

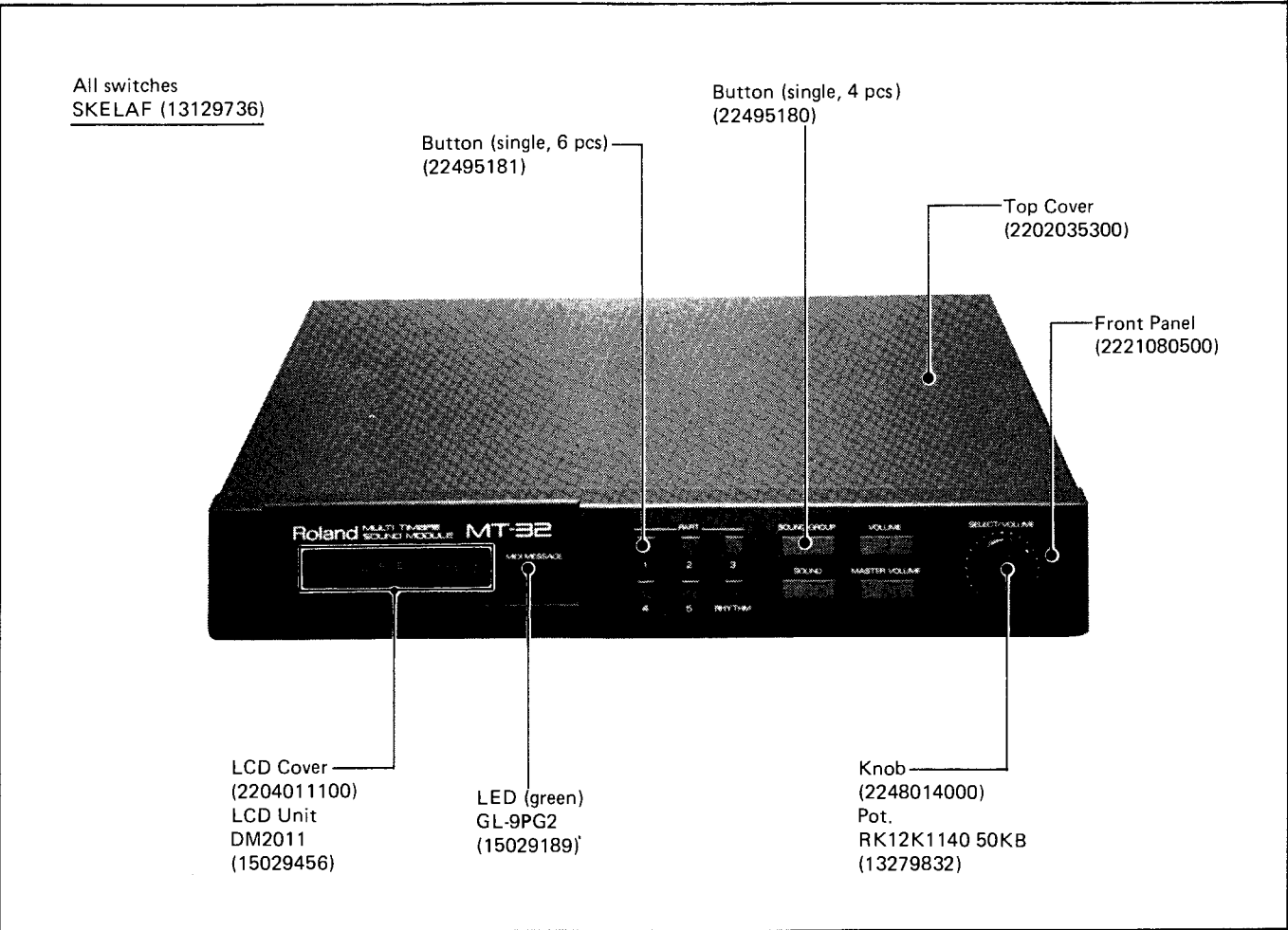
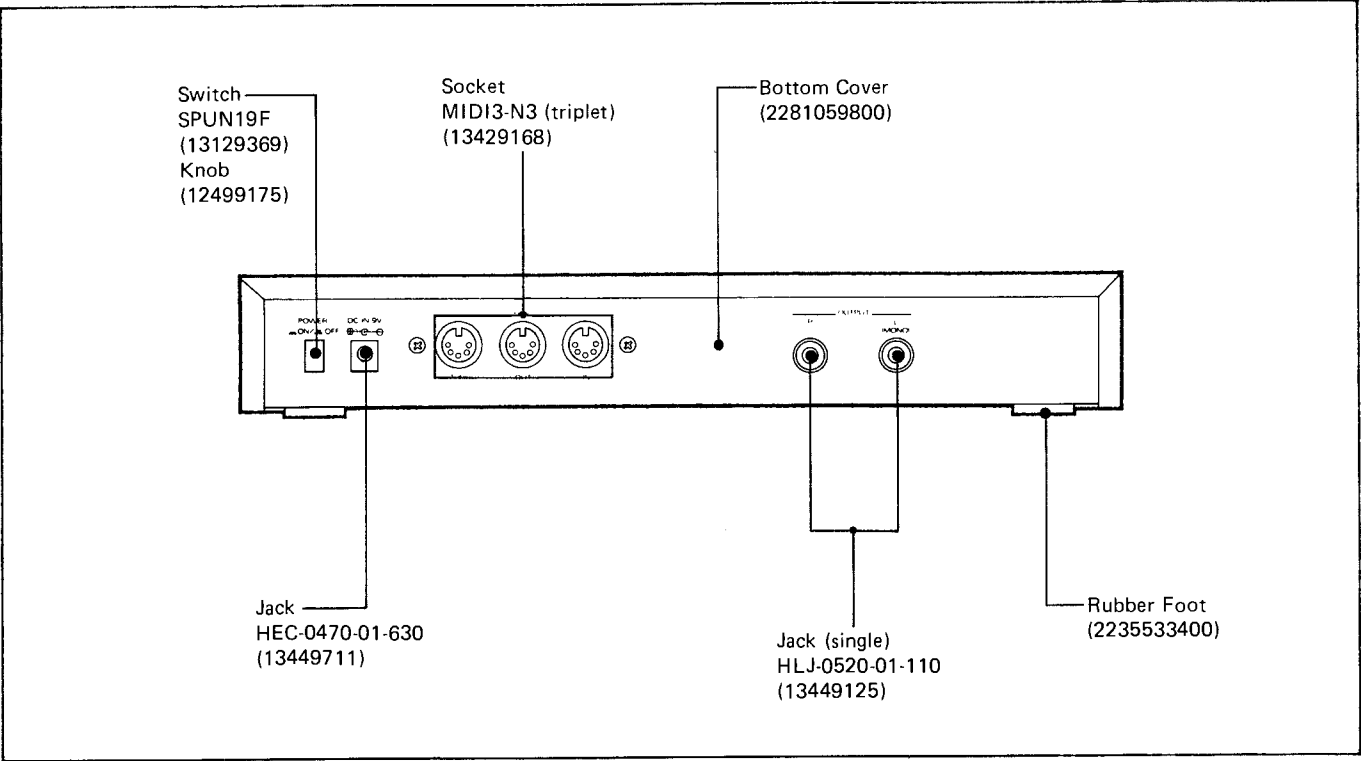
MT-32

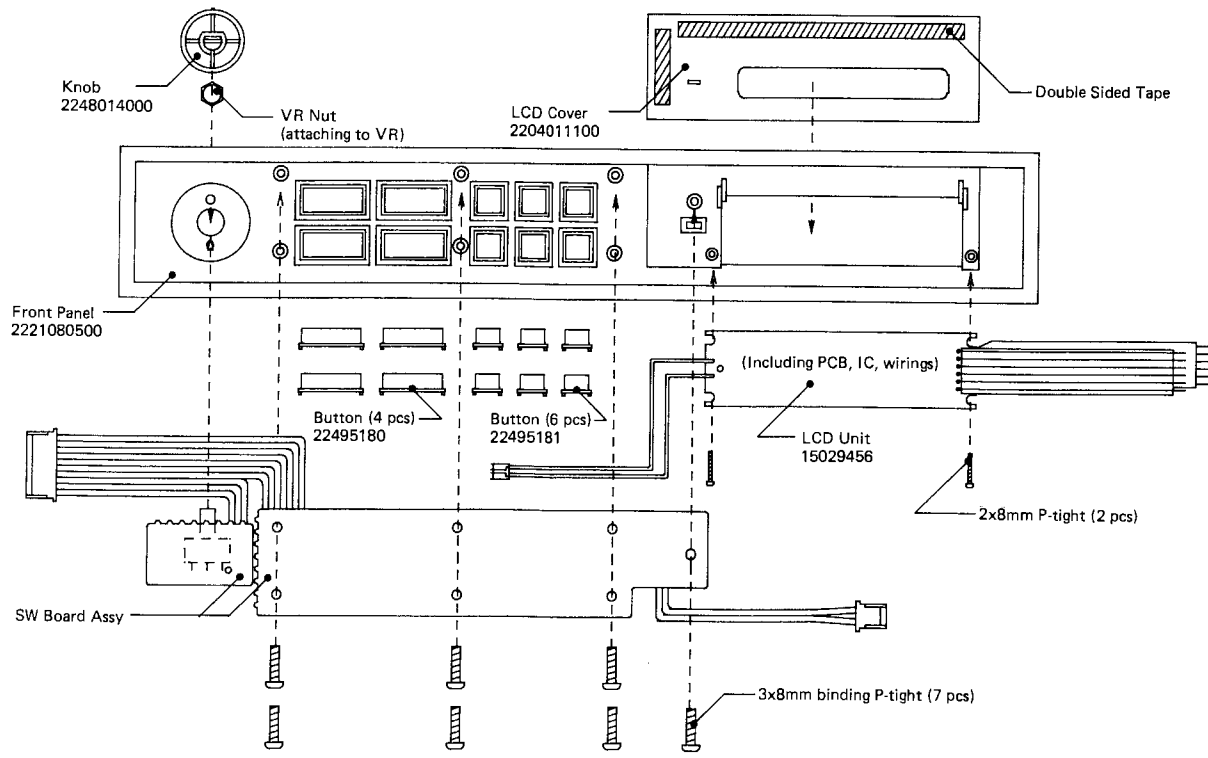
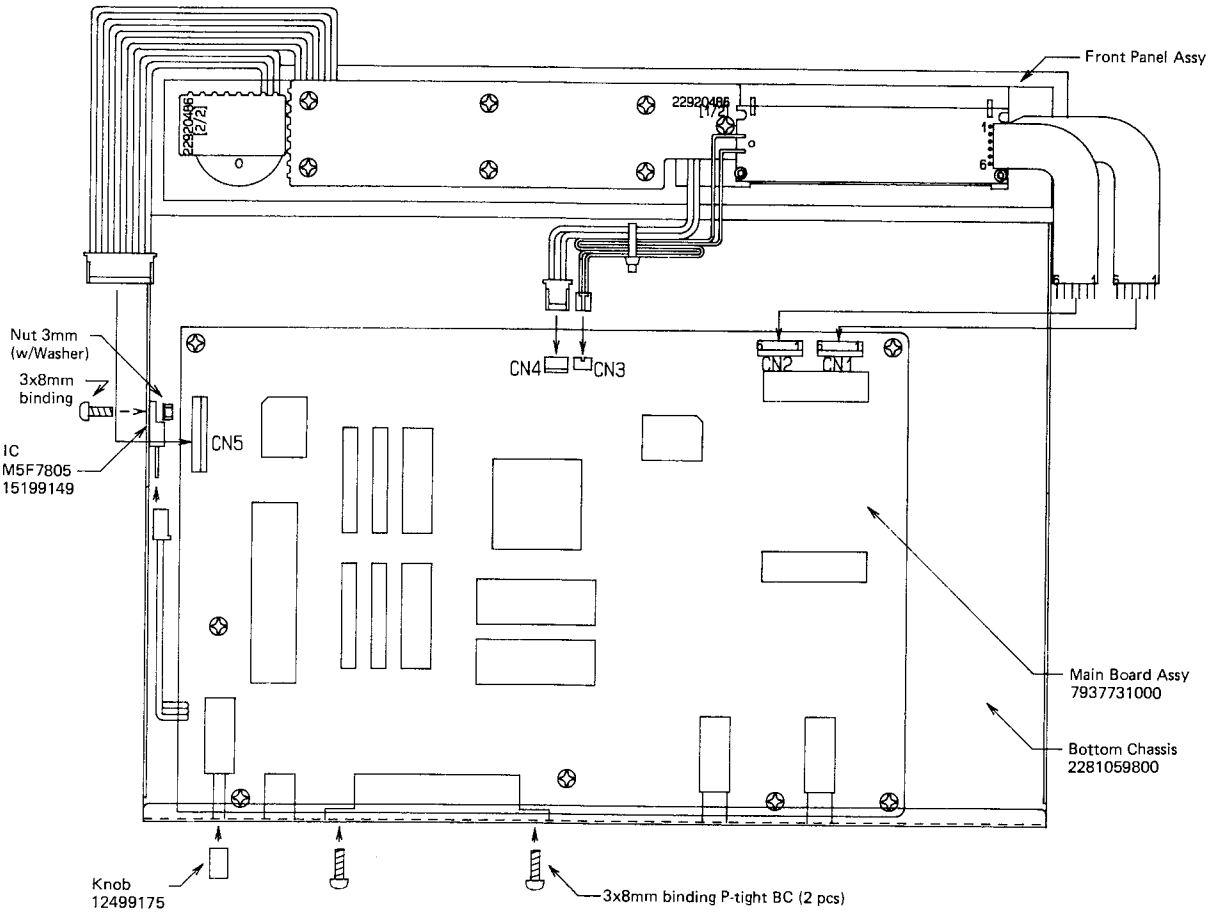
SERVICE NOTES

