



UltraCade Multi-Game System Universal JAMMA Kit Installation Manual

Document Part #: 040-UCKITIN-UCT Rev. A VERSION 3.91

- **Read this manual before use.**
- **Keep this manual with the machine at all times.**



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1. Getting Started

1.1 Introduction

This manual describes the steps for using the UltraCade Multi-Game System Kit to convert an existing cabinet into a functional UltraCade Multi-Game cabinet.



CAUTION: This conversion should be performed **ONLY** by experienced service personnel. GLOBAL VR® assumes **NO** liability for any damages incurred while installing the kit.

1.2 Kit Package Inventory

Open the shipping package and inspect it for damage. Refer to the table and figure below and check the kit for missing components.

Description	Qty	Part #
Minuet Computer (not shown)	1	985-UKITSYS-UCT
USBlinx II PCB (not shown)	1	990-USBLNX2-UCT
1 Button Pack	1	----
Blue Pushbutton	12	250-BLUEBTN-HAP
Player 1 Start Button	1	250-PLY1BTN-HAP
Player 2 Start Button	1	250-PLY2BTN-HAP
Exit Button	1	250-EXITBTN-HAP
Joystick, Super 8-Way	2	255-SUP8WAY-HAP
2 3.5mm Audio Cable M-M	1	115-AUDMINI-CBL
3 Video Pass Through Cable	1	115-VGA3MM-CBL
4 Dongle CGA Low Res.	1	245-LOWRES-DNG
4 Dongle EGA Med Res.	1	245-MEDRES-DNG
5 USB A-B Cable	1	115-USB06AB-CBL
6 JAMMA+ Harness	1	115-JAMMAUC-CBL
7 Cabinet Artwork Tube	1	----
Control Panel Overlay	1	890-CONTROL-ART
Side Artwork	1	890-KITSIDE-ART
Marquee Artwork	1	890-KITMARQ-ART
8 Kit Installation Manual	1	040-UCKITIN-UCT
8 Operator Manual	1	040-UCOPERA-UCT
9 System Installation CD	1	996-UCSYSIN-CYP
9 86 Game Base Pack CD	1	996-UC86IN-CYP



Table 1. Components of Universal JAMMA Kit, Part #: 990-UC86KIT-UCT

If you suspect that any part is missing from your kit, please contact GLOBAL VR® Technical Support at 408-597-3435.

Note: The Minuet computer and USBlinx II PCB come pre-assembled, with the UltraCade Multi-Game System Operating System version 3.91, and the 86 Game Base Pack CD pre-installed.

Operating System version 3.91 or above is REQUIRED for the USBlinx II PCB.

An optional **Trackball Kit** is available; order part # 998-UCTRACH-UCT.

1. Getting Started

1.3 Recommended Tools and Supplies

The following tools and supplies are recommended to complete the conversion of your existing cabinet into an UltraCade Multi-Game System:

- Phillips and flat-head screwdrivers
- Wire cutters and strippers
- Pliers
- Nylon button wrench
- Power drill
- Tie wraps
- Wood or sheet metal screws
- Standardized socket set
- Exacto[®] Knife or Razor blade
- Squeegee
- Electrical tape or heat shrink tubing
- Wire nuts
- Vacuum cleaner or air compressor
- Glass cleaner
- C-Clamps
- Rubber mallet or hammer
- Grease pencil
- Multimeter
- Assorted female spade connectors
- Crimpers
- Safety glasses
- Painting supplies

2. Cabinet Preparation

2.1 Warnings



Always disconnect the AC power cord before working on the cabinet. Even when the monitor is powered off, it can carry a VERY HIGH ELECTRICAL CHARGE that can result in severe injury or death. The kit should be installed by a QUALIFIED TECHNICIAN ONLY.

2.2 PCB Removal

If the cabinet you are converting contains a PCB, it is suggested that the PCB be removed along with any cage or mounts. However, if space allows, you may choose to leave the PCB in the cabinet.

2.3 Wiring Removal

The UltraCade Multi-Game System Kit is JAMMA compatible. If you are installing the kit into a JAMMA cabinet, you may choose to leave the wiring harness intact. Some minor modifications may still be needed to take full benefit of all the options available to you with the UltraCade Multi-Game System. You **must** remove any wires that provide power to your existing JAMMA Harness.

CAUTION: Failure to remove power wires from existing JAMMA harness could damage the USBlinx PCB.

