OWNER'S MANUAL

DRAGONFLY

28 Swing Wing

Introduction

We are delighted to welcome you to the family of DRAGONFLY sailors with our warmest congratulations on your new DRAGONFLY.

This manual is meant to help you enjoy sailing and understand the comfort and safety of your boat. The manual describes the boat, the equipment and includes maintenance guidance. Before you and your crew take off to sea, we strongly recommend reading the manual carefully to avoid any mistakes and/or damages. Make yourself at home on board your boat before going sailing.

We keep improving our boats as we want you to benefit from new technology and breakthroughs, new equipment, materials and, of course, our experience. Therefore, the characteristics and information hereby provided are not binding and can be changed without prior notice or updated obligation.

DRAGONFLY is built with more than 40 years of experience in multihulls, and we feel today that we are delivering a consistent product of high quality and design. Quorning Boats endeavours to deliver a perfect product. If minor problems should occur, we kindly ask you to contact your dealer.

Please keep your DRAGONFLY in respectable condition as well at sea, in the Marina as ashore.

We wish you, your family and crew all the best and lots of fun with your DRAGONFLY,

QUORNING BOATS

Jens Quorning

Registration form

Type of boat: Dragonfly 28 Swing Wing Touring – Sport - Performance (Trimaran sailboat)

CE-certification: Category B + C

Date of delivery: _____

Name of boat: _____

Homeport: _____

Owner's name and address

Name: _____

Address: _____

City: _____

Country: _____

Registration No

Hull No: _____

Hull ID-No: _____

Engine serial No: _____

YOUR DEALER:

_____

QUORNING BOATS
Skærbækvej 101 / DK-7000 Fredericia / Tel. + 45 75 56 26 26 / info@dragonfly.dk

Document and receipt

Hull No: _____ Hull ID-No: _____

Owner's name and address

Name: _____

Address: _____

City: _____

Country: _____

Owner of this craft hereby certifies that I have accepted delivery and read the information in the Owner's Manual delivered with the boat – before using the boat.

Date: _____ Signature: _____

Hull No: _____ Hull ID-No: _____

Owner's name and address

Name: _____

Address: _____

City: _____

Country: _____

Owner of this craft hereby certifies that I have accepted delivery and read the information in the Owner's Manual delivered with the boat – before using the boat.

Date: _____ Signature: _____

Before use of the craft, please return this slip to:
QUORNING BOATS ApS, Skærbækvej 101, DK-7000 Fredericia.
If not, Quorning Boats ApS cannot be held responsible of any kind of damage or injury

General specifications – DF 28 Touring

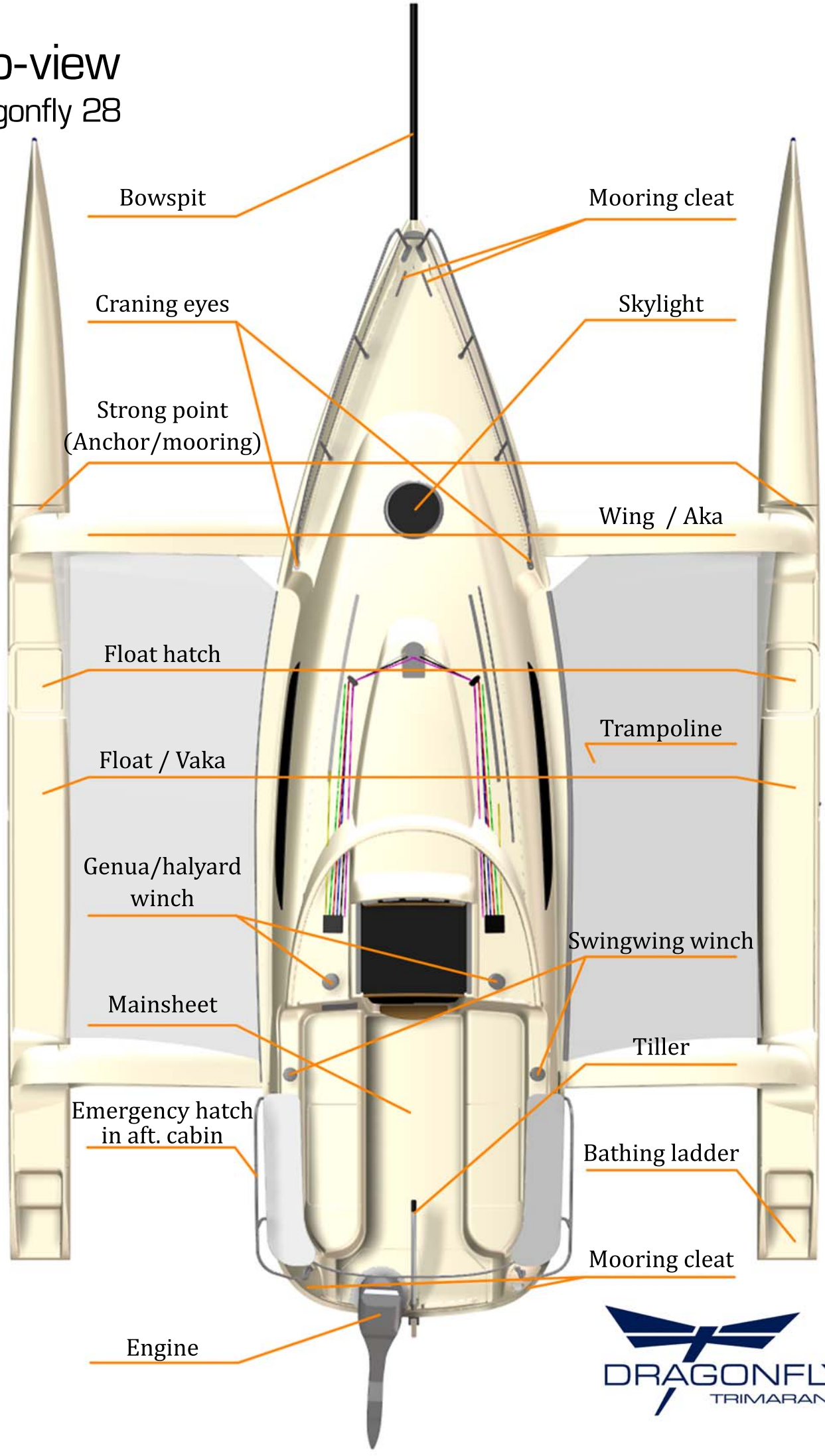
Length overall centre hull	8.70	m
Length waterline centre hull	8.60	m
Length folded	9.99	m
Length sailing	9.00	m
Beam sailing	6.50	m
Beam folded	2.54	m
Draft	0.40	m
Draft, incl. centreboard	1.70	m
Weight of standard boat, incl. sails and engine	2100	kg
Payload max, incl. crew	725	kg
Water tank	90	l
Holding tank (optional)	60	l
Engine, outboard	10 – 15	HP
Max engine HP	15	HP
Mast section total, excl. antennas	12.10	m
Mast height over water level	13.75	m
Mainsail	35	m²
Jib furling	19	m²
Code 0 furling	35	m²
Asymmetric spinnaker	65	m²
Bowsprit length	1.60	m
Trailer weight 3T aluminium	700	kg
Max total trailer weight	3,000	kg
Trailer weight 3T steel	850	kg
Max total trailer weight steel	3,000	kg
Trailer weight 3,5T steel	950	kg
Max total trailer weight steel	3,500	kg
Trailer weights are excl. PVC tubes and extra tires		

CE-Design category	B
Max No of persons in category B	5

CE-Design category	C
Max No of persons in category C	7

Top-view

Dragonfly 28

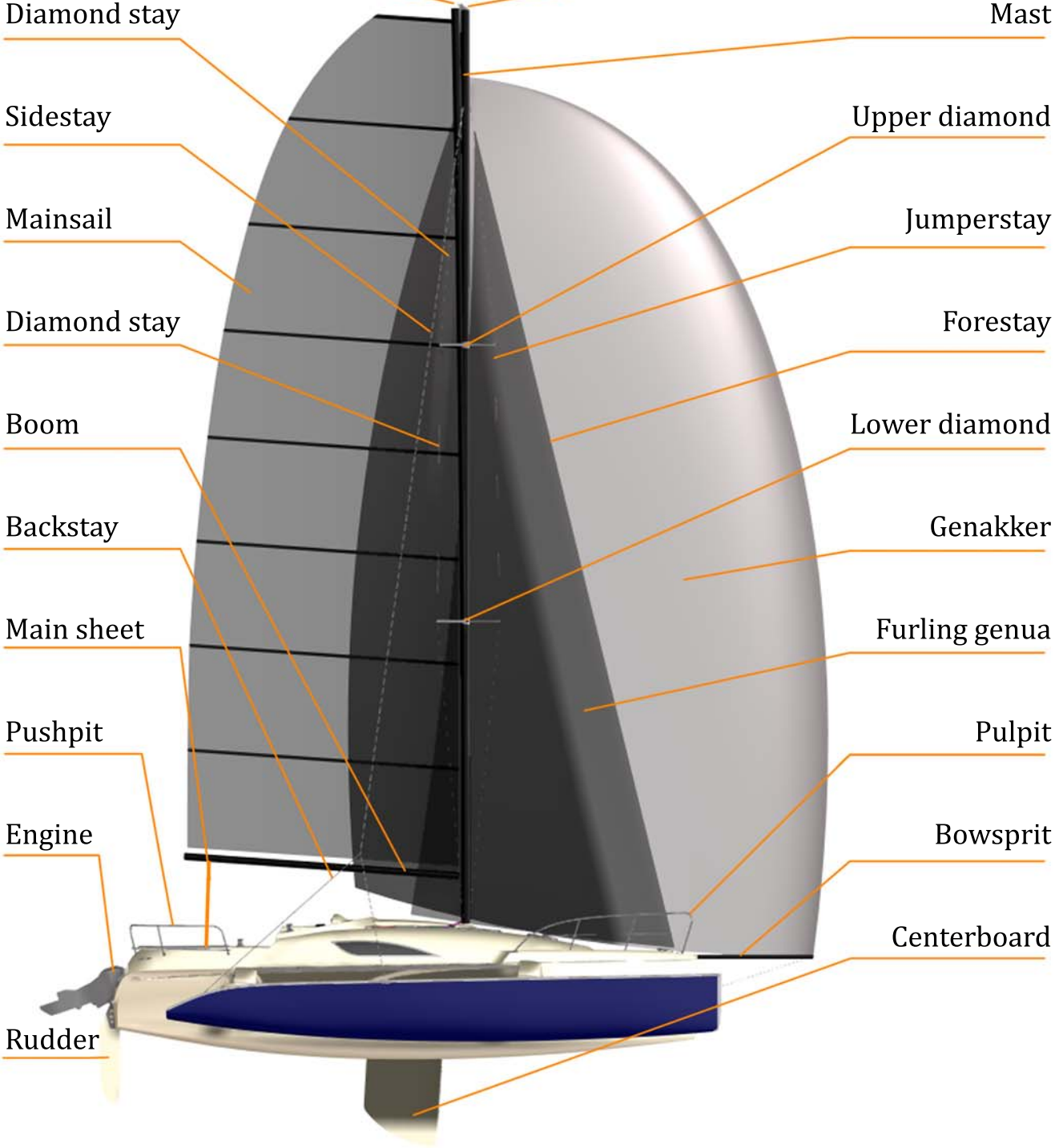


2017

DRAGONFLY
TRIMARANS

Side-view

Dragonfly 28



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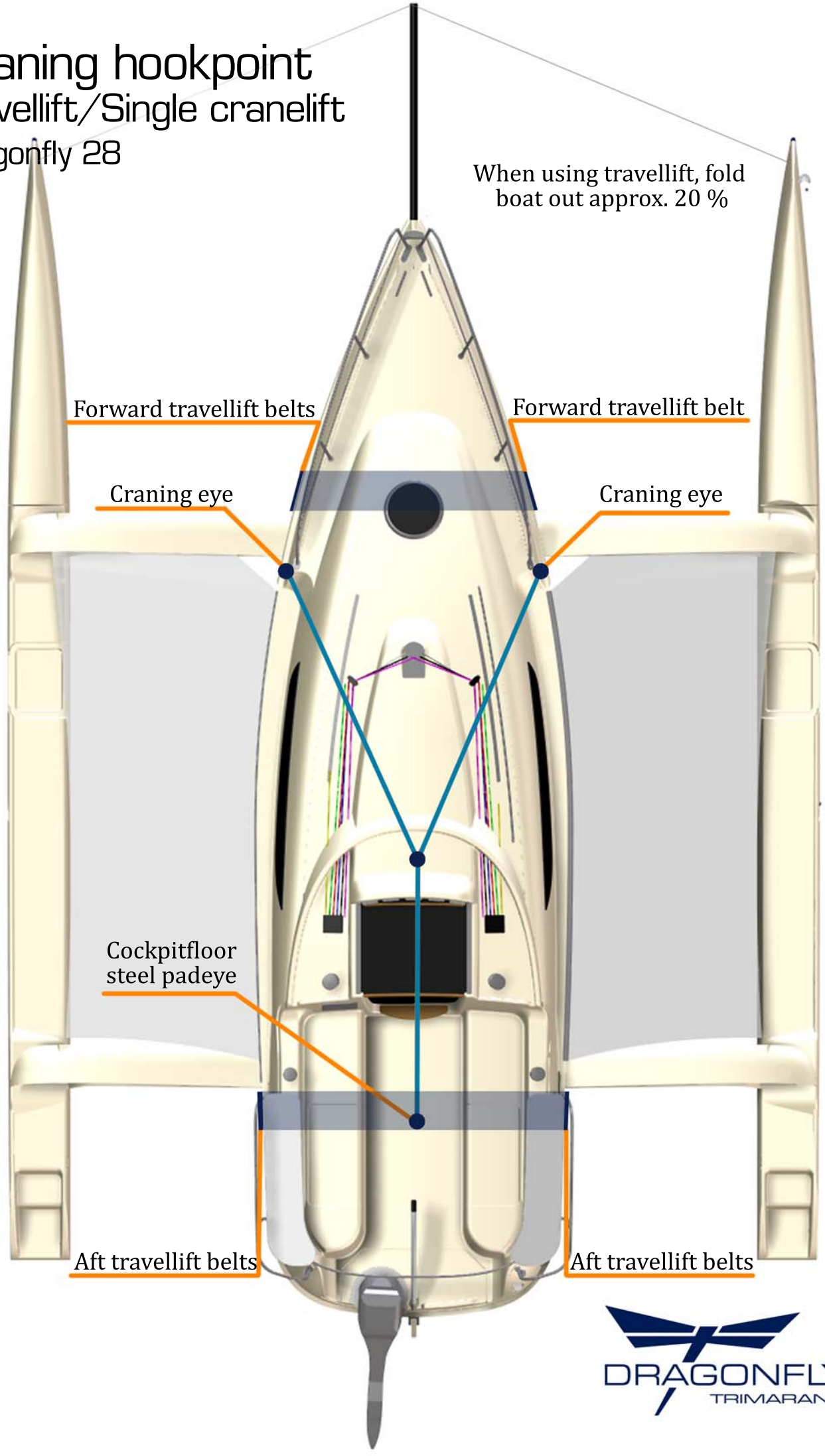
DRAGONFLY TRIMARANS

