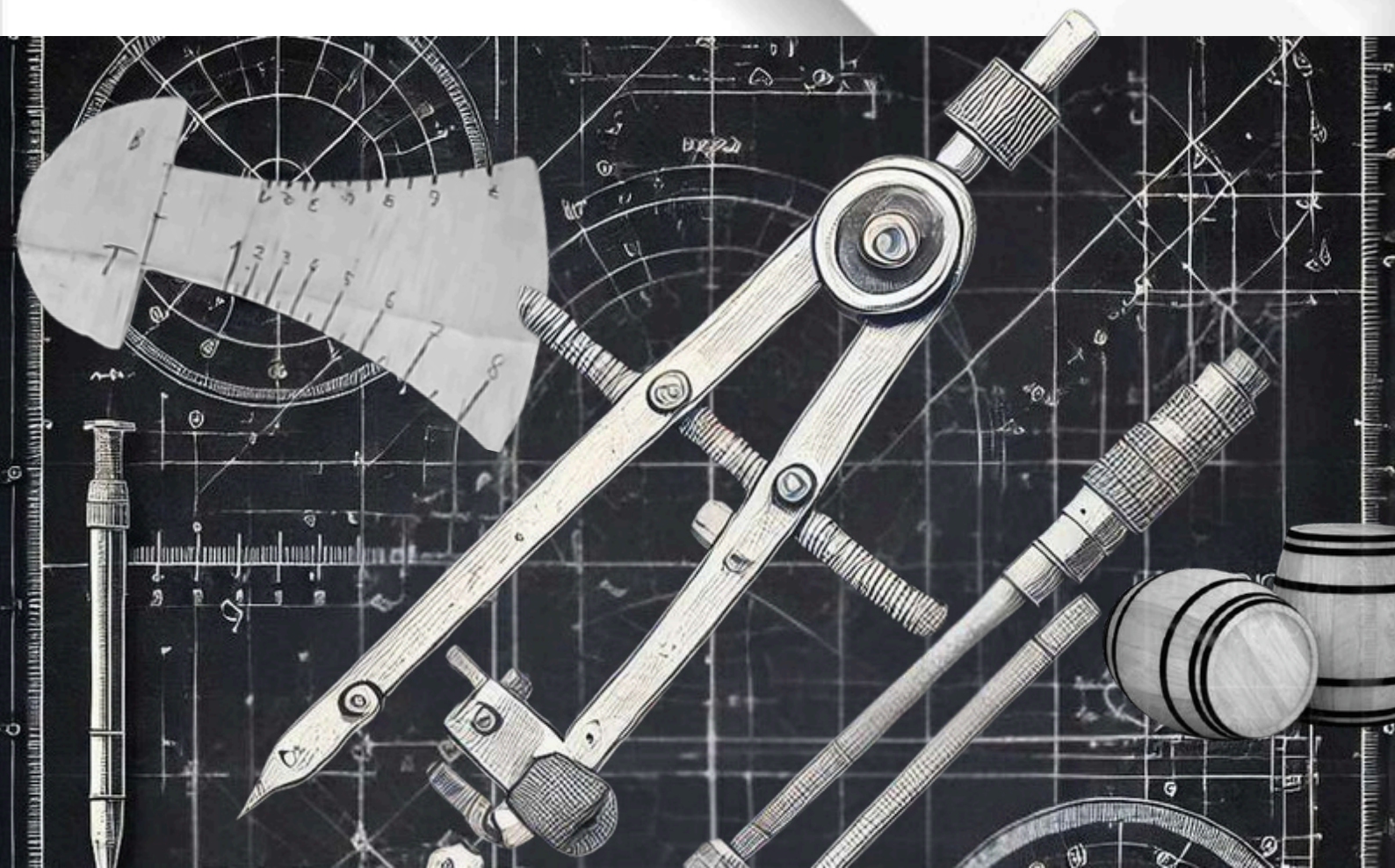
Quarter-point Oval

MARIAUD CONSULTING



Drawing of a quarter-point oval (Construction from the major axis)

1. Principe

The oval is constructed by a succession of interconnected circular arcs.

