

New 2021 Sleds tested prior to Kirsch's field Shootout

Due to Covid 19 this year's Snodeo in Old Forge NY has been cancelled. But Heinrich "Kirsch" Kirschner, who has taken over the Shootout wants to keep it alive. So this year he's doing it in private at his own track in Seneca Falls, NY.

Here are the machines Kirsch has come up with so far from Arctic Adventures SkiDoo/ Arctic Cat and Kubecka's Polaris. None of the engines have any miles on them, and are still in breakin mode. The new 650 Patriot engine has generated lots of interest, and the Kubecka crew is planning to get some hard breakin miles on the engine after the Shootout and return to DTR for post-breakin evaluation. Tom Ferry of Arctic Adventures is planning to come to DTR in January to dyno tune a modified ZR 8000, and bring the 21 Etec 850 once it's out of breakin mode for further testing.

The day Tom Ferry was here, the baro pressure was high which resulted in the turbo sleds delivering a bit less compensating boost pressure. Remember, those turbo sled ECUs increase boost pressure in response to reducing barometer (higher altitude compensation). As a result, corrected HP on those turbo engines is only accurate at true sea level 29.92 in hg.

After bringing coolant temperature up to 90+ on twostrokes and 150+ on fourstrokes we ran two or more back to back dyno sweep tests, showing the highest HP test of each engine.

2021 Arctic Cat ZR 8000

EngSpd RPM	STPPwr CHp	STPTRq Clb-ft	LM1AF1 Ratio	AirlnT degF	Baro_P InHga	STPCor Factor	Humidy %	DenAlt Feet
6750	116.2	90.4	14.56	46.2	29.07	1.022	54.4	229
6800	116.8	90.2	14.57	46.2	29.07	1.022	54.4	229
6850	117.5	90.1	14.55	46.2	29.07	1.022	54.4	229
6900	118.6	90.3	14.52	46.2	29.07	1.022	54.4	229
6950	120.9	91.4	14.45	46.2	29.07	1.022	54.4	229
7000	123.1	92.3	14.41	46.2	29.07	1.022	54.4	229
7050	124.8	92.9	14.39	46.2	29.07	1.022	54.5	229
7100	126.1	93.3	14.38	46.2	29.07	1.022	54.5	229
7150	127.5	93.6	14.37	46.2	29.07	1.022	54.5	229
7200	128.8	93.9	14.36	46.2	29.07	1.022	54.5	229
7250	130.2	94.3	14.35	46.2	29.07	1.022	54.5	229
7300	132.7	95.4	14.31	46.2	29.07	1.022	54.5	229
7350	135.3	96.7	14.26	46.2	29.07	1.022	54.5	229
7400	137.5	97.6	14.22	46.2	29.07	1.022	54.5	229
7450	139.3	98.2	14.20	46.2	29.07	1.022	54.5	229
7500	141.3	99.0	14.17	46.2	29.07	1.022	54.5	229
7550	143.3	99.7	14.15	46.2	29.07	1.022	54.6	229
7600	145.1	100.3	14.13	46.2	29.07	1.022	54.6	229
7650	147.1	101.0	14.10	46.2	29.07	1.022	54.6	228
7700	148.9	101.6	14.06	46.2	29.07	1.022	54.6	229

7750	150.5	102.0	14.01	46.2	29.07	1.022	54.6	228
7800	151.9	102.2	13.96	46.2	29.07	1.022	54.6	228
7850	152.9	102.3	13.90	46.2	29.07	1.022	54.6	228
7900	153.6	102.1	13.80	46.2	29.07	1.022	54.7	228
7950	153.8	101.6	13.69	46.2	29.07	1.022	54.7	228
8000	153.9	101.0	13.60	46.2	29.07	1.022	54.7	229
8050	152.9	99.8	13.50	46.2	29.07	1.022	54.7	230
8100	150.9	97.8	13.39	46.2	29.07	1.022	54.7	230
8150	148.1	95.5	13.29	46.2	29.07	1.022	54.7	230
8200	144.6	92.6	13.23	46.2	29.07	1.022	54.8	232
8250	140.9	89.7	13.21	46.2	29.07	1.022	54.8	233

