2006 SnowWeek/ DTR Adirondack Shootout certification dyno tests

Once again this year the SnowWeek guys swapped Old Forge area dealers' sleds, this time crated, with other NE sled dealers helter skelter. GM provided a dandy tow vehicle (Danali with 404 HP) for Dave Wells to drag crated sleds around the northeast dealers to swap. Crated sleds obtained from random dealers in the Northeast were delivered to Big Moose Yamaha/ Arctic Cat for setup on the Sunday before the SW/DTR Shootout under the watchful eye of Shootout partner George Taylor.

Monday and Tuesday the sleds arrived at my dyno in sealed trailers from the Shootout dealers/ partners (Old Forge Powersports SkiDoo, White Lake Polaris, and Big Moose Yamaha/ Arctic Cat) along with George Taylor who held the padlock keys.

Here's the dyno certification tests. This year I did the first dyno test at a fast 200 rate, then after cooldown the second at a slower 100 rate. All test data shown is with second run, 100 rate. Pipe temp is critical in determining where HP peak occurs and clutches should shift. The following data is from the 120 HP class sleds.

Please note that the 07 F6 when tested on the dyon appears to keep EX valves closed until 7800 rpm, thus explaining the strange HP curve. In the field, those EX valves whack wideopen instantly so this HP curve is not typical.

07 F6 EngSpd RPM	STPTrq Clb-ft	STPPwr CHp	Fuel A lb/hr	TsTim2 Second	BSFC lb/hph	AirTmp degF	BMEP psi	A/FA-B Ratio
5400	53.5	55.1	38.6	0	0.718	38	109.3	13.27
5500	53.8	56.3	38.8	0.3	0.704	38	110.1	13.24
5600	55.6	59.3	42.1	1.3	0.724	37	113.9	12.61
5700	58.2	63.2	42.9	2.1	0.693	37	119.2	12.73
5800	59.1	65.2	42.5	2.9	0.665	36	121.1	13.16
5900	58.9	66.2	42.4	3.2	0.653	36	120.8	13.11
6000	61.7	70.5	43.3	4.3	0.628	38	126.3	13.45
6100	61.8	71.8	43.5	4.6	0.619	38	126.5	13.51
6200	64.4	76.1	46.8	5.3	0.629	38	131.7	13.21
6300	65.2	78.2	47.8	5.6	0.625	38	133.4	13.25
6400	66.3	80.8	49.5	5.8	0.626	38	135.7	13.08
6500	69.9	86.5	58.3	6.9	0.688	37	143.2	12.36
6600	74.4	93.5	63.4	7.8	0.693	38	152.2	12.02
6700	76.7	97.9	64.1	8.8	0.668	38	157.1	12.39
6800	76.6	99.2	64.1	9.1	0.658	37	157.1	12.51
6900	75.9	99.8	64.1	9.2	0.655	37	155.5	12.62
7000	80.2	106.9	63.5	10.5	0.606	37	164.3	13.43
7100	80.2	108.4	63.6	11.1	0.599	37	164.3	13.57
7200	82.4	112.9	64.4	11.9	0.582	37	168.7	13.83
7300	82.3	114.3	64.2	12.2	0.573	37	168.5	14.01
7400	80.6	113.6	65.5	12.9	0.588	36	165.4	14.32
7500	82.7	118.1	66.1	13.3	0.571	36	169.5	14.58
7600	83.7	121.1	66.4	13.5	0.559	36	171.6	14.62

7700	87.7	128.5	86.4	14.8	0.686	37	179.6	11.76
7800	86.5	128.5	87.4	15.9	0.694	37	177.3	11.68
7900	83.1	125.1	87.3	16.2	0.713	37	170.2	11.68
8000	75.1	114.2	84.3	17.9	0.755	38	153.2	11.82

