

Tune In and Steer Right

Using the Heidt's Adjustable Power Steering Valve

BY DOC FROHMADER

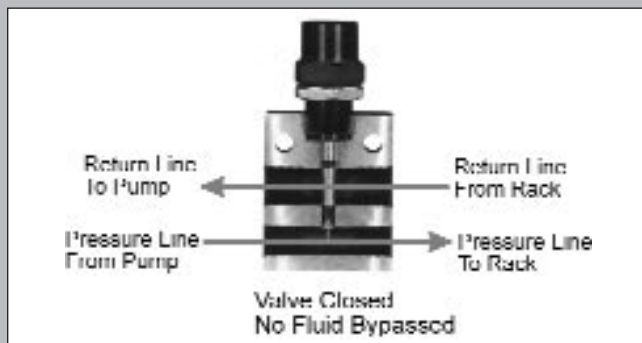


As a teenager putting together the first of many hot rods (more out of necessity than lust for old iron I admit), the world of rodding was a simpler place. We scoffed at power steering as something old folks depended on when their arms would no longer work the wheel. It was a grand time, steered well in testosterone-induced bravado. Some of the cars I built and drove took two men and a small boy to crank the wheel, making parallel parking an aerobic workout. I, for one, had more brawn than brains and willingly joined in that orgy of primitive grunts and muscle-flexing, white Tees with a pack of smokes rolled in the sleeve (matches slipped inside the cellophane), the right slouch against the fender of your best ride,

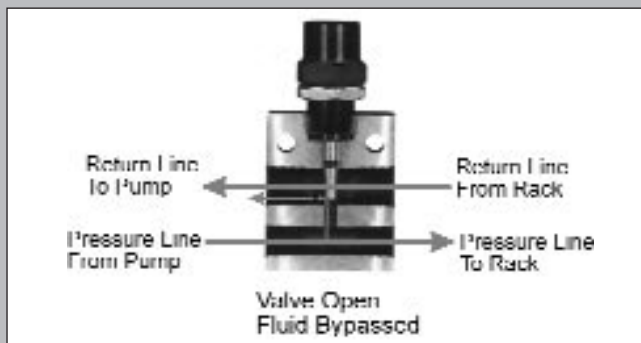
and terminal sneers that were the aphrodisiac of the times. I lay it at the feet of youthful ignorance and perennial reproductive drive that such things worked as well as they certainly did.

That was then and this is now. Most of us still want to strut our stuff, but we've extended the effortless-nonchalance that was a bitchin' slouch into grand stylin' at the wheel. No one wants to see sweat breaking out on a graybeard's brow because no one wants to admit the ravages of time. The only way to prevent this was to adapt power steering—robbing it quietly from granny's four-door sedan—and put it to work in our rides.

As is the case with most of what we've selected as the stuff of hot rods, power steering has hidden surprises to trip us up. If mounting pumps and



A cutaway view of the adjustable power steering valve shows that other than some precision machine work important for making it easy to use, safe, and sensitive to adjustments, the unit is quite simple. This means there is little to go wrong and it's very unlikely to ever fail. It's all in the design! In this view the valve piston is seated and no fluid is bypassed.



In this view, the valve piston is shown opened—as if the pressure from the pump exceeded the pre-set pressure wanted at the rack or box—and fluid is being bypassed to reduce line pressure. The valve can be located anywhere between the pump and the box or rack. The valve is simply installed in line with the existing hoses. Because it works by internally bypassing fluid from the high-pressure side back into the return line, the valve is installed so both lines flow through it, side-by-side. The more bypass, the lower the line pressure to the rack or box. This allows infinite adjustment without choking off the pump or causing damage.

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boxes and racks to fit limited clearance and conforming with safe and effective geometry didn't trip us up, what finally did was the problem with pump and box/rack pressure compatibility. There are lots of pumps to use but the vast majority are GM units, used because of GM engine popularity, bracket availability, compactness, and familiarity. On the other hand, the Ford racks used in the industry-standard Mustang II front ends we've enshrined (they work great and have been well developed for hot rod truck uses) are not typically compatible with the GM pumps. The GM pumps put out 1,100 to 1,300-psi while the Ford racks operate at 700-800-psi.

This also goes for boxes, although they tend to be somewhat less sensitive to and often more compatible with standard GM pump pressure. I know that over the years I've wished I could cut back on the amount of power assist to some trucks because either they were too touchy or there was a lack of road feel. Lately I've found trucks that have little or no road feel and wonder if this doesn't lead to problems when roads get slick or in hard cornering.

Either way, trouble comes when steering becomes so sensitive it's no longer any fun to drive the thing. In some cases if you even think

hard about turning you may end up in the ditch on the other side of the road. Obviously, this over-powered steering is more than just irritating—it's dangerous. Something HAD to be done.

With that in mind, Heidt's developed a small adjustable pressure bypass unit, which is installed in line between the rack/box and the pump. Called the Adjustable Power Steering Valve, it bleeds pressure back into the return side and lowers the line pressure to the rack or box. The result is a pump that's not over-worked, and a rack or box that receives only the pressure it needs. The cool part is that you can adjust it so the amount of power assist you end up with is no more and no less than what is comfortable for you. Even better, you can make the adjustments without removing or dissecting the pump or rack. It's so easy to do that you can even tune it differently for different drivers in a couple minutes.

It's important to know that this is not a simple rigid needle and seat device. If it were as the engine speed increased and the pump increased volume the line pressure to the rack or box would increase and you'd be back in the same trouble you started with. In fact the unit works like a common air regulator where line pressure works against a spring-loaded piston. As soon as the

line pressure exceeds the spring pressure the valve opens and fluid is bypassed, keeping pressure constant at all times. It's because the pressure is not regulated by volume but by pressure that the speed of the pump does not affect line pressure to the rack or box and the power assist does not change with engine speed.

Having spent too much time playing with springs and spacers and such tuning a pump to a rack, I've got to say I won't waste time again taking oil baths, fighting leaks, and breaking knuckles when this valve is available off the shelf. In my slow march from youthful exuberance toward mature enlightenment, I've discovered some things just aren't worth the trouble to do the old hard way. Maybe some of that brawn is finally starting to turn into brains after all...**CT**

SOURCES

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