

The journalistic practice is well known: when talking about a situation in which there is a conflict of interests (and here it is fully available), the media officer should present in the article the points of view of all the parties involved in the conflict. Unfortunately, in this case we will have to step back from this scheme for one simple reason: Oyster Yachts company, represented by its head David Tideman, flatly refused to answer any questions (we repeatedly tried to ask both by e-mail and by phone). Moreover, Mr. Tiedemann made a lot of efforts to avoid meeting and communicating with us during the yacht exhibition in Cannes, and even during his short (only 30 minutes) visit to Ascar shipyard.

To even more regret, the company Oyster Yachts advised against communicating with us and boat designer Robert Humphrey. It is not known which mechanisms were involved, but in a letter addressed to the editorial office R. Humphrey said that he did not want to see the photographs of the raised yacht made by the editor-in-chief of YR, as well as hear the story of this event from the mouth of her captain, wholly and completely relying in the coverage of this issue on the company Oyster Yachts.

Despite this, the editorial board of YR believes that it has every right to tell the readers about what happened, because we were there, we saw the raised yacht with our own eyes (and thus got the right also for our own opinion), we communicated with its owner, with her captain, we got acquainted with both the point of view of the invited surveyor, and with the view of the director of the shipyard Ascar as an independent expert.

In addition, we are dealing with a unique fact: on an even, what is called, place - not during a storm, not as a result of a collision, not because of a fire, but simply because of the loss of the ballast keel, an 80-foot sailing yacht sank, at the time of death which was on the factory warranty. And this obliges us to make the details of this event public.

Alessio Cannoni: I first showed up at the Oyster shipyard, when the hull of the yacht was already laid, so I did not follow the construction from the very beginning. At first I was happy - how, I will command the boat of such a famous manufacturer! But after a week of staying at the shipyard, my euphoria disappeared, giving way to exactly the opposite sensations: yes, these people simply do not know how to build yachts! The number of small and large miscalculations made during the construction of the boat is difficult to enumerate - while the shipyard arrogantly refused and refuses to admit at least one of these miscalculations its mistake.

YR: Let's talk about these miscalculations later. Tell us what happened to the yacht after its launch - from its owner, we know that the first problems appeared immediately after the acceptance.

AK: By taking the boat (it was in May 2014) we went on a voyage to the shores of Norway. During this trip, a problem with the bow thruster was identified. It has a hydraulic motor and an electrical extension and cleaning system. However, the system proved to be unreliable - when moving against the wave, it did not keep the mine cover in the closed position, from the constant impacts against the yacht's body, the lid edges began to chip. After this voyage, we returned to the shipyard in Southampton to eliminate this defect (I will say right away, it was not completely eliminated - apparently the weight of the steering device is too large, and the system is not able to tighten the lid tightly with strong pitching).

After the yacht's rise to the shore, a new problem was discovered, which became our constant headache: the ballast of the keel was loosely attached to the plastic fin, which is part of the shell skin. It was seen increasing in the direction of the stern gap between these two parts of the falshkilya. This was drawn to the attention of the management of the Oyster shipyard. The shipyard dismantled the mast and engine to gain access to the keel bolts. It was found that some of them have an effort to tighten the nuts considerably less than the calculated one (a copy of the document confirming this fact is at the disposal of the editorial staff). The event was recognized as a warranty case, the bolts were re-tightened with the necessary torque (in addition, a massive bronze plate was placed under their nuts for the reliable reliability), the engine and the mast were put back. The warranty period for the vessel was extended until September 2015.

YR: What happened to the ship next?

AK: We went to ARC, after which the owner of the yacht planned to start circumnavigation. Arriving on the island of Antigua, we decided to again assess the condition of the keel, for which they raised the yacht to the shore. And again we saw the same picture: the ballast keel loosely attached to the fin body (the gap between them, as before, widened to the stern), some of the sealing tape came out outside, after the yacht was raised, water left the space between the fin and the ballast for a few more hours. We called a local surveyor, who assessed the problem as "very serious" (a copy of his report is at the disposal of the editorial staff.) - Comment AG. Of course, about circumnavigation with such a keelThe yacht raised from the water looked terrible. Based on the photographs, documents, as well as the stories of the captain and the owner, available to the editorial office, I set up a preliminary picture for myself on the way to Cartagena. Actually, at that time, I had no doubt that the keel breakage occurred along the joint line "ballast keel - plastic fin," the only question is what exactly led to the accident. Reality, however, as usual, has surpassed all assumptions. The volume of destruction (and what I saw to be called precisely "destruction", and not "damage") exceeded everything imaginable and unthinkable - none of us, witnesses of the hull lifting, could imagine that a plastic yacht that had not been in a collision could be so hard to suffer.

