University at Buffalo

Team Captains:

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Overview

- Past Highlights
- Past Diesel Designs
- This Years Diesel
- Engine and Engine Fitment
- Build Photos
- Drivetrain
- Future Designs

Past Highlights

- 1st place overall in 2000 and 2005 with four stroke entry.
- Six top five finishes in 9 years.
- Cleanest emissions in 2000, ‘01, ‘04, ‘07
- First four stroke entry (2000)
- First diesel entry in (2007)
- Best performing and Quietest snowmobile awards in 2000 and 2005.

Past Diesel Performance

- Pros
  - Cold start is not an issue
  - Best in Emissions in 2007
  - Durable, dependable engine
  - Robust design
  - 30+ mpg fuel economy
  - Diesel is widely available at the pump
  - Quiet
- Cons
  - Slow top speed and acceleration
  - Chassis was not as comfortable as the rider “forward design”
  - Messy electrical, and sealed under hood

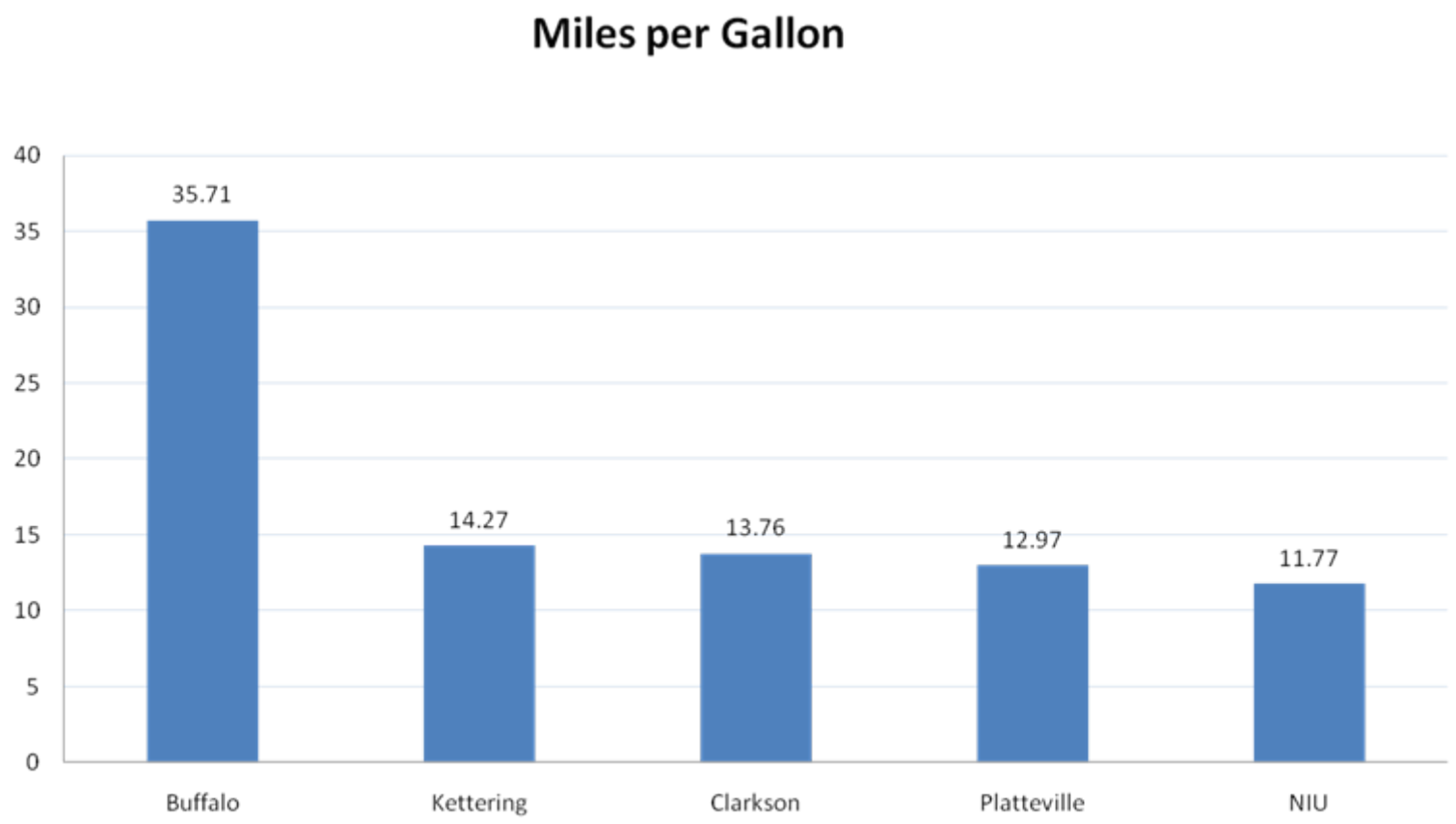
2009 Design

- 2005 Polaris Fusion chassis
- Daihatsu 3-cylinder turbo diesel engine
- Comet 4-pro primary clutch
- Emitec combination particulate filter/catalytic converter
- Sealed hood design for improved sound
- Camoplast Cobra track for improved sound
- Flame retardant foam from American Acoustical Products for reduced sound

