



G-800

ARRANGER WORKSTATION

MIDI implementation



MIDI implementation (Arranger)

Model G-800

Version 1.00 '95.5

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 messages may not be received.

Section 1. Receive data

Channel voice messages

Note off

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

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

Note on

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| 9nH | kkH | vvH |

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

Polyphonic Key Pressure

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| AnH | kkH | vvH |

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

- * 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 |
|--------|----------|----------|
| BnH | 00H | mmH |
| BnH | 20H | llH |

[88]

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

Modulation (Controller number 1)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 01H | vvH |

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

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

Portamento Time (Controller number 5)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 05H | vvH |

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

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

Data Entry (Controller number 6,38)

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

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

Volume (Controller number 7)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 07H | vvH |

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

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

Pan (Controller number 10)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 0AH | vvH |

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

- * 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)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 0BH | vvH |

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

- * 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 : 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.HOLD1 = OFF. (Initial value is ON)

Portamento (Controller number 65)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 41H | vvH |

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

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

○ **Sostenuto** (Controller number 66)

Status 2nd byte 3rd byte
BnH 42H vvH

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

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

○ **Soft** (Controller number 67)

Status 2nd byte 3rd byte
BnH 43H vvH

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

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

* A Note-on received immediately after a Portamento Control message will change continuously in pitch, starting from the pitch of the Source Note Number.

* If a voice is already sounding for a note number identical to the Source Note Number, this voice will continue sounding (i.e., legato) and will, when the next Note-on is received, smoothly change to the pitch of that Note-on.

* The rate of the pitch change caused by Portamento Control is determined by the Portamento Time value.

Example 1)

| On MIDI | Description | Result |
|----------|----------------------------|-------------------------------------|
| 90 3C 40 | Note on C4 | C4 on |
| 80 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 |
|----------|----------------------------|--------------------------|
| 80 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)** (Controller number 91)

Status 2nd byte 3rd byte
BnH 58H vvH

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

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

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

Status 2nd byte 3rd byte
BnH 5DH vvH

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

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

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

Status 2nd byte 3rd byte
BnH 5EH vvH

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

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

* Some other GS devices may not recognize this message.

○ **NRPN MSB/LSB** (Controller number 98,99)

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

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

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

NRPN

The NRPN (Non Registered Parameter Number) message allows an extended range of control changes to be used, 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.

| NRPN MSB LSB | Data entry MSB | Function and range | |
|--------------|--|---|-------|
| 01H 08H | mmH mm: 00H - 40H - 7FH (-64 - 0 - +63) | Vibrato Rate (relative change) | |
| 01H 09H | mmH mm: 00H - 40H - 7FH (-64 - 0 - +63) | Vibrato Depth (relative change) | |
| 01H 0AH | mmH mm: 00H - 40H - 7FH (-64 - 0 - +63) | Vibrato Delay (relative change) | |
| 01H 20H | mmH mm: 00H - 40H - 7FH (-64 - 0 - +63) | TVF Cutoff Frequency (relative change) | |
| 01H 21H | mmH mm: 00H - 40H - 7FH (-64 - 0 - +63) | TVF Resonance (relative change) | |
| 01H 63H | mmH mm: 00H - 40H - 7FH (-64 - 0 - +63) | TVF&TVA Envelope Attack Time (relative change) | |
| 01H 64H | mmH mm: 00H - 40H - 7FH (-64 - 0 - +63) | TVF&TVA Envelope Decay Time (relative change) | |
| 01H 66H | mmH mm: 00H - 40H - 7FH (-64 - 0 - +63) | TVF&TVA Envelope Release Time (relative change) | |
| 18H rrH | mmH rr: Drum Instrument note number mm: 00H - 40H - 7FH (-64 - 0 - +63 semitone) | Drum Instrument Pitch Coarse (relative change) | |
| 1AH rrH | mmH rr: Drum Instrument note number mm: 00H - 7FH (0 - max) | Drum Instrument TVA Level (absolute change) | |
| 1CH rrH | mmH rr: Drum Instrument note number mm: 00H, 01H - 40H - 7FH (random, left-center-right) | Drum Instrument Panpot (absolute change) | |
| 1DH rrH | mmH rr: Drum Instrument note number mm: 00H - 7FH (0 - max) | Drum Instrument Reverb Send Level (absolute change) | |
| 1EH rrH | mmH rr: Drum Instrument note number mm: 00H - 7FH (0 - max) | Drum Instrument Chorus Send Level (absolute change) | |
| 1FH rrH | mmH rr: Drum Instrument note number mm: 00H - 7FH (0 - max) | Drum Instrument Delay Send Level (absolute change) [88] | |
| 4FH 10H | mmH mm: 00H - 7FH (00-3FH =Off - 40-7FH= On) | Part 4 On / Off (Upper 1) | [800] |
| 4FH 11H | mmH mm: 00H - 7FH (00-3FH =Off - 40-7FH= On) | Part 11 On / Off (Lower) | [800] |
| 4FH 12H | mmH mm: 00H - 7FH (00-3FH =Off - 40-7FH= On) | Part 12 On / Off (Man Bass) | [800] |
| 4FH 13H | mmH mm: 00H - 7FH (00-3FH =Off - 40-7FH= On) | Part 6 On / Off (Upper 2) | [800] |

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

* Data entry LSB (llH) 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 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.

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

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

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

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. 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 | Explanation |
|---------|------------|--|
| MSB LSB | MSB LSB | |
| 00H 00H | mmH --- | Pitch Bend Sensitivity mm: 00H - 1BH (0 - 24 semitones) Initial value = 02H (2 semitones) ll: ignored (processed as 00H) specify up to 2 octaves in semitone steps |
| 00H 01H | mmH llH | Master Fine Tuning mm,ll: 00 00H - 40 00H - 7F 7FH (-100-0+99.99 cents) Refer to 5. Supplementary material, "About tuning". |
| 00H 02H | mmH --- | Master Coarse Tuning mm: 2BH - 40H - 5BH (-24 - 0 - +24 semitones) ll: 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 |

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

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

* After a Program Change message is received, the sound will change beginning with the next Note-on. Voices already sounding when the Program Change message was received will not be affected.

* For Drum Parts, Program Change messages will not be received on bank numbers 129 - 16384 (the value of Control Number 0 is other than 0(00H)).

● Channel Pressure

| | |
|--------|----------|
| Status | 2nd byte |
| DnH | vvH |

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

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

* 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)

| | | |
|--------|----------|----------|
| Status | 2nd byte | 3rd byte |
| BnH | 78H | 00H |

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

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

● Reset All Controllers (Controller number 121)

| | | |
|--------|----------|----------|
| Status | 2nd byte | 3rd 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 | 0 (off) |
| Channel Pressure | 0 (off) |
| Modulation | 0 (off) |
| Expression | 127 (max) |
| Hold 1 | 0 (off) |
| Portamento | 0 (off) |
| Sostenuto | 0 (off) |
| Soft | 0 (off) |
| RPN | unset; previously set data will not change |
| NRPN | unset; previously set data will not change |

● All Notes Off (Controller number 123)

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

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

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

● OMNI OFF (Controller number 124)

| | | |
|--------|----------|----------|
| Status | 2nd byte | 3rd byte |
| BnH | 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 | 3rd byte |
| BnH | 7DH | 00H |

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 | 3rd byte |
|--------|----------|----------|
| BnH | 7EH | mmH |

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

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

● **POLY** (Controller number 127)

| Status | 2nd byte | 3rd 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**

▷ **Active Sensing**

| Status |
|--------|
| FEH |

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

▷ **Sequencer Start**

| Status |
|--------|
| FAH |

* 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**

| Status |
|--------|
| F8H |

[800]

* 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 as the arranger 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" button to start style Playback. |
| MIDI | The arranger can only be started stopped and synchronized with incoming MIDI realtime messages. |
| Remote | The arranger waits for a "Sequencer Start" 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 | Status |
|--------|--------------------|--------|
| F0H | iiH, ddH,eeH | F7H |

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

The System Exclusive Messages received by 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 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 | Data byte | Status |
|--------|--------------------|--------|
| F0H | 7EH, 7FH, 09H, 01H | F7H |

| Byte | Explanation |
|------|--|
| F0H | Exclusive status |
| 7EH | ID number (Universal Non-realtime Message) |
| 7FH | Device ID (Broadcast) |
| 09H | Sub ID#1 (General MIDI Message) |
| 01H | Sub ID#2 (General MIDI 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 message.

▷ **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.

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

| Byte | Explanation |
|------|--|
| F0H | Exclusive status |
| 7EH | ID number (Universal Non-realtime Message) |
| 7FH | Device ID (Broadcast) |
| 09H | Sub ID#1 (General MIDI Message) |
| 02H | Sub ID#2 (General MIDI Off) |
| 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 |
|--------|---|--------|
| F0H | 41H, dev, 42H, 12H, 40H, 00H, 7FH, 00H, 41H | F7H |

| Byte | Explanation |
|------|--|
| F0H | Exclusive status |
| 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 | Address LSB |
| 00H | Data (GS reset) |
| 41H | Checksum |
| F7H | EOX (End Of Exclusive) |

* When this message is received, Rx.NRPN will be ON.

* There must be an interval of at least 50 ms between this message and the next 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 | Data byte | Status |
|--------|---|--------|
| F0H | 41H, dev, 42H, 12H, 40H, 00H, 7FH, 7FH, 42H | F7H |

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

* The lower byte (01H) 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.)

