Location of centre of effort of trapezoidal planform foil

Suitable for finding centre of area of a fin or rudder

1 Draw the profile of the foil on a piece of paper large enough to add the following construction lines.

2 Draw a straight line parallel to the upper edge of the foil to approximate to the lower tip of the foil (dashed line).

3 Extend lines through the upper and lower edge of the foil in each direction.

4 Measure distance **a** and find points **w** and **x** distance **a** from the leading and trailing edge at the lower tip of the foil.

5 Measure distance **b** and find points **y** and **z** distance **b** from the leading and trailing edge at the upper edge of the foil.

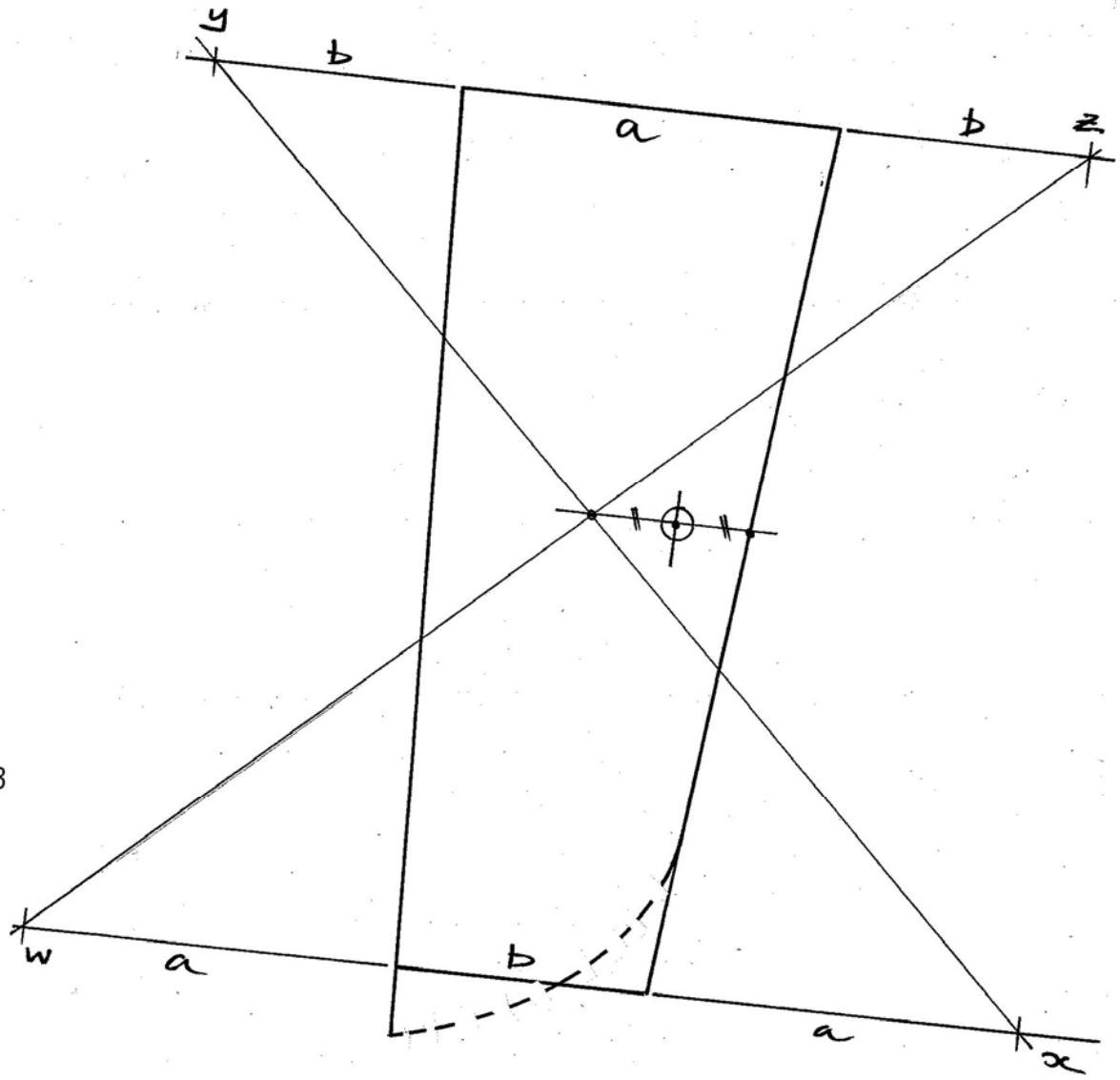
6 Join points **w** and **z** and points **x** and **y**.

7 From the intersection of these lines draw a line to the leading edge which is parallel to the upper and lower edge.

8 Find the mid point of the line from the intersection to the leading edge. This point will be a close approximation to the centre of effort of the foil.

9 Arrange for the axis of the rudder stock to pass no less than 3 mm ahead of the centre of effort point. This will ensure the rudder will not overpower the servo and lock over at high speeds.

10 If you are using this process to find the centre of effort of the boat's fin and a replacement fin, simply arrange for the centre of effort of each to be in the same fore and aft position. This will ensure the boat has the same 'feel' or balance.



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