The Binnacle

Victoria Model Shipbuilding Society
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Http://members.home.net/vmss

Our models are on display again!

Thanks to David Powell and Doug Allen for keeping model shipbuilding in the eye of the public again.

Three of David's models are on display at the Nellie McClung Branch of the Victoria Public Library.

Doug has 5 of his 6 models depicting the history of the BC fishing industry in a full display at the Oak Bay branch of the library.

I heard of this late, but I understand both David and Doug were constrained by the size of the display cases in the library. I am also told that David developed the signage, and it is very professional. From all reports, the displays are attracting a lot of attention and stimulating discussion in the libraries.

SSSHHHH!

'STAND FAST'

Captain Theodore

Captain Theodore was sitting in the wheelhouse chair drinking his coffee and thinking of all the upgrading he had done to his tug. It was automated in all respects. In a pinch he could take her out himself.

His thoughts were suddenly broken, a voice caught his ear—"MAYDAY, MAYDAY" on radio watch, it came loud and clear. Somewhere off Neah Bay a tug, towing an oil barge had lost power. To make matters worse the barge had broken loose in the rough seas. This called for immediate action, but with no crew, should he venture out? If he could come out on the lee side of the drifting barge, secure a line with his wheelhouse controlled winch, automated flood lights and deck video cameras, he could tow it into quieter waters and possible prevent a massive oil spill. The coast would ring with the name "Captain Theodore"!

Suddenly, another voice broke into the "Mayday" ——"Teddy, it's 2:00am, put your models away and come to bed!"

Marlin Spike

2000 Executive

President—Ron Armstrong 391-0101
Secretary—John McHutchion 388-4743
Treasurer—Derek Woollard 658-1150
Directors:
Scott Ringrose 744-3048
Rob Woodward 474-5912
Mike Gibson 474-5912

Dates to Remember

April 13 - meeting- Open Forum Q & As
Apr 13-16 MVIMM Show, Nanaimo
May 11- meeting
May 26 Ceremony of Flags, Legislature
July 1 Canada Day
July 9 Strawberry Festival
Mid August-BAMM Regatta, Burnaby
Sep 2-4 Saanichton Fall Fair
Sept 30 Victoria Scale Modellers Contest, Esquimalt Rec Centre
Every Sunday 9:30-11:00 Harrison Pond
1st and 3rd Sundays 10:30 Big Sailboats-Elk/Beaver Lakes
2nd and 4th Sundays 1:30 Fun Sailing-Harrison Pond

LIBRARY REPORT--- KEN LOCKLEY

We have two new books in our system thanks to Norton Tustin. They are "Basics of Radio Control Power Boat Modeling" by David Thomas. This book gives a good over all view to the different applications where R. C. is used. The second book is an excellent guide to building & modifying plastic kits and shows how to create realism to the model. Many of the hints apply to any medium used in marine construction, the title of this book " How to Build Plastic Ship Models".

One new idea we have is to create a magazine sale. At each meeting night there will be a pile of duplicate magazines, on the table upstairs for sale at 50 cents each. The money raised will be used to upgrade books in the library. This should, over time, improve our system to everyone's benefit.

The Library is pleased to receive any donations in regards to books and magazines and of course any loose cash you have. Thanks again Norton for your donations. Members, the library and plan service is there for you to use.

VMSS GENERAL MEETING FEB.10TH 2000
VISITORS & GUESTS

LARRY GANYON, JIM HARRIS, ALEX JAMES & STEAVE POMMER

CORRESPONDENCE-News Letter from the Alberta Ship Model Society and a Letter from the Parcum Mariners of Parksville BC.

Ron Armstrong -Congratulations to Ron & Julie Hillsden for a job well done on the Binnacle.

- We received good PR for Can West in the media.
- Ed Boddaert announced that the club docks are ready to be placed back in the boat pond
- Hillside Mall show May 20th-21st this time is not good for us, there is more interest in a fall event. Ron will find out more

Derek Wollard-The Financial report is in the Binnacle, and is there a way we can sell off the old club hats etc. for ½ price and sell old club magazines for say 50 cents to get some more money in the club account.

Ken Lockley- the Library is in good shape and he is looking forward to some new books

NEW BUSINESS

Mike Gibson – Reported the two club boats where coming along with the Hulls from Bandit Boats.

A discussion was held about how to get some new members Do we have an age limit? Why don`t we have junior members or family memberships?

Up Coming Entertainment – Ted Roberts talk on Discovery and a tour of the HMCS Naden Museum

Entertainment-Mike Gibson gave a talk and answered questions about painting Thanks Mike, Well Done.

