

MIDI IMPLEMENTATION

Model: AT-20R/30R
Date: Feb.1.1999
Version: 1.01

1. Receive data

■ Channel Voice Messages

● Note off

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

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

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

● Note on

Status	2nd bytes	3rd byte
9nH	kkH	vvH

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

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

● Polyphonic Key Pressure

Status	2nd bytes	3rd byte
AnH	kkH	vvH

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

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

● Control Change

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

○ Bank Select (Controller number 0, 32)

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

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

- * Not received when Rx.BANK SELECT = OFF. "Rx.BANK SELECT" is set to OFF by "Turn General MIDI System On," and set to ON by "GS RESET." (Power-on default value is ON.)
- * 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.
- * Not Received in Keyboard Part.

○ Modulation (Controller number 1)

Status	2nd bytes	3rd byte
BnH	01H	vvH

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

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

○ Portamento Time (Controller number 5)

Status	2nd bytes	3rd byte
BnH	05H	vvH

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

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

○ Data Entry (Controller number 6, 38)

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

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

○ Volume (Controller number 7)

Status	2nd bytes	3rd byte
BnH	07H	vvH

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

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

○ Pan (Controller number 10)

Status	2nd bytes	3rd byte
BnH	0AH	vvH

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

- * For Rhythm Parts, this is a relative adjustment of each Instrument's pan setting.
- * Not received when Rx.PANPOT = OFF. (Initial value is ON)
- * Not Received in Keyboard Part.

○ Expression (Controller number 11)

Status	2nd bytes	3rd byte
BnH	0BH	vvH

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

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

○ Glide (Controller number 16)

Status	2nd bytes	3rd byte
BnH	10H	vvH

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

- * It can be used on only keyboard part. Not received on GS part.

○ Hold 1 (Controller number 64)

Status	2nd bytes	3rd byte
BnH	40H	vvH

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

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

○ Portamento (Controller number 65)

Status	2nd bytes	3rd byte
BnH	41H	vvH

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

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

○ **Sostenuto (Controller number 66)**

Status	2nd bytes	3rd byte
BnH	42H	vvH

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

- * Not received when Rx.SOSTENUTO = OFF. (Initial value is ON)
- * Not Received in Keyboard Part.

○ **Soft (Controller number 67)**

Status	2nd bytes	3rd byte
BnH	43H	vvH

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

- * Not received when Rx.SOFT = OFF. (Initial value is ON)
- * Not Received in Keyboard Part.

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

Status	2nd bytes	3rd byte
BnH	54H	kkH

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

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

Example 1.

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

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

Status	2nd bytes	3rd byte
BnH	5BH	vvH

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

- * This message adjusts the Reverb Send Level of each Part.
- * Not Received in Keyboard Part.

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

Status	2nd bytes	3rd byte
BnH	5DH	vvH

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

- * This message adjusts the Chorus Send Level of each Part.
- * Not Received in Keyboard Part.

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

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

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

- * NRPN can be received when Rx.NRPN = ON. "Rx.NRPN" is set to OFF by power-on reset or by receiving "Turn General MIDI System On," and it is set to ON by "GS RESET."
- * The value set by NRPN will not be reset even if Program Change or Reset All Controllers is received.
- * Not Received in Keyboard Part.

NRPN

The NRPN (Non Registered Parameter Number) message allows an extended range of control changes to be used. To use these messages, you must first use NRPN MSB and NRPN LSB messages to specify the parameter to be controlled, and then use Data Entry messages to specify the value of the specified parameter. Once an NRPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN Number = 7FH/7FH) when you have finished setting the value of the desired parameter. Refer to Section 4. Supplementary material "Examples of actual MIDI messages" <Example 4> (p. 13). On the GS devices, Data entry LSB (llH) of NRPN is ignored, so it is no problem to send Data entry MSB (mmH) only (without Data entry LSB).

On the AT-20R/30R, NRPN can be used to modify the following parameters.

NRPN	Data entry	Description
<u>MSB LSB</u>	<u>MSB</u>	<u>Description</u>
01H 08H	mmH	Vibrato rate (relative change on specified channel) mm:0EH-40H-72H(-50 - 0 - +50)
01H 09H	mmH	Vibrato depth (relative change on specified channel) mm:0EH-40H-72H(-50 - 0 - +50)
01H 0AH	mmH	Vibrato delay (relative change on specified channel) mm:0EH-40H-72H(-50 - 0 - +50)
01H 20H	mmH	TVF cutoff frequency (relative change on specified channel) mm:0EH-40H-72H(-50 - 0 - +50)
01H 21H	mmH	TVF resonance (relative change on specified channel) mm:0EH-40H-72H(-50 - 0 - +50)
01H 63H	mmH	TVF&TVA Env.Attack time (relative change on specified channel) mm:0EH-40H-72H(-50 - 0 - +50)
01H 64H	mmH	TVF&TVA Env.Decay time (relative change on specified channel) mm:0EH-40H-72H(-50 - 0 - +50)
01H 66H	mmH	TVF&TVA Env.Release time (relative change on specified channel) mm:0EH-40H-72H(-50 - 0 - +50)
18H rrH	mmH	Pitch coarse of drum instrument (relative change on specified drum instrument) rr : key number of drum instrument mm:00H-40H-7FH(-63 - 0 - +63 semitone)
1AH rrH	mmH	TVA level of drum instrument (absolute change on specified drum instrument) rr : key number of drum instrument mm:00H-7FH(zero-maximum)
1CH rrH	mmH	Panpot of drum instrument (absolute change on specified drum instrument) rr : key number of drum instrument mm:00H, 01H-40H-7FH(Random, Left-Center-Right)
1DH rrH	mmH	Reverb send level of drum instrument (absolute change on specified drum instrument) rr : key number of drum instrument mm: 01H-7FH(zero-maximum)
1EH rrH	mmH	Chorus send level of drum instrument (absolute change on specified drum instrument) rr : key number of drum instrument mm: 01H-7FH(zero-maximum)

- * Parameters marked "relative change" will change relative to the preset value.
- * Parameters marked "absolute change" will be set to the absolute value of the parameter, regardless of the preset value.

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

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

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

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

RPN

The RPN (Registered Parameter Number) messages are expanded control changes, and each function of an RPN is described by the MIDI Standard.
 To use these messages, you must first use RPN MSB and RPN LSB messages to specify the parameter to be controlled, and then use Data Entry messages to specify the value of the specified parameter. Once an RPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN Number = 7FH/7FH) when you have finished setting the value of the desired parameter. Refer to Section 4. "Examples of actual MIDI messages" <Example 4> (p. 13).

On the AT-20R/30R, RPN can be used to modify the following parameters.

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

●Program Change

Status	2nd bytes
CnH	ppH

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

- * Not received when Rx.PROGRAM CHANGE = OFF. (Initial value is ON)
- * After a Program Change message is received, the sound will change beginning with the next Note-on. Voices already sounding when the Program Change message was received will not be affected.
- * For Drum Parts, Program Change messages will not be received on bank numbers 129-16384 (the value of Control Number 0 is other than 0 (00H)).
- * When MIDI-IN Mode = Mode-2, it should be used System Exclusive messages to change the voice of keyboard part. (p. 8)
- * Not Received in Keyboard Part.

●Channel Pressure

Status	2nd bytes
DnH	vvH

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

- * Not received when Rx.CH PRESSURE (CA) = OFF. (Initial value is ON)
- * The resulting effect is determined by System Exclusive messages. With the initial settings there will be no effect. The initial setting of Keyboard part id Vibrato depth. It can not be changed.

●Pitch Bend Change

Status	2nd byte	3rd bytes
EnH	llH	mmH

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

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

■Channel Mode Messages

●All Sounds Off (Controller number 120)

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

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

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

●Reset All Controllers (Controller number 121)

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

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

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

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

●All Notes Off (Controller number 123)

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

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

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

●OMNI OFF (Controller number 124)

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

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

- * The same processing will be carried out as when All Notes Off is received.
- * Not Received in Keyboard Part.

●OMNI ON (Controller number 125)

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

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

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

●MONO (Controller number 126)

Status	2nd byte	3rd bytes
BnH	7EH	mmH

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

- * The same processing will be carried out as when All Sounds Off and All Notes Off is received, and the corresponding channel will be set to Mode 4 (M = 1) regardless of the value of "mono number."
- * Not Received in Keyboard Part.

●POLY (Controller number 127)

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

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

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

■System Realtime Message

●Active Sensing

Status
FEH

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

■System Exclusive Message

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

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

The System Exclusive Messages received by the AT-20R/30R are; messages related to mode settings, Universal Realtime System Exclusive messages and Data Set (DT1).

●System exclusive messages related to mode settings

These messages are used to initialize a device to GS or General MIDI mode, or change the operating mode. When creating performance data, a "Turn General MIDI System On" message should be inserted at the beginning of a General MIDI score, and a "GS Reset" message at the beginning of a GS music data. Each song should contain only one mode message as appropriate for the type of data. (Do not insert two or more mode setting messages in a single song.)

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

○Turn General MIDI System On

This is a command message that resets the internal settings of the unit to the General MIDI initial state (General MIDI System-Level 1). After receiving this message AT-20R/30R, 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.
- * Not Received in Keyboard Part.

○General MIDI System Off

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

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

- * There must be an interval of at least 50 ms between this message and the next.
- * Not Received in Keyboard Part.

