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Published by **MyTimeMedia Ltd.**,
Suite 25, Eden House, Enterprise Way,
Edenbridge, Kent, TN8 6HF.
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Tel: +44 (0) 1689 869 840
www.modelboats.co.uk

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Northampton, NN4 7BF.

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CURRENT AND BACK ISSUES

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Model Boats, ISSN 0140-2910, is published monthly with an additional issue in January by MYTIMEMEDIA Ltd, Enterprise House, Enterprise Way, Edenbridge, Kent, TN8 6HF, UK. The US annual subscription price is approximately 53.40GBP (equivalent to approximately 89USD). Airfreight and mailing in the USA by agent named Air Business Ltd, c/o Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Periodicals postage paid at Jamaica NY 11431. US Postmaster: Send address changes to Model Boats, Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Subscription records are maintained at dsb.net Ltd, 3 Queensbridge, The Lakes, Northampton, NN4 7BF.



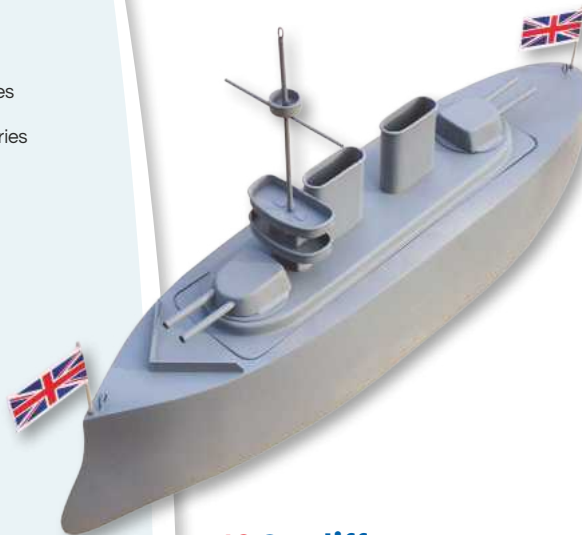
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ters by Dave Wooley



You know when you get that feeling that you've been in a job for a lot longer than you actually have, well that feeling is already with me and I'm not suggesting, in any terms, that is a negative thing. Since speaking to you last, I have been too two model boat shows and popped in for a coffee and a 'quick' 'chin-wag' at Deans Marine. The first show was the most enjoyable Model Mayhem at Wicksteed Park at the end of May and the following Sunday I headed north and found myself in Doncaster at the CADMA show, which I hasten to add was just as enjoyable. In the space of a few days I was already meeting familiar faces and by the second event, many more gaps were filled in when I met contributors and a number of people from the trade behind the adverts as well. By the time I had got to Ron's, I actually started to feel I was getting the hang of Model Boats only to discover after a 'quick' five hours that I knew very little at all! Conversation, enthusiasm and ideas were flowing and without the aid of a notebook, I have taken on board the bulk of what was said during all of my visits, the majority of it positive. Now to go and found a new wave of contributor's to produce all those wonderful ideas; now that's the real challenge!

Even during these early days of my tour of duty I am quickly realising that Model Boats covers a multitude of subjects and a wide range of disciplines, a number of which remain a mystery to the novice modeller. It will be going over new ground to the established, but if we are going to keep this hobby going, we really need to get more people involved and if the mag is picked up by a novice and a 'golden nugget' article is read, you will have a reader for life, another member for your club and even a new customer in your shop. I have focussed on getting the young involved in modelling-based hobbies for quite some time now, but it has been suggested that our core market here could be the semi-retired or newly retired who are hankering for a new hobby or a fresh challenge in life while the younger modeller will have the inevitable distraction of decades at the coal face ahead of him/her and maybe, even that time consuming (although it flashes by pretty quick!) period of your life when a family comes along; there are, of course, exceptions to every rule though!

In the meantime I shall try and visit as many shows, clubs and manufacturers over the coming months, so you've got a face to the name and if the past few weeks are anything to go by, I'm really looking forward to meeting you all!

Martyn Chorlton



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Editorial Contact: You can reach the Editor, Martyn Chorlton, via e-mail to editor@modelboats.co.uk. The editorial postal address is Martyn Chorlton, Model Boats, MyTimeMedia Ltd, Suite 25, Eden House, Enterprise Way, Edenbridge, Kent, TN8 6HF. Tel. 01689 869840. Use it or lose it!

2018 UK SAWS

For those that don't know, this is the MPBA's speed records days which count as UK records. The boats in various classes are timed over a straight 110yd course in both directions. The average time for the two runs is then calculated in MPH. The 'SAWS' part? Well this is American usage which has crept in and stands for Straightaways!

The event was held at Larkfield Tarn near Leeds which is the Rawdon MBC lake. This is our first time at this venue and it is an excellent facility. The club has a large workshop/storage facility, an excellent kitchen and a very nice meeting/lounge area. Now this is just going to be a brief report on the event as, A), I am running out of space here and B), the weather was not kind to us and there was not as much action - which is not what you want to set records. In fact, we lost two boats to the bottom of the lake because of it. The wind was blowing straight up the lake which meant that you had a tail wind in one direction and of course a head wind coming back the other way. You would think that a tail wind would help the boats go faster, but in actual fact it has the effect of pushing the boats deeper



ABOVE LEFT: father and son team Christopher and James Hobbs with their record setting single Lipo cell powered boats. ABOVE RIGHT: Keith Mallam with the Wilkinson Sword trophy for the second year running.



especially given the water conditions. His father Christopher set a new record for single cell surface drive mono of 21.47mph which again was impressive, especially as he was using a mono1 hull. Rob Physick set a brand new record in L6 sports scale mono of 48.21mph. Well done Rob for keeping it on the water! Last but no means least, was Keith Mallam (the MPBA FES records officer) in the L20 tunnel class with his very impressive run of 81.75mph with a twin motored Zonda Cat. This broke the record he set last year with the same boat by over 10mph and won him the Wilkinson Sword Trophy (again) for the fastest time of the day. He also managed to break the previous record in the L6 surface drive mono class with a 58.06mph run. As for me, I ran two out of the three boats I took, but couldn't get them to go well in the conditions.

Ian Williams

into the water and slowing them down. Whilst coming back the wind tended to get under the boats and flip them over.

It was a shame really as there were 22 entries and quite a few boats failed to complete a run, or weren't even put in the water because of the adverse conditions. However we did manage to set two brand new records and break two existing ones.

Father and son team Christopher and James Hobbs had a good day, going home with two records. Young James had set a new record for the

one cell submerged drive mono class last year. Due to problems with the ESC it was only just over 4mph. This year he lifted that to 15.18mph. A great achievement;

Competition Winner!

I am pleased to announce that the winner of our competition for a Dumas LIGHTNING SAIL BOAT, kindly supplied by J Perkins (www.jperkins.com), is Paul Thomason of Cheshire. Please keep an eye on our website and Facebook page for details of the next competition.



RAF Boat on the move

As part of the RAF centenary transformation programme at the RAF Museum, Hendon, both RAF launches 2757 and 1374 were relocated a few yards from their original positions. Built by Vosper Ltd at Portsmouth, RTTL 2757 was delivered to RAF Alniss in January 1958 and served until 1977 before being allocated to the RAF Museum.

Kirklees Model Boat Club Steam Convention 2018

When one of our annual events comes around I cannot but help wonder just how fast the passage of time can get. Not only was the Kirklees Model Boat Club Annual Steam and Mount Fleet Models Convention held on April 22, 2018, almost to the day a year since the last one, but this marked the eighth time this event has been held.

As the day starts promptly with the early risers all getting stuck into unloading and setting up the contents of the club container, the ladies start to assemble the display in the tea tent and get the water boiled for the first cup of tea of the day. For the Steam Day, despite being a club affiliated to the Southern Federation of Model Engineering Societies we also take note of the Model Power Boat Association rules and put together an enclosure for

the testing of steam models, and this year, for the first time as we look for ways in which we can possibly diversify our areas of interest, an additional enclosure was created for the use of attending model military vehicles. Club members bring along their offerings for the tea tent and I go and place my reservation on two pieces of the best coffee cake you will ever taste, boats are all laid out on the tables, the steam testing rig and table are set up and we get ready to welcome the first visitors.

Steam model testing got off to a brisk start with a steady stream of models lining up for their annual test. Again this year some new models appeared, which is always good to see, with some really innovative ideas being incorporated into some of the builds.

Pendle Steam Boilers attended giving proprietor Nigel Trafford-Jones the opportunity to discuss his wares, including his superb new Kingdon Boiler. This year Mount Fleet Models took the opportunity to put their new model, a 1950s Rix tanker, through its paces on the water as it spent most of the day sailing around the pond.

Apart from the vendors we also had representations from the following model boat clubs:

St Helens, Southport, Runcorn, Bridlington Model Boat Clubs and Tyneside Society of Model and Experimental Engineers plus the very welcome volunteers from the RNLI.

As the day progressed the tally of steam tests slowly rose until, at around 14.00hrs as many steam models as we could muster were put onto the water at the same time for a parade of steam.

The model military vehicle area attracted some interest so, armed with some ideas on how to improve the layout, this will be tried again at the Kirklees Model Boat Summer Open Day on July 8, 2018.

After the parade, the judges passed on their recommendation for this year's 'Steam Queen Award', which this year went to Mark Croucher from the Tyneside Society of Model and Experimental Engineers for his absolutely beautiful open Victorian steam launch.

So at the end of another long day everything is packed away again ready for the next event and everything is cleaned up, totalled up and tidied up. I am particularly looking forward to seeing some of the newer models that are in the pipeline from Pendle and Miniature Steam and to the first steam plant to be put into the new Mount Fleet Rix tanker model.

Details of Kirklees Model Boat Club can be obtained from their website at www.kirkleesmodelboatclub.org.uk.
Richard Simpson

DIARY DATES 2018

Saturday 7th July

Tug Towing – Round 4 & Free Sailing and Competition at the Mid Thames Model Boat Club. Visit <https://www.mtmbc.club/> for further details.

Sunday 8th July

Kirklees Model Boat Club Summer Open Day, Wilton Park, Batley, WF17 8JH. Visit the club website for more details at <http://kirkleesmodelboatclub.weebly.com> or e-mail Stan at kmbs2015info@gmail.com

Saturday/Sunday 14/15th July

Cheshire Steam Fair at Daresbury, Warrington, Cheshire, WA4 4AG. The many attractions include a model boat display and pool. Visit <https://outdoorshows.co.uk/cheshire-steam-fair/> for more details.

Saturday/Sunday 14/15th July

The Eastbourne & District Model Yacht Club is hosting the Met & Southern MYA A Class

Nationals & PRACC6 event on the 14th-15th July. Please get your entries in as soon as possible for the organising Club. Venue – Princes Park, Eastbourne from 0830 to 1700hrs. Web: <https://edmyc.org.uk/event/ra-mya-national-championship-2/>.

Sunday 15th July

Chantry Model Boat Club Open Day complete with a free summer buffet. This is a great family day out so please come along and bring as many relatives and friends as you can as well as many models to sail or display as you can get in your car or on the bus! As usual our ladies will be prevailed upon to serve you with food and beverages. There will also be our usual club raffle there being among the prizes a year's free subscription to CMBC. All proceeds will be going to charity. For further details e-mail: info.chantrymbc@gmail.com.

Sunday 22nd July

Stevenage MBC is holding a RNLI Day from 10am till 4pm to raise money for our local RNLI Branch at Fairlands valley Park Six Hills Way, Stevenage SG2 0BL. There will be a RNLI souvenir stall, some 'have a go boats'

for the young and not so young. Come along bring the family you never know you might enjoy yourself. Contact Jeff on 07806281236 or email stevenagembc@gmail.com.

Sunday 29th July

The Vintage Model Yacht Group will be hosting the Gosport National Championships at Cleethorpes on Sunday July 29. Visit www.vmyg.org.uk for more details.

Sunday 5th August

The Heron Model Boat Club present's 'Boats On the Mote – With Cygnets'. This is the Cygnets Club annual regatta at Mote Park, Mote Avenue, Maidstone, ME15 7RN. Visit www.heronmodelboatclub.org.uk.

Sunday 12th August

Gipping Valley Model Boat Club Open Day. Static and floating displays; guests from other clubs; 'have-a-go' boats, raffle, cake stall and wacky boats. Come and join in with the GVMBC at Needham Lake off the B1078, Needham Market, Suffolk. Contact Neil Hodson on 10449 720565. Web: <http://www.gippingvalleymodelboat.club>.

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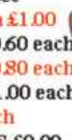
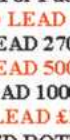
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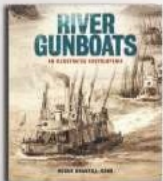
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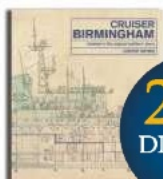
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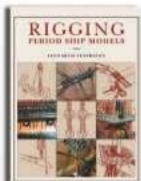
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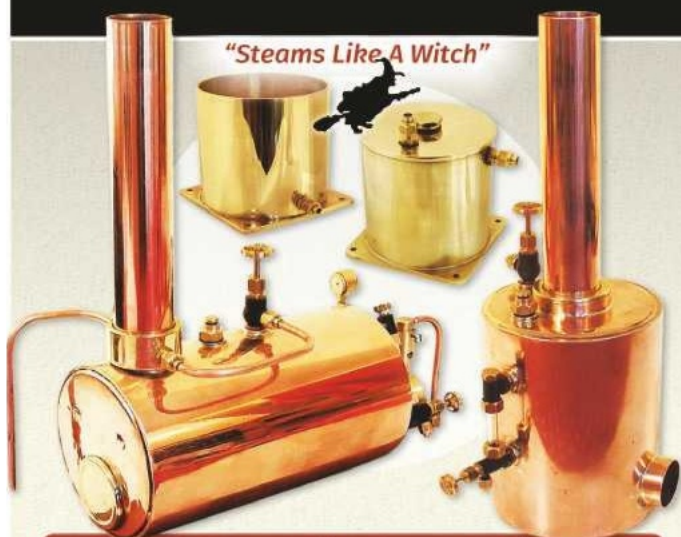
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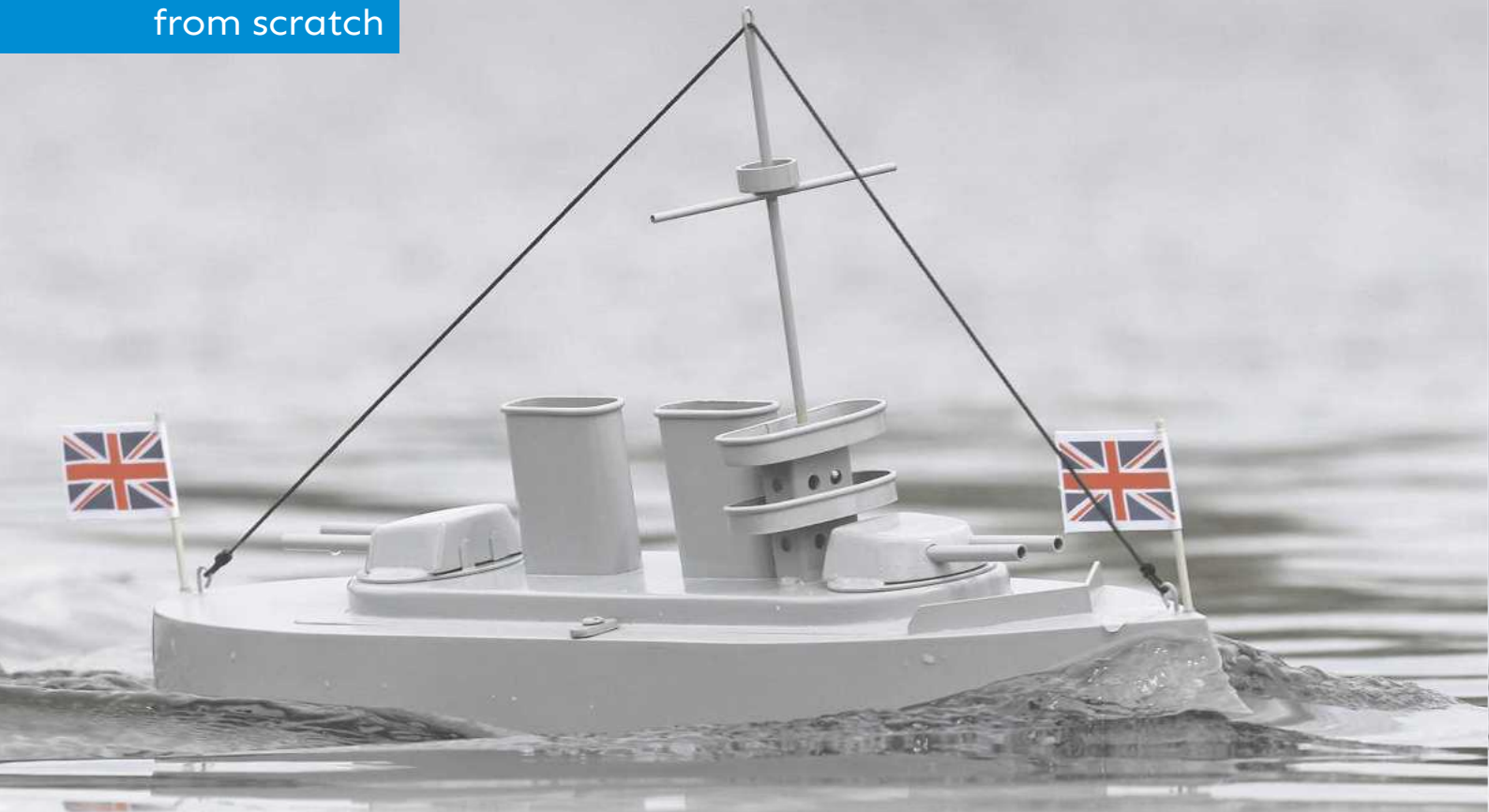
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Sutcliffe 'Valiant'

Tin plate Dreadnought by **Ashley Needham**

*All images of the Valiant on the water
by Graham Ashby.*



*A fine example of Sutcliffe Models 'Valiant'
tinplate clockwork Battleship, the inspiration
for the author's project. Image courtesy of
Vectis Auctions Ltd.*

Sutcliffe Pressings Ltd was a metal fabrication company specialising in the manufacture of pressed steel items. They were founded around 1885 and branched out to begin producing tin plate boats in the 1920's, starting with a battleship which would become the Valiant, before moving on to different designs of craft, speedboats, cabin cruisers and the like.

Their Valiant battleship has always fascinated me; it is the very essence of a Dreadnought. Chunky, purposeful, wicked ram bow, top dominated by 'the necessary' - turrets,

funnels and bridge and finished in the classic battleship grey, as let's face it, any boat on the pond coloured grey is a battleship. As toys go, this particular model is very collectable and expensive. I must say that sadly I do not own one and I have never seen a battered rusty one for sale. They were made initially as 'pop-pop' powered models, and for those of you who have not heard of this system before, it consists of a small burner to heat a coil of thin metal tube containing water, the outlets of which are under water at the stern. The water in the pipes turns

to steam and shoots out of the pipes causing a forward thrust and the resulting vacuum in the coil sucks in more water and so the cycle continues. It makes a rapid 'pop-pop-pop' noise in operation, hence the name. After only a few years they swapped to clockwork propulsion and the majority of Sutcliffe boats you see will be of this type. Almost at the end of production a very few battleships were made using an electric motor, but the numbers were very small. I wondered, if I could not justify the expense of an original model, perhaps I should make my own?

Battleship

Project aims

To make a Valiant lookalike, but just a bit bigger! Of course it has to be radio-controlled and as the originals were a bit small (they came in 10 or 12in sizes, 250-300mm) I thought that a two foot long (600mm) boat would be a nice size. I could fit the R/C gear in easily and it would be big enough to handle a few waves on the pond. Not too big, and more to the point, not so big that it would lose some of the toy qualities the original possesses.

Design aspects

Let me just say now, I will not be building this from tin plate! The original hulls were constructed from two pressings soldered together via a seam underneath, but later on, a method of producing the hull as a one piece pressing was introduced.

One feature of the boats to consider when converting to R/C is the placement of the rudder, which on the clockwork powered boats is on a wire support right at the stern and this would be difficult to replicate, as a working rudder would need additional control levers and cables which would look out of place. However, the original 'pop-pop' version had a rudder somewhat inboard of the stern and would allow a servo, tiller and connecting wires to be wholly within the hull out of sight. Taking this further, a 'pop-pop' version would do away with the propeller as well; probably an even more difficult proposition - but is it?

