The Binnacle

Victoria Model Shipbuilding Society
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Victoria B C V8Z 7G9
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June 2000
Volume 22, Issue #7
http://members.home.net/vmss

VMSS GENERAL MEETING MAY 11TH, 2000

Attendance: 27
New Members-Cal Marshall and Rick Todd
Guests-None
Visitors-Travis Ferbey
Intros by Ron Armstrong.

Entertainment- Ted Roberts gave a lecture all about The Ship Discovery. Where and when and Who built it. Where it sailed and who sailed it and what happened to it. All in all it was fascinating to listen to our thanks to Mr. Roberts for taking the time to talk to us

Break:

Reports: The Regatta was a great one with a good turn out, Results in the Binnacle

Derek: (Glad to see you're OK) Reported we could use 3 more members to make ends meet. Also he will look into getting the club sign back to Romain for the pond.

New Business: A discussion was held about JR. memberships
The club was asked to give a donation to The Cancer Society in Fred Stolzenberg`s name, it was decided that we didn't have the funds in our non-profit organisation to give to another non-profit organisation. But club members could give on their own. It is the club's practice to send cards etc.

Members with Boats:
Doug Dyer– Queen of Tsawwassen, a class act complete with BC Ferry food!
Jack Ross–Tug, A very nice model.
Mike Hill –Reno, What a paint job!
Dave Powell & Don Halls—Dragon sailboat -a Beautiful Model that will get some TLC and sail again.

INSIDE

NEW MEMBERS

Welcome to two new members. Please add them to your membership list.

Rick Todd
149 Goward Rd
Victoria B C V8X 3X3
479-0783

Cal Marshall
97-7701 Central Saanich Rd
Saanichton B C V8M 1X5
652-7656

and someone gave your editor a new e-mail address. Please tell me again. I lost it!

DATES TO REMEMBER

MOVED
July 23 VMSS Regatta, Harrison Pond
Jul 9 Strawberry Festival
July 13 Regular Meeting,
July 29 & 30 Delta MYC EC12 Regatta, Sacramento, Ca
Aug 10 Regular Meeting
August 13 Burnaby Assn Marine Modellers Regatta (Cyril White 604-526-0279)
August 19 Foss Cup, Bellevue Wa (Ron Burchette 250-245-7801)
Sep 2-4 Saanichton Fall Fair
Sept 14 Regular Meeting
Sept 30 Victoria Scale Modellers Contest and Swap Meet, Esquimalt Rec Centre
Oct 20 and 21 VMSS Hillside Shopping Centre Display

Regular Events

Every Sunday
Harrison Pond 9.30-11.00- Power
1 st and 3 rd Sunday
Beaver Lake 10.30-1.30 * Star45s, EC12s and Marbleheads
2 nd and 4 th Sunday
Harrison Pond 1:30 Small sailboats

2000 EXECUTIVE

President: Ron Armstrong 391-0101
Secretary: John McHutchion 480-4048
Treasurer: Derek Woollard 658-1150
Directors:
Scott Ringrose 744-3048
Rob Woodward 474-5912
Mike Gibson 474-6539

ROTATING WING ACTIVITIES IN GERMANY DURING THE 1939-1945.

This little bit of info on early helicopters and their role as a detection device with U-boats is quite interesting. John Isaac has seen a captured proto type in the R.A.F. Museum, London, U.K. Thanks for the info John; I'll try here to pass it along in the next few paragraphs.

DURING WORLD WAR II, the Focke-Wulf Company developed two autogiros, the Fa 225 and Fa 330.
The Fa 330 was an Autorotative Kite for use on Submarines and by the end the war, 200 had been built for that service.
It was a three blade, single seat, autogiro glider and it was normally flown as a kite, being towed from a submarine deck by a steel cable working from a winch. This providing an elevated observation platform to increase the subs search view when cruising on the surface.

DESIGN DETAILS

Rotor diam.	24ft.
Empty weight	180 lb.
Disc loading with 150 lb. Pilot	.73 lbs. Per sq. Ft.
Solidity	.0795

Blade twist 4 degrees reducing towards the tip

On some later kites, the diameter was increased to 28 ft. There was also a proposal to convert the type to a helicopter by fitting a 60 h.p. engine, but this never matured.

