



ARRANGER WORKSTATION

MIDI implementation



■ MIDI implementation (Arranger)

The G-800 has additional functions and parameters which were not found on previous GS format sound sources. These functions and parameters are marked as [88] if same as SC-88 and [800] if different. If MIDI messages marked as [88] or [800] are transmitted to a different GS format sound source, it is possible that these ages may not be received

Section 1. Receive data

■ Channel voice messages

Note off

Status 2nd byte 3rd byte 00H

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

- * Not received when Rx.NOTE MESSAGE = OFF (Initial value is ON) or when note number is outside limits.
- * The velocity values of Note Off messages are ignored

Status 2nd byte 3rd byte 9nH kkH vvH

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

- Not received when Rx.NOTE MESSAGE = OFF (Initial value is ON)
- or when note number is outside limits.

 For Drum Parts, not received when Rx.NOTE ON a OFF for each Instrument.

Polyphonic Key Pressure

Status 2nd byte 3rd byte AnH

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

- * Not received when Rx.POLY PRESSURE (PAI) = 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

BnH

- 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 byte	3rd byte

00H mmH 20H

: 0H - FH (ch.1 - ch.16)

mm≖Bank number MSB : 00H - 7FH (GS Variation number 0 - 127) Initial value = 00H II=Bank number LSB :00H - 02H (MAP) Initial value = 00H

- Not received when Rx.BANK SELECT = OFF
- ' When "GM System On" is received, Rx.BANK SELECT will be set OFF, and Bank Select will not be received.
- When "GS Reset" is received, Rx.BANK SELECT will be set ON.
- When Rx.BANK SELECT LSB = OFF, Bank number LSB will be handled as 00H regardless of the received value.
- 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.
- The G-800 recognizes the Bank Select LSB (Controller number 32) as a flag for switching between the G-800MAP and the SC-55MAP. With a Bank Select LSB of 00H, the map selected by the front panel SC-55MAP button will be selected. With a LSB of 01H, the SC-55MAP will be selected. With a LSB of 02H, the G-800MAP will be selected.
- Some other GS devices do not recognize the Bank Select LSB (Controller number 32).

Model G-800

Version 1.00 '95.5

Initial value = 00H (0)

) Modulation (Controller number 1)

Status 2nd byte 3rd byte

: 0H - FH (ch.1 - ch.16) : 00H - 7FH (0 - 127) n≈MIDi channel number

- 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)

2nd byte 3rd byte Status

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

* 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 byte 3rd byte BnH 06H mmH 26H

n=MIDt channel number : 0H - FH (ch.t - ch.16)
mm.ll= the value of the parameter specified by RPN/NRPN

(Controller number 7)

Status 2nd byte BnH 07H 3rd byte

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

: 00H - 7FH (0 - 127) Initial value = 64H (100)

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

) Pan (Controller number 10)

2nd byte Status 3rd byte

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

: 00H - 40H - 7FH vv=pan (Left - Center - Right) Initial value = 40H (Center)

The stereo position can be adjusted over 127 steps.
 For Rhythm Parts, this is a relative adjustment of each Instrument's pan setting.
 This message is not received when Rx.PANPOT = OFF. (Initial value is ON)

) Expression (Controller number 11) 2nd byte 3rd byte BnH OBH

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

: 00H - 7FH (0 - 127) vv≃Expression Initial value = 7FH (127)

- * 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.
- * This message is not received when Rx.EXPRESSION = OFF. (Initial value is ON)

Hold 1 (Controller number 64)

Status 2nd byte 3rd byte BnH 40H vvH

n=MIDI channel number

vv≈Control value

*This message is not received when Rx.HOLD1 = OFF. (Initial value is ON)

(Controller number 65)

Status 2nd byte 3rd byte BnH 41H vvH

n=MIDI channel number

vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

* This message is not received when Rx.PORTAMENTO = OFF. (Initial value is ON)

1881

○ Sostenuto (Controller number 66)

Status 2nd byte 3rd byte BnH 42H vvH

n=MIDI channel number

: 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON vv=Control value

* This message is not received when Rx.SOSTENUTO = OFF. (Initial value is ON)

(Controller number 67)

2nd byte 3rd byte 43H vvH

n=MIDI channel number

: 0H - FH (ch.1 - ch.16)

: 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON vv=Control value

* This message is not received when Rx.SOFT = OFF. (Initial value is ON)

O Portamento control (Controller number 84)

2nd byte 3rd byte

n=MIDI channel number

: OH - FH (ch.1 - ch.16) : 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 Noteon 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 sounding)
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 on with glide from C4
80 40 40	Note off E4	E4 off

O Effect 1 (Reverb Send Level) (Controller number 91) Status 2nd byte 3rd byte BnH 5BH

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

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

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

Status 2nd byte 3rd byte 5DH

n=MIDI channel number vv=Control value

: OH - FH (ch.1 - ch.16) : 00H - 7FH (0 - 127)

Initial value = 00H (0)

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

O Effect 4 (Delay Send Level) (Controller number 94) [88]

2nd byte 3rd byte 5EH vvH

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

Initial value = 00H (0) vv=Control value : 00H - 7FH (0 - 127)

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

* Some other GS devices may not recognize this message.

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

Status 2nd byte 63H 3rd byte BnH 62H ИH

: OH - FH (ch.1 - ch.16) n=MIDI channel number mm=upper byte of the parameter number specified by NRPN II=lower byte of the parameter number specified by NRPN

* When "GM System On" is received, Rx.NRPN will be set OFF, and NRPN will not be received. When "GS Reset" or Rx.NRPN = ON is received, NRPN can be

The value set by NRPN will not be reset even if Program Change or Reset All Controllers is received.

The NRPN (Non Registered Parameter Number) message allows an extended range of control changes to be used, letting you use control functions which are not defined in the MIDI Specification

NRPNs provide a great deal of freedom, and can be used with any manufacturer's devices. As a result, any particular parameter number can easily mean one thing when used for a certain device, and mean something completely different on another device

Note that RPNs and NRPNs require that a multiple number of messages be processed in the correct order. However, a majority of the sequencers currently on the market cannot always be relied on to consistently send messages in the proper order if the messages are located at almost exactly the same point in time.

To use these messages, you must first send NRPN MSB and NRPN LSB

messages to specify the parameter to be controlled, and then send 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.

On the GS instruments, NRPN can be used to modify the following parameters. The range of values for relative change parameters will be different with certain models. Please see the explanation that follows the chart.

MSB LSB MSB Function and range

Vibrato Rate (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)

01H 09H mmH Vibrato Depth (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)

mmH Vibrato Delay (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) 01H 0AH mmH

TVF Cutoff Frequency (relative change) 01H 20H mmH mm: 00H - 40H - 7FH (-64 - 0 - +63)

TVF Resonance (relative change) 01H 21H mmH mm: 00H - 40H - 7FH (-64 - 0 - +63)

TVF&TVA Envelope Attack Time (relative change) 01H 63H mmH mm: 00H - 40H - 7FH (-64 - 0 - +63)

TVF&TVA Envelope Decay Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)

TVF&TVA Envelope Release Time (relative change) 01H 66H mmH

mm: 00H - 40H - 7FH (-64 - 0 - +63)

mmH Drum Instrument Pitch Coarse (relative change) rr: Drum Instrument note number mm: 00H - 40H - 7FH (-64 - 0 - +63 semitone)

Drum Instrument TVA Level (absolute change) rr: Drum instrument note number mm: 00H - 7FH (0 - max)

1CH rrH mmH Drum Instrument Panpot (absolute change) mm: 00H, 01H - 40H - 7FH (random, left-center-right)

1DH rrH mmH Drum Instrument Reverb Send Level (absolute change) rr: Drum Instrument note number mm: 00H - 7FH (0 - max)

Drum Instrument Chorus Send Level (absolute change) 1EH rrH rr: Drum Instrument note number

mmH Drum Instrument Delay Send Level (absolute change) [88] rr: Drum Instrument note number 1FH mH mmH mm: 00H - 7FH (0 - max)

4FH 10H mmH mmH Part 4 On / Off (Upper 1) mm: 00H - 7FH (00-3FH = Off - 40-7FH= On) [800]

Part 11 On / Off (Lower) [800] 4FH 11H mmH mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)

4FH 12H mmH Part 12 On / Off (Man Bass) [800] mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)

mmH Part 6 On / Off (Upper 2) mm: 00H - 7FH (00-3FH = Off - 40-7FH= On) [800]

4FH 14H	mmH Part 16 On / Off (Man Drums) mm: 00H - 7FH (00-3FH = Off - 40-7FH= On)	[800]
4FH 15H	mmH Part 13 On / Off (Rx Only 1) mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)	[800]
4FH 16H	mmH Part 14 On / Off (Rx Only 2) mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)	[800]
4FH 17H	mmH Part 15 On / Off (Rx Only 3) mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)	[800]
4FH 18H	mmH Part 8 On / Off (Acc 5) mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)	[800]
4FH 19H	mmH Part 9 On / Off (Acc 6) mm: 00H - 7FH (00-3FH = Off - 40-7FH= On)	[800]
4FH 1AH	mmH Part 10 On / Off (Acc Drums) mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)	[800]
4FH 1BH	mmH Part 2 On / Off (Acc Bass) mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)	[800]
4FH 1CH	mmH Part 1 On / Off (Acc 1) mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)	[800]
4FH 1DH	mmH Part 3 On / Off (Acc2) mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)	[800]
4FH 1EH	mmH Part 5 On / Off (Acc3) mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)	[800]
4FH 1FH	mmH Part 7 On / Off (Acc 4) mm: 00H · 7FH (00-3FH =Off · 40-7FH= On)	[800]
4FH 20H	mmH Master Accompaniment On / Off mm: 00H - 7FH (00-3FH = Off - 40-7FH= On)	[800]

Data entry LSB (IIH) is ignored.
Parameters marked "relative change" will change relative to the preset value. Parameters marked "relative change" will change relative to the preset value. 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.

It is not possible to simultaneously use both Chorus Send Level and Delay

Sendlevel on a single Drum Instrument.

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

Status 2nd byte 3rd byte BnH mmH 64H

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

This message is not received when Rx.RPN = OFF.
 The value specified by RPN will not be reset even by messages such as Program Change or Reset All Controller.

"BPN"

The RPN (Registered Parameter Number) message allows an extended range of control changes to be used, letting you use additional control functions which are part of the MIDI Specification. 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.

On the G-800, RPN can be used to modify the following parameters.

RPN Data entry
MSB LSB MSB LSB Explanation

--- Hmm H00 H00 Pitch Bend Sensitivity

mm: 00H - 18H (0 - 24 semitones)

Initial value = 02H (2 semitones)
II: ignored (processed as 00H)

specify up to 2 octaves in semitone steps

00H 01H mmH liH Master Fine Tuning

mm,II: 00 00H - 40 00H - 7F 7FH (-100-0-+99.99 cents)

Refer to 5. Supplementary material, "About tuning".

00H 02H mmH ---

Master Coarse Tuning mm: 28H - 40H - 58H (-24 - 0 - +24 semitones)

II: ignored (processed as 00H)

7FH 7FH --- ---

set condition where RPN and NRPN are unspecified

Settings already made will not change.

Program Change

Status 2nd byte CnH

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

* This message is not received when Rx.PROGRAM CHANGE = OFF. (Initial value

** 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 byte

wH

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

* This message is not received when Rx.CH PRESSURE (CAI) = OFF. (Initial value

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 byte EnH IIH mmH

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

: 00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

This message is 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)

2nd byte 78H 3rd byte

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 byte 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

Sostenuto

Controller Reset value Pitch Bend Change ±0 (center) Polyphonic Key Pressure 0 (off) 0 (off) Channel Pressure Modulation 127 (max) Expression Hold 1 0 (off) Portamento 0 (off)

Soft RPN unset; previously set data will not change NRPN unset; previously set data will not change

0 (off)

 All Notes Off (Controller number 123)

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

n=MIDI channel number : OH - 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 untill these are turned off

OMNI OFF (Controller number 124)

Status 2nd byte 3rd byte

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

* Omni Off is only recognize as "All Notes Off", Mode does not change.

OMNI ON (Controller number 125)

3rd byle

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

* Omni Onis only recognize as "All Notes Off". Mode does not change.

MONO (Controller number 126)

Status 2nd byte BnH 7EH 3rd byte

n=MIDIchannel number : 0H - FH (ch.1 - ch.15) 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 byte 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 Messages

O Active Sensing

EEH

* 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.

O Sequencer Start

Status

* When "Sequencer Start" is received, the internal Recorder and/or the internal Arranger start according to the following table

) Sequencer Stop

Status FCH

* When "Sequencer Stop" is received, the internal Recorder and/or the internal arranger stop

Timing Clock [800]

Status

When "Timing Clock" is received the internal recorder or the internal arranger is synchronized to an external clock according to the following table.

Style Sync RX	Response
Internal	The Style will neither start/stop nor follow the tempo of the external Timing Clock (F8) and "Sequencer Start /Stop" (FA / FC) messages.
Auto	As long the arranger does not receive "Sequencer Start/Stop" (FA/FC) and "Timing Clock" (FB) messages it will follow its own tempo and Start/stop whenever you press the "START/STOP" button to start style Playback.
. 4151	The second of the state of the

MIDI The arranger can only be started stopped and synchronized with incoming MIDI realtime

messages.

The arranger waits for a "Sequencer Start" Remote message to start at his own tempo. As soon it receives a "Sequencer Stop" message, the style

playback will stop

The Style sync RX can be set on MIDI PORT A and/or MIDI PORT B

■ System Exclusive Messages

Status Data byte

FOH	iiH, ddH.	eeH	F7H	
F0H ii = ID nur	mber	:an ID numb	lusive Message status er (manutacturer ID) to indicate the manutactu usive message this is. Roland's manutacturer IC	

Status

ID numbers 7EH and 7FH are extensions of the MIDI standard: Universal Non-realtime Messages (7EH) and Universal Realtime Messages (7FH).

dd,...,ee = data F7H : EOX (End Of Exclusive)

The System Exclusive Messages received by the G-800 are; messages related to Mode Setting, Universal Realtime System Exclusive messages, Data Requests (RQ1), 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 "Turn General MIDI change the operating mode. When creating performance data, a "Turn General MIDI System On" message should be inserted at the beginning of a General MIDI score, a "GS Reset" message at the beginning of a GS music data, and a "System Mode Set" message at the beginning of data especially for the G-800. 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.)

"System Mode Set" and "GS Reset" use Roland system exclusive format "Data Set 1 (DT1)". "Turn General MIDI System On" use Universal Non-realtime Message

format

⊃ Turn General MIDI System On

"General MIDI System On" is a command message that resets the internal settings of the unit to the General MIDI initial state (General MIDI System - Level 1). A General MIDI device that receives this message will automatically be set to the proper condition for correctly playing a General MIDI score.

Status F0H	Data byte 7EH, 7FH, 0	9H, 01H	Status F7H
Byte F0H	Explanation Exclusive st		
7EH	ID number	(Universal Non-rea	ltime Message)
7FH 09H	Device ID Sub ID#1	(Broadcast) (General MIDI Mes	sage)
01H	Sub ID#2	(General MIDI 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

) Turn General MIDI System Off

"General MIDI System Off" is a command message that resets the internal settings of the unit to the Arranger Mode I initial state .

F0H	7EH. 7FH, (09H, 02H F7H
Byte FOH	Explanation Exclusive si	
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)
F7H	EOX	(End Of Exclusive)

- * When this message is received, the unit change from "General MIDI" mode to G-
- 800 default mode. (Arranger mode)

 There must be an interval of at least 100 ms between this message and the next message

) GS Reset

GS Reset is a command message that resets the internal settings of a device to the GS initial state. This message appears 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
FOH	41H, dev. 42H,	12H. 40H. 00H. 7FH, 00H.	41H	F7H
Byte	Explanation			
FOH	Exclusive status	s		
41H	1D number	(Roland)		
dev	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	AddressLSB			
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 message.

Exit GS Mode

"Exit GS Mode" is a command message that resets the internal settings of the unit to the Arranger Mode I initial state

Status F0H	Dala byle 41H, dev. 42H	. 12H, 40H, 00H, 7FH, 7FH	l. 42H	Status F7H
Byte	Explanation			
FOH	Exclusive statu	ıs		
41H	ID number	(Roland)		
dev	Device ID	(dev: 00H - 1FH (1 - 32)	Initial valu	ie is 10H(17))
42H	Model ID	(GS)		
12H	Command ID	(DT1)		
40H	Address MSB			
00H	Address			
7FH	AddressLSB			
7FH	Data	(Exit GS Mode)		
42H	Checksum			
F7H	EOX	(End Of Exclusive)		

- * When this message is received, the unit change from "General MIDI" mode to G-800 default mode. (Arranger mode)
- There must be an interval of at least 100 ms between this message and the next message.

● Universal Realtime System Exclusive Messages

O Master volume

Status FOH	Data byte ZEH ZEH 04	H, 01H, IIH, mmH	Status F7H
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, , , , , , , , , , , , , , , , , , ,	1 771
Byte	Explanation		
FOH	Exclusive stat	us	
7FH	ID number	(universal realtime mess	sage)
7FH	Device ID	(Broadcast)	- /
04H	Sub ID#1	(Device Control messag	es)
01H	Sub ID#2	(Master Volume)	•
ИH	Master volum	e lower byte	
mmH	Master volume	e upper byte	
F7H	EOX	(End Of Exclusive)	

^{*} The lower byte (IIH) of Master Volume will be handled as 00H.

Data transmission

The G-800 can use Exclusive messages to transmit internal settings to other devices. There are two types of Exclusive data transmission; Individual Parameter Transmission (section 3) in which single parameters are transmitted one by one, and Bulk Dump Transmission (section 4) in which a large amount of data is

The exclusive message used when transmitting GS format data has a model ID of 42H and a device ID of 10H. (The G-800 allows you to change the Device ID setting.)

O Data request 1 RQ1 (11H)

This message requests the other device to send data. The Address and Size determine the type and amount of data to be sent. There are two types of request; Individual Parameter Request which requests data for an individual parameter, and Bulk Dump Request which requests a large amount of data at once. In either case, the "Data Request 1 (RQ1)" message format is used, and the Address and Size included in the message determine the type and amount of data that is desired.

For Individual Parameter Request, refer to "3. Individual Parameter

Transmission*

For Bulk Dump Request, refer to "4. Bulk Dump"

When a Data Request message is received, if the device is ready to transmit data and if the address and size are appropriate, the requested data will be transmitted as a "Data Set 1 (DT1)" message. If not, nothing will be transmitted.

Status F0H	Data byte 41H, dev. 42	PH, 11H, aaH, bbH,	ccH, ssH, ttH, uuH, sum	Status F7H
Byte FOH 41H dev		(Roland)	Initial value is 10H	
42H	Model ID	(GS)	INIDEL VALUE IS TOT1	
11H	Command ID			
aaH	Address MS	B: upper byte of the	starting address of the reque	sted data
bbH	Address	: middle byte of th	e starting address of the requ	ested data
ccH	Address LSE	3: lower byte of the	starting address of the reque	sted data
ssH	Size MSB		,	
ttH	Size			
uuH	Size LSB			
sum	Checksum			
F7H	EOX	(End Of Exclusive)		

^{*} The amount of data that can be transmitted at once time will depend on the type of data, and data must be requested using a specific starting address and size. Refet to the Address and Size listed in Section 3.

O Data set 1 DT1 (12H)

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

Status FOH	Data byte 41H. dev. 42H, 12H, aaH, bbH, ccH, ddH, eeH, sum F7H
Byte	Explanation
FOH	Exclusive status
41H	ID number (Roland)
dev	Device ID (dev: 00H - 1FH Initial value is 10H
42H	Model ID (GS), 45H
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.

Section 2. Transmit data

■ Channel voice messages

Note off

Status 2nd byte 9nH kkH

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

Note on

Status 2nd byte 3rd byte

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

Control Change

O Bank Select (Controller number 0,32)

Status 2nd byte 3rd byte BnH 00H

1881

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

mm=Bank number MSB : 00H - 7FH (GS Variation number 0 - 127)

II≖Bank number LSB :00H - 02H (MAP)

* Not transmitted when "Program Change" TX Filter is On.

Some other GS devices do not recognize the Bank Select LSB (Controller number

O Modulation (Controller number 1)

Status 2nd byte 3rd byte BnH 01H vvH

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

O Portamento Time (Controller number 5)

Status 2nd byte 3rd byte BnH 05H

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

: 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.

O Data Entry (Controller number 6,38)

Status 2nd byte 3rd byte BnH 06H mmH BaH 26H ш

n=MiDI channel number : OH - FH (ch.1 - ch.16) mm.ll= the value of the parameter specified by RPN/NRPN

○ Volume (Controller number 7)

Status 2nd byte 3rd byte BnH 07H vvH

n=MIDI channel number

vv=Volume : 00H - 7FH (0 - 127) Initial value = 64H (100)

Not transmitted when "Volume" TX Filter is On.

Volume messages are used to adjust the volume balance of each Part.

O Pan (Controller number 10)

Status 2nd byte 3rd byte BnH

n≖MIDi channel number

: 0H - FH (ch.1 - ch.16) : 00H - 40H - 7FH vv≃pan

(Left - Center - Right) Initial value = 40H (Center)

Not transmitted when "Volume" TX Filter is On.

* The stereo position can be adjusted over 127 steps.

O Expression (Controller number 11)

Status 2nd byte 3rd byte 0BH vvH

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

: 00H - 7FH (0 - 127) vv=Expression Initial value = 7FH (127)

Not transmitted when "Expression" TX Filter is On.

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

Regarding the checksum please refer to Section 4.

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

between packets.
* Regarding the checksum please refer to section 4.

^{*} Not transmitted when "Modulation" TX Filter is On.

