



Microdrive Expansion System

Ant Attack by Sandy White

Games Designer by James Hollis

Games Cartridge

Loading Instructions

Insert the GAMES cartridge in Microdrive 1. Press RUN and ENTER. A Menu will appear on the screen.

- To load Ant Attack press 1.
- To load Games Designer press 2.

Chapters 1 & 2 of your Microdrive and Interface Manual tell you how to set up the Expansion System.

Ant Attack Instruction Manual

The Walled City of Antescher has rested for a thousand, thousand years in the midst of the Great Desert inhabited by only the deadly Ants who have made it their home. The sands have piled up at the walls but for some reason have never encroached upon the city proper. The City rests dreaming of past glories, solid and unmoving; the signature of a long dead race. The City washed clean by the sun's rays. The city lost from the world of men for days without number.

Then one day, one year, one hour, He arrived and She arrived, some say that they are descended from a race of wizards, some say that they are descended from a race hidden in a green valley at the North Pole.

Who can really tell these days, how much do we really know about the world as it was, or as it is, after so long in the cold Dark Ages. Only Antescher seems to stand inviolate after all this time, teeming with secrets, yet silent.

He and She arrived to play their games through the wind-swept streets, ousting the ants from their exclusive occupation. He and She are now wreaking havoc through the ants who for their part kill and kill again without thought or consideration, just carrying out a biological imperative. He and She run to and fro, climbing in and out the buildings, the sound of their feet stretching from block to block. They laugh and cry out in fear walking with each other just ahead of the Ants and Death.

And above all the drama within its walls the City of Antescher watches and watches waiting for the next renaissance and the next Golden Age. The City seems to have a presence, a huge brooding entity which hangs over the buildings and which in some mysterious way controls the destiny of those below . . .

Controls:

- | | |
|-----------------|--------------------------------|
| Ø,P,ENTER,SPACE | - 4 view angles |
| SYMBOL | - Rotate clockwise |
| SHIFT | - Rotate anti-clockwise |
| M | - Forwards |
| V | - Jump |
| C | - Throw grenade |
| SDFG | - distances |
| Short-long | - Last resort |
| 1 | - returns you to the city gate |

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To climb onto something, press "move" and "jump" together. Scan indicates which direction to take to reach the girl or boy.

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Games Designer Instruction Manual

Loading Instructions

Once Games Designer has been loaded the Main Menu will appear on the screen, listing options 1–8 as shown below. Any of these options may be selected by pressing a key from 1 to 8.

Main Menu – List of Options

1	Play Game
2	Select New Game
3	Alter Sprites
4	Configuration
5	Movement
6	Attack Waves
7	Load from Tape
8	Save to Tape

At any time, pressing [ENTER] will return you to the Main Menu, although it is sometimes necessary to press [ENTER] twice.

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Option 1 – Play Game

By pressing key 1 the 'current' example game included on the program can be played. (There are eight examples included with the program). If you wish to change the keyboard control keys of the game to meet your own preference, hold down the [CAPS SHIFT] whilst pressing key 1 to select this option. Remember to do this if required when writing your own game. The 'current' game can be changed by following the instructions for Option 2. The game can then be edited by following the procedures outlined in Options 3, 4, 5 and 6.

The pre-programmed keyboard controls are on keys 6, 7, 8, 9 and 0 depending on the game options selected.

To return to the Main Menu from playing a game, just press [ENTER].

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Option 2 – Select New Game

This option enables you to select any of the pre-programmed games, which will then become the 'current' game.

On pressing Option 2, you are then asked to choose between games 1–8 and the 'current' game is then changed accordingly.

The program will then return to the Main Menu, enabling you to press Option 1 and the new 'current' game will then commence running. Alternatively, you may select option 3, 4, 5 or 6 to edit the new 'current' game.

The pre-programmed games under this Option are as follows:

1. Attack of the Mutant Hamburgers
2. Cyborg
3. Reflectron
4. Turbo-Spider
5. Tanks a lot
6. Halloween
7. Splat
8. Qbix

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Option 3 – Alter Sprites

A 'sprite' is a collection of pixels which move across the screen in unison and provide the moving or even animated characters for the game (aliens, ships or laser bases, figures, explosions, bombs, missiles, etc).

The shape and colour of each sprite can be pre-defined thus providing contrasts between types of sprite and different attack waves.

When Option 3 is selected a display of pre-programmed sprites will appear on the screen, any of which can be edited to meet your own specifications.

The various classes of sprite are grouped as follows:

00-15 Aliens
 16-23 Ships or laser bases etc.
 24 Missile for ship or laser base.
 25 Missile or bomb for aliens.
 26 Spare (can be used to shift or edit other sprites – see below).
 27 Shield.
 2831 Explosion sequence.

