RIT Clean Snowmobile

Sponsorship Packet

2016-2017

Contact: Jason Ganje
cleansnow@rit.edu

Table of Contents

About RIT and SAE Clean Snowmobile

About the Team

The 2016-2017 year will mark the Rochester Institute of Technology Clean Snowmobile SAE Racing Team's fifth competition seasons. The team is made up of dedicated members who seek to expand their learning beyond the classroom. The team designs, builds, tests, and tunes a snowmobile for competitions. Doing this helps the members learn the most about automotive industry practices, and gain hands-on experience. Using advanced modeling, analysis software, intricate equipment for static and dynamic testing for validation, RIT Clean Snowmobile members are learning how to become high caliber engineers. In 2016, RIT Clean Snowmobile earned first place in the Emissions category of Competition.

Within the circuit, RIT is in the midst of establishing themselves as a team with impeccable engineering practices and motivation. The team is led by the Project Manager and Team Manager who are democratically elected based on their engineering knowledge and leadership abilities. The team is made up of four design departments: Powertrain, Electrical, Chassis, and Manufacturing. Hard work, innovation, and dedication are highly rewarded on this team.

About the Competition

As part of the Society of Automotive Engineers (SAE) Collegiate Design Series, the SAE International Clean Snowmobile Challenge (CSC) is an engineering design competition for collegiate SAE teams. The CSC seeks to challenge SAE student members through the reengineering of an existing snowmobile in order to reduce emissions and noise. The teams use their modified snowmobiles to compete in a variety of events that provide similar tests to those seen in industry. The tests challenge the improvement of: emissions, noise, fuel economy/endurance, acceleration, handling, static display, cold start and a design presentation.

Unlike other SAE collegiate competitions, the CSC makes changes to the competition each year to present new engineering challenges. This allows students to explore different aspects of automotive practices, and to gain a comprehensive understanding of the vehicle. CSC is primarily an engine competition with an underlying theme of clean engineering.

Team Goals

The team has outlined several goals for each department that allow for a focused understanding of each system, and acquisition and distribution of resources. The design leads act as mangers in their teaching, distributing, and overseeing of tasks. All members, new and old, are able to dwell into the subjects they wish to explore further and learn the skills that will be useful for the team and for their future careers.

Engine

- Improve EGR System
- New ECM powered by custom code
- Further engine simulation complexity with predictive combustion
- Custom exhaust system
- Custom intake system
- Advance testing and calibration procedure

Chassis

- Minimize the weight thru the redesign hardware
- Utilize existing mounts and mount locations to enhance the organization of the under hood components
- Decrease the high frequency sound generated during performance
- Upgrade suspension for enhanced control and rider
- Optimized clutch weight and spring for engagement to optimize overall function
- Create a method for non-season vehicle testing

Electrical

- Custom Dashboard for our ECM
- Dual Coil ignition system
- Upgrade dyno data acquisition system
- Custom wiring harness
- Create vehicle data logging capabilities

Manufacturing

- Decrease machining time
- Increase machining accuracy
- Increase complexity of parts that are able to be made
- Integration of CNC machining

Competition Description

Throughout the academic year, the RIT Clean Snowmobile Team works extremely hard to prepare a competition ready sled. This snapshot into the competition will be helpful in understanding the way that the team chooses to ration time and resources.

Total Points (1550)

Engineering Design Paper (100): An in-depth description of the snowmobile conversion concept, design, and implementation. This portion allows for the exploration of student understanding of the engineering design process.

MSRP (50): Taking into consideration the manufacturer's product price, students are able to demonstrate a further understanding of how engineering is integrated into the market and how cost is calculated.

Lab Emissions (300): Brake specific emissions are measured using laboratory-grade instrumentation and a dynamometer. An E-Score will be calculated based on THC, CO and NOx emissions.

In Service Emission and Fuel Economy (100): A weight per distance measurement of the vehicles' emissions are tested. Different gaseous emissions will be tested through multiple speeds and operating conditions on a predetermined course.

Oral Presentation (100): A ten minute oral presentation of the logic behind the conversions made on the sled, followed by a five minute question and answer period.

Fuel Economy and Endurance (200): Teams travel 100 miles on a trail on a full tank of gas, following a leading judge. Fuel consumption is then measured and points are tabulated based on fuel economy.

Static Display (50): A mock sales pitch will be designed in order to convince snowmobile industry experts and professionals to purchase and use the snowmobile. It tests the marketability of the sled and team knowledge.

Acceleration (50): The test consists of a 500ft acceleration test from a standing stop, driven by a student team member.

Objective Handling and Drivability (75): Student drivers have 2 opportunities to compete on a slalom style course. The agility and maneuverability of the sled is tested.

Subjective Handling and Drivability (50): Professional snowmobile riders will drive each sled during a course designed to evaluate ergonomic qualities. Drivers will give a ranking of the maneuverability and agility of the sleds.

Cold Start (50): Snowmobiles must start and move forward within 20 seconds after being cold-soaked overnight.

Objective Noise and Subjective Noise (300): Determining the peak amplitude-weighted sound pressure level generated by the snowmobile during maximum acceleration, both high and low frequency noise is measured. Current industry standards are used to determine overall noise emissions.

