

# Steering basics tie rod ends

Tie rod ends and ball joints take a beating on ordinary roads. On many Irish roads, the demands are even higher. Meyle's Sven Nielsen explains the basics of front suspension checking, plus a reason to consider using stronger than OE parts.

With another winter on the way, many local roads will become worn, or even more worn than they are now. Many of your customers rely on your assessment of their cars, especially when it comes to potential safety hazards. Faulty steering and suspension components are definitely safety hazards, as well as a possible cause of accelerated wear of shocks and tyres that will increase future repair bills. Follow these simple steps to keep your customer safe and save them unnecessary future repair costs.

Wear of the ball joints occurs when intense strain and high surface pressure wears on the tie rod end, creating noise and free play in the steering. Meyle's HD range offers an improved version of OE parts, by increasing the diameter of the ball head of the tie rod end, which increases the wear surface area. Their ball joints also use an ultra wear-resistant synthetic ball sockets. The redistribution of the surface pressure and decreasing friction ensures a significantly longer lifetime.

## Signs of a problem

### Sounds

The first sign of a worn ball joint or tie rod end can be a clunking or banging sound during cornering or when going over un-even surfaces. The sound is similar to a lump hammer hitting a large metal object. As the wear increases, the noise will become louder.

### Steering

Worn ball joints and tie rod ends can affect the feel of the steering, making the steering seem either loose or stiff. This is caused by the wear in the ball joints delaying the movement of the wheel or by binding the ball in the socket.



Use a pry bar to check ball joints and tie rod ends. Any free play is too much.

## Tyre wear

Worn suspension allows the tyre to move about without the steering wheel moving. As this occurs, the tread will wear in an odd fashion. Uneven wear can sometimes be seen, but to really see if the tyre tread is wearing normally, rub your hand around the tyre at a few locations, and in both directions.

Anything other than a smooth feel to the tread is a sign of a problem with the suspension. One edge of the tyre wearing faster than the other is a clear sign of a worn ball joint. If both edges are wearing faster than the middle, the problem is underinflation of the tyre.

## Checking Ball Joints

### Visual inspection

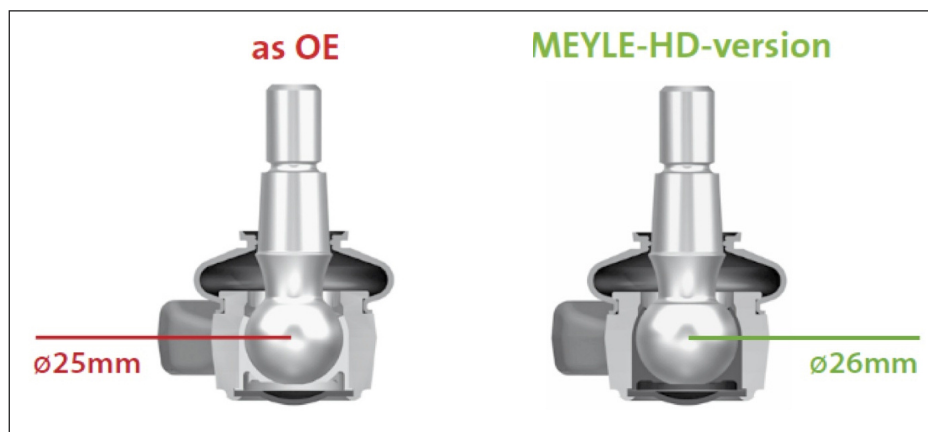
The first step in any inspection should be visual. Any cracked rubber boot or bushing should be replaced. A cracked boot may have allowed road grime and water to enter into the ball joint to cause accelerated wear. Excessive rust and physically damaged or bent parts should also be replaced without question.

## Checking for play

The next step involves checking to see if there is any play or movement in the ball joints and tie rod ends. This has to be done with the weight of the vehicle still on the tyre, or in a similar condition. On some vehicles, if the tyre is raised from the ground by lifting from the frame, the front suspension drops down from its normal position. In this situation, even a badly worn ball joint may not be easily spotted. Position the jack on the lower arm or under the lower ball joint (if this is possible) as close to the wheel as possible. Only lift on a component that is strong enough to support the weight of the vehicle. If in doubt, leave the weight on all four wheels as you test for play.

With the weight of the car still on the wheel, grab the outside of the tyre and try to wiggle the tyre with your hands at the 9 and 3 positions. Any free play is too much and is most likely due to a worn tie rod end. Next, try to wiggle the tyre with your hands at the 12 and 6 positions. Any detectable free play is too much and is most likely the result of worn ball joints.

If no free play can be felt by moving the tyre by hand, it is still possible that there is a worn ball joint or tie rod end. Using a pry bar or length of a rod or pipe, apply force that would separate the lower control arm and the wheel hub. While applying this force, watch the ball joint. Any movement within the joint, or between the hub and the control arm, is too much and the joint should be replaced. Repeat this test at all of the ball joints and tie rod ends.



The Meyle HD ball joint for an Audi A4 has a larger diameter than the original OE ball joint

