

JUSTICE LEAGUE **HEROES UNITED**

Universal Conversion Kit Instructions

040-0215-01 Rev A

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



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Preface

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:
 - 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 AC power cables must be 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.
- Keep your system far away from radiators and other heat sources.
- Do not block cooling vents.
- Do not place the game in an area where a water jet would be used or use a water jet to clean the game.

Warnings



To avoid electrical shock, unplug the cabinet before performing installation or service procedures.



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!

Environmental Conditions

The system is intended for indoor use only. Be sure to keep the cabinet dry and maintain operating temperatures of 59°—86°F (15°—30°C).

Chapter 1 — Introduction

This kit lets you convert an existing game cabinet to **Justice League: Heroes United**. The conversion procedure should be performed only by an experienced technician. Since cabinet styles vary widely, the steps in this document should be used as general guidelines for the conversion procedure. Your steps may be different. Please read and follow all precautions in this document.

If you are converting an EA SPORTS™ Madden Football Cabinet

You can use the existing joysticks and buttons (you will need to replace the wiring, and will use only two sets of controls). **Contact GLOBAL VR Service at 408-597-3437 to find out about trading in your old I/O PCBs (the Nytric USB/I/O Extreme PCBs), System Computer, Parallel Game Dongle, and extra Joysticks and buttons from the kit.**

1.1 Conversion Requirements

For a successful conversion, the cabinet must have the following:

- Monitor (any of the following):
 - VGA (640 x 480)
 - SVGA (800 x 600)
 - High-Definition (1360 x 768, 1366 x 768, 1365 x 720, 1280 x 720, or 1600 x 900)
 - CGA (320 x 200 or 320 x 240) **with** Video Converter PCB Kit*
 - EGA (640 x 384) **with** Video Converter PCB Kit*

* For the **Video Converter PCB Kit** for CGA & EGA monitors, order GLOBAL VR Part #: 90602-00

- AC power distribution
- +5/+12 VDC power supply
- Left and Right audio speakers
- Control panel suitable for two (2) joysticks and ten (10) buttons
- Coin mechs (dollar bill validator is also supported)
- Adequate ventilation (kit includes a ventilation fan)

1.2 Conversion Kit Contents

Primary Components

Part Number	Qty	Description
115-0025-01	1	110 VAC Fan, Grill & Cord Assembly
45078-00	1	System Computer
49-0963-40	1	110 VAC Power Strip, Surge Protected, 6', 15A, 1500 Joules
50-3100-00	2	Joystick, 49 Way Optical
58-9100-LG	2	Button, Red Long Pushbutton with Micro Switch & Nut
58-9111-LG	2	Button, White Long Pushbutton with Micro Switch & Nut
58-9122-LG	2	Button, Blue Long Pushbutton with Micro Switch & Nut

Part Number	Qty	Description
58-9133-LG	2	Button, Green Long Pushbutton with Micro Switch & Nut
58-9155-LG	2	Button, Yellow Long Pushbutton with Micro Switch & Nut
990-0014-JL	1	GVRI/O Mini PCB, Game-Specific, Ver. 4.32 or later
990-0200-01	1	Operator 4-Button PCB
USB-KQRTG-HL-JLA	1	USB Game Dongle with Justice League Code

Cables

Part Number	Qty	Description
115-0182-01	1	Cable: P1 & P2 Control Panel Buttons
115-0183-01	1	Cable: P1 & P2 Start Buttons
115-0184-01	1	Cable: P1 & P2 Joysticks
115-0185-01	1	Cable: Coin Door & Service Buttons
115-0186-01	1	Cable: Power, +12V & +5V to GVRI/O Mini PCB
115-0218-01	1	Cable: Operator Button PCB
96-0539-00	2	Stereo Audio Cable, 3.5 MM, 6'
GLO-TWSPK-01	1	Cable: Speakers, Stereo,
USB-AB06MM	2	USB Cable, 6', USB2-AB06

Miscellaneous

Part Number	Qty	Description
60039-00	1	Computer Mounting Strap
--	2 ea	Wood Screw, #10 x 3/4" with Flat Washer (For Computer Mounting Strap)
L-0001	1	Label: 110 AC VOLTS, 10 AMPS, 60 HZ
L-0004	1	Label: FOR INDOOR USE ONLY
L-0006	1	Label: DISCONNECT POWER SUPPLY BEFORE SERVICING
L-0155	1	Serial Number Label
49-1019-00	1	PCB Mounting Feet, Set of 4

Documents & Software

Part Number	Qty	Description
040-0215-01	1	Conversion Instructions (This Document)
040-0218-01	1	Operation Manual
050-0172-01	1	System Recovery Disk, Version 1.0 (1 CD)
050-0175-01	1	Game Install Disk, Version 1.1 (1 DVD)

Cabinet Artwork (see Figure 11 on page 18)

Part Number	Qty	Description
JLK-AW-01	2	Left & Right Side Panel Decals
JLK-AW-02	1	Backlit Marquee Artwork
JLK-AW-04	1	Hints & Tips Decal (Sub-Marquee Artwork)
JLK-AW-03-01	1	Control Panel Background Decal
JLK-AW-03-02	1	Control Panel Left Frame Decal
JLK-AW-03-03	1	Control Panel Right Frame Decal
JLK-AW-03-04	1	Power Instructions Decal
JLK-AW-03-05	1	Left Joystick & Button Labels
JLK-AW-03-06	1	Right Joystick & Button Labels

1.3 Tools Required

This procedure requires standard hand tools, including the following:

- Screwdriver with assorted Torx[®] Security and Phillips bits
- Medium flat-blade screwdriver
- Assorted nutdrivers or wrenches
- Assorted cable ties and/or clips for securing wires
- Exacto[®] knife with new blade
- Wire Snips
- Drill with 1/4", 1-1/8", & 1-5/8" bits to modify the control panel

Depending on your cabinet, you may also need:

- Jig Saw
- Soldering iron, solder, and heat-shrink tubing **or** splicers and crimper
- Router if your control panel is thicker than 1/2"
- If your local voltage is not 110 VAC, you may need a power strip/surge protector and ventilation fan for the local voltage



Figure 1. Example of Finished Cabinet

Chapter 2 — Conversion Procedure

CAUTION: GLOBAL VR assumes no liability for any damage or injuries incurred while converting the cabinet.



This procedure should be performed **ONLY** by an experienced technician.

To prevent electrostatic discharge (ESD) damage, handle PCBs by the edges only and use a grounding wrist strap or similar precaution.

Power must be off when connecting PCBs. Hot connecting will damage the PCBs.

Please read the instructions before performing the conversion.



Always turn the cabinet **OFF** and disconnect the AC power cord before performing conversion steps or service procedures.

This document provides general guidelines for converting your cabinet. Your exact steps may vary depending on the cabinet used. The process consists of the following primary steps:

- **Remove Unused Hardware and Clean the Cabinet**
- **Install and Connect the Hardware**
- **Apply the Cabinet Graphics**

2.1 Remove Old Hardware and Clean the Cabinet

The Conversion Kit uses the following wiring. When you convert the cabinet, **Leave this wiring in place:**

- AC power strip/surge protector, if installed
 - DC power supply and associated wiring
 - Power connections for the following:
 - Marquee light and any special lighting
 - Coin Lamps
 - Dollar Bill Acceptor, if installed
 - Harnesses connected to Coin Door and Operator Buttons
1. Turn off the cabinet and disconnect the AC power cord.
 2. Take a look at the Coin Door and Operator Button wiring on your cabinet. If there is a 9-pin Molex connector for the Coin Mechs and Test Button, and a 6-pin Molex connector for the Service and Volume Buttons, you will probably be able to connect directly to the harness from the kit. Otherwise you will have to snip and splice wires, as described later in this document.
 3. Once you have determined which wiring to keep, carefully remove the other old wiring from the cabinet, or tie it out of the way.
 4. If there is a tournament header on top of the cabinet, disconnect the cables from the tournament header, unbolt it, and remove it from the cabinet. Remove the tournament header harness wires from the cabinet or tie them out of the way.
 5. Remove any Jamma harness wiring (this game does not use Jamma) and all old PCBs.

6. Disconnect the wires from the speakers and remove the audio harnessing.
7. Clean the cabinet surface so the decals will adhere properly. Repair out any bumps or cracks in the cabinet so they will not show through the decals. Remove any artwork that will not be covered with new artwork.
8. Clean the cabinet interior of dirt and debris to ensure good air circulation and protect the electronics.