If you cannot use the existing wiring, then remove all the old wiring from the control panel, test switches, coin door, speakers, and PCB power. GLOBAL VR[®] strongly recommends using the JAMMA harness provided in the kit to prevent wiring errors. **Do not remove any wires that supply power to your monitor or marquee light.** The video signal wires can be cut if you wish to splice them into the new JAMMA harness, or fully removed if you intend to wire a new Molex[®] connector for your monitor (the kit does **not** include a Molex connector for your monitor). If your monitor is VGA, with a 15-pin connector, it will connect directly to the 15-pin VGA port on the computer, with no modifications required.

2.4 Joystick / Button Removal

Remove all joysticks, buttons, and other controls from the control panel in preparation for the installation of the new control panel overlay.

2.5 Artwork Removal

Remove all art from the old cabinet. Sand down or remove the old control panel overlay. Remove any stickers from the monitor glass and bezel and clean any glue residue. Remove the marquee. If the old marquee has been silk-screened onto the Plexiglas[®], you will need a new piece of clear Plexiglas for the marquee.

2.6 Determining your Monitor Type

Note: The kit does not support vector monitors or any monitor that requires a color inverter.

The kit supports CGA (standard resolution / 15.75 KHz), EGA (medium resolution / 24.5 KHz) or VGA (high resolution / 31.5 KHz) monitors. If you do not know what type of monitor you have, then you will need to determine this. The easiest way is to check the monitor manual. If you no longer have your monitor manual, write down the picture tube serial number and model, and contact the manufacturer. When working on your monitor, be sure to closely follow all warnings and precautions that come with it.

2.7 Cleaning / Painting

You may want to clean and/or paint your cabinet before installing the kit. Vacuum or blow any dust out of the cabinet. If you decide to paint, fill any dents, chips, or other damage with wood putty and sand smooth. A black semi-gloss paint is recommended for painting the cabinet.

3. Control Panel

3. Control Panel

3.1 Control Panel Layout

The control panel is optimally designed for an upright cabinet with two joysticks, six buttons for each joystick, and two Start buttons. The kit will also support a single joystick configuration with six buttons and two Start buttons. Additionally, the kit has built-in cocktail cabinet support. The kit also comes with an Exit button. This button is used by the player to exit from a game and return to the main game selection screen. If this button is not installed, players will not be able to exit from a game and select another!

If your control panel does not have the correct holes for the joysticks and buttons, then you will need to drill the holes. Figure 1, below, shows suggested layouts for the control panel. A template for cutting the holes for the buttons and joystick is included on the last page of this manual. Buttons require a 1-1/8" diameter hole. Joysticks require a 1 1/2" diameter hole for the stick and a .23" diameter hole for each mounting bolt. The Exit button requires a 1.13" diameter hole for the button, and 1/8" diameter holes for the button stabilization studs. Take into account whether you are drilling into wood, Plexiglas, or metal, and choose your drill bit accordingly.

Note: If you are installing the optional trackball(s), refer to the instructions and templates in the Trackball Kit.

