



EA SPORTS™ PGA TOUR® GOLF
Championship Edition III
Conversion Kit Instructions
040-0012-01 Rev B

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



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Preface

1.1 Safety

Please read this page before preparing your arcade cabinet for game play.

The following safety instructions apply to all game operators and service personnel. Specific warnings and cautions will be included throughout this manual.

Use the following safety guidelines to help protect the system from potential damage and to ensure your personal safety:

- Make sure that the switch on the back of the computer is set to match the AC power in use at your location:
 - 115 volts / 60Hz in most of North and South America and some Far Eastern countries such as Japan, South Korea and Taiwan
 - 230 volts / 50Hz in most of Europe, the Middle East and the Far East
- To help prevent electric shock, plug the system into a properly grounded power source. The cables are equipped with 3-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a 3-wire cable with properly grounded plugs.
- To help protect your system from sudden increases and decreases in electrical power, use a surge suppressor, line conditioner, or Uninterruptible Power Supply (UPS).
- Be sure nothing rests on the system's cables and that the cables are not located where they can be stepped on or tripped over.
- Do not spill food or liquid on the cabinet.
- Do not push any objects into the openings of the system—doing so can cause fire or electric shock by shorting out interior components.
- Keep your system far away from radiators and other heat sources.
- Do not block cooling vents.

1.1.1 Warnings

 CAUTION	<p>To avoid electrical shock, unplug the cabinet before performing the installation procedures.</p>
 STOP	<p>GLOBAL VR® assumes no liability for any damages or injuries incurred while setting up or servicing the cabinet. Only qualified service personnel should perform installation or service procedures!</p>

1.1.2 Environmental Conditions

Cabinet is intended for indoor use only. Be sure to keep the cabinet dry and maintain operating temperatures of 10°-40°C (50°-104°F).

Section 1 – Introduction

1.1.3 FCC Notices (United States)

Electromagnetic Interference (EMI) is any signal or emission radiated in free space or conducted along power or signal leads, that endangers the functioning of radio navigation or other safety service, or that seriously degrades, obstructs, or repeatedly interrupts a licensed radio communications service. Radio communications services include, but are not limited to, AM/FM commercial broadcast, television, cellular services, radar, air-traffic control, pager, and Personal Communication Services (PCS). These licensed services, along with unintentional radiators such as digital devices (including computer systems) contribute to the electromagnetic environment.

Electromagnetic Compatibility (EMC) is the ability of items of electronic equipment to function properly together in the electronic environment. While this computer system has been designed and determined to be compliant with regulatory agency limits for EMI, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference with radio communications services, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna.
- Relocate the cabinet relative to the receiver.
- Plug the game into a different outlet so that the computer and the receiver are on different branch circuits.

If necessary, consult a Regulatory EMC representative of GLOBAL VR[®] or an experienced radio/television technician for additional suggestions. You may find the [FCC Interference Handbook](#), to be helpful. It is available from the U.S. Government Print Office, Washington, DC 20402.

This device has been tested and complies with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, it may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

Operation is subject to the following conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Section 1 – Introduction

PGA TOUR® GOLF Conversion Kit Description

The GLOBAL VR® PGA TOUR® GOLF Conversion Kit lets operators convert old Jamma cabinets into EA SPORTS™ PGA TOUR® GOLF Championship Edition III cabinets. The Conversion Kit uses the existing cabinet, coin inputs, speakers, and Jamma harness.

Championship Edition III Description

The Championship Edition III software update adds the following new features:

- 4 new courses (2 real, 2 fantasy), for a total of 19 courses
- World Tour mode
- International support
- Connectivity support for excluded states
- New primary/secondary phone dial-in
- Promotional video

The following table provides a summary of the courses:

Table 1. Championship Edition III Course Summary

Course	Difficulty	Location
NEW! Kapalua Plantation	Semi-Pro	Hawaii
NEW! Coeur d'Alene	Semi-Pro	Idaho
Bay Hill	Amateur	Florida
Colonial CC	Semi-Pro	Texas
Pebble Beach	Semi-Pro	California Coast
Spyglass	Semi-Pro	California Coast
Poppy Hills	Semi-Pro	California Coast
TPC of Scottsdale	Amateur	Arizona
Sahalee CC	Semi-Pro	Washington
St Andrews	Beginner	Scotland
TPC at Sawgrass	Semi-Pro	Florida
Royal Birkdale	Beginner	UK
NEW! Red Mountain Creek Back 9	Amateur	Australia
NEW! Emerald Dragon Front 9	Semi-Pro	Japan
Black Rock Cove	Expert	Fantasy: Island / Volcanic
The Predator	Expert	Fantasy: Jungle / Mayan
The Highlands	Expert	Fantasy: Scotland / Castles
Scorpion Ridge II	Expert	Fantasy: Desert
Timber Hill II	Pro	Fantasy: Forest

Promotional Video

The Operator Menu includes an option to play a promotional video.

Section 2 – Cabinet Conversion

Depending on your cabinet and the upgrade kits that you selected, there are several options for upgrading your cabinet. For example, you have the choice of installing a new 27-inch monitor or adding a universal video converter (UVC) card, and upgrading or replacing your control panel.

Read the section that follows and perform the steps that are appropriate for your upgrade.

2.1 Determine your Upgrade Steps

Converting your cabinet consists of the primary steps listed below.

- **Check Cabinet Compliance:** Make sure your cabinet meets the required specs, fill out the Conversion Kit Compliance Agreement, and fax or mail the agreement to GLOBAL VR[®] (Sections 2.2 and 2.3).
- **Clean and Prepare your Cabinet:** Remove all graphics and labels, tournament header, and card reader, and clean the cabinet (Section 2.4).
- **Install the Monitor:** Do this if you purchased the monitor upgrade kit with the 27-inch monitor (Section 2.6). Otherwise, you will install the Universal Video Converter (UVC) card as described in Section 2.10.
- **Set Up the Control Panel:** Either install the pre-made control panel (Section 2.11.1) or upgrade your control panel with the new controls and artwork (Section 2.11.2).
- **Set Up the Hardware:** Install the new computer, Jamma Conversion Board, and UVC (if used) and make all connections (Section 2.10).
- **Apply the Cabinet Graphics:** Install the new cabinet graphics and labels (Section 3.6).
- **Install Tournament Components:** If you ordered a Tournament Header Upgrade Kit (part #: TH-8000-03 or 90509-00), follow the instructions in that kit to prepare your cabinet to participate in tournaments.

2.2 Check Cabinet Compliance

GLOBAL VR[®] requires that all converted cabinets meet the strict guidelines for finished cabinet artwork and game play set forth in this instruction manual and the Conversion Kit Compliance Agreement.

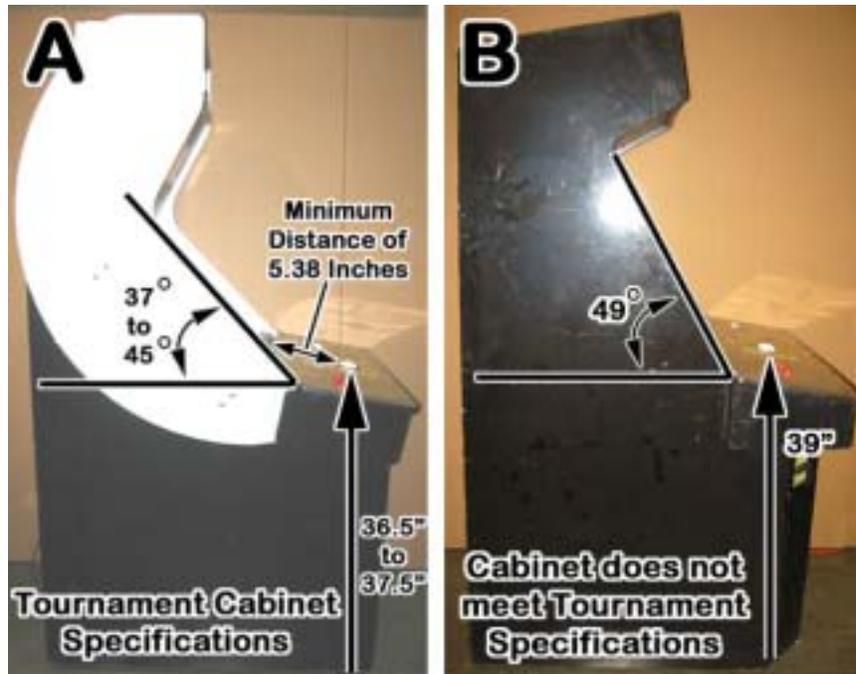
Before beginning the conversion, please read the Conversion Kit Compliance Agreement included with the Game Dongle in your conversion kit. Make sure that you understand the agreement, and sign, date, and fax or mail the agreement to GLOBAL VR[®] before installing any hardware from the conversion kit.

All previous cabinet artwork, serial numbers, and labels must be removed from the cabinet before the GLOBAL VR[®] PGA TOUR[®] GOLF artwork is installed. Make sure the new cabinet artwork is setup exactly as instructed in this manual to ensure that you are in compliance with the Conversion Kit Agreement.

2.3 Check Cabinet Compliance for Tournament Play

If you wish to use a converted cabinet to participate in GLOBAL VR[®] Tournaments, the cabinet must meet certain standards to create a fair playing field for all participants. The exact cabinet specifications and rules are set forth in the Conversion Kit Compliance Agreement, under Assembly Requirement. Your cabinet must match the stated dimensions to participate in GLOBAL VR[®] Tournaments.

Both standard and deluxe cabinets can be converted and used for GLOBAL VR[®] Tournament games as long as they meet the specifications detailed in the agreement. The picture below shows how to measure your cabinet and determine if your converted cabinet can participate in GLOBAL VR[®] Tournaments.



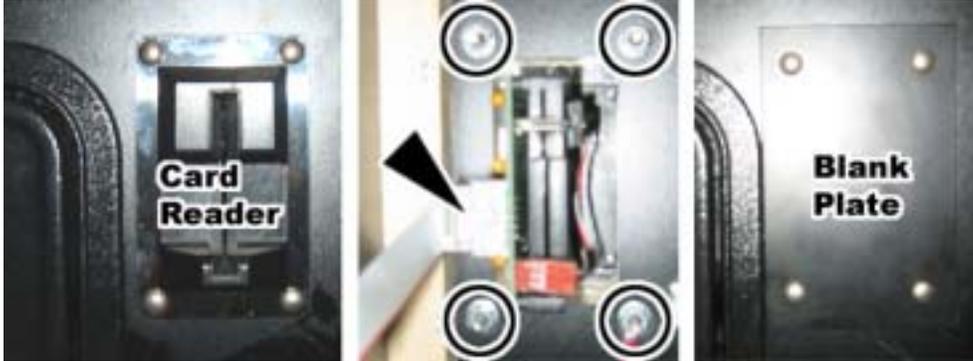
2.4 Clean and Prepare the Cabinet

Remove all pre-existing graphics, serial numbers, and any other visible artwork from your cabinet. If any old artwork is left on the cabinet, you will be in violation of the Conversion Kit Compliance Agreement.

Clean the cabinet well so that the new graphics will adhere properly.

2.4.1 Remove the Old Card Reader

If your cabinet has an existing card reader, it must be removed from the cabinet. If you want to participate in tournaments with your converted cabinet, you will need to install the Tournament Header Upgrade Kit (part #: TH-8000-03 or 90509-00) and register your cabinet. Both kits include a card reader for use with GLOBAL VR[®] tournaments.



Perform the following steps to remove the card reader. It is usually located near the coin door.

1. Unplug the data cables from the card reader and remove them from the cabinet.
2. Un-bolt the card reader and use the same carriage bolts to install the card reader blank plate from the upgrade kit.

2.4.2 Remove or Upgrade the old Tournament Header

If your golf cabinet has an existing tournament header, it must either be removed or upgraded for use with PGA TOUR[®] GOLF tournaments. To convert your header, use the GT Tournament Header Conversion Kit (part #: 90509-00) and refer to the instructions in the kit. If you prefer to install the type of tournament header used on standard GLOBAL VR[®] cabinets, order the Tournament Header Upgrade Kit (part #: TH-8000-03).

If you do not plan to convert your header, perform the following steps to remove it from the top of the cabinet.



1. Unplug the cables from the tournament header and remove them from the cabinet.
2. Un-bolt the tournament header and remove it from the cabinet.

