C36 MK II

M-35 Engine Overheating

SITUATION: Our 1994 C36 with a Universal M-35 always ran a bit warm (180+ degrees Fahrenheit at 2,000 rpm), but it suddenly began running too hot triggering alarms at 195+ degrees F. After a spring haul-out during which we replaced the intake through-hull valve, it ran normally on its trip back to the marina. At the dock, I changed the raw water impeller as routine maintenance. A month later, at the end of May in Charleston Harbor, the engine overheated within 15 minutes of leaving the dock for a cruise. Since it had run warm for the 12 years we have owned the boat, I first looked for a water obstruction or something that broke. Not finding an obvious problem, a more thorough investigation was needed.

RAW WATER CIRCUIT: The first thing inspected was the raw water flow. It sounded about right as it splashed out of the stern (6 gal./min. at full throttle). I rechecked the new raw water impeller, and it appeared to be normal and healthy. The ends of the heat exchanger were removed, and a small amount of zinc debris was removed. A sea trial showed no significant improvement.

FRESH WATER CIRCUIT: The engine seemed to run as expected at a lower rpm while we routinely charged our Seafrost refrigeration, but it quickly overheated as the rpm increased under load. The thermostat is supposed to partially open around 145 degrees F and fully open around 165 degrees F. Thinking that it may not be fully opening, the thermostat was replaced. An earlier tech article warned me to inspect the cap over the thermostat for debris. There was enough gritty debris in the cap and adjoining hose to obstruct most of the fresh water flow. The other end of the hose connected to the engine was checked, but no debris existed there. With this cleaned and a new thermostat, I expected the engine would run cooler than ever. Wrong. There was only a minor positive difference if any.

HEAT EXCHANGER: After talking to many sources, I became convinced that the heat exchanger should be replaced with a new one at least every 10 years rather than simply trying to clean it at a radiator shop. I purchased a new one from LENCO, North Amityville, NY, who had a much better price than others. I also was told by several sources that standard green anti-freeze is better at resisting internal buildup than the pink/orange extended life antifreeze that I was using. The old antifreeze was first flushed from the entire system. The new heat exchanger was installed (perfect fit) followed by putting 50/50 green antifreeze back in the system. While in the back of the engine, the exhaust riser was checked for buildup of salt deposits, but it was clean. I also confirmed that it was pumping 6 gal./min. by catching exhaust water in a bucket.

RESULTS: Success! The engine temperature now barely reaches 165 degrees F, even when the rpm's are increased and sustained above 2,500. It will now go to 3,000 rpm and not overheat. I have an Auto-prop, so the practical upper rpm limit is about 2,100 rpm beyond which there is no increase in speed. While charging the Seafrost refrigeration, the temperature rises to about 160 degrees after 20 minutes or so which is healthy for the engine. All of the little things done undoubtedly contributed a little to proper temperature management, but the heat exchanger replacement was the big difference. Some years ago, I pulled the old heat exchanger for cleaning, but it never had the same impact as installing a new one. I will not hesitate to do this again if the engine temperature starts rising at normal cruising rpm's. *–Hal Smith, C36 #1346*, Hally-lu-ya!

Catalina 350



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This is my first time as Editor for the C350 tech section and, Tim forwarded more articles than can fit in one issue. By no means does this mean to stop sending in your projects but it is a statement about the Catalina 350 owners and how they feel about their boats... keep those cards and letters coming.

First, in the December 2011 issue Dave Brown concluded with a description of adding "thumb holes" and hinges to the lid for the storage compartment under the port settee. The picture that was to accompany the article inadvertently appeared in the August 2011 issue on page T13 with his description of repairs to the heat exchanger brackets.

When Tim Ryan asked me for a "Bio" I omitted one of the more interesting boats I owned...a 1964 LeComte Medalist. Any of us who have had a bittersweet relationship (mine was 11 years) with an older, classic boat understands the challenges and rewards. I mention this because the look and feel of teak adds an additional dimension to a boat. Be sure to read Ralph Schroeder's installation of Plasdeck flooring in the cockpit....the black and white photos do not do justice to finished product. Also, at the end of Ralph's article is a brief description (and two photos) on hinging the shelf under the head sink for access to the sink and shower drain seacocks...I'm doing this one myself before Spring commissioning.

We all know that the "isinglass" (clear vinyl) in our dodgers will need to be replaced one day. But who knew hard dodgers require window replacement as well. R. Peel's article provides important resources for this job.

Next issue: Now a new consideration if you boat in warm (or cool) weather climates...check out how the Conways constructed insulated companionway inserts from common building materials.

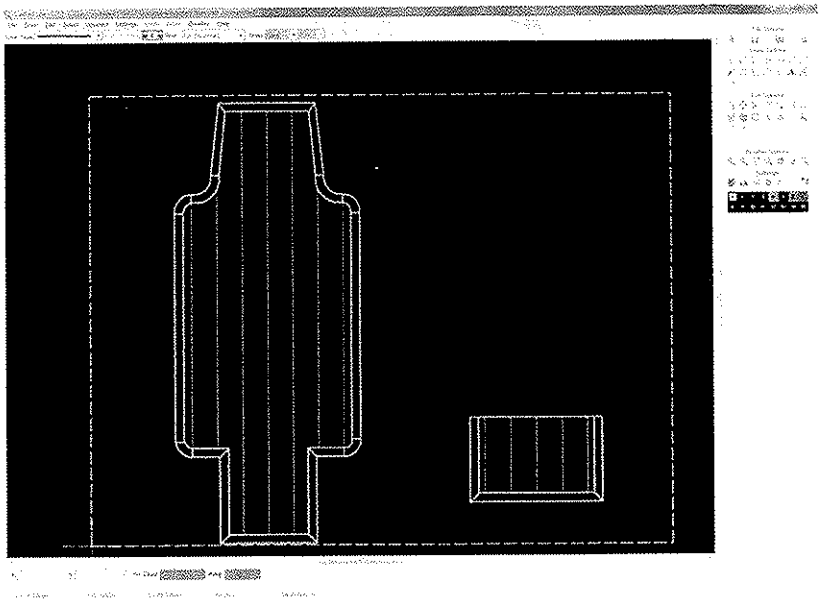
Dave Brown tells of his masthead adventures to repair the windvane and anchor light. I have my own technique for repairing masthead equipment... involves reaching for my checkbook and having the yard do it. I truly admire those who can "rise to such heights" like Dave.

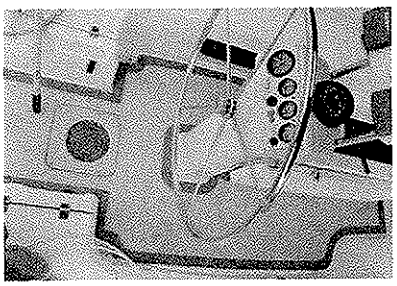
In upcoming issues look for a fascinating description of building racks to store the mast on deck to cruise the canals of New York State; more "fixes" for heat exchanger brackets; and gel coat repairs for the inevitable "oops" that we all have.

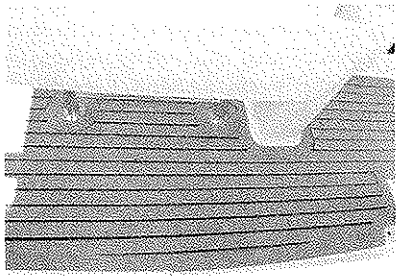
Again, keep those emails coming, we have all done "stuff" on our boats that others can benefit from...

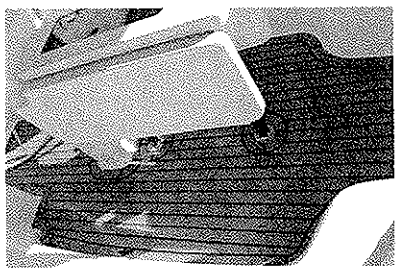
Installing Plasdeck Flooring in Cockpit

Going to boat shows every year, you pick up ideas and wishes for improvements for your boat. Even before we bought our 350 we liked the look of the boats that had the teak or "faux" teak on their floors decks and seats. We looked at the various offerings of after-









market teak and decided on the products from the company Plasdeck (www.plasdeck.com). The staff was very helpful in confirming quantities based on our drawings and giving advice on installation. They also have a very good selection of DIY videos for you to watch. You will get a much better idea of what is involved in this project by watching the videos over reading my write up.

We started out by measuring out the cockpit area. First thing we noticed, there are lots of curves and hardly a 90 degree corner. I used a simple CAD program to put our measurements and angles into a drawing. Then I overlaid teak strips onto the drawing to figure out how much product we would need. Putting the strips onto the drawing also allowed me to figure out where my joints would go when joining end pieces together.

In the drawing above notice that I did not draw in the pedestal, the cockpit table, or the emergency steering cover. At the time of the drawing we had not decided whether to border those areas or just have the strips run up to them. In the end, we decided to border the cockpit table and the pedestal. Since we wanted to keep easy access to the steering cover, we decided to cut that section out as a removable mat. It just sits loose on the floor and has not been a problem. We also included the stern platform. The gelcoat for some reason (we hardly use that area) has been cracking and chipping back there so we decided to cover it as well.

After discussing the quantities required with the Plasdeck staff, we ordered everything we needed to do the project: rolls of striped flooring, rolls of un-striped flooring for the borders, flooring glue, caulking for the seams, sausage glue gun, curved blades for cutting, flooring roller to seat the strips into the glue, and a notched trowel for spreading glue. We used denatured alcohol as a cleaner.

A few points before I describe the process.

- Cut templates ahead of time for the curves
- Observe proper safety procedures for handling of chemicals, tools and dust
- Make sure everything is clean
- Once you start putting down the glue work quickly, it dries fast
- Only put glue down where the next piece needs to go see step 3
- Try not to get glue on your fingers or feet, or you will have glue everywhere
- Read number 6 again.... Trust me on this
- The plastic cuts much easier when warm, so layout the rolls in the sun for a bit before cutting

We started out by sanding the floor with 60 grit sand paper on our palm sander. This took the tops off of the anti skid flooring and roughened up the surface for good glue adhesion. About 20 minutes of sanding did the trick. One person sanded while the other held the shop vac close by to keep the dust down. We then washed the area, dried it and then wiped it down with the alcohol. Next we started to cut all of the border pieces, using the templates we made. We setup a work table below and used the main cabin as our work shop.

We laid out the border pieces in the cockpit to make sure we had a good fit.

After all the border pieces were done we proceeded with cutting the middle striped pieces and fitting them into the border.

Once we were happy with the layout we removed the pieces in order, and laid them aside. We wiped the floor down one more time with alcohol. The large sausage style glue gets loaded into a large sausage gun. You cut off the one end of the sausage before closing the gun. It works like a caulking gun. We decided to start at the hatch, work our way down the middle, then out to one side and then finish up the other. This job could be done by one person, but we found that 2 people worked out perfectly. While one person lays down some glue beads, enough for the next piece to go down, the other person spreads the glue with the trowel, using a technique like you would for laying tile. Then place the piece down into the glue. Continue

We started out by measuring out the cockpit area. First thing we noticed, there are lots of curves and hardly a 90 degree corner.

onto the next piece until you have the floor laid. Use the roller to seat all of the flooring. Make sure that you push the seams together. The plastic has a notch in it so that they fit tightly together. After each piece was laid we checked out finger s and feet to make sure that no black glue was present, which in our case meant cleaning up any spot we touched. Any spot on the floor could be sanded off later if we missed anything. We cleaned up our tools before the glue dried using the alcohol. A scraper helped on the trowel.

Here we see the floor glued down and ready to set over night. The whole process so far was probably 6 hours. Notice that we cut the mat out where the emergency steering cover is located. We did not put any glue in this area. With a little trimming, the mat will fit perfectly and is not noticeable.

The next day we used a knife to cut all of the seams to a ¼" gap (the same size as the black stripes). We then cleaned the cuts with alcohol again. We used painters tape on both sides of the gap.

Then it was just a matter of running a bead with the caulking gun and using a scrap piece of plastic to flatten the bead. Again work quickly because the caulking is a fast skin formula, so remove the tape as soon as you have scraped the bead.