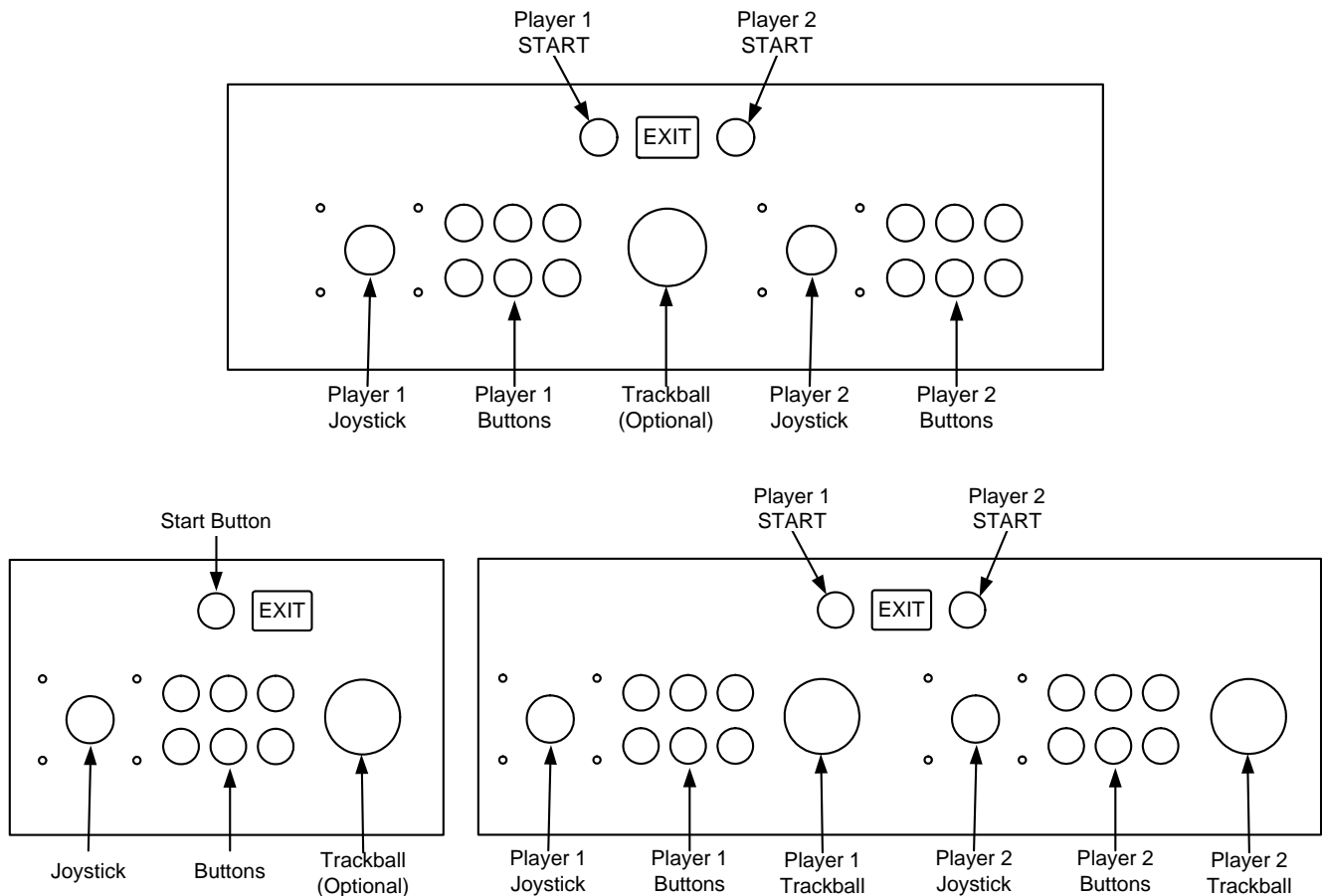


Figure 1. Suggested Control Panel Layouts

3.2 Control Panel Overlay

After you have removed the old control panel overlay, cut the required holes, and cleaned the control panel, you can apply the new overlay. Use an Exacto knife or razor blade to cut the new overlay to the correct size. When applying the overlay, carefully line it up and then use a squeegee or straight edge to remove any bubbles. Once the new overlay is in place, you will need to carefully cut out the holes for the player controls.

4. Minuet Computer Installation

4.1 Install Fuses

The computer is shipped with the USBlinx II PCB mounted to the top of the case. Three fuses for the USBlinx II PCB are taped near the PCB. Install the fuses in the PCB as shown below.

