Improvement of the Polaris FST

For a Cleaner, Quieter tomorrow

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MTU CLEAN SNOWMOBILE TEAM

Outline

- *Design Goals*
- *Performance and Handling*
- *Environmental Impact-E85*
- *Noise Control*
- *Market Value*
- *Conclusion*

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Design Goals

- *Maintain stock ergonomics*
- *Maintain stock drivability*
- *Reduce Emissions*
- *Reduce Noise*

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Performance and Handling

- *75 HP*
- *65 FT-lbs*
- *Air to water Intercooler*
- *Rear exit exhaust*
- *Stock ergonomics*
- *1.5 inch higher seat*
- *Fox Floats*
- *Torsion Spring Skid*

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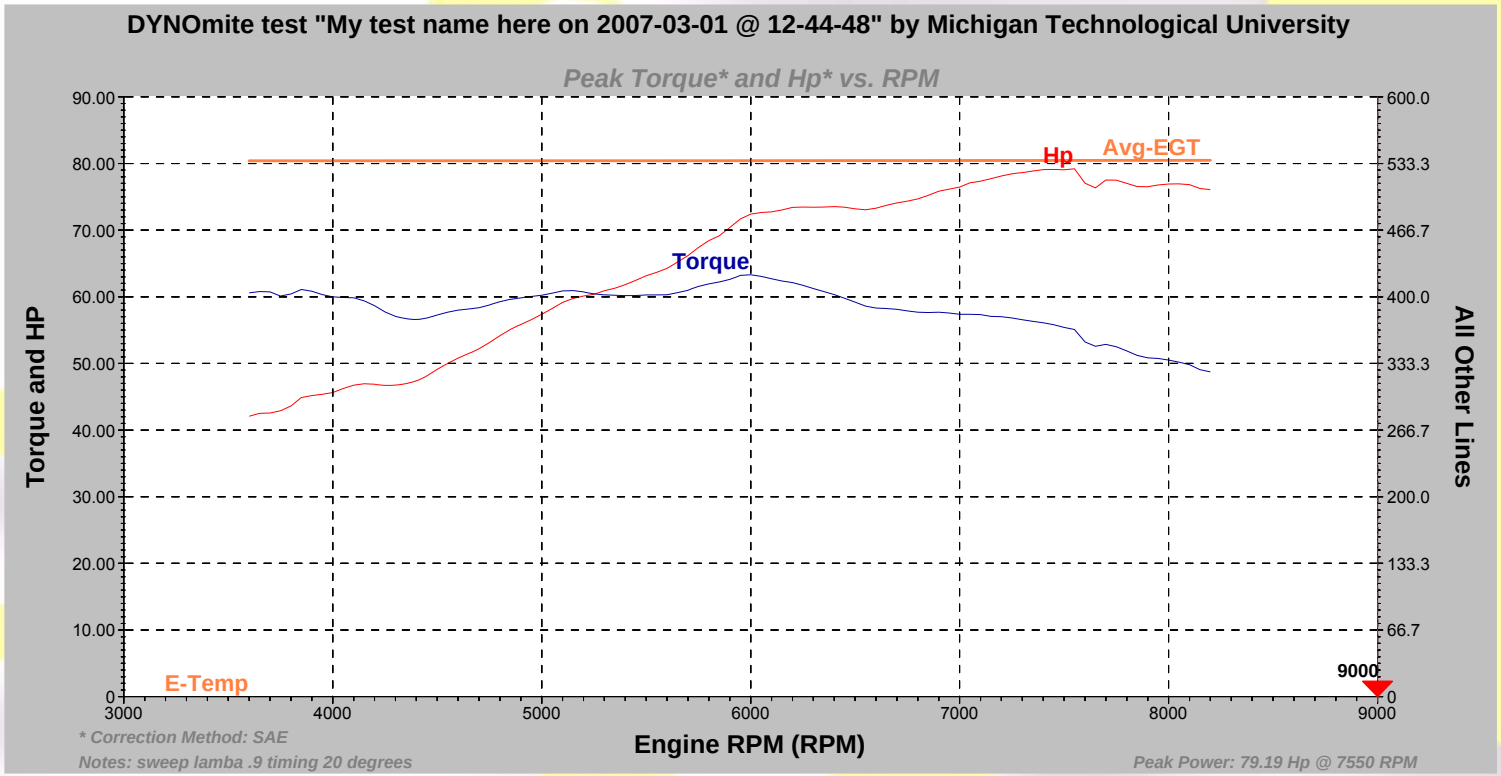
Dyno power Sweep



