

Unified Engineering Spring Term 2004

Problem P4. (Propulsion) (L.O. D)

For this problem, use the aerodynamic, structural and battery parameters you have determined for your Dragonfly.

- a) Calculate the speed that you would fly the Dragonfly if you wanted to maximize range with no additional payload.
- b) Calculate the speed that you would fly the Dragonfly if you wanted to maximize endurance with no additional payload.
- c) Assume the overall efficiency of the battery-motor-propeller combination is 0.15. As a function of the number of eggs carried (0 through 5) tabulate the velocity for maximum endurance, the power required, and the endurance.