○ **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 |
|--------|--|--------|
| F0H | 41H, dev, 42H, 11H, aaH, bbH, ccH, ssH, ttH, uuH, sum | F7H |
| Byte | Explanation | |
| F0H | 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 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.

* Regarding the checksum please refer to Section 4.

○ **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 | Data byte | Status |
|--------|---|--------|
| F0H | 41H, dev, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sum | F7H |
| Byte | Explanation | |
| F0H | 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.

* 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 2. Transmit data

■ **Channel voice messages**

● **Note off**

| Status | 2nd byte | 3rd byte |
|-----------------------|--------------------------|----------|
| 9nH | kkH | 00H |
| n=MIDI channel number | : 0H - FH (ch.1 - ch.16) | |
| kk=note number | : 00H - 7FH (0 - 127) | |
| vv=velocity | : 00H (0) | |

● **Note on**

| Status | 2nd byte | 3rd byte |
|-----------------------|--------------------------|----------|
| 9nH | kkH | vvH |
| n=MIDI channel number | : 0H - FH (ch.1 - ch.16) | |
| kk=note number | : 00H - 7FH (0 - 127) | |
| vv=velocity | : 01H - 7FH (1 - 127) | |

● **Control Change**

○ **Bank Select (Controller number 0,32)**

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

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

ll=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).

○ **Modulation (Controller number 1)**

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 01H | vvH |

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

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

○ **Portamento Time (Controller number 5)**

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 05H | vvH |

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

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

○ **Data Entry (Controller number 6,38)**

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

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

○ **Volume (Controller number 7)**

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 07H | vvH |

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

* 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 |
|--------|----------|----------|
| BnH | 0AH | vvH |

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

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

* The stereo position can be adjusted over 127 steps.

○ **Expression (Controller number 11)**

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 0BH | vvH |

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

* 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.

⊃ **Hold 1** (Controller number 64)
Status 2nd byte 3rd byte
 BnH 40H vVH
 n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

* Not 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)
 vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

⊃ **Sostenuto** (Controller number 66)
Status 2nd byte 3rd byte
 BnH 42H vVH
 n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

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

⊃ **Soft** (Controller number 67)
Status 2nd byte 3rd byte
 BnH 43H vVH
 n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

* Not 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 58H vVH
 n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Control value : 00H - 7FH (0 - 127) Initial value = 28H (40)

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

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

⊃ **Effect 3 (Chorus Send Level)** (Controller number 93)
Status 2nd byte 3rd byte
 BnH 5DH vVH
 n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Control value : 00H - 7FH (0 - 127) Initial value = 00H (0)

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

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

* 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.

⊃ **NRPN MSB/LSB** (Controller number 98,99)
Status 2nd byte 3rd byte
 BnH 63H mmH
 BnH 62H llH

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

* Not transmitted when NRPN TX Filter is On.

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 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.

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 entry | Function and range | |
|---------|------------|---|-------|
| MSB LSB | MSB | | |
| 01H 08H | mmH | 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) | |
| 01H 0AH | mmH | Vibrato Delay (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) | |
| 01H 20H | mmH | TVF Cutoff Frequency (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) | |
| 01H 21H | mmH | TVF Resonance (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) | |
| 01H 63H | mmH | 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) | |
| 18H rrH | mmH | Drum Instrument Pitch Coarse (relative change) 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) rr: Drum Instrument note number 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 | mmH | 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) mm: 00H - 7FH (00-3FH=Off - 40-7FH= On) | [800] |
| 4FH 11H | mmH | Part 11 On / Off (Lower) mm: 00H - 7FH (00-3FH=Off - 40-7FH= On) | [800] |
| 4FH 12H | mmH | Part 12 On / Off (Man Bass) mm: 00H - 7FH (00-3FH=Off - 40-7FH= On) | [800] |
| 4FH 13H | 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 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.

○ **RPN MSB/LSB** (Controller number 100,101)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 65H | mmH |
| BnH | 64H | IIH |

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 | Explanation |
|---------|------------|--|
| MSB LSB | MSB LSB | |
| 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,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 | --- --- | RPN null set condition where RPN and NRPN are unspecified Settings already made will not change. mm,II: ignored |

● **Program Change**

| Status | 2nd byte |
|--------|----------|
| CnH | ppH |

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

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 78H | 00H |

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 | 0 (off) |
| Channel Pressure | 0 (off) |
| Modulation | 0 (off) |
| Expression | 127 (max) |
| Hold 1 | 0 (off) |
| Portamento | 0 (off) |
| Sostenuto | 0 (off) |
| Soft | 0 (off) |
| RPN | unset; previously set data will not change |
| NRPN | unset; previously set data will not change |

● **MONO** (Controller number 125)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 7EH | mmH |

n=MIDI channel 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)

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

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

* The corresponding channel will be set to Mode 3.

■ **System Realtime Messages**

○ **Active Sensing**

| Status |
|--------|
| FEH |

Transmitted about every 250ms.

○ **Sequencer Start** [800]

| Status |
|--------|
| FAH |

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

○ **Sequencer Stop** [800]

| Status |
|--------|
| FCH |

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

○ **Timing Clock** [800]

| Status |
|--------|
| F8H |

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

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

The System Exclusive Messages 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.

○ 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 |
|--------|--|--------|
| F0H | 41H, dev, 42H, 11H, aaH, bbH, ccH, ssH, ttH, uuH, sum | F7H |
| Byte | Explanation | |
| F0H | 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 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.

* Regarding the checksum please refer to Section 4.

○ 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 | Data byte | Status |
|--------|---|--------|
| F0H | 41H, dev, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sum | F7H |
| Byte | Explanation | |
| F0H | 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.

* 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 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>

● Port-A / B

Address(H)Block

| | | | |
|----------|-----------------|----------|---------------|
| 00 00 00 | -----+----- | | |
| | SYSTEM | | |
| 40 00 00 | -----+----- | | |
| | PATCH COMMON #A | | |
| 40 10 00 | -----+----- | 50 10 00 | -----+----- |
| | PATCH PART A | | PATCH PART B |
| | (BLOCK 00-0F) | | (BLOCK 10-1F) |
| 41 00 00 | -----+----- | 51 00 00 | -----+----- |
| | DRUM SETUP A | | DRUM SETUP B |
| | -----+----- | | -----+----- |

▷ **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 = 42H>

| Address(H) | Size(H) | Data(H) | Parameter | Description | Default(H) | Description |
|--|----------|---------|-------------------------------------|-------------|------------|-------------|
| * Refer to "System exclusive messages related to Mode settings". | | | | | | |
| 00 01 00 | 00 00 01 | 00 - 01 | CHANNEL MSG RX PORT [88] BLOCK00 | PORT A - B | 00 | PORT A |
| : | : | : | : | : | : | : |
| 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 | 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**

○ **Patch common parameters**

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

* Refer to section 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 | 00 00 01 | 28 - 58 | MASTER KEY-SHIFT | -24 - +24 [semitones] | 40 | 0 [semitones] |
| 40 00 06 | 00 00 01 | 01 - 7F | MASTER PAN | -63 (LEFT) - +63 (RIGHT) | 40 | 0 (CENTER) |
| 40 00 7F | 00 00 01 | 00 | MODE SET (Rx. only) | 00 = GS Reset | | |

* Refer to "System exclusive messages related to Mode settings".

| | | | | | | |
|-----------|----------|---------|---|---------------------|----|--------|
| 40 01 00 | 00 00 10 | 20 - 7F | PATCH NAME | 16 ASCII Characters | | |
| 40 01 :# | | | | | | |
| 40 01 0F# | | | | | | |
| 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 | 00 00 01 | 00 - 07 | REVERB CHARACTER | 0 - 7 | 04 | 04 |
| 40 01 32 | 00 00 01 | 00 - 07 | REVERB PRE-LPF | 0 - 7 | 00 | 00 |
| 40 01 33 | 00 00 01 | 00 - 7F | REVERB LEVEL | 0 - 127 | 40 | 64 |
| 40 01 34 | 00 00 01 | 00 - 7F | REVERB TIME | 0 - 127 | 40 | 64 |
| 40 01 35 | 00 00 01 | 00 - 7F | REVERB DELAY FEEDBACK | 0 - 127 | 00 | 00 |
| 40 01 37 | 00 00 01 | 00 - 7F | REVERB PREDELAY TIME [88] | 0 - 127[ms] | 00 | 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 | Description | 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] 0 - 7 | 0 | 0 |
| 40 01 52 | 00 00 01 | 01 - 73 | DELAY TIME CENTER | [88] 0.1ms - 1sec | 61 | 340 |
| 40 01 53 | 00 00 01 | 01 - 78 | DELAY TIME RATIO LEFT | [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 | DELAY LEVEL CENTER | [88] 0 - 127 | 7F | 127 |
| 40 01 56 | 00 00 01 | 00 - 7F | DELAY LEVEL LEFT | [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 | DELAY LEVEL | [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 00 | 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 |

○ 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 when using PORT A.

