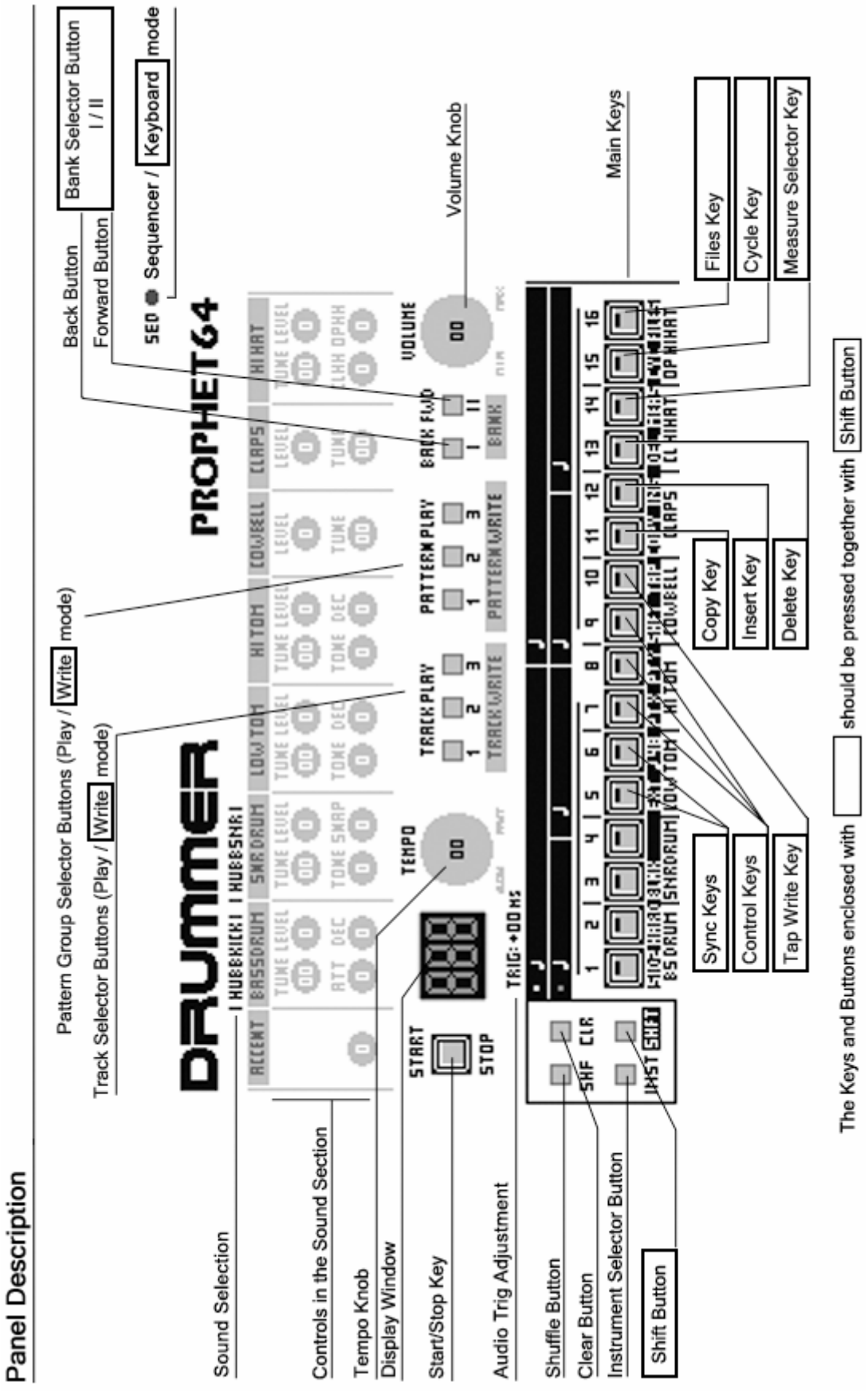
PROPHET64

SID MUSIC SOFTWARE

Drummer

Mar 5, 2007

Panel Description



Introduction

Thank you for choosing the Prophet64 line of software!

The Prophet64 Drummer is a software drum machine for the Commodore 64. It aims to bring back the unforgettable wave table drums from the C64 heydays created and used by top SID musicians. In addition you can shape the tone of all the sounds and create your beats within a well known and user friendly environment.
The design and functionality closely resembles the infamous Roland TR-909 drum machine.

What is a wave table sound?

Wave table sounds are generated by rapid changes of waveform and frequency about every 20 milliseconds. The changes load from a predefined list (aka table) and produce a quite unique result that does not really compare to any other synthesized sound.

During the first years of game music the drum sounds, if any, were simple snare drums created by a noise waveform. In 1986-87 wave table sounds began to emerge and titles such as *Ace 2* and *Mega Apocalypse* featured music (both composed by mr. Rob Hubbard) that set a new standard with a much more authentic drum sound.
Ever since, the wave table technique has been used for everything from chords to drums and sound effects in C64 music.

However, the classic art of creating synthesized drums does not involve wave tables. The "real" way of getting the correct timbres is by combining multiple oscillators with different waveforms and separate filters. That is how the sounds in the old drum machines came to life. One example is the TR-909 snare drum. It's built up by two slightly detuned sine waves and a high pass filtered noise.
Limited to three oscillators, C64 musicians just had to find another way. The drums were not likely allowed to occupy more than one oscillator as they were all busy playing polyphonic music and sound effects. The wave table was therefore somewhat of a compromise.

Prophet64 Drummer does not compromise. It does adopt wave tables to bring back the sounds of the C64 era but uses all available oscillators as independent voices.
That means that a standard machine can play up to three drum sounds simultaneously.
With a second SID installed (like the Prophet64 SID2SID) an additional set of oscillators are added making it a six-voice polyphonic SID drum machine!

Using the Drummer

Starting up

To start the Drummer, select *Drummer* in the startup menu and press return.
The program loads from the cartridge and starts up in approx. 7 seconds.

Note:

The user is strongly adviced to carefully read the instructions on how to properly handle the cartridge in the booklet *Prophet64 - Getting Started* available for download on our site at http://www.prophet64.com

User Controls

The Drummer has a set of tone control knobs in the upper part of the screen. Those are accessed via direct keys all assigned to a specific knob.
On the lower part of the screen there are sixteen buttons called the *Main Keys* that are used for creating and editing patterns as well as selecting/playing each of the eight instruments.