○GS reset

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

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

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

- * When this message is received, Rx.NRPN will be ON.
- * There must be an interval of at least 50 ms between this message and the next.
- * Not Received in Keyboard Part.

○Exit GS mode

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

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
10H	Device ID
42H	Model ID (GS)
12H	Command ID (DT1)
40H	Address MSB
00H	:
7FH	Address LSB
7FH	Data (Exit GS mode)
42H	Checksum
F7H	EOX (End of exclusive)

- * There must be an interval of at least 50 ms between this message and the next.
- * Not Received in Keyboard Part.

●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.

●Universal Nonrealtime System Exclusive Messages

○Identity Request Message

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

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

* The "dev" is own device number or 7FH (Broadcast)

●Data transmission

AT-20R/30R can receive the various parameters using System Exclusive messages. The exclusive message of GS format data has a model ID of 42H and a device ID of 10H (17), and it is common to all the GS devices. When keyboard part in MIDI-IN Mode: Mode-2, the exclusive message has a model ID of 62H and a device ID of 10H (17).

○Data set 1DT1

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

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

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
10H	Device ID
iiH	Model ID (GS Part:42H, Keyboard Part:62H)
12H	Command ID (DT1)
aaH	Address MSB: upper byte of the starting address of the transmitted data
bbH	Address: middle byte of the starting address of the transmitted data
ccH	Address LSB: lower byte of the starting address of the transmitted data
ddH	Data: the actual data to be transmitted. Multiple bytes of data are transmitted starting from the address.
:	
:	
eeH	Data
sum	Checksum
F7H	EOX (End Of Exclusive)

- * The amount of data that can be transmitted at one time depends on the type of data, and data can be received only from the specified starting address and size. Refer to the Address and Size given in Section 3 (p. 7).
- * Data larger than 128 bytes must be divided into packets of 128 bytes or less. If "Data Set 1" is transmitted successively, there must be an interval of at least 40 ms between packets.
- * Regarding the checksum please refer to section 4 (p. 14).

2. Transmit data

Arranger and composer data can not be transmitted.

■Channel Voice Messages

●Note off

○Upper Keyboard

Status	2nd byte	3rd byte
8nH	kkH	40H

n = MIDI channel number : 0H-FH (ch.1-ch.16)
 : Initial Value = CH (ch.13)
 kk = note number : 30H-67H (48-103)

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

○Lower Keyboard

Status	2nd byte	3rd byte
8nH	kkH	40H

n = MIDI channel number : 0H-FH (ch.1-ch.16)
 : Initial Value = BH (ch.12)
 kk = note number : 1CH-67H (28-103)

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

○Bass Pedalboard

Status	2nd byte	3rd byte
8nH	kkH	40H

n = MIDI channel number : 0H-FH (ch.1-ch.16)
 : Initial Value = DH (ch.14)
 kk = note number : 24H-3CH (36-60)

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

●Note on

○Upper Keyboard

Status	2nd bytes	3rd byte
9nH	kkH	vvH

n = MIDI channel number : 0H-FH (ch.1-ch.16)
 : Initial Value = CH (ch.13)
 kk = note number : 30H-67H (48-103)
 vv = note on velocity : 01H-7FH (1-127)

○Lower Keyboard

Status	2nd bytes	3rd byte
9nH	kkH	vvH

n = MIDI channel number : 0H-FH (ch.1-ch.16)
 : Initial Value = BH (ch.12)
 kk = note number : 1CH-67H (28-103)
 vv = note on velocity : 01H-7FH (1-127)

○Bass Pedalboard

Status	2nd bytes	3rd byte
9nH	kkH	vvH

n = MIDI channel number : 0H-FH (ch.1-ch.16)
 : Initial Value = BH (ch.12)
 kk = note number : 24H-3CH (36-60)
 vv = note on velocity : 01H-7FH (1-127)

●Control Change

○Bank Select (Controller number 0, 32)

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

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

○Expression (Controller number 11)

Status	2nd bytes	3rd byte
BnH	0BH	vvH
BnH	2BH	00H

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

○Hold 1 (Controller number 64)

Status	2nd bytes	3rd byte
BnH	40H	vvH

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

●Program Change

Status	2nd bytes
CnH	ppH

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

■System Realtime Message

●Realtime Clock

Status
F8H

●Start

Status
FAH

●Continue

Status
FBH

●Stop

Status
FCH

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

■System exclusive messages

○Identity Reply (MIDI-In Mode: Mode-1)

Status	Data byte	Status
F0H	7Eh, 10H, 06H, 02H, 41H, 42H, 00H, 05H, 03H, 00H(01H), 01H, 00H, 00H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (universal non-realtime message)
10H	Device ID (use the same as the device ID of Roland)
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
42H	Device family code (LSB)
00H	Device family code (MSB)
05H	Device family number code (LSB)
03H	Device family number code (MSB)
00H/01H	Software revision level (AT-20R:00H, AT-30R:01H)
01H	Software revision level
00H	Software revision level
00H	Software revision level
F7H	EOX (End of Exclusive)

○Identity Reply (MIDI-In Mode: Mode-2)

Status	Data byte	Status
F0H	7Eh, 10H, 06H, 02H, 41H, 62H, 00H, 00H, 00H, 00H(01H), 01H, 00H, 00H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (universal non-realtime message)
10H	Device ID (use the same as the device ID of Roland)
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
62H	Device family code (LSB)
00H	Device family code (MSB)
00H	Device family number code (LSB)
00H	Device family number code (MSB)
00H/01H	Software revision level (AT-20R:00H, AT-30R:01H)
01H	Software revision level
00H	Software revision level
00H	Software revision level
F7H	EOX (End of Exclusive)

3. Parameter Address Map

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

■Address Block map(GS Part: Model ID = 42H)

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

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

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

■Individual Parameters

Individual Parameter Transmission transmits data (or requests data) for one parameter as one exclusive message (one packet of "F0 F7").

In Individual Parameter Transmission, you must use the Address and Size listed in the following "Parameter Address Map." Addresses marked at "#" cannot be used as starting addresses.

●System Parameters (Keyboard Part: Model ID = 62H)

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

00 00 00	00 00 01	00-07	REVERB MACRO	00: Room 1 01: Room 2 02: Room 3 03: Hall 1 04: Hall 2 05: Plate 06: Delay 07: Panning Delay	04	Hall 2
00 00 01#	00 00 01	00-7F	REVERB LEVEL	0-127	40	64
00 00 02	00 00 01	00-01	ROTARY ON/OFF	00:OFF/01:ON	01	ON
00 00 03	00 00 01	00-01	ROTARY SLOW/FAST	00:SLOW/01:FAST	01	Fast
00 00 20	00 00 01	00-01	CHORD INTELLIGENCE	00:OFF/01:ON	00	OFF
00 00 21	00 00 01	00-01	CHORD HOLD	00:OFF/01:ON	00	OFF
00 00 22	00 00 01	00-01	LEADING BASS	00:OFF/01:ON	00	OFF
00 00 23	00 00 01	00-7F	ACCOMP VOLUME	0-127	64	
00 00 24	00 00 01	00-7F	ACCOMP REVERB DEPTH	0-127	40	
00 00 25	00 00 01	00-7F	ACCOMP RHYTHM VOLUME	0-127	64	
00 00 26	00 00 01	00-7F	ACCOMP RHYTHM REVERB	0-127	40	
00 00 27	00 00 01	00-7F	ACCOMP BASS VOLUME	0-127	64	
00 00 28	00 00 01	00-7F	ACCOMP BASS REVERB	0-127	40	

●Part Parameters (Keyboard Part: Model ID = 62H)

○Upper Part Information

01 00 03	00 00 01	00-01	UPPER SUSTAIN SWITCH	00:OFF/01:ON	00	OFF
01 00 04	00 00 01	00-02	UPPER SUSTAIN LENGTH	00:SHORT 01:MIDDLE 02:LONG	02	LONG

p...PART NUMBER (0-2),

Organ Part p = 1
Symphonic Part p = 2 (AT-30R)
Orchestral Part p = 3

01 0p 00	00 00 01	00-01	MUTE	00:OFF/01:MUTE	00	OFF
01 0p 01	00 00 03	00-7F	TONE NUMBER	P.C. VALUE	00	
01 0p 02#		00-7F	BANK SELECT MSB	CC#20 VALUE	00	
01 0p 03#		00-7F	BANK SELECT LSB	CC#00 VALUE	00	
01 0p 04	00 00 01	00-7F	VOLUME	0-127	64	
01 0p 05	00 00 01	00-7F	REVERB DEPTH	0-127	40	
01 0p 06	00 00 01	00-01	CHORUS SWITCH	00:0FF/01:ON	00	OFF
01 0p 07	00 00 01	28-58	KEY SHIFT	-24 - +24	40	

