



# EA SPORTS™ MADDEN NFL™ FOOTBALL

System Manual  
040-0042-01 Rev. A

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



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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:

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

Warnings

|   |  |
|---|--|
| <br><b>CAUTION</b> | <b>To avoid electrical shock, unplug the cabinet before performing the installation procedures.</b>  |
|                    | <b>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!</b> |

Environmental Conditions

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

## FCC Notices (United States)

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

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

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

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

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

Operation is subject to the following conditions:

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



### The Ultimate in Video Football is Here!

All the excitement of pro football is now available for your locations! Accurate 2004—2005 team rosters, bone-jarring deluxe audio, 49-way digital control and groundbreaking graphics deliver the real stadium experience, as it's never been played before.

EA SPORTS™ MADDEN NFL™ FOOTBALL delivers innovative and engaging gameplay with **5 Play Modes**:

- **Training Camp** teaches advanced controls
- **Exhibition** for quick-start pick-up games
- **Competition** for live events with automatic ladders and leaderboards
- **Tournaments** with cash prizes
- **Career** for online statistics and the challenge of competing against all the teams of the NFL

#### Key Hardware Features:

- everlast Industrial PC
- High-resolution monitors
- Dollar bill validator
- Deluxe audio

#### 3 Configurations to fit any location

- 2-Player Standard
- 4-Player Standard
- 4-Player Deluxe

Real Teams

Real Players

Real Football

## Cabinet Styles

The figure that follows shows the two cabinet styles with measurements and weights.



*Figure 1. Cabinet Styles with Dimensions and Weights*

## Hardware Features

- Pentium 4 Computer
- NVIDIA GeForce FX 5700LE Video Card
- Deluxe Audio
- 512 Megabytes RAM
- 32-bit color
- 800x600 Super VGA Monitor (27" or 39")
- Dollar Bill Validator
- Smart Card Reader (Tournament Systems Only)

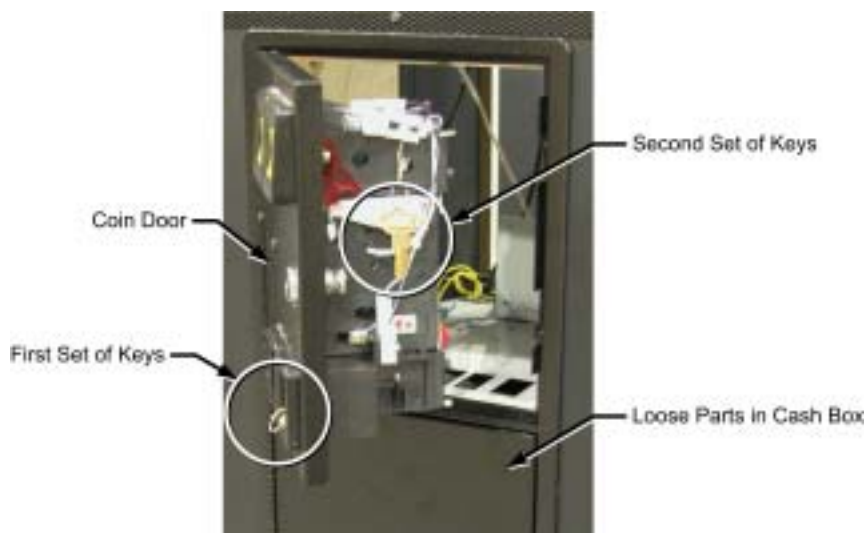
## Chapter 2 — Installing a New Cabinet

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Use the procedures that follow to setup your game.

### Basic Cabinet Setup (All Models)

1. Carefully remove the cabinet from the shipping container. Give yourself plenty of space around the cabinet as you remove it from the shipping container. Inspect the exterior of the cabinet 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 Location*

3. Open the cash-box door and remove the loose parts inside the cash box. You will find the following items (may vary with cabinet style):
  - AC power cord
  - Torx<sup>®</sup> Security Bits
  - Hardware for mounting Control Console
4. Remove the back door from the cabinet and inspect the wiring and components. Verify that all cables and wires are securely connected to the computer and other components. Refer to Chapter 10 — Diagrams and Schematics, beginning on page 51, for wiring diagrams and interconnect information.
5. Locate the clear plastic pouch mounted inside of the cabinet. It contains the following items:
  - GLOBAL VR<sup>®</sup> Instruction Manual (this document)
  - System Restore CD
  - Game Software CDs (2)
  - Software Restore Guide

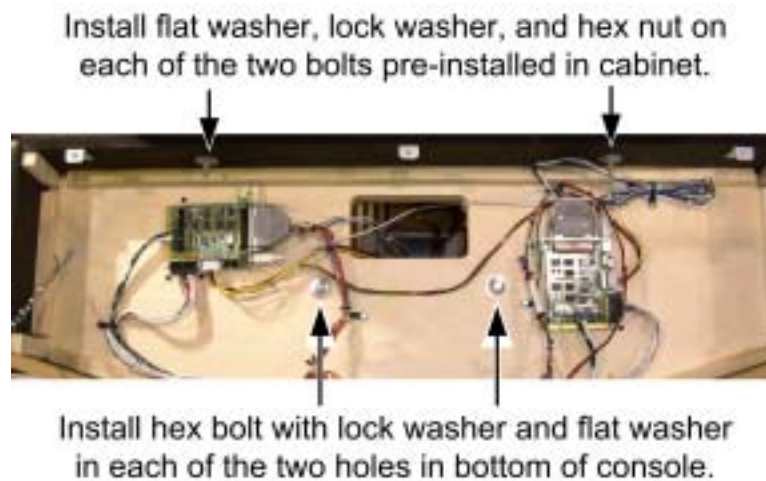


6. For Standard Cabinets, continue with Standard Cabinet Installation that follows.  
For Deluxe **Cabinets**, continue with Deluxe Cabinet Installation on page 11.

## Standard Cabinet Installation

Perform the following steps to install the player control panel to the game cabinet. Refer to Chapter 10 — Diagrams and Schematics, beginning on page 51, for cabinet wiring diagrams.

1. Place the control console on the shelf above the coin mech so that the two bolts pre-installed on the cabinet fit through the holes at the rear of the console.
2. Remove the four Torx bolts that hold the console closed, reach up through the coin door to open the latch at the center rear of the console, and open the console. Be careful to support the console so that it does not fall off the shelf.
3. Refer to Figure 3 and secure the control console to the cabinet using the hardware located in the coin box.
  - A. Install a flat washer first, then a lock washer and hex nut on each of the two bolts pre-installed in the cabinet.
  - B. Install a hex bolt with a lock washer and flat washer in each of the two holes in the bottom of the console.



*Figure 3. Mounting the Control Console (Standard Cabinet)*

**Important:** Route all cables through the plastic cable clips to prevent them from being pulled loose from the USB I/O Extreme PCB.

4. Refer to Figure 33 on page 53 for a diagram of control panel connections. Locate the 3x3 Molex female connector from the USB I/O Extreme PCB for the Player 1/2 controls and pass it through the opening in the bottom of the console. The similar connector attached to the Player 3/4 controls is not used.
5. Open the coin door and connect the Molex connector from the console to the 3x3 Molex male connector from the coin mech.
6. Locate the following connectors from the main cabinet and pass them into the control console through the opening in the bottom of the console.

- Two USB cables from the computer
  - Power harness from the DC power supply
7. Connect each USB cable to the **J10 USB** port on the USB I/O Extreme PCB in the console.
  8. Connect each power connector to the **J2 PWR** port on the USB I/O Extreme PCB.
  9. Close the control console and secure it with the four Torx bolts. Reach up through the coin door and secure the latch at the center. You are now ready to power on the game.
  10. Fold the tournament header on top of the cabinet up on its hinge and secure it with three wood screws.
  11. Connect the power cord to the AC power plate on the back of the game and a grounded (3-terminal) AC outlet.  
**Important:** The cabinet must be properly grounded or some functions may not work correctly.
  12. Power ON the cabinet using the On/Off switch located on the AC power plate on the lower rear of the cabinet (see Figure 27 on page 43).
  13. Verify that the cabinet powers up and operates properly. For instructions on checking various game functions, refer to Diagnostics Menu on page 21.
  14. Refer to *Operator Menus* on page 17 for information on setting up your pricing and other options. Refer to Chapter 5 — Setting up for Tournament Play on page 25 to register your cabinet for tournaments.

The standard cabinet is now ready for game play.

### Deluxe Cabinet Installation

Perform the following steps to install the player control console to the monitor console:

1. Place the control console in front of the monitor console.
2. Locate the cables hanging out of the openings at the bottom of the monitor console and control console and connect each cable to its mate as follows:
  - Two USB cable connections
  - One AC power and ground connection
  - One 4-pin DC power connection
3. Locate the two wooden connecting rails.
4. Install the four 3-inch T27 Torx bolts through the monitor console and connecting rails as shown in the figure that follows.



*Figure 4. Deluxe Cabinet Mounting Rails*

5. Secure the bolts with the flat washers and lock washers from the loose hardware in the cash box.
6. Move the control console into position and secure the connecting rails to the control console with four sets of bolts, flat washers, and lock washers. Be careful not to pinch any cables.
7. Fold the tournament header on top of the cabinet up on its hinge and secure it with three wood screws.
8. Connect the power cord to the AC power plate on the back of the cabinet and a grounded (3-terminal) AC outlet.

**Important:** The cabinet must be properly grounded or some functions may not work correctly.

9. Power ON the cabinet using the On/Off switch located on the AC power plate on the lower rear of the cabinet (see Figure 27 on page 43).
10. Verify that the cabinet powers up and operates properly. For instructions on checking various game functions, refer to Diagnostics Menu on page 21.
11. Refer to *Operator Menus* on page 17 for information on setting up your pricing and other options. Refer to Chapter 5 — Setting up for Tournament Play on page 25 to register your cabinet for tournaments.

The deluxe cabinet is now ready for game play.

## Checking the Game Dongle



*Figure 5. Parallel Game Dongle*

The cabinet uses a game dongle to activate the game software. The game dongle connects to the parallel port on the back of the computer.

For a dongle to be recognized correctly, it must be connected to the parallel port **before** the cabinet is powered ON. If the dongle is not recognized, power the cabinet OFF, make sure that the dongle is connected properly, and then power ON to see if this resolves the problem.

If the dongle should come off while the game is running, a NO DONGLE screen will appear. If this happens, the dongle can be re-installed without rebooting the game.

**Note:** The dongle supplied with the cabinet is specific to the game and software version. Future software upgrades may require you to also upgrade the dongle.

**Important:** Some of your registration information is stored in the dongle, so if you replace your computer, remove the dongle and keep it with the cabinet.

## Chapter 3 — Playing a Game

---

This section provides general information for starting and playing a game. Onscreen hints help you learn the game as you play.

1. Insert coins and press the **white** START button. The Mode Select screen will appear.



2. Use the joystick to select from the Modes of Play described below, and then press any button.

**Training Camp:** Select from a list of game skills to practice.

**Exhibition:** Play a single game against friends or the computer.

**Career Mode:** (Enabled only on registered tournament systems) Play against every team and save your statistics.

**Tournament:** (Enabled only on registered tournament systems) Compete for cash prizes in local and/or national tournaments.

**Competition:** (Enabled only on registered tournament systems) Play against friends in an elimination or top-score tournament. In Elimination mode you play head-to-head against your friends. In Top-Score mode you and your friends take turns playing against the same computer-controlled team. Four-player cabinets allow 2—32 players to compete in the same game.

3. To play an Exhibition game, select **Exhibition** from the Mode Select screen and press any button.

4. Use the joystick to select the home team, and then press any button. Repeat for the visiting team.



5. Select the difficulty level: NORMAL, ALL PRO, or ALL MADDEN (for the most challenging play).
6. Select **Play** and press any button to start the game. Watch for onscreen hints as you play. You can select plays and change player positions, or let the computer make the selections. Use the joystick and buttons to control your players. Look at the labels on the player control panel for more information on the functions of each button.

Watch for onscreen hints as you play.

## Chapter 4 — Operator Menus and Game Setup

---

This chapter describes how to use the Game Operator Menus. These menus allow you to perform cabinet setup and adjustments, test the equipment, view coin audit information, and register the cabinet to participate in tournaments.

To access the Game Operator Menu, press the **red** operator button behind the coin door as shown in the figure below:



*Figure 6. Launching the Game Operator Menu*

Once you have registered your cabinet and activated your Operator card (see *Connect* on page 26), you can access the Operator Menus by simply inserting your Operator card in the Smart Card reader.

