

Up To Standards

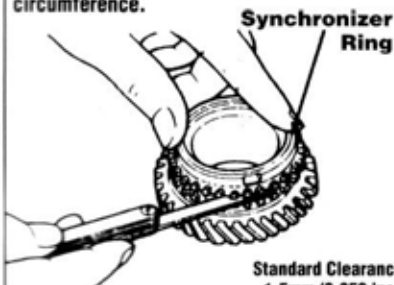
By Mike Weinberg
Contributing Editor

As you will note from the title of this article, "5 speeds" is plural – meaning more than one. Ford has three different manual transaxles, each matching one of the motors found in the Probe models. The 2.2L non-turbo motor uses a unit with a single shift-rail system with an integral

#1

Synchronizer Ring

1. Engagement with gear. Ring must engage smoothly with gear.
2. Worn or damaged teeth or tapered surface.
3. Clearance from the side of gear. Press the synchronizer ring uniformly against the gear and measure around the circumference.



Standard Clearance:
1.5mm (0.059 inch)
Minimum Allowable Clearance: 0.9mm (0.031 inch)

interlock similar to units found in the Escorts. The 2.2L turbo and 3.0L motors are hooked up to a beefier version which has three independent shift rails, a separate interlock system and needle bearings supporting all speed gears. All manually shifted units found in the Probe have helical-cut forward gears which are in constant mesh. Third, fourth and fifth gears ride on the input shaft. First, second and reverse are situated on the main shaft. Reverse gears are straight cut and are synchronized for smooth engagement.

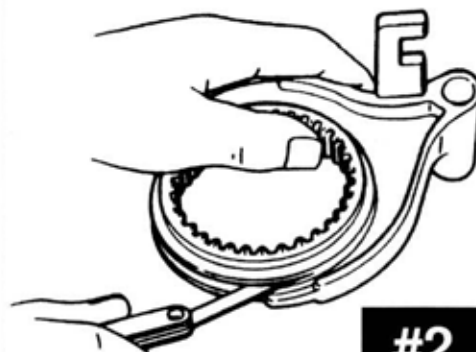
The Ford Probe 5 Speeds

Ratio Chart

Gear	1.2 Non-Turbo	2.2 Turbo	3.0
1st Gear	3.307	3.250	3.250
2nd Gear	1.833	1.772	1.904
3rd Gear	1.233	1.194	1.323
4th Gear	0.914	0.926	0.975
5th Gear	0.717	0.711	0.711
Reverse	3.166	3.461	3.461
Final Drive	4.105	4.105	3.850

Clutch Hub Sleeve

1. Worn or damaged hub splines or sleeve fork groove.
2. Excessive clearance between sleeve and shift fork.



#2

continues next page

GM Transfer Cases

All GM Transfer Cases are Remanufactured with the Latest O.E. Components with Updated Clutch Packs to Eliminate Chatter Problems

AVALANCHE - NV246C, NV261C, NV263C TAHOE/YUKON-NV149C, NV241C, NV243C, NV246C, BW4481C, BW4482C, BW4484C
SUBURBAN / XL - NP208C, NV241C, NV243C, NV246C, NV261C, NV263C
ALL PICKUPS - NP208C, NV241C, NV243C, NV261C, NV263C, BW4481C, BW4470C, S10, S15-NP207C, NP231C, NV233C, NV136C, NV236C, BW4472C
BLAZER, JIMMY - NP208C, NV241C, NV243C
TRAILBLAZER, ENVOY - NV126C, NV226C
COLORADO - BW4484C
HUMMER - NV281GM, NV242GM
ASTRO, SAFARI - BW4472C, NV136C
EXPRESS, SAVANNAH - BW4473C

*Includes New Morse Chain

Chatter-Free Transfer Case Lubricant

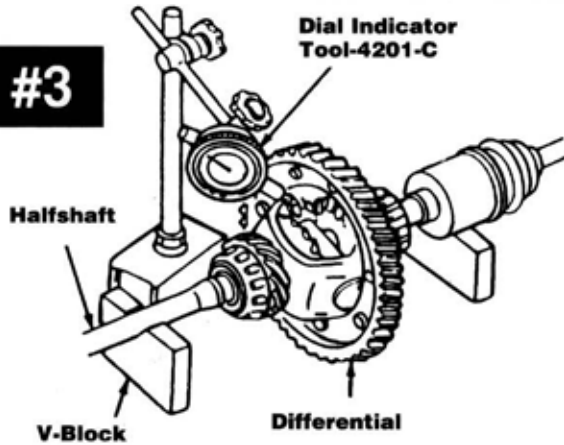
Prevent Costly T-Case Repairs

- Eliminates driveline chatter and shudder in clutch-type transfer cases*
- Prevents clutch failure from lubricant breakdown
- This is a lubricant not an additive

* Chatter-Free will not repair transfer cases that are already damaged!