First Edition

SPECIFICATIONS

|                    |                                       |
|--------------------|---------------------------------------|
| Sound Sources      | : 32 polyphonic                       |
| Preset Tones       | : 128                                 |
| Sampling Frequency | : 32KHz                               |
| Data Format        | : 15-bit linear                       |
| Noise Level        | : -80dBm (IHF-A) or less @25°C (77°F) |
| Current Draw       | : 650mA @9V                           |
| Power Consumption  | : 10W @100V                           |
| (AC adaptor input) | : 9.5W @117V                          |
|                    | : 10.5W @220-240V                     |
| Dimensions         | : 51 (H) x 305 (W) x 220 (D) mm       |
|                    | : 2 x 12 x 8-11/16 in                 |
| Weight             | : 1.53 kg. 3 lb 6 oz                  |
| Accessories        | : AC Adaptor                          |
|                    | : ACB-100 100V                        |
|                    | : ACB-120 117V                        |
|                    | : ACB-220 220V                        |
|                    | : ACB-240A 240V (Australia)           |
|                    | : ACB-240E 240V (England)             |
|                    | : MIDI Cable (DIN Cord) (1m) 1 pc     |
|                    | : Connection Cord LP-25 2 pcs         |





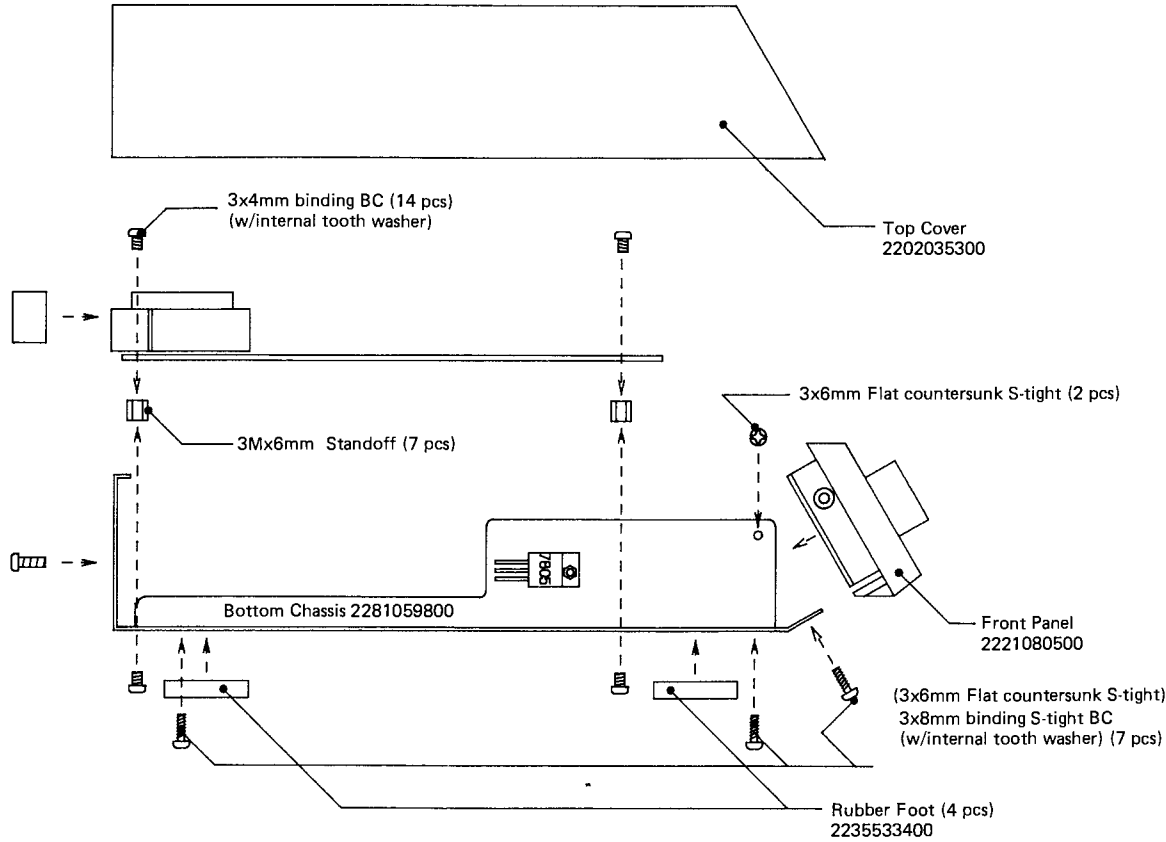
Viewing at rear of unit

EXPLODED VIEW

**NOTE**  
When inserting or pulling out flat cable at CN1 or CN2, push lock mechanism at the connector.

分解図

**注意**  
CN1,CN2上でフラットケーブルを抜き差しする場合は、コネクタ上のロックを押して下さい。



PARTS LIST

| CASING       |                                                 |                                         |
|--------------|-------------------------------------------------|-----------------------------------------|
| 2202035300   | Top Cover                                       |                                         |
| 2281059800   | Bottom Chassis                                  |                                         |
| 2221080500   | Front Panel                                     |                                         |
| 2204011100   | LCD Cover                                       |                                         |
| PCB ASSY     |                                                 |                                         |
| 7937731000   | Main Board                                      | (pcb 2292048700)                        |
| 7937742000   | SW Board                                        | (pcb 2292048600)                        |
|              | (including VR board)                            |                                         |
|              | VR基板を含む                                         |                                         |
| LCD UNIT     |                                                 |                                         |
| 15029456     | DM2011 (including PCB, IC, Connector and Cable) |                                         |
|              | No replacement for individual parts.            |                                         |
|              | PCB,ケーブル,IC,コネクタを含む。これらの単独補修部品はありません。           |                                         |
| BUTTON, KNOB |                                                 |                                         |
| 2248014000   | Knob                                            | SELECT/VOLUME                           |
| 12499175     | Knob                                            | POWER                                   |
| 22495181     | Button                                          | PART                                    |
| 22495180     | Button                                          | SOUND GROUP, VOLUME                     |
|              |                                                 | SOUND, MASTER VOL                       |
| SWITCH       |                                                 |                                         |
| 13129369     | SPUN19F                                         | POWER                                   |
| 13129736     | SKELAF                                          | PART, SOUND GROUP                       |
|              |                                                 | SOUND, M.VOL                            |
| JACK         |                                                 |                                         |
| 13449125     | HLT-0520-01-110                                 | OUTPUT                                  |
| 13449711     | HEC-0470-01-630                                 | DC IN                                   |
| 13429168     | MIDI3-NS (triplet)                              | MIDI                                    |
| IC           |                                                 |                                         |
| 15179246     | C8095-90                                        | CPU                                     |
| 15229851     | MB87136A                                        | LA chip                                 |
| 15229865     | HG61H15B59F                                     | gate array                              |
| 15229863     | HG61H20R36F                                     | reverb chip                             |
| 15219178     | PCM54HP                                         | D/A converter                           |
| 15179844     | TC532000P-7471                                  | 2M mask ROM (WAVE) IC21                 |
| 15179845     | TC532000P-7472                                  | 2M mask ROM (WAVE) IC22                 |
| 15449107     | M5M27C256-A                                     | EP ROM IC27                             |
| 15449108     | M5M27C256-B                                     | EP ROM IC26                             |
| 15449109     | M5M27C128-15                                    | EP ROM (reverb,ROM C) IC13              |
| 15179345     | M5M4416P-12                                     | D RAM                                   |
| 15179382     | HM6264ALSP-15                                   | S RAM                                   |
| 15169515     | TC74HC00P                                       | quad 2-input NAND                       |
| 15169516     | TC74HC02P                                       | quad 2-input NOR                        |
| 15169514     | TC74HC04P                                       | hex inverter                            |
| 15169537     | TC74HC27P                                       | triple 3-input NOR                      |
| 15169334H0   | HD74LS05P                                       | hex inverter with open collector output |
| 15159113H0   | HD14051                                         | MUX/DEMUX                               |
| 15199159     | IR3M03A                                         | DC-DC converter                         |
| 15229706S0   | PC910                                           | optoisolator                            |
| 15189171     | M5218P                                          | OP amp                                  |
| 15189147     | NJM-072D                                        | OP amp                                  |
| 15189188     | M5238L                                          | OP amp                                  |
| 15199149     | M5F7805                                         | regulator                               |

| TRANSISTOR       |                   |                                |
|------------------|-------------------|--------------------------------|
| 15129172         | DTC114T           | SPT                            |
| 15119113         | 2SA1015GR         |                                |
| 15129136         | 2SC2878A          |                                |
| DIODE            |                   |                                |
| 15019126         | 1SS-133T-77       | Main Board                     |
| 15019291         | 1SR35-400         |                                |
| 15019103         | 1S2473            | SW Board                       |
| 15029189         | GL-9PG2           | LED green                      |
| COIL             |                   |                                |
| 12449305         | 330μH             | DC-DC converter                |
| 12449272         | GM-50510152       | line filter                    |
| 12399501M1       | BL02RN-R62        | EMI filter                     |
| XTAL             |                   |                                |
| 12389717         | 12MHz             | CPU                            |
| 12389774         | 32.768MHz         | LA chip                        |
| POTENTIOMETER    |                   |                                |
| 13279832         | RK12K1140 50KB    | rotary SELECT/VOLUME           |
| RESISTOR         |                   |                                |
| 13919303         | RML S8 333J       | 3.3KΩx8                        |
| 13799762         | 0.24Ω             | metal oxide                    |
| CAPACITOR        |                   |                                |
| 13639153S0       | 470μF/16V         | electro                        |
| 13639154S0       | 1000μF/16V        | electro                        |
| 13649103J0       | 10μF/16V          | bi-polar                       |
| 13629141         | 10μF/16V          | Phillips 1225109               |
| CONNECTOR, CABLE |                   |                                |
| 13439126         | 5045-10A          | 10P (CN5, Main Board)          |
| 13439119         | 5045-03A          | 3P (CN4, Main Board)           |
| 13439333         | IL-S-2P-S2T2-EF   | 2P (CN3, Main Board)           |
| 23430525         | 52011-0610        | 6P (CN1, CN2, Main Board)      |
| 23410578         | 341-578 (w/leads) | 3P (M5F7805-Main Board)        |
| 23410577         | 341-577 (w/leads) | 3P (LED-CN4, Main Board)       |
| 23410576         | 341-576 (w/leads) | 10P (SW Board-CN5, Main Board) |
| AC ADAPTOR       |                   |                                |
| 12449546         | ACB-100           | 100V                           |
| 12449547         | ACB-120           | 117V                           |
| 12449548         | ACB-220           | 220V                           |
| 12449549         | ACB-240A          | 240A (Australia)               |
| 12449564         | ACB-240E          | 240E (England)                 |
| MISCELLANEOUS    |                   |                                |
| 2215051200       | Standoff          | 3x6mm                          |
| 2235533400       | Rubber Foot       |                                |
| 23485167         | MIDI Cable        | 1m                             |
| 23430675S0       | Connection Cord   | LP-25                          |

## CIRCUIT DESCRIPTIONS

\*1 \*2 \*3 = ①②③ (Fig.1, Table 1)

CPU (IC34, Main board) processes MIDI IN data by running the operational program (stored in ICs 26 and 27) and reading sound parameters and other sound related data (stored in ROMs and RAMs: ICs 26-31). Then the CPU directs the LA chip IC23 to generate and output the necessary sound. The LA chip places the sound data on the data bus (D0-D15) connecting to both the Reverb chip IC17 and DAC IC8. The LA chip works in timesharing: It outputs data on the clock SH1 which in combination with SH2 and SH3 makes channel select code. If a data is to be reproduced as a direct sound only, the chip places the data during time slots 2 and 6. If reverb effect is required, then slots 1 and 5. The data put out during slot 1(5) is not only accommodated by the reverb chip IC17 but also routed to DMUX where it is delivered to the correct S/H circuit on the code SH1-SH3, as a direct sound. Its reverb counterparts are placed on the data bus when time slot 7(8) comes.

## 回路解説

CPU (IC34) は MIDI IN データをオペレーショナルプログラム (IC26, 27) および音のパラメータ・データ (IC26-31) に基づいて処理し、その結果に応じた出力命令 (サウンド出力命令) を LA chip (IC23) へ与える。

LA chip は、サウンドデータを、D0-D15 から出力するが、方法は時分割式で、SH1 に同調させている。

Rev を伴わない音の場合は、タイムスロットの 2 と 6 で出力される。Rev を伴う音はスロットの 1 と 5 で出力される。後者の場合、データは、Rev chip に取り込まれる<sup>\*2</sup>とともに、DMUX へも送られ、SH1-SH3 からなるセレクトコードで目的の S/H 回路へダイレクト音として加えられる。一方、Rev chip で得られたリバース効果音は、スロット 7 と 8 で出力される<sup>\*3</sup>。

