

SOCIETY OF ACCREDITED MARINE SURVEYORS® INC.



SAMS® NEWS

Volume 26, Issue 2 Editor: Stuart J. McLea, AMS® Summer 2016



Newport, Rhode Island

SAMS®
International
Meeting &
Educational
Conference
(IMEC)
Oct. 26th
To
Oct. 29th
2016
Newport
RI

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Stuart J. McLea AMS®
Editor/Past President

Good Day from Nova Scotia

The Summer is upon us and I know here in Eastern Canada we are FLAT OUT BUSY!

The SAMS® Summer Newsletter has a good split of Recreational and Commercial Marine articles by a number of our knowledgeable members, I am sure you will find them of interest. Remember that with Knowledge comes Power and with that comes Success.

Speaking about success, Our VP of Education Ken Weinbrecht, AMS® is putting together one of the best line ups of education for this 30th year of SAMS® celebration and in one of the best places in the world for Recreational Marine, Newport, Rhode Island. You will find this year that the activities start on Tuesday, so come early and take in the education and networking opportunities.

I am starting to receive more inquires about writing articles for our newsletter. There are a number of good reasons to do this: 1. It will get your name out to your peers. 2. Having a technical article published is also good for a CE. 3. It is also good to be published if you are giving an expert opinion in Court. If you are interested in providing an article for the Newsletter please contact me via email, giving me your subject and I will give you the publication perimeters. Contact me at stuart@marinesurveys.ca

Have a safe and fruitful summer and I hope to see all of you in Rhode Island. It is shaping up to be a well attended educational conference.

Cheers!

The Following Members Have



Will Return For The Next Issue



Lloyd Kittredge, AMS[®]
President

We had our Summer Board meeting this year in Chicago. Normally we meet where the upcoming IMEC will be held; however, they had their “high season” rates for that time of year, and it would not have been cost efficient for us. A great deal of time was spent on updating our Ethics policy. This policy, although amended over the years, has worked well for us, but it’s time to make it more user friendly and efficient for everyone. Last fall I setup an ad hoc committee chaired by Bob Horvath, AMS[®], Exec. VP, Bill Robbins, AMS[®], and Rick Foster, AMS[®] to look into this issue. They have spent a great deal of time and effort on this, and put together a presentation of their findings and recommendations for us in a two and one half hour pre meeting the night before our regular scheduled meeting. A great deal of discussion was hammered out and a first draft was accepted. There are still a few additions and changes to be done and when it is completed we will present it to you. Hopefully, this will bring us into the 21st century on this. I would like to thank the Board members and RD’s that could make it for their effort and especially Bob, Bill and Rick. It really takes a lot of time and work to continue to make SAMS[®] a better organization.

Another area that we are trying to streamline, is in the department of CE’s and IMEC meeting tracking. It seems that we have way too many members requesting an extension for more time to complete their requirements. In reality, if we didn’t have so many members trying to do just the bare minimum of CE hours and meetings we would not have this issue. It appears that we have several members that use surveying as a part time job rather than a profession to be proud of and make a very good living at. What is happening, is that a member will get a letter from our office stating that their due date is coming up and they need “X” number of CE’s or they have not attended one IMEC meeting in the last five years. So, at this time they send a letter requesting additional time. Now, I wish you all could see the excuses as to why they need this granted; it is everything from they just could not take the time, to my dog has been ill and I have spent all my extra dollars on it, rather than taking this seriously. One of the biggest reasons is that they didn’t get the warning/information letter from the International Office, so they feel it’s really the International Office’s fault that they are lacking credits. Well, I can assure you that this will change. We are going to set up a program where each member will be able to keep track of their CE’s and meetings themselves. By doing this it will take the burden off of the International Office, and place it on each of us so we will be able to know, at all times, just where we stand. At that time letters of extension will be at minimum.

On a lighter note, the upcoming IMEC meeting being held in Newport, on October 26th -29th is falling into place. A great room rate was obtained, and Kenny Weinbrecht, AMS[®], Education VP has a great line up of speakers for us this year. I think you will be pleased. The venue is outstanding and my wife Darlene and I are looking forward to attending. Remember, by attending, you will receive the CE’s, and meeting requirement. The most important thing is that you will be NETWORKING which will put more dollars **IN** your pocket.

See you in Newport in October.



**Robert Horvath, AMS®
Executive Vice President**

Ethical

As defined in Webster’s Dictionary: *Conforming to professional standards of conduct.*

As defined in SAMS® CODE of ETHICS and RULES of PRACTICE:

1. STRIVE TO ENHANCE THE PROFESSION OF MARINE SURVEYING

The Surveyor will:

A. Be professional, prompt, diligent and demonstrate respect for the survey.

The total amount of complaints are minimal considering the number of surveys our membership does every year. However, the following two complaints are the most common, that cross my desk:

1. Delivering surveys that do not fully represent the vessel you were hired to survey.
2. Having not delivered surveys for weeks after performing the survey.

Not being diligent or prompt borders on violating the SAMS® CODE of ETHICS and RULES OF PRACTICE. By not doing so is one of the fastest ways to get suspended or terminated.

PROOF READ-PROOF READ, check your notes before emailing or snail mailing your report.

Finishing the current survey report before moving on to the next, will cure any late delivery problems.

Last but not least, use spell check on all of your reports and correspondence.

Following the above suggestions, you will be a proud SAMS® PROFESSIONAL SURVEYOR.

Enough said.

See you in Newport



**Bill Trenkle, AMS®
Secretary/Treasurer**

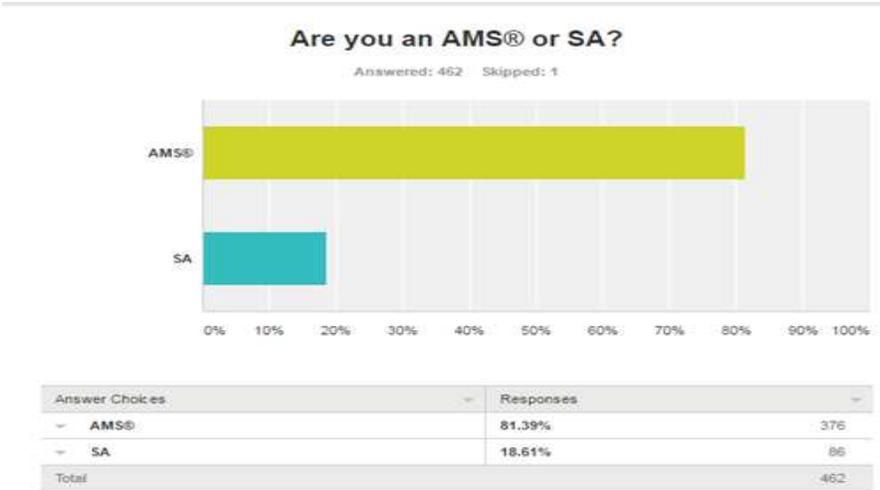
Greetings from the west coast. Having just returned from the board meeting in Chicago, I can tell the rest of the country is now experiencing spring time and the corresponding pick up in business. Having lived most of my life on the east coast, it is strange to me that the boat season never stops in California.

The Board of Directors meeting was a very productive one. The most interesting reports were from Joe Lobley, AMS® and Ken Weinbrecht, AMS® regarding the upcoming IMEC in Newport, RI. It is going to be one not to miss. Ken has an incredible program of speakers lined up, you will not want to miss this. Joe presented the details and logistics of the meeting and this venue should be one of the best we have been to. I am really looking forward to it.

One of the agenda items at the meeting, was a review of the survey sent out to the members so that the BOD could get a better understanding of the demographics of our membership. This demographic data is important, because it will be used to guide financial and planning decisions the BOD has to make in the future, on behalf of the membership. Unfortunately, only 462 members out of the over 900 it was sent to, completed the survey. This seems to be a trend that we need to reverse. In November, after the 2015 IMEC, an electronic survey was sent to the membership regarding a very important proposal for a group E&O policy. Only 643 members responded. If you recall this program, it required at least 600 members signing up. 68.58% of the respondents voted "Yes" and 31.42% responded "No", This gave us only 441 "yes" votes so the program did not move forward. If all 900 +members that the survey was sent to responded in roughly the same percentages, then we would have had well over 600 "yes" votes.

The moral of the story here, is that SAMS® needs you to participate. When you get the emails from the office please respond promptly. Please participate in the surveys. This is how business is done now. The metrics from the surveys are valuable and decisions are made on them, so please contribute. It is your organization, you have a say in how it is run. Please exercise it.

See you all in Newport





George J. "Jim" Sepel, AMS® Membership Vice President

"Many Thanks from One Lucky Guy"

Greetings from the sunny Rain Forest of SE Alaska!

As many of you know, on 6-16-16, while on a routine bike ride, I suffered a heart attack. With the help of my lovely wife, Joyce, we made it to our emergency room at Bartlett Memorial Hospital here in Juneau, and a quick blood test showed elevated heart enzymes (heart attack). Then:

- 0200, 6-17 (Friday), air ambulance out of Juneau to Seattle.
- 0630, 6-17, admitted to Virginia Mason Hospital, Seattle.
- 1200, 6-17, Angioplasty discovers three blocked arteries. Spent weekend under close observation at Virginia Mason.
- 0800, 6-20 (Monday), underwent successful triple by-pass operation (5.5 hours).
- 1400, 6-24 (Friday), discharged from Virginia Mason for the weekend; directed to return to hospital on the following Tuesday for tests (stayed with close friends in Seattle).
- 0830, 6-29 (Tuesday), for tests.
- 1200, 6-29 test results showed no "detectable" heart damage. Cleared for flight home. Prognosis "very good". Warning from Doctors, *don't do too much too fast*.
- 1245, 6-30 Joyce & I cashed in some travel miles and flew home to Juneau.
- in a few weeks I start cardio rehab here in Juneau.



Many, many thanks to members of SAMS®, friends and loved ones, for all of your encouraging texts, emails, and voice mails. It is so good to be home. Best number to reach me is home: 907-789-7883. If you call my business number, you get to speak to Todd Sharp, Surveyor Associate, (AMS® Candidate). He and my son are doing an excellent job at staying very busy!

Doctors anticipate full recovery for me in six to eight weeks, so I look forward to seeing MANY of you in Newport, RI. Doctors also said that my quick recovery is due in part to biking six to ten miles per day and/or walking 8000 to 10000 steps per day. This has been an indescribably challenging experience in controlling pain, getting comfortable to sleep, etc.; but, I'm making good progress. All of the medical personnel who treated me have been outstanding. I had to design a color coded spreadsheet, just to keep track of the meds!

Many thanks to Stu McLea, AMS®, Past President, for filling in as VP Membership.

Also, I'm saddened to report that at the same time, my good friend, Dick Frenzel, AMS®-Retired is recovering from his heart attack in Texas. I spoke with him today, and he is slowly improving, and hopefully that will continue. His number: 713-419-8855.

—*"It is not true that people stop pursuing dreams because they grow old. They grow old because they stop pursuing dreams."* Gabriel Garcia Marquez, *BUZZ FEED*.



**Kenneth Weinbrecht, AMS®
Education Vice President**

In the next few weeks you will receive the IMEC agenda. Newport is one of the most famous yachting capitals in the world, as well as one of the oldest boat harbors in the world; a meeting you don't want to miss.

We have made arrangements with IYRS (International Yacht Restoration School) to have a visit on the day before our IMEC. We will have a guided tour of the school, and we will be seeing the Coronet, a 131 foot 1885 Schooner Yacht which is currently under restoration right on the IYRS campus. For more information on the Coronet, the website is: coronet1885.com.

If you are interested it is **imperative that you register early**. There will be a separate form in your Meeting Packet just for this tour. This is not part of the IMEC agenda, and there is a minimum donation of \$20.00 per person. Please include your \$20.00 along with your Meeting Registration fee. The hotel will have a shuttle going to a location close to the school so the transportation cost is nothing.

The IMEC agenda is really diverse and I hope that you will enjoy it.

SAMS®; 30 Years & Still Going Strong.....Who'da thought?

Just shows how a strong group of people with a common interest can make a difference, SAMS® 1986 - 2016

Well the 2016 SAMS® Newport IMEC is now approaching and here's what you can expect:

Mars Keels – design and repair of keels.

Blake Powell, AMS®, JMS Naval Architects - To be determined.

