

POLY-800 MIDI DUMP KIT RETROFIT PROCEDURE

EXPLANATION OF FUNCTIONS

This retrofit consists of replacing the EP-ROM 2764 with a 27128 in order to provide the POLY-800 with a MIDI dump function.

Except for the dump function, exactly the same system program is stored in this EP-ROM.

The memory map is as shown below.

Address	Before retrofit	After retrofit
000 H	EP ROM 8K BYTE	EP-ROM 12K BYTE (Uses 12 KB from among 16 KB)
800		
1000		
1800		
2000	RAM 2K BYTE 2000 ~ 27FF IMAGE	RAM 2K BYTE 300 ~ 37FF IMAGE
2800		
3000		
3800	2000 ~ 27FF IMAGE	
4000	2000 ~ 27FF IMAGE	

RETROFIT PROCEDURE

In order to change the EP-ROM and RAM chip select signals, KLM-680 has been added. Pattern cuts in three locations are necessary in KLM-596 in the POLY-800 main unit as well as soldering of the mutual connections (8) between KLM-596 and KLM-680.

Please refer to the chart shown below as well as to the separate Actual Wiring Diagram.

Please also use the POLY-800's Service Manual together with these instructions.

1. Soldering the harness

CONNECTOR No. (KLM-680)	COLOR	CONNECTION POINTS (KLM-596)	FUNCTION
1	BROWN	C85 +5V SIDE	+VCC
2	RED	C96 GND SIDE	GND
3	ORANGE	IC29 PIN 14	Y1
4	YELLOW	IC29 PIN 15	Y0
5	GREEN	BR1 PIN 5	A13
6	BLUE	IC24 PIN 25	A12
7	VIOLET	IC22 PIN 20	ROM CS
8	GRAY	DTC2 E	RAM CS

2. KLM-596 pattern cut in three locations

- (1) Cut the pattern between pins 26 and 27 of the ROM (IC socket).
- (2) Cut the pattern of IC29's pin 15.
- (3) Cut the pattern of IC29's pin 14.

3. Soldering the jumper lines

IC22 PIN 26 – IC24 PIN26

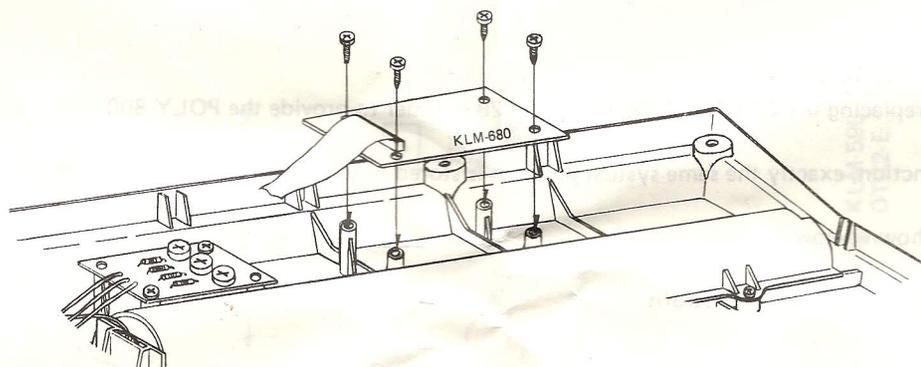
4. Replacement of the ROM

Since 2764 is attached to KLM-596 IC22 (ROM), replace it with 27128.

5. Installation of KLM-680

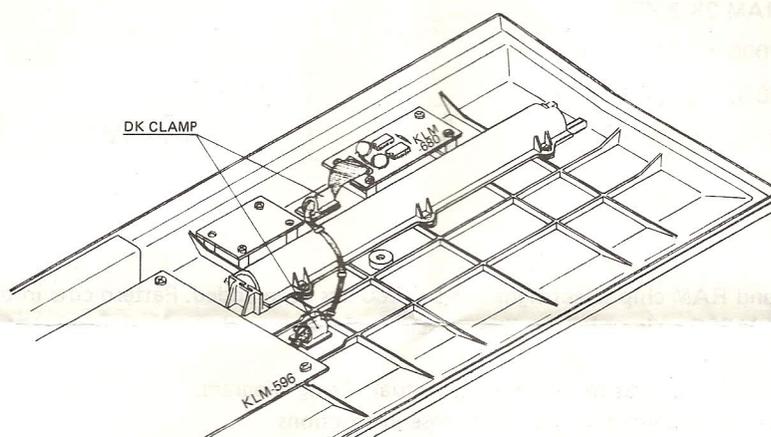
Attach the KLM-680 circuit board to the lower case using 4 screws PLAX B ZMC 3 X 8.

