YAMAHA

MUSIC SYNTHESIZER

SY99

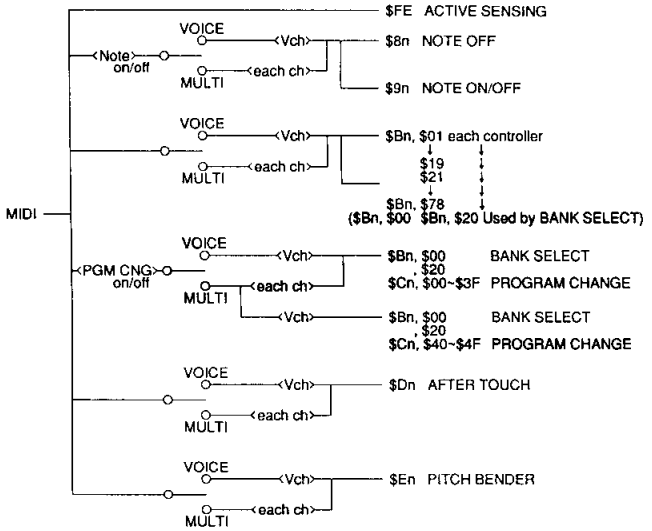
MIDI DATA FORMAT

1. Synthesizer mode

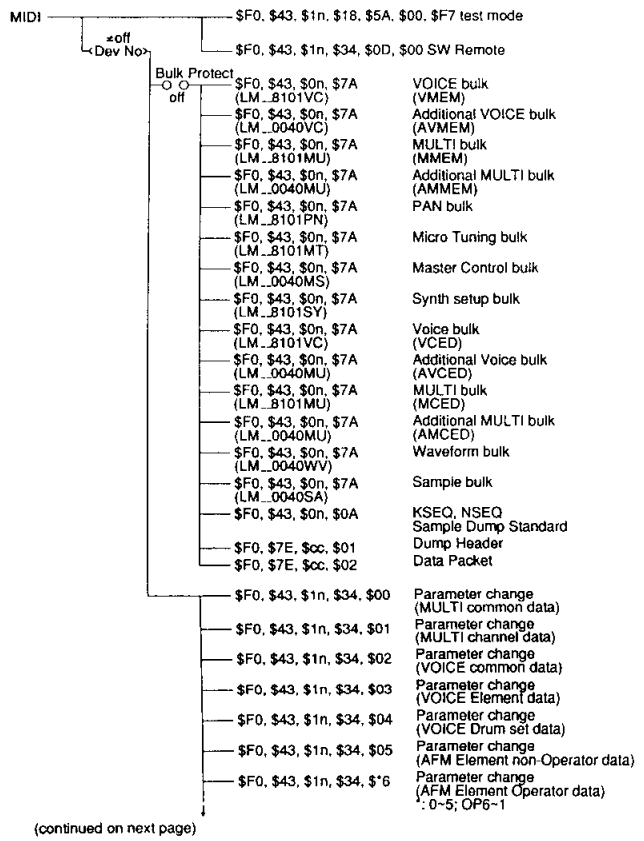
1.1 MIDI reception/transmission block diagram

< MIDI reception conditions > 1/2

Vch ... Voice Receive ch.



< MIDI reception conditions > 2/2



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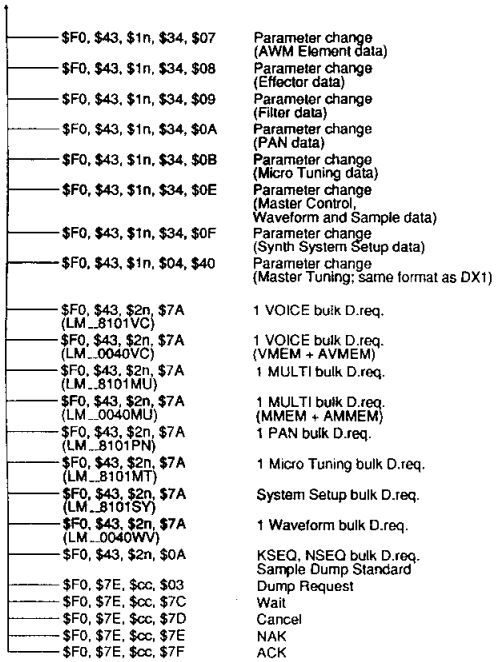
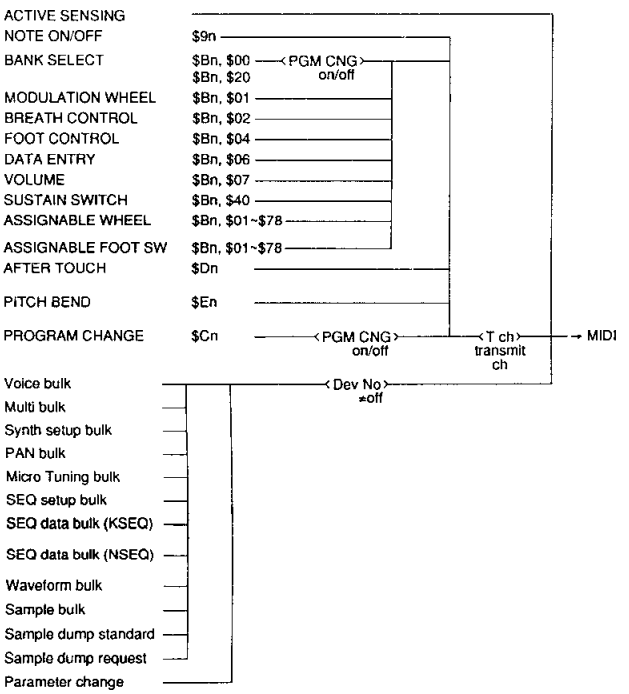


Dev No = Device Number

VCED = Voice edit buffer
AVCED = Additional Voice edit buffer
MCED = Multi edit buffer
AMCED = Additional Multi edit buffer
VMEM = Voice memory
AVMEM = Additional Voice memory
MMEM = Multi memory
AMMEM = Additional Multi memory

< MIDI transmission conditions >



1.2 Channel messages

1.2.1 Transmission

1.2.1.1 Note on/off

Transmission note range = E0 (28) ... G6 (103)
Velocity range = 0 ... 127 (0: note off)

1.2.1.2 Control change

When the following controllers are moved MIDI data will be transmitted.

ctl#	parameter	data rng
1	Modulation wheel	0~127
2	Breath control	0~127
4	Foot control	0~127
6	Data entry slider	0~127
7	Volume pedal	0~127
64	Sustain switch	0, 127
96	data increment Sw.	127
97	data decrement Sw.	127
0~120	Assignable wheel	0~127
0~120	Assignable foot sw	0, 127

← ┐ Transmitted in all modes
← ┘ other than Voice Play mode or Multi Play mode.

1.2.1.3 Program change

When a voice is selected in voice mode, or when a multi is selected in multi mode, a program change is transmitted. The program change number is assigned according to the mode, as follows.

		Bank No. (MSB), (LSB)		PGM CNG No.
Voice	Internal	1	($00), ($00)	1~64 ($00~$3F)
	Card	2	($00), ($01)	↓
	Preset 1	3	($00), ($02)	↓
	Preset 2	6	($00), ($05)	↓
Multi	Internal	17	($00), ($10)	65~80 ($40~$4F)
	Card	18	($00), ($11)	↓
	Preset	19	($00), ($12)	↓
Voice In Multi	Internal	33	($00), ($20)	1~64 ($00~$3F)
	Card	34	($00), ($21)	↓
	Preset 1	35	($00), ($22)	↓
	Preset 2	38	($00), ($25)	↓

BANK SELECT $Bn, $00, $00~$7F (MSB)
$Bn, $20, $00~$7F (LSB)
PROGRAM CHANGE $Cn, $00~$7F

No bank select or program change messages are transmitted if Program Change mode is set to OFF.

1.2.1.4 Pitch bend

Pitch bend is transmitted with 7 bit precision.

1.2.1.5 Aftertouch

Transmitted from MIDI when aftertouch is operated.

1.2.1.6 Channel mode messages

Channel mode messages are not transmitted.

1.2.2 Reception

1.2.2.1 Note on/off

Received note range = C-2 (0) ... G8 (127)
Velocity range = 1 ... 127 (note on only)
* A system setup parameter allows selection of
normal = receive all note numbers
odd = receive odd note numbers
even = receive even note numbers

1.2.2.2 Control change

The following parameters can be controlled via MIDI.

cntrl#	parameter	data rng
1~120	Pitch Modulation	0...127
1~120	Amplitude Modulation	0...127
1~120	Filter Modulation	0...127
1~120	Pan LFO Modulation	0...127
1~120	Cutoff Bias	0...127
1~120	Pan Bias	0...127
1~120	EG Bias	0...127
1~120	Volume (assignable)	0...127
5	Portamento Time	0...127
7	Volume	0...127
64	Sustain Switch	0...127
65	Portamento Switch	0...127

Control #s 0($00) and 32($20) are used for bank select.

1.2.2.3 Program change

The SY99 responds as follows when a program change message is received:

1) If Program Change mode is OFF:
: Bank select and program change messages are not recognized.

2) If Program Change mode is ON:
: Response as described by the chart in 2.2.1.3. Voice selection is carried out upon reception of the program change message.

1.2.2.4 Pitch bend

Pitch bend is recognized by the MSB only.

1.2.2.5 Aftertouch

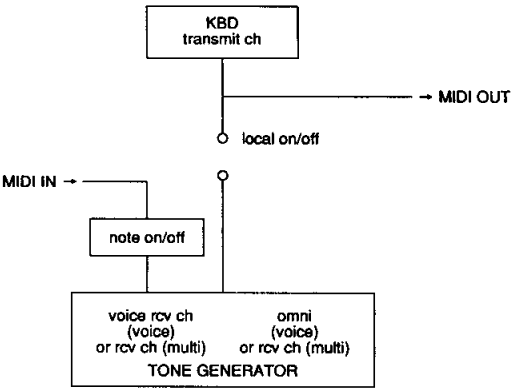
Channel aftertouch is recognized. Polyphonic aftertouch is not recognized.

1.2.2.6 Channel mode messages

Not received

1.2.3 Diagram of the keyboard section and tone generator section

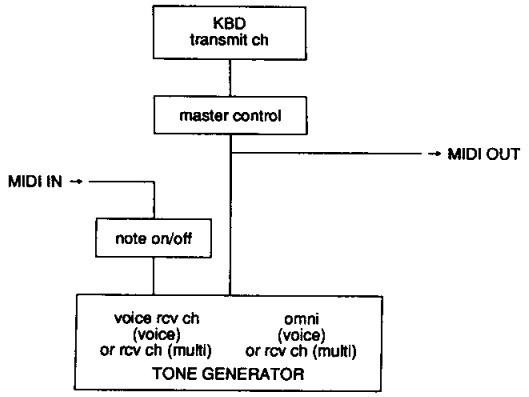
* Normal mode



Note 1) In voice mode, sound will be produced even if the Voice Receive Channel does not match the Keyboard Trans. Channel.

Note 2) Notes from the keyboard and notes from MIDI will be distinguished in polyphonic mode, and not distinguished in monophonic mode. Controller data from the keyboard and controller data from the MIDI (control change, aftertouch, pitch bend) will not be distinguished except for the sustain switch.

* Master control mode



2. System exclusive messages

2.1 Parameter changes

The SY99 is capable of transmitting and recognizing the following 17 types of parameter change message (with the exception of 14. Switch Remote, which is recognized but cannot be transmitted). Recognition of 14. Switch Remote has the same effect on the display as pressing the switch.

1). Multi Common Data parameter change
2). Multi Channel Data parameter change
3). Voice Common Data parameter change
4). Voice Element Data parameter change
5). Voice Drum Set Data parameter change
6). AFM Element Common Data parameter change
7). AFM Element Operator Data parameter change
8). AWM Element Data parameter change
9). Waveform Data parameter change
10). Effect Data parameter change
11). Filter Data parameter change
12). PAN Data parameter change
13). Micro Tuning Data parameter change
14). Switch Remote parameter change
15). Master Control Data parameter change
16). System Setup Data parameter change
17). Sample Data parameter change

Parameter message recognition can be turned off by turning the Device Number switch off. It cannot be turned off using any other MIDI switch.

2.1.1 Multi Common Data parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn     - Device Number
00110100    34
00000000    00
00000000    00
00000000    00
000ppppp    ppppp    - Table 1-1, N2
00000000    00
0vvvvvvv    vvvvvvv  - ascii
11110111    F7
```

This message modifies Multi Common data (multi name) one parameter at a time. When this message is received, the following will occur.

Voice Play mode	: ignore.
Voice Edit mode	: ignore.
Multi Play mode	: move to Multi Edit mode and receive. (Display changes.)
Multi Edit mode	: receive. (Display changes.)
Voice Edit mode in Multi	: receive.
Utility mode (Voice mode)	: ignore.
Utility mode (Multi mode)	: move to Voice Edit mode and receive. (Display changes.)

2.1.2 Multi Channel Data parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn     - Device Number
00110100    34
00000001    01
0000cccc    cccc     - Voice Channel Number
00000000    00
000ppppp    ppppp    - Table 1-2, N2
00000000    00
0vvvvvvv    vvvvvvv  - Data Value
11110111    F7
```

This message modifies the channel data of a multi one parameter at a time. When this message is received, the following will occur.

Voice Play mode	: ignore.
Voice Edit mode	: ignore.
Multi Play mode	: move to Multi Edit mode and receive. (Display changes.)
Multi Edit mode	: receive. (Display changes.)
Voice Edit mode in Multi	: receive.
Utility mode (Voice mode)	: ignore.
Utility mode (Multi mode)	: move to Voice Edit mode and receive. (Display changes.)

2.1.3 Voice Common Data parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn     - Device Number
00110100    34
00000010    02
00000000    00
00000000    00
0ppppppp    ppppppp  - Table 1-3, N2
00000000    00
0vvvvvvv    vvvvvvv  - Data Value
11110111    F7
```

This message modifies voice common data one parameter at a time. When this message is received, the following will occur.

Voice Play mode	: move to Voice Edit mode and receive. (Display changes.)
Voice Edit mode	: receive. (Display changes.)
Multi Play mode	: ignore.
Multi Edit mode	: ignore.
Voice Edit mode in Multi	: receive. (Display changes.)
Utility mode (Voice mode)	: move to Voice Edit mode and receive. (Display changes.)
Utility mode (Multi mode)	: ignore.

2.1.4 Voice Element Data parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn     - Device Number
00110100    34
00000011    03
0ee00000    ee       - Element Number
00000000    00
0000pppp    pppp     - Table 1-4, N2
00000000    00
0vvvvvvv    vvvvvvv  - Data Value
11110111    F7
```

This message modifies voice element data one parameter at a time. When this message is received, the following will occur.

Voice Play mode	: if the specified element exists, move to Voice Edit mode and receive. If not, ignore.
Voice Edit mode	: if the specified element exists, receive. if not, ignore. (The screen goes into Edit Mode.)
Multi Play mode	: ignore.
Multi Edit mode	: ignore.
Voice Edit mode in Multi	: same as for Voice Edit mode.
Utility mode (Voice mode)	: same as for Voice Play mode.
Utility mode (Multi mode)	: ignore.

2.1.5 Voice Drum Set Data parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn      - Device Number
00110100    34
00000100    04
0mmmmmmm    mmmmmmm - MIDI Note Number
00000000    00
0000pppp    pppp      - Table 1-5, N2
0000000v    v         - Data Value (MSB)
0vvvvvvv    vvvvvvv - Data Value (LS7bits)
11110111    F7
```

This message modifies voice drum set data one parameter at a time. When this message is received, the following will occur.

Voice Play mode	: if originally a drum set, move to Voice Edit mode and receive. (Display changes.) If not, ignore. (The screen goes into Edit Mode.)
Voice Edit mode	: if originally a drum set, receive. (Display changes.) If not, ignore.
Multi Play mode	: ignore.
Multi Edit mode	: ignore.
Voice Edit mode in Multi	: same as for Voice Edit mode.
Utility mode (Voice mode)	: same as for Voice Play mode.
Utility mode (Multi mode)	: ignore.

2.1.6 AFM Element Common Data parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn      - Device Number
00110100    34
00000101    05
0ee00000    ee        - Element Number
00000000    00
000ppppp    ppppp     - Table 1-6, N2
00000000    00
0vvvvvvv    vvvvvvv - Data Value
11110111    F7
```

This message modifies AFM element common data one parameter at a time. When this message is received, the following will occur.

Voice Play mode	: if the specified element exists and is AFM, move to Voice Edit mode and receive. (Display changes.) If not, ignore. (The screen goes into Edit Mode.)
Voice Edit mode	: if the specified element exists and is AFM, receive. If not, ignore. (Display changes.)
Multi Play mode	: ignore.
Multi Edit mode	: ignore.
Voice Edit mode in Multi	: same as Voice Edit mode.
Utility mode (Voice mode)	: same as Voice Play mode.
Utility mode (Multi mode)	: ignore.

2.1.7 AFM Element Operator Enable Parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn      - Device Number
00110100    34
00000101    05
0ee00000    ee        - Element Number
01111111    7F
01111111    7F
00000000    00
00vvvvvv    vvvvvv    - Data Value
11110111    F7
```

This message modifies AFM operator enable data one parameter at a time. When this message is received, the following will occur.

Voice Play mode	: if the specified element exists and is AFM, move to Voice Edit mode and receive. (Display changes.) If not, ignore. (The screen goes into Edit Mode.)
Voice Edit mode	: if the specified element exists and is AFM, receive. If not, ignore. (Display changes.)
Multi Play mode	: ignore.
Multi Edit mode	: ignore.
Voice Edit mode in Multi	: same as Voice Edit mode.
Utility mode (Voice mode)	: same as Voice Play mode.
Utility mode (Multi mode)	: ignore.

2.1.8 AFM Element Operator Data Parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn      - Device Number
00110100    34
0ooo0110    ooo       - 6-(Operator Number)
0ee00000    ee        - Element Number
00000000    00
00pppppp    pppppp    - Table 1-7, N2
0000000v    v         - Data Value (MSB)
0vvvvvvv    vvvvvvv - Data Value (LS7bits)
11110111    F7
```

This message modifies AFM operator parameter data one parameter at a time. When this message is received, the following will occur.

Voice Play mode	: if the specified element exists and is AFM, move to Voice Edit mode and receive. (Display changes.) If not, ignore. (The screen goes into Edit Mode.)
Voice Edit mode	: if the specified element exists and is AFM, receive. (Display changes.) If not, ignore.
Multi Play mode	: ignore.
Multi Edit mode	: ignore.
Voice Edit mode in Multi	: same as in Voice Edit mode.
Utility mode (Voice mode)	: same as in Voice Play mode.
Utility mode (Multi mode)	: ignore.

