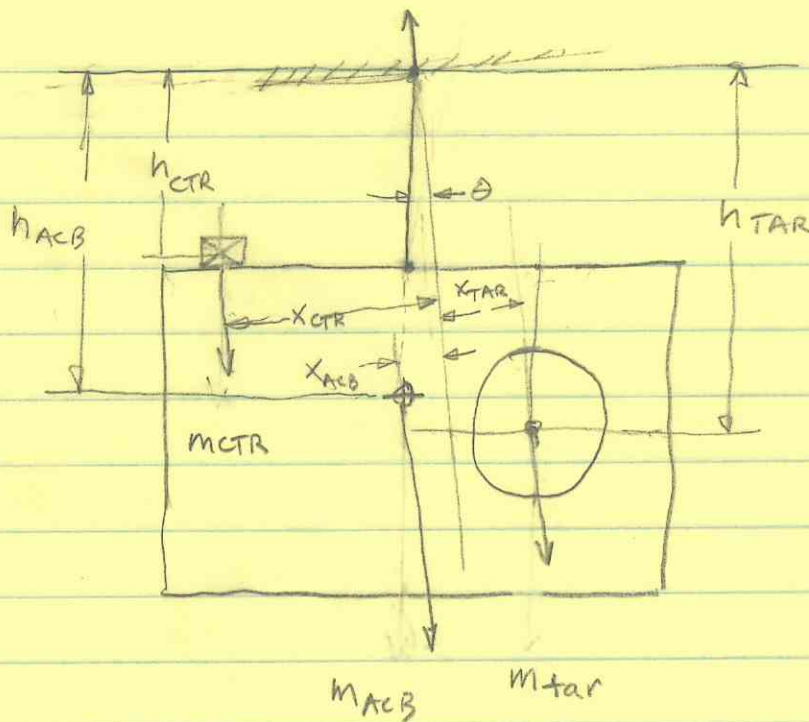


# ACB WITH TARGET

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1.



$$x_{ACB} = h_{ACB} \theta$$

$$x_{TAR} = 0.2 - h_{TAR} \theta$$

$$x_{CTR} = 0.4 + h_{CTR} \theta$$

Torque balance

$$x_{TAR} m_{TAR} = x_{ACB} m_{ACB} + x_{CTR} m_{CTR}$$

$$(0.2 - h_{TAR} \theta) m_{TAR} = h_{ACB} \theta m_{ACB} + (0.4 + h_{CTR} \theta) m_{CTR}$$

$$0.2 m_{TAR} - h_{TAR} m_{TAR} \theta = h_{ACB} m_{ACB} \theta + 0.4 m_{CTR} + h_{CTR} m_{CTR} \theta$$

$$\theta (h_{ACB} m_{ACB} + h_{TAR} m_{TAR} + h_{CTR} m_{CTR}) = 0.2 m_{TAR} - 0.4 m_{CTR}$$

$$\theta = \frac{0.2 m_{TAR} - 0.4 m_{CTR}}{h_{ACB} m_{ACB} + h_{TAR} m_{TAR} + h_{CTR} m_{CTR}}$$

