

# PARADISE LOST™

## Standard Cabinet Operation & Service Manual

040-0152-01 Rev. B

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



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## Preface

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### 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:



- Electronic components in the game cabinet run on 115 VAC. The voltage switch on the back of the computer must be set to 115. If you power up the computer outside of the cabinet, set the switch to match the local AC voltage:
  - 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 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.
- Keep your system far away from radiators and other heat sources.
- Do not block cooling vents.

### Precautions for Game Operation

GLOBAL VR<sup>®</sup> assumes no liability for injuries incurred while playing our games.

Operators should be aware that certain health and physical conditions may make people susceptible to injury when playing video games, particularly when the game moves or creates a sense of motion.

### 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

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

## 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 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.

## Chapter 1 — Introduction

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### Cabinet Specifications



Figure 1. Cabinet Dimensions and Weights

### Power Requirements (Approximate)

#### 115 VAC

- Inrush AC Current: 6.5 Amps
- Operating AC Current: 4 Amps

#### 230 VAC

- Inrush AC Current: 3.5 Amps
- Operating AC Current: 2 Amps

### Hardware Features

- Pentium® D computer
- Nvidia® GeForce® graphics
- 1 gigabyte RAM
- 32-inch LCD monitor
- Supports dollar bill validator
- Unique cabinet configuration with dramatic lighting effects
- Mounted guns with force-feedback recoil action and LED kill-count readout
- USB Gun interface

## Chapter 2 — Installing a New Cabinet

This chapter describes how to unpack and install your new cabinet.

1. Carefully remove the cabinet from the shipping container, giving yourself plenty of space. Inspect the exterior of the assemblies for any damage.
2. Remove the keys from the coin return slot. Open the coin door to locate the second set of keys (see Figure 2).

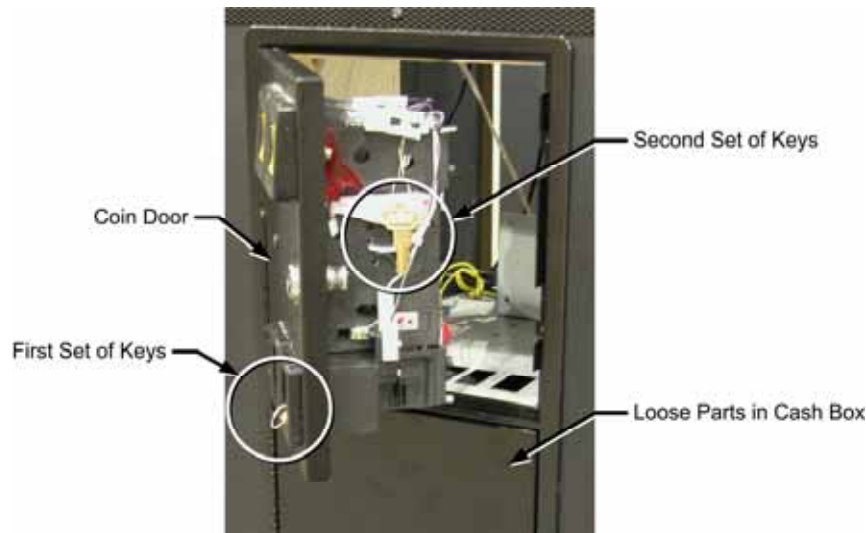


Figure 2. Coin Door with Key Locations

3. Unpack the marquee face. Remove the six (6) nuts and washers from the pre-installed screws with standoffs, shown by the rectangles below. (Leave the standoffs in place.) Position the marquee face and secure it with the nuts and washers.
4. Your game cabinet should now be ready to play, but it is advisable to check inside in case any components have shifted or come loose during shipping. Remove the back door from the cabinet and verify that all cables and wires are securely connected to the computer and other components. See *Chapter 9 — Diagrams and Schematics* for wiring and connection diagrams.
5. Connect the AC power cord to a grounded outlet and power on the game.
6. Play a game to verify everything is working properly.
7. Refer to Chapter 4 for information on using the Operator menus to set up your game.



Figure 3. Back of the Marquee Face

## Chapter 3 — Playing a Game

The picture below shows a gameplay screen with the General information and Player-1 information fields labeled. The corresponding information fields for Player-2 are displayed on the right side of the screen.



1. Coin up the game. When the menu screen appears, point the gun at the level you want to play, and pull the trigger. (Another player can join by inserting coins and using the other gun.)
2. Shoot at everything that moves—there are no friends in this game! Shoot the enemies before they shoot you.
3. Shoot at crates to pick up rockets and grenades, armor, and health. Use the triggers to fire the machine gun, and the thumb buttons to fire the grenades and rockets.
4. Once you complete a level, you will return to the main menu to select another level. Complete any level to unlock Level 5.
5. When your game is about to end, a countdown appears onscreen. Insert coins to continue.

**Note:** To insert Service Credits for testing the game, press the **SELECT** button during Attract Mode. Each press will add one credit for each player.

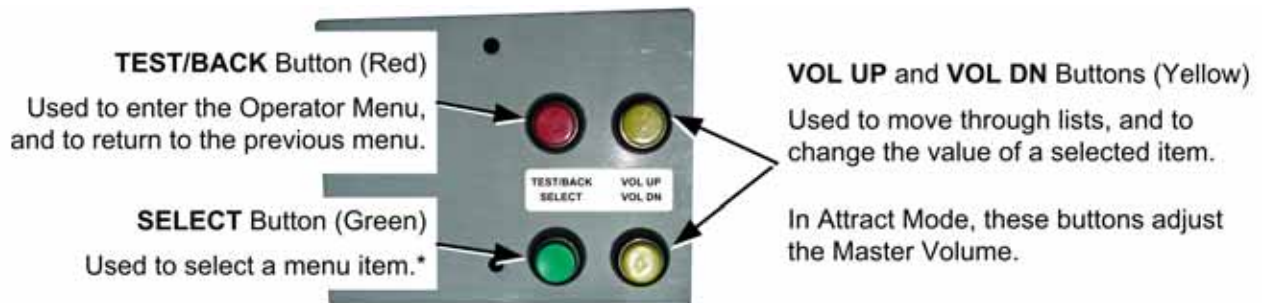


## Chapter 4 — Operator Menu and Game Setup

This chapter describes the Game Operator menus, their functions, and default settings. These menus let you set up the game, diagnose problems, and view gameplay and earnings statistics.

### Navigating the Menus

1. Open the coin door and press the red **TEST/BACK** button to open the Operator **Main Menu**.
2. Use the **VOL UP** and **VOL DN** buttons to navigate through the list of submenus on the left side of the screen. The name of each submenu will change color as it is highlighted, and the submenu will appear, grayed out, in the main pane. Press the green **SELECT** button to select a submenu.
3. After you select a submenu, use the **VOL UP** and **VOL DN** buttons to highlight items in the submenu, and then press the **SELECT** button to select an item.
4. Once you have selected a menu item, use the **VOL UP** and **VOL DN** buttons to change the setting. When you finish, press **TEST/BACK** to exit from the item.
5. To exit from a submenu, press the **TEST/BACK** button. To close the Operator Menu, highlight **Return to Game** (pressing the **TEST/BACK** button when you are not in a submenu will automatically highlight this item) and press **SELECT**.



\*Press the **SELECT** button during Attract Mode to add Service Credits for testing game play without affecting the coin count.

*Figure 4. Operator Buttons*

## Menu Screen Layout

The left side of the screen displays a list of menus. As you use the **VOL UP** and **VOL DN** buttons to move through the menu list, each menu is displayed in the center pane of the screen. The menu is shown in gray until you enter it. To enter a menu, press the **SELECT** button.

The right side of the screen displays important information about the cabinet and software. These items are explained in the table below.

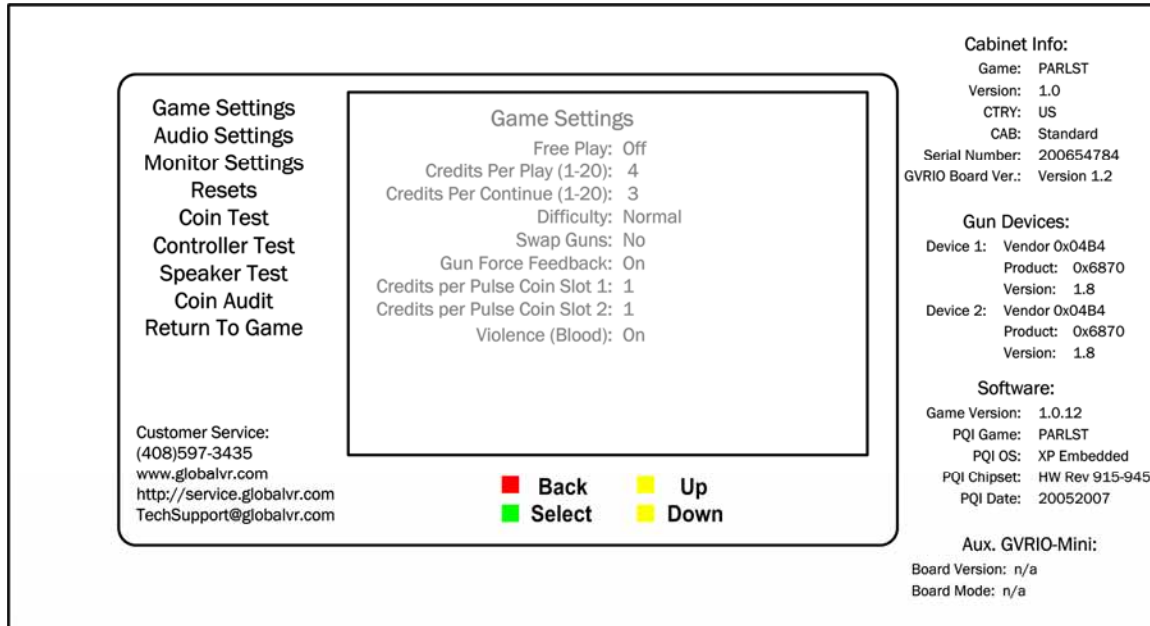


Figure 5. Overall Menu Screen Layout

Item	Description
<b>Cabinet Info</b>	This section lists information about the cabinet and game dongle
Game	Abbreviation for name of game installed
Version	Game Dongle Version
CTRY	Country where the game is licensed, as set by the game dongle
CAB	Style of cabinet, <i>Deluxe</i> or <i>Standard</i>
Serial Number	Serial Number of the Game Dongle
GVRIO Board Ver.	Version of the GVRIO Mini PCB Installed
<b>Gun Devices</b>	This section lists specs on each gun
Vendor	Gun PCB Vendor Code
Product	Gun PCB Product Code
Version	Gun PCB Version Number
<b>Software</b>	This section lists specs for the software
Game Version	Game software version
PQI Game:	Abbreviation for name of game installed
PQI OS	The operating system (OS) used by the computer
PQI Chipset	Computer chipsets supported by the software
PQI Date	Revision date of the Operating System
<b>Aux. GVRIO-Mini</b>	Information in this section is for a configuration not currently used.

## Game Settings Menu

The Game Settings menu lets you set up the general pricing and game play settings.

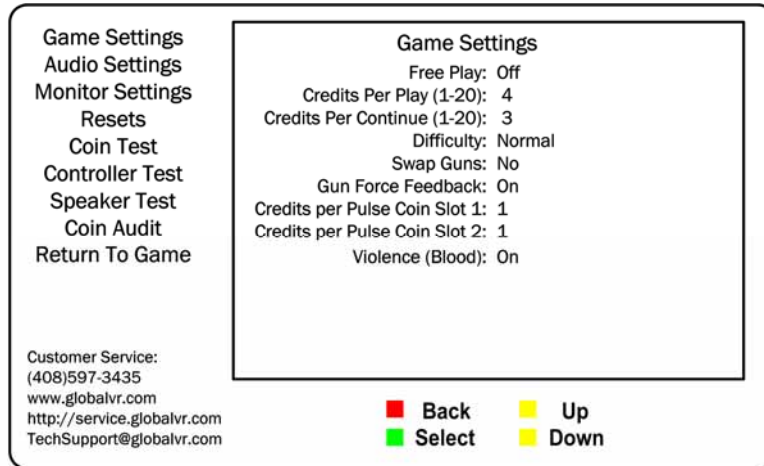


Figure 6. Game Settings Menu

Menu Item	Description
Free Play	Turns Free Play On or Off (default: Off).
Credits Per Play	Sets the number of credits to start a game (default: 4).
Credits Per Continue	Sets the number of credits to continue a game (default: 3).
Difficulty	Sets overall game difficulty ( <i>Very Easy, Easy, Normal, Hard, or Very Hard</i> ) (default: Normal).
Swap Guns	Setting Yes swaps guns 1 and 2. This lets you compensate if the guns are connected backwards and the force-feedback recoil and LED flash occurs in the wrong gun.
Gun Force Feedback	Turns force-feedback recoil On or Off (default: On).
Credits per Pulse	Sets the credits per pulse for the coin mech (default: 1). (Coin Slot 2 is not used.)
Violence (Blood)	Setting this to Off turns the blood off, and changes "head-shots" to "power shots." Options are On or Off (default: On).

## Audio Settings Menu

This menu lets you adjust volume levels.

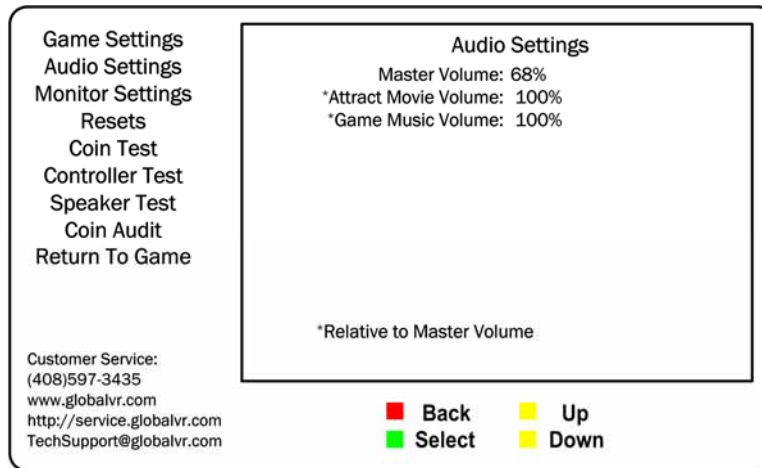


Figure 7. Audio Settings Menu

Menu Item	Description
Master Volume	Sets Master Volume.
Attract Movie Mode	Sets Attract Movie Volume relative to Master Volume.
Game Music Volume	Sets Game Music Volume relative to Master Volume.