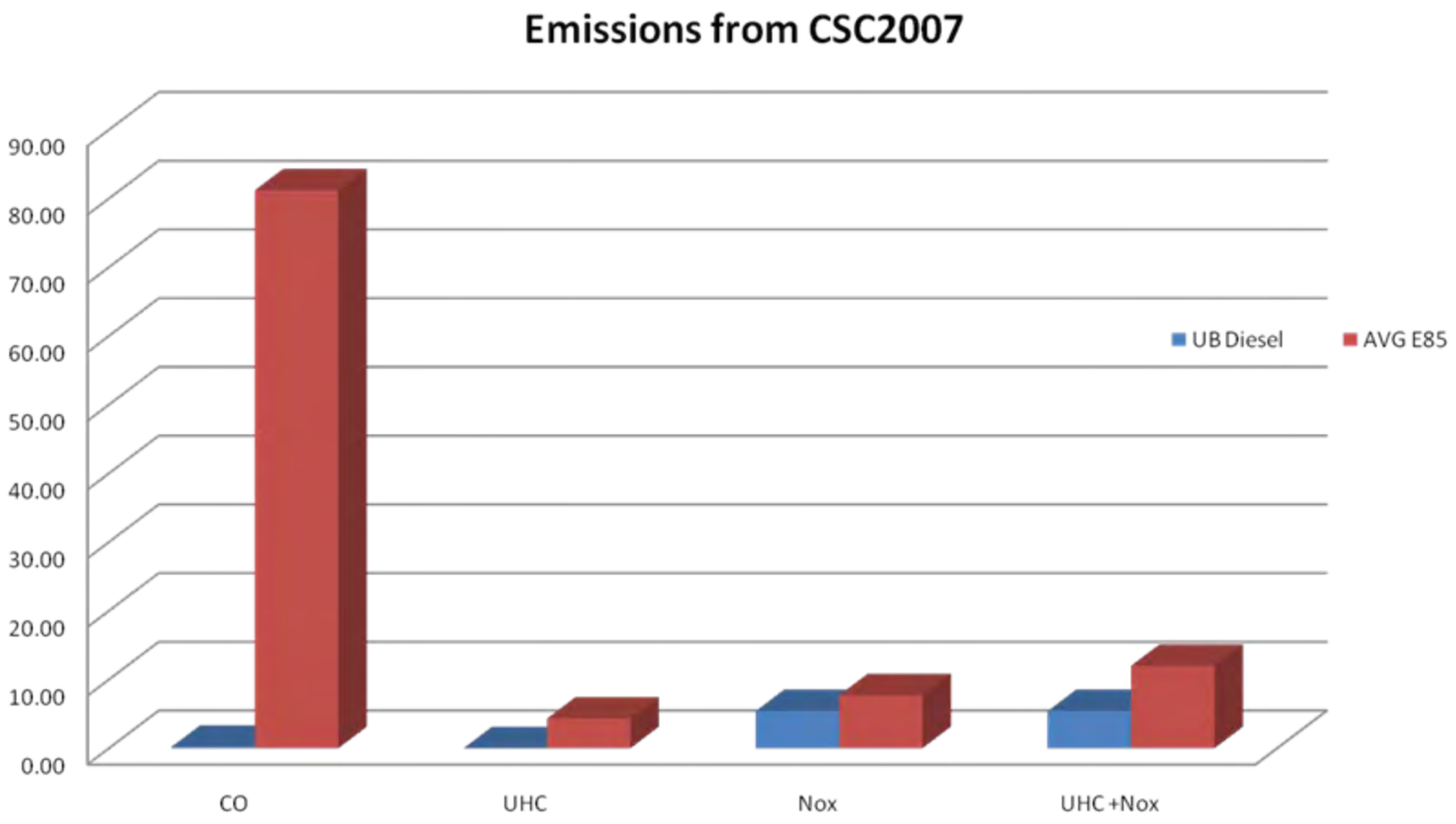
2009 Design cont'd

- Calculations have been done on the Fusion's stock coolant system and has been proven to meet the requirements of the diesel engine
- K & N intake
- Top speed of 55mph (max trail speed in NYS)
- Fast acceleration
- Electrical and oil filter are easy to access
- Packaging vastly improved for engine and all components

Fuel Consumption

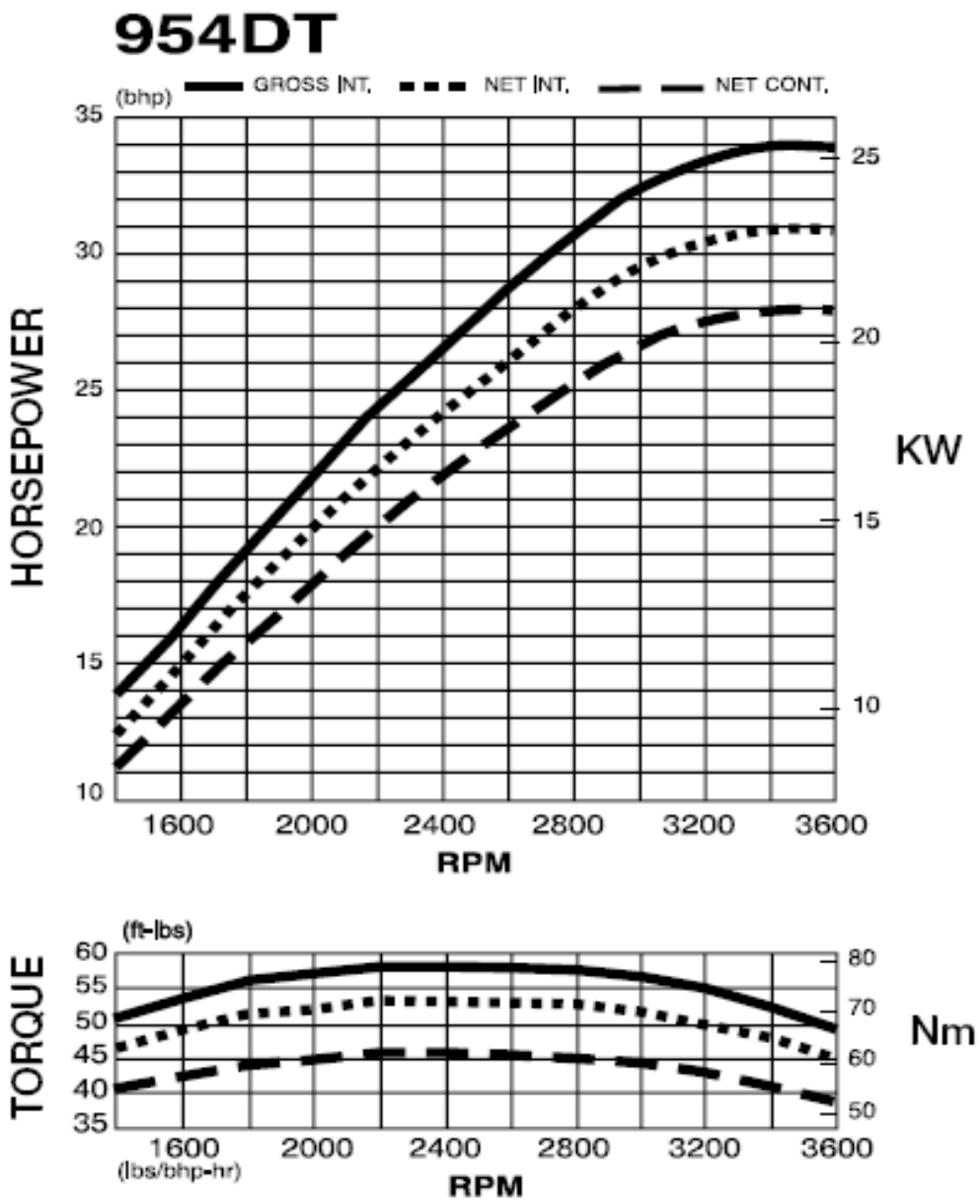


Emissions


Emissions from CSC2007
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
CO
UHC
Nox
UHC +Nox
UB Diesel
AVG E85

