

Mixed Multihull Evaluation Evaluation Panel Report

20 April 2012



1 Recommendation

The Evaluation Panel recommend consideration of two of the entrants, the NACRA 17 and the Viper.

The clear preference of the MNA Sailors and the Evaluation Panel was the innovative new NACRA 17. Designed specifically for the Mixed Multihull criteria the Evaluation Panel concluded the NACRA 17 is seen as the best option. Featuring curved dagger boards providing vertical lift, the NACRA 17 will carry a wider – range of crew weight better than the 16 footers and is considerably lighter than a Formula 18. The modern NACRA 17 also offers the sailors in the Mixed Multihull Event the exciting challenge of mastering the potential lift of the curved daggerboards.

Of the six other entrants, the Viper was the second choice of the MNA Sailors. As an existing ISAF Class, with over 50 boats waiting in stock, the Viper offers a rapid implementation. The MNA sailor feedback was that some felt that they were at the upper limit of the competitive combined crew weight. The new NACRA F16 was not seen to offer major advantages over the NACRA 17 or the established Viper.

The superbly-refined, and much admired Tornado at 20ft was judged too powerful by the female sailors. It was considered that at highest level of Olympic competition the female sailor would inevitably be the helms person, leaving the male crew to deal with the higher loads of the mainsheet and gennaker sheet. Only one MNA sailor (a man) ranked the Tornado as their first choice.

The Hobie Tiger, a Formula 18, was the heaviest boat at the evaluations. Presented in 'light crew' mode, with the smaller jib and gennaker, the balance of the rig was questioned. Only two sailors ranked the Tiger in their top three choices.

The Hobie 16 with gennaker did not find support from the MNA Sailors. It failed to impress in respect of its performance and sailing qualities when compared with the other boats presented. Only one sailor ranked the Hobie 16 as a top three choice.

The Spitfire S is priced competitively with the Hobie 16. It was not popular with the MNA Sailors who would have preferred a self-tacking jib and better organised controls.

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2 Boat Comparison Table

Data	Hobie16	Hobie Tiger	Nacra F16	Nacra 17	SpitfireS	Tornado	Viper
Hull Length – m	5.05	5.48	5.00	5.25	5.00	6.09	5.00
Beam – m	2.41	2.59	2.5	2.59	2.53	3.08	2.50
Weight – kg	145	180	125 ^a /131	132 ^a /138	142	165	129
Mainsail m ²	14.25	15.12	13.35	14.65	14.52	16.41	13.72
Jib area m ²	5.12	3.45	3.7	4.00	4.25	5.38	3.70
Gennaker m ²	14	19	17.5	19.5	19	24.6	17.5
Complete Price € - excl. tax	€12,300	€15,700	€13,250 ^b €15,350 ^{ab}	€14,500 ^b €16,750 ^{ab}	€12,500	€25,900 ^a / €15,900 ^a	€13,400
Builder	Hobie Cat	Hobie Cat	NACRA / CMI (THA)	NACRA / CMI (THA)	Sirena Loday White	Marstrom/ Exploder	AHPC / CMI (THA)

^a Carbon fibre mast ^b price offer for first 100 boats, please see below for all prices.

3 Mast Configuration.

The Request for Proposals documents specified the option of a two-piece mast to facilitate transportation.

Manufacturers presented two-piece masts for evaluation. The feedback from some manufacturers was that the join in the mast added weight, around €400-€500 in initial cost and potential for weakness, inconsistency and loss of watertight integrity. Unless controlled at regattas competitors may seek to bond the spar into one piece. The evaluation panel concludes that a one-piece mast is more suitable for this application. Consequently the pricing for two-piece options have not been presented.

Several boats offered the option of a carbon-fibre mast or an aluminium mast. Generally the carbon masts add about €2,000 to the price of the boat. Benefits of a carbon fibre mast are performance, longevity and improved safety in capsized recovery due to lighter weight. Depending on the method of carbon-fibre construction it may offer one-design compliance advantages.

