランプホルダー	
37	30:54:00:NA:80:15:90	LED Circuit Board	L E D シ ー ト	PM-180
37	30:54:00:NA:80:17:00	VU Circuit Board	V U シ ー ト	PM-170
38	40:10:00:EV:41:00:40	Teethed Locked Washer A4S	歯付座金	ZMC2-Y
38	40:10:00:EV:41:00:30	-do.- A4S		-do.-
38	40:10:00:EV:41:00:30	-do.- A4S		PM-170
39	40:10:00:EV:10:00:40	Hexagonal Nut M4	六角ナット	-do.-
				PM-180



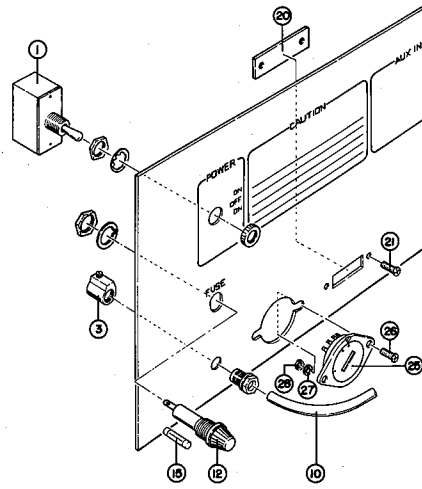
See P. 29



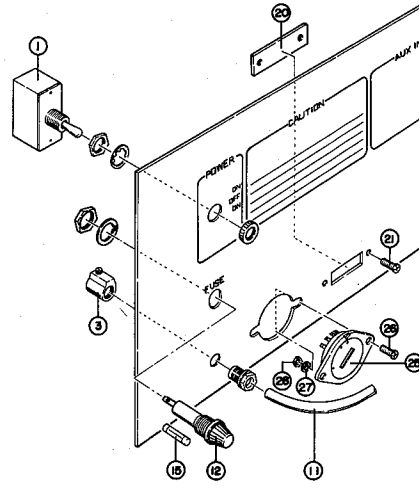
Ref. No.	Parts No.	Description	Remarks	Common Models
1	30:54:00:NA:80:16:20	DC Circuit Board	D C シ ー ト	For General, Australian, South African models
1	30:54:00:NA:80:16:30	-do.-	"	For US/Canadian models
1	30:54:00:NA:80:16:40	-do.-	"	For BS/North European models
2	40:10:00:EV:10:00:30	Hexagonal Nut M3	六 角 ナ ッ ト	ZMC2-Y
3	40:10:00:EV:41:00:30	Theethed Locked Washer A3S	歯 付 座 金	-do.-
4	30:56:00:CB:01:09:80	Spacer #01098	ス ペ ー サ ー	
5	40:10:00:EA:33:01:60	Pan Head Screw M3 x 16	ナ ベ 小 ネ ジ	ZCM-BL
6	40:10:00:GA:80:28:10	Output Transformer	ア ウ ト プ ッ ト ラ ン ス	PM-180
7	40:10:00:EV:10:00:40	Hexagonal M4	六 角 ナ ッ ト	ZMC2-Y
8	40:10:00:EV:41:00:40	Theethed Locked Washer A4S	歯 付 座 金	ZMC2-Y
9	30:54:00:AA:01:14:90	Wire Stopper #01149	束 線 止	PM-180
10	40:10:00:EA:34:01:00	Pan Head Screw M4 x 10	ナ ベ 小 ネ ジ	FCM-BL
11	30:54:00:NA:80:17:10	OSW Circuit Board	オ ス W シ ー ト	PM-170
11	30:54:00:NA:80:16:00	-do.-	"	PM-180
12	40:10:00:KA:40:02:60	Slide Switch	ス ラ イ ド S W	
13	40:10:00:EA:33:00:50	Pan Head Screw M3 x 8	ナ ベ 小 ネ ジ	FCM-BL
14	30:54:00:AA:80:31:20	Back Panel	バ ッ ク パ ネ ル	For General, Australian, South African models
14	30:54:00:AA:80:39:90	-do.-	"	For US/Canadian models
15	40:10:00:EA:33:00:60	Pan Head Screw M3 x 6	ナ ベ 小 ネ ジ	FCM-BL
16	40:10:00:EA:33:00:60	-do.-	"	-do.-
17	40:10:00:LB:20:06:30	Ear Phone Jack #20063	イヤホンジャック	
18	40:10:00:EV:41:00:90	Theethed Locked Washer A9S	歯 付 座 金 1	ZMC2-Y
19	30:56:00:CB:06:20:10	Phone Nut #06201	ホ ー ン ナ ッ ト	
33	30:54:00:CB:02:25:70	Cord Colum #02257	コ ー ド 巻 付 コ ラ ム	
34	40:10:00:EB:34:02:50	Flat Head Screw M4 x 25	皿 小 ネ ジ	FCM-BL
35	40:10:00:LB:30:01:50	Cannon Socket #30015	キャノンソケット	PM-180
36	40:10:00:EM:13:00:60	Round Head Wooden Screw	丸 皿 タ ッ ピ ン グ ネ ジ	FNM3-3g
37	40:10:00:LB:30:01:60	Cannon Socket #30016	キャノンソケット	-do.-
38	30:54:00:AA:80:31:20	Back Panel #80312	バ ッ ク パ ネ ル	PM-170
39	41:00:00:LB:20:06:30	Ear Phone Jack #20063	イヤホンジャック	-do.-
40	40:10:00:EV:41:00:90	Theethed Locked Washer A9S	歯 付 座 金	ZMC2-Y
41	30:56:00:CB:06:20:10	Phone Nut #06201	ホ ー ン ナ ッ ト	-do.-

