

Landrover
D3/D4/RRS L320

2-way and 3-Way Shortened Height Sensor rods

Green Oval Experience (G.O.E.) accepts no responsibility for injury or damage due to fitment or use of this product. Moreover, it is highly likely that use of this product may void parts of your vehicle warranty, and it will compromise your vehicle's on-road handling. Although many users throughout the world have used this type of product over thousands of kilometres without incident, G.O.E. cannot recommend use of these rods for on-road travel (ie bitumen or gazetted road travel) or for extended periods, and use of this product is entirely at the purchaser's discretion and risk.



Product Description

The GOE height sensor rods are designed to replace the original rods. Each rod provides either 2 or 3 height ranges (see below for details): standard, +50mm (and +65mm for the 3ways). The rods are laser-cut from reinforced rubber for accuracy and are impervious to rot, rust or other environmental conditions. *These rods can be adjusted in-situ – there is no need for any removal!*

1 Identifying the rod parts

Using Figure 1 as a guide, identify the various positions and the guide rubber

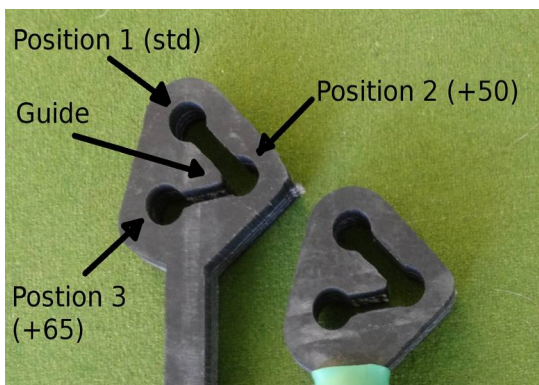
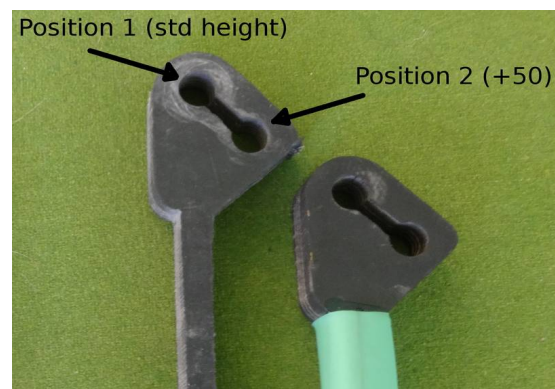


Figure 1 a) 3way rod positions.



b) 2way rod positions

2 Initial Fitting Instructions

To initially install the new rods, it is easier to remove the relevant wheel to do the fitting. Once you are familiar with the positions of the various items, they can be re-fitted without taking off the wheel. However, **WE STRONGLY RECOMMEND** that you still place a jack under the nearest chassis point to each wheel to prevent the vehicle lowering if you accidentally move the sensor arm. Alternatively, you can pull the fuses for the EAS (within the battery compartment) or disconnect the battery, disabling the system.

NOTE: The shorter pair of the new rods are for the front, the longer pair are for the back. There is no difference between the driver-side and passenger-side rods.

1. Set the car to “off-road” height – switch off the engine.
2. Jack up the vehicle and remove the front passenger wheel.
3. Locate the sensor rod and arm. See Figure 2.
4. Identify the chassis peg – see Figure 2.
5. Spray some dry lube or apply lithium grease onto the top and bottom of the original rod.
6. Remove the original rod by pulling the top of the rod from the chassis peg, quickly pushing the sensor arm down until it is vertical to the ground, and then carefully separating it from the sensor arm. Be careful not to bend the sensor arm whilst removing the rod. A small flat-blade screwdriver may help if the rod is over-tight, but be careful not to tear the rubber¹.
7. Attach the new rod (Figures 3, 4) – the shorter ones are for the front:
 - For the D3 and D4: the multi-headed end is attached to the chassis peg, the single to the sensor arm (for both front AND back). For normal use, use position 1 of the multi-headed holes - see Figures 1 & 2 for component locations.
 - For the RRS L320: the rear rods fit the same as the D3 and D4 (Figures 3, 4), BUT the front rods are reversed, ie the multi-headed end attaches to the sensor arm.