George Stafford, AMS® / CMS – Surveying wind turbine blades off load

New England Institute of Technology – Four Stroke Outboard Failure Analysis

Hall Spars – Carbon Fiber Masts and rigging

Travelers Ins. Company Forensic Laboratory – engine failure analysis

Dave Rifkin, AMS® – Various electrical surveyors issues and Lithium Ion batteries

Dylan Bailey, AMS® – Chain plate and rigging inspections

Pat McAleer, Maritime attorney – A Duty To Warn & Protecting Your Files For Litigation

Marc Cruder, AMS®, USCG Traveling Inspector – New NVIC for sailboat rigging inspection

Gorilla Rigging – New innovations for carbon fiber rigging

Roland Santos, AMS®, H & M Chairman – Conducting Hull and Machinery Inspections 101

Pete Cogswell – Volvo, Engine Preservation After Submersion – Can the engine be saved?

Bob Gallagher, AMS®, Engine Chair - The proper way to conduct an engine sea trial.



**Joseph Loble, AMS[®]
Meeting/Conventions VP**

I look forward to seeing everyone in Newport.

IMEC 2016 is in Newport, Rhode Island at the Goat Island Hyatt Regency October 26th thru the 29th. The room rates are \$149.00 per night, but we only have a 150 room block so book early. We also get free parking unless valet service is used. Based on the response from the questionnaire this will be very well attended. Newport is a great town with a lot to offer everyone. The hotel has a complimentary shuttle to Bowen’s Wharf which is in the middle of many restaurants, shops, and marinas. If you are not already familiar with this town, “Google it”.

IMEC 2017 will be in Bonita Springs, Florida near Ft Meyers at the Hyatt Coconut Point. This is a short drive from the Ft Meyers Airport. We have a room rate of \$179.00 per night and get free parking. The facility is a beautiful resort.

IMEC 2018, as voted on by the membership in Milwaukee, will be in Portland, Oregon. I have signed an agreement with the Hilton Downtown with room rates at \$189.00 which is a very good rate for a first class hotel in the city center. Unfortunately, parking is at a premium, but there are many transportation options as is with any city. This is a “foodie” destination, not to mention the dozens of local brew pubs in walking distance of the hotel.

Don’t forget to book your rooms at the hotel in Newport early!





**John Lowe, AMS®
Public Relations VP**



Cell phone apps for marine surveyors.

Seems like we are using our cell phones for more and more things these days, and despite the fact that I don't consider myself technically competent, I depend on my phone heavily in my day to day. I thought it would be a good idea to explore cell phone apps, which may be usable for marine surveyors, and with the help of the following AMS® members Lloyd Kittredge, AMS®, Ken Weinbrecht, AMS®, Bill Lee, AMS®, Alison Mazon, AMS®, Bill Trenkle, AMS®, and Andrew Kinsey, AMS®, I was able to put together a list of apps you may want to have a look at, here goes. Wayz is an app which looks at traffic and other possible traffic slowdowns; in the New York area this one is a winner. Digital compass and Navionics navigation apps, are worthwhile. For weather, Weather Underground (they offer forensic weather, which is helpful for claims work), Boat weather, U.S. Lightning strike map, My Radar and Tides. General apps that I found are: Flashlight (never enough lights around), Magnifyng Glass, DC wire sizer, Maritime calculator, inclinometer, bubble level, Crosby Group Sling calculator and pocket lift guide, U.S. Navy Salvor's handbook. Just a few mechanical apps: Yamaha outboard, Suzuki outboard, Cummins Fault codes, Cummins engine parts and support. This list is just the tip of the iceberg and perhaps other ideas could be shared on our google groups forum where I have started a thread. Thanks for the help from everyone so far and let's see what you've got! I will look for you in the yards.

<http://www.aol.com/article/2015/02/04/man-fixated-on-his-cell-phone-doesnt-realize-a-whale-is-beneath/21139167/#slide=3329570#fullscreen>

Be Safe!

T. Fred Wright, AMS®
Mid-Atlantic Regional Director



Had a successful Mid-Atlantic Regional Meeting last April; for all who were there; thank you for attending and for listening to me drone on for 3 hours regarding Insurance. Although some were nodding, none actually fell asleep; your attention was greatly appreciated. Harry Seemans, AMS® did a great job in lining up speakers; and for those who missed the visit to Ebbie DuPont's shop; you really missed something. What a craftsman!

One of the issues discussed in the meeting phase involved conflict of interest; and more importantly, the appearance of conflict of interest, or impropriety, as it pertains to other work for which a surveyor may be qualified and actively engaged.

Competition is a wonderful thing in our world. It keeps us sharp and on our toes, and may highlight areas of potential required improvement, or a service that one is qualified to conduct during the course of a survey (oil sampling/computerized engine analysis, for example); that may expand our repertoire.

The conflict (or perception of the conflict) arises after that survey related service is complete; information is obtained; followed by the questions from the client: Can you take care of that for me? Do you know someone who can? This boat may not be what I'm looking for; do you know of (or do you have listed) another? My advice: Don't, Just Don't. If you know a qualified party; give them the name (or names). Even if you easily could, or it would be lucrative, Don't. Don't detail the boat, pull the head, upgrade the electronics or rewire the engine room and/or entertainment system. It may "appear" that you identified the issue, or condemned the vessel, simply to gain additionally from another service "only" you could provide on the back side.

Marine Surveyor; objectivity is thy name; and objectivity comes from an unbiased perspective; nothing further to gain from the service performed other than the fees agreed upon (and hopefully obtained) in advance.

Your peers may accuse you, or whisper about you, but if you perform the job competently, professionally, and objectively, you can face that person who stares at you in the mirror every morning (and your peers and any other nattering nabobs), with head held high, and your reputation as an honest, objective, competent, professional will grow (and the masses will beat a path to your doorway).



Eddy J. Assaf, Jr., AMS[®]
Canadian Regional Director



Well, I imagine for all of you by now you're heavy into this season. For most members that I have been speaking with since this spring, it's been pretty much the same in my area and on the west coast, but the east coast started a little after due to a loong spring.

We seem to be having a large amount of buyers from the US side due to the exchange rate and our fresh water boats and most of my clients came from the south of Maryland. All these demands have boosted the amount of sales in the used boat market in general and of course demands for surveys.

I foresee, for those who do claim work, a busier year. We are in the beginning of July when I wrote this letter, and in the province of Quebec the water levels, are already lower than usual and the claims are coming in rapidly.

I have also noticed that mentoring an Surveyor Associate has proven to be very good. I have done a few over the last few years and have seen what an Surveyor Associate can learn from an experienced surveyor; in the way to properly inspect the boat, deal with clients, and in general do a better job by getting firsthand experience to make him a better surveyor. Many of us who started, didn't have that option, and learned by trial and error. So, all you AMS[®] members out there who have Surveyor Associate's around who are new, and haven't had the chance to learn our experiences, should reach out to them, and offer your knowledge and experience, or the Surveyor Associate's who would like to learn more or get experience on vessels types and sizes they haven't done yet, reach out to an AMS[®], it's well worth the learning experience.

The Canadian Regional Meeting is scheduled for the end of August and you should have received the flyer by now. Hopefully, we will have large numbers for this meeting, going to have a little about corrosion, drone technology and its use in the marine environment and a little insurance. The insurance part is due to the large amount of calls I get for those who would like to have the same E&O coverage some of us have acquired in Quebec.

Also, for most of you in the eastern section of Canada (would love to see some of you guys from the west coast also) our IMEC (International Meeting and Education Conference) will be in Newport, Rhode Island. This location makes it close for most of us to travel, we have a great venue and format set up, and for most who go regularly to these meetings, understand that the time we spend at these meetings are so resourceful, along with being educational and the networking between members has proven to be one of the greater advantages. So, I hope to see you there in large numbers. Make sure you reserve early.

Have a great, safe and prosperous summer.

Cheers

John McDonough, AMS®
North East Regional Director



Fourth of July is here and I am taking a few days off to spend time with family and catch my breath. Speaking with many of you I know how busy we all are. I am now seeing the shift from Pre-purchase and C&V surveys to Damage Claims as everyone has had the opportunity to use their boat, hit each other, the bottom, catch fire etc. As your new RD I have had quite a learning curve and I am struggling to keep up with Surveyor Associate reviews and Applications to membership which are around a dozen or so to date. With that in mind and realizing that I can't do it all in a timely fashion I have appointed a Sub-Regional Director, Peter Spang, AMS®, Marston Mills, Mass to help me with the Cape and Islands. (Ref page 15 in the policy manual). I have just attended my second Board of Directors meeting on behalf of the NE Region and have come away very impressed with the amount of work that gets accomplished in a short period of time. Your board is deliberate, fair and working hard on your behalf.

One of the topics that came up during the meeting was report writing. (Audible groan). This is a boring topic that needs to be continually hammered home, not just the Surveyor Associates but all of us. I recently sat in a Yacht Yard Service Managers office at a large boat yard, and listened to a rant that concerned a report that was being used to help the owner make his vessel ready for market. The phrase (*Appears serviceable*) must have been used 100 times, yet no mention if the item was actually operated. Here's a good example. Navigation lights appear to be to current Coast Guard Standards; yet no mention if they were energized, steering gear was completely omitted; no mention of what type of seacocks, or if they were exercised. Another important issue often overlooked is stating pre-existing conditions; this came in very handy recently on a damage claim; the owner was claiming that all of the physical damage to his hull sides was due to a recent impact, my doubting eyes proved accurate when I reviewed that last survey on file and sure enough the damaged rub rail was in two year old pictures. I did not confront the Insured, just line itemed it off the report.

BTW, many reports are very thorough as well. You get the point so I won't harp further. You may expect however, another brief report writing 101 this Fall in Rhode Island if time allows so be patient and keep an open mind.



**Gary Frankovich, AMS®
Florida Regional Director**

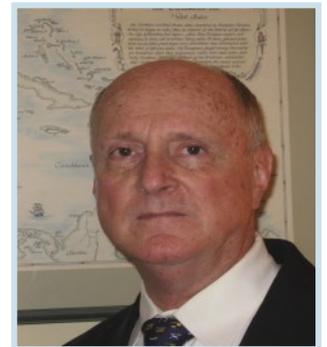


Survey Report Content

Well, I don't suppose there's anyone in the Florida Region that isn't aware that summer is definitely here, with heat indexes over 100 and humidity about the same. Everyone, please remember to keep hydrated. It's not too difficult to become over-heated during a survey between checking the decks, etc; not to mention going into those engine rooms during sea trials. I personally use one of those "Cooling Cloths" that you wet, ring out, and then put around your neck or over your head. There are numerous brands and styles, and you can buy them at most home improvement and sporting goods stores. I find they really do work, and of course drink PLENTY of water. One of the Regional Director's duties is to review a survey report from each Surveyor Associate on an annual basis, since this was instituted we've had a dramatic reduction in complaints about Surveyor Associates' report content. Some Surveyor Associates may feel the Regional Director is nit-picking their report, but every recommendation is meant to be a positive force, in not only making the reports better, but also making you a better surveyor. I just returned from the summer BOD meeting in Chicago where there was a short discussion about possibly reviewing AMS® reports, this was shot down quite quickly considering that the number of complaints about AMS® survey report content are rare, not to mention how much more work it would involve. It did however get me thinking, most of us at one time or another have run across a copy of someone else's survey report while doing our job, sometimes they are impressive, and sometimes not so much. A copy of SAMS® Recommended Minimum Survey Report Content is available on the [SAMS® Google Forum](#) and if you're not registered there, shoot me or SAMS® HQ an email and we'll be glad to forward you a copy. Once you have it, give it a thorough read, then pull out one of your own survey reports from a few weeks ago and see how well it conforms. Better yet, call one of your buddies, swap reports, and review each others. Remember, this is SAMS® Recommended Minimum Survey Report Content. The better your reports, the more business you'll get, and that translates to more \$\$\$\$. So, everyone try to keep cool and make your reservations early for IMEC in Newport (Oct 26-29).

See ya'll there!

**Joseph A. Derie, AMS®
SAMS® Commercial Workboats Chair**



SAMS and 46 CFR Subchapter M

The long awaited 46 CFR Subchapter M *Inspection of Towing Vessels* (Sub M) was published in the Federal Register on 20 June. It becomes effective 20 July. Sub M requires that towing vessel companies and designated towing vessels pass audits of their safety management systems and marine surveys of their towing vessels,

which would result in the US Coast Guard issuing qualified towing vessels a Certificate of Inspection required for their continued operation. The number of towing vessels >26' that would require these surveys is estimated at 6500.

The qualifications that auditors and surveyors meet in order to perform their duties are contained in Sub M Part 139. This recognizes qualified Accredited Marine Surveyors as having met all required surveyor qualifications.