Note: Keep any reusable cable clips and ties for securing the new wiring.

2.2 Convert the Control Panel

Note: If you are converting an **EA Sports™ Madden Football Cabinet**, you can use the existing joysticks and buttons (you will need to replace the wiring, and you will use only two sets of controls). Contact GLOBAL VR Service at 408-597-3437 to find out about trading in your old I/O PCBs (the Nytric USBI/O Extreme PCBs) System Computer, Parallel Game Dongle, and extra Joysticks and buttons from the kit.

1. Remove existing buttons and other controls along with the harnesses.
2. Determine the best way to convert your control panel. Depending on what sort of controls are installed, you may be able to adapt it for the new controls, or you may do better by cutting a new control panel surface. The control panel decal should be applied to a smooth, clean surface. It can be covered with a clear Plexiglas® surface, if available.
3. **Important:** The Joysticks are designed for a 1/2" thick control panel. If your control panel is 3/4" thick, you will have to use a router to recess the back side by 1/4".
4. Two templates are provided at the back of this document with the recommended placement for the Player 1 and Player 2 controls. Note that the buttons are placed differently for the two players. To use the templates, place them on your control panel with the desired amount of spacing between them and the two joysticks lined up.

If your control panel is large enough, you may wish to put the Power Instructions Decal on the control panel. If so, make sure you place the controls so there is room for the decal. Otherwise you can put the decal on the bezel below the monitor.

Refer to Figure 2 and the templates at the end of this manual to determine where to drill holes for the buttons and joysticks. Drill the holes **before** applying the decal.

- **Buttons:** Use a 1-1/8" spade drill bit or hole saw to drill button holes.
 - **Joysticks:** Use a 1-5/8" spade drill bit or hole saw for the main hole, and a 1/4" bit for the mounting screw holes. If your control panel is thicker than 1/2" you will need to use a router to recess the back side so the surface is 1/2" thick where the joysticks are mounted.
5. Secure each joystick in place with four (4) countersunk 10/32 machine screws through the top of the control panel. If the control panel has a plastic overlay, the screws should go under the overlay so the panel has a smooth surface. Secure each screw with a nut and lock washer below the joystick hub. (See Figure 15 on page 22 for an exploded view joystick drawing. This figure is provided for reference; you **do not** need to disassemble the joysticks to install them.)
 6. Remove any T-molding from the edge of the control panel to make graphic application easier.

7. See Figure 11 on page 18 to identify the artwork pieces. Position the control panel background decal so that it extends past the edges of the control panel. Peel off backing and apply the decal.
8. Using a new Exacto[®] knife, use the outside edge of the control panel as a guide to cut off the excess graphic material.
9. Cut the graphic material from the button and joystick holes.
10. Place the Control Panel Left and Right Frame Decals over the control panel decal as shown in Figure 2. Position them so they frame the control panel and the GLOBAL VR and DC logos line up. Trim the edges and any holes as you did for the main decal.
11. Place the appropriate Button Label near each button hole, as shown in Figure 2.
12. Place a Joystick Decal around each joystick hole, blue on the left (Player 1) and red on the right (Player 2).
13. If your control panel is large, with adequate space away from the buttons, you may wish to place the Power Instructions Decal on the control panel; otherwise place it on the bezel below the monitor.
14. Re-install the T-molding and clear surface, if used.
15. Install the buttons as shown in Figure 2.

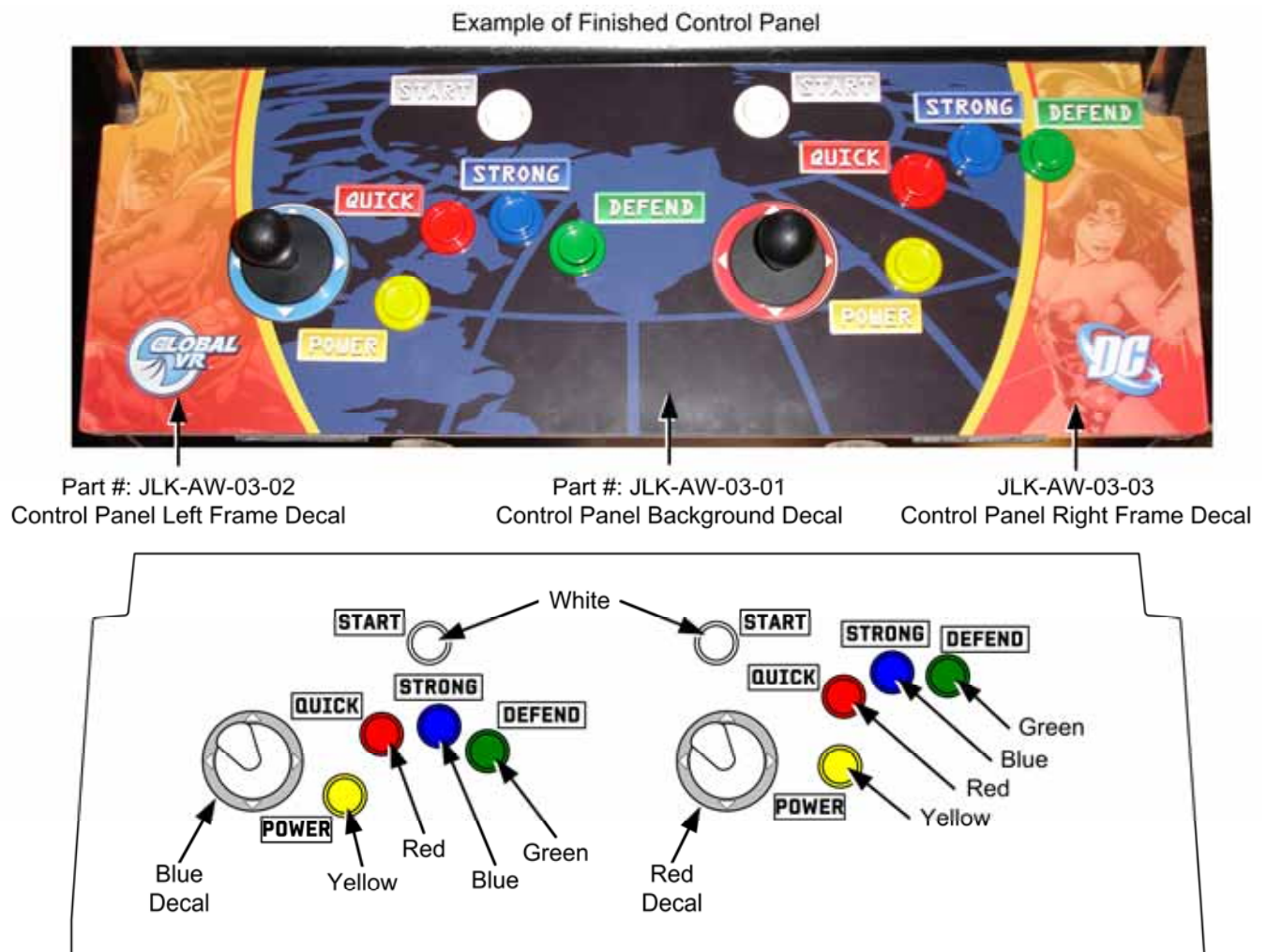


Figure 2. Control Panel Layout

2.3 Set Up AC Power Distribution

Important: If your cabinet will not be using 110 VAC, you will not be able to use the power strip and ventilation fan in the kit.

The kit includes an AC power strip/surge suppressor. Surge protection is necessary to protect the computer and other electronics in the cabinet.

If your cabinet already has a surge-protected AC power outlet, skip this section. If there is an AC outlet but it is not surge protected, simply plug in the power strip/surge suppressor from the kit and secure it in place with screw-mounted cable ties or adhesive-backed Velcro[®].

If there is no AC outlet in the cabinet, the simplest way to power the cabinet is to do the following:

1. Route the existing cabinet power cord to the inside of the cabinet and connect it to the power strip/surge suppressor from the kit.
2. Route the power cord from the power strip out of the cabinet; it is now the cabinet power cord.
3. Secure the power strip inside the cabinet with either screw-mounted cable ties or adhesive Velcro.

2.4 Rewire the AC Isolation Transformer (as Applicable)

Some cabinets with CGA monitors have an AC Isolation Transformer that is used to power the monitor. If you connect this type of monitor directly to AC power, you will damage the monitor chassis, so you **must** keep the AC Isolation Transformer.

