

D&D Powersports 2012 Apex inexpensive power increases

When Dale Roes brought the new 2012 Yamaha Apex for dyno certification for the Shootout, he also brought a box of inexpensive stuff that he said added 10 HP as tested on their dyno. After doing the box stock certification at 151 HP we installed the D&D Powersports power enhancers on this new sled—one part at a time to see what each would add to stock power. Afterwards we reinstalled the stock parts for the stock sled Shootout.

The D&D Apex NA power package includes:

- *Properly mapped Power Commander V EFI tuner to add the fuel needed to support the extra airflow/ HP

- *Stainless steel muffler, insulated to be cooler than stock muffler outside skin temperature.

- *Modified airbox top, with frogskin covering new topside air inlet passages and some Bullseye intakes.

- *Shorter air intake velocity stacks—precisely tuned to add top end power.

Four stroke normally aspirated sled engines are difficult to improve HP on. Since I dyno tune lots of sportbikes on my SuperFlow bike dyno I see it all the time. Replace the quiet stock mufflers with loud aftermarket replacement mufflers and often zero power is gained. Noise tickets for nothing! When Terry Paine owned Bender Racing, he tried, in vain, to make a loud muffler for the then-new RX1 that made more airflow and HP than the stock quiet muffler. He came up with what he called the “Ear Bleeder” glasspack that was brutally loud and lost two HP over the whisper quiet stock muffler. He had that in his catalog, and explained that it was nastily loud but lost two HP. He sold many 100’s of them!

Here’s the stock 2012 EXUP Apex, as tested for the Adirondack Shootout:

EngSpd	STPPwr	STPTRq	BSFA_B	FulA_B	LamAF1	LM1Air	AirInT	DenAlt
RPM	CHp	Clb-ft	lb/hph	Lbs/hr	Ratio	SCFM	degF	Feet
6000	83.9	73.4	0.426	34.9	14.47	110	47.3	189
6100	83.4	71.8	0.436	35.5	14.35	111	47.3	189
6200	84.7	71.7	0.442	36.5	14.23	114	47.3	189
6300	89.5	74.6	0.432	37.8	14.08	116	47.3	189
6400	92.9	76.2	0.428	38.8	14.03	119	47.3	189
6500	92.8	75.0	0.439	39.8	13.96	122	47.3	189
6600	92.8	73.9	0.450	40.8	13.86	124	47.3	189
6700	93.5	73.3	0.447	40.8	13.68	122	47.3	189
6800	95.2	73.5	0.439	40.8	13.50	121	47.3	189
6900	97.5	74.2	0.435	41.4	13.35	121	47.3	189
7000	98.4	73.9	0.433	41.6	13.26	121	47.3	189
7100	99.9	73.9	0.434	42.4	13.19	122	47.3	189
7200	102.7	74.9	0.429	43.1	13.17	124	47.3	189
7300	106.9	76.9	0.426	44.5	13.30	129	47.3	189
7400	109.5	77.7	0.424	45.3	13.41	133	47.3	190

