

Front Drive Axle and Differential

The front drive axle consists of:

- A Salisbury axle design with final drive components assembled into a one-piece housing
- A hypoid gear design with the centerline of the pinion set above the centerline of the ring gear
- Two opposed tapered roller bearings support the drive pinion in the axle housing
- A conventional differential carrier
- Removable differential bearing caps retain the differential assembly in the axle housing
- U-joints with zerk fittings in the axle shafts
- Full-floating axle shafts
- A cast center section with 2 steel tubes
- A stamped differential housing cover
- Silicone sealant is used as a differential cover gasket
- Axle identification is found on an embossed tag bolted to the differential cover
- A drive pinion collapsible spacer, located on the pinion shaft, maintains pinion bearing preload. The pinion nut adjusts the preload

The front drive axle receives input from the transfer case by way of the front driveshaft. Rotational torque is transferred through the drive pinion to the ring gear, which in turn drives the differential carrier. Inside the differential carrier are the pinion gears which rotate on the stationary pinion shaft and the side gears which are splined to the axle shafts. The differential assembly is a gear arrangement that allows the drive wheels to be driven at different speeds and divides the input torque of the pinion gear between the axle halfshafts. The front axle transmits torque only and carries no vehicle load. U-joints located near the wheel knuckle in the axle shafts, allow the axle shafts to remain stationary in relationship to the side gears, yet articulate at the knuckle. These U-joints permit the wheels to be driven and turned at the same time. Lack of lubrication is among the most common causes of U-joint concerns. It is essential that all bearing seals be purged of old grease and contaminants.

Limited-Slip front differential

The Limited-Slip differential is available that introduces a series of clutch plates and discs behind the differential side gears to deliver as much torque as possible to each axle shaft when the traction at the rear wheels is not equal. The Limited-Slip differential requires a friction modifier that must be installed with the axle lubricant for the plates and discs to be functional. This axle provides added traction on slippery surfaces, particularly when one wheel is on a poor traction surface. Under normal conditions, the limited-slip axle functions like a standard rear axle. The axle may exhibit a slight noise or vibration during tight turns with low vehicle speed. This is normal behavior and indicates the axle is working.