Refer to *Figure 7, Operator Menu Flowchart*, on the following page, for a list of the Operator Menus and available settings. Use the player controls to navigate the Operator Menus as described below:

1. Use the joystick to navigate through the Main Menu and highlight a selection.
2. Move the joystick to the right to enter a menu to view or change settings.
3. Press the **red** and **green** player buttons to change settings. Refer to the bottom of each menu screen for more information.
4. When you finish making changes, move the joystick to the left to return to the Main Menu. When you are finished using the Game Operator Menu, use the joystick to select *Return to Game*, and then press the **red** button to confirm.

## Operator Menus

The flowchart that follows shows the Operator Menu choices and available settings.

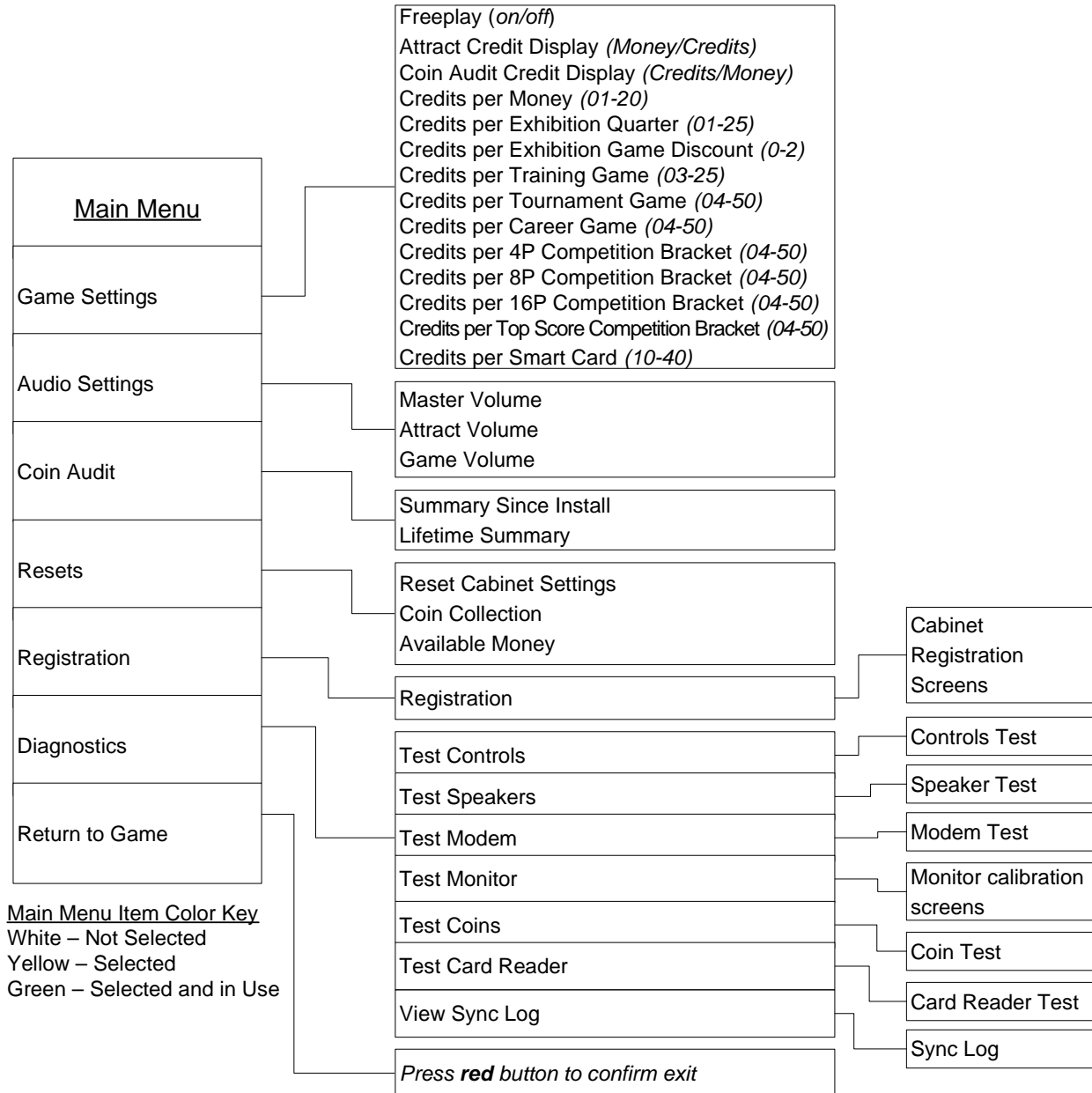


Figure 7. Operator Menu Flowchart



## Game Settings Menu

The Game Settings menu allows you to set the number of credits needed to purchase the different types of games. Use the joystick to select each setting, and the **red** and **green** buttons to change the value.



Figure 8. Game Settings Menu with Freeplay Selected

The settings available from the Game Settings menu are as follows:

- **Freeplay:** Sets freeplay *On* or *Off* (*default: Freeplay Off*).
- **Attract Credit Display:** Sets whether the Attract Credit Display shows *Money* or *Credits* (*default: Money*).
- **Coin Audit Credit Display:** Sets Coin Audit to *Credits* or *Money* (*default: Money*).
- **Credits per Money:** Sets how many coin drops it takes to reach the unit of money used (01-20) (In the USA this would be 4 (4 quarters per dollar). In the UK this would likely be 10 (ten 10P coins per pound.)) (*default: 4*).
- **Credits per Exhibition Quarter:** Sets credits per quarter (01–25) (*default: 2*).
- **Credits per Exhibition Game Discount:** Sets the discount a player receives for buying a full game rather than buying the four quarters separately (*default: 0*).
- **Credits per Training Game:** Sets credits for a Training Game (*default: 2*).
- **Credits per Tournament Game:** Sets credits for a Tournament Game (*default: 16*).
- **Credits per Career Game:** Sets credits for a Career Game (*default: 12*).
- **Credits per 4P Competition Bracket:** Sets credits for a 4-Player Competition Game (*default: 12*).
- **Credits per 8P Competition Bracket:** Sets credits for an 8-Player Competition Game (*default: 16*).
- **Credits per 16P Competition Bracket:** Sets credits for a 16-Player Competition Game (*default: 20*).
- **Credits per Top Score Competition Bracket:** Sets credits for Top Score Competition Play (*default: 16*).
- **Credits per Smart Card:** Sets credits required to purchase a Smart Card (*default: 20*).

## Audio Settings Menu

The Audio Settings Menu allows you to set the volume for the cabinet.



Figure 9. Audio Settings Menu

- **Master Volume:** Sets Master Volume (00-99) (*default: 25*)
- **Attract Volume:** Sets Attract Volume (00-99) relative to master volume (*default: 25*)
- **Game Volume:** Sets Game Play Volume (00-99) relative to master volume (*default: 25*)

## Coin Audit Menu

The Coin Audit Menu allows you to view the **Summary Since Install** and **Lifetime Summary** Coin Audit screens shown below. Use the joystick to move between screens. These screens show the total number of games, credits collected, and upcharges for the cabinet in each mode of game play—Exhibition, Training, Career, Tournament, and Competition, and the number of Smart Cards purchased.



Figure 10. Coin Audit Menu Screens

## Resets Menu

The Resets Menu allows you to restore the game to the factory default settings or reset coin and credit data. Select a reset option and press the **red** button. When the confirmation screen appears, you can press the **red** button to confirm, or use the joystick to return to the main menu to cancel.



Figure 11. Resets Menu

- **Reset Cabinet Settings.** Resets the game to the default settings shown in the table that follows:

Table 1. Game Default Settings

| Item                                 | Range         | Default  |
|--------------------------------------|---------------|----------|
| Freeplay                             | on/off        | off      |
| Attract Display                      | money/credits | money    |
| Coin Audit Credit Display            | credits/money | money    |
| Credits per money                    | 1-20          | 4 (\$1)  |
| Credits per exhibition quarter       | 1-25          | 8 (\$2)  |
| Credits per exhibition game discount | 0-2           | 0        |
| Credits per training game            | 3-25          | 8 (\$2)  |
| Credits per tournament game          | 4-50          | 16 (\$4) |
| Credits per career game              | 4-50          | 12 (\$3) |
| Credits per 4p competition bracket   | 4-50          | 12 (\$3) |
| Credits per 8p competition bracket   | 4-50          | 16 (\$4) |
| Credits per 16p competition bracket  | 4-50          | 20 (\$5) |
| Credits per top score competition    | 4-50          | 12 (\$3) |
| Credits per Smart card               | 10-40         | 20 (\$5) |
| Master Volume                        | 0-99          | 25       |
| Attract Volume                       | 0-99          | 25       |
| Game Volume                          | 0-99          | 25       |

- **Coin Collection:** Resets all coin collection data
- **Available Money:** Resets the credits in the system to zero (0)

## Registration Menu

The Registration Menu allows the operator to register and unregister the cabinet for tournaments. For details on cabinet registration, refer to the *Online Tournament Quick-Start Guide*, part # 040-0020-02.

Once a cabinet is registered, the Registration screen displays useful system information and allows you to change sync settings or force a sync call.



Figure 12. Cabinet Registration Screen for Registered Cabinets

## Diagnostics Menu

The Diagnostics Menu allows you to test the player controls, speakers, modem, monitor, coin and bill mechs, and Smart Card reader.



Figure 13. Diagnostics Screens

## Test Controls

Select Test Controls and press the **red** button to start the controls test.

1. Press each player button and verify that the correct button becomes highlighted on the screen.
2. Move each joystick up, down, left, and right, and verify that the correct direction arrow becomes highlighted on the screen.
3. Press the Operator Button to exit from this test and return to the Main Menu.
4. If any controls are incorrect or not working, refer to the wiring diagrams on page 53 and 55 to check the control panel wiring.

## Test Speakers

Select Test Speakers and press the **red** button to start the speakers test. Each speaker will emit a sound as follows:

- **Left Speaker:** Says “Front left channel.”
- **Right Speaker:** Says “Front right channel.”
- **Subwoofer:** Emits deep thumping sound.

Confirm that each sound comes from the correct speaker. The Speaker Test will rotate through each speaker until you exit from the test. Press any player button to exit from this test.

If sound is coming from the wrong speaker or any speaker is not working properly, refer to *3.1 Audio Amp PCB and Speakers Service*, on page 38, to check wiring or replace faulty components.

## Test Modem

Select Test Modem and press the **red** button to bring up the connection settings screen and to test modem function by calling the server.

**Note:** No data is exchanged and scores are not synced during a modem test.



## Test Monitor

Select Test Monitor and press the **red** button to begin the monitor test. Press the **red** button to scroll through the monitor calibration screens shown in the figure below. Use the monitor calibration screens to evaluate monitor performance. Various screens are designed to help you adjust the color hue, white balance, horizontal and vertical sync, and screen size as it appears on the monitor.

Use the monitor remote control board, shown in Figure 15, to adjust the monitor. The monitor remote control board is mounted inside the cabinet to the right of the coin door.

Press the **yellow** button to exit from the monitor test.