Engine Power Curves

- Peak horsepower produced at 3,500 rpm
- Maximum torque at 2,400 rpm
- 953cc
- 34 hp
- 58 ft lb torque



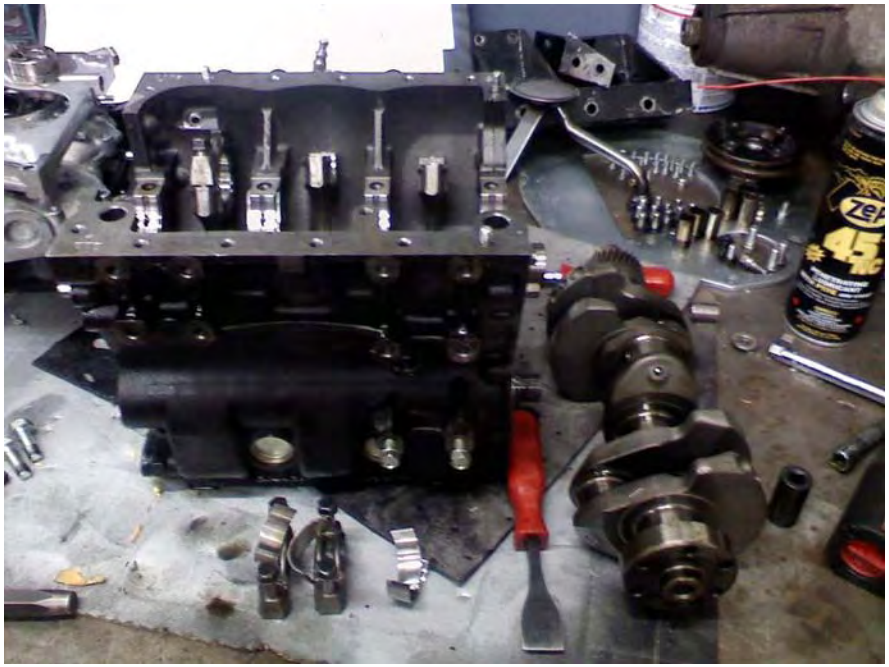
Engine Fitment

- Remote oil filter
- Brake system relocation
- Sectioned oil pan and oil pickup
- Belt system relocation
- Flywheel shaved down and faced
- Starter plate cut down

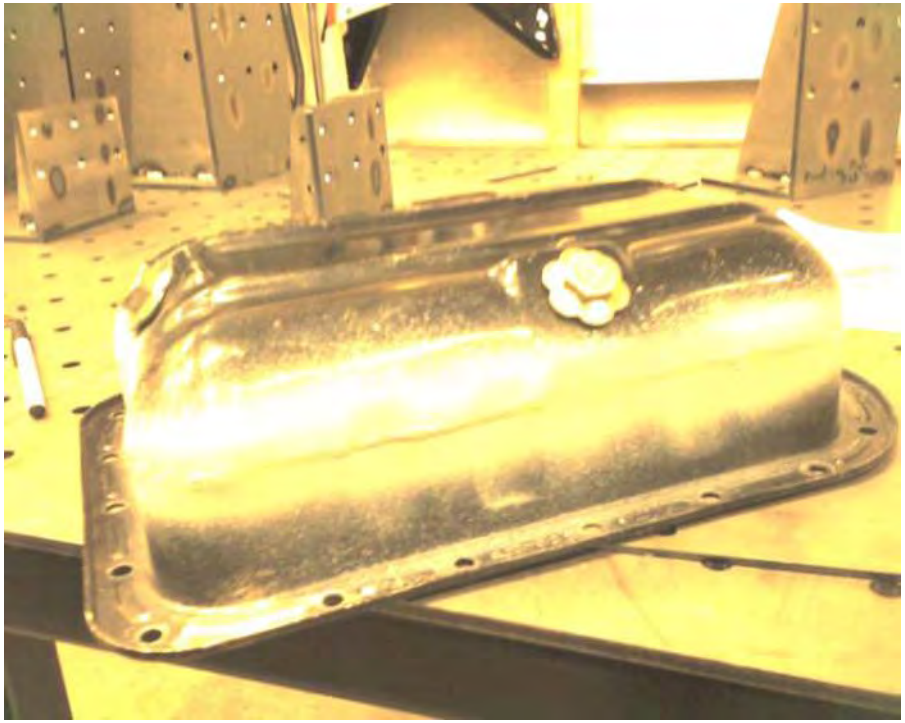
Drivetrain

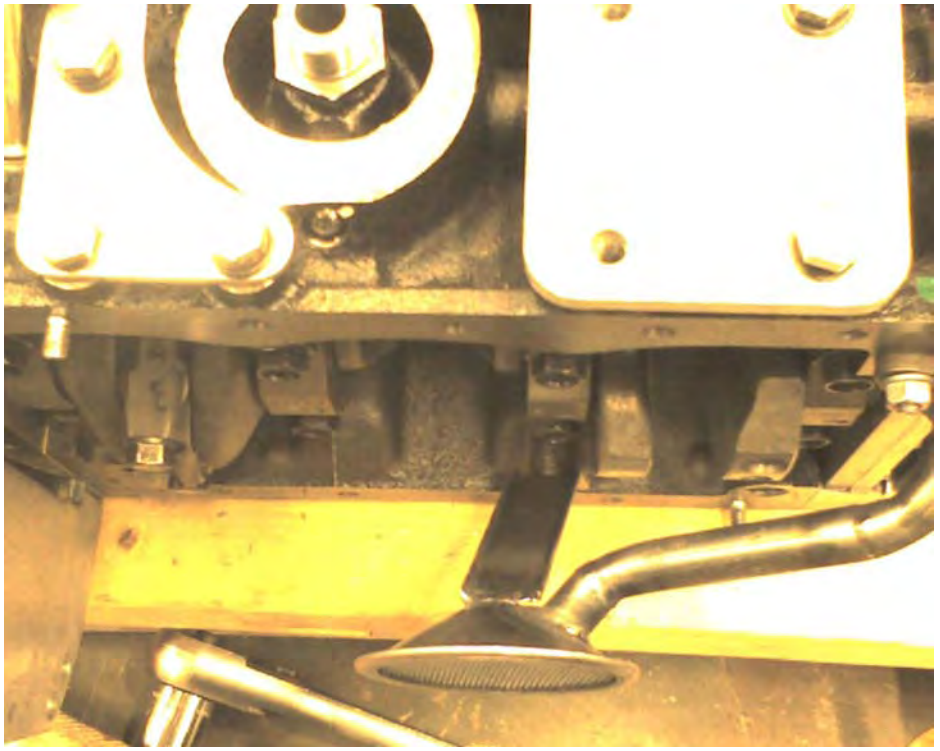
- Comet 4-Pro primary clutch
  - 4 cam arms (2-90 gram, 2-87 gram)
  - Allows for the use of widely available clutch parts
- TEAM roller secondary clutch
  - Low friction
- Chain case
  - ¾” Hyvo chain
  - 1.95:1 gear ratio

