

## Rebuilding a Citroen D Height Corrector

By Mark Bardenwerper, Updated June, 2022

Rebuilding height correctors is one of the key steps to restoring correct suspension performance. Bad height correctors are to blame for a wide variety of maladies, including sudden drops, erratic height control response, wandering height, even frequent cycling of the pump due to fluid pressure loss. In the short time I have owned D's I think I have seen every one of these.

No rebuild is complete without cleaning out the crossover labyrinth. In order for the spool valve to find center, in combination with end springs in good condition, it must have equal pressure on both sides. Excess fluid that finds its way out to either end must have a way out. The tiny disks and spacers that populate the crossover trap sludge and tiny particles, which interfere with the passage of fluid from the ends of the corrector to the reservoir return.

The tools shown below are used to service the crossover. The diameter of a 5/16" bolt has been ground down slightly, then a slot cut in its end just wide enough to straddle the outer end of the brass retainer. It is the equivalent to the tool MR 1376-50 mentioned in the manual. A nail is selected that closely matches the diameter of the hole on the end opposite from the plug. The tip is ground flat to prevent damaging the thin metal spacers. Once the plug has been unscrewed, the pile of disks and spacers are pushed out using the nail.

You may run into trouble trying to get the spacers and disks out. However, they all have to be removed to get all the dirt out. These disks are incredibly thin, and when you push the nail in, some of the spacers might get impaled. You should have some spare correctors, so you can scavenge replacement disks, should you damage them. They are no longer available that I know of, and finding out on some dreary Saturday evening is not the right time to be wondering where you are going to find more. You may discover that a few of the spacers will be stuck in the tiny passage. The only way I know of to get them out is to select a small tap and thread it into the spacer far enough to have something to tug on.

If you are in a desperate situation where you have damaged disks, you can reuse them. Just put an equal number of them on each side. It is the tiny holes in their centers that provide the dampening action that keep the spool valve from oscillating. It might be more important to have this be as equal as possible on each side than having them all intact.



The crossover hole must be cleaned thoroughly and the passageways cleared with compressed air and solvent spray. The disks and spacers are cleaned carefully, dropped back in the hole one at a time, then straightened with a long thin tool. I found it easy to work with the tiny parts by laying everything out on a clean square of white muslin bed sheet. A disk goes in first. There are 4 disks and 3 spacers on each side of the passage spacer. A disk is on each side of the spacer, and the last piece is a disk. The brass plug can then be reinstalled and tightened slightly. Do not use any sealant or thread compound here. This plug needs to be able to be removed easily and any foreign substance could interfere with fluid movements.

The following pages are from the Citroen Repair Manual 814, which covers specific DS models and years. However, it is a nice manual to have if you own any model D because many of the operations are transferable. For instance, the height correctors were little changed since the model inception, except for the very first ones, and even then, those gave a lot of trouble and were often replaced.

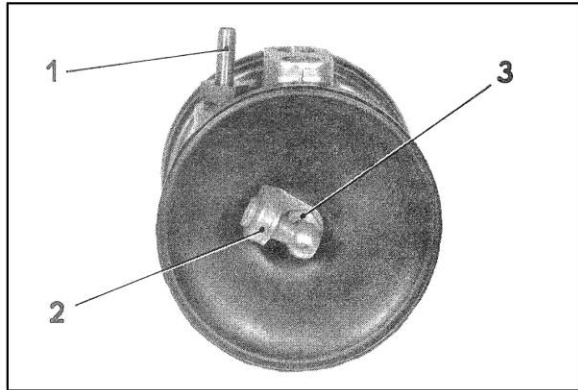
One major note of caution; this manual was written before the use of LHM and consequently, where solvents used for cleaning suspension parts are mentioned, you **MUST** use the proper solvents depending upon the fluid used in your car. For LHM cars, use LHM, gasoline or mineral spirits. For LHS cars, use alcohol, water or hexylene glycol. Converting an LHM corrector to LHS or vice-versa is a matter of using compatible rubber parts.

