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**subz3ro's**                                     │

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                            /┤**DLiB│R/┤CK3R ││ SDL**                           │

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**2.4.25**                               │

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∙ **I. PROLOGUE** ∙

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 AdLib tracker is a 9-channel FM tracker for the OPL2-compatible

 chips found on most sound cards.

 A few years ago, there was a huge variety of AdLib trackers.

 The most common were:

 Zwerg Zwack/Chicken's HSC-Tracker,

 Jens-Christian Huus' EdLib,

 Shayde's Reality AdLib Tracker,

 Erik Pojar's Surprise! AdLib Tracker,

 and the latest piece of cake - Conqueror's Amusic.

 This new way of AdLib tracking was just that missing part in scene,

 splitting the two different worlds: a world of ugly CMF shit,

 as Chicken used to say, and a world of sample based trackers, such as

 FastTracker or Impulse Tracker.

 The above trackers became pretty popular and were used to produce

 very nice FM music, short on size but high on quality. Such tunes were

 included in many BBS intros and demos. Unfortunately, the things

 went wrong, and AdLib tracking has come to fruition.

 Nowadays, at the end of second Millennium, i decided to revive this part

 of tracking history. Ladies and gentlemen, subz3ro is proud to present

 you a brandnew AdLib tool - /┤DLiB TR/┤CK3R ][.

 You may probably ask WHY? Let me use the words of Jens-Christian Huus,

 one of the most common people in C64 and AdLib programming, the author

 of EdLib:

 "People begun to actually hate FM sounds. The arrival of GUS and AWE32

  made wavetable techniques very popular and indeed it sounds very good,

  but there are some things in the old FM standard that is unique.

  You can't fiddle with samples in the same way as you can with FM.

  I personally never quite liked sampling, i find it downright boring.

  With a FM chip it is like on a C64; you have a few parameters and

  everything you do has to be done within these parameters.

  These boundaries makes it funny to make music, to see how far you can

  actually push AdLib. To do sounds on FM requires expertice but

  if you're good at it, almost any instrument can be reproduced properly,

  except perhaps drums."

**HiGHLiGHTS**

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 ■ features best available software OPL3 playback to this date

 ■ supports 4-op instruments, melodic and percussion instruments

 ■ supports up to 255 instruments, 128 patterns, 128 order list entries,

   89 effect commands, and 24 extended commands

 ■ features 2 effect columns and instrument macro-definitions

 ■ loads following song formats:

     A2M (AdT2)

     A2P (AdT2) [pattern]

     A2T (AdT2) [tiny module]

 N1/ AMD (Amusic)

     CFF (BoomTracker 4.0)

     DFM (Digital-FM)

 N2/ FMK (FM-Kingtracker)

     HSC (HSC AdLib Composer / HSC-Tracker)

     MTK (MPU-401 trÆkkεr)

     RAD (Reality AdLib Tracker) {ver.1}

 N3/ S3M (Scream Tracker 3.x)

 N4/ SAT (Surprise! AdLib Tracker)     {ver.1,5,6}

 N4/ SA2 (Surprise! AdLib Tracker 2.0) {ver.8,9}

 N1/ XMS (XMS-Tracker)

**NOTE 1**

 Because of bug in Amusic's (and its crack XMS-Tracker's) replay routine,

 the Arpeggio effect used to generate buggy sounds. Since /┤DLiB TR/┤CK3R ][

 ain't got a support for such buggy things, the Arpeggio effect may differ.

**NOTE 2**

 After conversion, the Tremolo and Vibrato effects may sound different,

 because FM-Kingtracker uses slow speed table (not 100% emulated in AT2)

and optional waveform definitions that are currently not supported.

 Also the Retrig Note effect is slightly different (if i should be honest,

 i really couldn't get any sense of Sami's frame counting; all i could

 do to make this effect sound way "authentic" was the frame correction during

 conversion phase--and this ain't perfect, though :)

 The OPL3 setting is ignored, Stereo setting is accepted, Rhythm mode is

 not supported, because it was incorrectly implemented in earlier

 versions of the tracker, and the author himself stopped supporting it.

 Also the pattern order list will be truncated to 128 if exceeds.

**NOTE 3**

 Conversion of these (primarily sample based) modules may not be 100% exact.

 Therefore Slide Up/Down, Vibrato, and Tone Portamento effects may be

 inaccurate after importing to /┤DLiB TR/┤CK3R ][.

 Anyway, some experimental methods are used to fix up the fine-tuning

 and frequency slide based Scream Tracker's effects during

 conversion phase (experimental understand as "non-perfect" :)

 Note that the optional vibrato/tremolo waveforms are not supported.

 Also the pattern order list will be truncated to 128 if exceeds.

**NOTE 4**

 Since Surprise! AdLib Tracker uses non-standard Volume Slide procedure

 in replay routine, Volume Slide based effects may differ after importing

 to /┤DLiB TR/┤CK3R ][. Anyway, an experimental method to fix up

 this difference is used during conversion phase (blabla, same as above :)

 The special arpeggio is also currently not supported (anyway, there are

 no SA2 modules using that feature, afaik :)

 ■ loads following instrument formats:

     A2i (AdT2)

     A2F (AdT2) [w/fm-register macro]

     CiF (BoomTracker 4.0)

     FiN (FM-Kingtracker)

     iNS (HSC-Tracker/RAD-Tracker, SAdT, Amusic/AdLib instrument)

     SBi (Creative Labs FM instrument)

     SGi (Sound Generator 3.0)

 Note that the type of "ins" file can be set up in configuration file

 if neccessary (see option "force\_ins").

 ■ loads following bank formats:

     A2B (AdT2)

     A2W (AdT2) [w/macros]

     BNK (AdLib instrument bank) {ver.1.0}

     FiB (FM-Kingtracker)

     iBK (Creative Labs FM instrument bank)

 ■ The tracker supports block operations, and has an instrument editor.

   In addition, it features Tracing, Debugging, and a MidiBoard.

 ■ The tracker reads many of its settings from a configuration file.

   It has strong support geared for row by row tracing, pausing,

   and playing from any line in a pattern.

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∙ **II. SCREEN LAYOUT** ∙

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 The main window of the tracker is roughly composed of 5 parts:

   A. The upper left hand window shows the Status of the song

      (paused, playing, etc.), row number and order/pattern position,

      current speed/tempo, time playing and file information.

   B. The upper right hand window is the Pattern Order.

      There the user can build the order by which the patterns are played.

   C. The main window is the Pattern Editor with total count of 18/20 tracks,

      5 tracks visible at a time, where the user can compose the song,

      enter the notes, commands, number of instrument, and effects.

   D. The Status Line at the bottom where the user can keep track

      of the different modes and the active mode which is

      highlighted (MBoard, Trace, Debug, Track, Synth!), active octave,

      active instrument, behavior mode, a.o. The user should experiment

      to gain familiarity with different modes that can be activated.

   E. The bottom window under Pattern Editor shows the Volume Analyzer.

      User have to scroll up the rest of main screen to see it.

      You can get all the volume information (carrier and modulator

      output level, overall volume and global song volume,

      approximate intensity in dB) there.

**KEYBOARD CONVENTiONS**

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**[A]**          means the 'a' key on your keyboard

**[^A]**         means the 'a' key + [Ctrl]

**[Shift] A**    means the 'a' key + [Shift]

**[Alt] A**      means the 'a' key + [Alt]

**[Shift] ^A**   means the 'a' key + [Ctrl] + [Shift]

**[Alt] ^A**     means the 'a' key + [Ctrl] + [Alt]

 In case of composite shortkeys, it is recommended to use following

 order of pressing the keys:

 1st: **[Ctrl]** (if any)

 2nd: **[Alt]** or **[Shift]** or **[Tab]** (if any)

 3rd: "ordinary" key (if any :)

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∙ **III. KEY REFERENCE**         ∙

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**III/1. GENERAL KEY REFERENCE**

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**F1**                       Help

**F2 (^S)**                  Save file

**F3 (^L)**                  Load file

**F4 (^A)**                  Toggle Nuke'm dialog

**F5**                       Play

**F6**                       Pause

**F7**                       Stop

**F8**                       Play song from current pattern or order

**F9**                       Play current pattern or order only

**[Ctrl] F8**                @F8 from current line ┐

**[Ctrl] F9**                @F9 from current line ├ (Pattern Editor)

**[Alt] F6**                 Single-play pattern   ┘ (**Shift** toggles trace)

**[Alt] F5**                 @F5 ┐

**[Alt] F8**                 @F8 ├ without synchronization

**[Alt] F9**                 @F9 ┘

**[Shift] F2** Quick Save

**[Shift] F3** Quick Load

**[Shift] F5**               F5 with Trace

**[Shift] F6**               Toggle Debug mode from position at cursor

**[Shift] F8**               F8 with Trace

**[Shift] F9**               F9 with Trace

**[Shift] Space**            Toggle MidiBoard mode ON/OFF

**^Space** Toggle Note Recorder mode ON/OFF (if possible)

**[Ctrl] Home,End**          Skip to previous/next pattern while Tracing

**+,-**                      Same as above; play pattern from start

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│ **WHEN iN NOTE RECORDER MODE** │

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│ **^Left,^Right** Select group of tracks for recording │

│ **Enter** Start recording from current position **(\*)** │

│ **Space** Toggle using custom instrument for all tracks ┐ │

│ **[Alt] Space** Toggle using present instruments in tracks ├ ref. │

│ **MBoard keys** Write notes to corresponding tracks │ **(\*)** │

│ **F8,F9** Toggle pattern repeat OFF/ON ┘ │

│ **Backspace** Clear note/instrument sequence in tracks │

│ ^**Backspace** Clear complete note/instrument columns │

│ **Up,Down** Rewind/Fast-Forward while recording │

│ **[Shift] Up,Down** Increase/Decrease row correction for writing notes │

│ **[Shift] F6** Continue in Debug mode from position at cursor │

│ **F7** Stop recording and reset starting position; │

│ current group of tracks can be modified │

│ **[Alt] 1..9,0**  Toggle track channel ON/OFF (**Shift** toggles 1**X**) │

│ **[Alt] R** Reset flags on all tracks │

│ **\***  Reverse ON/OFF on all tracks │

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│ In case you need non-continuos track selection, you can choose │

│ from already selected group a subset of tracks where notes will be │

│ written by manipulating track ON/OFF flags. │

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 │ **iF SONG iS PLAYED WiTH TRACE, iT CAN BE REMOVED WHiLE...**         │

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 │ **Enter**  Playback is paused and cursor stays on position │

 │ **Esc**  Cursor jumps to last position and playback continues │

│ **[Shift] Esc** Cursor stays on position and playback continues │

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 Note that playing with Trace and playing without synchronization can be

 set up in configuration file (see options "trace\_by\_default"

 and "nosync\_by\_default")

