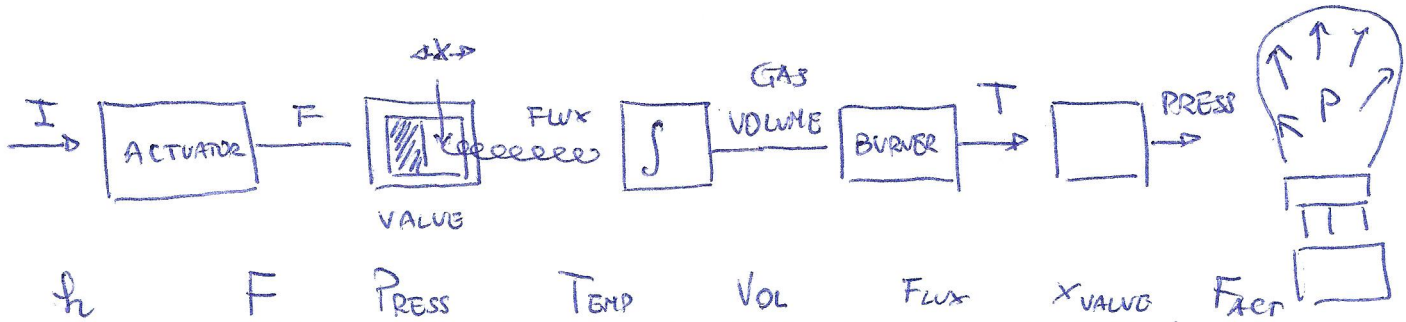
APRIL 5th 2013

$PV = h$ V_M = PUSH UP FORCE F, PRESSURE, TEMPERATURE, VOLUME, FLUX, x_{VALVE}, F_{ACTN},



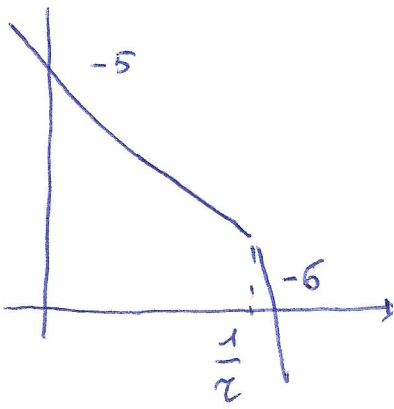
$$G = \frac{h}{FORCE_{PUSH}} \cdot \frac{F}{PRESS} \cdot \frac{PRESS}{T} \cdot \frac{TEMP}{VOL} \cdot \frac{VOL}{FLUX} \cdot \frac{FLUX}{x_{VALVE}} \cdot \frac{x_{VALVE}}{F_{ACT}} \cdot \frac{F_{ACT}}{I}$$

$\frac{h}{FORCE_{PUSH}} = \frac{k}{s^2}$ NEWTON ; $\frac{F}{PRESS} = A$; $\frac{PRESS}{T} = k_1$ FIRST APPROXIMATION

$\frac{TEMP}{VOL} = \frac{K_2}{1+s\tau}$ THERMAL PROCESS ; $\frac{VOL}{FLUX} = \frac{K_3}{s}$; $\frac{x_{VALVE}}{FLUX} = k_4$ MORE OPEN MORE FLOW

$\frac{x_{VALVE}}{F_{ACT}} = \frac{K_5}{s^2}$ NEWTON ; $\frac{F_{ACT}}{I} = k_6$

$$G = \frac{k}{s^2} \cdot A \cdot k_1 \cdot \frac{k_2}{1+s\tau} \cdot \frac{K_3}{s} \cdot k_4 \cdot \frac{k_5}{s^2} \cdot k_6$$

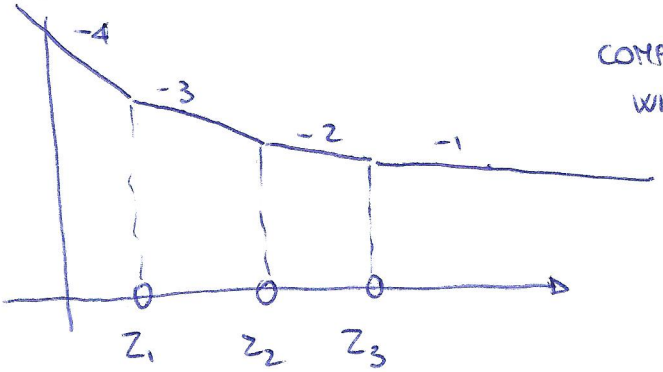


HIGHLY UNSTABLE . but ...

REGULATOR

BLOCK ACTUATOR + VALVE → CASCADE CONTROL

$$G' = \frac{k^*}{s^4} A$$



COMPENSATION WITH $\frac{(1+sz_1)(1+sz_2)(1+}{(1+sp_1)(1+sp_2)(1+}$ .....

× × ×

p_1 p_2 p_3