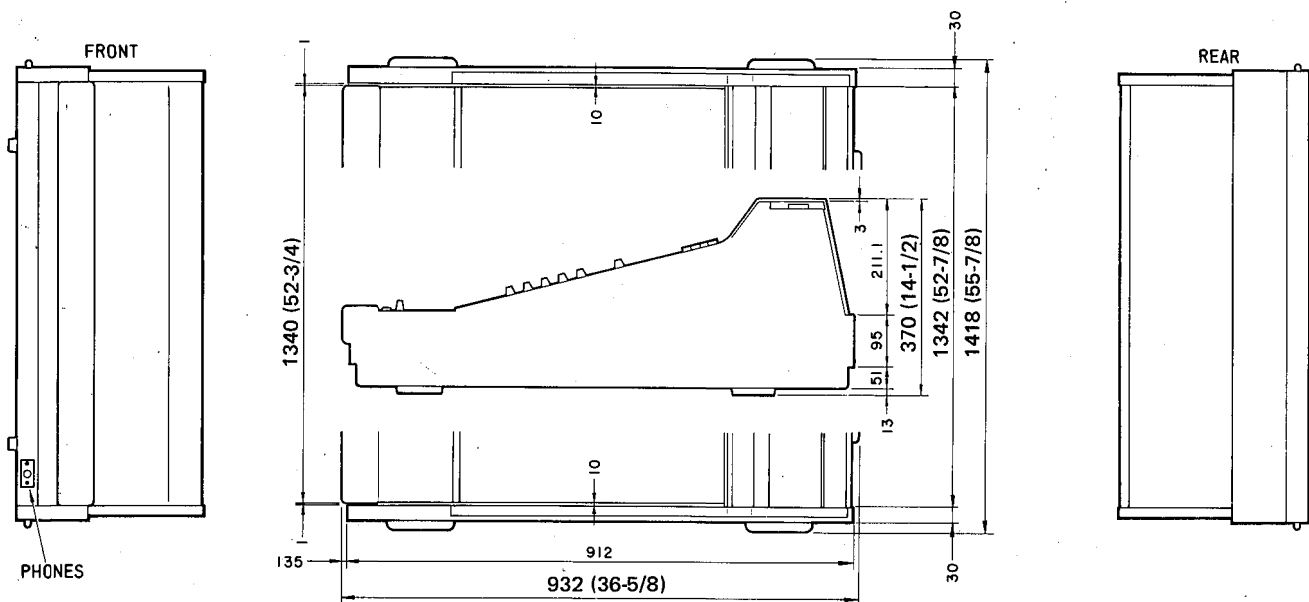


M1532/M1524

SERVICE MANUAL



WEIGHT: M1532 105 kg (231 lbs)
M1524 97 kg (213 lbs)

UNIT: mm (Inch)

■ CONTENTS

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SINCE 1887



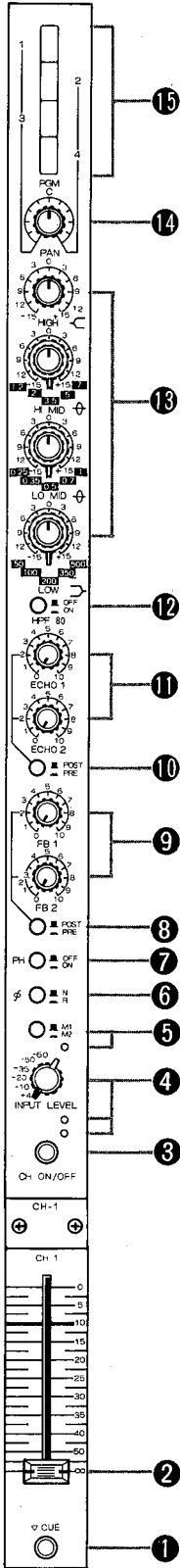
YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

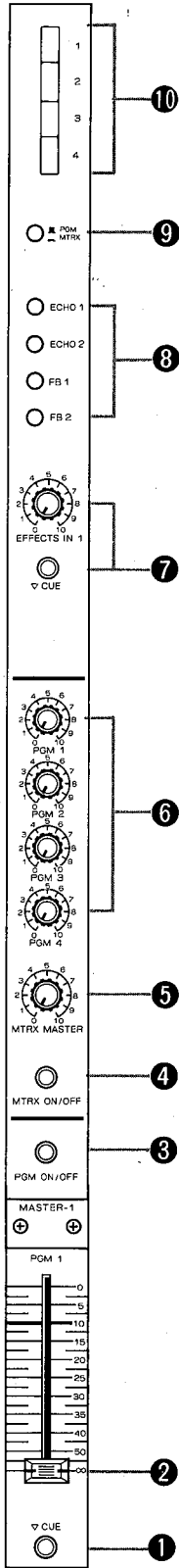
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IDENTIFICATION OF PARTS AND CONTROLS

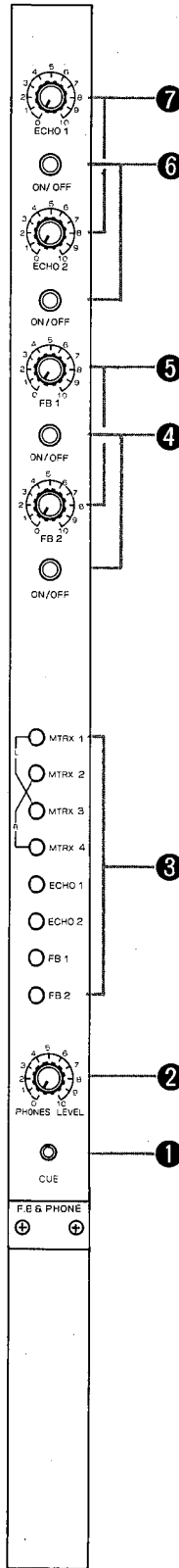
INPUT MODULE



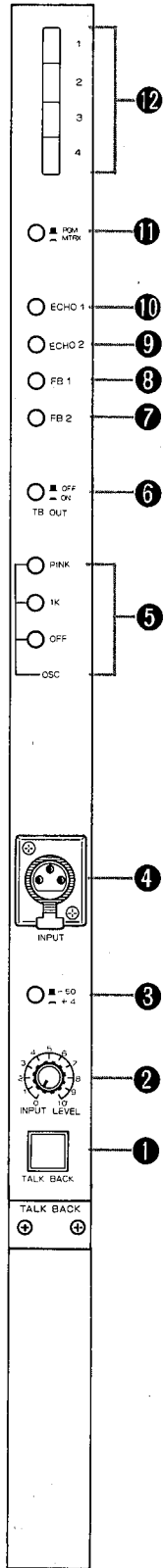
MASTER MODULE



FB & PHONES MODULE



TALKBACK MODULE



INPUT MODULE

- 1 CUE SWITCH
- 2 CHANNEL FADER
- 3 CHANNEL ON/OFF SWITCH
- 4 INPUT LEVEL SWITCH AND LED PEAK INDICATORS
- 5 INPUT SELECTOR AND INDICATOR
- 6 PHASE (POLARITY) REVERSAL SWITCH
- 7 PHANTOM POWER ON/OFF SWITCH
- 8 FOLDBACK PRE-POST SWITCH
- 9 FOLDBACK MIX LEVEL CONTROLS (FOLDBACK SEND LEVEL)
- 10 ECHO PRE-POST SWITCH
- 11 ECHO MIX LEVEL CONTROLS (ECHO SEND LEVEL)
- 12 HIGH PASS FILTER (HPF80) SWITCH
- 13 EQUALIZER (EQ)
- 14 PAN POT
- 15 BUS ASSIGN SWITCHES

MASTER MODULE

- 1 PROGRAM CUE SWITCHES
- 2 PROGRAM MASTER FADERS
- 3 PROGRAM MASTER ON/OFF SWITCHES
- 4 MATRIX ON/OFF SWITCHES
- 5 MATRIX MASTER LEVEL CONTROL
- 6 PROGRAM MIX LEVEL CONTROLS
- 7 EFFECTS IN LEVEL CONTROLS AND CUE BUTTONS
- 8 EFFECTS INPUT FOLDBACK AND ECHO ASSIGN SWITCHES
- 9 EFFECTS TO PROGRAM/MATRIX SWITCHES
- 10 EFFECTS MASTER ASSIGN SWITCHES

FB & PHONES MODULE

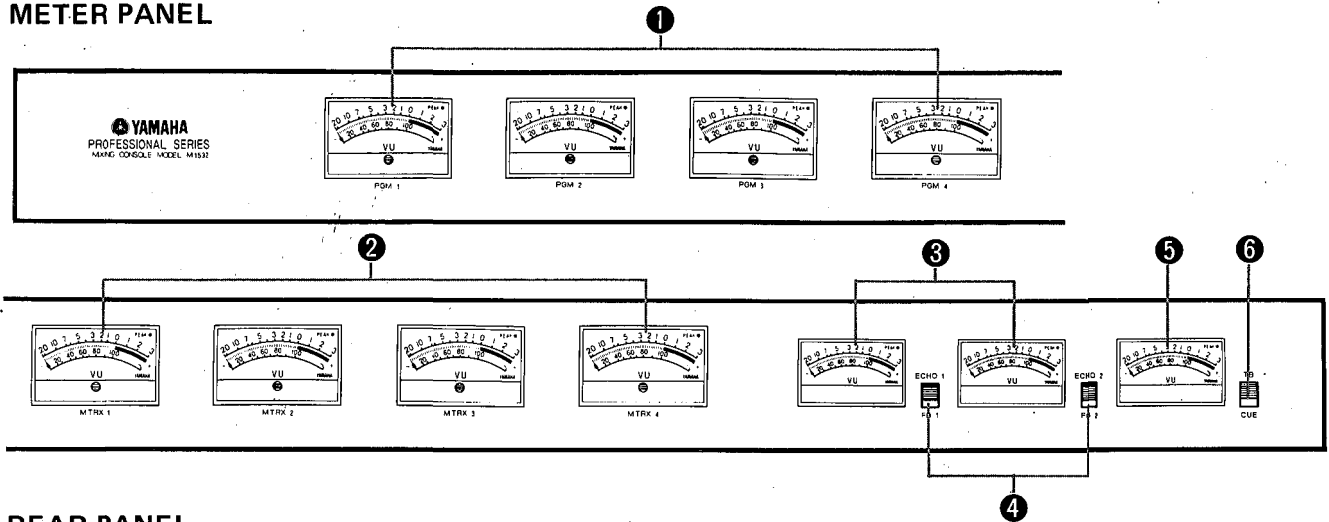
- 1 CUE-ASSIGNED INDICATOR
- 2 PHONES LEVEL CONTROL
- 3 HEADPHONE MONITOR SELECTOR
- 4 FOLDBACK MASTER ON/OFF SWITCHES
- 5 FOLDBACK 1 AND 2 MASTER LEVEL CONTROLS
- 6 ECHO MASTER ON/OFF SWITCHES
- 7 ECHO MASTER LEVEL CONTROLS

TALKBACK MODULE

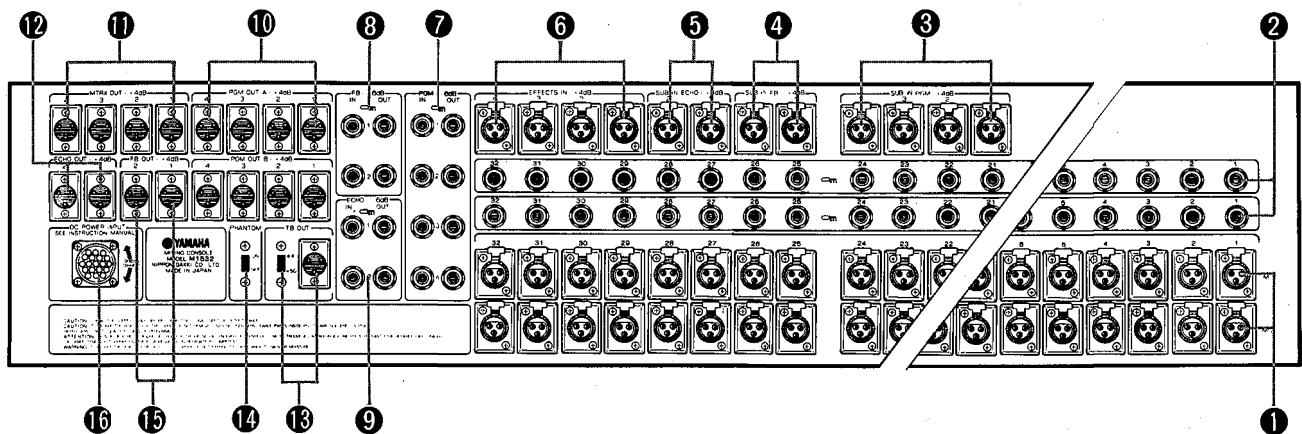
- 1 TALKBACK ON/OFF SWITCH
- 2 TALKBACK INPUT LEVEL CONTROL
- 3 TALKBACK INPUT LEVEL SWITCH
- 4 TALKBACK INPUT CONNECTOR
- 5 TEST OSCILLATOR
- 6 TB OUTPUT ON/OFF SWITCH
- 7 FOLDBACK BUS 2 ASSIGN SWITCH
- 8 FOLDBACK BUS 1 ASSIGN SWITCH
- 9 ECHO BUS 2 ASSIGN SWITCH
- 10 ECHO BUS 1 ASSIGN SWITCH
- 11 TALKBACK TO PROGRAM/MATRIX SWITCH
- 12 TALKBACK MASTER ASSIGN SWITCHES

M1524

METER PANEL



REAR PANEL



METER PANEL

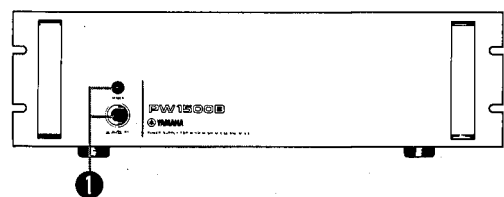
- ① PGM VU METERS (1 through 4)
- ② MTRX VU METERS (1 through 4)
- ③ ECHO/FB VU METERS (1 and 2)
- ④ ECHO/FB METER ASSIGNMENT SWITCHES
- ⑤ TB/CUE VU METER
- ⑥ TB/CUE METER ASSIGNMENT SWITCH

REAR PANEL

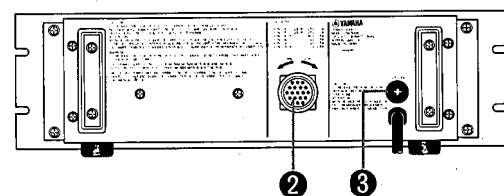
- ① CHANNEL INPUT M1 AND M2 CONNECTORS
- ② INPUT INTERSTAGE PATCH POINTS (EQ OUT/FADER IN)
- ③ PROGRAM SUB IN CONNECTORS
- ④ FB SUB IN CONNECTORS
- ⑤ ECHO SUB IN CONNECTORS
- ⑥ EFFECTS IN CONNECTORS
- ⑦ PROGRAM MASTER INSERT IN/OUT JACKS
- ⑧ FB MASTER INSERT IN/OUT JACKS (1 and 2)
- ⑨ ECHO MASTER INSERT IN/OUT JACKS
- ⑩ PGM OUT A AND PGM OUT B CONNECTORS
- ⑪ MATRIX OUT CONNECTORS
- ⑫ ECHO OUT CONNECTORS
- ⑬ TB OUT CONNECTOR AND LEVEL SWITCH
- ⑭ MASTER PHANTOM POWER SWITCH
- ⑮ FB OUT CONNECTORS
- ⑯ MIXER INPUT FROM POWER SUPPLY UMBILICAL CABLE

PW1500B (POWER SUPPLY)

FRONT PANEL



REAR PANEL



- ① AC POWER SWITCH AND INDICATOR LAMP
- ② POWER SUPPLY OUTPUT TO UMBILICAL CABLE
- ③ FUSE

SPECIFICATIONS

GENERAL SPECIFICATIONS

Frequency Response	20Hz ~ 20kHz $\begin{matrix} +0 \\ -3 \end{matrix}$ dB 30Hz ~ 15kHz $\begin{matrix} +0 \\ -0.5 \end{matrix}$ dB
Total Harmonic Distortion (THD)*	Less than 0.5% @+10dB, 20Hz ~ 20kHz Less than 0.1% @+20dB, 50Hz ~ 20kHz
Hum and Noise * (20Hz ~ 20kHz 150 Ω source)	-128dBm Equivalent input noise (EIN) -95dB residual output noise with all faders down. (Input Selector set at "-60") (") -70dB PROGRAM OUT; Master fader at nominal level and all Input faders down. (") -64dB PROGRAM OUT (68dB S/N); Master fader and one Input fader at nominal level. (") -70dB MATRIX OUT; Matrix Mix and Master controls at maximum, one PGM Master Fader at nominal level, and all input Faders down. (") -64dB MATRIX OUT (68dB S/N); Matrix mix and Master controls at maximum, one PGM Master Fader and one input Fader at nominal level. (") -67dB FB or ECHO OUT; Master level control at nominal level and all FB or ECHO mix controls at minimum level. (Pre/Post Sw. @ PRE.) (") -64dB FB or ECHO OUT (68dB S/N); Master level control and one FB or ECHO mix control at nominal level. (Pre/Post Sw. @ PRE.)
Maximum Voltage Gain (Input Selectors set at "-60"dB, where applicable)	PROGRAM 84dB; Channel in to the corresponding output. FB & ECHO** 94dB; Channel in to FB/ECHO out. EFFECTS 20dB; Effects In to PGM out. SUB IN 10dB; Sub In to PGM out.
Equalization (±15dB Maximum)	LOW 50, 100, 200, 350, 500Hz, shelving. LOW MID 250, 350, 500, 700, 1000Hz, peaking. HIGH MID 1.2, 2, 3.5, 5, 7kHz, peaking. HIGH 10kHz, shelving
High Pass Filter Talkback	18dB/octave roll off below 80Hz. Mic or line input XLR, preamp, level control, push-to talk switch, & assign buttons for Pgm/Mtrx busses; FB & Echo busses; TB Out On/Off switch on front panel, TB Out +4/-50dB level switch on rear panel.
Test Oscillator	Built-in generator of either 1kHz sine wave (1% T.H.D.) of Pink noise, +4dB nominal level internally (switchable to -50dB at TB Out.) Signal slates onto PGM/MTRX busses, FB & ECHO busses, and TB Out via Talkback system.
Input to mixer M1524CH1 ~ CH24 M1532CH1 ~ CH32	64 x Channel In (32 M1, 32 M2, both mic/line). 8 x Sub In (2 ea. Submixer Input to PGM, FB & ECHO busses). 4 x Effects In (Auxiliary program input and effects return.) 1 x Talkback (Mic/Line in). 32 x Channel Insert in (patch in). 8 x Master In (2 ea. for PGM, FB & ECHO).

Mixing Busses	4 x Main program (L & R); 4 x Matrix; 2 x Foldback 2 x Echo; 1 x Cue (solo; preview)
Mixer Output	8 x Program (Parallel A & B banks of 4); 4 x Matrix; 2 x Foldback; 2 x Echo; 2 x Headphone (one 2-channel jack); 32 x Channel Insert; 8 x Master Out (4 PGM/2 FB/2 ECHO).
Crosstalk	-60dB @1kHz, adjacent inputs; -60dB @1kHz, input to output.
VU Meters	8 large illuminated meters, four for PGM 1-4 and four for MTRX 1-4; 3 smaller meter switchable for FB 1 & 2 or ECHO 1 & 2, and TB or CUE (0 VU = +4dBm).
Peak Indicators	2 LEDs built into each input module and one in each VU meter. Input LEDs are 2-colors; green turns On when post-input selector signal reaches or exceeds 13dB below clipping, red at 3dB below clipping. VU meter LEDs turn on 10dB below clipping.
Phantom Power	For remote powering of condenser microphones, +48V DC can be switched on via a rear panel Master phantom power switch (40V for UL & CSA approved models). When an individual input Phantom switch is also On, voltage is applied to pins 2 and 3 of that inputs XLR connector via a pair of 6.8kΩ isolation/current-limiting resistors that feed each balanced input transformer.
Finish	Black painted panels, resewood veneer cabinet, color coded knobs.
Dimensions (W x H x D)	1418 x 932 x 370 mm (55-13/16" x 36-11/16" x 14-9/16")
Weight	M1524 97kg (213 lbs) M1532 105kg (231 lbs)
Power requirements	U.S. & Canadian models: 120V 180W General model: 240V 190W, Selectable (110/120/220/240V)
POWER SUPPLY PW1500B	
Power Requirements	U.S. & Canadian models: 120V, 50/60Hz General model: 110, 120, 220 or 240V, 50/60Hz
Power Consumption	U.S. & Canadian models: 180W Canadian model: 150VA General model: 190W
Dimensions (W x H x D)	480 x 335 x 140 mm (18-7/8" x 13-3/16" x 5-1/2")
Weight	21.2 lbs. (9.6kg)

* Hum and noise are measured with a 6dB/octave filter @12.47 kHz; equivalent to a 20kHz filter with infinite dB/octave attenuation.
** Maximum voltage gain (Echo) measured with channel fader at nominal level.

INPUT SPECIFICATIONS

CONNECTION	LEVEL SWITCH	ACTUAL LOAD IMPEDANCE	FOR USE WITH NOMINAL	SENSITIVITY**	INPUT LEVEL		CONNECTOR IN MIXER***
					NOMINAL	MAX. BEFORE CLIP	
INPUT CHANNELS (1-24) or (1-32)	-60dB	900Ω	50Ω to 250Ω mics or 600Ω line level sources	-80dB (0.08mV)	-60dB (0.78mV)	-30dB (25mV)	XLR-3-31
	-50dB	900Ω		-70dB (0.25mV)	-50dB (2.5mV)	-20dB (78mV)	
	-35dB	900Ω		-55dB (1.4mV)	-35dB (14mV)	-5dB (436mV)	
	-20dB	1kΩ		-40dB (7.8mV)	-20dB (78mV)	+10dB (2.45V)	
	-10dB	1.3kΩ		-30dB (24.5mV)	-10dB (245mV)	+20dB (7.75V)	
	+4dB	1.3kΩ		-16dB (123mV)	+4dB (1.23V)	+24dB (12.3V)	
EFFECTS IN (1-4)		5kΩ	600Ω lines	-16dB (123mV)	+4dB (1.23V)	+24dB (12.3V)	XLR-3-31
SUB IN PGM (1-4) SUB IN FB. (1, 2) SUB IN ECHO (1, 2)		1kΩ	600Ω lines	-6dB (388mV)	+4dB (1.23V)	+24dB (12.3V)	XLR-3-31
TB IN	-50dB +4dB	800Ω 5kΩ	50-250Ω microphones 600Ω lines	-70dB (0.25mV) -16dB (123mV)	-50dB (2.5mV) +4dB (1.23V)	-20dB (78mV) +24dB (12.3V)	XLR-3-31
CH INSERT (1-24) (1-32)		10kΩ	600Ω lines	-26dB (39mV)	-6dB (388mV)	+24dB (12.3V)	Phone jack
PGM INSERT (1-4) FB INSERT (1, 2) ECHO INSERT (1, 2)		10kΩ	600Ω lines	-16dB (123mV)	-6dB (388mV)	+24dB (12.3V)	Phone jack

OUTPUT SPECIFICATIONS

CONNECTION	LEVEL SWITCH	ACTUAL SOURCE IMPEDANCE	FOR USE WITH NOMINAL	OUTPUT LEVEL		CONNECTOR IN MIXER**
				NOMINAL	MAX. BEFORE CLIP	
PGM OUT (1-4)***		150Ω	600Ω lines	+4dB (1.23V)	+24dB (12.3V)	XLR-3-32
MTRX OUT (1-4)						
FB OUT (1, 2)						
ECHO OUT (1, 2)						
PGM INSERT OUT (1-4)		600Ω	10kΩ lines	-6dB (388mV)	+24dB (12.3V)	Phone jack
FB INSERT OUT (1, 2)						
ECHO INSERT OUT (1, 2)						
CH. INSERT OUT (1-24) (1-32)						
HEADPHONES		25Ω	8Ω phones;	-6dB (388mV);	+4dB (1.23V);	TRS phone jack
			600Ω lines	+88dB (1.95V)	+18dB (6.16V)	
TALKBACK OUT	+4dB -50dB	150Ω	600Ω lines	+4dB (1.23V)	+24dB (12.3V)	XLR-3-32
				-50dB (2.5mV)	-30dB (24.5mV)	

* In these specifications, when dB represents a specific voltage, 0dB is referenced to 0.775 volts RMS.

** Sensitivity is the lowest level that will produce an output of +4dB (1.23V), or the nominal output level when the unit is set to maximum gain.

*** All XLR connectors are floating (balanced) and transformer-isolated. Phone jacks are unbalanced.

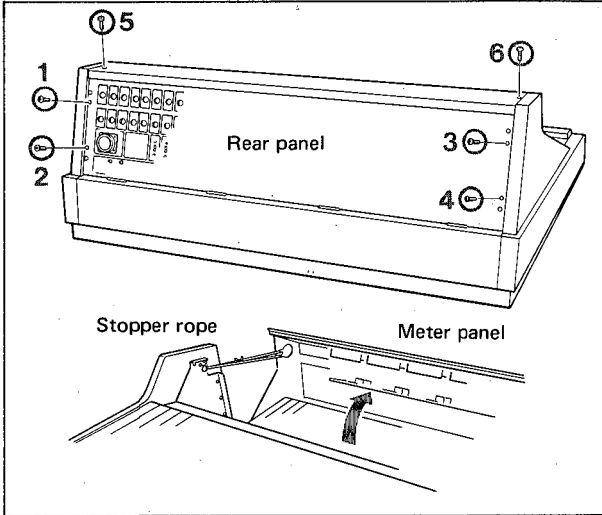
*** "A" and "B" Program outputs are parallel wired; combined load on both connectors of a given bus output should not be less than the nominal 600Ω.