4 Boat Name: NACRA 17 Entrant: NACRA Sailing International

4.1 General Review

The NACRA 17 is a new catamaran specifically designed by Morelli & Melvin (USA) to meet the mixed multihull evaluation criteria. The NACRA 17 is 40kg lighter than a Formula 18. At 5.25m(17ft 3in) long, the modern hull shape combined with curved daggerboards creating vertical lift is designed to have a wide competitive crew weight range, lower sheet loads and promote new skill factors. The curved daggerboards which provide vertical lift are a development already proven on the Morelli and Melvin designed NACRA 20 of which 80 boats have been built.

4.2 MNA Sailor Feedback

Number of sailors 18:

1st Choice =14, 2nd Choice = 3 , 3rd Choice =1

The NACRA 17 was the clear favourite of the MNA Sailors with 14 out of 18 ranking it their first choice.

“Very big difference to other boats – long term solution”.

“For me this is the Olympic boat. It is challenging and exciting, dynamic and feels like there is a lot to learn to optimise performance. It has good loads that are enough to make the boat athletic but still allow for crew rotation between male and female. I think the design of the boat allows for longevity over several Olympic campaigns.... This boat is the best size for the job and offers the most exciting enviable class for 2016 Olympics and beyond.”

“All systems worked very well, good layout, no sharp edges (soft deck) – all standard high performance catamaran features (diamonds-bolt adaptable on the water etc.) + “kick bars/wedges on trampoline “

“Stiff hulls, stiff platform”

4.3 Evaluation Panel Feedback

Nice feel because of foils creating lift, boat feels “light” – less drag, less resistance

Stable but very manoeuvrable (because of hull shape), very dynamic – quick and easy turns (tacks/gybes), bigger range of angles downwind, and therefore more tactical options.

Good size for mixed sailing, crew weight OK, loads OK, either man or woman as crew or helm.

High performance, athletically challenging to sail, double trapezing upwind at 12 knots (sooner hull-flying)

Four mast options were presented, ranging from a single-piece aluminium to a two-piece carbon fibre. NACRA manufacturers preference is for a one-piece mast. The two-piece aluminium mast is the least favoured option. The carbon mast gives a weight saving of 6kg. The Evaluation Panel recommend the one – piece carbon fibre mast option.

Big square top of mainsail, good mast rotation.

This is a new design, and is not in conflict with existing F16 and F18 box rules, and therefore not subject to development pressures to remain competitive within a box rule. If selected, will need initial allocation of orders by ISAF.

If selected, it is envisaged there will be a lead time of 4 weeks to start production, which would initially be at a rate of 7-8 boats per month, while additional mould tooling will take 6 weeks to produce. By mid-August 2012, production would be up to 23 boats per month.



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4.4 Builder and Dealer Distribution

Manufacture-controlled one design. Hulls and carbon masts built at CMI Thailand (Approx. 500 NACRAs of different classes have been built at CMI in last two years). Boats distributed from NACRA International, NED. Sails made by Performance Sails/NED.

Worldwide dealer network & distributors (availability/easy access, training camps, grass root-sailing.... pathway NACRA 460, NACRA 500, NACRA 570, NACRA 580, NACRA Sailing schools already established). Dealers: ARG, AUS, BEL, BUL, CAN(2), CHI, CHN, EST, ESP(3), FRA(4), FIN, GBR(2), GER, HUN, ISR, ITA(2), NED, NOR, POR, SIN, SUI, UAE, USA (15)

Offer of MNA training camps by NACRA's professional team riders.

4.5 Hull Construction

Glass fibre, epoxy resin, PVC foam core, carbon fibre reinforcement, vacuum bagged.

4.6 Class Association

There is an established international NACRA Class Association covering the range of NACRA catamaran models, with worldwide activities and experience in event organization.

4.7 Provisions of Selection

Subject to the following:

Signing of the ISAF Olympic Classes Agreement and a modified ISAF Class Agreement.

Price stays fixed at MNA start-up discount price of €16,750* for first 100 boats ordered, or until 31 October 2012 whichever is the earlier. ISAF will control allocation of first 100 boats.

After the first 100 boats are ordered or 31 October 2012 (whichever is the earlier), the price will be €19,000. NACRA agree that ISAF will under contract control any subsequent price until November 2016.

NACRA also presented a start-up discount price of €14,500 for a boat with a one-piece aluminium mast ex VAT, ex Works (NED).