**^Enter**                   Play next pattern according to order

**^Left  (Up)**              Rewind current pattern (with Trace)

**^Right (Down)**            Fast-Forward (with Trace)

**[Ctrl]{Shift} Up,Down** Change playback speed up/down {fine stepping}

**[Ctrl]{Shift} Up+Down**  Reset playback speed {default speed}

**[Ctrl][Alt] <hold down>** Temporarily show Debug Info window

**^B** Toggle Message Board window

**^D** Toggle Debug Info window

**^Q** Toggle Instrument Macro Editor window

**^G**                       Toggle Arpeggio/Vibrato Macro Editor window

**^M** Toggle Macro Browser window

**^F**                       Toggle Song Variables window

**^H**                       Toggle Replace window

**^I**                       Toggle Instrument Control panel

**^E**                       Toggle Instrument Editor window

**^O**                       Toggle Octave Control panel

**^P**                       Toggle Pattern List window

**^R**                       Toggle Remap Instrument window

**^T**                       Toggle Transpose window

**^X**                       Toggle Rearrange Tracks window

**^1..^8**                   Quick-set octave

**[Alt] +,- (Up,Down)**      Adjust volume level of sound output

**[Alt] C**                  Copy object to clipboard (with selection)

**[Alt] P**                  Paste object from clipboard

**[Alt] M**                  Toggle marking lines ON/OFF

**[Alt] L**                  Toggle Line Marking Setup window

**[Alt] 1..9,0**             Toggle track channel ON/OFF (**Shift** toggles 1**X**)

**[Alt] S**                  Set all OFF except current track (solo)

**[Alt] R**                  Reset flags on all tracks

**\***                 Reverse ON/OFF on all tracks

**F10** Quit program

**F11** Toggle typing mode in Pattern Editor (**AT-►FT-►ST**)

**F12** Toggle **line feed** in Pattern Editor

**[Shift] F12** Toggle **jump to marked line** in Pattern Editor

**[Ctrl][Tab] [...] (\*)** Scroll Volume Analyzer section (if necessary)

**(\*) Up,Down,PgUp,PgDown**

**III/2. WAV RECORDER KEY REFERENCE**

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**[Alt|Ctrl]{Shift} F11** Toggle WAV recording ON

**[Alt|Ctrl]{Shift} F12** Toggle WAV recording OFF

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 │ **FUNCTiONALiTY OF ALTERNATiVE KEYS** │

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 │ **Alt** Toggle normal recording mode │

 │ **Ctrl** Toggle 'per track' recording mode │

 │ **Shift**  Toggle Fade in / Fade out sound processing │

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 │ **POSSiBLE COMBiNATiONS:** Alt,Ctrl,Alt+Shift,Ctrl+Shift │

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If 'per track' recording mode is activated and song playback is stopped

you can exclude/include corresponing tracks from/to being recorded

with ordinary track selection procedure:

**[Alt] 1..9,0** Toggle track channel ON/OFF (**Shift** toggles 1**X**)

**[Alt] S** Set all OFF except current track (solo)

**[Alt] R** Reset flags on all tracks

**III/3. PATTERN ORDER KEY REFERENCE**

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**Up,Down,Left,Right**       Cursor navigation

**PgUp,PgDn**                Move up/down 32 patterns

**Home,End**                 Move to the top/end of pattern order

**Tab,[Shift] Tab**          Move to next/previous entry

**Insert**                   Insert new entry

**Delete**                   Delete entry

**Backspace**                Clear entry

**^Space**                   Enter skip mark

**^C**                       Copy entry to clipboard

**^V**                       Paste entry from clipboard

**+,-**                      Adjust entry

**^F2**                      Save module in tiny format

**Enter**                    Switch to Pattern Editor

 Note that 80-FF pattern number range causes a jump in pattern order.

 syntax: order\_number[hex](+80h); e.g. "9A" jumps to order 1A

**III/4. PATTERN EDiTOR KEY REFERENCE**

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**Up,Down,Left,Right**       Cursor navigation

**PgUp,PgDn**                Move up/down 16 lines

**Home,End**                 Move to the top/end of current pattern

**Tab,[Shift] Tab**          Move to next/previous track

**[Shift] PgDn,PgUp (+,-)**  Move to next/previous pattern

**[Shift] Home,End**         Move fwd./bckwd. to the first/last pattern

**^Home,^End**               Move to the end/top of previous/next pattern

**Space**                    Advance to next row

**^PgUp,^PgDn**              Transpose note (block) halftone up/down

**Backspace**                Remove note or clear attributes

**Insert**                   Insert new line (within track only)

**Delete**                   Delete line (within track only)

**[Shift] Insert**           Insert new line

**[Shift] Delete**           Delete line

**[Shift] Enter**            Toggle fixed and regular note

**^K**                       Insert Key-Off

**^C**                       Copy object at cursor to clipboard

**^V**                       Paste object from clipboard

**[Alt][Shift] P** Paste object from clipboard to more patterns

**^Z** Undo last operation (if possible)

**{Ctrl} "[","]"**           Change current instrument

**[Alt] F2**                 Save current pattern to file

**^F2**                      Save module in tiny format

**[Shift] F3** Quick load recent pattern data

**Enter**                    Switch to Pattern Order

**NOTE SYSTEM:** C,C#,D,D#,E,F,F#,G,G#,A,A#,B(H)

**VALiD NOTE ENTRiES:** C,C-,C#,C1,C-1,C#1...

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 │ **BLOCK OPERATiONS iN PATTERN EDiTOR**                         │

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 │ Starting to mark a block: **[Shift] Up**,**Down**,**Left**,**Right**             │

 │ When at least one row in one track is marked, you can continue   │

 │ marking also with **PgUp**,**PgDn**,**Home**,**End** (**Shift** is still held down!) │

 │ Quick mark: **[Alt] Q** (1x-2x-3x) track ─> pattern ─> discard       │

 │ Toggle last marked block: **[Alt] B**                                │

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 │ **^B** Blank block  (Insert blank block to pattern)                │

 │ **^C** Copy block   (Copy block to clipboard)                      │

 │ **^D** Delete block (Remove block from pattern)                    │

 │ **^N** Nuke block   (Clear block contents)                         │

 │ **^V** Paste block  (Paste block from clipboard to pattern) **(\*)**    │

 │ **^X** Cut block    (Combine both Copy and Delete operation)       │

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 │ **(\*) PASTE BLOCK OPERATiON VARiANTS** │

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 │ "Paste block" operation has three other functional variants │

 │ with different key shortcuts for activation: │

 │ 1) **[Alt] V** toggles "Mix block" operation, when block data │

 │ from clipboard is applied without overwriting existing data; │

 │ 2) **[Shift] ^V** toggles "Selective paste block" operation, │

 │ when only block data from clipboard corresponding to current │

 │ cursor position is being applied (i.e. note, instrument, │

 │ 1st effect or 2nd effect). │

│ 3) **[Alt][Shift] V** toggles "Flipped paste block" operation, │

│ when block data from clipboard is applied vertically flipped. │

│ │

│ **MANiPULATiON WiTH FX VOLUME iNFORMATiON** │

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│ When there is block marked, which contains some effect │

│ commands carrying volume information, you can increase/decrease │

│ their values with **+**/**-** keys. │

│ Effect commands are processed with following priority: │

│ 1) Set instrument volume (**Cxx**), │

│ Force instrument volume (**=xx**) │

│ 2) Set modulator volume (**9xx**) │

│ 3) Set carrier volume (**Ixx**) │

│ 4) Set global volume (**%xx**) │

│ If effect command with higher priority has been processed, │

│ all remaining effect commands with lower priority are skipped. │

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**III/5. PATTERN LiST WiNDOW KEY REFERENCE**

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**Up,Down**                  Cursor navigation

**PgUp,PgDn**                Move up/down 20 patterns

**Home,End**                 Move to the top/end of pattern list

**Space**                    Mark/Unmark pattern

**^Space**                   Unmark all marked patterns

**[Shift] ^Space**           Reverse marks on all patterns

**[Alt] C (^C)**             Copy pattern to clipboard

**[Alt] P (^V)**             Paste pattern from clipboard

**[Shift] ^V**               Paste pattern data from clipboard

**[Alt] V**               Paste pattern name from clipboard

**^N** Nuke current pattern

**[Shift] ^N** Nuke all marked patterns

**^W**                       Swap marked patterns

**[Shift] ^W**               Swap marked patterns w/o names

**[Shift] Insert**           Insert new pattern

**[Shift] Delete**           Delete pattern

**Enter**                    Rename pattern / Multiple paste

**[Shift] F3** Quick load recent pattern data

**Esc**                      Return to Pattern Editor or Pattern Order

**III/6. iNSTRUMENT CONTROL PANEL KEY REFERENCE**

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**Up,Down**                  Cursor navigation