All specifications subject to change without notice or obligation.

DISASSEMBLY PROCEDURES

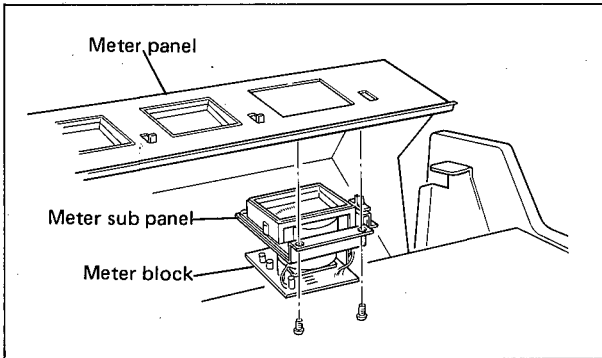
1. Opening the meter panel

Remove screws ① through ④ at both ends of the rear panel and screws ⑤ and ⑥ at both ends of the top board, and then open the meter panel rearward.



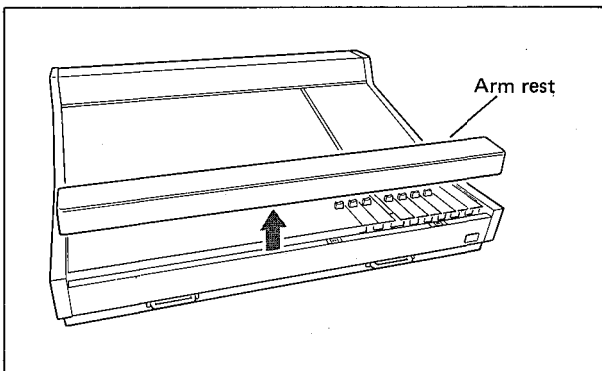
2. Replacing the VU meter

- Disconnect every wire connected to MT circuit board.
- Undo two screws fixing the meter sub panel and remove the meter Ass'y.

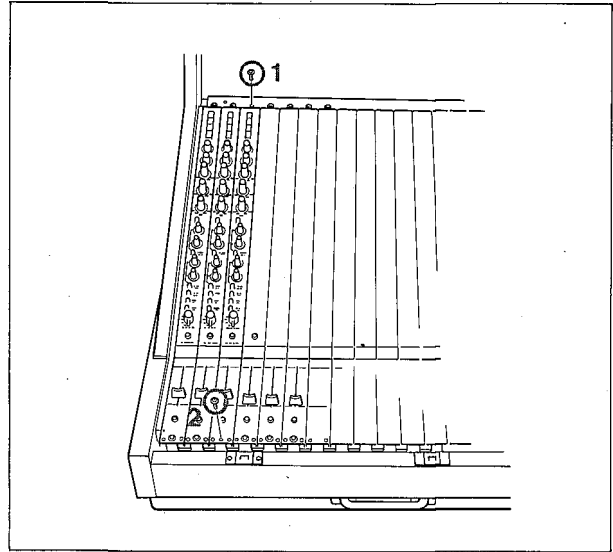


3. Opening the MODULE

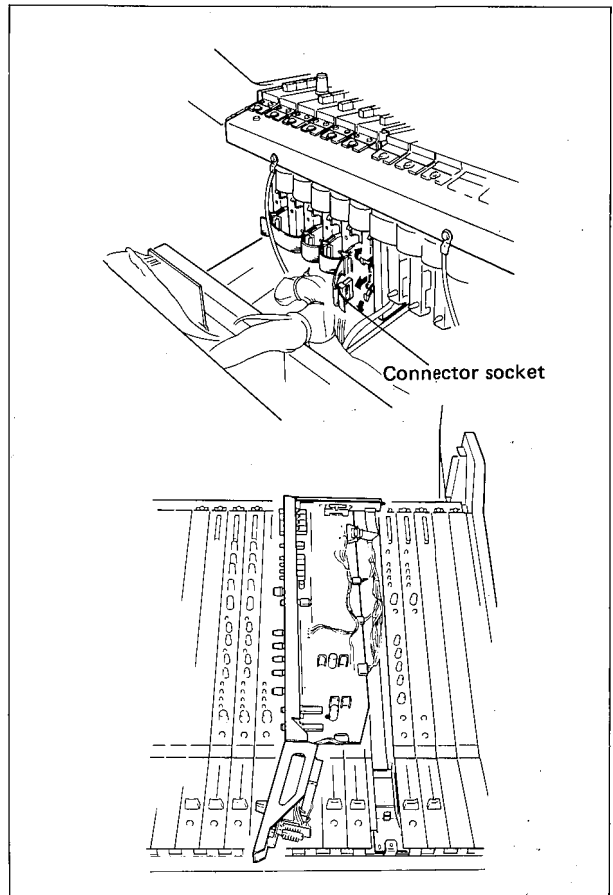
- Take the arm rest out of the main unit.



- Remove screws ① and ② which fixes each modules.



- Disconnect the connector socket which is connected to the side of the rear panel and remove the module. In this state you can check the module and also can replace the parts.



*HP C board is placed under the MASTER module.

■ CHECK AND ADJUSTMENT

* Use an oscilloscope and an AC voltmeter with an input impedance of over 500kΩ for the measurement.

PW1500B POWER SUPPLY

Be sure to have PW1500B and M1532 or M1524 main unit connected for the voltage measurement.

a. -25V adjustment

Adjust the pot (B1kΩ) so that the voltage across -25 terminal and E terminal on DC circuit board will be $-25 \pm 0.1V$.

b. Power supply voltage check

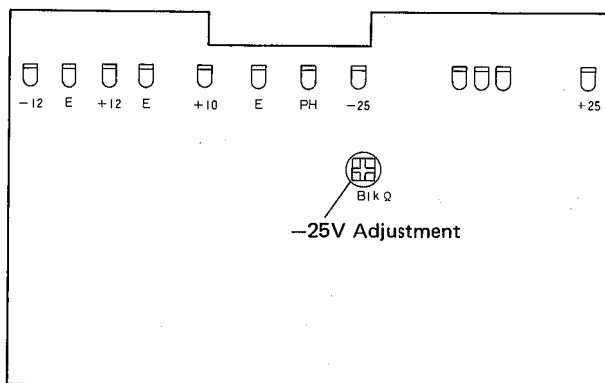
Check that the following voltages are obtained respectively across each terminal and E terminal on DC circuit board.

Terminal	Output Voltage	Terminal	Output Voltage
+25	$+25 \pm 0.8V$	+10	$+10 \pm 1.5V$
-25	$-25 \pm 0.5V$	+12	$+12 \pm 1.5V$
PH	$+40 \pm 3V$ ※ $+48 \pm 2V$ ※※	-12	$-12 \pm 1.5V$

※ For U.S. & Canadian Models

※※ For General Model

DC Circuit Board



2. OSCILLATOR/NOISE GENERATOR

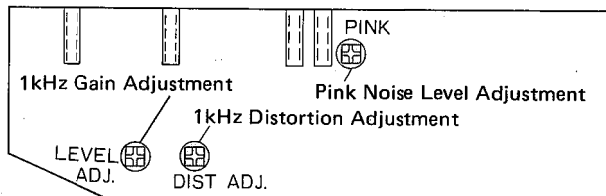
a. 1kHz adjustment

Adjust the pot (LEVEL ADJ) on TB circuit board so that TB OUT output level will be +4.5dB, and then adjust another pot (DIST ADJ) so that distortion will be minimized (T.H.D. less than 1%). The output level caused to vary at this time should be corrected by readjusting the GAIN control.

b. Pink noise generator adjustment

Adjust the pot (PINK) on TB circuit board so that TB OUT output level will be +4.5dB. If the indicator of the voltmeter keeps deflecting, perform adjustment based on the mean value of the deflection.

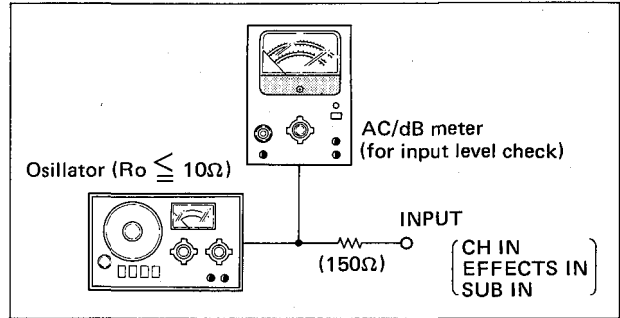
TB Circuit Board



PERFORMANCE CHECK

- Set the controls to the positions as given in Table 1 unless otherwise specified.
 - Connect an oscillator as shown in Fig. 1 for measurement.
 - Perform measurement with the following load resistance connected to catch output connectors.
- | | |
|----------------------------------|--------------------|
| CH/MASTER INSERT OUT | 10kΩ |
| | (Only measurement) |
| PGM, FB, ECHO, MTRX, TB EACH OUT | 600Ω |
| PHONES OUT | 8Ω x 2 (STEREO) |

• Fig. 1



• Table 1

Knob	Set position
• CH INPUT (1 ~ 32ch)	
FADER	Only measurement channel : max. All others : min.
CUE	OFF
CH ON/OFF	ON
INPUT LEVEL	-60
M1/M2	M1
φ	Normal (N)
PHANTOM Switch	OFF
FB Controls (1, 2)	Only measurement channel : max. All others : min.
FB PRE/POST	POST
ECHO Controls (1, 2)	Only measurement channel : max. All others : min.
ECHO PRE/POST	POST
HPF 80	OFF
EQ (LOW, LO-MID, HI-MID, HIGH)	Center (C)
EQ FREQUENCY Switch	Free
PAN	Center (C)
Assign Switches	Only measurement channel : 1 ~ 4 ON All others : OFF
• MASTER (1 ~ 4)	
PGM MASTER FADER	max.
PGM CUE	OFF
PGM ON/OFF	ON
MTRX MASTER	max.
MTRX ON/OFF	ON
PGM Mix Controls (1 ~ 4)	Only measurement channel : max. All others : min.
EFFECTS IN Control	Only measurement channel : max. All others : min.
Assign Switches	Only measurement : ON All others : OFF
• FB/ECHO	
PHONES LEVEL	Only measurement : max. All others : min.
HEADPHONE SELECTOR Switches	All OFF
FB MASTER Controls (1, 2)	max.
FB ON/OFF (1, 2)	ON
ECHO MASTER Controls (1, 2)	max.
ECHO ON/OFF (1, 2)	ON
• TALK BACK	
INPUT LEVEL	Only measurement : max. All others : min.
-50/+4 SELECTOR Switch	-50
OSC	OFF
TB OUT ON/OFF	ON
Assign Switches	Only measurement : max. All others : min.
• Rear Panel	
PHANTOM MASTER Switch	OFF
TB OUT	+4

• Table 2 GAIN (INPUT)

INPUT LEVEL Switch	INPUT LEVEL	OUTPUT					
		PGM	FB	ECHO	CH INSERT IN	PGM MASTER INSERT IN	FB/ECHO MASTER INSERT IN
-60	-80	+ 4±2	+14±2	+14±2	-26±2	-16±2	-6±2
-50	-80	- 6±2	-	-	-	-	-
-35	-80	-21±2	-	-	-	-	-
-20	-40	+ 4±2	-	-	-	-	-
-10	-40	- 6±2	-	-	-	-	-
+ 4	-40	-20±2	-	-	-	-	-

(UNIT : dB, 0dB=0.775V r.m.s.)

* As for FB/ECHO, the output level should be +4 ± 2dB when PRE/POST switch is set to PRE position.

• Table 3 GAIN (each INPUT)

INPUT	INPUT LEVEL	OUTPUT			TB OUT	
		PGM	FB	ECHO	+4	-50
CH INSERT IN	-16	+14±2	-	-	-	-
MASTER INSERT IN	-16	+ 4±2	+4±2	+4±2	-	-
EFFECTS IN	-16	+ 4±2	+4±2	+4±2	-	-
SUB IN	-16	- 6±2	-6±2	-6±2	-	-
TB IN	-50	-80	- 6±2	-6±2	-16±2	-70±2
	+ 4	-16	-	-	- 6±2	-

(UNIT : dB, 0dB=0.775V r.m.s.)

• Table 4 GAIN (MTRX)

INPUT	INPUT LEVEL	SPECIFIED FOR MAX.	MTRX OUT
CH 1	-80	PGM 1	+ 4 ± 2
		PGM 2	+ 4 ± 2
		PGM 3	+ 4 ± 2
		PGM 4	+ 4 ± 2
EFFECTS IN	-16	-	- 6 ± 2
TB IN	-80	-	-16 ± 2

(UNIT : dB, 0dB=0.775V r.m.s.)

• Table 5 GAIN (PHONES)

INPUT	INPUT LEVEL	Set position	PHONES OUT
CH INPUT	-80	CH CUE ON	-16 ± 2
		MASTER CUE ON	- 6 ± 2
		HEADPHONE SELECTOR SWITCHES	+ 4 ± 2
EFFECTS IN	-16		- 6 ± 2

(UNIT : dB, 0dB=0.775V r.m.s.)

* Make sure not to push on 2 or more CUE switches at the same time.

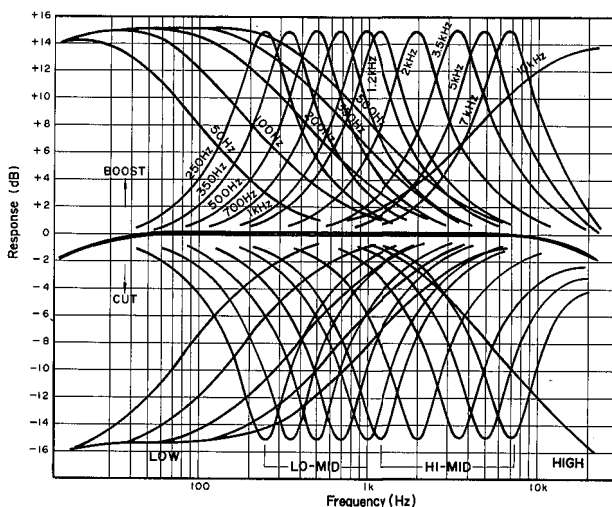
● Table 6 Equalizer Frequency Response

	Frequency	Set position				Variation Range
		LOW	LO-MID	HI-MID	HIGH	
LOW	50, 100 200, 350, 500Hz	MAX MIN	CENTER	CENTER	CENTER	+12±2 -12±2
LO-MID	250, 350, 500, 700, 1000Hz	CENTER	MAX MIN	CENTER	CENTER	+15±2 -15±2
HI-MID	1.2k, 2k, 3.5k, 5k, 7kHz	CENTER	CENTER	MAX MIN	CENTER	+15±2 -15±2
HIGH	10kHz	CENTER	CENTER	CENTER	MAX MIN	+12±2 -12±2

(UNIT : dB)

* The frequency switch should be set to the signal frequency.

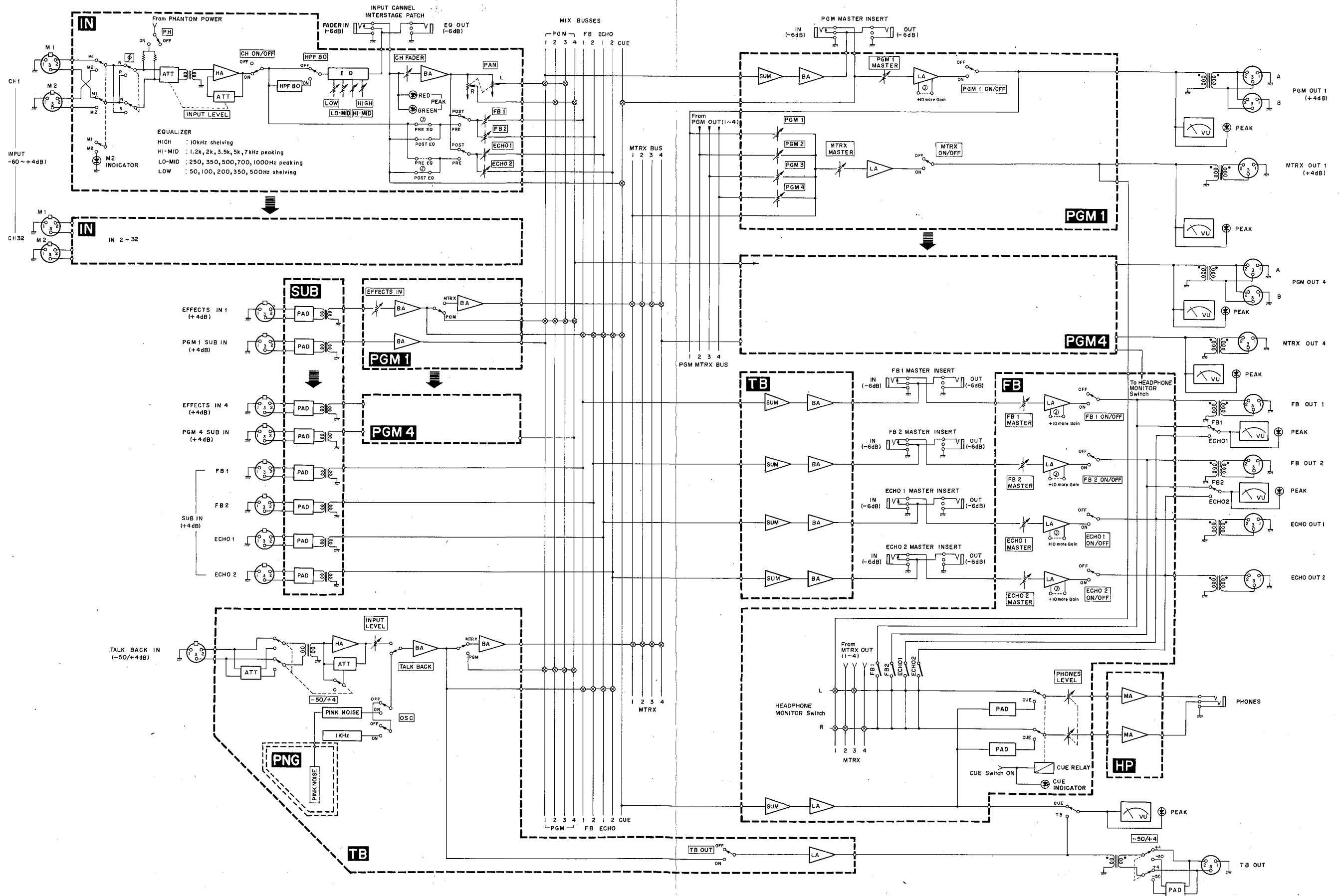
● Frequency Response



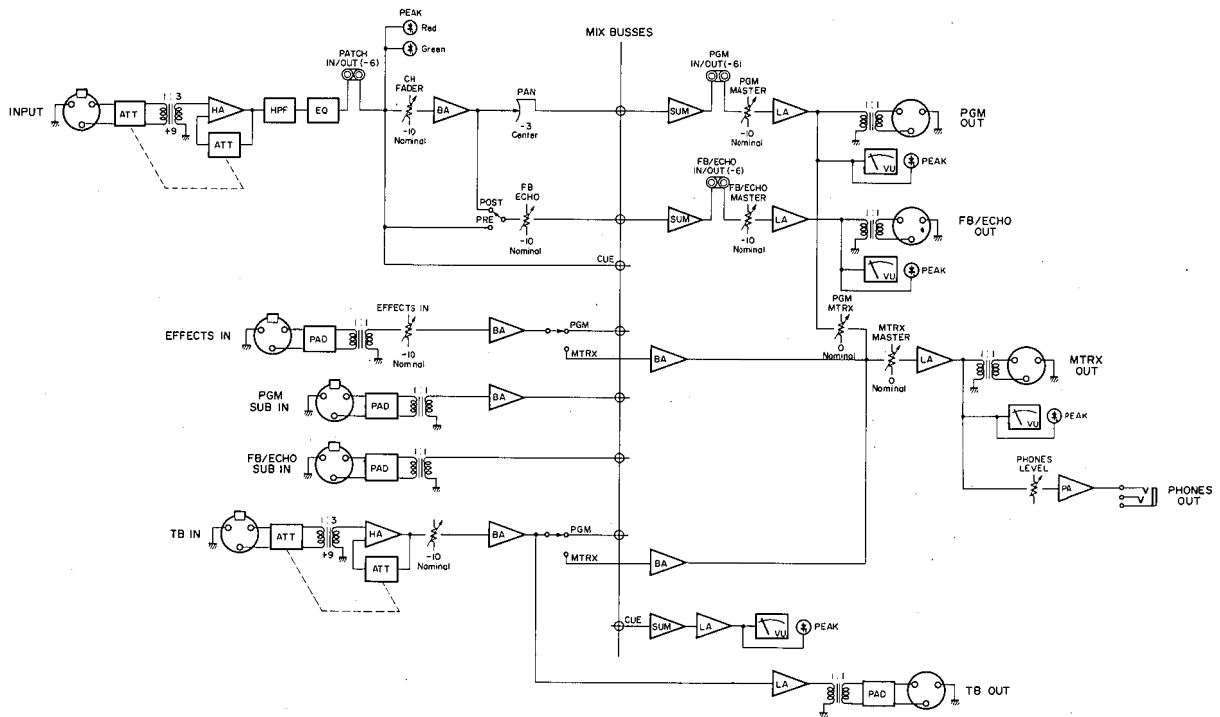
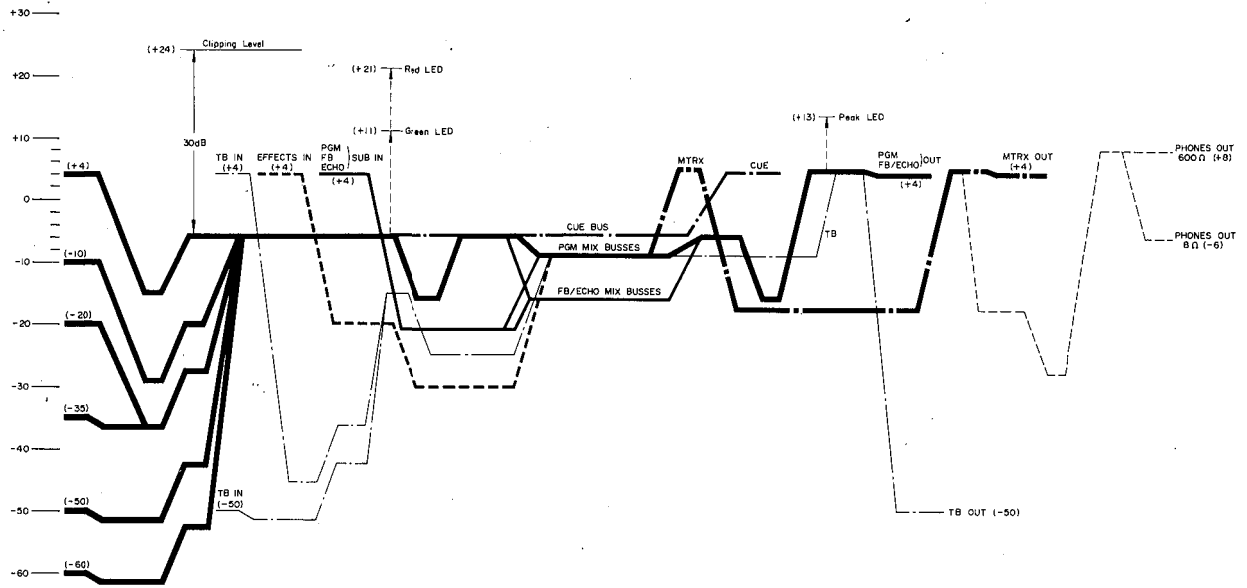
STEP	CHECK ITEM	SET POSITION OF CONTROL AND SWITCH	MEASUREMENT CONDITION	SPECIFICATIONS	REMARKS
1	Gain (INPUT)	Table 1	Apply a 1kHz sine wave signal to each of the INPUT connectors.	Output level obtained as listed in Table 2	● The difference in level must be; within 2dB between the channels for all the outputs, within 2dB between PGM1 ~4, within 1dB between M1 and M2.
2	Gain (CH INCERT, MASTER INCERT, EFFECTS IN, SUB IN, TB IN)	Table 1	Apply a 1kHz sine wave signal to each of the INPUT connectors.	Output level obtained as listed in Table 3.	
3	Gain (MTRX)	Table 1 Set those controls specified for Max. setting to their maximum positions and the rest to their minimum positions.	Apply a 1kHz sine wave signal to each of the INPUT connectors.	Output level obtained as listed in Table 4.	
4	Gain (PHONES)	Table 1	Apply a 1kHz sine wave signal to each of the INPUT connectors.	Output level obtained as listed in Table 5.	
5	Distortion	Table 1 Each FADER, VOLUME to NOMINAL (-10dB) position	Apply a sine wave signal to each of the INPUT connectors so that each output level of PGM, ECHO, FB and MTRX will be +10dB.	T.H.D. less than 0.2%	
6	Frequency response	Table 1	Apply a 20Hz ~ 20kHz sine wave signal to each of the INPUT connectors.	With 1kHz output level as a standard, 20Hz; +0 dB 20Hz; +0 dB -3 dB	
7	Equalizer response	Table 1	Apply a sine wave signal of the frequency given in Table 6 to each of the INPUT connectors.	With 1kHz (EQ FLAT) output level as a standard, the variation obtained as given in Table 6.	
8	Maximum output power	Table 1	Apply a 1kHz sine wave signal to CH1 INPUT connector.	+24dB output level obtained with T.H.D. less than 1%.	
9	Separation	Table 1 Turn the measurement channel PAN control to its extreme 1-3 side(L).	Apply a 1kHz sine wave signal to the measurement channel INPUT connector so that the output level of PGM1 and PGM3 will be +7dB.	The leakage level of PGM2 and PGM4: less than -53dB (separation 60dB)	Likewise, with PAN to 2-4 side(R), the leakage level of PGM1 and PGM3 must be as specified.

