Catalina 350



C350 Association Technical Editor
Tim Ryan
tjr3c@comcast.net

I want to thank the C350 owners for contributing these great articles for this February issue of *Mainsheet*. This time around we will be treated to an article and pictures on how to install the Garhauer Genoa Jib Car system. Other owners have told me that this is the single best upgrade that every C350 owner should consider. Thanks to Bill Van Wagoner.

I know the batteries on my C350 will be going into their fifth season and I dread the day that those 4Ds begin to fail. That is why I am so grateful to Peter Dennoncourt for writing up how to make the conversion from 4Ds to Trojan 145 golf cart batteries. They are lighter and have more amp hours.

Finally, we in the northern latitudes especially, will have the option of extending our sailing season if we follow in the foot steps of Mike Dwyer who will take us though a step by step procedure for adding a complete cockpit enclosure to our C350s.

Enjoy the articles and drop me a line at tjr3c@comcast.net if you have a project that other C350 owners should see. We'll try to get it into the next issue of *Mainsheet*.

Garhauer EZ Glide Adjustable Genoa Car System

I finally got around to purchasing a set of Garhauer EZ-Glide adjustable genoa cars to simplify trimming the 135% genoa on *Destiny* (C350 #229), and ending those awkward (often dangerous) moments of standing on the genoa sheet while bending down trying to move the cars. Garhauer suggested using 5/16-inch line with a length four times the genoa track length. The genoa track on *Destiny* is about 8-feet long, so I purchased 45-feet of line for each side to have some extra to reach the cockpit. Installation is straightforward with the following steps:

Remove the plastic end caps on the aft end of the genoa track. This will take a bit of doing as the plastic cap and the large screw were bedded with sealant. Remove the old genoa car.



Slide on the forward block set (there is sufficient room behind the aft lower shroud to slide this on the front of the genoa track). Tighten the screw to fix it to the track – you need a big flat blade screwdriver for this.



The new genoa cars come with a short piece of genoa track attached with tape on each end to keep the ball bearings in place. Remove the tape from the forward end of the track piece and place it up against the aft end of the genoa track and roll the car on. It is imperative that this be done carefully and without a derailment to keep the ball bearings in place under the car.



Slide on the cam cleat and tighten to the genoa track with a hex-head wrench. Note that the cam cleat is an optional item that I cannot imagine doing without. See figure 4.



Clean the plastic end cap and large screw and re-bed. I decided to use marine grade silicone sealant so that this can be easily removed in the future if needed.

Connect the 5/16" line to the pin on the forward block set, then back through



the small sheave on the car, then to the lower sheave on the forward block set, then back through the large sheave on the car, then to the upper sheave on the forward block set, and then back along the cabin side to the cam cleat. I ran the line clockwise through the sheaves on the port side, and counter-clockwise on the starboard side so that the control line would track inboard, inside the curvature of the genoa track.



Under Sail

Out on the water I found this system to add an entirely new dimension to trimming my 135% genoa.

It is especially effective in light air. Alternately adjusting the sheet and the car allows you to achieve all possible genoa shapes. For example, moving the car forward buts more curvature at the bottom of the genoa but also requires easing out on the sheet as the increased vertical pull can cause contact between the genoa and the spreader. Likewise, moving the car aft will flatten the lower portion of the genoa and the sheet needs to be pulled in if you wish to maintain the same distance from the spreader. As the apparent wind approaches about 15 knots, I found that the cars need to be almost fully rearward, and there really is no room for tweaking at this point. When the apparent wind approaches 17 or 18 knots with the 135% genoa I start contemplating shortening sail anyway as the weather helm starts to get excessive. While I have not tried this system when reefing yet, I anticipate it will be of tremendous value as it will be much easier to restore decent shape after furling in a bit of the genoa, and all without leaving the cockpit. In all, the adjustable genoa cars have brought a new dimension to my sailing enjoyment, and are one of the best single improvements you can make –*William T. VanWagoner, P.E.* Destiny *C350 #229*

Replacement of Group 4D batteries with Trojan T-145 Golf Cart batteries

If you want the security of a reliable deep-discharge house battery, then you will one day want to replace your standard 12V Group 4D batteries with golf-cart batteries. Golf cart batteries are designed for abuse, both mechanical and electrical, so they are the most reliable batteries for sailors. I found that to get the most capacity into the C350's battery compartment, a Trojan model T-145 was best. T-145s are a bit taller than the Group 4Ds, but not too tall to fit under the seat cover, and you get 20% additional capacity in the bargain. Another plus is that they are 6V batteries, so each one weighs far less than the 110 pounds of your Group 4D battery. I can manage 72 pounds (weight of one T-145), but I needed special rigging to deal with my Group 4D.

The replacement is quite straightforward. Start by turning off the distribution panel circuit breaker, located under the navigation table. Then label all the wires connected to your present batteries. Starting at the negative end, you should have a large diameter (1/0) black cable that connects the two battery negative posts together (COM NEG), and another 1/0 black cable that exits the battery compartment from the negative of one of the batteries (B1 NEG). At the positive ends, you should have large diameter (1/0) red cables from the positive terminal of each battery (B1 POS) and (B2 POS), that exit the battery compartment. You may also have smaller diameter red cables on fused leads to the charger (CHG#1) and CHG#2). After labeling every wire, you can disconnect them all and drop them into the bottom of the battery compartment. The two wooden hold downs on top of the batteries must also be removed. This is done by peeling back the padded decorative skirt, starting at the outboard side of the battery compartment, under the navigation table. Please refer to figure 1. It is held on with Velcro, so it is easy to remove. This will reveal slotted screw heads that are screwed into the ends of the hold downs, through the fiberglass. Remove all 4 screws and remove the wooden hold-downs. See figure 1.

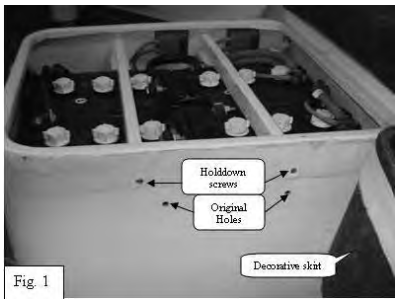


Fig. 1

Removal of the 110-pound Group 4D batteries requires assistance. They can be lifted straight up to remove from the battery compartment. I used a block and tackle rigged over the boom to lift them out through the companionway.

You will want to replace the two 12V Group 4D batteries with four T-145 6V batteries. You will connect two T-145s in series to create two 12V strings, so that you will in effect be replacing two 12V batteries with two new 12V batteries. Because the T-145 batteries are taller than the old Group 4D batteries, you will probably need to replace the hold-downs. I went to the local hardware store and bought a 4-foot piece of 1x3 furring strip for this purpose (more about that later).

Installing the T-145s is easy. Facing the battery compartment, pick up one T-145 and place it in the left end of the compartment with the negative terminal on your left. Take care not to place the battery on top of any cables. Place each of the remaining batteries in the same orientation, so that you have a 2 x 2 arrangement with all batteries having negative terminals oriented to the left, as shown. See figure 2.

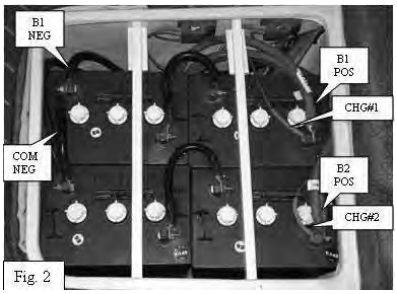


Fig. 2

After placing all four batteries correctly into the battery compartment, the next step is to connect them to the boat's electrical system, using the original wires. Starting at the positive end (right side) identify battery #1 as outboard battery (on top in fig. 2) you can connect the large power leads and the small charger leads, if installed, to their respective batteries. Next at the negative end, you can install the cable between the two batteries and the B1 NEG cable.

To finish the electrical installation, you have to connect the two 6V batteries in series to make 12V batteries. For this you will need two new jumper cables, J1 and J2. See figure 3. These should be

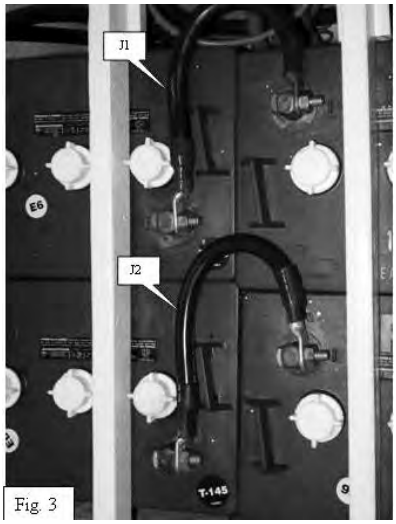


Fig. 3

made of the same large cable size and type as the other large cables (AWG 1/0). The color is not important. Because the cables are rather stiff, I made the overall length, including lugs, 12 inches so that they could be bent around a generous turn. Connect one end of the J1 jumper to the positive of battery #1 (left side) and the other to the negative of battery #1 (right side). Similarly, connect the one end of J2 jumper to the positive of battery #2 (left side) and the other to the negative of battery #2 (right side). All the connections should be sprayed with corrosion inhibitor when finished. Don't forget to turn on the distribution panel circuit breaker before testing your new batteries.

The mechanical installation can be completed by making and installing new

wooden hold downs. I measured lengths of 1 x 3 furring strip, choosing a location between vent caps so that the batteries would be easy to water when needed. After measuring and cutting the cross members, I screwed a 3.5 inch block to the underside of each hold down (see fig. 2). The purpose of these blocks is to prevent the batteries from sliding athwart ship when on a starboard tack. For good measure, I added a couple of coats of white paint before installing the hold downs. It will be necessary to drill new holes in the battery compartment walls (see fig. 1) because the T-145 batteries are taller. After locating and drilling the holes, you can use the old screws to fasten the new hold downs in place. Good sailing. *–Peter Denoncourt, "Kite", #72*

Note from Catalina Yachts: Because you are replacing the original hold downs with thinner material you should consider a stronger material than furring strips. Oak, ash or other hardwood would be a better choice. –Gerry Douglas

A Back Porch



Full cockpit enclosure for a Catalina 350

Good friends of ours who we travel with on Lake Ontario had a new boat delivered with a full cockpit enclosure last year which, when I first saw it, seemed like a good idea but there were too many canvas pieces to mess with. After a 2 week cruise with them featuring a series of days where sunshine and heavy showers alternated by the hour and very heavy mosquito appearances occurred each evening, I began to warm to the idea.

My Catalina 350 was delivered with the factory dodger and bimini and during the first summer we had already had two "side pieces" made that would connect to the filler piece between the dodger and the bimini to have rain water not fall in the cockpit. (Those were $300 made by a "startup" canvas person – this is the rolled up piece in Figure 2). A full enclosure would require 5 more panels; a side panel for each stern quarter and 3 across the back including a center panel that covered the access area to the stern deck. I wanted a full screen enclosure as well as the windows to have rain as well as mosquito protection.



Full enclosure with the original dodger, bimini and filler piece

I contacted a number of canvas people until I found an interested, available, and experienced canvas person to do the full enclosure (there is a big demand for these people in August here!). We discussed the specifications which went well except that the stern rail with the seats, motor mount, flag, grill etc. was a big issue and would require an expensive and complex workaround. In the interest of speed and money we agreed that the cover would run from the aft seam of the bimini directly down to the outside of the cockpit leaving all the stern rail issues behind the enclosure. Although this is a compromise, the aft panels can be unzipped half way to make access to the stern seats easily.

This job took the canvas person 2 days and cost a mere $1675 (not even 2 boat units). We are very pleased with the job as it provides a huge three season breezeway which we used extensively this fall. I am sure it will also be a benefit in the spring (cold north winds) and the summer (warm mosquito nights). I would recommend it to all Catalina 350 owners. The only downside (aside from the cost); is you have to be good with zippers – there are 21 of these to go from open cockpit with bimini folded to full screen enclosure, but it is worth it!

–Mike & Barb Dwyer, Catalina 350 hull 149, Nautilus, *Sodus Bay, New York (Lake Ontario)*



Full screens and canvas from the bimini to the cockpit



Inside the screened "back porch"