**PgUp,PgDn**                Move up/down 16 instruments

**Home,End**                 Move to the top/end of instrument list

**Space**                    Mark/Unmark instrument

**MBoard keys <hold down>**  Preview instrument

**Enter**                    Rename instrument

**^C**                       Copy instrument to clipboard

**[Shift] ^C**               Copy instrument also with macro-definitions

**^V**                       Paste instrument(s) from clipboard

**[Shift] ^V**               Paste instrument data from clipboard

**[Alt] V**               Paste instrument name(s) from clipboard

**^W**                       Swap marked instruments

**[Shift] ^W**               Swap marked instruments w/o names

**Tab**                      Toggle Instrument Editor window

**[Shift] Tab**              Toggle Instrument Macro Editor window

**[Shift] O** Toggle operator mode 4OP / 2OP

**[Shift] M,B,S,T,C,H**      Toggle **m**elodic and percussion (**B**D,**S**D,**T**T,T**C**,**H**H)

**[Shift] F2**               Save instrument w/ fm-register macro to file

**[Alt] F2**                 Save instrument bank to file

**^F2**                      Save instrument bank w/ all macros to file

**[Shift] F3** Quick load recent instrument data

**Esc**                      Return to Pattern Editor or Pattern Order

**III/7. iNSTRUMENT EDiTOR WiNDOW KEY REFERENCE**

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**Up,Down,Left,Right,**

**Home,End**                 Cursor navigation

**[Alt] <section hotkey>** Jump to section

**Tab**                      Jump to next setting

**[Shift] Tab**              Jump to previous setting

**+,- (PgUp,PgDn)**          Adjust value

**Space**                    Select item

**^Space** **(opt.)** Toggle ADSR preview ON/OFF

**[Ctrl] "[","]"** Change current instrument

**[Ctrl][Shift] "[","]"** Change macro speed

**[Alt]{Shift} 1..4,0** Set operators for instrument preview **(\*)**

**MBoard keys <hold down>**  Preview instrument

**Enter**                    Toggle carrier/modulator/4OP slot settings

**[Shift] O** Toggle operator mode 4OP / 2OP

**[Shift] M,B,S,T,C,H** Toggle **m**elodic and percussion (**B**D,**S**D,**T**T,T**C**,**H**H)

**[Shift] F2** Save instrument w/ fm-register macro to file

**[Shift] Enter** Copy values from carrier/modulator slot

**Esc**                      Return to Instrument Control panel

**(\*) [Alt] 1..4** Set solo operator

**[Alt][Shift] 1..4** Toggle operator ON/OFF

**[Alt] 0** Reset

**III/8. iNSTRUMENT MACRO EDiTOR WiNDOW KEY REFERENCE**

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**Up,Down,Left,Right**

**Home,End**                 Cursor navigation

**PgUp,PgDown**              Move up/down 16 lines

**Tab (Enter)**              Jump to next field in order

**[Shift] Tab**              Jump to previous field in order

**[Shift] Up,Down**          Synchronous navigation within tables

**[Shift] Home,End**         Move to the start/end of current line in table

**^Left,^Right** Switch between macro tables

**[Shift] ^Left,^Right** Navigate to start/end of macro table

**^PgUp,^PgDown**            Change current arpeggio/vibrato table

**[Ctrl] "[","]"** Change current instrument

**[Ctrl][Shift] "[","]"** Change macro speed

**[Alt]{Shift} 1..4,0** Set operators for instrument preview **(\*)**

**[Alt] ^C** Copy values from carrier column

**[Alt] ^M** Copy values from modulator column

**^C**                       Copy line in table (whole table respectively)

**[Shift] ^C**               Copy column in table

**^V**                       Paste object from clipboard

**^Enter**                   Paste data from instrument registers

**[Shift] Enter**            Paste data to instrument registers

**[Shift] ^Enter**           Paste data from instrument registers w/ selection

**Backspace**                Clear current item in table

**[Shift] Backspace**        Clear line in table

**+,-**               Adjust value at cursor / current item in table

**^Home,^End**               Quick-adjust table length

**[Shift] ^Home,^End**       Quick-adjust loop begin position

**[Shift] ^PgUp,^PgDown**    Quick-adjust loop length

**Insert**                   Insert new line in table

**Delete**                   Delete line in table

**^E** Toggle envelope restart ON/OFF ┐

**^N** Toggle note retrigger ON/OFF │

**^Z** Toggle ZERO frequency ON/OFF │

**[Alt] ^E,^N,^Z** Reset all alike flags in table ├ FM-register

**^Backspace**               Toggle corresponding column ON/OFF │ table

**[Alt] S**                  Set all OFF except current column  │

**[Alt] R**                  Reset flags on all columns         │

**\***                  Reverse ON/OFF on all columns      ┘

**\**                        Toggle current item (switch types only)

**Space**                    Toggle macro-preview mode

**^Space**                   Toggle Key-Off loop within macro-preview mode

**^F2** Save instrument bank w/ all macros to file

**Esc**                      Leave Instrument Macro Editor window

**(\*) [Alt] 1..4** Set solo operator

**[Alt][Shift] 1..4** Toggle operator ON/OFF

**[Alt] 0** Reset

**III/9. APREGGiO/ViBRATO MACRO EDiTOR WiNDOW KEY REFERENCE**

 ─────────────────────────────────────────────────────────

**Up,Down,Left,Right**

**Home,End**                 Cursor navigation

**PgUp,PgDown**              Move up/down 16 lines

**Tab (Enter)**              Jump to next field in order

**[Shift] Tab**              Jump to previous field in order

**[Shift] Up,Down**          Synchronous navigation within tables

**^Left,^Right** Switch between macro tables

**[Shift] ^Left,^Right** Navigate to start/end of macro table

**^PgUp,^PgDown**            Change current arpeggio/vibrato table

**[Ctrl] "[","]"** Change current instrument

**[Ctrl][Shift] "[","]"** Change macro speed

**[Alt]{Shift} 1..4,0** Set operators for instrument preview **(\*)**

**^C**                       Copy line in table (whole table respectively)

**[Shift] ^C**               Copy column in table

**^V**                       Paste object from clipboard

**Backspace**                Clear current item in table

**[Shift] Backspace**        Clear line in table

**+,-**               Adjust value at cursor / current item in table

**^Home,^End**               Quick-adjust table length

**[Shift] ^Home,^End**       Quick-adjust loop begin position

**[Shift] ^PgUp,^PgDown**    Quick-adjust loop length

**Space**                    Toggle macro-preview mode

**^Space**                   Toggle Key-Off loop within macro-preview mode

**Esc**                      Leave Arpeggio/Vibrato Macro Editor window

**(\*) [Alt] 1..4** Set solo operator

**[Alt][Shift] 1..4** Toggle operator ON/OFF

**[Alt] 0** Reset

**III/10. iNSTRUMENT MACRO BROWSER KEY REFERENCE**

 ──────────────────────────────────────────────

**Up,Down,PgUp,PgDown**

**Home,End** Cursor navigation

**[Shift] Up,Down**  Move up/down in macro table

**[Shift] Left,Right** Move left/right in macro table

**[Shift] PgUp,PgDown** Move page up/down in macro table

**[Shift] Home,End** Move to the start/end of macro table

**[Ctrl] Home,End** Move to the start/end of line in macro table

**Enter** Load selected macro data

**^Enter** **(opt.)** Load all macro data from bank

**[Ctrl][Shift] "[","]"** Change macro speed

**MBoard keys <hold down>** Preview instrument with selected macro data

**Tab** **(opt.)** Switch to Arpeggio/Vibrato Macro Browser window

**Esc** Leave Instrument Macro Browser window

**III/11. ARPEGGiO/ViBRATO MACRO BROWSER KEY REFERENCE**

 ────────────────────────────────────────────────────

**Up,Down,PgUp,PgDown**

**Home,End** Cursor navigation

**[Shift] Left,Right** Move left/right in arpeggio table ┐

**[Shift] PgUp,PgDown** Move page left/right in arpeggio table │

**^Left,^Right** Move left/right in vibrato table ├ refer to

**^PgUp,^PgDown** Move page left/right in vibrato table │ **(\*)**

**[Shift]{Alt} Space** Toggle arpeggio table selection **(\*\*)** │

**[Ctrl] {Alt} Space** Toggle vibrato table selection **(\*\*)** ┘

**[Shift] Home,End** Navigate to start/end of arpeggio table

**^Home,^End** Navigate to start/end of vibrato table

**[Ctrl] "[","]"**  Change current instrument

**[Ctrl][Shift] "[","]"** Change macro speed

**MBoard keys <hold down>** Preview instrument with selected macro data

**Enter** Load selected macro data

**^Enter (opt.)** Load all macro data from bank

**[Shift] Esc** Apply table indexes to current instrument

**Esc** Leave Arpeggio/Vibrato Macro Browser window

**(\*)** Key combination with **Ctrl+Shift** applies action to both tables

**(\*\*)** **Alt** key invokes no arpeggio resp. vibrato table (index value reset)

**III/12. DEBUG iNFO WiNDOW KEY REFERENCE**

───────────────────────────────────────

**Up,Down,Left,Right**

**Home,End**                 Change current track

**Tab** Toggle details

**Backspace** Toggle pattern repeat

**Space** Enter Debug mode / Proceed step (if possible)

**^Space** Exit Debug mode

**[Ctrl] Home,End** Skip to previous/next pattern

**+,-** Same as above; play pattern from start

**^Enter** Play next pattern according to order

**^Left** Rewind current pattern

**^Right** Fast-Forward

**[Alt] 1..9,0** Toggle track channel ON/OFF (**Shift** toggles 1**X**)

**[Alt] S** Set all OFF except current track (solo)

**[Alt] R** Reset flags on all tracks

**\***  Reverse ON/OFF on all tracks

**Esc** Return to Pattern Editor or Pattern Order

**III/13. REMAP iNSTRUMENT WiNDOW KEY REFERENCE**

 ─────────────────────────────────────────────

**Up,Down,Left,Right**

**Home,End**                 Cursor navigation

**PgUp,PgDown**              Move up/down 16 instruments

**Tab**                      Jump to next selection

**[Shift] Tab**              Jump to previous selection

**MBoard keys <hold down>**  Preview instrument

**Enter**                    Remap

**Esc**                      Return to Pattern Editor or Pattern Order

**III/14. REARRANGE TRACKS WiNDOW KEY REFERENCE**

 ─────────────────────────────────────────────

**Up,Down,Left,Right,**

**Home,End** Cursor navigation

**Tab** Jump to next selection

**[Shift] Tab** Jump to previous selection

**^PgUp,^PgDown** Shift track at cursor up/down in the track list

**[Shift] ^PgUp,^PgDown** Rotate track list from cursor upside/downside

**Enter** Rearrange

**Esc** Return to Pattern Editor or Pattern Order

**III/15. REPLACE WiNDOW KEY REFERENCE**

 ────────────────────────────────────

**Up,Down,Left,Right,**

**Home,End**                 Cursor navigation

**Tab**                      Jump to next selection

**[Shift] Tab**              Jump to previous selection

**^K**                       Insert Key-Off in note column

**^N**                       Mark "new" field to clear found item

**^W** Swap "to find" and "replace" mask content

**Delete,Backspace** Delete current/previous character

**^Backspace** Delete "to find" or "replace" mask content

**[Shift] ^Backspace** Delete content of both masks

**Enter**                    Replace

**Esc**                      Return to Pattern Editor or Pattern Order

**III/16. SONG VARiABLES WiNDOW KEY REFERENCE**

 ───────────────────────────────────────────

**Up,Down,Left,Right**       Cursor navigation

**[Alt] <section hotkey>** Jump to section

**Tab (Enter)**              Jump to next variable field

**[Shift] Tab**              Jump to previous variable field

**Space**                    Select item

**^Enter** Setup rows per beat for BPM calculation

**Esc**                      Return to Pattern Editor or Pattern Order

**III/17. FiLE BROWSER KEY REFERENCE**

 ──────────────────────────────────

**Up,Down,Left,Right,**

**PgUp,PgDown,Home,End** Cursor navigation

**\** (**/** for Linux) Navigate to root directory

**Backspace** Navigate to parent directory

**[Shift] Backspace** Navigate to program home directory

**MBoard keys <hold down>** Preview instrument (instrument files only)

**Enter** Choose file under cursor / read instrument bank

**Esc** Leave without choosing file

**III/18. MESSAGE BOARD WiNDOW KEY REFERENCE**

**──────────────────────────────────────────**

**Up,Down,Left,Right,**

**^PgUp,^PgDown,**

**Home,End,^Home,^End** Cursor navigation

**PgUp,PgDown** Move backwards/forwards over text

**^Left,^Right** Move word left/right

**Backspace,Delete** Delete character left/right

**^Backspace,^T** Delete word left/right

**^K** Delete characters to end

**^Y** Delete current line

**Tab** Indent current line

**^Space** Insert row for text at cursor

**[Shift] ^Backspace** Delete row for text at cursor

**Insert** Toggle input and overwrite mode

**Enter** Wrap line of text

**Esc** Return to Pattern Editor or Pattern Order

**III/19. iNPUT FiELD KEY REFERENCE**

 ─────────────────────────────────

**Left,Right**               Move left/right

**Home,End**                 Move to the begin/end

**^Left,^Right**             Move word left/right

**Backspace,Delete**         Delete character left/right

**^Backspace,^T**            Delete word left/right

**^K** Delete characters to end

**^Y**                       Delete string

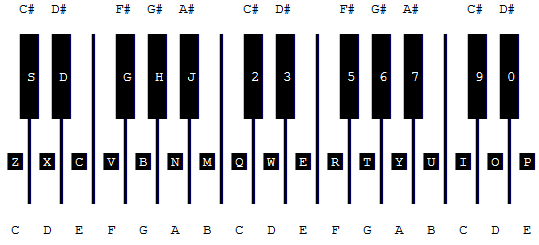
**Insert**                   Toggle input and overwrite mode

**+,-** Increment/decrement decimal or hexadecimal value

**III/20. MiDiBOARD KEY REFERENCE**

 ───────────────────────────────

 Use to enter notes while in MBoard mode (if not already active,  
 **Shift+Space** activates this mode if song is Stopped, or if song is Paused  
 with no Trace).



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 │ **WHiLE TRACKER iS iN MBOARD MODE**                                       │

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 │ MBoard key copies note in note field, plays it, and advances song     │

 │ to next row. If used with **Left-Shift** key and line marking toggled ON, │

 │ it advances song to next highlighted row.                             │

 │ If used with **Right-Shift** key, it makes a fixed note.                  │

 │ **Space** plays row and advances song by one row.                         │

 │ **`** inserts Key-Off, releases playing note and advances to next row.    │

 └───────────────────────────────────────────────────────────────────────┘

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∙ **IV. iNSTRUMENTS** ∙

∙         ∙∙─────────────────┘

**ATTACK RATE**

 ───────────

 Indicates how fast the sound volume goes to maximum.

