**Application: Glider Model Questions**

Use the provided .m and .mdl files and the following vehicle parameters in order to answer the following questions.

* Coefficient of Rolling Resistance (c\_rr): 0.01
* Coefficient of Drag \* Frontal area (CdAf): 0.76 m2
* Air Density (rho): 1.2 kg/m3
* Vehicle Mass (m): 2050 kg (EREV target test mass)
* Inertial Mass (mi): 1.04\*m
* Road Grade (%): 0
* Gravitational Constant (g): 9.81 m/s2

Determine the steady state speed that will be reached with a tractive effort of 1800 N on a 5% grade.

|  |  |  |
| --- | --- | --- |
|  | 100 kph |  |
|  | 130 kph |  |

|  |  |  |
| --- | --- | --- |
|  | 150 kph |  |
|  | 120 kph |  |

Determine the steady state speed reached with a zero tractive effort input on a -5% grade (downhill).

|  |  |  |
| --- | --- | --- |
|  | 100 kph |  |
|  | 130 kph |  |

|  |  |  |
| --- | --- | --- |
|  | 150 kph |  |
|  | 120 kph |  |

The tractive force that a powertrain can put to the wheels of a vehicle is limited by the weight of the vehicle, assuming a perfect coefficient of friction at the tires. Using this information and a saturation block, implement a tractive force limitation on the input to the glider model. How will this affect the behavior of the model?