Size	and land of the second
**Not transmitted when "Hold" TX Filter is On. **Portamento Status 2nd byte BnH 41H vvH **Control value : 0H - FH (ch.1 - ch.16) **Status 2nd byte BnH 42H vvH **Not transmitted when "Hold" TX Filter is On. **OH - FH (ch.1 - ch.16) **Status 2nd byte BnH 42H vvH **Not transmitted when "Hold" TX Filter is On. **OH - FH (ch.1 - ch.16) **Status 2nd byte BnH 42H vvH **Not transmitted when "Hold" TX Filter is On. **OH - FH (ch.1 - ch.16) **Status 2nd byte BnH 42H vvH **Not transmitted when "Sostenuto" 10H - FH (ch.1 - ch.16) **v=Control value : 0H - FH (ch.1 - ch.16) **v=Cont	
O Portamento (Controller number 65) Status 2nd byte 8nH 41H 2nd byte 9nH (not 1 - 40H - 7FH (-64 - 0 - +63)) n=MIDI channel number w=Control value 10H - FH (ch.1 - ch.16) 10H - 40H - 7FH (-64 - 0 - +63) Status 2nd byte 9nH (not 1 - 40H - 7FH (-64 - 0 - +63)) O Sostemuto (Controller number 66) 10H - 7FH (-64 - 0 - +63) Status 2nd byte 8nH 42H 2nd byte 9nH (not 1 - 27) 0-63=0FF 64-127=0N 10H 20H mmH 10H - 40H - 7FH (-64 - 0 - +63) O H 21H mmH 10H TVF Resonance (relative change) 10H - 40H - 7FH (-64 - 0 - +63) O H 21H mmH 10H - 40H - 7FH (-64 - 0 - +63) O H 21H mmH 10H - 40H - 7FH (-64 - 0 - +63) O H 21H mmH 10H - 40H - 7FH (-64 - 0 - +63) O H 21H mmH 10H - 40H - 7FH (-64 - 0 - +63) O H 22H mmH 10H - 40H - 7FH (-64 - 0 - +63) O H 23H mmH 10H - 40H - 7FH (-64 - 0 - +63) O H 24H mmH 10H - 40H - 7FH (-64 - 0 - +63) O H 24H mmH 10H - 40H - 7FH (-64 - 0 - +63) O H 24H mmH 10H - 40H - 7FH (-64 - 0 - +63) O H 24H mmH 10H - 40H - 7FH (-64 - 0 - +63) O H 24H mmH 10H - 40H - 7FH (-64 - 0 - +63) O H 25H mm: 00H - 40H - 7FH (-64 - 0 - +	
Status 2nd byte 90H - 7FH (ch.1 - ch.16) n=MIDI channel number vv=Control value 00H - 7FH (ch.1 - ch.16) Soste uto (Controller number 66) Status 2nd byte 8nH 42H vvH n=MIDI channel number vv=Control value 00H - 7FH (ch.1 - ch.16) Status 2nd byte 8nH 42H vvH n=MIDI channel number vv=Control value 00H - 7FH (ch.1 - ch.16) Not transmitted when "Sostenuto" TX Filter is On. 1 H 20H mmH TVF Cutoff Frequency (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) O1H 21H mmH TVF Resonance (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) O1H 63H mmH TVF&TVA Envelope Attack Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) O1H 64H mmH TVF&TVA Envelope Decay Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) O1H 64H mmH TVF&TVA Envelope Decay Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) O1H 66H mmH TVF&TVA Envelope Release Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) O1H 66H mmH TVF&TVA Envelope Release Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) O1H 66H mmH TVF&TVA Envelope Release Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) O1H 66H mmH TVF&TVA Envelope Release Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) O1H 66H mmH TVF&TVA Envelope Release Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) O1H 66H mmH TVF&TVA Envelope Release Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)	
n=MIDI channel number vv=Control value : 0H · FH (ch.1 · ch.16)	
Status BnH 2nd byte BnH 2nd byt	
n=MIDI channel number vv=Control value : 0H · FH (ch.1 · ch.16)	
*Not transmitted when "Sostenuto" TX Filter is On. O Soft Controller number 67) Status 2nd byte BnH 43H WH n=MIDI channel number : 0H - FH (ch.1 - ch.16) mm: 00H - 40H - 7FH (-64 - 0 - +63) n=MIDI channel number : 0H - FH (ch.1 - ch.16) mm: 00H - 40H - 7FH (-64 - 0 - +63) mm: 00H - 40H - 7FH (-64 - 0 - +63) mm: 00H - 40H - 7FH (-64 - 0 - +63) mm: 00H - 40H - 7FH (-64 - 0 - +63) mm: 00H - 40H - 7FH (-64 - 0 - +63) mm: 00H - 40H - 7FH (-64 - 0 - +63) mm: 00H - 40H - 7FH (-64 - 0 - +63)	
Status 2nd byte 3rd byte BnH 43H vvH 18H rrH mmH Drum Instrument Pitch Coarse (relative change) n=MIDI channel number : 0H - FH (ch.1 - ch.16) mm: 00H - 40H - 7FH (-64 - 0 - +63) 18H rrH mmH Drum Instrument Pitch Coarse (relative change) rr: Drum Instrument note number	
BnH 43H wvH 18H rrH mmH Drum Instrument Pitch Coarse (relative change) n=MIDI channel number : 0H - FH (ch.1 - ch.16) rr: Drum Instrument note number	
vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON mm: 00H - 40H - 7FH (-04 - 0 - 183 seminine)	
1AH rrH mmH Drum Instrument TVA Level (absolute change)	
* Not transmitted when "Soft" TX Filter is On. Department ocentral (Controller number 84) TRIPIT Drum Instrument note number mm: 00H - 7FH (0 - max)	
Status 2nd byte 3rd byte 1CH rrH mmH Drum Instrument Panpot (absolute change) BnH 54H kkH rr: Drum Instrument note number mm: 00H, 01H - 40H - 7FH (random, left-center-right)	
n=MIDI channel number : 0H - FH (ch.1 - ch.16) kk=source note number : 00H - 7FH (0 - 127) 1DH rrH mmH Drum Instrument Reverb Send Level (absolute chang rr: Drum Instrument note number mm: 00H - 7FH (0 - max)	a)
D Effect 1 (Reverb Send Level) (Controller number 91) Status 2nd byte 3nd byte 1EH rrH mmH Drum Instrument Chorus Send Level (absolute change BnH 58H vvH rr: Drum Instrument note number	9)
n=MIDI channel number : 0H - FH (ch.1 - ch.16) mm: 00H - 7FH (0 - max) v=Control value : 0H - FH (ch.1 - ch.16) Initial value = 28H (40) r: Drum instrument note number	[88]
* This message adjusts the Reverb Send Level of each Part. * Not transmitted when "Reverb" TX Filter is On. 4FH 10H mmH Part 4 On / Off (Upper 1)	[800]
D Effect 3 (Chorus Send Level) (Controller number 93)	*****
Status 2nd byte 3rd byte 4FH 11H mmH Part 11 On / Off (Lower) BnH 5DH vvH mm: 00H - 7FH (00-3FH = Off - 40-7FH= On)	[800]
n=MIDI channel number : 0H - FH (ch.1 - ch.16) 4FH 12H mmH Part 12 On / Off (Man Bass) vv=Control value : 00H - 7FH (0 - 127) Initial value = 00H (0) mm: 00H - 7FH (00-3FH = Off - 40-7FH= On)	[800]
* This message adjusts the Chorus Send Level of each Part. 4FH 13H mmH Part 6 On / Off (Upper 2) * Not transmitted when "Chorus" TX Filter is On. mm: 00H - 7FH (00-3FH = Off - 40-7FH= On)	[800]
D Effect 4 (Delay Send Level) (Controller number 94) [88] 4FH 14H mmH Part 16 On / Off (Man Drums) Status 2nd byte 3rd byte 3rd byte	[800]
BnH 5EH vVH 4FH 15H mmH Part 13 On / Off (Rx Only 1) mm: 00H - 7FH (00-3FH = Off - 40-7FH= On)	[800]
vv=Control value : 00H - 7FH (0 - 127) Initial value = 00H (0) 4FH 16H mmH Part 14 On / Off (Rx Only 2) mm: 00H - 7FH (00-3FH ×Off - 40-7FH= On)	[800]
* This message adjusts the Delay Send Level of each Part. * Some other GS devices may not recognize this message. * Not transmitted when "Delay" TX Filter is On. * Mm: 00H - 7FH (00-3FH = OH - 40-7FH= On)	[800]
NRPN MSB/LSB (Controller number 98,99) 4FH 18H mmH Part 8 On / Off (Acc 5) Status 2nd byte mm: 00H - 7FH (00-3FH = Off - 40-7FH= On)	[800]
BnH 63H mmH BnH 62H IIH 4FH 19H mmH Part 9 On / Off (Acc 6) mm: 00H - 7FH (00-3FH = Off - 40-7FH= On)	[800]
n=MIDI channel number : 0H - FH (ch.1 - ch.16) mm=upper byte of the parameter number specified by NRPN li=lower byte of the parameter number specified by NRPN mm: 00H - 7FH (00 3FH = 0ff - 40-7FH= On)	[800]
* Not transmitted when NRPN TX Filter is On. 4FH 1BH mmH Part 2 On / Off (Acc Bass) mm: 00H · 7FH (00-3FH = Off) · 40-7FH= On)	[800]
"NRPN" 4FH 1CH mmH Part 1 On / Off (Acc 1) The NRPN (Non Registered Parameter Number) message allows an extended mm: 00H - 7FH (00-3FH = Off - 40-7FH= On)	[800]
range of control changes to be used, letting you use control functions which are not defined in the MIDI Specification. NRPNs provide a great deal of freedom, and can be used with any mm: 00H - 7FH (00-3FH = Off - 40-7FH= On)	[800]
manufacturer's devices. As a result, any particular parameter number can easily mean one thing when used for a certain device, and mean something completely 4FH 1EH mmH Part 5 On / Off (Acc3) different on another device. mm: 00H · 7FH (00·3FH = Off)	[800]
Note that RPNs and NRPNs require that a multiple number of messages be processed in the correct order. However, a majority of the sequencers currently on the market cannot always be relied on to consistently send messages in the proper mm: 00H - 7FH (00-3FH = Off - 40-7FH= On)	[800]
order if the messages are located at almost exactly the same point in time. On the GS instruments, NRPN can be used to modify the following parameters. The range of values for relative change parameters will be different with certain ### 4FH 20H mmH Master Accompaniment On / Off mm: 00H - 7FH (00-3FH = Off - 40-7FH= On)	

* Data entry LSB (IIH) is not Transmitted.
* Parameters marked "relative change" will change relative to the preset value . 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.

It is not possible to simultaneously use both Chorus Send Level and Delay Send Level on a single Drum Instrument

O RPN MSB/LSB

(Controller number 100,101)

3rd byte Status 2nd byte BnH 65H mmH ш

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

* Not transmitted when RPN TX Filter is On

"RPN"

The RPN (Registered Parameter Number) message allows an extended range of control changes to be used, letting you use additional control functions which are part of the MIDI Specification.

On the G-800, RPN can be used to modify the following parameters.

RPN Data entry
MSB LSB MSB LSB Explanation

00H 00H mmH ---Pitch Bend Sensitivity

mm: 00H - 18H (0 - 24 semitones)

Initial value = 02H (2 semitones)

II: ignored (processed as 00H) specify up to 2 octaves in semitone steps

HII Hmm H10 H00

Master Fine Tuning mm,ll: 00 00H - 40 00H - 7F 7FH

(-100-0-+99.99 cents)
Refer to 5. Supplementary material, "About tuning".

00H 02H mmH ---

Master Coarse Tuning mm: 28H - 40H - 58H (-24 - 0 - +24 semitones) II: ignored (processed as 00H)

7FH 7FH --- ---RPN null

set condition where RPN and NRPN are unspecified

Settings already made will not change.

mm.ll: ignored

• Program Change Status 2nd byte CnH ppH

pp=Program number

n=MIDI channel number

: 0H - FH (ch.1 - ch.16) : 00H - 7FH (prog.1 - prog.128)

* Not transmitted, when Program Change TX Filter is On.

• Pitch Bend Change

Status 2nd byte 3rd byte
EnH IIH mmH

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

mm,II=Pitch Bend value : 00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

* Not transmitted when Pitch Bender TX Filter is On

■ Channel Mode Messages

■ All Sounds Off (Controller number 120)

2nd byte 78H Status 3rd byte

n=MIDI channel number

:0H - FH (ch.1 - ch.16)

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

Reset All Controllers (Controller number 121)

Status 2nd byte 3rd byte 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 Channel Pressure 0 (off) 0 (off) Modulation 0 (off) Expression 127 (max) Hold 1 (lta) 0 Portamento 0 (off) Sostenuto 0 (off) 0 (off)

unset; previously set data will not change NRPN unset; previously set data will not change

● MONO (Controller number 126)

Status 2nd byte BnH 7EH 3rd byte

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

* The corresponding channel will be set to Mode 4 (M=1).

• POLY (Controller number 127)

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

n=MIDI channel number

: 0H - FH (ch.1 - ch.16)

* The corresponding channel will be set to Mode 3.

■ System Realtime Messages

O Active Sensing

Status

Transmitted about every 250ms

O Sequencer Start

Status

[800]

FAH

* This message is transmitted when the internal sequencer is started.

○ Sequencer Stop

18001

Status FCH

* This message is transmitted when the internal sequencer is stopped.

○ Timing Clock

[800]

Status

There are two options for sending MIDI realtime messages whenever you playback a

Style Sync TX

Start/Stop

If you select this option, the G-800 arranger sends "Sequencer Start, Stop messages.

Clock

This option means that the G-800 arranger sends Timing clock messages.

The Timing Clock messages and the Start /Stop messages are sent on PORT A and/or PORT B depending on the related parameter

■ System Exclusive Messages

Status	Data byte	a	Status
FOH	iiH, ddH.	,eeH	F7H
F0H ii = ID nu	mber ·		usive Message status er (manufacturer ID) i

er ID) to indicate the manufacture whose Exclusive message this is. Roland's manufacturer ID is

ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-realtime Messages (7EH) and Universal Realtime Messages (7FH). :00H - 7FH (0 - 127)

dd,...,ee = data : EOX (End Of Exclusive)

The System Exclusive Messages Transmitted and received by the G-800 are; messages related to Mode Setting, Universal Realtime System Exclusive messages, Data Requests (RQ1), and Data Set (DT1).

● Universal Realtime System Exclusive Messages

Data transmission

The G-800 can use Exclusive messages to transmit internal settings to other devices. There are two types of Exclusive data transmission; Individual Parameter Transmission (section 3) in which single parameters are transmitted one by one, and Bulk Dump Transmission (section 4) in which a large amount of data is transmitted at

once.

The exclusive message used when transmitting GS format data has a model ID of 42H and a device ID of 10H.

O Data request 1 RQ1 (11H)

This message requests the other device to send data. The Address and Size determine the type and amount of data to be sent. There are two types of request; Individual Parameter Request which requests data for an individual parameter, and Bulk Dump Request which requests a large amount of data at once. In either case, the 'Data Request 1 (RQ1)' message format is used, and the Address and Size included in the message determine the type and amount of data that is desired.

For Individual Parameter Request, refer to "3. Individual Parameter Transmission*

For Bulk Dump Request, refer to "4. Bulk Dump".

When a Data Request message is received, if the device is ready to transmit data and if the address and size are appropriate, the requested data will be transmitted as a "Data Set 1 (DT1)" message. If not, nothing will be transmitted.

Status	Data byte	Status
FOH	41H, dev, 42H, 11H, aaH, bbH, ccH, ssH, ttH, uuH, sum	F7H
D. da	Fuelenskins	
Byte	Explanation	
FOH	Exclusive status	
41H	ID number (Roland)	
dev	Device ID (dev: 00H - 1FH Initial value is 10H	
42H	Model ID (GS)	
11H	Command ID(RQ1)	
aaH	Address MSB: upper byte of the starting address of the reque	sted data
bbH	Address middle byte of the starting address of the reque	ested data
ccH	Address LSB: lower byte of the starting address of the reques	ted data
ssH	Size MSB	
ttH	Size	
սսH	Size LSB	
sum	Checksum	
F7H	EOX (End Of Exclusive)	

^{*} The amount of data that can be transmitted at once time will depend on the type of data, and data must be requested using a specific starting address and size. Refer to the Address and Size listed in Section 3

O Data set 1 DT1 (12H)

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

Status F0H	<u>Data byte</u> 41H, dev, 42H, 12H, aaH, bbH, ccH, ddH, eeH, sum	Status F7H
Byte FOH 41H dev 42H	Exclanation Exclusive status ID number (Roland) Device ID (dev: 00H - 1FH Initial value is 10H Model ID (GS), 45H, 41H	
12H	Command (D(DT1)	
aaH bbH ccH ddH	Address MSB: upper byte of the starting address of the transmitde byte of the starting address of the transmitdes LSB: lower byte of the starting address of the transmitted. Multipliare transmitted starting from the address.	ensmitted data Insmitted data
: eeH	: Data	
sum	Checksum	
F7H	FOX (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.
 Data larger than 128 bytes must be divided into packets of 128 bytes or less. If

Section 3 Individual Parameter Transmission

(Model ID=45H or 42H)

Individual Parameter Transmission transmits data (or requests data) for one

muvioual marameter 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.

Address Block Map

The address map for Individual Parameter Transmission is as follows

<Model ID = 45H>

<Model ID = 42H> Port-A / B Address(H)Block 00 00 00 +-| SYSTEM 40 00 00 +-| PATCH COMMON IA I 40 10 00 +-----50 10 00 +-| PATCH PART A | | (BLOCK 00-OF) | PATCH PART (BLOCK 10-1F) DRUM SETUP

Regarding the checksum please refer to Section 4.

[&]quot;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

O System parameters [88]

Parameters affecting the entire unit, such as how the two MIDI IN connectors will function, are called System Parameters. System parameters will not be reset even if "GS Reset" or "General MIDI System On" are received.

<model id<br="">Address(H)</model>	= 42H> Size(H)	Data(H)	Parameter	Description	Default(H)	Description
" Refer to "S	ystem exclusiv	re messages relate	ed to Mode settings".			
			CHANNEL MSG RX PORT [86	3]		
00 01 00	00 00 01	00 - 01	BLOCK00	PORT A - B	00	PORT A
:	:	<u>.i</u>	<u> </u>		:	
00 01 0F	00 00 01	00 - 01	BLOCK0F	PORT A - B	00	PORT A
00 01 10	00 00 01	00 - 01	BLOCK10	PORT A - B	01	PORT B
,					- :	
00 01 1F	00 00 01	00 - 01	DI CORFE	DODT A D	, .	CORTO
uo u i ir	00 00 01	UU - U I	BLOCK1F	PORT A - B	01	PORT B

^{*} You can modify the receiving MIDI port at which channel messages will be received for each BLOCK. We suggest that normally you use PORT A for BLOCK01-0F, and PORT B for BLOCK10-1F. (In this case there is no need to change the setting.)

Patch parameters

O Patch common parameters

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 00 00 40 00 01# 40 00 02# 40 00 03#	00 00 04	0018 - 07E8	MASTER TUNE	-100.0 · +100.0 [cent] Use nibblized data.	00 04 00 00	O [cent]
* Refer to sec	tion 5. Supple	mentary material, "Abou	ut tuning".			
40 00 04	00 00 01	00 - 7F	MASTER VOLUME (= F0 7F 7F 04 01 00 w F7)	0 - 127	7 F	127
40 00 05 40 00 06 40 00 7F	00 00 01 00 00 01 00 00 01	28 - 58 01 - 7F 00	MASTER KEY-SHIFT MASTER PAN MODE SET (Rx. only)	-24 · +24 [semilones] -63 (LEFT) · +63 (RIGHT 00 = GS Reset	40 40	0[semitones] 0 (CENTER)
* Refer to "Sys	stem exclusive	e messages related to N	flade settings".			
40 01 00 40 01 :# 40 01 0F#	00 00 10	20 - 7F	PATCH NAME	16 ASCII Characters		
40 01 30	00 00 01	0 - 07	REVERB MACRO 01: Room 2 02: Room 3 03: Hall 1 04: Hall 2 05: Plate 06: Delay 07: Panning Delay	00: Room 1	D4	Hall 2
40 01 31 40 01 32 40 01 33 40 01 34 40 01 35 40 01 37	00 00 01 00 00 01 00 00 01 00 00 01 00 00 01 00 00 01	00 - 07 00 - 07 00 - 7F 00 - 7F 00 - 7F 00 - 7F	REVERB CHARÁCTER REVERB PRE-LPF REVERB LEVEL REVERB TIME REVERB DELAY FEEDBACK	0 - 7 0 - 7 0 - 127 0 - 127 0 - 127 0 - 127[ms]	04 00 40 40 00	04 00 64 64 00

^{*} 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(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 01 38	00 00 01	00 - 07	CHORUS MACRO	00: Charus 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
40 01 40	00 00 01	00 - 7F	CHORUS SEND LEVEL TO DELAY [88]	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(H)	Size(H)	Data(H)	Parameter		Description	Delault Value (H)	Description
40 01 50	00 00 01	00 - 09	DELAY MACRO	[88]	00: Delay 1 01: Delay 2 02: Delay 3 03: Delay 4. 04: Pan Delay 1 05: Pan Delay 2 06: Pan Delay 3 07: Pan Delay 4 08: Delay to Reverb 09: Pan Repeat	00	Delay1
40 01 51	00 00 01	00 - 07	DELAY PRE-LPF	[88]	0 - 7	0	0
40 01 52	00 00 01	01 - 73		[88]	0.1ms - 1sec	61	340
40 01 53	00 00 01	01 - 78		[88]	4 - 500%	01	4
40 01 54	00 00 01	01 - 78	DELAY TIME RATIO RIGHT	[88]	4 - 500%	01	4
40 01 55	00 00 01	00 - 7F		[88]	0 - 127	7F	127
40 01 56	00 00 01	00 - 7F		[88]	0 - 127	0	0
40 01 57	00 00 01	00 - 7F	DELAY LEVEL RIGHT	[88]	0 - 127	0	0
40 01 58	00 00 01	00 - 7F		[88]	0 - 127	40	64
40 01 59	00 00 01	00 - 7F	DELAY FEEDBACK	[88]	-64 - +63	50	80
40 01 5A	00 00 01	00 - 7F	DELAY SENDLEVEL TO REVERB	[88]	0 - 127	0	127

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

The relation between the DELAY TIME CENTER value and the actual delay time is as follows.

