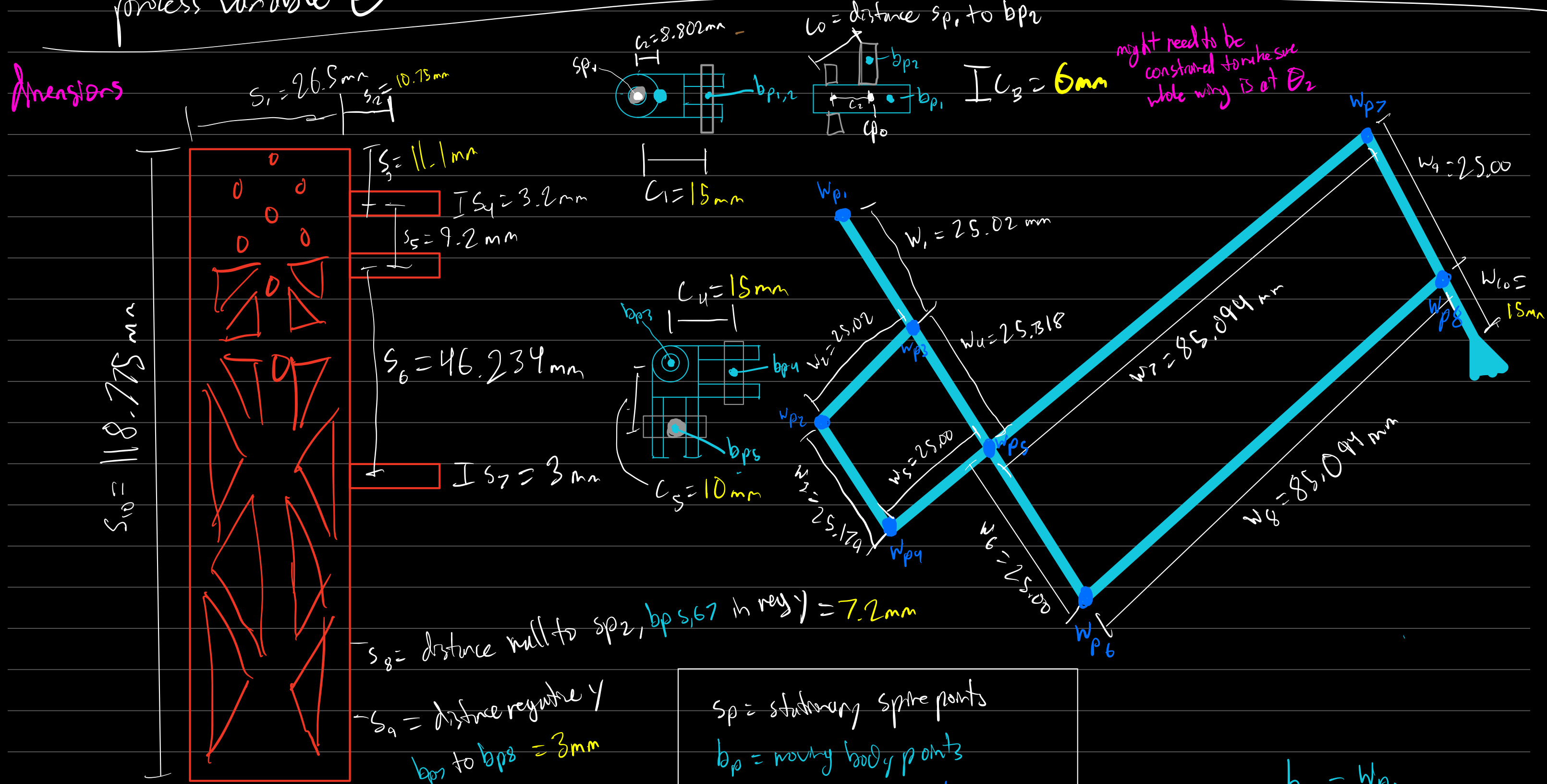
define endpoints of links
define all variables that make wing
plot points, lines, wing surface

