

UNIVERSITY OF NOTRE DAME
Department of Aerospace and Mechanical Engineering
AE 440: Flight Mechanics and Introduction to Design
Fall 1998

Project #4

Due: Friday, September 11, 1998

Using the "planar particle dynamics" model for an aircraft:

1. develop an expression for the maximum acceleration that can be achieved in a climb along a straight flight path as a function of the climb angle
2. develop a "carpet " to illustrate this maximum acceleration rate as a function of thrust to weight ratio (T/W) and lift to drag ratio (L/D). Consider a range on T/W of 0.5 to 1.2 and for L/D of 8 to 12 for the carpet plot and express the acceleration in nondimensional units of "g".