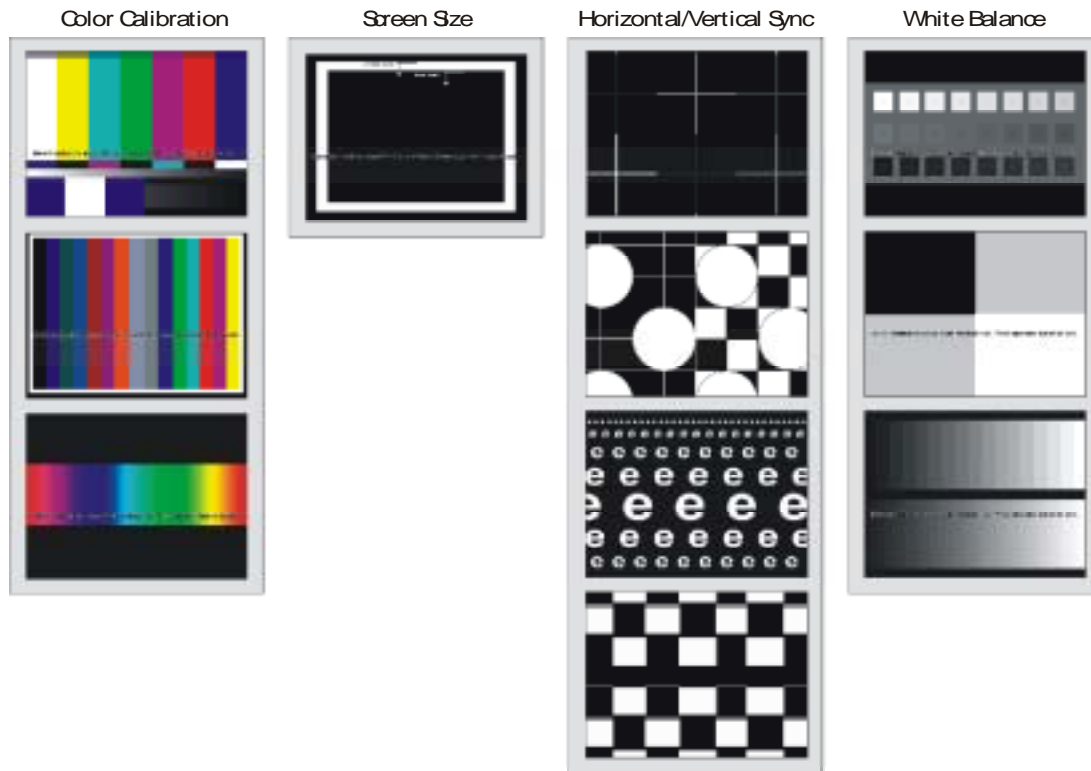


Figure 14. Monitor Calibration Test Screens

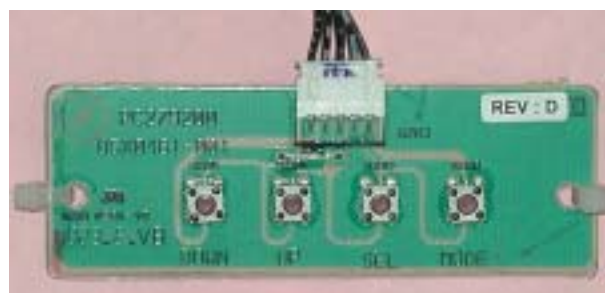


Figure 15. Monitor Remote Control Board

### Coin Test

Select Coin Test and insert coins or bills. Make sure that the screen shows the correct number of credits.

### Test Card Reader

Select Test Card Reader and insert an Operator or Player Smart Card. Make sure that the system recognizes the type of card inserted. Remove the card and insert the other type to make sure that the system recognizes both types of cards.

### View Sync Log

Select View Sync Log and press the **red** button to view a log of all sync call attempts made by the cabinet to GLOBAL VR<sup>®</sup>, and whether or not each call was successful. The game must sync successfully to report tournament scores.

## Chapter 5 — Setting up for Tournament Play

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Setting up your game for Tournaments allows players to compete for cash prizes in Tournament Mode, and to play each team and save their statistics in Career Mode. Refer to your *Online Tournament Quick-Start Guide* for information on upcoming tournaments and how to register your cabinet.

Tournament, Career Mode, and Competition game modes will be disabled until you register the cabinet.

### Tournament-Ready Systems

If your game is tournament ready, it will include the following components:

- Smart Card reader installed (just under the monitor in Standard cabinets, or above the coin door in Deluxe cabinets)
- Tournament Header
- *Online Tournament Quick-Start Guide*
- OPERATOR+PLUS™ Smart Card

If your game is not tournament ready, contact GLOBAL VR® or your local distributor to order the Tournament Upgrade Kit (part #: 90000-00).

### Smart Cards



Figure 16. Operator and Player Smart Cards

The EA SPORTS™ MADDEN NFL™ FOOTBALL system uses Smart Cards to save Operator and Player settings. Smart Cards offer many advantages over magnetic stripe cards:

- Games can read and write to the card
- Operators can register their games and activate their cards at the game
- Cards can hold up to 8 KB of data (equivalent to 8000 text characters)
- Players can use their Smart Cards in both EA SPORTS™ MADDEN NFL™ FOOTBALL and EA SPORTS™ PGA TOUR® GOLF cabinets



## Connect Phone or Broadband Cable

Your cabinet must be connected to the Internet to communicate scores, player data, and other information with GLOBAL VR<sup>®</sup>. You can connect the cabinet to either a standard dial-up phone line or a broadband network connection.

1. To use a dial-up phone line: Using a standard telephone cable, connect the Phone In port on the AC Power Plate on the back of the game to a phone jack.
2. If desired, the Phone Out port can be connected to the Phone In port of another game, or to a telephone handset. This is **not recommended** as it can increase sync errors.
3. To use a broadband connection: Using a CAT-5 network cable, connect the Ethernet port on the AC Power Plate on the back of the game to a broadband network port.

## Register your Cabinet

Once your cabinet is registered, you will be ready to participate in tournaments. Refer to the *Online Tournament Quick-Start Guide*, part # 040-0020-02, for complete instructions on getting your cabinet online today.

GLOBAL VR<sup>®</sup> is constantly working to make registration quicker and more convenient. Be sure to check the Operator tab of our website ([www.globalvr.com](http://www.globalvr.com)) for the latest registration information.

This chapter provides troubleshooting information for problems that may occur with the system.

### Video Troubleshooting

| Problem  | Cause                           | Possible Solution  |
|--|---------------------------------|--|
| No picture on monitor  | Power problem                   | Verify the AC power connection to the monitor. You can verify that the monitor has power by looking for a small glow in the neck of the CRT.   |
|  | Loose or faulty video cable     | Verify that the video cable is firmly connected from the monitor to the video card on the computer. While the monitor is powered ON, disconnect the video cable. You should see a message on screen saying <i>No Signal</i> to verify the monitor is working. Check the video cable and make sure it is not pinched or frayed.   |
|  | 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.  |
|  | Faulty monitor chassis PCB      | Verify that the fuses on the monitor chassis PCB are good and that all connections are firm.   |
| Picture is dim or faded  | Gamma needs adjustment          | Use the monitor remote control board to adjust the brightness and contrast settings. Adjust the monitor gamma setting.   |
| Picture is out of color  | Color needs adjustment          | Use the monitor remote control board to adjust the red, green, and blue color settings.  |
| Picture geometry is misaligned   | Geometry needs adjustment       | Use the monitor remote control board to adjust the picture height and width as well as other geometric adjustments.  |
| No video and no audio<br><br>( <b>Note:</b> It may take nearly 1 1/2 minutes to boot and start the game) | No power to computer            | Verify the computer is ON by the green LED on the front of the computer, visible through the coin door. 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. Turn off the power strip, wait 20 seconds, and then turn it back on to reboot the computer. |
|  | Corrupted software              | Reload the software from the System Restore CDs. If you continue to have problems after you reload the software, 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.   |
| Poor picture   | Monitor connected to wrong port | The monitor must be connected to the VGA Video port on the video card, <b>not</b> to the video port in the computer motherboard. Make sure that the monitor video cable is connected to the VGA Video port located below the audio connectors (see Figure 31 on page 51).  |

## Audio Troubleshooting

| Problem                              | Cause                | Possible Solution   |
|--------------------------------------|----------------------|---|
| No audio                             | Volume set too low   | Enter the Operator Menu and adjust Audio Settings to raise the volume. Verify that the Master Volume is set high enough. Verify the volume is not turned all the way down at the Audio Amp PCB (see Figure 24 on page 38).  |
|                                      | Faulty wiring        | Turn off the game. Verify that all the wires are firmly connected to the speakers and Audio Amp PCB. Verify that each wire is connected to the correct port. Verify that no wires are frayed or improperly shorting to ground. (See Figure 24 on page 38 for audio wiring). |
|                                      | Blown speakers       | Remove the grills and inspect each speaker for visible damage. Run the Speakers Test from the Operator Menu to verify each speaker is working.  |
|                                      | Faulty audio amp PCB | You can verify the Audio Amp PCB is working by installing it into another working cabinet. If that is unavailable to you, plug a simple computer speaker into the audio ports on the computer and verify that sound is working at the computer.                             |
| Poor sound from one or more speakers | Blown speakers       | Remove the grills and inspect each speaker for visible damage. Run the Speakers Test 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 speaker. (See Figure 24 on page 38)   |
|                                      | Faulty audio amp PCB | You can verify the Audio Amp PCB is working by installing it into another working cabinet. If that is unavailable to you, plug a simple computer speaker into the audio ports on the computer and verify that sound is working at the computer.                             |
|                                      | Faulty wiring        | Verify that all the wires are firmly connected to each speaker and the Audio Amp PCB. Verify that no wires are frayed or improperly shorting to ground.   |
| Audio hum                            | Faulty power supply  | A constant low hum in the speakers can be caused by a faulty power supply.  |

## Control Troubleshooting

| Problem             | Cause                      | Possible Solution  |
|---------------------|----------------------------|--|
| Buttons do not work | Faulty micro switch        | Replace the micro switch on the button and re-test. Verify that the wires are connected to the correct spades on the micro switch.   |
|                     | Faulty wiring              | Disconnect the cabinet from AC power. Verify that all wires are firmly connected to each button and the USB I/O Extreme PCB. Verify that no wires are frayed or improperly shorting to ground. |
|                     | Faulty USB I/O Extreme PCB | Make sure that all connections to the PCB are firm. Replace PCB if faulty.   |

| Problem   | Cause                               | Possible Solution  |
|---|-------------------------------------|--|
| Joystick does not work  | Faulty joystick PCB                 | Replace joystick PCB. (See page 33.)   |
|   | Faulty wiring                       | Disconnect the cabinet from AC power. Verify that all the wires are firmly connected to the joystick. Verify that no wires are frayed or improperly shorting to ground.  |
|   | Faulty USB I/O Extreme PCB          | If the USB I/O Extreme PCB is not working, some or all of the buttons and joysticks connected to it will not work. Make sure that all connections to the card are firm. Replace PCB if faulty.   |
| No joystick or button functions on two of the player control sets | No power to the USB I/O Extreme PCB | If the USB I/O Extreme PCB does not have power, the buttons and joysticks connected to it will not work. Make sure that all connections to the PCB are firm. The LED on the USB I/O Extreme PCB will light when either DC power or USB is connected. To check the power connection, disconnect the USB connector. If the LED remains lit, the PCB is receiving DC power. |
|   | Faulty wiring                       | Verify that all connectors are firmly connected to the USB I/O Extreme PCB. Verify that no wires are frayed or improperly shorting to ground in the wire harness.  |
|   | Faulty USB I/O Extreme PCB          | Make sure that all connections to the PCB are firm. Replace PCB if faulty.   |
| No joystick or button functions on any player control set         | Faulty power supply                 | Verify that the DC power supply is working.  |
|   | Faulty USB I/O Extreme PCB          | Make sure that all connections to the PCB are firm. Replace PCB if faulty.   |
| Joystick feels loose or doesn't center properly                   | Bad grommet                         | Replace joystick grommet. (See page 33.)   |

### 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 terminals are firm 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 AC outlet and the cabinet ON/OFF switch is ON.   |
| Game dongle not found by system computer       | Game dongle not connected                | Connect the game dongle to the computer parallel port. Power the cabinet off and then on.   |
|  | Faulty game dongle                       | Make sure the dongle is connected properly. Contact Technical Support to order a new dongle.  |
|  | Faulty parallel port                     | If you try a different game dongle and reboot the game, but the dongle still is not recognized, contact Tech Support.   |
| Cabinet gets very warm                         | Faulty ventilation fan                   | Verify that the exhaust fan is working. It is located under the vents at the top of the cabinet. Replace the fan if it is worn or spinning slow.  |
|  | 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 end. 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.  |

| <b>Problem</b>  | <b>Cause</b>                       | <b>Possible Solution</b>  |
|---|------------------------------------|---|
| Improper number of credits given when coins or bills are inserted | Incorrect setting in Operator Menu | Adjust settings from 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. Verify that no wires are frayed or improperly shorting to ground. |
|   | Faulty coin mech                   | Repair or replace the coin mech.  |
|   | Faulty bill validator              | Repair or replace the bill validator.   |
| Game will not accept coins or bills                               | Faulty coin mech                   | Verify the coin mech is not jammed. Make sure the coin mech is properly aligned and latched to the coin door.   |
|   | Faulty bill validator              | Verify the bill validator is powered on and working. If the bill validator is faulty it will usually blink an error code on the inside of the coin door.                                |
| Bill validator rejects too many bills                             | Poor ground                        | Verify the cabinet is properly grounded and the bill validator is properly connected to ground.   |



Follow the instructions below if you need to re-install the EA SPORTS™ MADDEN NFL™ FOOTBALL software on your cabinet. **Total installation time is about 30 minutes.**

**Important:** When you use the Emergency Recovery Disk you will erase all game settings and history for the coin and game audits that are held in the game software. It is advisable to contact Technical Support before using the Emergency Recovery Disk to resolve a problem.

## Emergency Recovery Disk

Restoring the system with the Emergency Recovery Disk takes about 10-15 minutes.

