

$$\cancel{M \frac{d\omega}{dt}}$$

$$J \frac{d\omega_r}{dt} = T_m - T_e$$

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LEC. 41 - Date 15/10/16

$$M \equiv \underline{2H}$$

WB.

$$\underline{\underline{Kg-m^2}}$$

$$K \rightarrow \frac{N-m}{rad}$$

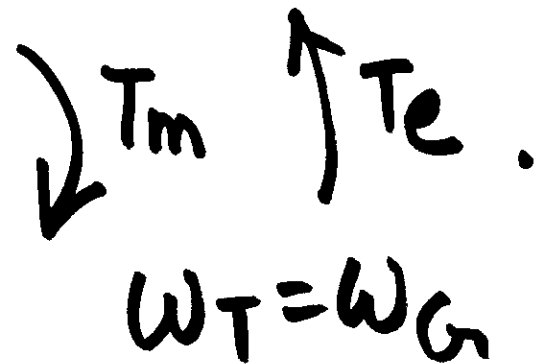
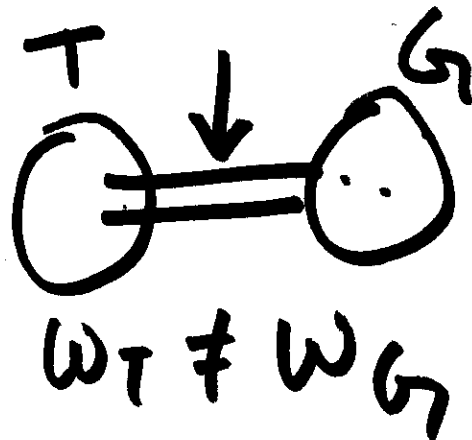
$$(J_T + J_G) \frac{d(\omega_T \cdot J_T + \omega_G J_G)}{dt}$$

$$= T_m - T_e.$$

$$\textcircled{J} \frac{d\check{\omega}}{dt} = T_m - T_e$$

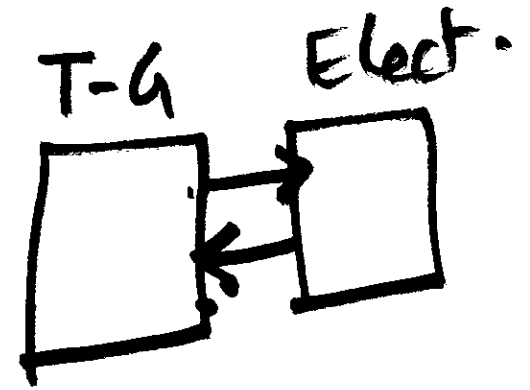
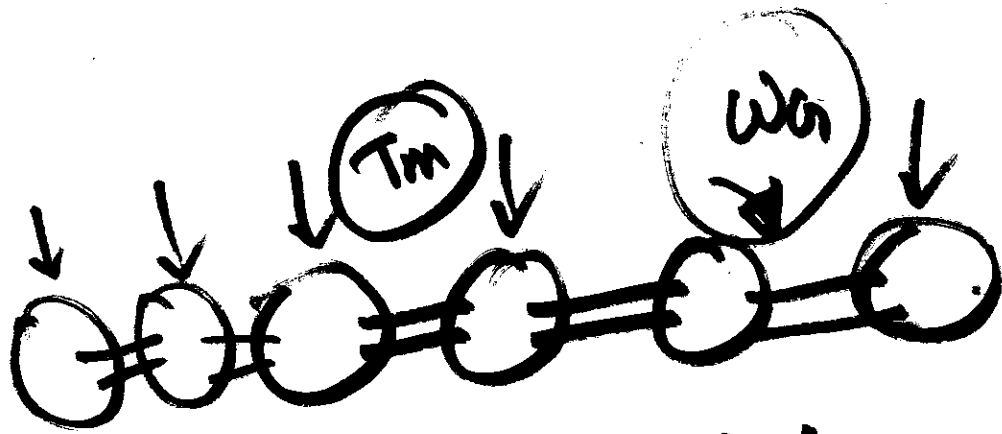
$$J_T \frac{d\omega_T}{dt} = T_m - \underline{\underline{K(\delta_T - \delta_G)}}$$

