Figure 2-7 RAM Test Menu

Complete ROM Test

The ROM test screen is shown in Figure 2-8. The OK information appears. If the game has no ROM errors, you see the message *ALL ROMS are OK*.

If the game does have ROM errors, the ROM test screen will remain until the ROM error information is complete. Press the red PLACE button several times to pass the ROM errors. The ROM error test takes a few seconds.

See Table 2-6 for the locations of the ROM errors. Press the red PLACE button to return to the test select screen.

Playfield Test

This test, shown in Figure 2-9, checks the condition of the bitmaps in the game. If you see an error on the screen, this indicates an error with the bitmap display
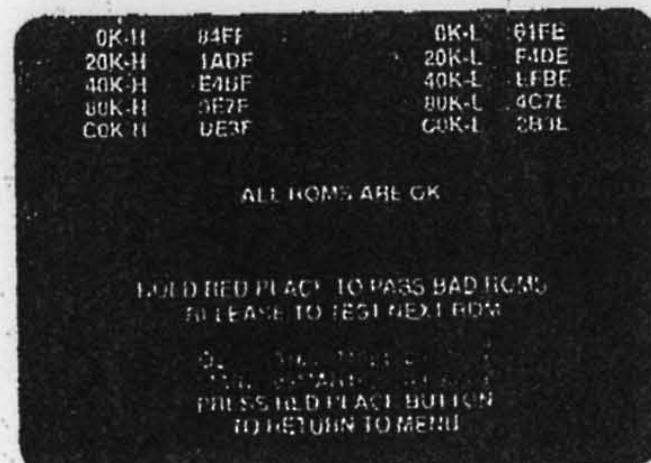

Figure 2-8 Complete ROM Test Screen

Figure 2-9 Playfield Test Screen

circuit. Press the red PLACE button to go to the test se lect screen.

Motion Object Test

The motion object test screen, shown in Figure 2-10 tests the movement and color of various game objects.

Table 2-4 When to Run the RAM Tests

Problem	Type of Test	Location of RAMs Tested
Playfield is erratic or looks wrong	Bitmap RAM*	8H, 9H, 10H, and 11H
Motion objects are not working properly or game play is erratic.	Motion object RAM	5N, 6N
Colors look wrong.	Color RAM	4H

*Bitmap RAM (once only) is a thorough test, and takes about 1 minute to run. The "half" tests are significantly faster, but may not find all types of errors.

Table 2-5 Bad RAM Locations by Error Address

Type of RAM	Address	RAM Location	Data Bits
Playfield RAM	200000 to 21FFFF	11H	0-3
		10H	4-7
		9H	8-11
		8H	12-15
Motion Object RAM	3E0000 to 3E3FFF	6N	0-7
		5N	8-15
Color RAM	3C0000 to 3C07FF	4H	8-15

RAMPART

Table 2-3 Coin Option Settings

Option	Settings	Explanation
Free Play	No ✔ Yes	Set this to "Yes" for demonstrating the game.
Discount to Continue	No ✔ Yes	Lets you offer a reduced price per credit when players want to continue a game.
Game Cost	1 coin 1 credit ✔ 2 coins 1 credit ... 8 coins 1 credit	Sets the number of coins required for one credit.
Bonus for Quantity Buy-In	None ✔ 2 coins give 1 (extra coin) 3 coins give 1 (extra coin) 3 coins give 2 (extra coins) 4 coins give 1 (extra coin) 4 coins give 2 (extra coins) 4 coins give 3 (extra coins) 5 coins give 1 (extra coin) 5 coins give 2 (extra coins) 5 coins give 3 (extra coins) 6 coins give 1 (extra coin) 6 coins give 2 (extra coins) 6 coins give 3 (extra coins) 7 coins give 1 (extra coin) 7 coins give 2 (extra coins) 7 coins give 3 (extra coins) 8 coins give 1 (extra coin) 8 coins give 2 (extra coins) 8 coins give 3 (extra coins) 9 coins give 1 (extra coin) 9 coins give 2 (extra coins) 9 coins give 3 (extra coins)	Lets you choose various levels of bonus coins or no bonus.
Right Mech Value	1 coin counts as 1 coin ✔ ... 8 coins count as 1 coin	Is the number of coins each coin counts as in the right coin mechanism.
Left Mech Value	1 coin counts as 1 coin ✔ ... 8 coins count as 1 coin	Is the number of coins each coin counts as in the left coin mechanism.