Craning hookpoint

Travellift/Single cranelift

Dragonfly 28



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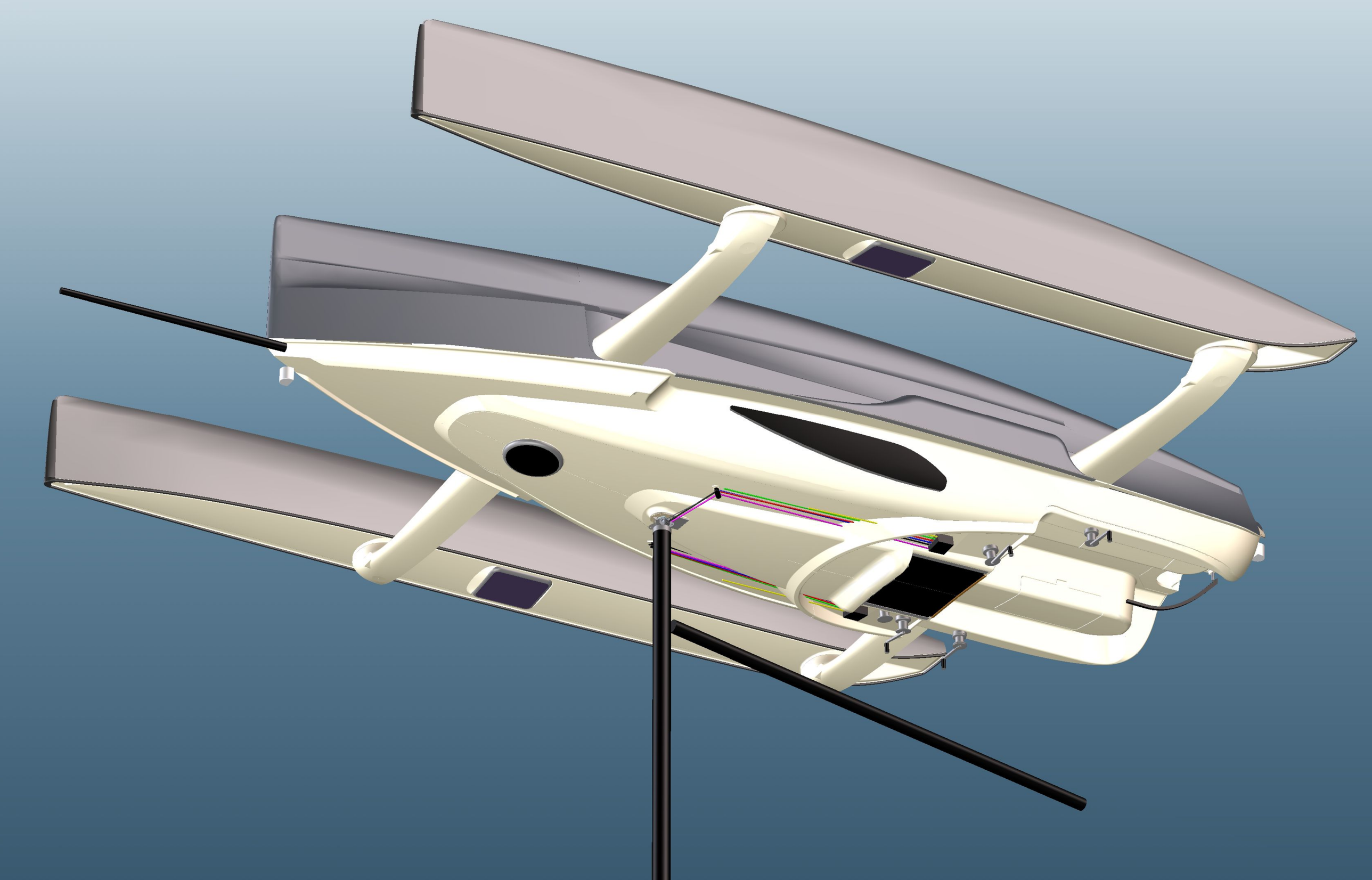
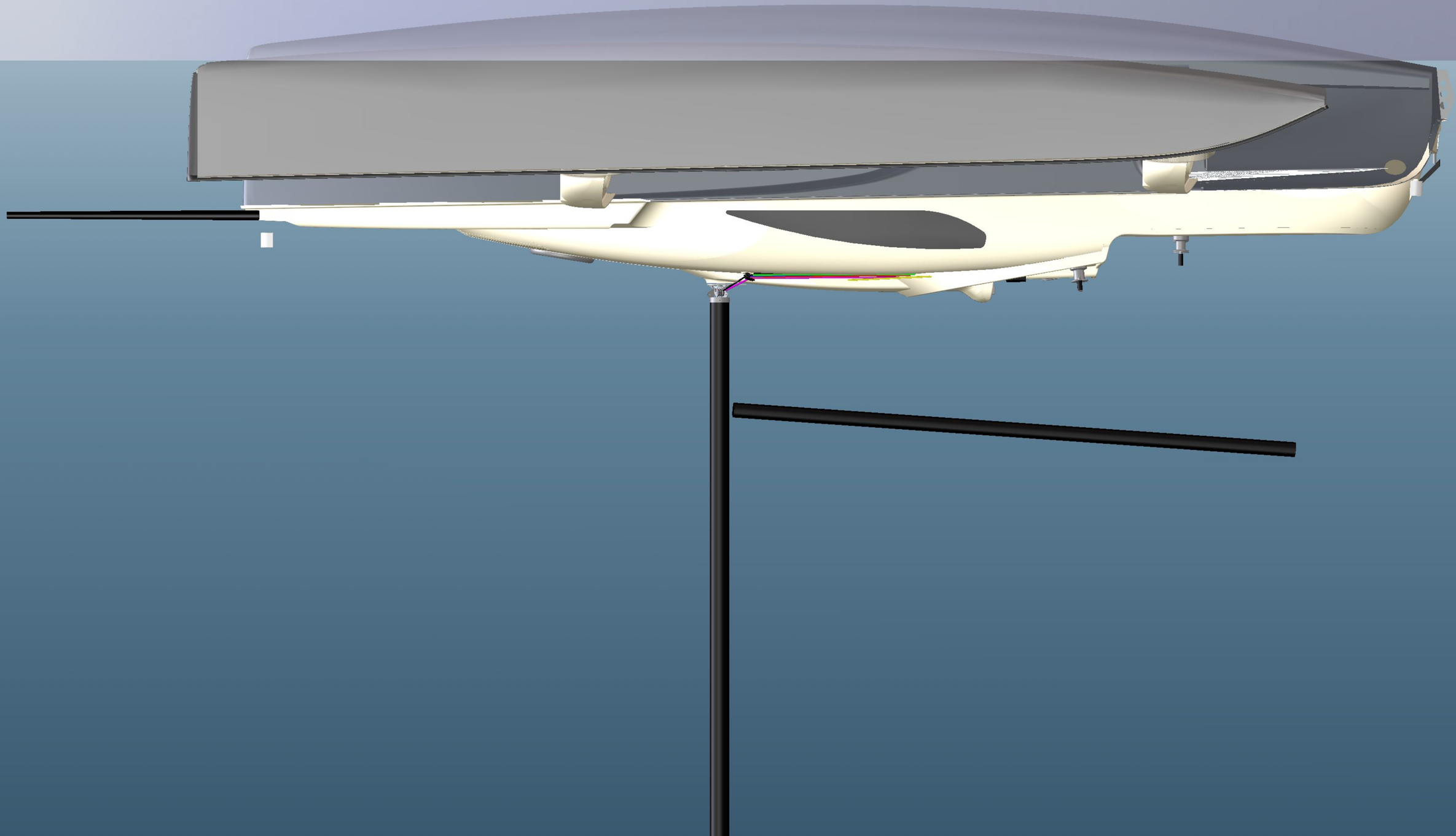
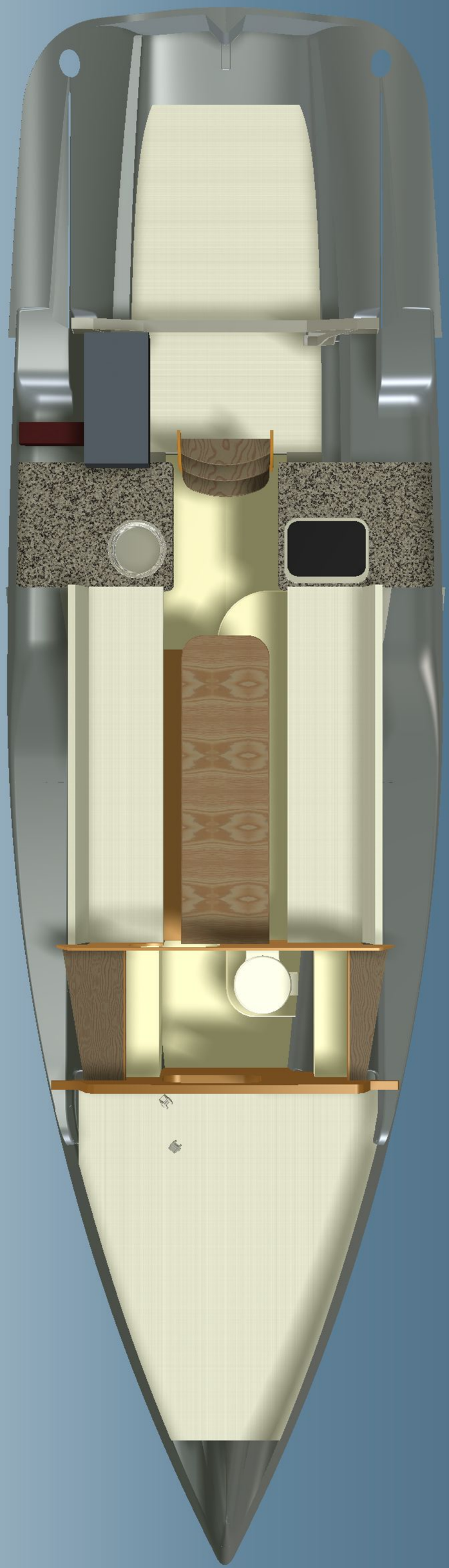
DRAGONFLY TRIMARANS







Information before you go sailing

- Check the weather forecast.
- Check water tank level.
- Check fuel tank level.
- Check the power on your batteries are adequate for the trip you are planning.
- Check engine oil on the engine.
- When starting up the engine, check and make sure that cooling water is coming out. If not, stop the engine and service it.
- Check that you have enough propane for cooking (only for longer trips).
- Make sure that all equipment is stowed correctly safe and has been secured well.
- Check that water stays and rigging are intact.
- Check that ALL hatches are closed – especially on the floats and very important also check the emergency hatch in centre hull aft cabin.
- Check that there are life jackets for every crew member onboard.
- If the boat is new, please note that electronics are not calibrated when the boat leaves the yard.

IMPORTANT NOTICE :

Beware of the following:

- Make sure that there always are lifejackets and/or life preservers onboard for the whole crew – and use them!
- Always as minimum we strongly recommend using lifebelts/harness outside the cockpit when sailing or even motoring at night.
- No persons are allowed on neither trampolines, wings nor floats when sailing offshore in strong wind conditions.
- High tension/voltage cables. Mast height above sea level is approx. 15.5 metres/50 feet – with no antennas.
- For long offshore crossings we recommend carrying a life raft in case of fire.
- For long-distance offshore sailing make/prepare a watertight bag with a bit of food, handheld VHF, knife, and necessary flayers in the smaller emergency locker under the SB side cabin window, that is also accessible from outside in case of capsize.
- In case of capsize stay calmly inside the boat. DO NOT try to dive out, as the risk of getting strangled in ropes hanging down in the water is too risky. You have easy access out via the emergency escape hatch in the aft cabin. Make sure to store cutting device (knife) inside and outside accessible.
- By long distance sailing, make sure that all on board are aware of the above-mentioned procedures.
- For long distance sailing, make sure to have up-to-date flayers and other safety devices, like Epirp etc.
- For offshore sailing, store flares, knife, flash light, Epirp, handheld VHF, a bit of water, in the emergency compartment behind SB-sofa in main cabin.

- Please be aware that the trampolines can be slippery when wet, and/or in cold conditions. Further, the trampolines are extra slippery when not pulled tight enough.
- Never walk or be on the leeward trampoline, and/or on the leeward float when sailing upwind and beam reach in +8 knots true windspeed.
- In strong wind conditions, we recommend staying on the center hull only.

WE RECOMMEND:

If this is your first multihull we highly recommend before ”taking command” to get some training in controlling the boat while sailing as well as motoring (manoeuvring) to ensure your safety and comfort. Your dealer will give you this basic information. We strongly advise when receiving the boat, that you get to know the boat well first under easy calm controlled conditions, especially also manoeuvring the boat under power, maybe also try this out in ”open” water first using a fender or similar floating device and manoeuvre the boat around this floating object, get to learn how the boat turns, stops and how it manoeuvres in reverse etc. This is a very important exercise. This boat is not more difficult to handle than a conventional yacht and many times easier, due to the engine is turning together with the outboard engine but it behaves differently than conventional yachts.

IMPORTANT:
When the boat is folded, the boat and propeller are lifted 8 to 9 cm higher and, when folded, the propeller here has less effect. Test this out well in controlled conditions, so you really get familiar with this. For your information, a 10 HP engine can only motor against the wind in up to max 22-24 knots on flat water and against waves only up to max 20 knots of true wind speed.
The 15 HP outboard engine can motor against wind up to 30 knots wind on flat water and in waves up to max 25 knots of true wind.

If you need to motor against strong wind, we recommend assisting with only a bit of headsail as this will help to get more power.

We do not recommend to go sailing in more than 5 Beaufort or 20 knots of true wind, before you know the boat well.

