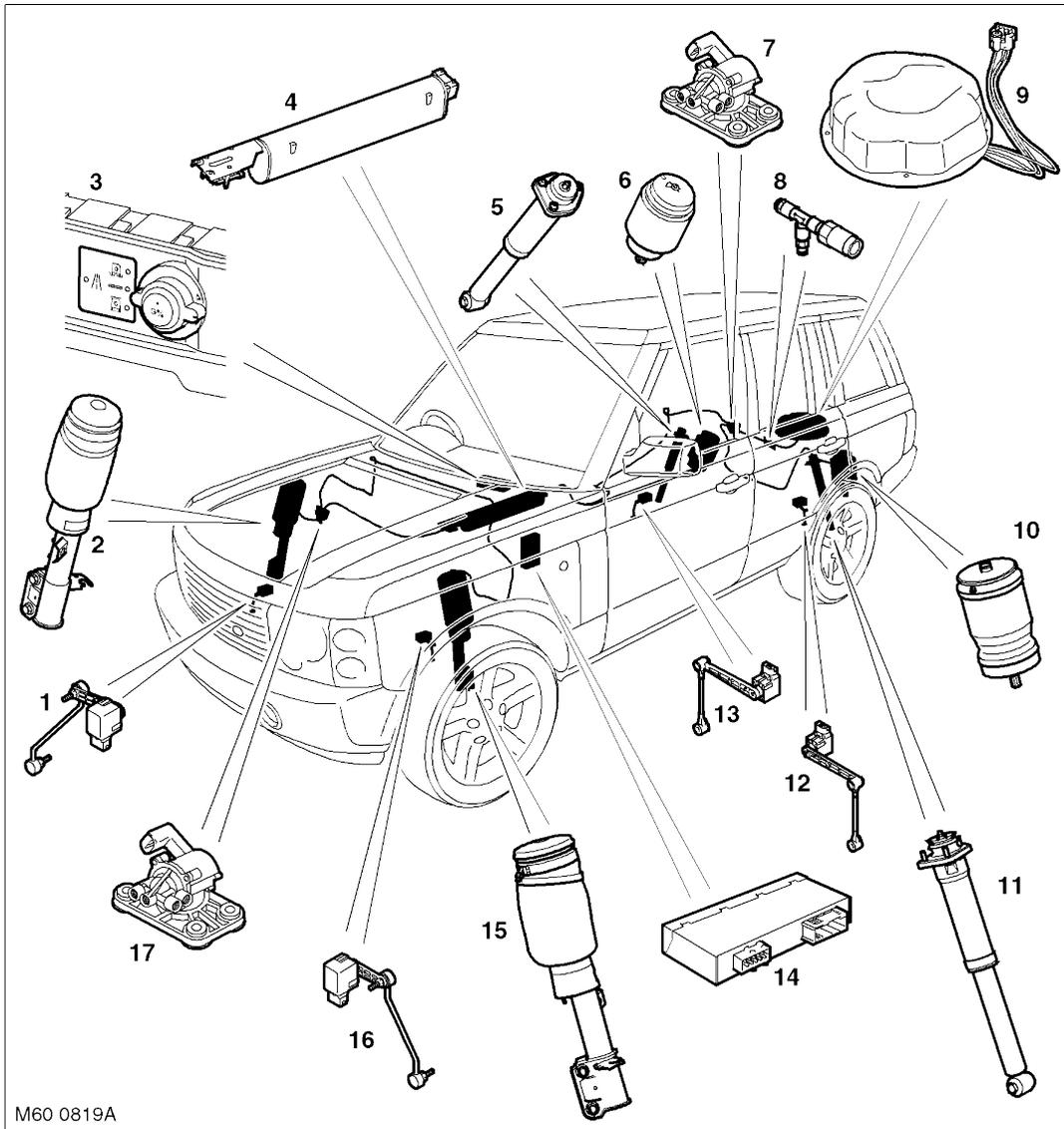


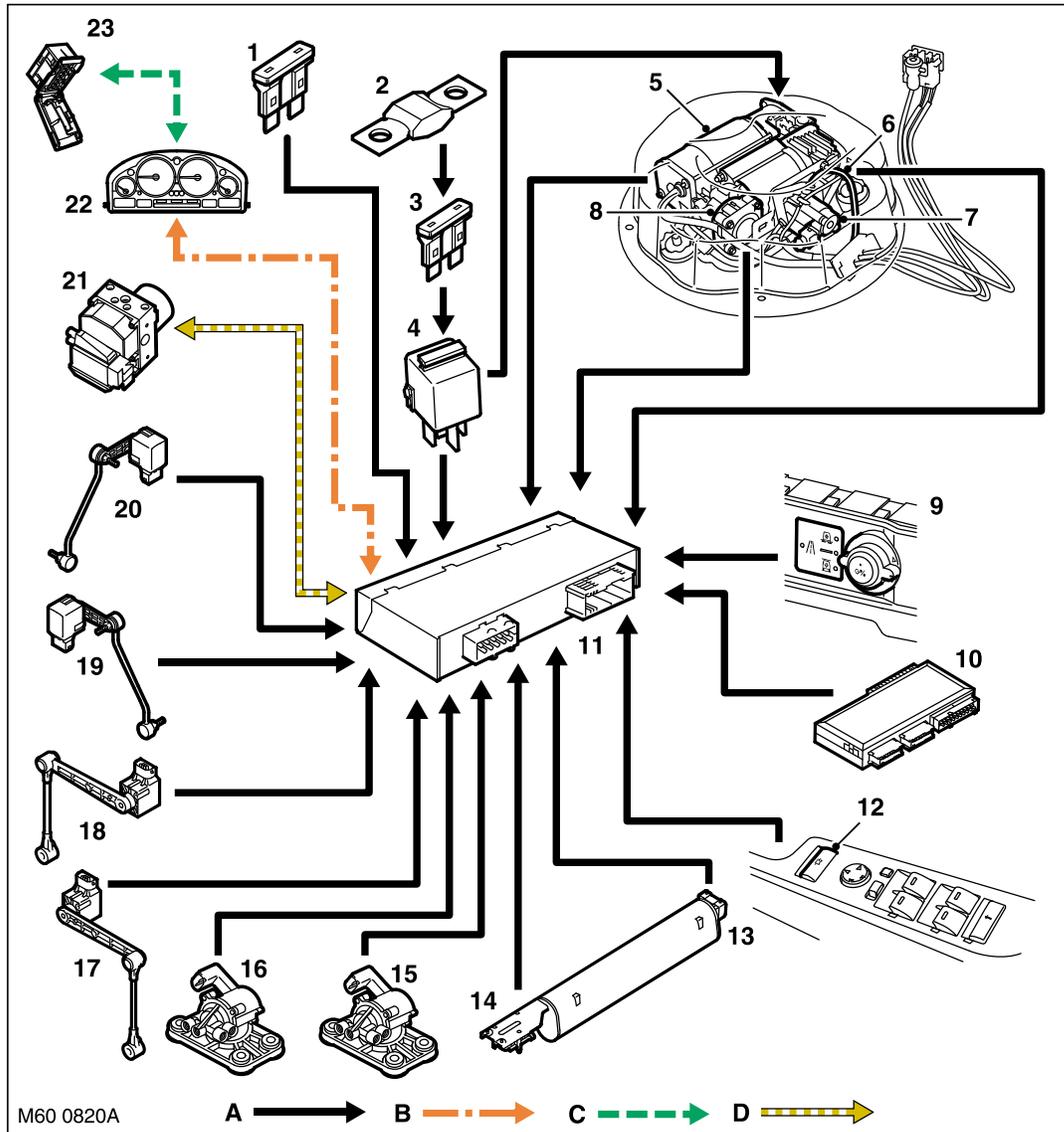
Suspension Component Location



- | | |
|--|---|
| <ul style="list-style-type: none"> 1 Front RH height sensor 2 Front RH strut assembly 3 Air suspension control switch 4 Reservoir and valve block 5 Rear RH damper 6 Rear RH air spring 7 Rear cross link valve 8 External pressure relief valve (where fitted) 9 Compressor assembly | <ul style="list-style-type: none"> 10 Rear LH air spring 11 Rear LH damper 12 Rear LH height sensor 13 Rear RH height sensor 14 Air suspension ECU 15 Front LH strut assembly 16 Front LH height sensor 17 Front cross link valve |
|--|---|

