



ACTIVE

USER MANUAL



THE REVOLUTION IS HERE

WWW.BDHRACESIM.COM

**BUILT ON THE LEGENDARY
BDH H1 “BAZOOKA”
FOUNDATION, THE ACTIVE
SHIFTER™ REPRESENTS
A REVOLUTION IN FORCE
FEEDBACK SHIFTING.**



VIEW THE MANUAL ONLINE



CONTENTS

1. PRODUCT OVERVIEW

- 1.1 - Introduction*
- 1.2 - Key Features*
- 1.3 - Compatible Platforms & Titles*

2. IN THE BOX - PACKAGE CONTENTS

3. TECHNICAL SPECIFICATIONS

- 3.1 - Physical*
- 3.2 - Electrical & Performance*
- 3.3 - Mounting*

4. INSTALLATION & MOUNTING

- 4.1 - Unpacking*
- 4.2 - Mounting the Shifter to Your Rig*
- 4.3 - Attaching the Gear Stick and Knob*
- 4.4 - Tensioner Adjustment*
- 4.5 - Side Mounting*
- 4.6 - Cable Management*

5. SOFTWARE & CONFIGURATION

- 5.1 - Driver & Software Installation*
- 5.2 - Operating Modes*
- 5.3 - Force & Feel Configuration*
- 5.4 - Firmware Updates*

6. OPERATION

- 6.1 - Display Menu Reference*
- 6.2 - First-Time Setup - Getting Started*
- 6.3 - Navigating the Menu System*

7. GEAR MAPPING GUIDE

- Example gear layouts*
- Setting gears in game for the first time*

8. TROUBLESHOOTING

9. MAINTENANCE & CARE

- 9.1 - Cleaning*
- 9.2 - Lubrication*
- 9.3 - Fastner Checks*
- 9.4 - Service Intervals*

10. WARRANTY & SUPPORT

- 10.1 - BDH Active - 2 Year Warranty*
- 10.2 - Your Statutory Rights*
- 10.3 - Returns - Change of Mind (14-Day Right to Cancel)*
- 10.4 - Contact & Return Address*

- APPENDIX A - Revision History

- APPENDIX B - Regulatory & Compliance

- ABOUT BDH

01.

**PRODUCT
OVERVIEW**



1.1 INTRODUCTION

The BDH Active Shifter is a high-fidelity, motorised H-pattern gearbox designed for serious sim racers who demand the most authentic driving experience possible. Unlike passive shifters, the Active Shifter delivers configurable shift resistance and real-time mechanical detent feedback, creating a tactile connection between driver and simulation that mirrors the feel of a genuine gearbox.

Hand-built and individually tested by BDH Race Sim before shipping, the unit is engineered for long-term reliability on your simulator rig – whether you are competing in endurance events or perfecting lap times across a wide range of supported racing titles. Compatible with leading simulation software via the SimHub plugin, the Active Shifter gives you full control over shift feel, gate configuration, and gear mapping to suit every car and every race.

1.2 KEY FEATURES

- Programmable feedback via SimHub companion plugin
- H-pattern with up to 7-speed gate configuration
- Motorised resistance with real-time configurable feedback
- Mechanical detent strength adjustable via thumbwheel
- CNC-machined aluminium body with steel internals
- Universal aluminium profile rig mounting system
- USB-C connectivity – no additional drivers required
- 24V external power supply for consistent actuator performance
- Firmware upgradeable via USB on Windows
- M10 x 1.5 mm gear knob thread – compatible with most aftermarket knobs

1.3 COMPATIBLE PLATFORMS & TITLES

Compatible OS	Windows 10 and above
Sim Titles Tested	Assetto Corsa, iRacing, rFactor 2, Assetto Corsa Competizione, Le Mans Ultimate, AC EVO, AC Rally, Dirt Rally 2, AMS 2
Console Support	PC Only

SAFETY NOTICE



The firmware does not currently support Truck Sims. Using the shifter with Truck Sims WILL cause damage and will be not covered under warranty. Please visit www.bdhacesim.com for updates.



**No HGV
beyond
this point**

02.

IN THE BOX

ITEM	QTY	PART NUMBER
ACTIVE SHIFTER UNIT	1	BDH-AS-001
USB Cable (Type-A to Type-C, 2m)	1	BDH-AS-USB
Mounting Hardware Kit	1	BDH-Universal-Fitting-Kit
Gear Stick	1	BDH-Universal-Gear-Stick
Power Supply - Meanwell 24V Desktop	1	BDH-AS-Meanwell-24V-Desktop
Quick Start Guide	1	BDH-AS-Manual
Active Gift Pack	1	BDH-AS-Gift Pack



Tools required (Not supplied)

10mm Spanner

13mm Spanner

19mm Spanner

TECHNICAL SPECIFICATIONS

03.