NEWS

SAILING REPORT from "Mid Vancouver Island Marine Modellers", Nanaimo, B.C.

June 3rd - Van Isle 360 Sailboat Race. (Around Vancouver Island, large boat race) They have been asked to have some model boats in Swy-A-Lana Lagoon after the start of the race out of Nanaimo Harbour. They would like to have a good showing of boats sailing around a course. Should there not be much wind, then powerboats could put on a show. They have invited the Nanaimo Sea Cadets to be in attendance, who can advise the public of the activities. After their mall show, they will be planning this event in earnest and would appreciate hearing from us as to whether any of our members would be interested in coming up to Nanaimo and taking part.

(Swy-A-Lana Lagoon is saltwater but there should be fresh water at a near-by washroom. It has a long sandy beach and the footpath along the north side is high which gives good downwards viewing when passing distant marks. All part of the seafront walk.)

RCM Police *NADON* to re-enact *St. Roch's* Arctic Voyages

In 1940, *St Roch* left Vancouver on a voyage which would see her become the first ship to travel the Northwest Passage from west to east. Four years later, she returned to Vancouver— back through the passage, and in one season! In 1950, *St Roch* became the first ship to circumnavigate North America (through the Panama Canal).

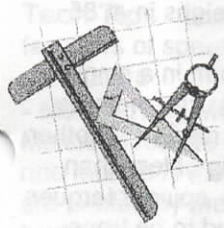
On July 1. 2000 *Nadon* will leave Canada Place in Vancouver on a journey called **St Roch II Voyage of Rediscovery —** a re-enactment of *St Roch's* epic journeys. The voyage will last six months and will be a 22,000 mile circumnavigation of North America. *CCGS Simon Fraser* will escort *Nadon* through the ice when she is not required for other duties. *Nadon* will carry *St Roch's* bell and will ring it in the northern communities *St Roch* used to visit

Nadon will re-fit in Halifax in October and continue south through the Panama Canal to arrive in Vancouver in December in time to join the Christmas Carol Ships.

This historic voyage is a joint project of the RCMP and the Vancouver Maritime Museum. It aims to raise an endowment to ensure future maintenance, preservation and operation of the *St Roch* National Historic site at the Vancouver Maritime Museum.

The federal government is funding this ambitious project to about $460,000 through the Millennium Partnership Program, the RCMP and the Canadian Coast Guard.

What the St Roch needed 10 years to do, the Nadon will do in 6 months. Are there no great adventures anymore?



Tech Talk

Fun with Catalyzed Putties

I have finally found some time to work on my 1/96 scale John Paul Jones, and decided to build some subassemblies. Currently, I am working on the two RIB's (Rigid Inflatable Boats) that she carries. Since I have been using catalyzed putty a lot during this project, I thought I would share a few tips with everyone.

These products are available from automotive paint stores, and are designed to take the place of lacquer based spot putties. Although similar in composition to automotive body filler (widely known as "Bondo"), they are ground much finer - think of them as scale body filler. My current can is made by Evercoat, and is called Xtra-Fine (Part 100443), although there are similar products by other companies. You use them by mixing in a quantity of catalyst just before use - and they harden very rapidly, within a few minutes.

One of the advantages of this product is the gel state it goes through on the way to thorough hardening. At this time the material will hold it's shape, and yet can be easily sliced with a sharp razor blade - great for rapid forming. One technique that makes use of this property is forming recesses by using a male form. For example, on the RIB there are consul recesses for the fire extinguisher and horn that were not present on the model part. It would have been very difficult to carve square, flat bottomed openings for these. Instead, I ground out an area a bit larger with a Dremel tool, mixed up a batch of putty, and inserted the end of a strip of Evergreen plastic that had been coated with WD-40. Once the material had hardened sufficiently (You can test this by dragging a razor blade through the left over material; when it does not cling to the blade it has gelled enough), the plastic is withdrawn, leaving a perfect recess. You can use this technique to form more complex shapes by carving a male pattern - for anchor bolsters, as an example.

To minimize the amount of the product used, I scoop out a teaspoon full at a time onto a coated paper plate (I like the coated types as the putty does not dry out as fast on them). I also squeeze a dab of catalyst on the opposite side of the plate. In between, if the putty is getting a bit dry, you can put a putty thinner such as Plastic Honey, which can be used to achieve the consistency that you desire - thin for filling pinholes and such, thicker for building up edges. Using a round toothpick, I pick up a bit of the putty, wipe the toothpick, pick up a bit of catalyst, and mix on an empty portion of the plate, much like a painter would mix colours on a palate. You can control the working time by the amount of catalyst utilized; I have found the product can be mixed in a wide range of ratios.