 1=slow, 15=fast. 0 means no attack phase.

**DECAY RATE**

 ──────────

 Indicates how fast the sound goes from maximum level to sustain level.

 1=slow, 15=fast. 0 means no decay phase.

**SUSTAiN LEVEL**

 ─────────────

 Indicates the sustain level.

 1=loudest, 15=softest. 0 means no sustain phase.

**RELEASE RATE**

 ────────────

 Indicates how fast the sound goes from sustain level to zero level.

 1=slow, 15=fast. 0 means no release phase.

**OUTPUT LEVEL**

 ────────────

 Ranges from 0 to 63, indicates the attenuation according to the

 envelope generator output. In Additive synthesis, varying

 the output level of any operator varies the volume of its corresponding

 channel. In FM synthesis, varying the output level of carrier varies

 the volume of its corresponding channel, but varying the output of

 the modulator will change the frequency spectrum produced by the carrier.

**WAVEFORM SELECT**

 ───────────────

 Specifies the output waveform type.

 The first is closest to pure sine wave, the last is most distorted.

|  |  |
| --- | --- |
| **[0]** SiNE    image001 | **[4]** SiNE / EPO    image003 |
| **[1]** HALF-SiNE  image006 | **[5]** ABS-SiNE / EPO    image005 |
| **[2]** ABS-SiNE    image004 | **[6]** SQUARE    image007 |
| **[3]** PULSE-SiNE    image008 | **[7]** DERiVED SQUARE    image009 |

**KEY SCALiNG LEVEL (KSL)**

 ───────────────────────

 When set, makes the sound softer at higher frequencies.

 With musical instruments, volume decreases as pitch increases.

 Level key scaling values are used to simulate this effect.

 If any (not zero), the diminishing factor can be 1.5 dB/octave,

 3.0 dB/octave, or 6.0 dB/octave.

**PANNiNG**

 ───────

 Gives you ability of controlling output, going to left or right channel,

 standing in the middle respectively.

 The parameter corresponds either with carrier and modulator, therefore

 it is listed only once (within the carrier slot).

**FiNE-TUNE**

 ─────────

 This is not a hardware parameter.

 Ranges from -127 to 127, it indicates the number of frequency units

 shifted up or down for any note playing with the corresponding instrument.

 The parameter corresponds either with carrier and modulator, therefore

 it is listed only once (within the carrier slot).

**FEEDBACK STRENGTH**

 ─────────────────

 Ranges from 0 to 7, it indicates the modulation depth

 for the modulator slot FM feedback.

 ┌────────────╥─────┬─────┬─────┬─────┬─────┬─────┬─────┬─────┐

 │ **FEEDBACK**  ║ [**0]** │ **[1]** │ **[2]** │ **[3]** │ **[4]** │ **[5]** │ **[6]** │ **[7]** │

 ├────────────╫─────┼─────┼─────┼─────┼─────┼─────┼─────┼─────┤

 │ **MODULATiON** ║  0  │π/16 │ π/8 │ π/4 │ π/2 │  π  │ 2π  │ 4π  │

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 The parameter corresponds either with carrier and modulator, therefore

 it is listed only once (within the carrier slot).

**CONNECTiON TYPE**

 ───────────────

 Frequency modulation means that the modulator slot modulates the carrier.

 Additive synthesis means that both slots produce sound on their own.

|  |
| --- |
| **[FM] FREQUENCY MODULATiON**             ┌────────────┐           │            │           │    ╔════╗  │         ╔════╗    P1 ───(+)───║ MO ╟──┴───(+)───║ CA ╟──> OUT                ╚════╝       │    ╚════╝                             │                             │                             P2 |
| **[ADDiTiVE SYNTHESiS] AM**             ┌────────────┐           │            │           │    ╔════╗  │    P1 ───(+)───║ MO ╟──┴────┐                ╚════╝       │                             │                            (+)──> OUT                             │                ╔════╗       │    P2 ─────────║ CA ╟───────┘                ╚════╝ |

 The parameter corresponds either with carrier and modulator, therefore

 it is listed only once (within the carrier slot).

 This parameter is also very important when making 4-op instruments,

 because the combination of two instrument connections specifies

 the connection of the 4-op instrument as shown below:

 ┌──────────╥────┬────┬────┬────┐

 │ **SLOT** ║ M1 │ C1 │ M2 │ C2 │

 ├──────────╫────┼────┼────┼────┤

 │ **OPERATOR**║ 1 │2 │ 3 │ 4 │

 └──────────╨────┴────┴────┴────┘

|  |
| --- |
| **[FM/FM]**             ┌────────────┐           │            │           │    ╔════╗  │         ╔════╗         ╔════╗         ╔════╗    P1 ───(+)───║ M1 ╟──┴───(+)───║ C1 ╟───(+)───║ M2 ╟───(+)───║ C2 ╟──> OUT                ╚════╝       │    ╚════╝    │    ╚════╝    │    ╚════╝                             │              │              │                             │              │              │                             P2             P3             P4 |
| **[FM/AM] (\*)**             ┌────────────┐           │            │           │    ╔════╗  │         ╔════╗    P1 ───(+)───║ M1 ╟──┴───(+)───║ C1 ╟────┐                ╚════╝       │    ╚════╝    │                             │              │                             │              │                             P2            (+)──> OUT                                            │                                            │                ╔════╗            ╔════╗    │    P3 ─────────║ M2 ╟──────(+)───║ C2 ╟────┘                ╚════╝       │    ╚════╝                             │                             │                             P4 |
| **[AM/FM] (\*)**             ┌────────────┐           │            │           │    ╔════╗  │    P1 ───(+)───║ M1 ╟──┴──────────────────────────────────┐                ╚════╝                                     │                                                           │                                                           │                                                           │                ╔════╗            ╔════╗         ╔════╗    │­    P2 ─────────║ C1 ╟──────(+)───║ M2 ╟───(+)───║ C2 ╟───(+)──> OUT                ╚════╝       │    ╚════╝    │    ╚════╝                             │              │                             │              │                             P3             P4 |
| **[AM/AM]**             ┌────────────┐           │            │           │    ╔════╗  │    P1 ───(+)───║ M1 ╟──┴───────────────────┐                ╚════╝                      │                                            │                                            │                                            │                ╔════╗            ╔════╗    │­    P2 ─────────║ C1 ╟──────(+)───║ M2 ╟───(+)──> OUT                ╚════╝       │    ╚════╝    │                             │              │                             │              │                             P3             │                ╔════╗                      │    P4 ─────────║ C2 ╟──────────────────────┘                ╚════╝ |
| **(\*)** **REMARK ABOUT 4OP CONNECTiONS FM/AM AND AM/FM**  Please note, that since order of 4OP channels (hardware-wise) is 2) and 1),  these two instrument connections are swapped.',  The preview diagrams in the Instrument Editor window show actual order,  but here this information is kept in conformity with the official  Yamaha YMF262 data specification to prevent further confusion. |

**TREMOLO (AMPLiTUDE MODULATiON)**

 ──────────────────────────────

 When set, turns tremolo (volume vibrato) ON for the corresponding slot.

 The repetition rate is 3.7Hz, the depth is optional (1dB/4.8dB).

**ViBRATO**

 ───────

 When set, turns frequency vibrato ON for the corresponding slot.

 The repetition rate is 6.1Hz, the depth is optional (7%/14%).

**KEY SCALE RATE (KSR)**

 ────────────────────

 When set, makes the sound shorter at higher frequencies.

 With normal musical instruments, the attack and decay rate becomes faster

 as the pitch increases. The key scale rate controls simulation of

 this effect. An offset (rof) is added to the individual attack, decay,

 and release rates depending on the following formula:

 actual\_rate = (rate \* 4) + rof

 The "rof" values for corresponding "rate" value and KSR state are shown

 in the following table:

 ┌────────╥───┬───┬───┬───┬───┬───┬───┬───┬───┬───┬───┬───┬───┬───┬───┬───┐

 │ **%rate%** ║ 0 │ 1 │ 2 │ 3 │ 4 │ 5 │ 6 │ 7 │ 8 │ 9 │ A │ B │ C │ D │ E │ F │

 ╞════════╬═══╪═══╪═══╪═══╪═══╪═══╪═══╪═══╪═══╪═══╪═══╪═══╪═══╪═══╪═══╪═══╡

 │ **[OFF]**  ║ 0 │ 0 │ 0 │ 0 │ 1 │ 1 │ 1 │ 1 │ 2 │ 2 │ 2 │ 2 │ 3 │ 3 │ 3 │ 3 │

 ├────────╫───┼───┼───┼───┼───┼───┼───┼───┼───┼───┼───┼───┼───┼───┼───┼───┤

 │ **[ON]**   ║ 0 │ 1 │ 2 │ 3 │ 4 │ 5 │ 6 │ 7 │ 8 │ 9 │ A │ B │ C │ D │ E │ F │

 └────────╨───┴───┴───┴───┴───┴───┴───┴───┴───┴───┴───┴───┴───┴───┴───┴───┘

**SUSTAiN (ENVELOPE GENERATOR TYPE)**

 ─────────────────────────────────

 When set, the sustain level of the voice is maintained until released.

 When clear, the sound begins to decay immediately after hitting

 the sustain phase.

|  |  |
| --- | --- |
| **[OFF]**  image010 | **[ON]**  image011 |

**FREQUENCY DATA MULTiPLiER**

 ─────────────────────────

 Sets the multiplier for the frequency data specified by block and

 F-number. This multiplier is applied to the FM carrier or modulation

 frequencies. The multiplication factor and corresonding harmonic types are

 shown in the following table:

 ┌───────┬─────┬────────────────────────────────────┐

 │ **MULT.** │  **x** │ **HARMONiC**                         │

 ╞═══════╪═════╪════════════════════════════════════╡

 │  **[0]**  │ 0.5 │ 1 octave below                     │

 │  **[1]**  │  1  │ at the voice's specified frequency │

 │  **[2]**  │  2  │ 1 octave above                     │

 │  **[3]**  │  3  │ 1 octave and a 5th above           │

 │  **[4]**  │  4  │ 2 octaves above                    │

 │  **[5]**  │  5  │ 2 octaves and a Major 3rd above    │

 │  **[6]**  │  6  │ 2 octaves and a 5th above          │

 │  **[7]**  │  7  │ 2 octaves and a Minor 7th above    │

 │  **[8]**  │  8  │ 3 octaves above                    │

 │  **[9]**  │  9  │ 3 octaves and a Major 2nd above    │

 │  **[A]**  │ 10  │ 3 octaves and a Major 3rd above    │

 │  **[B]**  │ 10  │ ...        │

 │  **[C]**  │ 12  │ 3 octaves and a 5th above          │

 │  **[D]**  │ 12  │ ...        │

 │  **[E]**  │ 15  │ 3 octaves and a Major 7th above    │

 │  **[F]**  │ 15  │ ...        │

 └───────┴─────┴────────────────────────────────────┘

┌────────────────────────∙∙  ∙

∙ **V. EFFECTS** ∙

∙         ∙∙─────────────────┘

**[0xy]** ARPEGGiO

 ──────────────

 This command causes the note to quickly cycle through three notes:

 the note playing, a note 'x' halftones above,

 and a note 'y' halftones above.

 This causes an effect similar to old C64 chords.

 Note that the song speed has to be greater or equal to three

 in order to perform arpeggio effect completely.

**[1xx]** FREQUENCY SLiDE UP

 ────────────────────────

 This command slides the frequency up (pitch bend).

 Parameter 'xx' gives speed of slide.

