

# **DIY: Change the stock Clutch Delay Valve to an Aftermarket Performance Model**

Disclaimer: I have written this DIY to help anyone who, like me, wanted to do this project but was looking for some details and tips on how to do it yourself. I do not accept any risk for anything you do to your car with or without my instructions. These instructions are meant to be accurate and helpful but are not a guaranteed step-by-step perfect listing.

Background: The BMW OEM Clutch System has a coupling between the hydraulic line and the Slave Cylinder that retards the flow of fluid during clutch release to keep the drivetrain from being abused during hard launches. This restrictive coupling protects the drive train downstream from the clutch in exchange for (more) wear of the clutch.

Purpose: The purpose of this modification is to replace this restrictive coupling with a unit that has been properly machined to a larger inside diameter so that it does not restrict the flow of hydraulic fluid from the line into the slave cylinder. (See Photo)



Tools Required:

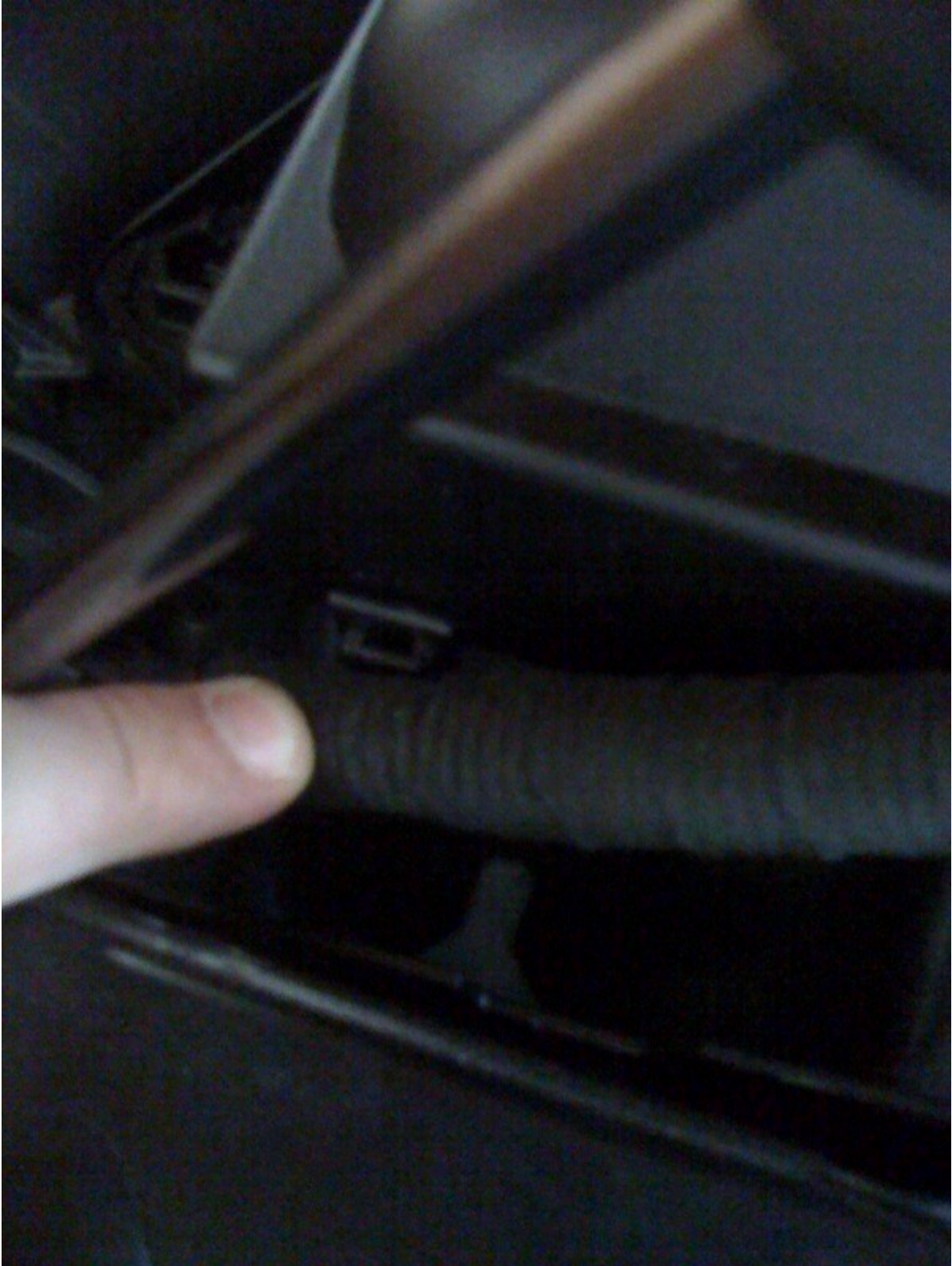
- 1) Torx Bit - Take off the cowel section under the driver's side cabin filter.
- 2) 13mm Socket - Used to release the locks on the cowel, airbox.
- 3) 8mm Socket/Wrench - Used to take off under car covers.
- 4) Phillips Screwdriver - Used to take off under car covers.
- 5) 11mm flare-nut wrench
- 6) 14mm open end wrench
- 7) 7mm short wrench
- 8) 1/4" ID Flexible Tubing

