Registration Memory Files (on Tyros 3)

# Tyros Components – An Introduction to the Registration Memory Files

## Registration Program Buttons (PRG-Buttons)

The Tyros 3 has eight Registration Program Buttons which offer the great possibility to save several keyboard settings. Thus, the keyboard can – later on – be set up with one click and the keyboarder can start to play without having to adjust all settings individually every time he wants to play a specific song.

**1**

**2**

**3**

**4**

**5**

**6**

**7**

**8**

## Registration Memory Content Groups

The Registration Memory Content groups play a very important role when storing keyboard settings in a PRG-button. It is a very powerful “tool” that allows the keyboarder to only store a particular group of settings, e. g. only settings for the voices and the style. This means, that when switching to another PRG-button, not all storable keyboard settings need to be changed. When only saving information about the voices and the style, the button doesn’t affect all of the other settings at all, e. g. Multipads, Pedal, Score, Song etc.

## Registration Memory Files

The keyboard settings are stored in these PRG-Buttons but saved in a specific file with the .RGT filename extension. Like every other file, this file only consists of a pattern of 0s and 1s, the binary digits. The filename extension only determines how to interpret these patterns.

This means that every byte has a specific meaning in this file and when the keyboard parses it, it “knows” exactly which byte stands for which functionality. There needs to be a basic structure in these .RGT-files in order to separate the different Registration Memory Content groups. Heiko Plate did a great job in working out this basic structure. However, his documentation didn’t provide very precise information about the specific keyboard settings at byte-level. This is why I started to take a closer look at these .RGT files.

I made the effort and started to test each keyboard functionality individually. To demonstrate how to do this, let’s test the volume of the different instruments in a style. At the beginning, you need a reference because you can only locate the byte where these volumes are stored by comparing two files. I saved a basic .RGT-file for every Registration Memory Content group. So, I just turned on my Tyros 3 and saved a Registration Memory file with one PRG-button active and – in this case – only the Registration Memory Content group “Style” selected. Then I changed the volume for one instrument: RHY 1. In a hex editor I compared these two files and I noticed a change of a specific byte.

This is how I could allocate the bytes position in the file and that’s basically what I wrote down in the table below. In addition to that, I also noted the value range of the keyboard setting (*here*: 0 – 127) and the value range of the appropriate hex value (*here*: 00 – 7F). My goal was to have a complete overview over every keyboard functionality that can be set up in a .RGT-file and maybe the value range would be helpful when programming an application which can edit these files (which – indeed - turned out to be very helpful).

So that was my goal. While examining each keyboard setting individually, I also started to create my own Tyros Registration Manager in order to do something more adventurous than allocating bytes in a file. Since java was my first programming language at school, I wrote the program in java and could improve my skills. It is at the moment in a very initial stage but I will continue working on the program over the months or years. Hopefully, one day, this software is covering every keyboard setting and works without crashing.

## Disclaimer

In the following, you’ll find my notes for the different chunks. I do **not** guarantee that any of these information is correct. My notes may even seem contradictory. At this time, I’m still examining the structure and only a small part is done. Many keyboard settings still wait to be tested…

Furthermore, the following pages may seem a little chaotic and German and English is mixing a lot. Nonetheless, I hope that I can provide an overview over these .RGT-files. In my opinion, this is a very interesting topic. I have never worried how all of these settings are saved in a file before. Programming your own application is exciting and offers the possibility to improve your skills. It’s even more exciting if you have done your own researches on a given file and summarized your results in a specification.

# The Basic Structure

## the sequence of chunks

## hierarchical Structure

# SpfF-Chunk (Header)

The SpfF-Chunk is the header of every .RGT-file. It provides basic information, e. g. how many bytes the whole file contains.

Every SpfF-chunk has a fixed length of **22 bytes**. Some bytes have a fixed value as well.

|  |  |
| --- | --- |
| 53 70 66 46 | **SpfF** (ASCII coded) |
| 00 10 | number of following data bytes in this chunk |
| 0C 12, OB 75 |  |
| 52 47 53 54 | **RGST** (ASCII coded) |
| 00 02 | could be: (according to SysEx messages)  Sub-ID #2 = General MIDI Off  type 1  Maj 7  Internal Clock Substatus  Lyrics Indication On/Off |
| 00 02, 00 01 |  |
| 00 00 03 66 | number of bytes in the whole document; here: 870 bytes |
| 00 70, 00 78 |  |

# BHd-Chunks (Sequence/Registration)

The first BHd-Chunk contains the data for the Registration Sequence. The following eight BHd-Chunks represents the eight PRG-buttons on the keyboard.

|  |  |
| --- | --- |
| 42 48 64 | **BHd** (ASCII coded) |
| 00 / 01 | type: Registration (00) or Sequence (01) |
| 00 24 | number of bytes in this chunk |

## Sequence-Chunk

The Sequence Chunk occurs only one time in the whole file at the beginning. It has a fixed length of **42 bytes**. Thus, the SpfF-Chunk and the Sequence-Chunk take up 64 bytes (bytes 0x000 to 0x030) in *every* .RGT-file.

* last byte: code for Sequence End
* 00: Sequence End Stop
* 01: Sequence End Top
* 02: Sequence End Next Bank
* all data bytes filled up with FF: Registration Sequence disabled 🡪 last byte doesn’t matter

# GPm-Chunks

### GPm Header

|  |  |
| --- | --- |
| 47 50 6D | **GPm** (ASCII coded) |
| 0B | type |
| 00 2A | number of following data bytes in this chunk |

### GPm Data

**Drehregler:**

* Tyros: -64 bis 63
* Dezimal: 0 bis 127 (Mitte: 64)
* Hex: 00 bis 7F (Mitte: 40)
* bei Panpot: -64 = 63 am Tyros, d. h. 0 = 1 dez.

