

MIDI Implementation

Model: V-Bass
Date: March 14, 2002
Version: 1.00

1. RECOGNIZED RECEIVE DATA

■ CHANNEL VOICE MESSAGE

● Control Change

○ Bank Select

Status	Second	Third
BnH	00H	mmH
BnH	20H	llH

n = MIDI Channel No.: 0H - FH (ch.1 - ch.16)
mm = Bank No. (MSB): 00H - 7FH (0 - 127)
ll = Bank No. (LSB): 00H - 7FH (0 - 127)

- * This switches the patch in combination with the Program Change.
- * Only 00H and 01H are used for the Bank Number MSB.
- * The bank number LSB will be ignored.
- * After start-up, the V-Bass will operate with bank number 00H until it receives a bank select.

○ Control Change Number #1-31, #64-#95

Status	Second	Third
BnH	ccH	vvH

n = MIDI Channel No.: 0H - FH (ch.1 - ch.16)
cc = Controller No.: 01H - 1FH (1 - 31)
40H - 5FH (64 - 95)
vv = Value: 00H - 7FH (0 - 127)

- * When set as the Assign Source, this can be used to control the parameter selected as the Target.

● Program Change

Status	Second
CnH	ppH

n = MIDI Channel No.: 0H - FH (ch.1 - ch.16)
pp = Program No.: 00H - 7FH (No.1 - No.128)

- * Patches will be selected according to the program number that is received.
- * This switches the patch in combination with the Bank Select.

■ SYSTEM REALTIME MESSAGE

● Timing Clock

Status
F8H

- * This message is transmitted at intervals of 1/24th of a quarter note.
- * Recognized if the 'TEMPO' parameter is set to 'MIDI'.

■ SYSTEM EXCLUSIVE MESSAGE

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

F0H = System Exclusive
ii = Manufacturer ID: 41H (Roland)
dd ...ee = Data: 00H - 7FH (0 - 127)
F7H = EOX (End of Exclusive/System common)

- * For more details, please refer to "Roland Exclusive Message."

2. TRANSMITTED DATA

■ CHANNEL VOICE MESSAGE

● Control Change

○ Bank Select

Status	Second	Third
BnH	00H	mmH
BnH	20H	00H

n = MIDI Channel No.: 0H - FH (ch.1 - ch.16)
mm = Bank No.: 00H - 01H (0-1)

- * If you set up a system parameter "PROGRAM CHANGE OUT" for "ON," Bank Select (00H, 20H) is transmitted when switching patch.

○ Control Change Number #1-#31, #64-#95

Status	Second	Third
BnH	ccH	vvH

n = MIDI Channel No.: 0H - FH (ch.1 - ch.16)
cc = Controller Number: 01H - 1FH (1 - 31)
40H - 5FH (64 - 95)
vv = Value: 00H - 7FH (0 - 127)

- * If you set up a control change number at a system parameter "EXP PEDAL NUMBER," control change information is transmitted when operating EXP pedal.
- * If you set up a control change number at a system parameter "CTL PEDAL NUMBER," control change information is transmitted when operating CTL pedal.
- * If you set up a control change number at a system parameter "SUB CTL1 PEDAL NUMBER," control change information is transmitted when operating CTL 1 pedal (SUB EXP pedal) of an outside connection.
- * If you set up a control change number at a system parameter "SUB CTL2 PEDAL NUMBER," control change information is transmitted when operating CTL 2 pedal (SUB EXP pedal) of an outside connection.

● Program Change

Status	Second
CnH	ppH

n = MIDI Channel No.: 0H - FH (ch.1 - ch.16)
pp = Program No.: 00H - 63H (No.1 - No.100)

- * If you set up a system parameter "PROGRAM CHANGE OUT" for "ON", program change information is transmitted when switching patch.
- * The following program numbers are transmitted.

BANK				PROG				BANK				PROG				BANK				PROG			
PATCH	MSB	LSB	CHG	PATCH	MSB	LSB	CHG	PATCH	MSB	LSB	CHG	PATCH	MSB	LSB	CHG	PATCH	MSB	LSB	CHG	PATCH	MSB	LSB	CHG
# 1-1 = 0	0	0	1	#13-3 = 0	0	0	51	#26-1 = 1	0	0	1	#38-3 = 1	0	0	51								
# 1-2 = 0	0	0	2	#13-4 = 0	0	0	52	#26-2 = 1	0	0	2	#38-4 = 1	0	0	52								
# 1-3 = 0	0	0	3	#14-1 = 0	0	0	53	#26-3 = 1	0	0	3	#39-1 = 1	0	0	53								
# 1-4 = 0	0	0	4	#14-2 = 0	0	0	54	#26-4 = 1	0	0	4	#39-2 = 1	0	0	54								
# 2-1 = 0	0	0	5	#14-3 = 0	0	0	55	#27-1 = 1	0	0	5	#39-3 = 1	0	0	55								
# 2-2 = 0	0	0	6	#14-4 = 0	0	0	56	#27-2 = 1	0	0	6	#39-4 = 1	0	0	56								
# 2-3 = 0	0	0	7	#15-1 = 0	0	0	57	#27-3 = 1	0	0	7	#40-1 = 1	0	0	57								
# 2-4 = 0	0	0	8	#15-2 = 0	0	0	58	#27-4 = 1	0	0	8	#40-2 = 1	0	0	58								
# 3-1 = 0	0	0	9	#15-3 = 0	0	0	59	#28-1 = 1	0	0	9	#40-3 = 1	0	0	59								
# 3-2 = 0	0	0	10	#15-4 = 0	0	0	60	#28-2 = 1	0	0	10	#40-4 = 1	0	0	60								
# 3-3 = 0	0	0	11	#16-1 = 0	0	0	61	#28-3 = 1	0	0	11	#41-1 = 1	0	0	61								
# 3-4 = 0	0	0	12	#16-2 = 0	0	0	62	#28-4 = 1	0	0	12	#41-2 = 1	0	0	62								
# 4-1 = 0	0	0	13	#16-3 = 0	0	0	63	#29-1 = 1	0	0	13	#41-3 = 1	0	0	63								
# 4-2 = 0	0	0	14	#16-4 = 0	0	0	64	#29-2 = 1	0	0	14	#41-4 = 1	0	0	64								
# 4-3 = 0	0	0	15	#17-1 = 0	0	0	65	#29-3 = 1	0	0	15	#42-1 = 1	0	0	65								
# 4-4 = 0	0	0	16	#17-2 = 0	0	0	66	#29-4 = 1	0	0	16	#42-2 = 1	0	0	66								
# 5-1 = 0	0	0	17	#17-3 = 0	0	0	67	#30-1 = 1	0	0	17	#42-3 = 1	0	0	67								
# 5-2 = 0	0	0	18	#17-4 = 0	0	0	68	#30-2 = 1	0	0	18	#42-4 = 1	0	0	68								
# 5-3 = 0	0	0	19	#18-1 = 0	0	0	69	#30-3 = 1	0	0	19	#43-1 = 1	0	0	69								
# 5-4 = 0	0	0	20	#18-2 = 0	0	0	70	#30-4 = 1	0	0	20	#43-2 = 1	0	0	70								
# 6-1 = 0	0	0	21	#18-3 = 0	0	0	71	#31-1 = 1	0	0	21	#43-3 = 1	0	0	71								
# 6-2 = 0	0	0	22	#18-4 = 0	0	0	72	#31-2 = 1	0	0	22	#43-4 = 1	0	0	72								
# 6-3 = 0	0	0	23	#19-1 = 0	0	0	73	#31-3 = 1	0	0	23	#44-1 = 1	0	0	73								
# 6-4 = 0	0	0	24	#19-2 = 0	0	0	74	#31-4 = 1	0	0	24	#44-2 = 1	0	0	74								
# 7-1 = 0	0	0	25	#19-3 = 0	0	0	75	#32-1 = 1	0	0	25	#44-3 = 1	0	0	75								
# 7-2 = 0	0	0	26	#19-4 = 0	0	0	76	#32-2 = 1	0	0	26	#44-4 = 1	0	0	76								
# 7-3 = 0	0	0	27	#20-1 = 0	0	0	77	#32-3 = 1	0	0	27	#45-1 = 1	0	0	77								
# 7-4 = 0	0	0	28	#20-2 = 0	0	0	78	#32-4 = 1	0	0	28	#45-2 = 1	0	0	78								
# 8-1 = 0	0	0	29	#20-3 = 0	0	0	79	#33-1 = 1	0	0	29	#45-3 = 1	0	0	79								
# 8-2 = 0	0	0	30	#20-4 = 0	0	0	80	#33-2 = 1	0	0	30	#45-4 = 1	0	0	80								
# 8-3 = 0	0	0	31	#21-1 = 0	0	0	81	#33-3 = 1	0	0	31	#46-1 = 1	0	0	81								
# 8-4 = 0	0	0	32	#21-2 = 0	0	0	82	#33-4 = 1	0	0	32	#46-2 = 1	0	0	82								
# 9-1 = 0	0	0	33	#21-3 = 0	0	0	83	#34-1 = 1	0	0	33	#46-3 = 1	0	0	83								
# 9-2 = 0	0	0	34	#21-4 = 0	0	0	84	#34-2 = 1	0	0	34	#46-4 = 1	0	0	84								
# 9-3 = 0	0	0	35	#22-1 = 0	0	0	85	#34-3 = 1	0	0	35	#47-1 = 1	0	0	85								
# 9-4 = 0	0	0	36	#22-2 = 0	0	0	86	#34-4 = 1	0	0	36	#47-2 = 1	0	0	86								
#10-1 = 0	0	0	37	#22-3 = 0	0	0	87	#35-1 = 1	0	0	37	#47-3 = 1	0	0	87								
#10-2 = 0	0	0	38	#22-4 = 0	0	0	88	#35-2 = 1	0	0	38	#47-4 = 1	0	0	88								
#10-3 = 0	0	0	39	#23-1 = 0	0	0	89	#35-3 = 1	0	0	39	#48-1 = 1	0	0	89								
#10-4 = 0	0	0	40	#23-2 = 0	0	0	90	#35-4 = 1	0	0	40	#48-2 = 1	0	0	90								
#11-1 = 0	0	0	41	#23-3 = 0	0	0	91	#36-1 = 1	0	0	41	#48-3 = 1	0	0	91								
#11-2 = 0	0	0	42	#23-4 = 0	0	0	92	#36-2 = 1	0	0	42	#48-4 = 1	0	0	92								
#11-3 = 0	0	0	43	#24-1 = 0	0	0	93	#36-3 = 1	0	0	43	#49-1 = 1	0	0	93								
#11-4 = 0	0	0	44	#24-2 = 0	0	0	94	#36-4 = 1	0	0	44	#49-2 = 1	0	0	94								
#12-1 = 0	0	0	45	#24-3 = 0	0	0	95	#37-1 = 1	0	0	45	#49-3 = 1	0	0	95								
#12-2 = 0	0	0	46	#24-4 = 0	0	0	96	#37-2 = 1	0	0	46	#49-4 = 1	0	0	96								
#12-3 = 0	0	0	47	#25-1 = 0	0	0	97	#37-3 = 1	0	0	47	#50-1 = 1	0	0	97								
#12-4 = 0	0	0	48	#25-2 = 0	0	0	98	#37-4 = 1	0	0	48	#50-2 = 1	0	0	98								
#13-1 = 0	0	0	49	#25-3 = 0	0	0	99	#38-1 = 1	0	0	49	#50-3 = 1	0	0	99								
#13-2 = 0	0	0	50	#25-4 = 0	0	0	100	#38-2 = 1	0	0	50	#50-4 = 1	0	0	100								

SYSTEM EXCLUSIVE MESSAGE

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

F0H = System Exclusive
 ii = Manufacturer ID : 41H (Roland)
 dd ...ee = Data : 00H - 7FH (0 - 127)
 F7H = EOX (End of Exclusive/System common)

* For more details, please refer to "Roland Exclusive Message."

3. EXCLUSIVE COMMUNICATION

On the V-Bass, exclusive messages can be used as follows. - Transmit/receive V-Bass system/patch data

The model ID for V-Bass exclusive messages is 00H 52H, and you can set up the device ID at 00H-1FH.

ONE WAY COMMUNICATION

Request Data 1 RQ1 (11H)

Byte	Description
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
Dev	Device ID (Dev=00H-1FH)
00H	Model ID (V-Bass) MSB
52H	Model ID (V-Bass) LSB
11H	Command ID (RQ1)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
ssH	Size MSB
ttH	Size

uuH	Size
vvH	Size LSB
sum	Checksum
F7H	EOX (End of Exclusive)

* This message can only be received, and is not transmitted from the V-Bass.

Data Set 1 DT1 (12H)

Byte	Description
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
Dev	Device ID (Dev=00H-1FH)
00H	Model ID (V-Bass) MSB
52H	Model ID (V-Bass) LSB
12H	Command ID (DT1)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
eeH	Data
:	:
ffH	Data
sum	Checksum
F7H	EOX (End of Exclusive)

4. PARAMETER ADDRESS MAP

The address and size are displayed under 7-bit hexadecimal notation.

Address	MSB		LSB	
Binary	0aaa aaaa	0bbb bbbb	0ccc cccc	0ddd dddd
7-bit Hexadecimal	AA	BB	CC	DD

Size	MSB		LSB	
Binary	0sss ssss	0ttt tttt	0uuu uuuu	0vvv vvvv
7-bit Hexadecimal	SS	TT	UU	VV

Address Block Map

Address	Block	Sub Block	Note	
00 00 00 00	SYSTEM	DISPLAY CONTRAST	* Refer to Table 'DISPLAY'	
01 00 00 00		GK FUNC	* Refer to Table 'GK FUNC'	
02 00 00 00		GLOBAL	* Refer to Table 'GLOBAL'	
03 00 00 00		TUNER	* Refer to Table 'TUNER'	
04 00 00 00		MANUAL	* Refer to Table 'MANUAL'	
05 00 00 00		GK SETTING	* Refer to Table 'GK SETTING'	
06 00 00 00		PEDAL	* Refer to Table 'PEDAL'	
07 00 00 00		DIAL	* Refer to Table 'DIAL'	
09 00 00 01		MIDI	* Refer to Table 'MIDI'	
09 00 02 00		PROGRAM MAP(BANK0)	* Refer to Table 'PROGRAM MAP(BANK0)'	
09 00 04 00		PROGRAM MAP(BANK1)	* Refer to Table 'PROGRAM MAP(BANK1)'	
0C 00 00 00		USER Patch	#1-1	* Refer to Table 'PATCH'
			#1-2	
			:	
	#25-3			
	#25-4			
0E 00 00 00	PRESET Patch	#26-1	* Refer to Table 'PATCH' (Read Only)	
		#26-2		
		:		
		#50-3		
		#50-4		

- * Bulk data can be received in the MIDI Parameter screen during Load Standby, and in the Play screen. (When received in the Play screen, the unit switches to the patches referenced by the received data after it has been received.)
- * In order to receive a data request, select the load-ready state in the MIDI parameter screen.
- * When a data request is received, the data is transmitted in units of blocks that include the specified address (specified by the upper two bytes of the address).
- * Parameters for which Size is 2 or higher should not be separated; make sure these are sent in the same packet.