There were a number of very attractive colours to choose from (if you like grey that is) with either a red or black underside, however

they did produce, for just a few years around 1928, a cream or dark cream top and green bottom colour scheme.

Hull construction

Having a fair amount of soft foam and epoxy resin/fibreglass cloth left over from another build, I decided to build a fibreglass hull. Blocks to the volume of the hull were assembled and glued together using Gorilla glue, but the large centre section was wrapped in Clingfilm so it would not stick to the other bits and once the fibre glassing has been done, this will lift out, saving me a lot of hard work scraping out the middle of the foam to create the necessary space inside the hull. Top and side profiles were drawn on using a paper template and indelible marker and these were cut out on a bandsaw. Shaping the hull was done by eye, using knives and sandpaper and is as symmetrical as makes little difference. A little trick ensured the centreline was visible: The entire block was cut lengthways in half and then glued back together so that I would be able to see the centre line whilst carving and this was most important especially at the bow, where the ram section protrudes. Once a good shape had been obtained, a block of foam was glued on top so I could grip this in the



work-bench and hold the hull upside down clear of the surface, then the hull was painted with slow-cure epoxy resin and two layers of fine 100gsm (grams per square metre) woven glass cloth was applied. As I planned to leave most of the foam in situ, no release agent was used and the fibreglass could be a little thinner than would normally be considered wise, as it will have a permanent backing. After properly curing, the temporary blocks were cut off and the excess fibreglass over the deck was trimmed using a rotary cutter then sanded flat using a Permagrit sanding block. At the bow the excess fibreglass was trimmed and sanded to shape with wet 'n' dry paper. Marine filler was scraped over the hull with a broad filling knife followed by a modest amount of wet 'n' dry sanding and re-filling. With the mariner filler and then modelling filler (the stuff in a tube) took place in order to get a smooth hull outer. In the centre of the hull the foam block, previously cling filmed, lifted out easily leaving me with a nice free centre section. **(Photo 1, 2 & 3)**

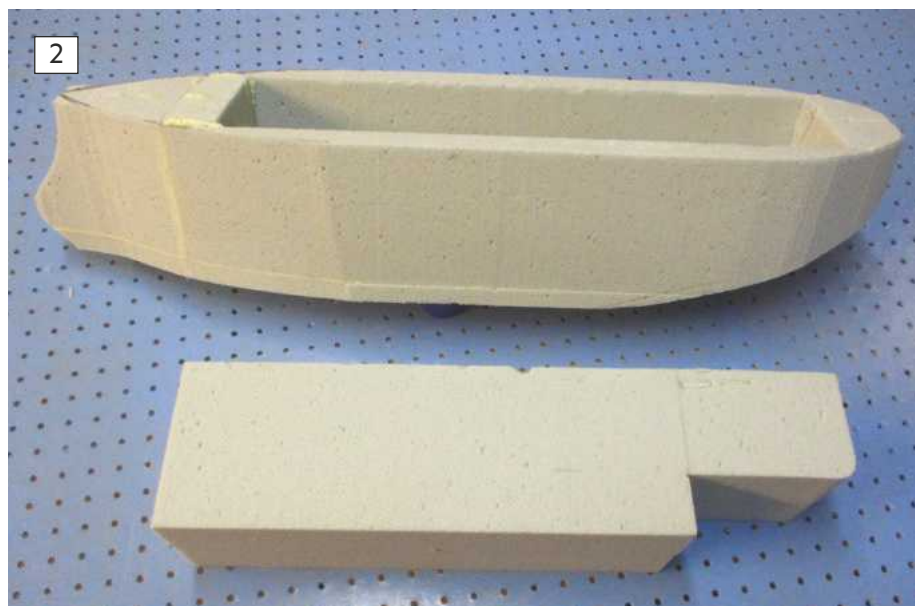
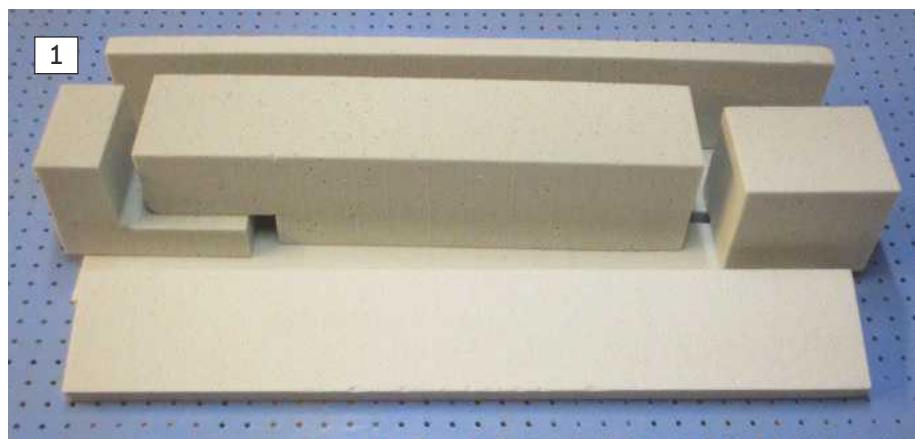
Propulsion

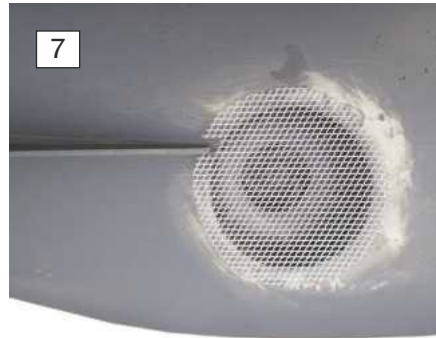
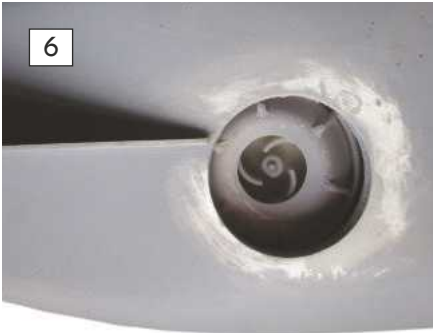
I perhaps stretched a point when I intimated that I was going to build the 'pop-pop' version, of course I meant 'pop-pop'-style and not actually steam powered! I have nothing against these steam-jet power plants, but in no way would a 'pop-pop' engine be powerful enough to propel a vessel this size and weight. As the 'pop-pop' boats do not have a propeller, I have chosen to use a pump system, using a small commercial yacht bilge pump. These can be obtained very cheaply, run on a model boat friendly 12v and can be made to fit into a 24in Valiant, as the units are 100mm tall and my hull is 115mm deep; now there's a coincidence, eh! These pumps suck water in at the base and push it out via an offset nozzle. For this application the aperture for water entry will be unseen as it will be in the keel of the hull. There will be no reverse, just like the real thing and this mainly has

to do with the fact that water gets sucked in underneath and blown out the side of the pump even with the motor running in reverse! This presents no problem as the boat is fitted with a nice ram bow. **(Photo 4)**

Equipment in the hull

This mainly concerns the mounting of the pump and was effected by adding a foam block to bring the pump outlet centre up to the correct height. This had a large hole cut in it using a 50mm hole saw before insertion and the pump sits in this collar, minus its blue clip-on filter. The pump actually sits on the now redundant filter tangs and was sealed in place with silicone sealant, while the foam and interior having been painted with epoxy resin beforehand to give it additional stiffness.





Underneath the hull, a 25mm hole had been bored and covered in aluminium mesh as a filter to stop weed, tadpoles and small fish being ingested. This has been applied externally so as to be easy to repair, the aluminium being very soft. To let the water exit from the pump I needed to provide two 'steam' pipes at the rear and the larger the better for efficiency as the pump outlet is about 27mm in diameter (**Photo 5 & 6**). As the aim of the project was to make this boat a lookalike, there is a limit to exactly how large the exit pipes can be made before they look ridiculously large and I determined that about 10mm was just as big as I could get away with and stay within the 'lookalike' model brief. A 'Y' joint was constructed using a copper pipe fitting and 10mm thin-wall brass tubing soldered together and connected to the pump via a length of silicone tubing. Two holes were bored through the rear of the hull to poke the tubes through and the assembly was held in place with

filler (**Photo 7, 8, 9 & 10**). After some making good around this area, the pipes were cut to length, as they had been left untrimmed when fitting, in order to get them straight and level, the extra length helping when lining up the outlets. Rudder operation via a servo was easy to install and consists simply of a drilled hole, a bit of brass tube to fit a 5mm brass rudder shaft (fits between the outlet pipes) glued into this hole using filler and a mounting for the servo the other side of the water pump (**Photo 11**). I am sorry it looks a bit messy inside at the stern, but there is just no way to apply filler neatly, especially whilst trying to poke it under and around tubes with only vertical access! Lastly, a fillet was glued underneath forward of the rudder (see pictures) and a home-made brass rudder completed the steering side of things. In theory there is just enough access to the nylon





clamp-on tiller, as the deck obscures your view but allows the nylon tiller to be fitted by feel. I always use these nylon tillers as they can be adjusted to give a good, but not too tight, grip on the shaft and can thus be fitted blind and are easily adjusted at the pond side.



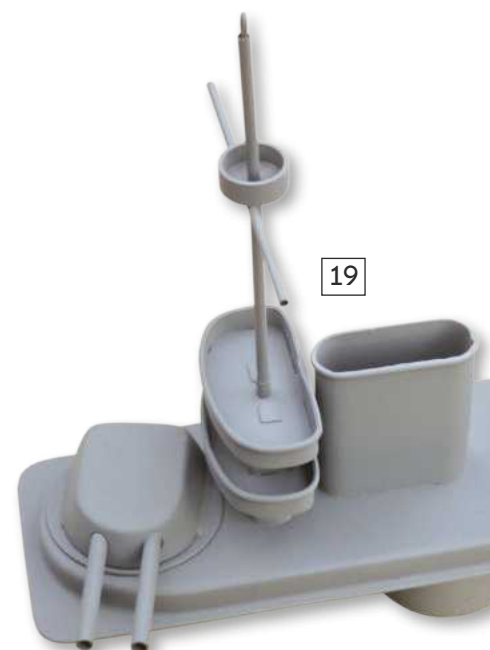
Upper works

You cannot get much simpler than this! Firstly, a deck had to be fashioned. As the pictures show, access to everything in the hull is via a central hatch, and this sat in a lipped depression stamped into the original steel deck (**Photos 12 & 13**). Thick 1.5mm styrene sheet is the material of choice for the deck as it is nice and flat and dead smooth. Several overhead pictures were studied and measured up to produce a plan which when drawn to scale. I marked a centreline on the sheet, cut the depression outline and then stuck strips on the underside around the depression for the top to fit into. Then the whole thing was glued on to the trimmed and outfitted hull with marine filler. Once cured, the deck edge/hull joint was sanded smooth and bit more remedial filling was carried out. For the deck hatch I used some of the leftover styrene sheet for the 'skirt' around the edge and 9mm ply for the raised centre section with a 1.5mm ply top. It is held in place very simply by a couple of swivelling clamps on the deck, as per the

18



19



20



original, replicated with styrene and screwed into wooden blocks let into the hull side (before the deck was glued in place!) with stainless steel slot headed self-tappers. Turrets were made from polyurethane casting resin, using a rubber mould taken from an MDF wood master so that they would be identical (**Photo 14**). These were drilled in the front face to accept the 5mm diameter plastic tube barrels and underneath to insert a length of 6mm studding which will be used to attach them to the deck. They sit on a circular styrene base, have a small gap at the bottom (0.8mm styrene spacer) with glue at the sides only, to replicate the solder and even have fake tin 'tabs' at the rear. Funnels have been made from bent thin sheet aluminium. After fiddling about with card, plasticard and even contemplating solid funnels (as I was not getting a good shape thus far) it seemed to me that I stood a fair chance of bending the aluminium and getting it to stay in shape and not bow out at the sides, as the card ones tended to do. Thin aluminium sheet was cut and 'persuaded' over the wooden former I had made using a vice, a pair of long nosed pliers and a dowel rod. Superglue holds the rear seam together (nicely emulating the seam on the original tin funnels) and styrene half round rod glued to the funnel tops finishes them off nicely. After flattening off the bottoms, the funnels were held in position and superglue was dripped down the inside, so it ran along the base of the funnel to stick it to the deck (**Photo 15 & 16**).

Only the bridge remained to be made (barring a few small items) and this was built up from heat bent 1.5mm styrene (for the actual tower) and cut and shaped 1.5mm and

1mm styrene for the 'bridges' (**Photo 17**). Again, the various small tin-plate details were copied and for good measure the two decks on the tower are not quite level, as I have studied any amount of pictures and this seems to be the case with the majority of the toys. A detachable mast, with fighting top in styrene has been made from brass tube and this sits in a socket with a spring at the bottom so as to be spring loaded and provide tension to the cord stay, which hooks on to fittings either end of the deck. A very important wave deflector on the bow, flagstaff sockets and the rigging eyelets complete the whole thing. Flags were made using union flag ribbon, bent around BBQ skewer shafts and then sealed with clear varnish. The poles are painted a non-matching pale grey as pictures of the real thing seem to show that the flag staff was very pale and may even have been a simple off-white, matching the border around the union flag (as supplied with the original, and not an RN white ensign) (**Photo 18**).

A little trick was used to get the mast socket upright. This was proving to be a bit difficult as the whole tower is not quite upright and

the bridges not quite level (by design). A wood block was drilled to accept the socket and placed on top of the deck (the socket goes up to the top of the tower and continues below deck). The socket was then smeared with Epoxy glue at the bottom and slipped in its pre-drilled hole from underneath the deck. The wood block, having been drilled on the pillar drill, held the socket perfectly vertical until the glue set, whereupon it was removed leaving the tube nicely upright.

Battleship grey

It took me a long time to decide exactly what colour of grey to use, from a choice of 50, a number of illustrations were studied but in the end I decided that a fairly pale grey, seemingly the most popular shade for these boats would be required. I did say that some were painted a cream colour but I couldn't face painting a battleship cream! A single can of acrylic spray paint, Ford polar grey (a very acceptable non-metallic pale grey) was discovered lurking at the back of the paint shelf in a well-known car parts store and became the colour of choice. One feature of these toys was the nice glossy finish and so a fair amount of time was spent sanding and filling the boat to get a good base so I could achieve this glossy look. Several coats of spray can primer were applied and sanded flat followed by several coats of the polar grey. There were only four pieces to spray; the hull, removable deck (conning tower and funnels attached) and the two turrets, which were fixed on afterwards via studs underneath. Masking the black underside was easy and given the very smooth surface, a good sharp result was obtained in one go (**Photos 19, 20, 21**).

21





& 22). Finally the Valiant name was applied at the bow using stick on vinyl lettering on the port side only, as after studying loads of pictures it seems that only the one side had the name on. This was then varnished with a polyurethane varnish, so that it will look like proper transfer as the polyurethane will yellow over time (**Photo 23**).

Notes on painting; Golden rule if using spray cans, stick to the same manufacturer! There seems to be very little compatibility between manufacturers and without buying loads of different cans to see what goes with what, it is so much easier to stay with one make.

22

On the water

Obviously no open water test can be made before the obligatory visit to the home test tank, initial ballasting trials were carried out. I decided to run the pump for a few seconds to judge the efficacy of the propulsion system (and who would not want to?) and was again reminded not to apply power to these pumps indoors. They are designed to empty full size boat bilges, they empty baths with great efficiency as well!

In total 1,850gm of lead now rested in the bottom of the hull, not fixed in yet as inevitably there will be some repositioning during its first pond trail (and in fact about 330gm of lead was removed later!) and it was off to Bushy park pond to try the beast in the open water of the boating pond. A quick test of the controls and a minimum of throttle showed me that things were working satisfactorily and the throttle was advanced to maximum; I am reckless like that. My word, it didn't half shoot forward! Full speed was most satisfactory (this was on 12v) with an almost embarrassing column of water exiting the rear jet pipes, however the front was digging itself quite deeply in the water, likely the effect of the ram bow (and the wisdom of fitting wave deflectors became immediately apparent!) so the battery was changed to a 5,000Mah Nimh of 9.6v to calm things down. About 30 minutes was spent running the boat at various speeds and adjusting the ballast get the best overall trim when running and the boat sits slightly head-up at rest, but flattens off when above quarter throttle. Due to the slightly restrictive outlets and the somewhat reckless top speed, I decided in future to run the boat on the 9.6v Nimh pack instead of the pump's rated 12v, as I obviously didn't need the full 1,100 gallons-per-hour (500ltrs/hr) capacity of the pump on this relatively small vessel and to be honest it is more than quick enough even on a 7.2v



battery pack. The clockwork boats were propelled at no great speed and the 'pop-pop' versions were even slower!

Turning performance at low speed was not too bad at all and it would start to turn with very little way on and at speed it is very good. The rudder is of a decent size and has a fair throw on it (45°), which is necessary with no prop-wash. Waves are ridden over (or indeed through!) with dignity and a minimum of bobbing up and down as the boat is quite heavy for its size and the wave deflector has its work cut out, despite the reasonable 45mm of freeboard. Maximum current draw on 9.6v is only 2.9amps and a tiny aircraft ESC has been used, rated at 8amps which remains stone cold even after an hours thrashing about in the water.

Will it fit in your dock?

The average four-wheel dock will accommodate this very well, as it is a mere 600mm long by 130mm wide and a towering 175mm high (bottom of hull to top of bridge) with the de-mountable mast adding another 150mm when mounted. The bare foam/glass hull weighed 380gm and the ballast eventually came to 1,520gm, for a fully equipped total of an impressive 32,000 tonnes...or is it 3,200 gm?

Steel Dreadnought

Did we achieve the stated aim of the build? I like to think so and it looks, on its own and with nothing as a scale reference, very similar to photos of the original. There appeared to be some variation in the detailing on these boats, depending on the year, with different

masts, rigging eyes and so on and I have shamelessly applied my usual artistic licence and used all the features that I liked and left off ones I didn't! The paintwork is nice and glossy, benefitting from a bit of effort at the preparation stage; performance is good, as is access to the inside. It looks great on the water and holds its own amongst the other craft despite the glaring simplicity of it, but there again, that is its great charm. ●

23





1

1: A cold morning on the pond side can bring with it a number of challenges if we use gas as a fuel, but it also has the advantage of producing much greater quantities of vapour, so the model looks quite impressive!

Boiler Room

Gas Tank Challenges

Thoughts on Model Steam Plant operations in low temperatures by **Richard Simpson**

During the winter months, those of us hardy enough to continue using our steam powered models on the pond and those who use gas to heat their boilers, will be experiencing challenges which have been discussed here already a number of times. It is a subject however that regularly haunts us and recently I have been involved in a number of discussions on the subject of challenges when using compressed gas to fire a boiler. Some of you may remember Boiler Room pt.7 and Boiler Room pt.8, way back in July and August 2011, when I looked at the subject a bit deeper, however, I thought it might be time to review the subject in an attempt to avoid some of the frustrations that we regularly encounter when using compressed gas in cold ambient temperatures, (**Photo 1**).

The Theory

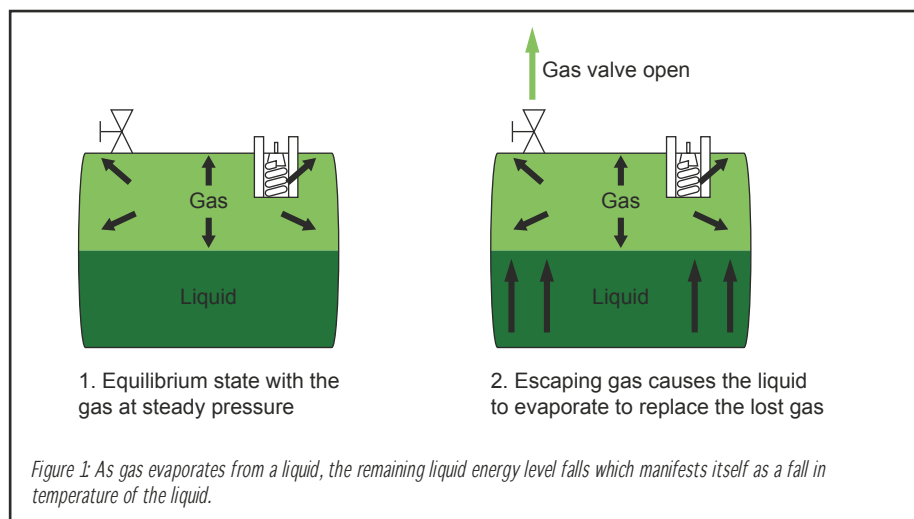
Without going into the theory again in depth (you can read up on the theory of 'Ideal Gas Laws' if you really feel the need), the bottom line is that as you release a compressed gas the temperature of the remaining gas and liquid falls, this is actually a theoretical gas law in operation known as Charles' Law. This fall in

temperature is directly dependant on a couple of things, one of which is the rate of evaporation, so the faster you release the gas the greater the fall in temperature, **Figure 1**. Another gas effect to consider is that the evaporation rate is directly dependant on the temperature of the gas. Consequently, when the

temperature falls, the evaporation rate falls and the performance of the burner falls off significantly. In a balanced situation the heat lost from the gas as it evaporates is being replaced from the outside air, however, even in summer months, this is rarely the case and ultimately the loss of heat cannot be replaced naturally, **Figure 2**.