2.1.9 AWM Element Data parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn      - Device Number
00110100    34
00000111    07
0ee00000    ee        - Element Number
00000000    00
0ppppppp    ppppppp - Table 1-8, N2
0000000v    v         - Data Value (MSB)
0vvvvvvv    vvvvvvv - Data Value (LS7bits)
11110111    F7
```

This message modifies AWM element data one parameter at a time. When this message is received, the following will occur.

Voice Play mode	: if the specified element exists and is AWM, move to Voice Edit mode and receive. (Display changes.) If not, ignore. (The screen goes into Edit Mode)
Voice Edit mode	: if the specified element exists and is AWM, receive. If not, ignore. (Display changes.)
Multi Play mode	: ignore.
Multi Edit mode	: ignore.
Voice Edit mode in Multi	: same as in Voice Edit mode.
Utility mode (Voice mode)	: same as in Voice Play mode.
Utility mode (Multi mode)	: ignore.

2.1.10 Waveform and Sample parameter change

Waveform parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn - Device Number
00110100    34
00001110    0E
00wwwwww    wwwwww - Waveform Number
00000101    05
0ppppppp    ppppppp - Table 1-9, N2
00000000    00
0vvvvvvv    vvvvvvv - Data Value
11110111    F7
```

Sample parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn - Device Number
00110100    34
00001110    0E
0sssssss    sssssss - Sample Number
00000101    06
0ppppppp    ppppppp - Table 1-17, N2
00000000    00
0vvvvvvv    vvvvvvv - Data Value
11110111    F7
```

These messages change a single parameter of waveform or sample data. These messages are recognized, and the data for the specified waveform or sample are changed, regardless of the SY99's current mode setting.

2.1.11 Effect Data parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn     - Device Number
00110100    34
00001000    08
00000000    00
00000000    00
000ppppp    ppppp    - Table 1-10, N2
00000000    00
0vvvvvvv    vvvvvvv - Data Value
11110111    F7
```

This message modifies effect data one parameter at a time. When this message is received, the following will occur.

Voice Play mode	: move to Voice Edit mode and receive.
Voice Edit mode	: receive. (Display changes.)
Multi Play mode	: move to Multi Edit mode and receive.
Multi Edit mode	: receive. (Display changes.)
Voice Edit mode in Multi	: receive. Modify the Multi effect. (Display changes.)
Utility mode (Voice mode)	: same as in Voice Play mode.
Utility mode (Multi mode)	: same as in Multi Play mode.

2.1.12 Filter Data parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn     - Device Number
00110100    34
00001001    09
0ee00fff    ee       - Element Number,  fff - filter Number
00000000    00
00pppppp    pppppp   - Table 1-11, N2
0000000v    v        - Data Value (MSB)
0vvvvvvv    vvvvvvv - Data Value (LS7bits)
11110111    F7
```

This message modifies filter data one parameter at a time. When this message is received, the following will occur.

Voice Play mode	: if the specified element exists, move to Voice Edit mode and receive. If not, ignore.
Voice Edit mode	: if the specified element exist, receive. If not, ignore. (Display changes.)
Multi Play mode	: ignore.
Multi Edit mode	: ignore.
Voice Edit mode in Multi	: same as in Voice Edit mode.
Utility mode (Voice mode)	: same as in Voice Play mode.
Utility mode (Multi mode)	: ignore.

2.1.13 PAN Data parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn     - Device Number
00110100    34
00001010    0A
000mmmmm    mmmmm    - Memory Number
00000000    00
000ppppp    ppppp    - Table 1-12, N2
00000000    00
00vvvvvv    vvvvvv   - Data Value
11110111    F7
```

This message modifies dynamic pan data one parameter at a time. When this message is received, the mode will not change, and the pan data of the specified memory will be modified.

2.1.14 Micro Tuning Data parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn     - Device Number
00110100    34
00001010    0B
000mmmmm    mmmmm    - Memory Number
0000000p    p        - Table 1-13, N1
0ppppppp    ppppppp  - Table 1-13, N2
0vvvvvvv    vvvvvvv - Data Value (MS7bits)
0vvvvvvv    vvvvvvv - Data Value (LS7bits)
11110111    F7
```

This message modifies micro tuning data one parameter at a time. When this message is received, the mode will not change, and the micro tuning data of the specified memory will be modified.

2.1.15 Switch Remote parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn     - Device Number
00110100    34
00001010    0D
00000000    00
00000000    00
0ppppppp    ppppppp - Table 1-14, N2
00000000    00
0vvvvvvv    vvvvvvv - Data Value
11110111    F7
```

This message is only received, and allows remote control of all panel switches. The message will have the same effect as if that switch had been pressed.

2.1.16 Master Control Data parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn     - Device Number
00110100    34
00001110    0E
00nn0ttt    nnttt    - Table 1-15, T2
0ppppppp    ppppppp - Table 1-15, N1
0ppppppp    ppppppp - Table 1-15, N2
0vvvvvvv    vvvvvvv - Data Value
0vvvvvvv    vvvvvvv - Data Value
11110111    F7
```

This message modifies master control data one parameter at a time. When this message is received, the mode will not change.

2.1.17 System Setup Data parameter change

```
11110000    F0
01000011    43
0001nnnn    nnnn     - Device Number
00110100    34
00001111    0F
00000000    00
00000000    00
0ppppppp    ppppppp - Table 1-16, N2
00000000    00
0vvvvvvv    vvvvvvv - Data Value
11110111    F7
```

This message modifies system setup data one parameter at a time. When this message is received, the mode will not change.

3. Bulk dump

Reception is possible any time when not playing back or recording.
The data is transmitted when the MIDI UTILITY "bulk dump" or SAMPLE UTILITY "sample dump" is executed or when a dump request is received.

3.1 Voice data bulk dump

There are nine types of voice data bulk dump as follows.

1). 1AFM Voice bulk dump
2). 2AFM Voice bulk dump
3). 4AFM Voice bulk dump
4). 1AWM Voice bulk dump
5). 2AWM Voice bulk dump
6). 4AWM Voice bulk dump
7). 1AFM_1AWM Voice bulk dump
8). 2AFM_2AWM Voice bulk dump
9). Drum_set Voice bulk dump

```
 0      11110000      F0
 1      01000011      43
 2      0000nnnn      nnnn    - Device Number
 3      01111010      7A
 4      0bbbbbbb      ┐byte count
 5      0bbbbbbb      ┘
 6      01001100      4C(ascii"L")
 7      01001101      4D(ascii"M")
 8      00100000      20(ascii" ")
 9      00100000      20(ascii" ")
10      00111000      38(ascii"8")
11      00110001      31(ascii"1")
12      00110000      30(ascii"0")
13      00110001      31(ascii"1")
14      01010110      56(ascii"V")
15      01000011      43(ascii"C")
16      00000000      00
↓         ↓             ↓
29      00000000      00
30      0ttttttt      ttttttt - Memory_type
31      00mmmmmm      mmmmmm  - Memory Number
32      0ddddddd      ddddddd - data
↓         ↓             ↓
        0ssssssss      ssssssss - check_sum
        11110111      F7
```

MIDI Utility 1 Voice Bulk transmission

Memory_type = 7F
Memory Number = 00

MIDI Utility 64 Voices Bulk or Vc & Mlt Bulk transmission

Memory_type = 00 (INT)
Memory Number = Voices 0~63 will be transmitted sequentially. (For Vc & Mlt Bulk transmission, Voices 0~63 will be transmitted, followed by Multi Bulk Data.)

1 Voice Bulk transmission by Dump Request

Memory_type = 00 (INT)
02 (PRESET1)
03 (PRESET2)
Memory Number = 0~63 (the number specified by the Dump Request)

For reception, data will be processed as Edit_buffer when the Memory_type is 7F, and as INTERNAL for other cases.

* For details of the bulk dump data and dump request format, refer to table 2-1.
For transmission at the main unit panel operation, additional voice data is also transmitted. When a dump request is received, only voice data is transmitted.

3.2 Additional voice data bulk dump

1). 1AFM & 1AWM Voice bulk dump
2). 2AFM & 2AWM & 1AFM_1AWM Voice bulk dump
3). 4AFM & 4AWM & 2AFM_2AWM Voice bulk dump
4). Drum_set Voice bulk dump

0	11110000	F0
1	01000011	43
2	0000nnnn	nnnn - Device Number
3	01111010	7A
4	0bbbbbbb	┐byte count
5	0bbbbbbb	┘
6	01001100	4C(ascii"L")
7	01001101	4D(ascii"M")
8	00100000	20(ascii" ")
9	00100000	20(ascii" ")
10	00110000	30(ascii"0")
11	00110000	30(ascii"0")
12	00110100	34(ascii"4")
13	00110000	30(ascii"0")
14	01010110	56(ascii"V")
15	01000011	43(ascii"C")
16	00000000	00
↓	↓	↓
29	00000000	00
30	0ttttttt	ttttttt - Memory_type
31	00mmmmmm	mmmmmm - Memory Number
32	0ddddddd	ddddddd - data
↓	↓	↓
	0sssssss	sssssss - check_sum
	11110111	F7

MIDI Utility 1 Voice Bulk transmission

Memory_Type = 7F
Memory Number = 00

MIDI Utility 64 Voices Bulk or Vc & Mlt Bulk transmission

Memory_type = 00 (INT)
Memory Number = Voices 0~63 will be transmitted sequentially. (For Vc & Mlt Bulk transmission, Voices 0~63 will be transmitted, followed by Multi Bulk Data.)

1 Voice Bulk transmission by Dump Request

Memory_type = 00 (INT)
02 (PRESET1)
03(PRESET2)
Memory Number = 0~63 (the number specified by the Dump Request)

For reception, data will be processed as Edit_buffer when the Memory_type is 7F, and as INTERNAL for other cases.

* For details of the bulk dump data and dump request format, refer to table 2-2.
For transmission at the main unit panel operation or at the reception of a dump request, voice data is also transmitted.

3.3 Multi data bulk dump

0	11110000	F0
1	01000011	43
2	0000nnnn	nnnn - Device Number
3	01111010	7A
4	0bbbbbbb	┐byte count
5	0bbbbbbb	┘
6	01001100	4C(ascii"L")
7	01001101	4D(ascii"M")
8	00100000	20(ascii" ")
9	00100000	20(ascii" ")
10	00111000	38(ascii"8")
11	00110001	31(ascii"1")
12	00110000	30(ascii"0")
13	00110001	31(ascii"1")
14	01001101	4D(ascii"M")
15	01010101	55(ascii"U")
16	00000000	00
↓	↓	↓
29	00000000	00
30	0ttttttt	ttttttt - Memory_type
31	00mmmmmm	mmmmmm - Memory Number
32	0ddddddd	ddddddd - data
↓	↓	↓
	0sssssss	sssssss - check_sum
	11110111	F7

MIDI Utility 1 Multi Bulk transmission

Memory_type = 7F
Memory Number = 00

MIDI Utility 16 Multi Bulk or Vc & Mlt Bulk transmission

Memory_type = 00 (INT)
Memory Number = Multi 0~15 will be transmitted sequentially. (For Vc & Mlt Bulk transmission, Voices 0~63 will be transmitted, followed by Multi Bulk Data.)

1 Multi Bulk transmission by Dump Request

Memory_type = 00 (INT)
02 (PRESET)
Memory Number = 0~15 (the number specified by the Dump Request)

For reception, data will be processed as Edit_buffer when the Memory_type is 7F, and as INTERNAL for other cases.

* For details of the bulk dump data and dump request format, refer to table 3-1.
For transmission at the main unit panel operation, additional voice data is also transmitted. When a dump request is received, only multi data is transmitted.

3.4 Additional multi data bulk dump

0	11110000	F0
1	01000011	43
2	0000nnnn	nnnn - Device Number
3	01111010	7A
4	0bbbbbbb	┐byte count
5	0bbbbbbb	┘
6	01001100	4C(ascii"L")
7	01001101	4D(ascii"M")
8	00100000	20(ascii" ")
9	00100000	20(ascii" ")
10	00110000	30(ascii"0")
11	00110000	30(ascii"0")
12	00110100	34(ascii"4")
13	00110000	30(ascii"0")
14	01001101	4D(ascii"M")
15	01010101	55(ascii"U")
16	00000000	00
↓	↓	↓
29	00000000	00
30	0ttttttt	ttttttt - Memory_type
31	00mmmmmm	mmmmmm - Memory Number
32	0ddddddd	ddddddd - data
↓	↓	↓
	0sssssss	sssssss - check_sum
	11110111	F7

MIDI Utility 1 Multi Bulk transmission

Memory_type = 7F
Memory Number = 00

MIDI Utility 16 Multi Bulk or Vc & Mlt Bulk transmission

Memory_type = 00 (INT)
Memory Number = Multi 0~15 will be transmitted sequentially. (For Vc & Mlt Bulk transmission, Voices 0~63 will be transmitted, followed by Multi Bulk Data.)

1 Multi Bulk transmission by Dump Request

Memory_type = 00 (INT) 02 (PRESET)
Memory Number = 0~15 (the number specified by the Dump Request)

For reception, data will be processed as Edit_buffer when the Memory_type is 7F, and as INTERNAL for other cases.

* For details of the bulk dump data and dump request format, refer to table 3-2.
For transmission at the main unit panel operation or at the reception of a dump request, voice data is also transmitted.

3.5 Pan data bulk dump

0	11110000	F0
1	01000011	43
2	0000nnnn	nnnn - Device Number
3	01111010	7A
4	0bbbbbbb	byte count
5	0bbbbbbb	
6	01001100	4C(ascii"L")
7	01001101	4D(ascii"M")
8	00100000	20(ascii" ")
9	00100000	20(ascii" ")
10	00111000	38(ascii"8")
11	00110001	31(ascii"1")
12	00110000	30(ascii"0")
13	00110001	31(ascii"1")
14	01010000	50(ascii"P")
15	01001110	4E(ascii"N")
16	00000000	00
↓	↓	↓
29	00000000	00
30	0ttttttt	ttttttt - Memory_type
31	00mmmmmm	mmmmmm - Memory Number
32	0ddddddd	ddddddd - data
↓	↓	↓
	0sssssss	sssssss - check_sum
	11110111	F7

MIDI Utility PAN Bulk transmission

Memory_type = 00 (INT)
Memory Number = start from 0 and transmit consecutively to 31

PAN Bulk transmission by Dump Request

Memory_type = 00 (INT)
02 (PRESET)
Memory Number = 0~63 (the number specified by the Dump Request)

For reception, bits 5 and 6 of Memory_type and memory Number will be ignored, and the data will be processed as INTERNAL.

* For details of the bulk dump data and dump request format, refer to table 4.

3.6 Micro tuning data bulk dump

0	11110000	F0
1	01000011	43
2	0000nnnn	nnnn - Device Number
3	01111010	7A
4	0bbbbbbb	byte count
5	0bbbbbbb	
6	01001100	4C(ascii"L")
7	01001101	4D(ascii"M")
8	00100000	20(ascii" ")
9	00100000	20(ascii" ")
10	00111000	38(ascii"8")
11	00110001	31(ascii"1")
12	00110000	30(ascii"0")
13	00110001	31(ascii"1")
14	01001101	4D(ascii"M")
15	01010100	54(ascii"T")
16	00000000	00
↓	↓	↓
29	00000000	00
30	00000000	00 - Memory_type
31	00mmmmmm	mmmmmm - Memory Number
32	0ddddddd	ddddddd - data
↓	↓	↓
	0sssssss	sssssss - check_sum
	11110111	F7

MIDI Utility Micro Tuning Bulk transmission

Memory_type = 00 (INT)
Memory Number = start from 0 and transmit consecutively to 1

MCT Bulk transmission by Dump Request

Memory_type = 00 (INT)
Memory Number = 0~63 (the number specified by the Dump Request)

For reception, bits 1-6 of Memory_type and Memory Number will be ignored, and the data will be processed as INTERNAL.

* For details of the bulk dump data and dump request format, refer to table 5.

3.7 Master control data bulk dump

0	11110000	F0
1	01000011	43
2	0000nnnn	nnnn - Device Number
3	01111010	7A
4	0bbbbbbb	byte count
5	0bbbbbbb	
6	01001100	4C(ascii"L")
7	01001101	4D(ascii"M")
8	00100000	20(ascii" ")
9	00100000	20(ascii" ")
10	00110000	30(ascii"0")
11	00110000	30(ascii"0")
12	00110100	34(ascii"4")
13	00110000	30(ascii"0")
14	01001101	4D(ascii"M")
15	01010011	53(ascii"S")
16	00000000	00
↓	↓	↓
31	00000000	00
32	0ddddddd	ddddddd - data
↓	↓	↓
	0sssssss	sssssss - check_sum
	11110111	F7

* For details of the bulk dump data and dump request format, refer to table 6.
Data transmitted at the main unit panel operation is followed by SYNTH system setup data when it is transmitted.
For transmission at the reception of a dump request, only master control data is transmitted.

3.8 SYNTH system setup data bulk dump

0	11110000	F0
1	01000011	43
2	0000nnnn	nnnn - Device Number
3	01111010	7A
4	0bbbbbbb	byte count
5	0bbbbbbb	
6	01001100	4C(ascii"L")
7	01001101	4D(ascii"M")
8	00100000	20(ascii" ")
9	00100000	20(ascii" ")
10	00111000	38(ascii"8")
11	00110001	31(ascii"1")
12	00110000	30(ascii"0")
13	00110001	31(ascii"1")
14	01010011	53(ascii"S")
15	01011001	59(ascii"Y")
16	00000000	00
↓	↓	↓
31	00000000	00
32	0ddddddd	ddddddd - data
↓	↓	↓
	0sssssss	sssssss - check_sum
	11110111	F7

* For details of the bulk dump data and dump request format, refer to table 7.
For transmission at the main unit panel operation, master control data is transmitted before this data.
For transmission at the reception of a dump request, only this data is transmitted.

3.9 SEQ setup data bulk dump

```
 0      11110000        F0
 1      01000011        43
 2      0000nnnn        nnnn    = Device Number
 3      01111110        7E
 4      0bbbbbbb        ┐ byte count
 5      0bbbbbbb        ┘
 6      01001100        4C(ascii"L")
 7      01001101        4D(ascii"M")
 8      00100000        20(ascii" ")
 9      00100000        20(ascii" ")
10      00111000        38(ascii"8")
11      00110001        31(ascii"1")
12      00110000        30(ascii"0")
13      00110001        31(ascii"1")
14      01010011        53(ascii"S")
15      01010011        53(ascii"S")
16      0ddddddd        ddddddd = data
↓          ↓               ↓
        0sssssss        sssssss = check_sum
        11110111        F7
```

* For details of the bulk dump data, refer to table 8-1.

Dump request

```
 0      11110000        F0
 1      01000011        43
 2      0000nnnn        nnnn    = Device Number
 3      01111110        7E
 4      01001100        4C(ascii"L")
 5      01001101        4D(ascii"M")
 6      00100000        20(ascii" ")
 7      00100000        20(ascii" ")
 8      00111000        38(ascii"8")
 9      00110001        31(ascii"1")
10      00110000        30(ascii"0")
11      00110001        31(ascii"1")
12      01010011        53(ascii"S")
13      01010011        53(ascii"S")
14      11110111        F7
```

3.10 SEQ song and pattern data bulk dump (KSEQ)

Reception is possible at any time when not playing or recording. This data is transmitted when the MIDI UTILITY "bulk dump" is executed, or when a dump request is received.

```
 0      11110000        F0
 1      01000011        43
 2      0000nnnn        nnnn    = Device Number
 3      00001010        0A
 4      0bbbbbbb        ┐ byte count
 5      0bbbbbbb        ┘ max. 4096
 6      01001100        4C(ascii"L")
 7      01001101        4D(ascii"M")
 8      00100000        20(ascii" ")
 9      00100000        20(ascii" ")
10      01001011        4B(ascii"K")
11      01010011        53(ascii"S")    byte count
12      01000101        45(ascii"E")
13      01010010        51(ascii"Q")
14      00100000        20(ascii" ")
15      00100000        20(ascii" ")
16      0ddddddd        ddddddd = data
↓          ↓               ↓
        0sssssss        sssssss = check_sum
        11110111        F7
```

When the byte count is below 4096, the byte count is that count. When the byte count exceeds 4096, a byte count and check_sum operation is repeated for every 4096 bytes marked off from the top.

Dump request

```
 0      11110000        F0
 1      01000011        43
 2      0000nnnn        nnnn    = Device Number
 3      00001010        0A
 4      01001100        4C(ascii"L")
 5      01001101        4D(ascii"M")
 6      00100000        20(ascii" ")
 7      00100000        20(ascii" ")
 8      01001011        4B(ascii"K")
 9      01010011        53(ascii"S")
10      01000101        45(ascii"E")
11      01010010        51(ascii"Q")
12      00100000        20(ascii" ")
13      00100000        20(ascii" ")
14      11110111        F7
```

3.11 SEQ song and pattern data bulk dump (NSEQ)

Reception is possible at any time when not playing or recording. This data is transmitted when the MIDI UTILITY "bulk dump" is executed, or when a dump request is received.

