Diesel Clutch/Flywheel Inspection Method.
Revised Inspection Method

Background

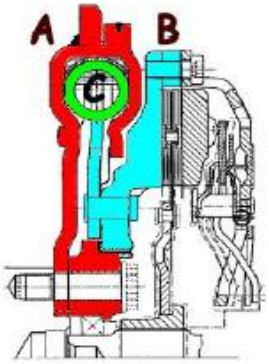
Due to the nature of the dual mass flywheel system it can be difficult to correctly asses the parts' serviceability during any related repair. The inspection method in this bulletin is intended to clarify the inspection process.

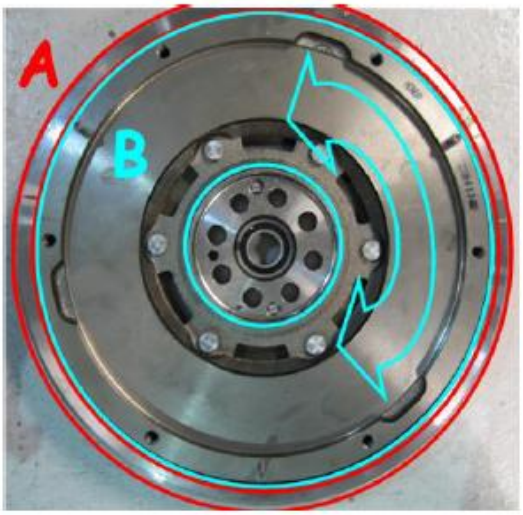
Inspection Method

A dual-mass flywheel is used to reduce driveline vibration/noise, particularly when driving at low engine speed.

A faulty dual-mass flywheel CANNOT cause any form of clutch problem.

The flywheel consists of two masses: the primary mass (A) is fixed directly to the crankshaft (as per a normal flywheel), the secondary mass (B) is connected via large torsional springs (C) which allow for up to 55° of rotation in either direction.





Inspection
The following checks can be carried out when the transmission has been removed. It is easier to check the flywheel when it is still fitted to the crankshaft.

Freeplay of the secondary mass
The secondary mass is supported on a large bush in the centre of the flywheel but this bush only provides radial location. When the transmission is in place, the mainshaft passes through the clutch disc and provides additional support.

Testing for freeplay of the secondary mass when the transmission is removed is not a valid check because it is not supported by the transmission mainshaft.

Rotational movement of the secondary mass
There are two mechanisms which control the rotational movement of the secondary mass - the torsional springs and a friction damper.

When the transmission has been removed it is possible

to rotate the secondary mass by hand. Depending on the final resting position of the friction damper the rotational movement can feel very different.

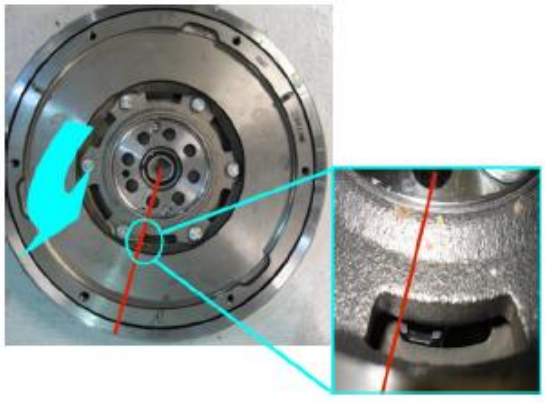
Check 1:

With the flywheel fixed to the engine check it is possible to rotate the secondary mass by hand. The first part of the movement of the torsional springs should be relatively easy, further rotation is restricted by the friction damper it will not be possible to overcome this by hand.

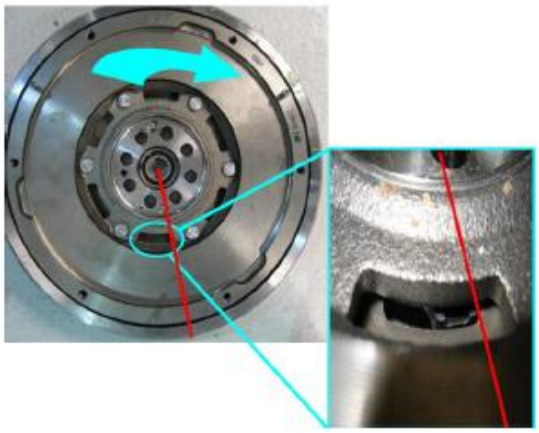
Whilst checking, look at the position of the friction damper through the window. For the purposes of this testing, assume the damper is fixed to the crankshaft (centre of the flywheel).