IMPORTANT:
Always before taking the boat out: Pull down the centre board for better manoeuvring. And again, check that float hatches and the emergency hatch are closed safely!
Never motor with sails up in harbour/marina areas.
Always stow sails safely down before entering the harbour/marina.

CLASSIFICATION:

The DRAGONFLY 28 is classified according to the CE-standards in category .
B = max 5 persons
C = max 7 persons.

For CE-certification category B you can sail offshore with max 5 persons onboard, during the wind may rise to max 8 Beaufort (40 knots/20 m sec of true wind) and waves may rise to max 4 m significant wave height.

For CE-certification category C you can sail offshore with max 7 persons onboard, during the wind may rise to max 6 Beaufort (30 knots/15 m sec of true wind) and waves may rise to max 2 m significant wave height.

The craft is classified for the CE by notified organisation (body) IMCI No 0609 under the design module Aa – internal factory control and external control of buoyancy, stability and flotation.

Sails must be set according to our wind/sail diagram – please see part 6 of this manual.

MANOEUVRING AND MOORING and RECOMMENDATION :

IMPORTANT NOTICE

Wear your lifejacket
In heavy weather wear the safety harness on deck at all times
Make sure to have functional lifejackets for the whole crew
When sailing in windy conditions, stay on the centre hull only

Minimum four mooring lines, of adequate dimensions (min 12 mm x 12 metres) and suitable for the environment should be on board.

- Always only manoeuvre the boat with the engine in harbour areas – no sails up.
- Handle the boat consistent with the current and wind.
- Protect the boat with suitably-sized fenders.
- Always keep the ropes unfold and home.
- Handle the boat at slow speed – in harbour 2 to 4 knots.
- Beware it can be difficult to stop the boat downwind – especially when the boat is folded, where the propeller is higher and closer to the water surface.

DANGER
Never try to stop the boat with your foot, your hand or a boat hook.

When taut:

- Protect the ropes from chafing with plastic sleeves.
- Make allowance for the tide, as the case may be.
- Make sure to use spring lines before you leave the boat alongside a dock.

PRECAUTION

- Be well acquainted with the boat before going sailing in more than 5 Beaufort (20 knots – 10 m/sec).
- Learn to handle the boat well under power to make safe harbour manoeuvring – note that sometimes it can be difficult to stop the boat in reverse downwind folded.
- Be aware that the boat maybe can capsize in folded condition by winds exceeding 9 Beaufort (40 knots – 20 m/sec). In that case secure sideways the stability with one halyard to each side, or fold minimum leeside float out.
- We do NOT recommend leaving the boat folded on a mooring or at anchor.
- Never let the boat dry out in folded position, as the ground may be out of level.
- The boat is at <u>all</u> times always unsinkable. If anything should happen, always stay with the boat.
- In case of capsized position the boat will stay afloat approx. by the middle of the sofa back cushion, if the floats are intact.
- Never access the leeward float or trampoline when sailing in more wind than 10 knots true wind.

SAILING BY AUTOPILOT:

- IMPORTANT - depending on wind and wave conditions, using Autopilot in winds exceeding 10 m/sec (20 knots) true wind is difficult and not recommendable.
- Autopilot can be used in stronger winds, but only when reefed even more conservatively than the sail to wind diagram.
- Quorning Boats cannot be held responsible for any damages or problems caused by sailing using Autopilot, as this at times can be unreliable.
- When using Autopilot, keep a good look out, as this boat moves faster than other conventional yachts – not all other yachts are familiar with how fast these boats can move.
- Make sure that your Autopilot has been calibrated before use.
- The Autopilot is not calibrated neither from Quorning Boats nor from the shop, where you have bought it.
- Always, sail more conservative and with less active sails when sailing using autopilot.
- We do NOT recommend sailing with spinnaker and autopilot at the same time unless you go deep downwind.
- **Check always you have enough power on the batteries when using autopilot.**

IMPORTANT INFORMATION ON THE RIGGING:

- Always check the rigging, halyards, reefing lines, water stays, rudder downhaul and Swing Wing system before taking the boat out to sea.

- Every 6 months or minimum once a year shorten the main halyard and reefing lines approx. 25 cm. if needed. After some years, you can turn them around or replace the lines.

- For the Touring and Sport version, we recommend changing the water stays after max 10 years and/or by max 15.000 NM of sailing. Use only same products and quality when changing. The water stays are made in 10 mm Dyeform quality.

- For the Performance version, we recommend changing the water stays after max 7 years and/or by max 10,000 NM of sailing – use only same products and quality when changing. The water stays are made in 10 mm Dyeform quality.

- Side stays and forestay must be changed after max 10 years and or by max 15.000 NM.

- Standing spreader rigging on the mast must be changed after max 15 years.

- Never use shackles or similar on the boats man chair .

- NEVER climb the rigging when the boat is in folded position.

- Tension on the rigging, please see rig diagram.

- Never change the tension on the spreader diamonds without checking tension with a tension meter according to rig tension diagram, changing the rig tension can cause the mast to break.

- Never drill holes in the carbon mast section without asking your dealer or Quorning Boats beforehand.

- Never wrap the mast in any plastic, as this can cause the paint to bubble up. If wrapping is needed, use only breathable textile materials.

- If rigging and diamonds are taken apart for the winter, mark all parts and the exact position of the turnbuckles so exact same tension can be set again.

- By releasing tension on the diamond cables, this will affect the stiffness/safety of the mast and can cause the mast to collapse, so don´t the tension.

Operating the Swing Wing system

Important: Max tension on the backstays is ONLY what one person can pull by hand.

By sailing in hard wind and wave conditions the leeward backstay will get slack – but only pull this slack by hand in leeward side – never use the winch to leeward, as this can put too much tension on the rigging and cause rigging failure.

The Swing Wing system must not be operated in winds exceeding 8 m/s or 16 knots by true wind speed in open areas and max. wave height of 0.2 m.

The boat will stay stable folded in a marina slip, as long as waves are max. 0.2 m and wind speeds from the side do not exceed 20 m/s or 40 knots of true wind speed. If higher winds are expected, either make sure the boat faces into the wind or down-wind , or secure the mast sideways with halyard to both sides on the dock, these can be set slack to make room for some tide – or even better fold the leeward side out if possible or best both sides folded out - or, in worst case (like heavy storm or hurricane warning), take the mast down or move the boat to a place, where it can be folded out. Or, take the boat out of the water, take the mast down and secure the boat well on dry land.

- Never keep the boat folded on mooring or at anchor.
- Never let the boat dry out in folded position.
- Never hoist any person up into the rigging when folded.
- Never set sails when folded.
- Only use the Swing Wing system in harbour or wave protected areas.
- Never have people on the wings, floats and or trampolines when folding in.

On dry land never fold out the floats by using the folding system only. On dry land you have to push by hand the float approx. half the way out, before you winch it out with the Swing Wing system. This is due to the fact that the floats are missing their water buoyancy.

When folding in on dry land, it is very important to hold the "fold-out" line in your hand to control that the float does not fall in/down by itself against the main hull. This can damage the boat, and or people around the boat can be injured.

VERY IMPORTANT:

ALWAYS remember to install the safety cable on the aft wing after having folded out. If not, the boat can collapse while sailing, if the Swing Wing system for some reason fails.
Also remember to release/undo this safety cable – BEFORE you fold in.

IMPORTANT:

The Swing Wing system must only be used in protected harbour areas. Any use elsewhere at owner's own risk.

- ALWAYS use the Swing Wing system WITHOUT SAILS. The sails must NEVER be hoisted when the floats are folded in, or when operating the folding system.

- ALWAYS stow the sails safely BEFORE you start operating the Swing Wing system.

- ALWAYS point the boat into the wind when operating the Swing Wing system, and, or even better point downwind in strong winds.

Example of operating the Swing Wing system – the boat is folded out and must now be folded in:

1. Release and unhook by hand the safety cable snap shackle on the outside aft wing by the float and always stand on the float when doing this.

2. Prepare the endless Swing Wing line by the double block on the cockpit coaming. Release the backstay line slowly on one side. Hold the backstay line tight in your hand when releasing, as you may burn your hands due to the sometimes high tension here.

3. No persons are allowed on the trampolines, the wings or the floats while operating the Swing Wing system. Also slack of spinnaker sheets, barber haul lines, and most important the preventer line.

4. REMEMBER only to use the lines coming up from the double block in the cockpit coaming for the Swing Wing system. The outer line is for folding out and the inner line is for folding in. Check that these lines are not twisted or jammed, before winching. Now open the double halyard stopper/jammer in the cockpit hand locker, both handles at the same time (the handles are bolted together as one handle), you will experience a big bump but that's ok.

5. The system is now open and you use the fold in line via the self-tailing which on the cockpit coaming – you can also pull the first half in by hand normally - use the winch and the winch handle for the rest. As the lines is endless, make sure ALWAYS that the foldout line runs easily free to avoid "kinks". The float is now ready to be pulled in, and when the float is folded in, the float is now in position. Normally on new boats we have made a black marking on the folding line to inform approx. when the operation is completed. You must now lock the double jammer again to secure the Swing Wing lines and float in position. Then you can adjust the backstay by setting it hand tight after having folded BOTH sides.

6. Then fold the other side the same way.

7. To fold out the boat, the procedure is the same – just reverse. Make sure though that the various lines are NOT jammed between the wings and the hull. Normally when folding out, you can pull the float almost all the way out as the buoyancy of the float is forcing the float out, and always pull by winch the rest - also to make the trampoline tight – pull the line tight and close the double jammer.

8. In case the boat does not fold or unfold easily, do not use power on the winch – most probably some line has simply been jammed somewhere.

9. Make sure there is no sand or dirt on the sliding wing areas on the floats. If you for example just launched or berthed, you should rinse with a bucket of water or seawater over each saddle to clean the surfaces for sand. Should the system after some time start squeaking, then use Teflon type spray or similar on the sliding surfaces on the floats. Mc Lupe from Harken is good.

10. Take note that the boat is more instable when folded.

11. Do not make sharp turns when motoring in folded position.

12. When motoring in folded position, avoid sideway waves.

13. Only motor in protected areas and beware of power boats that can easy make bigger waves than 20 cm high.

14. In protected areas, max. motor around in 12 m/s (24 knots) of true wind.

15. If you have enough space don't fold all the way in and may leave the float out for fx. 20 cm (8") or a bit more – on both sides as this will make the boat a lot more stable – or just fold in one side if needed.

Note:

Regularly check that the Swing Wing cables and lines are OK. Normally, the Swing Wing lines and cables should be replaced after 3 to 5 years – depending on the use of the boat.

If you end up with other on your outside hull, this must be folded fully in and you can have up to 3 other boats on your side.

When folded always use the cleats on the centre hull and only fasten spring lines on the floats if necessary. It´s only the fold in line that holds the float in to the centre hull.

Swingwing-system

Dragonfly 28

End of line

End tied to block

Wing stop cable

Prevents folding out too far

Safety cable

Prevents folding in while sailing

Swingwing line

Fold in - 8 mm Dynema - 23 m long, endless

Swingwing lines

Fold out - 8 mm Dynema, same as fold in

Rope clutches

Dubble rope clutch

End of line

Line tied to hull

Snap shackle

Locks safety cable

DRAGONFLY TRIMARANS

2017

Launch and assembly information

STEPPING THE MAST:

Quorning Boats ONLY recommends stepping the mast by yourself when using blocks, lines and special supports, that are optional equipment supplied by Quorning Boats. If a crane is available, we recommend using this. The mast can be stepped on the boat, but at owner's responsibility using this handbook as a guideline to raise and lower the mast.
On our website WWW.DRAGONFLY.DK there is also a full video of stepping the mast and other launch info like also mount sails etc.

FORESTAY AND SIDESTAYS:

Forestay and side stays are mounted in the same stainless fitting on the mast, where the three upper diamond stays each with an 8 mm Quicklink is installed. Over these you find 3 open holes where you install the forestay in the centre eye and the two side stays one on each available fitting – and this 8 mm Quicklink on the side stays has to be secured and tightened with a "key" No 14 and best with some Locktite.

SETTING THE GENOA :

Before hoisting the genoa, make sure to roll some furling line on the furling drum. Turn the head foil clockwise until you have about one metre (approx. three feet) line left in the cockpit. This way you are able to furl the genoa at once when the Genoa is hoisted. The luff is mounted by the shackle over the furling drum. Tension is adjusted via the Genoa halyard in the cockpit.

MOUNTING THE MAINSAIL:

The mainsail is placed either on the mainsail boom between the lazy-jacks and or just on the trampoline. Start from the top of the sail. Make sure the boat is facing into the wind. Mount the top of the mainsail to the upper top double batten car on the mast. Then hoist the mainsail to the next batten car, fit the next batten car etc. etc. Please note that on the top first sail batten, the link to the batten car is mounted with the nut facing DOWN – and on all the others the nut is facing UP.

Remember to fit the two reefing lines in the mainsail sail.

By taking the mainsail off again NEVER take any off the batten cars off, as all the balls will fall out.

IMPORTANT
The reefing line in the back end of the boom comes out from a sheave and through the block in the mainsail leach (backend) and is now tied with a bolden knot around the mainsail boom, in FRONT of the mainsail webbing, so the reefing line does not slide back out. It is also easier to fit the mainsail cover when the sail is up or before the mainsail is installed.

CUNNINGHAM:

For Cunningham on the Sport and Performance version, you can use the green reef II line as a Cunningham by pulling the reef II line through the webbing eye in the mainsail the you see about 30 cm up the luff and pull the now double reef line through this webbing eye and fix the reefing line into the clam cleat on the port lower side on the mast. Fix the part of the reefing line that goes back to the halyard stopper in the cockpit.

Only use chock cord type sail ties to roll up the mainsail when reefed.

LAUNCHING FROM TRAILER:

This launching process can be seen on the Dragonfly 28 website

IMPORTANT
Beware of high tension wires etc. when towing the boat around. Especially with the must in upright position and neither Quorning Boats nor your dealer can be held responsible for this.

Only use a slip or ramp with solid ground. The boat can only be launched when folded in.

If the slip or ramp has less than 8 degrees heeling, the boat will not roll off by itself and will need extra manpower to get off the trailer.

Remover the back lightbar on the trailer.

Before launching the boat, make sure that everything is completely in order, for example that the motor is mounted and ready to start up and that the rudder and centre board are fixed in upper position, doublecheck that the depth and speed transducer is mounted so water does not get into the boat, have mooring lines ready etc. Be careful of wind and current from the side – have the fenders ready.