## Monitor Menu

This menu lets you adjust the video image quality, and view monitor test screens.

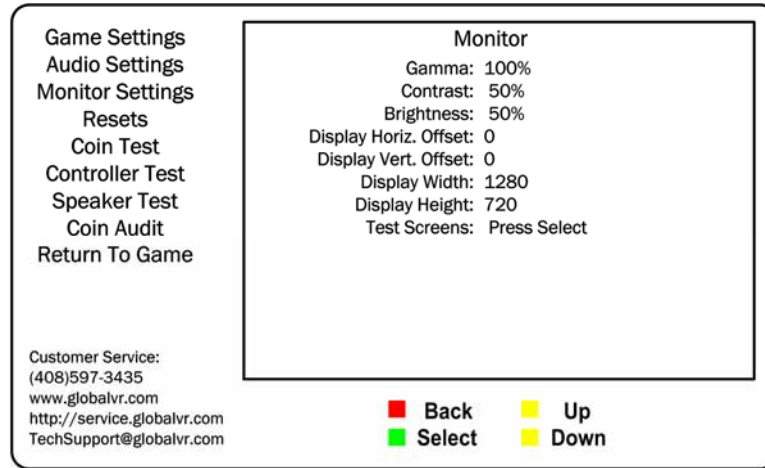


Figure 8. Monitor Menu

Menu Item	Description
Gamma	Increases or decreases the overall screen brightness.
Contrast	Adjusts screen contrast.
Brightness	Adjusts screen brightness.
Display Horiz. Offset	Lets you move the image left or right in pixels.
Display Vert. Offset	Lets you move the image up or down in pixels.
Display Width	Lets you adjust the width of the image in pixels.
Display Height	Lets you adjust the height of the image in pixels.
Test Screens	Displays test screens designed to help you adjust video geometry and colors. Once you select the test screens, use the <b>VOL UP</b> and <b>VOL DOWN</b> buttons to cycle through the screens, and the <b>BACK</b> button to exit.

## Resets Menu

This menu lets you reset coin audits and available credits, or restore the cabinet to factory default settings. Highlight an item and press the **Select** button to reset. Text on the screen will confirm the item has been reset.

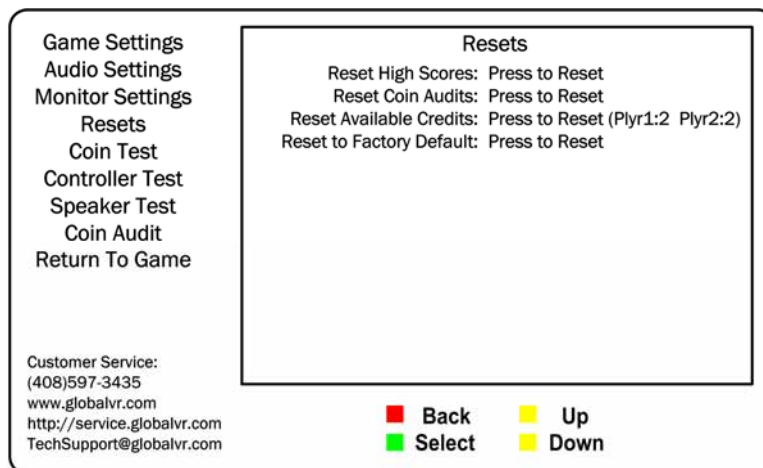
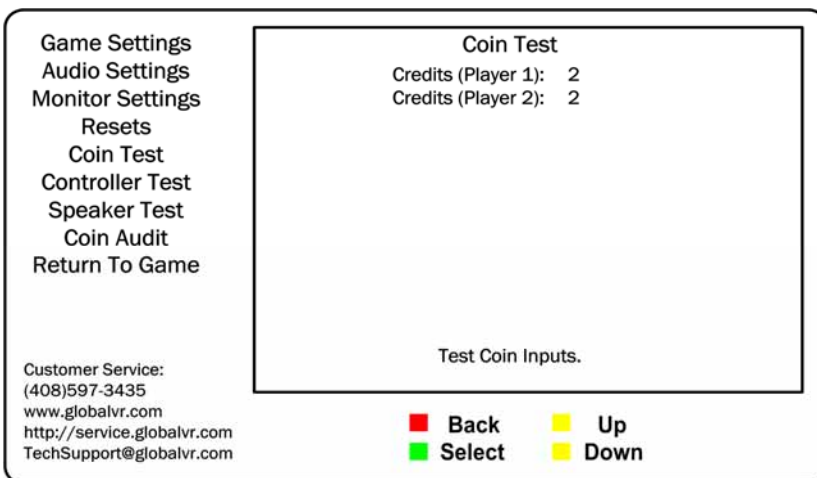


Figure 9. Resets Menu

Menu Item	Description
Reset High Scores	Clears the high scores saved in the software.
Reset Coin Audits	Resets Current Coin Audits to zero (0). Does not affect Lifetime Coin Audits.
Reset Available Credits	Resets Available Credits to zero (0) for both players. The number of available credits for each player is shown in parentheses.
Reset to Factory Default	Restores cabinet to factory default settings. Does not affect scores or audits.

## Coin Test Menu

Activate the coin mech or optional dollar bill validator and confirm that the **Credits** number increments by the expected amount (it should always be the same for Player 1 and Player 2).



If credits do not increment for Player 1, make sure you see **CAB: Standard** on the right side of the screen (see page 10). If it says **CAB: Deluxe**, you have a Deluxe Cabinet game dongle, which requires a second coin mech for Player 2. Contact Tech Support.

Figure 10. Coin Test Menu

## Controller Test Menu

This menu lets you test and calibrate the guns.

The menu displays two large squares on the screen. Each square represents the range of motion for one of the guns. The numbers above each square show the current X and Y range for the gun and the current position. The small blue cursor in the square represents the current position of the gun. As you move the gun, the cursor will move and the current position numbers will change.

Under each large square you will see a small block labeled **Trigger** that will highlight when you pull the trigger for that gun. The small block labeled **Hat** will highlight when you press the thumb button. The small block labeled **Start** will highlight when you press the START button.

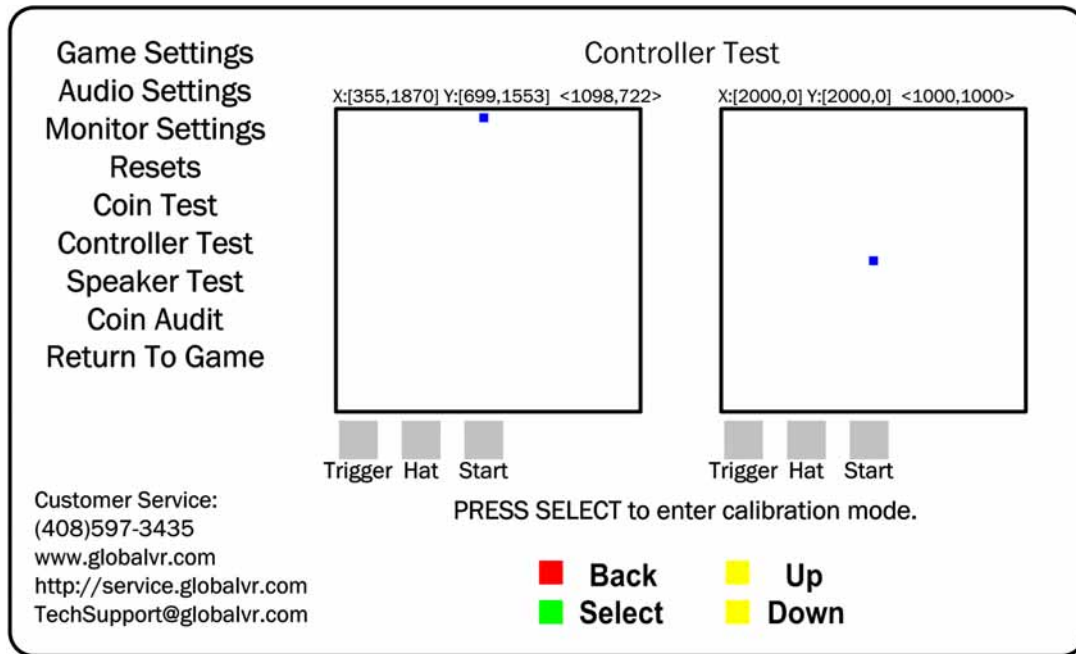


Figure 11. Controller Test Menu

Perform the steps below to calibrate a gun from the Controller Test screen:

1. Press the **SELECT** button to enter Calibration Mode.
2. Pull the trigger of the gun you wish to calibrate, and refer to the square on that side of the screen.
3. An arrow will appear on the left side of the screen, and a prompt will tell you to point the gun all the way to the left and pull the trigger. Be sure to point the gun all the way to the left before pulling the trigger.
4. Follow the onscreen instructions as you are prompted to point the gun to the right and pull the trigger, followed by up, and then down.
5. Once you finish, you can calibrate the other gun, or press the **BACK** button to exit.

## Speaker Test Screen

This screen tests each speaker on the cabinet. As soon as you press **SELECT** to open this screen, the test sounds will start playing. Each speaker, in turn, will play its name. Curved lines by the onscreen icons show which speaker is playing (as shown for the Front Left speaker below). The test will continue until you press the **BACK** button to exit.

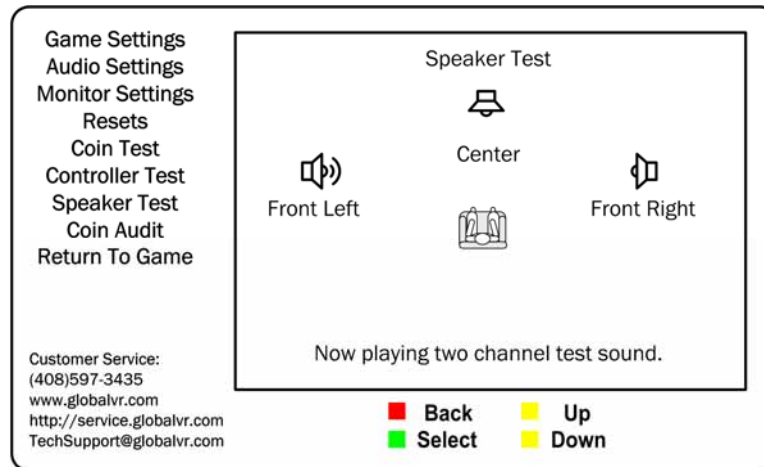


Figure 12. Speaker Test Menu



## Coin Audit Menu

This menu displays current and lifetime coin audit information. The top half displays data since the last time the Coin Audits were reset from the Resets menu, and the bottom half displays lifetime data since the software was installed.

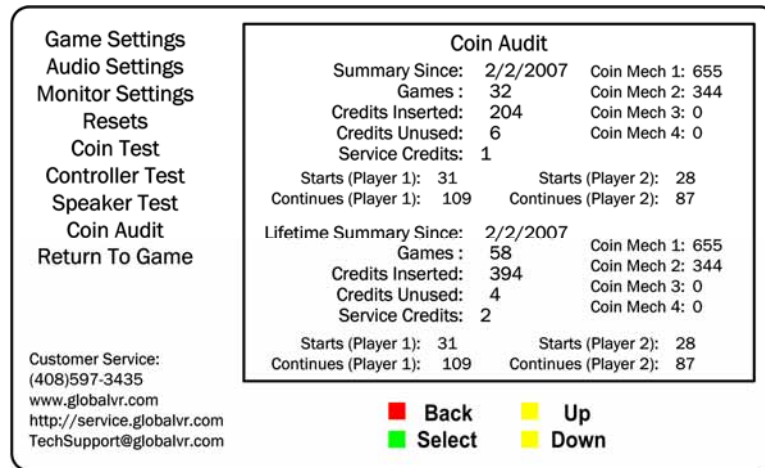


Figure 13. Coin Audit Menu

Menu Item	Description
Summary Since	Displays the date when the Coin Audits were last reset from the Resets menu.
Lifetime Summary Since	Displays the date when the software was installed and began recording coin audit data.
Games	Displays total games played.
Credits Inserted	Displays total Credits inserted. (Coin Mech 2 is for the Optional Dollar Bill Validator. Coin Mechs 3 and 4 are not used.)
Credits Unused	Displays total unused Credits.
Service Credits	Displays total Service Credits inserted. Operators can insert Service Credits for testing the game by pressing the <b>SELECT</b> button during Attract Mode. Each press adds one credit for each player.
Starts	Lists games started for Player 1 and Player 2.
Continues	Lists games continued for Player 1 and Player 2.

## Chapter 5 — Software Restoration



Follow the instructions below if you need to re-install software on your cabinet. Total installation time is about 15-20 minutes.

**Important:** When you use the System Recovery Disk, you will erase all game settings, and coin and game audits. It is advisable to contact Technical Support before using the System Recovery Disk to resolve a problem.

### System Recovery Disk

1. With the cabinet powered ON, open the DVD-ROM drive and insert the CD labeled **System Recovery Disk**. Power the cabinet OFF and then ON. The computer will boot from the CD, and you will see the Symantec™ Ghost installer screen on the monitor.
2. After about 5 minutes, when you are prompted, remove the CD and turn the cabinet OFF and then ON. (**Do not** insert the Game Install Disk yet!)
3. When the computer reboots, you will see a series of processing screens. After about 3-4 minutes the computer will automatically reboot. You will briefly see a message saying "Insert Game Disk 1", followed by the GLOBAL VR logo on the screen. Proceed to install the Game Install Disk as described below.

