



Tech Articles

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Other Automatic Transmissions

In the last segment I wrote for Fiero Focus, we discussed the popular 4-speed overdrive automatic transmissions that can be used in the Fiero, some in conjunction with or without an engine swap. In this article, I'm going to discuss a few more. But these are less popular and/or may be more difficult to use in a Fiero swap.

4T40-E/4T45-E

Introduced in the late 1990s, the 4T40-E was first designed to be used with 4-cylinder engines (2.2L-2.4L), and was later used with the 3100 V6 and 3400 V6. The 4T45-E was introduced a few years later as an upgrade that was slightly stronger than the original 4T40-E. Electrically, the 4T40-E/4T45-E transmissions are very similar to the 4T65-E discussed in the last article, but it is a much weaker transmission. Versions that came factory installed on 2.4L DOHC "Quad-4" engines and later Ecotec 4-cylinder engines have a different bell housing bolt pattern than the standard 4-cylinder/V6 GM FWD bolt pattern the stock GM engines use. Use of one of these transmissions in a Fiero swap application would require the use of a PCM or aftermarket transmission controller so it will work properly. Due to the weakness of this transmission's design, I would NOT recommend it be used in a Fiero swap UNLESS it already came paired from the factory with whatever newer GM engine you are swapping in. Gear ratios for this transmission are: 1st-2.960, 2nd-1.626, 3rd-1.000, 4th-0.681, Rev-2.130. The information I was able to find says the available final-drive ratios are 3.05 and 3.29. The available chain sprocket ratios are 35/35, 33/37, and 32/38.

4T80-E

Introduced in the early 1990s to be exclusively paired with the then-new Cadillac Northstar V8 (and the smaller Oldsmobile Aurora V8), this is one of the strongest GM FWD transverse automatic overdrive transmission ever made (by rating on paper). It was paired with 300hp Northstar V8 engines and has a maximum gearbox torque rating of 461 ft/lbs. This transmission is also the biggest (physically) of the transverse FWD designs to date. It weighs in at over 293lbs wet, which is about 90lbs more than the 4T60-E/4T65-E. But it also has stronger internal parts.

Electronically, it is very similar to the 4T65-E and 4T40-E/4T45-E transmissions, having two electric shift solenoids, an electric force motor to control line pressure, and PWM control for the torque converter clutch. Most people only consider using these transmissions when they are swapping Northstar V8's into Fieros, but research is underway into determining if this transmission would be a viable alternative to the 4T65-E HD transmission for ultra-performance swaps into Fieros using engines other than the Northstar (such as 3800 SC / Turbo, and LS/other V8 swaps). The reason being is that the 4T65-E HD transmissions do have some weak links in their designs and stronger aftermarket replacements for these weak links are no longer being made since the demise of the GM racing program. Gear ratios for the 4T80-E transmission are: 1st-2.960, 2nd-1.626, 3rd-

1.000, 4th-0.681, Rev-2.130. Information I was able to find said available final-drive ratios are 2.84, 3.11, 3.48, and 3.71. The only known available chain sprocket ratio is 39/39.

6T40/6T45 & 6T70/6T75

The new generation of 6-speed automatic transmissions was released by GM in the latter half of the 2000's. The 6T40/6T45's were used with 4-cylinder engines while the 6T70/6T75's were used with GM's next generation of V6's (called the Global V6). Both transmission designs are similar, electronically. The computer that controls these transmissions is mounted inside the transmission and it communicates with the engine computer via GM's "new" High Speed Data Bus (called GMLAN or CAN). Because of this, these transmissions cannot be easily used with older engines or PCMs. As of the writing of this article, I am not aware of any aftermarket controller available that can take the place of the TCM (transmission control module) that comes from the factory in this transmission. With lack of an aftermarket TCU, this will limit you to being able to use this transmission only with the engine (and computer system) it came paired with from the factory. To date (according to the information I could find on the GM Media website), the 6T40/6T45 has only been used with the 2.4L Ecotec and the 6T70/6T75 has only been used with the 3.6L DOHC VVT V6. Versions of these transmissions used in SUV's were available in All-Wheel-Drive configurations, so be aware of this if you are looking for donor transmissions or powertrain dropouts. Gear ratios for the 6T40 are: 1st-4.58, 2nd-2.96, 3rd-1.91, 4th-1.45, 5th-1.00, 6th-0.75, Rev-2.94; final drive-2.89. Gear ratios for the 6T70 are: 1st-4.484, 2nd-2.872, 3rd-1.842, 4th-1.414, 5th-1.00, 6th-0.742, Rev-2.882; final drive-2.77. The overdrive ratios in both of these transmissions seem like they would produce very good highway fuel economy with the given final drive ratios, so one would hope sometime in the near future an aftermarket transmission controller becomes available so these transmissions can be used in Fieros with different engines. Until then, if you want a GM automatic, you're stuck with a 3-speed or a 4-speed.

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