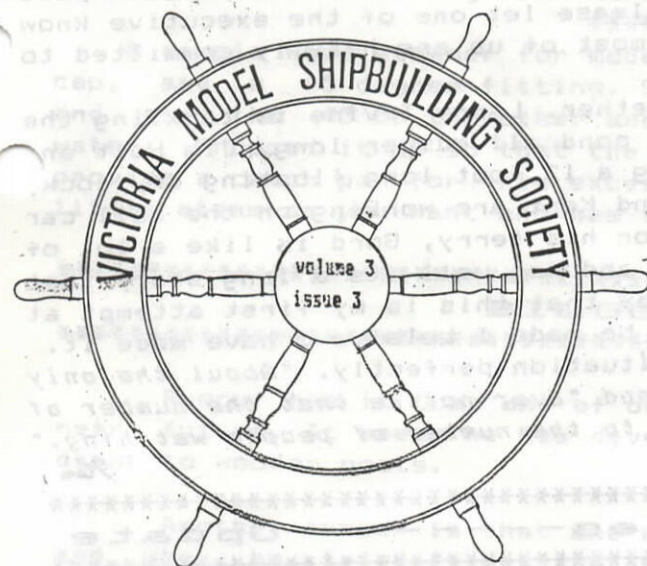


"THE BINNACLE"

MARCH 1986



VICTORIA MODEL SHIPBUILDING SOCIETY 1986 EXECUTIVE

President....Ron Armstrong
Secretary....Dick Bryant
Librarian....Fred Aaire
Director....Jim Holt
Director....Geoff Walton

Vice President....Harry Crosby
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Editor.....Ken Petersen
Director.....Gordon Fortner
Director.....Rob Woodward

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HELP NEEDED URGENTLY

by Ron Armstrong

As the EXPO operational deadline (St. Patricks Day) fast approaches, willing hands are needed to help finish some projects. It doesn't matter if you are R/C or static, a scratch or kit modeller. These projects can be undertaken now and completed at home in your own time... provided of course that the ones marked → (*) are ready by our first Sunday Show date (May 25th).

#1 "Salt Spring Queen" 1/48 (1/4 in. = 1 ft.) builder Harry Crosby

This was Harry's first plank on frame model.

Hull is sound, but vessel needs cleaning, touch up and repair above the car deck. Also needs motor and radio control installation (all components available and functioning).

Call Harry at 479-8594 (home) or 382-9042 (store).

→(*) #2 Rail Car Barge "Transfer No. 16" (1/48) BUILDER.....?

To be built from plans 'scaled up' at the march meeting by Ken Peterson from the plans in the book "Sternwheelers and Steam Tugs" by Robert Turner. Bread and butter construction recommended. To be displayed with Harry's "Moyle", C.P.R. sternwheeler.

Call Ron - 479-3928, Ken - 479-3773, or Harry - 479-8594.

→(*) #3 Rail Car Transfer Slip and Wharf (1/48) BUILDER.....?

For use by the above barge and a modern car barge being built by Kent Miller. (Something different and challenging). Will use pileings, dolphins, operator's shack and a working ramp or apron. To be based on the C.N.R. slip near Bay st. bridge. **MUST** be ready for practice operations by May 3rd.

Call Ron - 479-3928

#4 "Daughter Boat" 1/24 (1/2 in. = 1 ft.)

For use by Gordon Fortner's special purpose tug (a real challenge for "techno wizards"). For more details call Gordon

Call Gordon - 592-8245

(*) #5 B.C. Ferries Dock (1/96)

For use with Rick Chillibeck's "Queen of Victoria" Another neat 'static' model but in a smaller scale.

Call Rick - 381-4500

Editorial Comment

As editor of your newsletter, I would appreciate any and all feed-back. As things are I shall continue to publish what interests me until I am told by you to delete some item or add another. That is the only standing policy I have.

This year for some reason most of our executive are R/C modellers but we haven't forgotten static. There are two possible shows at the present time plus the hobby show. If you want to be involved please let one of the executive know about it. We could use your help, because most of us are heavily committed to our EXPO show.

