A

Alternator V belt

Probably means your belts are old, glazed, and too loose. (Black dust collecting around belts) New belts are likely in order. (Just did mine 3 weeks ago, same symptoms; the alternator v-belt was a mess once I got it off and flexed it, didn't even keep it as a backup). I used a trick I learned on this list (I think)...used a turnbuckle with curved ends bolted on as a spreader to put tension on the belt, since you can't get a good prybar in there to crank the alternator tight enough. Worked great.
Jim Watts
Paradigm
C&C 29 Mk II
Victoria, BC

Hi Paul
I used a cheap galvanized hardware-store turnbuckle with an eye on each end, although an expensive marine one with fork ends would work as well or better. I measured the diameter of the pulleys on the engine and the alternator (sized at bottom of v-groove) and cut pieces out of 1/4" plexi to fit the bottom of the grooves; bolted these onto the ends of the turnbuckle, with just enough slack in the system to be able to get the tool in between the main pulley and the alternator pulley. Then turn the turnbuckle to open, which forces the alternator out from the engine. It may be necessary to tighten down the alternator and reposition the ends if you are driving it out a long way, since the tool does move. I used plexi because I had it. 1/4" ply would work as well, there is really not a lot of pressure on the end pieces. Once I had it measured out, it took me about ten minutes to build, and makes life a lot easier. Lotsa luck.
By the way, you may be stuck with the expensive Yanmar belt for the water pump, but you can size in a standard auto V-belt for the alternator. 1/3 the price.
Jim Watts
Paradigm
C&C 29 Mk II
Victoria, BC

Automotive aren't the only sources of belts. Industrial and refrigeration
supply houses are a definite and some very good hardware stores are also.
The Yanmar 3GMF uses an A36 belt. I changed from the stock 35 amp alternator
and now use a A37. I'm going to try an AX37 this year. X belts have cogs and
are supposed to run cooler, have more grip and longer life. My experience
with them on fans would tend to agree with the claims. One of these days I
have to get the water pump belt sized. Small belts like it are used on

exhaust fans and draft inducers. There is nothing special about Yanmar belts other than price.
Tom Duane
C&C 34 "Chameleon"

B

Backstay Tension

Ross,

You're on the right track with the backstay tension. On most C&C's (with our tree trunk masts!) all the backstay effectively does is tension the forestay. As you remove the sag from the forestay, you're reducing the AMOUNT of draft in the genoa, which reduces the power in the sail. Luff tension affects the fore & aft POSITION of the max draft. A tighter forestay also allows for better pointing, largely by reducing drag. So as the breeze builds, you can pull on more backstay to depower the genoa. Or, if you need pointing ability, you can also crank on the backstay. Backstay is a tradeoff... don't pull on too much if it's really choppy, or you won't have enough power to punch through. OTOH, you can have too much headstay sag in light air, which does little more than add drag. Downwind, you can/should totally ease the backstay. On bendy rigs, backstay also adds more mast bend, which does the same thing to the mainsail. On both types of rigs, adding backstay tension will open the leech of the main & genoa as the top of the mast moves aft, further depowering the sailplan if you don't compensate by sheeting the main & jib harder and moving the jib lead forward slightly. This effect is more dramatic on a bendy rig.

I tend to actually LOOK at the sail shapes and decide how I like them based on conditions and immediate tactical needs when racing. Keep in mind that you may need more power on one tack than another due to sea conditions. That's what makes it hard to sail completely "by the numbers". The best way to see what happens is to watch the genoa and headstay sag as the backstay is rapidly eased from being on as hard as possible. Watch it a few times from a good vantage point while someone else is driving and adjusting the backstay and you'll have a good understanding of how backstay tension affects the genoa shape.

In a nutshell:
Light air, or under powered in chop -backstay eased
Heavy air, overpowered or need to point - backstay hard
Just remember that most of life is lived in the gray area between the extremes.

On a split bridle system like we have on our 24's & 25's, the most effective purchase is on the upper part of the split. In other words, when the adjuster is off, the blocks should be at the top of the split. For this reason, I don't think it's really possible to apply too much backstay tension

with a split bridle system. Although you're pulling much harder on the adjuster when the blocks are low, you're actually less effective at adding tension. Obviously, you are adding static compression loads to the rig and hull, but the dynamic loads of sailing upwind are much greater, particularly in heavy air and chop. Use it when you need it, but don't leave it on for days or weeks. I wouldn't worry at all about putting on too much backstay tension. I don't.

This is about 9 years of hardcore J24 racing and rig tuning experience applied to my C&C 25 that I've raced for just as long, distilled in a few paragraphs! On the J24, we adjust the shroud tensions between races, based on the conditions on the course at the start, to affect mast bend, forestay tension and therefore initial sail shapes. That really helps you see and understand how it all works together. Then you play with the variables like backstay, traveler, vang, jib leads, etc as things change sailing around the racecourse. And I'm still learning... I'm in that "the more you know, the more you realize you have to learn" vicious circle. Understanding the interactions is where it gets complicated, and fun! (and it's one of the reasons the J24 is such a great technical boat to race) I was just demonstrating some of this to my J24 trimmer 2 weeks ago. I could see light bulbs going off in his head as he watched the sail shapes as I trimmed the backstay on and off between races. :)

Dan

Ball Caps

We now have available for delivery NEW C&C Yachts Ball Caps in various colors for $20 (includes taxes, shipping, handling, etc).

Also, personalized Owners Manuals CDs. "Autorun" CDs with Adobe Acrobat Reader, 1 Owners Manual (your choice), Atomic 4 Service and Repair Manual, and our Screensaver. We can scan a photo of your boat and put it on the CD and Case Cover.

Don't forget we still have 100% cotton sweat shirts with Logo and nylon burgees.

All profits generated from these sales are used to keep the Photo Album under full sail.

Stu
commodore@cncphotoalbum.com
C&C Photo Album & Resource Center
http://www.cncphotoalbum.com

Batteries

Kent,

We've had a pair of paralleled 12V 8D gel batteries in our last two boats, used as the house bank. Maybe we've been lucky, but we've enjoyed years of service from both (MANY years in our last boat. We have 12V refrigeration, and lived aboard our last boat on a mooring, charging with wind and solar sources. We needed the depth two batteries provided, and I've never seen a 6V gel cell. I've used the two in our last boat both separately and linked, and linked was less trouble for me. Didn't see any charging differences, and I had both separately monitored with a Link 2000R unit. My $.02 US...

David Romasco
~~~~~~~~~~~~~~~~~~~~~~~~_/)
C&C Landfall 42 "TRYST"
Kent Island, MD

I may be confused here. How could you separately monitor 2 batteries in one bank with the Link 2000R? Was your starting battery connected to the 2000R also?

Battery manufacturers recommend against paralleling batteries. If 1 cell drops by even .1 volt, you can end up with 1 battery at 12.6 volts (normal full charge for lead acid battery) and the other at 12.5 volts. This is enough difference in potential to set up a complete circuit and start the batteries discharging (at a rate higher than their normal self discharge). IF the batteries are under a near continuous charge, then the added voltage and current from the charging circuit will mostly mitigate the problem, but left alone on a boat, with no charge for, it can be a real problem.

Use of a unit like the Link 2000R, is usually with the 2 batteries are in 2 banks, isolated but able to be drawn from together.

Kent

You hit the nail on the head in your last line. I installed a sensor on each battery, and would periodically isolate them to compare performance. I found no significant difference over time (6 years on the last set, and when I saw a combination of slightly different charge capacity and lower ultimate capacity, I replaced both and gave the batteries to friends who may still be using them).

My starting battery was an older 8D gel cell (original house battery, and I had room for it). While I wouldn't have kept it as a house battery, it retained more than enough oomph for starting purposes. No, it wasn't monitored; the Link 2000R only handled two sensors, as I recall. It's such a hypnotic piece of equipment that I probably would have if it would handle it (the Admiral recalls me sitting in front of the panel for hours, chuckling to myself, on windy/sunny days; I maintain I wasn't obsessed....).
~~~~~~~~~~~~~~~~~~~~~~~~

That last may relate to your point about constant charge. We had a Windbugger and a 75 watt solar panel, and it was indeed a rare day when at least one of the charge ammeters wasn't up off the peg.

David-
When batteries are purchased from the same manufacturing lot number--as is normal when you buy two new batteries off the shelf at the same time--they usually can be used in parallel without problems. Except for the problems caused by one cell failure, or one corroded cable on the post, etc, causing them to become mismatched.
This is all documented by the battery makers; Parallel *can* be done without problems, but they still advise against it in general, simply because there are "possible" problems that simply cannot happen when you place two 6v batteries or six 2v cells in series. (Two volts being a single cell, common in electric fork lifts and other heavy amp equipment.)

Batter Circuits

In the 2000 West Marine Catalog, the advisor says, "we DON'T recommend the use of a traditional OFF-1-BOTH-2-ALL battery switch. Instead, consider using three OFF-ON switches -- 1 switch to connect your starting battery to your starter circuit, 1 switch to conect your house battery to your boat's distribution pane, and 1 switch to parallel your batteries." They also have a battery isolator between the two batteries for charging purposes.

Has anyone done this and did you run into any problems? Are the switches available in a 'toggle' type and where?
Stu

The way our boat is wired the power from the alternator goes to a battery isolator. From there it goes to both batteries. The alternator 3 step regulator by powerline senses the voltage from #1 battery + post. Both batteries have a wire going to the battery switch. Then to the panel. If the battery switch is turned off there is no ill effect to the alternator. Stupid proof ?
Brad

Dave,

Connect your VOM (in the resistance mode, lowest range) from the #1 terminal to the common terminal.
All battery wires should be removed for this test. With the switch in the OFF position, the meter should read infinite resistance (Over-range, etc.). When you switch to position #1, the meter should read very close to zero. Now SLOWLY switch to the BOTH position and the resistance should stay near zero, and not blip up momentarily as the switch crosses between position #1 and BOTH. Now connect the VOM between the #2 terminal and the common terminal and repeat the test between switch position #2 and BOTH. Good luck!
Gary
S/V Expresso
'75 C&C 35 Mk II
East Greenwich, RI, USA

Beds

Hello all,
I developed something over the weekend that might be of interest, though I would guess a number of you have already figured this out...

Problem: When sleeping on our C&C 27, there was no place wide enough for my wife and I to sleep comfortably together. Yes, putting the table down made for a bed, but its just not large enough for two people of average size.

Solution: I measured the area between the starboard bench seat and the port table/bed combination. I then cut a single board of these dimensions, but then cut it into 3 pieces, and then attached them back together using brass piano hinges. This way it will fold into "thirds" suitable for storing. I then cut two supports much like you see used in supporting waterbeds. If you are unfamiliar with these, it involves a 13" tall x 28" long piece of wood, with a "notch" cut into it exactly 6.5" high (half of the 13"), and just as wide as the wood (in this case, 1/2"). Do the same on a second piece of wood, 13" high and 18" long. You can then slide the two together to make an "X" which will act as a 13" high support for your new bed. You will need two of these so they bridge across the hinges, giving the whole thing stability. Then, we just use the cushions from the starboard side for the additional bed space.

So, in the end, I've got a removable section that makes our "barely a single" size bed almost queen sized.

I anticipate that finally we will get a good nights sleep together!

Fair Winds,

Bruce

Bilge Smell

When I was commissioning my boat in 1991, there was a problem with the fuel tank and when the mechanic took the sender out, the tank burped 30 gallons of raw gasoline into the bilge of my new boat. We managed to get the gas pumped out without blowing the thing up and poured about 1 gallon of bilge cleaner (whatever brand he happened to sell) into the bilge. The boat interior smelled awful and I posted No Smoking signs all over the place. 2 weeks later and about 6 different makes of bilge cleaner later and we could still not sleep on the boat without getting a monster headache.

I talked to our head chemist at the time and begged for a solution. He outdid himself and we have been marketing his invention ever since. The product is called Bilge Bath because it not only emulsifies the oil, grease and fuel in the bilge with the water, so it can be pumped out (all bilge cleaners do that), but it also washes the sludge off the walls, without scrubbing. He added an odor counteractant that he called Odolime which knocks out the smell of gasoline, diesel, salt water, dead fish, moldy bikini or bottoms and even the overflow from holding tanks. Haven't tried it on dead bodies yet.

This Bilge Bath completely eliminated the smell of the gasoline within 2 days. Several months later, when the intake hose popped off the holding tank when I was trying to pump 42 gallons into a 40 gallon tank, the Bilge Bath took care of that disaster as well. The boat was useable the next day and no one ever knew. At the recent Toronto Boat Show, a bunch of wooden boat owners bought us out in 2 days. They said they used it in the past and it was the only thing that got rid of the unique wooden boat bilge odor, if you know what I mean. The commercial fishing guys on the East Coast are now using it, so I guess that's quite an endorsement.

This could be the solution, even if you do not know the exact cause as it solves a lot of problems (except maybe the above mentioned dead body). If you are still reading and want to know more, check out the web site www.auroramarine.com

Oh! and about the leaky windows thing. If you heat and pre-form the acrylic or polycarbonate to properly fit the opening, rather than bending it to fit, you relieve the stress on the plastic so it won't leak, pop out or crack. A couple of years back, there was an excellent How To Do It article in multihulls. It was about building Bullet Proof port lights for off shore boats. The key was to build a mold, put the plastic in the mold and place the thing in your oven for a couple of hours. When it cooled, you had a perfect window that was easy to install and would last for almost ever.

Stu should put this article on his site for future reference as this subject seems to come up at least 6 times a year.

Well enough of my hot air.

Pleasant Breezes.

Richard

Bosin's Chair

Steve,

You would actually be better served by using a 'double bowline on a bite' used it in rescue work years ago and it was really nice "quick" seat.

Neil
FoxFire - 1982 C&C32
Wharton Creek, MD

Brass Refinishing

According to Practical Sailor (oh, that rag again?!) 3M Metal Polish is the bestest and fastest. I bought some, and it sure beats the hell out of Brasso and NevrDull and anything else I've ever used. However, hopefully, it's bronze you're working on, since if it's brass, it will probably never look good again, having seen salt water.
Jim Watts
Paradigm
C&C 29 Mk II
Victoria, BC

Hi Greg:

As promised, I found the stuff. I sprayed the brass with Aurora Algex, a bottom cleaner especially made for aluminum, let it sit for about 60 sec. and rinsed it off. I then sprayed some Aurora Kwik Shine (a spray on polymer cleaner/ polish that converts sea salt into a cleaner polish), rubbed it on lightly and buffed it up. The brass looks like gold. I didn't try adding salt to the Kwik Shine. It might even reduce the labor or improve the shine.

A word of caution; You may wish to do your bell when friends and family are not present. My wife was so impressed that she dug up a bunch of old brass planters and nick knacks from our basement and gave me permission to polish it all this Saturday. Some of the office staff are also bringing in their brass so I can clean and polish it for them, since it was so easy to do. I've put the lot on notice that I am limiting my generosity to 6 pieces, which will give me an opportunity to experiment with adding salt to the Kwik Shine. After that they can do their own.

If you need more information on these products, it's on http://www.auroramarine.com

No, I'm not going into business and will not accept any brass for cleaning and polishing regardless of the challenge or the promise of remuneration.

