

How to Upgrade Power Steering for Inline-Sixes

Borgeson introduces trouble-free integral power steering for six-cylinder Mustangs

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Classic Mustangs have never had a world-class steering system. Optional Bendix power-assisted steering, which was used across the board in Ford and GM cars for more than two decades, has always been problematic. It leaks. It is sloppy. It feels like a broomstick in a barrel and it is prone to failure. Our friends down under had integral power steering in the Australian Ford Falcons—a simple compact Bendix integral power steering gear without the quagmire of involved leaky hydraulic components underneath. North America didn't get that. The Aussie Bendix system was righthand drive only and could not be reverse engineered for lefthand drive North American cars—and so we have waited patiently for a better mousetrap.

Borgeson Universal has been making steering components for automakers and the aftermarket since its founding 100 years ago. In a century, Borgeson has undergone many changes in the interest of growth. Among the most significant has been getting into the steering component industry in 2001 when it

acquired Mullins Steering Gears. Since that time, Borgeson has paid very close attention to what people need for steering systems, answering the call of enthusiasts a few short years ago when it introduced its first integral power steering gear for classic Mustangs and other vintage Fords.

Borgeson now introduces integral power steering for '65-'70 six-cylinder Mustangs complete with a steering shaft, hardware, and Saginaw power steering pump with a fully adjustable bracket, pressure and return hoses, and all hardware necessary to install the system. We're going to show you how easy this system is to install. Bruce Couture of Modern Driveline, who has a wealth of experience with all Mustang generations, is going to show us how to get into crisp, reliable power steering in your classic inline-six Mustang in your home garage.



01. Borgeson provides a complete power steering package for both inline-six and V-8 Mustangs, including hardware, bracket, hoses, firewall seal and plate, and the rag joint (flexible steering coupling). This is a 16:1 steering ratio, which will give your six-cylinder Mustang responsive modern steering. Plans are in the works at Borgeson for a 13:1 box, which is currently under development and will give your Mustang a quick rack-and-pinion feel.



02. Remove the steering wheel and column tube. The tube is disconnected at the firewall plate by removing sheetmetal screws used with a 7/16-inch socket and wrench. Then, two nuts at the dashboard using a deep well 1/2-inch drive socket. Disconnect the turn signal switch wiring. If you have a rag-joint style steering column instead of a solid shaft, disconnect the coupling at the steering gear.



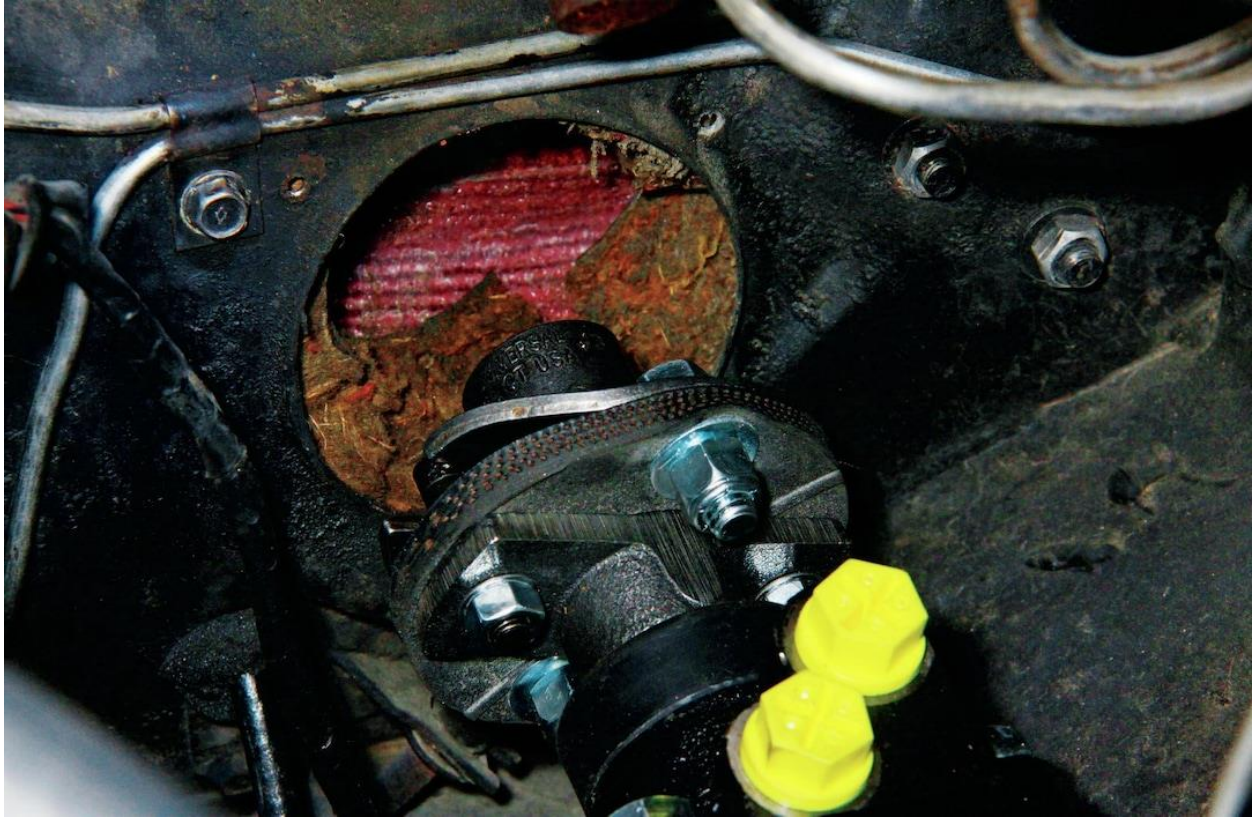
03. Remove the Pitman arm from the steering gear using a large deep well socket and a Pitman arm puller. Socket size will depend on sector shaft size. There are two shaft sizes—1 and 1 1/2 inch. The most common socket size for this task is 15/16-inch. Three high-carbon steel bolts retain the steering gear. You will need a 5/8-inch socket for these bolts.