From this it is fairly straightforward to see that as you use your gas from the compressed storage tank the burner performance is going to drop off with time as the gas pressure being supplied to it is getting lower. That is, of course, exactly what happens and, being a law of physics, for the 'Trekkies' amongst us, as Scotty would say 'You cannae break the laws of physics'.

We can however, with a bit of understanding, minimise the effects to make



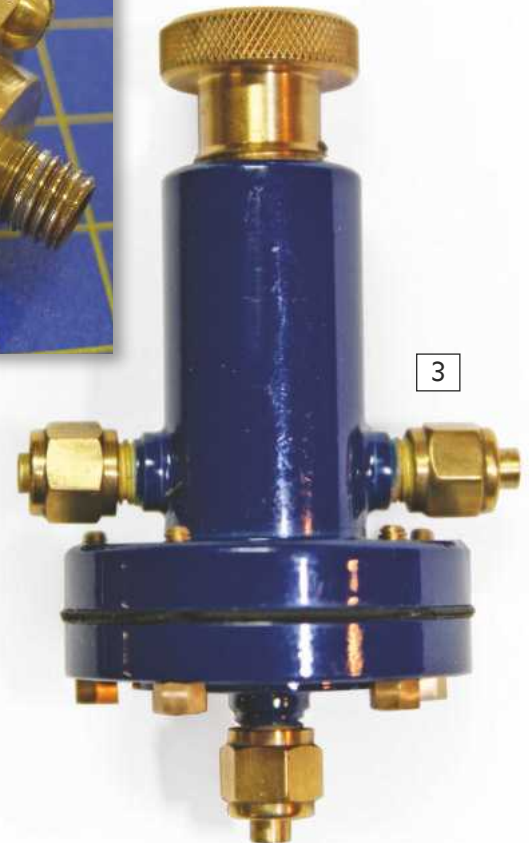
our boilers at least useable during those winter mornings and not leave us with a completely frustrated visit to the pond and a disappointed feeling.

Identifying the problem

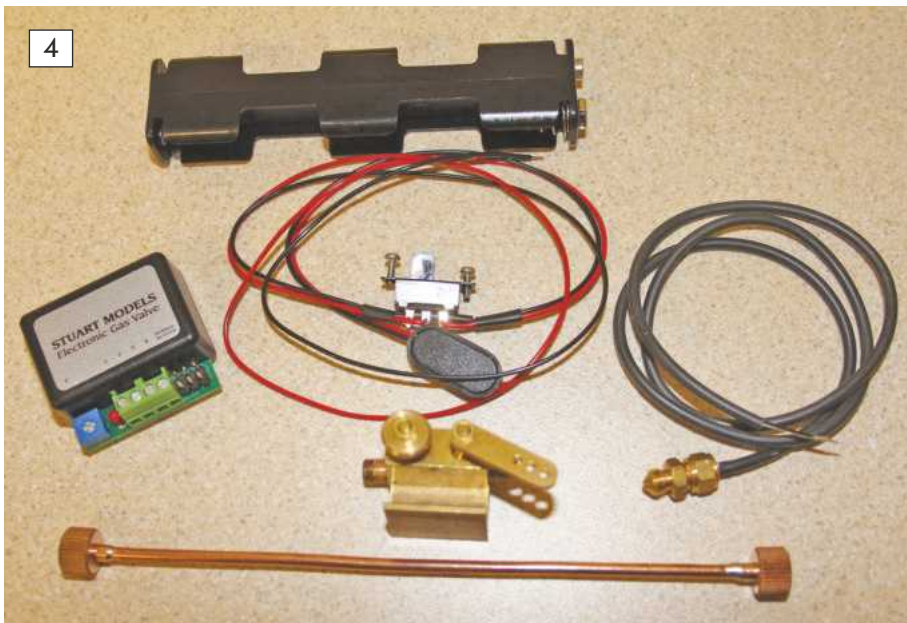
The first thing we need to identify is just what the problem is and to do that, we need to see the operation of the burner in conjunction with the plant in its entirety. As the gas is used, the burner performance will fall off, this being more noticeable with reduced temperatures. If the burner performance drops off, then the boiler will not be able to produce steam and so will reach a point whereby the engine performance will start to fall. Taken to an extreme, the engine may stop and, if you have a single-cylinder and therefore a non-self-starting engine, you may find yourself stuck in the middle of the pond. This may then



2: A purely mechanical attenuator valve as supplied by Forest Classics. The steam line is attached to the bottom connection and the gas flows through the other two ports on the body. The pressure is set by the knurled knob on the top of the valve.



3: A similar valve as supplied by John Hemmens which works in basically the same way.



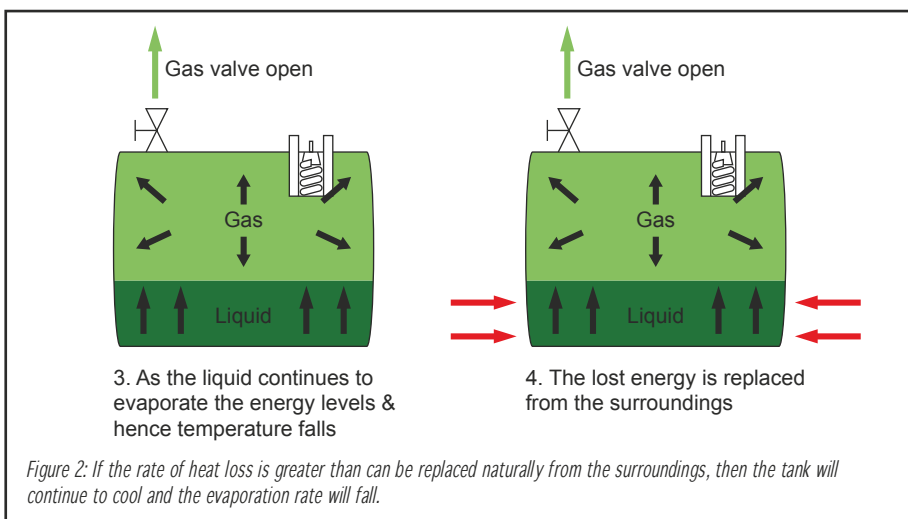
4: The electronic option incorporates a battery pack, control board and a servo as well as more pipe work and cables; more complicated option.

be further complicated by the way in which we are using the model. Hammering around the pond at full speed will use much more steam and, if the steam is not being replaced by a poor performance burner, the pressure will fall off quickly. If you decide to make adjustments to the burner to increase its performance, which of course will then require a new steam test certificate and you do not go around the pond at full speed, you may find that you are producing too much steam, lifting the safety valve and wasting valuable water, energy and gas.

The real problem for us therefore, is the fact that we need to maintain a consistent burner performance throughout varying demand conditions, and while we may not be able to achieve perfection, we may be able to minimise the variations quite considerably.

What we can do in terms of construction

First up to consider is an attenuator valve, as supplied by Forest Classics, (Photo 2) or John Hemmens, (Photo 3) or an electronic gas control valve as supplied by Stuart Models, (Photo 4). These valves will try to maintain





5: The electronic gas valve fitted into a hull. The green battery pack is dedicated to the valve and along with the control unit, the valve and the servo you can see you need a bit more room. 6: One option for the attenuator valve is to connect it directly to the boiler shell. This Cheddar boiler had a spare bush in just the right place so was perfect to mount the valve on and made for a very neat and compact installation.

a consistent boiler pressure as it controls the gas flow to the burner dependent on the boiler steam pressure and the setting you adjust it to. Fitting a gas control valve will certainly help in maintaining a consistent pressure up to a point. When the pressure in the gas tank falls below that required by the valve setting, it will still then drop off but it will assist significantly to delay that time, so may well be all you need to get your 20 minutes on the water. I would always use either an attenuator valve or an electronic gas control valve for just this reason. The differences are that the attenuator valve is a purely mechanical device and is therefore simple and robust, but could be argued that it is not quite as accurate, whereas the electronic valve is very accurate but requires a battery, control unit and a servo to support it making the plant much more complex, (Photo 5). The attenuator valve can even be connected directly to the boiler, making for a very neat and tidy installation, (Photo 6).

Next up, you can consider a number of means of getting some low quality waste heat into the gas tank to slow down the cooling process. This can be from some form of conduction, such as a heat shunt from either the boiler or the separator or a common metal base with the boiler to transmit some heat from there. This is a procedure to consider very carefully as you must be completely sure that you are not putting enough heat into the tank to cause the pressure to rise, so you must only consider low grade waste heat. Of my own model plant, I have a gas tank sat on a common brass base with the boiler, so some heat is transmitted through that to warm the tank, (Photo 7) and, on another model, I have a thick copper heat shunt made

into a saddle, which sits between the gas tank and the separator (Photo 8) again to transmit some conducted heat. In this case being a refillable tank, I fitted a pressure gauge to the tank, but in the case of the disposable tank, I can tell by feel whether the tank is still cooling down with use. So far this has always been the case.

If you do have some heat going to the tank, then you may want to consider insulation round the tank, but you must be very careful that you are insulating the supplied heat in because, if not supplying heat, the worst thing you can do is to insulate the complete tank. That simply ensures that the loss of heat in the gas tank cannot possibly be replaced from any outside source and the drop in pressure will be accelerated. In the case of the Borkum, the insulation, in the form of a wooden jacket, helps to prevent heat loss

from the brass base and ensure it goes into the gas tank (Photo 9).

Another valuable consideration is choosing whether you want to use disposable gas tanks or refillable ones. The challenges with refillable ones is the fact that you are filling the same one each time, so the reduction in temperature increases each time you use it. That is unless you remove it and put it somewhere warm for a while before the next run. Disposable tanks have the advantage of being able to be kept in a warm ambient environment and changed over when you bring the model into the bank for a refill.

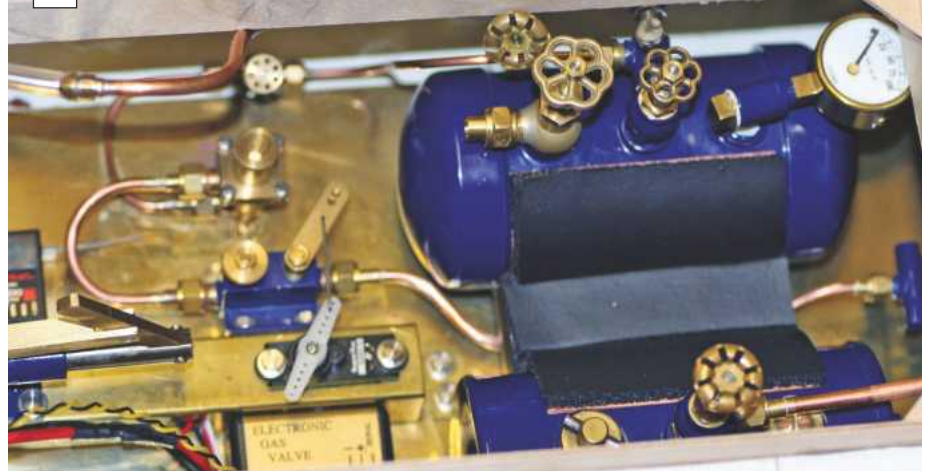
What we can do operationally

Not surprisingly there are also opportunities to help alleviate the situation by the way in which we operate the model at the pond side. As we are looking for ways to reduce the use of gas,

7: The boiler mounted attenuator with the disposable gas tank, mounted on a common brass base with the boiler.



8



8: Waste heat from the separator tank can be used to warm the gas tank as is done here through a copper heat shunt. The shunt is insulated to prevent losses from the surface and ensure as much heat as possible goes over into the gas tank. To ensure that gas pressure does not rise, a pressure gauge is also fitted.

one option is to fill the boiler with hot water from the start, thereby saving gas in the initial warming through and pressure building up process. A simple thermos flask of hot water is enough to greatly reduce the gas needed to get the boiler up to pressure, so you are actually starting off in a better situation when you place the model on the water. This can also be assisted, if you are using disposable tanks, by having a different tank available to steam up the boiler, and then change over to a fresh tank before putting the model on the pond. I actually utilise this method to use up the dregs of gas remaining in all the old tanks to get the boiler ready to ensure I don't waste any gas.

I would also suggest that you bring the model into the bank regularly to check levels and steam pressure and, in colder months, take the model out slightly more frequently. This will give you the chance to refresh everything more frequently and ensure that the gas tank is not getting too cold.

Finally and probably the simplest is to try to avoid continual high speed runs on the water to minimise the amount of gas you are burning. Sometimes it is tempting to 'See what it will do' and get a bit carried away, however, before you know it, burner performance is starting to drop off and the downward spiral will soon start.

Conclusions

I think the gas cooling effect is the single most frustrating aspect of operating a gas-powered steam plant in a model boat and is responsible for more wasted time at the pond than anything else. I still regularly have conversations with modellers who are advocating insulating their gas tanks or who are getting fed up with inconsistent performance from their plant, but I do believe that an understanding of just what is happening and taking a few simple steps to

9



9: Just insulating the gas tank could very well be counterproductive, so care must be taken in how this is done. Here the heat travelling through the brass base is kept within the tank enclosure as the wooden box is open at the base.

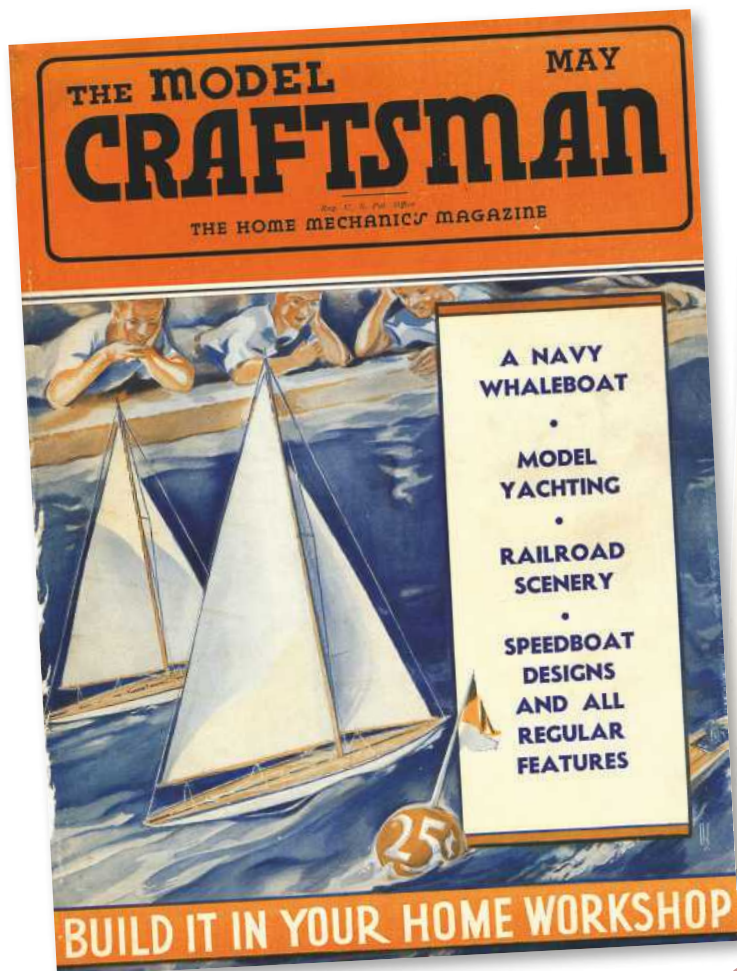
at least slow down the effect can make life so much easier.

My own Borkum has a very old Cheddar plant fitted and uses the brass base to transmit some warmth into the disposable

gas tank. It is fitted with an attenuator valve and on a cold Sunday morning, armed with a few gas tanks warmed inside my coat and a flask full of hot feed water, I get reliable and consistent use out of it, **(Photo 10)**.

10: Cold weather steaming need not be so much of a challenge as some may experience and an understanding of the effects of gas cooling, can be very helpful.





LEFT: The Model Craftsman, May 1936. ABOVE: My Ideal Workshop by Mike Van Nuys.

BELOW: Scale Ship Modeler, first issue summer 1988.

Flotsam & Jetsam

Lost Magazines – the comings and goings of some U.S. model boat publications by John Parker

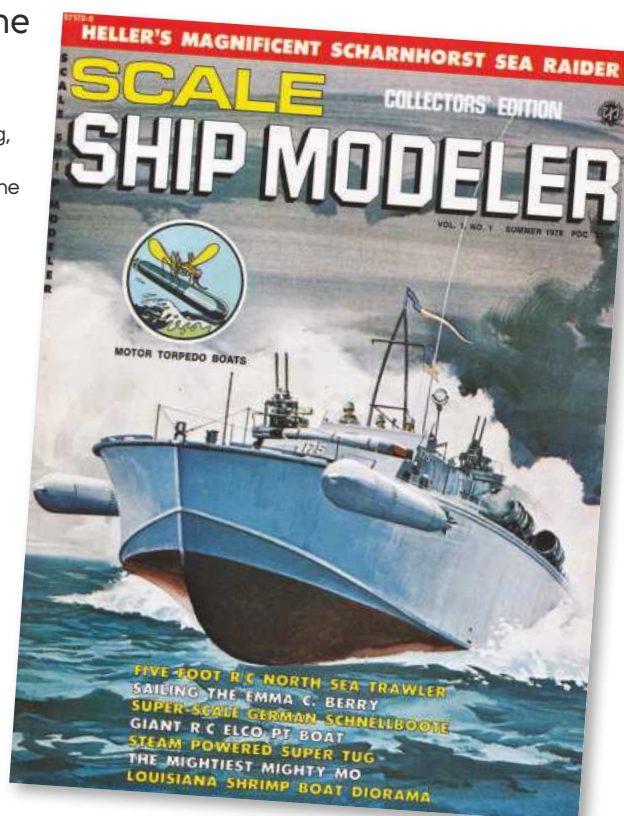
Over past decades quite a number of magazines have appeared on the newsstands dedicated wholly or partly to the hobby of model boat building. But nearly all have now ceased publication, reflecting changes in the popularity of the hobby, economic conditions or most recently, the disruptive effect of digital technology on traditional print media. To the long casualty list must be added Traplett Publications, until recently the publishers of Marine Modelling International.

It's not just that readers are turning more and more to the immediacy of on-line build threads and forums instead of the pages of a magazine for their boat modelling information, but that the revenue from modelling shops advertising in the magazine has been eroding away with the swing to on-line shopping and the closure of hobby shops – certainly a factor quoted when the Australian Airborne model aircraft magazine ceased publication recently. In the light of these worrying trends, let's now take a look at some model boat magazines from the other side of the Atlantic that are no longer with us. Surprisingly for a nation

with a long tradition of model building, Seaways' Ships in Scale, a limited subscription-only magazine, is now the only American periodical devoted to model boats.