3.1 PHYSICAL

<i>Dimensions (L x W x H)</i>	<i>180 mm x 80 mm x 120 mm</i>
<i>Weight</i>	<i>6.5Kg</i>
<i>Shift Throw Distance</i>	<i>55mm (Measured at centre of knob)</i>
<i>Shift Gates</i>	<i>7-speed H-pattern</i>
<i>Body Material</i>	<i>CNC Aluminium / Steel internals</i>
<i>Knob Thread</i>	<i>M10 x 1.5mm</i>

3.2 ELECTRICAL & PERFORMANCE

<i>Interface</i>	<i>USB-C / USB-A</i>
<i>Power Supply</i>	<i>24V DC — Meanwell desktop PSU (included)</i>
<i>Firmware Upgradeable</i>	<i>Yes — via USB on Windows</i>

3.3 MOUNTING

<i>Bolt Pattern</i>	<i>Please refer to base plate dimension diagram in Section 4</i>
<i>Rig Profile Compatibility</i>	<i>40 mm / 80 mm aluminium extrusion</i>

04.

INSTALLATION & MOUNTING



SAFETY NOTICE

Ensure the rig is powered off and the power supply is disconnected before mounting the shifter.

Do not overtighten fasteners – follow the torque guidance in this section.

Do not lift or pull the gear stick vertically, as this may damage the internal mechanism.

4.1 UNPACKING

The shifter is heavy – take care when removing it from the packaging. Each unit is hand-built and individually tested by BDH before boxing. Carefully remove the shifter unit from the packaging and place it on a stable surface.

Remove the gear stick, knob, mounting nuts, bolts, washers, and USB cable, and set the packaging aside.

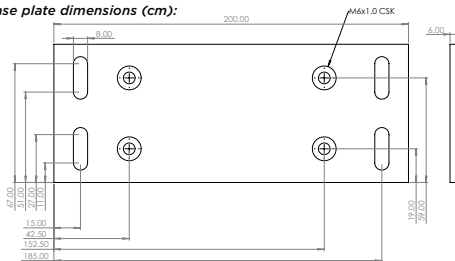
Verify all items against the Package Contents list in Section 2.

4.2 MOUNTING TO YOUR RIG

The shifter mounts directly to aluminium profile extrusion. BDH can supply a dedicated mounting plate for rigs that require one – sold separately.

The recommended orientation is with the gear stick end facing towards your seat and the body of the unit facing away.

Base plate dimensions (cm):



- *Insert T-nuts into the appropriate slots in your aluminium profile.*
- *Position the shifter so that the holes in the base align with the T-nuts.*
- *Insert the bolts with washers through the base and into the T-nuts.*
- *Fasten down using a 13 mm spanner. Do not overtighten.*
- *Adjust the position as desired by loosening, repositioning, and re-tightening.*

INSTALLATION & MOUNTING

04.

4.3 ATTACHING THE GEARSTICK & KNOB

- Fitting the gear stick:

- *Hand-tighten the gear stick into the lower gear housing until snug. Do not over-tighten by hand.*
- *Use the 19 mm spanner to hold the lower gear stick part steady and the 10 mm spanner on the flats of the upper gear stick to tighten.*
- **IMPORTANT:** *Do not allow the lower gear stick part to rotate. Twisting it may damage internal components.*

- Fitting or changing the gear knob:

- *Place the shifter in neutral and apply light tension with the thumbwheel so the gear stick sits upright.*
- *The knob uses an M10 x 1.5 mm thread, compatible with most aftermarket gear knobs.*
- *To remove the knob, brace the gear stick using the 10 mm spanner and unscrew the knob by hand.*
- *Reverse this process to attach a new knob. Ensure the gear stick does not rotate during this process.*



SAFETY NOTICE

Any gear knob with a mass exceeding 250g will void the product warranty. Contact BDH before fitting any non-standard knob if you are unsure.

4.4 TENSIONER ADJUSTMENT

The thumbwheel adjusts the spring pressure in the detent mechanism. It screws into the protruding cylinder on the body of the shifter.