You now drive the boat down the slip, but only so the rubber on the tires and not more is in the water. Do not launch with too much side wind and waves.

The same procedure but in reverse order goes for taking the boat out of the water.

Never launch or drive down a ramp with green wet slippery seagrass, this may cause the trailer and the car to slide into the water.

VERY IMPORTANT
It is EXTREMLY important that the boat goes straight in and out on the trailer – in the centre!!!! Check when launching or pulling the boat out on the trailer, that the back folding ramp on the trailer is free to pivot – VERY important.

LAUNCHING WITH A CRANE:

If you are unable to launch from the trailer, a travel lift or a crane with lifting straps can be used carefully by putting these around the centre hull only from side to side just in front of the forward wings and behind the aft wings to lift the boat. You can do this only when the float is folded a bit out or even more – NEVER use lifting straps around all 3 hulls.

As an option, Quorning Boats can supply a 3-point lifting system.

The balance point is approx. by the garage (the front part of the companionway), where the instruments are.

SAILING TIPS:

MANOEUVRING IN HARBOUR

If the water is deep enough, always sail or motor with the swing keel DOWN for better manoeuvring. The boat manoeuvres well in folded and unfolded position. By turning rudder and motor full over at the same time, the Dragonfly 28 is actually almost able to turn round its own axis. This fact is important to know in a difficult situation. Remember the boat is light and by wind it drifts easier than a conventional yacht.

In full marinas, you can use the shallow draft to moor where nobody else can go. If you find room in a normal small berth, always enter with the bow in first to the dock, as the floats are 1 metre longer aft than the main hull when the boat is folded.

When motoring, only have the rudder fully down or fully up – if the rudder is halfway up, it can/will touch the propeller and get damaged.

MAST STEPPING/RAISING PROCEDURE:

Please note the following:

- Beware of power lines and similar when stepping the mast and while moving the boat – both on water and on wheels.
- Stepping the mast is on owner's responsibility and risk.
- When stepping the mast, make sure no persons are present in the direction, where the mast can fall – neither on the ground nor on the boat.
- Never climb the mast, when the boat is folded in – neither on water nor on land. Only climb the mast when the boat is folded out on the water. Or, on land, when the boat is folded out and supported sideways.
- Only use equipment to step the mast supplied by Quorning Boats .

Stepping the DF 28 mast – Touring or Sport version – using Dragonfly 28 mast raising kit-system (optional equipment).

Following equipment needs to be present:

- Handbook with guidelines whereas how to step the mast.
- Stainless mast base mast pivot fitting.
- Mast support in cockpit with roller on top.
- SB-side deck stainless mast support tube with the two rings on top.
- One pole Ø 50 mm (mast support).
- One pole Ø 40 mm (boom support).
- Two single blocks (working load 700 kgs).
- One up-/downhaul line (8 mm 25 m).

MAST STEPPING PROCEDURE:

Please follow this procedure step by step. You can also see the mast stepping process on our website WWW.DRAGONFLY.DK under DF 28 videos, where you will also see other tricks and tips for launching and setting sails.

Do not step the mast – using this system – in winds exceeding 16 knots true wind. However, stepping the mast up to 20 knots true wind is possible, IF only the boat is turned up into the wind or down off the wind, so there is no sideway wind pressure.

You can step the mast while the boat is on the trailer. Or, as an alternative, step the mast when the boat is launched. This is recommended, as it is easier to reach the mast in both ends – especially if you can arrange the mast to reach the beach aft of the boat or a dock. BUT you need calm waters to do this and NO waves at all.

If you step the mast when the boat is in the water, we strongly recommend opening ONLY the SB side float – port side float MUST be folded in, to prevent the mast from falling forward

when stepping the mast, as the port side stay is facing more backwards now when folded in. You can also step the mast in the water with both hulls folded in – is also fine.

THE MAST IS NOW ON TOP OF THE BOAT, AND THE BOAT IS EITHER ON THE TRAILER OR IN THE WATER.

We basically only recommend two persons to step the mast to avoid misunderstandings. One person can actually do this mast stepping job alone, but it takes a bit longer time – two is best. 3 is maximum and more people is NOT to be recommended.

- Install the separate stainless mast base pivot fitting and secure this with the 8 mm bolt and nut. Leave it in upright position. Make sure all halyards are slack at the mast base.

- Roll the mast about 1.5 – 2 meter forward for better access to the top of the mast and fit the Windex and/or wind transducer or VHF antenna etc. on the top of the mast and pull the main halyard, genoa/jib, and spinnaker halyards down. On the Sport/Performance version also pull the Code-O halyard down.

- Now install the two side stays, just above the side diamond stays in the spare hole. Secure the Quick-Link that you install the side stay with – best also using Locktite and tighten it hard using a tool, key No 14. Again tighten this Quick Link hard.

- When stepping the mast you MUST also install an extra 8 mm Quicklink on both float side stay fittings and side stay Toogle (on the forkterminal that normally is installed on the float sidestay fitting) both on Port and SB side. This is to make sure you can get the forestay installed easy as the side stays are very tight, especially when the boat is new and the floats are folded in, and after one season of sailing the side stay will stretch a bit and get a bit longer. REMEMBER later that after the mast is set and all is well and fully installed, then at some stage fold the floats out, first one side and remove this extra 8mm Quicklink and thereafter the other one – this is also informed later in the manual.

- Fit the forestay on the front of the mast just above where the forward diamond stay is attached. Make sure to secure this with either Locktite or tighten it hard using a tool, key No 14. Again, tighten this Quick Link hard.

- Pull down ALL the halyards somewhere around the lower part of the mast.

- Now you can roll the mast backwards aft of the boat on the special mast support with the orange roller on top. This is possible to do by one person, but it is best done with one person more, who can make sure that nothing jams and who can also hold the forestay while rolling the mast aft – be careful that mast support back in the cockpit

stays stable and does not tilt over. Roll the mast back slowly and again it works out best if another person is holding the forestay in the moving process.

- When the mast foot on the mast aligns with the mast base on the deck, you can push the mast down, by sitting on top of the mast and push the mast into the mast base pivot fitting and secure it with the one locking pin. When installed correct, there is a piece of stainless coming out and sticking up over the mast section with an eye for the mainsail boom later on. Now the mast is fixed in position and you can step off the mast.

- Install the side-deck stainless support pole on the starboard side cabin walking deck (optional equipment), where you screw the support pole into the side deck fitting, so the support pole is vertical (not into the 45° angled water fill fitting). The two top stainless O-rings has to point fore and aft – on boats build in 2017 and thereafter there is a locking system to prevent this stainless tube to turn.

- Take the big and longer Ø 50 mm aluminum mast support pole and click it into the stainless hole/eye on the lower spreader on SB-side and thereafter into the aft/back ring of the two stainless rings on stainless support pole on the deck. Now the mast is supported sideways. Double check now that the end fittings on the aluminum pole are fully locked.

- Take the mainsail boom and fit the forward gooseneck end on the mainsail boom to the mast pivot fitting end that is sticking up from the mast base on the mast. Just secure the boom with the bolt on the mainsail boom. Just rest the other end of the boom on the pulpit.

- Mast-raising block and pulley system! Secure the single line block with a snap shackle in the stainless eye on the underside of the boom (just in front of the mainsheet webbing). Then fit the other mast raising block where the line is installed with a knot, install this snap shackle block at the stainless-steel lead by the forward SB-pulpit foot by the deck level. Then lead the line (25 m of 8 mm line) over the coach roof through one of the available halyard stopper and to the SB-side deck winch (through the cutout under the sprayhood trim).

- Now take the spinnaker halyard and fit/install this at the bigger shackle at the end of the mainsail boom – NOT at the very end of the mainsail boom but at the shackle where the mainsail outhaul line is secured to.

- Install the smaller aluminum boom support pole onto the forward eye of the stainless side support pole on the deck and then lift the mainsail boom and move it a bit to port side. This sideway aluminum support pole will now fit into the stainless folding eye on the side of the mainsail boom. Double check that the end fittings are locked. Now you can lift the mainsail boom to an upright position and secure the boom fore and aft with the spinnaker halyard, and please fasten and secure the spinnaker

halyard on the mast fx. boom fitting with a safe and secure knot, and then pull the forward pulling line by the SB coach top winch. After this, please adjust the boom so it points about 10° backwards or approx. 1,5' (50 cm) at the top of the boom to allow the spinnaker halyard to stretch, so the mainsail boom will clear the pulpit when the mast is up.

- IF THE BOAT IS FULLY OPEN AND FOLDET OUT, secure the mast backwards by fastening the main halyard fx. to the back/aft mooring cleat and make sure that the main halyard is completely fully installed at the mast base and back to the jammer/clutch on the SB side cabin top. With the main halyard, you can now hold the mast backwards when the mast is set at the almost final position to prevent the mast from falling forward as the side stays are VERY slack when both floats are fully open – if you forget this, the mast WILL fall forward – therefore we always normally only step the mast with either both floats folded in or only with one float folded in.

- Before setting the mast, make sure to tie up electrical cables to the mast, so they do not get damaged between the mast and the mas base when stepping the mast.

- Now the mast raising system is all set up and ready. Please check again that all procedures have been followed so far correctly.

- Make sure that no person are present in the direction, where the mast can fall down, in case this should happened.

- We recommend that one person holds the forestay on the port side of the boat, so it does not get damaged or will scratch the boat.

- Now you can start pull up the mast gently and slowly on the SB side cabin top winch using a winch handle. Just take your time – no stress – ALLWAYS check that the sidestays aft do not kink or jam fx. on the backend of the floats– this often happens.

- When you start to pull up the mast, you need some strength/power (not a problem) but you will realize that the higher up the mast comes, the much less force you need to lift the mast, so again take your time, and do it slowly – especially slow when the mast is almost upright.

- When the mast is almost up, again check carefully that the side stays has no kinks on the deck of the float and further up on the side stay where the side stay has a Quicklink to assembly the lower and the longer upper part of the side stay. Also look up on the mast that the side stays look normal where these are fixed to the mast – these Quicklink can jam or twist here and result that the mast does not get all the way up, if the forestay is much too short, check this.

- Check that the mast base on the mast is in correct position and fully down in correct position when the mast is up, before fixing/mounting the forestay, if the mast is not

fully resting down and touch the mast base on the deck in the center, just twist the mast from side to side by holding on to the side diamond stays – and twist from side to side and normally the mast will “fall” down to its correct position.

- When the mast is fully up, just pull enough in the mast raising line and fix this line in the halyard stopper /jammer on the cabin top, so you now can get the forestay bolt fixed in position and secured. Make sure to install the old fashion Cleves pin here with the 2-leg locking pin and these pins must both be twisted for safety and taped well.

- And now – it is time for a beer!!

- To finish the process, remove the aluminum mast support in the cockpit.

- Remove the big spinnaker pole that support the mast, if this is a bit tight, then just pull a bit by hand in one of the side stays to take off the tension on the spinnaker pole – and now it´s easy to clip off.

- Then remove the smaller pole on the mainsail boom, so now you can actually leave the spinnaker halyard on the mainsail boom and now just swing the mainsail boom around and back in the normal boom “position” and fix the mainsail boom to the mast at the Gooseneck mast boom fitting.

- Before you go sailing it is VERY IMPOORTANT to unfold the floats, one at a time, then take the spinnaker or Code-O halyard and fix this to the aft Wing (Aka) and just tighten this halyard easy by hand only, so you can now undo the side stay away from the float side stay fitting so you can remove the 8mm Quicklink that we asked you to install during the mast stepping process. The same goes for the other side .This Quicklink is no longer necessary and MUST be removed before you go sailing.

- Make sure to install the Backstay line and block system before you motor and or sail away from the dock. This is also very IMPORTANT.

- May we strongly recommend you and the persons who help you stepping the mast to put your phones completely away so you only focus on this process only. We have seen people forget things in the process due to mobile disturbance. Thank you.

Sail and trim tips

SAIL DIAGRAM – RECOMMENDED SAILS TO WIND SPEED

DIAGRAM OF SAIL AREA TO TRUE WIND SPEED:

m/sec.	Knots	Beaufort	Upwind and beam reach
0-7	0-15	0-4	Full main + full genoa
8-9	15-18	5	Main 1 reef + full genoa
9-11	18-22	5+	Main 1 reef + genoa 1 reefs
11-12	22-24	6	Main 2 reefs + genoa 2 reefs
13-16	25-32	7	Main 2 reefs + genoa 3 reefs
17-20	32-40+	8-9+	Main 3 reefs + genoa almost completely furled

(Standard mainsail has only 2 reefs)

m/sec.	Knots	Beaufort	Downwind below 120° TWA
0-7	0-15	0-4	Full main + full genoa or spinnaker
8-10	15-20	5	Full main + full genoa
10-12	20-24	6	Main 1 reef + genoa 1 reef
13-16	25-32	7	Main 2 reefs + genoa 2 reefs
16-20	32-40	8-9	Main 3 reefs (or no main) + genoa 3 reefs (or less
20+	40+	10+	No main + almost fully furled genoa

For an inexperienced crew we do not recommend sailing in more wind than max 16 knots or 4 Beaufort. For people with normal sailing experience, we only recommend sailing in max 6 Beaufort (24 knots). For experienced sailors, we recommend sailing in max 8 Beaufort (35 knots). For sailing in more than 8 Beaufort (35 knots true), this takes really good experience and expertise.

Please note that 3rd reef in mainsail is optional – not standard.

We must strongly advise to respect this sail/wind diagram for safe handling and sailing. Of course the boat can handle more by experienced sailors, but this is fully at owner's own risk.

IMPORTANT:
Beware that by sailing from 8 m/sec (16 knots) true windspeed and up, attention to sailing is really required. If pushing the boat hard or sailing in areas with gusting wind, the sheets must at all times be held in hand for quick release. Especially, beam reach and downwind sailing requires full attention. At beam reach or deeper downwind sailing, if a critical situation appears, always bear off the wind very quickly, this is a very efficient way to depower the boat quickly and safe – but bear off the wind QUICKLY.

IMPORTANT:

If this Sail-Wind diagram is not respected, Quorning Boats ApS and dealers cannot be held responsible for boat, crew and/or gear. Beware that the boat can capsize if not handled correctly.

SAILING AND TRIMMING:

IMPORTANT
It is of great importance to keep your sheets and halyards tidy when sailing because all lines come to the cockpit. This is an important safety factor and improves the joy of sailing.

MAST TRIMMING:

The mast is always set in one trim position from the yard, but generally the mast may bend approx. 5 to max 7 cm over the full length. When holding a line to the aft end of the mast ends, the distance to the mast should be approx. 5 to max 7 cm = 2 or 3".

