



Don's Repair Shop

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Twin-Stick Troubleshooting

Before you begin, please be aware of the following three (3) facts:

1. Every single twin-stick kit that leaves my shop has been built on, and tested on, an original factory Dana 20 front bearing retainer, which is in perfect condition.
2. This same front bearing retainer has been used to build, and test, hundreds of these twin-stick kits over the past decade. It has proven itself beyond all doubt.
3. If you are having a problem, it is highly doubtful that your problem is directly related to the twin-stick kit itself. Below are common problems I am aware of:

REAR DRIVE JUMPS OUT OF GEAR (HI range only) (*Rebuild & Upgrade Style*)

This is the most common problem that I am aware of, and these are the common causes:

1. Shifter bumping against something, thus being knocked out of gear.
2. Weak, or broken, poppet-ball spring (*compare tension of detent with opposite rail*).
3. Excessive thrust in the Dana 20 transfer case rear-output assembly (.001"-.003").
4. Excessive thrust in the transmission mainshaft assembly (*refer to your manual*).
5. Possible bent Dana 20 rear output shift fork (*rare occurrence, but it happens*).

REAR DRIVE JUMPS OUT OF GEAR (LO range only) (*Rebuild & Upgrade Style*)

Based on feedback, this is not a common problem, but check for the following:

1. Shifter bumping against something, thus being knocked out of gear.
2. Weak, or broken, poppet-ball spring (*compare tension of detent with opposite rail*).
3. Excessive thrust in the Dana 20 transfer case rear-output assembly (.001"-.003").
4. Excessive thrust in the Dana 20 intermediate shaft assembly (*thrust washers, etc.*).
5. Possible bent Dana 20 rear output shift fork (*rare occurrence, but it happens*).

FRONT DRIVE JUMPS OUT OF GEAR (HI or LO range) (*Rebuild & Upgrade Style*)

Again, based on feedback, this is not a common problem, but check for the following:

1. Shifter bumping against something, thus being knocked out of gear.
2. Weak, or broken, poppet-ball spring (*compare tension of detent with opposite rail*).
3. Excessive thrust in the Dana 20 transfer case front-output assembly (.001"-.003").
4. Excessive thrust in the Dana 20 intermediate shaft assembly (*thrust washers, etc.*).
5. Possible bent Dana 20 front output shift fork (*extremely rare occurrence, but possible*).

HARD SHIFTING or RAILS MOVE TIGHTLY (*Upgrade Style only*)

This is a potential problem that has surfaced regarding the Upgrade Style kit only:

From all indications, this is a very minor problem that can be easily addressed. There appears to be a slight tolerance variation associated with the machining of the original factory front shift rails. This rail is retained when installing the Upgrade Style kit. Should you be experiencing this particular problem, please contact me (*see heading*) for further information and making arrangements to have the problem resolved.

FRONT DRIVE NOT FULLY DETENTING (*LO range only*) (*Upgrade Style only*)

This is another minor problem occasionally associated with the Upgrade Style kit only:

Check that the front drive rail adapter is not bottoming out against the seal around the shift rail. Some Dana 20 rebuild kits contain 3/8" thick seals for the shift rails. These thicker seals will work fine with stock applications, or my Rebuild Style kit. However, it is possible that the rail adapter, included with my Upgrade Style kits, can come in contact with this thicker seal before going all the way into the detent position thus preventing full engagement. The solution is to pull the thicker seal and replace it with a thinner one. The thinner seal will measure about 1/4" thick. Be advised that some parts houses tend to sell both seals as the same part number.