2021 Arctic Cat ZR 9000 Thundercat

EngSpd	STPPwr	STPTRq	LM1AF1	AirInT	Baro_P	STPCor	BoostP	DenAlt
RPM	CHp	Clb-ft	Ratio	degF	InHga	Factor	psig	Feet
8050	198.1	129.3	12.46	48.5	29.06	1.024	10.0	410
8100	197.8	128.3	12.43	48.5	29.06	1.024	10.0	410
8150	197.6	127.4	12.39	48.5	29.06	1.024	9.9	410
8200	196.9	126.1	12.37	48.5	29.06	1.024	9.9	410
8250	196.6	125.2	12.38	48.5	29.06	1.024	9.9	410
8300	197.1	124.7	12.39	48.5	29.06	1.024	9.9	410
8350	197.4	124.2	12.42	48.5	29.06	1.024	9.9	410
8400	198.1	123.8	12.46	48.5	29.06	1.024	9.7	410
8450	198.4	123.3	12.50	48.5	29.06	1.024	9.1	410
8500	198.9	122.9	12.56	48.5	29.06	1.024	8.6	410
8550	199.3	122.4	12.60	48.5	29.06	1.024	8.9	410
8600	199.8	122.0	12.62	48.5	29.05	1.024	9.4	412
8650	200.1	121.5	12.62	48.5	29.05	1.024	9.7	412
8700	200.1	120.8	12.62	48.5	29.05	1.024	9.9	412
8750	199.7	119.9	12.62	48.5	29.05	1.024	10.0	412
8800	199.1	118.8	12.61	48.5	29.05	1.024	10.0	412
8850	198.2	117.6	12.57	48.5	29.06	1.024	10.1	411
8900	196.7	116.1	12.48	48.5	29.06	1.024	10.1	411
8950	194.8	114.3	12.42	48.5	29.06	1.024	10.2	411
9000	193.7	113.0	12.41	48.5	29.06	1.024	10.3	411
9050	191.5	111.2	12.45	48.5	29.06	1.024	10.4	411
9100	189.8	109.5	12.55	48.5	29.06	1.024	10.4	411

2021 Polaris 650 Patriot

EngSpd	STPPwr	STPTRq	AFRWB4	AirInT	Baro_P	Humidy	STPCor	DenAlt
RPM	CHp	Clb-ft	Ratio	degF	InHga	%	Factor	Feet
6500	90.8	73.4	15.63	43.5	28.73	68.6	1.032	481
6550	91.1	73.0	15.53	43.5	28.73	68.6	1.032	480
6600	92.0	73.2	15.55	43.5	28.73	68.6	1.032	479
6650	93.3	73.7	15.57	43.5	28.73	68.6	1.032	480

6700	94.4	74.0	15.53	43.5	28.73	68.6	1.032	480
6750	95.5	74.3	15.44	43.5	28.73	68.7	1.032	480
6800	96.4	74.5	15.30	43.5	28.73	68.7	1.032	480
6850	97.6	74.8	15.11	43.5	28.73	68.7	1.032	479
6900	98.8	75.2	14.91	43.5	28.73	68.7	1.032	478
6950	100.3	75.8	14.75	43.5	28.73	68.7	1.032	478
7000	102.1	76.6	14.64	43.5	28.73	68.7	1.032	478
7050	103.9	77.4	14.58	43.5	28.73	68.7	1.032	478
7100	105.4	77.9	14.53	43.5	28.73	68.8	1.032	478
7150	106.7	78.4	14.51	43.5	28.73	68.8	1.032	478
7200	107.9	78.7	14.50	43.5	28.73	68.8	1.032	478
7250	108.9	78.9	14.51	43.5	28.73	68.8	1.032	478
7300	109.8	79.0	14.53	43.5	28.73	68.8	1.032	478
7350	110.7	79.1	14.55	43.5	28.73	68.8	1.032	478
7400	111.8	79.3	14.57	43.5	28.73	68.8	1.032	478
7450	113.2	79.8	14.57	43.5	28.73	68.8	1.032	478
7500	117.5	82.3	14.33	43.5	28.73	68.9	1.032	479
7550	121.7	84.7	14.10	43.5	28.73	68.9	1.032	480
7600	124.7	86.2	13.98	43.5	28.73	68.9	1.032	480
7650	127.0	87.2	13.88	43.5	28.73	68.9	1.032	480
7700	128.5	87.7	13.80	43.5	28.73	69.0	1.032	480
7750	129.6	87.9	13.74	43.5	28.73	69.0	1.032	480
7800	130.3	87.8	13.70	43.5	28.73	69.0	1.032	480
7850	130.9	87.6	13.67	43.5	28.73	69.0	1.032	480
7900	131.3	87.3	13.67	43.5	28.73	69.0	1.032	480
7950	131.7	87.0	13.66	43.5	28.73	69.1	1.032	480
8000	131.7	86.5	13.63	43.5	28.73	69.1	1.032	480
8050	131.4	85.7	13.58	43.5	28.73	69.1	1.032	480
8100	129.8	84.1	13.52	43.5	28.73	69.1	1.032	480
8150	127.0	81.8	13.41	43.5	28.73	69.2	1.032	482
8200	123.5	79.1	13.31	43.6	28.73	69.2	1.032	483