2.5 Conversion Kit Contents

Depending on which conversion options you selected, the components you receive may vary from the kits described below:

Table 2. Conversion Kit Components

Computer and Controls

Description	Qty	Part Number
System Computer	1	DFI-PGA-BLK
HASP Security Dongle (Parallel) (not shown)	1	H4-MEMOHASP
3" Trackball with Mounting Plate	1	56-0100-HLWB
White Push Button with Micro Switch	4	58-9111-LG
Red Push Button with Micro Switch	1	58-9100-LG
Universal Video Converter (UVC)	1	96-0583-00
Jamma Conversion Board	1	990-0007-01
Computer Base Strap (not shown)	2	01-10110
Blank Plate for GT Card Reader (not shown)	1	PGA-6061-00
PS2-Keyboard (not shown)	1	PS2-Keyboard
Control Panel (Pre-Assembled Replacement-Optional)	1	45005-00



Cables and Miscellaneous Parts

Description	Qty	Part Number
Cable, 37-Pin M-F 6Ft Cable	1	ES1451
Cable, VGA M-M 6Ft	1	V-0606
Cable, USB	2	USB-AB06MM
Cable, PC Y-Power	1	PGAK-FLT-3500-08
Cable, UVC to Jamma Conv Board	1	115-0018-01
Cable, 3.5mm Audio, 6Ft	1	96-0539-00
Cable, 2 Button Harness to Jamma Conv Board	1	115-0019-01
AC Power Strip 6 Outlets	1	49-0963-10
AC Power Cord	1	80-0213-00
.250 Spades	2	PGAK-KTN50
Ground Loop	1	PGAK-5A890
18 Gauge Wire Butt Connectors	3	PGAK-2A0701
PCB Plastic Feet Kit	2	49-1019-00
1/4-20 x 3/8" Philips Pan Screws	4	25C37PPMZZ
1/4-20 Nylon Locking Nut	1	100-0001-01
#10 x 1/2" Course Thread Philips Wood Screws	4	10N50PPAZZ
Fan, Grill, & Cord Assembly	1	115-0050-01



CDs, Labels, and Manuals

Description	Qty	Part Number
System Manual	1	040-0040-01
Conversion Kit Instructions (This Document)	1	040-0012-01
PQI, OS Recovery CD	1	050-0055-01
Game Software CDs (2 CD's)	1	050-0054-01
Cabinet Certification Paperwork	1	040-0015-01
Serial Number Labels	2	L-0041
Display Timing Disk	1	050-0058-01
System Recovery Supplement	1	040-8856-01

Artwork

Description	Qty	Part Number	Description	Qty	Part Number
Control Panel Decal	1	PGAK-AW-01	Shot Type Decal 2.5"x2.5"	1	PGAK-AW-12
Shot Shaping Decal	1	PGAK-AW-02	Fly Over Decal 2.75"x3.5"	1	PGAK-AW-13
Forward Swing Decal	1	PGAK-AW-03	Start Options Decal	1	PGAK-AW-14
Swing Basics Decal	1	PGAK-AW-04	Rotate Golfer Decal 3"x2"	1	PGAK-AW-15
Circle Decal 2.25" dia	1	PGAK-AW-05	Tourney Instruction Panel	1	PGAK-AW-17
GVR Logo Label	1	PGAK-AW-06	Non-Tournament Panel	1	PGAK-AW-18
Warning Label 1.5"x5"	1	PGAK-AW-07	Left Side Panel Decal	1	PGAK-AW-19
Real Courses Decal	1	PGAK-AW-08	Right Side Panel Decal	1	PGAK-AW-20
Real Golfers Decal	1	PGAK-AW-09	Trackball Tape	1	PGAK-AW-21
Left Turn Decal	1	PGAK-AW-10	Real Golf Decal	1	PGAK-AW-23
Right Turn Decal	1	PGAK-AW-11	Championship III Marquee	1	PGA-AW-15

Monitor Upgrade Kit (Part #: PGA-UPGRADE-MTR) Components

Description	Qty	Part Number
DOC, Instructions for relocating mounting holes	1	040-0045-01
1/4 X 1.0 Carriage Bolt, Stl/Znc	4	4600-0013
1/4" Flat Washer SAE Stl/Znc	4	4600-0014
Nut, 1/4-20 Kepnut Stl/Znc	4	4600-0015
Monitor Bezel 28"	1	49-0106-01
Monitor, Wells-Gardner 27" SVGA	1	WGM2792-UOTS19C-MOD
Template, Monitor Bracket Mounting Holes	1	L-0059

2.6 Replace the Monitor

If you have the Monitor Upgrade Kit, perform the steps in this section to remove the old monitor and install the 27-inch Wells-Gardner[®] monitor.

2.7 Remove the Old Monitor

1. Open the service shelf, and remove the glass display shield and monitor bezel.
2. Disconnect ALL wiring from the back of the monitor. Make sure that no wires still connected to the monitor are tied to the cabinet.

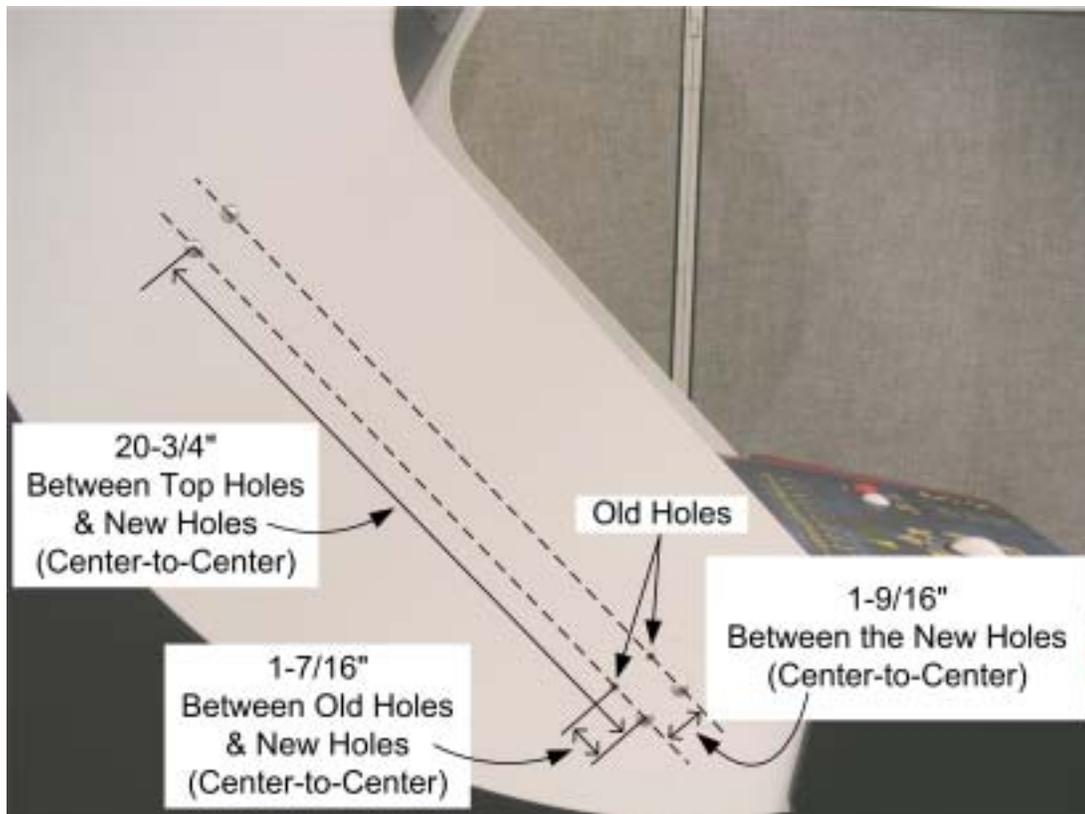
3. Remove the four (4) monitor retaining nuts and washers and save them for reinstallation.
4. Remove the monitor from the cabinet. It is advisable to have at least two people to support the weight of the monitor.
5. Proceed to the next section and install the new monitor.

2.8 Adapt the Cabinet for the Larger Monitor

If your cabinet already had a 27-inch monitor, you should be able to proceed to Section 2.9 and install the new monitor.

If your cabinet had a 25-inch monitor, refer to the figure that follows, and perform the following steps to adapt the cabinet hardware for the larger, 27-inch Wells-Gardner® monitor:

1. Note the positioning of the lower monitor bracket to aid in reinstallation. Remove the nuts and bolts that secure the bracket to the cabinet. Remove the bracket and save it for reinstallation. Perform the following steps to drill new bolt holes for the bracket to relocate it for the larger monitor.
2. Refer to the figure below and mark straight lines, as shown, through the center of the two sets of bolt holes and about 2" below. Drill two ¼" diameter bolt holes 1-7/16" below the original holes, and along the same centerline. Use the template from the kit (part #: L-0059) to aid in placing the holes.
3. The overall distance between the bolt heads on the side of the cabinet must be 20-3/4" center-to-center in the long direction, and 1-9/16" center-to-center in the short direction.



4. Repeat the previous two steps to drill bolt holes in the other side of the cabinet.

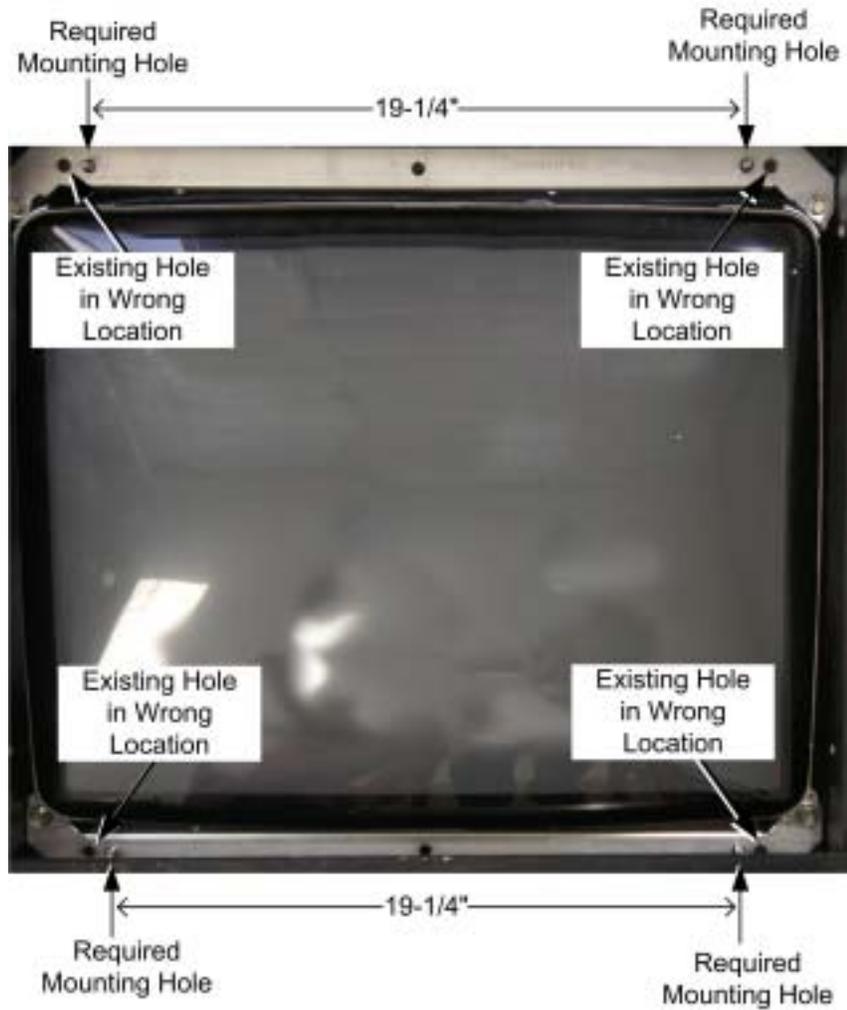
Section 2 – Cabinet Conversion

5. Align the lower monitor bracket with the new bolt holes and bolt it in place using the nuts and bolts removed previously.
6. Install the four (4) supplied carriage bolts into the original bolt holes to give them a finished appearance.

2.9 Install the New Monitor

1. Refer to the picture below and make sure that the **monitor frame** of the new 27-inch Wells-Gardner® Monitor has the holes required to mount it to the cabinet brackets. Both the top and bottom sections of the frame must have two pairs of holes (some monitor frames have only one pair of holes in each section). The inside pair of holes must be centered on the bracket, and measure 19-1/4" center-to-center.
2. If the monitor frame does not have the required holes, drill them in both the top and bottom frame sections as follows: Drill two (2) 3/8" diameter holes, centered, 19-1/4" apart. Each of these new holes should be approximately 11/16" inboard from the existing holes, and on the same horizontal centerline.

Caution: Avoid getting drill chips in the electronic components.



CAUTION: The monitor is very heavy. Monitor installation requires at least two people. It is best to have a third person handling the monitor frame from inside the cabinet back door. It is easy to catch fingers between the monitor frame and cabinet.