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 9 (default MIDIch = 9) x=9 | Part12 (default MIDIch =12) x=B |
| | Part 2 (default MIDIch = 2) x=2 | Part10 (default MIDIch =10) x=0 | : : : |
| | : : : | Part11 (default MIDIch =11) x=A | 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 (H) | 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. VALUE 1 - 128 (Program number) | 00 | 1 |
| 40 1x 02 | 00 00 01 | 00 - 10 | Rx. CHANNEL | 1 - 16, OFF | 01 | Same as the Part Number |
| 40 1x 03 | 00 00 01 | 00 - 01 | Rx. PITCH BEND | OFF / ON | 01 | ON |
| 40 1x 04 | 00 00 01 | 00 - 01 | Rx. CH PRESSURE(CA) | 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(PA) | 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 "General MIDI System On" is received, Rx. NRPN will be set OFF. When "GS 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 | ON |
| 40 1x 12 | 00 00 01 | 00 - 01 | Rx. SOFT | OFF / ON | 01 | ON |
| 40 1x 13 | 00 00 01 | 00 - 01 | MONO/POLY MODE | 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 00 at x=0 01 at x=0 | LIMITED-MULTI 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 2 = MAP2 | 00 at x#0 01 at x=0 | OFF (Normal Part) MAP1 (Drum Part) |
|----------|----------|---------|---------------------|---------------------------------|------------------------|---------------------------------------|

* 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)).

| Address(H) | Size(H) | Data(H) | Parameter | Description | Default Value (H) | Description |
|---|----------|-----------------------|-----------------------|--|-------------------|-----------------|
| 40 1x 16 | 00 00 01 | 28 - 58 | PITCH KEY SHIFT | -24 - +24 [semitones] | 40 | 0 [semitones] |
| 40 1x 17 | 00 00 02 | 08 - F8 | PITCH OFFSET FINE | -12.0 - +12.0 [Hz] | 08 00 | 0 [Hz] |
| 40 1x 18# | | | | Use nibblized data. | | |
| 40 1x 19 | 00 00 01 | 00 - 7F | PART LEVEL | 0 - 127 (=CC# 7) | 64 | 100 |
| 40 1x 1A | 00 00 01 | 00 - 7F | VELOCITY SENSE DEPTH | 0 - 127 | 40 | 64 |
| 40 1x 1B | 00 00 01 | 00 - 7F | VELOCITY SENSE OFFSET | 0 - 127 | 40 | 64 |
| 40 1x 1C | 00 00 01 | 00 - 7F | PART PANPOT | -64(RANDOM), -63(LEFT) - +63(RIGHT) (=CC# 10, except RANDOM) | 40 | 0 (CENTER) |
| 40 1x 1D | 00 00 01 | 00 - 7F | KEY RANGE LOW | (C-1) - (G9) | 00 | C-1 |
| 40 1x 1E | 00 00 01 | 00 - 7F | KEY RANGE HIGH | (C-1) - (G9) | 7F | G 9 |
| 40 1x 1F | 00 00 01 | 00 - 5F | CC1 CONTROLLER NUMBER | 0 - 95 | 10 | 16 |
| 40 1x 20 | 00 00 01 | 00 - 5F | CC2 CONTROLLER NUMBER | 0 - 95 | 11 | 17 |
| 40 1x 21 | 00 00 01 | 00 - 7F | CHORUS SEND LEVEL | 0 - 127 (=CC# 93) | 00 | 0 |
| 40 1x 22 | 00 00 01 | 00 - 7F | REVERB SEND LEVEL | 0 - 127 (=CC# 91) | 28 | 40 |
| 40 1x 23 | 00 00 01 | 00 - 01 | Rx.BANK SELECT | OFF / ON | 01(00') | ON(OFF') |
| * When "General MIDI System On" is received, Rx.BANK SELECT will be set OFF. When "GS Reset" or "System Mode Set" is received, it will be set ON. | | | | | | |
| 40 1x 24 | 00 00 01 | 00 - 01 | RX BANK SELECT LSB | [88] OFF / ON | 01 | ON |
| * When RX BANK SELECT LSB = OFF, Bank Select LSB (Bn 2D 11) will be treated as 00H regardless of its value. | | | | | | |
| 40 1x 2A | 00 00 02 | 00 00 - 40 00 - 7F 7F | PITCH FINE TUNE | [88] -100 - 0 - +100 cent (= RPN#1) | 0 | |
| 40 1x 2B# | | | | | | |
| 40 1x 2C | 00 00 01 | 00 - 7F | DELAY SEND LEVEL | [88] 0-127 (=CC# 94) | 00 | 0 |
| 40 1x 30 | 00 00 01 | 00 - 7F | TONE MODIFY1 | [88] -64 - +63 (=NRPN# 8) | 40 | 0 |
| 40 1x 31 | 00 00 01 | 00 - 7F | Vibrato Rate | [88] -64 - +63 (=NRPN# 9) | 40 | 0 |
| 40 1x 32 | 00 00 01 | 00 - 7F | TONE MODIFY2 | [88] -64 - +63 (=NRPN# 32) | 40 | 0 |
| 40 1x 33 | 00 00 01 | 00 - 7F | TVF Cutoff Freq. | [88] -64 - +63 (=NRPN# 33) | 40 | 0 |
| 40 1x 34 | 00 00 01 | 00 - 7F | TONE MODIFY3 | [88] -64 - +63 (=NRPN# 99) | 40 | 0 |
| 40 1x 35 | 00 00 01 | 00 - 7F | TVF Resonance | [88] -64 - +63 (=NRPN# 100) | 40 | 0 |
| 40 1x 36 | 00 00 01 | 00 - 7F | TONE MODIFY4 | [88] -64 - +63 (=NRPN# 102) | 40 | 0 |
| 40 1x 37 | 00 00 01 | 00 - 7F | TVF&TVA Env.attack | [88] -64 - +63 (=NRPN# 10) | 40 | 0 |
| 40 1x 38 | 00 00 01 | 00 - 7F | TONE MODIFY5 | [88] -64 - +63 | 40 | 0 |
| 40 1x 39 | 00 00 01 | 00 - 7F | TVF&TVA Env.decay | [88] -64 - +63 | 40 | 0 |
| 40 1x 40 | 00 00 0C | 00 - 7F | TONE MODIFY6 | [88] -64 - +63 | 40 | 0 |
| 40 1x 41# | 00 - 7F | SCALE TUNING C | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 42# | 00 - 7F | SCALE TUNING C# | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 43# | 00 - 7F | SCALE TUNING D | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 44# | 00 - 7F | SCALE TUNING D# | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 45# | 00 - 7F | SCALE TUNING E | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 46# | 00 - 7F | SCALE TUNING E# | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 47# | 00 - 7F | SCALE TUNING F | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 48# | 00 - 7F | SCALE TUNING F# | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 49# | 00 - 7F | SCALE TUNING G | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 4A# | 00 - 7F | SCALE TUNING G# | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 4B# | 00 - 7F | SCALE TUNING A | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 4C# | 00 - 7F | SCALE TUNING A# | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 4D# | 00 - 7F | SCALE TUNING B | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 60 | 00 00 01 | 00 - 01 | SCALE TUNING Range C | 64 - 128 [cent] | 00 | 63 [cent] [800] |
| 40 1x 61 | 00 - 01 | SCALE TUNING Range C# | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 62 | 00 - 01 | SCALE TUNING Range D | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 63 | 00 - 01 | SCALE TUNING Range D# | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 64 | 00 - 01 | SCALE TUNING Range E | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 65 | 00 - 01 | SCALE TUNING Range E# | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 66 | 00 - 01 | SCALE TUNING Range F | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 67 | 00 - 01 | SCALE TUNING Range F# | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 68 | 00 - 01 | SCALE TUNING Range G | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 69 | 00 - 01 | SCALE TUNING Range G# | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 6A | 00 - 01 | SCALE TUNING Range A | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 6B | 00 - 01 | SCALE TUNING Range A# | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 6C | 00 - 01 | SCALE TUNING Range B | 64 - 128 [cent] | 00 | 63 [cent] [800] | |

Value 0 or 1

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

Example:

| 40 1x 40 | 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 [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] | 0A | 47 [cent] |
| 40 2x 05 | 00 00 01 | 00 - 7F | MOD LFO1 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 06 | 00 00 01 | 00 - 7F | MOD LFO1 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 07 | 00 00 01 | 00 - 7F | MOD LFO2 RATE CONTROL | -10.0 - +10.0 [Hz] | 40 | 0 [Hz] |
| 40 2x 08 | 00 00 01 | 00 - 7F | MOD LFO2 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 09 | 00 00 01 | 00 - 7F | MOD LFO2 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 0A | 00 00 01 | 00 - 7F | MOD LFO2 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 10 | 00 00 01 | 40 - 58 | BEND PITCH CONTROL | 0 - 24 [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 | BEND LFO1 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 15 | 00 00 01 | 00 - 7F | BEND LFO1 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 16 | 00 00 01 | 00 - 7F | BEND LFO1 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 17 | 00 00 01 | 00 - 7F | BEND LFO2 RATE CONTROL | -10.0 - +10.0 [Hz] | 40 | 0 [Hz] |
| 40 2x 18 | 00 00 01 | 00 - 7F | BEND LFO2 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 19 | 00 00 01 | 00 - 7F | BEND LFO2 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 1A | 00 00 01 | 00 - 7F | BEND LFO2 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 20 | 00 00 01 | 28 - 58 | CAI PITCH CONTROL | -24 - +24 [semitones] | 40 | 0 [semitones] |
| 40 2x 21 | 00 00 01 | 00 - 7F | CAI TVF 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 | CAI LFO1 RATE CONTROL | -10.0 - +10.0 [Hz] | 40 | 0 [Hz] |
| 40 2x 24 | 00 00 01 | 00 - 7F | CAI LFO1 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 25 | 00 00 01 | 00 - 7F | CAI LFO1 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 26 | 00 00 01 | 00 - 7F | CAI LFO1 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 27 | 00 00 01 | 00 - 7F | CAI LFO2 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 | 00 00 01 | 00 - 7F | PAI AMPLITUDE CONTROL | -100.0 - +100.0 [%] | 40 | 0 [%] |
| 40 2x 33 | 00 00 01 | 00 - 7F | PAI LFO1 RATE CONTROL | -10.0 - +10.0 [Hz] | 40 | 0 [Hz] |
| 40 2x 34 | 00 00 01 | 00 - 7F | PAI LFO1 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 35 | 00 00 01 | 00 - 7F | PAI LFO1 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 36 | 00 00 01 | 00 - 7F | PAI LFO1 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 37 | 00 00 01 | 00 - 7F | PAI LFO2 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 | PAI LFO2 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] |
| 40 2x 48 | 00 00 01 | 00 - 7F | CC1 LFO2 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 49 | 00 00 01 | 00 - 7F | CC1 LFO2 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 4A | 00 00 01 | 00 - 7F | CC1 LFO2 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 50 | 00 00 01 | 28 - 58 | CC2 PITCH CONTROL | -24 - +24 [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 | 00 00 01 | 00 - 7F | CC2 LFO1 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 56 | 00 00 01 | 00 - 7F | CC2 LFO1 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 57 | 00 00 01 | 00 - 7F | CC2 LFO2 RATE CONTROL | -10.0 - +10.0 [Hz] | 40 | 0 [Hz] |
| 40 2x 58 | 00 00 01 | 00 - 7F | CC2 LFO2 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 59 | 00 00 01 | 00 - 7F | CC2 LFO2 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 5A | 00 00 01 | 00 - 7F | CC2 LFO2 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 4x 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 Reset" is received, this will be 00: SELECTED. | | | | | | |
| 40 4x 01 | 00 00 01 | 01 - 02 | TONE MAP-0 NUMBER [88] | 01: SC-55 MAP (Old) 02: G-800 MAP (New) | (02) | |
| * When TONE MAP NUMBER is 00, this specifies the MAP. This setting will not be reset when the power is turned on or when "GS Reset", "General MIDI System On" or "System Mode Set" is received. | | | | | | |
| 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

○ 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 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.

● **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
 $28\ 00H - 40\ 00H = 40 \times 128 + 0 - (64 \times 128 + 0) = 5120 - 8192 = -3072$

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 $-200 \times (-3072) \div (-8192) = -75$ 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

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 | : 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 0C 00H for RPN parameter number 00 00H on MIDI channel 4, and then set the RPN parameter number to 7F 7FH.

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

* TPQN : Ticks Per Quarter Note

● **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 or size is dd ee ffH.

$aa + bb + cc + dd + ee + ff = \text{sum}$
 $\text{sum} \div 128 = \text{quotient} \dots \text{remainder}$
 $128 - \text{remainder} = \text{checksum}$

<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,

| | | | | | | | | |
|-----|-----|-----|-----|-----|----------|------|----------|-----|
| E0 | 41 | 10 | 42 | 12 | 40_01_30 | 02 | 22 | F7 |
| (1) | (2) | (3) | (4) | (5) | address | data | checksum | (6) |

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

Next we calculate the checksum.

$40H + 01H + 30H + 02H = 64 + 1 + 48 + 2 = 115(\text{sum})$
 $115(\text{sum}) \div 128 = 0(\text{quotient}) \dots 115(\text{remainder})$
 $\text{checksum} = 128 - 115(\text{remainder}) = 13 = 0DH$

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,

| | | | | | | | | |
|-----|-----|-----|-----|-----|----------|----------|----------|-----|
| E0 | 41 | 10 | 42 | 11 | 41_02_4B | 00_00_01 | 22 | F7 |
| (1) | (2) | (3) | (4) | (5) | address | size | checksum | (6) |

(1) Exclusive Status (2) ID (Roland) (3) Device ID (17)
 (4) Model ID (GS) (5) Command ID (RQ1) (6) End of Exclusive

Next we calculate the checksum.

$41H + 02H + 4BH + 00H + 00H + 01H = 65 + 2 + 75 + 0 + 0 + 1 = 143(\text{sum})$
 $143(\text{sum}) \div 128 = 1(\text{quotient}) \dots 15(\text{remainder})$
 $\text{checksum} = 128 - 15(\text{remainder}) = 113 = 71H$

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

● **About tuning**

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

In MIDI, an entire device is tuned by either sending RPN #1 to all MIDI channels being used, or by sending a System Exclusive MASTER TUNE (address 40 00 00 00H).

RPN #1 allows tuning to be specified in steps of approximately 0.012 cents (to be precise, 100/8192 cent), and System Exclusive MASTER TUNE allows tuning in steps of 0.1 cent. One cent is 1/100th of a semitone.

The values of RPN #1 (Master Fine Tuning) and System Exclusive MASTER TUNE are added together to determine the actual pitch sounded by each Part.

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

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

<Example 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 be 00 04 0E 0AH.

```
F0 41 10 42 12 40 00 00 00 04 0E 0A 22 F7
(1) (2) (3) (4) (5) address data checksum (6)
```

(1)Exclusive Status (2)ID (Roland) (3)Device ID (17)
(4)Model ID (05) (5)Command ID (DT1) (6)End of Exclusive

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 octave, the fine adjustments will affect all octaves. By making the appropriate Scale Tune settings, you can obtain a complete variety of tuning methods other than equal temperament. As examples, three possible types of scale setting are explained below.

○ **Equal Temperament**

This method of tuning divides the octave into 12 equal parts. It is currently the most widely used form of tuning, especially in occidental music. On the G-800, the default settings for the Scale Tune feature produce equal temperament.

○ **Just Temperament (Keytone C)**

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

○ **Arabian Scale**

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

Example Settings

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

The values in the table are given in cents. Refer to the explanation of Scale Tuning 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 follows:

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


■ MIDI implementation

(Sound Module, Keyboard Section, SMF Player)

Model G-800

Version 1.00 '95.5

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 |
|--------|----------|----------|
| 8nH | kkH | vvH |
| 9nH | kkH | 00H |

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

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

● Note on

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| 9nH | kkH | vvH |

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

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

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

● Control Change

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

○ Bank Select (Controller number 0,32)

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

[88]

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

○ Modulation (Controller number 1)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 01H | vvH |

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

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

○ Portamento Time (Controller number 5)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 05H | vvH |

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

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

○ Data Entry (Controller number 6,38)

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

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

○ Volume (Controller number 7)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 07H | vvH |

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

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

○ Pan (Controller number 10)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 0AH | vvH |

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

* 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)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 0BH | vvH |

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

* 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 : 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.HOLD1 = OFF. (Initial value is ON)

○ Portamento (Controller number 65)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 41H | vvH |

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

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

○ **Sostenuto** (Controller number 66)

Status 2nd byte 3rd byte
BnH 42H vvH

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

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

○ **Soft** (Controller number 67)

Status 2nd byte 3rd byte
BnH 43H vvH

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

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

○ **Portamento control** (Controller number 64)

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)

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

Example 1)

| On MIDI | Description | Result |
|----------|----------------------------|-------------------------------------|
| 90 3C 40 | Note on C4 | C4 on |
| B0 54 3C | Portamento Control from C4 | no change (C4 voice still 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)** (Controller number 91)

Status 2nd byte 3rd byte
BnH 5BH vvH

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

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

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

Status 2nd byte 3rd byte
BnH 5DH vvH

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

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

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

Status 2nd byte 3rd byte
BnH 5EH vvH

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

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

* Some other GS devices may not recognize this message.

○ **NRPN MSB/LSB** (Controller number 98,99)

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

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

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

NRPN

The NRPN (Non Registered Parameter Number) message allows an extended range of control changes to be used, 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.

| NRPN | Data entry | Function and range |
|---------|------------|---|
| MSB LSB | MSB | |
| 01H 08H | mmH | 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) |
| 01H 0AH | mmH | Vibrato Delay (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) |
| 01H 20H | mmH | TVF Cutoff Frequency (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) |
| 01H 21H | mmH | TVF Resonance (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) |
| 01H 63H | mmH | 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) |
| 18H rrH | mmH | Drum Instrument Pitch Coarse (relative change) 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) rr: Drum Instrument note number 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 | mmH | 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) |
| 4FH 11H | mmH | Part 11 On / Off (Lower) [800] 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) |
| 4FH 13H | mmH | Part 6 On / Off (Upper 2) [800] mm: 00H - 7FH (00-3FH =Off - 40-7FH= On) |
| 4FH 14H | mmH | Part 16 On / Off (Man Drums) [800] mm: 00H - 7FH (00-3FH =Off - 40-7FH= On) |

- * Data entry LSB (llH) 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 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.