Bottom Paint

non-marine Peel-Away

Frank-
http://www.peelaway.com is their web site and they have MSDS listings for all products. The first Marine Grade listing is a totally different chemical from the first regular listing (which is part lye). I would guess that the Marine Grade stuff is compounded with more aggresive chemicals to break up the exotic materials that some boats are painted with, i.e. polyurethanes, vinyls, epoxies. Try a small bucket of the cheap stuff if you just have "plain" bottom paint, how much can you lose, it can always be used to strip something else.<G>

Two quotes from Practical sailor

A peel away handout says it also offers safe removal of marine coatings with NO damage to the fiberglass cost $15.95 per gallon -29.95 vs $43 for the marine stuff. - found at wood workers Warehouse

Peel Away works best . Peel Away 1 is considerablely less expensive and appears to work just as well .
Soy gel and West MarineStrip would be our next choices.
Good Luck
Ross

Glenn:
I've used it, the non-marine Peel-Away, as sold in Home Depot and Lowes, many times to take off all the bottom paint. Works very well, does no damage to the gel coat at all. No softening of it, nothing, zilch. Called the manufacturer when I first used it. And received multiple reassurances it wouldn't hurt the gel coat. It doesn't. And I'll be using it again, in about three weeks, to strip all the bottom paint of a 32fter.
You still have to sand the bottom to give the new bottom paint or epoxy coating, whatever you're putting on, some tooth, and to ensure the bottom is absolutely clean.
The key to using it is to prevent the gel from drying out, so coverage with the paper is paramount. And don't allow air bubbles to form under the paper--the gel will
dry out under it.
Hope this has helped,
Bob D.

Practical sailor refers to it as Peel Away 1.

Kate - Don't know if you're responding to something I wrote earlier, but I burnished Gremellyn's 600 grit wet-sanded VC Offshore with bronze wool on the hook and loop pad of my AEG (now Milwaukee) 6" random orbital sander at it's lowest speed so as to not generate much heat. Sorry that your's doesn't have variable speed (really?), but burnishing it this way is soooo easy. Gremellyn's bottom is as smooth as....
Splashed her yesterday, and just got back from the first Wednesday night beer can race!

Cheers, Greg

Kate - Sorry, should have read this one before I sent the one that's just going on line. Anyway, I've been using a random orbital with dust pickup for 8 years now. My German AEG is incredible...light, powerful, and fast, but most importantly much safer for you and the environment. If you buy a bigger unit, get one with dust pickup so that you can connect it to a shopvac. You will no longer turn into a smurf (blue dust) during sanding (still wear a good dust/filter mask, gloves, googles, and tyvek suit with hood), keeping the boats around you and the nearby water much cleaner. An added advantage is that the dust pick up makes the sanding discs last longer as they don't clog up as fast. Don't go cheapo on the sander..get 6" and industrial quality as they are built to last (my AEG is 8 years old), are more ergonomically designed, and lighter...easier to use. Also, hold the thing and imagine sanding some parts of your boat, like near the keel-hull radius...will it work? If not try holding and imagining the same with another.
Happy consumerism, Greg

C

Chartering

We had a great vacation on a 50 ft. Gulfstar named Lady Jane owned by a couple that provided 5 star food drink and service at a very competitive rate. The boat was roomy well equiped,well kept and Gary and Jane were atuned to there guests.We booked 7 days through Sailing Vacations Inc. 800 922 4880 sailingvacations.com
Hope this helps and enjoy your trip, we sure did.
Tom Dobbins '83 29II SawdustII

Charting software

Glen,
most laptops will work off a small inverter using the regular AC connection. The one I use is an inexpensive 300 watt unit available from many marine or discount stores. My particular laptop operates from the battery so the AC connection only charges the battery filtering out the non-sine wave output of inexpensive inverters.

Many Laptop suppliers also have 12VDC connection devices also.

I'll also add, there are many devices for matching up your electronics, GPS,

instruments... etc, in the catalogs now. NEMA 0183 signal voltage levels don't exactly match RS 232 inputs and outputs of the laptop so its best to use an interface to insure the information is transfered relieably. Looking in the new defender catalog there are a couple of boxes mention. As in our case, Raytheon makes a box to convert seatalk data to the computer.

At first we used a handheld Magellan Colortrak with an external antenna suction cupped to a cabin widow and a data cord for the GPS to the computer. Now a JRC Diff/GPS receiver is attached to the back rail and hooked to a seatalk connection.

Compass Repairs

Klaus,
I saw your note asking after compass oil on the C&C list. FYI, there is a fellow here in southeast Michigan who does an excellent job of restoring and rebuilding compases. He did my Ritchie Globemaster a couple of years ago, and it came out looking like new, for a quarter the price of a new compass.

His name is Vincent Crane, and his phone number is (810)778-1674. He works out of his home, at 22441 Statler St., St. Clair Shores, MI 48081.

Tim Metcalf
C&C 41 "Insatiable"
Troy, MI

Cushions

Roger: I had a guy come to my house that steam cleans carpets. He did all my cushions and scotch guarded them also. I removed all the cushions and he did them in my backyard.

Joe

Cutlass Bearing

Hi Ed,

Have done what you are going to do and it was one of the easier jobs that i have done on our 29. The hardest part is getting the shaft out of the coupling as in our case it was 22 years in there. We made a clamp that had two bolts come out on either side parallel of the shaft and by turning each bolt a turn we pushed the shaft out of the coupling took about 15 minutes 5 minutes

to climb in 5 minutes to undo and 5 minutes to come out. The bearing is press fitted in and to boot there are two allan screws in the strut holding the bearing. We press fitted our bearing out after finding out afterwards there where to allen screws holding the bearing. No damage to the strut but the old bearing was scored. Needless to say we drilled out the filler and undid the allan screws. We then undid the stuffing box and removed the hose and assembly. What an interesting surprise we found. The fiberglass tube where the hose clamps on was a different size then the log assembly and to boot the hose was 1/8 to big for the log and 1/4 of an inch to big for the fiberglass tube. You want a hose that has no wire reinforcing in it rather just a mesh and not exhaust hose as that is way to flexible. Usually 4 to 6 layers of mesh with a heavy coating of rubber ours was 1/4" thick wall and we matched it to the fiberglass tube and beforehand shoved it on the log assembly. Of course double clamping with Awab clamps is a must. The packing we redid with the flax since it lasted for 22 years the first time. The one thing that we did do is put on that paste that west marine sells for 50.00 bucks and comes in a film canister. Yes a film canister! Thought behind it was that you can have a drip less packing and they claim your engine can get 100,000 hours on it. If we get 1000 hrs in my life time i'd be impressed but nonetheless no more leaks is what i wanted without going to the expense of a PYI. Next put the shaft log assembly with the hose already on it back on the fiberglass tube but do not clamp the hose to the tube yet as the shaft going through will move it a little which nicely aligns the stuffing box. Next shove the shaft back through the cutlass bearing and then through the shaft log assembly into the coupling. To get the shaft into the coupling take a rubber mallet and tap at the propellor end to shove into coupling. Oh align key way with coupling. Next put your first ring of packing into the stuffing box coated in that green slim then one ring of the putty supplied with that kit and last but not least the last ring of packing again coated in the green slime. Take the shaft log nut that is sitting on the shaft and tighten by hand the nut onto the log until you can't turn anymore (usually about 3 turns) then take your wrench and tighten one more turn and that's it. Now turn the shaft around from the outside to see that everything is smoothly turning. Now the last step and one i almost forgot, tighten the two hose clamps unto the fiberglass tube and use seizing wire to secure the bolt on the coupling. We did this four years ago and she's been running smooth as a baby's bottom ever since.

Ed
I just replaced my cutlass bearing last Saturday in Ontario.
It was not warm, about 20'F.
I used a hack saw to cut it in 2 locations, 1/2 inch apart,
fore and aft. I then chipped it out with a screw driver.
Easy job.

I then went to a store and picked up a new one.
I found it to be about 1/16" too big.
No way would it ever fit.â€¦
I chilled it in ice, (lots available) and it then
easily fit the strut. Could not believe how much
it shrunk. Try this trick, it will help your installation.

I lubricated it with corrosion block,
and used the bolt and washer technique to pull the
new one in. Easy job.

I also spent an hour sanding the strut, looking
for the set screws that hold the bearing in place.
Guess what, no set screws, just compression fit.
But the bronze strut looks great now!

Is it not great that we have 5 months to play with our
boats on the hard.

Larry Jensen
Rock & Roll forever
C&C 39 BHYC
Oakville On

In Canada, it all depends in which province you reside. Some have laws for mechanical work, some do not. I have replaced the cutless bearing on my C&C 30 twice in the past few years, once because of wear and again when I changed from an Aromic 4 to a diesel. I removed the shaft and prop both times and followed the instructions given in "This Old Boat by Don Casey" for removing the coupling from the shaft. Takes a lot of patience and time but it works. After the shaft was removed, I cut the old cutless bearing in pieces with a hacksaw blade and chisled it out of the strut using a small screwdriver and/or chisel. Don't forget to remove the set screws. Mine had two. I installed the new bearing by cooling it in a freezer overnight, placing it in place and forcing it in with a puller. No problem, just don't have too much mercy when trying to remove the old bearing. Don't hammer on the strut as you could damage the strut and the hull. Pullers work best. As for replacing the cutless bearing without removing the shaft, I wouldn't even consider it. There are too many things to go wrong. Murphy is always waiting for a chance to jump.

Only can speak to the removal of the shaft coupling, having just done that for a PYI Shaft Seal install

1. Loosen your stuffing box or equivalent.

2. Remove any inboard or outboard zincs.
3. Mark both halves of coupler so you can line them up on reinstall.
4. Unbolt coupler
5. Give a good soak in penetrating agent of choice
6. Place a spacer between the two halves of coupler, resting on the shaft end.
7. Using longer bolts, bolt the two halves back together. Make sure to put no more than a quarter to half turn on each bolt in turn so that you do not distort the coupler.
8. Keep going. This will press out the shaft from the coupler. You will more than likely have to swap out the original spacer for a longer one as you go. You will likely have to swap the bolts for ones of different lengths, depending on which spacer you are using and how far you have it pressed.
9. Once the coupler is off, you can theoretically remove the shaft. I do not know your rudder situation, so I do not know if that will get in the way.

Good luck.
Michael Hennessy
"Indigo" 1987 35 III

Oh yeah, I forgot to mention that you have to remove the set screws!

Hi Joe,
I have heard 1/16 to 1/8 of play is good for a cutlass bearing. Replaced mine last year - I had about 1/4" and it was the original from 79. Had the Martec rebuilt at the same time.
Regards,
Hank Evans

D

Deck Colour and Painting with Alwgrip

> Here's a little more detail on my Awlgrip project. I'll send photos to Stu
> for the album. Now onto tonight's task-installing new rubrail-Replacing
> rubrail gets my vote as the absolute worst C&C restoration project. Thank
> God it's almost done.
>
> PAINTING MY C&C USING AWL-GRIP
>
> TOPSIDES PROJECT

> I purchased Cara Mia in 1994 and sailed her three years before getting
> completely tired of the old white Imron (Dupont) paint that had been
applied
> by a previous owner. Due to the condition of the paint and concerns about
> its sensitivity to the Awl-Grip solvents I elected to remove all of it. I
> used a palm sander with 100 grit. For this project I borrowed wooden
> scaffolding.
> Removal of Imron took 50-60 hours labor (my own!) Before sanding I
removed
> old wax/residue with Awl-Prep Plus. I removed the cove strip decal with
> scotch pads and acetone.
>
> PRIMING
> Prep surface with Awl-Prep using tack rags 1/2 hour prior to painting.
> Apply primer 545 mixed 1:1 with 545 converter, let react (induct) for 30
> minutes, then thin 25-30% w/ T0031and more as needed during painting. Use
> roll and tip method whereby you roll 2 linear feet and then tip with
brush.
> Some recommend two painters, one rolling and the second tipping. I got
> better results doing it myself. BUT you must paint quickly and as such
tasks
> that slow you down such as thinning the paint must be better planned when
> alone (have cups of thinner stationed along your painting route). Apply
one
> coat.
> Sand after 24 hours. Palm sander 280-320 grit. Dry sand using black
wet/dry
> paper.
> Hints: Roll and tip vertically 2 linear feet starting with waterline
stroke
> up direction (complete 2 ft) then stroke down from rail. At rail stroke
> horizontal direction. Watch for runs near C&C cove stripe. Watch your
work
> closely, runs and other probs cannot be touched up later without leaving
> unsightly brush marks. Painting with Awl-Grip is a sprint. A 29 foot
boat
> should take no longer than an hour.
> Quantity needed: 16 oz base + 16 oz. converter + 6-10 oz. thinner per
coat.
>
> Clean brushes with T0006.
>
> FAIRING
> Use Awl-Fair (2 part) 1:1. This stuff is easy to work with but can only
be
> applied over Awlgrip primers. Deeper depressions may require 2 or 3
> applications. Anything really deep would require West System. Awl-Fair
is

> finicky in terms of temperature. Below 70F count on 4-6 days to cure.
> Don't use any of the Awl-Grip products below 60F.
>
> FINAL PRIMING
> Before topcoat 2 more coats 545 will be needed. (Must have at least 2
coats
> 545 on everything including fairing compound before top.) Priming will be
> by far your most frustrating part of this project. You will find it hard
to
> brush w/o leaving marks and very sensitive to over-sanding. Even their
> sanding surfacer product Awl-Quik is hard to apply without leaving brush
> marks. To save time apply last 2 coats of primer within 24 hours to save
> the sanding step. Sanding my 29 took 6-7 hours between coats. If you
plan
> to topcoat with a dark color wet sand using 400 grit wet/dry paper on the
> final primecoat.
>
> TOPCOAT
> I painted outside so sun and wind were concerns especially with a dark
color
> like red. I extended a 40ft by 40ft tarp over the boat (mast on deck) and
> scaffolding. I did not use the tarp for my deck painting portion. I
mixed
> 24 oz. of base with 12 oz. of brushing converter per coat along with 25%
> T0031 to start at 75F ambient temp. I probably added another 10% or more
of
> TOO31 as I painted at this temp. I used Corona Glasscoater short nap
> 9"rollers and Corona 4" Urethaner brushes. Don't skimp on brushes! The 4"
> Coronas will run about $32ea. The mohair rollers should be lightly
cleaned
> in thinner to remove lint prior to use. I started the job at the stern on
> the starboard side (near rudder) and worked forward. Starting at the bow
> didn't work because invariably I underthinned to start on purpose in order
> to get mix right and nobody looks under the counter (stern) anyway. Also
> any residual lint from the roller seems to come off in the first 4-6
sq.ft.
> As with primer coat watch your technique at the C&C cove. The stem (bow)
> since it hangs is easy-no runs but don't even think about doing the sloped
> back transom (on many C&C's) at the same time as it will run onto the
> topsides. Apply a minumum of two coats, three is better especially with
> dark colors.
>
> COVE STRIPE AND BOOTSTRIPE
> Use 1/2" 3M #318 Fineline tape for cove and 1" for bootstripe-don't skimp
> on lesser stuff. Tape and lightly sand. I painted cove with snow-white
> against vivid red topsides-STUNNING even by an amateur like me. Taping
the
> points of the C&C star requires some overlapping of tape so expect some

> leakage. Attend to this with a knife/razor blade before paint hardens
> (within 36 hours). Bootstripe-Use 3"foam roller and tip with 2" Urethaner
> brush. The cove and boot together will require 150 ml base + 75 ml
brushing
> converter + approx 50ml T0031 to start per coat. Two coats sufficient.
> Pull tape after second coat when paint is tack-free.
>
> DECK-In progress.
> C&C's have beautifully sculptured cabins/cockpits which are a pain to
brush
> and sand. To this end I used Awl-Quik instead of 545. Mix 1:1 with
> Awl-Quik converter (let induct for 15 minutes) and thin 40-50% (Yes this
> stuff is thick). It doesnt brush any better but it's sure easier to sand.
> To date I have finished the cabin sides and cockpit in 'off-white' using a
> 3" roller and 2" brush. The results are spectacular and the white is much
> easier to apply than the red and hides better. By far the hardest part of
> the deck project was removing hardware!!!! What I couldnt remove was easy
> to paint around with the brush anyway. I filled the holes with thickened
> West System until I get around to putting the hardware back on. Hint: Save
> sanding between primecoats by applying 2 coats w/i 24 hours. Again use
> quality masking tape, not for a fine line but because it won't stay on
with
> the paint.
> Next Step...Non-Skid in Spring 2002.
>
> Best prices on Awl-Grip: cyber-marine.com You'll save 40% over West Marine
> and Rob Procter is knowledgable (he painted his boat w/ AwlGrip) and
> helpful. Buy the T00031 and Awl Prep in 1/2 gallon sizes even for a deck
> project. If you ration your thinner the results will show.
>
> As I mentioned in my e-mail, read the U.S. Paint Application Guide before
> using Awl-Grip. It's on-line.

