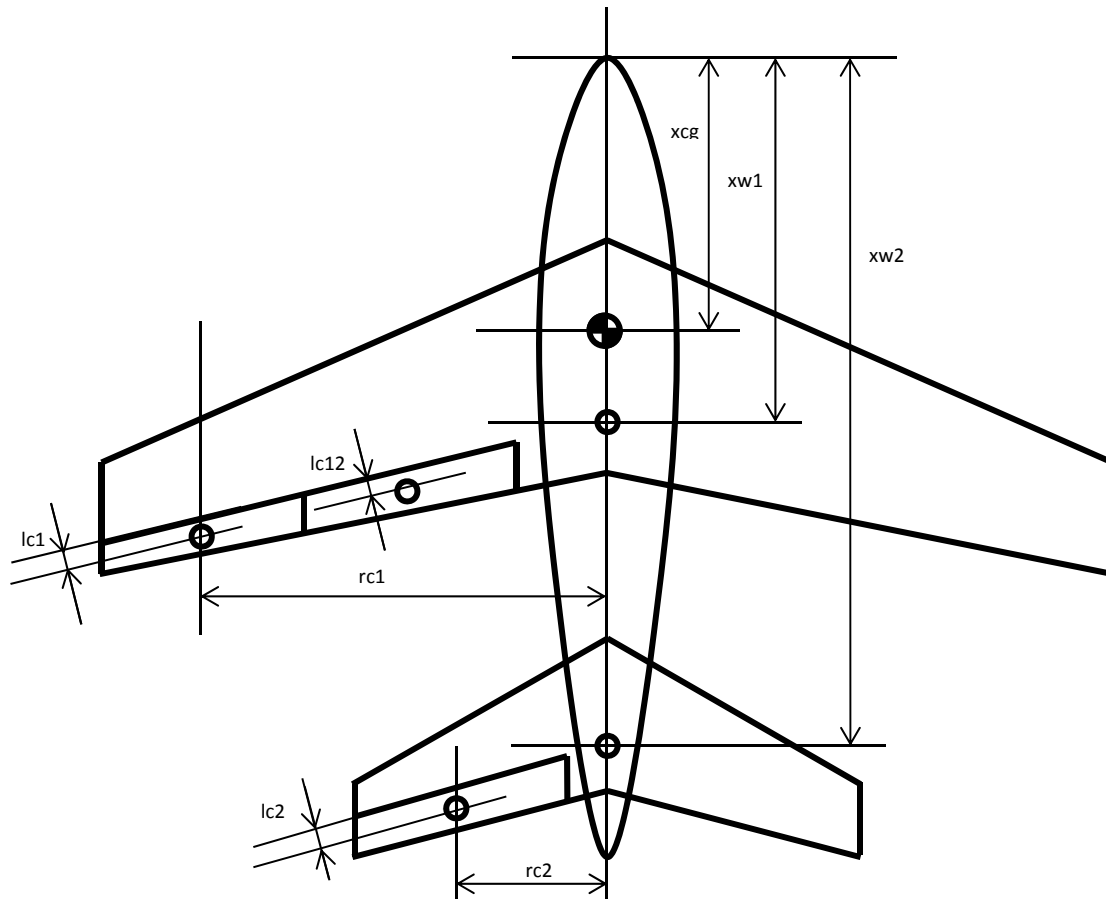


AeroAircraft6DOFS

This is a six degree of freedom flight dynamics model of an aircraft. Measurements are scaled with reference area of the main wing.



Geometric data is entered in dimensionless form that relates to the actual data through the reference area and the aspect ratio. The aspect ratio AR is defined as:

$$AR = \frac{b^2}{S} \quad (0.1)$$

Where S is the wing area and b the wing span. The dimensionless parameters have here an index of 0. The relationships can be written as:

Hthrust	= hthrust0 Sqrt[S1]	engine vert. pos
Ixz	= Ixz0 Me S1 AR1	inertia moment
Iy	= Iy0 Me S1	inertia moment
Iz	= Iz0 Me S1 /AR1	inertia moment
Ic1	= Ic10 Sqrt[S1/ AR1]	norm. ctrl surf. 1 ac fr hinge

lc2	= lc20 Sqrt[S1/ AR1]	norm. ctrl surf. 2 ac fr hinge
lc12	= lc120 Sqrt[S1/ AR1]	norm. flap 1 ac fr hinge
lcfin	= lcfin0 Sqrt[S1/ AR1]	ctrl s. fin ac fr hinge
rc1	= rc10 Sqrt[S1 AR1]	norm. ctrl surface 1 mom. arm
rc2	= rc20 Sqrt[S1 AR1]	norm. ctrl surface 1 mom. arm
rcfin	= rcfin0 Sqrt[S1/ AR1]	norm. ctrl surf. fin mom. arm
S2	= S20 S1	norm. wing area 2
Sbh	= Sbh0 S1	norm. hor. proj. area
Sbv	= Sbv0 S1	norm.body vert. proj. area
Sfin	= Sfin0 S1	norm. fin area
xbach	= xbach0	body ac. hor.
xbacv	= xbacv0 Sqrt[S1/ AR1]	body ac vert.
xbcge	= xbcge0 Sqrt[S1/ AR1]	body cg
xcargo	= xcargo0 Sqrt[S1/ AR1]	cargo cg pos.
xfuel	= xfuel0 Sqrt[S1/ AR1]	fuel cg pos
xw1	= xw10 Sqrt[S1/ AR1], double	wing1 position
xw2	= xw20 Sqrt[S1 /AR1], double	wing 2 position
xwfin	= xwfin0 Sqrt[S1/ AR1]	vertical fin position
yeng	= yeng0 Sqrt[S1 AR1]	engines off. from center