

# Chassis



## Chassis

The suspension of steering and chassis parts is of central importance: This is where the whole weight of the vehicle is borne, which can be multiplied in fast bends. The individual rolling elements of the wheel bearings have to bear enormous changes in load on a minimum surface area, very often under extreme and diverse external temperature conditions. With such demands we have to ensure that the quality of materials and lubrication is of a level that can meet such demands. Not forgetting hard impact loads caused by poor road surfaces or parking on pavements. In the long term, only top-quality components, which guarantee professional mounting and maximum reliability, will be able to cope.

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### Stabiliser rod (coupling rod)

The stabiliser rod, also known as the coupling rod, connects the stabiliser with the suspension. The stabiliser itself compensates for the different movements (e.g. rocking movements when cornering) of the wheels on an axle. The coupling rod usually has two ball joints on each end of the rod. As the coupling rod is subjected to significant strain, the joints often become worn. They deflect and generate knocking noises when driving over bumps in the road.

#### Signs of failure:

Dirt enters damaged or porous rubber gaiters and damages the ball joints over the long-term.

Article number: J489\* , J496\* , J497\*

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### Bellow kit, steering

A bellows is an elastic hose made from rubber, plastic etc, which folds together like a harmonica. In the steering, it is positioned over the axle joint and prevents the ball joint and the steering rack outlet from getting soiled. Frequent cause of failure: Damage on the bellows (rips or leaks) means that dirt can enter the axle joint or the steering gear.

Article number: J410\* , J411\*

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### Control Arm- | Trailing Arm Bushs

The bearing for the control arm has the task of absorbing the movements from right to left and from top to bottom. The bearing ring and liner are connected by vulcanised rubber. This process must be carried out very carefully to exclude bearing play during production.

Article number: J420\* – J425\*

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### Tie rod end

The tie rod connects the steering gear with the wheel carrier. It passes on the steering movement of the driver to the front wheels and guides the vehicle in the track. The tie rod ends at the end of the steering link are ball angle joints. They carry the main load of the steering movement and the wear is proportionately high. The ends can usually be replaced individually. The

wear makes itself felt through changes in the steering behaviour of the vehicle. Damage to the tie rod end is caused by faulty ball joints, which, in turn, are caused by dirt entering damaged or porous rubber gaiters. Another common fault cause is worn tie rod ends.

Article numbers: J482\* , J483\*

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### Coil springs

Coil springs, the connecting part between the wheels and the chassis, must fulfil high safety-specific requirements during travel. They have to compensate for unevenness in the road and help guarantee driving comfort. They also ensure that the wheels maintain safe contact with the ground at all times regardless of the road surface. They guarantee that the drive, brake and shear force is transferred correctly to the road.

Damaged springs shouldn't be underestimated as a safety risk, as they have a direct impact on

the driving characteristics and safety of the vehicle. Yet damaged springs are often only detected in the workshop. The spring usually breaks in the first coil, so that the broken piece often lies unnoticed in the spring washer. Typical results include slight changes in driving behaviour and a creaking, cracking noise development when steering.

Article number: J440\* – J441\*

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### Wheel bearing kit

The task of the wheel bearing is to guide the shafts and axles in a vehicle, to support them and to ensure even running. The basis of the wheel bearing is the rolling bearing, consisting of a ball bearing, a roller bearing or a tapered roller bearing. Constantly collecting the axial and radial forces leads to high levels of wear, which makes itself felt gradually. This means that the driver gets used to the noise level and it usually takes another driver to notice the noise. At this point, the vehicle should be taken to a workshop as in the worst case scenario the wheel arch may become blocked. Before this

stage, however, the rolling resistance is increased by the worn bearings, resulting in higher fuel consumption.

Possible causes of wheel bearing faults include leaks usually due to inadequate lubrication, damage to the suspension, e.g. due to bent shafts, unbalanced wheels or insufficient air pressure in the tyres and corrosion through bearing contact with rust-causing fluids or incorrect lubricant.

Article number: J47\*

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### Ball joint

The ball joint is the connecting piece between the control arm and suspension strut and carries the weight of the vehicle. The ball joint is protected by a rubber gaiter and joins the control arm with the stub axle. If it is faulty, the entire control arm often has to be replaced.

behaviour and the road positioning of a vehicle. The cornering changes and the vehicle becomes unstable. A failure is often caused by a faulty ball joint.

This is often caused by dirt entering damaged or porous rubber gaiters.

Article number: J486\* , J487\* , J498\* , J499\*

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### Control arm

The control arm is a connecting piece between the body and the suspension strut and stub axle. The control arm, usually a wishbone arm, increases the rigidity of the suspension in the direction of travel. It is usually mounted on the body with two composite bearings made from rubber-metal. The ball joint connects the control arm with the stub axle. Main task: It catches the horizontal impacts of the acceleration, braking

and centrifugal forces. This means that even the slightest play in the mounting has a negative impact on the driving behaviour and increases the risk of accidents. Signs of failure: Driving over kerbs, potholes, corrosion, dirt entering through porous rubber gaiters, etc.

Article number: J490\* – J494\*

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### Axle joint

The axle joint is the inner joint of the steering link on the steering gear side. The axial joint and the tie rod end are connected to each other via an adjustable thread. The track of the wheels can be set accordingly with the thread and nut. The tie rod end and the axle joint are connected by an extremely rigid joint. This means that the steering movements are passed on almost 1:1

to the wheels. Faulty or skew axle joints cause the steering wheel to be out of line and poor driving behaviour in a straight line. This results in a significant change in the steering behaviour and also impacts the smoothness of the wheels on the front axle.

Article number: J484\* , J485\*