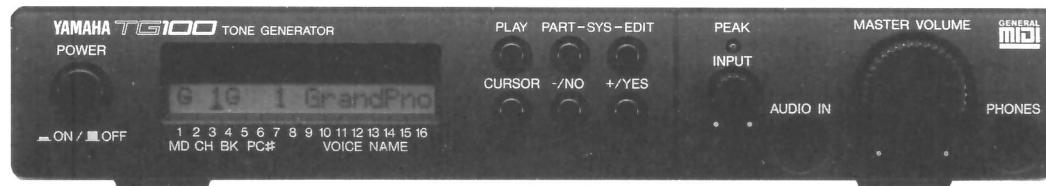


# TONE GENERATOR

# TG100

## SERVICE MANUAL



TG100

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## IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

**WARNING:** Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

**IMPORTANT:** The presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

**WARNING:** Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

**IMPORTANT:** Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

## WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHAT SO EVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!.

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

## ■ SPECIFICATIONS

### ***Technical specifications***

<b>Internal ROM voices</b>	192 instrument voices and 10 drum kits
<b>Internal RAM voices</b>	64 Internal voice
<b>Polyphony</b>	28-note (Dynamically allocated)
<b>Multi-timbral</b>	16 voices simultaneous (voices assigned to 16 Parts)
<b>Sound sampling</b>	AWM (Advanced Wave Memory)
<b>Reverb effect</b>	Yamaha custom DSP (Digital Signal Processor)
	General MIDI LEVEL1
<b>Sound module mode</b>	Disk Orchestra (Yamaha)
	C/M (CM-64 semi-compatible)
<b>Demo song</b>	1 (not editable, stored in ROM)
<b>Controls</b>	MASTER VOLUME, INPUT, CONTRAST
<b>Buttons</b>	PLAY, PART, EDIT, CURSOR, -1/NO, +1/YES
<b>Indicators</b>	PEAK
<b>LCD display</b>	1-line 16-character
<b>Audio connections</b>	
<b>LINE OUT</b>	1/4" (6.35mm) mono jack socket x2
<b>AUDIO IN</b>	3.5mm stereo mini jack x1
<b>PHONES</b>	3.5mm stereo mini jack x1
<b>MIDI connections</b>	IN, OUT THRU (5-PIN DIN socket)
<b>TO HOST</b>	8-PIN mini DIN socket
<b>Host computer selection and data transfer rate</b>	MIDI - 31,250 bps (bits per second)
	Mac - 31,250 bps
	PC-1 - 31,250 bps
	PC-2 - 38,400 bps
<b>Power supply voltage</b>	15V, 500mA
<b>DC IN connection</b>	2.1mm mini power type (for use with PA-1505 adaptor)
<b>Dimensions</b>	220 x 196.5 x 40.6 mm (8.6" x 7.7" x 1.6") W x D x H
<b>Weight</b>	1.0kg
<b>Supplied accessories</b>	PA-1505 power supply adaptor
<b>Optional accessories</b>	RK101 19" rack mounting adaptor

### ***Rack mounting***

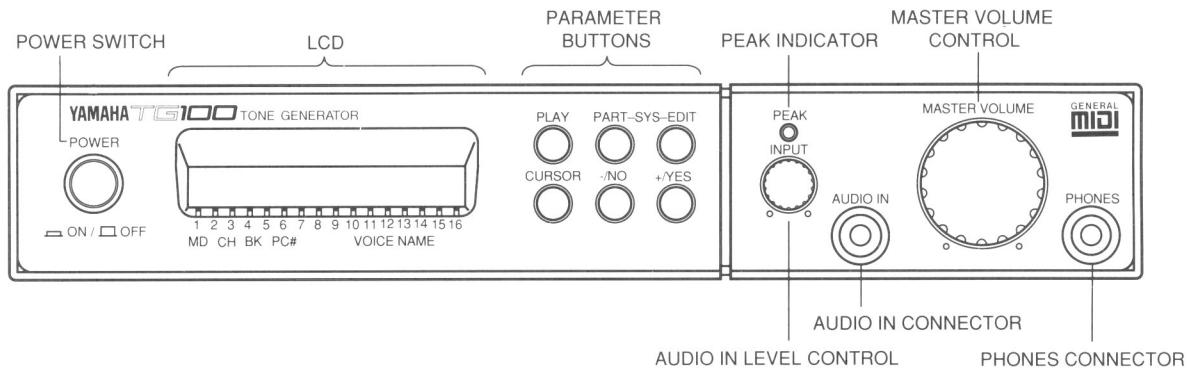
The TG100 can be rack-mounted using one of the “half-rack-size” adaptors that are available (i.e. Yamaha RK101). The TG100 is supplied with two screws for fixing it to an adaptor. Use either these screws, or the screws supplied with the adaptor. Screws must be M3 x 8mm.

## ■ 総合仕様

音源方式	AWM音源 リバーブ内蔵 最大同時28音発音、後着優先 最大16音色同時発音
マルチティンバー	16チャンネル DVA 1ボイスAWM×2までのレイヤー可能 ドラムトラックの優先発音
音源機能	GMシステムレベル1規格準拠 MIDI BANK SELECTにより音色バンク変更
インターフェース機能	従来のMIDIシーケンサー、キーボードも接続可能
互換性	GMに対応 ディスクオーケストラに対応 従来のC/Mに対応（一部エクスクルーシブメッセージは除く）
プリセット音色数	202音色（ノーマルボイス192音色、ドラムボイス10音色）
インターナル音色数	64音色
接続端子	
フロント	PHONES×1（ステレオミニジャック） AUDIO IN×1（ステレオミニジャック）
リア	LINE OUT×2（R,L/MONO） MIDI IN MIDI OUT MIDI THRU TO HOST（MINI DIN 8P）
電源電圧	15V 500mA
外形寸法	220(W)×196.5(D)×40.6(H)
重量	1.0kg
付属品	電源アダプター PA-1505 ×1 取扱説明書 ×1
オプション（別売品）	ラックマウントキット RK101

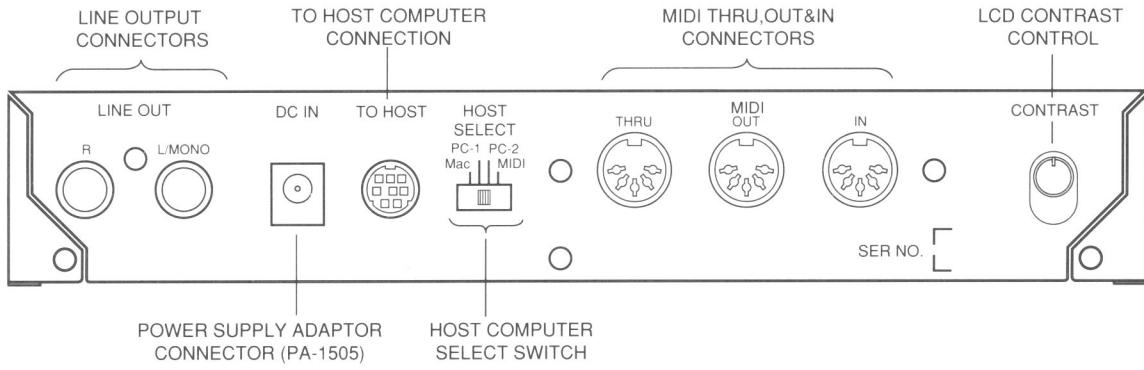
## ■ PANEL LAYOUT (パネルレイアウト)

### ● Front panel

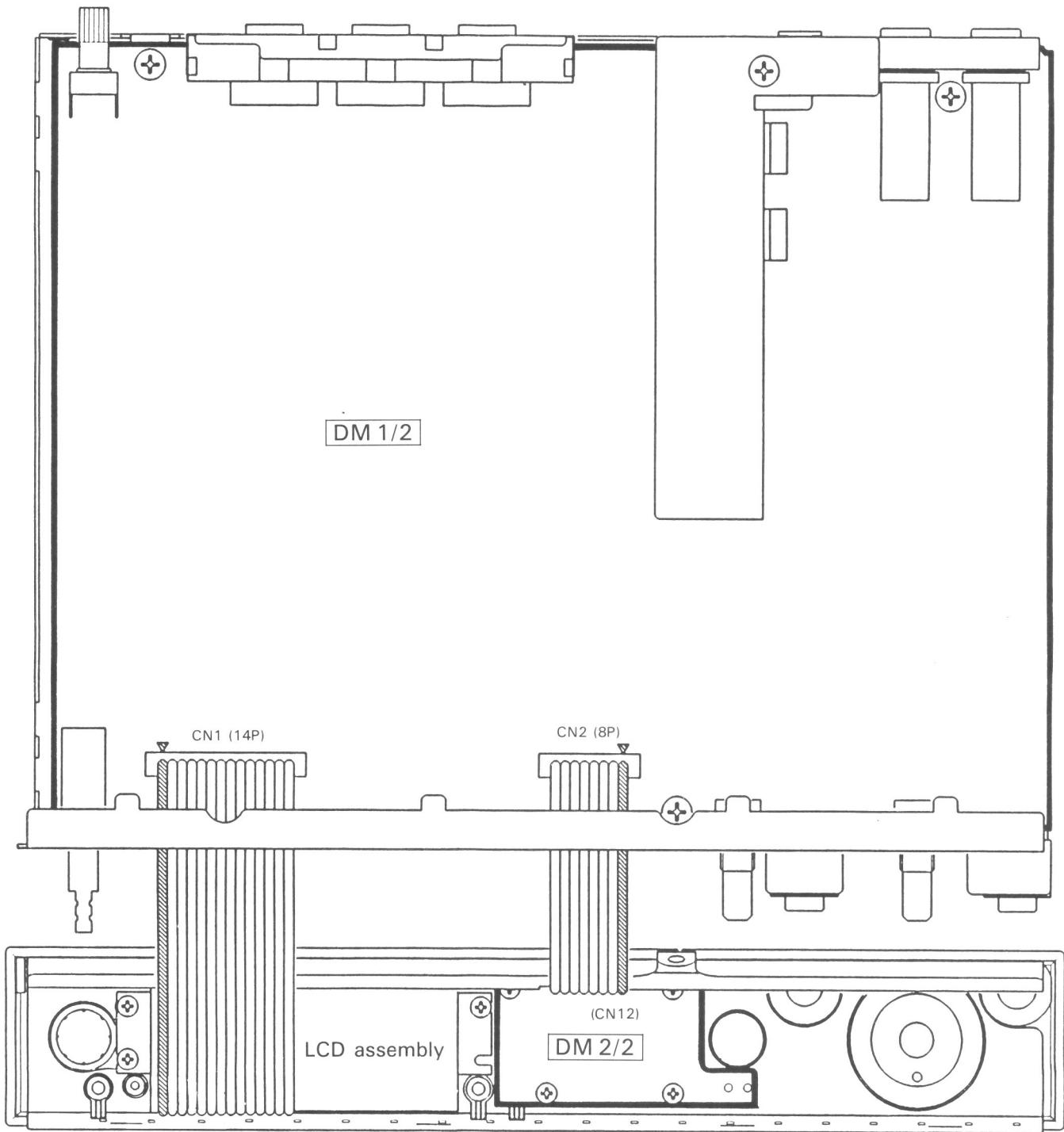


TG100

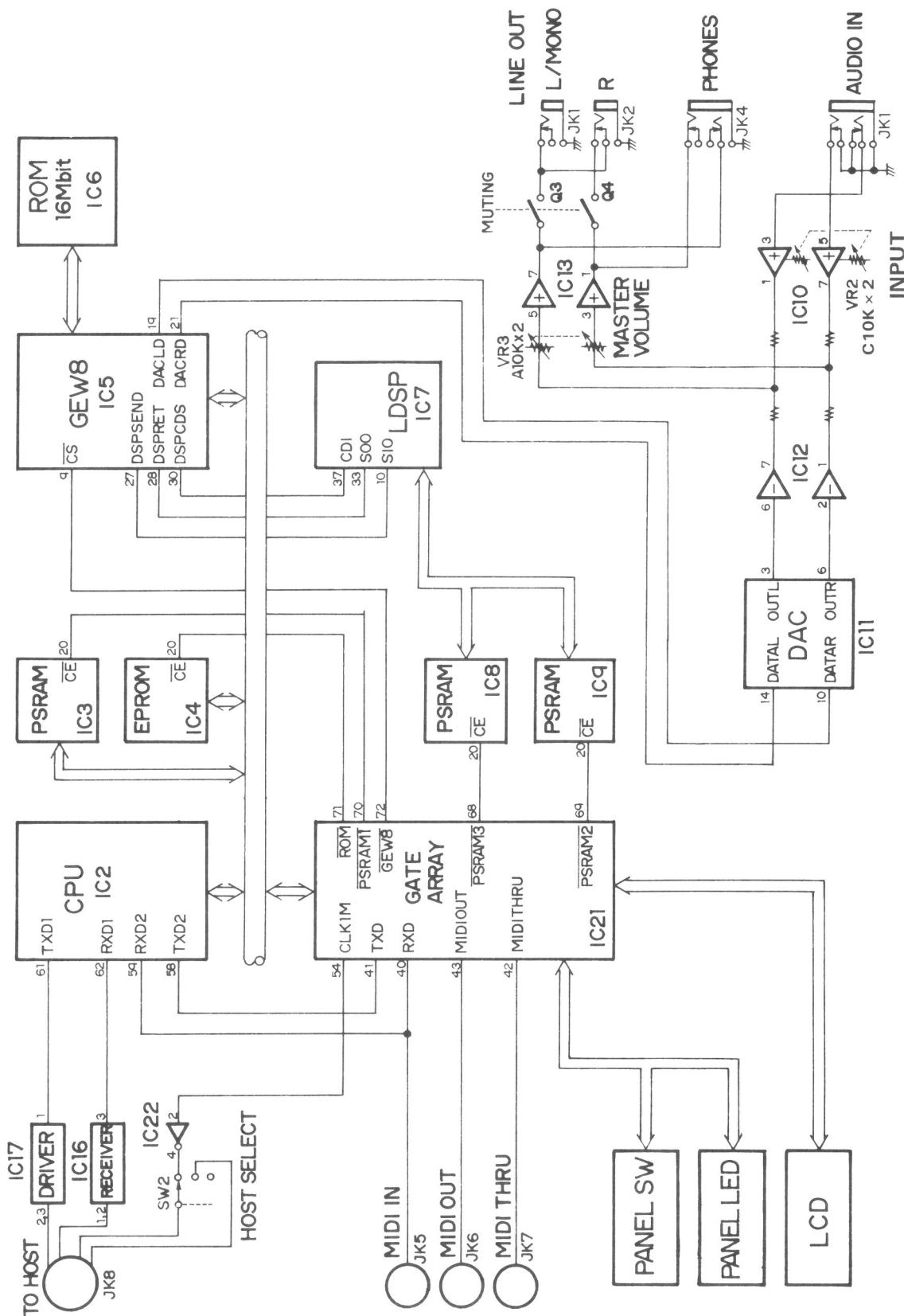
### ● Rear panel



## ■ CIRCUIT BOARD LAYOUT (ユニットレイアウト)



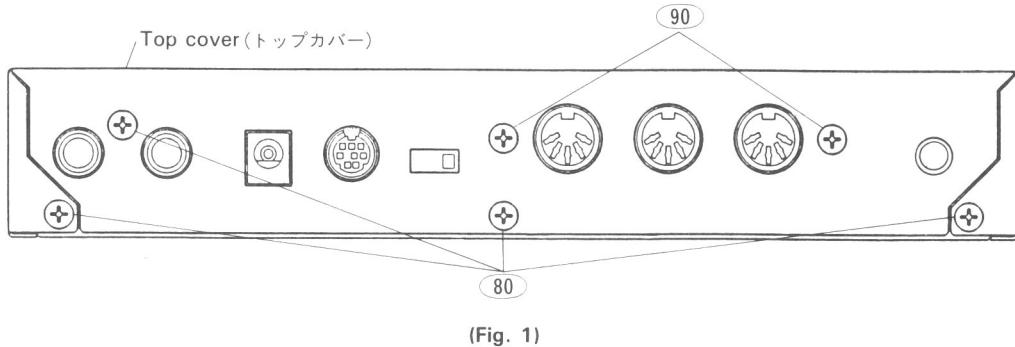
## ■ BLOCK DIAGRAM (ブロックダイアグラム)



## ■ DISASSEMBLY PROCEDURE (分解手順)

### 1. Top Cover Removal

- 1-1. Remove the four (4) screws marked ⑧⓪ and two (2) screws marked ⑨⓪. (Fig. 1)
- 1-2. Slide the top cover backward, and lift it from the left, then the top cover can be removed.