SDI600 EngSpd RPM	STPTrq Clb-ft	STPPwr CHp	Fuel A lb/hr	TsTim2 Second	BSFC lb/hph	AirTmp degF	FuelP psig
5200	51.3	50.8	34.8	0	0.691	40	58.3
5300	51.7	52.1	35.2	0.5	0.681	40	58.2
5400	53.7	55.2	36.1	1.3	0.656	39	58.2
5500	55.6	58.2	36.4	2.2	0.631	40	58.2
5600	55.9	59.6	36.7	2.6	0.621	40	58.2
5700	57.2	62.1	38.1	3.3	0.618	40	58.2
5800	58.7	64.8	39.2	4.1	0.609	40	58.1
5900	59.7	67.1	39.8	4.6	0.597	40	58.1
6000	61.8	70.7	44.1	5.7	0.626	39	58.1
6100	62.9	73.1	46.1	6.3	0.634	40	58.1
6200	62.9	74.3	47.1	6.7	0.638	40	57.9
6300	63.9	76.7	49.8	7.5	0.654	40	57.9
6400	64.7	78.9	51.9	8.3	0.662	40	57.9
6500	64.5	79.9	52.1	8.7	0.655	40	57.9
6600	64.7	81.4	52.2	9.4	0.646	40	57.9
6700	66.9	85.3	54.9	10.1	0.648	40	57.8
6800	65.8	85.2	56.9	10.9	0.673	41	57.8
6900	65.4	86.1	57.7	11.4	0.677	41	57.8
7000	65.4	87.2	58.7	11.6	0.679	41	57.7
7100	65.4	88.5	59.1	11.7	0.672	41	57.8
7200	66.1	90.5	59.1	11.8	0.657	41	57.8
7300	70.9	98.5	62.9	13.1	0.642	39	57.7
7400	71.4	100.6	63.1	13.2	0.631	39	57.6
7500	77.7	111.1	73.2	14.9	0.666	42	57.5
7600	78.4	113.5	74.1	15.7	0.658	41	57.5
7700	79.9	117.2	77.2	16.4	0.664	41	57.4
7800	79.4	118.1	78.2	17.3	0.668	41	57.4
7900	79.4	119.5	80.6	18.1	0.681	41	57.3
8000	79.4	121.1	81.6	18.6	0.681	41	57.3
8100	79.1	121.9	83.1	19.7	0.686	40	57.2
8200	78.8	123.1	83.3	19.9	0.681	40	57.2
8300	76.3	120.6	82.1	20.4	0.685	41	57.3

07Nitro EngSpd RPM	STPPwr CHp	STPTrq Clb-ft	AirTmp degF	BaroP in/Hg	VapPrs InHg	AirDen lb/cFt	AirCor ratio
5020	73.3	76.6	48	29.21	0.12	0.076	0.995
5040	73.5	76.5	48	29.21	0.12	0.076	0.995
5100	74.2	76.4	47	29.21	0.12	0.076	0.997
5200	75.5	76.3	47	29.21	0.12	0.076	0.997
5300	77.3	76.6	47	29.19	0.12	0.076	0.997
5400	79.5	77.3	47	29.19	0.12	0.076	0.997

5500	81.7	78.1	47	29.19	0.12	0.076	0.997
5600	84.1	78.8	47	29.19	0.12	0.076	0.997
5700	86.1	79.3	47	29.19	0.12	0.076	0.997
5800	87.9	79.6	47	29.19	0.12	0.076	0.997
5900	89.8	79.9	48	29.19	0.12	0.076	0.995
6000	91.4	80.1	48	29.18	0.12	0.076	0.995
6100	93.1	80.1	48	29.18	0.12	0.076	0.995
6200	94.7	80.2	48	29.19	0.12	0.076	0.995
6300	96.3	80.2	48	29.19	0.12	0.076	0.995
6400	98.1	80.4	48	29.19	0.12	0.076	0.995
6500	100.1	80.9	48	29.19	0.12	0.076	0.995
6600	102.4	81.5	48	29.19	0.12	0.076	0.995
6700	104.5	81.9	48	29.19	0.12	0.076	0.995
6800	106.7	82.4	48	29.19	0.12	0.076	0.995
6900	108.6	82.6	48	29.19	0.12	0.076	0.995
7000	110.1	82.6	48	29.19	0.12	0.076	0.995
7100	111.4	82.4	48	29.19	0.12	0.076	0.995
7200	112.4	82.1	48	29.19	0.12	0.076	0.995
7300	113.7	81.8	47	29.19	0.12	0.076	0.996
7400	115.1	81.6	47	29.19	0.12	0.076	0.996
7500	116.1	81.2	47	29.19	0.12	0.076	0.996
7600	117.4	81.1	47	29.19	0.12	0.076	0.996
7700	118.7	80.9	46	29.19	0.12	0.076	0.998
7800	119.6	80.5	46	29.19	0.12	0.076	0.998
7900	120.4	80.1	46	29.19	0.12	0.076	0.998
8000	120.5	79.1	46	29.19	0.12	0.076	0.998
8100	119.5	77.5	46	29.19	0.12	0.076	0.998
8200	120.1	76.9	46	29.19	0.12	0.076	0.998
8300	120.2	76.1	46	29.19	0.12	0.076	0.998
8400	119.7	74.8	47	29.19	0.12	0.076	0.996
8500	120.3	74.3	47	29.19	0.12	0.076	0.996
8600	120.6	73.6	47	29.19	0.12	0.076	0.996
8700	119.1	71.9	47	29.19	0.12	0.076	0.996
8760	118.2	70.9	48	29.19	0.12	0.076	0.995
8780	118.5	70.9	48	29.19	0.12	0.076	0.995