○Lower Part Information

01 10 00	00 00 01	00-01	LOWER HOLD	00:OFF/01:ON	00	OFF
01 10 03	00 00 01	00-01	LOWER SUSTAIN SWITCH	00:OFF/01:ON	00	OFF
01 10 04	00 00 01	00-02	LOWER SUSTAIN LENGTH	00:SHORT 01:MIDDLE 02:LONG	01	MIDDLE

p...PART NUMBER (0-2),

Organ Part p = 1
Symphonic Part p = 2 (AT-30R)
Orchestral Part p = 3

01 1p 00	00 00 01	00-01	MUTE	00:OFF/01:MUTE	00	OFF
01 1p 01	00 00 03	00-7F	TONE NUMBER	P.C. VALUE	00	
01 1p 02#		00-7F	BANK SELECT MSB	CC#20 VALUE	00	
01 1p 03#		00-7F	BANK SELECT LSB	CC#00 VALUE	00	
01 1p 04	00 00 01	00-7F	VOLUME	0-127	64	
01 1p 05	00 00 01	00-7F	REVERB DEPTH	0-127	40	
01 1p 06	00 00 01	00-01	CHORUS SWITCH	00:0FF/01:ON	00	OFF
01 1p 07	00 00 01	28-58	KEY SHIFT	-24 - +24	40	

○Pedal Bass Part Information

01 20 00	00 00 01	00-01	PEDAL BASS HOLD	00:OFF/01:ON	00	OFF
01 20 01	00 00 01	00-01	PEDAL BASS MODE	00:MONO/01:POLY	00	MONO
01 20 03	00 00 01	00-01	PEDAL SUSTAIN SWITCH	00:OFF/01:ON	01	ON
01 20 04	00 00 01	00-02	PEDAL SUSTAIN LENGTH	00:SHORT 01:MIDDLE 02:LONG	01	MIDDLE

01 21 00	00 00 01	00-01	MUTE	00:OFF/01:MUTE	00	OFF
01 21 01	00 00 03	00-7F	TONE NUMBER	P.C. VALUE	00	
01 21 02#		00-7F	BANK SELECT MSB	CC#20 VALUE	00	
01 21 03#		00-7F	BANK SELECT LSB	CC#00 VALUE	00	
01 21 04	00 00 01	00-7F	VOLUME	0-127	64	
01 21 05	00 00 01	00-7F	REVERB DEPTH	0-127	40	
01 21 07	00 00 01	28-58	KEY SHIFT	-24 - +24	40	

○Solo Part Information

01 30 01	00 00 01	00-01	SOLO MODE	00:MONO/01:POLY	00	MONO
01 30 02	00 00 01	00-01	SOLO TYPE	00:TOPNOTE/01:LASTNOTE	00	TOP NOTE
01 31 00	00 00 01	00-01	MUTE	00:OFF/01:MUTE	00	OFF
01 31 01	00 00 03	00-7F	TONE NUMBER	P.C. VALUE	00	
01 31 02#		00-7F	BANK SELECT MSB	CC#20 VALUE	00	
01 31 03#		00-7F	BANK SELECT LSB	CC#00 VALUE	00	
01 31 04	00 00 01	00-7F	VOLUME	0-127	64	
01 31 05	00 00 01	00-7F	REVERB DEPTH	0-127	40	
01 31 07	00 00 01	28-58	KEY SHIFT	-24 - +24	40	

○Manual Drum Part Information

01 41 00	00 00 01	00-01	MUTE	00:OFF/01:MUTE	00	OFF
01 41 01	00 00 03	00-7F	RHYTHM SET NUMBER	P.C. VALUE	00	
01 41 02#		00-7F	BANK SELECT MSB	CC#20 VALUE	00	
01 41 03#		00-7F	BANK SELECT LSB	CC#00 VALUE	00	
01 41 04	00 00 01	00-7F	VOLUME	0-127	64	
01 41 05	00 00 01	00-7F	REVERB DEPTH	0-127	40	

●System Parameters (GS Part: Model ID = 42H)

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

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 00 00	00 00 04	0018-07E8	MASTER TUNE	-100.0 - +100.0 [cent]	00 04 00 00	0 [cent]
40 00 01#			Use nibblized data.			
40 00 02#						
40 00 03#						
* Refer to section 4. Supplementary material, "About tuning" (p. 14).						
40 00 04	00 00 01	00-7F	MASTER VOLUME		0-127	7F 127
					(= F0 7F 7F 04 01 00 vv F7)	
40 00 05	00 00 01	28-58	MASTER KEY-SHIFT		-24 - +24 [semitones]	40 0 [semitones]
40 00 06	00 00 01	01-7F	MASTER PAN		-63 (LEFT) - +63 (RIGHT)	40 0 (CENTER)
40 00 7F	00 00 01	00	MODE SET		00 = GS Reset	
					(Rx. only)	127 = Exit GS ***

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

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

* The sum total of voices in the voice reserve function must be equal to or less than the number of the maximum polyphony. The maximum polyphony of the AT-20R/30R is 64. For compatibility with other GS models, it is recommended that the maximum polyphony be equal or less than 24.

40 01 30	00 00 01	00-07	REVERB MACRO		00: Room 1 01: Room 2 02: Room 3 03: Hall 1 04: Hall 2 05: Plate 06: Delay 07: Panning Delay	04 Hall 2
40 01 31	00 00 01	00-07	REVERB CHARACTER		0-7	04 4
40 01 32	00 00 01	00-07	REVERB PRE-LPF		0-7	00 0
40 01 33	00 00 01	00-7F	REVERB LEVEL		0-127	40 64
40 01 34	00 00 01	00-7F	REVERB TIME		0-127	40 64
40 01 35	00 00 01	00-7F	REVERB DELAY FEEDBACK		0-127	00 0

* 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.

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

* 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.

●Part Parameters (GS Part: Model ID = 42H)

AT-20R/30R has 16 parts. Parameters that can be set individually for each Part are called Part parameters.

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

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

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

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 1x 00	00 00 02	00-7F	TONE NUMBER	CC#00 VALUE 0-127	00	0
40 1x 01#		00-7F		P.C. VALUE 1-128	00	1
40 1x 02	00 00 01	00-10	Rx. CHANNEL	1-16, OFF	Same as the Part Number	
40 1x 03	00 00 01	00-01	Rx. PITCH BEND	OFF/ON	01	ON
40 1x 04	00 00 01	00-01	Rx. CH PRESSURE (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*)
* Rx. NRPN is set to OFF by power-on or by receiving "Turn General MIDI System On," and it will be set ON when "GS RESET" is received.						
40 1x 0B	00 00 01	00-01	Rx. MODULATION	OFF/ON	01	ON
40 1x 0C	00 00 01	00-01	Rx. VOLUME	OFF/ON	01	ON
40 1x 0D	00 00 01	00-01	Rx. PANPOT	OFF/ON	01	ON
40 1x 0E	00 00 01	00-01	Rx. EXPRESSION	OFF/ON	01	ON
40 1x 0F	00 00 01	00-01	Rx. HOLD1	OFF/ON	01	ON
40 1x 10	00 00 01	00-01	Rx. PORTAMENTO	OFF/ON	01	ON
40 1x 11	00 00 01	00-01	Rx. SOSTENUTO	OFF/ON	01	ON
40 1x 12	00 00 01	00-01	Rx. SOFT	OFF/ON	01	ON
40 1x 13	00 00 01	00-01	MONO/POLY MODE (= CC# 126 01 / CC# 127 00)	Mono/Poly	01	Poly
40 1x 14	00 00 01	00-02	ASSIGN MODE	0 = SINGLE 1 = LIMITED-MULTI 2 = FULL-MULTI	00 at x = 0 01 at x ≠ 0	SINGLE at x = 0 LIMITED-MULTI at x ≠ 0
* ASSIGN MODE is the parameter that determines how voice assignment will be handled when sounds overlap on identical note numbers in the same channel (i.e., repeatedly struck notes). This is initialized to a mode suitable for each Part, so for general purposes there is no need to change this.						
40 1x 15	00 00 01	00-02	USE FOR RHYTHM PART	0 = OFF 1 = MAP1 2 = MAP2	00 at x ≠ 0 01 at x = 0	OFF at x ≠ 0 MAP1 at x = 0
* This parameter sets the Drum Map of the Part used as the Drum Part. AT-20R/30R 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)).						
40 1x 16	00 00 01	28-58	PITCH KEY SHIFT	-24 - +24 [semitones]	40	0 [semitones]
40 1x 17	00 00 02	08-F8	PITCH OFFSET FINE	-12.0 - +12.0 [Hz]	08 00	0 [Hz]
40 1x 18#				Use nibblized data.		
* PITCH OFFSET FINE allows you to alter, by a specified frequency amount, the pitch at which notes will sound. This parameter differs from the conventional Fine Tuning (RPN #1) parameter in that the amount of frequency alteration (in Hertz) will be identical no matter which note is played. When a multiple number of Parts, each of which has been given a different setting for PITCH OFFSET FINE, are sounded by means of an identical note number, you can obtain a Celeste effect.						
40 1x 19	00 00 01	00-7F	PART LEVEL (= CC# 7)	0-127	64	100
40 1x 1A	00 00 01	00-7F	VELOCITY SENSE DEPTH	0-127	40	64
40 1x 1B	00 00 01	00-7F	VELOCITY SENSE OFFSET	0-127	40	64
40 1x 1C	00 00 01	00-7F	PART PANPOT (= CC# 10, except RANDOM)	-64 (RANDOM), -63 (LEFT) - +63 (RIGHT)	40	0 (CENTER)
40 1x 1D	00 00 01	00-7F	KEY RANGE LOW	(C-1)-(G9)	00	C-1
40 1x 1E	00 00 01	00-7F	KEY RANGE HIGH	(C-1)-(G9)	7F	G 9
40 1x 1F	00 00 01	00-5F	CC1 CONTROLLER NUMBER	0-95	10	16
40 1x 20	00 00 01	00-5F	CC2 CONTROLLER NUMBER	0-95	11	17
40 1x 21	00 00 01	00-7F	CHORUS SEND LEVEL (= CC# 93)	0-127	00	0
40 1x 22	00 00 01	00-7F	REVERB SEND LEVEL (= CC# 91)	0-127	28	40
40 1x 23	00 00 01	00-01	Rx. BANK SELECT	OFF/ON	01 (00*)	ON (OFF*)
* Rx. BANK SELECT is set to ON by power-on or by receiving "GS RESET," and will be set OFF when "Turn General MIDI System On" is received.						
40 1x 24	00 00 01	00-01	Rx.BANK SELECT LSB	OFF/ON	00	OFF
* AT-20R/30R can be recognise Bank Select LSB (40H-43H) even if this message is OFF.						