1. With the cabinet powered ON, open the CD drive and insert the CD labeled **Emergency Recovery Disk**. Power the cabinet OFF and then ON. The computer will reboot from the CD. You will see a series of screens on the monitor.
2. After about 5 minutes, you will be prompted to remove the CD and turn the cabinet OFF and then ON.
3. When the computer reboots, you may see a blank screen for 10-15 seconds, followed by a series of processing screens. After a few minutes the system will reboot, and you will be prompted to insert Game Disk 1. Proceed to install the Game Software CDs as described below.

## Game Software CDs

Game software installation takes about 15-25 minutes.

1. Open the CD drive and insert the CD labeled **Software Disk 1 of 2**. The computer will read the CD automatically (do not reboot). You will see a series of screens.  
**Note:** If nothing happens, make sure that you inserted the correct disk.
2. After about 10 minutes you will be prompted to insert Disk 2. Open the CD drive and insert the CD labeled **Software Disk 2 of 2**. The computer will read the CD automatically (do not reboot). You will see another series of screens and then the system will reboot.
3. After the system reboots and the game starts, remove the disk from the CD drive.
4. Press the Operator button to start the Operator Menus and setup your system.

## Chapter 8 — Service and Repair

**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.

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

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

**Read the service instructions before working on the cabinet.**

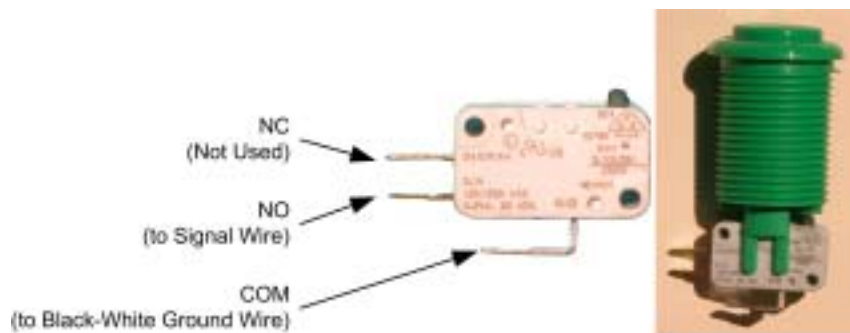
### Opening the Player Control Panel (4-Player Standard Cabinet)

1. Remove the four Torx bolts that hold the console closed.
2. Reach up through the coin door and the opening in the bottom of the control console to release the latch at the center rear of the control panel.
3. Lift the control panel. It will open on a hinge at the front.
4. To close the panel, replace the four bolts and reach through the opening above the coin mech to secure the latch.

### Player Control Panel Button Repair

The player buttons activate micro switches. Perform the following steps to replace the micro switches or the buttons:

1. Open the Control Panel assembly as described in the previous section.
2. Gently press the plastic micro switch to the side to release it from the button housing.
3. Disconnect the two wires from the micro switch.
4. To remove the button, unscrew the retaining ring.
5. Reverse these steps to install the replacement button and micro switch. Connect the **black-white** ground wire to the COM connector on the bottom of the switch housing, and the signal wire to the NO connector, as shown in the figure below:



*Figure 17. Player Button and Micro Switch*

6. After replacing any buttons, run the Controls Test from the Operator Menu Diagnostics screen to verify proper operation (see Test Controls on page 22).

## Joystick Handle Replacement

Refer to Figure 18 on page 34 for an exploded-view drawing of joystick components.

1. Open the Control Console.
2. Remove the E-clip from the bottom of the joystick assembly and pull the joystick handle out through the top of the control console. The lower shaft spacer will be loose under the joystick assembly, and the small upper spacer will remain on the joystick handle.
3. Place the small upper spacer on the new joystick handle and insert the handle into the control panel and through the lower shaft spacer.
4. Re-install the E-clip on the bottom of the joystick assembly.
5. After servicing a joystick, run the Controls Test from the Operator Menu Diagnostics screen to verify proper operation (see Test Controls on page 22).

## Joystick Carriage, PCB, and Grommet Replacement

Refer to Figure 18 on page 34 for an exploded-view drawing of joystick components.

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

1. Disconnect the game from AC power and open the Player Control Console.
2. Disconnect the cable from the joystick.
3. Remove the four Phillips screws from the joystick carriage.  
**Note:** Do **not** loosen the four hex nuts that secure the hub to the control panel.
4. Remove the joystick carriage, PCB, and L-stop. Note the orientation of the PCB and re-install it the same way.
5. To remove the grommet, first remove the joystick handle as described in the previous section, and then remove the four Phillips screws that secure the grommet to the hub.  
**Note:** If you need to replace the hub, you will have to remove all buttons and screws from the top of the control panel, and then remove the plastic overlay to access the screws that secure the hub to the console.
6. Reverse these steps to re-install the components.
7. After servicing a joystick, run the Controls Test from the Operator Menu Diagnostics screen to verify proper operation (see Test Controls on page 22).



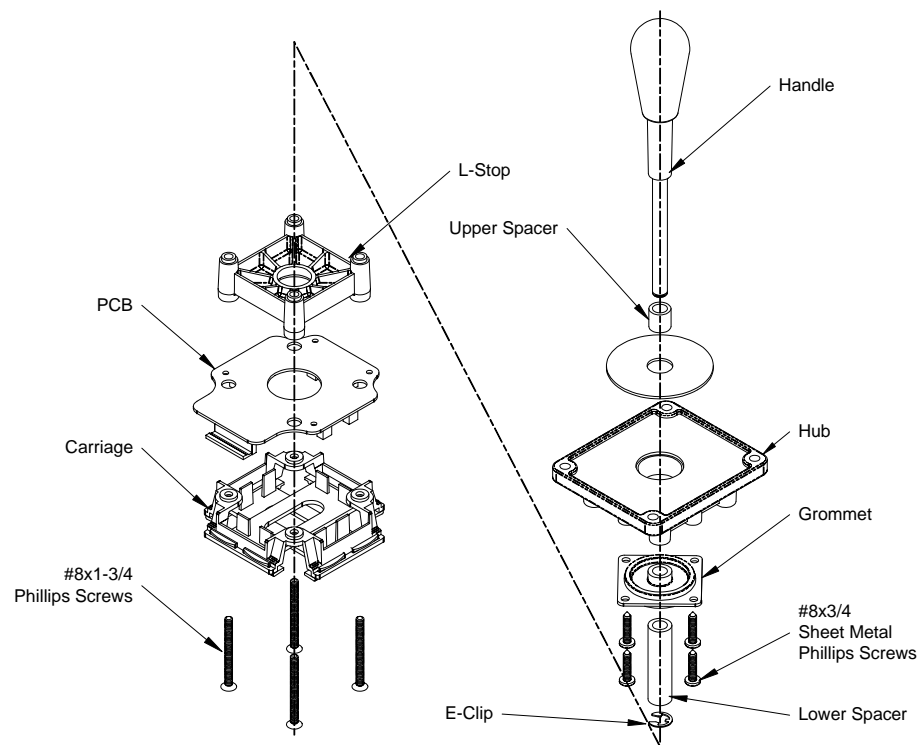


Figure 18. Joystick Components

### Monitor Replacement (Standard Cabinet)

Perform the steps that follow to remove the monitor from the cabinet for service or replacement. Be sure to follow all safety precautions while working with a monitor.

**Tip:** When removing the monitor from the cabinet, it is always best to have two people support the weight of the monitor.

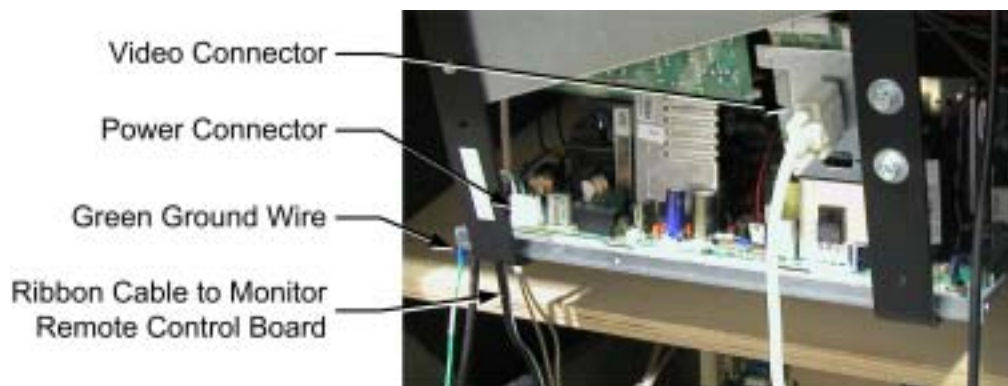


Figure 19. Cable Connections to the Monitor Chassis

1. Turn the cabinet OFF and disconnect the AC power cord.
2. Refer to Figure 19 and disconnect the following cables:
  - VGA Video cable from the back of the Monitor.
  - Monitor remote control board cable from the Control Panel mounted near the coin mech. Coil this cable and tie it to the monitor to prevent it catching while the monitor is being removed.
  - Power cable that connects to the monitor chassis PCB, located on your left as you face the monitor rear.
  - **Green** ground wire from the monitor frame near the power connection.
3. Inspect the disconnected cables and monitor frame to make sure that there are no wire ties holding the monitor to the cabinet.
4. Open the Player Control Console (see *Opening the Player Control Panel* on page 32) and remove the four Torx screws that hold the display shield retainer in place (as shown in Figure 20 on the next page). Remove the retainer.
5. Remove the clear display shield.
6. Remove the Bezel.
7. Remove the four 1/4-20 nuts that hold the monitor in place.
8. Carefully remove the monitor through the front of the cabinet and set it in a safe place. Most of the weight of the monitor is in the CRT at the front of the monitor.
9. Reverse these steps to re-install the monitor. Always clean the front of the CRT and the clear display shield before re-installing.
10. After replacing a monitor, run the Test Monitor from the Operator Menu Diagnostics screen to verify proper operation (see Test Monitor on page 23).

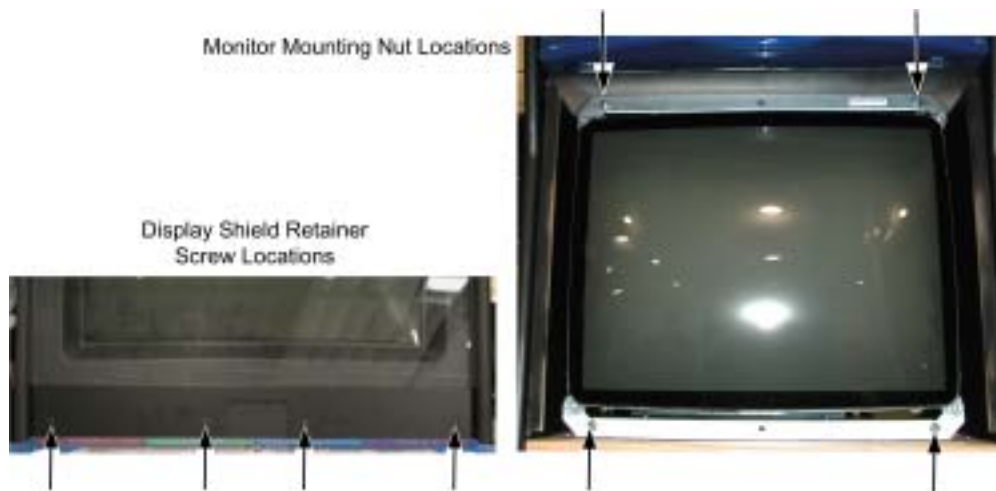


Figure 20. Display Shield Retainer and Monitor Mounting Screw Locations

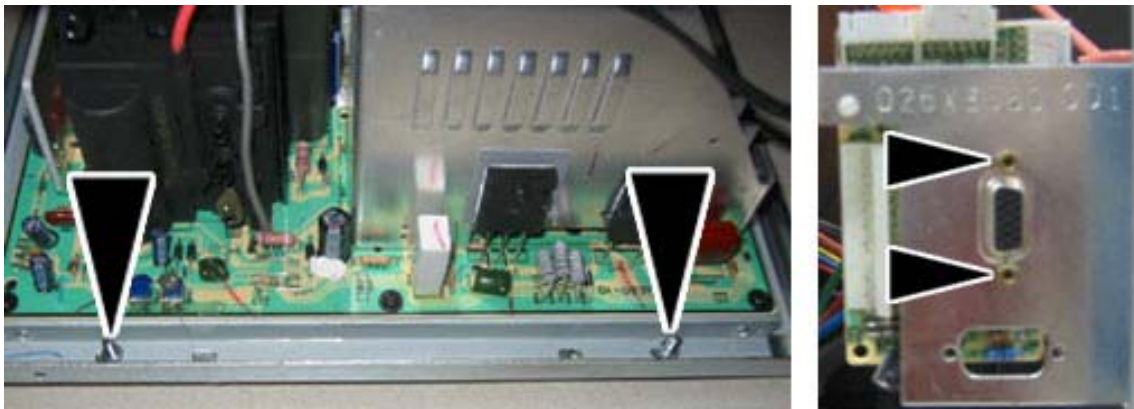
## Wells Monitor Chassis PCB Removal

You can uninstall the monitor chassis PCB if you should have problems with just the PCB.

