* Messages for which [model name] is indicated are applicable only to that specific model.

1. Receive data

■Channel Voice Messages

●Note off

Status	2nd byte	3rd byte
8nH	kkH	vvH
9nH	kkH	00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)
kk = note number: 00H-7FH (0-127)
vv = note off velocity: 00H-7FH (0-127)

* For Drum Parts, these messages are received when Rx.NOTE OFF = ON for each Instrument.
* The velocity values of Note Off messages are ignored.

●Note on

Status	2nd bytes	3rd byte
9nH	kkH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
kk = note number: 00H-7FH (0-127)
vv = note on velocity: 01H-7FH (1-127)

* Not received when Rx.NOTE MESSAGE = OFF. (Initial value is ON)
* For Drum Parts, not received when Rx.NOTE ON = OFF for each Instrument.

●Polyphonic Key Pressure

Status	2nd bytes	3rd byte
AnH	kkH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
kk = note number: 00H-7FH (0-127)
vv = key pressure: 00H-7FH (0-127)

* Not received when Rx.POLY PRESSURE (PAf) = OFF. (Initial value is ON)
* The resulting effect is determined by System Exclusive messages. With the initial settings, there will be no effect.

●Control Change

* When Rx.CONTROL CHANGE = OFF, all control change messages except for Channel Mode messages will be ignored.
* The value specified by a Control Change message will not be reset even by a Program Change, etc.

❍Bank Select (Controller number 0, 32)

Status	2nd bytes	3rd byte
BnH	00H	mmH
BnH	20H	llH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm, ll = Bank number: 00H, 00H-7FH, 7FH (bank.1-bank.16384),
Initial Value = 00 00H (bank.1)

* Not received when Rx.BANK SELECT = OFF.
* "Rx.BANK SELECT" is set to OFF by "GM1 System On," and Bank Select message will be ignored.
* "Rx.BANK SELECT" is set to ON by "GM2 System On."
* "Rx.BANK SELECT" is set to ON by power-on Reset or by receiving "GS RESET."
* When Rx.BANK SELECT LSB = OFF, Bank number LSB (llH) will be handled as 00H regardless of the received value. However, when sending Bank Select messages, you have to send both the MSB (mmH) and LSB (llH, the value should be 00H) together.
* Bank Select processing will be suspended until a Program Change message is received.
* The GS format "Variation number" is the value of the Bank Select MSB (Controller number 0) expressed in decimal.
* Some other GS devices do not recognize the Bank Select LSB (Controller number 32).

❍Modulation (Controller number 1)

Status	2nd bytes	3rd byte
BnH	01H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Modulation depth: 00H-7FH (0-127)

* Not received when Rx.MODULATION = OFF. (Initial value is ON)
* The resulting effect is determined by System Exclusive messages. With the initial settings, this is Pitch Modulation Depth.

❍Portamento Time (Controller number 5)

Status	2nd bytes	3rd byte
BnH	05H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Portamento Time: 00H-7FH (0-127), Initial value = 00H (0)

* This adjusts the rate of pitch change when Portamento is ON or when using the Portamento Control. A value of 0 results in the fastest change.

❍Data Entry (Controller number 6, 38)

Status	2nd bytes	3rd byte
BnH	06H	mmH
BnH	26H	llH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm, ll = the value of the parameter specified by RPN/NRPN
mm = MSB, ll = LSB

❍Volume (Controller number 7)

Status	2nd bytes	3rd byte
BnH	07H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Volume: 00H-7FH (0-127), Initial Value = 64H (100)

* Volume messages are used to adjust the volume balance of each Part.
* Not received when Rx.VOLUME = OFF. (Initial value is ON)

❍Pan (Controller number 10)

Status	2nd bytes	3rd byte
BnH	0AH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = pan: 00H-40H-7FH (Left-Center-Right), Initial Value = 40H (Center)

* For Rhythm Parts, this is a relative adjustment of each Instrument's pan setting.
* Some Tones are not capable of being panned all the way to the left or right.
* Not received when Rx.PANPOT = OFF. (Initial value is ON)

❍Expression (Controller number 11)

Status	2nd bytes	3rd byte
BnH	0BH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Expression: 00H-7FH (0-127), Initial Value = 7FH (127)

* This adjusts the volume of a Part. It can be used independently from Volume messages. Expression messages are used for musical expression within a performance; e.g., expression pedal movements, crescendo and decrescendo.
* Not received when Rx.EXPRESSION = OFF. (Initial value is ON)

❍Hold 1 (Controller number 64)

Status	2nd bytes	3rd byte
BnH	40H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127)

* Not received when Rx.HOLD1 = OFF. (Initial value is ON)

❍**Portamento (Controller number 65)**

Status	2nd bytes	3rd byte
BnH	41H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127) 0-63 = OFF, 64-127 = ON

* Not received when Rx.PORTAMENTO = OFF. (Initial value is ON)

❍**Sostenuto (Controller number 66)**

Status	2nd bytes	3rd byte
BnH	42H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127) 0-63 = OFF, 64-127 = ON

* Not received when Rx.SOSTENUTO = OFF. (Initial value is ON)

❍**Soft (Controller number 67)**

Status	2nd bytes	3rd byte
BnH	43H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127) 0-63 = OFF, 64-127 = ON

* Not received when Rx.SOFT = OFF. (Initial value is ON)
* Some Tones will not exhibit any change.

❍**Filter Resonance (Timbre/Harmonic Intensity) (Controller number 71)**

Status	2nd byte	3rd byte
BnH	47H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv= Resonance value (relative change): 00H-7FH (-64 - 0 - +63),
Initial value = 40H (no change)

* Some Tones will not exhibit any change.

❍**Release Time (Controller number 72)**

Status	2nd byte	3rd byte
BnH	48H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Release Time value (relative change) : 00H-7FH (-64 - 0 - +63),
Initial value = 40H (no change)

* Some Tones will not exhibit any change.

❍**Attack time (Controller number 73)**

Status	2nd byte	3rd byte
BnH	49H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Attack time value (relative change) : 00H-7FH (-64 - 0 - +63),
Initial value=40H (no change)

* Some Tones will not exhibit any change.

❍**Cutoff (Controller number 74)**

Status	2nd byte	3rd byte
BnH	4AH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Cutoff value (relative change) : 00H-7FH (-64 - 0 - +63),
Initial value = 40H (no change)

* Some Tones will not exhibit any change.

❍**Decay Time (Controller number 75)**

Status	2nd byte	3rd byte
BnH	4BH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Decay Time value (relative change) : 00H-7FH (-64 - 0 - +63),
Initial value = 40H (no change)

* Some Tones will not exhibit any change.

❍**Vibrato Rate (Controller number 76)**

Status	2nd byte	3rd byte
BnH	4CH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Vibrato Rate value (relative change) : 00H-7FH(-64 - 0 - +63),
Initial value = 40H (no change)

* Some Tones will not exhibit any change.

❍**Vibrato Depth (Controller number 77)**

Status	2nd byte	3rd byte
BnH	4DH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Vibrato Depth Value (relative change) : 00H-7FH(-64 - 0 - +63),
Initial Value = 40H (no change)

* Some Tones will not exhibit any change.

❍**Vibrato Delay (Controller number 78)**

Status	2nd byte	3rd byte
BnH	4EH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Vibrato Delay value (relative change) : 00H-7FH(-64 - 0 - +63),
Initial value=40H (no change)

* Some Tones will not exhibit any change.

❍**Portamento control (Controller number 84)**

Status	2nd bytes	3rd byte
BnH	54H	kkH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
kk = source note number: 00H-7FH (0-127)

* A Note-on received immediately after a Portamento Control message will change continuously in pitch, starting from the pitch of the Source Note Number.
* If a voice is already sounding for a note number identical to the Source Note Number, this voice will continue sounding (i.e., legato) and will, when the next Note-on is received, smoothly change to the pitch of that Note-on.
* The rate of the pitch change caused by Portamento Control is determined by the Portamento Time value.

Example 1.

On MIDI	Description	Result
90 3C 40	Note on C4	C4 on
B0 54 3C	Portamento Control from C4	no change (C4 voice still sunding)
90 40 40	Note on E4	glide from C4 to E4
80 3C 40	Note off C4	no change
80 40 40	Note off E4	E4 off

Example 2.

On MIDI	Description	Result
B0 54 3C	Portamento Control from C4	no change
90 40 40	Note on E4	E4 is played with glide from C4 to E4
80 40 40	Note off E4	E4 off

❍**Effect 1 (Reverb Send Level) (Controller number 91)**

Status	2nd bytes	3rd byte
BnH	5BH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127), Initial Value = 28H (40)

* This message adjusts the Reverb Send Level of each Part.

❍**Effect 3 (Chorus Send Level) (Controller number 93)**

Status	2nd bytes	3rd byte
BnH	5DH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127), Initial Value = 00H (0)

* This message adjusts the Chorus Send Level of each Part.

❍NRPN MSB/LSB (Controller number 98, 99)

Status	2nd bytes	3rd byte
BnH	63H	mmH
BnH	62H	llH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm = upper byte (MSB) of the parameter number specified by NRPN
ll = lower byte (LSB) of the parameter number specified by NRPN

* Rx.NRPN is set to OFF by power-on reset or by receiving "GM1 System On" or "GM2 System On," and NRPN message will be ignored. NRPN message will be received when Rx.NRPN = ON, or by receiving "GS RESET."
* The value set by NRPN will not be reset even if Program Change or Reset All Controllers is received.

NRPN

The NRPN (Non Registered Parameter Number) message allows an extended range of control changes to be used.
To use these messages, you must first use NRPN MSB and NRPN LSB messages to specify the parameter to be controlled, and then use Data Entry messages to specify the value of the specified parameter. Once an NRPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN Number = 7FH/7FH) when you have finished setting the value of the desired parameter. Refer to Section 4. Supplementary material "Examples of actual MIDI messages" <Example 4> (p.14). On the GS devices, Data entry LSB (llH) of NRPN is ignored, so it is no problem to send Data entry MSB (mmH) only (without Data entry LSB).

On this instrument, NRPN can be used to modify the following parameters.

NRPN MSB LSB	Data entry MSB	Description
01H 08H	mmH	Vibrato Rate (relative change)
		mm: 0EH-40H-72H (-50 - 0 - +50)
01H 09H	mmH	Vibrato Depth (relative change)
		mm: 0EH-40H-72H (-50 - 0 - +50)
01H 0AH	mmH	Vibrato Delay (relative change)
		mm: 0EH-40H-72H (-50 - 0 - +50)
01H 20H	mmH	TVF Cutoff Frequency (relative change)
		mm: 0EH-40H-72H (-50 - 0 - +50)
01H 21H	mmH	TVF Resonance (relative change)
		mm: 0EH-40H-72H (-50 - 0 - +50)
01H 63H	mmH	TVF&TVA Envelope Attack Time (relative change)
		mm: 0EH-40H-72H (-50 - 0 - +50)
01H 64H	mmH	TVF&TVA Envelope Decay Time (relative change)
		mm: 0EH-40H-72H (-50 - 0 - +50)
01H 66H	mmH	TVF&TVA Envelope Release Time (relative change)
		mm: 0EH-40H-72H (-50 - 0 - +50)
18H rrH	mmH	Drum Instrument Pitch Coarse (relative change)
		rr : key number of drum instrument
		mm: 00H-40H-7FH (-63 - 0 - +63 semitone)
1AH rrH	mmH	Drum Instrument TVA Level (absolute change)
		rr : key number of drum instrument
		mm: 00H-7FH (zero-maximum)
1CH rrH	mmH	Drum Instrument Panpot (absolute change)
		rr : key number of drum instrument
		mm: 00H, 01H-40H-7FH (Ramdom, Left-Center-Right)
1DH rrH	mmH	Drum Instrument Reverb Send Level (absolute change)
		rr : key number of drum instrument
		mm: 01H-7FH (zero-maximum)
1EH rrH	mmH	Drum Instrument Chorus Send Level (absolute change)
		rr : key number of drum instrument
		mm: 01H-7FH (zero-maximum)

* Parameters marked "relative change" will change relatively to the preset value(40H). Even among different GS devices, "relative change" parameters may sometimes differ in the way the sound changes or in the range of change.
* Parameters marked "absolute change" will be set to the absolute value of the parameter, regardless of the preset value.
* Data entry LSB (llH) is ignored.

❍RPN MSB/LSB (Controller number 100, 101)

Status	2nd bytes	3rd byte
BnH	65H	mmH
BnH	64H	llH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm = upper byte (MSB) of parameter number specified by RPN
ll = lower byte (LSB) of parameter number specified by RPN

* Not received when Rx.RPN = OFF. (Initial value is ON)
* The value specified by RPN will not be reset even by messages such as Program Change or Reset All Controller.

RPN

The RPN (Registered Parameter Number) messages are expanded control changes, and each function of an RPN is described by the MIDI Standard.
To use these messages, you must first use RPN MSB and RPN LSB messages to specify the parameter to be controlled, and then use Data Entry messages to specify the value of the specified parameter. Once an RPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN Number = 7FH/7FH) when you have finished setting the value of the desired parameter. Refer to Section 4. "Examples of actual MIDI messages" <Example 4> (p. 14).

On this instrument, RPN can be used to modify the following parameters.

RPN MSB LSB	Data entry MSB LSB	Explanation
00H 00H	mmH ---	Pitch Bend Sensitivity
		mm: 00H-18H (0-24 semitones), Initial Value = 02H (2 semitones)
		ll : ignored (processed as 00h)
		specify up to 2 octaves in semitone steps
00H 01H	mmH llH	Master Fine Tuning
		mm, ll : 00 00H - 40 00H - 7F 7FH (-100 - 0 - +99.99 cents),
		Initial Value = 40 00H (0 cent)
		ll : ignored (processed as 00h)
		specify up to 2 octaves in semitone steps
		Refer to 4. Supplementary material, "About tuning" (p.15)
00H 02H	mmH ---	Master Coarse Tuning
		mm : 28H - 40H - 58H (-24 - 0 - +24 semitones),
		Initial Value = 40H (0 cent)
		ll : ignored (processed as 00h)
00H 05H	mmH llH	Modulation Depth Range
		mm : 00H - 04H (0 - 4 semitones)
		ll : 00H - 7FH (0 - 100 cents) 100/128 Cent/Value
7FH 7FH	--- ---	RPN null
		Set condition where RPN and NRPN are unspecified. The data entry messages after set RPN null will be ignored. (No Data entry messages are required after RPN null).
		Settings already made will not change.
		mm, ll : ignored

●Program Change

Status	2nd bytes
CnH	ppH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
pp = Program number: 00H-7FH (prog.1-prog.128)

* Not received when Rx.PROGRAM CHANGE = OFF. (Initial value is ON)
* After a Program Change message is received, the sound will change beginning with the next Note-on. Voices already sounding when the Program Change message was received will not be affected.
* For Drum Parts, Program Change messages will not be received on bank numbers 129-16384 (the value of Control Number 0 is other than 0 (00H)).

●Channel Pressure

Status	2nd bytes
DnH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Channel Pressure: 00H-7FH (0-127)

* Not received when Rx.CH PRESSURE (CAf) = OFF. (Initial value is ON)
* The resulting effect is determined by System Exclusive messages. With the initial settings there will be no effect.

●Pitch Bend Change

Status	2nd byte	3rd bytes
EnH	llH	mmH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm, ll = Pitch Bend value: 00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

* Not received when Rx.PITCH BEND = OFF. (Initial value is ON)
* The resulting effect is determined by System Exclusive messages. With the initial settings the effect is Pitch Bend.

■Channel Mode Messages
●All Sounds Off (Controller number 120)

Status	2nd byte	3rd bytes
BnH	78H	00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)

* When this message is received, all currently-sounding notes on the corresponding channel will be turned off immediately.

●Reset All Controllers (Controller number 121)

Status	2nd byte	3rd bytes
BnH	79H	00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)

* When this message is received, the following controllers will be set to their reset values.

Controller	Reset value
Pitch Bend Change	±0 (Center)
Polyphonic Key Pressure	0 (off)
Channel Pressure	0 (off)
Modulation	0 (off)
Expression	127 (max)
Hold 1	0 (off)
Portamento	0 (off)
Sostenuto	0 (off)
Soft	0 (off)
RPN	unset; previously set data will not change
NRPN	unset; previously set data will not change

●Local Control (Controller number 122)

Status	2nd byte	3rd bytes
BnH	7AH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H, 7FH (0,127), 00H: Local Off, 7FH: Local On

●All Notes Off (Controller number 123)

Status	2nd byte	3rd bytes
BnH	7BH	00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)

* When All Notes Off is received, all notes on the corresponding channel will be turned off. However if Hold 1 or Sostenuto is ON, the sound will be continued until these are turned off.

●OMNI OFF (Controller number 124)

Status	2nd byte	3rd bytes
BnH	7CH	00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)

* The same processing will be carried out as when All Notes Off is received.

●OMNI ON (Controller number 125)

Status	2nd byte	3rd bytes
BnH	7DH	00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)

* OMNI ON is only recognized as "All notes off"; the Mode doesn't change (OMNI OFF remains).

●MONO (Controller number 126)

Status	2nd byte	3rd bytes
BnH	7EH	mmH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm = mono number: 00H-10H (0-16)

* The same processing will be carried out as when All Sounds Off and All Notes Off is received, and the corresponding channel will be set to Mode 4 (M = 1) regardless of the value of "mono number."

●POLY (Controller number 127)

Status	2nd byte	3rd bytes
BnH	7FH	00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)

* The same processing will be carried out as when All Sounds Off and All Notes Off is received, and the corresponding channel will be set to Mode 3.

■System Realtime Message

●Realtime Clock

Status
F8H

●Start

Status
FAH

●Continue

Status
FBH

●Stop

Status
FBH

●Active Sensing

Status
FEH

* When Active Sensing is received, the unit will begin monitoring the intervals of all further messages. While monitoring, if the interval between messages exceeds 420 ms, the same processing will be carried out as when All Sounds Off, All Notes Off and Reset All Controllers are received, and message interval monitoring will be halted.

■System Exclusive Message

Status	Data byte	Status
F0H	iiH, ddH, ..., eeH	F7H

F0H: System Exclusive Message status
ii = ID number: an ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland's manufacturer ID is 41H.
ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-realtime Messages (7EH) and Universal Realtime Messages (7FH).
dd,...,ee = data: 00H-7FH (0-127)
F7H: EOX (End Of Exclusive)

The System Exclusive Messages received by this instrument are; messages related to mode settings, Universal Realtime System Exclusive messages and Data Set (DT1).

●System exclusive messages related to mode settings

These messages are used to initialize a device to GS or General MIDI mode, or change the operating mode. When creating performance data, a "GM1 System On" message should be inserted at the beginning of a General MIDI 1 score, a "GM2 System On" message at the beginning of a General MIDI 2 score, and a "GS Reset" message at the beginning of a GS music data. Each song should contain only one mode message as appropriate for the type of data. (Do not insert two or more mode setting messages in a single song.)
"GM System On" uses Universal Non-realtime Message format. "GS Reset" uses Roland system Exclusive format "Data Set 1 (DT1)."

❍**GM1 System On**

This is a command message that resets the internal settings of the unit to the General MIDI initial state (General MIDI System-Level 1). After receiving this message, this instrument will automatically be set to the proper condition for correctly playing a General MIDI score.

Status	Data byte	Status
F0H	7EH, 7FH, 09H, 01H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (General MIDI Message)
01H	Sub ID#2 (General MIDI 1 On)
F7H	EOX (End Of Exclusive)

* When this message is received, Rx.BANK SELECT will be OFF and Rx.NRPN will be OFF.
* There must be an interval of at least 50 ms between this message and the next.

❍**GM2 System On**

This is a command message that resets the internal settings of the unit to the General MIDI initial state (General MIDI System-Level 2). After receiving this message, this instrument will automatically be set to the proper condition for correctly playing a General MIDI score.

Status	Data byte	Status
F0H	7EH, 7FH, 09H, 03H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (General MIDI Message)
03H	Sub ID#2 (General MIDI 2 On)
F7H	EOX (End Of Exclusive)

* When this message is received, this instrument will be able to receive the messages specified by General MIDI 2, and use the General MIDI 2 soundmap.
* There must be an interval of at least 50 ms between this message and the next.

❍**GM System Off**

"GM System Off" is a command message that resets the internal state of this instrument from the GM state to its native condition. This instrument will reset to the GS default state.

Status	Data byte	Status
F0H	7EH, 7FH, 09H, 02H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
09H	Sub-ID#1 (General MIDI message)
02H	Sub-ID#2 (General MIDI Off)
40H	EOX (End of exclusive)

* There must be an interval of at least 50 ms between this message and the next.

