

NORTH DAKOTA STATE UNIVERSITY CLEAN SNOWMOBILE CHALLENGE

GROUP PRESENTERS:

- Michael Fegley
- Keith Leier
- Steven Schmidt



Introduction

- ① Team Background
- ① Noise Reduction
- ① Emissions
- ① Fuel System
- ① Adjusted MSRP
- ① Conclusions
- ① Questions

Team Background

- ⦿ NDSU Rookie Team
 - Team Members
 - Limited Budget
 - Time Line



Team Background

⦿ Base Team Snowmobile

- 2008 Polaris Turbo Dragon Chassis
- Weber MPE750 Turbo Charged Four-Stroke
- Base MSRP - \$10,999.00

⦿ Team Goals

- Economical Production Platform
- Compete in CSC 2010

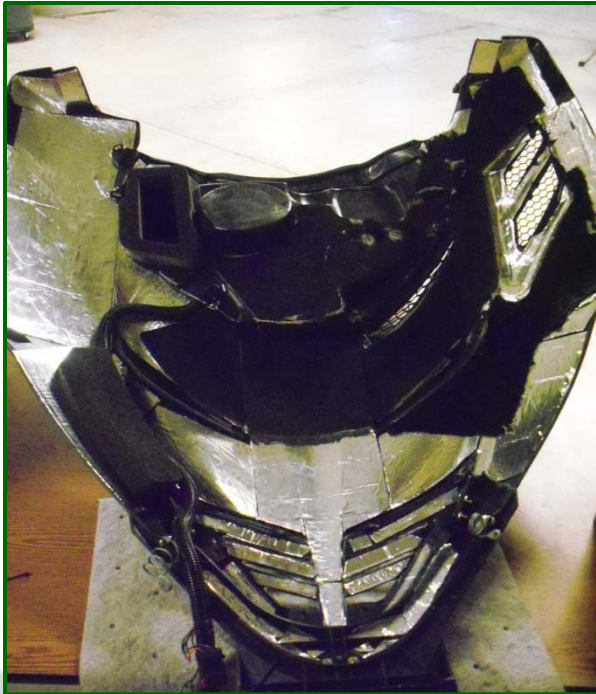
Noise Reduction

- ◎ Objective <78 dBA
 - SAE J192 Standard
- ◎ Solution Approach
 - Mechanical Noise
 - Exhaust Noise



Noise Reduction

- ◎ Sound Absorbing Material
 - Tunnel
 - Engine Compartment



Noise Reduction

- ① Two-Stage muffler system
 - Stock exhaust
 - Secondary muffler



Emissions

- ① Catalytic Converter
 - Emitec 3-way Catalyst

Bare Weight	981.7 g
Volume	49.72 cu in
Cell Density	400 cells/sq in
Washcoat Loading	2.51 g/cu in