Why am I in advance - even before receiving official acts of expertise - I take the liberty of asserting that what happened is not the result of a collision of the yacht with any surface or underwater obstacle, as well as landing on stones? Do not I rely too much on the words of the captain and the owner alone, the readers will ask?

The answer to this question is this: in the presence of a group of surveyors, I observed the survey of the leading edge of the ballast keel (it was also raised to the surface). Of course, there are no official conclusions yet (according to the surveyors, they will appear at best in a month or two), but the cleaning of the leading edge of the keel from the damaged paint clearly showed (and you can see it in the photo) that the traces of a collision or collision with there is no underwater obstacle on it. Similarly, there are no traces of collision of the yacht with the obstacle and on its hull.

Readers who carefully followed the messages on the website of Oyster Yachts can again ask: what about the statements: "There are also photos of scrapings across the hull, possibly caused by a steel hawser and other photos show a rudder broken off at its root, and the other one with its tip broken off"?

To this I can answer as follows: at the disposal of the YR editorial office there is a video recording made by the crew of the yacht from the liferaft shortly after the vessel is tipped over. The record clearly shows that the two steering styluses of the yacht are not damaged and are in their places. Therefore, it is not difficult to prove that the loss of the right hand helm occurred after turning the hull of the yacht.

So, what did we find after the boat slowly rose from under the water?

From the body, not just a ballast keel (bulb) came off along the "ballast-fin" connection, it came off together with a fin that is structurally part of the shell skin. Moreover - and this is completely wild and sounds and looks like - the detached keel "took off the scalp from the yacht": in the area of its attachment to the hull, the outer skin of the yacht (from both sides) from the place of attachment of the fin of the falshkel up to the KVL is torn down in an area of about 20 m<sup>2</sup>.

How could this happen? Why did the ballast keel not hold in place the keel bolts? What does the outer skin have to do with it? What kept the keel in its place?

To answer these questions, you should consider the design of the hull of this series of yachts Oyster 825. Why this particular series? Because its design, according to the company, is somewhat lightweight in comparison with the design of its predecessor - the Oyster 82 series, the yachts are heavy and powerful. The displacement of empty yachts of the type Oyster 825 (according to the shipyard) is 56 tons, while 82-foot vessels of the previous generation (again according to the manufacturer) had a displacement of 61 tonnes empty. Five tons of difference (or almost 10% of the displacement) is, sorry, the ram did not swell, despite the fact that the new boat has become even 15% larger inside and noticeably more comfortable.

However, back to the construction of the yacht. The shipyard refused to provide us with a keel attachment scheme, but the consequences of the accident allowed us to study it in the smallest details, as they say, from the inside. Take a look at our reconstruction:

To begin with, the notorious keel bolts did not bind a ballast falshkil with the power set of the body - keel beam and floras. These bolts, by the way, are very powerful, fixed the ballast keel exclusively to the plastic fin (in the English language terminology - keel stab). Only one bolt - the most aft - went right through the fin to the floras in the body. (He, by the way, could not be found - if all the other bolts were in place, then this bolt ripped out of the ballast of the keel.) That is, with the actual body kit, the ballast part of the keel (bulb) was connected not with keel bolts, but with only the outer skin and inner set of keel fin.

Is it possible to consider such a design a design or assembly error? The fact that such bolts are assembled by mistake, does not indicate anything - so this is clearly a solution by design. However, one can not consider such a scheme and a mistake of the designer of the power

circuit of the hull, as it is quite often found on many modern yachts and approved by various certification and survey companies. It is impossible ... but with the caveat: provided that the circuit design is calculated and manufactured. Let's start with the fact that the notorious keel bolts did not connect the ballast flash with the power set of the body - keel beam and flange. These bolts, by the way, are very powerful, fixed the ballast keel exclusively to the plastic fin (in terminology in English - keel bolt). Only one bolt - the most stern - passed right through the fin to the flange in the body. (By the way, it could not be found - if all the other bolts were in place, then this bolt broke out of the ballast of the keel.) That is, with the actual body kit, the ballast of the keel (bulb) was not connected with the keel bolts, but with only the outer shell and the inner set of keel fin.

Is it possible to consider such a design as a design or assembly error? The fact that such bolts are assembled by mistake, does not indicate anything, so this is clearly a design decision. However, such a scheme and error of the designer of the power chain of the hull can not be considered as it is often found on many modern yachts and approved by various companies for certification and research. You can not ... but with the caveat: provided that the scheme is calculated and manufactured correctly.