Deck Delamination

Has anyone taken this kind of job on? I've got delamination around the chainplates and elsewhere on a 1981 C&C 36. I guess I have three basic questions:

1)Do I drill and pump in epoxy, or remove the skin and replace the balsa?
2)How thick is the skin (deck)?
3) How thick is the Balsa?

Thanks.
Dave Mallach

Hi Dave,

I am planning on doing the same thing to my '76 C&C 27. Here's what I have learned to date. If the rot isn't too bad, you can get by with using the "Swiss Cheese" method you are describing. Personally, I am going to try this using CPES as marketed by "Rot Doctor". You can find out more at www.rotdoctor.com. Once drilling the holes, you will need to dry out the deck for at least a couple weeks. You can assist the drying by flooding the holes with acetone, which will then evaporate, taking some of the water with it. Some have said that the epoxy will not re-attach the bond between the balsa and the core, others seem to disagree. My area of delamination is not particularly large (say 12x20 inches), and the CPES is supposed to be better at seeping deeper into the wood, stopping further rot. Sorry, I know nothing about the thicknesses. Personally, I'd LOVE to do it by removing the head liner in the head area and drilling from below if at all possible, but it seems like no one knows if removing the head liner is reasonably easy.

So, I'll ask the question again... Any out there ever removed the head liner on a mid-70's C&C 27?

Any other comments?
Thanks!
Bruce

I am in the middle of doing this job on a C&C 34 which was wet around one of the chain plates. I cut the top skin of the deck out using a saber saw (be careful with your depth,) and then scooped out the old wet balsa. I have removed everything that is wet or even remotely wet, working back until it was all dry. If you go back far enough and get close to the genoa track, you will run into a plywood stringer that runs under that track to give support. I have had to shorten mine by about 4 inches because it was wet and it will never dry. I intend to install new balsa, and then 3 layers of glass. 1 layer 1-1/2 oz mat, 1 layer 18 oz bi-axial stitch mat and another layer of 1-1/2 oz mat. I have been told that you should use polyester resin and not epoxy because you will not be able to get the gel coat to adhere to the epoxy (don't know this as fact but am not willing to take chances.). I will then top off with fairing compound and have someone with a bit of experience do the gel coat non-skid.

The top layer of deck skin is only about 1/4 inch. The balsa is about 3/4.

I have never done anything like this before so can not comment on the drill and pump method.

By the way, you have to find a way to keep the work area at least 55-60 degrees until the glass cures. I will be heating the boat with 2-3 space heaters and I have a enclosed cover on the boat.

good luck

Colin

At the risk of being somewhat contrary, you might want to reconsider the epoxy concept. Polyester resin does not bond well to old polyester resin as a secondary bond. However, epoxy resin bonds extremely well to polyester resin of whatever age. I would not use polyester resin as a fix for delamination if epoxy resin is available; epoxy is far stronger and will bond to old poly resin and new poly resin won't. Whether gelcoat will adhere to the epoxy resin is kinda secondary here, since you are doing structural repair; make the strongest repair and find something to bond to it (I think poly gelcoat will adhere better to a good epoxy fix than it will to a bad poly fix. My opinion after working with a lot of polyester and epoxy resins. I'll take West System epoxy over everything else I've tried so far). If nothing else, epoxy will saturate into dampish balsa and polyester won't. Also, you can use a cold-cure West hardener to cure it up even if it is just above freezing. Wow, that's confusing; buy the West System fiberglass repair handbook before you do anything final.
Jim Watts
Paradigm
C&C 29 Mk II
Victoria, BC

I have done many repair jobs on fiberglass over the past thirty-six years, and have never had any problems bonding polyester resin to "old" polyester resin. I have even had to bond chain plates to a hull, and they came out stronger than when the boat came from the factory. Some people have a problem when they try to bond to sanding resin without sanding and wiping with an acetone soaked rag first. Sanding resin has wax in it so that it will cure without remaining sticky. Laminating resin has no wax in it, and remains sticky, thus allowing new layers to bond without sanding in between layers.

Alan Bergen
35 Mk III, "Thirsty"

Two years ago we had to deal with moisture around Savannah`s chain plates.

We were fortunate in several ways, but primarily that Savannay doesn`t spend her winters in the cold, no sireee... a nice warm hangar for her. Anyway, the temp on the floor was 70, but the temp at deck level (Savannah was on her trailer) must have been 80. We drilled about 15 holes by each stantion (until we hit dry balsa). We were careul to drill through the top layer of fibreglas and the balsa only...didn`t go through the bottom layer of glass. We then went into the holes with a bent nail to "rotoroot" a larger area of balsa out. Used a vacuum to suck out the debris. Then we let the boat dry for 3 months. Shortly before launch we filled the holes with staight epoxy resin (no stifeners) and finished off with a dab of 2 part paint the we had mixed (and deglossed) to match the deck. I guess the area around the chain plates are probably the strongest part of the boat.
Now that Savannah`s gone I have all these weekends with nothing to do but pack and get ready to move to where you do this winter sailing stuff.
John
Boatless

I'm going to backtrack somewhat on my statements here, after checking my references, most of which say that for non-structural repairs, such as delaminating decks, polyester resin works fine. However, structural repairs, such as chainplates, would be much stronger with epoxy. The explanation I received is that the existing polyester resin ("old") has finished crosslinking and new polyester resin does not bond to it with the same strength. Even in original construction, if the hull laminates have been allowed to cure over a certain time limit, a secondary bond such as bulkhead tabbing will be weaker than the primary layup. Epoxy resin has much higher peel strength when applied to older polyester laminates. It also has the advantage of much wider temperature and humidity limits with the appropriate resin/hardener combinations. Regardless of which you use, I agree that grinding down to clean unwaxed glass and the use of lots of acetone and rags is necessary.
Jim Watts
Paradigm
C&C 29 Mk II
Victoria, BC

Last winter I performed a complete refit , delamination repair's and new gelcoat on my 1975, 27mkIII. As soon as the boat was out of the water I removed all the hardware {everything}and then cut out all the obvious spot's,cracked or split,useing a small hammer I inspected the entire deck and cabin top ,anything that sounded hollow was marked to be checked later.I then drilled small holes in these spots makeing sure not

to go throught the bottom layer of fibrglass. Balsa is a light coloured wood so anything that comes out dark is probably rotten,so I removed more of the deck,top layer.If you have any craking in the gelcoat,along the teak hand rail's there is probably water
sitting in a small void were the vertical part of the cabin ,which has no core ,change's to the horizontal part of the deck which does have a core,any were there is a texured or suregrip finish on the deck there seem's to be a wood core.
The core is end grain so the wood is about 3/8" thick and about 4"x4" it works better to remove the entire piece and replace it .I covered the boat for the winter and let her dry out.In Feb I fit new piece's of wood for the core ,I was all ready for warm weather.In March dureing warm suuny day's,useing west epoxy I laminated the new core in and filled all the hole's I had drilled and ,put three layer's of new cloth.I had a Body repaireman come out and fare out the curved part just below the hand rail. Next was new gelcoat ,all the suregrip gelcoat had to be ground off,the new stuff went on with a foam brush and just before it was dry ,rolled with a 4" roller to make it stand up. I used an interlux paint for the rest of the deck. Launch day was early May and she was all ready. James Suffel. That was last winter ,this winter ,only two visit's
Hope this Help's
Saltfly@aol.com wrote:
>
> Has anyone taken this kind of job on? I've got delamination around the chainplates and elsewhere on a 1981 C&C 36. I guess I have three basic questions:
>
> 1)Do I drill and pump in epoxy, or remove the skin and replace the balsa?
> 2)How thick is the skin (deck)?
> 3) How thick is the Balsa?
>
> Thanks.
> Dave Mallach
>

Sounds good to me, although I would put a layer of epoxy and chopped glass (aka mishmash) below the hole area along with a chunk of 3/4" marine plywood (Bruynzeel if you have some lying around) to further spread the load out to intact glass. With a double set of holes there already, you don't want to have a cut-on-the-dotted-lines effect, and although the plywood backing which is there is probably strong enough, why take chances? You could then get away with stainless fender washers instead of another backing plate for the bolts. I would put some filler in the epoxy in the holes you are filling to give it some strength, since straight epoxy is quite

brittle. I am fond of 40-grit belt-sander dust myself, preferably from white oak. Probably doesn't matter what you use, as long as there is lots of long-grain particles in it (not teak - too oily). Sometimes I sand the heck out of a piece of scrap wood just so I can get some good filler out of the dust bag. West System is my first choice for epoxy.
PS I don't work for Bruynzeel and can hardly spell it, but it is the best plywood in the world. Guaranteed not to delaminate after 24 hours in boiling water. As someone said, "If you don't build your boat out of Bruynzeel, don't boil it".

Jim Watts
Paradigm
C&C 29 Mk II
Victoria, BC

Neil - Just replaced 2 winches on Gremellyn in November and pretty much did the same thing. First, fill the existing holes with west epoxy and colloidal silica to thicken and strengthen it (Put masking tape below the holes). Once you've positioned the new winches where you want them, drill one hole, put in screw to hold it in place, then drill the others...this will ensure that you don't miss drill. Now overdrill the holes ca. 1/16-1/8" and then coat the holes with epoxy and just a little colloidal silica (you can completely fill them, or just make sure you nearly fill them with small opening to be the new pilot hole). This ensures that the hole is really strong and now water can enter the laminate. Now place the base back on and drill the holes to the proper diameter.
I use 1/4" alumimum plate for a backing since wood can rot, etc. However, I think you'll find that C&C laid up the coaming very thick with many glass layers so that you can get away with no backing plate, just fender washers. I still use an Al backing plate and fender washers though. Remember to chaulk the holes and plate using a polysulfide chaulk (like LifeCalk), not a silcone (doesn't seal well) of polyurethane (never get off), but DON'T let any excess get into the winch.
Later, Greg

Hi Joe,

The issue with cutting out a section of deck vs using the "Swiss Cheese" method is that when reattaching the piece of deck, you need to first, epoxy it all in place, then sand a wide "V" (probably 3-4" either side of the cut), then layer fiberglass & epoxy into the V, and once you have 3 or 4 layers of fiberglass in place and smoothed out, then re-finish the deck in that area. By drilling a few (and its really not all that many with the

CPES) and trying out the deck, even if you're working from above, you fill those limited number of holes with epoxy and touch up the holes with paint. With quotes from boatyards, its the difference between a $600 job and a $2,500 job.

By removing what I hoped to be an easy-to-remove headliner, I could drill the holes from below, and allow it to dry out that way as the boat is currently stored by the previous owner outside in a yard with the stick up. This would keep me from having to have the stick removed and the boat tarped while the deck dried out.

Fair winds,
Bruce

Hello all,

Thought I would give you an update - I got to the boat on Saturday and found the core was finally dried out enough to seal it. We injected about a pint of CPES into the holes using a plastic syringe I was able to get from a doctor I know. Some holes took just a little, others took 3-4 syringes full of the stuff, and then ended up with flow coming out of other holes. The CPES from http://www.rotdoctor.com is pretty thin stuff and is supposed to migrate or get absorbed at least 5" from the injection sites, so it should solidify the rotting core well. After about 15 minutes the stuff was getting all sticky on my hands and in the syringe, so it looks like it should do the job nicely. Next will be to fill the holes with Laminating & Layup resin, which is supposed to be thicker and flow into the voids, restoring the strength of the deck. Any way about it, it sure beats taking off a section of the deck!

Since they suggest using a turkey baster or a syringe for putting the resin in anyway, I think I'll drill the holes from the bottom on the other side and give it a try - there's only a little delamination there, so it should be easier.

Though I can't compare the rotdoctor stuff to West System because I haven't tried West, it seems the RotDoctor stuff will sink deeper into the wood, giving better protection.
Fair Winds,

Just to lead in to this, I am a customer, and am not affiliated with the Rot Doctor or their products. Here's my experience and why IMHO, you should consider these people vs West or buying from the manufacturer.

First, a little history - my C&C 27 had an area of deck delamination about 12 x 18 " in size around the port chainplates and pump-out fitting. I was told by the surveyor that I could fix it using the "swiss-cheese" method of drilling holes, drying out the core and injecting resin. Local quotes from boatyards were $500-$600, but a number of them wanted to talk me into removing the deck and replacing the coring, which of course, would be MUCH more expensive - one estimated about $2,500. I decided to use this method rather than removing the deck due to the low cost and ease of the job. Now, here's the thing...

1). The website at http://www.rotdoctor.com was one of the most comprehensive on the subject that I could find. It was good information to have even if I didn't buy their product. Those sites are few and far between as most of you know.

2). I sent them an e-mail back in the fall, then again in the spring, and finally asked them a question just a few minutes ago. Each time, I had a response within just a few hours. Each time they answered my questions and more, providing me with even more individualized answers.

3). When I called to place my order, they spent even more time answering questions, as I was nervous about drilling holes in my boat.

4). When I followed the directions, the job was easy, and having gotten both their CPES resin and L&L resin on a few things (which is inevitable in such a repair), I am convinced that the CPES will penetrate the wood as advertised and freeze the rot, and the L&L resin has flowed smoothly into the remaining areas to provide the structural support as needed. In short, I am quite sure it will work as advertised.

5). These people probably spent and hour and a half of their time answering e-mails and questions, packing the stuff in boxes, & shipping it out. All for probably about an $80 order. Even if they have a 100% markup, $40 would not have been too much to spend for making this job relatively painless and giving me a sense of satisfaction that yes, I could do the job without paying $500 to some yard guy who probably wouldn't have treated the job with as much TLC as I did. Heck, they even told me when I DIDN'T need to buy their product, and suggested other (cheaper) alternatives.

Sure, you might find equal or similar products for a little less, but their service was definitely worth it, and the products were really very good.

Hope this is of value to some of you facing wood rot problems.
Fair Winds,
Bruce

Jack, for the deck repair I followed the procedures in Don Casey's book "Hull and Deck Repair" and the West System book. At the chainplates I took a Dremel tool with a cut-off wheel and removed the top layer of glass in a 1' square around the openings, peeled off this layer in 1 piece then cleaned out all of the rotted core from the deck and the top piece. I spread a layer of thickened epoxy into the area then placed in a square on foam core, placed wax paper on top then placed brick onto this to weight it down (sandbags are good too). After this had set up but not fully cured I filled in any voids around the edges flush with the top of the core then epoxied a couple of layers of fibreglass mat over this. When this had set up I test fitted the top piece that was cut out to ensure it will fit flush with the rest of the deck, then epoxied this back on top and weighted down. When this had cured clean up the seams, filling or grinding where necessary and refinish the area.
For the cockpit floor I did the same thing except I couldn't use the top layer so I built it back up with fibreglass cloth. After 2 years of heavy racing it 's still strong as ever with no signs of cracking at the seams.
Rick Taillieu
Nemesis
'75 C&C 25
CFB Trenton YC

Deck Leaks

Hi Greg,
Here is one way to find your hidden deck leak. Close all your ports and hatches and tape closed any remaining obvious cracks, seams and openings. Now pressurize the cabin by reversing the air flow of a vacuum cleaner from the exterior of the boat. You can tape the hose into a small vent opening if you have one. In a bucket, mix up a batch of dishwashing liquid and water and start spreading the soapy water around all suspect areas on deck. You'll locate leaks when large bubbles start forming where air is escaping through the deck or fittings. Foolproof and its cheap. Hope this helps.