To control the Drummer you can use either a joystick (default) or a potentiometer plugged into controller port #2. You will need to manually change this main control as the software cannot auto-detect the device that is currently connected.

- Press and hold the Shift button (**LEFT SHIFT** key on C64)
- Press Main Key 7 (**6** key) to select potentiometer X or
- Press Main Key 8 (**7** key) to select potentiometer Y

  There are two potentiometer connections for each port named X and Y.

To revert to joystick control, deselect any potentiometer options with Main Key 7 or 8.

If you wish to protect the knobs from unintentional turning you can make the **RIGHT SHIFT** key operate as a trigger when potentiometer is the active control.

- Press and hold the Shift button (**LEFT SHIFT** key)
- Press Main Key 9 (**8** key).

Now the potentiometer does not have any effect until the **RIGHT SHIFT** key is depressed.

Controls in the Sound Section

Each drum sound (*instrument*) has a set of controls to shape its sound and to set the level, tuning and decay. The controls are accessed via quick keys on the C64's keyboard:

CTRL	Accent level
Q W A S	Sound controls for the Bass drum
E R D F	Sound controls for the Snare drum
T Y G H	Sound controls for the Low Tom
U I J K	Sound controls for the Hi Tom
O L	Sound controls for the Cowbell
P :	Sound controls for the Hand Clap
@ * ; =	Sound controls for the Hihat
↑	Main volume level
C	Tempo (Internal Clock)

Level controls are provided for every instrument to control tune and volume.

[**BASS DRUM**]

- **Attack**
  This is to control the attack sound.

- **Decay**
  This adjusts the decay time.

[**SNARE DRUM**]

- **Tone**
  This changes the timbre of the sound.

- **Snap**
  This sets the amount of snappiness for the snare drum.

[**LOW TOM/HI TOM**]

- **Tone**
  This sets the timbre of the tom sound.

- **Decay**
  This adjusts the decay time.

[**HI-HAT**]

- **CLHH / OPHH**
  This sets the decay for closed and open hihat respectively.

Select Bass drum / Snare drum

To further enhance your SID drum-kit you can change the bass drum and snare drum to any of eight sounds.

- Use **F1** / **F2** key to select bass drum.
- Use **F3** / **F4** key to select snare drum.

The sounds available are:

Bass drums	**Snare drums**
HubbKick1	HubbSnare1
HubbKick2	HubbSnare2
GrayKick1	GraySnare1
GrayKick2	GraySnare2
PopKick	PopSnare
HardKick	HardSnare
SoftKick1	SoftSnare1
SoftKick2	SoftSnare2

Track vs. Pattern modes

Prophet64 Drummer works pretty much in the same way as the Roland TR-909.
There are two (four actually) modes in which to operate: Pattern Write/Play mode and Track Write/Play mode.

Patterns are the building blocks of a song. Created and edited in Pattern Write mode, they are later assembled to a full song in Track Write mode and played back in the Track Play mode. You are not forced to work this way though, you can put the Drummer in Pattern Play mode and manually change the patterns "live".
Pattern Play mode also utilizes block play (i.e., *Chain Play* in Mono Synthesizer/Bassline editions) to play consecutive sequences of patterns.

Manual Play

Hitting the Main Keys in Track Play mode triggers the instruments in real time.
You can play three at a time polyphonically even as the track is being played back.
Manual play works in Track Play mode only (default at startup).

The Main Keys are accessed with the 16 keys at the top of the C64 keyboard, that is:
←, **1**, **2**, **3**, **4**, **5**, **6**, **7**, **8**, **9**, **0**, +, -, **£**, **CLR/HOME**, **INST/DEL**.

Note:

Tips! The key **1** on the C64 keyboard is not the same as Main Key **1** so things can get a bit tricky when editing. To overcome this, check out the keyboard overlay found in this manual's appendix.
Place it on top of the C64 keyboard and you will get a quick overview of the Main Key functions. That will prevent confusion and errors when accessing functions or selecting patterns and instruments.

Pattern Write and Play

There are two methods of writing: Step Write and Tap Write.

Step Write

To write a pattern Drummer must be in Pattern Write mode.

- To enter Pattern Write mode, press the Shift Button (**LEFT SHIFT** key) together with any of the Pattern Group Selector buttons (**, . /** keys) that represent the group with the pattern to edit
  (users familiar with the TR-909 might notice that Pattern Write mode is immediately entered without flashing any Pattern Group Selector).
  The latest pattern or block of patterns are always preselected (Pattern number 1 at startup).

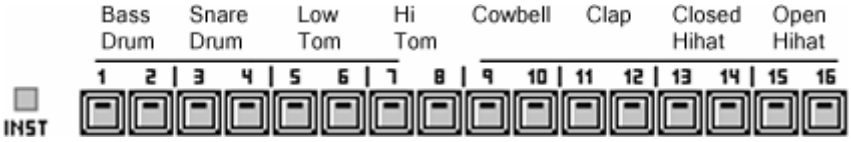
- If the wrong pattern is selected, press the corresponding Main Key for the correct pattern, e.g. to edit pattern 5, press Main Key 5.

- Press Start/Stop key (**RUN/STOP** key) to start playing. The Main Key indicators flashes from left to right (1 to 16) and Drummer is ready to accept pattern data. (Patterns can only be written when Drummer is running)

- Select a sound source (read below).

- Enter the instrument's notes in the correct positions within the pattern according to the rhythm chart (read below).

Selecting Sound Source

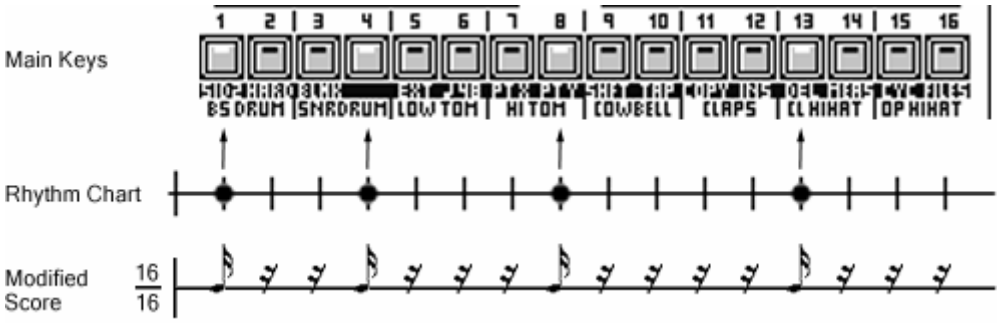


Pattern data is entered one instrument at a time.

