



AMATEUR BOAT BUILDERS' ASSOCIATION

June July 2021

He's Done it Again



When we last visited Mick O'Shea in 2017, he showed us a block of cast iron sitting on his milling machine in the picture above. He told us that this would be the cylinder of his next steam engine. Four years later and despite a number of serious health issues, the picture on the right shows Mick was true to his word and proudly on display is the completed compound steam engine. Mick started with a crankshaft from a Kubota diesel but designed and made all of the other parts of the engine. Below are the two other steam boats that Mick has made. To find out more, read the following past newsletters in the LIBRARY tab of our website ABBA.ORG.AU. They are not all in order but they are there.

Jul Aug 2010, Apr May 2013 & Jun Jul 2017.





If you have built a boiler and steam engine, the obvious next step is to build a boat to go with it. Mick built the boat and engine with, and for his mate Jim Long.

To add a degree of difficulty, they started with the plans for a 12' Selway Fisher hull and just added 5' to the length and 1' to the beam.

The boilers in Mick's other boats are fired with wood or coal but Jim chose to use LPG.

The LPG cylinders are housed in a sealed compartment forward of the boiler.





Mick (above right) explains the operation of the steam valve he built to Bob Harrap.



A few pictures of Mick's magnificent workshop. Shame I didn't have a wide angle lens to show all of the lathes, milling machines, drills, grinders, bender, guillotine, welding equipment and much more.



Mick's next Challenge? Mick and his son rescued the former pilot vessel, "Princess Royal" from a mooring near Blackwall Reach and transported it to their property in Henley Brook. Mick had ideas of restoring the hull and fitting a steam engine but he is current plan is to remove the rotten superstructure, move it undercover and most likely restore the hull and original diesel engine. Whatever he decides, there is lots of work to be done. Watch this space.

Many thanks to Mick and Jim for giving us a chance to admire a unique and high quality boat and to appreciate all of the workmanship, creativity and hard work they have put in to making it a reality.

Another highlight of the visit was the magnificent afternoon tea put on by Mick's wife Jan and family.

“Everything You Want to Know About Standing Rigging (but were afraid to ask)”

The presenter of our June meeting was Edgar Vitte on the topic, “Standing rigging inspection, replacement and tuning”.

Edgar started his rigging career in 1989 while being trained by Sparcraft to be the onboard rigger in the Whitbread Round the World yacht race. He then worked as a rigger-fitter at the WA Yachting Foundation. For 10 years he worked as a rigger and team leader in the Rolly Tasker rigging company. In 2005 he began his own rigging company, “Yacht Rigging Solutions”.

Sailing Experience

Edgar’s 40 years of extensive sailing experience include:

- Member of the USSR National team for 10 years (1975 -1985)
- European champion in 470 class
- World championship bronze medalist in Olympic sailboard class
- Multiple national champion and medalist in various yacht classes
- Sailed solo on a sailboard from Latvia to Sweden across the Baltic sea
- Completed Whitbread Round the World race in 1990
- On board of the division D winner in 2004 Sydney- Hobart yacht race
- Multiple Australian champion in Etchells and Dragon classes
- Multiple WA state champion
- Successfully completed Sydney-Hobart yacht race 2006



Qualifications and Coaching Experience

- Edgar has the highest possible Sailing Coach Qualification.
- He possesses the university equivalent degree in Human movement.
- Qualified Physical Education teacher
- Two years of postgraduate study at specialised highest school for coaches
- One year of study towards the Masters Degree in human movement
- Diploma of Management
- He worked as a leading coach at the Latvian and USSR national sailing teams
- Coached at RPYC, Flying Ant association and many one-to-one projects.

The above shows that Edgar has the qualifications and experience to be considered an expert in this field. I hope I have accurately summarised his words to correctly record his presentation.

Rig Inspection

Based on Edgar’s many years of experience, he believes the useful life of standing rigging varies with the size of yacht. Typically, 7-8 years for small boats (up to 26 ft), around 10 years for medium sized boats and about 15 years for large boats (over 50 ft). The shorter life in smaller boats may be due to the use of lighter rigging for maximum performance or just because the effects of corrosion may take less

time to reduce the strength of small diameter wire. The longer life of the larger diameter wire used on bigger boats is possibly because the rigging is overdesigned for safety reasons particularly in offshore conditions. Rigging will also last longer with a properly designed mast and rigging. Despite Edgar's views, the insurance industry sets the rules which requires rigging replacement at a maximum of 10 years for all size yachts. It isn't a requirement, but even self-furling systems by reputable companies such as Profurl recommend that the forestay is less than 10 years old.