PM-170

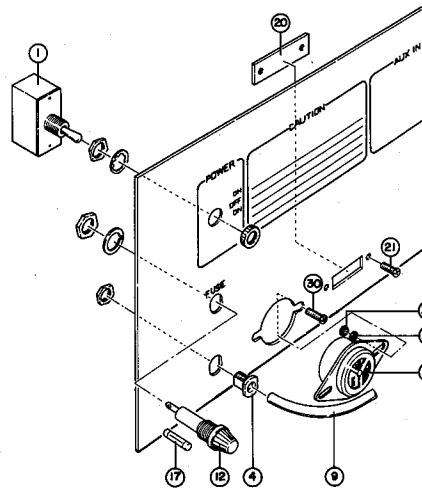
General model



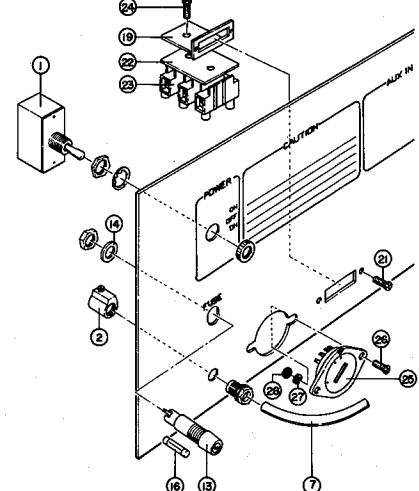
South African model



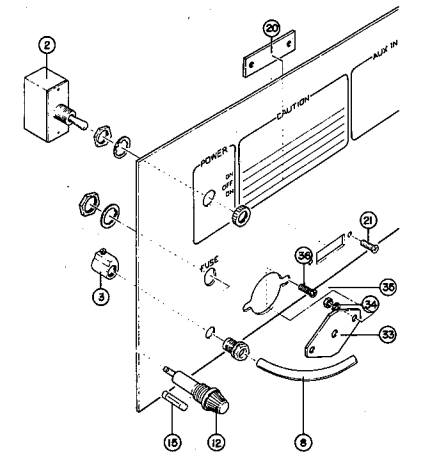
US/Canadian models



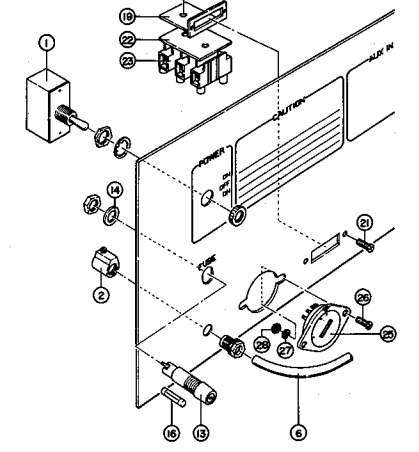
North European model



Australian model

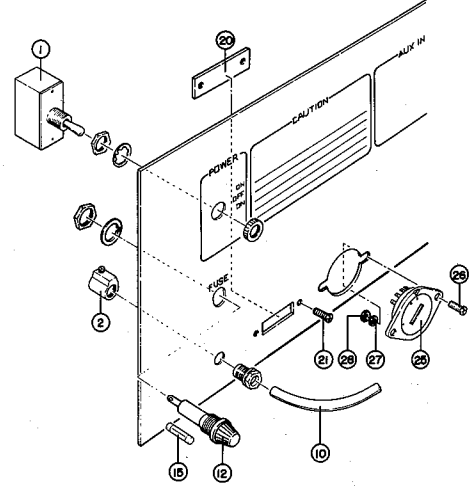


BS model

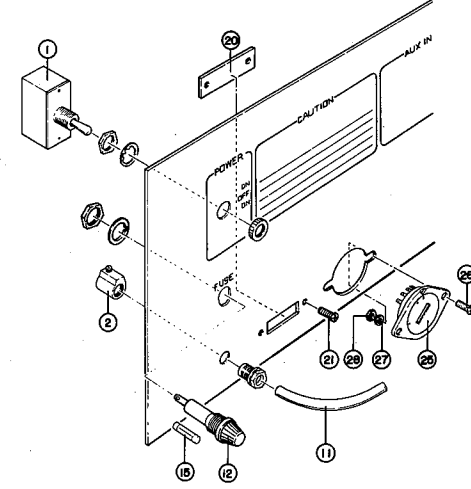


PM-180

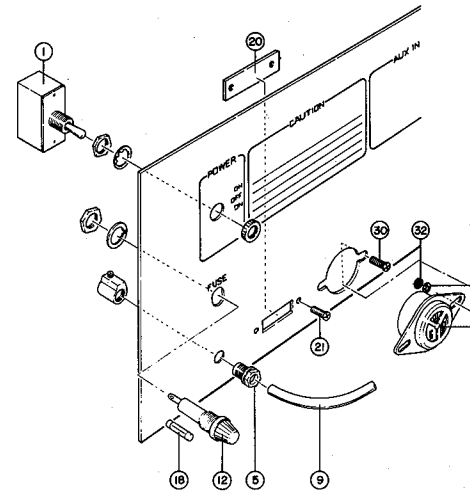
General model



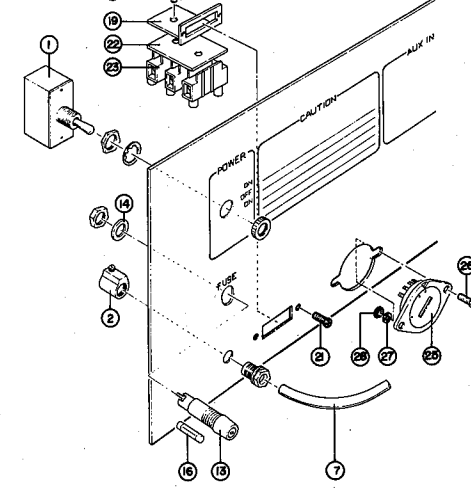
South African model



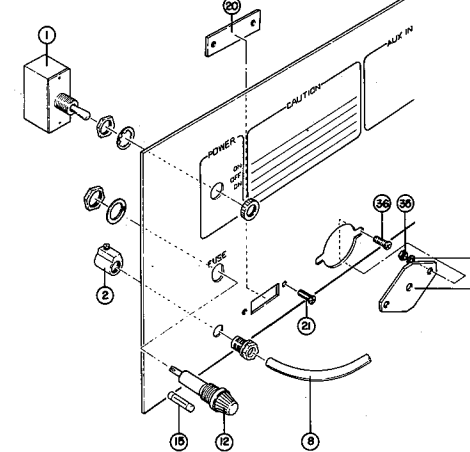
US/Canadian models



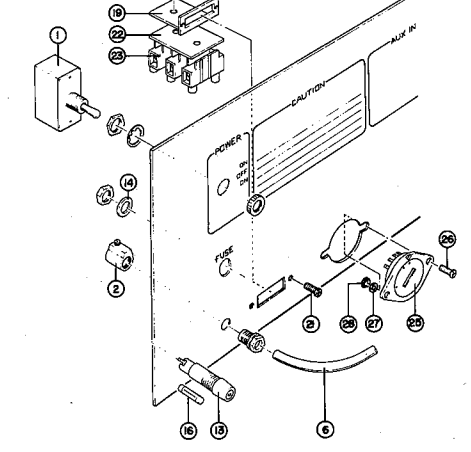
North European model



Australian model



BS model



Ref. No.	Parts No.	Description	Remarks	Common Models
1	40:10:00:KA:30:02:10	Toggle Switch	ドクルスイッチ	
2	40:10:00:KA:30:00:10	-do.-	ドクルスイッチ	
3	40:10:00:CB:07:06:90	Cord Stopper	コードストッパー	