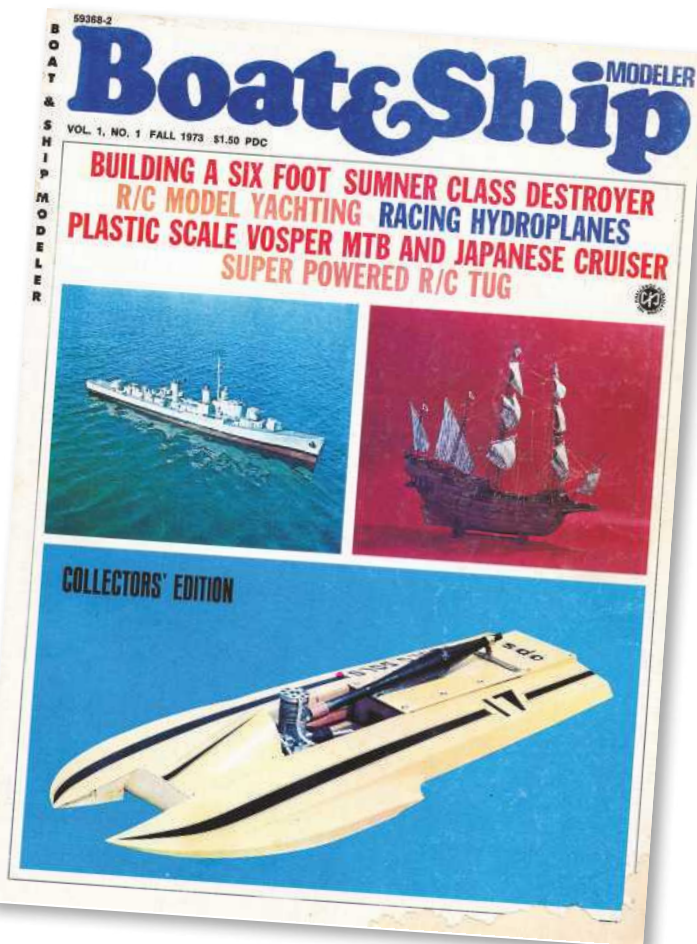
The Model Craftsman

This was a general modelling magazine founded in 1933 with the by-line 'The Home Mechanic's Magazine'. From 1934 it was published in New York by Charles A. Penn and was a sizeable monthly magazine of some 60 pages. Its strengths were model cars and railways but model boats (yachts, speedboats and scale) were also featured on a regular basis. Looking through some pre-war copies, it is not the scale drawings (generally not very accurate) or early radio control apparatus (precision manufacture of the relays needed) that stand out, but articles such as the one by Mike Van Nuys





LEFT: Scale Ship Modeler, April/May 1989. BELOW: Boat and Ship Modeler, autumn 1973.



describing his ideal workshop that he would like to build; 'there to light the old Jimmy pipe, listen to the patter of rain on the roof and there to dream of railroad empires which I can build and control, of little ships I can sail, of planes I can dope out, weigh, estimate, build and fly' and he figured he could do it all for \$300...

In 1949, The Model Craftsman became The Railroad Model Craftsman and dedicated itself solely to model railways. In 2014 the then publishers Carstens Publications Inc., closed its doors due to 'the current economic climate'.

Scale Ship Modeler

More recent was Scale Ship Modeler (the Americans spell it with a single 'l') which ran from 1978-2000. Published by Challenge Publications Inc., this was a good solid read for the scale fraternity, with an emphasis on scratch-building and absence of racing boats. To have a pile of old copies is to have a valuable resource of modelling techniques and reference material, though the technology of propulsion and RC control have naturally advanced a fair bit since. Notably in this period, the American working submarine model can be seen to really come of age, with the maturing of the 'watertight cylinder' concept and adoption of the Propel gas ballast system with a number of suppliers offering fibreglass hulls and componentry.

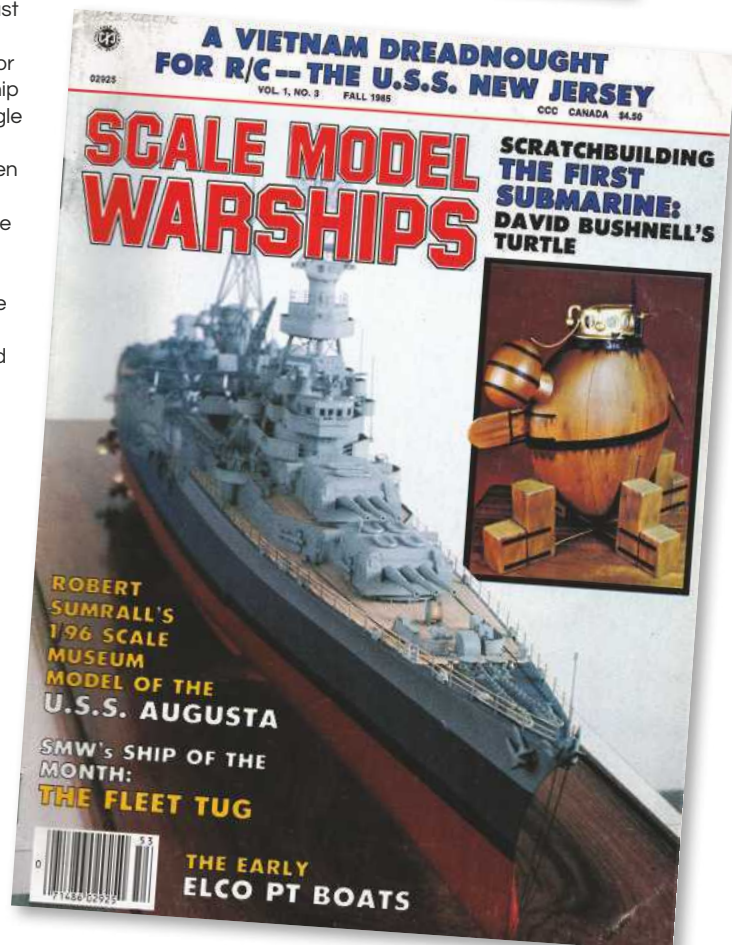
Scale Ship Modeler was initially published quarterly but moved to six issues a year in 1982 and worked up to nine issues a year in 1986. It generally maintained this until the final issue, which was for November/December 2000. The irregular publishing schedule makes tracing of a particular issue confusing, but no doubt was determined by the material available to fill its pages. It briefly carried the

title RC Model Boats and Racing in 1992 but there was such a reader revolt that it changed back to Scale Ship Modeler after just three issues.

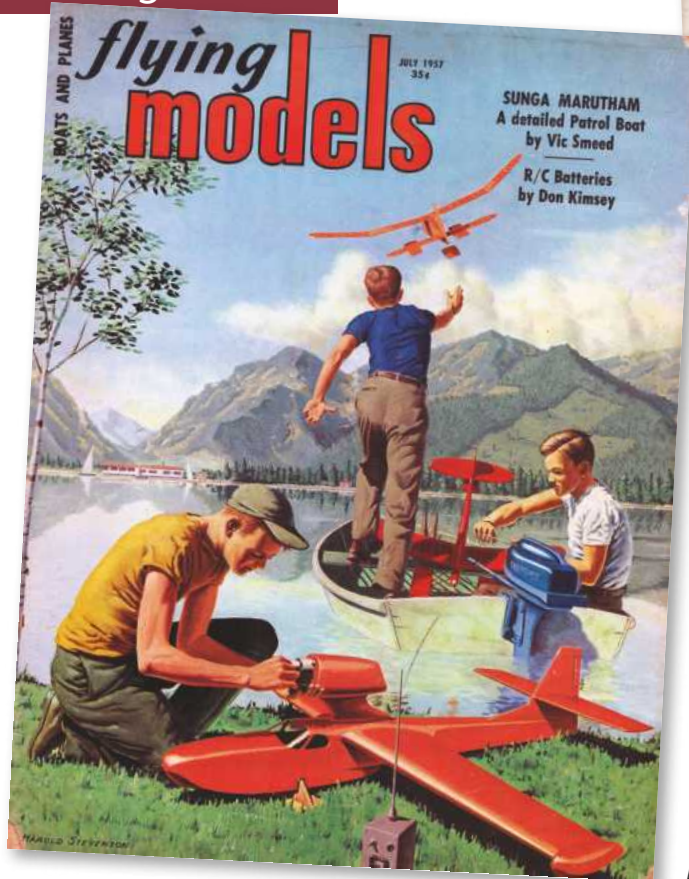
Oddly, there was a precursor to this magazine, Boat and Ship Modeler, of which only the single issue for the autumn of 1973 appeared. This must have been a testing of the water, or more likely a false start for Challenge Publications, as the issued is marked 'Vol. 1 No. 1' implying more were to come. From time to time, themed specials and retrospective issues appeared in the mix and three issues of the short-lived spin-off Scale Model Warships were published in 1985.

Flying Models and American Modeler

Some model aircraft magazines carried a section for model boats; perhaps they were keen to retain those of their readers who had crashed their model aircraft! As an example, the July 1957 issue of Flying Models had a plan for Vic Smeed's Sunga Marutham, a patrol boat by Thorneycroft for the Ceylon (as it then was) Customs and Excise Service. This example of trans-Atlantic modelling co-



Scale Model Warships, autumn 1985.



LEFT: *Flying Models*, July 1957. ABOVE: *American Modeler*, May 1959.

operation came from Vic Smeed's most prolific period as a staff member of *Model Maker* magazine.

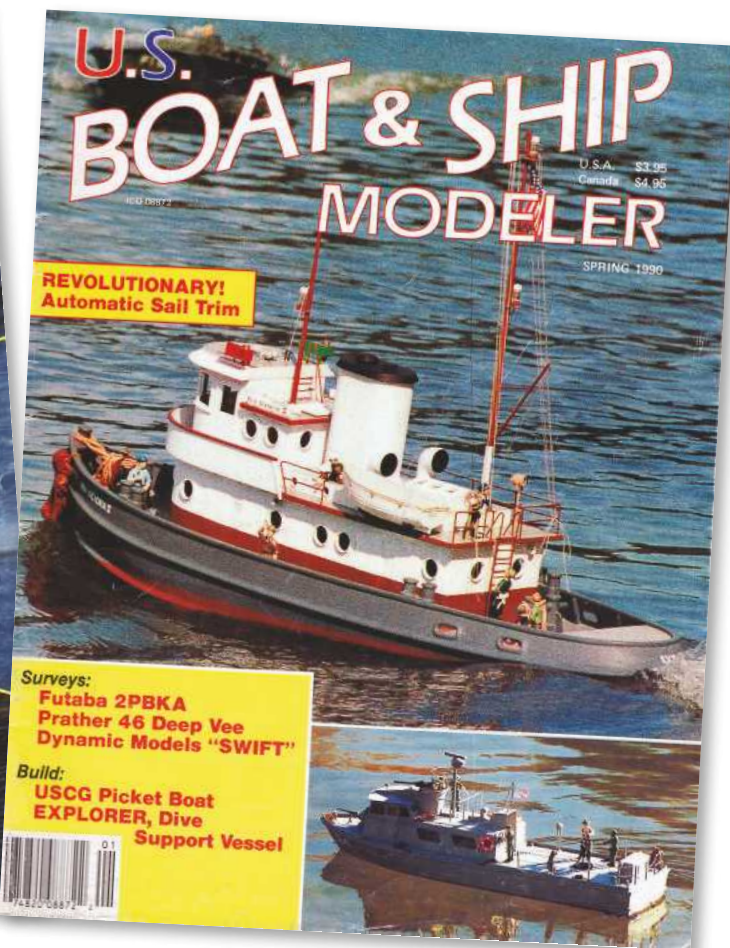
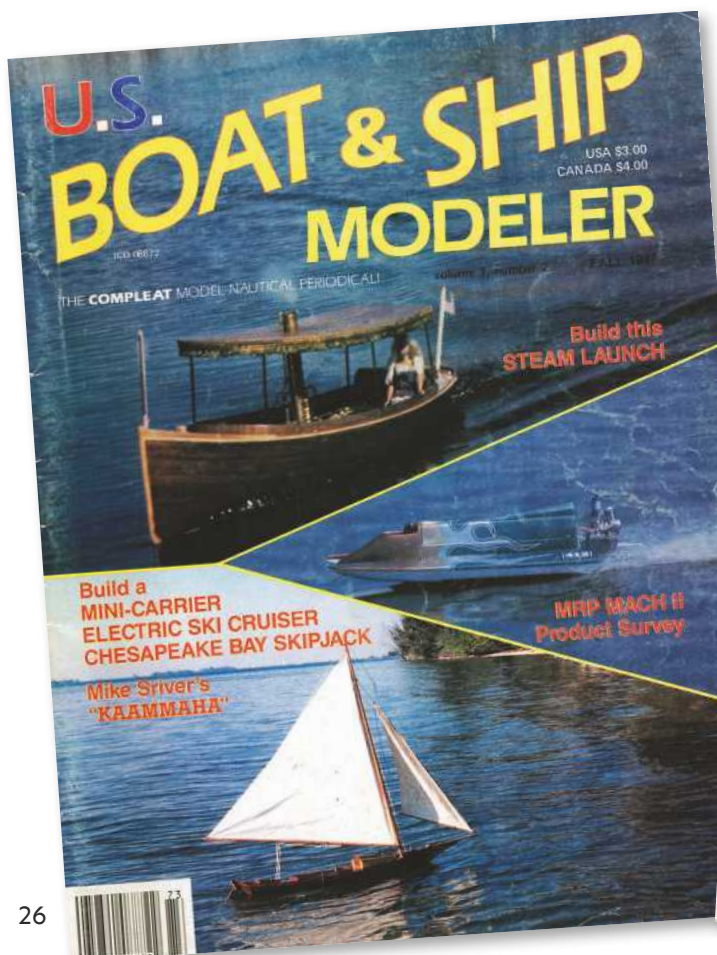
American Modeler in its various guises had a similar section devoted to model boats at the time, represented here by the May 1959 issue. Its full story was told in *Flotsam and Jetsam* No. 12, in the March 2014 issue

of *Model Boats*. Incidentally these two magazines provided some superb examples of cover artwork, before the wholesale switch to photographic covers. The Destroyer Escort painting on the cover of the May 1959 *American Modeler* was the work of Cal Smith, who also designed the model, drew the plans and wrote the construction article.

U.S. Boat and Ship Modeler

The 1980s and 90s were a bumper time for American ship modellers with the appearance of another title dedicated to their hobby, *U.S. Boat and Ship Modeler* in 1987. This was published quarterly by RCMB Inc. with the tagline 'The Compleat Model Nautical Periodical', leading to many

BELOW LEFT: *U.S. Boat and Ship Modeler*, second issue, autumn 1987. BELOW RIGHT: *U.S. Boat and Ship Modeler*, spring 1990.



readers who didn't understand the old English reference pointing out what they took as a spelling mistake. In feel and content it was close to Scale Ship Modeler and an obvious competitor to it.

An offshoot of Model Builder, it repeated some model boat material from that magazine, to the annoyance of some readers. But the past was always a ready source of material to fill the pages, and both this magazine and Scale Ship Modeler reprinted such material from time to time. For example, the USCG Picket Boat and Evarts Destroyer Escort that originally appeared in the American Modeler issues for February 1958 and May 1959 were recalled to do duty in the Spring and Winter 1990 issues respectively of U.S. Boat and Ship Modeler. The magazine was still going in 1995; I don't know when the last issue appeared, but it seems it didn't see the light of the new century.

Radio Control Boat Modeler

This promising publication by Air Age Media entered an overcrowded market in (I think) 1982 but by the 1990s had become filled with coverage of ready-to-run racing boats and enthusiastic reviews of all the various bits and pieces you could buy for them if you had a deep enough pocket, with very little space devoted to scratch-building. It was obviously geared to maximising the advertising revenue. I sometimes bought a copy because on the rare occasions there was a

scale modelling feature (usually by Pat Tritle). It was very well done, with clear photographs and diagrams and I liked the graphic design. The winter 2009 issue was the final one; for a while it went on-line and then it faded away.

Scale and RC Boat

The less said about this one the better. It was launched in 2006 with a January/February issue in which the editor sought contributions and declared in his 'From the Con' editorial that 'I am in this for the long run'. It folded by the time the third issue was due, leaving those who had subscribed to it or had sent in article contributions (myself included) sadder but wiser. ●

ABOVE RIGHT: Radio Control Boat Modeler, final issue, winter 2009.

RIGHT: Scale and RC Boat, January/February 2006.

BELOW: U.S. Boat and Ship Modeler, summer 1991.





CEFAS Endeavour

Fraser Gray puts the CEFAS Endeavour under the spotlight





DATAFILE

Type:	A multi-role research and survey vessel
Builder:	Ferguson Shipbuilders Ltd, Glasgow (Yard No.712)
Owner:	Defra
Operator:	P&O Maritime Services
Launched:	August 14, 2002
In service:	2003
Complement:	17 (Marine Crew); 35 (Berths in total)
Home Port:	Lo westoft
Identification:	9251107
Call Sign:	VQHF3
Flag:	British
Gross Tonnage:	2,983 tons
Length:	73m (239ft 6in)
Beam:	16m (52ft 6in)
Draft:	5.5m (18ft 1in)
Engine Power:	3 x Wärtsilä 6L20 1000kW/660v 50Hz 3-ph; 1 x Cummins N14, 250 KVA/415v 50Hz 3-ph
Speed:	13.4kts.

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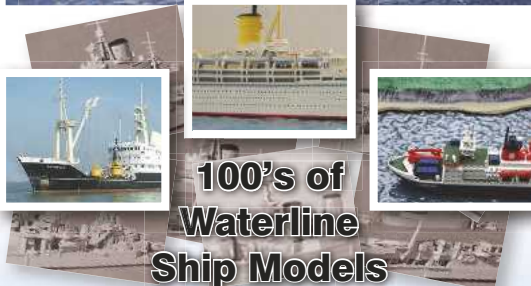
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 Builder: Clelands (Successors) Ltd
 Yard & No.: Willington Quay (No.193)
 Dimensions: 569grt, 202nrt,
 170.9 x 29.7 x 10.5ft
 Engines: Oil engine, 2SCSA,
 6cyl (265 x 345mm),
 570bhp
 Engines by: Crossley Bros Ltd,
 Manchester
 Propulsion: 1 x Screw
 Construction: Steel
 Reg. Number: 186210



Phil Scales prize-winning small coastal tanker



Shell Welder

Serendipity

If you attend any model show, you will be hard pressed to find more than a couple of tanker models. Also, apart from Deans Marines, no manufacturer produces a tanker. This is despite tankers being ubiquitous in real life.

My flotilla just had to have a tanker or two and inspiration came in the form of a

small tanker named the Shell Welder. I had built, (and still have) the original 1960s Frog kit and it is a very good model. I was also very taken with the brilliant box art on the kit which was very dramatic. Shell Welder was a small coastal tanker launched in 1955 and ran mainly between the Hamble refineries and the Channel Islands until discarded to Pounds Shipowners

and Shipbreakers Ltd in Portsmouth in 1973. She then had a later, less glorious life, as the Steel Welder, a sand dredger, until she was broken up at Otterham Quay, Kent in 1991.

So, by serendipity, a few years ago I acquired a freighter hull of exactly the correct dimensions and lower hull shape to make a 1/48 scale model. I was hooked! There followed a visit to Newcastle Maritime Museum, the original being built by Clelands on the Tyne, and I was able to get a brilliant 1/48 G.A. plan and some first class photos taken on board showing the entire tank deck. The original Frog model helped as I simply needed to scale it up by 2.7 times to make a



larger model. The internet also provided some good photos, some of them in colour.

Suitably armed, the first job was to judiciously cut away the upper hull to make a proper tanker shape. Decks were of 3mm Plasticard and the only opening is the superstructure aperture, this made it very watertight, but necessitated fixed lead ballast in the fore/mid-part to ensure she floated with the deck edge almost immersed, as did the fully loaded original.

Widely admired pipework!

The superstructure was constructed of 1 & 2mm Plasticard and incorporates a fully detailed bridge interior. Almost all the fixtures on the superstructure were scratch built,

including the boat davits, and the fairly well-detailed bridge roof. The tank deck and pipework has been widely admired and is as accurate as possible to the original. Pipework was generally plastic rod of various diameters being heat bent as necessary, flanges were white metal accessories from Model Slipway. The mast is fitted with a full height vapour extract pipe and also a hose handling boom. This latter has a hand-powered winch modelled from photos of various real examples.

