



Driving Safe Through the Winter Months

- **Time for the annual winter check-up with tips from ZF Aftermarket**
- **Chassis, brake and steering system checks are important**
- **Defective steering boots lead to serious consequential damages**

Even as this year's golden autumn weather suppresses any thoughts of winter, moist air in the morning can quickly become frost and fog can impair visibility. ZF Aftermarket therefore advises its auto repair shops to offer drivers a thorough winter check-up, ideally around the end of October. This ensures that vehicles remain safe on the roads and in traffic.

Brake, steering and chassis checks are part of the standard services included in an annual winter check-up and should not be neglected. While the car is on the lift, mechanics should also thoroughly inspect shock absorbers, bearings and joints. The steering boots may also need special attention.

Steering boot refers to bellow-shaped sleeves of thermoplastic elastomers (TPE). They ensure that no moisture or particles get into the joints of the tie rods as well as the steering gear. Even the smallest cracks in the steering boot can have major consequences. For example, dirt and moisture – also the particularly aggressive road salts used in the winter – can get into the moving parts of the steering gear and cause surfaces to corrode.

Intact steering boots protect the steering system

A corroded surface on the rack in the steering gear ruins the sealing on the steering cylinder over time. This can lead to massive hydraulic fluid losses in the hydraulic steering systems and, in the worst case scenario, failure in the steering assistance. By regularly checking the steering boots, drivers can avoid having to replace, at great expense, the steering gear and tie rods.



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In addition, electrically driven steering systems malfunction over time due to corrosion-related wear and tear. The sensitive inner electrical and mechanical components are also affected. Noises, sluggishness and malfunctions are the result.

Driving comfort and safe vehicle handling can only be guaranteed long term if the steering boots are intact, thus optimally protecting the tie rods and steering. A steering system in good working order requires good steering behavior and a steering wheel that independently centers. In addition to the steering system, a well-maintained chassis and properly functioning shock absorbers further guarantee driving safety. After all, the vehicle is only truly safe if all parts of the chassis are working perfectly.

Assembling the steering boot requires a special tool

If it is necessary to replace the steering boot, the repair shop should use only spare parts of OE quality and the right tool. Otherwise, the steering boots used will not seal properly to the sealing surfaces on the tie rod and the steering gear. In principle, the fastening clamps for the steering boots must be replaced and, moreover, should be installed according to the manufacturer's instructions. This ensures that the steering boot seal is reliable and durable. Applying a few grams of silicone grease on the sealing seats will make it easier for the mechanic to install the steering boots so they fit on tightly. Doing so also makes the seal more effective.

Depending on the steering gear type, additional rubber sealing rings are also included in the packaging. These have to be mounted so that no silicone grease gets on to the sealing surface! Installation would be even easier for the repair shop if it used a steering gear, for example the JRP1130 for the Volkswagen Polo 6R1/6C1, with pre-assembled tie rods and steering boots. ZF Aftermarket sells steering systems under the TRW brand for over 98 percent of European passenger car models.

With a broad range of OEM-quality products from ZF Aftermarket, auto repair shops are well-prepared for the impending winter check-ups.



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Captions:

- 1) ZF Aftermarket recommends a winter check of safety relevant chassis parts
- 2) TRW: Bellows and equipment

Image: ZF

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ZF Friedrichshafen AG

ZF is a global leader in driveline and chassis technology as well as active and passive safety technology. The company has a global workforce of 146,000 with approximately 230 locations in some 40 countries. In 2017, ZF achieved sales of €36.4 billion. ZF is one of the largest automotive suppliers worldwide.

ZF allows vehicles to see, think and act. The company invests more than six percent of its sales in research and development annually – in particular for the development of efficient and electric drivelines and also in striving for a world without accidents. With its broad portfolio, ZF is advancing mobility and services in the automobile, truck and industrial technology sectors.

With integrated solutions and the entire ZF product portfolio, the ZF Aftermarket Division of ZF Friedrichshafen AG guarantees the performance and efficiency of vehicles throughout their life cycle. Its combination of established product brands, digital



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innovations, customized products and services, and a worldwide service network has made ZF a sought-after partner and number two in the global automotive aftermarket.

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