- To select instrument press the Inst button (**COMMODORE** key).
  The indicator flashing from left to right pauses and Drummer shows the current selected instrument.

- To change instrument, keep Inst button down and press the Main Key for the new instrument.
  Any of the two keys for an instrument can be used to select it even though they display different colors (While this mattered on the TR-909, it does not on the Drummer).

Rhythm Chart



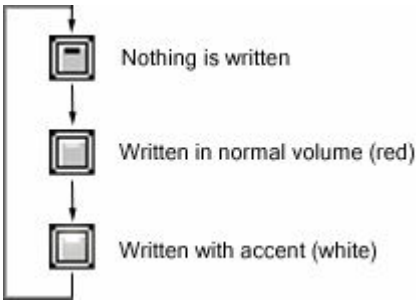
As illustrated in the chart above, each Main Key represents a sixteenth note in the pattern. For example:

- To make the Bass drum play every beat, press Main Key 1, 5, 9 and 13 (←, **4**, **8**, – keys).
- To make the Snare drum play every other beat, press Main Key 5 and 13 (**4**, **-** keys)

Drummer stores all the instruments entered into a pattern. When playing though, the number of simultaneously played instruments depends on whether you have one or two SIDs present in the computer. One SID only provides three-voice polyphony whereas a second SID adds another three allowing six instruments to play at the same time.
When using only one SID polyphony priority is given the leftmost sound reading off the main keys. When using two SIDs, every instrument is locked to a dedicated oscillator. You can define these lockings yourself.

How the Main Keys work in writing

When you press a Main Key, the indicator changes as shown below.

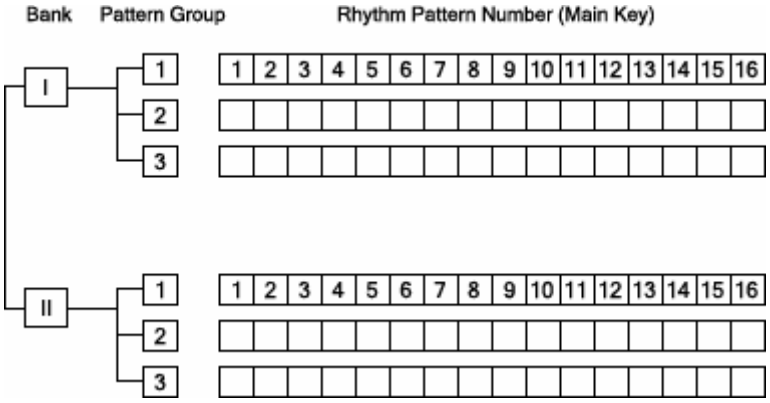


- To enter an instrument's note without accent, press the Main Key once.
- To enter an instrument's note with accent, press the Main Key twice.
- To cancel an instrument's note press the Main Key until the indicator goes out.

All notes for the selected instrument within a pattern can be deleted at once by pressing the Clear button (**X** key) while Drummer is running in Pattern Write mode.

Some more useful information for Pattern Write

Memory Map



Each bank holds 3 pattern groups with 16 patterns and 3 tracks giving a total of 48x2 patterns and 6 tracks.

Selecting Bank

As opposed to the TR-909 you can switch banks in Pattern Mode. However, Drummer tracks will not accept patterns from bank II if the track reside in bank I and vice versa.

Tap Write

Instead of step writing notes into a pattern it is possible to play it real time on the Main Keys while Drummer is running in Pattern Write mode:

- Press Shift button together with Main Key 10 (**9** key) to activate Tap Write mode. With a SID 6581 installed you will hear a guiding metronome sound in quarter note intervals. The 8580 SID is incapable of reproducing this metronome sound.
- Play along the guiding sound using the Main Keys. The instrument's left Main Key records the sound with an accent whereas the right one does not.
- To cancel accidentally written data, hold the Clear button (**X** key) while playing the note at the same position once again.
- Selecting and viewing instruments does not affect the tap writing.
- Tapping multiple sounds by holding down several Main Keys at the same time is not possible.

Pattern Play

In Pattern Play mode you can play patterns one after the other or any number of consecutive patterns automatically (block play).

- Press any of the Pattern Group selector buttons (**, . /** keys) to enter Pattern Play mode.
- Press the desired pattern's Main Key and then start the sequencer with the Start / Stop button (**RUN/STOP** key) or start the external sequencer if Drummer is in external clock mode. The indicator flashes from left to right as the pattern plays.
- Press a Main Key to switch pattern. Drummer plays the new pattern when the current one is finished, i.e., in the following measure.
- To play several patterns in a row (*Block Play*), press the Main Key for the first and last pattern at the same time. The selected patterns are indicated with red color and the active pattern currently playing, in white color.
- Block Play works in Pattern Write mode also (select the patterns when not running). The current pattern playing is always the one being edited. Drummer automatically updates the visual Main Key rhythm chart.

Clear Pattern

Simultaneously pressing the Clear button (**X** key) and a Main Key erases the pattern from memory (both in Pattern Play and Pattern Write mode).

Note:

Caution! There is no yes/no confirmation when clearing patterns!

Copy Pattern

You can copy a pattern from one to another even if they are not in the same bank:

- Select the destination pattern (current pattern selected).
- Press and hold the Shift button (**LEFT SHIFT** key).
  Do not release the Shift button until the whole copy is finished unless you want to cancel the operation.
- Press the Copy key, Main Key 11 (**0** key). Copy mode is now active.
- Use the Bank buttons (**CRSR** keys), the Pattern Group selector buttons (**, . -** keys) and the Main Keys to select a source pattern.
- Press **RETURN** key to confirm the copy or release the Shift button at any time to cancel.

Track Program and Play

Track Program

A track (song) is a sequence of patterns put together. The track and its patterns must be in the same bank.

If you are familiar with the Roland TR-909 you will notice that the process of track writing on the Drummer is slightly different.