Under the Sprite Chart a message prompt appears – 'SELECT SPRITE'. Just press the two digit number of the sprite you wish to edit. No need to press [ENTER].
 e.g. to change missile sprite press [24].

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To change the colour of a sprite, hold down the [CAPS SHIFT] key, then select a key from [0–7]. The small display at the bottom left of the screen will now change to display the selected colour, which is now ready for use in the game. The background colour may also be changed, as explained under the notes for Option 4.

When you have finished editing the sprite and choosing its colour, press [ENTER] to return you to the Sprite Chart.

You may now edit any other sprite by selecting its number and following the same procedure. After editing, a sprite will always be returned to its original number on the Sprite Chart.

For animation you may require 2 or 4 sprites which are identical except for very slight changes. To save time you can create the first in the sequence and then 'copy' it to other number locations on the Sprite Chart, so that you can make the necessary slight editing adjustments. To do this, when the Sprite Chart is on screen, hold down [CAPS SHIFT] whilst typing in the number of the sprite you wish to move.

The message prompt will then change and appears as follows:

'MOVE SPRITE nn TO'

Now release the [CAPS SHIFT] button and type in the number of the selected new location.

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The screen display will now change to the SPRITE EDITOR.

On the top left of the screen are the keyboard controls.

On the bottom left is a display of the actual size and colour of the sprite as it will appear on the screen whilst the game is in progress.

On the right of the screen is the sprite dot editor.

All sprites are groups of 12 × 12 dots and are shaped by filling in or erasing dots, using the keyboard controls as indicated on the display. To fill a blank dot just select the co-ordinates and to erase, select the co-ordinates of the dot to be erased.

Example 1

To fill in 4 down, 6 across, press cursor down key [8] until cursor on fourth row down, then press [6].

Example 2

To erase 2 down, 10 across, press cursor down key [8] until cursor on second row down, then press [9] to swop sides, then press [3].

N.B. When pressing [9] to swop sides, the number sequence at the top of the SPRITE EDITOR screen will be reversed. Please experiment until you become used to the SPRITE EDITOR controls.

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Important Note

When redefining missile sprites, the trailing (i.e. bottom or left) edge of the SPRITE EDITOR grid must be left blank to avoid a trail being left by the missile if this is not required.

To exit from ALTER SPRITES OPTION, press [ENTER] to return to the Main Menu.

Option 4 – Configuration

When this option is selected, the following CONFIGURATION MENU will appear:

```

1 ..... GAME FORMAT = 2
2 ..... BACKGROUND = 0
3 ..... FOREGROUND = 5
4 ..... SPECIAL FX = 3
5 ..... MISSILE SOUND
6 ..... BOMB SOUND
7 ..... SHIP EXPLODE
8 ..... ALIEN EXPLODE
```

Pressing one of the keys [1–8] will enable you to change a control setting. A flashing cursor shows which item you have selected. A selection can be cancelled by simply pressing the [ENTER] key.

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Configuration Controls

1 – Game Format

This control changes the movement direction of your ship or laser base, the area of screen in which it can move, the types of control keys to be used during the game and whether the keyboard or a joystick is to be used.

The various GAME FORMAT options are as follows:

- 0 – Invaders type.
- 1 – Asteroids type.
- 2 – Scramble type.
- 3 – Berserk type.

To use joystick, add the number 4 to any of the above values.

e.g. Invaders + Joystick = 0 + 4 = 4
Scramble + Joystick = 2 + 4 = 6

A message prompt appears when the GAME FORMAT option is selected reading 'ENTER NEW VALUE [0-7]' Press the appropriate key to select new GAME FORMAT.

2 – Background

Press key [2] to change background colour. A message prompt appears – 'ENTER NEW VALUE [0-7]'

When the new colour is selected, both the BORDER and PAPER colours will be changed accordingly when the game is played.

When one of the above keys is selected, the SOUND EDITOR CHART will appear on screen. Each sound has 5 controls each being represented by a graphic slider knob. Each knob can be moved up and down using the numerical keys [0-9]. The controls are as follows:

- FREQ – sets overall frequency or pitch (1 = up, 2 = down)
- RAMP 1 – sets speed at which pitch increases (higher pitch) (3 = up, 4 = down)
- RAMP 2 – sets speed at which pitch decreases (lower pitch) (5 = up, 6 = down)
- LEVEL – sets amount of pitch change caused by RAMPS 1 & 2 (7 = up, 8 = down)
- TIME – sets length of sound (9 = up, 0 = down)

RAMP 1, RAMP 2 and LEVEL are off when knobs are set at the bottom of their sliders.

