



Power Steering Basics for Vintage Chevelles



Classic Performance Products

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By Damon Lee

There are some enthusiasts who insist that a hot rod be bare bones and basic—no power windows, no air conditioning, no power steering. That's fine, but anyone who drives a musclecar with manual steering on a regular basis knows what a pain it can be just getting into a parking space, not to mention the fact that manual steering boxes on '60s cars usually came with very slow steering ratios. Fortunately there is a lot of interchangeability among the steering boxes found on GM cars over the years, so upgrading to a power box is fairly simple. That's especially true for Chevelles, which accept one of the more popular GM power boxes—the Saginaw 800. This box was used in various incarnations under a variety of full-size and intermediate GM vehicles, from A- and G-Body Chevelles and Monte Carlos to Second- and Third-Generation F-Bodies and even some trucks. We recently added power steering to a small block powered '65 Chevelle using a rebuilt 800 box from Classic Performance Products (CPP). In fact, CPP supplied us with all the parts we needed

You'll want to make sure the size and spline count of your rag joint coupler matches the one on your box.

In addition to the external differences, Saginaw 800 boxes came with a plethora of internal variations depending on their original application. The choices are staggering and include variances in steering ratios, tension, and internal steering stops. To simplify matters, Classic Performance Products offers three boxes: a stock-ratio box, a quick-ratio unit, and one that falls somewhere in-between. Quick-ratio boxes have become popular with enthusiasts who want to wring as much handling prowess out of their cars as possible, but we've also talked to folks who find them a little too jittery. The intermediate ratio (approximately 3.5 turns lock-to-lock) seems to provide a happy medium of improved handling and highway comfort. Of course, the ultimate choice is up to you.

PITMAN ARM

In addition to a power steering box, you'll need a Pitman arm to go with it. The

PUMP BRACKETS

Here's where things get a little tricky, especially on early ('64-'68) Chevelles with driver-side mounted alternators. If you've got a stock engine with original exhaust manifolds, you'll obviously be able to use original-style pump brackets without many headaches. But for cars with headers, things may not fall into place so easily. On our car, which has a 327 with a short water pump and a 350-style balancer, we were able to use the factory-style brackets, but we had to modify our alternator bracket to properly mount the upper pump bracket (see photos for details). By the time you read this, CPP should be offering an alternator bracket that will help you avoid the dilemma we faced. Similar modifications might work for big-block Chevelles with headers, but we weren't able to try it ourselves before going to print. Of course, several styles of aftermarket power steering pump brackets are also available, but most require the use of a compact aftermarket pump or the relocation of the alternator (to the inside of the valve cover or to the passenger side of

for the swap, from the box and pump to the necessary brackets and pulleys. Depending on your particular application and engine, a power steering conversion like this can range from a simple afternoon operation to a frustrating chore and parts hunt. We're passing along the lessons we learned hoping that it will make your swap a little easier, whether you buy new parts, scrounge for used stuff, or mix and match a little of each. Keep in mind, however, that we're concentrating on parts that are readily available, and we're not concerning ourselves with numbers-matching originality.

STEERING BOX

Like we said before, the Saginaw 800 box can be found in a wide variety of GM cars. Though the basic design remained the same through the years, there are some differences to watch for. For starters, some cases are held to the frame with three bolts, while others use four. Either style will work, but some four-bolt cases have a little extra casting on the upper rear bolt boss that has to be ground off so the box will fit properly. Also, early 800 boxes use flare hose fittings, while later versions have metric O-ring fittings. You want to make sure you have the appropriate hoses for the box you get. And finally, some 800 boxes have 13/16-inch, 36-spline input shafts, while others use 3/4-inch, 30-spline shafts.

power steering Pitman arm differs from a manual steering part. In fact, there are two variations of power steering Pitman arms to go with the different centerlinks found in early A-Bodies-one has a larger boss and hole on the small end that attaches to the tapered stud on the centerlink. You'll want to compare your new Pitman arm to your old one to make sure it properly matches the centerlink in your car.

STEERING PUMP

Chevilles came equipped with many different power steering pumps over the years, including an unusual pump with a remote reservoir used on big-blocks from 1965-69. Aside from the big-block unit, there are only a couple of pump designs that you're likely to find rebuilders and restoration companies offering today. The biggest difference with these is in the reservoirs. Earlier pumps use a small reservoir with a distinct filler neck, while the newer (and more common) reservoir is slightly larger with more of a teardrop shape. And just like steering boxes, later-model pumps (typically post-'80) use metric fittings. We used the older, smaller unit on our swap, but it appears that the teardrop-shaped pump will fit, too. If price is not an issue, several aftermarket companies also offer compact, street-rod-style pumps with remote reservoirs.

the engine) to avoid belt or bracket interference. Others will work if you convert to a long water pump.