**[2xx]** FREQUENCY SLiDE DOWN

 ──────────────────────────

 This command slides the frequency down (pitch bend).

 Parameter 'xx' gives speed of slide.

**[3xx]** TONE PORTAMENTO

 ─────────────────────

 This command is used together with a note and will slide to its frequency.

 Parameter 'xx' gives speed of slide.

 If you specify 'xx' as '00' then the previous value will be used.

**[4xy]** ViBRATO

 ─────────────

 This command causes the frequency to oscillate with depth 'y' at speed 'x'.

 If you specify 'xy' as '00' then the previous value will be used.

**[5xy]** TONE PORTAMENTO WiTH VOLUME SLiDE

 ───────────────────────────────────────

 This command executes both Tone portamento and Volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[6xy]** ViBRATO WiTH VOLUME SLiDE

 ───────────────────────────────

 This command executes both Vibrato and Volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[7xx]** FiNE FREQUENCY SLiDE UP

 ─────────────────────────────

 This command slides the frequency up (pitch bend) once per row.

 Parameter 'xx' gives speed of slide.

**[8xx]** FiNE FREQUENCY SLiDE DOWN

 ───────────────────────────────

 This command slides the frequency down (pitch bend) once per row.

 Parameter 'xx' gives speed of slide.

**[9xx]** SET MODULATOR VOLUME

 ──────────────────────────

 This command sets the volume of modulator slot.

 Value of 'xx' ranges from 0 to 3F (softest -> loudest).

**[Axy]** VOLUME SLiDE

 ──────────────────

 This command fades the volume up or down at the given speed.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'x' then 'y' is not used, and vice versa.

**[Bxx]** PATTERN JUMP

 ──────────────────

 This command causes the song to jump to order 'xx'.

 This is often used to create looping songs.

 If two 'Bxx' commands are given, then the command in the

 higher track will take effect.

**[Cxx]** SET iNSTRUMENT VOLUME

 ───────────────────────────

 This command sets the absolute volume of the instrument.

 It is equal to Ixx command when instrument uses FM connection,

 otherwise both carrier and modulator volume is updated.

 Value of 'xx' ranges from 0 to 3F (softest -> loudest).

**[Dxx]** PATTERN BREAK

 ───────────────────

 This command signifies the end of the current pattern, and also that

 the next pattern should be played from row 'xx'.

 If two 'Dxx' commands are given, then the command in the

 higher track will take effect.

**[Exx]** SET TEMPO

 ───────────────

 This command changes the song tempo (also known as BPM).

 Parameter 'xx' gives hexadecimal value of refresh rate in Hz.

 If two 'Exx' commands are given, then the command in the

 higher track will take effect.

**[Fxx]** SET SPEED

 ───────────────

 This command changes the song speed.

 Parameter 'xx' gives how many frames to wait before advancing row.

 If two 'Fxx' commands are given, then the command in the

 higher track will take effect.

**[Gxy]** TONE PORTAMENTO WiTH FiNE VOLUME SLiDE

 ────────────────────────────────────────────

 This command executes both Tone portamento and Fine volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[Hxy]** ViBRATO WiTH FiNE VOLUME SLiDE

 ────────────────────────────────────

 This command executes both Vibrato and Fine volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[Ixx]** SET CARRiER VOLUME

 ────────────────────────

 This command sets the volume of carrier slot.

 Value of 'xx' ranges from 0 to 3F (softest -> loudest).

**[Jxy]** SET WAVEFORM

 ──────────────────

 This command changes the waveform of carrier or modulator slot.

 Parameter 'x' gives carrier and 'y' modulator waveform type as following:

   '0'-'7' means type of waveform,

   'F' means "no change".

 For more information see chapter IV, part "Waveform select".

**[Kxy]** FiNE VOLUME SLiDE

 ───────────────────────

 This command fades the volume up or down at the given speed,

 once per row.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'x' then 'y' is not used, and vice versa.

**[Lxx]** RETRiG NOTE

 ─────────────────

 This command retriggs the note after 'xx' frames.

 If no note is specified, last given is used.

 The lower is the interval, the faster is the retrigger.

**[Mxy]** TREMOLO

 ─────────────

 This command causes the volume to oscillate with depth 'y' at speed 'x'.

 If you specify 'xy' as '00' then the previous value will be used.

 Tremolo acts like vibrato, but changing the volume instead of the pitch.

**[Nxy]** TREMOR

 ────────────

 This command causes the volume to remain normal for 'x' frames,

 then fades the volume to zero for 'y' frames.

**[Oxy]** ARPEGGiO WiTH VOLUME SLiDE

 ────────────────────────────────

 This command executes both Arpeggio and Volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[Pxy]** ARPEGGiO WiTH FiNE VOLUME SLiDE

 ─────────────────────────────────────

 This command executes both Arpeggio and Fine volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[Qxy]** MULTi RETRiG NOTE

 ───────────────────────

 This command retriggs the note after 'x' frames with specified

 volume change. Parameter 'y' gives type of volume change:

   '0' is None,    '8' is Unused,

   '1' is -1,      '9' is +1,

   '2' is -2,      'a' is +2,

   '3' is -4,      'b' is +4,

   '4' is -8,      'c' is +8,

   '5' is -16,     'd' is +16,

   '6' is \*2/3,    'e' is \*3/2,

   '7' is \*1/2,    'f' is \*2.

 If no note is specified, last given is used.

 The lower is the interval, the faster is the retrigger.

**[Rxy]** FREQUENCY SLiDE UP WiTH VOLUME SLiDE

 ──────────────────────────────────────────

 This command executes both Frequency slide up and Volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[Sxy]** FREQUENCY SLiDE DOWN WiTH VOLUME SLiDE

 ────────────────────────────────────────────

 This command executes both Frequency slide down and Volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[Txy]** FiNE FREQUENCY SLiDE UP WiTH VOLUME SLiDE

 ───────────────────────────────────────────────

 This command executes both Fine frequency slide up and Volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[Uxy]** FiNE FREQUENCY SLiDE DOWN WiTH VOLUME SLiDE

 ─────────────────────────────────────────────────

 This command executes both Fine frequency slide down and Volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[Vxy]** FREQUENCY SLiDE UP WiTH FiNE VOLUME SLiDE

 ───────────────────────────────────────────────

 This command executes both Frequency slide up and Fine volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[Wxy]** FREQUENCY SLiDE DOWN WiTH FiNE VOLUME SLiDE

 ─────────────────────────────────────────────────

 This command executes both Frequency slide down and Fine volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[Xxy]** FiNE FREQUENCY SLiDE UP WITH FiNE VOLUME SLiDE

 ────────────────────────────────────────────────────

 This command executes both Fine frequency slide up and Fine volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[Yxy]** FiNE FREQUENCY SLiDE DOWN WiTH FiNE VOLUME SLiDE

 ──────────────────────────────────────────────────────

 This command executes both Fine frequency slide down and Fine volume slide.

 Parameter 'xy' gives speed of volume slide:

   'x' is speed of slide up,

   'y' is speed of slide down.

 If you specify 'xy' as '00' then the previous value will be used.

**[Z0x]** SET TREMOLO DEPTH

 ───────────────────────

 This command changes the Tremolo depth of all 36 operators.

 Parameter 'x' gives depth:

   '0' is 1dB,

   '1' is 4.8dB.

**[Z1x]** SET ViBRATO DEPTH

 ───────────────────────

 This command changes the Vibrato depth of all 36 operators.

 Parameter 'x' gives depth:

   '0' is 7%,

   '1' is 14%.

**[Z2x]** SET MODULATOR'S ATTACK RATE

 ─────────────────────────────────

 ADSR command. Parameter 'x' gives the value.

 For more information see chapter IV, part "Attack rate".

**[Z3x]** SET MODULATOR'S DECAY RATE

 ────────────────────────────────

 ADSR command. Parameter 'x' gives the value.

 For more information see chapter IV, part "Decay rate".

**[Z4x]** SET MODULATOR'S SUSTAiN LEVEL

 ───────────────────────────────────

 ADSR command. Parameter 'x' gives the value.

 For more information see chapter IV, part "Sustain level".

**[Z5x]** SET MODULATOR'S RELEASE RATE

 ──────────────────────────────────

 ADSR command. Parameter 'x' gives the value.

 For more information see chapter IV, part "Release rate".

**[Z6x]** SET CARRiER'S ATTACK RATE

 ───────────────────────────────

 ADSR command. Parameter 'x' gives the value.

 For more information see chapter IV, part "Attack rate".

**[Z7x]** SET CARRiER'S DECAY RATE

 ──────────────────────────────

 ADSR command. Parameter 'x' gives the value.

 For more information see chapter IV, part "Decay rate".

**[Z8x]** SET CARRiER'S SUSTAiN LEVEL

 ─────────────────────────────────

 ADSR command. Parameter 'x' gives the value.

 For more information see chapter IV, part "Sustain level".

**[Z9x]** SET CARRiER'S RELEASE RATE

 ────────────────────────────────

 ADSR command. Parameter 'x' gives the value.

 For more information see chapter IV, part "Release rate".

**[ZAx]** SET FEEDBACK STRENGTH

 ───────────────────────────

 This command changes the Feedback strength of current instrument.

 Parameter 'x' gives the value.

 For more information see chapter IV, part "Feedback strength".

**[ZBx]** SET PANNiNG POSiTiON

 ──────────────────────────

 This command changes the panning of current instrument.

 Parameter 'x' gives position:

   '0' is center,

   '1' is left,

   '2' is right.

**[ZCx]** PATTERN LOOP

 ──────────────────

 Syntax: ZC0 - Set loopback point

         ZCx - Loop x times.

 This pattern space-saving feature will cause the pattern

 to be looped 'x' times back to the last ZC0 command.

 Note that you can only loop within the pattern, and each track

 has its own loopback information, so you are supposed to have

 corresponding ZC0 and ZCx commands in the same track in order to operate.

 If ZCx commands are put in both effect columns, only the one in first

 column will operate.

**[ZDx]** RECURSiVE PATTERN LOOP

 ────────────────────────────

 Syntax: ZD0 - Set loopback point

         ZDx - Loop x times.

 This command is recursive variant of ZCx effect command.

 It means that when such kind of loop is located inside other "parent" loop,

 it is proceeded any time it is passed by this loop.

 Note that using ZC0 instead of ZD0 command has the same effect.

 Please keep in mind that ZDx command should not be used in combination

 with ZCx command in other effect column, otherwise it will cause an

 endless loop.

**[ZE0/ZE1]** TOGGLE MACRO KEY-OFF LOOP

───────────────────────────────────

This command temporarily turns on-or-off looping

of Key-Off phase in macro-table for current instrument.

Parameter 'x' gives the state to toggle:

'0' is OFF,

'1' is ON.

Note that "temporarily" means that the change is valid until there will be

set different instrument than is the current one, for which this command

is to be used.

**[ZE2/ZE3]** TOGGLE RESTARTiNG ENVOLOPE WiTH TONE PORTAMENTO

─────────────────────────────────────────────────────────

This command turns on-or-off restarting of ADSR envelope for current track.

It means, that the note key will be retriggered for every row with non-empty

input in the note column (rows where note culumn is empty are not affected).

Parameter 'x' gives the state to toggle:

'2' is OFF,

'3' is ON.

**[ZE4]** PERFORM RESTART ENVELOPE

──────────────────────────────

This command restarts ADSR envelope for current instrument.