○ **RPN MSB/LSB** (Controller number 100,101)

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

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

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. 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 MSB LSB | Data entry MSB LSB | Explanation |
|-------------|--------------------|--|
| 00H 00H | mmH --- | Pitch Bend Sensitivity mm: 00H - 18H (0 - 24 semitones) Initial value = 02H (2 semitones) ll: ignored (processed as 00H) specify up to 2 octaves in semitone steps |
| 00H 01H | mmH llH | Master Fine Tuning mm,ll: 00 00H - 40 00H - 7F 7FH (-100.0-+99.99 cents) Refer to 5. Supplementary material, "About tuning". |
| 00H 02H | mmH --- | Master Coarse Tuning mm: 28H - 40H - 58H (-24 - 0 - +24 semitones) ll: 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

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

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

● **Channel Pressure**

Status 2nd byte
DnH vvH

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

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

- * 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)

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

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

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

● **Reset All Controllers** (Controller number 121)

Status 2nd byte 3rd 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 | 0 (off) |
| Channel Pressure | 0 (off) |
| Modulation | 0 (off) |
| Expression | 127 (max) |
| Hold 1 | 0 (off) |
| Portamento | 0 (off) |
| Sostenuto | 0 (off) |
| Soft | 0 (off) |
| RPN | unset; previously set data will not change |
| NRPN | unset; previously set data will not change |

● **All Notes Off** (Controller number 123)

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

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

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

● **OMNI OFF** (Controller number 124)

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

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 3rd byte
BnH 7EH mmH

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

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

● **POLY** (Controller number 127)

Status 2nd byte 3rd 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

○ Active Sensing

Status
FEH

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

○ Sequencer Start

Status
FAH

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

○ Sequencer Stop

Status
FCH

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

○ Sequencer Continue

Status
FBH

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

○ Timing Clock

Status
F8H

[800]

○ Song Position Pointer

Status 2nd byte 3rd byte
F2H XXH YYH

[800]

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

○ Song Select

Status 2nd byte
F3H XXH

[800]

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 |
|----------|---|
| Internal | 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

| Status | Data byte | Status |
|--------|--------------------|--------|
| F0H | iiH, ddH,eeH | F7H |

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

The System Exclusive Messages received by 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 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 | Data byte | Status |
|--------|--------------------|--------|
| F0H | 7EH, 7FH, 09H, 01H | F7H |

| Byte | Explanation |
|------|--|
| F0H | Exclusive status |
| 7EH | ID number (Universal Non-realtime Message) |
| 7FH | Device ID (Broadcast) |
| 09H | Sub ID#1 (General MIDI Message) |
| 01H | Sub ID#2 (General MIDI 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 message.

○ 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 1 initial state.

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

| Byte | Explanation |
|------|--|
| F0H | Exclusive status |
| 7EH | ID number (Universal Non-realtime Message) |
| 7FH | Device ID (Broadcast) |
| 09H | Sub ID#1 (General MIDI Message) |
| 02H | Sub ID#2 (General MIDI Off) |
| 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 |
|--------|---|--------|
| F0H | 41H, dev, 42H, 12H, 40H, 00H, 7FH, 00H, 41H | F7H |

| Byte | Explanation |
|------|--|
| F0H | Exclusive status |
| 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 message.

○ Exit GS Mode

"Exit GS Mode" is a command message that resets the internal settings of the unit to the Arranger Mode 1 initial state.

| Status | Data byte | Status |
|--------|---|--------|
| F0H | 41H, dev, 42H, 12H, 40H, 00H, 7FH, 7FH, 42H | F7H |

| Byte | Explanation |
|------|--|
| F0H | Exclusive status |
| 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 | Data byte | Status |
|--------|------------------------------|--------|
| F0H | 7FH, 7FH, 04H, 01H, 11H, mmH | F7H |

| Byte | Explanation |
|------|--|
| F0H | Exclusive status |
| 7FH | ID number (universal realtime message) |
| 7FH | Device ID (Broadcast) |
| 04H | Sub ID#1 (Device Control messages) |
| 01H | Sub ID#2 (Master Volume) |
| 11H | Master volume lower byte |
| mmH | Master volume upper byte |
| F7H | EOX (End Of Exclusive) |

* The lower byte (11H) 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.)

○ 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 |
|--------|---|--------|
| F0H | 41H, dev, 42H, 11H, aaH, bbH, ccH, ssH, ttH, uuH, sum | F7H |

| Byte | Explanation |
|------|--|
| F0H | 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 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.

* Regarding the checksum please refer to Section 4.

○ 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 | Data byte | Status |
|--------|--|--------|
| F0H | 41H, dev, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sum | F7H |

| Byte | Explanation |
|------|---|
| F0H | 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.

* 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 2. Transmit data

■ Channel voice messages

● Note off

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

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

● Note on

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| 9nH | kkH | vvH |

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

● Control Change

○ Bank Select (Controller number 0,32)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 00H | mmH |
| BnH | 20H | 11H |

[88]

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

ll=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).

○ Modulation (Controller number 1)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 01H | vvH |

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

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

○ Portamento Time (Controller number 5)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 05H | vvH |

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

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

○ Data Entry (Controller number 6,38)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 06H | mmH |
| BnH | 26H | 11H |

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

○ Pan (Controller number 10)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 0AH | vvH |

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

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

* The stereo position can be adjusted over 127 steps.

○ Expression (Controller number 11)

| Status | 2nd byte | 3rd byte |
|--------|----------|----------|
| BnH | 0BH | vvH |

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

* 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.

○ Hold 1 (Controller number 64)
 Status 2nd byte 3rd byte
 BnH 40H vvH
 n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

* Not 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)
 vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

○ Sostenuato (Controller number 66)
 Status 2nd byte 3rd byte
 BnH 42H vvH
 n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

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

○ Soft (Controller number 67)
 Status 2nd byte 3rd byte
 BnH 43H vvH
 n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

* Not 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 vvH
 n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Control value : 00H - 7FH (0 - 127) Initial value = 28H (40)

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

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

○ Effect 3 (Chorus Send Level) (Controller number 93)
 Status 2nd byte 3rd byte
 BnH 5DH vvH
 n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Control value : 00H - 7FH (0 - 127) Initial value = 00H (0)

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

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

* 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.

○ NRPN MSB/LSB (Controller number 98,99)
 Status 2nd byte 3rd byte
 BnH 63H mmH
 BnH 62H llH

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

* Not transmitted when NRPN TX Filter is On.

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 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.

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 entry | Function and range |
|---------|------------|---|
| MSB LSB | MSB | |
| 01H 08H | mmH | 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) |
| 01H 0AH | mmH | Vibrato Delay (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) |
| 01H 20H | mmH | TVF Cutoff Frequency (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) |
| 01H 21H | mmH | TVF Resonance (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63) |
| 01H 63H | mmH | 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) |
| 18H rrH | mmH | Drum Instrument Pitch Coarse (relative change) 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 Panpol (absolute change) rr: Drum Instrument note number 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 | mmH | 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) |
| 4FH 11H | mmH | Part 11 On / Off (Lower) [800] 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) |
| 4FH 13H | mmH | Part 6 On / Off (Upper 2) [800] mm: 00H - 7FH (00-3FH =Off - 40-7FH= On) |
| 4FH 14H | mmH | Part 16 On / Off (Man Drums) [800] mm: 00H - 7FH (00-3FH =Off - 40-7FH= On) |

* Data entry LSB (llH) 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.

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

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

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
mm=upper byte of parameter number specified by RPN
ll=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 | Explanation |
|---------|------------|--|
| MSB LSB | MSB LSB | |
| 00H 00H | mmH --- | Pitch Bend Sensitivity mm: 00H - 18H (0 - 24 semitones) Initial value = 02H (2 semitones) ll: ignored (processed as 00H) specify up to 2 octaves in semitone steps |
| 00H 01H | mmH llH | Master Fine Tuning mm, ll: 00 00H - 40 00H - 7F 7FH (-100.0-+99.99 cents) Refer to 5. Supplementary material, "About tuning". |
| 00H 02H | mmH --- | Master Coarse Tuning mm: 28H - 40H - 58H (-24 - 0 - +24 semitones) ll: 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

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

* Not transmitted when Program Change TX Filter is On.

● Pitch Bend Change

Status 2nd byte 3rd byte
EnH llH mmH

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

* Not transmitted when Pitch Bender TX Filter is On.

■ Channel Mode Messages

● All Sounds Off (Controller number 120)

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

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 | 0 (off) |
| Channel Pressure | 0 (off) |
| Modulation | 0 (off) |
| Expression | 127 (max) |
| Hold 1 | 0 (off) |
| Portamento | 0 (off) |
| Sostenuto | 0 (off) |
| Soft | 0 (off) |
| RPN | unset; previously set data will not change |
| NRPN | unset; previously set data will not change |

● MONO (Controller number 126)

Status 2nd byte 3rd byte
BnH 7EH mmH

n=MIDI channel 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)

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

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

* The corresponding channel will be set to Mode 3.

■ System Realtime Messages

○ Active Sensing

Status
FEH

Transmitted about every 250ms.

○ Sequencer Start [800]

Status
FAH

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

○ Sequencer Stop [800]

Status
FCH

* 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 [800]

Status
F8H

○ Song Position Pointer [800]

Status 2nd byte 3rd byte
F2H XXH YYH

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

○ Song Select [800]

Status 2nd byte
F3H XXH

XX = Song Number

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

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

■ System Exclusive Messages

| Status | Data byte | Status |
|-------------------|--------------------|--------|
| F0H | iiH, ddH,eeH | F7H |
| F0H | | |
| ii = ID number | | |
| dd,.....ee = data | | |
| F7H | | |

: 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).
 : 00H - 7FH (0 - 127)
 : 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

○ 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 | Data byte | Status |
|-------------|--|--------|
| F0H | 41H, dev, 42H, 12H, 40H, 00H, 7FH, 7FH, 42H | F7H |
| Byte | Explanation | |
| F0H | Exclusive status | |
| 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 | Address LSB | |
| 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

● Data transmission

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

○ 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 |
|-------------|--|--------|
| F0H | 41H, dev, 42H, 11H, aaH, bbH, ccH, ssH, ttH, uuH, sum | F7H |
| Byte | Explanation | |
| F0H | 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 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.