Body structure consisted of two main tubular members, one horizontal and the other vertical, immediately behind the pilot's seat and forming the pylon for the rotor. Outrigger tubes from the longitudinal member carried oval section tubes on each side, by means of cleverly designed joints, that could collapse into a very compact unit for stowage in the "sub".
Tail surfaces consisted of a flat plate type stabilizer, with fin and rudder carried at the rear end of the main longitudinal tube. The method of attachment was extremely simple and effective, and permitted very rapid assembly and disassembly.
The controls were the conventional stick and rudder pedals.
The rotor hub was typical of autogiro practice in a simple form, with flapping and drag hinges, the drag hinge being at the outboard end of a flapping link of welded steel and tube construction. The hub was mounted on ball bearings. An internal expanding shoe brake was provided for stopping the rotor.
For starting, a rope was wound on a grove drum which formed the lower part of the hub.
The blades were untapered in plan and in thickness. The tubular spar was 1.25 ins. in diameter with main ribs of conventional plywood construction spaced five ins. apart. A thin plywood covering formed the nose to a point just aft of the spar, and the whole was covered with fabric.

Operation required the kite to be launched with a slight backward tilt of the hub. Starting by a rope was not always necessary, as the rotor could be started by hand in a moderate wind. The typical operating speed was 25 M..P.H., the minimum air speed to maintain flight being about 17 M.P.H. Typical rotor r.p.m.for the 24 ft. diameter model was 205.
The kite was normally operated on 1,200 to 1,500 feet of cable. While on tow, the pilot was connected to the submarine by telephone cable. In normal return to the submarine, the winch wound in the towing cable, and on return to the deck, the rotor was stopped by means of the brake. The blades hinge pins were then pulled out, and the droop and interblade cables released from the blades.
In an emergency the pilot could operate a quick release and release the tow cable. To overcome the difficulty of landing in the water with a spinning rotor overhead, there was another emergency lever fitted just above the pilot's head. When this lever was pulled, the rotor flew away upwards and a parachute carried on the pylon was automatically opened.
The operators were normally submarine ratings, who were taught to fly the kite in the large French wind tunnel at Chalais-Meudon. Some kites were fitted with a simple wheel undercarriage and tail skid, and were then towed behind a "Storch aircraft."

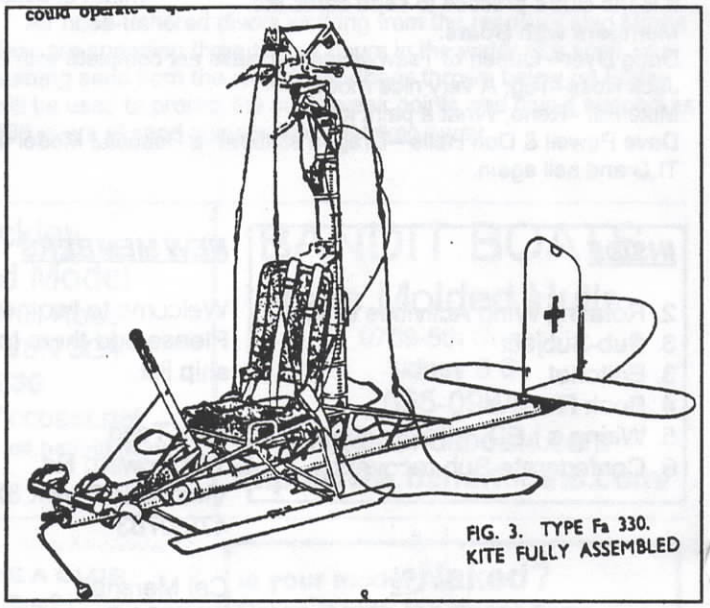


FIG. 3. TYPE Fa 330. KITE FULLY ASSEMBLED

Editor note: This material was edited by Ken Lockley for the Binnacle, and there will be 8x10 photos on display downstairs May and June meeting nights. Thanks John, for bringing this unusual piece of information to light.

THE SUB SUBJECT

(The diagram related to this article is on page 4)

In closing the May column, I promised to enlighten you on or bore you with an expose of wedges, ratchets (mind both pronunciation and spelling of that one) and spinning/rotating magnets. Now it looks and feels as if I'll be lucky to just cover the WEDGE cum INCLINED PLANE topic. No worry. Next month's only a month away, and building up suspense is conducive to bettering patience--a sought-after characteristic in modelers' ranks.