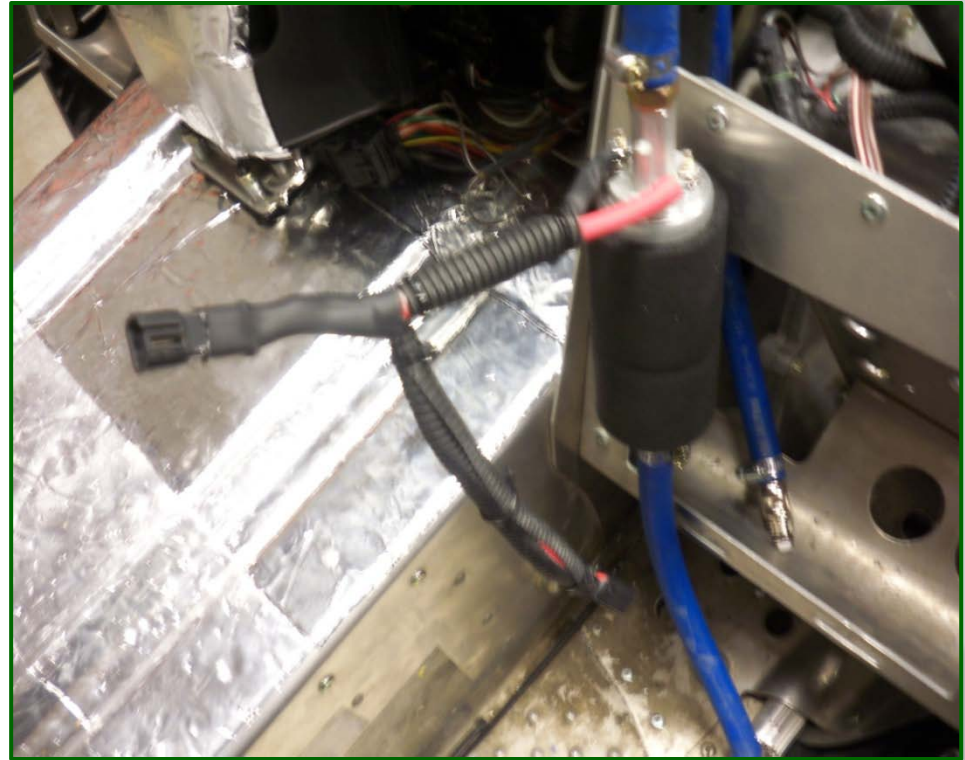


**Current catalyst configuration test data unavailable*

Fuel System

⦿ Design Criteria

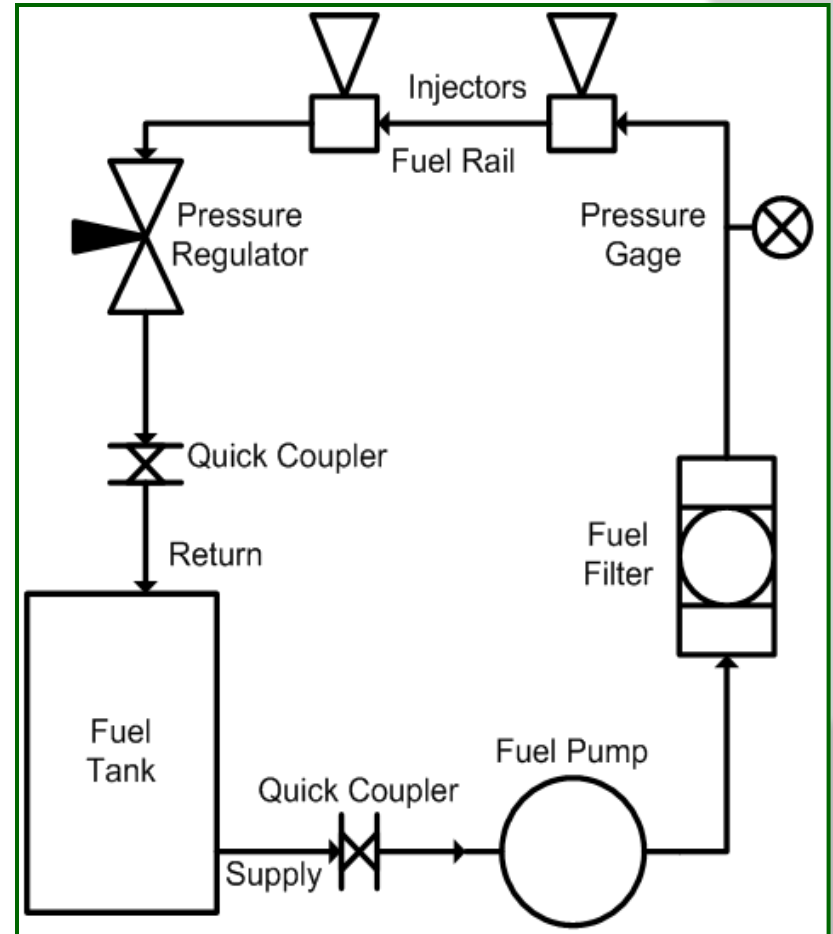
- E29 Compatible
- Cost Effective
- Durable
- Accessibility
 - Adjustability
 - Monitoring
 - Couplers for emissions testing



Fuel System

◎ Components

- 100psi Fuel Lines
- External Fuel Pump
 - Edelbrock Electric 3594
 - 57gal/hour
 - Alcohol Compatible
- Pressure Regulator
 - Edelbrock 1728
 - 49psi



Adjusted MSRP

- Based on Rule 9.5.7, *SAE 2010 Clean Snowmobile Challenge Rule Book*

Item	Material Cost	Manufacturing (\$25.00 /hr)	Item Total added	Retail
Polaris IQ Dragon FST (Stock)	\$ -	\$ -	\$ -	\$ 10,999.00
Exhaust Modification (Glass Pack)	\$ 50.00	\$ 250.00	\$ 300.00	
Exhaust Modification (Catalyst)	\$ 215.00	\$ 150.00	\$ 365.00	
Sound Treatment	\$ 250.00	\$ 250.00	\$ 500.00	
Battery Box	\$ 25.00	\$ 50.00	\$ -	
Reinforced Bumper	\$ 50.00	\$ 150.00	\$ -	
Fuel Pump	\$ 220.00	\$ 50.00	\$ 270.00	
Fuel Regulator	\$ 195.00	\$ 50.00	\$ 295.00	
Fuel Lines	\$ 10.00	\$ 50.00	\$ 60.00	
Clutch Cover	\$ -	\$ -	\$ -	
Tail Lights	\$ -	\$ -	\$ -	
Misc. Hardware	\$ 50.00	\$ -	\$ -	
		Additional Modification Total	\$ 1,790.00	
		Additional Modifications Retail (+50%)	\$ 2,685.00	
		Manufacturer's Suggested Retail Price		\$ 13,684.00

Conclusions

- ① Production Friendly, Economical and Durable Product was developed
- ① Noise, Emissions and Fuel Compatibility Levels were Improved
- ① MSRP increased by \$2,685 (24.4%)

Questions

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