```
 0      11110000        F0
 1      01000011        43
 2      0000nnnn        nnnn    = Device Number
 3      00001010        0A
 4      0bbbbbbb        ┐ byte count
 5      0bbbbbbb        ┘ max. 4096
 6      01001100        4C(ascii"L")
 7      01001101        4D(ascii"M")
 8      00100000        20(ascii" ")
 9      00100000        20(ascii" ")
10      01001110        4E(ascii"N")
11      01010011        53(ascii"S")    byte count
12      01000101        45(ascii"E")
13      01010010        51(ascii"Q")
14      00100000        20(ascii" ")
15      00100000        20(ascii" ")
16      0ddddddd        ddddddd = data
↓          ↓               ↓
        0sssssss        sssssss = check_sum
        11110111        F7
```

When the byte count is below 4096, the byte count is that count. When the byte count exceeds 4096, a byte count and check_sum operation is repeated for every 4096 bytes marked off from the top.

Dump request

```
 0      11110000        F0
 1      01000011        43
 2      0000nnnn        nnnn    = Device Number
 3      00001010        0A
 4      01001100        4C(ascii"L")
 5      01001101        4D(ascii"M")
 6      00100000        20(ascii" ")
 7      00100000        20(ascii" ")
 8      01001110        4E(ascii"N")
 9      01010011        53(ascii"S")
10      01000101        45(ascii"E")
11      01010010        51(ascii"Q")
12      00100000        20(ascii" ")
13      00100000        20(ascii" ")
14      11110111        F7
```

3.12 Waveform data bulk dump

```
 0      11110000        F0
 1      01000011        43
 2      0000nnnn        nnnn = Device Number
 3      01111010        7A
 4      0bbbbbbb        ┐ byte count
 5      0bbbbbbb        ┘
 6      01001100        4C(ascii"L")
 7      01001101        4D(ascii"M")
 8      00100000        20(ascii" ")
 9      00100000        20(ascii" ")
10      00110000        30(ascii"0")
11      00110000        30(ascii"0")
12      00110100        34(ascii"4")
13      00110000        30(ascii"0")
14      01010111        57(ascii"W")
15      01010110        56(ascii"V")
16      00000000        00
↓          ↓               ↓
29      00000000        00
30      00000ttt        ttt     = Memory_type
31      0mmmmmmm        mmmmmmm = Memory Number
32      0ddddddd        ddddddd = data
↓          ↓               ↓
        0sssssss        sssssss = check_sum
        11110111        F7
```

Dump request

```
 0      11110000        F0
 1      01000011        43
 2      0010nnnn        nnnn = Device Number
 3      01111010        7A
 4      01001100        4C(ascii"L")
 5      01001101        4D(ascii"M")
 6      00100000        20(ascii" ")
 7      00100000        20(ascii" ")
 8      00110000        30(ascii"0")
 9      00110000        30(ascii"0")
10      00110100        34(ascii"4")
11      00110000        30(ascii"0")
12      01010111        57(ascii"W")
13      01010110        56(ascii"V")
14      00000000        00
↓          ↓               ↓
27      00000000        00
28      00000ttt        ttt     = Memory_type
29      0mmmmmmm        mmmmmmm = Memory Number
30      11110111        F7
```

The Sample utility Waveform Bulk Dump operation transmits the following information:

Memory_type = $00 (INT)
Memory number = $00 to $3F, in sequence

A bulk dump in response to a dump request message transmits the following:

Memory_type = $00 (INT), $01 (CARD), $02, $03 (PRE1), $04 (PRE2)

Memory number = a number from $00 to $3F, as specified by the dump request

	Preset 1, numbers 1 to 128	Preset 1, numbers 129 to 155
Memory_type	$02	$03
Memory Number	$00~$7F	$00~$1A

Requests for nonexistent numbers are ignored.

Incoming bulk dumps are handled as INTERNAL memory; bit 6 of Memory_type and Memory Number are ignored.

* Refer to attached Table 9-1 for details regarding bulk dump data format.

4. Sample dumps

The SY99 is capable of handling two sample dumps in two formats: the Sample Dump Standard, and the SY99 Sample Bulk Dump. Sample dumps in both of these formats are recognized. Sample dumps in both are transmitted when the Sample utility Sample Dump operation is executed. When a Sample Dump Standard Request or an SY99 Sample Bulk Dump Request is received, each data is transmitted. The upper limit on sample numbers for dumps in either format is set at $62; sample numbers higher than $62 are treated as $62.

Sample Dump Standard

```
DUMP REQ        F0, 7E, cc, 03, ss, ss, F7
ACK             F0, 7E, cc, 7F, pp, F7
NAK             F0, 7E, cc, 7E, pp, F7
CANCEL          F0, 7E, cc, 7D, pp, F7
WAIT            F0, 7E, cc, 7C, pp, F7
DATA PACKET     F0, 7E, cc, 02, kk, <120 byte>, ll, F7
DUMP HEADER     F0, 7E, cc, 01, ss, ss, ee, ff, ff, ff, gg, gg, gg,
                hh, hh, hh, ii, ii, ii, jj, F7

        pp      : packet number
        cc      : channel number
        ss ss   : sample number (LSB first)
        ee      : sample format (SY99 handles samples of
                  8 to 16 bits)
        ff ff ff : sample period (LSB first)
        gg gg gg : sample length (LSB first)
        hh hh hh : loop start (LSB first)
        ii ii ii : loop end (LSB first)
        jj      : loop type
        kk      : running packet count (0-127)
                  (number of current packet)
        ll      : checksum (XOR of 7E cc 02 kk <120 bytes>)
```

SY99 Sample Bulk Dump