You may need to reposition the AC Isolation Transformer to make room for the new computer. To make this easier, you can splice the Transformer AC Power In wires to an AC power cord such as GLOBAL VR Part # 115-0008-01 (not provided in the kit) and connect it to the AC power strip that you installed previously.

2.5 Install the Ventilation Fan

Important: The ventilation fan in the kit runs on 110 VAC. If your voltage is different, you must use a different fan.

The cabinet must have adequate ventilation to prevent the system computer from overheating. Refer to Figure 3 and do the following to install the ventilation fan from the kit:

Important: If the fan is in the lower part of the cabinet, make sure it draws air **into** the cabinet. If the fan is in the upper part of the cabinet, make sure it blows air **out** of the cabinet. An arrow on the side of the assembly shows the direction of airflow.

1. Install the fan behind existing ventilation holes, or cut a 4.5" diameter hole in the back of the cabinet. Using the fan as a template, drill four 7/32" holes for the fan mounting bolts. Secure the fan with the four (4) 2-½ " bolts and Kep nuts.
2. Connect the fan power cord to the AC power strip.



Figure 3. Installing the Ventilation Fan

2.6 Relocate the Operator Button Panel (as Applicable)

1. If the operator button panel in your cabinet looks like the one in Figure 4, you may wish to relocate it so that you can access the front of the computer through the coin door. Remove the two screws that secure the panel to the coin door assembly and move it to the side of the vault assembly, as shown in Figure 4. Secure it with the two screws.

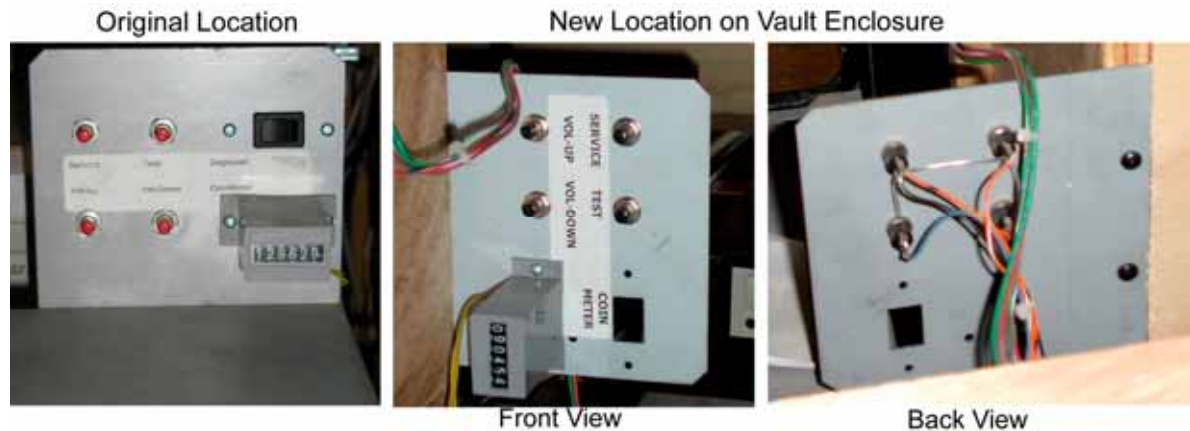


Figure 4. Relocating the Operator Button Panel

2.7 Install the Computer

Note: The computer comes with the **Justice League: Heroes United** software pre-installed.

1. Place the computer so that there is at least a 6-inch clearance in front to allow the DVD-ROM drive to open. Try to place the computer so that you can reach the rear panel connectors through the back door, and the DVD-ROM drive through the coin door.
2. The computer should be against the side wall. If a cleat along the bottom of the cabinet prevents putting the computer against the wall, install a piece of wood of the same width to the side of the cabinet near the top of the computer to keep it from wobbling sideways. For extra protection, you may wish to install a sheet of dense packing foam under and at the side of the computer.
3. Refer to Figure 5 for an example of how to secure the computer with the mounting strap. Using the two (2) #10 x 3/4" wood screws with fender washers from the kit, secure the ends of the strap as close as possible to the top and side of the computer. Make sure the two parts of the strap are lined up so they will buckle near the center of the computer. Buckle and tighten the strap.

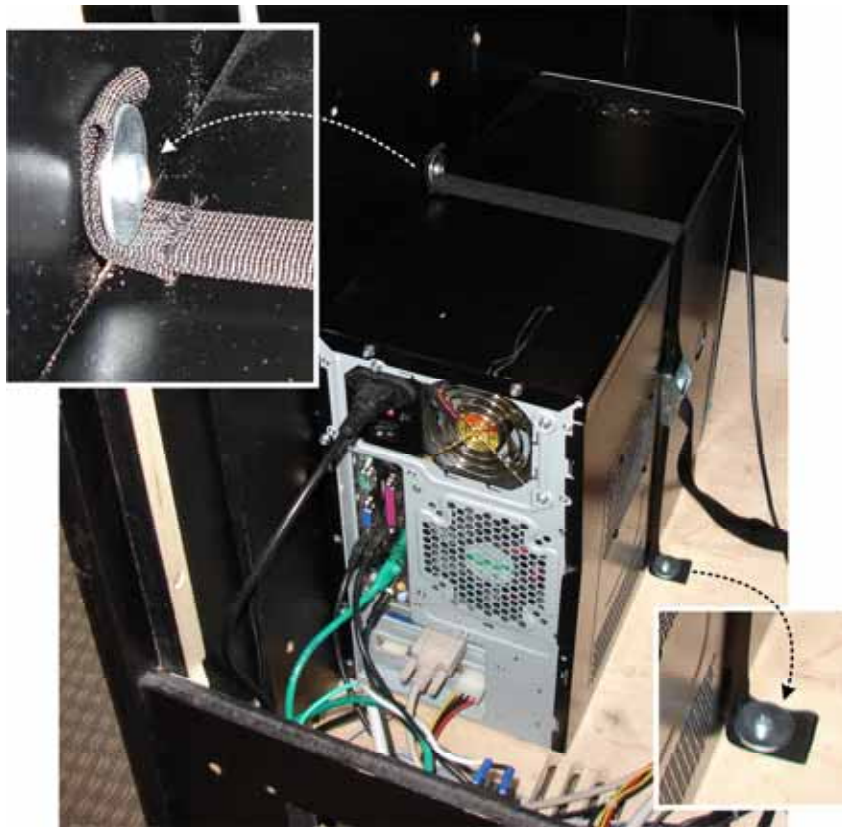


Figure 5. Securing the Computer

2.8 Make Connections to the I/O PCB and Computer

Note: Harnesses are labeled for easy connection.

1. Find a convenient location in the cabinet to mount the GVR I/O Mini PCB. If the cabinet has a service tray, this is probably a good location. Otherwise, the best place is probably a wall inside the back of the cabinet. Make sure that all harnesses will reach the PCB without being pinched or pulled, and that the PCB will not be exposed to excessive heat. (If you install on a wall, place the PCB so the USB connector faces up. This will help keep the USB cable securely connected.)
2. Mount the PCB on the plastic feet from the kit.
3. **Cabinet with CGA or EGA Monitor Only:** Mount the UVC the same way as the I/O PCB. Make sure the DC power, monitor signal wires, and VGA cable from the computer will reach it.
4. Refer to Figure 6 when making connections to the GVR I/O MINI PCB. Also see Figure 13 on page 20 for a detailed wiring diagram.

