

Dual-mass flywheels are installed in many modern vehicles to decrease noise and improve refinement on the move.

- 1 = **Primary flywheel**  
with starter ring gear
- 2 = **Secondary flywheel**
- 3 = Soft springs
- 4 = Firm springs
- 5 = Planet wheel
- 6 = Spring seat
- 7 = Sliding shoe
- 8 = Ring gear
- 9 = Radial plain bearing
- 10 = Axial plain bearing
- 11 = Cover plate to retain the grease packing
- 12 = Hole for pin to prevent rotation

### What experts should know before doing repair work:

#### General notes

- Clean the dual-mass flywheel with oil- and grease-free rags only.  
High-pressure cleaners, steam jets, cleaning sprays or compressed air must not be used.  
They could lead to dirt or cleaning agents getting inside the dual-mass flywheel and causing increased wear.
- For technical reasons, the secondary flywheel friction area must not be reworked!
- The primary and secondary flywheel have to be prevented from rotating with a 6mm-pin before removing it from the crankshaft.  
If this is omitted, the secondary flywheel could be damaged by a bolt head.
- Always renew the crankshaft connecting bolts.  
Please observe the tightening torques for the bolts.  
Observe the vehicle manufacturers' instructions (expansion bolts, securing material).
- When replacing the clutch for the second time, always replace the dual-mass flywheel as well.  
The torsional damper in the dual-mass flywheel is also wear component.

## Testing

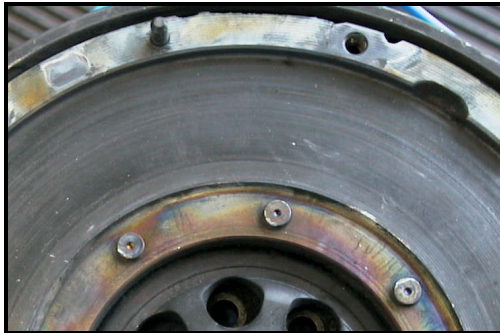
- **Reliable functioning** of dual-mass flywheels can only be checked on a **special test rig**.  
In the workshop, only **provisional testing** can be carried out:  
If the primary and secondary flywheels can be rotated more than 20mm in opposite directions by hand (measured on the circumference, depending on the type of flywheel and the diameter), the wear limit has been reached.

## Possible causes of damage/failure of the dual-mass flywheel

- Frequent stalling of the engine / driving at extremely low engine speeds
- Irregular operation of the ignition and fuel injection systems
- Different compression pressures in various cylinders
- Extreme vibration due to worn drivetrain components
- Overheating

## Typical damage to flywheels

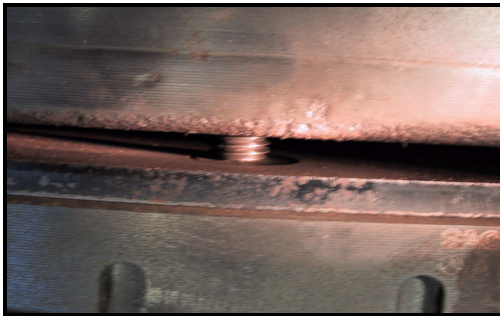
- Overheating of the secondary flywheel is caused by misuse of the clutch, e.g. by allowing it to slip extremely.
- This is recognised clearly, when heat cracks and annealing colours occur
- The heat makes the damping lubricant ineffective
  - Sliding shoes, spring seats, springs "run dry"



Caused by misuse of the clutch, e.g. clutch slip:

→ Overheated secondary flywheel!

Heat cracks, burn marks on the friction surface of the secondary flywheel.



When bolts with excessive length are used to fit the cover assembly, the primary and secondary wheel are „blocked“.

- Vibration damping is not possible
- Noise cannot be reduced



Extreme mechanical overstress

- Leads to the destruction of the inner parts
- In exceptional cases the housing of the primary flywheel is frayed by the destroyed inner parts
  - Total failure of the DMF
- This is also detected when grease escapes