```
 0      11110000        F0
 1      01000011        43
 2      0000nnnn        nnnn    - Device Number
 3      01111010        7A
 4      0bbbbbbb        ┐ byte count
 5      0bbbbbbb        ┘
 6      01001100        4C(ascii"L")
 7      01001101        4D(ascii"M")
 8      00100000        20(ascii" ")
 9      00100000        20(ascii" ")
10      00110000        30(ascii"0")
11      00110000        30(ascii"0")
12      00110100        34(ascii"4")
13      00110000        30(ascii"0")
14      01010011        53(ascii"S")
15      01000001        41(ascii"A")
16      00000000        00
 ↓        ↓               ↓
30      00000000        00
31      0mmmmmmm        mmmmmmm - Memory number
32      0ddddddd        ddddddd - data
 ↓        ↓               ↓
        0ssssssss       sssssss - check_sum
        11110111        F7
```

Dump request

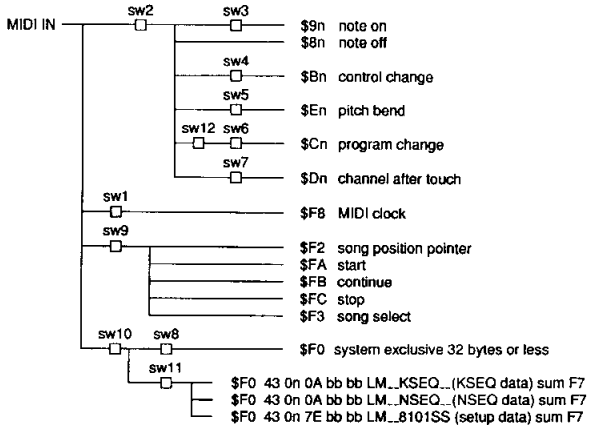
```
 0      11110000        F0
 1      01000011        43
 2      0010nnnn        nnnn    - Device Number
 3      01111010        7A
 4      01001100        4C(ascii"L")
 5      01001101        4D(ascii"M")
 6      00100000        20(ascii" ")
 7      00100000        20(ascii" ")
 8      00110000        30(ascii"0")
 9      00110000        30(ascii"0")
10      00110100        34(ascii"4")
11      00110000        30(ascii"0")
12      01010011        53(ascii"S")
13      01000001        41(ascii"A")
14      00000000        00
 ↓        ↓               ↓
28      00000000        00
29      0mmmmmmm        mmmmmmm - Memory number
30      11110111        F7
```

* Refer to attached Table 9-2 for details regarding bulk dump data format.

5. Sequencer mode

5.1 MIDI reception/transmission block diagram

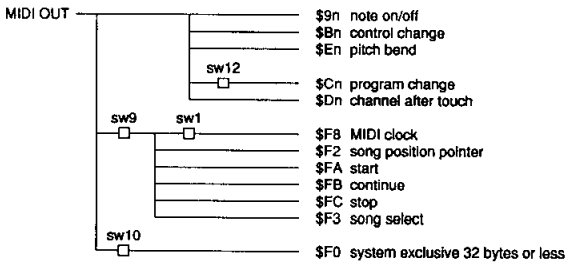
(Receive flow chart)



(Note)

sw1 □ on when SEQ SETUP sync is set to MIDI
sw2 □ during RECORD, the SEQ SETUP reception channel
sw3 □ during RECORD, the SEQ SETUP velocity on/off
sw4 □ during RECORD, the SEQ SETUP control change on/off
sw5 □ during RECORD, the SEQ SETUP pitch bend on/off
sw6 □ during RECORD, the SEQ SETUP program change on/off
sw7 □ during RECORD, the SEQ SETUP channel pressure on/off
sw8 □ during RECORD, the SEQ SETUP system exclusive (of 32 bytes or less) on/off
sw9 □ on/off in SEQ SETUP for song position pointer, start, continue, stop
sw10 □ set by the utility Device Number
sw11 □ received only when utility Bulk Memory Protect = off
sw12 □ received only when utility Program Change Mode is not off

(Transmit flow chart)



(Note)

sw1 □ on when SEQ SETUP sync is set to INTERNAL

sw9 □ on/off in SEQ SETUP for MIDI clock song position pointer, start, continue, stop

sw10 □ set by the utility Device Number

sw12 □ received only when utility Program Change Mode is not off

5.2 Channel messages

Received only during RECORD. Transmitted only during PLAY and overdubbing.

For transmission and reception conditions, refer to the Receive flow chart and Transmit flow chart.

5.3 Mode messages

Neither received nor transmitted.

5.4 System common messages

Receive only $F2 and $F7. All others are neither received nor transmitted.

5.5 System realtime messages

5.5.1 Status F8, FA, FB, FC

Receive.

5.5.2 Status F9, FD, FF

After decoding, do nothing.

6. Status FE (active sensing)

a) Transmission

Transmit FE at intervals of approximately 170 msec.

b) Reception

Once FE has been received, if no MIDI data arrives for an interval longer than approximately 300 msec, the MIDI receive buffer is cleared, and if any keys remain on, they will be turned off.

< **Table 1**-1 >

MIDI Parameter Change table (Multi mode Common Data)

$F0, $43, $1n, $34, $00, $00, $00, N2, $00, V2, $F7

Note) n ; Device Number
V2 ; parameter value

[header section]

	N2	data name	data range	note
				—Multi Voice Set Name—
0	00	MNAM 0	ascii	
1	01	MNAM 1	ascii	
2	02	MNAM 2	ascii	
3	03	MNAM 3	ascii	
4	04	MNAM 4	ascii	
5	05	MNAM 5	ascii	
6	06	MNAM 6	ascii	
7	07	MNAM 7	ascii	
8	08	MNAM 8	ascii	
9	09	MNAM 9	ascii	
10	0A	MNAM10	ascii	
11	0B	MNAM11	ascii	
12	0C	MNAM12	ascii	
13	0D	MNAM13	ascii	
14	0E	MNAM14	ascii	
15	0F	MNAM15	ascii	
16	10	MNAM16	ascii	
17	11	MNAM17	ascii	
18	12	MNAM18	ascii	
19	13	MNAM19	ascii	

< **Table 1**-2 >

MIDI Parameter Change table (Multi mode Channel Data)

$F0, $43, $1n, $34, $01, T2, $00, N2, $00, V2, $F7

Note) n ; Device Number
T2 ; voice channel number
V2 ; parameter value

[channel data]

	N2	data name	data range	note
				—Channel 1—
0	00	OFVCSW	b6 ; off/on	Off_voice_switch
		INDV	b5~2 ; off, 1~8	Individual Output select
		OUT0CH	b0 ; off/on	Output 1 select
		OUT1CH	b1 ; off/on	Output 2 select
				Note: INDV0 TG77 only valid.
1	01	VMEM	int, p1, p2, crd	Voice Memory Select
2	02	VNUM	0~63	Voice number
3	03	VOL	0~127	Volume
4	04	MTUN	-64~+63 (o/b)	Tuning
5	05	MNSF	-64~+63 (o/b)	Note shift
6	06	STPAN	voice, -31~+31 (o/b)	Performance static PAN Note: Voice PAN setting not valid if a setting other than "voice" is selected.
7	07	EFSDMD	voice/multi	effect send mode
8	08	EFLN1CH	b0 ; off/on	effect send line 1 select
		EFLN2CH	b1 ; off/on	effect send line 2 select
		EFLN3CH	b2 ; off/on	effect send line 3 select
		EFLN4CH	b3 ; off/on	effect send line 4 select
9	09	EFSDLV	0~127	effect send level

Note) (o/b) ; offset binary

< Table 1-3 >

MIDI Parameter Change table (Voice data common data)

$F0, $43, $1n, $34, $02, $00, $00, N2, $00, V2, $f7

Note) n ; channel number
V2 ; parameter value

[header data]

	N2	data name	data range	note
0	00	ELMODE	0; 1AFM_mono 1; 2AFM_mono 2; 4AFM_mono 3; 1AFM_poly 4; 2AFM_poly 5; 1AWM_poly 6; 2AWM_poly 7; 4AWM_poly 8; 1AFM_1AWM_poly 9; 2FM_2PCM_poly 10; DRUM_SET	—Element Select Mode—
1 2 3 4 5 6 7 8 9 10	01 02 03 04 05 06 07 08 09 0A	VNAM0 VNAM1 VNAM2 VNAM3 VNAM4 VNAM5 VNAM6 VNAM7 VNAM8 VNAM9	ascii ascii ascii ascii ascii ascii ascii ascii ascii ascii	—Voice Name—

[Controllers]

	N2	data name	data range	note
11 12	28 29	WPBR ATPBR	0~12 -12~+12 (s/m)	—Pitch Bend— Wheel Pitch Bend Range After_Touch Pitch Bend Range
13 14	2A 2B	PMASN PMRNG	0~121 0~127	—Pitch Modulation— Device Assign (MIDI control #) Modulation range
15 16	2C 2D	AMASN AMRNG	0~121 0~127	—Amplitude Modulation— Device Assign (MIDI control #) Modulation range
17 18	2E 2F	FMASN FMRNG	0~121 0~127	—Filter Modulation— Device Assign (MIDI control #) Modulation range
19 20	30 31	PNLASN PNLRNG	0~121 0~127	—PAN Modulation— Note) Valid only when Multi is selected Device Assign (MIDI control #) Modulation range
21 22	32 33	COASN CORNG	0~121 0~127	—Filter Cut_off Bias— Device Assign (MIDI control #) Cut_off range
23 24	34 35	PNBASN PNBRNG	0~121 0~127	—PAN Bias— Note) Valid only when Multi is selected Device Assign (MIDI control #) Bias range
25 26	36 37	EGBASN EGBRNG	0~121 0~127	—EG Bias— Device Assign (MIDI control #) Bias range
27 28	38 39	VVLASN VVLLML	0~121 0~127	—Voice Volume— Device Assign (MIDI control #) Volume Limit Low

Note) For the above Device Assigns, 121 will select After Touch.

[Only for Normal]

	N2	data name	data range	note
29	3A	MCTUN	0~65	Micro Tuning table select
30	3B	RNDP	0~7	Random Pitch fluctuation
31 32	3C 3D	PORM POS	0, 1 0~127	—Portamento— Note: Only valid in FM_Element only Voice modes. Mode Time
33	3E	reserve		
34	3F	VVOL	0~127	Voice Volume
35 36	40 41	reserve reserve		
37 38	42 43	AFTMD SPTPNT	all, top, btm, hi, low 0~127	zoned after touch mode zoned after touch split point

Note) (s/m) ; sign magnitude

< Table 1-4 >

MIDI Parameter Change table (Normal Voice Element Data)

$F0, $43, $1n, $34, $03, T2, $00, N2, $00, V2, $F7

Note) n ; Device Number
V2 ; parameter value
T2 ; 0, el, e0, 0, 0, 0, 0, 0

e1	e0	
0	0	Element 1
0	1	Element 2
1	0	Element 3
1	1	Element 4

	N2	data name	data range	note
0 1 2	00 01 02	ELVL ELDT ELNS	0~127 -7~+7 (s/m) -64~+63 (o/b)	Element Level Element Detune Element Note Shift
3 4	03 04	ENLL ENLH	0~127 (note #) 0~127 (note #)	—Element Note Limit— Low Limit High Limit
5 6	05 06	EVLL EVLH	0~127 (note #) 0~127 (note #)	—Element Velocity Limit— Low Limit High Limit
7	07	PANNM	0~31	PAN data set table select Note: Only valid when selected for Multi
8	08	MCTEN OUT0SEL OUT1SEL	b0 ; off/on b1 ; off/on b2 ; off/on	Micro Tuning switch Output 1 select Output 2 select
9 10 11 12	09 0A 0B 0C	EFLN1EL EFLN2EL EFLN3EL EFLN4EL EFSDLV EFSDVL EFSDSC	b0 ; off/on b1 ; off/on b2 ; off/on b3 ; off/on 0~127 -7~+7 (s/m) -7~+7 (s/m)	effect send line 1 select effect send line 2 select effect send line 3 select effect send line 4 select effect send level effect send velocity sense effect send level scale

Note) (s/m) ; sign magnitude
(o/b) ; offset binary

< Table 1-5 >

MIDI Parameter Change table (Drum_Set)

$F0, $43, $1n, $34, $04, T2, $00, N2, V1, V2, $F7

Note) n ; channel number
T2 ; MIDI note number
N2 ; parameter number
V1 ; MSB of parameter value (for parameters other than WAV*, V1 will be $00)
V2 ; LSB of parameter value

	N2	data name	data range	note
0	00	ALTGRP OUT1 OUT0	b6 ; 0~1 b1 ; 0~1 b0 ; 0~1	Alternate group Output 2 select Output 1 select
1 2	01 02	WSRC WAV	0;Pre1 1;Card 2;— 3;Int 4;Pre2 0~max. 255	Wave Source Wave Number (V1;MSB V2;LS7bits)
3	03	WVL	0~127	Wave Volume
4	04	WTN	-64~+63 (o/b)	Wave Tuning
5	05	WNS	-48~+36 (o/b)	Wave Note Shift
6	06	WPN	-31~+31 (o/b)	Static PAN
7	07	EFLN1C_1 EFLN2C_1 EFLN3C_1 EFLN4C_1	b0 ; off/on b1 ; off/on b2 ; off/on b3 ; off/on	effect send line 1 select effect send line 2 select effect send line 3 select effect send line 4 select
8	08	EFSDLVC_1	0~127	effect send level
9	09	EFSDVLC_1	-7~+7 (s/m)	effect send velocity sense

Note) (o/b) ; offset binary

< Table 1-6 >

MIDI Parameter Change table (AFM Element Common)

$F0, $43, $1n, $34, $05, T2, $00, N2, $00, V2, $F7

Note) n ; Device Number
N2 ; parameter number
V2 ; parameter value

T2	
$00	Element 1
$20	Element 2
$40	Element 3
$60	Element 4

	N2	data name	data range	note
0	00	ALGNUM	0~44	(127 is free algorithm number. Algorithm only via MIDI)
				—Pitch EG—
1	01	FPR1	0~63	key_on Rate 1
2	02	FPR2	0~63	key_on Rate 2
3	03	FPR3	0~63	key_on Rate 3
4	04	FPRR1	0~63	key_off Rate 1
5	05	FPL0	-64~+63 (o/b)	key_on Level 0
6	06	FPL1	-64~+63 (o/b)	key_on Level 1
7	07	FPL2	-64~+63 (o/b)	key_on Level 2
8	08	FPL3	-64~+63 (o/b)	key_on Level 3
9	09	FPRL1	-64~+63 (o/b)	key_off Level 1
10	0A	FPEGR	0~3	Range (0: 8oct, 1: 2oct, 2: 1oct, 3: 1/2oct)
11	0B	FPRS	0~7	Rate Scaling
12	0C	FVPSW	off/on	Velocity Switch
				—Main LFO—
13	0D	FLFSPD	0~99	Speed
14	0E	FLFDLY	0~99	Delay time
15	0F	FLFPMD	0~127	Pitch Modulation Depth
16	10	FLFAMD	0~127	Amplitude Modulation Depth
17	11	FLFFMD	0~127	Filter Modulation Depth
18	12	FLFWAV	0~5	Wave
19	13	FLINTP	0~99	Initial Phase
20	14	reserve		
				—Sub LFO—
21	15	SLFWD	0~3	Wave
22	16	SLFS	0~127	Speed
23	17	SLFDM	delay/decay	delay mode/decay mode
24	18	SLFDT	0~99	Delay time/decay time
25	19	SLPMD	0~127	Pitch Modulation Depth

< Table 1-7 >

MIDI Parameter Change table (AFM Element)

$F0, $43, $1n, $34, T1, T2, $00, N2, V1, V2, $F7

Note) n ; Device Number
N2 ; parameter number
V1 ; MSB of parameter value
V2 ; LSB of parameter value

T1	
$06	OP6
$16	OP5
$26	OP4
$36	OP3
$46	OP2
$56	OP1

T2	
$00	Element 1
$20	Element 2
$40	Element 3
$60	Element 4

	N2	data name	data range	note
0	00	R1	0~63	EG key_on Rate 1
1	01	R2	0~63	EG key_on Rate 2
2	02	R3	0~63	EG key_on Rate 3
3	03	R4	0~63	EG key_on Rate 4
4	04	RR1	0~63	EG key_off Rate 1
5	05	RR2	0~63	EG key_off Rate 2
6	06	L1	0~63	EG key_on Level 1
7	07	L2	0~63	EG key_on Level 2
8	08	L3	0~63	EG key_on Level 3
9	09	L4	0~63	EG key_on Level 4
10	0A	RL1	0~63	EG key_off Level 1
11	0B	RL2	0~63	EG key_off Level 2
12	0C	SLP	0~3	EG Sustain Loop Point
13	0D	HT	0~63 (disp: 63~0)	EG key_on/Hold Time
14	0E	L0	0~63	EG key_on Level 0
15	0F	RS	-7~+7 (s/m)	EG Rate Scaling
16	10	FAMS	0~7	Amplitude Modulation Sens.
17	11	VSON	-7~+7 (s/m)	Velocity Sensitivity
18	12	reserve		
19	13	ALGSRC0	V2 b3~0 ; 0~10	oscilator input 0 Source
		ALGSRC1	V1 b0, V2 b6~4 ; 0~10	oscilator input 1 Source
20	14	ALGDST	V2 b1, 0 ; 0~3	oscilator output Destination
		OASCRC0	V2 b3, 2 ; 0~2	Out_Accumulator input 0 Source
		OASCRC1	V2 b4 ; 0~1	Out_Accumulator input 1 Source
21	15	SHIFT0	V2 b5~3 ; 0~7	oscilator input 0 Shift value
		SHIFT1	V2 b2~0 ; 0~7	oscilator input 1 Shift value
22	16	OCR	0~7	output level Correction
23	17	PWAVE	0~15	Waveform of oscilator
24	18	FMLPMS	V2 b4~2 ; 0~7	M_LFO Pitch Modulation Sens.
		PES	V2 b1 ; 0~1	Pitch EG Switch
		FPM	V2 b0 ; 0~1	frequency Mode
25	19	KOE	V1 b0 ; 0~1	initial phase set Enable
		PHASE	V2 b6~0 ; 0~127	initial Phase of oscilator
26	1A	FPD	-15~+15 (s/m)	Pitch Detune
27	1B	TL	0~127	out_level
28	1C	BP1	0~127 (note #)	out_level scaling Break Point
29	1D	BP2	0~127 (note #)	out_level scaling Break Point
30	1E	BP3	0~127 (note #)	out_level scaling Break Point
31	1F	BP4	0~127 (note #)	out_level scaling Break Point
32	20	EGOS1	-128~+127 (2bytes)	out_level offset (BP1)
33	21	EGOS2	-128~+127 (2bytes)	out_level offset (BP2)