STEP	CHECK ITEM	SET POSITION OF CONTROL AND SWITCH	MEASUREMENT CONDITION	SPECIFICATIONS	REMARKS
10	Noise level	Table 1 CH FADER, FB, ECHO of the measurement channel only to maximum position	Input termination of 150Ω	PGM OUT (1~4): less than -44dB FB/ECHO OUT (1, 2): less than -34dB	
11	Residual noise	Table 1	CH FADER, FB/ECHO to minimum position	PGM OUT (1~4): less than -60dB FB/ECHO OUT (1, 2): less than -57dB	
			MASTER FADER, FB/ECHO MASTER to minimum position	PGM OUT (1~4): less than -95dB FB/ECHO OUT (1, 2): less than -95dB	
			MTRX MASTER to minimum position	MTRX OUT (1~4): less than -95dB	
			PHONES LEVEL to minimum position	PHONES OUT: less than -75dB	
12	PEAK indicator (INPUT)	Table 1 CH FADER to minimum position	Apply a 1kHz sine wave signal to each of the INPUT connectors.	Turned on at the output level: GREEN -43±2dB RED -33±2dB	
13	VU meter (PGM, MTRX) (FB, ECHO, TB)	Table 1	Apply a sine wave signal to each of the INPUT connectors so that the output level of each output connector will be +4dB.	Meter indication: 0 ± 1VU	
	VU meter (CUE)	Table 1 CH CUE to ON position METER TB/CUE to CUE position	Apply a -60dB sine wave signal to each of the INPUT connectors.	Meter indication: 0 ± 1.5VU	
	PEAK indicator	Table 1	Apply a sine wave signal to each of the INPUT connectors.	Peak indicator is turned on at the output level: +14 ± 2dB	
14	PHANTOM power supply	PHANTOM MASTER switch to ON CH PH switch to ON	INPUT XLR connector Connect 10kΩ (more than 1W) between 1 and 2 pins and short between 2 and 3 pins.	XLR connector across 1 and 2 pins: 35 ± 3V	
15	HPF	Table 1 HPF80 switch to ON	Apply a -80dB 80Hz sine wave signal to each of the INPUT connectors.	With HPF switch to OFF output level as a standard PGM1 output level: -3 ± 2dB	
16	Oscillator	Table 1	Measure the TB OUT output level.	1kHz +4 ± 1dB	<ul style="list-style-type: none"> ● -50 ± 1.5dB with TB OUT +4/-50 switch to "-50" position. ● When measuring pink noise, read the mean value of indicator deflection. Deflection mean value: ± 1.5 dB
				PINK +4 ± 1dB	

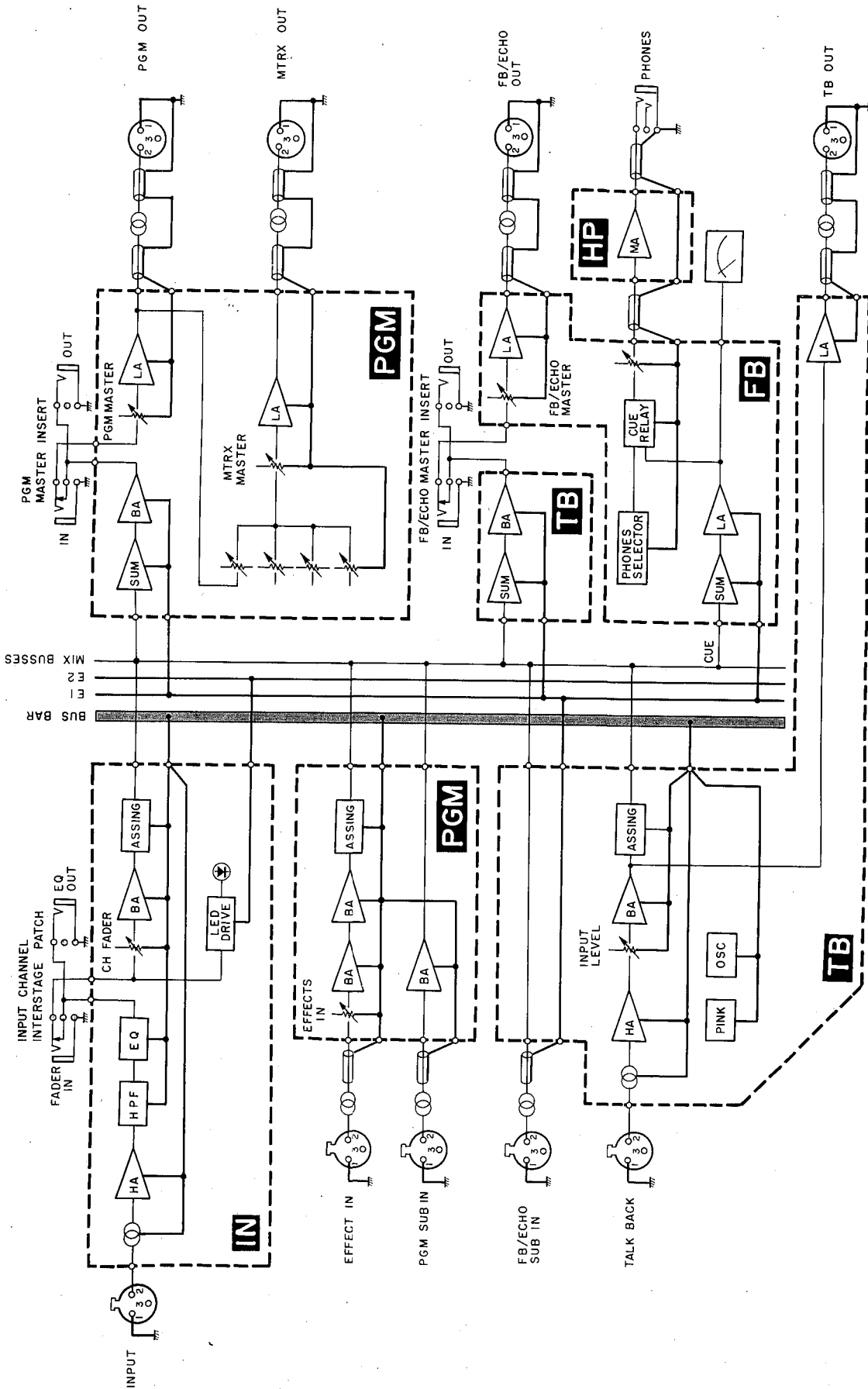
BLOCK DIAGRAM



LEVEL DIAGRAM

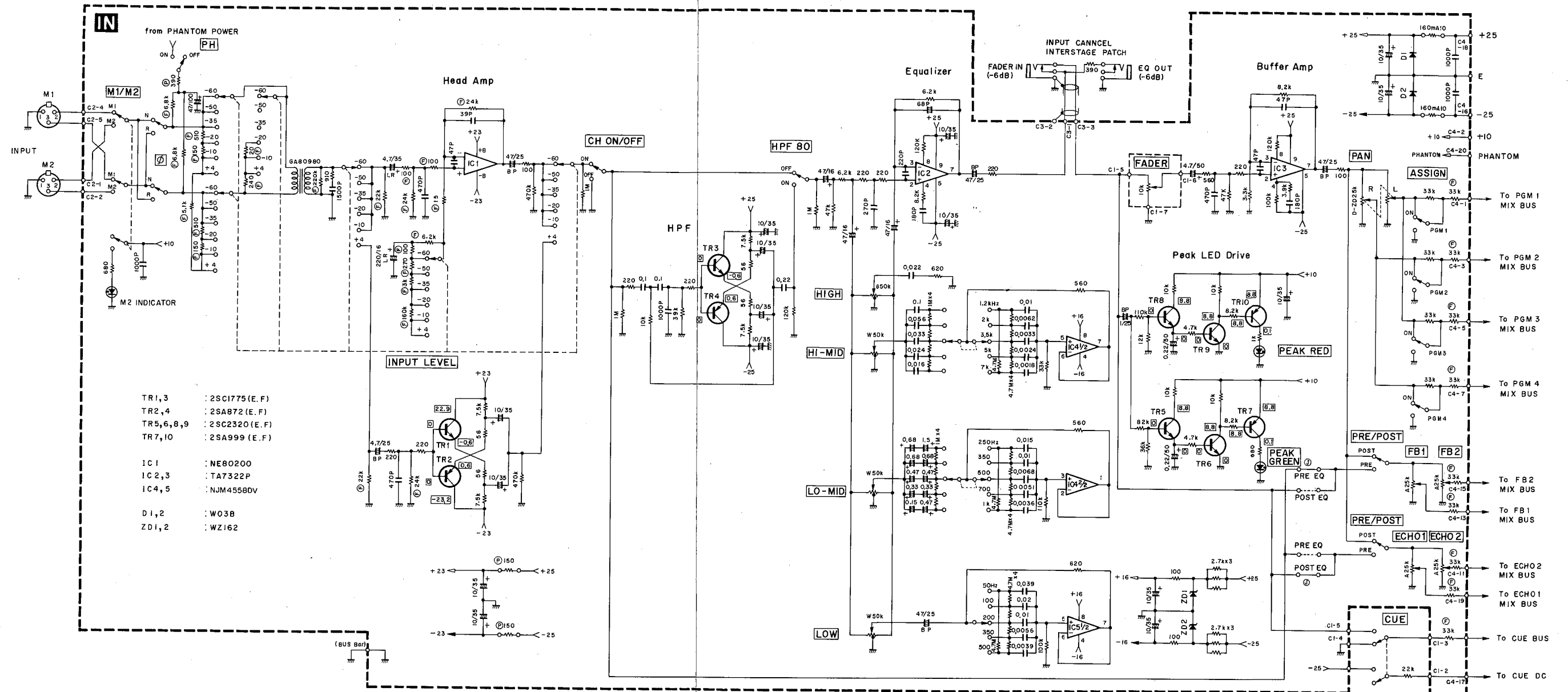


GROUNDING SCHEME

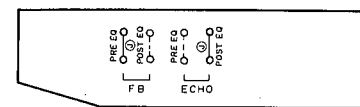
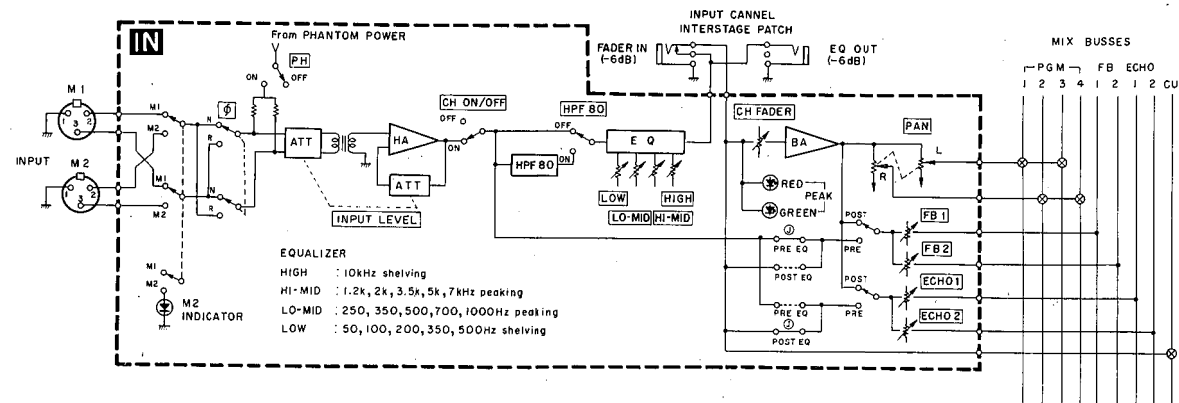


INPUT MODULE

IN CIRCUIT DIAGRAM

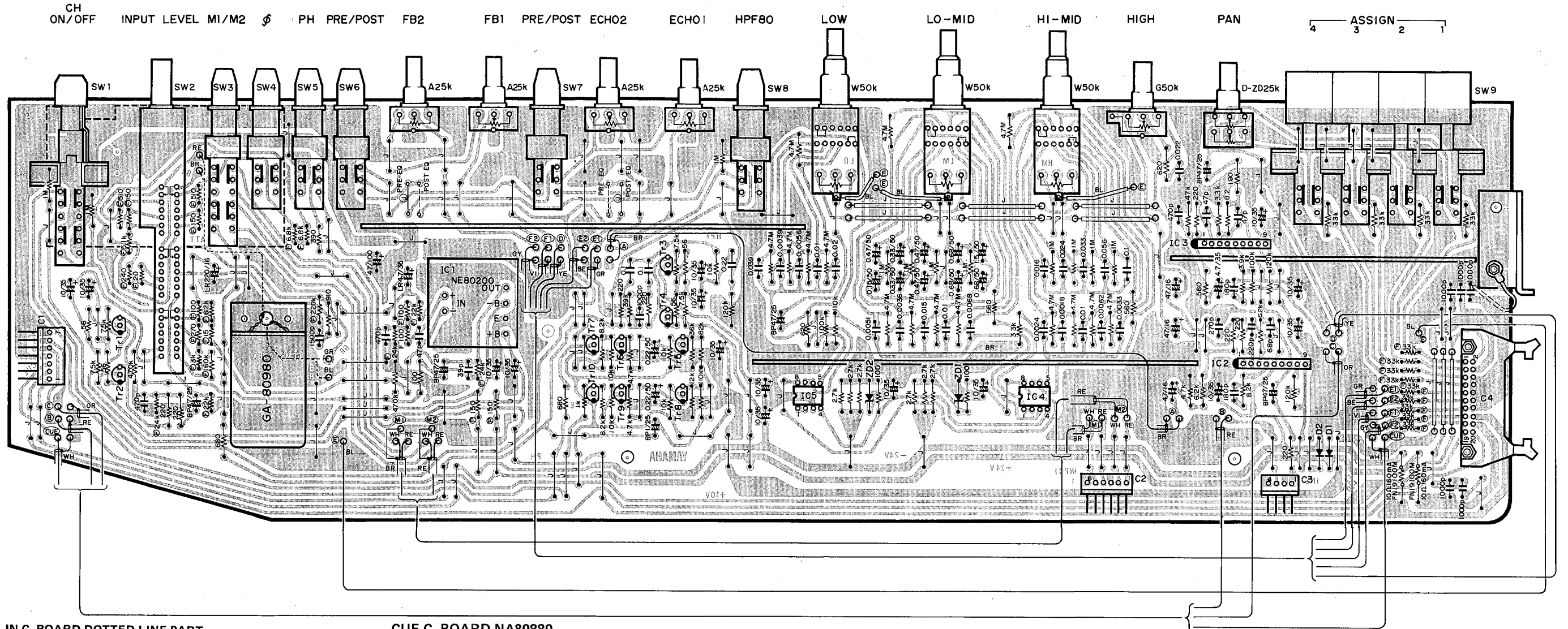


BLOCK DIAGRAM

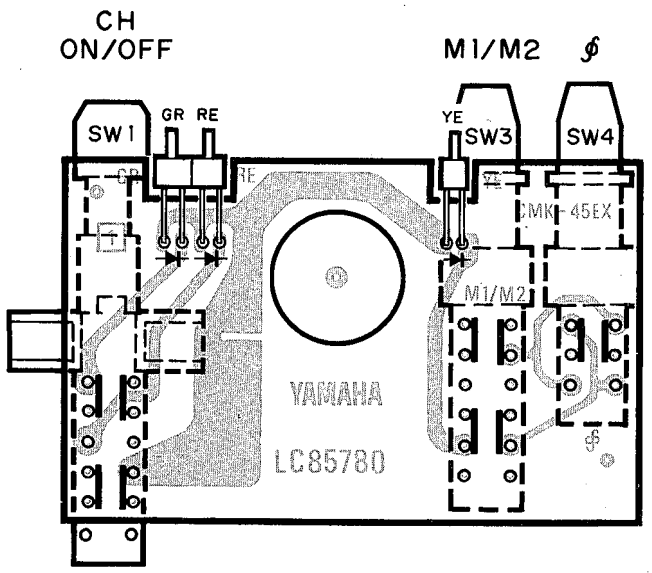


*When PRE/POST switch in PRE position FB/ECHO signal feeding position, PRE-EQ or POST-EQ, can be altered by changing the jumper lead connection.

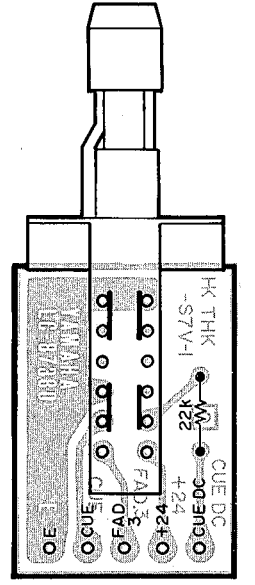
IN C. BOARD NA80660
(Parts Side)



IN C. BOARD DOTTED LINE PART
(Pattern Side)

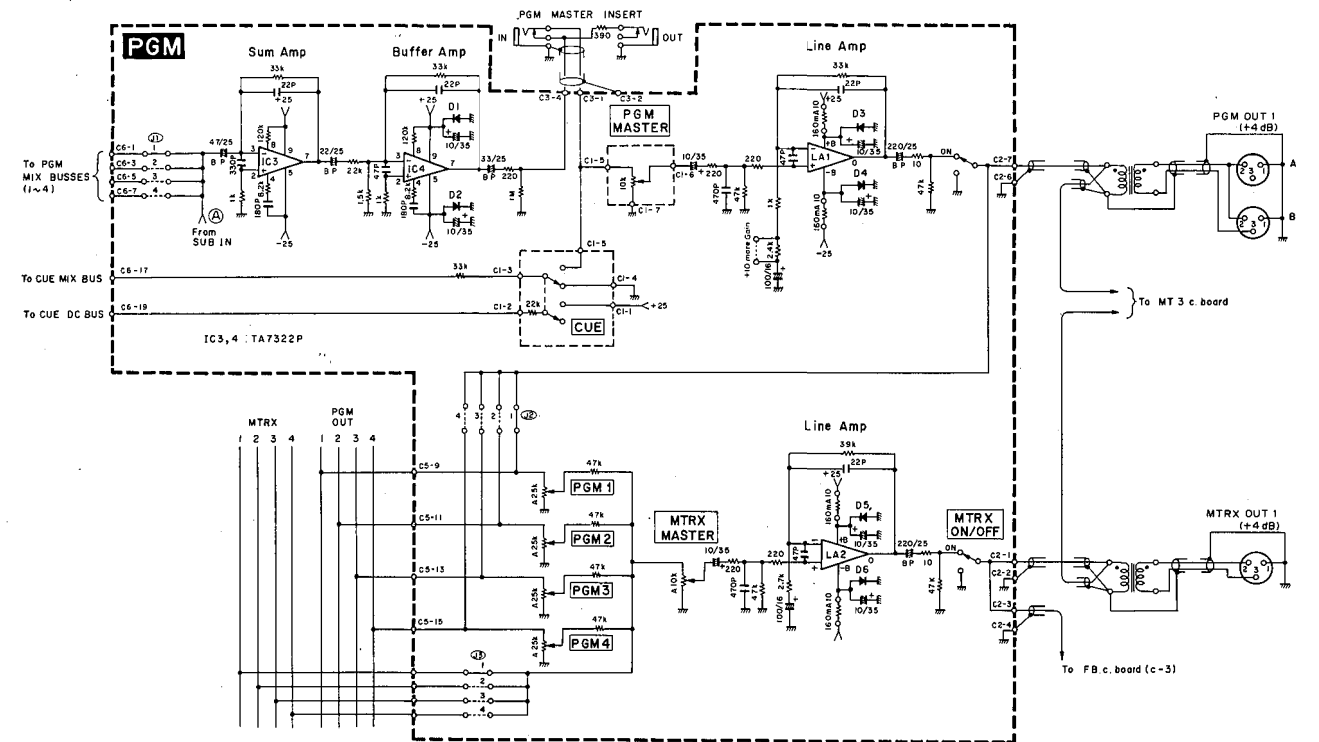
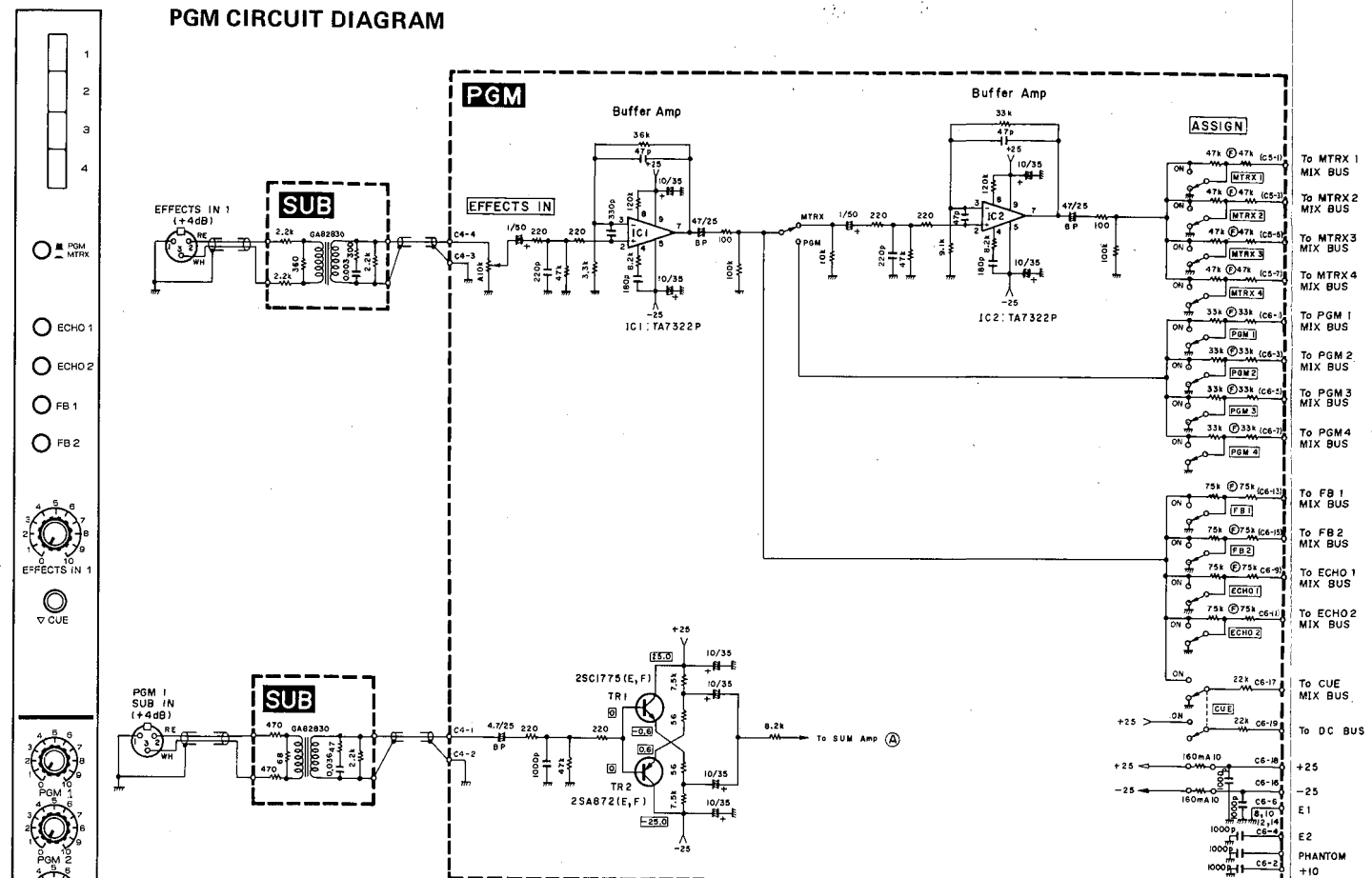


CUE C. BOARD NA80880
(Pattern Side)