(Fig. 1)

### 1. トップカバーの外し方

- 1-1 ⑧⓪ のネジ 4 本と ⑨⓪ のネジ 2 本を外し、トップカバーを後側にずらして、左側を持ち上げながら外します。(図 1)

⑧⓪ : Bonding tapping screw-C(ボンディングCタイト) 3.0×6 FCM3BL

⑨⓪ : Bind head tapping screw-P(+バインドPタイト) 3.0×8 FCM3BL

### 2. Front Cover Assembly Removal

- 2-1. Remove the top cover. (see procedure 1)
- 2-2. Pull off the three (3) knobs marked ⑩⓪, ⑪⓪ and ⑫⓪. (Fig. 2)
- 2-3. Pull off the ribbon cables, then remove the two (2) screws marked ⑬⓪ and two (2) screws marked ⑮⓪. (Fig. 2)
- 2-4. Remove the hexagonal nut marked ⑯⓪, then the front cover assembly can be removed. (Fig. 2 and Fig. 3)
- 2-5. Remove the two (2) screws marked ⑰⓪, then the DM2/2 circuit board can be removed. (Fig. 3 and Fig. 4)
- \* The DM2/2 circuit board is not a part of the front panel assembly.

### 3. DM1/2 Circuit Board Removal

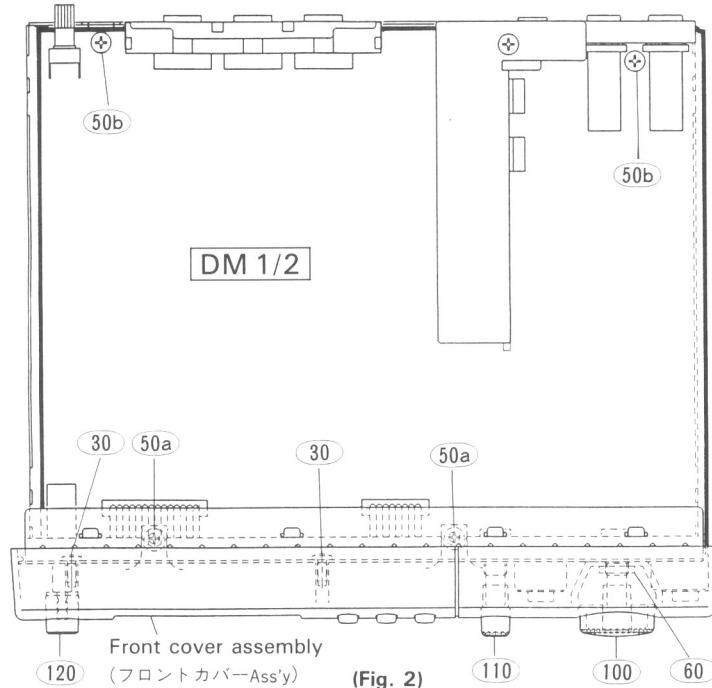
- 3-1. Remove the top cover. (see procedure 1)
- 3-2. Remove the front cover assembly. (see procedure 2)
- 3-3. After the two (2) screws marked ⑯⓪ have been removed, then the DM1/2 circuit board can be removed. (Fig. 2)

### 2. フロントカバーAss'yの外し方

- 2-1 トップカバーを外します。 (1 項参照)
  - 2-2 ⑩⓪ のボリュームツマミと ⑪⓪ のインプットツマミと ⑫⓪ のプッシュボタンを引き抜きます。(図 2)
  - 2-3 最初に束線を外します。次に ⑬⓪ のネジ 2 本と ⑮⓪ のネジ 2 本を外します。 (図 2)
  - 2-4 ⑯⓪ の特殊六角ナットを外し、フロントカバー Ass'y の右側を手前に引きながら外します。(図2、図3)
  - 2-5 ⑰⓪ のネジ 4 本を外し、DM2/2シートを外します。 (図 3、図 4)
- \* DM2/2シートは、フロントカバーAss'yの構成部品ではありません。

### 3. DM1/2シートの外し方

- 3-1 トップカバーを外します。 (1 項参照)
- 3-2 フロントカバーAss'yを外します。 (2 項参照)
- 3-3 ⑯⓪ のネジ 2 本を外し、ボトムカバーより DM1/2 シートを外します。 (図 2)



30 : Bind head tapping screw-P (+バインドPタイト) 3.0×8 ZMC2BL

50 : Bind head tapping screw-C (+バインドCタイト) 3.0×6 ZMC2BL

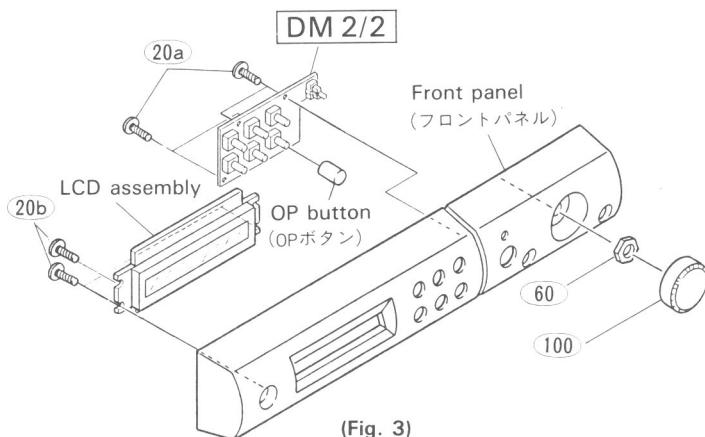
60 : Hexagonal Nut(特殊六角ナット) 7.0 ZMC2BL

#### 4. DM2/2 Circuit Board Removal

- 4-1. Remove the top cover. (see procedure 1)
- 4-2. Remove the front cover assembly. (see procedure 2)
- 4-3. Remove the two (2) screws marked ②0a, then the DM2/2 circuit board can be removed. (Fig. 3 and Fig. 4)
- 4-4. Pull out the six (6) OP. buttons from the DM2/2 circuit board. (Fig. 4)

#### 5. LCD Assembly Removal

- 5-1. Remove the top cover. (see procedure 1)
- 5-2. Remove the front cover assembly. (see procedure 2)
- 5-3. Remove the three (3) screws marked ②0b, then the LCD assembly can be removed. (Fig. 3 and Fig. 4)

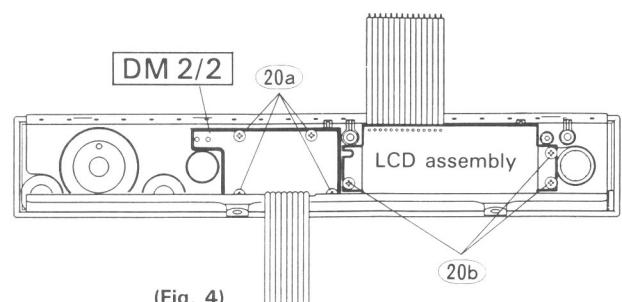


#### 4. DM2/2シートの外し方

- 4-1 トップカバーを外します。 (1項参照)
- 4-2 フロントカバーAss'yを外します。 (2項参照)
- 4-3 ②0a のネジ 4 本を外し、DM2/2シートを外します。  
(図3、図4)
- 4-4 DM2/2シートより、OPボタン 6 個を外します。  
(図4)

#### 5. LCD Ass'yの外し方

- 5-1 トップカバーを外します。 (1項参照)
- 5-2 フロントカバーAss'yを外します。 (2項参照)
- 5-3 ②0b のネジ 3 本を外し、LCD Ass'yを外します。  
(図3、図4)



②0 : Bind head tapping screw-P (+バインドPタイト) 2.0×4 ZMC2BL

②0 : Bind head tapping screw-P (+バインドPタイト) 2.0×4 ZMC2BL

⑥0 : Hexagonal Nut(特殊六角ナット) 7.0 ZMC2BL

## ■ LSI PIN DESCRIPTION (LSI端子機能表)

- HD6435208A00P (XK278A00) CPU <H8/520>

Pin No.	Name	I/O	Function	Pin No.	Name	I/O	Function
1	EXT	I	Clock	33	A7	O	
2	Xtal	I		34	A8	O	
3	WAIT	I	Bus cycle wait	35	A9	O	
4	IRQ0	O	Interrupt request	36	A10	O	
5	A18	O		37	A11	O	
6	A17	O	Address bus	38	A12	O	
7	A16	O		39	A13	O	
8	AS	O	Address strobe	40	A14	O	
9	RD	O	Read control	41	A15	O	
10	WR	O	Write control	42	VCC		Power supply
11	VCC		Power supply	43	P50	O	
12	MDO	I		44	P51	O	
13	MD1	I		45	P52	O	
14	MD2	I	Mode select	46	P53	O	
15	RES	I	Reset	47	P54	O	
16	NM1	I	Non-maskable interrupt	48	P55	O	
17	VSS		Ground	49	P56	O	
18	D0	I/O		50	P57	O	
19	D1	I/O		51	VSS		Ground
20	D2	I/O		52	AVSS		Analog ground
21	D3	I/O		53	AN0	I	
22	D4	I/O	Data bus	54	AN1	I	
23	D5	I/O		55	AN2	I	
24	D6	I/O		56	AN3	I	
25	D7	I/O		57	AVCC		Analog power supply
26	A0	O		58	TXD2	O	Transmit data
27	A1	O		59	RXD2	I	Receive data
28	A2	O		60	A19	O	Address bus
29	A3	O		61	TXD1	I	Transmit data
30	A4	O		62	RXD1	I	Receive data
31	A5	O		63	SCLK	I	Clock for serial operation
32	A6	O		64	Vss		Ground

- YM3413 (XE449A00) LDSP (Digital Signal Processor)

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	VDD	I/O	DC supply (+5V)	21	A5	O	
2	D7	I/O		22	A6	O	
3	D6	I/O		23	A7	O	
4	D5	I/O		24	A8	O	
5	D4	I/O		25	A9	O	
6	D3	I/O	Data bus	26	A10	O	
7	D2	I/O		27	A11	O	
8	D1	I/O		28	A12	O	
9	D0	I/O		29	A13	O	
10	SI0	I	Serial data input	30	A14	O	
11	SI1	I		31	A15	O	
12	SYW	I	Sync pulse	32	A16	O	
13	WE	O	Write enable	33	SO0	O	Serial data output
14	OE	O	Output enable	34	XCLK	I	Clock
15	A0	O		35	IC	I	Initial Clear
16	A1	O		36	CRS	I	CD counter reset
17	A2	O		37	CDI	I	CD input
18	A3	O		38	CDo	O	CD output
19	A4	O		39	SO1	O	Serial data output
20	Vss		Ground	40	CLK	I	Clock

• YMW-258-F (XJ427A00) GEW8 (PCM Tone Generator)

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	NC			41	Vss		Ground
2	Vss	I/O	Ground	42	NC		
3	DO	I/O	CPU data bus	43	Vss		Ground
4	D7	I/O		44	AB0	O	Voice memory address bus
5	A0	I	CPU address bus	45	DB7	I/O	Voice memory data bus
6	A1	I		46	AB1	O	
7	A2	I		47	AB2	O	
8	A3	I		48	AB10	O	
9	CS	I		49	AB3	O	
10	RD	I		50	AB4	O	
11	WR	I		51	AB11	O	
12	XIN	I	Clock	52	AB5	O	
13	XOUT	I		53	AB9	O	
14	IC	I	Initial clear	54	AB6	O	Voice memory address bus
15	TST0	I		55	AB8	O	
16	TST1	I	Test pin	56	AB7	O	
17	Vss	I		57	AB13	O	
18	DITHER	O	Ground	58	AB12	O	
19	DACLD	O	Not used	59	AB14	O	
20	DACDCLK	O	Data output, L channel	60	AB15	O	
21	DACRD	O	Bit clock output to DAC	61	AB17	O	
22	DACLE	O	Data output, R channel	62	Vss		
23	NC	O	Word clock output to DAC	63	Vss		Ground
24	DACMC	O	System clock output to DAC	64	Vss		
25	CH27	O		65	Vss		
26	DSPSYW	O		66	AB16	O	
27	DSPSEND	O	Not used	67	AB18	O	
28	DSPRET	O		68	AB19	O	Voice memory address bus
29	DSPIC	O		69	AB20	O	
30	DSPCDS	O		70	AB21	O	
31	DSPCLK	O	Power supply	71	MRD(MWR)	O	Memory read control
32	VDD	I/O		72	VDD	I/O	Power supply
33	DB3	I/O	Voice memory data bus	73	MWR(MRD)	O	Memory write control
34	DB2	I/O		74	D3	I/O	
35	DB4	I/O		75	D4	I/O	
36	DB1	I/O	Voice memory data bus	76	D2	I/O	CPU data bus
37	DB5	I/O		77	D5	I/O	
38	DB0	I/O		78	D1	I/O	
39	DB6	I/O		79	D6	I/O	
40	NC	I/O		80	Vss		Ground