- To edit a track, enter Track Write mode by pressing Shift button (**LEFT SHIFT** key) and any of the Track Selector buttons (**B N M** keys)
- Use Main Keys and Pattern Group Selector buttons (**, . /** key) to select the current measure's pattern. At start up, all the tracks consist of 1 measure containing pattern 1 from group 1.
- To advance measure, press the **RETURN** key. This adds a new measure to the track. You will see this in the display window showing the current measure.
- Press Start / Stop key (**RUN/STOP** key) at any time to listen to the pattern. The track does not advance measure from here, it just keeps playing the same one. This simplifies hearing the edits or identifying the pattern you just wrote into the measure.
- To exit Pattern Write mode, first stop the sequencer if it's running and then press any of the Track Selector buttons (**B N M** keys) to enter Track Play mode.
  It is not possible to directly jump to Pattern Write or Pattern Play mode from here.

Note:

Important! Prophet64 Drummer does not store a pattern into the track's current measure until you change or advance the current position in some way. On the last measure, use **CRSR LEFT** key to step backwards before exiting Track Write mode. If not, the default pattern will be stored in that position.

A Drummer track can have a total of 255 measures numbered 1 to 256.

Track Play

Tracks are played back in Track Play mode. Any of the Track Selector buttons (**B N M** keys) will enter Track Play mode and set the current position to measure nr. 1. Playing always starts at the current position. To play from the beginning, press the Track Selector button again to reset the track's position to 1.

Cycle

When a track is done playing it either starts over from the first measure or stops playing completely. Default is to loop (*Cycle*). By pressing Shift button and Main Key 15 (**CLR/HOME** key), Cycle mode is toggled on/off.

Jump to Measure

Instead of browsing through a long series of measures with the **CRSR** keys, you can jump directly to a certain position in the track by entering its number with the Main Keys.

- Press and hold the Shift button.
- Press Main Key 14 (**£** key).
- The display window now shows three dashes and awaits input.

- Still holding the Shift button, enter the measure's number with Main Keys 1 - 10 (10 being zero).
- When done, press **RETURN** key to confirm the jump or release Shift to cancel.

Editing Rhythm Tracks

Going back into a track to edit it is no different from the procedure explained in the section *Track Program*. Just remember that:

- **RETURN** key advances pattern. If used at the track's last position, a new measure is added to the track.
- **CRSR**-keys are better for track-browsing as they do not add new measures.
- A pattern entered into a measure is not stored until leaving that position either with **CRSR** keys or **RETURN** key (in other words, exiting Track Write mode won't store the current pattern).
- Entering Track Play/Write mode sets the current measure to 1.
  Use the *Jump to Measure* function to swiftly recall a position within that track.

Delete Measure

The Delete function works much like the delete key in any ordinary PC-text editor, it shortens the entire song by one measure and removes the pattern at the current position.
Though the real TR-909 was capable of deleting big blocks ("from / to") of measures, Drummer only deletes one at a time.

- Go to the measure within the track where a pattern is to be deleted.
- Press and hold the Shift button (**LEFT SHIFT** key).
- Press Main Key 13 (**-** key)
- Delete is carried out at once.

Insert Measure

The Insert function works opposite the Delete function, expanding the track with one measure at a time and inserting the current position's pattern.

- Jump to the measure within the track where the new pattern is to be inserted.
- Press and hold the Shift button (**LEFT SHIFT** key).
- Press Main Key 12 (+ key).
- Insert is carried out at once.
- Use Main Keys and Pattern Group Selector buttons to enter a new pattern at the current position.

Clear Track

To clear a track completely:

- Press and hold the track's selector button (**B N M** keys)
- Press the Clear button (**X** key)
- Press **RETURN** key to confirm or **RUN/STOP** key to cancel (No other keys will work until this choice is made).
- Remember: though the track now is completely free of pattern information the actual patterns are not erased.

Files

The file operations in the Prophet64 Drummer has a separate screen window. To access it:

- Press and hold the Shift button (**LEFT SHIFT** key).
- Press Main Key 16 (**INST/DEL** key).

In the file screen, use **CRSR** keys and **RIGHT SHIFT** to navigate and **RETURN** key to execute a function/select file etc. Use ← key to cancel/step back.

Media

The Drummer uses three types of media to load and save data: disk, tape and SDR.

Disk

Loading from disk means that a directory window opens with a list of valid files on your floppy. You then select the file you wish to load.

The file operations for the floppy drive make use of the operating system's disk functionality. In practice this means that there are no delete-functions built in and no replace-and-save options. If you try to save the file onto disk using a name that already exists the save is interrupted and the drive light flashes.

When reading the directory the correct type of files are automatically collected. If there are no files of that particular type on the disk you will get a *No Files* error. It does not necessarily mean that the disk is empty rather than empty on that type of files.

The file type depends on the file operation you selected, whether it's a full project load or a specific import.

Prophet64 Drummer File Types:

File suffix	Disk space	Tape nr.		
.909	19 blocks	≈ 36	< 5 Kb	Drummer project
.DRP	1 block	≈ 6	< 1Kb	Single pattern export

Tape

The tape functions are standard C64 and not turbo tape.
A small modification bypasses the regular start and record button sensitivity so that the user needs to initiate the start of a tape load or save him/herself.
This opens up the possibility to modify a digital audio source to replace the standard 1530 datasette unit.

Whenever loading and saving you will have to press **SPACE** key on the C64 to make the computer start the load/save.

When loading Prophet64 Drummer checks the type of the file found. If the file suffix does not match the correct one, loading is interrupted and you are notified.
If the file type is correct, loading automatically continues and the screen color turns green to confirm that the file is ok.

Note:

The tape motor is shut off at all times until you request a load or save. As the dialog box asks you to start recording or playing it is finally switched back on.
You probably need to rewind or forward the tape to the right position before loading or saving so now is the time to do so. Since the datasette buttons are not being sensed, pressing rew/ffw will not trigger the load/save. Only the **SPACE** key does.

SDR

SDR is short for Serial Data Register, a hidden feature never used by any peripheral device released for the C64 platform.
The SDR works with a serial data stream on the user port. A dedicated device must handle this data to store it on a separate media.

This makes file management an issue for the user and not the Prophet64 file functions. For example, one could save SDR data onto a digital device like pure audio data. The user then decides where to put the file, how to handle multiple saves etc.

The procedure for saving and loading SDR data is very simple. You are asked to start your digital device and then press space to start the C64 read/write sequence.
Saving can be switched to verifying instead. That makes the program read from the SDR device comparing the saved data to the current memory. The save is then considered valid if the SDR data is identical to the memory data.

