

Kuryakyn Velociraptor modification

by John Baumann



This is a picture of the finished product on my '08 650 classic. I will go through each step from start to finish adding pictures and part #'s. This is the Kuryakyn Velociraptor velocity stack part # 9443. This particular part # is for a vt1800 bike. Kuryakyn doesn't make this for the 650 v-star. Any part number for this velocity stack should work. I contacted Kuryakyn, and they claim all available Velociraptor kits have the same parts, the difference is in the mounting brackets. This took 2 evenings to complete. Below is a picture of what was used.



I used a piece of 1/4in plate steel and traced the inside of the velocity stack opening



I then cut out the hole with my jigsaw with a metal cutting blade. Then used a dremmel tool to clean out the hole. After the holes matched I traced the outside diameter of the stack and cut it out with a jigsaw. When the piece was done it looked like a 1/4 in thick washer. I was able to chuck this up in my drill press and clean the outside up. Then place the two pieces together and marked 3 of the holes on the bottom of the stack to my washer. Drilled and tapped to a 1/4-20 thread.



After threading the washer, I used $\frac{1}{4}$ - 20 stainless steel bolts to join the washer and the velocity stack together. I then ground down the end of the bolts so they wouldn't exceed the washer. A little home work and shopping was done before this next step. After completely removing the stock air cleaner assembly. With only the air duct remaining, I measured the opening of the duct. It measures 2.9in as seen in the next pic. The red line is what was measured.

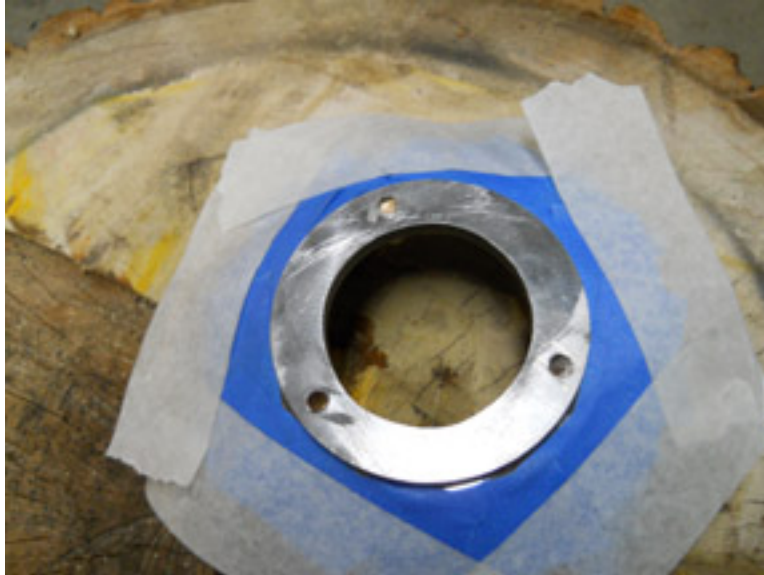


I went to the local auto parts store and found both pieces needed to adapt the new velocity stack for under \$15.00. The next pic will show you an axle bearing race and part #. The outside diameter of the race is 2.89in. And the silicone hose measures 3in and comes with both clamps.



Spectre part# 8771.

With the stack and the washer bolted together, I turned the joined pieces upside down and placed the bearing race onto the washer and centered them. With the thick side of the race against the washer I mark the location or centered the race to the washer. This will allow me to weld the race in the proper place. I then taped off the chromed velocity stack so that when I weld the 2 together, the chrome won't get messed up.



Here is a pic of the pieces welded together.



Now that the adapter is made, I used the silicone boot and attached to the stack air duct. Quick note. The silicone boot has little lines etched into it. This made figuring out where to cut it to fit and keep your cut straight easy. Lucky me, cutting the boot exactly in half was the perfect length, and one of the lines was in the middle. Now if ever needed I have an exact spare.

Now with the stack mounted I started making the 2 support brackets.



Using $1/8^{\text{th}}$ in steel, I cut 2 support brackets out. I used a dime as a pattern for the side that bolts to the 2 factory mounting tabs. I cut the pieces at 4 in long tapering to $1\ 1/8$ wide. I slowly kept grinding down the wider side until the piece fit and would bolt into the original mounting holes. Also gave this bracket 2 bends with a vice and hammer to allow them to join flush with the washer I made earlier.



With all pieces mocked up, I then tack welded them together while on the bike. I do recommend you cover your bike to protect it from the weld splatter.



With all tacked together, removed from bike and welded everything. Then ground down the welds for a smooth mating surface.





Now the adapter is complete, I cleaned it up and powder coated it. You can paint it if powder coating isn't an option for you.



Now apply the gasket that comes with your kit. Talk about easy, the gasket is self adhesive on one side.



Now bolt the velocity stack together with the bolt that I ground down earlier to insure a good seal. I used loctite on the bolts. Now install the black plastic cone inside, then the K&N air filter that came with it (the filter was already charged or oiled in the kit). Then attached the screen and outer bezel with the 5 screws. Now it's complete. I did do some re-jetting. You can find a re-jetting chart at 650ccnd website. For my combination I used: 127 jets with orings removed, stock primary, 3 ½ turns on the pms screw and re synched the carburetors. I have a free flowing exhaust, Road Burner three stepped drag pros. Any Questions about this mod, you can reach me at; mychevelle@att.net



Location: Belleville, Illinois
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2008 650 vstar classic raven w/flames