• PCM69P-C (XJ429A00) DAC (Digital to Analog Converter)

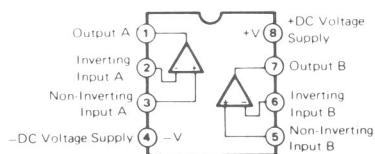
PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	+Vcc		Analog power supply	9	OGND		Digital ground
2	VC, L		V-common, L channel	10	DA, R		Data input, R channel
3	IO, L		Current output, L channel	11	BCK		Bit clock
4	SER		Servo filter	12	CLK		System clock
5	REF		Reference filter	13	WDCK		Word clock
6	IO, R		Current output, R channel	14	DA, L		Data input, L channel
7	VC, R		V-common, R channel	15	TP1		Test pin
8	AGND		Analog ground	16	+VDD		Digital power supply

• HG62E11R54FS (XK462A00) Gate Array

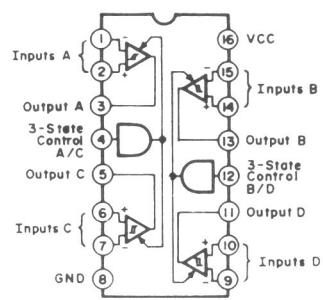
PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	DLCD0	I/O		41	TXD	I	
2	DLCD1	I/O		42	MIDITHRU	O	MIDI data thru.
3	DLCD2	I/O		43	MIDIOUT	O	MIDI data output
4	DLCD3	I/O		44	D0	I/O	
5	DLCD4	I/O		45	D1	I/O	
6	DLCD5	I/O		46	D2	I/O	
7	DLCD6	I/O		47	D3	I/O	
8	DLCD7	I/O		48	D4	I/O	CPU data bus
9	LEDO	O		49	D5	I/O	
10	LED1	O		50	D6	I/O	
11	LED2	O		51	D7	I/O	
12	(GND)			52	(GND)		
13	LED3	O		53	MCLK	I	Master clock
14	LED4	O		54	CLK1M	O	Clock 1MHz
15	LED5	O		55	WAIT	O	Wait control
16	LED6	O		56	AS	I	Address strobe
17	LED7	O		57	RD	I	Read control
18	LED8	O		58	WR	I	Write control
19	(GND)			59	A19	I	
20	LED9	O		60	A18	I	
21	LED10	O		61	A14	I	
22	LED11	O		62	A13	I	
23	LED12	O		63	A12	I	
24	LED13	O		64	A0	I	
25	LED14	O		65	DSPA15	I	DSP address
26	(GND)			66	DSPCLK	I	DSP clock
27	LED15	O		67	(GND)		
28	LED16	O		68	PSRAM3	O	
29	LED17	O		69	PSRAM2	O	
30	LED18	O		70	PSRAM1	O	
31	SW0	I		71	ROM	O	ROM chip enable
32	SW1	I		72	GEW8 (VCC)	O	GEW8 chip enable
33	(VCC)			73	OE/RFSH	O	Output enable/Refresh
34	SW2	I		74	RESOUT	O	Reset output
35	SW3	I		75	RESIN	I	Reset input
36	SW4	I		77	(GND)		
37	SW5	I		78	RS	O	LCD register select
38	SW6	I		79	LCDR/W	O	LCD read/write
39	(GND)			80	LCDE	O	LCD enable
40	RXD	I	MIDI data input				

## ■ IC BLOCK DIAGRAM (ICブロック図)

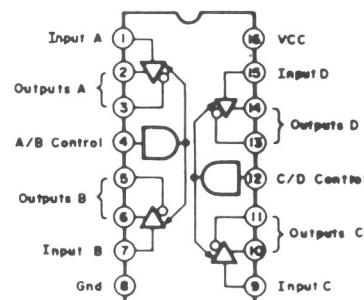
- RC4558DV (IG001390)
- NJM4556 (IG042500)  
Dual Operational Amplifier



- MC3486 (XB016A00)  
Quad Line Receiver with 3-State Outputs

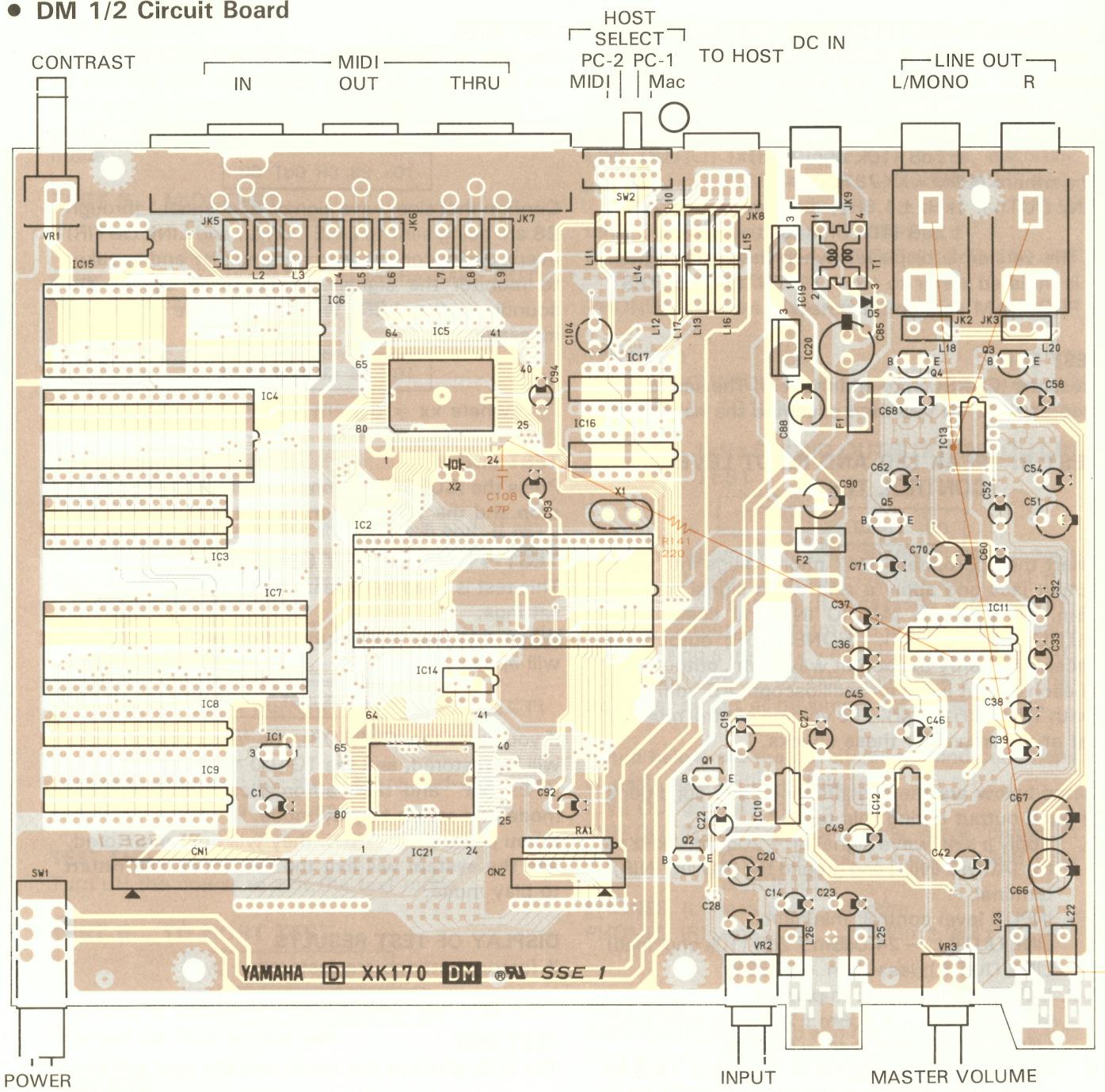


- MC3487 (XB015A00)  
Quad Line Driver with 3-State Outputs



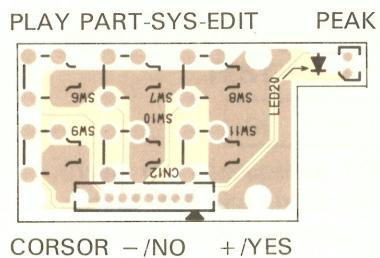
## ■ CIRCUIT BOARD (シート基板図)

### ● DM 1/2 Circuit Board

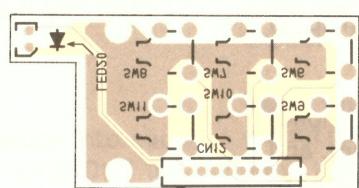


Components side (部品側)

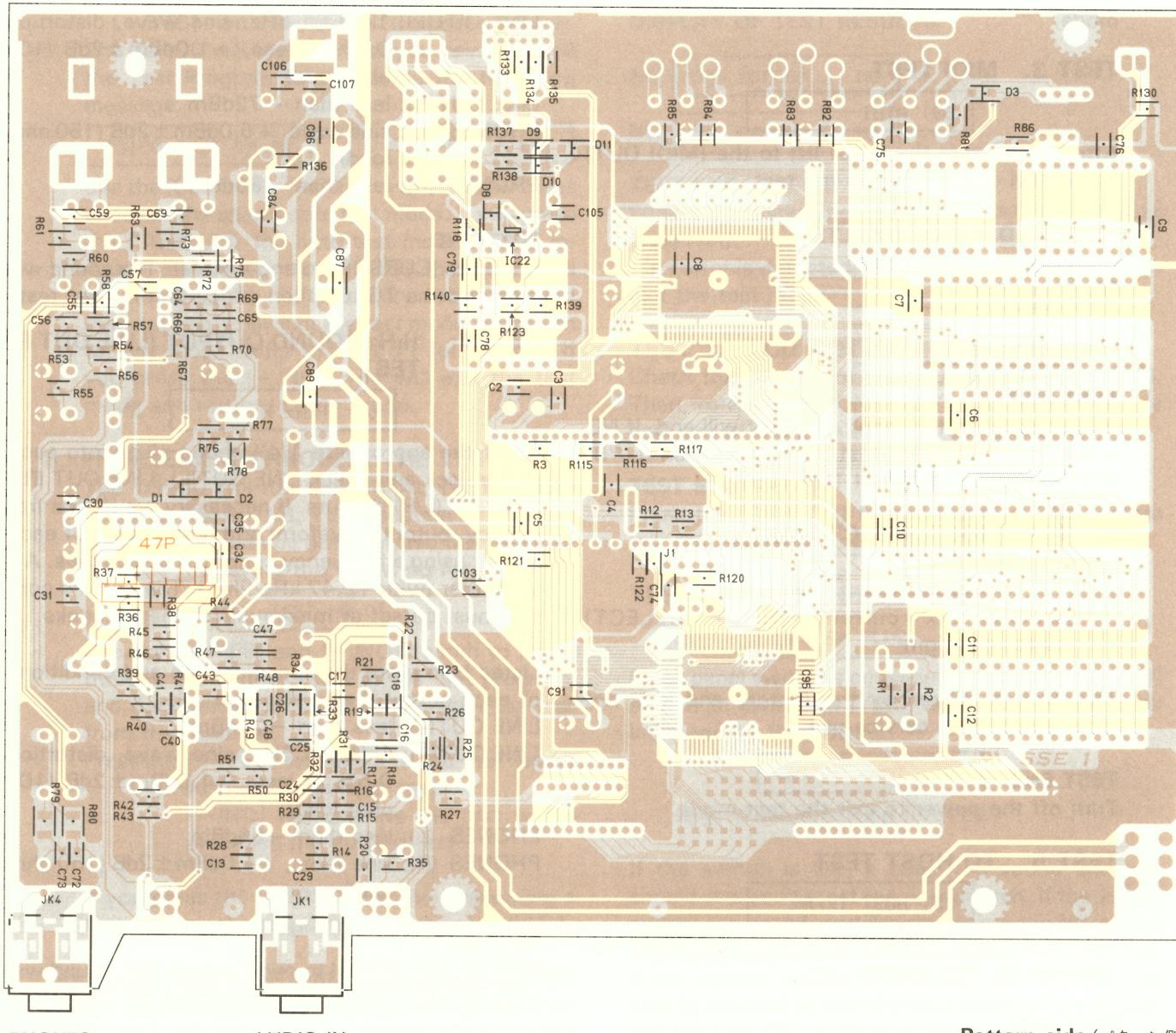
### ● DM 2/2 Circuit Board



Components side (部品側)



Pattern side (パターン側)



## Notes)

Circuit Board:

DM (VM755500) XK170D0

1. IC  
IC 1:  
IC 2:  
IC 3,8,9:  
IC 4:  
IC 5:  
IC 6:  
IC 7:  
IC 10:  
IC 11:  
IC 12:  
IC 13:  
IC 14:  
IC 16:  
IC 17:  
IC 19:  
IC 20:  
IC 21:  
IC 22:  
PST518B-2 (IG116200) SYSTEM RESET  
HD6435208A00P (XK278A00) CPU <H8/520>  
HM65256BLSP-10 (XK358A00) PSRAM 256K  
068V110 (XK731C00) EEPROM 1M  
YMW258-F (XJ427A00) GEW8  
HN624116PC20 (XK992A00) ROM 16M  
YM3413 (XE449A00) LDSP  
RC4558DV (IG001390) OP AMP.  
PCM69P-C (XJ429A00) DAC  
 $\mu$ PC4570C (XC520A00) OP AMP.  
NJM4556 (IG042500) OP AMP.  
AK93C45 (XK361A00) ROM 1K  
MC3486 (XB016A00) LINE RECEIVER  
MC3487 (XB015A00) LINE DRIVER  
NJM78M09FA (XJ141A00) REGULATOR 9V  
NJM78M05FA (XF740A00) REGULATOR 5V  
HG62E11R54FS (XK462A00) GATE ARRAY  
SC7SU04FER (XI348A00) INVERTER
2. Photo Coupler  
IC15:  
6N137 (VD473200)
3. Transistor  
Q 1:  
Q 2,5:  
Q 3,4:  
2SC1815 Y,GR (IC1815M0)  
2SA1015 O,Y (IA101590)  
2SC2878 A,B (IC287820)
4. Diode  
D 1~3,8~11:  
D 5:  
RLS-73 (VB797600)  
1SR35-100A (VE170000)
5. LED  
LED20:  
GL2PR6 RE (VH325200) PEAK
6. Resistor Array  
RA 1:  
RGLE8X103J (VF771900) 10KX8
7. Variable Resistor  
VR 1:  
VR 2:  
VR 3:  
B1.0K RK09K111 (VM755200) CONTRAST  
C10K x 2 RK097121 (VM755300) MASTER  
VOLUME  
A10K x 2 RK097122 (VM778800) INPUT
8. Electrolytic Cap.  
C85:  
470 $\mu$ F 16.0V (UJ838470)
9. EMI Filter  
T 1:  
F 1,2:  
PLT2003C (VG238200)  
LS MT Y223NE 0.022 (FZ006970)
10. Coil  
L 1~18,20,22,  
23,25,26:  
FL5R200QNT 20 $\mu$  (VB835000)
11. Ceramic Cap. Array  
CA1:  
47P 50V Z (VI644200) EXF-P8470MW
12. Ceramic Resonator  
X 2:  
9.4MHz CST9.4MTW (VJ338000)
13. Quartz Crystal Unit  
X 1:  
20.0MHz AT-49 (VI927300)
14. Push Switch  
SW 1:  
SW 6~11:  
SPUN19-2N-W (VN121000) POWER  
SKHPP (VN121700) PLAY,PART,EDIT,CURSOR,  
- /NO, + /YES
15. Slide Switch  
SW 2:  
SSSF124-S06N-0 (VN210700) HOST SELECT
16. DIN Jack  
JK 5~7:  
JK 8:  
YKF51-5046 X3 (VI466400) MIDI (IN,OUT,THRU)  
8P MD-S810-90 (VM761000) TO HOST
17. Phone Jack  
JK 1,4:  
JK 2,3:  
JM35A ST MINI (LB301640) PHONES,AUDIO IN  
HLJ0521 MONO (LB202330) LINE OUT (L/MONO,R)
18. DC-IN Connector  
JK 9:  
HEC230501-050 (VC664500) DC IN
19. LED Holder  
VM(826200) LED20
20. Jumper Wire  
J 1:  
chip resistor = 0 ohm

## DM1/2 CN1

Pin No.	Pin Name	Wire Color	Destination
1	VSS		LCD-1
2	VDD		LCD-2
3	VO		LCD-3
4	RS		LCD-4
5	R/W		LCD-5
6	E		LCD-6
7	D0		LCD-7
8	D1		LCD-8
9	D2		LCD-9
10	D3		LCD-10
11	D4		LCD-11
12	D5		LCD-12
13	D6		LCD-13
14	D7		LCD-14

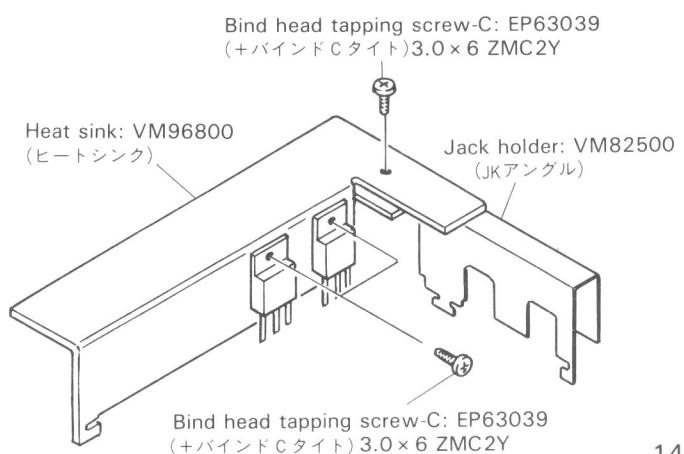
## DM1/2 CN2

Pin No.	Pin Name	Wire Color	Destination
1	P.LED		DM2/2-CN12-1
2	SW0		DM2/2-CN12-2
3	SW1		DM2/2-CN12-3
4	SW2		DM2/2-CN12-4
5	SW3		DM2/2-CN12-5
6	SW4		DM2/2-CN12-6
7	SW5		DM2/2-CN12-7
8	GND		DM2/2-CN12-8

## DM2/2 CN12

Pin No.	Pin Name	Wire Color	Destination
1	P.LED		DM1/2-CN2-1
2	SW0		DM1/2-CN2-2
3	SW1		DM1/2-CN2-3
4	SW2		DM1/2-CN2-4
5	SW3		DM1/2-CN2-5
6	SW4		DM1/2-CN2-6
7	SW5		DM1/2-CN2-7
8	GND		DM1/2-CN2-8

## • IC19, IC20 installation (IC19, IC20の取り付け)



## ■ TEST PROGRAM

### A. HOW TO ENTER THE TEST PROGRAM

- 1 Set the [HOST SELECT] switch at the [MIDI].
- 2 Connect the [MIDI IN] to the [MIDI OUT] via a MIDI cable.
- 3 While pressing the [CURSOR] and [ - /NO] and [+ /YES] switches, turn on the power switch. The TG100 will indicate that you have entered the Test Program by displaying the following message.

TG100 TEST U#.##

C:AT +:FCT - :EXT

Use the [CURSOR], [+ /YES] or [- /NO] switches to select the appropriate test mode. If you press the [CURSOR], the auto test mode will be initiated. If you press the [+ /YES], the TG100 will execute Test 11, "11. Factory settings", and then automatically exit the test mode and return to play mode (refer to Test 11 for details). If you press the [- /NO], you will exit the test mode and return to play mode.

### B. PROCEEDING THROUGH THE TESTS

The TG100 will run the INITIAL TEST routine (refer to the INITIAL TEST section for details) and indicate that you have entered the Test Program by displaying the following message.

00: TEST NO. 01 ?

Use the [+ /YES] and [- /NO] switch to move through the various tests of the test program, and then press the [CURSOR] to start the test from that number.

Pressing: [+ /YES] will execute the test which follows the current test.

[ - /NO] will execute the test which precedes the current test.

If you press the [CURSOR] without selecting a test number, the program will start from TEST 1.

### TEST SELECTION WHEN AN ERROR IS DETECTED

In each test shown below, if an NG (No Good) error is detected, the following operations will make the TG100 retry the test or perform another test.

TEST 3: MIDI TEST

TEST 4: TO HOST TEST

Pressing: [CURSOR] will execute the currently selected test.

[+ /YES] will execute the test which follows the current test.

[ - /NO] will execute Test 12, "12. EXIT" (refer to Test 12 for details).

### INITIAL TEST

A read/write test of EEPROM(IC 4) and PSRAM (IC 3) will be performed automatically when the test program is initiated.

### DISPLAY OF TEST RESULTS

NG	00: EEPROM	NG
----	------------	----

NG	00: PSRAM	NG
----	-----------	----

### TEST END

Ends after displaying the results. All RAM data is preserved.

If an error is detected, turn off the power switch to exit the test mode.

### TEST 1. LCD DOTS ON AND OFF TEST

Check that all dots of the LCD blink (ON and OFF). Then, rotate the [CONTRAST] and check that the contrast of the LCD changes continuously.

### TEST END

Press the [CURSOR] to end the test. The system will proceed to the next test.

### TEST 2. PANEL SWITCH TEST

02: SW PLAY
-------------

Press panel switches consecutively from the [PLAY] switch to switch [+ /YES], according to the order indicated by the LCD.

02: SW PART
-------------

(e.g. When checking [PART])

If the switch is OK, a beep will sound and you should proceed to test the next switch. If the wrong switch is pressed, and the error message NG will be displayed and no sound will be heard. At this time, if the correct switch is pressed, you will then be able to proceed to test the next switch. The display will indicate OK, if all switches are good.

### DISPLAY OF TEST RESULTS

OK	02: SW	OK
----	--------	----

NG	02: PLAY	NG
----	----------	----

(e.g. When [PLAY] is NG)

**TEST END**

When the switch [+ /YES] is pressed, OK is displayed and the test will end.

If an error is detected when the displayed switch is pressed, turn off the power switch to exit the test mode.

**TEST 3. MIDI TEST**

03: MIDI
----------

After connecting the [MIDI IN] to the [MIDI OUT] via a MIDI cable, execute the test.

**DISPLAY OF TEST RESULTS**

OK	03: MIDI	OK
----	----------	----

NG	03: MIDI	NG
----	----------	----

**TEST END**

After displaying the result, the test will end. If NG is detected during the test, refer to section B, "B. PROCEEDING THROUGH THE TESTS".

**TEST 4. HOST SELECT TEST**

04: HOST SW	xxx
-------------	-----

(where xxx = current [HOST SELECT] switch position)

This test is utilized by the factory and it is not intended for field service use.

**TEST END**

Turn off the power to exit the test mode.

**TEST 5. TO HOST TEST**

05: HOST Tx/Rx
----------------

This test is utilized by the factory and it is not intended for field service use.

**TEST END**

Press the [+ /YES] to end the test. The system will proceed to the next test.

**TEST 6: 1kHz SOUND OUTPUT (LINE OUT L) TEST**

06: 1kHz L
------------

Insert the appropriate 1/4" phone plugs into each output jack and check LINE OUT(L), LINE OUT (R), PHONES (L/R) outputs. If necessary, verify the frequency, output waveform and output level of each output using a frequency counter, oscilloscope,

AC voltmeter (with 12.47 kHz filter). The volume control must be set at maximum for these checks.

Listed below are the specifications and conditions of each output during this test.

LINE OUT(L):  $1\text{kHz} \pm 1.5\text{Hz}$ , sine wave, distortion 0.6% or less,  $+1.0\text{dBm} \pm 2\text{dB}$  (10k ohm load)

LINE OUT(R): less than  $-72\text{dBm}$

PHONES (L): sine wave,  $+5.0\text{dBm} \pm 2\text{dB}$  (150 ohm load)

PHONES (R): less than  $-66\text{dBm}$

**TEST END**

Press the [CURSOR] to end the test. The sound will stop and the TG100 then executes the next test.

**TEST 7: 1kHz SOUND OUTPUT (LINE OUT R) TEST**

07: 1kHz R
------------

Insert the appropriate 1/4" phone plugs into each output jack and check LINE OUT(L), LINE OUT (R), PHONES (L/R) outputs. If necessary, verify the frequency, output waveform and output level of each output using a frequency counter, oscilloscope, AC voltmeter (with 12.47 kHz filter). The volume control must be set at maximum for these checks.

Listed below are the specifications and conditions of each output during this test.

LINE OUT(L): less than  $-72\text{dBm}$

LINE OUT(R):  $1\text{kHz} \pm 1.5\text{Hz}$ , sine wave, distortion 0.6% or less,  $+1.0\text{dBm} \pm 2\text{dB}$  (10k ohm load)

PHONES (L): less than  $-66\text{dBm}$

PHONES (R): sine wave,  $+5.0\text{dBm} \pm 2\text{dB}$  (150 ohm load)

**TEST END**

Press the [CURSOR] to end the test. The sound will stop and the TG100 then executes the next test.

**TEST 8: LDSP/PSRAM TEST**

08: LDSP
----------

After performing the test 11, FACTORY SET, then execute the test 8.

Insert the appropriate 1/4" phone plugs into each output jack and check LINE OUT(L) output. If necessary, verify the frequency, output waveform and output level of the output using a frequency counter, oscilloscope, AC voltmeter (with 12.47 kHz filter). The volume control must be set at maximum for these checks.

Listed below is the specification and condition of the output during this test.

When the version of the MAIN ROM is V1.06 (ROM = XK731B00);

LINE OUT(L):  $1\text{kHz} \pm 1.5\text{Hz}$ , sine wave,  $-15.0\text{dBm} \pm 2\text{dB}$  (10k ohm load)

The others (ROM = XK731C00~);

LINE OUT(L):  $1\text{kHz} \pm 1.5\text{Hz}$ , sine wave,  $-12\text{dBm} \pm 2\text{dB}$  (10k ohm load)

\* The version is displayed when the test program is initiated (refer to How TO ENTER THE TEST PROGRAM section for details).

#### TEST END

Press the [CURSOR] to end the test. The sound will stop and the TG100 then executes the next test.

#### TEST 9: PEAK LED AND INPUT LEVEL CONTROL TEST

09: INPUT

Insert the appropriate 1/4" phone plugs into each output jack and apply a sine wave signal of  $-20\text{dBm}$ ,  $1\text{kHz}$  to the [AUDIO IN], and check LINE OUT(L), LINE OUT(R), PHONES (L/R) outputs. If necessary, verify the output waveform, output level of each output using an oscilloscope, AC voltmeter (with 12.47 kHz filter). The volume control must be set at maximum for these checks.

Listed below are the specifications and conditions of each output during this test.

1. Apply a sine wave signal of  $-20\text{dBm}$ ,  $1\text{kHz}$  to the [AUDIO IN(L)] and ground the [AUDIO IN(R)] terminal.

1-1. INPUT level control: minimum

LINE OUT(L):  $-24.0\text{dBm} \pm 2\text{dB}$  (10k ohm load)  
LINE OUT(R): less than  $-72\text{dBm}$

1-2. INPUT level control: maximum

LINE OUT(L):  $-8.5\text{dBm} \pm 2\text{dB}$  (10k ohm load)  
LINE OUT(R): less than  $-68\text{dBm}$

2. Apply a sine wave signal of  $-20\text{dBm}$ ,  $1\text{kHz}$  to the [AUDIO IN(R)] and ground the [AUDIO IN(L)] terminal.

2-1. INPUT level control: minimum

LINE OUT(L): less than  $-72\text{dBm}$   
LINE OUT(R):  $-24.0\text{dBm} \pm 2\text{dB}$  (10k ohm load)

2-2. INPUT level control: maximum

LINE OUT(L): less than  $-68\text{dBm}$   
LINE OUT(R):  $-8.5\text{dBm} \pm 2\text{dB}$  (10k ohm load)

3. Set the [INPUT] level control at maximum, and apply a sine wave signal of  $-12\text{dBm}$ ,  $1\text{kHz}$  to the [AUDIO IN] terminal and check that the [PEAK] LED will turn on.

#### TEST END

Press the [CURSOR] to end the test. The system will proceed to the next test.

#### TEST 10: 28 SOUND GENERATION TEST

10: 28 CH OUT 00

Confirm that sine wave signals of channel 1 through 28 are being sent to LINE OUT(L) and LINE OUT(R) every 0.6 seconds using an amplifier and speaker to monitor the signals. While these signals are sounding, the LCD will display the following message:

10: 28 CH OUT xx

(where xx = current sound channel)

#### TEST END

Press the [CURSOR] to end the test. The sound will stop and the TG100 then executes the next test.

