

# Diagnosis of worn wheel end bearings

## Expert tips and trouble tracing

### Challenge:

Wheel end bearings are vital components of a car. They are crucial for safe, quiet operation, minimising rolling resistance and assuring proper ABS function. On average the replacement cycle is around 150,000km. This is average as the lifetime of wheel end bearings can be negatively impacted by:

- Incorrect installation - by not installing the bearing correctly or incorrect torque setting
- Heavy driving conditions - extra weight due to towing or laden vehicle, sports driving and uneven road surfaces
- Car modifications - Larger rims and low profile tyres, lowered suspension and track width adjustments made by fitting wheel spacers
- Extreme environmental conditions - extreme temperatures, snow, road salt, flooding, dust and sand

A worn wheel end bearing will negatively impact the car's road holding and therefore must be checked during every maintenance inspection.

### Solutions:

#### Symptoms indicating worn or failing wheel end bearings:

- A humming, rumbling or growling noise that increases with acceleration or as the vehicle turns
- A loud constant whining or grinding noise when the vehicle is in motion
- Looseness, excessive play in the steering or a clunking noise when driving over rough road surfaces
- Vibration, felt in the steering wheel which changes with the vehicle speed or as the vehicle turns
- ABS system issues may be related to failure of the ABS sensor integrated into the wheel end bearing

**Note:** Play, looseness and clunking noises may also indicate a worn suspension component.



### Identifying the faulty wheel end bearing:

In many cases it's difficult to say which bearing is worn as the noise travels through the car body or frame. Here are a couple of tricks to help identify the faulty wheel end bearing:

- Lift the car so the wheel is off the ground and can spin freely
- Check play/looseness by trying to shake the wheel with two hands and if the wheel feels loose, the bearing is worn or damaged and should be replaced as soon as possible
- Rotate the wheel by hand and listen for any unusual noise either by ear or with the use of a stethoscope
- Check vibration by holding the suspension spring with your index finger and thumb and spin the wheel with the other hand and taking notice of any vibrations coming through the spring while the wheel is spinning

Check every wheel of the car and replace the wheel end bearing if you notice any play, noise or vibration.

