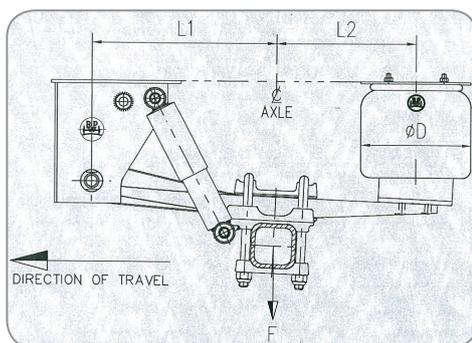


What governs the pressure in the airbags of an air suspension?

Operators often ask – What governs airbag pressure? Is there a pressure regulator or is this function controlled by the height control valve? The answer is neither.

Airbag pressure is a product of the gross weight over the axle (F), the distance of the axle from the front hanger (L1), the distance of the airbag from the axle (L2) and the effective diameter of the airbag. As long as the airbag is not sitting on its bump stop and as long as the axle is not limited in its downward stroke by the shock absorbers or axle retainers, changing the ride height does not change static airbag pressure; it only changes the airbag volume.



A typical air control kit would consist of a pressure protection valve, an air reservoir, an in-line filter and a height control or levelling valve.

The pressure protection valve is situated between the air brake circuit and the air suspension circuit to give priority to the brake system, usually opening at about 450 kPa (65 psi), thus ensuring any air suspension air failure would not bleed down the brake system below 450 kPa (65 psi).

The air reservoir is added to further protect the system.

The in-line filter further protects the operation of the height control valve by supplying clean air. The height control or levelling valve controls the volume of air in the system to give constant ride height, either laden or empty.

The height control valve is rigidly mounted to the chassis frame with an articulated link to the axle to allow axle movement to inflate or deflate the airbags.

As the body lowers, as in loading, the height control valve opens to allow airtank air, under pressure, to inflate the bags until preset ride height is obtained, at which time the valve closes in the static condition and no air enters or leaves the system.

If the body rises, as when unloading, the height control valve is moved to the exhaust position to exhaust air from the airbags to lower the body to the preset ride height position.

Is Electrolysis Attacking your Alloy Wheels?

Electrolysis is a chemical reaction, which can take place when two dissimilar metals are in contact with each other and subjected to an electrolyte, which could be an acid or salty solution. Such a situation can exist when aluminium wheels are fitted to steel hubs without some form of insulation between the wheel spigot bore and the hub wheel locating spigot and then subjected to road grime and high pressure washes.

Aluminium wheels being fitted today are of the 8-stud and 10-stud spigot mount configuration, either 275mm, 285mm or 335mm PCD, which rely on the spigot of the hub for location and the frictional force generated at the interface of the wheel and hub by the torque of the wheel nuts to stop wheel slip.

It is imperative for safe operation and durability of the wheels, hubs and other mounting hardware that the correct mounting procedures be followed.

It is extremely important with new installations that any paint on the hub face be restricted to an absolute minimum, to ensure a good frictional contact between the wheel and the hub.

Some alloy wheels have a protective covering of paint and/or lacquer in the spigot area to act as an effective barrier against electrolysis.

Alloy wheels not so protected should be treated as follows:

Prior to mounting hub-piloted wheels, coat the wheel pilot and/or the hub spigot generously with an anti-seizure lubricant, to minimise corrosion build-up between the wheel and hub.

An excessive corrosion build-up between the wheel pilot bore and the hub spigot can make wheel removal difficult.

Disassembling and Assembling of BPW D30K, D30 and D36 Airbags

BPW airbag assemblies can be disassembled and individual wearing components can be replaced, at a lower cost than replacing the complete airbag assembly. The following procedure should be followed.

Removing airbag assembly from vehicle suspension

1. To remove the airbags from the vehicle suspension, ensure the airbags are completely deflated and vehicle is properly supported before removing airbags to prevent accidents, e.g. place a suitable spacer between vehicle frame and trailing air spring (*Figure 1*).
2. Disconnect nylon air line at union (*Figure 2*).
3. Remove two retaining nuts at the top plate (*Figure 2*).
4. Remove two retaining screws from trailing arm spring.
5. Remove airbag assembly from suspension.