DELAY TIME	Time Range[ms]	Resolution(ms)	DELAY TIME	Time Range(ms)	Resolution(ms)
01 - 14	0.1 - 2.0	0.1	46 - 50	50.0 - 100.0	5.0
14 - 23	2.0 - 5.0	0.2	50 - 5A	100.0 - 200.0	10.0
23 - 2D	5.0 - 10.0	0.5	5A - 69	200.0 - 500.0	20.0
2D - 37	10.0 - 20.0	1.0	69 - 73	500.0 - 1000.0	50.0
37 - 46	20.0 - 50.0	2.0			

* DELAY TIME RATIO LEFT and DELAY TIME RATIO RIGHT specify the ratio in relation to DELAY TIME CENTER. The resolution is 100/24(%).

40 02 0D	00 00 01	00 - 01	EQ LOW FREQ.	[88]	100Hz, 200Hz	00	200Hz
40 02 01	00 00 01	34 - 4C	EQ LOW GAIN	[88]	-12 - +12dB	40	0
40 02 02	00 00 01	00 - 01	EQ HIGH FREQ.	[88]	4kHz, 8kHz	00	8kHz
40 02 03	00 00 01	34 - 4C	EQ HIGH GAIN	[88]	-12 - +12dB	40	0

O Patch Part parameters

The G-800 has 16 Parts in Group A and 16 Parts in Group B. Parameters that can be set individually for each Part are called Patch Part parameters. If you use exclusive messages to set Patch 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).

To specify a Part of group A, use the Block number corresponding to the Part and specify an address of 40 ** ** via PORT A (normally MIDI IN A).

To specify a Part of either group A or B from a single PORT, specify an address of 40 ** ** via PORT B (normally MIDI IN B).

To specify a Part of either group A or B from a single PORT, specify an address of 40 ** ** for group A Parts or an address of 50 ** ** for group B Parts when using PORT

Conversely, to specify a Part of either group A or B from PORT B, specify an address of 50 " " for group A Parts or an address of 40 " " for group B Parts. In other words, when specifying Parts of the opposite side as the PORT being used, use addresses 50 " ".

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

* x...BLOCK NUMBER (0 - F), Part 1 (default MiDich = 1) x=1 Part 2 (default MiDich = 2) x=2

Part 9 (default MIDIch = 9) x=9 Part10 (default MIDIch =10) x=0 Part11 (default MIDIch =11) x=A Part12 (default MIDich =12) x=B Part16 (default MIDIch =16) x=F

* n...MIDI channel number (0 - F) of the BLOCK.

Address(H)	Size(H)	Data(H)	Parameter	Description	Delault Value (H	l) Description
0 1x 00	00 00 02	00 - 7F	TONE NUMBER CC#00 V	ALUE 0 - 127 (Bank number MSB)	00	0
0 1x 01#		00 - 7F	P.C. VALI	UE 1 - 128 (Program unmber)	00	1
0 1x 02	00 00 01	00 - 10	Rx. CHANNEL	1 - 16, OFF	Sa	me as the Part Number
0 1x 03	00 00 01	00 - 01	Rx. PITCH BEND	OFF / ON	01	ON
0 1x 04	00 00 01	00 - 01	Rx. CH PRESSURE(CAI)	OFF / ON	01	ON
0 1x 05	00 00 01	00 - 01	Rx. PROGRAM CHANGE	OFF / ON	D1	ON
0 1x 06	00 00 01	00 - 01	Rx. CONTROL CHANGE	OFF / ON	01	ON
0 1x 07	00 00 01	00 - 01	Rx. POLY PRESSURE(PAI)	OFF / ON	01	ON
0 1x 08	00 00 01	00 - 01	FIX. NOTE MESSAGE	OFF / ON	01	ON
0 1x 09	00 00 01	00 - 01	Ax. RPN	OFF / ON	01	ON
0 1x 0A	00 00 01	00 - 01	Rx. NRPN	OFF / ON	00(01*)	OFF(ON*)
10 1x 0B 10 1x 0C 10 1x 0D 10 1x 0E 10 1x 0F	00 00 01 00 00 01 00 00 01 00 00 01 00 00 01	00 - 01 00 - 01 00 - 01 00 - 01 00 - 01	Rx. MODULATION Rx. VOLUME Rx. PANPOT Rx. EXPRESSION Rx. HOLD1	OFF / ON OFF / ON OFF / ON OFF / ON OFF / ON	01 01 01 01 01	ON ON ON ON ON
0 1x 10 0 1x 11 0 1x 12	00 00 01 00 00 01 00 00 01	00 - 01 00 - 01 00 - 01	RX. PORTAMENTO RX. SOSTENUTO RX. SOSTENUTO	OFF/ON OFF/ON OFF/ON	01 01 01	ON ON ON
0 1x 10 0 1x 11	00 00 01	00 - 01 00 - 01	Rx. PORTAMENTO Rx. SOSTENUTO	OFF/ON OFF/ON	01	ON ON

^{*} 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.

40 1x 15	00 00 01	00 - 02	USE FOR RHYTHM PART	0 = OFF 1 = MAP1	00 at x≠0 01 at x=0	OFF (Normal Par) MAP1 (Drum Part)
				9 - 14459		

This parameter sets the Drum Map of the Part used as the Drum Part. The G-800 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)).

00 - 01 「LSB = OFF, Bank Seli	PITCH KEY SHIFT PITCH OFFSET FINE PART LEVEL VELOCITY SENSE DEPTH VELOCITY SENSE OFFSET PART PANPOT KEY RANGE LOW KEY RANGE HIGH CC1 CONTROLLER NUMBI CC2 CONTROLLER NUMBI CHORUS SEND LEVEL REVERB SEND LEVEL AX.BANK SELECT X.BANK SELECT will be set OFF RX BANK SELECT LSB Sect LSB (Bn 20 11) will be treated F PITCH FINE TUNE	ER ER :. When "G [88]	-24 - +24 [semitones] -12.0 - +12.0 [Hz] Use nibblized data. 0 - 127 (=CC#7) 0 - 127 -64(RANDOM), -63(LEFT) - +63(RIGHT) (=CC#10. except RANDOM (C-1) - (G9) (C-1) - (G9) (C-1) - (G9) 0 - 95 0 - 95 0 - 127 (=CC#93) 0 - 127 (=CC#91) OFF / ON RESIDENT OF System Mode Set* OFF / ON regardless of its value.	00 7F 10 11 00 28 01(00*) is received, it will be se	0 [semitones] 0 [Hz] 100 64 64 64 0 (CENTER) C-1 G 9 16 17 0 40 ON(OFF*)
00 - 7F 00 - 5F 00 - 5F 00 - 7F 00 - 7F 00 - 01 tem On* is received, Rx 00 - 01 LSB = OFF, Bank Sele 00 00 - 40 00 - 7F 76	PART LEVEL VELOCITY SENSE DEPTH VELOCITY SENSE OFFSET PART PANPOT KEY RANGE LOW KEY RANGE HIGH CC1 CONTROLLER NUMBI CC2 CONTROLLER NUMBI CHORUS SEND LEVEL REVERB SEND LEVEL RX.BANK SELECT X.BANK SELECT will be set OFF RX BANK SELECT LSB lect LSB (Bn 20 11) will be treated.	ER ER ER [88] ed as 00H r	Use nibblized data. 0 · 127 (=CC#7) 0 · 127 0 · 127 0 · 127 -54(RANDOM), -63(LEFT) · +63(RIGHT) (=CC# 10, except RANDOM (C-1) · (G9) 0 · 95 0 · 95 0 · 127 (=CC# 93) 0 · 127 (=CC# 91) OFF / ON IS Reset* or "System Mode Set* OFF / ON regardless of its value.	64 40 40 40 7F 10 00 28 01(00*) is received, it will be se	100 64 64 64 0 (CENTER) C-1 G 9 16 17 0 40 ON(OFF*)
00 - 7F 00 - 7F 00 - 7F 00 - 7F 00 - 7F 00 - 5F 00 - 5F 00 - 7F 00 - 7F 00 - 01 tem On" is received, Rx 00 - 01 T LSB = OFF, Bank Selic 00 00 - 40 00 - 7F 76	VELOCITY SENSE DEPTH VELOCITY SENSE OFFSET PART PANPOT KEY RANGE LOW KEY RANGE HIGH CC1 CONTROLLER NUMBI CC2 CONTROLLER NUMBI CHORUS SEND LEVEL REVERB SEND LEVEL RX.BANK SELECT XX.BANK SELECT will be set OFF RX BANK SELECT LSB lect LSB (Bn 20 11) will be treated	ER ER ER [88] ed as 00H r	(=CC#7) 0 - 127 0 - 127 0 - 127 - 64(RANDOM), - 63(LEFT) - +63(RIGHT) (=CC# 10. except RANDOM (C-1) - (G9) (C-1) - (G9) 0 - 95 0 - 95 0 - 127 (=CC#93) 0 - 127 (=CC#91) OFF / ON regardless of its value100 - 0 - +100 cent	40 40 40 7F 10 11 00 28 01(00*) is received, it will be se	64 64 0 (CENTER) C-1 G 9 16 17 0 40 ON(OFF*)
00 - 7F 00 - 7F 00 - 7F 00 - 7F 00 - 5F 00 - 5F 00 - 7F 00 - 7F 00 - 01 tem On* is received, Rx 00 - 01 f LSB = OFF, Bank Sela 00 00 - 40 00 - 7F 76	VELOCITY SENSE OFFSET PART PANPOT KEY RANGE LOW KEY RANGE HIGH CC1 CONTROLLER NUMBI CC2 CONTROLLER NUMBI CHORUS SEND LEVEL REVERB SEND LEVEL REVERB SEND LEVEL RX.BANK SELECT X.BANK SELECT will be set OFF RX BANK SELECT LSB lect LSB (Bn 20 11) will be treate F PITCH FINE TUNE	ER ER ER [88] ed as 00H r	0 - 127 0 - 127 0 - 127 -54(RANDOM), -53(LEFT) - +63(RIGHT) (=CC# 710, except RANDOM (C-1) - (G9) (C-1) - (G9) 0 - 95 0 - 95 0 - 127 (=CC# 93) 0 - 127 (=CC# 91) OFF / ON regardless of its value100 - 0 - +100 cent	40 40) 00 7F 10 11 00 28 01(00') is received, it will be se	64 0 (CENTER) C-1 G 9 16 17 0 40 ON(OFF*)
00 - 7F 00 - 7F 00 - 7F 00 - 7F 00 - 5F 00 - 5F 00 - 7F 00 - 7F 00 - 01 tem On* is received, Rx 00 - 01 f LSB = OFF, Bank Sela 00 00 - 40 00 - 7F 76	VELOCITY SENSE OFFSET PART PANPOT KEY RANGE LOW KEY RANGE HIGH CC1 CONTROLLER NUMBI CC2 CONTROLLER NUMBI CHORUS SEND LEVEL REVERB SEND LEVEL REVERB SEND LEVEL RX.BANK SELECT X.BANK SELECT will be set OFF RX BANK SELECT LSB lect LSB (Bn 20 11) will be treate F PITCH FINE TUNE	ER ER ER [88] ed as 00H r	0 - 127 -64(RANDOM), -63(LEFT) · +63(RIGHT) (=CC# 10, except RANDOM (C-1) · (G9) 0 · 95 0 · 95 0 · 127 (=CC# 93) 0 · 127 (=CC# 91) OFF / ON RESERT or "System Mode Set" OFF / ON regardless of its value.	40 40) 00 7F 10 11 00 28 01(00') is received, it will be se	64 0 (CENTER) C-1 G 9 16 17 0 40 ON(OFF*)
00 - 7F 00 - 7F 00 - 5F 00 - 5F 00 - 7F 00 - 7F 00 - 01 tem On" is received, Rx 00 - 01 T LSB = OFF, Bank Sele 00 00 - 40 00 - 7F 76	PART PANPOT KEY RANGE LOW KEY RANGE HIGH CC1 CONTROLLER NUMBI CC2 CONTROLLER NUMBI CHORUS SEND LEVEL REVERB SEND LEVEL Ax.BANK SELECT X.BANK SELECT will be set OFF AX BANK SELECT LSB lect LSB (Bn 20 11) will be treate	ER ER When "G [88] ed as 00H n	-63(LEFT) - +63(RIGHT) (=CC# 10, except RANDOM (C-1) - (G9) (C-1) - (G9) 0 - 95 0 - 127 (=CC# 93) 0 - 127 (=CC# 91) OFF / ON S Reset* or "System Mode Set* OFF / ON regardless of its value. -100 - 0 - +100 cent	00 7F 10 111 00 28 01(00*) is received, it will be se	C-1 G 9 16 17 0 40 ON(OFF*)
00 - 7F 00 - 5F 00 - 5F 00 - 7F 00 - 7F 00 - 01 tem On" is received, Rx 00 - 01 T LSB = OFF, Bank Sele 00 00 - 40 00 - 7F 76	KEY RANGE HIGH CC1 CONTROLLER NUMBI CC2 CONTROLLER NUMBI CHORUS SEND LEVEL REVERB SEND LEVEL RX.BANK SELECT X.BANK SELECT will be set OFF RX BANK SELECT LSB dect LSB (Bn 20 11) will be treate F PITCH FINE TUNE	ER *. When "G [88] ed as 00H r	(C-1) - (G9) (C-1) - (G9) 0 - 95 0 - 95 0 - 127 (=CC# 93) 0 - 127 (=CC# 91) OFF / ON is Reset* or "System Mode Set* OFF / ON regardless of its value.	00 7F 10 11 00 28 01(00*) is received, it will be se	G 9 16 17 0 40 ON(OFF*)
00 - 7F 00 - 5F 00 - 5F 00 - 7F 00 - 7F 00 - 01 tem On" is received, Rx 00 - 01 T LSB = OFF, Bank Sele 00 00 - 40 00 - 7F 76	KEY RANGE HIGH CC1 CONTROLLER NUMBI CC2 CONTROLLER NUMBI CHORUS SEND LEVEL REVERB SEND LEVEL RX.BANK SELECT X.BANK SELECT will be set OFF RX BANK SELECT LSB dect LSB (Bn 20 11) will be treate F PITCH FINE TUNE	ER *. When "G [88] ed as 00H r	(C-1) - (G9) 0 - 95 0 - 95 0 - 127 (=CC# 93) 0 - 127 (=CC# 91) OFF / ON S Reset* or "System Mode Set* OFF / ON regardless of its value.	7F 10 11 00 28 01(00*) is received, it will be se	G 9 16 17 0 40 ON(OFF*)
00 - 5F 00 - 7F 00 - 7F 00 - 01 tem On* is received, Rx 00 - 01 T LSB = OFF, Bank Sele 00 00 - 40 00 - 7F 70	CC2 CONTROLLER NUMBICHORUS SEND LEVEL REVERB SEND LEVEL Rx.BANK SELECT x.BANK SELECT will be set OFF RX BANK SELECT LSB lect LSB (Bn 20 11) will be treate	ER *. When "G [88] ed as 00H r	0 - 95 0 - 127 (=CC# 93) 0 - 127 (=CC# 91) OFF / ON iS Reset* or "System Mode Set* OFF / ON regardless of its value.	11 00 28 01(00*) is received, it will be se	17 0 40 ON(OFF*) at ON.
00 - 7F 00 - 7F 00 - 01 tem On" is received, Rx 00 - 01 LSB = OFF, Bank Selr 00 00 - 40 00 - 7F 76	CHORUS SEND LEVEL REVERB SEND LEVEL RX.BANK SELECT X.BANK SELECT will be set OFF RX BANK SELECT LSB dect LSB (Bn 20 11) will be treate	=. When "G [88] ed as 00H r	0 - 127 (=CC# 93) 0 - 127 (=CC# 91) OFF / ON iS Reset* or "System Mode Set* OFF / ON regardless of its value100 - 0 - +100 cent	00 28 01(00*) is received, it will be se	0 40 ON(OFF*) et ON.
00 - 7F 00 - 01 Item On" is received, Rx 00 - 01 F LSB = OFF, Bank Seli 00 00 - 40 00 - 7F 76	REVERB SEND LEVEL Rx.BANK SELECT x.BANK SELECT will be set OFF RX BANK SELECT LSB lect LSB (Bn 20 11) will be treate F PITCH FINE TUNE	[88] ed as 00H r	(=CC# 93) 0 - 127 (=CC# 91) OFF / ON iS Reset* or "System Mode Set* OFF / ON regardless of its value100 - 0 - +100 cent	28 01(00*) is received, it will be se	40 ON(OFF*) et ON.
00 - 01 tem On* is received, Rx 00 - 01 **LSB = OFF, Bank Selr 00 00 - 40 00 - 7F 76	Rx.BANK SELECT x.BANK SELECT will be set OFF RX BANK SELECT LSB sect LSB (Bn 20 11) will be treate F PITCH FINE TUNE	[88] ed as 00H r	(=CC# 91) OFF / ON IS Reset* or "System Mode Set* OFF / ON regardless of its value. -100 - 0 - +100 cent	01(00°) is received, it will be se 01	ON(OFF*)
tem On" is received, Rx 00 - 01 LSB = OFF, Bank Selr 00 00 - 40 00 - 7F 70 00 - 7F	x.BANK SELECT will be set OFF RX BANK SELECT LSB lect LSB (Bn 20 11) will be treate	[88] ed as 00H r	S Reset" or "System Mode Set" OFF / ON regardless of its value. -100 - 0 - +100 cent	is received, it will be se	et ON.
00 - 01 r LSB = OFF, Bank Sel 00 00 - 40 00 - 7F 7 00 - 7F	RX BANK SELECT LSB sect LSB (Bn 20 11) will be treate F PITCH FINE TUNE	[88] ed as 00H r	OFF / ON regardless of its value100 - 0 - +100 cent	01	
OO - 7F	ect LSB (Bn 20 11) will be treate	ed as 00H r	regardless of its value.		ON
00 00 - 40 00 - 7F 7	F PITCH FINE TUNE		-100 - 0 - +100 cent	٥	
00 - 7F		[88]		•	
	DELAY SEND LEVEL		(- RPN#1)	0	
	DELAY SEND LEVEL		(111 199 1)		
00 - 7F		[88]	0-127	00	0
	TONE MODIFY1	[88]	(=CC# 94) -64 - +63	40	0
00 - 7F	Vibrato Rate TONE MODIFY2	[88]	(=NRPN# 8) -64 - +63	40	0
00 - 7F	Vibrato Depth TONE MODIFY3	[88]	(=NRPN# 9) -64 - +63	40	0
00 - 7F	TVF Cutoff Freq. TONE MODIFY4	[88]	(=NRPN# 32) -64 - +63	40	0
00 - 7F	TVF Resonance TONE MODIFY5	[88]	(=NRPN# 33) -64 - +63	40	0
00 - 7F	TVF&TVA Env.attack TONE MODIFY6	[88]	(=NRPN# 99) -64 - +63	40	0
00 - 7F	TVF&TVA Env.decay TONE MODIFY7	[88]	(=NRPN# 100) -64 - +63	40	0
00 - 7F	TVF&TVA Env.release TONE MODIFY8 Vibrato Delay	[88]	(=NRPN# 102) -64 - +63 (=NRPN# 10)	40	0
	Vibrato Delay		(=NMFN# 10)		
00 - 7F	SCALE TUNING C		-64 - +63 [cent]	40	0 [cent]
00 - 7F	SCALE TUNING C#		-64 - +63 [cent]	40	0 [cent]
00 - 7F	SCALE TUNING D		-64 - +63 [cent]	40	0 [cent]
00 - 7F	SCALE TUNING D#		-64 - +63 [cent]	40	0 [cent]
00 - 7F	SCALE TUNING E		-64 - +63 [cent]	40 40	0 (cent)
00 - 7F 00 - 7F	SCALE TUNING F SCALE TUNING F#		-64 - +63 [cent] -64 - +63 [cent]	40 40	0 [cent] 0 [cent]
00 - 7F	SCALE TUNING F#		-64 - +63 [cent]	40	0 (cent)
00 - 7F	SCALE TUNING G#		-64 - +63 [cent]	40	0 [cent]
00 - 7F	SCALE TUNING A		-64 - +63 [cent]	40	0 (cent)
00 - 7F	SCALE TUNING A#		-64 - +63 [cent]	40	0 [cent]
00 - 7F	SCALE TUNING B		-64 - +63 [cent]	40	0 [cent]
00 - 01	SCALE TUNING Range C		64 - 128 [cent]	00	63 [cent] [800]
00 - 01	SCALE TUNING Range C#		64 - 128 [cent]	00	63 [cent] [800]
	SCALE TUNING Range D		64 - 128 (cent)	00	63 [cent] [800]
00 - 01					63 (cent) [800]
00 - 01 00 - 01					63 (cent) [800] 63 (cent) [800]
00 - 01 00 - 01 00 - 01					63 (cent) [800]
00 - 01 00 - 01 00 - 01 00 - 01					63 [cent] [800]
00 - 01 00 - 01 00 - 01 00 - 01 00 - 01					63 [cent] [800]
00 - 01 00 - 01 00 - 01 00 - 01 00 - 01 00 - 01					63 [cent] [800]
00 - 01 00 - 01 00 - 01 00 - 01 00 - 01 00 - 01 00 - 01	SUMUE LUMINO DANGE A				63 [cent] [800]
00 - 01 00 - 01 00 - 01 00 - 01 00 - 01 00 - 01 00 - 01					63 [cent] [800]
00 - 01 00 - 01	SCALE TUNING Range A#		ST 120 [SERIE]		as found foot)
	00 - 01 00 - 01 00 - 01 00 - 01 00 - 01	00 - 01 SCALE TUNING Range D# 00 - 01 SCALE TUNING Range F 00 - 01 SCALE TUNING Range F 00 - 01 SCALE TUNING Range F 00 - 01 SCALE TUNING Range G 00 - 01 SCALE TUNING Range G 00 - 01 SCALE TUNING Range A 00 - 01 SCALE TUNING Range A	00 - 01 SCALE TUNING Range D# 00 - 01 SCALE TUNING Range E 00 - 01 SCALE TUNING Range F 00 - 01 SCALE TUNING Range F# 00 - 01 SCALE TUNING Range G# 00 - 01 SCALE TUNING Range G# 00 - 01 SCALE TUNING Range G#	00 - 01 SCALE TUNING Range D# 64 - 128 [cent] 00 - 01 SCALE TUNING Range F 64 - 128 [cent] 00 - 01 SCALE TUNING Range F 64 - 128 [cent] 00 - 01 SCALE TUNING Range F# 64 - 128 [cent] 00 - 01 SCALE TUNING Range G# 64 - 128 [cent] 00 - 01 SCALE TUNING Range G# 64 - 128 [cent] 00 - 01 SCALE TUNING Range A# 64 - 128 [cent] 00 - 01 SCALE TUNING Range A# 64 - 128 [cent] 00 - 01 SCALE TUNING Range A# 64 - 128 [cent] 00 - 01 SCALE TUNING Range B 64 - 128 [cent]	00 - 01 SCALE TUNING Range D# 64 - 128 [cent] 00 00 - 01 SCALE TUNING Range E 64 - 128 [cent] 00 00 - 01 SCALE TUNING Range F 64 - 128 [cent] 00 00 - 01 SCALE TUNING Range F# 64 - 128 [cent] 00 00 - 01 SCALE TUNING Range G# 64 - 128 [cent] 00 00 - 01 SCALE TUNING Range G# 64 - 128 [cent] 00 00 - 01 SCALE TUNING Range A 64 - 128 [cent] 00 00 - 01 SCALE TUNING Range A 64 - 128 [cent] 00

Example:			
40 1x 40	40 1x 60	Effect	Resolution
7F	0	63 cents	1 cent
7F	1	126 cents	2 cent
0	0	-64 cents	1 cent
0	1	-126 cents	2 cent

The Scale Tune Range Sys Exe Must be sent / received after the Scale Tune Sys Exe.