## BLOCK DIAGRAM

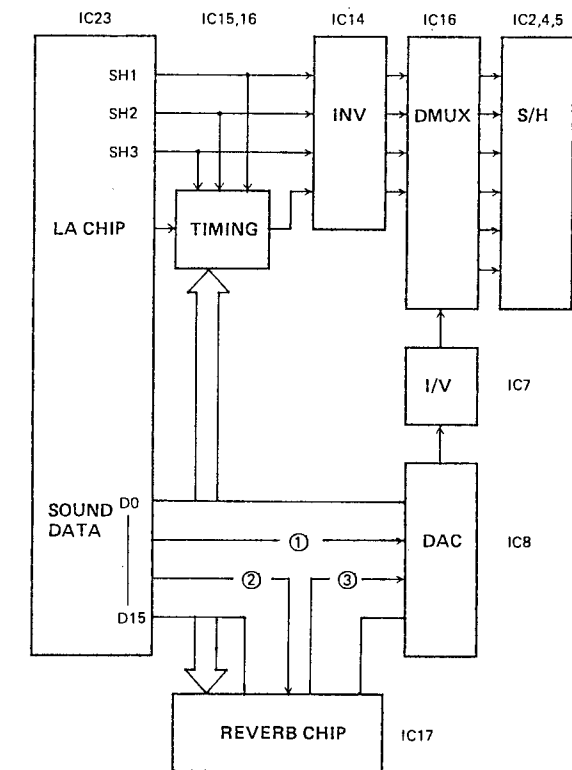
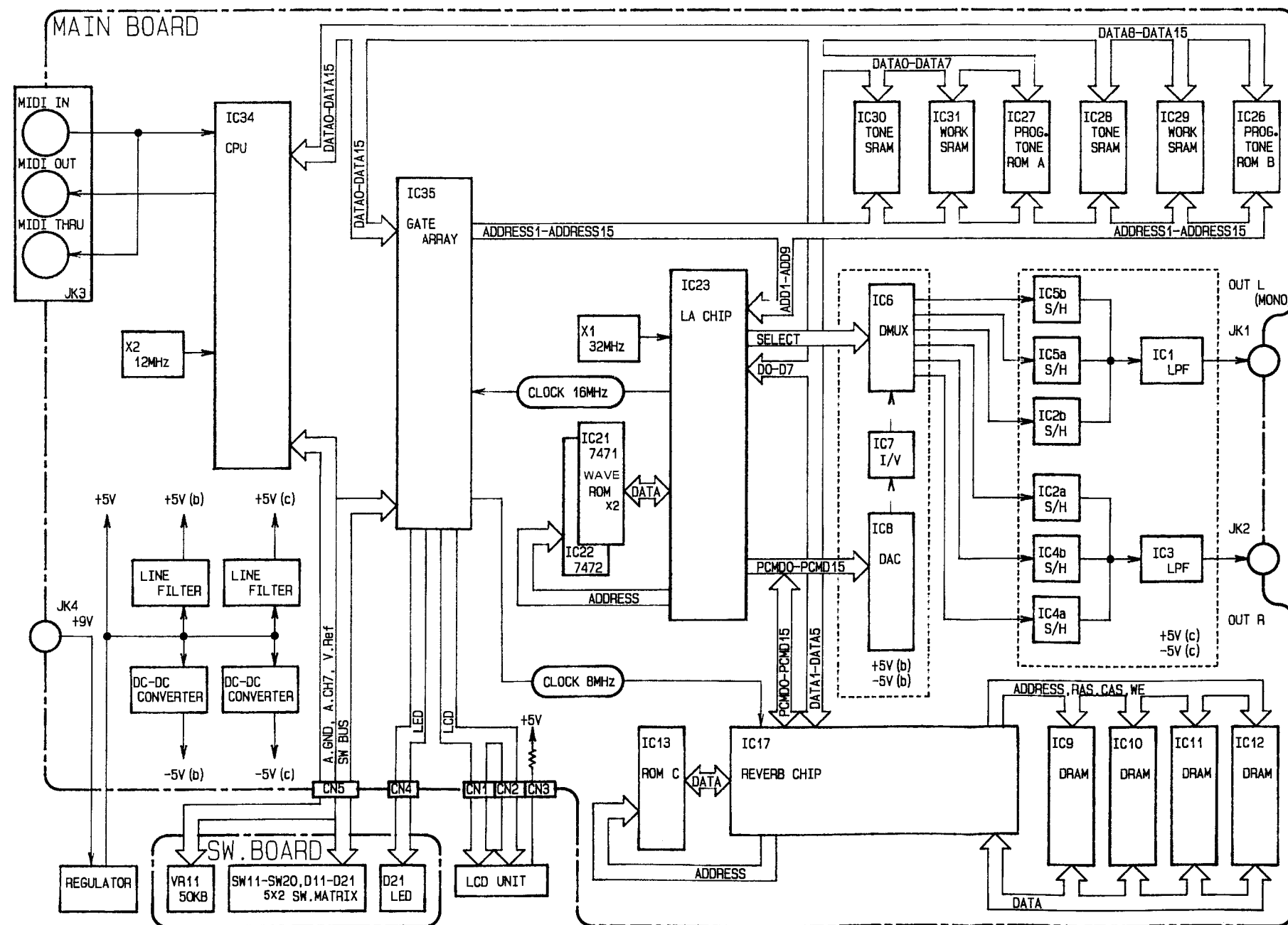


Fig.1

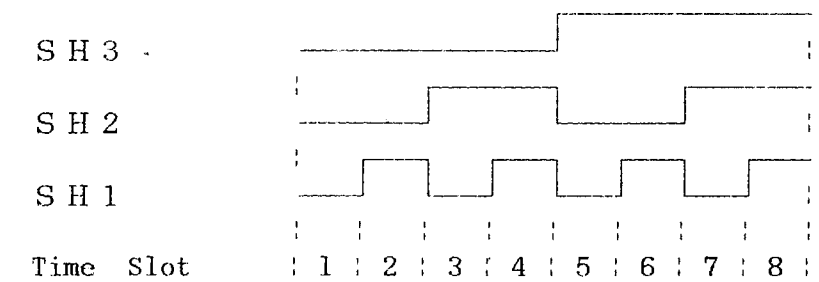
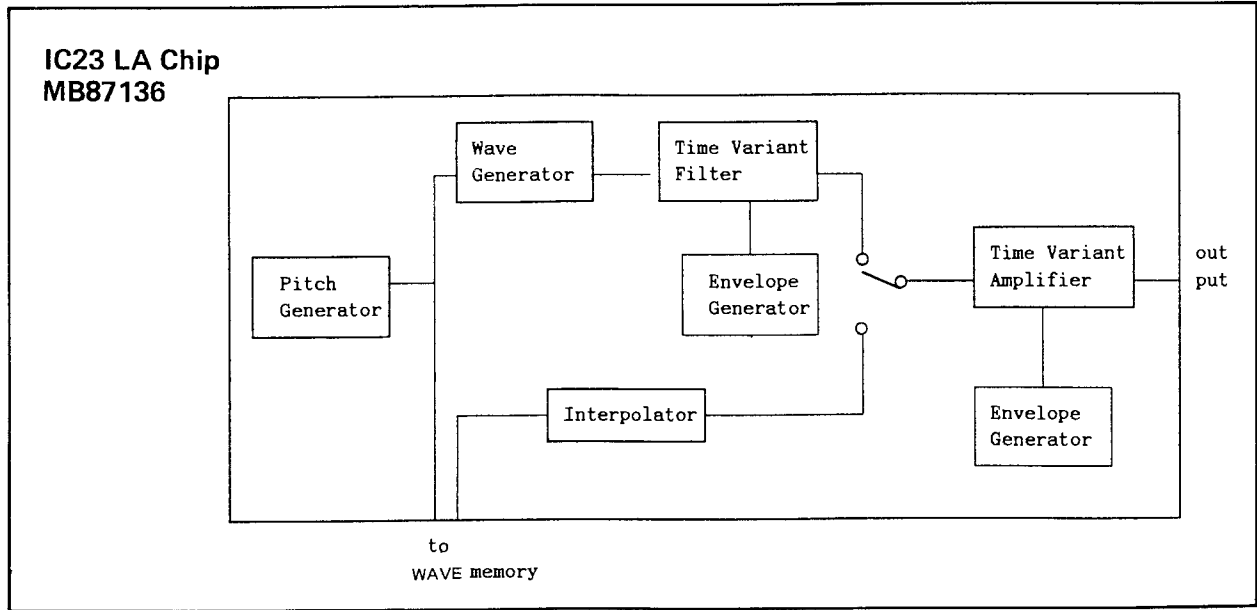
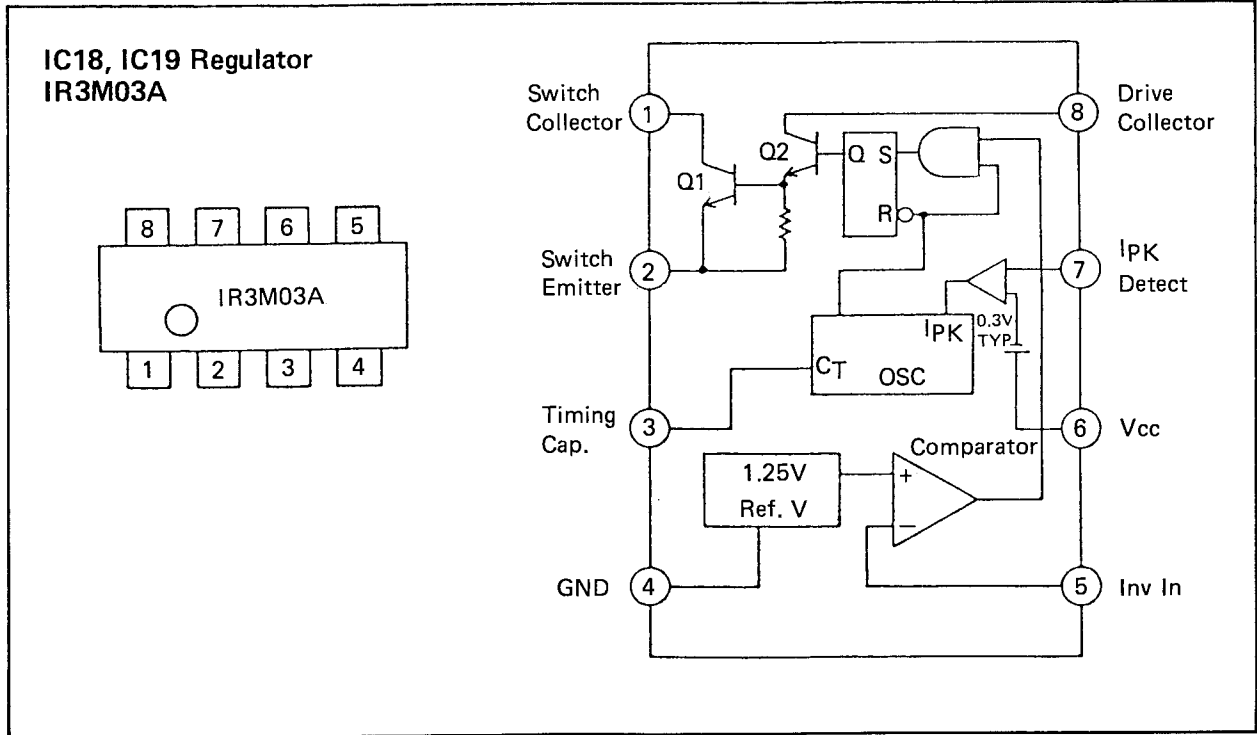
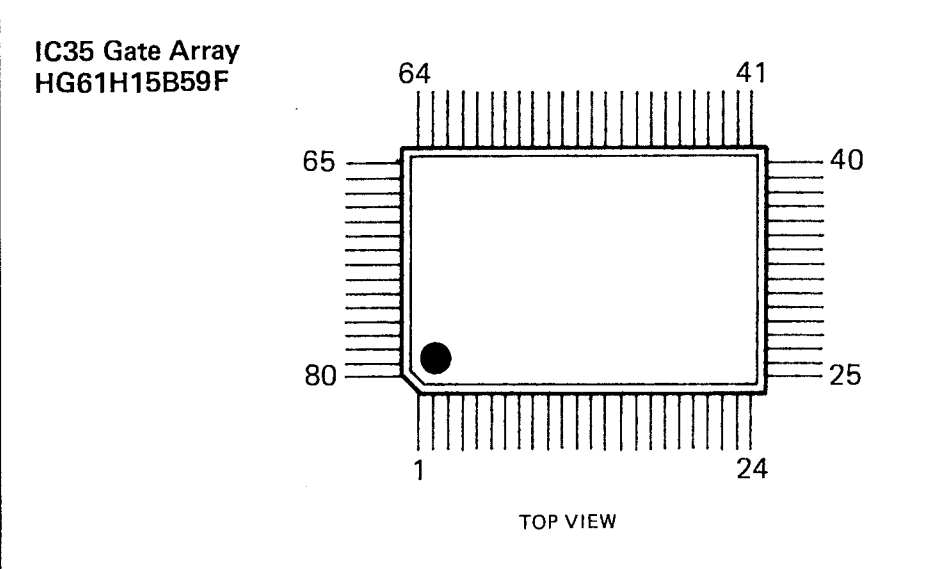
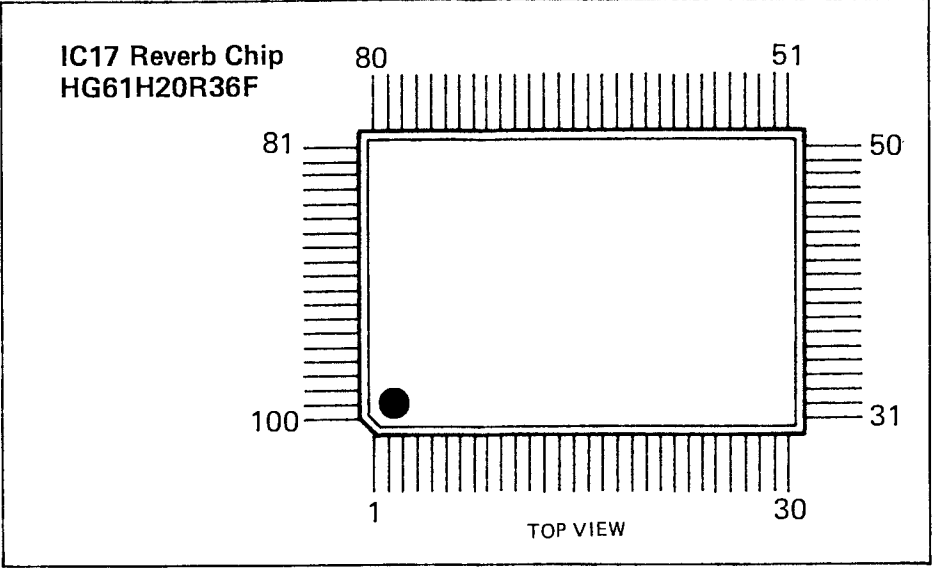
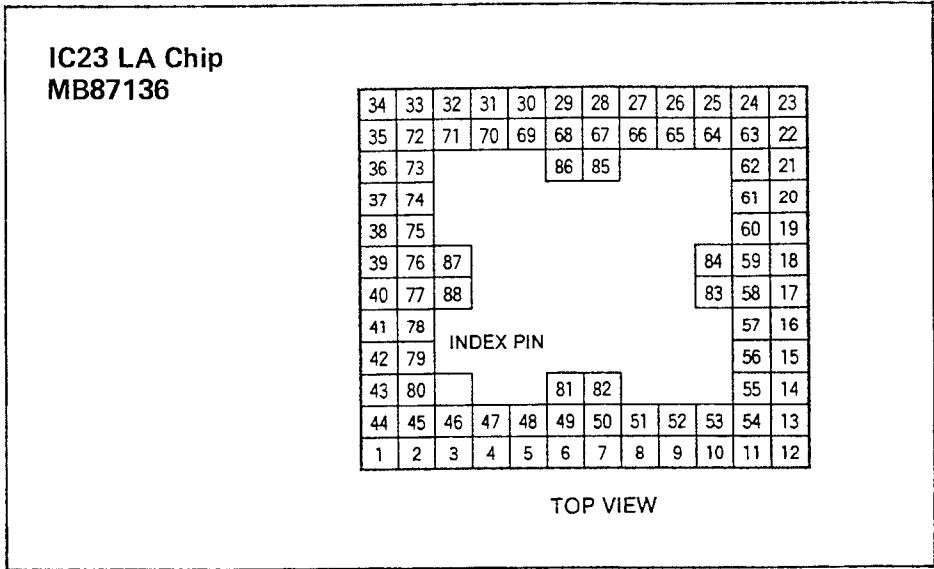
IC3  
PIN

