

LR DEFENDER 6X6 HC

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The Land Rover 6x6 HC Tandem Walking Beam suspension consists of a heavy duty tandem axle that can be installed on to a donor 110 or 130 chassis, converting the rear axle into a powered tandem axle walking beam suspension.

The Land Rover 6x6 HC provides a tried and tested system enhanced to provide:

- Vastly improved vehicle stability and enhanced off road capability.
- 3000Kg load capability.
- Permanent 6 wheel drive.
- Due to the long history and rich product enhancements available for the Land Rover Defender this solution provides a cost effective solution without compromise.

Vehicle Handling and operation:

- Improved mobility, particularly over rocks, and other very rough terrain, by reducing the vehicle wheel base.
- Dramatic improvement of slope climbing ability.
- Improved vehicle angle of departure.
- One and a half times increased payload capacity.
- Improved vehicle stability and braking ability.
- Increase of existing vehicle end of life program.
- Half-track capability by the fitting of over tracks.

When crossing any obstacle in high speed driving, the movement falls mainly on the walking beam, and the body of the vehicle absorbs only half of the movement, which definitely improves the quality of the ride.

When the rear of the vehicle becomes airborne, the rear spring and shock absorber push down the rear wheel and the landing is first on the rear wheel, then on the middle one. Finally, the trailing arm is pushed up, supported by both shock absorbers, making the landing quite soft— providing good ride quality. It should be noted that the fitting of the walking beam axle does not alter the vehicle's standard turning circle.



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System Design

The installation of the TWB system does not affect the front of the vehicle. No associated upgrades are required to the engine, transmission or front suspension systems. The front cabin area and seating also remain unaffected.

The principal elements of the 6x6 suspension upgrade are described as follows:

Sub-frame

A fabricated support structure mounted to the existing Land Rover chassis frame. The Sub-frame incorporates the required structural support and attachment points for the shock assemblies and trailing arm.

Trailing arm

The chassis pivot of the trailing arm is mounted to the sub-frame. The trailing arm sweeps in a planar arc about the pivot point, articulating the entire walking beam subassembly. The pivot is located directly behind the driver and front passenger's seats. The other end of the trailing arm is mounted to the walking beam sub-assembly.

Walking beam sub-assembly

The walking beam sub-assembly is mounted to trailing arm about a hinge position located midway between the pair of rear wheels. The "see-saw" action of the walking beam enables the load at the wheels to be evenly distributed and so facilitate an optimal transmission of wheel torque to the ground. Drive to the walking beam is transferred from the rear limited slip diff via a heavy duty drive-shaft. The walking beam wheel pair operate in unison, being driven by a common drive chain within the walking beam housing.

Spring/shock assemblies

The articulation of each walking beam assembly is managed with a shock absorber assembly. One end of the shock absorber is mounted to the walking beam, the other to the trailing arm. The articulation of each trailing arm is managed by a further pair of shock absorbers. One end mounted to the trailing arm the other to the sub frame assembly.

Vehicle Adaptation

The TWB 6x6 system conversion retains the use of the front end of the donor vehicle. The engine, transmission, associated powertrain ancillaries, front suspension, steering and cabin area remain unaffected.

A generic conversion process is described as follows:

- The rear suspension and associated drivetrain are removed.
- The ladder frame chassis structure is augmented with a rear suspension subframe which carries the TWB suspension architecture.