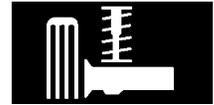
SUSPENSION

Suspension Control Diagram



A = Hardwired connections; B = K bus; C = Diagnostic DS2 bus; D = CAN bus

- | | |
|--|------------------------------|
| 1 Fuse 15A – Permanent feed | 13 Reservoir pressure sensor |
| 2 Fusible link 100A | 14 Valve block |
| 3 Fuse 50A | 15 Front cross link valve |
| 4 Air suspension relay | 16 Rear cross link valve |
| 5 Compressor and motor | 17 LH rear height sensor |
| 6 Temperature sensor | 18 RH rear height sensor |
| 7 HP exhaust valve | 19 LH front height sensor |
| 8 Exhaust valve | 20 RH front height sensor |
| 9 Control switch | 21 ABS ECU |
| 10 Body control Unit (BCU) | 22 Instrument pack |
| 11 Air suspension ECU | 23 Diagnostic socket |
| 12 Driver door module (Access mode switch) | |



Description

General

The main function of the four corner air suspension system is to maintain the vehicle at the correct ride height, irrespective of load. Additionally, the system allows the driver to request ride height changes to improve off-road performance or ease of access or loading. The system automatically adjusts the ride height to improve the vehicle handling and dynamics when speed increases or decreases.

The system will temporarily inhibit height adjustments when the vehicle is subject to cornering, heavy acceleration or heavy braking. The inhibit function prevents unsettling of the vehicle by reducing the effective spring rates.

Height changes are also inhibited for safety reasons, when a door is opened and the vehicle is stationary for example.

The air suspension system fitted to Range Rover is controlled by an ECU located behind the passenger side of the fascia. The ECU monitors the height of each corner of the vehicle via four height sensors, which are mounted in-board of each road wheel. The ECU also performs an 'on-board diagnostic' function to perform 'health checks' on the system. If faults are detected, codes are stored in the ECU and can be retrieved using TestBook/T4.

The independent front and rear suspension offers many design and performance advantages over the conventional beam axle design.

Front Suspension

The independent front suspension offers a reduction of un-sprung mass over the conventional beam axle design. The suspension geometry features positive ground level off-set for improved control under braking. The suspension arms have been designed for maximum ground clearance. Suspension geometry can be adjusted via the strut top mount for camber and on the steering rack track rod ends for toe-in.

Front suspension features a 6mm positive off-set.

The following wheel travels are shown for on road and off-road vehicle operation. The difference between the two operating conditions is a result of operation of the front cross-link valve. When the cross-link valve is opened the suspension travel is as given for off-road wheel travel. When the cross-link valve is closed the suspension travel given for on road applies.

The off road mode wheel travel is:

- 175 mm bump
- 95 mm rebound
- This gives a total of 270 mm off road suspension travel.

The on road standard wheel travel is:

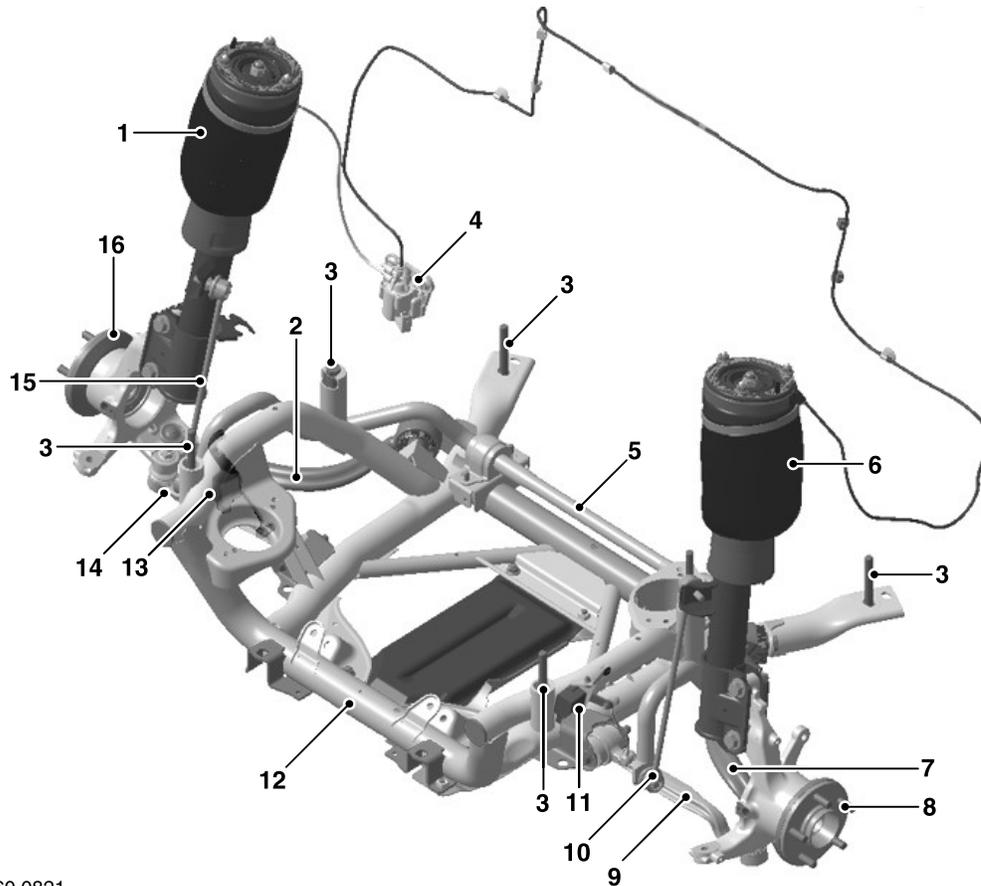
- 115 mm bump
- 155 mm rebound
- This gives a total of 270 mm on road suspension travel.

The front suspension comprises:

- Two air spring damping struts
- Subframe
- Anti-roll bar
- Anti-roll bar links
- Suspension arms
- Two hub assemblies.

SUSPENSION

Front Suspension Components



M60 0821

- | | |
|---------------------------|------------------------------------|
| 1 RH front strut assembly | 9 LH transverse link |
| 2 RH compression link | 10 LH anti-roll bar link |
| 3 Subframe body mounts | 11 LH front height sensor |
| 4 Front cross link valve | 12 Front subframe |
| 5 Anti-roll bar | 13 RH front height sensor (hidden) |
| 6 LH front strut assembly | 14 RH transverse link |
| 7 LH compression link | 15 RH anti-roll bar link |
| 8 LH front hub assembly | 16 RH front hub assembly |

Struts

The front suspension struts are a MacPherson twin tube design with the conventional coil spring replaced by an air spring. The lower end of the strut is connected to the front hub assembly with two bolts. The upper top mount is attached to the inner wing with three studs and nuts.

The top mount has a bearing installed which reduces the force required on the steering when the strut rotates. A paper gasket is fitted on the underside of the inner wing, between the inner wing and the top mount. The gasket prevents the ingress of dirt and moisture into the bearing. When the strut is removed, this gasket must be replaced with a new item to maintain the performance of the bearing and care must be taken to ensure that the gasket is correctly positioned.

The damper functions by restricting the flow of hydraulic fluid through internal galleries within the damper. A damper rod moves axially within the damper. As the rod moves, its movement is limited by the flow of fluid through the galleries thus providing damping of undulations in the terrain. The damper rod is sealed at its exit point from the damper body to maintain fluid within the unit and to prevent the ingress of dirt and moisture. The seal also acts as a wiper to keep the rod outer diameter clean.