Sub M also requires that auditors and surveyors performing audits and surveys under Sub M belong to a third-party organization (TPO) that has "objective evidence of an internal quality system based on ISO 9001 *Quality Management Systems*." These organizations must then apply to the US Coast Guard to be designated as third-party organizations under Sub M to provide auditors and/or surveyors. A list of the organization's qualified auditors and/or surveyors would be submitted with the application. Whether SAMS[®] should become a TPO was a topic at the 22 June Board of Directors (BOD) meeting. For SAMS[®] to become qualified under ISO 9001 and to maintain that qualification would require a continuing effort and expense. There are also concerns about SAMS[®] management and quality control procedures if it becomes qualified under ISO 9001, with regards to those SAMS[®] surveyors who are qualified to perform towing vessel surveys. It is expected that it would entail much more than the normal SAMS[®] relationship with its members, possibly including reporting requirements when towing vessels are surveyed and even potentially audits of their records.

In addition, there are many interpretations of the requirements of Sub M typical of any new program that the USCG will need to address. Another concern is surveyor and TPO liability for the surveys of vessels resulting in COIs and any subsequent incidents concerning the vessel.

For the above reasons the SAMS[®] BOD has determined that it will not pursue qualification under ISO 9001 and approval from the USCG as a TPO under Sub M at this time. This does not mean that SAMS[®] will never participate in the program, it just means that the SAMS[®] BOD wants more information on how things will develop under the program before making such a large commitment of SAMS[®] time, resources and funding.

SAMS[®] has also been approached by an organization that is interested in becoming a TPO and would like SAMS[®] to furnish a list of surveyors. This approach is not in line with SAMS[®] BOD thinking. If a SAMS[®] surveyor is interested in this sort of work assignment and is qualified to complete with assignment the SAMS[®] member can make application to a TPO to be considered for these assignments. SAMS[®] has determined that as few as 10-12 members meet the qualifications to perform towing vessel surveys.

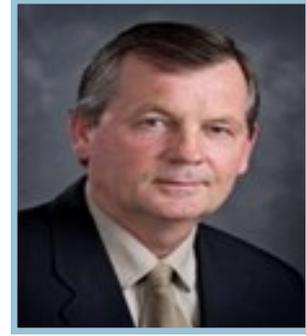
SAMS[®] surveyors who want to survey towing vessels have two options at this time. Option one is for them or their surveying company to become qualified under ISO 9001 and become a TPO in their own right. There is at least one SAMS surveyor (a one-person office like many of us) who has become ISO 9001 qualified for thermal imaging. He states that it is costly and requires time and effort but is all part of his being able to do business and offer a quality proven service to his clients.

Another option is for the SAMS[®] surveyor to join an organization that is planning to become qualified under ISO 9001 and become a TPO. The Towing Vessel Inspection Bureau (TVIB), an organization accepting both auditors and surveyors, is planning to do this and they have reported that they are interested in having SAMS[®] surveyors (as well as independent surveyors) join. TVIB is not a surveyor organization, but another professional organization that accepts surveyors due to common professional interests, such as IAMI or IAAI.

I am planning to have a breakfast meeting prior to the start of a day's educational program in Newport to discuss this and any other commercial workboat (CW) issues. I'll be sure the time and place are well publicized. I hope all CW surveyors in attendance will join me, as well as any other surveyors who are interested in performing CW surveys. Besides towing vessels there are still a lot of CWs on federal and state waters that require surveys.

As always I hope anyone who wants to discuss this column, Sub M or has questions about surveying Commercial Workboats will contact me at 503-236-6818.

Dan McDonald, AMS®
Cargo Chair



IMO celebrates DAY OF THE SEAFARER

On June 25, the International Maritime Organization honored the 1.5 million seafarers around the world by celebrating IMO's "Day of the Seafarer". IMO Secretary-General Kitack Lim, himself a mariner, said: "this year, on June 25th, the Day of the Seafarer, we are once again asking people everywhere to show their appreciation for the seafarers that quietly, mostly unnoticed, keep the wheels of the world in motion". The campaign theme this year is: "At Sea For All".

By the time you are reading this the 2016 "Day of the Seafarer" will have passed, however, I encourage you to visit the IMO website listed here.

<http://www.imo.org/en/About/Events/dayoftheseafarer/Pages/Day-of-the-Seafarer-2016.aspx>

Among other things there is a fun interactive quiz to test your knowledge of world shipping and the role of the seafarer.



Official logo of the 2016 "Day of the Seafarer"

Thermal Imagers and Marine Inspections

By Charles J. Hazouri,

Certified Level III Infrared Thermographer – Infraspection Institute – I.I., 10440

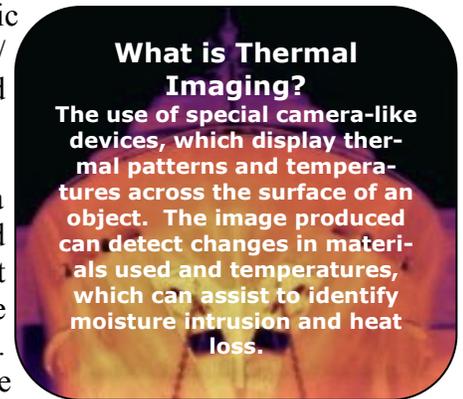
Certified Marine Surveyor CMS - National Association of Marine Surveyors – N.A.M.S., 118998



About the Author: I have spent my life in the Marine Industry, serving as Mate, Captain, Project Manager, Marine Surveyor, Marine Inspector, Auditor, and Thermographer. I have a passion for thermal imaging, non-destructive testing, and marine surveying and am always on the lookout for new technologies that will improve the effectiveness of marine inspections.

Introduction: Inspection techniques such as infrared thermography, ultrasonic testing, and visual inspections using unmanned aerial vehicles (drones), have changed the face of marine inspections/surveys. Not so long ago, these technologies were unheard of and beyond the budget of many surveyors; however, recent advances in technology have made such test equipment quite affordable. Combined with greater public awareness, these tests are rapidly becoming an integral part of marine inspections/surveys. This article will focus on the application and benefits of infrared thermography as a tool for the marine surveyor.

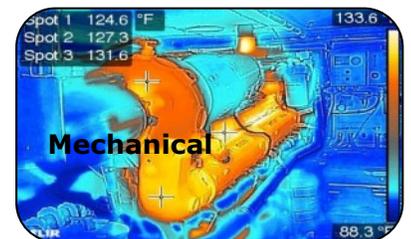
What is Thermography? Thermography or thermal imaging is the use of a thermal imaging system to detect, display, and record thermal patterns and temperatures across the surface of an object. Thermal imagers convert the heat given off by all objects into a two-dimensional monochrome or multi-color image wherein thermal patterns are represented by varying shades of grey or color. Thermal imagery may be viewed in real time on the imager's monitor or it may be recorded to video, electronic media, or used to produce a hardcopy print known as a thermogram.



For marine vessels, thermal imaging may be applied to hulls, structural materials and features made of composites, electrical system components, and mechanical equipment. In order for thermography to be effective, thermal imaging must be carried out under proper conditions, and one must have direct line-of-sight access to the surface of objects or areas to be imaged.

Thermography and Marine Inspections: Chief among the many benefits of thermal imaging is that it is a non-invasive inspection technique that can detect hidden anomalies or problems within a vessel's structure. The nondestructive nature of the technique makes it a perfect tool for marine inspections. Depending upon one's circumstances, thermography may be used for condition assessment during surveys or it may be used to detect problems during either construction or repair.

When applying thermography in a marine survey and/or inspection, it is imperative to understand the principles of thermal imaging and heat transfer. One should also have knowledge of marine vessel construction and physics, composites, and marine electrical and mechanical systems.



Experience Matters: The proliferation of inexpensive thermal imagers has helped to spur interest in thermography for marine applications. While thermal imagers are relatively easy to operate, thermography is not a 'point and shoot' technology. Proper application of the technology and interpretation of the results require special training in heat transfer, infrared theory, and image interpretation.

Thermography is both art and science and success is largely dependent upon the skills of the operator or Thermographer. As with any profession, the more trained and prepared those who attempt it are, the better the results. I was inspired to write this article because I have recently seen some troubling practices in the field of thermal imaging.

Marine inspectors who are untrained in thermography can represent the industry poorly especially when they use thermal imaging equipment that is inappropriate for the application or they misinterpret the imagery they collect. To help ensure inspection accuracy, boat owners or marine repair professionals should make certain that thermal imaging is conducted by a *Certified Infrared Thermographer*.

Conducting the Inspection: In order to ensure success, it is necessary to know a few basic facts about the vessel in order to correctly set up the thermal imager. These include the emissivity of the area being imaged, atmospheric conditions including ambient temperature, relative humidity, and reflected temperature. It is also important to note any artificial lighting and external heat sources which could affect the inspection.

Emissivity refers to the amount of radiation emitted from an object compared to that of a perfect emitter or blackbody at the same wavelength and temperature. *Reflected Temperature* is the apparent temperature value reported by a radiometer that corresponds to the infrared energy incident upon and reflected from the measured surface of an object.ⁱ



In addition, I also like to note a few other factors during an inspection such as the gloss readings using a TQC Gloss Meter, which gives me an idea of how pronounced reflections may be. Where appropriate, moisture content is noted using an Aquant Protimeter non-invasive moisture meter. A visual inspection is done throughout this process to ensure that any outward damage or anomaly is noted and thoroughly examined. I also provide a complete sounding of the areas examined with a phenolic hammer. All of these factors are described carefully in my final, detailed report.

Thermal imaging in marine inspections is generally done to find anomalies. An *anomaly* is a term to describe something that deviates from what is normal or expected. Thermal anomalies may be caused by moisture ingress, delamination (disbonding), voids, or other defects.

Delamination or Disbonding, in particular, is an area of separation within or between two plies in a laminate or within a bonded joint caused by contamination, improper adhesion during processing, or damaging interlaminar stressesⁱⁱ. A *void* refers to a situation where air or gas has been trapped and cured in a laminate during the manufacturing process.ⁱⁱⁱ



The following inspections and tests were conducted in January 2016 using four, separate thermal imagers: *FLIR T440BX Thermal Imager*, *FLIR E6 Thermal Imager*, *FLIR C2 Personal Thermal Imager*, and the *FLIR One Personal Thermal Imager*.

Before I proceed to show and explain the images, knowing a few things about the imagers will provide useful information regarding the quality of the images produced. Imager resolution, expressed as the number of pixels (horizontal by vertical) contained within the imager's detector, serves as a guide regarding the level of detail or clarity that can be expected from a given thermal imager. Generally speaking, greater pixel count equates to higher resolution. Frame rate, expressed in Hertz, is also important.

Frame rate, expressed in Hertz, is also important. A frame rate of 60 Hertz allows one to pan across a scene at a faster rate than with imagers having slower frame rates. Imagers with frame rates of less than 30 Hertz are not recommended for documenting rotating machinery and/or a laminate's response as it reacts to temperature from an externally applied heat source.^{iv}

Of the imagers tested: The stand-alone FLIR T440BX has the highest resolution: 320 x 240 (76,800 pixels) and a frame rate of 60 Hertz. Also a stand-alone unit, the FLIR E6 has a resolution of 160 x 120 (19,200 pixels) and a frame rate of 9 Hertz. With a resolution of 80 x 60 (4,800 pixels), the pocket-sized FLIR C2 is a stand-alone unit with a frame rate of 9 Hertz. Available as plug-in module for smart devices, the resolution of the FLIR One is rated at 160 x 120 (19,200 pixels) with a frame rate of 8.5 Hertz. For this article an iOS 9.2.1 iPhone was used.

Referring to the imagers specifications can help to determine the suitability of an imager for a particular inspection.



FLIR T440BX



FLIR E6



FLIR ONE



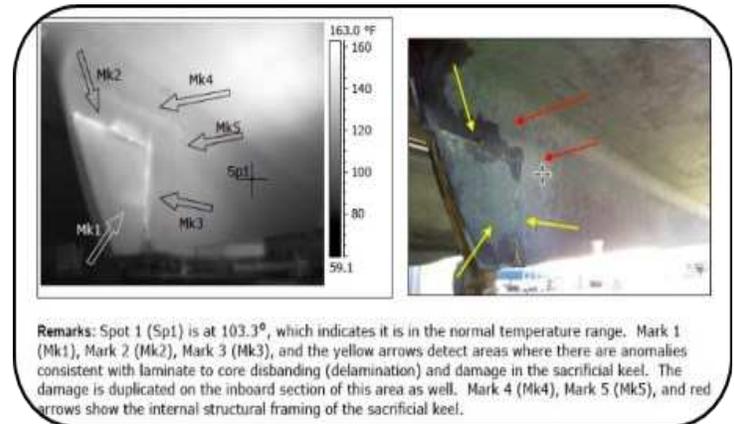
FLIR C2

Conducting the Inspection: In addition to a thermal imager, a heat source is required for infrared inspections of laminates or composites. The purpose of heating the subject material is to create a temperature difference sufficient to allow defects or internal structures to be detected by the imager.