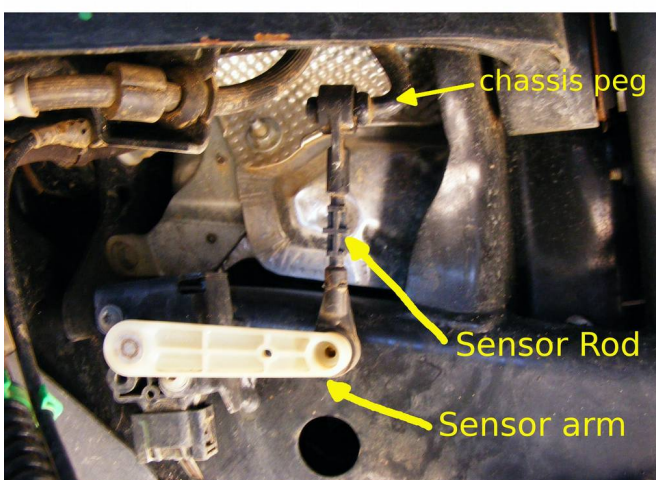


Figure 2a: Front standard setup

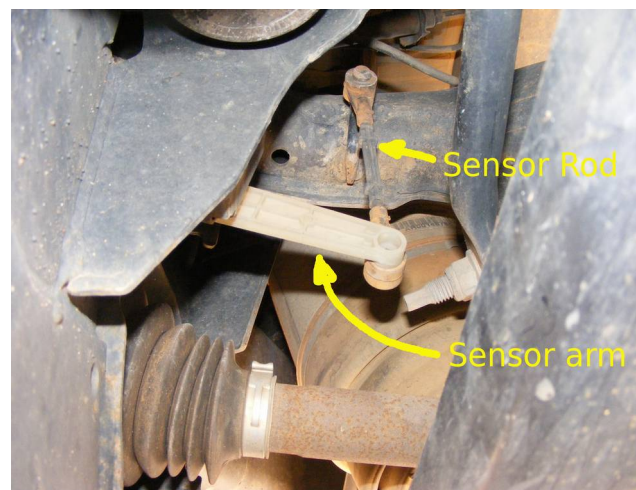


Figure 2b: rear standard setup

¹ While you have the original rods off, you can open up the holes a little to make swapping the rods a little easier. A 9.5mm drill bit will open it up sufficiently, whilst still giving a snug fit.

Repeat the above procedure for each wheel.

3 Regular Swap-over

Once fitted, the procedure for swapping between the ride heights is relatively straight-forward and with practice, can be accomplished within a matter of seconds.

NOTE: ALWAYS HAVE THE CAR IN OFF-ROAD HEIGHT WHEN ADJUSTING THE RODS!! *Your vehicle will actively try to adjust the suspension height approximately 3sec after you move the top connection of the rod. This could result in injury if any part of your body is still under the vehicle. With practice it is possible to swap over the connection in a matter of seconds and not trigger any movement of the car, however we strongly recommend placing the Land Rover jack under the chassis rail (just touching the rail) near each wheel when swapping over. Alternatively you can remove the EAS fuse or disconnect the battery.*

1. Set the vehicle to “off-road” height - switch off the engine.
2. Disable the EAS or place a jack under the nearest chassis rail.
3. Simply ease the multi-position head into the required position. NOTE: for changing from Position 2 to Position 3 (3way rods only), you may need to gently push the guide rubber to one side. For the front wheels, access is easier if the wheels are turned to full lock. For the rear, it can be done from over the top of the wheel in the wheel arch. However – **remember** – *the vehicle will attempt to re-adjust the height after around 3 seconds!*

4 New Heights

Typically, you will only swap over to the shortened settings when the terrain requires it, following the procedure above for “regular swap-over”. The two (or three) settings are (refer to Figure 1):

1. Position 1: standard heights – for normal day-to-day driving and light off-roading
2. Position 2: +50mm – for serious off-roading eg rock-climbing, or for high-speed sand travel at standard off-road height.
3. Position 3: +65mm – for emergency recovery or short (walking pace) travel where it is likely the car could become grounded. To conserve the drive train, when at off-road setting do not travel significant distances or use excess power. You may experience a “sensor out of range” warning on this setting when the wheels reach maximum articulation. This will not cause any other fault or lower the car, and will reset on a restart. Please also note Point 6 in Section 5, below.