34	22	EGOS3	-128~+127 (2bytes)	out_level offset (BP3)
35	23	EGOS4	-128~+127 (2bytes)	out_level offset (BP4)
36	24	RVSW	off/on	Rate Velocity Switch
37	25	FPC		frequency Course
38	26	FPF		frequency Fine

< Table 1-8 >

MIDI Parameter Change table (AFM Element)

$F0, $43, $1n, #34, $07, T2, $00, N2, V1, V2, $F7

Note) n ; Device Number
N2 ; parameter number
V1 ; MSB of parameter value
V2 ; LSB of parameter value
T2 ; table at right

T2	
$00	Element 1
$20	Element 2
$40	Element 3
$60	Element 4

[AWM generator unit]

	N2	data name	data range	note
0	00	WSOURCE	0; Pre1, 1; Card ,2; AFM, 3; Int, 4; Pre2	AWM Wave Source
1	01	AWMWAVE	V1; MSB1bit V2; LS7bits	AWM Wave number
2	02	PPM	normal/fixed	frequency Mode
3	03	PNOTE	0~127	fixed mode note #
4	04	PPF	-64~+63	frequency Fine
5	05	PMLPMS	0~7	pitch modulation sensitivity
				—Pitch EG—
6	06	PPR1	0~63	key_on Rate 1
7	07	PPR2	0~63	key_on Rate 2
8	08	PPR3	0~63	key_on Rate 3
9	09	PPRR1	0~63	key_off Rate 1
10	0A	PPL0	-64 ~+63 (o/b)	key_on Level 0
11	0B	PPL1	-64 ~+63 (o/b)	key_on Level 1
12	0C	PPL2	-64 ~+63 (o/b)	key_on Level 2
13	0D	PPL3	-64 ~+63 (o/b)	key_on Level 3
14	0E	PPRL1	-64 ~+63 (o/b)	key_off Level 1
15	0F	PPEGR	1~3	Range (1: 2oct, 2: 1oct, 3: 1/2oct)
16	10	PPRS	-7~+7	Rate Scaling
17	11	PVPSW	off/on	Velocity Switch
				—multi LFO—
18	12	PLFSPD	0~99	Speed
19	13	PLFDLY	0~99	Delay time
20	14	PLFPMD	0~127	Pitch Modulation Depth
21	15	PLFAMD	0~127	Amplitude Modulation Depth
22	16	PLFFMD	0~127	Filter Modulation Depth
23	17	PLFWAV	0~5	Wave
24	18	PLINTP	0~99	Initial Phase
25	19	reserve		

[Amplitude EG data]

	N2	data name	data range	note
25	4F	PAEGMD	normal/hold	EG mode
26	50	PAR1	0~63	key_on Rate 1 (attack/hold)
27	51	PAR2	0~63	key_on Rate 2 (decay)
28	52	PAR3	0~63	key_on Rate 3
29	53	PAR4	0~63	key_on Rate 4 (decay)
30	54	PARR1	0~63	key_off Rate 1 (release)
31	55	PAL2	0~63	key_on Level 2 (decay)
32	56	PAL3	0~63	key_on Level 3 (decay)
33	57	PARS	-7~+7	rate scaling
34	58	PABP1	0~127 (note #)	out_level scaling Break Point
35	59	PABP2	0~127 (note #)	out_level scaling Break Point
36	5A	PABP3	0~127 (note #)	out_level scaling Break Point
37	5B	PABP4	0~127 (note #)	out_level scaling Break Point
38	5C	PAOS21	-128~+127 (2bytes)	out_level scaling offset
39	5D	PAOS22	-128~+127 (2bytes)	out_level scaling offset
40	5E	PAOS23	-128~+127 (2bytes)	out_level scaling offset
41	5F	PAOS24	-128~+127 (2bytes)	out_level scaling offset
42	60	PAVSON	-7~+7 (s/m)	Velocity Sensitivity
43	61	PARVSW	off/on	Attack Rate Velocity Switch
44	62	PAMS	-7~+7 (s/m)	amplitude modulation sens.

< Table 1-9 >

MIDI Parameter Change table (Waveform)

$F0, $43, $1n, $34, $0E, $T2, 05, N2, 00, V2, $F7

Note) n ; Device Number
T2 ; Waveform number
N2 ; parameter number
V2 ; parameter value

	N2	data name	data range	note
				—Waveform Name—
0	00	WVNAM0	ascii	" * "
1	01	WVNAM1	ascii	" * "
2	02	WVNAM2	ascii	" * "
3	03	WVNAM3	ascii	" * "
4	04	WVNAM4	ascii	" * "
5	05	WVNAM5	ascii	" * "
6	06	WVNAM6	ascii	" * "
7	07	WVNAM7	ascii	" * "
8	08	WVFROM	—, 1~99	Sample From
9	09	WVTO	—, 1~99	Sample To

< Table 1-10 >

MIDI Parameter Change table (Effect Data)

$F0, $43, $1n, $34, $08, $00, $00, N2, $00, V2, $F7

Note) n ; Device Number
V2 ; parameter value

	N2	data name	data range	note
				—Effect—
32	20	EFMODE	0~2	mode select (off, seri, palla)
33	21	EF1TYPE	0~60	effect 1 type
34	22	EF1PRM1		effect 1 parameter 1
36	24	EF1PRM2		effect 1 parameter 2
38	26	EF1PRM3		effect 1 parameter 3
40	28	EF1PRM4		effect 1 parameter 4
42	2A	EF1PRM5		effect 1 parameter 5
44	2C	EF1PRM6		effect 1 parameter 6
46	2E	EF1PRM7		effect 1 parameter 7
48	30	EF1PRM8		effect 1 parameter 8
50	32	EF1PRM9		effect 1 parameter 9
52	34	EF1PRM10		effect 1 parameter 10
54	36	EF1OUTLV1	0~100	effect 1 output level 1
55	37	EF1OUTLV2	0~100	effect 1 output level 2
56	38	EF2TYPE	0~60	effect 2 type
57	39	EF2PRM1		effect 2 parameter 1
59	3B	EF2PRM2		effect 2 parameter 2
61	3D	EF2PRM3		effect 2 parameter 3
63	3F	EF2PRM4		effect 2 parameter 4
65	41	EF2PRM5		effect 2 parameter 5
67	43	EF2PRM6		effect 2 parameter 6
69	45	EF2PRM7		effect 2 parameter 7
71	47	EF2PRM8		effect 2 parameter 8
73	49	EF2PRM9		effect 2 parameter 9
75	4B	EF2PRM10		effect 2 parameter 10
77	4D	EF2EFBAL1	0~100	effect 2 mix level
78	4E	EF2OUTLV1	0~100	effect 2 output level 1
79	4F	EF2OUTLV2	0~100	effect 2 output level 2
80	50	OUT1EFBAL	0~100	output 1 effect balance wet:dry
81	51	OUT2EFBAL	0~100	output 2 effect balance wet:dry
82	52	CTRL1PRM	0~32	controller 1 parameter select
83	53	CTRL1ASN	0-120, AT, VL, SC, LFO	controller 1 device assign
84	54	CTRL1MIN	0~99	controller 1 MIN
85	55	CTRL1MAX	0~99	controller 1 MAX
86	56	CTRL2PRM	0~32	controller 2 parameter select
87	57	CTRL2ASN	0-120, AT, VL, SC, LFO	controller 2 device assign
88	58	CTRL2MIN	0~99	controller 2 MIN
89	59	CTRL2MAX	0~99	controller 2 MAX
90	5A	EFLFOWV	tri, dwn, up, squ, sin, S/H	effect LFO wave select
91	5B	EFLFOSP	0~99	effect LFO speed
92	5C	EFLFODL	0~99	effect LFO delay time
93	5D	EFLFOPH	0~99, free	effect LFO initial phase

< Table 1-11 >

MIDI Parameter Change table (Filter Data)

$F0, $43, $1n, $34, $09, T2, $00, N2, V1, V2, $F7

Note) n ; Device Number
N2 ; parameter number
V1 ; MSB of parameter value
V2 ; LSB of parameter value
T2 ; O, E, E, O, O, N, N, N
(E, N table at right)

E	
00	Element 1
01	Element 2
10	Element 3
11	Element 4

N	
000	AFM filt. 1
001	AFM filt. 2
010	AMF common
011	AWM filt. 1
100	AWM filt. 2
101	AWM common

[filter 1 & 2]

	N2	data name	data range	note
0	00	FTYPE	thru/LPF/(HPF)	filter type
1	01	FCTOF	0~127	cut_off frequency
2	02	FMODE	EG, LFO, EG-VA	filter mode
3	03	FR1	0~63	key_on Rate 1
4	04	FR2	0~63	key_on Rate 2
5	05	FR3	0~63	key_on Rate 3
6	06	FR4	0~63	key_on Rate 4
7	07	FRR1	0~63	key_off Rate 1
8	08	FRR2	0~63	key_off Rate 2
9	09	FL0	–64~+63 (o/b)	key_on cut_off Level 0
10	0A	FL1	–64~+63 (o/b)	key_on cut_off Level 1
11	0B	FL2	–64~+63 (o/b)	key_on cut_off Level 2
12	0C	FL3	–64~+63 (o/b)	key_off cut_off Level 3
13	0D	FL4	–64~+63 (o/b)	key_off cut_off Level 4
14	0E	FRL1	–64~+63 (o/b)	key_on cut_off Level 1
15	0F	FRL2	–64~+63 (o/b)	key_on cut_off Level 2
16	10	FRS	–7~+7	rate scaling
17	11	FBP1	0~127 (note #)	c_off_lvl scaling Break Point
18	12	FBP2	0~127 (note #)	c_off_lvl scaling Break Point
19	13	FBP3	0~127 (note #)	c_off_lvl scaling Break Point
20	14	FBP4	0~127 (note #)	c_off_lvl scaling Break Point
21	15	FOS1	–128~+127 (2bytes)	c_off_lvl scaling offset
22	16	FOS2	–128~+127 (2bytes)	c_off_lvl scaling offset
23	17	FOS3	–128~+127 (2bytes)	c_off_lvl scaling offset
24	18	FOS4	–128~+127 (2bytes)	c_off_lvl scaling offset

[filter common]

	N2	data name	data range	note
25	32	FRES	0~99	resonance
26	33	FVSON	–7~+7 (s/m)	Velocity Sensitivity
27	34	FCMS	–7~+7 (s/m)	Cut_off modulation sensitivity

< Table 1-12 >

MIDI Parameter Change table (Pan Data)

$F0, $43, $1n, $34, $0A, T2, $00, N2, $00, V2, $F7

Note) n ; Device Number
T2 ; Memory number
N2 ; parameter number
V2 ; parameter value

	N2	data name	data range	note
0	00	PNSCSEL	velocity, note #, LFO	PAN source select
1	01	PNSCDPT	0~99	PAN source depth
				—EG—
2	02	PNDT	0~63	key_on/Hold Time
3	03	PNR1	0~63	key_on Rate 1
4	04	PNR2	0~63	key_on Rate 2
5	05	PNR3	0~63	key_on Rate 3
6	06	PNR4	0~63	key_on Rate 4
7	07	PNRR1	0~63	key_off Rate 1
8	08	PNRR2	0~63	key_off Rate 2
9	09	PNL0	–32~+31 (o/b)	key_on Level 0
10	0A	PNL1	–32~+31 (o/b)	key_on Level 1
11	0B	PNL2	–32~+31 (o/b)	key_on Level 2
12	0C	PNL3	–32~+31 (o/b)	key_on Level 3
13	0D	PNL4	–32~+31 (o/b)	key_on Level 4
14	0E	PNRL1	–32~+31 (o/b)	key_off Level 1
15	0F	PNRL2	–32~+31 (o/b)	key_off Level 2
16	10	PNSLP	0~3	repeat segment
				—Dynamic PAN Name—
17	11	PNNAM0	ascii	" * "
18	12	PNNAM1	ascii	" * "
19	13	PNNAM2	ascii	" * "
20	14	PNNAM3	ascii	" * "
21	15	PNNAM4	ascii	" * "
22	16	PNNAM5	ascii	" * "
23	17	PNNAM6	ascii	" * "
24	18	PNNAM7	ascii	" * "
25	19	PNNAM8	ascii	" * "
26	1A	PNNAM9	ascii	" * "

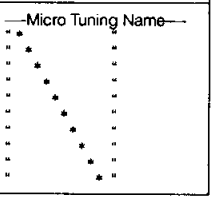
Note) (o/b) ; offset binary (invert the sign_bit of the 2's complement)

< Table 1-13 >

MIDI Parameter Change table (Micro Tuning Data)

$F0, $43, $1n, $34, $0B, T2, N1, N2, V1, V2, $F7

Note) n ; Device Number
V1 ; MS7bits of parameter value
T2 ; memory number
V2 ; LS7bits of parameter value

	N1	N2	data name	data range	note
0	00	00	MCTC_-2	0~10794	C_-2
1	00	02	MCTC#-2	0~10794	C#-2
2	00	04	MCTD_-2	0~10794	D_-2
3	00	06	MCTD#-2	0~10794	D#-2
4	00	08	MCTE_-2	0~10794	E_-2
5	00	0A	MCTF_-2	0~10794	F_-2
6	00	0C	MCTF#-2	0~10794	F#-2
7	00	0E	MCTG_-2	0~10794	G_-2
8	00	10	MCTG#-2	0~10794	G#-2
9	00	12	MCTA_-2	0~10794	A_-2
10	00	14	MCTA#-2	0~10794	A#-2
11	00	16	MCTB_-2	0~10794	B_-2
12	00	18	MCTC_-1	0~10794	C_-1
13	00	1A	MCTC#-1	0~10794	C#-1
14	00	1C	MCTD_-1	0~10794	D_-1
15	00	1E	MCTD#-1	0~10794	D#-1
16	00	20	MCTE_-1	0~10794	E_-1
17	00	22	MCTF_-1	0~10794	F_-1
18	00	24	MCTF#-1	0~10794	F#-1
19	00	26	MCTG_-1	0~10794	G_-1
20	00	28	MCTG#-1	0~10794	G#-1
21	00	2A	MCTA_-1	0~10794	A_-1
22	00	2C	MCTA#-1	0~10794	A#-1
23	00	2E	MCTB_1	0~10794	B_-1
24	00	30	MCTC_0	0~10794	C_0
25	00	32	MCTC#0	0~10794	C#0
26	00	34	MCTD_0	0~10794	D_0
27	00	36	MCTD#0	0~10794	D#0
28	00	38	MCTE_0	0~10794	E_0
29	00	3A	MCTF_0	0~10794	F_0
30	00	3C	MCTF#0	0~10794	F#0
31	00	3E	MCTG_0	0~10794	G_0
32	00	40	MCTG#0	0~10794	G#0
33	00	42	MCTA_0	0~10794	A_0
34	00	44	MCTA#0	0~10794	A#0
35	00	46	MCTB_0	0~10794	B_0
36	00	48	MCTC_1	0~10794	C_1
37	00	4A	MCTC#1	0~10794	C#1
38	00	4C	MCTD_1	0~10794	D_1
39	00	4E	MCTD#1	0~10794	D#1
40	00	50	MCTE_1	0~10794	E_1
41	00	52	MCTF_1	0~10794	F_1
42	00	54	MCTF#1	0~10794	F#1
43	00	56	MCTG_1	0~10794	G_1
44	00	58	MCTG#1	0~10794	G#1
45	00	5A	MCTA_1	0~10794	A_1
46	00	5C	MCTA#1	0~10794	A#1
47	00	5E	MCTB_1	0~10794	B_1
48	00	60	MCTC_2	0~10794	C_2
49	00	62	MCTC#2	0~10794	C#2
50	00	64	MCTD_2	0~10794	D_2
51	00	66	MCTD#2	0~10794	D#2
52	00	68	MCTE_2	0~10794	E_2
53	00	6A	MCTF_2	0~10794	F_2
54	00	6C	MCTF#2	0~10794	F#2
55	00	6E	MCTG_2	0~10794	G_2
56	00	70	MCTG#2	0~10794	G#2
57	00	72	MCTA_2	0~10794	A_2
58	00	74	MCTA#2	0~10794	A#2
59	00	76	MCTB_2	0~10794	B_2
60	00	78	MCTC_3	0~10794	C_3
61	00	7A	MCTC#3	0~10794	C#3
62	00	7C	MCTD_3	0~10794	D_3
63	00	7E	MCTD#3	0~10794	D#3
64	01	00	MCTE_3	0~10794	E_3
65	01	02	MCTF_3	0~10794	F_3
66	01	04	MCTF#3	0~10794	F#3
67	01	06	MCTG_3	0~10794	G_3
68	01	08	MCTG#3	0~10794	G#3
69	01	0A	MCTA_3	0~10794	A_3
70	01	0C	MCTA#3	0~10794	A#3
71	01	0E	MCTB_3	0~10794	B_3
72	01	10	MCTC_4	0~10794	C_4
73	01	12	MCTC#4	0~10794	C#4
74	01	14	MCTD_4	0~10794	D_4
75	01	16	MCTD#4	0~10794	D#4
76	01	18	MCTE_4	0~10794	E_4
77	01	1A	MCTF_4	0~10794	F_4
78	01	1C	MCTF#4	0~10794	F#4
79	01	1E	MCTG_4	0~10794	G_4
80	01	20	MCTG#4	0~10794	G#4
81	01	22	MCTA_4	0~10794	A_4
82	01	24	MCTA#4	0~10794	A#4
83	01	26	MCTB_4	0~10794	B_4
84	01	28	MCTC_5	0~10794	C_5
85	01	2A	MCTC#5	0~10794	C#5
86	01	2C	MCTD_5	0~10794	D_5
87	01	2E	MCTD#5	0~10794	D#5
88	01	30	MCTE_5	0~10794	E_5
89	01	32	MCTF_5	0~10794	F_5
90	01	34	MCTF#5	0~10794	F#5
91	01	36	MCTG_5	0~10794	G_5
92	01	38	MCTG#5	0~10794	G#5
93	01	3A	MCTA_5	0~10794	A_5
94	01	3C	MCTA#5	0~10794	A#5
95	01	3E	MCTB_5	0~10794	B_5
96	01	40	MCTC_6	0~10794	C_6
97	01	42	MCTC#6	0~10794	C#6
98	01	44	MCTD_6	0~10794	D_6
99	01	46	MCTD#6	0~10794	D#6
100	01	48	MCTE_6	0~10794	E_6
101	01	4A	MCTF_6	0~10794	F_6
102	01	4C	MCTF#6	0~10794	F#6
103	01	4E	MCTG_6	0~10794	G_6
104	01	50	MCTG#6	0~10794	G#6
105	01	52	MCTA_6	0~10794	A_6
106	01	54	MCTA#6	0~10794	A#6
107	01	56	MCTB_6	0~10794	B_6
108	01	58	MCTC_7	0~10794	C_7
109	01	5A	MCTC#7	0~10794	C#7
110	01	5C	MCTD_7	0~10794	D_7
111	01	5E	MCTD#7	0~10794	D#7
112	01	60	MCTE_7	0~10794	E_7
113	01	62	MCTF_7	0~10794	F_7
114	01	64	MCTF#7	0~10794	F#7
115	01	66	MCTG_7	0~10794	G_7
116	01	68	MCTG#7	0~10794	G#7
117	01	6A	MCTA_7	0~10794	A_7
118	01	6C	MCTA#7	0~10794	A#7
119	01	6E	MCTB_7	0~10794	B_7
120	01	70	MCTC_8	0~10794	C_8
121	01	72	MCTC#8	0~10794	C#8
122	01	74	MCTD_8	0~10794	D_8
123	01	76	MCTD#8	0~10794	D#8
124	01	78	MCTE_8	0~10794	E_8
125	01	7A	MCTF_8	0~10794	F_8
126	01	7C	MCTF#8	0~10794	F#8
127	01	7E	MCTG_8	0~10794	G_8
128	02	00	MTNAM0	ascii	—Micro Tuning Name— 
129	02	01	MTNAM1	ascii	
130	02	02	MTNAM2	ascii	
131	02	03	MTNAM3	ascii	
132	02	04	MTNAM4	ascii	
133	02	05	MTNAM5	ascii	
134	02	06	MTNAM6	ascii	
135	02	07	MTNAM7	ascii	
136	02	08	MTNAM8	ascii	
137	02	09	MTNAM9	ascii	

< Table 1-14 >

MIDI Parameter Change table (Switch Remote)

$F0, $43, $1n, $34, $0D, $00, $00, N2, $00, V2, $F7

Note) n ; Device Number
N2 ; parameter number
V2 ; parameter value data range : off ($00~$3F), on ($40~$7F)

	N2	sw.#	note
0	00	PSW 1	VOICE
1	01	PSW 2	MULTI
2	02	PSW 3	SONG
3	03	PSW 4	PATTERN
4	04	PSW 5	UTILITY
5	05	PSW 6	EDIT
6	06	PSW 7	STORE
7	07	PSW 8	EFFECT
8	08	PSW 9	I <
9	09	PSW10	<<
10	0A	PSW11	LOCATE
11	0B	PSW12	>>
12	0C	PSW13	RECORD
13	0D	PSW14	STOP
14	0E	PSW15	RUN
15	0F	PSW16	SHIFT
16	10	PSW17	F1
17	11	PSW18	F2
18	12	PSW19	F3
19	13	PSW20	F4
20	14	PSW21	F5
21	15	PSW22	F6
22	16	PSW23	F7
23	17	PSW24	F8
24	18	PSW25	EXIT
25	19	PSW26	PAGE <
26	1A	PSW27	PAGE >
27	1B	PSW28	JUMP
28	1C	PSW29	-1