#### TEST 11. FACTORY SET TEST

This test is used to initialize the data to the factory settings.

When this test is executed, the following display will appear.

11: FACT SET

If you press the [CURSOR], the factory preset data will be restored, and the TG100 executes Test 12, "12. Exit" and then automatically exit the test mode and return to play mode.

If you press the [-/NO], they will not be restored, and the system will exit the test mode and return to play mode.

#### DISPLAY OF TEST RESULTS

If factory settings are restored.

11: FACT SET OK

#### TEST END

The LCD displays the result and the test will end.

#### TEST 12. EXIT TEST PROGRAM

If this test is executed, the TG100 will exit the test mode and return to play mode.

## ■ テストプログラム

### A. テストプログラムの起動

[HOST SELECT] スイッチを [MIDI] ポジションにセットし、[MIDI IN] と [MIDI OUT] をMIDIケーブルで接続します。そして、[CURSOR] と [−/NO] と [+/YES] キーを押しながら電源を入れると下の左側の画面が表示され、しばらくすると右の画面が表示されます。



[CURSOR]、[+/YES] または [−/NO] キーを使用してテストモードの選択を行います。

[CURSOR] を押すとオートモードでテストにエントリーされます。

[+/YES]を押すと、テスト11のファクトリーセットを実行した後、自動的にテストモードから抜けてプレイモードになります。

[−/NO] を押すと、テストモードを抜けます。なお、このときはファクトリーセットは実行されません。

### B. テストの進め方

オートモードでテストプログラムが起動されると、次の画面が表示されます。この間にイニシャルテストのEEPROM/PSRAMテストが実行されます。



[+/YES] と [−/NO] キーを使用して実行を開始するテスト番号を選択します。

その後、[CURSOR] キーを押すと、設定したテスト番号から順に自動的にテストが実行されます。テスト番号を設定することなしに [CURSOR] キーを押すと、テスト1のLCDテストよりテストが実行されます。

#### NGと判断された時のテストの進め方

次の各テストにおいてエラーが発生したときは、エラー表示がされてテストが止まります。

テスト3：MIDIテスト

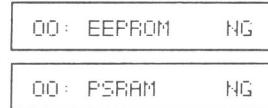
テスト4：TO HOSTテスト

このとき [CURSOR] を押すと、テストはエラーが発生したテストから再開されます。[+/YES] を押すと、テストはエラーが発生したテストの次のテストから再開されます。また [−/NO] を押すと、テストモードを抜けます。なお、テスト2のパネルスイッチテストのときにエラーが発生した場合は、この機能は働きません。

### C. イニシャルテスト EEPROM/PSRAMテスト

EEPROM(IC4)とPSRAM(IC3)のリード/ライトテストが実行されます。テストがOKの場合、“00: TEST NO. 01”が表示され、テスト番号の入力待ちとなります。

#### 判定結果の表示



#### テストの終了方法

NGと判定した場合、NGを表示して無限ループに入ります。ここから抜けるには、電源を切ります。なお、テストが実行されてもEEPROMの全てのデータは保存されます。

### テスト1 LCDテスト

LCDの全ドットがブリンクしていることを、目でみて確認します。また、リアパネルのCONTRASTツマミを動かして、コントラストが連続的に変わることを確認します。

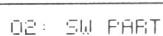
#### テストの終了方法

[CURSOR] を押すとテストは終了し、次のテストへ進みます。

### テスト2 パネルスイッチテスト



[PLAY] から [+/YES] までのパネルスイッチを、次のようなLCDの表示に従ってON/OFFします。



( [PART] スイッチのチェックの場合)

押されたスイッチが正常な場合、“ポーッ”と発音して次のスイッチのテストに進みます。表示と違うスイッチが押されると、NGが表示されて発音しません。その後、正しいスイッチが押されると、次のスイッチのテストに進みます。

全てのスイッチが正常であれば、OKが表示されます。

#### 判定結果の表示

02: SW	OK
02: PLAY	NG

( [PLAY] スイッチがNGのとき)

#### テストの終了方法

[+/YES] までチェックするとOKが表示されてテストは終了し、次のテストへ進みます。

NGが発生した場合、テストはそこでストップし表示しているスイッチが押されるまで無限に待ちます。このルーチンを抜けるには電源を切ります。

#### テスト 3 MIDIテスト

03: MIDI

[MIDI IN] と [MIDI OUT] を [MIDI] ケーブルで接続した後、テストを実行します。

#### 判定結果の表示

03: MIDI	OK
03: MIDI	NG

#### テストの終了方法

判定結果を表示して終了します。

テストの途中でNGと判断したとき、またはNGと表示したときの処理方法は、“B.テストの進め方”を参照して下さい。

#### テスト 4 HOST SELECTテスト

04: HOST SW xxx

(xxx : 現在セットされているスイッチの位置)

このテストは、工場出荷検査用に準備されたテストです。従って、ここでは実行しません。電源を切って、テストを終了して下さい。

#### テスト 5 TO HOSTテスト

05: HOST Tx/Rx

このテストは、工場出荷検査用に準備されたテストです。従って、ここでは実行しません。

#### テストの終了方法

[+/YES]を押すとテストは終了し、次のテストへ進みます。

#### テスト 6 1kHz OUTPUT L発音

06: 1kHz L

[LINE OUT(L)]、[LINE OUT(R)]、[PHONES(L/R)]共にプラグを差し込み、各出力の周波数、出力波形、出力レベルを、周波数カウンタ、オシロスコープ、レベル計(12.47kHzフィルター付き)で観測します。このとき、マスターボリュームは最大とします。

#### チェック項目

LINE OUT L : 1kHz±1.5Hz、サイン波、歪率0.6%以下、+1.0±2dBm(負荷10kオーム)

LINE OUT R : -72dBm以下

PHONES(L) : サイン波、+5.0±2dBm(負荷150オーム)

PHONES(R) : -66dBm以下

#### テストの終了方法

[CURSOR] キーを押すと発音が終了し、次のテストに進みます。

## テスト 7 1kHz OUTPUT R発音

07: 1kHz R

[LINE OUT(L)]、[LINE OUT(R)]、[PHONES(L/R)]共にプラグを差し込み、各出力の周波数、出力波形、出力レベルを、周波数カウンタ、オシロスコープ、レベル計(12.47kHzフィルター付き)で観測します。このとき、マスターボリュームは最大とします。

### チェック項目

LINE OUT L : -72dBm以下

LINE OUT R : 1kHz±1.5Hz、サイン波、歪率0.6%以下、+1.0±2dBm(負荷10kオーム)

PHONES(L) : -66dBm以下

PHONES(R) : サイン波、+5.0±2dBm(負荷150オーム)

### テストの終了方法

[CURSOR]キーを押すと発音が終了し、次のテストに進みます。

## テスト 8 LDSP/PSRAMテスト

08: LDSP

このテストは、テスト11のファクトリーセットを実行した後で行って下さい。

[LINE OUT(L)]、[LINE OUT(R)]、[PHONES(L/R)]共にプラグを差し込み、[LINE OUT(L)]の出力の周波数、出力波形、出力レベルを、周波数カウンタ、オシロスコープ、レベル計(12.47kHzフィルター付き)で観測し、LDSPとPSRAMが正常に動作していることを確認します。このとき、マスター音量は最大とします。

### チェック項目

ソフトバージョンV1.06のとき(ROM=XK731B00)

LINE OUT L : 1kHz±1.5Hz、サイン波、-15.0±2dBm(負荷10kオーム)

ソフトバージョンV1.06以上のとき  
(ROM=XK731C00~)

LINE OUT L : 1kHz±1.5Hz、-12.0±2dBm

(負荷10kオーム)

※ソフトバージョンは、テストプログラム起動時にLCDに表示されます。

### テストの終了方法

[CURSOR]キーを押すと発音が終了し、次のテストに進みます。

## テスト 9 PEAK LED/INPUT LEVEL CONTROLテスト

09: INPUT

[LINE OUT(L)]、[LINE OUT(R)]、[PHONES(L/R)]共にプラグを差し込み、[AUDIO IN]にサイン波を入力したときの各出力の出力波形、出力レベルを、オシロスコープ、レベル計(12.47kHzフィルター付き)で観測します。また、[PEAK LED]が点滅することも確認します。このとき、マスター音量は最大とします。

### チェック項目

AUDIO IN(L)に-20dBm・1kHzのサイン波を入力したとき(AUDIO IN(R)はグランドに接地)

INPUT LEVEL CONTROL : 最小のとき

LINE OUT L : -24.0±2dBm(負荷10kオーム)

LINE OUT R : -72dBm以下

INPUT LEVEL CONTROL : 最大のとき

LINE OUT L : -8.5±2dBm(負荷10kオーム)

LINE OUT R : -68dBm以下

AUDIO IN(R)に-20dBm・1kHzのサイン波を入力したとき(AUDIO IN(L)はグランドに接地)

INPUT LEVEL CONTROL : 最小のとき

LINE OUT L : -72dBm以下

LINE OUT R : -24.0±2dBm(負荷10kオーム)

INPUT LEVEL CONTROL : 最大のとき

LINE OUT L : -68dBm以下

LINE OUT R : -8.5±2dBm(負荷10kオーム)

INPUT LEVEL CONTROLを最大とし、AUDIO IN(L)に-12dBm・1kHzのサイン波を入力したとき、PEAK LEDが点灯することを確認します。

#### テストの終了方法

[CURSOR]キーを押すとテストは終了し、次のテストへ進みます。

#### テスト10 28音発音

10: 28 CH OUT 00

[LINE OUT L] と [LINE OUT R] にモニター用のアンプとスピーカーを接続した後、テストを実行します。

[LINE OUT L] と [LINE OUT R] より、1チャンネルから28チャンネルの各音が、正常に発音されることを確認します。

発音は約0.5秒、0.1秒間隔で繰り返し行われ、発音中LCDの表示は以下のようになります。

10: 28 CH OUT xx

(xx : 現在発音しているチャンネル番号)

#### テストの終了方法

[CURSOR]キーを押すとテストは終了し、次のテストへ進みます。

#### テスト11 ファクトリーセット

11: FACT SET

各のデータを、ファクトリーセットデータにセットします。

[CURSOR]を押すと、ファクトリーセットされた後テスト12へ進み、テストを抜けてプレイモードとなります。

[-/NO]を押すと、ファクトリーセットされずにテストを抜けてプレイモードとなります。

#### 判定結果の表示

ファクトリーセットされた場合

11: FACT SET OK

#### テストの終了方法

判定結果を表示して終了します。

#### テスト12 EXIT

このテストに入ると、すぐにテストが実行され、テストモードから抜けてプレイモードとなります。

# ■ MIDI DATA FORMAT

## 1. GENERAL

### 1.1 Application

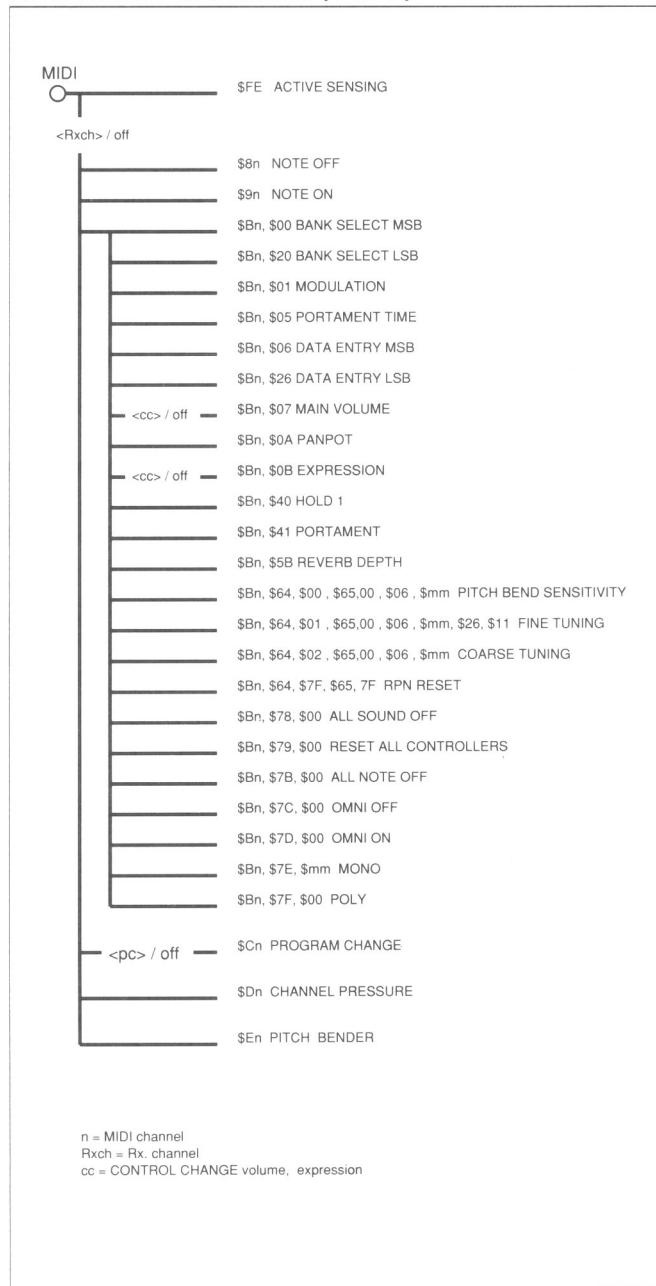
The following MIDI data and specifications apply to the TG100.