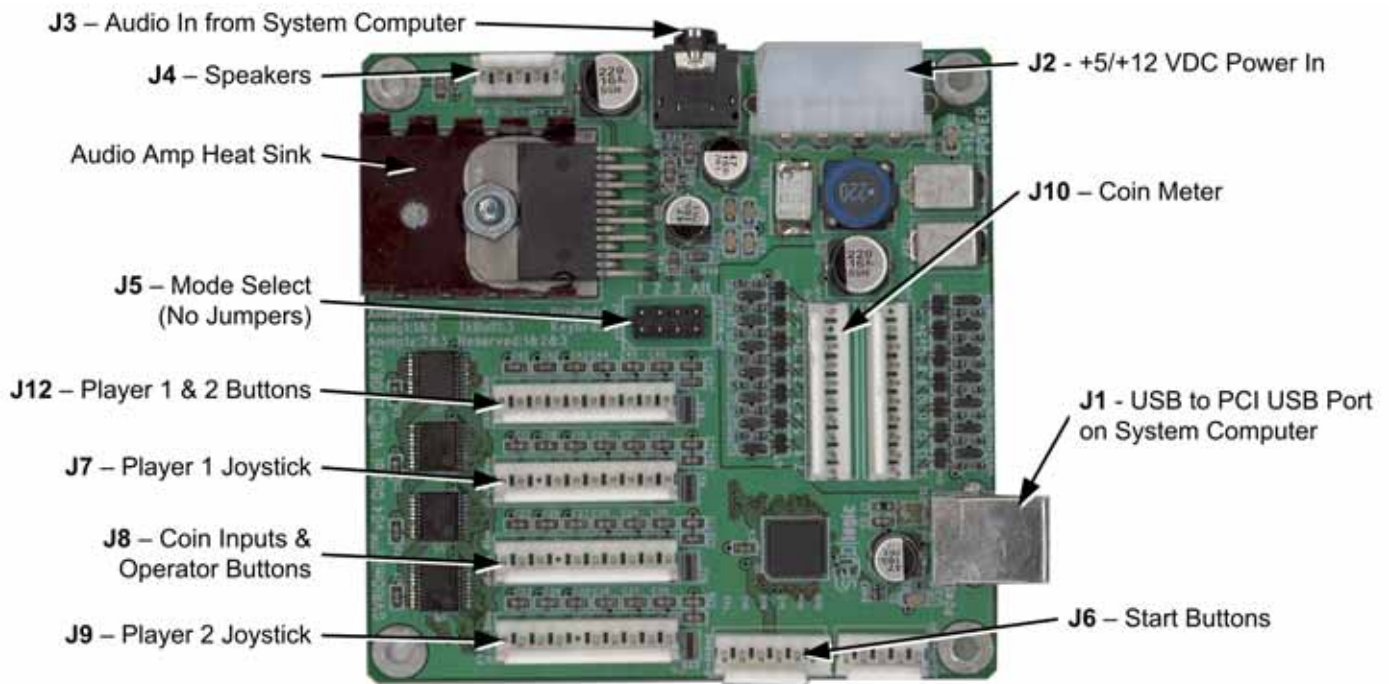


Figure 6. GVR I/O Mini PCB Connections

5. Connect harness # 115-0184-01 to **J7**, **J9**, & **J11** on the PCB and the Player 1 and Player 2 joysticks.
6. Connect harness # 115-0182-01 to **J12** on the PCB and the micro switch terminals for each button. Connect the Black & White Ground Wires to **COM** and the signal wires **NO**. The table below shows which button corresponds to each label on the harness connectors:

Player 1		Player 2	
Harness Label	Button	Harness Label	Button
P1 Attack 1	Red (Quick)	P2 Attack 1	Red (Quick)
P1 Attack 2	Blue (Strong)	P2 Attack 2	Blue (Strong)
P1 Defend	Green (Defend)	P2 Defend	Green (Defend)
P1 Special	Yellow (Power)	P2 Special	Yellow (Power)

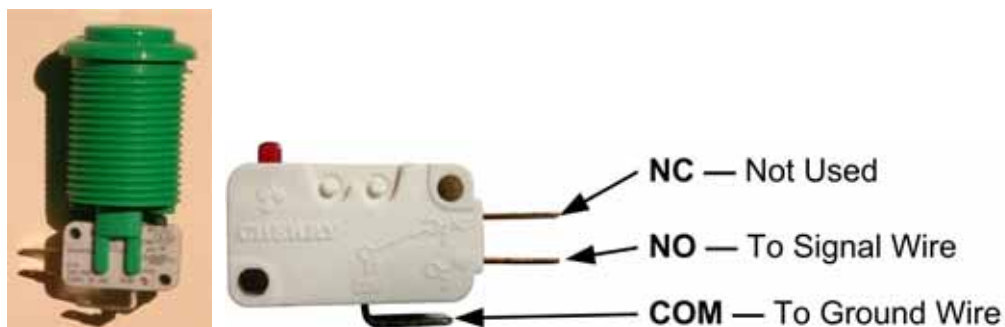


Figure 7. Connecting the Buttons

7. Connect harness # 115-0183-01 to **J6** on the PCB and the micro switch terminals for the Player 1 and Player 2 **START** buttons. Connect the Black & White Ground Wires to **COM** and the signal wires **NO** as you did for the other buttons.

8. Connect the audio harness (# GLO-TWSPK-01) to **J4** on the PCB and the speakers, being careful to connect the + and – wires to the same terminals on each speaker.
9. Connect harness # 115-0185-01 to **J8 & J10** on the PCB. See *Section 2.9*, that follows, for information on connecting your coin door and Operator buttons to the harness.
10. Connect +5/+12 VDC power from the power supply to **J2** on the PCB. The PCB has a standard 4-pin PC power connector (Pin 1: +12 VDC, Pin 4: +5 VDC, Pins 2 & 3: Ground).
11. Refer to *Figure 14. Computer Rear Panel Diagram*, on page 21 when making connections to the computer.
 - a. **Important:** Make sure the switch on the computer power supply matches the nominal input voltage, either 115 or 230 VAC.
 - b. Connect the USB cable from a PCI USB port to the GVR I/O MINI PCB.
 - c. Connect the 3.5 mm audio cable from the **Green** audio out port on the computer to the **Audio In** port on the GVR I/O MINI PCB.
 - d. Connect the computer power cord to the computer and the AC power strip.
 - e. Connect the VGA cable to the video card in the computer (**not** the motherboard VGA port). Connect the other end to the monitor or the Video Conversion PCB. For High-Definition Monitors, you can use the DVI port on the computer with your own DVI cable, if desired.
 - f. Connect the USB Game Dongle to a USB port (a motherboard USB port is recommended).

2.9 Set up Coin Door Wiring & Operator Buttons

The game requires four Operator buttons to navigate the Operator Menus. You can use the Operator Button PCB in the kit, or the existing buttons in the cabinet, if available. Depending on your cabinet, **you have three options for wiring the coin door:**

- If the cabinet has a standard Happ Controls coin door with a 9-pin Molex connector for the Coin Mechs and Test Button, and a 6-pin Molex connector for the Service and Volume Buttons, you should be able to connect directly to harness 115-0185-01.
- Use the Operator Button PCB and Harness from the kit. Connect the PCB harness to harness 115-0185-01, and then splice the **Coin 1** and **Coin Meter** wires to the existing coin door wiring. Use the attached Velcro to mount the PCB so you can reach it through the coin door.
- Use existing Operator Buttons and splice all coin door wiring to harness 115-0185-01.

Use the following figures as a guide for making connections to your coin door:

Figure 8 shows the Operator Button PCB and Harness with the pinouts labeled.

Figure 9 shows wiring detail for harness 115-0185-01, and also shows how the harness connects to a typical Happ Controls coin door with 4-button Operator Button Panel.

Important: Coin lamps and coin meters may be powered by either 5 or 12 volts. When wiring your coin door, be aware that connecting a 5V component to 12V power will probably destroy the component. When in doubt, try 5V first!