TRIMMING THE GENOA:

The luff tension is to be adjusted by the jib halyard. In light winds of course only little tension to avoid wrinkles along the luff. In more wind the luff needs more tension, but only to keep the luff tight, more is not necessary.

Under normal conditions the genoa car on the cabin roof should be placed near the aft end of the track, if the genoa ”closes” in the aft leach, move the genoa car aft, and if the genoa "opens" further up in the aft leach, move the genoa car forward. You can adjust the genoa car on the manually, the genoa sheet goes through the halyard stopper on the cabin top marked GENOA. The halyard stopper here is normally always left open, and ONLY closed, if the winch is needed for another purpose. In case you need to put a reef in the genoa, you must move the genoa car forward for right trim. For "reef 1" the genoa car is pulled approx. to the centre of the track before the halyard lead blocks, and, for "reef 2" it is pulled almost all the way forward – but, check out the trim on the sail. You only use the barber haul system on beam reach or downwind. While tacking upwind, make sure to pull the genoa in tight, so the genoa leach is close the lower spreader.

REEFING THE MAINSAIL:

First set the lazy-jack (topping lift) on the boom. If not the mainsail boom will fall.

Sail upwind course only by the genoa and ease off the main sheet completely, the main halyard is loosened and then you pull the line reef 1 on port side, which is marked on the halyard stopper. This line will then automatically reef the luff first and next the leach automatically, as you keep pulling the Reef 1 line. Same procedure applies to reef 2 and the reverse when reefing out. After each reef, the sail ought to be "packed" with chock cords for less wind resistance, not needed but it looks nicer.

It is recommended to mark on the mainsail halyard where "reef 1" and where "reef 2" has to be locked by the halyard stopper.
When reefing the mainsail, the mainsail halyard school be released so when the reefing process is done, the reefing blocks by the luff are approx. 15 cm = 6" above the boom.
Check that the reefing block at the luff is not chafing the sail. Normally, it does not, but sometimes you have to go up and "arrange" the sail at the luff.

For long distance sailing, we recommend preparing a reefing line from the third optional reef down to second reef, so you easier can control the third reef by hand. When using the third reef, the conditions are of course not the easiest. Third reef position is not standard.
Avoid reefing downwind, as the mainsail can be blown past and behind the side stays, and brake the battens. Of course, if there is no other way out, you can do it.

MAIN SAIL:

The main needs much more trimming than a monohull, especially on the main sheet as the boat has many speed potentials within few wind forces. This calls for concentrated trimming if you want maximum speed and fun with your boat. Generally the leach seen from the boom end to the mast top must be almost straight: the roach must absolutely not ”fall out” or twist, unless the boat is overpowered. Trimming the main in a breeze takes great effort.
This DF28 model has no kicker and no traveller, instead there is a “preventer or boom wang” available, one on each side and this is normally not used sailing upwind. BUT – as soon as you bear off the wind it is always recommended to use the preventer system to better control the top of the sail – very important for speed.
The preventer also helps preventing that the mainsail battens are chafing too hard on the leeward side stay.
When jibing in stronger winds – ALWAYS remember to remove the leeward preventer first before jibing.
When jibing in stronger winds, always pull in the slack in the mainsheet quickly to prevent damaging the mainsail and battens on the side stays.

TACKING

When tacking the boat, it sometimes helps to ease off the main sheet a little (especially in strong winds and waves). If you stall the boat after a tack it also helps to ease the main sail until the boat builds up speed again. If the boat starts to go backwards after a tack, then immediately turn the tiller reverse to lee, this helps the bow to bear off the wind and get wind into the sails again. Do not turn the rudder to ”normal” again until the boat starts moving forward again.

MAIN SAIL FOOT:

- is trimmed normally. Light wind when tacking, light curve. Downwind, big curve. Medium air tacking, flat bottom. And downwind, large curve. Hard wind tacking, flat bottom, and downwind also flat bottom. But – honestly, we normally never trim the foot – main sheet and preventer is however very important. Only – normal keep a curve of 5-6 cm on the foot.

MAIN SAIL LUFF TENSION:

In light wind, you set the main luff only to avoid "wrinkles" in the sail, which has the effect that you easier can help the main when tacking so that the battens are turned right for the new tack. Luff tension also gives more curve and deeper shape in the mainsail.

In medium air the main halyard is only tightened so much that the wrinkles in the sail are gone and the luff straight.

In heavy wind the main halyard is tightened hard to flatten the sail at the same time you pull hard in the main sheet.

If, for example, you are anchoring or beaching for a short time with the mainsail up, then loosen the luff tension in the sail to quieten the boat.

GENNAKER SAILING:

Sailing with the gennaker is a "third" dimension in sailing which a lot of people dread caused by bad experiences. On a trimaran gennaker sailing is fun and a comfortable adventure. A trimaran is not heeling from one side to the other (rolling), and the gennaker pole is non-existent. With a little practice, you can actually handle the gennaker alone, but always handle it with respect!! If you respect the gennaker and use it with reason, it is great – also when cruising.

If the gennaker has been damp or wet from sailing, it should be dried before packing. Or, if it is not too wet, leave it in the cabin spread out to dry.

VERY IMPORTANT NOTICE FOR SAILING WITH GENNEKER – always make sure you have enough leeway and space on your leeward side – so you have enough space to bear away if stronger wind is coming and giving you enough space to bear away to get the gennaker down again – a simple but very important rule that must be respected.
Therefore, also be careful if you just try to get around a mark or a land “corner” or even another boat – make sure you have space to bear off the wind.

SETTING THE GENNAKER:

The bowsprit must be folded out in position and secured. You can best set the gennaker from the lee trampoline netting behind the mainsail. Mount sheets, the halyard and the tack line. Make sure that the lines run correctly, that the gennaker halyard for example is not twisted around the forestay or the diamond spreader. The sheet runs just around the forestay and on the inside of the side stays.

Hoist the gennaker all the way up in the spinnaker sock – set and secure the sheet in leeward side of the winches. The best is to use the genoa winch on the cabin top, pull the tack line almost tight, then pull up the spinnaker sock with the endless line, make sure you are sailing downwind. Then the spinnaker sock is up, you can now tie the sock line, that you have pulled up, on the mast or on the cabin top. Then pull out the rest of the tack line, so the tack of the gennaker is pulled tight to the bowsprit. Now you can luff up a bit closer to the wind, and the gennaker will fill up.

CAUTION
If you feel any resistance hoisting it or sheeting it, stop pulling immediately. It does not take much to rip it apart if it is stuck! When the gennaker is full, roll or furl up the genoa. It is very important that your gennaker fills up with wind before furling the genoa or you will find yourself rolling it into the genoa. It never pays sailing with both genoa and gennaker.

Then roll up the furling genoa, but not before the gennaker is fully set.

VERY IMPORTANT
If a wind gust comes, then bear off the wind quickly, then you quickly depower the boat.
In stronger winds always have the gennaker sheet in your hand.

JIBING WITH GENNAKER:

Jibing is VERY easy if you do it this way.
Bear off to downwind course <u>without</u> jibing the mainsail and just take your time. Make sure the spinnaker sheets can run easy with no kinks. Then pull over to gennaker quickly – make sure the gennaker sheet that you just released, is fully free to go <u>all</u> the way. Pull the gennaker to windward and when the gennaker is now 2 to 3 metres to windward past the forestay and keep pulling as you then also jibe the mainsail over. <u>Never</u> jibe the mainsail before the gennaker. Look up and check the gennaker is not caught on the upper spreader – this can happen and it will come off, if the sheet is not tight.

TAKING DOWN THE GENNAKER:

NEVER sail with gennaker without the mainsail!!!!!

Taking down the spinnaker is always easy – even in stronger winds if you follow this process. Bear off to a downwind course and secure the mainsail with the preventer, now pull the active spinnaker sheet in tight so the spinnaker clew is close to the mainsail boom – this is very important.
Now slacken and release the tack line completely off. The spinnaker will now fly back behind the mainsail like a flag, and the vacuum behind the mainsail will “hold” the spinnaker behind the mainsail, even also in stronger winds, the spinnaker will find the wind "shadow" behind the mainsail. Now you can easily pull down the spinnaker sock. Make sure to stow away the spinnaker and all lines, before you furl out the genoa again and before you change up into a higher course closer to the wind.

CODE-0 :

The Code-0 furling system (tack) must NOT be installed at the end of the bowsprit using the tack line!!! This will cause the bowsprit to brake.

The Code-0 must only be installed on the steel eye on the upper side of the bowsprit on the same stainless fitting that supports the bowsprit sideways and down to the bow.

This means you have to install the Code-0 sail and furler, before you fold out the bowsprit.

You can use this sail upwind, but with a lower tacking angle of 55 degrees, and when tacking you have to furl at least half or 2/3 of the sail and then furl it out again on the new course.

Always go downwind when furling the sail in. Always make sure to fix the furling line for the endless furling system as the sail will furl out again by itself, just put the furling line just one time around the forward mooring cleat or even easier just put it one time around the forward stainless lifting eye by the backend of the pulpit- that’s all it takes normally to lock the sail.

For better furling, always try to furl the sail in the same direction – the special torsion line in the luff gets stiffer and better this way.

NEVER use the Code-0 upwind in more than max 8 knots of true wind.

ANCHORING:

ALWAYS CHECK THE WEATHER FORECAST AND WIND AND TIDE CONDITIOINS.

Use chain (8 mm diameter) max 7 to 10 m combined with anchor line 14 mm or 12-14 mm rope with internal lead up front by the anchor of minimum 10 meters and thereafter flexible anchor line.

Total length of anchor line should be minimum 5-7 times the depth – more is better!

PRECAUTION:
Before anchoring check the depth of water, current and nature of the seabed and stones.

By beaching or drying out the boat beware of rocks and stones. Only beach the boat on sand only.

When anchoring, secure the anchor line to the mooring cleats or even better make a bridle, which you can fasten on the stainless U-bolt on the front of each forward wing. Using a bridle prevents the boat from fishtailing.

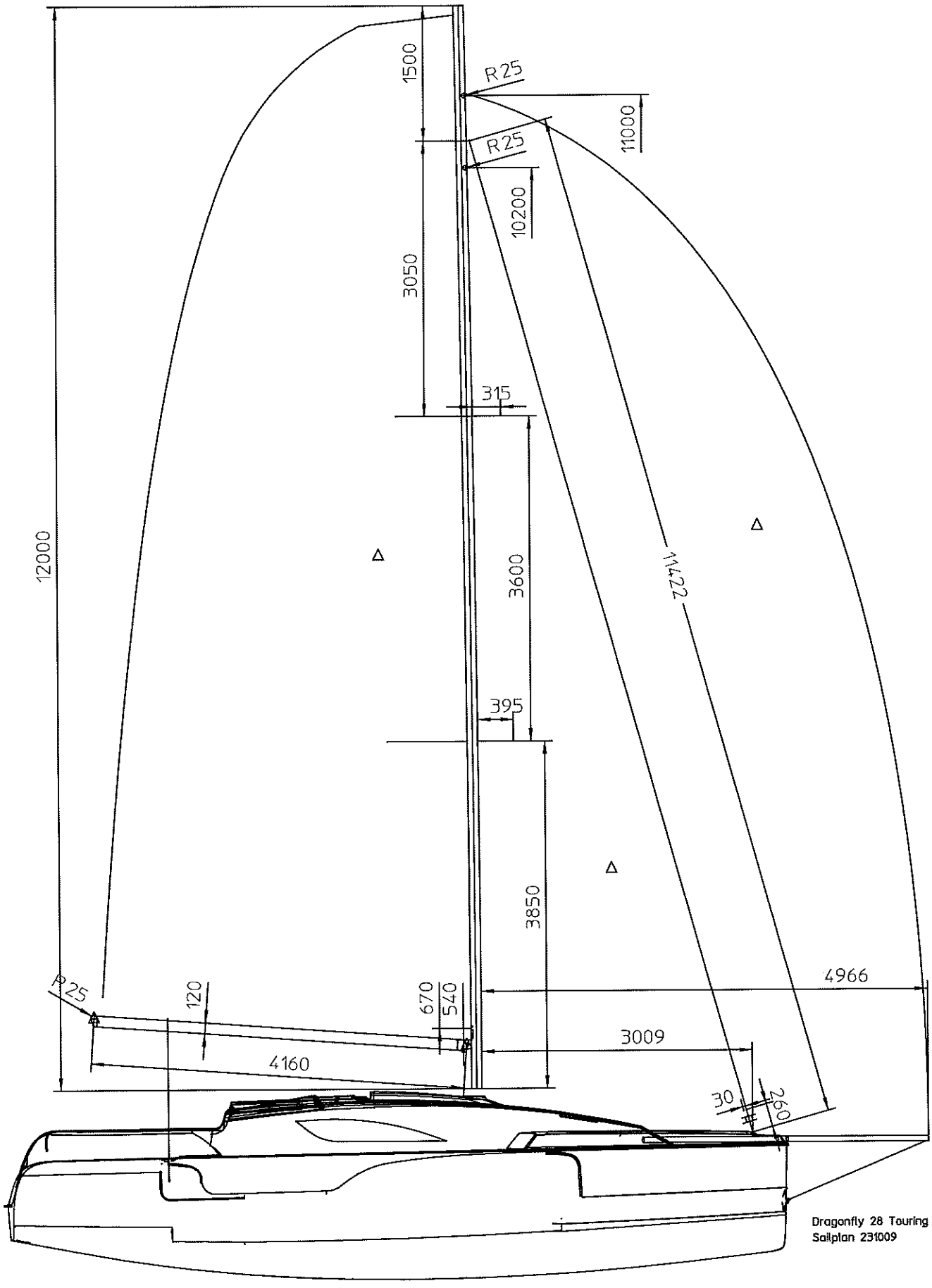
ALWAYS anchor in protected areas!!

Note that multihulls have more windage than conventional yachts.

By anchoring off the stern the engine should be stopped.

For DF 28 we use minimum 10 kg steel anchor – best type is like Delta, Rocna, Ultramarine or also like Spade A-80 aluminium or FX16 Fortress anchor for sand and mud. Many other types can be used as well, but make sure that you have the right anchor gear for your local purpose.

Store the anchor and secure well when sailing – if not, the anchor in heavy sea can puncture a hole in the hull.



Dragonfly 28 Touring
Sailplan 231009

Centreboard and rudder kick-up system

SWING KEEL – KICK UP SYSTEM

The centre board has been constructed in such a way that even the slightest touch of ground makes it kick up automatically via the release cleat on the cabin top. To remount the release cleat, just push down the clam cleat hard again.

