MARBLE MADNESS

Self-Test

ATARI GAMES

A Warner Communications Company

This game will test itself and provide visual and audible indications of the condition of the game circuitry and controls.

Perform a self-test when you first set up the game, each time you collect the money, or when you suspect game failure. Coin and game options are selected in the Self-Test Mode.

Refer to Chapter 1 in the System I Operators Manual for the self-test switch location.

When the self-test switch is turned on, the game enters the Self-Test Mode. The following self-test screens are arranged in the sequence in which they occur after the self-test switch is first turned on. After Screen 16—Color Palette Test, the sequence starts over with Screen 2— Switch Test. Turning the self-test switch off at any time during the Self-Test Mode causes the game to return to the Attract Mode.

Screen 1—RAM/ROM Test

The RAM/ROM Test screen, as shown in Figures 1 and 2, provides a visual check of the game RAM, ROM, and associated circuitry. If the RAM and ROM test passes, the display will switch to Screen 2 —Switch Test.

Screen 1 is divided into RAM and ROM test sections. The condition of the RAM circuitry is displayed in the bottom half of the screen. If no RAM errors were encountered, after an eight-second delay the condition of the ROM circuitry is displayed in the top half of the screen. If there were RAM errors, press the Player 1 start button to advance to the ROM test (this action clears any RAM errors from the screen).

If the ROM test fails, the error messages may appear in the top half of the screen as shown in Figure 1. Refer to Table 1 for the faulty ROM locations.

Figure 1 ROM Test Fails

Press the player 1 start button to obtain any RAM or ROM error message(s) from the Cartridge PCB RAM or ROM circuits. Press the player 1 start button again. If the bank switch ROM circuits on the Cartridge PCB are faulty, the message *Bank Switch Error* will appear.

Table 1   Faulty ROM Locations

Error Message	Location
ROM at 10000 error	U = 13E
	L = 13D
ROM at 18000 error	U = 14E
	L = 14D
ROM at 20000 error	U = 15E
	L = 15D
ROM at 28000 error	U = 16E
	L = 16D

If the RAM test fails, the error messages appear as shown in Figure 2. See the schematic package supplements for this manual and for the System I Operators Manual to find the location of the faulty RAM circuit.
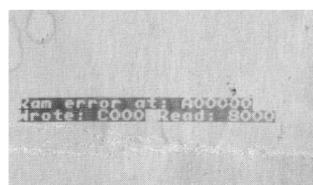
Figure 2 RAM Test Fails

Repair the faulty RAM or ROM circuit or press the player 1 start button to obtain Screen 2.

Screen 2— Switch Test

See Figure 3. The Switch Test screen indicates the condition of the player 2 start pushbutton switch. Press the player 2 start button and note that the first number changes to a 1.

Press the player 1 start button to obtain Screen 3.
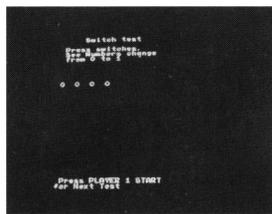
Figure 3 Switch Test

Screen 3— Coin Options

The Coin Options screen (see Figure 4) indicates the current coin-option settings and is used to change those settings. Refer to Table 2.

COIN MODE should have a red box around it. If the Midi Trak-Ball moves right or left, the coin mode values change. Select the desired value. Move the Midi Trak-Ball down to move the red box to RIGHT MECH MULTIPLIER. Move the Midi Trak-Ball right or left to cycle through all multiplier values. Select the desired value. Repeat this procedure for the remaining options.

To cancel the option changes and restore the original settings, press the player 2 start button.

Press the player 1 start button to set the game for the options selected and obtain Screen 4.

Table 2 Coin Option Settings

Credit Mode	1 Coin 1 Credit ◄
	2 Coins 1 Credit
	3 Coins 1 Credit
	4 Coins 1 Credit
Right Mech Multiplier	1 Coin Counts as 1 Coin ◄
	1 Coin Counts as 4 Coins
	1 Coin Counts as 5 Coins
	1 Coin Counts as 6 Coins
Left Mech Multiplier	1 Coin Counts as 1 Coin ◄
	1 Coin Counts as 2 Coins
Bonus Adder	No Bonus Adder ◄
	2 Coins Give 1 Extra Coin
	4 Coins Give 1 Extra Coin
	4 Coins Give 2 Extra Coins
	5 Coins Give 1 Extra Coin
	3 Coins Give 1 Extra Coin
	Free Play

◄ *Manufacturer's recommended settings.*
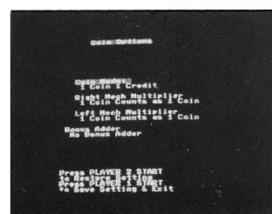
Figure 4 Coin Options

Screen 4— Game Options

The Game Options screen (see Figure 5) indicates the current option settings. This screen is used to reset the high-score table and change the game option settings. See Table 3 for the available options and the recommended settings *(the recommended settings are displayed in green).*

Move either Midi Trak-Ball right or left: the settings for the option in the shaded block will change. Select the desired value. Move the Midi Trak-Ball up or down to move the desired option into the shaded block. Move the Midi Trak-Ball right or left to cycle through all option settings. Select the desired value. Repeat for the remaining options.

