

$$\cos(\beta_i) \left(ep_s(t) \psi'(t) \cos(\psi(t)) + e \sin(\psi(t)) p'_s(t) - eq_s(t) \psi'(t) \sin(\psi(t)) + e \cos(\psi(t)) q'_s(t) + y_2 p_s(t) \cos(\beta_i(t)) \right) ($$