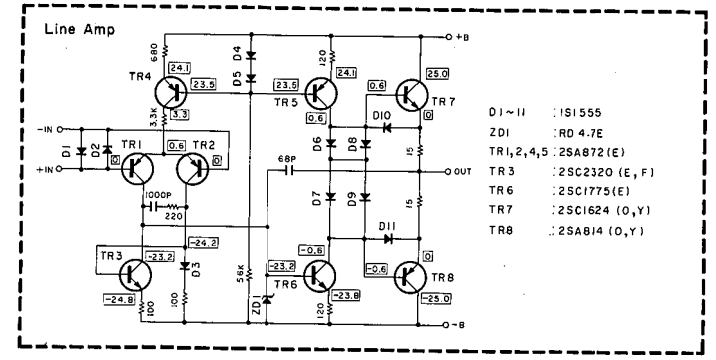
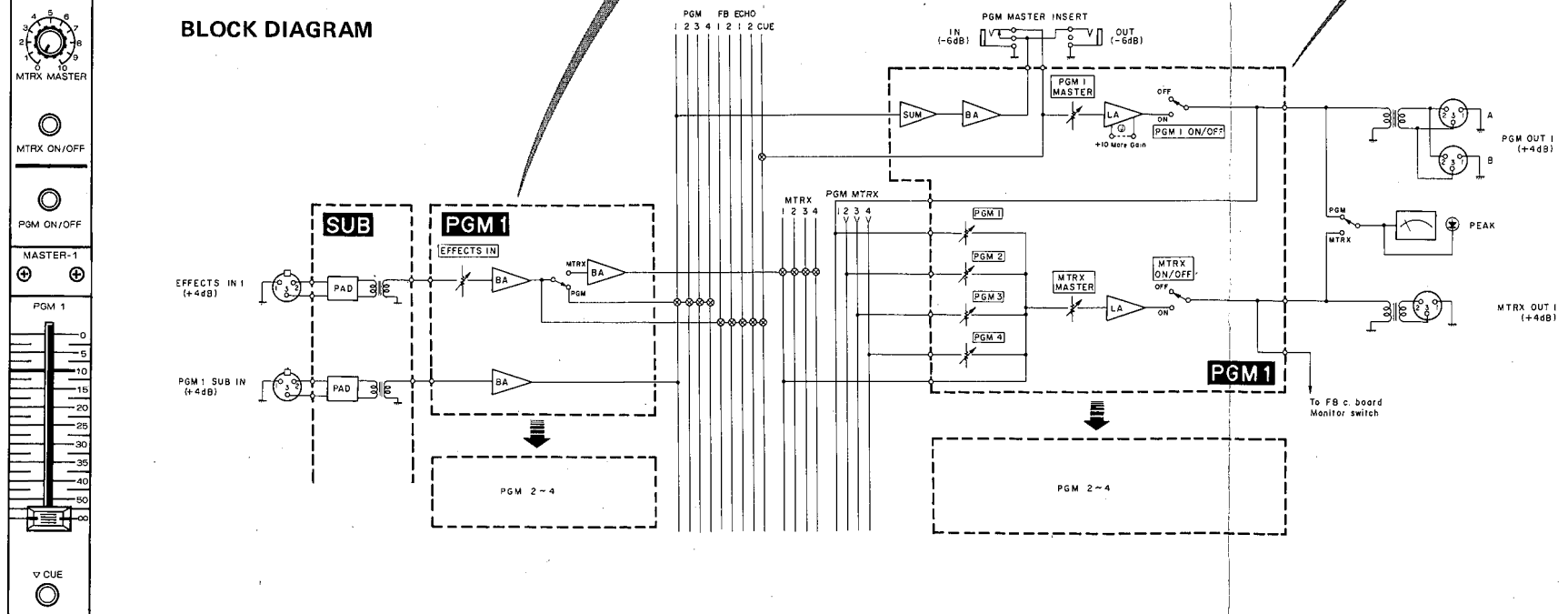


MASTER MODULE

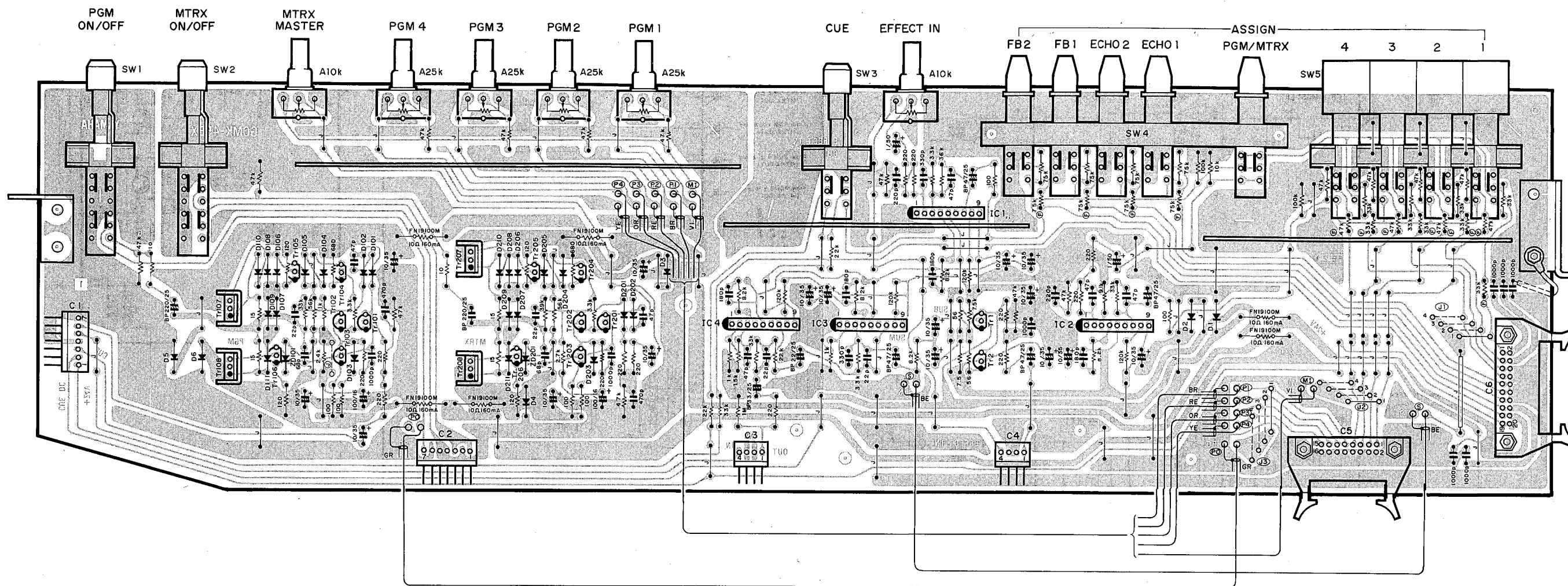
PGM CIRCUIT DIAGRAM



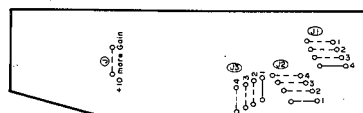
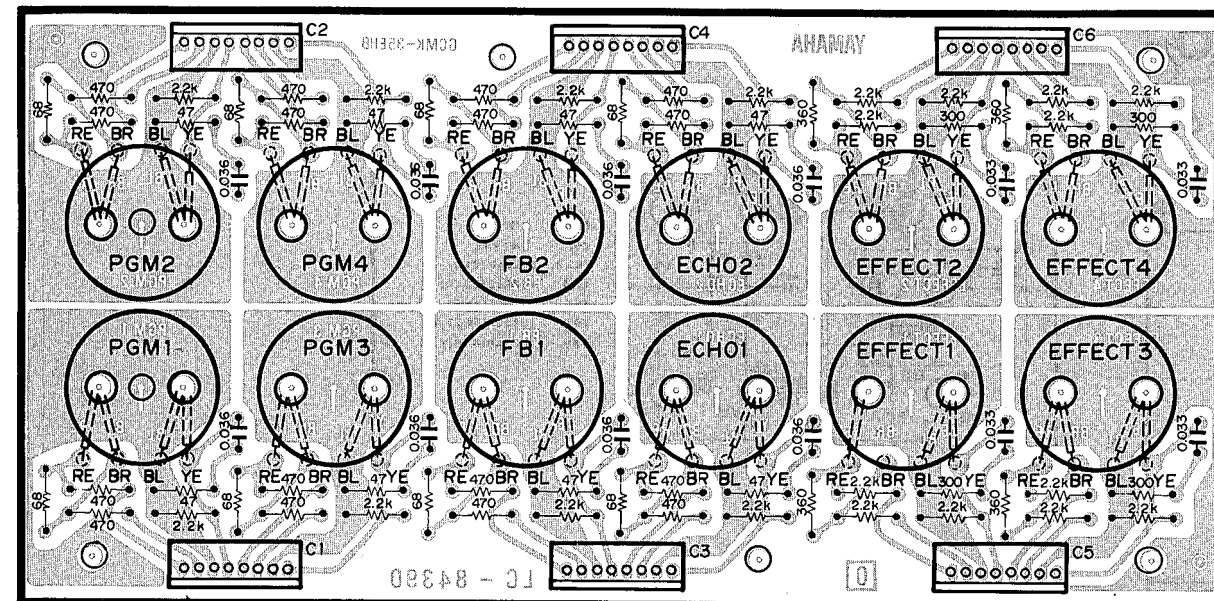
BLOCK DIAGRAM



PGM C. BOARD PGM1 C. BOARD NA80662 PGM3 C. BOARD NA80664
 (Parts Side) PGM2 C. BOARD NA80663 PGM4 C. BOARD NA80665



SUB C. BOARD NA806740
 (Parts Side)

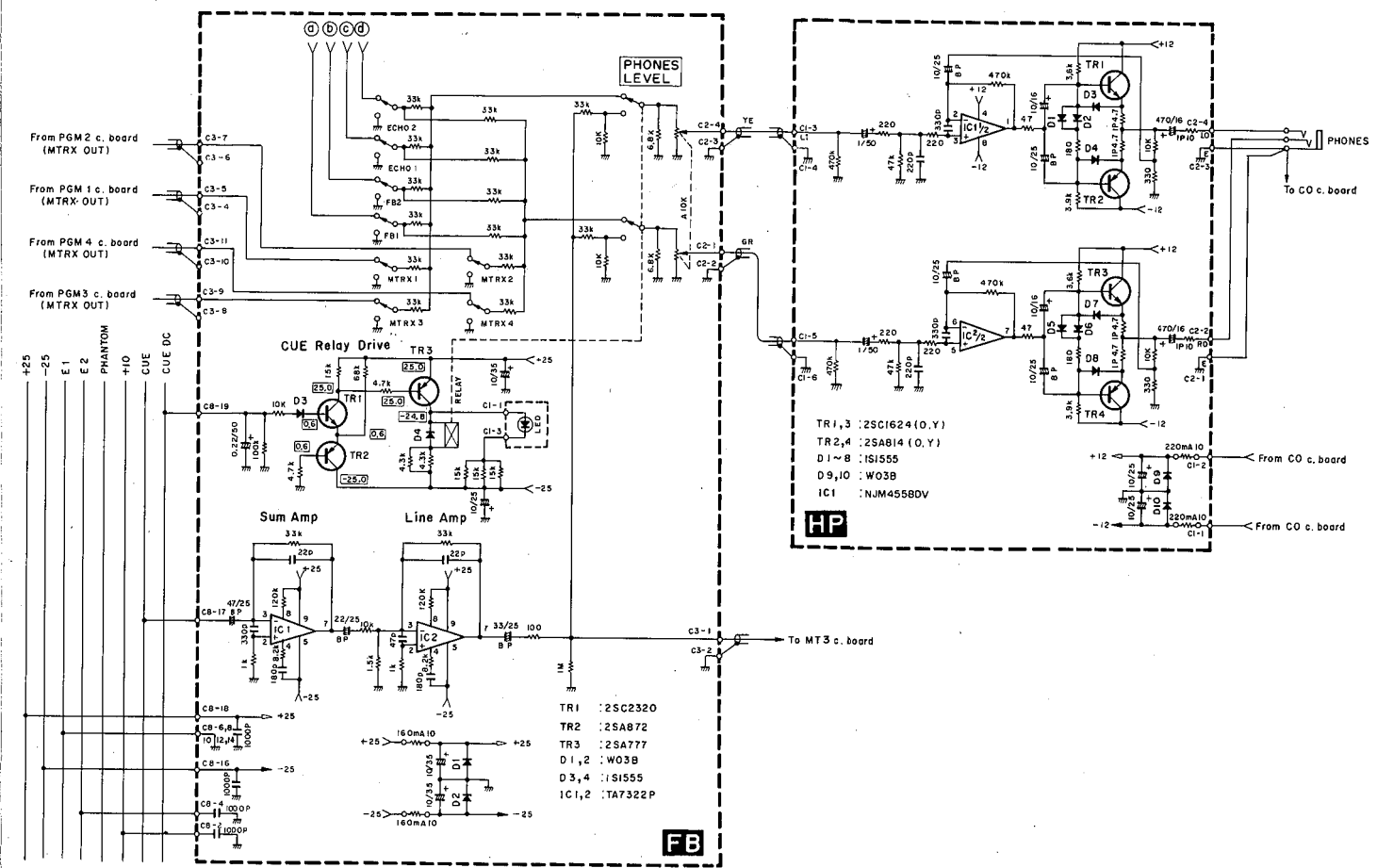
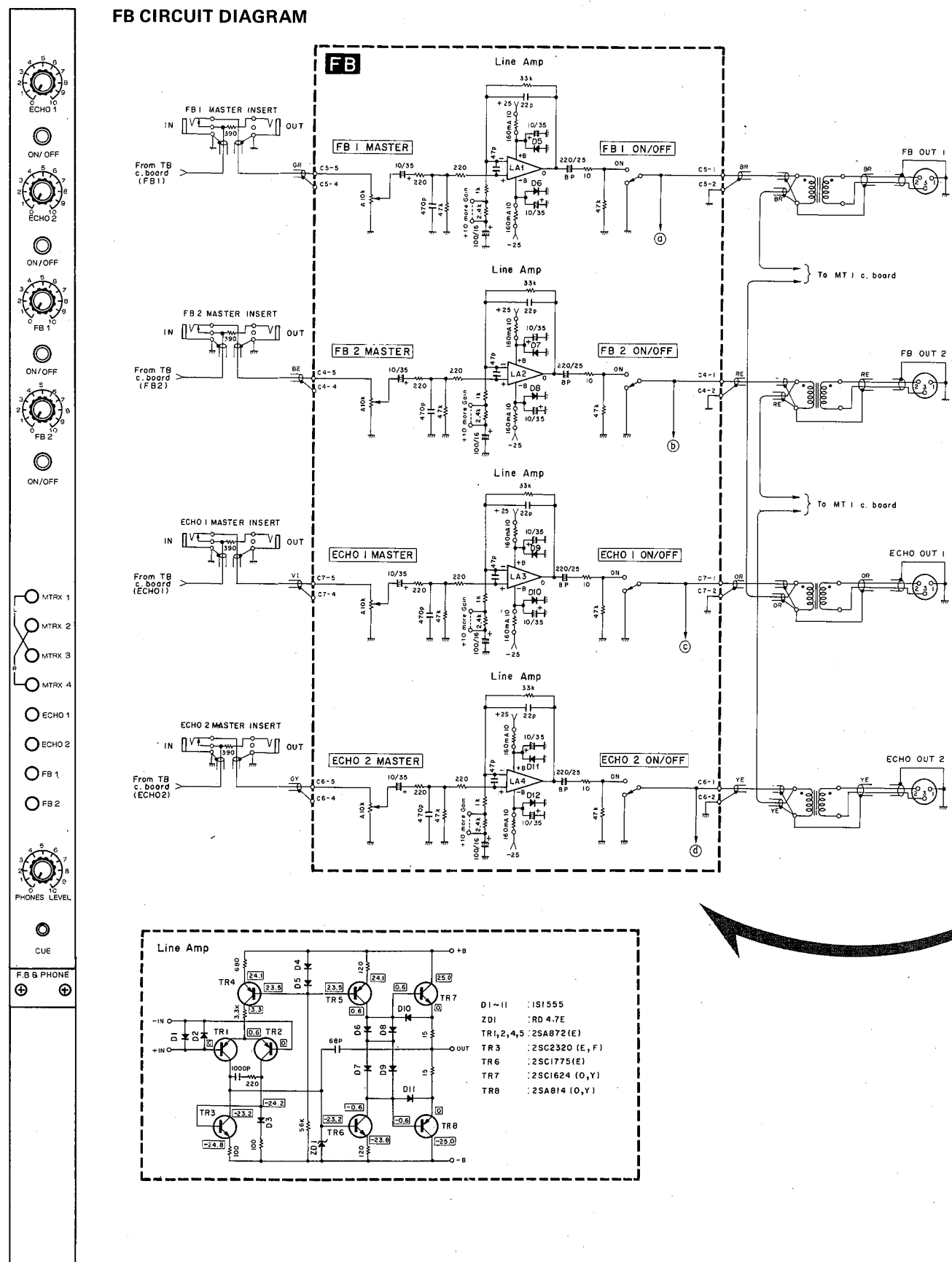


*The circuit itself on each of the p.c boards 1 ~ 4 is one and the same. Only jumper leads J1, J2, J3 or each of them are differently wired. Therefore, any one of PGM 1 ~ 4 can be used for any other one by changing its wiring.

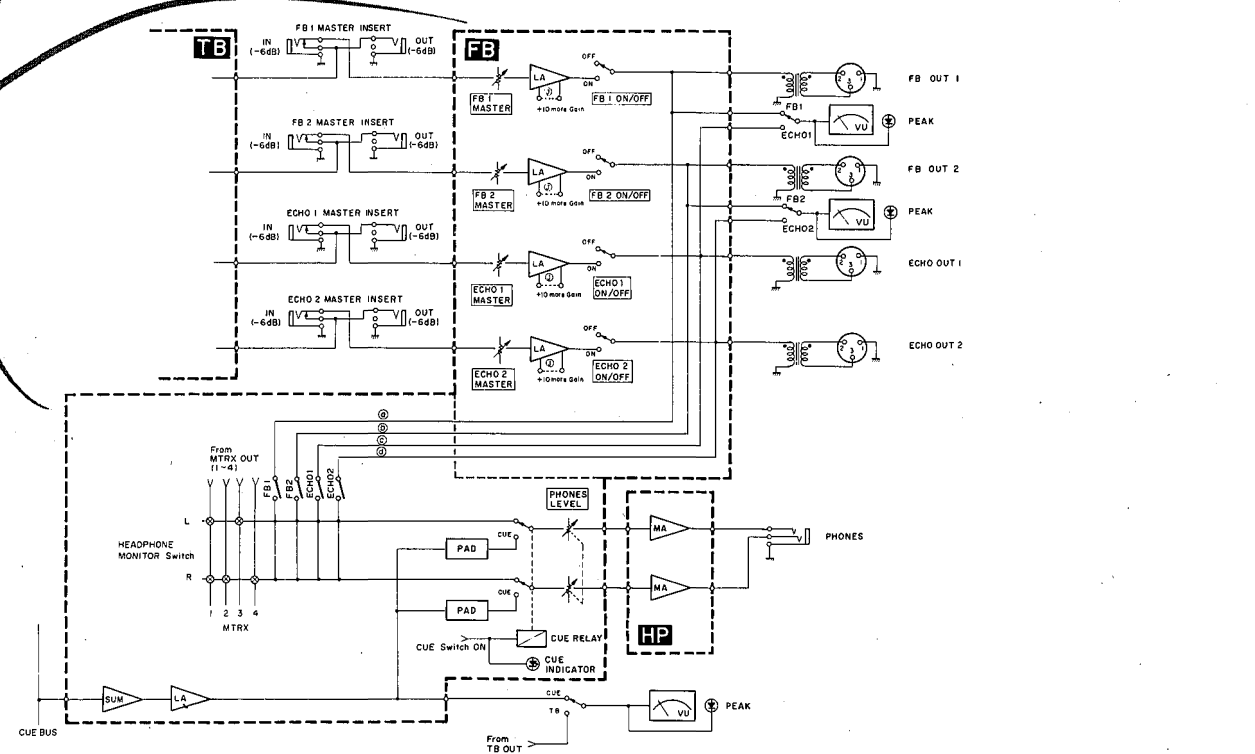
*With a jumper lead connection, Gain of the Line amp can be raised by 10dB.

FB & PHONE MODULE

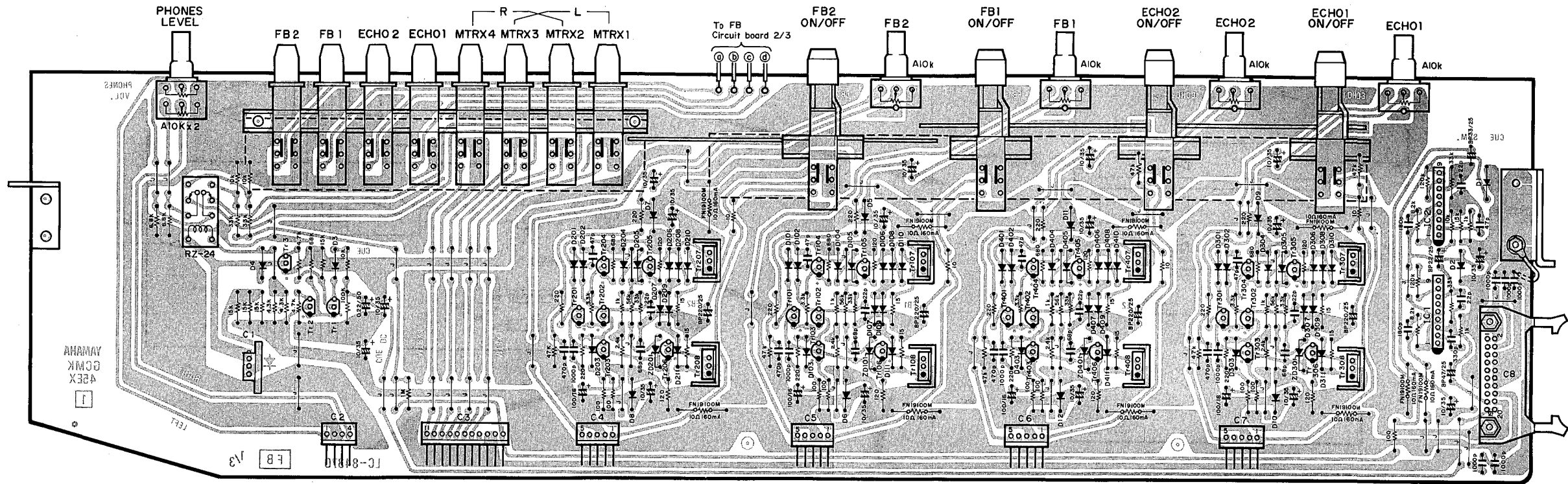
FB CIRCUIT DIAGRAM



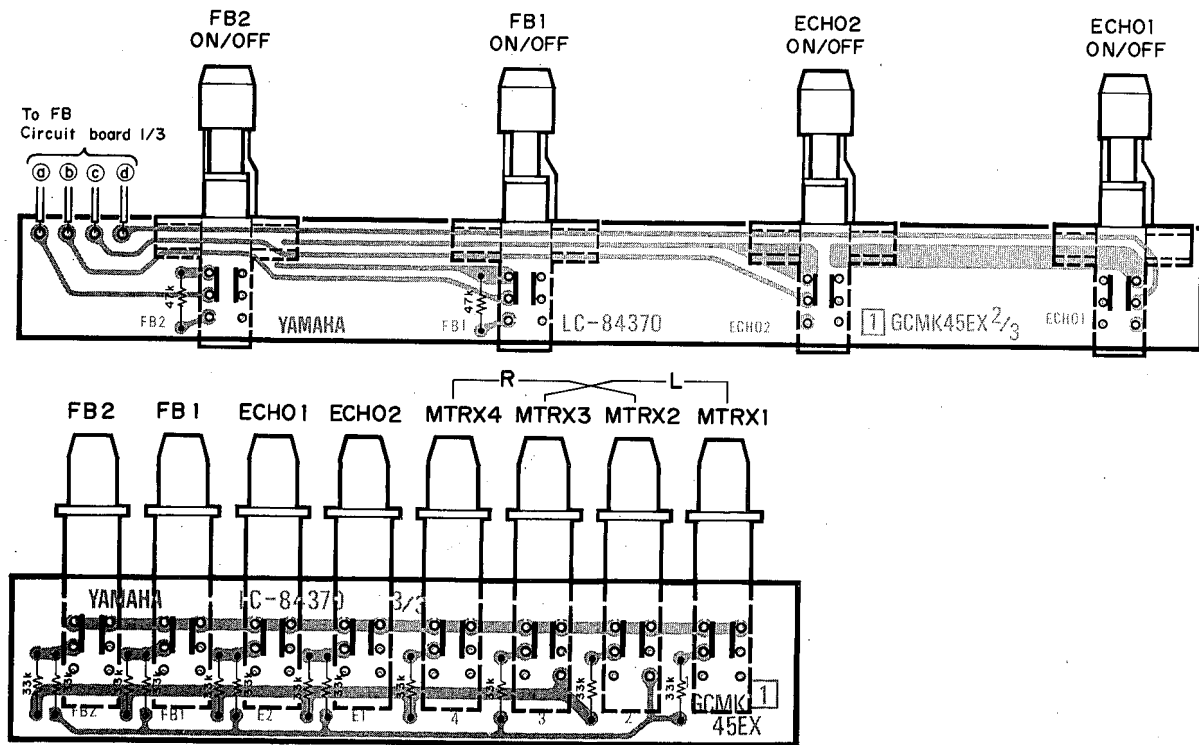
BLOCK DIAGRAM



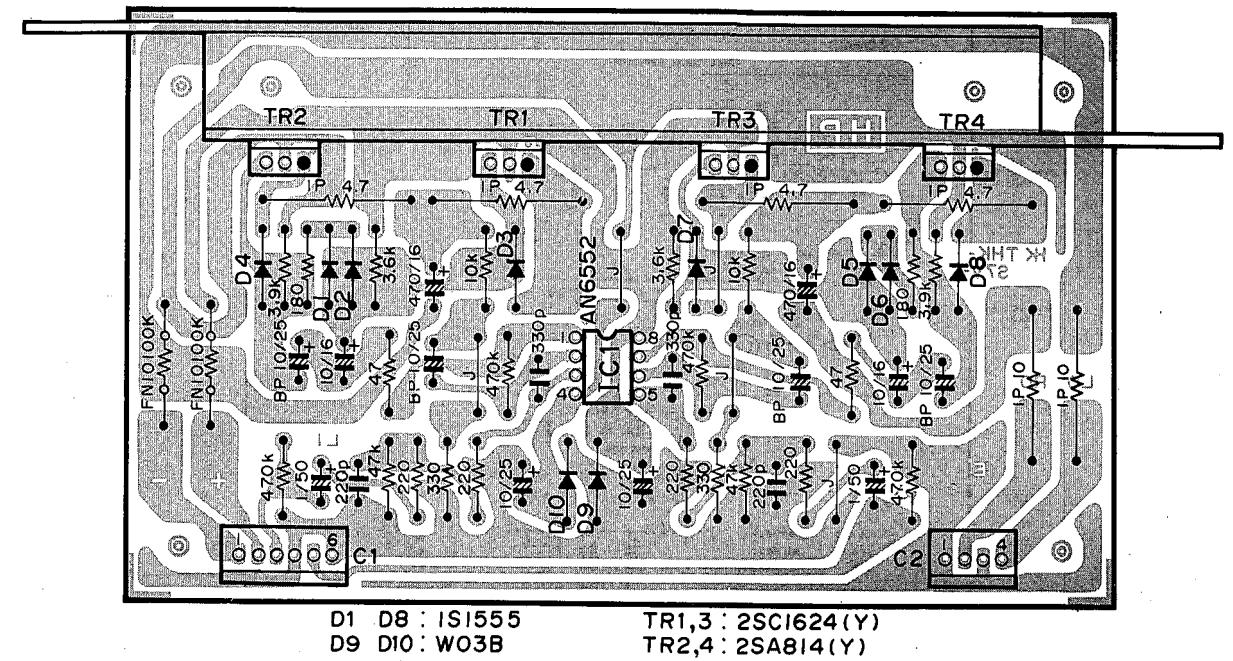
FB C. BOARD NA80670
(Parts Side)