Our show for EXPO is starting to come together. Larry Irvine is tackling the production of a lighthouse for display at the pond all summer long, Jim Holt and Russ Hayden are in the throes of building a 12 foot long floating dry-dock, Harry's freighter is a working marvel, Ron and Kent are working on the rail car barge, Rick is hunting for passengers for his ferry, Gord is like a lot of others putting the final touches on his ship, and me, well its a long story that I won't bore you with, suffice it to say that this is my first attempt at marine modelling and if there is a mistake to be made I believe I have made it.

Two quotes that come to mind suit the situation perfectly. *"About the only thing you can do on a shoestring is trip."* and *"Ever notice that the number of things that go wrong is directly proportional to the number of people watching."*

Ken

Radio Control Frequencies-----Update

For those of you who are into R/C control for your models the Government regulations on frequencies have been 'translated' into English and are listed below for your convenience. If you are considering the purchase of a radio they may be of help to you. Also below these we have printed the present frequencies that are in use by club members, please keep them in mind so that interference will be kept to a minimum.

Frequencies to be used for control of aircraft models

72 Mhz

01, 03, 05, 08, 11, 13, 16, 19, 21, 24, 27, 29, 32, 35, 37, 40, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 72, 76, 80, 84, 87, 89, 91, 93, 96, and 99.
eg. 72.05 or 72.32

Frequencies to be used for control of models other than aircraft

75 mhz band

75.41, .43, .45, etc. to 75.99 (odd no. frequencies only)

(These are the frequencies that we will be limited to in the future)

Frequencies presently in use for any type of model but being phased into aircraft only designation April 1st 1988;

72.16, 72.32, and 72.96 mhz

Also available

26.995, 27.045, 27.095, 27.145, and 27.295

(these frequencies are uncomfortably close to Citizen band radio frequencies and could cause problems with interference, but are listed as open to any type of model control)

Talking to Fred Haire, I find that there is already some doubling up of frequencies in the club. Here is a list of the frequencies already in use.

27 MHZ. 27.145 and 27.195

72 MHZ 72.080, 72.160, 72.240 - 2 in use, 72.400 - 2 in use, 72.550, 72.830, and 72.960

75 MHZ. 75.430, 75.510, 75.550, 75.670, 75.750, and 75.790

O.O.

B.G.

It also seems that the radio manufacturers only build 75 Mhz. radios in the form of two channel radios. So for the time being it seems that if you want a multi-channel radio you have to go to 72 Mhz.

KRP

IN DRYDOCK

Our Librarian Fred Haire has held an open door policy about phoning him and dropping out to pick up any book you may want but for a few days after March 20th it might be an idea to hold off. You see his doctor is going to put Fred in the 'drydock' for a 'minor refit'.

Fred we all wish you a quick recovery.

KRP

SHIPYARD SHORTS

For easy paint removal on a plastic model try soaking in bleach then scrubbing with a tooth brush in warm slightly soapy water (use dish washing detergent).

Another method is to paint the article with brake fluid and let sit overnight before washing with warm detergent solution and a toothbrush.

A simple wood steamer for model purposes is a length of plastic pipe, a pipe cap, and a 45 degree fitting. Slip the wood into the pipe, put the cap on one end and the 45 on the other and place the open end over an electric kettle of water. Propped it up so that the excess water drains back to the kettle end and provide a catch pan for this excess. This method allows you to use as much or as little steam as you want and has the main virtue of being inexpensive.

KRP

BILGEWATER

Rumour has it that one of our members will be applying for a patent in the near future. It seems he has developed a wood magnet, his boat is irresistably drawn to wooden posts.

Another rumour is that one of our members dropped a hull he was working on and when he tried it out the darn thing leaked. Lets hope it will be repaired for EXPO.

THE STEAM CHEST

This month instead of my writing an article on steam I am reprinting an article from *The Safety Valve*, the newsletter of the Vancouver Island Model Engineers, I hope it is of some use to those of you who want to power a model by steam.

By Cliff BLACKSTAFFE.

