



LuK Clutch Academy

Ford Ranger

The Ford Ranger is amongst the new breed of 'company vehicles' for builders and farmers. LuK's provides help and advice on the huge gearbox on this 4x4 and mechanics should not put off as long as you have a ramp, a couple of transmission jacks and a serious attitude towards health and safety, its fairly easy to change the clutch and Dual Mass Flywheel (DMF) if necessary.

The only thing you have to do under the bonnet is disconnect the battery. Leave the starter motor installed, it's the safest option. In the cab, the clipped-in centre console needs removing, together with the two screws retaining the gearstick grommet plate. After selecting Neutral and lifting the second grommet, remove six bolts retaining the gear sticks and remove the gear sticks, noting which one goes in which hole (although it is difficult to get this wrong).

With the vehicle in the air, remove the front metal undertray and the transfer box protection plate. Mark the propshafts to the flanges, to prevent any balancing issue. Undo the rear propshaft at the gearbox, remove the centre bearing and stow/support the propshaft to one side. Undo the bolts and remove the front propshaft completely.

Disconnect as much of the gearbox harness as you can, but you may need to come back to some of the higher connections when you lower the gearbox back end a little. Remove the bolt securing the exhaust clamp to the gearbox bracket and remove the bracket from the gearbox. Remove the two bolts securing the slave cylinder (Fig 1) and stow it safely to one side.

Support the rear of the gearbox with one of the transmission jacks and remove the eight bolts securing the gearbox support beam to the chassis and the three bolts securing it to the rear gearbox mount (one is up inside the beam, but easily accessible from beneath) and remove the beam. Slacken and remove the four bolts (Fig 2) securing the front axle support beam to the body, which will allow the front differential to drop a vital few inches, getting the differential drive flange out of the way of the gearbox bell housing for removal.

Lower the rear of the gearbox to allow better

access to the remaining harness connections including the bell housing bolt securing a harness support bracket. After disconnecting and removal, stow the harness clear of the work area.

Undo the three starter motor bolts and make sure the starter is free from the bell housing. Remove the remaining nine starter motor bolts, which are all the same length, albeit some have nuts. Bring the other transmission jack into position and make sure you are happy with the positioning.



Large gearboxes, especially ones with transfer boxes sticking out the side, present a real hazard, as they do not naturally sit on two transmission jacks (Fig 3) and are likely, or be required to, rotate when removing.

With the utmost care, withdraw the gearbox, which may be tight on the dowels. Carefully lower the gearbox and make sure it is secure before continuing.

Remove the clutch and test the DMF for rotational freeplay and rock. The maximum limits for this DMF are six teeth freeplay and 2.9 mm of rock. Make sure this last measurement is measured rather than estimated. DMF rock is very misleading. Maximum values for other DMFs can be found on LuK's new App available free for iOS and Android

devices. Just search for "DMF Checkpoint" on either the App store or Google Play.

In this case, the secondary mass had rotated, covering the bolt heads (Fig 4) which meant it had exceeded its torque capacity. In most cases that would point to a chip tuned vehicle, but in this case we know the vehicle had a gearbox seizure which would lead to the same problem. Using the DMF special tool, the primary mass was locked and the secondary mass rotated to expose the bolts. As the DMF was scrap, we used a long bolt through the clutch fixing hole to lock the flywheel in a position where the bolts were accessible. When removed, the crank seal should be checked for leaks and the spigot bearing checked and lubricated before the rebuild can begin. Check the clutch fork for damage and wear, and if the ball pivot and socket are both metal, lubricate it with high melting point grease (HMPG). Lubricate the splined input shaft with HMPG, slide the new driven plate up and down the shaft then wipe off any excess.

As it's a self adjusting clutch (SAC) the new clutch should be preloaded to the flywheel before fitting the bolts. This prevents any accidental distortion of the clutch cover, thereby guaranteeing no clutch judder or de-adjustment. The LuK SAC special tool is available from the same source as the LuK clutch and DMF and will ensure a professional repair.

The rest of the assembly is the reverse of the removal, taking extra special care when handling the very heavy gearbox.

Check out the latest in online support at www.RepXpert.co.uk or contact the LuK technical hotline at +44 (0)1432 264 264.