FB C. BOARD DOTTED LINE PART
(Pattern Side)



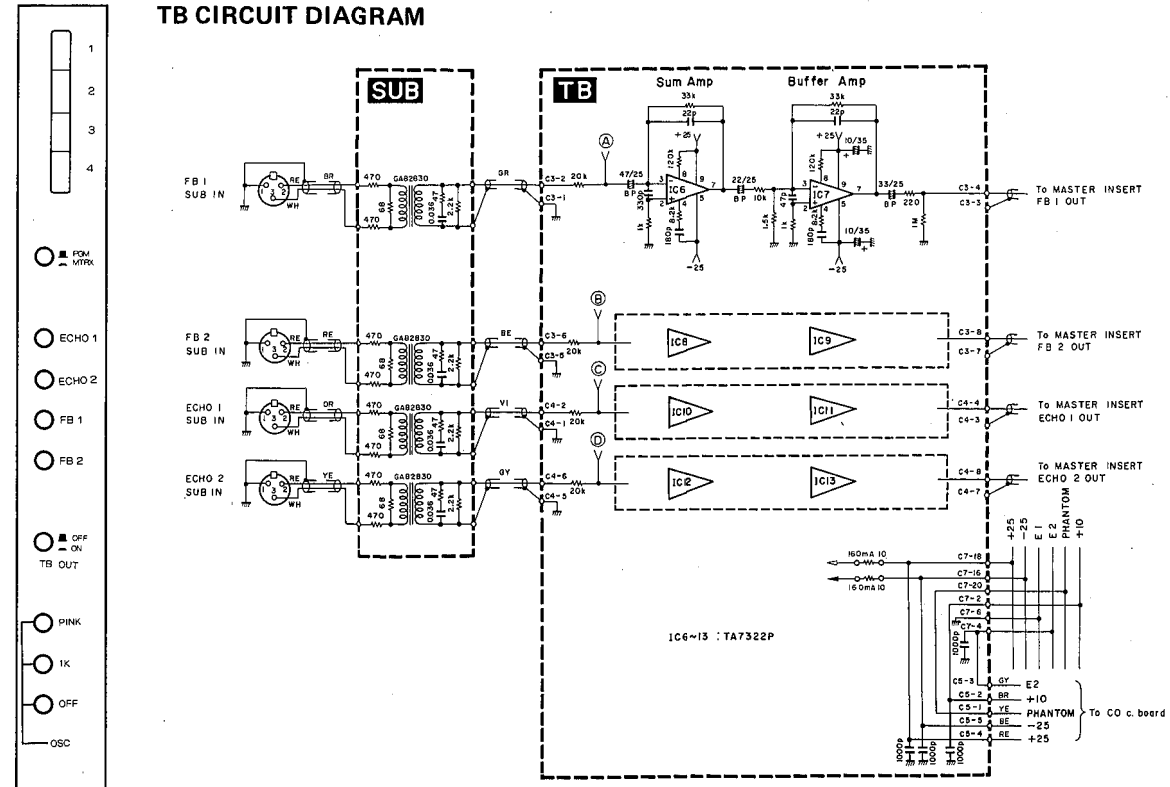
HP C. BOARD NA80636
(Parts Side)



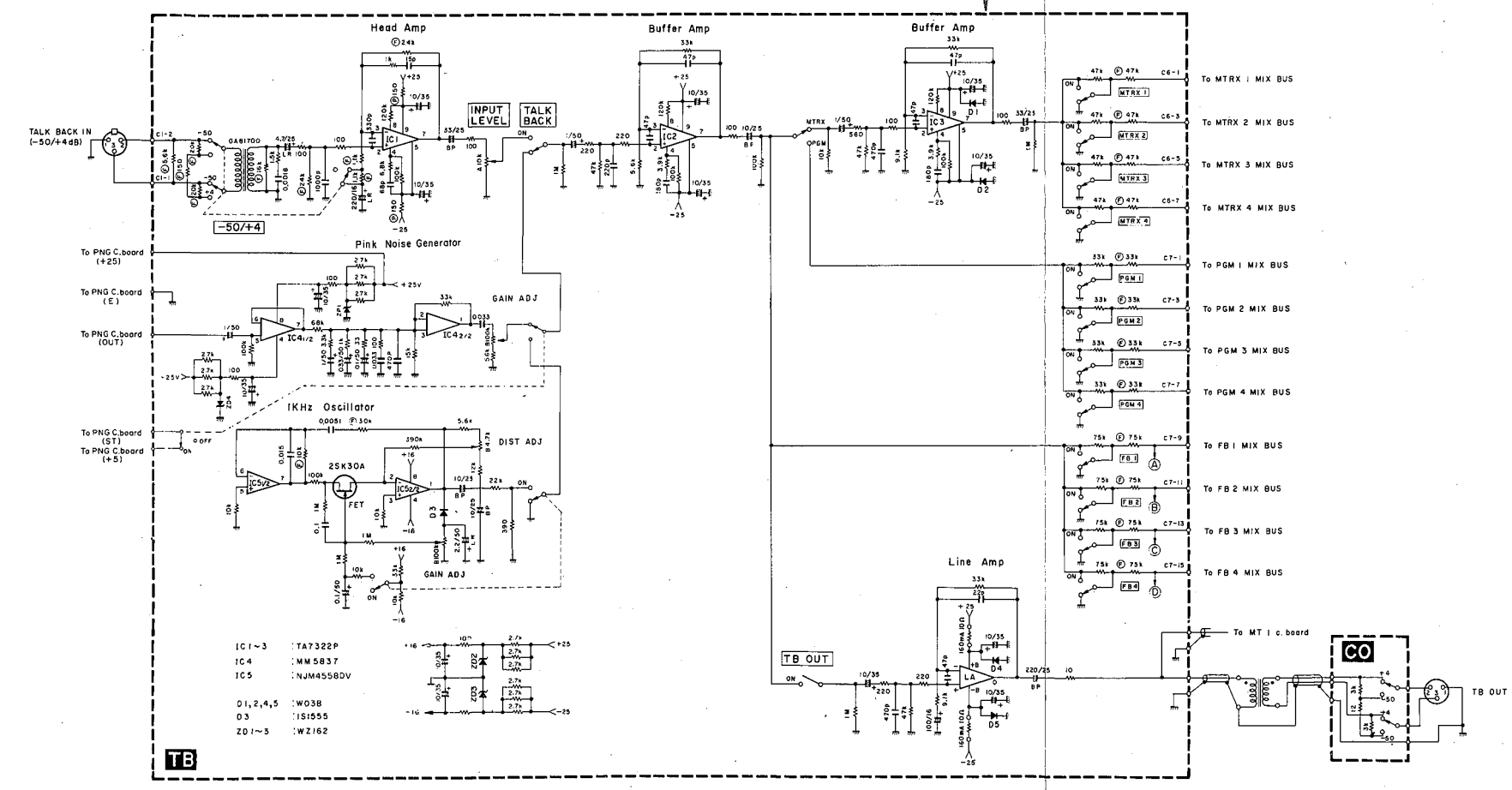
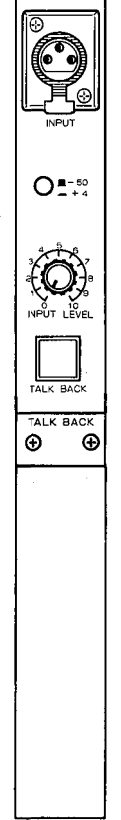
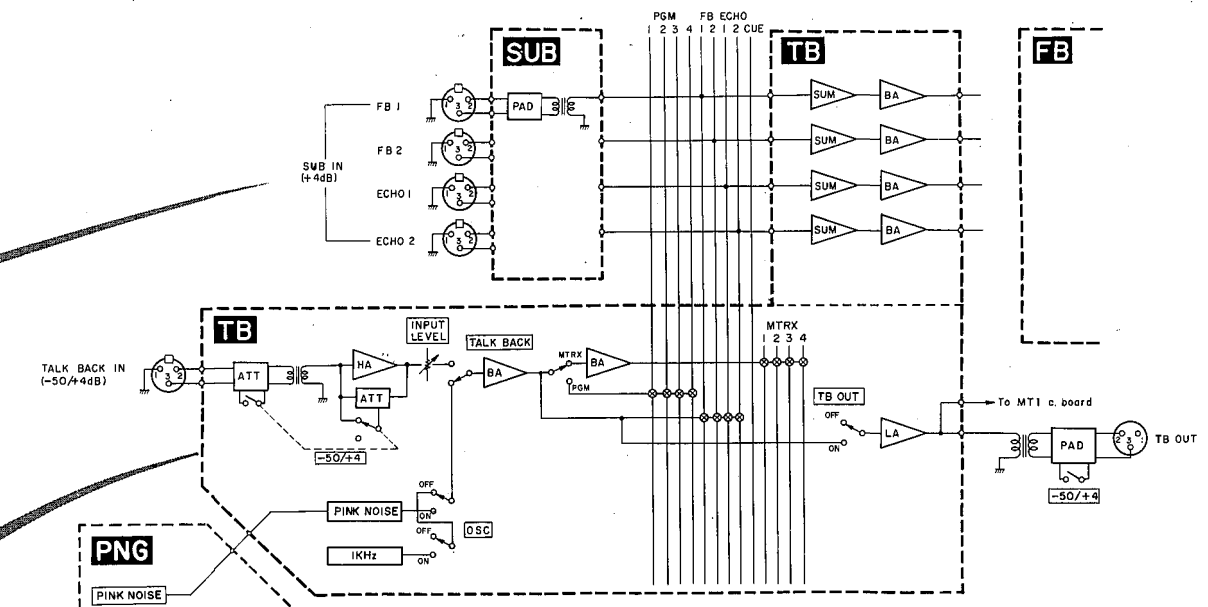
D1 D8 : IS1555 TR1,3 : 2SC1624 (Y)
D9 D10 : W03B TR2,4 : 2SA814 (Y)

TALK BACK MODULE

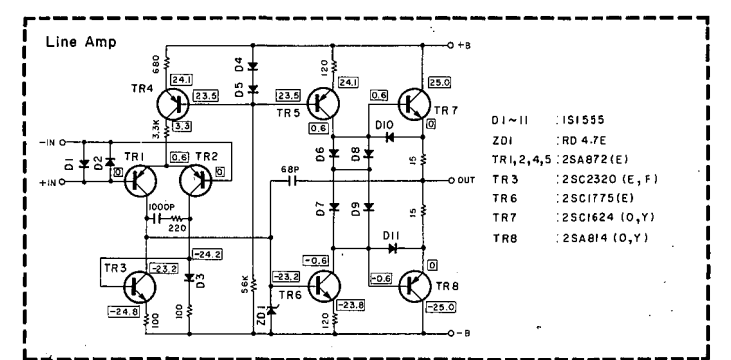
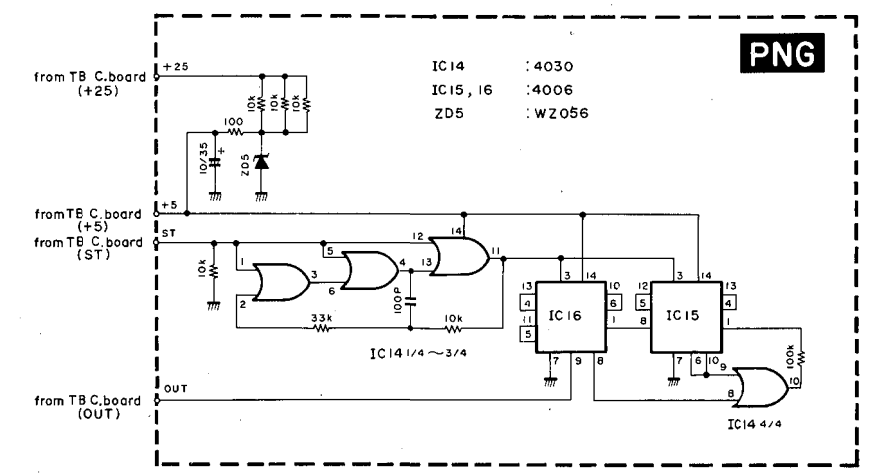
TB CIRCUIT DIAGRAM



BLOCK DIAGRAM

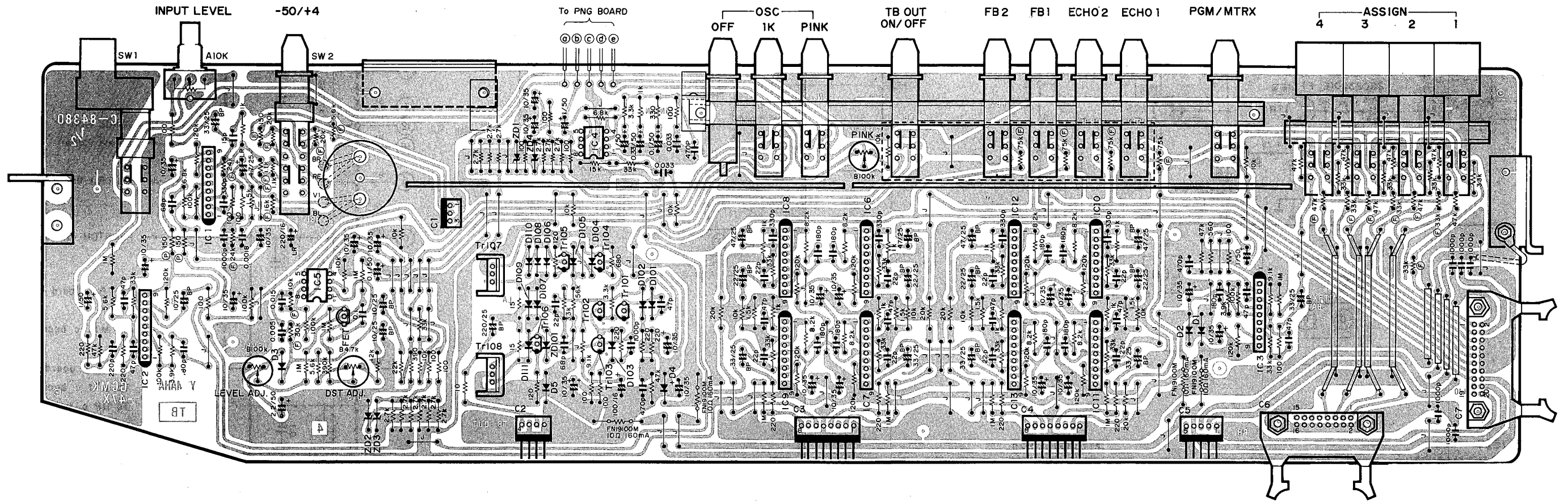


- IC1-3 : TA7322P
- IC4 : MM5837
- IC5 : NJM4558DV
- D1, 2, 4, 5 : W038
- D3 : 1S1555
- ZD1-5 : W2162

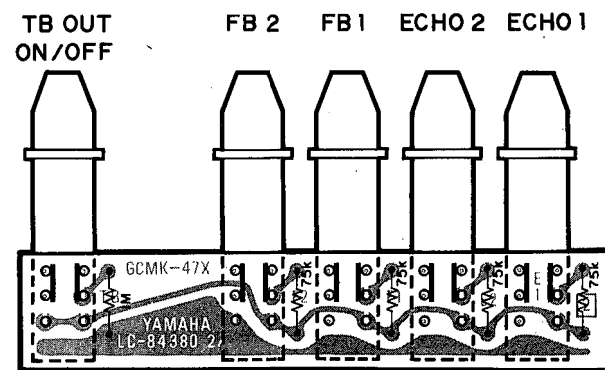


- D1-11 : 1S1555
- ZD1 : RD 4-7E
- TR1, 2, 4, 5 : 2SA872 (E, F)
- TR3 : 2SC2320 (E, F)
- TR6 : 2SC1775 (E)
- TR7 : 2SC1624 (O, Y)
- TR8 : 2SA814 (O, Y)

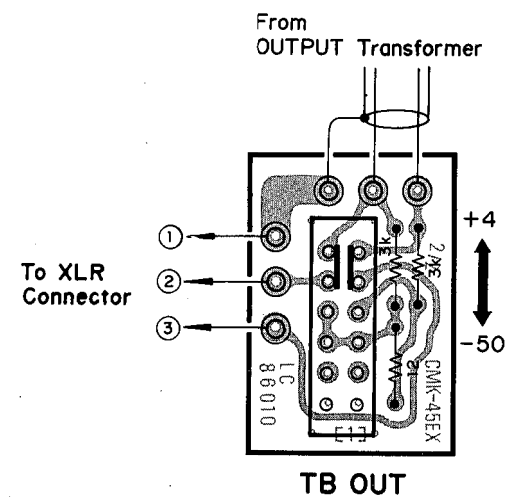
TB C. BOARD NA80904
(Parts Side)



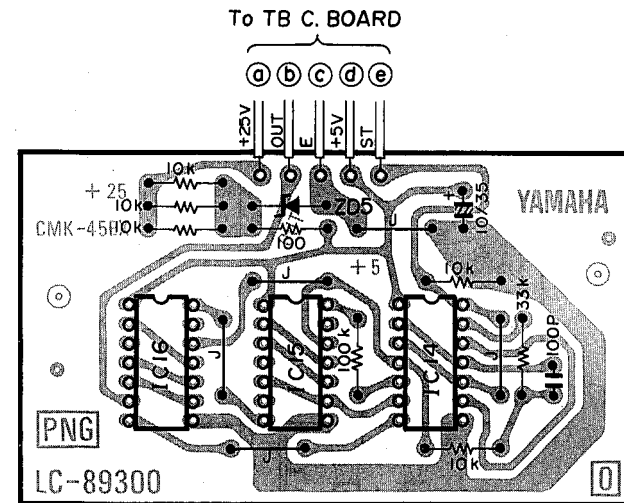
TB C. BOARD DOTTED LINE PART
(Pattern Side)



CO C. BOARD 2/2 NA80679
(Parts Side)

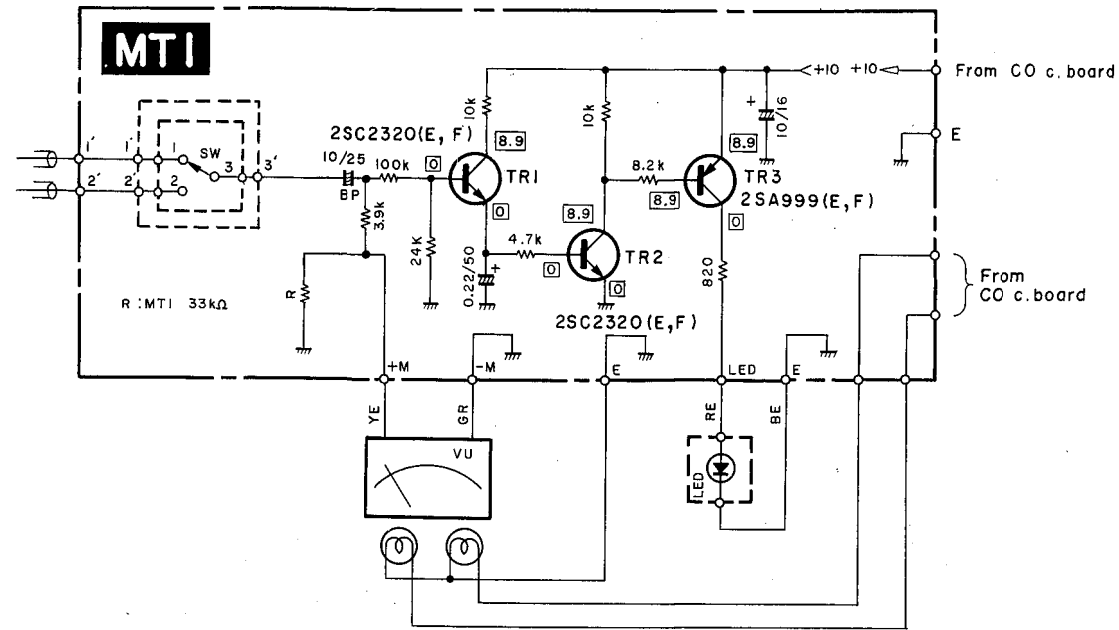


PNG C. BOARD NA80902
(Parts Side)

