A SOLUTION FOR THAT SUCKY POWER ASSIST
Installing Classic Performance Products' Auxiliary Vacuum Pump

by Mike Briggs

You're building the truck of your dreams, complete with an updated chassis and killer paintwork. You admit you went a little too far when building the engine, but the horsepower in your eyes kept you signing the checks. Big horsepower, big carburetor, big cam, all the goodies. You get the truck together and back out of the garage for your first drive. As you apply the brakes to slow, you notice the pedal is up, but it's a bit hard to push. Once on the street and attaining some speed, another check of the brakes has you wondering why there doesn't seem to be any power assist. The brakes work and stop the truck, but where is the assist? My whole brake system is new!
Normally the assist is there. Sometimes the problem is the engine you couldn’t quit building. Big cams with big lift can cause real low vacuum situations at idle and low rpm, especially with Ford engines. That doesn’t bother you because the ‘lope sounds killer. Then you hit the brakes. The lack of power assist is probably from the fact that there isn’t enough vacuum being created by the engine to be used by the booster. Before you re-bleed the brakes again, or start to change calipers and such, check out this simple solution.

Classic Performance Products has one solution that works great and is pretty simple to install. This compact vacuum pump is rubber-isolated mounted, easily plumbed into the booster vacuum, and produces enough vacuum to operate the brakes properly. You could even go one step further and add a small reservoir between the pump and booster if you wish.

We had a situation where the brakes felt good for the first or second pump, and then the pedal got harder to push. Adding this neat vacuum pump solved that problem, in our case. Now the pedal has assist every time you push it.

There are a couple of things I should mention about properly set-up brake systems, too. With all the brake kits available now, you should already have the proper parts within your braking system. But here’s a quick rundown on what you need within the system.

First of all, what type of brakes are you running? Disc/drum or disc/disc? It matters to your brake vacuum booster. If you are running disc/drum all you need is the single diaphragm booster that comes with most kits. If you are running a disc/disc setup, you really should have the longer and slightly bigger, dual diaphragm booster. You will never get the proper power assist with a single diaphragm booster and four-wheel discs.

You need inline residual check valves in the front and rear brake lines.
too - 2-pound for discs and
10-pound for drums. These
little guys keep a little bit of
pressure on the brake pads and
shoes and help decrease the
pedal travel needed to apply
the brakes. Don’t have these
installed? That’s probably why
you have a lower-than-normal
pedal upon application of the
brakes. Classic Performance
Products sells master cylinder
booster kits with a metering
block plumbed to the master
cylinder. It just meters the flow
of brake fluid to the front and
rear. You will still need inline
residual check valves when using
these setups.

The hard lines for the brake
system should all be \( \frac{3}{16} \)-inch.
Rubber or stainless flex hoses
that connect the calipers to the
brake lines should be kept to a
minimum length. Front lines are
usually in the 12- to 14-inch
range and rears for rear disc run
10 to 12 inches. If they get too
long, the braking pressure can
cause them to expand and you’ll
lose some line pressure. I saw a
guy one time plumb the whole
brake system on his ’34 Ford
chassis with stainless flex line -
must have cost a small fortune.
He said he didn’t know how
to bend hardline and this was
easier. Well, he could never build
enough line pressure to get the
brakes to work. So after the car
is completed and running, but
not stopping, he had to have
the brake system plumbed in
hardline. You can always do
a better job at this when the
chassis is going together. Not
after the vehicle is complete.

So now that you know what
you really need for a properly
operating brake system, if
yours is a properly operating
system with not enough or
any power assist, then I would
highly recommend adding this
neat little vacuum pump that’ll
hopefully solve your problem.
Follow along to see just how
easy it is to mount, plumb, and
enjoy your newfound power
assisted brakes. 

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03. The rubber
isolators that
come in the kit to mount
the pump have \( \frac{3}{8} \)-inch x 20
studs on each side. One is longer
than the other, so I screwed that
side into the frame rail after I
tapped the three holes I drilled.

04. I got the pump
mounted and installed
the check valve into the hose
coming from the engine. The
small arrow on the valve goes
toward the vacuum source,
or the engine. If your kit had
a valve that is black and white,
then the black side goes
toward the vacuum source. The
side of the valve I’m holding
will connect to a tee, then the
booster and the pump.

05. I ran a fused ignition hot
to the pump’s pressure switch.
The pump connects to the
other side and obviously
the black is going to ground.
The barbed end will connect
to a short piece of tubing I’m
going to install.

06. Since the pump is
mounted under the
front of the bed and there
are a couple of feet to the
booster, I flared a short piece
of \( \frac{3}{8} \)-inch steel tube. I am
going to connect the pump to
the booster with the minimal
amount of rubber hose needed.
Rubber hose can get sucked
closed sometimes when used
in length in a vacuum system.
With the flare on the end of the
tube, the hose will fit real tight
and not leak.

07. After bending the
line to fit and flaring
the ends, I installed it on
the frame rail with a couple of
Adell clamps. I drilled the holes with
a #21 and tapped \( \frac{3}{8} \).

08. These are barbed ends
on these fittings so
t hey are not supposed to leak.
I came back and installed small
hose clamps just to be sure.
After time, the hoses could
dry up or swell up, depending
on what they are exposed to,
so clamping them now will
prevent any possible leak later.
The tee connection is just above the master cylinder. The hardline comes from the pump and the hose with the check valve in it goes up to the intake manifold. Simple and a real help for engines that don’t produce enough vacuum. Now time for the best part, the test drive!