When you are sailing, check now and then that the centreboard is down, could have popped up by itself!

The automatic quick release cleat can be fine adjusted on the Allan-screw at the aft end – if it maybe releases too soon or too late.

Up- and downhaul line you can adjust from the cockpit cabin top. Just like you can trim a dinghy on the centreboard, you can also profitably do that on the Dragonfly.

Generally, we always recommend placing the centreboard all the way down upwind. On a reach half way down and sailing downwind all up.

Do remember though, lowering the centreboard again before going upwind again. Under sail pressure you cannot possibly adjust the centreboard – you will have to either luff into the wind or bear off to dead downwind to adjust the centreboard. Downwind you will seldom find adjusting problems.

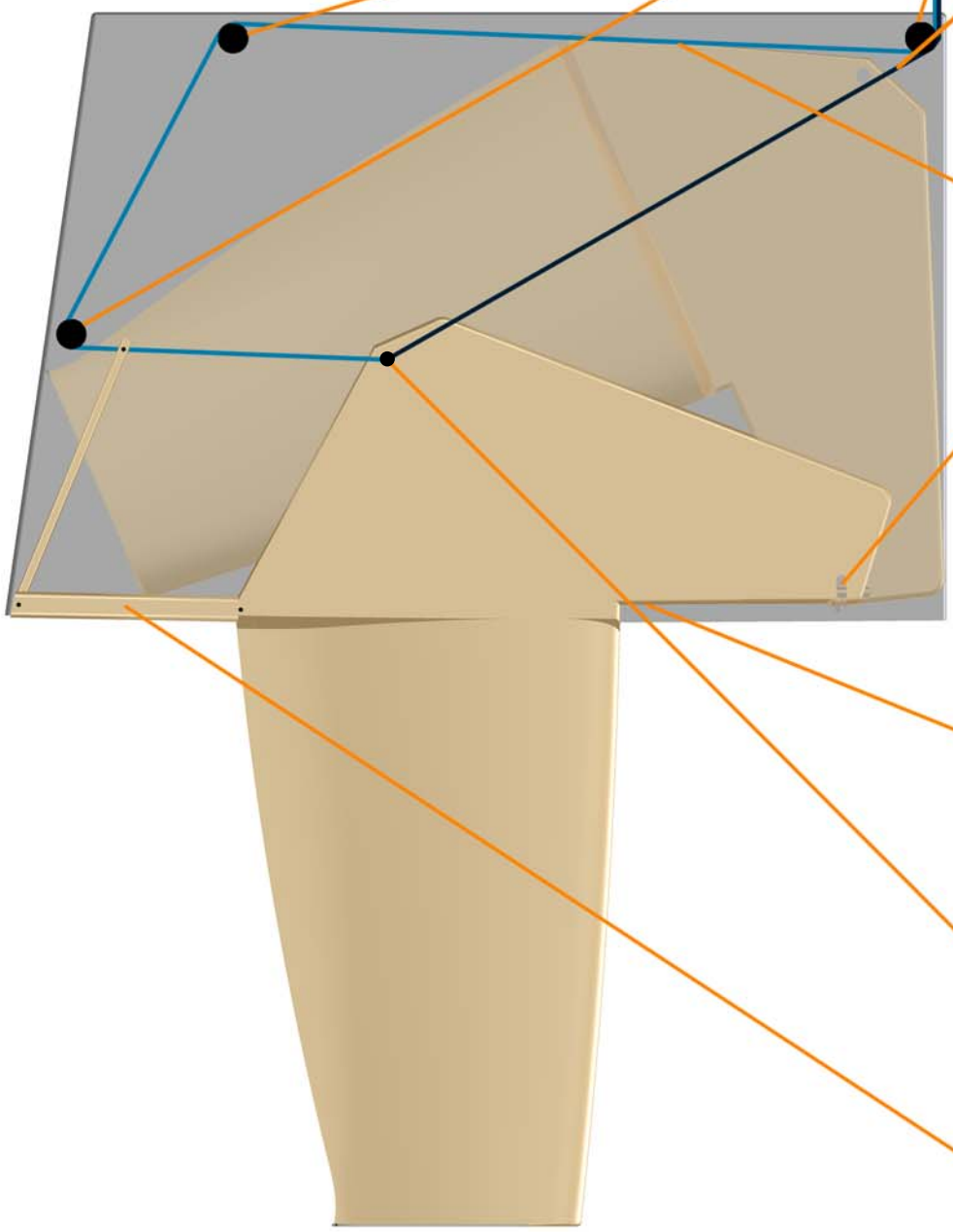
IMPORTANT
The SB side lifting centreboard line has a knot adjusted from the yard, which is the stop knot – preventing the board from coming too far down. This knot must not be moved and/or changed.

If the centreboard comes too far down, the centreboard can break up the centreboard box and damage the boat seriously – and, the boat will get flooded.

Of course, if you know that you are going to a beach, we highly recommend releasing the centreboard downhaul line beforehand, because when hitting the ground in slow speed, the automatic cleat will not release as quickly, and this will put extra unnecessary strain on this system.

Centerboard-system

Dragonfly 28



Mast support

Lines going to deck through mast support

Pulleys

3 x turning blocks

Board up line

8 mm dynema - 7,5 meter long

Board down line

8 mm dynema - 8,5 meter long

Pivot point

Locked around the pivot point by a locking bolt. 120 mm Allen screw, size 10 socket. Can be re-moved from underneath when board is up

Endstop

Board rest against hull while down

Attachment point

Both lines is attached to this hole with a knot

Closing mechanism

Closing the space behind the centerboard while down

2017

DRAGONFLY TRIMARANS

RUDDER SYSTEM:

The rudder also has a ”kick-up” system, so by hitting the ground the rudder will kick up.

IMPORTANT
Be sure that the rudder is always fully down in position, otherwise the rudder gets hard weather helm and hard to steer.

Do regularly check the downhaul line for kinks or damage. If you can see any sign of damage on the 5 mm Dyneema line, this must be replaced immediately. The rudder is not designed to be used while sailing in no other position than fully down, otherwise the rudder system will bend and be loose or even break off.

To pull up the rudder, release the downhaul line, lift the tiller a bit and pull the lifting line on top of the tiller. Also regularly check the bolt where the rudder is bolted to the rudder head (key No 19).

Always make sure that the downhaul line is always ready to release with no kinks or knots on the line and that the line always is led into the aft locker.

When beaching the Dragonfly just release the downhaul line both on centreboard and rudder, so it goes up easier and makes less damage.

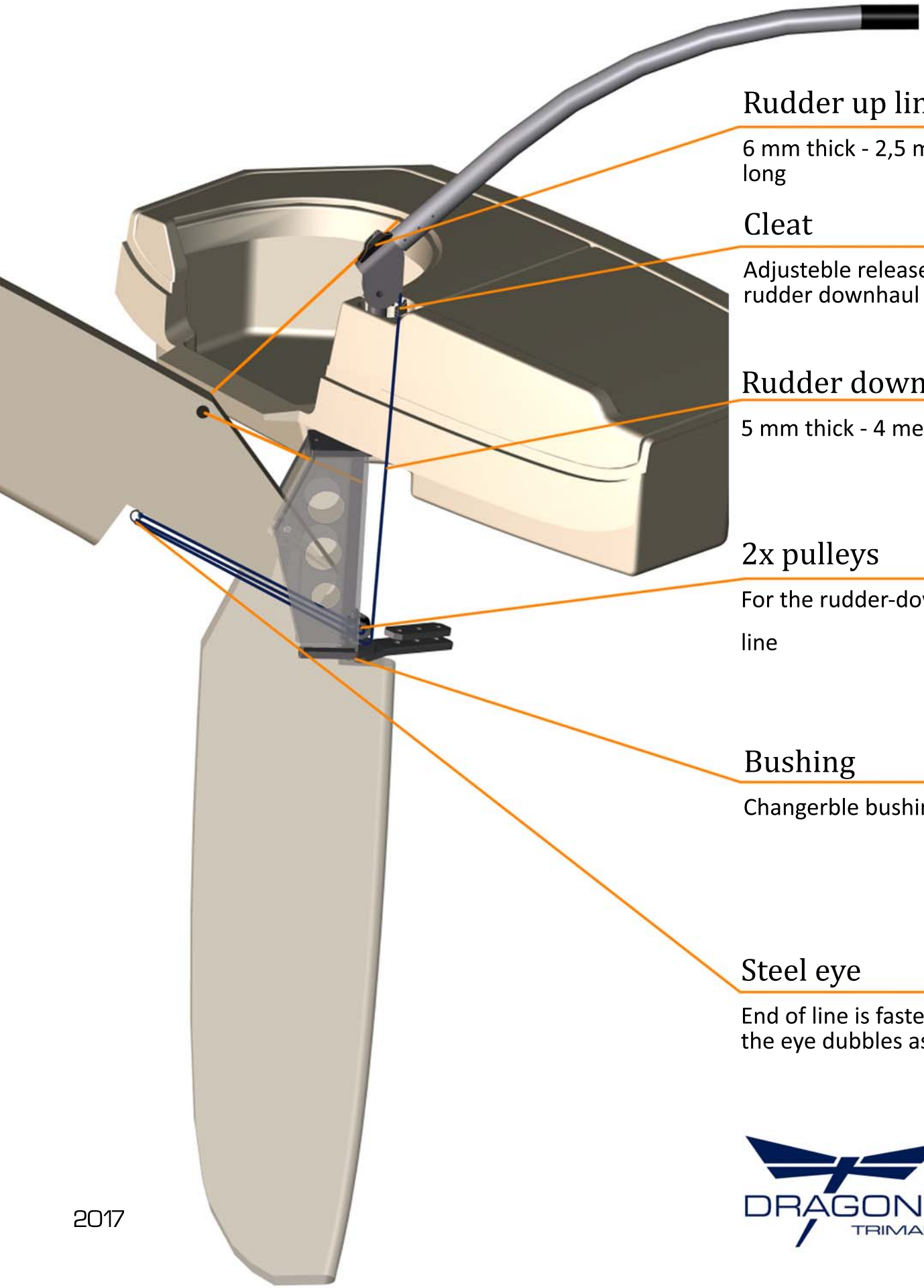
The automatic quick release cleat can be adjusted lighter and/or harder, if needed.

If the outboard motor is active – the rudder can ONLY have 2 positions – either fully down or fully out of the water, if the rudder is halfway down – the propeller can touch the rudder blade when turning the rudder and engine to port.

You can easy manoeuvre the boat under engine with no rudder down as the engine turns with the tiller when connected – just like a powerboat!

Rudder-system

Dragonfly 28



Rudder up line

6 mm thick - 2,5 meter long

Cleat

Adjusteble release rudder downhaul cleat

Rudder down line

5 mm thick - 4 meter long

2x pulleys

For the rudder-down-line

Bushing

Changerble bushing

Steel eye

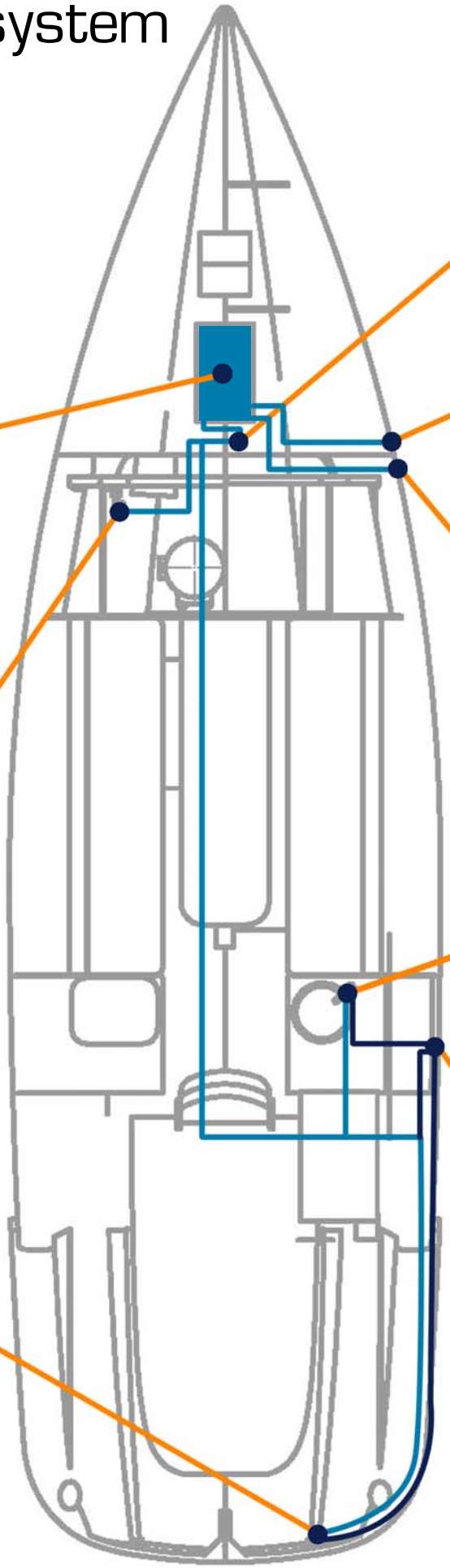
End of line is fastent here and the eye dubbles as pulley

2017

DRAGONFLY TRIMARANS

Freshwater-system

Dragonfly 28



Pump

12 V electric freshwater-pump

Air vent

Air vent to equalize pressure in water tank

Filling

Deck fill-hole for freshwater

Water tank

90 L freshwater tank

Toilet faucet

Fresh cold water to the faucet at the toilet

Galley faucet

Fresh cold water in the galley

Warmwater

Optional warmwater circuit with 6L heater, 12/110/220 V. Supplyes galley and deck shower