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40 1x 25	00 00 01	00-01	TONE REMAIN	OFF/ON	01	ON
40 1x 28	00 00 03	00-7F	Bank Select LSB Range	LSB (from)	40	40H
40 1x 29#				LSB (to)	43	43H
40 1x 30	00 00 01	0E-72	TONE MODIFY 1	-50 - +50	40	0
			Vibrato rate (= NRP# 8)			
40 1x 31	00 00 01	0E-72	TONE MODIFY 2	-50 - +50	40	0
			Vibrato depth (= NRP# 9)			
40 1x 32	00 00 01	0E-72	TONE MODIFY 3	-50 - +50	40	0
			TVF cutoff frequency (= NRP# 32)			
40 1x 33	00 00 01	0E-72	TONE MODIFY 4	-50 - +50	40	0
			TVF resonance (= NRP# 33)			
40 1x 34	00 00 01	0E-72	TONE MODIFY 5	-50 - +50	40	0
			TVF&TVA Env.attack (= NRP# 99)			
40 1x 35	00 00 01	0E-72	TONE MODIFY 6	-50 - +50	40	0
			TVF&TVA Env.decay (= NRP# 100)			
40 1x 36	00 00 01	0E-72	TONE MODIFY 7	-50 - +50	40	0
			TVF&TVA Env.release (= NRP# 102)			
40 1x 37	00 00 01	0E-72	TONE MODIFY 8	-50 - +50	40	0
			Vibrato delay (= NRP# 10)			
40 1x 40	00 00 0C	00-7F	SCALE TUNING C	-64 - +63 [cent]	40	0 [cent]
40 1x 41#		00-7F	SCALE TUNING C#	-64 - +63 [cent]	40	0 [cent]
40 1x 42#		00-7F	SCALE TUNING D	-64 - +63 [cent]	40	0 [cent]
40 1x 43#		00-7F	SCALE TUNING D#	-64 - +63 [cent]	40	0 [cent]
40 1x 44#		00-7F	SCALE TUNING E	-64 - +63 [cent]	40	0 [cent]
40 1x 45#		00-7F	SCALE TUNING F	-64 - +63 [cent]	40	0 [cent]
40 1x 46#		00-7F	SCALE TUNING F#	-64 - +63 [cent]	40	0 [cent]
40 1x 47#		00-7F	SCALE TUNING G	-64 - +63 [cent]	40	0 [cent]
40 1x 48#		00-7F	SCALE TUNING G#	-64 - +63 [cent]	40	0 [cent]
40 1x 49#		00-7F	SCALE TUNING A	-64 - +63 [cent]	40	0 [cent]
40 1x 4A#		00-7F	SCALE TUNING A#	-64 - +63 [cent]	40	0 [cent]
40 1x 4B#		00-7F	SCALE TUNING B	-64 - +63 [cent]	40	0 [cent]

* SCALE TUNING is a function that allows fine adjustment to the pitch of each note in the octave. The pitch of each identically-named note in all octaves will change simultaneously. A setting of ± 0 cent (40H) is equal temperament. Refer to section 4. Supplementary material, "The Scale Tune Feature"(p. 14).

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

40 2x 40	00 00 01	28-58	CC1 PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 41	00 00 01	00-7F	CC1 TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 42	00 00 01	00-7F	CC1 AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 43	00 00 01	00-7F	CC1 LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 44	00 00 01	00-7F	CC1 LFO1 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 45	00 00 01	00-7F	CC1 LFO1 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 46	00 00 01	00-7F	CC1 LFO1 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 47	00 00 01	00-7F	CC1 LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 48	00 00 01	00-7F	CC1 LFO2 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 49	00 00 01	00-7F	CC1 LFO2 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 4A	00 00 01	00-7F	CC1 LFO2 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 50	00 00 01	28-58	CC2 PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 51	00 00 01	00-7F	CC2 TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 52	00 00 01	00-7F	CC2 AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 53	00 00 01	00-7F	CC2 LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 54	00 00 01	00-7F	CC2 LFO1 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 55	00 00 01	00-7F	CC2 LFO1 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 56	00 00 01	00-7F	CC2 LFO1 TVA DEPTH	0-100.0 [%]	00	0 [%]
40 2x 57	00 00 01	00-7F	CC2 LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 58	00 00 01	00-7F	CC2 LFO2 PITCH DEPTH	0-600 [cent]	00	0 [cent]
40 2x 59	00 00 01	00-7F	CC2 LFO2 TVF DEPTH	0-2400 [cent]	00	0 [cent]
40 2x 5A	00 00 01	00-7F	CC2 LFO2 TVA DEPTH	0-100.0 [%]	00	0 [%]

● Drum Setup Parameters (GS Part: Model ID = 42H)

* m: Map number (0 = MAP1, 1 = MAP2)

* rr: drum part note number (00H-7FH)

Address (H)	Size (H)	Data (H)	Parameter	Description
41 m1 rr	00 00 01	00-7F	PLAY NOTE NUMBER	Pitch coarse
41 m2 rr	00 00 01	00-7F	LEVEL (= NRP# 26)	TVA level
41 m3 rr	00 00 01	00-7F	ASSIGN GROUP NUMBER	Non, 1-127
41 m4 rr	00 00 01	00-7F	PANPOT (= NRP# 28, except RANDOM)	-64 (RANDOM), -63 (LEFT) - +63 (RIGHT)
41 m5 rr	00 00 01	00-7F	REVERB SEND LEVEL0 (= NRP# 29)	.0-1.0 Multiplicand of the part reverb depth
41 m6 rr	00 00 01	00-7F	CHORUS SEND LEVEL (= NRP# 30)	0.0-1.0 Multiplicand of the part chorus depth
41 m7 rr	00 00 01	00-01	Rx. NOTE OFF	OFF/ON
41 m8 rr	00 00 01	00-01	Rx. NOTE ON	OFF/ON

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

4. Supplementary material

●Decimal and Hexadecimal table

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

The following table shows how these correspond to decimal numbers.

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

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

<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
 $18 \times 128 + 52 = 2356$

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

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

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

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

●Examples of actual MIDI messages

<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 2B

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 (2BH = 43) is the MSB, but Pitch Bend Value is a signed number in which $40 \times 128 + 0 = 5120$ is 0, so this Pitch Bend Value is $28 \times 128 - 40 \times 128 = 40 \times 128 + 0 - (64 \times 128 + 0) = 5120 - 8192 = -3072$

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 $-200 \times (-3072) / (-8192) = -75$ 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 parameter value: 0CH
(B3)	26 00	(MIDI ch.4) lower byte of parameter value: 00H
(B3)	64 7F	(MIDI ch.4) lower byte of RPN parameter number: 7FH
(B3)	65 7F	(MIDI ch.4) upper byte of RPN parameter number: 7FH

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

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

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

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

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

* TPQN: Ticks Per Quarter Note

●Example of an Exclusive message and calculating a Checksum

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

uHow to calculate the checksum (hexadecimal numbers are indicated by 'H')
The checksum is a value derived by adding the address, size and checksum itself and inverting the lower 7 bits.

Here's an example of how the checksum is calculated. We will assume that in the exclusive message we are transmitting, the address is aa bb cH and the data or size is dd ee fH.

$$aa + bb + cc + dd + ee + ff = \text{sum}$$

$$\text{sum} / 128 = \text{quotient} \dots \text{remainder}$$

$$128 - \text{remainder} = \text{checksum}$$

<Example> Setting REVERB MACRO to ROOM 3

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

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

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

Next we calculate the checksum.

$$40H + 01H + 30H + 02H = 64 + 1 + 48 + 2 = 115 (\text{sum})$$

$$115 (\text{sum}) / 128 = 0 (\text{quotient}) \dots 115 (\text{remainder})$$

$$\text{checksum} = 128 - 115 (\text{remainder}) = 13 = 0DH$$

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

●About tuning

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

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

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

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

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

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

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

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

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

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

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

○Equal Temperament

This method of tuning divides the octave into 12 equal parts. It is currently the most widely used form of tuning, especially in occidental music. On AT-20R/30R, 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. Refer to the explanation of Scale Tuning (p. 11) to convert these values to hexadecimal, and transmit them as exclusive data.

