



Borg-Warner's T45

# New Trans For New Pony

By Mike Weinberg  
Contributing Editor

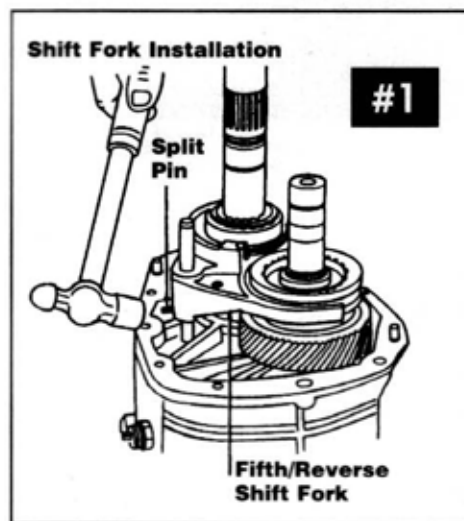
For 1996, Ford Motor Company has redesigned and repowered the venerable Mustang line. The time-honored 5.0 liter engine (302 cu. in.) has been retired and in its place comes the 4.6L "modular motor." To accommodate the new powerplant, the Borg-Warner Powertrains Systems designed and produced the T45 5-speed transmission, replacing the popular T5 unit. An evolutionary design based in part on the super strong T56, the T45 fits in between the six-speed and the older T5 design, sporting its own unique features.

The T45 has a three-piece aluminum case that consists of a clutch housing, a midcase and an extension housing. The unit loads from the front and has no top cover, similar to the T56. Losing the top cover should make the case stronger with less possibility of core shift under high-performance usage. All forward speeds are synchronized, and 5th and reverse have a unique fork design (See Figure 1). The T45 uses needle roller bearings under all the speed gears and uses the compound lined rings that Warner pioneered. Synchro ring clearances for 1st and 2nd gears are 0.035 of an inch, while 0.025 of an inch is spec'd for 3rd, 4th and 5th gear (See Figure 2).

match the power and torque curves of the engine being used.

Another design change is the use of a tapered roller bearing supporting the main drive gear on the mainshaft. The bearing race or cup is inside the input gear instead of the usual needle roller bearings (See Figure 3). The input, mainshaft and countershaft are supported on both ends by tapered roller bearings. Endplay is 0-0.003 on main and countershafts and is set with selective shims under the front bearing races in the clutch housing. As usual, the unit will sink or swim on the correct endplay settings after overhaul.

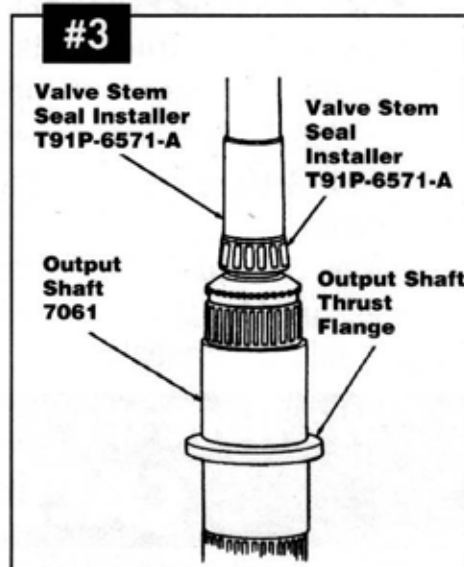
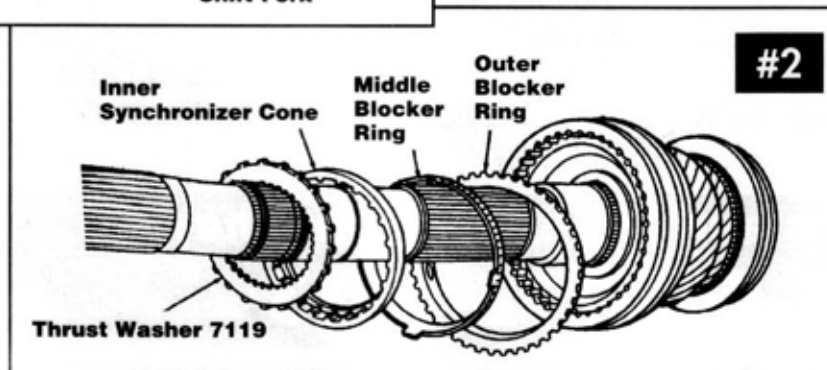
The clutch-release bearing rides on a guide tube that is part of the clutch housing and is replaceable if wear is evident. The T45 uses Mercon ATF for lubrication, and dry fill is 6.5 pints.