**[ZE5/ZE6]** TOGGLE 4OP TRACK VOLUME LOCK

──────────────────────────────────────

This command turns on-or-off 4OP Track Volume Lock.

If 4OP Track Volume Lock is set, some of the volume effect commands

will work in 4OP mode instead of default (2OP) mode. This means,

that volume attenuation is calculated according 4OP connection

of the 2 used instruments in track 2) and 1), and you don't have to

manage carrier/modulator output level to get desired volume level

during playback.

Parameter 'x' gives the state to toggle:

'5' is OFF,

'6' is ON.

Here is a complete list of commands that are affected by this lock:

5xy/6xy, Axy, Cxx, Gxy/Hxy, Kxy, Mxy, Rxy/Sxy, Txy/Uxy,

Vxy/Wxy, Xxy/Yxy, ^xy, %xx

Please note that when the 4OP Track Volume Lock is set for particular

4OP tracks, setting of 'Volume Scaling' is ignored (it is mandatory ON).

**[ZE7]** PERFORM BPM SLiDE USiNG >xx AND <xx COMMANDS

──────────────────────────────────────────────────

As description invokes, this command is intended to be used together

with >xx and <xx effect commands.

It will cause the playback speed shift up/down by certain amount (Hz)

depending on the speed of slide.

Parameter 'xx' gives speed of slide.

**[ZF0]** RELEASE SUSTAiNiNG SOUND

 ──────────────────────────────

 This command causes the track volume to fade down immediately.

 Note that it nulls current Attack rate, Decay rate,

 Sustain level, and Release rate.

**[ZF1]** RESET iNSTRUMENT VOLUME

 ─────────────────────────────

 This command resets back to modulator and carrier volume

 defined in modulator and carrier slot of current instrument.

**[ZF2/ZF3]** TOGGLE TRACK VOLUME LOCK

 ──────────────────────────────────

This command turns on-or-off the Volume Lock for current track.

It means, that the track volume will remain constant for entire track.

This constant is updated when using volume effect commands,

or when using new instrument.

Parameter 'x' gives the state to toggle:

'2' is ON,

'3' is OFF.

**[ZF4/ZF5]** TOGGLE VOLUME PEAK LOCK

 ─────────────────────────────────

This command turns on-or-off the Volume Peak Lock for current track.

It means, that when performing a Volume Slide, the upper limit of track

volume will remain lower or equal to volume level specified in carrier

and modulator slot of corresponding instrument.

Note that lock affects Volume Slide and Fine Volume Slide effects

as well as Tremolo, Tremor and Multi Retrig Note effects.

Parameter 'x' gives the state of lock to toggle:

'4' is ON,

'5' is OFF.

**[ZF6]** TOGGLE MODULATOR VOLUME SLiDES

 ────────────────────────────────────

 This command toggles volume slide for modulator slot only. If used together

 with ZF7 effect command, it toggles volume slide for both slots.

 Note that command will affect Volume Slide and Fine Volume Slide effects

 as well as Tremolo, Tremor and Multi Retrig Note effects.

**[ZF7]** TOGGLE CARRiER VOLUME SLiDES

 ──────────────────────────────────

 This command toggles volume slide for carrier slot only. If used together

 with ZF6 effect command, it toggles volume slide for both slots.

 Note that command will affect Volume Slide and Fine Volume Slide effects

 as well as Tremolo, Tremor and Multi Retrig Note effects.

**[ZF8]** TOGGLE DEFAULT VOLUME SLiDES

 ──────────────────────────────────

 This command toggles default volume slides.

 It means, that replay routine will distinguish which slot (carrier or both)

 to proceed from connection type (see chapter IV, part "Connection type").

 Note that command will affect Volume Slide and Fine Volume Slide effects

 as well as Tremolo, Tremor and Multi Retrig Note effects.

**[ZF9/ZFA]** TOGGLE TRACK PANNiNG LOCK

 ───────────────────────────────────

 This command enables the Panning Lock.

 It means, that current panning position is forced for entire track,

 and can be updated only by ZBx effect command.

This command turns on-or-off the Panning Lock for current track.

It means, that current panning position is forced for entire track,

and can be updated only by ZBx effect command.

Parameter 'x' gives the state of lock to toggle:

'9' is ON,

'A' is OFF.

**[ZFB]** ViBRATO OFF

 ─────────────────

 This command marks the end of Vibrato effect.

 It will restore the last frequency before Vibrato effect.

**[ZFC]** TREMOLO OFF

 ─────────────────

 This command marks the end of Tremolo effect.

 It will restore the last volume before Tremolo effect.

**[ZFD]** FORCE FiNE ViBRATO (FORCE FiNE GLOBAL FREQ. SLiDE)

 ────────────────────────────────────────────────────────

 This command has to be used together with 4xy, 6xy or Hxy (>xx, <xx)

effect command. It will cause the Vibrato (Global Freq. Slide Up/Down)

effect to be performed once per row instead of every frame.

 Note that the switch is reset at the end of effect.

**[ZFE]** FORCE FiNE TREMOLO (FORCE EXTRA FiNE GLOBAL FREQ. SLiDE)

 ──────────────────────────────────────────────────────────────

 This command has to be used together with Mxy (>xx, <xx)

effect command. It will cause the Tremolo (Global Freq. Slide Up/Down)

effect to be performed once per row (once per every four frames).

 Note that the switch is reset at the end of effect.

**[ZFF]** FORCE NO RESTART FOR MACRO TABLES

 ───────────────────────────────────────

 1) This command can be used together with !xx (@xx) effect command.

    It will cause that the arpeggio (vibrato) table is swapped

    without restarting position. It means that the current position

    is maintained as the starting point in new table.

 2) This command can be used while new note is triggered and the instrument

    that is played is using FM-register macro (arpeggio macro, vibrato

    macro resp.) In such case the macro is not restarted, which means that

    the current position in FM-register (arpeggio, vibrato resp.) macro

    table is maintained.

**[#0x]** SET CONNECTiON TYPE

 ─────────────────────────

 This command sets the connection type of current instrument.

 Parameter 'x' gives the value.

 For more information see chapter IV, part "Connection type".

**[#1x]** SET MODULATOR'S MULTiPLiER

 ────────────────────────────────

 This command sets the modulator's multiplier of current instrument.

 Parameter 'x' gives the value.

 For more information see chapter IV, part "Frequency data multiplier".

**[#2x]** SET MODULATOR'S KSL

 ─────────────────────────

 This command sets the modulator's scaling level of current instrument.

 Parameter 'x' gives the value.

 For more information see chapter IV, part "Key scaling level".

**[#3x]** SET MODULATOR'S TREMOLO

 ─────────────────────────────

 This command sets the modulator's tremolo on-or-off for current instrument.

 Parameter 'x' gives the state:

   '0' is OFF,

   '1' is ON.

 For more information see chapter IV, part "Tremolo (Amplitude modulation)".

**[#4x]** SET MODULATOR'S ViBRATO

 ─────────────────────────────

 This command sets the modulator's vibrato on-or-off for current instrument.

 Parameter 'x' gives the state:

   '0' is OFF,

   '1' is ON.

 For more information see chapter IV, part "Vibrato)".

**[#5x]** SET MODULATOR'S KSR

 ─────────────────────────

 This command sets the modulator's KSR on-or-off for current instrument.

 Parameter 'x' gives the state:

   '0' is OFF,

   '1' is ON.

 For more information see chapter IV, part "Key scale rate".

**[#6x]** SET MODULATOR'S SUSTAiN

 ─────────────────────────────

 This command sets the modulator's sustain on-or-off for current instrument.

 Parameter 'x' gives the state:

   '0' is OFF,

   '1' is ON.

 For more information see chapter IV, part "Sustain (Envelope generator)".

**[#7x]** SET CARRiER'S MULTiPLiER

 ──────────────────────────────

 This command sets the carrier's multiplier of current instrument.

 Parameter 'x' gives the value.

 For more information see chapter IV, part "Frequency data multiplier".

**[#8x]** SET CARRiER'S KSL

 ───────────────────────

 This command sets the carrier's scaling level of current instrument.

 Parameter 'x' gives the value.

 For more information see chapter IV, part "Key scaling level".

**[#9x]** SET CARRiER'S TREMOLO

 ───────────────────────────

 This command sets the carrier's tremolo on-or-off for current instrument.

 Parameter 'x' gives the state:

   '0' is OFF,

   '1' is ON.

 For more information see chapter IV, part "Tremolo (Amplitude modulation)".

**[#Ax]** SET CARRiER'S ViBRATO

 ───────────────────────────

 This command sets the carrier's vibrato on-or-off for current instrument.

 Parameter 'x' gives the state:

   '0' is OFF,

   '1' is ON.

 For more information see chapter IV, part "Vibrato)".

**[#Bx]** SET CARRiER'S KSR

 ───────────────────────

 This command sets the carrier's KSR on-or-off for current instrument.

 Parameter 'x' gives the state:

   '0' is OFF,

   '1' is ON.

 For more information see chapter IV, part "Key scale rate".

**[#Cx]** SET CARRiER'S SUSTAiN

 ───────────────────────────

 This command sets the carrier's sustain on-or-off for current instrument.

 Parameter 'x' gives the state:

   '0' is OFF,

   '1' is ON.

 For more information see chapter IV, part "Sustain (Envelope generator)".

**[&0x]** PATTERN DELAY (FRAMES)

 ────────────────────────────

 This command will delay the pattern 'x' frames.

 If two '&0x' commands are given, then the command in the

 higher track will take effect.

**[&1x]** PATTERN DELAY (ROWS)

 ──────────────────────────

 This command will cause a pause on the row for effectively 'x' rows longer.

 If two '&1x' commands are given, then the command in the

 higher track will take effect.

**[&2x]** NOTE DELAY

 ────────────────

 This command will delay the note 'x' frames.

**[&3x]** NOTE CUT

 ──────────────

 This command cuts the note (Key-Off will be performed) after 'x' frames.

**[&4x]** FiNE-TUNE UP

 ──────────────────

 This command fine-tunes frequency up.

 If used together with a note, it overrides the default note frequency

 before the note is outputted (acts like fine-tune parameter

 included in instrument data).

 Parameter 'x' gives frequency shift.

**[&5x]** FiNE-TUNE DOWN

 ────────────────────

 This command fine-tunes frequency down as stated above.

**[&6x]** GLOBAL VOLUME SLiDE UP

 ────────────────────────────

 This command fades the global volume up at the given speed.

 Parameter 'x' gives speed of slide.

**[&7x]** GLOBAL VOLUME SLiDE DOWN

 ──────────────────────────────

 This command fades the global volume down at the given speed.

 Parameter 'x' gives speed of slide.

**[&8x]** FiNE GLOBAL VOLUME SLiDE UP

 ─────────────────────────────────

 This command fades the global volume up at the given speed,

 once per row.

 Parameter 'x' gives speed of slide.

**[&9x]** FiNE GLOBAL VOLUME SLiDE DOWN

 ───────────────────────────────────

 This command fades the global volume down at the given speed,

 once per row.

 Parameter 'x' gives speed of slide.

**[&Ax]** EXTRA FiNE GLOBAL VOLUME SLiDE UP

 ───────────────────────────────────────

 This command fades the global volume up at the given speed,

 once every four frames.

 Parameter 'x' gives speed of slide.

**[&Bx]** EXTRA FiNE GLOBAL VOLUME SLiDE DOWN

 ─────────────────────────────────────────

 This command fades the global volume down as stated above.

**[&Cx]** EXTRA FiNE VOLUME SLiDE UP

 ────────────────────────────────

 This command fades the volume up at the given speed,

 once every four frames.

