

CHALLENGER OF RECORD & DEFENDER

AMERICA'S CUP 36

Interpretation 054

of

AC75 Class Rule Version 1.16 issued 30th September 2020

Rule References:

- 12.11 When viewed from above and orthogonal to **MWP**, neither the crew nor the guest racer shall be covered at any time by any part of the **yacht** except:
- (a) by the **mast** or sails or rigging;
 - (b) by hand-held movable devices whose only purpose is to house **passive input devices** and/or **crew indication devices**, and these devices are not designed to provide aerodynamic fairing of the crew;
 - (c) by other components, provided that the total area of cover per person, **projected** to **MWP**, does not exceed 0.025 m² and this covering is not designed to provide aerodynamic fairing of the crew; or
 - (d) if this happens accidentally and no more than occasionally.
- 19.13 Except during (or immediately before or after) a change of the outermost set **headsail**, the outermost set **headsail** sheet may only be controlled by:
- (a) the rotary motion of a winch, controlling the length of the sheet, where:
 - (i) the winch may be self-tailing, but shall not be captive; and
 - (ii) the crew must unload a sheet from one winch and load the other sheet on to another winch to tack and gybe the **headsail**; and
 - (b) a deflector, being the first point of contact on the sheet after the clew of the **headsail**, where:
 - (i) the position of the deflector may be controlled, providing any such control is a different **control function** to the winch; and
 - (ii) the deflector must have no connection to the **hull** further forward than 10.150 m in front of **TRP**.

Questions:

- I. With respect to 19.13(a) and 19.13(a)(i), which of the following arrangements are permitted to control the outermost set **headsail** sheet, and why?
- a. A 'conventional' ratchet winch, whereby: the tail of the sheet is held by the crew, or inserted in a self-tailing mechanism; the winch drum is rotated via connection to a winch handle or mechanical drivetrain in order to increase load in the sheet; and the tail is eased by hand (after removing it from the self-tailer if used) in order to slip the rope around the winch drum to ease or reduce load in the sheet. In this type of winch, the drum remains stationary while the tail is eased.
 - b. A winch like (a), but where the tail of the sheet is held or controlled by some mechanism, rather than by the crew or a fixed self-tailer, to allow it to be eased by mechanical and/or hydraulic actuation without the crew physically handling the sheet tail. As above, the drum of the winch remains stationary while the tail is eased by a mechanism.
 - c. A winch in which the drum is controlled to rotate in both directions to take-in line or to ease line. The number of turns and as a result the amount of line or chain on the winch drum remains constant whilst trimming or easing. An anchor windlass equipped with a chainwheel fits this description.
 - d. A winch like a fishing reel, whereby the tail of the sheet is dead-ended on to a winch drum, and the winch drum can turn in both directions, such that the sheet winds up on to the winch.

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2. Does 19.13 (a)(ii) require the crew to physically handle the sheet to remove one or more wraps from the 'old' winch in order to tack or gybe a headsail?
3. Instead of the crew physically handling a rope to remove wraps of the sheet from around a winch in a tack or gybe, is it permissible for the crew to operate a winch which automatically eases the 'old' sheet through a tack or gybe, by reverse winding, controlled slipping of the drum or other such mechanism?
4. Is it permissible to tack and gybe the **headsail** with a semi-automatic jib system that does not, in principle, require the crew to physically handle a sheet to remove wraps from one winch and to place wraps around another winch before or during a tack?
5. Can the crew satisfy the requirement of 19.13(a)(ii) by removing wraps of a sheet from one winch and placing wraps on another winch at some point before, during or after a manoeuvre, even if these actions are done only to tick the requirement box, and are not actually necessary to successfully carry out a tack or gybe?
6. Is Rule 12.11 (c) infringed if more than 0.025 m² of a crew member's hands and arms is momentarily covered whilst handling rope around a winch, if this happens regularly, even if not every time, when a **headsail** is tacked or gybed?

Interpretation:

- A. For the term used in rule 19.13 "... sheet may only be controlled by...", the OED offers the following definition for "to control":

3.a. *transitive.* to determine the behaviour or action of; to regulate

Except during (or immediately before or after) a change of the outermost set headsail the first sentence of rule 19.13 prohibits any control of a **headsail** sheet except as explicitly authorised in 19.13 (a) and (b).

Rule 19.13 (a) deals with the control of the length of the sheet. Interpretation 050 confirms that the "length of the sheet" in rule 19.13 (a) refers to the length of the loaded portion of the sheet.

Therefore "controlling the length of the sheet" clearly refers to changing the length of the loaded part of the sheet or keeping the length constant.

Hauling: decrease sheet length;

Maintaining: keep sheet length constant;

Easing: increase sheet length;

- B. Winch definitions:

1. A "captive" winch is understood to be a winch, on which the entire tail of the rope, all the way to the end of its unloaded tail, is reeled completely onto a drum and resides on the drum. A captive winch is able to rotate in both directions or maintain a constant sheet length with a rotary motion of zero. The most appropriate OED definition for "captive" is:

b. *transferred.* Said of animals caught and kept in confinement, e.g. a captive lark; also of things restrained from escaping, as a captive balloon.