### Game Install Disk

1. Open the DVD-ROM drive and insert the DVD labeled **Game Install Disk 1 of 1**. The computer will read the DVD automatically (do not reboot). You will see the Installer screen as the software copies files, and after about 6-7 minutes the computer will reboot.
2. After about 1 minute more, Initial Calibration screen will appear. Remove the disk from the DVD-ROM drive.
3. Press the **TEST/BACK** button to open the Operator Menu. Select **Controller Test** and follow the onscreen prompts to calibrate both guns (see page 15 for more information).  
**Note:** The Initial Calibration screen will be displayed until you open the Operator Menu.
4. Use the Operator Menus to change any desired settings.
5. Play a game and use both guns to verify proper operation. (Press the **SELECT** button in Attract Mode to insert Service Credits for testing the game.)

## Chapter 6 — Service and Repair

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**CAUTION:** GLOBAL VR assumes no liability for any damage or injuries incurred while servicing the cabinet. Only qualified service personnel should perform service and installation of cabinet hardware.

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

Please read the service instructions before working on the cabinet.

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Always turn the cabinet OFF and disconnect the AC power cord before performing any repair work.

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### Gun Service

The subsections that follow describe steps for testing and replacing the gun components.

The gun body contains micro switches for the trigger and grenade buttons, and a coil and plunger assembly that creates the force-feedback recoil effect when the gun is fired. To service these parts, you need to open the gun case. See Figure 20 for a view of the open gun assembly.

The base of the gun contains pots that relay the gun position to the computer. If the gun position is not being read properly, refer to the gun pot service steps on page 23. You **do not** need to open the gun case to test or replace the pots.

**Important:** If the guns are connected to the PCI USB ports, connect them according to the label above the ports. The ports used may vary depending on the brand of PCI USB card used. Guns can also be connected to the motherboard USB ports. See Figure 30 on page 46 for more information.

### Gun Power Harness Fuses

The gun power harness has two fuses, one for each gun. If a gun has no power, check the fuse and replace if necessary. Spare fuses are taped to the harness near the fuse holder. Replace with MDL 2A Slo Blo fuses.

## Opening the Gun Case

Open the gun case to service the trigger, buttons, and coil assembly. You **do not** need to open the case to service the pots that aim the gun (see page 23). See Figure 20 for a view of the open gun assembly

1. To open the gun case, first remove the 12 Torx security screws shown by the single arrows in the picture below, and remove the corresponding nuts from the other side of the gun.
2. Remove the four screws shown by the double arrows in the picture below. These screw into the frame, so there are no nuts to remove.
3. Carefully remove the left side cover from the gun, being careful not to pull the wires from the grenade button on the cover. The wires are long enough that you can set the cover on the control panel near the gun without disconnecting the wires.



Figure 14. Gun Case Screws

## Closing the Gun Case

1. To close the gun case, first align the slots that fit around the gun PCB (with the LED display), and then carefully put the two halves together. Make sure no wires or components get caught or pinched. Pay special attention to the area around the trigger and spring, the wires coming out of the frame shaft, and the wires attached to the coil and barrel light.
2. Insert the four (4) 3/8" x 10-32 screws shown with the double arrows in Figure 14. Partially tighten all four screws, verify the case is mating properly, and then tighten the screws snugly.
3. Check the trigger to make sure it works properly. The trigger or spring could shift while you are assembling the case.
4. Replace the remaining 8-32 screws and nuts, shown by the single arrows above, and tighten snugly. The screw at the top of the muzzle end is 3/4" long, and the two screws in the handle are 1" long, as shown above. All of the other screws are 1 1/4" long.

## Gun Trigger Service

To replace the trigger spring, refer to the picture below for the placement of the spring in the gun housing.

Install the plastic trigger so it presses against the spring, and the bottom part of the trigger will press the switch actuator when a player pulls the trigger.

To replace the micro switch, remove the two screws that secure the switch in place. Remove the two wires and install them on the same terminals on the replacement switch.

Be sure to connect the signal wire to the **NO** connector (middle connector) and the black ground wire to the **C** connector.

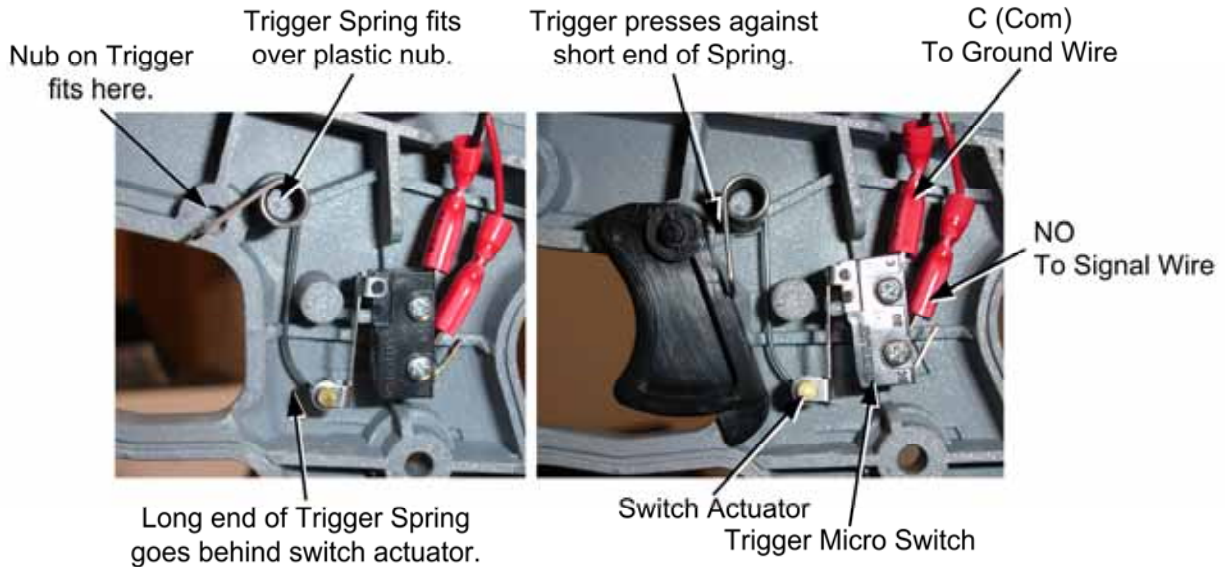


Figure 15. Gun Trigger Assembly

## Gun Button Service

Refer to Figure 16 for components of the lighted grenade buttons.

If you replace a button micro switch, be sure to connect the signal wire to the **NO** connector (middle connector) and the black ground wire to the **C** connector. If you connect the wires differently the button will not work.

To replace the light bulb, pull the lamp assembly straight out of the button housing, and then pull the bulb straight out of the lamp housing. The two lamp wires are interchangeable and can connect to either terminal on the lamp housing.

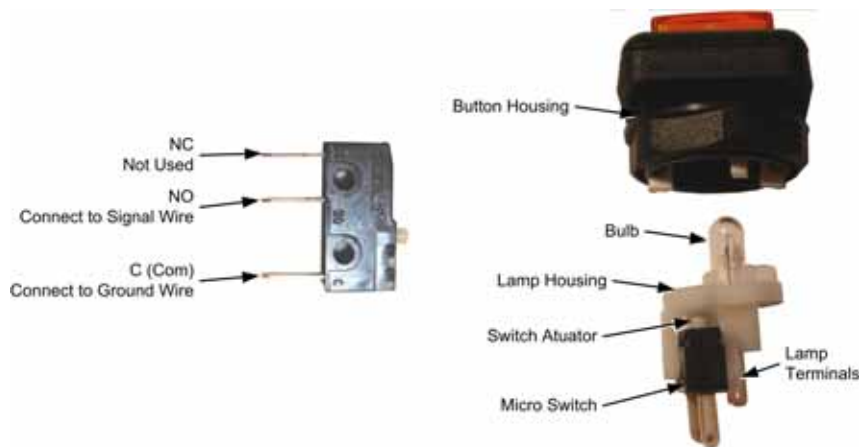


Figure 16. Gun Button, Lamp, and Micro Switch

### Gun Coil Assembly Service

The coil assembly provides the force-feedback recoil when the gun is fired. Perform the following steps to replace components of the coil assembly:

1. Open the gun case as described on page 20.
2. Remove the two screws shown below from the right side of the gun.



3. Remove the nut that secures the ground wire to the ground lug on the side of the coil assembly mounting plate, as shown below.
4. Remove the two screws that secure the coil assembly mounting plate to the gun shaft, as shown below.

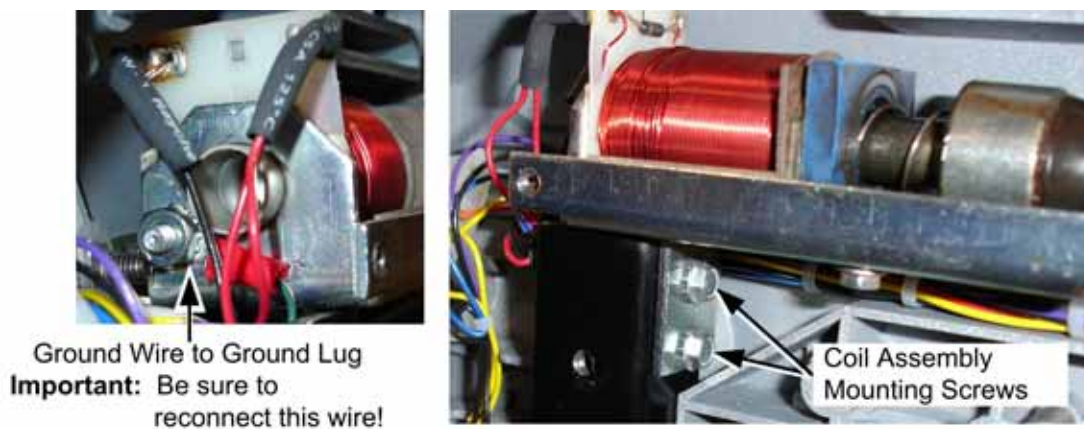


Figure 17. Gun Coil Assembly Service

5. Reverse these steps to re-install the coil assembly. Be sure to secure the ground wire to the ground lug on the coil assembly mounting plate.



## Gun Pot and Gear Service

Each gun has two pots that measure the movement of the gun on the X-axis (left and right) and Y-axis (up and down). The X-axis pot is located under the gun base below the trigger. The Y-axis pot is located on the side of the gun base below the grenade button.

Use the **Gun Test & Calibrate** screen from **System Tests** in the Operator menu to test gun motion. To test a pot, power off the game and test resistance at the pot. When you move the gun, you should see a steady linear increase or decrease in resistance, with no jumps. Replace the gears if they are worn or cracked.

Refer to Figure 18 for gun base components, and perform the following steps to replace a pot or gear shaft:

1. Remove the six (6) Torx security screws that secure the front and rear covers over the gun base, and remove the covers.
2. Remove the two mounting nuts and remove the metal mounting plate from the pot to be replaced.
3. Use an Allen wrench to loosen the set screw from the gear shaft, and remove the gear shaft.
4. Using a 1/2" wrench, remove the nut and lock washer that secure the pot to the frame.
5. De-solder the three (3) wires from the pot and solder them on the same terminals on the replacement pot.
6. Install the new 5K $\Omega$  pot with the same orientation. Make sure that the plastic keys on the pot mate properly with the metal.
7. Re-install the lock washer and nut, being careful not to over-tighten.
8. Re-install the gear shaft and tighten the set screw.
9. Calibrate the gun using the **Gun Test & Calibrate** screen from **System Tests** in the Operator menu after replacing a pot.

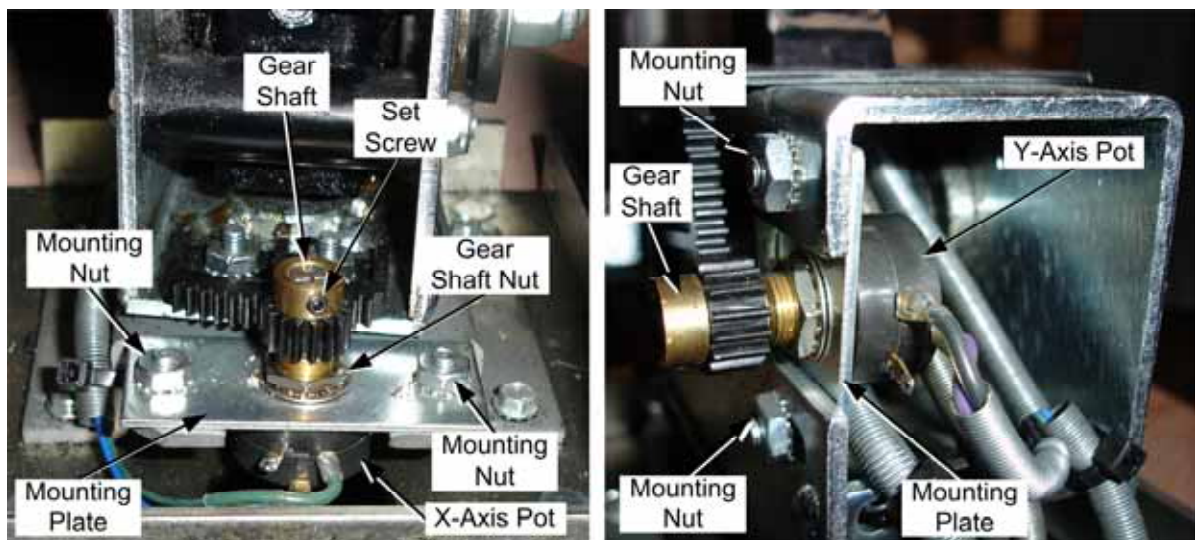


Figure 18. Gun Pot Replacement

## The Gun PCB

The Gun PCB routes all signals within the gun, and between the gun and the system computer. It also has an LED display that shows remaining ammo during game play. Each connector on the Gun PCB is keyed to fit only to the correct harness connector. Refer to the picture below to locate the connectors on the PCB. See Figure 28 on page 44 for detailed gun wiring information.

To replace the PCB, open the gun case as described on page 20. Slide the PCB out of the case and disconnect all connectors.