Press [SYMBOL SHIFT] to trigger the sound. You will probably find that you need to experiment in order to obtain the sound you require.

Press [ENTER] to return from Sound Effects to the Main Menu.

3 – Foreground

Press key [3] to change foreground colour. Again, a message prompt appears – 'ENTER NEW VALUE [0-7]' When the new colour is selected, the score-line information and stars will be changed to the selected colour when the game is run.

4 – Special FX (Effects)

This option controls the following special effects:

- STARS – optional on-screen.
- ALIEN INITIALISE – whether aliens appear singly or in groups.
- SHIELD – whether shield is available to ship or laser base.

There are eight options [0-7] as listed in TABLE 1 at the end of the manual.

To return to CONFIGURATION MENU from any option 1-4, press [ENTER]

5, 6, 7 and 8 – Sound Effects

Press a key from [5-8] to change one of the sound effects.

- 5 = Missile Sound
- 6 = Bomb Sound
- 7 = Ship Explode
- 8 = Alien Explode

Option 5 – Movement

Press [5] to select this option.

On the left of the screen are displayed the eight programmable movement patterns [0-7].

At the top right is the DIRECTION NUMBER CHART.

At the bottom right is the PATTERN INDICATOR.

Each movement pattern is made up of the following:

1. NO = pattern number
2. PATTERN = a numerical list plotting the movement direction(s)
3. NEXT = links one pattern to another e.g. PATTERN 1 can be linked to PATTERN 5 by entering [5] as the 'NEXT' value for PATTERN 1

To edit a Movement Pattern choose which PATTERN is to be edited [0-7]. e.g. to edit PATTERN 0 type [0] and a flashing cursor will appear at the start of that PATTERN, which will also be plotted on the PATTERN DISPLAY at the bottom right of the screen.

A message prompt will then appear 'ENTER PATTERN .8 9.' By pressing a direction key [0-7] as per the DIRECTION NUMBER CHART you may then change the direction. The cursor will then move on to the next position.

To edit 'NEXT' function, move cursor to the 'NEXT' column.

You can repeat the same movement pattern by setting 'NEXT' to the same number as the appropriate PATTERN number. e.g. to repeat PATTERN 0, set its 'NEXT' value at 0.

To build up a more complex movement, link PATTERNS together e.g. set PATTERN 0 at 'NEXT' value 4 etc.

Keyboard Controls

Press [8] to move cursor LEFT
Press [9] to move cursor RIGHT
Press [ENTER] to finish editing

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Keyboard Controls

Hold down [CAPS SHIFT] and press one of the arrowed cursor keys [5, 6, 7 or 8] to move the cursor. It will jump in the indicated direction to the next number.

Tables

The following tables at the end of this manual may be referred to when altering attack waves.

Table 2 – ANIMATION (ANIM)

Table 3 – SPEED (SPD)

Table 4 – ATTACK WAVE, ANIMATION AND SPRITE CONTROLLER

Option 7 – Load from Tape

With this Option you can LOAD a game which you have previously SAVED.

N.B. It is always necessary to LOAD the Games Designer program first before your own game can be LOADED.

Before selecting option 7 remove the Games Designer cartridge from Microdrive 1. Insert the cartridge holding your previously SAVED games (see option 8) press [7]. Key in the filename and press [ENTER]. Your program will then load.

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Option 6 – Attack Waves

When Option 6 is selected the ATTACK WAVES CHART appears on screen.

It contains eight programmable attack waves numbered from 0-7 down the left hand side of the screen.

The remaining columns, reading from left to right are operated as follows:

- ANIM – controls the animation and movement of aliens. Animation is achieved by alternating between slightly differing sprites (see TABLE 2 at end of this instruction manual).
- SCORE – controls the number of points awarded for each alien destroyed.
- PAT – controls movement pattern number at which the aliens start their movement (see notes under Option 5).
- MAX – controls maximum number of aliens in each attack wave.
- SPD – controls speed of aliens, also whether or not they will drop bombs (see Table 3 at end of this instruction manual).
- NEXT – controls which attack wave will follow present attack wave.

A game always starts at attack wave 0.

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Option 8 – Save to Tape

Select this option to save a game you have written which can later be LOADED by using Option 7. Create your own game using Games Designer. Return to the menu and remove the Games Designer cartridge from Microdrive 1. Insert a *formatted* blank cartridge. Press [8]. You will be asked to enter the name of your new game. Press [ENTER] and the game will be saved.