**Caution:** Only a certified technician should attempt to remove or service the Monitor PCB. GLOBAL VR® assumes no responsibility for damage while removing the PCB.

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

1. Turn the cabinet OFF and disconnect the AC power cord.
2. Remove the four nuts that hold the monitor chassis to the monitor frame.
3. Remove the two 4/40 Jack nuts that hold the video signal PCB to the monitor frame. See the figure below.



*Figure 21. Removing the Monitor PCB Mounting Hardware*

4. Disconnect the Chassis Neck PCB from Chassis Tube Neck of the CRT by pulling back on the Chassis Neck PCB. You will need to slide the Chassis Neck PCB to the side to clear the Chassis Tube Neck.

**Danger:** The Fly-back cable can be charged with a **VERY HIGH VOLTAGE** even when powered OFF.

5. Disconnect the Fly-back cable that connects to the CRT just above the Chassis Tube. Be very careful as the Fly-back cable can be charged with a **VERY HIGH VOLTAGE** even when powered OFF. Pinch the gray rubber flange and slightly push in to un-hook the metal prongs that hold the Fly-back cable to the CRT, shown by the arrows in the picture below.

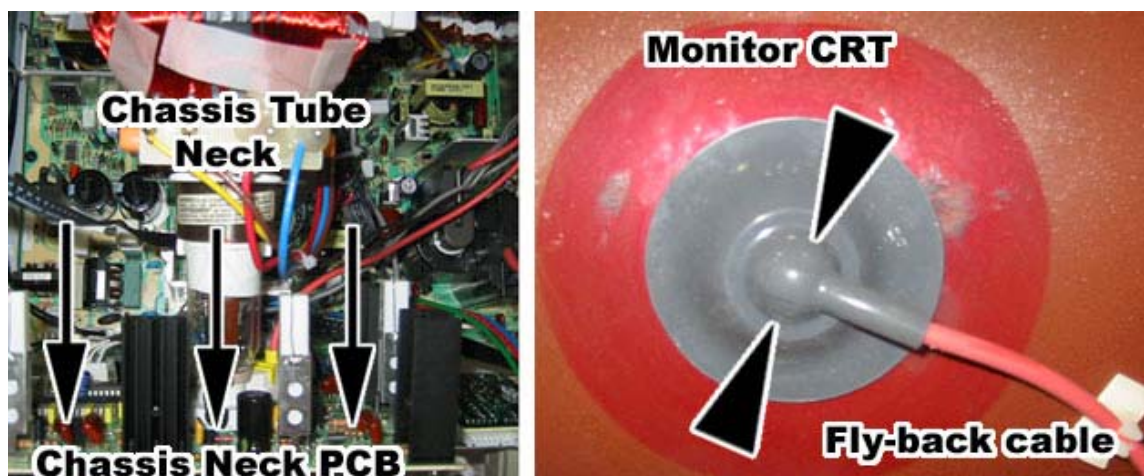


Figure 22. Disconnecting the Chassis Neck PCB and Fly-Back Cable

6. Refer to Figure 23 to disconnect the next three cables:
  - A. Disconnect the CRT 2-wire ground cable that connects to the Chassis Monitor PCB (Item 1 below).
  - B. Disconnect the CRT 2-wire ground cable that connects to the Chassis Neck PCB (Item 2 below).
  - C. Disconnect the Color and Sync 4-wire cable that connects from the Chassis Tube Neck to the Monitor chassis PCB (Item 3 below). Note the color alignment of this connector for installing the new monitor chassis PCB.



Figure 23. Monitor PCB Cables

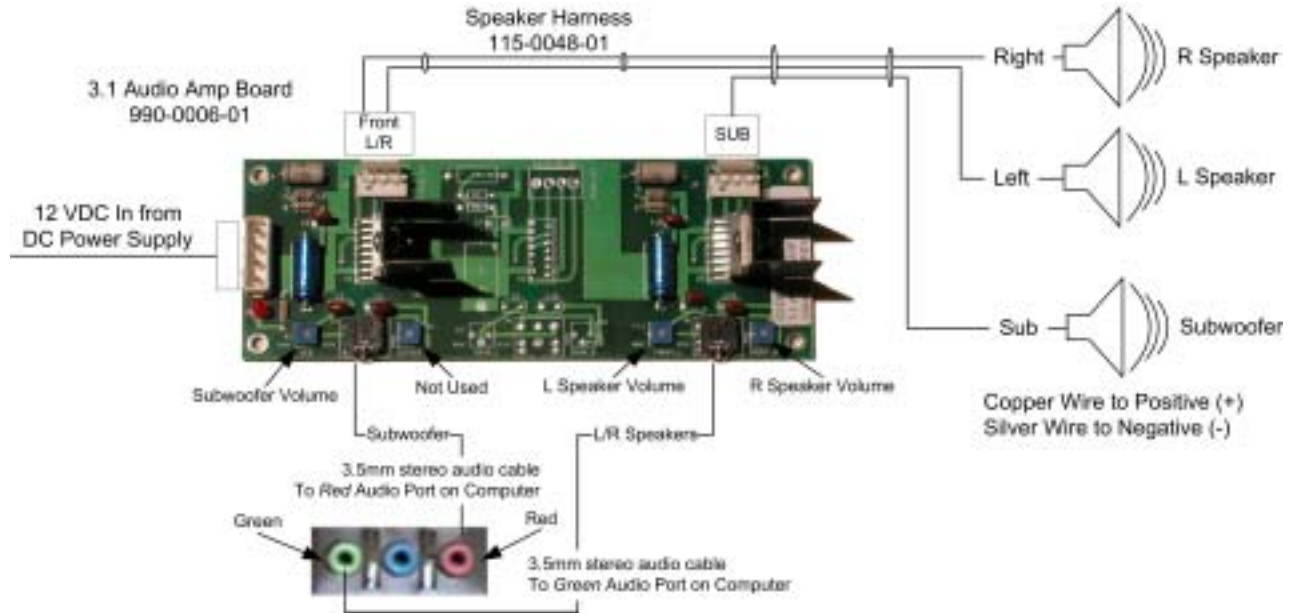
7. You can now slide the monitor chassis PCB and other PCBs out the side of the monitor chassis as one unit.



### 3.1 Audio Amp PCB and Speakers Service

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

The 3.1 Audio Amp PCB provides audio for the game. Figure 24, below, shows the Audio Amp PCB, wiring connections, and audio adjustment pots.



*Figure 24. Audio Amp PCB and Speaker Wiring*

The Audio Amp PCB is powered by +12 VDC from the DC power supply, connected using a standard 4-pin DC power connector.

Refer to Figure 24 for the location of the volume controls on the PCB. These controls should be used only for fine-tuning speaker volume. Most volume adjustments should be made from the Audio Settings Operator Menu, as described on page 19. To adjust the volume level on the Audio Amp PCB, use a small screwdriver to turn the pots.

The Audio Amp PCB is connected to the computer audio ports by two 3.5 mm stereo audio cables. Each computer audio port is color coded as follows:

- **Green:** Left and right speakers
- **Blue:** Not used
- **Red:** Subwoofer

The speakers are connected to the Front L/R speaker port, and the subwoofer to the SUB port on the Audio Amp PCB as shown in Figure 24.

#### Audio Amp PCB Replacement

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

1. Disconnect the game from AC power, and disconnect the speaker wires and the 3.5 mm audio cables from the Audio Amp PCB.

2. The PCB is mounted on four standoffs that are secured to the cabinet by Phillips screws. Each standoff has a clip on the tip that protrudes above the PCB. The clip secures the PCB to the standoff. A bit of hot glue is applied to each clip for extra security.

To release the clip, break off the hot glue and squeeze the tip of the standoff with small needle-nose pliers, or use a small tool such as a screwdriver to press the clip inward, and then remove the PCB from the standoff.

Always keep the Audio Amp PCB in an ESD antistatic bag when not installed in the cabinet to prevent electrical damage.

3. Reverse these steps to install the new Audio Amp PCB.
4. After replacing the Audio Amp PCB, run the Speaker Test from the Operator Menu Diagnostics screen to verify proper operation (see Test Speakers on page 22).

## Speaker Replacement (Standard Cabinet)

The left and right speakers are located behind the marquee. The subwoofer is mounted inside the cabinet above the coin box.

Perform the following steps to replace the left or right speaker:

1. Remove the three screws from the back of the tournament header and fold the header down on its hinge.
2. Remove the five Torx bolts that secure the marquee to the cabinet, and remove the marquee.
3. Remove the four wood screws that secure the speaker in place, and remove the speaker.
4. Remove the two wires from the speaker terminals and connect them to the new speaker. Be careful to connect the wires to the same terminals on the replacement speakers. The copper wire connects to the positive (+) and the silver to the negative (-) terminal.
5. Reverse the steps to install the new speaker.
6. After replacing a speaker, run the Speaker Test from the Operator Menu Diagnostics screen to verify proper operation (see Test Speakers on page 22).



*Figure 25. Marquee Mounting Screw Locations*

## Subwoofer Replacement (Standard Cabinet)

1. Remove the back door of the cabinet and remove the four wood screws that secure the subwoofer in place.
2. Remove the two wires from the speaker terminals and connect them to the new speaker. Be careful to connect the wires to the same terminals on the replacement speakers. The copper wire connects to the positive (+) and the silver to the negative (-) terminal.
3. Reverse the steps to install the new subwoofer.
4. After replacing a subwoofer, run the Speaker Test from the Operator Menu Diagnostics screen to verify proper operation (see Test Speakers on page 22).

## Speaker Replacement (Deluxe Cabinet)

The left and right speakers are located behind the speaker panel just below the monitor. The subwoofer is located behind a grill below the other speakers.

Perform the following steps to replace the left or right speaker:

1. Remove the eight Torx screws that secure the speaker panel to the cabinet, and remove the speaker panel.
2. Remove the four wood screws that secure the speaker grill in place, and remove the grill.
3. Remove the four wood screws that secure the speaker in place, and remove the speaker.
4. Remove the two wires from the speaker terminals and connect them to the new speaker. Be careful to connect the wires to the same terminals on the replacement speakers. The copper wire connects to the positive (+) and the silver to the negative (-) terminal.
5. Reverse these steps to install a new speaker.
6. After replacing a speaker, run the Speaker Test from the Operator Menu Diagnostics screen to verify proper operation (see Test Speakers on page 22).

## Subwoofer Replacement (Deluxe Cabinet)

1. Remove the back door of the cabinet and remove the four wood screws that secure the subwoofer in place.
2. Remove the two wires from the subwoofer terminals and connect them to the new subwoofer. Be careful to connect the wires to the same terminals on the replacement subwoofer. The copper wire connects to positive (+) and the silver to negative (-).
3. Reverse the steps to install the new subwoofer.
4. After replacing the subwoofer, run the Speaker Test from the Operator Menu Diagnostics screen to verify proper operation (see Test Speakers on page 22).

## Marquee Light Service

Perform the following steps to replace the tube or florescent light fixture behind the marquee:

1. Remove the four Torx screws that secure the plex and artwork to the front of the marquee to access the light fixture for florescent tube replacement.

2. To replace the light fixture, disconnect the fixture AC power cord from the power strip and remove any cable ties that secure the cord to the cabinet. Remove the two Phillips screws that secure the fixture to the cabinet.
3. Reverse these steps to replace the light fixture, plex, and artwork.

## Computer Replacement

**Caution: 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.**

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

1. Disconnect all of the cables from the computer.
2. Remove the Game Dongle and keep it with your cabinet. Do not ship the game dongle with the computer.
3. Remove the four Phillips screws that secure the computer bracket to the cabinet, and remove the bracket.
4. Carefully remove the computer from the cabinet.
5. 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 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.