❍**GS reset**

GS Reset is a command message that resets the internal settings of a device to the GS initial state. This message will appear at the beginning of GS music data, and a GS device that receives this message will automatically be set to the proper state to correctly playback GS music data.

Status	Data byte	Status
F0H	41H, 10H, 42H, 12H, 40H, 00H, 7FH, 00H, 41H	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
10H	Device ID (dev: 00H-1FH (1-32), Initial value is 10H (17))
42H	Model ID (GS)
12H	Command ID (DT1)
40H	Address MSB
00H	Address
7FH	Address LSB
00H	Data (GS reset)
41H	Checksum
F7H	EOX (End Of Exclusive)

* When this message is received, Rx.NRPN will be ON.
* There must be an interval of at least 50 ms between this message and the next.

●**Universal Realtime System Exclusive Messages**

❍**Master volume**

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 01H, llH, mmH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control messages)
01H	Sub ID#2 (Master Volume)
llH	Master volume lower byte
mmH	Master volume upper byte
F7H	EOX (End Of Exclusive)

* The lower byte (llH) of Master Volume will be handled as 00H.

❍**Master Fine Tuning**

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 03H, llH, mmH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control)
03H	Sub ID#2 (Master Fine Tuning)
llH	Master Fine Tuning LSB
mmH	Master Fine Tuning MSB
F7H	EOX (End Of Exclusive)

mm, ll : 00 00H - 40 00H - 7F 7FH(-100 - 0 - +99.9 [cents])

❍**Master Coarse Tuning**

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 04H, llH, mmH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control)
04H	Sub ID#2 (Master Coarse Tuning)
llH	Master Coarse Tuning LSB
mmH	Master Coarse Tuning MSB
F7H	EOX (End Of Exclusive)

llH :	ignored (processed as 00H)
mmH :	28H - 40H - 58H (-24 - 0 - +24 [semitones])

●Global Parameter Control

Parameters of the Global Parameter Control are newly provided for the General MIDI 2.

○Reverb Parameters

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 05H, 01H, 01H, 01H, 01H, 01H, ppH, vvH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control)
05H	Sub ID#2 (Global Parameter Control)
01H	Slot path length
01H	Parameter ID width
01H	Value width
01H	Slot path MSB
01H	Slot path LSB (Effect 0101: Reverb)
ppH	Parameter to be controlled.
vvH	Value for the parameter.
F7H	EOX (End Of Exclusive)

pp=0	Reverb Type	
	vv = 00H	Small Room (Room1)
	vv = 01H	Medium Room (Room2)
	vv = 02H	Large Room (Room3)
	vv = 03H	Medium Hall (Hall1)
	vv = 04H	Large Hall (Hall2)
	vv = 08H	Plate (Plate)

pp=1	Reverb Time	
	vv = 00H - 7FH	0 - 127

○Chorus Parameters

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 05H, 01H, 01H, 01H, 01H, 02H, ppH, vvH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control)
05H	Sub ID#2 (Global Parameter Control)
01H	Slot path length
01H	Parameter ID width
01H	Value width
01H	Slot path MSB
02H	Slot path LSB (Effect 0102: Chorus)
ppH	Parameter to be controlled.
vvH	Value for the parameter.
F7H	EOX (End Of Exclusive)

pp=0	Chorus Type	
	vv=0	Chorus1
	vv=1	Chorus2
	vv=2	Chorus3
	vv=3	Chorus4
	vv=4	FB Chorus
	vv=5	Flanger

pp=1	Mod Rate	
	vv= 00H - 7FH	0 - 127
pp=2	Mod Depth	
	vv = 00H - 7FH	0 - 127
pp=3	Feedback	
	vv = 00H - 7FH	0 - 127
pp=4	Send To Reverb	
	vv = 00H - 7FH	0 - 127

○Channel Pressure

Status	Data byte	Status
F0H	7FH, 7FH, 09H, 01H, 0nH, ppH, rrH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (Controller Destination Setting)
01H	Sub ID#2 (Channel Pressure)
0nH	MIDI Channel (00 - 0F)
ppH	Controlled parameter
rrH	Controlled range
F7H	EOX (End Of Exclusive)

pp=0	Pitch Control	
	rr = 28H - 58H	-24 - +24 [semitones]
pp=1	Filter Cutoff Control	
	rr = 00H - 7FH	-9600 - +9450 [cents]
pp=2	Amplitude Control	
	rr = 00H - 7FH	0 - 200 [%]
pp=3	LFO Pitch Depth	
	rr = 00H - 7FH	0 - 600 [cents]
pp=4	LFO Filter Depth	
	rr = 00H - 7FH	0 - 2400 [cents]
pp=5	LFO Amplitude Depth	
	rr = 00H - 7FH	0 - 100[%]

○Controller

Status	Data byte	Status
F0H	7FH, 7FH, 09H, 03H, 0nH, ccH, ppH, rrH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (Controller Destination Setting)
03H	Sub ID#2 (Control Change)
0nH	MIDI Channel (00 - 0F)
ccH	Controller number (01 - 1F, 40 - 5F)
ppH	Controlled parameter
rrH	Controlled range
F7H	EOX (End Of Exclusive)

pp=0	Pitch Control	
	rr = 28H - 58H	-24 - +24 [semitones]
pp=1	Filter Cutoff Control	
	rr = 00H - 7FH	-9600 - +9450 [cents]
pp=2	Amplitude Control	
	rr = 00H - 7FH	0 - 200[%]
pp=3	LFO Pitch Depth	
	rr = 00H - 7FH	0 - 600 [cents]
pp=4	LFO Filter Depth	
	rr = 00H - 7FH	0 - 2400 [cents]
pp=5	LFO Amplitude Depth	
	rr = 00H - 7FH	0 - 100[%]

❍Scale/Octave Tuning Adjust

Status	Data byte	Status
F0H	7EH, 7FH, 08H, 08H, ffH, ggH, hhH, ssH...	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
08H	Sub ID#1 (MIDI Tuning Standard)
08H	Sub ID#2 (scale/octave tuning 1-byte form)
ffH	Channel/Option byte1
	bits 0 to 1 = channel 15 to 16
	bit 2 to 6 = Undefined
ggH	Channel byte2
	bits 0 to 6 = channel 8 to 14
hhH	Channel byte3
	bits 0 to 6 = channel 1 to 7
ssH	12 byte tuning offset of 12 semitones from C to B
	00H = -64 [cents]
	40H = 0 [cents] (equal temperament)
	7FH = +63 [cents]
F7H	EOX (End Of Exclusive)

❍Key-Based Instrument Controllers

Status	Data byte	Status
F0H	7FH, 7FH, 0AH, 01H, 0nH, kkH, nnH, vvH...	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
0AH	Sub ID#1 (Key-Based Instrument Control)
01H	Sub ID#2 (Controller)
0nH	MIDI Channel (00 - 0FH)
kkH	Key Number
nnH	Control Number
vvH	Value
F7H	EOX (End Of Exclusive)

nn=07H	Level	
	vv = 00H - 7FH	0 - 200[%] (Relative)
nn=0AH	Pan	
	vv = 00H - 7FH	Left - Right (Absolute)
nn=5BH	Reverb Send	
	vv = 00H - 7FH	0 - 127 (Absolute)
nn=5D	Chorus Send	
	vv = 00H - 7FH	0 - 127 (Absolute)

* This parameter effects drum instruments only.

●Universal Non-realtime System Exclusive Messages

❍Identity Request Message

Status	Data byte	Status
F0H	7FH, 10H, 06H, 01H	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
10H	Device ID
06H	Sub ID#1 (General Information)
01H	Sub ID#2 (Identity Request)
F7H	EOX (End Of Exclusive)

* Device ID = 10H or 7FH

●Data transmission

This instrument can receive the various parameters using System Exclusive messages.
The exclusive message of GS format data has a model ID of 42H and a device ID of 10H (17), and it is common to all the GS devices.

❍Data set 1 DT1

This is the message that actually performs data transmission, and is used when you wish to transmit the data.

Status	Data byte	Status
F0H	41H, 10H, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
10H	Device ID
42H	Model ID (GS)
12H	Command ID (DT1)
aaH	Address MSB: upper byte of the starting address of the transmitted data
bbH	Address: middle byte of the starting address of the transmitted data
ccH	Address LSB: lower byte of the starting address of the transmitted data
ddH	Data: the actual data to be transmitted. Multiple bytes of data are transmitted starting from the address.
:	
:	
eeH	Data
sum	Checksum
F7H	EOX (End Of Exclusive)

* The amount of data that can be transmitted at one time depends on the type of data, and data can be received only from the specified starting address and size. Refer to the Address and Size given in Section 3 (p.9).

* Data larger than 128 bytes must be divided into packets of 128 bytes or less. If "Data Set 1" is transmitted successively, there must be an interval of at least 40 ms between packets.

* Regarding the checksum please refer to section 4 (p.14).

2. Transmit data

Arranger data can not be transmitted.

■Channel Voice Messages

●Note off

Status	2nd byte	3rd byte
8nH	kkH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
kk = note number: 00H-7FH (0-127)
vv = note off velocity: 00H-7FH (0-127)

* Note off message is sent out with the velocity of 40H.

●Note on

Status	2nd bytes	3rd byte
9nH	kkH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
kk = note number: 00H-7FH (0-127)
vv = note on velocity: 01H-7FH (1-127)

●Control Change

❍Bank Select (Controller number 0, 32)

Status	2nd bytes	3rd byte
BnH	00H	mmH
BnH	20H	llH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm, ll = Bank number: 00H, 00H-7FH, 7FH (bank.1-bank.16384)

❍Volume (Controller number 7)

Status	2nd bytes	3rd byte
BnH	07H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Volume: 00H-7FH (0-127)

❍Expression (Controller number 11)

Status	2nd bytes	3rd byte
BnH	0BH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Expression: 00H-7FH (0-127)

❍Hold 1 (Controller number 64)

Status	2nd bytes	3rd byte
BnH	40H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127)

❍Sostenuto (Controller number 66)

Status	2nd bytes	3rd byte
BnH	42H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127) 0-63 = OFF, 64-127 = ON

❍Soft (Controller number 67)

Status	2nd bytes	3rd byte
BnH	43H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127)

❍Effect 1 (Reverb Send Level) (Controller number 91)

Status	2nd bytes	3rd byte
BnH	5BH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127)

❍Effect 3 (Chorus Send Level) (Controller number 93)

Status	2nd bytes	3rd byte
BnH	5DH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127)

●Program Change

Status	2nd bytes
CnH	ppH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
pp = Program number: 00H-7FH (prog.1-prog.128)

●Pitch Bend Change

Status	2nd byte	3rd bytes
EnH	llH	mmH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm, ll = Pitch Bend value: 00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

■System Realtime Message

●Realtime Clock

Status
F8H

●Start

Status
FAH

●Continue

Status
FBH

●Stop

Status
FCH

●Active sensing

Status
FEH

* This will be transmitted constantly at intervals of approximately 250 ms.

■System exclusive messages

❍Identity Reply

Status	Data byte	Status
F0H	7EH, 10H, 06H, 02H, 41H, 42H, 00H, aaH, bbH, ccH, ddH, eeH, ffH	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (universal non-realtime message)
10H	Device ID (use the same as the device ID of Roland)
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
42H	Device family code (LSB)
00H	Device family code (MSB)
00H	Device family number code (LSB)
0EH	Device family number code (MSB)
01H	Software revision level
01H	Software revision level
00H	Software revision level
00H	Software revision level
F7H	EOX (End of Exclusive)

3. Parameter Address Map (Model ID = 42H)

This map indicates address, size, Data (range), Parameter, Description, and Default Value of parameters which can be transferred using and "Data set 1 (DT1)."
All the numbers of address, size, Data, and Default Value are indicated in 7-bit Hexadecimal-form.

■Address Block map

An outlined address map of the Exclusive Communication is as follows;

```
Address (H)       Block
40 00 00     +----------------------------------+
             |  SYSTEM PARAMETERS               |Individual
40 01 3F     +----------------------------------+
40 1x 00     +----------------------------------+
             |  PART PARAMETERS                 |Individual
             |     (x = 0-F)                    |
40 2x 5A     +----------------------------------+
41 m0 00     +----------------------------------+
             |  SRUM SETUP PARAMETERS           |Individual
             |     (m = 0-1)                    |
41 m8 7F     +----------------------------------+
48 00 00     +----------------------------------+
             |  SYSTEM PARAMETERS               |Bulk
48 01 10     +----------------------------------+
             |  PART PARAMETERS                 |Bulk
48 1D 0F     +----------------------------------+
49 m0 00     +----------------------------------+
             |  DRUM SETUP PARAMETER            |Bulk
             |     (m = 0-1)                    |
49 mE 17     +----------------------------------+
```

There are two ways in which GS data is transmitted: Individual Parameter Transmission in which individual parameters are transmitted one by one, and Bulk Dump Transmission in which a large amount of data is transmitted at once.

■Individual Parameters

Individual Parameter Transmission transmits data (or requests data) for one parameter as one exclusive message (one packet of "F0 ..... F7").
In Individual Parameter Transmission, you must use the Address and Size listed in the following "Parameter Address Map." Addresses marked at "#" cannot be used as starting addresses.

●System Parameters

Parameters related to the system of the device are called System Parameters.

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 00 00	00 00 04	0018-07E8	MASTER TUNE	-100.0 - +100.0 [cent]	00 04 00 00	0 [cent]
40 00 01#				Use nibblized data.		
40 00 02#						
40 00 03#						

*   Refer to section 4. Supplementary material, "About tuning" (p. 15).

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 00 04	00 00 01	00-7F	MASTER VOLUME	0-127	7F	127
				(= F0 7F 7F 04 01 00 vv F7)		
40 00 05	00 00 01	28-58	MASTER KEY-SHIFT	-24 - +24 [semitones]	40	0 [semitones]
40 00 06	00 00 01	01-7F	MASTER PAN	-63 (LEFT) - +63 (RIGHT)	40	0 (CENTER)
40 00 7F	00 00 01	00	MODE SET	00 = GS Reset,		
				127 = Exit GS mode (Rx. only)		

*   Refer to "System exclusive messages related to mode settings" (p.4).

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 01 10	00 00 10	00-40	VOICE RESERVE	Part 10 (Drum Part)	02	2
40 01 11#				Part 1	06	6
40 01 12#				Part 2	02	2
40 01 13#				Part 3	02	2
40 01 14#				Part 4	02	2
40 01 15#				Part 5	02	2
40 01 16#				Part 6	02	2
40 01 17#				Part 7	02	2
40 01 18#				Part 8	02	2
40 01 19#				Part 9	02	2
40 01 1A#				Part 11	00	0
40 01 :#				:		
40 01 1F#				Part 16	00	0

*   The sum total of voices in the voice reserve function must be equal to or less than the number of the maximum polyphony. The maximum polyphony of this instrument is 128. For compatibility with other GS models, it is recommended that the maximum polyphony be equal or less than 24.

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 01 30	00 00 01	00-07	REVERB MACRO	00: Room 1	04	Hall 2
				01: Room 2		
				02: Room 3		
				03: Hall 1		
				04: Hall 2		
				05: Plate		
				06: Delay		
				07: Panning Delay		
40 01 31	00 00 01	00-07	REVERB CHARACTER	0-7	04	4
40 01 32	00 00 01	00-07	REVERB PRE-LPF	0-7	00	0
40 01 33	00 00 01	00-7F	REVERB LEVEL	0-127	40	64
40 01 34	00 00 01	00-7F	REVERB TIME	0-127	40	64
40 01 35	00 00 01	00-7F	REVERB DELAY FEEDBACK	0-127		000

*   REVERB MACRO is a macro parameter that allows global setting of reverb parameters. When you select the reverb type with REVERB MACRO, each reverb parameter will be set to the most suitable value.
*   REVERB CHARACTER is a parameter that changes the reverb algorithm. The value of REVERB CHARACTER corresponds to the REVERB MACRO of the same number.

Address	Size	Data	Parameter	Description	Default	
40 01 38	00 00 01	00-07	CHORUS MACRO	00: Chorus 1	02	Chorus 3
				01: Chorus 2		
				02: Chorus 3		
				03: Chorus 4		
				04: Feedback Chorus		
				05: Flanger		
				06: Short Delay		
				07: Short Delay (FB)		
40 01 39	00 00 01	00-07	CHORUS PRE-LPF	0-7	00	0
40 01 3A	00 00 01	00-7F	CHORUS LEVEL	0-127	40	64
40 01 3B	00 00 01	00-7F	CHORUS FEEDBACK	0-127	08	8
40 01 3C	00 00 01	00-7F	CHORUS DELAY	0-127	50	80
40 01 3D	00 00 01	00-7F	CHORUS RATE	0-127	03	3
40 01 3E	00 00 01	00-7F	CHORUS DEPTH	0-127	13	19
40 01 3F	00 00 01	00-7F	CHORUS SEND LEVEL TO REVERB	0-127	00	0

* CHORUS MACRO is a macro parameter that allows global setting of chorus parameters. When you use CHORUS MACRO to select the chorus type, each chorus parameter will be set to the most suitable value.

Address	Size	Data	Parameter	Description	Default	
40 03 00	00 00 02	00 - 7F	EFX TYPE (MSB, LSB)	00 00 - 7F 7F	00 01	Thru

* Refer to EFX Type Table (p. 16)
* This EFX Type is current EFX type of this system. When part EFX type is same to this EFX type, that part connect to EFX.

Address	Size	Data	Parameter
40 03 03	00 00 01	00 - 7F	EFX Parameter 1
40 03 04	00 00 01	00 - 7F	EFX Parameter 2
40 03 05	00 00 01	00 - 7F	EFX Parameter 3
40 03 06	00 00 01	00 - 7F	EFX Parameter 4
40 03 07	00 00 01	00 - 7F	EFX Parameter 5
40 03 08	00 00 01	00 - 7F	EFX Parameter 6
40 03 09	00 00 01	00 - 7F	EFX Parameter 7
40 03 0A	00 00 01	00 - 7F	EFX Parameter 8
40 03 0B	00 00 01	00 - 7F	EFX Parameter 9
40 03 0C	00 00 01	00 - 7F	EFX Parameter 10
40 03 0D	00 00 01	00 - 7F	EFX Parameter 11
40 03 0E	00 00 01	00 - 7F	EFX Parameter 12
40 03 0F	00 00 01	00 - 7F	EFX Parameter 13
40 03 10	00 00 01	00 - 7F	EFX Parameter 14
40 03 11	00 00 01	00 - 7F	EFX Parameter 15
40 03 12	00 00 01	00 - 7F	EFX Parameter 16
40 03 13	00 00 01	00 - 7F	EFX Parameter 17
40 03 14	00 00 01	00 - 7F	EFX Parameter 18
40 03 15	00 00 01	00 - 7F	EFX Parameter 19
40 03 16	00 00 01	00 - 7F	EFX Parameter 20

* Each parameter will be changed by EFX type. Refer to EFX Parameter Map. (p. 16)

Address	Size	Data	Parameter
40 03 17	00 00 01	00 - 7F	EFX Send Level to Reverb

* Set to 0 when EFX type is changed.

Address	Size	Data	Parameter
40 03 18	00 00 01	00 - 7F	EFX Send Level to Chorus

* Set to 0 when EFX type is changed.

Address	Size	Data	Parameter	Description	Default	
40 03 1A	00 00 01	00 - 7F	EFX Depth	Dry 100% - EFX 100%	7F	
40 03 1B	00 00 01	00 - 7F	EFX Control Source 1	00: OFF	00	
				01 - 5F: Control Change No.		
				71: CAf		
				72: Bender		
40 03 1C	00 00 01	00 - 7F	EFX Control Depth 1		7F	-100% - +100%
40 03 1D	00 00 01	00 - 7F	EFX Control Source 2	*Refer to EFX Control Source 1	00	
40 03 1E	00 00 01	00 - 7F	EFX Control Depth 2		7F	-100% - +100%

* Marked #1 or #2 can be controlled by EFX CONTROL SOURCE 1 or 2.

●Part Parameters

This instrument has 16 parts. Parameters that can be set individually for each Part are called Part parameters.

If you use exclusive messages to set Part parameters, specify the address by Block number rather than Part Number (normally the same number as the MIDI channel). The Block number can be specified as one of 16 blocks, from 0 (H) to F (H).