Depending upon the size of the area to be tested, one may use a portable electric or propane heater. The Shrinkfast 998 is a great unit given the fact that it can warm a large area in a short amount of time. Regardless of the heat source chosen, one must be careful not to overheat the subject materials or create a fire hazard.

Reporting: If a report is to be submitted, it is always best to use a higher resolution imager and proper software. FLIR Tools, FLIR Tools+, and Exception[®] ensure that you are able to provide your client a quality product with salient and valid findings, and the ability to visualize all anomalies and structures in clear photographic images. FLIR Tools+ was used for the imagery found in this article.

A properly documented report should include the time of inspection, the weather conditions at the time of the inspection, including the atmospheric temperature and relative humidity, the target emittance (emissivity), reflected temperature, the imager's serial number and its date of last calibration, and a precise and complete description of the areas that were imaged.



Remarks: Spot 1 (Sp1) is at 103.3°, which indicates it is in the normal temperature range. Mark 1 (Mk1), Mark 2 (Mk2), Mark 3 (Mk3), and the yellow arrows detect areas where there are anomalies consistent with laminate to core disbanding (delamination) and damage in the sacrificial keel. The damage is duplicated on the inboard section of this area as well. Mark 4 (Mk4), Mark 5 (Mk5), and red arrows show the internal structural framing of the sacrificial keel.

The stand-alone thermal imagers described above were capable of being thermally-tuned using the FLIR Tools + software on a desktop or laptop computer. The FLIR One was only capable of being tuned by using the FLIR tools application on the iOS 9.2.1 iPhone and aftermarket software. Thermally tuning an image allows you to manually adjust the temperature level or span, which is the equivalent to a brightness and contrast adjustment. Thermal tuning can be done on the imager in manual mode or in the software to reduce wash out.

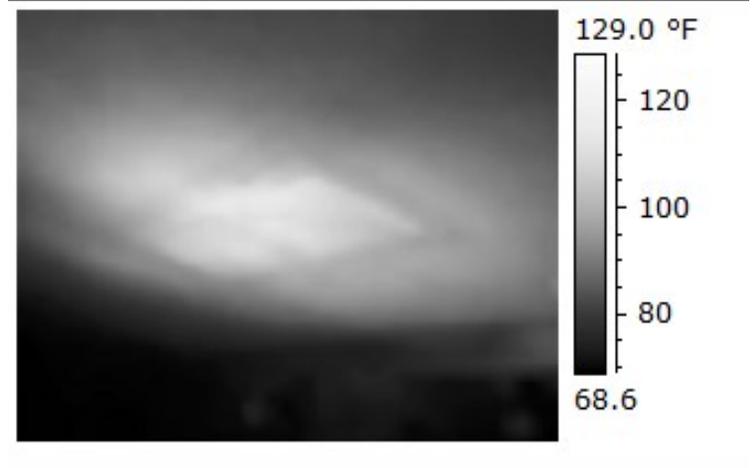
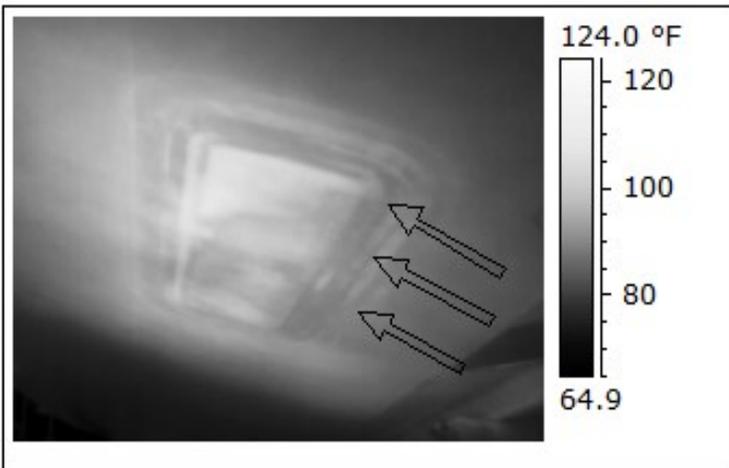
The image on the left is an example of an image from the T440BX that has not been thermally tuned using the computer's software. As you can see, there are numerous areas of reduced contrast, distortion, and some areas that could be mistaken for anomalies, unlike the image on the right, which has been thermally tuned.



Infrared Test Results: The following four, grey scale thermal images were taken of a recent repair to the hull of an 80' Viking Sport Fisherman. These images will demonstrate the different quality of images obtained by using a higher hertz and resolution imager in comparison to an imager with lower hertz and resolution.

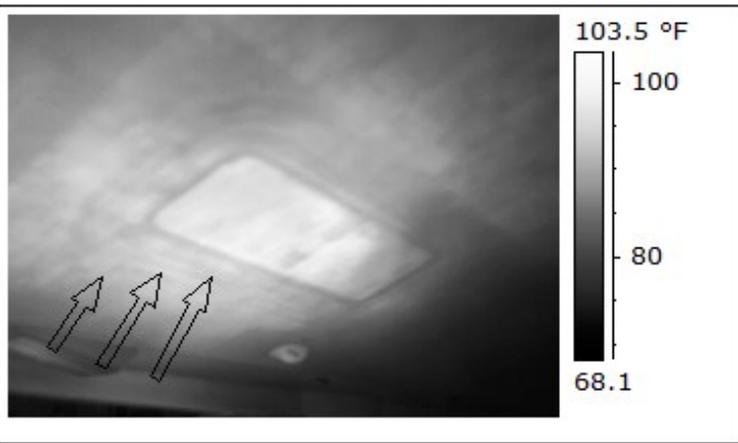


Looking Forward





Looking Aft



FLIR T440BX



FLIR One using MSX[®]

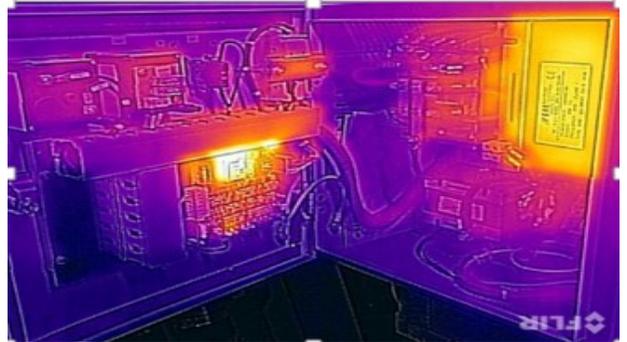
As you can see, the above images show that the T440BX gives you the definition and delineated edges needed for proper inspection. The T440BX actually shows the layers of tabbing for the fiberglass insert, indicated by the black arrows in the images above.

The C2 and FLIR One are too distorted and do not show enough detail and information to do a proper laminate inspection. The FLIR One image could not be thermally tuned using the recommended software in a computer but could be tuned using aftermarket software and the iOS 9.2.1 application. Having an image with specific detail is important for a contractor or boat owner. It documents that repairs are correct and precise.

The following two, iron scale thermal images taken of a normal operating battery charger imaged with Multi Spectral Dynamic Imaging or MSX[®]. MSX[®] adds key details from the visible light camera to the entire thermal infrared image^v. This shows which imager gives enough visual information to do a proper inspection. MSX[®] does require that you have good visible light for the imager unless you can thermally tune the image using the proper computer software.



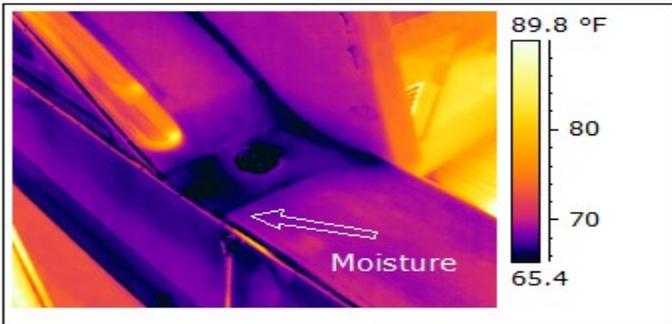
FLIR T440BX



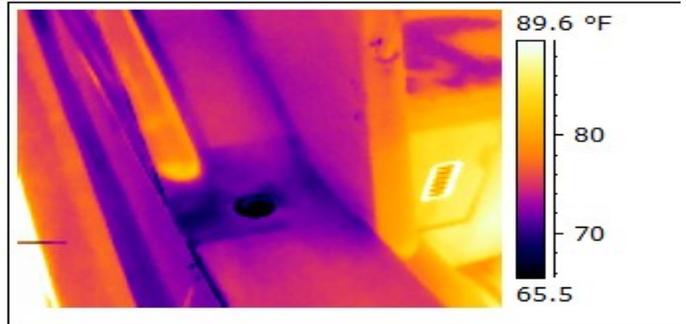
FLIR One using MSX[®]

As you can see in these images, the T440BX gives you definition and delineated edges for the electrical inspection. The FLIR One image was slightly distorted. A clearer image is necessary when using MSX[®] so the inspector can identify the problem area with enough detail to provide useful advice and/or information.

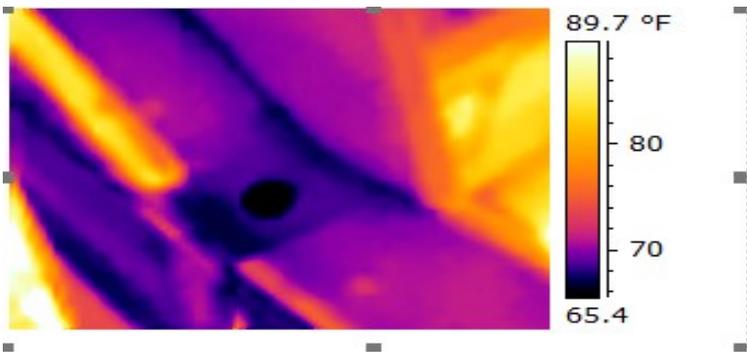
The following eight, iron scale thermal images taken of the port side deck fuel fill and cockpit bulwarks of a 72' Blackwell Boatworks Sport Fisherman will outline and demonstrate which imager is best for moisture ingress and/or water intrusion in fiberglass laminates.



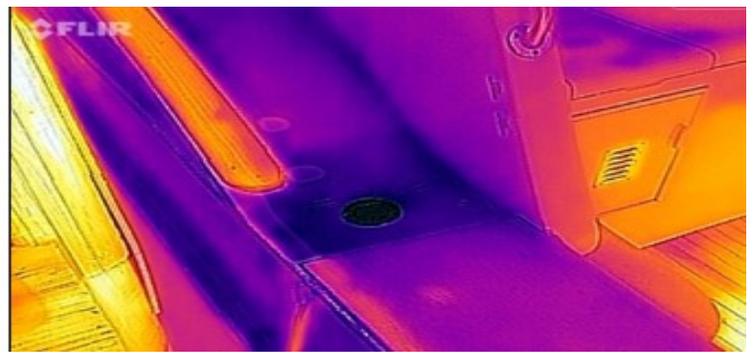
FLIR T440BX



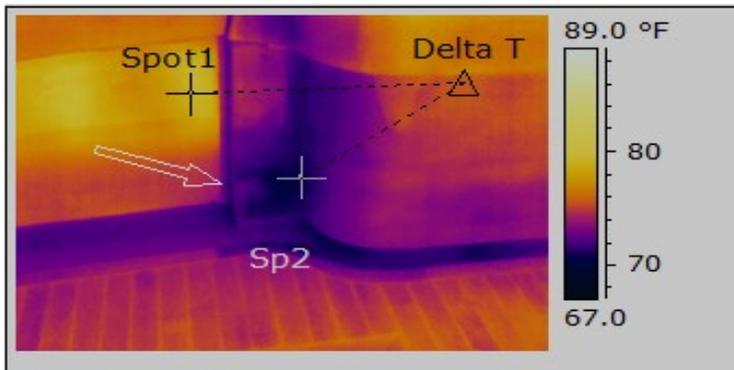
FLIR E6



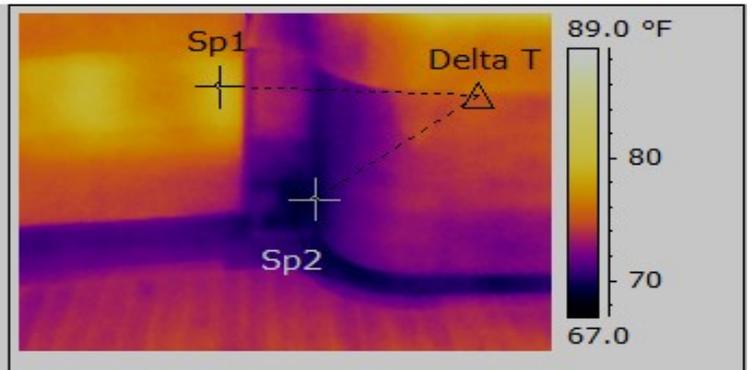
FLIR C2



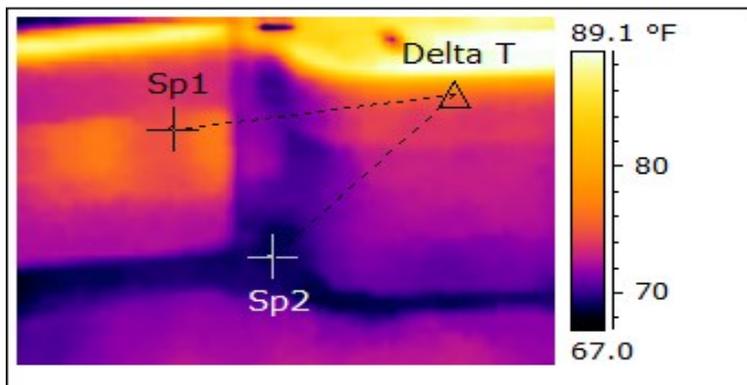
FLIR One using MSX[®]



