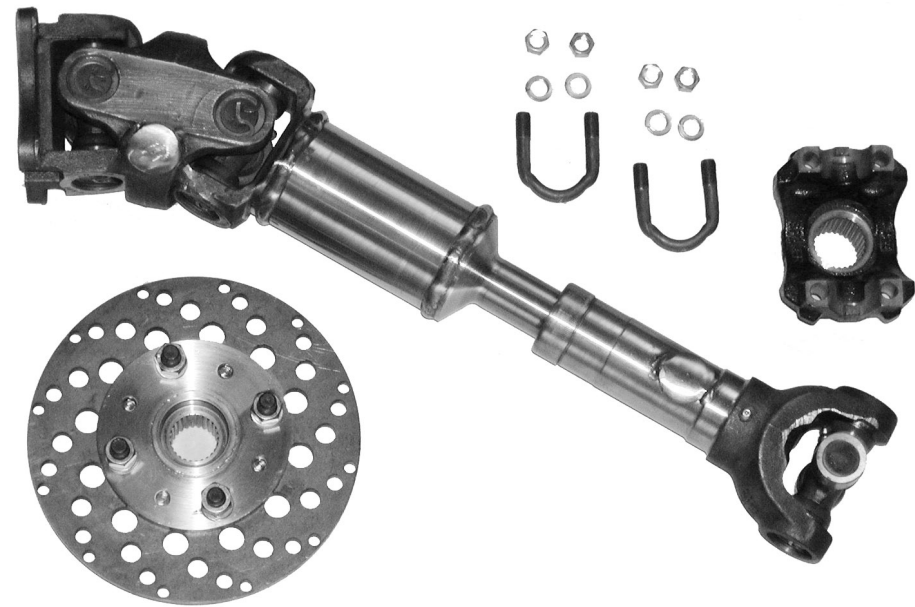


CV Drive Shafts - 1350 vs 1310

Strength vs Flexibility

Many people have expressed an interest in the 1350 series CV (double cardan) type drive shafts. There seem to be a number of misconceptions out there about this type of drive shaft. As with any other products there are upsides and downsides to the 1350 series CV drive shaft.



Strength

I have seen another web site touting the 1350 CV to be three times the strength of the 1310 series. This, I believe to be incorrect. Relying on information provided by the manufacturer of the components, my calculation is that the 1350 series joint is about 37.5% stronger than the 1310 series. The 1350 joint is rated for 2,200 pound feet (minimum elastic limit) of torque. While the 1310 series (stock size for most Jeeps) is rated for 1,600 lb/ft torque. The center pivot pin on the weld yoke is the same size (.500" diameter) on both. An informal survey of the participants at a few of the rock crawling events revealed to us that most of the vehicles are running the 1310 series joints.

Flexibility & Durability

With unmodified components the 1350 series CV will flex to about 20 + degrees before it will incur a binding interference. The 1310 series will flex to about 30 degrees before experiencing the bind. With either size of shaft there are a few things that can be done to increase their flexibility to about 35 degrees. In order to build a high angle 1350 series CV drive shaft, the first thing that has to be done is to remove the outer sealing element on the CV Weld yoke this will then allow the CV to flex to a little more than 30 degrees. Beyond that then you must remove the sealing element at the center pivot point of the CV (see pictures). By doing this we can obtain about 35 degrees of flexibility.

It is important to note that the 1350 series CV is non-serviceable for maintenance purposes. The center pivot ball is greased prior to assembly with no provision for re-lubrication after. Although the flange can be drilled & tapped for a grease fitting, we believe this would risk causing a premature failure due to the uncertainty of removing all of the of metal fragments created during this procedure.

Removal of the sealing elements would most surely allow for premature wear and failure of this portion of the drive shaft. It is not suggested that this be done to any drive shaft that will see an appreciable amount of highway miles. In order to make the 1310 series flex to the 35 degrees, there are a few selected locations that will require some relief grinding. Along with the use of an after market center housing. The after market housing will be made from a lighter casting than a genuine Spicer brand housing and therefore you will compromise a little bit of strength. Modifying the 1310 series CV to flex to 35 degrees allows for the sealing elements to remain intact. Additionally the center pivot point on the yoke type of 1310 CV will have the grease fitting, allowing for periodic re-lubrication.

For either type of drive shaft it is recommended that continuous operating angle of the drive shaft be at no greater than about 22 degrees in relation to the out-put of the transfer case. This is because of the increased sliding contact between the pivot ball and the mating babbitt seat.

Cost & Adaptability

A 1310 series CV drive shaft (typical application) will have a base price of \$265. With modifications for longer than stock splines and the grind work done for extra flexibility you could plan on spending closer to \$345.



You may also need to purchase a new out-put yoke for the transfer case. If so, budget another \$60 to \$90 for this depending on application.

The 1350 series drive shaft would have a base cost of \$375. The machine & grind work, if needed, for extra flexibility would add another \$70.

You may also need to purchase a new out-put flange for the transfer case. If so, we have these in stock and available for the 26 spline (fits the following transfer cases; Dana 20 & 300, New Venture 207, 231 & 242, and the Atlas transfer case with 26 spline front output). However, when mated against a 26 spline shaft, we would consider the 1350 series drive shaft to be severely over rated for strength.

We are also making a 32 spline output flange that we finish machine to a number of different flange patterns. This flange will mate to the: 1-New Process 203 or 205 transfer case. 2-Any of the heavy duty (Advance Adapters, JB conversions, Tera Mfg., etc) slip yoke eliminators or fixed yoke conversions

for the New Venture 231 transfer case. 3-Atlas transfer case with the 32 spline front or rear out-put shafts
We now sell this 32 spline multi-bolt flange for \$85.

1-Originally, the 32 spline output flanges were made for Ford applications. These were available in 32 spline only and have 8 bolt holes with a 1.875" seal surface. Because of the 8 bolt holes, they weren't readily modifiable for other applications.

2-Among others, General Motors had a very similar flange. 4 bolts holes were in the correct location for a 1350 series CV. The pilot in the center required a little machine work. They are available in 26, 30 and 32 spline configuration.

3-We have invested the time and money into having a blank flange made with 32 splines and a 2.125" seal surface. This allows us to accurately finish the flange, in house, to a wide variety of configurations.

4-1350 series CV with a 2.687" pilot.

5-1410 series non-CV.

6-This flange has multiple bolt holes on two different patterns. With this one flange, you can install 1310, 1330 and 1350 series drive shaft in either CV or non-CV. It will also accept a 1410 series non-CV drive shaft. Using this flange and pilot also allows us to build a 1350 series CV drive shaft that will flex to 30° prior to binding and still allow for the sealing element in the center of the CV to remain intact.

Our flange also allows us to readily mount a park brake rotor.

Disclaimer

We reserve the right to change prices, or not sell an item, due to error in pricing.

