

# CHALLENGER OF RECORD & DEFENDER AMERICA'S CUP 36

## Interpretation 083 of AC75 Class Rule Version 1.27 issued 15<sup>th</sup> January 2021

### Rule References:

22.7 A **hydraulic actuator** within an HCC may only be **mechanically** connected to one **control surface**.

### 35.55 **Hydraulic actuator**

A hydraulic ram, hydraulic motor or functionally equivalent device that converts hydraulic pressure and flow into force and translation, and/or torque and rotation.

### Context:

The images (a), (b) and (c) show three different views of three different hydraulic actuator configurations:

- Left: Two hydraulic cylinders in separate housings
- Middle: Two hydraulic cylinders housings bolted together (see ghosted image)
- Right: Two hydraulic cylinders sharing a common housing

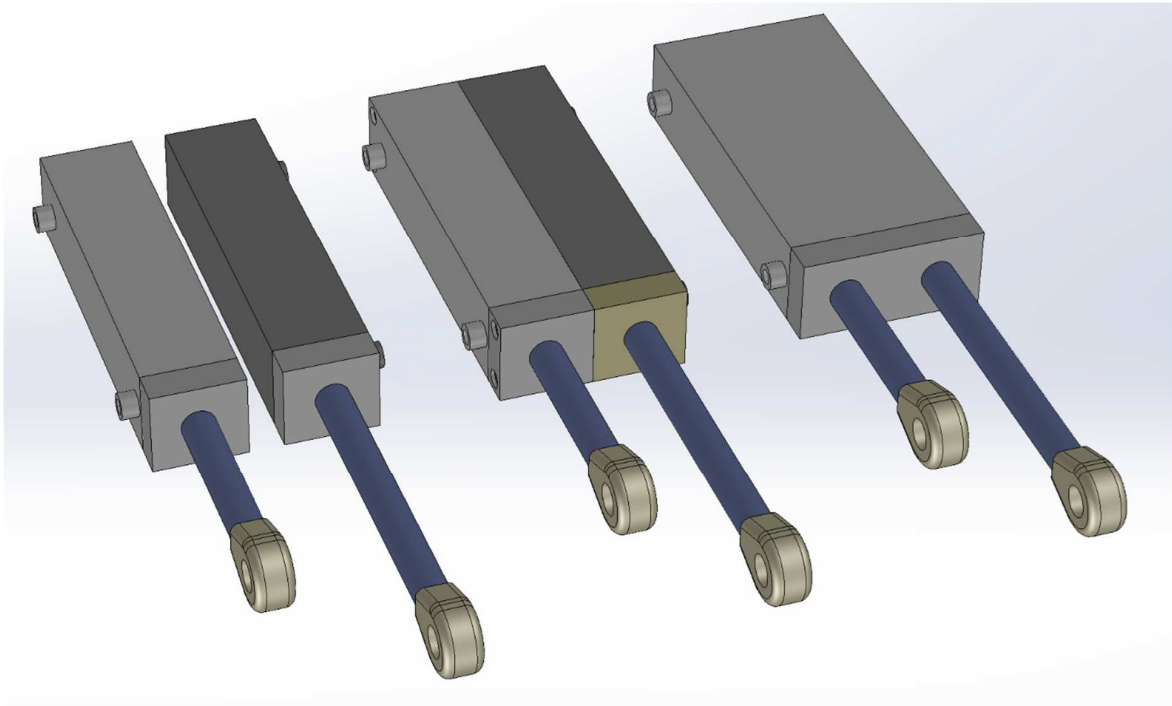
In all cases, there is no common hydraulic connection between the two cylinders. The differences between the examples only relates to packaging.

The two piston rods in each case are connected to separate **control surfaces** and are operated independently as separate **control functions**. There is no mechanical connection between the two piston rods in the mechanical systems that they drive.