Although the essential truth in "necessity is the mother of invention" is assailable, it sure applied throughout my two and one-half year building time of Florida--my 67" missile-launching, submerging, sleep-robbing headache.

Among the miles-long parade of problems that popped up with the speed of a Chinese fireworks bouquet, was this one: the number of (desired) on-board functions exceeded the number of (seven) channels to which I had my Ace Nautical Commander expanded. This, then, called for one or more servos tasked with more than one job. As in earlier boats, I considered the ballast tank channel/ servo as a prime candidate for hard work. It's a high-torque, MG (metal gear) job, sweetly positioned to operate back and forth along the model's axis.

What I demanded from that servo were three things:
(1) open/close the ballast tank's air valve for submergence,
(2) open and close the built-in, on-board gas tank for surfacing and, at the same time,
(3) elevate/lower the fairwater planes during those same two maneuvers, in that same sequence, but after a nominal time delay either way.

I must not now indulge in listing the gory details of all the false starts and endless alternatives made and explored, but a mental canvas of the so-called simple machines ground to a halt when, at last (I must think alphabetically) I reached "Wedge."

A wedge, as I see it, is one of the most efficient, direct and reliable means of converting horizontal to vertical force, and that's exactly what was called for:
(1) lift the air valve's stem for diving,
(2) depress the gas tank's valve stem for surfacing, and
(3) raise and lower the fairwater's (sail's or conning tower's) planes in delayed harmony
with functions "(1)" and "(2)."

As Greg Sharpe 's illustration is meant to show, stainless steel (1/8") shaft "A" is moved horizontally. Pushed forward, the wedge/cone "E" pushes air-valve stem "M" up, and the ballast tank's volume of air escapes between "H" and "G." The boomer dives, and a second or two later, the forward extension of rod "A" moves the levered linkage of the fairwater planes toward extra (downward) bite into the now surrounding fresh-chuck. Simple, what? To bring Florida up, the servo is ordered to move its attached rod astern. Wedge "B" is forced to lean on the stem of tire valve "D"," gas (at f50 Lbs. psi) voids the tank of water through «" holes in the keel, the planes drop their trailing edges and, J.C. willing, Florida may show up, out of the deeps.

That part of making the servo/channel bilingual was somewhat easy, but the third (fairwater) function imposed itself on the ballast tank configuration, i.e. the operating rod had to be positioned to penetrate and exit the tank at a critical, correct height--had to more or less align with the latitude of the servo's horn, and allow for enough upward and downward space to accommodate the (very reduced) lengths/dimensions of the air and gas valves. Somehow, that worked out okay, and a length of Sullivan Gold-N-Rod saw to the fairwater planes shedding the Rube Goldberg device that I'd initially imposed on them. In the end result, as it now lies and stands, that one servo does three things that would ordinarily take up two servos/ channels. Whoopee.

Earlier, I said I wouldn't sedate readers with just how I got to where the system has developed, but two things may just avoid wastes of time toward the numerous alternative applications that I envisage. First: the 1/8" brass slave rod was too flexible, and my SubTech bulkhead seals (BHS's) came in that internal diameter. A 3/16" brass rod running through SubTech Stuffing Box Seals (SBS's) could have been the answer, but I thought of that just now. Instead, I went with either Len Gibbs's or Greg Sharpe' s counsel, and switched to stainless steel. It works like a good thing. Next, however, a greater obstacle: too much friction between the activating wedges' (polished) surfaces and the ends of the air and gas valve stems. Against expectations, the gas valve problem was solved readily by capping that valve's stem with a semi-spherical (mushroom-cap) shaped button, made out of Lexan. But the air valve wasn't as willing to fall for my ploy. Ultimately (not shown on the illustration) I had to go for an interim lever, which incorporates a + 1/4" roller. The wedge strikes the roller; the roller lifts the interim lever; the interim lever's upper surface strikes the air valve's stem at a right, nearly frictionless, angle. It's worked just fine since launch date: July 16, 1999.