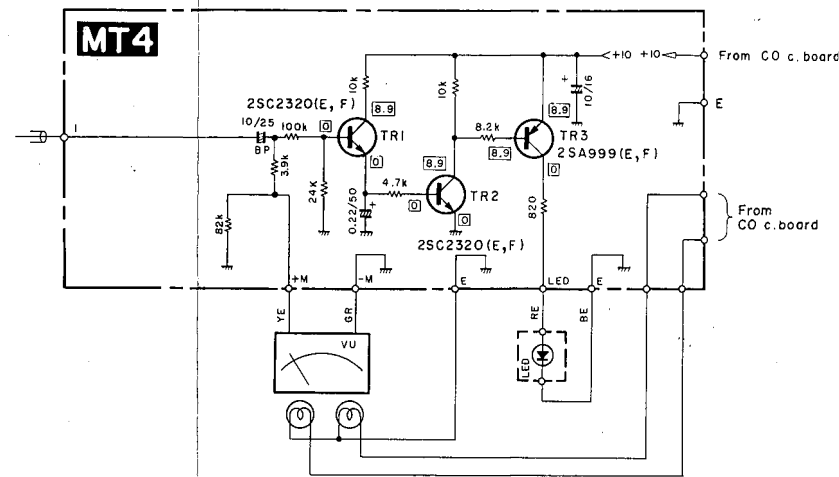


■ MT1 / MT4 CIRCUIT BOARDS

MT1 CIRCUIT DIAGRAM

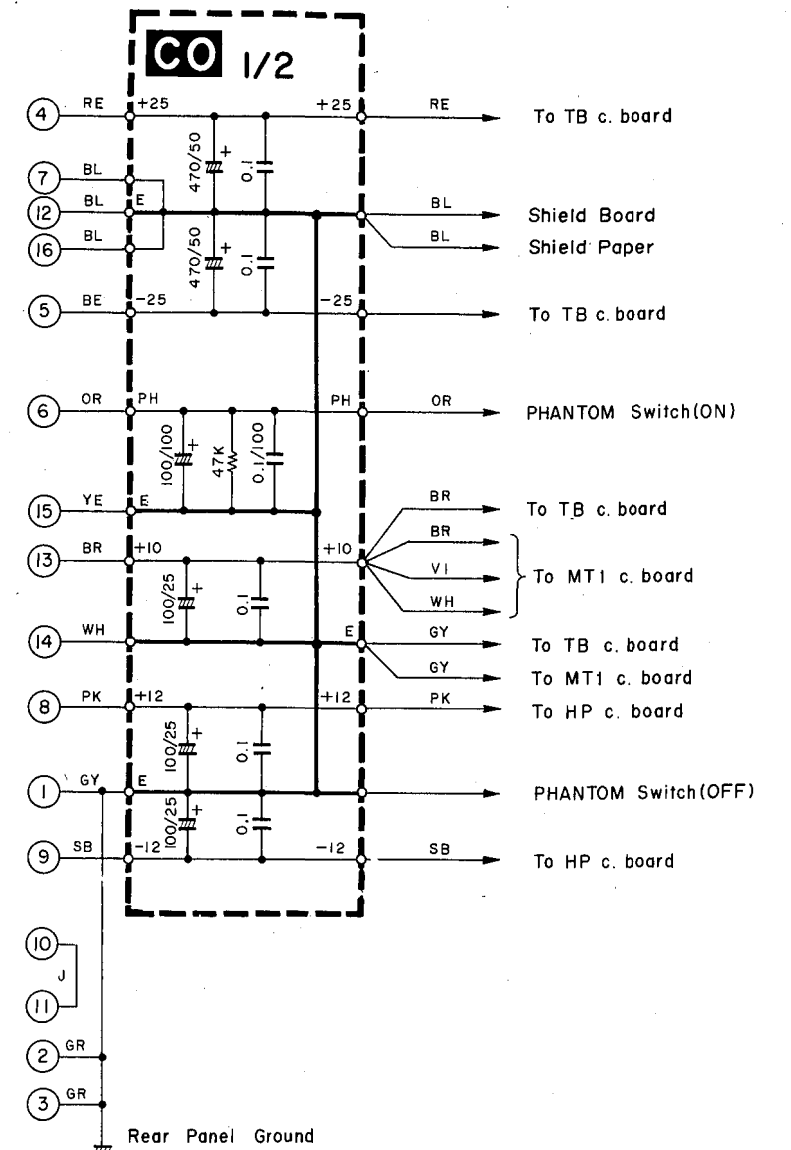


MT4 CIRCUIT DIAGRAM

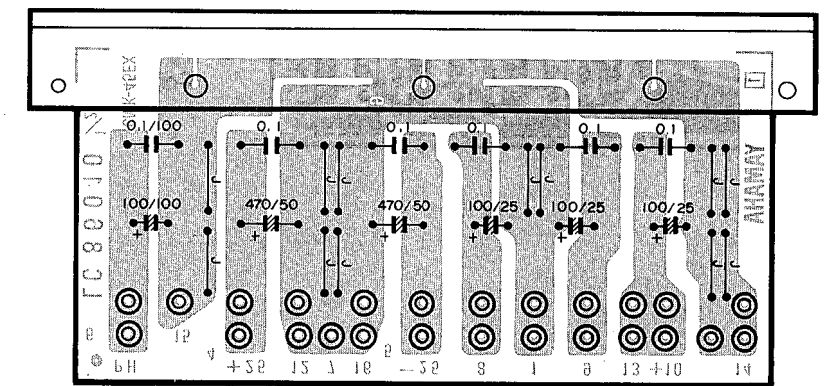


■ CO CIRCUIT BOARD

CO CIRCUIT DIAGRAM

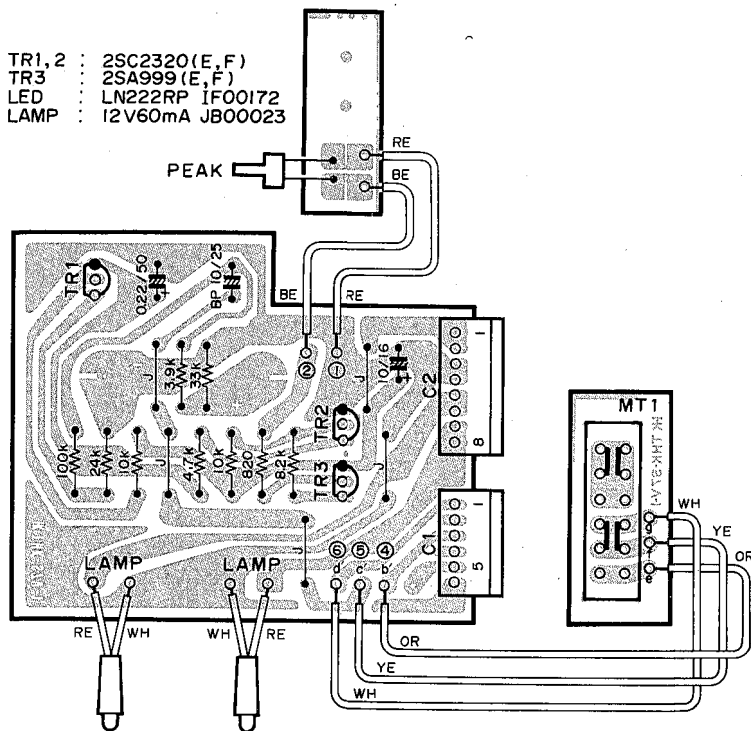


CO C. BOARD 1/2 NA80679

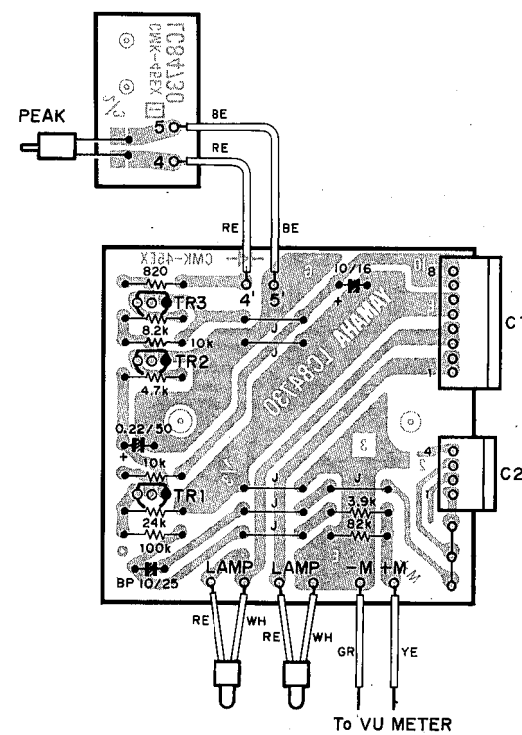


M1532/M1524
MT1 C. BOARD NA80638
(Parts Side)

- TR1, 2 : 2SC2320 (E,F)
- TR3 : 2SA999 (E,F)
- LED : LN222RP 1F00172
- LAMP : I2V60mA JB00023



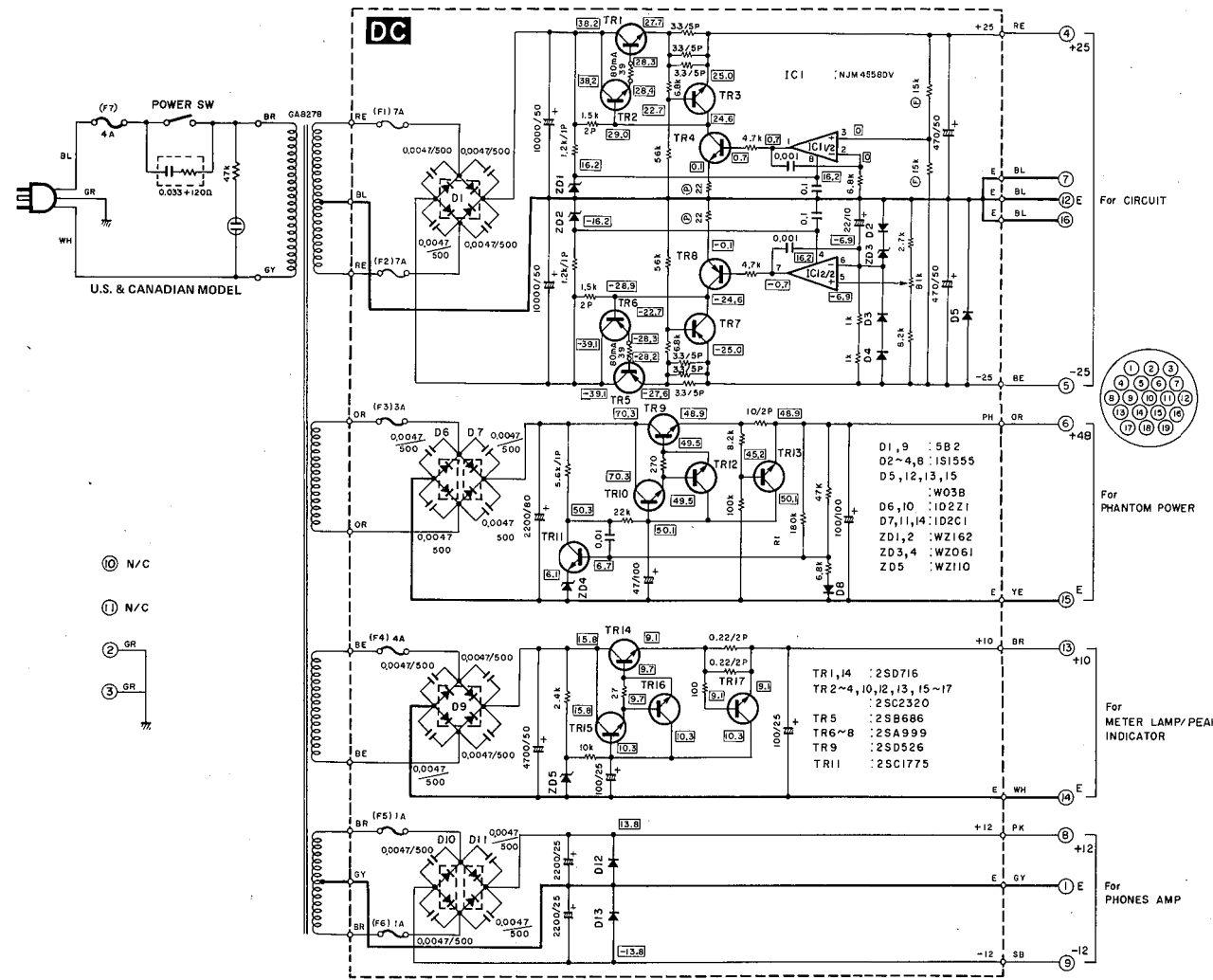
M1532/M1524
MT4 C. BOARD NA80886
(Parts Side)



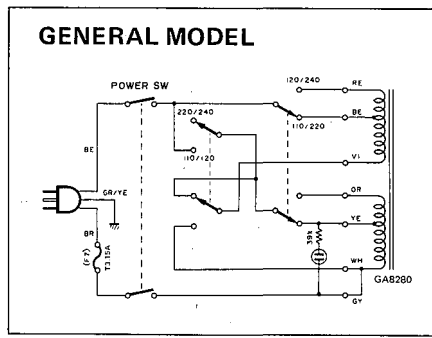
PW1500B

DC CIRCUIT DIAGRAM

DC C. Board US & CANADIAN MODELS NA80882
 (Parts Side) GENERAL MODEL NA80883

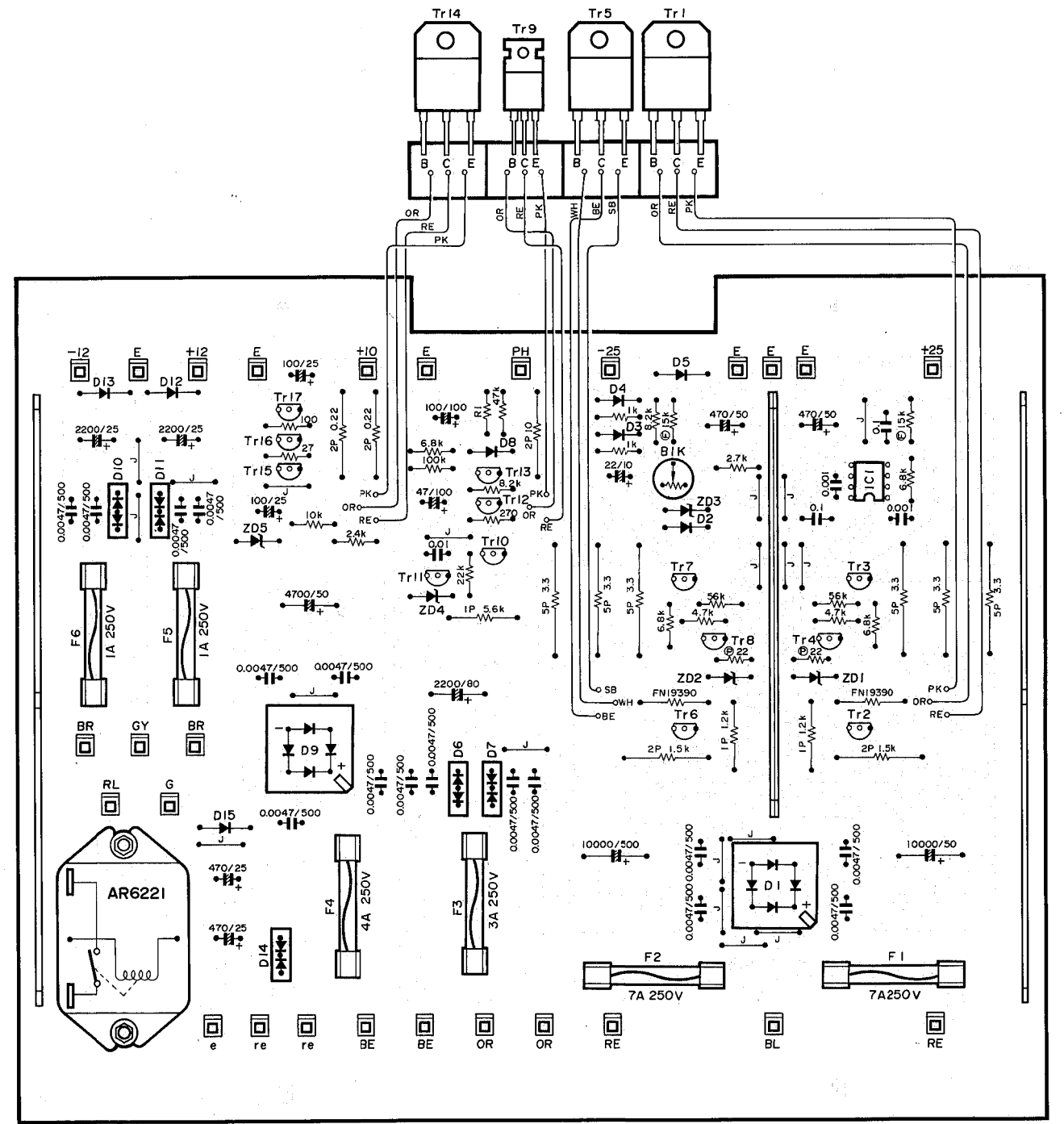


- ① N/C
- ② N/C
- ③ GR
- ④ GR



FUSE:

MODEL	F1, F2	F3	F4	F5, F6	F7
US & CANADIAN	7A 125V KB001530	3A 125V KB00200	4A 125V KB00202	1A 125V KB00106	4A 125V KB00202
GENERAL	T6.3A 250V KB000770	T3.15A 250V KB 000760	T4.0A 250V KB000790	T630mA 250V KB00067	T3.15A 250V KB00076



* R1 (180K) US & Canadian model only

PARTS LIST

M1532 **M1524**

CONTENTS

INPUT MODULE	1
MASTER1 MODULE	5
FB MODULE	7
TB MODULE	9
CABINET	13
METER PANEL Ass'y	16
TOP BOARD Ass'y	18
REAR PANEL Ass'y	19
POWER SUPPLY (PW1500B)	21

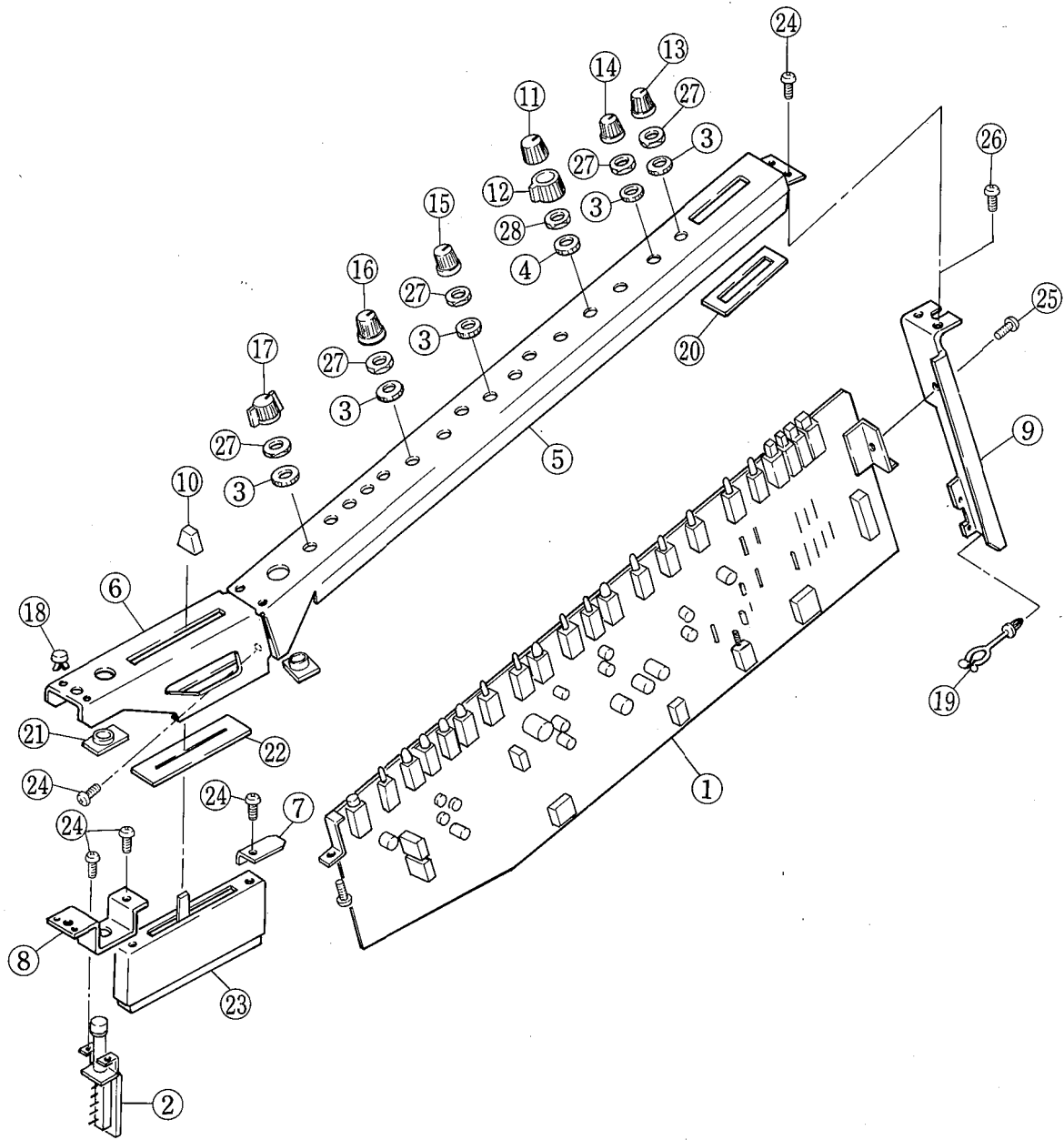
SINCE 1887



YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

INPUT MODULE



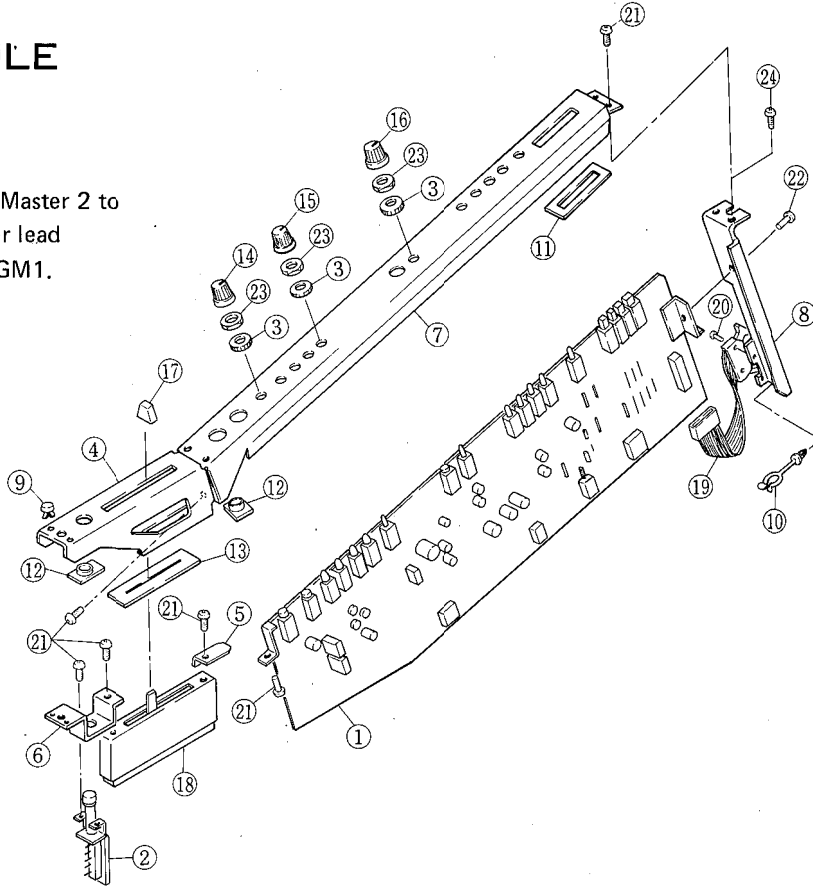
PARTS LIST(ELECTRICITY)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets
	NA:80:66:00	Circuit Board, IN		I N シ ー ト	M1516	
※	NA:80:88:00	- do. - , CSW		C S W "		
	HS:31:10:20	Rotary Variable Resistor	A25k Ω	ロ ー タ リ ー V R		
	HS:31:10:40	- do. -	D-Z 25k Ω	"		
	HS:31:10:50	- do. -		"		
※	KA:50:15:80	Rotary Switch with VR	50k Ω	ロ ー タ リ ー ス イ ッ チ		
※	KA:50:15:70	- do. -		"	INPUT LEVEL	
	iA:08:72:30	Transistor	2SA872 (E, F)	ト ラ ン ジ ス タ		
	iA:09:99:10	- do. -	2SA999 (E, F)	"		
	iC:17:75:00	- do. -	2SC1775 (E, F)	"		
	iC:23:20:10	- do. -	2SC2320 (E, F)	"		
	iH:00:07:20	Diode	W03B	ダ イ オ ー ド		
	iF:00:06:50	Zener Diode	WZ162	ツ ェ ナ ー ダ イ オ ー ド		
	iF:00:17:20	LED	LN222RP	L E D		
	iF:00:21:80	- do. -	LN322GP	"		
	iF:00:21:90	- do. -	LN422YP	"		
	iG:03:99:00	IC	TA7322P	I C		
	iG:00:13:90	- do. -	NJM4558DV	"		
	NE:80:20:00	Module, IC		I C モ ジ ュ ー ル		
※	AA:82:44:00	Circuit Board Holder		シ ー ト ホ ル ダ ー		
	AA:81:42:80	Angle for Input Transformer		ト ラ ン ス 取 付 金 具		
	HU:07:41:50	Metal Film Resistor	15 Ω	金 属 皮 膜 抵 抗		
	HU:07:42:00	- do. -	20 Ω	"		
	HU:07:51:00	- do. -	100 Ω	"		
	HU:07:51:50	- do. -	150 Ω	"		
	HU:07:52:40	- do. -	240 Ω	"		
	HU:07:52:70	- do. -	270 Ω	"		
	HU:07:55:10	- do. -	510 Ω	"		
	HU:07:63:00	- do. -	3k Ω	"		
	HU:07:65:10	- do. -	5.1k Ω	"		
	HU:07:66:20	- do. -	6.2k Ω	"		
	HU:07:66:80	- do. -	6.8k Ω	"		
	HU:07:72:20	- do. -	22k Ω	"		
	HU:07:72:40	- do. -	24k Ω	"		
	HU:07:73:30	- do. -	33k Ω	"		
	HU:47:81:60	- do. -	160k Ω	"		
	HU:47:87:20	- do. -	220k Ω	"		
	GA:80:98:00	Input Transformer		イ ン プ ッ ト ト ラ ン ス		
	HW:79:51:50	Plate Resistor	150 Ω 1/4W	ブ レ ー ト 抵 抗		
	HW:79:53:90	- do. -	390 Ω 1/4W	"		
	HW:99:41:00	Fuse Resistor	10 Ω 160mA	ヒ ュ ー ズ 抵 抗	FN19100M	
	KA:80:18:60	Push Switch	GR	プ ッ シ ュ ス イ ッ チ	HPF	
	KA:80:18:70	- do. -	BE	"	FCHO, PRE/POST	
	KA:80:18:80	- do. -	IV	"	ϕ , FB PRE/POST	
	KA:80:18:90	- do. -	OR	"	PHANTOM	
	KA:80:19:10	- do. -	YE	"	M1/M2	
	KA:80:19:70	- do. -		"	CH, ON/OFF	
	KA:80:18:50	Switch		ウ イ ン キ ー ス イ ッ チ	ASSIGN	
	BA:80:49:80	Ground Angle		ア ー ス 金 具		
	EB:32:61:20	Flat Head Screw	M2.6 x 12 BL	サ ラ 小 ネ ジ		
	ED:33:00:60	Bind Head Screw	M3 x 6 BL	バ イ ン ド 小 ネ ジ		
	ED:34:01:00	- do. -	M4 x 10 BL	"		
	ED:34:01:20	- do. -	M4 x 12 BL	"		

※ New Parts (新規部品)

MASTER1 MODULE

Master 1 can be changed from Master 2 to Master 4 by changing the jumper lead connection on circuit board PGM1.