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5 Boat Name: Viper Entrant: Australian High Performance Catamarans (AHPC)

5.1 General Review

The Viper was developed in 2008, and was described by our MNA testers as a fast, comfortable, easy to sail, easy to crew (by a woman), stable, well organized, well rounded boat. Challenging in the breeze, it's positive steering makes for some good manoeuvring (tacking, gybing and pre-starts). Some found the boat to have a small spinnaker and that it lacked power off the wind. Others found the volume of the bows was not enough causing it to ride on its bow upwind and downwind, this explains their comments about the importance of crew weight placement and kinetics. The simple yet



functional system to raise the dagger boards without having to go to leeward to physically raise them was refreshing (the only boat to address this). Those who went over the handlebars realized that it was quite easy to recover from a capsize. Tall teams found the boat to be a little small and felt that the optimal crew weights will drop as more teams get familiar with the boat. Equipped with a 2-piece mast in carbon or aluminium were the 2 options presented at the trials. Being such a positive boat to sail many testers did not find it a challenge to master the boat, therefore found it not to be challenging enough for the Olympics. With over 200 boats sailing, over 50 in stock waiting to be delivered around the world, low cost, one-design rules, the Viper is a well-rounded boat.

5.2 MNA Sailor Feedback

Number of sailors 18: 1st Choice = 4, 2nd Choice = 5, 3rd Choice = 6

Ranked among the top 3 boats tested, Positive steering (upwind and downwind), Clean, simple and efficient controls layout, Efficient dagger board system, Nice sail plan (lots of twist on mainsail=more sheet load)

5.3 Evaluation Panel Feedback

Traditional (F16) hull shape, Possible to sail competitively in a short amount of time, Cunningham system different from other boats, Nice finished product, 50+ boats available for immediate delivery.

Daggerboard hoist strap good and simple, Proven track record (200+ boats built), Oversized cross beams.

Could use better traction on hull and deck, Could use telescopic tiller extension, 2008 Hull Design, Platform not as stiff as some other boats tested.

5.4 Builder and Dealer Distribution

Manufacture-controlled one design. Hulls built at Composite Marine International (CMI), Thailand.

Sails by Goodall Sails, Bendigo, Victoria (AUS) and Dimension Polyant (SRI).

Distribution through Australian High Performance Catamarans, Bendigo, Victoria (AUS). Viper Distributors: ARG, CAN, HKG, NED, RSA, SIN, USA.

AHPC licence other products to licensed builders in ARG and SIN.

5.5 Hull Construction

Glass fibre, epoxy resin, PVC foam core, carbon fibre reinforcement, vacuum bagged.

5.6 Class Association

ISAF Class status granted November 2010, International Class Association.

5.7 Provisions of Selection

Subject to the following:

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Signing of the ISAF Olympic Classes Agreement.

Price is €13,400*, AHPC will agree that ISAF will under contract, control any subsequent price until November 2016.

ISAF will control allocation of first 100 boats ordered after 4th May. (As of 23 March, there were 65 boats in stock: AUS 20, EUR 20, USA 15, THA 10.)

*price is for boat with one-piece aluminium mast ex VAT, ex Works (AUS), 1-piece carbon-fibre mast add: €2,000.

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6 Boat Name: NACRA F16 Entrant: NACRA Sailing International

6.1 General Review

The NACRA F16 was launched autumn 2011, designed by Morelli and Melvin (USA): Modern hull design with stiff platform.

Four mast options were presented, ranging from a single-piece aluminium to a two-piece carbon fibre.

6.2 MNA Sailor Feedback

Number of sailors 18: 1st Choice = 0, 2nd Choice = 5, 3rd Choice = 5

Third overall in the sailors preference.

Positive sailors feedback: modern design, loads on sheets easy, suitable for mixed sailing (both sexes can steer/crew), easy, quick manoeuvres, easy to find speed, "feels fast upwind", can be pushed harder downwind (bows stay up due to hull design), forgiving, good stiffness of the hulls, good layout of systems.

Negative sailors feedback: not exciting/challenging enough to be an Olympic boat. Not exciting compared to the Nacra 17. Too small, too easy to be an Olympic boat. Slightly underpowered in light winds. Does not go as well as bigger boats (Nacra17, Tornado) in the choppy waves. First couple of days there were problems with steering (course stability, manoeuvres) because the boat was fitted with wrong rudders (from a Nacra 500) due to a logistical issue.