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Appendix

Technical Information

For those of you who may be interested:

Each game uses a 2K buffer which is manipulated by the menus. All data-entry validation is done in the menus in order to cut down on the amount of checking required by the run-time module. Thus run-time checks are restricted to those which could cause a system crash. When a game is to be run the data is pre-processed to convenient form and the relevant parts transferred to buffers in the run-time module.

A dual task system is implemented at run-time, the graphics and sound being interrupt driven, whilst break-ins and star movement are a background task.

The program was developed on a standard 48K Spectrum with one micro-drive and a slightly modified version of the excellent Picturesque Assembler/Editor.

The only ROM calls are for tape I/O, error handling for these being re-directed, All other screen, keyboard and sound I/O is handled directly.

Four of the games supplied with the program were designed by people with no programming expertise.

JOHN HOLLIS

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Table 1 (refers to Special FX (Effects) under Option 4)

Value	Special FX (Effects)		
0	Aliens appear singly	No stars	Missile firing
1	Aliens appear singly	Stars on	Missile firing
2	Aliens appear in blocks	No stars	Missile firing
3	Aliens appear in blocks	Stars on	Missile firing
4	Aliens appear singly	No stars	Activate shield
5	Aliens appear singly	Stars on	Activate shield
6	Aliens appear in blocks	No stars	Activate shield
7	Aliens appear in blocks	Stars on	Activate shield

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Table 2 (refer to Option 6)

Animation (ANIM) Table	
Value	Effect
0	2 Non-animated alien types following same movement pattern
1	1 2-stage animated alien type following same movement pattern
2	2 Non-animated alien types following 2 different movement patterns
3	1 2-stage animated alien type following 2 different movement patterns
4	4 Non-animated alien types following the same movement pattern
5	1 4-stage animated alien types following the same movement pattern
6	4 Non-animated alien types following 4 different movement patterns
7	1 4-stage animated alien types following 4 different movement patterns

N.B. 2 Stage Aliens are made from 2 Sprites. 4 Stage Aliens are made from 4 Sprites. See Table 4 for restrictions of which Sprites and Movement Patterns may be used.

Table 3 (refer to Option 6)

SPD (Speed) Table			
Value	Effect		
0	8 Aliens	Slow Speed	No bombs
1	8 Aliens	Fast speed	No bombs
2	4 Turbo aliens	Slow speed	No bombs
3	4 Turbo aliens	Fast speed	No bombs
4	8 Aliens	Slow speed	Dropping bombs
5	8 Aliens	Fast speed	Dropping bombs
6	4 Turbo aliens	Slow speed	Dropping bombs
7	4 Turbo aliens	Fast speed	Dropping bombs

N.B. Turbo Aliens are faster and meaner!

Table 4 (refer to Option 6)

	Animation Number (ANIM) 0 or 1		Animation Number (ANIM) 2 or 3		Animation Number (ANIM) 4 or 5		Animation Number (ANIM) 6 or 7	
	SPRITES USED	PATTERN NUMBER	SPRITES USED	PATTERN NUMBER	SPRITES USED	PATTERN NUMBER	SPRITES USED	PATTERN NUMBER
0	00 and 01	ANY	00 and 01	0 and 1	00 01 and 02 03	ANY	00 01 and 02 03	0 1 and 2 3
1	02 and 03	ANY	02 and 03	0 and 1	00 01 and 02 03	ANY	00 01 and 02 03	0 1 and 2 3
2	04 and 05	ANY	04 and 05	2 and 3	04 05 and 06 07	ANY	04 05 and 06 07	0 1 and 2 3
3	06 and 07	ANY	06 and 07	2 and 3	04 05 and 06 07	ANY	04 05 and 06 07	0 1 and 2 3

Table 4 (refer to Option 6)

	Animation Number (ANIM) 0 or 1		Animation Number (ANIM) 2 or 3		Animation Number (ANIM) 4 or 5		Animation Number (ANIM) 6 or 7	
	SPRITES USED	PATTERN NUMBER	SPRITES USED	PATTERN NUMBER	SPRITES USED	PATTERN NUMBER	SPRITES USED	PATTERN NUMBER
4	08 and 09	ANY	08 and 09	4 and 5	08 09 and 10 11	ANY	08 09 and 10 11	4 5 and 6 7
5	10 and 11	ANY	10 and 11	4 and 5	08 09 and 10 11	ANY	08 09 and 10 11	4 5 and 6 7
6	12 and 13	ANY	12 and 13	6 and 7	12 13 and 14 15	ANY	12 13 and 14 15	4 5 and 6 7
7	14 and 15	ANY	14 and 15	6 and 7	12 13 and 14 15	ANY	12 13 and 14 15	4 5 and 6 7

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