I've turned into a hesitant forecaster where it concerns the future, but there's a firm, positive maybe that I'll get to cover ratchets (!) and spinning magnets in the July Binnacle. Just don't hold your collective breath.

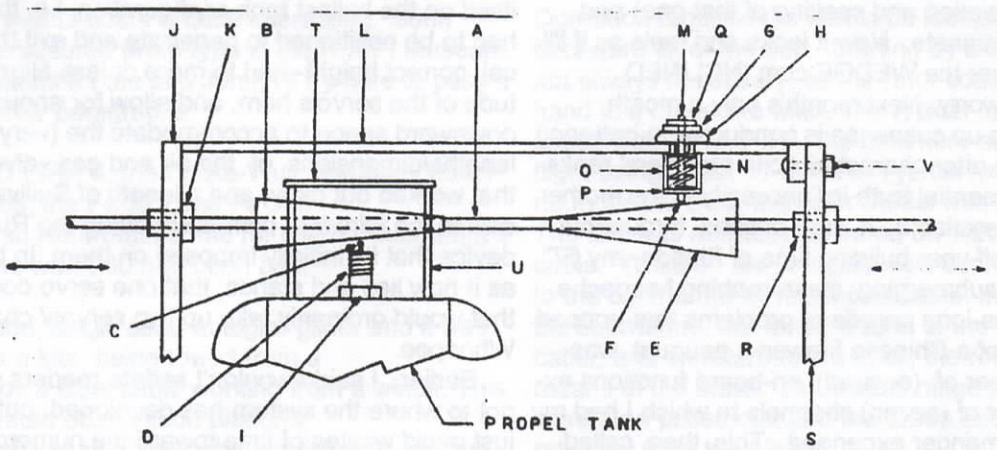
EDITORIAL

Thank you to those who have contributed material to *the Binnacle*. I am in the happy position of having a surplus, but I will use it.

I am no longer putting the entertainment beside the meeting dates as there seems to be a problem holding the schedule. If I am not informed of changes, the wrong information is out for two or three months. The schedule is also mirrored on our web pages, so people could travel for a specific event only to find it has changed. I would also like to have more club news in our newsletter, but that hasn't been forthcoming from executive or members, so I presume others are less interested.

Ron H

The Sub Subject App.



The SubCommittee REPORT (p. 67, Issue 33 (June 1998)

A. Servo-operated, 1/8" stainless-steel slave rod
B. Wedge (Lexan, Nylon, brass . .)
C. Mushroom cap-shaped Lexan "button"
D. Tire valve (about $2.14 • Coast Industrial)
E. The second wedge (make it a cone if you wish)
F. That's where the interim levered roller now goes
G. Soft rubber valve disk(diving-suit Neoprene)
H. Air valve seat, or flat spot on ballast tank body
I. Threaded tire valve body
J. Ballast tank's forward bulkhead
K. SubTech BHS-1 (lipped) seal
L. Ballast tank wall/body
M. Air valve stem
N. Air valve return spring
O. Air valve body (perforated brass tube)
P. Spring seat (soldered to "0")
Q. Solid backing for "G," soldered to 'N"
R. A second BHS-1 seal (see "K")
S. Ballast tank's stern bulkhead
T. Exhausting gas deflector (clear, 1/8" Lexan)
U. Original (now eliminated) deflector supports
V. Stern (only) bulkhead crutch, with 4-40 SS bolts & nuts and glued to "G"

BOOK REVIEW

SHIPWRECKS OF THE WESTERN HEMISPHERE -
author- Robert F. Marx

Four hundred and eighty pages of everything you need to know about underwater treasure salvage.

There are still lots of wrecks to go around, many are buried in sand and some are encased in coral. A big percentage of the wrecks are in just thirty feet of water - the Caribbean, Gulf of Mexico and Florida are the hot spots.

Before you take off, check your equipment -- a rugged work boat with ample accommodation, maybe a helicopter or balloon for aerial survey, also include magnetometers as they are very necessary. The list goes on.

Don't forget to apply for local government approval. At this point of your 'Treasure Hunt' you will have done extensive research. Spain would be a logical place to start because the Spaniards were great record keepers, but nasty fellows when they plundered Peru, Panama and Mexico.
Getting the loot home was the problem , between poor navigational aids, hurricanes and many other 'bad guys', life was not easy.