The insurance industry base their decisions on actual failure history and more recently have required turnbuckles to be replaced along with the wire. This is despite them being thoroughly stripped, cleaned, inspected and certified as being in good condition.

When Edgar inspects a rig, he can't tell exactly when a part will fail. He can only say that the condition is good, satisfactory or unsatisfactory based on what he finds but has to be prepared to defend his decision if a rig fails soon after an inspection. Edgar's approach is to conduct the most thorough inspection that he can so the boat owner is happy and he doesn't spend years in the court. For anything that he finds less than satisfactory, he will recommend a means of fixing the problem.

As well as cracks and obvious broken wires, some of the unusual things that Edgar has found include a small bulge in a self-furling forestay where the inner core was found to be broken with resultant loss of strength. There was a problem with the furling system that led to the owner finding it more difficult than usual to furl the sail so he used a winch rather than of finding the reason for the increased effort and dealing with it. Damaged threads inside a turnbuckle often leads to its failure. Incorrect swaging can lead to failures. The fitting manufacturer gives a pre and post swage diameter to avoid over and under swaging and these dimensions must be met to obtain a guarantee.

Edgar recommends a rig inspection every 12 months and complete replacement of your rigging every 10 years so you can sleep well for another 10 years. Again, based on his experience, Edgar feels it is better to leave this task to the professionals. His other recommendation is to get a rig inspection done BEFORE, NOT AFTER buying a new yacht. The few hundreds of dollars for a rig inspection could save thousands later or help negotiate a better price.

Manufacturers are reducing failures by continually improving rigging equipment design based on past failures. An example is cast Ronstan fittings which have improved reliability over older pressed fittings due to stresses from the metal pressing process which can cause cracks.

If an owner can't prove the age of his rigging and gives Edgar a figure, he will include that figure in his rig inspection report as "declared by owner". Edgar's detailed knowledge allows him to closely estimate the age of rigging from the model of fittings used and the way it has been put together. He can track the age by such things as the change from stamping to laser engraving on the fittings.

Improved materials is another way of reducing failures. Fittings made of good Swedish stainless steel will last a long time. The same style made in poor material from another country closer to home may not last as long.

Rig Tuning

For good tuning, it is important that the top of the mast should be directly above the base. The person building the boat is expected to have the base of mast in the centre with the chainplates equidistant on both sides. Every rigger tries to make the wires exactly the same length. Edgar's technique is to swage one end of the first shroud, attach it to the mast, pull it down, measure it then cut. He then attaches the second shroud, pulls it down, marks the same length as the first, then cuts so he knows both wires are exactly the same length. If the

turnbuckles and chainplates are the same length with the same length of thread exposed, then the top of the mast should be directly above the base. He can check this to within a few mm using a tape measure to measuring from the top of the mast to the same reference point on either side of the boat (e.g. base of the chainplates) Some books recommend measuring with a halyard but the block needs to be in the centre on the mast to avoid errors. If someone asks him to replace only one shroud, even with all of Edgar's skill, he can't get them exactly the same length so the mast may not be in the centre of the boat.

Mast rake is another important aspect of rig tuning. It varies with the boat manufacturers' design but is typically between 0 to 1 degree. For some racing boats it may be up to 2.5 degrees. Rake used to be measured by dropping a plumb bob from the top of the mast and measuring the horizontal offset at the base of the mast. These days, mast rake is measured directly with a digital level. If Edgar doesn't have access to the original rig design, he has to set the rake of a replacement rig back to where he found it as a starting point.

Forestay tension is set with the backstay tensioner. More tension is used as the wind strength rises to flatten the sails. The tension of shrouds and other side stays should also be adjusted to suit the wind strength. Less tension in light winds, more tension in strong winds. Professional Riggers use the Loos & Co brand of rig tension gauge pictured below. The gauge measures the percentage of the breaking load of the wire and should not exceed 25%. A figure of 15% -20% is normal.

To read the scale on the gauge, you need to know the wire diameter. Rigging wire diameters are moving away from imperial to metric sizes. If changing to metric, Edgar's advice is to use the next highest metric size rather than just using the nearest equivalent size. e.g if changing from 1/4 " diameter wire (6.35 mm dia) use 7mm rather than 6mm.

