

Volvo V50

Clutch Replacement

The Volvo V50 estate and the S40 saloon models were introduced in 2004 and were manufactured - with a number of different engine and transmission options - until 2012. It shared its platform with many other Volvo, Ford and Mazda models, making mechanical repairs on this vehicle seem familiar - even if the model is not an everyday visitor to an independent workshop.

The vehicle featured in this article is a 2011 model, fitted with the 1.6-litre diesel PSA group engine and a six-speed GETRAG manual transmission. It is a DRIVe model, so has stop/start capabilities.

The owner of the vehicle had reported some difficulty with the clutch operation; suspected to be a hydraulic fault due to the loss of fluid. However, there were no obvious external fluid leaks from the clutch master cylinder or associated pipes, hoses or connections. Therefore, the fault was suspected to be a leaking clutch concentric slave cylinder (CSC), which required the removal of the transmission for inspection and diagnosis.



The vehicle was brought into the workshop and the bonnet was opened. The engine cover was removed along with the battery cover, battery, battery tray and air cleaner assembly - as well as the DPF pressure sensor, which is attached to the battery tray. This was to provide access to the top of the engine and transmission. All cables associated with the battery were unclipped and secured until reassembly.

With the top of the transmission visible, the two gear selector cables were unclipped from their mounting points and secured out of the way. The reverse lamp switch and the neutral switch wiring harness connectors were unclipped, along with the CSC hydraulic pipe connection. The open end of the connector was sealed with a plastic cap to stop any excess fluid from leaking out. (Fig 1)

The main wiring harness that goes across the top of the transmission was eased back to reveal the top bell housing bolts; these were removed with two of the starter motor bolts that were accessible from the top of the transmission.

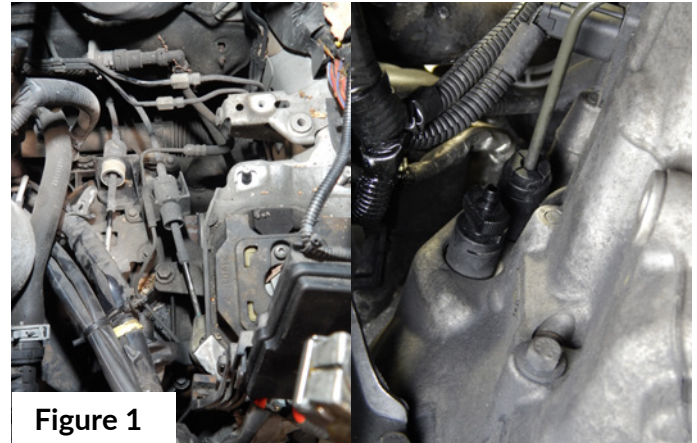


Figure 1

The diesel particulate filter (DPF) fitted to this engine needs to be lowered in order to gain access to one of the front bell housing bolts. The temperature and lambda sensor wiring harnesses were disconnected along with the differential pressure sensor pipes. The air intake pipe, heat shield and retaining clamp were removed, and then the DPF was able to be eased down to give clearance for the removal of the bell-housing bolt. (Fig 2)

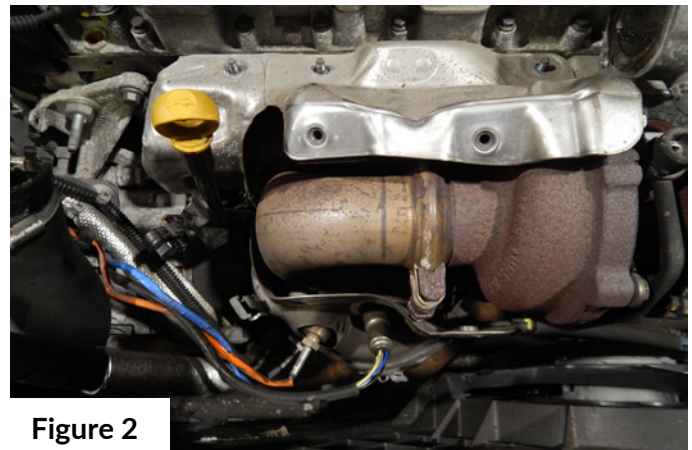


Figure 2

The vehicle was raised to a suitable height and the front wheels were removed, giving access to the hub retaining bolts which were also removed. Next, the left-front wheel arch liner was removed to improve clearance ready for the removal of the transmission.

The vehicle was raised again and the transmission oil was drained, followed by the removal of both front lower arm ball joints from the hub assembly. Next was the removal of the left driveshaft from the transmission. A supporting centre bearing retains the right driveshaft; this needs to be unbolted before the driveshaft can be removed.