The records show that in 1697 there was a convoy of 120 ships returning to Spain with their ill gotten gold, silver, cotton, indigo, tobacco and rum. One English record shows Kingston alone had 800 ships entering port in 1756.

Not all treasure is in southern waters, we have a bountiful share too. A storm in 1753 left fifty ships sunk in Louisburg Harbour.

In 1754 a hurricane struck Cape Breton Island causing great havoc and left forty ships sunk. Of course the record area for congested ship wrecks goes to Sable Island --well. over 500 ships ended up in its treacherous sands.

'Ship Wrecks' is a fantastic book for 'armchair' adventurers. If the government would only warm the waters in Louisburg Harbour I could make a start.

Bill Birch

WIRING A LED

LEDs (Light Emitting Diodes) have been accepted as the ideal lights for models because they are cool and draw little current. But I didn't know how to wire them!

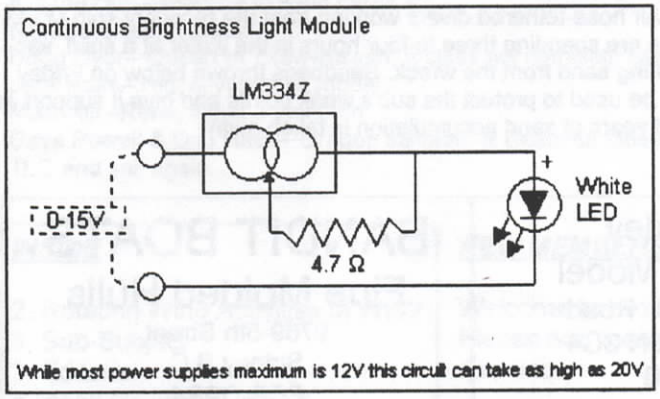
A small chip from National Semiconductors, the LM334Z , is smaller than the LED. It is a "programmable current source". The chip will allow only a certain current through it, irrespective of the voltage. "Programmable" only means that you can set the amount of current yourself. This is done with a single resistor. The unit can take voltages up to 40V, exceeding the nominal 12V of model ships by a very comfortable margin.

While the specifications for the chip state that it is only programmable to a maximum of 10mA, we will be running it at 15mA. This is quite acceptable for our use, and we will not be exceeding the units rated Power Dissipation of 400mW. The chip is wired completely inline with the LED.

One of the advantages to this design is that you do not need different components to drive different LEDs. The nature of the circuit means that it will equally well drive a 1.7V Red LED or a 3.6V White LED without any modification!

At the level we will be using the chip it will not even get warm.

Circuit Schematic

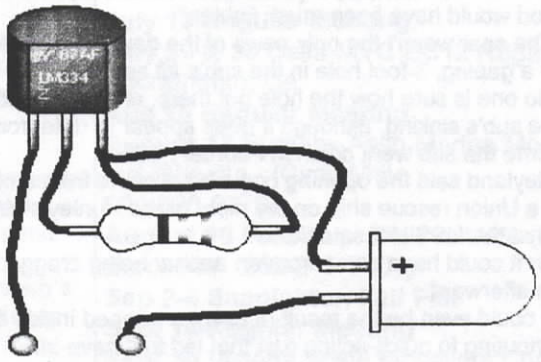


Wiring the circuit could not be easier. As there are only two components (three if you count the LED), there is no need for circuit boards. Simply solder the components together in a shape that suits your available space. Please note the orientation of the chip, as it must be wired one way only. The LED must be wired the correct way around too. Note the following points to identify the correct polarity:

- The positive lead is usually longer than the negative
- The flange around the base of the LED is usually flattened just above the negative lead.
- The negative lead usually has the internal reflector attached to it inside the LED.

The resistor is not polarized and can be wired either way around. Remember to insulate the circuit from shorting against itself or anything around it. This can be as simple as wrapping the leads (once you have soldered them together) with a small tab of scotch tape. The most important note is that if the middle pin of the chip shorts to the 3rd pin (i.e. across the resistor) then the LED will most probably burn out.

Wiring Diagram



Please note that the markings on your chip may well be different than that shown above. It should say LM334Z on it somewhere though. Make sure if you are asking for (or ordering) it by name to add the Z on the end, as the other versions are too big for most model use. The Z version is the most common and commercially available version.