IQ600 EngSpd RPM	STPTrq Clb-ft	STPPwr CHp	Fuel A lb/hr	TsTim2 Second	BaroP in/Hg	AirTmp degF	Air1+2 scfm
5500	57.5	60.2	0	0	29.17	37	99
5600	58.1	61.8	0	0.4	29.17	37	100
5700	59.9	65.1	0	1.3	29.17	37	104
5800	60.5	66.8	0	1.9	29.17	37	105
5900	61.4	69.1	0	2.6	29.17	37	107
6000	62.9	71.9	0	3.4	29.17	37	109
6100	63.5	73.8	0	4.1	29.17	37	111
6200	63.8	75.4	0	4.9	29.17	36	113
6300	64.2	77.1	0	5.4	29.17	36	115
6400	64.2	78.3	0	5.7	29.17	36	116
6500	66.1	81.7	0	6.7	29.17	36	120
6600	66.5	83.6	0	7.2	29.17	37	121

6700	66.4	84.7	0	7.9	29.16	37	127
6800	66.3	85.9	0	8.3	29.17	37	131
6900	67.6	88.9	0	8.7	29.17	37	137
7000	70.2	93.5	0	9.5	29.16	37	145
7100	72.1	97.4	0	10.1	29.16	37	150
7200	75.1	102.8	0	11.2	29.17	37	154
7300	75.1	104.2	0	11.4	29.17	37	155
7400	79.1	111.4	0	12.3	29.17	36	160
7500	79.3	113.2	0	12.5	29.17	36	160
7600	82.1	118.8	0	13.8	29.16	36	165
7700	81.7	119.8	0	14.1	29.16	36	166
7800	82.6	122.6	0	14.9	29.17	35	169
7900	82.7	124.4	0	15.6	29.17	36	169
8000	83.1	126.6	0	16.6	29.17	38	169
8100	81.9	126.4	0	16.9	29.16	38	169
8200	81.8	127.7	0	17.9	29.16	37	170
8300	81.1	128.1	0	18.9	29.16	37	170
8400	80.1	128.1	0	19.3	29.16	37	170
8500	79.4	128.5	0	19.4	29.16	37	170
8600	76.3	125.1	0	19.8	29.16	37	170

Here are the big bore dyno certification tests.

F1000 EngSpd RPM	STPTrq Clb-ft	STPPwr CHp	Fuel A lb/hr	TsTim2 second	BaroP in/Hg	AirTmp degF
5000	95.8	91.2	0	0	29.2	41
5100	95.6	92.9	0	0.8	29.2	41
5200	95.8	94.9	0	1.3	29.2	41
5300	98.1	99.2	0	1.8	29.2	41
5400	99.3	102.1	0	2.8	29.2	40
5500	98.4	103.1	0	3.5	29.2	40
5600	98.1	104.6	0	4.1	29.2	41
5700	98.8	107.2	0	4.6	29.2	41
5800	99.9	110.4	0	5.3	29.2	41
5900	101.1	113.4	0	6.1	29.2	41
6000	101.2	115.6	0	6.7	29.2	41
6100	101.3	117.6	0	7.1	29.2	41
6200	101.8	120.2	0	7.3	29.2	41
6300	103.1	123.7	0	7.4	29.2	41
6400	106.8	130.1	0	9.2	29.21	41
6500	106.8	132.2	0	9.2	29.21	41
6600	107.5	135.1	0	9.3	29.21	41
6700	121.8	155.4	0	11.1	29.21	41
6800	122.6	158.8	0	11.9	29.21	41
6900	122.4	160.9	0	12.4	29.21	41
7000	122.6	163.5	0	13.2	29.21	41
7100	122.4	165.5	0	14.2	29.21	41