7500	111.2	77.8	0.429	46.5	13.50	137	47.3	188
7600	114.0	78.8	0.436	48.6	13.57	144	47.3	189
7700	118.7	81.0	0.432	50.1	13.67	150	47.3	188
7800	120.9	81.4	0.430	50.8	13.81	153	47.3	189
7900	122.4	81.4	0.445	53.2	13.94	162	47.3	189
8000	125.2	82.2	0.455	55.7	14.00	171	47.3	189
8100	127.9	83.0	0.461	57.6	13.96	176	47.3	189
8200	129.6	83.0	0.459	58.1	13.88	176	47.3	190
8300	131.6	83.3	0.458	58.8	13.92	179	47.3	190
8400	133.0	83.2	0.461	59.9	13.95	183	47.3	190
8500	134.6	83.2	0.462	60.8	13.94	185	47.3	190
8600	136.4	83.3	0.461	61.4	13.99	188	47.3	190
8700	137.4	83.0	0.459	61.6	13.93	188	47.3	190
8800	139.7	83.4	0.452	61.7	13.79	186	47.3	191
8900	140.3	82.8	0.457	62.6	13.74	188	47.3	191
9000	141.0	82.3	0.456	62.8	13.68	188	47.3	191
9100	142.1	82.0	0.458	63.6	13.60	189	47.3	191
9200	143.9	82.1	0.454	63.7	13.52	188	47.3	191
9300	144.6	81.7	0.455	64.2	13.51	190	47.3	191
9400	146.0	81.6	0.447	63.7	13.48	188	47.3	191
9500	147.4	81.5	0.446	64.2	13.45	189	47.3	191
9600	147.9	80.9	0.453	65.4	13.42	192	47.3	191
9700	149.5	81.0	0.456	66.6	13.44	195	47.3	191
9800	149.8	80.3	0.461	67.4	13.48	199	47.3	192
9900	150.0	79.6	0.464	67.9	13.48	200	47.3	193
10000	150.7	79.2	0.465	68.3	13.53	202	47.3	193
10100	151.1	78.5	0.465	68.5	13.57	203	47.4	194
10200	150.7	77.6	0.469	69.0	13.63	205	47.4	194
10300	150.5	76.7	0.468	68.7	13.68	206	47.4	195
10400	150.2	75.9	0.471	68.9	13.71	207	47.4	195
10500	149.3	74.7	0.487	70.9	13.73	210	47.4	196
10600	149.3	74.0	0.481	70.1	13.66	209	47.4	197
10700	148.7	73.0	0.490	70.9	13.64	212	47.4	198
10800	148.1	72.0	0.492	71.1	13.58	211	47.4	198
10900	147.8	71.2	0.497	71.6	13.55	212	47.4	199
11000	148.2	70.8	0.507	73.2	13.56	210	47.4	200

First we installed the D&D stainless steel muffler replacement that adds airflow and HP over stock, with way, way less dB than the Terry Paine ear bleeder. Note that we added the PCV in order to add precisely the extra fuel flow needed to create maximum safe pump gas HP.

EngSpd	STPPwr	STPTrq	BSFA_B	FulA_B	LamAF1	LM1Air	AirInT
RPM	CHp	Clb-ft	lb/hph	lbs/hr	Ratio	SCFM	degF
5967	82.8	72.9	0.424	34.3	16.57	124	47.4
6100	83.5	71.9	0.427	34.8	16.44	125	47.4
6200	84.5	71.6	0.429	35.4	16.30	126	47.4
6300	87.7	73.1	0.427	36.6	16.03	128	47.4

6400	91.5	75.1	0.425	38.0	15.72	131	47.4
6500	94.8	76.6	0.423	39.2	15.39	132	47.4
6600	96.0	76.4	0.423	39.7	15.14	131	47.4
6700	96.7	75.8	0.424	40.0	14.89	130	47.4
6800	97.8	75.6	0.422	40.3	14.68	129	47.4
6900	99.5	75.8	0.421	40.9	14.49	130	47.4
7000	101.3	76.0	0.418	41.4	14.32	130	47.4
7100	103.1	76.3	0.419	42.2	14.15	131	47.4
7200	105.0	76.6	0.419	43.0	14.02	132	47.4
7300	107.0	77.0	0.422	44.1	13.97	135	47.4
7400	109.0	77.3	0.424	45.1	14.00	138	47.4
7500	111.8	78.3	0.425	46.4	14.07	143	47.4
7600	115.1	79.5	0.426	47.9	14.10	148	47.4
7700	118.5	80.8	0.428	49.6	14.07	153	47.4
7800	121.0	81.5	0.435	51.4	14.02	158	47.4
7900	123.4	82.0	0.442	53.3	13.97	163	47.4
8000	125.6	82.5	0.448	55.0	13.95	168	47.4
8100	127.9	82.9	0.452	56.5	13.95	172	47.4
8200	129.8	83.2	0.456	57.8	13.99	177	47.4
8300	131.5	83.2	0.459	59.0	14.03	181	47.4
8400	133.2	83.3	0.460	59.8	14.04	183	47.4
8500	134.9	83.4	0.461	60.8	14.04	187	47.4
8600	136.8	83.5	0.464	61.9	14.03	190	47.4
8700	138.3	83.5	0.470	63.5	14.00	194	47.4
8800	139.6	83.3	0.477	65.0	13.90	198	47.4
8900	140.7	83.0	0.484	66.5	13.75	200	47.4
9000	142.0	82.9	0.486	67.4	13.57	200	47.4
9100	143.1	82.6	0.488	68.1	13.40	200	47.4
9200	144.3	82.4	0.488	68.8	13.23	199	47.4
9300	145.3	82.1	0.490	69.5	13.06	198	47.4
9400	146.4	81.8	0.491	70.1	12.92	198	47.4
9500	147.3	81.4	0.492	70.7	12.83	198	47.5
9600	148.2	81.1	0.495	71.6	12.78	200	47.5
9700	149.2	80.8	0.495	72.1	12.77	201	47.5
9800	150.2	80.5	0.493	72.3	12.73	201	47.5
9900	151.3	80.3	0.491	72.5	12.70	201	47.5
10000	152.3	80.0	0.490	72.8	12.67	202	47.5
10100	152.7	79.4	0.494	73.5	12.66	203	47.5
10200	152.8	78.7	0.496	73.9	12.66	204	47.5
10300	152.4	77.7	0.501	74.6	12.68	207	47.5
10400	151.9	76.7	0.509	75.4	12.69	209	47.5
10500	151.4	75.7	0.518	76.5	12.67	212	47.5
10600	151.1	74.9	0.525	77.3	12.64	214	47.5
10700	150.9	74.1	0.531	78.1	12.59	215	47.5
10800	151.1	73.5	0.534	78.7	12.53	216	47.5
10900	151.0	72.8	0.537	79.1	12.48	216	47.5
11000	151.1	72.1	0.537	79.0	12.45	215	47.5
11133	151.0	71.2	0.535	78.7	12.42	214	47.5

