

## Top Tips

# Repairing and Inspecting Steering and Suspension Systems

Steering and suspension-related issues are some of the most common customer concerns technicians repair in the shop. Harsh road conditions, longer maintenance intervals, and regular vehicle wear and tear can all contribute to these issues. Technicians can take useful approaches to aid in suspension inspection and service, such as verifying wheel alignment, following a precise inspection process, and accurately diagnosing the issue. It is also important to consider what systems are equipped on a vehicle and the modern electronic systems that assist with driver stability control.

These tips will help improve initial steering and suspension systems inspection and service, as well as create a better understanding of advanced steering and stability feature diagnostics.

**1**      **Verify proper vehicle wheel alignment.**

When a problem with the steering or suspension system is suspected, checking the vehicle's wheel alignment is a good place to start. Issues such as a misaligned steering wheel or a pulling condition can occur due to improper wheel alignment. If a poorly aligned vehicle isn't corrected, repeat component failures can occur. A misaligned vehicle can be caused by worn-out, bent, or damaged parts, or by rough road conditions or natural wear on vehicle steering and suspension components. Camber, caster, and toe are the three measured specifications when checking alignment.

A misaligned vehicle or a worn-out suspension component can also cause premature or uneven wear on tires. If a customer follows a proper tire rotation schedule and still experiences premature tire wear, checking the alignment and verifying the integrity of both the steering and suspension systems are good steps before tire replacement.

**2**      **Perform a thorough inspection.**

When performing a steering and suspension inspection, a well-planned, careful process should be followed. Simply shaking a vehicle's tires or performing a general visual inspection is not enough to verify the integrity of

the steering and suspension systems. Modern vehicles come with varying configurations of suspension components and may need to be checked either by loading components underweight or leaving them unloaded. Technicians should use a vehicle inspection sheet to remind them of all steering and suspension components that may be equipped. A quality visual inspection sheet should include checking tie rod ends, struts or springs, control arms, tires, the rack and pinion/gearbox, as well as any other equipment based on configuration, to ensure that all the vehicle's suspension components are properly inspected.

## 3

### Accurately service power steering systems.

Power steering systems are completely electric on new model vehicles, other than heavy-duty applications. However, many vehicles that come in for service are still equipped with hydraulic power steering systems. If a vehicle is equipped with an Electric Power Steering (EPS) system that has failed, a customer would typically experience a total loss of power steering. Begin by verifying steering operation via the scan tool. If scan tool data is unclear, check the EPS system's power feeds and grounds as a next step. Normally, if the EPS has a hardware failure, the entire rack and pinion must be replaced.

Vehicles with hydraulic power steering systems can be more forgiving in some instances. The hydraulic system is traditionally equipped with a belt-driven pump, hoses and lines, and a hydraulic rack or gearbox. In some cases, if a power steering pump is whining, it may indicate the system is low on fluid or the pump is beginning to fail. Other common failures include hoses and lines that have degraded or a rack/steering box that has worn internally. No matter the cause of the power steering failure, Duralast and TruGrade offer a variety of power steering replacement parts that deliver OE-level quality or better.



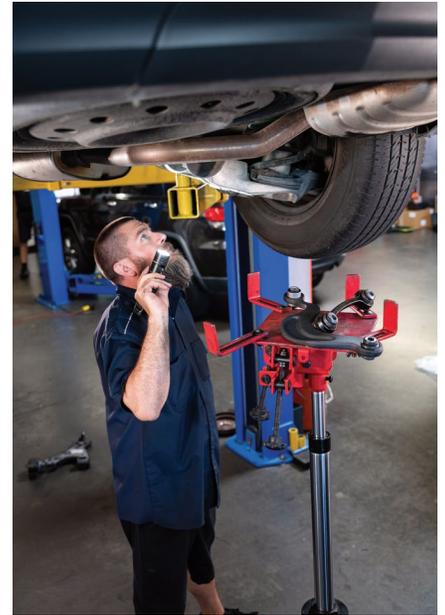
Brought to You By

**AutoZone**

## 4

### Troubleshooting and diagnostics with scan tools.

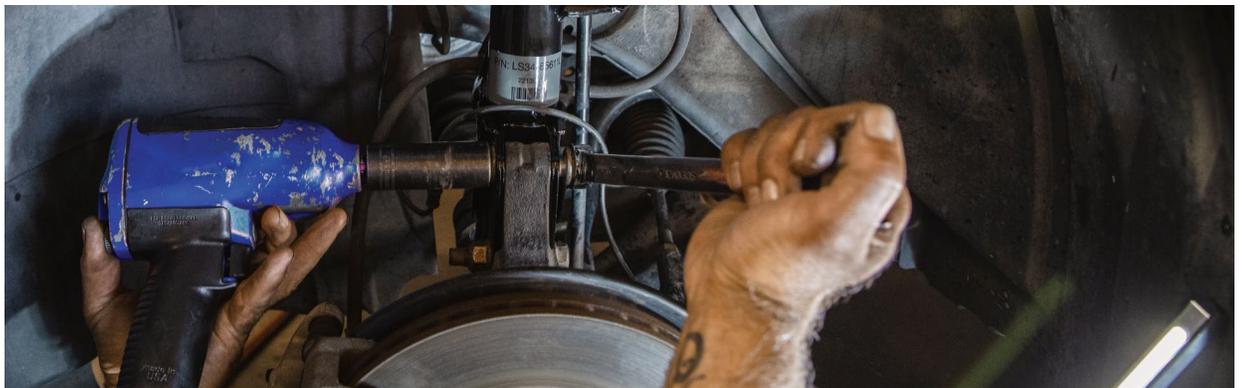
While using a scan tool to check diagnostic trouble codes (DTCs) is a standard first step for many technicians, many scan tool features are commonly overlooked during diagnosis. There are many scan tool parameter identifiers (PIDs) on modern vehicles that can give indicators if there is a physical problem with the steering or suspension system, or if the vehicle's sensors are working properly. Yaw rate and steering angle sensor data can be monitored to verify that the stability control system is working properly, while ride height level sensors can help diagnose a suspected air suspension issue. It is always wise for a technician to perform a comprehensive check of electronic data when diagnosing a steering or suspension-related concern.



## 5

### Understand modern driver assistance systems.

Customers are ordering new cars with more convenience and safety systems than ever before. Many modern vehicles are equipped with ride control enhancements, including automated emergency braking, lane-keep and parking assistance, and other advanced driver assistance systems (ADAS). If a vehicle isn't serviced properly or an incorrect steering or suspension component is installed, there is a risk of disabling these systems. Some newer vehicles also contain cameras and radar sensors that may require recalibration once a steering or suspension component is replaced. Technicians should verify what systems a vehicle is equipped with and if they are properly functioning before beginning any service, to avoid creating accidental faults or disabling a driver assistance system.



For more information, visit  
[autozonepro.com/ridecontrol](https://autozonepro.com/ridecontrol)

[Learn More >](#)

Brought to You By