Table 'DISPLAY'

Address(H)	Size(H)	Data(H)	Parameter	Description
00 00 00 00	00 00 00 01	01 - 10	CONTRAST	1 - 16

Table 'GK FUNC'

Address(H)	Size(H)	Data(H)	Parameter	Description
01 00 00 00	00 00 00 01	00 - 05	DOWN/S1 UP/S2	00 : ASSIGNABLE 01 : MASTER LEVEL 02 : PEDAL FUNC 03 : PATCH SELECT 04 : BYPASS/MANU 05 : TUNER/TEMPO
01 00 00 01	00 00 00 01	00 - 03	GK VOL	00 : ASSIGNABLE 01 : PICKUP LEVEL 02 : MIXER LEVEL 03 : MASTER LEVEL

Table 'GLOBAL'

Address(H)	Size(H)	Data(H)	Parameter	Description
02 00 00 00	00 00 00 01	00 - 01	ON/OFF	00 : OFF 01 : ON
02 00 00 01	00 00 00 01	00 - 28	LOW G	-20dB - +20dB
02 00 00 02	00 00 00 01	00 - 28	HIGH G	-20dB - +20dB
02 00 00 03	00 00 00 01	00 - 28	NS	-20dB - +20dB
02 00 00 04	00 00 00 01	00 - 64	REVERB	0% - 200%
02 00 00 05	00 00 00 01	00 - 64	LEVEL	-50 - +50

Table 'TUNER'

Address(H)	Size(H)	Data(H)	Parameter	Description
03 00 00 00	00 00 00 01	00 - 0A	PITCH	435Hz - 445Hz
03 00 00 01	00 00 00 01	00 - 02	BYPASS	00 : MUTE 01 : GK 02 : BASS IN

Table 'MANUAL'

Address(H)	Size(H)	Data(H)	Parameter	Description
04 00 00 00	00 00 00 01	00 - 08	PEDAL 1	
04 00 00 01	00 00 00 01	00 - 08	PEDAL 2	
04 00 00 02	00 00 00 01	00 - 08	PEDAL 3	
04 00 00 03	00 00 00 01	00 - 08	PEDAL 4	
				00 : COMP 01 : WAH 02 : OD/DS 03 : EQ 04 : MOD 05 : DELAY 06 : CHORUS 07 : REVERB 08 : NS

Table 'GK SETTING'

Address(H)	Size(H)	Data(H)	Parameter	Description
05 00 00 00	00 00 00 01	00 - 04	SETTING	00 : A 01 : B 02 : C 03 : D 04 : E
05 00 00 01	00 00 00 01		reserved	
05 00 00 02	00 00 00 01		reserved	
05 00 00 03	00 00 00 01		reserved	
[SETTING = A]				
05 00 00 04	00 00 00 01	00 - 02	GK TYPE	00 : GK-2B 01 : PIEZO1 02 : PIEZO2
05 00 00 05	00 00 00 01	00 - 07	GK POSI	00 : 4STR-1 01 : 4STR-2 02 : 4STR-3 03 : 5STR-Lo1 04 : 5STR-Lo2 05 : 5STR-Hi1 06 : 5STR-Hi2 07 : 6STR
05 00 00 06	00 00 00 01	00 - 01	DIRECTION	00 : NORMAL 01 : REVERSE
05 00 00 07	00 00 00 01	00 - 77	SCALE	00 : 710mm : : 73 : 940mm 74 : SHORT 75 : MEDIUM 76 : LONG(JB/PB) 77 : EXTRA LONG
05 00 00 08	00 00 00 01	00 - 01	GK PU PHASE	00 : NORMAL 01 : INVERSE
05 00 00 09	00 00 00 01	00 - 01	S1/S2 POSITION	00 : NORMAL 01 : REVERSE
05 00 00 0A	00 00 00 01	00 - 02	GK CONNECTION	00 : AUTO 01 : ON 02 : OFF
05 00 00 0B	00 00 00 01	20 - 7F	SETTING NAME 1	* Refer to Table 'NAME1'
05 00 00 0C	00 00 00 01	20 - 7F	SETTING NAME 2	* Refer to Table 'NAME1'
05 00 00 0D	00 00 00 01	20 - 7F	SETTING NAME 3	* Refer to Table 'NAME1'
05 00 00 0E	00 00 00 01	20 - 7F	SETTING NAME 4	* Refer to Table 'NAME1'
05 00 00 0F	00 00 00 01	20 - 7F	SETTING NAME 5	* Refer to Table 'NAME1'
05 00 00 10	00 00 00 01	20 - 7F	SETTING NAME 6	* Refer to Table 'NAME1'
05 00 00 11	00 00 00 01	20 - 7F	SETTING NAME 7	* Refer to Table 'NAME1'
05 00 00 12	00 00 00 01	20 - 7F	SETTING NAME 8	* Refer to Table 'NAME1'
05 00 00 13	00 00 00 01		reserved	
05 00 00 14	00 00 00 01	00 - 32	PU<-->BRIDGE Hi	0mm - 50mm
05 00 00 15	00 00 00 01	00 - 32	PU<-->BRIDGE 1	0mm - 50mm
05 00 00 16	00 00 00 01	00 - 32	PU<-->BRIDGE 2	0mm - 50mm
05 00 00 17	00 00 00 01	00 - 32	PU<-->BRIDGE 3	0mm - 50mm
05 00 00 18	00 00 00 01	00 - 32	PU<-->BRIDGE 4	0mm - 50mm
05 00 00 19	00 00 00 01	00 - 32	PU<-->BRIDGE Lo	0mm - 50mm
05 00 00 1A	00 00 00 01	00 - 64	SENSITIVITY Hi	0 - 100
05 00 00 1B	00 00 00 01	00 - 64	SENSITIVITY 1	0 - 100
05 00 00 1C	00 00 00 01	00 - 64	SENSITIVITY 2	0 - 100
05 00 00 1D	00 00 00 01	00 - 64	SENSITIVITY 3	0 - 100
05 00 00 1E	00 00 00 01	00 - 64	SENSITIVITY 4	0 - 100
05 00 00 1F	00 00 00 01	00 - 64	SENSITIVITY Lo	0 - 100
[SETTING = B]				
05 00 00 20	00 00 00 01	00 - 02	GK TYPE	
:	:	:	:	:
05 00 00 2B	00 00 00 01	00 - 64	SENSITIVITY Lo	
[SETTING = C]				
05 00 00 2C	00 00 00 01	00 - 02	GK TYPE	
:	:	:	:	:
05 00 00 27	00 00 00 01	00 - 64	SENSITIVITY Lo	
[SETTING = D]				
05 00 00 28	00 00 00 01	00 - 02	GK TYPE	
:	:	:	:	:
05 00 00 33	00 00 00 01	00 - 64	SENSITIVITY Lo	
[SETTING = E]				

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05 00 00 34 00 00 00 01 00 - 02 GK TYPE
:
05 00 00 40 00 00 00 01 00 - 64 SENSITIVITY Lo
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Table 'PEDAL'

Address(H)	Size(H)	Data(H)	Parameter	Description
06 00 00 00	00 00 00 01	00 - 02	BANK SW MODE	00 : WAIT NUM 01 : NUMBER 1 02 : SAME NUM
06 00 00 01	00 00 00 01	01 - 32	BANK AREA(MIN)	1-50
06 00 00 02	00 00 00 01	01 - 32	BANK AREA(MAX)	1-50
06 00 00 03	00 00 00 01	00 - 04	SUB CTL1	
06 00 00 04	00 00 00 01	00 - 04	SUB CTL2	
06 00 00 05	00 00 00 01	00 - 01	EXP/GK VOL HOLD	00 : ASSIGNABLE 01 : TUNER 02 : TAP TEMPO 03 : MANUAL 04 : FX-BYPASS
06 00 00 06	00 00 00 01	00 - 7F	EXP PEDAL CALIBRATION RELEASE	00 : OFF 01 : ON
06 00 00 06	00 00 00 01	00 - 7F	EXP PEDAL CALIBRATION PRESS	00 : OFF 01 : ON

Table 'DIAL'

Address(H)	Size(H)	Data(H)	Parameter	Description
07 00 00 00	00 00 00 01	00 - 01	FUNCTION	00 : P.NUMBER&VALUE 01 : VALUE ONLY

Table 'MIDI'

Address(H)	Size(H)	Data(H)	Parameter	Description
09 00 00 01	00 00 00 01	00 - 0F	CHANNEL	00 : 1 : : 0F : 16
09 00 00 02	00 00 00 01	00 - 01	OMNI MODE	00 : OFF 01 : ON
09 00 00 03	00 00 00 01	00 - 01	PROGRAM CHANGE OUT	00 : OFF 01 : ON
09 00 00 04	00 00 00 01	00 - 01	PC MAP SELECT	00 : FIX 01 : PROG
09 00 00 05	00 00 00 01	00 - 3F	EXP PEDAL NUMBER	
09 00 00 06	00 00 00 01	00 - 3F	CTL PEDAL NUMBER	
09 00 00 07	00 00 00 01	00 - 3F	SUB CTL 1 NUMBER	
09 00 00 08	00 00 00 01	00 - 3F	SUB CTL 2 NUMBER	
09 00 00 09	00 00 00 01		reserved	00 : OFF 01 : CC#1 : : 1F : CC#31 20 : CC#64 : : 3F : CC#95
09 00 00 0A	00 00 00 01		reserved	
09 00 00 0B	00 00 00 01		reserved	
09 00 00 0C	00 00 00 01		reserved	
09 00 00 0D	00 00 00 01		reserved	
09 00 00 0E	00 00 00 01		reserved	
09 00 00 0F	00 00 00 01		reserved	

Table 'PROGRAM MAP(BANK0)'

Address(H)	Size(H)	Data(H)	Parameter	Description
09 00 02 00	00 00 00 02	00 00 - 01 47	BANK 0 , PC1	* Refer to Table 'PROGRAM MAP' *2
09 00 02 7E	00 00 00 02	00 00 - 01 47	BANK 0 , PC64	* Refer to Table 'PROGRAM MAP' *2
09 00 03 00	00 00 00 02	00 00 - 01 47	BANK 0 , PC65	* Refer to Table 'PROGRAM MAP' *2
09 00 03 7E	00 00 00 02	00 00 - 01 47	BANK 0 , PC128	* Refer to Table 'PROGRAM MAP' *2

Table 'PROGRAM MAP(BANK1)'

Address(H)	Size(H)	Data(H)	Parameter	Description
09 00 04 00	00 00 00 02	00 00 - 01 47	BANK 1 , PC1	* Refer to Table 'PROGRAM MAP' *2
09 00 04 7E	00 00 00 02	00 00 - 01 47	BANK 1 , PC64	* Refer to Table 'PROGRAM MAP' *2
09 00 05 00	00 00 00 02	00 00 - 01 47	BANK 1 , PC65	* Refer to Table 'PROGRAM MAP' *2
09 00 05 7E	00 00 00 02	00 00 - 01 47	BANK 1 , PC128	* Refer to Table 'PROGRAM MAP' *2

Table 'PATCH'

offset(H)	Size(H)	Data(H)	Parameter	Description
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* All data is transmitted as nibble data.

==== COSM BASS =====

* The significance of the parameters of each address will change as follows, depending on the [ACOUSTIC] - [POLY SLOW GEAR] type.

[ACOUSTIC]				
----- PICKUP -----				
** **	00 00	00 00 00 02	00 - 02	TYPE
				00 : MIC 01 : PIEZO 02 : MAGNET
** **	00 02	00 00 00 02	00 - 64	TONE
** **	00 04	00 00 00 02	00 - 64	LEVEL
** **	00 06	00 00 00 02		reserved
				0-100
----- BODY -----				
** **	00 08	00 00 00 02	00 - 64	SIZE
** **	00 0A	00 00 00 02	00 - 64	BODY LEV
				-50 - +50 0 - 100

```

** ** 00 0C 00 00 00 02 00 - 64 ATTACK 0 - 100
** ** 00 0E 00 00 00 02 00 - 64 SUSTAIN 0 - 100
** ** 00 10 00 00 00 02 00 - 0A RESO 0 - 10
** ** 00 12 00 00 00 02 00 - 14 BOTTOM -10 - +10
** ** 00 14 00 00 00 02 reserved
:
** ** 01 26 00 00 00 02 reserved

[ELECTRIC]
----- BASS SELECT -----
** ** 00 00 00 00 00 02 00 - 08 TYPE 00 : VINT JB
01 : JB
02 : VINT PB
03 : PB
04 : RICK
05 : T-BIRD
06 : ACTIVE
07 : VIOLIN
08 : M-MAN
0 - 100
** ** 00 02 00 00 00 02 00 - 64 LEVEL 0 - 100
** ** 00 04 00 00 00 02 00 - 64 TONE 0 - 100
** ** 00 06 00 00 00 02 00 - 02 PU SEL 00 : FRONT
01 : FRNT + REAR
02 : REAR
0 - 100
** ** 00 08 00 00 00 02 00 - 64 F.VOL 0 - 100
** ** 00 0A 00 00 00 02 00 - 64 F.TONE 0 - 100
** ** 00 0C 00 00 00 02 00 - 64 R.VOL 0 - 100
** ** 00 0E 00 00 00 02 00 - 64 R.TONE 0 - 100
** ** 00 10 00 00 00 02 00 - 64 BASS (M-MAN) -50 - +50
** ** 00 12 00 00 00 02 00 - 64 TREBLE (M-MAN) -50 - +50
** ** 00 14 00 00 00 02 00 - 01 BASS ON 00 : OFF
01 : ON
0 - 100
** ** 00 16 00 00 00 02 00 - 01 TREBLE ON 00 : OFF
01 : ON
0 - 100
** ** 00 18 00 00 00 02 00 - 01 SOLO/RTM 00 : SOLO
01 : RHTHM
0 - 100
** ** 00 1A 00 00 00 02 00 - 64 BASS (ACTIVE) 0 - 100
** ** 00 1C 00 00 00 02 00 - 64 TREBLE (ACTIVE) 0 - 100
** ** 00 1E 00 00 00 02 reserved
----- PT SHIFT -----
** ** 00 20 00 00 00 02 00 - 01 MODE 00 : SHIFT
01 : HARMO
-24 - +24
** ** 00 22 00 00 00 02 00 - 30 SHIFT Hi -24 - +24
** ** 00 24 00 00 00 02 00 - 30 SHIFT 1 -24 - +24
** ** 00 26 00 00 00 02 00 - 30 SHIFT 2 -24 - +24
** ** 00 28 00 00 00 02 00 - 30 SHIFT 3 -24 - +24
** ** 00 2A 00 00 00 02 00 - 30 SHIFT 4 -24 - +24
** ** 00 2C 00 00 00 02 00 - 30 SHIFT Lo -24 - +24
** ** 00 2E 00 00 00 02 00 - 64 FINE Hi -50 - +50
** ** 00 30 00 00 00 02 00 - 64 FINE 1 -50 - +50
** ** 00 32 00 00 00 02 00 - 64 FINE 2 -50 - +50
** ** 00 34 00 00 00 02 00 - 64 FINE 3 -50 - +50
** ** 00 36 00 00 00 02 00 - 64 FINE 4 -50 - +50
** ** 00 38 00 00 00 02 00 - 64 FINE Lo -50 - +50
** ** 00 3A 00 00 00 02 00 - 64 E.LEV Hi 0 - 100
** ** 00 3C 00 00 00 02 00 - 64 E.LEV 1 0 - 100
** ** 00 3E 00 00 00 02 00 - 64 E.LEV 2 0 - 100
** ** 00 40 00 00 00 02 00 - 64 E.LEV 3 0 - 100
** ** 00 42 00 00 00 02 00 - 64 E.LEV 4 0 - 100
** ** 00 44 00 00 00 02 00 - 64 E.LEV Lo 0 - 100
** ** 00 46 00 00 00 02 00 - 64 D.LEV Hi 0 - 100
** ** 00 48 00 00 00 02 00 - 64 D.LEV 1 0 - 100
** ** 00 4A 00 00 00 02 00 - 64 D.LEV 2 0 - 100
** ** 00 4C 00 00 00 02 00 - 64 D.LEV 3 0 - 100
** ** 00 4E 00 00 00 02 00 - 64 D.LEV 4 0 - 100
** ** 00 50 00 00 00 02 00 - 64 D.LEV Lo 0 - 100
** ** 00 52 00 00 00 02 00 - 1C HARMO Hi * Refer to Table 'PT SHIFT_HARM'
** ** 00 54 00 00 00 02 00 - 1C HARMO 1 * Refer to Table 'PT SHIFT_HARM'
** ** 00 56 00 00 00 02 00 - 1C HARMO 2 * Refer to Table 'PT SHIFT_HARM'
** ** 00 58 00 00 00 02 00 - 1C HARMO 3 * Refer to Table 'PT SHIFT_HARM'
** ** 00 5A 00 00 00 02 00 - 1C HARMO 4 * Refer to Table 'PT SHIFT_HARM'
** ** 00 5C 00 00 00 02 00 - 1C HARMO Lo * Refer to Table 'PT SHIFT_HARM'
** ** 00 5E 00 00 00 02 reserved
** ** 00 60 00 00 00 02 00 - 01 PT SHIFT ON/OFF 00 : OFF
01 : ON
0 - 100
** ** 00 62 00 00 00 02 reserved
:
** ** 01 26 00 00 00 02 reserved

[FRETLESS]
----- FRETLESS -----
** ** 00 00 00 00 00 02 00 - 64 SENS 0 - 100
** ** 00 02 00 00 00 02 00 - 64 DEPTH 0 - 100
** ** 00 04 00 00 00 02 00 - 64 TONE 0 - 100
** ** 00 06 00 00 00 02 00 - 64 LEVEL 0 - 100
----- PT SHIFT -----
** ** 00 08 00 00 00 02 00 - 01 MODE 00 : SHIFT
01 : HARMO
-24 - +24
** ** 00 1A 00 00 00 02 00 - 30 SHIFT Hi -24 - +24
** ** 00 1C 00 00 00 02 00 - 30 SHIFT 1 -24 - +24
** ** 00 1E 00 00 00 02 00 - 30 SHIFT 2 -24 - +24
** ** 00 20 00 00 00 02 00 - 30 SHIFT 3 -24 - +24
** ** 00 22 00 00 00 02 00 - 30 SHIFT 4 -24 - +24
** ** 00 24 00 00 00 02 00 - 30 SHIFT Lo -24 - +24
** ** 00 26 00 00 00 02 00 - 64 FINE Hi -50 - +50
** ** 00 28 00 00 00 02 00 - 64 FINE 1 -50 - +50
** ** 00 2A 00 00 00 02 00 - 64 FINE 2 -50 - +50
** ** 00 2C 00 00 00 02 00 - 64 FINE 3 -50 - +50
** ** 00 2E 00 00 00 02 00 - 64 FINE 4 -50 - +50
** ** 00 30 00 00 00 02 00 - 64 FINE Lo -50 - +50
** ** 00 32 00 00 00 02 00 - 64 E.LEV Hi 0 - 100
** ** 00 34 00 00 00 02 00 - 64 E.LEV 1 0 - 100
** ** 00 36 00 00 00 02 00 - 64 E.LEV 2 0 - 100
** ** 00 38 00 00 00 02 00 - 64 E.LEV 3 0 - 100
** ** 00 3A 00 00 00 02 00 - 64 E.LEV 4 0 - 100
** ** 00 3C 00 00 00 02 00 - 64 E.LEV Lo 0 - 100
** ** 00 3E 00 00 00 02 00 - 64 D.LEV Hi 0 - 100
** ** 00 40 00 00 00 02 00 - 64 D.LEV 1 0 - 100
** ** 00 42 00 00 00 02 00 - 64 D.LEV 2 0 - 100
** ** 00 44 00 00 00 02 00 - 64 D.LEV 3 0 - 100
** ** 00 46 00 00 00 02 00 - 64 D.LEV 4 0 - 100
** ** 00 48 00 00 00 02 00 - 64 D.LEV Lo 0 - 100
** ** 00 4A 00 00 00 02 00 - 1C HARMO Hi * Refer to Table 'PT SHIFT_HARM'
** ** 00 4C 00 00 00 02 00 - 1C HARMO 1 * Refer to Table 'PT SHIFT_HARM'
** ** 00 4E 00 00 00 02 00 - 1C HARMO 2 * Refer to Table 'PT SHIFT_HARM'
** ** 00 50 00 00 00 02 00 - 1C HARMO 3 * Refer to Table 'PT SHIFT_HARM'
** ** 00 52 00 00 00 02 00 - 1C HARMO 4 * Refer to Table 'PT SHIFT_HARM'
** ** 00 54 00 00 00 02 00 - 1C HARMO Lo * Refer to Table 'PT SHIFT_HARM'

