

# REAL Torque

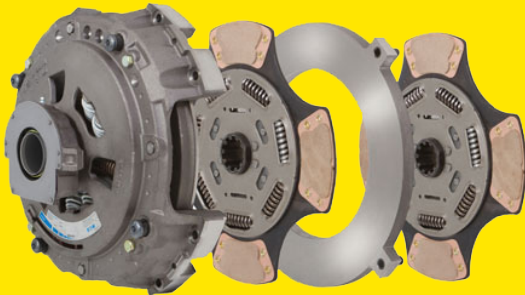
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Contact maintenance for any questions on 0800 80 80 69

## Clutch Failures

Clutches are the connection between the truck engine and gearbox. The engine's power is transferred directly to the clutch. The clutch can be subjected to huge forces and bad driving behaviour can severely limit the clutch's lifespan.

There are two types of friction material, ceramic and organic. These have vastly different properties, which means they have different applications but both are effectively the connection between the clutch and the engine flywheel.



Commonly used ceramic clutch set up



Organic clutch

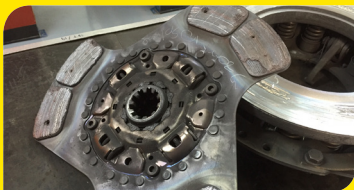


Ceramic clutch

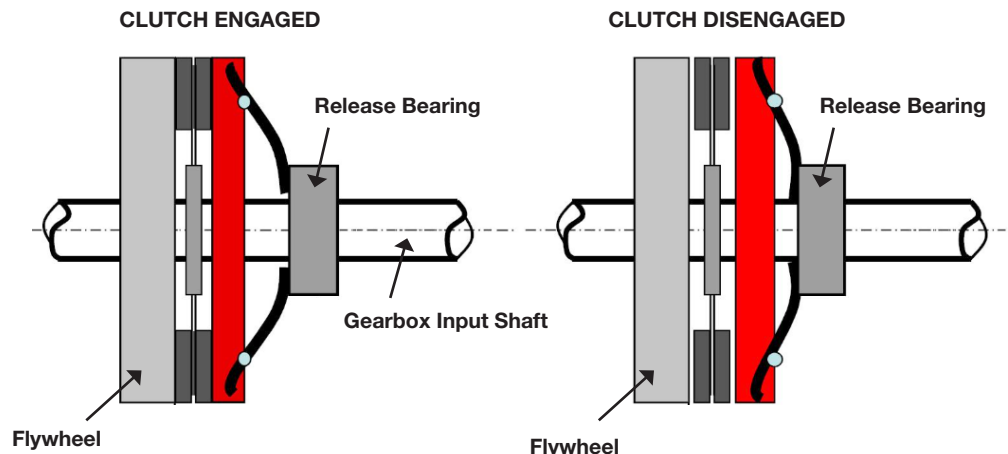
**The major cause of clutch failure is excessive heat.** This is when the heat generated between the engine flywheel and clutch driven plate are high enough that the clutch friction material is destroyed.

Heat generated is at its highest while the clutch is beginning to clamp to the engine flywheel (engaging).

A **slipping clutch** can be identified when the engine revs increases rapidly when the accelerator is depressed without any noticeable increase in road speed.



Result of slipping clutch



There are a number of factors that can cause excessive heat build-up and ultimately lead to clutch failure.

**The following are driver related:**

- ▶ Starting off in a gear that is too high for the load. You should be able to let the clutch out and the truck will start moving at low revs, if not, select a lower gear or range.
- ▶ Riding the clutch pedal. If this is happening, then the clutch may be partially disengaged and therefore slipping. This will also cause premature wear on the clutch release bearing as it is constantly revolving where it would normally only revolve when the pedal is depressed or when a gear change is being made.
- ▶ Using the clutch to hold the truck on a steep incline instead of using the truck's braking system.
- ▶ Coasting for long periods with the clutch pedal depressed and the transmission in gear can result in high shock loading of the clutch friction material.
- ▶ Dropping the clutch. This is a sure fire way to destroy a clutch.



- ▶ Poor gear shifting techniques. Skip shifting into a higher gear before reaching the correct speed means the engine speed and road speed are too far apart and the clutch is overloaded and may start to slip as a result.

**Mechanical reasons contributing to clutch failures:**

- ▶ Incorrect clutch adjustment. Most clutches require a manual adjustment. This is something that should be checked at service time. As a clutch wears, adjustment is needed to ensure there is free play so that the clutch driven plate is able to be clamped fully to the flywheel otherwise slipping and inadvertently excessive heat build-up will result.



- ▶ Oil contamination. Leaking rear crankshaft seals or front gearbox seals.
- ▶ Incorrect clutch installation. This is where parts have been incorrectly aligned or damaged while fitting, as they have been fitted the wrong way around.
- ▶ Release bearing failure. This is most commonly due to lack of lubrication.
- ▶ Incorrect type of clutch fitted for truck application. Use the manufacturer's recommendations.
- ▶ A flywheel that has been over-machined or has been resurfaced too many times.
- ▶ Misalignment between the gearbox bell housing and the engine housing because of loose bolts.
- ▶ Broken clutch driven plate dampener springs resulting in high shock loading.
- ▶ Excessively worn gearbox input shaft splines. If this is the case, the shaft should be replaced when replacing the clutch.

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**Tips and tricks**

- ▶ Do not exceed recommended vehicle loads.
- ▶ Have clutch serviced at manufacturer's recommended intervals. This involves lubrication of key components, release bearing, fork pivots, cross shaft bushes, clutch brake and linkages as well as checking adjustment.
- ▶ Have any erratic or unusual clutch operation or noise checked.
- ▶ If clutch starts to slip, have this attended to immediately.



**TR Tips**