Fig.2

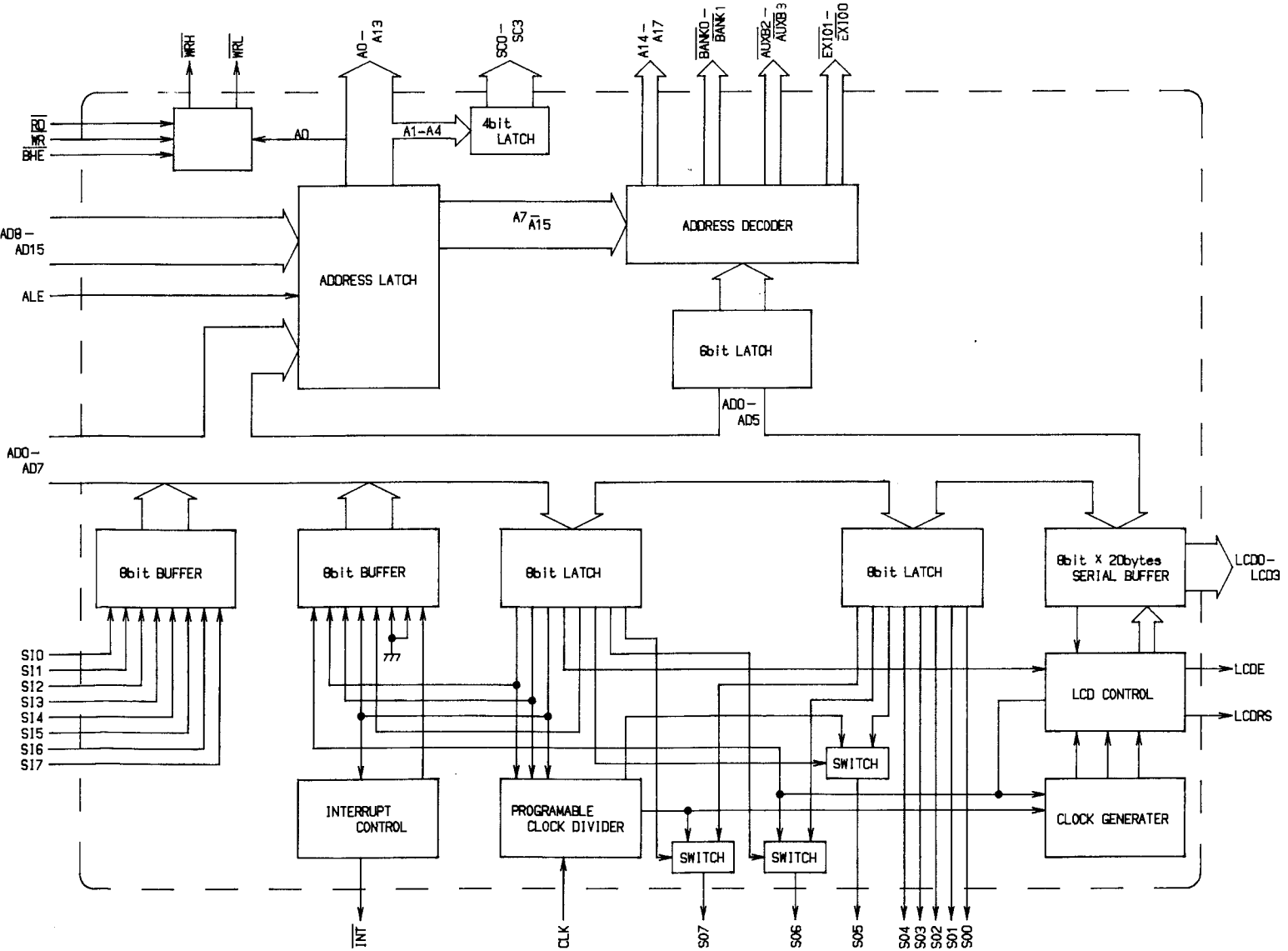
| Time Slot | Signal Flow |   | DMUX Output |          |
|-----------|-------------|---|-------------|----------|
|           |             |   | Pin         | Sound    |
| 1         | ①           | ② | 4           | Direct R |
| 2         | ①           |   | 2           | Direct R |
| 3         | no sound    |   |             |          |
| 4         |             |   |             |          |
| 5         | ①           | ② | 12          | Direct L |
| 6         | ①           |   | 15          | Direct L |
| 7         | ③           |   | 14          | Rev R    |
| 8         | ③           |   | 13          | Rev L    |

Table 1

IC DATA



BLOCK DIAGRAM

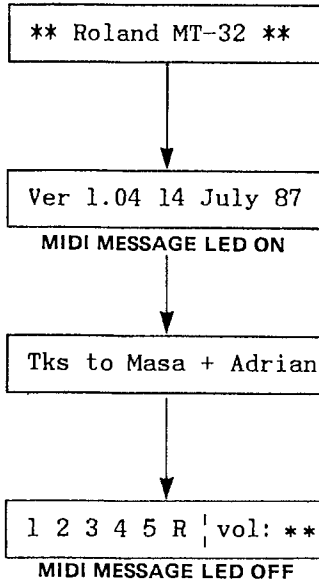


## TEST MODE

## テストモード

## ROM Revision Number

Press and hold PART 4, RHYTHM and MASTER VOLUME simultaneously, then turn the power on. The LCD will change readings with a longer stay at Ver-reading. When LCD reads the sign-on, 1 2 3 4 5 R ..., the unit is ready for normal play without repower.



## ROMバージョン・ナンバー

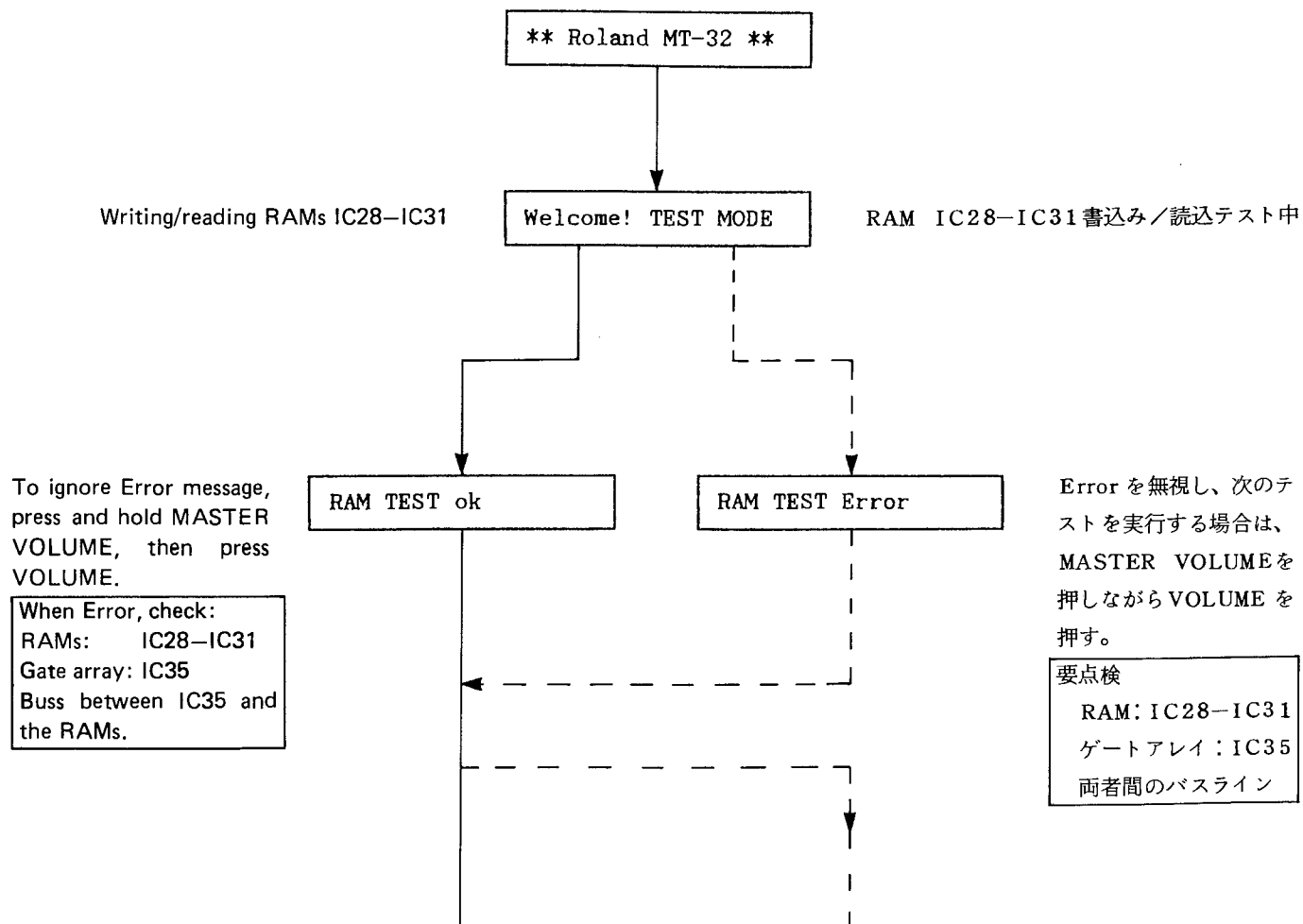
PART 4, RHYTHM および MASTER VOLUME を同時に押えながら電源を入れる。LCDの表示は左図の様に自動的に変化して行く。  
1 2 3 .....が表示されると、通常のプレイモードに入っているの、そのまま演奏が可能である。

## Checking

- Hookup together MIDI OUT and MIDI IN sockets with the MIDI cable.
- Press and hold PART 3 and VOLUME buttons, then apply the power, holding the two buttons until the LCD reads Welcome!

## 点検

- MIDI OUTとMIDI IN ソケットをMIDI ケーブルで接続する。
- PART 3 と VOLUME ボタンを押しながら電源を入れ、Welcome のメッセージが表示されたら2つのボタンを離す。



To ignore Error message, press and hold MASTER VOLUME, then press VOLUME.

When Error, check gate array, IC35.

MIDI MESSAGE LED should blink

Error indication  
Lighting LED: Check IC24  
Dead LED: Check LED, IC24 and Connector CN4.

- Press PART 1.  
The LED might go off depending on which half cycle of the scanning pulse the switch has been pressed.

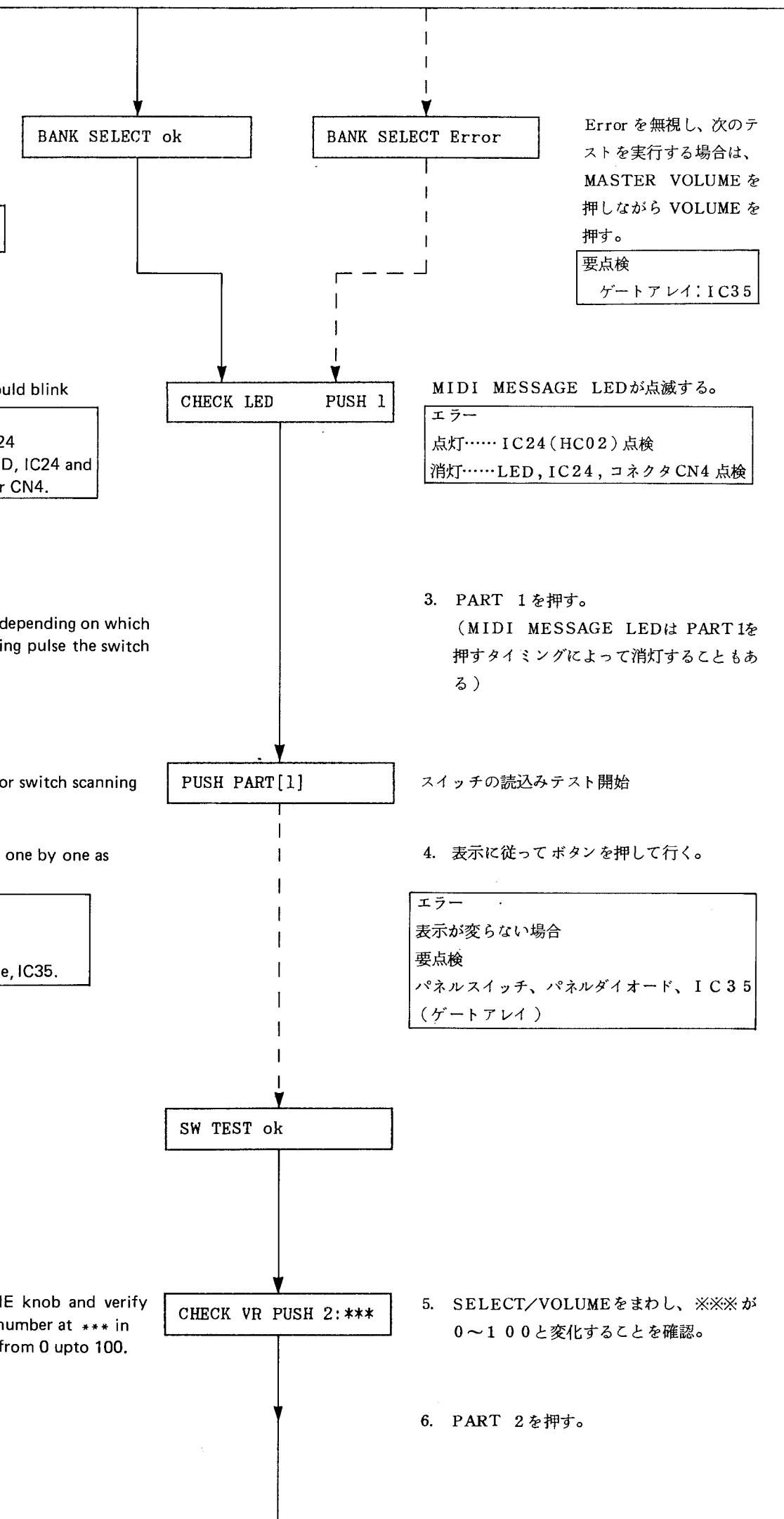
Ready for switch scanning

- Press the panel switches one by one as indicated by LCD.