(Reprinted from March 1977 "SAFETY VALVE")

In presenting this design, I want to give food for thought. When one thinks of a Radio Control, steam-propelled model boat, the almost universal approach is a Stuart-Turner Double engine, and a Centre-flue, blow-lamp fired boiler. What most model locomotive men know, yet very few steamboaters realize is that the Stuart-Turner engines get very little of the potential power they should have into the propeller. Firstly, the passageways for steam in the S.T. double ten are undersized. Adding to this is the plug-fit pistons, (no rings) which are often far from snug enough to be steam tight, so steam gets into the exhaust without doing any useful work, further blocking the restricted passageways. Also the Radio-Controlled valves used as throttles, are so small that very little boiler pressure actually reaches the line valve chests. Hence we see ridiculously small propellers used on these potentially very powerful engines.

So when as here, I suggest an oscillating engine in the form of a 90 degree "V" twin with cylinders only 1/2" x 7/8" as being suitable for hulls up to 4 feet in length; don't mentally compare it with a twin cylinder 3/4" x 3/4" slide valve engine. If you were to fit locomotive efficient cylinders of 3/4" x 3/4" with adequate steam supply, you'd never get a propeller under the boat to absorb the power produced.

Your next reaction will be...but oscillating engines don't have any power either...Correct! .. but remember you are comparing an oscillating toy engine with small round holes for ports to a slide valve engine with somewhat larger ports, even though inadequate.

Now consider what happens when two overlapping round holes start to open. At first there is one small crescent opening to another small crescent opening, with opposing curves, so even when half travel is reached there's still a lot of restriction....hence the Keystone shaped ports shown on this engine.

Now in case you say, "That's only theory," I might say that many years ago, I built a pot-boilered "O" Gauge 0-4-0 with two double-acting oscillating cylinders, of 3/8" x 5/8" with keystone shaped ports. It pulled a lump of lead on a double-bogie tinsplate car, about the limit of weight the car could stand. Now, the track was on the floor, and standing up, you could hear the distinct exhaust beats. I venture to suggest that these cylinders were developing a bit more power than the average toy-store type of oscillating engine ever thought of.

With this background, let's look at this engine further. In case you didn't know it, there were Vee-engines, (oscillating) of this type used in small harbour lighters in Scotland, as well as on the fastest Irish Mail Steamers, for paddle wheels. ... And of all things, in early 1900 there were two attempts at steam automobiles with 90° V-Oscillators. One, the Detre was really a conversion kit for the horse-buggy.

Having said enough, I hope, to cause the doubters to have second thoughts, let's look at the engine itself. Oh! it doesn't look like a marine engine? Well if it's in an open boat..no. But most Radio-Controlled boats are cabin jobs, and you can't see the engine at all. It is probably the most sure, self-starting and reversing engine of all types. You'll notice it has a guide bar. This is desirable as it stops piston wear, and reduces friction, as it has considerable leverage to swing the cylinder easily. A word on how I get that guide on true. The cylinders are but sleeves, bored and reamed to 1/2" and left with not less than 3/32" wall thickness. Before parting off, lay a round nose tool on its side in the tool-holder, and by rocking the carriage to and fro, plane a groove down one side. The guide is laid in this groove, which lines it up perfectly for soldering. To save having wide flanges on each end of the cylinder, and lots of little screws to drill and tap to hold the cylinder heads on, the heads are ground-jointed and clamped on both ends by a single screw. This amounts to a C clamp whose foot is a ring around the gland, and whose screw enters a dimple in the top of the cylinder head. This worked fine on the "0" gauge locomotive.

Now, I've seen designs on paper, where the two cylinder port faces are on the same plane. This requires one rod end to be forked. Very nice on paper, but tough to build. Now for the cylinder port faces to remain in steam tight contact, there must be freedom in the crank bearings to find their own place. The bush that slides on the guide is soldered onto the crank end, after all is assembled, so it lines up automatically. Use a soldering iron, rather than an open flame for this type of work.

There is a 1/16" plate for a port face soldered onto the frame plate and a 3/16" plate on the back to get enough thickness to drill down to join top and bottom ports each side of the pivot pin hole. If you don't mind the work, these top and bottom ports could be joined by slotting the frame plate each side. When port and backing plates are tinned and sweated on you have nice passageways with lots of area. On the cylinder that "stands out" use a 3/8" thick port face, and only a 1/16" backing plate. Strive for good port area.

