ONE GOOD TURN

AN EASY UPGRADE FOR YOUR WORN STEERING GEAR

WORDS AND PHOTOGRAPHY BY CHUCK HANSON

JUST LIKE OUR EYES AND EARS, MANY CAR parts decline in performance at a rate so gradual that the transition is almost imperceptible. But then, eventually, something happens to make that gradual degradation an undeniable reality. The steering gear and linkage of your favorite muscle machine is a great example.

The first indication of any problem is usually your car's tendency to wander on the road, or in extreme cases, it may even decide to dive for the ditches. Having to continually crank on your car's steering wheel just to keep it headed in the right direction sure takes a lot of the fun out of driving your machine. It's been a half-century or more since it was new, so it's probably time to crawl underneath and check things out.

Inspecting the steering and linkage is easy. Have a friend turn the steering wheel side-to-side slowly while you check the steering linkage, rag joint, and steering box for any excessive play or movement. Unless your front suspension has seen recent service, you may be surprised at what you find.

A Chevelle we'd recently driven had exhibited some of that tendency, so, armed with a good light source, we crawled under the car where our suspicions were quickly confirmed: The steering box had more play than a six-year-old on recess and the steering linkage was loose at every connection. We found what we needed on the Classic Performance Products (CPP) website and placed our order for a quick-ratio (3½ turns lock-to-lock), 500-series steering box that came with a new rag joint, power steering hoses, and Pitman arm. To complete our upgrade, we also popped for new steering linkage as well.

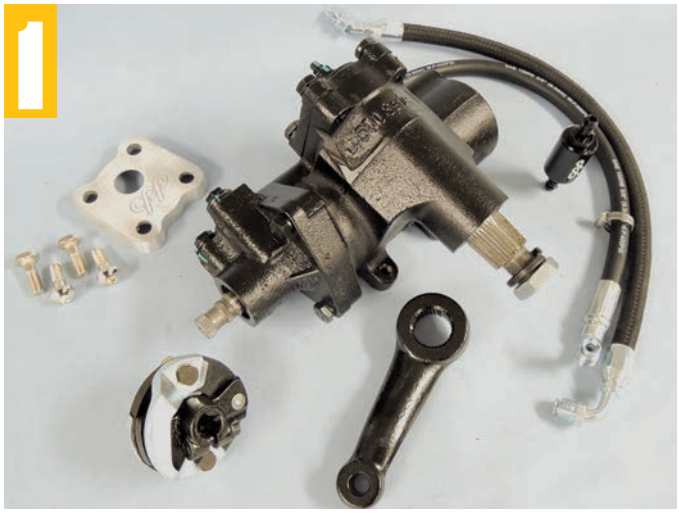
This process is nearly the same for any GM car of the era that relies on a Saginaw-style steering box to impart driver input to the steering linkage. Once the steering shaft is disconnected from the box (usually at the rag joint), the pressure and return lines are undone before finally removing the steering box retaining bolts.

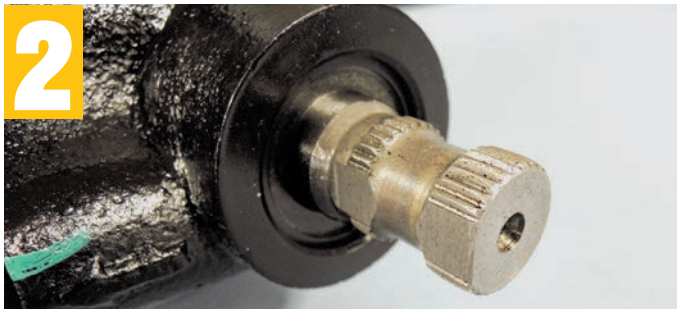
To install the new CPP steering box, simply reverse the process. Be sure to check the hardware and fittings to ensure they are good to reuse. In our case, two of the mounting bolts rusted nearly through and were replaced; we consider the steering box a critical safety component, so we substituted Grade 8 bolts to secure it to the frame.

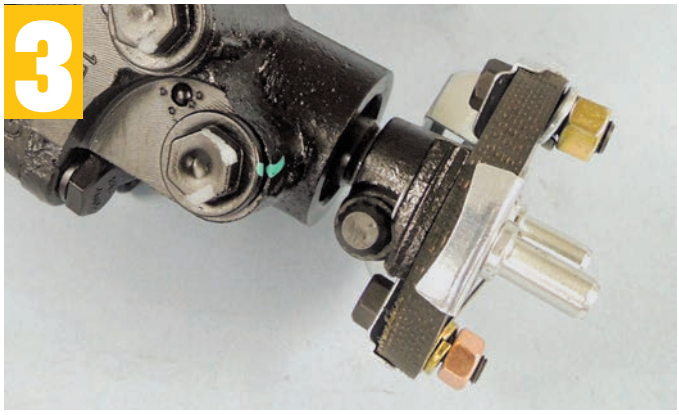
Our new steering linkage was preassembled before installation, using our original setup as a guide and for measurements. Pay close attention to the assembly of the tie rods; the outer ones have left-hand threads that must be properly paired with the adjuster sleeves. Notches on the nuts and a groove on the ends of the adjuster barrels indicate the left-hand threads.