If you wish to cancel the option changes and restore the original settings, press the player 2 start button. Press the player 1 start button to set the game for the options selected and obtain Screen 5.

Table 3 Game Option Settings

Option Name	Available Settings
Game Difficulty	Very Easy
	Easy
	Normal ◄
	Hard
	Very hard
Two-Player Continuation	1/2 credit required to continue
	1 credit required to continue ◄
	None
Sounds in Attract Mode?	Yes
	No ◄
Reset High-Score Table?	Yes
	No

◄ *Manufacturer's recommended settings.*
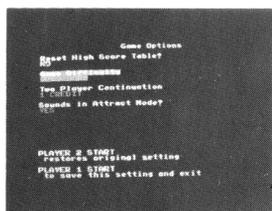
Figure 5 Game Options

Screen 5— Statistics

The Statistics screen (see Figure 6) provides a check of the current game statistics. This information is accumulated from the first time the game was turned on or from the last time the statistics were reset. Reset the statistics information by pressing the player 2 start button.

The following information appears on the Statistics screen:

- AUX COINS is not used on the Marble Madness game.
- LEFT COINS shows the number of coins deposited in the left coin mechanism.
- RIGHT COINS shows the number of coins deposited in the right coin mechanism.
- 1 PLYR GAMES shows the number of 1-player games.
- 2 PLYR GAMES shows the number of 2-player games.
- MINS PLAYED shows the total time in minutes of all games played.
- MINS PWR UP shows the total time in minutes that the game has been turned on.
- AUX CNTR 1 through 3 show the number of games that reached level 4, 5, and 6 respectively.

Press the player 1 start button to obtain Screen 6.

Figure 6 Statistics

Screen 6—Histograms

The Histogram screens for Level 1, 2, and 3 (see Figure 7) are selected by pressing the player 1 start button. These screens provide a check of the game times, from 0 to 240 seconds, for 3 levels of game play. Also displayed is the high score for each level.

The game times information is accumulated from the first time the game was turned on or from the last time the game times were reset. To reset the Histograms, press the player 2 start button while displaying the Histogram for Level 3 screen.

Press the player 1 start button to obtain Screen 7.
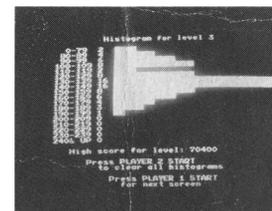
Figure 7 Histograms

Screen 7—Playfield Test

The Playfield Test screen appears as shown in Figure 8. The playfield display indicates the condition of the graphics ROM.

Moving the Midi Trak-Ball control in all four directions causes the playfield to move in the same directions.

The numbers 0—3 in the center should be four shades of gray (number 3 is the lightest); number 4 should be red. Press the player 1 start button to obtain Screen 8.
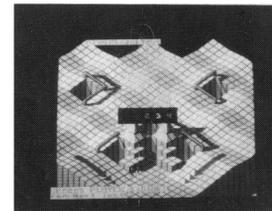
Figure 8 Playfield Test

Screen 8— Motion Object Test

The Motion Object Test screen (see Figure 9) shows seven groups of eight motion objects: they should be identical and eight pixels high.

Press the player 2 start button to select any of the 56 motion objects. If either Midi Trak-Ball is moved, the selected motion object should move in the same direction. Press the player 1 start button to obtain Screen 9.
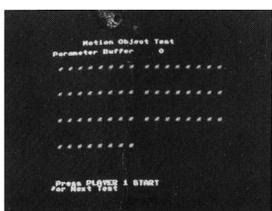
Figure 9 Motion Object Test

Screen 9— Motion Object Obscuring Test

If either Midi Trak Ball is moved, the motion object should move through the center of the display. The object should disappear and reappear on the opposite side of the shaded bar, and behave likewise when crossing the open area in the middle of the shaded bar (see Figure 10).

Press the player 1 start button to obtain Screen 10.
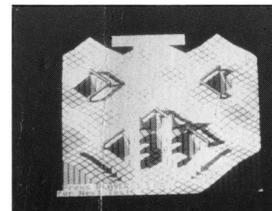
Figure 10 Motion Object Obscuring Test

Screen 10—Motion Object Height Test

Press the player 2 start button to select any of the 16 motion objects. Move either Midi Trak-Ball, and the selected motion object should move in the same direction (see Figure 11).