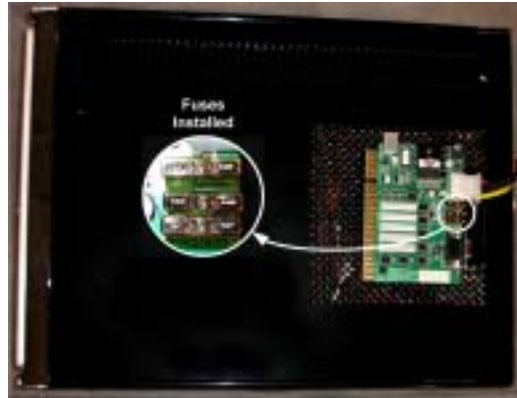
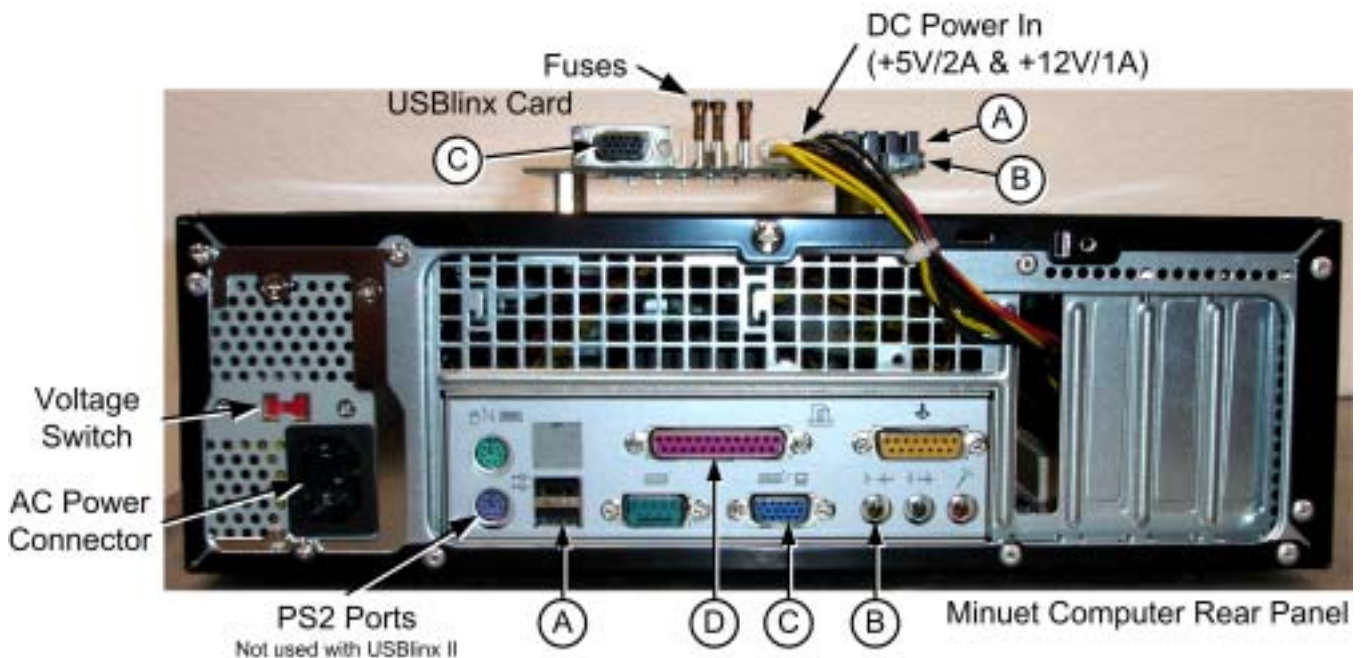


Figure 4. Installing USBlinx Fuses

4.2 Connect Cables to Computer and USBlinx II PCB

Refer to the figure below, and Figure 6 on page 9, to connect the three cables between the computer and the USBlinx II PCB. These cables route the audio, video (for CGA and EGA monitors only), and control signals between the USBlinx II PCB to the computer.



- Connect the USB cable from **A** to **A**.
- Connect the 3.5mm audio cable from **B** to **B**.
- For CGA or EGA monitor only: Connect the VGA pass through cable from **C** to **C**, **and** connect the CGA or EGA dongle to **D**.
- For VGA monitor only: connect monitor directly to **C** on computer.