Rigging tension can be critical in one design classes such as the S80. Often the association purchases the slender mast extrusion for all boats to use. A boat with a normal extrusion would be uncompetitive. With these slight masts, excessive rig tension can cause it to collapse.

Edgar outlined two methods of checking rig tension. The first involves evenly adjusting the rig tension while sailing such that in 15 to 20 knot breezes the [leeward shroud just starts to go slack](#). After sailing, measure and record the tension with a gauge and use this figure for future re-adjustment of the rig tension. The second method, not recommended by Edgar, is to secure a spinnaker halyard to the jetty and without sails, winch the boat sideways to an angle of 30 degrees. The rigging is correctly adjusted if the leeward shroud just starts to go slack at this angle.



The top of the mast should be set so it is vertically above the base of the mast then any rake applied as described above. Rake will move the top of the mast aft. A small amount of prebend can then be introduced into the middle of the mast. Prebend always moves the middle of the mast forward, never aft. Depending on the rig, the lower shrouds can be tightened evenly to set the prebend. Light winds require sails with lots of draft, but heavy winds require the sails to be flattened by bending the mast and reducing draft. Once the forestay is stopped from sagging through application of backstay tension, further flattening of

the sails can be achieved through even more backstay tension on a three-quarter rig or with the inner forestay on a mast head rig.

Masts can last for many years but the rigging can fail and needs to be periodically replaced. New masts aren't built in WA any more due to lack of demand. They generally come from over east where they can afford to hold a stock of mast extrusions. New masts, especially anodised aluminium are very expensive and can take up to 12 months to be replaced so it is important to do everything possible to look after your mast.

Rod rigging is arguably the best rigging and can last many decades but isn't widely used in WA as we don't have the machinery to properly attach fittings. Equipment exists in the east but won't fabricate new rigging to dimensions, so they require the old rigging to be sent over. Insurance companies are the driver here as they will not insure rod rigging in WA or will charge exorbitant premiums.

Mast Wiring

All boat wiring should be tinned copper. Normal household or automotive copper wire will slowly corrode and the copper eventually turns to dust. This means it is impossible to remake poor connections when repairs or modifications are required so the whole length of wire must be replaced.

Wires running up the mast should be installed inside a conduit, but this isn't always an easy task. Edgar recalled the good old days at Tasker's where it took the considerable effort of three men to pull the wires through the conduit and avoid it catching on the rivets etc despite the bundle of wires being taped together every 2 meters and greased. When people ask Edgar to "just" attach a new bundle of wires to the old ones and pull it through cable while he is working on the mast, he declines as he knows how difficult it can be even when everything is new and in ideal conditions. When he is asked "just" to replace the one faulty wire out of a bundle tied together, he knows this is impossible.

An unusual technique that Edgar has used when it has been impossible to fit a conduit, is to pull through a double braided rope, remove the core and pull through a wire. He has used this on carbon fibre masts in particular.

Examples where attention to detail is important include avoiding wires chafing on corners and not having expose wires that birds can eat through or damage while cleaning their beak.

With regard to installing wires in masts, Edgar's advice is to do it right the first time as if there is a damaged or broken wire, you have to remove the whole lot and start from scratch.

Edgar highly recommended downloading a copy of a booklet called "Hints and Advice" on the seldenmast.com website as a good source of information.

During Edgar's presentation he showed us many examples of cracked and damaged equipment that he bought with him which can't be included here. After the presentation he answered many questions from members of the audience which is another reason for attending meetings in person to get maximum benefit.

Edgar is the owner of Yacht Rigging Solutions and can provided the following services,

- Rig inspections and reports.
- Supply and service standing and running rigging.
- Furling systems supply, installation and service.
- Supply install or service winches.
- Complete mast, boom and pole service.
- Supply and fit aluminium and carbon mast and spars.
- Supply and install all deck hardware. (winches, clutches, travellers etc).

ADMINISTRATION NOTES

ABBA COMMITTEE

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FUTURE MEETINGS

Our next Technical Meeting will be held on Wednesday August 4th in the Heritage Room at the South of Perth Yacht Club. 7:00 pm for a 7:30 pm start. Dr Richard Beaver will update us on the completion of building and rigging his reconstruction of a Venetian round ship of the 13th century. As we found out at our Feb 2020 meeting, building a model has a lot of similarity to building a full size ship and some extra ingenuity is needed for construction at this scale. You can't just download a set of plans or find photos in a book so research was an important part of this project. To learn about the first stage, please look at the Feb Mar 2020 newsletter in the LIBRARY tab of our website, ABBA.ORG.AU

Your committee is working on our September Toolbox Visit. You will be advised of the date and details when they become available.