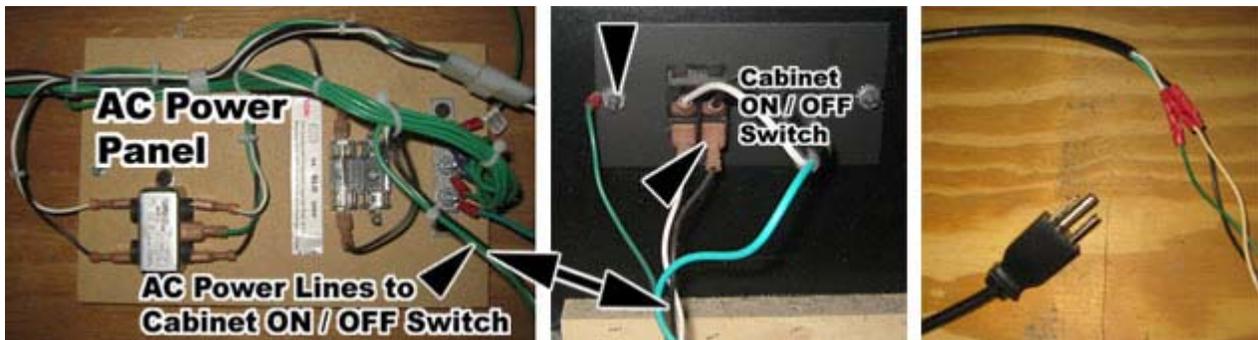
3. To install the monitor, first install the lower edge of the monitor onto the lower bracket studs, and then rotate the monitor downwards to catch on the upper bracket studs. This will require at least **two** people. It may be best to have a third person handling the monitor frame from inside the back door. Watch your fingers; this monitor is very heavy.
4. Use the old hardware to re-attach the monitor to the cabinet bracket (four places).
5. Install the new monitor bezel.
6. Clean and replace the glass display shield.
7. Replace the small retainer tab that secures the display shield in place.
8. Mount the monitor remote control board in a convenient location in the service tray.
9. Connect the monitor ground wire to a ground lug on the cabinet.
10. If the old monitor was powered with an AC isolation transformer, remove the transformer from the cabinet. The new monitor will connect directly to the AC power strip to be installed in Section 2.10.1.

2.10 Set Up the Hardware

2.10.1 Set Up AC Power Distribution

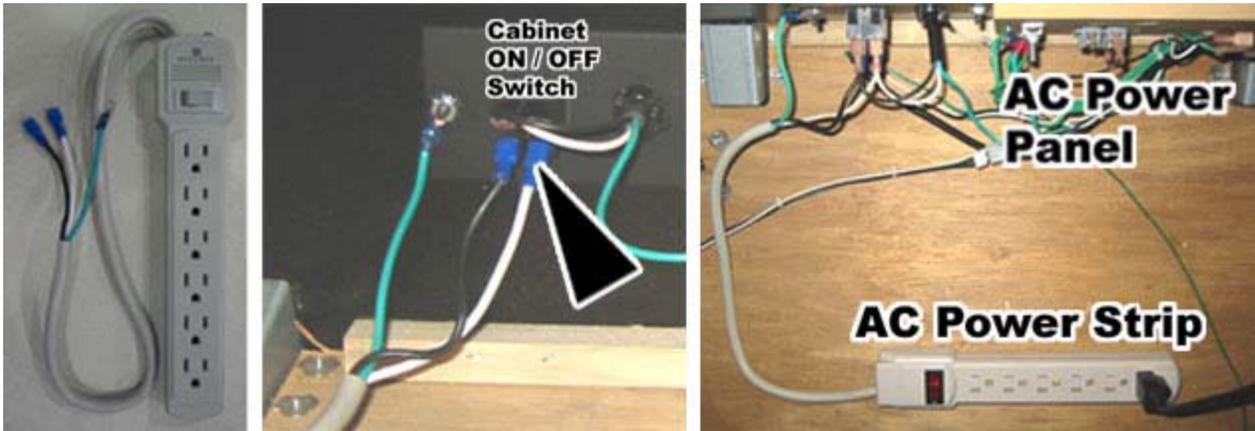
You must install the AC power strip/surge suppressor from the kit to provide power to the computer, new monitor (if installed), and the optional Tournament Hardware.

The actual wiring will vary depending on which cabinet you are converting. Use the instructions that follow as a general guideline for setting up AC power distribution.



1. Locate the AC power panel inside the cabinet. The panel is usually the distributing point for all of the AC power lines inside the cabinet. If the panel is on the floor of the cabinet, you will need to move it to one of the side walls to make enough room to secure the computer to the bottom of the cabinet.
2. Disconnect the two AC power lines and the ground wire that connect to the ON/OFF switch on the AC power panel, as shown by the arrows in the picture above.
3. Strip these three wires and connect them to the AC power cord from the kit, using the wire crimps provided. (You will be plugging this power cord into the power strip.)

Section 2 – Cabinet Conversion



4. Connect the power and ground wires from AC power strip to the three connectors on the ON/OFF switch where you removed the wires in step 2, as shown by the arrow in the picture above.
5. Plug the AC power cord you spliced in step 3 into the AC power strip. All cabinet AC power should now be routed through the power strip.
6. Some older cabinets with CGA monitors have an AC Isolation Transformer that is used to power the monitor. These are often bulky, heavy transformers that take up most of the space on the bottom of the cabinet, and they cannot be removed unless you replace the monitor. If you connect a monitor that requires an AC Isolation Transformer directly into an AC power source, you will damage the PCB chassis on the monitor.

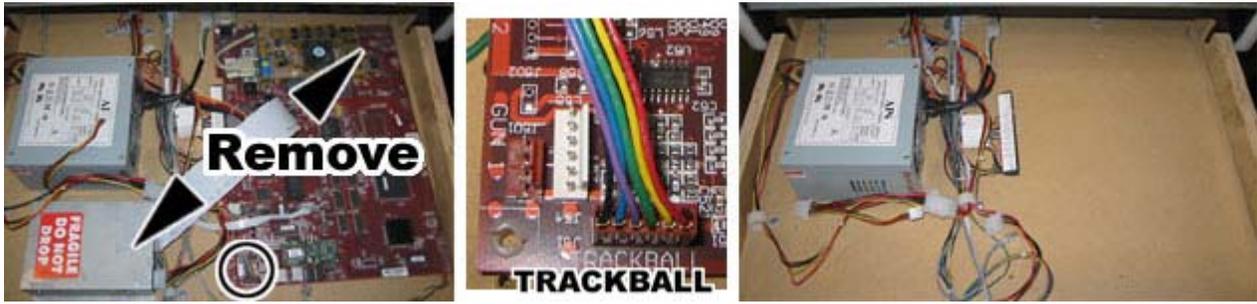


7. If your cabinet has an AC Isolation Transformer for the monitor, find the AC power lines that power the AC Isolation Transformer and splice them to an AC power cord (not provided in the kit), so you can connect this to the AC power strip. You may need to reposition the AC Isolation Transformer to make room to install the computer on the floor of the cabinet. (**Note:** The new Wells-Gardner[®] monitors do not use an AC Isolation Transformer. If you are installing this monitor, you can safely remove the transformer.)

2.10.2 Remove the Game PCB and Install New Hardware

Caution: Power must be off when connecting boards. To prevent damage from electrostatic discharge (ESD), handle PCBs by the edges only and use a grounding wrist strap or similar precaution.

1. The Conversion Kit hardware uses the existing Jamma harness wiring for speakers, video (for existing monitor), and coin inputs. Remove the Game PCB and any other hardware from the old game, but keep the existing DC power supply and Jamma harness wiring in place.



2. Install four small plastic feet from the kit on the Jamma conversion board, and on the UVC if you are installing one.
3. Set jumper **J8** on the Jamma conversion board to pins **1** and **2** for stereo, or pins **1** and **3** for mono audio, depending on how your cabinet audio is set up.
4. Place the boards next to each other in the service tray where you removed the old boards. Make sure that the Jamma connector on the Jamma wire harness can reach the Jamma Conversion Board before securing the boards to the cabinet.
5. Secure the boards with wood screws in the plastic feet.

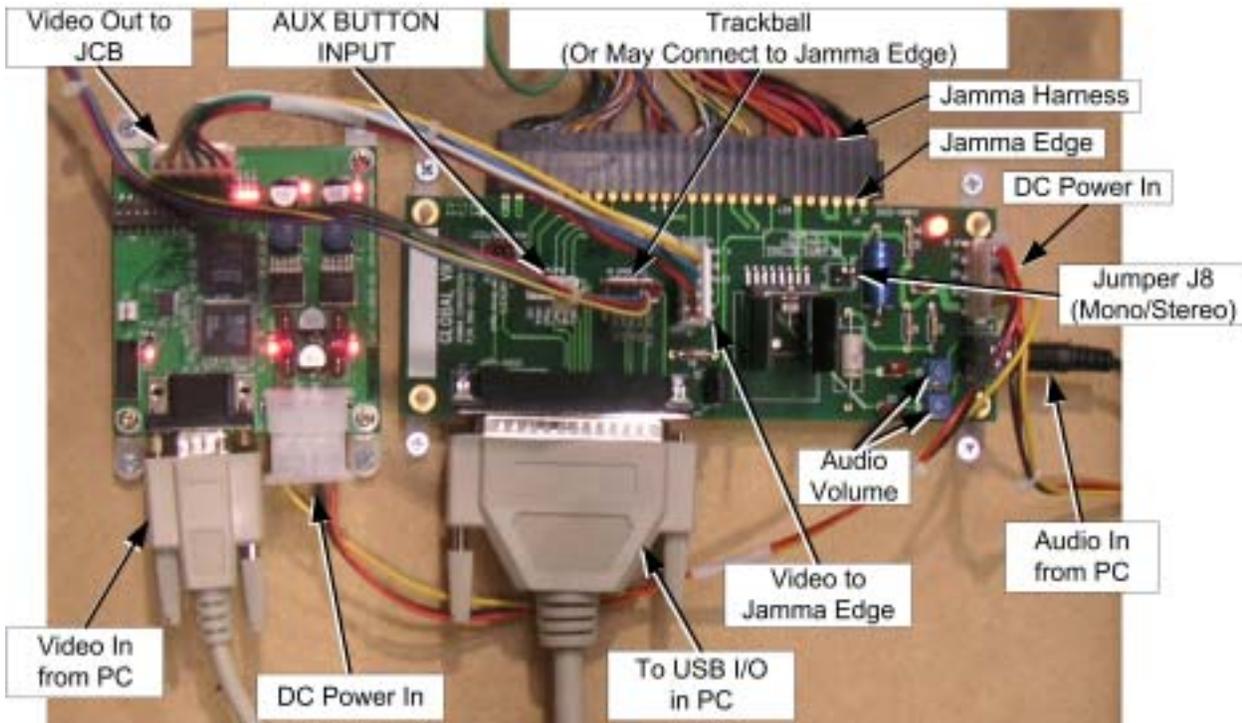


Figure 1. Jamma Conversion Board and UVC Connections

Refer to the figure above, and Figure 4, Simplified Wiring Diagram, on page 36, and perform the following steps to connect the Jamma harness wiring and other cables to the Jamma Conversion Board:

1. Connect the Jamma connector from the Jamma harness to the Jamma edge on the Jamma Conversion Board.
2. If your system uses a UVC, connect the Video Input, **J4** on the Jamma Conversion Board, to the Video Output, **J7** on the UVC, using cable part #: 115-0018-01.
3. Connect the Trackball 6-pin connector to Trackball In, **J5** on the Jamma Conversion Board.
4. Connect the existing PC power supply in the cabinet to the Jamma Conversion Board PWR IN port using the PC Y-power cable from the kit.

Note: The PC Y-power cable uses a standard PC power supply connection found on most DC power supplies used in arcade cabinets. If your existing power supply does not have this type of connector, you will need to splice the Y-Power cable into the power supply on the cabinet. Here are the specifications for the PC Y-power cable:

Red Wire	+5 VDC
Yellow Wire	+12 VDC
Black Wire	Ground

2.10.3 Set Up the Computer

The computer comes pre-loaded with EA SPORTS™ PGA TOUR® GOLF Championship Edition III game software. There is no need to reload the software with the CDs in the kit. The Software recovery CDs are included in case you have a software problem in the future.

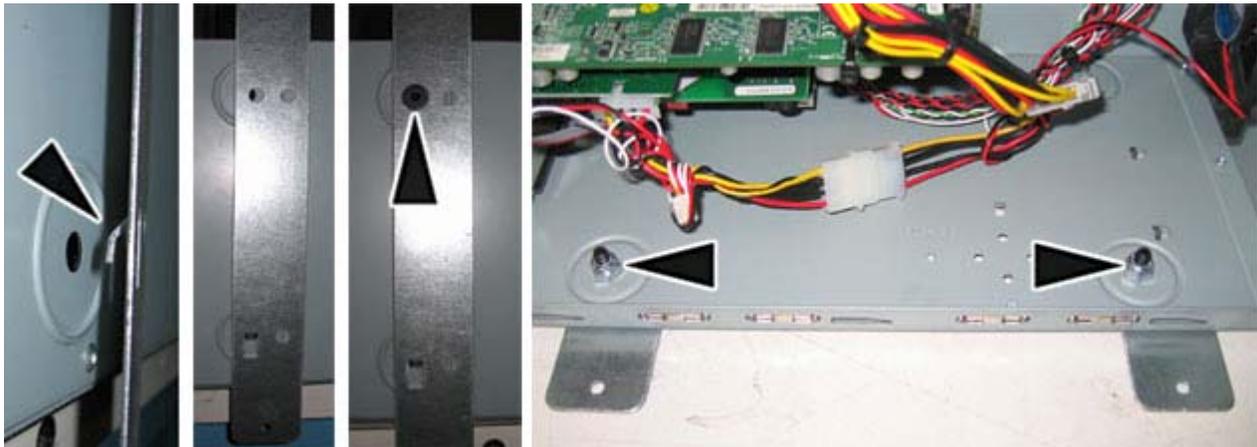
The computer can be damaged very easily. Please use caution when installing the computer.