To finish up, once the caulking is dry, any high spots in the beading can be cut off with a knife or sharp spatula, or sanded down with some 60 grit sand paper. Any low spots, tape around it, fill in with the caulking and remove the tape. The nice thing about this product is that imperfections can be solved with the sandpaper. You have a choice of running a bead of white or black caulking around the outside. We chose not to.

We are very happy with the floor. Our cockpit is no longer slippery, people and dogs are much more sure footed and the floor looks great. For cleaning, spraying it down with a hose works well. Sweeping with a broom works well. Dog hair seems to stick so we have a small hand held Dirt Devil vacuum that has a rotating brush that takes care of the hair very easily. Yes the floor gets warm/hot on very hot and sunny days, but we have a bimini and dodger so this has never been a problem. *–Ralph Schroeder, C350 #342,* Wolfheim

Hard Dodger Window Replacement

Those of you with hard dodgers and semi-rigid windows might find the following of interest. Our 350 was launched in late 2003 and is hull number 150. It was fitted ex-factory with a hard dodger and windows supplied by Barrett Bonded Windows of Seattle.

When we bought Avalon in late 2007 the windows were in perfect condition and are so different from normal "rippley" polycarbonate windows that it was one of the determining factors in deciding to buy her. The hard dodger expands the days of use enormously without creating any sense of a closed in feeling in the cockpit. When racing we flip the windows up or take them off because of the extra drag going to windward, but pretty much the rest of the time they are in.

The previous owner advised that they were Strataglass and supposedly good for 15 years, and from the Strataglass website I found that they recommend IMAR cleaner and polish as the only compatible product so we located some and only used that. However, after 5 years of continuous daily exposure to the Australian sun the windows started to craze and got progressively worse through year 6 to the point where we decided to replace them. They were still fine to see through, and still providing safe protection in the cockpit, but the crazing was significantly reducing our enjoyment of them.

At this point I started doing some research and contacted Barrett Bonded Windows and found that a) they were not Strataglass, they were UV coated polycarbonate windows and it was the UV coating that was breaking up, not the polycarbonate core; b) they are not recommended for continuous sun exposure, Barretts suggested a cover should be used when the boat is not in use; c) there was an alternative of acrylic material that looked pretty much the same, was not as strong and more likely to break if someone fell against the windows, but did resist UV degradation better. For cold climates acrylic becomes brittle so polycarbonate is recommended, but for warmer and high UV climates like Australia acrylic was put forward as a viable alternative.

Part way through these discussions Barrett simply disappeared, their website was no longer there and emails were not answered. After contact with Warren Pandy at Catalina, and a number of phone calls and searches, I discovered that Rainier Industries in Washington had taken over Barrett's business, had the templates for the Catalina windows, and were offering them for sale (but they are not cheap!). Many discussions ensued with Thad Bowes at Rainier and eventually I ordered a set of polycarbonate windows with the intention that this set would be covered or removed when not in use for any length of time.

I did look into local manufacture, but the beauty of the bonded windows is that there is no stitching, no place for mould and moss to accumulate, and no Australian companies had any experience with making the bonded windows. Plus while matching the existing windows was an option, having a set made off the original templates seemed to involve less risk of a poor fit.

Rainier manufactured them very quickly once we got to the order stage, and they are now sitting on the boat waiting for a trimmer to come and help me press the studs. The windows supplied in 2011 are identical to the windows supplied in 2003 and I recommend Rainier to any Catalina owner thinking of replacing the windows – and remember, the sun eventually ruins everything so if you can protect something expensive from the sun it makes sense to do so. *–R. Peel, C350 #150,* Avalon

Simple modification to the head sink

I try to stay in the habit of closing all of the sea cocks when I leave the boat every weekend. The one that I dislike the most is the head sink sea cock. You have to remove everything from the shelf, lift the shelf and then open/close the sea cock. So what I did was cut the board, add some hinges, drill a finger hole and voila I can access the sea cocks without needing to empty the shelf. *–Ralph Schroeder, C350 #342,* Wolfheim