Now to form the keystone shaped ports. The angle of the wedge shape is two lines that converge at the pivot pin centre. The result is that the port opens over it's whole length at the same moment and you get a sudden release of steam. While all the events are later occurring than in a slide valve engine, the ports are short and direct, which helps to offset the deficiency in timing. To produce these port shapes, we need a punch which is made as follows. A scrap of metal is drilled edgewise with 1/2" and 1/4" on centres equal to pin and port distance. The 1/4" punch has a little round centre turned on it to just enter one (the centre of three holes which will be a passage to the cylinder). Solder it into the block so it can't turn. Put a bit of 1/8" round in the other hole, jamming it so that it won't turn. Now, file one side of the 1/4" and the 1/8" pin, till you just touch the pilot on the 1/4" pin and are halfway through the 1/8" pin. Turn over and with a new 1/8" pin in place, do the same to the other half. This obviously is a true angle to the wedge being zero at the pivot centre. Now screw a short bit of 1/8" into the cylinder pivot hole. Slide the cylinder onto a bit of 1/2" Cold Rolled steel, about an inch or more longer than the cylinder. Let the ends rest across the open vice-jaws with the cylinder between. Place punch in place, and drive it into the port face metal, about 1/32 or 3/64" deep. Do the same with the pivot hole pin in the frame port faces. Open out with needle files if you can; but don't damage the faces!!

The reversing valve doubles as a throttle. Here round holes will do, as we want a bit of a gradual opening. Arrange it with a bit of steam lap so the exhaust has always a fair opening before the steam opens. A fine niche may help sensitivity.

No I've sketched it with 3/16" o.d. pipes to join it by flanges to the engine. These are the very minimum and if you can get 1/2" pipes bent into the space, by all means do so, as free breathing is important to high power output. I've shown the base plate up so close to the shaft that the guides project below it. This may be desirable, to get low, hence a level propeller shaft. Don't copy the blunders made by our modern power boats (full-size) with their so called "Modern Vee Drives", as nothing is more inefficient. This engine should turn a 4" propeller, with a pitch of 4 or more inches.

Maybe I should say a word on the frame construction. You could very well silver-solder the frame and base together. Best drill, and drive in bits of 1/16" rod to hold things together while silver soldering. Then clean up and soft solder the port, and back plates to the frame. The cylinder barrel can be soft-soldered onto its scalloped-out port face. Chances are you won't run up to 50 psi on this engine, and soft solder holds up to 75 pounds, as long as no superheat is used. By soft soldering, you won't warp the cylinder barrel. Lightly clamp the cylinder to its port face so it won't move when you solder the guide in its groove.

This engine has no need of a flywheel whatsoever. I lined up one engine quite nicely by screwing it to its bearers, then setting them in plastic wood, allowing the shaft to hold it until set. This gave it "big-ship" alignment.

MARINE BOILER

By Cliff BLACKSTAFFE.

This is not the ultimate in Marine Boilers, by any means, but with 80 sq.ins. of very effective heating surface, I believe it will do the necessary job. This type of boiler could never be made to sit low, in the past, for it required height for the flames, and lots of ventilation, especially in the earlier days of alcohol firing. However all this has changed with the coming of propane firing.

Now, as you can see, there is no provision for secondary air which is normally assumed to be necessary. My only reason for presuming it can be done without, is that this burner is essentially the same as the Stanley Steam Automobile burner, which worked under sealed conditions, and actually pressurized the firebox a very little. The Stanley Steamer Burner, wouldn't operate when off the boiler, as it would draw in too much air and blow itself out!! I'm suggesting a No 80 jet for the propane, but it may have to be made smaller if more air is required for complete combustion. It may also be advantageous to bring the propane supply pipe through the boiler casing from the other end, which would act as a vaporizer and then set the propane container upside down so it supplies liquid propane. This stops the refrigeration of the fuel, and resultant drop in pressure as the fuel is consumed.