Once the new box and linkage have been installed, refill the power-steering reservoir, and then start the engine to pressurize the new box while turning the wheel slowly from side to side. This process is most easily accomplished with both front wheels off the ground. Check and refill the reservoir as necessary. Because the new linkage is likely to change your alignment settings, it's imperative to have the front end aligned by a competent shop to enjoy the full benefits of your efforts.

1. The CPP 500 steering box is a new design with 3½ turns lock-to-lock and improved steering feedback. It arrived with a new Pitman arm, hoses, an aluminum trim plate, and rag joint. **2.** This flat spot on the input shaft aligns with one on the rag joint coupler to properly index the steering gear to the steering wheel. We encountered a misalignment (see sidebar) that was easily corrected. **3.** Once the splines on the input shaft and the rag joint coupler are aligned, the coupler must be slid in place far enough to allow the retaining bolt to be inserted and tightened to 50 ft-lb. **4.** Removal of the old steering box begins by loosening the pressure and return lines and moving them out of the way. We used a crowfoot attachment to access the fittings and apply the necessary leverage to break them loose. **5.** Once the hoses and rag joint were detached, we moved underneath to remove the three bolts that retain the steering box to the frame. **6.** The box came out with only a bit of wiggling to disengage it from the steering shaft. Be prepared to support the weight of the steering box; it's surprisingly heavy.



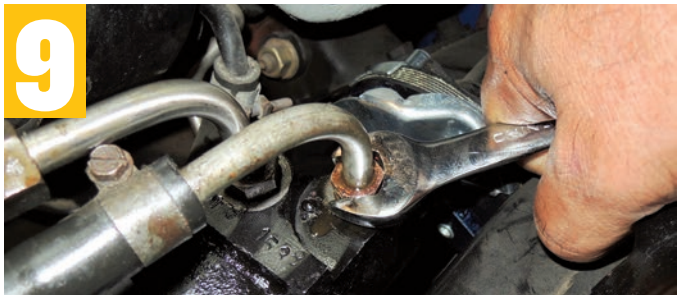




THE RAGGED EDGE

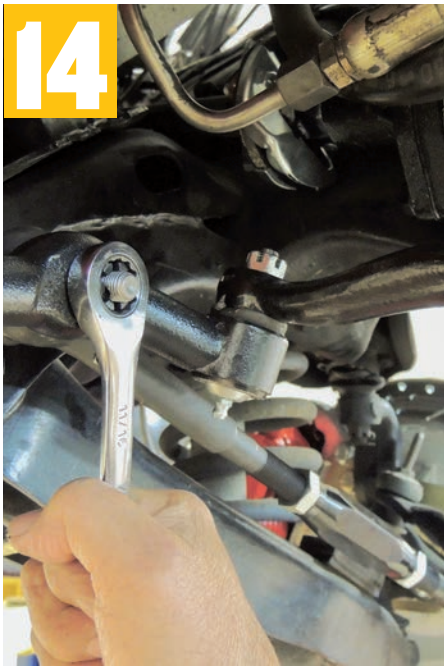
After bolting the new CPP steering box in place, we found that our Chevelle's steering wheel was improperly indexed by 180 degrees. The rag joint mates to the steering shaft with a pair of bolts, one larger than the other, to ensure that it can only be assembled with the correct orientation. Research led us to a different rag joint that bolted to the new steering box and maintained proper indexing. We don't know if this was an assembly line anomaly, if a previous owner swapped steering columns, or if we simply ordered the wrong part with the steering box. Our easy solution was to substitute a Dorman rag joint, part number 31011.

Using the steering shaft retaining bolt as a reference, the different-sized bolts that retain the CPP rag joint (L) and the Dorman substitute (R) are quite discernible.



7. We completed our preassembly of the steering box by attaching the new Pitman arm. After centering the steering box travel, the splines will need to be aligned so that the arm points towards the rear of the car. The retaining nut is torqued to 180 ft-lb. 8. The CPP box slid right in place of the old one, using the same three bolt locations for retention. The original bolts were compromised by excessive rust, so we replaced them with new Grade 8 hardware and tightened them to 65 ft-lb. 9. With the new box secure, we decided that our original hoses were in acceptable condition and reinstalled them. After rechecking the steering wheel indexing, we tightened the rag joint bolts.

10. The CPP linkage included tie rod ends, a new center link, an idler arm, and billet aluminum barrel adjusters for the tie rods. The adjusters not only enhance the rigidity of the tie rods, but the hex design is also wrench friendly and much easier to turn than the originals. 11. When preassembling the steering linkage, pay close attention to the inner and outer tie-rod ends. The outer tie-rod ends have left-hand threads and are marked with a notch in the nuts 12. Our first stop after completing the steering box and linkage upgrade was the alignment shop, but to get us there without drama, we adjusted our new linkage as close as possible, using the original linkage as a guide.



13. The idler arm from CPP is noticeably beefier than the original we replaced. The idler retaining bolts are cinched down to 55 ft-lb. **14.** The final step is to reattach all the steering linkage, securing the castellated nuts with cotter pins once they are properly torqued to 35 ft-lb. Install the grease fittings and lube each one to complete the job.

SOURCES:

CPP
classicperform.com
714-522-2000

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