PARTS LIST (MASTER1 MODULE)

Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets
	NB:82:39:10	Master 1 Module Assembly	マスターTモジュール			
1	NA:80:66:20	Circuit Board, PGM1	PGM1 シート		M1516	
"	NA:80:66:30	- do. -, PGM2	PGM2 "		"	
"	NA:80:66:40	- do. -, PGM3	PGM3 "		"	
"	NA:80:66:50	- do. -, PGM4	PGM4 "		"	
2	NA:80:88:00	- do. -, CSW	CSW "			
3	AA:80:49:50	Spacer	スペーサー			
※ 4	AA:81:89:90	Fader Panel	フェーダーパネル			
※ 5	AA:81:90:10	Fader Angle	フェーダーアングル			
6	AA:81:90:20	CUE Angle	CUE アングル			
7	AA:82:41:70	Master Panel	マスターパネル			
8	BA:80:57:00	Connector Angle	コネクターアングル			
9	CB:06:88:80	Prastic Rivet	プラスチックリベット			
10	CB:81:29:20	Cable Clip	ケーブルクリップ			
※ 11	CB:81:97:10	Switch Escutcheon	スイッチエスカッション			
※ 12	CB:81:97:20	CUE Escutcheon	CUEエスカッション			
※ 13	CB:82:52:70	Dust Proof Cover	防塵クロス			
14	CB:81:61:70	Knob	ツマミ (大)	MTRX Mas		
15	CB:81:61:90	- do. -	GY " (小)	MTRX		
16	CB:81:62:30	- do. -	YE " (大)	EFF		
17	CB:81:22:60	- do. -	RE ツマミ	Fader		
18	HQ:43:00:10	Slide Variable	スライドボリューム			
※ 19	Mi:80:13:00	Flat Cable	フラットケーブル			
20	ED:02:61:50	Bind Head Screw	M2.6 x 15 YE	バインド小ネジ		
21	ED:33:00:60	- do. -	M3 x 6 BL	"		
22	ED:34:00:80	- do. -	M4 x 8 BL	"		
23	EE:30:70:10	Hexagonal Nut	7S BL	特殊六角ナット		
24	ED:35:01:50	Bind Head Screw	M5 x 15 BL	バインド小ネジ		

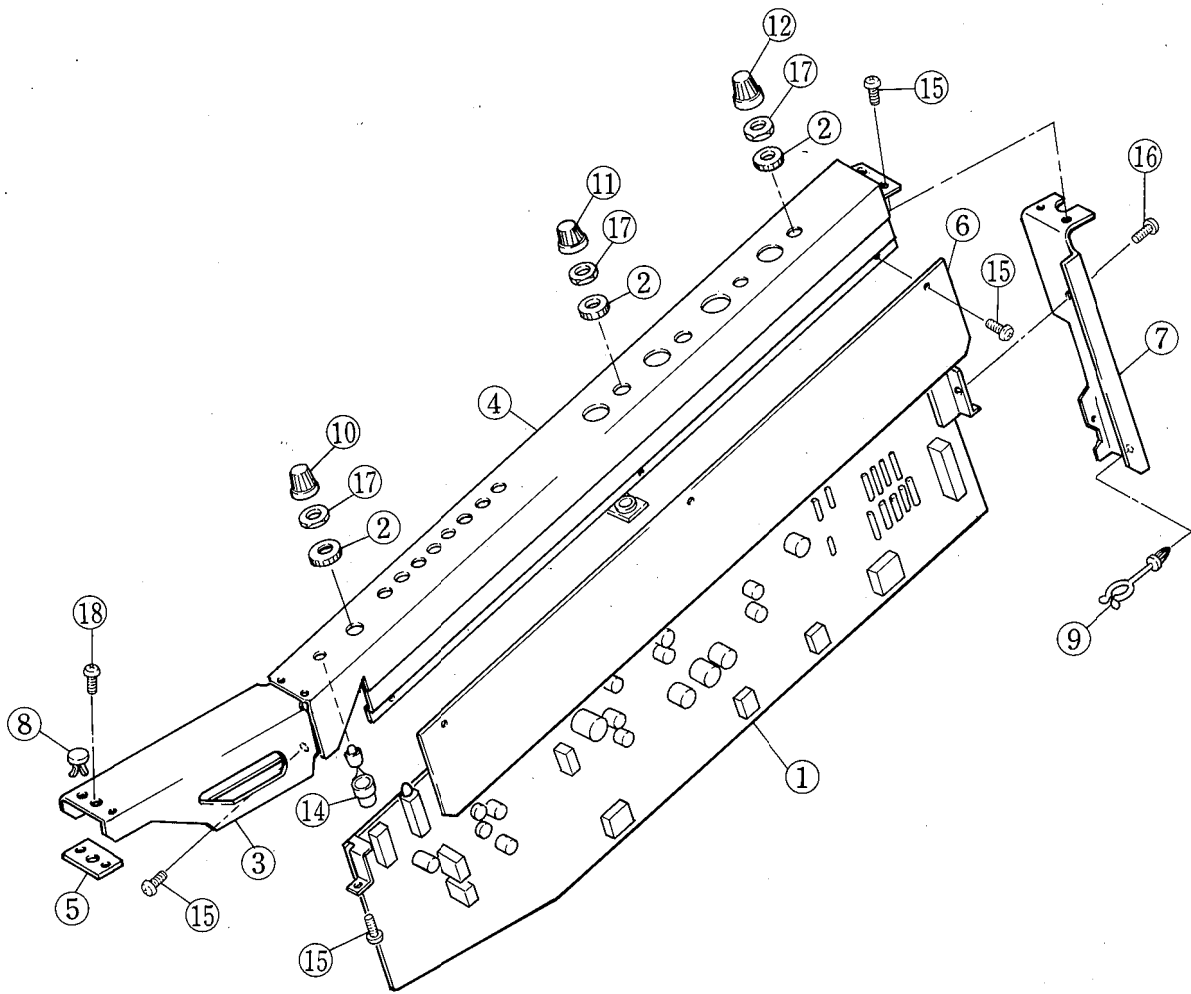
※ New Parts (新規部品)

PARTS LIST(ELECTRICITY)

Ref. No.	Part No.	Description			部 品 名	Remarks	Common Model	Markets
	NA:80 66 20	Circuit Board, PGM1			PGM1 シート		M1516	
	NA:80 66 30	-- do. -- , PGM2			PGM2 "		"	
	NA:80 66 40	-- do. -- , PGM3			PGM3 "		"	
	NA:80 66 50	-- do. -- , PGM4			PGM4 "		"	
※	NA:80 88 00	-- do. -- , CSW			CSW "			
	UK 34 64 70	Bipolar Electrolytic Cap	4.7 μ F	25V	バイポーラケミコン			
	UK 34 73 30	-- do. --	33 μ F	--do.--	"			
	UK 34 74 70	-- do. --	47 μ F	--do.--	"			
	UK 34 72 20	-- do. --	22 μ F	--do.--	"			
	UK 34 82 20	-- do. --	220 μ F	--do.--	"			
	HU 07 73 30	Metal Film Resistor	33k Ω		金属皮膜抵抗			
	HU 07 74 70	-- do. --	47k Ω		"			
※	HU 07 77 50	-- do. --	75k Ω		"			
	HU 99 41 00	Fuse Resistor	10 Ω	160mA	ヒューズ抵抗	FN19100M		
	HS 31 10 20	Rotary Variable	A-25k Ω		ロータリーボリューム	PGM1~4		
	HS 31 10 30	-- do. --	A-10k Ω		"	MTRX MAS EFFECTS IN		
	iA 08 72 30	Transistor	2SA872 (E)		トランジスタ			
	iC 17 75 00	-- do. --	2SC1775 (E)		"			
	iC 23 20 10	-- do. --	2SC2220 (E, F)		"			
	iA 08 14 00	-- do. --	2SA814 (O, Y)		"			
	iC 16 24 00	-- do. --	2SC1624 (O, Y)		"			
	iF 00 00 40	Diode	1S1555		ダイオード			
	iH 00 07 20	-- do. --	W03B		"			
	iF 00 08 30	Zener Diode	RD4.7E		ツェナーダイオード			
	iG 03 99 00	IC	TA7322P		I C			
	KA 80 00 16	Switch			スイッチ	CSW		
※	KA 80 18 50	-- do. --			ウインキースイッチ			
※	KA 80 19 30	Push Switch			プッシュスイッチ			
※	KA 80 19 70	-- do. --			"	PGM, MTRX ON/OFF SW		
※	KA 80 19 90	-- do. --			"	EFFECT IN CUE SW		
※	AA 81 42 90	Circuit Board Holder			シートホルダー			
	BA 80 49 80	Ground Angle			アース金具			
	BA 01 18 70	Heat Sink			放熱板			
	EB 32 61 20	Flat Head Screw	M2.6 x 12	BL	サラ小ネジ			
	ED 33 00 60	Bind Head Screw	M3 x 6	BL	"			
	ED 34 01 20	-- do. --	M4 x 12	BL	"			
	EV 10 02 60	Hexagonal Nut	2.6S	YE	六角ナット			
	EV 10 00 30	-- do. --	3S	YE	"			
	EV 10 00 40	-- do. --	4S	YE	"			
	EV 42 30 40	Toothed Lock Washer	4S	BL	歯付座金			

※ New Parts (新規部品)

■FB MODULE

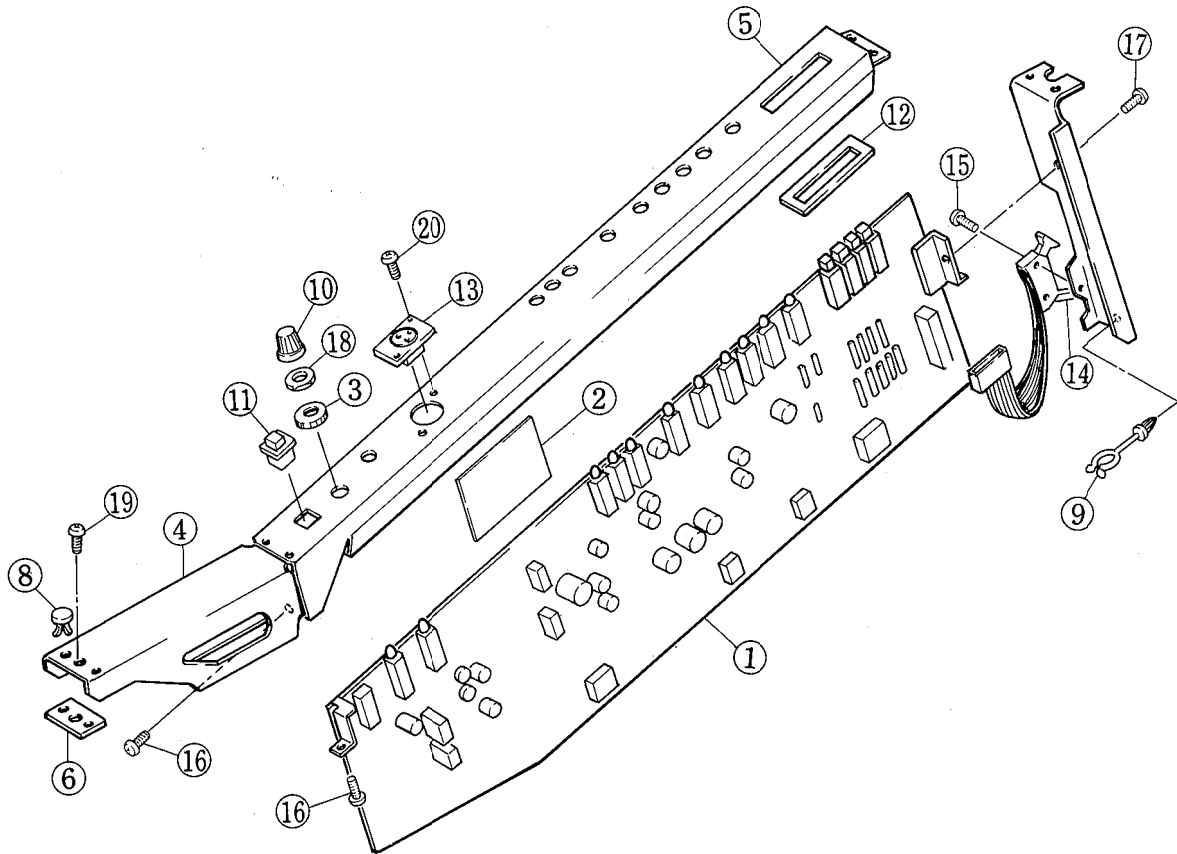


■PARTS LIST(FB MODULE)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets
	NB:82:39:50	FB Module Assembly	F B モジュール			
1	NA:80:67:00	Circuit Board, FB	F B シ ー ト		M1516	
2	AA:80:49:50	Spacer	ス ペ ー サ ー			
※ 3	AA:81:90:00	Panel	パ ネ ル (小)			
※ 4	AA:82:41:80	Panel FB	F B パ ネ ル			
※ 5	AA:82:42:60	Module Spacer	モジュールスペーサー			
※ 6	AA:82:42:70	Shield Plate, FB	F B シ ー ル ド 板			
7	BA:80:57:00	Connector Angle	コネクタースペース			
8	CB:06:88:80	Prastic Rivet	プラスチックリベット			
9	CB:81:29:20	Cable Clip	ケーブルクリップ			
10	CB:81:59:30	Knob	ツ マ ミ (大)	H. PHONE		
11	CB:81:59:40	- do. -	"	FB, MAS		
12	CB:81:61:80	- do. -	"	ECHO MAS		
13	CB:81:97:20	CUE Escutcheon	CUEエスカッション			
14	LB:30:07:20	Housing	ハウジング			
15	ED:33:00:60	Bind Head Screw	M3 x 6 BL	バインド小ネジ		
16	ED:34:00:80	- do. -	M4 x 8 BL	"		
17	EZ:30:70:10	Hexagonal Nut	7S BL	特殊六角ナット		
18	ED:35:01:50	Bind Head Screw	M5 x 15 BL	バインド小ネジ		

※ New Parts (新規部品)

■ TB MODULE

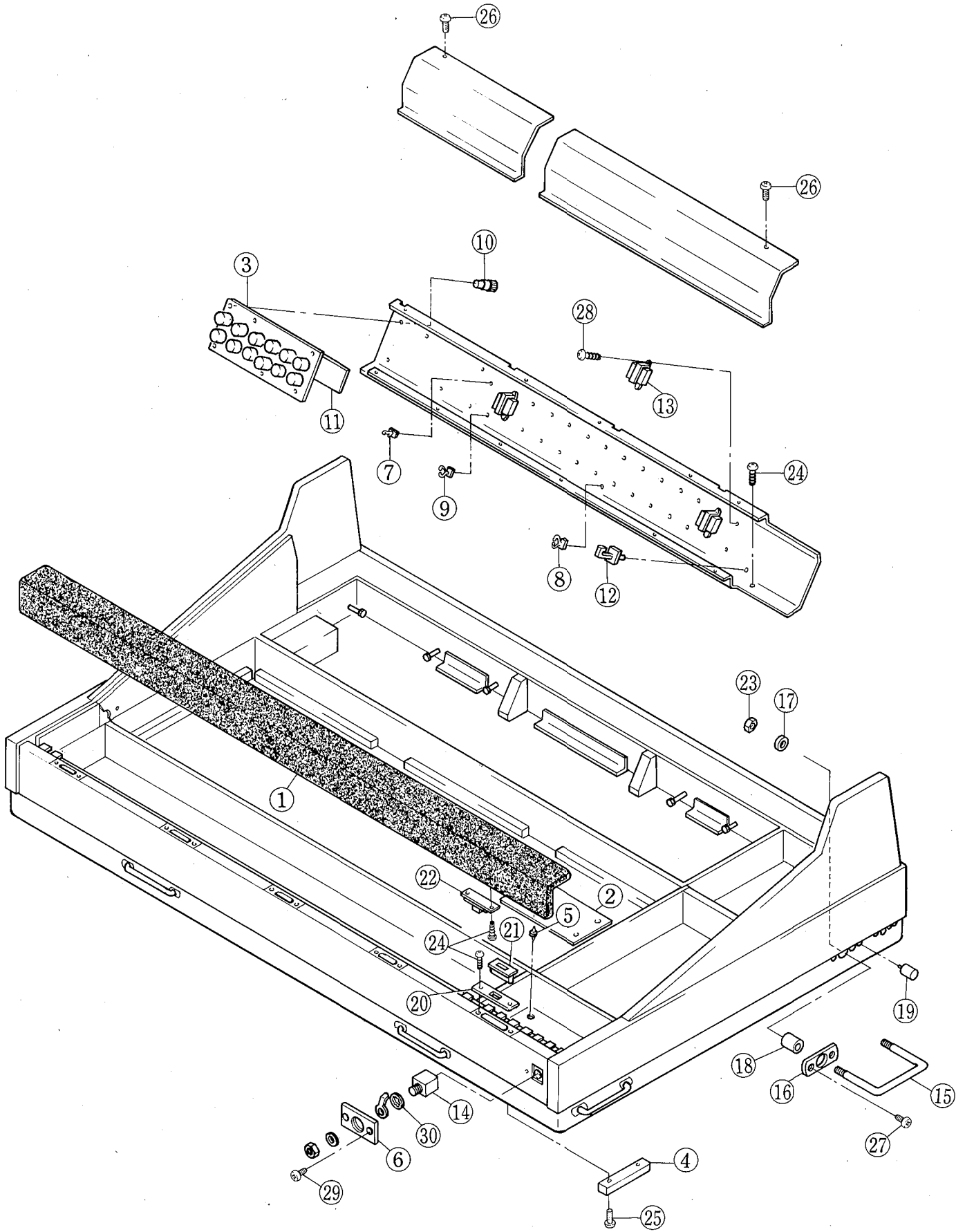


■PARTS LIST(ELECTRICITY)

Ref. No.	Part No.	Description	部 品 名		Remarks	Common Model	Markets
※	NA:80:90:20	Circuit Board, PNG		PNG シ ー ト		M1516	
※	NA:80:90:40	- do. -, TB		TB "			
	iF:00:08:60	Zener Diode	W7-056	ツェナーダイオード			
	iG:00:16:80	IC	TC-4006	I C			
	iG:00:17:90	- do. -	TC-4030	"			
	UK:34:71:00	Bipolar Electrolytic Cap	10 μ F 25V	バイポーラケミコン			
	UK:34:72:20	- do. -	22 μ F -do.-	"			
	UK:34:73:30	- do. -	33 μ F -do.-	"			
	UK:34:74:70	- do. -	47 μ F -do.-	"			
	UK:34:82:20	- do. -	220 μ F -do.-	"			
	UL:13:82:20	Electrolytic Cap (Low Noise Type)	220 μ F 16V	ケミコン(ローノイズ)			
	UL:14:64:70	- do. -	4.7 μ F 25V	"			
	UL:16:62:20	- do. -	2.2 μ F 50V	"			
	HU:07:51:50	Metal Film Resistor	150 Ω	金 属 皮 膜 抵 抗			
	HU:07:61:10	- do. -	1.1k Ω	"			
	HU:07:65:60	- do. -	5.6k Ω	"			
	HU:07:71:00	- do. -	10k Ω	"			
	HU:07:71:60	- do. -	16k Ω	"			
	HU:07:72:00	- do. -	20k Ω	"			
	HU:07:72:40	- do. -	24k Ω	"			
	HU:07:73:00	- do. -	30k Ω	"			
	HU:07:73:30	- do. -	33k Ω	"			
	HU:07:74:70	- do. -	47k Ω	"			
※	HU:07:77:50	- do. -	75k Ω	"			
	HW:79:51:50	Plate Resistor	150 Ω 1/4W	プ レ ー ト 抵 抗			
	HW:99:41:00	Fuse Resistor	10 Ω 160mA	ヒ ュ ー ズ 抵 抗	FN19100M		
	iA:08:72:30	Transistor	2SA872 (E)	ト ラ ン ジ ス タ			
	iC:23:20:10	- do. -	2SC2320 (E, F)	"			
	iC:17:75:00	- do. -	2SC1775	"			
	iA:08:14:00	- do. -	2SA814 (O, Y)	"			
	iC:16:24:00	- do. -	2SC1624 (O, Y)	"			
	iF:00:00:40	Diode	1S1555	ダ イ オ ー ド			
	iH:00:07:20	- do. -	W0.3B	"			
	iE:00:00:10	FET	2SK 30A	F E T			
	iF:00:06:50	Zener Diode	WZ162	ツェナーダイオード			
	iG:00:08:30	- do. -	RD4.7E	"			
	iG:03:99:00	IC	TA7322P	I C			
	iG:00:13:90	- do. -	NJM4558-DV	"			
	GA:81:70:00	Transformer		ト ラ ン ス			
	HT:41:00:40	Solid Volume	4.7k Ω	ソリッドボリューム			
	HT:41:00:90	- do. -	100k Ω	"			
	HS:31:10:30	Rotary Volume	A-10k Ω	ロータリーボリューム			
	KA:80:18:50	Push Switch	ASSIGN	プッシュスイッチ			
	KA:80:19:20	- do. -	+ 4/-50	"			
	KA:80:19:50	- do. -	ASSIGN (FB, ECHO)	"			
	KA:80:19:60	- do. -	TB	"			
	AA:81:42:60	Connector Plate		キャノン取付金具			
	AA:81:42:90	Circuit Board Holder		シ ー ト ホ ル ダ			
※	AA:82:42:10	Circuit Board Holder Angle		シ ー ト ホ ル ダ 金 具			
	BA:01:18:70	Heat Sink		放 熱 板			
	BA:80:49:80	Ground Angle		ア ー ス 金 具			
	ED:33:00:60	Bind Head Screw	M3 x 6 BL	バ イ ン ド 小 ネ ジ			
	ED:34:01:20	- do. -	M4 x 12 BL	"			

※ New Parts (新規部品)

■ CABINET



PARTS LIST(CABINET)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets
* 1	DA:82:20:80	Pad Assembly	パッド集成	M1532/M1524		
* "	DA:82:22:90	- do. -	"	M1516A		
2	NA:80:63:60	Circuit Board, HP	# 8590 HP シート		M1516	
3	NA:80:67:40	- do. - , SUB	# 8439 SUB シート		M1516	
4	AA:01:81:80	Leg	スベリ金具		M1516	
5	CB:08:70:00	Holder, Circuit Board	シートホルダー		M1516	
6	CB:81:58:70	Head Phone Panel	ヘッドホンパネル		M1516	
7	CB:81:29:20	Cable Clip	# 311 ケーブルクリップ		M1516	
8	CB:81:68:30	- do. -	# 800 "		M1516	
9	CB:81:68:50	- do. -	# 1219 "		M1516	
10	CB:81:78:10	Holder, Circuit Board	# 303 PC サポート		M1516	
11	CB:81:80:00	Stopper, Circuit Board	シート押さえ		M1516	
12	CB:81:80:20	Cable Strap	ケーブルストラップ		M1516	
13	GA:81:72:00	Output Transformer	出力トランス		M1516	
14	LB:20:15:40	Phone Jack	ホンジャック		M1516	
15	AA:80:75:40	Handle	把手本体		M1516	
16	AA:81:43:30	Flange, Handle	把手フランジ		M1516	
17	AA:81:43:40	Stopper, Handle	ストッパー		M1516	
18	CB:81:15:50	Handle Collar	把手カラー		M1516	
19	CB:81:15:40	Rubber Button	ゴムボタン		M1516	
20	AA:81:43:20	Ratch Plate	ラッチプレート		M1516	
21	CB:81:67:60	Ratch	# 246 ラッチ		M1516	
22	CB:81:67:70	Strike	# 1552 ストライク		M1516	
23	EV:10:01:00	Hexagonal Nut	M10 ZMC2-Y 六角ナット			
24	Ei:33:51:60	Bind Head Tapping Screw	M3.5 x 16 BL バインドタッピングネジ			
25	EB:34:03:00	Flat Head Screw	M4 x 30 BL 皿小ネジ			
26	Ei:33:01:00	Bind Head Tapping Screw	M3 x 10 BL バインドタッピングネジ			
27	ER:33:51:60	Oval Head Wood Screw	M3.5 x 16 BL 丸皿木ネジ			
28	Ei:34:01:00	Bind Head Tapping Screw	M4 x 10 BL バインドタッピングネジ			
29	ER:33:11:30	Oval Head Wood Screw	M3.1 x 13 BL 丸皿木ネジ			
30	EV:41:00:98	Toothed Lock Washer	A9S 歯付座金			
	CB:81:06:80	Indication Chip	CH-1 パネル表示チップ			
	CB:81:06:70 + n x 10	- do. -	CH-n "			
	CB:81:09:90	- do. -	CH-32 "			
	CB:81:10:00	- do. -	MASTER-1 "			
	CB:81:10:10	- do. -	MASTER-2 "			
	CB:81:10:20	- do. -	MASTER-3 "			
	CB:81:10:30	- do. -	MASTER-4 "			
	CB:81:10:80	- do. -	FB & PHONE "			
	CB:81:11:00	- do. -	TALK BACK "			

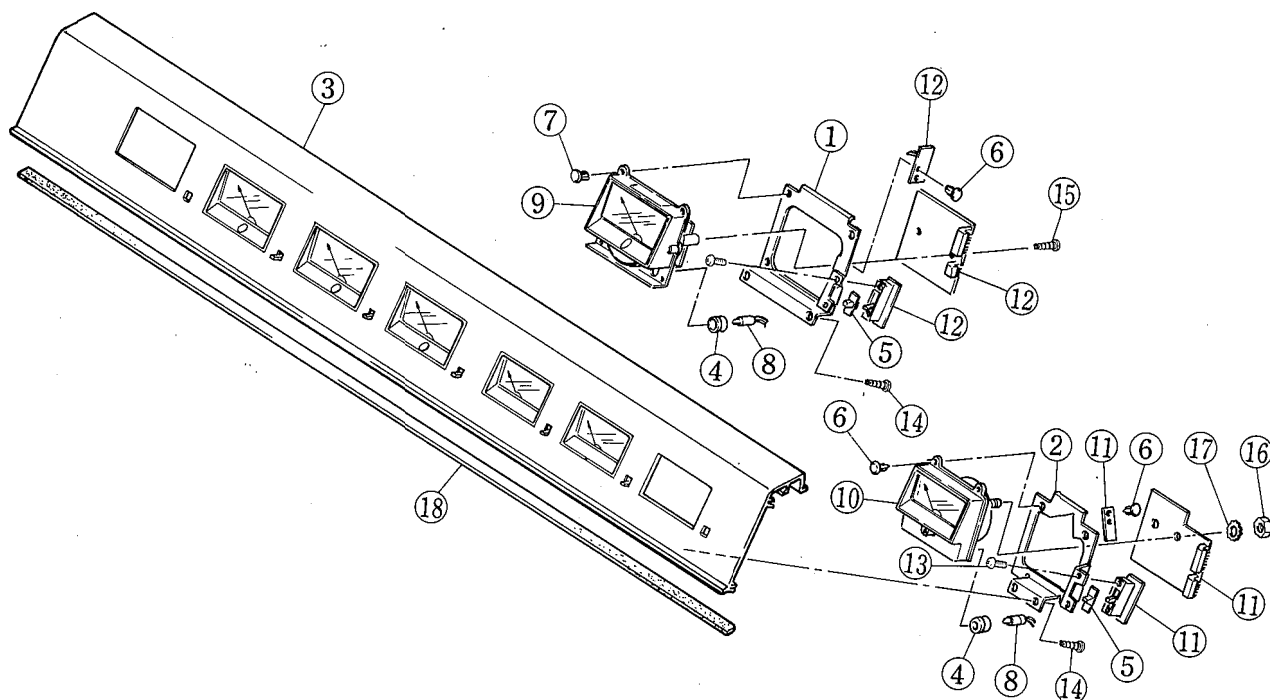
* New Parts (新規部品)

