THE OFFICIAL ELECTRONIC
PUBLICATION OF THE SHIELDS
CLASS SAILING ASSOCIATION

SPRING
2020

e-MASTHEAD

Josephine #131
in Long Beach

2019 Ocean - Great Lakes Challenge Return to Beverly Yacht Club

2020 OGLC
June 26-28
Beverly Yacht Club
Marion, MA

Registration open to visiting crews, one crew per fleet

Click Here to Visit OGLC Regatta Website

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HISTORIC FILMS

Click the Historic Films logo to watch the renaming of Shields #139 Delaplaine in Monterey from October of 2015. Delaplaine "Laine" McDaniel was a longtime MPYC member and benefactor to Navy Sailing.

President’s Message

Is the Covid-19 on your mind? Let’s not let it interrupt our competitive Shields racing fun! We have all heard enough and the class membership needs the relief and challenges the Shields Class One Design racing brings to each one of us.

Yes, the class is taking the coronavirus seriously, but don’t you just want to kick it out of your life and move on? Please do that with the social distancing, quarantining, taking care of yourself, your family and your friends. The class leadership will worry about the virus, and make sure the Shield events are on when this pandemic is over. Currently, I have setup my Executive Board to discuss and implement a coronavirus plan for each event as needed. The Board consists of Jay Dayton, Steve Mettler, me and Eric Anderson in an advisory role. We will ensure the class stays strong and hosts events in a safe and fun manner. When we have a complete plan for each event and for the class, we will let you know. In the meantime, keep saving the dates and plan on attending our events as scheduled. We will make sure that all parties involved are notified of postponement with more than enough time to plan.

Everyone’s health and safety is our main concern.

Technical Committee
This year we have a very knowledgeable and energetic technical committee. They are focused on improving the class rules and improving our class to accommodate new sailors. Many fleets have been working on and are interested in small spinnakers, carbon fiber poles, loose-footed mains, and roller furling jibs to name a few possibilities. This hard working group has already invested many hours this year. Thanks team.

I would also like to thank Rich Robbins and his team on the National Rules Committee. They are working on guidance for the National PRO to improve our racing championship. We will inform you of any rule changes that pass our Governing Board.

Keep engaging on your plans for the OGLC, New England Championship, 2020 Shields Nationals and your local racing. We all need some different chatter and Shields racing to look forward to. Stay safe…

Ken Deyett
Bit~O~Honey #237
Shields Class President

Beginning with this issue of eMasthead, the President’s Message will be sponsored. Please click the logo to the right and enjoy the short video

Photo Gallery

Top Left: Jeff Randall at 2018 Nationals
Top Right: Tiburon during Wednesday race in Monterey
Bottom Left: Maverick's extra crew
Right Bottom: Tred Avon YC's Fleet 21

The Case for a Carbon Fiber Spinnaker Pole
by Eric Anderson

At the first meeting of the Technical Committee on January 27, potential class rules changes were nominated by members. As is tradition within our class, changes to the rules are considered under a variety of conditions. These include expanding the popularity of the class, extending the sailing careers of current class members, prolonging the useful life of equipment and addressing perceived safety concerns, among others. Sometimes our rules changes have been nominated and passed simply to make our rules reflect reality. Whatever the reason or reasons prompting the proposed changes, consideration is also applied by the committee to prevent starting an "arms race" where one skipper can simply out-invest another and gain a competive advantage. In addition to other initiatives under consideration during this year's session, the idea of updating our class rule regarding the spinnaker pole was proposed.

The current rule pertaining to the spinnaker pole is included below-
Shields Class Rules - Section IV
8.12 Spinnaker poles may be built by any person. The pole must conform to this Specification and Official Plans 1 and 2. The length of the spinnaker pole shall not exceed 9 feet 4 inches including fittings. It shall have a minimum diameter of 2 inches and excluding fittings shall be aluminum. Poles with a diameter in excess of 2 inches may be tapered to 2 inches at the ends.

There was considerable discussion among members of the committee. Once it was determined a change to this rule had wide support, we deliberated the wording of the proposed change. The motion which passed with a unanimous vote was to simply drop the final two sentences of the current rule. This change would grant owners the opportunity to have a spinnaker pole made from any material, to include continuing using an aluminum one. The motion was made by Rich Robbins and seconded by John Shannahan and myself.