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



## 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.

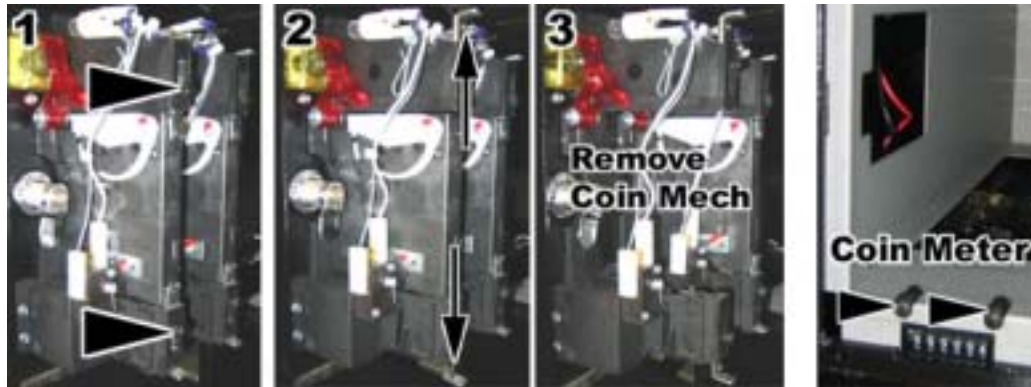


Figure 26. Servicing the Coin Mech and Coin Meter

## Coin Meter Replacement

The coin meter is located in the bottom left-hand corner of the cash box. Perform the following steps to remove the coin meter:

1. Turn the cabinet OFF and disconnect the AC power cord.
2. Remove the two Phillips screws holding 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. Use the two screws to install the new coin meter.

## AC Power Plate

The AC power plate provides the external AC power, modem (phone), and Ethernet connections.

AC power from the power plate is connected to a 6-outlet AC power strip in the cabinet. An AC EMI Filter in the AC power plate removes the electrical noise that can cause interference with the hardware inside the cabinet.

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

The **Ethernet** and **Phone** ports are connected to the appropriate ports on the system computer (see Figure 31 on page 51).



Figure 27. AC Power Plate

## Dollar Bill Validator DIP Switch Settings

**Important:** When you service the bill validator, make sure that the ground is secure. If the ground on the bill validator or cabinet is not secure, the bill validator will reject excessively.

If you replace the dollar bill validator, set the DIP Switches as follows:

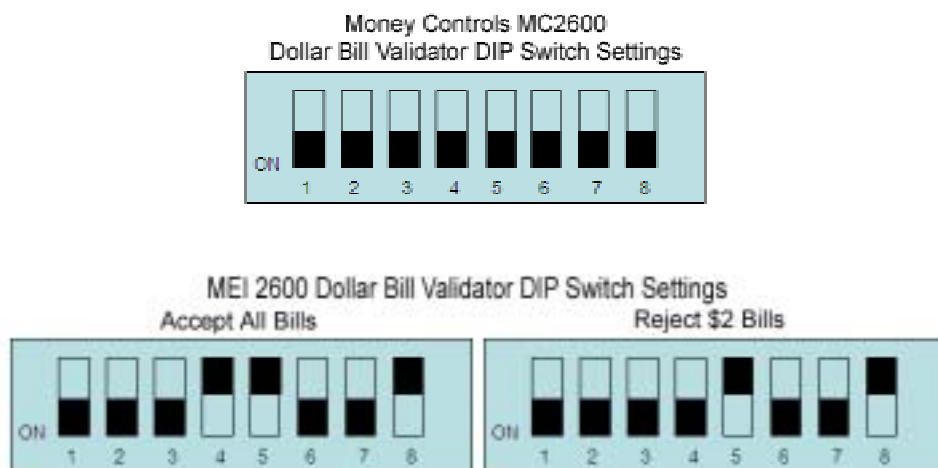


Figure 28. Dollar Bill Validator DIP Switch Settings

## DC Power Supply (+12/+5) Replacement

The DC power supply provides +12 VDC and +5 VDC power to the Audio Amp PCB, USB I/O Extreme PCB, and tournament header. If the player controls, sound, and tournament header stop working at the same time, the DC power supply may be faulty.

Perform the following steps to replace the DC power supply:

1. Turn the cabinet OFF and disconnect the AC power cord.
2. Disconnect the cables from the DC power supply.
3. Remove the two Phillips screws holding the power supply to the cabinet. Be careful not to remove the screw that secures the terminal plate to the DC power supply.
4. Reverse these steps to install the new power supply. Check the labels on each wire and be sure to connect them to the correct terminals (See Figure 32 on page 52).

## AC Power Strip Replacement

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.
4. Remove the power strip. It is held in place with Velcro<sup>®</sup>.
5. Replace the power strip with an appropriate unit from GLOBAL VR<sup>®</sup>. Do not attempt to use a different power strip. Be sure to connect each wire to the correct terminal (See Figure 32 on page 52).

**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 may not function properly.

## USB I/O Extreme PCB Replacement

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

Perform the following steps to replace the USB I/O Extreme PCB:

1. Disconnect the game from AC power and open the player control panel as described in *Opening the Player Control Panel*, on page 32.
2. Disconnect all connectors from the USB I/O Extreme PCB. Refer to Figure 33 on page 53 for a wiring diagram.

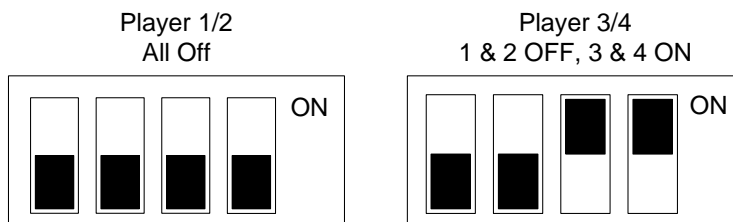
**Note:** The Coin Box connector is not used on the player 3/4 controls.

The PCB is mounted on four standoffs that are secured to the cabinet by Phillips screws. Each standoff has a clip on the tip that protrudes above the PCB. The clip secures the PCB to the standoff. A bit of hot glue is applied to each clip for extra security.

To release the clip, break off the hot glue and squeeze the tip of the standoff with small needle-nose pliers, or use a small tool such as a screwdriver to press the clip inward, and

then remove the PCB from the standoff. (If you prefer, you can remove the screw securing each standoff to the cabinet, and then remove the standoffs from the PCB.)

3. Set the DIP switches on the replacement PCB as shown below:



*Figure 29. USB I/O PCB DIP Switch Settings*

4. Reverse these steps to install the replacement USB I/O PCB.

## Chapter 9 – Replacement Parts

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If you need replacement parts, refer to the part numbers listed below when you contact GLOBAL VR® Tech Support.

**Table 2. Documents and Software**

| Part Number | Description                                  | QTY | Cabinet |
|-------------|--|-----|---------|
| 040-0042-01 | System Manual                                | 1   | All     |
| 040-0020-02 | Online Tournament Quick-Start Guide          | 1   | All     |
| 040-0043-01 | Document, Software Restore Guide             | 1   | All     |
| 050-0052-01 | Software, Game CDs (2)                       | 1   | All     |
| 050-0053-01 | Software, Emergency Recovery Disk (PQI)      | 1   | All     |
| STB135L     | Clear Pouch 10" x 15" for Manuals & Software | 1   | All     |
| G80-00005   | License, Microsoft XP Embedded MS            | 1   | All     |

**Table 3. Cables and Harnesses**

| Part Number | Description  | QTY | Cabinet |
|-------------|--|-----|---------|
| 115-0008-01 | Cable, 110VAC to DC Power Supply                   | 1   | All     |
| 115-0025-01 | Cable, 110VAC Fan, Grill, and Cord Assembly        | 1   | All     |
| 115-0030-01 | Cable, 8 FT, 110VAC to Fluorescent Light           | 1   | All     |
| 115-0041-01 | Cable, USB I/O DB37 to Coin/Bill/Test              | 2   | All     |
| 115-0044-01 | Cable, USB I/O J7 to Joysticks                     | 2   | All     |
| 115-0045-01 | Cable, USB I/O J1 to Player Buttons                | 2   | All     |
| 115-0046-01 | Cable, DC (12V/5V) to Audio Amp & USB I/O          | 1   | All     |
| 115-0047-01 | Cable, Ground to Coin Mech & Monitor               | 1   | All     |
| 115-0048-01 | Cable, Audio Amp to Speakers                       | 1   | All     |
| 80-0213-00  | Power Cord, 6'                                     | 1   | All     |
| 96-0539-00  | Cable 3.5 mm, 6 ft Audio Cable, PC to Audio Amp    | 2   | All     |
| TDC053-7    | RJ45 Modular Cable (8X8), 7 foot straight          | 1   | All     |
| ECF504-8SK  | RJ 45 coupler (8X8), straight, 30u                 | 1   | All     |
| TDC207      | Modular Cable, RJ-11, Plug-to-Plug, Crossed Wiring | 1   | All     |
| ECF504-4C   | RJ11 coupler (6X4), crossed, 30u                   | 2   | All     |
| USB-AB06MM  | Cable, USB Cable 6', PC to USB I/O                 | 2   | All     |
| 115-0051-01 | AC to DLX Pedestal                                 | 1   | Deluxe  |
| 115-0052-01 | Pedestal AC to DBA and 2 fluor.                    | 1   | Deluxe  |
| 115-0055-01 | DC Power to DLX Pedestal                           | 1   | Deluxe  |
| 115-0056-01 | Pedestal DC to 2 USB I/O Extremes                  | 1   | Deluxe  |
| 115-0057-01 | 12/5V DC 2' Extension                              | 1   | All     |
| 115-0058-01 | 12/5V DC 5' Extension                              | 1   | All     |
| 115-0059-01 | Tournament Header LED to DB25 Harness              | 1   | All     |

**Table 4. Player Controls**

| Part Number | Description                              | QTY | Cabinet |
|-------------|--|-----|---------|
| 47-9150-00  | Player Button, Red, with micro-switch    | 4   | All     |
| 47-9150-01  | Player Button, Blue, with micro-switch   | 4   | All     |
| 47-9150-02  | Player Button, White, with micro-switch  | 4   | All     |
| 47-9150-03  | Player Button, Yellow, with micro-switch | 4   | All     |
| 47-9150-05  | Player Button, Green, with micro-switch  | 4   | All     |
| 50-3100-00  | Digital Joystick, 49-Way Optical         | 4   | All     |

**Note:** Quantities are shown for four-player games. Two-player games use half the number of player control components.

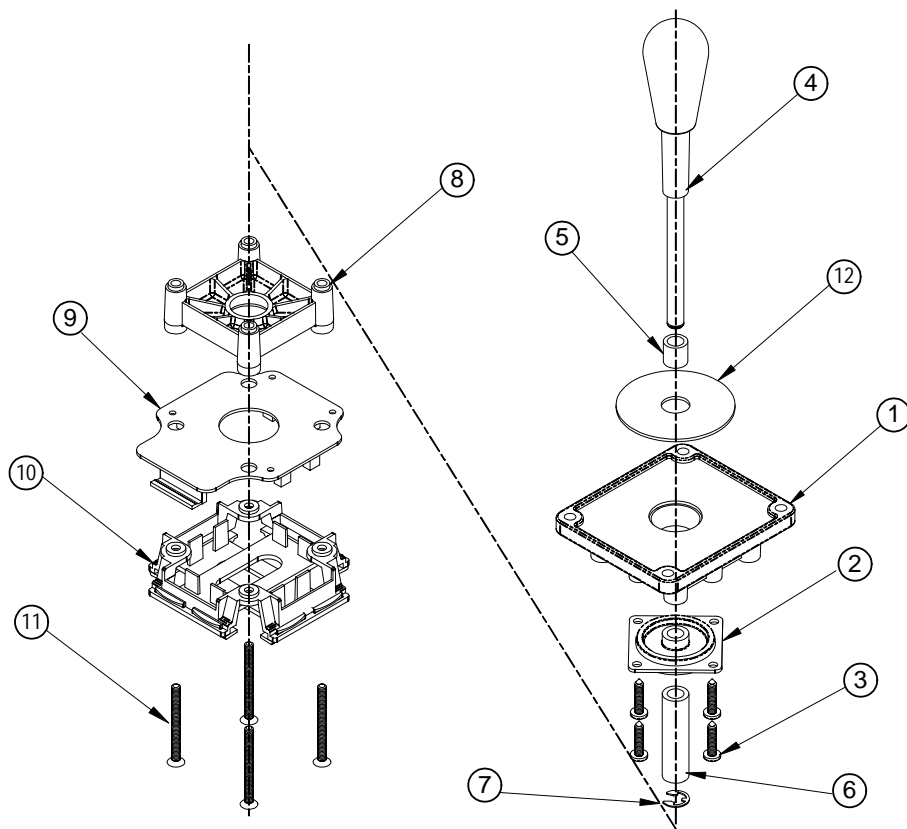


Figure 30. Digital Joystick Exploded View

**Table 5. Digital Joystick Parts**

| Ref # | Part Number | Description  | Qty |
|-------|-------------|--|-----|
| 1     | 50-3106-00  | Hub F/49 Way Joystick WMS #03-8409.1-1                     | 1   |
| 2     | 50-3107-313 | Grommet .313 Bore F/49 Way J/S                             | 1   |
| 3     | 43-0139-00  | Screw PH PN HD #8x3/4" Sheet Metal Screw Type AB           | 4   |
| 4     | 95-0974-16  | Knob & Shaft F/49 Way Joystick Black .313 Diameter Shaft   | 1   |
| 5     | 95-0975-00  | Spacer Upper F/49 Way Joystick                             | 1   |
| 6     | 95-0973-00  | Spacer, Lower Shaft  | 1   |
| 7     | 95-0574-00  | E-Ring F/Joystick 1000X31                                  | 1   |
| 8     | 50-3105-00  | L-Stop F/49 Way Joystick WMS #03-8411-2-1                  | 1   |
| 9     | 50-3110-00  | PCB, 49-Way Joystick                                       | 1   |
| 10    | 50-3101-00  | Carriage Assembly, O.B. Slide                              | 1   |
| 11    | 43-1160-00  | Screw 8x1-3/4 Phil Flat Head T-A Clear Zinc or Black Oxide | 4   |
| 12    | 95-1284-00  | Guide Washer, 2.23 OD, .54 ID, .06 THK                     | 1   |