$$h_{TAR} = 52.659 \text{ in}$$

$$h_{ACB} = 40.474 \text{ in}$$

$$h_{CTR} = 31.850 \text{ in}$$

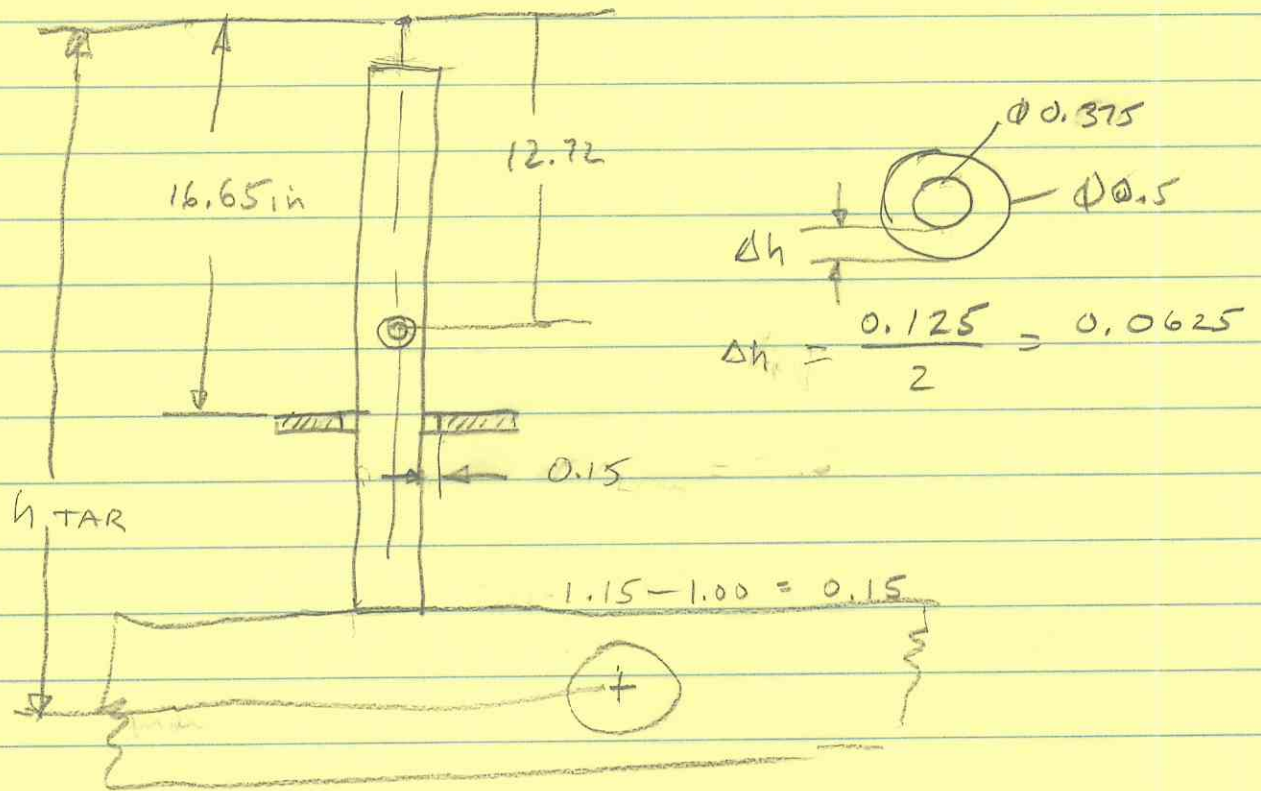
$$m_{ACB} = 170.5 \text{ lbs}$$

$$m_{TAR} = 1.2 \text{ H}$$

$$m_{CTR} = 0.25 \text{ H}$$

$$\Delta h = 0.8 \text{ mm}$$

Maximum swing angle.



ACB Fixed balance weight

D1200644	ctr wt slider	$2 \times 13.27 \text{ lbs} =$
D1200686	ctr wt base	$2 \times 6.68 \text{ lbs} =$
D1200835	2x wt	$4 \times 2 \text{ lbs} =$