**Caution:** Disconnect the cabinet from AC power before making any connections to the Gun PCB. Hot-plugging any connector will damage the PCB.

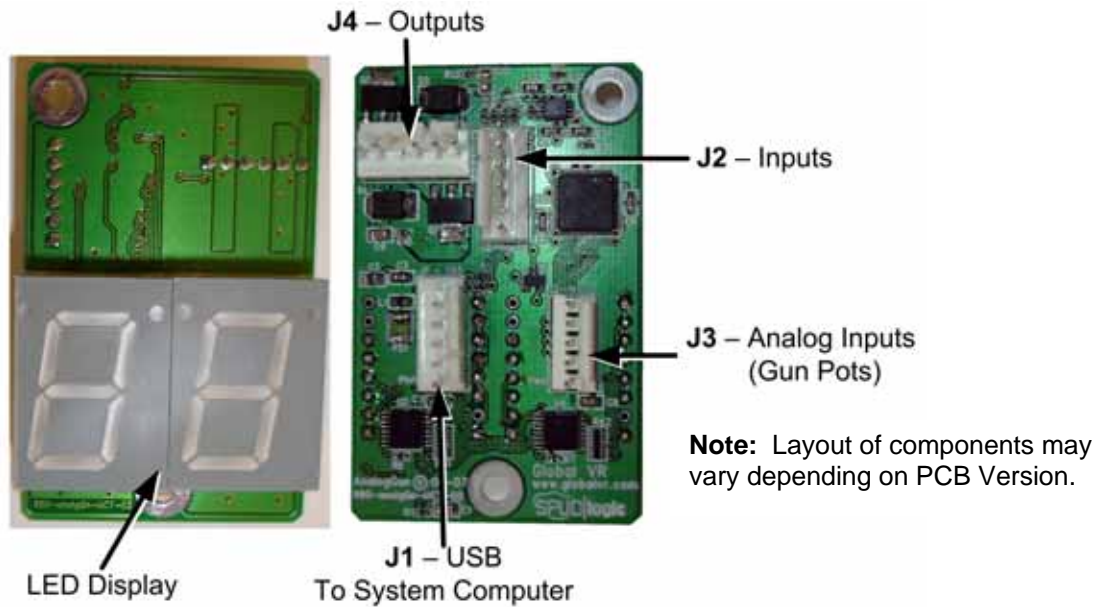


Figure 19. Gun PCB

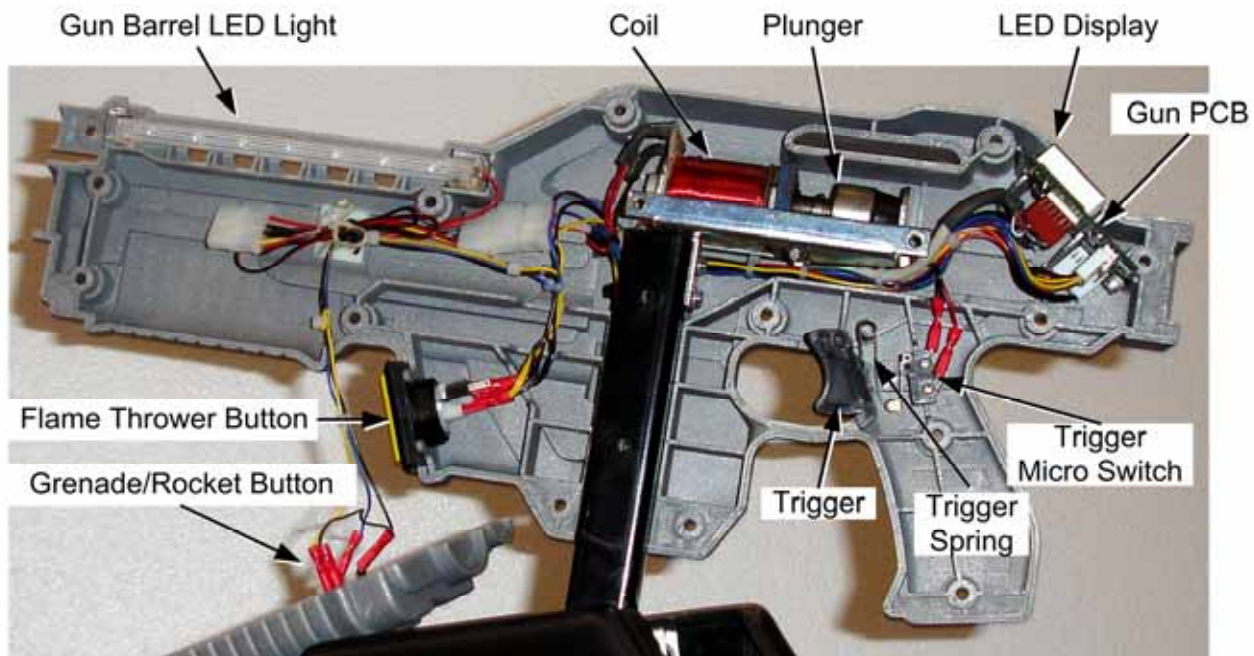


Figure 20. Gun Internal Parts



## GVRI/O Mini PCB Service

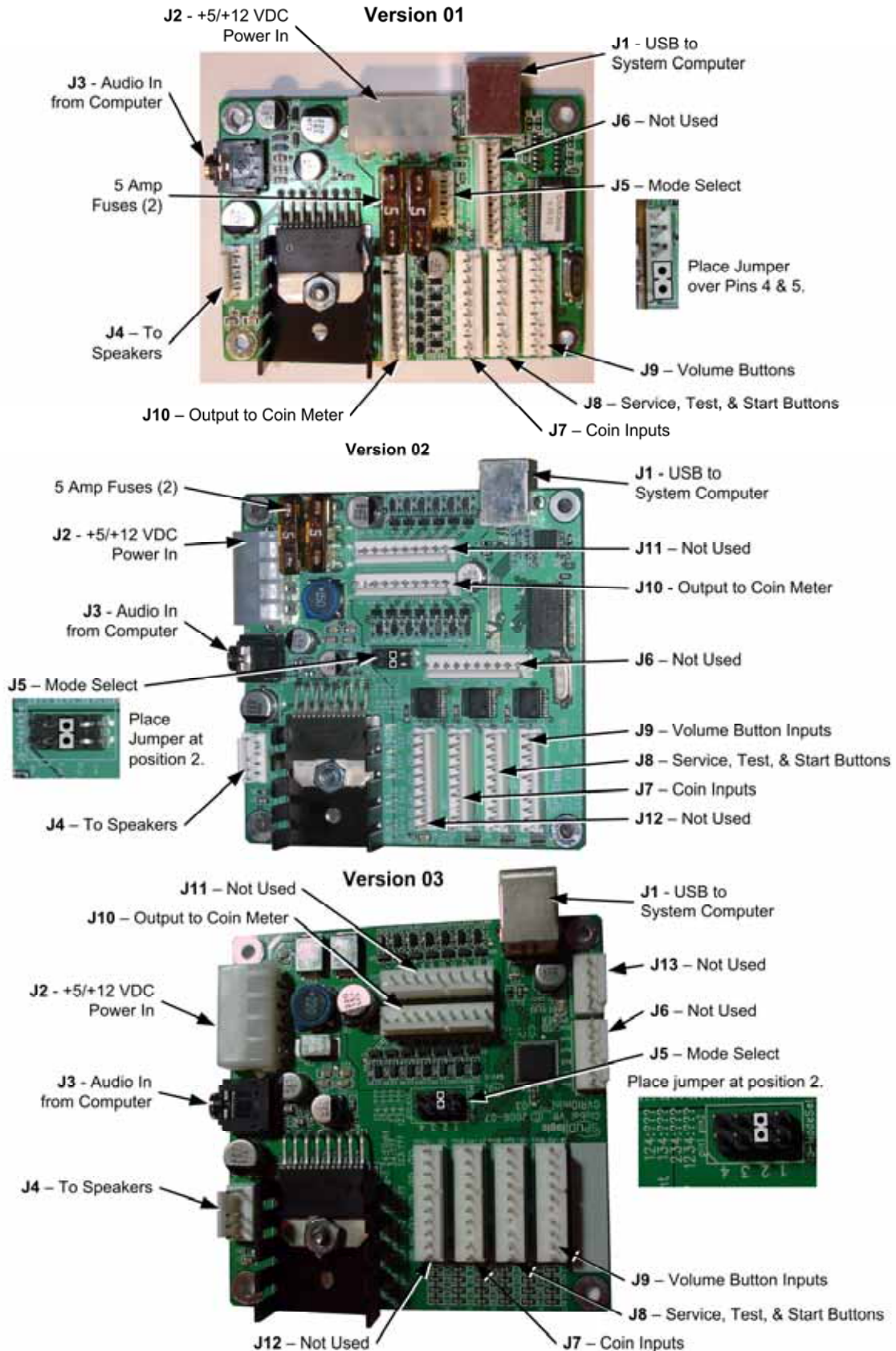


Figure 21. GVRI/O Mini PCB (Various Versions)

The GVRI/O Mini PCB relays all signals between the system computer and the guns, and also contains the Audio Amp. Each connector on the GVRI/O Mini PCB is keyed to fit only to the correct harness connector. The location of components varies on different board versions. See Figure 21 on page 25 to locate the connectors and other components on the PCB. The two 5 Amp fuses on some versions are for the coin meter power wire only. See Figure 27 on page 43 for detailed wiring information.



**CAUTION: Disconnect the cabinet from AC power before changing the fuses or making any connections to the PCB.**

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

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1. To replace a PCB, disconnect all connectors and then remove the four (4) screws that secure the PCB to the mounting feet.
2. **Important:** Place a jumper at Mode Select (**J5**) of the new PCB, as shown in Figure 21.
3. Secure the PCB with the screws removed previously and reconnect all connectors.

## Speaker Replacement

The two speakers are located behind the grill below the monitor.

1. Remove the four (4) Torx<sup>®</sup> security screws that secure the speaker grill to the cabinet.
2. Remove the four (4) screws that secure the speaker to the cabinet.
3. Remove the wires from the speaker and install them to the same connectors on the replacement speaker.
4. Reverse these steps to re-install the speaker.
5. Open **Speaker Test** in the Operator Menu to verify proper operation.

## Monitor Replacement

The 32" LCD Monitor is powered by a dedicated 24 VDC power supply. This power supply plugs into the AC power strip. Perform the following steps to replace the monitor:

1. Disconnect the cabinet from AC power.
2. Remove the (4) screws that secure the rear cover plate to the back of the monitor assembly.
3. Disconnect the power and video cables from the back of the monitor.
4. Remove the three (3) screws that secure the mounting brackets to each side of the monitor assembly and carefully lift the monitor away from the cabinet.
5. Remove the three (3) screws from each side of the monitor assembly and carefully remove the bezel and display shield. Be aware that the glass is not secured in the bezel.
6. Reverse these steps to install the new monitor.

## Monitor Power Supply Replacement

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To avoid electrical shock, unplug the cabinet AC power cord before performing this procedure.

The 24 VDC monitor power supply is located behind the monitor. Do the following if you need to replace the power supply:

1. Disconnect the cabinet from AC power and remove the rear door.
2. Make sure all wires connected to the power supply are properly labeled for reconnection, and then disconnect them from the terminals.
3. Remove the two (2) screws that secure the power supply mounting bracket to the cabinet.
4. Remove the bracket from the power supply and install it on the new power supply.
5. Reverse the removal steps to install the new power supply.

**Note:** If the monitor does not function properly, verify the power supply is putting out +24 VDC.

## Computer Replacement

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The computer is serviced as one unit. **YOU WILL VOID YOUR WARRANTY if you open the computer without direct authorization from the GLOBAL VR technical support staff.**

**Shipping the computer without enough padding can VOID THE WARRANTY if the computer is visibly damaged from shipping.**

Perform the following steps to remove the computer from the cabinet:

1. Remove the rear door from the cabinet to access the computer.
2. Disconnect all of the cables and the Game Dongle from the computer.

**Important: Keep the Game Dongle with your Cabinet.** Do not ship it with the computer.

3. Note the position of the computer for re-installation. Open the buckle on the strap that secures the computer in place and carefully remove the computer from the cabinet.
4. Reverse these steps to replace the computer. Make sure that the computer air vents are not blocked. There is an air vent under the bottom front panel of the computer that is easily blocked by padding or debris.

When shipping the computer, always use plenty of padding and protection. GLOBAL VR recommends shipping the computer in a box with three inches of foam padding on all sides.

## Coin Mech Replacement

Perform the following steps to remove the coin mech. You can replace the coin mech with any standard arcade coin mech.

1. Unscrew the thumbscrews on the latches as shown by the arrows in step 1 of the figure below.
2. Slide the latches apart from each other and remove the Coin Mech as shown in steps 2 and 3.
3. Reverse these steps to re-install a coin mech. It is important to verify the operation of the newly installed coin mech with both good and bad coins.

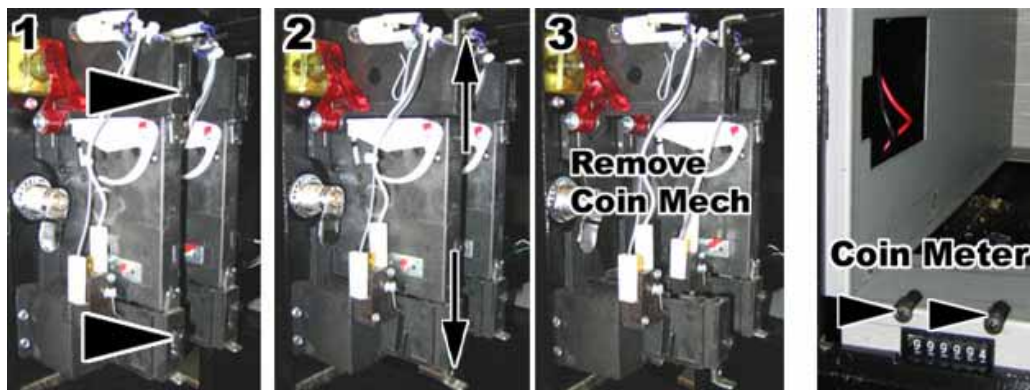


Figure 22. Servicing the Coin Mech and Coin Meter

## Coin Meter Replacement

The coin meter is located in the bottom left-hand corner of the coin vault. The meter receives power via the GVRI/O Mini PCB. If the meter stops working, first check the 5A fuses on the GVRI/O Mini PCB and replace if blown. Perform the following steps to replace the coin meter:

1. Turn the cabinet OFF and disconnect the AC power cord.
2. Remove the two Phillips screws securing the coin meter to the cabinet and remove the coin meter.
3. Cut the two wires from the coin meter and strip the ends of the wires to attach the new meter.
4. Use two butt splices to connect the wires to the new coin meter.
5. Secure the new coin meter with the two screws removed previously.