Note: When installing this circuit board, make sure that the side where the harness protrudes is located nearest to KLM-596.



6. Securing the harness

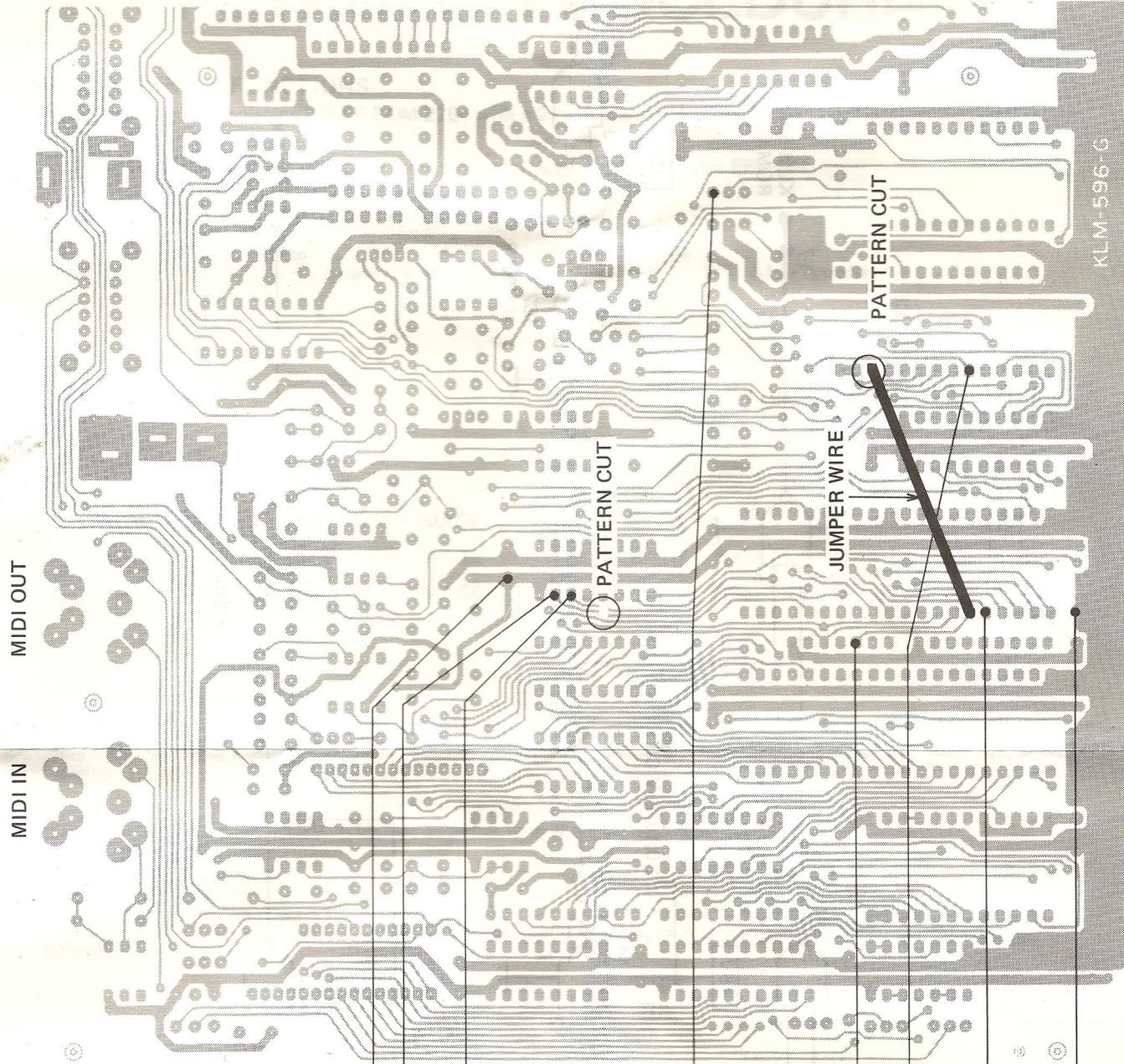
Secure the harness with the supplied cable clamp.