| **Funktion** | **Data-Byte** | **Wertebereich** | **Erklärung bzw. Wertbereich am Tyros** |
| --- | --- | --- | --- |
| **Title 01** | | | |
| Registration PRG Title | 1 | ASCII coded |  |
| **Basic 02** | | | |
|  | 1 | 7F | 02 bei Song Volumeänderung (von 52 auf 127)  04 bei Style Brightness Änderung  01 wenn DSP on (auch in Kombination mit Variation) |
|  | 2 | 03 | 7F bei Style Brightness Änderung |
|  | 3 | 04 |  |
|  | 4 | 02 | 7F bei Song Volumeänderung /von 52 auf 51 und von 52 auf 127)  7F if User Type DSP1 |
|  | 5 | 06 |  |
|  | 6 | 06 |  |
|  | 7 | 07 |  |
|  | 8 | 02 |  |
|  | 9 | 05 |  |
|  | 10 | 06 |  |
| **Song 04** | | | |
| Volume | 1 | 00 - 7F | 0 - 127 |
| Channel 1 on / off | 2 | 02 / 01 | on / off |
| Channel 2 on / off | 3 | 02 / 01 | on / off |
| Channel 3 on / off | 4 | 02 / 01 | on / off |
| Channel 4 on / off | 5 | 02 / 01 | on / off |
| Channel 5 on / off | 6 | 02 / 01 | on / off |
| Channel 6 on / off | 7 | 02 / 01 | on / off |
| Channel 7 on / off | 8 | 02 / 01 | on / off |
| Channel 8 on / off | 9 | 02 / 01 | on / off |
| Channel 9 on / off | 10 | 02 / 01 | on / off |
| Channel 10 on / off | 11 | 02 / 01 | on / off |
| Channel 11 on / off | 12 | 02 / 01 | on / off |
| Channel 12 on / off | 13 | 02 / 01 | on / off |
| Channel 13 on / off | 14 | 02 / 01 | on / off |
| Channel 14 on / off | 15 | 02 / 01 | on / off |
| Channel 15 on / off | 16 | 02 / 01 | on / off |
| Channel 16 on / off | 17 | 02 / 01 | on / off |
|  | 18 | F0 |  |
| **Song 05** | | | |
|  | 1 |  |  |
|  | 2 |  |  |
| Dateipfad | ab 3 | 43 3A 2F … 2E 4D 49 44 | C:/… .MID |
| **Standard Style 07** | | | |
|  | 1 | 20 |  |
|  | 2 | A5 |  |
| ACMP an / aus | 3 | 7F / 00 | an / aus |
| Style-Part | 4 | 00, 01, 02 (03)  08, 09, 0A, 0B  10, 11, 12, 13  18  20, 21, 22 (23) | Intro 1, Intro 2, Intro 3 (Intro 4)  Main A, Main B, Main C, Main D  A-Fill, B-Fill, C-Fill, D-Fill  Break Fill  Ending 1, Ending 2, Ending 3 (23) |
|  | 5 | 2A |  |
|  | 6 | 32 |  |
| Split Point Style | 7 | 36 | 36: F#2  30: C2 |
| Split Point Left | 8 | 36 | 37: G2 🡪 MIDI Notes |
| Fingering Type | 9 | 04 | 01: Single Finger  02: Multi Finger  03: AI Fingered  04: Fingered  06: Fingered On Bass  07: Full Keyboard  0C: AI Full Keyboard |
| Style-Part | 10 | 08, 09, 0A, 0B | A, B, C, D |
| Sync Start | 11 | 7F / 00 | on / off |
| Sync Stop | 12 | 7F / 00 | on / off |
|  | 13 | 00 |  |
|  | 14 | 00 |  |
|  | 15 | 02 |  |
| **Style Attributes 08** | | | |
| Volume | 1 | 00 -7F | 0 - 127 |
|  | 2 |  |  |
|  | 3 |  |  |
|  | 4 |  |  |
| Reverb | 5 | 00 - 7F | 0 - 127 |
| Chorus | 6 | 00 - 7F | 0 - 127 |
|  | 7 |  |  |
| Channel on / off | 8 | 00 - FF | * see 6.1 Style Channel Numbers   e. g.: 00: all off, FF: all on |
|  | 9 |  |  |
|  | 10 |  |  |
|  | 11 |  |  |
| Volume Change | 12 | 00 / FF | 00: standard values  FF: changed values |
| Volume RHY1 | 13 | 00 - 7F | -64 - +63 |
| Volume RHY2 | 14 | 00 - 7F | -64 - +63 |
| Volume BASS | 15 | 00 - 7F | -64 - +63 |
| Volume CHD1 | 16 | 00 - 7F | -64 - +63 |
| Volume CHD2 | 17 | 00 - 7F | -64 - +63 |
| Volume PAD | 18 | 00 - 7F | -64 - +63 |
| Volume PHR1 | 19 | 00 - 7F | -64 - +63 |
| Volume PHR2 | 20 | 00 - 7F | -64 - +63 |
| Panpot Change | 21 | 00 / FF | 00: standard values  FF: changed values |
| Panpot RHY1 | 22 | 00 - 7F | -63 - +63 |
| Panpot RHY2 | 23 | 00 - 7F | -63 - +63 |
| Panpot BASS | 24 | 00 - 7F | -63 - +63 |
| Panpot CHD1 | 25 | 00 - 7F | -63 - +63 |
| Panpot CHD2 | 26 | 00 - 7F | -63 - +63 |
| Panpot PAD | 27 | 00 - 7F | -63 - +63 |
| Panpot PHR1 | 28 | 00 - 7F | -63 - +63 |
| Panpot PHR2 | 29 | 00 - 7F | -63 - +63 |
| Reverb Change | 30 | 00 / FF | 00: standard values  FF: changed values |
| Reverb RHY1 | 31 | 00 - 7F | -64 - +63 |
| Reverb RHY2 | 32 | 00 - 7F | -64 - +63 |
| Reverb BASS | 33 | 00 - 7F | -64 - +63 |