✔ Manufacturer's recommended settings. These settings are shown in green on the screen.
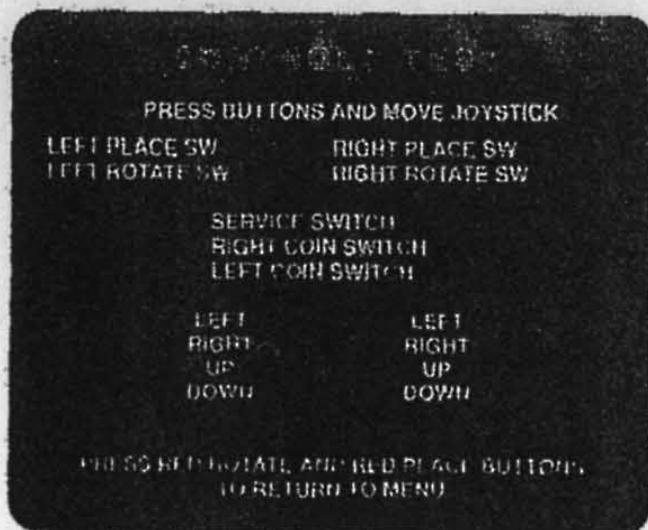

PRESS BUTTONS AND MOVE JOYSTICK

LEFT PLACE SW   RIGHT PLACE SW
LEFT ROTATE SW   RIGHT ROTATE SW

SERVICE SWITCH
RIGHT COIN SWITCH
LEFT COIN SWITCH

LEFT   LEFT
RIGHT   RIGHT
UP   UP
DOWN   DOWN

PRESS RED ROTATE AND RED PLACE BUTTONS
TO RETURN TO MENU

Figure 2-6 Controls Test Screen

change, check the connectors and harnesses for that direction of movement.

Complete RAM Test

Use this selection screen, shown in Figure 2-7, to choose which RAM test you want to perform. Use the different tests according to Table 2-4.

If you get an error in any of the RAM tests, see Table 2-5 for more information. If you have serious RAM problems, you may see only a colored screen.

Press the red PLACE button to leave the individual RAM test and return to the RAM test menu screen. Press the red PLACE button once more to return to the test select screen.

RAMPART

Table 1-3 JAMMA Pin and Wire Connections

Pin	Wire Color	Signal	Instructions
Component Side			
1	BN	GND	Connect to the 5V RTN (GND) terminal on the power supply. However, if you have 12V RTN, connect one of the BN wires at pin 1, 2, A, or B to the 12V RTN terminal.
2	BN	GND	Same as pin 1.
3	R	+5V	Connect to the +5V terminal on the power supply. However, if your power supply has a +SENSE terminal, connect one of the R wires at pin 3, 4, or C to +SENSE instead of +5V.
4	R	+5V	Same as pin 3.
5	OR	−5V	Connect to the −5V terminal of the power supply. If −5V is not available, connect to the 12V RTN or the 5V RTN (GND) or leave it unconnected. NOTE: If you do not have (or use) −5V, the maximum power to the speaker will be reduced by half.
6	Y	+12V	Connect to the +12V terminal of the power supply. If your coin counter(s) require 12V, also connect to the + side of the coin counter(s).
7		Key	
8	BU/W	COIN CTR 1	Connect this wire to one side of the left 12V coin counter. Note: Do not use 24V counters. Connect the + side to +5V or +12V on the power supply, as appropriate.
9		Not used	
10	BN	SPKR +	Connect to the + terminal on the speaker. (This wire is part of a twisted pair.)
11		Not used	
12	R	RED	Attach to the video display.
13	BU	BLUE	Attach to the video display.
14	BK	VIDEO GND	Attach to the video display.
15	W	SELF-TEST	Use this wire if you want an external self-test switch. However, the kit already has a self-test switch on the PCB. (If you connect an external self-test switch, switch off the switch on the PCB. Connect the wire to the N.O. terminal on the external self-test switch. Connect the common terminal of the switch to a BK/W wire [GND].)
16	Y	LT COIN	Connect to the N.O. terminal of the left coin switch. Connect the common terminal of the switch to a BK/W wire.
17	W/BK	PLYR 1 ROTATE	Connect this wire to the N.O. terminal of the PLYR 1 ROTATE switch. Connect the common terminal of the switch to one of the BK/W wires.
18	W/BN	PLYR 1 JOYST UP	Connect to the N.O. terminal of the switch. Connect the common terminal of the switch to one of the BK/W wires.
19	W/R	PLYR 1 JOYST DN	Same as pin 18.
20	W/OR	PLYR 1 JOYST LT	Same as pin 18.
21	W/Y	PLYR 1 JOYST RT	Same as pin 18.
22	W/GN	PLYR 1 PLACE	Connect this wire to the N.O. terminal of the PLYR 1 PLACE switch. Connect the common terminal of the switch to one of the BK/W wires.
23	W/BU	Not used	
24	W/V	Not used	
25	W/GY	Not used	
26	V	Not used	
27	BK/W	GND	Connect one of the BK/W wires at pin 27, 28, e, and f to the negative sense terminal of the power supply (if it exists) and one to the common terminals of the coin switches. Connect two of these wires to the common terminals of the control switches on the control panel.
28	BK/W	GND	Same as pin 27.

Achtung !!!!

RAMPART

Einbau des Rampart-Kit in Universal-Gehäuse

Beim Einbau des Rampart-Kit in Universal-Gehäuse
müssen am Jamma-Stecker zwei Brücken gelegt werden.
Sie bewirken, daß die ROTATE-Funktion auf die
Spieler-Taste 2 gelegt wird. Dazu werden Start-Taste
und Spieler-Taste 2 paralellgeschaltet

Löten Sie hierzu die eine Brücke zwischen Stift 17 und
23, die zweite Stift U und b. Siehe auch Handbuch Seite
1-4 bzw 1-5.