7. What to check after the retrofit

Turn on the power switch and make sure that the LED display shows 11P.

The time that elapses from turning the power switch on until the appearance of the display should be within 1 second.



FROM KLM-680
(MIDI DUMP BOARD)

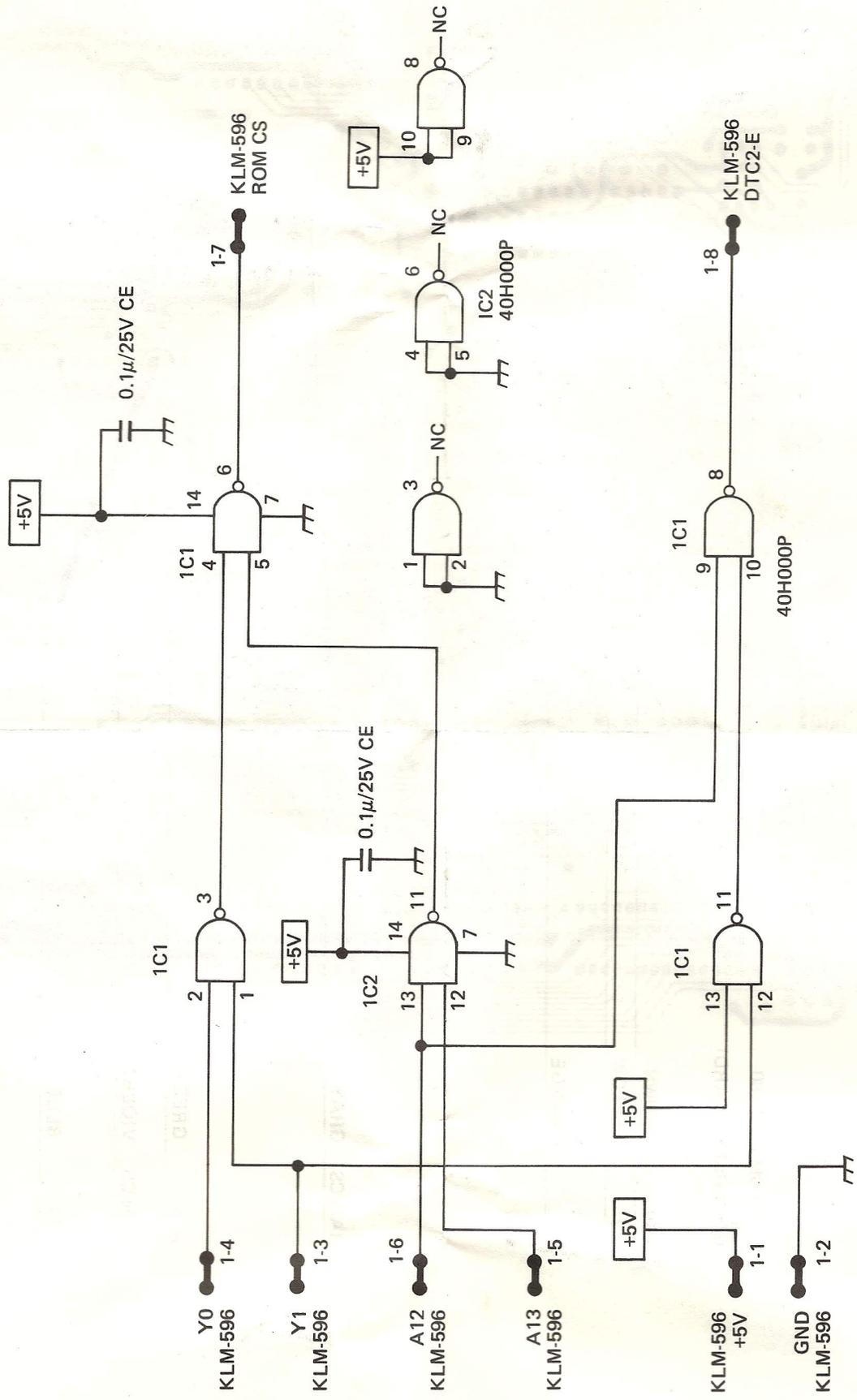
- +5V BROWN
- Y0 YELLOW
- Y1 ORANGE

RAM CS GRAY

- A13 GREEN
- ROM CS VIOLET
- A12 BLUE

GND RED

CIRCUIT DIAGRAM
KLM-680 (MIDI DUMP BOARD)



KORG[®]

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POLY-800 PLUS MDK

Your POLY-800 has been enhanced to provide MIDI memory transfer capability (MDK).