Each successive column of motion objects should be eight pixels taller than the last. The top eight pixels of all the columns should be the same. The top 16 pixels of all the columns that are at least 16 pixels high should be the same. Each column should add a new 8 x 8 pixel stamp picture to the bottom and slide the old picture up by eight pixels.

Press the player 1 start button to obtain Screen 11 .
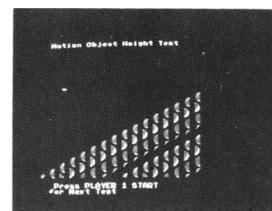
Figure 11 Motion Object Height Test

Screen 11—Alpha Test

The Alpha Test screen should appear as shown in Figure 12. Press the player 1 start button to obtain Screen 12.

Figure 12 Alpha Test

Screen 12— Color Test 1

The Color Test screen should appear as shown in Figure 13: it should have eight vertical gray-scale bars and three groups of eight horizontal bars (with shades of red, green, and blue). The bars should *decrease* in brightness from left to right; a bright white frame should appear around the screen. If the display characteristics are not correct, refer to the display manual.

Press the player 1 start button to obtain Screen 13.
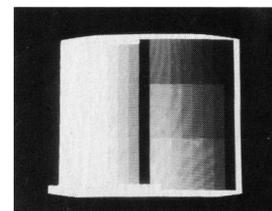
Figure 13 Color Test

Screen 13— Color Purity Test

The Color Purity Test consists of five color displays. The first to appear should be a red screen with the word RED displayed at the bottom of the screen as shown in Figure 14.

Press the player 2 start button four more times and the next displays should be green, blue, white, and gray—with the color names displayed at the bottom of each screen. After the gray screen, the software will repeat the sequence of five colors.

If the display characteristics are not correct, refer to the display manual for more information. Press the player 1 start button to obtain Screen 14.
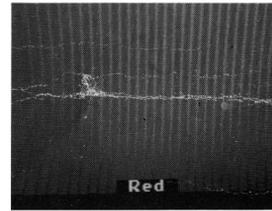
Figure 14 Color Purity Test

Screen 14—Convergence Test

The Convergence Test screen (see Figure 15) should show a white grid pattern. This screen indicates the condition of the display size, centering, linearity, and convergence.

Repeated pressing of the player 2 button should cause the screen to alternate between violet and white. Refer to Chapter 2 of the Marble Madness Operators Manual for more information on this test. Press the player 1 start button to obtain Screen 15.
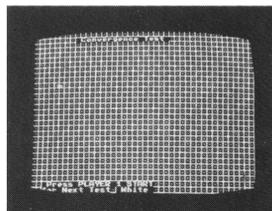
Figure 15 Convergence Test

Screen 15—Sound Test

The sound test screen should appear as shown in Figure 16. This screen indicates the condition of the coin mechanisms and the music and sound-effects circuits.

The sound microprocessor is reset at the beginning of this test which may take several seconds. If the sound-microprocessor reset fails, the message *SOUND PROCESSOR NOT RESPONDING* should blink near the top of the screen. Move the Midi Trak-Ball up or down to sequence through the sounds forwards or backwards. The Sound Test screen provides the following sound information:

- CURRENT COIN VALUE consists of 3 zeros. As coins are deposited in each of the coin mechanisms, the second and third zero should change to a 1 as the coin switch is held down and change back to zero when the coin switch is released.
- SOUND CPU STATUS indicates the condition of the sound microprocessor. If it is good, the word *Good* should appear. If the sound microprocessor is faulty, an error message may appear on the screen underneath the *Sound Test* headline. See the Marble Madness Operators Manual for more information.
- MUSIC CHIP TEST consists of 16 tones in a sequence.
- EFFECTS CHIP TEST consists of four tones simultaneously from both sound channels.

Press the player 1 start button to obtain Screen 16.
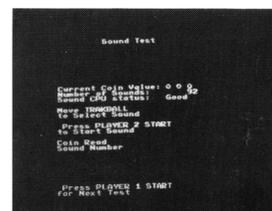
Figure 16 Sound Test

Screen 16—Color Palette Test

The Color Palette Test appears as shown in Figure 17. The eight motion objects and the four playfield stamps should each be a different color.

Press the player 1 start button to return to Screen 2—Switch Test, or turn off the self-test switch to return to the Attract Mode.
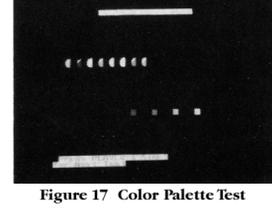
Figure 17 Color Palette Test