Ted Drossos
C&C 29 mkII H OT

Deck Reinforcements

Ralph,

Do you have the three bolt holed stanchion bases (two machine screws go through the toe rail and one through the deck)? If so then you may be interested in what we did to our 27 to stiffen up the stanchions a few years ago.

First off on the 27 the inner bolt goes through solid glass. The coring begins about an inch further inboard and I would think the construction style would be the same on your 32. There was no structural damage to our deck, but had some gelcoat cracking around the bases and the stanchions were less than solid. We made up some 23/4 x 41/2 x 1/16 in. stainless steel plates to go under the base just inside the toe rail and increased the aluminum backing plates on all three screws to 1 1/4 x 2 3/4 in. The stainless steal plates were just big enough to hide the gelcoat cracks and combined with the larger backing plates really stiffened things up. Use plenty of Sika-Flex under the plates and around the screws to keep water out.

Hope this helps.

Norm
1982 C&C 27

Deck water pooling

Have I got a method to fix this problem (and it works for ALL C^Cs). Won't take credit for the idea, got from someone else, but have used it and it works great.

PROBLEM: Pooling Water near toe rail.

SOLUTION: using a natural sponge (hold up better to UV), cut it into a strip that is about 1 inch and about 9 inches long. Insert it into (through) the hole in the toe rail that is where the water starts to pool such that about 2 inches or so of the sponge is inboard and the remaining hangs overboard. Not only does this 'wick' the water away, but the water falls clear of the side of your boat so you don't get the black streaks.

Neil Andersen
FoxFire - 1982 C&C32
Worton Creek, MD

Diesel Maintenance

George,
I would recommend at least two additional measures:

1.) While your posting doesn't specify, I assume you've only got the basic factory filter system. Add an additional filter, such as a Racor. They will filter as low as 2 microns (most engine primary filters have a startlingly higher porosity) and trap virtually all water before it gets to your expensive fuel pump and injectors. I've been involved in managing commercial diesel plants for years, and the very best maintenance for injectors and fuel pumps is to feed 'em the cleanest fuel possible, then don't touch them! The Racor models with a transparent settling bowl will give you visual evidence of some of the glop taken out, and can be fitted with a suction gauge that will tell you pretty quickly if you've got a blockage in the making. Peace of mind at the wheel on those stormy passages, when you can glance down and see the state of your filter, I can tell you. Since you've already had some junk in the system, I'd consider pulling the injectors AFTER installing a Racor or equal filtration system, and then having a good diesel shop run a spray test on the injectors to ensure the tips are clear. I'd only worry about the fuel pump only if the engine runs roughly AFTER the injectors have tested out OK.

2.) Add a biocide (such as Biobor) every time you tank up. It won't stop water, but it will kill the beasties that appear as black goop. I've entered tanks on ships where we had to literally shovel out the knee-deep slime. Be careful! Most biocides are exactly that: potent toxins indeed. I've had quite good experiences with keeping slime out of new tanks, and it will kill off the bugs in old tanks, although you should pump out the bottom layer of sludge after a few applications.

You can't go wrong if you feed a diesel clean fuel and change the oil regularly. Good luck!

David Romasco
~~~~~~~~~~~~~~~~~~~~~~~~_/)

Dodger

If you really want a really first rate dodger with a long life expectancy, you might consider the Wavestopper by Seawind. Try www.mypid.com/seawind. This is a hard dodger with removable side curtains. I have seen several and been very inpressed. They are made in Bellingham, Wa. but they have dealers around the country.
~~~~~~~~~~~~~~~~~~~~~~~~

The cost is about double a canvas dodger. Wish I could afford one.

Dave " Webfoot " 37KCB

Treating the Sunbrella and vinyl windows is a good idea. If it's done regularly, you will extend the life of both from 2 to 4 times. We have done a lot of testing in our labs to confirm that.

We are still working on making the best treatment for Sunbrella in the world :-), but until that day comes, Practical Sailor has rated 303 best.

A few years ago, I picked up some heavy duty clear vinyl when I was in Ft. Lauderdale, called Strataglass. I had it shipped home and tried it in the front window of my top. This stuff is amazing!

I think it's 4 years now and still looks new. New means that it's as clear as glass and there is no distortion when looking through it on an angle. It is also very resistant to scratching. I treat my vinyl windows once a month, but otherwise am not as careful as I should be. When I take it our, I just roll it up, dirty or not. The proper way is to make sure it's clean and roll it up in a towel to prevent scratching.

I've tried Isenglass and various other clear vinyl's but have never found anything to compare to Strataglass. Can't say enough about it. It's used on the High End Mega Yachts (read Very Expensive), so that's got to tell you something.

The point is that if you're getting a new top, check out the Strataglass. Top makers don't like it because it's heavy and hard on their sewing machines, but if you insist..... Yes it's more expensive, but in my opinion, worth every cent. It used to be imported from Europe, but now they make it in Ft. Lauderdale and the price has come way down.

For the techies; It 2 pieces of vinyl, laminated together on a large flat press. That's probably why it resists UV damage so well and the thickness is probably what gives it the optical clarity. It's also treated with a scratch resistant ???? They won't tell me, but my guess is some type of silicone coating. That's what the auto makers use on headlamp covers.

Disclaimer: I work for Aurora Marine and have no affiliation or interest in 303 or Strataglass.

E

Email Archives

Hi all
Prowling through the net, 3 AM wide awake, discovered that Sailnet has an archive of the list since it's last server incarnation. For all the AOL and @home crowd who keep missing things, you can search by date or by thread. It's a handy resource for people looking for info about keel smiles, window leaks, and all the other things that keep coming up yet one more time. It's at
http://members.sailnet.com/email_archives/
although you'll want a fast connection to browse it liesurely, since the index is over a meg and it takes a while even with cable. It's amazing the things you can find when you're trying to lull yourself to sleep.
Jim Watts
Paradigm
C&C 29 Mk II
Victoria, BC

Epoxy barrier Coat

Dear Frank:
Having done this job myself several years ago, you'll find that
it's not really practical to move the stands during the process.

Use Interlux Interprotect 2000.....pretty much the standard barrier coating. The process requires you to recoat 5 times with not more than a 2 hour lapse in the process. It also means that you have to have 12 hours of daylight and nice weather.....I started at 5 in the AM on Saturday, e.g. If you allow the coat to dry past that time, you have to scuff it up with sandpaper before applying the next coat. and at the end, you have to get a coat of bottom paint on in the last 2 hour interval as well, that's why 12 hours.....

Use a different color for the bottom paint first coat.....then go to your preferred color. That way when the bottom paint wears through to the first color, you'll know it's time to replace it.....without exposing the barrier

coat layer.....

Paint the barrier coat up to around the stand pads.....leave about a foot around them for the first coat of bottom paint.....when all is dry....then have the stands moved. feather the stand area for the multiple coats of barrier paint.....you can do bottom paint on the rest while waiting, and then feather the bottom paint into the pad area and finish with bottom paint.....

The whole process took a very well planned weekend.....and I never had to do it again, the bottom paint held up for over 4 years.....then sold boat....

You can do it.....Good luck Ron Casciato

F

FloorBoards Teak and Holly

The first time I refinished my floorboards, the C&C factory was still in business. I called them and asked for their recommendation and they told me they used Cetol Interior Clear - Satin from Sikkens. I used the same thing, put on about 5 coats (plus a coat of regular cetol on the underside) and I've been very happy. Note: Used 2 part epoxy to fill some of the dings (after taping) and that seemed to work pretty well. Be careful on sanding; there's not much teak and holly before you get to marine plywood.

Bob Rudary
Grand Slam
C&C 34+

G

Garhauer Vang

John,
After I installed my Garhauer vang, I realized it had almost too much purchase, and talked to Garhauer at another boat show. They said "send it back ANYTIME and we will adjust it for you. Now have I? No. But it works fantastic, so I leave things as they are. I think if you state to them exactly what you would like, they will make it to your specifications. Pretty neat, huh?

Now, the forces on the boom gooseneck is another animal altogether. Yes, I did break my gooseneck in a uncontrollable gybe in 25 knots, AFTER the main first snapped off the traveler. Yes, read OUCH! as well as $$ka ching$$! My guess is after the main broke from the traveler the twisting forces from the vang cracked the gooseneck. This all happened in 1999. I now have a new stainless steel gooseneck, a Harken traveler, and a 6:1 Lewmar mainsheet system. But the difference in main handling is soooooo much easier!!!

I can send jpg photos (off the list) to anyone who would like to see the setup.

Regards,
Tom Anderson
C&C 32 Nonpareil
Marblehead, MA
nonpareil@mediaone.net

John -- I purchased and installed a Garhauer rigid vang on my 1981 30mkI at the beginning of last season. It cost something like $160 (!!!) and is a BEAUTIFULLY manufactured piece of gear (all polished stainless, and comes with all line and blocks). I ordered it after seeing it at the Strictly Sail/Chicago show. It was a breeze to install, and, considering the limited athwartships movement on the 30mkI's traveler, I think it has contributed quite a bit to control of my main, especially when running offwind. I would recommend it to any C&C'er in a minute -- it's hard to believe they can make this product at this price. But it seems to be true of most Garhauer products. The benefits of selling direct, I guess...

Fred Street -- Minneapolis
S/V Oceanis ('81 C&C30) -- Bayfield, WI
Bayfield Yacht Club

Way cool. Sailnet and west marine don't carry them, but I had a very helpful conversation with the fellow at garhauer. He's at 909 985 7513. (the web site is under construction) he's faxing me a worksheet. Price is $171 US plus $20 shipping from california.

It's actually a rigid, stainless steel, spring inside, vang. It also includes a 12 to 1 block and tackle system to replace my original, soft

vang. Wow. The soft vang system alone is usually sold for this price.

Once I have the worksheet, I send him the measurements and he custom makes the plates that attach to the mast and the boom.

This doesn't seem to be too much more expensive than a fiberglass boom kicker.

I'll let everyone know how this works out.

John and Sonia
Sky
1973 C&C 25 Mk1
Vancouver, BC

Gauges

Hi!

Electric oil, water temperature, and fuel gauges can be checked by removing the wire from the sending unit and grounding it. The gauge should then read full scale.

Roger A. Karmes

GPS and Charts

If you enjoy playing with your laptop connected to your PC there is a freeware charting program called SeaClear. It uses scanned in charts in BMP or GIF format. It can even connect to your autopilot. It automatically tiles your charts as you move from one chart to another. It can be downloaded at:

http://www.sping.com/seaclear/

The NOAA charts can be downloaded from NOS Mapfinder at:

http://mapfinder.nos.noaa.gov/

The charts must be calibrated, but SeaClear has a calibration utility built in. I have 143 calibrated charts from NY City to the Canadian border for those who sail those waters and can handle a 59 MByte email.

Usual disclaimers...

Gary
S/V Expresso
'75 C&C 35 Mk II
East Greenwich, RI, USA

H

Handrails

Agree all around here; easiest way to get the plugs out of the teak without destroying surrounding wood is to drill a 1/8" hole in the middle of the plug, then screw a long #6 screw into the hole. As it bottoms out on the bolt, it will force the plug up and out. When you reset the plugs, just use varnish as an adhesive so the next time you can use the same trick. Don't use any real glue or you are hooped.
Jim Watts
Paradigm
C&C 29 Mk II
Victoria, BC

Helm Seat

Cindy -- I also have been trying to figure out a cockpit table scheme for my '81 C&C30 mkI. The biggest drawback is having the mainsheet traveler just ahead of the pedestal -- this rules out a standard fold-down table. But the hardware that Edson sells for their cockpit tables allows you to pull the hinge pin to completely remove the table and stow it elsewhere. This is probably the best choice for our boat. Check with Sailnet.com on availability -- I don't have my Edson catalog handy for part number right now.

On your idea for a helm seat -- interesting idea; I usually just park myself on the lee cockpit seat and steer from the side. This allows me to see the telltales better.

Fred Street -- Minneapolis
S/V Oceanis ('81 C&C30) -- Bayfield, WI
Bayfield Yacht Club

There are two books that are very useful for this sort of design and planning: "A Sailor's Sketchbook" by Bruce Bingham, and "Upgrading the Cruising Sailboat" by Daniel Spurr. Bingham in particular has a zillion ideas for making add-ons to boats; Spurr's book is invaluable for anyone upgrading a boat. He covers repowering to diesel and installing waste systems and other such interesting stuff. Also, looking through the West Marine catalogue is very handy to see what kind of hardware is available. They have bits and pieces you could use to clamp a seat to the stern rail, and to construct a cockpit table. Without knowing your layout, it's hard to give any suggestions. If you have the same layout as Fred Street says he has, then you are going to have to make a fully removable table, which means you are going to have to find somewhere to store it,or build it up from the traveler so the mainsheet clears it. Good luck either way.
Jim Watts
Paradigm
C&C 29 Mk II
Victoria, BC

Holding Tank

Ok Listers here's a question for you....
The holding tank on my 1979 C&C 30, a polyethylene tank, has a pump out hose which enters the tank from the middle of the top of the tank through a nylon fitting then extents to the bottom of the tank via a hard tube or hose. At the end of this season when we realized the tank was still almost full after pumping out, we knew we had a problem. I'll spare you the details of removing an almost full tank and go right to the problem. I am now faced with the issue of re-installing the hose that goes to the bottom of the tank from the fitting that penetrates the top of the tank. I think I want to replace the hose fitting on the tank and improve the hose attachment inside the tank. It appears that the rather hard internal hose was just glued inside the tank fitting.
First has anyone had to replace this hose? What did you replace it with? Secondly how do you remove a fitting without damaging the tank? Third what adhesives should you use with polyethylene? Is it even possible to use an adhesive to attach a hose internally to say a nylon

fitting? Would stainless hose clamps last inside a holding tank? The price of a new tank ($535 US) makes going to some effort worth it.

Michael- The only permanent attachments for polyethylene seem to be welding it or bolting it. Stainless steel inside a poly waste tank is supposed to corrode very reliably. I hate to think that the only "reliable" way to repair the tank would be to remove the pipe, have a new "inspection" port welded into the top of it, and then install your new fitting as an "inspection port" which would screw down and be removeable/replacable. I say remove it only because that would let you send it out to someone who already knows how to weld poly, if there is one around you. (Or to ship it.) Yes you can buy poly welding gear but between the cost and the learning curve, might be most reliable to job this one out. If you do try something in place using stainless fasteners, I would coat them all heavily and embed them in something like marinetex (epoxy putty) or a poly-whatever caulking compound to try protecting them.

The tank on a C&C 30 is a very complex shape designed to fit the curve of the hull, narrow at the bottom and wide at the top. So turning the tank is not possible. The tank is just fine there is nothing wrong with it. The discharge hose that starts at the the bottom of the tank has fallen off the fitting. The gray fitting appears to be glued with a dark brown adhesive and perhaps is also threaded. The fitting has facets like a nut to fit a wrench. It's OD is 1.5". Yes the supply hose also comes through the top of the tank. The tank was manufactured by Kracor Inc. of Grafton Wisconsin. Has anyone used 5200 to attach a rubber hose to a nylon fitting? Forespare has tank fittings that might work if I could figure out how to attach a hose with some certainty that could live in that environment.

Hull Stripping

I chose the sanding route and used a 7" grinder starting with 80 grit paper. This is not for the squeamish, but it is fast. A light touch and keeping the grinder in motion will produce a naked hull quickly. Wear full protection (Tyvek suit, respirator, goggles). Place tarps under the boat to collect as much dust as possible. Make one pass with 80 grit to remove the bulk, then change to 100 or 120 grit. Count on filling a few divits and repairing the barrier coat - in my case, a previous owner had applied barrier coat over old bottom paint, so I needed to go to bare hull.

Roger.