4	40:10:00:CB:80:68:50	-do.-	"	PM-170
5	40:10:00:CB:07:06:90	-do.-	"	PM-180
6	40:10:00:MD:00:02:40	AC Cord	電源コード	
7	40:10:00:MD:00:04:50	-do.-	"	
8	40:10:00:MG:00:05:00	-do.-	"	
9	40:10:00:MG:00:02:70	-do.-	"	
10	40:10:00:MG:00:02:30	-do.-	"	
11	40:10:00:MD:00:00:60	AC Cord	"	
12	40:10:00:LB:20:04:80	Fuse Holder	ヒューズ・ホルダー	
13	40:10:00:LB:20:05:90	-do.-	"	
14	40:10:00:AA:03:15:80	Fuse Holder Washer	ヒューズホルダー ワッシャー	
15	40:10:00:KB:00:03:10	Fuse 0.5A 250V	ヒューズ0.5A 250V	
16	40:10:00:KB:00:07:10	Fuse Miniature 0.5AT 250V	ミニヒューズ 0.5A T 250V	
17	40:10:00:KB:00:01:15	UL Fuse 0.5A 250V	ULヒューズ 0.5A 250V	PM-170
18	40:10:00:KB:00:03:10	Fuse 0.5A 250V	ヒューズ0.5A 250V	PM-180
19	30:54:00:AA:80:27:20	Blind Fold Plate (For AC Socket)	ACコンセント盲板	
20	30:54:00:AA:01:10:20	-do.-	"	
21	40:10:00:EA:30:06:70	Pan Head Screw M3 x 6	ナベ小ネジ	FCM-BL