Other feedback themes: feedback of crew weighing 143kg and 146 kg: Crew too heavy in light to medium wind.

6.3 Evaluation Panel Feedback

Good overall performance on all courses, good maneuvering, good systems layout, loads on sheets OK for women, suitable for mixed sailing and the weight range of 120-140kg. The daggerboards are angled 6° inwards at bottom (provides lift, drag reduction, sooner hull-flying). Lightest of all candidates (125kg), agile (therefore challenging).

6.4 Builder and Dealer Distribution

Manufacture-controlled one design. Hull Builder: Composite Marine International (CMI), Thailand, Sails Performance Sails/NED. Boats distributed through NACRA Sailing International (NED).

Worldwide distribution network (84 dealers) - availability/easy access, training camps, grassroot-sailing.... pathway Nacra 460, Nacra 500, Nacra 570, Nacra 580, NACRA Sailing schools already established

NACRA Dealers: including ARG, AUS, BEL, BUL, CAN(2), CHI, CHN, EST, ESP(3), FRA(4), FIN, GBR(2), GER, HUN, ISR, ITA(2), NED, NOR, POR, SIN, SUI, UAE, USA (15)

6.5 Hull Construction

Glass fibre, epoxy resin, PVC foam core, carbon fibre reinforcement, vacuum bagged.

6.6 Class Association

There is an established international NACRA Class Association covering the range of NACRA catamaran models with worldwide activities, experience in event organization.



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6.7 Provisions of Selection

Subject to the signing of the ISAF Olympic Classes Agreement and a modified ISAF Class Agreement.

Price stays fixed at MNA start-up discount price of €15,350 for first 100 boats ordered, or until 31 October 2012 whichever is the earlier. ISAF will control allocation of first 100 boats.

After the first 100 boats are ordered or 31 October 2012 (whichever is the earlier), the price will be €17,500. NACRA agree that ISAF will under contract control any subsequent price until November 2016.

NACRA also presented the boat with a one-piece aluminium mast €13,250 price is for ex VAT, ex Works (NED).

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7 Boat Name: Tornado Entrant: International Tornado Association

7.1 General Review

The Tornado designed in 1967 – Olympic class from 1976 to 2008 – was the only participant brought forward by a class association (Represented by ITA President, Roland Gäbler) and was demonstrated in two versions.

7.2 MNA Sailor Feedback

Number of sailors 18: 1st Choice = 1, 2nd Choice = 2, 3rd Choice = 5

Positive sailors feedback:
Great feeling upwind, good course stability and steering.

Tracks along like a railway. Downwind sailing very stable, easy and sensitive. Effective and extremely responsive trimming controls. “Excellent rig and deck layout”, generally challenging, exciting and demanding

Negative sailors feedback: Loads on mainsheet and gennaker too high for female crew. A “crew” boat. Physical effort of crew was rated as average/bad by 75% of all sailors (male and female). Most women rated their weight and height suitability as “too light” and “too short”. Limited helm/crew options: “only men will be competitive crew”. Slow through the tacks, thus limited tactical options. Not possible to play with centreboards. 61% of sailors rated the ease of gennaker hoists and drops as average/bad. Smaller and more reactive boats preferred. Some sailors would prefer a more modern, innovative design.

7.3 Evaluation Panel Feedback

The Tornado was equipped with either a one- or two-piece carbon mast, the one-piece mast being the preferred option by the Tornado Class and the MNA sailors.

The long refinement of the Tornado was reflected by very positive feedback regarding course stability/steering (“excellent rudders”), the general layout, and the effectiveness of controls. Nonetheless, widespread criticism was expressed concerning the optimal crew weight range (> 140kg) and the suitability for mixed sailing. The loads on mainsheet and gennaker were perceived as too high for women, consequently leading to a female skipper/male crew combination. Being the widest platform of all candidates, the comparatively slower tacks were seen as a possible constraint to tactics and racing on small courses.

The Tornado was performing well at many of the races, but it should be noted that then the boat was mostly sailed by Gäbler/Gäbler, weighing in at 161kg at the event.

Overall the Tornado is still a very exciting and demanding boat, but is not optimised to the criteria for mixed sailing.

