

Some questions on **clutches**

The modern-day vehicle uses a multitude of new technologies, not only in engine management systems, but also in transmission controls. LuK answers some questions about clutch replacement and some newer developments.

LuK has been to the forefront in the development of new technology in clutches, and have developed innovations such as the Dual Mass Flywheels (DMF), Self Adjusting Clutch (SAC) and Concentric Slave Cylinders (CSC).

Why use a Dual Mass Flywheel (DMF)?

In earlier times, noise levels generated by the vehicle were accepted as part of the nature of things. However, today we demand a quieter environment in which to travel, so noise pollution is unacceptable. To compound things further, the increases in power and torque have led to unacceptable levels of torsional vibration. To combat this increase in vibration and noise, LuK developed a DMF in 1985 which was more efficient than the conventional damper assembly. A DMF should be checked for any signs of wear or overheating and replaced if necessary. Worn DMFs can cause premature failure of a new clutch. LuK has a DMF testing tool available that will accurately assess the condition of the DMF, giving confidence to the technician on whether to replace a DMF or not.

Can you use a conversion kit to replace a DMF with a solid flywheel?

Vehicle manufacturers spend millions of euros developing and testing their powertrains with DMFs to minimise noise, vibration and improve durability. Solid flywheel replacements cannot absorb as much damaging vibration as a DMF, and therefore you run the risk of not only degrading the quality of drive, but also shortening the life of the driveline components. This can result in premature failure of such items as the gearbox, driveshafts and in some cases even a crankshaft.

What is a Self Adjusting Clutch (SAC)?

The SAC was introduced to help maintain a constant pedal feel throughout the life of the clutch. This is achieved by means of an adjuster



A self adjusting clutch has opposing ramps that take up slack as the clutch wears

ring, which has twelve ramps that locate on opposing ramps within the cover pressing. Acting on pressure from three small coil springs, the adjuster ring moves on the ramps and reduces the gap between the pivot point and the cover, once a change in load has been detected. This has eliminated the need for any adjustment by the garage.

What is a Concentric Slave Cylinder (CSC)?

The CSC is a combined, all-in-one hydraulic slave cylinder, input shaft snout and release bearing. A CSC has less moving parts and less friction is generated, allowing for a better pedal feel and operation. As there are fewer moving parts, reliability is also greatly improved. It is always advisable to change the CSC with every clutch replacement, because the release bearing is part of the assembly.



A CSC combines the slave cylinder, input shaft snout and release bearing in one unit

Should I lubricate the release bearing inner bore and gearbox input shaft?

The inner bore of the release bearing only needs lubricating if the bearing inner race is metal. Bearings with a plastic inner sleeve do not need lubrication. Only use a high melting point grease when lubricating and never use a copper based grease, as it is not a lubricant. Apply the grease to the gearbox snout, gently slide the bearing up and down a couple of times, remove the bearing and wipe off any excess grease.

Clutch plates will need the input shaft to be lubricated with the exception of nickel coated hubs, which are self-lubricating. To grease the input shaft, smear a little grease on the splines and then slide the new clutch plate up and down a couple of times, remove the

plate and wipe away any excess grease.

The DMF I am fitting has a lot of play in it compared to the old one:

Some vehicle manufacturers use DMFs from LuK in addition to other suppliers. Different designs use different bearing technology between the two masses, so there will be a difference in movement. If you are not sure, call the LuK Technical Hotline on 0044 1432 264264.

The new clutch I have fitted does not work correctly:

This can be caused by several things. To help prevent this from happening, careful diagnosis of the original fault is required. Was the old clutch badly worn? Is there any oil contamination etc? Also, it is good practice to compare the old clutch against the replacement before fitting. When fitting the replacement, bolt the clutch and the gearbox up evenly and sequentially, making sure not to hang the gearbox and create strain through the clutch plate centre hub. If a clutch cable is fitted, it is recommended to change the cable with every clutch replacement, even if it looks OK. Was the DMF, if fitted, checked for wear (a poster from LuK advising on the checking process is available on request).

Is the clutch of original manufacturer specification?

All LuK clutches, DMFs and CSCs are manufactured to original equipment specification and therefore meet current Block Exemption Regulations. During the manufacture process, they are tested several times so that you can fit with confidence.

Is there a web site where I can find further information?

Yes there is. Visit www.repxpert.com and subscribe, free of charge, where you can access valuable and useful information on LuK products. The web site also gives a step by step diagnostic guide to help with getting the job completed right first time. You can also contact LuK's dedicated Technical Hotline team on 0044 8457 001100.