Materials Required:

- 1) Dot 4 Hydraulic Brake Fluid
- 2) Modified CDV (Mine is from Zeckhausen Racing)

Directions:

Step 1: Cut the tie-wrap that holds the washer fluid hose from the side of the cabin filter air box





Step 2: Pop the clip on the left side of the driver's side cabin filter air box.



Step 3: Use the 13mm Socket to turn this lock to release this side of the air box lid.





Step 4: Pull the molding strip back to over halfway to expose the break in the cowl parts.



Step 5: Release the clip that holds the two parts of the cowel together by pulling up slightly on the clip located on the right of the plastic part just at the top center of this picture. Then release three more 13mm locks on the air intake hole just below the plastic clip part.



Step 6: Release one last 13mm lock right near the joining area of the cowl area. The pull the cowl section out by pull it up and toward the passenger side of the car.

Step 7: Release the sensor connector (Not in picture) that plugs onto the lid of the fluid reservoir.





Step 8) Raise the front of the vehicle up either on ramps or with a lift if you have one.

Step 9) Remove the second under car cover from the front of the car. This cover attaches at the front with 4 Phillips Head Screws directly under the car (between the front wheels).

These 4 screws actually hold the front cover to the second cover - you do not need to remove the entire front cover. Two 8mm Hex Screws are up higher on the bottom of the subframe of the front suspension. The rest of the second cover is held up with several 8mm Hex Screws and two phillips screws at the very back of the cover about 1/2 down the length of the car. Also, the head shield helps hold this cover in place about 1/2 down the car so you need to remove 4 screws there to allow the cover to slide out of the shields.

Step 10) Remove the heat-shield that goes around the driver's side exhaust section (Two easy to get to 8mm hexscrews).

Step 11: Look for the slave cylinder above a black box of electronics, on the transmission, near the exhaust front cat.



The CDV is the finned part between the hardline and the slave cylinder.



Step 12: Use the 11mm wrench to loosen the hard line from the CDV, the use the 14mm wrench to remove the CDV.



Step 13: Replace the CDV with the modified unit and then reconnect the hardline.

Step 14: Remove the bleed-screw cap from the slave cylinder's bleed screw and connect the 1/4" tube to it.

Step 15: Bleeding the system - Open the brake fluid reservoir and fill it completely to the rim (be careful that stuff eats paint!). Go under the car and put the other end of the tube into a container with a little bit of new fluid and make sure to keep the tube end in fluid so no air can get back into the system. Be ready to open the bleed-screw with the 7mm wrench. Have a buddy pump the clutch with their hand about 10 times. Pause. Refill the reservoir to the rim! Pump the clutch 10 times. Repeat this process until all of the air is out of the system and the clutch has full pressure in the peddle. Immediately tighten the bleed-screw while clutch is being held to the floor. Now, to put the cap back on the fluid reservoir you may need to get some of the fluid out if it is too full because it will overflow.

Step 16: Reconnect the fluid-level sensor.

Step 17: Have a buddy pump the clutch and check for any leaks around the CDV, etc.

Step 18: Reassemble the cowel, airbox, under car covers.

Hope this helps!