These instructions call for prefilling the height correctors before reinstalling them. Everyone I have discussed this with have reported that it is not necessary, that air trapped in them is of no consequence because they are not in the braking system and both return paths, the low and the high, go straight to the reservoir, so there is no need to bleed your system when you are finished except as a precaution.

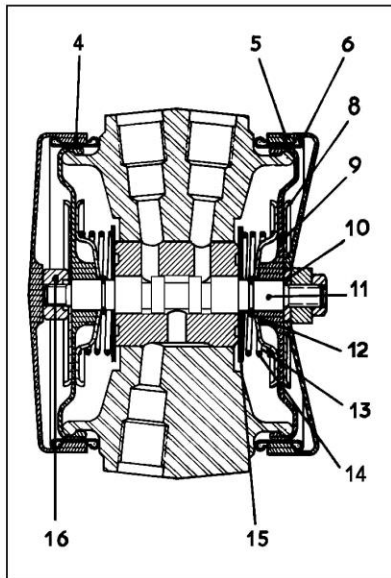
Installing correctors back on the car is usually easiest if you mount them loosely, then thread the hydraulic piping in. Always use new seals. Having the corrector a bit loose allows you to wiggle it around to get the threads started without bending excessively on the tubing. Always start the threads by hand to prevent cross threading. Once you have all of the plumbing connections started, you can wrench tighten, first, the mounts, then the piping. Make sure you tighten the piping only until it stops turning. Unlike cars with flare-type connections, these cars rely on the rubber seals for leakage control.

When you are satisfied with your work, you can top off your reservoir, start the car and check for leaks. Raise and lower the car a few times to void pockets of air and you should be rewarded with a much more stable ride.

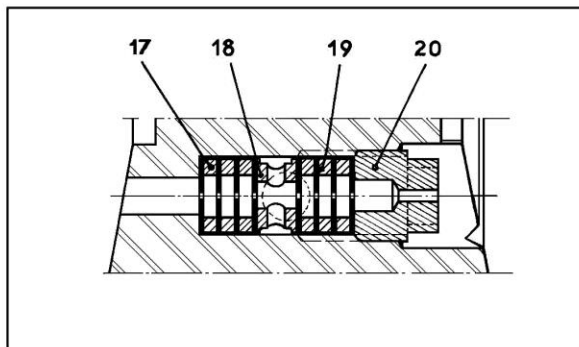
I never discuss doing any work on the underside of our cars without stressing the vital importance of using safe raising and blocking practices using only proper equipment. Keeping your work area organized and clean makes the work much easier. But most of all, pay particular attention to your work area when opening hydraulic parts. You do not want to introduce more problems with extraneous dirt or contaminants.

**OVERHAULING A HEIGHT CORRECTOR.**Dismantling.**28. Remove:**

- the overflow pipe union (1),
- the locknut (3),
- the control (2),
- the washer (10).

**29. Remove the sealing cups (4) and (5).****30. Remove:**

- the nut (16),
- the outer metal rings (6) holding the diaphragms,
- the outer metal cups (8),
- the diaphragms (9),
- the inner metal cups (13),
- the springs (14),
- the circlips (12),
- the disc-valves (15).

**31. Remove the slide-valve (11) from the corrector body.****32. Dismantling the dash-pot.**

Loosen the screw (20) securing the restrictors (spanner MR.1376-50).

**Free:**

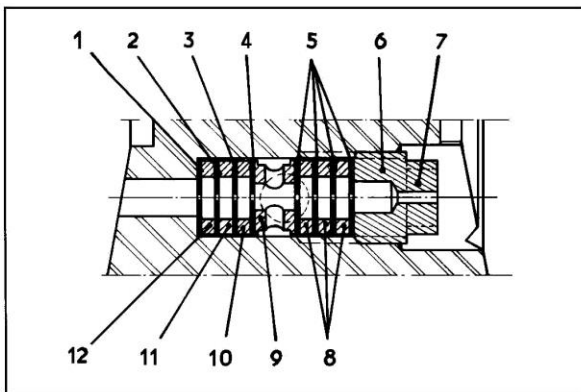
- the 8 restrictors (19),
- the 6 spacing washers (17),
- the central spacer (18).