You will find that the new settings are as follows (minimum ground clearance figures in brackets):

Rod Position	User Selects access	User Selects on-road	User Selects off-road
<i>Position 1</i>	Normal access (140mm)	Normal on-road (180mm)	Normal off-road (240mm)
<i>Position 2</i>	Normal on-road (180mm)	Normal off-road (240mm)	Above off-road (290mm)
<i>Position 3</i>	Above on-road (195mm)	Above off-road (260)	Above off-road (305mm)

Heights are approximate and will vary with vehicle calibration and rim/tyre combination.

Remember that the combination of Position 3 off-road height (red cell in table) is for **short-term emergency use only!**

When using the off-road heights, try to avoid applying significant power when on full lock, especially when in reverse, as this will increase wear to the front outer CV joints and the chance of breakage. ***In fact this advise should be followed regardless of which rods or positions are selected.***

Re-fitting the original rods can be done in a matter of minutes, to return the vehicle to standard condition. We recommend that you keep the original rods in your glovebox, so that this can be done whenever required. Keeping a small can of dry-lube spray onboard is also recommended.

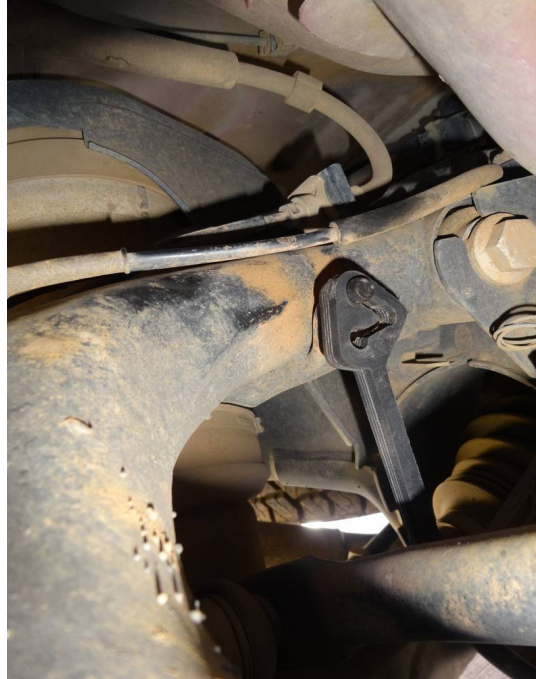


Figure 3: Rear set up (same for all vehicles)



Figure 4: Swapping fronts to new position. Note front set-up for RRS is shown (D4 is reversed)

5 Tips On selecting Heights

When running with the rods on the extra height setting, keep the following in mind:

1. Most of your desert off-road travel can be done at your new “standard height” on Position 2, which is of course, equivalent to your old off-road height. You can now travel at this height and comfortably exceed the old 50kph limit. However, please be aware that stability of the vehicle will be decreased at high speed and you may trigger DSC intervention if you attempt high-speed cornering.
2. Only select the new off-road heights when actually required to negotiate an obstacle that you might otherwise ground the car on, and proceed slowly (walking pace is advised – and note that the 50kph limit will now be back in effect). Firstly, this will reduce wear and tear on drive components, but more importantly, when the car is this high, you will have reduced wheel articulation and a much harsher ride. The car may “bounce” more easily and lose it's line.
3. Be aware that every time you change the Terrain Response setting, the car will attempt to raise to off-road height. Bearing point 2 above in mind, if you don't actually need this height, you can immediately override the height adjustment by selecting “normal” height with the EAS switch.
4. The air compressor has a thermal cut-out protection scheme – repeated varying of the heights may trigger this and you will have to switch off and wait 5 ~ 10 minutes for the compressor to cool.
5. Remember to apply power cautiously when reversing with full lock – the front outer CV joints are under maximum stress during this manoeuvre.
6. For the 3way rods, in “Position 3” at off-road height, the upper control arms of the front suspension can come into contact with the spring air-bag's shell. This is fine for occasional use, as it only rubs slightly, but long continuous use, especially at speed, can possibly wear a hole through the outer skin and damage the air-bag. So please pay regard to Point 2 above!