



Alistair Mason, Schaeffler

LuK Clutch Academy

Freelander 2 TD4

REXPERT's Alistair Mason replaced the clutch on a 2008 Land Rover Freelander 2 TD4, fitted with a 2.2 TDI engine. This clutch replacement job can be completed in 5 hours.



With the vehicle positioned on the vehicle lift, open the bonnet, remove the battery, battery carrier and air filter assembly (Fig 1) – this gives good access to the top of the gearbox.

Disconnect the gear cables, clamp the flexible part of the hydraulic clutch pipe and then detach the clutch pipe from the concentric slave cylinder connection. Remove the electrical multi-plugs from the front of the gearbox and stow in a safe area. With the vehicle still on the ground, slacken the O/S/F hub nut, as the driveshaft has to be removed later in the process, and slacken both front locking wheel nuts.



Raise the vehicle lift to waist height, remove both front wheels, release both front flexible brake pipes (Fig 2) and ABS wiring looms from the retaining brackets and disconnect both inner wing panels to expose the gearbox and the engine.

Raise the vehicle lift to gain access to the underside of the vehicle and remove the engine under-tray. The front sub-frame assembly needs to be detached, achieved firstly, by securing the steering rack in position. This was accomplished by strapping it to the



front struts. Disconnect both front ball joints from the hub carriers.

Take off the exhaust mounting, which is located at the rear of the sub-frame (Fig 3), before removing the mounting bolts for the anti-roll bar and steering rack.

Support the sub-frame using a transmission jack, unscrew the four sub-frame retaining bolts and lower the sub-frame on the transmission jack and stow in a safe area. A second person may be required to assist in the sub-frame removal.

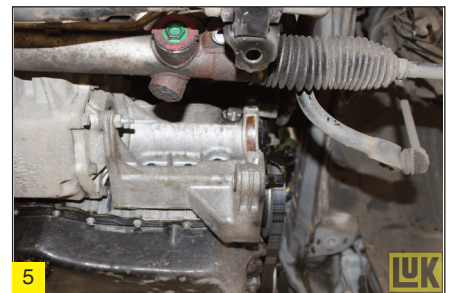
Drain the gearbox oil and transfer box oil. While the oil is draining, remove the turbo intake pipe that runs under the engine and



then remove both front driveshafts from the gearbox. The N/S/F driveshaft can stay attached to the hub assembly and secured to give clearance (Fig 4).

The O/S/F driveshaft needs to be removed from the vehicle. At this stage, refit the drain plugs and torque to the manufacturer's specification. With the O/S/F driveshaft removed, remove the centre bearing carrier bracket (Fig 5) from the transfer box and engine.

Disconnect the prop shaft flange from the



transfer box. It is always advisable to mark the flange location position prior to removal, to avoid any balance-related issues after the repair.

Remove the breather pipe from the vent on the top of the transfer box. Remove the seven retaining bolts and the transfer box from the gearbox, then stow in a safe area (Fig 6).

Detach the bell housing bolts, leaving in an easily accessible bolt to retain the gearbox in position, before supporting the engine using either an engine beam or a second transmission jack. Remove the upper gearbox mounting and then lower the engine to aid gearbox removal.



Take away the earth strap connected to the gearbox mounting bolt, as well as the mounting assembly (Fig 7).

Support the gearbox with the transmission jack, remove the final bell housing bolt and ease the gearbox away from the engine. Once clear of the clutch assembly, lower the transmission jack and clear the

gearbox, placing it in a safe area.

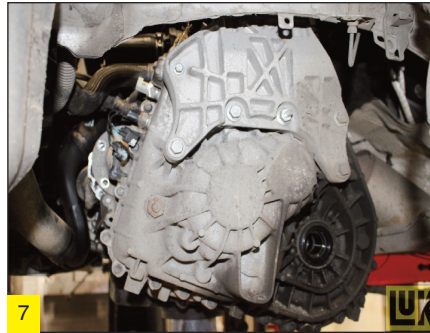
With the gearbox out of the way, remove the clutch assembly from the flywheel. During this particular examination, it was clear to see that the clutch plate had reached the end of its service life, as it had worn close to the friction material rivets.

Replacing the DMF

The DMF was replaced upon the customer's request. In this instance, excess heat was evident by the 'blueing' on the flywheel face. The replacement process is as follows: remove the DMF, check for any leaks on the back of the engine and rectify as required, so not to contaminate the new clutch components. Then clean the back of the engine with brake and clutch dust cleaner, ensure the new flywheel locates correctly, secure into position with the new flywheel bolts and torque to the manufacturer's specification.

Flywheel bolt replacement information and torque values can be easily obtained from Schaeffler's REXPERT workshop information portal or Schaeffler's DMF Checkpoint app.

Clean the bell housing area with brake and clutch dust cleaner, unclip and withdraw the concentric slave cylinder adaptor/extension pipe and then remove the concentric slave cylinder (CSC). Ensure the CSC mounting surface is clean before installing the new CSC, then torque the retaining bolt and fit the new



adaptor/extension pipe.

Smear a small amount of high melting point grease on the input shaft splines and slide the new clutch plate onto the input shaft. Doing this will guarantee that the clutch plate has the correct splines while it also distributes the grease evenly. Remove the clutch plate and any excess grease.

Mount the new clutch assembly onto the flywheel using a clutch alignment tool, and confirm the clutch plate is fitted correctly with either 'Gearbox Side' or 'Getriebe Seite' facing the gearbox and that all the clutch faces are clean. When installing the clutch bolts, tighten and torque them evenly and sequentially.

It is always best practice to flush/change the clutch hydraulic fluid when replacing the CSC, and this is done simply by removing the clamp from the hydraulic clutch pipe and flushing the fluid through into a drainer, until the clean fluid is running through. Once

flushed, clamp the hydraulic pipe ready for the gearbox installation. Finally, ensure the engine to gearbox alignment dowels are installed in the engine before installing the gearbox.

Place the gearbox on the transmission jack and ease into position. It is always worth spending a little time to ensure the gearbox is at the correct height and angle on the jack to help with installation. Once the gearbox is located correctly, secure with an easily accessible bell housing bolt and then install in reverse order of removal.

Remember to refill the gearbox and transfer box with the correct quality and quantity of oil and to reset electrical systems and control units when the battery lead has been reconnected. A final road test will ensure a quality repair.

Find more information on the REXPERT garage portal, www.rexpert.co.uk, or call the Schaeffler technical hotline on +44 1432 264 264.

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