**33. Carefully clean all parts in alcohol.**

Blow with compressed air (except the small pieces forming the dash-pot).

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Assembly.

34. Assembling the dash-pot.

Fit in the following order:

- 1 restrictor (1),
- 1 spacing washer (12),
- 1 restrictor (2),
- 1 spacing washer (11),
- 1 restrictor (3),
- 1 spacing washer (10),
- 1 restrictor (4),
- 1 central spacer (9).

In the same order assemble the remaining four restrictors (5) and three spacing washers (8).

NOTE:

Make sure that the restrictors are correctly assembled; e.g. the restrictors on the side of the securing screw may engage in the thread for the screw, and if tightened in this position they would be "askew" and damaged.

Tighten the locknut (7) (1.7 - 2 ft. lbs. (0.25 - 0.30 m. kg)) (spanner MR. 1376-50).

35. On the slide-valve (18) place the following:

- 1 disc-valve (26),
- circlip (25).

Insert this assembly in the corrector body, with the longer threaded part of the valve towards the rear.

36. Fit:

- the disc-valve (21),
- circlip (17),
- the springs (22) (positioned as shown in the diagram),
- the inner metal cups (23),
- the diaphragms (16),
- the outer metal cups (15).

37. Tighten the nut (24) (the thicker nut) to 1.45 ± .15 ft. lbs. (0.2 ± 0.02 m. kg).

38. Fit:

- the washer (20),
- the control (27) (tighten to 1.45 ± .15 ft. lbs. (0.2 ± 0.02 m. kg)).

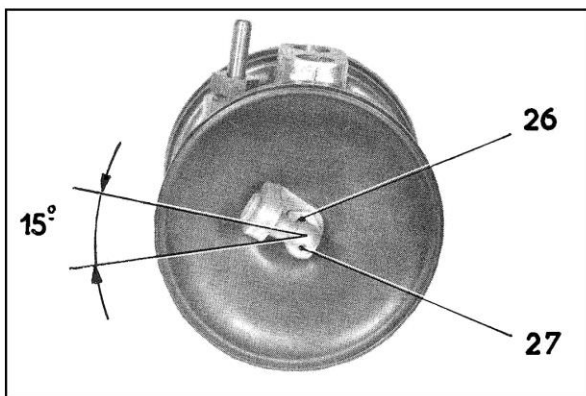
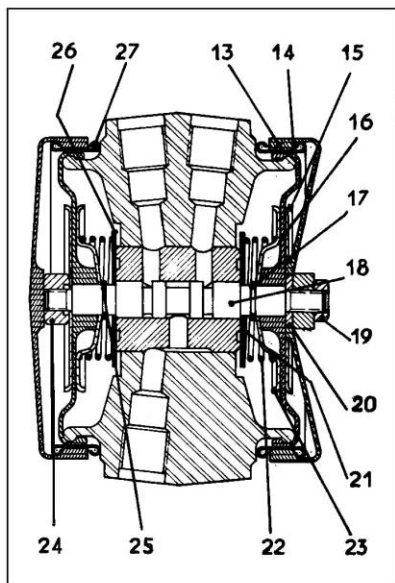
Fit the control at 15° from the horizontal (see photograph).

Tighten the locknut (19).