CAUTION: Avoid touching internal components. These components are susceptible to Electrostatic Discharge (ESD) damage.

1. Remove the right side panel from the computer by removing the two screws that hold the panel in place, as shown by the arrows in the picture below. Slide the panel back and then out to remove it from the computer chassis.



2. Place the computer on its side so you can clearly see the inside of the computer. Place the metal computer bracket so that the tab is pointed down, and hook the tab into the bottom mounting hole on the computer, as shown in the picture below.
3. Use the flat-head screw with nylon locking nut to secure the bracket to the top hole of the computer chassis.
4. Repeat steps 2 and 3 for the second mounting bracket.



5. When finished, the two screws with nuts should be closest to the outside edge of the computer chassis, with the bracket tabs hooked into the holes closest to the motherboard, as shown in the last part of the picture above. Re-install the side panel on the computer.
6. Refer to Figure 6, Computer Rear Panel Diagram, on page 38, and Figure 4, Simplified Wiring Diagram, on page 36, to make connections to the computer.
7. Connect the game dongle to the parallel port.
8. Using the USB cable, connect the computer USB port to the USB port on the USB/I/O card.

Section 2 – Cabinet Conversion

9. Connect the power cord to the computer and the power strip.
10. Connect the USB I/O DB-37 port to **J3** on the Jamma Conversion Board.
11. Connect the video port on the video card to **J7** on the UVC (if used) or the monitor.
12. Connect the audio cable to **J2** on the Jamma Conversion Board.
13. Secure the wires to the cabinet so they do not get pinched or torn when the service tray is opened.

2.10.4 Secure the Computer



Caution: Use caution to avoid damaging the computer. Always power OFF the cabinet before moving the computer.

Once you have verified that everything is working properly, secure the computer to the cabinet. You will need a 6-inch clearance in the front of the computer to allow the CD-ROM drive tray to fully OPEN. Secure the computer to the bottom of the cabinet using four (4) #10 x 1/2" Phillips wood screws.

2.10.5 Install the Cabinet Exhaust Fan

An exhaust fan is generally required to keep the temperature inside the cabinet cool enough for the computer to operate properly.

If you experience blank screens or rebooting issues, this could be due to excessively high temperatures inside the cabinet. Drilling more air holes in the lower rear of the cabinet, as described in step 1 below, should improve airflow and reduce cabinet temperatures.

Perform the following steps to install the exhaust fan and drill air holes:

1. Using a 1/2" drill bit, drill six to eight air holes in the lower rear of the cabinet, as shown in Figure 2. Be careful not to damage any wires or components while drilling.

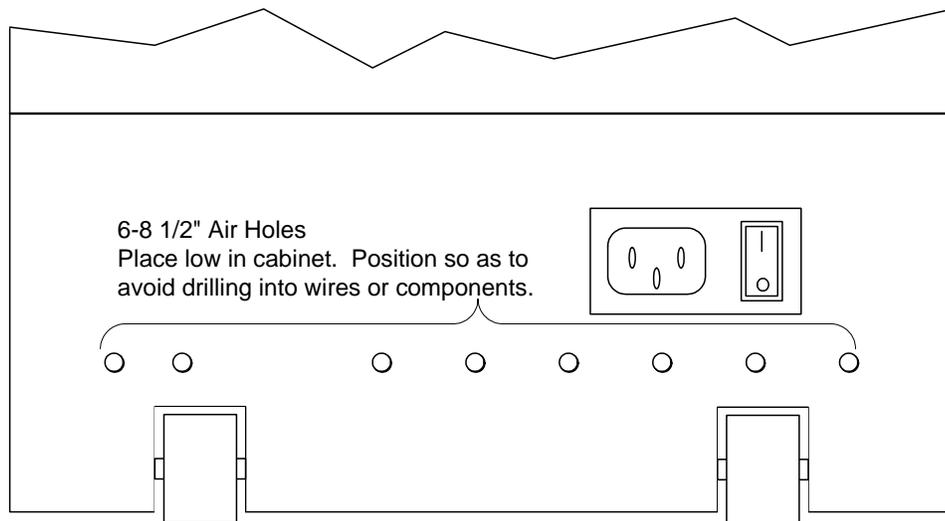


Figure 2. Drilling Cabinet Air Holes

2. Using a screwdriver, remove the metal or plastic grill covers that cover the ventilation slots on the back of your cabinet. Push in on each corner of the metal grill and they will pop out and fall to the bottom of the cabinet.
3. Install the Exhaust fan behind the ventilation slot, just above the rear cabinet door, as shown by the arrow in the picture below.



4. Place the Exhaust fan on the outside of the ventilation slots and use the mounting holes in the fan as a template to drill the mounting holes. Use an 11/64" drill bit to drill the four mounting holes for the exhaust fan.

Section 2 – Cabinet Conversion

5. Place the fan on the inside of the cabinet so that it will blow air out of the cabinet. Use the 8-32 x 2 inch screws with nuts to secure the fan to the cabinet, as shown in the picture above.
6. Plug the Fan into the AC power strip inside the cabinet, and verify the fan blows air out of the cabinet.

2.11 Upgrade the Control Panel

You have two choices for upgrading the control panel:

- Refer to Section 2.11.1, that follows, to install the new control panel, with buttons, trackball, and graphics already set up (part #: 45005-00).
- Refer to Section 2.11.2, on page 21, to install the buttons, trackball, and graphics on an existing control panel.

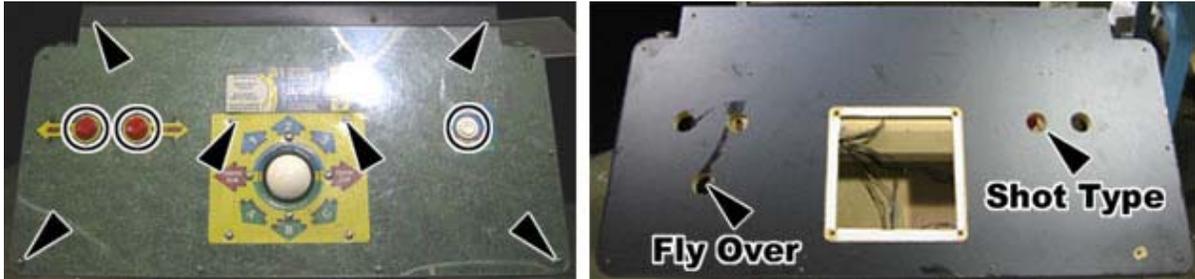
2.11.1 Install the New Control Panel

Perform the steps in this section to install the pre-assembled control panel, part #: 45005-00.

1. Open your control panel and disconnect the wires from the buttons. Be sure to label each pair of wires with which button they connected to.
2. Disconnect all wires and harnesses from the control panel. Remove any wire ties that secure the wires to the control panel. Disconnect any ground wires that connect from the control panel to the cabinet.
3. Disconnect the stop chain from the cabinet.
4. Remove the four (4) nuts and carriage bolts that secure the control panel hinge to the cabinet, and remove the control panel.
5. Install the new control panel using the carriage bolts and nuts removed in the previous step.
6. Connect the stop chain to the cabinet.
7. Connect the trackball Molex[®] connector to the trackball harness that you previously connected to Trackball In, **J5** on the Jamma Conversion Board.
8. Connect the two ground wires from the trackball to the ground lug on the cabinet.
9. Refer to the labels you put on the button wires earlier and connect them to the appropriate buttons. If your cabinet had five buttons on the control panel before the conversion, you can use the old wires to connect all of the new buttons to the Jamma harness.
10. If your cabinet **did not** have five buttons on the control panel before the conversion, connect the 2-Button wire harness (part number 115-0019-01) from the **J6** Button Input on the Jamma Conversion board to the **Fly Over** and **Shot Type** buttons on the Control Panel. Each connector on the harness is labeled with which button it connects to.
11. Use wire ties to secure the wires so that they won't get pulled or pinched when the control panel and service tray are opened or closed.
12. Once the buttons are connected, close the control panel and the service tray, and proceed to Section 3 on page 27 to verify proper operation.

2.11.2 Upgrade an Old Control Panel

Perform the steps in this section to upgrade an old control panel with the new trackball, buttons, and graphics from the kit.



1. Remove the screws that hold the plastic cover to the control panel surface.
2. Remove any carriage bolts that secure the existing trackball assembly to the control panel, as shown by the arrows in the picture above.
3. Disconnect the wires from the buttons. Be sure to label each pair of wires with which button they were connected to.
4. Remove the buttons from the control panel.
5. Depending on your cabinet, it may be necessary to drill new holes in the control panel for the **Fly Over** and the **Shot Type** buttons. If you need to drill new holes, refer to the picture of the finished control panel on page 24 to determine where to drill the holes. Use a 1/18" Spade Drill bit or hole saw to drill the new button holes in the control panel.

Caution: Avoid getting drill chips in the electronic components.



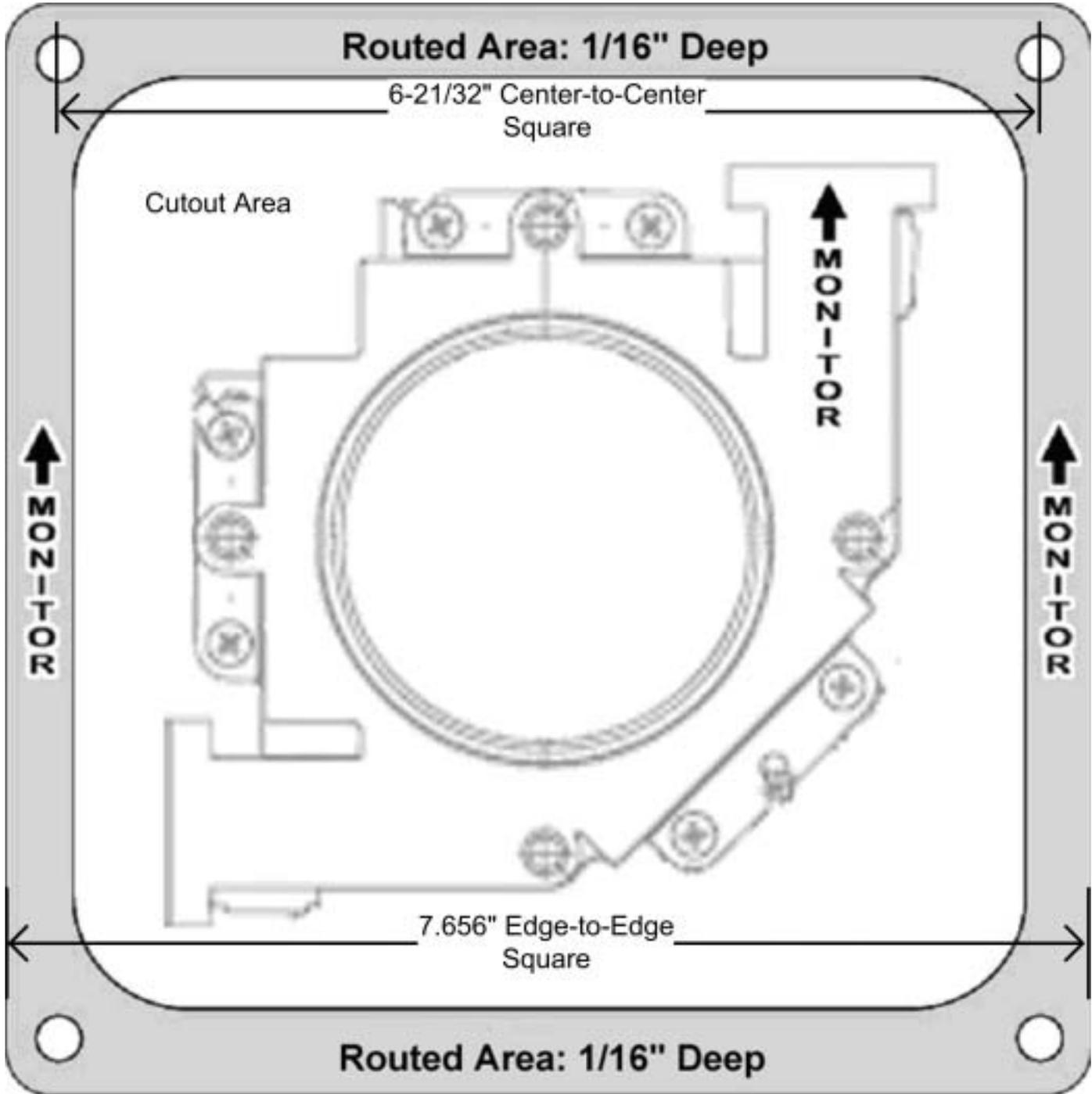
6. Once you have the holes drilled for all 5 buttons, install the new trackball. If your control panel has an existing trackball, you may need to use the existing frame with the new trackball. If so, remove and discard the metal frame from the new trackball.
7. Keep the existing trackball wiring harness with the 6-pin Molex[®] connector to connect the trackball to the Jamma Conversion board later.
8. If your control panel does not have the proper holes to mount a trackball, you will need to cut the holes. The templates on next two pages are provided as a general guide to prepare the control panel surface to install the trackball. Please use accurate measurements as the exact size of the templates may vary in printing.

