



Don's Repair Shop

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Instructions for Don's Dana 20 Twin-Stick Kit (Rebuild Style)

As stated on the web, the main instruction resource for the transfer case is a shop manual. These instructions are intended as supplemental material to a shop manual and are in no way intended to be a complete guide. It is recommended that you read this entire document prior to starting.

If you are not mechanically inclined, get help from someone who is. The transfer case must be disassembled in order to install this kit. **It must be done right and there are no shortcuts!**

Pay very close attention as to how you take your transfer case apart. Disassemble one section at a time and keep your parts separate. This will be extremely helpful when putting it back together. Make notes as you go. Draw pictures or, if you have digital camera, snap a few photos for reference.

After disassembly and thorough cleaning, you should carefully inspect all bearings and other internal parts for wear or damage. Now is the time to replace any bad or questionable parts. Be sure to carefully check the rear output shaft for any signs of twisting or cracking in the area of the splines. If you find any signs of twisting or cracking, you may as well replace it now as it is already breaking.

DO NOT, for any reason, remove the interlock bullets! Spray solvent or carburetor cleaner in the holes and blow them clean with compressed air. They should move freely, and rattle. This kit was designed to utilize the factory interlocks. If, for whatever reason, they have been removed, you will need to replace them if you want to retain the factory-designed protection against accidental cross-shifting.

None of the manuals are very clear as to how to install the shift rods (*rails*). Do this after installing the front bearing retainer. It's really very simple. Apply some clean gear oil in the holes and lightly coat the rods. Install the #2 rod (*front output*) first. Rotate it so you can firmly tighten the setscrew into the fork, then rotate it back and move it into the neutral position where both of the interlock bullets will drop into the recess. The #1 rod (*rear output*) will now slide into position where the setscrew can be firmly tightened. **I strongly recommend using Loctite (*blue*) on both of the setscrews.**

NOTE: Rotating the rods by using a punch or screwdriver in the linkage hole will help them go in easier. Also, before installing the #1 rod, look through the #1 hole and insure that the interlock bullets are moved completely out of the way of the incoming #1 rod.

When setting the bearing preload (*endplay*), be sure to seat the bearings by firmly bumping each end of the output shaft with a hammer and a piece of brass or aluminum. This will help get you a more accurate setting.

Never use grease to hold small parts (*needle bearings, etc.*) in place. Some types of grease will not break down or mix with gear oil. This can, and will, cause bearing failure. Get a jar of petroleum jelly (*Vaseline, etc.*) and use a generous amount of it. The first time the transfer case gets warm the petroleum jelly will melt and mix with the oil.

Put the knobs on last! Do not put the knobs on until you are absolutely certain your installation is complete! You may find that the shifters are a bit longer than desired. If so, remove the shifters, grab the ends to be discarded in a vise, and saw them off with a hacksaw. Then file or grind the burrs from the ends. After everything looks and fits exactly the way you want, drive the knobs on firmly. I have found that a short piece of a wooden 2x4 (*about 8-10 inches long*) works real good for this.

As the shift rods are exposed to the front and prone to rust and corrosion, I recommend that when parking your vehicle for an extended time you shift your transfer case into 4-LOW. This will move the rods inside the case and protect them. I also suggest that periodically you apply some oil on the exposed rods and the linkage. I use roller-chain oil as it penetrates, then thickens, and seems to stay on for quite a while. However, any oil is better than none at all.

When driving your vehicle, I strongly recommend that when disengaging the front drive, no more effort than 1-2 fingers should ever be used to move the lever. Allow the transfer case to "*unwind*" until the lever moves freely. It only takes a little practice. When 4WD is in order, use it! Let the axles share the load. The stock rear output of the Dana 20 is a known weak spot. Don't foolishly snap it while trying to impress your friends as to how far you can go in 2-LOW. Remember, common sense will prevail!

The Dana 20 Twin-Stick Kit is not the result of an overnight dream that was instantly placed on the market. This kit has been extensively tested in actual offroad use since the late 90s. I have this same kit in my own Jeep with a 2.46:1 low-range. I think it's great and I wouldn't change anything about it.

Depending upon body lift and other variables, you may or may not be able to use a shifter boot. You will have to decide what will work best for your particular vehicle. As for manuals, both the Chilton and Haynes manuals have a relatively decent section on the Dana 20. Their specifications, in the books I have, do correspond to those specified in the factory manual. A genuine factory manual, if available, is always the best reference.

Thank you for purchasing the Dana 20 Twin-Stick Kit from Don's Repair Shop. This kit has been hand-crafted, one piece at a time, using high-quality material. All machined parts have been held to close tolerances. Properly installed, this kit will breath new life into your old Dana 20 transfer case. It has been carefully designed and trail-tested to give you years of trouble free service.

Disclaimer of Liability

The primary design and purpose of this kit is intended for offroad use. Responsible use of this equipment lies solely in the hands of you, the purchaser or user. Don's Repair Shop is neither liable nor responsible for any damage or injury incurred by improper use of this product. In addition, be advised that FRONT-ONLY 2-HI was NOT designed for highway use and should NEVER be used on any public road!

Thanks again for purchasing a Dana 20 Twin-Stick Kit!

Don Custer