Error indication  
Reading won't change  
Check:  
Panel switches, panel diode, IC35.

- Turn SELECT/VOLUME knob and verify proportional change in number at \*\*\* in the LCD. It can change from 0 upto 100.

- Press PART 2.

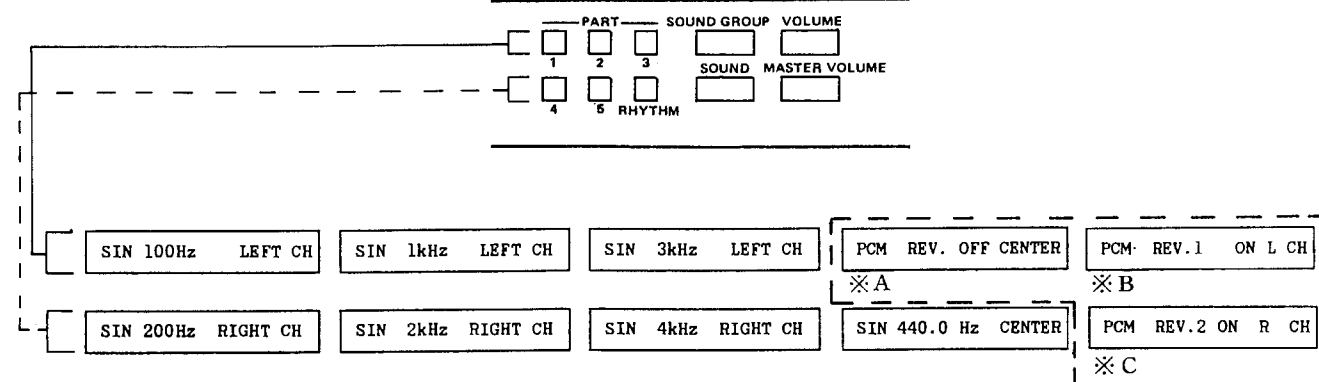


**Error Messages:**  
**Receiver Error**  
 MIDI OUT signal has not reached MIDI IN within the time.  
**Verify Error**  
 There is difference in contents between MIDI OUT and MIDI IN signals.

To ignore Error, hold MASTER VOLUME then press VOLUME.

7 Connect monitors (amp/sp or scope) to both OUTPUT jacks, L and R. The panel switches will serve as tone selectors as shown below.

7-1. Press the buttons one by one, in sequence. Note that PCM will sound a short time. See notes below.



#### NOTES

- \*A Direct sound only; from both OUTPUTs.
- \*B Direct and light reverb sounds from OUTPUT L. From R, reverb only.
- \*C Direct and deep reverb sounds from OUTPUT R. From L, deep reverb only.

440Hz

There is a slight difference in volume between R and L OUTPUTs.

1 2 3 4 5 R | vol: \*\*

Play Mode

MIDI OUTからのテスト信号が、一定時間内にMIDI INを通じて受信出来なかった。

MIDI OUT と MIDI IN データに違いがある。

Errorを無視して次のテストを実行する場合は、MASTER VOLUME を押しながら VOLUME を押す。

7. OUTPUT ジャック R, L にモニタ・アンプまたはオシロを接続する。

パネルスイッチには下図の様に音色セレクト機能が割当てられる。

7-1 任意の順にスイッチを押す(ただし、PCM 音は叩いた時のみ出る)

※A……PCM 音(TOM)の直接音のみが両方のジャックから出る。

※B……ジャック L からは直接音と、浅いリバーブ音が出る(TOM)

ジャック R からは浅いリバーブ音のみ

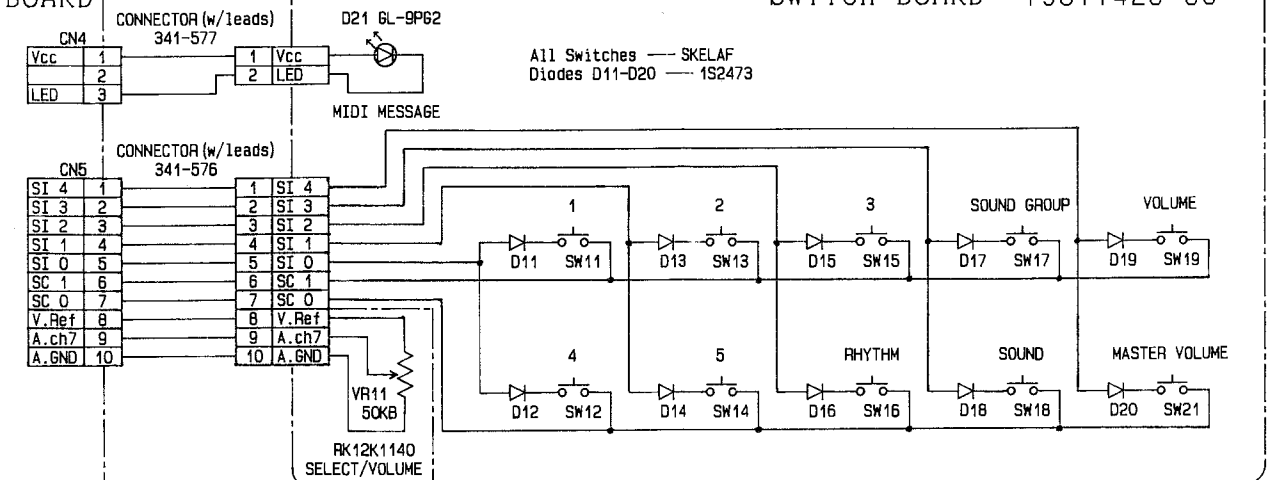
※C……ジャック R から直接音と深いリバーブ音が出る(TOM)

ジャック L からは深いリバーブ音のみが出る。

440Hz の出力は L と R で若干差がある。

8. MASTER VOLUME を押しながら VOLUME を押す。

MAIN BOARD

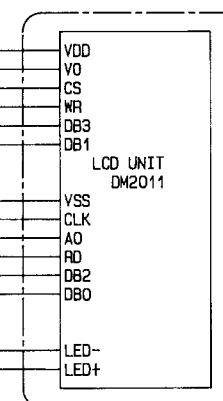


CN1

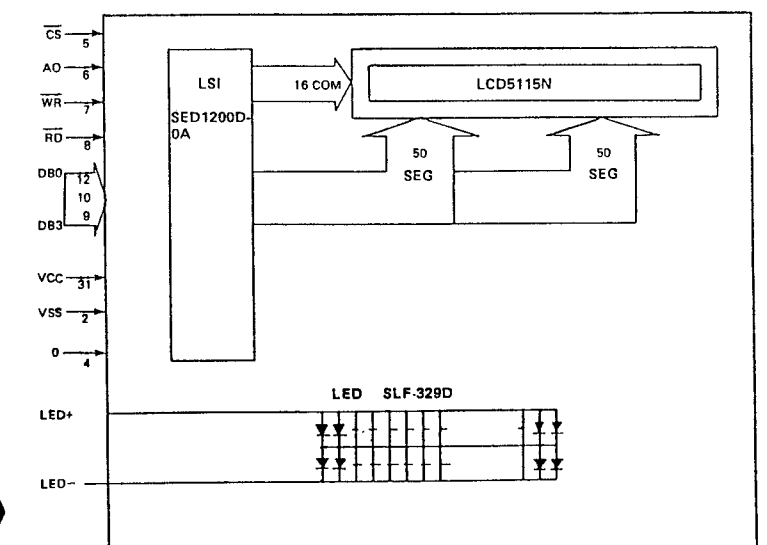
Vcc 1  
V LCD 2  
SO 6 3  
LCD E 4  
LCD 3 5  
LCD 1 6

Vss 1  
SO 7 2  
LCD RS 3  
RD 4  
LCD 2 5  
LCD 0 6

GND 1  
Vcc 2

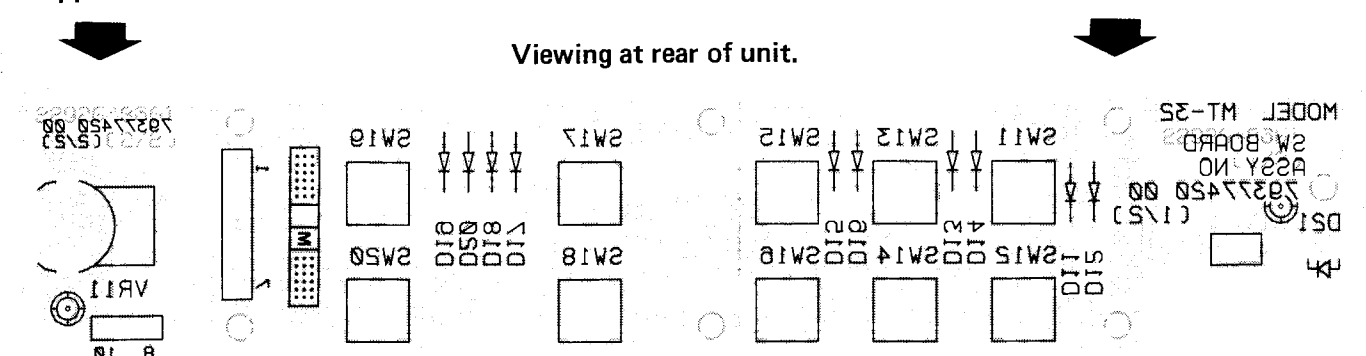


**LCD UNIT**  
 DM2011  
 Block Diagram



#### VR BOARD

(pcb 22920486 2/2)  
 Supplied with SW Board



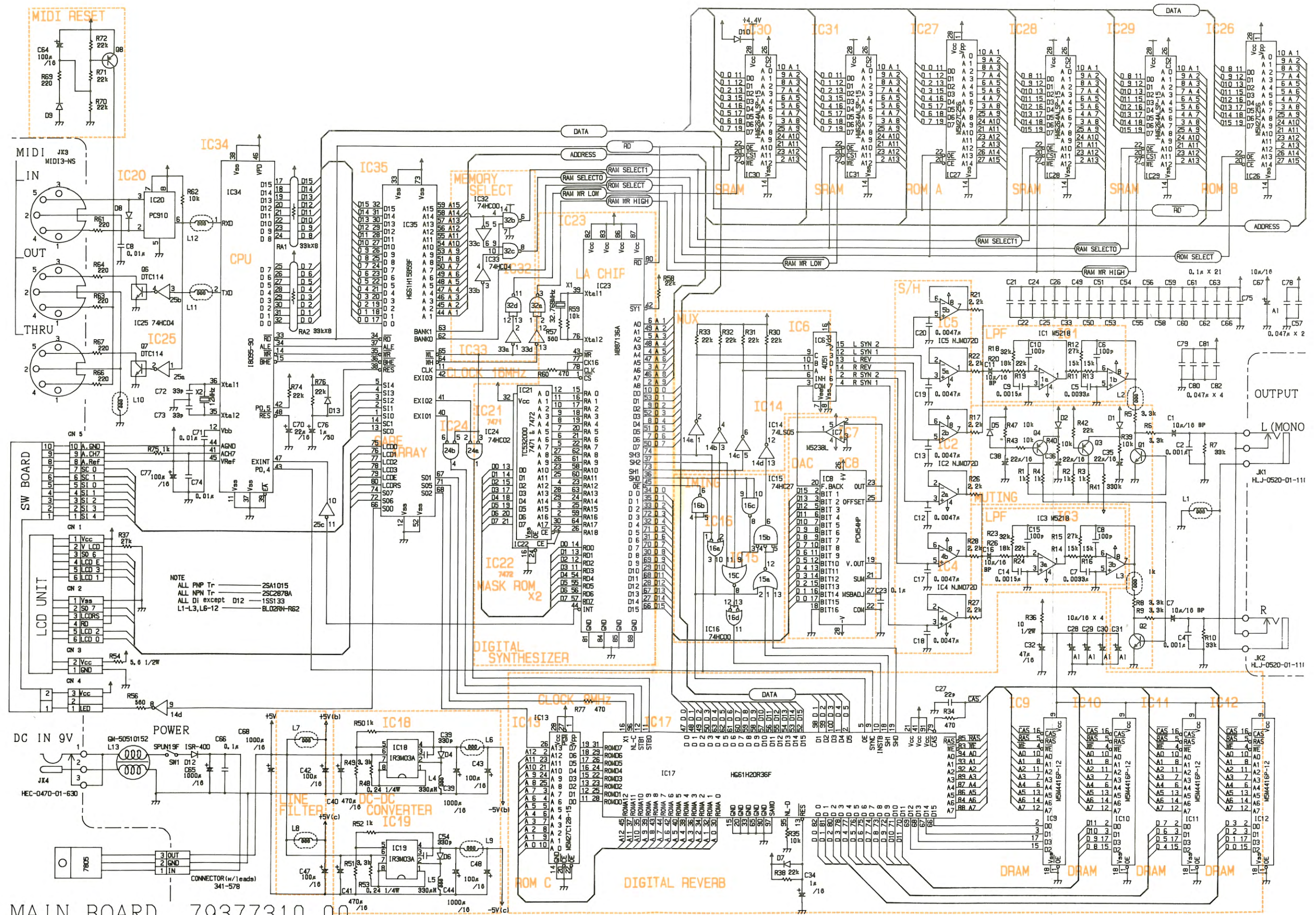
#### SW BOARD

Assy 793774200  
 (pcb 2292048600)

COMPONENT SIDE MARKING MAY25



## CIRCUIT DIAGRAM



MIDI IMPLEMENTATION

MT-32 MIDI IMPLEMENTATION Version 1.00 Jul. 9 1987

\*\*\* MT-32 MIDI IMPLEMENTATION \*\*\*  
Version 1.00  
Jul. 9 1987

1. TRANSMITTED DATA

■ Bypassed message

In Overflow Assign mode, the following MIDI In messages are sent to MIDI Out as

- \* Channel Voice messages except Note On
- \* System Exclusive message whose manufacturer ID# is 41H
- \* Odd Note On(s) left unassigned any voice because all assignable voices are engaged.

