

## Petschke Motorsports Etec 800 Y pipe

Michigan Tier 1 automotive manufacturer/ supplier Steve Petschke and Chuckaroo Hamrah brought a 2011 Etec 800 with breakin complete to DTR to do an A to B comparison of the stock Y pipe vs a higher flowing stamped and welded Y pipe that's being manufactured and sold by Steve through his motorsports marketing division (586-322-1695).

Steve told me about doing airflow comparisons with a high buck SuperFlow air flowbench. As long as velocity isn't compromised (which might reduce HP), gross airflow CFM measured on a flowbench can be useful in determining HP potential. But airflow should be measured going out the exhaust port, and also going back into the exhaust ports—flow both ways is equally important.

But the final assessment of HP potential from airflow adding components must be on an instrumented dynamometer. Today, we would compare airflow from stock vs. this aftermarket Y pipe and most importantly horsepower improvement or reduction.

Since DTR is an independent testing facility, OEM manufacturers, aftermarket tuners and parts manufacturers often pay to do private testing at \$125-150 per hour to see what power numbers might be created with new sleds, engine widgets or modifications. Results are private—the property of the manufacturer/ modifier. If the test results are negative, then mods/ parts will not be sold. But if test results are positive I'm pleased to post those results on this website. And today, results were positive and here are the results.

### Stock 2011 Etec 800, breakin complete

EngSpd	STPPwr	STPTRq	BSFA_B	FulA_B	AFRA_B	AirInT	Air_1c	FulPrA
RPM	CHp	Clb-ft	lb/hph	lbs/hr	Ratio	degF	CFM	psig
6300	95.2	79.4	0.753	69.4	13.32	44.5	203.2	43.8
6400	98.4	80.8	0.753	71.8	13.22	44.5	208.5	43.6
6500	103.2	83.4	0.714	71.4	13.50	44.6	211.8	43.5
6600	108.0	86.0	0.690	72.2	13.69	44.6	217.3	43.6
6700	110.8	86.9	0.677	72.7	13.78	44.6	220.2	43.6
6800	115.8	89.4	0.651	73.0	13.91	44.7	223.2	43.4
6900	118.8	90.5	0.644	74.1	13.96	44.7	227.4	43.4
7000	124.5	93.4	0.614	74.0	14.16	44.7	230.3	43.3
7100	128.2	94.8	0.598	74.2	14.38	44.8	234.7	43.3
7200	131.5	95.9	0.600	76.4	14.20	44.8	238.3	43.2
7300	135.9	97.8	0.606	79.8	13.79	44.9	242.2	43.3
7400	139.3	98.9	0.604	81.4	13.78	44.9	246.9	43.2
7500	143.1	100.2	0.595	82.5	13.84	44.9	251.1	42.9
7600	146.9	101.5	0.609	86.6	13.41	45.0	255.5	43.0
7700	150.4	102.6	0.593	86.3	13.64	45.0	259.0	43.3
7800	152.6	102.8	0.593	87.6	13.62	45.0	262.4	43.5
7900	154.4	102.6	0.585	87.4	13.79	45.1	265.1	43.7
8000	155.3	101.9	0.577	86.7	13.99	45.1	266.8	43.8
8100	154.1	99.9	0.577	86.1	14.14	45.1	267.7	43.8
8200	149.0	95.4	0.592	85.3	14.24	45.2	267.3	43.2

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**Here's the test results with the Petschke Motorsports Y pipe.**