```

```

** ** 00 56 00 00 00 02 reserved
** ** 00 58 00 00 00 02 00 - 01 PT SHIFT ON/OFF 00 : OFF
: 01 : ON
:
** ** 01 26 00 00 00 02 reserved

[VARI BASS]
----- PICKUP -----
** ** 00 00 00 00 00 04 00 00 FRONT OFFSET Hi * Refer to table 'PICKUP_OFFSET' *2
- 00 B2
** ** 00 04 00 00 00 04 00 00 FRONT OFFSET 1 * Refer to table 'PICKUP_OFFSET' *2
- 00 B2
** ** 00 08 00 00 00 04 00 00 FRONT OFFSET 2 * Refer to table 'PICKUP_OFFSET' *2
- 00 B2
** ** 00 0C 00 00 00 04 00 00 FRONT OFFSET 3 * Refer to table 'PICKUP_OFFSET' *2
- 00 B2
** ** 00 10 00 00 00 04 00 00 FRONT OFFSET 4 * Refer to table 'PICKUP_OFFSET' *2
- 00 B2
** ** 00 14 00 00 00 04 00 00 FRONT OFFSET Lo * Refer to table 'PICKUP_OFFSET' *2
- 00 B2
** ** 00 18 00 00 00 04 00 00 REAR OFFSET Hi * Refer to table 'PICKUP_OFFSET' *2
- 00 B2
** ** 00 1C 00 00 00 04 00 00 REAR OFFSET 1 * Refer to table 'PICKUP_OFFSET' *2
- 00 B2
** ** 00 20 00 00 00 04 00 00 REAR OFFSET 2 * Refer to table 'PICKUP_OFFSET' *2
- 00 B2
** ** 00 24 00 00 00 04 00 00 REAR OFFSET 3 * Refer to table 'PICKUP_OFFSET' *2
- 00 B2
** ** 00 28 00 00 00 04 00 00 REAR OFFSET 4 * Refer to table 'PICKUP_OFFSET' *2
- 00 B2
** ** 00 2C 00 00 00 04 00 00 REAR OFFSET Lo * Refer to table 'PICKUP_OFFSET' *2
- 00 B2
** ** 00 30 00 00 00 02 00 - 02 FRONT TYPE * Refer to table 'PICKUP_TYPE'
** ** 00 32 00 00 00 02 00 - 59 F.POSI * Refer to table 'PICKUP_POSITION'
** ** 00 34 00 00 00 02 00 - 01 F.PHASE 00 : IN
01 : OUT
** ** 00 36 00 00 00 02 00 - 64 F.TONE -50 - +50
** ** 00 38 00 00 00 02 00 - 64 F.VOL 0 - 100
** ** 00 3A 00 00 00 02 00 - 02 REAR TYPE * Refer to table 'PICKUP_TYPE'
** ** 00 3C 00 00 00 02 00 - 59 R.POSI * Refer to table 'PICKUP_POSITION'
** ** 00 3E 00 00 00 02 00 - 01 R.PHASE 00 : IN
01 : OUT
-50 - +50
** ** 00 40 00 00 00 02 00 - 64 R.TONE -50 - +50
** ** 00 42 00 00 00 02 00 - 64 R.VOL 0 - 100
** ** 00 44 00 00 00 02 00 - 64 TONE -50 - +50
** ** 00 46 00 00 00 02 00 - 64 LEVEL 0 - 100
** ** 00 48 00 00 00 02 00 - 64 BALANCE R=100,F=0 - R=0,F=100
** ** 00 4A 00 00 00 02 00 - 64 BASS -50 - +50
** ** 00 4C 00 00 00 02 00 - 64 TREBLE -50 - +50
** ** 00 4E 00 00 00 02 00 - 03 CONTROL 00 : 2VOL-2TONE
01 : 2VOL-1TONE
02 : BALANCE
03 : 2BAND

----- BODY -----
** ** 00 50 00 00 00 02 00 - 03 TYPE 00 : SOLID
01 : VIOLIN
02 : SEMI HOLLOW
03 : HUGE WOOD
-50 - +50
** ** 00 52 00 00 00 02 00 - 64 SIZE 0 - 100
** ** 00 54 00 00 00 02 00 - 64 LEVEL 0 - 100
** ** 00 56 00 00 00 02 00 - 64 BODY 0 - 100
** ** 00 58 00 00 00 02 00 - 64 RESO 0 - 100
** ** 00 5A 00 00 00 02 00 - 64 BOTTOM -50 - +50
** ** 00 5C 00 00 00 02 reserved
** ** 00 5E 00 00 00 02 reserved
----- PT SHIFT -----
** ** 00 60 00 00 00 02 00 - 01 MODE 00 : SHIFT
01 : HARMO
** ** 00 62 00 00 00 02 00 - 30 SHIFT Hi -24 - +24
** ** 00 64 00 00 00 02 00 - 30 SHIFT 1 -24 - +24
** ** 00 66 00 00 00 02 00 - 30 SHIFT 2 -24 - +24
** ** 00 68 00 00 00 02 00 - 30 SHIFT 3 -24 - +24
** ** 00 6A 00 00 00 02 00 - 30 SHIFT 4 -24 - +24
** ** 00 6C 00 00 00 02 00 - 30 SHIFT Lo -24 - +24
** ** 00 6E 00 00 00 02 00 - 64 FINE Hi -50 - +50
** ** 00 70 00 00 00 02 00 - 64 FINE 1 -50 - +50
** ** 00 72 00 00 00 02 00 - 64 FINE 2 -50 - +50
** ** 00 74 00 00 00 02 00 - 64 FINE 3 -50 - +50
** ** 00 76 00 00 00 02 00 - 64 FINE 4 -50 - +50
** ** 00 78 00 00 00 02 00 - 64 FINE Lo -50 - +50
** ** 00 7A 00 00 00 02 00 - 64 E.LEV Hi 0 - 100
** ** 00 7C 00 00 00 02 00 - 64 E.LEV 1 0 - 100
** ** 00 7E 00 00 00 02 00 - 64 E.LEV 2 0 - 100
** ** 01 00 00 00 00 02 00 - 64 E.LEV 3 0 - 100
** ** 01 02 00 00 00 02 00 - 64 E.LEV 4 0 - 100
** ** 01 04 00 00 00 02 00 - 64 E.LEV Lo 0 - 100
** ** 01 06 00 00 00 02 00 - 64 D.LEV Hi 0 - 100
** ** 01 08 00 00 00 02 00 - 64 D.LEV 1 0 - 100
** ** 01 0A 00 00 00 02 00 - 64 D.LEV 2 0 - 100
** ** 01 0C 00 00 00 02 00 - 64 D.LEV 3 0 - 100
** ** 01 0E 00 00 00 02 00 - 64 D.LEV 4 0 - 100
** ** 01 10 00 00 00 02 00 - 64 D.LEV Lo 0 - 100
** ** 01 12 00 00 00 02 00 - 1C HARMO Hi * Refer to Table 'PT SHIFT_HARM'
** ** 01 14 00 00 00 02 00 - 1C HARMO 1 * Refer to Table 'PT SHIFT_HARM'
** ** 01 16 00 00 00 02 00 - 1C HARMO 2 * Refer to Table 'PT SHIFT_HARM'
** ** 01 18 00 00 00 02 00 - 1C HARMO 3 * Refer to Table 'PT SHIFT_HARM'
** ** 01 1A 00 00 00 02 00 - 1C HARMO 4 * Refer to Table 'PT SHIFT_HARM'
** ** 01 1C 00 00 00 02 00 - 1C HARMO Lo * Refer to Table 'PT SHIFT_HARM'
** ** 01 1E 00 00 00 02 reserved
** ** 01 20 00 00 00 02 00 - 01 PT SHIFT ON/OFF 00 : OFF
01 : ON

** ** 01 22 : reserved
: reserved
** ** 01 26 reserved

[WAVE SYNTH]
----- WAVE SYNTH -----
** ** 00 00 00 00 00 02 00 - 01 W.SHAPE 00 : SAW
01 : SQUARE
** ** 00 02 00 00 00 02 00 - 64 SENSE 0 - 100
** ** 00 04 00 00 00 02 00 - 64 ATTACK 0 - 100
** ** 00 06 00 00 00 02 00 - 64 DECAY 0 - 100
** ** 00 08 00 00 00 02 00 - 64 LEVEL 0 - 100
** ** 00 0A 00 00 00 02 00 - 64 CUTOFF 0 - 100
** ** 00 0C 00 00 00 02 00 - 64 RESO 0 - 100
** ** 00 0E 00 00 00 02 00 - 01 F.TYPE 00 : -12dB
01 : -24dB
** ** 00 10 00 00 00 02 00 - 64 F.ATTACK 0 - 100

```

```

** ** 00 12 00 00 00 02 00 - 64 F.DECAY 0 - 100
** ** 00 14 00 00 00 02 00 - 64 F.DEPTH -50 - +50
** ** 00 16 00 00 00 02 reserved
:
** ** 01 26 00 00 00 02 reserved

[OSC SYNTH]
----- OSC SYNTH -----
** ** 00 00 00 00 00 02 00 - 64 SHAPE SQ=0,SW=100 - SQ=100,SW=0
** ** 00 02 00 00 00 02 00 - 64 PWM WIDTH 0 - 100
** ** 00 04 00 00 00 02 00 - 64 PWM RATE 0 - 100
** ** 00 06 00 00 00 02 00 - 64 PWM DEPTH 0 - 100
** ** 00 08 00 00 00 02 00 - 64 SENS 0 - 100
** ** 00 0A 00 00 00 02 00 - 01 ENV FLLW 00 : OFF
01 : ON
** ** 00 0C 00 00 00 02 00 - 64 LEVEL 0 - 100
** ** 00 0E 00 00 00 02 00 - 64 CUTOFF 0 - 100
** ** 00 10 00 00 00 02 00 - 64 RESO 0 - 100
** ** 00 12 00 00 00 02 00 - 01 F.TYPE 00 : -12dB
01 : -24dB
** ** 00 14 00 00 00 02 00 - 64 F.ATTACK 0 - 100
** ** 00 16 00 00 00 02 00 - 64 F.DECAY 0 - 100
** ** 00 18 00 00 00 02 00 - 64 F.DEPTH -50 - +50
** ** 00 1A 00 00 00 02 00 - 01 HOLD 00 : OFF
01 : ON
** ** 00 1C 00 00 00 02 00 - 02 SUB OSC 00 : OFF
01 : DETUNE
02 : -1OCT
-50 - +50
** ** 00 1E 00 00 00 02 00 - 64 DETUNE -50 - +50
** ** 00 20 00 00 00 02 00 - 64 LEVEL 0 - 100
** ** 00 22 00 00 00 02 reserved
** ** 00 24 00 00 00 02 reserved
** ** 00 26 00 00 00 02 reserved
----- PT SHIFT -----
** ** 00 28 00 00 00 02 00 - 18 SHIFT Hi -12 - +12
** ** 00 2A 00 00 00 02 00 - 18 SHIFT 1 -12 - +12
** ** 00 2C 00 00 00 02 00 - 18 SHIFT 2 -12 - +12
** ** 00 2E 00 00 00 02 00 - 18 SHIFT 3 -12 - +12
** ** 00 30 00 00 00 02 00 - 18 SHIFT 4 -12 - +12
** ** 00 32 00 00 00 02 00 - 18 SHIFT Lo -12 - +12
** ** 00 34 00 00 00 02 00 - 64 FINE Hi -50 - +50
** ** 00 36 00 00 00 02 00 - 64 FINE 1 -50 - +50
** ** 00 38 00 00 00 02 00 - 64 FINE 2 -50 - +50
** ** 00 3A 00 00 00 02 00 - 64 FINE 3 -50 - +50
** ** 00 3C 00 00 00 02 00 - 64 FINE 4 -50 - +50
** ** 00 3E 00 00 00 02 00 - 64 FINE Lo -50 - +50
** ** 00 40 00 00 00 02 00 - 01 PT SHIFT ON/OFF 00 : OFF
01 : ON
** ** 00 42 00 00 00 02 reserved
:
** ** 01 26 00 00 00 02 reserved

[FILTERED]
----- FILTER -----
** ** 00 00 00 00 00 02 00 - 64 CUTOFF 0 - 100
** ** 00 02 00 00 00 02 00 - 64 RESO 0 - 100
** ** 00 04 00 00 00 02 00 - 64 TOUCH-S 0 - 100
** ** 00 06 00 00 00 02 00 - 64 DECAY 0 - 100
----- COLOR -----
** ** 00 08 00 00 00 02 00 - 64 COLOR 0 - 100
** ** 00 0A 00 00 00 02 reserved
:
** ** 01 26 00 00 00 02 reserved

[BOWED]
----- FILTER -----
** ** 00 00 00 00 00 02 00 - 64 CUTOFF 0 - 100
** ** 00 02 00 00 00 02 00 - 64 RESO 0 - 100
** ** 00 04 00 00 00 02 00 - 64 TOUCH-S 0 - 100
** ** 00 06 00 00 00 02 reserved
----- P-BEND -----
** ** 00 08 00 00 00 02 00 - 64 P-BEND 0 - 100
** ** 00 0A 00 00 00 02 00 - 64 P-BEND-Q 0 - 100
** ** 00 0C 00 00 00 02 reserved
** ** 00 0E 00 00 00 02 reserved
----- SUSTAIN -----
** ** 00 10 00 00 00 02 00 - 64 SUSTAIN 0 - 100
** ** 00 12 00 00 00 02 reserved
:
** ** 01 26 00 00 00 02 reserved

[PIPE]
----- FILTER -----
** ** 00 00 00 00 00 02 00 - 64 CUTOFF 0 - 100
** ** 00 02 00 00 00 02 00 - 64 RESO 0 - 100
** ** 00 04 00 00 00 02 00 - 64 TOUCH-S 0 - 100
** ** 00 06 00 00 00 02 reserved
----- P-BEND -----
** ** 00 08 00 00 00 02 00 - 64 P-BEND 0 - 100
** ** 00 0A 00 00 00 02 00 - 64 P-BEND-Q 0 - 100
** ** 00 0C 00 00 00 02 reserved
** ** 00 0E 00 00 00 02 reserved
----- SUSTAIN -----
** ** 00 10 00 00 00 02 00 - 64 SUSTAIN 0 - 100
** ** 00 12 00 00 00 02 reserved
:
** ** 01 26 00 00 00 02 reserved

[CRYSTAL]
----- ATTACK -----
** ** 00 00 00 00 00 02 00 - 64 LENGTH 0 - 100
** ** 00 02 00 00 00 02 00 - 64 MOD-TUNE 0 - 100
** ** 00 04 00 00 00 02 00 - 64 MOD-DEP 0 - 100
** ** 00 06 00 00 00 02 00 - 64 LEVEL 0 - 100
----- BODY LEV -----
** ** 00 08 00 00 00 02 00 - 64 BODY LEV 0 - 100
** ** 00 0A 00 00 00 02 reserved
** ** 00 0C 00 00 00 02 reserved
** ** 00 0E 00 00 00 02 reserved
----- SUSTAIN -----
** ** 00 10 00 00 00 02 00 - 64 SUSTAIN 0 - 100
** ** 00 12 00 00 00 02 reserved
:
** ** 01 26 00 00 00 02 reserved

[ORGAN]
----- ORGAN -----
** ** 00 00 00 00 00 02 00 - 64 FEET-4 0 - 100