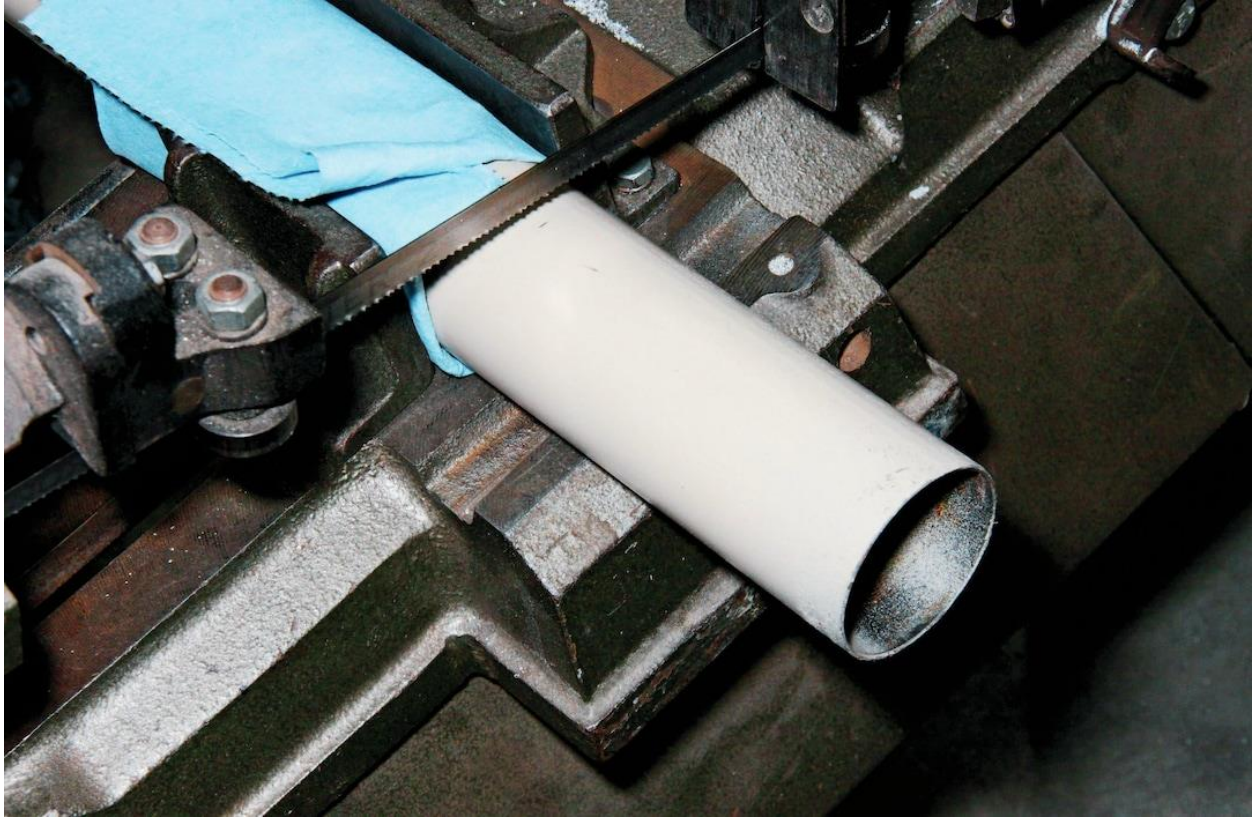
04. The Borgeson power steering gear is compact, yet it does take up a little more space than your Mustang's original manual worm-and-sector unit. As you can see here, the Borgeson steering gear is a direct fit and retained with three new bolts provided in the kit. You're going to need a 5/8-inch socket and boxed-end wrench to secure these fasteners.