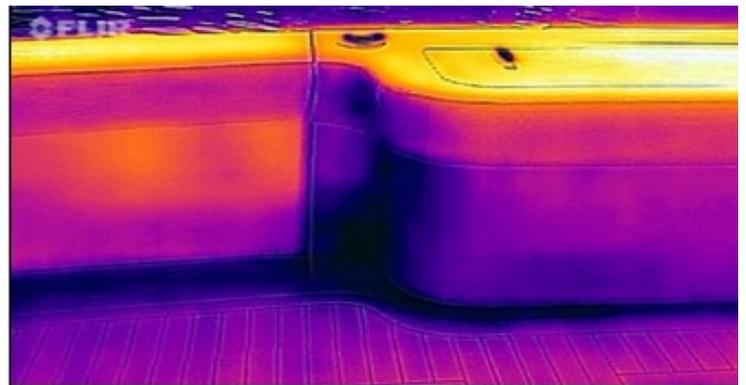
FLIR T440BX



FLIR E6



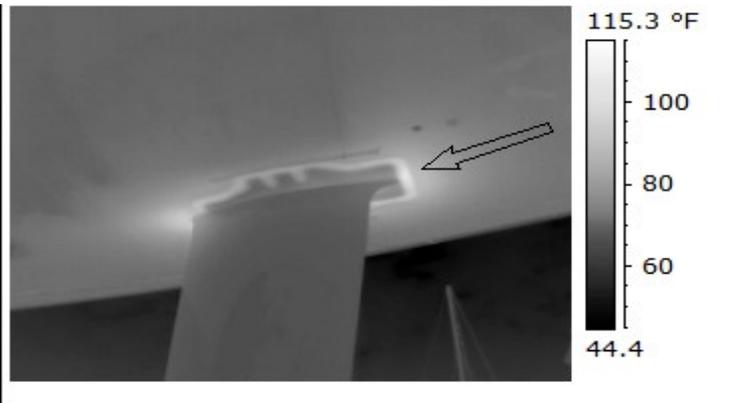
FLIR C2



FLIR One using MSX[®]

As you can see, the T440BX give you the definition and delineated edges for the inspection. With the Spot1 (Sp1) and Sp2 temperature readings, the T440BX and E6 show close to a ten degree Fahrenheit temperature difference, while the C2 showed just under a six degree temperature difference. The E6 is slightly distorted while the C2 and FLIR One are quite distorted and do not show what you need to do a proper inspection by defining the actual area of concern as indicated by the black and white arrows. An actual Delta T could not be determined in the FLIR One image.

The following two, grey scale thermal images taken of the carbon fibre keel flange of a 52' Transpac TP52 Sailboat will outline and demonstrate which imager is best for vessels constructed of carbon fibre.



FLIR T440BX



FLIR C2

The above images show that the T440BX gives you the definition and delineated edges for good inspection. The C2 is distorted and does not show what you need to do a proper inspection.

Conclusions: Based on the imagery in these inspections and tests, thermography or thermal imaging can clearly identify and document the thermal patterns of laminates when used in the structural capacity of vessel repair or construction, and in the case of product failure such as moisture intrusion, delamination (disbonding), and voids.

The Marine Surveyor has a choice in the equipment which he/she chooses to use for their inspections, and how they want to present themselves through the quality of their reports and inspections.

Higher resolution imagers do a much better job for the professional Thermographer and/or Marine Surveyor. Higher resolution imagers having frame rates greater than 30 Hertz, are the perfect tool for marine inspections as they provide graphic information not available by other means.

Lower resolution imagers may be adequate **for inspections of electrical and mechanical** equipment and are an inexpensive tool to have in one's arsenal of inspection tools. They did not, in these inspections, do an adequate job in detecting problems within laminates.

Due to the complex and subjective nature of thermal imaging, it is highly recommended that any inspector, surveyor, or project manager using thermal imaging be properly trained in the field of infrared thermography.

A Certified Level 1 Infrared Thermographer should be considered by the boat owner, contractor, legal or insurance professional, and marine surveyor prior to any inspection process involving thermal imaging. In addition, an inspector should have a detailed and in-depth knowledge of vessel construction and physics.

For the same reason a boat owner or maritime professional would require a Certified Marine Surveyor, Surveyor Associate, and/or Accredited Marine Surveyor to do a basic visual vessel inspection, proper certification for thermal imaging is essential. Infrasppection Institute and Infrared Training Center are two reputable training facilities.

A properly trained and qualified Thermographer can provide a boat owner, sub-contractor, and/or marine surveyor a detailed report that will potentially save them time and money in the initial inspection, repair, post-repair, and construction processes. Sub-standard imaging and reporting can cost your client more in the long run. Be precise and accurate in your findings and remember:

"Magic comes from the Thermographer, not the Imager".^{vi}

*Special thanks and considerations to: **Dennis Foster** of Fosters Yacht Services, **Sean Hodgson** of DFD-Drawings Fabrications and Details, Inc., **Nate Goodman** of All Points Boats, Inc., **Captain Jason Downing** of the Motor Yacht (M/Y) Pure Insanity, for their donation of the inspected vessels, **James Seffrin**, Director of Infrasppection Institute, and **Lynda H. Cobb**, Editor*

i Infrasppection Institute, Standard for Measuring and Compensating for Reflected Temperature Using Infrared Imaging Radiometers, 2011 Edition.

ii Infrasppection Institute, Standard for Infrared Inspection of Recreational Yachts and Small Craft Constructed of Fiberglass Reinforced Plastic and Composite Materials, 2011 Edition.

Jack N. Allinson, Allinson Companies, Co-Author

iii Ibid.

iv Ibid.

v FLIR.com, FLIR Systems Introduces Multi Special Dynamic Imaging(MSX)

vi James Seffrin, Infrasppection Institute Certified Infrared Level III Thermographer and Director of Infrasppection Institute, 2016

Link to original article: <http://nebula.wsimg.com/50214dba56d2d9f58e9960cd6cecea02?AccessKeyId=AC8E34E8F25951D82C36&disposition=0&alloworigin=1>



Show Your Work, Not Your Business Card

by Mike Telleria

I've been working in the boating industry a long time and have interacted with many surveyors over the years, so I hate to admit I didn't know, until now, that there are literally no formal requirements for marine surveyors. The topic came up during a recent conversation between some of us engineers and owners of the boat-building company we work for. A surveyor had been hired to inspect one of our boats, which had been surveyed by someone else just months before. The new guy pulled information from the first surveyor's report, dropped it into his, and commented that what the *other* surveyor found months ago was proof we don't know what we're doing as boatbuilders—a total hatchet job.

"What is it with these surveyors?" one of the owners asked. "Don't they have to meet some minimum level of qualifications or code of ethics?"

We all looked around at each other with the same dopey I-really-don't-know expression on our faces. We all had assumptions, but not one of us knew for sure what is required (if anything) for people to call themselves marine surveyors.

First stop, Wikipedia:

Marine surveyors use many credentials, letters, and terms such as accredited, certified, qualified, ACMS, AMS, CMS, etc. There are many ways to train to become a marine surveyor including taking correspondence courses, apprenticing, or simply opening a business.

Well, there it was: "simply opening a business." Just to be sure, I double-checked. "There are no federal or state requirements to become a marine surveyor," says Joe Loble, a longtime surveyor and the most recent past president of the Society of Accredited Marine Surveyors (SAMS). A business card, a phone, and a willing customer, and anyone can be on the way

to a career as a professional marine surveyor.

Thankfully for all of us, there are organizations like the SAMS and NAMS (National Association of Marine Surveyors), both of which offer professional standards and a solid path toward genuine credibility for their member surveyors. But there are also what I'll call "less rigorous" outfits that are reportedly mail-order certification mills, making it very easy for anyone to quickly and cheaply become a "certified" marine surveyor.

The mixed, often negative, impression of the yacht surveying profession has inspired some who inspect boats and write reports, just like surveyors do, to differentiate themselves, calling themselves consultants. They deliberately choose not to align with SAMS or NAMS, lest they be branded a "surveyor." If you ask them, "Are you a surveyor?" they will say, "No. And I never will be!"

While it's hard to argue against the merits of SAMS or NAMS, a well-earned and carefully cultivated professional and personal reputation can flourish without such certification (without suggesting superiority to those who embrace it). Some of these consultants who avoid the "surveyor" label are very successful, flying business class around the globe, giving talks, inspecting boats, and advising and training boat owners. Not bad!

Although it may seem ridiculous that there are no statutory requirements for recreational marine surveying, it actually makes sense—it's not so different for boatbuilders. Aside from some basic legal requirements for small boats established and enforced by the U.S. Coast Guard, there are no statutory requirements for recreational boat builders in the United States. The entire recreational boat enterprise—including builders, surveyors, and many others—largely operates outside of a binding regulatory structure. We

can pretty much do whatever we want. It reminds me of something one of the owners said during my interview for my present job: "Our philosophy here is pretty simple: Just do the right thing."

In the years since, I've learned that doing the right thing is a lot more complicated than it sounds. For a boatbuilder, it means keeping up with, and meeting, American Boat & Yacht Council's (ABYC) and other highly respected organizations' standards to make sure our boats are safe. It means putting egos aside and really listening to others—including surveyors and consultants—who can help raise the bar in terms of safety and quality. It means sometimes telling a buyer "no" because what he is asking for is outside our comfort zone or contrary to our personal or corporate best practices.

I've come to realize that surveyors are in the same boat as we are. We can follow ABYC to ensure safety; they can align with SAMS/NAMS to enhance competence. We can both make safe, smart decisions, even if they sometimes disappoint the clients who pay us. Ultimately our boats and our surveys should speak for themselves and for us. Our products are all we've got.

"It takes years to build a good reputation," Loble says, "and only one bad survey to ruin it." It's the same for us. One lazy, incompetent effort that results in a lousy boat can tarnish an otherwise sterling reputation. But I like to look at it another way. To me, every boat is an opportunity to remind the world of what we can do—and I think it's great when a good surveyor with the same attitude comes along and helps us raise the bar even higher. PBB

About the Author: Mike Telleria is an engineer and technical writer at Nordhavn Yachts, in Dana Point, California.

CARGO LOSSES DUE TO HULL DEFLECTION AND ITS CORRECT

QUANTITATIVE DETERMINATION

Submitted by Cesar Lurati, AMS®

As a result of natural external forces applied to her, such as waves, wind, cargo distribution etc. a vessel's hull will suffer deflections or deformations. The most common deflections, and the ones which have effect on the loadable cargo quantity are hogging and sagging.

When the Captain or Chief Officer calculate the amount a bulk carrier can load on a voyage, they must take into account the loss of cargo expected due to anticipated hogging or sagging

A vessel is said to be in a sagging condition when the midships draft is more than the average of the forward and after drafts. Conversely, when the midships draft is less than the average of the forward and after drafts, then the vessel is said to be in a hogging condition.