```



```

** ** 00 02 00 00 00 02 00 - 64 FEET-8          0 - 100
** ** 00 04 00 00 00 02 00 - 64 FEET-16         0 - 100
** ** 00 06 00 00 00 02          reserved
----- SUSTAIN -----
** ** 00 08 00 00 00 02 00 - 64 SUSTAIN          0 - 100
** ** 00 0A 00 00 00 02          reserved
:
** ** 01 26 00 00 00 02          reserved

[BRASS]
----- FILTER -----
** ** 00 00 00 00 00 02 00 - 64 CUTOFF          0 - 100
** ** 00 02 00 00 00 02 00 - 64 RESO           0 - 100
** ** 00 04 00 00 00 02 00 - 64 TOUCH-S        0 - 100
** ** 00 06 00 00 00 02          reserved
----- SUSTAIN -----
** ** 00 08 00 00 00 02 00 - 64 SUSTAIN          0 - 100
** ** 00 0A 00 00 00 02          reserved
:
** ** 01 26 00 00 00 02          reserved

[PEDAL PITCH SHIFT]
----- BASS SELECT -----
** ** 00 00 00 00 00 02 00 - 08 TYPE            00 : VINT JB
                                                    01 : JB
                                                    02 : VINT PB
                                                    03 : PB
                                                    04 : RICK
                                                    05 : T-BIRD
                                                    06 : ACTIVE
                                                    07 : VIOLIN
                                                    08 : M-MAN
** ** 00 00 00 00 00 02 00 - 64 VOLUME          0 - 100
** ** 00 04 00 00 00 02 00 - 64 TONE           0 - 100
** ** 00 06 00 00 00 02 00 - 02 PU SEL         00 : FRONT
                                                    01 : FRNT + REAR
                                                    02 : REAR
** ** 00 08 00 00 00 02 00 - 64 F.VOL          0 - 100
** ** 00 0A 00 00 00 02 00 - 64 F.TONE          0 - 100
** ** 00 0C 00 00 00 02 00 - 64 R.VOL          0 - 100
** ** 00 0E 00 00 00 02 00 - 64 R.TONE          0 - 100
** ** 00 10 00 00 00 02 00 - 64 BASS (M-MAN)    -50 - +50
** ** 00 12 00 00 00 02 00 - 64 TREBLE (M-MAN)  -50 - +50
** ** 00 14 00 00 00 02 00 - 01 BASS ON         00 : OFF
                                                    01 : ON
** ** 00 16 00 00 00 02 00 - 01 TREBLE ON       00 : OFF
                                                    01 : ON
** ** 00 18 00 00 00 02 00 - 01 SOLO/RTM        00 : SOLO
                                                    01 : RHTHM
** ** 00 1A 00 00 00 02 00 - 64 BASS (ACTIVE)    0 - 100
** ** 00 1C 00 00 00 02 00 - 64 TREBLE (ACTIVE) 0 - 100
** ** 00 1E 00 00 00 02          reserved
----- PD SHIFT -----
** ** 00 20 00 00 00 04 00 00 PITCH            00 00 : -24
                                                    :
                                                    :
                                                    09 60 : 0
                                                    :
                                                    :
                                                    12 C0 : +24

** ** 00 24 00 00 00 02 00 - 01 STRNG Hi
** ** 00 26 00 00 00 02 00 - 01 STRNG 1
** ** 00 28 00 00 00 02 00 - 01 STRNG 2
** ** 00 2A 00 00 00 02 00 - 01 STRNG 3
** ** 00 2C 00 00 00 02 00 - 01 STRNG 4
** ** 00 2E 00 00 00 02 00 - 01 STRNG Lo
                                                    00 : OFF
                                                    01 : ON
** ** 00 30 00 00 00 02 00 - 01 PD SHIFT ON/OFF 00 : OFF
                                                    01 : ON
** ** 00 32 00 00 00 02          reserved
:
** ** 01 26 00 00 00 02          reserved

[POLY OCTAVE]
----- BASS SELECT -----
** ** 00 00 00 00 00 02 00 - 05 TYPE            00 : VINT JB
                                                    01 : JB
                                                    02 : VINT PB
                                                    03 : PB
                                                    04 : RICK
                                                    05 : T-BIRD
** ** 00 00 00 00 00 02 00 - 64 VOLUME          0 - 100
** ** 00 04 00 00 00 02 00 - 64 TONE           0 - 100
** ** 00 06 00 00 00 02 00 - 02 PU SEL         00 : FRONT
                                                    01 : FRNT + REAR
                                                    02 : REAR
** ** 00 08 00 00 00 02 00 - 64 F.VOL          0 - 100
** ** 00 0A 00 00 00 02 00 - 64 F.TONE          0 - 100
** ** 00 0C 00 00 00 02 00 - 64 R.VOL          0 - 100
** ** 00 0E 00 00 00 02 00 - 64 R.TONE          0 - 100
** ** 00 10 00 00 00 02          reserved
:
** ** 00 1E 00 00 00 02          reserved
----- POLY OCTAVE -----
** ** 00 20 00 00 00 02 00 - 64 -1OCT Hi        0 - 100
** ** 00 22 00 00 00 02 00 - 64 -1OCT 1        0 - 100
** ** 00 24 00 00 00 02 00 - 64 -1OCT 2        0 - 100
** ** 00 26 00 00 00 02 00 - 64 -1OCT 3        0 - 100
** ** 00 28 00 00 00 02 00 - 64 -1OCT 4        0 - 100
** ** 00 2A 00 00 00 02 00 - 64 -1OCT Lo       0 - 100
** ** 00 2C 00 00 00 02 00 - 64 DIR Hi         0 - 100
** ** 00 2E 00 00 00 02 00 - 64 DIR 1          0 - 100
** ** 00 30 00 00 00 02 00 - 64 DIR 2          0 - 100
** ** 00 32 00 00 00 02 00 - 64 DIR 3          0 - 100
** ** 00 34 00 00 00 02 00 - 64 DIR 4          0 - 100
** ** 00 36 00 00 00 02 00 - 64 DIR Lo         0 - 100
** ** 00 38 00 00 00 02 00 - 01 POLY OCTAVE ON/OFF 00 : OFF
                                                    01 : ON
** ** 00 3A 00 00 00 02          reserved
:
** ** 01 26 00 00 00 02          reserved

[POLY DISTORTION]
----- BASS SELECT -----
** ** 00 00 00 00 00 02 00 - 05 TYPE            00 : VINT JB
                                                    01 : JB
                                                    02 : VINT PB
                                                    03 : PB
                                                    04 : RICK