Several speeds are available for SDR save, enabling the output to fit various devices. Speed is selected when saving. SDR loading automatically adjusts to incoming data.

While saving and loading the screen flashes in different colors. Every time a new block of 256 bytes is finished the set of colors changes.
If the type of the file found when loading is wrong, loading halts and you are notified.
Note that the C64 does not have any control of the SDR device's current state i.e., it cannot control the player to actually start or stop.

Opening the Demo Track

To open the demo track:

- Select *Open* in the *FILE* menu.

- Navigate with the **CRSR** keys to the menu item *DEMO*.

- Press **RETURN** key to select to open the demo track.
- Press **Y** key or **RETURN** key to confirm. The **N** key or ← key cancels.
- When the demo track is opened (takes a split second) press ← to return to the main screen.

Save Project

A project save includes all data, patterns, tracks, tone controls and settings.
Make sure to save often to avoid losing your work!!

To save a Drummer project:

Disk:

- Select *Save* in the *FILE* menu.

- Use **CRSR** keys and select *Disk* as media source and press **RETURN** key.
- Enter a non-existing filename in the filename dialog.

  You can use all letters from *a-z* and *0-9* as well as some additional characters. Use **INST/DEL** key with and without the **LEFT SHIFT** key to insert/delete text.
  Press **RETURN** when ready or ← to cancel and go back.
- File saves onto disk. After saving is done press ← key to return to the main screen.
- If the disk already contains a project file with the same filename the drive light flashes and you are notified with a *Save Error* messagebox.

Tape:

- Select *Save* in the *FILE* menu.
- User **CRSR** keys to select *Tape* as media source and press **RETURN** key.
- Enter a filename in the dialog and press **RETURN** when ready or ← to cancel.
- A dialog asks you to press REC+PLAY on your tape recorder and then press **SPACE** key to start the save. The tape motor is now unlocked for you to first rewind or forward the tape to the correct position.
- Press **SPACE** key to start saving.
- Screen goes blank while saving.
- When saving is done press ← key to return to the main screen.
- You can break the save operation anytime during saving by pressing the **RUN/STOP** key.

SDR:

- Select *Save* in the *FILE* menu.
- Use **CRSR** keys to select *SDR* as media source and press **RETURN** key.
- Enter a filename in the dialog and press **RETURN** when ready or ← to cancel.
- Select a speed for SDR. Start by using slower speeds and gradually try out the device with faster settings. Press **RETURN** when ready.
- Now make your digital device ready (start recording).
- Press **SPACE** key.

- Screen goes blank and flashes while saving.
- When saving is done press ← key to return to the main screen.
- You can break the save operation anytime during saving by pressing the **RUN/STOP** key.

Verifying SDR Saves

After an SDR save, data can be verified:

- Go through the save process once again from the start and enter the exact same filename.
- When the messagebox asks you to press space there is also an option to press **CTRL** key to start the verifying process.
- Press **CTRL** key. Screen goes blank.
- Start supplying data from your digital device (that is, play it back, not record!).
- If data is found to deviate from the current memory the verify process is interrupted and you are notified. If not, the verify process continues until the file is fully compared and you are notified that everything is ok.

Open Project

To open a Sequencer project:

Disk:

- Select *Open* in the *FILE* menu.

- Insert the disk with the project file you wish to open.
- Use the **CRSR** keys to select *Disk* as media source and press **RETURN** key.
- Wait until the directory is loaded.
- In the directory window use **CRSR** keys to navigate to the file you wish to load and press **RETURN** key to start loading. If you wish to cancel press ← key to go back one step.
  If there are no files on the disk you will be notified by a message box saying *No files*. In that case press ← key to go back, insert a new disk and try again.
- When the file is loaded you press the ← key to exit to the main screen.

Tape:

- Select *Open* in the *FILE* menu.
- Use the **CRSR** keys to select *Tape* as media source and press **RETURN** key.
- A dialog asks you to press PLAY on your tape recorder and then press **SPACE** key to start loading. The tape motor is now unlocked for you to first rewind or forward the tape to the correct position.
- Press **SPACE** key to start loading and the screen goes blank.
- When a project file (*.909*) is found the screen color turns green and the file continues to load. If a different file type is found the operation is halted.
- When loading is done press ← key to return to the main screen.
- You can break the load operation anytime during the load process by pressing the **RUN/STOP** key.
  However, this opens the initialize screen asking you to clear the memory.

SDR:

- Select *Open* in the *FILE* menu.
- Use the **CRSR** keys to select *SDR* as media source and press **RETURN** key.
- Make your digital device ready.
- The dialog box asks you to press space and then start your digital device.
  Press **SPACE** key. Screen goes blank and awaits your digital device.
- Start your digital device (play back). Screen flashes as data is received.
- When the file is loaded press the ← key to exit the files screen
- If a different file type is found, loading stops and you are notified.
- You can break the operation anytime during loading by pressing the **RUN/STOP** key.
  However, this opens the initialize screen asking you to clear the memory.

Note:

Important! If you interrupt a load process of a Drummer project you are warned that the application could suffer from an unrecoverable failure. While this is a major case for the Sequencer edition (all Prophet64 editions share file functionality) it is of lesser importance for the Drummer edition. To not cause misbehavior of the application you are adviced to initialize memory if you for any reason have interrupted a load operation.

Press **Y** key or **RETURN** key to go through and initialize the memory.
If you do not carry out this initialization now you can do it later at any time with the *New* function in the *FILE* menu.
This message pops up if you interrupt an import also. However, imports cannot do any harm whatsoever so you can just ignore it.

Export Pattern

You can export a drum pattern onto disk, tape or SDR.

To export a pattern:

- Select *Export* in the *FILE* menu.

- Use Group Selector buttons, Bank Selector buttons and Main Keys to select the pattern you wish to export. Press **RETURN** key when ready.

- Continue to read the section for your media choice below:

Disk:

- Use **CRSR** keys to select *Disk* as media source and then press **RETURN** key.
- Enter a non-existing filename in the filename dialog. You can use all letters from *a-z* and *0-9* as well as some additional characters. Use **INST/DEL** key with or without the **LEFT SHIFT** key to insert/delete text.
- Press **RETURN** key to start saving or ← to cancel.
- When done saving, press ← key to return to the main screen.
- If the disk you have inserted already contains a pattern file with the same name the drive light flashes and you are notified with a *Save Error* messagebox.