Rich - Following up on what Ron said: use a random orbital sander with dust pick up, that you then use a long corrigated hose to connect to a shop vac...very clean for you and the environment. The random oribital has three

advantages: (1) with dust pickup it is clean for you and the environment, plus paper lasts longer; (2) won't gouge the hull..you have more control and won't go into the gel coat unless you want to; (3) is very very fast..I do my 30-2 in 10 hours by myself and I use VC which is harder to sand.
A few suggestions: As Ron said, use 80-100, but buy some 120..it may work fine. Buy way too much paper as you want to change often to go faster. Buy the best sander you can get and with a 6" pad rather than 5"...much faster. If you buy a Milwaukee, etc. they last longer, are faster, and more importantly LIGHTER...have to hold that sucker up for all day! So, don't go to Home Despot and buy the cheapee.
Strippers are slow and quite dangerous for you and the world. You usually have to sand afterwards anyway (albeit lightly).
Enjoy, Greg
Greg Cutter
Professor
Department of Ocean, Earth, and Atmospheric

I

Icebox

Fred, We had a 74 ,30 and I found there was about 1 " of insulation glued to the outside of the ice box. There was an access inside the cupboard under the drawers. If not cut a hole in the wall of the cupboard and when you are done screw a piece of wood over the hole. That's the way i found ours. I also cut a hole in the bottom of the dry locked aft of the cooler. When i was done I cut a new bottom for the drawer and installed it over the old one.
I poured some 2 part foam in the cavity to start and found it was going to take a lot of foam. I found some scraps of Styrofoam and used it as filler and emptied 10 or so cans of foam from a building center/hardware store. I broke up the scrap foam and emptied part of a can into the pieces, then after it set started all over. You might check with a company that does spray urethane insulation for homes. If you remove the seat back on the dinette . About 5 or 6 screws, you can drill a few holes and I think there is about a 1" cavity that you can fill. Our cooler had a ply wood top. I glued a piece of 2" foam to the top and framed in a piece of 2" foam on the lid. The final results I had about 8" of insulation under the cooler and a foot or so between the seat locker and the aft end of the cooler.
Ours was a 74 , I would like to think that your 81 would have a little more insulation.
Brad

Fred,

Here's what I did on our C&C 30 MK 1, 1979 boat.

First I removed the whole ice box counter top, not easy but do able. With the top off remove the rear little storage box. Now you can slide the counter top with the ice box shell aft by 11" and rebuild the storage forward of the counter top. That also opens up a large storage space below. Cut in a door and add a few shelfs and you now have a new "useable" storage area.

With the top off, I used 2 sheets of 4' x 8' x 3/4" double sided foam board (r= 5.8) to line the area outside of the ice box from the hull and engine compartment. Add 3 cans of spray foam and some high tech tape to create a solid foam insulated area around the ice box. The next step is to insulate the underside of the counter top and ice box door with 1 1/2" or more of foam board. Actually, I built a cover for the ice box door and foamed the inside. I also ran the ice box drain over the the sink area and with a small 12 v water pump, and galley sink spout, I can drain the ice water into the sink.

The end results are: beer stays at 34.2 degrees and the Alder Barber is able to make ice when we are on a anchor. If we don't watch it, the beer will freeze.

The other result is the useless storage bin aft of the ice box has become a dry locker in it's new location and we have additional shortage below.

Dick

ICW

Howard,

Just did the trip from Norfolk to West Palm (mostly in the ICW) this past November on a Endeavour 43 ketch. Ours was not a vacation trip,it was a delivery, so taking our time was not an option. With the available daylight during the first three weeks of November (your daylight will be much longer) we were up at 0530 and under way by 0550-0600 (about 10-15 minutes before "first light") and motored all day to a favorable anchorage or marina arriving usually just at or just after sunset (no daylight saving time in Nov.) so our sunset was a lot earlier than when you want to go. You could have 15 hour days if you want to. But with our 11-12 hour days we could make 80 to 115 statute miles per day depending on bridge openings fuel stops etc.. In the ICW distance is measured in statute miles, not nautical miles, and you will see mile marker signs along the way starting from mile 1 at

Norfolk VA. You may want to go outside occasionally. Possible ports to go out, weather permitting, are Morehead City, Wilmington NC, Charleston, and Beaufort SC,(bypass Georgia and go directly to St. Augustine if weather permits. It's pretty straight down the Florida ICW, a few bridges but you can make good time and interesting scenery. Trip duration, left Norfolk @1300 hrs. Nov. 1st and arrived at West Palm @ 1500hrs. Nov.12th. We headed east at West Palm for the Bahamas so I can't help you from there. Enjoy,

Jerry H
Shazam '75 33

Figure 2 days from Annapolis to Cape May (based on experience in a 25). 2 more to New York, with a stop along the coast (Barnaget Inlet?), or a long overnight.

One of our locals took his mast down in Troy New York before cruising the Barge Canal. I'll try to ask him how long if he is at the Power Squadron meeting tomorrow.

Don't you go through Lake Champlain and the Richelieu Canal to Lake Ontario?
Rick Brass

Catching tidal currents in East River
David-
<Max current 3.8 knots at Hell Gate> I've been there motorsailing at 6 knots and making zero over ground. (Okay, we made a hundred feet in an hour. Maybe.) The 3.8 knots is typical but it really can build to more. Inconvenient, but that's all

Inverter

On the inverter side, I use a small one daily in my van to run a laptop and it's great. I used it on board once to run a TV and VCR and it worked well. You'll need a sizable unit (min 1000 watts) however, to run an electric coffee maker or Microwave and they pull al lot of battery power. Small 500 watt microwave oven, rated draw about 5 amps @ 120 volts, will draw 50 AMPS at 12 volts, plus the extra for losses in the inverter.
If your coffee needs aren't too great, there are 12 volt coffee makers available, usually about a 5 cup size.

Burning hydrocarbons to produce chemical energy to produce mechanical energy to produce electrical energy to produce chemical energy to produce electrical energy to heat coffee is quite inefficient compared to burning hydrocarbons in your stove to just warm the water directly :)
If you really want to do this, however many watts the coffee maker draws is the size inverter you need. In case it is labeled in amps instead of watts, watts = amps X 120. The DC draw will be watts/12 or 10X the AC amp draw.

Joe Della Barba
www.sailcandc.com

J

K

Keel Joint

Steve & Suzanne,

Please note the following is not about fixing "the smile", which is not really problem at all, but about repairing a leaking hull.

I recently undertook such a job on my 37'. The hull/keel interface had opened approximately 1/8" after what I can only guess was a grounding. This happened prior to my owning the boat. I had a yard do the original job which was royally botched and ended-up redoing it myself. I had asked the yard to drop the keel, clean the joint and re-chalk which they did but unfortunately began to weep a year later. When I dropped the keel I found that the yard had not properly cleaned the hull/keel interface. It appears that C+C originally epoxied the keel to the stub. When the yard dropped the keel some of the stub came away with the keel. Instead of cleaning the joint they merely piled on the Sikaflex creating a discontinuous surface and I believe this is why the leaking re-occurred.

I was reluctant to remove the 7000 lb keel entirely so my approach was to suspend the boat in the travel-lift and drop the keel by a 1" and still

keep the studs in the bolts. They say that in terms of keeping the keel on the stub (static condition) all bolts but one are redundant and I can tell you not even that is necessary. By far the hardest part of the job was cutting away all the sikaflex. The keel didn't budge until I removed 80% of the joint and even then it dropped very slowly. I cleaned the joint completely, first with a chisel, then a file and then acetone. I rebuilt the surface of the stub (not that much missing, maybe 2-3 layers of glass)with thickened epoxy such that the two surfaces came together flush. As Bob, I used 3M 5200 getting lots up around the bolts and worked it in to prevent air voids. Dropped the boat down on the keel to bring the joint together and then torqued. No guessing, used a gearbox and torque wrench to get proper values. I retorqued the bolts ever couple of hours during the day. If you use 5200 do not let it cure on the outside of the joint or you will have a job getting it off. I faired the joint with fiberglass filler.

In my case it was hard to differentiate bilge water that came from a keel leak (as the leak was very slow) from deck run-off, etc. But when the boat was on the hard and the joint leaked I knew I had a problem. The job was more intimidating than difficult. I now know that the joint is solid and confirmed that the keel bolts were shiny like new.

Peace of mind.
Barry
C+C 37
RNYC

Paul,

This question comes around every couple of months and we have dealt with it here on the list extensively. I suggest you have a look in the photo album email archives for copies of those discussions. First, make absolutely sure water is coming from the keel bolt and not from some other area of the boat. Now that you are in the water the only thing you can really do, and should do, is to check the tightness of the keel bolts. Use a torque wrench to tighten the bolts to spec. Again, the spec's for your diameter bolts can be found on the photoalbum. When you haul you are going to have to address the leak. Some approach this issue by filling and fairing the smile. However, your problem suggests a water migration path of some length which begins at the surface of the keel and ends in the bilge. It also means you have water in around your keel bolts with the possibility for crevice corrosion. I was faced with this problem two years ago and after much denial dropped the keel and re-bedded the whole works. It was a good decision! I was able to confirm

the condition of the bolts, clean the joint and apply new adhesive. I now have peace of mind.

I think it is important to differentiate between the smile and a leak. The smile is a superficial crack in the surface fairing of the keel/ stub and is caused by slight working of the keel. Most C+C's get 'em, most people fill and fair. A leak is less common and obviously, leads into the boat. Re-dressing the smile is not (in my opinion) a long term solution to this problem.
Barry
C+C 37
RNYC

Paul,

First, I'll say I too am an "amateur" and so my depth of knowledge should be considered suspect, but... I agree with Wally as to his concerns, but that's not to say I agree with him entirely. Having recently torqued my keel bolts (before it went in the water), I found mine looser than I would have thought - I probably got a full turn of the nuts on 3 of the 4 bolts before the were torqued properly. I would also say that while fusion between the bolt and nut is a concern, this hopefully should be somewhat rare, and the potential damage from a flexing keel would tell me that at least checking the nuts for looseness, even in the water is a good thing.

Regarding Wally's points about in vs out of the water:

1). Let's assume for a moment you have 3,000 lbs of ballast and you have 4 keel bolts. That's weight of 750 lbs per bolt, which might seem like it would throw off the torque specs. But, keep in mind that the bolt and nut act like a wedge, in that the amount of plane per distance covered allows the bolt & nut to create much more tension than you might think. Now, I'm just guessing, here, and trying to think back to my physics and stuff from "The Rigger's Apprentice". Assume you have a 20 pitch thread on that bolt - that's 20 threads per inch on the bolt, and it's probably about a 2" circumference around the bolt. 1"/20 pitch = .05" of take-up per revolution of the nut, or .05" of lift for every 2" of travel (one revolution of the nut). This means that the force required (not considering friction) to turn that nut is magnified 40 times on the tension of the bolt. So, if you apply, say 300 ft lbs, that turning effort should be sufficient to lift 12000 lbs, multiplied by the 4 keel bolts = 48,000 lbs! Would the weight of the keel have some effect? Absolutely. But, by doing it in the water, this "should" mean that at worst, torquing the bolts to spec would leave them slightly under-torqued by comparison to sitting on the cradle, but not by too much, and would certainly be better than not torquing it at all.

2). As for the weakening of the bolts, check them over carefully. If you snap the bolt by torquing it, I would say that by it wasn't trustworthy for sailing in the first place! So, I would

lube the threads (that lube will affect torque values, but "probably" on only to the point of offsetting the weight of the keel in the water anyway), and I would (though some may disagree!), back one nut off at a time just enough to make sure it turns easily. This should be a good test of the bolt/nut mating surfaces anyway. Then, tighten it to specs. Then go on to the next nut. Perhaps working from the middle out would be a good idea?

Personally, I'd rather "risk" a further problem with a keel bolt than to sail the bolt with a loose keel. While the C&C "Smile" is a common issue, your having to re-do the smile every year may well be an indication of under-torqued keel nuts. Finally, I calculated the amount of torque I had to apply by "feeling" the amount of tension I had to apply to a standard torque wrench to get to 180 foot lbs, and then added a longer lever to the large socket set I had (I used the emergency tiller pipe to extend the bar). With the arm being twice as long as the torque wrench, that would be equivalent to 360 foot lbs for the same "feel", or pretty close to the specs on the bigger nuts I had. While not perfect, it certainly got me in the ball park.

Hope all these thoughts help, but it comes with this disclaimer - I am not a yard mechanic (though I play one on TV)... :)

You might want to print this out and run this by your local yard guy and see if he agrees with my thoughts. And, just to be sure, check my math!
Fair Winds,
Bruce

Keel Painting

Kate - Interlux 2000 works well on lead. You have to sand the lead until it is bright metal (remove oxidation), then put several coats. Of course, 2000 only comes in quart cans so it's an expensive fix, but it works...does not come off. Alternatively, you could use West epoxy and mix in their water barrier additive. In other words, epoxies stick to lead. After you put a few coats of either, sand with 100 so the paint will stick.
Greg

L

Lazy Jacks

John,
The dutchman system has thin monofilament lines that go through holes in the main. This helps the main flake consistently. Lazy jacks are lines that run from the boom to about 3/4 of the way up the mast on both sides of the

main, in effect making a rope guide for the sail to drop into. This keeps the sail from dropping off to one side or the other of the boom. In short, they just trap the sail and keep it from falling all over the place. The don't really "flake" the sail per se.

Bruce,
As mentioned on this thread a couple of times, you can pull the lines to the mast w/ the Lazy Jack system, and run them around the reef hook. I am intrigued with the idea of a line that leads to the cockpit so you could retract them from there. Would it work if you installed small blocks that ran along each line and then to a turning point on the mast and back to the cockpit? Thereby allowing you to pull one line per side to tie down in the cockpit.
If you want to see a lazy jack system go to West Marine's web site and Î'm sure they'll have an illustration (there's a good one in the catalog). Dutchman systems are harder to find images of, maybe there's one installed on a boat that has a photo at Stu's site (I haven't looked specifically for that). John, Bruce is correct, the Lazy Jack system does not flake the sail. You still have to go forward and straighten it out. But that job is made much easier by having ing the sail controlled in a confined area so all that is necessary is to flatten it out. I have seen numerous boats with older sails that have Memory in the sail so it is 90% done before going forward.

Greg

Lightning Protection

I was fortunate to have an opportunity to talk with a fellow who worked in General Electrics High Voltage Lab running experiments with lightning. He was and may still be the consultant to NASAon lightning protection. When I asked him about grounding my boat he advised the following:

1. Run a #1 wire from the mast to a keel bolt (assuming you have an external keel)
2. Run a #4 or #6 wire from each chainplate to the same keel bolt.
3. Run a #4 or #6 wire from the head stay and back stay to the same keel bolt.
4. It is important that all of the ground wires go to the same keel bolt.
5. Do not run any additional grounding wires to anything else such as through hulls, engine metal tanks, etc.

6. It is best to use mechanical connections rather than soldered on the ground wires.

He told me that having done the above, I would be as protected as current knowledge makes possible. Having said this he also added that lightning can behave in unpredictable ways so there are no guarantees.

For what it's worth!!
Dave "Webfoot" 37KCB

What about a ground from the engine??
In the current setup, everything from a systems standpoint is grounded to the engine which uses the propshaft as a path to the "big ground". Leave it like that, or ground the engine to the same keel bolt?

Bob Rudary
Grand Slam
C&C 34+

Regarding the grounding of the ships electrical systems through the engine shaft. The fellow I talked with said it's better not to connect the two. The lightning is most likely to hit the mast. The most direct route to the keel or a ground plate the better. Also, the simpler the better. Keep the lightning ground system seperate from the ships electrical system. By the way, I'm no expert on this subject. I am just reporting what I was told. I was very interested in what he told me having been on a Pearson 30 which had a direct hit on the mast. It gets your attention. Except for frying all the electronics and blowing all fuses there was no damage to the boat or the four humans aboard.
Dave

rbt
If you have grounded the engine, as you say, --How have you isolated the electrical system form this ground? The engine, being grounded, is also connected to the minus side of the battery, making this also the ground for the entire electrical system. Have I missed something?