Cockpit shower

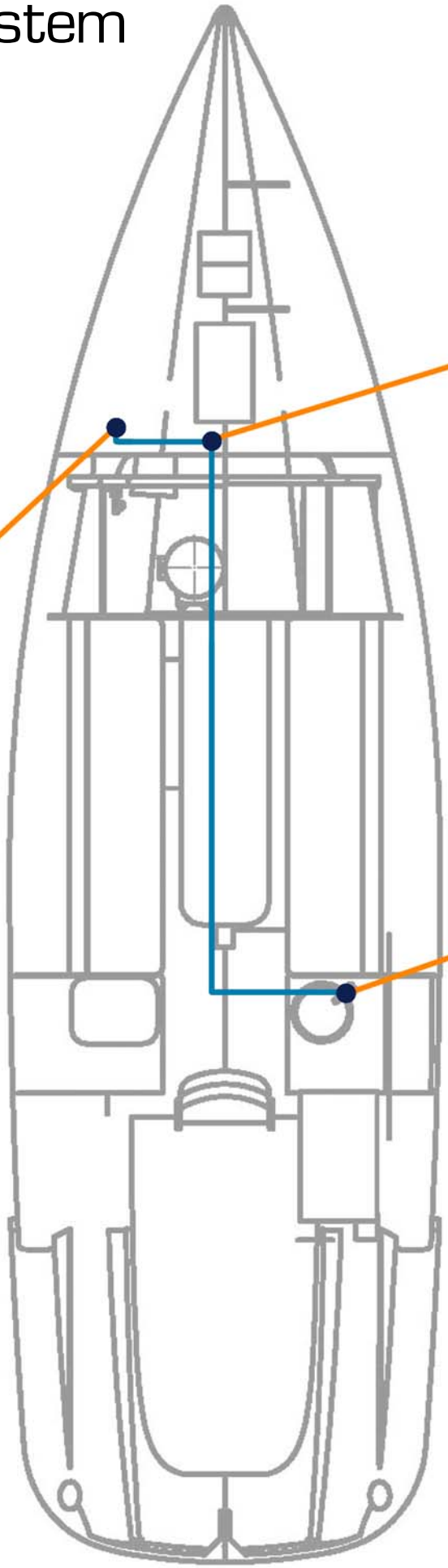
Optional

2017

DRAGONFLY TRIMARANS

Saltwater-system Optional

Dragonfly 28



Pump

12 V electric saltwater-pump

Intake

Saltwater intake, 1/2” seacork

Galley faucet

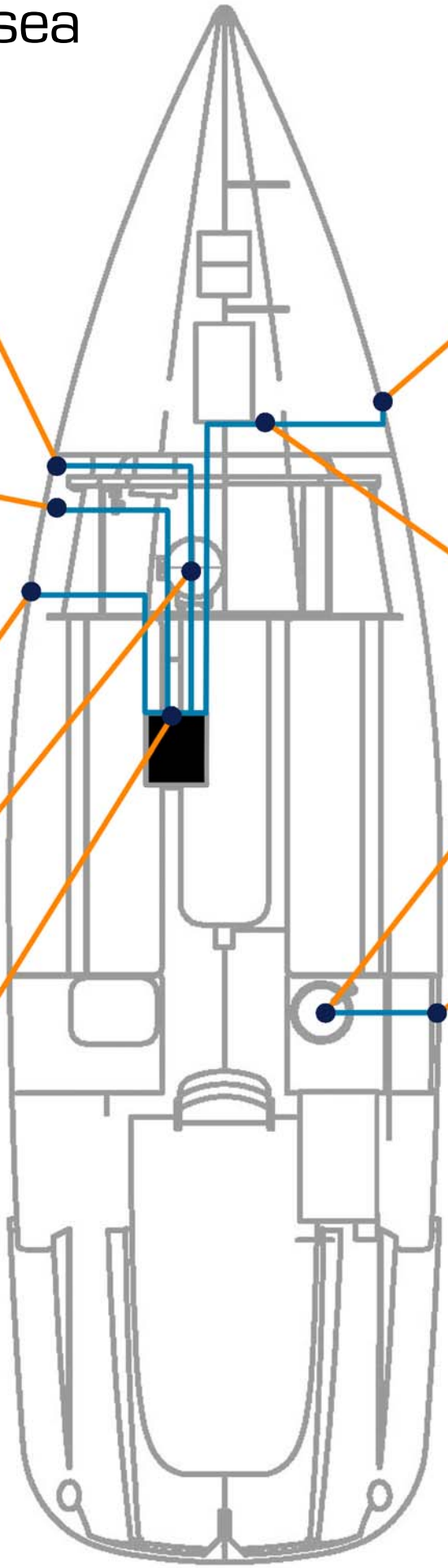
Outlet of saltwater in the galley

2017

DRAGONFLY TRIMARANS

Holdingtank/sea coarks

Dragonfly 28



Saltwater in

Saltwater intake for toilet and opt. salt-water faucet in galley, 1/2” seacork

Deck outlet

Deck fitting for emptying holding tank in port

Air vent

Air vent for the holding tank

Toilet

Manual toilet

Holding tank

60 L holding tank, blackwater only

Outlet holdingtank

Black water from the holdingtank via the manual pump to sea, 1 1/4” seacork

Manual pump

Manual blackwater pump, 1 1/4”

Galley sink

Galley sink drain

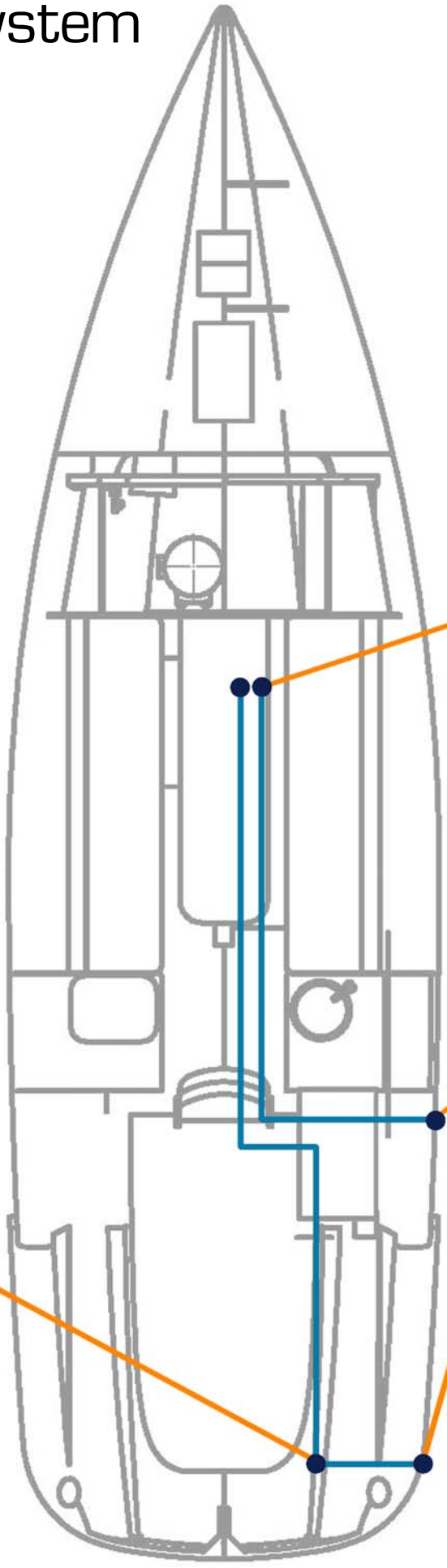
Drain from galley sink, above waterline

2017

DRAGONFLY TRIMARANS

Bilgepump p-system

Dragonfly 28



Pump

12 V electric bilgepump,
access in SB cabin floor

Outlet

Outlet of water from the
electric bilgepump,
above waterline

Manual bilgepump

Bilgepump accessible
from steering position

Outlet

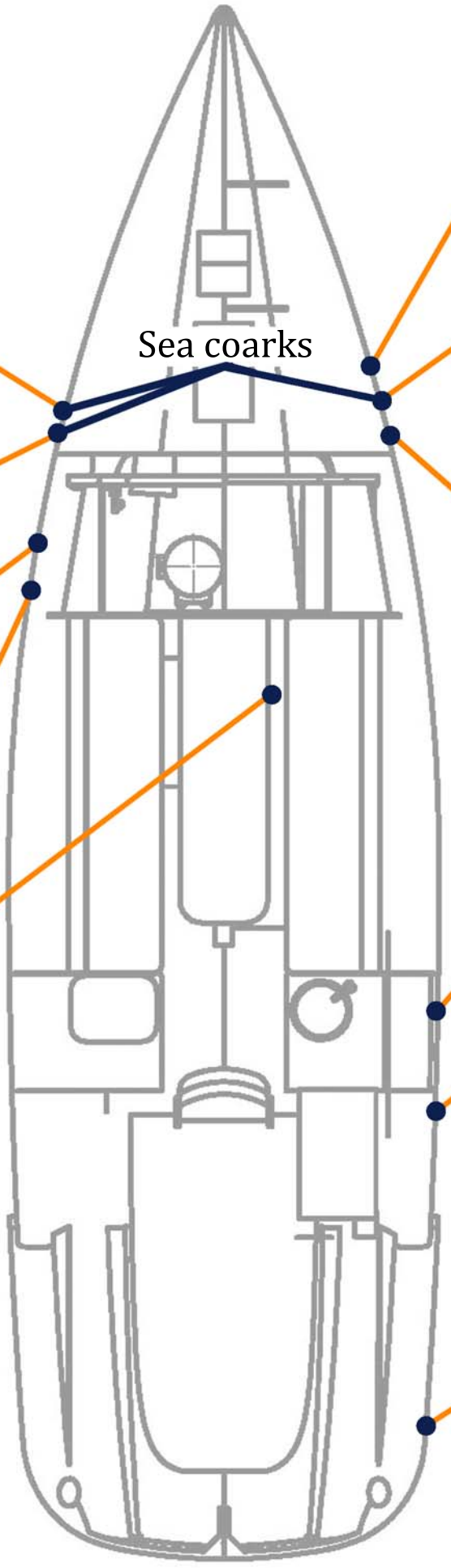
Outlet of water from the
manual bilgepump,
above waterline

2017

DRAGONFLY
TRIMARANS

Hull-fittings

Dragonfly 28



Opt. Watermaker

Drain from the optional watermaker

Outlet holdingtank

Black water from the holdingtank via the manual pump to sea, 1 1/4”

Air vent

Air vent for the water tank, above waterline

Intake toilet

1/2”

Sea coarks

Saltwater intake

Toilet drain sink

Above waterline

Air vent

Air vent for the holding tank

Transducer

Speed/depth transducer, in bilge main cabin

Drain galley sink

Above waterline

Drain electric bilge

Above waterline

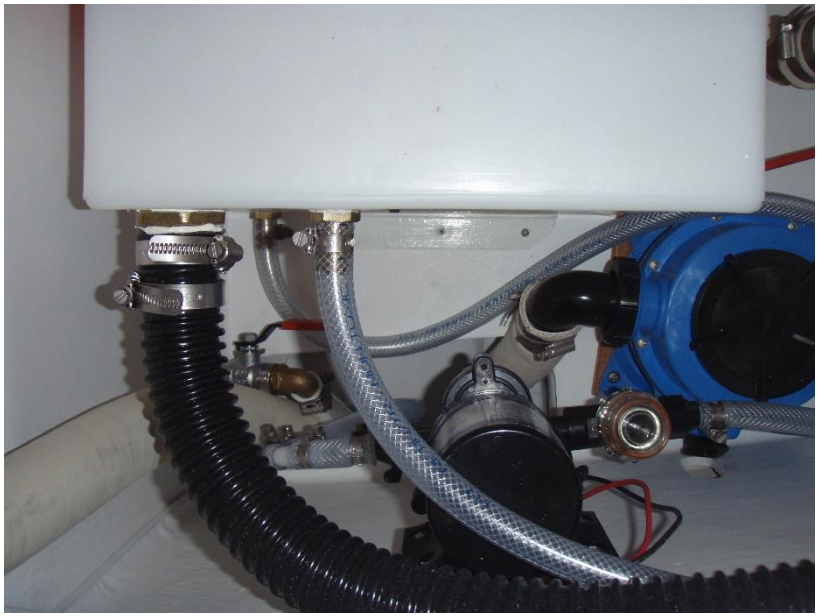
Drain manual bilge

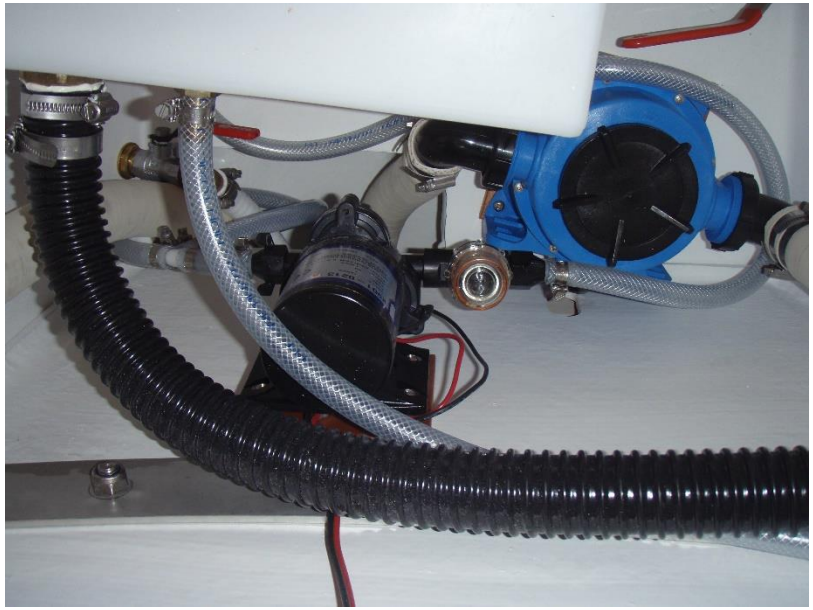
Above waterline

2017

DRAGONFLY TRIMARANS

Dragonfly 28 Water system

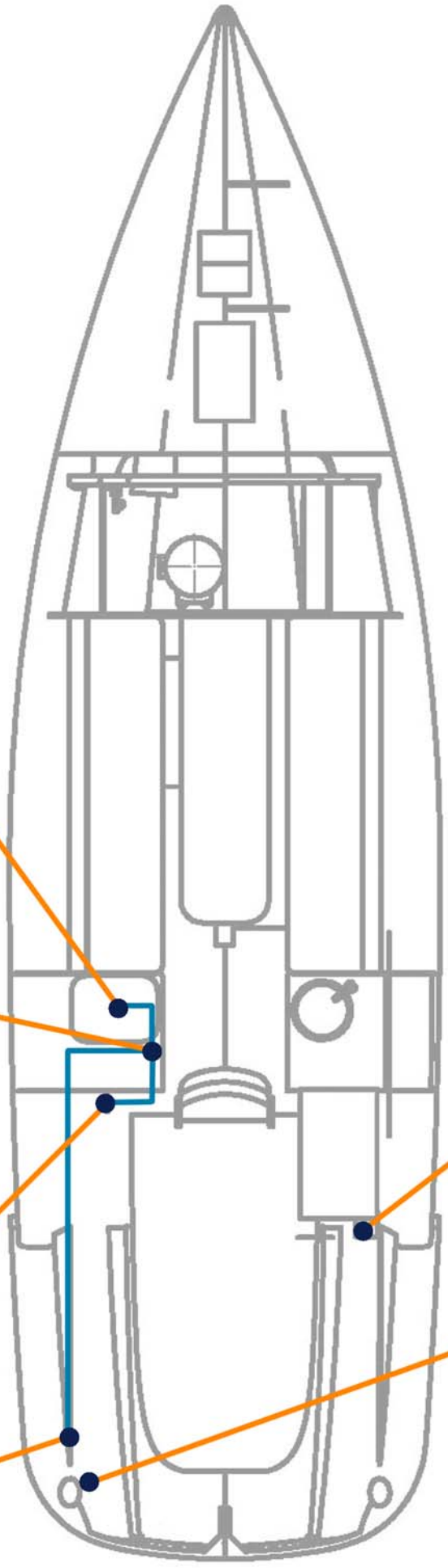




Dragonfly 28 Holding tank

Gas-system

Dragonfly 28



Gas stove

Two burner gas stove

Gas valve

Under gasstove

Gas heater

Optional

Gas tank

3 kg EU camping gas in port cockpit locker

Fire extinguisher

2 kg capacity in SB cock-pit locket

Locker vent

Gasvent for gasbottle (gasdrain)

2017

DRAGONFLY TRIMARANS

Maintenance and product information

Engine type: _____

Engine No: _____

Gelcoat RAL hull colour: _____

Gelcoat RAL deck colour: _____

Gelcoat RAL non-skid colour: _____

Stripe work colour: _____

Epoxy barrier under water: _____

Antifouling: _____

Mast colour RAL-No: _____

The woodwork in the cabin is varnished with two-part satin varnish. To varnish again, sand with grit 180 or finer sandpaper. You can use either one or two-component varnish with satin finish, but please note that a lot of the panels are laminate not wood!