When this proposed rule change was brought to the February Governing Board meeting there was some resistance to proceed from several of the Board's voting members. The Governing Board has decided to solicit feedback from our fleets and owners to assess the level of support for the proposed rule change or to determine if additional changes may be needed. Please share your thoughts on this topic with your fleet captain, your representative to the Technical Committee or with our Class Measurer Garth Hobson directly at turbogarth@hotmail.com.

Becoming Fluent in Shields Restoration

My name is Paul MacKinnon and I am the Fleet Captain of Fleet 10 in Marion, Massachusetts. This article will detail some of the work I did on a Shields that hadn't raced in a while and had quite a few problems. Although we did a lot of work on the boat, I will focus on deck delamination repairs and leaks. First, let me tell you how we came to own this boat.

Acquiring Fluent, Shields 124

As you know, at the Shields Nationals in Mystic, CT, there was a hurricane. We had significant time to talk about Shields issues because we couldn't race due to the winds from this storm. In one of these conversations some of my colleagues from Fleet 10 discussed how nice it would be to find an inexpensive Shields that we could acquire and lend to young sailors that we want to attract into the fleet. Fast forward to the following February and while trying to stay warm on a cold night I opened the Shields class website and started thinking about the upcoming season. I ultimately landed on the Boats for Sale part of the site and found a boat that looked pretty, with a recent paint job, for a very low $3000.00 price. I instantly remembered the conversation at Nationals and decided to look into this boat. After a couple conversations with the owner I decided to go look at it. The boat was in Edisto Island, South Carolina, a strange place for a Shields due to it's relatively shallow waters. I booked airfare, rented a U-Haul truck, compiled a survey checklist, grabbed $3000, and headed South. I flew out of Boston with a friend early on a Saturday morning and landed in Myrtle Beach, picked up the U-Haul and drove to the boat. When we got there, it was obvious that boat needed work, but it looked like it was worth the effort so we bought it and started driving back North. At close to 6 PM we were thinking about dinner and hadn't yet left South Carolina when we had a blow out on one of the trailer tires. After a lot of pleading with the manager at Walmart, I got him to sell me a trailer-rated tire and mount it on the rim. I bought a second tire just in case and put it in the back of the truck. Aside from the excitement of driving through New York City towing a Shields with a U-Haul truck, the rest of the trip went smoothly and we ended up in Mattapoisett, MA at around 11:00 PM Sunday, which was great progress. Now the real work began.

Assessment of Work Needed

Based on our assessment, the boat had three main structural problems and one overall problem. They were: 1) The boat is a Chris Craft built Shields, hull number 124, and the forward deck had delaminated. It appears that when someone winched in the port side jib sheet, it ripped the track out of the deck and split the deck. 2) The boat had a battery-operated bilge pump and the boat had a history of leaking. The water was making its way through the keel into the bilge. 3) The mast step on some of the Chris Craft boats were made of plywood and this one was rotten. 4) This boat had raced in Michigan and Newport, but that was years ago. Recently, it was used by its owner as a cruising boat, so much of its hardware and lines were out of date and needed to be replaced. Right: Picture 1

For the remainder of this article, I will focus on the deck repair and the leak identification and repairs. I will not go into the mast step repair as many of the boats are different, but if you have a Chris Craft Shields and want to talk about that, please contact me.

Deck Repairs

As I mentioned above, the fiberglass on the deck was significantly cracked and ripped at the aft end of the port side jib track. (See picture 1) When you examined it under the deck, the bottom skin was also ripped, so much of the structural integrity was lost. Chris Craft built Shields are different from Cape Cod Shipbuilding built Shields in a couple ways regarding the deck. First, and most importantly, the core material of the deck is plywood, versus fiberglass. The obvious problem that this presents is that over time, water can

make it's way into the core and rot the wood. This was the cause of Fluent's deck failure. Secondly, the deck is thinner than the decks on Cape Cod Shipbuilding built boats. I am not certain of the reasons, but I suspect that Chris Craft was trying to cut costs in making these boats and possibly lighten the weight of the deck.