^{*} 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.

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 2x 00	00 00 01	28 - 58	MOD PITCH CONTROL	-24 - +24 (comitance)	40	A (nomitogon)
40 2x 01	00 00 01	00 - 7F	MOD TVF CUTOFF CONTROL	-24 - +24 [semitones] -9600 - +9600 [cent]	40	0 [semitones] 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 2× 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 40 2x 09	00 00 01 00 00 01	00 - 7F 00 - 7F	MOD LFO2 PITCH DEPTH MOD LFO2 TVF DEPTH	0 - 600 [cent] 0 - 2400 [cent]	00 00	0 (cent)
40 2x 0A	00 00 01	00 - 7F	MOD LFO2 TVF DEFTH	0 - 2400 (cent) 0 - 100.0 (%)	00	0 (cent) 0 [%]
40 2x 10	00 00 01	40 - 58	BEND PITCH CONTROL	0 - 24 (semitones)	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 00 - 7F	BEND LFO1 PITCH DEPTH BEND LFO1 TVF DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 15 40 2x 16	00 00 01 00 00 01	00 - 7F	BEND LFO1 TVA DEPTH	0 - 2400 [cent] 0 - 100.0 [%]	00 00	0 [cent] 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	CAI PITCH CONTROL	-24 - +24 [semitones]	40	0 [semitones]
40 2x 21	00 00 01	00 - 7F	CALTVE CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 (cent)
40 2x 22	00 00 01	00 - 7F	CALLECT BATE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 23 40 2x 24	00 00 01 00 00 01	00 - 7F 00 - 7F	CAI LFO1 RATE CONTROL CAI LFO1 PITCH DEPTH	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 24 40 2x 25	00 00 01	00 - 7F	CALLFOI TVF DEPTH	0 - 600 [cent] 0 - 2400 [cent]	00 00	0 (cent) 0 (cent)
40 2x 25 40 2x 26	00 00 01	00 - 7F	CALLFOI TVP DEPTH	0 - 100.0 [%]	00	0 (%)
40 2x 27	00 00 01	00 - 7F	CALLFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 (Hz)
40 2x 28	00 00 01	00 - 7F	CAI LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 (cent)
40 2x 29	00 00 01	00 - 7F	CAI LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 2A	00 00 01	00 - 7F	CAI LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 30	00 00 01	28 - 58	PAI PITCH CONTROL	-24 - +24 [semitones]	40	0 (semitones)
40 2x 31	00 00 01	00 - 7F	PAI TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 (cent)
40 2x 32 40 2x 33	00 00 01 00 00 01	00 - 7F 00 - 7F	PAI AMPLITUDE CONTROL PAI LFO1 RATE CONTROL	-100.0 · +100.0 [%] -10.0 · +10.0 (Hz)	40 40	0 [%]
40 2x 34	00 00 01	00 - 7F	PAILE OF HATE CONTROL	0 - 600 [cent]	00	0 [Hz] 0 [cent]
40 2x 35	00 00 01	00 - 7F	PAILFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 36	00 00 01	00 - 7F	PAILFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 37	00 00 01	00 - 7F	PAILFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 38	00 00 01	00 - 7F	PAI LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 39 40 2x 3A	00 00 01	00 - 7F 00 - 7F	PAI LFO2 TVF DEPTH PAI LFO2 TVA DEPTH	0 - 2400 [cent] 0 - 100.0 [%]	00 00	0 (cent) 0 (%)
40 2x 40	00 00 01	28 - 58	CC1 PITCH CONTROL	-24 - +24 [semitones]	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 00 - 7F	CC1 LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40 00	0 [Hz]
40 2x 48 40 2x 49	00 00 01 00 00 01	00 - 7F	CC1 LFO2 PITCH DEPTH CC1 LFO2 TVF DEPTH	0 - 600 [cent] 0 - 2400 [cent]	00	0 [cent] 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 (semitones)	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 40 2x 56	00 00 01 00 00 01	00 - 7F 00 - 7F	CC2 LFO1 TVF DEPTH CC2 LFO1 TVA DEPTH	0 · 2400 [cent]	00	0 [cent]
40 2x 56 40 2x 57	00 00 01	00 - 7F	CC2 LFO2 RATE CONTROL	0 - 100.0 [%] -10.0 - +10.0 [Hz]	00 40	0 [%] 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 00	00 00 01	00 - 02	TONE MAP NUMBER [88] (= CC#32): Bank number LSB	MAP 0 - 2 00: SELECTED 01: SC-55 MAP 02: G-800 MAP	00	
*When "GS Re	eset" is receiv	red, this will be 00: Si	ELECTED.			
40 4× 01	00 00 01	01 - 02	TONE MAP-0 NUMBER [88]	01: SC-55 MAP (Old)	(02)	
				02: G-800 MAP (New)		
* When TONE "System Mode			fies the MAP. This setting will not be r	eset when the power is turned on	or when "GS Reset", "C	General MIDI System On" or
40 4x 20	00 00 01	00 - 01	EQ ON/OFF [88]	OFF / ON	01	ON

Section 4. Bulk Dump

Bulk Dump allows you to transmit a large amount of data at once, and is convenient for storing settings for the entire unit on a computer or sequencer. To make the G-800 perform a Bulk Dump transmission, send it a "Bulk Dump Request" message. Bulk Dump Request uses the Data Request 1 (RQ1) format, but unlike when transmitting Individual parameters, the "Size" specified by the request message refers not to the size of the data but rather specifies the contents of the data. For the data contents corresponding to each Size, refer to "Parameter Dump."

When the G-800 receives a Bulk Dump Request, it will transmit a Bulk Dump in the format given below.

The G-800 is also able to transmit a list of its internal sounds. This function can be used to display a list of sounds on a computer.

Parameter dump

O Parameter dump request (receive only) [88]
This is a command that requests a set of parameter data, and uses "Data Request 1 (RQ1)" format. The Size specifies the requested data contents.

Address: 0C 00 00 Size: 00 00 00 : ALL

request a dump of all parameters

- * When data dumped by the G-800 is reloaded into the G-800, be aware that the data may not be set correctly if the transmission order of the packets is changed, if the time interval between packets is changed, or if other messages are inserted between packets.

 The Parameter Dump data of the G-800 includes data for GS format compatible devices, and this data is compatible in both directions. However, depending on the settings of

- The Parameter Dump data or the G-800 includes data for GS format compatible devices, and this data is compatible in both directions. However, depending on the settings or parameters which are newly extended on the G-800, the musical result may differ.

 If the G-800 does not operate correctly with Bulk Dump data from another GS format compatible device, first initialize the G-800 before retransmitting the data.

 When another GS format compatible device receives Parameter Dump data that was transmitted by the G-800, it may display a message such as "Address Error", but this is because the parameter addresses newly extended on the G-800 were not recognized by the other device. Parameters which could be recognized by that device have been correctly set.

■ Dumping a list of internal sounds

Instrument list dump (88)

O Instrument list dump request (request only)

This command requests a bulk dump of a list of the preset sounds (Instruments) in internal memory, and uses "Data Request 1 (RQ1)" format. The Size specifies the contents of the requested data.

```
Address: 0C 00 01
          00 00 01 : SC-55 MAP
          00 00 02 : G-800 MAP
00 mm bb mm = MAP# 01 - 02 ( 01 = SC-55 MAP, 02 = G-800 MAP)
                       bb = BANK# 00 - 7F
```

Oinstrument list dump (transmit only) [88]

When Instrument List Dump Request is received, the sound names of the specified map will be transmitted continuously in the format given below, where 16 bytes are used for each sound name. The Address of the transmitted data is 0C 00 01 for all packets.

User bank sound names are not transmitted in a G-800 MAP Instrument List dump.

```
DUMP FORMAT:
0 1 2 3 4 5 6 7 8 9 A B C D E F
CCO: Variation number

MAP: MAP number

01 = SC-55 MAP, 02 = G-800 MAP
PC : Program number
```

Drum set list dump

O Drum set list dump request (receive only) [88]

This command requests a bulk dump transmission of a list of Preset Drum Sets in internal memory, and uses "Data Request 1 (RQ1)" format. The Size specifies the

```
Address: 0C 00 02
            00 00 00 : ALL
00 00 01 : SC-55 MAP
```

O Drum set list dump (transmit only) [88]

When a Drum Set Dump request is received, the Drum Set names of the specified MAP will be transmitted successively in the format given below, where 16 bytes are used for each sound. The Address of the transmitted data will be 0C 00 02 for each packet.

Drum instrument list dump

O Drum instrument list dump request (receive only) [88]

This command requests a bulk dump transmission of the Instrument list of an internal Preset Drum Sets, and uses "Data Request 1 (RQ1)" format. The Size specifies the desired data contents

```
Address: 0C 00 03
                            mm = MAP# 01 - 02 ( 01 = SC-55 MAP, 02 = G-800 MAP) pp = Drum sel# 00 - 7F (same as PC#)
Size: 00 mm pp
```

O Drum instrument list dump (transmit only) [88]

When a Drum Instrument Dump Request is received, or when a dump is initiated by panel operation, the Drum Instrument names of the specified Drum Set will be transmitted in the following format where 16 bytes are used for each Drum Instrument name. The address of the transmitted data will be 0C 00 03 for each packet.

```
DUMP FORMAT:
0 1 2 3 4 5 6 7 8 9 A B C D E F
| 100 |MAP|FC |REY| DRUM TONE NAME (ASCII 12 characters) | 1
| MAP | MAP | mumber | 01 = SC-55 MAP, 02 = G-800 MAP
| PC : Program number | 1 = SC-55 MAP, 02 = G-800 MAP
 KEY : Note number
```

Section 5. 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

+		+		++		٠.		++				++		+		.+
1	Dec.	l	Hex.	11	Dec.			• •	Dec.	!	Hex.			1	Hex.	1
1	0	i	ROO	11	32		20H	٠.		i	40H	٠.		ī	60H	i
i	1	i	01H	11	33		218	ii	65	i	41H	H	97	i	618	i
i	2	i	028	11	34		22H	H	66	i	42B	11	98	i	62H	1
i	3	i	03H	11	35	1	238	11	67	ı	43H	11	99	ı	63H	1
ı	4	ı	04H	11	36	ı	24H	11	68	ı	44B	11	100	١	64H	1
ŀ	5	i	05H	11	37	1	25H	11	69	ı	45B	11	101	t	65H	ı
ŧ	6	ı	06H	11	38	ı	26H	11	70	i	46H	11	102	ì	66H	1
ŀ	7	ı	07H	11	39	ı	27H	11	71	ı	47H	11	103	ı	67H	1
ŀ	8	ı	CBH	11	40	ı	28H	11	72	ì	48H	11	104	í	68H	ı
ŧ	9	ı	09H	11	41	1	29H	11	73	ı	49H	11	105	ł	69H	1
ı	10	ı	CAH	11			2AH	11	74	ŧ	4AH	11	106	t	6AH	1
ì	11	ı	CBH	11	43	ı	2BH	11	75	ı	4BH	11	107	1	6BH	1
ļ	12	ĺ	OCH.	11	44	ı	2CH	11	76	ŧ	4CH	11			6CH	1
ı	13	ŀ	ODH	11	45	ı	2DH			ì	4DH	11	109	ŧ	6DH	1
ı	14	ı	OEH	11	46	ı	2EH	11	78	ì	4EH	11	110	i	6EH	ŧ
ı	15	ı	OFH	11	47	ı	2FH			ŧ	4FB	11	111	ţ	6FH	1
ı	16	ı	10H	11			30H			ì	50H	11			70H	
ı	17	ı	118	11							51B			Í	71H	1
ı	18	ı	12H	11	50	ı	32H	н	82	ı	52 8	11	114	ţ	72H	ŧ
ı	19	ı	13H	11	51	ì	33H	11	83	ı	53R	11	115	į	738	ł
ı	20	۱	14H	11	52	ı	34H	11	84	ı	54R	11	116	ł	74R	i
ı	21	١	15H	11	53	i	35H	11	85	ı	55H	11	117	ı	75H	1
ı	22	ı	16H	11	54	ı	36A	11	86	ı	56H	11	118	ŧ	76H	1
ı	23	ŧ	17H	11	55	ı	37H	11	87	ı	57R	11	119	1	778	1
ı	24	ŧ	188	11	56	ı	388	11	88	ı	58B	11	120	į	78K	Ì
ı	25	i	19H	11	57	ı	39H	11	89	ı	59H	11	121	ţ	79H	Í
ı	26	i					BAE	11	90	ı	5AR	11	122	1	7AH	ł
ı	27	ı	188	11	69	ı	3BH			ı	58H	н	123	ı	7BH	
ı	28	i	1CH	11	60	,	3CH	11	92	ı	5CB	11	124	ł	7CH	1
į	29	i			61			11	93	ı	5DH	H	125	ı	7DH	į
i	30	i	1EH	13	62	ı	3EH			١	5ER	п	126	1	7EH	ŧ
i	31	i	1FH	11	63	1	3FH	11	95	ŧ	5fH	н	127	ı	7FH	1

- * Decimal values such as MIDI channel, bank select, and program change are listed as one 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 as 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 an bbH were expressed as decimal, this would be an bbH - 40 00H = $aa \times 128 + bb - 64 \times 128$.
- * 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.

```
<Example 1> What is the decimal expression of 5AH ? 
From the preceeding table, 5AH = 90
```

<Example 2> 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
```

<Example 3> What is the decimal expression of the nibbled value 0A 03 09 0D ? From the preceeding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13 ($(10 \times 16 + 3) \times 16 + 9) \times 16 + 13 = 41885$

<Example 4> What is the nibbled expression of the decimal value 1258?

```
16) <u>1258</u>
16)<u>78</u> ... 10
16)___4 ... 14
```

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

Examples of actual MIDI messages

Example 1> 92.3F.5F.

Solution of 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.

<Example 2> 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).

<Example 3> 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 (= $64 \times 128 + 0 = 8192$) 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) \div (-8192) = -75 cents of Pitch Bend is being applied to MIDI channel 11.

<Example 4> B3 64 00 65 00 06 0C 26 00 64 7F 65 7F

Example 45 53 56 00 53 00 00 50 00 50 00 47 655 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 messages. 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 OC	(MIDI ch.4) upper byte of value	: 0CH
(B3)	26 00	(MIDI ch.4) lower byte of 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 OC 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 OCH = 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 occuring 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).

Example of an Exclusive message and calculating a Checksum

Roland Exclusive messages (RQ1, DT1) 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.

♦ How 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

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

Example 15 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,

ΕĐ	41	70	42	12	40 01 30	02	22	E
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)
(1)Ex	clusive	Status	(2)	ID (Ro	land)	(3) De	rice ID (17))
(4) Mc	del ID	(GS)	(5)	Comman	ID (DT1)	(6) En	of Exclus:	ive

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.

<Example 2> Requesting transmission of the LEVEL for DRUM MAP 1 NOTE NUMBER 75 (D#5; Claves)

NOTE NUMBER 75(D#5) is 4BH in hexadecimal.

According to the "Parameter Address Map", LEVEL of NOTE NUMBER 75 (D#5; Claves) in DRUM MAP 1 has an Address of 41 02 4BH and a Size of 00 00 01H. Thus.

EQ	<u>41</u>	10	42	11	41 02 4B	00 00 01	22	E7
(1)	(2)	(3)	(4)	(5)	address	mire	checksum	(6)
	clusiv	e Status		ID (Rol	and)		of Exclus	

Next we calculate the checksu