2.11.2.1 Trackball Mounting for Wood Control Panels

The Trackball is pre-installed in a metal frame mounting plate so it can be easily mounted to most wooden control panels.

Use the template below as a guide to cut and route the control panel for the trackball. Be sure the arrow with the word **MONITOR** is pointing towards the monitor in the cabinet when referring to the template.

Template drawing may not be to scale. Use accurate measurements.

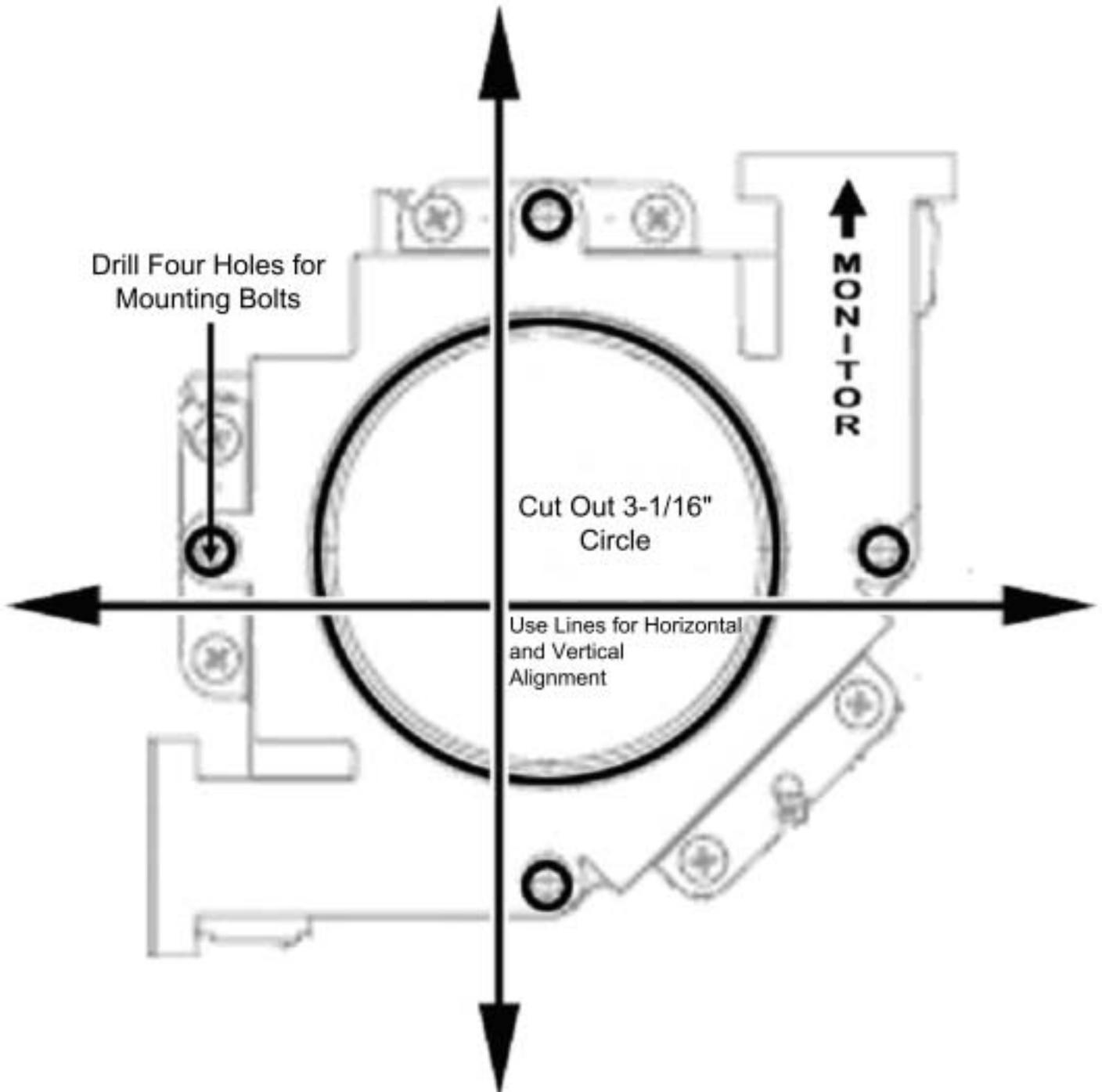


2.11.2.2 Trackball Mounting for Metal Control Panels

To mount on a metal control panel, remove the Trackball from the metal frame (this is used only for wood control panels). Use four (4) 10/32 x 3" carriage bolts with washers and nuts to mount the Trackball to the Metal control panel.

Use the drawing below as a guide to cut the control panel for the trackball. Be sure the arrow with the word **MONITOR** is pointing towards the monitor in the cabinet when referring to the drawing. Square bolt holes are recommended to prevent the carriage bolts from turning.

Template drawing may not be to scale. Use accurate measurements.



2.11.2.3 Apply the Control Panel Graphics

You must follow the Control Panel and Graphics setup exactly as it is detailed in this manual to comply with the Conversion Kit Agreement. You will fail to comply with the Conversion Kit Agreement if you place the EA SPORTS™ logos, GLOBAL VR® logos, or any other cabinet graphics in a wrong position on the cabinet. You must also remove all pre-existing cabinet graphics, serial numbers, and any other visible artwork that does not belong with the Conversion Kit, to be in compliance with the Conversion Kit Agreement.

Refer to the picture below as you place the graphic stickers on the control panel. The exact position of each sticker will depend on the size and shape of your control panel. In order to comply with the Conversion Kit Agreement, all finished control panels should look like the picture below:



Figure 3. Finished Control Panel

Confirm that all pre-existing cabinet graphics, serial numbers, and any other visible artwork is removed and the cabinet surfaces are clean.

1. Cut a 3-1/16 inch hole in the control panel background graphic for the trackball. You can use the double-sided trackball tape as a template to cut the hole in the graphic. Position the hole 14-15/16 inch from the side, and 5-1/4 inch from the bottom edge of the graphic to the edge of the trackball hole, as shown in the picture that follows.
2. Place the control panel background graphic over the control panel. Line up the small lines in the graphic with the top and bottom edge of the control panel. Once you have the graphic lined up correctly, peel off the backing and apply the graphic.
3. Using a new Exacto® knife, use the outside edge of the control panel as a guide to cut off the excess control panel background graphic material.

- Cut the graphic material from the five (5) button holes shown by the arrows below.



- Place the Trackball sticker over the trackball. Use the yellow arrows on the trackball sticker and the white lines in the control panel background graphic to align the sticker.
- Center the **Shot Shaping** sticker 3 white lines below the top edge of the control panel. Once the sticker is aligned correctly, peel off the backing and apply the sticker.



- Refer to the figure below for button graphic placement.

Note: The button graphic stickers in the figure below are shown with white backgrounds to clearly indicate where the graphics are placed on the control panel. Your kit will contain button stickers with clear backgrounds.



- Place the **Real Courses**, **Real Golf**, and **Real Golfers** graphic stickers across the bottom edge of the control panel as follows:
 - Place the **Real Golf** sticker directly under the Trackball sticker.
 - Place the **Real Courses** sticker on the bottom left, and the **Real Golfers** sticker on the bottom right, equally spaced from the **Real Golf** sticker.
 - Once the graphics are lined up correctly, peel off the backing and apply each sticker.
- Place the **Turn Left**, **Turn Right**, **Fly Over**, and **Rotate Golfer** graphic stickers on the left-hand side of the control panel as shown in part 7 of the picture above, using the white lines in the control panel background graphic to align each sticker correctly.
- Place the **Shot Type** and **Start** graphics stickers on the right-hand side of the control panel as shown in part 8 of the picture above, using the white lines in the control panel background graphic to align each sticker correctly.



11. Place the **Swing Basics** sticker on the right-hand side of the control panel, above the **Real Golfers** Sticker, and aligned with the edge of the **Shot Type** sticker, as shown by the arrow in part 9 of the picture above.
12. Place the **Warning Sticker** on the right-hand side of the control panel, one white line below the Shot Shaping Sticker, as shown by the arrows step 10 of the picture above.



13. Place the **EA SPORTS™** logo on the left-hand side of the control panel, aligned with the **Shot Shaping** sticker.
14. Place the **GLOBAL VR®** logo on the right-hand side of the control panel, aligned with the **Shot Shaping** sticker.
15. Once all of the control panel graphics have been applied, re-install the clear plastic control panel cover. Install the trackball carriage bolts first, if used, and then install the outside screws to ensure there are no warps or bubbling in the plastic cover.
16. Install the buttons on the control panel. The **red** button is the **Start** button.
17. Refer to the labels you put on the button wires earlier and connect them to the appropriate buttons. If your cabinet had five buttons on the control panel before the conversion, you can use all of the old wires to connect the new buttons to the Jamma harness.
18. If your cabinet **did not** have five buttons on the control panel before the conversion, connect the 2-Button wire harness (part number 115-0019-01) from the Button input, **J6** on the Jamma Conversion board to the **Fly Over** and **Shot Type** buttons on the Control Panel. Each connector on the harness is labeled with which button it connects to.
19. Connect the trackball Molex® connector to the trackball harness that you previously connected to Trackball In, **J5** on the Jamma Conversion Board.
20. Use wire ties to secure the wires so that they won't get pulled or pinched when the control panel and service tray are opened or closed.
21. Once the buttons are connected, close the control panel and the service tray, and proceed to the next section to verify proper operation.

Section 3 – Power ON and Test the Cabinet

Before powering the cabinet ON for the first time, please verify the following:

- AC power is correctly set up inside the cabinet.
- The DC power supply is correctly set up to provide power to the Jamma Conversion Board.
- All connections are correct and secure.

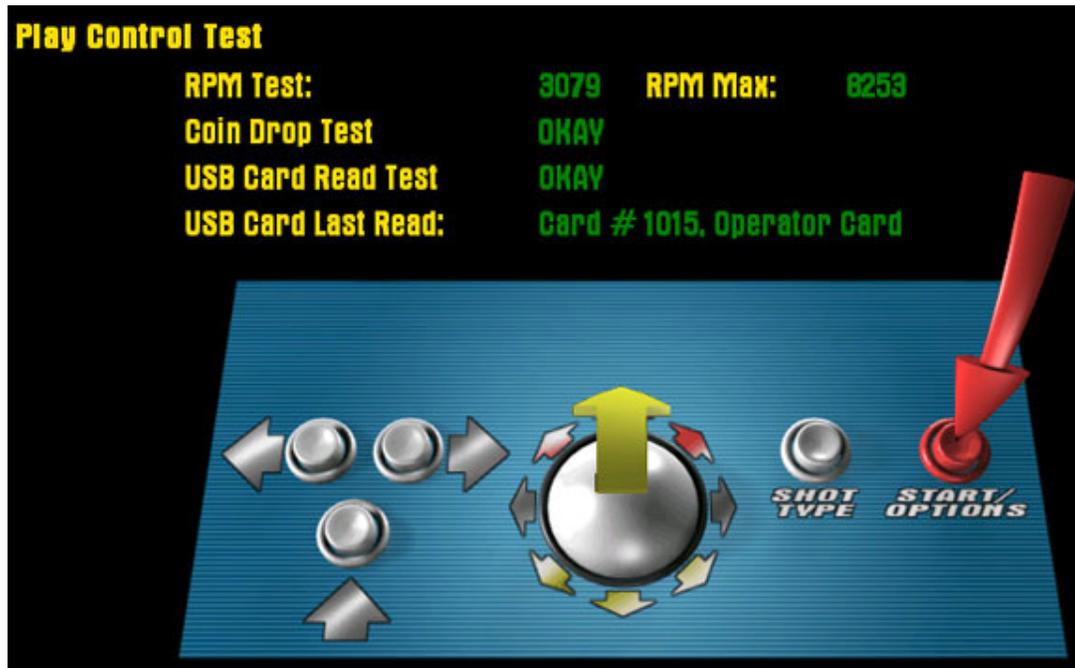
Once you have verified that all hardware is installed correctly, power ON the cabinet and verify that the game starts and runs properly, and that all controls function properly.

3.1 Fix Display Timing (if Needed)

If your system boots with horizontal lines on the monitor that obscure the image (horizontal sync problem), and you are using a Universal Video Converter (UVC) card, insert the Display Timing disk in the CD drive. The disk will reboot the computer almost immediately. When the system reboots, the image should look normal.