* Regarding the checksum please refer to Section 4.

○ 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 | Data byte | Status |
|-------------|---|--------|
| F0H | 41H, dev, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sum | F7H |
| Byte | Explanation | |
| F0H | 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.

* 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 [800] | LYRICS 1st Line Display |
| 7F 01 00 | 00 00 7F | 00 - 0F [800] | LYRICS 2nd Line Display |
| 7F 02 00 | 00 00 7F | 00 - 0F [800] | LYRICS 3rd Line Display |
| 7F 08 00 | 00 00 7F | 00 - 0F [800] | LYRICS 1st Line syllable Highlight |
| 7F 09 00 | 00 00 7F | 00 - 0F [800] | LYRICS 2nd Line syllable Highlight |
| 7F 0A 00 | 00 00 7F | 00 - 0F [800] | LYRICS 3rd Line syllable Highlight |

Lyrics data are sent in nibbles format:

```

Bit 7 = 0
Bit 6 = 0
Bit 5 = 0
Bit 4 = 0
Bit 3 =
Bit 2 =
Bit 1 =
Bit 0 =
    ] Data
  
```

Less significant nibble is sent first.

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

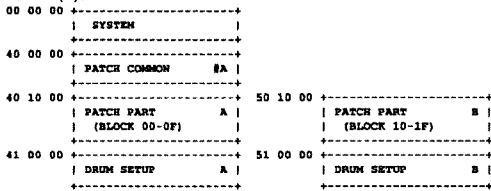
The address map for Individual Parameter Transmission is as follows.

<Model ID = 45H>

<Model ID = 42H>

● Port-A / B

Address(H)Block



▷ 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 = 42H>

| Address(H) | Size(H) | Data(H) | Parameter | Description | Default(H) | Description |
|--|----------|---------|--------------------------|-------------|------------|-------------|
| * Refer to "System exclusive messages related to Mode settings". | | | | | | |
| 00 01 00 | 00 00 01 | 00 - 01 | CHANNEL MSG RX PORT [88] | | | |
| | | | BLOCK00 | PORT A - B | 00 | PORT A |
| | | | | | | |
| 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 | 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

▷ Patch common parameters

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

* 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 | 00 00 01 | 28 - 58 | MASTER KEY-SHIFT | -24 - +24 [semitones] | 40 | 0[semitones] |
| 40 00 06 | 00 00 01 | 01 - 7F | MASTER PAN | -63 (LEFT) - +63 (RIGHT) | 40 | 0 (CENTER) |
| 40 00 7F | 00 00 01 | 00 | MODE SET (Rx. only) | 00 = GS Reset | | |

* Refer to "System exclusive messages related to Mode settings".

| | | | | | | |
|-----------|----------|---------|---------------------------|---------------------|----|--------|
| 40 01 00 | 00 00 10 | 20 - 7F | PATCH NAME | 16 ASCII Characters | | |
| 40 01 :# | | | | | | |
| 40 01 0F# | | | | | | |
| 40 01 30 | 00 00 01 | 0 - 07 | REVERB MACRO | 00: Room 1 | 04 | Hall 2 |
| | | | 01: Room 2 | | | |
| | | | 02: Room 3 | | | |
| | | | 03: Hall 1 | | | |
| | | | 04: Hall 2 | | | |
| | | | 05: Plate | | | |
| | | | 06: Delay | | | |
| | | | 07: Panning Delay | | | |
| 40 01 31 | 00 00 01 | 00 - 07 | REVERB CHARACTER | 0 - 7 | 04 | 04 |
| 40 01 32 | 00 00 01 | 00 - 07 | REVERB PRE-LPF | 0 - 7 | 00 | 00 |
| 40 01 33 | 00 00 01 | 00 - 7F | REVERB LEVEL | 0 - 127 | 40 | 64 |
| 40 01 34 | 00 00 01 | 00 - 7F | REVERB TIME | 0 - 127 | 40 | 64 |
| 40 01 35 | 00 00 01 | 00 - 7F | REVERB DELAY FEEDBACK | 0 - 127 | 00 | 00 |
| 40 01 37 | 00 00 01 | 00 - 7F | REVERB PREDELAY TIME [88] | 0 - 127[ms] | 00 | 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 | Description | 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] 0 - 7 | 0 | 0 |
| 40 01 52 | 00 00 01 | 01 - 73 | DELAY TIME CENTER | [88] 0.1ms - 1sec | 61 | 340 |
| 40 01 53 | 00 00 01 | 01 - 78 | DELAY TIME RATIO LEFT | [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 | DELAY LEVEL CENTER | [88] 0 - 127 | 7F | 127 |
| 40 01 56 | 00 00 01 | 00 - 7F | DELAY LEVEL LEFT | [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 | DELAY LEVEL | [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 00 | 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 |

○ 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 when using PORT A.

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 9 (default MIDich = 9) x=9 | Part12 (default MIDich =12) x=B |
| | Part 2 (default MIDich = 2) x=2 | Part10 (default MIDich =10) x=0 | : : : |
| | : : : | Part11 (default MIDich =11) x=A | 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 (H) | 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. VALUE 1 - 128 (Program number) | 00 | 1 |
| 40 1x 02 | 00 00 01 | 00 - 10 | Rx. CHANNEL | 1 - 16, OFF | 01 | Same as the Part Number |
| 40 1x 03 | 00 00 01 | 00 - 01 | Rx. PITCH BEND | OFF / ON | 01 | ON |
| 40 1x 04 | 00 00 01 | 00 - 01 | Rx. CH PRESSURE(CA) | 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(PA) | 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 "General MIDI System On" is received, Rx. NRPN will be set OFF. When "GS 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 | ON |
| 40 1x 12 | 00 00 01 | 00 - 01 | Rx. SOFT | OFF / ON | 01 | ON |

| | | | | | | |
|----------|----------|---------|----------------|---|--|--|
| 40 1x 13 | 00 00 01 | 00 - 01 | MONO/POLY MODE | 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 00 at x=0 01 at x=0 | LIMITED-MULTI 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 2 = MAP2 | 00 at x=0 01 at x=0 | OFF (Normal Par) MAP1 (Drum Part) |
|----------|----------|---------|---------------------|---------------------------------|------------------------|--------------------------------------|

* 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)).