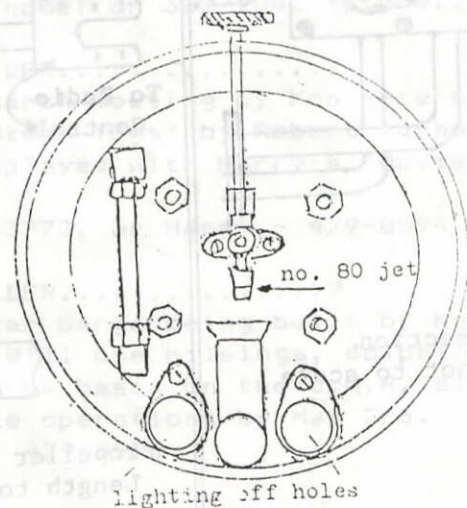
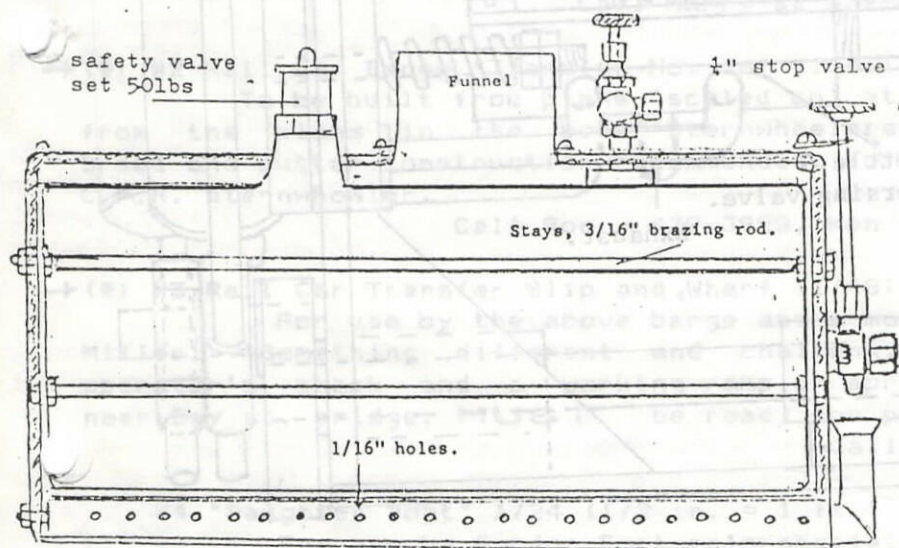
The circular casing is easiest to make, being just sheet iron, wrapped around and held by a band at each end. This casing is lined with 1/8" asbestos sheet. It conforms to the heating surface, and prevents dead spaces where the heat can find its way around and up the stack without getting near the heating surfaces. You can increase the heating surface by about 54 sq.in. by drilling the lower half of the shell on 1/2" centres each way, and inserting 3/16" x 1/2" copper rivets and brazing them in on the inside. These will extend as 216 quills and catch the heat passing.

The shell is 1/32" thick. This gives a 5 to 1 safety factor for 50 lbs pressure. We want it as thin as possible to get a good heat transfer, plus reduce weight. You won't be able to get a piece of copper tube that thin, so roll one up from a sheet, and use a lock seam brazed with "silfos". Make the shell first, then turn a wood former to twice the end plate thickness, less than shell diameter to flange over the shell end plates. The four stay-rods are from 3/16" Tobin-bronze brazing rods. Set them in one end with double nuts, and note that the top ones are longer to come through the casing end, and nutted again outside. This supports the boiler. Now set the inner nuts for the other end, so that the end plate sits on them, and the flanges enter the shell end. Put the first end in the shell, then enter the other end onto the stays and nut up. You can now braze the whole together. Have the safety-valve or any hole drilled for a vent while brazing, or you will have troubles.

I've shown a water-gauge more as a convenience, as you can never see them when in the boat, even an open boat once away from the dock. This boiler has a large water capacity, so no feed pump is needed, unless a very long run is contemplated. In a Radio Controlled boat, there will be lots of manoeuvring, so the large mass of water helps keep a steady steam pressure within reason, without the need for automatic fire controls. Of course, if the engine is left stopped for a long time, the safety valve will blow off, and waste fuel; but if simplicity is wanted one has to make some sacrifice to get it.

Likewise, a steam gauge isn't too useful except when at the dock. One large tug I saw had the inner stack considerably smaller than the outer one, leaving space on the forward side for a steam gauge facing upwards, but quite invisible from the side view. However this tug was "glass-case" finished. The engine had steam reverse, (under radio control) the boiler had automatic pressure control and automatic feed control, and just in case the feed pump should fail, a third automatic control released a trip and lowered a flag on the after mast!!