The objective is to obtain a curve that is:

- **regular**
- **symmetrical**
- **seamless between arcs**

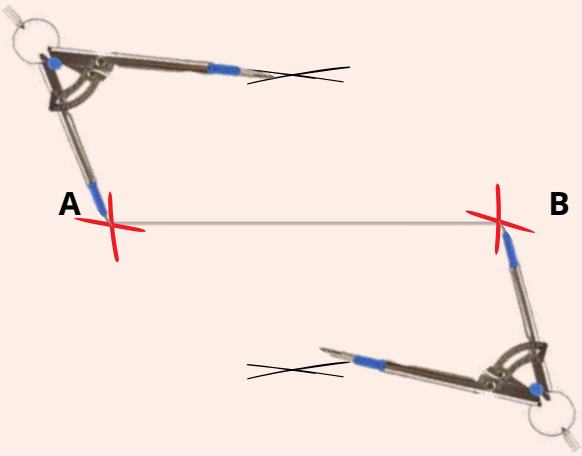
• Step 1

Drawing the major axis

- **Draw the segment [AB]**

• Step 2

Construction of the minor axis (*crucial*)
Place point O, the midpoint of [AB].

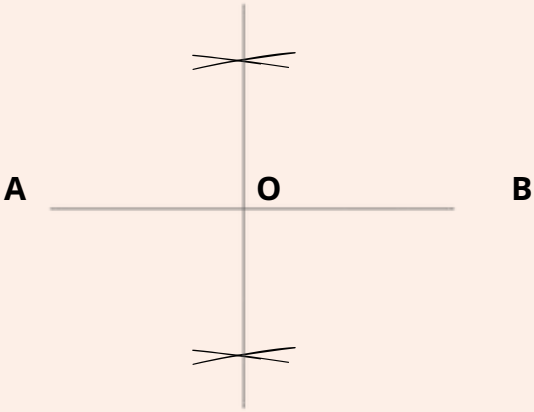


Compass method:

- **Set the compass to a width greater than half of [AB].**
- **From A, draw an arc above and below the line.**
- **From B, draw the same arcs.**

The intersections provide two points.

Connect these two points → you obtain the perpendicular bisector of [AB].



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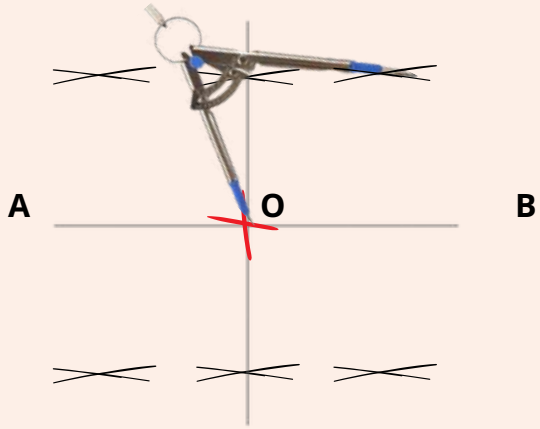
Step 3

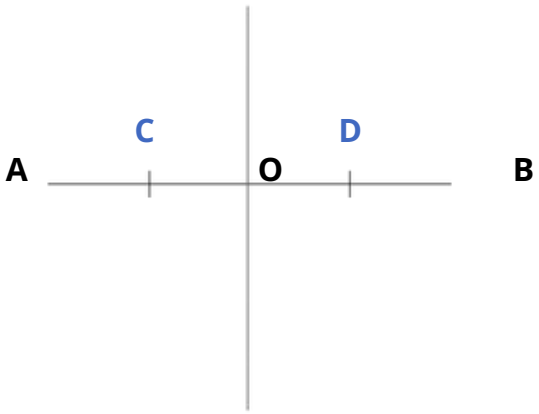
Division of the major axis

- **A — C — O — D — B**
- **AC = CO = OD = DB**

Use the same compass method (perpendicular bisector) to determine the midpoints of segments [AO] and [OB].



It is not necessary to draw these constructions full length: simply mark the useful points precisely.