**Table 6. Cabinet Functional Components**

| <b>Part Number</b> | <b>Description</b>                                  | <b>QTY</b> | <b>Cabinet</b> |
|--------------------|---|------------|----------------|
| 49-1001-00         | Fluorescent Light, 18"                              | 1          | All            |
| 50-9005-00         | Speaker, 5", 8 Ohm, 12 Watt, Shielded               | 2          | All            |
| 5555-15142-00      | Speaker, Subwoofer, 8", 4 Ohm, 50 Watt              | 1          | All            |
| 000083N            | Dollar Bill Validator MARS - AE2651U5E              | 1          | Standard       |
| MAD-28-1001        | Light Barrier Marquee - Madden 28"                  |            | Standard       |
| 990-0006-01        | 3.1 Audio Amp PCB                                   | 1          | All            |
| CCM1600-ND         | EMI Filter, Panel Mount, Un-Shielded                | 1          | All            |
| DFI-PS35-BL-MAD    | PS35 Madden Computer                                | 1          | All            |
| 283-2025-ND        | Fuse, Slo Blow, 250 V, 6 Amp                        |            | All            |
| 40-3000-31         | Door Assembly O/I Midwidth .25US w/Service          | 1          | All            |
| 44-1100-01         | DC Power Supply 5V/12V 115W                         | 1          | All            |
| H4-MEMOHASP        | Dongle, H4-Memohasp, Parallel                       | 1          | All            |
| MC2611U5           | MC 2600 Bill Acceptor w/500 Stacker                 | 1          | All            |
| PER7               | Power Strip, 7 Outlets, Surge Protect, Filter, 110V | 1          | All            |
| PS2-KEYBOARD       | PS2 Keyboard  | 1          | All            |
| SCR28I-S033U       | Smart Card & Magnetic Stripe Reader                 | 1          | All            |
| USBIOEXT           | USB I/O Extreme PCB                                 | 2*         | All            |
| WGM2792-UOTS19C    | Monitor, 27" SVGA, Wells                            | 1          | Standard       |
| WGM3992-U2GS10D    | Monitor, 39" VGA, Wells Gardner                     | 1          | Deluxe         |
| 990-0008-01        | Tournament Header Controller Board                  | 1          | All            |

\*Two-player games use only one USB I/O Extreme PCB.



**Table 7. Artwork and Exterior Formed Components (Standard Cabinet)**

| Part Number | Description                        | QTY | Cabinet  |
|-------------|------------------------------------|-----|----------|
| 03-30006    | Clear Overlay, Marquee             | 1   | Standard |
| 03-10001    | Formed Marquee Housing             | 1   | Standard |
| MAD-AW-10   | Artwork, Global VR Nameplate       | 1   | Standard |
| MAD-AW-01   | Artwork, Right Side Panel          | 1   | Standard |
| MAD-AW-02   | Artwork, Left Side Panel           | 1   | Standard |
| MAD-AW-03   | Artwork, GLOBAL VR Word Mark       | 2   | Standard |
| MAD-AW-05   | Artwork, Control Panel, Right Side | 2   | Standard |
| MAD-AW-06   | Artwork, Control Panel, Left Side  | 1   | Standard |
| MAD-AW-07   | Artwork, Marquee                   | 1   | Standard |
| MAD-AW-09   | Artwork, Control Panel, 4-Player   | 1   | Standard |
| 49-0106-00  | Monitor Bezel                      | 1   | Standard |
| 01-10129    | Grille, Marquee                    | 2   | Standard |
| 03-30001    | Monitor Shield                     | 1   | Standard |



**Table 8. Artwork and Exterior Formed Components (Deluxe Cabinet)**

| Part Number | Description                    | QTY | Cabinet |
|-------------|--------------------------------|-----|---------|
| AW-39-FB-01 | Artwork Side Graphic, Right    | 1   | Deluxe  |
| AW-39FB-02  | Artwork Side Graphic, Left     | 1   | Deluxe  |
| AW-39FB-12  | Artwork Marquee, Backlit       | 1   | Deluxe  |
| AW-39FB-13  | Artwork 4-Player Control Panel | 1   | Deluxe  |
| AW-39FB-14  | Artwork Speaker Panel          | 1   | Deluxe  |
| AW-39FB-15  | Artwork Pedestal Side, Backlit | 2   | Deluxe  |

**Table 9. Computer Internal Components**

**Caution:** YOU WILL VOID YOUR WARRANTY if you open the computer without direct authorization from the GLOBAL VR® technical support staff.

| Part Number  | Description                            | QTY | Cabinet |
|--------------|--|-----|---------|
| PSATX11YOH   | Power Supply, Computer                 | 1   | All     |
| HD-WD200BB   | IDE Hard Drive, 20GB, 7200 RPM, ATA100 | 1   | All     |
| SH-152AEBUW  | CD-Rom Drive                           | 1   | All     |
| FM-MB56PCI   | PCI Modem                              | 1   | All     |
| PCI USB-GVR  | PCI USB expansion card                 | 1   | All     |
| FX5700LE-128 | 8X AGP video card                      | 1   | All     |

## Chapter 10 — Diagrams and Schematics

The figure below shows the connectors on the rear of the computer.