I'm a firm believer in grounding only the mast (and or chain plates) to the keel on C&C boats, where we have externally exposed lead keels. Consider

that the propeller is normally bronze, the shaft is aquamet stainless steel, (occasionally bronze or other alloys), and these are normally protected by a sacrificial zinc anode. Now-- most of our boats are not dry sailed, many of our boats are in salt water of various levels of salinity. The various metals, lead, zinc, bronze, stainless steels, etc, all have different electrochemical potentials. When they are sitting in an ionic solution (sea water) they have become (poor) batteries. If you connect them together, you have shorted out all these batteries, creating a continuous circulating current, and depleting your zinc, and the zinc in the bronze at a very rapid rate.

This actually happened to me on a 1973 C&C 30. C&C had bonded the mast, keel, thru hull, etc, for lightning protection. For the first few years things were okay, when the barrier coat on the keel was fresh. Note that with a good fresh keel barrier coat, the lead keel was not really exposed to the sea water. As the boat aged, the barrier coat deteriorated, and allowed sea water to penetrate to the lead. Within a few weeks, the zinc was completely gone, and the prop and the bronze shaft was beyond repair. I cut the wire between the mast and the engine and measured the DC current. It was an astounding 200 ma. The open circuit voltage was ~ 0.3 volts, but this explained the rapid corrosion of the zincs, prop, and shaft. I removed the wire from the mast to the engine, and never had any further trouble. I later discussed this with C&C reps, and they admitted that they have mistakenly overdone the lightning protection grounding, and caused some serious corrosion problems.

Note, if your boat has an encapsulated keel perhaps this is not so much of a problem. Also form a lightning protection viewpoint, the external lead keel is an adequate connection to the ground. This is even true despite any paints, or barrier coats that may be applied to the keel. Those coatings are thin enough, that the lightning stroke will arc through, and be dissipated through this path.

Sorry for the long winded explanation, but I thought this could help others avoid the frustration and the unnecessary losses I was faced with.

Don Wagner
C&C 41 CB
Der Baron

I agree with Don's comments about creating a battery by bonding thru hulls to the engine etc. The GE NASA consultant I mentioned earlier warned me about

this. He said that it was not only a bad thing for lightning protection, but would be very bad for electrolosis and could eat away thru hulls rapidly. I cut and removed all of the bonding wires on my previous boat. My present one didn't have any. C&C or a previous owner must have learned about this. It's interesting that I still see articles in sailing magazines recommending that this bonding be done.
Dave " Webfoot " 37KCB

M

Mast Upgrade

Several thoughts. RG-8X offers best compromise of signal strength vs size & flexibility (IMHO). Use a proper sailboat antenna (normally 3 foot whip with about 3db gain) Antenna gain is achieved by flattening the radiation pattern (no sense sending signals up in the air unless you're talking to airplanes or into the water). With a high gain antenna you will not be able to reach anyone to either side when more than slightly heeled (although you will be able to reach those airplanes better).
Cell phones have relatively low power (3 watts max for older full size phones, .4 to 6. watts for modern hand held types. Only useful if near shoreline and populated areas. Can't reach another vessel unless you know their number. Certainly NOT a safety item. I leave mine at the dock. Handheld VHF's run 3 to 5 watts. Full size VHF runs 25 watts. With a mast top antenna several times the range. Your whip on the stern rail will outperform a handheld by a fair margin. If you have masthead lights and the original wiring, it'd be a good time to replace it also while you're snaking cable.

I had the stick out last winter and pulled new all-rope (Sta-Set X) halyards, as well as replacing the sheaves at the masthead. While I was in there, it was no big deal to pull all new wiring -- new RG-8 (the big stuff) for the VHF; also multi-conductor 14-ga for the mast lighting, to replace the 20-year-old 'zip' cord that was in there from the start (and was in horrible shape, BTW). And as long as I was at it, I replaced the masthead anchor light with an AquaSignal halogen, and replaced the separate steaming and spreader lights with a combo unit from AquaSignal (also halogen). The bundle of wires (including new wind-instrument stuff) was tied every ten inches or so with three wire ties with the ends left on, pointing out from the bundle at about 120-degree angles from each other.

What did I gain from all this? A far superior radio signal, with tons of range; much better and brighter anchor, deck & steaming light WITH MUCH LOWER

CURRENT DRAW (halogens are great!); but best of all, none of it slaps now, even in heavy rolling conditions!

Considering how much we all spend on glitzy stuff like new sails or CD players, I feel like it's money well spent to assure that my boat will be seen (and heard), for a longer time (and greater distance), especially in the worst conditions. And it really didn't cost all that much...if you're going to replace the wire anyway, put the best in that you can, and you won't regret it.

Getting off my soapbox now... ;-}

Fred Street -- Minneapolis
S/V Oceanis ('81 C&C30) -- Bayfield, WI
Bayfield Yacht Club

Brad,
I will try to answer a couple of questions.

1) I attached four zip ties every 12 inches (probably overkill, 15 inches would have been ok).

2) I ran 2 new halyards after performing this procedure without any hassle. Including have to "fish" one of them. To date no signs of fouling with wires. And no slapping at mooring.

3) I have heard that PVC conduit is installed with aluminum rivets. The pipe is put inside, they drill many holes in the mast to rivet it through. Too much effort and money IMHO. The zip tie effect works great. Took me about 3 hours to do (with two people)

HTH,

Tom Anderson
C&C 32 Nonpareil
Marblehead, MA

Brad,

For a "contrarian" perspective I had conduit installed on "Ronin's" mast when I had it down for re-hab and I personally think that this was the

best way to go for my boat. I make that statement because the thought of 57/58' of 14 ga. wire (and RG-8U coax) runs hanging somewhat freely didn't seem like a good idea to me. I don't know about your mast but it may not be necessary in your case.

Anyway, it didn't really seem that difficult to do. What my rigger did was mark and drill two small holes on either side of the centerline on the front of the mast (distance between the holes dependant on the diameter conduit you use) about 10' in distance from each other. You don't really need that many rivets to keep it in place. They then used a coat hanger to pull the conduit up to the mast wall, drilled a corresponding hole in the conduit, riveted it and then did the same on the other hole. At the steaming light, they simple cut out the wall of the PVC to match the opening in the mast. The pipe stopped about 1' short of the top of the mast. If you do it, make sure you install a conduit with enough diameter to allow for any wiring that you may wish to install in the future. It fills up pretty quick.

There, I just told you my level of expertise and experience on this subject. I paid a professional... Actually, had I known how to do it then I would have gone ahead and done it myself. It seemed to me that there was less there than (doesn't) meet the eye... :-)

Best,
Dave
'82 37'
"Ronin" - Annapolis

Matt -- I used five-conductor (anchor light, steaming light, deck light, ground & spare) from the mast step up to the combo light, where I used a nylon strap riveted to the mast for strain relief; then I spliced (inside the combo light) to 2-conductor to go up the rest of the way to the anchor light. This run was cable-tied to an anchor tapped into the bottom of the masthead fitting. These runs were also bundled with the masthead wind (small 6-conductor) and the RG-8 VHF runs, which have their own strain relief at their grommeted exit holes. I think splitting the run at the combo light, then using the lighter cable for the rest of the run helped distribute the strain on the cables.

Fred Street -- Minneapolis
S/V Oceanis ('81 C&C30) -- Bayfield, WI
Bayfield Yacht Club

Brad -- I used three 8-inch ties every 16 inches. With the mast horizontal on

sawhorses, it was gratifying to watch the ties more or less center the bundle of heavy cable as I fed it into the mast. As far as the halyards, I think the ties may help a little bit, but the best thing is to pull 'em up tight when you're done sailing for the day. After going through this process, my mast has been EXTREMELY quiet.

Fred Street -- Minneapolis
S/V Oceanis ('81 C&C30) -- Bayfield, WI
Bayfield Yacht Club

Jared -- having just re-done the math, my new 10-watt halogen masthead light could use a round-trip run in excess of 100 feet of 14-ga Ancor marine wire with a calculated voltage drop of only .25 volts. Considering the fact that a 10-watt halogen in a proper housing is significantly brighter than required by USCG reg's for anchor light visibilty, I think I'll be far safer than I was with the power-hogging incandescent that it replaces. But I agree with you that we need to make sure we're getting all the juice we can to these devices to ensure they work as designed.

BTW, the figures needed to calculate voltage loss and wire size came from the Ancor website at
http://www.ancorproducts.com/technical.html
And if you use multi-conductor with a common ground, be aware that the wire used for the ground MUST be sized to carry current from ALL devices that will be used simultaneously, unless you want to use it to heat the inside of your mast... ;-}

Fred Street -- Minneapolis
S/V Oceanis ('81 C&C30) -- Bayfield, WI
Bayfield Yacht Club

Brian,
Yes you are correct on all points. I did fan out the 4 zip ties (Ithink they were 12 inch ones) every 12 inches. And the halyards do not make any slap noise either. The first time you step aboard Scholar after do this, you will be amazed on how quiet it is. Nonpareil's slap was so bad the first year that we almost never slept aboard.

HTH

Tom Anderson
C&C 32 Nonpareil

Marblehead, MA

Glen- and all--

I got a response from Aquasignal corporate offices in Germany today. They say that their USCG rated lamps are rated for operation at 12 volts, so as long as there is "low battery" voltage at the base of the fixture they are OK...and getting a full 14.4 volts would be overvolting them.

Bruce,

All my winches are tapped into the mast and boom. No nuts. That's the good news. The bad news is that galvanic corrosion can make removing the screws a real problem. Use a heat gun and in desperation CO2 (thanks Jarred). A hand impact wrench can help too. Use silicone sealant on the threads when you reassemble to reduce corrosion.

Good luck,
Gary
S/V Expresso
'75 C&C 35 Mk II
East Greenwich, RI, USA

Hi Gary,
One comment on reducing galvanic corrosion between aluminum and stainless. There is a specific goop, I think its called "Tef Gel" that is highly recommended by Brion Toss (of the Riggers Apprentice fame). I've got a little tube of it and intend to use it when attaching stuff to the mast or boom.
Hope this helps and thanks for the input,
Bruce

Mattress

Brian,

We replaced the original cushions on "Ronin" last year with 5", closed-cell foam and covered them with Ultra-Suede. A vast difference in comfort from my perspective. The original foam ended caused 'hard-spots' when sleeping. It's much more like a normal mattress now. I think the original foam was 4".

Dave
'82 37'
"Ronin" - Annapolis

From some rather in-depth experience, the critical issue to comfort will be the quality of the foam. In our last boat, we replaced the original factory cushion foam with high-density foam obtained through http://www.knoxfoam.com The information on their website is good, and so were their prices, though I later found out about someplace here in Chicago that discounted the cost of the foam even further. Unfortunately, I don't have that information any longer. In the end, we went with the highest grade of foam possible and were much happier with the comfort of the cushions.
Hope this helps, Bruce

Brian,
We had the same thought last year but rather than replace the cushions we bought a queen size eggcrate foam (about 2 1/2" thick) and cut it to the same size as the cushions. (actually a little larger because of the side slope in the V-berth). We then bought 2 queen size sheets (one for the top and one for underneath the eggcrate) and sewed the sides and the short part at the bow end to conform and cut off the excess, leaving the aft end open so one can remove the eggcrate to wash the sheets. Because it's symmetrical, by having top/bottom sheets just turn the whole thing over to get a fresh sheet. Also it keeps the sides from untucking. The comfort is very satisfactory, sleep better than at home. Did the same for the quarter berth but you can't turn it over. If some of this doesn't make sense let me know.

Jerry, C&C 33 "Shazam"

Contact S & S Fabric Products in Portsmouth RI. Very experienced in redoing cushions, upholstery etc. Have worked on lots of C & C yachts.
"www.ssfabricproducts.com "

We are just in the process of doing the settee and the dinette on our 35. The V-berth will be done next. What we decided to go with will provide comfortable seating, with firm but relaxed sleeping. The foam for the bottom is by a company called Reflex. It is a polymer construction, has a 10 year guarantee, (including marine use) and is three inches thick. Each cushion

gets wrapped in a Fortrel wrap, which builds it up to four inches. Even lying and leaning on ones elbow seems to not flatten the cushion so one can feel the plywood. The backs are a 5 yr guaranteed Ultra-Lux, which is a little softer, and it too is Fortrel wrapped. All bottoms will have a polyester scrim bottom to allow air circulation.

The upholstery did say that the brand name of foam does get changed at times by the distributor, who wants to offer something different. So I guess the name might not necessarily be available in the States.

Klaus & Janice

A mattress company I dealt with and was very satisfied with the results is the Handcraft Mattress Company. They will come to your boat and measure if you want. The end result is a mattress that looks like you have at home (maybe without a hinge in the middle) and guaranteed for up to 10 years. Six inch latex foam , they have innerspring if it works for you. Comphy and stays in place - no sag in the middle at all! Not cheap, but you will be satisfied if you plan extended or livaboard cruising. Even came wrapped in a bow for Christmas present. They're in, Santa Ana, CA, but have agents around country, phone 1-800-241-7751. I'm just a customer. No business relationship.

major
AIRBORNE
38 Landfall

N
North Carolina

Ross:
You'll probably like it here. It's 60 degrees and sunny, with about 10 kts westerly, today and it's still not the middle of January. Big difference from where you are.

The NC Travel and Tourism website is www.visitnc.com . There are listings for a lot of events and sites.

As a history buff you would be interested in going down to Wilmington. The WW II battleship North Carolina is moored there and open for tours. The American Civil War fort that figures into the movie Glory is just outside of

Wilmington; rent the movie and then see the location. The movie, BTW, shows the 54th Massachusetts attacking from the wrong side of the fort - the Confederate side.

On the subject of movies, Screen Gems Studio, in Wilmington, is the largest movie studio outside of Hollywood and gives an interesting tour. My girls dragged me down there on a "Dawson's Creek" pilgramage (if you're familiar with that TV show) and I particularly enjoyed it... plus we had to go to actual locations in Wilmington where the show is filmed and had a good time talking to the locals who own the shops and houses.

Another note on the subject of history, the North Carolina flag has two dates on it. With all due respect to our friends in Boston, one of the dates is the date of the actual first battle of the American Revolution. The battlefield site is preserved, but not very impressive. Wasn't much of a battle.

Interested in pirates? The North Carolina Maratime Museum in Beaufort (Bow-fort. Beaufort South Carolina is pronounced B-ewe-fort.) is in process of salvaging the Queen Anne's Revenge - Blackbeard's flagship - which sunk off Cape Lookout. The Museum and the town of Beaufort are well wothe the trip.

Cape Hatteras Light is well worth the trip. It sits about 1/2 mile inland of it's historical sight now, having been moved to avoid the erosion of the shoreline. Quite a thing to move a brick structure over 200 feet tall, and a real nice stretch of shore to watch the surfers and do some shelling. The light, BTW, is in Buxton and not in the town of Cape Hatteras. And it will be quite a drive from Pinehurst.

While on your way to Hatteras, you should take the ferry rather than go by road. Well, actually you almost HAVE to take at least one ferry. But do either Cedar Island or the Swan Quarter-Ocracoke ferry, and spend some time in Ocracoke. Quaint little tourist trap that is nice to visit. And if you have a 4wd vehicle, it is legal to drive on the Atlantic Ocean beaches and have a bonfire at night.

Interested in Flying. The Wright Brother's Museum is in Kitty Hawk on the Outer Banks. There is the
original hut where the plane was built, and a monument at the top of the hill they came down to get their airspeed up.

You can also go flying yourself, in a hang glider, at Jockey Ridge State

Park in Nags Head... a couple of miles from the Wright Museum. Jockey Ridge is the big honking sand dune.

If you're interested in going sailing, drop me a line. I'm always looking for company on Belle, and we might be able to make a day trip on the ICW so you can see Pamlico Sound one of our water towns. They say that Oriental has more circumnavigators per capita than any other town in the world. But then, it;s a small town.