Build Photos



Build Photos Cont'd





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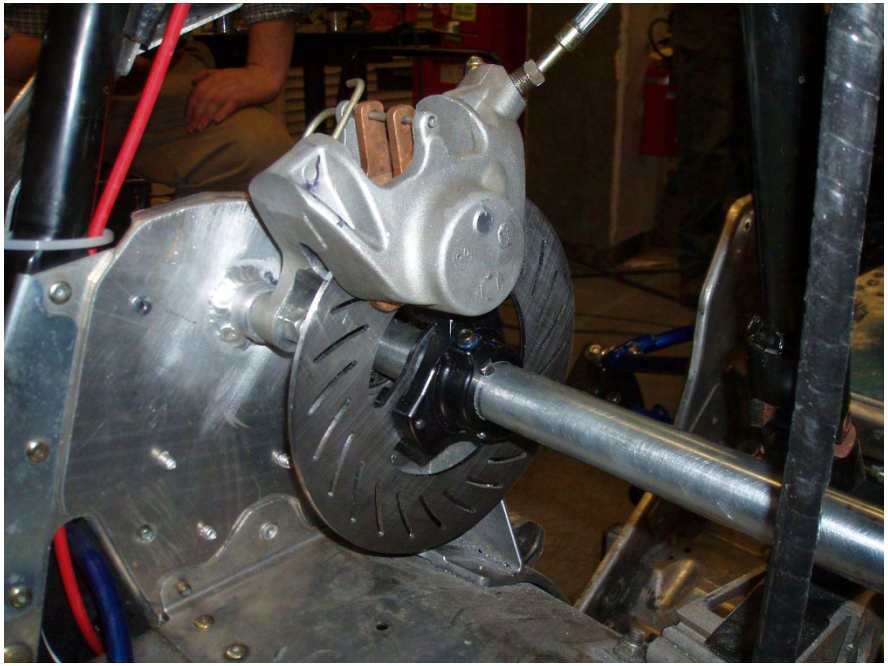

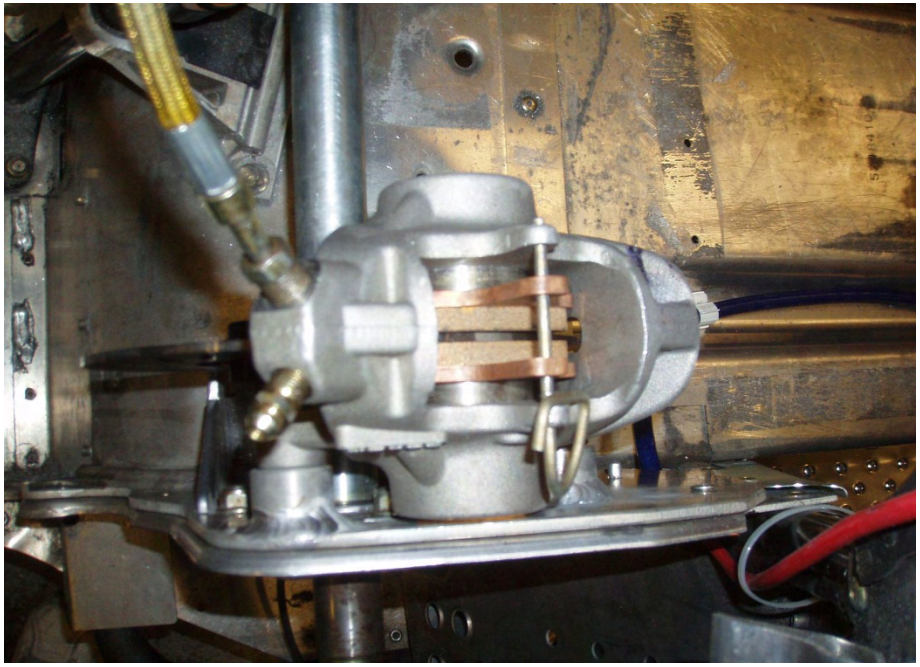

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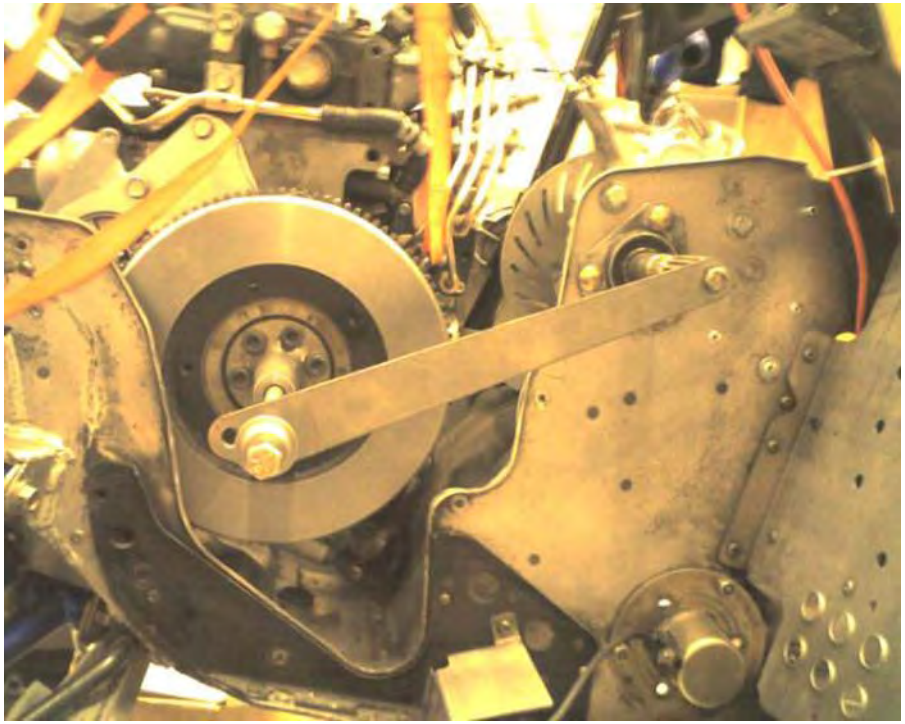