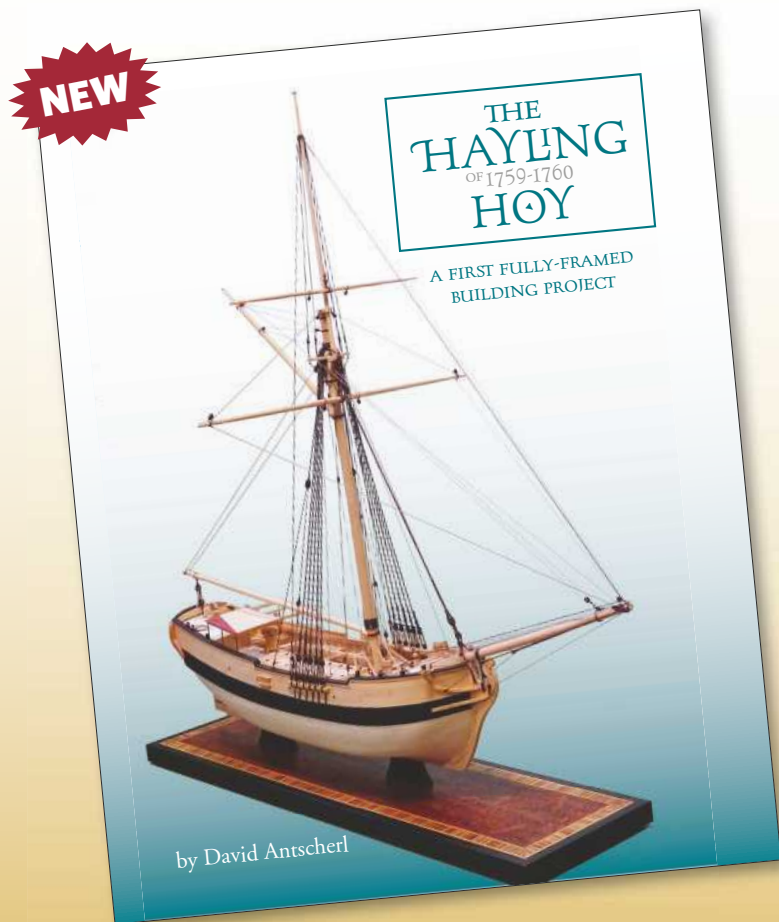
Two pump rooms and the discharge pipes can be seen and the handrails are flat bar stanchions with suitable wire, tied to it are ladders, the gangway and a number of discharge/loading hoses.

The colour scheme and funnel is as per Shell-BP in the 1960s, from photos the deck is sometimes seen as red lead and sometimes green; I preferred the green. She is flying the red Petroleum flag and the House flag and has Shell-BP boards affixed to the bridge roof rails.

The model is run on 6v with a standard gel cell battery and a 6v motor, run on 2.4GHZ via a Planet system. On the water Shell Welder floats well down with the tank deck awash in any kind of waves and is very stable and controllable. She has won a Morgan Owen Medal and other prizes at shows and is widely admired, but mainly along the lines of 'I don't know how you could do all that pipework', it is not too difficult, so please have a go at a tanker and increase their numbers!!

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THIS TIME it is the *Hayling Hoy* of 1759. This model is aimed at the novice scratch builder or for the experienced modeler who is looking for a small project in-between major builds.

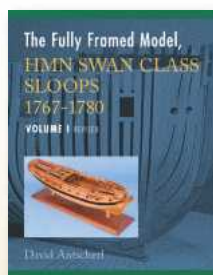
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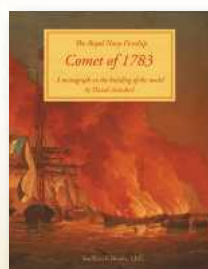
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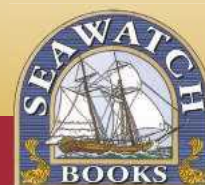
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Starboard side of Astra underway. This gives a good view of colour scheme, rubber fendering at the bow and stern. Note the lettering on sides differ from that on the plan, but either will be applicable.

ASTRA

Jim Pottinger presents a 1/30 scale version of the purposeful salvage and rescue vessel, Astra

Wineglass shape

This plan shows a fair lump of a model, which despite the size of the hull, should be relatively easy to construct using the plank on frame method by virtue of the fairly easy contours of the hull, which has the typical icebreaker wineglass shape. Given the relatively heavy displacement, depending on the manner of construction and finished weight, it is anticipated that some ballasting will be required to bring her down to the correct floating trim.

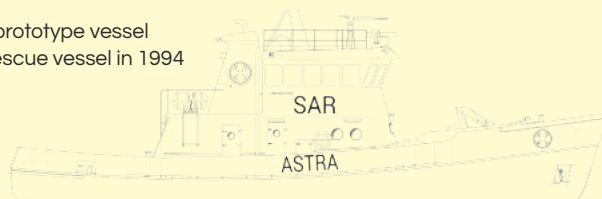
There is a short section of box keel between sections two and 6 1/2 which extend slightly below the hull proper, the bottom plate is in fact 35mm thick, sized to protect the hull when riding over hard packed ice and the details of these extensions are shown on Sheet Two.

There is also a protective bar on the fore stem extending to above the waterline, plus a 150mm thick rubber pad on the forward face of the bulwark at the bow. This item can be omitted on the model if preferred. Note, that from about section 6 1/2 to aft and right around the transom, the bulwarks are set in from the hull sides by 100mm (see detail of bulwark

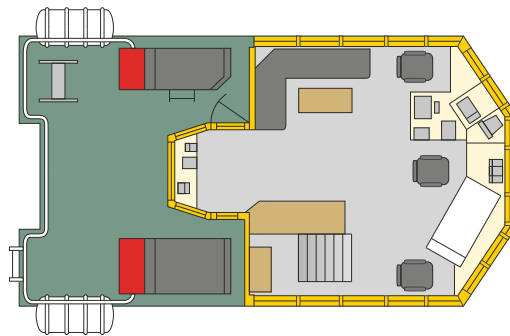
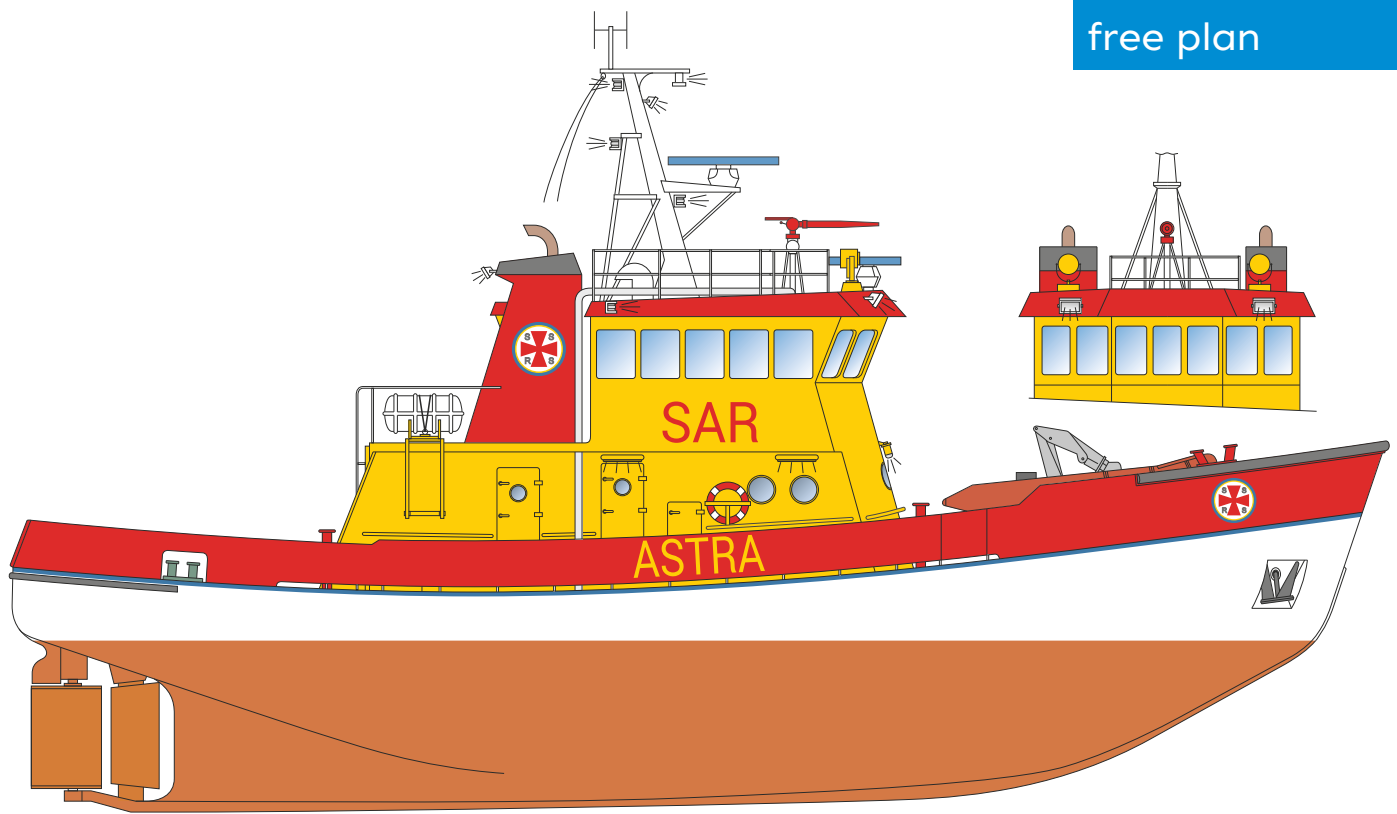


View look on front of deckhouse. Four of the wheelhouse windows have wipers fitted. Note slight overhang of wheelhouse over the lower deckhouse. Cradle for RIB and deck crane and small square hatch in the foreground.

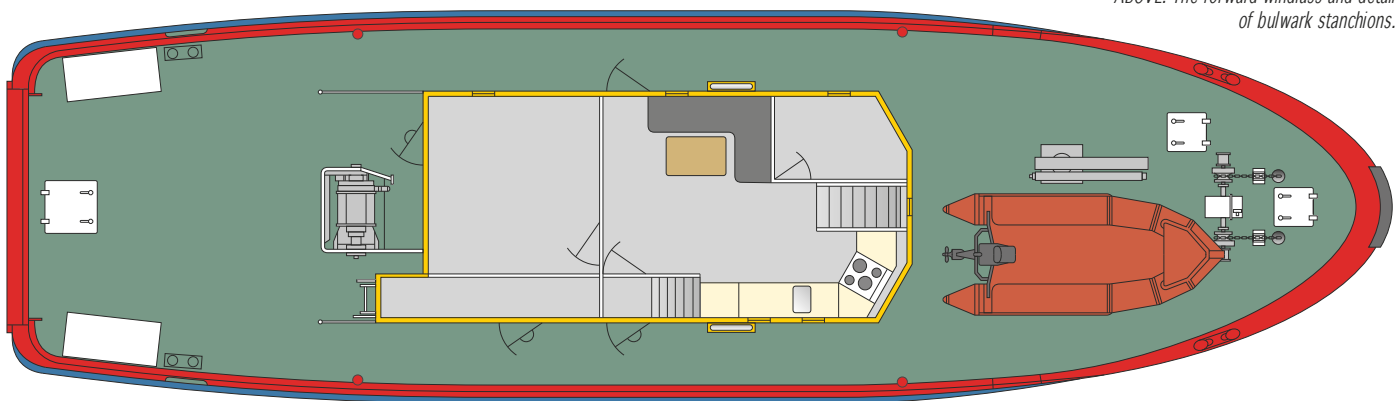
A few particulars about the prototype vessel	
Built as an icebreaker/tug/rescue vessel in	1994
Built	1994
Call Sign	V7LB6
LOA	23.35m
Beam	6.63m
Displacement	175 tonnes
Shipyard	Smögens Plåt & Sverindustri AB Sweden
Cruising speed	8.4 knots
Top speed	13 knots



Notes: Refitted and converted at Kallandso Sweden & Balk Shipyard. Holland Conversion costing 600,000 EUR in 2017 to a long-range motor yacht with 15 passengers, fully stabilised and able to cruise in Arctic waters



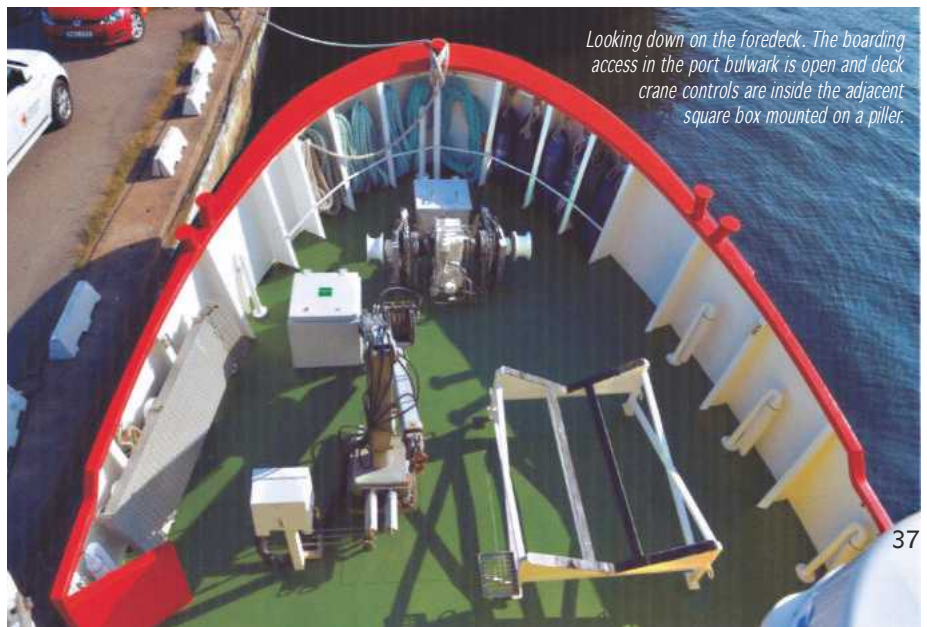
ABOVE: The forward windlass and detail of bulwark stanchions.



stanchion) which also shows the stanchion construction and round bar welded to bottom edge of cut out, forming the scuppers on each side, which extend for most of the length on each side. Note also shown, is the 100mm deep stiffening plate which runs all-round the top edge of the hull shell plating, and the protective rubber belting around the top of the forward bulwark and at deck level at the stern. The top rail has a wider tapering width in the plan view forward and at the corners of the transom, as can be seen on the drawing.

I have not shown the bilge keels, which extend on each side between sections two and halfway between sections five and six.

Note also, the bulb section under the stern which extends forward as far as section three, the cutting line of intersection with the



Looking down on the foredeck. The boarding access in the port bulwark is open and deck crane controls are inside the adjacent square box mounted on a pillar.



ABOVE: Aerial view, the dark coloured bars on the after deck are to provide seating for a container. BELOW: This gives a good view of the 'wineglass' hull shape and rubber protective section on upper bow. The position of the bilge keels can just be seen under the bilge.



hull shell plating of which is indicated on the profile, plan view and body plan. The rudder is a tapered narrow wing shape in plan view, with an ice knife above, which extends down from under the transom. See photo showing this area of the hull. The Kort nozzle can be omitted if preferred, to allow fitting the appropriate diameter of propeller to suit the model. The anchors are housed in deep recesses on each side of the bow.

Deck level

The shape of the deckhouse at deck level allows for a fairly simple arrangement of sealing coaming etc. to allow the whole assembly to be lifted off for internal access. The small hatch on the after deck can be made larger to gain access to any rudder mechanism. The RIB handling folding crane on the fore deck is of typical design as seen on many applications, including non-maritime. The hydraulic controls are contained in the box mounted on the adjacent post. I have omitted this on the plans, the other one which can be seen at after end of the deckhouse for simplicity, the winch on the after deck can also be omitted.

As may be visible from outside, if the model maker prefers to fit out, I have indicated the



ABOVE: Deck crane on foredeck. RIGHT: The aft side of the wheelhouse showing extension and wheelhouse access door on the port side. This also shows engine exhausts and floodlights etc.



Port side profile; this gives a clearer view of mast etc. with curved vent intake just aft of the mast after leg.



ABOVE LEFT: Looking to port at the forward end of wheelhouse, showing the helmsman's seat and controls. ABOVE RIGHT: View from the aft in the wheelhouse showing some of the fittings.

internal arrangement of the forward part of the deckhouse and inside of the wheelhouse itself. Additional details of the usual array of navigation and communication equipment can be gained from the photos of the wheelhouse interior arrangement. Note that

aft end of the wheelhouse has an extension with wheelhouse access door on the port side of this extension and also the wheelhouse sides proper, extending out slightly from the lower deckhouse. The end view of wheelhouse front on Sheet 1 shows this.

The guardrails are fitted along the port side of the wheelhouse top and extend to curve around forward of the water cannon monitor. The original colour scheme will be clear from the illustrations.

Acknowledgements for photos and details: Arne Timmerling. ●

BELOW LEFT: View of the transom and hinged door and protective rubber belting. The ladder from deck to deckhouse top and life raft canisters launching cradles. This was taken in warmer climes after she was converted to a motor yacht. BELOW RIGHT: View under the stern showing detail of rudder with protective ice knife above, note protective fins on the hull ahead of the propeller, also the line of the bulb where it meets the hull plating.



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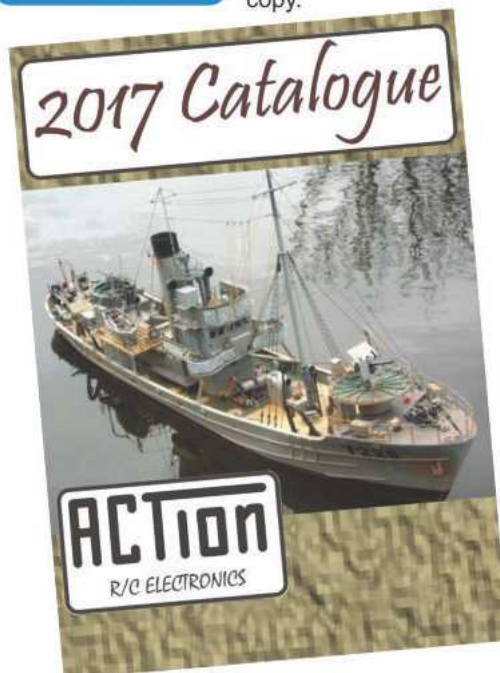
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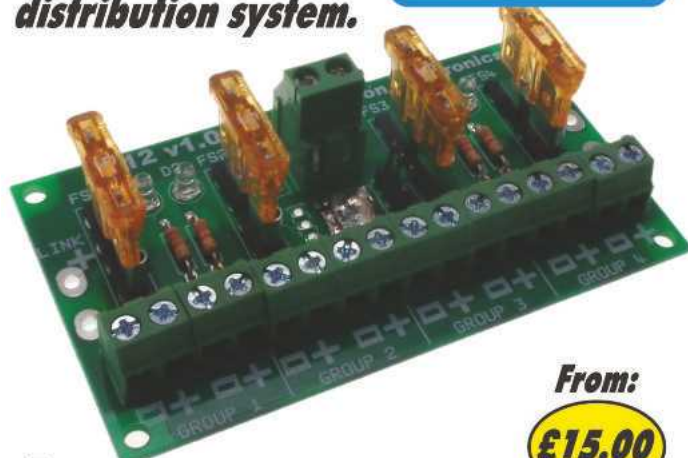
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OSA 2 Fast Missile Boat

Constructing the PK-16 multi-barrel Decoy Launcher and life raft canisters by **Dave Wooley**

The PK-16 Decoy chaff Launcher

As mentioned earlier on in this series, the OSA 2 missile boats and particularly the 205U, was not what you would consider a rigid design philosophy; far from it. In fact, the 205U export variant, supplied to client states or countries not unsympathetic to the Soviet Union incorporated features, weapon fits, sensors which were not part of the OSA 2s in service with the Soviet Navy. An example of this is in the build of this model, a 205U variant as used by the Syrian Navy. It is on this type that the PK-16, a 16-tube 82mm chaff/IR launcher of East German origin, was fitted and seen here aboard the former Volkmarine (East German) Tarantul 1 missile boat the Rudolf Egelhoffer (**Photo 1**). Each round was 653mm in length with the launcher fitted on either beam just forward of the Drum Tilt MR 123 Fire Control Radar on the Syrian OSA 2.