Disassembling of airbag

1. Blow compressed air into the hold for the air line connection and continue blowing in air until the airbag bellows has completely rolled off the piston.
2. Remove M16 screw [Item 1] and take base plate [Item 2] off the piston [Item 3] (*Figure 3*).
3. Unscrew square centre bolt [Item 2] with appropriate spanner and remove piston [Item 1] from the airbag bellows [Item 3] (*Figure 4*).

Assembling of airbag

1. Place piston on airbag bellow. Screw in square centre bolt, including washer where applicable and tighten to the prescribed torque of 130Nm for steel centre bolts or 100Nm for aluminium centre bolts.
2. Place base plate onto piston and tighten M16 screw to the prescribed torque of 163Nm for steel piston or 100Nm for aluminium piston. Ensure to align the securing points to each other beforehand so the suspension airbags are not twisted after being installed.

Installing airbag assembly to vehicle suspension

1. Refit airbag assembly to suspension by attaching top nuts to the prescribed torque of 66Nm, bottom retainers screws to the prescribed torque of 215Nm and reconnect air lines.

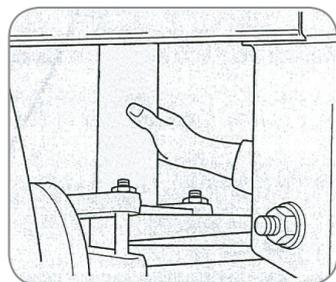
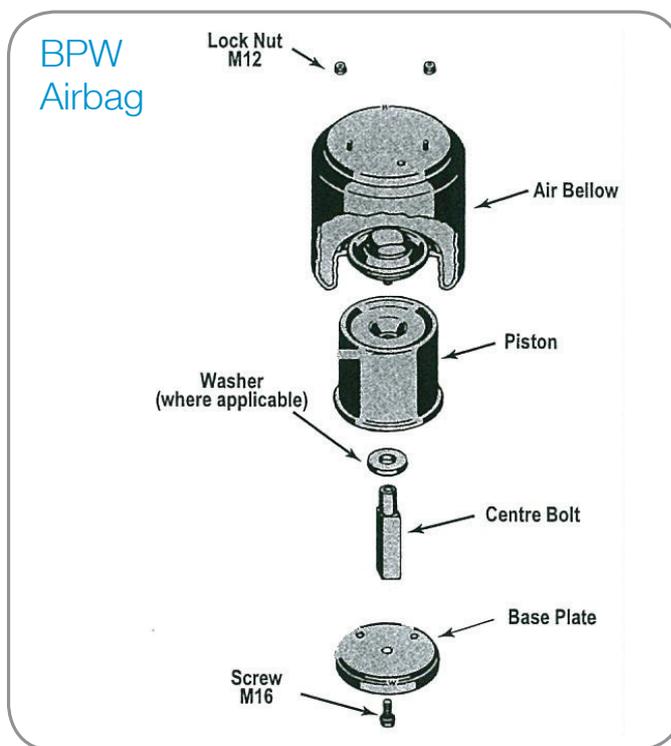


Figure 1

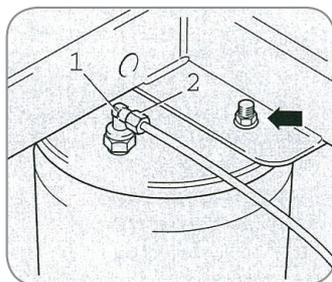


Figure 2

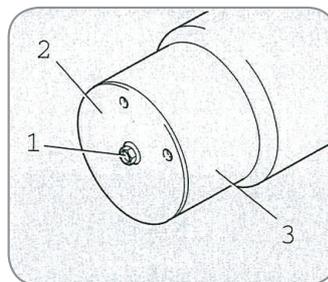


Figure 3

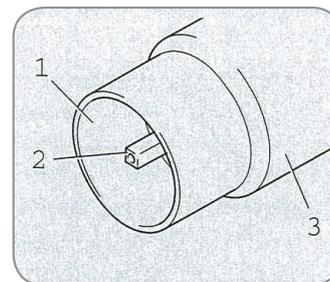


Figure 4

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