Then we tested the D&D modified stock airbox lid—adding airflow CFM and making more HP with not much increase in intake noise.

EngSpd	STPPwr	STPTrq	BSFA_B	FulA_B	LamAF1	LM1Air	DenAlt
RPM	CHp	Clb-ft	lb/hph	lbs/hr	Ratio	SCFM	Feet
5967	79.5	70.0	0.426	33.1	16.30	118	209
6100	82.4	70.9	0.421	33.8	16.32	121	209
6200	85.2	72.2	0.416	34.6	16.27	123	209
6300	89.8	74.9	0.408	35.8	16.12	126	209
6400	93.7	76.9	0.404	36.9	15.83	128	209
6500	96.5	78.0	0.402	37.9	15.52	129	210
6600	97.5	77.6	0.404	38.5	15.22	128	210
6700	98.6	77.3	0.405	38.9	15.02	128	210
6800	100.0	77.3	0.402	39.3	14.84	127	210
6900	101.7	77.4	0.397	39.5	14.67	127	210
7000	103.4	77.6	0.395	39.9	14.55	127	210
7100	105.1	77.8	0.394	40.5	14.49	128	210
7200	107.0	78.0	0.398	41.5	14.49	132	210
7300	109.2	78.6	0.401	42.7	14.54	136	210
7400	111.9	79.4	0.402	43.9	14.62	140	210
7500	114.1	79.9	0.406	45.2	14.71	146	211
7600	116.6	80.6	0.412	46.9	14.77	152	211
7700	119.6	81.6	0.417	48.6	14.76	157	212
7800	122.6	82.6	0.421	50.4	14.68	162	212
7900	125.2	83.2	0.425	52.0	14.54	165	212
8000	127.1	83.4	0.432	53.7	14.40	169	212
8100	129.1	83.7	0.437	55.1	14.29	172	213
8200	131.0	83.9	0.440	56.2	14.22	175	214
8300	132.5	83.8	0.442	57.2	14.19	178	214
8400	134.1	83.8	0.446	58.3	14.12	180	214
8500	135.5	83.7	0.450	59.4	14.06	183	214
8600	137.6	84.0	0.455	61.1	13.96	186	214
8700	139.8	84.4	0.458	62.5	13.92	190	214
8800	142.0	84.7	0.462	64.1	13.87	194	214
8900	143.7	84.8	0.465	65.2	13.79	197	214
9000	144.7	84.5	0.469	66.3	13.69	198	214
9100	146.0	84.2	0.472	67.2	13.56	199	215
9200	146.9	83.9	0.475	68.1	13.44	200	215
9300	148.7	84.0	0.473	68.6	13.28	199	215
9400	150.3	84.0	0.47	68.9	13.16	198	215
9500	151.4	83.7	0.468	69.2	13.06	198	215
9600	152.8	83.6	0.467	69.7	13.03	199	216
9700	154.2	83.5	0.465	70	13.03	200	217
9800	155.4	83.3	0.465	70.5	13.03	201	218
9900	155.6	82.5	0.468	71.1	13.02	202	218
10000	155.6	81.7	0.474	71.9	13.00	204	218
10100	155.8	81.0	0.478	72.6	12.98	206	218
10200	156.0	80.3	0.481	73.3	12.98	208	219
10300	155.8	79.5	0.486	73.9	12.97	210	219
10400	155.4	78.5	0.491	74.4	12.95	211	220
10500	154.6	77.3	0.498	75.1	12.90	212	221
10600	154.3	76.5	0.507	76.3	12.88	215	222
10700	154.3	75.7	0.515	77.4	12.86	218	223