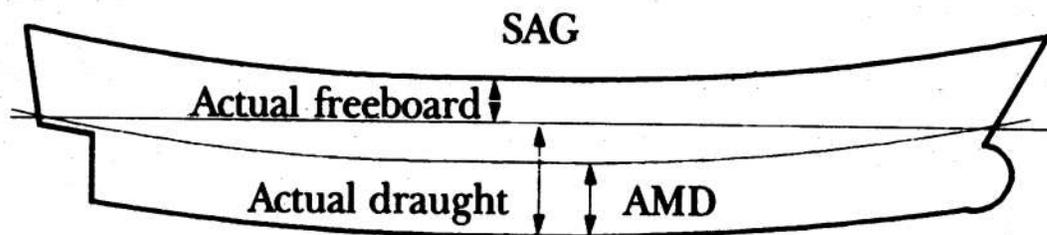
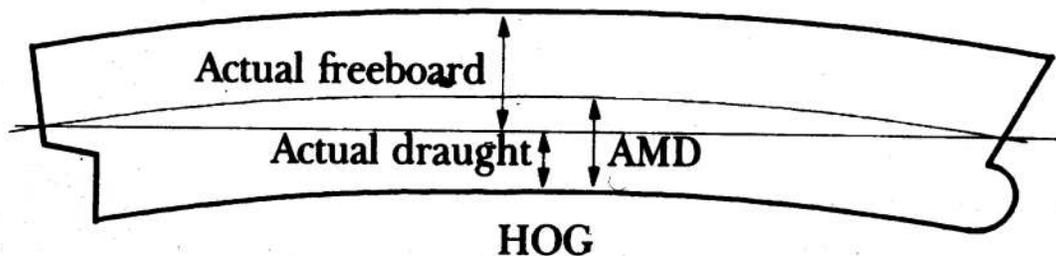


IMAGE FROM INTERNET

For example, the following draft readings:

	Ps	Stb	
Fwd :	12.04 m.	12.04 m.	IN THIS CASE THE MIDSHIP DRAFT
Mshp:	12.04 m.	12.04 m.	AVERAGE (12.04) IS THE SAME AS THE
Aft:	12.04 m.	12.04 m.	AVERAGE OF THE FORE AND AFT DRAFTS

Indicates a hull free of deflection, no hogging nor sagging and:

	Ps	Stb	
Fwd :	11.94 m.	11.94 m.	IN THIS CASE THE MIDSHIP DRAFT
Mshp:	12.04 m.	12.04 m.	AVERAGE IS <u>MORE</u> THAN THE AVERAGE
Aft:	11.94 m.	11.94 m.	OF THE FORE AND AFT DRAFTS

Indicates the presence of a sagging condition while:

	Ps	Stb	
Fwd :	12.04 m.	12.04 m.	IN THIS CASE, THE MIDSHIP DRAFT
Mshp:	11.94 m.	11.94 m.	AVERAGE IS <u>LESS</u> THAN THE AVERAGE
Aft:	12.04 m.	12.04 m.	OF THE FORE AND AFT DRAFTS

Indicates the presence of a sagging condition while:

	Ps	Stb	
Fwd :	12.04 m.	12.04 m.	IN THIS CASE, THE MIDSHIP DRAFT
Mshp:	11.94 m.	11.94 m.	AVERAGE IS <u>LESS</u> THAN THE AVERAGE
Aft:	12.04 m.	12.04 m.	OF THE FORE AND AFT DRAFTS

Indicates the presence of a hogging condition.

As previously stated, the reasons for a hogging or sagging condition can be many, such as cargo conditions, construction particulars, relative temperatures of water and air, etc.

Some ships, or classes of ships, always sag when in ballast, some hog or sag when evenly loaded, and most respond to the stowage plan and the sequence of the loading. Usually it is safe to say that once a vessel is hogged or sagged during loading operations, she will remain hogged or sagged until that cargo is discharged.

There was, in the early 1980's, a series of five-hold bulk-car carriers, built in Japan, which would always sag, empty and evenly loaded. On the other hand there was one particular vessel, which when evenly loaded, would hog 0.30 m., almost a foot.

The effect of hogging and sagging on a vessel which is loading cargo to a draft limitation, for example, Panama Canal Transit Draft, 12.04 m. / 39'06" TFW, will be a loss of cargo-lifting capacity.

To determine the amount of loss of cargo lifting capacity for each of the three conditions, it is necessary to compare these, by calculating the resulting Quarter Mean Draft, which is the draft corrected for deflection, in each case.

For the calculation, we will assume that the vessel is a later generation Panamax, with a SW displacement of 72,531 MT at 12.04 m. draft, and a TPC of 67.00 MT

a) No deflection:

	Ps	Stb
Fwd :	12.04 m.	12.04 m.
Mshp:	12.04 m.	12.04 m.
Aft:	12.04 m.	12.04 m.

Therefore:

Fore and Aft mean draft: 12.04 m.

Midship mean draft: 12.04 m.

Mean of Means: 12.04 m.

Quarter Mean Draft: 12.04 m

Therefore:

Fore and Aft mean draft: 12.04 m.

Midship mean draft: 12.04 m.

Mean of Means: 12.04 m.

In this case, the vessel on completion of loading will have a displacement of 72,531 MT, with no loss of cargo loading capacity.

b) Sagging

	Ps	Stb
Fwd :	11.94 m.	11.94 m.
Mshp:	12.04 m.	12.04 m.
Aft:	11.94 m.	11.94 m.

Therefore:

Fore and Aft mean draft: 11.94 m.

Midship mean draft: 12.04 m.

Mean of Means: 11.99 m.

Quarter Mean Draft: 12.015 m

In this case the final QMD is diminished by 2.5 cm. limiting the displacement to 72.363.5 MT, and, consequently, the lifting capacity by the same amount.

c) Hogging

	Ps	Stb
Fwd :	12.04 m.	12.04 m.
Mshp:	11.94 m.	11.94 m.
Aft:	12.04 m.	12.04 m.

Therefore:

Fore and Aft mean draft: 12.04 m.

Midship mean draft: 11.94 m.

Mean of Means: 11.99 m.

Quarter Mean Draft: 11.965 m.

In this case the final QMD is diminished by 7.5 cm. limiting the displacement to 72,028.5, and, consequently, the lifting capacity by the same amount.

DETERMINATION OF THE LOSS OF CARGO LIFTING CAPACITY DUE TO DEFLECTION

It is not unusual to hear a Master or a Chief Mate, when calculating the cargo his ship can load, state: “ We expect to have a 10 cm. hogg (or sagg), so, as our TPC is 60, we will loose 600 MT of cargo capacity”.

This is not true.

From the above calculations, it can be seen that a ship without deformation will have, obviously, no loss.

IF SAGGING

In the case of sagging, it can be seen that for a sagging of 10 cm., the loss at the draft corrected for deflection, or Quarter Mean Draft, is 2.5 cm.

Therefore the formula to calculate the loss for sagging can be enunciated as:

$$\begin{aligned} & ((\text{sagging in cm}) / 4) \times \text{TPC} \\ & \text{or} \\ & \frac{1}{4}(\text{sagging in cm}) \times \text{TPC} \end{aligned}$$

In the particular example, it would be:

$$(10/4) \times 60 = 150 \text{ MT}$$

and not, 600 as the Captain was claiming.

=====

It is important for the Marine Surveyor representing Charterer's or Shipper's interests, and even, sometimes, Owners interests, to be aware of the correct determination of losses due to deflection, to properly represent his Principal's interest.

In the case of the ship assumed, the Master or Chief Mate were claiming a cargo decrease or loss of 600 MT, when it was really only 150 MT. when sagging. The difference of 450 MT is important, as in a freight rate of \$ 200 per MT, it would total a loss of \$ 90.000, by no means a trifle sum.

The Master's or C/O's claims may sometimes be malicious, in an attempt to gain a substantial security margin in the Panama Canal, or any other applicable draft limitation, and thus achieve a relative peace of mind, at least for that part of the voyage.

On other cases, the claim can be made in good faith, simply due to lack of familiarity with the calculation of the corrections.

In any case it is the surveyor's duty to set the record straight, if necessary calling the Master's bluff if the situation requires so, or illustrating the Master in the correct ways of calculation.

LOADING TO THE MARKS

There exists only one case, an exception to the unwritten rule of " even keel, no deflection is better", when a ship loading will be able to lift more cargo, a trick much used by old sea foxes.

This case is when the draft limitation at load port is the vessel's Summer Draft. As per applicable regulations, a vessel is loaded to her marks when the Plimsoll mark is in the water. Not before, and nothing to do with the fore and aft draft marks.

In this case, then, if a ship is made to hog, when the Plimsoll mark will reach the level, by definition, both the fore and aft draft marks will be further submerged. Consequently, the resulting Quarter Mean Draft will be deeper than the "even keel, no deflection" one, thus the vessel being able to load a few tons more, to the assured immense satisfaction of the Owner.

Jason Pinko, Surveyor Associate

Hello SAMS[®] Surveyors. I am Jason Pinko, Marine Surveyor, Riggingsurvey.com. As a junior jumping Survey Associate, I have been sucking up as much information as I can possibly squeeze into my head. I thank Chapman School, for the education. I thank my AMS[®] mentor for all the help along the way. I thank every member that I have spoken with and asked questions to. I am sure I will be thanking you one day even if we haven't met. I have a long road ahead of me as I earn my chance to take the AMS[®] test one day.

My back ground started at a young age in the Voo-Doo or Black Magic world of Sailboat Rigging. Through time I have had the opportunity to rig vessels from the smallest day sailors to over 600 foot sailing cruise ships. I have participated in some of those rigging projects that will turn Popeye the sailor green.

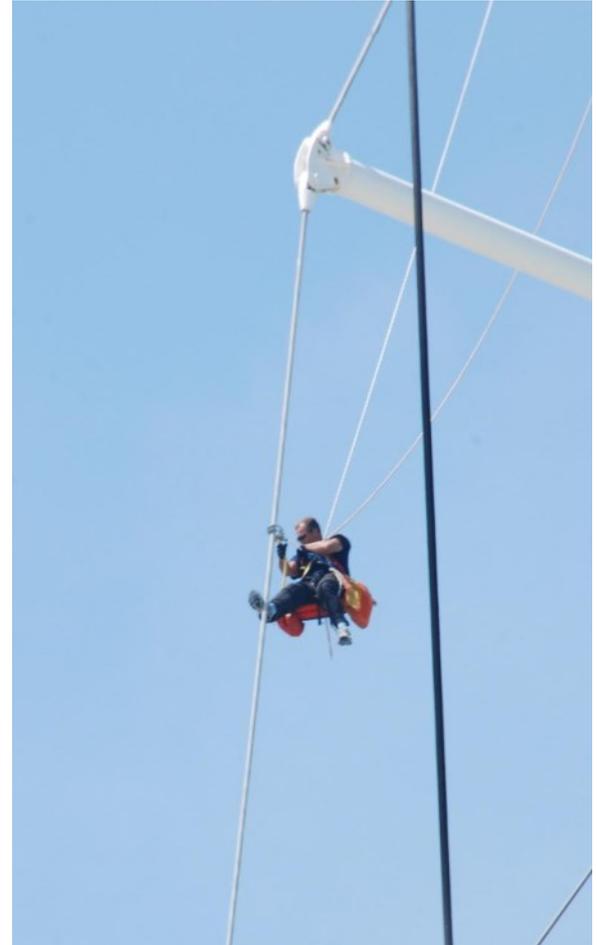
The year is 2016. The big news that I have for you, is that the Coast Guard Code of Federal Regulation pertaining to Inspected Sailboat Spars and Rigging is on the way. Just another chapter to learn.

I have been working with the Coast Guard Traveling Senior Marine Inspector in charge of the process. He currently has his writings in word draft form while the lawyers, counselors and Coast Guard internal Affairs review and follow through with due process. National Notes from the writings are available online and you can find some information at [Authenticated U.S. Government Information Federal Register / 81, NO.75 / Tuesday, April 19 2016. Notices 23001](#). The big event that sparked this process is USCG ALERT Rigging Safety 07/09. I would recommend everyone involved in sailboat surveying has a good read of the article and events.

We know this Code of Federal Regulation will be for inspected vessels, but keep in mind once the insurance companies get a copy of the new Code there will be many more questions asked for our private vessel pre-purchase, insurance surveys and damage claims.