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

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

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●AT-20R Keyboard Part Tone List

CC0 / CC32 / PC	Tone Name	Number of Voice	No.	CC0 / CC32 / PC	Tone Name	Number of Voice	No.
00h / 00h / 00h	Full Organ1	1	A11	00h / 00h / 3Bh	E.Piano2	2	K32
00h / 00h / 02h	Full Organ2	1	A12	00h / 00h / 42h	Harpsichord	1	K41
00h / 00h / 04h	Full Organ3	1	A13	00h / 00h / 50h	Clavi.	1	K42
00h / 00h / 01h	Full Organ4	1	A14	00h / 00h / 48h	Accordion	1	L11
00h / 00h / 03h	Full Organ5	1	A15	00h / 00h / 49h	Harmonica	1	L21
00h / 00h / 05h	Full Organ6	1	A16	00h / 00h / 3Ch	Nylon-str.Gt	1	M11
00h / 00h / 06h	Jazz Organ1	2	B11	00h / 00h / 3Dh	Steel-str.Gt	1	M21
00h / 00h / 08h	Jazz Organ2	2	B12	00h / 00h / 3Eh	Jazz Guitar	1	M31
00h / 00h / 0Ah	Jazz Organ3	2	B13	00h / 00h / 3Fh	Overdrive Gt	1	M41
00h / 00h / 07h	Jazz Organ4	2	B14	00h / 00h / 56h	Hawaiian Gt.	1	N11
00h / 00h / 09h	Jazz Organ5	2	B15	00h / 00h / 47h	Banjo	1	N12
00h / 00h / 0Bh	Jazz Organ6	2	B16	00h / 00h / 43h	Harp	1	N21
00h / 00h / 0Ch	Rock Organ1	3	B21	00h / 00h / 5Ah	Sitar	1	N31
00h / 00h / 0Dh	Rock Organ2	2	B22	00h / 00h / 44h	Vibraphone	1	O11
00h / 00h / 0Eh	Lower Organ1	1	C11	00h / 00h / 52h	Glockenspiel	1	O12
00h / 00h / 10h	Lower Organ2	1	C12	00h / 00h / 51h	Celesta	1	O13
00h / 00h / 12h	Lower Organ3	1	C13	00h / 00h / 45h	Marimba	1	O21
00h / 00h / 0Fh	Lower Organ4	1	C14	00h / 00h / 53h	Xylophone	1	O22
00h / 00h / 11h	Lower Organ5	1	C15	00h / 00h / 54h	Tubular-bell	1	O31
00h / 00h / 13h	Lower Organ6	1	C16	00h / 00h / 5Bh	Steel Drums	1	O41
00h / 00h / 14h	Pipe Organ1	1	D11	00h / 00h / 40h	Tp. Section	3	P11
00h / 00h / 16h	Pipe Organ2	2	D12	00h / 00h / 58h	Fr.Horn Sect	2	P21
00h / 00h / 18h	Pipe Organ3	2	D13	00h / 00h / 41h	Sax.Section	3	P31
00h / 00h / 15h	Pipe Organ4	1	D14	00h / 00h / 59h	Synth. Brass	2	P41
00h / 00h / 17h	Pipe Organ5	2	D15	00h / 00h / 5Eh	Trumpet	2	Q11
00h / 00h / 19h	Pipe Organ6	4	D16	00h / 00h / 5Fh	Mute Trumpet	1	Q21
00h / 00h / 21h	Pipe Organ7	2	D17	00h / 00h / 68h	Trombone	1	Q31
02h / 00h / 14h	Diapason8'	1	D21	00h / 00h / 67h	Flugel Horn	1	Q41
00h / 00h / 1Ah	Theater Or.1	2	E11	00h / 00h / 69h	Soprano Sax	1	Q51
00h / 00h / 1Ch	Theater Or.2	2	E12	00h / 00h / 60h	Alto Sax	2	Q61
00h / 00h / 1Eh	Theater Or.3	2	E13	00h / 00h / 61h	Tenor Sax	2	Q71
00h / 00h / 1Bh	Theater Or.4	2	E14	00h / 00h / 62h	Flute	1	R11
00h / 00h / 1Dh	Theater Or.5	2	E15	00h / 00h / 63h	Pan Flute	1	R22
00h / 00h / 1Fh	Theater Or.6	2	E16	00h / 00h / 64h	Oboe	2	R31
00h / 00h / 23h	Synth. Org.1	2	F11	00h / 00h / 6Ah	Bassoon	1	R32
00h / 00h / 24h	Synth. Org.2	3	F12	00h / 00h / 65h	Clarinet	1	R41
00h / 00h / 28h	Strings1	4	G11	00h / 00h / 6Bh	Shakuhachi	1	R51
00h / 00h / 29h	Strings2	2	G12	00h / 00h / 6Dh	Synth. Lead1	1	S11
00h / 00h / 2Ah	Slow Str.1	2	H11	00h / 00h / 6Eh	Synth. Lead2	2	S12
00h / 00h / 2Ch	Synth. Str.1	2	H21	00h / 00h / 72h	Organ Bass1	2	T11
00h / 00h / 2Dh	Synth. Str.2	3	H22	00h / 00h / 73h	Organ Bass2	2	T12
00h / 00h / 2Eh	Synth. Pad1	3	H31	00h / 00h / 74h	Pipe Org. Bs	3	T21
00h / 00h / 2Fh	Synth. Pad2	4	H32	00h / 00h / 75h	String Bass	2	T31
00h / 00h / 5Ch	Violin	2	I11	00h / 00h / 7Dh	Bass+Cymbal	4	T32
00h / 00h / 66h	Viola	1	I12	00h / 00h / 78h	Contrabass1	2	T41
00h / 00h / 5Dh	Cello	2	I13	00h / 00h / 76h	E.Bass1	2	T51
00h / 00h / 37h	Pizzicato	2	I14	00h / 00h / 77h	E.Bass2	2	T52
01h / 00h / 31h	Jazz Scat	2	J11	00h / 00h / 7Ah	Tuba	2	T61
00h / 00h / 31h	Pop Voice	2	J12	00h / 00h / 7Bh	Synth. Bass1	3	T71
02h / 00h / 31h	Jazz Doo	2	J13	01h / 00h / 7Ch	Voice Thum	1	T81
03h / 00h / 31h	Jazz Doot	2	J14				
04h / 00h / 31h	Jazz Dat	2	J15				
05h / 00h / 31h	Jazz Bap	2	J16				
06h / 00h / 31h	JazzDowfall	2	J17				
00h / 00h / 30h	Choir	2	J21				
02h / 00h / 38h	Grand Piano	2~3	K11				
00h / 00h / 39h	Honky-tonk	2	K21				
00h / 00h / 3Ah	E.Piano1	2	K31				

