BLACKWIDOW™

Operator Information Display

Set the self-test switch to the on position.

All credits are cancelled when the self-test switch is turned on. If the message EAROM BUSY PLEASE WAIT appears, wait for it to disappear before proceeding.

NOTE
The BONUS ADDER number (0 through 7) displayed indicates the price option selected by the option switch at location D4.

```
HOLD FIRE THEN PRESS START 1
        FOR TEST
   LIVES PER GAME 3
   MAX START WAVE 21
   GAMES PLAYED        1
   AVERAGE GAME TIME  124
   LEFT MECH X1
   RIGHT MECH X1
   BONUS ADDER 0
        MEDIUM
   BONUS SPIDER EVERY 20000
     1 COIN 1 PLAY
```

Operator Information Display

To Erase Scores and Times:

1. Obtain an operator information display.

2. Press the 1-player start button until the screen displays the appropriate instruction, i.e., HOLD FIRE THEN PRESS START 1 TO (CLEAR SCORES) (CLEAR TIMES) (CLEAR TIMES AND SCORES).

3. Hold FIRE joystick forward, then press the 1-player start button. The words EAROM BUSY PLEASE WAIT will appear on the screen until the entire table is erased. Wait until the display disappears before proceeding.

4. Set the self-test switch to the off position to erase the operator information display.

Self- Test Display

The following information includes instructions for obtaining various self-test displays. These displays are provided to quickly check the game's operation and locate malfunctions in the game controls and circuitry. If there is a failure, the game produces audiovisual indications to help you find the problem.

NOTE
This procedure does not test the coin door lockout coils and coin counter. If the lockout coils do not energize when the game is on, suspect the lockout coil wiring, coin door harness, game PCB harness, latch R9, or driver Q2 of the game PCB. Troubleshoot using the game schematics.

SCREEN 1

The screen 1 display indicates the condition of the ROM, RAM, and three other integrated circuits.

RAM failure is indicated by a sound and, if possible, an R displayed in the top center of the screen.

RAM Locations

Number of Tones	RAM Location on Game PCB
1 or 2	N/P1
3 or 4	K7

ROM failure is indicated by one or more vertically arranged numbers displayed on the top half of the screen.
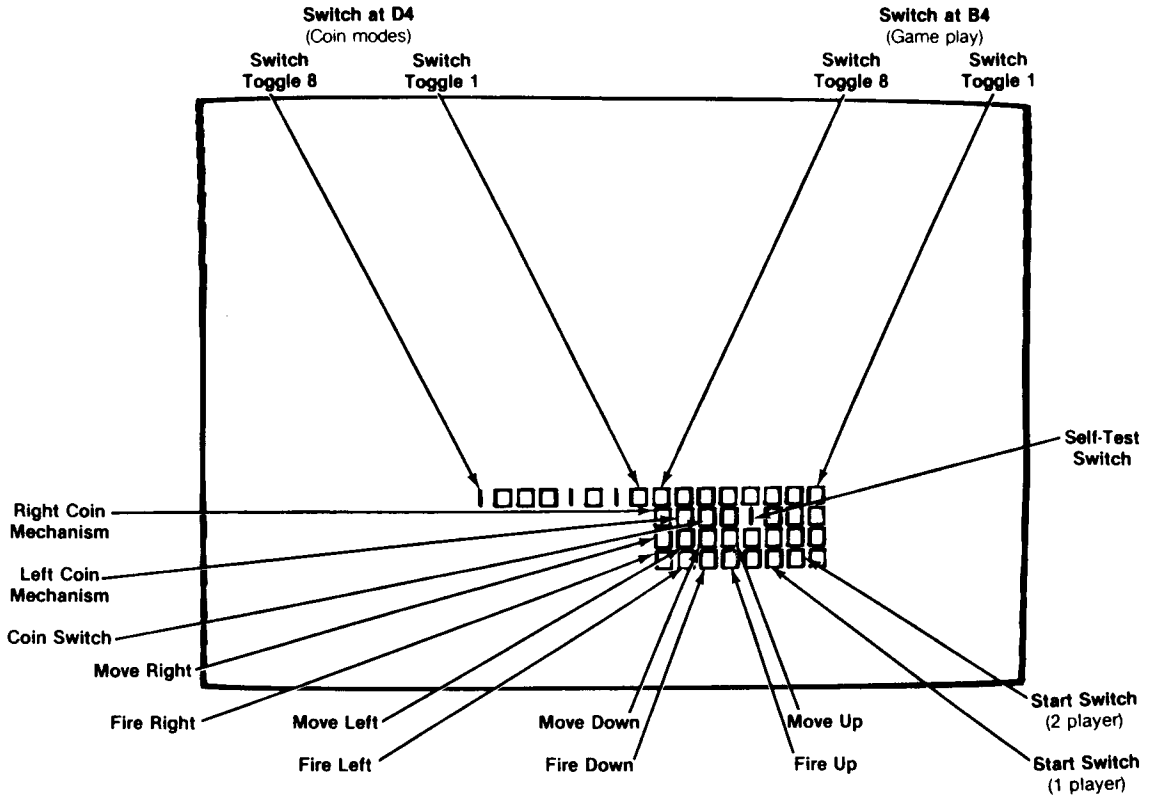
ROM Locations

Screen Display	ROM Location on Game PCB
0*	L7
1*	M/N7
2*	N/P7
3	R7
4	D1
5	E/F1
6	H1
7	J1
8	K/L1
9**	M1

If this ROM is bad, you will hear a constant low tone and the program may be unable to display a screen image.