```

```

** ** 00 00 00 00 02 00 - 64 VOLUME          05 : T-BIRD
** ** 00 04 00 00 02 00 - 64 TONE           0 - 100
** ** 00 06 00 00 02 00 - 02 PU SEL          0 - 100
                                         00 : FRONT
                                         01 : FRNT + REAR
                                         02 : REAR

** ** 00 08 00 00 02 00 - 64 F.VOL          0 - 100
** ** 00 0A 00 00 02 00 - 64 F.TONE         0 - 100
** ** 00 0C 00 00 02 00 - 64 R.VOL          0 - 100
** ** 00 0E 00 00 02 00 - 64 R.TONE         0 - 100
** ** 00 10 00 00 02          reserved
:
** ** 00 1E 00 00 02          reserved
----- POLY DISTORTION -----
** ** 00 20 00 00 02 00 - 03 TYPE            00 : OD1
                                         01 : OD2
                                         02 : DS1
                                         03 : DS2
                                         0 - 100
** ** 00 22 00 00 02 00 - 64 DRIVE           -50 - +50
** ** 00 24 00 00 02 00 - 64 TONE           0 - 100
** ** 00 26 00 00 02 00 - 64 LEVEL          0 - 100
** ** 00 28 00 00 02 00 - 64 DIR LEVEL      0 - 100
** ** 00 2A 00 00 02 00 - 64 DRV BAL        -50 - +50
** ** 00 2C 00 00 02 00 - 64 POLY BAL       0 - 100
** ** 00 2E 00 00 02          reserved
** ** 00 30 00 00 02 00 - 01 POLY DISTORTION 00 : OFF
                                         01 : ON
:
** ** 01 26 00 00 02          reserved

[POLY SLOW GEAR]
----- BASS SELECT -----
** ** 00 00 00 00 02 00 - 05 TYPE            00 : VINT JB
                                         01 : JB
                                         02 : VINT PB
                                         03 : PB
                                         04 : RICK
                                         05 : T-BIRD

** ** 00 02 00 00 02 00 - 64 VOLUME          0 - 100
** ** 00 04 00 00 02 00 - 64 TONE           0 - 100
** ** 00 06 00 00 02 00 - 02 PU SEL          00 : FRONT
                                         01 : FRNT + REAR
                                         02 : REAR
                                         0 - 100
** ** 00 08 00 00 02 00 - 64 F.VOL          0 - 100
** ** 00 0A 00 00 02 00 - 64 F.TONE         0 - 100
** ** 00 0C 00 00 02 00 - 64 R.VOL          0 - 100
** ** 00 0E 00 00 02 00 - 64 R.TONE         0 - 100
** ** 00 10 00 00 02          reserved
:
** ** 00 1E 00 00 02          reserved
----- POLY SG -----
** ** 00 20 00 00 02 00 - 64 RISE TIME       0 - 100
** ** 00 22 00 00 02 00 - 64 SENS           0 - 100
** ** 00 24 00 00 02          reserved
** ** 00 26 00 00 02          reserved
** ** 00 28 00 00 02 00 - 01 POLY SG ON/OFF  00 : OFF
                                         01 : ON

** ** 00 2A 00 00 02          reserved
:
** ** 01 26 00 00 02          reserved

===== COSM BASS EQ =====
** ** 01 28 00 00 02 00 - 28 LEVEL           -20dB - +20dB
** ** 01 2A 00 00 02 00 - 28 L-MID G        -20dB - +20dB
** ** 01 2C 00 00 02 00 - 28 LOW G          -20dB - +20dB
** ** 01 2E 00 00 02 00 - 28 HIGH G         -20dB - +20dB
** ** 01 30 00 00 02 00 - 28 H-MID G        -20dB - +20dB
** ** 01 32 00 00 02 00 - 1B L-MID F        * Refer to Table 'EQ_MID_F'
** ** 01 34 00 00 02 00 - 05 L-MID Q        * Refer to Table 'EQ_MID_Q'
** ** 01 36 00 00 02 00 - 1B H-MID F        * Refer to Table 'EQ_MID_F'
** ** 01 38 00 00 02 00 - 05 H-MID Q        * Refer to Table 'EQ_MID_Q'
** ** 01 3A 00 00 02          reserved
** ** 01 3C 00 00 02          reserved
** ** 01 3E 00 00 02          reserved

===== COSM BASS PAN =====
** ** 01 40 00 00 02 00 - 64 STRNG Hi       L=100,R=0 - L=0,R=100
** ** 01 42 00 00 02 00 - 64 STRNG 1        L=100,R=0 - L=0,R=100
** ** 01 44 00 00 02 00 - 64 STRNG 2        L=100,R=0 - L=0,R=100
** ** 01 46 00 00 02 00 - 64 STRNG 3        L=100,R=0 - L=0,R=100
** ** 01 48 00 00 02 00 - 64 STRNG 4        L=100,R=0 - L=0,R=100
** ** 01 4A 00 00 02 00 - 64 STRNG Lo       L=100,R=0 - L=0,R=100
** ** 01 4C 00 00 02          reserved
** ** 01 4E 00 00 02          reserved

===== COSM BASS MIXER =====
** ** 01 50 00 00 02 00 - 64 BALANCE         CB=0,NP=100 - CB=100,NP=0
** ** 01 52 00 00 02 00 - 64 LEVEL          0 - 100
** ** 01 54 00 00 02 00 - 64 STRING LEVEL Hi 0 - 100
** ** 01 56 00 00 02 00 - 64 STRING LEVEL 1 0 - 100
** ** 01 58 00 00 02 00 - 64 STRING LEVEL 2 0 - 100
** ** 01 5A 00 00 02 00 - 64 STRING LEVEL 3 0 - 100
** ** 01 5C 00 00 02 00 - 64 STRING LEVEL 4 0 - 100
** ** 01 5E 00 00 02 00 - 64 STRING LEVEL Lo 0 - 100

===== COSM BASS COMMON =====
** ** 01 60 00 00 02 00 - 01 EQ ON/OFF      00 : OFF
                                         01 : ON
** ** 01 62 00 00 02 00 - 0F COSM BASS TYPE 00 : ACOUSTIC
                                         01 : ELECTRIC
                                         02 : FRETLESS
                                         03 : VARI BASS
                                         04 : WAVE SYNTH
                                         05 : OSC SYNTH
                                         06 : FILTERED
                                         07 : BOWED
                                         08 : PIPE
                                         09 : CRYSTAL
                                         0A : ORGAN
                                         0B : BRASS
                                         0C : PEDAL PITCH SHIFT
                                         0D : POLY OCTAVE
                                         0E : POLY DISTORTION
                                         0F : POLY SLOW GEAR

** ** 01 64 00 00 02 00 - 01 COSM BASS ON/OFF 00 : OFF
                                         01 : ON
** ** 01 66 00 00 02          reserved

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```

===== COSM AMP =====
** ** 01 68 00 00 00 02 00 - 01 ON/OFF          00 : OFF
                                                    01 : ON
                                                    00 : CONCERT 810
** ** 01 6A 00 00 00 02 00 - 0B TYPE           01 : FLIP TOP
                                                    02 : B-MAN
                                                    03 : VO DRIVE
                                                    04 : SESSION
                                                    05 : T.E.
                                                    06 : BASS 360
                                                    07 : SUPER FLAT
                                                    08 : AC BASS
                                                    09 : MS STACK
                                                    0A : Hi-GAIN STACK
                                                    0B : METAL STACK

** ** 01 6C 00 00 00 02 reserved
** ** 01 6E 00 00 00 02 reserved
** ** 01 70 00 00 00 02 00 - 64 GAIN           0 - 100
** ** 01 72 00 00 00 02 00 - 64 VOLUME        0 - 100
** ** 01 74 00 00 00 02 00 - 64 BASS          0 - 100
** ** 01 76 00 00 00 02 00 - 64 MIDDLE        0 - 100
** ** 01 78 00 00 00 02 00 - 64 TREBLE        0 - 100
** ** 01 7A 00 00 00 02 00 - 64 PRESENCE      0 - 100
** ** 01 7C 00 00 00 02 00 - 01 BRIGHT       00 : OFF
                                                    01 : ON
** ** 01 7E 00 00 00 02 00 - 02 GAIN SW       00 : LOW
                                                    01 : NORMAL
                                                    02 : HIGH
** ** 02 00 00 00 00 02 00 - 02 MIDDLE FREQ   00 : 220Hz
                                                    01 : 800Hz
                                                    02 : 3.0kHz
** ** 02 02 00 00 00 02 00 - 02 ULTRA Lo      00 : -
                                                    01 : 0
                                                    02 : +
** ** 02 04 00 00 00 02 00 - 01 ULTRA Hi      00 : 0
                                                    01 : +
** ** 02 06 00 00 00 02 00 - 01 RESPONSE      00 : BASS
                                                    01 : FLAT
** ** 02 08 00 00 00 02 00 - 01 DEEP         00 : OFF
                                                    01 : ON
** ** 02 0A 00 00 00 02 00 - 64 ENHANCER      0 - 100
** ** 02 0C 00 00 00 02 00 - 02 PRE SHAPE    0 - 2
** ** 02 0E 00 00 00 02 00 - 01 SPEAKER ON/OFF 00 : OFF
                                                    01 : ON
** ** 02 10 00 00 00 02 00 - 05 SPEAKER TYPE  00 : 1x15"
                                                    01 : 1x18"
                                                    02 : 2x15"
                                                    03 : 4x10"
                                                    04 : 8x10"
                                                    05 : ORIGINAL
** ** 02 12 00 00 00 02 00 - 64 BALANCE      DI=100,MC=0 - DI=0,MC=100
** ** 02 14 00 00 00 02 00 - 0A MIC SET      -5 - +5
** ** 02 16 00 00 00 02 reserved

===== COMP/LM =====
** ** 02 18 00 00 00 02 00 - 01 TYPE          00 : COMP
                                                    01 : LIMITER

** ** 02 1A 00 00 00 02 reserved
** ** 02 1C 00 00 00 02 reserved
** ** 02 1E 00 00 00 02 reserved
---- COMP ----
** ** 02 20 00 00 00 02 00 - 64 SUSTAIN       0 - 100
** ** 02 22 00 00 00 02 00 - 64 ATTACK       0 - 100
** ** 02 24 00 00 00 02 00 - 64 TONE         -50 - +50
** ** 02 26 00 00 00 02 00 - 64 LEVEL        0 - 100
** ** 02 28 00 00 00 02 reserved
** ** 02 2A 00 00 00 02 reserved
** ** 02 2C 00 00 00 02 reserved
** ** 02 2E 00 00 00 02 reserved
---- LIMITER ----
** ** 02 20 00 00 00 02 00 - 64 THRESHOLD    0 - 100
** ** 02 22 00 00 00 02 00 - 64 RELEASE     0 - 100
** ** 02 24 00 00 00 02 00 - 06 RATIO        00 : 1.1:1
                                                    01 : 1.5:1
                                                    02 : 2:1
                                                    03 : 3:1
                                                    04 : 5:1
                                                    05 : 10:1
                                                    06 : ∞:1
** ** 02 26 00 00 00 02 00 - 64 TONE         -50 - +50
** ** 02 28 00 00 00 02 00 - 64 LEVEL        0 - 100
** ** 02 2A 00 00 00 02 reserved
** ** 02 2C 00 00 00 02 reserved
** ** 02 2E 00 00 00 02 reserved

===== WAH =====
** ** 02 30 00 00 00 02 00 - 01 TYPE          00 : PEDAL WAH
                                                    01 : AUTO WAH

** ** 02 32 00 00 00 02 reserved
** ** 02 34 00 00 00 02 reserved
** ** 02 36 00 00 00 02 reserved
---- PEDAL WAH ----
** ** 02 38 00 00 00 02 00 - 64 FREQ         0 - 100
** ** 02 3A 00 00 00 02 00 - 64 LEVEL        0 - 100
** ** 02 3C 00 00 00 02 reserved
:
** ** 02 46 00 00 00 02 reserved
---- AUTO WAH ----
** ** 02 38 00 00 00 02 00 - 01 MODE         00 : LPF
                                                    01 : HPF
** ** 02 3A 00 00 00 02 00 - 01 POLARITY     00 : DOWN
                                                    01 : UP
** ** 02 3C 00 00 00 02 00 - 64 SENS         0 - 100
** ** 02 3E 00 00 00 02 00 - 64 FREQ         0 - 100
** ** 02 40 00 00 00 02 00 - 64 PEAK         0 - 100
** ** 02 42 00 00 00 02 00 - 71 RATE        * Refer to Table 'RATE'
** ** 02 44 00 00 00 02 00 - 64 DEPTH       0 - 100
** ** 02 46 00 00 00 02 00 - 64 LEVEL       0 - 100

===== OD/DS =====
** ** 02 48 00 00 00 02 00 - 08 TYPE          00 : BLUES OD
                                                    01 : TURBO OD
                                                    02 : BASS OD
                                                    03 : DIST
                                                    04 : GUV DS
                                                    05 : METAL ZONE
                                                    06 : MUFF FUZZ
                                                    07 : '60s FUZZ

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** ** 02 4A 00 00 00 02 00 - 64 DRIVE 08 : OCT FUZZ
** ** 02 4C 00 00 00 02 00 - 64 BASS 0 - 100
** ** 02 4E 00 00 00 02 00 - 64 TREBLE -50 - +50
** ** 02 50 00 00 00 02 00 - 64 LEVEL -50 - +50
** ** 02 52 00 00 00 02 00 - 64 DIRECT LEVEL 0 - 100
** ** 02 54 00 00 00 02 reserved
** ** 02 56 00 00 00 02 reserved

===== EQ =====
** ** 02 58 00 00 00 02 00 - 28 LEVEL -20dB - +20dB
** ** 02 5A 00 00 00 02 00 - 28 L-MID G -20dB - +20dB
** ** 02 5C 00 00 00 02 00 - 28 LOW G -20dB - +20dB
** ** 02 5E 00 00 00 02 00 - 28 HIGH G -20dB - +20dB
** ** 02 60 00 00 00 02 00 - 28 H-MID G -20dB - +20dB
** ** 02 62 00 00 00 02 00 - 1B L-MID F * Refer to Table 'EQ_MID_F'
** ** 02 64 00 00 00 02 00 - 05 L-MID Q * Refer to Table 'EQ_MID_Q'
** ** 02 66 00 00 00 02 00 - 1B H-MID F * Refer to Table 'EQ_MID_F'
** ** 02 68 00 00 00 02 00 - 05 H-MID Q * Refer to Table 'EQ_MID_Q'
** ** 02 6A 00 00 00 02 reserved
** ** 02 6C 00 00 00 02 reserved
** ** 02 6E 00 00 00 02 reserved

===== MOD =====
** ** 02 70 00 00 00 02 00 - 09 TYPE 00 : HARMONIST
01 : P.SHIFTER
02 : FLANGER
03 : PHASER
04 : SUB EQ
05 : 2x2 CHORUS
06 : TREMOLO
07 : PAN
08 : PD SHIFT
09 : VIBRATO

** ** 02 72 00 00 00 02 reserved
** ** 02 74 00 00 00 02 reserved
** ** 02 76 00 00 00 02 reserved
----- HARMONIST -----
** ** 02 78 00 00 00 02 00 - 01 HR1 ON/OFF 00 : OFF
01 : ON
* Refer to Table 'HR_HARM'
** ** 02 7A 00 00 00 02 00 - 1D HR1 HARMONY L=100,R=0 - L=0,R=100
** ** 02 7C 00 00 00 02 00 - 64 HR1 PAN 0 - 100
** ** 02 7E 00 00 00 02 00 - 64 HR1 LEVEL 0 - 100
** ** 03 00 00 00 00 02 00 - 64 DIR LEVEL -24 - +24 *3
** ** 03 02 00 00 00 02 00 - 30 HR1 USER SCALE C -24 - +24 *3
** ** 03 04 00 00 00 02 00 - 30 HR1 USER SCALE Db -24 - +24 *3
** ** 03 06 00 00 00 02 00 - 30 HR1 USER SCALE E -24 - +24 *3
** ** 03 08 00 00 00 02 00 - 30 HR1 USER SCALE F -24 - +24 *3
** ** 03 0A 00 00 00 02 00 - 30 HR1 USER SCALE Ab -24 - +24 *3
** ** 03 0C 00 00 00 02 00 - 30 HR1 USER SCALE A -24 - +24 *3
** ** 03 0E 00 00 00 02 00 - 30 HR1 USER SCALE D -24 - +24 *3
** ** 03 10 00 00 00 02 00 - 30 HR1 USER SCALE Eb -24 - +24 *3
** ** 03 12 00 00 00 02 00 - 30 HR1 USER SCALE F# -24 - +24 *3
** ** 03 14 00 00 00 02 00 - 30 HR1 USER SCALE G -24 - +24 *3
** ** 03 16 00 00 00 02 00 - 30 HR1 USER SCALE Bb -24 - +24 *3
** ** 03 18 00 00 00 02 00 - 30 HR1 USER SCALE B -24 - +24 *3
** ** 03 1A 00 00 00 02 00 - 01 HR2 ON/OFF 00 : OFF
01 : ON
* Refer to Table 'HR_HARM'
** ** 03 1C 00 00 00 02 00 - 1D HR2 HARMONY L=100,R=0 - L=0,R=100
** ** 03 1E 00 00 00 02 00 - 64 HR2 PAN 0 - 100
** ** 03 20 00 00 00 02 00 - 64 HR2 LEVEL 0 - 100
** ** 03 22 00 00 00 02 00 - 64 DIR LEVEL -24 - +24 *3
** ** 03 24 00 00 00 02 00 - 30 HR2 USER SCALE C -24 - +24 *3
** ** 03 26 00 00 00 02 00 - 30 HR2 USER SCALE Db -24 - +24 *3
** ** 03 28 00 00 00 02 00 - 30 HR2 USER SCALE E -24 - +24 *3
** ** 03 2A 00 00 00 02 00 - 30 HR2 USER SCALE F -24 - +24 *3
** ** 03 2C 00 00 00 02 00 - 30 HR2 USER SCALE Ab -24 - +24 *3
** ** 03 2E 00 00 00 02 00 - 30 HR2 USER SCALE A -24 - +24 *3
** ** 03 30 00 00 00 02 00 - 30 HR2 USER SCALE D -24 - +24 *3
** ** 03 32 00 00 00 02 00 - 30 HR2 USER SCALE Eb -24 - +24 *3
** ** 03 34 00 00 00 02 00 - 30 HR2 USER SCALE F# -24 - +24 *3
** ** 03 36 00 00 00 02 00 - 30 HR2 USER SCALE G -24 - +24 *3
** ** 03 38 00 00 00 02 00 - 30 HR2 USER SCALE Bb -24 - +24 *3
** ** 03 3A 00 00 00 02 00 - 30 HR2 USER SCALE B -24 - +24 *3
** ** 03 3C 00 00 00 02 reserved
** ** 03 3E 00 00 00 02 reserved
----- P.SHIFTER -----
** ** 02 78 00 00 00 04 00 00 PS1 PRE DLY * Refer to Table 'PRE DLY' *2
- 01 39
** ** 02 7C 00 00 00 04 00 00 PS2 PRE DLY * Refer to Table 'PRE DLY' *2
- 01 39
** ** 03 00 00 00 00 02 00 - 01 PS1 ON/OFF 00 : OFF
01 : ON
** ** 03 02 00 00 00 02 00 - 01 PS1 MODE 00 : POLY
01 : MONO
** ** 03 04 00 00 00 02 00 - 30 PS1 SHIFT -24 - +24
** ** 03 06 00 00 00 02 00 - 64 PS1 FINE -50 - +50
** ** 03 08 00 00 00 02 00 - 64 PS1 PAN 00 : L=100 R=0
:
:
32 : L=50 R=50
:
:
64 : L=0 R=100
0 - 100

** ** 03 0A 00 00 00 02 00 - 64 PS1 LEVEL 0 - 100
** ** 03 0C 00 00 00 02 00 - 64 DIR LEVEL 0 - 100

** ** 03 0E 00 00 00 02 00 - 01 PS2 ON/OFF 00 : OFF
01 : ON
** ** 03 10 00 00 00 02 00 - 01 PS2 MODE 00 : POLY
01 : MONO
** ** 03 12 00 00 00 02 00 - 30 PS2 SHIFT -24 - +24
** ** 03 14 00 00 00 02 00 - 64 PS2 FINE -50 - +50
** ** 03 16 00 00 00 02 00 - 64 PS2 PAN 00 : L=100 R=0
:
:
32 : L=50 R=50
:
:
64 : L=0 R=100
0 - 100

** ** 03 18 00 00 00 02 00 - 64 PS2 LEVEL 0 - 100
** ** 03 1A 00 00 00 02 reserved
:
** ** 03 3E 00 00 00 02 reserved
----- FLANGER -----
** ** 02 78 00 00 00 02 00 - 71 RATE * Refer to Table 'RATE'
** ** 02 7A 00 00 00 02 00 - 64 DEPTH 0 - 100
** ** 02 7C 00 00 00 02 00 - 64 MANUAL 0 - 100
** ** 02 7E 00 00 00 02 00 - 64 RESO 0 - 100

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** ** 03 00 00 00 00 02 00 - 64 LEVEL 0 - 100
** ** 03 02 00 00 00 02 00 - 64 SEPARATE 0 - 100
** ** 03 04 00 00 00 02 00 - 64 BALANCE D=100,E=0 - D=0,E=100
** ** 03 06 00 00 00 02 00 - 0A LOW CUT * Refer to Table 'LOW CUT2'
** ** 03 08 00 00 00 02 reserved
:
** ** 03 3E 00 00 00 02 reserved
----- PHASER -----
** ** 02 78 00 00 00 02 00 - 71 RATE * Refer to Table 'RATE'
** ** 02 7A 00 00 00 02 00 - 64 DEPTH 0 - 100
** ** 02 7C 00 00 00 02 00 - 64 MANUAL 0 - 100
** ** 02 7E 00 00 00 02 00 - 64 RESO 0 - 100
** ** 03 00 00 00 00 02 00 - 64 LEVEL 0 - 100
** ** 03 02 00 00 00 02 00 - 03 STAGE 00 : 4STAGE
01 : 8STAGE
02 : 12STAGE
03 : BI-PHASE

** ** 03 04 00 00 00 02 00 - 72 STEP * Refer to Table 'STEP'
** ** 03 06 00 00 00 02 00 - 64 BALANCE D=100 E=0 - D=0 E=100
** ** 03 08 00 00 00 02 reserved
:
** ** 03 3E 00 00 00 02 reserved
----- SUB EQ -----
** ** 02 78 00 00 00 02 00 - 28 LEVEL -20dB - +20dB
** ** 02 7A 00 00 00 02 00 - 28 L-MID G -20dB - +20dB
** ** 02 7C 00 00 00 02 00 - 28 LOW G -20dB - +20dB
** ** 02 7E 00 00 00 02 00 - 28 HIGH G -20dB - +20dB
** ** 03 00 00 00 00 02 00 - 28 H-MID G -20dB - +20dB
** ** 03 02 00 00 00 02 00 - 1B L-MID F * Refer to Table 'EQ_MID_F'
** ** 03 04 00 00 00 02 00 - 05 L-MID Q * Refer to Table 'EQ_MID_Q'
** ** 03 06 00 00 00 02 00 - 1B H-MID F * Refer to Table 'EQ_MID_F'
** ** 03 08 00 00 00 02 00 - 05 H-MID Q * Refer to Table 'EQ_MID_Q'
** ** 03 0A 00 00 00 02 reserved
:
** ** 03 3E 00 00 00 02 reserved
----- 2x2 CHORUS -----
** ** 02 78 00 00 00 02 00 - 10 X OVER F * Refer to Table 'X OVER F'
** ** 02 7A 00 00 00 02 00 - 71 LOW RATE * Refer to Table 'RATE'
** ** 02 7C 00 00 00 02 00 - 64 LOW DEPTH 0 - 100
** ** 02 7E 00 00 00 02 00 - 50 LOW PRE DLY 0.0msec - 40.0msec (0.5msec step)
** ** 03 00 00 00 00 02 00 - 64 LOW LEVEL 0 - 100
** ** 03 02 00 00 00 02 00 - 71 HIGH RATE * Refer to Table 'RATE'
** ** 03 04 00 00 00 02 00 - 64 HIGH DEPTH 0 - 100
** ** 03 06 00 00 00 02 00 - 50 HIGH PRE DLY 0.0msec - 40.0msec (0.5msec step)
** ** 03 08 00 00 00 02 00 - 64 HIGH LEVEL 0 - 100
** ** 03 0A 00 00 00 02 reserved
:
** ** 03 3E 00 00 00 02 reserved
----- TREMOLO -----
** ** 02 78 00 00 00 02 00 - 64 WAVE 0 - 100
** ** 02 7A 00 00 00 02 00 - 71 RATE * Refer to Table 'RATE'
** ** 02 7C 00 00 00 02 00 - 64 DEPTH 0 - 100
** ** 02 7E 00 00 00 02 reserved
:
** ** 03 3E 00 00 00 02 reserved
----- PAN -----
** ** 02 78 00 00 00 02 00 - 64 WAVE 0 - 100
** ** 02 7A 00 00 00 02 00 - 71 RATE * Refer to Table 'RATE'
** ** 02 7C 00 00 00 02 00 - 64 DEPTH 0 - 100
** ** 02 7E 00 00 00 02 reserved
:
** ** 03 3E 00 00 00 02 reserved
----- PD SHIFT -----
** ** 02 78 00 00 00 04 00 00 PITCH 00 00 : -24
- 12 C0 : :
09 60 : 0
: :
12 C0 : +24
00 : MONO
01 : POLY

** ** 02 7C 00 00 00 02 00 - 01 MODE
:
** ** 02 7E 00 00 00 00 reserved
:
** ** 03 3E 00 00 00 02 reserved
----- VIBRATO -----
** ** 02 78 00 00 00 02 00 - 01 TRIGGER 00 : OFF
01 : ON
** ** 02 7A 00 00 00 02 00 - 71 RATE * Refer to Table 'RATE'
** ** 02 7C 00 00 00 02 00 - 64 DEPTH 0 - 100
** ** 02 7E 00 00 00 02 00 - 64 RISE TIME 0 - 100
** ** 03 00 00 00 00 02 reserved
:
** ** 03 3E 00 00 00 02 reserved

===== DELAY =====
** ** 03 40 00 00 00 04 00 00 DLY TIME * Refer to Table 'DLY TIME' *2
- 07 15
** ** 03 44 00 00 00 02 00 - 65 TAP TIME 00 : OFF
01 : 0%
: :
65 : 100%
0 - 100
* Refer to Table 'HIGH CUT'

** ** 03 46 00 00 00 02 00 - 64 FEEDBACK 0 - 120
** ** 03 48 00 00 00 02 00 - 09 HIGH CUT * Refer to Table 'HIGH CUT'
** ** 03 4A 00 00 00 02 00 - 78 DLY LEV 0 - 120
** ** 03 4C 00 00 00 02 reserved
** ** 03 4E 00 00 00 02 reserved

===== CHORUS =====
** ** 03 50 00 00 00 02 00 - 01 MODE 00 : MONO
01 : STEREO
** ** 03 52 00 00 00 02 00 - 71 RATE * Refer to Table 'RATE'
** ** 03 54 00 00 00 02 00 - 64 DEPTH 0 - 100
** ** 03 56 00 00 00 02 00 - 50 PRE DLY 0.0msec - 40.0msec (0.5msec step)
** ** 03 58 00 00 00 02 00 - 09 HIGH CUT * Refer to Table 'HIGH CUT'
** ** 03 5A 00 00 00 02 00 - 64 CE LEVEL 0 - 100
** ** 03 5C 00 00 00 02 00 - 0A LOW CUT * Refer to Table 'LOW CUT2'
** ** 03 5E 00 00 00 02 reserved

===== REVERB =====
** ** 03 60 00 00 00 02 00 - 04 MODE 00 : ROOM1
01 : ROOM2
02 : HALL1
03 : HALL2
04 : PLATE
** ** 03 62 00 00 00 02 01 - 64 REV TIME 01 : 0.1sec
: :
64 : 10.0sec
** ** 03 64 00 00 00 02 00 - 09 LOW CUT * Refer to Table 'LOW CUT'

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** ** 03 66 00 00 00 02 00 - 09 HIGH CUT * Refer to Table 'HIGH CUT'
** ** 03 68 00 00 00 02 00 - 64 PRE DLY 0 - 100msec
** ** 03 6A 00 00 00 02 00 - 64 REV LEV 0 - 100
** ** 03 6C 00 00 00 02 00 - 0A DENSITY 0 - 10
** ** 03 6E 00 00 00 02 reserved

===== EFFECTS ON/OFF =====
** ** 03 70 00 00 00 02 00 - 01 COMP/LM ON/OFF
** ** 03 72 00 00 00 02 00 - 01 WAH ON/OFF
** ** 03 74 00 00 00 02 00 - 01 OD/DS ON/OFF
** ** 03 76 00 00 00 02 00 - 01 EQ ON/OFF
** ** 03 78 00 00 00 02 00 - 01 MOD ON/OFF
** ** 03 7A 00 00 00 02 00 - 01 DELAY ON/OFF
** ** 03 7C 00 00 00 02 00 - 01 CHORUS ON/OFF
** ** 03 7E 00 00 00 02 00 - 01 REVERB ON/OFF
** ** 04 00 00 00 00 02 00 - 01 NS ON/OFF

00 : OFF
01 : ON

===== NS =====
** ** 04 02 00 00 00 02 00 - 64 NS THRESHOLD 0 - 100
** ** 04 04 00 00 00 02 00 - 64 NS RELEASE 0 - 100

===== FV =====
** ** 04 06 00 00 00 02 00 - 64 FV LEVEL 0 - 100

===== ASSIGN =====
** ** 04 08 00 00 00 04 00 00 ASSIGN1 TARGET * Refer to Table 'TARGET' *2
- 01 08
** ** 04 0C 00 00 00 04 00 00 ASSIGN1 MIN *4
- *****
** ** 04 10 00 00 00 04 00 00 ASSIGN1 MAX *4
- *****
** ** 04 14 00 00 00 02 00 - 45 ASSIGN1 SOURCE * Refer to Table 'SOURCE'
** ** 04 16 00 00 00 02 00 - 01 ASSIGN1 MODE 00 : NORMAL (DEC/INC)
01 : TOGGLE
** ** 04 18 00 00 00 04 00 00 ASSIGN2 TARGET * Refer to Table 'TARGET' *2
- 01 08
** ** 04 1C 00 00 00 04 00 00 ASSIGN2 MIN *4
- *****
** ** 04 20 00 00 00 04 00 00 ASSIGN2 MAX *4
- *****
** ** 04 24 00 00 00 02 00 - 45 ASSIGN2 SOURCE * Refer to Table 'SOURCE'
** ** 04 26 00 00 00 02 00 - 01 ASSIGN2 MODE 00 : NORMAL (DEC/INC)
01 : TOGGLE
** ** 04 28 00 00 00 04 00 00 ASSIGN3 TARGET * Refer to Table 'TARGET' *2
- 01 08
** ** 04 2C 00 00 00 04 00 00 ASSIGN3 MIN *4
- *****
** ** 04 30 00 00 00 04 00 00 ASSIGN3 MAX *4
- *****
** ** 04 34 00 00 00 02 00 - 45 ASSIGN3 SOURCE * Refer to Table 'SOURCE'
** ** 04 36 00 00 00 02 00 - 01 ASSIGN4 MODE 00 : NORMAL (DEC/INC)
01 : TOGGLE

** ** 04 38 00 00 00 04 00 00 ASSIGN4 TARGET * Refer to Table 'TARGET' *2
- 01 08
** ** 04 3C 00 00 00 04 00 00 ASSIGN4 MIN *4
- *****
** ** 04 40 00 00 00 04 00 00 ASSIGN4 MAX *4
- *****
** ** 04 44 00 00 00 02 00 - 45 ASSIGN4 SOURCE * Refer to Table 'SOURCE'
** ** 04 46 00 00 00 02 00 - 01 ASSIGN4 MODE 00 : NORMAL (DEC/INC)
01 : TOGGLE
** ** 04 48 00 00 00 04 00 00 ASSIGN5 TARGET * Refer to Table 'TARGET' *2
- 01 08
** ** 04 4C 00 00 00 04 00 00 ASSIGN5 MIN *4
- *****
** ** 04 50 00 00 00 04 00 00 ASSIGN5 MAX *4
- *****
** ** 04 54 00 00 00 02 00 - 45 ASSIGN5 SOURCE * Refer to Table 'SOURCE'
** ** 04 56 00 00 00 02 00 - 01 ASSIGN5 MODE 00 : NORMAL (DEC/INC)
01 : TOGGLE
** ** 04 58 00 00 00 04 00 00 ASSIGN6 TARGET * Refer to Table 'TARGET' *2
- 01 08
** ** 04 5C 00 00 00 04 00 00 ASSIGN6 MIN *4
- *****
** ** 04 60 00 00 00 04 00 00 ASSIGN6 MAX *4
- *****
** ** 04 64 00 00 00 02 00 - 45 ASSIGN6 SOURCE * Refer to Table 'SOURCE'
** ** 04 66 00 00 00 02 00 - 01 ASSIGN6 MODE 00 : NORMAL (DEC/INC)
01 : TOGGLE
** ** 04 68 00 00 00 04 00 00 ASSIGN7 TARGET * Refer to Table 'TARGET' *2
- 01 08
** ** 04 6C 00 00 00 04 00 00 ASSIGN7 MIN *4
- *****
** ** 04 70 00 00 00 04 00 00 ASSIGN7 MAX *4
- *****
** ** 04 74 00 00 00 02 00 - 45 ASSIGN7 SOURCE * Refer to Table 'SOURCE'
** ** 04 76 00 00 00 02 00 - 01 ASSIGN7 MODE 00 : NORMAL (DEC/INC)
01 : TOGGLE
** ** 04 78 00 00 00 04 00 00 ASSIGN8 TARGET * Refer to Table 'TARGET' *2
- 01 08
** ** 04 7C 00 00 00 04 00 00 ASSIGN8 MIN *4
- *****
** ** 05 00 00 00 00 04 00 00 ASSIGN8 MAX *4
- *****
** ** 05 04 00 00 00 02 00 - 45 ASSIGN8 SOURCE * Refer to Table 'SOURCE'
** ** 05 06 00 00 00 02 00 - 01 ASSIGN8 MODE 00 : NORMAL (DEC/INC)
01 : TOGGLE

===== EXP =====
** ** 05 08 00 00 00 04 00 00 EXP TARGET * Refer to Table 'TARGET' *2
- 01 08
** ** 05 0C 00 00 00 04 00 00 EXP MIN *4
- *****
** ** 05 10 00 00 00 04 00 00 EXP MAX *4
- *****

===== CTL =====
** ** 05 14 00 00 00 04 00 00 CTL TARGET * Refer to Table 'TARGET' *2
- 01 08
** ** 05 18 00 00 00 04 00 00 CTL MIN *4
- *****
** ** 05 1C 00 00 00 04 00 00 CTL MAX *4
- *****
** ** 05 20 00 00 00 02 00 - 01 CTL MODE 00 : NORMAL
01 : TOGGLE

