

# Powerflow Systems Exhaust

By Scott Nelson

Upon opening the large boxes, I was immediately impressed. The components that make up the Powerflow Systems™ exhaust are indeed impressive. The high-quality, 321 stainless steel that it is made of was all new and shiny. The welds are all “stack of dimes” quality. One look at the materials provided and I was sure that the company had spent time in development.

I broke out the instructions—yes, mechanics will always read the instructions—and started going through them. I was amazed that they were easy to read and the installation looked fairly simple. They provided good written instructions and some excellent drawings. There are even templates to make the necessary cutouts in the cowling. I spread out the parts and found quite a bit more than I had anticipated. They even provided the seat hose for the induction. So, without further delay, I started disassembling the original exhaust.

A few words about removing an entire exhaust system from a general aviation aircraft. The first thing to do is get a good, penetrating oil and soak down the entire system. The original exhaust systems are made of good quality materials, but you will encounter a lot of rusted bolts and nuts. It can be quite a struggle to get the old stuff off. Sometimes exhaust studs will screw out or break. Make sure you replace the bad ones. Also, make sure you clean the port area and get it nice and smooth where the exhaust gasket will seat. This will save you an exhaust leak later on.

Now, back to the installation. I was amazed at how well the new exhaust fit up to the cylinders. The new system seems more precision-made than an original equipment exhaust. In my opinion, the thermal normalizing of the entire system that is done by PFS is the key. The fit is perfect and there are no stresses on the pipes. This should eliminate cracking that often occurs in lower quality exhaust components.

The other part of concern was the “hanger” for the lower exhaust parts. It is attached to the lower engine

mount bolt; both the bend angle and the position of it made another perfect fit. The hole in the cowl was made with a supplied template. Surprisingly, that was also in the proper spot with little trimming necessary for a good fit.

The entire installation was straightforward and simple. It should be no problem for any mechanic to install. The materials, construction, and engineering are exemplary. The extra cost PFS spends to normalize the entire system will make it a long-lasting exhaust. It also has a “cool” look to it.

The proof is always in the performance, though. Fortunately, the customer that wanted this exhaust installed flies regularly and in and out of short strips a lot. His reaction to the exhaust was incredible. He told me that the take off roll for the airplane had been shortened significantly. Rate of climb increased dramatically, even when loaded. He said his normal cruise speed had increased a few knots. I suggested that he may be able to switch to a “cruise” prop rather than his existing “climb” prop and see a much better increase in airspeed. The ground roll and climb is indicative of a significant horsepower increase.

I have found that the manufacturer's statements of their product to be right in line with what the product will do. In the aircraft industry, you see many “mods” claiming incredible changes to performance. It is refreshing to see one that actually lives up to its performance claims.

The only disappointing thing that I noticed is an unavoidable result. The beautiful, polished pipes become discolored due to heat, much like the exhaust on a Harley.

I would also like to add that I had called and emailed the company on more than one occasion and found them to be very knowledgeable and helpful. They were able to answer all of the questions I asked them.

I find this package to be a very good upgrade. No costly engine change or rework; no ugly vulture-like wingtips; no fairings that make changing a tire a day-long affair; and most of all, no “snake oil” to put in your engine which claims all sorts of things but really does nothing.

I also took the time to talk to a couple other owners on the field that have the Powerflo Exhaust System installed. Every one of them is very satisfied with the gain in performance.

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