3.2 Player Control Test

Use the Player Control Test from the Operator Menu to verify that the trackball, buttons, and coin inputs are working properly.



The Player Control test allows you to test each player control and verify that it is working properly. Press the **Operator** or **Service** button on your cabinet to access the Operator Menus and then select Play Control Test and press the **Start** button.

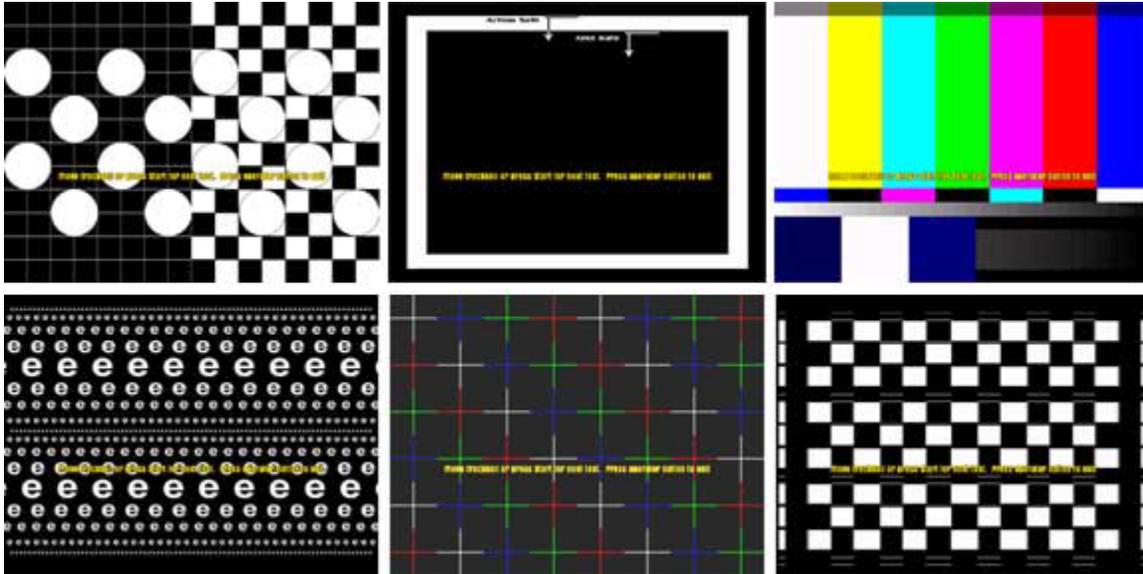
When you press a button, a red arrow will appear on the test screen to indicate which button was pressed. When you spin the trackball in any direction, a yellow arrow will indicate the direction that the trackball is spinning. If the arrows do not appear, or show the wrong button

Section 3 – Power ON and Test the Cabinet

or trackball direction, the controls are set up incorrectly. Double-check the wiring to correct any problems.

Read the System Manual for more information about the Player Controls Test.

3.3 Monitor Calibration Test



The Monitor Calibration Test shows a series of screens that allow you to adjust the monitor using the monitor remote control panel. Use the trackball or Start Button to scroll through each monitor test screen. To exit the Monitor Calibration Test, press the **operator** button again.

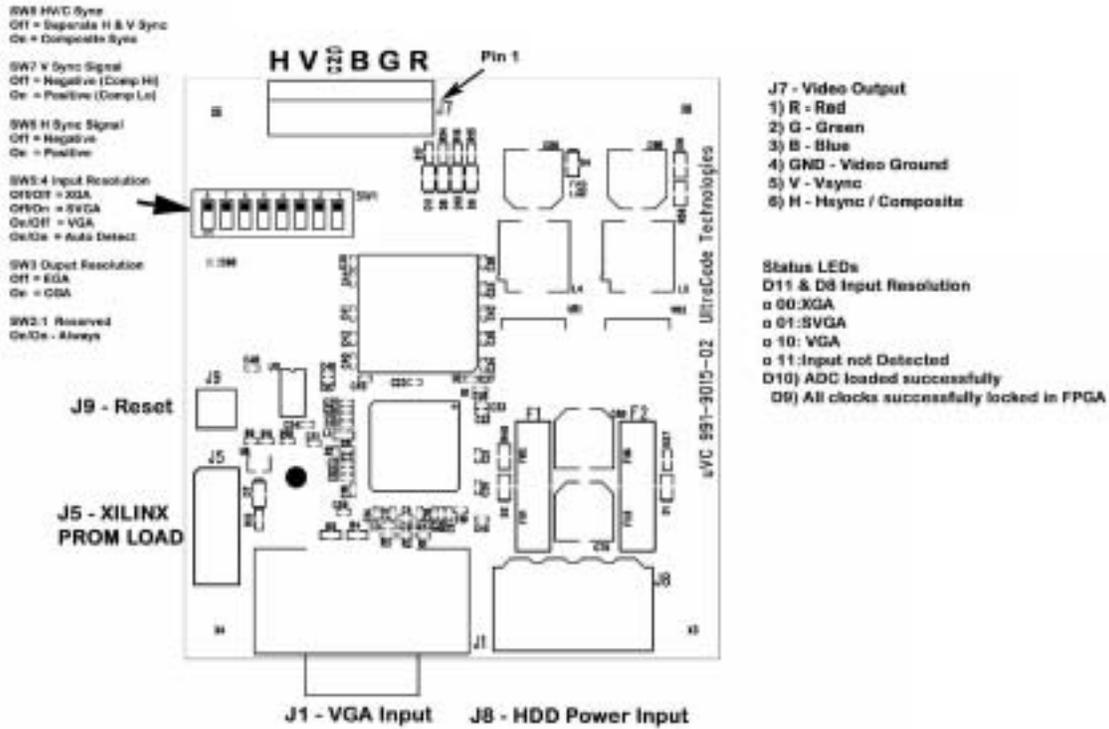
Use the monitor calibration screens to adjust and fine-tune the picture on your monitor. Each screen is designed to help you to either align the horizontal and vertical sync, or adjust the white balance and color hues. If you notice a color distortion on the monitor, pressing the degausser button on the monitor remote control panel may fix the color distortion.

Use the monitor remote control panel to adjust and fine-tune the picture on your monitor. When you press a button on the panel, the Monitor Adjustment Options display on screen. Use the buttons on the monitor remote control panel to select, adjust, and set the available options. The monitor remote control panel is located under the Control Panel on the cabinet.

3.4 Volume Adjustment

Most volume adjustments are made using the Machine Menu from the Operator Menu. If you cannot get desired results, you can adjust the volume using the Audio Volume potentiometers, **R3** and **R4** on the Jamma Conversion Board (see Figure 1 on page 16).

3.5 Adjust the Universal Video Converter (UVC)



The Universal Video Converter (UVC) is designed to work with most EGA and CGA arcade monitors. When you power the cabinet up for the first time, you may need to adjust the settings on the UVC board to match the monitor. To correctly setup the UVC, you must know the resolution and Horizontal and Vertical Sync setup of the monitor.

Depending on your cabinet, the **J7** video output of the UVC can be connected directly to the video input on the monitor, or to **J4** on the Jamma Conversion Board to route the signals through the Jamma harness to the monitor.

Table 3. UVC DIP Switch Settings

SW 1 & 2	Both normally ON .
SW 3 Output Resolution	ON: CGA = 640 x 200 @ 15.72 KHz OFF: EGA = 640 x 384 @ 24.5 KHz
SW 4 and 5 Input Resolution	Both normally ON to auto detect the video resolution.
SW 6 H Sync Signal	Normally ON . Changing the H Sync signal will move the entire picture left or right. Change this setting if you find the picture is too far to one side and you cannot adjust it using the monitor control panel.
SW 7 V Sync Signal	Normally ON . Changing the V Sync signal will move the entire image up or down. Change this setting if you find the image is too far up or down on the monitor, and you cannot adjust it using the monitor remote control panel.
SW 8 H-V / Composite Sync	ON: Composite sync, for monitors with one composite (combined) sync line (most CGA monitors). OFF: For monitors with two separate H and V sync lines (most EGA monitors). Change this setting only if you have no picture on your monitor.

3.6 Apply the Cabinet Graphics

You must follow the Graphics setup exactly as it is detailed in this manual to comply with the Conversion Kit Agreement.

You will fail to comply with the Conversion Kit Agreement if you place the EA SPORTS™ logos, GLOBAL VR® logos, or any other cabinet graphics in any position on the cabinet that is not described in the steps of this manual. All pre-existing graphics, serial numbers, and any other visible artwork that is not part of the Conversion Kit must be removed.

3.6.1 Install the Marquee Artwork



Replace the old marquee artwork with the EA SPORTS™ PGA TOUR® GOLF Marquee graphics from the kit. Remove the screws for the top bracket that holds the marquee glass and artwork to the cabinet, as shown by the arrows in the picture above. Clean both sides of the marquee glass. Insert the marquee graphics, and re-install the bracket.

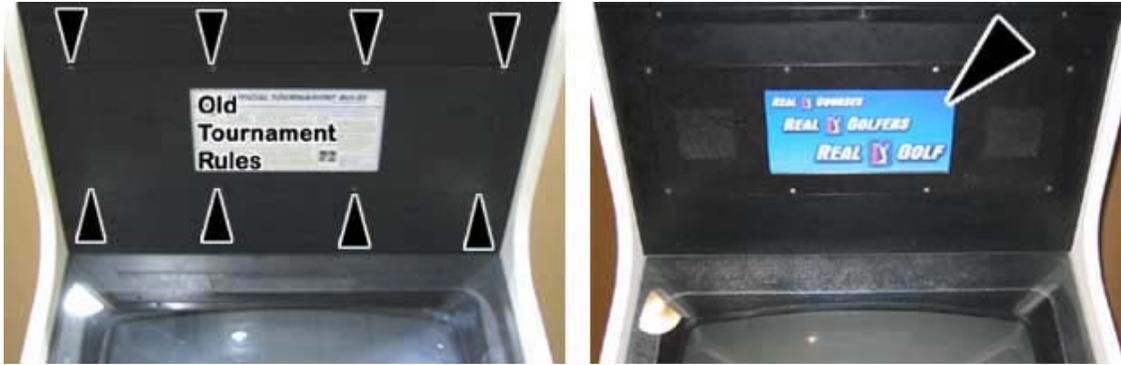
3.6.2 Apply the Cabinet Side Panel Graphics

The graphics are printed on adhesive material with a backing paper. Perform the steps that follow to align and apply the graphics on each side of the cabinet.



1. Identify the Right and Left side panel graphics for the cabinet. The artwork is printed so that it will align with the curve of the cabinet, as shown in the picture above.
2. Align the side panel graphics on the cabinet. Make sure the graphics extend all the way to each edge of the cabinet, that the text and logos are centered, and that no logos will be cut when you trim the excess material from the graphics.
3. Once the graphics are aligned correctly, peel off the backing paper and apply the graphics.
4. Using a new Exacto® knife, trim the excess material from the graphic, using the outside edge of the cabinet as a guide. If you have carriage bolts on the outside of the cabinet, use a ruler to cut off the bottom edge of the graphics above the bolts, as shown by the line in part 3 of the picture above.

3.6.3 Apply the Tournament Rules Artwork



If your cabinet has existing Tournament Rules artwork, located between the speakers and just above the monitor, replace this with either the **Real Courses, Real Golfers, Real Golf** graphic, or the **GLOBAL VR® Tournament Rules** graphic if you will be installing the optional Tournament Header Upgrade Kit (part #: TH-8000-03 or 90509-00).

Remove the screws around the metal plate that holds both the artwork and the speakers to the cabinet, as shown by the arrows in the picture above.

Remove the metal plate and replace the old tournament rules with the correct GLOBAL VR® graphics.

3.6.4 Install the Serial Number Stickers



There are two serial number stickers in the Conversion Kit. Both Serial Number stickers must be placed on the cabinet and computer to comply with the Conversion Kit Agreement.

Place the Cabinet Serial Number sticker on the outside of the cabinet in the upper left-hand corner, as shown by the arrow in the picture above.

Place the Computer Serial Number sticker in a clearly visible location on the computer inside the cabinet, as shown by the arrow in the picture above.

3.7 Important Note about Registration

The Cabinet Serial Number used to register for tournaments must be "ZK" followed by seven digits. If your Conversion Kit Serial Number is "PGAK" followed by five digits, replace the "PGAK" with "ZK00" when you register.

For example, if your cabinet serial number is PGAK1234567, use ZK001234567 to register.