The relation between Part number and Block number is as follows.

x...BLOCK NUMBER (0-F),
    Part 1 (MIDI ch = 1) x = 1
    Part 2 (MIDI ch = 2) x = 2
    :   : :
    Part 9 (MIDI ch = 9) x = 9
    Part10 (MIDI ch = 10) x = 0
    Part11 (MIDI ch = 11) x = A
    Part12 (MIDI ch = 12) x = B
    :   : :
    Part16 (MIDI ch = 16) x = F

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 1x 00	00 00 02	00-7F	TONE NUMBER	CC#00 VALUE 0-127	00	0
40 1x 01#		00-7F		P.C. VALUE 1-128	00	1
40 1x 02	00 00 01	00-10	Rx. CHANNEL	1-16, OFF	Same as the Part Number	
40 1x 03	00 00 01	00-01	Rx. PITCH BEND	OFF/ON	01	ON
40 1x 04	00 00 01	00-01	Rx. CH PRESSURE (CAf)	OFF/ON	01	ON
40 1x 05	00 00 01	00-01	Rx. PROGRAM CHANGE	OFF/ON	01	ON
40 1x 06	00 00 01	00-01	Rx. CONTROL CHANGE	OFF/ON	01	ON
40 1x 07	00 00 01	00-01	Rx. POLY PRESSURE (PAf)	OFF/ON	01	ON
40 1x 08	00 00 01	00-01	Rx. NOTE MESSAGE	OFF/ON	01	ON
40 1x 09	00 00 01	00-01	Rx. RPN	OFF/ON	01	ON
40 1x 0A	00 00 01	00-01	Rx. NRPN	OFF/ON	00 (01*)	OFF (ON*)

* When "GM1 System On" and "GM2 System On" are received, Rx. NRPN will be set OFF. When "GS Reset" is received, it will be set ON.

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 1x 0B	00 00 01	00-01	Rx. MODULATION	OFF/ON	01	ON
40 1x 0C	00 00 01	00-01	Rx. VOLUME	OFF/ON	01	ON
40 1x 0D	00 00 01	00-01	Rx. PANPOT	OFF/ON	01	ON
40 1x 0E	00 00 01	00-01	Rx. EXPRESSION	OFF/ON	01	ON
40 1x 0F	00 00 01	00-01	Rx. HOLD1	OFF/ON	01	ON
40 1x 10	00 00 01	00-01	Rx. PORTAMENTO	OFF/ON	01	ON
40 1x 11	00 00 01	00-01	Rx. SOSTENUTO	OFF/ON	01	ON
40 1x 12	00 00 01	00-01	Rx. SOFT	OFF/ON	01	ON
40 1x 13	00 00 01	00-01	MONO/POLY MODE (= CC# 126 01 / CC# 127 00)	Mono/Poly	01	Poly
40 1x 14	00 00 01	00-02	ASSIGN MODE	0 = SINGLE 1 = LIMITED-MULTI 2 = FULL-MULTI	00 at x = 0 01 at x ≠ 0	SINGLE at x = 0 LIMITED-MULTI at x ≠ 0

* ASSIGN MODE is the parameter that determines how voice assignment will be handled when sounds overlap on identical note numbers in the same channel (i.e., repeatedly struck notes). This is initialized to a mode suitable for each Part, so for general purposes there is no need to change this.

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 1x 15	00 00 01	00-02	USE FOR RHYTHM PART	0 = OFF 1 = MAP1 2 = MAP2	00 at x ≠ 0 01 at x = 0	OFF at x ≠ 0 MAP1 at x = 0

* This parameter sets the Drum Map of the Part used as the Drum Part. This instrument can simultaneously (in different Parts) use up to two Drum Maps (MAP1, MAP2). With the initial settings, Part10 (MIDI CH = 10, x = 0) is set to MAP1 (1), and other Parts are set to normal instrumental Parts (OFF (0)).

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 1x 16	00 00 01	28-58	PITCH KEY SHIFT	-24 - +24 [semitones]	40	0 [semitones]
40 1x 17	00 00 02	08-F8	PITCH OFFSET FINE	-12.0 - +12.0 [Hz]	08 00	0 [Hz]
40 1x 18#				Use nibblized data.		

* PITCH OFFSET FINE allows you to alter, by a specified frequency amount, the pitch at which notes will sound. This parameter differs from the conventional Fine Tuning (RPN #1) parameter in that the amount of frequency alteration (in Hertz) will be identical no matter which note is played. When a multiple number of Parts, each of which has been given a different setting for PITCH OFFSET FINE, are sounded by means of an identical note number, you can obtain a Celeste effect.

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 1x 19	00 00 01	00-7F	PART LEVEL (= CC# 7)	0-127	64	100
40 1x 1A	00 00 01	00-7F	VELOCITY SENSE DEPTH	0-127	40	64
40 1x 1B	00 00 01	00-7F	VELOCITY SENSE OFFSET	0-127	40	64
40 1x 1C	00 00 01	00-7F	PART PANPOT	-64 (RANDOM), -63 (LEFT) , - +63 (RIGHT) (= CC# 10, except RANDOM)	40	0 (CENTER)
40 1x 1D	00 00 01	00-7F	KEY RANGE LOW	(C-1)-(G9)	00	C-1
40 1x 1E	00 00 01	00-7F	KEY RANGE HIGH	(C-1)-(G9)	7F	G 9
40 1x 1F	00 00 01	00-5F	CC1 CONTROLLER NUMBER	0-95	10	16
40 1x 20	00 00 01	00-5F	CC2 CONTROLLER NUMBER	0-95	11	17
40 1x 21	00 00 01	00-7F	CHORUS SEND LEVEL (= CC# 93)	0-127	00	0
40 1x 22	00 00 01	00-7F	REVERB SEND LEVEL (= CC# 91)	0-127	28	40
40 1x 23	00 00 01	00-01	Rx. BANK SELECT	OFF/ON	01 (00*)	ON (OFF*)

* "Rx.BANK SELECT" is set to OFF by "GM1 System On," and Bank Select message will be ignored.
* "Rx.BANK SELECT" is set to ON by "GM2 System On."
* "Rx.BANK SELECT" is set to ON by power-on Reset or by receiving "GS RESET."

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 1x 24	00 00 01	00-01	Rx.BANK SELECT LSB	OFF/ON	00	OFF

* This instrument can be recognise Bank Select LSB (40H-43H) even if this message is OFF.

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 1x 25	00 00 01	00-01	TONE REMAIN	OFF/ON	01	ON
40 1x 28	00 00 03	00-7F	Bank Select LSB Range	LSB (from)	40	40H
40 1x 29#				LSB (to)	43	43H
40 1x 30	00 00 01	0E-72	TONE MODIFY 1 Vibrato rate (= NRPN# 8)	-50 - +50	40	0
40 1x 31	00 00 01	0E-72	TONE MODIFY 2 Vibrato depth (= NRPN# 9)	-50 - +50	40	0
40 1x 32	00 00 01	0E-72	TONE MODIFY 3 TVF cutoff frequency (= NRPN# 32)	-50 - +50	40	0
40 1x 33	00 00 01	0E-72	TONE MODIFY 4	-50 - +50	40	0

				TVF resonance (= NRPN# 33)			
40 1x 34	00 00 01		0E-72	TONE MODIFY 5	-50 - +50	40	0
				TVF&TVA Env.attack (= NRPN# 99)			
40 1x 35	00 00 01		0E-72	TONE MODIFY 6	-50 - +50	40	0
				TVF&TVA Env.decay (= NRPN# 100)			
40 1x 36	00 00 01		0E-72	TONE MODIFY 7	-50 - +50	40	0
				TVF&TVA Env.release (= NRPN# 102)			
40 1x 37	00 00 01		0E-72	TONE MODIFY 8	-50 - +50	40	0
				Vibrato delay (= NRPN# 10)			
40 1x 40	00 00 0C		00-7F	SCALE TUNING C	-64 - +63 [cent]	40	0 [cent]
40 1x 41#			00-7F	SCALE TUNING C#	-64 - +63 [cent]	40	0 [cent]
40 1x 42#			00-7F	SCALE TUNING D	-64 - +63 [cent]	40	0 [cent]
40 1x 43#			00-7F	SCALE TUNING D#	-64 - +63 [cent]	40	0 [cent]
40 1x 44#			00-7F	SCALE TUNING E	-64 - +63 [cent]	40	0 [cent]
40 1x 45#			00-7F	SCALE TUNING F	-64 - +63 [cent]	40	0 [cent]
40 1x 46#			00-7F	SCALE TUNING F#	-64 - +63 [cent]	40	0 [cent]
40 1x 47#			00-7F	SCALE TUNING G	-64 - +63 [cent]	40	0 [cent]
40 1x 48#			00-7F	SCALE TUNING G#	-64 - +63 [cent]	40	0 [cent]
40 1x 49#			00-7F	SCALE TUNING A	-64 - +63 [cent]	40	0 [cent]
40 1x 4A#			00-7F	SCALE TUNING A#	-64 - +63 [cent]	40	0 [cent]
40 1x 4B#			00-7F	SCALE TUNING B	-64 - +63 [cent]	40	0 [cent]

* SCALE TUNING is a function that allows fine adjustment to the pitch of each note in the octave. The pitch of each identically-named note in all octaves will change simultaneously. A setting of +/- 0 cent (40H) is equal temperament. Refer to section 4. Supplementary material, "The Scale Tune Feature" (p.15).

40 2x 00	00 00 01		28-58	MOD PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 01	00 00 01		00-7F	MOD TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 02	00 00 01		00-7F	MOD AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 03	00 00 01		00-7F	MOD LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 04	00 00 01		00-7F	MOD LFO1 PITCH DEPTH	0-600 [cent]	0A	47 [cent]
40 2x 05	00 00 01		00-7F	MOD LFO1 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 06	00 00 01		00-7F	MOD LFO1 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 07	00 00 01		00-7F	MOD LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 08	00 00 01		00-7F	MOD LFO2 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 09	00 00 01		00-7F	MOD LFO2 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 0A	00 00 01		00-7F	MOD LFO2 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 10	00 00 01		40-58	BEND PITCH CONTROL	0-24 [semitone]	42	2 [semitones]
40 2x 11	00 00 01		00-7F	BEND TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 12	00 00 01		00-7F	BEND AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 13	00 00 01		00-7F	BEND LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 14	00 00 01		00-7F	BEND LFO1 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 15	00 00 01		00-7F	BEND LFO1 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 16	00 00 01		00-7F	BEND LFO1 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 17	00 00 01		00-7F	BEND LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 18	00 00 01		00-7F	BEND LFO2 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 19	00 00 01		00-7F	BEND LFO2 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 1A	00 00 01		00-7F	BEND LFO2 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 20	00 00 01		28-58	CAf PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 21	00 00 01		00-7F	CAf TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 22	00 00 01		00-7F	CAf AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 23	00 00 01		00-7F	CAf LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 24	00 00 01		00-7F	CAf LFO1 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 25	00 00 01		00-7F	CAf LFO1 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 26	00 00 01		00-7F	CAf LFO1 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 27	00 00 01		00-7F	CAf LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 28	00 00 01		00-7F	CAf LFO2 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 29	00 00 01		00-7F	CAf LFO2 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 2A	00 00 01		00-7F	CAf LFO2 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 30	00 00 01		28-58	PAf PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 31	00 00 01		00-7F	PAf TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 32	00 00 01		00-7F	PAf AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 33	00 00 01		00-7F	PAf LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 34	00 00 01		00-7F	PAf LFO1 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 35	00 00 01		00-7F	PAf LFO1 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 36	00 00 01		00-7F	PAf LFO1 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 37	00 00 01		00-7F	PAf LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 38	00 00 01		00-7F	PAf LFO2 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 39	00 00 01		00-7F	PAf LFO2 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 3A	00 00 01		00-7F	PAf LFO2 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 40	00 00 01		28-58	CC1 PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 41	00 00 01		00-7F	CC1 TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 42	00 00 01		00-7F	CC1 AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 43	00 00 01		00-7F	CC1 LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 44	00 00 01		00-7F	CC1 LFO1 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 45	00 00 01		00-7F	CC1 LFO1 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 46	00 00 01		00-7F	CC1 LFO1 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 47	00 00 01		00-7F	CC1 LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 48	00 00 01		00-7F	CC1 LFO2 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 49	00 00 01		00-7F	CC1 LFO2 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 4A	00 00 01		00-7F	CC1 LFO2 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 50	00 00 01		28-58	CC2 PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 51	00 00 01		00-7F	CC2 TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]

40 2x 52	00 00 01	00-7F	CC2 AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 53	00 00 01	00-7F	CC2 LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 54	00 00 01	00-7F	CC2 LFO1 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 55	00 00 01	00-7F	CC2 LFO1 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 56	00 00 01	00-7F	CC2 LFO1 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 57	00 00 01	00-7F	CC2 LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 58	00 00 01	00-7F	CC2 LFO2 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 59	00 00 01	00-7F	CC2 LFO2 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 5A	00 00 01	00-7F	CC2 LFO2 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 4x 23	00 00 02	00-7F	PART EFX TYPE (MSB, LSB)	00 00 - 7F 7F	00 00	0

* This EFX type is same to EFX type of System Parameter. When this EFX type is same to EFX type of System parameter (p.10), the part connect to EFX.

40 4x 25#	00 00 01	00-7F	PART EFX MACRO	00-7F	00 00	0
40 4x 26#	00 00 01	00-7F	PART EFX DEPTH	00-7F	00 00	0
40 4x 51	00 00 0B	00-7F	FOOTAGE SET	always 00	00	0
40 4x 52#		00-7F	PERCUSSION	00 (OFF)	00	OFF
				01 (4, Short)		
				02 (2+2/3, Short)		
				41 (4, Long)		
				42 (2+2/3, Long)		
40 4x 53#		00-7F	FOOTAGELEVEL 16'	00(OFF), 0F(ON)	00	OFF
40 4x 54#		00-7F	FOOTAGELEVEL 5+1/3'	00(OFF), 0F(ON)	00	OFF
40 4X 55#		00-7F	FOOTAGELEVEL 8'	00(OFF), 0F(ON)	00	OFF
40 4X 56#		00-7F	FOOTAGELEVEL 4'	00(OFF), 0F(ON)	00	OFF
40 4X 57#		00-7F	FOOTAGELEVEL 2+2/3'	00(OFF), 0F(ON)	00	OFF
40 4X 58#		00-7F	FOOTAGELEVEL 2'	00(OFF), 0F(ON)	00	OFF
40 4X 59#		00-7F	FOOTAGELEVEL 1+3/5'	00(OFF), 0F(ON)	00	OFF
40 4X 5A#		00-7F	FOOTAGELEVEL 1+1/3'	00(OFF), 0F(ON)	00	OFF
40 4X 5B#		00-7F	FOOTAGELEVEL 1'	00(OFF), 0F(ON)	00	OFF

●Drum Setup Parameters

* m: Map number (0 = MAP1, 1 = MAP2)
* rr: drum part note number (00H-7FH)

Address (H)	Size (H)	Data (H)	Parameter	Description
41 m1 rr	00 00 01	00-7F	PLAY NOTE NUMBER	Pitch coarse
41 m2 rr	00 00 01	00-7F	LEVEL	TVA level
			(= NRPN# 26)	
41 m3 rr	00 00 01	00-7F	ASSIGN GROUP NUMBER	Non, 1-127
41 m4 rr	00 00 01	00-7F	PANPOT	-64 (RANDOM), -63 (LEFT) - +63 (RIGHT)
			(= NRPN# 28, except RANDOM)	
41 m5 rr	00 00 01	00-7F	REVERB SEND LEVEL	0.0-1.0
			(= NRPN# 29)	Multiplicand of the part reverb depth
41 m6 rr	00 00 01	00-7F	CHORUS SEND LEVEL	0.0-1.0
			(= NRPN# 30)	Multiplicand of the part chorus depth
41 m7 rr	00 00 01	00-01	Rx. NOTE OFF	OFF/ON
41 m8 rr	00 00 01	00-01	Rx. NOTE ON	OFF/ON

* When the Drum Set is changed, DRUM SETUP PARAMETER values will all be initialized.

4. Supplementary material

●Decimal and Hexadecimal table

In MIDI documentation, data values and addresses/sizes of exclusive messages etc. are expressed as hexadecimal values for each 7 bits.

The following table shows how these correspond to decimal numbers.

Dec.	Hex.	Dec .	Hex.	Dec.	Hex.	Dec.	Hex.
0	00H	32	20H	64	40H	96	60H
1	01H	33	21H	65	41H	97	61H
2	02H	34	22H	66	42H	98	62H
3	03H	35	23H	67	43H	99	63H
4	04H	36	24H	68	44H	100	64H
5	05H	37	25H	69	45H	101	65H
6	06H	38	26H	70	46H	102	66H
7	07H	39	27H	71	47H	103	67H
8	08H	40	28H	72	48H	104	68H
9	09H	41	29H	73	49H	105	69H
10	0AH	42	2AH	74	4AH	106	6AH
11	0BH	43	2BH	75	4BH	107	6BH
12	0CH	44	2CH	76	4CH	108	6CH
13	0DH	45	2DH	77	4DH	109	6DH
14	0EH	46	2EH	78	4EH	110	6EH
15	0FH	47	2FH	79	4FH	111	6FH
16	10H	48	30H	80	50H	112	70H
17	11H	49	31H	81	51H	113	71H
18	12H	50	32H	82	52H	114	72H
19	13H	51	33H	83	53H	115	73H
20	14H	52	34H	84	54H	116	74H
21	15H	53	35H	85	55H	117	75H
22	16H	54	36H	86	56H	118	76H
23	17H	55	37H	87	57H	119	77H
24	18H	56	38H	88	58H	120	78H
25	19H	57	39H	89	59H	121	79H
26	1AH	58	3AH	90	5AH	122	7AH
27	1BH	59	3BH	91	5BH	123	7BH
28	1CH	60	3CH	92	5CH	124	7CH
29	1DH	61	3DH	93	5DH	125	7DH
30	1EH	62	3EH	94	5EH	126	7EH
31	1FH	63	3FH	95	5FH	127	7FH

* Decimal values such as MIDI channel, bank select, and program change are listed as one (1) greater than the values given in the above table.
* A 7-bit byte can express data in the range of 128 steps. For data where greater precision is required, we must use two or more bytes. For example, two hexadecimal numbers aa bbH expressing two 7-bit bytes would indicate a value of aa x 128 + bb.
* In the case of values which have a +/- sign, 00H = -64, 40H = +/- 0, and 7FH = +63, so that the decimal expression would be 64 less than the value given in the above chart. In the case of two types, 00 00H = -8192, 40 00H = +/- 0, and 7F 7FH = +8191. For example if aa bbH were expressed as decimal, this would be aa bbH - 40 00H = aa x 128 + bb - 64 x 128.
* Data marked "nibbled" is expressed in hexadecimal in 4-bit units. A value expressed as a 2-byte nibble 0a 0bH has the value of a x 16 + b.

<Example1> What is the decimal expression of 5AH ?

From the preceding table, 5AH = 90

<Example2> What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?

From the preceding table, since 12H = 18 and 34H = 52
18 x 128 + 52 = 2356

<Example3> What is the decimal expression of the nibbled value 0A 03 09 0D ?

From the preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13
((10 x 16 + 3) x 16 + 9) x 16 + 13 = 41885

<Example4> What is the nibbled expression of the decimal value 1258?

16) 1258	
16) 78	... 10
16) 4	... 14
0	... 4

Since from the preceding table, 0 = 00H, 4 = 04H, 14 = 0EH, 10 = 0AH, the answer is 00 04 0E 0AH.

●Examples of actual MIDI messages

<Example1> 92 3E 5F

9n is the Note-on status, and n is the MIDI channel number. Since 2H = 2, 3EH = 62, and 5FH = 95, this is a Note-on message with MIDI CH = 3, note number 62 (note name is D4), and velocity 95.

<Example2> CE 49

CnH is the Program Change status, and n is the MIDI channel number. Since EH = 14 and 49H = 73, this is a Program Change message with MIDI CH = 15, program number 74 (Flute in GS).

<Example3> EA 00 28

EnH is the Pitch Bend Change status, and n is the MIDI channel number. The 2nd byte (00H = 0) is the LSB and the 3rd byte (28H = 40) is the MSB, but Pitch Bend Value is a signed number in which 40 00H (= 64 x 128 + 0 = 8192) is 0, so this Pitch Bend Value is
28 00H - 40 00H = 40 x 128 + 0 - (64 x 128 + 0) = 5120 - 8192 = -3072

If the Pitch Bend Sensitivity is set to 2 semitones, -8192 (00 00H) will cause the pitch to change -200 cents, so in this case -200 x (-3072) / (-8192) = -75 cents of Pitch Bend is being applied to MIDI channel 11.