- *Turning the thumbwheel clockwise increases resistance — a heavier, more mechanical feel.*
- *Turning anti-clockwise reduces resistance for a lighter shift action.*



NOTE

Set the tension to a level that feels natural and comfortable — similar to what you would expect in a real car. Prolonged use at extremely high tension settings will cause accelerated wear on internal components and may constitute improper use under the warranty terms. See Section 10 for full warranty information.

04.

INSTALLATION & MOUNTING

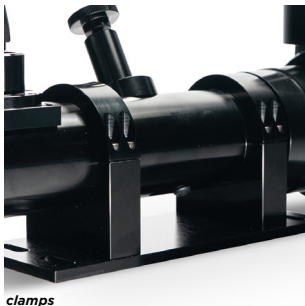
4.5 SIDE MOUNTING

The shifter can be side-mounted to either the left or right side of your rig. To configure for side mounting:

- *Remove the Top Clamps using a 3 mm Allen key.*
- *Remove the Anti-Rotation Bobbin using a 2.5 mm Allen key.*
- *Rotate the shifter 90° on its stand.*
- *Re-attach the Anti-Rotation Bobbin in the uppermost exposed hole and refit the Top Clamps.*
- *Mount to the right side of your rig in forward orientation, or to the left side in reverse orientation.*

4.6 CABLE MANAGEMENT

The USB-C port and 24V power jack are both located at the rear end of the shifter unit. Route all cables away from the gear stick and any moving parts to prevent snagging during use.



clamps



ports

SOFTWARE & CONFIGURATION

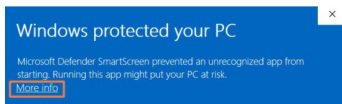
05.

5.1 DRIVER & SOFTWARE INSTALLATION

The BDH Active Shifter works with SimHub, the industry standard software for integrating Sim Racing peripherals.

Installation steps:

1. Install SimHub if you don't have it already: simhubdash.com
2. Download BDH Active Shifter software: sw.bdhrcasesim.com
3. Inside you will find a .zip file. Open it to find a .msi file inside. Open the .msi file to start the installation.
4. Windows Defender may complain with this SmartScreen prompt:

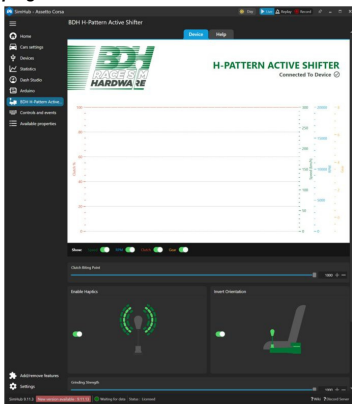


5. In order to proceed, click on "More Info". check the publisher is BDH RACE SIM HARDWARE LTD, as illustrated below:



6. If the publisher is correct, click "Run Anyway" to proceed with the installation.

7. *SimHub will be stopped and restarted afterwards*
8. *When complete, you can open SimHub again. You should see the BDH Race Sim plugin in the list on the left*



5.2 OPERATING MODES

The Active Shifter supports H-pattern mode. Select the appropriate gear gate configuration using the on-shifter display menu. See Section 7 – Gear Mapping Guide for all available patterns.

MODE	DESCRIPTION	RECOMMENDED FOR
<i>H-Pattern</i>	<i>Configurable H-pattern gate – 3, 4, 5, 6, or 7-speed layouts with reverse position options</i>	<i>GT, Road, Classic, Rally cars</i>

05.

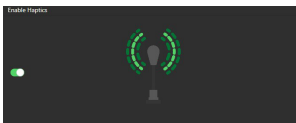
SOFTWARE & CONFIGURATION

5.3 FORCE & FEEL CONFIGURATION

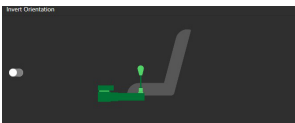
The following parameters are adjustable via the SimHub plugin. Use the sliders in the BDH plugin panel to tune the feel to your preference.