Observations from the panel.

Unique points of the boat: the brand “Tornado” is well known in the public. Builder licences for all continents possible (but reality showed in the past that only Marström competitive). Outstanding quality of Marström (hulls and carbon mast) – performance of new Polish “Exploder” model yet to be proven.

Supply and pricing observations.

The two versions presented highlight a dilemma at Olympic level of competition. The well-proven high quality Marström established a dominant position in the market of Tornado Licensed Builders despite the price tag. The lower specification ‘Exploder’ prototype boat produced in Poland, offered at €10,000 lower price, shows that the Tornado could be re-positioned in the market in terms of cost. However there have always been alternative Tornado Builders with lower specification and lower price than Marstrom, but over the last decades these have not been generally campaigned at Olympic level. For the Tornado to be a €15,900 Olympic boat, the autoclaved-Marstrom boat would need to be excluded, setting the class numbers eligible for high-level competition back to one. Potential offers to supply identical boats for Olympic Competition and



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Sailing World Cup Events would push this issue down to the level of competition where boats are not supplied.

As a solution to controlling previous costly sail development programs, the ITA propose to introduce a requirement that sails only be manufacture-controlled identical 'Ullman One Design' sails. Manufacture-controlled identical sails may have an influence on optimum crew weight range.

Good second hand market.

7.4 Builder and Dealer Distribution

Hulls/Platform: Measurement-controlled one design, ISAF Licensed Builders Marström (SWE) – Direct Sales, no dealer network. Exploder (POL) – pending ISAF Building Licence.

Mast: Manufacturer-controlled – Marström (SWE)

Sails – proposed to change to Manufacturer-controlled Ullman Sails (Italy). Hull Construction

Measurement Controlled, various:

Marström (SWE)– Pre-preg epoxy, glassfibre, Nomex, autoclaved

Exploder(POL) – Glassfibre, Airex PVC foam

7.5 Class Association

International Tornado Association established since 1968.

7.6 Provisions of Selection

Subject to the following:

Signing of the ISAF Olympic Classes Agreement

Price €25,900*. (Marström-SWE), €15,900* (Exploder-POL) *prices ex VAT, ex delivery, one-piece carbon mast

8 Boat Name: Hobie Tiger Entrant: Hobie Cat

8.1 General Review

The Hobie Tiger has been on the market since 1995 and it is still producing consistent results in the F18 class. Has a great following throughout the world due to its one design class rules, although lately technology and newer boats have taken the spotlight out of this great performer. F18 class rules limit the possibilities of the Hobie Tiger in this year's multihull evaluation. The Formula 18 rule requirement of 180kg, made the Tiger the heaviest boat, requiring more crew weight to achieve optimal performance (140-160kg). MNA sailors found the boat comfortable to sail, predictable and nice enough especially considering you have the freedom to improve on the existing controls (mainsheet, cunningham, jib track adjustment, etc.). It was equipped with a smaller jib and spinnaker to cater to the female crews and target crew weight; The MNA testers found the boat lacked a little power (in relation to its weight). A 2-piece mast in aluminium was the option presented at the trials- A good catamaran that could do the job but not for long. Heavy boat, heavy crew weight, classic design is fine but not a boat that will endure Olympic competition for many cycles.



8.2 MNA Sailor Feedback

Number of sailors 18: 1st Choice = 0, 2nd Choice = 1, 3rd Choice = 1

Easy to recover from capsize, comfortable, easy to steer, not balanced (due to small jib-could use the bigger jib), nice to sail

8.3 Evaluation Panel Feedback

Proven design, Favour a male crew (high loads on mainsheet due to boat weight), Largest F18 fleets worldwide. Good performance in F18 class after over 15 years on the market. Strong International Class Association. Over 10 years hosting World and regional championships in all continents. Large production capabilities (Europe, USA and Australia). Present in most developing (sailing) countries. Easy to find and charter boats around the world. Heavy weight (F18 class rule), Small jib + spinnaker (suited for female crew), Old technology (boat design), Needs more purchase on the mainsheet (10:1)

8.4 Builder and Dealer Distribution

Manufacturer-controlled: Built at Hobie Cat Europe (FRA) – worldwide dealers on 4 continents

Hobie Cat Company: North and South America www.hobiecat.com Hobie Cat Australasia: Oceania and Asia www.hobiecat.com.au Hobie Cat Europe: Europe, Middle East, Africa www.hobie-cat.net

Sails: Ullman Sails.

