$$\frac{d\dot{q}_4}{dt} = \frac{\left(\left(\frac{1}{4}I_{yy} + \frac{1}{4}I_{zz}\right)\left(-I_{xx}S\left(2q_5\right)\dot{q}_4^2 + 2I_{xx}C\left(q_5\right)\dot{q}_4\dot{q}_6 - \frac{1}{2}I_{yy}S\left(2q_5\right)C\left(2q_6\right)\dot{q}_4^2 + \frac{1}{2}I_{yy}S\left(2q_5\right)\dot{q}_4^2 - 2I_{yy}S\left(2q_6\right)\right.\right.}{}$$