PARAMETER	DEFAULT	RANGE	DESCRIPTION
<i>Clutch Biting Point</i>	1000	0-1000	<i>Master slider to set clutch engagement effects. (Currently in further development)</i>
<i>Grinding Strength</i>	1000	0-1000	<i>Master slider to set the vibrating/grinding effect when trying to engage gear without depressing the clutch</i>
<i>Retention Strength</i>	1000	0-1000	<i>Master slider to set the strength at which the motor will hold the stick in gear whilst under torque</i>
<i>Unengaged RPM Strength</i>	1000	0-1000	<i>Master slider to set the stick vibration when in neutral</i>
<i>Engaged RPM Strength</i>	1000	0-1000	<i>Master slider to set the stick vibration when in gear</i>

FURTHER OPTIONS



ENABLE HAPTICS - ON / OFF



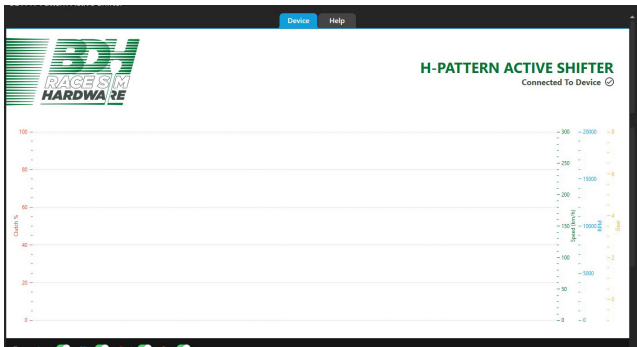
INVERT ORIENTATION - F-B / B-A

SOFTWARE & CONFIGURATION

05.

TELEMETRY WINDOW

In SimHub you can monitor in-game telemetry showing speed, RPM, clutch use and gear engagement. These can be toggled on and off below the telemetry window



5.4 FIRMWARE UPDATES

- *Check the BDH website for firmware update announcements.*
- *Connect the shifter via USB to a Windows PC and follow the on-screen instructions provided with the update package.*

6.1 DISPLAY MENU REFERENCE

The shifter features an on-unit display for configuration. The menu options are as follows:

MENU ITEM	FUNCTION
EFFECTS	<i>Set the haptic parameters to your desired level</i>
PATTERNS	<i>Select the H-pattern gate configuration – see Gear Mapping Guide (Section 7)</i>
ROTATION	<i>Set the display orientation to match your preferred mounting position</i>
TRACE	<i>Map the coordinates of the gearstick position</i>
CALIBRATE	<i>Run the gear calibration routine</i>
RESET	<i>Reset the Active Shifter to factory defaults</i>
HELP	<i>Displays a QR code linking to the BDH support website</i>

6.2 FIRST TIME SETUP - GETTING STARTED

- *Mount the shifter to your rig as described in Section 4.*
- *Connect the power supply to the 24V jack at the rear of the unit.*
- *Connect the USB cable from the shifter to your PC.*
- *Switch on the power supply and power on your PC.*
- *Ensure SimHub is installed and your chosen sim title is on the PC.*
- *Download and install the BDH SimHub Plugin as described in Section 5.1.*
- *The shifter is supplied pre-calibrated. You must now map it within your sim title – use the 7-speed gate pattern during mapping to ensure all positions are registered, including reverse.*
- *Select your preferred gear pattern on the shifter using the PATTERNS menu.*
- *Launch your sim title and begin driving.*

6.3 NAVIGATING THE MENU SYSTEM

Navigating the menu system on your BDH Active shifter is quick and simple and is done using the control knob located on top of the screen. There is a variation of short press and long press commands.

- *Short Press - Select / Deselect*
- *Long press + Release - Main menu*
- *Rotation - Scroll through menu options*



NOTE

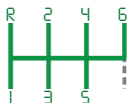
As part of our ongoing development, button navigations may change. Any changes will be documented and explained in future updates or downloads from our website.

07.

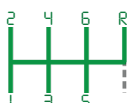
GEAR MAPPING GUIDE

The BDH Active Shifter has many H-pattern configurations from 3 speed to 7 speed. Below is a small sample. Select your layout using the PATTERNS option in the on-unit display menu. The shifter supports precision-configurable shift layouts for simulation and motorsport applications.

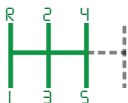
6-SPEED + REVERSE



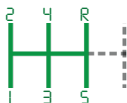
6-SPEED + REVERSE



5-SPEED DOGLEG + REVERSE



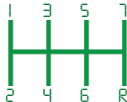
5-SPEED DOGLEG + REVERSE



4-SPEED + REVERSE



7-SPEED - LAYOUT



----- Gate blocked by motor

IMPORTANT NOTE

When mapping the shifter in your sim title for the first time, always use the 7-speed gate pattern regardless of the in-game car you are driving, ensuring to map reverse gear. This ensures every gate position is correctly registered. Following this initial set-up, you can then switch to your preferred pattern in game using the shifter's built in patterns menu.