Tape:

- User **CRSR** keys to select *Tape* as media source and press **RETURN** key.
- Enter a filename in the dialog and press **RETURN** when ready or ← to cancel.
- A dialog asks you to press REC+PLAY on your tape recorder and then press **SPACE** key to start the save. The tape motor is now unlocked for you to first rewind or forward the tape to the correct position.
- Press **SPACE** key to start saving.
- Screen goes blank while saving.
- When saving is done press ← key to return to the main screen.
- You can break the save operation anytime during saving by pressing the **RUN/STOP** key.

SDR:

- Use **CRSR** keys to select *SDR* as media source and then press **RETURN** key.
- Enter a filename in the dialog and press **RETURN** when ready.
- Select the SDR speed. Press **RETURN** when ready.
- Now make your digital device ready (start recording).
- Press **SPACE** key.
- Screen goes blank and flashes while saving.
- When done saving press ← key to return to the main screen.
- You can break the save operation anytime during saving by pressing the **RUN/STOP** key.
- SDR saves can be verified as described in *Verifying SDR Saves* earlier in this chapter.

Import Pattern

Exported patterns can be imported back into the Drummer.

To import a pattern:

- Select *Import* in the *FILE* menu.

- Use Group Selector buttons, Bank Selector buttons and the Main Keys to select where to store the imported pattern. Press **RETURN** key when ready.
- Continue to read the section for your media choice below:

Disk:

- Use **CRSR** keys to select *Disk* as media source and then press **RETURN** key.
- Select a file in the directory list.
  (If the disk you have inserted does not contain any pattern files you are notified with the *No files* messagebox.)
- Press **RETURN** key to start loading.
- When done loading, press ← key to return to the main screen.

Tape:

- Use the **CRSR** keys to select *Tape* as media source and press **RETURN** key.
- A dialog asks you to press PLAY on your tape recorder and then press **SPACE** key to start loading. The tape motor is now unlocked for you to first rewind or forward the tape to the correct position.
- Press **SPACE** key to start loading and the screen goes blank.
- When a pattern file (*.DRP*) is found the screen color turns green and the file continues to load. If a different file type is found the operation is halted.
- When loading is done press ← key to return to the main screen.
- You can break the load operation anytime during the load process by pressing the **RUN/STOP** key.
  However, this opens the initialize screen asking you to clear the memory. Read more about it in the *Open Project* section.

SDR:

- Use **CRSR** keys to select *SDR* as media source and then press **RETURN** key.
- Press **SPACE** key when you are asked to start your SDR device.
- Start playing back data on your SDR device. Screen flashes as data is received.
- When done loading, press ← key to return to the main screen.
- If a file is found with a different file type, loading stops and you are notified.
- You can break the load operation anytime during the load process by pressing the **RUN/STOP** key.
  However, this opens the initialize screen asking you to clear the memory. Read more about it above in the section *Open Project*.

Other Functions

Shuffle

Shuffle means to get the music to swing. This is achieved by delaying every second note instead of playing straight sixteenths. The more delay, the more it swings. Generally, higher tempo requires less swing, lower tempo can add more.

To set the amount of shuffle:

- Press the Shuffle button (**Z** key).
- The indicator on Main Keys 1 - 7 will display the current Shuffle setting where 1 is no shuffle at all and 7 is the extreme setting. Be aware of that higher settings might cause drop-outs at different speeds.

- Change shuffle setting by pressing the corresponding Main Key.
- Release Shuffle button to exit.

Only every second value has any effect. To get a full detailed shuffle resolution you need to use the SYNC 48 mode.

Synchronization

The Prophet64 Drummer makes use of DIN-Sync (*SYNC 24*) to play along MIDI-sequencers. It requires an *s24-64II* interface and a MIDI to SYNC 24 converter.
The s24-64II interface is a connector you build yourself.

Sync In
When activated in external sync mode, Drummer listens for a SYNC 24 signal on the user port. To switch external clock mode on/off:

- Press and hold the Shift button (**LEFT SHIFT** key).
- Press Main Key 5 (**4** key).

Pattern Select
Whenever external sync mode is activated Drummer also listens for a Pattern Select signal on the user port. Such a signal alters the current pattern playing if the Drummer is set to operate in Pattern Play mode.
A Pattern Select signal can be sent from the Sequencer edition.

Sync Out
The Prophet64 Drummer always mirrors the sync signal on the user port so that you can use it as a SYNC 24 master device. This is true even when slaved to an external clock thereby functioning as “SYNC 24 thru”.

Note:

The booklet *Prophet64 - Getting Started* available on the Prophet64 site contains info and schematics for the s24-64II interface.
Please read it to learn how to correctly handle Pattern Select and Sync out connections.

SYNC 48
You can double the amount of sync pulses it takes to play one measure from 24 to 48. In practice this will make the Drummer play at half speed so you need to double the tempo also.
The idea of SYNC 48 is that shuffle resolution gets higher and all the seven shuffle settings work. Read more about Shuffle in the top of this chapter.

To activate SYNC 48:

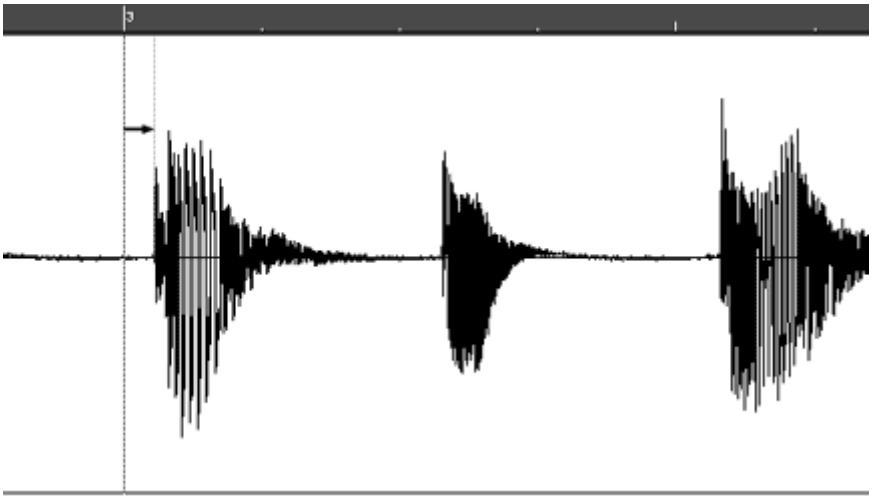
- Press and hold the Shift button (**LEFT SHIFT** key).
- Press Main Key 6 (**5** key).

