7. Drive shafts

7.1. General Description

The drive shafts transmit the Engines output power from the transmission to the drive wheels. The drive shafts consist of several key components. The drive shafts are not serviceable and must be replaced as an assembly.

Constant Velocity Joints

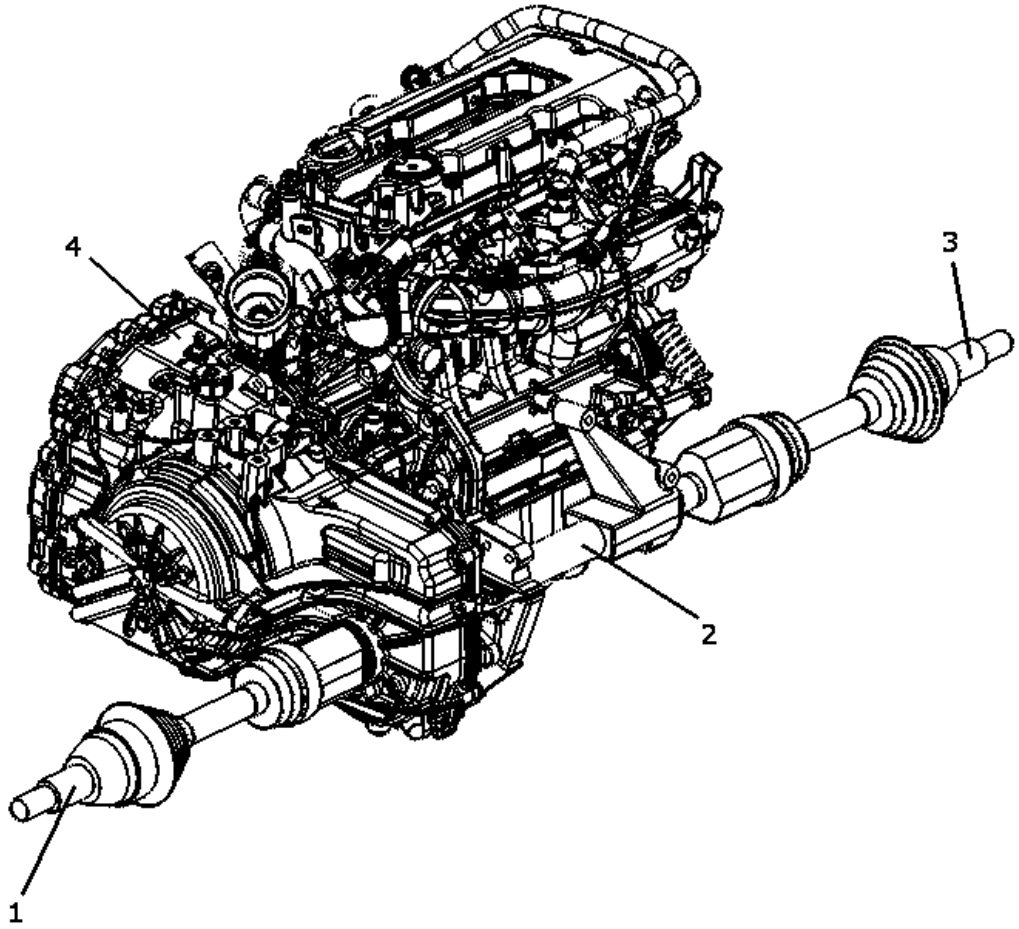
The constant Velocity or CV joints are located at the ends of the drive shaft and allow for the transmission of power through various angles. Without a significant amount of play or friction

Constant velocity joint boots

The CV joints require a clean well lubricated environment in order to properly operate. A corrugated rubber boot seals the CV joint

Drive line

The drive line connects the CV joints and transmits the vehicles power to the wheels



