Factory Snowcross sleds from Polaris and SkiDoo

Here are two competitive stock factory SnowCross racers run by two unnamed pals, tested at different times of the year. Both engines were run on approximately 100 octane non-oxygenated gasoline (I don't allow that stuff to be run here) which as I recall was a mix of 93 pump gas and 110ish octane leaded race gas. These are stock sled engines, but as the HP shows are relatively high compression designed for the track. So here, high octane is required to tune safely for max HP. There are no mechanical tweaks here, just fuel tuning which gave us varying BSFC from sled to sled.

Polaris 600IQ

After tuning carbs to max safe HP for long runs at 80 degree air in the dyno room that day, this one had 330 mains listed on the dyno sheet. Also timing was set to B to create the best situation of high peak HP with good overrev HP.This one had a decent sealing airbox so those numbers are supplied here.

STPTrq	STPPwr	Fuel B	BSFC	A/F B	Air1+2	AirTmp	STPCor
Clb-ft	CHp	lb/hr	lb/hph	Ratio	scfm	degF	Factor
79.8	118.0	72.0	0.664	11.89	187	85	1.079
79.9	118.7	71.4	0.655	12.02	187	85	1.079
80.6	121.2	73.0	0.656	11.85	189	85	1.079
81.9	124.7	73.8	0.644	11.84	191	85	1.079
83.0	127.9	75.4	0.642	11.76	194	85	1.079
84.1	131.3	76.8	0.637	11.87	199	85	1.079
83.8	132.4	78.1	0.643	12.48	206	85	1.079
82.9	132.6	79.1	0.649	12.44	211	84	1.078
80.9	130.9	78.7	0.654	12.44	214	84	1.078
78.7	128.8	77.6	0.656	12.64	214	85	1.079
77.5	127.4	76.3	0.653	12.92	215	85	1.079

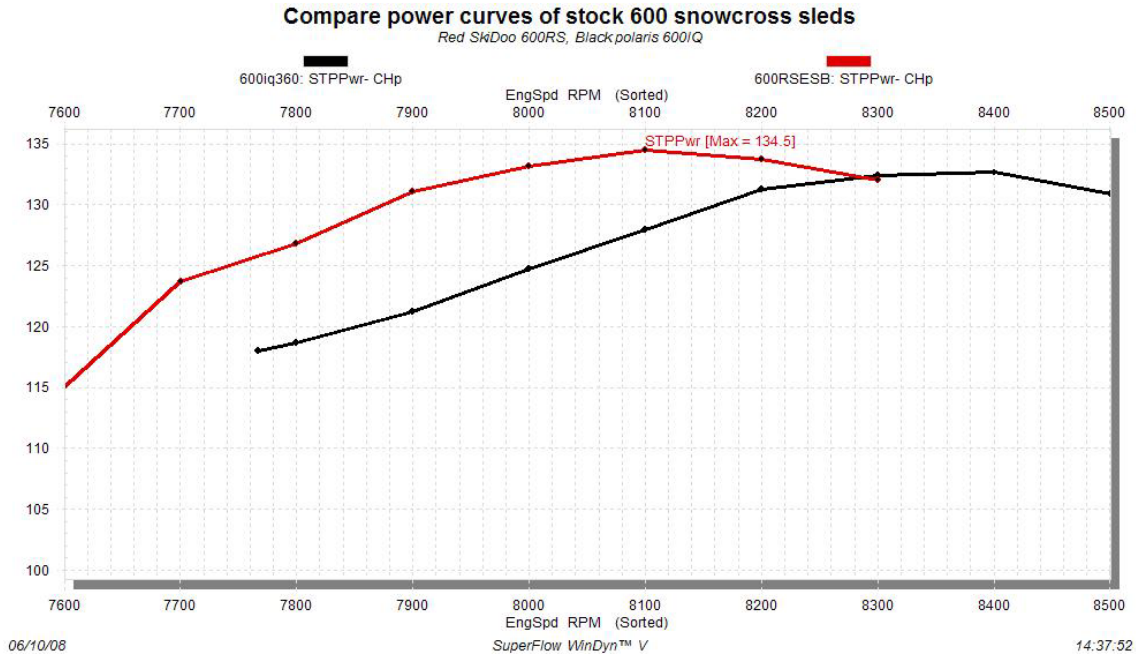
SkiDoo 600RS

This sled has the cowl-mounted air inlet screen, and we attempted to fit the airflow meter to it with no success—small air leaks made our airflow and mechanical A/F readings meaningless. But here, our max HP was achieved at .70 lb/hphr, which we can bet was 12.5 or 13-1 A/F ratio. This required 250 main jets to be perfect in the 60 degree air on the day of the tuneup. Timing is fixed by the factory. That high BSFC at max HP means that we probably have radical exhaust port timing, and subsequent high amount of A/F mixture short circuited (excess mixture that's blown out the exhaust ports far into the tuned pipe—too far to be packed back into the closing exhaust port). This is an example of BSFC being not useful as a tool for tuning wildly ported race engines for max HP. Note that the Polaris 600IQ made max HP with BSFC in the mid .60s.

Also I was reminded by the owner of this sled that his very fast 1988 Polaris 650 lakeracer, wildly ported and fitted with screaming DRE triple pipes, after tuning here twenty years ago made less HP than this small twin with a single pipe quiet stock muffler.

2008 SkiDoo 600RS

EngSpd RPM	STPTrq Clb-ft	STPPwr CHp	BSFC B lb/hph	Fuel B lb/hr	TsTim2 second	WtrOut degF	AirTmp degF	BaroP in/Hg	STPCor Factor
7200	73.6	100.9	0.896	87.9	0	81	57	29.32	1.025
7300	74.4	103.4	0.879	88.3	0.4	80	58	29.32	1.026
7400	79.3	111.7	0.825	89.5	1.5	80	59	29.32	1.026
7500	79.0	112.8	0.813	89.1	1.7	80	59	29.32	1.026
7600	79.5	115.1	0.804	89.8	1.9	79	59	29.32	1.026
7700	84.4	123.7	0.768	92.5	3.5	77	57	29.32	1.025
7800	85.4	126.8	0.757	93.3	4.0	77	58	29.32	1.026
7900	87.1	131.1	0.729	92.9	4.7	77	58	29.32	1.026
8000	87.4	133.1	0.737	95.4	5.5	76	58	29.33	1.025
8100	87.2	134.5	0.703	91.9	6.2	75	58	29.33	1.025
8200	85.7	133.8	0.694	90.3	7.0	75	58	29.33	1.025
8300	83.5	132.0	0.726	93.3	8.1	75	57	29.33	1.024



Sometime we hope to have a Cat 600 twin SnoX racer for comparison. When we do I can update this information.