29	1D	PSW30	↑
30	1E	PSW31	+1
31	1F	PSW32	←
32	20	PSW33	↓
33	21	PSW34	→
34	22	PSW35	0
35	23	PSW36	±

	N2	sw.#	note
36	24	PSW37	ENTER
37	25	PSW38	1
38	26	PSW39	2
39	27	PSW40	3
40	28	PSW41	4
41	29	PSW42	5
42	2A	PSW43	6
43	2B	PSW44	7
44	2C	PSW45	8
45	2D	PSW46	9
46	2E	PSW47	INTERNAL
47	2F	PSW48	CARD
48	30	PSW49	PRESET 1
49	31	PSW50	PRESET 2
50	32	PSW51	A
51	33	PSW52	B
52	34	PSW53	C
53	35	PSW54	D
54	36	PSW55	1
55	37	PSW56	2
56	38	PSW57	3
57	39	PSW58	4
58	3A	PSW59	5
59	3B	PSW60	6
60	3C	PSW61	7
61	3D	PSW62	8
62	3E	PSW63	9
63	3F	PSW64	10
64	40	PSW65	11
65	41	PSW66	12
66	42	PSW67	13
67	43	PSW68	14
68	44	PSW69	15
69	45	PSW70	16
70	46	PSW71	DIAL DEC
71	47	PSW72	DIAL INC

< Table 1-15 >

MIDI Parameter Change table (Master control)

$F0, $43, $1n, $34, $0E, T2, N1, N2, V1, V2, $F7

Note) n ; channel number
T2 ; control number
N1 ; parameter type
N2 ; parameter number
V1 ; MS7bits of parameter value
V2 ; LS7bits of parameter value

[Filter section] T2=00

	N1	N2	data name	data range	note
0	00	00	FILPGMMS	0~b'11111111	Program Change Filter ch 16-9
1	00	01	FILPGMLS	0~b'11111111	0;off 1;on ch 8-1
2	00	02	FILCONMS	0~b'11111111	Control Change Filter ch 16-9
3	00	03	FILCONLS	0~b'11111111	0;off 1;on ch 8-1
4	00	04	FILPBNDMS	0~b'11111111	Pitch Bend Filter ch 16-9
5	00	05	FILPBNDLS	0~b'11111111	0;off 1;on ch 8-1
6	00	06	FILSUSMS	0~b'11111111	Sustain Pedal Filter ch 16-9
7	00	07	FILSUSLS	0~b'11111111	0;off 1;on ch 8-1
8	00	08	FILATCHMS	0~b'11111111	After Touch Filter ch 16-9
9	00	09	FILATCHLS	0~b'11111111	0;off 1;on ch 8-1
10	00	0A	FILMVOLMS	0~b'11111111	Main Volume Filter ch 16-9
11	00	0B	FILMVOLLS	0~b'11111111	0;off 1;on ch 8-1

[controller element section] T2=0, 0, n, n, 0, t, t, t

n	
00	MIDI-1
01	MIDI-2
10	MIDI-3
11	MIDI-4

t	
000	Control 1
001	Control 2
010	Control 3
011	Control 4
100	Control 5
101	Control 6
110	Control 7
111	Control 8

	N1	N2	data name	data range	note
0	02	00	CONENABL	0~B'00011111	Control Enable 0;off 1;on Bit 0 = midi off/on 1 = pc off/on 2 = Ms/Ls off/on 3 = volume off/on 4 = MDR off/on
1	02	01	MIDITCH	0~15	MIDI Transmit Channel
2	02	02	NLIML	0~127	Note Limit Low
3	02	03	NLIMH	0~127	High
4	02	04	VLIML	1~127	Velocity Limit Low
5	02	05	VLIMH	1~127	High
6	02	06	XPOSE	0~127	Transpose [center 64 (40h)]
7	02	07	VELCURV	0~3	Velocity Curve
8	02	08	AFTCURV	0~3	After Touch Curve
9	02	09	MAINVOL	0~127	MAIN Volume
10	02	0A	BANK	0~16383	Bank Select
11	02	0C	PCNUM	0~127	Program Change Number
12	02	0D	MDRNUM	0~98	MDR Number

[Control name section]

T2=0, 0, 0, 0, 0, t, t, t

t	
000	Control 1
001	Control 2
010	Control 3
011	Control 4
100	Control 5
101	Control 6
110	Control 7
111	Control 8

	N1	N2	data name	data range	note
					—Control Name—
0	03	00	CNAM0	ascii	" "
1	03	01	CNAM1	ascii	" "
2	03	02	CNAM2	ascii	" "
3	03	03	CNAM3	ascii	" "
4	03	04	CNAM4	ascii	" "
5	03	05	CNAM5	ascii	" "
6	03	06	CNAM6	ascii	" "
7	03	07	CNAM7	ascii	" "
8	03	08	CNAM8	ascii	" "
9	03	09	CNAM9	ascii	" "

[Control voice section]

T2=0, 0, 0, 0, 0, t, t, t

t	
000	Control 1
001	Control 2
010	Control 3
011	Control 4
100	Control 5
101	Control 6
110	Control 7
111	Control 8

	N1	N2	data name	data range	note
0	04	00	PTM	off/on	Program
		01	VM	voice/multi	Program Mode
		02	VMEM	I/C/P1/P2	Voice Memory
		03	VNUM	0~63	Voice Number
		04	MMEM	I/C/P	Multi Memory
		05	MNUM	0~15	Multi Number

< Table 1-16 >

MIDI Parameter Change table (System Setup)

$F0, $43, $1n, $34, $0F, $00, $00, N2, $00, V2, $F7

Note) n ; channel number
N2 ; parameter number
V2 ; parameter value

Note) Exception ; Master_Tuning (at transmit) $F0 $43, $1N, $04, DT, $F7 (DX1 Master Tuning is used)

	N2	data name	data range	note
				—Greeting Message—
0	00	GRTMSU 0	ascii	Upper " "
1	01	GRTMSU 1	ascii	Upper " "
2	02	GRTMSU 2	ascii	Upper " "
3	03	GRTMSU 3	ascii	Upper " "
4	04	GRTMSU 4	ascii	Upper " "
5	05	GRTMSU 5	ascii	Upper " "
6	06	GRTMSU 6	ascii	Upper " "
7	07	GRTMSU 7	ascii	Upper " "
8	08	GRTMSU 8	ascii	Upper " "
9	09	GRTMSU 1	ascii	Upper " "
10	0A	GRTMSU10	ascii	Upper " "
11	0B	GRTMSU11	ascii	Upper " "
12	0C	GRTMSU12	ascii	Upper " "
13	0D	GRTMSU13	ascii	Upper " "
14	0E	GRTMSU14	ascii	Upper " "
15	0F	GRTMSU15	ascii	Upper " "
16	10	GRTMSU16	ascii	Upper " "
17	11	GRTMSU17	ascii	Upper " "
18	12	GRTMSU18	ascii	Upper " "
19	13	GRTMSU19	ascii	Upper " "
20	14	GRTMSL 0	ascii	Lower " "
21	15	GRTMSL 1	ascii	Lower " "
22	16	GRTMSL 2	ascii	Lower " "
23	17	GRTMSL 3	ascii	Lower " "
24	18	GRTMSL 4	ascii	Lower " "
25	19	GRTMSL 5	ascii	Lower " "
26	1A	GRTMSL 6	ascii	Lower " "
27	1B	GRTMSL 7	ascii	Lower " "
28	1C	GRTMSL 8	ascii	Lower " "
29	1D	GRTMSL 1	ascii	Lower " "
30	1E	GRTMSL10	ascii	Lower " "
31	1F	GRTMSL11	ascii	Lower " "
32	20	GRTMSL12	ascii	Lower " "
33	21	GRTMSL13	ascii	Lower " "
34	22	GRTMSL14	ascii	Lower " "
35	23	GRTMSL15	ascii	Lower " "
36	24	GRTMSL16	ascii	Lower " "
37	25	GRTMSL17	ascii	Lower " "
38	26	GRTMSL18	ascii	Lower " "
39	27	GRTMSL19	ascii	Lower " "
40	28	MNSFT	-64~63 (o/b)	Master Note Shift
41	29	MTUNE	-64~63 (o/b)	Master Fine Tuning (receive only)
				—Velocity—
42	2A	FIXVEL	off, 1~127	Fixed velocity
43	2B	VELCRV	0~7	Velocity Curve select
				—MIDI Control Number Assign—
44	2C	MW2MCN	0~120	Modulation Wheel 2
45	2D	FSASN	0~120	Foot Switch assign
46	2E	EDCONFSW	off/on	Edit Confirm switch
				—MIDI—
47	2F	TXCH	0~15	keyboard transmit channel
48	30	VRCH	0~15, omni	Voice Receive channel
49	31	LOCAL	off/on	Local switch
50	32	DVCNUM	off, 0~15, all	Device number
51	33	NTSW	all/odd/even	Note_Even_Odd switch
52	34	BLKMPRT	off/on	Bulk data Memory protect switch
53	35	PGCMOD	off/on	Program Change mode
54	36	reserve		
55	37	PATPRT	off/on	Bulk Data Pattern Protect Switch

	N2	data name	data range	note
56	38	CONTHOLD	off/on	Controller Hold
57	39	MEMALOC	0~127	memory alocate for MDR (x4Kbyte)
58 59 60 61 62 63	3A 3B 3C 3D 3E 3F	reserve reserve reserve reserve reserve reserve		
	40	EBYP	0~2	Effect Bypass Sw (param cng only) 0:off 1:on Normal 2:on OUT-1 Direct OUT-2 Effect

Note) (o/b) ; offset binary (invert the sign_bit of the 2's complement)

< Table 1-17 >

MIDI Parameter Change table (Sample)

$F0, $43, $1n, $34, $0E, $T2, 06, N2, V1, V2, $F7

Note) n ; Device Number
T2 ; Sample number
N2 ; parameter number
V1 ; MS7bits of parameter value
V2 ; LS7bits of parameter value

	N2	data name	data range	note
0 1 2	00 02 04	HIKEY ORIKEY PITCH	1~127 (note #) 0~127 (note #) -5376~+5376 (2bytes, o/b)	High key Original key Pitch
3	08	LOOPMODE	b2 ; 0 forward 1 backward b1 ; 0 loop off 1 loop on b0 ; 0 normal 1 alternate	Loop type, Mode
4 5	12 1C	VOL LOWKEY	0~127 1~127 (note #)	Volume Low key
6 7 8 9 10 11 12 13	1E 1F 20 21 22 23 24 25	SANAM0 SANAM1 SANAM2 SANAM3 SANAM4 SANAM5 SANAM6 SANAM7	ascii ascii ascii ascii ascii ascii ascii ascii	—Sample Name— " * " " * * " " * * " " * * " " * * " " * * " " * * " " * * "

< Table 2-1 >

Voice Bulk Dump

Note) Memory_type internal ; $00
preset 1 ; $02
preset 2 ; $03
Edit Buffer ; $7F (Used only when transmitting from SY99. Memory# is transmitted as $00, ignored when receiving.)

When receiving Bulk dump, if Memory_type is other than $7F, this is processed as Internal.

Note) Memory# $00~$0F ; Bank A, 1~16
$10~$1F ; Bank B, 1~16
$20~$2F ; Bank C, 1~16
$30~$3F ; Bank D, 1~16

Note) When receiving Bulk dump, bit 6 of Memory# is ignored.

(1) 1AFM

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	V
15	C
16	$00
↓	
29	
30	Memory_type
31	Memory#
32	Refer to 00~0A of Table 1-3. $00 or $03 (ELMODE)
33	VNAM0
↓	↓
43	Refer to Dummy of Table 1-10. EFMODE
↓	↓
72	Refer to 28~3F of Table 1-3. WPBR
↓	
95	VVOL
96	AWMID high 7bit
97	AWMID low 7bit
98	Refer to 00~08 of Table 1-4. ELVL0
↓	↓
106	MCTEN0

	Element1 data
	Refer to 00~26 of Table 1-7.
107	OP6_R1
↓	↓
125	reserve
126	OP6_ALGSRC (MSB)
127	OP6_ALGSRC (low 7bits)
128	OP6_ALGDST
↓	↓
132	OP6_FMPMS
133	OP6_K0E
134	OP6_PHASE
135	OP6_FPD
↓	↓
140	OP6_BP4
141	OP6_EGOS1 (MSB)
142	OP6_EGOS1 (low 7bits)
143	OP6_EGOS2 (MSB)
144	OP6_EGOS2 (low 7bits)
145	OP6_EGOS3 (MSB)
146	OP6_EGOS3 (low 7bits)
147	OP6_EGOS4 (MSB)
148	OP6_EGOS4 (low 7bits)
149	OP6_RVSW
150	OP6_FPC
151	OP6_FPF
152	Refer to 00~26 of Table 1-7. OP5_R1
↓	↓
↓	↓
197	Refer to 00~26 of Table 1-7. OP4_R1
↓	↓
↓	↓
242	Refer to 00~26 of Table 1-7. OP3_R1
↓	↓
↓	↓
287	Refer to 00~26 of Table 1-7. OP2_R1
↓	↓
↓	↓
332	Refer to 00~26 of Table 1-7. OP1_R1
↓	↓
↓	↓

	Element1 data
	Refer to 00~19 of Table 1-6.
377	ALGNUM
↓	↓
	Refer to 00~18 of Table 1-11.
403	FL1_FTYPE
↓	↓
423	FL1_FBP4
424	FL1_FOS1 (MSB)
425	FL1_FOS1 (low 7bits)
426	FL1_FOS2 (MSB)
427	FL1_FOS2 (low 7bits)
428	FL1_FOS3 (MSB)
429	FL1_FOS3 (low 7bits)
430	FL1_FOS4 (MSB)
431	FL1_FOS4 (low 7bits)
	Refer to 00~18 of Table 1-11.
432	FL2_FTYPE
↓	↓
↓	↓
459	FL2_FOS4 (MSB)
460	FL2_FOS4 (low 7bits)
	Refer to 32~34 of Table 1-11.
461	FFRES
462	FFVSON
463	FFCMS
464	check_sum
465	$F7

(2) 2AFM

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	V
15	C
16	$00
↓	
29	
30	Memory_type
31	Memory#
32	$01 or $04 (ELMODE)
33 ↓ ↓ 97	Same as (1) AFM 33~97
98 ↓ 106	Refer to 00~08 of Table 1-4. ELVL0 ↓ MCTEN0
107 ↓ 115	Refer to 00~08 of Table 1-4. ELVL1 ↓ MCTEN1

	Element1 data
116 ↓ ↓ 472	Same as (1) AFM 107~463
	Element2 data
473 ↓ ↓ 829	Same as (1) AFM 107~463
830	check_sum
831	$F7

(3) 4AFM

Note) Memory# ; $30~$3F
When receiving, cancel if Memory# is other than the above.

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	V
15	C
16	$00
↓	
29	
30	Memory_type
31	Memory#
32	$02 (ELMODE)
33 ↓ ↓ 97	Same as (1) AFM 33~97
98 ↓ 106	Refer to 00~08 of Table 1-4. ELVL0 ↓ MCTEN0
107 ↓ 115	Refer to 00~08 of Table 1-4. ELVL1 ↓ MCTEN1
116 ↓ 124	Refer to 00~08 of Table 1-4. ELVL2 ↓ MCTEN2
125 ↓ 133	Refer to 00~08 of Table 1-4. ELVL3 ↓ MCTEN3

	Element1 data
134 ↓ ↓ 490	Same as (1) AFM 107~463
	Element2 data
491 ↓ ↓ 847	Same as (1) AFM 107~463
	Element3 data
848 ↓ ↓ 1204	Same as (1) AFM 107~463
	Element4 data
1205 ↓ ↓ 1561	Same as (1) AFM 107~463
1562	check_sum
1563	$F7

(4) 1AWM

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	V
15	C
16	$00
↓	
29	
30	Memory_type
31	Memory#
32	$05 (ELMODE)
33 ↓ ↓ 97	Same as (1) AFM 33~97
98 ↓ 106	Refer to 00~08 of Table 1-4. ELVL0 ↓ MCTEN0

	Element1 data
107	Refer to 00~19 of Table 1-8. WSOURCE
108	PCMWAVE (MSB)
109	PCMWAVE (low 7bits)
110 ↓	PPM ↓
134 ↓ ↓ 194	Same as (1) AFM 403~463
195 ↓ 207	Refer to 4F~62 of Table 1-8. PAEGMD ↓ PABP4
208	PAOS21 (MSB)
209	PAOS21 (low 7bits)
210	PAOS22 (MSB)
211	PAOS22 (low 7bits)
212	PAOS23 (MSB)
213	PAOS23 (low 7bits)
214	PAOS24 (MSB)
215	PAOS24 (low 7bits)
216	PAVSON
217	PARVSW
218	PAMS
219	check_sum
220	$F7

(5) 2AWM

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	V
15	C
16	$00
↓	
29	
30	Memory_type
31	Memory#
32	$06 (ELMODE)
33 ↓ ↓ 97	Same as (1) AFM 33~97
98 ↓ 106	Refer to 00~08 of Table 1-4. ELVL0 ↓ MCTEN0
107 ↓ 115	Refer to 00~08 of Table 1-4. ELVL1 ↓ MCTEN1

	Element1 data
116 ↓ ↓ 227	Same as (1) 1AWM 107~218
	Element2 data
228 ↓ ↓ 339	Same as (1) 1AWM 107~218
340	check_sum
341	$F7

(6) 4AWM

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	V
15	C
16 ↓ 29	$00
30	Memory_type
31	Memory#
32	$07 (ELMODE)
33 ↓ 97	Same as (1) AFM 33~97
98 ↓ 106	Refer to 00~08 of Table 1-4. ELVL0 ↓ MCTEN0
107 ↓ 115	Refer to 00~08 of Table 1-4. ELVL1 ↓ MCTEN1
116 ↓ 124	Refer to 00~08 of Table 1-4. ELVL2 ↓ MCTEN2
125 ↓ 133	Refer to 00~08 of Table 1-4. ELVL3 ↓ MCTEN3

	Element1 data
134 ↓ 245	Same as (1) 1AWM 107~218
	Element2 data
246 ↓ 357	Same as (1) 1AWM 107~218
	Element3 data
358 ↓ 469	Same as (1) 1AWM 107~218
	Element4 data
470 ↓ 581	Same as (1) 1AWM 107~218
582	check_sum
583	$F7

(7) 1AFM_1AWM

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	V
15	C
16 ↓ 29	$00
30	Memory_type
31	Memory#
32	$08 (ELMODE)
33 ↓ 97	Same as (1) AFM 33~97
98 ↓ 106	Refer to 00~08 of Table 1-4. ELVL0 ↓ MCTEN0
107 ↓ 115	Refer to 00~08 of Table 1-4. ELVL1 ↓ MCTEN1

	Element1 data
116 ↓ 472	Same as (1) AFM 107~463
	Element2 data
473 ↓ 584	Same as (4) 1AWM 107~218
585	check_sum
586	$F7

(8) 2AFM_2AWM

Note) **Memory# ; $30~$3F**
When receiving, cancel if Memory# is other than the above.

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	V
15	C
16 ↓ 29	$00
30	Memory_type
31	Memory#
32	$09 (ELMODE)
33 ↓ 97	Same as (1) AFM 33~97
98 ↓ 106	Refer to 00~08 of Table 1-4. ELVL0 ↓ MCTEN0
107 ↓ 115	Refer to 00~08 of Table 1-4. ELVL1 ↓ MCTEN1
116 ↓ 124	Refer to 00~08 of Table 1-4. ELVL2 ↓ MCTEN2
125 ↓ 133	Refer to 00~08 of Table 1-4. ELVL3 ↓ MCTEN3

	Element1 data
134 ↓ 490	Same as (1) AFM 107~463
	Element2 data
491 ↓ 847	Same as (1) AFM 107~463
	Element3 data
848 ↓ 959	Same as (1) 1AWM 107~218
	Element4 data
960 ↓ 1071	Same as (1) 1AWM 107~218
1072	check_sum
1073	$F7

(9) Drum_set

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	V
15	C
16 ↓ 29	$00
30	Memory_type
31	Memory#
32	$0A (ELMODE)
33 ↓ 71	Same as (1) AFM 33~71
72 ↓ 87	$00 (ctrl)
88	WLASN
89	WLLML
90 ↓ 95	$00 (norm)
96	AWMID high 7
97	AWMID low 7

	Drum_set data
98	ALTC_1, OUT*C_1
99	WSRCC_1
100	WAVC_1 (MSB)
