

LT 230 RATIOS

LT230 Transfer Box Ratio Options – Winchester Gears

The LT230 transfer box was offered in a variety of gear ratios to suit different driving conditions, vehicle setups, and performance requirements. At Winchester Gears, we offer a full range of these ratios—both original Land Rover specifications and performance aftermarket options—allowing you to tailor your drivetrain for your specific application.

Available Ratios from Winchester Gears:

- **1.6:1** – Land Rover factory ratio
- **1.4:1** – Land Rover factory ratio
- **1.3:1** – Ashcroft performance ratio
- **1.2:1** – Land Rover factory ratio (commonly used in Discovery models)
- **1.1:1** – Ashcroft performance ratio
- **1.003:1** – Land Rover factory ratio (rare, used in Range Rover P38 manual models)
- **0.9:1** – Ashcroft custom ratio, **special application only**

Ratio Origins:

- **Land Rover OEM Ratios:** 1.6, 1.4, 1.2, and 1.003
- **Ashcroft Special Ratios:** 1.3, 1.1, and 0.9

Ashcroft Transmissions developed the intermediate ratios (1.3 and 1.1) and the ultra-high 0.9 ratio to provide more flexibility for custom builds, particularly where engine and gearbox swaps or significant changes to tire size have been made.

How to Choose the Right Ratio

Selecting the correct LT230 transfer box ratio is critical to the overall performance and usability of your Land Rover. While a **like-for-like replacement** is the easiest path, other ratios may be more suitable depending on your build goals. Key factors to consider include:

- **RPM Reduction for Highway Use:**

Lower ratios (numerically lower, like 1.1 or 1.003) reduce engine RPMs at cruising speeds, ideal for highway driving, fuel efficiency, and quieter operation—especially when combined with larger tires or higher-powered engines.

- **Off-Road and Towing Performance:**

Higher ratios (like 1.6 or 1.4) provide more torque multiplication at the wheels, giving you better low-speed control and pulling power—particularly useful for trail driving or heavy towing.

- **Larger Tire Fitment:**

If you've upgraded to larger wheels and tires, a lower ratio (e.g., 1.4 or 1.6 can help offset the effective gearing loss and restore drivability.

- **Engine & Gearbox Swaps:**

Swapping to a different engine or gearbox—especially high-revving petrol or powerful diesel units—often requires a different transfer box ratio to optimize the usable powerband and cruising comfort.

To help make this decision easier, **Winchester Gears provides an online Ratio Calculator** that allows you to input your current setup (tyre size, engine, gearbox) and see how different LT230 ratios will affect your RPM at given speeds.

Special Note on the 0.9 Ratio

The **0.9:1 ratio** LT230 is an ultra-high gearing option, intended **only for highly specialized builds**. It was developed for Land Rovers fitted with **Cummins diesel engines and ZF automatic gearboxes**, where the abundance of torque and tall gearbox ratios require extremely low transfer box reduction. This setup is not compatible with standard Land Rover engine and transmission configurations.

If you are interested in this ratio or believe your setup may benefit from it, **please contact Winchester Gears directly via email** to discuss suitability and technical compatibility.