### 1.2 Applied standards

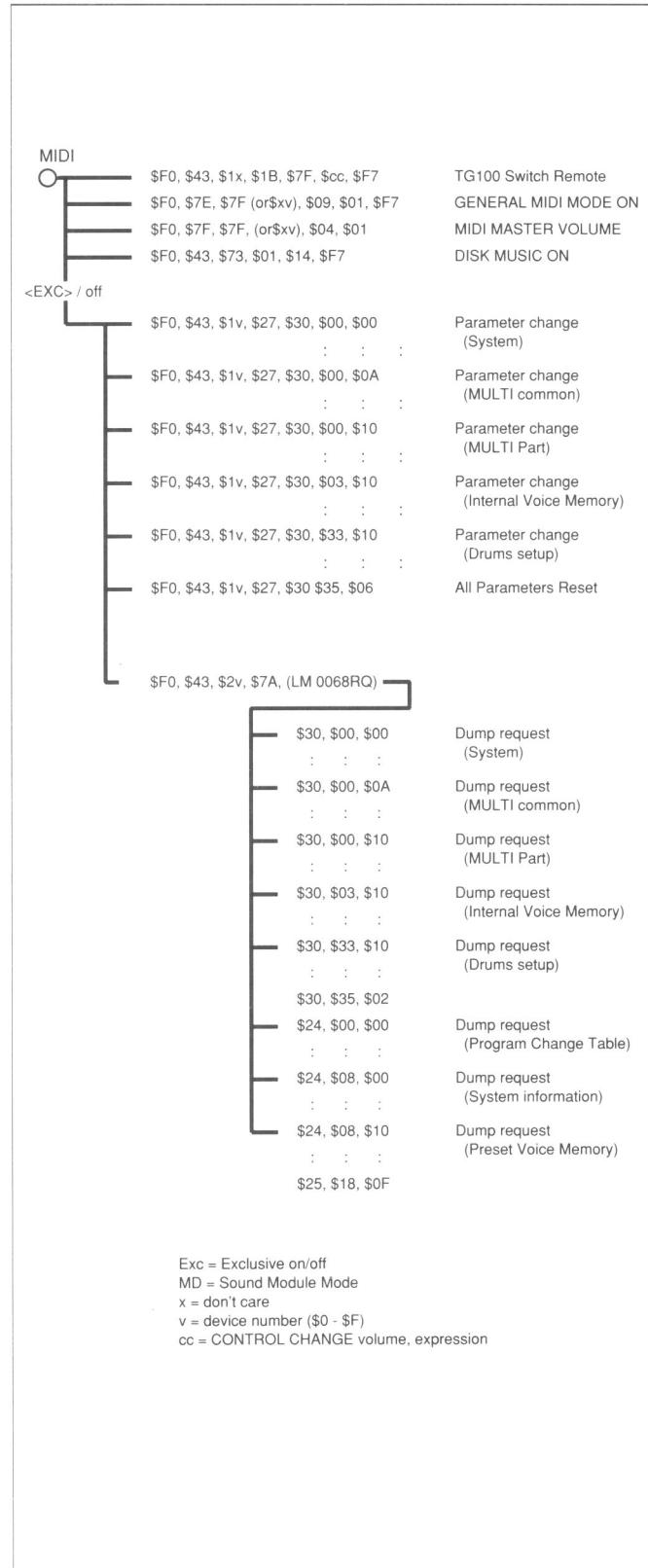
MIDI 1.0 standard.

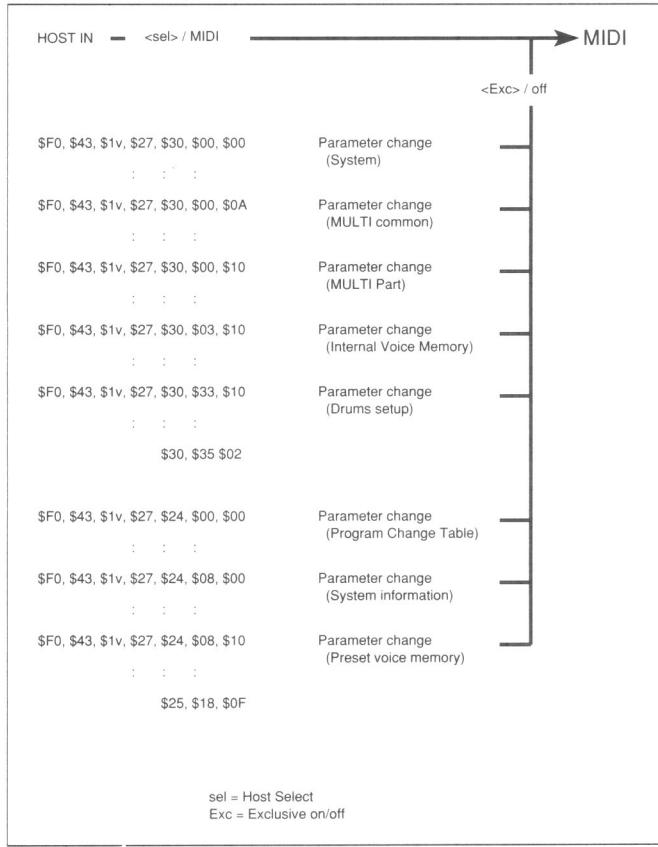
## 2. MIDI receive & send diagrams

### MIDI receive conditions (1 of 2)



### MIDI receive conditions (2 of 2)



**MIDI send conditions (1 of 2)**

\*1 Used to select parameter value specified by, “3.2.7RPN (Registered Parameter Number)”.

\*2 Portamento work as follows:

- When a key of a higher pitch than the currently held key is played the pitch sweeps up from a value 100 cents below the key's pitch.
- When a key of a lower pitch than the currently held key is played the pitch sweeps down from a value 100 cents above the key's pitch.

\*3 Used to select the unit's voice banks shown below.

MSB	LSB	Bank Name
0..63	0	General MIDI
64..111	0	INTERNAL
112..126	0	DISK ORCHESTRA
127	0	C/M (CM-64)

If a Program Change Message is received immediately after a Bank Select Message has been received, the Program Change number will correspond to the selected voice bank.

\*4 When a Part's PANPOT setting is VOICE, the pan position is adjusted relative to the pan position of the elements used by the voice.

When a Part's PANPOT position is not set to VOICE, the elements pan position is ignored and complete adjustment of pan position is possible.

**3.2.3 Program Change**

You can select one of two Program Change receive modes.

- 1) off: Ignore Program Changes.
- 2) on: respond to Program Changers.

In Disk Orchestra mode, if a Program Change number that is not assigned to a voice is received, it is ignored.

In Disk Orchestra, and C/M modes, Program Change numbers are ignored by the drum Part 10.

**3.2.4 Pitch Bend**

Responds to 14-bit pitch bend data (-8192...+8191).

**3.2.5 Channel Pressure****3.2.6 Channel Mode Message**

The following Channel Mode messages can be received.

2nd byte	3rd byte	
120	0	All Sound Off
121	0	Reset All Controller
123	0	All Note Off
124	0	Omni Off
125	0	Omni On
126	0..16	Mono
127	0	Poly

**3.2.6.1 All Sound Off**

Any sound being produced is stopped. However, parts that are receiving Channel Messages such as Note-on, Hold-on etc., will continue.

**3. Channel Messages****3.1 Send**

Channel Messages not sent.

When the Host Select switch is set to anything other than “MIDI”, MIDI data is echoed back as follows.

HOST IN → MIDI OUT

MIDI IN → HOST OUT

**3.2 Receive****3.2.1 Note on/off**

Note range = C-2...G8

Velocity range 1...127 (only applies to note-on)

**3.2.2 Control Change**

The following parameters can be controlled using MIDI Control Change messages.

Ctrl No.	Parameter	Data range	
0	Bank Select MSB	0..127	*3
32	Bank Select LSB	0..127	*3
1	Modulation	0..127	
5	Portamento Time	0..127	
6	Data Entry MSB	0..127	*1
38	Data Entry LSB	0..127	*1
7	Main Volume	0..127	
10	Panpot	0..127	*4
11	Expression	0..127	
64	Hold 1	0..127	
65	Portamento	0..127	*2
91	Reverb Depth	0..127	

### 3.2.6.2 Reset All Controllers

Controllers are set to the following values.

Controller	Reset Value
Pitch Bend	±0 (neutral)
Channel Pressure	0 (off)
Modulation	0 (off)
Expression	127 (maximum)
Hold 1	0 (off)
Portamento	0 (off)
RPN	Not set. Internal data does not change.

### 3.2.6.3 All Note Off

All Notes currently on will be turned off. However, if Hold 1 is on, sound generation will not stop until Hold 1 stops.

### 3.2.6.4 Omni Off

Processing is the same as that for "All Note Off".

### 3.2.6.5 Omni On

Processing is the same as that for "All Note Off".

### 3.2.6.6 Mono

Processing is the same as that for "All Note Off". If the 3rd byte (Mono value) is between 0...16, the relevant Part is set to Mode 4 (m=1).

### 3.2.6.7 Poly

Processing is the same as that for "All Note Off". The relevant Part will be set to Mode 3.

### 3.2.7 RPN (Registered Parameter Number)

Select the control parameter, giving RPN MSB and RPM LSB, then put the parameter value in the Data Entry.

The unit responds to the following RPN.

RPN MSB LSB	Data Entry MSB LSB	
\$00 \$00	\$mm---	Pitch bend sensitivity mm: \$00...\$18 (0...24 semitones). ---:don't care. A range of 2 octaves can be selected. At switch on range is set to 2 semitones.
\$00 \$01	\$mm\$11	Master fine tuning (mm, 11): (\$00, \$00)...(\$40, 400)...(\$7F, \$7F) (-8192 x 100/8192...0...+8191 x 100/8192 cents)
\$00 \$02	\$mm---	Master course tuning mm: \$28...\$40...\$58 (-24...0...+24 semitones) ---: don't care
\$7F \$7F	--- ---	RPN reset ---; don't care RPN Not set. Internal data does not change

## 4. System Exclusive Message

### 4.1 Parameter Change

The unit works with the following parameter changes.

- 1) System Data Parameter Change
- 2) Multi Common Data parameter change
- 3) Multi Part Data parameter change
- 4) Internal Voice Memory parameter change
- 5) Drums Setup Data parameter change
- 6) Preset Voice Memory parameter change
- 7) Program Change Table parameter change
- 8) System Information
- 9) All Parameter Reset
- 10) TG100 Switch remote
- 11) General MIDI Mode On
- 12) MIDI Master Volume
- 13) Disk Music On

Parameter change transmission is switched off only when Exclusive is set to off.

The parameter change format is as follows

11110000	F0	= Exclusive status
01000011	43	= YAMAHA ID
0001nnnn	nnnn	= Device Number
00100111	27	= Model ID
Oaaaaaaaaa	aaaaaaaa	= Start Address b20 - b14
Oaaaaaaaaa	aaaaaaaa	= Start Address b13 - b7
Oaaaaaaaaa	aaaaaaaa	= Start Address b6 - b0
Oddddddd	ddddddd	= Data
0ccccccc	ccccccc	= Check-sum
11110111	F7	= End of exclusive

Data is correctly processed if the Dump request receive address corresponds with the Start Address and the Dump Request's byte count is correct.

For the Start Address and byte count, see the tables .

The sending device must add the header to each parameter. For example, when sending System and Multi parameters with only one header, the receiver can only identify System parameters. Therefore, the sending device must not skip these characters.

- System
- Multi
- Internal voice
- Drums Part
- All parameters reset

Do not send more than 256 bytes in one transmission.

If you have a Dump request of more than 256 bytes, split it into sections, then transmit them at 20ms intervals.

The check sum's lowest 7-bit value is zero after adding the Start Address, Data and check sum.

While sending the data, the "HOST" in echo back does not function

### 4.1.1 System Data Parameter Change

Refer to "Parameter base address" and "MIDI Parameter Change table (System)".

### 4.1.2 Multi Common Data parameter change

Refer to "Parameter base address" and "MIDI Parameter Change table (MULTI common)".

#### 4.1.3 Multi Part Data parameter change

The actual address value = the start address + the offset address.

Refer to "Parameter base address" and "MIDI Parameter Change table (MULTI Part)".

#### 4.1.4 Drums Setup Data parameter change

The actual address value = the address at the top of each block + the offset address.

If a different Drum kit is selected, the Drum Setup parameters are initialized.

Refer to "Parameter base address" and "MIDI Parameter Change table (Drums Setup)".

#### 4.1.5 Internal Voice Memory parameter change

The actual address value = the address at the top of each block + the offset address.

Refer to "Parameter base address" and "MIDI Parameter Change table (VOICE Memory)".

#### 4.1.6 Preset Voice Memory parameter change

This data can be sent, but it is ignored if received.

The actual address value = the address at the top of each block + the offset address.

Refer to "Parameter base address" and "MIDI Parameter Change table (VOICE Memory)".

#### 4.1.7 Program Change Table parameter change

This data can be sent, but it is ignored if received.

Refer to "Parameter base address" and "MIDI Parameter Change table (Program change table)".

#### 4.1.8 System Information parameter change

This data can be sent, but it is ignored if received.

Refer to "Parameter base address" and "MIDI Parameter Change table (System information)".

#### 4.1.9 All Parameters Reset

11110000	F0	= Exclusive status
01000011	43	= YAMAHA ID
0001nnnn	nnnn	= Device Number
00100111	27	= Model ID
00110000	30	= Start Address b20 - b14
00111001	35	= Start Address b13 - b7
00000100	06	= Start Address b6 - b0
00000000	00	= Data
00010011	15	= Check-sum
11110111	F7	= End of exclusive

Reset the system. All internal parameters are reset to the default (factory) settings.

#### 4.1.10 TG100 Switch remote

11110000	F0	= Exclusive status
01000011	43	= YAMAHA ID
0001xxxx	xxxx	= don't care
00011011	1B	= Switch remote ID
01111111	7F	= Switch remote sub ID
0ddddd	ddddd	= Data
11110111	F7	= End of exclusive

The LCD screen will show the same as when the power is turned on.

The following data is received even if the Exclusive is turned off.

Data	Switch
0	PLAY
1	PART
2	EDIT
3	CURSOR
4	-1/NO
5	+1/YES

#### 4.1.11 General MIDI Mode On

11110000	F0	= Exclusive status
01111110	7E	= Universal Non-Real time
01111111	7F	= ID of target device
00001001	09	= Sub-ID No.1=General MIDI Message
00000001	01	= Sub-ID No.2=General MIDI On
11110111	F7	= End of exclusive

OR;

11110000	F0	= Exclusive status
01111110	7E	= Universal Non-Real time
0XXXnnnn	nnnn	= Device Number, XXX=don't care
00001001	09	= Sub-ID No.1=General MIDI Message
00000001	01	= Sub-ID No.2=General MIDI On
11110111	F7	= End of exclusive

The Sound Module mode changes to General MIDI mode when the ON data is received.

The above data is received even if the Exclusive is set to off.

#### 4.1.12 MIDI Master Volume

11110000	F0	= Exclusive status
01111111	7F	= Universal Real time
01111111	7F	= ID of target device
00000100	04	= Sub-ID No.1=Device control Message
00000001	01	= Sub-ID No.2=Master Volume
01111111	11	= Volume LSB
0mmmmmm	mm	= Volume MSB
11110111	F7	= End of exclusive

OR;

11110000	F0	= Exclusive status
01111111	7F	= Universal Real time
0XXXnnnn	nnnn	= Device Number, XXX=don't care
00000100	04	= Sub-ID No.1=Device Control Message
00000001	01	= Sub-ID No.2=Master Volume
01111111	11	= Volume LSB
0mmmmmm	mm	= Volume MSB
11110111	F7	= End of exclusive

When the "Volume MSB" is received, the Master Volume is set.