Section 4 – Troubleshooting

Table 4. Troubleshooting Video Problems

Problem	Possible Cause	Possible Solution
No Picture on Monitor	Power Problem	Verify the AC power connection to the monitor. You can verify the monitor has power by looking for a small glow in the Neck of the CRT. Verify the Universal Video Converter has power; the red LEDs should be illuminated.
	Blown fuse on UVC	Check fuses on UVC. Replace with 5 A fuses if blown.
	Faulty Video Cable	For a new Wells-Gardner monitor, verify the cable is firmly connected from the computer Video port to the monitor. For older monitors, verify that the video wires in the Jamma harness are firmly connected from the monitor to the Jamma Conversion Board. Verify the Universal Video Converter output is plugged into the Video Input on the Jamma Conversion Board.
	Faulty Monitor Chassis PCB	Verify that the fuses on the chassis PCB are good.
	Picture is Dim or Faded	Use the monitor remote control panel to adjust the brightness and contrast settings to see if this corrects the problem.
Picture is Misaligned or Color is Poor	Incorrect UVC Settings	Check the SW1 switch bank settings on the UVC and make sure they are correctly set for your monitor.
	Picture is out of Color	Use the monitor remote control panel to adjust the red, green, and blue color settings to see if this corrects the problem.
	Picture Geometry is Misaligned	Use the monitor remote control panel to adjust the height and width as well as other geometric adjustments to see if this corrects the problem.
	Distorted Colors on Screen	Use a degaussing coil on the monitor to see if this corrects the color problem.

Table 5. Troubleshooting Audio Problems

Problem	Possible Cause	Possible Solution
No Audio	Volume Setting	Enter the Operator Menu and adjust the volume setting for the cabinet. Verify that the attract volume is ON.
	Faulty Wiring	Turn off the cabinet. Verify that all the wires are firmly connected to each speaker. Verify that no wires are frayed or improperly shorting to ground.
	Blown Speakers	Remove the speaker grill covers, and visually inspect each speaker. Run the Sound Test from the Operator Menu to verify each speaker is working.
	Faulty Audio AMP	You can verify the Audio AMP on the Jamma Conversion Board is working by installing it into another working cabinet. If that is unavailable to you, plug a simple computer speaker into the audio ports on the computer and verify that sound is working from the computer.
	Volume Set too Low on Board	Adjust volume pots (R3 and R4) on Jamma Conversion Board.

Problem	Possible Cause	Possible Solution
Audio is Distorted or Muffled	Blown Speakers	Remove the speaker grill covers, and visually inspect each speaker. Run the Sound Test from the Operator Menu to verify each speaker is working.
	Faulty Wiring	A weak or low muffled sound is a sign of reversed speaker wires. Check for reversed wires on each speaker.
	Faulty Power Supply	A constant low hum in the speakers can be caused by a faulty power supply that contains a ripple or noise in the power that is being passed through to the speakers.
No Sound from One Speaker (Faulty Sound Channel)	Faulty Audio AMP	You can verify the Audio AMP on the Jamma Conversion Board is working by installing it into another working cabinet. If that is unavailable to you, plug a simple computer speaker into the audio ports on the computer and verify that sound is working from the computer.
	Blown Speakers	Remove the speaker grill covers and visually inspect each speaker. Run the Sound Test from the Operator Menu to verify each speaker is working.
	Faulty Wiring	Turn off the cabinet. Verify that all the wires are firmly connected to each speaker. Verify that no wires are frayed or improperly shorting to ground.
	Volume Set too Low on Board	Adjust volume pots (R3 and R4) on Jamma Conversion Board.

Table 6. Troubleshooting Computer Problems

Problem	Possible Cause	Possible Solution
No Video	Loose or Faulty Video Card	Verify the video card is firmly plugged into the AGP slot on the computer. When the computer is ON, verify the fan on the video card is spinning and working properly. When the computer boots up, it performs a PC self-diagnostic test. If there is a problem with the video card, you will hear three beeps from the computer.
	Loose or Faulty Video Cable	Verify that the video cable is firmly connected to the computer 15-pin video port and the 15-pin video port on the Video Converter board. Check the video cable and make sure it is not pinched or frayed.
No Video, No Audio	Faulty Hard Drive	If you are getting no audio and no video, and the computer is powered on, you might have a faulty hard drive or corrupted software on the hard drive. Reload the software from the System Restore CDs to see if this solves the problem. If you continue to have hard drive problems while you reload the software you have a faulty hard-drive.
	No Power to Computer	Verify the line voltage is set to the correct voltage for your area (115V or 230V). Disconnect the AC power cord from the computer and then reconnect it to power ON the computer.

Section 4 – Troubleshooting

No Control Panel or Button Functions	No Power to the USB I/O card	If the USB I/O card is faulty, the buttons and controls on the cabinet will not work. Make sure that the USB I/O card LED is lit.
	Faulty Wiring	Verify that the DB-37 connector is firmly connected to the USB I/O card. Verify that no wires are frayed or improperly shorting to ground in the wire harness.
	Faulty Power Supply	Verify that the External PC Power Supply is working. This provides 12 volt and 5 volt DC power to the hardware connected to the wiring harness.

Table 7. Troubleshooting Control Problems

Problem	Possible Cause	Possible Solution
Buttons Do Not Work	Faulty Micro Switch	Replace the micro switch on the button and re-test. Verify that the wires are connected to the correct spades on the micro switch.
	Faulty Wiring	Turn off the cabinet. Verify that all the wires are firmly connected to each button. Verify that no wires are frayed or improperly shorting to ground.
	Faulty USB I/O Card	If the USB I/O card is faulty, the buttons and controls on the cabinet will not work. Make sure that the USB I/O card LED is lit.
Trackball Does Not Work	Faulty Jamma Conversion Board	Verify that the Jamma Conversion Board is getting power. Test the Jamma Conversion Board on a working cabinet.
	Faulty Wiring	Verify the trackball in a working cabinet. Verify that no wires are frayed or improperly shorting to ground.
Sloppy or Poor Trackball Response	Faulty TTL Sensors	Go into the Operator Menu and run the Player Control test. Spin the trackball in all directions and verify that you are getting a good response. Check the RPM speed on the trackball. When you spin the trackball as fast as you can, you should get a reading of over 9000 RPM if your trackball is in good condition.
	Faulty Jamma Conversion Board	Verify that the Jamma Conversion Board is getting power. Test the Jamma Conversion Board on a working cabinet.

Table 8. Troubleshooting Miscellaneous Problems

Problem	Possible Cause	Possible Solution
USB Game Dongle Not Found	Game Dongle Not Connected	Connect the Game Dongle to the computer and power the cabinet Off and ON.
	Faulty Game Dongle	If the USB Game Dongle does not illuminate it is not recognized by the computer. Replace the Game Dongle with a working one.
Cabinet Gets Very Warm	Faulty Ventilation Fan	Verify that the exhaust fan is working. It is located near the vents at the top of the cabinet. Replace the fan if worn or spinning slowly.
	Ventilation Holes on Cabinet are Blocked	Make sure you have proper clearance around the ventilation fan at the rear of the cabinet. Make sure the ventilation holes are clear of dust and debris and that air can flow freely.
Marquee Lamp is Faulty or Intermittent	Faulty Fluorescent Tube	Check the fluorescent tube for darkened or cracked end. Replace the fluorescent tube if it looks worn.
	Faulty Fluorescent Fixture	Verify the fluorescent tube pins make a good connection with the lamp fixture. Check the ballast for proper operation.
Improper Amount of Credits Given When Coins or Bills are Inserted	Incorrect Setting in Operator Menu	Verify the Coin settings from the Operator Menu, and adjust them as necessary.
	Faulty Wiring	Turn off the cabinet. Verify that all the wires are firmly connected to each coin mech or Bill Validator. Verify that no wires are frayed or improperly shorting to ground.
Game Will Not Accept Coins or Bills	Faulty Coin Mech	Verify the coin mech is not jammed. Make sure the coin mech is properly aligned and latched to the coin door.
	Faulty Bill Validator	Verify the bill validator is powered ON and working. If the bill validator is faulty, it will usually blink an error code on the inside of the coin door.
Registration Problems	Modify Serial Number	The Cabinet Serial Number used to register for tournaments must be "ZK" followed by seven digits. If your Conversion Kit Serial Number is "PGAK" followed by five digits, replace the "PGAK" with "ZK00". For example , if your cabinet serial number is PGAK1234567, use ZK001234567 to register.
Game does not boot. Screen says USBIO (Nytric) Card is missing.	Cable from USBI/O Card to Computer USB Port Disconnected or Faulty	Connect the USB cable from the USB port on the USBI/O Extreme card to the computer USB port and reboot the system. If the game still does not boot, replace the USB cable.

Section 5 – Diagrams and Schematics

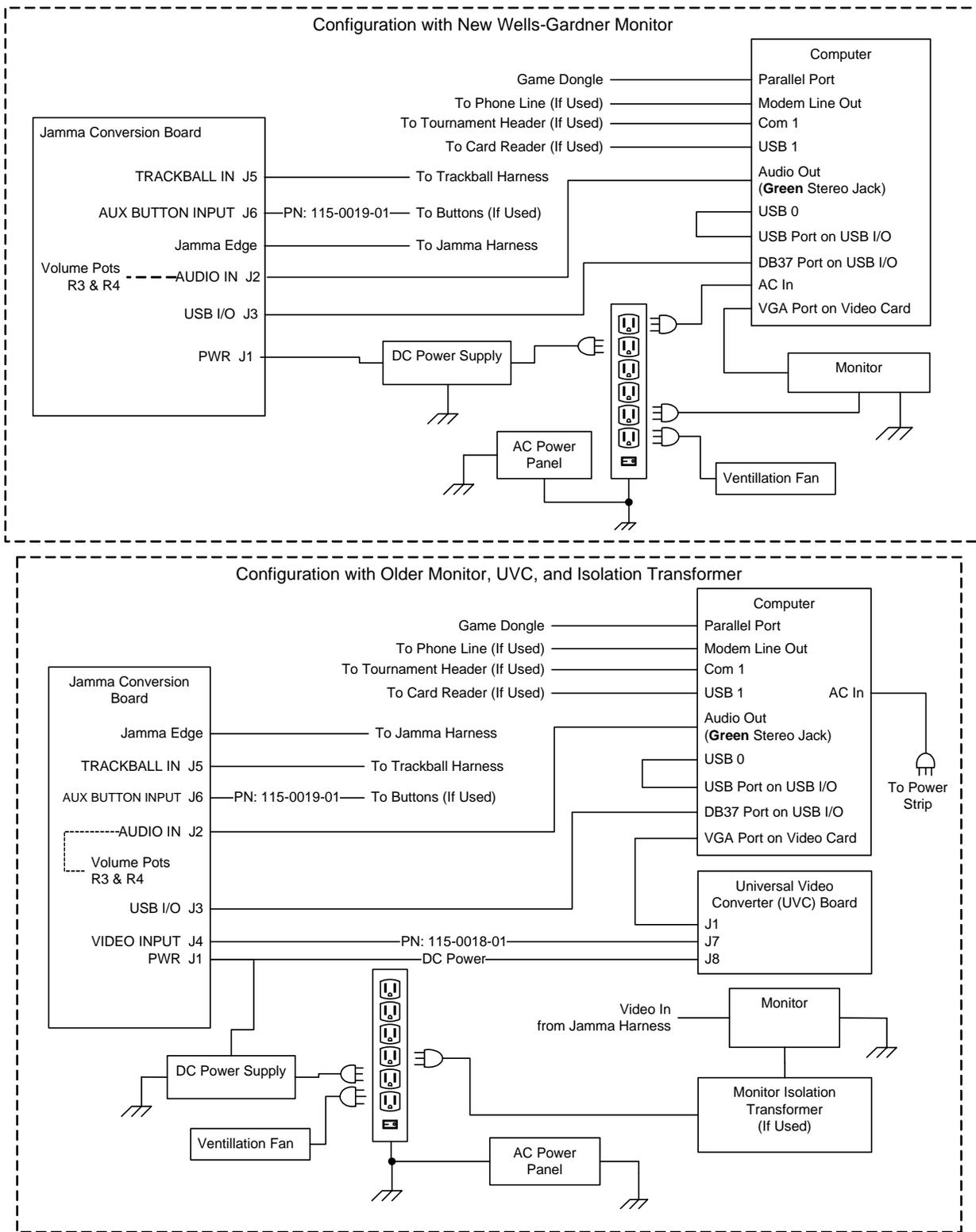
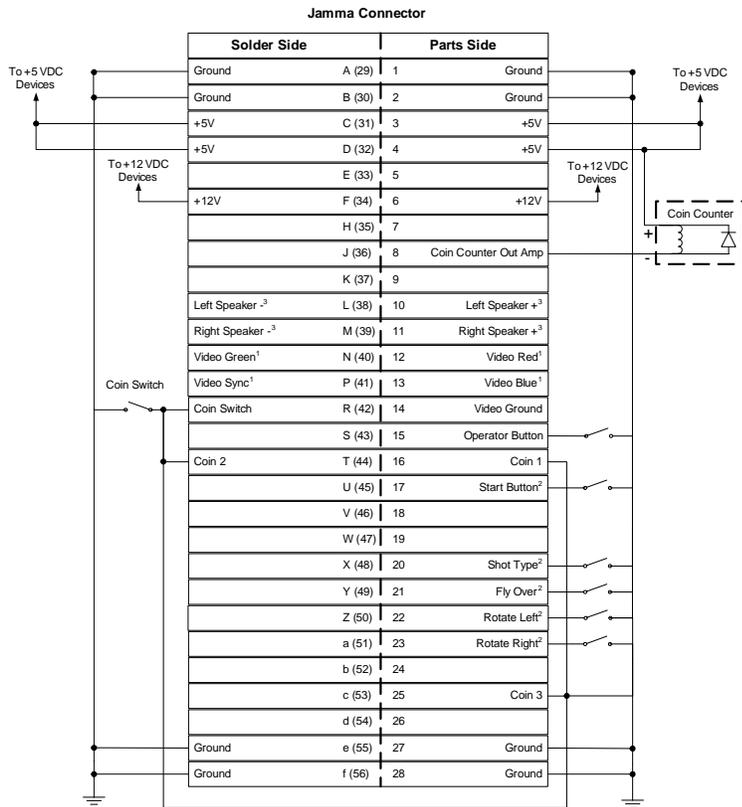


Figure 4. Simplified Wiring Diagram

Section 5 – Diagrams and Schematics



Notes:

- ¹Jamma video connections are not used with the Wells-Gardner® monitor upgrade.
 - ²Jamma button connectors are not used if the buttons are connected directly to J6 on the Jamma Conversion Board.
 - ³For mono audio, only the Left Speaker+ and Left Speaker- speaker connections are used.
- Power is supplied to the Jamma Harness through J1 on the Jamma Conversion Board.