8.5 Hull Construction

Polyester resin, Glass fibre, PVC foam core.

8.6 Class Association

Class Association is administered by International Hobie Class Association (IHCA).

8.7 Provisions of Selection

Subject to the following: Signing of the ISAF Olympic Classes Agreement.

Price is €15,780 ex VAT, ex delivery.

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9 Boat Name: Hobie16
Entrant: Hobie Cat

9.1 General Review

The Hobie 16 is a technically out-dated design and not up to par with the rest of the boats presented at the Evaluation. Although the boat fits many of the criteria presented by ISAF, sailors found the boat difficult to sail, low volume hulls, not powerful or challenging enough therefore not suitable for Olympic competition. The general feeling was that the Hobie 16 was the perfect boat to introduce people to catamaran sailing but not for top-level competition. The general description given by the sailor was that the boat was more suited for a holiday resort, kids boat, not exciting enough and not suitable for racing. Low cost. Factory support. Production capabilities.



9.2 MNA Sailor Feedback

Number of sailors 18: 1st Choice = 0, 2nd Choice = 1, 3rd Choice = 0

Only one MNA sailor considered it as a top 3 choice. 'Difficult to sail well'. Unstable. Not exciting or challenging enough for an Olympic boat. Out-dated design. 'can compare it to Laser like dinghy'

9.3 Evaluation Panel Feedback

Handles differently (due to asymmetric hulls and no daggerboard) than any of the multihulls in the evaluation. Requires different sailing technique due to different sailing angles (upwind and downwind) compared to the other boats tested. Heavy bowsprit/gennaker snuffer system (similar to other systems but due to the low volume of the bows it seems heavy).

MNA sailors' least favourite. Low volume hulls=more crew weight sensitive. Class Rules require ballasting of boats with combined crew weight of less than 129.3 kg.

Least expensive catamaran in the evaluation process. Over 100,000 boats worldwide (most successful one-design catamaran class in the world). Multihull used at Regional Games (Central American and Caribbean Games, Pan Am Games, etc.). Strong International Class Association, over 30 years hosting World and regional championships in all continents. Large production capabilities (Europe, USA and Australia). Present in most developing (sailing) countries. Easy to find and charter boats around the world. Dacron mainsail and jib. Raised trampoline. Low volume hulls=high pitch-pole probability. Outdated design (not high-tech enough)

9.4 Builder and Dealer Distribution

Manufacturer-controlled. Hulls built by the following companies and distributed through their dealers:

Hobie Cat Company: North and South America www.hobiecat.com Hobie Cat Australasia: Oceania and Asia www.hobiecat.com.au Hobie Cat Europe: Europe, Middle East, Africa www.hobie-cat.net.

9.5 Hull Construction

Polyester resin, Glass fibre, PVC foam core.

9.6 Class Association

Class Association is administered by International Hobie Class Association (IHCA).

9.7 Provisions of Selection

Subject to the following: Signing of the ISAF Olympic Classes Agreement

Price €12,304 ex VAT, ex delivery two piece aluminium mast

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10 Boat Name: SpitfireS
Entrant: Sirena Loday White

10.1 General Review

Designed by Yves Loday, the Spitfire platform was first built in 1999/2000 with the aim of providing a durable, solid stiff boat at low price. Approximately 250 boats have been built. The original Spitfire was slightly modified for these evaluation trials, re-designing the sails and the deck shape in front of the main beam. The boat was presented with an aluminium two-piece mast.

The predominant sailor's feedback was negative, ranging from the adjustment systems and controls not properly working to the overall impression that the boat was not high performance, hard to steer, and basically not suitable for the Olympics.

10.2 MNA Sailor Feedback

Number of sailors 18:

1st Choice = 0, 2nd Choice = 0, 3rd Choice = 0

The Spitfire S did not get a top-three rating from any of the MNA sailors.