THE HISTORY OF WOODEN BOAT BUILDING IN WA

Elly Spillekom of the Dutch Australia Foundation is organising some exciting events that highlight the history of wooden boat building in Perth and WA.

The Wooden Boat Parade will occur on the 6th of November 2021. I believe that some wooden boats owned by ABBA members will be involved, but if you do have a wooden boat and would like to be in the parade, you are encouraged to contact Elly at ellyspillekom@gmail.com. Even if you don't have a boat, you are also encouraged to keep the date free and become involved as a crew member or a spectator.

There will also be an exhibition at the WAM Shipwrecks Gallery on the history of Wooden Boat Building to commemorate the first 25 years of the Duyfken Replica. The exhibition will be from 3rd December 2021 to 30th April 2022. It will cover the history of Wooden Boat Building, mostly from the Fremantle area, but also from other regional WA locations.

The final event will be a Sea Shanty music festival, held as part of the Fremantle Ports Maritime day on 12th March 2022. Again, put this date in you diary and come along with family and friends to enjoy the many displays and events to be held on this day.

Events with a close association to amateur boat building don't come along very often so please get involved to show your support and with luck, we may be seeing the start of a local wooden boat festival to rival that in Hobart.

ADMINISTRATION NOTES (Cont'd)

ABBA LOGO

Members are reminded that Bruce Cadee has made arrangements with Shaun Luong of Image Embroidery at 26 Tulloch Way, Canning Vale (Phone 9456 2324 Mobile 0403 250 389) for an embroidered ABBA logo. The logo can be applied to your own clothing (assuming it can be accommodated in their equipment) or to shirts, caps or hats purchased through Image Embroidery. Feel free to call in on Shaun to look at the limited range of clothing he has on site or visit the following web sites to choose your preferred style, size and colours. The weblinks below are only examples of the wide range available. Half chest measurements are included on the web sites to help ensure you select the correct size. Ladies styles are also available.

Clothing (excluding Logos)

Style 1300 – Aussie Pacific Mens Murray Polo, Navy/White/Ashe or White/Navy/Ashe - **\$20.00 + GST each**

Weblink: http://www.aussiepacific.com.au/the-murray-polo-navy-white-s?color=Navy%2FWhite%2FAshe&primary_color=Navy&secondary_color=White

Style 1304 – Aussie Pacific Mens Eureka Polo, Navy/White/Ashe or White/Navy/Ashe - **\$21.00 + GST each**

Weblink: http://www.aussiepacific.com.au/mens/polos/eureka-polo-sky-navy-s?color=Sky%2FNavy%2FAshe&primary_color=Sky&secondary_color=Navy

Hats/Caps (excluding Logos)

Style 4199 – Headwear Brushed Heavy Cotton Cap, White/Navy (many other colours available too) - **\$6.50 + GST each** **Weblink:** <http://au.headwear.com.au/productDetails.cfm?&prodID=53&prodCatID=2&pageNumber=1>

(Also refer poly/cotton legionnaires hats Styles 4057 or 4126 for maximum sun protection under website sub heading 'Hats, Visor & Beanies' <http://au.headwear.com.au/productList.cfm?&pCategoryID=7>)

Style 4199 – Headwear Brushed Heavy Cotton Cap, White/Navy (many other colours available too) - **\$6.50 + GST each (includes poly/cotton legionnaires hats for maximum sun protection under website sub heading 'Hats, Visor & Beanies')**

Weblink:

Style 4223 – Brushed Sports Twill Bucket Hat, White/Navy (many other colours available too) - **\$8.00 + GST each**

Weblink: <http://au.headwear.com.au/productList.cfm?&pCategoryID=7&page=2>

To make your annual membership even more value for money, ABBA will pay for up to 2 logos per financial year to be applied to your items of clothing. The current cost to ABBA is \$7.15 per logo. There is no intention for this to be an ABBA uniform so the choice of style and colour is totally yours. If you are seen wearing the logo while building, working on or using your boat or anywhere for that matter it might get people asking questions and wanting to join our association. You are free to deal direct with Image Embroidery but please ensure you get an itemised invoice showing a separate price for the logo and present this to our Treasurer for reimbursement. Bruce Cadee is happy to take orders and liaise with Image Embroidery if you wish.