2021 SkiDoo E-TEC 600

EngSpd	STPPwr	STPTRq	LM1AF1	AirInT	Baro_P	STPCor	Humidy	DenAlt
RPM	CHp	Clb-ft	Ratio	degF	InHga	Factor	%	Feet
6500	79.3	64.1	14.94	53.5	29.08	1.029	46.5	747
6550	80.4	64.5	14.95	53.5	29.08	1.029	46.5	747
6600	81.2	64.6	14.96	53.5	29.08	1.029	46.6	747
6650	82.0	64.8	14.96	53.5	29.08	1.029	46.6	748
6700	82.9	65.0	14.98	53.5	29.08	1.029	46.6	748
6750	83.9	65.3	15.00	53.5	29.08	1.029	46.6	748
6800	84.8	65.5	15.01	53.5	29.08	1.029	46.7	748
6850	85.9	65.9	15.00	53.5	29.08	1.029	46.7	748
6900	87.3	66.4	14.93	53.5	29.08	1.029	46.7	748
6950	88.5	66.8	14.84	53.5	29.08	1.029	46.7	748
7000	89.6	67.2	14.71	53.5	29.08	1.029	46.7	747

7050	90.5	67.4	14.60	53.5	29.08	1.029	46.8	748
7100	91.5	67.7	14.54	53.5	29.08	1.029	46.8	748
7150	92.4	67.9	14.49	53.5	29.08	1.029	46.8	748
7200	93.4	68.2	14.44	53.5	29.08	1.029	46.8	748
7250	94.5	68.5	14.38	53.5	29.08	1.029	46.8	748
7300	96.0	69.0	14.32	53.5	29.08	1.029	46.8	748
7350	97.8	69.9	14.26	53.5	29.08	1.029	46.9	748
7400	101.8	72.2	14.15	53.5	29.08	1.029	46.9	748
7450	104.7	73.8	14.09	53.5	29.08	1.029	46.9	748
7500	106.5	74.6	14.06	53.5	29.08	1.029	46.9	748
7550	108.1	75.2	14.04	53.5	29.08	1.029	46.9	748
7600	109.7	75.8	14.02	53.5	29.08	1.029	47.0	748
7650	111.5	76.6	13.99	53.5	29.08	1.029	47.0	749
7700	113.5	77.4	13.95	53.5	29.08	1.029	47.0	748
7750	115.5	78.3	13.91	53.5	29.08	1.029	47.0	748
7800	117.9	79.4	13.84	53.5	29.08	1.029	47.0	749
7850	120.1	80.3	13.77	53.5	29.08	1.029	47.1	749
7900	121.5	80.8	13.73	53.5	29.08	1.029	47.1	750
7950	122.1	80.7	13.70	53.5	29.08	1.029	47.1	750
8000	122.3	80.3	13.69	53.5	29.08	1.029	47.1	750
8050	122.1	79.7	13.68	53.5	29.08	1.029	47.2	750
8100	121.7	78.9	13.67	53.5	29.08	1.029	47.2	750
8150	121.0	78.0	13.66	53.5	29.08	1.029	47.2	750
8200	120.3	77.0	13.65	53.5	29.08	1.029	47.2	750
8250	119.1	75.8	13.63	53.5	29.08	1.029	47.2	749
8300	117.7	74.5	13.63	53.5	29.08	1.029	47.3	749
8350	115.6	72.7	13.65	53.5	29.08	1.029	47.3	749
8400	112.5	70.3	13.67	53.5	29.08	1.029	47.3	749
8450	110.6	68.8	13.68	53.5	29.08	1.029	47.3	749
8500	108.2	66.9	13.68	53.5	29.08	1.029	47.3	749
8550	106.3	65.3	13.68	53.5	29.08	1.029	47.3	751

2021 SkiDoo E-TEC 850

EngSpd	STPPwr	STPTRq	LM1AF1	AirInT	Baro_P	STPCor	ElpsTm	DenAlt
RPM	CHp	Clb-ft	Ratio	degF	InHga	Factor	Secnds	Feet
6450	116.8	95.1	13.86	50.7	29.03	1.027	0.35	593
6500	117.3	94.8	13.86	50.7	29.03	1.027	0.50	593
6550	117.8	94.5	13.85	50.7	29.03	1.027	0.71	593
6600	119.8	95.3	13.81	50.7	29.03	1.027	1.04	593
6650	122.1	96.4	13.80	50.7	29.03	1.027	1.25	593
6700	124.0	97.2	13.80	50.7	29.03	1.027	1.43	593
6750	125.8	97.9	13.78	50.7	29.03	1.027	1.63	593
6800	127.4	98.4	13.74	50.7	29.03	1.027	1.80	593
6850	128.9	98.8	13.67	50.7	29.03	1.027	1.95	593
6900	130.4	99.2	13.62	50.7	29.03	1.027	2.09	593
6950	132.1	99.8	13.55	50.7	29.03	1.027	2.26	593