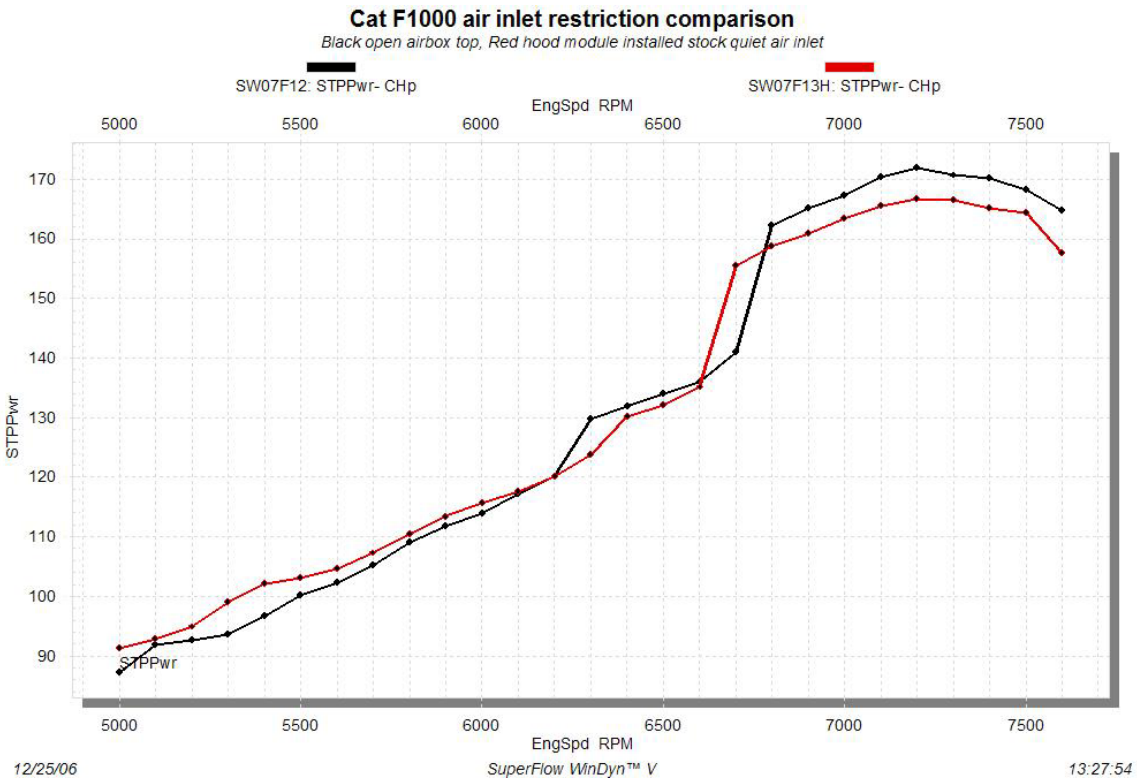
7200	121.6	166.7	0	14.8	29.21	41	
7300	119.8	166.5	0	15.6	29.21	41	
7400	117.2	165.1	0	16.4	29.21	39	
7500	115.1	164.3	0	17.2	29.21	41	
7600	108.9	157.5	0	17.9	29.21	42	