The boiler in this article could be soft-soldered, except you would have to re-solder it again if you ever ran out of water. I guess the real "bug" of all steamboaters is getting the propeller fouled by weed, so the boat can't get back to its master. If no skiff is around, then the boiler boils itself dry through the safety valve, and you must feel helpless.



(THIS DRAWING IS APPROXIMATELY 1/2 SIZE)

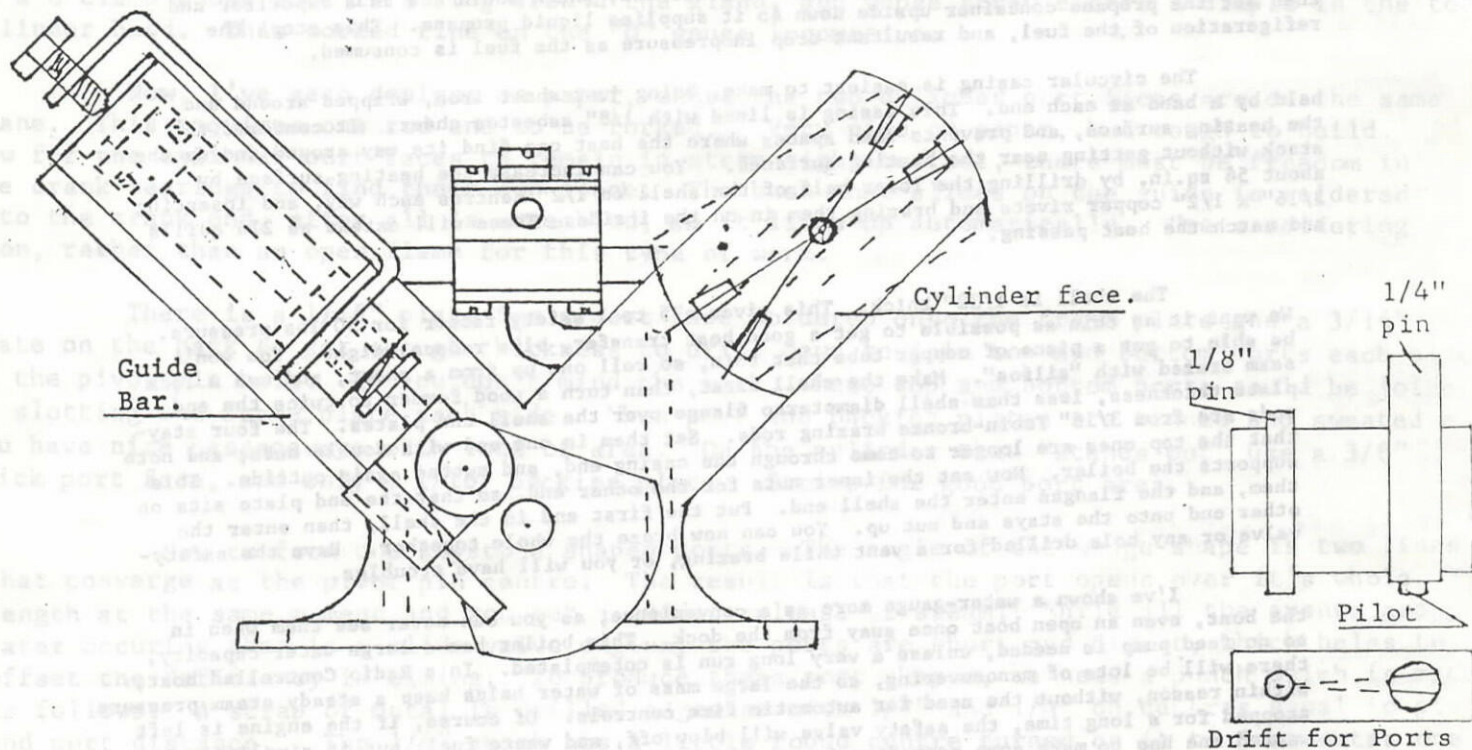
LATE BOARDINGS ALMOST DIDN'T MAKE THE BOAT