TROUBLE SHOOTING

08.

For up-to-date troubleshooting guidance, FAQs, and video tutorials, please visit the BDH support pages at bdhracesim.com.

SYMPTOM	SUGGESTED ACTION
<i>Shifter not recognised by PC</i>	<i>Check USB cable connection and try a different USB port. Ensure the power supply is connected and switched on.</i>
<i>Plugin not appearing in SimHub</i>	<i>Confirm the .dll file is in the correct SimHub directory (Program Files (x86)/SimHub) and that SimHub has been restarted.</i>
<i>Gears not registering correctly in-game</i>	<i>Re-map the shifter using the 7-speed gate pattern as in the gear mapping guide, then switch to your preferred pattern. RE-CALIBRATE from the on-unit menu if problems persist.</i>
<i>Shift feel is too light or too heavy</i>	<i>Check and adjust the tensioner thumbwheel on the unit.</i>
<i>Display not turning on</i>	<i>Check the supplied USB cable is connected and shows no damage. Try a different USB cable.</i>
<i>Gear stick feels rough or stiff</i>	<i>Check lubrication — see Section 9. Reduce the tensioner setting and check for any loose bolts.</i>

09.

MAINTENANCE & CARE

The BDH Active Shifter is built for precision and durability, but like any precision mechanical component it will benefit from regular care. The following guidance will help maintain performance and extend the service life of your unit.

9.1 CLEANING

- Regularly dust and clean the exterior of the shifter using a clean, lint-free cloth.
- Do not use solvents, abrasive cleaners, or water directly on the unit.

9.2 LUBRICATION

The shifter is supplied pre-lubricated. The only area that may require user lubrication is the ball joint at the top of the lower gear stick housing.

- If the ball joint feels rough, dry, or more than one year has passed since the last lubrication under regular use, apply a small amount (approximately half a pea-sized amount) of lithium-based grease to the top of the ball joint.
- Cycle through all gears several times to distribute the grease evenly.
- Do not over-lubricate — excess grease can attract dirt and degrade performance.

9.3 FASTENER CHECKS

- Periodically re-tighten all mounting bolts on your rig, including those securing the shifter to the aluminium profile.
- Check the gear stick attachment bolts and re-tighten if any play is detected.

9.4 SERVICE INTERVALS

<i>After each session</i>	<i>Quick visual check — no loose parts, cables away from moving areas</i>
<i>Monthly</i>	<i>Wipe down exterior, check all mounting bolts</i>
<i>Every 6-12 months</i>	<i>Check ball joint lubrication, inspect internals for wear or debris</i>

WARRANTY & SUPPORT

10.

10.1 BDH ACTIVE - 2 YEAR WARRANTY

BDH RACE SIM HARDWARE LTD guarantees the BDH Active Shifter against defects in materials or workmanship for two (2) years from the date of original purchase, under normal use. This warranty is non-transferable and applies only to products purchased directly from BDH or an authorised retailer.

This warranty is offered in addition to, and does not affect, your statutory legal rights as a consumer under the Consumer Rights Act 2015.

WHAT IS COVERED

- *Defects in materials or workmanship that arise under normal use within 2 years of the original purchase date.*

WHAT IS NOT COVERED

- *Damage resulting from improper use, abuse, neglect, accidents, or unauthorised modifications.*
- *Repairs or alterations carried out by anyone other than an authorised BDH workshop — any such action will void the warranty immediately.*
- *Firmware or software issues caused by user modifications or third-party interference.*
- *Damage from power surges, improper voltage, or electrical issues not caused by BDH-supplied components.*
- *Cosmetic damage, including scratches, dents, and fading.*
- *Damage from extreme applications, such as commercial misuse or exposure to conditions beyond the product's specified limits.*
- *The costs of shipping and any associated taxes for sending the product to and from our workshop — these costs are the customer's responsibility.*

HOW TO MAKE A WARRANTY CLAIM

- Contact BDH Race Sim at info@bdhracesim.com before returning any item. Do not return without prior authorisation.
- Provide a valid proof of purchase (e.g. receipt or order confirmation) showing the original purchase date.
- Provide your order number and a clear description of the issue, with photographs where possible.
- If authorised, send the product to our trading address for evaluation — see Section 10.4.
- If the claim is found to be eligible, BDH will, at its sole discretion, repair, replace, or refund the product. If a claim is deemed ineligible, the product will be returned to you at your expense.