Apex EngSpd RPM	STPTrq Clb-ft	STPPwr CHp	Fuel A lb/hr	TsTim2 second	BaroP in/Hg	AirTmp degF	BMEP psi
5900	56.9	63.9	0	-43.9	29.21	36	139.4
6000	57.1	65.2	0	-43.4	29.21	37	139.6
6100	58.2	67.6	0	-43.1	29.21	37	142.3
6200	59.1	69.6	0	-42.9	29.21	37	144.3
6300	60.3	72.3	0	-42.9	29.22	36	147.7
6400	62.1	75.6	0	-42.8	29.22	36	151.9
6500	65.6	81.2	0	-42.7	29.21	35	160.8
6600	67.8	85.2	0	-42.5	29.22	36	166.2
6700	70.2	89.5	0	-42.3	29.22	35	172.1
6800	71.8	92.9	0	-42.3	29.22	36	175.8
6900	74.3	97.6	0	-41.8	29.22	36	182.1
7000	73.7	98.2	0	-41.5	29.22	35	180.7
7100	73.6	99.5	0	-41.3	29.22	35	180.5
7200	72.4	99.2	0	-41.1	29.22	35	177.5
7300	72.1	100.2	0	-40.8	29.22	36	176.6
7400	71.9	101.4	0	-40.6	29.22	37	176.1
7500	71.6	102.2	0	-40.4	29.21	37	175.1
7600	71.6	103.6	0	-40.2	29.21	37	175.1
7700	72.1	105.5	0	-40.1	29.21	36	176.3
7800	72.3	107.4	0	-39.9	29.21	36	177.1
7900	73.1	109.8	0	-39.8	29.21	36	178.8
8000	74.1	112.9	0	-39.6	29.21	36	181.5
8100	75.7	116.8	0	-39.4	29.21	36	185.4
8200	76.1	118.8	0	-39.2	29.21	36	186.4
8300	75.7	119.6	0	-38.9	29.21	36	185.4
8400	75.5	120.7	0	-38.8	29.22	36	184.9
8500	75.8	122.7	0	-38.6	29.21	36	185.7
8600	75.7	123.9	0	-38.5	29.22	36	185.4
8700	76.4	126.5	0	-38.4	29.22	36	187.1
8800	76.7	128.5	0	-38.3	29.22	37	187.6
8900	77.1	130.4	0	-38.2	29.22	37	188.4
9000	76.8	131.6	0	-38.1	29.21	37	187.9
9100	77.8	134.8	0	-37.8	29.21	37	190.3
9200	77.4	135.6	0	-37.7	29.21	37	189.4
9300	77.5	137.3	0	-37.4	29.21	37	189.6
9400	76.9	137.7	0	-37.2	29.21	37	188.1
9500	77.1	139.3	0	-37.1	29.21	37	188.4
9600	76.6	139.8	0	-36.9	29.21	37	187.4
9700	75.9	140.2	0	-36.8	29.21	37	185.7
9800	75.7	141.3	0	-36.6	29.21	37	185.2
9900	75.4	142.2	0	-36.4	29.21	37	184.4
10000	74.5	141.9	0	-36.3	29.21	37	182.2
10100	74.2	142.7	0	-36.1	29.21	37	181.5