■ Created message

System exclusive

Status

FOH :System Exclusive  
F7H :EOX(End of System Exclusive)

See "3.EXCLUSIVE COMMUNICATIONS" for details.

2. RECOGNIZED DATA

■ Note event

Note off

| Status | Second | Third |
|--------|--------|-------|
| 8nH    | kkH    | vvH   |
| 9nH    | kkH    | 00H   |

kkH : Note number 0CH - 6CH ( 12 - 108 )  
vvH : ignored

Note on

| Status | Second | Third |
|--------|--------|-------|
| 9nH    | kkH    | vvH   |

kkH : Note number 0CH - 6CH ( 12 - 108 )  
vvH : Velocity 1H - 7FH ( 1 - 127 )

■ Control change

Continuous controller (14 bits)

| Status | Second | Third |
|--------|--------|-------|
| -----  | -----  | ----- |

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| BnH | mmH | vvH |
|-----|-----|-----|
|-----|-----|-----|

Modulation mmH = 01H vvH = 0H - 7FH ( 0 - 127 )

Volume mmH = 07H vvH = 0H - 7FH ( 0 - 127 )

Panpot mmH = 0AH vvH = 0H - 7FH ( 0 - 127 )

Expression mmH = 0BH vvH = 0H - 7FH ( 0 - 127 )

Continuous controller (7 bits)

| Status | Second | Third |
|--------|--------|-------|
| -----  | -----  | ----- |
| BnH    | mmH    | vvH   |

Hold 1 mmH = 40H vvH = 0H - 3FH ( 0 - 63 ) OFF  
40H - 7FH ( 64 - 127 ) ON

Resets all controllers mmH = 79h vvH = 0

■ Program change

| Status | Second |
|--------|--------|
| -----  | -----  |
| CnH    | ppH    |

ppH : Program number 0H - 7FH ( 0 - 127 )

Program Change changes Patch.

■ Pitch bender

| Status | Second | Third |
|--------|--------|-------|
| -----  | -----  | ----- |
| EnH    | 11H    | mmH   |

11H : 0H - 7FH ( 0 - 127 )  
mmH : 0H - 7FH ( 0 - 127 )

■ Channel mode message

| Status | Second | Third |
|--------|--------|-------|
| -----  | -----  | ----- |
| BnH    | mmH    | 00H   |

mmH : All Notes Off 7BH (123)  
Omni Off 7CH (124)  
Omni On 7DH (124)  
Mono On 7EH (124)  
Poly On 7FH (128)

Recognized as only All Notes Off.  
MT-32 does not change mode, but remains  
in mode 3 (Omni off, Poly).

■ Active sensing

Status

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-----  
FEH

■ System exclusive

Status

FOH :System Exclusive  
F7H :EOX(End of System Exclusive)

3. EXCLUSIVE COMMUNICATIONS

Model-ID# of MT-32 is 16H.

MT-32 can receive/send some of the EXCLUSIVE MESSAGES in  
the D-50(Roland synthesizer) format.

Model-ID# of D-50 is 14H.

Device-ID# is the basic channel# of the each part or Unit# of  
the MT-32

Unit# can be changed in "UNIT# SETUP MODE".  
Device ID numbers, 0-31, are displayed on the LCD as 1-32,  
respectively.

■ One way communication

Request RQ1 11H

When the RQ1 received contains a start address listed in  
Parameter base address, and address size is 1 or more,  
MT-32 sends the corresponding data.

In Overflow Assign mode, MT-32 does not recognize RQ1,  
but passes the message to MIDI OUT.

MT-32 won't transmit RQ1 in the default mode.

| Byte     | Description                |
|----------|----------------------------|
| FOH      | Exclusive status           |
| 41H      | Roland - ID                |
| DEV      | Device - ID                |
| 16H(14H) | Model - ID ( MT-32(D-50) ) |
| 11H      | Command - ID ( RQ1 )       |
| aaH      | Address MSB                |
| aaH      | Address                    |
| aaH      | Address LSB                |
| ssH      | Size MSB                   |
| ssH      | Size                       |
| ssH      | Size LSB                   |
| sum      | Checksum                   |
| F7H      | EOX ( End of Exclusive )   |

Data set DT1 12H

When the DT1 contains a start address as defined in RQ1 above,  
MT-32 stores the data into that memory location.

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MT-32 sends this message upon receiving RQ1 in the default mode.

Additional function in Overflow Assign mode:  
MT-32 retransmits DT1 while it processes the DT1 data  
as necessary.

| Byte     | Description                |
|----------|----------------------------|
| FOH      | Exclusive status           |
| 41H      | Roland - ID                |
| DEV      | Device - ID                |
| 16H(14H) | Model - ID ( MT-32(D-50) ) |
| 12H      | Command - ID ( DT1 )       |
| aaH      | Address MSB                |
| aaH      | Address                    |
| aaH      | Address LSB                |
| ddH      | Data                       |
| :        |                            |
| sum      | Checksum                   |
| F7H      | EOX ( End of Exclusive )   |

■ Handshaking communication

Want to send data WSD 40H

Upon receiving WSD, MT-32 sends ACK and waits for DATA SET message.  
However, if any part is reproducing sound, MT-32 sends RJC.

In Overflow Assign mode, MT-32 relays this message to downstream.

In the default mode, MT-32 won't send this message.

| Byte | Description              |
|------|--------------------------|
| FOH  | Exclusive status         |
| 41H  | Roland - ID              |
| DEV  | Device - ID              |
| 16H  | Model - ID ( MT-32 )     |
| 40H  | Command - ID ( WSD )     |
| aaH  | Address MSB              |
| aaH  | Address                  |
| aaH  | Address LSB              |
| ssH  | Size MSB                 |
| ssH  | Size                     |
| ssH  | Size LSB                 |
| sum  | Checksum                 |
| F7H  | EOX ( End of Exclusive ) |

Request data RQD 41H

When the RQD contains a start address as defined in RQ1 above,  
MT-32 stores the data into that memory location. However, if  
any part is reproducing sound, MT-32 sends RJC.

In Overflow Assign mode, MT-32 relays this message to downstream  
without recognizing it.

In the default mode, MT-32 won't send this message.

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| Byte | Description              |
|------|--------------------------|
| FOH  | Exclusive status         |
| 41H  | Roland - ID              |
| DEV  | Device - ID              |
| 16H  | Model - ID ( MT-32 )     |
| 41H  | Command - ID ( RQD )     |
| aaH  | Address MSB              |
| aaH  | Address                  |
| aaH  | Address LSB              |
| ssH  | Size MSB                 |
| ssH  | Size                     |
| ssH  | Size LSB                 |
| sum  | Checksum                 |
| F7H  | EOX ( End of Exclusive ) |

Data set DAT 42H

When the DAT contains a start address as defined in RQ1 above,  
MT-32 stores the data into that memory location. However, if  
any part is reproducing sound, MT-32 sends RJC.

In the default mode, MT-32 sends this data upon receipt of RQD

In Overflow Assign mode, MT-32 relays this message to downstream  
without recognizing it.

| Byte | Description              |
|------|--------------------------|
| FOH  | Exclusive status         |
| 41H  | Roland - ID              |
| DEV  | Device - ID              |
| 16H  | Model - ID ( MT-32 )     |
| 42H  | Command - ID ( DAT )     |
| aaH  | Address MSB              |
| aaH  | Address                  |
| aaH  | Address LSB              |
| ddH  | Data                     |
| :    |                          |
| sum  | Checksum                 |
| F7H  | EOX ( End of Exclusive ) |

Acknowledge ACK 43H

When MT-32 receives this message after sending DAT, it sends the  
next data.  
When MT-32 receives this message after sending EOD, it ends the  
current handshaking.

MT-32 sends ACK when it receives WSD, RQD or DAT in the default  
mode with no part reproducing sound and with data checksum proves  
correct.

| Byte | Description              |
|------|--------------------------|
| FOH  | Exclusive status         |
| 41H  | Roland - ID              |
| DEV  | Device - ID              |
| 16H  | Model - ID ( MT-32 )     |
| 43H  | Command - ID ( ACK )     |
| F7H  | EOX ( End of Exclusive ) |

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End of data EOD 45H

Upon receiving this message, it sends ACK and ends the current  
handshaking.

After finishing the data set(DAT) transmission in the default  
mode, MT-32 sends this message.

In Overflow Assign mode, MT-32 relays this message to downstream  
without recognizing the contents.

| Byte | Description              |
|------|--------------------------|
| FOH  | Exclusive status         |
| 41H  | Roland - ID              |
| DEV  | Device - ID              |
| 16H  | Model - ID ( MT-32 )     |
| 45H  | Command - ID ( EOD )     |
| F7H  | EOX ( End of Exclusive ) |

Communication error ERR 4EH

If checksum doesn't agree ( failure in data reception), MT-32  
sends this message.

When MT-32 receives this message in the default mode, it sends  
the latest message again.

In Overflow Assign mode, MT-32 relays this message to downstream  
without recognizing it.

| Byte | Description              |
|------|--------------------------|
| FOH  | Exclusive status         |
| 41H  | Roland - ID              |
| DEV  | Device - ID              |
| 16H  | Model - ID ( MT-32 )     |
| 4EH  | Command - ID ( ERR )     |
| F7H  | EOX ( End of Exclusive ) |

## Rejection RJC 4FH

If MT-32 receives WSD while it is reproducing sound, it sends RJC.

When MT-32 receives this message, it ends the current handshaking.

In Overflow Assign mode, MT-32 relays this message to downstream without recognizing it.

| Byte | Description              |
|------|--------------------------|
| FOH  | Exclusive status         |
| 41H  | Roland - ID              |
| DEV  | Device - ID              |
| 16H  | Model - ID ( MT-32 )     |
| 4FH  | Command - ID ( RJC )     |
| F7H  | EOX ( End of Exclusive ) |

## Notes :

\*3-1 Both model-IDs are supported. Addresses & parameters are described

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in section 4 for model-ID 16H(MT-32) and in section 5 for model-ID 14H(D-50,PG-1000).

\*3-2 Address & Size should be the address where data exist.

\*3-3 If the data is Partial Reserve Parameter, received data must comprise all the parameters for being recognized.

## 4. Address mapping of parameters

Addresses are shown in Hexa-decimal, while numbers are given in 7 bits.

| Address   | MSB       | LSB                 |
|-----------|-----------|---------------------|
| *****     | *****     | *****               |
| binary    | 0aaa aaaa | 0bbb bbbb 0ccc cccc |
| 7 bit Hex | AA        | BB CC               |

The actual address of a parameter in a block is the sum of the start address of each block and one or more offset address. That is, parameters marked by \*4-1 have two offset addresses: one in the table under NOTE \*4-1 and the other in Common parameter table or in Partial parameter table.

## ■ Parameter base address

Temporary area ( Accessible on each basic channel )

| Start address | Description                   |
|---------------|-------------------------------|
| 00 00 00      | Patch Temp Area (part)        |
| 01 00 00      | Setup Temp Area (rhythm part) |
| 02 00 00      | Timbre Temp Area(part) *4-1   |

Whole part ( Accessible on UNIT# )

| Start address | Description                     |
|---------------|---------------------------------|
| 03 00 00      | Patch Temp Area ( part 1 )      |
| 03 00 10      | Patch Temp Area ( part 2 )      |
| 03 00 60      | Patch Temp Area ( part 7 )      |
| 03 00 70      | Patch Temp Area ( part 8 )      |
| 03 01 00      | Patch Temp Area ( rhythm part ) |
| 03 01 10      | Setup Temp Area (rhythm part)   |
| 04 00 00      | Timbre Temp Area( part 1 ) *4-1 |
| 04 01 76      | Timbre Temp Area( part 2 ) *4-1 |
| 04 0b 44      | Timbre Temp Area( part 7 ) *4-1 |
| 04 0d 3a      | Timbre Temp Area( part 8 ) *4-1 |
| 05 00 00      | Patch Memory #1                 |
| 05 00 08      | Patch Memory #2                 |
| 05 07 70      | Patch Memory #127               |

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|          |                          |
|----------|--------------------------|
| 05 07 78 | Patch Memory #128        |
| 08 00 00 | Timbre Memory #1 *4-1    |
| 08 02 00 | Timbre Memory #2 *4-1    |
| 08 7c 00 | Timbre Memory #63 *4-1   |
| 08 7e 00 | Timbre Memory #64 *4-1   |
| 10 00 00 | System area              |
| 20 00 00 | Display *4-2             |
| 7F xx xx | All parameter reset *4-3 |

## Notes :

## \*4-1

Structure of "Timbre Temp/Memory" area is as follows.

| Sub start address | Description                        |
|-------------------|------------------------------------|
| 00 00 00          | Common parameter                   |
| 00 00 0E          | Partial parameter (for Partial# 1) |
| 00 00 48          | Partial parameter (for Partial# 2) |
| 00 01 02          | Partial parameter (for Partial# 3) |
| 00 01 3C          | Partial parameter (for Partial# 4) |

\*4-2 The data sent to this address are recognized as the string of letters in ASCII CODE, and displayed on MT-32 LCD. Cannot be called on RQ1 or RQD.

\*4-3 All parameters will be initialized by sending data to this address. Cannot be called on RQ1 or RQD.