Figure 5. Computer and USBlinx Connections

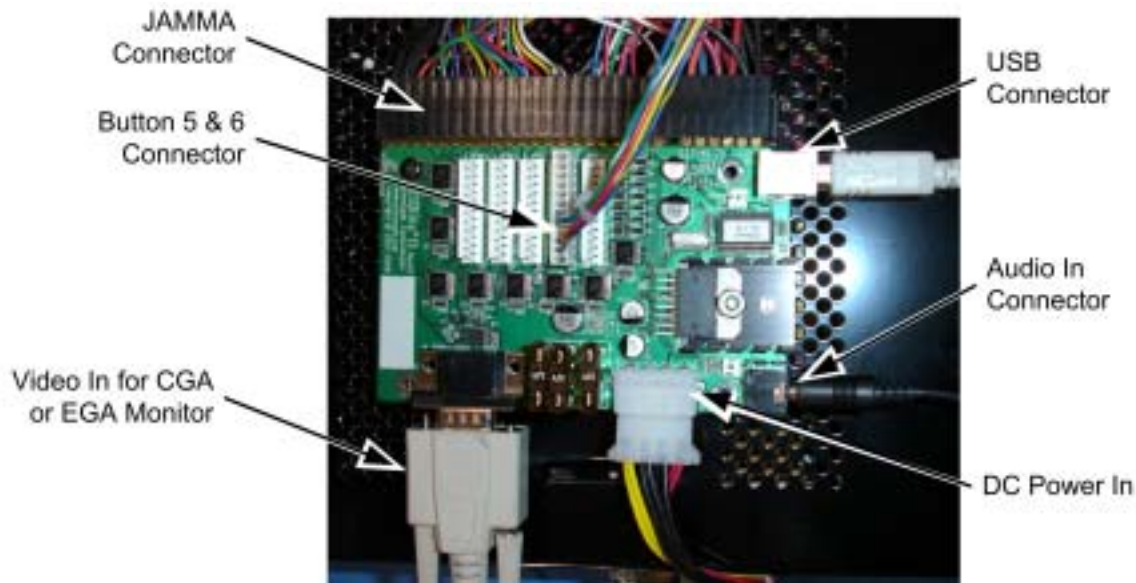


Figure 6. Connections to the USBlinx II PCB

4.3 Connect CGA or EGA Monitor and Dongle

If your cabinet has a CGA or EGA monitor: Connect the appropriate monitor dongle to the computer. Both dongles have 25-pin male connectors and are clearly labeled. Connect the appropriate dongle for your monitor to the pink parallel port on the computer. Refer to Figure 5 for the connector location. Use a small flat-tipped screwdriver to tighten the screws to ensure that the dongle does not come loose.

Connect the video pass through cable from the USBlinx II PCB to the video port on the computer. This cable has a 15-pin male connector on each end, and will pass the video signal from the computer to the USBlinx II PCB. The USBlinx II PCB will amplify the red, green, and blue signals, making the picture brighter, and then pass the signal through the JAMMA harness to the monitor. Refer to Figure 5 for connector locations.

4.4 Connect VGA Monitor

If your cabinet has a VGA monitor: **Do not** use either dongle. Connect the VGA monitor cable directly to the video port on the computer. If the VGA cable is not long enough, you may need to mount the computer in a different location or purchase a VGA extension cable from a local computer or electronics store. Refer to Figure 5 for the connector location.

4.5 Mounting the Computer

Place the computer inside the cabinet, leaving enough room in front of the computer to open and close the CD-ROM drive. If you wish, you can use Velcro[®] to secure the computer in place.

5. Power Setup

5. Power Setup

Connect the AC power cord to the power port on the computer. Before powering on, check the voltage switch on the back of the computer (see Figure 5 on page 8) to make sure it is set to the correct voltage (115V or 230V).

If the cabinet has an AC power strip, connect the AC power cord to the power strip. The AC power cord can also be spliced into the main power supplied to the cabinet.

The AC power cord wiring is as follows: **Green** - ground, **White** - neutral, **Black** - 120V.

5.2 Monitor Power

The power for your monitor should already be wired. If you have installed a new monitor in the cabinet, you will need to supply power to it. When wiring the monitor, refer to the owner's manual for wiring instructions and/or schematics.

5.3 Marquee Light Power

The marquee light should already be supplied with power. If it is not, you will need to wire it.

5.4 Power ON Test

Plug your cabinet in and turn it on. If the computer, monitor, or marquee light do not power on, you will need to check the wiring. Also make sure that the LEDs on the USBlinx II PCB are lit. This confirms that the USBlinx II PCB is being supplied with power. A multimeter can be used to check the continuity and voltages.



CAUTION: Disconnect the AC power cord before continuing with the installation.

6. Wiring Installation



Always disconnect the AC power cord before working on the cabinet. Even when the monitor is powered off, it can carry a **VERY HIGH ELECTRICAL CHARGE** that can result in severe injury or death. The kit should be installed by a **QUALIFIED TECHNICIAN ONLY**.

6.1 JAMMA Harness

If you are installing the kit in a JAMMA cabinet, and you have left the old wiring in place, use Table 2 to check the wiring. Take note of pins **L**, **M**, **10** and **11**, which are for the speaker wires; and pins **Ac** and **25**, which are for Button-4 for each player. Your JAMMA+ harness connects directly to the edge of the USBlinx II PCB.

The USBlinx II PCB is mounted on top of the computer with the edge facing the front of the computer. The JAMMA edge is keyed so that the harness, if it has a white key in the seventh slot, cannot be attached incorrectly. Your new JAMMA+ harness contains seven bundles of wire. The bundles are: Player-1, Player-2, Exit button, speaker, video, and power.

CAUTION: Do not connect any power wires to the JAMMA harness or you will damage the USBlinx II PCB.

