CITROEN

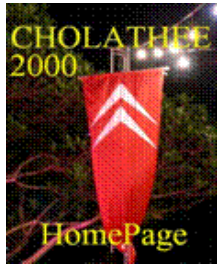
Hydropneumatic Suspension

With techical knowledge from "*The Citroën Technical Guide*

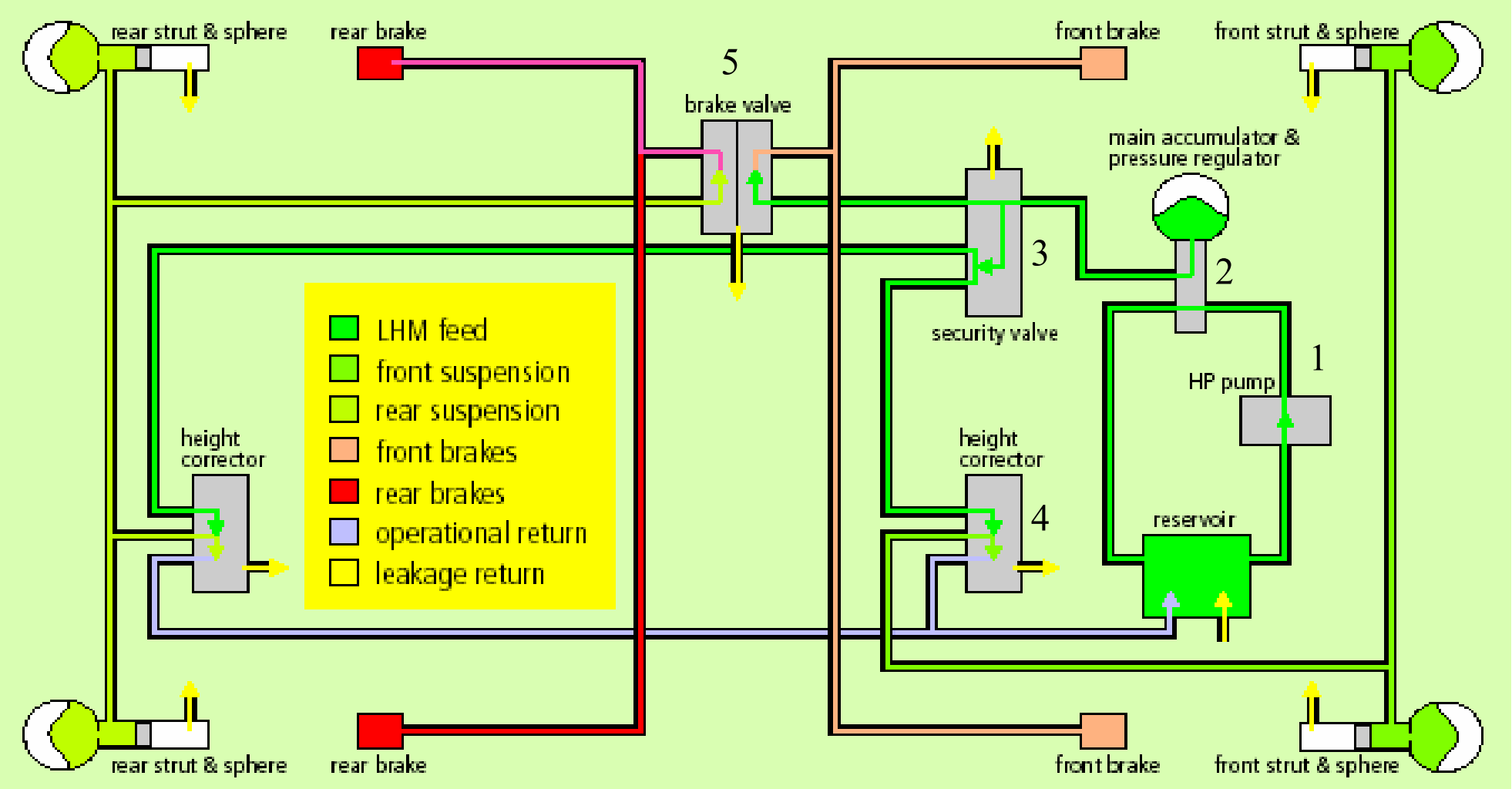
by Željko Nastasic Gábor Deák Jahn"