The Memory Transfer function enables external storage and manipulation of the POLY-800's program and sequencer data by a personal computer or the device connected to the MIDI IN and OUT jacks.

There are no controls on the POLY-800 for this purpose. The transfer request is made by the external computer through the POLY-800 MIDI IN jack. When the POLY-800 receives such a request, it "dumps" all data from its memory out the MIDI OUT port. (See MIDI IMPLEMENTATION section at the end of this manual for data formats and other information.)

Data included are:

1. MIDI Receive channel.
2. Sequencer note data.
3. Chord memory.
4. Program data.

When the POLY-800 gets a data transfer request, it takes about one second to send the data. During this period, all normal functions cease, including the display.

You can also download from an external computer to change the POLY-800 memory contents. The external computer issues a memory reload command to the POLY-800, followed by the memory data. During this time (normally approximately 1 second) all normal functions cease, including the display. If received data is erroneous, then the POLY-800 will send a data transfer error message out the MIDI OUT port.

Details concerning this "POLY-800 Plus MDK" enhancement are as listed in the MIDI Implementation below.

8 VOICE POLYPHONIC SYNTHESIZER

Model POLY-800 PLUS MDK

MIDI Implementation Chart

Date: '84. 7
Version:

Function...	Transmitted	Recognized	Remarks
Basic Default	1	1 ~ 16 * 1	* 1 Memorized
Channel Changed	1, 2 * 2	1 ~ 16	* 2 While Seq ON
Mode Default	MODE 1	MODE 1	
Mode Messages	MODE 3, MODE 1	MODE 3, MODE 1	
Mode Altered	*****	MODE 4→3, MODE 2→1	
NOTE NUMBER : True voice	36 ~ 84	0 ~ 127	
Velocity Note ON	9n v=64	9n, v:1 ≤ v ≤ 127	
Velocity Note OFF	8n v=64	8n, v:0 ≤ v ≤ 127 9n, v=00	
After Key's	×	×	
Touch Ch's	×	×	
Pitch Bender	○	○	
Control Change	1 ○ JOYSTICK Y+	○	DCO MOD
	2 ○ JOYSTICK Y-	○	VCF MOD
Prog Change : True #	○	○	
System Exclusive	○	○	
System : Song Pos	×	×	
System : Song Sel	×	×	
Common : Tune	×	×	
System : Clock	○	○	
Real Time : Commands	○	○	
Aux : Local ON/OFF	×	×	
Aux : All Notes OFF	×	×	
Messages : Active Sense	×	×	
Messages : Reset	×	×	
Notes			

POLY-800 PLUS MDK MIDI IMPLEMENTATION

1. TRANSMITTED DATA

STATUS	SECOND	THIRD	DESCRIPTION
1000	000n	0kkk kkkk	0100 0000 NOTE OFF (FOOTNOTE 2)
1001	000n	0kkk kkkk	0100 0000 NOTE ON
1011	0000	0000 0001	0vvv v000 JOY STICK MOD. 1 (DCO) (FOOTNOTE 3)
		0000 0010	0vvv v000 JOY STICK MOD. 2 (VCF)
1011	000n	0111 1100	0000 0000 OMNI OFF
		0111 1101	0000 0000 OMNI ON MODE MESSAGE
		0111 1111	0000 0000 POLY ON
1100	0000	00pp pppp	PROGRAM CHANGE, #11-#88 (0-63)
1110	0000	0000 0000	0bbb bbbb PITCH BENDER (0-40H-7FH) (FOOTNOTE 4)

FOOTNOTE:

- "n" will be "0" in case of the data from keyboard, and will be "1" in case of data from the sequencer.
- Note number 0kkk kkkk=36-84.
- JOY STICK MOD. Range has 4 bit resolution (0vvv v000).
- PITCH BENDER has 7 bit resolution (0bbb bbb) only by THIRD BYTE.
- MODE MESSAGES are transmitted together with sequencer START/STOP commands. When the sequencer is started, OMNI OFF and POLY ON will be transmitted to ch. 1 and ch. 2. When the sequencer is stopped, OMNI ON and POLY ON will be transmitted in the same way.

