

While that sounds simple, driveshaft science is quite complex.

It spins at very high rpm.

When you are in overdrive, it spins faster than the engine itself.

When you're on the highway doing 80 mph, and the engine is turning 3,000 rpm, your driveshaft could be spinning at 5,000 rpm, depending on the overdrive gearing.

This rotational force must be contained. Otherwise, the driveshaft can bend at speed, which is called "jump roping."

An adequately designed driveshaft can yield more speed. On the other hand, any little wobble, warp, or vibration kills power.

What Is a Driveshaft?

Common driveshaft components include interlinked yokes and joints. Rear pinion yokes are common, but some vehicles use a flange yoke to secure the driveshaft to the rear axle instead.

There are several components to a driveshaft:

Slip yoke - This part slides in and out of the transmission as needed to accommodate suspension travel. It's specific to the transmission.

Pinion yoke - At the axle, the pinion yoke bolts to the pinion gear shaft, which connects the ring gear. The pinion yoke is sometimes a part of the driveshaft, where it bolts to a flat flange on the pinion. But in most cases, the pinion yoke bolts to the pinion gear, and the pinion U-joint bolts to the pinion yoke.

Carrier bearing - Most cars do not use these, but some do, as well as a lot of trucks and SUVs. When the driveshaft has to be longer than can safely be supported by a single-piece driveshaft, the shaft is made in two or sometimes three sections supported by a carrier bearing, which bolts to the chassis. This is a pillow block bearing with splines so that there is a slip feature for suspension movement.

Universal joint - Often called U-joints, these are the workhorses of a driveshaft. There is a U-joint at each end of the shaft, which connects the yokes. The U-joint works like a fuse in that the joint will break before the driveshaft twists. U-joint care is essential to the life of the driveshaft—and you and your passengers.

Shaft - The shaft is critical for proper vehicle design. If you put more power in front of a stock driveshaft, it likely won't handle the power. It can twist or break, leaving you in a bad spot. Don't rely on a small driveline shop for high-horsepower driveshafts. It would be best to have a specialist dealing with proper design. Ask questions about how the shop designs and builds its driveshafts to ensure they can make a high-performance

unit

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Driveshaft Balance

Your original driveshaft will likely last the lifetime of the vehicle. Things do happen—a U-joint might break, the driveshaft might get dented, or a balancing weight might fall off. If your driveshaft is damaged or goes out of balance, you must fix it.



Automotive Driveshaft