I have been tasked with making recommendations of getting Surveyors, Coast Guard Inspectors, ABYC, and riggers to solidify the terminology and nomenclature of today's modern sailing vessels. As every sailing vessel is unique in its own way this is quite the task. The best way I have found to carry this task out is to use the new high tech rig builder method with multiple spreader spars and discontinuous / linked rigging. This simplifies the common multiple name for every shroud using a designator symbol. V = Vertical, D = Diagonal. Add a 1 behind the designator and it shows the designator is on the first panel of the spar. And then simply go to the next step with F for forward and A for Aft. Then S or P can be added for the proper side port or starboard. D2AP will designate the shroud from the second panel going aft on the port side. The designator system will smoothly work with catamaran diamonds, forward jumpers on a mast and the beloved B&R rigged vessels with reverse diagonals.

If you're asking what a panel is? From the deck to the first spreader is panel 1 of the mast, from the first spreader to the next spreader or mast cap is panel 2 and so on. The use of mast panels comes in very handy when dealing with multiple fixtures placed on a mast. Have a look at a couple schematics and you will get a better idea. (Insert Photo here.) Believe me, I still carry a laminated 3 foot square fold out when dealing with tall ships and schooners. Common names get confusing.



On to Coast Guard Code of Federal Regulation! Following Rigging Alert 07-09 comes a book of drafts, notes and subject matter. I have the hard copy and it is 250 pages thick. All “ Frigging in the rigging! “

Let’s talk about the three types of cycles the Coast Guard discusses in the drafts.

Cycles, Cycles and cycling to be exact.

1. Cycles of rigging. Manufacture recommendation of a life cycle of a specific piece of rigging. Swage, wire rope, swage - One Life cycle. Change every 6 to 8 years. As per manufacture.
2. Cycles of fittings. Some fitting Type 300 Stainless, mechanical fitting “Sta-Lok , Nav-Tec/Norseman, Links, Tangs and oversized chain plates. Have more than one life cycle of use. Two and Three life cycles if properly inspected and serviced. Change mechanical wire termination every 2nd cycle or 12 years. Change chain plates every 3rd cycle or 18 years.
3. Cycling of rigging pieces. “Jump rope effect of shrouds and stays” Is the rigging properly toggled to allow correct articulation?

With these cycles in mind please also remember that most of these studies are based in the Pacific Fleet. High salinity, Heavy Winds and constant movement of the waters.

Nitronic 50 Rod rigging, Fiber rigging- PBO, Aramid Pultruded Carbon follows very strict manufacture recommendation of service and inspection. If in doubt contact manufacture.

A new recommendation is being written for inspection and service intervals, as this is a National Note it may change:

1. Daily Visual Walk through inspection of deck / eye level / mast fittings to be completed by Captain or Experienced Crew.
2. Weekly cleaning of all deck level toggles and swages followed by close visual inspection and anti-corrosive application.
3. Monthly close inspection aloft conducted by Captain, experienced crew. Checking for missing cotter pins, parted strands, fractures in terminus fittings. Furling System attachments and halyard attachments.
4. Semi Annual comprehensive rigging inspection of entire system by qualified party to include tune if required.
5. Six Year Cycles (Minimum) Mast removal for full inspection including disassembly of fittings, wear measurements taken, dye testing if applicable on any fitting in question, cleaning and lubrication of all turning blocks, testing and sampling of any chain plate fastening, replacement of parts as necessary. This inspection shall be conducted in the presence of a designated USCG Marine Inspector or third party rigging inspector to log credit for mast out inspection cycles.

A log of the inspections and maintenance described in this schedule shall be maintained by the Captain and Crew and shall be kept for review as requested by Marine Inspector.

The USCG has also instated a proper cleaning supply list of recommend non acidic cleaners that will allow proper passivation of stainless materials.

I am going to close this article with Inspection Note: COMDT (CG-CVC December 2013.) Sub Chapter c.

Third Party Rigging Survey: A third party rigging survey used to conduct the annual survey does not alleviate the owner operator from the responsibility to conduct and document regularly scheduled preventative maintenance inspections. Failure to establish a comprehensive program will require compliance measures and may result in enforcement action from the attending Coast Guard Marine Inspector. A report from a third party rigging surveyor may be required when a regular preventative maintenance inspection regime and or in house expertise is not evident. When used the reports of independent third party rigging surveyors should address the elements of a rigging examination regime described above. Inspected sailing vessel owners/ operators may voluntarily use the report of independent third party rigging surveys on a regular basis to supplement their own regime.

A third party survey, if ordered, is a requirement made to the owner by the C.G. that will become part of the vessels public record. This should be made clear to all parties to ensure the surveyors findings are released instead of limited to whoever pays for the survey. When ordered, the Coast Guard is requiring a third party survey “for cause” and is charged with the responsibility to oversee the process including findings, so that a satisfactory for continued service determination can be independently made.

The domestic rigging industry as it relates to sail vessels is unregulated, with no specific independent certification or standard qualification criteria for this specialized craft. The goal of the third party rigging survey in the context of this guidance document is a comprehensive inspection of the rig system to the hull structure. Therefore, when the Coast Guard orders a third party rigging survey “for cause”, the individual conducting the rigging survey should be vetted before the survey is conducted. Normal protocol would include requesting and reviewing a “Bio” or resume to ensure the surveyor has the prerequisite experience for the rig type being surveyed and whose normal work product is in fact an aloft survey. Enclosed are samples of the recommended content of a third party aloft rigging survey. And the book gets thicker.

So there we have it surveyors. Next time you step on to the vessel in question and look up at the maze of rigging, think about the Coast Guards words.

I would like to thank:

Retired Lt. Commander Kruder who is an avid sailor and in charge of writing the new and upcoming CFR of inspected sailing vessel rigging.

Kevin at ABYC who I have spoken to a few times to confer where ABYC will follow suit.

I will be sending more white pages as I keep getting information. I have given a presentation at my local SAMS® Florida Regional meeting and look forward to doing more.

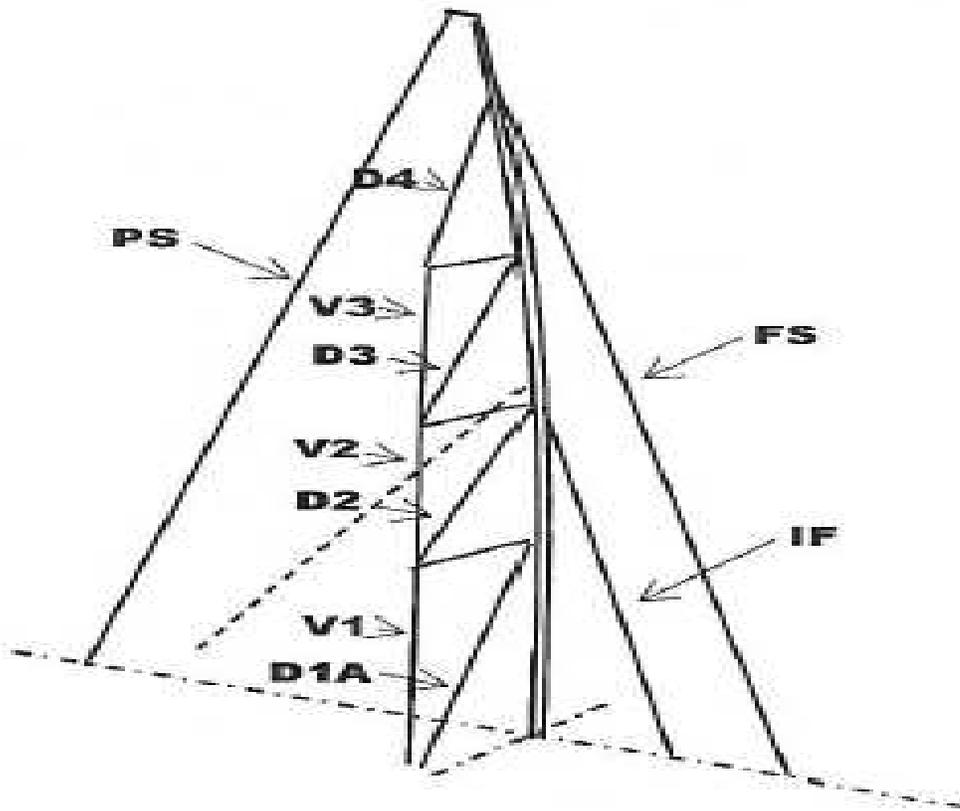
If you have questions, Please feel free to contact me at RiggingSurvey.com.

Jason Pinko Marine Survey, SAMS® Surveyor Associate

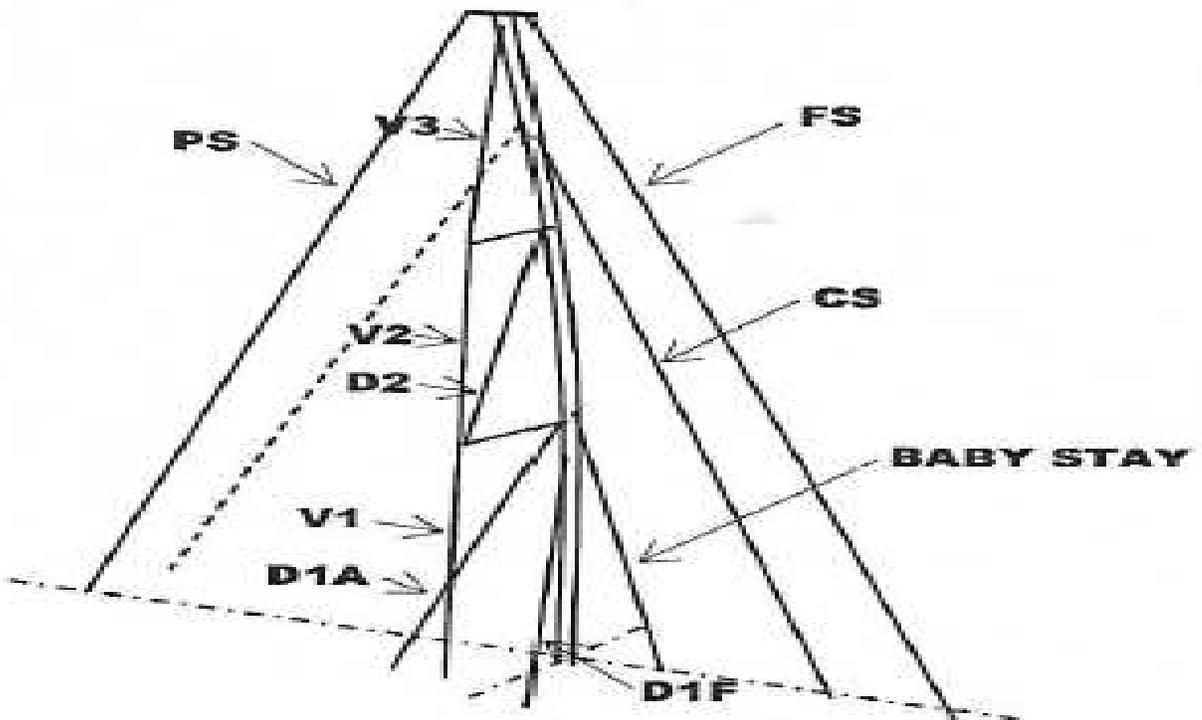
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Fractional Rig

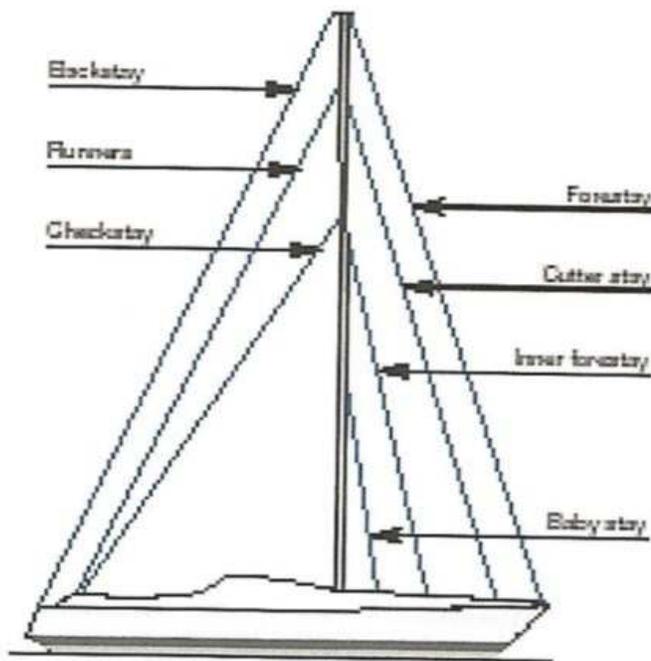


Masthead Rig

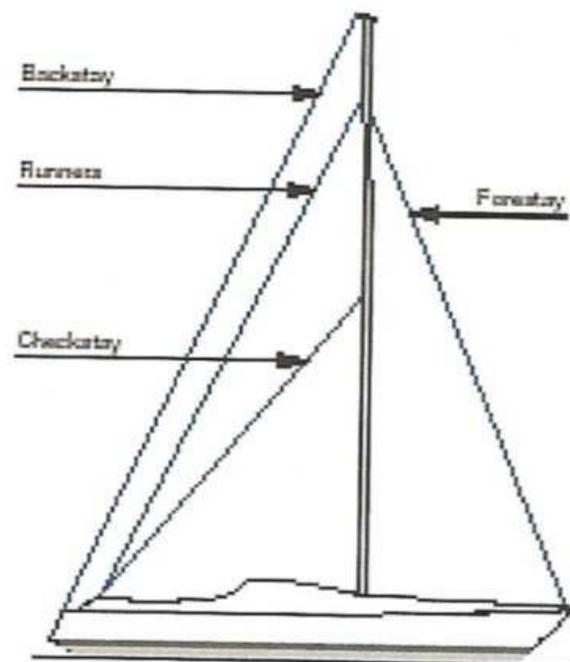


Longitudinal rigging, denominations.