Working from under the vehicle, the last starter motor bolt was located and taken out. The starter motor was supported and left in place because it does not need to be removed completely for the removal of this transmission. (Fig 3)

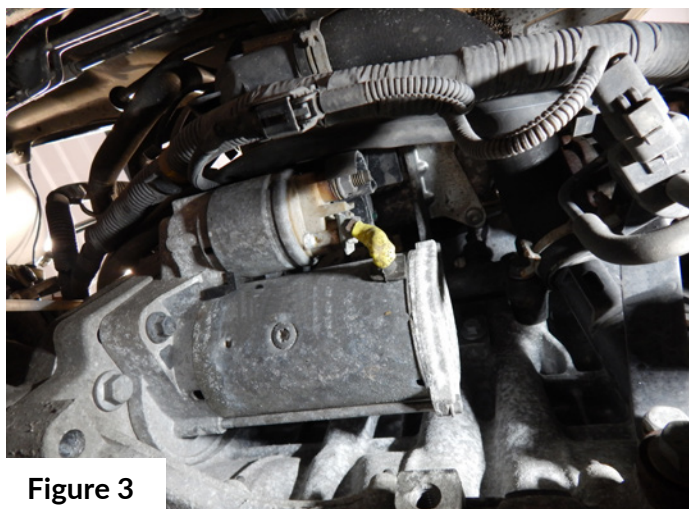


Figure 3

Next was the removal of the gearbox torque mounting - followed by the gear selector cable bracket to give extra clearance when removing the transmission. (Fig 4)

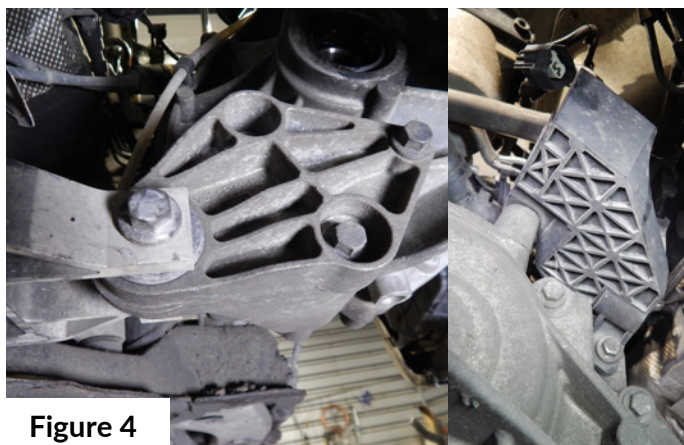


Figure 4

The engine was supported, the top transmission mount was released and the last of the bell housing bolts were removed, before separating the transmission from the engine. The transmission was lowered to the floor and inspected. Upon inspection of the bell housing it became obvious that the CSC had been leaking - causing the loss of fluid in the clutch system and the poor pedal performance. (Fig. 5)



Figure 5

The leaking CSC was removed. The bell housing and the input shaft were thoroughly cleaned of all grease, dirt and old friction fibres from the previous clutch and the input shaft seal was inspected before fitting the new CSC (ADM53635).

The clutch pressure plate and friction disc were removed and inspected, as well as the condition of the dual-mass flywheel (DMF). The friction disc was very close to being worn out; there was a lot of 'bluing' on the friction surface of both the pressure plate and flywheel. Therefore, all parts needed replacing. Clutch kit (ADF123081) and DMF (ADBP350003) were selected for this repair, the original flywheel was removed from the engine and the rear main oil seal was inspected for any oil leaks before fitting the new flywheel.

The new flywheel is an updated design and is supplied complete with new bolts. It is essential that the new bolts are used because they are a different length to the original bolts.

The new flywheel bolts were tightened to the recommended settings and the clutch kit was aligned and fitted to the flywheel.

The transmission input shaft splines were lightly greased in preparation for installation. (Fig 6)



Figure 6

The transmission was aligned to the engine and secured in place with a few of the bell housing bolts. This was followed by refitting all of the parts to the transmission, and all the other parts that were removed in the process of the transmission removal. Then, all of the bolts and fixings were tightened accordingly. The transmission was filled with fresh oil through the level plug (located on the front of the transmission) until the level was reached - and then the plug was refitted.

Following this, the brake/clutch fluid reservoir was topped-up with fresh fluid, and then the new CSC was bled of any excess air.

Finally, the battery tray - along with all the associated wiring - was refitted. The battery and other covers were also refitted. This was followed by resetting the clock and a check of the clutch pedal operation, before a road test was carried out to make sure the clutch was back to full operational order.

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