1.5

1.25

0.5

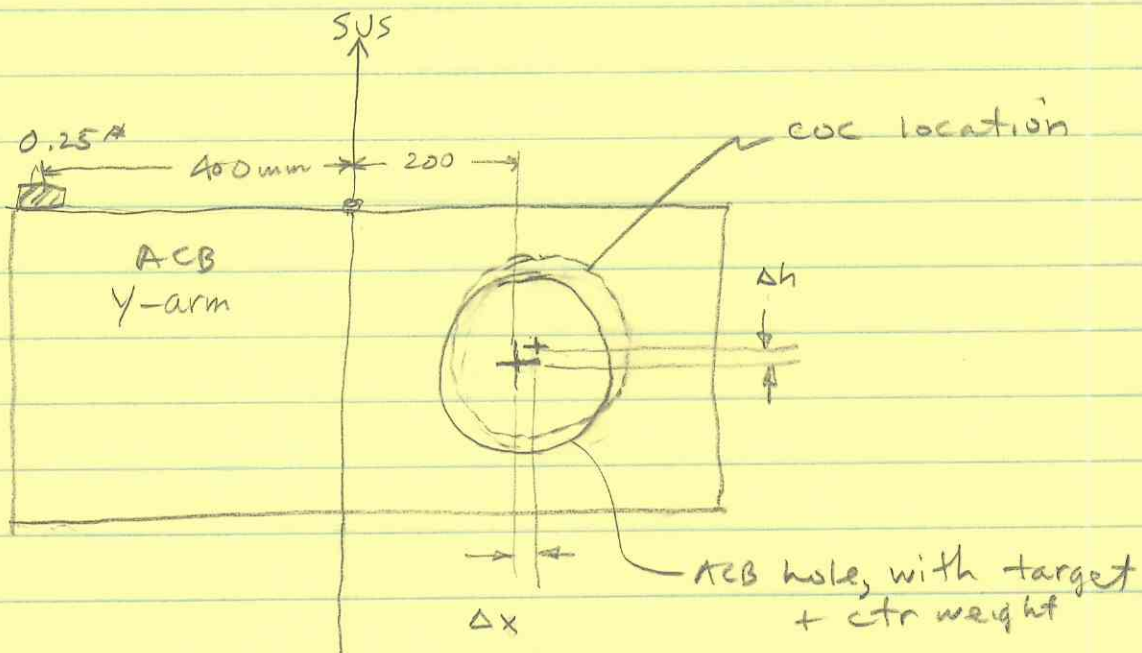
$$\theta_{max1} = \frac{0.0625}{12.72} = 5 \times 10^{-3}$$

$$\theta_{max2} = \frac{0.15}{16.65} = 9 \times 10^{-3} \text{ rad}$$

$$\Delta X_{max} = h_{TAR} \theta_{max} = 52.659 \times 5 \times 10^{-3} = 0.26 \text{ in}$$

# ACB Target Shift

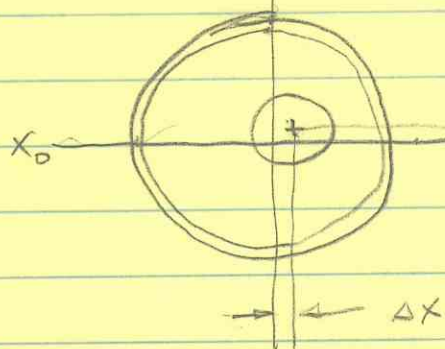
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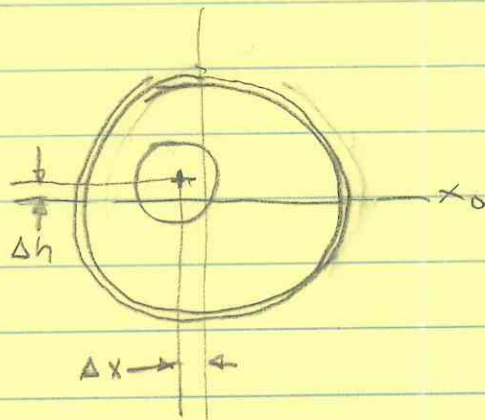
Target wt = 1.2#  
 ctr weight = 0.25#

$\Delta h = 0.8\text{mm}$   
 $\Delta x = 0.8\text{mm}$

Y-ARM  
 $z_0$



X-ARM  
 $z_0$



max allowed shift  $\left\{ \begin{array}{l} \Delta h \text{ max} = 0.0625 \text{ in} = 1.5 \text{ mm} \\ \Delta x \text{ max} = 6.6 \text{ mm} \end{array} \right.$