Present by Cholathee2000

www.geocities.com/cholathee2000



Typical **Hydropneumatic Suspension**

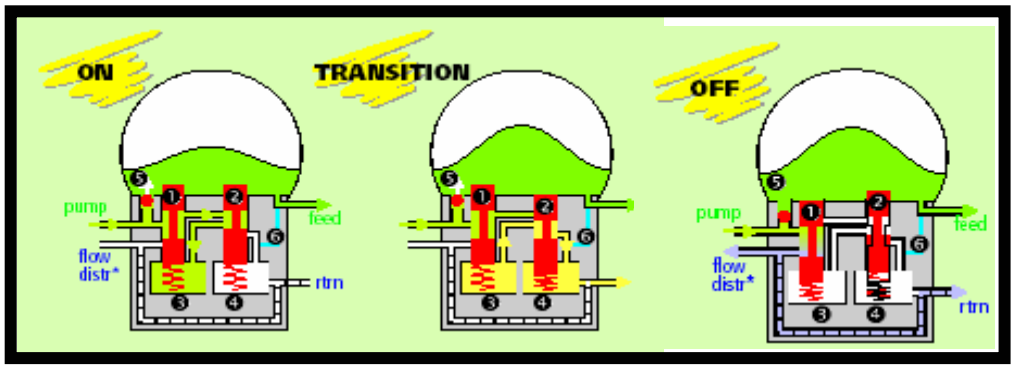


Source: The Citroën Technical Guide by Željko Nastasic Gábor Deák Jahn (modify by Cholathee)

Typical **Hydropneumatic Suspension**

Min. 145bar: Max. 170bar

2.Main Accumulator&Regulator.



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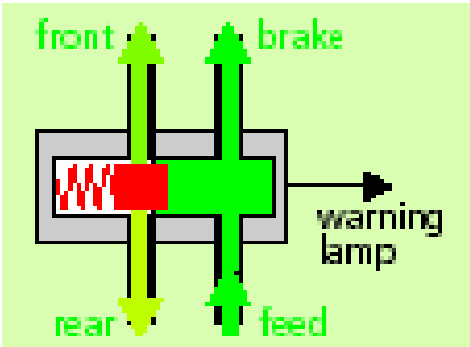


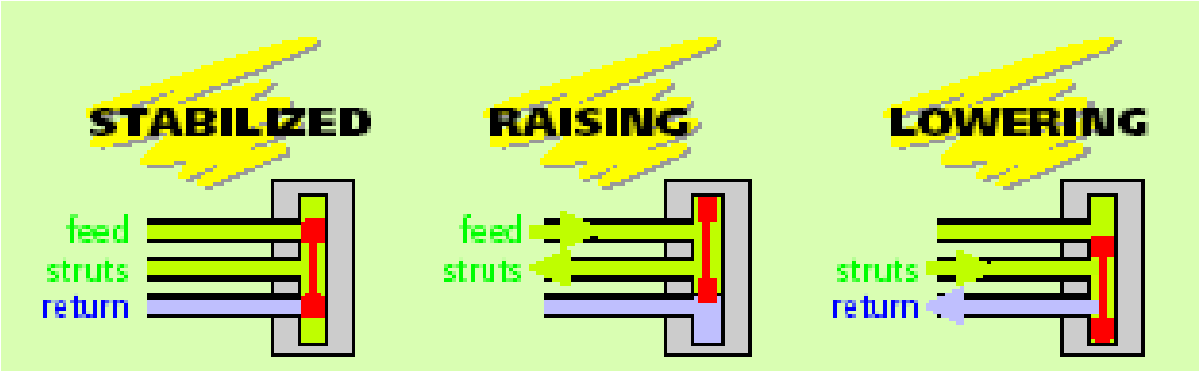
3.Security Valve.

The liquid—supplied to the rest of the system from the main accumulator—passes through a **security valve** whose task is to ensure safety by feeding the brake circuits first.

Typical **Hydropneumatic Suspension**

4.Front height corrector.

Next circuit fed from the security valve is the *front suspension*. The fluid goes to the **front height corrector**. When the vehicle height is stabilized, the piston inside the corrector blocks the inlet of fluid, isolating the struts from the rest of the suspension.