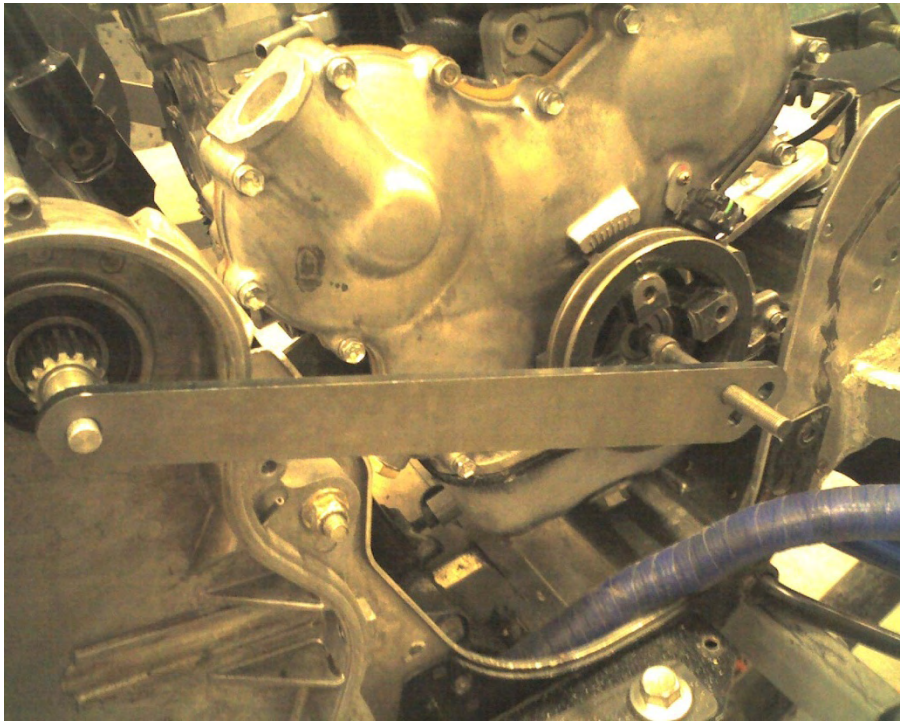

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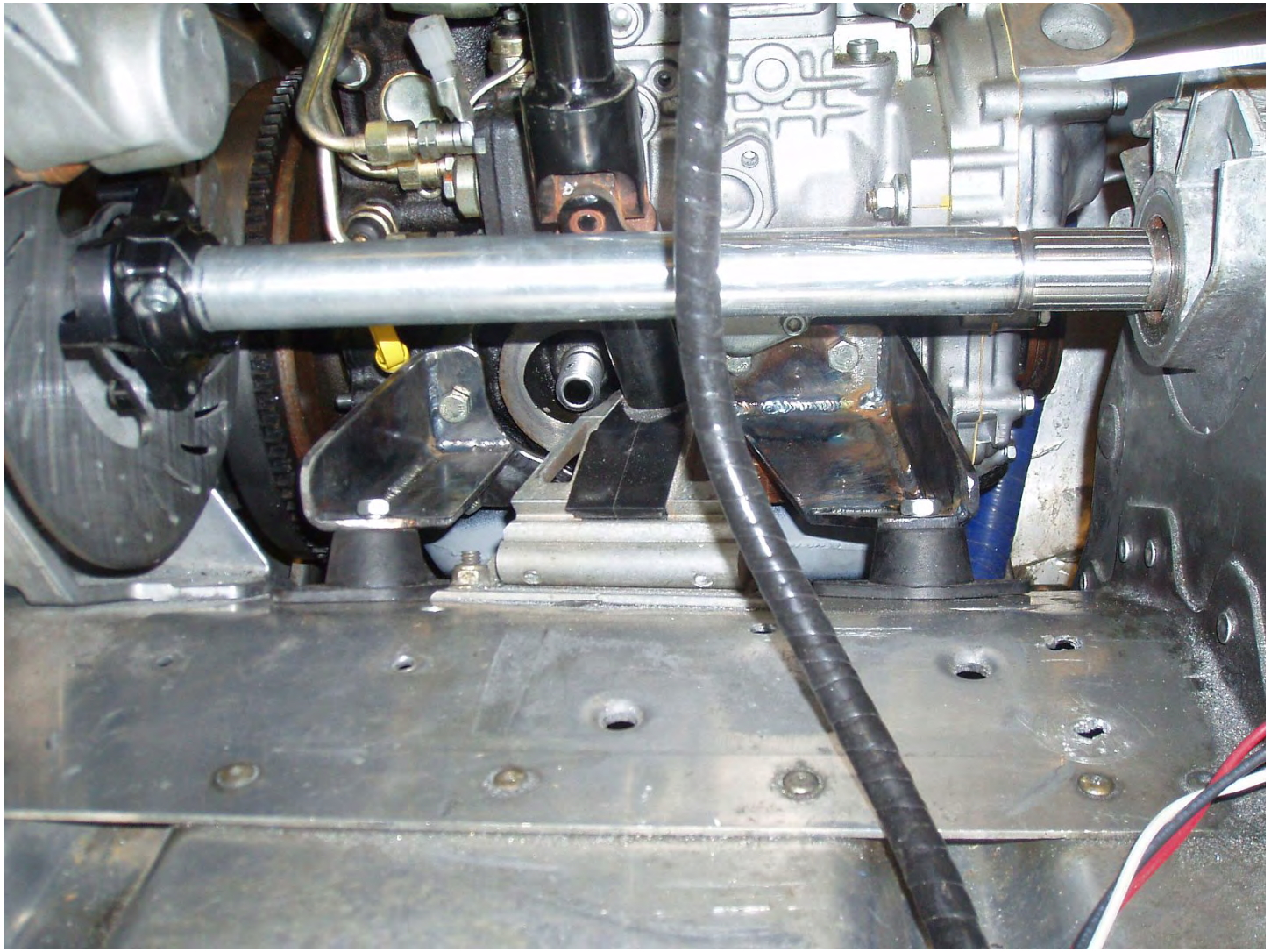