EngSpd	STPPwr	STPTrq	BSFA_B	FulA_B	AFRA_B	AirInT	Air_1c	FulPrA
RPM	CHp	Clb-ft	lb/hph	lbs/hr	Ratio	degF	CFM	psig
6200	97.4	82.5	0.752	70.9	13.22	44.4	206.2	43.9
6300	99.3	82.8	0.744	71.6	13.22	44.4	208.0	44.0
6400	101.5	83.3	0.734	72.2	13.56	44.5	215.2	43.8
6500	104.1	84.1	0.729	73.5	13.51	44.5	218.2	43.8
6600	109.5	87.1	0.696	73.8	13.79	44.5	223.7	43.9
6700	113.4	88.9	0.678	74.5	13.97	44.5	228.8	43.8
6800	117.8	91.0	0.650	74.2	14.15	44.5	230.8	43.9
6900	122.1	93.0	0.650	77.0	13.97	44.5	236.4	43.9
7000	125.9	94.5	0.640	78.1	13.99	44.6	240.0	43.9
7100	130.8	96.8	0.615	78.0	14.31	44.6	245.4	43.9
7200	135.5	98.8	0.604	79.3	14.39	44.6	250.8	43.9
7300	139.1	100.1	0.598	80.7	14.40	44.6	255.3	43.8
7400	143.0	101.5	0.597	82.8	14.33	44.6	260.9	43.6
7500	146.9	102.9	0.584	83.1	14.53	44.7	265.5	43.5
7600	151.1	104.4	0.588	86.0	14.26	44.7	269.8	43.2
7700	154.4	105.3	0.588	88.0	14.15	44.7	273.7	43.4
7800	156.8	105.6	0.581	88.2	14.25	44.7	276.4	43.6
7900	157.8	104.9	0.576	88.1	14.39	44.7	278.8	43.8
8000	156.8	103.0	0.563	85.5	14.92	44.7	280.4	43.7
8100	154.0	99.9	0.564	84.2	15.20	44.8	281.4	43.5
8200	146.7	94.0	0.583	82.8	15.42	44.8	280.8	43.3

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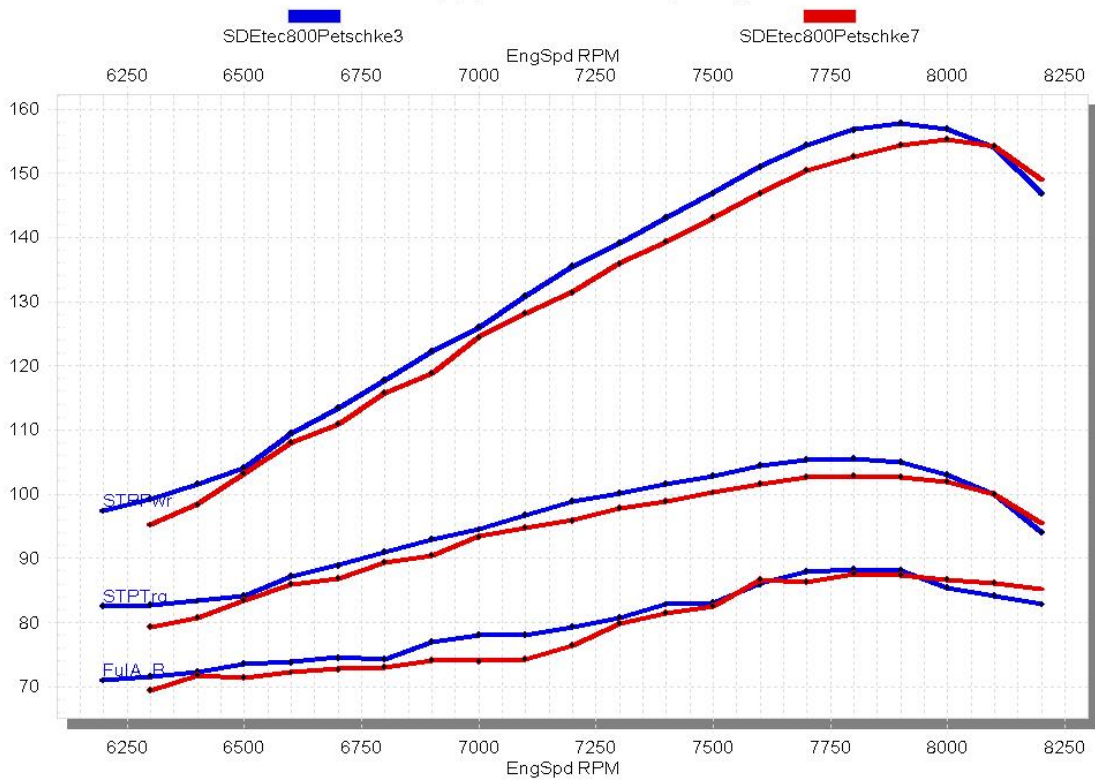
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This is a lot like the airflow improvement we saw with the production Boyesen Rad Valve reed cages—5% airflow CFM increase with HP improvement that was meaningful, but lower % than the airflow % increase. This suggests that some of the added airflow is being “short circuited” and not trapped in the combustion chambers. So as we saw with the Boyesen Rad Valve testing, a more restrictive pipe might prove to be beneficial on the Etec 800 with this Y pipe.