●AT-30R Keyboard Part Tone List

CC0 / CC32 / PC	Tone Name	Number of Voice	No.	CC0 / CC32 / PC	Tone Name	Number of Voice	No.
00h / 00h / 00h	Full Organ1	1	A11	02h / 00h / 31h	Jazz Doo	2	J13
00h / 00h / 02h	Full Organ2	1	A12	03h / 00h / 31h	Jazz Doot	2	J14
00h / 00h / 04h	Full Organ3	1	A13	04h / 00h / 31h	Jazz Dat	2	J15
00h / 00h / 01h	Full Organ4	1	A14	05h / 00h / 31h	Jazz Bap	2	J16
00h / 00h / 03h	Full Organ5	1	A15	06h / 00h / 31h	JazzDowfall	2	J17
00h / 00h / 05h	Full Organ6	1	A16	00h / 00h / 30h	Choir	2	J21
00h / 00h / 20h	Full Organ7	1	A17	01h / 00h / 30h	Gregorian	2	J22
00h / 00h / 06h	Jazz Organ1	2	B11	00h / 00h / 32h	Synth. Choir	2	J31
00h / 00h / 08h	Jazz Organ2	2	B12	00h / 00h / 33h	Synth. Voice	3	J32
00h / 00h / 0Ah	Jazz Organ3	2	B13	00h / 00h / 34h	Space Voice	2	J33
00h / 00h / 07h	Jazz Organ4	2	B14	02h / 00h / 38h	Grand Piano	2~3	K11
00h / 00h / 09h	Jazz Organ5	2	B15	00h / 00h / 38h	Piano1	1	K12
00h / 00h / 0Bh	Jazz Organ6	2	B16	00h / 00h / 4Fh	Piano2	1	K13
00h / 00h / 0Ch	Rock Organ1	3	B21	01h / 00h / 38h	Piano3	1	K14
00h / 00h / 0Dh	Rock Organ2	2	B22	00h / 00h / 39h	Honky-tonk	2	K21
00h / 00h / 0Eh	Lower Organ1	1	C11	01h / 00h / 39h	Honky-tonk2	2~4	K22
00h / 00h / 10h	Lower Organ2	1	C12	00h / 00h / 3Ah	E.Piano1	2	K31
00h / 00h / 12h	Lower Organ3	1	C13	00h / 00h / 3Bh	E.Piano2	2	K32
00h / 00h / 0Fh	Lower Organ4	1	C14	01h / 00h / 3Ah	E.Piano3	1	K33
00h / 00h / 11h	Lower Organ5	1	C15	01h / 00h / 3Bh	E.Piano4	2	K34
00h / 00h / 13h	Lower Organ6	1	C16	00h / 00h / 42h	Harpsichord	1	K41
00h / 00h / 14h	Pipe Organ1	1	D11	00h / 00h / 50h	Clavi.	1	K42
00h / 00h / 16h	Pipe Organ2	2	D12	00h / 00h / 48h	Accordion	1	L11
00h / 00h / 18h	Pipe Organ3	2	D13	00h / 00h / 55h	Bandoneon	1	L12
00h / 00h / 15h	Pipe Organ4	1	D14	00h / 00h / 49h	Harmonica	1	L21
00h / 00h / 17h	Pipe Organ5	2	D15	00h / 00h / 3Ch	Nylon-str.Gt	1	M11
00h / 00h / 19h	Pipe Organ6	4	D16	01h / 00h / 3Ch	Nylon Gt 2	1	M12
00h / 00h / 21h	Pipe Organ7	2	D17	00h / 00h / 3Dh	Steel-str.Gt	1	M21
02h / 00h / 14h	Diapason8'	1	D21	00h / 00h / 3Eh	Jazz Guitar	1	M31
01h / 00h / 14h	FluteCeleste	2	D22	01h / 00h / 3Eh	Clean Guitar	2	M32
00h / 00h / 1Ah	Theater Or.1	2	E11	02h / 00h / 3Eh	JC E.Guitar	2	M33
00h / 00h / 1Ch	Theater Or.2	2	E12	00h / 00h / 3Fh	Overdrive Gt	1	M41
00h / 00h / 1Eh	Theater Or.3	2	E13	00h / 00h / 56h	Hawaiian Gt.	1	N11
00h / 00h / 1Bh	Theater Or.4	2	E14	00h / 00h / 47h	Banjo	1	N12
00h / 00h / 1Dh	Theater Or.5	2	E15	00h / 00h / 46h	Mandolin	1	N13
00h / 00h / 1Fh	Theater Or.6	2	E16	01h / 00h / 43h	Koto	1	N14
00h / 00h / 22h	Theater Or.7	3	E17	02h / 00h / 43h	Taisho Koto	1	N15
00h / 00h / 23h	Synth. Org.1	2	F11	03h / 00h / 43h	Shamisen	2	N16
00h / 00h / 24h	Synth. Org.2	3	F12	00h / 00h / 43h	Harp	1	N21
00h / 00h / 25h	Pop. Organ1	1	F21	00h / 00h / 5Ah	Sitar	1	N31
00h / 00h / 26h	Pop. Organ2	1	F22	00h / 00h / 57h	Organ Harp	1	N41
00h / 00h / 27h	Pop. Organ3	1	F23	00h / 00h / 44h	Vibraphone	1	O11
00h / 00h / 28h	Strings1	4	G11	00h / 00h / 52h	Glockenspiel	1	O12
00h / 00h / 29h	Strings2	2	G12	00h / 00h / 51h	Celesta	1	O13
00h / 00h / 2Ah	Slow Str.1	2	H11	00h / 00h / 45h	Marimba	1	O21
00h / 00h / 2Bh	Slow Str.2	2	H12	00h / 00h / 53h	Xylophone	1	O22
00h / 00h / 2Ch	Synth. Str.1	2	H21	00h / 00h / 54h	Tubular-bell	1	O31
00h / 00h / 2Dh	Synth. Str.2	3	H22	00h / 00h / 5Bh	Steel Drums	1	O41
00h / 00h / 35h	Synth. Str.3	2	H23	00h / 00h / 40h	Tp. Section	3	P11
00h / 00h / 2Eh	Synth. Pad1	3	H31	00h / 00h / 58h	Fr.Horn Sect	2	P21
00h / 00h / 2Fh	Synth. Pad2	4	H32	00h / 00h / 41h	Sax.Section	3	P31
00h / 00h / 5Ch	Violin	2	I11	00h / 00h / 59h	Synth. Brass	2	P41
00h / 00h / 66h	Viola	1	I12	00h / 00h / 5Eh	Trumpet	2	Q11
00h / 00h / 5Dh	Cello	2	I13	00h / 00h / 5Fh	Mute Trumpet	1	Q21
00h / 00h / 37h	Pizzicato	2	I14	00h / 00h / 68h	Trombone	1	Q31
01h / 00h / 31h	Jazz Scat	2	J11	00h / 00h / 67h	Flugel Horn	1	Q41
00h / 00h / 31h	Pop Voice	2	J12	00h / 00h / 69h	Soprano Sax	1	Q51
				00h / 00h / 60h	Alto Sax	2	Q61

●AT-20R/30R GS Part Tone List

CC0 / CC32 / PC	Tone Name	Number of Voice	No.
00h / 00h / 61h	Tenor Sax	2	Q71
00h / 00h / 62h	Flute	1	R11
00h / 00h / 63h	Synth. Flute	2	R21
00h / 00h / 64h	Pan Flute	1	R22
00h / 00h / 64h	Oboe	2	R31
00h / 00h / 6Ah	Bassoon	1	R32
00h / 00h / 65h	Clarinet	1	R41
00h / 00h / 6Bh	Shakuhachi	1	R51
00h / 00h / 6Ch	HumanWhistle	1	R52
00h / 00h / 6Dh	Synth. Lead1	1	S11
00h / 00h / 6Eh	Synth. Lead2	2	S12
00h / 00h / 6Fh	Synth. Lead3	1	S13
00h / 00h / 70h	Synth. Lead4	2	S14
00h / 00h / 71h	Synth. Lead5	2	S15
00h / 00h / 72h	Organ Bass1	2	T11
00h / 00h / 73h	Organ Bass2	2	T12
00h / 00h / 74h	Pipe Org. Bs	3	T21
00h / 00h / 75h	String Bass	2	T31
00h / 00h / 7Dh	Bass+Cymbal	4	T32
00h / 00h / 78h	Contrabass1	2	T41
00h / 00h / 79h	Contrabass2	2	T42
00h / 00h / 76h	E.Bass1	2	T51
00h / 00h / 77h	E.Bass2	2	T52
00h / 00h / 7Ah	Tuba	2	T61
00h / 00h / 7Bh	Synth. Bass1	3	T71
00h / 00h / 7Ch	Synth. Bass2	2	T72
01h / 00h / 7Ch	Voice Thum	1	T81
00h / 00h / 4Ah	Org. Attack1	1	U11
00h / 00h / 4Bh	Org. Attack2	1	U12
00h / 00h / 4Ch	Org. Attack3	1	U13
00h / 00h / 4Dh	Org. Attack4	1	U14
00h / 00h / 4Eh	Org. Click	1	U15
01h / 00h / 7Eh	Timpani	1	V11
00h / 00h / 7Eh	Perc. Set1	1-3	V31
00h / 00h / 7Fh	Perc. Set2	1-4	V32

CC0 / CC32 / PC	Tone Name	Number of Voices
00h / 00h / 00h	Piano 1	1
08h / 00h / 00h	Piano 1w	2
10h / 00h / 00h	Piano 1d	1
00h / 00h / 01h	Piano 2	1
08h / 00h / 01h	Piano 2w	2
00h / 00h / 02h	Piano 3	1
08h / 00h / 02h	Piano 3w	2
00h / 00h / 03h	Honky-tonk	2
08h / 00h / 03h	Honky-tonk 2	2
00h / 00h / 04h	GS E.Piano1	1
08h / 00h / 04h	Detuned EP 1	2
10h / 00h / 04h	E.Piano 1v	2
18h / 00h / 04h	60's E.Piano	1
00h / 00h / 05h	GS E.Piano2	1
08h / 00h / 05h	Detuned EP 2	2
10h / 00h / 05h	E.Piano 2v	2
00h / 00h / 06h	Harpsichord	1
08h / 00h / 06h	Coupled Hps.	2
10h / 00h / 06h	Harpsi.w	2
18h / 00h / 06h	Harpsi.o	2
00h / 00h / 07h	Clav.	1
00h / 00h / 08h	Celesta	1
00h / 00h / 09h	Glockenspiel	1
00h / 00h / 0Ah	GS Music Box	1
00h / 00h / 0Bh	GS Vibe	1
08h / 00h / 0Bh	Vibe.w	2
00h / 00h / 0Ch	GS Marimba	1
08h / 00h / 0Ch	Marimba	1
00h / 00h / 0Dh	Xylophone	1
00h / 00h / 0Eh	Tubular-bell	1
08h / 00h / 0Eh	Church Bell	1
09h / 00h / 0Eh	Carillon	1
00h / 00h / 0Fh	GS Santur	1
00h / 00h / 10h	Organ 1	1
01h / 00h / 10h	Full Organ 1	1
08h / 00h / 10h	Detuned Or.1	2
09h / 00h / 10h	Full Organ 2	1
10h / 00h / 10h	Pop Organ 1	1
11h / 00h / 10h	Pop Organ 2	1
12h / 00h / 10h	Pop Organ	1
20h / 00h / 10h	Full Organ 4	1
21h / 00h / 10h	Full Organ 3	1
00h / 00h / 11h	Organ 2	1
01h / 00h / 11h	Jazz Organ 3	2
08h / 00h / 11h	Detuned Or.2	2
20h / 00h / 11h	Jazz Organ 1	2
00h / 00h / 12h	Rock Organ 2	2
00h / 00h / 13h	Church Org.1	1
08h / 00h / 13h	Church Org.2	2
10h / 00h / 13h	Church Org.3	2
00h / 00h / 14h	Reed Organ	1
00h / 00h / 15h	Accordion Fr	2
08h / 00h / 15h	Accordion It	2
00h / 00h / 16h	GS Harmonica	1
01h / 00h / 16h	Harmonica	1
00h / 00h / 17h	Bandoneon	2
00h / 00h / 18h	GS Nylon Gt.	1
08h / 00h / 18h	Ukulele	1

