



# Commonly asked 4x4 questions

## The LVVTA Tech Team spends a lot of time answering questions, whether by phone, email, or through social media.

As trends change, so do the types of questions that come through. While some years ago adjustable suspension was a hot topic, it is now more likely to be raised suspension.

We covered wheel-arch flares and tread protrusion in the April 2020 *Radiator* magazine. Here are some other common questions on raising 4x4 vehicles:

### How high can a 4x4 be raised?

This is a very tricky question to answer, simply because there are so many modification possibilities, each of which may have a different impact on how the vehicle rides or handles.

Essentially there is no set maximum figure, but the LVV Certifier will inspect and assess the vehicle and components fitted as a whole.

Lifting a 30-year-old 4WD with a live axle is quite different from lifting a modern version with complex independent suspension. The LVV Certifier will look at a large number of features, including, but not limited to, the type of suspension and how it was raised, any effects on the geometry, suspension or steering arm components, ball joint spacers, steering, tyres, and a body lift kit, as well as other parts that may have been fitted.

Once inspected, it may be necessary for LVVTA to perform a basic rollover calculation, based on height measurements at various points on the vehicle. This is required if a vehicle has been lifted more than 50mm in any one or more of three areas: suspension, tyres, and body.

Theoretically, the rollover calculation indicates how likely the vehicle is to tip over due to a rise in the centre of gravity when compared with the same unmodified model. The calculations allow for the fact that some vehicles are inherently more stable than others, and a vehicle with a poor starting point (such as a narrow wheel track) will have less potential for an increase in height.

Assuming the inspections and calculations indicate the vehicle is suitable for lifting, the final and most important check is the road test. If the LVV Certifier drives the vehicle around the block and goes white with fear, it is not going to pass.

One item that can be overlooked is that the mudguards/mudflaps must be no less effective than OE.

Ultimately, the vehicle will need to be modified in a tradesman-like manner to any applicable standards and handle as well as it did when first manufacture, to have a chance of passing.



## How can I raise my 4x4 without the need for LVV certification?

Subject to WoF requirements, the following are some of the most commonly acceptable methods for raising a 4x4:

- leaf spring suspension raising blocks up to 50mm;
- replacement spring and shock kits, which are available for many common makes and models;
- increasing tyre overall diameter up to the 5 percent threshold (some vehicles could fit 31" off-road tyres and stay within the threshold);
- torsion bar adjustment.

### LVV certification is required for:

- extended leaf spring shackle.
- spacers on coil springs or suspension struts
- ball joint spacers or extended ball joints
- an increase in tyre size over the 5 percent threshold (any vehicle with 33" tyres will most likely exceed the threshold)
- any type of body lift.

## Do suspension load-assist airbag kits need LVV certification?

Yes in all cases, including off-the-shelf kits for specific makes and models. Issues we have identified include removal of the factory bump stop without replacement, and attachment to an area of the vehicle that is unsuitable to take the load.



Common issues with raised suspension are binding joints and components fouling.



Damage to wheel arch liners can indicate the tyre size has been increased.



Strut spacers and extended ball joints both need to be LVV certified.

## Does sway-bar removal need LVV certification?

Yes. While having no sway-bar is great for off-road suspension articulation, it can be a dangerous modification on road, so any removal or downrating of a sway-bar must be assessed.

For more information or any questions on raised vehicles, please contact a member of the LVVTA technical team: [tech@lvvta.org.nz](mailto:tech@lvvta.org.nz).