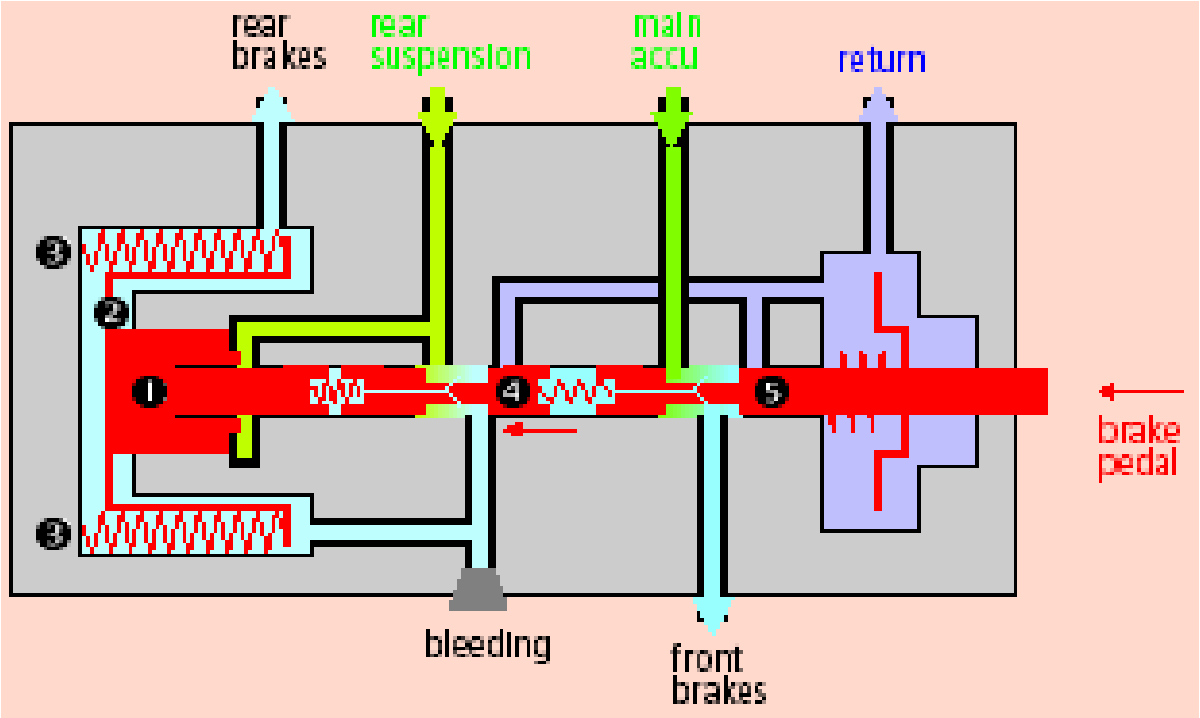
Source: The Citroën Technical Guide by Željko Nastasic Gábor Deák Jahn

If the movement of the front anti-roll bar dictates that the front of the vehicle should be raised, the connecting linkage moves the piston upward, opening the inlet and letting additional fluid enter the front struts. When an opposite movement is required, the piston moves downward, letting the fluid at residual pressure flow back from the struts to the LHM reservoir. Both directions of flow are stopped and blocked when the height corrector piston resumes its middle position.

Typical **Hydropneumatic Suspension**

5.Brake Valve.

The brake compensator valve is the most complicated part of the hydropneumatic suspension.
This component is not only responsible for the operation of the brakes but forms a central part of the whole system.
With no pressure applied on the pedal, the brake valve connects both the front and the rear brake circuits to the operational return, ensuring that the brake pads retract from the disks. Note that both braking pistons (4 and 5) have internal conduits (drawn as Y-shaped lines) offering a passage for the brake pressure to escape into the return line:



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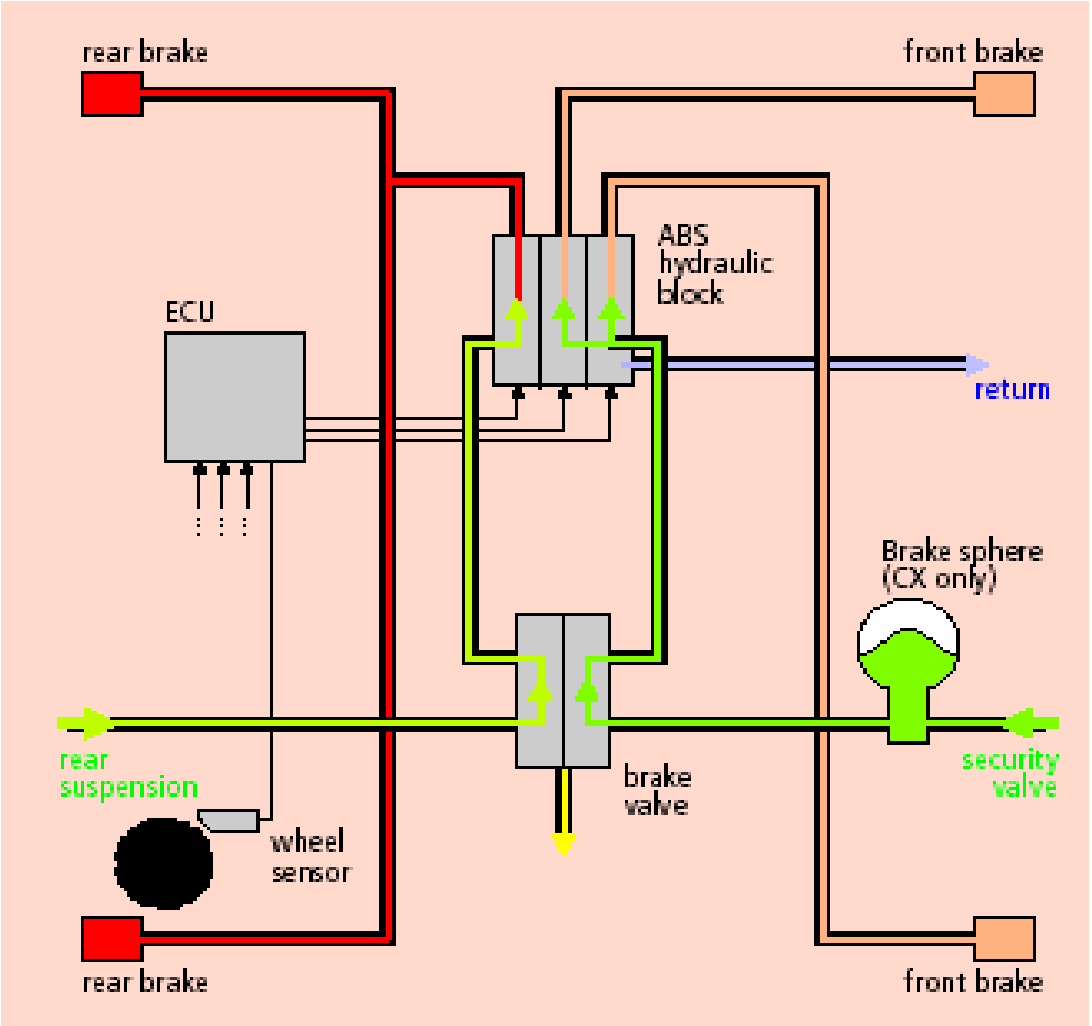
As soon as the driver starts to brake by pressing on the brake pedal, which in turn presses the front piston 5 behind the rubber boot at the end of the unit, the feed from the main accumulator becomes connected to the front brake circuit and push through 4 to activeated the rear brake.