<Example4> B3 64 00 65 00 06 0C 26 00 64 7F 65 7F

BnH is the Control Change status, and n is the MIDI channel number. For Control Changes, the 2nd byte is the control number, and the 3rd byte is the value. In a case in which two or more messages consecutive messages have the same status, MIDI has a provision called "running status" which allows the status byte of the second and following messages to be omitted. Thus, the above messages have the following meaning.

B3 64 00	MIDI ch.4, lower byte of RPN parameter number: 00H
(B3) 65 00	(MIDI ch.4) upper byte of RPN parameter number: 00H
(B3) 06 0C	(MIDI ch.4) upper byte of parameter value: 0CH
(B3) 26 00	(MIDI ch.4) lower byte of parameter value: 00H
(B3) 64 7F	(MIDI ch.4) lower byte of RPN parameter number: 7FH
(B3) 65 7F	(MIDI ch.4) upper byte of RPN parameter number: 7FH

In other words, the above messages specify a value of 0C 00H for RPN parameter number 00 00H on MIDI channel 4, and then set the RPN parameter number to 7F 7FH.

RPN parameter number 00 00H is Pitch Bend Sensitivity, and the MSB of the value indicates semitone units, so a value of 0CH = 12 sets the maximum pitch bend range to +/- 12 semitones (1 octave). (On GS sound sources the LSB of Pitch Bend Sensitivity is ignored, but the LSB should be transmitted anyway (with a value of 0) so that operation will be correct on any device.)

Once the parameter number has been specified for RPN or NRPN, all Data Entry messages transmitted on that same channel will be valid, so after the desired value has been transmitted, it is a good idea to set the parameter number to 7F 7FH to prevent accidents. This is the reason for the (B3) 64 7F (B3) 65 7F at the end.

It is not desirable for performance data (such as Standard MIDI File data) to contain many events with running status as given in <Example 4>. This is because if playback is halted during the song and then rewound or fast-forwarded, the sequencer may not be able to transmit the correct status, and the sound source will then misinterpret the data. Take care to give each event its own status.

It is also necessary that the RPN or NRPN parameter number setting and the value setting be done in the proper order. On some sequencers, events occurring in the same (or consecutive) clock may be transmitted in an order different than the order in which they were received. For this reason it is a good idea to slightly skew the time of each event (about 1 tick for TPQN = 96, and about 5 ticks for TPQN = 480).

* TPQN: Ticks Per Quarter Note

●Example of an Exclusive message and calculating a Checksum

Roland Exclusive messages are transmitted with a checksum at the end (before F7) to make sure that the message was correctly received. The value of the checksum is determined by the address and data (or size) of the transmitted exclusive message.

uHow to calculate the checksum (hexadecimal numbers are indicated by 'H')
The checksum is a value derived by adding the address, size and checksum itself and inverting the lower 7 bits.
Here's an example of how the checksum is calculated. We will assume that in the exclusive message we are transmitting, the address is aa bb ccH and the data or size is dd ee ffH.

aa + bb + cc + dd + ee + ff = sum
sum / 128 = quotient ... remainder
128 - remainder = checksum

<Example> Setting REVERB MACRO to ROOM 3

According to the "Parameter Address Map," the REVERB MACRO Address is 40 01 30H, and ROOM 3 is a value of 02H. Thus,

F0	41	10	42	12	40 01 30	02	??	F7
(1)	(2)	(3)	(4)	(5)	Address	data	Checksum	(6)

(1) Exclusive Status, (2) ID (Roland), (3) Device ID (17),
(4) Model ID (GS), (5) Command ID (DT1), (6) End of Exclusive

Next we calculate the checksum.

40H + 01H + 30H + 02H = 64 + 1 + 48 + 2 = 115 (sum)
115 (sum) / 128 = 0 (quotient) ... 115 (remainder)
checksum = 128 - 115 (remainder) = 13 = 0DH

This means that F0 41 10 42 12 40 01 30 02 0D F7 is the message we transmit.

●About tuning

In MIDI, individual Parts are tuned by sending RPN #1 (Master Fine Tuning) to the appropriate MIDI channel.
In MIDI, an entire device is tuned by either sending RPN #1 to all MIDI channels being used, or by sending a System Exclusive MASTER TUNE (address 40 00 00H).
RPN #1 allows tuning to be specified in steps of approximately 0.012 cents (to be precise, 100/8192 cent), and System Exclusive MASTER TUNE allows tuning in steps of 0.1 cent. One cent is 1/100th of a semitone.
The values of RPN #1 (Master Fine Tuning) and System Exclusive MASTER TUNE are added together to determine the actual pitch sounded by each Part.

Frequently used tuning values are given in the following table for your reference. Values are in hexadecimal (decimal in parentheses).

```
+--------+--------+---------------+---------------------+
|Hz in A4|  cent  |    RPN #1     |  Sys.Ex. 40 00 00   |
+--------+--------+---------------+---------------------+
|  445.0 | +19.56 | 4C 43 (+1603) | 00 04 0C 04 (+196)  |
|  444.0 | +15.67 | 4A 03 (+1283) | 00 04 09 0D (+157)  |
|  443.0 | +11.76 | 47 44 (+ 964) | 00 04 07 06 (+118)  |
|  442.0 | + 7.85 | 45 03 (+ 643) | 00 04 04 0F (+ 79)  |
|  441.0 | + 3.93 | 42 42 (+ 322) | 00 04 02 07 (+ 39)  |
|  440.0 |   0.00 | 40 00 (    0) | 00 04 00 00 (    0) |
|  439.0 | − 3.94 | 3D 3D (− 323) | 00 03 0D 09 (− 39)  |
|  438.0 | − 7.89 | 3A 7A (− 646) | 00 03 0B 01 (− 79)  |
+--------+--------+---------------+---------------------+
```

<Example> Set the tuning of MIDI channel 3 to A4 = 442.0 Hz

Send RPN#1 to MIDI channel 3. From the above table, the value is 45 03H.

B2 64 00	MIDI ch.3, lower byte of RPN parameter number: 00H
(B2) 65 01	(MIDI ch.3) upper byte of RPN parameter number: 01H
(B2) 06 45	(MIDI ch.3) upper byte of parameter value: 45H
(B2) 26 03	(MIDI ch.3) lower byte of parameter value: 03H
(B2) 64 7F	(MIDI ch.3) lower byte of RPN parameter number: 7FH
(B2) 65 7F	(MIDI ch.3) upper byte of RPN parameter number: 7FH

●The Scale Tune Feature (address: 40 1x 40)

The scale Tune feature allows you to finely adjust the individual pitch of the notes from C through B. Though the settings are made while working with one octave, the fine adjustments will affect all octaves. By making the appropriate Scale Tune settings, you can obtain a complete variety of tuning methods other than equal temperament. As examples, three possible types of scale setting are explained below.

❍Equal Temperament

This method of tuning divides the octave into 12 equal parts. It is currently the most widely used form of tuning,
especially in occidental music. On this instrument, the default settings for the Scale Tune feature produce equal temperament.

❍Just Temperament (Keytone C)

The three main chords resound much more beautifully than with equal temperament, but this benefit can only be obtained in one key. If transposed, the chords tend to become ambiguous. The example given involves settings for a key in which C is the keynote.

❍Arabian Scale

By altering the setting for Scale Tune, you can obtain a variety of other tunings suited for ethnic music. For example, the settings introduced below will set the unit to use the Arabian Scale.

Example Settings

Note name	Equal Temperament	Just Temperament (Keytone C)	Arabian Scale
C	0	0	-6
C#	0	-8	+45
D	0	+4	-2
D#	0	+16	-12
E	0	-14	-51
F	0	-2	-8
F#	0	-10	+43
G	0	+2	-4
G#	0	+14	+47
A	0	-16	0
A#	0	+14	-10
B	0	-12	-49

The values in the table are given in cents. Refer to the explanation of Scale Tuning (p.12) to convert these values to hexadecimal, and transmit them as exclusive data.
For example, to set the tune (C-B) of the Part1 Arabian Scale, send the data as follows:
F0 41 10 42 12 40 11 40 3A 6D 3E 34 0D 38 6B 3C 6F 40 36 0F 50 F7

●EFX Type Table

MSB	LSB	Type
01H	00H	Equalizer
01H	01H	Spectrum
01H	02H	Enhancer
01H	03H	Humanizer
01H	10H	Overdrive
01H	11H	Distortion
01H	20H	Phaser
01H	21H	Auto Wah
01H	22H	Rotary
01H	23H	Stereo Flanger
01H	24H	Step Flanger
01H	25H	Tremolo
01H	26H	Auto Pan
01H	30H	Compressor
01H	31H	Limiter
01H	40H	Hexa Chorus
01H	41H	Tremolo Chorus
01H	42H	Stereo Chorus
01H	43H	Space D
01H	45H	2Band Chorus
01H	46H	Space Chorus
01H	47H	Wave Chorus
01H	50H	Stereo Delay
01H	51H	Modulation Delay
01H	52H	Triple Tap Delay
01H	53H	Quadruple Tap Delay
01H	54H	Time Controllable Delay
01H	55H	Reverb
01H	56H	Gate Reverb
01H	60H	2 Voice Pitch Shifter
01H	61H	Feedback Pitch Shifter
01H	72H	Lo-Fi1
01H	73H	Lo-Fi2
02H	00H	Overdrive -> Chorus
02H	01H	Overdrive -> Flanger
02H	02H	Overdrive -> Delay
02H	03H	Distortion -> Chorus
02H	04H	Distortion -> Flanger
02H	05H	Distortion -> Delay
02H	06H	Enhancer -> Chorus
02H	07H	Enhancer -> Flanger
02H	08H	Enhancer -> Delay
02H	09H	Chorus -> Delay
02H	0AH	Flanger -> Delay
02H	0BH	Chorus -> Flanger
02H	0CH	Band Pass Delay
03H	00H	Rotary Multi
04H	03H	Clean Guitar Multi1
04H	04H	Clean Guitar Multi2
04H	06H	Rhodes Multi
05H	00H	Keyboard Multi
11H	00H	Chorus / Delay
11H	01H	Flanger / Delay
11H	02H	Chorus / Flanger

●EFX Parameter Map

* Marked #1 or #2 can be controlled by EFX CONTROL SOURCE1 or 2.

●01H, 00H: Equalizer

No.	Parameter	Value	Default	Description
1	Low Frequency	00 - 01	01	00: 200Hz, 01: 400Hz
2	Low Gain	31 - 4F	45	-15dB - +15dB (00: 0dB)
3	High Frequency	00 - 01	01	00: 4000Hz, 01: 8000Hz
4	High Gain	31 - 4F	40	-15dB - +15dB (00: 0dB)
5	Mid 1 Frequency	00 - 7F	4C	00: 200Hz - 7F: 6300Hz
6	Mid 1 Q	00 - 04	00	00: 0.5, 01: 1.0, 02: 2.0, 03: 4.0, 04:9.0
7	Mid 1 Gain	41 - 4F	48	-15dB - +15dB
8	Mid 2 Frequency	00 - 7F	38	00: 200Hz - 7F: 6300Hz
9	Mid 2 Q	00 - 04	00	00: 0.5, 01: 1.0, 02: 2.0, 03: 4.0, 04:9.0
10	Mid 2 Gain	41 - 4F	39	-15dB - +15dB
20	Level (#1)	00 - 7F	70	

●01H, 01H: Spectrum

No	Parameter	Value	Default	Description
1	Band 1 Gain (200H)	31 - 4F	3C	-15dB - +15dB (40 0dB), 1dB/1 Step
2	Band 2 Gain (500Hz)	31 - 4F	41	-15dB - +15dB (40 0dB), 1dB/1 Step
3	Band 3 Gain (1000Hz)	31 - 4F	43	-15dB - +15dB (40 0dB), 1dB/1 Step
4	Band 4 Gain (1250Hz)	31 - 4F	46	-15dB - +15dB (40: 0dB), 1dB/1 Step
5	Band 5 Gain (200Hz)	31 - 4F	42	-15dB - +15dB (40: 0dB), 1dB/1 Step
6	Band 6 Gain (3150Hz)	31 - 4F	3F	-15dB - +15dB (40: 0dB), 1dB/1 Step
7	Band 7 Gain (4000Hz)	31 - 4F	3C	-15dB - +15dB (40: 0dB), 1dB/1 Step
8	Band 8 Gain (5000Hz)	31 - 4F	3B	-15dB - +15dB (40: 0dB), 1dB/1 Step
9	Width	00 - 04	02	00: 0.5, 01: 1.0, 02: 2.0, 03: 4.0, 04:9.0
19	Pan (#1)	00 - 7F	40	40:Center, 00:far Left, 7F:far Right
20	Level (#2)	00 - 7F	7F	

●01H, 02H: Enhancer

No	Parameter	Value	Default	Description
1	Sense (#1)	00 - 7F	70	
2	Mix (#2)	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●01H, 03H: Humanizer

No	Parameter	Value	Default	Description
1	Drive Depth	00 - 7F	30	
2	Drive Switch	00 - 02	01	00: OFF, 01: Overdrive, 02: Distortion
3	Vowel(#1)	00 - 04	00	00:a, 01: i, 02: u, 03: e, 04: o
4	Acceleration	00 - 7F	7F	
17	EQ Low Gain (400Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
19	Pan	00 - 7F	40	
20	Level(#2)	00 - 7F	7F	

●01H, 10H: Overdrive

No	Parameter	Value	Default	Description
1	Drive (#1)	00 - 7F	30	
2	Amp Type	00 - 03	01	0:Small, 1:Built-in, 2:2-Stack, 3:3-Stack
3	Amp SW	00 - 7F	01	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
19	Pan (#2)	00 - 7F	40	40:Center, 00:far Left, 7F:far Right
20	Level	00 - 7F	7F	

●01H, 11H: Distortion

No	Parameter	Value	Default	Description
1	Drive (#1)	00 - 7F	30	
2	Amp Type	00 - 03	03	0:Small, 1:Built-in, 2:2-Stack, 3:3-Stack
3	Amp Sw	00 - 7F	01	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
19	Pan (#2)	00 - 7F	40	40:Center, 00:far Left, 7F:far Right
20	Level	00 - 7F	7F	

●01H, 20H: Phaser

No	Parameter	Value	Default	Description
1	Manual (#1)	00 - 7F	28	
2	Rate (#2)	00 - 7D	10	
3	Depth	00 - 7F	48	
4	Resonance	00 - 7F	50	
5	Mix	00 - 7F	60	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
19	Pan (#2)	00 - 7F	40	40:Center, 00:far Left, 7F:far Right
20	Level	00 - 7F	70	

●01H, 21H: Auto Wah

No	Parameter	Value	Default	Description
1	Filter Type	00 - 01	01	0: LPF, 1: BPF
2	Sense	00 - 7F	00	
3	Manual (#1)	00 - 7F	44	
4	Peak	00 - 7F	3E	
5	Rate (#2)	00 - 7F	28	
6	Depth	00 - 7F	48	
7	Polarity	00 - 7F	00	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
19	Pan	00 - 7F	40	
20	Level	00 - 7F	60	

●01H, 22H: Rotary

No	Parameter	Value	Default	Description
1	Low Rate-Slow	00 - 7F	06	0.01Hz - 10Hz
2	Low Rate-Fast	00 - 7F	71	0.01Hz - 10Hz
3	Low Accel	00 - 7F	18	
4	Low Level	00 - 7F	7F	
5	High Rate-Slow	00 - 7F	11	0.01Hz - 10Hz
6	High Rate-Fast	00 - 7F	78	0.01Hz - 10Hz
7	High Accel	00 - 7F	58	
8	High Level	00 - 7F	40	
9	Separation	00 - 7F	60	
10	Color	00 - 7F	00	
11	Speed (#1)	00 - 7F	00	00-3F: Slow, 40-7F: Fast
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level (#2)	00 - 7F	7F	

●01H, 23H: Stereo Flanger

No	Parameter	Value	Default	Description
1	Pre Filter	00 - 02	00	0: OFF, 1: LPF, 2: HPF
2	Cutoff Frequency	00 - 7F	00	
3	Pre Delay	00 - 7F	0B	
4	Rate (#1)	00 - 7F	0B	
5	Depth	00 - 7F	18	
6	Feedback (#2)	00 - 7F	68	40: 0%, 2%/ 1 Step
7	Phase	00 - 7F	5A	5A: 180 degree
16	Balance	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level (#2)	00 - 7F	68	

●01H, 24H: Step Flanger

No	Parameter	Value	Default	Description
1	Pre Delay	00 - 7F	0B	
2	Rate	00 - 7F	0B	
3	Depth	00 - 7F	10	
4	Feedback (#1)	00 - 7F	60	40: 0%, 2%/ 1 Step
5	Phase	00 - 7F	5A	5A: 180 degree
6	Step Rate (#2)	00 - 7F	50	
16	Balance	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level (#2)	00 - 7F	70	

●01H, 25H: Tremolo

No	Parameter	Value	Default	Description
1	Wave	00 - 7F	02	00:Triangle, 01:Square, 02:Sin, 03:Saw(Up), 04:Saw(Down)
2	Rate(#1)	00 - 7F	3C	
3	Depth(#2)	00 - 7F	30	
17	EQ Low Gain (400Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●01H, 26H: Auto Pan

No	Parameter	Value	Default	Description
1	Wave	00 - 04	02	00:Triangle, 01:Square, 02:Sin, 03:Saw(Up), 04:Saw(Down)
2	Rate(#1)	00 - 7F	3C	
3	Depth(#2)	00 - 7F	30	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●01H, 30H: Compressor

No	Parameter	Value	Default	Description
1	Attack	00 - 7F	48	
2	Sustain	00 - 7F	58	
3	Post Gain	00 - 7F	02	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
19	Pan (#1)	31 - 4F	40	40:Center, 00:far Left, 7F:far Right
20	Level (#2)	00 - 7F	60	

●01H, 31H: Limiter

No	Parameter	Value	Default	Description
1	Threshold	00 - 7F	5A	
2	Ratio	00 - 7F	03	
3	Release	00 - 7F	50	
4	Post Gain	00 - 7F	01	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
19	Pan (#1)	31 - 4F	40	40:Center, 00:far Left, 7F:far Right
20	Level (#2)	00 - 7F	7F	

●01H, 40H: Hexa Chorus

No	Parameter	Value	Default	Description
1	Pre Delay	00 - 7F	0A	
2	Rate (#1)	00 - 7D	08	
3	Depth	00 - 7F	48	
4	Pre Delay Dev.	00 - 20	02	
5	Depth Dev.	2C - 54	38	
6	Pan Dev.	00 - 20	18	
16	Balance (#2)	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	68	

●01H, 41H: Tremolo Chorus

No	Parameter	Value	Default	Description
1	Pre Delay	00 - 7F	0A	
2	Rate	00 - 7D	08	
3	Depth	00 - 7F	28	
4	Trem. Phase	00 - 5A	28	
5	Trem. Rate (#1)	00 - 7F	3C	
6	Trem. Sep.	00 - 7F	60	
16	Balance (#2)	00 - 7F	7F	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●01H, 42H: Stereo Chorus

No	Parameter	Value	Default	Description
1	Pre Filter	00 - 02	00	
2	Cutoff Frequency	00 - 7F	00	
3	Pre Delay	00 - 7F	0A	
4	Rate (#1)	00 - 7D	08	
5	Depth	00 - 7F	48	
7	Phase	00 - 5A	5A	
16	Balance (#2)	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	68	

●01H, 43H: Space D

No	Parameter	Value	Default	Description
1	Pre Delay	00 - 7F	0A	
2	Rate (#1)	00 - 7D	10	
3	Depth	00 - 7F	48	
4	Phase	00 - 5A	5A	
16	Balance (#2)	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	60	

●01H, 45H: 2Band Chorus

No	Parameter	Value	Default	Description
1	Crossover Freq	00 - 7F	30	
2	Low Pre-Delay	00 - 7F	10	
3	Low Rate	00 - 7F	04	
4	Low Depth	00 - 7F	20	
5	Low Phase	00 - 7F	5A	
6	High Pre-Delay	00 - 7F	10	
7	High Rate	00 - 7F	18	
8	High Depth	00 - 7F	40	
9	High Phase	00 - 7F	5A	
10	Chorus Balance(#1)	00 - 7F	40	
16	Balance(#2)	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●01H, 46H: Space Chorus

No.	Parameter	Value	Default	Description
1	Mode	00 - 7F	03	
16	Balance	00 - 7F	40	
17	EQ Low Gain (400Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●01H, 47H: Wave Chorus

