

$$\tau = \frac{1}{\sum \omega_n} \Rightarrow \omega_n = \frac{1}{\tau/3} = 12.5 \text{ rad/s}$$

$$\frac{k_z}{I_x} = \omega_n^2 \Rightarrow k_z = 0.0106 \text{ N.m/rad}$$

$$\frac{k_1}{I_x} = \underline{\underline{23\omega_n}} = 0.00136 \text{ N.m/(rad/s)}$$

$k_{ip} = 0.00136$	roll	-Der
$k_{zp} = 0.0106$		-Prop
$k_{iq} = 0.0018$	pitch	-Der
$k_{zq} = 0.0144$		-Prop
$k_r = 0.0012$		

$$\begin{aligned} \Delta L_c &= -k_{ip} \Delta p - k_{zp} \Delta \phi \\ \Delta M_c &= -k_{iq} \Delta \xi - k_{zq} \Delta \theta \\ \Delta N_c &= -k_r \Delta r \end{aligned}$$