SOLDER SIDE				COMPONENT SIDE		
Signal	Color	Pin		Pin	Color	Signal
Ground	BLK	A		1	BLK	Ground
Ground	BLK	B		2	BLK	Ground
+5V	RED	C		3	RED	+5V
+5V	RED	D		4	RED	+5V
-5V	BLU	E		5	BLU	-5V
+12V	OR	F		6	OR	+12V
Key		H		7		Key
Not Used	WHT-RD	J		8	WHT-BLK	Coin meter 1
Not Used	BLK-GRN	K		9	BLK-YEL	Not Used
Left Speaker -	BLU-RED	L		10	RED-YEL	Left Speaker +
Right Speaker -	BLU-GRN	M		11	RED-BLK	Right Speaker +
Video green	GRN	N		12	RED	Video Red
Video Sync	WHT	P		13	BLU	Video Blue
Service switch	WHT-ORG	R		14	BLK	Video Ground
Not Used	BLK-WHT	S		15	WHT-BRN	Test Switch
Coin 2	BRN-BLK	T		16	YEL-BLK	Coin 1
Player 2 Start	RED-WHT	U		17	RED	Player 1 Start
Player 2 Up	BLU-WHT	V		18	BLU	Player 1 Up
Player 2 Down	GRN-WHT	W		19	GRN	Player 1 Down
Player 2 Left	ORG-WHT	X		20	ORG	Player 1 Left
Player 2 Right	YEL-WHT	Y		21	YEL	Player 1 Right
Player 2 Button 1	BRN-WHT	Z		22	BRN	Player 1 Button 1
Player 2 Button 2	VIO-WHT	Aa		23	VIO	Player 1 Button 2
Player 2 Button 3	GRY-WHT	Ab		24	GRY	Player 1 Button 3
Player 2 Button 4	GRN-YEL	Ac		25	GRN-RED	Player 1 Button 4
Not Used	ORG-BLK	Ad		26	ORG-RED	Not Used
Ground	BLK	Ae		27	BLK	Ground
Ground	BLK	Af		28	BLK	Ground

Table 2. JAMMA Pinouts

6. Wiring Installation

6.2 Control Panel Wiring

Note: Install the control panel overlay (see page 6) before installing the buttons and joysticks.

On the Player-1 and Player-2 wire bundles, each bundle ends in spade connectors that easily connect to the joystick and the button micro switches (see Figure 2 and Figure 7). When connecting the wires, refer to Table 2.

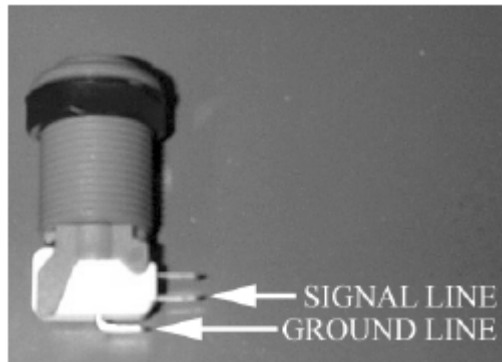


Figure 7. Button Micro Switch Wiring

6.2.1 Connecting Buttons 5, 6, and Exit

The wires for player buttons 5 and 6 and the Exit button connect to the **Player 3** connector on the USBlinx II PCB. Locate the connector labeled “Player 3” on the USBlinx II PCB and connect the Molex connector as shown below. Refer to Table 3, below, when connecting the wires to the button micro switches.



Molex Pin #	Wire Color	Connects To
7	Blue	Exit Button
8	Green/White	Player-1 Button-5
9	Yellow/White	Player-1 Button-6
10	Red	Player-2 Button-5
11	Blue/Yellow	Player-2 Button-6

Table 3. Buttons 5 & 6 and Exit Button Pinouts

Note: If you are installing one or two optional trackballs, the trackball wires connect to the "Trkball 1" and Trkball 2" connectors on the USBlinx II PCB, respectively.

6.2.2 Exit Button

Refer to Table 2 and Figure 8 when wiring the Exit button. Locate the wire bundle labeled “Exit.” The signal line is the **blue** wire from the 5-pin Molex connector. The 12-volt line used to light the Exit button is **orange**, and the ground line is **black**.