STATUS	DESCRIPTION
1111 1000	TIMING CLOCK
1111 1010	START (SEQUENCER START)
1111 1100	STOP (SEQUENCER STOP)

NOTE:

TIMING CLOCK messages will be transmitted while the sequencer is working.

2. RECOGNIZED RECEIVE DATA 1

STATUS	SECOND	THIRD	DESCRIPTION
1000	nnnn	0kkk kkkk	0xxx xxxx NOTE OFF VELOCITY will be ignored.
1001	nnnn	0kkk kkkk	0vvv vvvv NOTE ON (vvv vvvv>0) VELOCITY will be ignored.
		0kkk kkkk	0000 0000 NOTE OFF
1011	nnnn	0000 0001	0vvv vxxx MG 1 (DCO) 4 bit RESOLUTION Bits 0-2 will be ignored.
		0000 0010	0vvv vxxx MG 2 (VCF) 4 bit RESOLUTION Bits 0-2 will be ignored.
1011	nnnn	0111 1100	0000 0000 OMNI OFF
		0111 1101	0000 0000 OMNI ON (See FOOTNOTE 3)
1100	nnnn	00pp pppp	PROGRAM CHANGE If the specified program number (ppp pppp) is larger than 63, it will be recognized as follows: SPECIFIED PROGRAM - 64 = SELECTED PROGRAM EX. 70=6 64=0
1110	nnnn	0xxx xxxx	0bbb bbbb PITCH BENDER Third byte will be recognized, but second will be ignored.

FOOTNOTE:

- nnnn: 0-15. When the mode is OMNI ON, note data from all channels will be received. When the mode is OMNI OFF, only data of the channel designated by Parameter #86 will be received. As to Mode Message, however, designated channel data only will be received even if the mode is OMNI ON.
- Note Number (0kkk kkkk) is 36-84. If the data except above range were received, the data will be transposed to the same note on the nearest octave.
- OMNI ON/OFF will be always recognized as the message with POLY ON. Single POLY ON or MONO ON message will be ignored.

3. RECOGNIZED RECEIVE DATA 2

STATUS	DESCRIPTION
1111 1000	TIMING CLOCK
1111 1010	SEQUENCER START
1111 1100	SEQUENCER STOP

FOOTNOTE

- TIMING CLOCK will be received only while the sequencer is working. (i.e., SEQ CLK (Parameter #88) is set to EXTERNAL (value-2)).

4. PANEL CONTROL

PARAMETER

- # 86 RCV CH: This value will be kept though the power is turned off. This Parameter is valid when the mode is OMNI OFF against messages except for MODE MESSAGE.
- # 87 PROG CHANGE: 0=DISABLE
1=ENABLE
This Parameter is valid only for receiving.
Default value is "DISABLE".
- # 88 SEQ CLK: 1=Sequencer will be controlled by INTERNAL clock.
2=Sequencer will be controlled by EXTERNAL clock from MIDI IN.
Default value is "INTERNAL".

5. SYSTEM EXCLUSIVE MESSAGES (Transmission Data)

	STATUS	DATA	DESCRIPTION
RAM DATA	11110000	01000010	KORG ID
		00100001	FORMAT ID
		00000110	POLY-800 PLUS MDK ID
		(0000****)	LSB 4 bit } RAM DATA MSB 4 bit } 1-word
		(0000****)	
		(0000ssss)	LSB 4 bit } CHECK SUM MSB 4 bit } DATA
		(0000ssss)	
	11110111	EOX (END OF EXCLUSIVE)	
DATA ERROR MESSAGE	11110000	01000010	KORG ID
		00100001	FORMAT ID
		00000110	POLY-800 PLUS MDK ID
		00100000	DATA ERROR MESSAGE
		11110111	EOX

NOTE:

- Data error message is sent if there is a check sum error during memory load. Error message: (F0_H, 42_H, 21_H, 06_H, 20_H, F7_H)
- The request sent by the computer must be: F0_H, 42_H, 21_H, 06_H, 10_H, F7_H (where "h" means hexadecimal). Memory data is then output in the order: F0_H, 42_H, 21_H, 06_H, memory data, check sum, F7_H.

