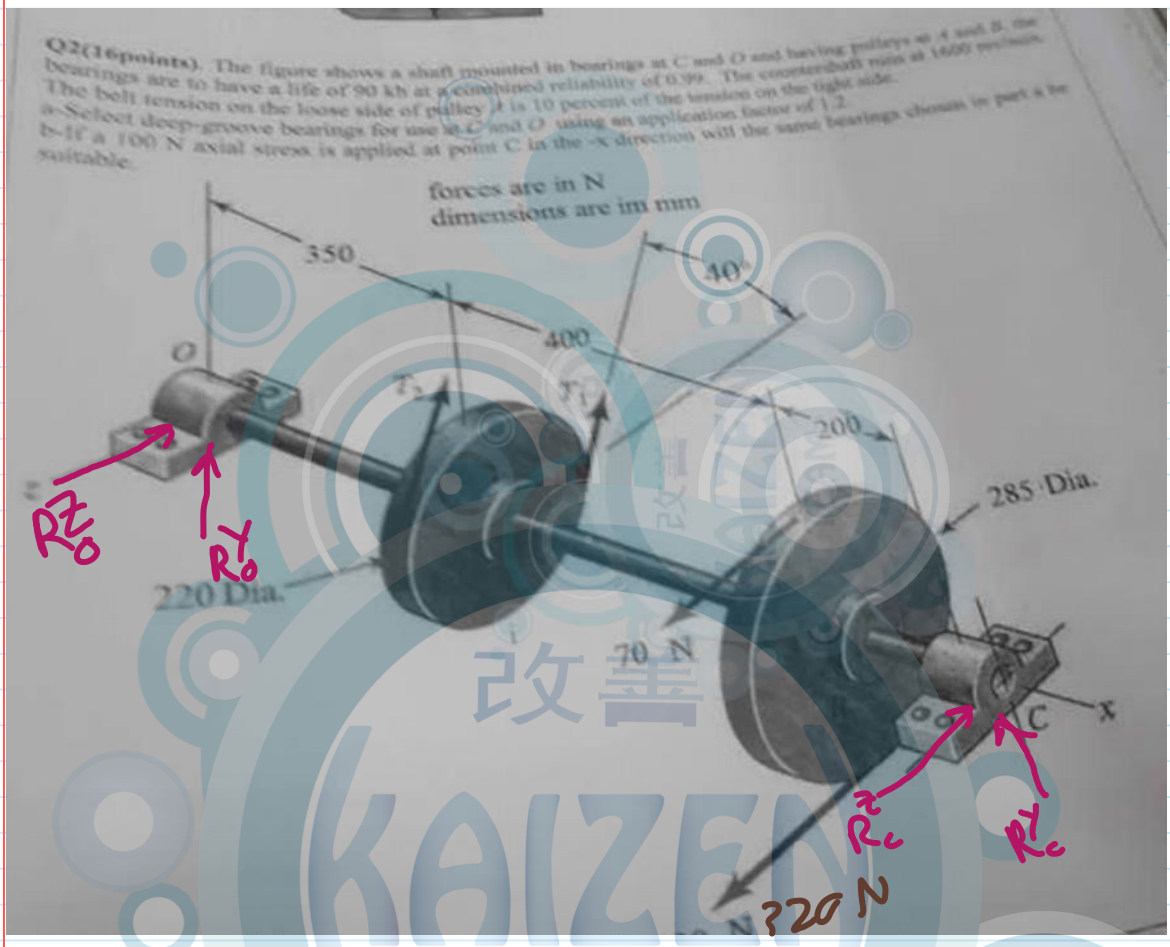

load andysis → Bearing selection.

@loudanalysis:

$T_2 = 0.1\,T_1$

$\rightarrow \Sigma T = 0$

$-(320-70)\times(1425) + (T_1 - T_2)\times(110) = 0$

$\vdots$

$T_1 = 360\ N$

$T_2 = 36\ N$

$\rightarrow \Sigma M_O^y = 0 \Rightarrow -70\times750 + 398\times\cos40\times350 + R_C^z \times 950 = 0$

$R_C^z = 196.1\ N\ (-z)$

$\rightarrow \Sigma F_z = 0$

$396 - 396 * \cos(40) - 196.1 - R_o^z = 0$

$R_o^z = -109.45\,N = 109.45\,N\,(+Z)$

$\Sigma M_o^z = 0$

$396 * \sin(40) * 350 + R_c^y * 950 = 0$

$R_c^y = -93.8\,N = 93.8\,N\,(-Y)$

$\Sigma F_y = 0$

$396 * \sin(40) - 93.8 + R_o^y = 0$

$R_o^y = -160.7\,N = 160.7\,N\,(-Y)$

Point O:

$-R_O = \sqrt{160.7^2 + 109.45^2} = 194.4\,N$

$-R_c = \sqrt{93.8^2 + 196.1^2} = 217.4\,N$

④ Bearing selection:

$L_D = 90 \times 10^7 * 1600 * 60 = 8640 \times 10^6\,rev$

$R_D = \sqrt{0.99} = 0.995$

$F_D = 217.4\,N$

$$C_{10} = 1.2 \times 217.4 \times \left[\frac{8640}{0.02 + 4.439 \times \left(\ln\frac{1}{0.995}\right)^{1.483}}\right]^{1/3}$$

$C_{10} = 10.2\,kN \rightarrow$ catalog

- Bore dia = 20 mm
- OD = 47 mm
- $C_0 = 6.2\,kN$ ✳

b)

point o:

$F_o = 194.4\,N$

point c:

$F_c = 217.4\,N$, $(F_a)_c = 100\,N$

Combined loading eqn.

* $\frac{F_a}{C_0} = \frac{0.1}{6.2} = 0.016 \Rightarrow e \simeq 0.205$

* $\frac{F_a}{F_r} \overset{?}{\leq} e \Rightarrow \frac{0.1}{0.217} \overset{?}{\leq} 0.205 \Rightarrow 0.46 > 0.205$

So $i=2$, $Y_2 \simeq 2.25$

$F_c = 0.56 \times 217.4 + 2.25 \times 100 = 346.7\,N$

$$C_{10} = 1.2 \times 346.7 \times \left[\frac{8640}{0.02 + (4.439) \times \left(\ln\frac{1}{0.995}\right)^{1.483}}\right]^{1/3} = 16.3\,kN$$

- Bor = ?0
- OD = 62

another bearing will be selected ✳