PULLEYS AND HOSES

Here's another area where there isn't always a one-size-fits-all solution. Naturally, you'll need a two- or three-groove crank pulley if you don't have one already. But finding the right steering pump pulley may require some trial-and-error fitting. We tried a couple of different single-groove pulleys before achieving the belt alignment we needed with a dual-groove unit from CPP. You've also got several options for power steering hoses, including having custom hoses made, searching for off-the-shelf hoses, or buying OEM-style hoses from restoration suppliers. We took the easy route and used new hoses from CPP.

CONCLUSION

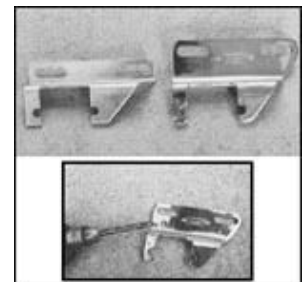
Though it may seem like a simple upgrade, converting your Chevelle to power steering isn't always a cut-and-dried procedure, especially on modified cars. Our suggestion would be to trial fit the power steering pump before you take anything else apart. Once you've got the pump fit, everything else should be pretty straightforward. With a few of these tips and a little persistence, you should be in good shape.



We went to Classic Performance Products to get the parts for the power steering conversion on our '65 Chevelle. The basic components included a rebuilt steering box and pump, a new Pitman arm, and new hoses.



A collapsible steering shaft is another optional upgrade that CPP offers for early Chevilles. Not only will the shaft collapse during a head-on collision, but it also makes it easier to remove the steering box should you need to at a later date. To install the collapsible shaft you simply cut off your existing steering shaft a few inches below the column, grind it into a double-D configuration, then connect the two shafts with a U-joint



We found at least two different styles of alternator brackets for small-block Chevys with headers. The shorter bracket mounted the power steering pump, bracket in the correct location but caused the alternator belt to rub on the snout of the pump. The taller bracket (a Mr. Gasket item) got the alternator out of the way but mounted the pump, bracket too high. Our solution, We drilled extra mounting holes in the taller bracket to make it work. CPP is working on a new alternator bracket with the holes already drilled.



Here's the Saginaw 800 power steering box (top) compared to our

Chevelle's original manual box. As you can see, overall she is not drastically different. The 800 box came in a variety of GM cars, with many different steering ratios. CPP offers a stock-type box (4.5 turns lock-to-lod), an intermediate one (3.5 turns). and a quick-ratio (2.5 turns).



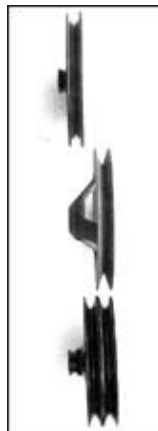
Power steering boxes use a different Pitman arm, than manual units. There are also differences among the power steering Pitman arms. One style of arm has a larger boss and hole on the small end than the other one. You'll want to compare your new Pitman arm to your old one to make sure it will fit the stud on the centerlink.



Bolting the new power steering box in place is pretty self-explanatory, but you'll want to remember to bolt on the Pitman arm and center the steering box (as well as the wheels of the car) before bolting anything together.



Here are the two basic styles of GM power steering pumps. The smaller, earlier-style pump (left) is a little harder to find. They're basically the same pumps with different reservoirs, and either one should work for most small-block applications.



These are just three of the many styles of pump, pulleys available. At top is a flat single-groove. The center is a set-back single-groove, and the lower is a two-groove pulley. The two-groove unit provided the best belt alignment for our application.



Here are the pump brackets we used for our small-block Chevelle. The lower bracket mounts to the engine block while the upper bolts to either the stock exhaust manifold or an aftermarket alternator bracket (if your car has headers). Both are available from CPP.



Here's what our brackets looked like when they were bolted together--not terribly pretty, but functional.



Here's what everything looked like once we installed the steering box pump, hoses, and pulley in our Chevelle. It's a tight fit but everything clears. Note that we used the small-reservoir steering pump.



We used a two-groove pulley from CPP on the crankshaft along with an add-on third pulley we found at the swap meet. We ran the power steering belt on the front pulley.

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