7000	134.3	100.8	13.49	50.7	29.03	1.027	2.47	593
7050	136.4	101.6	13.44	50.7	29.03	1.027	2.65	593
7100	138.4	102.4	13.41	50.7	29.03	1.027	2.81	593
7150	140.3	103.1	13.39	50.7	29.03	1.027	2.97	593
7200	142.1	103.7	13.37	50.7	29.03	1.027	3.15	593
7250	144.0	104.3	13.37	50.7	29.03	1.027	3.35	593
7300	145.6	104.8	13.37	50.7	29.03	1.027	3.51	593
7350	147.2	105.2	13.38	50.7	29.03	1.027	3.66	593
7400	148.6	105.5	13.40	50.7	29.03	1.027	3.83	592
7450	150.0	105.8	13.44	50.7	29.03	1.027	3.99	592
7500	151.5	106.1	13.50	50.7	29.03	1.027	4.14	592
7550	153.1	106.5	13.58	50.7	29.03	1.027	4.34	593
7600	154.8	107.0	13.66	50.7	29.03	1.027	4.51	593
7650	156.5	107.5	13.74	50.7	29.03	1.027	4.67	593
7700	158.1	107.8	13.82	50.7	29.03	1.027	4.83	594
7750	159.6	108.2	13.92	50.7	29.03	1.027	5.01	594
7800	160.9	108.4	14.03	50.7	29.03	1.027	5.20	594
7850	161.9	108.3	14.15	50.7	29.03	1.027	5.41	594
7900	162.5	108.0	14.27	50.7	29.03	1.027	5.62	594
7950	162.5	107.3	14.42	50.7	29.03	1.027	5.85	594
8000	162.0	106.3	14.59	50.7	29.03	1.027	6.05	594
8050	161.1	105.1	14.77	50.7	29.03	1.027	6.23	594
8100	158.2	102.6	15.04	50.7	29.03	1.027	6.47	594
8150	153.5	98.9	15.37	50.7	29.03	1.027	6.75	594
8200	146.3	93.7	15.81	50.7	29.03	1.027	7.12	594

2021 SkiDoo Ace Turbo

EngSpd	STPPwr	STPTRq	LM1AF1	AirInT	Baro_P	STPCor	ServoV	DenAlt
RPM	CHp	Clb-ft	Ratio	degF	InHga	Factor	%	Feet
7000	158.5	118.9	14.71	50.1	29.04	1.027	74.2	544
7050	157.8	117.6	14.63	50.1	29.04	1.027	72.1	543
7100	157.4	116.5	14.63	50.1	29.04	1.027	71.4	543
7150	157.1	115.4	14.62	50.1	29.04	1.027	70.7	544
7200	157.6	115.0	14.62	50.1	29.04	1.027	70.3	544
7250	158.3	114.7	14.61	50.1	29.04	1.027	69.3	544
7300	158.9	114.4	14.61	50.1	29.04	1.027	68.3	544
7350	158.9	113.6	14.60	50.1	29.04	1.027	67.1	544
7400	158.5	112.5	14.60	50.1	29.04	1.027	66.0	544
7450	158.1	111.5	14.59	50.1	29.04	1.027	65.2	544
7500	158.2	110.8	14.59	50.1	29.04	1.027	64.6	544
7550	158.5	110.2	14.59	50.1	29.04	1.027	64.0	544
7600	159.1	110.0	14.58	50.1	29.04	1.027	63.1	544
7650	160.1	109.9	14.54	50.1	29.04	1.027	61.5	545
7700	160.4	109.4	14.50	50.1	29.04	1.027	60.3	545
7750	160.4	108.7	14.46	50.1	29.04	1.027	59.4	545
7800	160.0	107.8	14.41	50.1	29.04	1.027	58.5	545

7850	159.7	106.9	14.34	50.1	29.04	1.027	57.7	545
7900	159.8	106.3	14.26	50.1	29.04	1.027	57.0	545
7950	160.0	105.7	14.16	50.1	29.04	1.027	56.1	546
8000	160.1	105.1	14.03	50.1	29.04	1.027	55.0	546
8050	160.0	104.4	13.91	50.1	29.04	1.027	53.7	546
8100	159.6	103.5	13.81	50.1	29.04	1.027	52.6	546
8150	159.1	102.5	13.72	50.1	29.04	1.027	51.7	546
8200	158.1	101.3	13.64	50.1	29.04	1.027	50.9	546
8250	157.0	100.0	13.56	50.1	29.04	1.027	50.2	546
8300	154.5	97.8	13.43	50.1	29.04	1.027	48.9	546

Here's a graph comparing the torque and HP of the new zero mile Polaris 650 Patriot in breakin mode compare to one test of a broken in Polaris Axys 600 brought to the Shootout in 2018. While we are often inclined to home in on the peak HP number when comparing engines, it's useful for trail riders to compare midrange torque and HP as this graph shows.