AT-20R/30R MIDI IMPLEMENTATION

CC0 / CC32 / PC	Tone Name	Number of Voices
10h / 00h / 18h	Nylon Gt.o	2
20h / 00h / 18h	Nylon Guitar	1
00h / 00h / 19h	Steel-str.Gt	1
08h / 00h / 19h	12-str.Gt	2
09h / 00h / 19h	Nylon+Steel	2
10h / 00h / 19h	GS Mandolin	1
20h / 00h / 19h	Steel Gt.2	1
00h / 00h / 1Ah	Jazz Guitar	1
08h / 00h / 1Ah	GS Hawaiian	1
00h / 00h / 1Bh	Clean Gt.	1
08h / 00h / 1Bh	Chorus Gt.	2
00h / 00h / 1Ch	Muted Gt.	1
08h / 00h / 1Ch	Funk Gt.	1
10h / 00h / 1Ch	Funk Gt.2	2
00h / 00h / 1Dh	Overdrive Gt	1
00h / 00h / 1Eh	GS Dist.Gt	1
08h / 00h / 1Eh	Feedback Gt.	2
00h / 00h / 1Fh	Gt.Harmonics	1
08h / 00h / 1Fh	Gt. Feedback	1
10h / 00h / 1Fh	Gt.Harmonics	1
00h / 00h / 20h	GS Ac.Bass	1
00h / 00h / 21h	GS Fing.Bass	1
00h / 00h / 22h	GS Picked Bs	1
00h / 00h / 23h	Fretless Bs.	1
00h / 00h / 24h	Slap Bass 1	1
00h / 00h / 25h	Slap Bass 2	1
00h / 00h / 26h	Synth Bass 1	1
01h / 00h / 26h	SynthBass101	1
08h / 00h / 26h	Synth Bass 3	1
00h / 00h / 27h	Synth Bass 2	2
08h / 00h / 27h	Synth Bass 4	2
10h / 00h / 27h	Rubber Bass	2
00h / 00h / 28h	GS Violin	1
08h / 00h / 28h	Slow Violin	1
00h / 00h / 29h	Viola	1
00h / 00h / 2Ah	GS Cello	1
00h / 00h / 2Bh	Contrabass	1
00h / 00h / 2Ch	Tremolo Str	1
00h / 00h / 2Dh	PizzicatoStr	1
00h / 00h / 2Eh	GS Harp	1
00h / 00h / 2Fh	Timpani	1
00h / 00h / 30h	GS Strings	1
08h / 00h / 30h	Orchestra	2
00h / 00h / 31h	GS Sl.Str	1
00h / 00h / 32h	Syn.Strings1	1
08h / 00h / 32h	Syn.Strings3	2
00h / 00h / 33h	Syn.Strings2	2
00h / 00h / 34h	Choir Aahs	1
20h / 00h / 34h	Choir	1
00h / 00h / 35h	Pop Voice	1
00h / 00h / 36h	SynVox	1
00h / 00h / 37h	OrchestraHit	2
00h / 00h / 38h	GS Trumpet	1
01h / 00h / 38h	Trumpet	1
00h / 00h / 39h	GS Trombone	1
01h / 00h / 39h	Trombone 2	2
00h / 00h / 3Ah	Tuba	1
00h / 00h / 3Bh	MutedTrumpet	1
00h / 00h / 3Ch	French Horn	2

CC0 / CC32 / PC	Tone Name	Number of Voices
01h / 00h / 3Ch	Fr.Horn 2	2
00h / 00h / 3Dh	Brass 1	1
08h / 00h / 3Dh	Brass 2	2
00h / 00h / 3Eh	Synth Brass1	2
08h / 00h / 3Eh	Synth Brass3	2
10h / 00h / 3Eh	AnalogBrass1	2
00h / 00h / 3Fh	Synth Brass2	2
08h / 00h / 3Fh	Synth Brass4	1
10h / 00h / 3Fh	AnalogBrass2	2
00h / 00h / 40h	GS Sop.Sax	1
00h / 00h / 41h	Alto Sax	1
08h / 00h / 41h	Blow Sax	1
00h / 00h / 42h	Tenor Sax	1
08h / 00h / 42h	Blow Sax	1
00h / 00h / 43h	Baritone Sax	1
00h / 00h / 44h	GS Oboe	1
00h / 00h / 45h	English Horn	1
00h / 00h / 46h	Bassoon	1
00h / 00h / 47h	Clarinet	1
00h / 00h / 48h	Piccolo	1
00h / 00h / 49h	GS Flute	1
00h / 00h / 4Ah	Recorder	1
00h / 00h / 4Bh	Pan Flute	1
00h / 00h / 4Ch	Bottle Blow	2
00h / 00h / 4Dh	Shakuhachi	2
00h / 00h / 4Eh	Whistle	1
00h / 00h / 4Fh	Ocarina	1
00h / 00h / 50h	Square Wave	2
01h / 00h / 50h	Square	1
08h / 00h / 50h	Sine Wave	1
00h / 00h / 51h	Saw Wave	2
01h / 00h / 51h	Saw	1
08h / 00h / 51h	Doctor Solo	2
00h / 00h / 52h	Syn.Calliope	2
00h / 00h / 53h	Chiffer Lead	2
00h / 00h / 54h	Charang	2
00h / 00h / 55h	Solo Vox	2
00h / 00h / 56h	5th Saw Wave	2
00h / 00h / 57h	Bass & Lead	2
00h / 00h / 58h	Fantasia	2
00h / 00h / 59h	Warm Pad	1
00h / 00h / 5Ah	Polysynth	2
00h / 00h / 5Bh	Space Voice	1
00h / 00h / 5Ch	Bowed Glass	2
00h / 00h / 5Dh	Metal Pad	2
00h / 00h / 5Eh	Halo Pad	2
00h / 00h / 5Fh	Sweep Pad	1
00h / 00h / 60h	Ice Rain	2
00h / 00h / 61h	Soundtrack	2
00h / 00h / 62h	Crystal	2
01h / 00h / 62h	Syn Mallet	1
00h / 00h / 63h	Atmosphere	2
00h / 00h / 64h	Brightness	2
00h / 00h / 65h	Goblin	2
00h / 00h / 66h	Echo Drops	1
01h / 00h / 66h	Echo Bell	2
02h / 00h / 66h	Echo Pan	2
00h / 00h / 67h	Star Theme	2
00h / 00h / 68h	Sitar	1

AT-20R/30R MIDI IMPLEMENTATION

CC0 / CC32 / PC	Tone Name	Number of Voices
01h / 00h / 68h	Sitar 2	2
00h / 00h / 69h	Banjo	1
00h / 00h / 6Ah	GS Shamisen	1
00h / 00h / 6Bh	Koto	1
08h / 00h / 6Bh	Taisho Koto	2
00h / 00h / 6Ch	Kalimba	1
00h / 00h / 6Dh	Bagpipe	1
00h / 00h / 6Eh	Fiddle	1
00h / 00h / 6Fh	Shanai	1
00h / 00h / 70h	Tinkle Bell	1
00h / 00h / 71h	Agogo	1
00h / 00h / 72h	Steel Drums	1
00h / 00h / 73h	Woodblock	1
08h / 00h / 73h	Castanets	1
00h / 00h / 74h	Taiko	1
08h / 00h / 74h	Concert BD	1
00h / 00h / 75h	Melo. Tom 1	1
08h / 00h / 75h	Melo. Tom 2	1
00h / 00h / 76h	Synth Drum	1
08h / 00h / 76h	808 Tom	1
09h / 00h / 76h	Elec Perc.	1
00h / 00h / 77h	Reverse Cym.	1
00h / 00h / 78h	Gt.FretNoise	1
01h / 00h / 78h	Gt.Cut Noise	1
02h / 00h / 78h	String Slap	1
00h / 00h / 79h	Breath Noise	1
01h / 00h / 79h	Fl.Key Click	1
00h / 00h / 7Ah	Seashore	1
01h / 00h / 7Ah	Rain	1
02h / 00h / 7Ah	Thunder	1
03h / 00h / 7Ah	Wind	1
04h / 00h / 7Ah	Stream	2
05h / 00h / 7Ah	Bubble	2
00h / 00h / 7Bh	Bird	2
01h / 00h / 7Bh	Dog	1
02h / 00h / 7Bh	Horse-Gallop	1
03h / 00h / 7Bh	Bird 2	1
00h / 00h / 7Ch	Telephone 1	1
01h / 00h / 7Ch	Telephone 2	1
02h / 00h / 7Ch	DoorCreaking	1
03h / 00h / 7Ch	Door	1
04h / 00h / 7Ch	Scratch	1
05h / 00h / 7Ch	Windchime	2
00h / 00h / 7Dh	Helicopter	1
01h / 00h / 7Dh	Car-Engine	1
02h / 00h / 7Dh	Car-Stop	1
03h / 00h / 7Dh	Car-Pass	1
04h / 00h / 7Dh	Car-Crash	2
05h / 00h / 7Dh	Siren	1
06h / 00h / 7Dh	Train	1
07h / 00h / 7Dh	Jetplane	2
08h / 00h / 7Dh	Starship	2
09h / 00h / 7Dh	Burst Noise	2
00h / 00h / 7Eh	Applause	2
01h / 00h / 7Eh	Laughing	1
02h / 00h / 7Eh	Screaming	1
03h / 00h / 7Eh	Punch	1
04h / 00h / 7Eh	Heart Beat	1
05h / 00h / 7Eh	Footsteps	1