No.	Parameter	Value	Default	Description
1	Pre-Filter	00 - 7F	00	
2	Cutoff Freq	00 - 7F	00	
3	Pre-Delay	00 - 7F	0A	
4	Tri Rate	00 - 7F	08	
5	Tri Depth	00 - 7F	20	
6	Sin Rate	00 - 7F	08	
7	Sin Depth	00 - 7F	50	
8	Exp Rate	00 - 7F	0C	
9	Exp Depth	00 - 7F	30	
10	Feedback	00 - 7F	40	
16	Balance	00 - 7F	40	
17	EQ Low Gain (400Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●01H, 50H: Stereo Delay

No	Parameter	Value	Default	Description
1	Delay Left	00 - 7E	70	
2	Delay Right	00 - 7E	70	
3	Feedback (#1)	0F - 71	48	
4	Feedback Mode	00 - 01	01	0: Normal, 1: Cross
5	Phase Left	00 - 01	00	0: Normal, 1: Invert
6	Phase Right	00 - 01	00	0: Normal, 1: Invert
8	HF Damp	00 - 7F	58	7F: Bypass
16	Balance (#2)	00 - 7F	10	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●01H, 51H: Modulation Delay

No	Parameter	Value	Default	Description
1	Delay Left	00 - 7E	5A	
2	Delay Right	00 - 7E	6C	
3	Feedback	0F - 71	54	40: 0%, 2% / 1 Step
4	Feedback Mode	00 - 01	01	0: Normal, 1: Cross
5	Mod: Rate (#1)	00 - 7D	0C	
6	Mod: Depth	00 - 7F	15	
7	Mod: Phase	00 - 5A	5A	5A: 180 degree
8	HF Damp	00 - 7F	58	7F: Bypass
16	Balance (#2)	00 - 7F	10	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●01H, 52H: Triple Tap Delay

No	Parameter	Value	Default	Description
1	Delay Center	00 - 73	1E	
2	Delay Left	00 - 73	00	
3	Delay Right	00 - 73	0F	
4	Feedback (#1)	0F - 71	48	40: 0%, 2% / 1 Step
5	Center Level	00 - 7F	20	
6	Left Level	00 - 7F	20	
7	Right Level	00 - 7F	20	
8	HF Damp	00 - 7F	58	7F: Bypass
16	Balance (#2)	00 - 7F	30	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●01H, 53H: Quadruple Tap Delay

No	Parameter	Value	Default	Description
1	Delay 1	00 - 73	2D	
2	Delay 2	00 - 73	1E	
3	Delay 3	00 - 73	0F	
4	Delay 4	00 - 73	00	
5	Level 1	00 - 7F	20	
6	Level 2	00 - 7F	20	
7	Level 3	00 - 7F	20	
8	Level 4	00 - 7F	20	
9	Feedback (#1)	0F - 71	48	40: 0%, 2% / 1 Step
10	HF Damp	00 - 7F	58	7F: Bypass
16	Balance (#2)	00 - 7F	30	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●01H, 54H: Time Controllable Delay

No	Parameter	Value	Default	Description
1	Delay (#1)	00 - 73	12	
2	Acceleration	00 - 7F	60	
3	Feedback (#2)	0F - 71	48	40: 0%, 2% / 1 Step
4	HF Damp	00 - 7F	58	7F: Bypass
5	Effect Pan	00 - 7F	40	
16	Balance	00 - 7F	10	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●01H, 55H: Reverb

No	Parameter	Value	Default	Description
1	Type	00 - 05	04	
2	Pre Delay	00 - 7F	30	
3	Time (#1)	00 - 7F	70	
4	HF Damp	00 - 7F	68	7F: Bypass
16	Balance (#2)	00 - 7F	30	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

* Type: 0: Room1, 1: Room2, 2: Stage1, 3: Stage 2, 4: Hall1, 5:Hall2

●01H, 56H: Gate Reverb

No	Parameter	Value	Default	Description
1	Type	00 - 03	00	
2	Pre Delay	00 - 7F	10	
3	Gate Time	00 - 7F	28	
16	Balance (#1)	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level (#2)	00 - 7F	60	

* Type: 0: Normal, 1: Reverse, 2: Sweep1, 3: Sweep2

●01H, 60H: 2 Voice Pitch Shifter

No	Parameter	Value	Default	Description
1	Pitch Control (#1)	28 - 4C	47	
2	Pitch Fine 1	00 - 7F	3E	
3	Pre Delay 1	00 - 7F	00	
4	Effect Pan 1	00 - 7F	7F	
5	Pitch Control 2 (#2)	28 - 4C	3B	
6	Pitch Fine 2	00 - 7F	42	
7	Pre Delay 2	00 - 7F	00	
8	Effect Pan 2	00 - 7F	00	
9	Mode	00 - 7F	02	
10	Level Balance	00 - 7F	40	
16	Balance	00 - 7F	20	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	60	

●01H, 61H: Feedback Pitch Shifter

No	Parameter	Value	Default	Description
1	Pitch Coarse (#1)	28 - 4C	47	
2	Pitch Fine	00 - 7F	40	
3	Feedback (#2)	0F - 71	4C	40: 0%, 2% / 1 Step
4	Pre Delay	00 - 7F	5C	
5	Mode	00 - 04	02	
6	Effect Pan	00 - 7F	40	
16	Balance	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●01H, 72H: Lo-Fi1

No	Parameter	Value	Default	Description
1	Pre-Filter	00 - 7F	01	
2	Lo-fi Type	00 - 7F	03	
3	Post-Filter	00 - 7F	02	
16	Balance (#1)	00 - 7F	7F	
17	EQ Low Gain (400Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
19	Pan (#2)	00 - 7F	40	
20	Level	00 - 7F	7F	

●01H, 73H: Lo-Fi2

No.	Parameter	Value	Default	Description
1	Lofi Type	00 - 7F	03	
2	Filter Type	00 - 7F	01	00: Thru, 01: LPF, 02: HPF
3	Filter Cutoff	00 - 7F	24	
4	Radio Detune(#1)	00 - 7F	00	
5	Radio Noise Level	00 - 7F	40	
6	White/Pink Select	00 - 7F	01	
7	White/Pink Filter	00 - 7F	28	
8	White/Pink Level	00 - 7F	0D	
9	Disc Noise Type	00 - 7F	03	00: LP, 01: EP, 02: SP, 03: Random
10	Disc Noise Filter	00 - 7F	30	
11	Disc Noise Level	00 - 7F	20	
12	Hum Noise Type	00 - 7F	00	
13	Hum Noise Filter	00 - 7F	20	
14	Hum Noise Level	00 - 7F	08	
15	Mono/Stereo Sw	00 - 7F	00	00:Mono, 01:Stereo
16	Balance(#2)	00 - 7F	7F	
17	EQ Low Gain (400Hz)	31 - 4F	43	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	34	-15dB - +15dB (40: 0dB), 1dB/1 Step
19	Pan	00 - 7F	40	
20	level	00 - 7F	7F	

●02H, 00H: Overdrive -> Chorus

No	Parameter	Value	Default	Description
1	OD: Drive	00 - 7F	20	
2	OD: Pan (#1)	00 - 7F	40	
3	OD: Amp Type	00 - 03	03	0:Small, 1:Built-in, 2:2-Stack, 3:3-Stack
4	OD: Amp Sw	00 - 7F	01	
6	Cho: Delay	00 - 7F	0A	
7	Cho: Rate	00 - 7D	08	
8	Cho: Depth	00 - 7F	48	
10	Cho: Balance (#2)	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●02H, 01H: Overdrive -> Flanger

No	Parameter	Value	Default	Description
1	OD: Drive	00 - 7F	20	
2	OD: Pan (#1)	00 - 7F	40	
3	OD: Amp Type	00 - 03	03	0:Small, 1:Built-in, 2:2-Stack, 3:3-Stack
4	OD: Amp Sw	00 - 7F	01	
6	Flg: Delay	00 - 7F	0B	
7	Flg: Rate	00 - 7F	0B	
8	Flg: Depth	00 - 7F	18	
9	Flg: Feedback	0F - 71	68	
10	Flg: Balance (#2)	00 - 7F	20	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●02H, 02H: Overdrive -> Delay

No	Parameter	Value	Default	Description
1	OD: Drive	00 - 7F	20	
2	OD: Pan (#1)	00 - 7F	40	
3	OD: Amp Type	00 - 03	03	0:Small, 1:Built-in, 2:2-Stack, 3:3-Stack
4	OD: Amp Sw	00 - 7F	01	
6	Dly: Delay	00 - 7F	6F	
7	Dly: Feedback	0F - 71	48	
8	Dly: HP Damp	00 - 7F	58	
10	Dly: Balance (#2)	00 - 7F	10	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●02H, 03H: Distortion -> Chorus

No	Parameter	Value	Default	Description
1	DS: Drive	00 - 7F	30	
2	DS: Pan (#1)	00 - 7F	40	
3	DS: Amp Type	00 - 03	03	0:Small, 1:Built-in, 2:2-Stack, 3:3-Stack
4	DS: Amp Sw	00 - 7F	01	
6	Cho: Delay	00 - 7F	0A	
7	Cho: Rate	00 - 7D	08	
8	Cho: Depth	00 - 7F	48	
10	Cho: Balance (#2)	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●02H, 04H: Distortion -> Flanger

No	Parameter	Value	Default	Description
1	DS: Drive	00 - 7F	30	
2	DS: Pan (#1)	00 - 7F	40	
3	DS: Amp Type	00 - 03	03	0:Small, 1:Built-in, 2:2-Stack, 3:3-Stack
4	DS: Amp Sw	00 - 7F	01	
6	Flg: Delay	00 - 7F	0B	
7	Flg: Rate	00 - 7F	0B	
8	Flg: Depth	00 - 7F	18	
9	Flg: Feedback	0F - 71	68	40: 0%, 2% / 1 Step
10	Flg: Balance (#2)	00 - 7F	20	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●02H, 05H: Distortion -> Delay

No	Parameter	Value	Default	Description
1	DS: Drive	00 - 7F	30	
2	DS: Pan (#1)	00 - 7F	40	
3	DS: Amp Type	00 - 03	03	0:Small, 1:Built-in, 2:2-Stack, 3:3-Stack
4	DS: Amp Sw	00 - 7F	01	
6	Dly: Delay	00 - 7F	6F	
7	Dly: Feedback	0F - 71	48	40: 0%, 2% / 1 Step
8	Dly: HP Damp	00 - 7F	58	
10	Dly: Balance (#2)	00 - 7F	10	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●02H, 06H: Enhancer -> Chorus

No	Parameter	Value	Default	Description
1	Enh: Sense (#1)	00 - 7F	70	
2	Enh: Mix	00 - 7F	40	
6	Cho: Delay	00 - 7F	0A	
7	Cho: Rate	00 - 7D	08	
8	Cho: Depth	00 - 7F	48	
10	Cho: Balance (#2)	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	50	

●02H, 07H: Enhancer -> Flanger

No	Parameter	Value	Default	Description
1	Enh: Sense (#1)	00 - 7F	70	
2	Enh: Mix	00 - 7F	40	
6	Flg: Delay	00 - 7F	0B	
7	Flg: Rate	00 - 7D	0B	
8	Flg: Depth	00 - 7F	18	
9	Flg: Feedback	0F - 71	68	40: 0%, 2% / 1 Step
10	Flg: Balance (#2)	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	60	

●02H, 08H: Enhancer -> Delay

No	Parameter	Value	Default	Description
1	Enh: Sense (#1)	00 - 7F	70	
2	Enh: Mix	00 - 7F	40	
6	Dly: Delay	00 - 7F	6F	
7	Dly: Feedback	0F - 71	48	40: 0%, 2% / 1 Step
8	Dly: HP Damp	00 - 7F	58	
10	Dly: Balance (#2)	00 - 7F	10	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	60	

●02H, 09H: Chorus -> Delay

No	Parameter	Value	Default	Description
1	Cho: Delay	00 - 7F	0A	
2	Cho: Rate	00 - 7D	08	
3	Cho: Depth	00 - 7F	48	
5	Cho: Balance (#1)	00 - 7F	40	
6	Dly: Delay	00 - 7F	6F	
7	Dly: Feedback	0F - 71	48	40: 0%, 2% / 1 Step
8	Dly: HP Damp	00 - 7F	58	
10	Dly: Balance (#2)	00 - 7F	10	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●02H, 0AH: Flanger -> Delay

No	Parameter	Value	Default	Description
1	Flg: Delay	00 - 7F	0B	
2	Flg: Rate	00 - 7D	0B	
3	Flg: Depth	00 - 7F	18	
4	Flg: Feedback (#1)	0F - 71	68	40: 0%, 2% / 1 Step
5	Flg: Balance	00 - 7F	40	
6	Dly: Delay	00 - 7F	6F	
7	Dly: Feedback	0F - 71	48	40: 0%, 2% / 1 Step
8	Dly: HP Damp	00 - 7F	58	
10	Dly: Balance (#2)	00 - 7F	10	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	7F	

●02H, 0BH: Chorus -> Flanger

No	Parameter	Value	Default	Description
1	Cho: Delay	00 - 7F	0A	
2	Cho: Rate	00 - 7D	08	
3	Cho: Depth	00 - 7F	48	
5	Cho: Balance (#1)	00 - 7F	40	
6	Flg: Delay	00 - 7F	0B	
7	Flg: Rate	00 - 7D	0B	
8	Flg: Depth	00 - 7F	18	
9	Flg: Feedback	3F - 71	68	40: 0%, 2% / 1 Step
10	Flg: Balance (#2)	00 - 7F	40	
17	EQ Low Gain (200Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
18	EQ High Gain (4000Hz)	31 - 4F	40	-15dB - +15dB (40: 0dB), 1dB/1 Step
20	Level	00 - 7F	68	

●11H, 00H: Chorus / Delay

No	Parameter	Value	Default	Description
1	Cho: Delay	00 - 7F	0A	
2	Cho: Rate	00 - 7D	08	
3	Cho: Depth	00 - 7F	48	
5	Cho: Balance (#1)	00 - 7F	40	
6	Dly: Delay	00 - 7F	6F	
7	Dly: Feedback	0F - 71	48	40: 0%, 2% / 1 Step
8	Dly: HP Damp	00 - 7F	58	
10	Dly: Balance (#2)	00 - 7F	10	
16	Cho: Pan	00 - 7F	00	
17	Cho: Level	00 - 7F	7F	
18	Dly: Pan	00 - 7F	7F	
19	Dly: Level	00 - 7F	7F	
20	Level	00 - 7F	7F	

●11H, 01H: Flanger / Delay

No	Parameter	Value	Default	Description
1	Flg: Delay	00 - 7F	0B	
2	Flg: Rate	00 - 7D	0B	
3	Flg: Depth	00 - 7F	18	
4	Flg: Feedback	0F - 71	68	40: 0%, 2% / 1 Step
5	Flg: Balance (#1)	00 - 7F	40	
6	Dly: Delay	00 - 7F	6F	
7	Dly: Feedback	0F - 71	48	40: 0%, 2% / 1 Step
8	Dly: HP Damp	00 - 7F	58	
10	Dly: Balance (#2)	00 - 7F	10	
16	Flg: Pan	00 - 7F	00	
17	Flg: Level	00 - 7F	7F	
18	Dly: Pan	00 - 7F	7F	
19	Dly: Level	00 - 7F	7F	
20	Level	00 - 7F	7F	

●11H, 02H: Chorus / Flanger

No	Parameter	Value	Default	Description
1	Cho: Delay	00 - 7F	0A	
2	Cho: Rate	00 - 7D	08	
3	Cho: Depth	00 - 7F	48	
5	Cho: Balance (#1)	00 - 7F	40	
6	Flg: Delay	00 - 7F	0B	
7	Flg: Rate	00 - 7D	0B	
8	Flg: Depth	00 - 7F	18	
9	Flg: Feedback	0F - 71	68	40: 0%, 2% / 1 Step
10	Flg: Balance (#2)	00 - 7F	40	
16	Flg: Pan	00 - 7F	00	
17	Flg: Level	00 - 7F	7F	
18	Dly: Pan	00 - 7F	7F	
19	Dly: Level	00 - 7F	7F	
20	Level	00 - 7F	7F	

●02H, 0CH: Band Pass Delay

No.	Parameter	Value	Default	Description
1	Ph: Manual Freq	00 - 7F	28	
2	Ph: Rate	00 - 7F	20	
3	Ph: Depth	00 - 7F	50	
4	Ph: Resonance	00 - 7F	30	
5	Ph: Mix	00 - 7F	7F	
6	Dly: Delay	00 - 7F	00	
7	Dly: Delay Deviation	00 - 7F	2B	
8	Dly: Level	00 - 7F	7F	
9	Dly: Feedback(#1)	00 - 7F	50	
10	Dly: PanType	00 - 7F	03	
11	Dly: Freq1	00 - 7F	08	
12	Dly: Freq2	00 - 7F	10	
13	Dly: Freq3	00 - 7F	18	
14	Dly: Freq4	00 - 7F	20	
15	Dly: Freq5	00 - 7F	28	
16	Dly: Q12	00 - 7F	50	
17	Dly: Q345	00 - 7F	60	
18	Dly: Balance(#2)	00 - 7F	7F	
20	Level	00 - 7F	7F	

●03H, 00H: Rotary Multi

No.	Parameter	Value	Default	Description
1	OD: Drive Depth(#1)	00 - 7F	0d	
2	OD: Drive Switch	00 - 7F	01	00: OFF, 01: Overdrive, 02: Distortion
3	EQ: Low Gain	31 - 4F	46	-15dB - +15dB (40: 0dB)
4	EQ: Mid Frequency	00 - 7F	28	00: 200Hz - 7F: 6300Hz
9	EQ: Mid Q	00 - 7F	00	
10	EQ: Mid Gain	31 - 4F	44	-15dB - +15dB (40: 0dB)
11	EQ: High Gain	31 - 4F	40	-15dB - +15dB (40: 0dB)
8	RT: Lo Rate Slow	00 - 7F	06	
9	RT: Lo Rate Fast	00 - 7F	71	
10	RT: Lo Acceleration	00 - 7F	18	
11	RT: Lo Level	00 - 7F	7F	
12	RT: Hi Rate Slow	00 - 7F	11	
13	RT: Hi Rate Fast	00 - 7F	78	
14	RT: Hi Acceleration	00 - 7F	58	
15	RT: Hi Level	00 - 7F	40	
16	RT: Separation	00 - 7F	60	
17	RT: Speed(#2)	00 - 7F	00	
20	Level	00 - 7F	7F	

●04H, 03H: Clean Guitar Multi1

No.	Parameter	Value	Default	Description
1	Cmp: Attack	00 - 7F	70	
2	Cmp: Sustain	00 - 7F	60	
3	Cmp: Level	00 - 7F	7F	
4	Cmp: Sw	00 - 01	01	00: OFF, 01: ON
5	EQ: Low Gain	31 - 4F	3E	-15dB - +15dB (40: 0dB)
6	EQ: Mid Frequency	00 - 7F	40	00: 200Hz - 7F: 6300Hz
7	EQ: Mid Q	00 - 7F	02	
8	EQ: Mid Gain	31 - 4F	46	-15dB - +15dB (40: 0dB)
9	EQ: High Gain	31 - 4F	46	-15dB - +15dB (40: 0dB)
10	ChoFlg: Sw	00 - 01	00	00:Chorus, 01:Flanger
11	ChoFlg: Rate	00 - 7F	08	
12	ChoFlg: Depth	00 - 7F	48	
13	ChoFlg: Feedback	00 - 7F	40	
14	ChoFlg: Level(#1)	00 - 7F	40	
15	Dly: Delay	00 - 7F	20	
16	Dly: Feedback	00 - 7F	18	
17	Dly: HFDamp	00 - 7F	58	
18	Dly: Level(#2)	00 - 7F	20	
20	level	00 - 7F	7F	