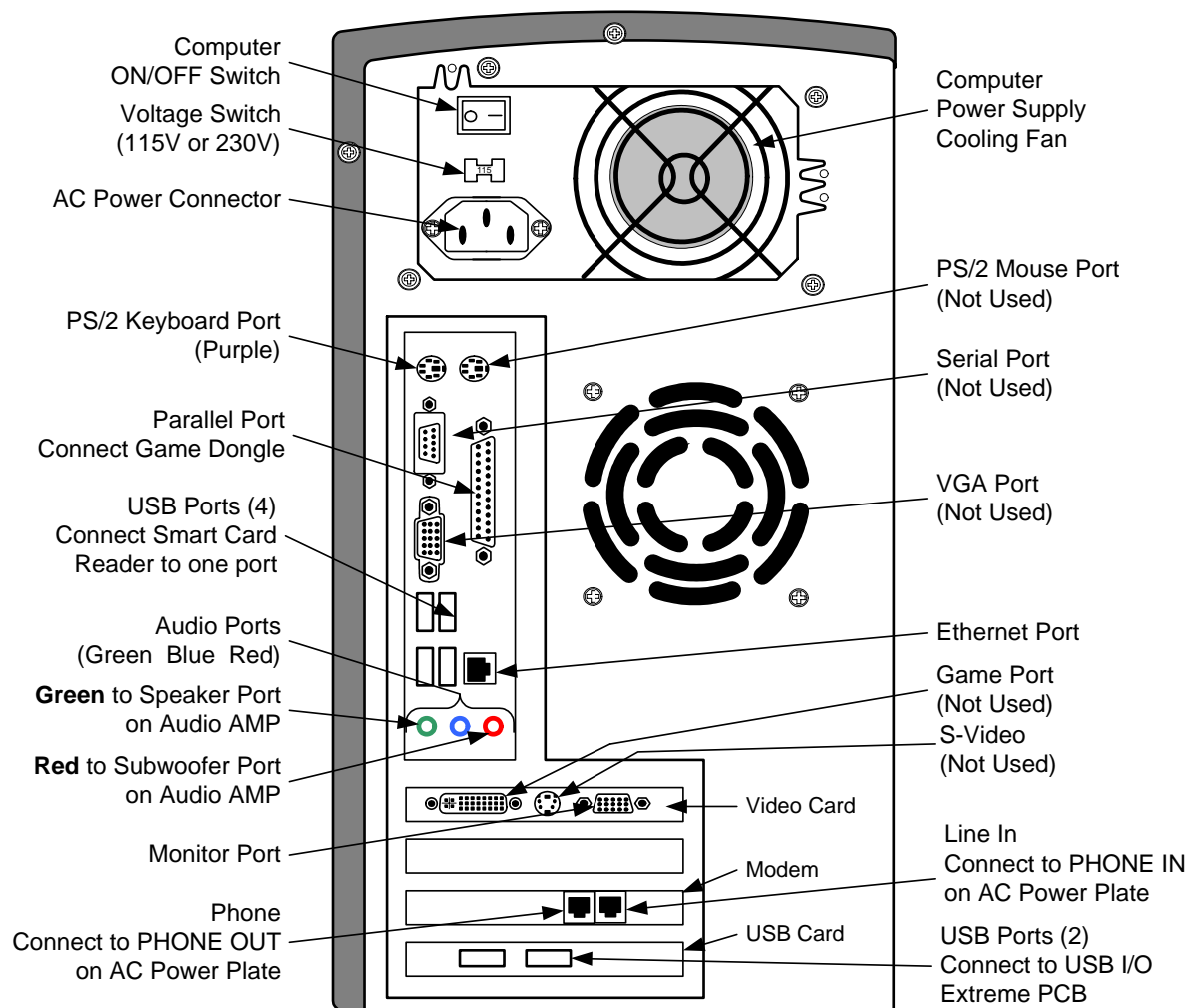


Figure 31. Computer Rear Connectors

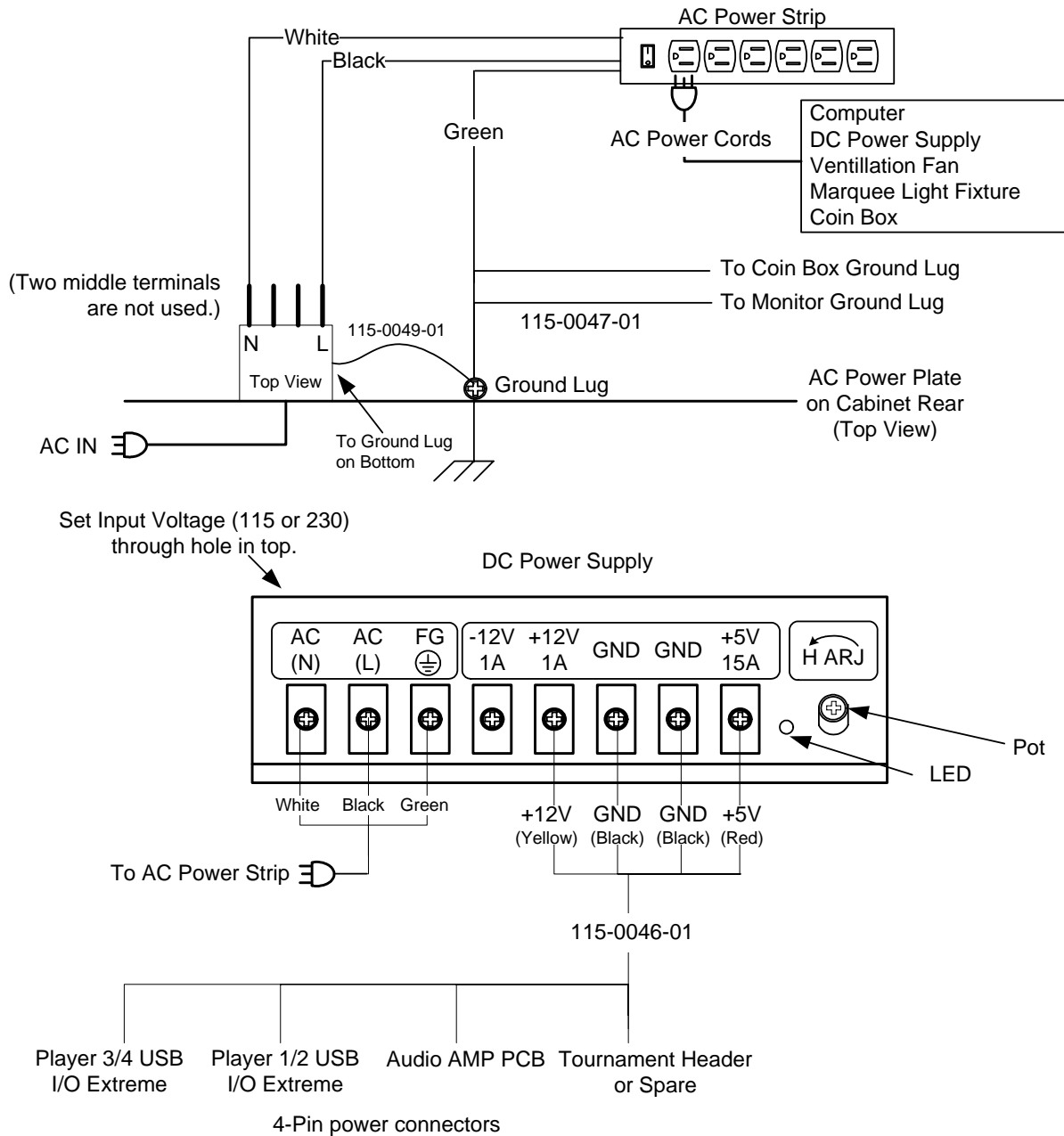


Figure 32. Cabinet Power Distribution Wiring Diagram

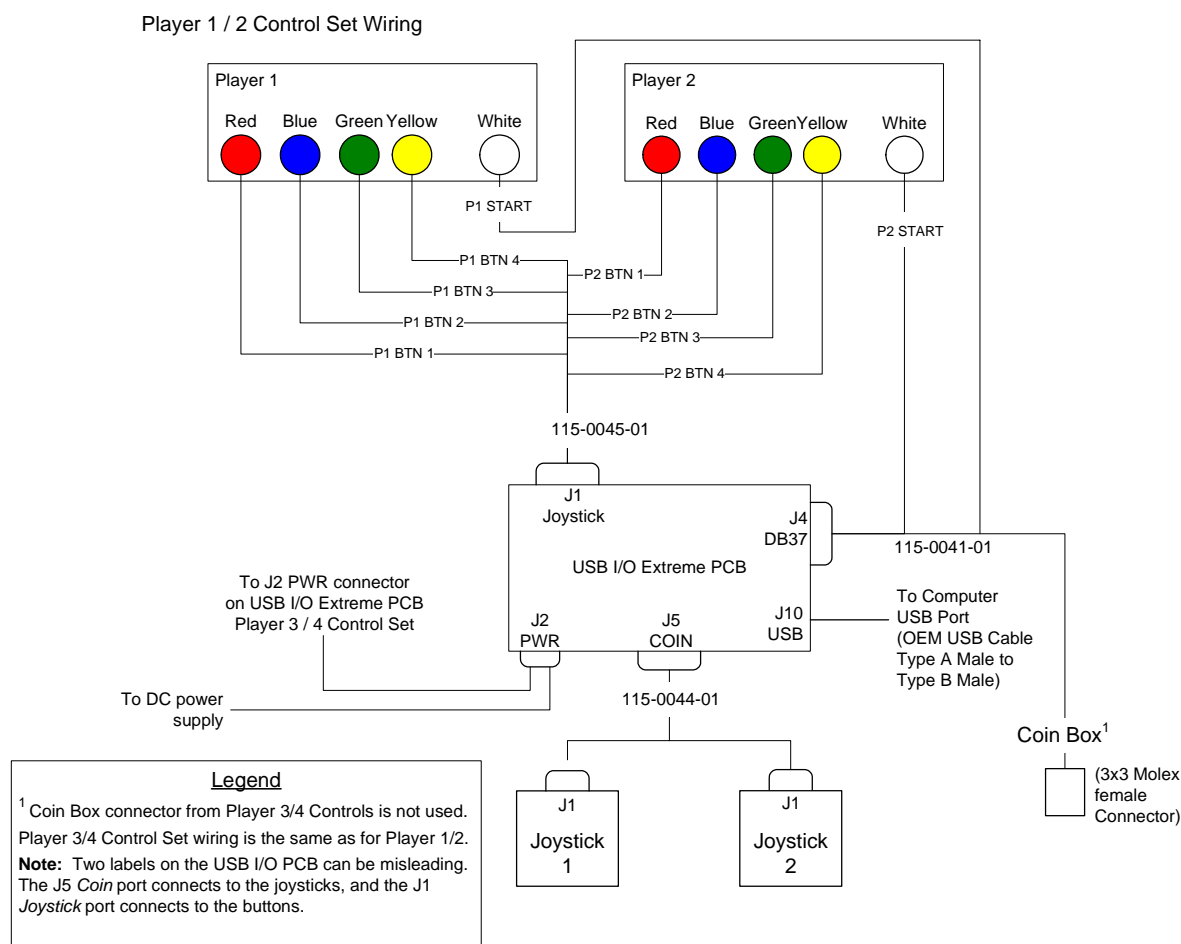
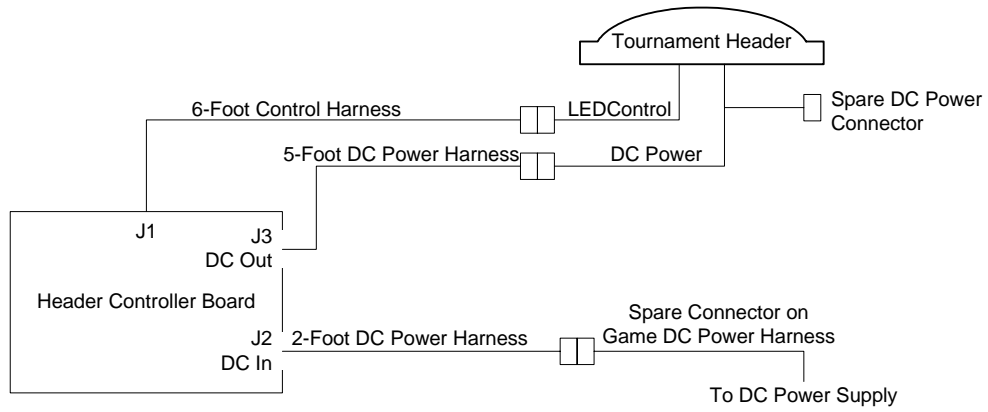


Figure 33. Player Controls Simplified Wiring Diagram



*Figure 34. Tournament Header Wiring Diagram*

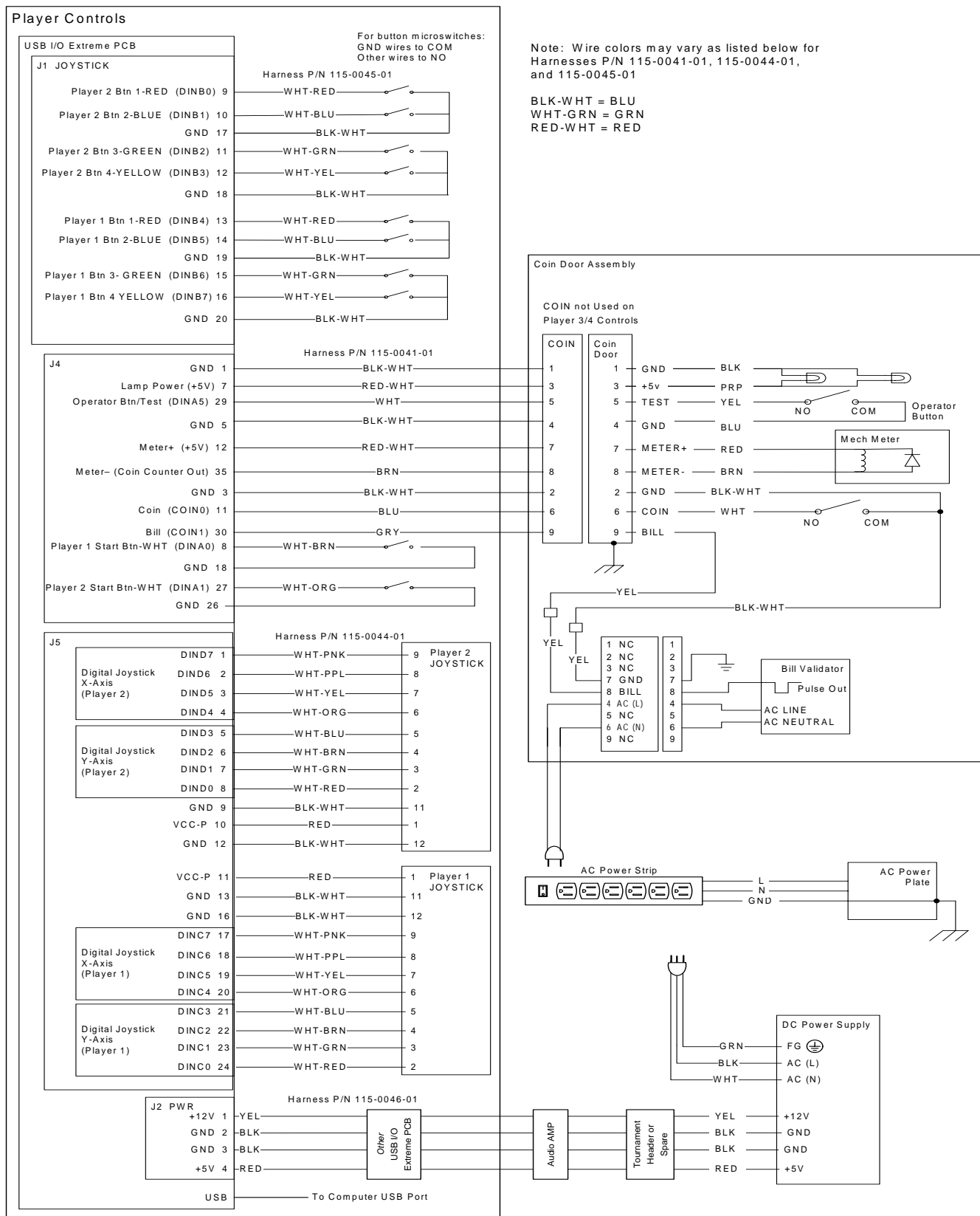


Figure 35. Player Controls Detailed Wiring Diagram

## Warranty Service

If at some point you require warranty service, contact your distributor. If the technical support staff determines that your game is defective, a Return Merchandise Authorization (RMA) number will be issued.

## Warranty Information

### LIMITED WARRANTY

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

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

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

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

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

Purchaser's exclusive remedy and GLOBAL VR®'s sole obligation is to supply or pay for all labor necessary to repair any Product found to be defective within the warranty period and to supply, at no extra charge, new or rebuilt replacements for defective parts. If repair or replacement fails to remedy the defect, then, and only in such event, shall GLOBAL VR® refund to Purchaser the purchase price for said Product. Purchaser's failure to make a claim as provided above or continued use of the Product shall constitute an unqualified acceptance of said Product and a waiver by Purchaser of all claims thereto.

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

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

## Technical Support

Free telephone, e-mail and online support are provided for systems during the warranty period. In addition to helping with troubleshooting and diagnosing defective parts, GLOBAL VR® technical support is prepared to help you with questions about the operation of your game.

When you contact technical support, please provide the following background information to aid our technical support process:

- Cabinet's Game Serial Number (found on the back of the cabinet). Write your serial number below for easy reference.

**Cabinet Serial Number:** \_\_\_\_\_

- 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. The cabinet ID, software version, and last successful sync are shown on the Registration screen in the Operator Menus.
  - Cabinet ID
  - Software version number
  - Specific error message
  - Any changes made to the system
  - Date of latest install or upgrade
  - Date of last successful sync
  - For game-play issues, the game mode and number of players

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

Call 408.597.3400 to reach a Technical Support staff member.

E-mail support is available at this address: [techsupport@globalvr.com](mailto:techsupport@globalvr.com)

Tournament E-mail Support is available at this address: [tournament@globalvr.com](mailto:tournament@globalvr.com)

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

Visit the GLOBAL VR® website: [www.globalvr.com](http://www.globalvr.com)