# = INSTALL WITH CONFIDENCE =====

THE INFORMATION PROVIDED BY BORG & BECK APPLIES TO ALL BRANDS OF CLUTCH COMPONENTS, AS IT RELATES TO THE INSTALLATION PROCESS AND IS NOT IN ANY WAY RELATED TO THE QUALITY OF THE INDIVIDUAL PRODUCT.

IMPORTANCE OF ENGINE TO GEARBOX ALIGNMENT

Before offering up the gearbox, align the input shaft with the hub spline of the clutch disc. Do not allow the weight of the gearbox to hang off the spline as this could cause the drive plate to break apart.

Avoid using power tools. Instead snug the bolts first, ensuring the transmission is drawn in parallel to the engine. Then torque all bolts with a torque wrench to the correct specification, in the correct order (usually a star pattern).

Best practice is to ensure that the clutch disc is parallel pre-installation. You can check the lateral run out of the disc, which should not exceed 0.5mm, as it could cause the clutch to drag.

The clutch disc only has a 1.5mm gap either side when disengaged and any misalignment would cause the disc to foul the flywheel and pressure plate.

Never use power-tools to force the transmission to seat against the engine. This can damage the hub spline.



engine to gearbox misalignment. The Disc must be parallel

#### U U U Always use a transmission jack when aligning the gearbox to the engine. Lifting in place without one could damage the plate and cause

Using an Alignment Tool allows the Clutch Plate and the **Pressure Plate** to be assembled, and centred, on the bench. When bolting the Cover to the Flywheel, ensure that it is located on the Dowels correctly. Snug the **Clutch Cover** mounting bolts before torguing them gradually and evenly to spec in a Star Pattern. Failure to do so could lead to misalignment.

### UBR GATE KEEP TO A FINE FILM

Lubrication of the spline shaft should be kept to a fine film using the sachet supplied with your Borg & Beck Clutch Kit. Alternatively, any high performance, high melting point, non-copper-based grease can be used.

Where installed, ensure that the clutch fork/release lever is not worn before fitting the release bearing to it. Apply a fine film of grease to the bearing bore and abutments.

Failure to follow these lubrication guidelines may result in the drive plate friction surface becoming contaminated. This results in the coefficient of friction being reduced and the inability of the plate to transmit all of the torque from the engine to the gearbox, creating a juddering or slipping effect.

> Please note, excessive greasing can affect the performance of your new Clutch, so always remove the excess.

# WHY HAS THE CLUTCH FAILED?

Clutches are designed to last in excess of 80,000 miles under normal operating conditions.

They wear over time due to the friction forces key to their operation. If the problem doesn't relate to something in the release mechanism being worn or seized, there are number of reasons that may cause premature failure, and it is important to understand the root cause.

These include poor driving style, riding the clutch, towing heavy loads, frequent hill starts. Or if the clutch has recently been replaced, there may have been an error in its installation.

Understand the driver complaint, history and take for a test drive if possible. Is it a release problem, noise, judder, slipping, or total loss of drive?





Identify the potential cause of Clutch failure with our fault diagnosis poster.

Available on request by email at: marketing@firstline.co.uk





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#### Grease points may vary between systems, but include the hub splines, input shaft, pilot bearing, release bearing, guide tube, release system pivots/bearing abutment points and the pushrod end.

**RESPECT** DO NOT COMPRESS THE CSC

Concentric Slave Cylinders (CSC's) are commonly fitted to modern applications where the release mechanism is hydraulically operated. It is recommended to always replace the CSC, if fitted, at the time of changing a Clutch assembly.

It is vital that you avoid the temptation to compress the CSC. This can cause damade, as out of the box the seal is dry.

You must ensure that the CSC mounting face is clean, and any seals, gaskets or sealant should be used as per the vehicle manufacturers guidelines. It is also essential that the fixing bolts and pipes are not over tightened as they could fracture (maximum torque 15Nm).

If using a pressure bleeder, use on the lowest setting to avoid damaging the CSC.

TOP



Did you know?

occur as a result

of compression damage or

over-bleeding.



Borg & Beck CSC's are quality controlled on our CSC test rig, putting them through 100,000 cycles at 140° to replicate the on vehicle operating temperatures.



**DO NOT** rapidly pump the Clutch pedal during the bleeding process. Slowly depress and release the Clutch pedal, ensuring that the reservoir is kept topped up with fluid.

## A SINGLE MASS FLYWHEEL CONVERSION

Single Mass Flywheel Kits (SMF) are designed to provide a more cost effective and durable solution for vehicles which have a dual mass flywheel as original equipment.

SMFs are ideally suited to higher mileage applications, low speed city driving, and the demanding operating environment commonplace with LCV applications. It is an OE designed solution that allows the worn DMF and its associated Clutch components to be replaced with a traditional Solid Flywheel and Clutch Kit.

This has been made possible by the development of a long travel damper, which uses advanced vibration clutch technology, capable of up to 40° of torsional movement. It is therefore comparable to the ment that is typical from the equivalent DMF at the time of the vehicle's original manufacture.

#### TOP

Always check the DMF for signs of wear, thermal-cracks, damage caused by a worn driven plate, or evidence of overheating. A worn DMF may have been the cause of the original Clutch failure and also need replacing.

### **SMF BENEFITS**

- Reduced engine vibration due to increased inertia
- Extremely durable thanks to efficient heat dissipation and simple design
- No complex components that fatigue and fail
- Cost effective vs a DMF Clutch Kit replacement
- Solid Flywheel is unlikely to need replacing at the next clutch change

If it is identified that the DMF caused the failure, why not consider a Borg & Beck SMF conversion kit. They offer a more cost-effective and durable solution, especially on vehicles that operate in demanding

environments.