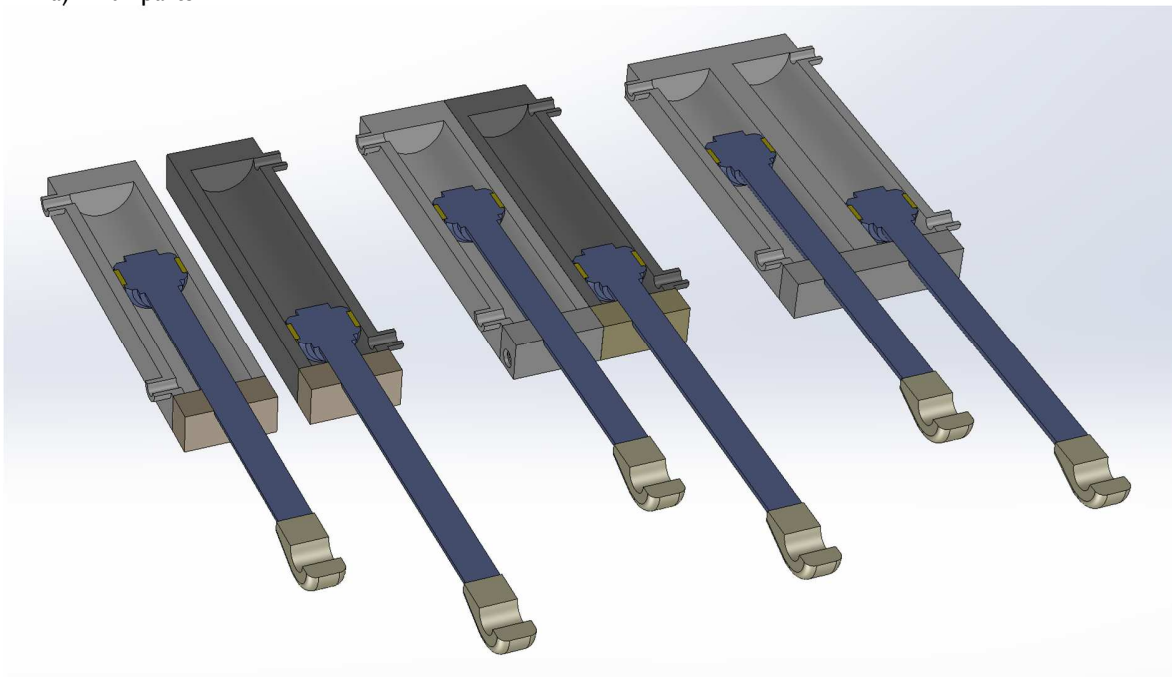
In all cases, the cylinder housings are mounted rigidly to a part of the **yacht** that is fixed relative to the **control surfaces** the actuators are controlling, such that operation of one actuator has no effect on the position or loads in the other; similarly, no load is transferred between the two **control surfaces** through the actuators.

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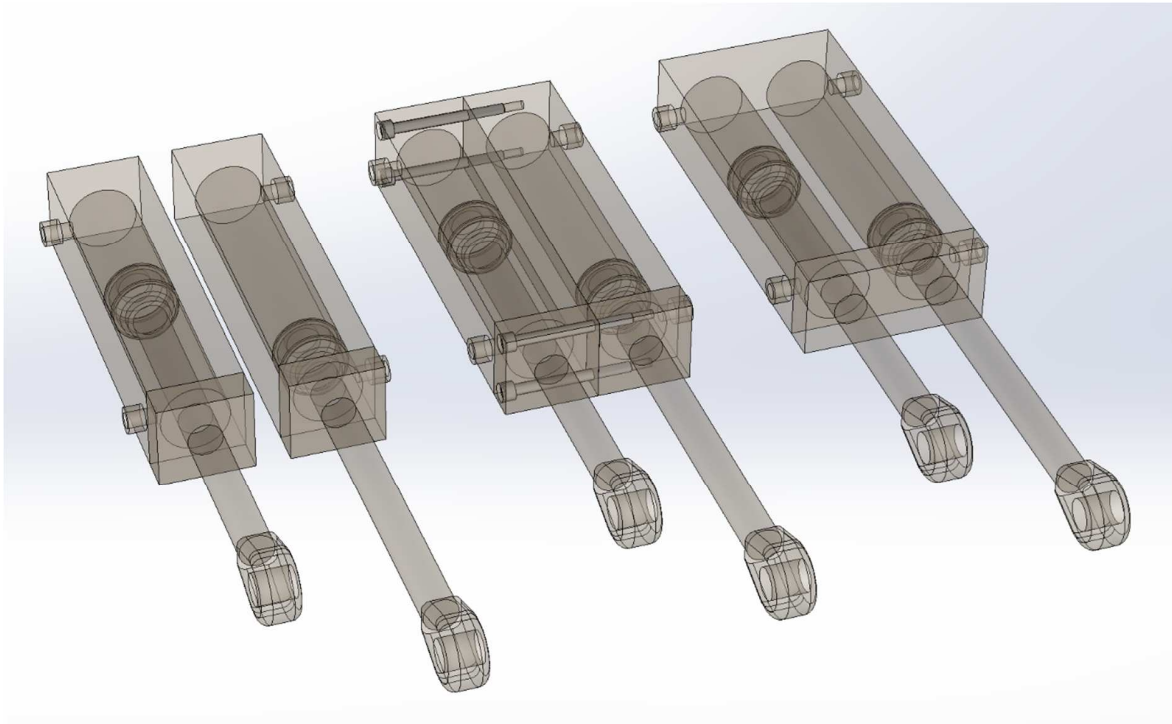
a) Full parts



b) Cross Section

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c) Ghosted

### Question:

- I. Is Rule 22.7 satisfied by each of these arrangements?

### Interpretation:

The **AC75 Class Rule** does not place restrictions on the construction methods of actuators. With respect to the rule, there is no difference between a single block housing two actuators and two separate blocks that are bolted together during construction to form a common housing. As a result, the case shown on the right is permitted, and comprises two actuators.

The described context stipulates that each hydraulic actuator is part of a separate **HCC** and is connected to separate **control surfaces**. Rule 22.7 applies to each **HCC** individually. Note that compliance is conditional on a rigid mounting arrangement with zero degrees of freedom of movement, as described in the final paragraph of the Context.

### Answer:

- I. Yes.

END