The term "captive" refers to the rope, remaining on the winch all the time.

2. A "conventional ratchet" winch is a winch which can rotate only in one direction. Easing a sheet requires slipping the sheet against the blocked rotation of the winch drum; maintaining a sheet setting requires a slight tension on the sheet tail, sufficient to not overcome the holding force generated by the friction of the sheet wraps on the winch drum.
3. A "self-tailing" winch is a winch with a device for the rope tail to support the friction forces offered by the rope wraps on the winch drum, so that the rope need not be manually held. To ease the sheet when using a "ratchet self-tailing winch", the rope tail must be manually taken out of the self-tailing

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device, then the sheet may be eased in a similar way as the “conventional ratchet winch”, by slipping the turns around the stationary drum

“Self-tailing winches” are also available with “backwinding” option (e.g. “Lewmar Revo” or “Harken Rewind Radial”), without the requirement to manually handle the rope when easing the rope but using a controlled backward rotation of the drum instead.

Self-tailing winches including those with backwinding option can alternatively be handled in the same way as conventional ratchet winches by handling the rope tail manually using the three actions described in A.

Both ratcheted self-tailing winches, and backwinding capable self-tailing winches are not captive because, once loaded, the amount of sheet residing on the winch stays relatively constant. The entire tail of the sheet extending to the unloaded end is not “captive” on the drum or otherwise in or on the winch.

- C. Rule 19.13(a)(ii) requires that the “crew must unload a sheet from one winch and load the other sheet on to another winch to tack and gybe the **headsail**”.

The OED provides definitions of the verbs “to unload” and “to load”:

OED definitions of “to unload”:

1. a. *transitive*. To remove a load from; to free or clear of something contained or conveyed; *spec.* to empty (a ship, train, etc.) of cargo or freight.
2. a. *transitive*. To take out or off (something contained or conveyed); to remove (a load) from something; *spec.* to empty a ship, train, etc., of (cargo, freight, passengers, etc.).

OED definitions of “to load”:

1. a. *transitive*. To put a load on or in; to furnish with a burden, cargo, or lading; to charge *with* a load. Frequently in past participle loaded (†loaden) with = laden with, having a load of. loaded down: weighed down with a load.
3. a. To add or affix a weight to, to add to the weight of (something); to be a weight or burden upon; to bear down or oppress *with* a material weight; to weight, *spec.* to weight with lead (see loaded adj.); to increase the resistance in the working of (a machine) by the addition of a weight. loaded with = supporting the weight of. †to load with earth: to bury.
5. a. To put the charge into (a firearm); also *absol.* to be loaded: (of a body of men) to have their arms charged.
5. b. To insert a photographic film or plate in (a camera); also with the film as object.

The OED has at least two different definitions for the verb “load” and for the verb “unload” which would work in the context of rule 19.13 (a) (ii), which makes rule 19.13 (a) (ii) ambiguous. Rule 32.5 (b) requires the **Rules Committee** to choose the most reasonable and natural interpretation.

The most reasonable and natural interpretation is that the crew must physically handle the sheet to remove its coils from one winch and physically handle another sheet to place coils around another winch. The combination of words “from” and “on to” makes this clear.

- D. “The **headsail** sheet may only be controlled by the rotary motion of a winch, controlling the length of the sheet...”:

The detailed requirement in 19.13 (a) (ii) for the crew to physically move the sheets on to and from winches (based on paragraph C.) requires the crew to hold and so control the sheet. This is more detailed than, and contradictory to, 19.13 (a). Therefore, the detailed shall take precedence over the general, following rule 32.5 (c). This detailed requirement for the crew to control the sheet makes it clear that “controlled by the rotary motion of a winch” must be interpreted as “controlled (by the crew) using a rotary winch”. The following actions are permitted:

Hauling: rotary winch motion in one direction

Maintaining: rotary winch motion of zero. Note that a rotary motion of zero is permitted

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Easing: rotary winch motion in the opposite direction, or slipping the sheet around a winch with a permitted rotary motion of zero

Answers:

1.
 - a. Yes. It is permitted to slip the sheet around a stationary winch drum.
 - b. No, if the entire tail of the sheet resides in the mechanism, e.g. on a drum, then this meets the description of 'captive'. Furthermore, it does not satisfy the requirement of 19.13(a)(ii).
 - c. Yes. The scenario describes a backwinding (possibly self-tailing) winch. During tacks and gybes, rule 19.13 (a) (ii) must however be complied with, see paragraph C above.
 - d. No. Captive winches are prohibited.
2. Yes, see Interpretation paragraph C.
3. No. The crew must unload the sheet from one winch and load on to another during a tack or gybe to satisfy 19.13 (a) (ii).
4. No. See answer 3.
5. No. The action of loading and unloading the sheets on to or from the winch drum are required actions to control the headsail to tack or gybe. If the tack/gybe can be carried out without these actions then that is not a rule compliant system. The timing of the loading and unloading with respect to the manoeuvre is not defined, just that those must be necessary actions to affect the tack/gybe
6. Yes, rule 12.11 (d) only covers exceptions if they are accidental and occasional.

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