```
41H + 02H + 4BH + 00H + 00H + 01H = 65 + 2 + 75 + 0 + 0 + 1 = 143(sum)
143(sum) + 128 = 1(quotient) ... 15(remainder)
checksum = 128 - 15(remainder) = 113 = 71H
```

This means that F0 41 10 42 11 41 02 4B 00 00 01 71 F7 is the message we

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 channel being used, or by sending a System Exclusive MASTER TUNE (address 40 00

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 to depend on the 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).

H	z at A4	cent	i	RPN		1	Syı	s . E:	κ. •	40 (00 00
	445.0					-					
ı	444.0	+15.67	1	4A 0	+128	33)	00	04	09	αo	(+157)
ı	443.0 [+11.76	i	47 4	1 (+ 96	54) į	00	04	07	06	(+118) [
1	442.0	+ 7.85	1	45 0	3 (+ 64	13) [00	04	04	0F	(+ 79)
i	441.0	+ 3.93	Ĺ	42 4	2 (+ 32	22)	00	04	02	07	(+ 39) [
ı	440.0	0	Ĺ	40 0	0) 0	ΣÌ	00	04	00	00	(0) [
1	439.0	- 3.94	1	3D 31	(- 32	23) 1	00	03	0D	09	(~ 39) [
i	438.0	- 7.89	i	3A 7	- 64	16) [00	03	02	01	(- 79) [

<Example 1> Set the tuning of MIDI channel 3 to A4 = 442.0Hz 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 value	:45H
(B2)	26 03	(MIDI ch.3) lower byte of value	:03H
(B2)	64 7F	(MIDI ch.3) upper byte of RPN parameter number	:7FH
(B2)	65 7F	(MIDI ch.3) lower byte of RPN parameter number	:7FH

<Example 2> Set the tuning of the entire device to +23.4 cent From the "Parameter Address Map", the MASTER TUNE Address is 40 00 00H. The value is expressed nibbled in steps of 0.1 cent with 00 04 00 00H (= 1024) as *0. so +23.4 cent would be 234 + 1024 = 1258, and when this is nibbled it would

<u>F0</u>	41	10	42	12	40 00 00	00 04 0E data	DA 22	E.7
(1)	(2)	(3)	(4)	(5)	address		checksum	(6)
	clusiv	• Status		ID (Ro	land)		rice ID (17)	

Next we calculate the checksum.

40H + 00H + 00H + 00H + 04H + 0EH + 0AH = 64 + 0 + 0 + 0 + 4 + 14 + 10 = 92(sum)

92(sum) + 128 = 0(quotient) ... 92(remainder) checksum = 128 - 92(remainder) = 36 = 24H

This means that F0 41 10 42 12 40 00 00 00 04 0E 0A 24 F7 is the message we transmit.

• 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 catave, 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

O 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 the G-800, the default settings for the Scale Tune feature produce equal temperament.

O 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.

O 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.

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	-B	
F#	0	-10	+43	
G	0	+2	-4	
G#	0	+14	+47	
Α	0	-16	0	
A#	0	+14	-10	
В	0	-12	-49	

The values in the table are given in cents. Refer to the explanation of Scale Tuning on page 7-30 to convert these values to hexadecimal, and transmit them as exclusive data to the G-800.

For example, to set the tune (C-B) of the Part1 Arabian Scale, send the data as

F0 41 10 42 12 40 11 40 3A 6D 3E 34 0D 38 6B 3C 6F 40 36 0F 50 F7

MIDI IMPLEMENTATION CHART

[ARRANGER WORKSTATION] (Arranger)

Date: 2 May 1995 Model: G-800 Version: 1.00

	Function	Transmitted		Recognized		Remarks
Basic Channel	Default Changed	1~12, 14, 16 1~16, Off		1~16 1~16, Off		1= Acc1 / 2= A Bass, 3= Acc2, 4= Upper1, 5= Acc3, 6= Upper2, 7= Acc4, 8= Acc5, 9= Acc6, 10= A DrumPSS PG, 11= Lower, 12= Man Base, 13=PR1 / Sanic MIDI ch, 14= Px2 / NTA1, 15= Px 3 / NTA2, 16= M Drum
Mode	Default Message Altered	Mode 3 Mode 3, 4 (M=1)		Mode 3 Mode 3, 4 (M=1)		*2
Note Number	True Voice	0~127		0~127 0~127	*1	
Velocity	Note ON Note OFF	o x	•1	O X	*1	
After Touch	Key's Ch's	X X		0	*1 *1	
Pitch Bend		0	*1	0	•1	
Control Change	0,32 1 5 6, 38 7 10 11 64 65 66 67 84 91 93 94 98, 99 100, 101 120 121	000000000000xx	" " " " " " " " " " " " " " " " " " "	O O O O O O O (Reverb) O (Chorus) O (Delay) O O O O O O O O O O O O O O O O O O O	11 11 11 11 11 11 11 11 11 11 11 11 11	Bank Select Modulation Portamento Time Data Entry Volume Panpot Expression Hold 1 Portamento Sostenuto Soft Portamento Control Effect 1 Depth Effect 3 Depth Effect 4 Depth NRPN LSB, MSB RPN LSB, MSB All Sound Off Reset All Controllers
Program Change	True #	X	- 1	O 0~127	-1	Program Number 1~128
System Exclu	Jsive	0		0		
System Common	Song Pos Song Sel Tune	X X X		X X X		
System Real Time	Clock Commands	0 0	*1 *1	0	*1 *1	MIDI File Record/Play
Aux Messages	Local On/Off All Notes Off Active Sense Reset	O X O X	*1	O O (123-125) O X		
Notes		*1 O X is selectable *2 Recognize as M=1 even if M≠1				

Mode 1: OMNI ON, POLY Mode 3: OMNI OFF, POLY Mode 2: OMNI ON, MONO Mode 4: OMNI OFF, MONO O: Yes X: No

	·	

■ MIDI implementation

(Sound Module, Keyboard Section, SMF Player)

The G-800 has additional functions and parameters which were not found on previous GS format sound sources. These functions and parameters are marked as [88] if same as SC-88 or [800] if different . If MIDI messages marked as [88] or [800] are transmitted to a different GS format sound source, it is possible that these messages may not be received.

Section 1. Receive data

■ Channel voice messages

■ Note off

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

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

* For Drum Parts, these messages are received by each instrument when Rx.NOTE

The velocity values of Note Off messages are ignored.

Note on

Status 2nd byte 3rd byte 9nH kkH vvH

: 0H - FH (ch.1 - ch.16) : 00H - 7FH (0 - 127) n=MIDI channel number kk=note number vv=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 byte 3rd byte kkH AnH

: 0H - FH (ch.1 - ch.16) : 00H - 7FH (0 - 127) n=MID) channel number kk=note number : 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 BnH 2nd byte 00H 3rd byte mmH 20H ш

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

: 00H - 7FH (GS Variation number 0 - 127)

Initial value = 00H II=Bank number LSB :00H - 02H (MAP)

* Not received when Bx BANK SELECT = OFF

When "GM System On" is received, Rx.BANK SELECT will be set OFF, and Bank Select will not be received

When 'GS Reset' is received, Rx.BANK SELECT will be set ON.

* When 'Rx.BANK SELECT LSB = OFF, Bank number LSB will be handled as 00H ragardless of the received value.

* Bank Select processing will be suspended until a Program Change message is

The GS format "Variation number" is the value of the Bank Select MSB (Controller number 0) expressed in decimal.

The G-800 recognizes the Bank Select LSB (Controller number 32) as a flag for switching between the G-800MAP and the SC-55MAP. With a Bank Select LSB of OPH, the map selected by the front panel SC-55MAP button will be selected. With a LSB of OPH, the G-800MAP will be selected. With a LSB of OPH, the G-800MAP will

Some other GS devices do not recognize the Bank Select LSB (Controller number 32)

Model G-800

Version 1.00 '95.5

(Controller number 1) Modulation

Status 2nd byte 3rd byte BnH 01H WH

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.

O Portamento Time (Controller number 5)

2nd byte 3rd byte 05H vvH BnH

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

Initial value = 00H (0) : 00H - 7FH (0 - 127) vv=Portamento Time

* 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.

Status 2nd byte 3rd byte 06H mmH BoH 26H ИH

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

(Controller number 7)

2nd byte 3rd byte 07H vvH

n=MIDI channel number

: 00H - 7FH (0 - 127) Initial value = 64H (100) vv=Volume

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

O Pan (Controller number 10)

2nd byte 3rd byte BnH OAH wH

n=MIDI channel number

: 0H - FH (ch.1 - ch.16)

: 00H - 40H - 7FH (Left - Center - Right) initial value = 40H (Center)

The stereo position can be adjusted over 127 steps.

* For Rhythm Parts, this is a relative adjustment of each Instrument's pan setting.
* This message is not received when Rx.PANPOT = OFF. (Initial value is ON)

(Controller number 11)

2nd byte 0BH 3rd byte

[88]

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

Initial value = 7FH (127) : 00H - 7FH (0 - 127)

* It can be used independently from Volume messages. Expression messages are used for musical expression within a performance; e.g., expression pedal vements, crescendo and decrescendo

* This message is not received when Rx.EXPRESSION = OFF. (Initial value is ON)

O Hold 1 (Controller number 64)

Status 2nd byte 3rd byte BnH 40H vvH

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

: 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

*This message is not received when Rx.HOLD1 = OFF. (Initial value is ON)

 Portamento (Controller number 65)

2nd byte 41H 3rd byte

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

: 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

* This message is not received when Rx.PORTAMENTO = OFF. (Initial value is ON)

⊃ Sostenuto (Controller number 66)

Status 2nd byte 3rd byte 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

* This message is not received when Rx.SOSTENUTO = OFF. (Initial value is ON)

) Soft (Controller number 67) 2nd byte 3rd byte

43H

n=MIDI channel number

: 0H - FH (ch.1 - ch.16)

vv=Control value

:00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

* This message is not received when Rx.SOFT = OFF. (Initial value is ON)

O Portamento control (Controller number 84) 2nd byte 3rd byte Status

BnH 54H kkH

: 0H - FH (ch.1 - ch.16)

n=MIDI channel 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 Noteon 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 MILOT	Description	Leadil
90 3C 40	Note on C4	C4 on
B0 54 3C	Portamento Control from C4	no change (C4 voice still sounding)
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 on with glide from C4
80 40 40	Note off E4	E4 off

⊃ Effect 1 (Reverb Send Level) Status

(Controller number 91)

2nd byte 3rd byte 5BH

n=MIDI channel number

: 0H - FH (ch.1 - ch.16)

wH

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)

2nd byte 3rd byte 5DH vvH Status BnH

n=MIDI channel number

: OH - 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.

⇒ Effect 4 (Delay Send Level)

(Controller number 94) [88]

Status 2nd byte 3rd byte BnH 5EH vvH

n=MIDI channel number vv=Control value

: 0H - FH (ch.1 - ch.16) : 00H - 7FH (0 - 127) Initial value = 00H (0) O NRPN MSB/LSB (Controller number 98.99)

Status 2nd byte 3rd byte 63H RoH 62H

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

When "GM System On" is received, Rx.NRPN will be set OFF, and NRPN will not be received. When "GS Reset" or Rx.NRPN = ON is received. NRPN can be

The value set by NRPN will not be reset even if Program Change or Reset All

"NRPN"

The NRPN (Non Registered Parameter Number) message allows an extended range of control changes to be used, letting you use control functions which are not defined in the MIDI Specification.

NRPNs provide a great deal of freedom, and can be used with any nufacturer's devices. As a result, any particular parameter number can easily mean one thing when used for a certain device, and mean something completely

Note that RPNs and NRPNs require that a multiple number of messages be processed in the correct order. However, a majority of the sequencers currently on the market cannot always be relied on to consistently send messages in the proper

order if the messages are located at almost exactly the same point in time.

To use these messages, you must first send NRPN MSB and NRPN LSB messages to specify the parameter to be controlled, and then send 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

On the GS instruments. NRPN can be used to modify the following parameters. The range of values for relative change parameters will be different with certain models. Please see the explanation that follows the chart.

NRPN Data entr	VRPN	Data	entry
----------------	------	------	-------

MSB LSB MSB Function and range

01H 08H mmH Vibrato Rate (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)

Vibrato Depth (relative change) 01H 09H mmH mm: 00H - 40H - 7FH (-64 - 0 - +63)

mmH Vibrato Delay (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) 01H 0AH mmH

TVF Cutoff Frequency (relative change) 01H 20H mmH mm: 00H - 40H - 7FH (-64 - 0 - +63)

TVF Resonance (relative change) 01H 21H mmH

mm: 00H - 40H - 7FH (-64 - 0 - +63)

mmH TVF&TVA Envelope Attack Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) 01H 63H mmH

01H 64H mmH TVF&TVA Envelope Decay Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)

TVF&TVA Envelope Release Time (relative change) 01H 66H mmH

mm: 00H - 40H - 7FH (-64 - 0 - +63)

mmH Drum Instrument Pitch Coarse (relative change) 18H rrH rr: Drum Instrument note number

mm: 00H - 40H - 7FH (-64 - 0 - +63 semitone)

1AH rrH mmH Drum Instrument TVA Level (absolute change)

rr: Drum Instrument note number mm: 00H - 7FH (0 - max)

1CH rrH mmH Drum instrument Panpot (absolute change)

mm: 00H, 01H - 40H - 7FH (random, left-center-right)

1DH rrH mmH Drum Instrument Reverb Send Level (absolute change) rr: Drum Instrument note number

mm: 00H - 7FH (0 - max)

1EH rrH Drum Instrument Chorus Send Level (absolute change)

rr: Drum Instrument note number mm: 00H · 7FH (0 - max)

1FH rrH mmH Drum Instrument Delay Send Level (absolute change) [88]

rr: Drum Instrument note number mm; 00H - 7FH (0 - max)

4FH 10H mmH Part 4 On / Off (Upper 1) [800]

mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)

mmH Part 11 On / Off (Lower) mm: 00H - 7FH (00-3FH =Off - 40-7FH= On) [800] 4FH 11H mmH

4FH 12H mmH Part 12 On / Off (Man. Bass) [800] mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)

4FH 13H mmH Part 6 On / Off (Upper 2) [800]

mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)

mmH Part 16 On / Off (Man Drums) mm: 00H - 7FH (00-3FH =Off ~ 40-7FH± On) 4FH 14H mmH [800]

^{*} This message adjusts the Delay Send Level of each Part

^{*} Some other GS devices may not recognize this messag

- * Data entry LSB (IIH) is ignored.
- Parameters marked "relative change" will change relative to the preset value 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
- neter, regardless of the preset value.

It is not possible to simultaneously use both Chorus Send Level and Delay

Sendlevel on a single Drum Instrument

O RPN MSB/LSB (Controller number 100.101) Status 2nd byte 3rd byte BnH 65H mmH

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

II=lower byte of parameter number specified by RPN This message is not received when Ax.APN = OFF.

* The value specified by RPN will not be reset even by messages such as Program Change or Reset All Controller.

"RPN"

"TRPN"

The RPN (Registered Parameter Number) message allows an extended range of control changes to be used, letting you use additional control functions which are part of the MIDI Specification. 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 designed parameter. value of the desired parameter.

On the G-800, RPN can be used to modify the following parameters

RPN Data entry
MSB LSB MSB LSB Explanation

--- Hmm H00 H00

mm: 00H - 18H (0 - 24 semitones)

Initial value = 02H (2 semitones)

II: ignored (processed as 00H)

specify up to 2 octaves in semitone steps

00H 01H mmH IIH

Master Fine Tuning mm,ll: 00 00H - 40 00H - 7F 7FH (-100-0-+99.99 cents)

Refer to 5. Supplementary material, "About tuning".

00H 02H mmH ---

Master Coarse Tuning mm: 28H - 40H - 58H (-24 - 0 - +24 semitones)

II: ignored (processed as 00H)

7FH 7FH --- ---RPN nuli

set condition where RPN and NRPN are unspecified

Settings already made will not change.

mm,#: ignored

 Program Change Status 2nd byte CoH

n=MIDI channel number pp=Program number

: 0H - FH (ch.1 - ch.16) : 00H - 7FH (prog.1 - prog.128)

* This message is not received when Rx.PROGRAM CHANGE = OFF. (Initial value

- 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 byte wH

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

* This message is not received when Rx.CH PRESSURE (CAI) = 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 byte EnH IIH 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)

- This message is 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)

2nd byte 78H 3rd byte 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 byte 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 Channel Pressure O (off) Modulation O (off) 127 (max) Expression Hold 1 0 (off) Portamento 0 (off) Sostenuto 0 (off) Soft

unset; previously set data will not change RPN unset; previously set data will not change NRPN

All Notes Off (Controller number 123)

2nd byte 7BH Status 3rd byte

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 untill these are turned off.

• OMNI OFF (Controller number 124) Status 2nd byte 3rd byte **RnH** 7CH 00H

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

* Omni Off is only recognize as "All Notes Off". Mode does not change.

OMNI ON (Controller number 125)

Status 2nd byte BnH 7DH 3rd byte

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

* Omni Onis only recognize as "All Notes Off", Mode does not change.

MONO (Controller number 126)

Status 2nd byte 7EH 3rd byte

n=MIDIchannel number : OH - 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 7FH 3rd byte 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 Messages

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

O Sequencer Start

Status

* When "Sequencer Start" is received, the internal Recorder starts

O Sequencer Stop

Status

When "Sequencer Stop" is received, the internal Recorder stops

O Sequencer Continue

* When "Sequencer Continue" is received, the internal Recorder continue to play from the current position

O Timing Clock Status

[800]

[800]

Song Position Pointer

Status 2nd byte 3rd byte F2H XXH YYH

XX = Song Position (Bar) LSB YY = Song Position (Bar) MSB

18001 Song Select

Status 2nd byte F3H XXH

XX = Song Number

" When "Timing Clock" is received the internal recorder is synchronized to an external clock

The parameter "Song Sync RX" define the response of the internal recorder to the reception of incoming "Sequencer Start/Stop" and "Timing Clock" messages.

Option	Response
internat	The Song will neither start/stop nor follow the tempo of the external Timing Clock (F8) and "Sequencer Start /Stop" (FA / FC) messages
Auto	As long the recorder does not receive "Sequencer Start/Stop" (FA/FC) and "Timing Clock" (F8) messages it will follow its own tempo and Start/stop whenever you press the "START/STOP" or "PLAY" buttons to start song Playback.
MIDI	The recorder can only be started stopped and synchronized with incoming MIDI realtime messages.
Remote	The recorder waits for a "Sequencer Start" message to start at his own tempo. As soon it receives a "Sequencer Stop" message, playback will stop.

■ System Exclusive Messages

.

FOH	iiH, ddH,	,eeH F7H
FOH ii = 1D nur	mber	: System Exclusive Message status : 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 :	= dala	:00H - 7FH (0 - 127)
F7H		: EOX (End Of Exclusive)

The System Exclusive Messages received by the G-800 are; messages related to Mode Setting, Universal Realtime System Exclusive messages, Data Requests (RQ1), 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 "Turn General MIDI System On" message should be inserted at the beginning of a General MIDI score.

a "GS Reset" message at the beginning of a GS music data, and a "System Mode a "GS Heset" message at the beginning of a GS music data, and a "System mode Set" message at the beginning of data especially for the G-800. Each song should contain only one mode message as appropriate for the type of data. (Do not insert two or more mode settling messages in a single song.)
"System Mode Set" and "GS Reset" use Rolland system exclusive format "Data Set 1 (DT1)". "Turn General MIDI System On" use Universal Non-realtime Message

O Turn General MIDI System On

"General MIDI System On" is a command message that resets the internal settings of the unit to the General MIDI initial state (General MIDI System - Level 1). A General MIDI device that receives this message will automatically be set to the proper condition for correctly playing a General MIDI score.

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

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

○ Turn General MIDI System Off

Status Data buta

"General MIDI System Off" is a command message that resets the internal settings of the unit to the Arranger Mode I initial state .

FOH	7EH, 7FH, (09H, 02H F7H
Byte FOH 7EH	Explanation Exclusive st	
7FH	Device ID	(Broadcast)
02H 09H	Sub ID#1 Sub ID#2	(General MIDI Message) (General MIDI Off)
F7H	EOX	(End Of Exclusive)

- * When this message is received, the unit change from "General MIDI" mode to G-800 default mode. (Arranger mode)
- * There must be an interval of at least 100 ms between this message and the next message.

○ GS Reset

GS Reset is a command message that resets the internal settings of a device to the GS initial state. This message appears 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 FOH	Data byte 41H, dev, 42H	. 12H. 40H. 00H. 7FH. 00H	Status 41H F7H
, 0.1	3111, 001, 401.	, , , , , , , , , , , , , , , , , , , ,	
Byte	Explanation		
FOH	Exclusive statu	ıs	
41H	ID number	(Roland)	
dev	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	AddressLSB		
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

○ Exit GS Mode

Status Data byte

"Exit GS Mode" is a command message that resets the internal settings of the unit to the Arranger Mode I initial state

Status

FOH	41H, dev, 42H	, 12H, 40H, 00H, 7FH, 7FH	I, 42H F7H
Byte	Explanation		
FOH	Exclusive statu	IS .	
41H	ID number	(Roland)	
dev	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	AddressLSB		
7FH	Data	(Exit GS Mode)	
42H	Checksum		
F7H	EOX	(End Of Exclusive)	

- * When this message is received, the unit change from "General MIDI" mode to G-800 default mode. (Arranger mode)
- There must be an interval of at least 100 ms between this message and the next message.

Universal Realtime System Exclusive Messages

Master volume

Status FOH	7FH, 7FH, 04	IH, 01H, IIH, mmH	Status F7H
Byte	Explanation		
FOH	Exclusive sta	tus	
7FH	ID number	(universal realtime me	essage)
7FH	Device ID	(Broadcast)	
04H	Sub ID#1	(Device Control mess	ages)
01H	Sub ID#2	(Master Volume)	
IIH	Master volum	ne lower byte	
mmH	Master volun	ne upper byte	
F7H	EOX	(End Of Exclusive)	

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

Data transmission

The G-800 can use Exclusive messages to transmit internal settings to other devices. There are two types of Exclusive data transmission: Individual Parameter Transmission (section 3) in which single parameters are transmitted one by one, and Bulk Dump Transmission (section 4) in which a large amount of data is transmitted at once.

The exclusive message used when transmitting GS format data has a model ID of 42H and a device ID of 10H. (The G-800 allows you to change the Device ID setting.)

O Data request 1 RQ1 (11H)

