

Simulation 4
ME – 565
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By: Andres F. Hoyos

Consider a vehicle with the following parameters:

$$W = 3000 \text{ lbs}$$

$$W_s = 2700 \text{ lbs}$$

$$x_1 = 3.5 \text{ ft}$$

$$x_2 = -4.5 \text{ ft}$$

$$h = -1.0 \text{ ft}$$

$$t = 6.0 \text{ ft}$$

$$I_z = 40000 \text{ lbs*ft}^2$$

$$I_x = 15000 \text{ lbs*ft}^2$$

$$c = 0.5 \text{ ft}$$

$$\frac{\partial L}{\partial \phi_f} = 40000 \text{ lbs*ft}$$

$$\frac{\partial L}{\partial \phi_r} = 5000 \text{ lbs*ft}$$

$$\frac{\partial \dot{L}}{\partial \dot{\phi}_f} = 1000 \text{ lbs*ft/sec}$$

$$\frac{\partial \dot{L}}{\partial \dot{\phi}_r} = 500 \text{ lbs*ft/sec}$$

$$p = d = 12 \text{ in}$$

$$\eta = 15:1$$

$$\epsilon = 1 \text{ (steering gearbox efficiency, NOT roll steer coefficient – let's call it 1)}$$

$$K_s = 10 \text{ in*lbs/deg}$$

$$t_m = 3 \text{ in}$$