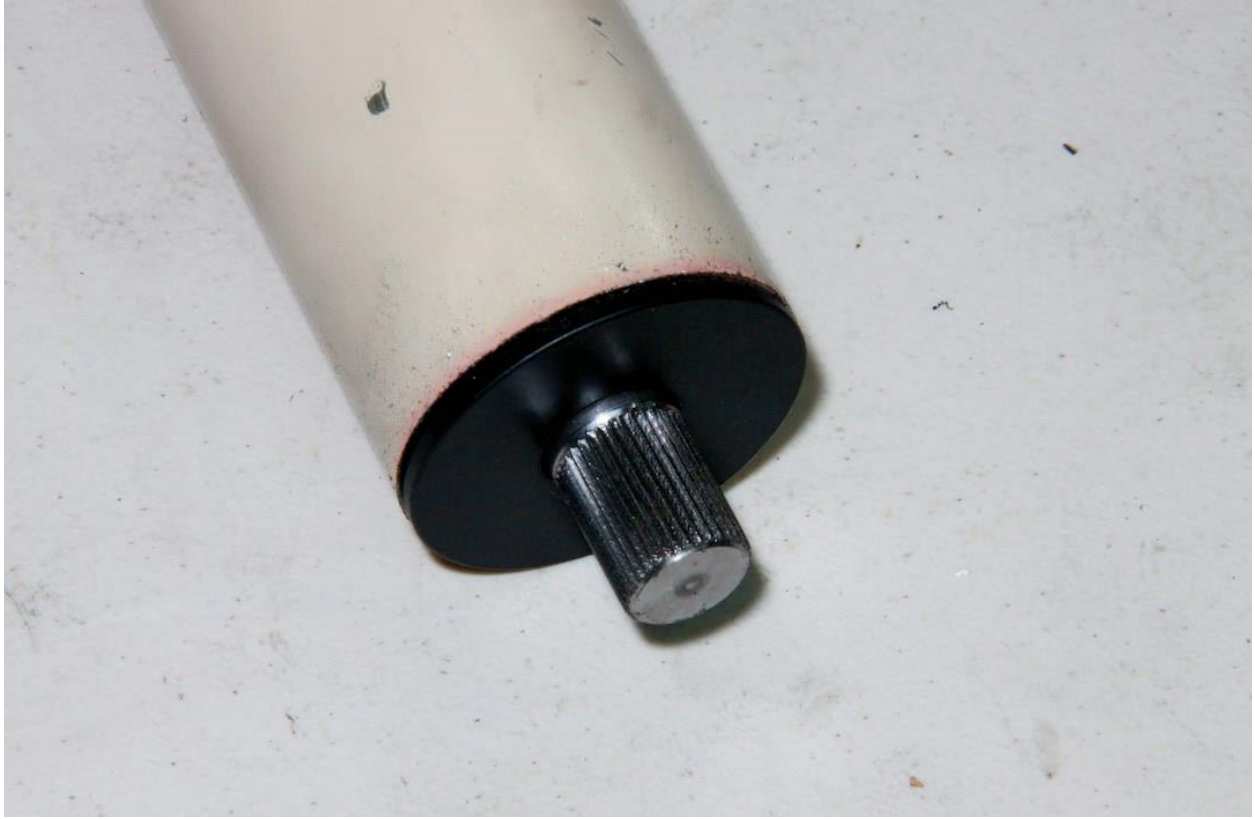
05. The Pitman arm is splined and secured to the Borgeson steering sector shaft. Apply lubrication to the sector shaft threads and torque the nut to 85-110 lb-ft. The Borgeson steering gear is $3\frac{3}{4}$ turns lock-to-lock. Bruce Couture suggests rotating the steering shaft to lock, then return 1.875 turns to center, which will put you in the neighborhood. The Pitman arm should spline just fine because there are but only three positions available, making it nearly impossible to get this wrong. The Pitman arm should wind up due north toward the front of your Mustang.