```

```

** ** 05 22 00 00 00 02 reserved

===== GK VOL =====
** ** 05 24 00 00 00 04 00 00 GK VOL TARGET * Refer to Table 'TARGET' *2
- 01 08
** ** 05 28 00 00 00 04 00 00 GK VOL MIN *4
- ****
** ** 05 2C 00 00 00 04 00 00 GK VOL MAX *4
- ****

===== GK Sl/S2 =====
** ** 05 30 00 00 00 04 00 00 GK Sl/S2 TARGET * Refer to Table 'TARGET' *2
- 01 08
** ** 05 34 00 00 00 04 00 00 GK Sl/S2 MIN *4
- ****
** ** 05 38 00 00 00 04 00 00 GK Sl/S2 MAX *4
- ****
** ** 05 3C 00 00 00 02 00 - 01 GK Sl/S2 MODE 00 : DEC/INC
01 : TOGGLE
** ** 05 3E 00 00 00 02 reserved

===== ASSIGN =====
** ** 05 40 00 00 00 02 00 - 7E ASSIGN1 ACTIVE RANGE LO 0 - 126 *5
** ** 05 42 00 00 00 02 00 - 7E ASSIGN2 ACTIVE RANGE LO 0 - 126 *5
** ** 05 44 00 00 00 02 00 - 7E ASSIGN3 ACTIVE RANGE LO 0 - 126 *5
** ** 05 46 00 00 00 02 00 - 7E ASSIGN4 ACTIVE RANGE LO 0 - 126 *5
** ** 05 48 00 00 00 02 00 - 7E ASSIGN5 ACTIVE RANGE LO 0 - 126 *5
** ** 05 4A 00 00 00 02 00 - 7E ASSIGN6 ACTIVE RANGE LO 0 - 126 *5
** ** 05 4C 00 00 00 02 00 - 7E ASSIGN7 ACTIVE RANGE LO 0 - 126 *5
** ** 05 4E 00 00 00 02 00 - 7E ASSIGN8 ACTIVE RANGE LO 0 - 126 *5
** ** 05 50 00 00 00 02 01 - 7F ASSIGN1 ACTIVE RANGE HI 1 - 127 *5
** ** 05 52 00 00 00 02 01 - 7F ASSIGN2 ACTIVE RANGE HI 1 - 127 *5
** ** 05 54 00 00 00 02 01 - 7F ASSIGN3 ACTIVE RANGE HI 1 - 127 *5
** ** 05 56 00 00 00 02 01 - 7F ASSIGN4 ACTIVE RANGE HI 1 - 127 *5
** ** 05 58 00 00 00 02 01 - 7F ASSIGN5 ACTIVE RANGE HI 1 - 127 *5
** ** 05 5A 00 00 00 02 01 - 7F ASSIGN6 ACTIVE RANGE HI 1 - 127 *5
** ** 05 5C 00 00 00 02 01 - 7F ASSIGN7 ACTIVE RANGE HI 1 - 127 *5
** ** 05 5E 00 00 00 02 01 - 7F ASSIGN8 ACTIVE RANGE HI 1 - 127 *5
** ** 05 60 00 00 00 02 00 - 01 EXP ON/OFF
** ** 05 62 00 00 00 02 00 - 01 CTL ON/OFF
** ** 05 64 00 00 00 02 00 - 01 GK VOL ON/OFF
** ** 05 66 00 00 00 02 00 - 01 GK Sl/S2 ON/OFF
** ** 05 68 00 00 00 02 00 - 01 ASSIGN1 ON/OFF
** ** 05 6A 00 00 00 02 00 - 01 ASSIGN2 ON/OFF
** ** 05 6C 00 00 00 02 00 - 01 ASSIGN3 ON/OFF
** ** 05 6E 00 00 00 02 00 - 01 ASSIGN4 ON/OFF
** ** 05 70 00 00 00 02 00 - 01 ASSIGN5 ON/OFF
** ** 05 72 00 00 00 02 00 - 01 ASSIGN6 ON/OFF
** ** 05 74 00 00 00 02 00 - 01 ASSIGN7 ON/OFF
** ** 05 76 00 00 00 02 00 - 01 ASSIGN8 ON/OFF

00 : OFF
01 : ON

===== MASTER =====
** ** 05 78 00 00 00 04 00 28 TEMPO 00 28 : 40 *2
- 00 FB 00 29 : 41
: :
00 FA : 250
00 FB : MIDI
0 - 200
** ** 05 7C 00 00 00 02 00 - 64 LEVEL
** ** 05 7E 00 00 00 02 00 - 0B KEY
00 : C(Am)
01 : Db(Bm)
02 : D(Bm)
03 : Eb(Cm)
04 : E(C#m)
05 : F(Dm)
06 : F#(Ebm)
07 : G(Em)
08 : Ab(Fm)
09 : A(F#m)
0A : Bb(Gm)
0B : B(G#m)

** ** 06 00 00 00 00 02 01 - 7F NAME * Refer to Table 'NAME2'
** ** 06 02 00 00 00 02 01 - 7F NAME * Refer to Table 'NAME2'
** ** 06 04 00 00 00 02 01 - 7F NAME * Refer to Table 'NAME2'
** ** 06 06 00 00 00 02 01 - 7F NAME * Refer to Table 'NAME2'
** ** 06 08 00 00 00 02 01 - 7F NAME * Refer to Table 'NAME2'
** ** 06 0A 00 00 00 02 01 - 7F NAME * Refer to Table 'NAME2'
** ** 06 0C 00 00 00 02 01 - 7F NAME * Refer to Table 'NAME2'
** ** 06 0E 00 00 00 02 01 - 7F NAME * Refer to Table 'NAME2'
** ** 06 10 00 00 00 02 reserved
** ** 06 12 00 00 00 02 00 - 0B CHAIN MIX
** ** 06 14 00 00 00 02 00 - 01 CHAIN MIX MODE
** ** 06 16 00 00 00 02 00 - 0A CHAIN 1 * Refer to Table 'CHAIN' *6
** ** 06 18 00 00 00 02 00 - 0A CHAIN 2 * Refer to Table 'CHAIN' *6
** ** 06 1A 00 00 00 02 00 - 0A CHAIN 3 * Refer to Table 'CHAIN' *6
** ** 06 1C 00 00 00 02 00 - 0A CHAIN 4 * Refer to Table 'CHAIN' *6
** ** 06 1E 00 00 00 02 00 - 0A CHAIN 5 * Refer to Table 'CHAIN' *6
** ** 06 20 00 00 00 02 00 - 0A CHAIN 6 * Refer to Table 'CHAIN' *6
** ** 06 22 00 00 00 02 00 - 0A CHAIN 7 * Refer to Table 'CHAIN' *6
** ** 06 24 00 00 00 02 00 - 0A CHAIN 8 * Refer to Table 'CHAIN' *6
** ** 06 26 00 00 00 02 00 - 0A CHAIN 9 * Refer to Table 'CHAIN' *6
** ** 06 28 00 00 00 02 00 - 0A CHAIN 10 * Refer to Table 'CHAIN' *6
** ** 06 2A 00 00 00 02 00 - 0A CHAIN 11 * Refer to Table 'CHAIN' *6
** ** 06 2C 00 00 00 02 00 - 01 FX-BYPASS 00 : OFF
01 : ON
** ** 06 2E 00 00 00 02 00 - 64 BASS IN 0 - 200

```

*1 It is not possible to set EXP PEDAL CALIBRATION RELEASE to a value greater than EXP PEDAL CALIBRATION PRESS.

*2 When transmitted, the lower byte is sent first. For example, the order for 1234H will be 34H and then 12H.

*3 This is for the case when the parameter name is KEY=C(Am). The correspondence between KEY and parameter name is shown below.