Dragonfly is built of hand-laid, reinforced fibre glass and polyester combined with 10-15 mm PVC-sandwich foam core with closed cells, which do not absorb water.

For eventual repairs, use ONLY products on polyester basis. Epoxy can be used in an emergency, but cannot be cosmetically improved later with gelcoat, as you can with the polyester products.

Electronic equipment is not calibrated by the yard.

BY ANY DAMAGE TO THE BOAT:

Contact your dealer or the yard for instructions. If not, you could endanger your safety and/or lose your warranty.

GELCOAT REPAIRS:

IMPORTANT
Successful repairs require dry weather and a temperature between +15° to 25° C.

- Ratio of hardener is min 2% and max 3%.
- Gel setting time is approx. half an hour.
- Never work in direct sun when applying gelcoat .

How to make gelcoat repairs:

- First sand the actual repair with grit 80.
- Then sand the area around it with grit 180-240.
- Apply gel coat by 2 or 3 layers.
- When completely dry sand it down with 120-240, thereafter with 500 – 800 – 1,200.
- After that polish with rubber compound and finally wax the whole area.
- Use lots of ventilation, gloves, glasses and dust mask.
- Keep children away.

WARNING

- The catalyst is a dangerous product and should not be left within children's reach.
- Avoid contact with skin and mucosa. Protect your eyes.
- In case of contact, wash with soapy water and rinse liberally.

Clean all tools with acetone.

GENERAL SERVICING:

- Clean blocks and sheets well in freshwater regularly.
- Lubricate blocks and Easylocks every 2-3 months.
- Clean all tracks frequently where travellers are functioning. Also the mast track.
- Min once a year clean and grease the winches and check the springs.
- Keep the sails covered at all times when not in use to protect from the sun.
- Keep the sails dry and rinse regularly with freshwater. If sails get damaged immediate repair is required.
- Let a sail maker check the sails once a year.

When sailing on saltwater, we strongly recommend to rinse the boat with freshwater after each sailing trip. This will over time make sure that blocks and lines work better, and it will help avoiding rust building up on the stainless.

All stainless used throughout the boat is the very high-quality A4 or 316, but this does not 100 % prevent very light rust stains from building up on the surface. This light rust is cosmetic only and does not weaken fittings or bolts. Rinsing the boat after each sail will help avoiding this problem. Especially by boats in warm and salty water we strongly recommend to rinse the boat.

SPRING CLEANING:

1. Exterior: Wash and wax the boat. (Do not wax the non-skid areas).
   Interior: Clean the boat everywhere.

2. Antifouling:
   Main hull. First wash the bottom of the boat with freshwater, if necessary, high-pressure washing. Let it dry out and apply antifouling with a lacquer roll. You need approx. 3 litres.

   The centre board has enough antifouling for the first three max four seasons; you will then have to lift the boat with a crane or place the boat on some car tyres and turn it from side to side to antifoul the centreboard.

3. It is recommended that all blocks, wheels and Easylocks are greased with Teflon spray, especially the Easylocks – this should preferably be repeated a few times through the season.

4. Mast, boom and head foil must be washed and waxed to keep the sails clean. If you do not immediately succeed in cleaning the aluminium you can use polish cream.

Happy sailing!!

CLEANING UP FOR THE WINTER:

1. You are recommended to wash the boat completely clean, wax and polish all surfaces except the non-skid.

2. Make sure to take off the sails, sprayhood and cockpit tent. Wash and rinse out dirt and salt. Everything must be completely dry, before stowed away for the winter and kept in a dry place.

3. Cushions:
   For cleaning cushions you can remove the cover by unfastening the zip on the back of the cushion. For washing or dry-cleaning, check which material your cushions are made of.

4. Various steel wires can be washed in warm soap and water, rinsed clean, dried and afterwards wiped with an oilcloth.

5. All ropes and blocks should be washed in warm soap and water, rinsed and dried.

6. Rigging and boom:
   Make sure all lines and halyards are intact. Should a halyard have a failure at the end, turn it over. Every year all halyards and reefing lines should be shortened approx. 25 cm.

7. The water tank must be emptied and cleaned – is located under the front bunk.

8. The outboard engine:
   Please contact your local dealer, but have it serviced and run the engine in fresh water to get all the salt out of it.

9. The marine battery is removed from the boat and discharged, then you recharge the battery and store it like the cushions and sails in a nice dry place. A good thing for the battery, is, during the winter to partly "drain" the battery and charge it again, fx. 2 or 3 times during the winter.

10. Dry out the hulls completely to avoid frost damage in all bilges/compartments.

11. Make sure that ventilation is good before storing the boat for the winter. The best thing to do is to store the boat indoors for the winter period, if you use a canvas cover make sure it does not touch the boat as it may scratch it.

12. Never cover the mast with plastic – this will create blisters between the carbon mast and the paint. Quorning Boats cannot be held responsible towards blisters on the mast.

Always check that ALL bilges in ALL compartments in ALL hulls are dry.

Any damages and lacks on boat, sails or instrumentation should be fixed in the autumn; everybody can give the best service at that time of the year.

IMPORTANT MAINTENANCE INFORMATION ON THE RIGGING:

- Always check the rigging, halyards, reefing lines, water stays and rudder down haul line, as well as the cable operating the swing wing system in the aft wing.

- Minimum once a year shorten all halyards, reefing lines, and swing wing lines by approx. 25 cm. After some years turn them around or replace the lines.

- Water stays, Touring and Sport version: max. 10 years use and/or max. 15,000 NM.

- Water stays, Performance version: max. 7 years use and/or max. 10,000 NM.

- Side stays and forestay should be changed latest after 10 years or by max 15,000 NM.

- Diamond stays on the mast should be changed latest after 15 years or by max 20,000 NM.

- We recommend changing the Beamstopcable under the Trampoline from centerhull to forward outside Beam every max. 10 years.

- Never use shackles or similar on the boatman chair.

- Never climb the rigging when the boat is in folded position.

- Tension on the rigging, please see rig diagram.

- Never change the tension on the diamonds without checking tension with a tension meter according to rig tension diagram, changing the rig tension cause the mast to break.

- Never drill holes in the carbon mast section without asking your local dealer or Quorning Boats beforehand.

- Never wrap the mast in any plastic, as this can cause the paint to bubble. If wrapping is needed, use breathable textile.

- Wash the mast track with soap and water before stepping the mast.

Rope diagram

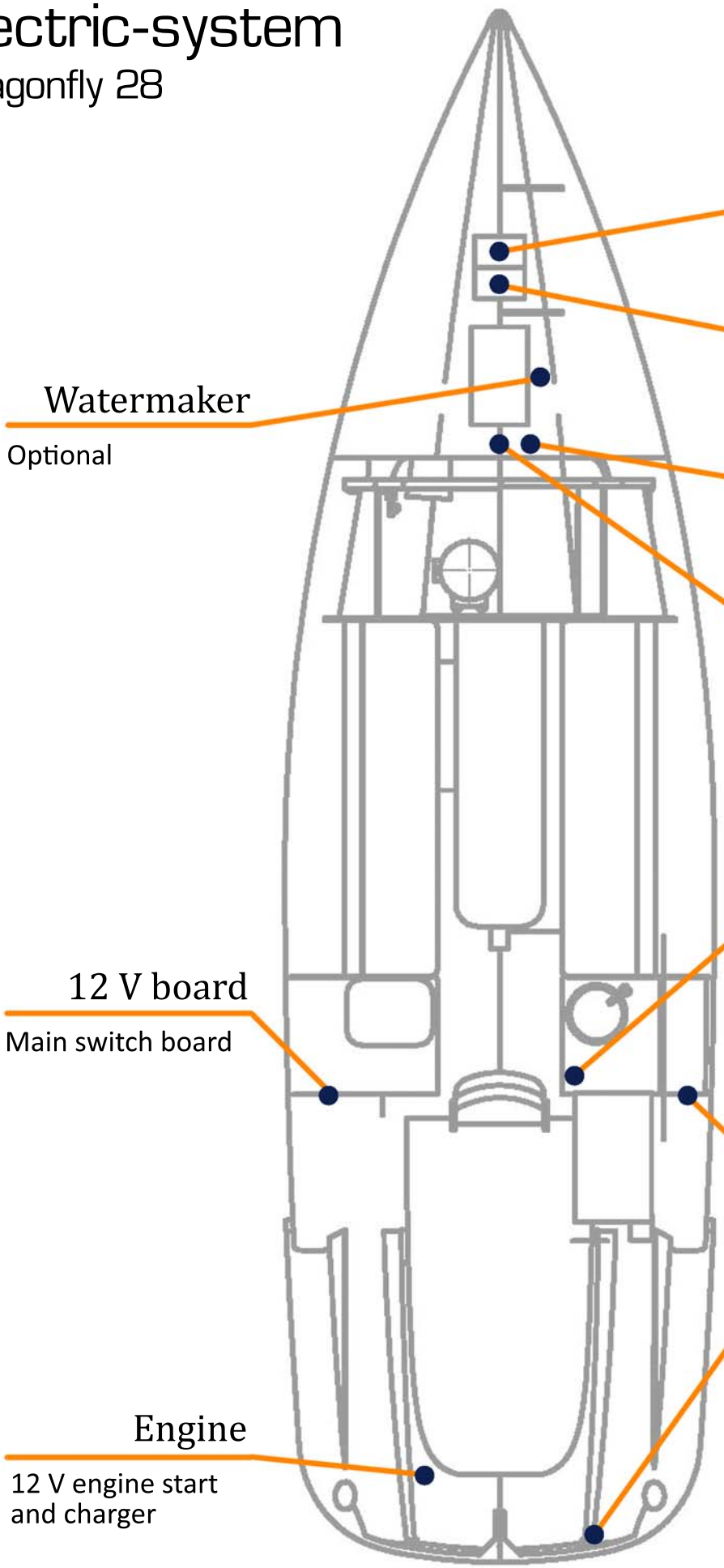
Dragonfly 28 Swing Wing Touring version

Text	Material	No of lines	Diameter	Length in metres
Main sheet	Polyester	1	8	26
Genoa sheet	Polyester	1	10	20
Spinnaker sheet, asymmetric	Polyester	1	8	40
Barber haul	Polyester	2	8	18
Genoa furling line	Spectra	1	8	13,5
Swing Wing line "endless"	Spectra	2	8	23
Backstay line to cockpit	Polyester	2	8	16
Backstay line float/side stay	Dyneema	1	8	4,2
Centreboard up	Polyester	1	8	7,5
Centreboard down	Polyester	1	8	8,5
Rudder up	Polyester	1	6	2,5
Rudder down	Polyester	1	6	4
Main halyard	Spectra	1	8	41
Jib halyard	Spectra	1	8	24
Spinnaker halyard	Spectra	1	8	30
Code 0 halyard	Spectra	1	8	30
Reef I	Spectra	1	8	19
Reef II	Spectra	1	8	29
Lazy Jack	Polyester	1	6	12
Mooring lines	Polyester	4	12 / 14	12
Tack line for bowsprit	Spectra	1	8	15,5
Preventer for mainsail	Polyester	2	8	14

Spectra /Dyneema is same type of material

Electric-system

Dragonfly 28



Standard battery

Varta 70 AMPS

Secondary battery

Optional extra battery

Watermaker

Optional

Saltwater pump

12 V electric pump
(Optional)

Freshwater pump

12 V electric pump

HFI relay

110/220 V

12 V board

Main switch board

Socket

110/220 V

Shorepower

Shorepower-system
(110/220 V) is optional

Engine

12 V engine start
and charger

2017

DRAGONFLY TRIMARANS

Owner's list

First owner:

Name: _____

Address: _____

City: _____

Country: _____

Date of purchase: _____

Second owner:

Name: _____

Address: _____

City: _____

Country: _____

Date of purchase: _____

Third owner:

Name: _____

Address: _____

City: _____

Country: _____

Date of purchase: _____

Keep this manual in a safe place onboard and hand it over to the new owner, if you sell the boat!!

Warranty papers

RAYMARINE or B&G electronics

If Raymarine or B&G electronics has been mounted on our boat, Quorning Boats has registered the serial number according to your hull number for an extended warranty.

You will receive a registration confirmation from Raymarine or B&G/Navico per email.

How to proceed by warranty claims on electronics

You have to contact Raymarine or B&G/Navico directly, referring to your instrument registration.

Raymarine

Please contact your national agent or Raymarine distributor. They will be able to inform nearest Raymarine Service.

B&G/Navico

Please use the online service/dealer locator and contact your local dealer directly.

Dragonfly 28 - version 2

TOURING

SPORT

PERFORMANCE