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Low Environmental Impact

- *E85*
- *Closed Loop operation*
- *3 way Catalytic Converter*
- *Exceeds 2012 EPA requirements*

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Emissions Data

Mode #	Speed %	Torque %	Mass Emissions (g/hr) HC	CO	NOx	Modal Wt Factor	Weighted Mass Emissions (g/hr) HC	CO	NOx	HC+NOx
1	100	100	5.3	3688.4	23.3	0.12	0.6	442.6	2.8	3.4
2	85	51	0.8	324.7	2.1	0.27	0.2	87.7	0.6	0.8
3	75	33	1.8	428.5	0.0	0.25	0.4	107.1	0.0	0.4
4	65	19	0.1	65.9	0.0	0.31	0.0	20.4	0.0	0.0
5	IDLE	0	0.1	111.4	0.0	0.05	0.0	5.6	0.0	0.0
						Average Total Mass Emissions (g/hr)	1.3	663.4	3.4	4.7
						Average Specific Mass Emissions (g/kW-hr)	0.09	43.9	0.22	0.3

2012 EPA requirements

E value ≥ 100

CO < 275 (g/kW-hr)

HC+NOx < 90 (g/kW-hr)

Our Calculated E Value 198.8

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Noise Control

- *“soft” mounted rear skid*
- *Custom Mufflers, Intake and exhaust*
- *Reduced open hood vents*
- *Addition of sound barrier material and noise control foam*

	Fst	Phazer
Run 1	***93.5***	***98.7***
Run 2	***95.1***	***99.3***
Run 3	***94.3***	***100.8***
Average	***94.3***	***99.6***
Average Difference		***-5.3 dB***

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Market Value

2006 Polaris FST Classic

Base Snowmobile MSRP	*$9,199.00*
Manufacturer Options Added	*$0.00*
Other Non-standard Options Added	$8,481.55
MTU's 2007 Clean Snowmobile MSRP	**$17,680.55**

Kelly Blue Book

2006 Polaris FST Classic
2-Cylinder
4-Stroke
750cc
Suggested Retail Value **$**6105.00

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Items Added to Base Snowmobile Not Found in Industry	
Vconverter Catalytic Converter	**$80.00**
Tech Products Corporation Rubber Suspension Mounts	**$45.00**
GaugeTech Digital Dash display	**$375.00**
AEM Universal Engine Management System	**$2,724.75**
Mallory Electric Fuel Pump (alcohol ready)	**$197.98**
IHI RHB-5 Turbocharger	**$490.00**
Heatshield Products Turbo Heatshield	**$107.95**
Davies, Craig EBP Electric Booster Pump, EBP	**$206.95**
Bell Intercooler	**$500.00**
Items Added to Base Snowmobile Found in Industry	
Fox Float Air Shocks	**$695.00**
C&A Sport Skis	**$219.95**
Arctic Cat Firecat Suspension	**$2,200.00**
Fabcraft Tunnel Coolers	**$34.00**
Camoplast Hacksaw 128x13.5x1" Track	**$345.00**
102 Woody's Megabite 1.325" Studs	**$259.97**
Total Add-Ons	**$8,481.55**

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Conclusion

- *Good performance*
- *Low emissions*
- *Reduced noise*
- *Retains market value*
- *Production ready*

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Questions?

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