●04H, 04H: Clean Guitar Multi2

No.	Parameter	Value	Default	Description
1	AW: Filter	00 - 7F	01	00:LPF, 01:BPF
2	AW: Manual(#1)	00 - 7F	37	
3	AW: Peak	00 - 7F	28	
4	AW: Rate	00 - 7F	28	
5	AW: Depth	00 - 7F	50	
6	AW: Switch	00 - 7F	01	00:OFF, 01:ON
7	EQ: Low Gain	31 - 4F	40	-15dB - +15dB (40: 0dB)
8	EQ: Mid Frequency	00 - 7F	18	00: 200Hz - 7F: 6300Hz
9	EQ: Mid Q	00 - 7F	00	
10	EQ: Mid Gain	31 - 4F	43	-15dB - +15dB (40: 0dB)
11	EQ: High Gain	31 - 4F	40	-15dB - +15dB (40: 0dB)
12	ChoFlg: Switch	00 - 7F	00	
13	ChoFlg: Rate	00 - 7F	08	
14	ChoFlg: Depth	00 - 7F	28	
15	ChoFlg: Feedback	00 - 7F	66	
16	ChoFlg: Level	00 - 7F	30	
17	Dly: Delay	00 - 7F	1B	
18	Dly: Feedback	00 - 7F	06	
19	Dly: Level(#2)	00 - 7F	20	
20	level	00 - 7F	7F	

●04H, 06H: Rhodes Multi

No.	Parameter	Value	Default	Description
1	EH: Sense	00 - 7F	40	
2	EH: Mix	00 - 7F	40	
3	Ph: Manual	00 - 7F	24	
4	Ph: Rate	00 - 7F	10	
5	Ph: Depth	00 - 7F	20	
6	Ph: Resonance	00 - 7F	10	
7	Ph: Mix	00 - 7F	30	
8	ChoFlg: ChoFlgSw	00 - 7F	00	
9	ChoFlg: Lpf	00 - 7F	7F	
10	ChoFlg: PreDly	00 - 7F	0A	
11	ChoFlg: Rate	00 - 7F	08	
12	ChoFlg: Depth	00 - 7F	40	
13	ChoFlg: Feedback	00 - 7F	68	
14	ChoFlg: Level(#1)	00 - 7F	40	
15	TP: Tremolo Pan SW	00 - 01	01	00:Tremolo, 01:Auto Pan
16	TP: Wave	00 - 04	02	00:Triangle, 01:Square, 02:Sin, 03:Saw(Up), 04:Saw(Down)
17	TP: Rate	00 - 7F	3c	
18	TP: Depth(#2)	00 - 7F	30	
19	TP: SW	00 - 01	01	00:OFF, 01:ON
20	Level	00 - 7F	7F	

●05H, 00H: Keyboard Multi

No.	Parameter	Value	Default	Description
1	RM: Freq(#1)	00 - 7F	28	
2	RM: Balance(#2)	00 - 7F	10	
3	EQ: Low Gain	31 - 4F	43	-15dB - +15dB (40: 0dB)
4	EQ: Mid Frequency	00 - 7F	43	00: 200Hz - 7F: 6300Hz
9	EQ: Mid Q	00 - 7F	00	
10	EQ: Mid Gain	31 - 4F	43	-15dB - +15dB (40: 0dB)
11	EQ: High Gain	31 - 4F	3E	-15dB - +15dB (40: 0dB)
8	PS: Coarse	00 - 7F	47	
9	PS: Fine	00 - 7F	40	
10	PS: Mode	00 - 7F	00	
11	PS: Balance	00 - 7F	18	
12	Ph: Manual	00 - 7F	24	
13	Ph: Rate	00 - 7F	08	
14	Ph: Depth	00 - 7F	5A	
15	Ph: Resonance	00 - 7F	50	
16	Ph: Mix	00 - 7F	4b	
17	Dly: Delay	00 - 7F	20	
18	Dly: Feedback	00 - 7F	30	
19	Dly: Level	00 - 7F	18	
20	Level	00 - 7F	60	

Pre Delay Table

Value	(msec)	Value	(msec)	Value	(msec)	Value	(msec)
00H	0.0	20H	3.2	40H	14	60H	46
01H	0.1	21H	3.3	41H	15	61H	47
02H	0.2	22H	3.4	42H	16	62H	48
03H	0.3	23H	3.5	43H	17	63H	49
04H	0.4	24H	3.6	44H	18	64H	50
05H	0.5	25H	3.7	45H	19	65H	52
06H	0.6	26H	3.8	46H	20	66H	54
07H	0.7	27H	3.9	47H	21	67H	56
08H	0.8	28H	4.0	48H	22	68H	58
09H	0.9	29H	4.1	49H	23	69H	60
0AH	1.0	2AH	4.2	4AH	24	6AH	62
0BH	1.1	2BH	4.3	4BH	25	6BH	64
0CH	1.2	2CH	4.4	4CH	26	6CH	66
0DH	1.3	2DH	4.5	4DH	27	6DH	68
0EH	1.4	2EH	4.6	4EH	28	6EH	70
0FH	1.5	2FH	4.7	4FH	29	6FH	72
10H	1.6	30H	4.8	50H	30	70H	74
11H	1.7	31H	4.9	51H	31	71H	76
12H	1.8	32H	5.0	52H	32	72H	78
13H	1.9	33H	5.5	53H	33	73H	80
14H	2.0	34H	6.0	54H	34	74H	82
15H	2.1	35H	6.5	55H	35	75H	84
16H	2.2	36H	7.0	56H	36	76H	86
17H	2.3	37H	7.5	57H	37	77H	88
18H	2.4	38H	8.0	58H	38	78H	90
19H	2.5	39H	8.5	59H	39	79H	92
1AH	2.6	3AH	9.0	5AH	40	7AH	94
1BH	2.7	3BH	9.5	5BH	41	7BH	96
1CH	2.8	3CH	10	5CH	42	7CH	98
1DH	2.9	3DH	11	5DH	43	7DH	100
1EH	3.0	3EH	12	5EH	44	7EH	100
1FH	3.1	3FH	13	5FH	45	7FH	100

Long Delay Table(Triple Tap Delay, Quadruple Delay)

Value	(msec)	Value	(msec)	Value	(msec)	Value	(msec)
00H	200	20H	360	40H	520	60H	810
01H	205	21H	365	41H	525	61H	820
02H	210	22H	370	42H	530	62H	830
03H	215	23H	375	43H	535	63H	840
04H	220	24H	380	44H	540	64H	850
05H	225	25H	385	45H	545	65H	860
06H	230	26H	390	46H	550	66H	870
07H	235	27H	395	47H	560	67H	880
08H	240	28H	400	48H	570	68H	890
09H	245	29H	405	49H	580	69H	900
0AH	250	2AH	410	4AH	590	6AH	910
0BH	255	2BH	415	4BH	600	6BH	920
0CH	260	2CH	420	4CH	610	6CH	930
0DH	265	2DH	425	4DH	620	6DH	940
0EH	270	2EH	430	4EH	630	6EH	950
0FH	275	2FH	435	4FH	640	6FH	960
10H	280	30H	440	50H	650	70H	970
11H	285	31H	445	51H	660	71H	980
12H	290	32H	450	52H	670	72H	990
13H	295	33H	455	53H	680	73H	1000
14H	300	34H	460	54H	690	74H	--
15H	305	35H	465	55H	700	75H	--
16H	310	36H	470	56H	710	76H	--
17H	315	37H	475	57H	720	77H	--
18H	320	38H	480	58H	730	78H	--
19H	325	39H	485	59H	740	79H	--
1AH	330	3AH	490	5AH	750	7AH	--
1BH	335	3BH	495	5BH	760	7BH	--
1CH	340	3CH	500	5CH	770	7CH	--
1DH	345	3DH	505	5DH	780	7DH	--
1EH	350	3EH	510	5EH	790	7EH	--
1FH	355	3FH	515	5FH	800	7FH	--

Stereo Delay Table(Stereo Delay, Modulation Delay)

Value	(msec)	Value	(msec)	Value	(msec)	Value	(msec)
00H	0.0	20H	3.2	40H	14	60H	110
01H	0.1	21H	3.3	41H	15	61H	120
02H	0.2	22H	3.4	42H	16	62H	130
03H	0.3	23H	3.5	43H	17	63H	140
04H	0.4	24H	3.6	44H	18	64H	150
05H	0.5	25H	3.7	45H	19	65H	160
06H	0.6	26H	3.8	46H	20	66H	170
07H	0.7	27H	3.9	47H	21	67H	180
08H	0.8	28H	4.0	48H	22	68H	190
09H	0.9	29H	4.1	49H	23	69H	200
0AH	1.0	2AH	4.2	4AH	24	6AH	210
0BH	1.1	2BH	4.3	4BH	25	6BH	220
0CH	1.2	2CH	4.4	4CH	26	6CH	230
0DH	1.3	2DH	4.5	4DH	27	6DH	240
0EH	1.4	2EH	4.6	4EH	28	6EH	250
0FH	1.5	2FH	4.7	4FH	29	6FH	260
10H	1.6	30H	4.8	50H	30	70H	270
11H	1.7	31H	4.9	51H	31	71H	280
12H	1.8	32H	5.0	52H	32	72H	290
13H	1.9	33H	5.5	53H	33	73H	300
14H	2.0	34H	6.0	54H	34	74H	320
15H	2.1	35H	6.5	55H	35	75H	340
16H	2.2	36H	7.0	56H	36	76H	360
17H	2.3	37H	7.5	57H	37	77H	380
18H	2.4	38H	8.0	58H	38	78H	400
19H	2.5	39H	8.5	59H	39	79H	420
1AH	2.6	3AH	9.0	5AH	40	7AH	440
1BH	2.7	3BH	9.5	5BH	50	7BH	460
1CH	2.8	3CH	10	5CH	70	7CH	480
1DH	2.9	3DH	11	5DH	80	7DH	500
1EH	3.0	3EH	12	5EH	90	7EH	500
1FH	3.1	3FH	13	5FH	100	7FH	500

Rate Table(Chorus, Flanger, etc)

Value	(sec)	Value	(sec)	Value	(sec)	Value	(sec)
00H	0.05	20H	1.65	40H	3.25	60H	4.85
01H	0.10	21H	1.70	41H	3.30	61H	4.90
02H	0.15	22H	1.75	42H	3.35	62H	4.95
03H	0.20	23H	1.80	43H	3.40	63H	5.00
04H	0.25	24H	1.85	44H	3.45	64H	5.10
05H	0.30	25H	1.90	45H	3.50	65H	5.20
06H	0.35	26H	1.95	46H	3.55	66H	5.30
07H	0.40	27H	2.00	47H	3.60	67H	5.40
08H	0.45	28H	2.05	48H	3.65	68H	5.50
09H	0.50	29H	2.10	49H	3.70	69H	5.60
0AH	0.55	2AH	2.15	4AH	3.75	6AH	5.70
0BH	0.60	2BH	2.20	4BH	3.80	6BH	5.80
0CH	0.65	2CH	2.25	4CH	3.85	6CH	5.90
0DH	0.70	2DH	2.30	4DH	3.90	6DH	6.00
0EH	0.75	2EH	2.35	4EH	3.95	6EH	6.10
0FH	0.80	2FH	2.40	4FH	4.00	6FH	6.20
10H	0.85	30H	2.45	50H	4.05	70H	6.30
11H	0.90	31H	2.50	51H	4.10	71H	6.40
12H	0.95	32H	2.55	52H	4.15	72H	6.50
13H	1.00	33H	2.60	53H	4.20	73H	6.60
14H	1.05	34H	2.65	54H	4.25	74H	6.70
15H	1.10	35H	2.70	55H	4.30	75H	6.80
16H	1.15	36H	2.75	56H	4.35	76H	6.90
17H	1.20	37H	2.80	57H	4.40	77H	7.00
18H	1.25	38H	2.85	58H	4.45	78H	7.50
19H	1.30	39H	2.90	59H	4.50	79H	8.00
1AH	1.35	3AH	2.95	5AH	4.55	7AH	8.50
1BH	1.40	3BH	3.00	5BH	4.60	7BH	9.00
1CH	1.45	3CH	3.05	5CH	4.65	7CH	9.50
1DH	1.50	3DH	3.10	5DH	4.70	7DH	10.00
1EH	1.55	3EH	3.15	5EH	4.75	7EH	10.00
1FH	1.60	3FH	3.20	5FH	4.80	7FH	10.00

HF Damp

Value	(Hz)
00H-07H	315
08H-0FH	400
10H-17H	500
18H-1FH	630
20H-27H	800
28H-2FH	1000
30H-37H	1250
38H-3FH	1600
40H-47H	2000
48H-4FH	2500
50H-57H	3150
58H-5FH	4000
60H-67H	5000
68H-6FH	6300
70H-77H	8000
78H-7FH	Bypass

	CC0 / CC32 / PC#	Tone Name	Voices
1.	00h / 00h / 00h	Grand Piano1	2
1.	00h / 01h / 00h	Piano 1	1
1.	00h / 41h / 00h	MIDI Piano1	1
1.	00h / 47h / 00h	Piano Choir	2
1.	00h / 48h / 00h	Piano 1*	1
1.	08h / 00h / 00h	Piano 1w	2
1.	10h / 00h / 00h	Piano 1d	1
1.	10h / 40h / 00h	UprightPiano	2
1.	10h / 41h / 00h	Ballad Piano	1
2.	00h / 00h / 01h	Piano 2	1
2.	00h / 40h / 01h	Bright Piano	2
2.	00h / 41h / 01h	MIDI Piano2	1
2.	00h / 42h / 01h	BrightPiano2	2
2.	00h / 48h / 01h	Piano 2*	1
2.	08h / 00h / 01h	Piano 2w	2
2.	08h / 41h / 01h	Grand Piano2	2
3.	00h / 00h / 02h	Piano 3	1
3.	00h / 40h / 02h	Rock Piano	2
3.	00h / 41h / 02h	EG+Rhodes 1	2
3.	00h / 42h / 02h	EG+Rhodes 2	2
3.	00h / 43h / 02h	Bell Piano	3
3.	00h / 44h / 02h	Piano Oohs	2
3.	00h / 45h / 02h	E. Grand	2
3.	00h / 48h / 02h	Piano 3*	1
3.	08h / 00h / 02h	Piano 3w	2
3.	08h / 41h / 02h	Air Grand	3
3.	08h / 42h / 02h	PianoStrings	3
3.	08h / 43h / 02h	BrightPiano2	2
3.	08h / 44h / 02h	Piano Choir	4
4.	00h / 00h / 03h	GS Honkytonk	2
4.	00h / 40h / 03h	Honky-Tonk	2
4.	00h / 48h / 03h	Honky-tonk*	2
4.	08h / 00h / 03h	Honky-tonk 2	2
5.	00h / 00h / 04h	GS E.Piano1	1
5.	00h / 41h / 04h	Hard Rhodes	2
5.	00h / 42h / 04h	Stage Rhodes	2
5.	00h / 48h / 04h	E.Piano 1*	1
5.	08h / 00h / 04h	Detuned EP 1	2
5.	08h / 40h / 04h	Soft E.Piano	2
5.	08h / 42h / 04h	Chord EP1	1
5.	08h / 44h / 04h	PhaseRhods	2
5.	10h / 00h / 04h	E.Piano 1v	2
5.	10h / 40h / 04h	E.Piano 1	2
5.	10h / 42h / 04h	Suitcase	1
5.	10h / 43h / 04h	Dyno Rhodes	1
5.	10h / 44h / 04h	Tremolo Dyno	2
5.	18h / 00h / 04h	60's E.Piano	1
5.	18h / 40h / 04h	Sine Rhodes	1
5.	18h / 41h / 04h	Wurly	2
5.	18h / 42h / 04h	Dist E.Piano	2
5.	18h / 48h / 04h	60'sE.Piano*	1
6.	00h / 00h / 05h	GS E.Piano2	1
6.	00h / 40h / 05h	Hard E.Piano	2
6.	00h / 41h / 05h	E.Piano 3	1
6.	00h / 43h / 05h	EP Phase	2
6.	00h / 48h / 05h	E.Piano 2*	1
6.	08h / 00h / 05h	Detuned EP 2	2
6.	08h / 40h / 05h	St.FM EP	2
6.	08h / 41h / 05h	FM+SA EP	2
6.	08h / 42h / 05h	Hard FM EP	2
6.	08h / 43h / 05h	MellowRhodes	2
6.	10h / 00h / 05h	E.Piano 2v	2
6.	10h / 40h / 05h	E.Piano 2	1
6.	10h / 42h / 05h	EP Legend	2
7.	00h / 00h / 06h	GS Harpsi.	1
7.	00h / 40h / 06h	Harpsi.Singl	1
7.	00h / 41h / 06h	Harpsichord	2
7.	00h / 48h / 06h	Harpsichord*	1
7.	08h / 00h / 06h	Coupled Hps.	2
7.	08h / 40h / 06h	Harpsi.Doubl	2
7.	08h / 41h / 06h	Synth Harpsi	2
7.	10h / 00h / 06h	Harpsi.w	2
7.	18h / 00h / 06h	Harpsi.o	2
8.	00h / 00h / 07h	Soft Clav.	1
8.	00h / 40h / 07h	Analog Clav.	2
8.	00h / 41h / 07h	5th Ana.Clav	2
8.	00h / 42h / 07h	Hard Clav.	1
8.	00h / 43h / 07h	Clav.	1
8.	00h / 44h / 07h	SynRingClav.	2
8.	00h / 45h / 07h	Reso Clav.	1
8.	00h / 46h / 07h	Phase Clav.	1
8.	00h / 47h / 07h	Pulse Clav	1
8.	00h / 48h / 07h	Clav.*	1
9.	00h / 00h / 08h	Celesta	1
9.	00h / 40h / 08h	Pop Celesta	2
9.	00h / 48h / 08h	Celesta*	1
10.	00h / 00h / 09h	Glockenspiel GS	1
10.	00h / 40h / 09h	Glockenspiel	1
10.	00h / 48h / 09h	Glocken*	1
11.	00h / 00h / 0Ah	Music Box GS	1
11.	00h / 40h / 0Ah	Music Box	1
11.	00h / 48h / 0Ah	Music Box*	1
12.	00h / 00h / 0Bh	Vibraphone	1
12.	00h / 41h / 0Bh	Pop Vibe.	2
12.	00h / 48h / 0Bh	Vibraphone*	1
12.	08h / 00h / 0Bh	Vibe.w	2
12.	08h / 40h / 0Bh	Jazzy Vib+Gt	2
13.	00h / 00h / 0Ch	GS Marimba	1
13.	00h / 40h / 0Ch	Soft Marimba	1
13.	00h / 48h / 0Ch	Marimba*	1
13.	08h / 00h / 0Ch	Marimba	1
13.	08h / 40h / 0Ch	Balafon	1
14.	00h / 00h / 0Dh	Xylophone	1
14.	00h / 48h / 0Dh	Xylophone*	1
15.	00h / 00h / 0Eh	Tubular-bell	1
15.	00h / 48h / 0Eh	Tubularbell*	1
15.	08h / 00h / 0Eh	Church Bell	1
15.	09h / 00h / 0Eh	Carillon	1
15.	09h / 48h / 0Eh	Carillon*	1
16.	00h / 00h / 0Fh	Santur GS	1
16.	00h / 40h / 0Fh	Santur	2
16.	00h / 48h / 0Fh	Santur*	1
17.	00h / 00h / 10h	Organ 1	1
17.	00h / 42h / 10h	Lower Organ	1
17.	00h / 43h / 10h	Full Organ 5	2
17.	00h / 44h / 10h	Trem. Organ	2
17.	00h / 48h / 10h	Organ 1*	1
17.	01h / 00h / 10h	Full Organ 1	1
17.	08h / 00h / 10h	Detuned Or.1	2
17.	08h / 42h / 10h	Lower Organ2	1
17.	08h / 43h / 10h	Full Organ 6	2
17.	09h / 00h / 10h	Full Organ 2	1
17.	10h / 00h / 10h	Pop Organ 1	1
17.	10h / 42h / 10h	Lower Organ3	1
17.	10h / 43h / 10h	Full Organ 7	2
17.	10h / 48h / 10h	Pop Organ 1*	1
17.	11h / 00h / 10h	Pop Organ 2	1
17.	12h / 00h / 10h	Pop Organ 3	1
17.	20h / 00h / 10h	Full Organ 4	1
17.	20h / 01h / 10h	Organ 4	2
17.	20h / 40h / 10h	VS Organ	2
17.	20h / 42h / 10h	Metalic Org.	2
17.	20h / 43h / 10h	Full Organ 8	1
17.	20h / 44h / 10h	Organ 4	2
17.	21h / 00h / 10h	Full Organ 3	1
18.	00h / 00h / 11h	Organ 2	1
18.	00h / 41h / 11h	Jazz Organ4	2
18.	00h / 42h / 11h	Jazz Organ 5	2
18.	00h / 48h / 11h	Organ 2*	1
18.	01h / 00h / 11h	Jazz Organ3	2
18.	08h / 00h / 11h	Detuned Or.2	2
18.	08h / 41h / 11h	Organ Bass	2
18.	08h / 42h / 11h	Jazz Organ 6	2
18.	20h / 00h / 11h	Jazz Organ	2
18.	20h / 01h / 11h	Organ 5	2
18.	20h / 40h / 11h	Jazz Organ2	2
18.	20h / 41h / 11h	Pipe Org. Bs	2
18.	20h / 42h / 11h	Jazz Organ 7	2
18.	20h / 44h / 11h	Perc. Organ	2
19.	00h / 00h / 12h	Rock Organ2	2
19.	00h / 40h / 12h	Rock Organ1	2