| Reverb CHD1 | 34 | 00 - 7F | -64 - +63 |
| Reverb CHD2 | 35 | 00 - 7F | -64 - +63 |
| Reverb PAD | 36 | 00 - 7F | -64 - +63 |
| Reverb PHR1 | 37 | 00 - 7F | -64 - +63 |
| Reverb PHR2 | 38 | 00 - 7F | -64 - +63 |
| Chorus Change | 39 | 00 / FF | 00: standard values  FF: changed values |
| Chorus RHY1 | 40 | 00 - 7F | -64 - +63 |
| Chorus RHY2 | 41 | 00 - 7F | -64 - +63 |
| Chorus BASS | 42 | 00 - 7F | -64 - +63 |
| Chorus CHD1 | 43 | 00 - 7F | -64 - +63 |
| Chorus CHD2 | 44 | 00 - 7F | -64 - +63 |
| Chorus PAD | 45 | 00 - 7F | -64 - +63 |
| Chorus PHR1 | 46 | 00 - 7F | -64 - +63 |
| Chorus PHR2 | 47 | 00 - 7F | -64 - +63 |
| DSP1 Active (see 1D) | 48 | 00 / FF | off / on |
|  | 49 | 00 |  |
|  | 50 | 00 |  |
|  | 51 | 00 |  |
|  | 52 | 00 |  |
|  | 53 | 00 |  |
|  | 54 | 00 |  |
|  | 55 | 00 |  |
|  | 56 | 00 |  |
|  | 57 | 7F |  |
|  | 58 | 7F |  |
|  | 59 | 7F |  |
|  | 60 | 7F |  |
|  | 61 | 7F |  |
|  | 62 | 7F |  |
|  | 63 | 7F |  |
|  | 64 | 7F |  |
| Style-Instrumente | 65 | 00, FD | Indicator? entscheidenden Einfluss auf Voices!! |
| Voice RHY1 | 66 | 00 | MSB |
| 67 | 72 | LSB |
| 68 | 19 | PRG (PRG from Data List - 1 !) |
| Voice RHY2 | 69 | 7F | MSB |
| 70 | 00 | MSB |
| 71 | 59 | PRG |
| Voice BASS | 72 | 00 | MSB |
| 73 | 73 | LSB |
| 74 | 00 | PRG |
| Voice CHD1 | 75 | 68 | MSB |
| 76 | 04 | LSB |
| 77 | 00 | PRG |
| Voice CHD2 | 78 | 68 | MSB |
| 79 | 00 | LSB |
| 80 | 03 | PRG |
| Voice PAD | 81 | 68 | MSB |
| 82 | 01 | LSB |
| 83 | 02 | PRG |
| Voice PHR1 | 84 | 68 | MSB |
| 85 | 02 | LSB |
| 86 | 00 | PRG |
| Voice PHR2 | 87 | 00 | MSB |
| 88 | 72 | LSB |
| 89 | 00 | PRG |
| Harmonic Content Change | 90 | 00 / FF | 00: standard values  FF: changed values |
| Harmonic Content RHY1 | 91 | 00 - 7F | -64 - +63 |
| Harmonic Content RHY2 | 92 | 00 - 7F | -64 - +63 |
| Harmonic Content BASS | 93 | 00 - 7F | -64 - +63 |
| Harmonic Content CHD1 | 94 | 00 - 7F | -64 - +63 |
| Harmonic Content CHD2 | 95 | 00 - 7F | -64 - +63 |
| Harmonic Content PAD | 96 | 00 - 7F | -64 - +63 |
| Harmonic Content PHR1 | 97 | 00 - 7F | -64 - +63 |
| Harmonic Content PHR2 | 98 | 00 - 7F | -64 - +63 |
| Brightness Change | 99 | 00 / FF | 00: standard values  FF: changed values |
| Brightness RHY1 | 100 | 00 - 7F | -64 - +63 |
| Brightness RHY2 | 101 | 00 - 7F | -64 - +63 |
| Brightness BASS | 102 | 00 - 7F | -64 - +63 |
| Brightness CHD1 | 103 | 00 - 7F | -64 - +63 |
| Brightness CHD2 | 104 | 00 - 7F | -64 - +63 |
| Brightness PAD | 105 | 00 - 7F | -64 - +63 |
| Brightness PHR1 | 106 | 00 - 7F | -64 - +63 |
| Brightness PHR2 | 107 | 00 - 7F | -64 - +63 |
| EQ Low Change | 108 | 00 / FF | 00: standard values  FF: changed values |
| EQ Low RHY1 | 109 | 00 - 7F | -64 - +63 |
| EQ Low RHY2 | 110 | 00 - 7F | -64 - +63 |
| EQ Low BASS | 111 | 00 - 7F | -64 - +63 |
| EQ Low CHD1 | 112 | 00 - 7F | -64 - +63 |
| EQ Low CHD2 | 113 | 00 - 7F | -64 - +63 |
| EQ Low PAD | 114 | 00 - 7F | -64 - +63 |
| EQ Low PHR1 | 115 | 00 - 7F | -64 - +63 |
| EQ Low PHR2 | 116 | 00 - 7F | -64 - +63 |
| EQ High Change | 117 | 00 / FF | 00: standard values  FF: changed values |
| EQ High RHY1 | 118 | 00 - 7F | -64 - +63 |
| EQ High RHY2 | 119 | 00 - 7F | -64 - +63 |
| EQ High BASS | 120 | 00 - 7F | -64 - +63 |
| EQ High CHD1 | 121 | 00 - 7F | -64 - +63 |
| EQ High CHD2 | 122 | 00 - 7F | -64 - +63 |
| EQ High PAD | 123 | 00 - 7F | -64 - +63 |
| EQ High PHR1 | 124 | 00 - 7F | -64 - +63 |
| EQ High PHR2 | 125 | 00 - 7F | -64 - +63 |
| **Voice global 0A** | | | |
| Octave | 1 | 3F / 40 / 41 | -1 / 0 / +1 |
| Sustain on / off | 2 | 7F / 00 | on / off |
| Initial Touch on / off | 3 | 7F / 00 | on / off |
| Touch Off Level | 4 | 01 - 7F | 1 - 127 |
| Modulation Wheel R1 / R2 / Left on / off | 5 |  | * see 6.3 After Touch and Modulation Wheel: R1 / R2 / R3 / Left Numbers |