ADDRESS	KEY												
	C (Am)	D ^b (B ^b m)	D (Bm)	E ^b (Cm)	E (C [#] m)	F (Dm)	F [#] (E ^b m)	G (Em)	A ^b (Fm)	A (F [#] m)	B ^b (Gm)	B (G [#] m)	
** ** 03 02	C	D ^b	D	E ^b	E	F	F [#]	G	A ^b	A	B ^b	B	
** ** 03 04	D ^b	D	E ^b	E	F	F [#]	G	A ^b	A	B ^b	B	C	
** ** 03 06	D	E ^b	E	F	F [#]	G	A ^b	A	B ^b	B	C	D ^b	
** ** 03 08	E ^b	E	F	F [#]	G	A ^b	A	B ^b	B	C	D ^b	D	
** ** 03 0A	E	F	F [#]	G	A ^b	A	B ^b	B	C	D ^b	D	E ^b	
** ** 03 0C	F	F [#]	G	A ^b	A	B ^b	B	C	D ^b	D	E ^b	E	
** ** 03 0E	F [#]	G	A ^b	A	B ^b	B	C	D ^b	D	E ^b	E	F	
** ** 03 10	G	A ^b	A	B ^b	B	C	D ^b	D	E ^b	E	F	F [#]	
** ** 03 12	A ^b	A	B ^b	B	C	D ^b	D	E ^b	E	F	F [#]	G	
** ** 03 14	A	B ^b	B	C	D ^b	D	E ^b	E	F	F [#]	G	A ^b	
** ** 03 16	B ^b	B	C	D ^b	D	E ^b	E	F	F [#]	G	A ^b	A	
** ** 03 18	B	C	D ^b	D	E ^b	E	F	F [#]	G	A ^b	A	B ^b	

*4 MIN and MAX will be according to the data of the parameter selected for TARGET.

*5 It is not possible to set ACTIVE RANGE LO above ACTIVE RANGE HI.

*6 From the input side, this is CHAIN1, 2, 3 ... 11. Transmit consecutive data for CHAIN1-11 so that effects do not overlap.

Table 'PROGRAM MAP'

Data (H)	Desc.	Data (H)	Desc.	Data (H)	Desc.	Data (H)	Desc.	Data (H)	Desc.
00 00 : #	1-1	00 28 : #	11-1	00 50 : #	21-1	00 78 : #	31-1	01 20 : #	41-1
00 01 : #	1-2	00 29 : #	11-2	00 51 : #	21-2	00 79 : #	31-2	01 21 : #	41-2
00 02 : #	1-3	00 2A : #	11-3	00 52 : #	21-3	00 7A : #	31-3	01 22 : #	41-3
00 03 : #	1-4	00 2B : #	11-4	00 53 : #	21-4	00 7B : #	31-4	01 23 : #	41-4
00 04 : #	2-1	00 2C : #	12-1	00 54 : #	22-1	00 7C : #	32-1	01 24 : #	42-1
00 05 : #	2-2	00 2D : #	12-2	00 55 : #	22-2	00 7D : #	32-2	01 25 : #	42-2
00 06 : #	2-3	00 2E : #	12-3	00 56 : #	22-3	00 7E : #	32-3	01 26 : #	42-3
00 07 : #	2-4	00 2F : #	12-4	00 57 : #	22-4	00 7F : #	32-4	01 27 : #	42-4
00 08 : #	3-1	00 30 : #	13-1	00 58 : #	23-1	01 00 : #	33-1	01 28 : #	43-1
00 09 : #	3-2	00 31 : #	13-2	00 59 : #	23-2	01 01 : #	33-2	01 29 : #	43-2
00 0A : #	3-3	00 32 : #	13-3	00 5A : #	23-3	01 02 : #	33-3	01 2A : #	43-3
00 0B : #	3-4	00 33 : #	13-4	00 5B : #	23-4	01 03 : #	33-4	01 2B : #	43-4
00 0C : #	4-1	00 34 : #	14-1	00 5C : #	24-1	01 04 : #	34-1	01 2C : #	44-1
00 0D : #	4-2	00 35 : #	14-2	00 5D : #	24-2	01 05 : #	34-2	01 2D : #	44-2
00 0E : #	4-3	00 36 : #	14-3	00 5E : #	24-3	01 06 : #	34-3	01 2E : #	44-3
00 0F : #	4-4	00 37 : #	14-4	00 5F : #	24-4	01 07 : #	34-4	01 2F : #	44-4
00 10 : #	5-1	00 38 : #	15-1	00 60 : #	25-1	01 08 : #	35-1	01 30 : #	45-1
00 11 : #	5-2	00 39 : #	15-2	00 61 : #	25-2	01 09 : #	35-2	01 31 : #	45-2
00 12 : #	5-3	00 3A : #	15-3	00 62 : #	25-3	01 0A : #	35-3	01 32 : #	45-3
00 13 : #	5-4	00 3B : #	15-4	00 63 : #	25-4	01 0B : #	35-4	01 33 : #	45-4
00 14 : #	6-1	00 3C : #	16-1	00 64 : #	26-1	01 0C : #	36-1	01 34 : #	46-1
00 15 : #	6-2	00 3D : #	16-2	00 65 : #	26-2	01 0D : #	36-2	01 35 : #	46-2
00 16 : #	6-3	00 3E : #	16-3	00 66 : #	26-3	01 0E : #	36-3	01 36 : #	46-3
00 17 : #	6-4	00 3F : #	16-4	00 67 : #	26-4	01 0F : #	36-4	01 37 : #	46-4
00 18 : #	7-1	00 40 : #	17-1	00 68 : #	27-1	01 10 : #	37-1	01 38 : #	47-1
00 19 : #	7-2	00 41 : #	17-2	00 69 : #	27-2	01 11 : #	37-2	01 39 : #	47-2
00 1A : #	7-3	00 42 : #	17-3	00 6A : #	27-3	01 12 : #	37-3	01 3A : #	47-3
00 1B : #	7-4	00 43 : #	17-4	00 6B : #	27-4	01 13 : #	37-4	01 3B : #	47-4
00 1C : #	8-1	00 44 : #	18-1	00 6C : #	28-1	01 14 : #	38-1	01 3C : #	48-1
00 1D : #	8-2	00 45 : #	18-2	00 6D : #	28-2	01 15 : #	38-2	01 3D : #	48-2
00 1E : #	8-3	00 46 : #	18-3	00 6E : #	28-3	01 16 : #	38-3	01 3E : #	48-3
00 1F : #	8-4	00 47 : #	18-4	00 6F : #	28-4	01 17 : #	38-4	01 3F : #	48-4
00 20 : #	9-1	00 48 : #	19-1	00 70 : #	29-1	01 18 : #	39-1	01 40 : #	49-1
00 21 : #	9-2	00 49 : #	19-2	00 71 : #	29-2	01 19 : #	39-2	01 41 : #	49-2
00 22 : #	9-3	00 4A : #	19-3	00 72 : #	29-3	01 1A : #	39-3	01 42 : #	49-3
00 23 : #	9-4	00 4B : #	19-4	00 73 : #	29-4	01 1B : #	39-4	01 43 : #	49-4
00 24 : #	10-1	00 4C : #	20-1	00 74 : #	30-1	01 1C : #	40-1	01 44 : #	50-1
00 25 : #	10-2	00 4D : #	20-2	00 75 : #	30-2	01 1D : #	40-2	01 45 : #	50-2
00 26 : #	10-3	00 4E : #	20-3	00 76 : #	30-3	01 1E : #	40-3	01 46 : #	50-3
00 27 : #	10-4	00 4F : #	20-4	00 77 : #	30-4	01 1F : #	40-4	01 47 : #	50-4

Table 'PT SHIFT_HARM'

Data(H)	Description
00	-2oct
01	-14th
02	-13th
03	-12th
04	-11th
05	-10th
06	-9th
07	-8th
08	-7th
09	-6th
0A	-5th
0B	-4th
0C	-3rd
0D	-2nd
0E	Tonic
0F	+2nd
10	+3rd
11	+4th
12	+5th
13	+6th
14	+7th
15	+8th
16	+9th
17	+10th
18	+11th
19	+12th
1A	+13th
1B	+14th
1C	+2oct

Table 'PICKUP_OFFSET'

Data(H)	Description
00 00	-445mm
00 01	-440mm
:	:
00 59	0mm
:	:
00 B1	+440mm
00 B2	+445mm

Table 'PICKUP_TYPE'

Data(H)	Description
00	SINGLE
01	DOUBLE
02	PIEZO

Table 'PICKUP_POSITION'

Data(H)	Description
00	5mm
01	10mm
:	:
59	450mm

Table 'EQ_MID_F'

Data(H)	Description
00	20.0Hz
01	25.0Hz
02	31.5Hz
03	40.0Hz
04	50.0Hz
05	63.0Hz
06	80.0Hz
07	100Hz
08	125Hz
09	160Hz
0A	200Hz
0B	250Hz
0C	315Hz
0D	400Hz
0E	500Hz
0F	630Hz
10	800Hz
11	1.00kHz
12	1.25kHz
13	1.60kHz
14	2.00kHz
15	2.50kHz
16	3.15kHz
17	4.00kHz
18	5.00kHz
19	6.30kHz
1A	8.00kHz
1B	10.0kHz

Table 'EQ_MID_Q'

Data(H)	Description
00	0.5
01	1
02	2
03	4
04	8
05	16

Table 'RATE'

Data(H)	Description
00	0
:	:
64	100
65	4.0*BPM
66	3.0*BPM
67	8/3*BPM
68	2.0*BPM

69	1.5*BPM
6A	4/3*BPM
6B	1.0*BPM
6C	3/4*BPM
6D	2/3*BPM
6E	1/2*BPM
6F	3/8*BPM
70	1/3*BPM
71	1/4*BPM

Table 'HR_HARM'

Data(H)	Description
00	-2oct
01	-14th
02	-13th
03	-12th
04	-11th
05	-10th
06	-9th
07	-8th
08	-7th
09	-6th
0A	-5th
0B	-4th
0C	-3rd
0D	-2nd
0E	Tonic
0F	+2nd
10	+3rd
11	+4th
12	+5th
13	+6th
14	+7th
15	+8th
16	+9th
17	+10th
18	+11th
19	+12th
1A	+13th
1B	+14th
1C	+2oct
1D	USER

Table 'PRE DLY'

Data(H)	Description
00 00	0ms
00 01	1ms
:	:
00 7F	127ms
00 80	128ms
:	:
00 FF	255ms
01 00	256ms
:	:
01 2C	300ms
01 2D	1/4*BPM
01 2E	1/3*BPM
01 2F	3/8*BPM
01 30	1/2*BPM
01 31	2/3*BPM
01 32	3/4*BPM
01 33	1.0*BPM
01 34	4/3*BPM
01 35	1.5*BPM
01 36	2.0*BPM
01 37	8/3*BPM
01 38	3.0*BPM
01 39	4.0*BPM

Table 'STEP'

Data(H)	Description
00	OFF
01	0
:	:
65	100
66	4.0*BPM
67	3.0*BPM
68	8/3*BPM
69	2.0*BPM
6A	1.5*BPM
6B	4/3*BPM
6C	1.0*BPM
6D	3/4*BPM
6E	2/3*BPM
6F	1/2*BPM
70	3/8*BPM
71	1/3*BPM
72	1/4*BPM

Table 'X OVER F'

Data(H)	Description
00	100Hz
01	125Hz
02	160Hz
03	200Hz
04	250Hz
05	315Hz
06	400Hz
07	500Hz
08	630Hz
09	800Hz
0A	1.00kHz
0B	1.25kHz
0C	1.60kHz
0D	2.00kHz
0E	2.50kHz
0F	3.15kHz
10	4.00kHz

Table 'DLY TIME'

Data(H)	Description
00 00	0ms
00 01	1ms
:	:
00 FF	255ms
01 00	256ms
:	:
07 08	1800ms
07 09	1/4*BPM
07 0A	1/3*BPM
07 0B	3/8*BPM
07 0C	1/2*BPM
07 0D	2/3*BPM
07 0E	3/4*BPM
07 0F	1.0*BPM
07 10	4/3*BPM
07 11	1.5*BPM
07 12	2.0*BPM
07 13	8/3*BPM
07 14	3.0*BPM
07 15	4.0*BPM

Table 'HIGH CUT'

Data(H)	Description
00	700Hz
01	1.00kHz
02	1.40kHz
03	2.00kHz
04	3.00kHz
05	4.00kHz
06	6.00kHz
07	8.00kHz
08	11.0kHz
09	FLAT

Table 'LOW CUT'

Data(H)	Description
00	55.0Hz
01	110Hz
02	165Hz
03	200Hz
04	280Hz
05	340Hz
06	400Hz
07	500Hz
08	630Hz
09	800Hz

Table 'LOW CUT2'

Data(H)	Description
00	FLAT
01	55.0Hz
02	110Hz
03	165Hz
04	200Hz
05	280Hz
06	340Hz
07	400Hz
08	500Hz
09	630Hz
0A	800Hz

Table 'TARGET'

Data(H)	Description
00 00	COSM BASS
00 01	PICK UP/BASS SELECT
00 02	PICK UP/BASS SELECT
00 03	PICK UP/BASS SELECT
00 04	PICK UP/BASS SELECT
00 05	PICK UP/BASS SELECT
00 06	PICK UP/BASS SELECT
00 07	PICK UP/BASS SELECT
00 08	PICK UP/BASS SELECT
00 09	VARI BASS - PICK UP
00 0A	BASS SELECT
00 0B	BASS SELECT
00 0C	BASS SELECT
00 0D	BASS SELECT
00 0E	VARI BASS - BODY
00 0F	VARI BASS - BODY
00 10	VARI BASS - BODY
00 11	ACOUSTIC - BODY
00 12	ACOUSTIC - BODY
00 13	ACOUSTIC - BODY
00 14	ACOUSTIC - BODY
00 15	FRETLESS
00 16	FRETLESS
00 17	FRETLESS
00 18	FRETLESS
00 19	WAVE SYNTH
00 1A	WAVE SYNTH
00 1B	WAVE SYNTH
00 1C	WAVE SYNTH
00 1D	WAVE SYNTH
00 1E	WAVE SYNTH
00 1F	WAVE SYNTH
00 20	WAVE SYNTH
00 21	WAVE SYNTH
00 22	WAVE SYNTH
00 23	OSC SYNTH
00 24	OSC SYNTH
00 25	OSC SYNTH
00 26	OSC SYNTH
00 27	OSC SYNTH
00 28	OSC SYNTH
00 29	OSC SYNTH
00 2A	OSC SYNTH