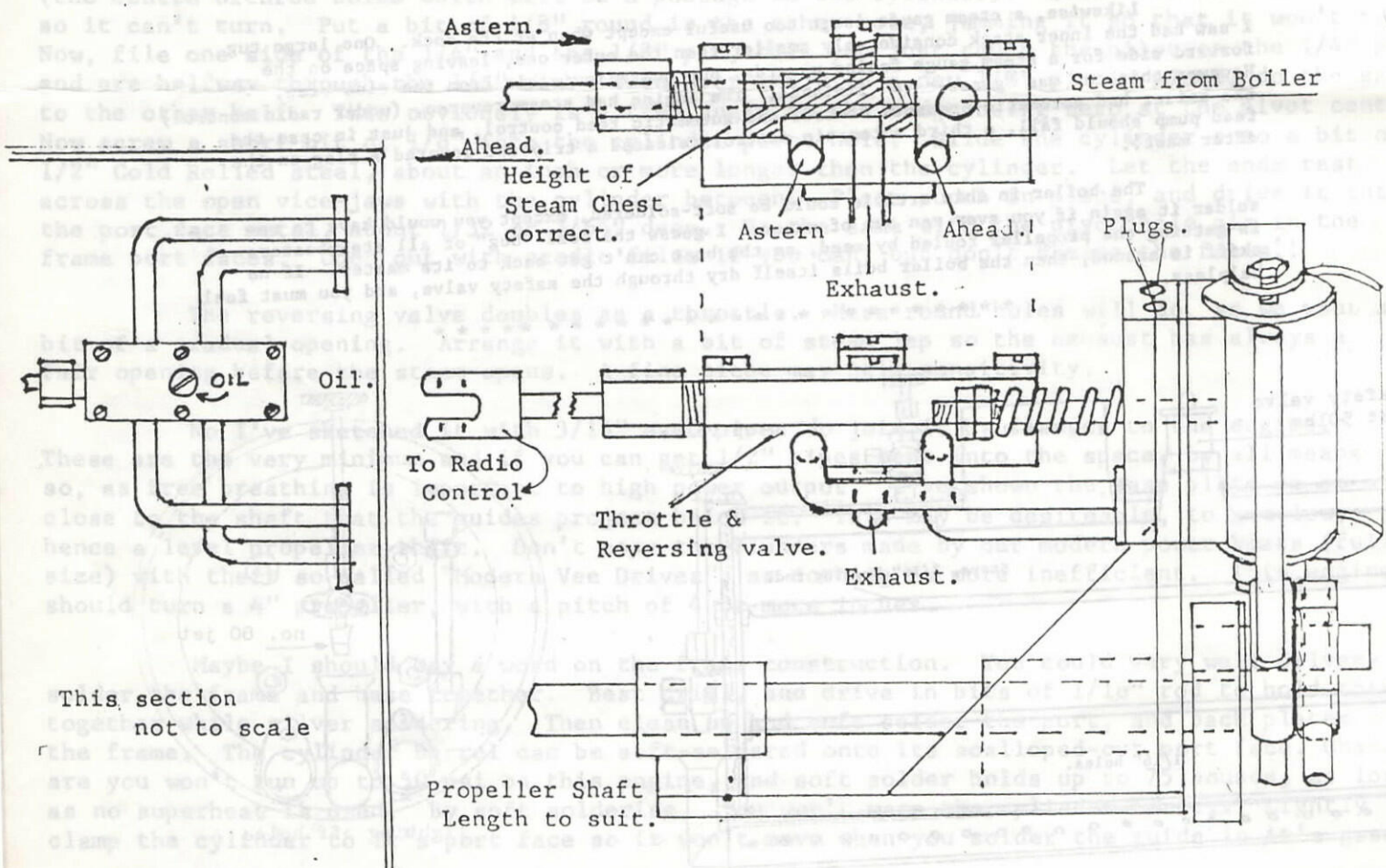
M.V.I.M.M. show at Nanaimo; Bill Barker won Modellers choice and Presidents choice with his ship *Leow*. Former member Darius Djafar-Zade won 1st, 2nd and 3rd place in period ships. Harry Crosby and Russ Hayden placed in the also rans for their work boats. All in all, a good show for Victoria modellers. Congratulations fellas.

KRP

90° Twin "V" OSCILLATING ENGINE.

1/2" bore....7/8" stroke.





This section
not to scale

REDRAWN By - K.R.P.