The above data is received even if the Exclusive is set to off.

#### 4.1.13 Disk Music On

11110000	F0	= Exclusive status
01000011	43	= YAMAHA ID
01110011	73	= Instrument Classified (CLAVINOVA)
00000001	01	
00010100	14	= Disk Music On
11110111	F7	= End of exclusive

The Sound Module mode changes to Disk Orchestra when the ON data is received.

The above data is received even if the Exclusive is set to off.

## 4.2 Dump request

The following Dump requests can be carried out.

- 1) System Data
- 2) Multi Common Data
- 3) Internal Voice Memory
- 4) Preset Voice Memory
- 5) Program Change Table

Dump request can only be switched off by setting Exclusive to off.

This unit cannot make Dump requests.

Dump requests to this unit should be as follows.

11110000	F0	= Exclusive status
01000011	43	= YAMAHA ID
0010nnnn	nnnn	= Device Number
01111010	7A	= Format number
01001100	4C	= "L"
01001100	4D	= "M"
00100000	20	= " "
00100000	20	= " "
00110000	30	= "0"
00110000	30	= "0"
00110110	36	= "6"
00110110	38	= "8"
01010010	52	= "R"
01010001	51	= "Q"
Oaaaaaaaaa	aaaaaaaa	= Start Address b20 - b14
Oaaaaaaaaa	aaaaaaaa	= Start Address b13 - b7
Oaaaaaaaaa	aaaaaaaa	= Start Address b6 - b0
Osssssss	sssssss	= Byte Count b20 - b14
Osssssss	sssssss	= Byte Count b13 - b7
Osssssss	sssssss	= Byte Count b6 - b0
00000000	00	
00000000	00	
00000000	00	
00000000	00	
00000000	00	
00000000	00	
00000000	00	
00000000	00	
0ccccccc	ccccccc	= Check-sum
11110111	F7	= End of exclusive

Data is correctly processed if the Dump request receive address corresponds with the Start Address and the Dump Requests' byte count is correct.

For the Start Address and byte count, see the tables .

The check sum's lowest 7-bit value is zero after adding the Start Address, Data and check sum.

Dump request, the sending device must add the header to each parameter.

For example, when a request for System and Multi parameters is sent with only one header, the unit will send back only the System parameters.

- System
- Multi common
- Multi Part
- Internal voice
- Drums Part
- All parameters reset

### 4.2.1 System Data parameter change

Refer to "Parameter base address" and "MIDI Parameter Change table (System)".

### 4.2.2 Multi Common Data parameter change

Refer to "Parameter base address" and "MIDI Parameter Change table (MULTI common)".

### 4.2.3 Multi Part Data parameter change

Refer to "Parameter base address" and "MIDI Parameter Change table (MULTI Part)"

### 4.2.4 Drums Setup Data parameter change

Refer to "Parameter base address" and "MIDI Parameter Change table (Drums Setup)".

### 4.2.5 Internal Voice Memory parameter change

Refer to "Parameter base address" and "MIDI Parameter Change table (VOICE Memory)".

### 4.2.6 Preset Voice Memory parameter change

Refer to "Parameter base address" and "MIDI Parameter Change table (Program change table)".

### 4.2.7 Program Change table parameter change

Refer to "Parameter base address".

### 4.2.8 System Information parameter change

Refer to "Parameter base address" and "MIDI Parameter Change table (System information)".

## 5. Status FE (active sensing)

A) Sending

Not sent.

B) receiving

After receiving one FE message, if no MIDI data is received for more than 300msec, the unit will activate ALL SOUND OFF, ALL NOTE OFF and RESET ALL CONTROLLERS, as if no FE message had been received.

## 6. MIDI LCD messages

While exclusive data is being received, there are no messages on the LCD display.

If an error occurs, such as a check sum error, the following message appears, transmission stops, then the previous LCD display appears.

Illegal Data !!

Disconnect the line, and the previously displayed message will appear.

If the device numbers don't match, or the Exclusive is set to off, data is ignored and no message is displayed.

While exclusive data is being transmitted, the following LCD display is shown.

Transmitting !!

If many MIDI messages are received in too short a time, the following message appears for a few seconds, receiving is stopped, then the previously displayed message appears.

MIDI Buf Full !

When Program Change messages are received in play mode, the Part, BANK, PC VALUE and VOICE NAME are shown on the LCD display.

### 1.1 Parameter base address

Parameter change					
Start Address (H)			Description		
30	00	00	System		
30	00	0A	Multi common		
30	00	10	Multi Part 10		
30	00	28	Multi Part 1		
:			:		
30	02	60	Multi Part 15		
30	02	78	Multi Part 16		
30	03	10	Internal voice 0		
30	03	70	Internal voice 1		
:			:		
30	31	70	Internal voice 62		
30	32	50	Internal voice 63		
30	33	10	Drums Part key No.27		
30	33	13	Drums Part key No.28		
:			:		
30	35	00	Drums Part key No.107		
30	35	03	Drums Part key No.108		
30	35	06	All parameters reset		
<Program change table>					
24	00	00	General MIDI LEVEL 1		
24	02	00	DISK ORCHESTRA		
24	04	00	C/M TYPE 1		
24	06	00	C/M TYPE 2		
24	08	00	System Information		
24	08	10	Preset voice 0		
24	08	70	Preset voice 1		
:			:		
25	16	A0	Preset voice 190		
25	17	30	Preset voice 191		

### Voice Memory

Parameter change					
Offset Address (H)			Description		
00		00	Common parameter		
00		18	Element 1 parameter		
00		3C	Element 2 parameter		

The actual address value = the address at the top of each block + the offset address.

### 1.2 MIDI Parameter Change table (System)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
30 00 00 02	1C-E4	MASTER TUNE	-100...+100(cent)	08 00 (80)	
30 00 01#			1st b3-0 → b7-4		
			2nd b3-0 → b3-0		
30 00 02 01	28-58	TRANSPOSE	-24...+24 semitones	40	
30 00 03 01	00-10	DEVICE NUMBER	0...15, 16: all	10	
30 00 04 01	00-01	EXCLUSIVE	0: off, 1: on	01	
30 00 05 01	00-01	PROGRAM CHANGE	0: off, 1: on	01	
30 00 06 01	00-01	CONTROL CHANGE	0: off, 1: on		
		VOLUME, EXPRESSION		01	

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
30 00 07 01	00-7F	SOUND MODULE	0: General MIDI 1: Disk Orchestra 2: C/M	00	
30 00 08 01	00-7F	MASTER VOLUME	0..127 (=F0 7F 7F 04 01 xx vv F7)	7F	
30 00 09 01	00-02	VELOCITY METER	0: off 1: auto 2: on	01	
<b>TOTAL SIZE</b>	0A				

### REMARKS:

The address marked with "#", cannot be used as the "Start address".

### 1.3 MIDI Parameter Change table (MULTI common)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
30 00 0A 01	00-07	REVERB TYPE	0: Hall 1 1: Hall 2 2: Room 1 3: Room 2 4: Plate 1 5: Plate 2 6: Delay 1 7: Delay 2	00	
30 00 0B 01	03-36	REVERB TIME	3...54	21	
30 00 0C 01	18-46	REVERB OUTPUT LEVEL	-40...+6dB	3E	
<b>TOTAL SIZE</b>	03				

### 1.4 MIDI Parameter Change table (MULTI Part)

Offset Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
00 00 02	00-7F	VOICE BANK	0...63 General MIDI 64...111: INTERNAL 112...126: DISK ORCHESTRA 127: C/M (=Bx 00 vv 20 00)	38	
00 01#	00-7F	PC VALUE	(=Cx vv)	00	
00 02 01	00-10	RX.CHANNEL	0...15 16: off	n	
00 03 01	00-01	MONO/POLY MODE	0: Mono (Bx 7E 01) 1: Poly (=Bx 7F 00)	01	
00 04 02	1C-E4	DETUNE	-100...+100(cent)	08 00 (80)	
00 05#			1st b3-0 \$ b7-4 2nd b3-0 \$ b3-0 (=Bx 64 01 65 00 06 vv 26 vv)		
00 06 01	28-58	NOTE SHIFT	-24...+24 semitones (=Bx 64 02 65 00 06 vv)	40	
00 07 01	00-7F	VOLUME	0...127 (=Bx 07 vv)	64	
00 08 01	00-0F	VELOCITY SENSE	0...15	08	
00 09 01	00-0F	PANPOT	8: voice 9: left 15: left center 0: center	08	

Offset Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
				7: right (=Bx 0A vv' except voice)	
00 0A	01	00 - 7F	NOTE LIMIT LOW	C-2...G8	00
00 0B	01	00 - 7F	NOTE LIMIT HIGH	C-2...G8	7F
00 0C	01	00 - 08	REVERB SEND DEPTH	0:min : 8:max (=Bx 5B vv')	04
00 0D	01	39 - 47	LFO SPEED	-7...+7	40
00 0E	01	31 - 4F	LFO DEPTH	-15...+15	40
00 0F	01	00 - 7F	LFO DELAY	-64...+63	40
00 10	01	39 - 47	EG.ATTACK RATE	-7...+7	40
00 11	01	39 - 47	EG.RELEASE RATE	-7...+7	40
00 12	01	00 - 18	PITCH BEND RANGE	0...24 semitones (=Bx 64 00 65 00 06 vv)	02
00 13	01	00 - 0F	MOD LFO PITCH DEPTH	0...15	0F
00 14	01	00 - 7F	don't care	0...127	00
00 15	01	28 - 58	CAF PITCH CONTROL	-24...+24 (semitone)	40
00 16	01	00 - 0F	CAF LFO PITCH DEPTH	0...15	00
00 17	01	00 - 7F	don't care	0...127	00
<b>TOTAL SIZE</b>	18				

**REMARKS:**

n: block number (0 - F)	Part 1	n = 1
	:	:
	Part 9	n = 9
	Part 10	n = 0
	Part 11	n = A
	:	:
	Part 16	n = F

x: MIDI channel number (0 - F)

When  $n = 0$  (Drums), the following parameters are ignored.

- PC VALUE
  - VOLUME
  - PANPOT
  - REVERB SEND DEPTH

xx' After conversion, it will be written:

The address marked with “#”, cannot be used as the “Start address”.

The actual address value = the address at the top of each block + the offset address

#### **1-5 MIDI Parameter Change table (Drums Setup)**

Offset Address (H)	Size (H)	Data (H)	Parameter	Description
00 00	01	00 - 7F	LEVEL	0...127
00 01	01	00 - 0F	PANPOT	9: left
				:
				15: left center
				0: center
				:
				7: right
00 02	01	00 - 08	REVERB DEPTH	0: min
				:
				8: max
<b>TOTAL SIZE</b>	03			

**REMARKS:**

The actual address value = the address at the top of each block + the offset address.

## **1.6 MIDI Parameter Change table (VOICE Memory)**

### **1) Common parameter**

Offset Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
00 00	01	00 - 01	VOICE MODE	0: 1 element 1: 2 element	00
00 01	01	00 - 7F	ELEMENT1 LEVEL	0...127	7F
00 02	01	00 - 7F	ELEMENT2 LEVEL	0...127	7F
00 03	01	20 - 5F	ELEMENT1 DETUNE	-32...+31	40
00 04	01	20 - 5F	ELEMENT2 DETUNE	-32...+31	40
00 05	01	00 - 7F	PORTAMENTO TIME	0...127	01
00 06	01	00 - 0F	MOD LFO PITCH DEPTH	0...15	0F
00 07	01	00 - 7F	don't care	0...127	00
00 08	01	00 - 0F	CAF LFO PITCH DEPTH	0...15	00
00 09	01	00 - 7F	don't care	0...127	00
00 0A	01	00 - 04	ELEMENT 1 PITCH RATE SCALING	0: 100% 1: 50% 2: 20% 3: 10% 4: 5% 5: 0%	00
00 0B	01	00 - 7F	ELEMENT 1 PITCH RATE SCALING CENTER NOTE	0...127 (C-2...G8)	3C
00 0C	01	28 - 58	ELEMENT 1 NOTE SHIFT	-24...+24 semitones	40
00 0D	01	28 - 58	ELEMENT 2 NOTE SHIFT	-24...+24 semitones	40
00 0E	01	00 - 04	ELEMENT 2 PITCH RATE SCALING	0: 100% 1: 50% 2: 20% 3: 10% 4: 5% 5: 0%	00
00 0F	01	00 - 7F	ELEMENT 2 PITCH RATE SCALING CENTER NOTE	0...127 (C-2...G8)	3C
00 10	01	20 - 7F	VC NAME1	ASCII character	
00 11	01	20 - 7F	VC NAME2	ASCII character	
00 12	01	20 - 7F	VC NAME3	ASCII character	
00 13	01	20 - 7F	VC NAME4	ASCII character	
00 14	01	20 - 7F	VC NAME5	ASCII character	
00 15	01	20 - 7F	VC NAME6	ASCII character	
00 16	01	20 - 7F	VC NAME7	ASCII character	
00 17	01	20 - 7F	VC NAME8	ASCII character	
<b>TOTAL SIZE</b>	18				

### Remarks:

The actual address value = the address at the top of each block + the offset address.