## ■ Common parameter

\*4-4

| Offset address | Description                                           |
|----------------|-------------------------------------------------------|
| 00H            | 0aaa aaaa TONE NAME 1 32 - 127 (ASCII)                |
| 09H            | 0aaa aaaa TONE NAME 10                                |
| 0AH            | 0000 aaaa Structure of Partial# 1 & 2 0 - 12 (1 - 13) |
| 0BH            | 0000 aaaa Structure of Partial# 3 & 4 0 - 12 (1 - 13) |
| 0CH            | 0000 aaaa PARTIAL MUTE 0 - 15 (0000 - 1111)           |
| 0DH            | 0000 000a ENV MODE 0 - 1 (Normal, No sustain)         |
| Total size     | 00 00 0EH                                             |

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## ■ Partial parameter

\*4-4

| Offset address | Description                                                                                                        |
|----------------|--------------------------------------------------------------------------------------------------------------------|
| 00 00H         | 0aaa aaaa W3 PITCH COARSE 0 - 96 (C1, C2, - C9)                                                                    |
| 00 01H         | 0aaa aaaa W3 PITCH FINE 0 - 100 (-50 - +50)                                                                        |
| 00 02H         | 0000 aaaa W3 PITCH KEYFOLLOW 0 - 16 (-1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2, s1, s2) |
| 00 03H         | 0000 000a W3 PITCH BENDER SW 0 - 1 (OFF, ON)                                                                       |
| 00 04H         | 0000 000a W3 WAVEFORM 0 - 1 (SQU, SAW)                                                                             |
| 00 05H         | 0aaa aaaa W3 PCM WAVE # 0 - 127 (1 - 128)                                                                          |
| 00 06H         | 0aaa aaaa W3 PULSE WIDTH 0 - 100                                                                                   |
| 00 07H         | 0000 aaaa W3 PW VELO SENS 0 - 14 (-7 - +7)                                                                         |
| 00 08H         | 0000 aaaa P-ENV DEPTH 0 - 10                                                                                       |
| 00 09H         | 0aaa aaaa P-ENV VELO SENS 0 - 100                                                                                  |
| 00 0AH         | 0000 0aaa P-ENV TIME KEYF 0 - 4                                                                                    |
| 00 0BH         | 0aaa aaaa P-ENV TIME 1 0 - 100                                                                                     |
| 00 0CH         | 0aaa aaaa P-ENV TIME 2 0 - 100                                                                                     |
| 00 0DH         | 0aaa aaaa P-ENV TIME 3 0 - 100                                                                                     |
| 00 0EH         | 0aaa aaaa P-ENV TIME 4 0 - 100                                                                                     |
| 00 0FH         | 0aaa aaaa P-ENV LEVEL 0 0 - 100 (-50 - +50)                                                                        |
| 00 10H         | 0aaa aaaa P-ENV LEVEL 1 0 - 100 (-50 - +50)                                                                        |
| 00 11H         | 0aaa aaaa P-ENV LEVEL 2 0 - 100 (-50 - +50)                                                                        |
| 00 12H         | 0aaa aaaa P-ENV SUSTAIN LEVEL 0 - 100 (-50 - +50)                                                                  |
| 00 13H         | 0aaa aaaa END LEVEL 0 - 100 (-50 - +50)                                                                            |
| 00 14H         | 0aaa aaaa P-LFO RATE 0 - 100                                                                                       |
| 00 15H         | 0aaa aaaa P-LFO DEPTH 0 - 100                                                                                      |
| 00 16H         | 0aaa aaaa P-LFO MOD SENS 0 - 100                                                                                   |
| 00 17H         | 0aaa aaaa TVF CUTOFF FREQ 0 - 100                                                                                  |
| 00 18H         | 000a aaaa TVF RESONANCE 0 - 30                                                                                     |
| 00 19H         | 0000 aaaa TVF KEYFOLLOW 0 - 14 (-1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2)              |
| 00 1AH         | 0aaa aaaa TVF BIAS POINT/DIR <<1A - <7C >1A - >7C>                                                                 |
| 00 1BH         | 0000 aaaa TVF BIAS LEVEL 0 - 14 (-7 - +7)                                                                          |
| 00 1CH         | 0aaa aaaa TVF ENV DEPTH 0 - 100                                                                                    |

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|        |           |                       |                                |
|--------|-----------|-----------------------|--------------------------------|
| 00 1DH | 0aaa aaaa | TVF ENV VELO SENS     | 0 - 100                        |
| 00 1EH | 0000 Caaa | TVF ENV DEPTH KEYF    | 0 - 4                          |
| 00 1FH | 0000 0aaa | TVF ENV TIME KEYF     | 0 - 4                          |
| 00 20H | 0aaa aaaa | TVF ENV TIME 1        | 0 - 100                        |
| 00 21H | 0aaa aaaa | TVF ENV TIME 2        | 0 - 100                        |
| 00 22H | 0aaa aaaa | TVF ENV TIME 3        | 0 - 100                        |
| 00 23H | 0aaa aaaa | TVF ENV TIME 4        | 0 - 100                        |
| 00 24H | 0aaa aaaa | TVF ENV TIME 5        | 0 - 100                        |
| 00 25H | 0aaa aaaa | TVF ENV LEVEL 1       | 0 - 100                        |
| 00 26H | 0aaa aaaa | TVF ENV LEVEL 2       | 0 - 100                        |
| 00 27H | 0aaa aaaa | TVF ENV LEVEL 3       | 0 - 100                        |
| 00 28H | 0aaa aaaa | TVF ENV SUSTAIN LEVEL | 0 - 100                        |
| 00 29H | 0aaa aaaa | TVA LEVEL             | 0 - 100                        |
| 00 2AH | 0aaa aaaa | TVA VELO SENS         | 0 - 100                        |
| 00 2BH | 0aaa aaaa | TVA BIAS POINT 1      | 0 - 127 (<1A - <7C >1A - >7C>) |
| 00 2CH | 0000 aaaa | TVA BIAS LEVEL 1      | 0 - 12 (-12 - 0)               |
| 00 2DH | 0aaa aaaa | TVA BIAS POINT 2      | 0 - 127 (<1A - <7C >1A - >7C>) |
| 00 2EH | 0000 aaaa | TVA BIAS LEVEL 2      | 0 - 12 (-12 - 0)               |

|            |           |                       |         |
|------------|-----------|-----------------------|---------|
| 00 2FH     | 0000 0aaa | TVA ENV TIME KEYF     | 0 - 4   |
| 00 30H     | 0000 0aaa | TVA ENV TIME V_FOLLOW | 0 - 4   |
| 00 31H     | 0aaa aaaa | TVA ENV TIME 1        | 0 - 100 |
| 00 32H     | 0aaa aaaa | TVA ENV TIME 2        | 0 - 100 |
| 00 33H     | 0aaa aaaa | TVA ENV TIME 3        | 0 - 100 |
| 00 34H     | 0aaa aaaa | TVA ENV TIME 4        | 0 - 100 |
| 00 35H     | 0aaa aaaa | TVA ENV TIME 5        | 0 - 100 |
| 00 36H     | 0aaa aaaa | TVA ENV LEVEL 1       | 0 - 100 |
| 00 37H     | 0aaa aaaa | TVA ENV LEVEL 2       | 0 - 100 |
| 00 38H     | 0aaa aaaa | TVA ENV LEVEL 3       | 0 - 100 |
| 00 39H     | 0aaa aaaa | TVA ENV SUSTAIN LEVEL | 0 - 100 |
| Total size | 00 00 3AH |                       |         |

## ■ System area

| Offset address | Description                                                |
|----------------|------------------------------------------------------------|
| 00 00H         | 0aaa aaaa MASTER TUNE 0 - 127 (<32.1Hz - 457.6Hz)          |
| 00 01H         | 0000 00aa REVERB MODE 0 - 3 (Room, Hall, Plate, Tap delay) |
| 00 02H         | 0000 0aaa REVERB TIME 0 - 7 (1 - 8)                        |
| 00 03H         | 0000 0aaa REVERB LEVEL 0 - 7                               |
| 00 04H         | 00aa aaaa PARTIAL RESERVE (Part 1) 0 - 32                  |
| 00 05H         | 00aa aaaa PARTIAL RESERVE (Part 2) 0 - 32                  |
| 00 06H         | 00aa aaaa PARTIAL RESERVE (Part 3) 0 - 32                  |
| 00 07H         | 00aa aaaa PARTIAL RESERVE (Part 4) 0 - 32                  |
| 00 08H         | 00aa aaaa PARTIAL RESERVE (Part 5) 0 - 32                  |
| 00 09H         | 00aa aaaa PARTIAL RESERVE (Part 6) 0 - 32                  |

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|            |           |                          |                      |
|------------|-----------|--------------------------|----------------------|
| 00 0AH     | 00aa aaaa | PARTIAL RESERVE (Part 7) | 0 - 32               |
| 00 0BH     | 00aa aaaa | PARTIAL RESERVE (Part 8) | 0 - 32               |
| 00 0CH     | 00aa aaaa | PARTIAL RESERVE (Part R) | 0 - 32               |
| 00 0DH     | 000a aaaa | MIDI CHANNEL (Part 1)    | 0 - 16 (1 - 16, OFF) |
| 00 0EH     | 000a aaaa | MIDI CHANNEL (Part 2)    | 0 - 16 (1 - 16, OFF) |
| 00 0FH     | 000a aaaa | MIDI CHANNEL (Part 3)    | 0 - 16 (1 - 16, OFF) |
| 00 10H     | 000a aaaa | MIDI CHANNEL (Part 4)    | 0 - 16 (1 - 16, OFF) |
| 00 11H     | 000a aaaa | MIDI CHANNEL (Part 5)    | 0 - 16 (1 - 16, OFF) |
| 00 12H     | 000a aaaa | MIDI CHANNEL (Part 6)    | 0 - 16 (1 - 16, OFF) |
| 00 13H     | 000a aaaa | MIDI CHANNEL (Part 7)    | 0 - 16 (1 - 16, OFF) |
| 00 14H     | 000a aaaa | MIDI CHANNEL (Part 8)    | 0 - 16 (1 - 16, OFF) |
| 00 15H     | 000a aaaa | MIDI CHANNEL (Part R)    | 0 - 16 (1 - 16, OFF) |
| 00 16H     | 0aaa aaaa | MASTER VOLUME            | 0 - 100              |
| Total size | 00 00 17H |                          |                      |

## ■ Rhythm part setup

| Offset address | Description |                                     |
|----------------|-------------|-------------------------------------|
| 00 00H         | 0aaa aaaa   | TIMBRE<br>(M1-M64, R1-R30, OFF)     |
| 00 01H         | 0aaa aaaa   | OUTPUT LEVEL<br>0 - 100             |
| 00 02H         | 0000 aaaa   | PANPOT<br>0 - 14<br>(R - L)         |
| 00 03H         | 0000 000a   | REVERB SWITCH<br>0 - 1<br>(OFF, ON) |
| Total size     |             | 00 00 04H                           |

## ■ Patch temp

| Offset address | Description                                                     |
|----------------|-----------------------------------------------------------------|
| 00 00H         | 0000 00aa TIMBRE GROUP 0 - 3 (GROUP A, GROUP B, MEMORY, RHYTHM) |
| 00 01H         | 00aa aaaa TIMBRE NUMBER 0 - 63 (1 - 64)                         |
| 00 02H         | 00aa aaaa KEY SHIFT 0 - 48 (-24 - +24)                          |
| 00 03H         | 0aaa aaaa FINE TUNE 0 - 100 (-50 - +50)                         |
| 00 04H         | 000a aaaa BENDER RANGE 0 - 24                                   |

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|            |           |               |                                            |
|------------|-----------|---------------|--------------------------------------------|
| 00 05H     | 0000 00aa | ASSIGN MODE   | 0 - 3<br>(POLY 1,POLY 2,<br>POLY 3,POLY 4) |
| 00 06H     | 0000 000a | REVERB SWITCH | 0 - 1<br>(OFF, ON)                         |
| 00 07H     | 0xxx xxxx | dummy         |                                            |
| 00 08H     | 0aaa aaaa | OUTPUT LEVEL  | 0 - 100                                    |
| 00 09H     | 0000 aaaa | PANPOT        | 0 - 14<br>(R - L)                          |
| 00 0AH     | 0xxx xxxx | dummy         |                                            |
| 00 0FH     | 0xxx xxxx |               |                                            |
| Total size |           | 00 00 10H     |                                            |

## ■ Patch memory

| Offset address | Description |                                                             |
|----------------|-------------|-------------------------------------------------------------|
| 00 00H         | 0000 00aa   | TIMBRE GROUP 0 - 3<br>(GROUP A, GROUP B,<br>MEMORY, RHYTHM) |
| 00 01H         | 00aa aaaa   | TIMBRE NUMBER 0 - 63                                        |
| 00 02H         | 00aa aaaa   | KEY SHIFT 0 - 48<br>(-24 - +24)                             |
| 00 03H         | 0aaa aaaa   | FINE TUNE 0 - 100<br>(-50 - +50)                            |
| 00 04H         | 000a aaaa   | BENDER RANGE 0 - 24                                         |
| 00 05H         | 0000 00aa   | ASSIGN MODE 0 - 3<br>(POLY 1,POLY 2,<br>POLY 3,POLY 4)      |
| 00 06H         | 0000 000a   | REVERB SWITCH 0 - 1<br>(OFF, ON)                            |
| 00 07H         | 0xxx xxxx   | dummy                                                       |
| Total size     |             | 00 00 08H                                                   |

## ■ DISPLAY

| Offset address | Description |                                      |
|----------------|-------------|--------------------------------------|
| 00H            | 0aaa aaaa   | DISPLAYED LETTER 32 - 127<br>(ASCII) |
| 13H            | 0aaa aaaa   | DISPLAYED LETTER                     |
| Total size     |             | 00 00 14H                            |

Note :

\*4-4 This parameter can be modified from D-50(PG-1000) and results in accessing the address "02-00-00(Timbre Temp Area(part))"

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of MT-32

## 5. ADDRESS MAPPING OF PARAMETERS (compatible with D-50(PG-1000))

## ■ Parameter base address

| Start address | Description  |               |
|---------------|--------------|---------------|
| 00-00-00      | Partial 3    | ( 0 - 53 )    |
| 00-00-40      | Partial 4    | ( 64 - 117 )  |
| 00-01-0A      | Upper Common | ( 138 - 175 ) |
| 00-01-40      | Partial 1    | ( 192 - 245 ) |
| 00-02-00      | Partial 2    | ( 256 - 309 ) |
| 00-02-4A      | Lower Common | ( 330 - 367 ) |

