ASTEROIDS SELF-TEST

And Diagnostics (Additions)

For Self-Test/Diagnostics to work ROM/PROMs for address 7800-7FFF must be functioning properly.

For the vector generator pattern to function properly in self-test the ROM/PROM at address 5000-57FF must be functioning properly.

SELF-TEST ADDITIONS

1. The diagnostic step switch will cause a bleep to occur. This audio feedback will be useful for trouble shooting problems with this switch.

2. Option Switch Test: All eight option switches will be displayed as a sequence of eight zeros and ones (from left to right for switch 1 thru 8 respectively). These digits should appear above the intensity lines in the center of the screen.

3. Coin Mech. Options: A two digit number will be displayed below the option switch values. These two digits are intended to allow the operator to check the value of the center and right coin mechs. The left digit will be either 1 or 2. The right digit will be 1, 4, 5 or 6. The left coin mech. always has value 1. See the option switch table for which switches effect these digits.

SELF-TEST CHANGES (From the Pre-Prod Description)

1. If the vector generator fails and does not halt the new self-test will wait for watchdog to reset the game P.C.B. This was felt to be easier to debug. (The pre-prod program would turn on the saucer sound and wait for reset to be pushed).

DIAGNOSTIC STEP:

When the self-test switch is on and the diagnostic step switch is on then the vector generator portion of self-test will be different. Any switch activation will still cause a bleep and both start lights will stay on. The cross hatch pattern will not occur but rather one of four patterns will be displayed:

Pattern 1

A diagonal line will be drawn from lower left to upper right corner. This pattern requires the minimal amount of vector generator hardware to be functioning. The vector generator instructions used are:

LABS	0,128	Postition to lower left corner.
WAIT	7	Wait for beam to settle.
VCTR	1023,767,7	Drawn to upper right corner-long vector.
HALT		Stop the vector generator.

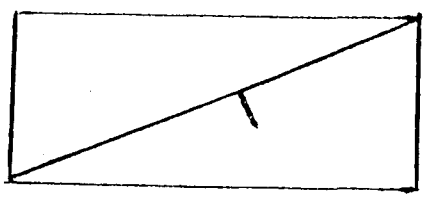
To advance to the next pattern in the diagnostic step push the hyperspace button. Pushing the hyperspace button again will advance to the third pattern and another push will advance to the last pattern. To restart the patterns push the restart button on the P.C.B. Releasing diagnostic step will cause the cross hatch pattern of self-test to appear. Pushing diagnostic step again will return to the last pattern displayed.

Pattern 2

The second pattern is a short vector test. Three instructions have been inserted before the halt and they are:

LABS	560,464	Position off of center.
WAIT	7	Wait for beam to settle.
VCTR	48,48,7	Short vector to draw to the center.

The picture should look like:

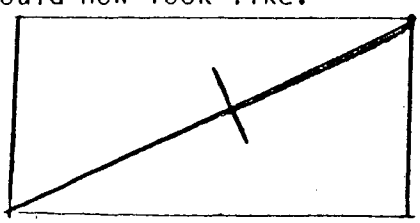


Pattern 3

A jump test is included in the third pattern. The three instructions inserted after the second pattern are:

JMP	NEXT	Jump to next valid instruction.
HALT		Should not get here.
NEXT: VCTR	-32,32,7	Vector away from center.

The picture should now look like:



Pattern 4

This pattern tests 4 levels of JSRLs and RTSLs. The order of execution in this test are:

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JSRL            First JSRL
JSRL            Second JSRL
JSRL            Third JSRL
JSRL            Forth JSRL
VCTR   32,0,7   Draw a VCTR to prove we got this for.
RTSL            First JSRL
RTSL            Second JSRL
RTSL            Third JSRL
RTSL            Forth JSRL.
VCTR   0,-32,7  Proof that we got back where we wanted.
```

The picture should now look like: