REDLINE RAMPAGE GAS GUZZLERS

Conversion Kit Instructions
for GLOBAL VR Driving Games with HD Monitors

040-0266-01 Rev. B

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

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Table of Contents

List of Figures

Introduction

This document describes the steps for upgrading a GLOBAL VR driving game to Redline Rampage.

System Requirements:

GLOBAL VR Driving Game with LCD or Plasma Monitor:

- *Need for Speed*™ Carbon Dedicated Cabinets

- NASCAR® Racing and NASCAR® Team Racing

- Twisted - Nitro Stunt Racing™ (Mini-Motion games may be converted but motion is **not** supported.)

- Older *Need for Speed*™ games with monitors and I/O PCBs upgraded. Games with Nytric USBI/O PCBs (see *Figure 7* on page 11) require the I/O Conversion Kit (Part #: 90634-01).

- GLOBAL VR Motion Games with projection monitors and GVRI/O Mini PCBs can be converted but motion is not supported

Technical Support

Need Help? Need a Part? Contact Technical Support:

- Hours: 7:00 AM–5:00 PM Pacific Time, Monday–Friday
- Phone: 408.597.3435
- Fax: 408.597.3437
- E-mail: techsupport@globalvr.com
- Website: http://service.globalvr.com
- Online Store: http://parts.globalvr.com/

Kit Contents

Part Number	Item Description	Qty
040-0266-01	Conversion Kit Instructions (this Document)	1
040-0265-01	Software Restore Guide	1
040-0267-01	Operation Manual For Kit Systems	1
040-0268-01	Common Repairs for Driving Games	1
040-0269-01	Pre-Conversion Maintenance Checklist	1
040-BIOS-XX*	BIOS Setup Instructions	1
050-0233-01*	Software, System Recovery Disk	1
050-0237-01*	Software, Game Install Disk	1
37370-00	Shifter Cover Plate	1
45087-00	Redline Rampage PC Assembly	1
50-1035-RR	Steering Wheel With Fire Buttons and Harness	1
52-6212-00	Button Plug	1
75-0006-822H2774	**BOOST** Button Assembly	1
HP143301-XXXX	**DROP HAZARDS** Button Legend	1
L-0182	Serial Number Label	1
NTR-AW-06	New Game Sign	1
RR-AW-01	Right Side Panel Decal	1
RR-AW-02	Left Side Panel Decal	1
RR-AW-03	Left Side Monitor Decal	1
RR-AW-04	Right Side Monitor Decal	1
RR-AW-05	Left Side Seat Base Decal	1
RR-AW-06	Right Side Seat Base Decal	1
RR-AW-07	Upper Rear Seat Base Decal	1
RR-AW-08	Lower Rear Seat Base Decal	1
RR-AW-09	Seat Back Decal	1
RR-AW-10	Green Rating Label Decal	1
RR-AW-11	Yellow Rating Label Decal	1
RRK-AW-01	Backlit Marquee Artwork, Polystyrene	1
USB-KQRTG-HL-RR	Redline Rampage Game Dongle	1
--	Adhesive Tie-Wrap Mount & Zip Tie	1
--	Quick-Connect Splicers	

*Part Numbers may change due to configuration revisions.

Tools Required

- Exacto® Knife (or similar) and sharp blades for cutting graphics
- Sharp scissors (optional for cutting graphics)
- Screwdriver with assorted Phillips & Torx® security bits (typically T-9, T-15, T-20, &/or T-25)
- 3/16" Allen wrench (to remove and replace steering wheel)
- ¾" Socket Wrench (to remove and replace steering wheel hub)
- NASCAR: Wrenches, 8/16" & 11/16", to loosen steering housing if you need to move it upward
- Wire snip and stripper
- Spray bottle of water (for applying decals)
- Squeegee for smoothing graphics

Test and Clean Before Conversion

Installing a new game will not fix existing hardware problems. Refer to the checklist included in the kit, and perform the steps below to make sure your cabinet is in optimal operating condition before performing the conversion. If you need to make repairs, see the document *Common Repairs for Driving Games* included in the kit.

1. Open the **Controls** screen in the Operator Menu. Check the following and fix any problems:

   a. Make sure the leader light, brake lights (as applicable), and **START** button blink when you open the **Controls** screen.

   b. Make sure all buttons work properly, as indicated on the screen.

   c. Turn the steering wheel left and right. Make sure the numbers above the steering wheel graphic show full left position as approximately "–127" and full right position as approximately "127". Make sure the numbers change in a smooth and linear manner. A sudden jump in the numbers, or a different range of numbers, can indicate a bad pot.

   d. Check the numbers displayed near the brake pedal. When the pedal is **not** pressed, the top and middle number should be about the same. The middle number should not change when the brake pedal is not being pressed; if it does change, you need to replace the pot. If the top number is zero (0), or the bottom number is 255, you need to adjust the pot.

      Step on the brake pedal and make sure the middle number increases. When the pedal is full down, the middle and bottom numbers should be about the same. The difference between the full up and full down values should be about 80 (±5). Make sure the numbers change in a smooth and linear manner. A sudden jump in the numbers can indicate a bad pot.

   e. Repeat the previous step for the gas pedal.

      Note: Pots for gas, brake and steering are a very common replacement item on driving cabinets. If you suspect a pot may be wearing out, it should be replaced.

   f. If installed, make sure the shifter works in each gear. The shifter will be removed but some of the signals will be used for other functions.

   g. Test both coin mechs, coin meter, and bill validator (if installed).

2. From the **Sound Test** screen, make sure all speakers work and sound comes from the correct speakers. Check the wiring for any speaker that does not work.

3. Make sure the monitor image is bright and clear.

4. Disconnect the cabinet AC power cord and remove the rear door.

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

5. Use compressed air to blow dust and dirt away from PCBs mounted in the cabinet and the monitor chassis. If dirt or debris has accumulated in the cabinet, clean it out.

6. Inspect the steering belt and gears and replace components if worn or teeth are broken.

7. Make sure all vents are clear of debris and all cabinet fans are working.

8. Check all wire connections in the cabinet and make sure they are secure. Make sure all ground wires are secure.

9. If the game has a dual force-feedback PCB system, make sure it has the ESD Shock Protection fix described in *Common Repairs for Driving Games*. (This fix involves soldering ground wires to the back of the PCBs to help prevent force-feedback failure due to static shock.)

10. Inspect the exterior of the cabinet. Make sure all screws are secure. Repair any obvious damage. Clean the cabinet with a mild cleaner and soft cloth.

Conversion Steps

1. Turn off the cabinet and disconnect the AC power cord.

2. Remove the rear door from the cabinet.

3. Perform the steps in the sections that follow as they apply to your cabinet.

Remove Card Reader and Card Dispenser, if Applicable

The card reader and card dispenser installed on some games will not be used. You can leave them in place or remove them.

To remove the card reader, remove the two screws that secure it in place. Carefully slide the card reader out of the cabinet and disconnect the harness connector. Cover the mounting location if desired.

The SmartCard Dispenser, an option only on dedicated *Need for Speed* Underground games, is secured with three wood screws through the bottom inside of the assembly, and three bolts through the top inside of the assembly. The bolts are secured with nuts and washers behind the driving control panel.

To remove the Card Dispenser, open the Card Dispenser and the Driving Control Panel, and remove the screws and the nuts and bolts that secure the card dispenser assembly in place. Disconnect the harness from the card dispenser and slide the dispenser out of the cabinet. Disconnect and remove the harness or secure it inside the cabinet where it is out of the way. Plug holes with button plugs if desired.

Install the Customized Steering Wheel

The steering wheel in the kit has Fire buttons pre-installed to fire weapons. If the game will be operated in Green Label mode only (no weapons), this step is optional. (Fire buttons will function as Drop Hazards buttons in Green Label Mode.)

Refer to *Figure 1* for *Need for Speed* games and *Figure 2* for NASCAR games.

1. For *Need for Speed* and Twisted games, remove the screws that secure the instrument panel artwork in place to access the area behind the plastic housing, as shown in *Figure 1*.

2. Remove the six (6) T-15 Torx security screws from the steering wheel cap and remove the cap.

3. Remove the three (3) 3/16" Allen head bolts from the steering wheel and pull the wheel towards you to remove it.

4. For NASCAR games only, make sure there is enough space to run the wires under the wheel housing assembly as shown in *Figure 2*. If there is not enough space you will need to loosen the four mounting bolts and shift the housing assembly up enough to run the wires (about 1/16" or 1.5 mm.)

5. Remove the ¾" nut at the center of the steering hub. Remove the hub and replace it with the hub from the kit. (This hub has a hole pre-drilled to run the wires from the Fire buttons.) Replace the nut and tighten securely.

6. For NASCAR games only, place the rubber boot from the kit over the steering column.

7. Thread the wires from the new steering wheel through the hole in the hub and into the cabinet. For NASCAR games run the wires through the rubber boot.

8. Place the new steering wheel over the hub, making sure that the holes for the wires in the wheel and the hub are aligned, and gently pull the wires through the hub.

9. Replace the three Allen screws removed previously and tighten securely.

10. Secure the wheel cap with the screws removed previously.

11. Inside the cabinet, use the adhesive-backed tie-wrap mount and a zip tie to add strain relief to the wires. Adhere the strain relief to the lower part of the metal control panel housing.

12. Inside the cabinet, locate **J9** on the USBI/O Mini PCB (see *Figure 4*). Use Quick-Connect Splicers from the kit (see *Figure 3*) to splice one wire from the wheel to the wire from **Pin 1**, and the other to the wire from **Pin 2** of **J9** on the GVRI/O Mini PCB.

Figure 1. Installing the Steering Wheel on Need for Speed Games

If you need more space to run the wires under the steering housing, loosen bolts and shift housing up to about 1/16" (1.5 mm).

Run wires through wheel, hub, and boot.

Thread wires under hub into cabinet.

Rubber Boot Installed

Note: *Need for Speed* conversions do not use the rubber boot.
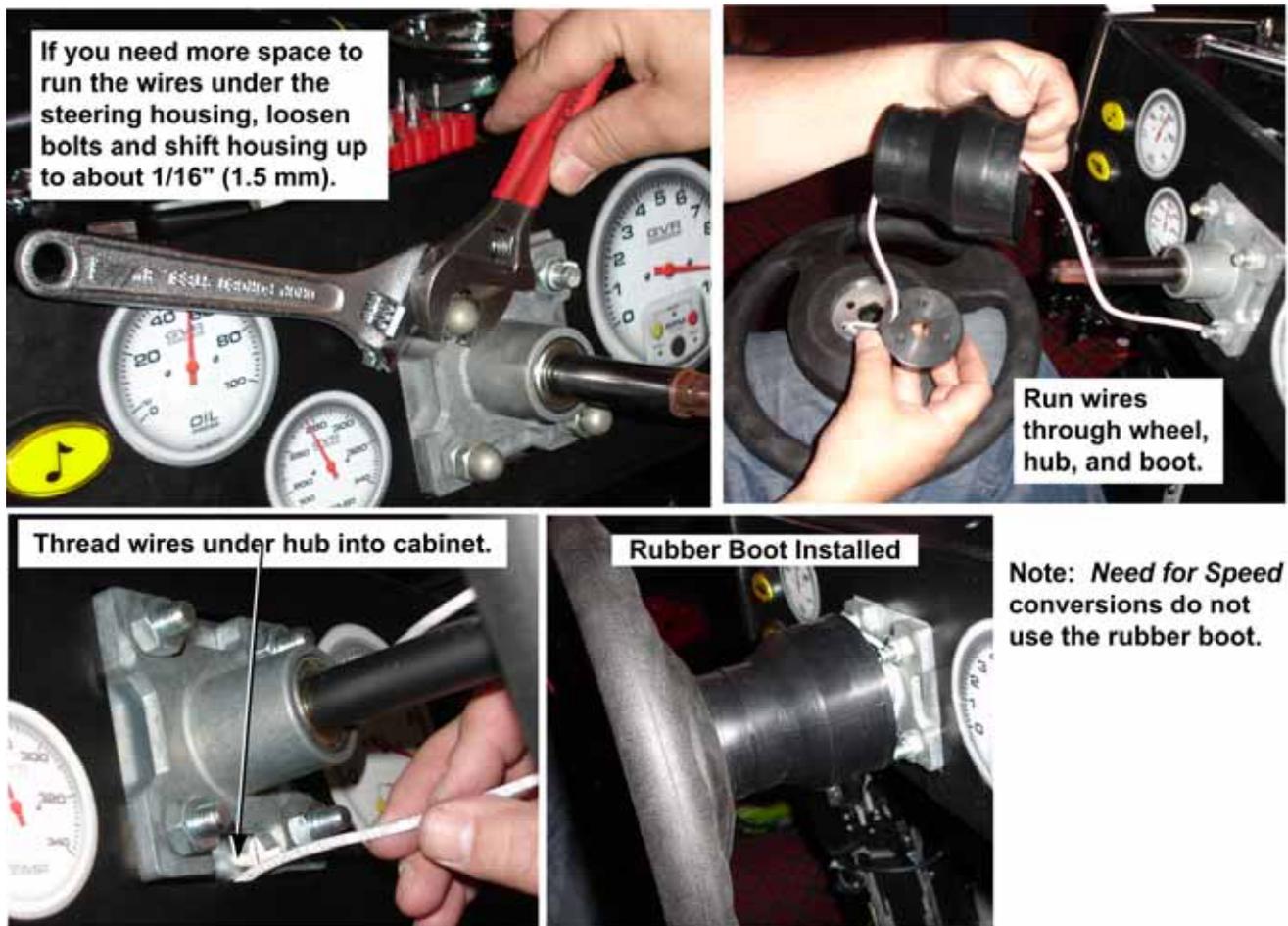
Figure 2. Installing the Steering Wheel on NASCAR Games

Splicer Open   Splicer Closed

Existing Wire to USBI/O PCB Passes Through Splicer

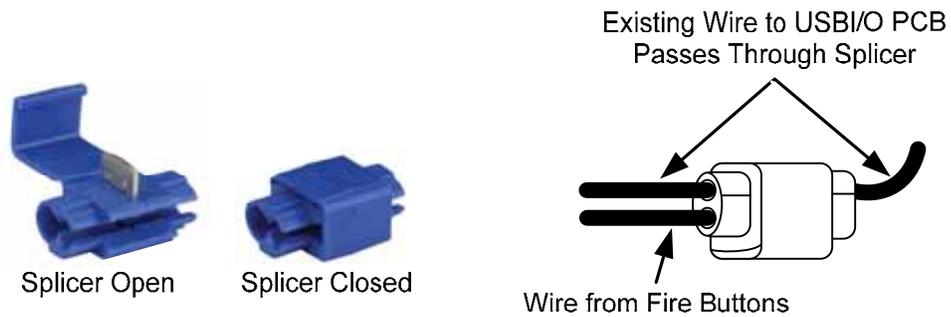Wire from Fire Buttons

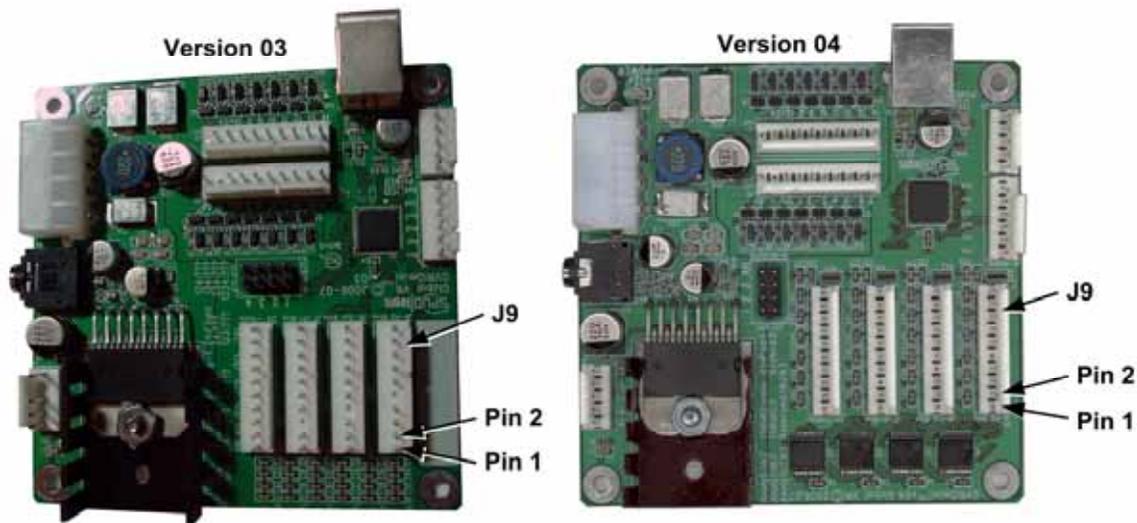*Figure 3. Using a Quick-Connect Splicer*

Figure 4. Connections to GVRI/O Mini PCB

Swap Control Panel Buttons

On Redline Rampage the **DROP HAZARDS** button uses the signal formerly used for **VIEW**, and the **VIEW** button uses the signal formerly used for ♪ (music). (**NASCAR** games must have the **BOOST** button installed at the shifter location, as described in the section that follows.)

Summary of Control Panel changes:

- Change the ♪ (music) button to the **VIEW** button
- Change the **VIEW** button to the **DROP HAZARDS** button

1. Gently pry the plastic lenses off the ♪ and **VIEW** buttons with a small screwdriver or similar tool, being careful not to scratch the lenses.

2. Replace the ♪ legend with the **VIEW** legend and replace the lens.

3. Install the **DROP HAZARDS** legend from the kit to the button that was previously **VIEW**. (The graphic is printed on thin transparency film, so be careful not to lose it. See *Figure 8* on page 13 for a **DROP HAZARDS** legend that you can cut out or copy to transparency film.)

4. For older *Need for Speed* games with a **Horn** button, the **Horn** button will become the **BOOST** button. You can replace the **Horn** button with the **BOOST** button from the kit if you will not be using it in the shifter location. Otherwise, you can order a **BOOST** button from http://parts.globalvr.com or disassemble the **Horn** button, use fine-grit sandpaper to sand off the printed **Horn** legend, and then print a **BOOST** legend on clear transparency film (you can print it on paper but it will not look as good). See *Figure 8* on page 13 for a **BOOST** legend that you can cut out or copy to transparency film.

Note: You can find printable button legends under Redline Rampage on http://service.globalvr.com.

Remove Shifter and Install BOOST Button (as Applicable)

NASCAR games must have a **BOOST** button installed at the shifter location as there is no **BOOST** button in the control panel. This step is optional for *Need for Speed* games.

1. Remove the four (4) Torx security screws that secure the shifter plate in place and lift the shifter assembly out of the housing.

2. **If you DO NOT wish to install a BOOST button** (*Need for Speed* games only), disconnect the harness and remove the shifter. Install the button plug in the shifter cover plate from the kit and install the cover plate on the shifter housing with the screws removed previously.

3. **To install the BOOST button in the shifter location**, install the **BOOST** button assembly from the kit in the shifter cover plate from the kit, and proceed with the steps that follow.

4. Disconnect the wires at the shifter, or snip them near the shifter so that you have long enough pigtails to splice. (If you disconnect the shifter Molex connector, it will be difficult to splice into the wires with the Quick Connect splicers.)

> ⚠ **CAUTION: Do not connect the 5-volt lamp power wire to the button micro switch. Doing so can damage the GVRI/O PCB.**

5. **For *Need for Speed* games:**

   a. Disconnect the spade connectors from the e-brake button and connect the lamp power and ground connectors, and the COM connector to the corresponding connectors on the **BOOST** button. **Do not** use the NC connector from the e-brake (see *Figure 5* for button connections).

   b. Locate the wire from **Pin 1** of the 9-pin shifter connector. Use a Quick-Connect Splicer (see *Figure 3*) to splice it to the wire from NC on the **BOOST** button micro switch.

6. **For NASCAR games:** Locate the wires from the 12-pin shifter connector listed in the table below. Use Quick-Connect Splicers (see *Figure 3*) to splice them to the pigtails from the **BOOST** button.

Shifter Connector Pin	Wire Color (May Vary)	BOOST Button Connection
12	Red	5-Volt Lamp Power
11	Blue	NC
5	Black	Lamp Ground **and** Micro Switch COM (two connections)

7. Secure the Shifter Cover Plate in place with the screws removed previously.

Figure 5.   Lighted Button Connectors
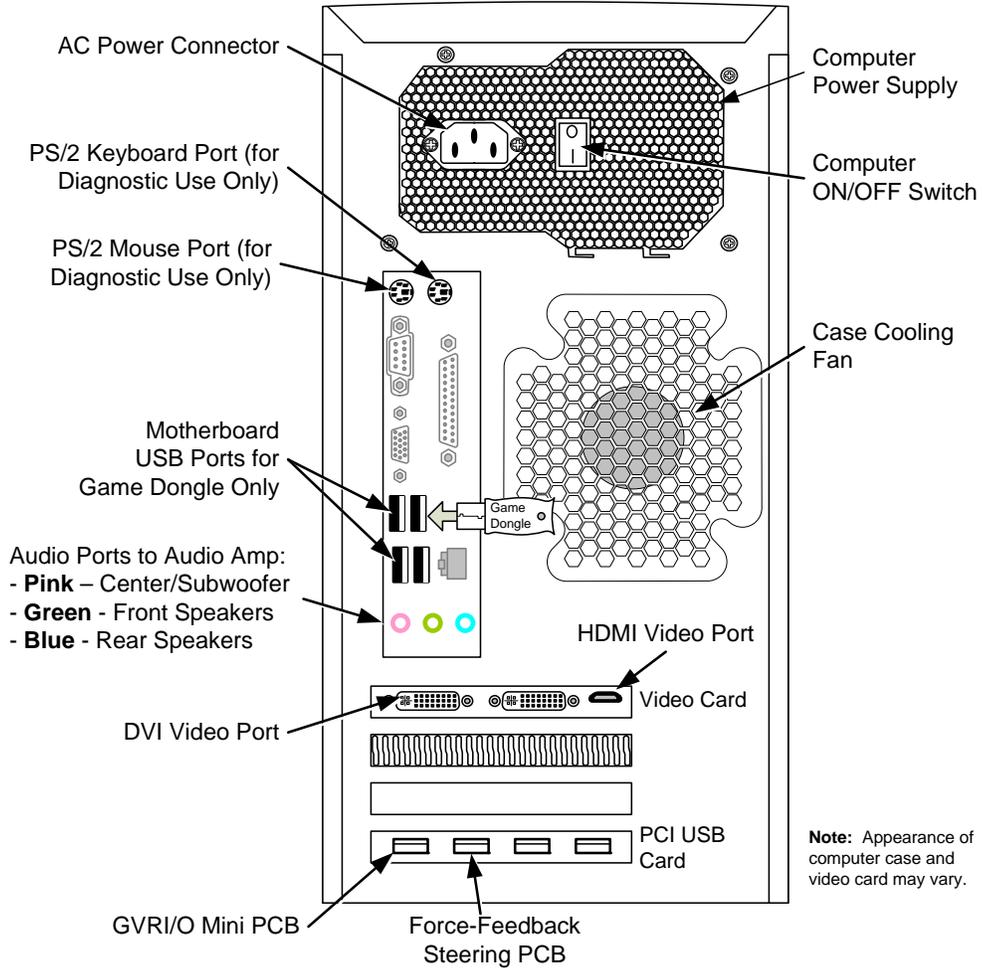
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Replace Computer

Important: Avoid bumping or tilting the cabinet when the computer is running.

Note: If you are converting an older *Need for Speed* cabinet that originally had a CRT monitor:

- In some older games the computer is secured with a top brace and bolts that screw into the computer feet from under the cabinet. You will not be able to use the under-cabinet bolts to secure the new computer. GLOBAL VR recommends adding a strap or brace to secure the new computer.

- If the old computer contains a Nytric USBI/O PCB (see *Figure 7*), you will need to install a GVRI/O Mini PCB and Conversion Harness (Kit Part #: 90634-01). See Figure 7 on page 11 to identify a computer with a Nytric USBI/O PCB.

- Disconnect all of the cables from the old computer. Keep the old game dongle with the computer if you wish to use the computer as a spare.

8. Unbuckle the strap that secures the computer in place and remove the computer.

9. Secure the new computer in place. 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.

10. Connect the Redline Rampage Game Dongle to a motherboard USB port in the computer.

11. Connect the cables as shown in Figure 6. Be sure to connect the Force-Feedback PCB and the GVRI/O Mini PCB to PCI USB ports, **not** to motherboard USB ports.

PC Rear with MSI H61M-P32 Motherboard

AC Power Connector

PS/2 Keyboard Port (for Diagnostic Use Only)

PS/2 Mouse Port (for Diagnostic Use Only)

Motherboard USB Ports for Game Dongle Only

Game Dongle

Audio Ports to Audio Amp:
- **Pink** – Center/Subwoofer
- **Green** - Front Speakers
- **Blue** - Rear Speakers

Computer Power Supply

Computer ON/OFF Switch

Case Cooling Fan

HDMI Video Port

Video Card

DVI Video Port

PCI USB Card

Note: Appearance of computer case and video card may vary.

GVRI/O Mini PCB

Force-Feedback Steering PCB

Figure 6. System Computer Rear Panel

Note: A GVRI/O Mini PCB is required to run Redline Rampage. Games with Nytric USBI/O PCBs require the I/O PCB Conversion Kit (Part #: 90634-01).

USBI/O DB25 Port (On ribbon cable from Nytric PCB; connected to Harness Part #: 115-0002-01)

USBI/O DB37 Port (Connected to Harness Part #: 115-0009-01)
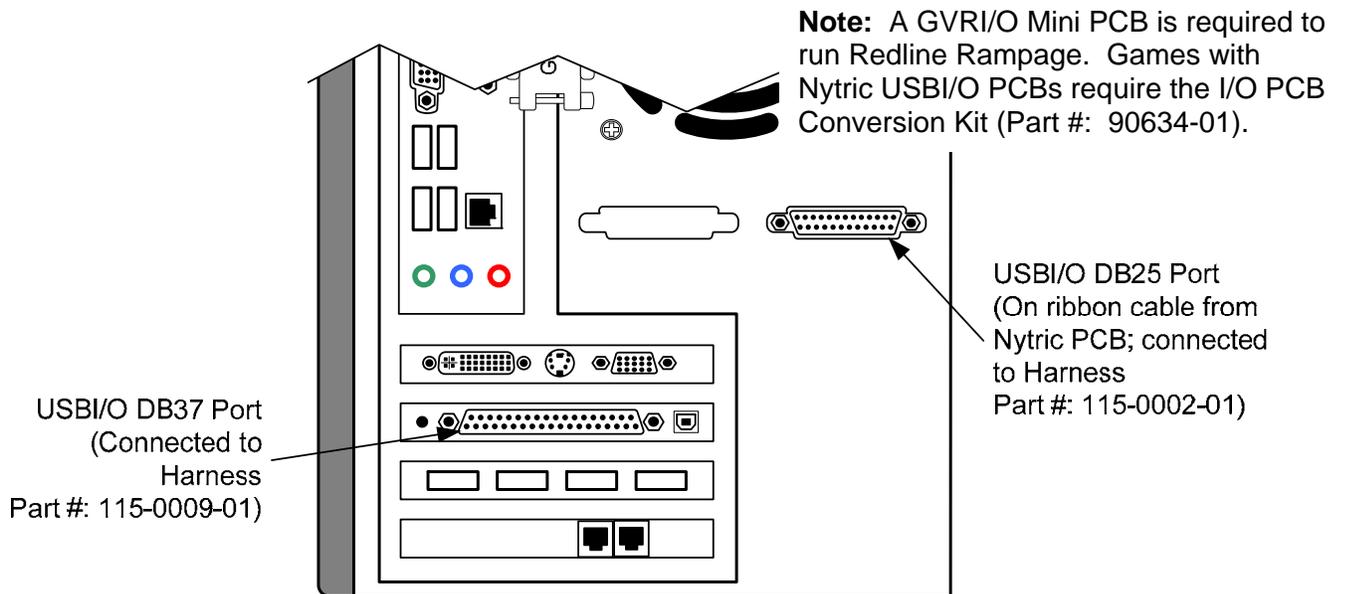
Figure 7. Identifying a Computer with a Nytric USBI/O PCB

Test and Calibrate the Game

Once the computer is installed you can test the game. If you prefer, you can finish installing the artwork first. Note that you can also calibrate the steering and pedals from **Diagnostics: Play Control Test** in the Operator Menu.

1. Power on the game and verify the game boots properly.

2. When the Calibrate Pedals screen appears, press each pedal firmly to the floor to set the pot limits.

3. Next, the steering will auto-calibrate.

4. If the software detects another cabinet with the same Link ID Number, the Select a Link ID screen will appear and prompt you to change the ID.

5. Set up your cabinet from the Operator Menu, and play a game to verify proper operation.

Artwork Installation

Refer to the figures starting on page 14 for illustrations of artwork placement on various games. You can find these illustrations in color under Redline Rampage at http://service.globalvr.com.

The exact steps for installing the artwork will vary depending on the cabinet you are converting. You will need to cut most of the artwork to fit, and you may not use all of the decals in the kit. Be sure to use a sharp Exacto knife or scissors to ensure clean edges.

Please make sure you remove or cover all logos and names that refer to the previously installed game. Use decal scraps as patches if needed.

Spraying the cabinet surface with water will make it easier to position the decals. Once the decal is positioned be sure to squeegee out as much water as possible to ensure that the decal sticks properly.

Backlit Marquee

1. Remove the screws that secure the marquee to game. Disconnect the leader light power connector if applicable and remove the clear plastic and marquee artwork. (Refer to your old System Manual for details on removing the marquee.)

2. Remove the artwork (you may also need to remove the leader light) and clean the clear plastic with window cleaner. On a clean work surface, place the clear plastic over the marquee artwork from the kit and use it as a template to cut the artwork to fit. Be careful to center the logo and avoid cutting any logos or text.

   Note: For Twisted 42" games you will **not** need to trim the marquee artwork.

3. Reinstall the marquee by reversing the removal steps.

Side panel Decals

Important: For Deluxe games with molded plastic side panels, cut the side panel decals to cover logos only. Do not attempt to apply the full decals over the curved plastic.

For flat wooden side panels only, align the decal with the bottom and rear edges of the cabinet (where the wheel is printed on the decal). Apply the decal and then trim along the edge of the cabinet.

Seat Base Side Decals

Refer to the illustration for your cabinet to place the seat pedestal decals. Some cabinets have upper and lower seat base artwork and require you to first cut the decal into two pieces as shown in the illustrations. Apply the decals and then trim the edges.

Seat Base Rear Decals

Place the upper and lower seat base rear decals as shown in the illustration for your game and trim to fit. Apply the decals and then trim the edges.

Seat Back Artwork

You will need to trim the decal as shown in the illustration for you game. For most games you will simply need to make a straight cut as shown in the illustrations. For older *Need for Speed* games you will need to remove the seat back artwork and use it as a template to cut the decal.

Yellow or Green Rating Label Decal

Apply either the **Yellow** or **Green** Rating Label on the marquee where it will be visible to your customers. Running the game in Green Label mode removes weapons from the cars. You can change between Green and Yellow Label Mode from Game Settings in the Operator Menu.

Serial Number Label

1. Write the Conversion Date in the DATE MFR: field on the serial number label in the kit.

2. Place the label next to the old serial number label on the back of the cabinet (keep the old label for reference).

Install New Game Sign

The "**NEW!**" sign has adhesive strips on the front so that it can be installed behind the marquee or monitor. Peel the protective covering and place the sign where it can be seen by your customers.

If you need button legends for your game, copy the images below to transparency film. If this is not possible, you can cut out these images and use them, but they will not look as vivid and you will see the texture of the paper.

Figure 8. BOOST and DROP HAZARDS Button Legends

Artwork Placement Illustrations

Figure 9. Artwork Placement on NASCAR® Standard Cabinet

Make Straight Cuts as Shown

RRK-AW-01
Backlit Marquee
(Trim to Fit)

Right Side View

RR-AW-04
Right Side Monitor Decal
(Trim to Fit)

RR-AW-09
Seat Back Decal

If Game has **NASCAR**
Logo Here, Cover It with
Leftover Graphic

RR-AW-07
Upper Rear Seat Base Decal
(Trim to Fit)

RR-AW-08
Lower Rear Seat Base Decal
(Trim to Fit)

Trim on Dyeline &
Cover Track Logos

RR-AW-02
Right Side Panel Decal

If Game Has **EA** Logo
Here, Peel it Off.
(GLOBAL VR Logo is OK.)

RR-AW-01
Left Side Panel Decal
Trim to cover only the
NASCAR logo.

RR-AW-06
Right Side Seat Base Decal
(Spare)

Note: Trim Decals
as needed to fit.

**Left Side View
(Pre-Conversion)**

RR-AW-05
Left Side Seat Base Decal
Cut to Cover Upper &
Lower Decals

Peel Off **EA** Logo

Figure 10. Artwork Placement on NASCAR® Deluxe Cabinet

RR-AW-04
Right Side Monitor Decal
On Other Side (Not Shown)
(Trim to Fit)

RR-AW-03
Left Side Monitor Decal
(Trim to Fit)

RR-AW-01
Left Side Panel Decal
(Trim to Fit)

RR-AW-02
Right Side Panel Decal
On Other Side (Not Shown)
(Trim to Fit)

RRK-AW-01
Backlit Marquee
(Trim to Fit)

Make Straight Cuts
as Shown

RR-AW-09
Seat Back Decal

RR-AW-07
Upper Rear Seat Base Decal
(Trim to Fit)

RR-AW-08
Lower Rear Seat Base Decal
(Trim to Fit)

RR-AW-05
Left Side Seat Base Decal
(Trim to Fit)

RR-AW-06
Right Side Seat Base Decal
On Other Side (Not Shown)
(Trim to Fit)

Notes: Artwork Placement is similar
for Standard and Deluxe Cabinets.

Trim Decals as needed to fit.

Figure 11. Artwork Placement on Twisted Cabinet

RR-AW-04
Right Side Monitor Decal
On Other Side (Not Shown)

RR-AW-03
Left Side Monitor Decal

RR-AW-01
Left Side Panel Decal

RRK-AW-01
Backlit Marquee
(Trim to Fit)

Make Straight Cuts
as Shown

RR-AW-09
Seat Back Decal

RR-AW-05
Left Side Seat Base Decal

RR-AW-06
Right Side Seat Base Decal
On Other Side (Not Shown)

RR-AW-02
Right Side Panel Decal
On Other Side (Not Shown)

RR-AW-07
Upper Rear Seat Base Decal

RR-AW-08
Lower Rear Seat Base Decal

Note: Trim Decals
as needed to fit.

Figure 12. Artwork Placement on *Need for Speed™* Carbon Standard Cabinet

Figure 13. Artwork Placement on Need for Speed™ Underground Cabinet