22	30:54:00:CB:80:60:40	Insulation Plate	絶縁板	
23	40:10:00:LA:00:10:40	Terminal	ボイボ端子	
24	40:10:00:EA:30:20:20	Pan Head Screw M3 x 8	ナベ小ネジ	
25	40:10:00:LB:20:02:50	Voltage Selector	電圧切換器	
26	40:10:00:EA:30:08:70	Pan Head Screw M3 x 8	ナベ小ネジM3 x 8	FCM-BL
27	40:10:00:EW:31:30:20	Teethed Locked Washer A3S	歯付座金	ZMC2-Y
28	40:10:00:EY:11:30:20	Hexagonal Nut M3	六角ナット	ZMC2-Y
29	40:10:00:LB:30:02:50	AC Socket 3P	ACコンセント	
30	40:10:00:EA:30:06:70	Pan Head Screw M3 x 6	ナベ小ネジM3 x 6	FCM-BL
31	40:10:00:EW:31:30:20	Teethed Locked Washer A3S	歯付座金	ZMC2-Y
32	40:10:00:EY:11:30:20	Hexagonal Nut M3	六角ナット	-do.-
33	30:54:00:AA:02:43:10	Blind Fold Plate (For Voltage Selector)	電圧切換盲板	
34	40:10:00:EW:31:30:20	Teethed Locked Washer A4S	歯付座金	ZMC2-Y
35	40:10:00:EY:11:30:20	Hexagonal Nut M3	六角ナット	-do.-
36	40:10:00:EA:30:08:70	Pan Head Screw M3 x 8	ナベ小ネジM3 x 8	FCM-BL