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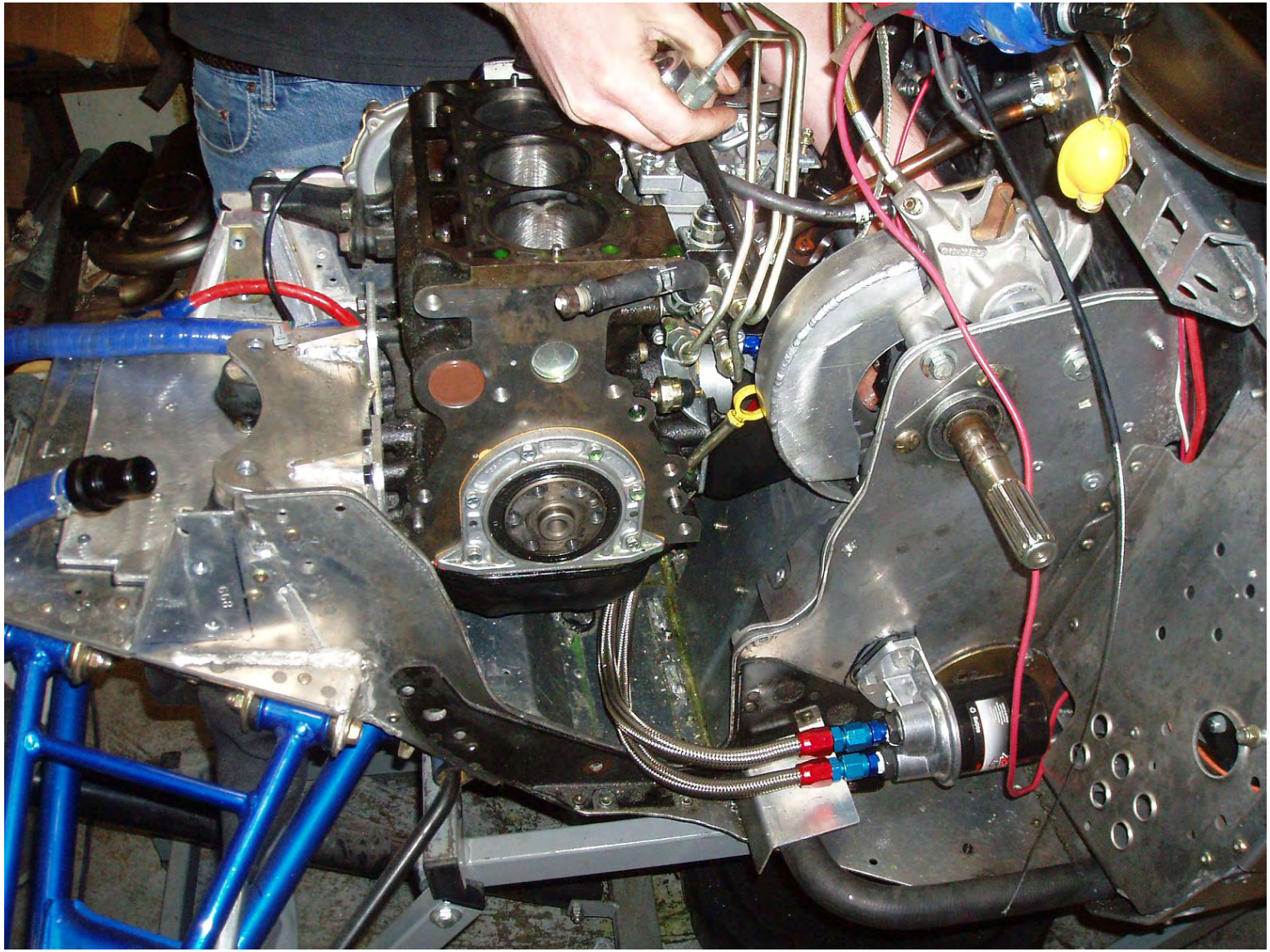

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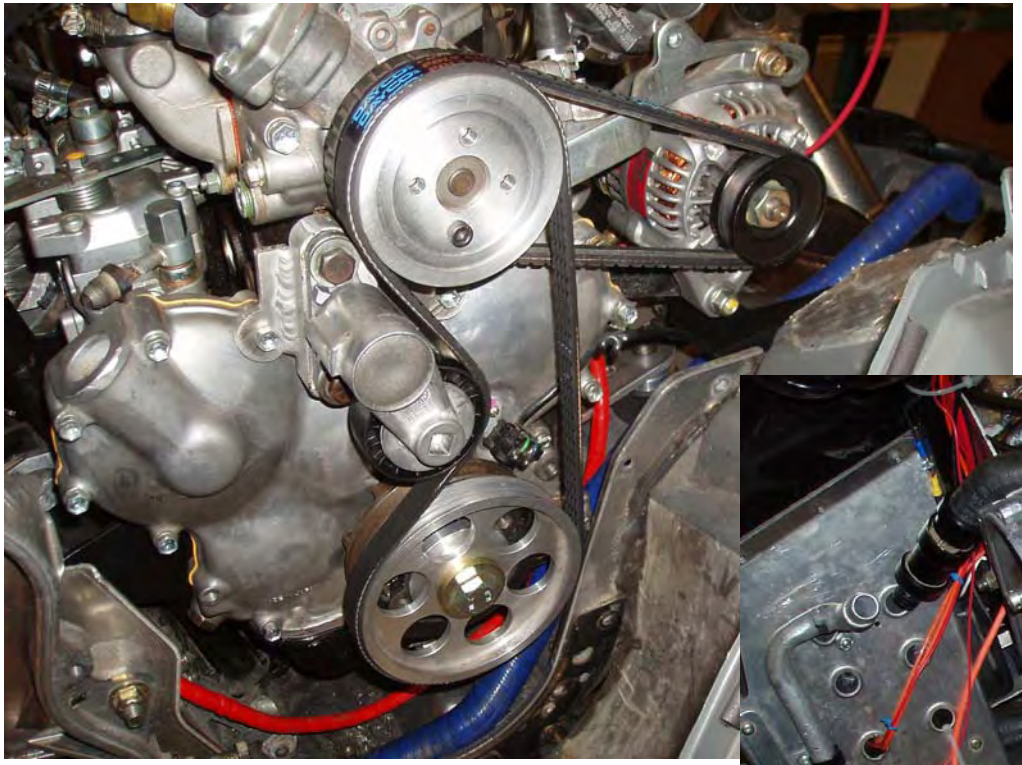
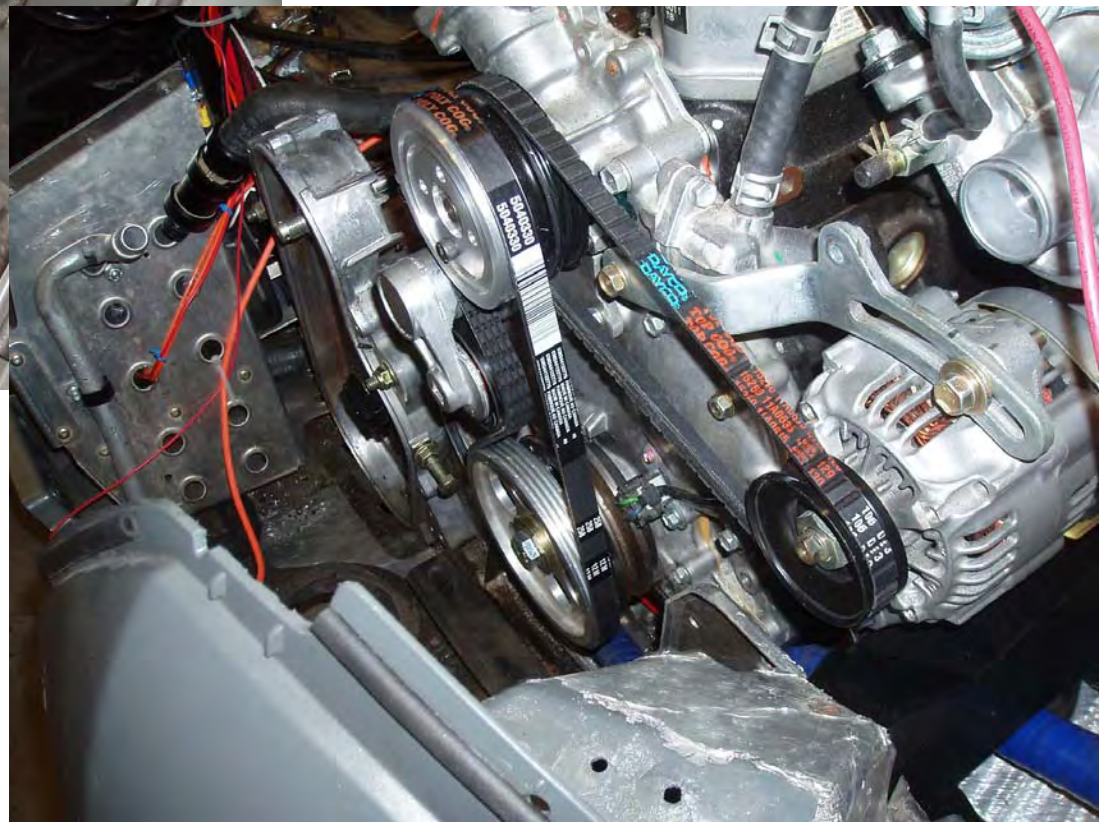