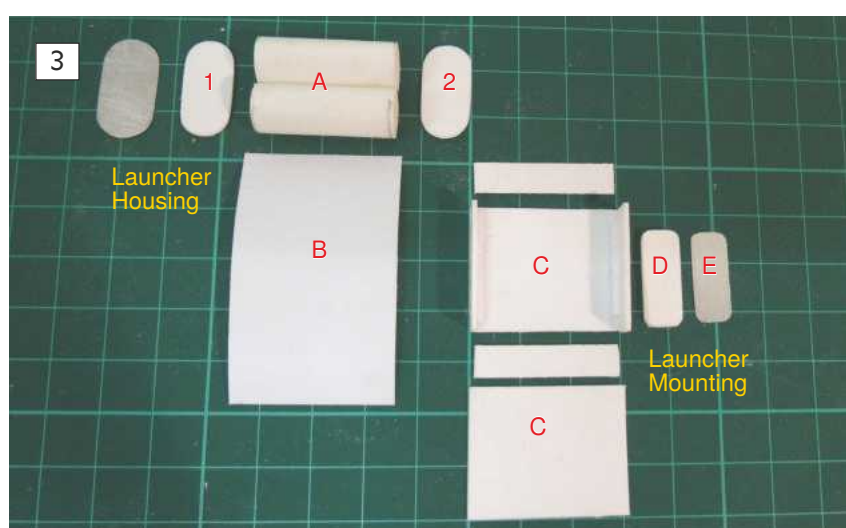
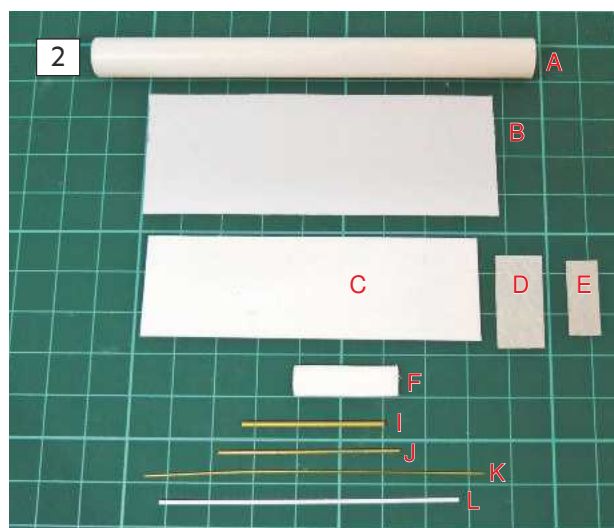
Presently, there are no plans or drawings for the PK-16 (that I am aware of) thus a sketch was made using available images



1: The PK16 decoy rocket launcher shown here aboard the Tarantul 1 Hidden see ex DDR- Rudolf Egelhoffer.

Basic materials for PK-16 Part

Part	Material
A	Main launcher body
B	Launcher surround
C	Launcher mounting
D	Access door housing to mounting
E	Access door to mounting
F	Base into which pins will be added
I	Decoy rocket firing system
J	Handle to side of launcher
K	Decoy rocket firing system launcher
L	Outer straps
	Evergreen 231 8.7mm OD tube
	.50 mm styrene sheet
	1mm thickness styrene sheet
	2mm thickness styrene sheet.
	.25 mm lithe plate
	2mm thick styrene
	0.8 mm OD tube
	0.6mm brass rod.
	0-6 brass wire
	.25mm x 0.75 Evergreen strip 101



2: All the materials that will form the PK16 decoy launcher and mounting; see text. 3: Each of the parts for both the launcher housing and mounting are cut to size.

3: Each of the parts for both the launcher housing and mounting are cut to size.

4: Assembling the parts for both launcher housing and mounting.

5: The mounting is almost complete whilst the launcher housing receives its outer covering of styrene sheet.

gleaned from the internet. As is my usual practice, the fitting was first divided up into various parts and each part was subdivided into the materials required; this process makes for quite an easy build. Thus, what you have is a two-part fitting, launcher and mounting. Here in **Photo 2**, are all the required materials that will form both parts of the PK-16.

The next stage is to commence cutting the material to size, starting with two sections of 8.7mm styrene tube cut to 28mm in length and jointed together. As can be seen in **Photo 3**, the outer ends, 1&2, which will be fitted to the ends of the tubes and will help form the eventual curved shape, whilst closing off the ends of the tube. Also, a start can be made assembling the box like mounting, which is listed as C, D & E. The progress in this method can be seen more clearly in **Photo 4**.

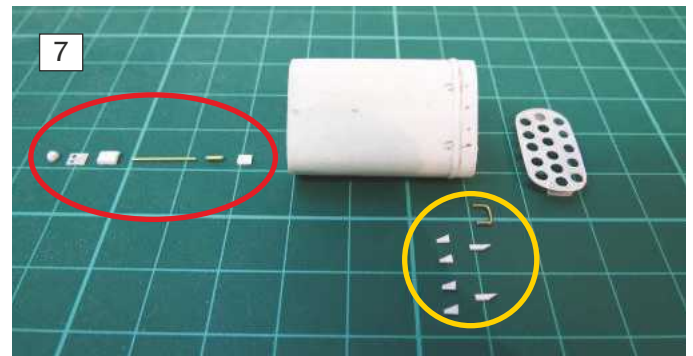
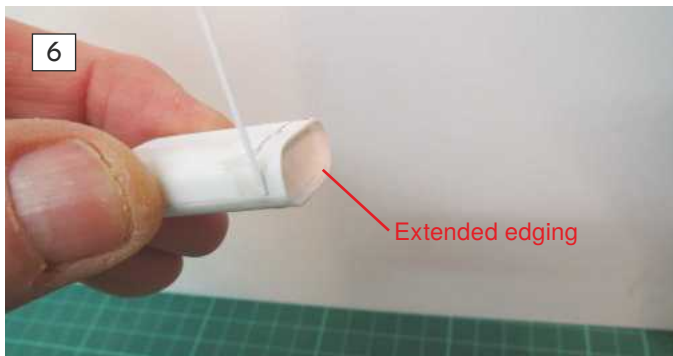
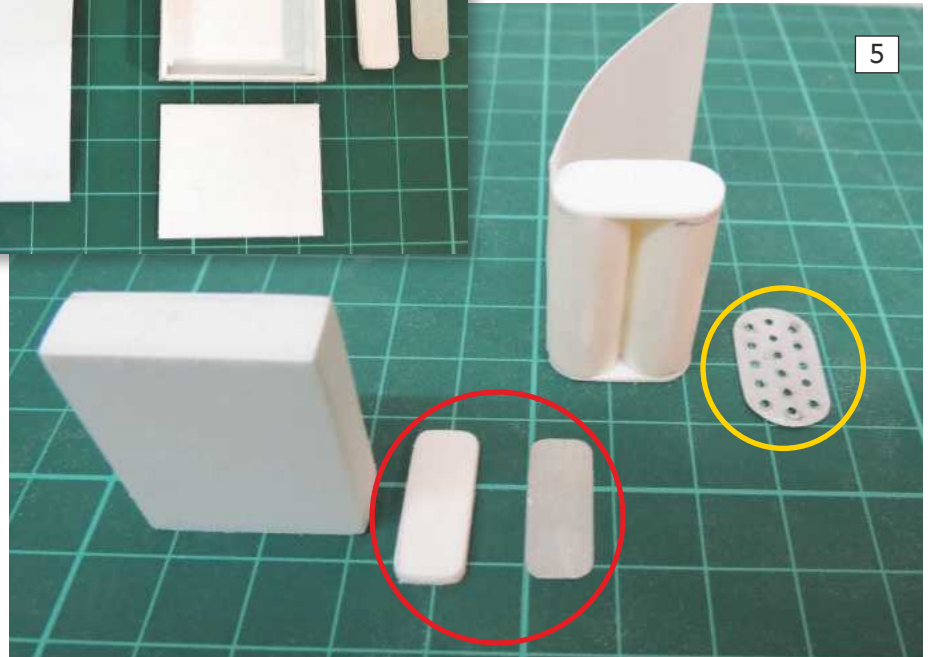
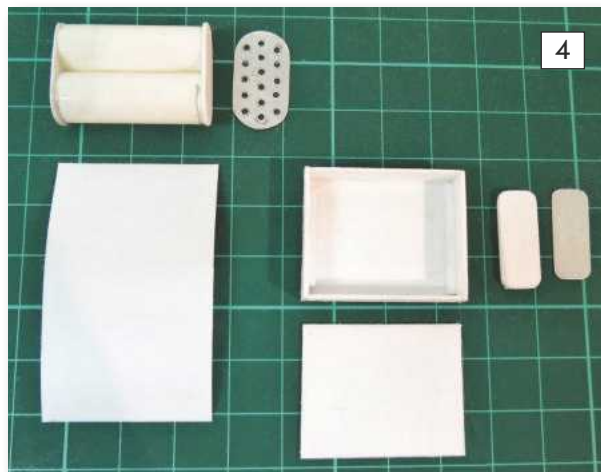
To form the inside of the launcher, the styrene, which is wrapped around the tubes, overhangs one end onto which will rest the 16-hole lithe

plate, originally the opening for the decoy rockets and ringed in yellow (**Photo 5**). Also shown is the assembled mounting with the access door ready to be added ringed in red.

With the actual double half rounded shape of the launcher completed, the next stage involved the fitting of the outer strap which forms the joint of separation onto which hinges are fixed. On the full-size

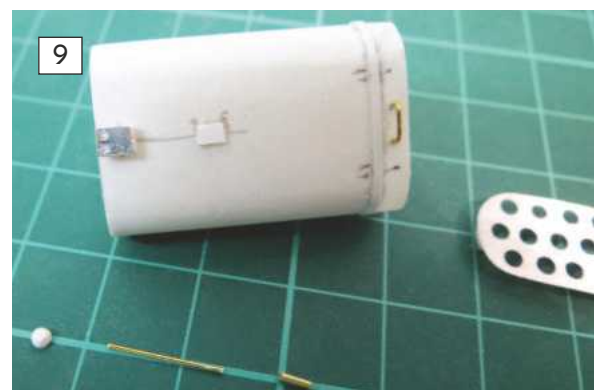
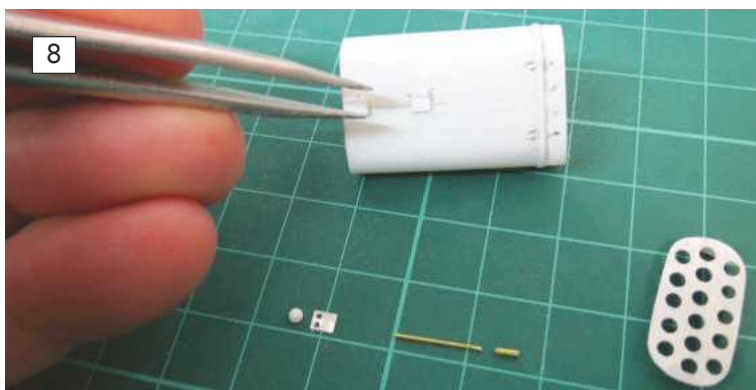
launcher, this allowed the front section to be lifted clear of the main body (**Photo 6**).

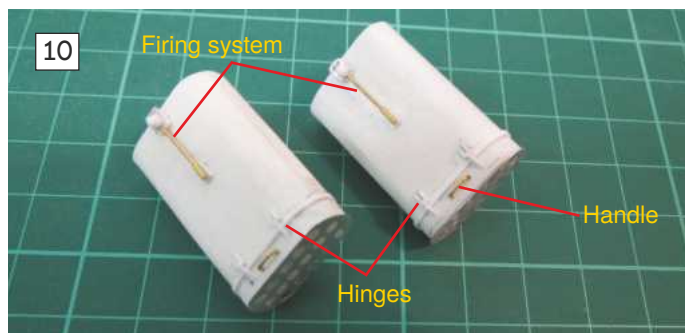
Next, the remaining parts of the assembly can be fitted, which involves the decoy rocket firing system shown here in **Photo 7** ringed in red, whilst the hinges and handle are ringed in yellow. The assembly and fixing to the main body is seen in **Photo 8 & 9**. The completed launcher



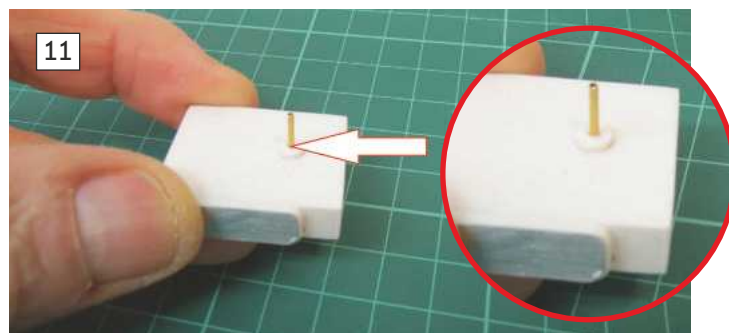
6: Fixing the hinge strip onto which the hinges are fitted. 7: Prepared parts for the firing system ringed in red, the hinges and handle ringed in yellow.

8: Fixing the firing system to the launcher housing. 9: Here the handle is fixed into place and on the full-size launcher is used to open the front of the housing.





10: Fully assembled pair of PK16 decoy launcher housings. 11: Here a 1mm OD brass tube is inserted into the outboard side of the mounting.



12: On the underside of the mounting two locating pins are added to ensure a firm and precise fit. 13: Port PK16 decoy launcher in place. 14: The starboard PK16 launcher.



housing rails (**Photo 12**). The PK-16 launcher and mounting are now comfortably in place (**Photo 13**). It's worth noting, the duel handles fitted to the inspection hatch on the back side of the mounting ringed in yellow (**Photo 14**).

Life raft container and support frame

The OSA 2, like all warships is fitted with containers into which inflatable life rafts are fitted. These are deployed either manually or automatically, employing a hydrostatic release system. On the 205U variant, these are mounted on either beam on each side of the after-ventilation housing.

Making these could not be easier, as the container is in two parts and with the joint clearly visible, a decision was made to follow suit. The container is formed from Jelutong timber, sanded to shape 30mm long x 17mm diameter and divided in two, along its length. A styrene profile is made to correspond with the shape of the container and slightly oversize as seen in **Photo 15**. Using R/C modeller's glue (ideal for bonding styrene to timber) one half of the container is added to the profile (**Photo 16**).

body along with the hinges and handle fixed into place can be seen in **Photo 10**.

To attach the launcher to the mounting, a short length of 1mm OD tube is inserted into the side of the mounting and a corresponding length of 0.8mm brass rod is inserted into the inboard side of the launcher body (**Photo 11**). This allows the launcher to be fitted and adjusted to the required angle.

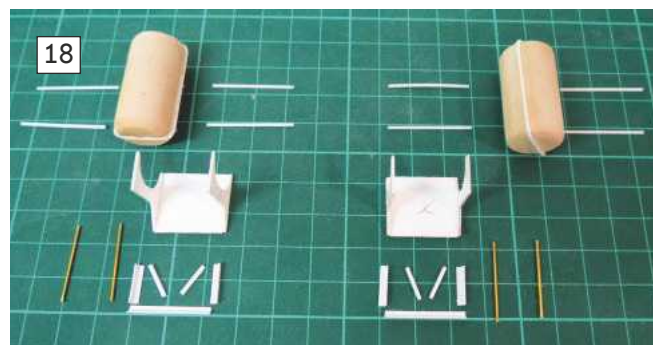
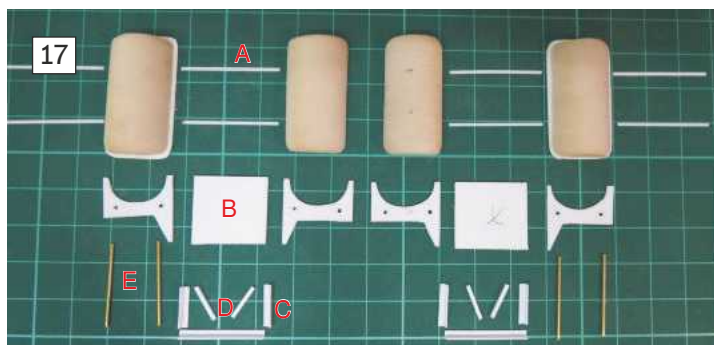
Like most of the fittings on this model, they are fixed into their respective locations via pins, this ensures that the fitting is accurately secured and limits the amount of adhesive required to fix the fitting into place, whilst at the same time gives the freedom to remove the fitting for airbrushing. This is illustrated here; where the mounting is located via pins ringed in red outboard of the deck



15: Each of the basic prepared parts that will form the inflatable life raft container.

16: Using R/C modellers' glue, the two timber halves are fixed to the styrene centre profile.





17: All of the parts that will form the Life raft container and the mounting frame. 18: Assembly is underway for the life raft container and mounting frame.

Basic materials for OSA 2 Life Raft Part

Part	
A	Outer rib
B	Canister base and side supports
C	Support frame
D	Cross braces
E	Strengthening bars

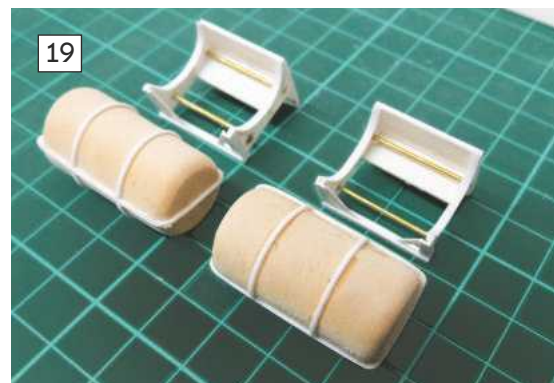
Material

0.40 x 1mm Evergreen 240 half round
1mm thickness styrene
2mm angles strips Evergreen 292
0.50 x 2mm. Evergreen strip 104
8mm brass Rod (Albion Alloys)

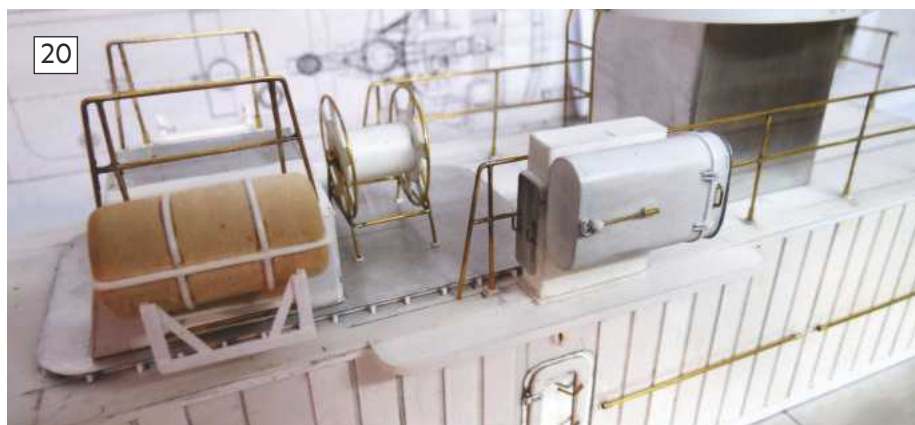
The next stage is to cut to length the outer ribs which are moulded into the full-size GRP container and cut to size into the parts that will form the container support (Photo 17).

The next step was to join the two halves of the canisters to the middle profile and assemble the canister supports (Photo 18).

This was followed by adding the outer ribbing to each canister, the net result, the canisters are fully assembled along with each support frame and both are ready to be fitted to each side of the after-vent housing (Photo 19 & 20). All that remains is the timber surface of the canister which will be given a coat of sanding



19: Assembly completed with the support frame ready to be fixed to the after-vent housing.



20: The container and support frame fitted in place. All that is required is painting and the addition of the retaining straps. 21: A brief glimpse of the progress thus far. A start has been made on the stanchions using a trusty jig and it made the job so much easier and less time consuming.

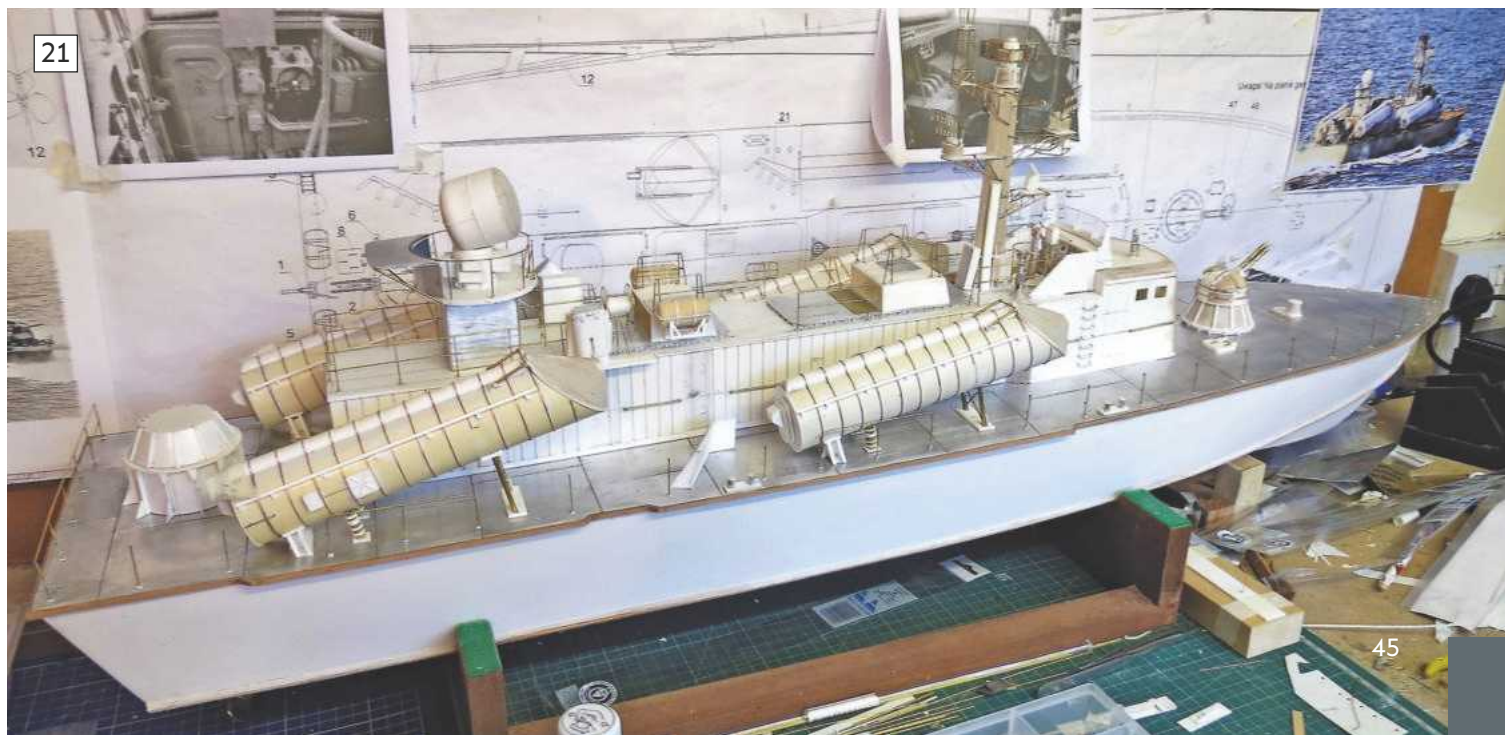
sealer in preparation for air brushing and the straps retaining the canister to its support will be added when the painting is completed.