Planning the work – As I was thinking about this project I started to get quite concerned about how far can we cut and how can we ensure that the deck is solid when we are done. The area of the deck that was impacted has some of the highest loads on it from the mast partners and chainplates. I had a lot of conversations with several people who know about structural engineering and decided that as long as the new deck had a same arch as the old deck, had strength

Above Left: Picture 2 Above Right: Picture 3

in the upper and lower layers of fiberglass, and had solid core material, it should be strong. The strength of the chainplates comes from their attachment to the hull, which in this case was solid. This boat also has a tie-rod system under the deck, with tie-rods connecting to the mast-step. (See pictures 2 &3) This system also provides further support and strength.

Cutting away the old material – Based on our plan, we started cutting the upper layer of the fiberglass deck with a grinder and removing sections until we got back to solid core material. It is important to go easy here as we wanted to only remove as much deck as needed until we had solid, dry core material. We also didn't want to cut the bottom layer of the deck fiberglass, as that would weaken the structure. In Fluent's case, we had to remove a significant portion of the deck just ahead of the cockpit, from chainplate to chainplate, from the handrails to the jib winches. Once we cut and removed the upper layer of fiberglass, we removed all rotten plywood core material. (See pictures 4, 5, 6, & 7) This was tough work, we used chisels and a grinder, again being careful not to damage the bottom layer of fiberglass.

Above Left: Picture 4 Below Left: Picture 5

Repairing the bottom skin of fiberglass – As I mentioned before, when the deck failed, the jib track ripped out of the deck, tearing the upper and lower skin of the deck. Before we started to replace the core material, we needed to repair the lower fiberglass skin of

Left: Picture 6
Right: Picture 7

Referenced from previous page

Below Right: Picture 8

the deck. To do this, we laid in new sheets of bi-axial cloth glass over and under the torn skin. (See picture 8) To make sure that the shape of the bottom layer was correct, we built prop legs from 2x2s and 2x4s and supported the bottom layer with these legs until the fiberglass repairs had cured.

Selecting and installing new core material – With the bottom skin now in one piece, we could start to replace the core material. But before we did this, we built a network of prop legs out of 2x2s and 2x4s to hold the bottom layer of fiberglass in place. (See picture 9) Again, the strength of the deck is derived from the arch shaped structure and the relative distance between the upper and lower fiberglass deck skin. When selecting the core material, I wanted to make sure that nobody would have to do this job again, so I was leaning heavily on using manmade materials vs plywood. I looked through the class rules and consulted people from the class association and found that there is no restriction on what I could use. I then consulted with Jamestown Distributors, a great source for boat making and repairing. We discussed and selected Corecell, bi-axial glass, and polyester resin. After working a long day of laying in several layers of

Just Above: Picture 9
Far Left:Picture 10 then Picture 11

bi-axial glass, lots of poly resin, and the new Corecell material, we applied buckets of weights to ensure that the Corecell would bend into the appropriate arch shape. (See picture 10) When we came back to the boat the following weekend, we were surprised and highly disappointed that the deck was "crunchy" and had no strength. It appears that the Corecell was too rigid for the job and wouldn't conform enough to the arch shape. This required a miserable job of cutting out all the new core material and resin. We actually had to chisel a lot of it out and my shoulders complained for a couple days. After re-thinking the whole process we came up with a new solution with the aid of Jamestown Distributors. Since we believed the primary cause of the first repair's failure was Corecell's rigidity and inability to mold to the bottom deck skin, we selected a different core material called Divinycell. This looks like bathroom tiles on a cloth sheet. It easily molded to the shape of the bottom layer of fiberglass. (See Picture 11)

We also decided to fill the cracks between the cells with a slurry solution of poly resin mixed with Silica thickener. (See picture 12) This ensured that we had a solid fiberglass layer as a core material. Once this hardened, we layered in several more layers of bi-axial fiberglass sheets soaked in resin. Once that all hardened, we topped it off with Polyester fairing compound. (See pictures 13 & 14) As a note, we ended up using too much fairing compound and got some cracks that we need to repair. Don't be afraid to layer in more fiberglass and use less fairing compound, it will add to the strength. The good news is the deck is now strong. Left to Right: Pictures 12,13 &14