**2) Element parameter**

Offset Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
00 00 02	00 - 8B	WAVEFORM		0: 139	00 00 (00)
00 01#				1st b3-0 → b7-4	
				2nd b3-0 → b3-0	
00 02 01	31 - 4F	EG AR		-15...+15	40
00 03 01	31 - 4F	EG RR		-15...+15	40
00 04 01	00 - 7F	LEVEL SCALING		C-2...G8	40
		BREAK POINT1			
00 05 01	00 - 7F	BREAK POINT2		C-2...G8	40
00 06 01	00 - 7F	BREAK POINT3		C-2...G8	40
00 07 01	00 - 7F	BREAK POINT4		C-2...G8	40
00 08 02	00 - FF	LEVEL SCALING		-128...+127	08 00 (80)
00 09#		OFFSET1		1st b3-0 → b7-4	
				2nd b3-0 → b3-0	
00 0A 02	00 - FF	OFFSET2		-128...+127	08 00 (80)
00 0B#				1st b3-0 → b7-4	
				2nd b3-0 → b3-0	
00 0C 02	00 - FF	OFFSET3		-128...+127	08 00 (80)
00 0D#				1st b3-0 → b7-4	
				2nd b3-0 → b3-0	
00 0E 02	00 - FF	OFFSET4		-128...+127	08 00 (80)
00 0F#				1st b3-0 → b7-4	
				2nd b3-0 → b3-0	
00 10 01	00 - 0F	PANPOT		9: left	00
				:	
				15: left center	
				0: center	
				:	
				7: right	
00 11 01	00 - 07	LFO SPEED		0...7	04
00 12 01	00 - 7F	LFO DELAY		0...127	00
00 13 01	00 - 7F	don't care		0...127	00
00 14 01	00 - 0F	LFO PITCH MOD DEPTH		0...15	00
00 15 01	00 - 07	LFO AMP MOD DEPTH		0 - 7	00
00 16 01	00 - 01	PITCH LFO WAVE		0: triangle	00
				1: sample & hold	
00 17 01	00 - 02	P-EG RANGE		0: 1/2 oct	01
				1: 1 oct	
				2: 2 oct	
00 18 01	00 - 01	P-EG VELOCITY SWITCH		0: on	01
				1: off	
00 19 01	00 - 07	P-EG RATE SCALING		0...7	00
00 1A 01	00 - 3F	P-EG R1		0...63	3F
00 1B 01	00 - 3F	P-EG R2		0...63	3F
00 1C 01	00 - 3F	P-EG R3		0...63	3F
00 1D 01	00 - 3F	P-EG RR		0...63	3F
00 1E 01	00 - 7F	P-EG LO		-64...+63	40
00 1F 01	00 - 7F	P-EG L1		-64...+63	40
00 20 01	00 - 7F	P-EG L2		-64...+63	40
00 21 01	00 - 7F	P-EG L3		-64...+63	40
00 22 01	00 - 7F	P-EG RL		-64...+63	40
00 23 01	00 -07	VELOCITY CURVE		0: curve-1	00
				1: curve-2	
				2: curve-3	
				3: curve-4	

Offset Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
				4: curve-5	
				5: curve-6	
				6: curve-7	
				7: curve-8	
<b>TOTAL SIZE</b>	24				

**REMARKS:**

The address marked with "#", cannot be used as the "Start address".

In Disk Orchestra mode, the voice velocity curve setting is ignored. It is always set to "curve-8".

The actual address value = the address at the top of each block + the offset address.

**1.7 MIDI Parameter Change table (Program change table)**

Offset Address (H)	Size (H)	Data (H)	Parameter	Description
00 00 02	00 - FF	SERIAL VOICE# TO	0...191, 255:off voice	
00 01#		PC#1		
:		:		
:		:		
01 7E 02	00 - FF	SERIAL VOICE# TO	0...191, 255:off voice	
01 7F#		PC#128		
<b>TOTAL SIZE</b>	100			

**REMARKS:**

The address marked with "#", cannot be used as the "Start address".

The actual address value = the address at the top of each block + the offset address.

**1.8 MIDI Parameter Change table (System information)**

Address (H)	size (H)	Data (H)	Parameter	Description
24 08 00	10	23	STRING	ASCII '#'
24 08 01#		30	STRING	ASCII '0'
24 08 02#		30	STRING	ASCII '0'
24 08 03#		36	STRING	ASCII '6'
24 08 04#		38	STRING	ASCII '8'
24 08 05#		20	STRING	ASCII ''
24 08 06#		20	STRING	ASCII ''
24 08 07#		56	STRING	ASCII 'V'
24 08 08#		45	STRING	ASCII 'E'
24 08 09#		52	STRING	ASCII 'R'
24 08 0A#		3D	STRING	ASCII '='
24 08 0B#		31	STRING	ASCII '1'
24 08 0C#		2E	STRING	ASCII ''
24 08 0D#		30	STRING	ASCII '0'
24 08 0E#		30	STRING	ASCII '0'
24 08 0F#		20	STRING	ASCII ''
<b>TOTAL SIZE</b>	10			

**REMARKS:**

The top address must be the same as the "Start address".

YAMAHA [ Tone Generator ]  
 Model TG100 MIDI Implementation Chart Date:14-DEC-1991  
 Version : 1.00

	: Transmitted	: Recognized	: Remarks	:
: Function ... :				:
:Basic Default : x		: 1 - 16	: memorized	:
:Channel Changed : x		: 1 - 16		:
: Mode Default : x		: 3		:
:Mode Messages : x		: 3,4(m = 1) *2		:
: Altered : ***** : x				:
: Note : x		: 0 - 127		:
:Number : True voice: ***** : x		: 0 - 127		:
: Velocity Note ON : x		: o 9nH,v=1-127		:
: Note OFF : x		: x		:
: After Key's : x		: x		:
: Touch Ch's : x		: o		:
: Pitch Bender : x		: o 0-24 semi	:12bit resolution:	:
: 0,32: x		: o MSB only	:Bank Select	:
: 1 : x		: o	:Modulation Wheel	:
: 5 : x		: o	:Portamento Time	:
: 6,38: x		: o	:Data Entry	:
: Control 7 : x		: o	*1 :Volume	:
: 10 : x		: o	:Panpot	:
: Change 11 : x		: o	*1 :Expression	:
: 64 : x		: o	:Hold 1	:
: 65 : x		: o	:Portamento	:
: 91 : x		: o (Reverb)	:Effect Depth 1	:
: 100,101 : x		: o	:RPN LSB,MSB	:
: 120 : x		: o	:All Sound Off	:
: 121 : x		: o	:Reset All Cntrls:	:
: :				:
:Prog : x		: o 0-127	*1 :	:
:Change : True # : ***** :				:
:System Exclusive : o	*3	: o	*3 :	:
:System : Song Pos. : x		: x		:
: : Song Sel. : x		: x		:
:Common : Tune : x		: x		:
:System :Clock : x		: x		:
:Real Time :Commands: x		: x		:
:Aux :Local ON/OFF : x		: x		:
: :All Notes OFF: x		: o(123-127)		:
:Mes- :Active Sense : x		: o		:
:sages:Reset : x		: x		:
:Notes: *1 ; receive if switch is on.				:
: *2 ; m is always treated as "1" regardless of its value.				:
: *3 ; transmit/receive if exclusive switch is on.				:
:				:
:				:

Mode 1 : OMNI ON, POLY      Mode 2 : OMNI ON, MONO  
 Mode 3 : OMNI OFF, POLY      Mode 4 : OMNI OFF, MONO

o : Yes 30  
 x : No

TG100

TG100

# TONE GENERATOR

The logo consists of the letters 'TG' in a stylized font where the 'G' has a vertical bar through it, followed by '1000' in a smaller, standard font.

# PARTS LIST

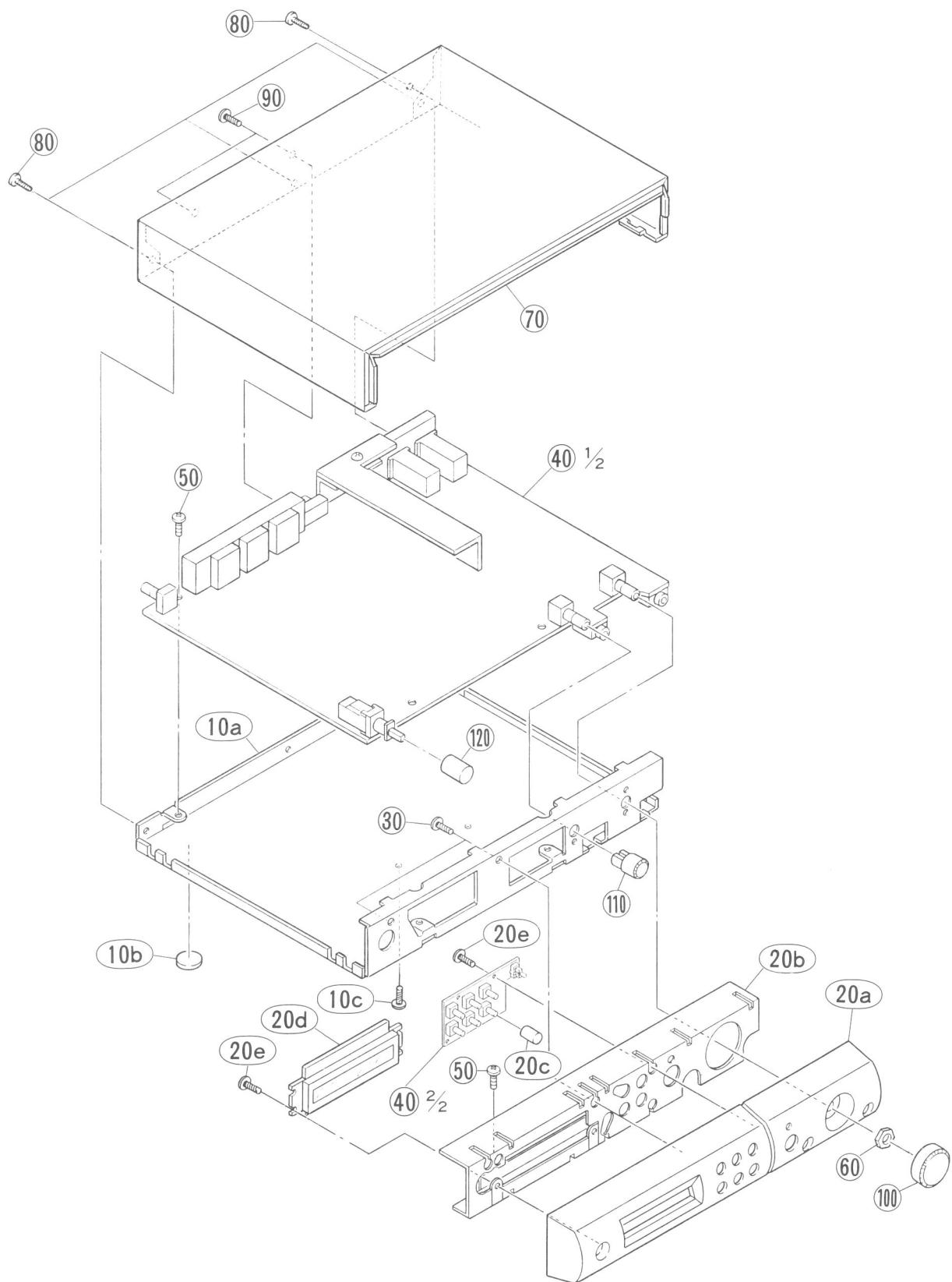
TG100

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## Note) DESTINATION ABBREVIATIONS

J : Japanese model	A : Australian model
U : U.S. model	E : European model
C : Canadian model	D : German model
X : General model	B : British model
M : South African model	I : Indonesian model
H : North European model	

**■ OVERALL ASSEMBLY (総組立)**



## ELECTRICAL PARTS (電氣部品)

Ref. No.	Part No.	Description		部品名	Remarks	ランク
*	VH755500 IG001390 IG042500 XC520A00 XF740A00	Circuit Board IC IC IC IC	DM RC4558DV NJM4556 uPC457C NJM78M05FA	D M シート I C I C I C I C	TG100 OP AMP. OP AMP. OP AMP. REGULATOR 5V	03 04 01 02
*	XJ141A00 IG116200 XB015A00 XB016A00 XK278A00	IC IC IC IC IC	NJM78M09FA PST518B-2 MC3487 MC3486 HD6435208A00P	I C I C I C I C I C	REGULAROE 9V SYSTEM RESET LINE DRIVER LINE RECEIVER CPU <H8/520>	02 04 04 04 09
*	XK462A00 XK358A00 XK992A00 XK361A00 XK731C00	IC IC IC IC IC	HG82E11R54FS HM65256BLSP-10 HN624116PC20 AK93C45 068V110	I C I C I C I C I C	GATE ARRAY PSRAM 256K ROM 16M ROM 1K EPROM 1M	16
*	XE449A00 XJ427A00 XJ429A00 XJ1348A00 VD473200	IC IC IC IC Photo Coupler	YM3413 YMW258-F PCM69P-C SC7SU04FER 6N137	I C I C I C I C フォトカプラ	LDSP GEW8 DAC INVERTER	10 09 01 05
*	IA101590 IC1815M0 IC287820 VB797600 VE170000	Transistor Transistor Transistor Diode Diode	2SA1015 O,Y 2SC1815 Y,GR 2SC2878 A,B RLS-73 1SR35-100A	トランジスタ トランジスタ トランジスタ ダイオード ダイオード		01 01 01 01
*	VH325200 VF771900 VM755200 VN755300 VN778800	LED Resistor Array Variable Resistor Variable Resistor Variable Resistor	GL2PR6 RE RGLE8X103J B1.0K RK09K111 C10.0KX2 A10.0KX2	LED 抵抗アレイ ロータリーボリューム 二連ロータリーボリューム 二連ロータリーボリューム	PEAK 10KX8 CONTRAST M.VOLUME INPUT	01 01 04 04
*	UJ838470 V1644200 VG238200 FZ006970 VB835000	Electrolytic Cap. Ceramic Cap. Array EMI Filter EMI Filter Coil	470uF 16.0V RX 47P 50V Z PLT2003C LS MT Y223NB FL5R200QNT 20u	ケミコン セラコンアレイ LCフィルターEMI LCフィルターEMI コイル		01 04 02 01
*	VJ338000 V1927300 VN121000 VN121700 VN210700	Ceramic Resonator Quartz Crystal Unit Push Switch Push Switch Slide Switch	9.4M CST9.4MTW 20.0000M AT-49 SPUN19-2N-W SKHHPP SSSF124-S06N-0	セラミック振動子 水晶振動子 プッシュスイッチ プッシュスイッチ スライドスイッチ	POWER	02 03 03
*	VI466400 VM761000 LB202330 LB301640 VC684500	DIN Jack DIN Jack Phone Jack Phone Jack DC-IN Connector	YKF51-5046 X3 8P MD-S810 HLJ0521 MONO JM35A ST MINI HEC2305	DINジャック DINジャック ホーンジャック ホーンジャック 電源コネクタ	MIDI TO HOST LINE OUT (L,R) PHONES, AUDIO IN DC IN	04 02 02 01
*	VM826200 -- -- -- --	LED Holder IC Socket Ribbon Cable Jack Holder Heat Sink	1 DICF-32CS-E 8P 70L	LEDホルダー 1 I C ソケット 束線リボンケーブル J K アングル ヒートシンク	(VJ53280) (VM86090) (VM82500) (VM96800)	
*	VA078900 EP630390	Jumper Wire Bind Head Tapping Screw-C	0.55 3.0X6 ZMC2Y	ジャンパー線 +バインドCタイト	3pcs	01
*	VM778900 --	LCD Assembly LCD	LSS6P6121A	L C D Ass'y 液晶ディスプレイ	(VM77900)	
	--	Ribbon Cable	14P 70L	束線リボンケーブル	(VM86120)	