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00 2B : OSC SYNTH      RESO
00 2C : OSC SYNTH      F.ATTACK
00 2D : OSC SYNTH      F.DECAY
00 2E : OSC SYNTH      F.DEPTH
00 2F : OSC SYNTH      HOLD
00 30 : OSC SYNTH      SUB LEV
00 31 : OSC PITCH      ON/OFF
00 32 : OSC PITCH      SHIFT Hi
00 33 : OSC PITCH      SHIFT 1
00 34 : OSC PITCH      SHIFT 2
00 35 : OSC PITCH      SHIFT 3
00 36 : OSC PITCH      SHIFT 4
00 37 : OSC PITCH      SHIFT Lo
00 38 : OSC PITCH      FINE Hi
00 39 : OSC PITCH      FINE 1
00 3A : OSC PITCH      FINE 2
00 3B : OSC PITCH      FINE 3
00 3C : OSC PITCH      FINE 4
00 3D : OSC PITCH      FINE Lo
00 3E : PT SHIFT       ON/OFF
00 3F : PT SHIFT       SHIFT Hi
00 40 : PT SHIFT       SHIFT 1
00 41 : PT SHIFT       SHIFT 2
00 42 : PT SHIFT       SHIFT 3
00 43 : PT SHIFT       SHIFT 4
00 44 : PT SHIFT       SHIFT Lo
00 45 : PT SHIFT       FINE Hi
00 46 : PT SHIFT       FINE 1
00 47 : PT SHIFT       FINE 2
00 48 : PT SHIFT       FINE 3
00 49 : PT SHIFT       FINE 4
00 4A : PT SHIFT       FINE Lo
00 4B : PT SHIFT       E.LEV Hi
00 4C : PT SHIFT       E.LEV 1
00 4D : PT SHIFT       E.LEV 2
00 4E : PT SHIFT       E.LEV 3
00 4F : PT SHIFT       E.LEV 4
00 50 : PT SHIFT       E.LEV Lo
00 51 : PT SHIFT       D.LEV Hi
00 52 : PT SHIFT       D.LEV 1
00 53 : PT SHIFT       D.LEV 2
00 54 : PT SHIFT       D.LEV 3
00 55 : PT SHIFT       D.LEV 4
00 56 : PT SHIFT       D.LEV Lo
00 57 : PT SHIFT       HARMO Hi
00 58 : PT SHIFT       HARMO 1
00 59 : PT SHIFT       HARMO 2
00 5A : PT SHIFT       HARMO 3
00 5B : PT SHIFT       HARMO 4
00 5C : PT SHIFT       HARMO Lo
00 5D : PD SHIFT       ON/OFF
00 5E : PD SHIFT       PITCH
00 5F : PD SHIFT       STRNG Hi
00 60 : PD SHIFT       STRNG 1
00 61 : PD SHIFT       STRNG 2
00 62 : PD SHIFT       STRNG 3
00 63 : PD SHIFT       STRNG 4
00 64 : PD SHIFT       STRNG Lo
00 65 : POLY DISTORTION ON/OFF
00 66 : POLY DISTORTION DRIVE
00 67 : POLY DISTORTION LEVEL
00 68 : POLY DISTORTION DIR LEV
00 69 : POLY DISTORTION POLY BAL
00 6A : POLY DISTORTION DRV BAL
00 6B : POLY OCTAVE    ON/OFF
00 6C : POLY OCTAVE    -10CT Hi
00 6D : POLY OCTAVE    -10CT 1
00 6E : POLY OCTAVE    -10CT 2
00 6F : POLY OCTAVE    -10CT 3
00 70 : POLY OCTAVE    -10CT 4
00 71 : POLY OCTAVE    -10CT Lo
00 72 : POLY OCTAVE    DIR Hi
00 73 : POLY OCTAVE    DIR 1
00 74 : POLY OCTAVE    DIR 2
00 75 : POLY OCTAVE    DIR 3
00 76 : POLY OCTAVE    DIR 4
00 77 : POLY OCTAVE    DIR Lo
00 78 : POLY SG        ON/OFF
00 79 : FILTERED       COLOR
00 7A : FILTER          CUTOFF
00 7B : FILTER          DECAY
00 7C : ATTACK          LENGTH
00 7D : ATTACK          MOD-TUNE
00 7E : ATTACK          MOD-DEP
00 7F : ATTACK          LEVEL
00 80 : ORGAN          FEET-4
00 81 : ORGAN          FEET-8
00 82 : ORGAN          FEET-16
00 83 : P-BEND          P BEND Q
00 84 : COSM EQ         ON/OFF
00 85 : COSM EQ         LEVEL
00 86 : COSM EQ         L-MID G
00 87 : COSM EQ         LOW G
00 88 : COSM EQ         HIGH G
00 89 : COSM EQ         H-MID G
00 8A : COSM PAN        STRNG Hi
00 8B : COSM PAN        STRNG 1
00 8C : COSM PAN        STRNG 2
00 8D : COSM PAN        STRNG 3
00 8E : COSM PAN        STRNG 4
00 8F : COSM PAN        STRNG Lo
00 90 : MIXER          BALANCE
00 91 : MIXER          LEVEL
00 92 : MIXER          ST-LEV Hi
00 93 : MIXER          ST-LEV 1
00 94 : MIXER          ST-LEV 2
00 95 : MIXER          ST-LEV 3
00 96 : MIXER          ST-LEV 4
00 97 : MIXER          ST-LEV Lo
00 98 : COSM AMP        ON/OFF
00 99 : COSM AMP        GAIN
00 9A : COSM AMP        VOLUME
00 9B : COSM AMP        BASS
00 9C : COSM AMP        MIDDLE
00 9D : COSM AMP        TREBLE
00 9E : COSM AMP        PRESENCE
00 9F : COSM AMP        HIGH CUT
00 A0 : COSM AMP        BRIGHT

```

```

00 A1 : COSM AMP
00 A2 : COSM AMP
00 A3 : FX:COMP/LM
00 A4 : FX:COMP
00 A5 : FX:COMP
00 A6 : FX:COMP
00 A7 : FX:LM
00 A8 : FX:LM
00 A9 : FX:LM
00 AA : FX:WAH
00 AB : FX:PEDAL WAH
00 AC : FX:PEDAL WAH
00 AD : FX:AUTO WAH
00 AE : FX:AUTO WAH
00 AF : FX:AUTO WAH
00 B0 : FX:AUTO WAH
00 B1 : FX:AUTO WAH
00 B2 : FX:OD/DS
00 B3 : FX:OD/DS
00 B4 : FX:OD/DS
00 B5 : FX:OD/DS
00 B6 : FX:OD/DS
00 B7 : FX:OD/DS
00 B8 : FX:OD/DS
00 B9 : FX:EQ
00 BA : FX:EQ
00 BB : FX:EQ
00 BC : FX:EQ
00 BD : FX:EQ
00 BE : FX:EQ
00 BF : FX:MOD
00 C0 : FX:MARMONIST
00 C1 : FX:MARMONIST
00 C2 : FX:MARMONIST
00 C3 : FX:MARMONIST
00 C4 : FX:MARMONIST
00 C5 : FX:MARMONIST
00 C6 : FX:MARMONIST
00 C7 : FX:MARMONIST
00 C8 : FX:MARMONIST
00 C9 : FX:P. SHIFTER
00 CA : FX:P. SHIFTER
00 CB : FX:P. SHIFTER
00 CC : FX:P. SHIFTER
00 CD : FX:P. SHIFTER
00 CE : FX:P. SHIFTER
00 CF : FX:P. SHIFTER
00 D0 : FX:P. SHIFTER
00 D1 : FX:P. SHIFTER
00 D2 : FX:P. SHIFTER
00 D3 : FX:P. SHIFTER
00 D4 : FX:P. SHIFTER
00 D5 : FX:FLANGER
00 D6 : FX:FLANGER
00 D7 : FX:FLANGER
00 D8 : FX:FLANGER
00 D9 : FX:FLANGER
00 DA : FX:FLANGER
00 DB : FX:PHASER
00 DC : FX:PHASER
00 DD : FX:PHASER
00 DE : FX:PHASER
00 DF : FX:PHASER
00 E0 : FX:PHASER
00 E1 : FX:PHASER
00 E2 : FX:SUB EQ
00 E3 : FX:SUB EQ
00 E4 : FX:SUB EQ
00 E5 : FX:SUB EQ
00 E6 : FX:SUB EQ
00 E7 : FX:2x2 CHORUS
00 E8 : FX:2x2 CHORUS
00 E9 : FX:2x2 CHORUS
00 EA : FX:2x2 CHORUS
00 EB : FX:2x2 CHORUS
00 EC : FX:2x2 CHORUS
00 ED : FX:TREMLOLO
00 EE : FX:TREMLOLO
00 EF : FX:PAN
00 F0 : FX:PAN
00 F1 : FX:PD SHIFT
00 F2 : FX:VIBRATO
00 F3 : FX:VIBRATO
00 F4 : FX:VIBRATO
00 F5 : FX:DELAY
00 F6 : FX:DELAY
00 F7 : FX:DELAY
00 F8 : FX:DELAY
00 F9 : FX:CHORUS
00 FA : FX:CHORUS
00 FB : FX:CHORUS
00 FC : FX:CHORUS
00 FD : FX:REVERB
00 FE : FX:REVERB
00 FF : FX:REVERB
01 00 : FX:NS
01 01 : FX:FV
01 02 : MASTER
01 03 : MASTER
01 04 : MASTER
01 05 : MASTER
01 06 : TUNER
01 07 : MANUAL
01 08 : FX-BYPASS

```

Table 'SOURCE'

Data(H)	Description
00	EXP PEDAL
01	CTL PEDAL
02	SUB EXP
03	SUB CTL1
04	SUB CTL2
05	GK VOL
06	GK S1/S2
07	MIDI CC#1
:	:

```

GAIN SW
ENHANCER
ON/OFF
SUSTAIN
TONE
LEVEL
THRESHOLD
TONE
LEVEL
ON/OFF
FREQ
LEVEL
FREQ
PEAK
RATE
DEPTH
LEVEL
ON/OFF
TYPE
DRIVE
BASS
TREBLE
LEVEL
DIR LEVEL
ON/OFF
/
0
LEVEL
L-MID G
LOW G
HIGH G
H-MID G
ON/OFF
1:ON/OFF
1:HARMONY
1:PAN
1:LEVEL
DIR LEVEL
2:ON/OFF
2:HARMONY
2:PAN
2:LEVEL
1:ON/OFF
1:SHIFT
1:FINE
1:F.BACK
1:PAN
1:LEVEL
DIR LEVEL
2:ON/OFF
2:SHIFT
2:FINE
2:PAN
2:LEVEL
RATE
DEPTH
MANUAL
RESONANCE
BALANCE
LEVEL
RATE
DEPTH
MANUAL
RESONANCE
BALANCE
LEVEL
STEP
LEVEL
L-MID G
LOW G
HIGH G
H-MID G
L-RATE
L-DEPTH
L-LEVEL
H-RATE
H-DEPTH
H-LEVEL
RATE
DEPTH
RATE
DEPTH
PITCH
TRIGGER
RATE
DEPTH
ON/OFF
DLY TIME
FEEDBACK
DLY LEVEL
ON/OFF
RATE
DEPTH
CE LEVEL
ON/OFF
REV TIME
REV LVL
ON/OFF
LEVEL
LEVEL
BASS IN
TAP TEMPO
KEY
ON/OFF
ON/OFF
ON/OFF

```

Table 'NAME1'

Data(H)	Description
20	:
21	:
22	:
23	:
24	:
25	:
26	:
27	:
28	:
29	:
2A	:
2B	:
2C	:
2D	:
2E	:
2F	:
30	:
31	:
32	:
33	:
34	:
35	:
36	:
37	:
38	:
39	:
3A	:
3B	:
3C	:
3D	:
3E	:
3F	:
40	:
41	:
42	:
43	:
44	:
45	:
46	:
47	:
48	:
49	:
4A	:
4B	:
4C	:
4D	:
4E	:
4F	:
50	:
51	:
52	:
53	:
54	:
55	:
56	:
57	:
58	:
59	:
5A	:
5B	:
5C	:
5D	:
5E	:
5F	:
60	:
61	:
62	:
63	:
64	:
65	:
66	:
67	:
68	:
69	:
6A	:
6B	:
6C	:
6D	:
6E	:
6F	:
70	:
71	:
72	:
73	:
74	:
75	:
76	:
77	:
78	:
79	:
7A	:
7B	:
7C	:
7D	:
7E	:
7F	:

Table 'NAME2'

Data(H)	Description
00	:
01	:
02	:
03	:

04 : █
 05 : █
 06 : █
 07 : █
 08 : █
 09 : █
 0A : █
 0B : █
 0C : █
 0D : █
 0E : █
 0F : █
 10 : I
 11 : II
 12 : III
 13 : IV
 14 : V
 15 : VI
 16 : VII
 17 : VIII
 18 : IX
 19 : X
 1A : █
 1B : █
 1C : █
 1D : █
 1E : █
 1F : █
 20 : █
 21 : !
 22 : "
 23 : #
 24 : \$
 25 : %
 26 : &
 27 : '
 28 : (
 29 :)
 2A : *
 2B : +
 2C : ,
 2D : -
 2E : .
 2F : /
 30 : 0
 31 : 1
 32 : 2
 33 : 3
 34 : 4
 35 : 5
 36 : 6
 37 : 7
 38 : 8
 39 : 9
 3A : :
 3B : ;
 3C : <
 3D : =
 3E : >
 3F : ?
 40 : @
 41 : A
 42 : B
 43 : C
 44 : D
 45 : E
 46 : F
 47 : G
 48 : H
 49 : I
 4A : J
 4B : K
 4C : L
 4D : M
 4E : N
 4F : O
 50 : P
 51 : Q
 52 : R
 53 : S
 54 : T
 55 : U
 56 : V
 57 : W
 58 : X
 59 : Y
 5A : Z
 5B : [
 5C : \
 5D :]
 5E : █
 5F : ^
 60 : _
 61 : a
 62 : b
 63 : c

64 : d
 65 : e
 66 : f
 67 : g
 68 : h
 69 : i
 6A : j
 6B : k
 6C : l
 6D : m
 6E : n
 6F : o
 70 : p
 71 : q
 72 : r
 73 : s
 74 : t
 75 : u
 76 : v
 77 : w
 78 : x
 79 : y
 7A : z
 7B : █
 7C : |
 7D : █
 7E : ->
 7F : <-

Table 'CHAIN'

Data(H)	Description
00	COMP
01	WAH
02	OD/DS
03	COSM AMP
04	EQ
05	FV
06	NS
07	MOD
08	DELAY
09	CHORUS
0A	REVERB

Roland Exclusive Message

1. Data Format for Exclusive Messages

Roland's MIDI implementation uses the following data format for all Exclusive messages (type IV):

Byte	Description
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
CMD	Command ID
[BODY]	Main data
F7H	End of exclusive

• MIDI status: F0H, F7H

An Exclusive message must be flanked by a pair of status codes, starting with a Manufacturer ID immediately after F0H (MIDI version 1.0).

• Manufacturer ID: 41H

The Manufacturer ID identifies the manufacturer of a MIDI instrument that sends an Exclusive message. Value 41H represents Roland's Manufacturer ID.

• Device ID: DEV

The Device ID contains a unique value that identifies individual devices in the implementation of several MIDI instruments. It is usually set to 00H–0FH, a value smaller by one than that of a basic channel, but value 00H–1FH may be used for a device with several basic channels.

• Model ID: MDL

The Model ID contains a value that identifies one model from another. Different models, however, may share an identical Model ID if they handle similar data.

The Model ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Model IDs, each representing a unique model:

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

• Command ID: CMD

The Command ID indicates the function of an Exclusive message. The Command ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Command IDs, each representing a unique function:

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

• Main data: BODY

This field contains a message to be exchanged across an interface. The exact data size and content will vary with the Model ID and Command ID.

2. Address-mapped Data Transfer

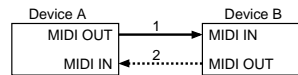
Address mapping is a technique for transferring messages conforming to the data format given in Section 1. It assigns a series of memory-resident records—waveform and tone data, switch status, and parameters, for example, to specific locations in a machine-dependent address space, thereby allowing access to data residing at the address a message specifies.

Address-mapped data transfer is therefore independent of models and data categories. This technique allows use of two different transfer procedures: one-way transfer and handshake transfer.

• One-way transfer procedure (See Section 3 for details.)

This procedure is suited to the transfer of a small amount of data. It sends out an Exclusive message completely independent of the receiving device's status.

Connection Diagram

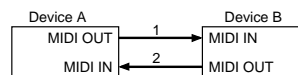


Connection at point 2 is essential for "Request data" procedures. (See Section 3.)

• Handshake-transfer procedure (This device does not use this procedure)

This procedure initiates a predetermined transfer sequence (handshaking) across the interface before data transfer takes place. Handshaking ensures that reliability and transfer speed are high enough to handle a large amount of data.

Connection Diagram



Connection at points 1 and 2 is essential.

Notes on the above procedures

* There are separate Command IDs for different transfer procedures.

* Devices A and B cannot exchange data unless they use the same transfer procedure, share identical Device ID and Model ID, and are ready for communication.

3. One-way Transfer Procedure

This procedure sends out data until it has all been sent and is used when the messages are so short that answerbacks need not be checked.

For longer messages, however, the receiving device must acquire each message in time with the transfer sequence, which inserts 20 milliseconds intervals.

Types of Messages

Message	Command ID
Request data 1	RQ1 (11H)
Data set 1	DT1 (12H)

• Request data #1: RQ1 (11H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.

On receiving an RQ1 message, the remote device checks its memory for the data address and size that satisfy the request.

If it finds them and is ready for communication, the device will transmit a "Data set 1 (DT1)" message, which contains the requested data. Otherwise, the device won't send out anything.

Byte	Description
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
11H	Command ID
aaH	Address MSB
	LSB
ssH	Size MSB
	LSB
sum	Check sum
F7H	End of exclusive

- * The size of the requested data does not indicate the number of bytes that will make up a DT1 message, but represents the address fields where the requested data resides.
- * Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
- * The same number of bytes comprises address and size data, which, however, vary with the Model ID.
- * The error-checking process uses a checksum that provides a bit pattern where the last 7 bits are zero when values for an address, size, and that checksum are summed.

• Data set 1: DT1 (12H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, a DT1 message can convey the starting address of one or more bits of data as well as a series of data formatted in an address-dependent order.

The MIDI standards inhibit non real-time messages from interrupting an Exclusive one. This fact is inconvenient for devices that support a "soft-thru" function. To maintain compatibility with such devices, Roland has limited the DT1 to 256 bytes so that an excessively long message is sent out in separate 'segments'.

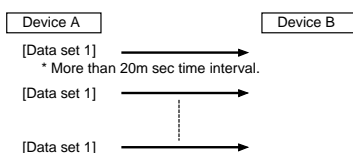
Byte	Description
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
12H	Command ID
aaH	Address MSB
	LSB
ddH	Data MSB
	LSB
sum	Check sum
F7H	End of exclusive

- * A DT1 message is capable of providing only the valid data among those specified by an RQ1 message.
- * Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
- * The number of bytes comprising address data varies from one Model ID to another.
- * The error-checking process uses a checksum that provides a bit pattern where the last 7 bits are zero when values for an address, size, and that checksum are summed.

• Example of Message Transactions

• Device A sending data to Device B

Transfer of a DT1 message is all that takes place.



• Device B requesting data from Device A

Device B sends an RQ1 message to Device A. Checking the message, Device A sends a DT1 message back to Device B.