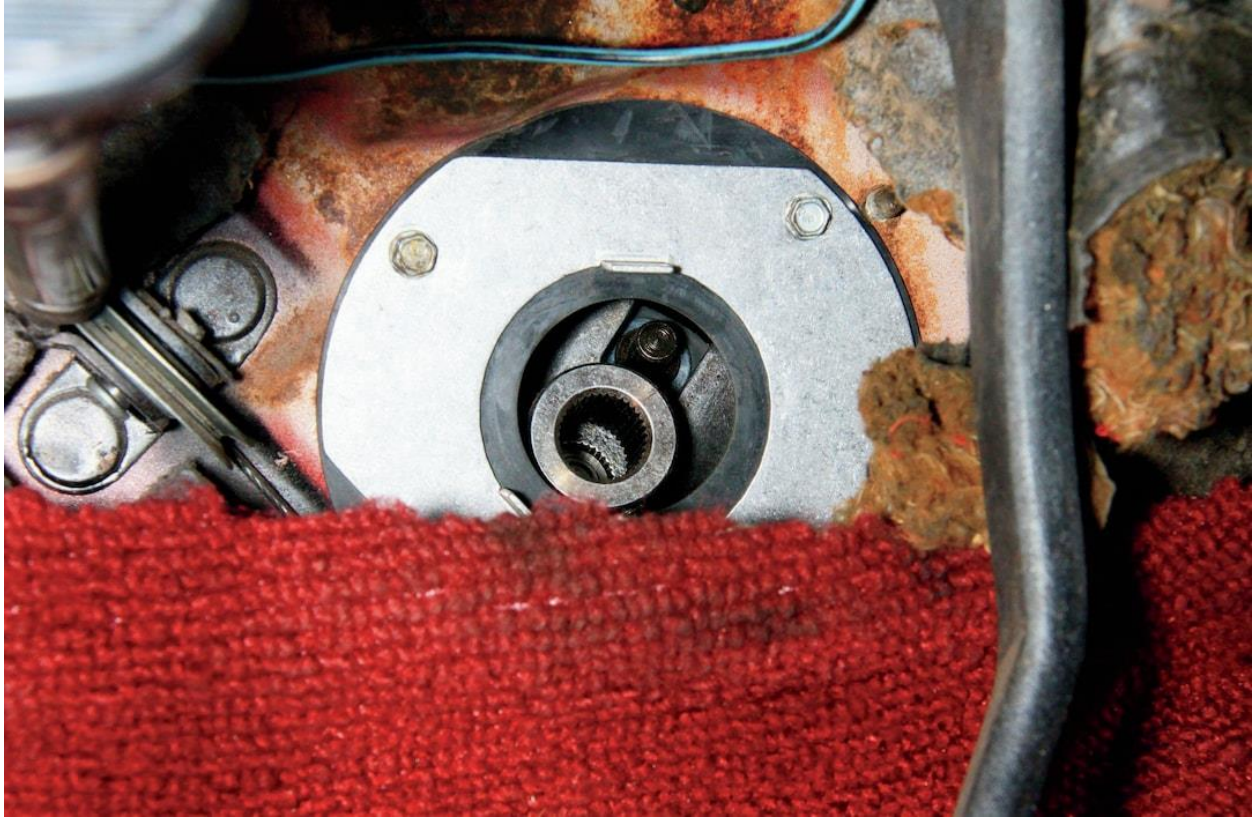
06. This is the Borgeson-provided rag joint/flexible coupling that ties the steering shaft to the new Borgeson steering gear. Although you can use a universal joint coupling, the softer and more flexible rag joint isolates engine harmonics from the steering column. It is also a much easier fit.