$$J_G \frac{d\omega_G}{dt} = K(\delta_T - \delta_G) - T_e$$



$$\omega_{fn} = \left(\frac{K}{J_T J_a / (J_T + J_a)} \right)^{1/2}.$$



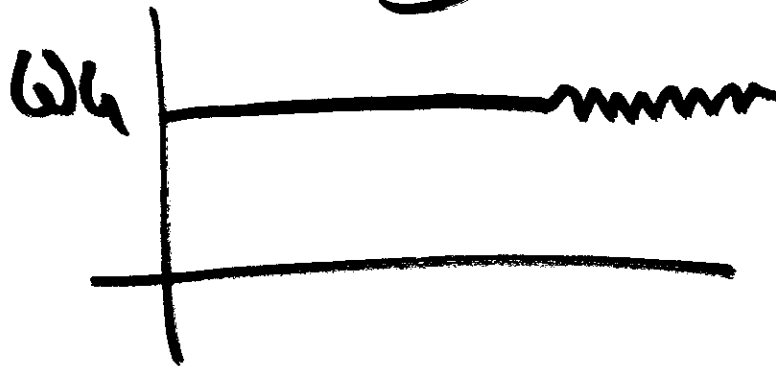


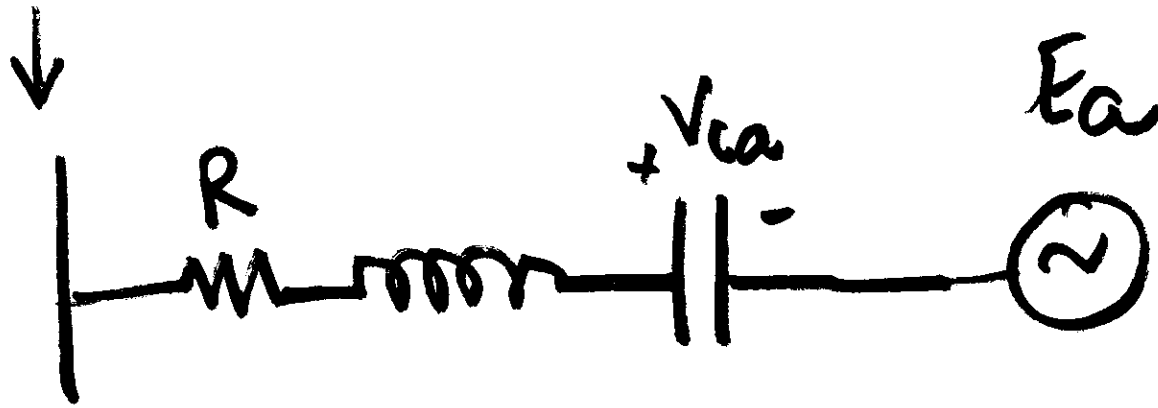
Torsillation

< 50 Hz

AND
SERIES
COMPENSATED

5 torsional frequency





$$\omega_0 = \omega_B \quad E_{an} = \sqrt{\frac{2}{3}} E \sin(\omega_0 t)$$

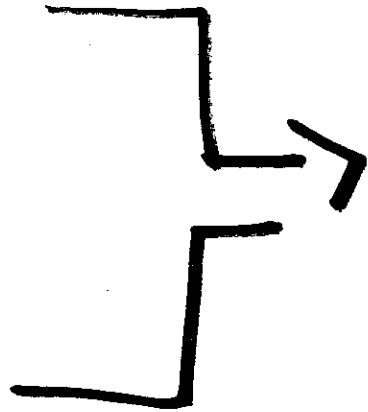
$$\frac{d\delta}{dt} = \omega - \omega_0$$

$$\theta = \omega_0 t + \delta \quad \frac{d\theta}{dt} = \omega$$

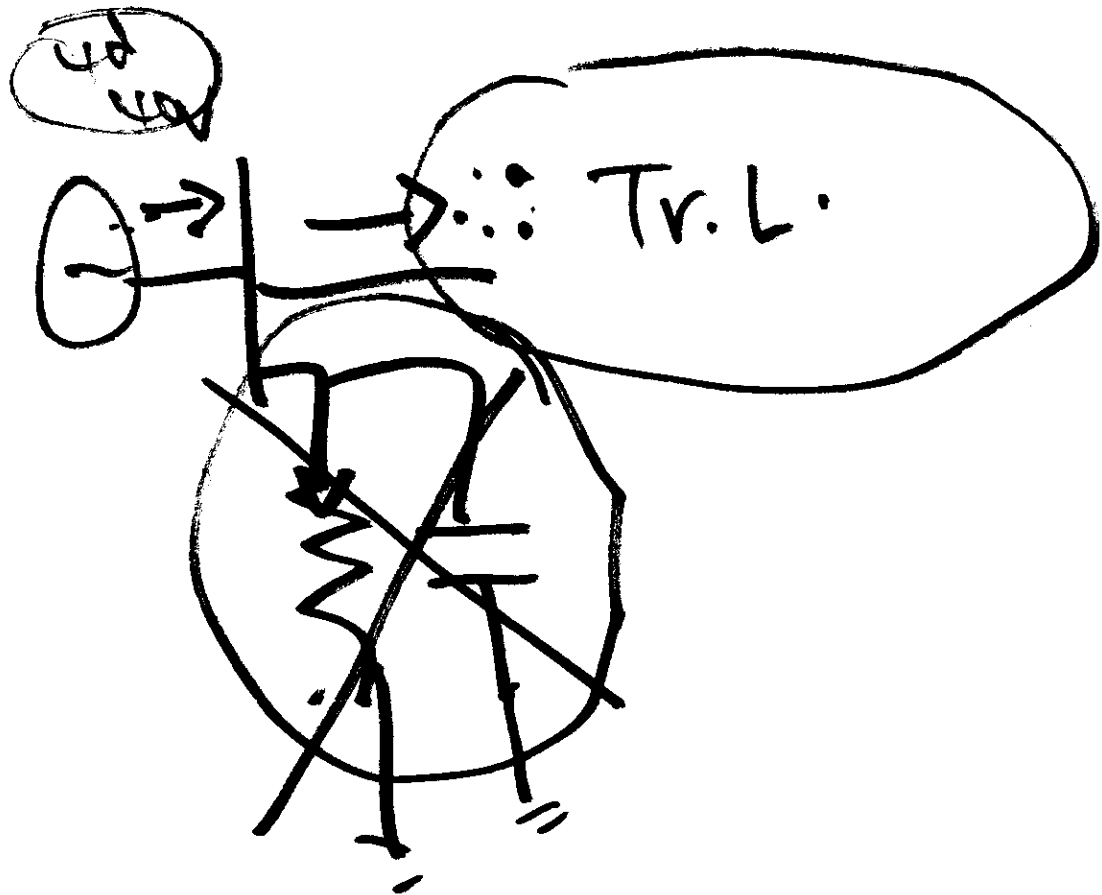
d-q 'Cp'