This message requests the other device to send data. The Address and Size determine the type and amount of data to be sent. There are two types of request; Individual Parameter Request which requests data for an individual parameter, and Bulk Dump Request which requests a large amount of data at once. In either case, the "Data Request 1 (RQ1)" message format is used, and the Address and Size included in the message determine the type and amount of data that is desired. For Individual Parameter Request, refer to "3. Individual Parameter

Transmission'

For Bulk Dump Request, refer to "4. Bulk Dump".

When a Data Request message is received, if the device is ready to transmit data and if the address and size are appropriate, the requested data will be transmitted as a "Data Set 1 (DT1)" message. If not, nothing will be transmitted.

Status F0H	Data byte 41H, dev, 42H, 11H, aaH, bbH, ccH, ssH, ttH, uuH, sum F7H	ž
Byte	Explanation	
FOH	Exclusive status	
41H	ID number (Roland)	
dev	Device ID (dev: 00H - 1FH Initial value is 10H	
42H	Model ID (GS)	
11H	Command ID(RO1)	
aaH	Address MSB: upper byte of the starting address of the requested data	a
bbH	Address : middle byte of the starting address of the requested date	
ccH	Address LSB : lower byte of the starting address of the requested data	à
ssH	Size MSB	
ttH	Size	
uuH	Size LSB	
sum	Checksum	
F7H	FOX (End Of Exclusive)	

The amount of data that can be transmitted at once time will depend on the type of data, and data must be requested using a specific starting address and size. Refer to the Address and Size listed in Section 3

O Data set 1 DT1 (12H)

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

Status F0H	<u>Data byte</u> 41H, dev, 42H, 12H. aaH, bbH, ccH, ddH eeH, sum	Status F7H
Byte FOH 41H dev 42H 12H aaH bbH ccH ddH	Explanation Exclusive status ID number (Roland) Device ID (dev: 00H - 1FH Initial value is 10H Model ID (GS), 45H Command ID(DT1) Address MSB : upper byte of the starting address of the transr Address LSB : lower byte of the starting address of the transr Address LSB : lower byte of the starting address of the transr Address LSB : lower byte of the starting address of the transr Address LSB : lower byte of the starting address of the transr Address LSB : lower byte of the starting address of the transr	nitted data nitted data
eeH sum F7H	: Data Checksum 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.

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

Section 2. Transmit data

■ Channel voice messages

Note off

2nd byte 3rd byte

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

Note on

Status 2nd byte 3rd byte

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

Control Change

○ Rank Select (Controller number 0.32)

Status 2nd byte 3rd byte 00H 20H ΉН BnH

[88]

n=MIDI channel number : 0H - FH (ch.1 - ch.16) : 00H - 7FH (GS Variation number 0 - 127) mm∞Bank number MSB

II=Bank number LSB :00H - 02H (MAP)

Not transmitted when "Program Change" TX Filter is On. Some other GS devices do not recognize the Bank Select LSB (Controller number 32).

(Controller number 1) O Modulation Status

2nd byte 3rd byte 01H vvH

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

* Not transmitted when "Modulation" TX Filter is On.

○ Portamento Time (Controller number 5)

Status 2nd byte 3rd byte 05H

n=MIDI channel number

vv=Portamento Time

: 0H - FH (ch.1 - ch.16)

: 0H - FH (Cn.) - C.... : 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.

(Controller number 6,38) ○ Data Entry

Status 2nd byte 3rd byte BnH 06H mmH

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

(Controller number 7) ○ Volume

Status 2nd byte 3rd byte BnH 07H vvH

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

Not transmitted when "Volume" TX Filter is On.

Volume messages are used to adjust the volume balance of each Part.

) Pan (Controller number 10)

Status 2nd byte 3rd byte 0AH vvH

n=MIDI channel number

: 0H - FH (ch.1 - ch.16) : 00H - 40H - 7FH vv≖pan

(Left - Center - Right) Initial value = 40H (Center)

Not transmitted when "Volume" TX Filter is On.

* The stereo position can be adjusted over 127 steps.

(Controller number 11) O Expression 2nd byte 3rd byte OBH

n=MIDI channel number vv=Expression

: 0H - FH (ch.1 - ch.16) : 00H - 7FH (0 - 127) Initial value = 7FH (127)

Initial value = 64H (100)

Not transmitted when "Expression" TX Filter is On.

* 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.

^{*} Regarding the checksum please refer to Section 4.

between packets.

Regarding the checksum please refer to section 4

O Hold 1 (Controller number 64)

Status 2nd byte 3rd byte

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

:00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

* Not transmitted when "Hold" TX Filter is On.

○ Portamento (Controller number 65)

Status 2nd byte 3rd byte BnH 41H vvH

n=MIDI channel number

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

O Sostenuto (Controller number 66)

Status 2nd byte 3rd byte BnH 42H vvH

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

: 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON vv=Control value

"Not transmitted when "Sostenuto" TX Filter is On.

⊃ Soft (Controller number 67)

Status 2nd byte 3rd byte

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

:00H - 7FH (0 - 127) 0-63=OFF 64-127=ON vv=Control value

* Not transmitted when "Soft" TX Filter is On.

○ Portamento control (Controller number 84)

Status 2nd byte 3rd byte BnH 54H kkH

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

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

Status 2nd byte 3rd byte BnH 5BH

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

: 00H - 7FH (0 - 127) vv≈Control value Initial value = 28H (40)

This message adjusts the Reverb Send Level of each Part.

* Not transmitted when "Reverb" TX Filter is On.

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

Status 2nd byte 3rd byte BnH 5DH vvH

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

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

* Not transmitted when "Chorus" TX Filter is On.

⇒ Effect 4 (Delay Send Level) (Controller number 94) [88]

Status 2nd byte 3rd byte BnH 5EH vvH

n=MIDI channel number

: 00H - 7FH (0 - 127) Initial value = 00H (0) vv=Control value

This message adjusts the Delay Send Level of each Part.

* Some other GS devices may not recognize this message * Not transmitted when "Delay" TX Filter is On.

O NRPN MSR/LSR (Controller number 98,99)

Status 2nd byte 3rd byte mmH IIH 62H

: 0H - FH (ch.1 - ch.16) mm=upper byte of the parameter number specified by NRPN II=lower byte of the parameter number specified by NRPN

* Not transmitted when NRPN TX Filter is On.

The NRPN (Non Registered Parameter Number) message allows an extended range of control changes to be used, letting you use control functions which are not defined in the MIDI Specification.

NRPNs provide a great deal of freedom, and can be used with any manufacturer's devices. As a result, any particular parameter number can easily mean one thing when used for a certain device, and mean something completely

Note that RPNs and NRPNs require that a multiple number of messages be processed in the correct order. However, a majority of the sequencers currently on the market cannot always be relied on to consistently send messages in the proper order if the messages are located at almost exactly the same point in time. On the GS instruments, NRPN can be used to modify the following parameters.

The range of values for relative change parameters will be different with certain models. Please see the explanation that follows the chart.

NRPN

MSB LSB MSB Function and range

01H 08H mmH Vibrato Rate (relative change) nm: 00H - 40H - 7FH (-64 - 0 - +63)

Vibrato Depth (relative change) 01H 09H mmH mm: 00H - 40H - 7FH (-64 - 0 - +63)

01H 0AH mmH

mmH Vibrato Delay (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)

TVF Cutoff Frequency (relative change) 01H 20H mmH mm: 00H - 40H - 7FH (-64 - 0 - +63)

TVF Resonance (relative change) 01H 21H mmH mm: 00H - 40H - 7FH (-64 - 0 - +63)

TVF&TVA Envelope Attack Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)

01H 64H mmH TVF&TVA Envelope Decay Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)

01H 66H mmH TVF&TVA Envelope Release Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)

Drum Instrument Pitch Coarse (relative change) rr: Drum Instrument note numbe mm: 00H - 40H - 7FH (-64 - 0 - +63 semitone)

Drum Instrument TVA Level (absolute change) rr: Drum Instrument note number

1CH rrH mmH Drum Instrument Panpot (absolute change) rr: Drum Instrument note number

mm: 00H - 7FH (0 - max)

mm: 00H, 01H - 40H - 7FH (random, left-center-right) 1DH rrH mmH Drum Instrument Reverb Send Level (absolute change)

rr: Drum Instrument note number mm: 00H - 7FH (0 - max)

1EH rrH Drum Instrument Chorus Send Level (absolute change) rr: Drum Instrument note number

mm: 00H - 7FH (0 - max) 1FH rrH mmH Drum Instrument Delay Send Level (absolute change) [88] rr: Drum Instrument note number mm: 00H - 7FH (0 - max)

4FH 10H mmH Part 4 On / Off (Upper 1) [800] mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)

mmH Part 11 On / Off (Lower) mm: 00H - 7FH (00-3FH = Off - 40-7FH= On) 4FH 11H mmH [800]

Part 12 On / Off (Man Bass) 4FH 12H mmH [800]

mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)

4FH 13H mmH Part 6 On / Off (Upper 2) [800] mm: 00H - 7FH (00-3FH =Off - 40-7FH= On)

mmH Part 16 On / Off (Man Drums) mm: 00H - 7FH (00-3FH = Off - 40-7FH= On) 4FH 14H mmH [800]

Data entry LSB (IIH) is not Transmitted.

Parameters marked "relative change" will change relative to the preset value. 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.

It is not possible to simultaneously use both Chorus Send Level and Delay Send Level on a single Drum Instrument.

O RPN MSB/LSB

(Controller number 100,101)

2nd byte 3rd byte Status BnH 65H mmH

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

* Not transmitted when RPN TX Filter is On.

"RPN"

The RPN (Registered Parameter Number) message allows an extended range of control changes to be used, letting you use additional control functions which are part of the MIDI Specification.

On the G-800, RPN can be used to modify the following parameters.

RPN Data entry
MSB LSB MSB LSB Explanation

00H 00H mmH ---Pitch Bend Sensitivity

mm: 00H - 18H (0 - 24 semitones)

Initial value = 02H (2 semitones)

II: ignored (processed as 00H) specify up to 2 octaves in semitone steps

00H 01H mmH IIH Master Fine Tuning

mm.ll: 00 00H - 40 00H - 7F 7FH (-100-0-+99.99 cents)

Refer to 5. Supplementary material, "About tuning".

00H 02H mmH ---

Master Coarse Tuning mm: 28H - 40H - 58H (-24 - 0 - +24 semitones) II: ignored (processed as 00H)

7FH 7FH --- ---

set condition where RPN and NRPN are unspecified

Settings already made will not change.

mm,ll: ignored

 Program Change Status 2nd byte

CoH

n∞MIDI channel number

: 0H - FH (ch.1 - ch.16) : 00H - 7FH (prog.1 - prog.128)

* Not transmitted when Program Change TX Filter is On.

Pitch Bend Change

Status 2nd byte 3rd byte EnH IIH mmH

n=MIDI channel number

: 0H - FH (ch.1 - ch.16) : 00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

* Not transmitted when Pitch Bender TX Filter is On.

■ Channel Mode Messages

All Sounds Off (Controller number 120)

2nd byte 3rd byte

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

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

Reset All Controllers (Controller number 121)

Status 2nd byte 3rd byte 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 Channel Pressure 0 (off) 0 (off) Modulation O (off) Expression Hold 1 0 (off) 0 (off) 0 (off) Portamento Sostenuto RPN unset: previously set data will not change

NRPN unset; previously set data will not change

● MONO (Controller number 126)

Status 2nd byte BnH 7EH 3rd byte mmH

n=MIDichannel number mm=mono number

00H - 10H (0 - 16)

* The corresponding channel will be set to Mode 4 (M=1).

POLY (Controller number 127)

Status 2nd byte BnH 7FH 3rd byte

OOH

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

* The corresponding channel will be set to Mode 3.

■ System Realtime Messages

○ Active Sensing

Status

Transmitted about every 250ms.

Sequencer Start

Status

* This message is transmitted when the internal sequencer is started.

○ Sequencer Stop

18001

[800]

Status

* This message is transmitted when the internal sequencer is stopped.

Sequencer Continue

[800]

Status FBH

This message is transmitted when the sequencer is started not from the beginning

⊃ Timing Clock

Status F8H

[800]

○ Song Position Pointer

Status 2nd byte 3rd byte F2H XXH YYH

XX = Song Position (Bar) LSB

YY = Song Position (Bar) MSB

○ Song Select

Status 2nd byte F3H XXH

18001

[800]

XX = Sona Number

There are several option for sending MIDI realtime messages whenever you playback a song using the internal G-800 Recorder/Player

Meaning
If you select this option, the G-800 recorder/player sends only "Sequencer Start, Stop and Continue
messages.
This option means that the G-800 Recorder/player sends both, Start/Stop and Timing clock messages.
In this case the G-800 sends all the above mentioned messages as well as Song Position Pointer messages
In this case the Recorder sends all the above messages as well as the the Song Select message

System Exclusive Messages

System Exclusive Messages			sive messag	ges	
	Status F0H	Data byte iiH, ddH, .		<u>Status</u> F7H	
	FOH ii = ID nur	mb e r	:an ID numb whose Exclu 41H.	clusive Message status ber (manufacturer ID) to indicate the manufac lusive message this is. Roland's manufacturer rs 7EH and 7FH are extensions of the	ID is
	dd,,ee =	a data	standard; Universal Re :00H - 7FH (Universal Non-realtime Messages (7EH) lealtime Messages (7FH). (0 - 127)	
	to Mode		dusive Messa niversal Realt	Of Exclusive) ages received by the G-800 are; messages re time System Exclusive messages, Data Req	

System exclusive messages related to mode settings

O Exit GS Mode

"Exit GS Mode" is a command message that resets the internal settings of the unit to the Arranger Mode I initial state .

Status F0H	Data byte 41H, dev. 42H	, 12H, 40H, 00H, 7FH, 7FH	Status I. 42H F7H
Byte F0H 41H	Explanation Exclusive statu	ıs (Roland)	
dev	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	AddressLSB		
7FH	Data	(Exit GS Mode)	
42H	Checksum		
F7H	EOX	(End Of Exclusive)	

^{*} When the unit change from "General MIDI" mode to G-800 default mode. (Arranger mode) this message is transmitted.

● Universal Realtime System Exclusive Messages

The G-800 can use Exclusive messages to transmit Lyrics and internal settings to other devices. There are three types of Exclusive data transmission; Lyrics transmission, (Section 3.1), Individual Parameter Transmission (section 3.2) in which single parameters are transmitted one by one, and Bulk Dump Transmission (section

in which a large amount of data is transmitted at once.
 The exclusive message used when transmitting GS format data has a model ID of 42H and a device ID of 10H.

The Exclusive message used to transmit "Lyrics Data" has a Model ID"41H".

O Data request 1 RQ1 (11H)

This message requests the other device to send data. The Address and Size determine the type and amount of data to be sent. There are two types of request; Individual Parameter Request which requests data for an individual parameter, and Bulk Dump Request which requests a large amount of data at once. In either case, the "Data Request" (RQ1)" message format is used, and the Address and Size included in the message determine the type and amount of data that is desired.

For Individual Parameter Request, refer to "3. Individual Parameter Transmission" .
For Bulk Dump Request, refer to "4. Bulk Dump"

When a Data Request message is received, if the device is ready to transmit data and if the address and size are appropriate, the requested data will be transmitted as a "Data Set 1 (DT1)" message. If not, nothing will be transmitted.

Status	Data byte Status
FOH	41H, dev, 42H, 11H, aaH, bbH, ccH, ssH, ttH, uuH, sum F7H
Byte	Explanation
FOH	Exclusive status
41H	D number (Roland)
dev	Device ID (dev: 00H - 1FH Initial value is 10H
42H	Model ID (GS)
11H	Command ID(RQ1)
aaH	Address MSB: upper byte of the starting address of the requested data
bbH	Address : middle byte of the starting address of the requested data
ccH	Address LSB : lower byte of the starting address of the requested data
ssH	Size MSB
ttH	Size
uuH	Size LSB
sum	Checksum
F7H	EOX (End Of Exclusive)

^{*} The amount of data that can be transmitted at once time will depend on the type of data, and data must be requested using a specific starting address and size. Refer to the Address and Size listed in Section 3.

O Data set 1 DT1 (12H)

Status

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

Status F7H

<u>Data byte</u> 41H, dev, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sum

Byte	Explanation
FOH	Exclusive status
41H	ID number (Roland)
dev	Device ID (dev: 00H - 1FH Initial value is 10H
42H	Model ID (GS), 45H, 41H
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.

^{*} Regarding the checksum please refer to Section 4.

^{*} 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.

Section 3.1 Lyrics Data Transmission

(Model ID=41H)

When a "TUNE1000" song with lyrics is played, the G-800 sends on its MIDI Out "B" the following "Lyrics Sys Exe":

Address(H) Description	Size(H) Default(H)	Data(H) Description	Parameter
7F 00 00	00 00 7F	00 - 0F	LYRICS
		[800]	1st Line Display
7F 01 00	00 00 7F	00 - OF	LYRICS
		[800]	2nd Line Display
7F 02 00	00 00 7F	00 - 0F	LYRICS
		[800]	3rd Line Display
7F 08 00	00 00 7F	00 - OF	LYRICS
		[800]	1st Line syllable Highlighit
7F 09 00	00 00 7F	00 - 0F	LYRICS
		[800]	2nd Line syllable Highlighit
7F 0A 00	00 00 7F	00 - OF	LYRICS
		[800]	3rd Line syllable Highlighjt
Lyrics data ar	e sent in nibbl	es format:	
	Bit 7 = 0		
	Bit 6 = 0		
	Bit 5 = 0		
	Bit 4 = 0		
	Bit 3 = 🧻		
	D11 0		

Less significant nibble is sent first.

Data

Section 3.2 Individual Parameter Transmission (Model ID=45H or 42H)

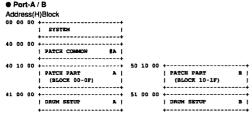
Individual Parameter Transmission transmits data (or requests data) for one parameter as one exclusive message (one packet of "F0.....F7"). In Individual Parameter Transmission, you must use the Address and Size listed in the following "Parameter Address Map". Addresses marked at "#" cannot be used as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

■ Address Block Map

The address map for Individual Parameter Transmission is as follows.

<Model ID = 45H>

<Model ID = 42H>



○ System parameters (88)

Parameters affecting the entire unit, such as how the two MIDI IN connectors will function, are called System Parameters. System parameters will not be reset even if "GS Reset" or "General MIDI System On" are received.

<model :<br="" id="">Address(H)</model>	= 42H> Size(H)	Data(H)	Parameter	Description	Default(H)	Description
* Refer to *Sy	rstem exclusiv	e messages relate	d to Mode settings*.			
00 01 00	00 00 01	00 - 01	CHANNEL MSG RX PORT BLOCK00	[88] PORT A - B	00	PORT A
:	:	1	:			
00 01 0F	00 00 01	00 - 01	BLOCKOF	PORT A - B	00	PORT A
00 01 10	00 00 01	00 - 01	BLOCK10	PORT A - B	01	PORT B
00 01 1F	00 00 01	00 - 01	BLOCK1F	PORT A - B	D1	PORT B

^{*} You can modify the receiving MIDI port at which channel messages will be received for each BLOCK. We suggest that normally you use PORT A for BLOCK01-0F, and PORT B for BLOCK10-1F. (In this case there is no need to change the setting.)

Patch parameters

O Patch common parameters

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description		
40 00 00 40 00 01# 40 00 02# 40 00 03#	00 00 04	0018 - 07E8	MASTER TUNE	-100.0 - +100.0 [cent] Use nibblized data.	00 04 00 00	0 (cent)		
* Refer to section 5. Supplementary material, "About tuning".								
40 00 04	00 00 01	00 - 7F	MASTER VOLUME (= F0 7F 7F 04 01 00 vv F7)	0 - 127	7F	127		
40 00 05 40 00 06 40 00 7F	00 00 01 00 00 01 00 00 01	28 - 58 01 - 7F 00	MASTER KEY-SHIFT MASTER PAN MODE SET (Rx. only)	-24 - +24 [semitones] -63 (LEFT) - +63 (RIGHT) 00 = GS Reset	40 40	0[semitones] 0 (CENTER)		
* Refer to *Sy	stem exclusiv	e messages related to f	Mode settings*.					
40 01 00 40 01 :# 40 01 0F#	00 00 10	20 - 7F	PATCH NAME	16 ASCII Characters				
40 01 30	00 00 01	0 - 07	REVERB MACRO 01: Room 2 02: Room 3 03: Hall 1 04: Hall 2 05: Plate 06: Delay 07: Panning Delay	00: Room 1	04	Hall 2		
40 01 31 40 01 32 40 01 33 40 01 34 40 01 35 40 01 37	00 00 01 00 00 01 00 00 01 00 00 01 00 00 01 00 00 01	00 - 07 00 - 07 00 - 7F 00 - 7F 00 - 7F 00 - 7F	REVERB CHARACTER REVERB PRE-LPF REVERB LEVEL REVERB TIME REVERB DELAY FEEDBACK REVERB PREDELAY TIME [8	0 - 7 0 - 7 0 - 127 0 - 127 0 - 127 8) 0 - 127[ms]	04 00 40 40 00	04 00 64 64 00		

^{*} 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(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 01 38	00 00 01	00 - 07	CHORUS MACRO	00: Chorus 1 01: Chorus 2 02: Chorus 3 03: Chorus 4 04: Feedback Chorus 05: Flanger 06: Short Delay 07: Short Delay(FB)	02	Chorus 3
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
40 01 40	00 00 01	00 - 7F	CHORUS SEND LEVEL TO DELAY [88]	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(H)	Size(H)	Data(H)	Parameter	Parameter		Default Value (H)	Description
40 01 50	00 00 01	00 - 09	DELAY MACRO	[88]	00: Delay 1 01: Delay 2 02: Delay 3 03: Delay 4 04: Pan Delay 1 05: Pan Delay 2 06: Pan Delay 3 07: Pan Delay 4 08: Delay to Reverb 09: Pan Repeat	00	Delay1
40 01 51	00 00 01	00 - 07	DELAY PRE-LPF	[88]	D - 7	0	0
40 01 52	00 00 01	01 - 73		[88]	0.1ms - 1sec	61	340
40 01 53	00 00 01	01 - 78		[88]	4 - 500%	01	4
40 01 54	00 00 D1	01 - 78	DELAY TIME RATIO RIGHT	[88]	4 - 500%	01	4
40 01 55	00 00 01	00 - 7F		[88]	0 - 127	7 F	127
40 01 56	00 00 01	00 - 7F		[88]	0 - 127	0	0
40 01 57	00 00 01	00 - 7F		[88]	0 - 127	0	0
40 01 58	00 00 01	00 - 7F		[88]	0 - 127	40	64
40 01 59	00 00 01	00 - 7F		[88]	-64 - +63	50	80
40 01 5A	00 00 01	00 - 7F	DELAY SENDLEVEL TO REVERB	[88]	0 - 127	0	127

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

* The relation between the DELAY TIME CENTER value and the actual delay time is as follows.

DELAY TIME	Time Range[ms]	Resolution[ms]	DELAY TIME	Time Range[ms]	Resolution[ms]
01 - 14	0.1 - 2.0	0.1	46 - 50	50.0 - 100.0	5.0
14 - 23	2.0 - 5.0	0.2	50 - 5A	100.0 - 200.0	10.0
23 - 2D	5.0 - 10.0	0.5	5A - 69	200.0 - 500.0	20.0
2D - 37	10.0 - 20.0	1.0	69 - 73	500.0 - 1000.0	50.0
37 - 46	20.0 - 50.0	2.0			

^{*} DELAY TIME RATIO LEFT and DELAY TIME RATIO RIGHT specify the ratio in relation to DELAY TIME CENTER. The resolution is 100/24(%).

40 02 00 40 02 01 40 02 02	00 00 01 00 00 01 00 00 01	00 - 01 34 - 4C 00 - 01	EQ LOW FREQ. EQ LOW GAIN EQ HIGH FREQ.	[88] [88]	100Hz, 200Hz -12 - +12dB 4kHz, 8kHz	00 40 00	200Hz 0 8kHz
40 02 03	00 00 01	34 - 4C	EO HIGH GAIN	(88)	-12 - +12dB	40	n