| Address(H) | Size(H) | Data(H) | Parameter | Description | Default Value (H) | Description |
|---|----------|-----------------------|-----------------------|--|-------------------|-----------------|
| 40 1x 16 | 00 00 01 | 28 - 58 | PITCH KEY SHIFT | -24 - +24 [semitones] | 40 | 0 [semitones] |
| 40 1x 17 | 00 00 02 | 08 - F8 | PITCH OFFSET FINE | -12.0 - +12.0 [Hz] | 08 00 | 0 [Hz] |
| 40 1x 18# | | | | Use nibblized data. | | |
| 40 1x 19 | 00 00 01 | 00 - 7F | PART LEVEL | 0 - 127 (=CC# 7) | 64 | 100 |
| 40 1x 1A | 00 00 01 | 00 - 7F | VELOCITY SENSE DEPTH | 0 - 127 | 40 | 64 |
| 40 1x 1B | 00 00 01 | 00 - 7F | VELOCITY SENSE OFFSET | 0 - 127 | 40 | 64 |
| 40 1x 1C | 00 00 01 | 00 - 7F | PART PANPOT | -64(RANDOM), -63(LEFT) - +63(RIGHT) (=CC# 10, except RANDOM) | 40 | 0 (CENTER) |
| 40 1x 1D | 00 00 01 | 00 - 7F | KEY RANGE LOW | (C-1) - (G9) | 00 | C-1 |
| 40 1x 1E | 00 00 01 | 00 - 7F | KEY RANGE HIGH | (C-1) - (G9) | 7F | G 9 |
| 40 1x 1F | 00 00 01 | 00 - 5F | CC1 CONTROLLER NUMBER | 0 - 95 | 10 | 16 |
| 40 1x 20 | 00 00 01 | 00 - 5F | CC2 CONTROLLER NUMBER | 0 - 95 | 11 | 17 |
| 40 1x 21 | 00 00 01 | 00 - 7F | CHORUS SEND LEVEL | 0 - 127 (=CC# 93) | 00 | 0 |
| 40 1x 22 | 00 00 01 | 00 - 7F | REVERB SEND LEVEL | 0 - 127 (=CC# 91) | 28 | 40 |
| 40 1x 23 | 00 00 01 | 00 - 01 | Rx.BANK SELECT | OFF / ON | 01(00*) | ON(OFF*) |
| * When "General MIDI System On" is received, Rx.BANK SELECT will be set OFF. When "GS Reset" or "System Mode Set" is received, it will be set ON. | | | | | | |
| 40 1x 24 | 00 00 01 | 00 - 01 | RX BANK SELECT LSB | [88] OFF / ON | 01 | ON |
| * When RX BANK SELECT LSB = OFF, Bank Select LSB (Bn 20 11) will be treated as 00H regardless of its value. | | | | | | |
| 40 1x 2A | 00 00 02 | 00 00 - 40 00 - 7F 7F | PITCH FINE TUNE | [88] -100 - 0 - +100 cent (= RPN#1) | 0 | |
| 40 1x 2B# | | | | | | |
| 40 1x 2C | 00 00 01 | 00 - 7F | DELAY SEND LEVEL | [88] 0-127 (=CC# 94) | 00 | 0 |
| 40 1x 30 | 00 00 01 | 00 - 7F | TONE MODIFY1 | [88] -64 - +63 (=NRPN# 8) | 40 | 0 |
| 40 1x 31 | 00 00 01 | 00 - 7F | TONE MODIFY2 | [88] -64 - +63 (=NRPN# 9) | 40 | 0 |
| 40 1x 32 | 00 00 01 | 00 - 7F | TONE MODIFY3 | [88] -64 - +63 (=NRPN# 32) | 40 | 0 |
| 40 1x 33 | 00 00 01 | 00 - 7F | TONE MODIFY4 | [88] -64 - +63 (=NRPN# 33) | 40 | 0 |
| 40 1x 34 | 00 00 01 | 00 - 7F | TONE MODIFY5 | [88] -64 - +63 (=NRPN# 99) | 40 | 0 |
| 40 1x 35 | 00 00 01 | 00 - 7F | TONE MODIFY6 | [88] -64 - +63 (=NRPN# 100) | 40 | 0 |
| 40 1x 36 | 00 00 01 | 00 - 7F | TONE MODIFY7 | [88] -64 - +63 (=NRPN# 102) | 40 | 0 |
| 40 1x 37 | 00 00 01 | 00 - 7F | TONE MODIFY8 | [88] -64 - +63 (=NRPN# 10) | 40 | 0 |
| 40 1x 40 | 00 00 0C | 00 - 7F | SCALE TUNING C | -64 - +63 [cent] | 40 | 0 [cent] |
| 40 1x 41# | 00 - 7F | SCALE TUNING C# | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 42# | 00 - 7F | SCALE TUNING D | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 43# | 00 - 7F | SCALE TUNING D# | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 44# | 00 - 7F | SCALE TUNING E | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 45# | 00 - 7F | SCALE TUNING F | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 46# | 00 - 7F | SCALE TUNING F# | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 47# | 00 - 7F | SCALE TUNING G | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 48# | 00 - 7F | SCALE TUNING G# | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 49# | 00 - 7F | SCALE TUNING A | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 4A# | 00 - 7F | SCALE TUNING A# | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 4B# | 00 - 7F | SCALE TUNING B | -64 - +63 [cent] | 40 | 0 [cent] | |
| 40 1x 60 | 00 00 01 | 00 - 01 | SCALE TUNING Range C | 64 - 128 [cent] | 00 | 63 [cent] [800] |
| 40 1x 61 | 00 - 01 | SCALE TUNING Range C# | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 62 | 00 - 01 | SCALE TUNING Range D | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 63 | 00 - 01 | SCALE TUNING Range D# | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 64 | 00 - 01 | SCALE TUNING Range E | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 65 | 00 - 01 | SCALE TUNING Range F | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 66 | 00 - 01 | SCALE TUNING Range F# | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 67 | 00 - 01 | SCALE TUNING Range G | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 68 | 00 - 01 | SCALE TUNING Range G# | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 69 | 00 - 01 | SCALE TUNING Range A | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 6A | 00 - 01 | SCALE TUNING Range A# | 64 - 128 [cent] | 00 | 63 [cent] [800] | |
| 40 1x 6B | 00 - 01 | SCALE TUNING Range B | 64 - 128 [cent] | 00 | 63 [cent] [800] | |

Value 0 or 1

If you set the value 1, the scale tuning range is two times.

Example:

| 40 1x 40 | 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 [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] | 0A | 47 [cent] |
| 40 2x 05 | 00 00 01 | 00 - 7F | MOD LFO1 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 06 | 00 00 01 | 00 - 7F | MOD LFO1 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 07 | 00 00 01 | 00 - 7F | MOD LFO2 RATE CONTROL | -10.0 - +10.0 [Hz] | 40 | 0 [Hz] |
| 40 2x 08 | 00 00 01 | 00 - 7F | MOD LFO2 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 09 | 00 00 01 | 00 - 7F | MOD LFO2 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 0A | 00 00 01 | 00 - 7F | MOD LFO2 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 10 | 00 00 01 | 40 - 58 | BEND PITCH CONTROL | 0 - 24 [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 | BEND LFO1 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 15 | 00 00 01 | 00 - 7F | BEND LFO1 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 16 | 00 00 01 | 00 - 7F | BEND LFO1 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 17 | 00 00 01 | 00 - 7F | BEND LFO2 RATE CONTROL | -10.0 - +10.0 [Hz] | 40 | 0 [Hz] |
| 40 2x 18 | 00 00 01 | 00 - 7F | BEND LFO2 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 19 | 00 00 01 | 00 - 7F | BEND LFO2 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 1A | 00 00 01 | 00 - 7F | BEND LFO2 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 20 | 00 00 01 | 28 - 58 | CAI PITCH CONTROL | -24 - +24 [semitones] | 40 | 0 [semitones] |
| 40 2x 21 | 00 00 01 | 00 - 7F | CAI TVF 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 | CAI LFO1 RATE CONTROL | -10.0 - +10.0 [Hz] | 40 | 0 [Hz] |
| 40 2x 24 | 00 00 01 | 00 - 7F | CAI LFO1 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 25 | 00 00 01 | 00 - 7F | CAI LFO1 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 26 | 00 00 01 | 00 - 7F | CAI LFO1 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 27 | 00 00 01 | 00 - 7F | CAI LFO2 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 | 00 00 01 | 00 - 7F | PAI AMPLITUDE CONTROL | -100.0 - +100.0 [%] | 40 | 0 [%] |
| 40 2x 33 | 00 00 01 | 00 - 7F | PAI LFO1 RATE CONTROL | -10.0 - +10.0 [Hz] | 40 | 0 [Hz] |
| 40 2x 34 | 00 00 01 | 00 - 7F | PAI LFO1 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 35 | 00 00 01 | 00 - 7F | PAI LFO1 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 36 | 00 00 01 | 00 - 7F | PAI LFO1 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 37 | 00 00 01 | 00 - 7F | PAI LFO2 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 | PAI LFO2 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] |
| 40 2x 48 | 00 00 01 | 00 - 7F | CC1 LFO2 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 49 | 00 00 01 | 00 - 7F | CC1 LFO2 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 4A | 00 00 01 | 00 - 7F | CC1 LFO2 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 50 | 00 00 01 | 28 - 58 | CC2 PITCH CONTROL | -24 - +24 [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 | 00 00 01 | 00 - 7F | CC2 LFO1 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 56 | 00 00 01 | 00 - 7F | CC2 LFO1 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 2x 57 | 00 00 01 | 00 - 7F | CC2 LFO2 RATE CONTROL | -10.0 - +10.0 [Hz] | 40 | 0 [Hz] |
| 40 2x 58 | 00 00 01 | 00 - 7F | CC2 LFO2 PITCH DEPTH | 0 - 600 [cent] | 00 | 0 [cent] |
| 40 2x 59 | 00 00 01 | 00 - 7F | CC2 LFO2 TVF DEPTH | 0 - 2400 [cent] | 00 | 0 [cent] |
| 40 2x 5A | 00 00 01 | 00 - 7F | CC2 LFO2 TVA DEPTH | 0 - 100.0 [%] | 00 | 0 [%] |
| 40 4x 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 Reset" is received, this will be 00: SELECTED. | | | | | | |
| 40 4x 01 | 00 00 01 | 01 - 02 | TONE MAP-0 NUMBER [88] | 01: SC-55 MAP (Old) 02: G-800 MAP (New) | (02) | |
| * When TONE MAP NUMBER is 00, this specifies the MAP. This setting will not be reset when the power is turned on or when "GS Reset", "General MIDI System On" or "System Mode Set" is received. | | | | | | |
| 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

▷ 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 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
Size:    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
```

○ Instrument 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
-----|-----|-----|-----|
|CC0|MAP|PC|00| TONE NAME (ASCII 12 characters) |
-----|-----|-----|-----|
CC0 : Variation number
MAP : MAP number 01 = SC-55 MAP, 02 = G-800 MAP
PC : Program number
```

● Drum set list dump

○ 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 desired data contents.

```
Address: 0C 00 02
Size:    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 0C 00 02 for each packet.

```
DUMP FORMAT:
 0 1 2 3 4 5 6 7 8 9 A B C D E F
-----|-----|-----|-----|
|00|MAP|PC|00| DRUM TONE NAME (ASCII 12 characters) |
-----|-----|-----|-----|
MAP : MAP number 01 = SC-55 MAP, 02 = G-800 MAP
PC : Program number
```

● 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#)
```

○ 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
-----|-----|-----|-----|
|00|MAP|PC|KEY| DRUM TONE NAME (ASCII 12 characters) |
-----|-----|-----|-----|
MAP : MAP number 01 = SC-55 MAP, 02 = G-800 MAP
PC : Program number
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 how these correspond to decimal numbers.

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

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

* A 7-bit byte can express data in the range of 128 steps. For data where greater precision is required, we must use two or more bytes. For example, two hexadecimal numbers aa bbH expressing two 7-bit bytes would indicate a value of aa x 128 + bb.

* In the case of values which have a ± sign, 00H = -64, 40H = ± 0, and 7FH = +63, so that the decimal expression would be 64 less than the value given in the above chart. In the case of two types, 00 00H = -8192, 40 00H = ± 0, and 7F 7FH = +8191. For example if aa bbH were expressed as decimal, this would be aa bbH - 40 00H = aa x 128 + bb - 64 x 128.