| Modulation Wheel R3 on / off | 6 | FD / FC | on / off |
| Initial Touch R1 / R2 / Left on / off | 7 | 00 – 07 | * see 6.2 Initial Touch: R1 / R2 / R3 / Left Numbers |
| Initial Touch R3 on / off | 8 | 01 / 00 | on / off |
| After Touch R1 / R2 / Left on / off | 9 |  | * see 6.3 After Touch and Modulation Wheel: R1 / R2 / R3 / Left Numbers |
| After Touch R3 on / off | 10 | FD / FC | on / off |
| Split Point R3 | 11 | 48 | 37: G2  48: C4 (MIDI Notes)  55: C#5 |
| Keyboard Volume (KBD) | 12 | 00 - 7F | 0 - 127 |
| **Voices 0B / 0F / 17 (13 Left)** | | | |
| Aktiviert? | 1 | 00 / 7F | aus / ein |
| MSB | 2 | 00 |  |
| LSB | 3 | 73 (Dez: 115) |  |
| PRG | 4 | 00 | PRG Nr. - 1 |
| Portamento Time | 5 | 00 - 7F | 0 - 127 |
| Volume Voice Edit | 6 | 00 - 7F | 0 - 127 |
| Volume | 7 | 00 - 7F | 0 - 127 |
| Panpot | 8 | 00 - 7F | -63 - +63 |
| Mono / Poly | 9 | 7F / 00 | Mono on / off |
| Poly / Mono Wiederholung (only for OB 🡪 Voice R1?) | 10 | 00 / 7F |  |
| Filter Harmonic Content | 11 | 00 - 7F | -64 - +63 |
| Panel Sustain | 12 | 00 - 7F | 0 - 127 |
| Filter Brightness | 13 | 00 - 7F | -64 - +63 |
| Reverb Depth | 14 | 00 - 7F | 0 - 127 |
| Chorus Depth | 15 | 00 - 7F | 0 - 127 |
| Vibrato Speed | 16 | 00 - 7F | -64 - +63 |
| Vibrato Depth | 17 | 00 - 7F | -64 - +63 |
| Vibrato Delay | 18 | 00 - 7F | -64 - +63 |
| EQ Low Frequency | 19 | 04 - 28 | 32Hz - 2.0kHz |
| EQ Low (Gain) | 20 | 00 - 7F | -64 - +63 (-12 - +12dB) |
| EQ High Frequency | 21 | 1C - 3A | 500Hz - 16.0kHz |
| EQ High (Gain) | 22 | 00 - 7F | -64 - +63 |
| EG Attack | 23 | 00 - 7F | -64 - +63 |
| EG Decay | 24 | 00 - 7F | -64 - +63 |
| EG Release | 25 | 00 - 7F | -64 - +63 |
| Pitch Bend Range | 26 | 00 – 0C | 0 - 12 |
| Tuning | 27 | 00 - 7F | -64 - +63 |
| Touch Sense Offset Wiederholung | 28 | 00 - 7F | 0 - 127 |
| Touch Sense Depth | 29 | 00 - 7F | 0 - 127 |
| Toch Sense Offset | 30 | 00 - 7F | 0 - 127 |
| Octave | 31 | 3E (62) / 3F (63) / 40 (64) / 41 (65) / 42 (66) | -2 / -1 / 0 / 1 / 2 |
| Modulation Filter | 32 | 00 - 7F | 0 - 127 |
| Modulation Amplitude | 33 | 00 - 7F | 0 - 127 |
| Modulation LFO PMOD | 34 | 00 - 7F | 0 - 127 |
| Modulation LFO FMOD | 35 | 00 - 7F | 0 - 127 |
| Modulation LFO AMOD | 36 | 00 - 7F | 0 - 127 |
| After Touch Filter | 37 | 00 - 7F | 0 - 127 |
| After Touch Amplitude | 38 | 00 - 7F | 0 - 127 |
| After Touch LFO PMOD | 39 | 00 - 7F | 0 - 127 |
| After Touch LFO FMOD | 40 | 00 - 7F | 0 - 127 |
| After Touch LFO AMOD | 41 | 00 - 7F | 0 - 127 |
|  | 42 | 00 |  |
| **Voices Divers 0D / 11 / 19** | | | |
| DSP on / off | 1 | 7F / 00 | on / off |
| Variation on / off | 2 | 7F / 00 | on / off |
|  | 3 | 00 |  |
| Variation Value | 4 | 27, 09, 01, 4A, 49 |  |
|  | 5 | FF |  |
|  | 6 | FF |  |
| DSP MSB | 7 | 57, 15, 63, 14 |  |
| DSP LSB | 8 | 10, 00 |  |
|  | 9 | 00 |  |
| DSP Depth | 10 | 01 - 7F | 1 - 127 |
|  | 11 | 00 |  |
| **Basic 1B Reverb** | | | |
|  | 1 | FF | 00 bei Änderung allgemein  00 bei Song Volumeänderung (von 52 auf 51 und von 52 auf 0 und von 52 auf 127)  00 bei Song Channeländerung  FF: Split Point Style Change (C2) |
|  | 2 | FB | FF wenn anderer Reverb  FD wenn nur Song abgespeichert wird  02 bei Änderung allgemein  04 bei Song Volumeänderung (von 52 auf 51 und von 52 auf 0 und von 52 auf 127)  04 bei Song Channeländerung  02 bei Style-Part Änderung (von A nach B)  02 wenn Style-DSP1-9 Änderung  FB: Split Point Style C2 |
|  | 3 | FF |  |
|  | 4 | FF |  |
|  | **5** | 01 | **MSB** |
|  | **6** | 13 | **LSB** |
|  | 7 | 40 |  |
| **Basic 1C Chorus** | | | |
|  | 1 | FF | 00 bei Änderung allgemein  00 wenn anderer Reverb  00 bei Song Volumeänderung (von 52 auf 51 und von 52 auf 0 und von 52 auf 127)  00 bei Song Channeländerung |
|  | 2 | FB | 02 bei Änderung allgemein  02 wenn anderer Reverb  FF wenn anderer Chorus  04 wenn Song Volumeänderung (von 52 auf 51 und von 52 auf 0 und von 52 auf 127)  04 bei Song Channeländerung  02 bei Style-Part Änderung (von A nach B) |