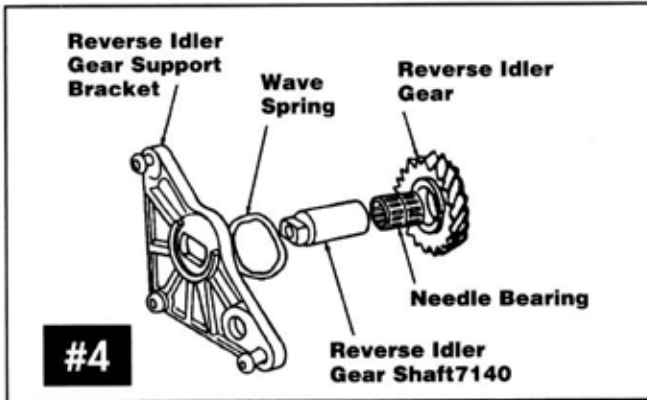


Gear ratios are as follows:

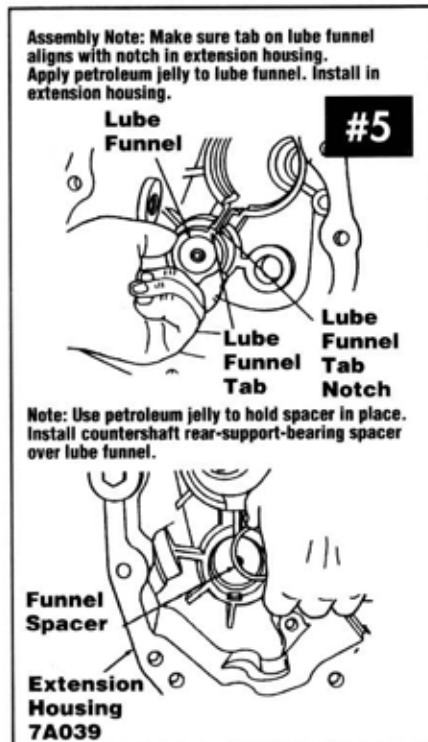
1st gear.....	3.37-1
2nd gear.....	1.99-1
3rd gear.....	1.33-1
4th gear.....	1.0-1
5th gear.....	0.67-1
	(overdriven)
Reverse.....	3.22-1

Should the T45 find its way into other model applications, the ratios surely will change to





The reverse idler gear is in the extension housing, retained by a triangular plate that supports the idler shaft. The reverse idler gear rides on a needle roller bearing (See Figure 4). Warner uses a spring steel waved washer between the idler and the support bracket to prevent the gear from wearing into the bracket. Make sure it is in place during reassembly. Also found in the extension housing are the countershaft rear bearing and lube funnel (See Figure 5). Under the bearing are a spacer and a plastic lube funnel. The parts are easy to forget during a rebuild



and design. The "shade tree mechanic" is part of a fading history, and with the complexity of the units we are repairing, our field has become a true specialty. These are truly great times to be alive. **TD**

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- 101 Useful information.
- 102 Not useful information.
- 103 We need more information.

and if they are left out, lube-related failure surely will occur.

New designs require us to learn new techniques and in many cases necessitate the purchase of special tools and repair manuals. The other side of the coin is that new units present new opportunities for profit and a chance for us to grow with the constantly changing technology

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