O Patch Part parameters

The G-800 has 16 Parts in Group A and 16 Parts in Group B. Parameters that can be set individually for each Part are called Patch Part parameters.

The G-800 has 16 Parts in Group A and 16 Parts in Group B. Parameters that can be set individually for each Part are called Patch Part parameters. If you use exclusive messages to set Patch 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).

To specify a Part of group A, use the Block number corresponding to the Part and specify an address of 40 *** via PORT A (normally MIDI IN A).

To specify a Part of group B, use the Block number corresponding to the Part and specify an address of 40 *** via PORT B (normally MIDI IN B).

To specify a Part of either group A or B from a single PORT, specify an address of 40 *** for group A Parts or an address of 50 *** for group B Parts. In other words, when specifying Parts of the opposite side as the PORT being used, use addresses 50 ***.

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

*x...BLOCK NUMBER (0 - F), Part 1 (default MiDich = 1) x=1 Part 2 (default MIDIch = 2) x=2

Part 9 (default MIDIch = 9) x=9 Part10 (default MIDIch =10) x=0 Part11 (default MIDIch =11) x=A

Part12 (default MIDIch =12) x=B Part16 (default MIDich =16) x=F

^{*} n...MIDI channel number (0 - F) of the BLOCK.

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (F	f) Description
40 1x 00	00 00 02	00 - 7F	TONE NUMBER CC#00	VALUE 0 - 127 (Bank number MSB)	00	0
40 1x 01#		00 - 7F	P.C. V	ALUE 1 - 128 (Program unmber)	00	1
40 1x 02	00 00 01	00 - 10	Rx. CHANNEL	1 - 16, OFF	Sa	ne 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(CAI)	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(PAI)	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 *Gen	eral MIDI Syst	em On" is receiv	ed, Rx. NRPN will be set OFF. When "GS F	Reset" is received, it will be set ON.		
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	ŎN
40 1x 12	00 00 01	00 - 01	Rx. SOFT	OFF / ON	01	ON
		00 01	112. 001 1	OI I / OIE	01	ON
40 1x 13	00 00 01	00 - 01	MONO/POLY MODE	Mono / Poly (#CC# 126 01 / CC# 127 00)	01	Poly
40 1x 14	00 00 01	00 - 02	ASSIGN MODE	0 = SINGLE 1 = LIMITED-MULTI 2 = FULL-MULTI	G-800MAP 01 SC-55MAP	LIMITED-MULTI
				Z = 1 OLL-MOLII	00 at x=0	SINGLE (Drum Part) LIMITED-MULTI (Normal Part)

^{*} 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.

40 1x 15	00 00 01	00 - 02	USE FOR RHYTHM PART	0 = OFF 1 = MAP1	00 atx≠0 01 atx=0	OFF (Normal Par) MAP1 (Drum Part)
				0 14400		

^{*} This parameter sets the Drum Map of the Part used as the Drum Part. The G-800 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)).

	Size(H)	Data(H)	Parameter		Description	Default Value (H)	Description
10 1x 16	00 00 01	28 - 58	PITCH KEY SHIFT		-24 - +24 [semitones]	40	0 [semitones]
10 1x 17	00 00 02	08 - F8	PITCH OFFSET FINE		-12.0 - +12.0 [Hz]	08 00	0 [Hz]
) 1x 18#					Use nibblized data.		
) 1x 19	00 00 01	00 - 7F	PART LEVEL		0 - 127	64	100
		22 25	VELOCITY CENCE DESTIN		(=CC# 7)	40	64
) 1x 1A) 1x 1B	00 00 01 00 00 01	00 - 7F 00 - 7F	VELOCITY SENSE DEPTH VELOCITY SENSE OFFSET		0 - 127 0 - 127	40 40	64
1 1 1 C	00 00 01	00 - 7F	PART PANPOT		-64(RANDOM),	40	0 (CENTER)
					-63(LEFT) - +63(RIGHT)		
			V5V 54105 : 6W		(=CC# 10, except RANDOM)	00	
1 x 1D 1 x 1E	00 00 01 00 00 01	00 - 7F 00 - 7F	KEY RANGE LOW KEY RANGE HIGH		(C-1) - (G9) (C-1) - (G9)	00 7F	C-1 G 9
1 1 x 1 E	00 00 01	00 - 7F	CC1 CONTROLLER NUMBER	:R	0 - 95	10	16
1x 20	00 00 01	00 - 5F	CC2 CONTROLLER NUMBER		0 - 95	11	17
1 x 21	00 00 01	00 - 7F	CHORUS SEND LEVEL		0 - 127	00	0
100	00 00 01	00.75	DEVEDD CEND LEVEL		(=CC# 93) 0 - 127	28	40
0 1x 22	00 00 01	00 - 7F	REVERB SEND LEVEL		(=CC# 91)	26	40
1 x 23	00 00 01	00 - 01	Rx.BANK SELECT		OFF / ON	01(00*)	ON(OFF*)
When "Gene	ral MtDI Syst	em On" is received, Rx.E	IANK SELECT will be set OFF	. When "GS	Reset" or "System Mode Set" is	received, it will be se	et ON.
1 x 24	00 00 01	00 - 01	RX BANK SELECT LSB	[88]	OFF / ON	01	ON
When RX 84	NK SELECT	LSB = OFF, Bank Selec	t LSB (Bn 20 11) will be treate	d as 00H re	gardless of its value.		
0 1x 2A	00 00 02	00 00 - 40 00 - 7F 7F	PITCH FINE TUNE	[88]	-100 - 0 - +100 cent (= RPN#1)	0	
3 1x 2B#					(= 10 (W 1)		
0 1x 2C	00 00 01	00 - 7F	DELAY SEND LEVEL	[88]	0-127	00	0
		aa 7F	TONE MODIEM	rans.	(⇒CC# 94)	40	•
0 1x 30	00 00 01	00 - 7F	TONE MODIFY1 Vibrato Rate	(88)	-64 - +63 (=NRPN# 8)	40	0
0 1x 31	00 00 01	00 - 7F	TONE MODIFY2	[88]	-64 - +63	40	0
0 1x 32	00 00 01	00 · 7F	Vibrato Depth TONE MODIFY3	[88]	(=NRPN# 9) -64 - +63	40	0
0 17 32	00 00 01	00 //	TVF Cutoff Freq.	(00)	(=NRPN# 32)		
0 1x 33	00 00 01	00 - 7F	TONE MODIFY4	[88]	-64 - +63 (=NRPN# 33)	40	0
0 1x 34	00 00 01	00 - 7F	TVF Resonance TONE MODIFY5	[88]	-64 - +63	40	0
			TVF&TVA Env.attack		(=NRPN# 99)		
0 1x 35	00 00 01	00 - 7F	TONE MODIFY6	[88]	-64 - +63	40	0
		00 75	TVF&TVA Env.decay	rom	(=NRPN# 100)	40	0
0 1x 36	00 00 01	00 - 7F	TONE MODIFY7 TVF&TVA Env.release	[88]	-64 - +63 (=NRPN# 102)	40	U
	00 00 01	00 - 7F	TONE MODIFY8	[88]	-64 - +63	40	0
∩ 1 v 37			TOTAL MOON TO				•
0 1x 37	00 00 01	00 - 71	Vibrato Delay		(=NRPN# 10)		
0 1x 37	00 00 01	30 * 71	Vibrato Delay				
	00 00 0C	00 - 7F	Vibrato Delay SCALE TUNING C	•		40	0 [cent]
0 1x 40 0 1x 41#		00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C#		(=NRPN# 10) -64 - +63 [cent] -64 - +63 [cent]	40	0 [cent]
) 1x 40) 1x 41#) 1x 42#		00 - 7F 00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C# SCALE TUNING D		(=NRPN# 10) -64 - +63 [cent] -64 - +63 [cent] -64 - +63 [cent]	40 40	0 [cent] 0 [cent]
0 1x 40 0 1x 41# 0 1x 42# 0 1x 43#		00 - 7F 00 - 7F 00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C# SCALE TUNING D SCALE TUNING D#		(=NRPN# 10) -64 - +63 [cent] -64 - +63 [cent] -64 - +63 [cent]	40 40 40	0 [cent] 0 [cent] 0 [cent]
0 1x 40 0 1x 41# 0 1x 42# 0 1x 43# 0 1x 44#		00 - 7F 00 - 7F 00 - 7F 00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C# SCALE TUNING D SCALE TUNING D# SCALE TUNING E		(=NRPN# 10) -64 - +63 [cent]	40 40 40 40	0 [cent] 0 [cent] 0 [cent] 0 [cent]
0 1x 40 0 1x 41# 0 1x 42# 0 1x 43# 0 1x 44# 0 1x 45#		00 - 7F 00 - 7F 00 - 7F 00 - 7F 00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C# SCALE TUNING D SCALE TUNING D# SCALE TUNING E SCALE TUNING F		(=NRPN# 10) -64 - +63 [cent] -64 - +63 [cent] -64 - +63 [cent]	40 40 40	0
0 1x 40 0 1x 41# 0 1x 42# 0 1x 43# 0 1x 44# 0 1x 45# 0 1x 46#		00 - 7F 00 - 7F 00 - 7F 00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C# SCALE TUNING D SCALE TUNING D# SCALE TUNING E		(=NRPN# 10) -64 - +63 [cent] -64 - +63 [cent] -64 - +63 [cent] -64 - +63 [cent] -64 - 63 [cent]	40 40 40 40 40 40 40	0 [cent] 0 [cent] 0 [cent] 0 [cent]
0 1x 40 0 1x 42# 0 1x 42# 0 1x 43# 0 1x 45# 0 1x 45# 0 1x 46# 0 1x 47# 0 1x 48#		00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C# SCALE TUNING D SCALE TUNING D SCALE TUNING E SCALE TUNING F SCALE TUNING F# SCALE TUNING F# SCALE TUNING G# SCALE TUNING G#		(=NRPN# 10) -64 - +63 [cent]	40 40 40 40 40 40 40 40	0 cent 0 cent
0 1x 40 0 1x 41# 0 1x 42# 0 1x 43# 0 1x 45# 0 1x 45# 0 1x 46# 0 1x 46# 0 1x 48#		00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C# SCALE TUNING D SCALE TUNING D# SCALE TUNING E SCALE TUNING F SCALE TUNING F SCALE TUNING G SCALE TUNING G# SCALE TUNING G# SCALE TUNING G#		(=NRPN# 10) -64 - +63 [cent]	40 40 40 40 40 40 40 40	0
0 1x 40 0 1x 41# 0 1x 42# 0 1x 43# 0 1x 44# 0 1x 45# 0 1x 45# 0 1x 48# 0 1x 48# 0 1x 48#		00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C# SCALE TUNING D# SCALE TUNING B SCALE TUNING E SCALE TUNING F SCALE TUNING F SCALE TUNING G# SCALE TUNING G# SCALE TUNING G# SCALE TUNING A SCALE TUNING A		(=NRPN# 10) -64 - +63 [cent]	40 40 40 40 40 40 40 40 40 40	0 cent 0 cent
) 1x 40) 1x 41#) 1x 42#) 1x 43#) 1x 44#) 1x 45#) 1x 46#) 1x 47#) 1x 48#) 1x 4A#		00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C# SCALE TUNING D SCALE TUNING D# SCALE TUNING E SCALE TUNING F SCALE TUNING F SCALE TUNING G SCALE TUNING G# SCALE TUNING G# SCALE TUNING G#		(=NRPN# 10) -64 - +63 [cent]	40 40 40 40 40 40 40 40	0
0 1x 40 0 1x 41# 0 1x 42# 0 1x 43# 0 1x 44# 0 1x 45# 0 1x 45# 0 1x 45# 0 1x 47#		00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C# SCALE TUNING D# SCALE TUNING D# SCALE TUNING F SCALE TUNING F SCALE TUNING F# SCALE TUNING G# SCALE TUNING G# SCALE TUNING A SCALE TUNING A SCALE TUNING B SCALE TUNING B SCALE TUNING A# SCALE TUNING B		(=NRPN# 10) -64 - +63 cent	40 40 40 40 40 40 40 40 40 40 40	0 (cent)
0 1x 40 0 1x 47# 0 1x 42# 0 1x 42# 0 1x 43# 0 1x 45# 0 1x 45# 0 1x 46# 0 1x 46# 0 1x 48# 0 1x 48# 0 1x 48#	00 00 0C	00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C# SCALE TUNING D# SCALE TUNING B SCALE TUNING F SCALE TUNING F SCALE TUNING G# SCALE TUNING G# SCALE TUNING A# SCALE TUNING A# SCALE TUNING B SCALE TUNING B SCALE TUNING B SCALE TUNING A# SCALE TUNING A SCALE TUNING B		(=NRPN# 10) -64 - +63 [cent]	40 40 40 40 40 40 40 40 40 40 40 40 40	0 [cent]
0 1x 40 0 1x 47# 0 1x 42# 0 1x 42# 0 1x 44# 0 1x 45# 0 1x 46# 0 1x 46# 0 1x 48# 0 1x 48# 0 1x 48# 0 1x 48#	00 00 0C	00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C# SCALE TUNING D# SCALE TUNING DF SCALE TUNING F SCALE TUNING F SCALE TUNING G# SCALE TUNING G# SCALE TUNING A SCALE TUNING A SCALE TUNING B SCALE TUNING Range C SCALE TUNING Range C		(=NRPN# 10) -64 - +63 [cent] -64 - 128 [cent] -64 - 128 [cent] -64 - 128 [cent] -64 - 128 [cent]	40 40 40 40 40 40 40 40 40 40 40 00	0 [cent] 6 [cent] 6 [cent] 63 [cent] [800] 63 [cent] [800]
0 1x 40 0 1x 41# 0 1x 42# 0 1x 42# 0 1x 43# 0 1x 45# 0 1x 47# 0 1x 48# 0 1x 48# 0 1x 48# 0 1x 48# 0 1x 60 0 1x 60 0 1x 60	00 00 0C	00 - 7F 00 - 7F	SCALE TUNING C SCALE TUNING C# SCALE TUNING D# SCALE TUNING D SCALE TUNING F SCALE TUNING F SCALE TUNING F SCALE TUNING G SCALE TUNING G SCALE TUNING A SCALE TUNING A SCALE TUNING A SCALE TUNING B SCALE TUNING R SCALE TU		(=NRPN# 10) -64 - +63 [cent] -64 - +63 [cent] -64 - +63 [cent] -64 - +63 [cent] -64 - 463 [cent] -64 - 128 [cent]	40 40 40 40 40 40 40 40 40 40 40 00 00	0 [cent] 6 [cent] 6 [cent] 63 [cent] [800] 63 [cent] [800] 63 [cent] [800]
01x 40 01x 41# 01x 42# 01x 43# 01x 45# 01x 45# 01x 46# 01x 46# 01x 48# 01x 48# 01x 60 01x 61 01x 61 01x 62 01x 63	00 00 0C	00 - 7F 00 - 01 00 - 01 00 - 01 00 - 01	SCALE TUNING C SCALE TUNING C# SCALE TUNING D# SCALE TUNING D# SCALE TUNING F SCALE TUNING F SCALE TUNING G# SCALE TUNING G# SCALE TUNING G# SCALE TUNING A SCALE TUNING A SCALE TUNING A SCALE TUNING ABOUT TO SCALE TUNING A SCALE TUNING Range C SCALE TUNING Range D		(=NRPN# 10) -64 - +63 [cent] -64 - 128 [cent]	40 40 40 40 40 40 40 40 40 40 40 40 00 0	0 [cent] 63 [cent]
0 1x 40 0 1x 47# 0 1x 42# 0 1x 42# 0 1x 44# 0 1x 45# 0 1x 46# 0 1x 46# 0 1x 48# 0 1x 48# 0 1x 48# 0 1x 60 0 1x 60 0 1x 62 0 1x 62	00 00 0C	00 - 7F 00 - 01 00 - 01 00 - 01 00 - 01 00 - 01	SCALE TUNING C SCALE TUNING C# SCALE TUNING D# SCALE TUNING DF SCALE TUNING F SCALE TUNING F SCALE TUNING G SCALE TUNING G# SCALE TUNING A SCALE TUNING Range C SCALE TUNING Range D SCALE TUNING Range D SCALE TUNING Range D SCALE TUNING Range E SCALE TUNING Range F		(=NRPN# 10) -64 - +63 [cent] -64 - +63 [cent] -64 - +63 [cent] -64 - +63 [cent] -64 - 463 [cent] -64 - 128 [cent]	40 40 40 40 40 40 40 40 40 40 40 00 00	0 [cent] 3 [cent] 63 [cent]
0 1x 40 1x 41# 1x 42# 1x 42# 1x 44# 1x 45# 1x 45# 1x 45# 1x 47# 1x 48# 1x 48	00 00 0C	00 - 7F 00 - 01 00 - 01 00 - 01 00 - 01	SCALE TUNING C SCALE TUNING C# SCALE TUNING D# SCALE TUNING D SCALE TUNING F SCALE TUNING F SCALE TUNING G# SCALE TUNING G# SCALE TUNING G# SCALE TUNING A SCALE TUNING A SCALE TUNING A SCALE TUNING A SCALE TUNING Range C SCALE TUNING Range C SCALE TUNING Range D SCALE TUNING Range D SCALE TUNING Range F		(=NRPN# 10) -64 - +63 [cent] -64 - 128 [cent]	40 40 40 40 40 40 40 40 40 40 40 00 00 0	0 [cent] 63 [cent] [800]
0 1x 40 0 1x 41# 0 1x 42# 0 1x 42# 0 1x 44# 0 1x 45# 0 1x 45# 0 1x 49# 0 1x 48# 0 1x 60 0 1x 61 0 1x 62 0 1x 63 0 1x 65 0 1x 66 0 1x 66	00 00 0C	00 - 7F 00 - 01 00 - 01	SCALE TUNING C SCALE TUNING C# SCALE TUNING D# SCALE TUNING DF SCALE TUNING F SCALE TUNING F SCALE TUNING G# SCALE TUNING G# SCALE TUNING A SCALE TUNING Range C SCALE TUNING Range C SCALE TUNING Range D# SCALE TUNING Range DF SCALE TUNING Range F SCALE TUNING Range G SCALE TUNING Range G		(=NRPN# 10) -64 - +63 Cent -64 - 128 Cent	40 40 40 40 40 40 40 40 40 40 40 00 00 0	0 [cent] 63 [cent] [800]
0 1x 40 1x 41# 1x 42# 1x 42# 1x 44# 1x 44# 1x 45# 1x 45# 1x 47# 1x 48# 1x 48# 1x 48# 1x 48# 1x 48# 1x 60 1x 60 1	00 00 0C	00 - 7F 00 - 01 00 - 01	SCALE TUNING C SCALE TUNING C# SCALE TUNING D# SCALE TUNING D SCALE TUNING F SCALE TUNING F SCALE TUNING F SCALE TUNING G# SCALE TUNING G# SCALE TUNING A# SCALE TUNING A# SCALE TUNING Range C SCALE TUNING Range D SCALE TUNING Range G		(=NRPN# 10) -64 - +63 [cent] -64 - 128 [cent]	40 40 40 40 40 40 40 40 40 40 40 60 60 60 60 60 60 60 60 60 60 60 60 60	0 [cent] 3 [cent] 63 [cent]
0 1x 40 0 1x 47# 0 1x 42# 0 1x 43# 0 1x 43# 0 1x 45# 0 1x 45# 0 1x 46# 0 1x 46# 0 1x 46# 0 1x 46# 0 1x 60 0 1x 60 0 1x 61 0 1x 60	00 00 0C	00 - 7F 00 - 01 00 - 01	SCALE TUNING C SCALE TUNING C# SCALE TUNING D# SCALE TUNING DF SCALE TUNING F SCALE TUNING F SCALE TUNING G# SCALE TUNING G# SCALE TUNING A SCALE TUNING Range C SCALE TUNING Range C SCALE TUNING Range D# SCALE TUNING Range DF SCALE TUNING Range F SCALE TUNING Range G SCALE TUNING Range G		(=NRPN# 10) -64 - +63 Cent -64 - 128 Cent	40 40 40 40 40 40 40 40 40 40 40 00 00 0	0 [cent] 63 [cent]

Value 0 or 1 If you set the value 1, the scale tuning range is two times:

Example:			
40 1x 40	40 1x 60	Effect	Resolution
7 F	0	63 cents	1 cent
7F	1	126 cents	2 cent
0	0	-64 cents	1 cent
0	1	-126 cents	2 cent

The Scale Tune Range Sys Exe Must be sent / received after the Scale Tune Sys Exe.

^{*} 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.

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
					**	0.1
40 2x 00	00 00 01	28 - 58	MOD PITCH CONTROL	-24 - +24 [semitones]	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]	QA.	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]
		00 - 7F		0 - 2400 [cent]	00	0 (cent)
40 2x 09	00 00 01		MOD LFO2 TVF DEPTH		00	0 [%]
40 2x 0A	00 00 01	00 - 7F	MOD LFO2 TVA DEPTH	0 - 100.0 [%]		
40 2x 10	00 00 01	40 - 58	BEND PITCH CONTROL	0 - 24 [semitones]	42	2 [semitones]
40 2x 11 40 2x 12	00 00 01 00 00 01	00 - 7F 00 - 7F	BEND TVF CUTOFF CONTROL BEND AMPLITUDE CONTROL	9600 - +9600 [cent] -100.0 - +100.0 [%]	40 40	0 [cent] 0 [%]
			BEND LFO1 RATE CONTROL	-10.0 · +10.0 [Hz]	40	0 [Hz]
40 2x 13	00 00 01	00 - 7F	BEND LFO! RATE CONTROL	0 - 600 [cent]	00	0 [cent]
40 2x 14	00 00 01	00 - 7F			00	0 [cent]
40 2x 15	00 00 01	00 - 7F	BEND LFO1 TVF DEPTH	0 - 2400 [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	CAI PITCH CONTROL	-24 - +24 [semitones]	40	0 [semitones]
40 2x 21	00 00 01	00 - 7F	CALTVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 (cent)
40 2x 22	00 00 01	00 - 7F	CAI AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 23	00 00 01	00 - 7F	CALLFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 (Hz)
40 2x 24	00 00 01	00 - 7F	CALLFO1 PITCH DEPTH	0 - 600 [cent]	00	0 (cent)
40 2x 25	00 00 01	00 - 7F	CALLEO TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 25 40 2x 26	00 00 01	00 - 7F	CALLFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
	00 00 01	00 - 7F	CALLEGE RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 27				0 - 600 [cent]	00	0 [cent]
40 2x 28	00 00 01	00 - 7F	CALLEGO THE DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 29	00 00 01	00 - 7F	CAI LFO2 TVF DEPTH		00	0 [%]
40 2× 2A	00 00 01	00 - 7F	CAI LFO2 TVA DEPTH	0 - 100.0 [%]	GO .	
40 2x 30	00 00 01	28 - 58	PAI PITCH CONTROL	-24 - +24 [semitones]	40	0 (semitones)
40 2x 31	00 00 01	00 - 7F	PAI TVF CUTOFF CONTROL	-9600 - +9600 (cent)	40	0 (cent)
40 2x 32	00 00 01	00 - 7F	PAI AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 33	00 00 01	00 - 7F	PAILFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 34	00 00 01	00 - 7F	PAILFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
		00 - 7F	PAILFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 35	00 00 01			0 - 100.0 [%]	00	0 [%]
40 2x 36	00 00 01	00 - 7F	PAILFO1 TVA DEPTH			
40 2x 37	00 00 01	00 - 7F	PAILFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 38	00 00 01	00 - 7F	PAI LFO2 PITCH DEPTH	0 - 600 (cent)	00	0 [cent]
40 2x 39	00 00 01	00 - 7F	PAILFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 3A	00 00 01	00 - 7F	PAI LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 40	00 00 01	28 - 58	CC1 PITCH CONTROL	-24 - +24 [semitones]	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]
	00 00 01	00 - 7F	CC1 LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 48				0 - 2400 [cent]	00	0 (cent)
40 2x 49 40 2x 4A	00 00 01 00 00 01	00 - 7F 00 - 7F	CC1 LFO2 TVF DEPTH CC1 LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
			CC2 PITCH CONTROL	-24 - +24 [semitones]	40	0 [semitones]
40 2x 50	00 00 01	28 - 58		-9600 - +9600 [cent]	40	0 (cent)
40 2x 51	00 00 01	00 - 7F	CC2 TVF CUTOFF CONTROL			
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 2× 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 57 40 2x 58	00 00 01	00 - 7F	CC2 LFO2 PITCH DEPTH	0 - 600 (cent)	00	0 (cent)
	00 00 01	00 - 7F	CC2 LFO2 TVF DEPTH	0 - 2400 (cent)	00	0 [cent]
40 2x 59 40 2x 5A	00 00 01	00 - 7F	CC2 LFO2 TVA DEPTH	0 · 100.0 [%]	00	0 [%]
40 4x 00	00 00 01	00 02	TONE MAP NUMBER [88] (= CC#32): Bank number LSB	MAP 0 - 2 00: SELECTED 01: SC-55 MAP 02: G-800 MAP	00	
*When "GS I	Reset" je recei	ved, this will be 0	0: SELECTED.			
THEN GO!	10 15661	. 20, and this De V				
40 4x 01	00 00 01	01 - 02	TONE MAP-0 NUMBER [88]	01: SC-55 MAP (Old) 02: G-800 MAP (New)	(02)	
	E MAP NUM te Set" is rece		pecifies the MAP. This setting will not be	e reset when the power is turned on	or when "GS Reset", "G	General MIDI System On" or
40 4x 20	00 00 01	00 - 01	EQ ON/OFF [88]	OFF / ON	01	ON
			• •			

Section 4. Bulk Dump

Bulk Dump allows you to transmit a large amount of data at once, and is convenient for storing settings for the entire unit on a computer or sequencer. To make the G-800 perform a Bulk Dump transmission, send it a "Bulk Dump Request" message. Bulk Dump Request uses the Data Request 1 (RO1) format, but unlike when transmitting Individual parameters, the "Size" specified by the request message refers not to the size of the data but rather specifies the contents of the data. For the data contents corresponding to each Size, refer to "Parameter Dump."

When the G-800 receives a Bulk Dump Request, it will transmit a Bulk Dump in the format given below.

The G-800 is also able to transmit a list of its internal sounds. This function can be used to display a list of sounds on a computer.

■ Parameter dump

○ Parameter dump request (receive only) [88]

This is a command that requests a set of parameter data, and uses "Data Request 1 (RQ1)" format. The Size specifies the requested data contents.

Address: 0C 00 00 Size: 00 00 00 : ALL

request a dump of all parameters

- * When data dumped by the G-800 is reloaded into the G-800, be aware that the data may not be set correctly if the transmission order of the packets is changed, if the time when data duringed by the G-900 is reliabled into the G-900, be aware that the data may not be set constant in the mannings on order of the packets is changed, in the uniterial between packets.

 *The Parameter Dump data of the G-800 includes data for GS format compatible devices, and this data is compatible in both directions. However, depending on the settings of

- The Parameter Dump data of the G-800 includes data for GS format compatible devices, and this data is compatible in both directions. However, depending on the settings of parameters which are newly extended on the G-800, the musical result may differ.

 If the G-800 does not operate correctly with Bulk Dump data from another GS format compatible device, first initialize the G-800 before retransmitting the data.

 When another GS format compatible device receives Parameter Dump data that was transmitted by the G-800, it may display a message such as "Address Error", but this is because the parameter addresses newly extended on the G-800 were not recognized by the other device. Parameters which could be recognized by that device have been correctly set.

■ Dumping a list of internal sounds

• Instrument list dump [88]

) Instrument list dump request (request only)

This command requests a bulk dump of a list of the preset sounds (Instruments) in internal memory, and uses "Data Request 1 (RQ1)" format. The Size specifies the contents of the requested data.

Address: 0C 00 01 00 00 00 : ALL 00 00 01 : SC-55 MAP 00 00 02 : G-800 MAP 00 mm bb mm = MAP# 01 - 02 (01 = SC-55 MAP, 02 = G-800 MAP) bb = BANK# 00 - 7F

Oinstrument list dump (transmit only) [88]

When Instrument List Dump Request is received, the sound names of the specified map will be transmitted continuously in the format given below, where 16 bytes are used for each sound name. The Address of the transmitted data is 0C 00 01 for all packets.

User bank sound names are not transmitted in a G-800 MAP Instrument List

DUMP FORMAT:
0 1 2 3 4 5 6 7 8 9 A B C D E F |CCO||MAP||PC |OO | TONE NAME(ASCII 12 characters) | CCD: Variation number
MAP: MAP number 01 = SC-55 MAP, 02 = G-800 MAP PC : Program number

Drum set list dump

O Drum set list dump request (receive only) [88]

This command requests a bulk dump transmission of a list of Preset Drum Sets in internal memory, and uses "Data Request 1 (RQ1)" format. The Size specifies the

Address: 0C 00 02 00 00 00 : ALL 00 00 01 : SC-55 MAP 00 00 02 : G-800 MAP

) Drum set list dump (transmit only) [88]

When a Drum Set Dump request is received, the Drum Set names of the specified MAP will be transmitted successively in the format given below, where 16 bytes are used for each sound. The Address of the transmitted data will be OC 00 02

DUME	FC	RHAT:													
0	3	. 2	3	4	5	6	7	В	9	A	В	C	D	E	F
+	+	+	+	++	+	+	4		+		+		+		
100	M	AP ! PC	100	ŧ	DRUM	TON	E NA	ME ()	SCII	12	char	cact	ers)		
+	+	+	+	++	+	+	4		+		+		+		
MAP	: >	OAP nu	mber		01 =	SC-	55 M	AP,	02	= G-	800	MAP			
PC	: 1	rogra	m nu	nber											

Drum instrument list dump

) Drum instrument list dump request (receive only) [88]

This command requests a bulk dump transmission of the Instrument list of an internal Preset Drum Sets, and uses "Data Request 1 (RQ1)" format. The Size specifies the desired data contents.

Address: 0C 00 03 Size: 00 mm pp mm = MAP# 01 - 02 (01 = SC-55 MAP, 02 = G-800 MAP) pp = Drum set# 00 - 7F (same as PC#)

O Drum instrument list dump (transmit only) [88]

When a Drum Instrument Dump Request is received, or when a dump is initiated by panel operation, the Drum Instrument names of the specified Drum Set will be transmitted in the following format where 16 bytes are used for each Drum Instrument name. The address of the transmitted data will be 0C 00 03 for each