Our final departing shot for this month shows some of the work to date and a general view of the life raft canisters in place (Photo 21).

Next month:- Stanchions or how to make a repetitive job a straight forward one.

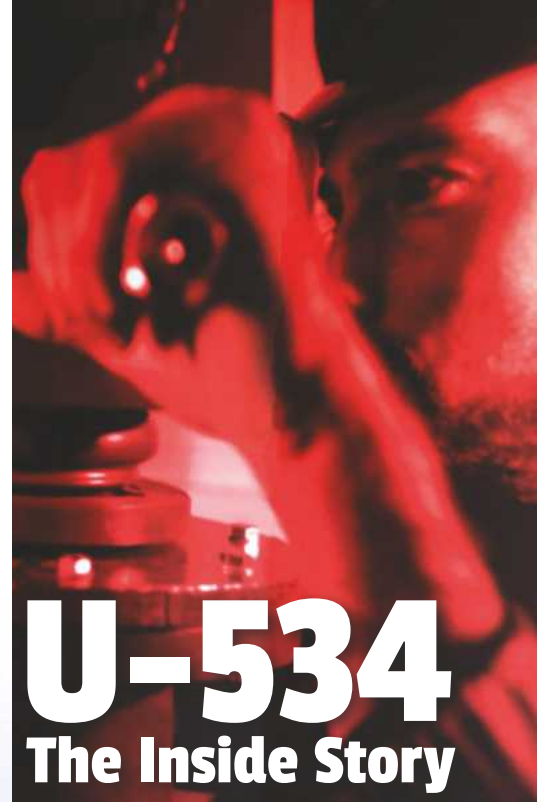
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BELOW: Rear starboard view in 2008. The damage caused by a depth charge in May 1945 is evident.

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ABOVE: Depth charge damage on the starboard side.

BELOW: Access hatch to the conning tower.



ABOVE LEFT: Base of the attack periscope, pre-restoration. ABOVE RIGHT: Conning tower attack computer, again, as raised.

the 1936 Olympics, so as well as the U-Boat's given plaque, he was entitled to place the Olympic ring-symbol in a prominent position, on the front of the submarine's conning tower. This is clearly visible in many archive photographs of the vessel.

Being a Type IXC/40 meant that although she was more than capable of taking on an offensive role, her extensive stowage capacity ensured that she was utilised as a 'Milk-Cow', or 'depot-ship' to service the more nimble and smaller types which were more numerous in the 'Wolf-Packs' at large in the Atlantic. She also performed a valuable training role for much of her operational career.

Stories, rumour-mongering and conspiracy theories about the boat abound and have done since her discovery in the Kattegat, off the Danish Island of Anholt, by Aage Jensen in the late 1980s, then her subsequent raising by Danish media millionaire Karsten Ree in

league with Smit-Tak, in the early 1990s. She was sunk by a depth charge attack by a patrolling RAF Coastal Command Liberator, on May 5, 1945. The Liberator descended to about 30ft off the deck and performed two passes. The entire crew were perplexed to say the least when the first run was unsuccessful. The second attack, under heavy Flak-fire from the U-Boat, delivered a result, not least because the final depth-charge bounced on the sub's rear-decking, rolling down the starboard rear portion of the hull, level with the engine-room. The ensuing explosion, just below the surface, caused a fracture and indentation in the inner and outer hull which is visible to this day.

Once raised by Ree, the rumours that she had possibly been carrying Martin Borman and his huge stash of Nazi-Party Gold, proved unfounded. Her final destination will never be known, however, at the war's end, large numbers of U-Boats remained at large, being neither on the Allies' inventory of vessels sunk, or recovered and impounded.

My involvement with the U-534 project began in 2010, by which time the vessel had been purchased by visionary individuals at Mersey Travel in Liverpool, for the princely sum of one Euro. U-534 then and now forms the kernel of a magnificent visitor attraction at the Woodside ferry Terminal in Birkenhead. To fit her onto the site available and facilitate viewing of the boat's interior by visitors, she was initially cut into five sections (two were later re-joined), using a diamond-wire cutting device.

My task, after pitching to the Mersey Travel board, was to design and supervise the manufacture of a full-size, replica conning tower, with an operational periscope, so that visitors could experience something of the horrors and the excitement





ABOVE LEFT: The forward torpedo tubes in the closed position. ABOVE RIGHT: The replica conning tower under construction.



ABOVE LEFT: The interior of the presentation model.

ABOVE RIGHT: The interior of the replica conning tower with the attack computer installed.

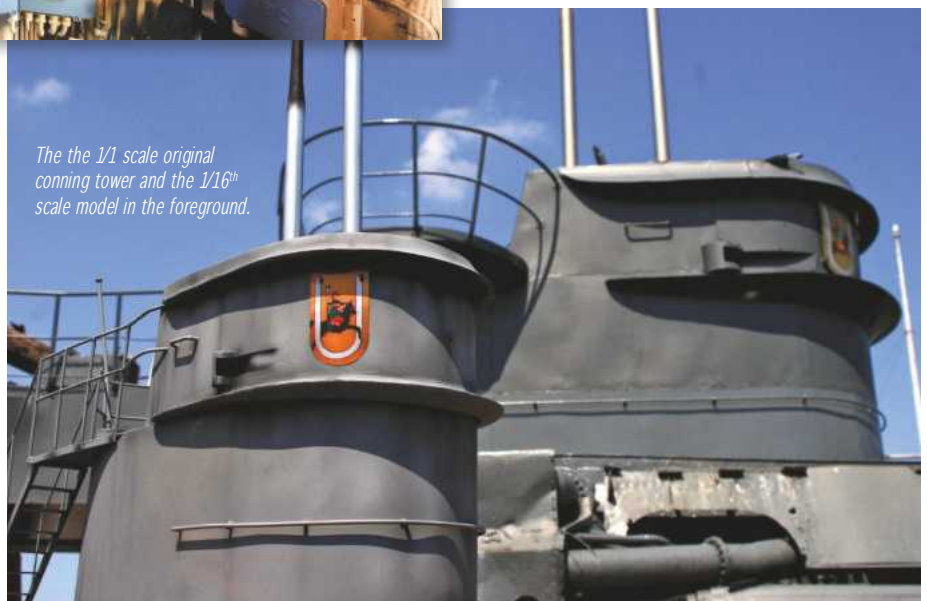
RIGHT: The replica periscope is almost complete.

BELOW: My 1/16th scale presentation model.



of hunting the U-Boats' quarry during the Battle of the Atlantic. The interior of the replica is rationalised for health and safety reasons; in the extreme. I followed quite closely the constraints of my original 1/16th demonstration model, utilising wall panels with images of the Chicago U-505 interior, as you will see in the accompanying photographs - which should also prove invaluable reference for anyone building one of the larger scale model U-Boats currently available.

Working across the river from the birthplace of one of my boyhood heroes, Nicholas Monserrat - author of 'The Cruel Sea', proved an excellent experience for myself and my wife Jackie, whom was responsible for the conservation of a good many of the ship's



The the 1/1 scale original conning tower and the 1/16th scale model in the foreground.



ABOVE LEFT: Replica readied for delivery. ABOVE RIGHT: Conservation in detail. BELOW LEFT: The reconstructed 'Wintergarden'. BELOW RIGHT: Our replica in place.



artefacts, including the 'BBC' dive and trim control apparatus shown in the accompanying pictures. After shot-blasting and careful paint application, the preservation of this remarkable artefact was assured. This control equipment could be installed atop the conning tower, enabling the Captain to take control of steering/diving capabilities whilst steaming on the surface. She also helped me construct the replica 'Attack Computer' and periscope. The periscope was a fascinating prospect, as when I rang BAE Systems at Barrow, they informed me that for them to build one, would incur a cost of about £1,000,000. I resolved to manufacture a casing-replica around an ex-Chieftain Tank periscope that I purchased, fully functioning, for the princely sum of £25 from a kindly chap in Beverly, Humberside. The result, works perfectly well.



ABOVE: Twin 50mm armament.

BELOW: A View of U-534 from the replica Wintergarden.



The photographs herewith issue from my personal archive taken during the build. Being one of the very fortunate few to have been allowed inside both the hull, and conning tower of U-534, facilitates my offering here, exclusive shots of the cramped interior of the 'business' portion of the craft - wherein the 'Attack Computer' and 'Attack Periscope' still dwell. The entire ship was the victim of sea water's ingress, so whatever you see is inevitably damaged to some degree. However, as there are only four preserved U-Boats in the World, all and every portion of reference is invaluable. Many thanks in the compilation of these photographs to my wife and my son, Christian Howarth, without whom this extraordinary project would not have come to fruition. ●

BELOW: The fully restored BBC (Dive and trim) remote guidance system.



Mayhem at Wicksteed 2018

Hosted by the Wicksteed Park Model Boat Club, the editor went for a foray into Northamptonshire and discovered a gem of a show!

I have to confess, from the outset, that I have not been to a model boat show since I was a nipper. With the latter in mind, I had no idea what to expect when I cautiously slipped into the Model Mayhem camp on Sunday May 27. It had also been a long, long time since I had visited Wicksteed Park and I had no idea that there was such a lovely model boating lake in such a pleasant part of the park – or maybe I had just forgotten about it! The purpose-built lake was created many years ago and the original Wicksteed MBC can be dated back the 1920s. Thanks to



ABOVE RIGHT: A Robbe Atlantis yacht by Pete Carmen ('Klunk') of Luton & District MBC.

LEFT: A large scale Coastal Motor Torpedo Boat built by Steve Brown of WPMBC. Nick Brown

BELOW: A general view of the Model Mayhem show around the lovely Wicksteed Park boating lake. Nick Brown





ABOVE LEFT: HMS M18, a First World War M15-Class monitor, by James Jones. ABOVE RIGHT: Jay Beazley's Model Slipway Envoy class tug named Dextrous. BELOW LEFT: MV Celestine, a car ferry with working ramp, by Mayhemer John Walraven. Nick Brown



a lottery grant, the lake, which measures 30m x90m and is, on average, 60cm deep, was refurbished in 2004 and I must say, it really is a cracking place to go and cut your teeth in the world of model boating.

Having been absent on the first day, I was enthusiastically informed by many that the weather was good and the lake very busy and if the photographs I have seen are anything to go by, I don't doubt a word of it. At one point there were 25 boats on the lake of all shapes and sizes. A lack of wind did not put the yacht sailors off and an entertaining display by the 'Secret 10' (check out www.modelboatmayhem.co.uk) was appreciated by all. Bob Kiralfy (the Chairman of Black Park MBC) produced a show stopper on the Saturday with his impressive seven feet-long HMS Agincourt. Due to its size, Bob constructed the model in two sections, therefore unofficially creating HMS Agin

and HMS Court (in Bob's words) when she/they are not on the water! Another feature of HMS Agincourt described, and I quote as 'a new revolution in model warship technology', is a fully automatic tracking and firing gun system which is being developed by Bob and a few 'Mayhemers'. Foot fall was higher on the Saturday as well and at least one stand, selling second-hand boat-related items, did very well.

So, to the Sunday; I wasted no time and made a bee-line for Martin, the event organizer, aka 'Mr Mayhem', but was cut off at the pass by Ron Dean who introduced me to at least a dozen people all of whom I presumed either had the Christian name Nick or Martin (sorry Ron, I was struggling to keep pace!). However, I quickly found my feet and after a good chin-wag with Martin was joined at the table, behind the efficiently-staffed (Martin's lovely wife and daughter) refreshments tent, by a steady procession of model boaters. Included in the latter group was Bob Kiralfy, 'Steamboat' Phil Abbot and Jag of Palaform Ltd. Phil, I can only apologize that I could not give you more time and failed to drop into your tent before leaving; we need to talk a lot more! It was from this point that I realized how unprofessional I was, by failing to write down the name of the operator and the boat they were sailing, so once again, my apologies if your boat appears in this feature without a decent caption – I will learn! I soon found myself speaking to people like I had



Loki and Loki II Straight Runners by Phil Abbot of Blackheath MBC. Nick Brown





ABOVE LEFT: The mysterious Secret 10 was discovered to be a Springer Tug Demolition Derby. Nick Brown ABOVE RIGHT: Guaranteed to always attract attention, this is a lovely replica of RNLB Lady MacRobert (48-014), a Solent-class lifeboat, one of only eleven full-size vessels built. BELOW LEFT: HMS Iron Duke 1916 by Geoff Dixon being escorted by Tony Newstead's HMS Marksman. Nick Brown BELOW RIGHT: Well he was no 'looker' but he surfed well!



known them for years and it was not long before the banter started, which made me feel even more at home.

What struck me was the diversity being displaying on the water simultaneously and none of it in conflict with each other. A guy on a surf board weaved his way around small sailing boats, while a USS Skipjack submerged in the middle of the lake and yachts glided by, not to mention a great cross-section of military 'surface' vessels

from all era's weaving around. It was an absolute pleasure to observe and on at least two occasions I was offered a go, but politely declined as I was supposed to be working – yeah right! One of those offer's came from Pete Carmen ('Klunk') whose Atlantis yacht looked majestic on the water and there was no way I was going to spoil that! It was also nice to meet Nick Brown who has supplied a number of images for this article and named a few of mine; all appreciated.

That leaves me just say a huge thankyou to Martin and it really was great to meet everyone; I felt very much at home and for any show or club to be able to project that feeling, you are on to a winner. I cannot wait to visit next year; you never know I may even have a boat of my own by then.

Websites:-
www.modelboatmayhem.co.uk
www.wicksteedparkmbc.com



ABOVE: Tug Towing carried out by the Welwyn MBC. Nick Brown BELOW: A vintage Police Launch by Roger Clements of Peterborough & Area MBC. Nick Brown



The perfect model boating weekend; here's to Model Mayhem 2019!



LEFT: The Turnigy Aquastar in my 4Cell Cat. Not fully waterproof, but pretty water resistant. Three Years of hard racing and still going strong. Fully programmable using a Turnigy USB Linker.

Programming your ESC

Ian Williams takes a look at programming Brushless ESCs

Programming ESCs for brushless motors

Following on from my last article I thought I would have a look at the mysteries of brushless ESC (Electronic Speed Controller) programming.

It is true that some FE (Fast Electric) boaters, including some very experienced ones, are still a little uncertain when it comes to programming ESCs, especially the PWM

(Pulse Width Modulation) and Timing settings. So I am going to try and de-mystify and explain what the various settings on most ESCs do. I have found that many boaters, especially newbies, will just run the ESC as it comes out of the packaging. Often this works fine, but equally, often the ESC must be programmed to suit your motor, but first a little explanation about brushless motors.

Not three phase AC

Let me explode a myth right now. A brushless motor is not a three phase AC (Alternating Current) motor. It is a Brushless DC Motor (BLDC). It is true that there is an AC element, as the direction of the current has to be reversed for every half turn (180°) of the rotor, hence the three wires. But despite this AC element, it is not a true AC motor but a DC motor with external commutation. Three-phase synchronous motors are large industrial motors, the speed of which is controlled by the frequency of the AC input signal. The speed of our motors, brushed or brushless, is controlled by the voltage level of a DC input. The only real difference between a brushed and a brushless DC motor is where the commutation takes place. Commutation simply switches the motor's current from one pair of the motor's windings to another. In a brushed motor, that function is performed internally and mechanically by a segmented commutator and a set of brushes. In a

Example ESC Programming Chart

1. ⤴— For (2S-7S)-ESC Cell Type and Number of Cells	
• — 1 Short + 1 Long	NiMH/NiCD Auto Cell Count - 0.8V/Cell Cutoff Voltage
• — — 1 Short + 2 Long	7S Li-Po (25.9V) – 21V Cutoff Voltage
• — — — 1 Short + 3 Long	6S Li-Po (22.2V) – 18V Cutoff Voltage
• — — — — 1 Short + 4 Long	5S Li-Po (18.5V) – 15V Cutoff Voltage
• — — — — — 1 Short + 5 Long	4S Li-Po (14.8V) – 12V Cutoff Voltage
• — — — — — — 1 Short + 6 Long	3S Li-Po (11.1V) – 9V Cutoff Voltage
• — — — — — — — 1 Short + 7 Long	2S Li-Po (7.4V) – 8V Cutoff Voltage
2. Throttle Setting ⤴ — —	
•• — 2 Short + 1 Long	Auto Throttle Range
•• — — 2 Short + 2 Long	1.1ms to 1.8ms
•• — — — 2 Short + 3 Long	Hard start*
•• — — — — 2 Short + 4 Long	Soft start
3. Brake Setting (For normal Aircraft) ⤴ — — —	
••• — 3 Short + 1 Long	No Brake
••• — — 3 Short + 2 Long	Soft Brake
••• — — — 3 Short + 3 Long	Medium Brake
••• — — — — 3 Short + 4 Long	Hard Brake
Direction and Cutoff Type ⤴ — — — —	
•••• — 4 Short + 1 Long	Clockwise Rotation
•••• — — 4 Short + 2 Long	Counterclockwise Rotation
•••• — — — 4 Short + 3 Long	Soft Cutoff
•••• — — — — 4 Short + 4 Long	Hard Cutoff
5. Timing Mode Setting ⤴ — — — — —	
••••• — 5 Short + 1 Long	1° - For 2-4 Pole Inrunner Motors
••••• — — 5 Short + 2 Long	7° - For 6-8 Pole Motors
••••• — — — 5 Short + 3 Long	15° - For 10-14 Pole Outrunner Motors
••••• — — — — 5 Short + 4 Long	30° - For 10-14 Pole High-RPM Outrunner Motors
6. Pulse Width Modulation (PWM) Setting ⤴ — — — — — —	
••••• — 6 Short + 1 Long 8KHz	— For low RPM and low pole count motors
••••• — — 6 Short + 2 Long 16KHz	— For most out runner motors



ABOVE: A very high quality and expensive ESC from MGM, made in the Czech Republic. Adjustable for about every parameter you would need to adjust.

BELOW: A more normal range ESC, fully waterproof and fully programmable.





ABOVE: A 300amp Swordfish ESC which can also use the USB Linker for programming.

BELOW: A newer Swordfish model which is fully waterproof and again programmable with the USB Linker.



brushless motor that function is performed externally and electronically by the ESC. The very fact that they both require commutation, should tell you the nature of these motors. A true three-phase synchronous motor does not require commutation.

As far as the 'speed control' portion of the ESC is concerned, there is very little difference between a brushed ESC and a brushless ESC, they both control motor RPM by varying the input voltage. Also the RPM of both brushed and brushless motors is proportional to that input voltage. Back in the day, mechanical controllers added resistance to the motor circuit to reduce voltage and thereby slow down the motor, but this created heat and wasted energy. Modern ESCs send on/

off pulses for control. The power applied to the motor can be controlled by varying the width of these applied pulses and thereby varying the average DC voltage applied to the motors terminals. By changing or modulating the timing of these pulses, the speed of the motor can be controlled, i.e. The longer the pulse is 'ON', the faster the motor will rotate and likewise, the shorter the pulse is 'ON' the slower the motor will rotate.