No.	Address	Name	Val
19.	00h / 41h / 12h	Rotary Org.S	1
19.	00h / 42h / 12h	Rotary Org.F	1
19.	00h / 43h / 12h	L-Organ	1
19.	00h / 48h / 12h	Rock Organ2*	2
20.	00h / 00h / 13h	Church Org.1	1
20.	00h / 40h / 13h	Organ Flute	1
20.	00h / 41h / 13h	Church Organ	2
20.	00h / 43h / 13h	Diapason 8'	1
20.	00h / 48h / 13h	ChurchOrg.1*	1
20.	08h / 00h / 13h	Church Org.2	2
20.	08h / 40h / 13h	Trem.Flute	2
20.	08h / 41h / 13h	Pipe Organ	2
20.	08h / 43h / 13h	Puff Organ	2
20.	10h / 00h / 13h	Church Org.3	2
20.	10h / 40h / 13h	Theater Org.	2
20.	10h / 42h / 13h	Nason flt 8'	1
21.	00h / 00h / 14h	Reed Organ	1
21.	00h / 40h / 14h	Digi Church	2
21.	00h / 41h / 14h	CheeseOrgan	1
21.	00h / 48h / 14h	Reed Organ*	1
22.	00h / 00h / 15h	Accordion Fr	2
22.	00h / 40h / 15h	Accordion	1
22.	00h / 41h / 15h	Hard Accord	2
22.	00h / 48h / 15h	AccordionFr*	2
22.	08h / 00h / 15h	Accordion It	2
22.	08h / 44h / 15h	It Musette	1
23.	00h / 00h / 16h	GS Harmonica	1
23.	00h / 44h / 16h	Blues Harp	1
23.	00h / 48h / 16h	Harmonica*	1
23.	01h / 00h / 16h	Harmonica	1
24.	00h / 00h / 17h	Bandoneon	2
24.	00h / 48h / 17h	Bandoneon*	2
25.	00h / 00h / 18h	GS Nylon Gt.	1
25.	00h / 42h / 18h	Chord Gt1	1
25.	00h / 43h / 18h	Flamenco Gtr	1
25.	00h / 48h / 18h	Nylon-strGt*	1
25.	08h / 00h / 18h	Ukulele	1
25.	08h / 40h / 18h	Gut Guitar	1
25.	10h / 00h / 18h	Nylon Gt.o	2
25.	20h / 00h / 18h	Nylon Guitar	2
25.	20h / 01h / 18h	Nylon Gt.2	1
25.	20h / 44h / 18h	Requint Gtr	1
26.	00h / 00h / 19h	Steel-str.Gt	1
26.	00h / 40h / 19h	Steel Guitar	2
26.	00h / 42h / 19h	EX Ac.Guitar	1
26.	00h / 43h / 19h	EX A.Guitar2	1
26.	00h / 44h / 19h	Steel+Body	2
26.	00h / 45h / 19h	Steel Vox	2
26.	00h / 46h / 19h	Ac.Guitar 3	2
26.	00h / 48h / 19h	Steel-strGt*	1
26.	08h / 00h / 19h	12-str.Gt	2
26.	08h / 40h / 19h	12str Guitar	2
26.	09h / 00h / 19h	Nylon+Steel	2
26.	10h / 00h / 19h	GS Mandolin	1
26.	10h / 40h / 19h	Mandolin	1
26.	20h / 00h / 19h	Steel Gt.2	1
27.	00h / 00h / 1Ah	Jazz Guitar	1
27.	00h / 44h / 1Ah	Jazz Gtr 2	1
27.	00h / 48h / 1Ah	Jazz Guitar*	1
27.	01h / 04h / 1Ah	Mellow Gt.	2
27.	08h / 00h / 1Ah	Hawaiian GS	1
27.	08h / 40h / 1Ah	Hawaiian Gt.	1
28.	00h / 00h / 1Bh	Clean Gt.	1
28.	00h / 40h / 1Bh	JC E.Guitar	2
28.	00h / 41h / 1Bh	Open Hard	2
28.	00h / 42h / 1Bh	Mid Tone GTR	2
28.	00h / 48h / 1Bh	Clean Gt.*	1
28.	08h / 00h / 1Bh	Chorus Gt.	2
28.	08h / 40h / 1Bh	Clean Half	1
29.	00h / 00h / 1Ch	Muted Gt.	1
29.	00h / 40h / 1Ch	Muted Dis.Gt	1
29.	00h / 48h / 1Ch	Muted Gt.*	1
29.	08h / 00h / 1Ch	Funk Gt.	1
29.	08h / 40h / 1Ch	Jazz Man	2
29.	08h / 48h / 1Ch	Funk Gt.*	1
29.	10h / 00h / 1Ch	Funk Gt.2	2
30.	00h / 00h / 1Dh	Overdrive Gt	1
30.	00h / 41h / 1Dh	Guitar Pinch	2
30.	00h / 44h / 1Dh	LP Chorus	2
30.	00h / 48h / 1Dh	OverdriveGt*	1
31.	00h / 00h / 1Eh	DistortionGt GS	1
31.	00h / 40h / 1Eh	DistortionGt	2
31.	00h / 41h / 1Eh	Dazed Guitar	2
31.	00h / 42h / 1Eh	Rock Rhythm2	2
31.	00h / 48h / 1Eh	Dist.Guitar*	1
31.	08h / 00h / 1Eh	Feedback Gt.	2
31.	08h / 40h / 1Eh	Power Gt.2	2
31.	08h / 41h / 1Eh	Power Guitar	2
31.	08h / 42h / 1Eh	Rock Rhythm	2
31.	08h / 43h / 1Eh	Dist Rtm GTR	1
31.	08h / 44h / 1Eh	Feedback Gt2	2
31.	08h / 45h / 1Eh	5th Dist.	2
32.	00h / 00h / 1Fh	Gt.Harmonics	1
32.	00h / 48h / 1Fh	Gt.Harmo*	1
32.	08h / 00h / 1Fh	Gt. Feedback	1
32.	10h / 00h / 1Fh	Ac.Gt.Harmnx	1
33.	00h / 00h / 20h	GS Ac.Bass	1
33.	00h / 40h / 20h	Acoustic Bs.	2
33.	00h / 41h / 20h	A.Bass+Cymbl	2
33.	00h / 44h / 20h	Guitaron	1
33.	00h / 45h / 20h	Rockabilly	2
33.	00h / 46h / 20h	Wild Ac.Bs	2
33.	00h / 48h / 20h	Acoustic Bs*	1
34.	00h / 00h / 21h	GS Fing.Bass	1
34.	00h / 40h / 21h	Fingered Bs.	1
34.	00h / 41h / 21h	Finger Slap	2
34.	00h / 44h / 21h	Baby Bass	1
34.	00h / 45h / 21h	Jazz Bass	1
34.	00h / 48h / 21h	Fingered Bs*	1
35.	00h / 00h / 22h	Picked Bs	1
35.	00h / 40h / 22h	Picked Bs.	1
35.	00h / 41h / 22h	Mute PickBs.	1
35.	00h / 48h / 22h	Picked Bs.*	1
36.	00h / 00h / 23h	Fretless Bs.	1
36.	00h / 40h / 23h	Mr.Smooth	2
36.	00h / 48h / 23h	Fretless Bs*	1
37.	00h / 00h / 24h	Slap Bass	1
37.	00h / 48h / 24h	Slap Bass 1*	1
38.	00h / 00h / 25h	Slap Bass 2	1
38.	00h / 48h / 25h	Slap Bass 2*	1
39.	00h / 00h / 26h	Synth Bass 1	1
39.	00h / 40h / 26h	Jungle Bass	1
39.	00h / 41h / 26h	Hammer	2
39.	00h / 48h / 26h	Synth Bass1*	1
39.	01h / 00h / 26h	SynthBass101	1
39.	01h / 40h / 26h	ResoSH Bass	1
39.	08h / 00h / 26h	Synth Bass 3	1
39.	08h / 04h / 26h	Acid Bass	1
39.	08h / 40h / 26h	Clavi Bass	2
40.	00h / 00h / 27h	Synth Bass 2	2
40.	00h / 40h / 27h	Synth Bass	2
40.	00h / 48h / 27h	Synth Bass2*	2
40.	08h / 00h / 27h	Synth Bass 4	2
40.	08h / 04h / 27h	Beef FM Bass	2
40.	08h / 41h / 27h	Modular Bass	2
40.	08h / 42h / 27h	Attack Pulse	2
40.	10h / 00h / 27h	Rubber Bass	2
40.	10h / 40h / 27h	SH101 Bass	1
40.	10h / 41h / 27h	WireStr Bass	2
40.	10h / 42h / 27h	Sync Bass	2
40.	10h / 48h / 27h	Rubber Bass*	2
40.	13h / 04h / 27h	Smooth Bass	2
41.	00h / 00h / 28h	Violin GS	1
41.	00h / 40h / 28h	Violin	1
41.	00h / 48h / 28h	Violin*	1
41.	08h / 00h / 28h	Slow Violin	1
42.	00h / 00h / 29h	Viola	1
42.	00h / 48h / 29h	Viola*	1
43.	00h / 00h / 2Ah	Cello GS	1
43.	00h / 40h / 2Ah	Cello	1
43.	00h / 48h / 2Ah	Cello*	1
44.	00h / 00h / 2Bh	Contrabass	1

No.			Name	Voices
44.	00h / 48h / 2Bh		Contrabass*	1
45.	00h / 00h / 2Ch		Trem.Str	1
45.	00h / 40h / 2Ch		Tremolo Str	1
45.	00h / 41h / 2Ch		Suspense Str	2
45.	00h / 44h / 2Ch		JV Strings	2
45.	00h / 48h / 2Ch		Tremolo Str*	1
46.	00h / 00h / 2Dh		PizzicatoStr	1
46.	00h / 40h / 2Dh		Mellow Pizz.	1
46.	00h / 48h / 2Dh		Pizzicato*	1
47.	00h / 00h / 2Eh		GS Harp	1
47.	00h / 40h / 2Eh		Harp	1
47.	00h / 41h / 2Eh		Yang Qin	2
47.	00h / 42h / 2Eh		Harp Strings	1
47.	00h / 44h / 2Eh		St. Harp	2
47.	00h / 48h / 2Eh		Harp*	1
48.	00h / 00h / 2Fh		Timpani	1
48.	00h / 48h / 2Fh		Timpani*	1
49.	00h / 00h / 30h		GS Strings	1
49.	00h / 40h / 30h		Strings	2
49.	00h / 41h / 30h		Velo Strings	2
49.	00h / 42h / 30h		Oct Strings	2
49.	00h / 43h / 30h		60's Srrings	2
49.	00h / 44h / 30h		Strings 2	2
49.	00h / 45h / 30h		DecayStrings	2
49.	00h / 48h / 30h		Strings*	1
49.	08h / 00h / 30h		Orchestra	2
49.	08h / 40h / 30h		OrchestraBrs	2
49.	08h / 41h / 30h		Choir Str	2
50.	00h / 00h / 31h		GS Sl.Str	1
50.	00h / 40h / 31h		Slow Strings	2
50.	00h / 41h / 31h		SlowStrings2	2
50.	00h / 42h / 31h		Legato Str	2
50.	00h / 43h / 31h		Warm Strings	2
50.	00h / 44h / 31h		DolceStrings	2
50.	00h / 48h / 31h		SlowStrings*	1
51.	00h / 00h / 32h		Syn.Strings1	1
51.	00h / 40h / 32h		Syn.Slow Str	2
51.	00h / 41h / 32h		OB Strings	2
51.	00h / 48h / 32h		Syn.Str 1*	1
51.	08h / 00h / 32h		Syn.Strings3	2
52.	00h / 00h / 33h		Syn.Strings2	2
52.	00h / 40h / 33h		JP Saw Str	2
52.	00h / 48h / 33h		Syn.Str 2*	2
53.	00h / 00h / 34h		Choir Aahs	1
53.	00h / 40h / 34h		Rich Choir	2
53.	00h / 42h / 34h		Dreamy Choir	2
53.	00h / 43h / 34h		Kid's Choir	2
53.	00h / 44h / 34h		Boys Choir	1
53.	00h / 45h / 34h		Jz Scat Vib2	2
53.	00h / 46h / 34h		Jz Scat Vib	2
53.	00h / 47h / 34h		Jz Scat Doet	2
53.	00h / 48h / 34h		Choir Aahs*	1
53.	20h / 00h / 34h		Choir	1
53.	20h / 40h / 34h		Choir Str	2
53.	20h / 41h / 34h		Voice Oohs	1
53.	20h / 42h / 34h		VoiceAah Fem	1
53.	20h / 43h / 34h		Chorus Lahs	1
53.	20h / 44h / 34h		Church Choir	2
53.	20h / 45h / 34h		Voice Dahs	1
53.	20h / 46h / 34h		Choir Hahs	1
53.	20h / 47h / 34h		Opera Voice	2
54.	00h / 00h / 35h		Pop Voice	1
54.	00h / 40h / 35h		Jazz Voices	1
54.	00h / 41h / 35h		Doos Voice	1
54.	00h / 42h / 35h		Thum Voice	1
54.	00h / 43h / 35h		Doot Accent	1
54.	00h / 44h / 35h		Dat Accent	1
54.	00h / 45h / 35h		Bop Accent	1
54.	00h / 46h / 35h		Doos & Doot	1
54.	00h / 47h / 35h		Dat & Bop	2
54.	00h / 48h / 35h		Pop Voice*	1
55.	00h / 00h / 36h		SynVox	1
55.	00h / 40h / 36h		Choir Oohs	2
55.	00h / 41h / 36h		Jazz Scat	1
55.	00h / 42h / 36h		Humming GM2	2
55.	00h / 43h / 36h		Humming	2
55.	00h / 44h / 36h		Tenor	1
55.	00h / 45h / 36h		Analog Voice	2
55.	00h / 47h / 36h		Dow Fall	1
55.	00h / 48h / 36h		SynVox*	1
55.	01h / 44h / 36h		Soprano	1
55.	04h / 04h / 36h		Oohs Chord	2
56.	00h / 00h / 37h		OrchestraHit	2
56.	00h / 40h / 37h		Philly Hit	2
56.	00h / 41h / 37h		6th Hit	1
56.	00h / 42h / 37h		Euro Hit	1
56.	00h / 43h / 37h		Bass Hit	1
56.	00h / 44h / 37h		Rave Hit	2
56.	00h / 45h / 37h		Stack Hit	2
56.	00h / 48h / 37h		Orche.Hit*	2
57.	00h / 00h / 38h		GS Trumpet	1
57.	00h / 41h / 38h		EX Trumpet	1
57.	00h / 42h / 38h		Trumpet 2	2
57.	00h / 43h / 38h		Tp Shake	1
57.	00h / 48h / 38h		Trumpet*	1
57.	01h / 00h / 38h		Trumpet	1
57.	01h / 41h / 38h		EX Tp&Shake	2
57.	01h / 42h / 38h		Dark Trumpet	1
57.	01h / 43h / 38h		Romantic Tp	1
58.	00h / 00h / 39h		Trombone GS	1
58.	00h / 40h / 39h		TromboneSoft	1
58.	00h / 41h / 39h		Bright Tb	1
58.	00h / 44h / 39h		Trombone 3	2
58.	00h / 48h / 39h		Trombone*	1
58.	01h / 00h / 39h		Trombone 2	2
58.	01h / 40h / 39h		Trombone	1
58.	01h / 44h / 39h		Bs.Trombone	1
59.	00h / 00h / 3Ah		Tuba GS	1
59.	00h / 40h / 3Ah		Tuba	1
59.	00h / 48h / 3Ah		Tuba*	1
60.	00h / 00h / 3Bh		MutedTrumpet	1
60.	00h / 40h / 3Bh		MuteTrumpet2	1
60.	00h / 44h / 3Bh		Muted Tp 2	2
60.	00h / 48h / 3Bh		M.Trumpet*	1
61.	00h / 00h / 3Ch		French Horn	2
61.	00h / 40h / 3Ch		Fr.Horn Solo	1
61.	00h / 41h / 3Ch		Flugel Horn	1
61.	00h / 48h / 3Ch		FrenchHorns*	2
61.	01h / 00h / 3Ch		Fr.Horn 2	2
61.	01h / 40h / 3Ch		SuperF.Horns	2
61.	01h / 41h / 3Ch		OrchestraBrs	2
62.	00h / 00h / 3Dh		Brass 1	1
62.	00h / 41h / 3Dh		Bright Brass	2
62.	00h / 42h / 3Dh		Brass ff	1
62.	00h / 43h / 3Dh		Brass sfz	2
62.	00h / 44h / 3Dh		Bones Sect.	1
62.	00h / 45h / 3Dh		2Tps+Tb+Sax	1
62.	00h / 48h / 3Dh		Brass 1*	1
62.	08h / 00h / 3Dh		Brass 2	2
62.	08h / 40h / 3Dh		Power Brass	2
62.	08h / 41h / 3Dh		BrassSection	1
62.	08h / 42h / 3Dh		St. Brass ff	2
62.	08h / 44h / 3Dh		FatPop Brass	2
62.	08h / 45h / 3Dh		Brass Fall	1
62.	08h / 46h / 3Dh		Trumpet Fall	1
63.	00h / 00h / 3Eh		Synth Brass1	2
63.	00h / 40h / 3Eh		Jump Brass	1
63.	00h / 48h / 3Eh		SynthBrass1*	2
63.	08h / 00h / 3Eh		Synth Brass3	2
63.	08h / 40h / 3Eh		DeepSynBrass	2
63.	08h / 41h / 3Eh		Oct SynBrass	2
63.	10h / 00h / 3Eh		AnalogBrass1	2
63.	10h / 48h / 3Eh		A.Brass 1*	2
64.	00h / 00h / 3Fh		Synth Brass2	2
64.	00h / 40h / 3Fh		EX Orchestra	2
64.	00h / 41h / 3Fh		Soft Brass	2
64.	00h / 48h / 3Fh		SynthBrass2*	2
64.	08h / 00h / 3Fh		Synth Brass4	1
64.	10h / 00h / 3Fh		AnalogBrass2	2
65.	00h / 00h / 40h		GS Sop.Sax	1
65.	00h / 40h / 40h		Soprano Sax	1
65.	00h / 48h / 40h		Soprano Sax*	1