1. Driver's Side Axle Shaft
2. Intermediate Shaft
3. Passenger's Side Axle Shaft
4. Engine & Transmission

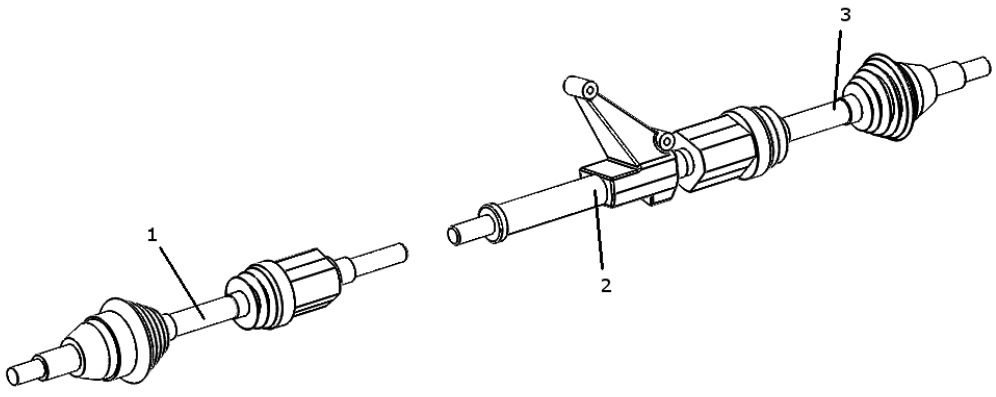
7.2. Specifications

7.2.1. Fastener Specifications

Fastener **Tighten**ing Specifications

Application	Specification	
	Metric	English
Front Wheel Intermediate Shaft Bracket Bolt	22 Nm	16 lb ft
Front Wheel Drive Shaft Nut	50 Nm + 60 degrees	37 lb ft + 60 degrees

7.3. Wheel Drive Shaft Component Location



1. Driver's Side Axle Shaft
2. Intermediate Shaft
3. Passenger's Side Axle Shaft

7.3.1. Diagnostic Information and Procedures

7.3.1.1. Symptoms - Wheel Drive Shafts

Important:
Complete the following steps prior to beginning the wheel drive shaft diagnosis.

1. Review the Vibration Diagnosis, Starting Point, and Correction.
2. Perform the Vibration - Analysis Road Testing in order to effectively diagnose the concern.
3. Review the system operation in order to become familiar with the system function. Refer to Wheel Drive Shafts Description and Operation.

7.3.1.1.1. Visual/Physical Inspection

- Inspect for aftermarket equipment and modifications which could affect the operation of the wheel drive shafts or other rotating components.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.
- Thoroughly inspect the entire wheel drive shaft for visible damage, leaking joint seals, and missing seal clamps.
- Inspect the wheel drive shaft seals for cuts, tears, or other damage which may allow the loss of lubricant and the entry of contaminates.

7.3.1.1.2. Symptom List

After performing the Visual/Physical Inspection and no visual signs of damage or other interference impairing the wheel drive shaft function is apparent, it may be necessary to remove the wheel drive shaft from the vehicle and manipulate the joints manually. Any binding or otherwise impeded movement of the joints may indicate damage which could contribute to the concern. Refer to the following:

- Clunk When Accelerating from Coast
- Clunk Noise When Accelerating During Turns

7.3.1.2. Clunk When Accelerating from Coast

A clunk noise occurring when accelerating from coast or a standing start may be caused by a worn or damaged wheel drive shaft inner joint. The common cause of wheel drive shaft inner joint damage is the loss of lubricating grease and/or the presence of foreign material and contaminates in the joint. This usually occurs as a result of a torn or damaged inner joint seal.

Carefully inspect the wheel drive shaft seal for cuts, tears or other damage that may allow the loss of the lubricating grease and/or the entry of contaminates.

If inspection reveals no visual evidence of wear or damage, inspect the wheel drive shaft. Refer to Wheel Drive Shaft Inner Joint Inspection.

7.3.1.3. Clunk Noise When Accelerating During Turns

A clunk noise that occurs while accelerating during turns may be caused by wear and/or damage to the inboard and the outboard joints in combination. The loss of lubricant and/or the presence of contaminates can cause damage to the internal components of the joints.

Carefully inspect the joint seals for cuts, tears or other damage. Joint seals that are damaged may allow lubricant leakage and the entry of contaminates.