101	WAVC_1 (low 7bits)
102	WVLC_1
103	WTNC_1
104	WNSC_1
105	WPNC_1
106	ALTC#1, OUT*C#1
114	ALTD_1, OUT*D_1
122	ALTD#1, OUT*D1
130	ALTE_1, OUT*E_1
138	ALTF_1, OUT*F_1
146	ALTF#1, OUT*F#1
154	ALTG_1, OUT*G_1
162	ALTG#1, OUT*G#1
170	ALTA_1, OUT*A_1
178	ALTA#1, OUT*A#1
186	ALTB_1, OUT*B_1

	Drum_set data
194	ALTC_2, OUT*C_2
290	ALTC_3, OUT*C_3
386	ALTC_4, OUT*C_4
482	ALTC_5, OUT*C_5
578	ALTC_6, OUT*C_6
585	WPNC_6
586	check_sum
587	$F7

(10) dump request

	data
0	$F0
1	$43
2	$2N
3	$7A
4	L
5	M
6	–
7	–
8	8
9	1
10	0
11	1
12	V
13	C
14 ↓ 27	$00
28	Memory type
29	Memory#
30	$F7

* Memory type = not $7F (edit buffer)

< Table 2-2 >

Additional Voice Bulk Dump

Note) Memory_type internal ; $00
preset 1 ; $02
preset 2 ; $03
Edit Buffer ; $7F (Used only when transmitting from SY99. Memory# is transmitted as $00, ignored when receiving.)

For WSOURCE, AWMWAV, data which has the same name exists in the Voice Bulk Dump which is the AWM Element data shown in table 1-8, but when Voice Bulk and Additional Voice Bulk are transmitted together, Additional bulk WSOURCE, AWMWAV becomes effective.

When receiving Bulk dump, if Memory_type is other than $7F, this is processed as Internal.

Note) Memory# $00~$0F ; Bank A, 1~16
$10~$1F ; Bank B, 1~16
$20~$2F ; Bank C, 1~16
$30~$3F ; Bank D, 1~16

Note) When receiving Bulk dump, bit 6 of Memory# is ignored.

(1) 1AFM & 1AWM

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	0
11	0
12	4
13	0
14	V
15	C
16 ↓ 29	$00
30	Memory_type
31	Memory#
32	Refer to 00 of Table 1-3. $00, $03, $05 (ELMODE)
33 ↓	Refer to 20~5D of Table 1-10. EFMODE ↓
95	AWMID high 7bit
96	AWMID low 7bit
97	AFTMD
98	SPTPNT
99	Refer to 09~12 of Table 1-4. EFLN1EL0
100	EFSDLV0
101	EFSDVL0
102	EFSDSC0
103	WSOURCE1
104	AWMWAV (MSB)
105	AWMWAV (low 7bit)
106	check_sum
107	$F7

(2) 2AFM & 2AFM & 1AFM_1AWM

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	0
11	0
12	4
13	0
14	V
15	C
16 ↓ 29	$00
30	Memory_type
31	Memory#
32	Refer to 00 of Table 1-3. $01, $04, $06, $08 (ELMODE)
33 ↓	Refer to 20~5D of Table 1-10. EFMODE ↓
95	AWMID high 7bit
96	AWMID low 7bit
97	AFTMD
98	SPTPNT
99	Refer to 09~12 of Table 1-4. EFLN1EL0
100	EFSDLV0
101	EFSDVL0
102	EFSDSC0
103	Refer to 09~12 of Table 1-4. EFLN1EL1
104	EFSDLV1
105	EFSDVL1
106	EFSDSC1
107	WSOURCE1
108	AWMWAV (MSB)
109	AWMWAV (low 7bit)
110	WSOURCE2
111	AWMWAV (MSB)
112	AWMWAV (low 7bit)
113	check_sum
114	$F7

(3) 4AFM & 4AWM & 2AFM_2AWM

Note) Memory# ; $30~$3F
When receiving, cancel if Memory# is other than the above.

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	0
11	0
12	4
13	0
14	V
15	C
16 ↓ 29	$00
30	Memory_type
31	Memory#
32	Refer to 00 of Table 1-3. $02, $07, $09 (ELMODE)
33 ↓	Refer to 20~5D of Table 1-10. EFMODE ↓
95	AWMID high 7bit
96	AWMID low 7bit
97	AFTMD
98	SPTPNT
99	Refer to 09~12 of Table 1-4. EFLN1EL0
100	EFSDLV0
101	EFSDVL0
102	EFSDSC0
103	Refer to 09~12 of Table 1-4. EFLN1EL1
104	EFSDLV1
105	EFSDVL1
106	EFSDSC1
107	Refer to 09~12 of Table 1-4. EFLN1EL2
108	EFSDLV2
109	EFSDVL2
110	EFSDSC2
111	Refer to 09~12 of Table 1-4. EFLN1EL3
112	EFSDLV3
113	EFSDVL3
114	EFSDSC3
115	WSOURCE1
116	AWMWAV (MSB)
117	AWMWAV (low 7bit)
118	WSOURCE2
119	AWMWAV (MSB)
120	AWMWAV (low 7bit)
121	WSOURCE3
122	AWMWAV (MSB)
123	AWMWAV (low 7bit)
124	WSOURCE4
125	AWMWAV (MSB)
126	AWMWAV (low 7bit)
127	check_sum
128	$F7

(4) Drum_set

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	0
11	0
12	4
13	0
14	V
15	C
16	$00
↓	
29	
30	Memory_type
31	Memory#
32	Refer to 00 of Table 1-3. $0A (ELMODE)
33 ↓	Refer to 20~5D of Table 1-10. EFMODE ↓
95	AWMID high 7bit
96	AWMID low 7bit
97	AFTMD
98	SPTPNT
99	Refer to 07~09 of Table 1-5. WSOURCEC_1
100	AWMWAV (MSB)
101	AWMWAV (low 7bit)
102	EFLN1C_1
103	EFSDLVC_1
104	EFSDVLC_1
↓	↓
↓	↓
↓	↓
459	WSOURCEC_6
460	AWMWAV (MSB)
461	AWMWAV (low 7bit)
462	EFLN1C_6
463	EFSDLVC_6
464	EFSDVLC_6

465 ↓ 531	Refer to 07~09 of Table 1-5. ALTE_0 ↓ ALTB_0
↓ 541	↓ EFSDVLB_0
542 ↓ 619	ALTC#_6 ↓ ALTG_6
↓ 629	↓ ALTG_6
630	WSOURCEE_0
631	AWMWAV (MSB)
632	AWMWAV (low 7bit)
↓ ↓ 663	↓ ↓ WSOURCEG_6
664	AWMWAV (MSB)
665	AWMWAV (low 7bit)
666	check_sum
667	$F7

(5) dump request

	data
0	$F0
1	$43
2	$2N
3	$7A
4	L
5	M
6	–
7	–
8	0
9	0
10	4
11	0
12	V
13	C
14	$00
↓	
27	
28	Memory type
29	Memory#
30	$F7

* Memory type = not $7F (edit buffer)

< **Table 3-1** >

Multi Bulk Dump

Note) Memory_type internal ; $00
preset ; $02
Edit Buffer ; $7F (Used only when transmitting from SY99. Memory# is transmitted as $00, ignored when receiving.)

When receiving Bulk dump, if Memory_type is other than $7F, this is processed as Internal.

Note) Memory# $00~$0F ; INT1~16

Note) When receiving Bulk dump, bits 6~4 of Memory# are ignored.

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	M
15	U
16	$00
↓	
29	
30	Memory_type
31	Memory#
32 ↓ 51	Refer to 00~13 of Table 1-1. MNAM0 ↓ MNAM19
52 ↓ 80	Refer to Dummy of Table 1-10. EFMODE ↓ ST_MIX2

	data
90 ↓ 97	Refer to 00~06 of Table 1-2. OFVCSW_0, OUT*CH_0 ↓ OFVCSW_1, OUT*CH_1
↓ 104	↓ OFVCSW_2, OUT*CH_2
↓ 111	↓ OFVCSW_3, OUT*CH_3
↓ 118	↓ OFVCSW_4, OUT*CH_4
↓ 125	↓ OFVCSW_5, OUT*CH_5
↓ 132	↓ OFVCSW_6, OUT*CH_6
↓ 139	↓ OFVCSW_7, OUT*CH_7
↓ 146	↓ OFVCSW_8, OUT*CH_8
↓ 153	↓ OFVCSW_9, OUT*CH_9
↓ 160	↓ OFVCSW10, OUT*CH10
↓ 167	↓ OFVCSW11, OUT*CH11
↓ 174	↓ OFVCSW12, OUT*CH12
↓ 181	↓ OFVCSW13, OUT*CH13
↓ 188	↓ OFVCSW14, OUT*CH14
↓ 195	↓ OFVCSW15, OUT*CH15
↓ 201	↓ STPAN15
202	check_sum
203	$F7

dump request

	data
0	$F0
1	$43
2	$2N
3	$7A
4	L
5	M
6	–
7	–
8	8
9	1
10	0
11	1
12	M
13	U
14	$00
↓	
27	
28	Memory type
29	Memory#
30	$F7

* Memory type = not $7F (Edit buffer)

< **Table 3-2** >

Additional Multi Bulk Dump

Note) Memory_type internal ; $00
preset ; $02
Edit Buffer ; $7F (Used only when transmitting from SY99. Memory# is transmitted as $00, ignored when receiving.)

When receiving Bulk dump, if Memory_type is other than $7F, this is processed as Internal.

Note) Memory # $00~$0F ; INT1~16

Note) When receiving Bulk dump, bits 6~4 of Memory# are ignored.

	data
0	$F0
1	$43
2	$0N
3	$7A
4	byte count
5	
6	L
7	M
8	–
9	–
10	0
11	0
12	4
13	0
14	M
15	U
16	$00
↓	
29	
30	Memory_type
31	Memory#
32 ↓ 94	Refer to 20~5D of Table 1-10. EFMODE ↓ EFLFOPH

	data
95 ↓ 98	Refer to 07~09 of Table 1-2. EFSDMD0 ↓ EFSDMD1
↓ 101	↓ EFSDMD2
↓ 104	↓ EFSDMD3
↓ 107	↓ EFSDMD4
↓ 110	↓ EFSDMD5
↓ 113	↓ EFSDMD6
↓ 116	↓ EFSDMD7
↓ 119	↓ EFSDMD8
↓ 122	↓ EFSDMD9
↓ 125	↓ EFSDMD10
↓ 128	↓ EFSDMD11
↓ 131	↓ EFSDMD12
↓ 134	↓ EFSDMD13
↓ 137	↓ EFSDMD14
↓ 140	↓ EFSDMD15
143	check_sum
144	$F7

dump request

	data
0	$F0
1	$43
2	$2N
3	$7A
4	L
5	M
6	–
7	–
8	0
9	0
10	4
11	0
12	M
13	U
14	$00
↓	
27	
28	Memory type
29	Memory#
30	$F7

* Memory type = not $7F (Edit buffer)

< Table 4 >

Pan Bulk Dump

Note) Memory_type internal ; $00
preset ; $02

When receiving Bulk dump, processed as Internal regardless of the Memory_type.

Note) Memory# $00~$1F ; INT1~32

Note) When receiving Bulk dump, bits 6, 5 of Memory# are ignored.

	data
0	$F0
1	$43
2	$0N
3	$7A
4	┐ byte count
5	┘
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	P
15	N
16	┐
↓	┘ $00
29	
30	Memory_type
31	Memory#
32	Refer to 00~1A of Table 1-12. PNSCSEL
↓	↓
58	PNNAM9
59	check_sum
60	$F7

dump request

	data
0	$F0
1	$43
2	$2N
3	$7A
4	L
5	M
6	–
7	–
8	8
9	1
10	0
11	1
12	P
13	N
14	┐
↓	┘ $00
27	
28	Memory type
29	Memory#
30	$F7

< Table 5 >

Micro Tuning Bulk Dump

Note) Memory# $00~$01 ; INT1~2

Note) When receiving Bulk dump, bits 6~1 of Memory# are ignored.

	data
0	$F0
1	$43
2	$0N
3	$7A
4	┐ byte count
5	┘
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	M
15	T
16	┐
↓	┘ $00
29	
30	$00
31	Memory#
32	Refer to 0000~017E of Table 1-13. MCTC_-2 (high 7bits)
33	MCTC_-2 (low 7bits)
↓	↓
286	MCTG_8 (high 7bits)
287	MCTG_8 (low 7bits)
288	Refer to 0200~0209 of Table 1-13. MTNAM_1
↓	↓
297	MTNAM10
298	check_sum
299	$F7

dump request

	data
0	$F0
1	$43
2	$2N
3	$7A
4	L
5	M
6	–
7	–
8	8
9	1
10	0
11	1
12	M
13	T
14	┐
↓	┘ $00
27	
28	$00
29	Memory#
30	$F7

< Table 6 >

Master Control Bulk Dump

	data
0	$F0
1	$43
2	$0N
3	$7A
4	┐ byte count
5	┘
6	L
7	M
8	–
9	–
10	0
11	0
12	4
13	0
14	M
15	S
16	┐
↓	┘ $00
31	
32	Refer to Table 1-15. FILPGMH (MSB)
33	FILPGMH (low 7 bits)
34	FILPGML (MSB)
35	FILPGML (low 7 bits)
↓	↓
52	FILMVOLH (MSB)
53	FILMVOLH (low 7 bits)
54	FILMVOLL (MSB)
55	FILMVOLL (low 7 bits)
56	reserved
57	reserved

58	CONENA1_1
↓	↓
71	MDRNUM1_1
72	CONENA2_1
↓	↓
85	MDRNUM2_1
86	CONENA3_1
↓	↓
99	MDRNUM3_1
100	CONENA4_1
↓	↓
113	MDRNUM4_1
114	CONENA1_2
↓	↓
505	MDRNUM4_8
506	CNAM0_1
↓	↓
515	CNAM9_1
516	CNAM0_2
↓	↓
585	CNAM9_8
586	PGM_1
↓	↓
591	MNUM_1
592	PGM_2
↓	↓
633	MNUM_8
634	check_sum
635	$F7

dump request

	data
0	$F0
1	$43
2	$2N
3	$7A
4	L
5	M
6	–
7	–
8	0
9	0
10	4
11	0
12	M
13	S
14	┐
↓	┘ $00
29	
30	$F7

< Table 7 >

System Setup Bulk Dump

	data
0	$F0
1	$43
2	$0N
3	$7A
4	┐ byte count
5	┘
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	S
15	Y
16	┐
↓	┘ $00
31	
32	Refer to 00~3F of Table 1-16. GRTMSU_0
↓	↓
95	reserve
96	check_sum
97	$F7

dump request

	data
0	$F0
1	$43
2	$2N
3	$7A
4	L
5	M
6	–
7	–
8	8
9	1
10	0
11	1
12	S
13	Y
14	┐
↓	┘ $00
29	
30	$F7

< Table 8-1 >

Squencer Setup Bulk Dump

	data
0	$F0
1	$43
2	$0N
3	$7E
4	┐ byte count
5	┘
6	L
7	M
8	–
9	–
10	8
11	1
12	0
13	1
14	S
15	S
16	QUANTIZE
17	CLICK SWITCH
18	CLICK BEAT
19	reserve
20	SYNC MODE
21	REC MIDI CHANNEL
22	VELOCITY SW.
23	CONTROL CHANGE SW.
24	PITCH BEND SW.
25	PROGRAM CHANGE SW.
26	AFTER TOUCH SW.
27	SY.EXCLUSIVE SW.
28	MIDI CONTROL SW.
29	EDIT BEAT/CLOCK
30	ACCENT1
31	ACCENT2
32	ACCENT3
33	ACCENT4
34	GATE TYPE
35	check_sum
36	$F7

dump request

	data
0	$F0
1	$43
2	$2N
3	$7E
4	L
5	M
6	–
7	–
8	8
9	1
10	0
11	1
12	S
13	S
14	$F7

< Table 8-2 >

Squencer Song & Pattern (KSEQ, NSEQ) Bulk Dump

KSEQ and NSEQ data is converted from 1 byte to 2 byte ascii data and transmitted. The data for one song consists of more than one track of data, where each track begins with F0 0n, (n=track number) and ends with F2. Empty tracks will not be included.

hex	description
F0	top of record track #1
00	
—	
—	time/event/control data
—	
F2	end of record track #1
—	
—	track #2~#15 data
—	
F0	top of record track #16
0F	
—	
—	time/event/control data
—	
F2	end of record track #16

< Table 9-1 >

Waveform Data Bulk Dump

Note) FROM, TO When Memory_type of $01 (card), $02 or $03 (pre1), or $04 (pre2) is specified, FROM and TO are both set to a value of $00.

	data
0	$F0
1	$43
2	$0N
3	$7A
4	┐ byte count
5	┘
6	L
7	M
8	–
9	–
10	0
11	0
12	4
13	0
14	W
15	V
16	┐
↓	┘ $00
29	
30	Memory_type
31	Memory#
	Refer to 0~9 of Table 1-9.
32	WVNAM0
↓	↓
39	WVNAM7
40	WVFROM
41	WVTO
42	check_sum
43	$F7

< Table 9-2 >

Sample data Bulk Dump

	data
0	$F0
1	$43
2	$0N
3	$7A
4	┐ byte count
5	┘
6	L
7	M
8	–
9	–
10	0
11	0
12	4
13	0
14	S
15	A
16	┐
↓	┘ $00
30	
31	Memory#
	Refer to 6~13 of Table 1-17.
32	SANAM0
↓	↓
39	SANAM7
40	HIKEYCODEH (MSB)
41	HIKEYCODEH (low 7bit)
42	HIKEYCODEL (MSB)
43	HIKEYCODEL (low 7bit)
44	ORIKEY
45	PITCHCODEH (MSB)
46	PITCHCODEH (low 7bit)
47	PITCHCODEL (MSB)
48	PITCHCODEL (low 7bit)
49	LOOPMODE
50	VOLCODE (MSB)
51	VOLCODE (low 7bit)
52	LOWKEYCODEH (MSB)
53	LOWKEYCODEH (low 7bit)
54	LOWKEYCODEL (MSB)
55	LOWKEYCODEL (low 7bit)
56	check_sum
57	$F7

YAMAHA [Music Synthesizer---synthesizer part] Date :25-APR-1991
Model SY99 MIDI Implementation Chart Version : 1.0

Function ...	Transmitted	Recognized	Remarks
Basic Default	1 - 16	1 - 16	memorized
Basic Changed	1 - 16	1 - 16	
Mode Default	3	1,2,3,4	memorized
Mode Messages	x	x	
Mode Altered	**********	x	
Note Number : True voice	28 - 103 **********	0 - 127 1 - 127	
Velocity Note ON	o 9nH,v=1-127	o v=1-127	
Velocity Note OFF	x 9nH,v=0	x	
After Touch Key's	x	x	
After Touch Ch's	o	o	
Pitch Bender	o	o 0-12 semi	7 bit resolution
Control Change 0	o	o	Bank select
Control Change 1	o M.Wheel	o	
Control Change 2	o Breath cont.	o	
Control Change 4	o Foot cont.	o	
Control Change 6	o Data entry	o	
Control Change 7	o Foot volume	o	Volume
Control Change 32	o	o	Bank select
Control Change 64	o Sustain sw.	o	Sustain
Control Change 65	o Portamento sw	o	Portamento
Control Change 96	o inc.	o	
Control Change 97	o dec.	o	
Control Change 1 - 6	o Assignable	o	
Control Change 8 - 120	o Assignable	o	
Prog Change : True #	o 0-79 *1 **********	o 0-79 *2	
System Exclusive	o	o	voice etc.
Common : Song Pos Common : Song Sel Common : Tune System Real Time :Clock System Real Time :Commands	See the sequencer part.		
Aux :Local ON/OFF	x	x	
Aux :All Notes OFF	x	x	
Mes- :Active Sense	o	o	
sages:Reset	x	x	

Note *1 ; Send PC,Master control: 0 - 127
*2 ; voice : 0 - 63 , multi : 64 - 79

Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO o : Yes
Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO x : No

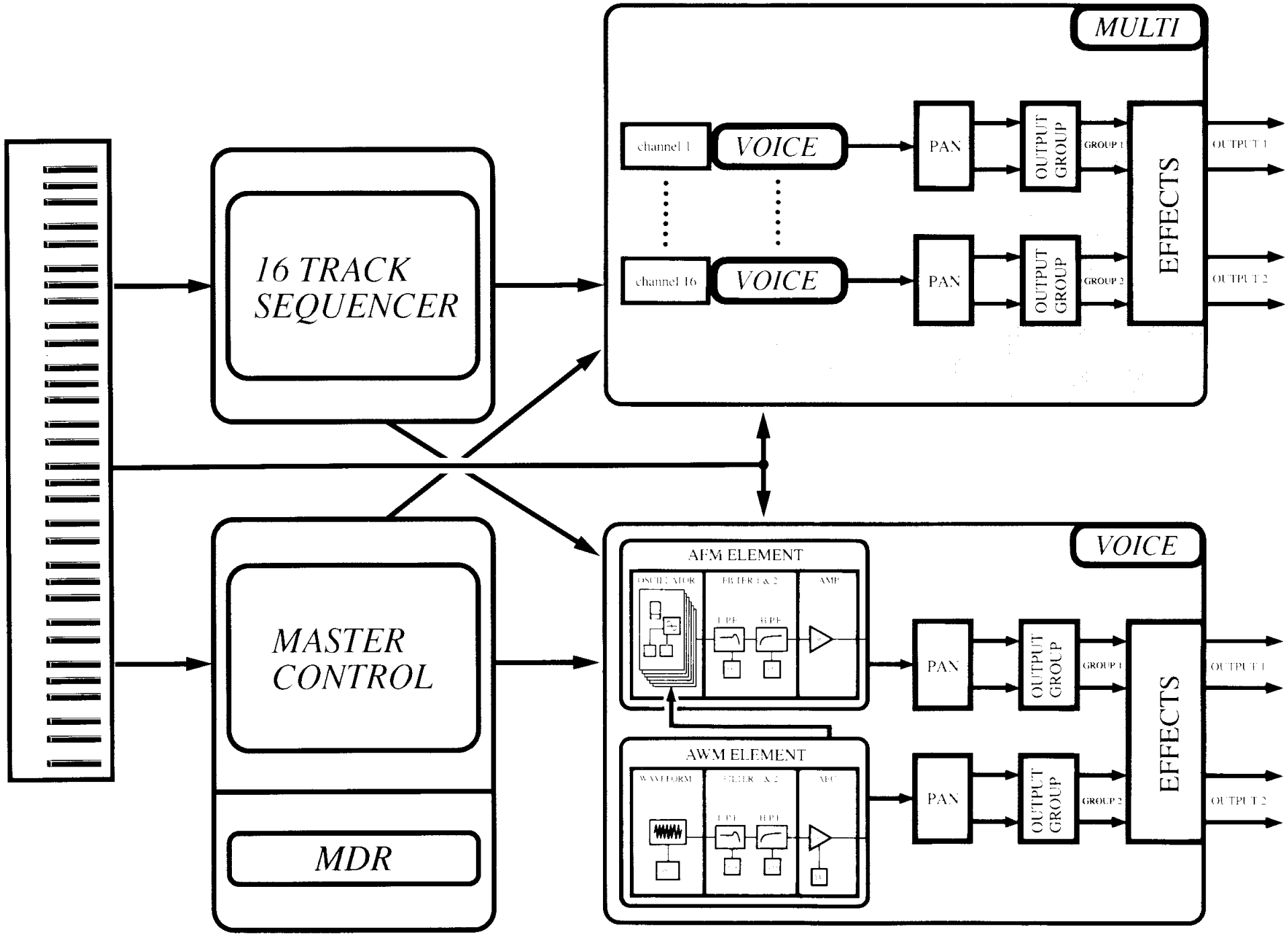
YAMAHA [Music synthesizer---sequencer part] Date :25-APR-1991
Model SY99 MIDI Implementation Chart Version : 1.0

Function ...		Transmitted	Recognized	Remarks
Basic	Default	1 - 16	1 - 16	memorized
Channel	Changed	1 - 16	1 - 16	
Mode	Default	x	x	