We will have Power Commander V Etec fuel tuners by year's end, and will create PCV maps to accommodate most combinations of airflow and power adding modifications. Then we can combine things like this Y pipe, Boyesen Rad Valves, better tuned pipes, more radically ported cylinders, etc. Now that we have PCVs that can deliver fuel flow to support 180ish HP, we are collecting and planning for things to test. Stay tuned for even more Etec 800 HP, thanks to the parts makers/ modifiers and thanks to DynoJet who has made adding Etec 800 fuel flow practical with the Power Commander V!

### DynoTech Research Etec 800 Ypipe comparison

RED stock Ypipe, BLUE Petschke Motorsports Ypipe



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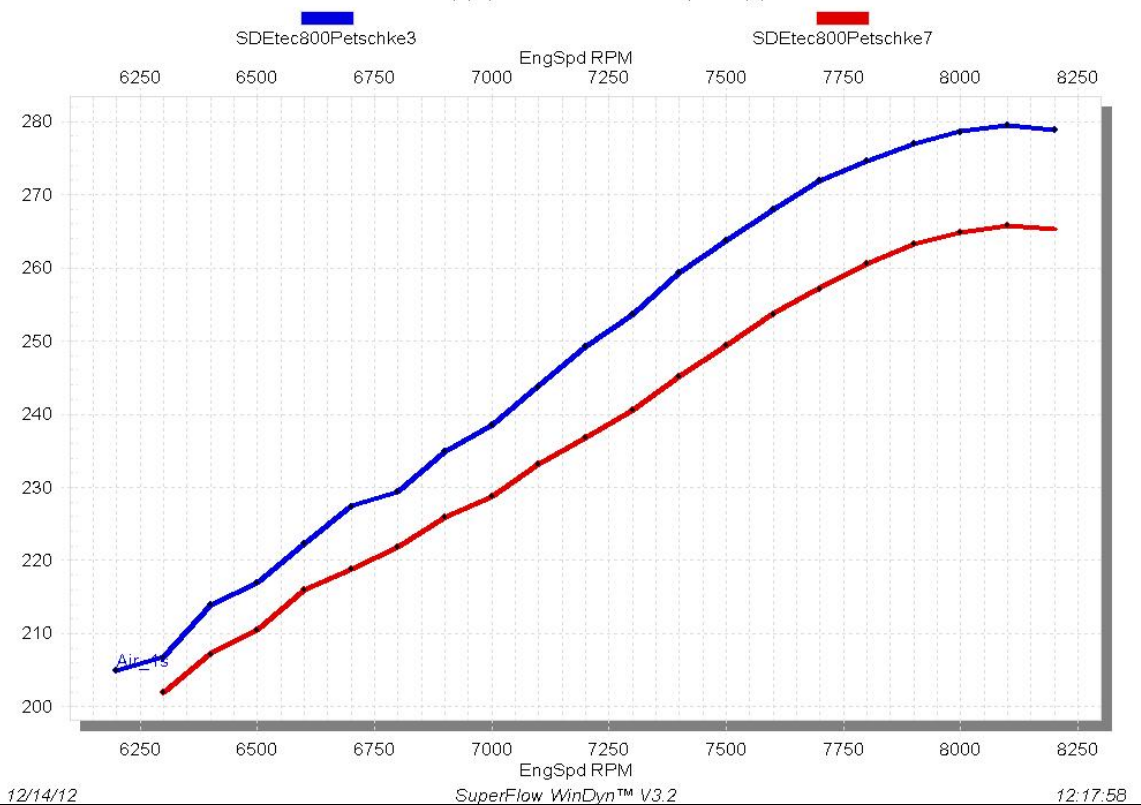
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And here's a graphic comparison of airflow CFM through the Etec 800 engine with stock Y pipe compared to the Petschke Motorsports Y pipe. We must trap more of that air and add adequate fuel!

### DynoTech Research Etec 800 Y pipe comparison

RED stock Ypipe, BLUE Petschke Motorsports Ypipe



And one final note—Steve and Chuck brought a Y pipe-fitted Etec 800 to the AmSnow/DTR NY Shootout in Woodgate, NY *before* this dyno session. Yes, it performed better at 660 than Smith Marine’s stocker. But they were clutching the sled for 8100 RPM where power was actually tailing off with the Petschke Motorsports Y pipe. They should have been targeting 7700-7900 RPM with hot pipe at 660! Next time, dyno test *before* the Shootout!