CC0 / CC32 / PC	Tone Name	Number of Voices
00h / 00h / 7Fh	Gun Shot	1
01h / 00h / 7Fh	Machine Gun	1
02h / 00h / 7Fh	Lasergun	1
03h / 00h / 7Fh	Explosion	2
00h / 40h / 00h	Grand Piano 1	2-4
00h / 40h / 01h	Piano 2	1
08h / 40h / 01h	Grand Piano2	2-4
08h / 40h / 02h	Rock Piano	2
08h / 40h / 03h	Honky-tonk 1	2-4
08h / 40h / 04h	Soft E.Piano	2
10h / 40h / 04h	E.Piano 1	2
18h / 40h / 04h	Sine Rhodes	1
00h / 40h / 05h	Hard E.Piano	2
08h / 40h / 05h	St.FM EP	2
10h / 40h / 05h	E.Piano 2	1
00h / 40h / 07h	Analog Clav.	2
00h / 40h / 0Ah	Music Box	1
00h / 40h / 0Fh	Santur	2
20h / 40h / 10h	VS Organ	2
00h / 40h / 11h	Jazz Organ 1	2
08h / 40h / 11h	Jazz Organ 3	2
20h / 40h / 11h	Jazz Organ 2	2
00h / 40h / 12h	Rock Organ 1	2
00h / 40h / 13h	Organ Flute	1
08h / 40h / 13h	Trem.Flute	2
10h / 40h / 13h	Theater Org.	2
00h / 40h / 14h	Digi Church	2
00h / 40h / 15h	Accordion	1
00h / 40h / 16h	Harmonica	1
00h / 40h / 18h	Nylon Guitar	1
08h / 40h / 18h	Gut Guitar	1
10h / 40h / 18h	Nylon Gt.o	2
20h / 40h / 18h	Nylon Gt.2	1
00h / 40h / 19h	Steel Guitar	1
08h / 40h / 19h	12str Guitar	2
10h / 40h / 19h	Mandolin	1
08h / 40h / 1Ah	Hawaiian Gt.	1
00h / 40h / 1Bh	JC E.Guitar	2
00h / 40h / 1Ch	Muted Dis.Gt	1
00h / 40h / 1Eh	DistortionGt	1
08h / 40h / 1Eh	Power Gt.2	2
00h / 40h / 20h	Acoustic Bs.	2
00h / 40h / 21h	Fingered Bs.	1
00h / 40h / 22h	Picked Bs.	1
10h / 40h / 27h	SH101 Bass	1
00h / 40h / 28h	Violin	1
00h / 40h / 2Ah	Cello	1
00h / 40h / 2Eh	Harp	1
00h / 40h / 35h	Jazz Scat	2
00h / 40h / 36h	Choir Oohs	2
00h / 40h / 38h	Trumpet	1
00h / 40h / 39h	Trombone	1
00h / 40h / 3Ch	Fr.Horn Solo	1
00h / 40h / 40h	Soprano Sax	1
00h / 40h / 42h	Blow Sax	1
00h / 40h / 44h	Oboe	1
00h / 40h / 49h	Flute	1
00h / 40h / 4Bh	Blow Pipe	1

AT-20R/30R MIDI IMPLEMENTATION

CC0 / CC32 / PC	Tone Name	Number of Voices
00h / 40h / 50h	Syn.Square	2
01h / 40h / 50h	FM Lead 1	2
08h / 40h / 50h	JP8 Square	1
00h / 40h / 51h	Mg Lead	1
01h / 40h / 51h	P5 Saw Lead	1
08h / 40h / 51h	Rhythmic Saw	2
00h / 40h / 52h	JP8 Pulse	2
00h / 40h / 53h	Cheese Saw	1
00h / 40h / 54h	Reso Saw	1
00h / 40h / 55h	RAVE Vox	2
00h / 40h / 56h	5th Lead	2
00h / 40h / 57h	FM Lead 2	1
00h / 40h / 58h	Fantasia 2	2
00h / 40h / 59h	Soft Pad	2
00h / 40h / 5Ah	P5 Poly	2
00h / 40h / 5Bh	Heaven II	2
00h / 40h / 5Dh	Tine Pad	2
00h / 40h / 5Eh	JP8 Sqr Pad	2
00h / 40h / 5Fh	Sweep Pad 2	2
00h / 40h / 60h	LFO RAVE	2
00h / 40h / 61h	Ancestral	2
00h / 40h / 62h	Vibra Bells	2
00h / 40h / 63h	Harpvox	2
00h / 40h / 65h	Calculating	2
00h / 40h / 66h	Big Panner	2
01h / 40h / 66h	Ai-yai-a	2
02h / 40h / 66h	Echo Pan 2	2
00h / 40h / 6Ah	Shamisen	2
01h / 40h / 78h	Wah Brush Gt	1
06h / 40h / 78h	Pick Scrape	1
02h / 40h / 7Ah	Thunder Bell	2
04h / 40h / 7Bh	Cat	1
05h / 40h / 7Ch	Bar Chimes	1
07h / 40h / 7Dh	Falling Down	2
07h / 40h / 7Eh	Finger Snap	1
00h / 41h / 00h	MIDI Piano1	2
00h / 41h / 01h	MIDI Piano2	2
00h / 41h / 02h	EG+Rhodes 1	2
00h / 41h / 04h	Hard Rhodes	2
00h / 41h / 05h	E.Piano 3	1
08h / 41h / 05h	FM+SA EP	2
00h / 41h / 07h	5th Ana.Clav	2
00h / 41h / 10h	Full Organ 1	1
08h / 41h / 10h	Full Organ 2	1
10h / 41h / 10h	Full Organ 3	1
20h / 41h / 10h	Full Organ 4	1
00h / 41h / 11h	Jazz Organ 4	2
08h / 41h / 11h	Organ Bass	2
20h / 41h / 11h	Pipe Org. Bs	2
00h / 41h / 12h	Rotary Org.S	1
00h / 41h / 18h	Gut Guitar	1
08h / 41h / 19h	Nylon+Steel	2
00h / 41h / 1Eh	Dazed Guitar	2
08h / 41h / 1Eh	Power Guitar	2
00h / 41h / 20h	A.Bass+Cymb1	2
00h / 41h / 22h	Mute PickBs.	1
00h / 41h / 35h	Doos Voice	1
00h / 41h / 50h	CC Solo 2	2

CC0 / CC32 / PC	Tone Name	Number of Voices
00h / 41h / 5Dh	Panner Pad	2
00h / 41h / 5Fh	Polar Pad	1
00h / 41h / 61h	Prologue	2
00h / 41h / 62h	Clear Bells	2
00h / 41h / 63h	Nylon Harp	2
00h / 41h / 65h	Goblinson	2
02h / 41h / 66h	Water Piano	2
00h / 42h / 02h	EG+Rhodes 2	2
08h / 42h / 05h	Hard FM EP	2
10h / 42h / 05h	Hard E.Piano	2
00h / 42h / 10h	Lower Organ1	1
08h / 42h / 10h	Lower Organ2	1
10h / 42h / 10h	Lower Organ3	1
20h / 42h / 10h	Metalic Org.	2
00h / 42h / 11h	Jazz Organ 5	2
08h / 42h / 11h	Jazz Organ 6	2
20h / 42h / 11h	Jazz Organ 7	2
00h / 42h / 12h	Rotary Org.F	1
00h / 42h / 1Eh	Rock Rhythm2	2
08h / 42h / 1Eh	Rock Rhythm	2
00h / 42h / 35h	Thum Voice	1
00h / 42h / 5Fh	Converge	1
00h / 42h / 62h	ChristmasBel	2
00h / 42h / 63h	Nylon+Rhodes	2
00h / 42h / 65h	50's Sci-Fi	2
00h / 43h / 10h	Full Organ 5	2
08h / 43h / 10h	Full Organ 6	2
10h / 43h / 10h	Full Organ 7	2
20h / 43h / 10h	Full Organ 8	2
00h / 43h / 35h	Doot Accent	1
00h / 44h / 35h	Dat Accent	1
00h / 45h / 35h	Bop Accent	1
00h / 46h / 35h	Doos & Doot	2
00h / 47h / 35h	Dat & Bop	2

●AT-20R/30R Drum MAPPING

CC0 / CC32 / PC#	Drum Set Name
00h / 40h / 00h	STANDARD 2
00h / 40h / 08h	ROOM 2
00h / 00h / 10h	POWER
00h / 00h / 18h	ELECTRONIC
00h / 00h / 19h	TR-808
00h / 40h / 19h	DANCE
00h / 00h / 20h	JAZZ
00h / 40h / 28h	BRUSH 2
00h / 00h / 30h	ORCHESTRA
00h / 00h / 00h	STANDARD
00h / 00h / 08h	ROOM
00h / 00h / 28h	BRUSH
00h / 00h / 38h	SOUND EFFECT