Safety

Yellow= More riders following

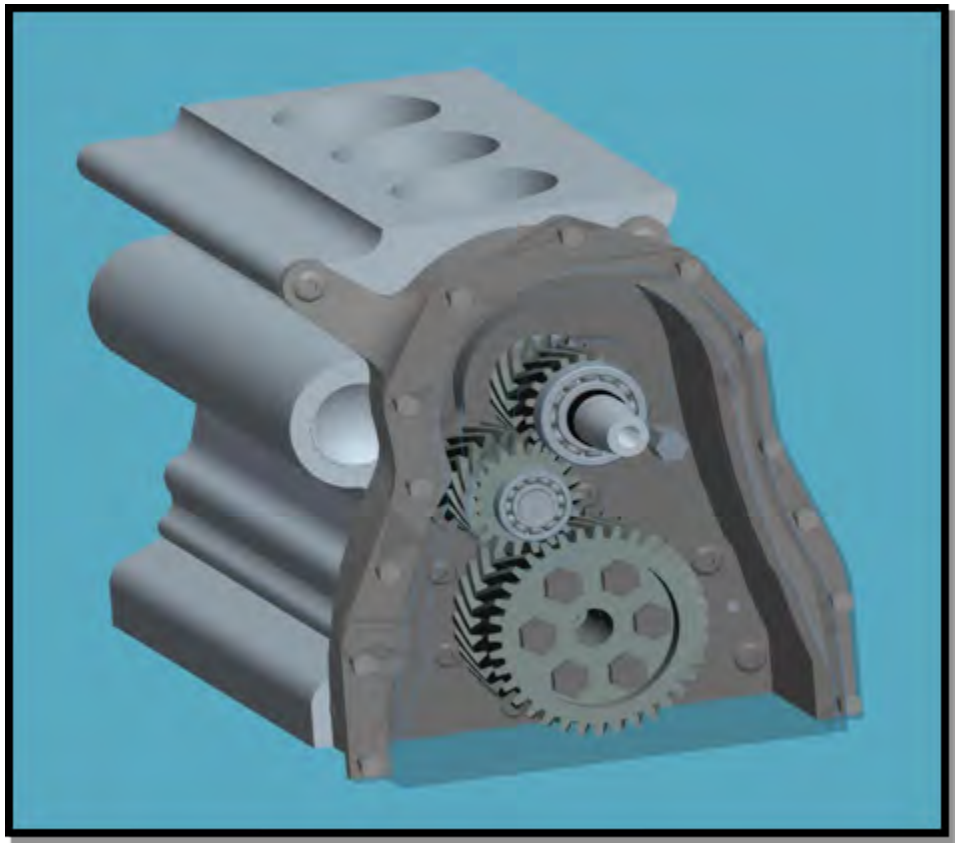
Green= No riders following

Flashing Yellow= Caution

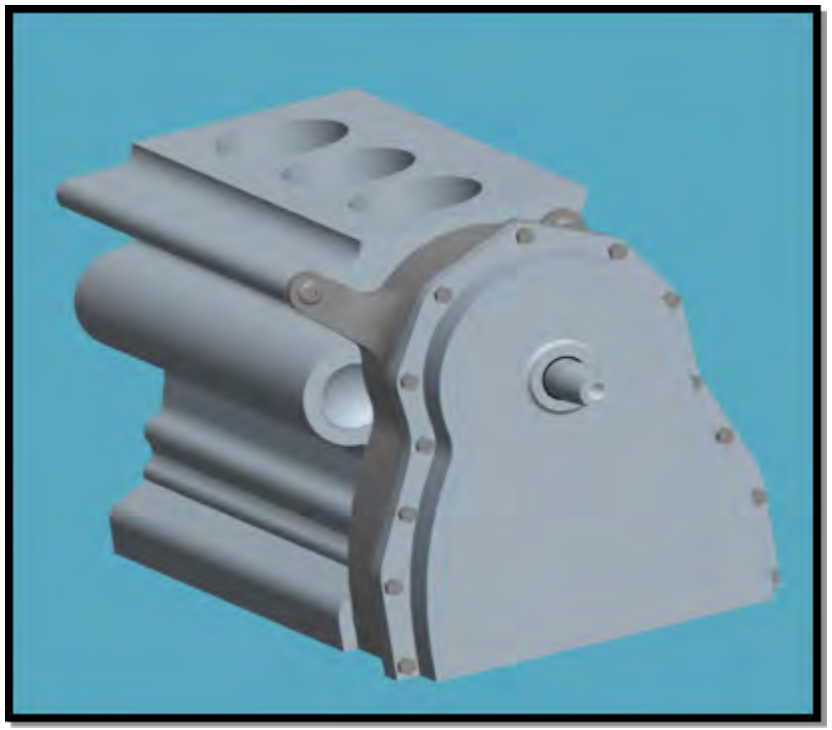
Build Photos Cont'd