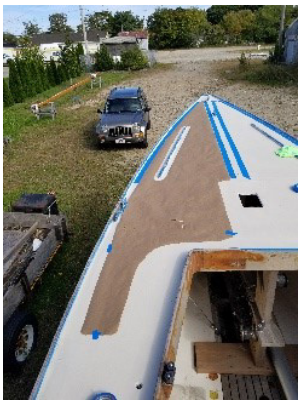
There are a couple of other things that can be done to strengthen the deck. 1) Ensure the deck is securely attached to the kingpost. We had a couple of problems that needed attention here. Fluent didn't have a traditional console that is seen on many Shields, so we needed to buy some teak and make one. (See picture 15) The most challenging part of this process was to shape the bottom of the console to match the arched shape of the deck. For that we scribed and cut a template out of cardboard and traced it onto the new teak console. Then, using a belt sander, we carefully shaped the teak until it sat firmly on the deck. (See picture 16) You need to be very careful because, as we learned, it is very easy to take too much wood off and teak is not cheap. On some of the Chris Craft Shields, there is a large piece of teak, running from port to starboard that the kingpost sits on. On Fluent, this piece of teak was rotten and needed to be replaced.

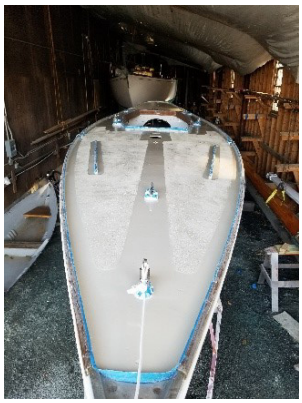


Above Left to Right: Pictures 15, 16 and 17 Right: Picture 18

This piece of teak screws through the fiberglass floor into a metal structure, that is connected, via turnbuckles to a keel bolt. (See pictures 17 & 18) When the console is screwed through the deck into the kingpost, and the kingpost is secured to this teak base that is secured to the keel bot, it provides significant downward pressure on the deck and resists bowing of the deck when the rig is under load. 2) Supporting the deck. We considered adding wooden support beams under the deck to provide additional strength. There are a number of Shields who have done this and it works quite well to strengthen the deck. After we finished the core replacement, we felt that the deck was strong enough without the support beams and in the interest of getting the boat in the water, we delayed this project. We may add them later, if needed.

Deck Pattern - One of the problems of cutting out the deck to replace core material is that you lose the non-skid pattern that is on the deck. There is no good way to replicate that look as it is part of the mold for the deck. What we did was to make a pattern out of a sheet of brown construction paper in the shape of one side of the deck. (See picture 19) We then used a belt sander and sanded the non-skid, from the mold, off the deck, making the deck slightly raised, where the non-skid was, but smooth. We then applied a coat of gelcoat over the new poly fairing compound and bare spots caused by sanding. (See picture 20) Then we applied a coat of Awlgrip primer, and once it was dried, we used the paper pattern to locate where the non-skid should be. We used blue masking tape to create the outline of the non-skid areas and then painted a coat of Awlgrip paint in the color we selected. We then sprinkled on Awlgrip Griptex Extra Course Non-Skid Particles and left it to dry overnight. (See picture 21) In the morning we swept off and vacuumed the extra particles from the deck. We then applied two more coats of deck paint to the whole deck and it came out very nice. (See picture 22) It's a rather modern look for a Shields. Once this was done, we attached new jib car tracks and hardware. Below L to R: Pictures 19-22



Repairing Leaks

We were rather fortunate that the boat had been into Cape Cod Shipbuilding before we bought it and they had identified some leaks from the deadwood into the bilge, but the owner didn't authorize the work. These areas of leaks were around the forward-most floorboard, the mid-ship floorboard support, and the keel bolts. The floorboard leaks were simple repairs, but the keel bolts needed a lot more effort. Two of the keel bolts had the lifting eyes frozen on and no matter what we tried, we couldn't remove them. Fortunately for us, each of the keel bolts were also too long. So long that we couldn't get a socket on them. This was very helpful, so what we did was use a cutting wheel on a grinder and shortened each of the keel bolts, just enough to get the socket on them. On the two bolts that had the lifting eyes, we cut just under the lifting eyes and still have enough room to attach new eyes if needed. Right: Picture 23