While the above diagram shows wire connecting the individual part, you would not typical need wire to connect in the resistor. Just solder the leads directly together, it may benefit you to cut them shorter before you do though.

Two additional comments:

- If LEDs are wired is parallel through the same chip, then at best they will each receive half of the current. In this case around 7.5mA, which might actually be a little dim.
- If the LEDs are not the same colour, then they will not have the same voltage drop. The nature of this kind of circuit would mean the lower voltage one would take the power first. In this case the red LED would light, but the white would typically receive no power and would not light. The best solution is to use two chips (there only a couple dollars each) and drive each LED independently.

NEWS
Hunley's iron spar revealed

Saturday, May 27, 2000
By SCHUYLER KROPF
Of **The Charleston Post and Courier staff**

The Hunley's spar is still attached to the sub, making it too big for its lift kit and holding pool. The sub is about 40 feet long, the spar about 17 feet.

Divers working on the H.L. Hunley recovery project have solved one of the elusive sub's most nagging mysteries. They've found the spar - the 17-foot-long pole used to deliver its explosive payload - buried in the sediment. It's made of iron, not wood as was previously thought, and it's still attached to the sub.

The spar is also bolted on and mounted about midway up the sub's bow - not directly on top of it, as depicted on the Hunley model outside the Charleston Museum.

The design means the Hunley more resembles a swordfish than a cigar.

"It is a surprise," project manager Dr. Bob Neyland said Friday. "Wood would have been much lighter."

The spar wasn't the only news of the day: Divers also discovered a gaping, 3-foot hole in the sub's aft section.

No one is sure how the hole got there, or even if it contributed to the sub's sinking, although it does appear to date from around the time the sub went down in February 1864.

Neyland said the opening could have come from a collision with a Union rescue ship on the night of the Hunley's attack against the USS Housatonic.

Or it could have come from an anchor being dragged over it soon afterward.

It could even be the result of oxygen trapped inside the hull contributing to quick-acting rust that led to a cave-in.

"This is fascinating for the Hunley because it increases the mystery ... (of) what happened in the final hours," said state Sen. Glenn McConnell, chairman of the state Hunley Commission.

It is the second hole found on the sub. Divers years ago discovered a grapefruit-sized gap in the forward conning tower.

Working in the swirling ocean off Sullivan's Island, divers and archaeologists are vacuuming the sea bottom around the sub, preparing the site to install the sub's lift kit: A metal frame that will support the Hunley in a sling as it is craned back to the surface, sometime in July.

Despite the tough conditions, divers say they are on schedule even though they've had to grope around the murky sea bottom with their hands, "like reading Braille," Neyland said.

The spar was detected Thursday, but wasn't confirmed until Friday. The scientists involved were reluctant to immediately announce it be Neyland cause so much debris is buried in the ocean floor around the Hunley, and they wanted to make sure the metal rod was connected to the sub.

For historians, the design of the spar has been one of the more intriguing questions about the sub. Originally the Hunley was meant to attack by dragging a mine behind it.

Tethered on a long rope, the crew hoped the towed mine would explode on contact as it passed under an enemy ship.

But that method was soon abandoned as too dangerous, and the sub was modified to add the spar. No design plans survived, so most historians assumed the spar was wooden and mounted directly on top of the vessel.

Neyland said the spar is mounted directly on the front of the sub by means of a "Y" clamp that juts from the bow. There may be other supports, but it is too early to tell.

One problem the spar brings now is that the sub, with the spar in place, is too big for its lift kit and holding pool. The sub is about 40 feet long; the spar is about 17 feet long. The lift kit was built for the 40 feet of submarine, so the difference means the spar probably will have to be cut off or unbolted before the rest of the sub is lifted.

The hole will also have to be "bandaged" before the lift.

The Hunley sailed into history on Feb. 17, 1864, after it rammed a black powder charge into the Union blockade ship Housatonic. All nine men aboard the sub died when the vessel failed to return.

Air hose-tethered divers working from the recovery ship Marks Tide are spending three to four hours in the water at a spell, vacuuming sand from the wreck. Sandbags thrown below on Friday will be used to protect the sub's weak points and give it support as 136 years of sand accumulation is taken away.

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