2005 Stock Yamaha Vector Excell Motorports replacement header.

After completing the Apex stock/ muffler evaluation, Aaron Excell (www.ExcellMotorsports.com) brought in this Vector to test his new 3 into 1 stainless steel mandrel bent, tig welded (and backpurged as evidenced by the smooth, shiny backsides of the tig welds) repacement header. Like the stock header, Excell's uses a flat collecter. The difference is more subtle bends, better collector, better internal joint blending, and resulting in higher airflow CFM and HP at high revs, but also resulting in lower airflow CFM and HP at low revs. Note also that the higher flowing Excell header is sliding the HP peak close to the rev limiter. It is possible that the five extra HP will take the stock 8500 RPM clutching to 9000+ where it seems to be happiest, where breathing is so good. Also keep in mind all of this added airflow and HP is with the stock quiet muffler! Later testing with the Excell Vector header and the same New Generation oval glasspack revealed only weight loss (said to be 13 lbs) and way more noise gain than we saw on the Apex, nearly double the dB gain we saw with the Apex, but virtually zero HP or airflow gain.
But the most important thing here is this $400 header adds 5 HP over a very broad range, and well below the $100/HP benchmark. Plus, you keep stock trail-friendly noise levels (unless you opt for the weight savings of the glasspack to go with the header).

2005 Yamaha Vector, 4000 miles, all stock

EngSpd	STPTrq	STPPwr	A/F	BSFC	Fuel B	OilOut	AirTmp	Air1+2
RPM	Clb-ft	CHp	Ratio	lb/hph	lb/hr	degF	degF	scfm
5800	81.1	89.4	12.82	0.438	38.1	127	58	106.7
5900	80.7	90.6	12.93	0.431	37.9	128	58	107.1
6000	80.9	92.4	12.75	0.434	38.9	129	59	108.4
6100	80.8	93.8	12.54	0.439	40.1	129	59	109.6
6200	80.9	95.5	12.48	0.439	40.7	130	59	111.1
6300	81.2	97.4	12.04	0.454	42.9	131	59	112.8
6400	81.3	99.1	11.75	0.465	44.7	131	59	114.7
6500	81.5	100.9	11.58	0.471	46.1	132	59	116.4
6600	81.3	102.2	11.63	0.469	46.5	132	59	118.1
6700	81.3	103.7	11.74	0.465	46.8	132	59	120.1
6800	82.4	106.6	11.84	0.459	47.6	133	57	123.1
6900	82.2	107.9	11.97	0.455	47.8	133	57	125.1
7000	82.1	109.3	12.44	0.441	46.8	133	58	127.2
7100	82.1	111.1	12.42	0.442	47.7	134	58	129.4
7200	81.7	112.1	12.41	0.447	48.7	135	58	131.9
7300	81.2	112.9	12.33	0.454	49.7	135	59	133.9
7400	81.1	114.2	12.11	0.463	51.3	135	58	135.6
7500	81.1	115.7	11.95	0.472	53.1	136	58	138.4
7600	80.6	116.7	11.86	0.478	54.1	136	58	140.2
7700	79.8	117.1	11.68	0.489	55.5	136	58	141.6
7800	80.1	119.1	11.78	0.485	56.1	137	58	144.1
7900	78.9	118.7	12.16	0.477	55.1	138	58	146.1
8000	78.4	119.4	11.94	0.488	56.5	138	59	147.4
8100	77.3	119.3	12.07	0.488	56.4	138	59	148.7
8200	76.1	118.8	12.14	0.492	56.7	139	59	150.4

8300	74.1	116.9	12.18	0.499	56.5	139	59	150.4
8400	72.9	116.6	12.14	0.503	56.9	139	59	150.9
8500	72.1	116.7	12.08	0.508	57.5	139	59	151.8
8600	72.1	118.1	11.95	0.511	58.4	140	59	152.5
8700	71.3	118.2	12.21	0.502	57.5	140	59	153.2
8800	70.9	118.8	12.51	0.489	56.3	140	59	153.8
8900	68.5	116.1	12.47	0.504	56.6	140	59	154.2
9000	68.1	116.6	12.39	0.509	57.5	141	59	155.6
9100	67.2	116.5	12.46	0.509	57.4	141	59	156.2
9200	65.8	115.3	12.04	0.534	59.6	142	59	156.8
9300	64.2	113.8	11.66	0.561	61.8	142	59	157.4

2005 Vector with Excell Motorsports Stainless Steel replacement 3-1 header

EngSpd	STPTrq	STPPwr	A/F	BSFC	Fuel B	OilOut	AirTmp	Air1+2
RPM	Clb-ft	CHp	Ratio	lb/hph	lb/hr	degF	degF	scfm
5800	77.1	85.1	11.71	0.481	39.7	118	58	101.6
5900	76.8	86.3	11.75	0.474	39.7	119	58	101.9
6000	77.4	88.4	11.69	0.469	40.3	119	58	102.9
6100	77.7	90.3	11.78	0.463	40.6	119	58	104.5
6200	78.5	92.6	11.84	0.458	41.2	120	58	106.6
6300	78.9	94.6	11.81	0.457	42.1	120	58	108.3
6400	78.6	95.7	11.56	0.471	43.7	120	58	110.4
6500	78.5	97.1	11.38	0.478	45.1	120	58	112.1
6600	79.4	99.8	11.24	0.479	46.4	120	58	113.9
6700	79.9	101.9	11.42	0.471	46.5	121	58	116.1
6800	80.8	104.7	11.63	0.459	46.6	121	58	118.4
6900	81.5	107.1	12.18	0.442	45.9	122	58	122.1
7000	80.9	107.9	12.13	0.445	46.6	122	58	123.5
7100	80.9	109.4	12.28	0.442	47.1	123	58	126.1
7200	81.5	111.7	12.52	0.433	47.1	123	58	128.6
7300	81.3	112.9	12.73	0.431	47.1	123	58	131.1
7400	80.9	113.9	12.35	0.446	49.3	124	58	133.1
7500	81.2	115.9	12.36	0.446	50.2	124	58	135.5
7600	80.2	116.1	12.11	0.459	51.7	124	58	136.7
7700	80.9	118.5	11.91	0.465	53.5	125	58	139.2
7800	80.8	119.9	11.93	0.466	54.3	125	58	141.5
7900	79.9	120.2	12.03	0.469	54.7	125	58	143.8
8000	79.5	121.2	11.97	0.474	55.7	126	58	145.6
8100	78.4	120.9	11.82	0.488	57.3	126	58	148.1
8200	78.1	121.8	11.97	0.487	57.5	127	58	150.3
8300	77.1	121.8	12.22	0.481	56.7	127	58	151.4
8400	75.5	120.7	12.15	0.491	57.4	127	57	152.4
8500	75.3	121.9	12.17	0.488	57.7	128	58	153.4
8600	74.2	121.5	12.33	0.484	57.1	128	58	153.8
8700	74.3	123.1	12.83	0.466	55.7	129	57	156.1
8800	73.6	123.4	13.11	0.457	54.8	129	57	157.1
8900	73.1	123.9	13.29	0.453	54.4	129	58	158.1
9000	72.5	124.2	13.25	0.457	55.1	129	58	159.5

9100	70.6	122.4	13.22	0.468	55.5	130	59	160.3
9200	69.1	121.1	12.84	0.492	57.6	130	59	161.6
9300	68.9	122.1	12.58	0.511	59.1	131	59	162.2
9400	68.3	122.2	12.41	0.509	60.3	131	58	163.3