

# ON THE RACK

RACK-AND-PINION STEERING CONVERSIONS ARE ALL THE RAGE, BUT ARE THEY REALLY EVERYTHING THEY CLAIM TO BE?

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PHOTOS BY MATT SPROUSE



Trends seem to come and go in the custom and performance car hobby though a select group have stood the test of time. Lately, we've noticed the emergence of numerous companies offering rack-and-pinion conversions for early cars. These conversions have been around for a while, however many early versions simply tried to use an existing rack without correcting the geometry for each application. Many of these early systems were plagued with bump steer problems.

Most new conversions have corrected the geometry issues and have really caught on, offering improved steering response over the original factory setups. We set out to put one of these new rack systems to the test, from ease of installation to real world seat of the pants driving experience.

Since we knew this setup should be tested to its fullest, we couldn't think of a better platform than the '74 Chevrolet Corvette owned by *Street Thunder* Contributing Editor Bob Klessig. Bob's 'Vette is a real blast from the past and is a proven performer with over 300,000 miles under its belt since Bob purchased the car new.

Early Corvettes were not known for spectacular steering as the old recirculating ball design, which dates back to the early '50s, can lead to a vague and unresponsive feel, especially "on center." Rack-and-pinion conversions offer quicker ratios and tighter steering with as few as 2½ turns lock-to-lock.

For our project, we selected the Steeroids conversion kit manufactured by Speed Direct, which are known for their completeness, concise easy to follow instructions, and use of only the best available components. Not only do their kits offer an improved steering feel, they also provide a 15-pound weight savings and eliminate the leaky steering box and slave cylinder. Speed Direct claims an installation time of 3-5 hours, which we

were eager to put to the test.

When our conversion kit arrived, we were impressed with the overall quality of the kit and the various components it included. The kit features Borgeson aluminum universal joints, a performance remanufactured GM Saginaw steering rack, powder-coated adapter brackets, self-cleaning and lubricating Teflon lined tie rod ends, power steering hoses, and all (Grade 8) required fasteners.

To help us perform the conversion on our '74 Corvette project, we worked with our friends at Tin Man Fabrication, Inc. in Oak Grove, MN. We knew their expertise in setting up new performance suspension systems in early cars would prove beneficial in demonstrating the proper way to make this conversion.

Follow along as we reengineer the steering in this early Corvette and get Bob Klessig back "on the road."



Bob's '74 Corvette is a real blast from the past. Gold tone wheels, factory side pipes, a front spoiler, and custom two-tone metallic brown paint would lead you to believe this car's been sitting in a time capsule since the late '70s. But don't let the appearance fool you, Bob has clocked well over 300,000 miles on the car he has affectionately named the "Brown Jug."

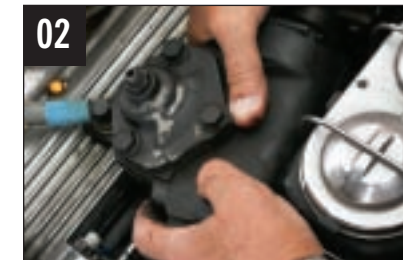


The Steeroids '63-'82 Corvette Rack-and-Pinion Conversion Kits from Speed Direct come with everything you need to get the job done. Speed Direct also offers conversion kits for first gen Camaros/Firebirds, '68-'74 Novas, '65-'70 Mustangs, and '68-'72 Chevelles/ GM A-Bodies. The folks at Speed Direct are also developing new applications. Visit [steeroids.com](http://steeroids.com) for the most up-to-date listing of their complete product line.



01

Before we began removing the entire factory steering system, short of the column, we took careful measurements of the distance between the tie rod ends. This number would assist us later in returning the alignment close to its original position, with final adjustments to be handled at the alignment shop.



02

Clearance around the factory headers prevented the gear box from being removed beneath the car. We managed to negotiate the space by pulling the box out the top.



03

The tie rod bracket was then attached to the rack-and-pinion unit. Red Loctite and the supplied French lock plate secure the bolts in position.



04

The tie rod ends were carefully measured to ensure both ends had the same amount of exposed threads. This aided in centering the assembly.



05

After assembling the complete rack and tie rod unit, we measured the whole assembly and compared the numbers with the distance we measured earlier on the steering system. Adjustments were made by simply turning the tie rod shafts.



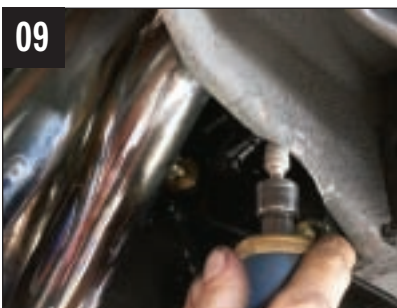
06 The differences between the OEM steering system and the new rack system become apparent once they're laid beside each other. It's easy to see why the new system is 15 pounds lighter.



07 Rack mounting brackets were then bolted in place using the factory steering box, assist cylinder, and idler arm attachment points, and were torqued to 35 ft.-lbs.



08 The rack was then mounted in position. This gave us the opportunity to check for interference with other components. The instructions warned of possible interference with the motor mount and the factory headers. They were right!



09 The driver side engine mounting bracket interfered with the steering input shaft. A little time with a die grinder and a carbide rasp quickly relieved the problem.



10 We also encountered clearance issues with the universal joint and the factory side pipe headers. Some adjustments were made to the primary tube using a prybar to gain clearance.



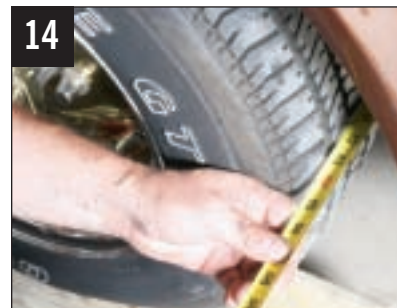
11 A set of tapered seat adapters is provided with the kit. These allow the tie rod ends to be connected safely to the spindles.



12 Once again, the measurements we took before disassembly came in handy. The camber and caster were not altered during this conversion, although you'll want to send it to the alignment shop before racking up too many miles.



13 Adjustments to the toe-in can be made by simply turning the tie rod, as the tie rod ends are both left and right hand threaded. Once everything was in place, the jam nuts were tightened on the rod ends.



14 We double checked the toe-in once the weight of the car was on the suspension. This is no replacement for a proper alignment. Our installation was completed in five hours, including time for photos.



We rechecked all fasteners before putting the "Brown Jug" back on the road. When asked later for his driving impressions Bob replied, "I am extremely pleased with the conversion, it's a whole new car now." Bob went on to say, "When I set it into a turn there is no slop in the wheel, it goes where I point it and stays right there. I would not hesitate to recommend this upgrade to anyone."

## SOURCES

**Speed Direct**  
steeroids.com  
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**Tin Man Fabrication, Inc.**  
tinmanfabrication.com  
(763) 753-4265