* Data marked "nibbled" is expressed in hexadecimal in 4-bit units. A value expressed as a 2-byte nibble 0a 0bH has the value of a x 16 + b.

<Example 1> What is the decimal expression of 5AH ?
From the preceding 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 preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13
((10 x 16 + 3) x 16 + 9) x 16 + 13 = 41885

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

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

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

● **Examples of actual MIDI messages**

<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

$$28\ 00H - 40\ 00H = 40 \times 128 + 0 - (64 \times 128 + 0) = 5120 - 8192 = -3072$$

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.

| | | | |
|------|-------|--|-------|
| 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 | : 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 0C 00H for RPN parameter number 00 00H on MIDI channel 4, and then set the RPN parameter number to 7F 7FH.

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

* TPQN : Ticks Per Quarter Note

● **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 or size is dd ee fH.

$$\begin{aligned} aa + bb + cc + dd + ee + ff &= \text{sum} \\ \text{sum} \div 128 &= \text{quotient} \dots \text{remainder} \\ 128 - \text{remainder} &= \text{checksum} \end{aligned}$$

<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,

| | | | | | | | | |
|-----|-----|-----|-----|-----|----------|------|----------|-----|
| FD | 41 | 10 | 42 | 12 | 40_01_30 | 02 | 22 | F7 |
| (1) | (2) | (3) | (4) | (5) | address | data | checksum | (6) |

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

Next we calculate the checksum.

$$\begin{aligned} 40H + 01H + 30H + 02H &= 64 + 1 + 48 + 2 = 115(\text{sum}) \\ 115(\text{sum}) \div 128 &= 0(\text{quotient}) \dots 115(\text{remainder}) \\ \text{checksum} &= 128 - 115(\text{remainder}) = 13 = 0DH \end{aligned}$$

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,

| | | | | | | | | |
|-----|-----|-----|-----|-----|----------|----------|----------|-----|
| FD | 41 | 10 | 42 | 11 | 41_02_4B | 00_00_01 | 22 | F7 |
| (1) | (2) | (3) | (4) | (5) | address | size | checksum | (6) |

| | | |
|----------------------|----------------------|----------------------|
| (1) Exclusive Status | (2) ID (Roland) | (3) Device ID (17) |
| (4) Model ID (GS) | (5) Command ID (RQ1) | (6) End of Exclusive |

Next we calculate the checksum.

$$\begin{aligned} 41H + 02H + 4BH + 00H + 00H + 01H &= 65 + 2 + 75 + 0 + 0 + 1 = 143(\text{sum}) \\ 143(\text{sum}) \div 128 &= 1(\text{quotient}) \dots 15(\text{remainder}) \\ \text{checksum} &= 128 - 15(\text{remainder}) = 113 = 71H \end{aligned}$$

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

● **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.

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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

$$28\ 00H - 40\ 00H = 40 \times 128 + 0 - (64 \times 128 + 0) = 5120 - 8192 = -3072$$

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.

| | | | |
|------|-------|--|-------|
| 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 | : 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 0C 00H for RPN parameter number 00 00H on MIDI channel 4, and then set the RPN parameter number to 7F 7FH.

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

* TPQN : Ticks Per Quarter Note

● **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 or size is dd ee fH.

$$\begin{aligned} aa + bb + cc + dd + ee + ff &= \text{sum} \\ \text{sum} \div 128 &= \text{quotient} \dots \text{remainder} \\ 128 - \text{remainder} &= \text{checksum} \end{aligned}$$

<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

| | | | | | | | | |
|-----|-----|-----|-----|-----|----------|------|----------|-----|
| E0 | 41 | 10 | 42 | 12 | 40_01_30 | 02 | 22 | F7 |
| (1) | (2) | (3) | (4) | (5) | address | data | checksum | (6) |

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

Next we calculate the checksum.

$$\begin{aligned} 40H + 01H + 30H + 02H &= 64 + 1 + 48 + 2 = 115(\text{sum}) \\ 115(\text{sum}) \div 128 &= 0(\text{quotient}) \dots 115(\text{remainder}) \\ \text{checksum} &= 128 - 115(\text{remainder}) = 13 = 0DH \end{aligned}$$

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.

| | | | | | | | | |
|-----|-----|-----|-----|-----|----------|----------|----------|-----|
| E0 | 41 | 10 | 42 | 11 | 41_02_4B | 00_00_01 | 22 | F7 |
| (1) | (2) | (3) | (4) | (5) | address | size | checksum | (6) |

(1) Exclusive Status (2) ID (Roland) (3) Device ID (17)
 (4) Model ID (GS) (5) Command ID (RQ1) (6) End of Exclusive

Next we calculate the checksum.

$$\begin{aligned} 41H + 02H + 4BH + 00H + 00H + 01H &= 65 + 2 + 75 + 0 + 0 + 1 = 143(\text{sum}) \\ 143(\text{sum}) \div 128 &= 1(\text{quotient}) \dots 15(\text{remainder}) \\ \text{checksum} &= 128 - 15(\text{remainder}) = 113 = 71H \end{aligned}$$

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

● **About tuning**

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

In MIDI, an entire device is tuned by either sending RPN #1 to all MIDI channels being used, or by sending a System Exclusive MASTER TUNE (address 40 00 00H).

RPN #1 allows tuning to be specified in steps of approximately 0.012 cents (to be precise, 100/8192 cent), and System Exclusive MASTER TUNE allows tuning in steps of 0.1 cent. One cent is 1/100th of a semitone.

The values of RPN #1 (Master Fine Tuning) and System Exclusive MASTER TUNE are added together to determine the actual pitch sounded by each Part.

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

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

<Example 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 \uparrow 0, so +23.4 cent would be $234 \div 1024 = 1258$, and when this is nibbled it would be 00 04 0E 0AH.

| E0 | 41 | 10 | 42 | 12 | 40_00_00 | 00_04_0E_0A | 22 | E7 |
|---------------------|----------------|-------------------|------------------|---------------------|---------------------|-------------|----------|-----|
| (1) | (2) | (3) | (4) | (5) | address | data | checksum | (6) |
| (1)Exclusive Status | (2)ID (Roland) | (3)Device ID (17) | (4)Model ID (GS) | (5)Command ID (DT1) | (6)End of Exclusive | | | |

Next we calculate the checksum.
 $40H + 00H + 00H + 00H + 04H + 0EH + 0AH = 64 + 0 + 0 + 0 + 4 + 14 + 10 = 92(\text{sum})$
 $92(\text{sum}) \div 128 = 0(\text{quotient}) \dots 92(\text{remainder})$
checksum = $128 - 92(\text{remainder}) = 36 = 24H$

This means that F0 41 10 42 12 40 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 below.

○ **Equal Temperament**

This method of tuning divides the octave into 12 equal parts. It is currently the most widely used form of tuning, especially in occidental music. On 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 which C is the keytone.

○ **Arabian Scale**

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

Example Settings

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

The values in the table are given in cents.

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

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

MIDI IMPLEMENTATION CHART

[ARRANGER WORKSTATION] (Sound Module, Keyboard Section, SMF Player)
Model: G-800

Date: 2 May 1995
Version: 1.00

| 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 | | |
| Velocity | Note ON Note OFF | O X | *1 O X | | |
| After Touch | Key's Ch's | X X | O O | *1 *1 | |
| Pitch Bend | | O | *1 O | *1 | |
| Control Change | 0,32 | O | *1 O | *1 *1 | Bank Select Modulation |
| | 1 | O | *1 O | *1 O | Portamento Time |
| | 5 | O | *1 O | *1 O | Data Entry |
| | 6, 38 | O | *1 O | *1 O | Volume |
| | 7 | O | *1 O | *1 O | Panpot |
| | 10 | O | *1 O | *1 O | Expression |
| | 11 | O | *1 O | *1 O | Hold 1 |
| | 64 | O | *1 O | *1 O | Portamento |
| | 65 | O | *1 O | *1 O | Sostenuto |
| | 66 | O | *1 O | *1 O | Soft |
| | 67 | O | *1 O | *1 O | Portamento Control |
| | 84 | O | *1 O | *1 O (Reverb) | *1 Effect 1 Depth |
| | 91 | O | *1 O | *1 O (Chorus) | *1 Effect 3 Depth |
| | 93 | O | *1 O | *1 O (Delay) | *1 Effect 4 Depth |
| | 94 | O | *1 O | *1 O | *1 NRPN LSB, MSB |
| 98, 99 | O | *1 O | *1 O | *1 RPN LSB, MSB | |
| 100, 101 | O | *1 O | *1 O | *1 All Sound Off | |
| 120 | O | *1 O | *1 O | *1 Reset All Controllers | |
| 121 | O | *1 O | *1 O | | |
| Program Change | True # | O ***** | *1 O 0-127 | *1 Program Number 1-128 | |
| System Exclusive | | O | O | | |
| System Common | Song Pos | O | *1 O | *1 O | |
| | Song Sel | O | *1 O | *1 O | |
| | Tune | X | X | X | |
| System Real Time | Clock Commands | O O | *1 *1 O O | *1 *1 MIDI File Record/Play | |
| Aux Messages | Local On/Off All Notes Off Active Sense Reset | O X O X | *1 O O O X O (123-125) | | |
| 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

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G-800

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