- volume swept from top to bottom
- percentage of cycle that is down flap vs up again
- one DoF vs 2 DoF

process variable θ

dimensions

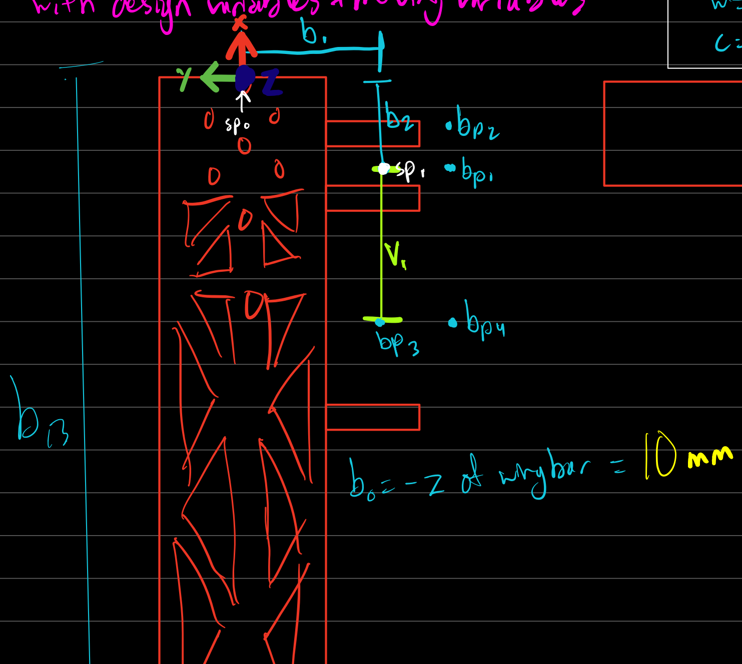


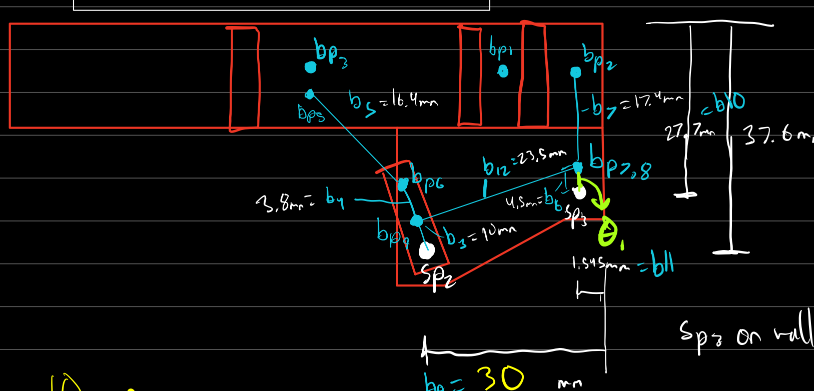
sp = stationary spine points
b_p = moving body points
w_p = moving wing points
b = designable body dimensions
w = designable wing dimensions
c = designable connector dimensions

$b_{p1} = w_{p1}$

$b_{p4} = w_{p2}$

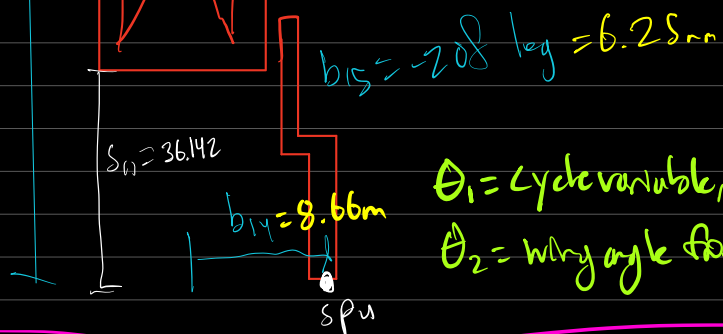
variables
with design variables + moving variables





sp_3 on wall

yellow means needs checked



θ_1 = cycle variable, motor angle

θ_2 = wing angle from horizontal - found through positions

Process: define spine points

define relations between points

draw all points

draw all lines

Results:

$\theta_{1,thor}$ = cycle angle when $\theta_2 = 0$