Hydropneumatic Suspension with ABS System



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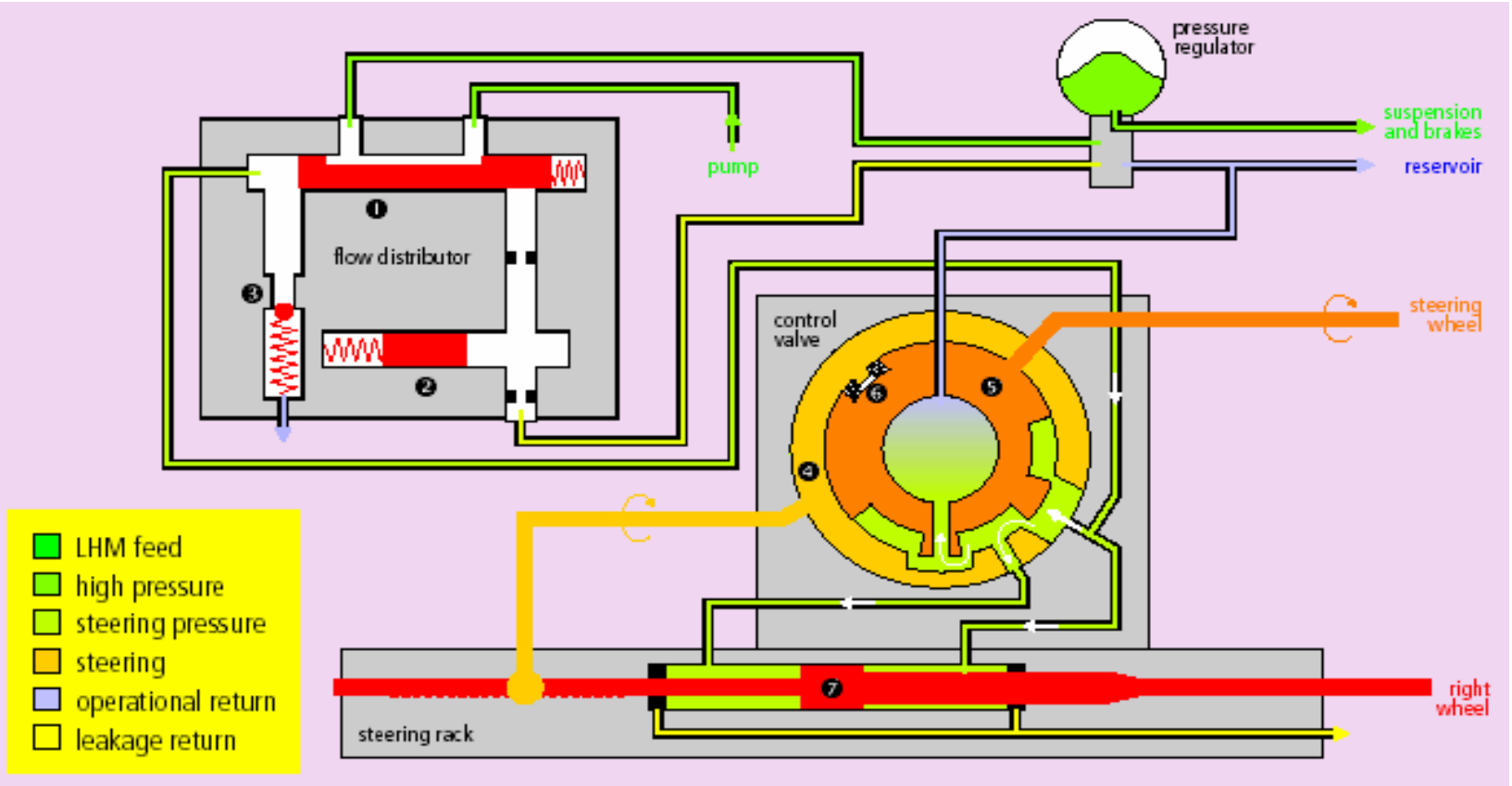
Hydropneumatic Suspension

With Power Assisted Steering

The PAS steering used on Citroëns is not radically different from similar systems on other cars. Naturally, having a high pressure hydraulic system at disposal influences the layout.