## Power Distribution Service

### AC Power Plate

The AC power plate provides the external AC power connection. An AC EMI Filter in the power plate removes electrical noise that can cause interference with the hardware inside the cabinet.

AC power from the power plate is connected through a power transformer to a terminal block, and then to two 7-outlet AC power strip/surge suppressors that provide power to all components in the cabinet. See Figure 29 on page 45 for detailed AC Power Distribution information.

**Caution: The cabinet must be connected to a secure ground to function properly.**

Ground wires from system components must be securely connected to the ground lug on the power plate, as shown below and in Figure 29 on page 45. Components must **not** be grounded to the power plate mounting bolts.

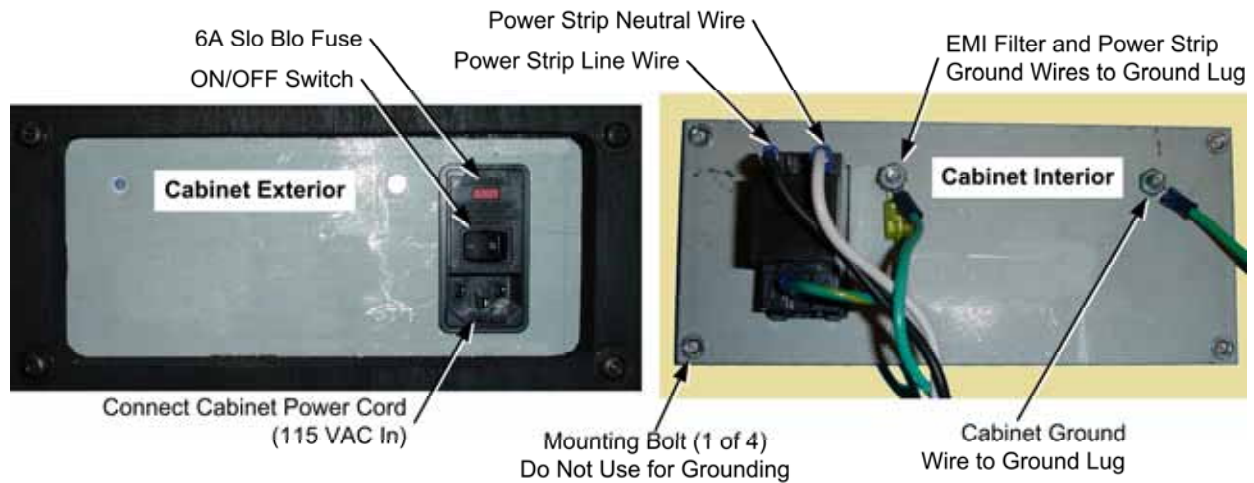


Figure 23. AC Power Plate (Shown Without Labels)

### AC Power Strip Replacement

The AC power strip provides power to all of the components in the cabinet. If the cabinet has no power, check the 6A Slo Blo fuse in the power plate (see Figure 23) and replace if blown. Perform the following steps to replace the power strip:

1. Turn the cabinet OFF and disconnect the AC power cord.
2. Disconnect all components from the power strip.
3. Disconnect the power strip from the AC power plate terminals shown in Figure 23.
4. Remove the power strip; it is held in place with Velcro®.
5. Replace the power strip with an appropriate unit from GLOBAL VR (part # 49-0963-40). Do not attempt to use a different power strip. Be sure to connect each wire to the correct terminal (See Power Distribution Diagram on page 45.)

**Caution:** Be sure to connect each wire to the correct terminal. The ground wire must be securely connected to the ground lug on the power plate or the game will not function properly.

### DC Power Supply Replacement

The DC power supply provides +24-volt power to the gun coils, and +12-volt power to the cold-cathode lighting, ventilation fan, and GVRI/O PCB. Perform the following steps to replace the DC power supply:

1. Turn the cabinet OFF and disconnect the AC power cord.
2. Make sure that all wires connected to the DC power supply are properly labeled for easy re-assembly, and then disconnect the wires from the terminals on the DC power supply.
3. Remove the four (4) screws that secure the power supply to the cabinet.
4. Reverse these steps to install the new power supply. Adjust the +5V output to 5.4V **before** connecting the power supply to the cabinet harnesses (use 5.2V if the power supply is



connected). If the voltage is too high it will damage electronic components. If it is too low, the game will not work properly.

5. Be sure to connect the wires to the correct terminals. Refer to Figure 29 on page 45 for a diagram.

## Marquee Florescent Light Service

The marquee is lit by a florescent fixture. To gain access to the marquee fixture, remove the three (3) wood screws and five (5) nuts with washers from the back of the marquee, and then remove the marquee front with the artwork and clear plastic.

Replace the florescent tube with another 18" florescent tube.

To remove the fixture, disconnect the cabinet from AC power. Disconnect the AC power cord from the fixture. Remove the two Phillips screws that secure the fixture to the cabinet and remove the fixture. Replace the fixture with part # 49-1001-00.

## Cold-Cathode Florescent Light Service

The cold-cathode florescent lighting is used for the instruction panel, and to add dramatic lighting effects to the cabinet.

**Note:** If both lights in a set fail, make sure the power connector is firmly attached to the power inverter. Connect the lights to another power inverter to test them. Replace the power inverter if faulty; it is held in place with Velcro and/or cable ties.

Refer to the table below if you need to replace a cold-cathode tube or inverter.

Light Location	Size & Qty	Changing Tube(s)	Inverter Location
Instruction Panel	Two 6" White Tubes	Remove the four (4) screws that secure the instruction panel in place.	Behind Instruction Panel
Kick Panel	One 12" White Tube	Remove the four (4) screws that secure the clear plastic plate above the kick panel.	Cabinet Floor
Area Below Guns	Two 6" White Tubes, One Below Each Gun	Remove the four (4) screws that secure the metal base plate below the gun.	Behind Instruction Panel
Speakers	One 12" Red Tube	Remove the four (4) Torx screws that secure the speaker grill to access the tubes. Remove the back door to access the inverter.	Inside Cabinet on Side Wall

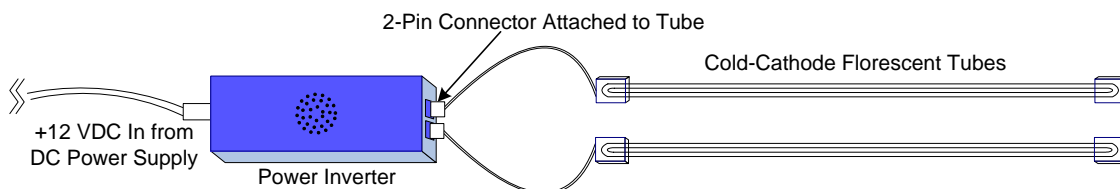


Figure 24. Cold-Cathode Light Detail

## Setting the Computer BIOS (CMOS)

This procedure applies to the Gigabyte GA-G31MX-S2 Motherboard. The steps and settings are the same for the Gigabyte GA-945GM-S2 Motherboard, although the screens look a little bit different.

If your system has a different motherboard, check <http://service.globalvr.com> for updated information.

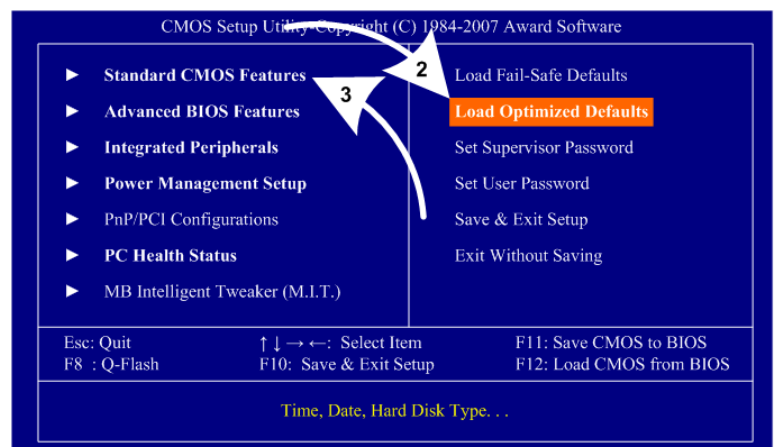
If you are comfortable using the CMOS Setup Utility, press the **DEL** key during boot to run the Utility, select **Load Optimized Defaults** from the Main Menu, and then change the settings shown in the table below. For more help, refer to the detailed instructions that follow.

Menu	Item	Setting
Standard CMOS Features	Drive A	None
	Halt On	No Errors
Advanced BIOS Features	First Boot Device	CDROM
	Second Boot Device	Hard Disk
	Third Boot Device	Disabled
Integrated Peripherals	USB Keyboard Support	Enabled
	USB Mouse Support	Enabled
	Onboard H/W LAN	Disabled
Power Management Setup	AC Back Function	Full On
PC Health Status	CPU Smart FAN Control	Disabled

**Important:** Your screens may not look exactly like the screens shown below, and some settings shown on the screens pictures may be different from your system.

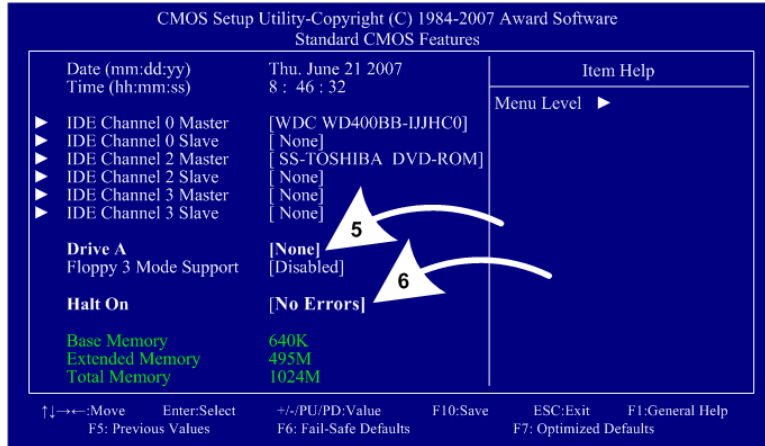
**Do not change any settings that are not specifically described in this document.**

1. Press the **DEL** key during boot. The CMOS Setup Utility Main Menu will appear:
2. Use the Arrow keys (**↑↓→←**) to select **Load Optimized Defaults**, and press **Enter**.  
Press **Y** and **Enter** when prompted to confirm the change.
3. Use the Arrow keys to highlight **Standard CMOS Features**, and then press **Enter**.

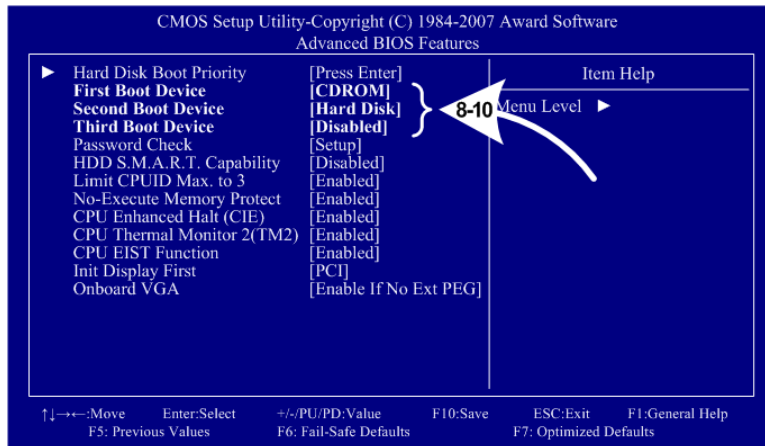


4. A screen similar to the following will appear:
5. Use the Arrow keys to highlight the setting for **Drive A** and press **Enter**. Use the **Page Up** and **Page Down** keys to change the setting to **None**.
6. Change the setting for **Halt On** to **No Errors** the same way.

Press **ESC** to go back to the Main Menu.

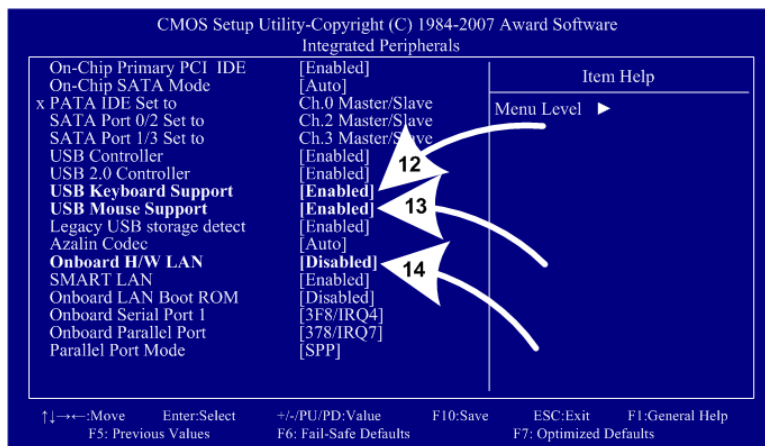


7. Now use the Arrow keys to highlight **Advanced BIOS Features** and press **Enter**. A screen similar to the following will appear:
8. Use the Arrow keys to highlight the setting for **First Boot Device** and press **Enter**. Use the **Page Up** and **Page Down** keys to change the setting to **CDROM**.
9. Change the setting for **Second Boot Device** to **Hard Disk** the same way.
10. Change the setting for **Third Boot Device** to **Disabled** the same way.