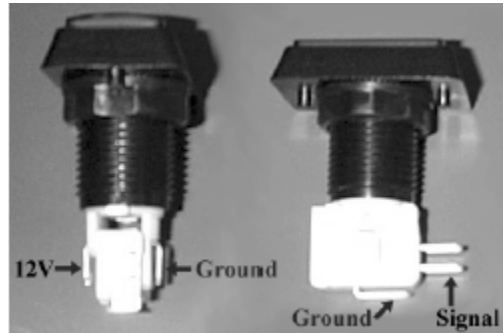


Figure 8. Exit Button Wiring

6.3 Video Wiring

You will only need to wire the video lines from the JAMMA harness if you have a CGA or EGA monitor. If you have a VGA monitor, skip this section. To determine what type of monitor you have, refer to section 2.6 *Determining your Monitor Type*.

Wiring the video requires you to either splice into the current video lines, or wire an entirely new Molex connector. To do this, the video bundle in the JAMMA harness is color-coded as follows:

- **Red** wire - Red signal
- **Green** wire - Green signal
- **Blue** wire - Blue signal
- **Black** wire - Video ground
- **White** wire - Composite sync

To determine the correct wiring pinout for your monitor, refer to the owner's manual or contact the manufacturer for a wiring schematic.

Note: GLOBAL VR[®] is not liable for any damage done to monitors through incorrect wiring.

6.4 Speaker Wiring

The UltraCade Multi-Game Kit uses stereo audio. To determine the left and right speaker wires, refer to Table 2 and Table 4. The wires from the speakers will need to be spliced to the speaker wires from the JAMMA harness.

Pin #	Color	Connects To
L	Blue/Red	Left Speaker -
M	Blue/Green	Right Speaker -
10	Red/Yellow	Left Speaker +
11	Red/Black	Right Speaker +

Table 4. Speaker Bundle Pinouts

6.5 Coin Door Wiring

Check the JAMMA diagram on page 11 to wire connectors for the Service switch, coin switches, coin door lights, and coin meters to the coin door bundle on the JAMMA+ harness.

7. Artwork Application

7. Artwork Application

Refer to the figure below for placement of the cabinet artwork. Remember to remove all old artwork and clean any glue residue left behind before applying the new art. When completed, use a squeegee or straight edge to remove any bubbles from the stickers.

The new marquee may need to be trimmed to fit into the cabinet. Use a razor blade and straight edge to trim it down. If your old marquee was silk-screened onto the Plexiglas, you will need a new piece of clear Plexiglas.



Figure 9. Cabinet Artwork Application

8. Final Configuration

The UltraCade Multi-Game System Operating System is pre-installed on the computer, but you may want to modify some of your settings. Below is a quick checklist. Refer to your *UltraCade Multi-Game System Operator Manual* for more details.

8.1 Operator Setup Menu

Your UltraCade Multi-Game Kit installation is now complete except for the final software configuration. Power ON your cabinet and press the Service switch to enter the Operator Setup Menu. Refer to your *UltraCade Multi-Game System Operator Manual* for help using the setup menus. If, after powering on, you experience monitor problems, refer to section 8.7 *Common Monitor Problems*.

8.2 Accounting Information

Reset the accounting report data so that the software keeps proper accounting dates.

8.3 Credits/Coins

Change these settings to adjust the pricing for your cabinet and to turn the bonus credit on or off. The default setting is one coin drop to one play.

8.4 Cabinet Configuration

In the Cabinet Configuration menu, set your screen orientation (vertical, horizontal, etc.), the cabinet orientation (upright, single, or cocktail), the location name, and the attract mode volume.

8.5 Volume

Adjust the volume to an acceptable level for your location.

8.6 Diagnostics

Your UltraCade Multi-Game System software has built in diagnostics, which you can use to test the wiring. Select Diagnostics from the Operator Menu, and refer to the Diagnostics section of your *UltraCade Multi-Game System Operator Manual*.

8.7 Common Monitor Problems

The table below lists common monitor problems and possible solutions.

Problem	Possible Solution
Distorted or discolored image	Degauss the monitor.
Scrambled image	You may have used the wrong CGA/EGA monitor dongle. Try the other dongle.
No raster	If you have a CGA or EGA monitor, make sure you have connected the Video Pass Through Cable
Vertical or horizontal sync is off	The UltraCade Multi-Game System uses a composite sync. Make sure the monitor can handle composite sync. If it cannot, then you will need to jump the horizontal and vertical syncs on the monitor together.

