

Body Repair Tech Note: Steering Gear Replacement After Collision

Body Repair Tech Notes provide information about Tesla-approved methods and practices for body repair. These instructions assume knowledge of motor vehicle and high voltage electrical component repairs, and should only be executed by trained professionals. Tesla Motors assumes no liability for injury or property damage due to a failure to properly follow these instructions or for repairs attempted by unqualified individuals.

This Body Repair Tech Note supersedes BR-15-32-001, dated 24-Nov-15. Each content change is marked by a vertical line in the left margin. Discard the previous version and replace it with this one.

For safety, the steering gear must be replaced after a collision or any impact that results in any of the following conditions:

- Damage to any of the components listed in the “Component Damage” section of this document
- Changes in the operation of the steering gear (described in the “Changes in the Operation of the Steering Gear” section of this document)
- The vehicle cannot be aligned within specifications using normal adjustment procedures (described in the “Alignment Issues” section of this document)



WARNING: Always replace a steering gear that has visible external damage.

NOTE: Use only new, genuine Tesla parts. Refer to [BR-14-10-004](#), “Model S and Model X Structural Repairs”, for more information.

A steering gear without external or visible damage might have internal damage from a collision or other impact that could lead to a steering gear failure. It is not feasible to directly diagnose internal damage to a steering gear, so the conditions listed above should be used to assess whether to replace a steering gear after a collision or other impact. Email collision-techinfo@tesla.com with any questions on these guidelines or on a specific repair.

Component Damage

Replace the steering gear after a collision or other impact that damages any of the following:

- Steering gear mount
- Outer tie rod
- Front subframe
- Front air spring module or coil spring
- Front knuckle
- Front hub
- Fore link
- Aft link
- Upper control arm

- Front half shafts (Dual Motor vehicles)
- Steering column

NOTE: For steering column inspection information, refer to Body Repair Tech Note “Airbag Component Inspection and Replacement After Deployment”:

- [BR-16-20-005](#) for Model S in North America
- [BR-16-20-006](#) for Model S in Europe and APAC
- [BR-16-20-007](#) for Model X

Changes in the Operation of the Steering Gear

Replace the steering gear after a collision or other impact that results in any of the following issues when turning the steering wheel from stop to stop:

- Jamming
- Catching
- An increase in the effort required to turn the wheel compared to a non-damaged steering gear

NOTE: Raise the front wheels so that they move freely before performing this test.

Alignment Issues

Perform a four wheel alignment. If the vehicle cannot be aligned within the specifications listed in the Service Manual (**General Information > Technical Data > Wheel alignment**) using normal adjustment procedures, replace the steering gear.

For feedback on the accuracy of this document, email collision-techinfo@tesla.com.