|  | 3 | FF |  |
|  | 4 | FF |  |
|  | **5** | **41** | **MSB** |
|  | **6** | **00** | **LSB** |
|  | 7 | 40 |  |
| **Basic 1D DSP1-9** | | | |
|  | 1 | FF |  |
|  | 2 | FD | FB wenn Style-Part Änderung (von A nach B)  FE wenn StyleDSP1-9 Änderung |
|  | 3 | 00 |  |
|  | 4 | 00 |  |
|  | 5 | 00 |  |
| DSP 1 Type?? | 6 | 03 | 0C (12): DSP1 Flanger 1  19 (25): DSP1 Flanger 2  0A (10): DSP1 Clean2 (Distortion?)  06: DSP1 Reverb Hall1  09: DSP1 TempoDelay |
|  | 7 | FF | 00 if User Type |
|  | 8 | FF | 00 if User Type |
| DSP 1 | 9 | 62 | MSB |
| 10 | 1A | LSB |
|  | 11 | 00 |  |
|  | 12 | 7F |  |
|  | 13 | 40 |  |
|  | 14 | 00 |  |
| DSP1 Part | 15 | 18 (2C?) | 1C wenn Style-Part Änderung (von A nach B)  18: RHY1  19: RHY2  1A: BASS  1B: CHD1  1C: CHD2  1D: PAD  1E: PHR1  1F: PHR2 |
| **Basic 1E** | | | |
|  | 1 | 00 |  |
|  | 2 | 00 |  |
|  | 3 | 7F |  |
|  | 4 | 00 |  |
|  | 5 | 00 |  |
|  | 6 | 0A | 09 wenn Style DSP1-9 Änderung |
|  | 7 | FF |  |
|  | 8 | FF |  |
|  | 9 | 62 | 15 wenn Style DSP1-9 Änderung |
|  | 10 | 1A | 00 wenn Style DSP1-9 Änderung |
|  | 11 | 00 |  |
|  | 12 | 00 |  |
|  | 13 | 20 | 7F wenn StyleDSP1-9 Änderung |
|  | 14 | FF |  |
|  | 15 | FD | F9 wenn StyleDSP1-9 Änderung |
| **Basic 20** | | | |
|  | 1 | 00 |  |
|  | 2 | 7F | 00 wenn nur Song abgespeichert oder auch nicht? |
|  | 3 | 00 |  |
|  | 4 | 00 | 7F, dann 00 nach DSP1 User Type |
|  | 5 | 00 |  |
|  | 6 | 01 | 3E wenn Song Volumeänderung (von 52 auf 51)  0A wenn Song Volumeänderung (von 52 auf 127) |
|  | 7 | FF |  |
|  | 8 | FF |  |
|  | 9 | 63 | FF wenn Song Volumeänderung (von 52 auf 51)  62 wenn Song Volumeänderung (von 52 auf 127)  01 if DSP1 User Type |
|  | 10 | 10 | 11 wenn Song Volumeänderung (von 52 auf 51)  1A wenn Song Volumeänderung (von 52 auf 127) |
|  | 11 | 00 |  |
|  | 12 | 00 |  |
|  | 13 | 03 | 7F wenn Song Volumeänderung (von 52 auf 51)  (von 52 auf 51)  00 wenn Song Volumeänderung (von 52 auf 127)  7F is DSP1 User Type |
|  | 14 | FF |  |
|  | 15 | FA | FF bei Änderung allgemein  bei Änderung des Tempos  FD wenn nur Song abgespeichert  F9 wenn Song Volumeänderung (von 52 auf 51)  FF wenn Song Volumeänderung (von 52 auf 127) |
| **Basic 21** | | | |
|  | 1 | 00 |  |
|  | 2 | 7F |  |
|  | 3 | 00 |  |
|  | 4 | 00 |  |
|  | 5 | 00 |  |
|  | 6 | 09 | 0D wenn Song Volumeänderung (von 52 auf 127) |
|  | 7 | FF |  |
|  | 8 | FF |  |
|  | 9 | 15 |  |
|  | 10 | 00 | 10 wenn Song Volumeänderung (von 52 auf 127) |
|  | 11 | 00 |  |
|  | 12 | 00 |  |
|  | 13 | 01 |  |
|  | 14 | FF |  |
|  | 15 | FA | FF bei Änderung allgemein  bei Änderung des Tempos |
| **Basic 22** | | | |
|  | 1 | 00 |  |
|  | 2 | 7F |  |
|  | 3 | 00 |  |
|  | 4 | 00 |  |
|  | 5 | 00 |  |
|  | 6 | 15 |  |
|  | 7 | FF |  |
|  | 8 | FF |  |
|  | 9 | 42 |  |
|  | 10 | 10 |  |
|  | 11 | 00 |  |
|  | 12 | 00 |  |
|  | 13 | 02 |  |
|  | 14 | FF |  |
|  | 15 | FA | FF bei Änderung allgemein? |
| **Tempo 29** | | | |
| Tempo ? | 1 / 2 | 00 05 - 01 F4 | 5- 500 |
| Tempo Song | 3 / 4 | 00 05 - 01 F4 | 5 - 500 |
| Tempo Style | 5 / 6 | 00 05 - 01 F4 | 5-500 |
|  | 7 | 00 / 7F | aus / ein  Vermutung: nur ein, wenn Tempo Song nicht gleich Tempo Style |
| **Basic 3E** | | | |
|  | 1 | 00 |  |
|  | 2 | 00 | 7F wenn Style-Part Änderung (von A nach B) |
|  | 3 | 00 |  |
|  | 4 | 00 |  |
|  | 5 | 00 |  |
|  | 6 | 00 | 03 wenn Style-Part Änderung (von A nach B) |
|  | 7 | FF |  |
|  | 8 | FF |  |
|  | 9 | 40 | 62 wenn Style-Part Änderung (von A nach B) |
|  | 10 | 00 | 11 wenn Style-Part Änderung (von A nach B) |
|  | 11 | 00 |  |
|  | 12 | 00 |  |
|  | 13 | 7F | 1B wenn Style-Part Änderung (von A nach B) |
|  | 14 | FF |  |
|  | 15 | F9 | FB wenn Style-Part Änderung (von A nach B) |