Once hardened, I use metal files for rough shaping (although they clog rapidly, a swipe against a cloth cleans them without trouble). The hardened putty can be worked into a polish if you desire, though I usually do not sand past 400 grit before priming. It takes paint very well, as you might expect for an automotive finishing product.

A can runs about $ 20 in my area - get extra catalyst at the same time, and a small can of the putty thinner/extender. Even working on large scale ships (which use a lot of product), the current can is about three years old. Be sure to wipe the edge carefully and seal it tightly when done. If you are going to not open it for a while, pour a bit of the extender on the top of the putty to keep it moist.

Kurt
(Who now knows why one picture is worth a thousand words.....)
SeaPhoto Maritime Photography

ONE WAY TO MAKE A HULL FROM STYROFOAM
Bread and Butter on a Diet

Traditional Bread and Butter construction is laminating pieces of wood together after they have been cut to the 'waterlines', or 'lifts' on the ship's plan. Templates of the hull sections are then used for final shaping. Styrofoam is inexpensive and easy to shape and sand

Mark the hull lifts on sheets of Styrofoam. Cut each lift and stack them together using 3M's Super 77 Spray Adhesive or similar glue for Styrofoam.

When the final shaping is complete, it is time to start glassing the foam hull. One way to avoid seams is to cover the complete hull with one piece of glass cloth or mat. However if you want to reinforce the corners, you may want to glass each side separately and join a seam down the keel.

Ordinary Fiberglas resin (polyester) will eat the Styrofoam, so you have to use epoxy. The West system for boat builders has products which will work.

Once the glass cloth has been saturated with resin, it's important to squeegee the excess off. After the resin cures, sand the surface then apply another coat of resin. Add fillers, such as microballoons or antisag to fill faster and make the sanding easier. This process continues all the holes in the glass cloth are filled and the surface is smooth to the touch. Then prime it will a filler-primer, and fix the goofs you didn't see.

When you are happy, slosh gas into the stryofoam and it will disappear leaving a glas hull.

THE SUB SUBJECT

Now that you've feasted your eyes and minds on last month's brief background to the Upholder- Victoria-class submarines, time has come to inspect the boats themselves, as they will be under the Canadian flag.

Length - beam - draft:	230' - 24'11" - 21'4"
Displacement (surf/submerged.):	2,215 tons. I 2,365 tons.
Complement (44 in all):	7 Off. + 13 Sr. + 24 Jr. (Oberons had 68)
Speed (surf/submerged.):	12 kts./ 20 kts. /19 snk.
Torpedo tubes:	6 up front (for Mk 48s)
Power (surf/submerged.):	4,070 hp. I 5,400 hp.
Screw:	One 7-bladed
Construction:	NQ 1 (= HY 80) & GRP
Maximum depth (2):	650' Or 820'
Range (surf. @ 8 kn.):	8,000 n.m.
Endurance (food supply):	7 weeks
Layout:	2 decks + bilge (batteries.)
Batteries (2 banks):	Chlo. lead-acid 240 cells.)

Two readily apparent architectural features are the low length-to-beam ratio of 9.23/1.00 and the mid-ship placement of the sail--the " fin" to the vendors. Surfaced, however, limited freeboard won't make the hull's stubby build all that noticeable. As the displacement values indicate, the respective tonnages vary by no more than 6.34 per cent one way, or 6.77 the other, which ain't much. It likely makes for cuddly, space-saving ballast tanks, which is helped further by the use of GRP above the waterline. Nothing much wrong with that- -except while running surfaced in stormy weather.

About the foregoing specs, I regret vagueness on maximum depth. All the same, though, the Brits' NG 1, apparently, is an equivalent of HY 80 (high-yield steel good for 80,000 p.s.i.) and, at hydrostatic pressure running at 0.42 Lbs. for every foot of depth, it looks as if the feet under the 44 boys aboard could get cold long before they get wet.

While neither Binnacle space nor scope of this column allows for windy elaboration on numerous Upholder features, the propulsion system and periscopes deserve attention. Neither one may be unique to just this class of subs, but both seem to sport some nifty engineering.