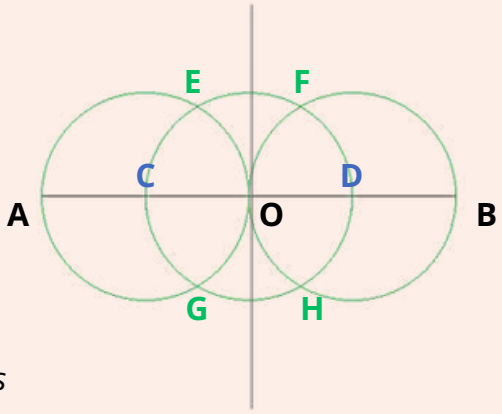


Step 4

Drawing the construction circles

- **Draw three circles centered at C, O, and D, with a radius equal to AC (or CO, OD, DB).**

These circles intersect at four points: E, F, G, and H.



The precision of the radius is essential:
an error at this stage skews all intersection points and compromises the regularity of the oval.

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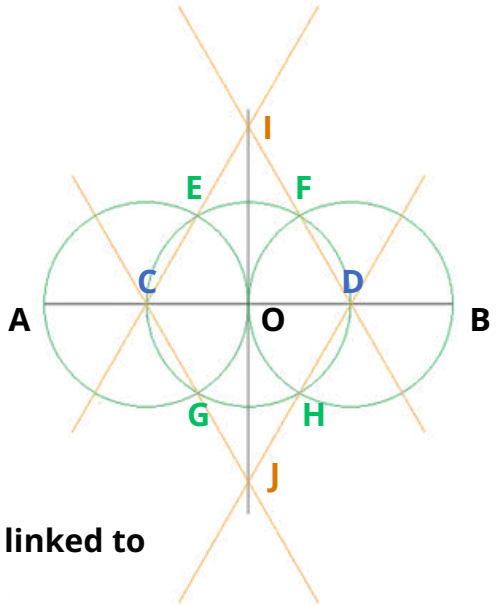
• Step 5

Construction of the connection lines

- **Draw lines (CE) and (DF): they intersect at point I.**
- **Then draw lines (CG) and (DH): they intersect at point J.**

Points I and J are the centers for the main arcs of the oval.



These lines allow the points from the circles to be linked to .define the future centers of the large radii

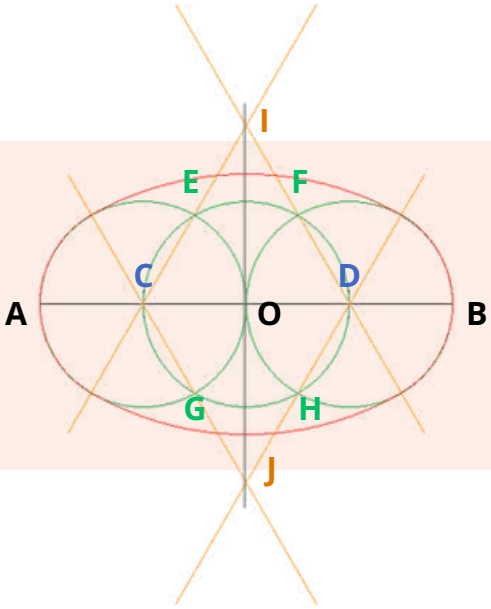
The precision of the alignments is essential: a slight offset in these lines leads to poor positioning of centers I and J, resulting in a flaw where the arcs meet.

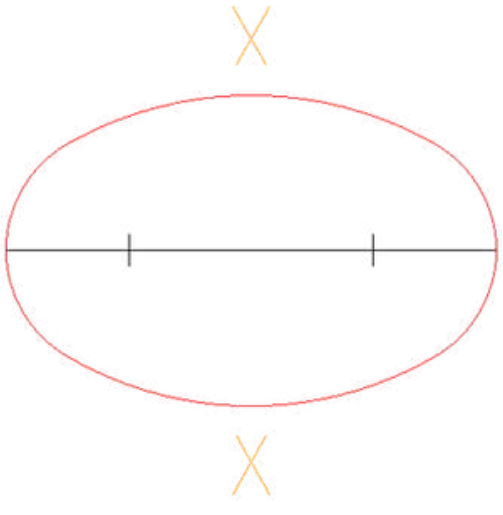
• Step 6

Drawing the main arcs

Draw the circular arcs centered at I and J, with a radius equal to 3R.

These arcs constitute the main part of the oval shape.





It is now up to you to put this into practice and perfect your craftsmanship!