Ref. No.	Parts No.	Description	Remarks	Common Models
	30:54:00:NA:80:16:10	J Circuit Board	J シート	
	30:54:00:NA:80:16:80	PA Circuit Board (HPF Circuit Board)	P A シート (HPFシート)	PM-170
	30:54:00:NA:80:15:60	-do.-	"	PM-180
	40:10:00:IA:05:61:20	Transistor 2SA561 (Y)	トランジスター 2SA561(Y)	
	40:10:00:IC:16:81:10	-do.- 2SC 1680	" 2SC1680	
	40:10:00:IG:00:13:30	IC TA7136P	IC TA7136P	
	40:10:00:IF:00:00:40	Diode IS1555	ダイオード I31555	
	40:10:00:HS:31:01:00	Variable Resistor 16φ G50K	16φボリューム G50K	
	40:10:00:HS:31:00:90	-do.- D10K + ZD50K	16φボリューム D10K + ZD50K	
	40:10:00:HS:31:03:90	-do.- D10K	" D10K	PM-170
	40:10:00:HS:32:03:80	-do.- Y10K	" Y10K	PM-180
	40:10:00:KA:40:03:60	Slide Switch	スライドスイッチ	
	40:10:00:FP:15:54:70	Tantalum Capacitor 0.47μ/35	タンタルコン0.47μ/35	
	40:10:00:FP:15:61:00	-do.- 1.0μ/35	" 1.0 μ/35	
	40:10:00:GB:06:51:20	Filter Coil 1.2H	フィルターコイル 1.2H	
	40:10:00:GA:80:27:00	Input Transformer	インプットトランス	
	40:10:00:LB:10:01:60	CIS keying Pin	C I Sキーイングピン	
	40:10:00:LB:40:01:10	CIS Sockets SE 4P	C I S 4 P サイドエントリ-雌型	
	40:10:00:LB:60:15:10	CIS Socket Top	C I S 基板用雄接触子	
	30:54:00:AA:80:30:30	SW Holder Plate	スイッチ取付金具	
	40:10:00:EA:03:00:50	Pan Head Screw M3 x 5	ナベ小ネジ	MZC2-Y
	40:10:00:EA:02:60:50	-do.- M2.6 x 5	"	-do.-
	40:10:00:EV:41:00:30	Teethed Locked Washer A3S	歯付座金	-do.-
	30:54:00:NA:80:16:90	MA Circuit Board	M A シート	PM-170
	30:54:00:NA:80:15:70	-do.-	"	PM-180
	40:10:00:IC:00:13:30	IC TA7136P	IC TA7136P	
	30:54:00:NE:80:10:00	IC Module	IC モジュール	
	40:10:00:HS:32:02:10	Variable Resistor 24φ A50K	24φボリュームA50A	
	40:10:00:HS:32:03:90	-do.- D10K	" D10K	PM-170
	40:10:00:HS:32:03:80	-do.- Y10K	" Y10K	PM-180
	40:10:00:LB:10:01:60	CIS Keying Pin	C I Sキーイングピン	
	40:10:00:LB:60:15:10	CIS Socket Top	C I S 基板用雄端子	
	40:10:00:LB:40:01:10	CIS Socket S,E 4P	C I S 4 P サイドエントリ-雌コネクター	
	40:10:00:LB:50:00:50	-do.- 5P	5 P "	
	40:10:00:LB:60:13:70	-do.- 7P	7 P "	
	30:54:00:NA:80:15:80	HP Circuit Board (LC-81001)	H P シート (LC-81001)	
	40:10:00:IG:00:13:40	IC TA7203P	IC TA7203P	
	40:10:00:HS:32:03:60	Variable Resistor 24φ A50 x 2	24φボリュームA50×2	
	40:10:00:HL:32:34:70	Metal Oxide Film Resistor 4.7Ω 2W	酸化金属皮膜抵抗 4.7Ω 2W	
	40:10:00:FP:15:61:00	Tantalum Capacitor V35	タンタルコン 1/35	
	40:10:00:LB:10:01:60	CIS Keying Pin	C I Sキーイングピン	
	40:10:00:LB:60:13:70	CIS Socket S,E 7P	C I S 7 P サイドエントリ-雌型コネクター	
	40:10:00:LB:60:15:10	CIS Socket Top	C I S 7 P 基板用雄接触子	
	40:10:00:LB:30:03:70	Headphone Jack	ヘッドホンジャック	
	40:10:00:NA:80:16:20	DC Circuit Board	D C シート	For General, Australian, South African models
	40:10:00:NA:80:16:30	-do.-	"	For US/Canadian models

