F1: $Torque_{in} = \frac{p_{me} V_d}{2\pi n_r}$

F2: $Clutch_{fric} = \mu \times c_{geo} \times F_n$

F3: $c_{geo} = N \times 1/2 \times (r_o + r_i)$

F4: $Clutch_{out} = Torque_{in} - Clutch_{fric}$

F5: $0 = Clutch_{out} + bearing_{out} - \tau - fric_{viscous}$

F6: $fric_{viscous} = 10^{-7} \times f_o \times (\eta \times RPM)^{2/3} \times dm^3$

F7: $0 = ratio_1 \times bearing_{out} + gear_{1_{out}}$

F8: $0 = ratio_2 \times gear_{1_{out}} + gear_{2_{out}}$

p_{me} : mean effective pressure

V_d : engine displacement

n_r : number of crankshaft rotations in cycle

$Torque_{in}$: torque input to clutch

$Clutch_{fric}$: amount of torque from friction

μ : static coefficient of friction

c_{geo} : geometric constant for clutch surface

F_n : normal force between clutch plates

N : number of frictional surfaces of clutch

r_o : outer surface diameter of clutch

r_i : inner surface diameter of clutch

$Clutch_{out}$: torque output from clutch

$bearing_{out}$: torque output from bearing

τ : bearing torque loss

$fric_{viscous}$: bearing torque from viscous friction

f_o : bearing type factor

η : kinematic viscosity of lubricant

RPM : shaft speed

dm : bearing diameter

$ratio_1$: gear ratio for gear 1

$gear_{1_{out}}$: torque output from gear 1

$ratio_2$: gear ratio for gear 2

$gear_{2_{out}}$: torque output from gear 2