6. SYSTEM EXCLUSIVE MESSAGES (Reception data)

	STATUS	DATA	DESCRIPTION
DUMP DATA	11110000	01000010	KORG ID
		00100001	FORMAT ID
		00000110	POLY-800 PLUS MDK ID
		(0000****)	LSB 4 bit } RAM DATA
		0000****	MSB 4 bit } 1-word
		(0000ssss)	LSB 4 bit } CHECK SUM
		0000ssss)	MSB 4 bit } DATA
	11110111	EOX	
DATA DUMP REQUEST	11110000	01000010	KORG ID
		00100001	FORMAT ID
		00000110	POLY-800 PLUS MDK ID
		00010000	DATA REQUEST
		11110111	EOX

NOTE:

1. POLY-800 begins RAM data dump about 300msec after it receives the final F7_H in the RAM data request above.
2. Least significant 8 bits of $\frac{1623}{0-1}$ (One word of RAM data)n are used for check sum.
3. Send data to POLY-800 MIDI IN in the order: F0_H, 42_H, 21_H, 06_H, memory data, check sum, F7_H, Internal.

7. RAM DATA CHART

DATA	RELATIVE ADDRESS	BYTES
MIDI CH DATA	0 0 0 0 ₁₁	1
SEQUENCER DATA	0 0 0 1 ₁₁	256
UNDEFINED	0 1 0 1 ₁₁	1
CHORD MEMORY	0 1 0 2 ₁₁	8
UNDEFINED	0 1 0 A ₁₁	22
PROGRAM DATA	0 1 2 0 ₁₁	1345

NOTE:

1. SEQ DATA is as shown below.

SYM-BOL	DATA	NOTE
	0 0 ₁₁	Fine
	0 1 ₁₁	Rest
	0 2 ₁₁	Tie
	1 k ₁ k ₁ k ₁ k ₁ k ₁ k ₁	MSB=0: Notes remain for that timing. MSB=1: Block end for that timing.
	0 k ₁ k ₁ k ₁ k ₁ k ₁ k ₁	
	0 k ₂ k ₂ k ₂ k ₂ k ₂ k ₂	
	1 k ₃ k ₃ k ₃ k ₃ k ₃ k ₃	

EXAMPLE:



- DATA: B4_H, 02_H, B5_H, 02_H, 01_H, 01_H, B7_H, B9_H, 34_H, 37_H,
BC_H, 02_H, 02_H, 02_H, 02_H, 02_H, 01_H, 01_H, 00_H
2. CHORD MEMORY
0 k₀k₀k₀k₀k₀k₀: KEY DATA
0 0 0 0 0 0 0: END
 3. Important: POLY-800 does not use undefined data except for check sum.

Program Parameter per ONE note

Byte	bit	7	6	5	4	3	2	1	0
1		DCO 2 WAVEFORM		DCO 1 WAVEFORM		DCO 2 OCTAVE		DCO 1 OCTAVE	
2		DCO 2 FEET ON / OFF				DCO 1 FEET ON / OFF			
3		CHORUS ON / OFF	DCO 2 ON / OFF	UNDEFINED				DCO 2 DETUNE	
4		NOISE LEVEL				DCO 2 INTERVAL			
5		* DCO 1 LEVEL	VCF EG POLARITY		VCF EG INT				
6		UNDEFINED		DCO 2 LEVEL				*	
7		VCF TRIGMODE	VCF CUT OFF						
8		MG DELAY				MG FREQ			
9		MG VCF INT				MG DCO INT			
10		* DEG 1 DECAY	DEG 1 ATTACK						
11		DEG 1 BREAK.P				*			
12		DEG 1 SUSTAIN				DEG 1 SLOPE			
13		DEG 1 RELEASE				*			
14		DEG 2 DECAY				DEG 2 ATTACK			
15		* DEG 2 SLOPE	DEG 2 BREAK.P						
16		DEG 2 SUSTAIN				*			
17		DEG 3 ATTACK				DEG 2 RELEASE			
18		DEG 3 DECAY				*			
19		DEG 3 SLOPE				DEG 3 BREAK.P			
20		* DEG 3 RELEASE	DEG 3 SUSTAIN						
21		VCF KBD TRACK		VCF RESONANCE				*	

PRAMETER WITH * EXCEEDS BYTE UNIT.
NO SPACE BETWEEN NOTES