If inspection reveals no visual evidence of wear or damage, inspect the wheel drive shaft inner and outer joints. Refer to Wheel Drive Shaft Outer Joint Inspection or Wheel Drive Shaft Inner Joint Inspection.

7.3.2. Repair instructions

7.3.2.1. Left Axle Shaft

7.3.2.1.1. Tools

10mm hex tool
15mm wrench
18mm wrench
19mm wrench
36mm socket
Crow bar or pry tool

7.3.2.1.2. Removal

1. Remove Front Left wheel, Refer to Front Wheel Replacement
2. Remove fender bracket (with attached fender) from the steering knuckle using a 10mm, 13mm, and 15mm wrench
3. Remove and Discard axle nut using a 36mm socket
4. Remove pre-load from Coil Spring, Refer to Front coil Over Shock Replacement, Removing Spring Pre-Load
5. Disconnect the Pushrod from the Upper Control Arm, refer to Push Rod
6. Disconnect the Upper Control arm from the chassis, Refer to Upper Control Arm
7. Pull the steering knuckle away from the vehicle and tilt it down, as you remove the axle spline from the hub
8. Using a crow bar or pry tool, remove the axle from the transmission
9. Axle is now free to remove from the vehicle

7.3.2.1.3. Installation

1. Insert the axle spline into the transmission opening
2. With the lower control arm connected to the steering knuckle, maneuver the axle spline into the hub
3. Connect the Upper Control arm to the chassis, Refer to Upper Control Arm
4. Connect the Pushrod to the Upper Control Arm, refer to Push Rod
5. Install axle nut using a 36mm socket tighten to **50 Nm + 60 degrees (37 lb ft +60 degrees)**
6. Set Spring Pre-load, Refer to Front coil Over Shock Replacement, Setting Spring Pre-Load
7. Install the fender bracket to the steering knuckle using a 10mm, 13mm, and 15mm wrench
8. Install Front Wheel, Refer to Front Wheel Replacement

7.3.2.2. Intermediate Shaft

7.3.2.2.1. Tools

15mm wrench

7.3.2.2.2. Removal

1. Remove Right Axle Shaft, Refer to Right Axel Shaft replacement
2. Remove two bolts connecting the intermediate shaft to the engine manifold using a 15mm wrench
3. Remove the intermediate shaft spline from the transmission, and the shaft is then free to remove

7.3.2.2.3. Installation

1. Insert the intermediate shaft spline into the transmission
2. Install the intermediate shaft to the engine manifold using a 15mm wrench
3. Install the Right Axle Shaft, Refer to Right Axel Shaft replacement

7.3.2.3. Right Axle Shaft

7.3.2.3.1. Tools

10mm hex tool
15mm wrench
18mm wrench
19mm wrench
36mm socket
Crow bar or pry tool

7.3.2.3.2. Removal

1. Remove Front Right wheel, Refer to Front Wheel Replacement
2. Remove fender bracket (with attached fender) from the steering knuckle using a 10mm, 13mm, and 15mm wrench
3. Remove axle nut using a 36mm socket
4. Remove pre-load from Coil Spring Refer to Front coil Over Shock Replacement, Removing Spring Pre-Load
5. Disconnect the Pushrod from the Upper Control Arm, refer to Push Rod
6. Disconnect the Upper Control arm from the chassis, Refer to Upper Control Arm
7. Pull the steering knuckle away from the vehicle and tilt it down, as you remove the axle spline from the hub
8. Using a crow bar or pry tool, remove the passenger's side axle shaft from the intermediate shaft
9. Axle is now free to remove from the vehicle

7.3.2.3.3. Installation

1. Insert the axle spline into the intermediate shaft opening
2. With the lower control arm connected to the steering knuckle, maneuver the axle spline into the hub
3. Connect the Pushrod to the Upper Control Arm, refer to Push Rod
4. Connect the Upper Control arm to the chassis, Refer to Upper Control Arm
5. Install axle nut using a 36mm socket
6. Set Spring Pre-load Refer to Front coil Over Shock Replacement, Setting Spring Pre-Load
7. Install the fender bracket to the steering knuckle using a 10mm, 13mm, and 15mm wrench
8. Install the Front Right wheel, Refer to Front Wheel Replacement