■ PARTS LIST (ELECTRICITY)

Ref. No.	Part No.	Description	部 品 名		Remarks	Common Model	Markets
	NA:80:63:60	Circuit Board, HP	#8590	HP シ ー ト		M1516	
				"			
	UJ:13:71:00	Electrolytic Cap.	10 μ F 16V	ケ ミ コ ン			
	UW:83:84:70	- do. -	470 μ F 16V	"			
	UW:64:71:00	- do. -	10 μ F 25V	"			
	UJ:16:61:00	- do. -	1 μ F 50V	"			
	UK:34:71:00	Bipolar Electrolytic Cap.	10 μ F 25V	B P ケ ミ コ ン			
	HL:31:34:70	Metal Oxide Film Resistor	4.7 Ω 1W	酸 金 被 膜 抵 抗			
	HL:31:41:00	- do. -	10 Ω 1W	"			
	HW:90:41:00	Fuse Resistor	10 Ω	ヒ ュ ー ズ 抵 抗			
	iA:08:14:00	Transistor	2SA814 (O,Y)	ト ラ ン ジ ス タ			
	iC:16:24:00	- do. -	2SC1624 (O,Y)	"			
	iF:00:00:40	Diode	1S1555	ダ イ オ ー ド			
	iH:00:07:20	- do. -	W03B	"			
	iG:00:13:90	I C	NJM4558DV	I C			
	iL:00:05:80	Insulation Base	AC234	マ イ カ ベ ー ス			
	CB:07:28:80	Insulation Bush		ゼ ツ エ ン プ ッ シ ュ			
	LB:40:05:70	Base Pin, 2.5 pitch	TE B4P-SHF	2.5ピッチベースピン			
	LB:60:29:40	- do. -	TE B6P-SHF	"			
	BA:80:48:50	Heat Sink, HP		放 熱 板			
	EA:02:60:80	Pan Head Screw	M2.6 x 8 Ye	ナ ベ 小 ネ ジ			
	EV:30:02:60	Spring Washer	M2.6	バ ネ 座 金			
	Ei:33:00:80	Binded Tapping Screw		バ イ ン ド タ ッ ピ ン グ ネ ジ			
※	NA:80:67:40	Circuit Board, SUB	#8439	SUB シ ー ト			
※	GA:82:83:00	Input Transformer		イ ン プ ッ ト ト ラ ン ス			
	LB:60:24:90	Base Pin 2.5 pitch	TE B8P-SHF	2.5ピッチベースピン			
	Mi:80:11:70	Flat Cable Assembly	16P	フ ラ ッ ト ケ ー ブ ル Ass'y			
	Mi:80:12:90	- do. -	20P	"			

※ New Parts (新規部品)

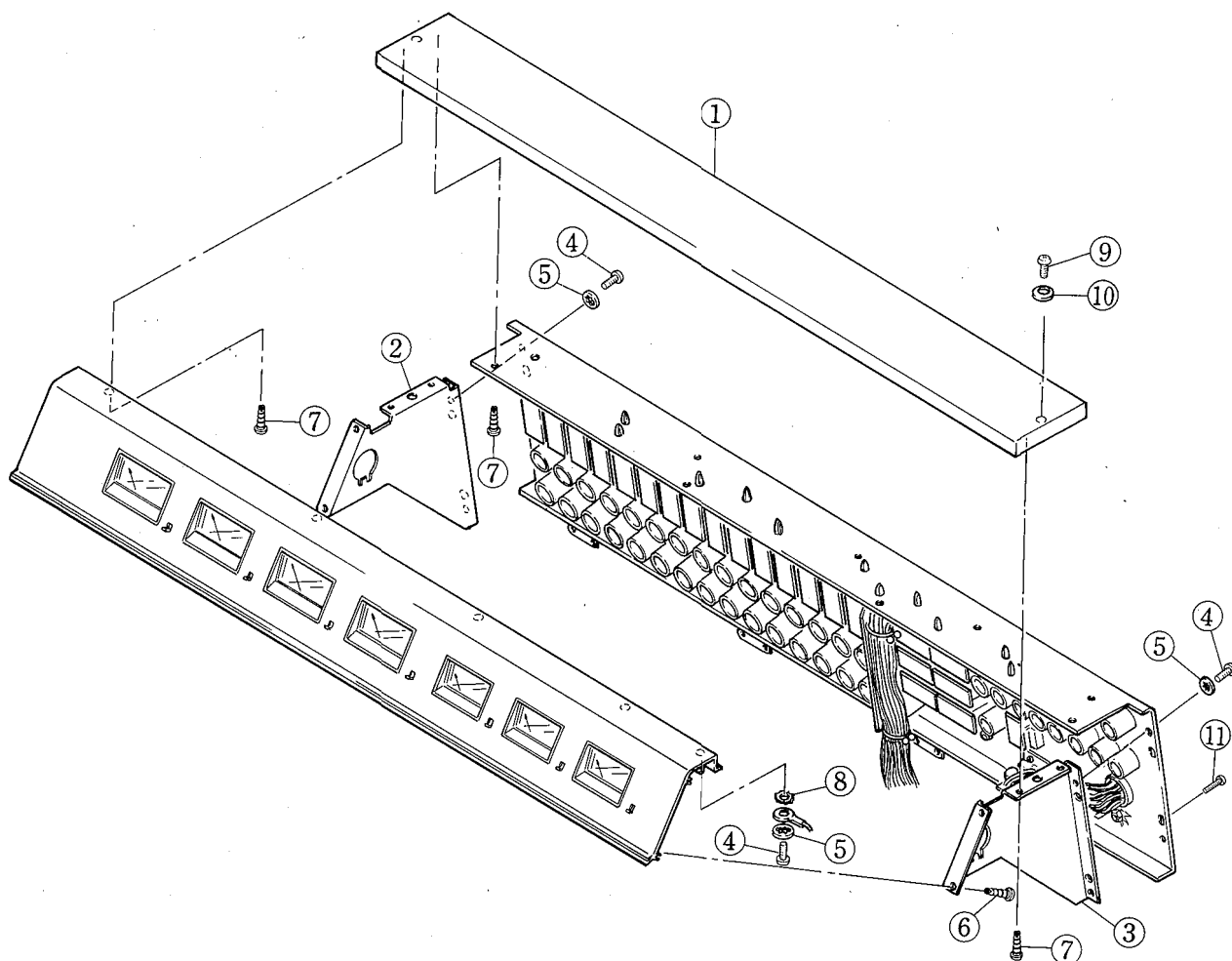
METER PANEL Ass'y



Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets
1	AA:81:44:10	Meter Sub Panel, L	メーターサブパネル大		M1516	
2	AA:81:44:20	- do. - , S	メーターサブパネル小		M1516	
※ 3	BA:80:58:00	Meter Panel	メーターパネル	M1532/M1524		
※ "	BA:80:60:00	- do. -	メーターパネル	M1516A		
4	CB:06:86:20	Lamp Holder	ランプホルダー		M1516	
5	CB:80:52:30	Knob	ツマミ		M1516	
6	CB:06:88:80	Plastic Rivet	プラスチックリベット		M1516	
7	CB:06:88:90	- do. -	プラスチックリベット		M1516	
8	JB:00:02:30	Lamp	12V 60mA リード付ランプ		M1516	
9	Ji:00:03:90	VU Meter	VUメーター		M1516	
10	Ji:00:11:90	- do. -	VUメーター		M1516	
11	NA:80:63:80	Circuit Board, MT1	# 8523 MT1シート		M1516	
※ 12	NA:80:88:60	- do. - , MT4	# 8473 MT4シート	M1532/M1524		
	NA:80:67:50	- do. - , MT3	# 8473 MT3シート	M1516A	M1516	
13	ED:32:60:40	Bind Head Screw	M2.6 x 4 BL バインド小ネジ			
14	Ei:34:00:80	Bind Head Tapping Screw	M4 x 8 BL バインドタッピングネジ			
15	Ei:33:00:80	- do. -	M3 x 8 BL バインドタッピングネジ			
16	EV:10:00:40	Hexagonal Nut	M4 Ye 六角ナット			
17	EV:42:30:40	Toothed Lock Washer	B4S BL 歯付座金			
※ 18	CC:22:00:80	Felt	1339 x 7 x 2 フェルト			

※ New Parts (新規部品)

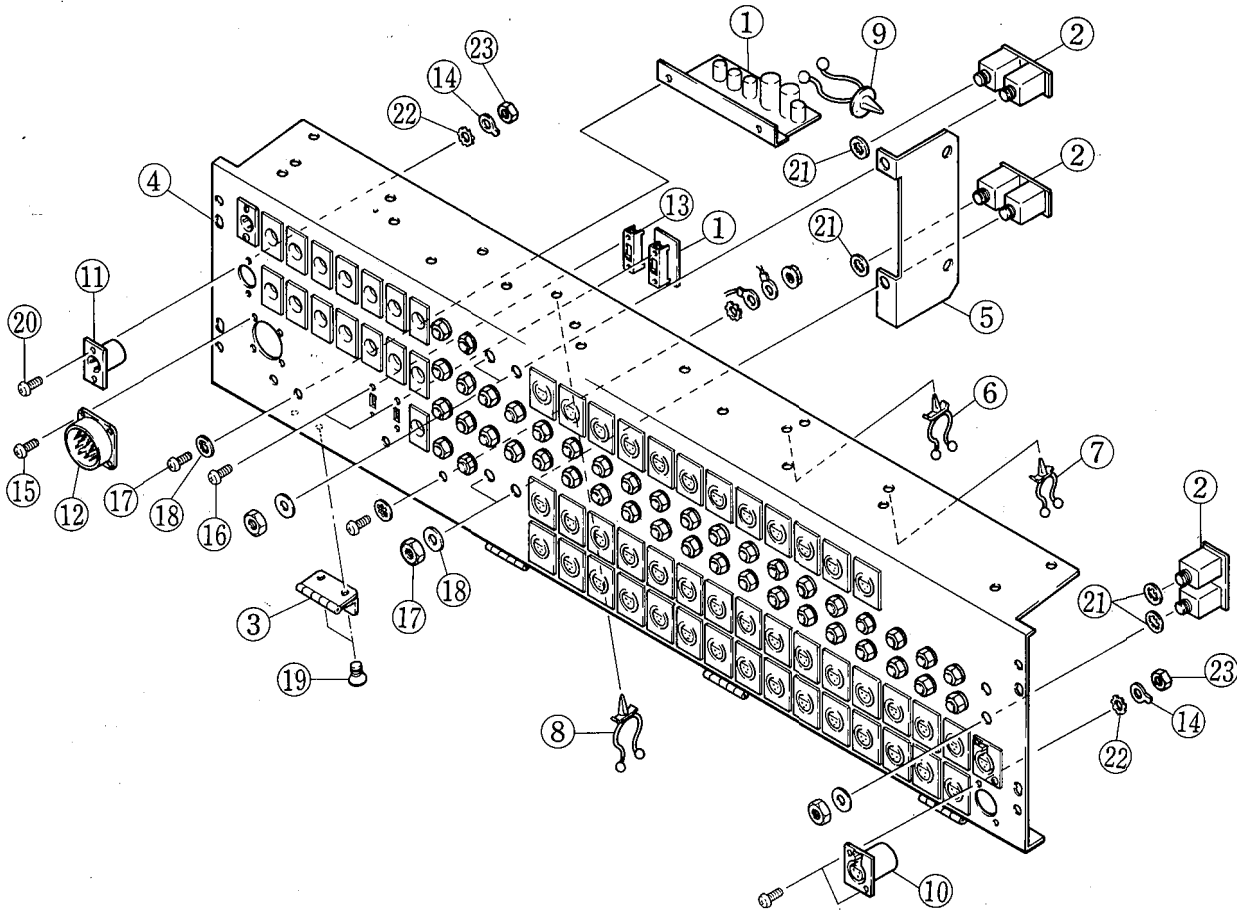
TOP BOARD Ass'y



Ref. No.	Part No.	Description			部品名	Remarks	Common Model	Markets
1	DB:82:61:00	Top Board			天板	M1532/M1524		
"	DB:82:67:50	- do. -			"	M1516A		
2	AA:81:44:30	Side Angle, Left			サイドアングル左		M1516	
3	AA:81:44:40	- do. -, Right			" 右		M1516	
4	ED:34:00:80	Bind Head Screw	M4 x 8	BL	バインド小ネジ			
5	EV:40:30:40	Toothed Lock Washer	A4S	BL	歯付座金			
6	EI:34:00:80	Bind Head Tapping Screw	M4 x 8	BL	バインドタッピングネジ			
7	EI:33:51:60	- do. -	M3.5 x 16	BL	"			
8	EV:42:30:40	Toothed Lock Washer	B4S	BL	歯付座金			
9	EF:35:02:50	Oval Head Screw	M5 x 25	BL	丸皿小ネジ			
10	EK:80:00:30	Washer	M5		山形ワッシャー			
11	ED:35:01:00	Bind Head Tapping Screw	M5 x 10	BL	バインド小ネジ			

※ New Parts (新規部品)

REAR PANEL Ass'y



PARTS LIST (ELECTRICITY)

Ref. No.	Part No.	Description		部 品 名	Remarks	Common Model	Markets
	NA:80:67:90	Circuit Board, CO	#8601	CO シ ー ト		M1516	
	UJ:14:81:00	Electrolytic Cap.	100 μ F 25V	ケ ミ コ ン			
	UJ:16:84:70	- do. -	470 μ F 50V	"			
	UW:69:81:00	- do. -	100 μ F 100V	"			
	KA:40:07:60	Slide Switch		ス ラ イ ド ス イ ッ チ			
	BB:80:16:00	Earth Metal Fitting		ア ー ス 金 具			
	ED:33:01:00	Binded Screw	M3 x 10 BL	バ イ ン ド 小 ネ ジ			
	EV:30:00:30	Spring Washer	M3 Ye	バ ネ 座 金			
	EV:41:00:30	Toothed Locket Washer	A3S Ye	歯 付 座 金			
	NA:80:63:90	Circuit Board, JK	#8527	JK シ ー ト			
	LB:20:15:40	Phone Jack	X-G7652	ホ ー ン ジャ ッ ク			

* New Parts (新規部品)

■PARTS LIST(REAR PANEL Ass'y)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets
1	NA:80:67:90	Circuit Board, Co	# 8601	Co シ ー ト	M1516	
2	NA:80:63:90	- do. - , JK1	# 8527	JK1 シ ー ト	-do.-	
3	AA:81:35:50	Hinge		蝶 番	-do.-	
* 4	BA:80:58:10	Rear Panel		リ ア パ ネ ル	M1532/M1524	
* "	BA:80:70:10	- do. -		"	M1516A	
5	AA:81:44:60	Shield Board		ジャックシールド板	M1516	
6	CB:81:29:20	Cable Clip	# 311 11.5φ	ケーブルクリップ	-do.-	
7	CB:81:68:40	- do. -	# 1197 7φ	"	-do.-	
8	CB:81:68:50	- do. -	# 1219 16φ	"	M1532/M1524	-do.-
9	CB:81:68:30	- do. -	# 800	"	-do.-	
10	LB:30:01:50	Cannon Socket	XLR3-31	キャノンソケット	-do.-	
11	LB:30:01:60	- do. -	XLR3-32	"	-do.-	
12	LB:60:23:20	Cannon Connector	SK-19-32S	キャノンコネクター	-do.-	
13	KA:40:07:50	Slide Switch		スライドスイッチ	-do.-	
14	LA:00:02:80	Ground Lug	3φ	ア ー ス ラ グ		
15	EA:22:60:80	Pan Head Screw	M2.6 x 8 FCrM3-3g	ナ ベ 小 ネ ジ		
16	ED:32:60:40	Bind Head Screw	M2.6 x 4 BL	バ イ ン ド 小 ネ ジ		
17	ED:34:00:80	- do. -	M4 x 8 BL	"		
18	EV:40:30:40	Toothed Lock Washer	A4S BL	歯 付 座 金		
19	EB:33:00:60	Flat Head Screw	M3 x 6 BL	皿 小 ネ ジ		
20	EM:23:01:00	Oval Head Tapping Screw	M3 x 10 FNM3-3g	丸皿タッピングネジ		
21	EV:41:00:98	Toothed Lock Washer	A9S	歯 付 座 金		
22	EV:42:30:30	- do. -	B3S	"		
23	EV:10:00:30	Hexagonal Nut	M3	六 角 ナ ッ ト		
	LB:40:05:60	Housing 2.5 pitch	H4P - SHF	2.5 ピッチハウジング	M1516	
	LB:50:02:40	- do. -	H5P - SHF	"	-do.-	
	LB:60:28:10	- do. -	H6P - SHF	"	-do.-	
	LB:60:24:40	- do. -	H7P - SHF	"	-do.-	
	LB:60:24:80	- do. -	H8P - SHF	"	-do.-	
*	LB:60:30:80	- do. -	H11P - SHF	"	-do.-	
	BB:00:44:30	Contact Pin 2.5 pitch		2.5ピッチコンタクトピン	-do.-	

* New Parts (新規部品)

■PARTS LIST(POWER SUPPLY PW1500B)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets
1	AA:81:45:70	Sub-Panel	サブパネル		PW1500	
2	AA:81:45:80	Power Switch Sub-Panel	P. SW 金 具		- do. -	
3	BA:80:19:50	Handle	アンプハンドル		- do. -	
※ 4	BA:80:58:20	Panel	パネ ル			
5	CB:06:65:10	Push Button	プッシュボタン		PW1500	
6	CB:81:00:80	Push Switch Guide	プッシュSWガイド		- do. -	
7	LA:00:29:50	Terminal 2P	2 P 端 子 板	J	- do. -	
8	LB:20:12:10	Fuse Holder	ヒューズホルダー	J	- do. -	
9	JB:00:03:60	Neon Lamp	ネオンランプ		- do. -	
10	KA:80:02:20	Push Switch SDG-5P	125V 10A	プッシュスイッチ	J	- do. -
"	KA:80:02:00	- do. -	TV-5	"	U,C	- do. -
"	KA:80:06:90	- do. -	250V 5A	"	G	- do. -
11	KB:00:03:10	Fuse	0.5A 250V	ヒューズ	J	- do. -
12	GA:81:37:00	Transformer		トランス	J	- do. -
13	EV:98:04:50	Hexagonal Bolt	5 x 15 (FCM3-Bℓ)	六角ボルト		
14	Ei:33:00:80	Bind Head Tapping Screw	3 x 8 (FCM3-Bℓ)	バインドタッピングネジ		
15	Ei:33:01:60	- do. -	3 x 16 (FCM3-Bℓ)	"	J	
16	ED:33:00:60	Bind Head Screw	3 x 6 (FCM3-Bℓ)	バインド小ネジ		
17	EV:20:00:50	Flat Washer	5S (ZMC2-Bℓ)	平 座 金		
18	EV:30:00:50	Spring Lock Washer	5S (ZMC2-Bℓ)	バネ座金		
19	AA:81:36:00	Slide Switch Sub-Panel		スライドスイッチサブパネル	G	PW1500
20	BA:80:49:00	Heat Sink		放 熱 板		
※ 21	BA:80:58:30	Rear Panel		リアパネル	J	
※ "	BA:80:58:40	- do. -		"	U,C	
※ "	BA:80:58:50	- do. -		"	G	
22	CB:80:86:50	Cord Reel		コードリール		PW1500
23	CB:81:60:60	Dial Plate		文 字 板	G	- do. -
24	LB:20:04:90	Fuse Holder		ヒューズホルダー	J,U,C	- do. -
"	LB:20:05:90	- do. -		"	G	- do. -
25	LB:60:23:10	Cannon Connector	SK-19-31S	キャノンコネクター		- do. -
26	LA:00:07:60	Lug Terminal		ラグ端子板		- do. -
27	LA:00:02:90	Ground Lug	φ4	アースラグ		- do. -
28	CB:80:68:50	Cord Stopper	SR-6N3-4	コードストッパー	J,U,C	- do. -
"	CB:03:28:40	- do. -		"	G	- do. -
29	MG:00:06:10	AC Cord		電 源 コ ー ド	J	- do. -
"	MG:00:02:70	- do. -		"	U,C	- do. -
"	MG:00:04:50	- do. -		"	G	- do. -
30	KA:40:07:40	Slide Switch		スライドスイッチ	G	- do. -
31	KB:00:03:80	Fuse	4A 250V	ヒューズ	J	
"	KB:00:20:20	- do. -	4A 125V	"	U,C	
"	KB:00:07:60	- do. -	T3.15A 250V	"	G	
32	ED:34:01:20	Bind Head Screw	4 x 12 (FCM3-Bℓ)	バインド小ネジ		
33	EV:40:30:40	Toothed Lock Washer	A4S (FCM3-Bℓ)	歯付座金		
34	EA:22:60:80	Pan Head Screw	2.6 x 8 (FCM3-3g)	ナベ小ネジ		
35	EB:33:00:60	Flat Head Screw	3 x 6 (FCM3-Bℓ)	皿小ネジ	G	
36	Ei:34:01:60	Bind Head Tapping Screw	4 x 16 (FCM3-Bℓ)	バインドタッピングネジ		
37	EV:42:30:40	Toothed Lock Washer	B4S (ZMC2-Bℓ)	歯付座金		
38	EK:80:06:20	Flat Nut	M4 (ZMC2-Y)	六角フランジナット		
※ 39	NA:80:88:10	DC C. Board	#8739	D C シ ー ト	J	
※ "	NA:80:88:20	- do. -	#8740	"	U,C	
※ "	NA:80:88:30	- do. -	#8739	"	G	
40	AA:81:45:50	Side Panel (L)		サイドパネル (左)		SW1500
41	AA:81:45:60	- do. - (R)		" (右)		

※ New Parts (新規部品)

■PARTS LIST(ELECTRICITY)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets
※	NA:80:88:10	Circuit Board, DC	DC シ ー ト	J		
※	NA:80:88:20	- do. -	"	U,C		
※	NA:80:88:30	- do. -	"	G		
	FH:22:34:70	Ceramic Cap.	0.0047 μ F 500V	セラコン		
	UW:52:72:20	Electrolytic Cap.	22 μ F 10V	ケミコン		
	UJ:14:81:00	- do. -	100 μ F 25V	"		
	UJ:14:92:20	- do. -	2,200 μ F 25V	"		
	UJ:16:84:70	- do. -	470 μ F 50V	"		
	FM:46:94:70	- do. -	4,700 μ F 50V	"		
	FZ:00:23:80	- do. -	10,000 μ F 50V	"		
	UJ:29:74:70	- do. -	47 μ F 100V	"		
	UW:69:81:00	- do. -	100 μ F 100V	"		
	FM:48:92:20	- do. -	2,200 μ F 80V	"		
	HL:31:61:20	Metal Oxide Film Resistor	1.2K Ω 1W	酸金抵抗		
	HL:31:65:60	- do. -	5.6K Ω 1W	"		
	HL:32:41:00	- do. -	10 Ω 2W	"		
	HL:32:61:50	- do. -	1.5K Ω 2W	"		
	HM:52:22:20	Wire Wound Resistor	0.22 Ω 2W	セメント抵抗		
※	HM:55:33:30	- do. -	3.3 Ω 5W	"		
	HU:57:71:50	Metal Film Resistor	15K Ω 1/4W	金属被膜抵抗		
	HW:79:42:20	Fuse Resistor	22 Ω 1/4W	ヒューズ抵抗		
	HW:99:43:90	- do. -	39 Ω	"		
	iA:09:99:10	Transistor	2SA999 (E,F)	トランジスタ		
	iB:06:86:10	- do. -	2SB686 (R,O)	"		
	iC:17:75:00	- do. -	2SC1775 (C)	"		
	iC:23:20:40	- do. -	2SC2320 (F)	"		
	iD:05:26:10	- do. -	2SD526 (R,O)	"		
	iD:07:16:10	- do. -	2SD716 (R,O)	"		
	iF:00:00:40	Diode	1S1555	ダイオード		
	iH:00:11:70	- do. -	D4BB20	"		
	iH:00:02:80	- do. -	1D2C1	"		
	iH:00:02:90	- do. -	1D2Z1	"		
	iH:00:07:20	- do. -	W03B	"		
	iF:00:03:20	Zener Diode	WZ061	ツェナーダイオード		
	iF:00:08:50	- do. -	WZ110	"		
	iF:00:06:50	- do. -	WZ162	"		
	iG:00:13:90	I C	NJM4558DV	I C		
	HT:41:00:20	Trim Pot.	B1K	ソリッドVR		
	KB:00:03:30	Fuse	1A 250V	ヒューズ	J	
	KB:00:03:60	- do. -	3A 250V	"	J	
	KB:00:03:80	- do. -	4A 250V	"	J	
	KB:00:13:00	- do. -	7A 250V	"	J	
	KB:00:10:60	- do. -	1A 250V	"	U,C	
	KB:00:20:00	- do. -	3A 125V	"	U,C	
	KB:00:20:20	- do. -	4A 125V	"	U,C	
	KB:00:15:20	- do. -	7A 125V	"	U,C	
	KB:00:06:70	- do. -	T630mA 250V	"	G	
	KB:00:07:60	- do. -	T3.15A 250V	"	G	
	KB:00:07:90	- do. -	T4A 250V	"	G	
※	KB:00:17:60	- do. -	T6.3A 250V	"	G	
	LB:20:15:30	Fuse Holder Pin		ヒューズホルダーピン		
	KC:00:07:40	Relay	AR6221	リレ -	J	

※ New Parts (新規部品)