Sponsorship Benefits

Exposure within RIT

Members of the RIT Clean Snowmobile Team excel both inside and outside the classroom. By becoming a sponsor of the team, your company is gaining direct access to students and exposure within the RIT community. Becoming a team sponsor allows direct interaction with Clean Snowmobile Team members and confidence that members are capable of using advanced software options, and tools in order to make the best engineering product possible. Team members often co-op with our sponsors and most of our graduates pursue careers with team sponsors after graduation.

Logo on Sled

The most basic form of advertisement that we can provide is showcasing your sponsorship on our snowmobile. During competition and showcases the main attraction is the snowmobile that the team works hard yearlong to optimize. We will award different size stickers based on the support that is provided to the team. * *Must become a sponsor by February 1st, 2017* *

T-Shirts and Polos

We will be putting some of our sponsors' logos on the back of our team's casualwear shirts. In addition, certain level sponsors will receive a complimentary t-shirt as a show of our appreciation and platinum sponsors will receive a team polo (exclusive to team members and sponsors).

Sponsorship Banner

For the first in RIT Clean Snowmobile history, the team will have a sponsor exclusive banner that will be taken to competition and exhibitions. Platinum sponsors will have access to this exclusive marketing opportunity.

Website

The team website is an open resource for anyone inquiring about the team. By publishing your company logo, visitors will be able to know that your company is encouraging and supporting engineering students, RIT Clean Snowmobile and RIT as an institution.

Sponsorship Level Breakdown

The RIT Clean Snowmobile Team accepts sponsorships in the form of time, money, materials, or equipment. If time and materials are donated, then an equivalent monetary amount will be calculated in order to determine the level of sponsorship. We are extremely grateful to all of our sponsors for taking the time and resources to help the team in developing better engineers.

Platinum Sponsor ($5,000 and above)

- **Logo on sponsorship banner**
- **Large logo on snowmobile**
- **Free Clean Snowmobile Polo**
- Sign up on the emailing list
- Name on website
- Link to webpage on website
- Free Clean Snowmobile T-Shirts

Gold Sponsor ($2,500 - $4,999)

- **Medium logo on snowmobile**
- Sign up on the emailing list
- Name on website
- Link to webpage on website
- Free Clean Snowmobile T-Shirt

Silver Sponsor ($1,000 - $2,499)

- **Small logo on snowmobile**
- Sign up on the emailing list
- Name on website
- Link to webpage on website
- Free Clean Snowmobile T-Shirt

Bronze Sponsor ($250 - $999)

- **Link to webpage on website**
- **Name on snowmobile**
- Sign up on the emailing list
- Name on website

Contributor ($5 - $249)

- **Sign up on the emailing list**
- **Name on website**

Thank You to Our 2015-2016 Sponsors!

Platinum

Polaris
Creaform
Gamma Technologies

ANSYS
Dassault Systemes
Techical Services

CD-Adapco
Honeywell
RIT CAST

Gold

Delphi

NYSSA

Harbec

Silver

Aristo Catalyst
BASF
Castle-X
Cummins Inc.
Curve Industries
Fly Racing

HMK
Innovative Tuning
Monster
Motivate
RSI Racing

SAE
Skinz
Sledwraps
SMC Metals
Tripple 9 Optics

Bronze

NGK
McQuillen Racing
Western NY Energy
Bruce Sirjane

Danny Harmer
Advanced Automotive
Animals With Hats
Dynotech Research

Tekrider
Fuel Injector Clinic
Re-Sol
PCB Piezotronics

Contributor

Amy Taylor
Ann & Jon Shinefeld
Betty Phelps
Bruce Costa
Chris Wolff
Christine Dickinson
Christine Schueler
Coach & Equipment Manufacturing

Corey Beltz
Craig Hebbard

Jim Viscusi
John Bulzacchelli
Jon Allen
Joseph Monto
Joyce Irwin
Justin Dittrich
Justin Tracton

Justine Duncovich

Kaku and Cynthia So-Armah
Kathryn DePerrior

Mike Ganje
Natalina Franco
Pat and Michael Kohlhagen
Paula Mandel
Phil Baltunis
Rachael Phelps
Richard Gerstein

Richard Muller

Richard Outtrim
Robert Stevens

Craig Simon
Daisy Dahlhaus
Daniel Roycroft
Dawn Outtrim
Devon Berman
Douglas Finn
Elizabeth Oswald
Eric Oswald
Gary Gerstein
Greg & Pamela Hanna Menzenski
Gregg Tracton
Isadora Williams
Jaime Lebron
James Elmore
Jane and Wayne Tracton
Janet Perc
Jerome Jackson
Kathy Shupe
Keith Tracton
Kellie Schuster
Kerrie Bondi
Kevin Brown
Kevin Thomson
Kim Schechter
Lisa Smith
Lucas Hummel
Lynda Scott
Mark Albert
Mary Ann Doanto
Matthew Racz
Matthew Williams
Michael Mandel
Michelle Karlsen
Ron Isaacs
S. Tracton
Scott / Sled Shed TV Yoder
Shae Ferst
Stanton Greenberg
Stephanie Polito
Stephen Brady
Susan Martell
Team Keats
Terri Alexander
Terry & Denise Hebbard
Thomas Oswald
W. Frazier Pruitt
Wayne Otte
Wendy Gilmore
William and Linda Kent