Rick Brass
la Belle Aurore
Washington, NCan interesting exhibit at the visitors center
(although it was closed a couple months ago after a severe Nor'easter.),

O

P

Painting Decks

Karin
For a proper deck job,
Remove all deck hardware, except the toe rail.
Grind off all previous non skid surfaces.
Spray paint all smooth surfaces, Imron or Awlgrip.
Benefits to both, I prefer the Imron, because of depth
of colour, you can always buff.
(if your smooth areas are in good shape, you can buff well,
and then apply wax)
I would then hire someone to roll on the gelcoat non skid surface.
Gelcoat is mixed with a thickening agent, to the proper consistency,
and then rolled on to create new non skid.
The new non skid is then rolled on from bow to stern, without stopping.
So one person mixes, while the other roles.

It is an art to get the proper texture to the deck, without leaving any
seems showing, and proper texture. This is why I would hire this job out,
after viewing several

of their previous jobs completed. The non skid surface is in your face all the time, and must be perfect, or it will devalue your C&C.

$500 will go along way, to hire 2 experienced gelcoat workers, to roll on your new deck on a Saturday. We have several boats here in Oakville that have rolled on gelcoat by Bruckmann Marine. You cannot see the difference between rolled and a moulded non skid. Don't scrimp on this feature of your boat.

My non skid gelcoat is now 29 years old, and because I have moved my stanchions to the toe rail, and upgraded all deck hardware, I need to recoat my deck. But my original non skid is in pretty good shape. No paint will last this long.

With painted decks with sand or no slip additives in them, the paint wears off the abrasives peaks, and ends up as brown spots. My previous boat came with a painted deck (Evelyn 32) and it was okay. But a properly rolled gelcoat non skid, would have been perfect.

Larry Jensen
Rock & Roll forever
C&C 30 BHYC Oakville

Palm Handhelds

The URL for those of you who are interested in this freeware program:
http://www.toolworks.com/bilofsky/tidetool.htm
I'm glad you asked me to look it up. Looks like there's a new version out with graphic plots of the tide level. I got my copy two years ago off either zdnet or tucows.
Good luck,
Mike
1979 C&C30, "Blue Dolphin"
Fair Haven, NJ

Polars

Hi Paul,

The optimum heel angles and corresponding boat speed for the C&C 29 mkII are as follows.

Upwind:

True wind 6 knots, heel angle 4.3 degrees, boat speed 3.988 knots
True wind 8 knots, heel angle 10.3 degrees, boat speed 4.883 knots
True wind 10 knots, heel angle 18.1 degrees, boat speed 5.332 knots
True wind 12 knots, heel angle 21.4 degrees, boat speed 5.497 knots
True wind 14 knots, heel angle 24.0 degrees, boat speed 5.598 knots
True wind 16 knots, heel angle 26.6 degrees, boat speed 5.664 knots
True wind 20 knots, heel angle 28.7 degrees, boat speed 5.743 knots

If you can achieve these target speeds than you are sailing your boat at 100% efficiency which is impossible. Hope these figures don't frustrate you but they should give you something to shoot for.
That's interesting. The polars for my Express 30 are very similar, except they show about 2/10 of a knot faster and 1°more heel until 20k, then it's 1.6° less heel but still .25 knots faster.

Prop

I have a two bladed prop on the same boat with the same engine and can get over 6 knots. Maybe the prop is not sized right. I had a 13 1/2 x 9 fixed blade. I sent information to a prop company and they recommended a 15 x 7. Somewhere in that area would be OK. It sounds to me like you don't have enough pitch on your prop, unless at 3200 you are getting a lot of black smoke out of the exhaust. If smoky, then you have too much prop, either too much pitch or too much diameter.
Gary Nylander
C&C 30 "Penniless"

Propane Stoves

Dennis;

I needed parts for my HilleRange stovetop (now owned by Seaward) and found the easiest thing to do was call them at (562)699-7997. They were excellent to deal with and shipped out parts promptly.

Dave Bartels
"Quintessa"
'83 C&C29mkII

Probably the temperature sensor/oven gas valve assembly. I have the same vintage stove and mine wouldn't turn on once the pilot was lit. The culprit was corrosion in the gas valve for the oven. The valve assembly includes the temperature sensor, so if either the temp. sensor or thermocouple are your problem the one assembly will fix it.

I was able to order the assembly directly from SeaWard and the guy on the other end of the phone was very knowledgeable. I have a manual for the stove but unfortunately it's on my boat and not nearby. Here's their number, give them a call:

Seaward Products (562)699-7997

Jim. Make sure your pilot is clean . When you turn up the thermostat the pilot should get bigger and heat up a wire bulb in the pilot assembly. if that's ok you can calibrate the oven control with an adjustment on the control. you need a skinny flat screwdriver. pull off the oven thermostat knob and look down the tube in the middle. You will see an adjustment screw. Set the oven at 250 . when it comes up to temperature holding the outside of the tube with pliers so that it doesn't turn, adjust the set screw in small amounts. It will take up to two minutes for the burner to come on. I forget which way to turn the screw. watch the pilot to see if it gets bigger . When it gets bigger and burns on the bulb in the pilot the burner will come on up to 2 minutes later. If that does not work you may need a new thermostat. Hope that helps.
Brad

Q

R

Rudder Moisture Problems

I suggest adding a step to flush acetone through the assembly. Try plugging all holes with drywall screws except the lowest one, attaching a tube to that hole with hot melt glue or resin, and forcing acetone in and up until it comes out around the shaft. Drain it, let it dry (two days?), and repeat the procedure with epoxy resin. Don't think in terms of sealing the assembly so much as filling all internal voids.

Good luck -
Roger.

Rudder Bearings

Jim,
I don't know how your boat is set up but mine has an Edson wheel. The rudder extends into the cockpit with a square end for emergency steering. Over the years a lot of salt water must have drained down the SS rudder shaft and sat on the white metal quadrant to set up an electrolysis problem. I tried solvents, power bars and impact wrenches but was not able to remove the 4 bolts that hold the quadrant together. I ended up drilling out the bolts - 2 from the threaded end up and 2 from the head down.
After that the job was straightforward.
1. Drilled square top and tapped 3/8 " threads for eyebolt to lower rudder.
2. Removed steering cables and quadrant.
3. Dropped rudder out of boat.
4. Cleaned tube with acetone to remove all grease.
5. Roughed up inside of tube with home made flapper wheel to provide bite. More acetone.
6. Four coats of paste wax on rudder shaft as release agent.
7. Put in new grease fitting in rudder tube and inserted rudder in tube.
8. Using a cheap grease gun I pumped the West/graphite mixture in until I had overflow at top and bottom of tube.
9. Let sit for a few days until epoxy set up. Rudder came loose with only a little force. I did the job about 3 years ago and it seems to be holding up.
PS Removed the epoxy grease fit, drilled thickness of tube with flat nosed drill to remove epoxy, inserted new grease fit, and tried to force in a bit of grease.

Hope this helps. Let me know if I can be of further help.

Bill,
Caprice 1

Rudder Shaft Ring

The plastic bearing material used on most boats is called "DELRIN" It is a self lubricating plastic that is used in many bearing applications. You can buy it in blocks and cut it with a jig saw and hole cutter for the outside in inside size you need. It cost more than regular plastic. About $30 U.S. for the size you'll need to make your rudder stock bearing.
major AIRBORNE~~~~_/}~~~ 38 Landfall

Excerpt from an Industrial Plastics catalogue: "Delrin is a trade name for acetal. Acetal is a highly crystalline form of polymerred formaldehyde. It has the highest fatigue endurance limit of any commercail thermoplastic, as well as great strength, stiffness and toughness. It is characterized by a low co-efficient of friction and good bearing characteristics. "Physical properties remain constant in a variety of environments since it absorbs only minimal amounts of moisture. Typical applications are bearings, gears, anti-friction parts and marine fittings." Regards Bob Skene

Rust Removal

Try a test piece(very small) using occylic acid, then rinse. We have used this to remove rust stains from the deck and rigging.
John
Boatless in Edmonton

You can try FSR from Davis (Fiberglass Stain and Rust remover) it is a gel containing oxacylic acid , about $12 a jar. Oxacylic acid is also used by furniture refinisher's to remove stains in wood so should be fine on interior surface's , but you would want to try on a hidden area first to be safe.
Ken Heppell

S

Sailing on the Jib alone

I have sailed our 30 on working jib alone in 30+ knot winds with great performance (6+ on a reach). However, the 30 has a very stiff mast (and single lowers). You have trade-offs, I can't get the mast to bend but I can sail on jib alone..... As a comparison, our mast is as large in section and thicker than the mast on a Cal 40.

Shaft Coupler

Last spring we removed the shaft coupler to get at the stuffing box to replace the flax - there wasn't enough room to get at it otherwise.

It became a much bigger job, as the coupler wouldn't come free. We ended up removing the transmission, using a puller, hammer and heat - turns out that whoever had installed - or last removed - the coupler had tightened the set screws too tight, causing them to dimple the shaft, creating a burr which severely impeded the coupler's removal. We filed and sanded the burr, and reinstalled the coupler. It went on MUCH easier than it came off.

Brian Iler
C&C 33 Mk II
Alexandra Yacht Club

Toronto

Shore Power

SHORE POWER GROUNDING ISSUES, GFI OUTLETS, POLARITY ALARMS, AND GALVANIC
ISOLATORS
Joe Della Barba

Most of us know that shore power systems can cause increased corrosion and that there is such a thing as a "hot" marina that also causes or increases corrosion. Beyond that, there is a quite a bit of folklore and a lack of good understanding, even among professionals who designed the systems in the first place.

To understand what is really going on you have to take a look at how the marina is wired as well as your boat. The powerlines that supply the dock (and your house too) do not carry 120 or 240 volts. They are usually over 1,000 volts and can be over 10,000 volts. There is a transformer either on the telephone pole or in a box on the ground that changes this voltage to 120/240 volts for domestic consumption. The output side of the transformer has 3 wires coming from it. The voltage between the outer 2 wires is between 220 and 240 volts and the voltage between the center wire and either of the outer wires is between 110 and 120 volts and is half the voltage that is between the outer wires. This central wire is called the neutral wire and is also grounded at or near the transformer. This provided some important safety benefits but it also causes some problems in the marine environment.

The shore power cord coming aboard your boat has 3 wires, assuming you have 120 volt 30 or 50 amp service. The black wire is called the hot wire, and is connected through the dock wiring to one end of the transformer or the other. The white wire is called the neutral wire, which is connected to the center tap of the transformer and grounded. The third wire is the green wire and is connected to the same ground point as the neutral wire on shore. Assuming your boat is wired correctly, the green wire also is connected to the DC ground system on your boat. Depending on how extensive your grounding system is, it will at the very least be connected to your engine block and may be connected to all your seacocks as well.

This system provides some important safety benefits and also introduces some large problems. First, the good news. If any AC equipment with a 3 prong cord ever has an internal short where the hot wire contacts the metal case of the equipment, the case would not become hot since the green wire grounds it. Instead, the circuit breaker would blow. If the internal wiring of the boat should ever short to the ground system it would likewise blow the

circuit breaker. If there was ever a situation where the hot wire contacted the ships ground but the green wire from shore was not connected to ships ground, a large AC current would flow from the boat's underwater metal through the water to ground. If it wasn't enough to blow the circuit breakers there would be an extremely dangerous situation. Anyone swimming nearby would be killed. This is a reason not to swim in marinas and it kills people every year.

Now the bad news. If you ever come into contact with the hot wire and are grounded, you will be shocked and maybe killed. It is very easy to be grounded working in a wet salty environment. The second piece of bad news is that the green wire that connects to your ships ground also connects to every other boat in the marina on shore power. This means that all underwater metal is connected. This can cause huge galvanic corrosion problems. Imagine that if everyone but you forgets to use a zinc that your zinc will be trying to protect the whole marina. The third piece of bad news is the possibility of a miss wired outlet that reverses the hot and neutral connections. This would be dangerous for a number of reasons, depending on what equipment was hooked up onboard and how much AC it "leaked". I once was badly shocked the discharge water of an air conditioner because of this.

Now more good news! There is technology ready to solve all these problems. First with the easiest, reverse polarity. Most new boats have reverse polarity alarms installed already in the AC panel. If you need one, you can get a plug in polarity tester at a hardware store for $10 or $20. If you find a reverse polarity outlet in marina, don't use it! The problem of getting shocked can be solved as well with Ground Fault Interrupter (GFI) outlets. You may have seen these already; they are in most bathrooms in newer homes. They sense when the current going one way on the hot wire is not the same as current going the other way on the neutral wire and turn themselves off. This will keep you from getting shocked by touching the hot side of the circuit while grounded, since the current will be going through you (ouch!) instead of back on the neutral wire. A GFI outlet will not save you from touching both the hot and neutral wires at once. If you have several outlets chained together you only need GFIs at the beginning of each chain. The corrosion problem can be solved as well with Galvanic Isolators. Galvanic Isolators will pass AC current, thus preserving all the safety aspects of the system, but no not pass DC current, thus isolating you from the other boats' underwater metal. They install between the AC green wire system and ship's ground. These need to be installed by someone who is familiar with AC wiring. There may be new units on the market, but back when I did this for a living only the Quicksilver unit by Mercury Marine was a decent unit. All the others had quite severe flaws.

Smile

That is the famous "CandC Smile". They are built light for racing, so the keel flexes and anything hard cracks off there. As noted, check the keel bolt torque that must be right to start. Some folks on the list have eliminated the crack by routing it out then sealing it with a semi-flexible adhesive, 3M 5200 or 4200 or similar products. If you *really* wanted to "do it once and do it right" you can actually drop the keel an inch or two, clean out the joint, rebed with sealant (5200 is an adhesive sealant that may be "forever") and then retorque the keel bolts. That's not at all necessary though, the "smile" is usually no problem. (Although I suppose a serious racer would call it a serious problem, it has to slow the boat down as it disrupts water slow.<G>)

Alex - The last few years of C&C's had their keel-sump joints wrapped in one layer of fiberglass, so no smile. If you drop the keel, clean, rebed (don't use 5200 as you'll never get it off; I'd use 4200), then retorque, you could give it a fiberglass wrap, but you'll need to fair it in well. My 30-2 has this and we replaced the keel once...it wasn't that hard removing the glass.
Greg

Solar/Inverter

A discount to fellow members:

As the distribution manager for Soltek Solar Energy's marine and RV division and a new C&C owner we are currently upgrading our C&C 30 "Lively Lady V" with a new power system. The upgrades have included new 6 volt batteries, a smart battery charger, solar panels and soon a DC to AC inverter.

Should any member be contemplating upgrading or adding to their electrical system I would be pleased to put together a special discount that they can obtain through our local dealers.

Our website is www.soltek.ca If you would like more information or would like our complete catalogue please feel free to call me at 1-800-667-6527.

Good sailing in 2001.

Spencer Evans
C&C 30, "Lively Lady V"

Stuffing Box

Bill-
I am seeing more posts on the list this year in favor of replacing the old packing with a new synthetic, either the teflon packing from GORE or another synthetic "putty" that West Marine carries. In both cases you are replacing cotton twine and synthetic lubricants, so there is no corrosion, no rotting of the packing, less friction and less heat buildup.
The folks who have used it for a year or so (my understanding is that these products have only been on the market for two? years) seem very happy with it: No leaks, no problems, and no big expensive replacement job!

The putty is about $50, the Gore stuff somewhat less.

Apparently these alternatives simply did not exist (were not in the market) twenty years ago, so the fancier systems may have simply found their match.