07. The steering column tube must be cut in order to accommodate the Borgeson steering gear. Because each and every application varies to some degree, you will have to measure your Mustang for proper fitment. Begin at 30-31 inches from the collar and start there. If you cut too much off, you have scrap metal and will have to source another tube.



08. Borgeson provides this end cap, which goes in the end of the column tube and is drilled for two screws to keep it all together.



09. This is the firewall plate and seal with Borgeson's steering coupling visible through the hole. You can even go with the stock column brackets and seal for a more original look from the interior.

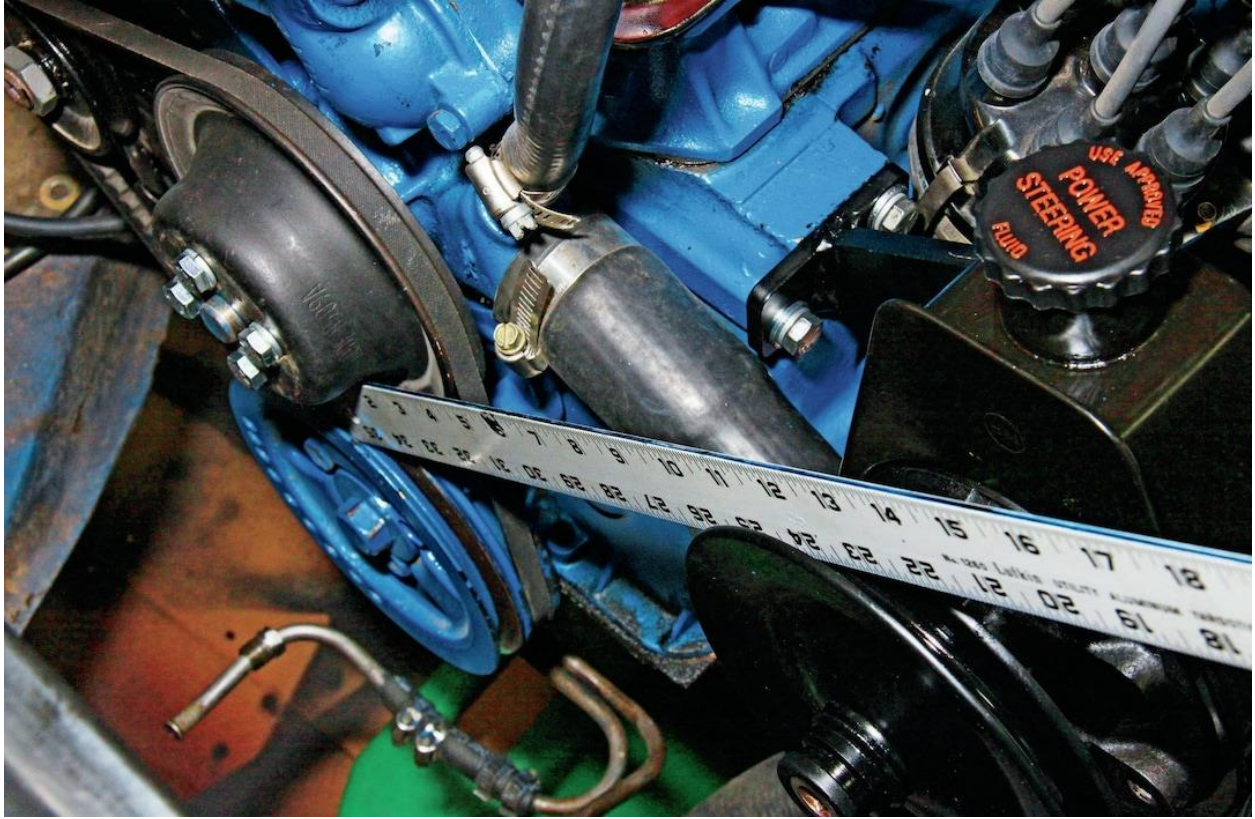


10. We're fitting the Borgeson shaft into the flexible coupling strictly as a fit check. With the column tube properly cut to size, both tube and shaft should line up perfectly with slight penetration through the firewall seal and both shaft and top bushing uniform with each other.