10800	154.3	75.1	0.520	78.2	12.83	219	223
10900	154.4	74.4	0.523	78.7	12.76	220	224
11033	154.5	73.6	0.527	79.3	12.67	220	224

Finally, the D&D modified rubber air inlet horns were installed that added HP at high revs where it's needed for maximum HP. Now we have over 160 HP on a real bone stock Apex without removing the cam cover!

STPPwr	STPTrq	BSFA_B	FulA_B	LamAF1	LM1Air	AirInT	DenAlt
CHp	Clb-ft	lb/hph	lbs/hr	Ratio	SCFM	DegF	Feet
107.6	80.7	0.413	43.4	15.13	143	46.8	150
108.4	80.2	0.420	44.5	15.03	146	46.8	150
109.7	80.0	0.425	45.6	15.02	150	46.8	150
112.8	81.1	0.424	46.7	14.81	151	46.8	150
115.5	81.9	0.427	48.2	14.55	153	46.8	151
117.4	82.2	0.434	49.9	14.25	155	46.8	152
119.4	82.5	0.439	51.3	13.95	156	46.8	151
120.9	82.5	0.451	53.3	13.76	160	46.8	152
122.3	82.4	0.462	55.3	13.45	162	46.8	151
123.9	82.3	0.475	57.5	13.22	166	46.8	152
125.2	82.2	0.481	58.9	12.98	167	46.8	153
126.6	82.1	0.487	60.3	12.90	170	46.8	153
128.2	82.1	0.491	61.5	12.76	171	46.8	154
130.2	82.4	0.492	62.5	12.72	174	46.8	154
132.5	82.9	0.495	64.1	12.65	177	46.8	154
134.6	83.2	0.493	64.9	12.66	179	46.8	154
136.8	83.5	0.490	65.6	12.76	183	46.8	155
138.8	83.8	0.493	66.8	12.78	187	46.8	156
140.9	84.1	0.491	67.7	12.76	189	46.8	156
142.7	84.2	0.493	68.8	12.75	192	46.8	157
144.6	84.4	0.492	69.5	12.79	194	46.8	157
146.0	84.3	0.490	69.9	12.75	195	46.8	157
147.7	84.3	0.494	71.2	12.73	198	46.8	157
148.8	84.0	0.498	72.3	12.74	201	46.8	157
150.0	83.8	0.503	73.8	12.69	204	46.8	157
151.2	83.6	0.502	74.2	12.68	205	46.9	158
152.2	83.3	0.501	74.5	12.69	206	46.9	159
153.4	83.1	0.503	75.3	12.70	209	46.9	160
154.3	82.7	0.504	76.0	12.58	209	46.9	160
155.3	82.4	0.503	76.3	12.55	209	46.9	160
156.2	82.1	0.502	76.7	12.42	208	46.9	160
157.2	81.7	0.501	76.9	12.35	208	46.9	161
157.9	81.3	0.504	77.7	12.31	209	46.9	162
158.6	80.9	0.506	78.3	12.27	210	46.9	163
158.9	80.3	0.510	79.2	12.21	213	46.9	164
158.8	79.4	0.514	79.7	12.21	215	46.9	164
159.2	78.9	0.515	80.0	12.25	218	46.9	165
160.0	78.5	0.513	80.0	12.24	220	47.0	166
160.8	78.2	0.512	80.4	12.24	224	47.0	166
160.6	77.4	0.513	80.3	12.32	212	47.0	168