Unlike the Nazis' U-boats, but much like the U.S. Navy's WWII Baleo-, Gato- and Tang-class fleet subs, the two 16-banger Paxman Valenta diesels are not directly employed to twirl the screw. As in, say, a diesel locomotive, their labour keeps the propulsion motor in juice. The propulsion motor is a 5,400 h.p. brute. It weighs in at 85 tons,
and combines two armatures on one shaft in a single casing. In sundry parallel combinations, the motor is on the job in the four- to 20-knot speed range. Another motor-generator takes care of all trolling at less than four knots. When called upon, the main spinner torques with such vengeance that its force had to be transferred to the sub's structure via mounts with a stance over its full width. It must be assumed that a rubber-lined clamp in the Dumas-Graupner-Mabuchi-Pittman style didn't totally measure up.

Turning on paper to the two periscopes, these are reported to be Barr & Stroud optronic search and attack combis. They are variably remotely controllable, and have what is known as a Quick Look Around (QLA) capability. QLA allows just that: the scope is popped up in a jiff, spins 360 deg. in something under no time, while a camcorder nails down the seascape, and then withdraw to from whence it came.

All of that is supposed to happen in such a flash that no adversary, peyote smuggler or Newfie dredging up cod on the sly gets a go at taking countermeasures, get spooked some, wave amicably, or make an obscene gesture.

Next, with the timing depending on curiosity, the lad in charge can stretch his legs, lean back, activate pipe or cigars and view the video clip on a tactical TV screen. That done, contingent upon what played, he can report to another lad in charge to either take or not take action, and spend the remainder of his shift on filing a report. All of this can be quite entertaining if there's high resolution in the film, and if the tourist season is in full swing.

In closing, we ought to wish the RCN and its political bosses Godspeed--especially if it's decided to experiment with (Dutch or Swedish?) air independence. Should the four boats not work as advertised, it's a chinge to guess who's to foot the next invoice.

Come April, we'll once more visit the grab bag. A system to raise submerged speed, a review of comparative screw-cartwheel-pump jet merits, how Tridents are launched and the nukes' auxiliary motive power may make it to these pages.

Romanus Unicum

SOURCES

1. Binnacle (The), June 1998, p.1
2. Deep Sea Designs (Greg Sharpe)
3. Gibbs, Len D. (Visually in a painting & orally)
4. SubCommittee REPORT (The), Issue 39 (December 1999), p.13

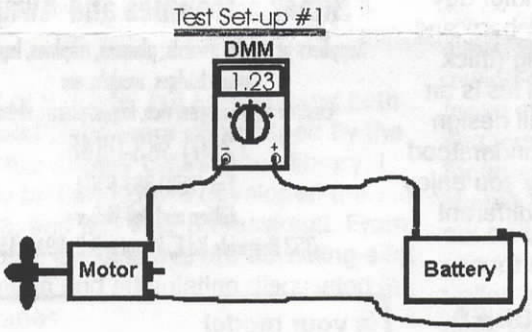
Tech Tips - compliments EA Electronics Ajax Ont, manufacturers of speed controls and flashing Morse code generators

- Measuring Motor Current -

Making accurate measurements of the current drain for marine motors is the subject of this tech tip. A lot of hobbyists are baffled by the results they get when they attempt this kind of measurement. In the paragraphs that follow I will try to explain why such measurements often fail to give accurate results.

Before we start, I would like to say a few words about test equipment. The basic piece of equipment most hobbyist own is the digital multimeter or DMM. This is a meter which can measure volts, amps and resistance (or ohms) and is a necessity if you are doing R/C modeling. Those of you who have been in the hobby for a long time may have the older analog-type meters.

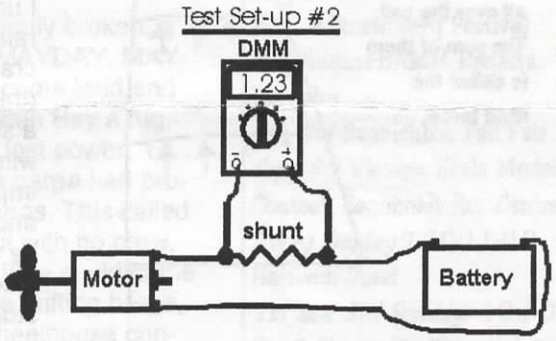
Most DMMs have the ability to measure currents up to 10 amps. Usually the meter has a separate connector for 10 amp current range. If your motor is small and your battery voltage is high (12 volts for example), you may get a accurate reading by a direct measurement as shown in the diagram below. The motor should loaded as it will be under the final operating conditions (I will explain more about loading later).