## ■ Partial parameters

| Offset address | Description |                                                                                                         |
|----------------|-------------|---------------------------------------------------------------------------------------------------------|
| 00 00H         | 0aaa aaaa   | WG PITCH COARSE 0 - 72<br>(C1,C2, - C7)                                                                 |
| 00 01H         | 0aaa aaaa   | WG PITCH FINE 0 - 100<br>(-50 - +50)                                                                    |
| 00 02H         | 0000 aaaa   | WG PITCH KEYFOLLOW 0 - 16<br>(-1,-1/2,-1/4,0,<br>1/8,1/4,3/8,1/2,<br>5/8,3/4,7/8,1,<br>5/4,3/2,2,s1,a2) |
| 00 03H         | 0xxx xxxx   | dummy                                                                                                   |
| 00 04H         | 0xxx xxxx   | dummy                                                                                                   |
| 00 05H         | 0000 000a   | WG PITCH BENDER SW 0 - 1<br>(OFF, ON)                                                                   |
| 00 06H         | 0000 000a   | WG WAVEFORM 0 - 1<br>(SQU, SAW)                                                                         |
| 00 07H         | 0aaa aaaa   | WG PCM WAVE # 0 - 99<br>(1 - 100)                                                                       |
| 00 08H         | 0aaa aaaa   | WG PULSE WIDTH 0 - 100                                                                                  |
| 00 09H         | 0000 aaaa   | WG PW VELO SENS 0 - 14<br>(-7 - +7)                                                                     |
| 00 0AH         | 0xxx xxxx   | dummy                                                                                                   |
| 00 0BH         | 0xxx xxxx   | dummy                                                                                                   |
| 00 0CH         | 0xxx xxxx   | dummy                                                                                                   |

|        |           |                                                                                              |
|--------|-----------|----------------------------------------------------------------------------------------------|
| 00 0DH | 0aaa aaaa | TVF CUTOFF FREQ 0 - 100                                                                      |
| 00 0EH | 000a aaaa | TVF RESONANCE 0 - 30                                                                         |
| 00 0FH | 0000 aaaa | TVF KEYFOLLOW 0 - 14<br>(-1,-1/2,-1/4,0,<br>1/8,1/4,3/8,1/2,<br>5/8,3/4,7/8,1,<br>5/4,3/2,2) |
| 00 10H | 0aaa aaaa | TVF BIAS POINT/DIR 0 - 127<br>(<1A - <7C >1A - >7C)                                          |
| 00 11H | 0000 aaaa | TVF BIAS LEVEL 0 - 14                                                                        |

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|            |           |                                                   |
|------------|-----------|---------------------------------------------------|
| 00 12H     | 0aaa aaaa | TVF ENV DEPTH 0 - 100                             |
| 00 13H     | 0aaa aaaa | TVF ENV VELO SENS 0 - 100                         |
| 00 14H     | 0000 0aaa | TVF ENV DEPTH KEYF 0 - 4                          |
| 00 15H     | 0000 0aaa | TVF ENV TIME KEYF 0 - 4                           |
| 00 16H     | 0aaa aaaa | TVF ENV TIME 1 0 - 100                            |
| 00 17H     | 0aaa aaaa | TVF ENV TIME 2 0 - 100                            |
| 00 18H     | 0aaa aaaa | TVF ENV TIME 3 0 - 100                            |
| 00 19H     | 0aaa aaaa | TVF ENV TIME 4 0 - 100                            |
| 00 1AH     | 0aaa aaaa | TVF ENV TIME 5 0 - 100                            |
| 00 1BH     | 0aaa aaaa | TVF ENV LEVEL 1 0 - 100                           |
| 00 1CH     | 0aaa aaaa | TVF ENV LEVEL 2 0 - 100                           |
| 00 1DH     | 0aaa aaaa | TVF ENV LEVEL 3 0 - 100                           |
| 00 1EH     | 0aaa aaaa | TVF ENV SUSTAIN LEVEL 0 - 100                     |
| 00 1FH     | 0xxx xxxx | dummy                                             |
| 00 22H     | 0xxx xxxx | dummy                                             |
| 00 23H     | 0aaa aaaa | TVA LEVEL 0 - 100                                 |
| 00 24H     | 0aaa aaaa | TVA VELO SENS 0 - 100                             |
| 00 25H     | 0aaa aaaa | TVA BIAS POINT 1 0 - 127<br>(<1A - <7C >1A - >7C) |
| 00 26H     | 0000 aaaa | TVA BIAS LEVEL 1 0 - 12<br>(-12 - 0)              |
| 00 27H     | 0aaa aaaa | TVA ENV TIME 1 0 - 100                            |
| 00 28H     | 0aaa aaaa | TVA ENV TIME 2 0 - 100                            |
| 00 29H     | 0aaa aaaa | TVA ENV TIME 3 0 - 100                            |
| 00 2AH     | 0aaa aaaa | TVA ENV TIME 4 0 - 100                            |
| 00 2BH     | 0aaa aaaa | TVA ENV TIME 5 0 - 100                            |
| 00 2CH     | 0aaa aaaa | TVA ENV LEVEL 1 0 - 100                           |
| 00 2DH     | 0aaa aaaa | TVA ENV LEVEL 2 0 - 100                           |
| 00 2EH     | 0aaa aaaa | TVA ENV LEVEL 3 0 - 100                           |
| 00 2FH     | 0aaa aaaa | TVA ENV SUSTAIN LEVEL 0 - 100                     |
| 00 30H     | 0xxx xxxx | dummy                                             |
| 00 31H     | 0000 0aaa | TVA ENV TIME V_FOLLOW 0 - 4                       |
| 00 32H     | 0000 0aaa | TVA ENV TIME KEYF 0 - 4                           |
| 00 33H     | 0xxx xxxx | dummy                                             |
| 00 34H     | 0xxx xxxx | dummy                                             |
| 00 35H     | 0xxx xxxx | dummy                                             |
| Total size |           | 00 00 36H                                         |

## ■ Lower common parameter

| Offset address | Description |                                                |
|----------------|-------------|------------------------------------------------|
| 00 00H         | 0000 aaaa   | Structure of Partial# 1 & 2 0 - 12<br>(1 - 13) |
| 00 01H         | 0aaa aaaa   | P-ENV VELO SENS(Partial#1) 0 - 100             |
| 00 02H         | 0000 0aaa   | P-ENV TIME KEYF(Partial#1) 0 - 4               |
| 00 03H         | 0aaa aaaa   | P-ENV TIME 1(Partial#1) 0 - 100                |
| 00 04H         | 0aaa aaaa   | P-ENV TIME 2(Partial#1) 0 - 100                |
| 00 05H         | 0aaa aaaa   | P-ENV TIME 3(Partial#1) 0 - 100                |
| 00 06H         | 0aaa aaaa   | P-ENV TIME 4(Partial#1) 0 - 100                |
| 00 07H         | 0aaa aaaa   | P-ENV LEVEL 0(Partial#1) 0 - 100               |

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|            |           |                                                   |
|------------|-----------|---------------------------------------------------|
| 00 08H     | 0aaa aaaa | P-ENV LEVEL 1(Partial#1) 0 - 100<br>(-50 - +50)   |
| 00 09H     | 0aaa aaaa | P-ENV LEVEL 2(Partial#1) 0 - 100<br>(-50 - +50)   |
| 00 0AH     | 0aaa aaaa | P-ENV SUS LEVEL(Partial#1) 0 - 100<br>(-50 - +60) |
| 00 0BH     | 0aaa aaaa | END LEVEL(Partial#1) 0 - 100<br>(-50 - +50)       |
| 00 0CH     | 0xxx xxxx | dummy                                             |
| 00 0DH     | 0aaa aaaa | P-LFO MOD SENS(Partial#1) 0 - 100                 |
| 00 0EH     | 0aaa aaaa | P-LFO MOD SENS(Partial#2) 0 - 100                 |
| 00 0FH     | 0xxx xxxx | dummy                                             |
| 00 10H     | 0aaa aaaa | P-LFO RATE(Partial#1) 0 - 100                     |
| 00 11H     | 0aaa aaaa | P-LFO DEPTH(Partial#1) 0 - 100                    |
| 00 12H     | 0xxx xxxx | dummy                                             |
| 00 13H     | 0xxx xxxx | dummy                                             |
| 00 14H     | 0aaa aaaa | P-LFO RATE(Partial#2) 0 - 100                     |
| 00 15H     | 0aaa aaaa | P-LFO DEPTH(Partial#2) 0 - 100                    |
| 00 16H     | 0xxx xxxx | dummy                                             |
| 00 23H     | 0xxx xxxx | dummy                                             |
| 00 24H     | 0000 00aa | PARTIAL MUTE(Partial# 1&2) 0 - 3<br>(00 - 11)     |
| 00 25H     | 0xxx xxxx | dummy                                             |
| Total size |           | 00 00 26H                                         |

## ■ Upper common parameter

| Offset address | Description |                                                   |
|----------------|-------------|---------------------------------------------------|
| 00 00H         | 0000 aaaa   | Structure of Partial# 1 & 2 0 - 12<br>(1 - 13)    |
| 00 01H         | 0aaa aaaa   | P-ENV VELO SENS(Partial#3) 0 - 100                |
| 00 02H         | 0000 0aaa   | P-ENV TIME KEYF(Partial#3) 0 - 4                  |
| 00 03H         | 0aaa aaaa   | P-ENV TIME 1(Partial#3) 0 - 100                   |
| 00 04H         | 0aaa aaaa   | P-ENV TIME 2(Partial#3) 0 - 100                   |
| 00 05H         | 0aaa aaaa   | P-ENV TIME 3(Partial#3) 0 - 100                   |
| 00 06H         | 0aaa aaaa   | P-ENV TIME 4(Partial#3) 0 - 100                   |
| 00 07H         | 0aaa aaaa   | P-ENV LEVEL 0(Partial#3) 0 - 100<br>(-50 - +50)   |
| 00 08H         | 0aaa aaaa   | P-ENV LEVEL 1(Partial#3) 0 - 100<br>(-50 - +50)   |
| 00 09H         | 0aaa aaaa   | P-ENV LEVEL 2(Partial#3) 0 - 100<br>(-50 - +50)   |
| 00 0AH         | 0aaa aaaa   | P-ENV SUS LEVEL(Partial#3) 0 - 100<br>(-50 - +50) |
| 00 0BH         | 0aaa aaaa   | END LEVEL(Partial#3) 0 - 100<br>(-50 - +50)       |
| 00 0CH         | 0xxx xxxx   | dummy                                             |
| 00 0DH         | 0aaa aaaa   | P-LFO MOD SENS(Partial#3) 0 - 100                 |
| 00 0EH         | 0aaa aaaa   | P-LFO MOD SENS(Partial#4) 0 - 100                 |
| 00 0FH         | 0xxx xxxx   | dummy                                             |
| 00 10H         | 0aaa aaaa   | P-LFO RATE(Partial#3) 0 - 100                     |
| 00 11H         | 0aaa aaaa   | P-LFO DEPTH(Partial#3) 0 - 100                    |

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|            |           |                                               |
|------------|-----------|-----------------------------------------------|
| 00 12H     | 0xxx xxxx | dummy                                         |
| 00 13H     | 0xxx xxxx | dummy                                         |
| 00 14H     | 0aaa aaaa | P-LFO RATE(Partial#4) 0 - 100                 |
| 00 15H     | 0aaa aaaa | P-LFO DEPTH(Partial#4) 0 - 100                |
| 00 16H     | 0xxx xxxx | dummy                                         |
| 00 23H     | 0xxx xxxx | dummy                                         |
| 00 24H     | 0000 00aa | PARTIAL MUTE(Partial# 3&4) 0 - 3<br>(00 - 11) |
| 00 25H     | 0xxx xxxx | dummy                                         |
| Total size |           | 00 00 26H                                     |

## MIDI Implementation Chart

[ Multi Timbre Sound Module ] Date : Jun.19 1987  
Model MT-32 MIDI Implementation Chart Version : 1.00

| Function                | Transmitted                                    | Recognized    | Remarks               |
|-------------------------|------------------------------------------------|---------------|-----------------------|
| Basic Default           |                                                | 1 - 16        | Memorized             |
| Channel Changed         |                                                | 1 - 16        |                       |
| Mode Default Messages   |                                                | Mode 3        |                       |
| Mode Altered            | *****                                          |               |                       |
| Note Number             | * 0 - 127                                      | 0 - 127       |                       |
| Velocity Note ON        | *                                              | o v= 1 - 127  |                       |
| Note OFF                | *                                              | x             |                       |
| After Key's             | *                                              | x             |                       |
| Touch Ch's              | *                                              | x             |                       |
| Pitch Bender            | *                                              | o 0 - 24 semi |                       |
| Control                 | 1: *                                           | o             | Modulation            |
|                         | 7: *                                           | o             | Part Volume           |
|                         | 10: *                                          | o             | Panpot                |
| Change                  | 11: *                                          | o             | Expression            |
|                         | 12: *                                          | x             |                       |
|                         | 63: *                                          |               |                       |
|                         | 64: *                                          | o             | Hold1                 |
|                         | 65: *                                          |               |                       |
|                         | 120: *                                         | x             |                       |
|                         | 121: *                                         | o             | Reset all controllers |
| Prog Change : True #    | *                                              | o 0 - 127     |                       |
|                         |                                                | 0 - 127       |                       |
| System Exclusive        | o *                                            | o             |                       |
| System : Song Pos       | x                                              | x             |                       |
| System : Song Sel       | x                                              | x             |                       |
| Common : Tune           | x                                              | x             |                       |
| System : Clock          | x                                              | x             |                       |
| Real Time : Commands    | x                                              | x             |                       |
| Aux : Local ON/OFF      | x                                              | x             |                       |
| System : All Notes OFF  | x                                              | o (123-127)   |                       |
| Message : Active Sense  | x                                              | o             |                       |
| Message : Reset         | x                                              | x             |                       |
| Notes                   | * in OVERFLOW MODE, received message goes thru |               | MIDI OUT              |
| Mode 1 : OMNI ON, POLY  | Mode 2 : OMNI ON, MONO                         | o : Yes       |                       |
| Mode 3 : OMNI OFF, POLY | Mode 4 : OMNI OFF, MONO                        | x : No        |                       |