



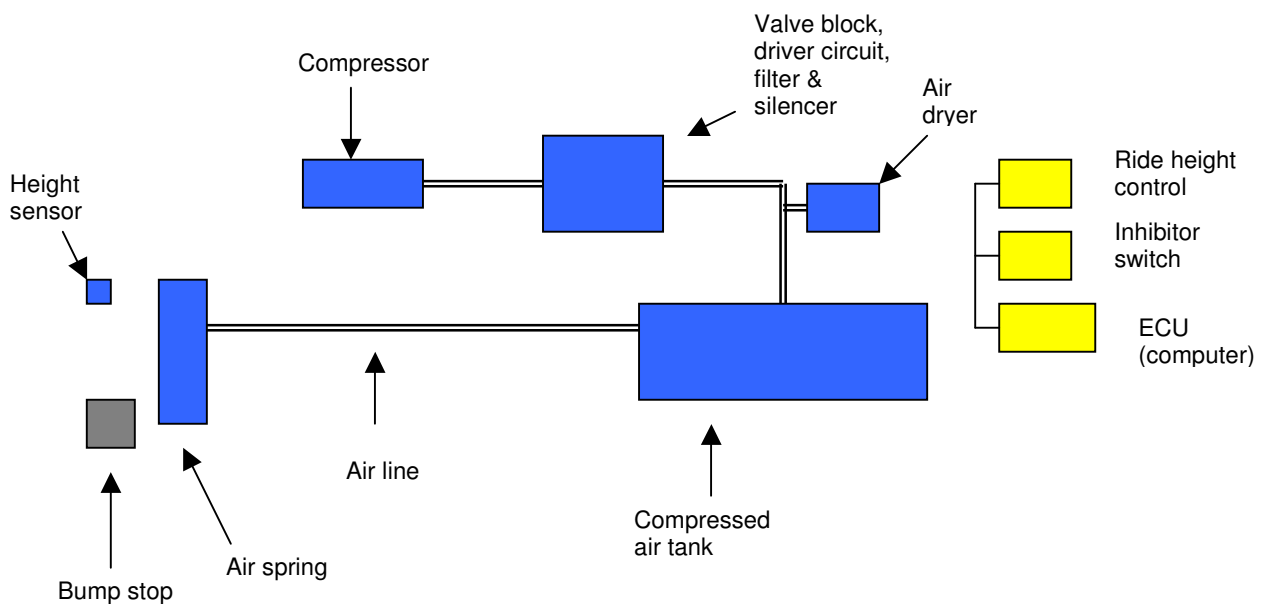
Electronic Air Suspension – what you need to know

History

Contrary to common belief, EAS systems have actually been used for decades, mostly in truck suspensions, but the Land Rover version was considered revolutionary when first introduced onto the Range Rover in the late “Classic” models. This early version caused many problems for owners, mainly due to lack of robustness in the sensors and computer control systems. Virtually any defect caused the system to shut down, resulting in the vehicle having to be driven on the bump-stops to an authorised dealer – the only commonly available source of the software needed to reset the on-board computer. A compounding problem for the early versions was the high cost and scarcity of replacement parts.

For once, the engineers and bean counters listened to the wail of complaint so the version fitted to the P38 and subsequently Discovery models was far more robust. Also, the price and availability of components improved significantly. While many owners experiencing problems are tempted to exchange the EAS system for conventional springs (see below) this is largely based on outdated understanding of how relatively simple the system now is to maintain and repair. Opinions naturally differ, but the general consensus is that the ride provided by a fully functional EAS suspension is far superior to the coil alternative, both on and off road.

The following (simplified) schematic illustrates the EAS components:



Aftermarket air springs



Valve block



Compressor



Air filter

Common faults & fixes

The most common failure is a leak in an air spring. In extreme cases, it will be possible to hear the air escaping to determine the location of the leak. More usually, the leak will cause one corner of the vehicle to droop after being parked for some time (how long depends on the severity of the leak). Other than in the late Classics, the pump will keep working until the vehicle rises to operating height, but this may take some time

If the vehicle is dropped over a kerb or bashed about off-road, the air spring may be dislodged from the seat. Both of these problems are easily rectified and in remote locations may even be done by a driver with reasonable mechanical abilities. For extensive off-road or trip work, carrying one spare front and one spare rear bag may be advisable.

Some apparent faults may not actually be faults at all. For example, if parked on uneven ground, the EAS may lower the vehicle to the bump stops and need some time for the pump to raise it back to operating height. It is not smart to park the vehicle straddling a large rock!

Frequent compressor operation may be a fault, but it may also be simply the sensor reacting to it sensing air being drawn. If the pump seems to be “on” most of the time, it is advisable to have the system checked professionally. The opposite – namely a very slow pump-up may be a compressor problem, but it may also be a leak between an air line and one of the other components. Soapy water sprayed around the joints will often find the leak and a good push may fix the problem.

Excessive noise from the compressor may be a sign of imminent failure, but it may also be a loose or missing rubber mount.

If the compressor stops completely, check the fuses. If a replacement fuse blows again, obviously there is something causing it, like a failed relay, thermal cut-out switch, or maybe a computer fault.

In the case of something serious, an “EAS fault” message in the dashboard screen will be displayed. This message is unlikely to be displayed just for a slow leak in a bag. The vehicle may be driven and the EAS system will continue to work, though the compressor may be on for most (or all) of the time. It is not recommended to delay repair due to the potential damage to the compressor or other components. If a “Hard fault” message appears, the vehicle will usually be lowered to the bump stops and the pump will be disabled. This fault must be rectified and the computer reset.

Maintenance

Few systems are maintenance-free and the EAS is no exception. The routine is simple for a qualified shop with the right knowledge and equipment but amateur work is not recommended other than in emergency situations.

For example:

- The system **MUST** be depressurised to prevent damage or injury before removing any component.
- Although there are many “non-genuine” parts available, most of which are perfectly acceptable substitutes for the OEM versions, it does not pay to experiment with “bush mechanic” spares.
- The typical Land Rover weighs upwards of 2 tonnes and this falling on the DIY mechanic has been known to spoil his day.

When in doubt, contact the team at Graeme Cooper Automotive for advice and supply of replacement parts.

Coil replacement

Conversion kits are available to completely replace the EAS with conventional coils. Including labour, the cost is around \$2200.