Masthead rig



Fractional rig



Backstay: Stays the top of the mast against movement forwards. The backstay tension is adjusted using some form of tensioning device to control mast-bend and forestay tension.

Forestay: Sail-carrying stay for the genoa and jib. Prevents the top of the mast moving aft. The tension of the forestay is affected by the backstay, cap shrouds (on rigs with swept spreaders), runners and the sheeting of the mainsail.

Cutter stay: Sail-carrying inner stay for jib or staysail.

Inner forestay: Attached about 60% of the fore-triangle height above the deck. This stay does not carry a sail, but is intended only to stay the mid-section of the mast fore-and aft, in conjunction with check stays.

Baby stay: Attached in the region of the lower spreaders. The stay is not sail-carrying, but is intended to stay the lower panel of the mast fore-and-aft, in conjunction with aft lower shrouds.

Runners: Also known as "running backstays". On a masthead rig, runners interact with a cutter stay. They are more commonly found on fractional rigs, where they are used to tension the forestay.

Check stays: Function in principle as runners, but are attached lower down the mast. They are intended to stabilize the mid-section of the mast to prevent uncontrolled mast bend and pumping. Check stays normally interact with the inner forestay.

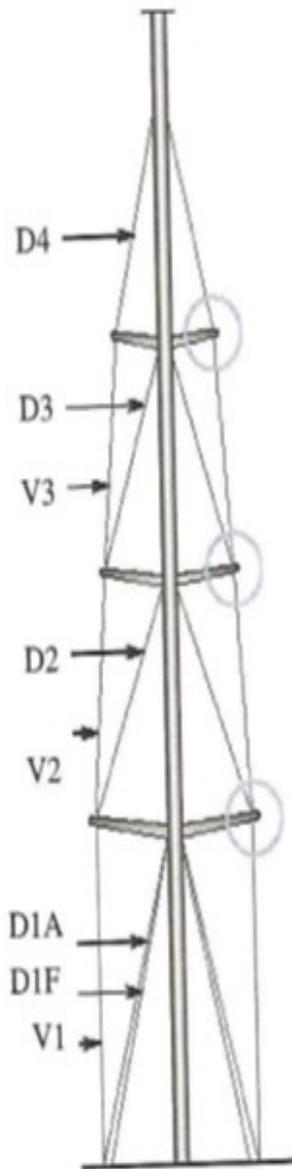
Lateral rigging, denominations.

Panel 4

Panel 3

Panel 2

Panel 1



Cap shrouds: (V1-V3, D4) Stay the mast against lateral (athwartship) loads. Attached near the masthead on a masthead rig, and at forestay level on a fractional rig. The cap shrouds are led via spreaders to the boat's chain plates.

Jumper stay ("jumper"): Permanent arrangement for staying a long mast top on a fractionally rigged mast.

Intermediate shrouds: (D2-D3) Fitted on multiplespreader rigs, and attached in the area of the upper spreaders. Fitted with links in the lower spreader tips (linked rig) or pass over the spreader tips and continue down to the deck (continuous rig). The intermediate shrouds stay the upper spreader area against movement athwartships.

Lower shrouds: Attached in the area of the lower spreaders. Stay the spreader-area athwartships. Often fitted as forward lowers (D1F) and aft lowers (D1A), which also stabilise the mast fore-and-aft, as well as determining mast-bend.

D = Diagonals V = Verticals



Linked rigging.



Continuous rigging.

Jumper arrangement

This type of arrangement is designed for fractionally rigged yachts. The jumper struts are normally angled forward. The jumper arrangement stays the top mast, not only athwart ships but also fore-and-aft. The use of jumper struts enables the top mast to be given a more slender taper. A jumper arrangement might be necessary when using a masthead gennaker/spinnaker or for stabilizing the top of the mainsail.



Circuit Applies Admiralty Law to Diving Accident in Lake

Mark Hamblett, New York Law Journal

June 3, 2016

The admiralty jurisdiction of federal courts extends to a case where a man was paralyzed while jumping from a pleasure boat into the shallow waters of Oneida Lake, the U.S. Court of Appeals for the Second Circuit has ruled.

Reversing a lower court, a three-judge panel held that the case over a 2011 recreational accident, in shallow but navigable waters that rendered claimant Matthew Ficarra a quadriplegic, could be heard by a U.S. District Court rather than be moved to a state court.

This means that, with maritime law governing, Germain's potential liability from the accident would be limited to the value of his vessel, according to the lower court ruling.

Judges Robert Katzmann, Robert Sack and Raymond Lohier said in *In re Petition of Bruce Germain*, 15-665, that while the U.S. Supreme Court has tightened the definition of whether a tort occurred on navigable waters to prevent "absurd" cases that have "little to do with maritime commerce," the Ficarra case was not one of them.

On July 30, 2011, Bruce Germain piloted his 38-foot motor boat "Game Day" away from Brewerton on the shore of Lake Oneida. With Ficarra and three other passengers aboard, he used a federal shipping lane to go to Three Mile Bay, a recreational swimming spot less than a nautical mile from the shipping lane.

Just before Germain and his passengers were getting ready to leave, Ficarra did a back flip off the back of the boat. His head hit the lake floor and he suffered a permanently damaging spinal cord injury.

In 2014, Ficarra sued Germain for negligence in state court for failing to properly protect the welfare and safety of his passengers, instruct them on safe diving and boating practices, inspect the area where the boat was anchored and provide adequate warning.

Germain removed the case to the Northern District, then filed a petition seeking exoneration for or limitation of liability under the Limitation of Liability Act of 1851, 46 U.S.C. §§30501-12 and Rule F of the Supplemental Rules for Claims and Asset Forfeiture Actions.

Northern District Judge Brenda Sannes found admiralty jurisdiction lacking because Ficarra's

injury in a shallow recreational bay did not disrupt maritime commerce or bear a sufficient relationship to traditional maritime activity (NYLJ, Feb. 13, 2015).

On the appeal, Katzmann said Sannes applied the right test for whether U.S. maritime law applied to the case, but came to the wrong result because "The alleged tort here involves a vessel on navigable waters—factors the Supreme Court has reminded us will ordinarily place a case within the bounds of admiralty jurisdiction." *Jerome B. Grubart, Inc. v. Great Lakes Dredge & Dock Co.*, 513 U.S. 527 (1995).

Katzmann said the lower court, in applying *Grubart*, was "emphasizing the recreational nature of the vessel and its passengers as well as the location of the incident in shallow waters."

"We disagree that these factors remove the case from admiralty jurisdiction," he said.

The Supreme Court made it clear in its "connection test" under *Grubart* that it doesn't matter whether the vessel is used for commercial or recreational purposes, nor does it matter whether the "waters at issue are shallow or deep" or what the various roles of the people involved were, Katzmann said.

"[T]he potential effects on maritime commerce of an injury to a passenger who jumped from a vessel on open navigable waters include collisions with commercial vessels caused by distracted crews and disruption to maritime traffic caused by maritime rescue," he said. "These potential effects may be the same whether the injured passenger was recreational or employed in maritime commerce, and they are also sufficient to satisfy the test."

Katzmann noted that the Supreme Court took "an expansive view of the possible commercial effects caused by collisions of even small recreational vessels on navigable waters, regardless of the precise location of those vessels in relation to commercial traffic."

And he easily distinguished the case from another major case where the circuit rejected admiralty jurisdiction—an alcohol-fueled fist fight on a dock in a marina near Long Island Sound—in *Tandon v. Captain's Cove Marina of Bridgeport, Inc.* 752 F.3d 239 (2d Cir. 2014) (NYLJ, May 22, 2014).

"Here, for example, Ficarra was allegedly rescued by boat and rushed five nautical miles across Lake Oneida back to Brewerton through a federal shipping lane," he said. "Such maritime rescues on open navigable waters could divert resources that would be called upon in the event of an incident involving a commercial vessel, require commercial boats themselves to aid in the rescue efforts, or otherwise disrupt commercial shipping by, for example, using federal shipping lanes to transport injured passengers to safety."

Finally, the circuit disagreed with the lower court's description of the "general character" of Germain's actions, saying "a more accurate description ... was the transport and care of passengers on board a vessel on navigable waters, which more generally captures the many aspects of Germain's activity that Ficarra alleges gave rise to his injury."

Katzmann also noted that Sannes had engaged in a "thoughtful analysis" and that the "modern test for admiralty jurisdiction leaves something to be desired." But he was constrained to apply the test as it sits. Therefore, the court could not adopt Germain's suggestion, one similar to the one that Justice Clarence Thomas suggested in his concurrence in *Grubart*, that jurisdiction "extends to all torts originating on a vessel on navigable waters."

James Mercante of Rubin Fiorello & Friedman argued for Germain before the court on Feb. 29.

"As a maritime lawyer for 29 years, I was so fascinated reading such a well-written and well-reasoned decision that laid out the modern test for admiralty jurisdiction so deliberately and thoughtfully—that I forgot for a moment it was my case," Mercante said. "As an admiralty attorney, it was a page turner. This showed that admiralty has a much wider net."

Jan Kublick of McMahon, Kublick & Smith in Syracuse argued for Ficarra.

"Obviously we believe that the district court has properly applied the relevant standard to Limitation of Liability Act—the Second Circuit certainly agreed that the court had used the correct standard but disagreed with the outcome," Kublick said. "The circuit's decision notes the difficulty of applying federal admiralty law to what would otherwise be a state tort."

Mark Hamblett can be reached [via email](#) or on [Twitter @Mark_Hamblett](#).

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Attention All SAMS® Members

SAMS® Google Group - <https://groups.google.com/forum/?hl=en#!forum/marinesurveyors> .

To access the SAMS® Group, please go to the above link. Upon logging in, an approval will be given via SAMS® HQ to enter the site. To be approved you need to be a member in good standing and you will need your display name (nickname) to show your first and last name.

The cost of this is covered as part of your annual dues. All we ask is that you abide by the group Policy, and show respect to your fellow surveyor.

Rhea Shea - Executive Director



Legal Liability

We have been receiving a number of requests in the International Office that pertain to General Liability. I wanted to remind you that the insurance that SAMS® carries for their surveyors is for Legal Liability only. Legal Liability provides coverage for property damage and bodily injury while conducting a survey. This insurance also covers liability for property damage and bodily injury caused by or resulting from the assured acting as an observer, for inspection purposes or condition and value surveys, during sea trial.

All requests must be directed to the International Office and not to Roanoke. Contacting Roanoke first will only delay the process since they have to verify that you are a current member. Please, also remember to notify us immediately of any insurance claims filed since this is a group policy.

If you would like a more detailed description of what Legal Liability is, please let us know and we will send it to you in an email.

Text Seminars

If you are interested in picking up 10 CE Credits, please put together a Text Seminar. Take a marine subject and put together some information of the subject, also include reference material. At the end, provide some questions to be answered; twenty-five is a good number along with an answer key.

Some topics we are looking for:

Health & Safety in Marine Surveying

Survey of Wooden Boats

Any Marine Survey Topics

Load & Stow Surveys

Surveying a Yacht's Electrical System

Survey of a Marine Engine

Using Infrared Thermography

Gas Engines

Diesel Engines

Fiberglass Construction and Repair

If you are interested please contact SAMS® HQ.

Surveyor Associates Reminders!!

All Surveyor Associates who have not yet become an AMS® Candidate must submit one survey per year within 30 days of the anniversary date of their membership. Please refer to the "Up or Out" Policy for further details.

SAMS® Surveyor Associate CE policy requirement is 6 CE Credits per year.



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