**If this ROM is bad, the screen may be blank.*
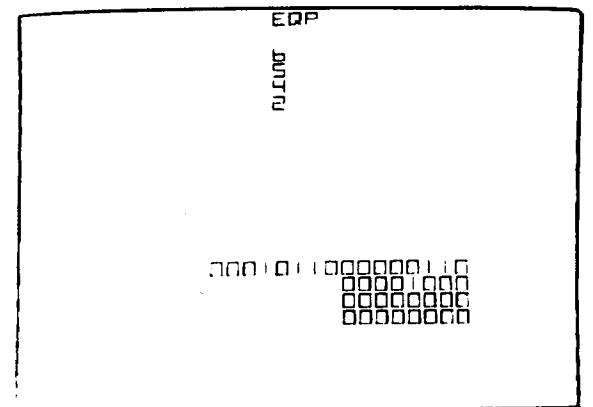

Screen 1—Test Passes

EAROM or CUSTOM I/O CHIP failure is indicated by one letter in the top center of the screen.

EAROM and Custom I/O Chip Locations

Screen Display	Chip Location on Game PCB
E	EAROM at M2
Q	Custom I/O chip at C/D3
P	Custom I/O chip at B3

SWITCH failure is indicated by the associated 0 not changing to a 1 on the screen and no sound being produced when the switch is activated.

SOUND failure is indicated by no sound. Check the volume control on the utility panel, or troubleshoot using the game schematics.
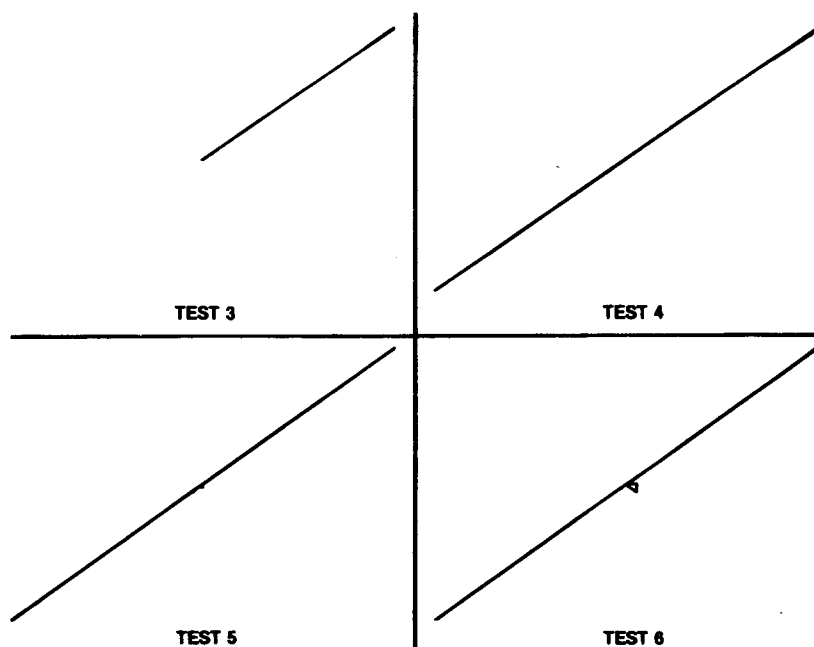
SCREEN 7

Screen 7 display comprises a diagnostic program controlled by switches 2, 3, and 4 of the 4-toggle option switch at location P10/11 on the game PCB. This group of switches lets you choose one of six tests. These tests provide recurring sequences to make it easy for you to troubleshoot the vector-generator circuitry.

Screen 1—Test Fails

To see self-test screens 2 through 6, press the auxiliary coin switch on the utility panel once to advance to the next screen.

To display this screen, hold the auxiliary coin switch down, then press the 2-player start button. To exit from this screen, set the self-test switch to off.

During this test, the screen will either be blank or display vectors, depending on the settings of the switches at location P10/11 on the game PCB.

Vector-Generator Diagnostic Tests

Test	Action	Settings of 4-Position DIP Switch at P10/11		
		4	3	2
Test 1	Tests WDDIS every 4 msec (blank screen)	Off	Off	Off
Test 2	Tests vector-generator halt instruction every .55 msec (blank screen)	On	Off	Off
Test 3	Tests vector-generator long vector (and halt instruction) every 8.2 msec	Off	On	Off
Test 4	Tests vector-generator jump instruction (and long vector and halt instruction) every 8.2 msec	On	On	Off
Test 5	Tests vector-generator short vector instruction (and all of Test 4) every 8.6 msec	Off	Off	On
Test 6	Tests vector-generator JSRL/RTSL instruction (and all of Test 5) every 10.2 msec	On	Off	On
Test 2	Blank screen	Off	On	On
Test 2	Blank screen	On	On	On

Screen 7—Diagnostic Program Displays

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