# Appendix

## Style Channel Numbers

| **Hex** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 00 |  |  |  |  |  |  |  |  |
| **RHY 1 (Channel 1)** | | | | | | | | |
| 01 | **X** |  |  |  |  |  |  |  |
| **RHY 2 (Channel 2)** | | | | | | | | |
| 02 |  | **X** |  |  |  |  |  |  |
| 03 | X | **X** |  |  |  |  |  |  |
| **Bass (Channel 3)** | | | | | | | | |
| 04 |  |  | **X** |  |  |  |  |  |
| 05 | X |  | **X** |  |  |  |  |  |
| 06 |  | X | **X** |  |  |  |  |  |
| 07 | X | X | **X** |  |  |  |  |  |
| **CHD 1 (Channel 4)** | | | | | | | | |
| 08 |  |  |  | **X** |  |  |  |  |
| 09 | X |  |  | **X** |  |  |  |  |
| 0A |  | X |  | **X** |  |  |  |  |
| 0B | X | X |  | **X** |  |  |  |  |
| 0C |  |  | X | **X** |  |  |  |  |
| 0D | X |  | X | **X** |  |  |  |  |
| 0E |  | X | X | **X** |  |  |  |  |
| 0F | X | X | X | **X** |  |  |  |  |
| **CHD2 (Channel 5)** | | | | | | | | |
| 10 |  |  |  |  | **X** |  |  |  |
| 11 | X |  |  |  | **X** |  |  |  |
| 12 |  | X |  |  | **X** |  |  |  |
| 13 | X | X |  |  | **X** |  |  |  |
| 14 |  |  | X |  | **X** |  |  |  |
| 15 | X |  | X |  | **X** |  |  |  |
| 16 |  | X | X |  | **X** |  |  |  |
| 17 | X | X | X |  | **X** |  |  |  |
| 18 |  |  |  | X | **X** |  |  |  |
| 19 | X |  |  | X | **X** |  |  |  |
| 1A |  | X |  | X | **X** |  |  |  |
| 1B | X | X |  | X | **X** |  |  |  |
| 1C |  |  | X | X | **X** |  |  |  |
| 1D | X |  | X | X | **X** |  |  |  |
| 1E |  | X | X | X | **X** |  |  |  |
| 1F | X | X | X | X | **X** |  |  |  |
| **PAD (Channel 6)** | | | | | | | | |
| 20 |  |  |  |  |  | **X** |  |  |
| 21 | X |  |  |  |  | **X** |  |  |
| 22 |  | X |  |  |  | **X** |  |  |
| 23 | X | X |  |  |  | **X** |  |  |
| 24 |  |  | X |  |  | **X** |  |  |
| 25 | X |  | X |  |  | **X** |  |  |
| 26 |  | X | X |  |  | **X** |  |  |
| 27 | X | X | X |  |  | **X** |  |  |
| 28 |  |  |  | X |  | **X** |  |  |
| 29 | X |  |  | X |  | **X** |  |  |
| 2A |  | X |  | X |  | **X** |  |  |
| 2B | X | X |  | X |  | **X** |  |  |
| 2C |  |  | X | X |  | **X** |  |  |
| 2D | X |  | X | X |  | **X** |  |  |
| 2E |  | X | X | X |  | **X** |  |  |
| 2F | X | X | X | X |  | **X** |  |  |
| 30 |  |  |  |  | X | **X** |  |  |
| 31 | X |  |  |  | X | **X** |  |  |
| 32 |  | X |  |  | X | **X** |  |  |
| 33 | X | X |  |  | X | **X** |  |  |
| 34 |  |  | X |  | X | **X** |  |  |
| 35 | X |  | X |  | X | **X** |  |  |
| 36 |  | X | X |  | X | **X** |  |  |
| 37 | X | X | X |  | X | **X** |  |  |
| 38 |  |  |  | X | X | **X** |  |  |
| 39 | X |  |  | X | X | **X** |  |  |
| 3A |  | X |  | X | X | **X** |  |  |
| 3B | X | X |  | X | X | **X** |  |  |
| 3C |  |  | X | X | X | **X** |  |  |
| 3D | X |  | X | X | X | **X** |  |  |
| 3E |  | X | X | X | X | **X** |  |  |
| 3F | X | X | X | X | X | **X** |  |  |
| **PHR 1 (Channel 7)** | | | | | | | | |
| 40 |  |  |  |  |  |  | **X** |  |
| 41 | X |  |  |  |  |  | **X** |  |
| 42 |  | X |  |  |  |  | **X** |  |
| 43 | X | X |  |  |  |  | **X** |  |
| 44 |  |  | X |  |  |  | **X** |  |
| 45 | X |  | X |  |  |  | **X** |  |
| 46 |  | X | X |  |  |  | **X** |  |
| 47 | X | X | X |  |  |  | **X** |  |
| 48 |  |  |  | X |  |  | **X** |  |
| 49 | X |  |  | X |  |  | **X** |  |
| 4A |  | X |  | X |  |  | **X** |  |
| 4B | X | X |  | X |  |  | **X** |  |
| 4C |  |  | X | X |  |  | **X** |  |
| 4D | X |  | X | X |  |  | **X** |  |
| 4E |  | X | X | X |  |  | **X** |  |
| 4F | X | X | X | X |  |  | **X** |  |
| 50 |  |  |  |  | X |  | **X** |  |
| 51 | X |  |  |  | X |  | **X** |  |
| 52 |  | X |  |  | X |  | **X** |  |
| 53 | X | X |  |  | X |  | **X** |  |
| 54 |  |  | X |  | X |  | **X** |  |
| 55 | X |  | X |  | X |  | **X** |  |
| 56 |  | X | X |  | X |  | **X** |  |
| 57 | X | X | X |  | X |  | **X** |  |
| 58 |  |  |  | X | X |  | **X** |  |
| 59 | X |  |  | X | X |  | **X** |  |
| 5A |  | X |  | X | X |  | **X** |  |
| 5B | X | X |  | X | X |  | **X** |  |
| 5C |  |  | X | X | X |  | **X** |  |
| 5D | X |  | X | X | X |  | **X** |  |
| 5E |  | X | X | X | X |  | **X** |  |
| 5F | X | X | X | X | X |  | **X** |  |
| 60 |  |  |  |  |  | X | **X** |  |
| 61 | X |  |  |  |  | X | **X** |  |
| 62 |  | X |  |  |  | X | **X** |  |
| 63 | X | X |  |  |  | X | **X** |  |
| 64 |  |  | X |  |  | X | **X** |  |
| 65 | X |  | X |  |  | X | **X** |  |
| 66 |  | X | X |  |  | X | **X** |  |
| 67 | X | X | X |  |  | X | **X** |  |
| 68 |  |  |  | X |  | X | **X** |  |
| 69 | X |  |  | X |  | X | **X** |  |
| 6A |  | X |  | X |  | X | **X** |  |
| 6B | X | X |  | X |  | X | **X** |  |
| 6C |  |  | X | X |  | X | **X** |  |
| 6D | X |  | X | X |  | X | **X** |  |
| 6E |  | X | X | X |  | X | **X** |  |
| 6F | X | X | X | X |  | X | **X** |  |
| 70 |  |  |  |  | X | X | **X** |  |
| 71 | X |  |  |  | X | X | **X** |  |
| 72 |  | X |  |  | X | X | **X** |  |
| 73 | X | X |  |  | X | X | **X** |  |
| 74 |  |  | X |  | X | X | **X** |  |
| 75 | X |  | X |  | X | X | **X** |  |
| 76 |  | X | X |  | X | X | **X** |  |
| 77 | X | X | X |  | X | X | **X** |  |
| 78 |  |  |  | X | X | X | **X** |  |
| 79 | X |  |  | X | X | X | **X** |  |
| 7A |  | X |  | X | X | X | **X** |  |
| 7B | X | X |  | X | X | X | **X** |  |
| 7C |  |  | X | X | X | X | **X** |  |