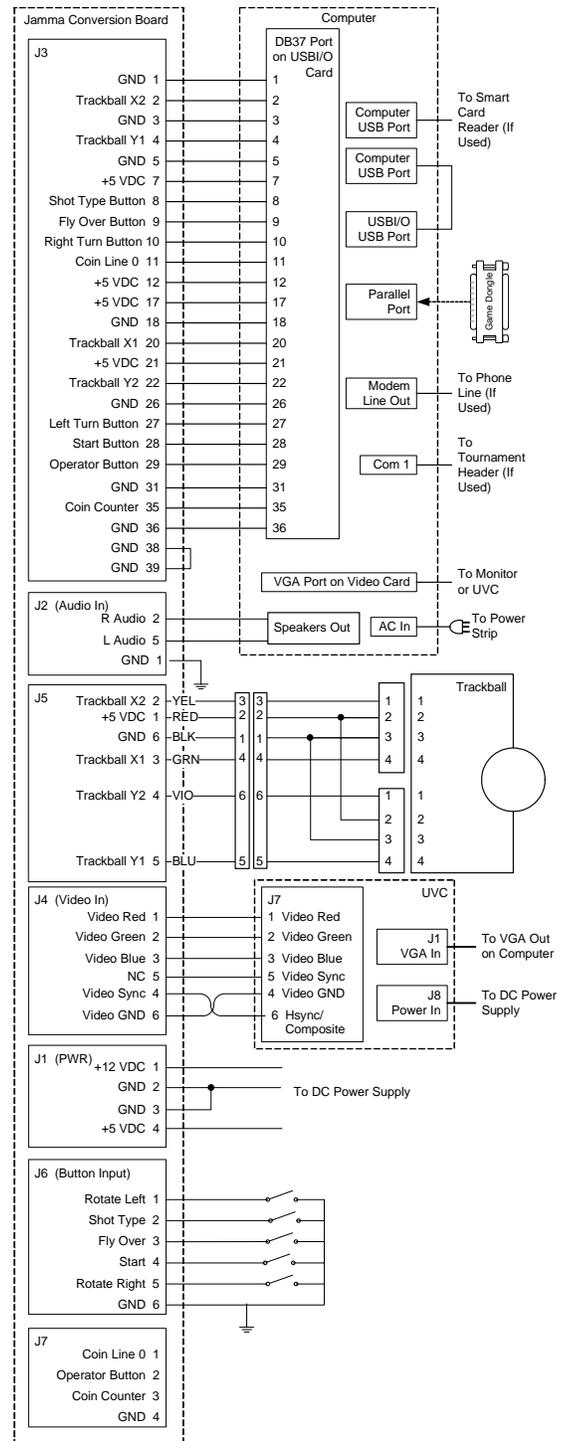
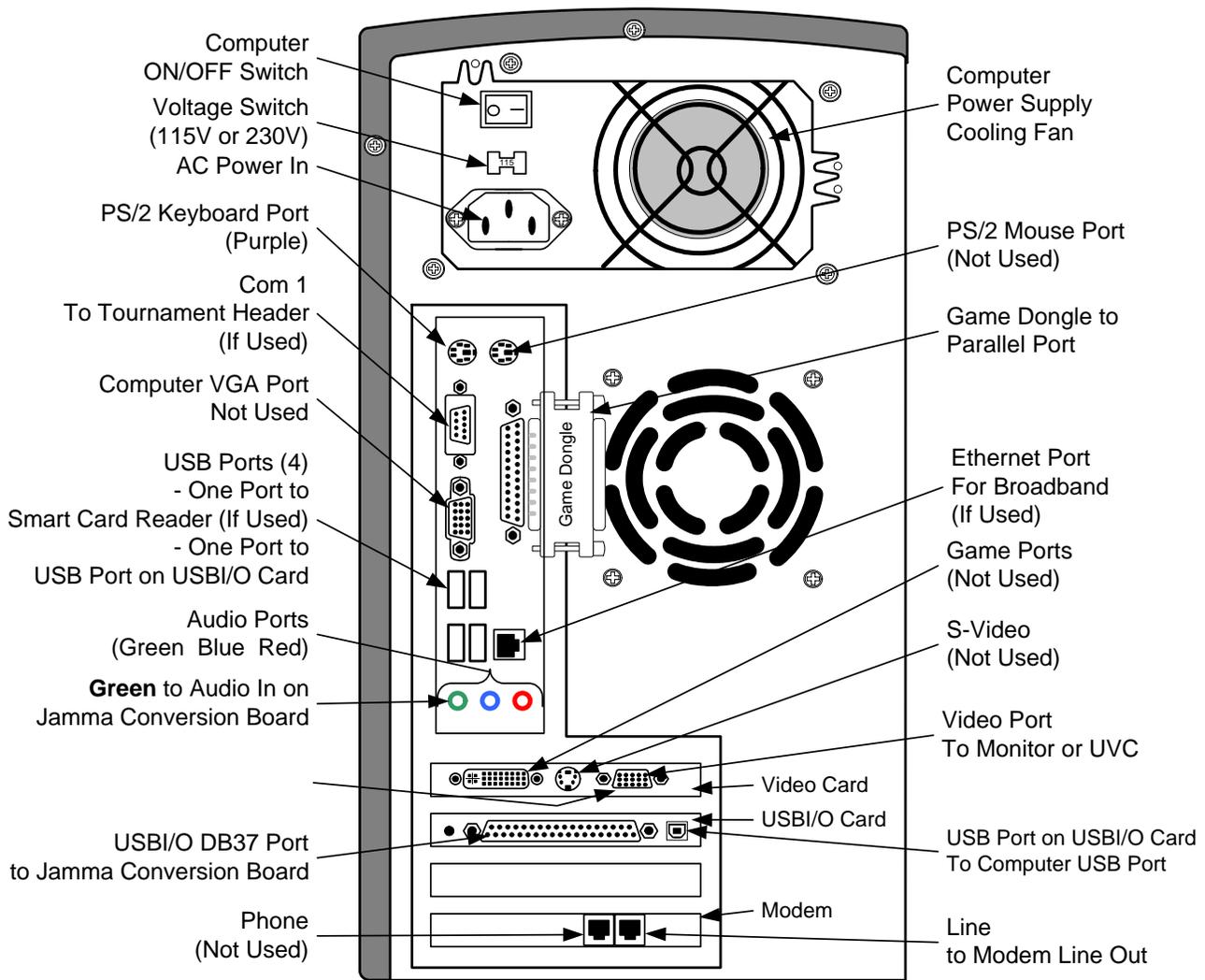


Figure 5. Detailed Wiring Diagram

5.1 Computer Rear Panel Diagram



Note: Port and card positions may vary.

Figure 6. Computer Rear Panel Diagram

Conversion Kit Warranty Information

LIMITED WARRANTY

GLOBAL VR® warrants that its computer circuit boards, hard drives, power supplies, monitors, displays, controls, sensors, and mechanical structures are free from defects in materials and workmanship under normal use and service for a period of ninety (90) days from the date of shipment.

All software and accompanying documentation furnished with, or as part of the Product, is supplied "AS IS" with no warranty of any kind except where expressly provided otherwise in any documentation or license agreement furnished with the Product.

During the warranty period, GLOBAL VR® will, at no charge, repair the Product, provided:

- Purchaser believes that the Product is defective in material or workmanship and promptly notifies GLOBAL VR® in writing with an explanation of the claim;
- All claims for warranty service are made within the warranty period;
- Products are returned adequately packed and freight prepaid to GLOBAL VR®'s designated service center;
- GLOBAL VR®'s inspection or test of the Product verifies to GLOBAL VR®'s satisfaction that the alleged defect(s) existed and were not caused by accident, misuse, neglect, unauthorized or attempted repair or testing, unauthorized modification, incorrect installation, vandalism, failure to follow the maintenance schedule or procedures; or operation in out-of-specification environmental conditions.

GLOBAL VR® will return the repaired Product freight prepaid to the Purchaser. All freight costs associated with replacement of warranty parts after expiration of the original warranty period are the responsibility of the Purchaser. GLOBAL VR® is not obligated to provide the Purchaser with a substitute unit or on-site service during the warranty period or at any time. If after investigation GLOBAL VR® determines that the reported problem was not covered by the warranty, Purchaser shall pay GLOBAL VR® for the cost of investigating the problem at its then prevailing per incident billing rate. No repair or replacement of any Product or part therein shall extend the warranty period as to the entire Product. The warranty on the repaired part only shall be in effect for a period of ninety (90) days following the repair or replacement of that part or the remaining period of the Product parts warranty, whichever is greater.

Purchaser's exclusive remedy and GLOBAL VR®'s sole obligation is to supply or pay for all labor necessary to repair any Product found to be defective within the warranty period and to supply, at no extra charge, new or rebuilt replacements for defective parts.

If repair or replacement fails to remedy the defect, then, and only in such event, shall GLOBAL VR® refund to Purchaser the purchase price for said Product. Purchaser's failure to make a claim as provided above or continued use of the Product shall constitute an unqualified acceptance of said Product and a waiver by Purchaser of all claims thereto.

IN NO EVENT SHALL GLOBAL VR® BE LIABLE FOR LOSS OF PROFITS, LOSS OF USE, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM OPERATION OF THE GAME IN ANY CONDITION. GLOBAL VR® SHALL NOT BE RESPONSIBLE FOR THE SUITABILITY, PERFORMANCE, OR SAFETY OF ANY NON- GLOBAL VR® PART OR ANY MODIFICATION PERFORMED BY ANY PRODUCT DISTRIBUTOR UNLESS SUCH WORK IS EXPRESSLY AUTHORIZED IN ADVANCE BY GLOBAL VR®.

THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESSED OR IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER OBLIGATIONS OR LIABILITIES ON GLOBAL VR®'S PART, EXCEPT FOR ANY EXPRESS WARRANTY SET FORTH IN A WRITTEN CONTRACT BETWEEN GLOBAL VR® AND PURCHASER CONTAINING SPECIFIC TERMS WHICH SUPERSEDE THE TERMS HEREIN. THIS WARRANTY DOES NOT AUTHORIZE ANY OTHER PERSON TO ASSUME OTHER LIABILITIES, IF ANY, CONNECTED WITH THE SALE OF PRODUCTS BY GLOBAL VR®.

Warranty Service

If at some point you require warranty service, contact your distributor. If technical support staff determines that parts on your EA SPORTS™ PGA TOUR® GOLF Conversion Kit are defective, a Return Merchandise Authorization (RMA) number will be issued.

Technical Support

GLOBAL VR[®] provides free telephone, email and online support for the Conversion Kit during the warranty period. In addition to helping with troubleshooting and diagnosing defective parts, GLOBAL VR[®] technical support is prepared to help you with questions about the operation of your EA SPORTS[™] PGA TOUR[®] GOLF game.

When you contact technical support at GLOBAL VR[®], please provide the following information to aid our technical support process:

- Your mailing address and telephone number
- Your Conversion Kit Serial Number
- A summary of the question or a detailed description of the problem with your Conversion Kit

The additional information listed below, as applicable, may assist Technical Support in solving your problem quickly.

- Cabinet ID
- Software version number
- Specific error message
- Any changes made to the system
- Date of latest install or upgrade
- Date of last successful sync
- For game-play issues, the game mode and number of players

Technical support is available from 6:00 AM to 6:00 PM, Pacific Time, Monday–Friday.

Call 408.597.3400 to reach a Technical Support staff member.

E-mail support is available at this address: techsupport@globalvr.com

Tournament e-mail support is available at this address: tournament@globalvr.com

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

Visit the GLOBAL VR[®] website: www.globalvr.com