Keel bolt leaks - One at a time, we removed the nut on the keel bolt, pried up the bronze plate, and using a grinder, smoothed out the bottom of the bilge under the plate. Using a wire brush on a drill, we cleaned the bronze plate, making it smooth and debris free. (See picture 23) We then cut three layers of bi-axial fiberglass cloth in the shape of the bronze plate, with a hole in the middle for the keel bolt. Using West System epoxy, we thoroughly wet the area of bilge under the plate and each of the 3 layers of fiberglass cloth. We then put the plate on and torqued the keel bolts at their specified level, 140 psi. Note, when removing the keel nuts, two broke. They are rather large bronze nuts and we found one at Cape Cod Shipbuilding and the other online through McMaster-Carr. Testing the keel for leaks – With the help of Ken Deyett, we applied about 2-3 psi of pressure in the drain plug of the keel. Then using soapy water

we went around all the deadwood seams, hull to deadwood, and deadwood to lead. These seams were leaking, letting water into the deadwood. We suddenly heard a loud hissing sound at the back of the keel, about 6-8" up from the shoe, in front of the rudder. The seam at the back end of the keel was leaking badly.

Repairing leaks in the front and sides of the keel – One of the great things about the Shields class is that if you have a problem, someone has tackled it before. This is particularly true in this case. We found some information online, but also spoke to Jon Pope, H.L. Devore, and Dan Goodwin who all gave excellent advice. We ground down an area above and below the two seams on each side of the keel (See picture 24) We then layered on 2-3 layers of biaxial glass, using West System epoxy. (See picture 25) Once this was done, we ground and sanded smooth, then used West System Fillers, starting with 406 Structural and moved eventually up to 410 for easier sanding. (See pictures 26, 27, & 28) I don't honestly remember how many layers we did of sanding and fairing to get the right shape, but I think it was at least 5. We used an orbital sander and sanding boards. The key is to keep working at it and eventually it starts looking right. After this is all done, we applied 3 coats of Petit Barrier Coat to seal the seam. (See picture 29)
At Right Top to Bottom: Pictures 24,25,26,27,28 & 29

Repairing the leaks at the back of the keel – This wasn't a hard job to do, but getting to the area leaking it is very hard. To access the leak area, you need to remove the rudder, which is difficult. We first used a grinder to fully expose the bronze shoe that connects the bottom of the rudder to the keel. (See picture 30) Sometimes you may need to remove the fairing strips, but in our case, they were fiberglass, and in great shape, so we elected to leave them on. If you try to take them off, you may break them and need to buy new ones. Then you need to lift the boat at least 18", allowing enough room for the rudder to slide downward. It is important to note that the rudder needs to slide down perfectly straight so you don't break the rudder tube that surrounds the rudder shaft. If this breaks, it will cause a leak. Then you remove the tiller and the rudder nut.

We put a pair of vice grips on the rudder shaft so the rudder wouldn't drop prematurely. Then have one or two guys hold the rudder while another person removes the screws from the bronze rudder shoe. It is a good idea to loosen these first. We had one that was frozen and required more work. Once the screws are loose, take a piece of wood and gentle tap on the top of the rudder shaft and the rudder should drop. Again, make sure you have people helping guide it straight down. Once it is out, you have an easy view of the rear keel seam.

(See picture 31) Our rear seam was very smooth and the crack was easily visible. We sanded the back of the keel, between the rudder strips and then layered 2 layers of bi-axial cloth with west system resin down the whole back seam of the keel. (See picture 32) Be careful not to make the repair too thick because there isn't a lot of clearance for the rudder to move. After the fiberglass is cured, we applied 3 coats of Petit Barrier Coat to seal under the seam (see picture 33) We then put the rudder back on and faired the shoe and fairing strips. After it was all sanded, we painted the bottom of the boat. (See picture 34)

If you have any questions or have a similar project, get in touch and I will tell you what we learned in the process, hopefully making it easier for you. Happy sailing! The final picture is from our Fall Racing Series. (See picture 35)

Upper Left Clockwise: Pictures 31-34

Below: Picture 35