NOTE

BDH Race Sim reserves the right to repair, replace with an equivalent product, or issue a refund at its sole discretion. This warranty does not cover any incidental or consequential damages

10.2 YOUR STATUTORY RIGHTS

Your statutory rights under the Consumer Rights Act 2015 apply in addition to this warranty and are not affected by it. Under the Act, goods must be of satisfactory quality, fit for purpose, and as described. If your product is faulty, you have the following tiered rights:

MODE	DESCRIPTION	RECOMMENDED FOR
0 - 30 days	Short-term right to reject	Full refund if the goods are faulty — no repair attempt required
30 days - 6 months	Repair or replacement	BDH must be given one opportunity to repair or replace the item. Any fault within this period is presumed to have existed at the time of purchase unless BDH can prove otherwise.
After 6 months	Final right to reject	If repair or replacement fails or is not possible, you are entitled to a price reduction or refund (which may be reduced to reflect use of the product).

WARRANTY & SUPPORT

10.

10.3 RETURNS - CHANGE OF MIND (14 DAY RIGHT TO CANCEL)

Under the Consumer Contracts Regulations 2013, you have the right to cancel your order within 14 days of receiving your goods without giving any reason.

- To cancel, email info@bdhracesim.com with your name and order number within 14 days of receiving the goods.
- Goods must be returned to our trading address (see Section 10.4) within 14 days of notifying us of cancellation.
- To receive a full refund, items must be returned unused, in their original packaging, and in an 'as new' saleable condition, with all accessories and manuals included.
- You are responsible for the direct cost of return postage. We strongly recommend using a tracked and insured service.
- Installation or mounting of the product to a sim rig – or any use beyond what is needed to inspect the item – may be considered use that diminishes its value. In such cases, a reasonable deduction may be made from the refund.
- Refunds will be processed within 14 days of us receiving the returned goods, using the same payment method as the original transaction.

10.4 CONTACT & RETURNS ADDRESS

Company	BDH RACE SIM HARDWARE LTD
Company No.	14563225 (England and Wales)
VAT No.	436 2015 27
Email	info@bdhracesim.com
Website	bdhracesim.com
Trading Address	Unit 2, Helmsley Way, Broadhelm Business Park, Pocklington, York, YO42 1AE
Registered Office	50 The Village, Stockton On The Forest, York, YO32 9UQ (legal correspondence only – do not send returns here)

NOTE

For all returns and warranty claims, please use the Trading Address above. The Registered Office is for formal legal correspondence only.

APPENDIX

APPENDIX A - REVISION HISTORY

VERSION	DATE	AUTHOR	NOTES
v1.0	2026	BDH Race Sim	Initial release

APPENDIX B - REGULATORY & COMPLIANCE



ABOUT BDH



WHERE BDH STARTED

The story of BDH Race Sim Hardware began when founder Dave, an avid sim racer, was challenged by a friend to build a high-quality shifter during the COVID-19 lockdown. Using his skills and experience in motorsports, Dave set out to create a shifter that would replicate the feel of a short-throw, close-ratio dog box from a Ford Escort rally car. This image shows his initial proof of concept.

OUR PASSION

At BDH Race Sim Hardware, our love for motorsports and sim racing is at the core of everything we do. As a team of dedicated enthusiasts, we understand the thrill of the perfect lap and the satisfaction of a well-executed shift. It's this passion that drives us to create products that not only meet but exceed the expectations of the sim racing community.

We are not just a company - we are a group of friends and family who share a common goal: to bring the authentic racing experience to the virtual world.

COMMITMENT TO QUALITY

From the first "Bazooka" shifter built by Dave, we've believed that sim racing hardware should be built to last. This philosophy guides every product we create. We select premium materials and meticulously design our products to withstand intense racing sessions.

But durability is just the start. We strive to replicate the authentic feel of a real race car, whether it's a modern GT machine or a classic rally legend. This pursuit of realism sets BDH Race Sim Hardware apart.

We constantly refine our designs based on community feedback. Your input is invaluable as we push the boundaries of what's possible in sim racing hardware. Together, we're creating products that bring you closer to the real racing experience, one shift at a time.





BDH Race Sim Hardware is a family-owned business that combines a passion for motorsports with a dedication to creating the most realistic simulation experiences for racing enthusiasts worldwide. With a deep-rooted background in rallying and circuit racing, the BDH team brings years of experience and expertise to the world of sim racing.



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