 It means that you can do four times more accurate slide effects.

 Parameter 'x' gives speed of slide.

**[&Dx]** EXTRA FiNE VOLUME SLiDE DOWN

 ──────────────────────────────────

 This command fades the volume down as stated above.

**[&Ex]** EXTRA FiNE FREQUENCY SLiDE UP

 ───────────────────────────────────

 This command slides frequency up (pitch bend), once every four frames.

 It means that you can do four times more accurate slide effects.

 Parameter 'x' gives speed of slide.

**[&Fx]** EXTRA FiNE FREQUENCY SLiDE DOWN

 ─────────────────────────────────────

 This command slides frequency down as stated above.

**[$xy]** EXTRA FiNE ARPEGGiO

 ─────────────────────────

 This command is a variant of 0xy (Arpeggio) effect command.

 It executes the arpeggio once every four frames.

 It means that you can do four times more accurate arpeggio effects.

 Note that the song speed doesn't have to be greater or equal to three

 as it is in case of normal arpeggio.

**[~xy]** EXTRA FiNE ViBRATO

 ────────────────────────

 This command is a variant of 4xy (Vibrato) effect command.

 It executes the vibrato once every four frames.

 It means that you can do four times more accurate vibrato effects.

**[^xy]** EXTRA FiNE TREMOLO

 ────────────────────────

 This command is a variant of Mxy (Tremolo) effect command.

 It executes the tremolo once every four frames.

 It means that you can do four times more accurate tremolo effects.

**[!xx]** SWAP ARPEGGiO TABLE

 ─────────────────────────

 This command temporarily swaps the arpeggio table for current instrument.

 Parameter 'xx' gives number of new table.

 Note that the number of arpeggio table in instrument macro-table

 remains intact, and "temporarily" means that the change is valid until

 there is another note or instrument set.

**[@xx]** SWAP ViBRATO TABLE

 ────────────────────────

 This command temporarily swaps the vibrato table for current instrument.

 Parameter 'xx' gives number of new table.

 Note that the number of vibrato table in instrument macro-table

 remains intact, and "temporarily" means that the change is valid until

 there is another note or instrument set.

**[=xx]** FORCE iNSTRUMENT VOLUME

 ─────────────────────────────

 This command is a variant of Cxx (Set Instrument volume) effect command.

 The difference is in modulator's role when affecting volume, because

 it scales the modulator volume according to 'xx' value, no matter what is

 the connection type of the instrument.

 Note that the carrier volume is set as usual.

 Value of 'xx' ranges from 0 to 3F (softest -> loudest).

**[%xx]** SET GLOBAL VOLUME

 ───────────────────────

 This command sets the global volume of song.

 Value of 'xx' ranges from 0 to 3F (softest -> loudest).

**[>xx]** GLOBAL FREQ. SLiDE UP

 ───────────────────────────

 This command slides the frequency up (pitch bend) in all tracks

from current to last, if it’s not overridden by using another

'<xx' or '>xx' in second effect column or one of succeeding tracks.

 Parameter 'xx' gives speed of slide.

Note that you can also use Fine or Extra Fine variant of this command

by putting command switch 'ZFD' or 'ZFE' into second effect column.

**[<xx]** GLOBAL FREQ. SLiDE DOWN

 ─────────────────────────────

 This command slides frequency down as stated above.

**[`xx]** SET CUSTOM SPEED TABLE

 ────────────────────────────

This command sets custom speed table for Vibrato/Tremolo effect,

which is generated according given parameter 'xx':

'00' Reset default speed table  
 '01-FF' Calculate custom speed table with parameters  
 **table size**, **maximum value** and **processing speed factor**  
  
 ┌────────────┬──────┬────────┬────────┐  
 │ PARAMETER │ **SiZE** │ **MAX.** │ **FACTOR** │  
 ╞════════════╪══════╪════════╪════════╡  
 │ [**01**]..[**EF**] │ 32 │ **01**..**EF** │ x1 │  
 │ [**F0**]..[**F3**] │ **32** │ FF │ **x1**..**x4** │  
 │ [**F4**]..[**F7**] │ **64** │ FF │ **x1**..**x4** │  
 │ [**F8**]..[**FB**] │ **128** │ FF │ **x1**..**x4** │  
 │ [**FC**]..[**FF**] │ **256** │ FF │ **x1**..**x4** │  
 └────────────┴──────┴────────┴────────┘  
  
 For information on custom speed tables please refer to:  
 <http://www.adlibtracker.net/files/techinfo.htm>

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∙ **VI. SONG VARiABLES**         ∙

∙         ∙∙─────────────────┘

**SONGNAME**

 ────────

 You can specify how should be the song called here.

 The maximal length of string is 42 characters.

**COMPOSER**

 ────────

 You can specify who was the creative person that made the song here.

 The maximal length of string is 42 characters.

**iNSTRUMENTS, PATTERNS, ORDER LiST ENTRiES**

 ─────────────────────────────────────────

 These are just values for information about number of common items used.

 You cannot change them since they are calculated by the tracker.

**SONG TEMPO**

 ──────────

 With range 1-255, you can specify what will be the initial song tempo here.

 The value is decimal, the unit used is "frames per second" (Hz).

 However, you can calculate the tempo also in "beats per minute" (BPM)

 with the following formula:

   (tempo\_in\_Hz \* 2.5) = tempo\_in\_BPM

**SONG SPEED**

 ──────────

 With range 1-FF, you can specify what will be the initial song speed here.

 The value is hexadecimal, the unit used is "frames per row".

 There is also an Update switch beside the song speed field.

 You can specify there, whether the song speed should be reset to "initial"

 when song loops back to order 0.

**MACRODEF. x**

 ───────────

 With optional range, you can specify what will be the multiplying factor

 for macro-definitions here.

 i.e. 1 means that the macro commands will be triggered once per frame,

      2 means twice per frame (speed-up is 2),

      3 means three times per frame (speed-up is 3), and so on.

**TRACK VOLUME LOCK**

 ─────────────────

 You can specify the initial Volume Lock state here.

 If Volume Lock is set, you can also set its initial settings for all

 available tracks in the Initial Lock Settings.

 For more information see chapter V, part "Lock track volume".

**TRACK PANNiNG LOCK**

 ──────────────────

 You can specify the initial Panning Lock state here.

 If Panning Lock is set, you can also set its initial settings for all

 available tracks in the Initial Lock Settings.

 For more information see chapter V, part "Lock track panning".

**VOLUME PEAK LOCK**

 ────────────────

 You can specify the initial Peak Lock state here.

 If Peak Lock is set, you can also set its initial settings for all

 available tracks in the Initial Lock Settings.

 For more information see chapter V, part "Lock volume peak".

**4-OP TRACK EXTENSiON**

 ────────────────────

 You can specify whether to use the 4-operator track extension

 on corresponding tracks here.

 Note that this adjusts the number of tracks if neccessary.

 This mode is a bit complicated so it is recommended

 to experiment to gain familiarity with making 4-op instruments :-)

**TREMOLO DEPTH**

 ─────────────

 You can specify the initial tremolo depth here.

 See also chapter V, part "Tremolo".

**ViBRATO DEPTH**

 ─────────────

 You can specify the initial vibrato depth here.

 See also chapter V, part "Vibrato".

**PATTERN LENGTH**

 ──────────────

 With range 1-256, you can specify what will be the pattern length here.

 Note that the pattern length value affects whole song.

**NUMBER OF TRACKS**

 ────────────────

 With range 1-20, you can specify what will be the number of tracks here.

 Note that value above 18 automatically toggles percussion mode ON.

**PERCUSSiON TRACK EXTENSiON (BD,SD,TT,TC,HH)**

 ───────────────────────────────────────────

 You can specify whether to use 5 percussion tracks here.

 Note that percussion mode automatically changes the number of tracks to 20,

 but you can decrease the value as neccessary though.

 This mode is slightly hard to use (particularly the "SD/TT/TC/HH" tracks)

 so it is not recommended unless you know how it works or gain familiarity

 with it after several experiments :-)

**VOLUME SCALiNG**

 ──────────────

 (iMPORTANT OPTiON)

 You can specify whether to use volume scaling mode here.

 Volume scaling mode differs from default mode in handling the volume

 when performing effect commands. When in default mode, the volume is set to

 value requested in effect column whatever is the base volume specified in

 carrier or modulator cell of instrument.

 When in volume scaling mode, any change of volume with effect command is

 calculated as scaled base volume of instrument.

**iNiTiAL LOCK SETTiNGS**

 ─────────────────────

 You can specify the initial settings of Panning Lock, Volume Slide type,

 Volume Lock, and Peak Lock for corresponding track here.

┌────────────────────────∙∙  ∙

∙ **VII. GETTiNG STARTED**       ∙

∙         ∙∙─────────────────┘

 Any piece of music written with the /┤DLiB TR/┤CK3R ][ is built up

 from patterns. Each pattern is built up from 1 to 18/20 tracks.

 A pattern is 1 to 256 lines long. The line where the cursor is always

 the one you edit. If you need shorter patterns and you don't want

 to shorten the overall pattern length in song variables,

 use the Pattern Break effect command (Bxx).

 A track is built up like this:

              ┌────┬───────────────────┬────

              │**LiNE**│ **1**                 │ **2**

              ├────┼───────────────────┼────

              │ **37** │ ···  ··  ···  ··· │ ···

              │ **38** │ A#5  01  ···  ··· │ ···

              │ **39** │ A-4  ··  330  ··· │ C-2

              │ **3A** │ ···  ··  300  ··· │ ---

              │ **3B** │ ···  ··  300  ··· │ ···

              │ **3C** │ ···  ··  ···  ··· │ D#2

              │ **3D** │ D#1  02  ···  ··· │ ---

              │ **3E** │ C-2  01  ···  ··· │ ···

   current ──>│ **3F** │ C-4 01 C20 201 │ C-2

   line       │    │                   │

              │    │                   │

              └────┴───────────────────┴────

                     ^    ^   ^    ^

                     │    │   │    │

                     │    │   │    └─ effect command 2

               note ─┘    │   │

                          │   └─ effect command 1

                          │

                          └─ instrument

 The C-4 is the note being played at pattern position 3F,

 01 is the instrument number, and the following six digits are the

 two effect commands, in this case, Set Volume to 20 Hex, and Frequency

 Slide Down by 1 unit per frame. Remember that values for instruments

 and effects are always hexadecimal!

 You can enter the note by switching into MBoard mode while the song

 is Stopped or while the song is Paused with no Trace or by setting this

 mode OFF (Shift+Space to toggle) then by just typing the note into

 the corresponding fields.

 Likewise, you can either type in the instrument number.

 The instrument number corresponds to the active instrument.

 You can check the active instrumet at the bottom of main screen or directly

 in the Instrument Control panel.

 If in MBoard mode, this will be entered automatically when a note

 is entered through the keyboard (MBoard keys).

 Typing in the instrument number (if "update\_ins" option is ON) will affect

 the numbers in following lines and the active instrument in Instrument

 Control panel. After you have edited all your patterns, you have

 to determine the pattern order. For that simply use the Pattern Order

 editor. Enter (while the song is Stopped or while it is

 Played with no Trace) will toggle the Pattern Order editor.

 Furthermore, you can define a restart position.

 Here's an example:

 Let's say you have entered three patterns (numbers 0, 1 and 2) and

 want to play the pattern 2 twice, then pattern 0 and finally

 pattern number 1 three times. Afterwards the music should start

 from order 2 (with the pattern 0) again.