Trig Delay

The trig setting gives you control of when the sound should retrig to optimize timing when running on an external clock.
The Drummer reads ahead of the current pattern being played and triggers the sound at a given time. This time is user defined and shows right below the display window.

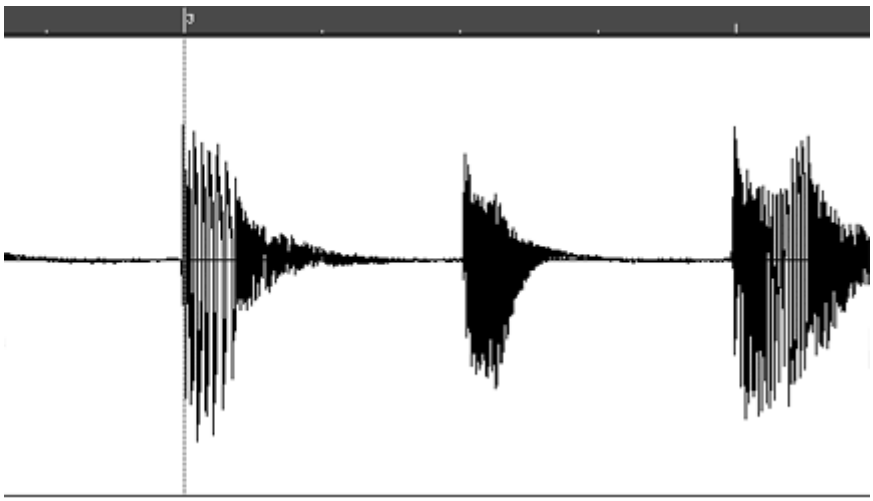
The available settings range from 0 to 60 and increments in steps of 2.
The more you add, the earlier the sound triggers.
Use the trig delay to compensate high shuffle settings or moderate tempos that cause drop-outs or unwanted clicks and pops.

To get a better understanding of what trig delay really does, take a look at the images below:



This first image shows a trig delay setting of 00. That creates a small delay before the sound actually triggers (notice the distance between the beat's position and the waveform start).

In this case the delay is about 20 ms (it varies depending on the song's tempo).



Now we have adjusted the trig time to about +20 ms and gotten rid of the delay.
By tweaking the trig time it's thereby possible to get the sound to trig dead on.

One could argue that this is of lesser importance when using the Drummer in the studio recording onto a hard drive.
Delay settings could then be easily adjusted afterwards and timing is no longer an issue.
Nonetheless, if you tweak the trig delay you can listen to the Drummer playing in sync during the whole recording and not only afterwards.

To adjust the trig delay setting:

- Press **F7** / **F8** keys to increase/decrease.

SID #2

Prophet64 Drummer supports an additional SID installed. The Prohet64 SID2SID circuit board offers full compatibility though any installation that accesses the second SID through the IO1 address line of the expansion port will do.
However, the software does not self-detect the other SID so you need to activate it manually.

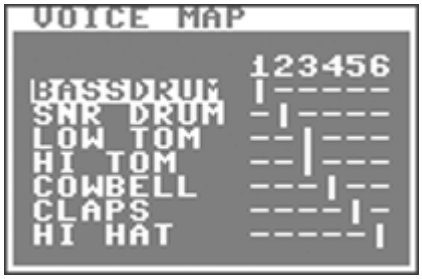
- Press and hold the Shift button (**LEFT SHIFT** key).
- Press Main Key 1 (← Key).

When SID #2 is activated instruments are no longer assigned to oscillators automatically. Drummer now uses the Voice Map instead. Continue to read about it in the next section.

Voice Map

The Voice Map assigns single instruments to a dedicated oscillator on any of the two SIDs.
It becomes active at all times when SID #2 is active.
To open the Voice Map editor:

- Press and hold the Shift button (**LEFT SHIFT** key).
- Press Main Key 16 (**INST/DEL** key) to enter the Files screen.
- Select the *Voice Map* item in the *SETTINGS* menu.



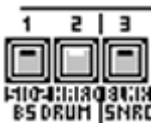
Use **CRSR** keys up/down to select instrument and **CRSR** keys left/right to select voice.
Voice 1-3 is mapped to SID #1 oscillator 1-3, voice 4-6 is mapped to SID #2 oscillator 1-3.
Two instruments can share the same voice as long as they don't play at the same time.

Note:

Tips! You do not need a second SID installed to make use of the Voice Map feature.
By using voices 1-3 in your Voice Map only, you can activate SID #2 still with nothing but a single SID in your machine. That way you override the automatic polyphonic assignment.

Hard Restart

Hard restart is a technique that initializes the SID oscillator envelope a certain amount of time before the sound is about to trigger. Doing this ensures an overall better trigging.
Drummer uses a slightly different technique (named *Soft Restart* in the Sequencer edition) that does not initialize but preloads the SID envelope registers instead.
It proves to work well when triggering multiple sounds in different volume levels as well as keeping the envelopes tight.
You can select to change soft restart to a classic hard restart:



- Press and hold the Shift button (**LEFT SHIFT** key).
- Press Main Key 2 (**1** key).

Note that Prophet64 Drummer does not use neither soft nor hard restart when playing the live on the C64 keyboard or in s24-64II keyboard mode.
This is due to the restart that takes place before the sound actually is being produced. Only a sequencer can read ahead of this time, there is no way to predict your keystrokes!

Blank Screen

Blank screen is an option that blanks the screen whenever Drummer is playing.
This will bring the audio noise level down since it inactivates the noisy graphic circuit (the *VIC*) in the Commodore 64.

The blank screen function turns the screen blank as soon as the Drummer starts playing and brings it back when playing stops.
You can blank it out manually too, by pressing the **SPACE** key at any time either when Drummer is playing or not. The space key works as a toggle, pressing it twice brings the screen back.
Using the Blank Screen feature is much more convenient as you won't have to remember to blank the screen out manually whenever recording the Drummer in your studio.

To activate Blank Screen:

- Press and hold the Shift button (**LEFT SHIFT** key).
- Press Main Key 3 (**2** key).

Track Write and Pattern Write modes are not affected by Blank Screen.

Keyboard Mode

Drummer features an option to turn the sequencer off and completely rely on incoming note signals from the s24-64II interface.
For this you need a dedicated converter that translates MIDI or similar input to signals the s24-64II understands.