| 7D | X |  | X | X | X | X | **X** |  |
| 7E |  | X | X | X | X | X | **X** |  |
| 7F | X | X | X | X | X | X | **X** |  |
| **PHR 2 (Channel 8)** | | | | | | | | |
| 80 |  |  |  |  |  |  |  | **X** |
| 81 | X |  |  |  |  |  |  | **X** |
| 82 |  | X |  |  |  |  |  | **X** |
| 83 | X | X |  |  |  |  |  | **X** |
| 84 |  |  | X |  |  |  |  | **X** |
| 85 | X |  | X |  |  |  |  | **X** |
| 86 |  | X | X |  |  |  |  | **X** |
| 87 | X | X | X |  |  |  |  | **X** |
| 88 |  |  |  | X |  |  |  | **X** |
| 89 | X |  |  | X |  |  |  | **X** |
| 8A |  | X |  | X |  |  |  | **X** |
| 8B | X | X |  | X |  |  |  | **X** |
| 8C |  |  | X | X |  |  |  | **X** |
| 8D | X |  | X | X |  |  |  | **X** |
| 8E |  | X | X | X |  |  |  | **X** |
| 8F | X | X | X | X |  |  |  | **X** |
| 90 |  |  |  |  | X |  |  | **X** |
| 91 | X |  |  |  | X |  |  | **X** |
| 92 |  | X |  |  | X |  |  | **X** |
| 93 | X | X |  |  | X |  |  | **X** |
| 94 |  |  | X |  | X |  |  | **X** |
| 95 | X |  | X |  | X |  |  | **X** |
| 96 |  | X | X |  | X |  |  | **X** |
| 97 | X | X | X |  | X |  |  | **X** |
| 98 |  |  |  | X | X |  |  | **X** |
| 99 | X |  |  | X | X |  |  | **X** |
| 9A |  | X |  | X | X |  |  | **X** |
| 9B | X | X |  | X | X |  |  | **X** |
| 9C |  |  | X | X | X |  |  | **X** |
| 9D | X |  | X | X | X |  |  | **X** |
| 9E |  | X | X | X | X |  |  | **X** |
| 9F | X | X | X | X | X |  |  | **X** |
| A0 |  |  |  |  |  | X |  | **X** |
| A1 | X |  |  |  |  | X |  | **X** |
| A2 |  | X |  |  |  | X |  | **X** |
| A3 | X | X |  |  |  | X |  | **X** |
| A4 |  |  | X |  |  | X |  | **X** |
| A5 | X |  | X |  |  | X |  | **X** |
| A6 |  | X | X |  |  | X |  | **X** |
| A7 | X | X | X |  |  | X |  | **X** |
| A8 |  |  |  | X |  | X |  | **X** |
| A9 | X |  |  | X |  | X |  | **X** |
| AA |  | X |  | X |  | X |  | **X** |
| AB | X | X |  | X |  | X |  | **X** |
| AC |  |  | X | X |  | X |  | **X** |
| AD | X |  | X | X |  | X |  | **X** |
| AE |  | X | X | X |  | X |  | **X** |
| AF | X | X | X | X |  | X |  | **X** |
| B0 |  |  |  |  | X | X |  | **X** |
| B1 | X |  |  |  | X | X |  | **X** |
| B2 |  | X |  |  | X | X |  | **X** |
| B3 | X | X |  |  | X | X |  | **X** |
| B4 |  |  | X |  | X | X |  | **X** |
| B5 | X |  | X |  | X | X |  | **X** |
| B6 |  | X | X |  | X | X |  | **X** |
| B7 | X | X | X |  | X | X |  | **X** |
| B8 |  |  |  | X | X | X |  | **X** |
| B9 | X |  |  | X | X | X |  | **X** |
| BA |  | X |  | X | X | X |  | **X** |
| BB | X | X |  | X | X | X |  | **X** |
| BC |  |  | X | X | X | X |  | **X** |
| BD | X |  | X | X | X | X |  | **X** |
| BE |  | X | X | X | X | X |  | **X** |
| BF | X | X | X | X | X | X |  | **X** |
| C0 |  |  |  |  |  |  | X | **X** |
| C1 | X |  |  |  |  |  | X | **X** |
| C2 |  | X |  |  |  |  | X | **X** |
| C3 | X | X |  |  |  |  | X | **X** |
| C4 |  |  | X |  |  |  | X | **X** |
| C5 | X |  | X |  |  |  | X | **X** |
| C6 |  | X | X |  |  |  | X | **X** |
| C7 | X | X | X |  |  |  | X | **X** |
| C8 |  |  |  | X |  |  | X | **X** |
| C9 | X |  |  | X |  |  | X | **X** |
| CA |  | X |  | X |  |  | X | **X** |
| CB | X | X |  | X |  |  | X | **X** |
| CC |  |  | X | X |  |  | X | **X** |
| CD | X |  | X | X |  |  | X | **X** |
| CE |  | X | X | X |  |  | X | **X** |
| CF | X | X | X | X |  |  | X | **X** |
| D0 |  |  |  |  | X |  | X | **X** |
| D1 | X |  |  |  | X |  | X | **X** |
| D2 |  | X |  |  | X |  | X | **X** |
| D3 | X | X |  |  | X |  | X | **X** |
| D4 |  |  | X |  | X |  | X | **X** |
| D5 | X |  | X |  | X |  | X | **X** |
| D6 |  | X | X |  | X |  | X | **X** |
| D7 | X | X | X |  | X |  | X | **X** |
| D8 |  |  |  | X | X |  | X | **X** |
| D9 | X |  |  | X | X |  | X | **X** |
| DA |  | X |  | X | X |  | X | **X** |
| DB | X | X |  | X | X |  | X | **X** |
| DC |  |  | X | X | X |  | X | **X** |
| DD | X |  | X | X | X |  | X | **X** |
| DE |  | X | X | X | X |  | X | **X** |
| DF | X | X | X | X | X |  | X | **X** |
| E0 |  |  |  |  |  | X | X | **X** |
| E1 | X |  |  |  |  | X | X | **X** |
| E2 |  | X |  |  |  | X | X | **X** |
| E3 | X | X |  |  |  | X | X | **X** |
| E4 |  |  | X |  |  | X | X | **X** |
| E5 | X |  | X |  |  | X | X | **X** |
| E6 |  | X | X |  |  | X | X | **X** |
| E7 | X | X | X |  |  | X | X | **X** |
| E8 |  |  |  | X |  | X | X | **X** |
| E9 | X |  |  | X |  | X | X | **X** |
| EA |  | X |  | X |  | X | X | **X** |
| EB | X | X |  | X |  | X | X | **X** |
| EC |  |  | X | X |  | X | X | **X** |
| ED | X |  | X | X |  | X | X | **X** |
| EE |  | X | X | X |  | X | X | **X** |
| EF | X | X | X | X |  | X | X | **X** |
| F0 |  |  |  |  | X | X | X | **X** |
| F1 | X |  |  |  | X | X | X | **X** |
| F2 |  | X |  |  | X | X | X | **X** |
| F3 | X | X |  |  | X | X | X | **X** |
| F4 |  |  | X |  | X | X | X | **X** |
| F5 | X |  | X |  | X | X | X | **X** |
| F6 |  | X | X |  | X | X | X | **X** |
| F7 | X | X | X |  | X | X | X | **X** |
| F8 |  |  |  | X | X | X | X | **X** |
| F9 | X |  |  | X | X | X | X | **X** |
| FA |  | X |  | X | X | X | X | **X** |
| FB | X | X |  | X | X | X | X | **X** |
| FC |  |  | X | X | X | X | X | **X** |
| FD | X |  | X | X | X | X | X | **X** |
| FE |  | X | X | X | X | X | X | **X** |
| FF | X | X | X | X | X | X | X | **X** |