The Spitfire S was found to be an older design with relatively less hull volume (wet boat), and not very rigid ("diverging hulls in waves", "the boat stopped every wave"). "Easy to pitchpole." The boat was perceived as not challenging enough ("holiday boat", "fun for beach sailing"), and had problems with certain controls (spinnaker hoist and drop, mast rotation, mainsheet, trapeze cleats). A common comment was that the trampoline was cluttered with lines and not having a self-tacking jib added to this fact. The sail plan was described as large and powerful and hard to work with the loads (spinnaker and mainsail). Problems were also encountered in a capsizing situation - the boat turtled quickly (two-part mast leaking) and the crew required outside assistance to right it.



10.3 Evaluation Panel Feedback

There was a perception that the Spitfire S showed poorer performance (speed upwind and downwind, manoeuvres) than the other boats of comparable size (Viper and Nacra F16). It was obvious that the crews had difficulties with the trimming adjustments/controls and the hoists/drops of the gennaker.

10.4 Builder and Dealer Distribution

Manufacturer controlled. Hulls built by Loday White(GBR). Sails by Hyde Sails. Boats distributed from Sirena Loday White (FRA).

Sirena created in 1993, Sirena Loday White formed in 2009.

10.5 Hull Construction

Glassfibre, coremat, polyester resin.

10.6 Class Association

There is an existing Class Owners Association for the Spitfire catamaran, mainly based in FRA and GBR.

10.7 Provisions of Selection

Subject to the following:

Signing of the ISAF Olympic Classes Agreement and a modified ISAF Class Agreement.

Price is €12,500 ex VAT, ex delivery, direct sale from Sirena for a boat with an aluminium mast.

Appendix 1 – MNA Sailor Feedback

1. How good was the general boat handling?

	Very Good	Good	Average	Below average	Bad
Hobie 16	0	1	3	3	11
Hobie Tiger	2	3	10	3	0
NACRA 17	14	4	0	0	0
NACRA F16	5	9	4	0	0
Spitfire S	0	2	8	5	3
Tornado	11	5	1	1	0
Viper	9	6	2	0	1

2. How demanding is the boat to sail?

	Very demanding	Above average	Average	Below average	Not demanding
Hobie 16	2	0	4	8	4
Hobie Tiger	1	4	9	3	1
NACRA 17	3	7	6	1	1
NACRA F16	0	3	11	3	1
Spitfire S	1	1	9	5	2
Tornado	10	3	3	2	0
Viper	2	4	9	2	1

3. How suitable is your size and strength for the boat?

	Very suitable	Above average	Average	Below average	Not suitable
Hobie 16	3	3	2	3	6
Hobie Tiger	5	3	7	2	0
NACRA 17	11	6	1	0	0
NACRA F16	7	6	4	1	0
Spitfire S	3	5	6	2	1
Tornado	3	6	3	4	1
Viper	7	4	5	2	0

4. How good is the general quality of the boat?

	Very good	Good	Average	Below average	Bad
Hobie 16	0	0	6	5	7
Hobie Tiger	1	5	9	3	0
NACRA 17	11	5	2	0	0
NACRA F16	5	7	5	0	0
Spitfire S	0	1	7	7	3
Tornado	12	3	3	0	0
Viper	8	7	3	0	0

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5. How safe is the boat? (e.g. in capsize and personal injury)

	Very safe	Safe	Average	Below average	Not safe
Hobie 16	1	6	5	4	0
Hobie Tiger	1	5	8	2	0
NACRA 17	4	6	5	1	0
NACRA F16	3	8	3	1	0
Spitfire S	2	5	5	3	0
Tornado	1	5	7	3	0
Viper	2	6	7	0	0

6. Overall how would you rate the boats?

	Very good	Good	Average	Below average	Bad
Hobie 16	0	1	1	5	11
Hobie Tiger	0	3	8	6	1
NACRA 17	15	3	0	0	0
NACRA F16	3	12	2	1	0
Spitfire S	0	1	5	9	3
Tornado	6	7	4	1	0
Viper	8	7	3	0	0

7. Please state your top three boats in order of preference?

	1st	2nd	3rd
Hobie 16	0	1	0
Hobie Tiger	0	1	1
NACRA 17	14	3	1
NACRA F16	0	5	5
Spitfire S	0	0	0
Tornado	1	2	5
Viper	4	5	6