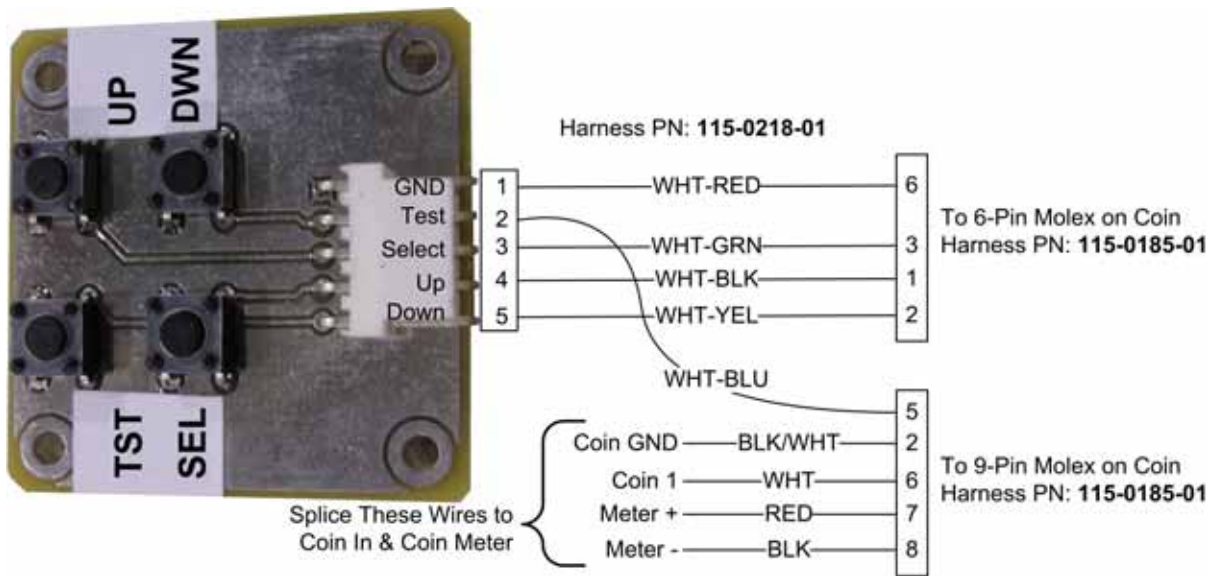


Figure 8. Operator Button PCB and Cable with Pinouts

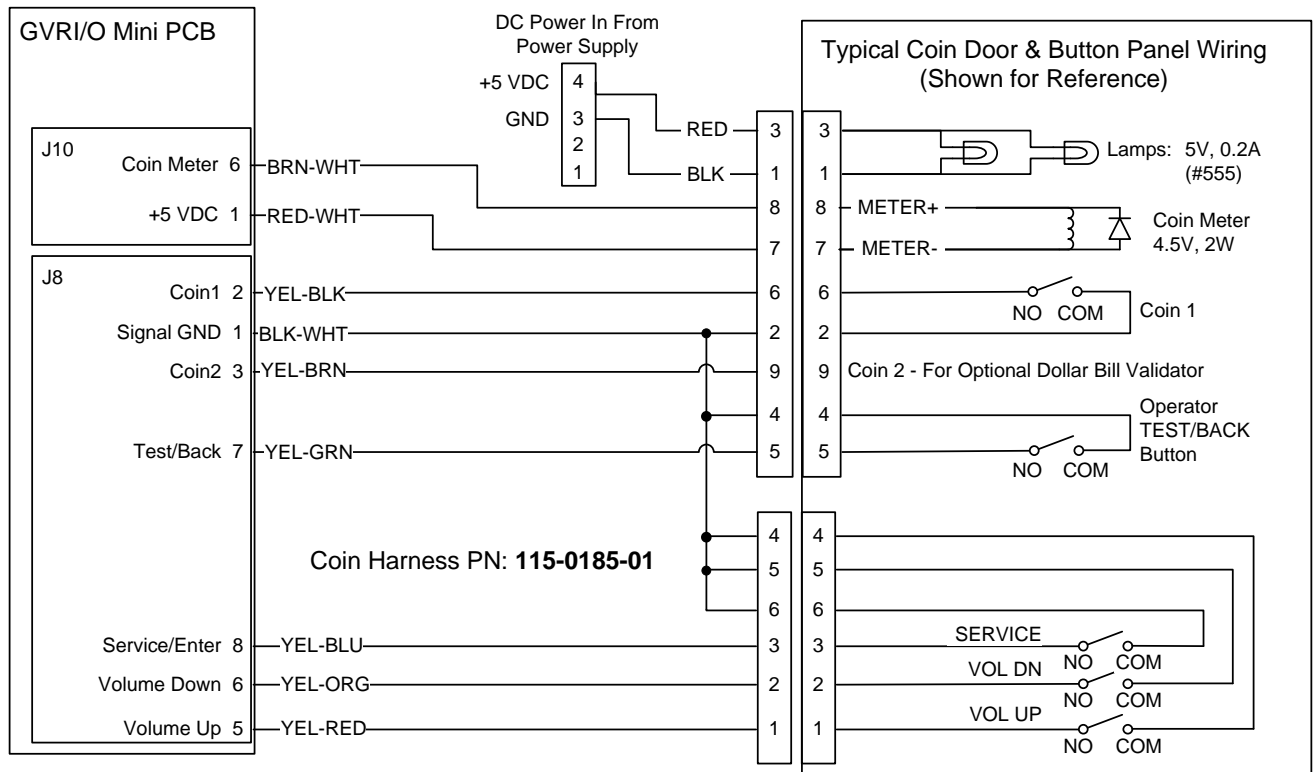


Figure 9. Coin Door Wiring with Standard Coin Door

2.10 Set up the Universal Video Converter (UVC) PCB (If Used)

Note: The UVC is provided in a separate kit, GLOBAL VR Part #: 90602-00. It is required if you are using an EGA or CGA monitor with **Justice League: Heroes United**.

The Universal Video Converter (UVC) PCB is designed to work with most EGA and CGA arcade monitors. You may need to adjust the DIP Switch settings on the UVC board to match the monitor (see the table below). To correctly set up the UVC, you must know the resolution and Horizontal and Vertical Sync setup of the monitor.

Check the figure below for the Output Connector Pins and connect your EGA or CGA monitor to the EGA/CGA Output port on the PCB.

Important: Two UVC PCBs are in use, PN: 991-9015-00 and 990-UVC0000-PCB-03. These PCBs are interchangeable except that the Ground and Horizontal Sync pins are switched. The figure below shows the pin arrangement by part number for each PCB.

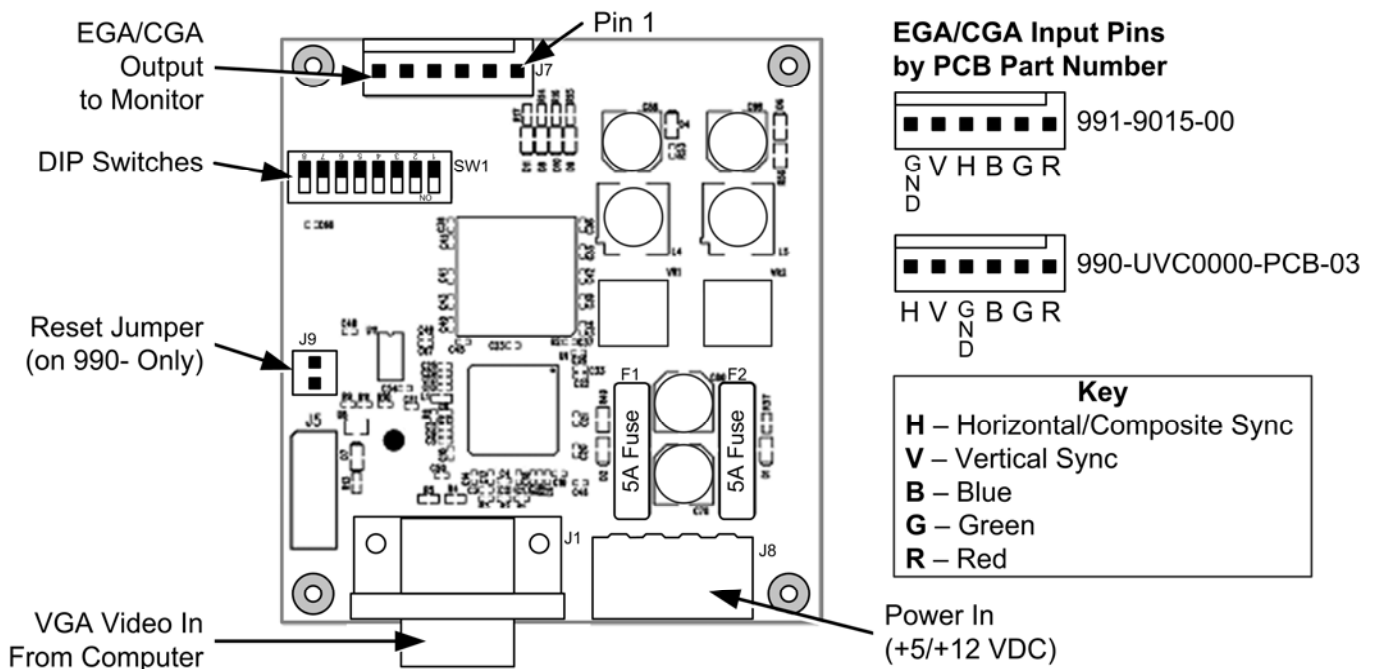


Figure 10. UVC PCB Layout

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.