```
DUMP FORMAT:

0 1 2 3 4 5 6 7 8 9 A B C D E F

|OD |MAP|PC |KEY| DRUM TONE NAME(ASCII 12 characters) | |

MAP: MAP number 01 = SC-55 MAP, 02 = G-800 MAP

PC : Program number
```

Section 5. Supplementary material

Decimal and Hexadecimal table

In MIDI documentation, data values and address s/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.	1	Hex.	11		•	Hex.		Dec.	!	Hex.	11	Dec.	1	Hex.
i	D	ī	DOH	11	32	i	20H	11	64	1	40H	H	96	ī	60H
ł	1	ŀ	DIR	11	33	ı	218	11	65	١	41H	П	97	١	61H
١	2	١	02H	Ħ	34	ı	22H	11		ı	42H	11	98	۱	62H
ı	3	i	03B	11	35	ı	23H	11	67	1	43H	П	99	ſ	63H
ı	4	1	DAR	11	36	ı	24H	11	68	ı	44R	П	100	ı	64H
i	5	1	05H	11		ı	25R	П	69	ı		П		١	65H
ı	6	\$	0 6 H	н		ı	26H	11	70	ı	46H	П		ı	66H
ŧ	7	ţ	D7H	11		ı	27R	11	71	ŧ	47H	П		١	67H
ŧ	8	1	DBH	П	40	ı	28H	ŧŧ	72	ŧ	48H	Н	104	١	688
ŧ	9	ŧ	098	-11	41	ı	29H	11	73	ţ	49H	П	105	ı	69H
į	10	ŧ	DAH	П	42)	2AH	11	74	ŧ	4XH	Н		١	EAH
ŧ	11	ı	BEG	ш	43	•	2BH	11	75	1	488	11		ı	6BH
ŧ	12	1	DCH	11	44	ì	2CH	11	76	1	4CH	11	108	t	6CH
1	13	1	ODH	П	45	ı	2DH	11	77	1	4DH	П		ı	6DH
ı	14	1	DEH	11	46	ì	2EH	11	78	١	4EH	11	110	Ì	SEH
1	15	1	OFH	11	47	ı	2FR	11	79	i	4FH	11	111	ı	6FH
ı	16	ŧ	10H	11	48	ì	30H	11	80	1	50H	П	112	ı	708 (
1	17	١	118	11	49	ı	31 H	11	81	ı	51R	п	113	ł	71H (
ŧ	18	1	12H	11	50	ı	32H	11		ı	52H	н	114	Į	72H
ı	19	١	13H	11	51	ı	33H	11	83	1	53R	11	115	ı	73H (
ı	20	١	149	11	52	١	34H	11	84	١	54H	11	116	١	74H
ı	21	i	15H	П	53	ı	35R	"	85	1	55R	11	117	ı	75H
ŧ	22	í	16H	11	54	١	36H	11	86	t	56H	11	118	ı	76H
ı	23	ı	178	11	55	ŀ	37H	11	87	ı	57#	11	119	١	77E (
ı	24	ı	188	11	56	ı	388	11	88	1	58H	11	120	ı	78H !
ı	25	1	1.9ff	11	57	ı	398	11	89	ı	59B	11	121	ı	79H
ŧ	26	ı	1AH	11	58	ı	BAE	П	90	ŧ	5AB	11	122	ì	78E (
ŧ	27	i	1.BH	11	69	ı	388	11	91	ı	58H	11	123	ı	7BH
í	28	ı	1CH	11	60	ı	3CH	П	92	ŧ	5CH	11	124	Į	7CE (
ı	29	ı	1DH	11	61	ı	3DH	11	93	ŧ	5DH	11	125	ı	70H (
ı	30	ŧ	128	13	62	ı	BEH	11	94	ŧ	5EH	11	126	1	TES
ŧ	31	ı	1.FH	11	63	ı	3FH	П	95	ı	5FH	11	127	ı	7FR
+		. +		++		١.		++		+		++		+	+

^{*} Decimal values such as MIDI channel, bank select, and program change are listed as one greater than the values given in the above table.

```
<Example 1> What is the decimal expression of 5AH ?
From the preceeding table, 5AH = 90
```

<Example 2> What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?

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

<Example 3> 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 ($(10 \times 16 + 3) \times 16 + 9) \times 16 + 13 = 41885$

<Example 4> What is the nibbled expression of the decimal value 1258?

Since from the preceeding table, 0=00H, 4=04H, 14=0EH, 10=0AH, the answer is 00 04 0F 0AH

^{*} 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 0DH = -8192, 40 00H = ±0, and 7F 7FH = +8191. For example if as bth were expressed as decimal, this would be as bth - 40 00H = as $x 128 + bb - 64 \times 128$.

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.

Examples of actual MIDI messages

<Example 1> 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.

<Example 2> 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).

<Example 3> 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.

<Example 4> 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.

83	64 00	MIDI ch.4, lower byte of RPN parameter number (MIDI ch.4) upper byte of RPN parameter number	: 00H
(B3)	65 00		: 00H
(B3)	06 0C	(MIDI ch.4) upper byte of value	: 0CH
(B3)	26 00	(MIDI ch.4) lower byte of value	
(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 OC 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 ± 2 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).

Example of an Exclusive message and calculating a Checksum

Roland Exclusive messages (RQ1, DT1) 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

How 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 as bb ccH and the data or size is dd ee ffH.

cc + dd + ee + ff = sumsum + 128 = quotient ... remainder 128 - remainder = checksum

<Example 1> 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,

(1) (2)	(3)	(4)	(5) address		02 data	27 checksum	£7 (6)
(1)Exclusive (4)Model ID			ID (Ro:	land) i ID (DT1)		rice ID (17	

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.

<Example 2> Requesting transmission of the LEVEL for DRUM MAP 1 NOTE NUMBER 75 (D#5; Claves)

NOTE NUMBER 75(D#5) is 48H in hexadecimal.

According to the "Parameter Address Map", LEVEL of NOTE NUMBER 75 (D#5; Claves) in DRUM MAP 1 has an Address of 41 02 48H and a Size of 00 00

<u>FO</u>	<u>41</u>	(3)	42	11	41 02 4B	00 00 01	22	E7
(1)	(2)		(4)	(5)	address	size	checksum	(6)
	clusive del ID	Status (GS)		ID (Rol Command	and) ID (RQ1)		of Exclus	

Next we calculate the checksum.

```
41H + 02H + 4BH + 00H + 00H + 01H = 65 + 2 + 75 + 0 + 0 + 1 = 143(sum)
143(sum) ÷ 128 = 1(quotient) ... 15(remainder) checksum = 128 - 15(remainder) = 113 = 71H
```

This means that F0 41 10 42 11 41 02 4B 00 00 01 71 F7 is the message we transmit

^{*} TPQN : Ticks Per Quarter Note

• Examples of actual MIDI messages

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.

<Example 2> 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).

< Example 3> 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 nits in the construction of the second of th

Example 4> 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 value	: OCH
(B3)	26 00	(MIDI ch.4) lower byte of value	: 00H
(B3)	64 7F	(MiDI ch.4) lower byte of RPN parameter number	: 7FH
(B3)	65.7F	(MID) ch 4) unper 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

RPN parameter number 00 00H is Pitch Bend Sensitivity, and the MSB of the value indicates semitione units, so a value of 0CH = 12 sets the maximum pitch bend range to ½ semitiones (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.

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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 occuring 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).

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Roland Exclusive messages (RQ1, DT1) 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.

♦ How 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 an bb ccH and the data or size is dd ee ffH.

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

<Example 1> 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,

<u>FQ</u>	<u>41</u>	10	<u>42</u>	12	40 01 30	<u>02</u>	22	E7
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)
	clusiv	e Status		ID (Ro.	land) d ID (DT1)		rice ID (17	-

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.

<Example 2> Requesting transmission of the LEVEL for DRUM MAP 1 NOTE NUMBER 75 (D#5; Claves)

NOTE NUMBER 75(D#5) is 4BH in hexadecimal

According to the "Parameter Address Map", LEVEL of NOTE NUMBER 75 (D#5: Claves) in DRUM MAP 1 has an Address of 41 02 4BH and a Size of 00 00 01H. Thus.

EO	(2)	10 (3)	42	11 (5)	41 02 4B	00 00 01 size	22 checksum	(6)
	clusive del ID	Status (GS)		ID (Rol	and) ID (RQ1)		ice ID (17) of Exclusi	

Next we calculate the checksum.

```
41H + 02H + 48H + 00H + 00H + 01H = 65 + 2 + 75 + 0 + 0 + 1 = 143(sum)
143(sum) ÷ 128 = 1(quotient) ... 15(remainder checksum = 128 - 15(remainder) = 113 = 71H
```

This means that F0 41 10 42 11 41 02 4B 00 00 01 71 F7 is the message we

^{*} TPON : Ticks Per Quarter Note

About tuning

In MIDI, individual Parts are tuned by sending RPN #1 (Master Fine Tuning) to

In MIDI, individual Parts are tuned by sending HPN #1 (Master Fine Luring) 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).

					ent												00 I
					19.56												
1	444.	0	١	+	15.67	ı	4A	03	(+:	1283	ijί	00	04	09	αO	(+1	157) [
ı	443.	0	1	+:	11.76	1	47	44	(+	964	1) 1	00	04	07	06	(+)	18)
i	442.	0	i	+	7.85	i	45	03	(+	643	1 (00	04	04	0F	(+	79) [
					3.93												
1	440.	0	i		0	i	40	00	i	0	11	00	04	00	00	i	0) [
					3.94												
					7.89												

<Example 1> Set the tuning of MIDI channel 3 to A4 = 442.0Hz Send RPN#1 to MIDI channel 3. From the above table, the value is 45 03H.

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

<Example 2> Set the tuning of the entire device to +23.4 cent

From the "Parameter Address Map", the MASTER TUNE Address is 40 00 00H.

The value is expressed nibbled in steps of 0.1 cent with 00 04 00 00H (= 1024) as 10, so +23.4 cent would be 234 + 1024 = 1258, and when this is nibbled it would be 00 04 0E 0AH.

(1)	(2)	(3)	(4)	(5)	address	data	checksum	EZ (6)	
(1)E:	clusiv	e Status	(2)	ID (Ro	land)	(3) Devi	ce ID (17		
(4) No	del ID	(GS)	(5)	Соппал	d ID (DT1)	(6) End	of Exclus	ve	
Next	we calc	ulate the	checksu	ım.					

40H + 00H + 00H + 00H + 04H + 0EH + 0AH = 64 + 0 + 0 + 0 + 4 + 14 + 10 =

92(sum) ÷ 128 = 0(quotient) ... 92(remainder) checksum = 128 · 92(remainder) = 36 = 24H

This means that F0 41 10 42 12 40 00 00 00 04 0E 0A 24 F7 is the message we transmit.

• 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

○ Equal Temperament

This method of tuning divides the oclave into 12 equal parts. It is currently the most widely used form of tuning, especially in occidental music. On the SC-88, 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

O 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	
С	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	
Α	0	-16	0	
A#	0	+14	-10	
8	0	-12	-49	

The values in the table are given in cents.

For example, to set the tune (C-B) of the Part1 Arabian Scale, send the data as

F0 41 10 42 12 40 11 40 3A 6D 3E 34 0D 38 6B 3C 6F 40 36 0F 50 F7

MIDI IMPLEMENTATION CHART

[ARRANGER WORKSTATION] (Sound Module, Keyboard Section, SMF Player)

Model: G-800

	Function	Transmitted		Recognized		Remarks
Basic Channel	Default Changed	4, 6, 11, 12, 16 1~16, Off		1~16 1~16, Off		4= Upper1, 6= Upper2 11= Lower, 12= Man. Bass 16= Man. Drums
Mode	Default Message Altered	Mode 3 Mode 3, 4 (M=1)		Mode 3 Mode 3, 4 (M=1)		*2
Note Number	True Voice	0~127	*1	0-127 0-127		
Velocity	Note ON Note OFF	o x	*1	O X		
After Touch	Key's Ch's	X X		0	*1 *1	
Pitch Bend		0	*1	0	*1	
Control Change	0,32 1 5 6, 38 7 10 11 64 65 66 67 84 91 93 94 98, 99 100, 101 120 121	000000000000000000000000000000000000000	*1 *1 *1 *1 *1 *1 *1 *1 *1 *1 *1 *1 *1 *	O O O O O O O O (Reverb) O (Chorus) O (Delay) O O O O O O O O O O O O O O O O O O O	*1 *1 *1 *1 *1 *1 *1 *1 *1 *1 *1 *1 *1 *	Bank Select Modulation Portamento Time Data Entry Volume Panpot Expression Hold 1 Portamento Sostenuto Soft Portamento Control Effect 1 Depth Effect 3 Depth Effect 4 Depth NRPN LSB, MSB RPN LSB, MSB RPN LSB, MSB All Sound Off Reset All Controllers
Change	True #	****		0~127		Program Number 1~128
System Exclu	ısive	0		0		
System Common	Song Pos Song Sel Tune	0 0 X	*1 *1	0 0 x	*1 *1	
System Real Time	Clock Commands	0	•1 •1	0 0	*1 *1	MIDI File Record/Play
Aux Messages	Local On/Off All Notes Off Active Sense Reset	O X O X	*1	O O (123-125) O X		
Notes		*1 O X is selectabl *2 Recognize as M		if M≠1		

Mode 1: OMNI ON, POLY Mode 3: OMNI OFF, POLY Mode 2: OMNI ON, MONO Mode 4: OMNI OFF, MONO O: Yes X: No

Date: 2 May 1995

Version: 1.00

UPC

K601818



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