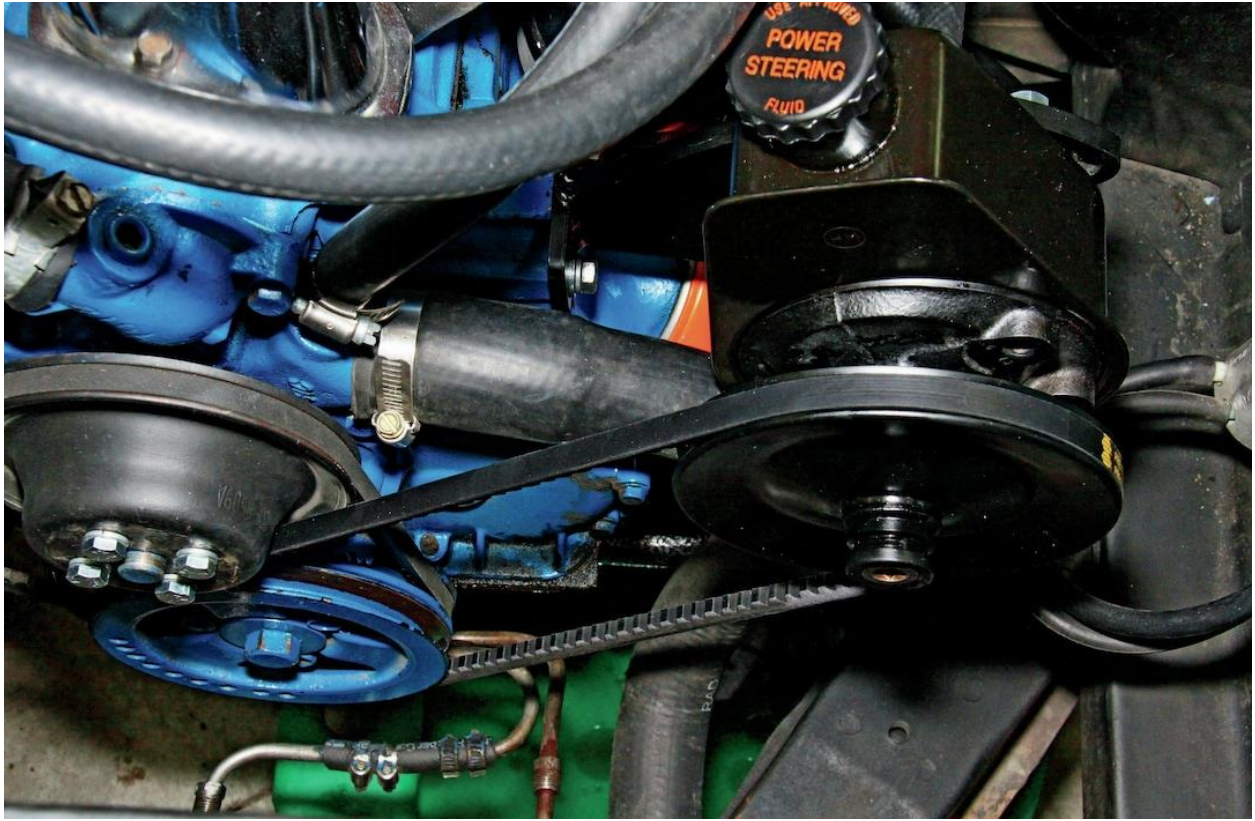




11. The steering column tube is fitted over the Borgeson shaft as shown and seated. If you have measured correctly, the tube end should just barely penetrate the firewall seal. You don't want the tube end to touch the flexible coupling. You need a 1/4-inch gap between the coupling and tube end. This spring holds the shaft bushing where it belongs once the steering wheel is installed.



12.In the engine room, we're installing the Borgeson/Saginaw power steering pump. You may have to shim or bore larger holes in the bracket to get this pump in proper pulley alignment because 170/200/250ci inline-six blocks all vary to some degree. A steel rule is a good tool for proper pulley alignment.