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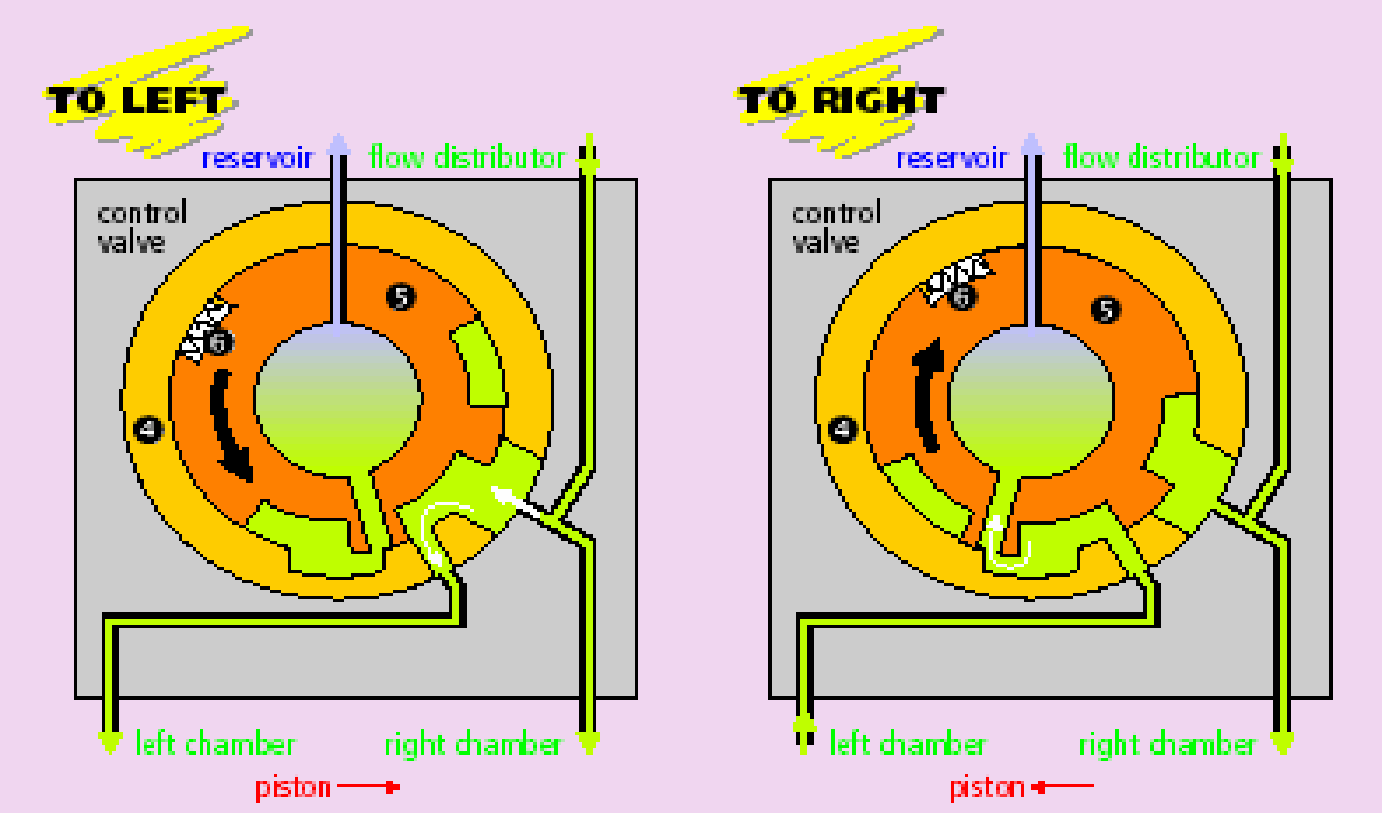
Hydropneumatic Suspension

With Power Assisted Steering



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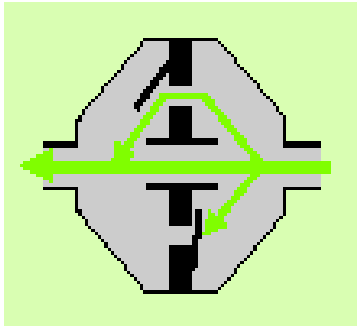
Hydropneumatic Suspension

The **damping elements** in the sphere supports consist of a central hole which is always open and additional small holes closed and opened by a spring as the flow of the hydraulic liquid dictates. Slower suspension movements like body roll, squat or dive result in a slower flow of the liquid and the smaller dynamic pressure differences are not sufficient to bend the spring cover open over the additional holes. The damping effect is therefore only determined by the diameter of the center hole.



Hydropneumatic Suspension

Many contemporary Citroëns—including both regular hydropneumatic and Hydractive Xantia and XMs—have an anti-sink system (SC/MAC) fitted, to keep the car from lowering when not used. The system does not interfere with the normal functioning while in use. It attempts to minimize leaks inside the system by having only one element that can leak, the anti-sink valve itself.