66.	00h / 00h / 41h	Alto Sax	1
66.	00h / 40h / 41h	AltoSax Soft	1
66.	00h / 41h / 41h	EX Tenor Sax	2
66.	00h / 42h / 41h	Sax Section	1
66.	00h / 48h / 41h	Alto Sax*	1
66.	08h / 00h / 41h	Blow Sax	1
66.	08h / 40h / 41h	Grow Sax	1
66.	08h / 42h / 41h	AltoSax + Tp	2
67.	00h / 00h / 42h	Tenor Sax	1
67.	00h / 41h / 42h	Super Tenor	2
67.	00h / 48h / 42h	Tenor Sax*	1
67.	08h / 00h / 42h	Blow Sax	1
67.	08h / 40h / 42h	Tenor Sax f	1
68.	00h / 00h / 43h	GS Bari Sax	1
68.	00h / 40h / 43h	Baritone Sax	1
68.	00h / 41h / 43h	Bari & Tenor	2
68.	00h / 48h / 43h	BaritoneSax*	1
69.	00h / 00h / 44h	GS Oboe	1
69.	00h / 40h / 44h	Oboe	1
69.	00h / 48h / 44h	Oboe*	1
69.	01h / 40h / 44h	Tune Oboe	1
70.	00h / 00h / 45h	English Horn GS	1
70.	00h / 40h / 45h	English Horn	1
70.	00h / 48h / 45h	EnglishHorn*	1
71.	00h / 00h / 46h	Bassoon	1
71.	00h / 48h / 46h	Bassoon*	1
72.	00h / 00h / 47h	Clarinet	1
72.	00h / 40h / 47h	Bs Clarinet	1
72.	00h / 48h / 47h	Clarinet*	1
73.	00h / 00h / 48h	Piccolo	1
73.	00h / 48h / 48h	Piccolo*	1
74.	00h / 00h / 49h	GS Flute	1
74.	00h / 40h / 49h	Flute	1
74.	00h / 48h / 49h	Flute*	1
75.	00h / 00h / 4Ah	Recorder	1
75.	00h / 48h / 4Ah	Recorder*	1
76.	00h / 00h / 4Bh	GS Pan Flute	1
76.	00h / 40h / 4Bh	Blow Pipe	1
76.	00h / 41h / 4Bh	Pan Flute	2
76.	00h / 48h / 4Bh	Pan Flute*	1
77.	00h / 00h / 4Ch	Bottle Blow	2
77.	00h / 41h / 4Ch	BottleBlow2	1
77.	00h / 48h / 4Ch	Bottle Blow*	2
78.	00h / 00h / 4Dh	Shakuhachi	2
78.	00h / 48h / 4Dh	Shakuhachi*	2
79.	00h / 00h / 4Eh	Whistle	1
79.	00h / 48h / 4Eh	Whistle*	1
80.	00h / 00h / 4Fh	Ocarina	1
80.	00h / 48h / 4Fh	Ocarina*	1
81.	00h / 00h / 50h	Square Wave	2
81.	00h / 40h / 50h	Syn.Square	2
81.	00h / 41h / 50h	CC Solo	2
81.	00h / 42h / 50h	Dual Sqr&Saw	1
81.	00h / 43h / 50h	SquareWave2	2
81.	00h / 48h / 50h	Square Wave*	2
81.	01h / 00h / 50h	Square	1
81.	01h / 40h / 50h	FM Lead	2
81.	01h / 42h / 50h	LM Square	2
81.	03h / 04h / 50h	Mellow FM	2
81.	05h / 04h / 50h	Shmoog	2
81.	08h / 00h / 50h	Sine Wave	1
81.	08h / 40h / 50h	JP8 Square	1
82.	00h / 00h / 51h	Saw Wave	2
82.	00h / 40h / 51h	Mg Lead	1
82.	00h / 41h / 51h	JP SuperSaw	1
82.	00h / 42h / 51h	Saw Wave2	1
82.	00h / 43h / 51h	Waspy Synth	2
82.	00h / 48h / 51h	Saw Wave*	2
82.	01h / 00h / 51h	Saw	1
82.	01h / 40h / 51h	P5 Saw Lead	1
82.	01h / 41h / 51h	Natural Lead	2
82.	01h / 42h / 51h	P5 Saw Lead	1
82.	01h / 44h / 51h	OB Saw 1	1
82.	04h / 04h / 51h	Big Lead	2
82.	08h / 00h / 51h	Doctor Solo	2
82.	08h / 40h / 51h	Rhythmic Saw	2
82.	08h / 41h / 51h	SequencedSaw	2
82.	08h / 48h / 51h	Doctor Solo*	2
83.	00h / 00h / 52h	Syn.Calliope	2
83.	00h / 40h / 52h	JP8 Pulse	2
83.	00h / 41h / 52h	LM PureLead	1
83.	00h / 48h / 52h	SynCalliope*	2
83.	02h / 04h / 52h	Pure PanLead	2
84.	00h / 00h / 53h	Chiffer Lead	2
84.	00h / 40h / 53h	Cheese Saw	1
84.	00h / 48h / 53h	ChifferLead*	2
85.	00h / 00h / 54h	Charang	2
85.	00h / 40h / 54h	Reso Saw	1
85.	00h / 41h / 54h	2600 SubOsc	1
85.	00h / 42h / 54h	Acid Guitar	2
85.	00h / 48h / 54h	Charang*	2
85.	08h / 40h / 54h	Wire Lead	2
86.	00h / 00h / 55h	Solo Vox	2
86.	00h / 40h / 55h	RAVE Vox	2
86.	00h / 48h / 55h	Solo Vox*	2
87.	00h / 00h / 56h	5th Saw Wave	2
87.	00h / 40h / 56h	5th Lead	2
87.	00h / 48h / 56h	5th SawWave*	2
88.	00h / 00h / 57h	Bass & Lead	2
88.	00h / 40h / 57h	FM Lead 2	1
88.	00h / 41h / 57h	Delayed Lead	2
88.	00h / 44h / 57h	Fat & Perky	2
88.	00h / 48h / 57h	Bass & Lead*	2
88.	01h / 04h / 57h	Big & Raw	2
89.	00h / 00h / 58h	Fantasia	2
89.	00h / 40h / 58h	Fantasia 2	2
89.	00h / 41h / 58h	New Age Pad	2
89.	00h / 42h / 58h	Chord Syn1	2
89.	00h / 43h / 58h	Sugar Key	2
89.	00h / 44h / 58h	BriteSawKey	2
89.	00h / 48h / 58h	Fantasia*	2
90.	00h / 00h / 59h	Warm Pad	1
90.	00h / 40h / 59h	Soft Pad	2
90.	00h / 41h / 59h	Warm JP Str	2
90.	00h / 42h / 59h	Sine Pad	2
90.	00h / 48h / 59h	Warm Pad*	1
91.	00h / 00h / 5Ah	Polysynth	2
91.	00h / 40h / 5Ah	P5 Poly	2
91.	00h / 41h / 5Ah	Poly King	2
91.	00h / 42h / 5Ah	Octave Stack	2
91.	00h / 43h / 5Ah	Happy Synth	2
91.	00h / 48h / 5Ah	Polysynth*	2
91.	01h / 04h / 5Ah	80's PolySyn	2
92.	00h / 00h / 5Bh	Space Voice	1
92.	00h / 40h / 5Bh	Heaven II	2
92.	00h / 41h / 5Bh	Holy Voices	1
92.	00h / 42h / 5Bh	Warm SqrPad	1
92.	00h / 43h / 5Bh	Itopia	2
92.	00h / 48h / 5Bh	Space Voice*	1
93.	00h / 00h / 5Ch	Bowed Glass	2
93.	00h / 48h / 5Ch	Bowed Glass*	2
94.	00h / 00h / 5Dh	Metal Pad	2
94.	00h / 40h / 5Dh	Tine Pad	2
94.	00h / 41h / 5Dh	Panner Pad	2
94.	00h / 48h / 5Dh	Metal Pad*	2
95.	00h / 00h / 5Eh	Halo Pad	2
95.	00h / 40h / 5Eh	JP8 Sqr Pad	2
95.	00h / 41h / 5Eh	Vox Sweep	2
95.	00h / 48h / 5Eh	Halo Pad*	2
96.	00h / 00h / 5Fh	Sweep Pad	1
96.	00h / 40h / 5Fh	Sweep Pad 2	2
96.	00h / 41h / 5Fh	Polar Pad	1
96.	00h / 42h / 5Fh	Converge	1
96.	00h / 48h / 5Fh	Sweep Pad*	1
96.	0Ah / 04h / 5Fh	Celestial Pd	2
97.	00h / 00h / 60h	Ice Rain	2
97.	00h / 40h / 60h	LFO RAVE	2
97.	00h / 48h / 60h	Ice Rain*	2
97.	02h / 04h / 60h	African wood	2
98.	00h / 00h / 61h	Soundtrack	2

98.	00h / 40h / 61h	Ancestral	2
98.	00h / 41h / 61h	Prologue	2
98.	00h / 48h / 61h	Soundtrack*	2
99.	00h / 00h / 62h	Crystal	2
99.	00h / 40h / 62h	Vibra Bells	2
99.	00h / 41h / 62h	Clear Bells	2
99.	00h / 42h / 62h	ChristmasBel	2
99.	00h / 43h / 62h	Bell Strings	2
99.	00h / 48h / 62h	Crystal*	2
99.	01h / 00h / 62h	Syn Mallet	1
99.	01h / 48h / 62h	Syn Mallet*	1
99.	02h / 04h / 62h	Soft Crystal	2
99.	09h / 04h / 62h	Digi Bells	2
99.	11h / 04h / 62h	Air Bells	2
100.	00h / 00h / 63h	Atmosphere	2
100.	00h / 40h / 63h	Harpvox	2
100.	00h / 41h / 63h	Nylon Harp	2
100.	00h / 42h / 63h	Nylon+Rhodes	2
100.	00h / 43h / 63h	HollowReleas	2
100.	00h / 48h / 63h	Atmosphere*	2
100.	01h / 04h / 63h	Warm Atmos	2
101.	00h / 00h / 64h	Brightness	2
101.	00h / 40h / 64h	Org Bells	2
101.	00h / 48h / 64h	Brightness*	2
102.	00h / 00h / 65h	Goblin	2
102.	00h / 40h / 65h	Calculating	2
102.	00h / 41h / 65h	Goblinson	2
102.	00h / 42h / 65h	50's Sci-Fi	2
102.	00h / 44h / 65h	RandomEnding	2
102.	00h / 48h / 65h	Goblin*	2
103.	00h / 00h / 66h	Echo Drops	1
103.	00h / 40h / 66h	Big Panner	2
103.	00h / 48h / 66h	Echo Drops*	1
103.	01h / 00h / 66h	Echo Bell	2
103.	01h / 40h / 66h	Ai-yai-a	2
103.	02h / 00h / 66h	Echo Pan	2
103.	02h / 40h / 66h	Echo Pan 2	2
103.	02h / 41h / 66h	Water Piano	2
104.	00h / 00h / 67h	Star Theme	2
104.	00h / 40h / 67h	Rising Osc	2
104.	00h / 48h / 67h	Star Theme*	2
105.	00h / 00h / 68h	Sitar	1
105.	00h / 48h / 68h	Sitar*	1
105.	01h / 00h / 68h	Sitar 2	2
106.	00h / 00h / 69h	Banjo	1
106.	00h / 48h / 69h	Banjo*	1
107.	00h / 00h / 6Ah	Shamisen GS	1
107.	00h / 40h / 6Ah	Shamisen	2
107.	00h / 48h / 6Ah	Shamisen*	1
108.	00h / 00h / 6Bh	Koto	1
108.	00h / 48h / 6Bh	Koto*	1
108.	08h / 00h / 6Bh	Taisho Koto	2
108.	08h / 48h / 6Bh	Taisho Koto*	2
109.	00h / 00h / 6Ch	Kalimba	1
109.	00h / 48h / 6Ch	Kalimba*	1
110.	00h / 00h / 6Dh	Bagpipe	1
110.	00h / 44h / 6Dh	Uillean Pipe	2
110.	00h / 48h / 6Dh	Bagpipe*	1
111.	00h / 00h / 6Eh	Fiddle	1
111.	00h / 48h / 6Eh	Fiddle*	1
112.	00h / 00h / 6Fh	Shanai	1
112.	00h / 48h / 6Fh	Shanai*	1
113.	00h / 00h / 70h	Tinkle Bell	1
113.	00h / 48h / 70h	Tinkle Bell*	1
113.	08h / 40h / 70h	Open Triangl	1
113.	10h / 40h / 70h	Crash Cymbal	1
113.	2Fh / 44h / 70h	Cymbal Roll	1
114.	00h / 00h / 71h	Agogo	1
114.	00h / 48h / 71h	Agogo*	1
114.	10h / 40h / 71h	Tambourine	1
115.	00h / 00h / 72h	Steel Drums	1
115.	00h / 48h / 72h	Steel Drums*	1
116.	00h / 00h / 73h	Woodblock	1
116.	00h / 48h / 73h	Woodblock*	1
116.	08h / 00h / 73h	Castanets	1

117.	00h / 00h / 74h	Taiko	1
117.	00h / 48h / 74h	Taiko*	1
117.	08h / 00h / 74h	Concert BD	1
117.	08h / 48h / 74h	Concert BD*	1
117.	09h / 44h / 74h	NewHiBongo	2
117.	0Ah / 44h / 74h	NewLoBongo	1
117.	0Bh / 44h / 74h	High Timbale	1
117.	0Ch / 44h / 74h	Low Timbale	1
118.	00h / 00h / 75h	Melo. Tom 1	1
118.	00h / 40h / 75h	Bodhran	1
118.	00h / 48h / 75h	Melo.Tom 1*	1
118.	08h / 00h / 75h	Melo. Tom 2	1
119.	00h / 00h / 76h	Synth Drum	1
119.	00h / 48h / 76h	Synth Drum*	1
119.	08h / 00h / 76h	808 Tom	1
119.	09h / 00h / 76h	Elec Perc.	1
120.	00h / 00h / 77h	Reverse Cym.	1
120.	00h / 48h / 77h	ReverseCym.*	1
120.	03h / 44h / 77h	Reverse Cym4	1
120.	04h / 44h / 77h	Vibraslap	1
121.	00h / 00h / 78h	Gt.FretNoise	1
121.	00h / 48h / 78h	Fret Noise*	1
121.	01h / 00h / 78h	Gt.Cut Noise	1
121.	01h / 40h / 78h	Wah Brush Gt	1
121.	02h / 00h / 78h	String Slap	1
121.	03h / 04h / 78h	Gt.CutNoise2	1
121.	04h / 04h / 78h	Dist.CutNoiz	1
121.	05h / 40h / 78h	Bass Slide	1
121.	06h / 40h / 78h	Pick Scrape	1
121.	14h / 04h / 78h	G.StrokeMenu	1
121.	15h / 04h / 78h	G.SlideMenu	1
122.	00h / 00h / 79h	Breath Noise	1
122.	00h / 48h / 79h	BreathNoise*	1
122.	01h / 00h / 79h	Fl.Key Click	1
122.	2Fh / 04h / 79h	BrthNzMenu	1
123.	00h / 00h / 7Ah	Seashore	1
123.	00h / 48h / 7Ah	Seashore*	1
123.	01h / 00h / 7Ah	Rain	1
123.	02h / 00h / 7Ah	Thunder	1
123.	02h / 40h / 7Ah	Thunder Bell	2
123.	03h / 00h / 7Ah	Wind	1
123.	04h / 00h / 7Ah	Stream	2
123.	05h / 00h / 7Ah	Bubble	2
124.	00h / 00h / 7Bh	Bird	2
124.	00h / 48h / 7Bh	Bird*	2
124.	01h / 00h / 7Bh	Dog	1
124.	02h / 00h / 7Bh	Horse-Gallop	1
124.	03h / 00h / 7Bh	Bird 2	1
124.	04h / 40h / 7Bh	Cat	1
124.	04h / 41h / 7Bh	Kitty	1
124.	07h / 40h / 7Bh	Fancy Animal	1
124.	08h / 40h / 7Bh	Seal	1
124.	09h / 40h / 7Bh	Elephant	1
125.	00h / 00h / 7Ch	Telephone 1	1
125.	00h / 48h / 7Ch	Telephone 1*	1
125.	01h / 00h / 7Ch	Telephone 2	1
125.	02h / 00h / 7Ch	DoorCreaking	1
125.	03h / 00h / 7Ch	Door	1
125.	04h / 00h / 7Ch	Scratch	1
125.	05h / 00h / 7Ch	Windchime	2
125.	05h / 40h / 7Ch	Bar Chimes	1
125.	06h / 44h / 7Ch	Jingle Bell	1
126.	00h / 00h / 7Dh	Helicopter	1
126.	00h / 48h / 7Dh	Helicopter*	1
126.	01h / 00h / 7Dh	Car-Engine	1
126.	02h / 00h / 7Dh	Car-Stop	1
126.	03h / 00h / 7Dh	Car-Pass	1
126.	04h / 00h / 7Dh	Car-Crash	2
126.	05h / 00h / 7Dh	Siren	1
126.	06h / 00h / 7Dh	Train	1
126.	07h / 00h / 7Dh	Jetplane	2
126.	07h / 40h / 7Dh	Falling Down	2
126.	08h / 00h / 7Dh	Starship	2
126.	09h / 00h / 7Dh	Burst Noise	2
126.	0Dh / 40h / 7Dh	Glass & Glam	1
126.	0Eh / 40h / 7Dh	Ice Ring	1
126.	10h / 40h / 7Dh	Crack Bottle	1

126.	11h / 40h / 7Dh	Pour Bottle	1
126.	16h / 40h / 7Dh	SL 1	1
126.	17h / 40h / 7Dh	SL 2	1
126.	1Ah / 40h / 7Dh	Boeeeen	1
126.	1Bh / 40h / 7Dh	R.Crossing	1
126.	1Ch / 40h / 7Dh	Bike Engine	1
126.	1Ch / 44h / 7Dh	Compresser	1
126.	1Dh / 40h / 7Dh	CarEngine2c	1
127.	00h / 00h / 7Eh	Applause	2
127.	00h / 48h / 7Eh	Applause*	2
127.	01h / 00h / 7Eh	Laughing	1
127.	02h / 00h / 7Eh	Screaming	1
127.	03h / 00h / 7Eh	Punch	1
127.	04h / 00h / 7Eh	Heart Beat	1
127.	05h / 00h / 7Eh	Footsteps	1
127.	07h / 40h / 7Eh	Finger Snap	1
127.	09h / 40h / 7Eh	BabyLaughing	1
127.	0Ah / 40h / 7Eh	Small Club	2
127.	0Bh / 40h / 7Eh	Uno!	1
127.	0Ch / 40h / 7Eh	Dos!	1
127.	0Dh / 40h / 7Eh	Tres!	1
127.	0Eh / 40h / 7Eh	Quatro!	1
127.	0Fh / 40h / 7Eh	Grito-Ahaha!	1
127.	10h / 40h / 7Eh	Grito-Rrrrr!	1
127.	11h / 40h / 7Eh	Woo Short	2
127.	12h / 40h / 7Eh	Woo Long	2
127.	13h / 40h / 7Eh	Yeah Long	2
127.	14h / 40h / 7Eh	Yes Long	2
127.	16h / 04h / 7Eh	Voice Kikit	1
127.	17h / 44h / 7Eh	Voice ComeOn	1
127.	18h / 40h / 7Eh	Voice Aou	1
127.	19h / 44h / 7Eh	Voice Oou	1
127.	1Ah / 44h / 7Eh	Boys Aleluia	2
127.	1Bh / 44h / 7Eh	Boys Amen 1	1
127.	1Ch / 44h / 7Eh	Boys Amen 2	2
127.	1Dh / 44h / 7Eh	Aleluia	2
127.	1Eh / 44h / 7Eh	Amen	2
127.	20h / 44h / 7Eh	Tiquitito !	1
127.	21h / 44h / 7Eh	Flamenco !	1
127.	22h / 44h / 7Eh	Ole!	1
127.	23h / 44h / 7Eh	Yodel female	1
127.	24h / 44h / 7Eh	Yodel male	1
127.	25h / 44h / 7Eh	Grito-Hahaha	1
127.	26h / 44h / 7Eh	Tiquitito!	1
127.	27h / 44h / 7Eh	Grito-Oa Oa!	1
127.	28h / 44h / 7Eh	Yeah Short	2
127.	29h / 44h / 7Eh	Yes Short	2
127.	2Ch / 44h / 7Eh	Hey	2
127.	30h / 44h / 7Eh	One!	1
127.	31h / 44h / 7Eh	Two!	1
127.	32h / 44h / 7Eh	Three!	1
127.	33h / 44h / 7Eh	Four!	1
127.	34h / 44h / 7Eh	Ichi!	1
127.	35h / 44h / 7Eh	Ni!	1
127.	36h / 44h / 7Eh	San!	1
127.	37h / 44h / 7Eh	Shi!	1
128.	00h / 00h / 7Fh	Gun Shot	1
128.	00h / 48h / 7Fh	Gun Shot*	1
128.	01h / 00h / 7Fh	Machine Gun	1
128.	02h / 00h / 7Fh	Lasergun	1
128.	03h / 00h / 7Fh	Explosion	2
128.	05h / 44h / 7Fh	Big Shot	2
128.	06h / 44h / 7Fh	Explosion 2	2

* Tone with a "*" symbol appended to their name may not play
back satisfactorily on other GS sound generating devices.

●Drum Set List
○KF-7 Drum Mapping

CC0 / CC32 / PC#	Tone Name
00h / 41h / 00h	POP
00h / 40h / 10h	ROCK
00h / 41h / 28h	JAZZ BRUSH
00h / 40h / 3Fh	VOX
00h / 42h / 00h	R & B
00h / 40h / 00h	STANDARD
00h / 40h / 08h	ROOM
00h / 00h / 10h	POWER
00h / 00h / 18h	ELECTRONIC
00h / 00h / 19h	TR-808
00h / 40h / 19h	DANCE
00h / 00h / 20h	JAZZ
00h / 40h / 28h	BRASH
00h / 00h / 30h	ORCHESTRA
00h / 00h / 08h	GS ROOM
00h / 00h / 28h	GS BRASH
00h / 40h / 38h	SOUND EFFECT
00h / 40h / 3Dh	SFX VOX