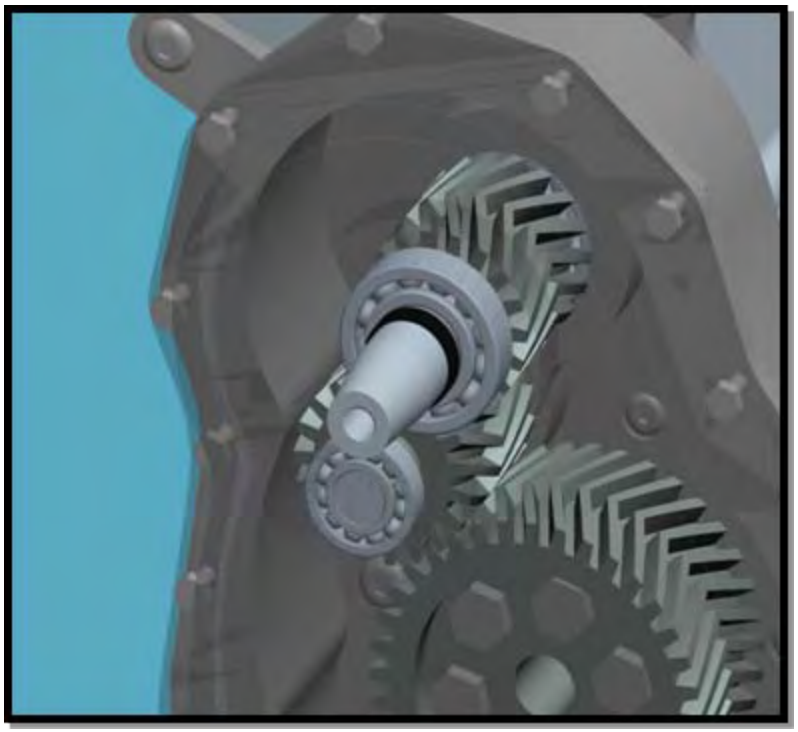
Future Designs

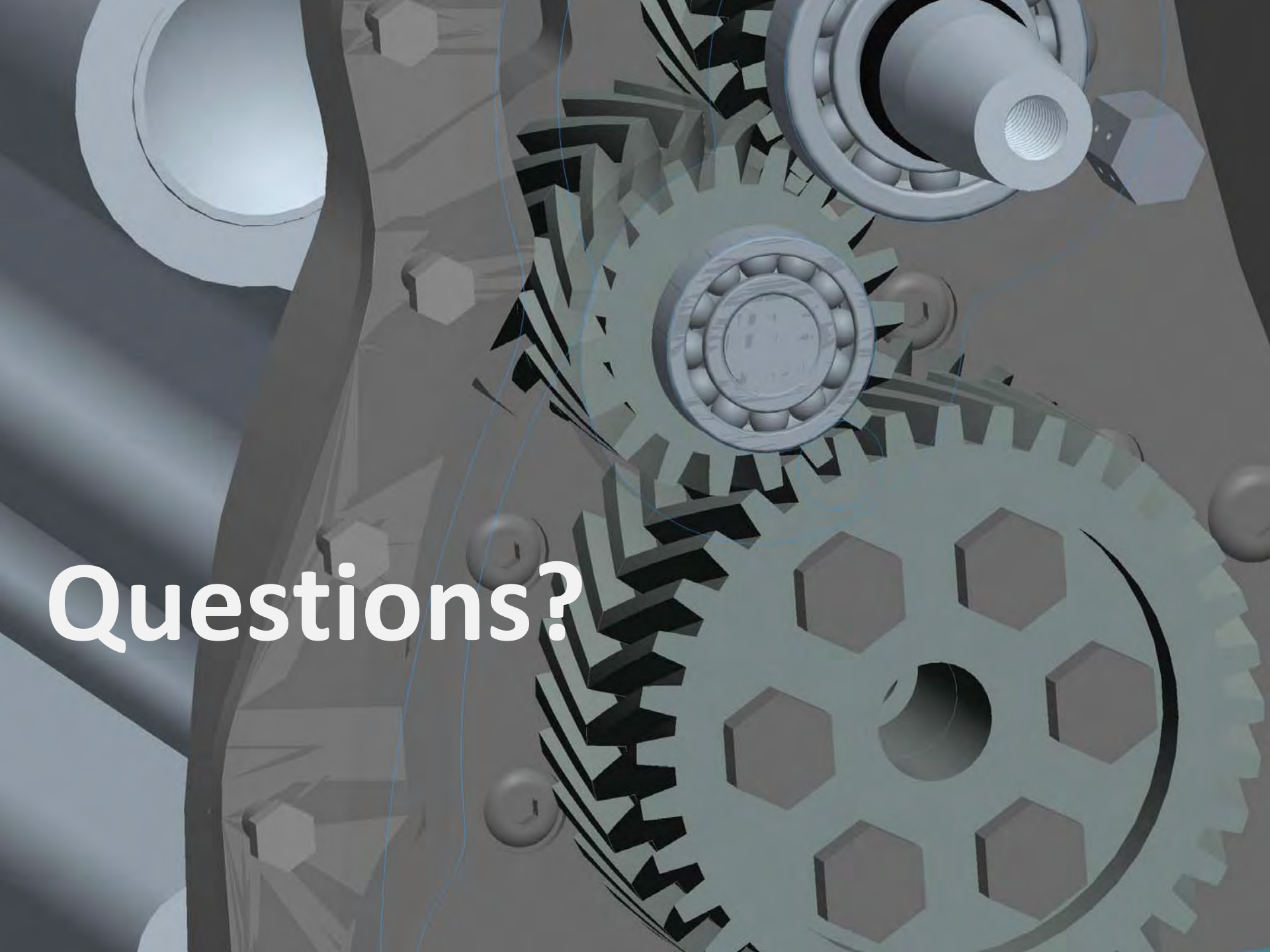
- RPM Multiplier for a consumer based model of this sled, for trail riding and performance.



RPM Multiplier Continued






Questions?