#3



Side Gear And Pinion Backlash Check
1. Install the LH and RH halfshafts into the differential.
2. Support the halfshafts on V-blocks.
3. Use Dial Indicator Tool-4201-C or equivalent with Magnetic Base/Flex Arm D78P-4201-C to measure the backlash of both pinion gears. If the backlash is more than allowable, select a thrust washer with a different thickness.

Backlash: 0-0.1mm (0-0.004 inch)

Some other important clearances are:

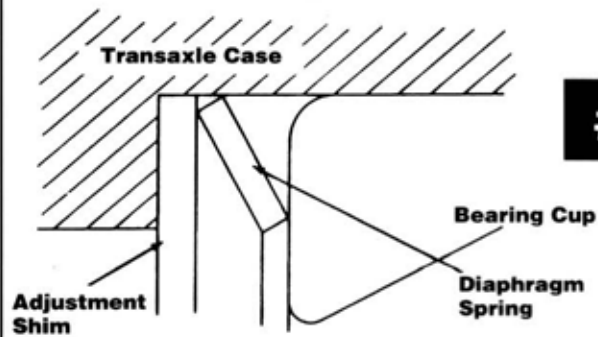
- Synchronizer ring clearance = 59/1000 with minimum clearance = 31/1000 (See Figure 1)
- Synchronizer slider-to-fork clearance = 20/1000 maximum (See Figure 2)
- Side gear and pinion backlash = 4/1000. Adjustable by shims. (See Figure 3)

Be careful on teardown to index the synchro assemblies and not to mix up the blocking rings as they vary from gear to gear and are NOT interchangeable.

On the 2.2L non-turbo transaxle, a design change was made on the input shaft. Units produced after 9/14/88 have a larger threaded journal on the input shaft. If you are working on a unit produced before 9/14/88 and it needs an input shaft, you will need the following parts to update the unit: E92Z-7017C, input shaft; E92Z-7072D, synchronizer sleeve; and E92Z-7N170C, lock nut.

All the models of the Probe transaxle are equipped with tapered bearings and selective shims under the bearing races. Unique to this design is the use of beveled diaphragm springs between the selective shim and the bearing race. Refer to Figure 4 for proper placement of the diaphragm spring. Endplay and preload are critical to proper operation and durability of any unit and the transaxles are no different. Ford specifies the use of a gauge set to select the shims to arrive at the correct preload. The procedure is relatively simple, the tool rather expensive, which behooves you to have a good relationship with your local Ford dealer, which, in turn, should make it easier for you to borrow the gauge set and the factory manual to ensure you turn out a quality unit. As the song goes, "I get by with a little help from my friends..."

Note: Install the diaphragm springs as shown.



#4

Ford has a shim kit available to make shim selection easier. Use part E92Z-7L172A for 2.2L non-turbo units, and E92Z-7L172B and C for the turbo and 3.0 units. Don't forget to subtract the depth of the diaphragm spring (0.028) from your measurement when selecting shim sizes.

All of these units use Mercon ATF as lubricant. Fluid capacity is 3.6 quarts for the 2.2L non-turbo unit, and 2.9 quarts for the turbo and 3.0 models. Lube is added through the speedometer driven-gear bore, using the driven gear as a dipstick. See Figure 5 for proper fluid level.

As with all transmission repair, knowing the theory of operation and the specifications of the unit you are working on makes the difference between customer satisfaction and comebacks. ■

- 4. Remove the retaining bolt and pry out the speedometer driven-gear assembly (analog cluster) or vehicle-speed sensor (digital cluster).**
5. Check the fluid level as shown.

#5

Speedometer Driven Gear Assembly (Analog Cluster)

Vehicle Speed Sensor Assembly (Digital Cluster)