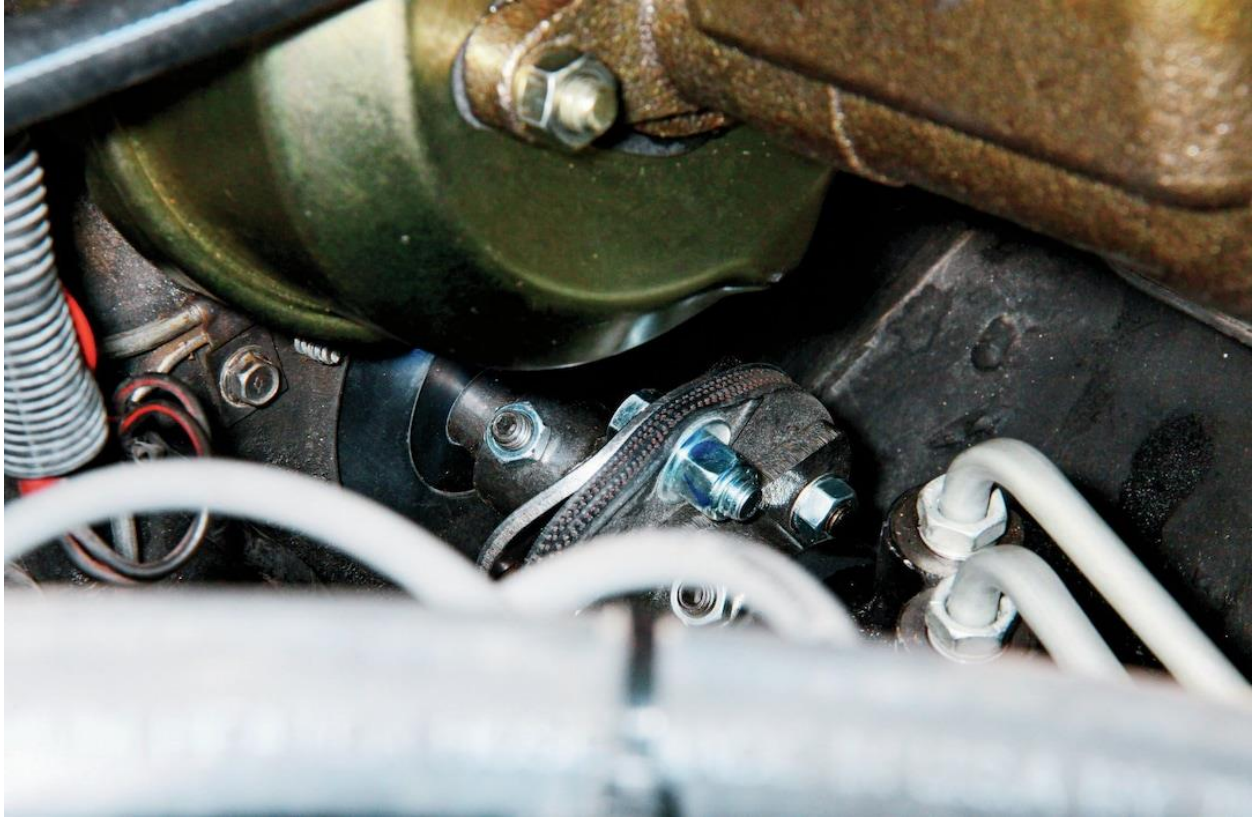


13. The completed Borgeson/Saginaw pump installation looks like this. You will need a two-groove crank pulley if your Mustang is manual-steering equipped.





14.Power steering pump hydraulic lines are connected to the Borgeson steering gear as shown using a 5/8-inch open-end wrench. Fittings should be lubricated with power steering fluid for smooth installation. On the left at the steering gear is the pressure hose from the pump. On the right is the return hose to the pump. Never get this backward in the interest of safety. Get it backward and you can expect a violent reaction and a burst return hose. At the pump, use a high-pressure fuel injection hose clamp on the return hose in the interest of safety as shown.



15. This is what you can expect, more or less, at the steering coupling. The steering column tube should ever so slightly penetrate the firewall seal. During initial installation prior to adjustment, this is what we saw. With adjustment, we were able to get the column tube 1/4 inch through this seal.