Gearing and Chain

$$\dot{\omega_t} = \frac{\tau_m - \tau_t}{J_m + J_c + J_t} \tag{1}$$

$$\dot{\omega_t} = \frac{\tau_m - \tau_t}{J_m + J_g + J_t}$$

$$\tau_g = \frac{\tau_m \eta(\omega_t)}{R_g}$$
(2)