2.10.1 UVC Troubleshooting

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 UVC has power; the red LEDs should be illuminated.
	Blown fuse on UVC	Check fuses on UVC. Replace 5 Amp fuse if blown.
	Faulty Video Cable	Verify that the video signal wires and VGA cable are firmly connected to the UVC PCB.
	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. Select Diagnostics→Visual Diagnostics from the Operator Menu to adjust monitor gamma, contrast, and brightness in the software.
Picture is Misaligned or Color is Poor	Incorrect UVC Settings	Check the DIP switches on the UVC and make sure they are correctly set for your monitor.
	Color is Poor	Use the monitor remote control panel to adjust the red, green, and blue color settings.
	Picture Geometry is Misaligned	Use the monitor remote control panel to adjust the height and width as well as other geometric adjustments. Check the UVC DIP switch settings.
	Distorted Colors on Screen	Use a degaussing coil or press the degauss button on the monitor remote control panel.

2.11 Power ON and Test the Cabinet

- Before powering the cabinet ON for the first time, please verify the following:
 - AC power is set up correctly inside the cabinet.
 - The GVR I/O MINI PCB is connected to DC power.
 - All connections are correct and secure.
- Power ON the cabinet and verify that the Attract Mode starts and runs properly. (It takes about 1 ½ minutes to boot and start the Attract Mode.)
- Start a game and verify that the joysticks and buttons function properly.
- Press the Operator **Test** button inside the coin door to access the Operator Menu.
- Select **Diagnostics** from the Operator Menu, and then select **Controller Diagnostics** to test each button, joystick, and coin input individually. See your Operation Manual for details on using the Diagnostics Menu.
- Use the Operator Menus to set up pricing and other configurable settings. See your Operation Manual for details on using the Operator Menu.
- Adjust the volume levels from **Machine Settings** in the Operator Menu.
- Select **Diagnostics→Visual Diagnostics** to adjust monitor gamma, contrast, and brightness, and to access monitor test screens to help you to adjust the colors and geometry of the monitor. If you notice color distortion on the monitor, check for a degausser button on the monitor remote control board.

- Once you confirm that everything is working, disconnect power and use wire ties to secure the cables and harnesses in the cabinet. Make sure no wires will be pulled or pinched when the control panel or service tray is opened or closed. Tie the wires to the cabinet so that they are secure and out of the way. Bundle and tie wrap any old harnesses that are no longer used.

2.12 Apply the Cabinet Artwork

Refer to the Figure 11 and install the artwork as described in the steps that follow. The cabinet must be clean for the decals to adhere properly. Repair out any bumps or cracks in the cabinet so they don't show through the decals.



Figure 11. Artwork Application

- Position the Side Panel decals on the sides of the cabinet so they are straight and in the same position on both sides. If the cabinet has carriage bolts on the sides, you will need to trim the decal around the carriage bolts.

2. Once each decal is aligned correctly, peel off the backing paper and apply the decal, carefully pushing out any air bubbles. Trim excess material from the decal using the cabinet edge as a guide.
3. Remove the marquee along with the glass or clear plastic. Clean both sides of the glass. Use the glass or the old artwork as a guide for cutting the new marquee artwork to fit. Re-install the glass or clear plastic with the new artwork.
4. If the cabinet has a sub-marquee, apply Hints & Tips Decal over the sub-marquee. This decal can be applied elsewhere on the cabinet if desired.
5. Apply the Power Instructions Decal on the bezel below the monitor if it was not used on the control panel.

2.13 Apply the Cabinet Labels

1. 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 below.
2. Place the FOR INDOOR USE ONLY and DISCONNECT FROM POWER SUPPLY BEFORE SERVICING labels just above the cabinet rear door.
3. Place the 110 VOLTS label close to where the AC power cord connects to the cabinet. (**Do Not** use this label if the input voltage is not 110 VAC.)