Check 2:

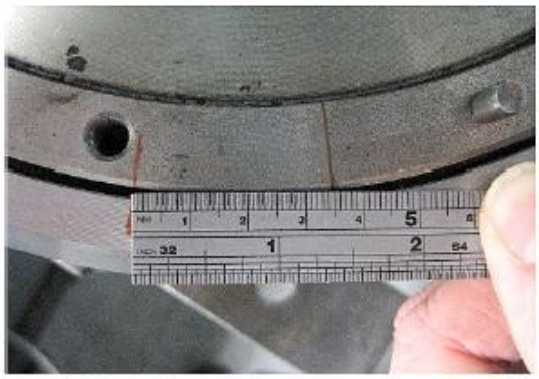
The secondary mass movement should be measured by marking a line from centre to outside at the point when the secondary mass locks against the inner damper collar or when the resistance is such that the inner flywheel cannot be rotated any further **anti-clockwise** by hand.



Then mark another line across both flywheels at the point when the inner flywheel locks against the inner damper collar or when the resistance is such that the inner flywheel cannot be rotated any further **clockwise** by hand.



Then measure the distance between the lines across outer edge of secondary mass exactly as shown in photo. The accepted specification is between 3.5 ~ 35.0 mm. If the measurement is within specification it can be reused.

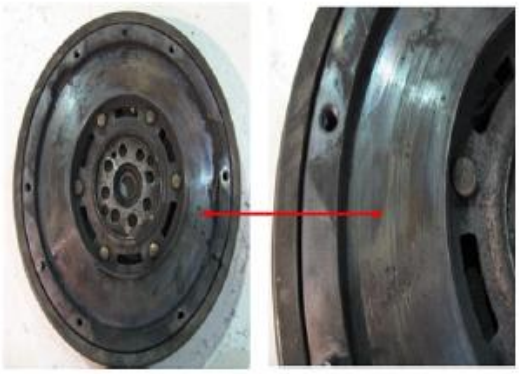


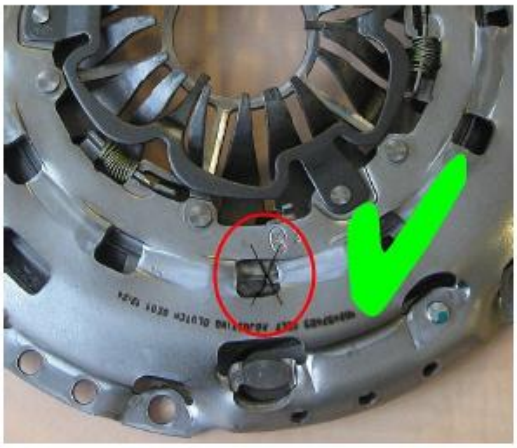
If there is no movement of the inner flywheel or the measurement is not within specification then the flywheel must be replaced.

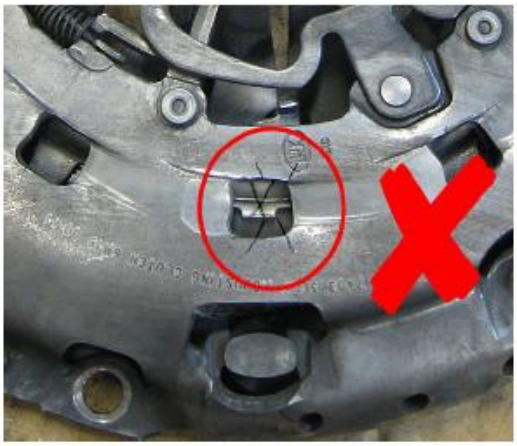
Warranty replacement should not be carried out if the flywheel is within specification.

Flywheel Preparation

The friction surface of the Dual Mass Flywheel can be re-dressed with an abrasive cloth provided there are no heat cracks or scoring.







New Clutch Part Check

Before fitting new clutch cover check the Self Adjust mechanism is in the correct position. It is possible that if the new part is mishandled or subjected to any severe shock that the mechanism can move away from the correct start position which will affect the operation of the clutch.

Check for alignment of "X" mark on adjustment mechanism.

Note: X mark is engraved into clutch mechanism material by supplier and will remain visible.

If the mechanism is found to be in the incorrect position the part should not be used.