## Initial Touch: R1 / R2 / R3 / Left Numbers

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Hex** | **R1** | **R2** | **R3** | **Left** |
| 00 00 |  |  |  |  |
| 01 00 | X |  |  |  |
| 02 00 |  | X |  |  |
| 03 00 | X | X |  |  |
| 04 00 |  |  |  | X |
| 05 00 | X |  |  | X |
| 06 00 |  | X |  | X |
| 07 00 | X | X |  | X |
|  |  |  |  |  |
| 00 01 |  |  | X |  |
| 01 01 | X |  | X |  |
| 02 01 |  | X | X |  |
| 03 01 | X | X | X |  |
| 04 01 |  |  | X | X |
| 05 01 | X |  | X | X |
| 06 01 |  | X | X | X |
| 07 01 | X | X | X | X |

## After Touch and Modulation Wheel: R1 / R2 / R3 / Left Numbers

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Hex** | **R1** | **R2** | **R3** | **Left** |
| F8 FC |  |  |  |  |
| F9 FC | X |  |  |  |
| FA FC |  | X |  |  |
| FB FC | X | X |  |  |
| FC FC |  |  |  | X |
| FD FC | X |  |  | X |
| FE FC |  | X |  | X |
| FF FC | X | X |  | X |
|  |  |  |  |  |
| F8 FD |  |  | X |  |
| F9 FD | X |  | X |  |
| FA FD |  | X | X |  |
| FB FD | X | X | X |  |
| FC FD |  |  | X | X |
| FD FD | X |  | X | X |
| FE FE |  | X | X | X |
| FF FF | X | X | X | X |

## Setting-Groups (GPm-Blöcke)

| **GPm** | Song | Style | Voice | Tune Tr. | Scale | Harmony | Tempo | Pedal | MPad | MicS | LineO. |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 01 | X | X | X |  |  |  |  |  |  |  |  |
| 02 | X | X | X |  |  |  |  |  |  |  |  |
| 03 | X |  |  |  |  |  |  |  |  |  |  |
| 04 | X |  |  |  |  |  |  |  |  |  |  |
| 05 | X |  |  |  |  |  |  |  |  |  |  |
| 06 |  |  |  |  |  |  |  |  |  |  |  |
| 07 |  | X |  |  |  |  |  |  |  |  |  |
| 08 |  | X |  |  |  |  |  |  |  |  |  |
| 09 |  | x? |  |  |  |  |  |  |  |  |  |
| 0A |  |  | X |  |  |  |  |  |  |  |  |
| 0B |  |  | X |  |  |  |  |  |  |  |  |
| 0C |  |  |  |  |  |  |  |  |  |  |  |
| 0D |  |  | X |  |  |  |  |  |  |  |  |
| 0E |  |  |  |  |  |  |  |  |  |  |  |
| 0F |  |  | X |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |  |  |  |
| 11 |  |  | X |  |  |  |  |  |  |  |  |
| 12 |  |  |  |  |  |  |  |  |  |  |  |
| 13 |  | X | x? |  |  |  |  |  |  |  |  |
| 14 |  |  |  |  |  |  |  |  |  |  |  |
| 15 |  | X |  |  |  |  |  |  |  |  |  |
| 16 |  |  |  |  |  |  |  |  |  |  |  |
| 17 |  |  | X |  |  |  |  |  |  |  |  |
| 18 |  |  |  |  |  |  |  |  |  |  |  |
| 19 |  |  | X |  |  |  |  |  |  |  |  |
| 1A |  |  |  |  |  |  |  |  |  |  |  |
| 1B | X | X | X |  |  |  |  |  |  |  |  |
| 1C | X | X | X |  |  |  |  |  |  |  |  |
| 1D | X | X | X |  |  |  |  |  |  |  |  |
| 1E | X | X | X |  |  |  |  |  |  |  |  |
| 1F | X | X | X |  |  |  |  |  |  |  |  |
| 20 | X | X | X |  |  |  |  |  |  |  |  |
| 21 | X | X | X |  |  |  |  |  |  |  |  |
| 22 | X | X | X |  |  |  |  |  |  |  |  |
| 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 | X | X | X |  |  |  |  |  |  |  |  |
| 3D | X | X | X |  |  |  |  |  |  |  |  |
| 3E | X | X | X |  |  |  |  |  |  |  |  |

# Epilogue / Postscript (etc.)