Figure 12. Serial Number and Safety Label Application

Chapter 3 — Diagrams and Schematics

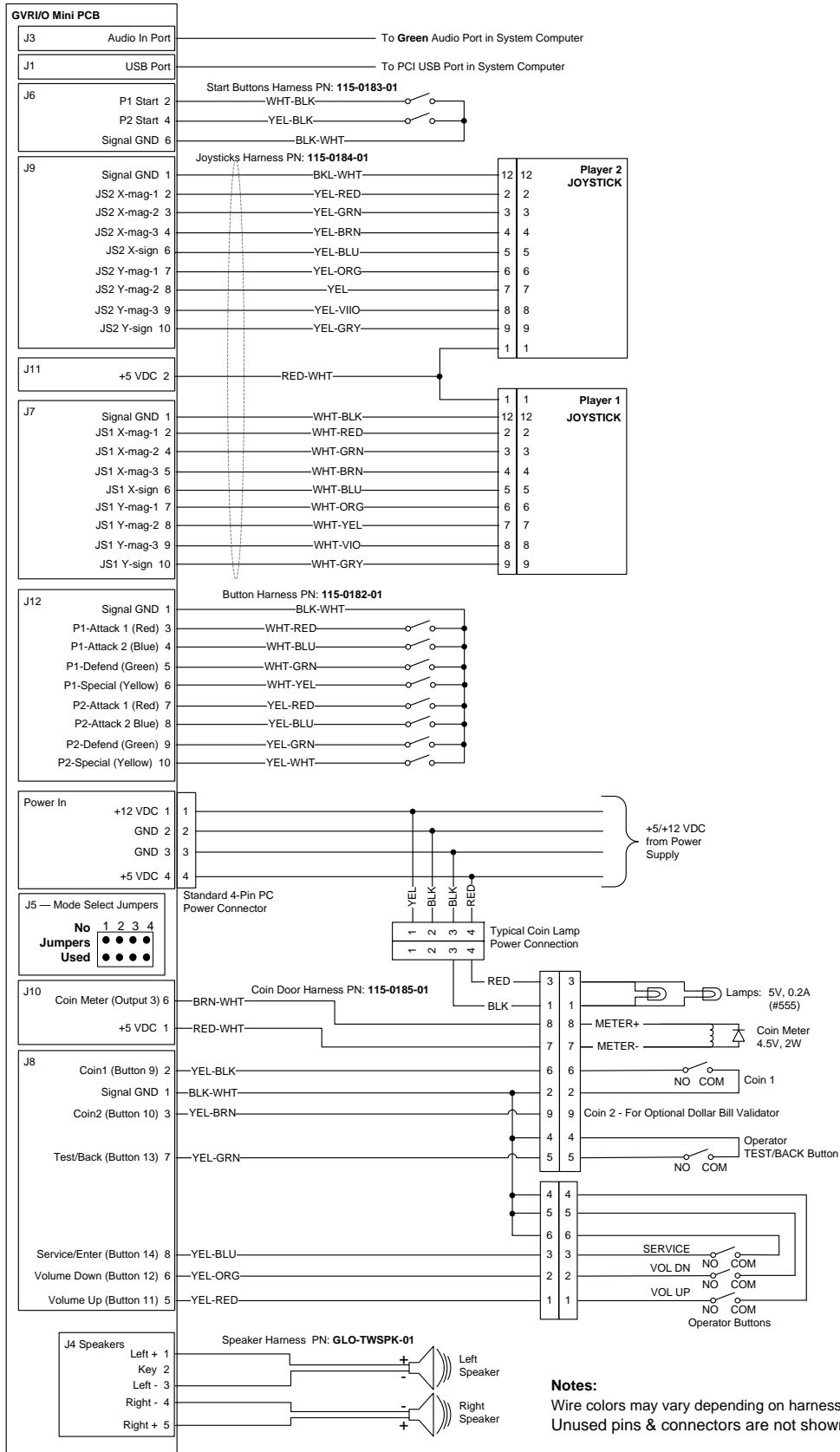


Figure 13. Detailed I/O Wiring Diagram

Computer Rear with Asus P5KPL-CM (G31) Motherboard

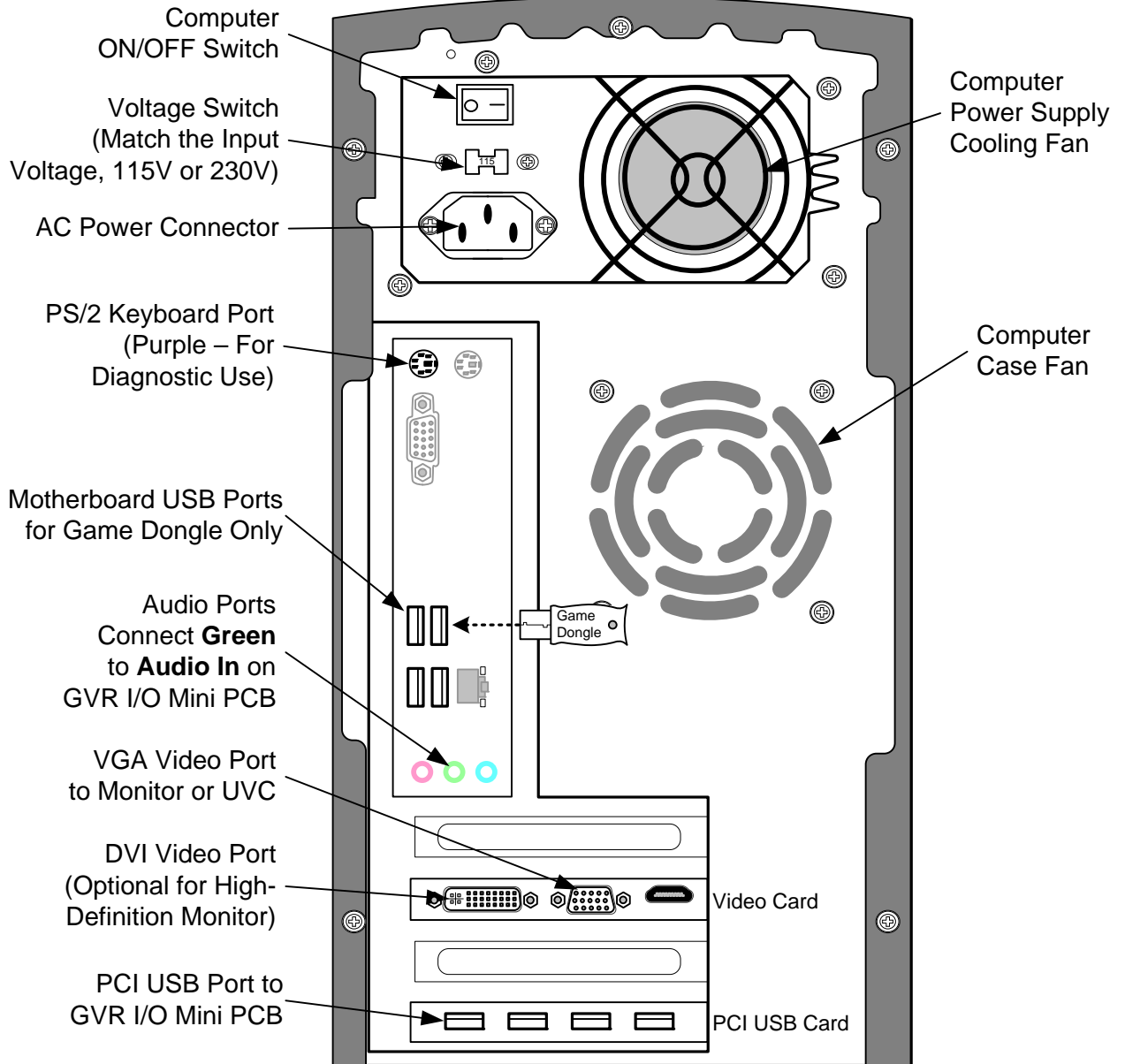


Figure 14. Computer Rear Panel Diagram

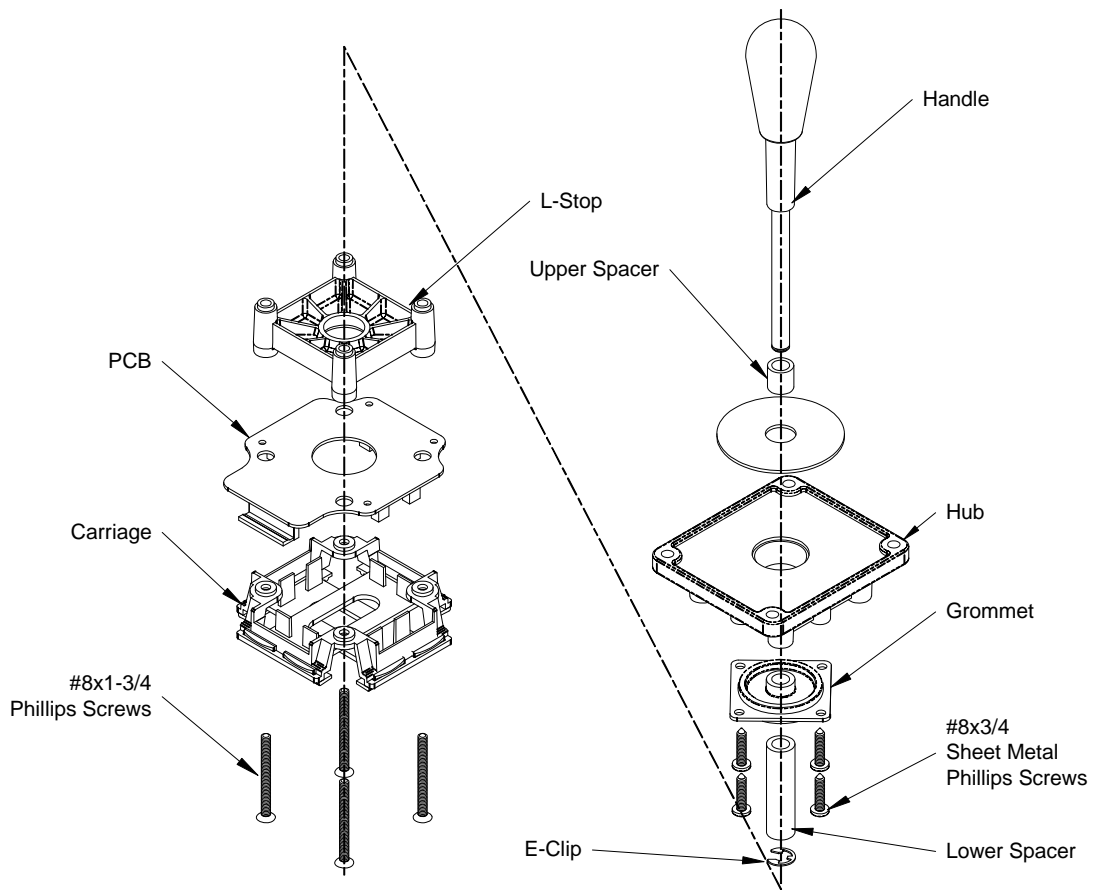


Figure 15. Joystick Exploded View

Conversion Kit Warranty Information

Warranty Service

If you should require warranty service, please contact your authorized GLOBAL VR[®] distributor. If the technical support staff determines that parts on your Conversion Kit are defective, a Return Merchandise Authorization (RMA) number will be issued.

LIMITED WARRANTY

LIMITED WARRANTY FOR JUSTICE LEAGUE: HEROES UNITED CONVERSION KIT (North America Only)

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[®].

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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>

Extended Service Hours: Monday–Friday 5pm—Midnight
Saturday & Sunday 7:00am—Midnight Pacific Time

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 to assist the Technical Support representative in solving your problem quickly. For your convenience, space is provided to write important numbers.

Cabinet Serial Number: _____

Cabinet Type (from Operator Menu): _____

Game Version (from Operator Menu): _____

OS Version (from Operator Menu): _____

I/O Board Version (from Operator Menu): _____

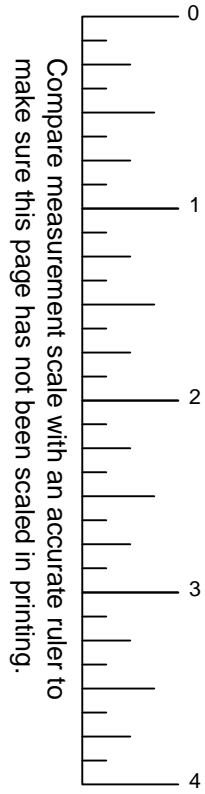
Your mailing address and telephone number.

A summary of the question or a detailed description of the problem with your cabinet.