 Edit the pattern order like this:

              ┌───────────────

              │ **00** 02 │ **04** 01

              │ **01** 02 │ **05** 01

              │ **02** 00 │ **06** 82 <──── jump to order 2

              │ **03** 01 │ **07** 80

              └───────────────

                ^  ^

                │  │

                │  └─ pattern number (entry)

                │

                │

              order number

 To enter the notes /┤DLiB TR/┤CK3R ][ uses a piano-like keyboard layout

 when in MBoard mode (see chapter III, part "I" for the layout).

 The program supports 8 octaves. You can see the active octave in the bottom

 of main screen or directly in the Octave Control panel.

 When both MBoard and Tracking mode are OFF, you can type in the notes

 into their corresponding fields.

┌────────────────────────∙∙  ∙

∙ **VIII. USEFUL TiPS**          ∙

∙         ∙∙─────────────────┘

**TiP 1**   The tracker is capable of highlighting corresponding lines.

         You can toggle this mode on-and-off with Alt+M, and setup by Alt+L.

**TiP 2**   You can preview an instrument before loading it.

         In the file open dialog or bank browser, use MBoard keys while

         cursor is positioned on instrument you want to preview.

**TiP 3**   When in Debug mode, you can trace the song row by row

         with Space key from Pattern Editor as well as from Debug info

         window toggled by holding Ctrl+Alt. When the song is played

         with Trace, you can temporarily turn on Debug mode and process

         row by row playing with Space key directly from Debug info window.

**TiP 4**   When transposing patterns, it's sometimes useful to keep some of

         notes intact from changes (e.g. drums).

         You can do that by holding Right-Shift key while putting notes

         using MBoard keys, or you can remark already put notes to-or-from

         fixed state in single steps or in blocks by Shift+Enter.

**TiP 5**   You can force /┤DLiB TR/┤CK3R ][ to behave like Scream Tracker or

         FastTracker when typing in commands within the Pattern Editor

and Macro Editor window.

                         ┌────────────────────────┐

                          │ **ADTRACK2.iNi SETTiNGS** │

│ **FOR DEFAULT MODE:** │

         ┌──────────────────┬──────┤ “command\_typing=” AND │  
 │ **TYPiNG MODE** │ **FLAG** │ “cycle\_pattern=” │

         ╞══════════════════╪══════╪════════════════════════╡

         │ Adlib Tracker II │ AT │     1/OFF      │

         │ FastTracker    │ FT │     1/ON        │

         │ Scream Tracker │ ST │     2/OFF        │

         └──────────────────┴──────┴────────────────────────┘

         You can set each of these modes as default mode on program start  
 with corresponding settings in configuration file as shown

in the above table. You can, however, switch over these modes  
 anytime later, using respective combination of keys.

Please note that when you set command typing to 0 (mOrOn),  
 you cannot switch over any of these modes.

**TiP 6**   You are reminded of changes you have made to the song.

         In the status window, a small diskette icon appears in case there

         were changes since last loading or saving.

**TiP 7**   You can get information about track properties while Playing,

         Debugging, Tracking or even if song is Paused in the

         upper area of Pattern Editor (beside corresponding track number).

         ┌─────┬──────────────────────────┐

         │ **()**  │ panning Center           │

         │ **(**   │ panning Left             │<─ if panning indicator

         │  **)**  │ panning Right            │   changes color, it means that

         ├─────┼──────────────────────────┤   the Panning Lock has been

         │**1'4OP**│ first 4-op track (main)  │   activated/deactivated;

         │**2'4OP**│ second 4-op track        │   for more information,

         │ **BD**  │ Bass Drum track          │   see chapter V, effect ZBx,

         │ **SD**  │ Snare Drum track         │   and effect ZF9, and also

         │ **TT**  │ Tom Tom track            │   chapter VI, part "Track Panning

         │ **TC**  │ Top Cymbal track         │   Lock"

         │ **HH**  │ Hi-Hat track             │

         ├─────┼──────────────────────────┤

         │ **M^**  │ Modulator volume slides  │<─ for more information,

         │ **C^**  │ Carrier volume slides    │   see chapter V, effects ZF6,

         │ **&^**  │ Car w/ Mod volume slides │   ZF7 and ZF8

         ├─────┼──────────────────────────┤

         │ **P+**  │ Peak Lock active         │<─ for more information,

         │ **V+**  │ Volume Lock active       │   see chapter V, effect ZF2,

         └─────┴──────────────────────────┘   and effect ZF4

**TiP 8**   You are able to gain different setups for corresponding directory

         by creating directory-specific configuration.

         Simply place your "ini" file where you want to use corresponding

         setup, and run the tracker from within this directory (it's useful

         to make a batch file there).

**TiP 9**   You can use shortkey [BackSpace] for upper-dir and [\] for root

         in File Selector.

**TiP 10**  You can play your songs one after another by pressing Shift+Enter

         instead of Enter key in File Selector.

**TiP 11**  While working with 4-op tracks, marking instruments

         in Instrument Control panel will choose a set of instruments

         for corresponding 4-op tracks. Two instruments will be then

         always used as "current" instead of one.

         You can keep track of them in the Instrument Control panel as well

         as in the Status Line.

**TiP 12**  While working with 4-op tracks, panning works within both

         channels if you have used some AM connection at least in one

         of the two instruments. You are then able for example play some

         operators in one channel and others elsewhere.

**TiP 13**  While working with instrument macro-definitions, don't forget

         to paste appropriate instrument data to FM-register table

         first in order to use it. You can do that with ^Enter key, which

         pastes default instrument data to current row.

**TiP 14**  While working with clipboard, you can use paste same copied object

to more pattern(s) quite easily. Simply copy the object to clipboard

as usual, and press [Alt][Shift] P key.

Then the Pattern List will appear, where you can select a single pattern

or multiple patterns with [Space] as a destination.

Then press Enter key to apply.

**TiP 15**  You can load a pattern to a multiple destination--pattern(s) when

         in Pattern List and there are some marked patterns.

         Simply mark one or several patterns with [Space] and load

         desired pattern file.

**TiP 16**  If working with percussion mode (respect then :) percussion

         tracks SD/TT/TC/HH may stop responding. Go to the File Variables

         window and set the percussion mode switch off-and-on.

         After 1-3 retries the tracks should start responding again.

**TiP 17**  While testing/previewing an instrument within Instrument Control,

         Instrument Editor or bank browser, you can check the macro table

key-off phase of this instrument. In order to do that,

hold [Ctrl] key before releasing the MBoard key, and note(s) will

trail in key-off phase until you release [Ctrl] key.

         Furthermore, you can check the key-off phase with "key-off loop".

        In this case, hold the Ctrl+Alt keys pressed when releasing

the MBoard key.

**TiP 18**  The tracker features both simple playback mode and playback mode

         with synchronization. The advantage of synchro-playback is that

         you can gain authentic and accurate sound at any time and any point.

         The playback is synchronized everytime when it's neccassary, so

         all the playing effects, song tempo, song speed, song timer a.o. are

         just the same as they are when playing whole song from start.

         The disadvantage is that it sometimes takes awhile (maybe longer :)

         when playback synchronizes (depending on CPU and song structure)

         Anyway, you can leave the sync-mode using [Alt] variant of playback

         shortkey (i.e. Alt+F5, Alt+F8 and Alt+F9) even if the song

         is already playing. Note that you can set up playing without

         synchronization as the default action in configuration file (set

         option "nosync\_by\_default" to ON).

**TiP 19**  You can play the current pattern in single-playing mode.

         It means, that you are able to play patterns that are not signed

         in pattern order. The whole pattern is played with repeating then.

         You can toggle this playback mode with Alt+F6.

**TiP 20**  If working with macro-definitions, you can disable one or more

         columns in FM-register table. This is useful when you need

         to change only single or a few parameters (i.e. volume fading,

         pitch sliding) with macro-definitions and other parameters

         with pattern effects. This mode works similary as disabling tracks

         in Pattern Editor, but using Ctrl+Backspace for single

         ON/OFF instead.

**TiP 21**  When making macro-instruments, it's sometimes useful to reset

         the ADSR envelope several times during macro-cycle. You can do this

         by setting the note retrigger for appropriate row of macro-table;

         Ctrl+N toggles ON the retrigger for corresponding row and Ctrl+Alt+N

         resets flags on all rows.

**TiP 22**  You can control the playback from within the Instrument Control

         panel. Following commands are functional:

         F5              Play

         F6              Pause

         F7              Stop

         F9              Play current pattern or order only

         [Ctrl] Home,End  \* Skip to previous/next pattern while Tracing

         +,-           \* Same as above; play pattern from start

         NOTE: Commands marked with asterisk (\*) work only while the name

               of instrument is not being edited.

**TiP 23**  You can control current instrument directly in Macro Editor window

         using Ctrl+[] keys. It is even possible to control current instrument  
 and octave while in macro-preview mode.

**TiP 24**  When working with /┤DLiB TR/┤CK3R ][ native bank files (A2B, A2W),  
 you can force loading complete bank instead of going to bank browser.  
 This can be done easily by pressing Shift+Enter instead of Enter key  
 in File Selector.

**TiP 25** All options from config file can be controlled also directly

from command line. Syntax for usage is as following:

"adtrack2.exe [[/cfg:option] [...]]"

e.g. "adtrack2.exe /cfg:sdl\_screen\_mode=2 /cfg:sdl\_frame\_rate=150"

**TiP 26** When deleting notes in Note Recorder mode, you can fast-forward

or rewind playback while deleting them. All you need to do is

press Up or Down key while still holding the Backspace key.

Furthermore, you can delete all notes within marked group of tracks

at once with pressing Ctrl+Backspace.

**TiP 27** When deleting notes in Note Recorder mode, you can fast-forward

or rewind playback while deleting them. All you need to do is

press Up or Down key while still holding the Backspace key.

**TiP 28** When working with banks containing 4OP instruments, it may be

sometimes useful to put instrument data from one of the 2 paired

instruments only. This can be done by pressing Shift+Enter

instead of Enter (which puts instrument data for complete 4OP pair).

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∙ **IX. KNOWN PROBLEMS**         ∙

∙         ∙∙─────────────────┘

There are no major issues known for this version of program ☺

**REMiNDER**  
 ────────  
 If you are encountering any problem with this program, please send  
 a bugreport to my email address (stated below in this document)**.**

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∙ **X. EPiLOGUE**                ∙

∙         ∙∙─────────────────┘

**HONEST 'THANK YOU' TO FOLLOWiNG PEOPLE**

 ──────────────────────────────────────

 (in random order)

Florian Klaempfl and others [Free Pascal Compiler 2.6.4]

Simple DirectMedia Layer [SDL 1.2.15]

Daniel F. Moisset [SDL4Freepascal-1.2.0.0]

Alexey Khokholov [NukedOPL3 1.6]

Haruhiko Okomura & Haruyasu Yoshizaki [LZH algorithm]

Markus Oberhumer, Laszlo Molnar & John Reiser [UPX 3.91w]

 (further in alphabetical order ☺)

Daniel Illgen (insane/Altair)

David Cohen (Diode Milliampere)

Dmitry Smagin

Janwillem Jagersma

Florian Jung (Windfisch)

Maan M. Hamze

Mikkel Hastrup (encore)

Nick Balega

PissMasterPlus

Slawomir Bubel (Malfunction/Altair)

Sven Renner (NeuralNET)

Tyler Montbriand (Corona688)

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For complete AT2 file format description please refer to:  
 <http://www.adlibtracker.net/files/techinfo.htm>

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