If we try using this setup with a larger motor and/or a lower voltage we may have problems. The most common problem is that the motor will not start. To understand why this happens, consider the way a DMM measures current, which is to pass current through a known resistor inside the meter and then measure the voltage across this resistor. The problem with most DMMs is that the value of this resistor may be quite large, around 1/2 ohm. Now consider a typical hobby motor like a Mabuchi 380 connected, direct drive, to a shaft and prop. This motor normally draws around 4 to 5 amps when running at 7.2 volts. However, when the motor is first starting to turn, it needs a brief burst of current about 3 or 4 times the normal operating current to get started; thus we require a burst of current in the range of 12 to 20 amps, just for a fraction of a second. But with the 1/2 ohm resistance of the meter in series with the motor, the maximum current we can pull is (using Ohm's law, I=V/R) 7.2/.5 = 14.4 amps. if the motor needs 20 amps, it will not start. If you are using a larger motor like a Mabuchi 540 or 550 you will need even more current to get started.

Let's say, for a moment, that we can get the motor started. We look at the DMM and it is reading 4 amps. With 4 amps going through a .5 ohm resistor we will have a voltage drop of (Ohm's law again V = I*R) 4 * .5 = 2.0 volts across the DMM resistor and so our 380 motor is only getting 7.2 - 2.0 = 5.2 volts instead of 7.2 volts. So now we have a measurement, but it's lower than the real current because the voltage is too low. But, some will argue, when I install the speed control there will be some voltage drop across the control. True enough, but the resistance of a control like the SC-5 (at full throttle) is much lower than the DMM, around .1 ohms, and so the voltage getting to the motor will be higher.

One obvious solution is to use a better meter. A good indication that a DMM has a very low internal resistance is if it has a 20 amp maximum current scale rather than a 10 amp scale. I did some tests on and found the internal resistance on the 20 amp scale was about .05 ohms, about the same as a SC-8 control. Another is to use a test shunt as in the diagram below.



Now a few words about loading. For most motors, the current draw will vary widely depending on the loading of the motor. This effect is greatest in direct-drive situations, if you are using gear or belt reduction, the gears (or belt) tend to isolate the motor and reduce the effects of loading. To get an accurate measurement the motor should be connected to the shaft and prop. Also, the prop should be spinning in water not air. Furthermore, the deeper in the water the prop goes, the more current the motor draws. What I usually do is this: set up my test equipment next to the sink or bathtub, depending on the size of the boat, and push the stern deep into the water while running the test. This way I get a "worst case" current. If you change to a larger prop you can assume the current draw will increase so you may want to do the test again.

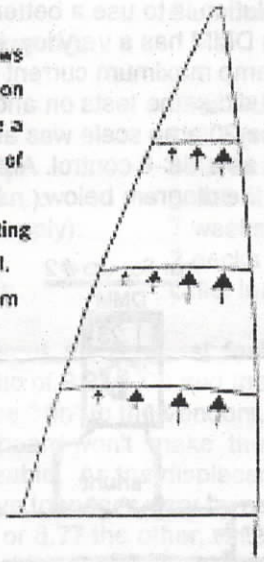
Above: the diagram shows the streamlines of the airflow as it meets and passes the sail.

Sail Concepts

Adapted from the Mesa Model Yacht Club

This is a short article about what the wind does to sails and how it drives a sailboat forward, The wind does not push as some might think. The sail creates a forward and sideways pull.

When the wind hits the sail, the airflow is deflected. As the wind passes over the leeward side, the air has a longer path to follow than the air on the windward side. Thus the air traveling on the leeward side moves faster and pressure is reduced (remember Bernoulli's Theorem, which is used to explain how a carburetor vaporizes gas? - same explanation!) The pressure difference between the windward and leeward sides of the sail creates the force which moves the boat. The same principle and force allow an airplane to fly—only the airplane's sails (wings) are horizontal and the pressure difference creates lift. The forces working on an airplane wing act "up" while the same force acting on a sail act "forward" - if you are skilled!



Right: the arrows superimposed on this picture are a representation of the pressure differences acting all over the sail. The sum of them is called the wind force.

So if you think of a sail as a vertical wing you can see how the sail develops 'lift' toward the leeward side. The sail has many more variables than an airplane wing because it is more adjustable and flexible.

So why would you care? As a beginner-sailor, I found the hardest thing to learn was how to tune the boat for the wind conditions. When I understood I was dealing with a 'wing' (well, kinda...), I was able to relate the shape of a fast aircraft's wing to a windier day (thin wing = shallow bag) and a slow aircraft's wing (thick wing = deep bag). This is an important part of sail design and it needs to be understood by new sailors. May you enjoy following winds - a different story!

Do you have a club hat and lapel pin yet?

Hats are $20—very high quality with an embroidered crest. Lapel pins are $5

See any member of executive