To activate keyboard mode:

- Press **F5** / **F6** to deactivate/activate Keyboard mode.
  The SEQ light in the upper right screen goes out to indicate that Drummer no longer runs in sequencer mode.

Keyboard mode also inactivates Sync In/Out features as well as Pattern Select.

New (Initialize)

You can fully initialize the Prophet64 Drummer and restore its initial state.
Both tracks, patterns, tone controls and settings are cleared.

To initialize the Drummer:

- Press and hold the Shift button (**LEFT SHIFT** key).
- Press Main Key 16 (**INST/DEL** key) to enter the file menu.
- In the *FILE* menu, select *New* and press the **RETURN** key.
- A dialog box asks you to confirm using either **Y** key or **RETURN** key or cancel with the **N** key or **RUN/STOP** key.
- The Drummer is now initialized. Press ← to get back to the main screen.

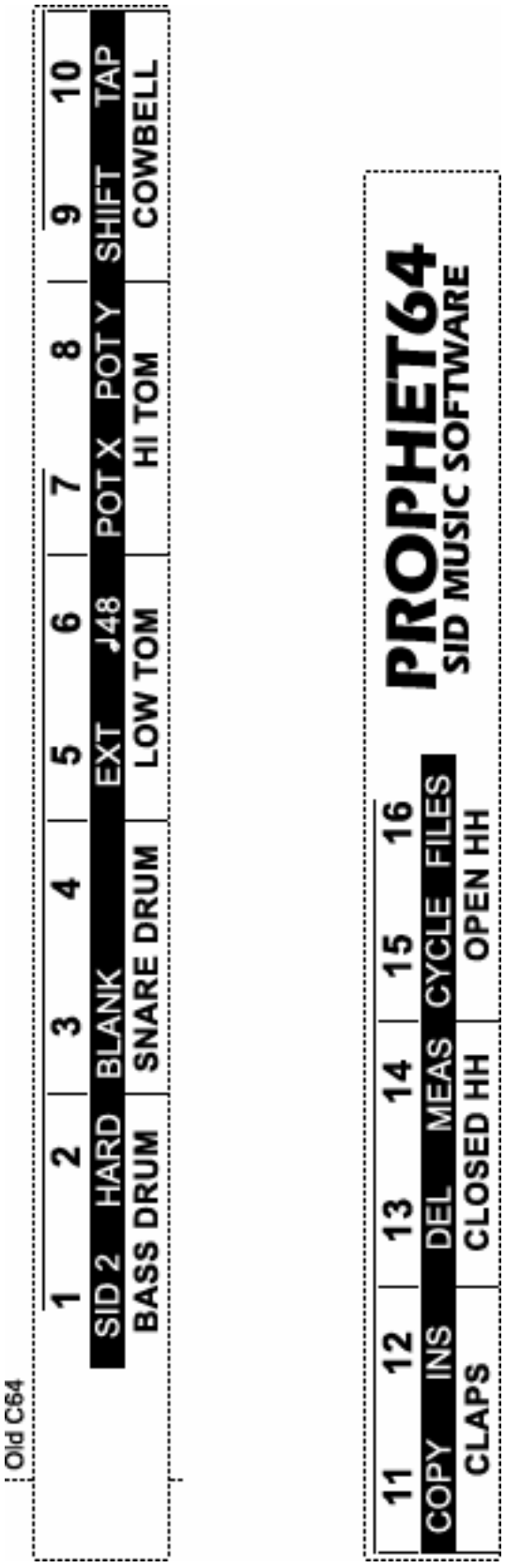
Quit

To quit the Drummer and return to the Prophet64 Cartridge startup menu:

- Press and hold the Shift button (**LEFT SHIFT** key).
- Press Main Key 16 (**INST/DEL** key) to enter the file menu.
- In the *QUIT* menu, select *Reboot* and press the **RETURN** key.
- A dialog box asks you to confirm using either **Y** key or **RETURN** key or cancel with the **N** key or **RUN/STOP** key.
- The Drummer exits and you are returned to the Prophet64 Cartridge startup menu.

Appendix

Keyboard Overlay



- Print this page out in full size
- Cut out the keyboard overlay with a hobby knife or a pair of scissors.
- Place the two pieces side by side on top of the C64's keyboard

- Put tape on the sides to keep it in place (optional)

Key Map

A full overview of the keys used in the Prophet64 Drummer:

General Keys:	
RUN/STOP	Start/Stop Playing
SPACE	Manually blank the screen
F7 / F8	Trig Setting
C	Tempo
↑	Volume
F5 / F6	Sequencer / Keyboard mode
Z	Shuffle
LEFT SHIFT	Shift Button
Tone Controls:	
F1 / F2	Select Bass Drum
F3 / F4	Select Snare Drum
CTRL	Accent Level
Q	Bass Drum Tune
W	Bass Drum Level
A	Bass Drum Attack
S	Bass Drum Decay
E	Snare Drum Tune
R	Snare Drum Level
D	Snare Drum Tone
F	Snare Drum Snap
T	Low Tom Tune
Y	Low Tom Level
G	Low Tom Tone
H	Low Tom Decay
U	Hi Tom Tune
I	Hi Tom Level
J	Hi Tom Tone
K	Hi Tom Decay
O	Cowbell Level
L	Cowbell Tune
P	Hand Claps Level
:	Hand Claps Tune
@	Hihats Tune
*****	Hihats Level
;	Closed Hihat Decay
=	Open Hihat Decay

Track Play/Write:	
B	Track Group 1
N	Track Group 2
M	Track Group 3
CRSR Up/Down	Bank I
CRSR Left/Right	Bank II
X	Clear

Pattern Play/Write:	
,	Pattern Group 1
.	Pattern Group 2
/	Pattern Group 3
CRSR Up/Down	Bank I
CRSR Left/Right	Bank II
COMMODORE (C=)	Instrument Selector
X	Clear

Main Keys	
←	Main Key 1
1	Main Key 2
2	Main Key 3
3	Main Key 4
4	Main Key 5
5	Main Key 6
6	Main Key 7
7	Main Key 8
8	Main Key 9
9	Main Key 10
0	Main Key 11
+	Main Key 12
-	Main Key 13
£	Main Key 14
CLR/HOME	Main Key 15
INST/DEL	Main Key 16

Note: These keys are for US/English keyboards.