

## Exhibit #4

### Paper circulated to World Council in August 2019 – first part

#### 1. Position of the jib tack

Two F18 builders have approached class management with the request to change the class rules so that the tack of the jib can be set below the apex of the forestay bridle. As per the class rule C.10.3(b) this is currently not possible:

##### C.10.3 JIB

###### (a) USE

...

(2) The **tack point** shall not be fixed below the apex of the bridle wire.

- Lowering the position of the jib improves performance:
  - Improves efficiency of the jib (horizontal foot)
  - Accelerates airflow over lower section of the (decksweeper) mainsail
  - Lowers the center of effort
- Over time, to improve performance while staying within rule C.10.3(b) builders have lowered the apex of the forestay bridle

#### Older design

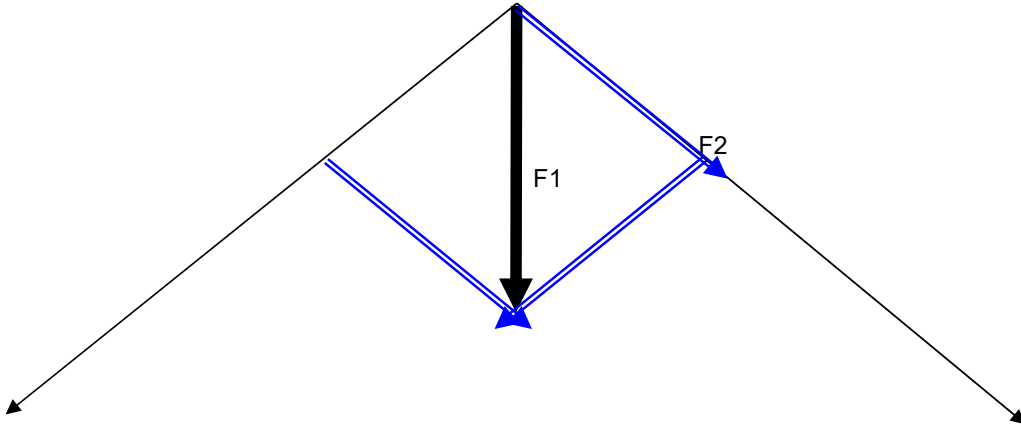


#### Modern design

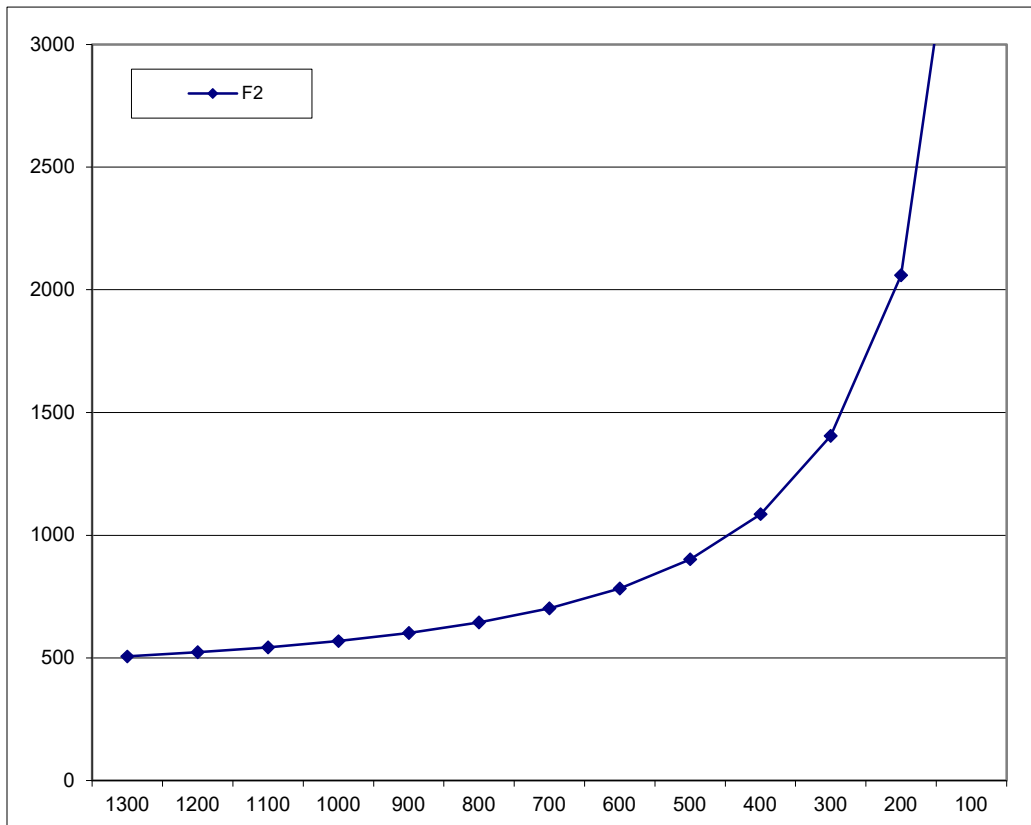


- Lowering the apex increases the loads exercised by the bridles on the hull attachment points. This causes hull construction challenges and reduces longevity of the hulls.

**Diagram 1: illustration of force F2 exercised by bridles on bridle attachment points**



**Diagram 2: Calculation of force (F2) exercised by bridles on hull attachment points as a function of bridle apex height (mm)**



- By allowing the jib tack to be set below the apex of the forestay, it will be possible:

- to lower the jib tack without further increasing the loads on the bridle attachment points. The jib tack will be set on the bowsprit (as on the Tornado)
- for builders to redeploy material to other parts of the hulls, increasing stiffness and longevity

**Tornado jib arrangement, with compression tube (on a F18 the tube will be shorter due to smaller beam)**



- Retro-fitting is straightforward:
  - New jib (different geometry, luff zip)
  - Extra compression tube (e.g. carbon or aluminium) set between the bridle apex and the bowsprit to allow tensioning of the jib luff (similar to Tornado)
- Impact class rules:
  - Remove rule C.10.3(b)
  - Add the compression tube as a permitted equipment item (optional material)

We suggest a 2-years period for implementation.

**For discussion: does the class want to accommodate the request to remove the jib tack position limitation**