



## COURSE CORRECTIONS

SWAPPING IN A NEW STEERING GEARBOX CAN MAKE YOUR OLD CHEVY FEEL YOUNG.

**There are two main ways we interface with our Chevys: one is through the throttle and the other is the steering wheel. Tons of thought and effort are put into the throttle side of the equation. After all, going fast is fun. But if no attention is paid to the steering side then the results could be a fast car that feels sloppy and is slow to respond to driver input. That can feel (or actually be) dangerous as you're zipping down the highway. Imagine a new ZR1 Vette with cruddy, unresponsive, steering—what fun would that be?**

Today, one popular option is to replace the traditional steering box with a rack-and-pinion system. The problem with that is the conversion can be a lot of work and tends to be on the pricey side. Switching to a rack-and-pinion on a stock subframe, can also cause fitment issues and undesirable changes to the car's suspension geometry if done incorrectly. Fortunately, companies like CPP offer replacement gearboxes that can give your vintage Chevy the feel of a new car. Best of all, the swap is easy and you won't have to hock family heirlooms to afford it.

From about 1950 until the mid-'80s the recirculating ball steering box was the standard in American steering technology. In fact, it's still used in some heavy-duty applications. Gearboxes are set up with ratios that effect how many times you have to turn the steering wheel to get the front wheels to pivot a given number of degrees. In a wide-ratio box, you

have to turn the steering wheel many times to get the front wheels to rotate to full lock. In some cases, this could be 4.5 revolutions to turn the wheel from lock to lock. With a close ratio steering box with a ratio of 12.7:1, it will only take about three revolutions of the steering wheel to go from lock-to-lock.

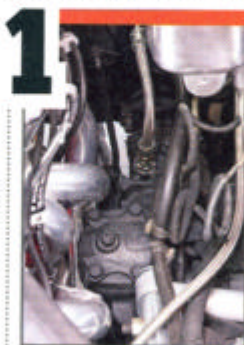
So what difference does 1.5 revolutions make? The answer is a lot. You may not notice it that much when driving down to the grocery store, but if you ever find yourself on a long and twisty road the wide ratio box will make you work much harder than the close ratio box. More work will make you tired sooner and affect your performance, as well as taking some fun out of the experience. The close-ratio box will also make your car feel more responsive.

In addition to the steering ratio, gearboxes can also be adjusted for the amount of effort, also known as resistance, you feel when trying to

turn the steering wheel. In a car set up with low resistance you'll have very little feedback from your car and it will have a feeling like it is floating around on the road. You need to find a happy medium between low effort when you are moving slowly or sitting still and a higher effort set-up that would be good at speed. After all, you don't want to sneeze at 60 mph and end up changing lanes.

There are a few disadvantages to traditional gearboxes. First, since the box consists of many moving parts, there is quite a bit of friction and many wear points. This is one reason why the steering feels so sloppy on an old car. The internals of the box are just worn out. Compared to a rack-and-pinion system, a traditional steering box has more wear points. It's also heavier. But despite these drawbacks, it's a very good system that, with the right parts, can perform as well as, if not better, than a rack-and-pinion system.

There are several advantages to recirculating ball systems. First, by varying pitman arm length you can easily offer more steering travel than a rack-and-pinion system. Second, it's a relatively cheap upgrade, certainly less expensive than converting to rack and pinion. For those on a budget, you can get great performance without going broke. This time-tested steering system is very rugged and is still preferred by many racing organizations. Third, this is a very easy to install upgrade to your car and is generally a bolt in deal that will retain your ride's factory look.



**1** Here's our starting point, a '69 Nova with a bone-stock Saginaw gearbox. Even with a small-block engine, the area where it resides is pretty cramped.

This car has a hydraboost braking system so the power steering lines are a bit different, but the work required to swap out the box is the same.



2



Using a line wrench, we broke loose and removed the high and low pressure power steering lines. We also disconnected the old rag joint from the steering column.

3



We then went under the car and disconnected the pitman arm from the centerlink. Ours came off pretty easily, but you might need to use a BFH (big freakin' hammer) or a pickle fork if it's a bit stubborn.

4



After disconnecting the pitman arm from the center link and removing the power steering lines, it was time to remove the old steering box. It's held to the frame by three  $\frac{1}{4}$ -inch bolts. After some persuasion the bolts broke free. It's heavy so gravity does most of the work here.

5



We were able to maneuver the box, with the pitman arm still attached, out of the Nova from the bottom. Depending on your headers you might need to loosen them up a bit to give a little extra maneuvering room.

6



The new CPP 14:1 close-ratio box (PN 6774PSBS, \$399) is on the right next to the stocker. If you are hardcore into turning fast, CPP also offers the more aggressive 12.7:1 ratio, but for our Nova 14:1 is fast enough. We also picked up a new  $\frac{1}{4}$ -inch 30-spline coupler (PN RJC730, \$49) and some adaptor fittings (PN 605ANFIF, \$25) so that the original power steering lines could mate to the new box.

7



Next, we removed the old pitman arm from the stock gearbox. Sometimes it comes off with a few taps from a hammer, but ours had been on there a long time, so we broke out our trusty puller. If you don't have a puller they are cheap to buy or you can bum one off a buddy.



8



We then installed the pitman arm onto the new CPP power steering box. The easiest way is with an air impact gun as shown, but it can be done by hand with a bit more effort.

9



The coupler supplied by CPP was then fastened to the factory steering column. If you're very careful, you won't have to get your steering aligned due to your steering wheel being off-center.

10

12



13



With the box in place we were then able to tighten the three bolts that hold the box to the frame.

## SOURCES

## CPP

800/522-5004

[www.classicperform.com](http://www.classicperform.com)



There was nothing wrong with our existing power steering hoses, but the ends weren't compatible with the ports on the new pump. That left us with three choices. The first would be to switch to new -AN style hoses, the second would be to get hoses with the right ends to work with the new ports, or thirdly to use these adaptor fittings from CPP so that we could use our stock lines. We opted for the wallet-friendly option three.

# 11



Due to the Nova's aftermarket hydramboost system, we installed this fitting so that we could use the pre-existing -AN hose.



This part is much easier with an extra set of hands. It was a tight fit, but the new box fit without any modifications or moving of the headers. One of us lifted and held the box in place while the other inserted the three bolts through the frame.

# 14



The last step was to reinstall our power steering lines. We then installed the pitman arm and secured it with the new nut and lock washer and secured it to the centerlink with a castle nut and new cotter pin. After double checking that all of the bolts were tight, we added some power steering fluid and took the Nova out for a test drive. The difference in steering feel was immense and it felt like we knocked 40 years off the car. Maybe that's because we did.