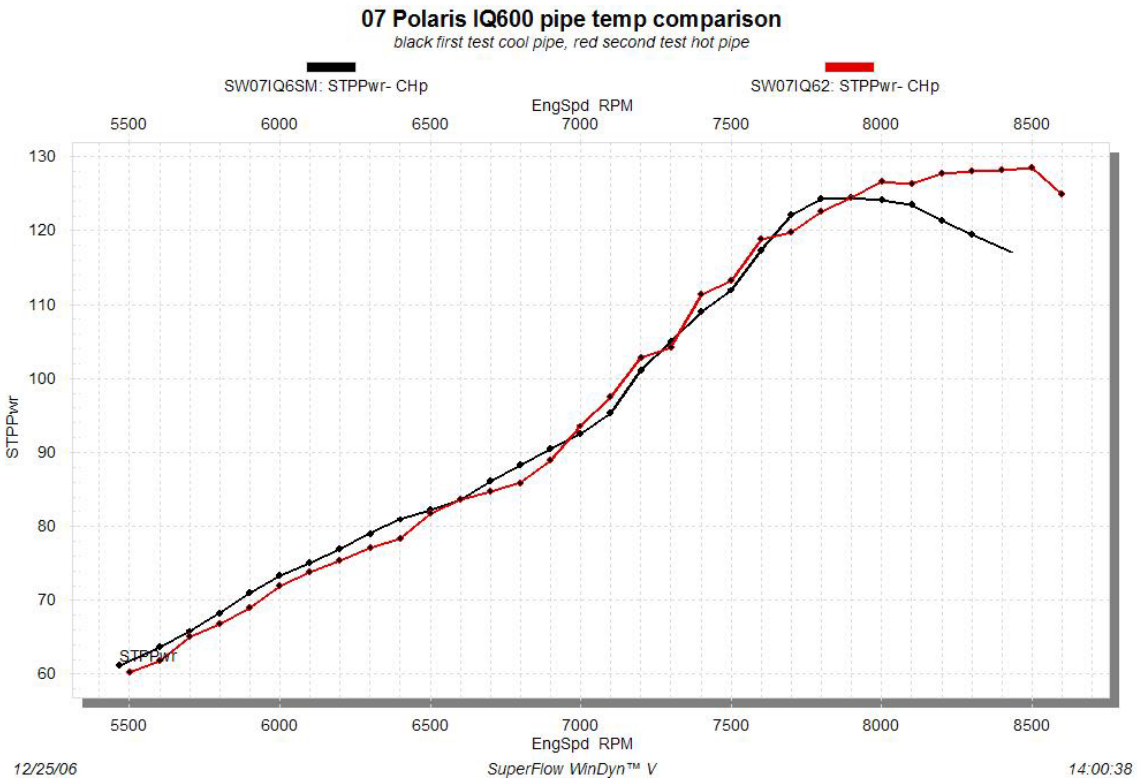
10200	73.8	143.3	0	-35.9	29.21	37	180.5
10300	73.2	143.6	0	-35.7	29.21	37	179.9
10400	73.1	144.8	0	-35.5	29.21	37	178.8
10500	72.9	145.8	0	-35.3	29.21	37	178.3
10600	72.2	145.7	0	-35.1	29.21	37	176.6
10700	71.9	146.5	0	-34.9	29.21	37	175.8
10800	71.3	146.6	0	-34.6	29.21	37	174.3
10900	70.7	146.7	0	-34.4	29.21	37	172.9
11000	68.5	143.5	0	-34.4	29.21	36	167.7
11100	65.1	137.3	0	-34.4	29.21	36	159.1
11200	61.8	131.7	0	-34.1	29.21	36	151.2

MachZ EngSpd RPM	STPTrq Clb-ft	STPPwr CHp	Fuel A lb/hr	TsTim2 second	BSFC lb/hph	AirTmp degF	A/FA-B Ratio
5500	72.8	76.2	63.8	0	0.841	38	11.42
5600	74.5	79.5	65.2	0.9	0.825	39	11.39
5700	75.6	82.1	65.7	1.1	0.805	39	11.49
5800	83.4	92.1	68.4	2.3	0.747	40	11.83
5900	84.1	94.4	68.3	2.6	0.728	40	12.11
6000	89.3	102.1	73.3	3.4	0.723	40	11.81
6100	92.6	107.5	75.6	4.1	0.707	39	11.84
6200	96.1	113.3	77.8	4.6	0.691	39	11.92
6300	97.5	117.1	79.1	5.2	0.681	39	11.94
6400	103.4	125.9	82.5	6.1	0.659	40	11.89
6500	106.3	131.6	83.8	6.7	0.641	39	11.94
6600	108.4	136.2	84.7	7.3	0.625	39	12.04
6700	111.1	141.7	88.8	8.1	0.631	39	11.73
6800	114.1	147.7	94.4	8.8	0.642	39	11.24
6900	114.8	150.8	95.9	9.7	0.639	38	11.15
7000	116.6	155.4	97.6	10.1	0.631	38	11.06
7100	118.8	160.6	100.4	10.9	0.628	39	10.86
7200	120.4	165.1	101.2	11.5	0.616	39	10.82
7300	121.8	169.3	106.3	12.3	0.631	38	10.38
7400	122.1	171.9	108.8	13.1	0.636	38	10.19
7500	121.4	173.4	110.3	13.9	0.639	39	10.14
7600	120.1	173.8	111.1	14.4	0.642	39	10.11
7700	118.5	173.7	110.9	15.4	0.643	40	10.11
7800	114.4	169.9	111.1	15.9	0.657	39	10.15
7900	108.9	163.8	110.3	16.6	0.677	39	10.16