NOTE:

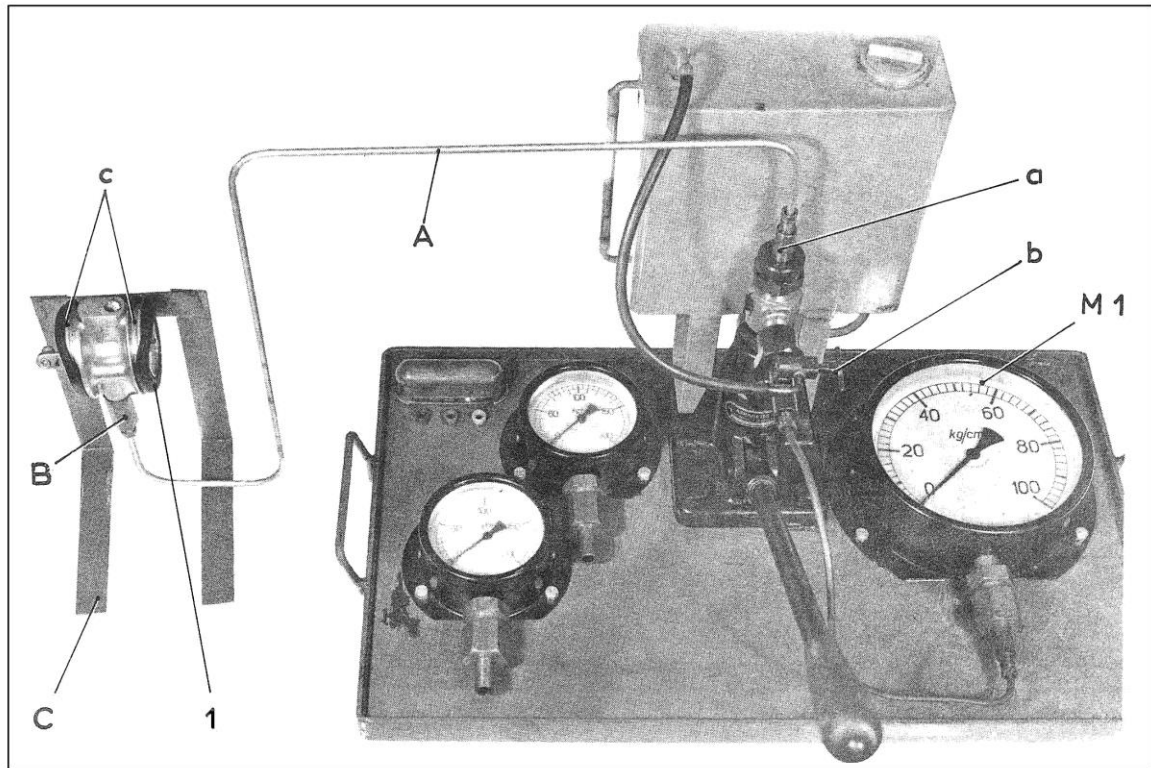
Do not fit

- the metal retainers (14),
- the sealing cups (13) and (27) as these will be fitted after filling the corrector.



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## FILLING A HEIGHT CORRECTOR.

## 39. Fill the corrector.

Connect the test bench pump (test bench 2290-T) to pressure gauge M1 (0 - 1500 lbs/sq. in., 0 - 100 kg/cm<sup>2</sup>).

Connect the orifice "a" of the test bench pump to the overflow return orifice on the corrector, using a tube (A) and a union (B) (2218-T).

The corrector will be fitted on a bracket (C) (MR. 3053-260) (with the overflow return orifice downwards).

If necessary, draw the upper part of the diaphragms (1) away from the grooves in the corrector (at c).

Tighten the bleed screw (b) on the test bench pump and pump to send liquid into the corrector.

Do not exceed a pressure of 70 lbs/sq. in. (5 kg/cm<sup>2</sup>).

Cease pumping when liquid flows from the opening between the diaphragms and the corrector body at "c".

Replace the diaphragms (1).

## 40. Fit:

- the securing rings (14),
- the sealing cups (see NOTE, paragraph 38, this operation).

41. Loosen the bleed screw (b) on the test bench. Disconnect the union (B) (2218-T) from the overflow return orifice on the corrector.

42. Fit the overflow return pipe union. (Close this with a rubber cap).

43. Thoroughly clean the outside of the corrector with alcohol.

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