11. Now use the Arrow keys to highlight **Integrated Peripherals** and press **Enter**. A screen similar to the following will appear:

12. Use the Arrow keys to highlight the setting for **USB Keyboard Support** and press **Enter**. Use the **Page Up** and **Page Down** keys to change the setting to **Enabled**.
13. Set **USB Mouse Support** to **Enabled** the same way.
14. Set **Onboard H/W LAN** to **Disabled** the same way.

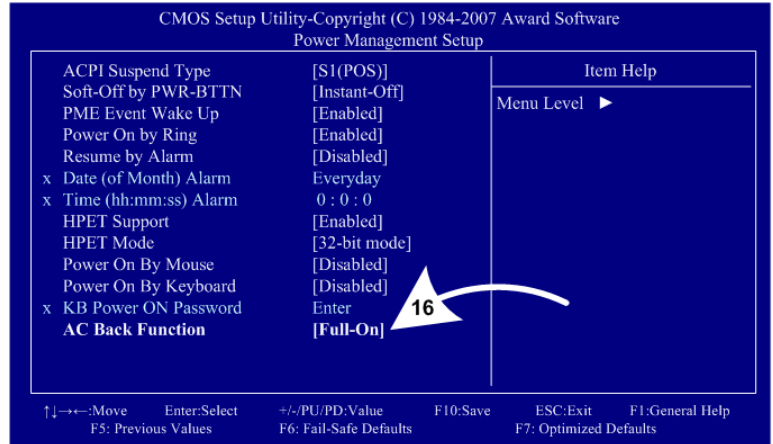


15. Now use the Arrow keys to highlight **Power Management Setup** and press **Enter**.



A screen similar to the following will appear:

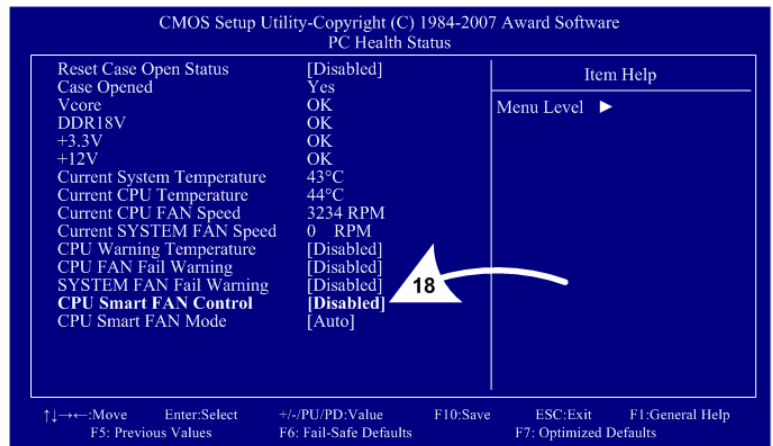
16. Use the Arrow keys to highlight the setting for **AC Back Function** and press **Enter**.  
Use the **Page Up** and **Page Down** keys to change the setting to **Full-On**.



17. Now use the Arrow keys to highlight **PC Health Status** and press **Enter**.

A screen similar to the following will appear:

18. Use the Arrow keys to highlight the setting for **CPU Smart FAN Control** and press **Enter**.  
Use the **Page Up** and **Page Down** keys to change the setting to **Disabled**.



19. Now that all settings are correct, press F10. The following prompt will appear:

Save to CMOS and EXIT (Y/N) Y

20. Make sure "Y" shows at the end of the prompt (use the arrow keys to select, if necessary), and press **Enter** to save the settings and exit.

## Chapter 7 — Troubleshooting

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### Video Troubleshooting

**Note:** Conversion Cabinets with 27" CRT monitors have special requirements not addressed in this manual. Refer to the document titled *Software Restore Guide for Paradise Lost™ with 27" CRT Monitor* (Part #: 040-0166-01), or contact Tech Support for assistance.

Problem	Cause	Possible Solution
No picture or Corrupted picture on monitor	Power problem	Check the monitor power cord and power strip.
	Loose or faulty video cable	Verify that the video cable is firmly connected from the monitor to the video card in the computer. While the monitor is powered ON, disconnect the video cable. You should briefly see a message on-screen saying <i>No Signal</i> if the monitor is working. Check the video cable and make sure it is not pinched or frayed. Connect the cable to a different monitor to verify the signal.
	Loose or faulty video card	When the computer boots up, it performs a PC self-diagnostic test. If you hear 3 beeps from the computer, this indicates a problem with the video card. If the video card is faulty, contact Technical Support. If instructed by Technical Support, open the computer and check the following: <ul style="list-style-type: none"> <li>• Make sure the video card is seated properly in the motherboard. Reseat the video card.</li> <li>• Check the power connector to the video card inside the computer. Make sure it is connected properly and is not connected backwards.</li> <li>• Power on the computer and make sure the fan on the video card is spinning fast.</li> </ul>
No video and no audio  ( <b>Note:</b> It may take nearly 2 minutes to boot and start the game)	No power to computer	Verify the computer is ON by the LED on the front of the computer. Verify the line voltage switch on the back of the computer is set to the correct voltage for your area, 115V or 230V. Make sure the AC power cord is firmly connected to the computer and the power strip, and the power strip LED is on. Turn off the power strip, wait 20 seconds, and then turn it back on to reboot the computer. If the computer does not power on, make sure the On/Off switch on the back of the computer is in the On (I) position and <i>After Power Failure</i> in the BIOS is set to <i>Power On</i> (see page 31).
	Corrupted software	Reload the software from the disks. If you continue to have problems, you may have a faulty hard drive.
	Faulty hard drive	If you continue to have problems after you reload the software, you may have a faulty hard drive. Contact Technical Support.
Video image size is too big for screen	Wrong dongle version	Check Cabinet Info in Operator Menu. You should see <b>CAB: Standard</b> . If you see <b>CAB: Deluxe</b> , you have a Deluxe Cabinet game dongle, which requires a larger monitor. Contact Tech Support.
Picture is dim or faded	Video output needs adjustment	Adjust the brightness, contrast, and gamma setting from <b>Monitor Settings</b> in the Operator Menu.

Problem	Cause	Possible Solution
Picture color is poor	Color needs adjustment	Use the monitor remote control to adjust the red, green, and blue color settings. Use the Test Screens in <b>Monitor Settings</b> in the Operator Menu to aid with color adjustments.
Picture geometry is misaligned	Geometry needs adjustment	Use the monitor remote control to adjust the picture height and width, and other geometry. Use the Test Screens from <b>Monitor Settings</b> in the Operator Menu to aid with adjustments.

## Audio Troubleshooting

Problem	Cause	Possible Solution
No audio or Poor sound from one or more speakers	Volume set too low	Use the <b>VOL UP</b> button on the Operator Button Panel (see Figure 4 on page 9) to raise the volume.
	Faulty wiring	Verify that all the wires are firmly connected to the speakers, GVRI/O PCB, and <b>green</b> computer audio port. Verify that no wires are frayed or improperly shorting to ground.
	Blown speakers	Remove the grill and inspect each speaker for visible damage. Run the <b>Speaker Test</b> from the Operator Menu to verify each speaker is working.
	Reversed wires	A weak or low muffled sound is a sign of reversed speaker wires. Check for reversed wires on each affected speaker.
	Faulty Audio Amp	To verify audio is working at the computer, connect stereo headphones to the computer audio port.
Audio hum	Faulty power supply	A constant low hum in the speakers can be caused by a faulty power supply. This could be either an external DC power supply or the computer power supply.
	Open ground	Check all ground wires in the cabinet. Make sure the AC wall outlet is properly grounded.

## Gun Troubleshooting

**Caution:** Disconnect the cabinet AC power cord before disconnecting or connecting **any** gun cables. Failure to do so may damage the gun PCB.

Problem	Cause	Possible Solution
No force-feedback recoil in gun	Faulty DC power supply	Make sure the DC power supply is putting out +24 VDC.
	Kicker turned off	Turn on the Gun Force Feedback under Game Settings in the Operator Menu.
	Faulty coil	Check wiring inside gun. Replace coil if faulty.
Force-Feedback recoil and LED flash in the wrong gun	Gun wiring is reversed	To compensate, change the Swap Guns setting under Game Settings in the Operator Menu.
A button or trigger does not work	Faulty micro switch or wiring	Check micro switch inside gun. Check wiring. Make sure no wires are pinched in the gun case.
A button or trigger does not work	Faulty micro switch or wiring	Check micro switch inside gun. Check wiring. Make sure no wires are pinched in the gun case.

Problem	Cause	Possible Solution
Gun(s) not working or Message at boot indicates gun(s) not detected	Faulty wiring	Verify that all wires are firmly connected and no wires are frayed or improperly shorting to ground.
	Disconnected USB or DC power	Check all power and USB connections. If all gun lights are off, this indicates a problem with +12 VDC power.
	Blown fuse in gun power harness	Check the fuses (MDL 2A Slo Blo) in the gun power harness.
	Gun(s) connected to faulty USB port	To test a USB port, turn off the game, disconnect the device from the port, and then connect the game dongle to the port. Reboot the game. A <i>No Dongle</i> message indicates the port is bad. If the game starts, the port is working. After the test, turn off the cabinet, reconnect all devices to the correct USB ports, and reboot. See Figure 30 on page 46 for PC connection information. <b>Important:</b> Disconnect power before changing any USB connections.
	Faulty power supply	Verify DC power supply is putting out the correct voltages.
Gun does not aim properly	Gun out of Calibration	Calibrate the gun from the Controller Test screen in the Operator Menu.
	Faulty pot or gear	Check gun pots and gears (see <i>Gun Pot and Gear Service</i> on page 23).
No lights on gun	Check +12 VDC power	Check wiring and make sure the DC power supply is putting out +12 VDC
Fuses blow	Pinched wires	Make sure no wires are pinched by the gun case.
	Faulty power supply	Test voltage output and replace power supply if faulty.
LED readout on gun not working or looks strange	Faulty Gun PCB	Check all connections to the Gun PCB (it is powered by +5 VDC from the USB connection). Replace PCB if faulty.

### Miscellaneous Troubleshooting

Problem	Cause	Possible Solution
No power	Power strip not plugged in or turned off	Make sure the power indicator light on the power strip is on. If it is off, make sure the connections to the AC Power Plate are secure and the power strip ON/OFF switch is ON.
	Cabinet not connected or turned off	Make sure the AC power cord is firmly connected to the power plate and an active AC outlet, and the cabinet ON/OFF switch is ON.
	Blown fuse in power plate	Check the fuse in the power entry module in the power plate.
Computer will not boot	Power cycling the PC only, instead of cabinet, can cause the PC to not power up	Sometimes, if you power cycle the PC but not the cabinet, the PC will not power up. To fix this, power OFF the cabinet, disconnect the guns and GVRI/O PCB from the USB ports, and then power ON the cabinet. Once the computer reboots and you see the error screen saying devices are missing, power OFF the cabinet. Reconnect the USB devices (be sure to connect to the correct ports) and power ON the cabinet. <b>Note:</b> It is better to always reboot the cabinet rather than just the PC. Power OFF before you connect or disconnect USB devices or you will damage the gun PCB.

<b>Problem</b>	<b>Cause</b>	<b>Possible Solution</b>
Game dongle not found by system computer	Game dongle not connected	Connect the game dongle. Power the cabinet off and then on.
	Faulty game dongle or wrong dongle version	Make sure the dongle is connected properly. (USB dongles illuminate when recognized by the computer.) Contact Tech Support if you need to order a new dongle.
	Faulty port	Test the dongle in a different USB port.
Cabinet gets very warm	Faulty ventilation fan	Verify that the ventilation fan is working. Replace a fan if it is worn or spinning slowly. Make sure the fan is getting +12 VDC from the DC power supply.
	Cabinet ventilation holes are blocked	Make sure you have proper clearance between the cabinet rear and the wall. Make sure the vent holes are clear of dust and debris and that air can flow freely.
Marquee lamp does not light or is intermittent	Faulty florescent tube	Check the florescent tube for darkened or cracked ends. Replace the florescent tube if it looks worn.
	Faulty florescent fixture	Verify the florescent tube pins make a good connection with the lamp fixture. Check the ballast for proper operation. Replace fixture if faulty.
Credits only work on left player (Player 1)	Wrong dongle version	Check Cabinet Info in Operator Menu. You should see <b>CAB: Standard</b> . If you see <b>CAB: Deluxe</b> , you have a Deluxe Cabinet game dongle, which requires a second coin mech for Player 2. Contact Tech Support.
Wrong number of credits given when coins or bills are inserted	Incorrect setting in Operator Menu	Adjust settings from <b>Game Settings</b> in the Operator Menu.
	Faulty wiring	Disconnect the cabinet from AC power. Verify that all wires are firmly connected to the coin mech and bill validator, and ground wires are properly connected. Verify that no wires are frayed or improperly shorting to ground.
	Faulty coin mech	Verify the coin mech is not jammed. Make sure the coin mech is properly aligned and latched to the coin door. Repair or replace if faulty.
Coin meter does not work	Blown fuse(s) on GVRI/O Mini PCB	Replace the 5 Amp fuse(s) on the GVRI/O Mini PCB.

## Chapter 8 -- Replacement Parts

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If you need replacement parts, please reference these part numbers when contacting GLOBAL VR technical support or your distributor.

### Documents and Software

Part Number	Qty	Item Description
040-0152-01	1	System Manual
040-0149-01	1	Software Restore Guide
050-0139-01*	1	System Recovery Disk (CD) Version 3.0
050-0127-01*	1	Game Install Disk (DVD) Version 1.0.12

\*Part numbers may change due to software revisions.