Jared et al. - Just to add an overlooked item vis a vis the Gore or West Marine dripless packings: I tried the West version before I switched to the PYI system 3 years ago and here's the problem: you have to have a packing nut sufficiently large enough to accomodate both several rings of the clay AND one ring of flax to provide pressure. Even without the flax, I could not put the required number of clay rings in my packing, and hence it leaked. So, this is an item to consider with these seemingly perfect (cheap) solutions.
Cheers, Greg
Bill - So much to learn....
You loosen the locking nut, then tighten the packing nut until the dripping stops; now loosen until it drips about once per 20-30 seconds. Rotate the shaft a bit by hand just to feel the tightness and make sure the leaking doesn't increase. Now tighten the lock nut while holding (with wrench) the packing nut. Observe the drip rate and start all over if it's stopped or increased. The flax packing should be replaced every few years...lots of fun when you haul out. Finally, when you do haul the boat, replace the dinosaur with a PYI!!
Later gator, Greg

T

Teak cleaning

Hi John,
I've been getting a lot of input on this over the last few days, and you've probably seen the posts, but here's what I think I'll try, and in this order:

1). Start first with spray Murphy's Oil Soap (you can make the spray by thinning down the regular stuff with water). Wipe it down, and see how much gunk & stain comes off with the easy stuff first.

2). If not satisfied, continue the cleaning with turpentine and 00 grade brass or synthetic wool. Don't use steel wool, you'll get little rusting particles in the wood that way. I agree with the poster that a good respirator mask is called for during this job (same one I use when applying antifouling paint)

3). If still not satisfied with a few spots, I'll try acetone in a deep dark corner and see if there will be any damage to the wood, and if necessary, apply teak cleaner and brightener.

4). If STILL not satisfied with a spot or two, I'll start sanding with a fine grade of sandpaper.

5). Apply teak oil to the interior, despite the comments about the nice results of varnish and polyurethanes. I appreciate all the comments on this piece, I'm just not ready to spend the time to do a nice job with a polyurethane right now.

I'm really hoping that steps 1 and 2 do the job, at least for this season - I've got a lot more things to get done this spring!

Hope this helps,

Bruce

Topping Lift

Hello All,
I got another suggestion from another board. Here goes: "You might try something like I use, too: my backstay and topping lift both have a small block attached and the blocks are joined by a small bungee...when the boom goes out, the blocks/bungee go up, keeping the topping lift away from the leach of the sail, etc. Have used this on several boats, and it works great with either fixed or adjustable topping lifts. I think I got the idea from "Things That Work" in Sail Magazine or from the books of the same name." Makes easy sense to me!
Bruce

Going to a solid vang is a great , but expensive solution to your topping lift problem. Bruce mentioned using two blocks and bungie cord. I did a similar thing by securing a Harken bullet block about 1/3 of the way up my backstay.(As I recall it was just whipped on with stainless wire.) I put a stainless ring on my topping lift free to slide up and down. Then I fastened bungie cord to the ring, through the block and down to a small cleat attached just above the backstay turnbuckle. The bungie cord was adjustable, but the bungie was so long that it could stretch enough so it didn't interfere with the boom going down wind. You didn't want to spend any money. This is almost that cheap.
Dave " Webfoot " 37KCB

Sure,
My topping lift is comprised of a small 7x19 wire coming down from the top of a mast to a crimped eye. Through that eye is a single block, secured there by a ring-ding (by the way, is that the proper name for these things?). To the end of the boom is attached a block that looks kind of like a fiddle block you would use for a vang, but instead of cam cleat, its just a simple V in the stainless block for jamming the topping lift line. Pretty standard design, I would guess.

So, here's what I did. Where the line ties to the fiddle/jam block on the boom, I hooked one of those 8" long micro bungee cords right through the knot. It went through stiffly, so I shouldn't loose the bungee. From there, I hooked the other end of the bungee through the ring-ding on the second block attached to the topping lift wire. Pretty simple.

All it is designed to do is take excessive slack out of the topping lift,

and keep it on the windward side of the sail so it doesn't rub and slap the sail all the time, or get caught around the main halyard shackle (which happened to me once - not a lot of fun when you're in the middle of trying to drop the main in a high-traffic situation).
Hope this helps,
Bruce

Transmission cable

Brad,

Had the same thing happen on our 1979 C&C 30 during the one of the first sails after we bought her two years ago, only it was about 15 feet from the slip. Since we we making a slow approach, it was no problem to ease on in. Coming in a little faster, it could have been a lot more exciting.....There's nothing like going for reverse for some heavy braking, and just coming up with a floppy lever.

This break came at the engine end - years of corrosion on the threaded adjustment portion of the control cable finally took its toll.

If yours did in fact break (as opposed to simply coming unbolted) it will require a new cable. Pull the old one out to measure to determine new control cable length. Install new cable and trial and error adjust Forward-Neutral-Reverse positions.

Now is also a good time to get a good mental picture (or even a sketch) of where the F-N-R postions on the gear shift lever on the transmission are so when the cable breaks not so near to the slip you will know how to work the transmission without remote control to get home.

Mike in Newport News VA
1979 C&C 30 #517

You will need to replace the entire cable assembly. What you will need is likely a standard length of Morse cable, which you can measure with the old one in place (it's not rocket science, anything within a foot will usually do, but neatness counts), which you will securely attach to your old cable (duct tape...?) which will guide the new one through as you pull it out from the most likely orifice. You will save tons of future misery if you replace anything else you can reach at the same time. Make sure you load up the cable with lots of marine-grade lube before you install it so it doesn't meet the same fate as its predecessor. Failing that, you can hire a high-

school dropout at $86 an hour to break random bits of your boat while putting in the wrong cable backwards.
Jim Watts
Paradigm
C&C 29 Mk II
Victoria, BC

Traveller

We replaced our traveler system on our 30' a few years ago when it was getting harder and harder to adjust the traveler position under load. We haven't looked back. The new windward sheeting Harken system is terrific. It makes all of those fine adjustments very easy, and works well when tacking.The crew love it. I heartily recommend it.

Dave
Siggy's Dancer 30Mk1

Dear Jack: Something I've mentioned before; You can pull your current traveller/car system and send it to Garhauer Marine in Upland CA. and they will match the bolt holes of a new one so you don't have to do any glass work. They do not charge extra for the service, and I recall something around $350 including a ball bearing car for my 38MKII a year ago. The replacement is perfect with no hassle and they are wonderful to work with.
Good luck, Ron Casciato

After putting a Harken windward sheeting car on my old J24, (I know, not a C&C) it made sailing a different game. I strongly recommend mortgaging your house, or selling your car so that you can afford one of them.

Chris

Jack
I also have an 86 29-Mark II Hull # 702.
I replaced the old Schaeffer traveler with a Harken 4:1 traveler arrangement. It's a wonderful improvement. Not inexpensive but well worth it. If you want more details please contact me off line.

We replaced both the traveler track, car and mainsheet system years ago on our C&C 30 (hull# 498) with the Harken Windward Sheeting Car (Midrange Car) and a custom 12:1/4:1 continuous sheet mainsheet system.

The resulting ease of operation was AWESOME! Tacking & mainsheet control is easy enough that your children can do it - and our two daughters have raced with us since they were babies - now quite good racers as adults! I didn't even rig the traveler with the 3:1 arrangement available - we only used 2:1 (from a pad-eye thru the car block to the trimmer) and even made the traveler control continuous.

There is only one improvement I hope they make to the windward car. The interior pins that open the leeward camcleat sometimes bend resulting in the leeward camcleat not opening. I then disassemble the camcleat & re-bend the pins & we are back in operation - takes all of 5 minutes to fix.

Still, I definitely recommend the windward sheeting system despite it's cost.

Regards,
Dick LaBella
Blaze
C&C30, #498

Pony has a simple Harken 4:1(with one line, so it forms kind of a loop) and I often crew on another Express 30 that has Harken's windward sheeting system. While the windward sheeting car is a nice piece of equipment, the biggest advantage I can see is being able to lower it while sitting to leeward (how often to you do that?) The only catch that I can see with my set up is that I have to remember to cleat the leeward line before I tack(that is generally the job of the leeward trimmer). BTW, these are both end boom sheeting.

Steve & Suzanne
S/V Pony Express
Express 30

U

V

Vang

Go to the Garhauer booth at Strictly Sail and buy one of his vangs. It provides a double block top and bottom and a cam cleat. Comes with enough line to work quite effectively. I have one on my split backstay on my 30-1 and it works to tension the forestay and probably bend the mast a little, but nothing will bend the stick on the 30 very much as it is rather large.

Gary Nylander
"Penniless"
gnylander@bluecrab.org

W

Water Tanks

Hal -- here's address info for Kracor:

Kracor Inc
5625 Clinton
Milwaukee, WI 53223
414-355-6335

Fred Street -- Minneapolis
S/V Oceanis ('81 C&C30) -- Bayfield, WI
Bayfield Yacht Club

We used to manufacture water tanks. The method we used was one cup of chlorine to 40 gal. Run it through all the lines and the hot water tank. Let it sit overnight to get the terse and smell out and drain the system. Refill and add 1 cup of vinegar to get rid of the chlorine smell and taste. Run it through the lines etc. let it sit overnight and drain. Fill with fresh water (if you consider tap water fresh), run it through the lines and drain. No need to let it sit. Fill your tank and you're good to go.No smell. No foul taste for the season. Repeat the procedure each spring when you're re-commissioning.

This is cheaper and more effective than the tablets and other additives. Maybe we should package the stuff, add colorful instructions and sell the kit for $20.00. Now there's a Million Dollar idea :-).

Personally, I don't trust tap water or bottled water either, so I added an in line ceramic / carbon filter and that supplies all my drinking water. Tap water is usually safe for washing. The filter that I use was bought at a hardware store and mounts under the counter with a chrome tap mounted near the sink. $30 or $40, I think, but that was 10 years ago. I have replaced the filter 3 times so it works out to about $5 per year for clean filtered water without most of the chlorine, fluorine, sediment and heavy metals etc.

I saw where the municipality gets the water, and it wasn't pretty.

The pressure is low so the filtered water just dribbles out, but I fill a couple of Liter bottles and keep one in the cooler. It tastes like water, makes great coffee, doesn't change the color of my rum and no one has become sick from the water.

Richard

Water Pump Grease

I use West Marine winch lube

Winches

John - Brian was right on...use kerosene which I suspect is what you use for your heaters in NF! I use the Lewmar grease and oil as it came in a nice kit that West had on sale. I also keep a box for all the parts, but do one winch start to finish...not all in a batch...to keep the gears, pawls, etc. on the same winch. I also keep a spare parts kit handy and any worn pawls or pawl springs get replaced during their yearly cleaning as needed. Sorry to say it John, but launched yesterday and first Wed night race is tonight; 1st real race is 22 April.
Cheers, Greg

Kerosene works well. I'd been trying to be eco-friendly with a water-soluble degreaser, but it never worked well. The other thing that has worked very well is a 1-1/2 gallon parts washer ($70-80 US). Let the grease settle out, save as much as you can of the clear solvent for next year and dispose of grease properly. It's hazardous waste.

Use winch grease. I'd gotten a couple of tubs of Barient grease from Marine Exchange a few years ago. But West Marine or Lewmar is about equivalent. Don't try to work with the stuff when it's too cold. Also, a disposable acid brush is good for applying just enough to gears and bearings.

Make sure to have some spare springs... but if you're careful about how you pull the rachet and pawl assembly out of the winch on the boat, and apart on the bench, you'll rarely lose one.

Remember how it came apart, and you won't have problems putting it back together again.

Dan

Windows

Bill Goman, formerly of C&C, more recently of Goman Boats (Express Yachting) recommends Versilok. It also is a methylacrylate, like Plexus, and seems to be priced about the same. The following quote is form my description of the project, which is linked on Stu's page.
"The Versilok 406/19, manufactured by Lord corporation, was purchased from AirDraulics / Chemical Concepts in 42 ML tubes. Each tube delivers approximately 48" of a ¼" bead and is enough to do one port. Craig Zell, of AirDraulics / Chemical Concepts (215)457-1940, also provided an insert which allowed the tubes to be used in a standard caulk gun."

Steve & Suzanne
s/v Pony Express

X

Y

Yanmar

Having recently installed a Yanmar, I have some experience with the trans./cable setup. My suggestion is you start at the transmission and let go the cable from the transmission and check the operation of the tranny manually. There should be no problem shifting from neutral to reverse and forward with the trans. lever.The lever should be able to move freely at least 1.4in. from the neutral position in either direction to ensure the proper engagement of the gears. The actual measurement is 35mm. If your lever can't move at least this amount, the trans. may not be engaging properly which can cause wear on the clutches and be quite costly to repair. If your reverse does not engage when shifted thru this range manually, you probably have a problem within the trans. itself which may take a professional to sort out. If the manual shifting works ok your problem is in the cable. The cable may be rusted and jammed inside the housing or the cable housing has come loose from the retainers and is moving instead of the cable. The cable may have simply slipped and needs to be adjusted. You may have to replace the cable which can also be an ordeal unless you are familiar with the inside workings of the steering pedistal. I can give you info to

possibly make it easier if the cable needs replacing.
Tony, Nor'westerII

A few things, from my experience:

* get the shop manual for the 2GM. Its detailed instructions and diagrams will give you more confidence.

* replace the cover on the raw water pump with a SpeedSeal cover - it's still a pain to get off, but much easier than getting a screwdriver in behind the pump, and working by feel to remove, and retighten the little screws, which tend to strip anyway, being brass

* you'll have to loosen off the v-belts for both the water pump and the generator to get at the waterpump, and then unbolt the waterpump to twist it around to get at the cover, and see that the impeller goes in correctly

* grease the impeller and the cover with the recommended grease before reassembling

* make sure you check the water pump cover after launch - even with the Speedseal cover handtight, mine required more tightening after launch to stop water leaking.

* ensure the air intake and exhaust outlets are unsealed - one normally seals them for the winter with tape
Brian Iler
C&C 33 Mk II
Alexandra Yacht Club
Toronto

Hi Gary & All-
Sounds like you might have just gone thru what I did with the original ignition key switch for my Yanmar SB-8. The black key cylinder actually fractured. I visited the Marine Diesel site at Torresen Marine and with the help of Ike Stephenson there was able to determine that the exact replacement was no longer available, but instead I ordered a newer "barrel key" type that replaces the "cut key" type switch, and have installed with success. IT does not exactly match the existing hole in the control panel, but you can easily modify and it will fit.
Here is the web address:
www.marinedieseldirect.com

Look for the P/N 123482-91251 Ignition Key and Switch Combo
Good Luck-
Rob Waltenbaugh

Joe-
Here's a link to a site that has a Yanmar engine prop guide:
http://www.marinedieseldirect.com/yanprop.htm
I replaced my orig 2-blade on my Yanmar 8HP last year with a 3-blade Campbell Sailor prop built in Canada - its a well built product and I've been satisfied with the performance. You can get information from:
Clifford D Friesen

I, too, called Torreson and ordered the new barrel / key assembly. It fit my 1980 dash perfectly, had the same two lugs on the back and was a five minute install. And, my 1980 keys fit! Now, I have four keys.....
Thanks to all on the list for the help.
Gary Nylander

Successfully installed the new engine (Yanmar 3GM30F) in Grand Slam on Friday.
> Took 4 hours (x 3 people) from taking the engine out of the van to getting it
> all hooked up and running (more than an hour of that was alignment). It was
> really quite uneventful. The Yanmar package came with EVERYTHING (a blessing
> and a curse) including engine mounts, instrument panel, wiring harness, and
> everything needed to be a complete engine (including transmission). The curse
> part is that if you opt to delete parts, you get almost no credit. As a result,
> I have a basement full of spare parts. (The careful reader will remember that
> the old engine had a broken crank and would require quite a bit of expense to
> repair. I opted for a new engine since I couldn't get just a short block at a
> reasonable price. Everything else on the engine was fine - starter, alternator,
> transmission, etc. - hence all the spare parts).
> I bought the engine from Martin Diesel in Defiance, Ohio. Best price and nice
> people. Cliff Martin @ (419) 782-9911 x 212 for those of you in the market for
> Yanmar stuff.
> If you want/need detail on the installation let me know. I also have pictures.
>
> Bob Rudary
> Grand Slam

Z