And here there is one subtle (in both senses of the word) moment. If the type of yacht like Oyster 82 with the thickness of the keel shell in the keel area reached 70-75 millimeters, then this boat ... The thickness of the ribbed skin of the deceased vessel was (according to surveyors) of the order of 16-17 millimeters - and this together with gelcoat and actually not exceeded 15 mm (this despite the fact that the lower part of the fin, the one for which the keel bolts held, had a thickness of 45-47 millimeters). The internal transverse bulkheads (braces) had a thickness of only about five millimeters.

In other words, the entire mass of the ballast fin (and of the order of 20 tons) was retained on the hull of the yacht because of the 15 mm fiberglass shell of the body, passing into the fin with the keel (the body and fin of the keel are inserted into one cube, this is the only part) and five millimeters internal bulkheads (braces). And the coating could not stand it - it broke in the truest sense of the word.

"So, what happens?" - attentive readers will again ask. - So, "Oyster-Yachts" was basically right? Did the infamous bolts really have anything to do with it? "

Although most surveyors refused to communicate (we were even asked not to photograph them "from the face"), one expert - Ramon Cardenas Valero, inspector and marine engineer (Ingeniero Technico Naval), a member of the survey company Comismar, invited by the insurers to assess the causes of the death of the boat, agreed to share their views on what happened.

Ramon Valero: I believe that the cause of keel loss is in the thickness of the fin skin. Look at the thickness of the fin where the ballast keeps the keel bolts, is about 50 millimeters: this is quite normal for such a mass. But then these five centimeters of the lower part of the fin go to fifteen millimeters of its lateral part, and this is completely unsatisfactory. Traces of impact or collision, I did not find. Yes, there are minor external damages on the case - here,

we marked them with chalk and numbered - but they clearly can not be the result of a collision of such force that the keel breaks off along with the skin.

YR: What about the amount and quality of resin in the laminate? Do not you think his pieces are too "dry"?

RV: Yes, this is also a possible reason, but an accurate answer can only be given by laboratory analysis.

His opinion was shared and the director of the shipyard Ascar Francisco Fernánes Garcia. I note that his opinion is especially valuable, since he is an independent party - Garcia does not represent either the interests of the owner, nor the interests of the shipyard builder, does not participate in the survey survey, does not collect material for the press. He only provided a platform for the ascent and shore storage of the yacht, and therefore could speak freely about what he saw. We talked with him when the yacht was still hanging on the lines of the crane - the water from the hull was pouring out almost a day, and when the boat was still put on the blocks and we went down inside, a little octopus lodged behind the navigating table, and in the corridor leading to the owner's cabin , settled quite aggressive moray ...

YR: Francisco, have you ever seen anything like this?

Francisco Garcia: I did not see and did not think that I would ever see. And I'm sure that I will not see such a thing again. Absolutely incredible, just unimaginable damage! Yes, even on an almost new yacht. I'm not sure, but it seems that this case is completely unprecedented.

YR: What do you think, what is the cause of the accident?

FG: Insufficient thickness of the shell of the body and transverse bulkhead fins. Now, look: these are only 5 millimeters thick. When the yacht came with a roll, the main compressive load from the keel accounted for precisely these bulkheads, which kept the shape of the fin. It's just paper, cardboard! I worked for seven years at another shipyard in Spain, we built sailing catamarans, so we had more reliable structural elements.

Editor's opinion

I have my own opinion. It seems that the process of keel loss developed as follows ... During the course of the boat with the roll, three types of loads influenced the keel attachment elements: the load on the weathering side of the fin on the windward side was applied (its plastic laminate perceives relatively well); from the leeward side - the load on the compression (in itself, fiberglass does not hold the compression load at all; in the laminate, only the resin takes up the compression load, so its compressive strength can be several times smaller); on the vertical bulkheads inside the fin, there was a combined load on compression and bending (its fiberglass is also not very fond). It is these bulkheads, because of their small thickness, and this manifested itself during the first voyage of the yacht, did not withstand the dynamic loads, lost the stability of the section and began to deform. Thus, the keel fin sheath has lost the rigidity provided by the internal set (these same bulkheads), and began to "breathe". It is the loss of stiffness that explains the reason for the appearance of a gap between the fin and the bulb, since in principle it is impossible to attach a heavy

rigid part to a relatively elastic skin so that the gap in the interface between them retains a constant and unchanged width during work under alternating loads.

Probably - and here I do not fully agree with the opinion of the captain of the yacht - the destruction of the shell did not begin on the windward (right), but on the leeward side: that is, where the sheath worked on compression; At the same time, internal bulkheads were bent and finally detached. In favor of this version indicates that the area of damage to the skin from the lee side is much larger: the damaged area comes above the KVL, exposing the filler of the sandwich, while on the windward board the damage ends strictly at the level of the KVL.