### Cables

Part Number	Qty	Item Description
115-0008-01	1	Power Cord for DC Power Supply
115-0049-01	1	Power Plate ground cable, 3.5"
115-0095-01	1	Coin Door Harness
115-0096-01	1	Player 1 & 2 Start Button Harness
115-0097-01	2	Gun Power Cable with Fuses
115-0098-01	1	12V Lights Power Cable
115-0099-01	1	Ground wire, Gun to Coin Vault
115-0100-01	1	Speaker Harness
80-0213-00	1	Cabinet Power Cord, 6'
96-0539-00	1	Stereo Cable, 3.5mm, 6'
GLO-PWRCORD	1	Cable Marquee Light Power Cord
USB-AB06MM	1	USB Cable, 6'
USB-EXT-6	2	USB Extension Cable, 6', USB 2.0, A Plug/A Jack
115-0101-01	1	Cable, 12V Fan Power
115-0113-01	1	Assembly, Load Resistor & Cable
115-DVINPUT-CBL	1	Cable, Digital Video Input
115-0082-00	1	Cable for Power Transformer

### Cabinet Functional Components

Part Number	Qty	Item Description
85-LTA320W2-L14-5G	1	Monitor, 32" LCD W/Driver & Metal Mounting Plate
137657	1	Monitor Power Supply, 24VDC, 10 AMPS (MW Part# - S-240-24)
26138-00	1	Glass Display Shield for 32" LCD Monitor
990-0013-01	1	GVRI/O Mini PCB
22-0064	1	PCB Mounting Feet, Set of 4
Q-250D	1	DC Power Supply, 250W, 5/12/24VDC
CCFL2R	1	Cold Cathode Light Kit, Dual 12" Red (Speaker Lighting)

Part Number	Qty	Item Description
CCFL2W	1	Cold Cathode Light Kit, Dual 12", White (Kick Panel Lighting)
CCFL62W	2	Cold Cathode Light Kit, Dual 6", White (Instruction Panel & Under Control Panel)
CCM1600-ND	1	Power Entry Module with EMI Filter, Power Plate
37117-01	1	Power Plate
0001.2512	1	Fuse, 6Amp, 5mm X 20mm (Power Plate
49-0963-40	1	7-Outlet Power Strip, Surge Protector, 15 Amps, 1500 Joules
2-30-243422-0064	1	Power Transformer
49-1001-00	1	Florescent Light Fixture, 18"
5.25 SPEAKER PAIR	1	5.25" Speakers, Pair
59-8654-822H2205	1	Player 2 Start Button, Blue
59-8654-833H2204	1	Player 1 Start Button, Green
60039-00	1	Computer Mounting Strap
12V-FAN-QCA	1	12 VDC Cabinet Fan, with Power Cord
PSQ25115ZN-3H	4	CASTER, SWIVEL, HARD RUBBER, 1.75 X 3.00 BOLT SPACI
49-1002-00	4	Leg Leveler, 3/8-16 X 2.00 LG 200LB W/O NUT
26091-00	1	Control Panel Housing
26093-00		Clear Plastic, Kick Panel
26094-00		Clear Plastic, Instruction Panel
26107-00		Bracket, Speaker Light
26136-00		Plastic, Control Panel Base
26137-00		Plastic, Marquee Edge, Red
A-1 VENTILATOR		Cabinet Ventilator, 4" X 13"
45070-00-945	1	System Computer Assembly
60039-00	1	Computer Mounting Strap
1556A15	3	Computer Corner Brace, 3" Zinc Plated
USB-KQRTG-HL-PL	1	USB Game Dongle (Exchange Only)

## Gun Parts

Also see pages 40 and 41.

Part Number	Qty per Gun	Item Description
96-0799-00	1	Gun Assembly
26090-01	1	Gun Housing, Left
26090-02	1	Gun Housing, Right
96-0799-00	1	Gun Assembly
METL6R	1	LED Light Tube, Red
990-0012-01	1	Gun PCB
AE-AW-09	1	Decal, Gun Left, Aliens 27
AE-AW-10	1	Decal, Gun Right, Aliens 27
BK/MDL-2	1	Fuse, 250V 2Amp, Gun Power Harness

## Gun Exploded-View Parts

Ref #	Qty	Part Number	Item Description
1	1	96-4901-00	BOTTOM PLATE F/WMS ANALOG GUN
2	1	96-4937-00	BRACKET F/SWIVEL BASE ASSY.
3	1	96-4934-00	BRACKET PIVOT BOX & SHAFT ASSY.
4	1	96-4902-00	BRACKET HANDLE WELDED
5	1	96-4915-00	BRKT COIL MTG
6	1	96-4923-00	SHAFT 5/8 DIA.
7	1	96-4908-00	DISC PLASTIC WASHER
8	1	96-4907-00	GEAR SEGMENT W/HUB
9	1	96-4960-00	SPACER SEGMENT GEAR
10	1	43-0232-00	NUT, HEX NYLOCK 1/2-20
11	1	43-0055-00	WASHER, FLAT 1/2 SAE
12	7	42-0082-00	NUT, KEPS 8-32
13	8	43-0252-00	SCREW, #8-32 x 3/8 HEX HEAD
14	1	43-0003-00	3/8 SAE FLAT WASHER ZNC PLTD
15	1	43-0092-00	NUT 3/8-16 NYLOCK
16	1	43-0280-00	HEX HEAD CAP SCREW 10-32 X 1-1/4
17	2	43-0037-00	LOCKWASHER, EXT #10
18	3	43-0253-00	NUT HEX 10-32 JAM NYLOCK ZINC PLATED
19	1	96-4900-00	COIL RETAINING BRACKET
20	1	96-4938-00	INSULATOR
21	1	96-4904-00	BRACKET POT MTG HORIZONTAL
22	1	96-4913-00	BRKT POT MTG VERTICAL
23	1	96-4936-00	PLUNGER F/SOLENOID
24	1	96-4931-00	SPRING COMPRESSION
25	1	96-4971-00	BUMPER SOLENOID STOP
26	1	96-4921-00	GEAR SEGMENT HUBLESS
27	2	43-6972-00	SPACER F/BUMPER
28	1	43-0188-00	SCREW, #8-32 x 3/8" HEX WASHER HD
29	2	43-0254-00	SCREW 10-32 X 2.25 HEX HD ZINC
30	4	96-4920-00	BEARING .625 BORE
31	2	96-4917-00	GEAR 32DP 16T .25" BORE .5" L.
32	1	96-4970-00	REAR BUMPER PAD
33	1	96-4911-00	BUMPER 3/4 DIA.
34	2	96-4919-00	BUMPER 5/8 DIA. VERTICAL
35	1	96-4935-00	COIL WITH TUBING
36	2	96-4973-00	PAD ADHESIVE FOAM TAPE
37	2	96-4916-00	LONG LIFE POT W/NUT & WSHR 5K
38	1	43-0223-00	E-RING 3/8 DIA SHAFT
39	1	FI-0229-GVR	ALIEN GUN HALF LEFT FI FROM GVR
40	1	FI-0230-GVR	ALIEN GUN HALF RIGHT FI FROM GVR
41	1	95-4142-00	SWITCH ASSY BALL DETECT
42	1	54V-0004-20	IPB SM CIR RED RED CAP 14V73 VLT LAMP ASSY
43	1	96-2515-06	TRIGGER BLACK NEW STYLE
44	1	96-0005-00	SPRING, TRIGGER RETURN
45	1	57-2000-50	VLT BUTTON REC,RED W/6V LAMP
46	11	4008-01100-16	SCREW 8-32 X 1" BH TORX
47	8	43-1130-00	SCREW 10-32 X 3/8" BUTTON HD TORX T-P
48	14	43-0211-00	NUT, 8-32 NYLOK
49	1	43-2318-00	SCREW 8-32 X 5/8 BHMS TORX
50	2	43-2317-00	SCREW 8-32 X 7/8 BHMS TORX
51	2	43-0172 00	SCREW, #2 X 1/2 TYPE B. PPH



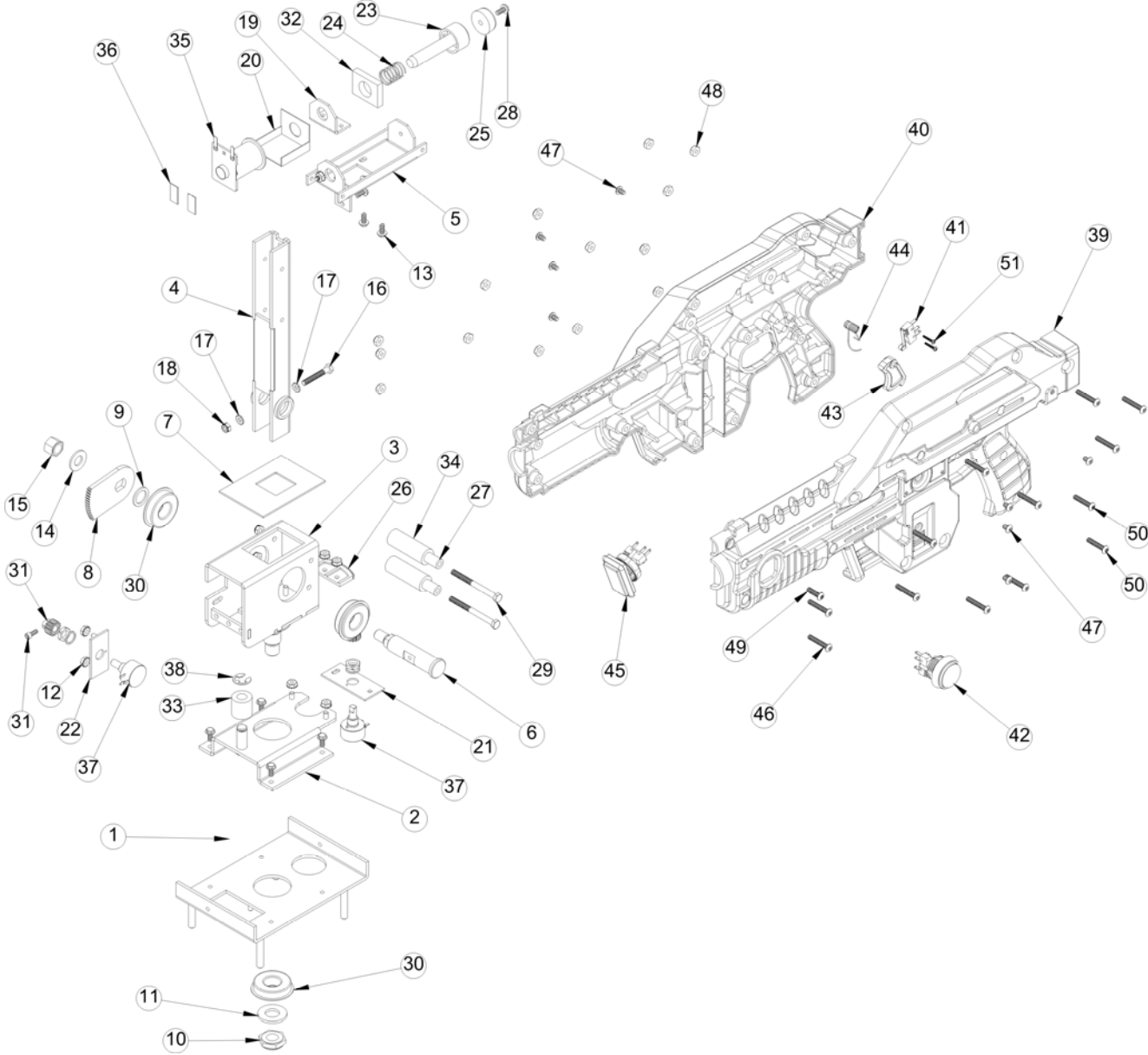


Figure 25. Gun Exploded-View Drawing

## Cabinet Artwork

The picture below shows the part numbers for all of the cabinet artwork.