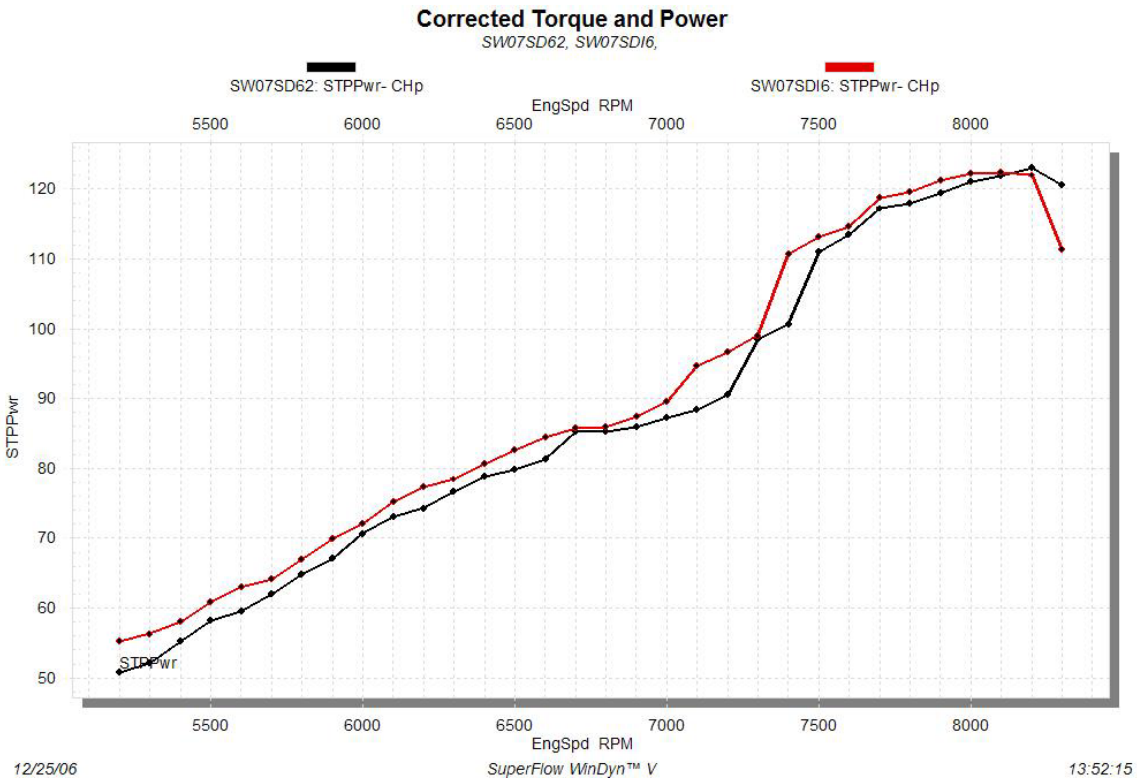
Note that the following graph shows the HP available by reducing the air inlet restriction of the stock air inlet system. Note that this is a combination of higher airflow CFM and fixed fuel flow. Be afraid or add fuel flow with Boondocker.



Here is the two tests we performed on the stock IQ600—note the first cool pipe test peaked early, with a bit lower HP, and the second longer acceleration test peaked at much higher RPM and higher HP. This should be useful info for clutch tuners.



Here is similar pipe temp data with the SkiDoo SDI 600—note that first run cool pipe temp is a bit lower HP peak than second run longer run, hot pipe.


Corrected Torque and Power
SW07SD62, SW07SDI6,
SW07SD62: STPPwr- CHp
SW07SDI6: STPPwr- CHp
EngSpd RPM
5500
6000
6500
7000
7500
8000
120
110
100
90
80
70
60
50
STPPwr
STPPwr
EngSpd RPM
12/25/06
SuperFlow WinDyn™ V
13:52:15