

The Sinclair Spectrum is a computer with only one sound channel, until now....WHAM! The Music Box gives you two channels of sound, allowing anyone to compose music quickly and effectively without knowledge of music or programming.

### **DEMONSTRATION**

To demonstrate the features of the program, load the program like any Spectrum game. When the program has loaded press '1' to load a tune into the WHAM! MUSIC EDITOR. There are already six tunes in memory when the program is loaded, so press 'M' for Memory and a list of tune names appears, press the number of the one you want and when the main menu reappears press '3' to listen to the tune. If you want to stop the tune at any stage press '6' and you will go into the MUSIC EDITOR and press '6' again to return to the main menu.

### **YOUR FIRST COMPOSITION**

- Select Edit Mode by pressing '6' while looking at the main menu.
- Erase any tune in the Music Editor's memory by pressing '7' followed by 'Y' to confirm that you really want to erase it all.
- Press key '1' to select Octave 1, and check that the figure 1 appears by the word OCTAVE in the status window.
- If the number by the word CHANNEL is not 1, press 'T' until it changes to 1.

e) Type the following keys, which make up the bass line of a tune we have composed for you - where CS represents the CAPS SHIFT key and EN is the ENTER key (do not try to type the commas):- CS, EN, X, EN, V, EN, B, EN, H, EN, B, EN, V, EN, X, EN, CS, EN, X; EN, V, EN, B, EN, V, EN, X, EN. If you make a mistake, press the '0' (zero) key to step back.

f) Press key 'R' to return to the start of the tune. Press key 'T' to change to channel 2, checking that the number next to CHANNEL changes to figure 2.

g) Press key '3' to select octave 3, for the treble part of the tune.

h) Type in the following notes:- CS, X, V, CS, X, V, CS, X, V, CS, X, V, B, V, X, V, M, M, B, V, B, V, X, V, CS.

i) Press 'R' to return to the start of the tune and 'O' to play it, or 'P' to play it note by note.

j) You can type any notes you like on top of music already in the Music Editor's memory, each note you type will replace the note previously typed at that point for the channel you are working on.

k) When you are happy with the tune, use the 'P' or 'O' keys to move to the end of the tune and press 'W' to put in an end marker; this should be done on both channels.

l) Press '6' to return to the menu, where you can choose to save the music datafile, or WHAMPILE it into a machine code routine you can use in your own program.

### **DRUM EFFECTS**

While in the Music Editor, you can at any time add a bass drum effect by pressing the 'E' key. There are also three noise effects which you can design yourself, available on the 'Y', 'U' and 'I' keys.

To design a noise press the '8' key and you will see a graphical representation of the waveform and duration of the three current noises. You can use the '5', '6', '7' and '8' keys as cursor keys to move around the graph, then press the '0' (zero) key to change the graph under the cursor. There are seven different waveforms, and four different sections of the duration which can be turned off and on independently. To hear the current noise press the '9' key. When you are happy with the noise you have designed press 'ENTER' to return to the Music Editor and press 'Y', 'U' or 'I' as appropriate to place the noise in the tune.

Note: Noises use both channels, to erase a noise you must put either a note or a rest in place of the noise on both channels. You can get more than three different noises in a tune, simply design a noise, put it in the tune, redesign a new noise and put that in the tune and so on for as many different noises as you need.

### **TEMPO**

The speed at which the music is played can be altered using the SET TEMPO option from the main menu and the '5' and '8' keys. Press '6' to return to the main menu to try out the effects of your changes.

## WHAMPLER

The Whampler option produces a machine code routine which you can use in your own programs to play the music of the tunes you create.

The Whampler, asks for a memory location at which to place the routine, this should be 32768 or higher (Spectrum memory below this address is shared with the display ULA and operates more slowly than the other memory) and not so high that there is no room for the tune. It also asks for a RETURN OPTION, normally the routine tries to play all the tune but will return when any key is pressed. Alternatively, it can return always after each note is played, allowing your program to do things while the tune is playing. If the 'W' key has been used in the Music Editor to create tunes of different lengths on the two channels then these tunes will repeat and the tune will not have an end. If the tunes are of the same length then there is a natural end to the music.

The Whampler saves the compiled routine to tape as a normal Spectrum CODE file which must be reloaded using the command LOAD 'name' CODE XXXX where XXXX is the starting address you specified earlier.

To play the tune RANDOMIZE USR XXXX, unless playing note by note when to play the next note you should RANDOMIZE USR (XXXX + 12).

To stop the routine stopping when any key is pressed, making it only return at the end of the

tune, if there is one, POKE XXXX + 16, 17. Other useful POKEs are given on the screen when the Whampler runs.

## FOR MUSICIANS

WHAM! The Music Box does not attempt to duplicate all the complexities of normal musical notation. For instance, you will note that all compositions are shown in the key of C major and the only note length used is a semi-quaver. For longer notes simply repeat as many semi-quavers as you need, you will not normally hear any gap between the notes as they are played. These simplifications do not limit the range of tunes you can compose.

## KEY REFERENCE GUIDE

1 - 4	Select octave 1 - 4
5	Change border colour
6	Return to main menu
7	Erase whole tune
8	Noise effect editor (for key use in this routine see above)
9	Rewind (repeat backstep)
0 (zero)	Step back one note
Q	Replay tune
W	End of tune repeat marker
E	Bass Drum effect
R	Restart - move back to start of tune
T	Change between channel 1 and 2
Y U I	Noise effects 1, 2 and 3
O	Fast forward
P	Play single note
CAPS SHIFT	Note C
A	Note C sharp (D flat)
Z	Note D
S	Note D sharp (E flat)
X	Note E
C	Note F

F	Note F sharp (G flat)
V	Note G
G	Note G sharp (A flat)
B	Note A
H	Note A sharp (B flat)
N	Note B
M	Note C
K	Note C sharp (D flat)
SYMBOL SHIFT	Note D
L	Note D sharp (E flat)
SPACE	Note E
ENTER	Rest

You will see that the notes are arranged as for a normal musical keyboard.

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