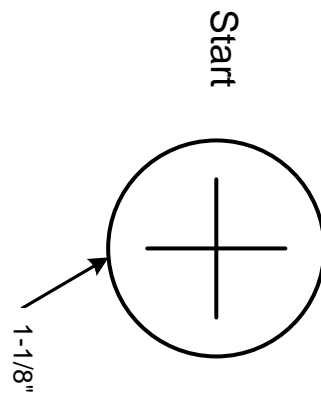
The additional information listed below, as applicable, may assist Technical Support in solving your problem quickly.

- Specific error message
- Any changes made to the system
- Date of latest software install or upgrade
- For game-play issues, the game mode and number of players

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

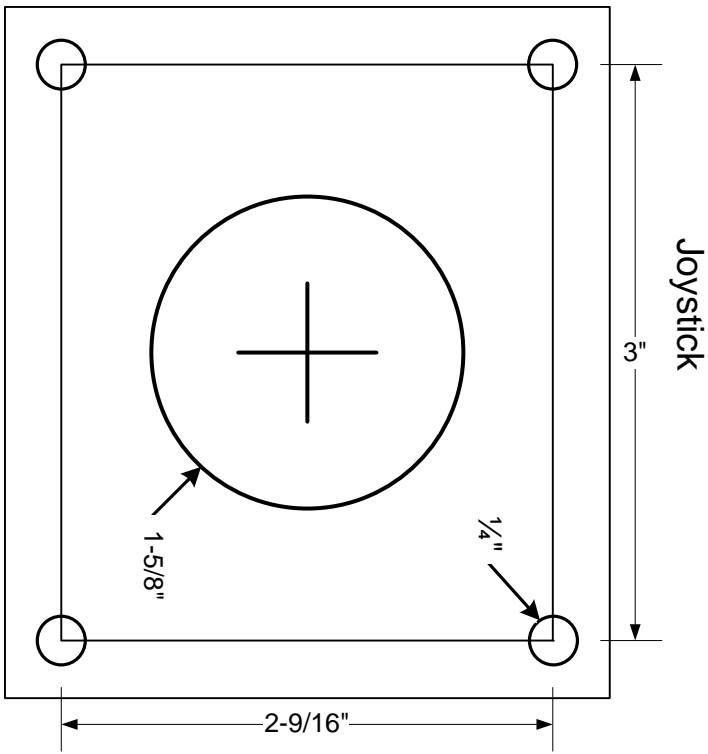


Monitor →

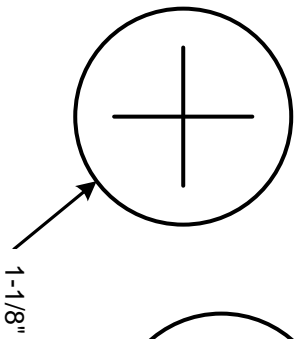


Start

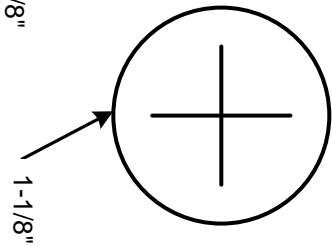
Note: The Joystick is designed for a 1/2" thick control panel. A 3/4" thick panel requires recessing the back side by 1/4".



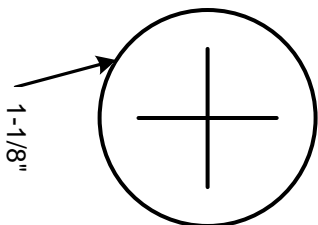
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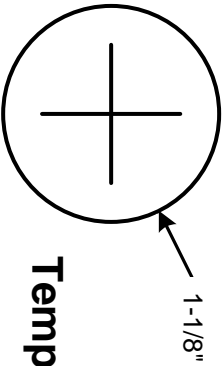
Strong



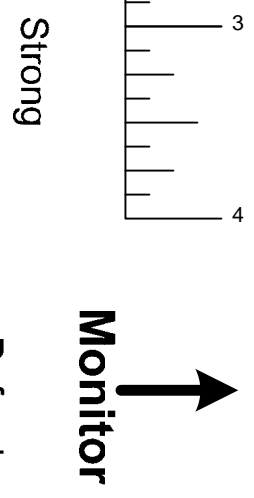
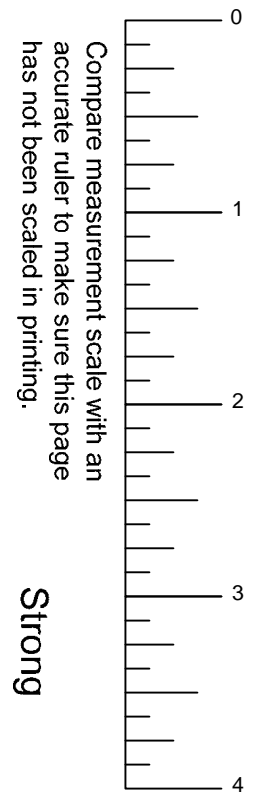
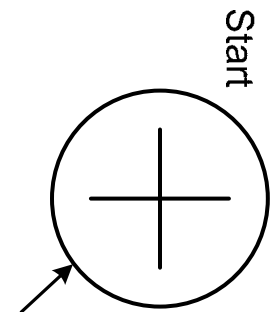
Defend



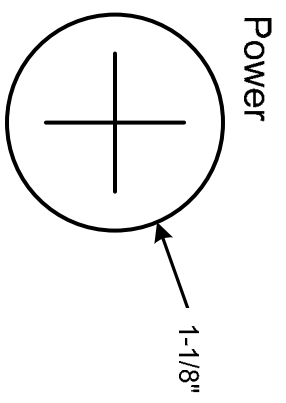
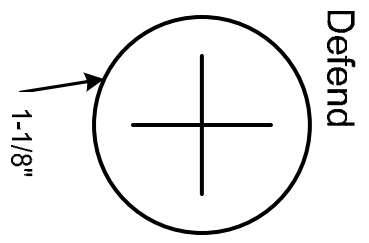
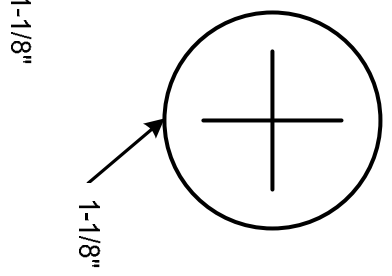
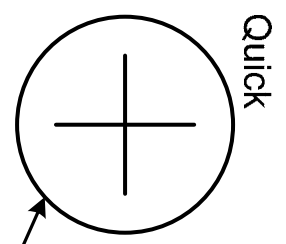
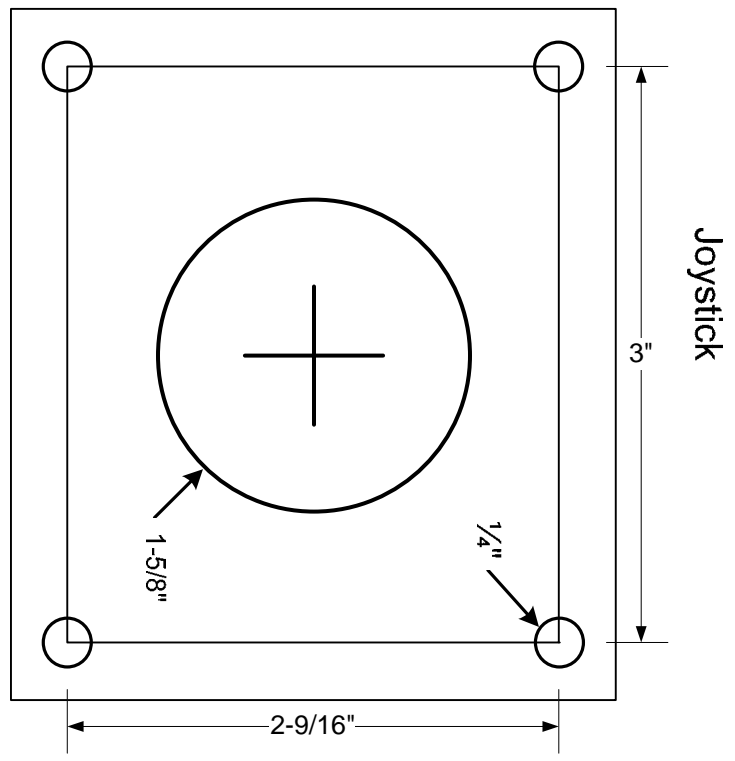
Power



Template for Player 1 Controls



Note: The joystick is designed for a 1/2" thick control panel. A 3/4" thick panel requires recessing the back side by 1/4".



Template for Player 2 Controls