Figure 26. Cabinet Artwork

# Chapter 9 — Diagrams and Schematics

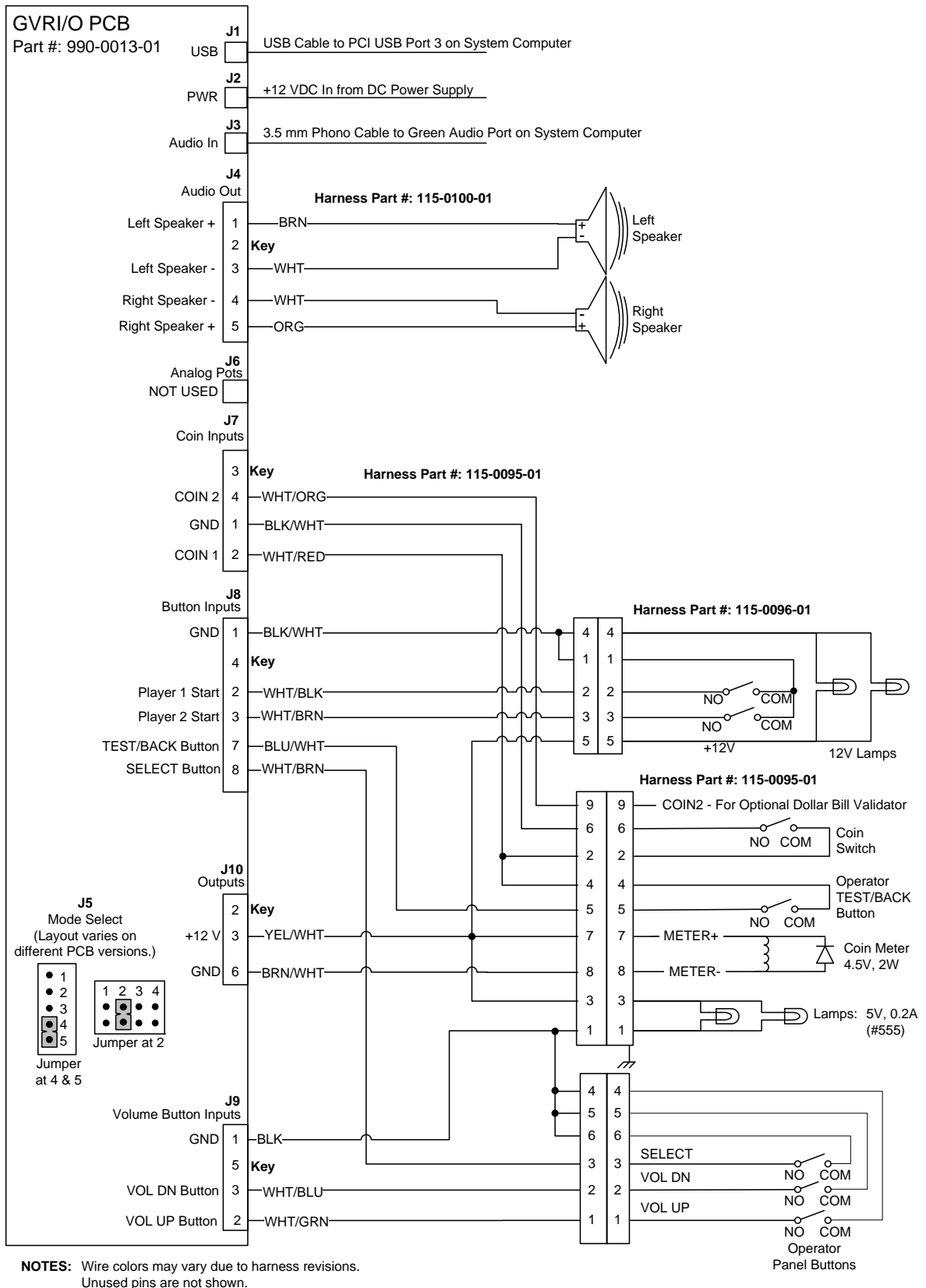
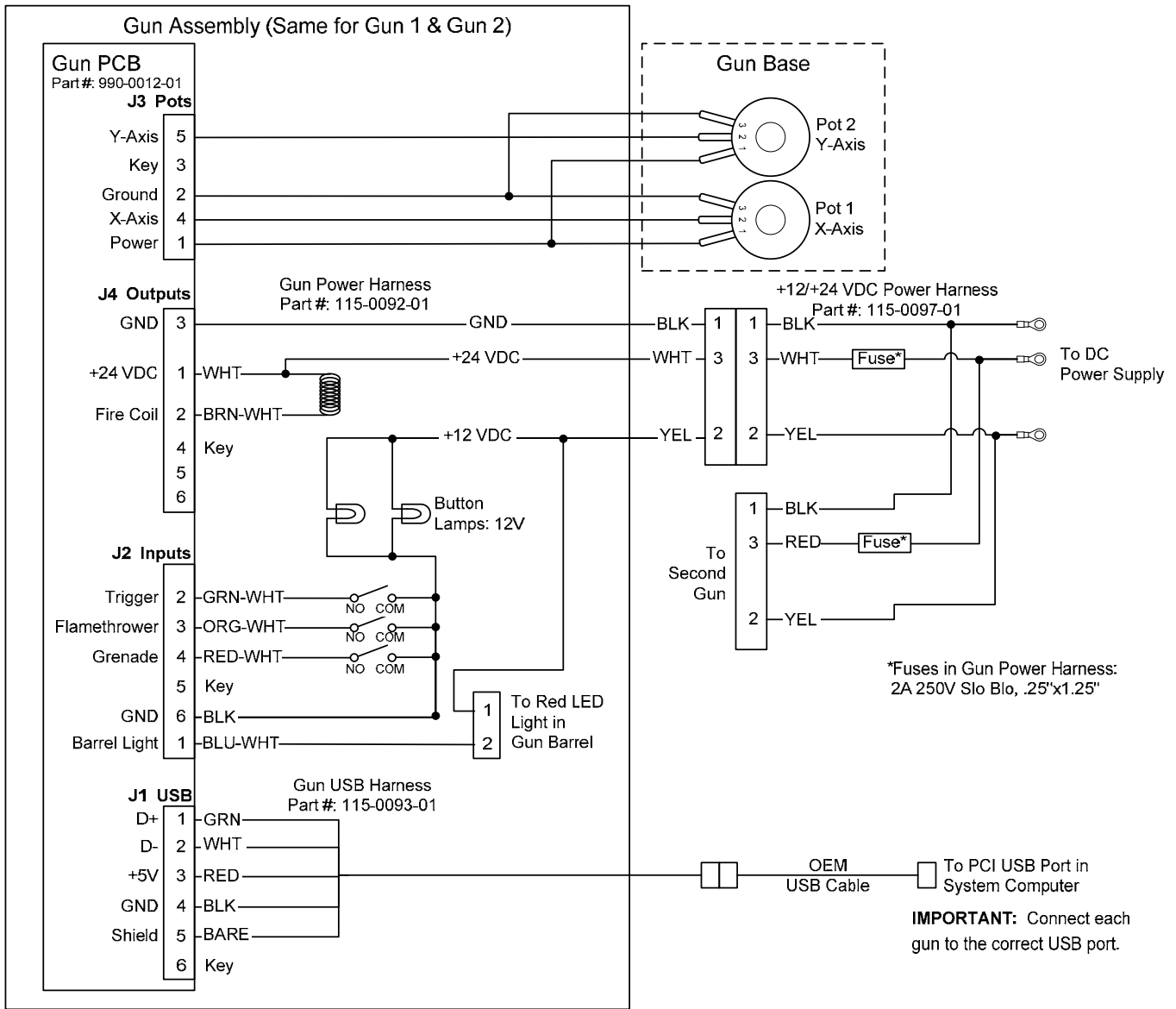


Figure 27. GVRI/O Wiring Diagram



**NOTE:** Wire colors may vary due to harness revisions.

Figure 28. Gun Wiring Diagram

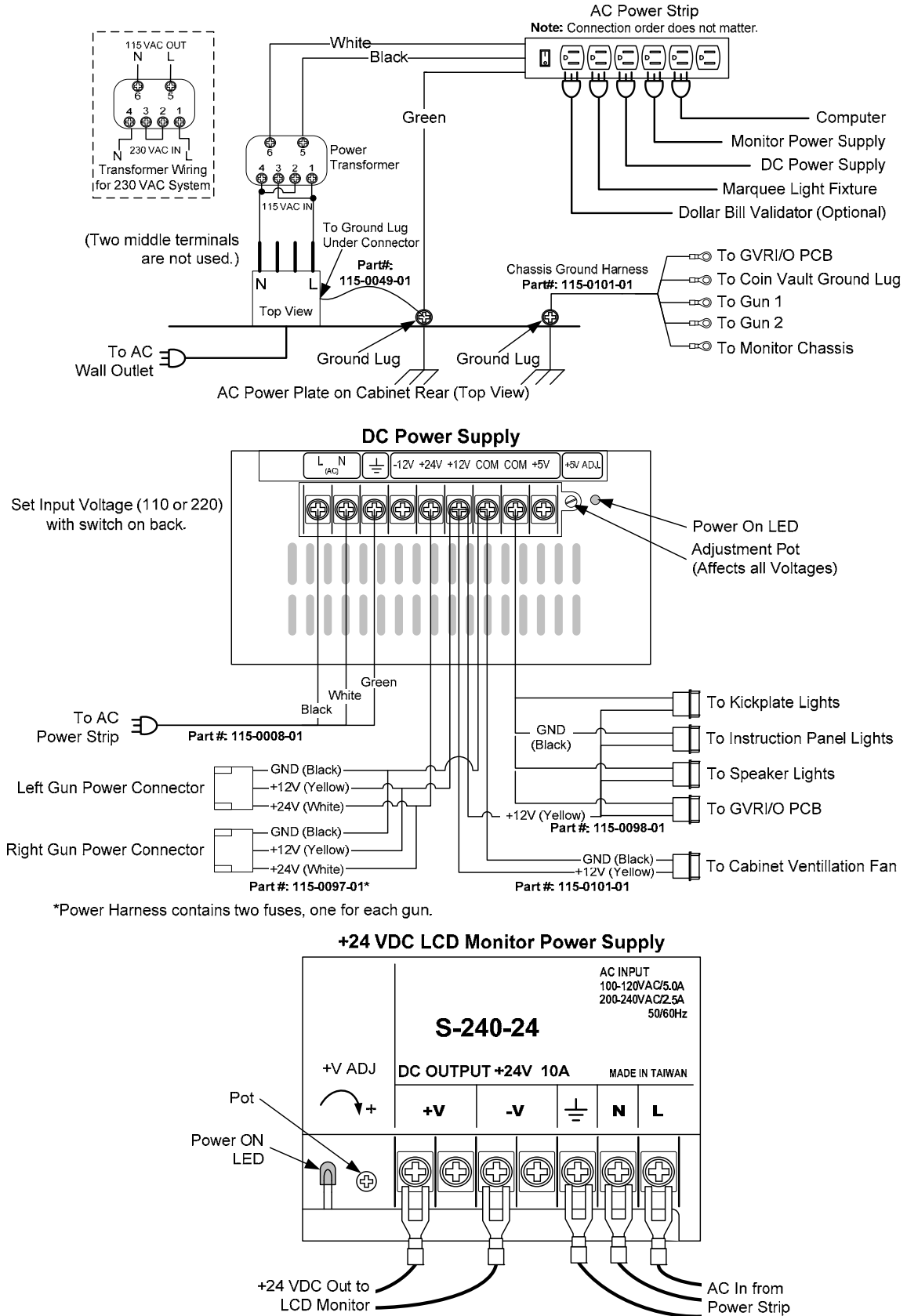


Figure 29. Power Distribution Diagram

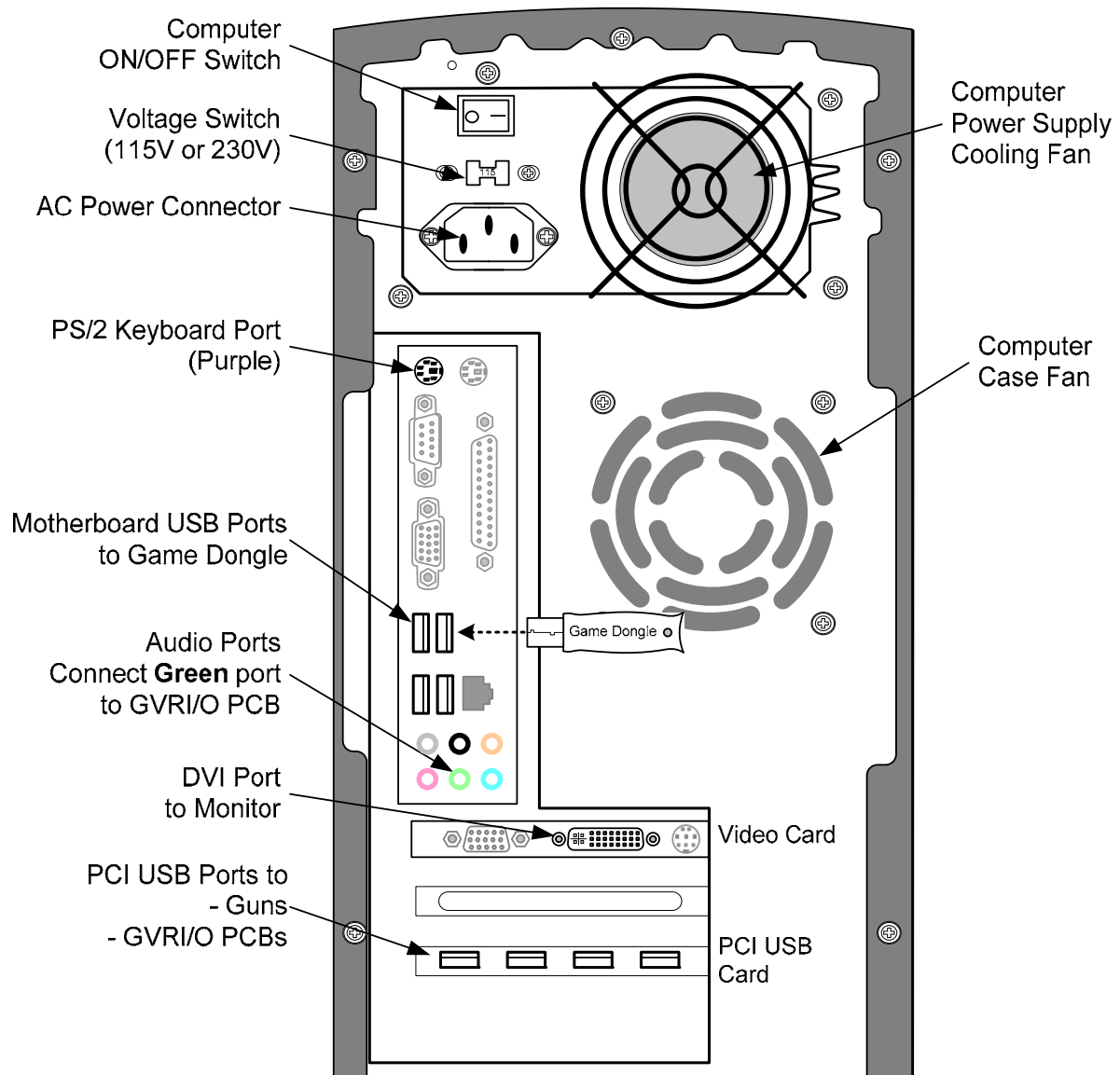


Figure 30. Computer Rear Panel Diagram

## Warranty Service

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If at some point you require warranty service, contact your authorized GLOBAL VR distributor.

### Warranty Information

LIMITED WARRANTY FOR PARADISE LOST CABINET (North America Only)

GLOBAL VR® warrants that its Major Electronic Components are free from defects in materials and workmanship under normal use and service for a period of one (1) year from the date of sale.

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 shall be in effect for the remainder of the original warranty period, but will not exceed the original warranty period.

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

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## Service & Parts

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

**Phone:** 408.597.3435

**Fax:** 408.597.3437

**E-mail:** [techsupport@globalvr.com](mailto: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, as applicable, to assist the Technical Support representative in solving your problem quickly. For your convenience, space is provided to write important numbers.

- Cabinet Serial Number: \_\_\_\_\_
- Game Version and PQI Date from Operator Menu: \_\_\_\_\_
- Proof of Purchase information
- Your mailing address and telephone number
- A summary of the question or a detailed description of the problem
- Specific error message
- Date of latest install or upgrade
- Any changes made to the system
- For game-play issues, the level and number of players

To comment on this document, please e-mail: [techpubs@globalvr.com](mailto:techpubs@globalvr.com)