yd
ya

id
ia



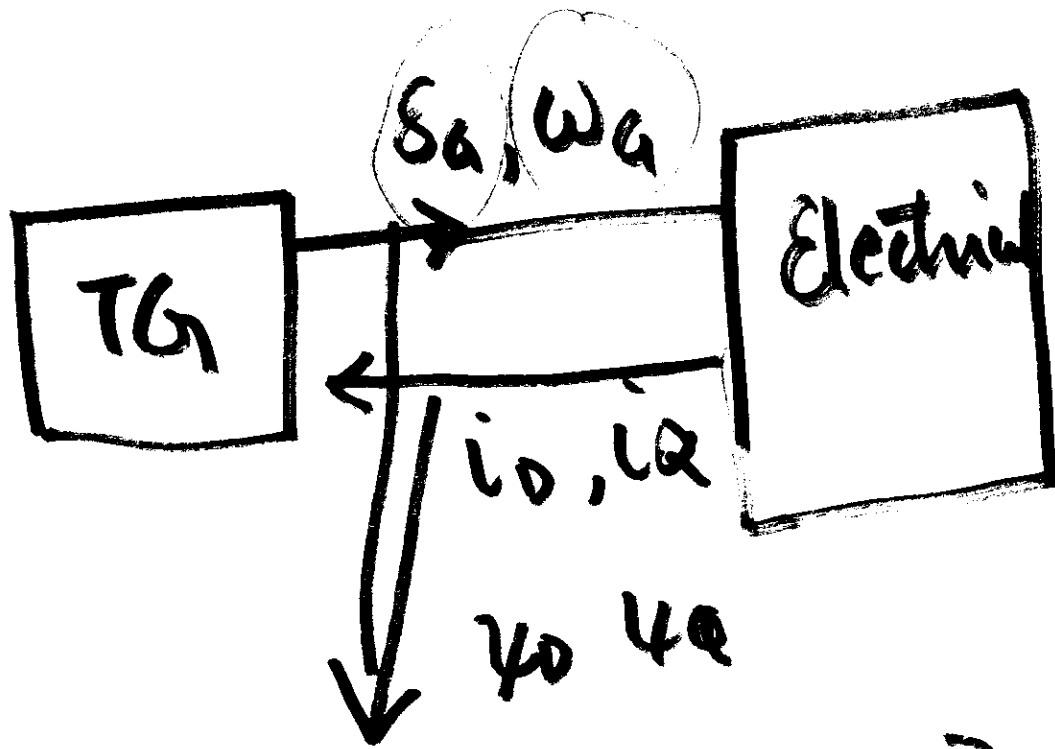
ya^{le}
yd id
ya iv
yaya



$$\psi_d = x'' id + g_1(\psi_F, \psi_H).$$

$$\psi_q = x'' iq + g_2(\psi_G, \psi_H).$$

ψ_d
 ψ_q .



$y_d i_a - y_e i_d \} T_e$

$$\begin{aligned}
 & \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} + \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} = \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} \\
 & \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} + \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} = \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} \\
 & \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} + \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} = \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} \\
 & \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} + \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} = \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix}
 \end{aligned}$$

$$\begin{aligned}
 & \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} = \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} \\
 & \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} = \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} \\
 & \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} = \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} \\
 & \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix} = \begin{bmatrix} \vdots \\ \vdots \\ \vdots \\ \vdots \end{bmatrix}
 \end{aligned}$$