	Messages	x	x	
	Altered	**********	x	
Note Number : True voice		0 - 127 **********	0 - 127	
Velocity	Note ON	o 9nH,v=1-127	o v=1-127	
	Note OFF	x 9nH,v=0	x	
After Touch	Key's	x	x	
	Ch's	o	o	
Pitch Bender		o	o	
Control Change	0 - 120	o	o	
Prog Change : True #		o 0 - 127 **********	o 0 - 127	
System Exclusive		o	o	Song data etc.
Common	: Song Pos	o	o	
	: Song Sel	o	o	
	: Tune	x	x	
System Real Time	:Clock	o	o	
	:Commands	o	o	
Aux	:Local ON/OFF	x	x	
	:All Notes OFF	x	x	
Mes- sages	:Active Sense	x	x	
	:Reset	x	x	
Notes				

Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO o : Yes
Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO x : No

YAMAHA SY99

GLOBAL VIEW



PRESET/INTERNAL VOICE

PRESET 1 (64 voices)

#	Bank A	Bank B	Bank C	Bank D
1	AP Rocks	SP Alaska	BR TrmpSec	ST*Concert
2	AP!CrsRock	SP SawPad	BR BigBand	ST*Chestra
3	AP Concert	SP Square	BR JazzTmp	BR*Spitz
4	AP StgLayr	SP:Elegant	BR!MuteTmp	ME*BigNeck
5	EP 76Stage	SP:Dig Pad	BR FrHorns	PC Snapper
6	EP:Classic	SP Lashed	BR DrkHorn	PC Marimba
7	EP:NiteHwk	SP Sweeper	BR!Azen 16	PC! Vibes
8	EP:Belrose	SP Flash	BR:DaBurbs	PC!MusicBx
9	EP BellRng	SP HrpsiPd	BR!Spatz	PC Tahit
10	EP:Dxism	SP Skylane	BR Pumped	PC:Cloche
11	EP:GrnDual	SP!Arpeggi	BR StgLayr	PC!Balan
12	EP VoxLayr	SP Vecktar	ST!Octaves	PC:Berim
13	KY Smokey	SP Crystal	ST:ChorAna	SE Slither
14	KY CrsClav	SP Twinks	ST Rosin	DR Kits
15	KY Clavint	SP:Polydor	ST Quartz	DR Perc
16	KY ResoClv	SP WarmJet	ST:Pizza	DR Mixed

PRESET 2 (64 voices)

#	Bank A	Bank B	Bank C	Bank D
1	SC Heretic	PL Steel6	BA Picked	WN Tenor
2	SC AeroPho	PL JazzGtr	BA!Slapped	WN SaxSect
3	SC:Jupiter	PL Nylon6	BA Fingers	WN Alto
4	SC RezWhap	PL 12Strng	BA Fretles	WN Soprano
5	SC Plectar	PL Eko12St	BA Classic	WN Clarine
6	SC:Quatar	PL:Echoes6	BA!Upright	WN PanPipe
7	SC Plastic	PL Caster	BA:DXSlap	ME*Phantom
8	SC Tanjein	PL!SloLead	BA Anabass	ME 5thsMan
9	SC:Gizmo	PL RockAT	BA ResoSyn	ME*Emperor
10	SC Healing	SL SawLead	BA FatSyn	ME SciLoop
11	SC:Angelic	SL EchoSaw	BA Mogue	ME*Asia
12	CH Glasine	SL:Duke	OR BJazzy	ME Dreams
13	CH Itopian	SL Sync	OR BookerB	ME Galaxy
14	CH Vespers	SL:Square	OR Deep	ME Isis
15	CH!Nebula	SL PulseWM	OR!Purple	ME ZoZoid
16	CH Witches	SL Lyle	OR Baslica	ME*Thusian

INTERNAL (64 voices)

#	Bank A	Bank B	Bank C	Bank D
1	SP Eterna	AP Bright	BA:FrtlsBs	WN HrdAlto
2	SP:Dreampd	EP Bel EP	BA Picky	WN HrdTenr
3	SP:Freeze	EP:HrpPhon	BA Rogue	WN BarSax
4	SP:Polygar	EP:DualDA	BA:VelSlap	WN AmpHarp
5	SP:DarkPad	OR Ghosty	BA!Stie	SP*MoonPad
6	SP Digi82	KY Squeeze	BA:Upright	ME*Cosmos
7	SP Digima	SL PrtaSaw	BA Serious	ME*Aurola
8	SP SynStr	SL:OctSqu	BA DgWild	ME Galaxy
9	SC Magic	ST StrgPad	PL Elktrk	ME*Catrsis
10	SC DnzStb	ST ClasStr	PL MetHed	SE Astral
11	SC SlapClv	ST Tremolo	PL OvDrive	KY*Harpsi
12	SC Analogy	ST:Qk Syns	PL Stratus	BR Fa
13	SC Steps	ST Violin	PL ElMute	PL*VelGtr
14	SC DigiStb	ST Cello	PL VelMute	KS:Ang -2
15	CH ChorWn	BR HouseAT	PL!Harp	KS Pad Sax
16	CH:OooAh	BR SfzSwel	PL!LAPizz	KS*JazComp

The original internal voices can be reloaded by loading the file named "INTVOICE" from the "Chick Corea" demo disk.

SP	Synth Pad	WN	Winds	PL	Plucked	SE	Sound Effects
AP	Acoustic Piano	ST	Strings	KY	Keyboards	DR	Drum Voices
BR	Brass	BA	Basses	OR	Organ		
EP	Electric Piano	SC	Synth Comp	PC	Percussion		
ME	Musical Effect	SL	Synth Lead	CH	Choir		

The first two characters of preset voice names indicate the type of voice

[illegible]	1 element	(AWM x 1) or (AFM x 1)
[illegible]	2 elements	(AWM x 2) or (AFM x 2)
[illegible]	2 elements	(AWM x 1) + (AFM x 1)
[illegible]	4 elements	(AWM x 4) or (AFM x 4) or (AWM x 2) + (AFM x 2)

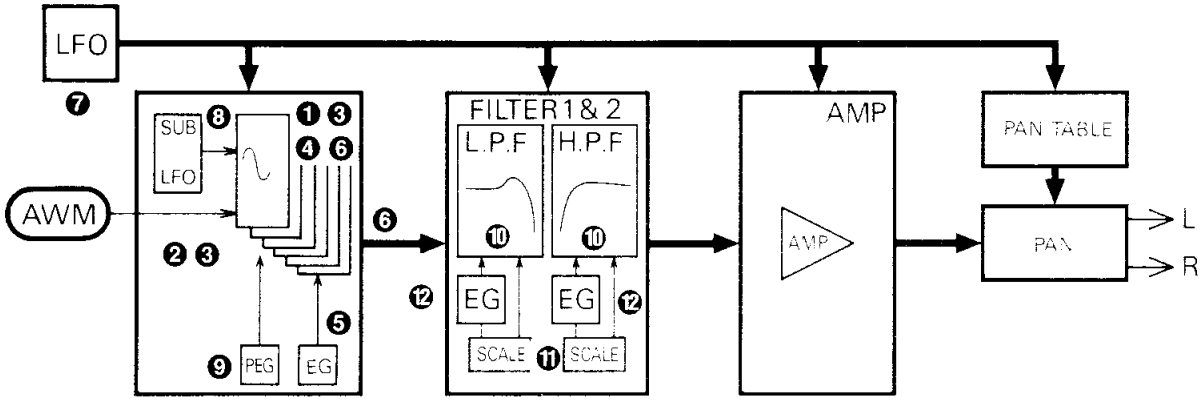
The third character of preset voice names indicates the number of elements used by the voice

PRESET MULTI

Each voice cell shows voices 01–08 (upper) and 09–16 (lower).

No.	Multi Name	01 / 09	02 / 10	03 / 11	04 / 12	05 / 13	06 / 14	07 / 15	08 / 16
01	Popular Tune	EP:GrnDual BR:BigBand	BA Picked WN!Tenor	AP StgLayr CH!Itopian	EP:Classic SL:EchoSaw	PL:Echoes6 off	PL:12Strng off	SP Elegant DR Perc	ST Octaves DR Kits
02	Funky Tune	KY CrsClav off	BA!DXSlap off	AP Rocks off	EP BellRng off	PL Caster off	BR BigBand off	BR:Pumped DR Perc	SL Sync DR Kits
03	Ballade	EP Classic WN Soprano	BA Classic WN PanPipe	AP StgLayr SL:Duke	SC Healing CH Glasine	PL 12Strng off	SP Twinks off	SP Square DR Perc	ST Rosin DR Kits
04	House	SC Plastiq off	BA!Mogue off	AP CrsRock off	SC Rezwhap off	PC Snapper off	SP Vecktar off	BR:DaBurbs DR Perc	SL:SawLead DR Kits
05	Standard Rock	EP 76Stage off	BA Picked off	AP Rocks off	PL:Caster off	PL RockAT off	off off	off off	off DR Mixed
06	American Rock	OR Deep WN Tenor	BA Slapped off	AP!Rocks off	EP Dxism off	KY:Clavint off	SP SawPad off	PL Echoes6 off	PL RockAT DR Mixed
07	Combo Jazz	AP Concert off	BA Upright off	PL:JazzGtr off	WN Alto off	off off	off off	off off	off DR Mixed
08	2 Horn Jazz Quintet	PL JazzGtr off	BA Upright off	AP!Rocks off	WN Alto off	WN Tenor off	WN Soprano off	BR jazzTmp DR Prec	BR MuteTmp DR Mixed
09	Big Band Jazz	AP Rocks BR jazzTmp	BA Fingers BR MuteTmp	PL JazzGrt BR!TrmpSec	OR BJazzy BR BigBand	WN Alto off	WN Tenor off	WN Soprano DR Perc	WN SaxSect DR Mixed
10	Sound Track	ME*Emperor ME Dreams	BA Classic ME Galaxy	AP StgLayr SP Alaska	SC Angelic SP Flash	SC Jupiter SP Skylane	SC Gizmo SP Arpegg	SC AeroPhc SP:Polydor	CH Itopian DR Mixed
11	Orchestra	ST*Chestra ME*BigNeck	ST*Concert BR TrmpSec	ST Quartz BR FrHorns	ST Pizza BR Azen 16	ST Rosin WN Clarine	CH Itopian SC Angelic	CH Vespers DR Perc	CH Nebula DR Kits
12	Baroque	ST Quartz off	SP Hrps Pd off	ST*Concert off	ST Pizza off	off off	off off	off off	off off
13	Wind Ensemble	WN Clarine EP GrnDual	WN Tenor BA Fretles	WN Alto off	WN Soprano off	WN PanPipe off	PL 12Strng off	ST Pizza DR Perc	SC Heretic DR Kits
14	Tropical	PC Tahit BR!TrmpSec	BA Picked WN PanPipe	EP BellRng WN!Soprano	SC Heretic OR BookerB	PC Balan off	PC Cloche off	PC Marimba DR Perc	PC Vibes DR Kits
15	Ethnican	PC Berim ME*Asia	BA Classic ME Isis	EP:NiteHwk ME*Phantom	SC Tanjein ME ZoZoid	PC Balan ME*Thusian	PC MusicBx ME 5thsMan	PC:Marimba DR Perc	WN PanPipe DR Kits
16	Folk	PL!Steel6 off	BA Upright off	AP Concert off	PL 12Strng off	WN Clarine off	WN PanPipe off	off DR Perc	off DR Kits

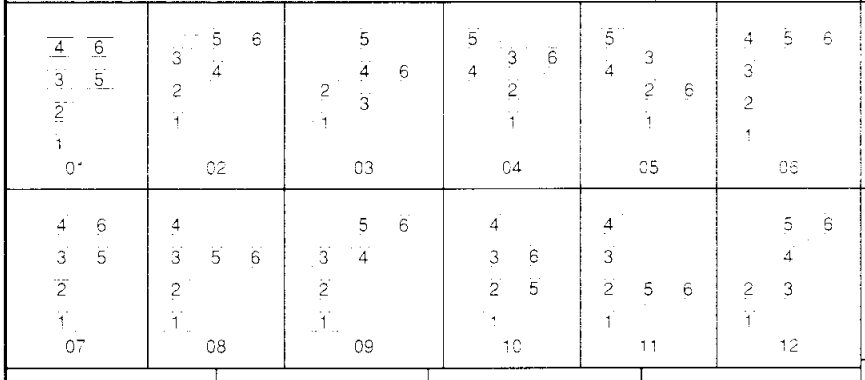
AFM Element Edit Reference



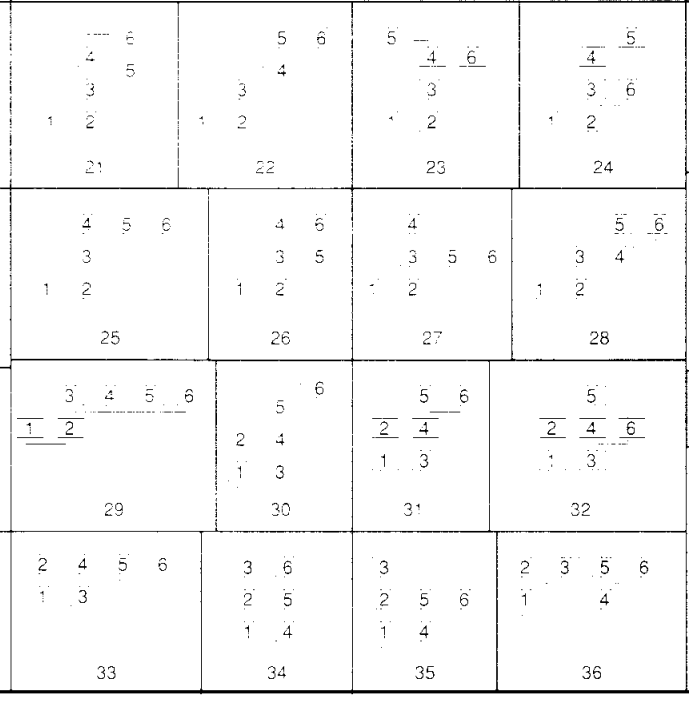
AFM element edit jobs

	1. Algorithm		#234
❶	F1	(Form)	#231
❷	F2	(Exir)	#232
❸	F3	(Inpt)	#233
❹	2. Oscilator		#235
❺	3. AFM EG		#236...240
❻	4. AFM operator output		#241...242
	5. AFM sensitivity		#243
	6. AFM LFO		
❼	F1	(Main)	#244
❽	F2	(Sub)	#245
❾	7. AFM pitch EG		#246...247
	8. AFM filter		#248
❿	F1	Cutoff frequency	#249
⓫	F2	Cutoff scaling	#250...251
⓬	F3	Cutoff EG	#253...255

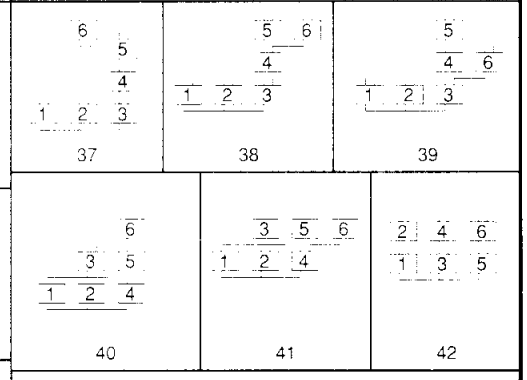
One carrier



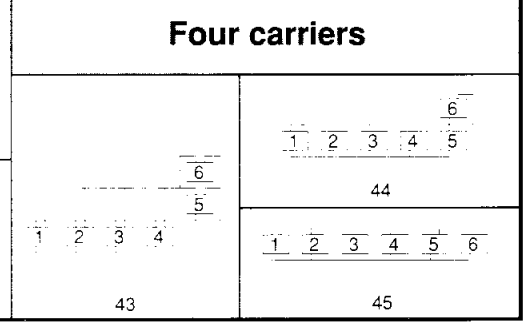
Two carriers



Three carriers

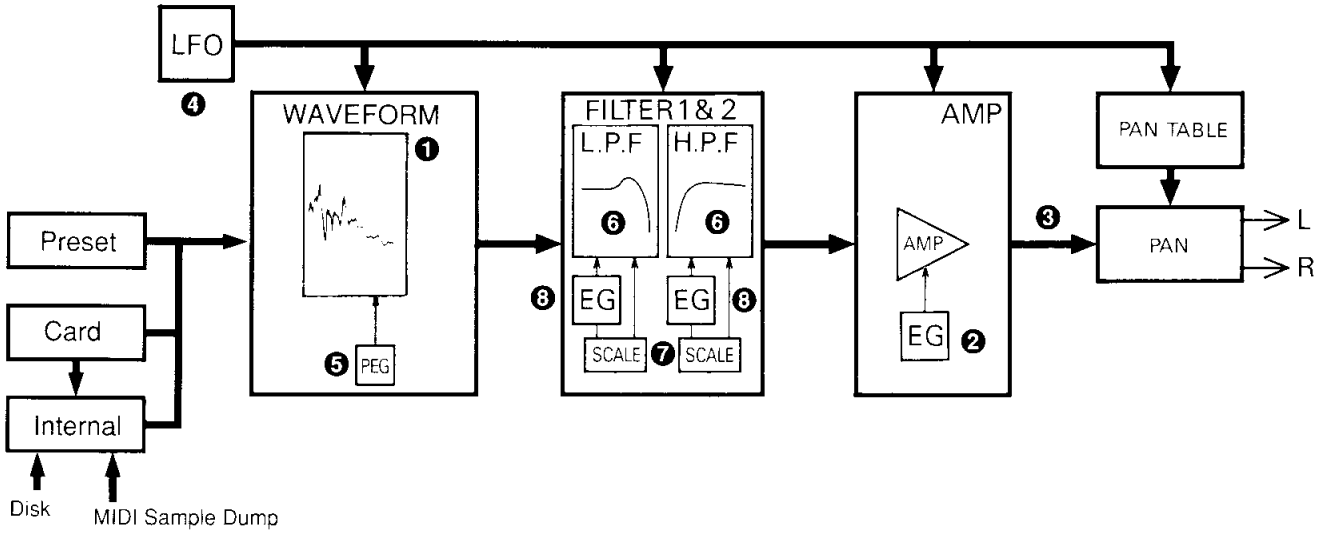


Four carriers



YAMAHA SY99

AWM Element Edit Reference



AWM element edit jobs

1	1. AWM Waveform Set		#257
2	2. AWM Amplitude EG		#258
3	3. AWM Output		#259
	4. AWM Sensitivity		#260
4	5. AWM LFO		#261
5	6. AWM Pitch EG		#262...263
	7. AWM Filter Set		#264
6	F1	Cutoff frequency	#265
7	F2	Cutoff scaling	#266...267
8	F3	Cutoff EG	#268...271

AWM2 Waveform list

Preset 1

1	Piano	40	Celesta	79	EG Harm1	118	Ride
2	Trumpet	41	Harpsi	80	EG Harm2	119	Choke
3	MuteTp 1	42	Pipe Wv	81	EG Mute	120	Claps 1
4	MuteTp 2	43	AnlgBrs1	82	EG Comp	121	Claps 2
5	Horn	44	AnlgBrs2	83	EG Dist	122	Cowbell1
6	Fluget	45	AnlgBrs3	84	EG Pluk1	123	Cowbell2
7	Trombone	46	Pad 1	85	EG Pluk2	124	Tambrn
8	Tuba	47	Pad 2	86	BD 1	125	Shaker
9	Brass	48	AnlgBass	87	BD 2	126	FngrSnap
10	BrsFall	49	FrtlsSyn	88	BD 3	127	AnlgPerc
11	Tenor1	50	Chorus	89	BD 4	128	NoisePrc
12	Tenor2	51	Chorus L	90	BD 5	129	Scratch
13	Alto Sax	52	Chorus R	91	BD 6	130	Agogo
14	Baritone	53	Itopia	92	BD 7	131	Berimbau
15	Soprano	54	Choir	93	BD 8	132	Bongo
16	Tenors	55	OohChoir	94	SD 1	133	Cabasa
17	Flute	56	Vibe	95	SD 2	134	Cga Hi
18	Clarinet	57	Marimba	96	SD 3	135	CgaHiSlp
19	Piccolo	58	Tubular	97	SD 4	136	Cga Lo
20	Reed Wv	59	Xylophon	98	SD 5	137	CgaLoSlp
21	Basoon	60	Glocken	99	SD 6	138	Clave
22	Recorder	61	SteelDrm	100	SD 7	139	Guiro 1
23	MtReedWv	62	HandBell	101	SD 8	140	Guiro 2
24	PanFlute	63	Shamisen	102	SD 9	141	Maracas
25	Violin	64	Koto	103	SD Side	142	SD roll
26	Cello	65	Harp	104	Tom 1	143	Tabla Hi
27	ContraBs	66	Sitar	105	Tom 2	144	Tabla Lo
28	Pizz	67	E.Bass 1	106	Tom 3	145	Temple
29	SectPizz	68	E.Bass 2	107	Tom 4	146	Timbale1
30	Strings1	69	E.Bass 3	108	Tom 5	147	Timbale2
31	Strings2	70	ThmpBass	109	Tom 6	148	Timpani
32	StringsL	71	SlapBass	110	HH foot	149	Whisle
33	StringsR	72	Fretless	111	HH light	150	Belltree
34	Organ 1	73	WoodBass	112	HH mid	151	BDs Wv
35	Organ 2	74	GtrSteel	113	HH heavy	152	SDs Wv
36	E.P.Wv1	75	GtrNylon	114	HH open	153	Toms Wv
37	E.P.Wv2	76	12string	115	HHclAnlg	154	CymbalWv
38	Clavi 1	77	EG Sng1	116	HHopAnlg	155	Drums Wv
39	Clavi 2	78	EG Humbk	117	Crash		

Preset 2

1	Piano Np	29	Typist	57	DigiVox2	85	Stuff 20
2	E.P Np	30	BellRing	58	DigiVox3	86	Stuff 21
3	Vibe Np	31	SeqLatin	59	DigiVox4	87	Stuff 22
4	DmpPiano	32	EleMagic	60	DigiVox5	88	Stuff 23
5	Bottle 1	33	Vox Bell	61	Pluse 10	89	Stuff 24
6	Bottle 2	34	Mellow	62	Pluse 25	90	Stuff 25
7	Bottle 3	35	BigSyn L	63	Pluse 50	91	Stuff 26
8	Tube	36	BigSyn R	64	Tri	92	Stuff 27
9	Vocal Ga	37	VoxGrace	65	DigiWild	93	Stuff 28
10	Vocal Ba	38	Cry Bell	66	Stuff 1	94	Stuff 29
11	Sax tran	39	Voices	67	Stuff 2	95	Stuff 30
12	Bow tran	40	AnlgSaw1	68	Stuff 3	96	Stuff 31
13	Blub	41	AnlgSaw2	69	Stuff 4	97	Stuff 32
14	Tear	42	CS Saw	70	Stuff 5	98	Stuff 33
15	Bamboo	43	CS Sqr	71	Stuff 6	99	Stuff 34
16	Cup Echo	44	Digital1	72	Stuff 7	100	Stuff 35
17	Digi Atk	45	Digital2	73	Stuff 8	101	Stuff 36
18	Temp Ra	46	Digital3	74	Stuff 9	102	Stuff 37
19	Giri	47	Digital4	75	Stuff 10	103	Stuff 38
20	Water	48	Digital5	76	Stuff 11	104	Stuff 39
21	Steam	49	Digital6	77	Stuff 12	105	Stuff 40
22	Narrow	50	Digital7	78	Stuff 13	106	Stuff 41
23	Airy	51	Digital8	79	Stuff 14	107	Stuff 42
24	Styroll	52	Digital9	80	Stuff 15	108	Stuff 43
25	Noise	53	Digit 10	81	Stuff 16	109	Stuff 44
26	Bell Mix	54	Digit 11	82	Stuff 17	110	Stuff 45
27	Haaa	55	Digit 12	83	Stuff 18	111	Stuff 46
28	OhAttack	56	DigiVox1	84	Stuff 19	112	Stuff 47

SY99

JOB TABLE(Voice & Multi)

VOICE PLAY MODE page #100

Voice Directory	page #101	
Controller View	#102	

VOICE EDIT MODE

Voice Mode		#200
Voice Common Data		#201
01. Element level		#202
02. Element detune		#203
03. Element note shift		#204
04. Element note limit		#205
05. Element velocity limit		#206
06. Element dynamic pan		#207
07. Output group select		#208
08. Random pitch		#209
09. Portamento		#210
10. Effect set		#212
01. Effect mode select		#213
02. Effect send		#219
03. Effect 1 parameter	01~05	#214
	06~10	#215
04. Effect 2 parameter	01~05	#216
	06~10	#217
05. Effect control		#218
11. Micro tuning set		#221
01. Micro tuning edit		#222
02. Micro tuning data		#223
03. Micro tuning name		#224
12. Controller set	Pitch bend	#225
	After touch	#226
	Modulation depth	#226
	Pan control	#227
	Other	#228
13. Voice name		#229
15. Initialize voice		——
16. Recall voice		——

Drum Set Data		#272
01. Voice volume		#273
02. Wave data set		#274
03. Effect set		#212~#218・#220
04. Controller set		#275
05. Voice name		#229
07. Initialize voice		——
08. Recall voice		——

AFM Element Data		#230
01. AFM Algorithm	Form	#231
	External in	#232
	Operator input	#233
	Graphic	#234
02. AFM Oscillator		#235
03. AFM Operator EG	Each Rate	#236
	Each Level	#237
	All Rate	#238
	All Level	#239
	All Keyoff	#240
04. AFM Operator output	Each	#241
	All	#242
05. AFM Sensitivity		#243
06. AFM LFO	Main	#244
	Sub	#245
07. AFM Pitch EG	Switch	#246
	EG	#247
08. AFM Filter Set		#248
01. Cutoff frequency		#249
02. Cutoff scaling	Flt 1	#250
	Flt 2	#251
03. Cutoff EG	Flt 1 Rate	#252
	Flt 1 Level	#253
	Flt 2 Rate	#254
	Flt 2 Level	#255
15. Initialize AFM Element		——
16. Recall voice		——

AWM2 Element Date		#256
02. AWM Waveform set		#257
03. AWM EG		#258
04. AWM Output		#259
05. AWM Sensitivity		#260
06. AWM LFO		#261
07. AWM Pitch EG	Data	#262
	EG	#263
08. AWM Filter Set		#264
01. Cutoff frequency		#265
02. Cutoff scaling	Flt 1	#266
	Flt 2	#267
03. Cutoff EG	Flt 1 Rate	#268
	Flt 1 Level	#269
	Flt 2 Rate	#270
	Flt 2 Level	#271
15. Initialize AWM Element		——
16. Recall voice		——

MULTI PLAY MODE page #300

Multi Directory	#301

MULTI EDIT MODE #400

01. Voice select		#401
Edit (VOICE EDIT MODE)		#500~
02. Voice volume	1~8ch.	#402
	9~16ch.	#403
03. Voice tuning	1~8ch.	#404
	9~16ch.	#405
04. Voice note shift	1~8ch.	#406
	9~16ch.	#407
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SY99

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YAMAHA

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P.O.Box 1, Hamamatsu, Japan

VM53180 JCAHR8ITP6.2ITP Printed in Japan