

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Mechanical Engineering

2.615 INTERNAL COMBUSTION ENGINES

Homework Set #7

Due: 4/15/2014

Problems:

- 1) Problem 11.3 of text book. Interpret the HC measurement as hydrocarbon with H/C ratio of 1.87.
- 2) Problem 11.9 of text book; but change the dimensions such that the top land height is 6 mm instead of 9.52 mm, and the piston/bore clearance is 0.1 mm instead of 0.3 mm. (The values given in the problem are for much older cars.)
- 3) Problem 11.10 of text book. This problem gives you an idea of the time scale for NO formation under engine combustion condition. For the last part of the problem, see Eq. 4-32 and Fig. 4-17 for gas properties.