

TRANstec® 6T40 Gen III



TransTec® overhaul kit **71018494** and overhaul kit **71018495** with pistons that service the **6T40 Gen III** 14-Up step transmission with start/stop capabilities are now available

MAKE	MODEL	ENGINE TYPE / SIZE	YEARS
BUICK	ENCORE	L4 1.4L	14-UP
CHEVROLET	IMPALA	L4 2.4L	14-UP
	MALIBU	L4 1.5L 2.0L 2.4L 2.5L	14-UP
	TRAX	L4 1.4L 1.6L 1.8L	14-UP

The GM 6T40 Gen 3 (production code MNH) is the 3rd generation of the six speed Hydra-Matic. The latest adaptation includes multiple improvements in regards to fuel economy. These improvements include changes to the oil level control system, pump, line pressure control system, and lubrication system.

To better facilitate efficiency, the 6T40 Gen 3 has an off-axis chain driven binary vane oil pump. The lubrication system has an added lube bypass valve in the pump assembly, which remains closed until the line pressure reaches a threshold of 87psi then allows the lube to flow through 2 orifices in parallel rather than just 1. When the valve is closed, there is less oil flow, which helps to reduce power consumption during times of less demand.

The 1 way clutch has been updated to be more efficient with less energy loss as well. It now has an aluminum pocket plate with spin loss reductions, along with a lower rotating inertia.

The Gen 3 also continues to utilize the DEXRON-VI fluid and is “fill for life” which means it does not require service under normal use.

The 6T40 Gen 3 continues to utilize the TECHM (Transmission Electronic Hydraulic Control Module), and is still located within the transmission. The TECHM will feature adaptive shift controls such as automatic grade

braking which commands the transmission to stay in a lower gear when decelerating or coasting on a downgrade.

The torque converter in the 6T40 Gen 3 remains unchanged from the previous 2 generations, and utilizes a single-plate lock up clutch and an oval shape cross section that helps reduce the overall thickness of the torque converter. This converter also uses GM's ECCC (Electronically Controlled Capacity Clutch) technology that provides engine vibration reduction and smoother overall performance.

The 6T40 Gen 3 transmission case is unique as well because of the off axis pump design it now requires a revised case half gasket, also since the Gen 3 has start stop capability there is a feed port for the start stop pump and an additional feed passage and seal between the case halves. This case half seal has been revised by GM from a 2 piece design to a one piece.

GUIDE TO START-STOP TECHNOLOGY

Posted on [April 4, 2018](#) by [TransTec](#)



Automatic start-stop technology is one of the ways automakers are hoping to make cars more fuel efficient. This, in turn, will help to meet both consumer demand and increasingly stringent government CAFE (Corporate Average Fuel Economy) standards. And it's coming to every single future car manufactured, whether you're ready or not. So you may as well buckle up and prepare yourself properly so you're ready. This starts with fully understanding the basics of start-stop transmission technology, so we've compiled a quick guide to start-stop technology for you. ([For information on more emerging transmission technology, see our blog post on the advancements just over the horizon.](#))

WHAT IS START-STOP TECHNOLOGY?

Start-stop technology in automobiles automatically shuts down and restarts the internal combustion engine to reduce the amount of time the engine spends idling, thereby reducing fuel consumption, air pollution and emissions. In laymen's terms: If you're stopped at a red light, you don't need the engine and if the engine isn't running, you're not wasting energy. The automatic start-stop technology shuts off the engine, as opposed to it idling, and then rapidly restarts when it's time to drive away.

HOW DOES IT WORK?

The start-stop system works by activating every time the driver hits the brakes and brings the car to a stop. The system automatically shuts down the engine when the car comes to a stop in order to reduce the amount of time a car spends idling. When the car stops, the electronics in the car turn off the spark to the ignition and the fuel flow to the cylinders to fully shut off the engine.

Now while the engine gets shut off, the entire car does not cease to work. Drivers still have air conditioning, heat, and radio since they all run off electricity rather than a mechanical drive from the car's engine. But the instant the driver lifts their foot off the brake, the engine restarts with the help of the starter motor. This system obviously requires a more robust starter and battery which can withstand a significantly increased number of engine starts and stops.

[For more info on autonomous power steering, another emerging technology, read our recent blog post.](#)

HOW IS VEHICLE MOTION AVOIDED UPON STARTUP?

The start-stop function is integrated into several of the vehicle's systems to ensure overall safety and performance. There are several ways the technology works to avoid vehicle movement upon startup. If a door is open or the driver's seatbelt isn't fastened, the engine will not restart. If the engine is not yet up to operating temperature, the engine will not restart. And if the battery does not yet have enough charge, the engine will not restart.

WHAT'S THE HESITATION IN THE US?

Dan Squiller, CEO of PowerGenix, a San-Diego based company that develops nickel-zinc batteries ideally suited for start-stop systems, spoke with [ZDNet](#) in regards to start-stop systems. He explained that there are three primary reasons that the US has not embraced the technology like Europe has.

"First are different driving patterns. Drivers who do a majority of their driving in high congestion areas see increased fuel economy savings from a stop-start system compared with those who drive longer distances at sustained highway speeds. Drivers in Europe tend to live in more urban areas with congested roads than American drivers. However, it's also important to recognize the changing nature of the US automotive driving environment. The US is approaching a critical mass of drivers in urban areas who are looking for improvements in fuel economy.

The second reason is higher fuel prices. Europeans pay at least twice what Americans do for fuel. As a result, Europeans have sought out ways to improve fuel efficiency much more aggressively than Americans, embracing incremental improvements including stop-start systems and weight reduction.

Lastly is emissions policy. Europe has historically had much more stringent CO2 emission and fuel economy mandates than the US, although the US is starting to catch up as the recent increase in CAFE standards demonstrates."