# Reading Assignment #3

Due October 14, 2020

Answer the following questions on Nathan Bradbury’s thesis, pages 63-104, as well as the questions pertaining to general snowmobile knowledge. The best way to get answers for the general knowledge questions is to ask an older member!

## Bradbury Questions:

1. What is a turbocharger? How does it work? What is it primarily used for in industry i.e. power, efficiency, noise, etc.?
2. Since the exhaust port and intake port are open at the same time within a two-stroke engine, what will happen if the back pressure is too low (or high) when introducing a turbocharger?
3. Describe a few of the modifications that are necessary to implement a turbocharger onto an engine. What physical components need to be altered/added? What software modifications need to be made?
4. Describe some of the problems Bradbury had during engine calibration and experimental engine development.
5. How does Bradbury suggest to measure AFR in his thesis? How is AFR measured on our testing platform? Is our way of testing a good estimate or is there room to improve?
6. Summarize Bradbury’s suggestions for future projects. Which projects would you find most interesting (assuming none of them had already been completed).

## General Snowmobile Knowledge:

1. Why do we choose to use a two-stroke engine if a four-stroke clearly a better selection for the CSC competition?
2. What is a dynamometer? What types do we have? Which do we use for engine calibration (preferably), why?
3. How do you measure knock in an engine? (There are a few correct answers).
4. How does the transmission of our snowmobile work? How does detuning our engine affect the effectiveness of the clutch? What needs to be changed for us to run a lower speed engine?
5. Why did we update chassis’ this year? Why not take Voodoo again?