Table 5. Common Monitor Problems

Technical Support

Service & Parts

Hours: 7:00AM–5:00PM Pacific Time, Monday–Friday

Phone: 408.597.3435

Fax: 408.597.3437

E-mail: techsupport@globalvr.com

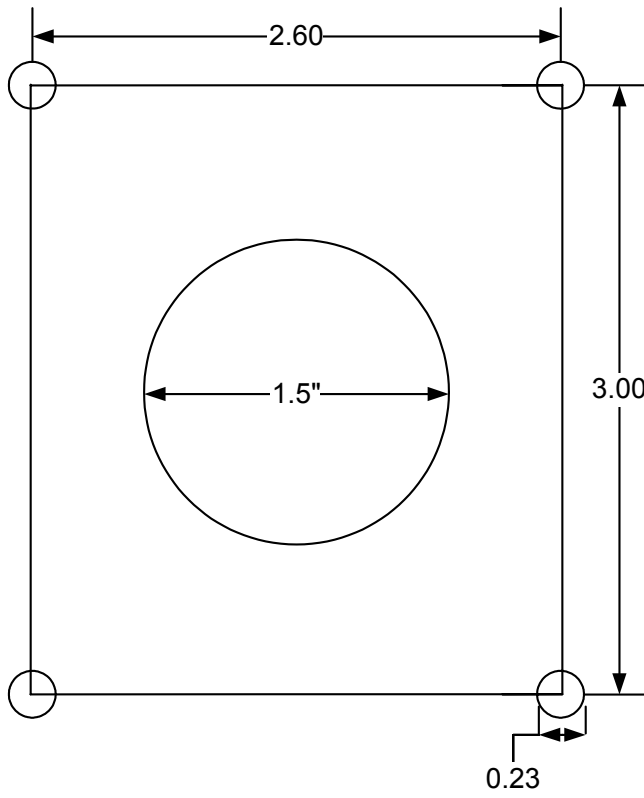
Website: <http://service.globalvr.com>

Free telephone, e-mail, and online support are provided for systems during the warranty period. GLOBAL VR® Technical Support can help you troubleshoot problems and diagnose defective parts. We can also answer questions about the operation of your game.

When you contact Technical Support, please provide the information listed below, as applicable, to assist the Technical Support representative in solving your problem quickly. For your convenience, space is provided to write important numbers.

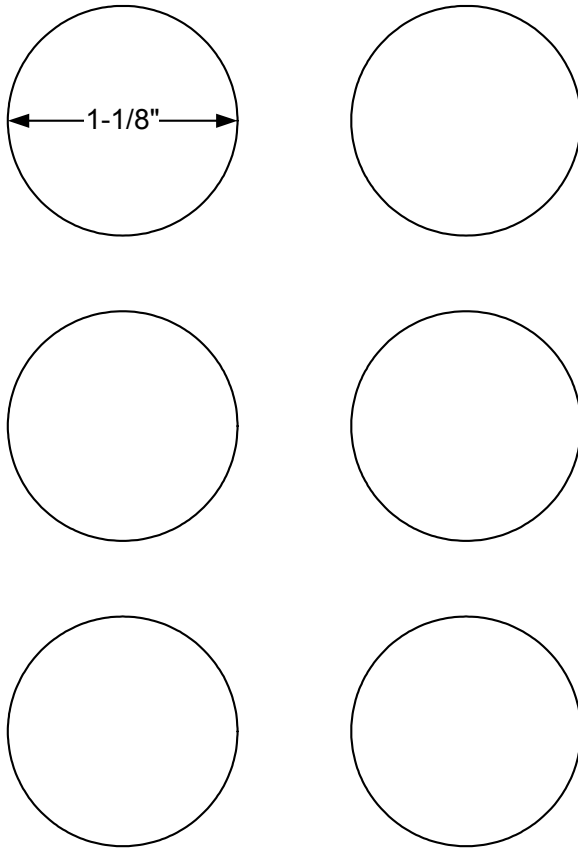
- Cabinet Serial Number: _____
- Software Version Number (from Operator Main Menu): _____
- MCID Number (from Operator Main Menu): _____
- 86 Game Base Pack CD Serial Number: _____
- Proof of Purchase information
- Your mailing address and telephone number
- A summary of the question or a detailed description of the problem
- Specific error message (as applicable)
- Date of latest install or upgrade
- Any changes made to the system
- For game-play issues, the game and number of players

To comment on this manual, please e-mail: techpubs@globalvr.com



Template for Cutting
Control Panel

Joystick



Buttons