So for example, at half throttle, the ESC applies full battery voltage for half of the time and zero volts for the other half of the time, but the motor reacts to the average of those pulses. In other words, it reacts as if half of the battery voltage is being applied continuously and it spins at half of the full throttle RPM. So the motor's speed varies with input voltage, not frequency, be it a brushed or a brushless motor. This is borne out by the fact that the ESC's PWM switching frequency is the same regardless of the throttle setting. PWM operates at a fixed frequency and varies only the ratio of the on/off time of the pulses within each cycle. To vary the frequency requires that the length of the cycle be changed, and PWM does not do that. It is the average of the on/off voltage ratio within each cycle that the motor sees, as its input voltage and the motor's RPM varies accordingly. The higher the ratio of the on time to the off time, the higher the average voltage and the faster the motor turns. Altering the PWM setting in an ESC is altering the speed at which the pulses are sent to the motor not the ratio between ON and OFF.

Programming your ESC

There are several ways of programming, using the transmitter and/or a programme sheet which is part of the ESC instruction sheet. This is quite a laborious process

waiting for a series of tones or beeps to cycle through the various options. Better options are a programme card or box. You should be careful here however, as often a programme card will only work with one particular make and model of ESC. Another method is to use a USB dongle which links the ESC to a computer and uses an installed program. I have included a photo of the Turnigy USB Linker which will work on several different ESCs such as the Swordfish and Turnigy Aquastar ranges.

I have included part of a setting chart for a budget, but still a pretty decent 200amp ESC. The first thing to note, and be careful of, is the type of cell and cell count settings. Some ESCs say 'auto cell count' but as in the example here, that is often only for NiMH and NiCad cells. You have to set up the voltage manually for LiPo cells. Some, like the example here, will also set the cut-off voltage (3v per cell here) whilst others let you set the cut-off yourself. NEVER set it below 3volts if using LiPo cells, in fact I prefer a slightly higher cut-off voltage if possible.

Next is the throttle setting. Sometimes it is better to go with the auto setting as it will usually have a short ramp up time. It is not always good for the motor to use hard start and quite often soft start gives too long a ramp up time. You don't need brakes on a boat so set at no brake. Rotation setting doesn't matter as you can change rotation of a brushless motor by swapping over any two of the leads.

Timing means Motor Timing

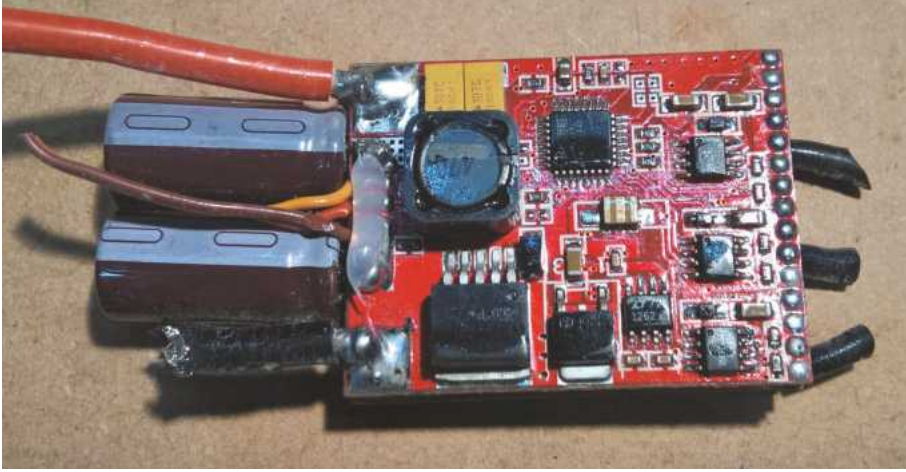
Here we are at the basic 'nuts and bolts' of ESC setting. Electronically altering a brushless motor's timing is equivalent to altering a brushed motor's timing by rotating the end bell. If you advance the timing, the motor will put out more power and often rev faster, but at less efficiency and will usually run hotter. On the other hand, if you run the motor with retarded timing the motor will not produce the power it is supposed to. There is a happy balance on what is the right timing for your motor. Sometime a motor manufacturer will specify the most efficient



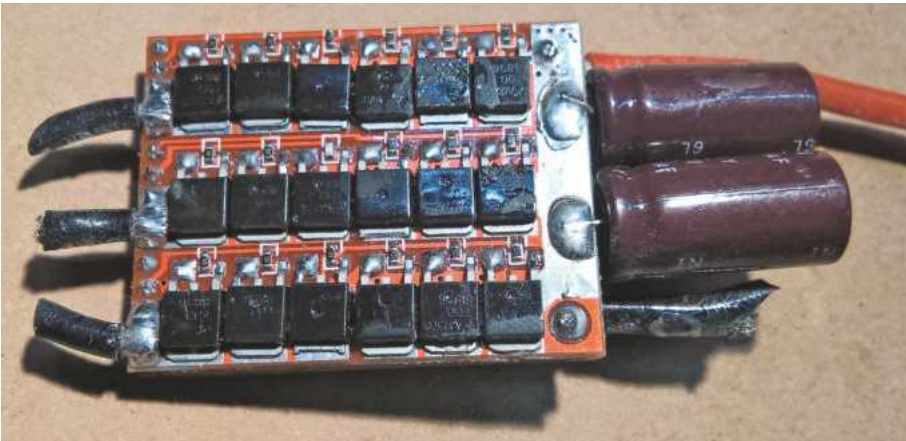
ABOVE: I had to show this one. 90amps fully waterproof works very well.

RIGHT: A reasonably priced aircraft ESC which can be water-cooled using the aftermarket cooler shown.





ABOVE: Anatomy of an ESC; this is the control circuitry board.



ABOVE: One of the two Power FET boards.



ABOVE: Side view showing all three boards.

timing setting for their motor. Also, as in the setting chart shown, the ESC manufacturer will give a range of settings with basic advice on motor types.

Finally the PWM settings; remember that the frequencies shown in the chart (8KHz and 16KHz) are basically the speed at which the pulses are sent, not the ratio between on and off. Again, some ESC manufacturers give you more options than here and some basic information on motor types. If you have a high quality (expensive) motor, the manufacturers may give you full specs of it, in which case this calculation for frequency may help; $KV \times Volts \times Poles / 20$.

As an example, I have taken a low-revving 550kv Scorpion 10-pole motor on high voltage (44.4v - 12s). This gives $550 \times 44.4 \times 10 / 20 = 12210$. (i.e. around 12KHz). Scorpion recommends an 8 PWM with 5° of motor timing. By the calculation, this motor should run well at a 12KHz frequency. Motor temperature and ESC temperature will always dictate your limits on motor timing and PWM. The higher the timing and PWM, the more power and speed the motor should

make, at the cost of efficiency, run time and increased operating temperatures.

One final point, the operational requirements for an ESC for boat racing are different to those for an aircraft or car. The core programming is different, as an ESC for high power boat use, has to cope with much more extreme current variations. For example, (remembering that most boats use no gears but are direct drive these days), at start up, the motor is close to stall state for a fraction of a second until the boat starts to move and the prop unloads, reducing the current the motor draws. At any time during the run, the boat can jump off the wake of another boat or a wave if the water is rough. At this point, the motor is running totally unloaded for a short while and then is instantly back to almost stall condition as the boat re-enters the water. If you use an aircraft controller, even good ones can fail under this type of punishment. It is why we tend to run ESCs with a much higher current capacity than most fliers use. There is also the question of water cooling. Most high power boat ESCs are water cooled, but you can do this yourself if you are going to be fun running, rather than flat out racing. You can buy water cooled plates for small ESCs and these need to be fitted to the ESCs output FETs (Field-Effect Transmissions), after the Heat Shrink has been removed. If the ESC has an existing aluminium heat sink, the water cooled one could be placed on this to give extra cooling, then heat shrink tubing re-applied.



A composite picture showing a typical programming card and the USB Linker.



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31 in long by 9.75 in beam		630 mm long by 190 mm beam		730 mm long by 210 mm beam				
								
Plan Code: MM1390 £14.50 + p&p	Vac Formed Hull Code: HULMM1390 £39.50 + p&p	DVD Code: DV504 £7.99 + p&p	Plan Code: MAR2966 £17.50 + p&p	Laser Cut Wood Pack Code: WP2966 £31.50 + p&p	Plan Code: MAR3062 £17.50 + p&p	Laser Cut Wood Pack Code: WP3062 £56.50 + p&p	Plan Code: MAR2552 £17.50 + p&p	CNC Wood Pack Code: WP2552 £59.00 + p&p
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Designer: C. Halliwell		Designer: B. Thompson		Designer: Richard Chesney		Designer: Vic Smeed	
1:48, 588 mm long by 160 mm beam		1:24, 1025 mm long by 235 mm beam		1:24, 42.5 in long by 9.6 in beam		700 mm long by 250 mm beam	
							
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Bristol Channel Pilot Cutter 'Hilda 2' DAP003



Vosper RTTL MM530

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Greta	44	5.5	MM1036	17.50
Neptune 36	27	10	MM1436	13.00
Savarona	36	4.25	MM1468	17.50
Caryon	36	12	MM1479	22.50
Miller Fifer	25		MM2064	13.00
Selkie	25.6	8.25	MM2072	17.50
Kathleen	30		MM2075	13.00
Fairey Huntress 23			MM2131	14.50

Racing Yachts

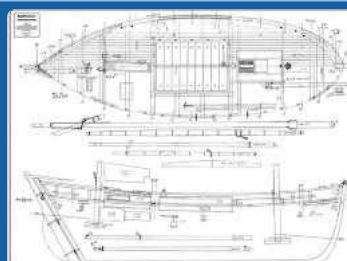
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Rigging & Fittings For Marblehead			MM503	12.50
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Square One (Restricted)	36		MM1104	17.50
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Rhythm (1M Class)			MM1466	17.50
Swallow (1M Class)			MM1494	13.00

Fishing Boats

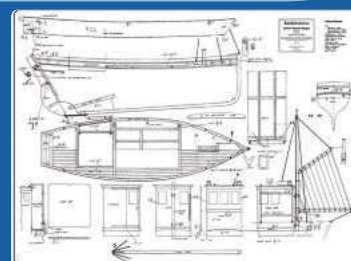
	Length (in)	Beam (in)	SKU	Price (£)
Katie (Gaff Rig Pilot Cutter)	40	12.5	DAP001	15.50
Katie (Gaff Rig Pilot Cutter) Hull	40	12.5	DAH001	106.00
Lady Ma (Small Katie - Mevagsissey Lugger)	20	6.5	DAP002	15.50
Lady Ma (Small Katie - Mevagsissey Lugger) Hull	20	6.5	DAH002	52.50
Ibex (Brixham Trawler)	49.2	11.4	DAP004	21.00
Ibex (Brixham Trawler) Hull	49.2	11.4	DAH004	118.50
Manx Nobby	42		DAP005	21.00
Manx Nobby Hull	42		DAH005	131.50
Breeze (Bristol Channel Pilot Cutter)	40	13	DAP006	15.50
Breeze (Bristol Channel Pilot Cutter) Hull	40	13	DAH006	131.50
Lindy Lou (Mevagsissey Fishing Boat)			DAP007	15.50
Ute	24.5	8	MM2079	13.00
Ute Wood Pack	24.5	8	WPMM2079	49.00
Tern			MAR3702	13.00

Submarines

	Length (in)	Beam (in)	SKU	Price (£)
Molch & Hecht			BM1392	18.50
HMS Tabard	51	5	BM1396	13.00
Submersible	15	6.75	BM1426	13.00
Type XVII U Boat			MAGM2030	13.00
Undine	29.9	2.4	MAR2901	11.50
HMS Valiant Internal Workings			MAR3746	13.00
Nautilus	28	1.5	MM285	13.00
USS Nautilus	36	3	MM433	13.00
Type IX U Boat	45	4	MM471	13.00
Sardine	48	5.75	MM485	13.00
Sprat			MM624	13.00
Resolution Class & Type XXIC U-boat	39 & 38		MM1155	13.00
Charlie Class	40		MM1210	13.00
Submarines F & B1	53		MM1248	13.00
Hollandi	25.5		MM1378	13.00
HMS Tabard	51	5	MM1396	13.00



Manx Nobby DA005



Lindy Lou DAP007

Sailing Yachts

	Length (in)	Beam (in)	SKU	Price (£)
Manx Nobby	42		DAP005	21.00
Manx Nobby (Set)	42		DASET005	138.50
Dutch Auxiliary	16.5		MM240	12.50
Bluebottle	35	8	MM293	12.50
Plane Jane	36		MM823	13.00
Barge Yacht	38		MM902	13.00
Topsail Schooner	30		MM909	13.00
Dabchick	24	6	MM1024	12.50
Starlet	34	9.5	MM1048	12.50
Dutch Yacht	18.5		MM1203	13.00
Ranger	33		MM1403	13.00
Gremlin	20.5	6	MM1505	13.00
Jenny	63.5		MM2070	13.00



All prices exclude P&P/S&H. Prices are subject to change so please check current pricing on website or by phone. E&OE.

Email: info@sarikhobbies.com

Tel: 01684 311682

sarikhobbies
www.sarikhobbies.com

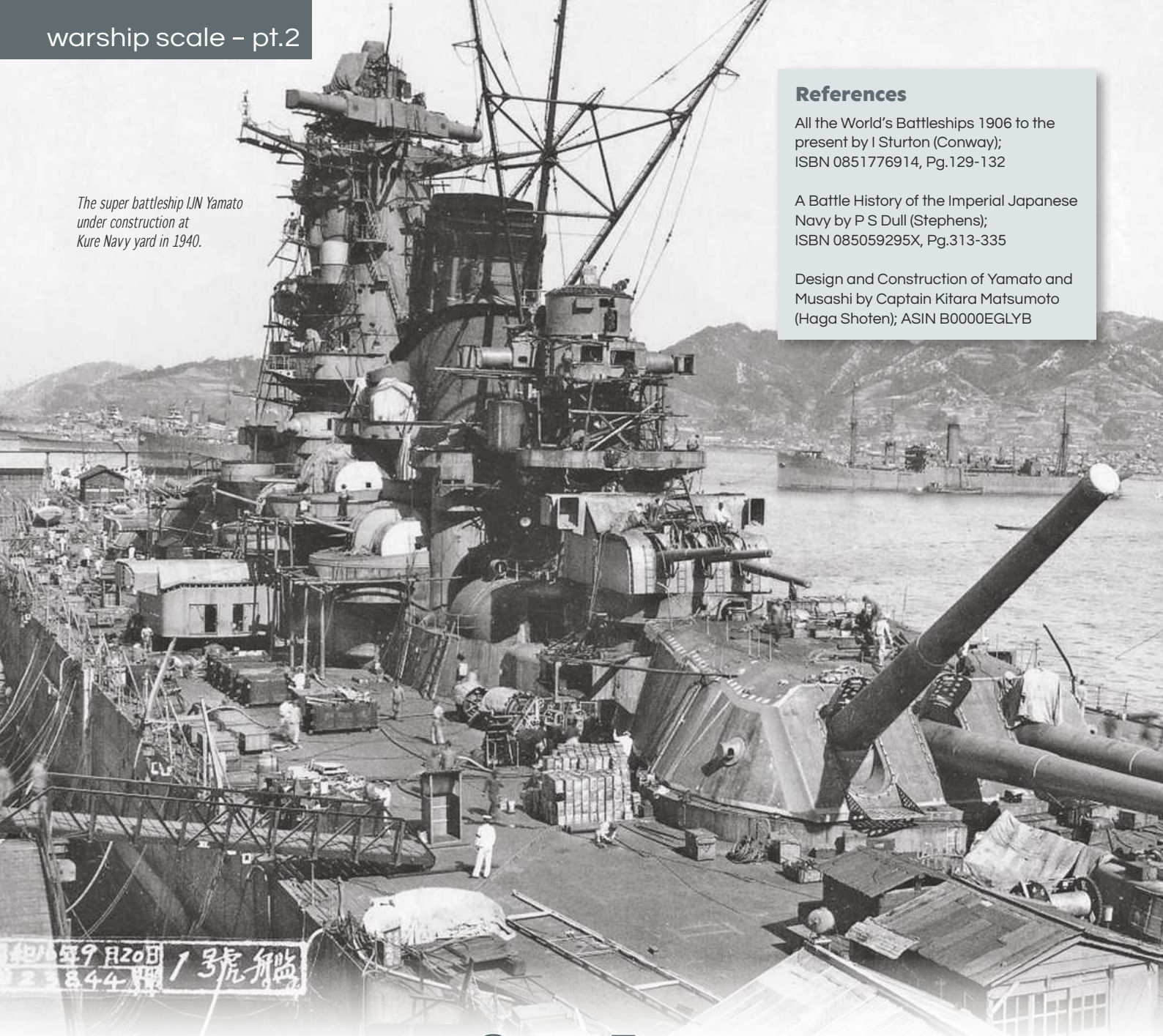
The super battleship IJN Yamato under construction at Kure Navy yard in 1940.

References

All the World's Battleships 1906 to the present by I Sturton (Conway); ISBN 0851776914, Pg.129-132

A Battle History of the Imperial Japanese Navy by P S Dull (Stephens); ISBN 085059295X, Pg.313-335

Design and Construction of Yamato and Musashi by Captain Kitara Matsumoto (Haga Shoten); ASIN B0000EGLYB



Range Finder

A 1/10 scale model of the Super Battleship IJN Yamato Part 2 by **Dave Wooley**

Welcome to our regular sortie into the world of fighting ships and the concluding part of this tour. We can begin this month with a view looking down from the mezzanine floor onto this huge 26.3m model and it really does give perspective on how awe inspiring this model is (**Photo 1**). As a matter of interest, Yamato was fitted with 1,147 water tight compartments with tests being carried out on a 1/3 scale model to assess the underwater protection system.

In the event of battle damage, it was envisaged that stability could be maintained up to a 20° list and could function with the forward part of the hull reduced to a mere

4.5m from its nominal 10m. Using a system of fuel transfer and counter flooding, the 72,809ton battleship could be returned from a precarious 18.3° of list to an even keel in a relatively short period.

Moving on, we have a general shot of the amidships and the area around the funnel casing. Clearly seen are the 150cm search lights. Although Yamato had various radars for air search and gunnery, the IJN night fighting techniques were well honed and used very effectively during the war in the Pacific (**Photo 2**).

Looking up towards the top underside of the funnel there are a series of vents which are aptly named, air space rain covers, and right at the

top, across the funnel cage, are two wind shields (**Photo 3**). Immediately abaft of the funnel is the tripod main mast and mounted either side is the Type 13 GO air search radar antennas ringed in red. Whilst immediately to the rear of the mast is the Low Angle Director and 10m Rangefinder ringed in yellow. The type of electro-mechanical fire control system went under the designation of Type 98, providing information from the directors in both target course and speed for the low angle computer, a development of Japanese technology for Yamato and not a copy of any western fire control system (**Photo 4**).

Photo 5 provided an alternative perspective around the same location, but here, the light AA Type 96 triple 25mm (having a gun crew of nine) are clearly visible close to the main mast, along with the 4.5m AA rangefinder ringed in yellow, whilst clustered on the main deck are the shielded triple 25mm MGs ringed in red. These were shielded to protect the gun and gun crews from the blast of the 18.1in main armament. The actual anti-aircraft fit was beefed up in the spring of 1944 and again in early 1945.



1



2

warship scale – pt.2

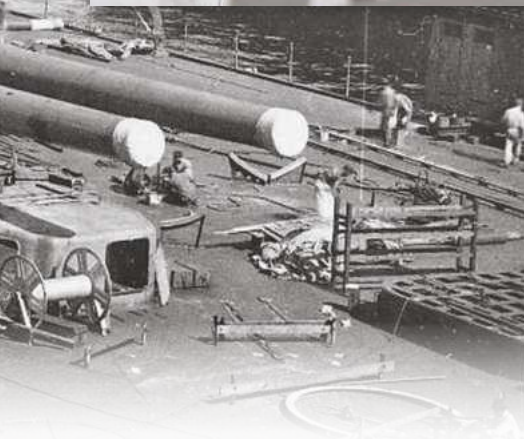
1: The Yamato model, gaining a perspective of size. 2: Amidships here was clustered most of the anti-aircraft armament. 3: The detail around the funnel uptake is of a very high quality of workmanship. 4: Radar used by the IJN was in some instances different to that used by the RN. Take for example the Type 13 GO air search antennas. These are two fixed ladder type vertical arrays attached to the mainmast.



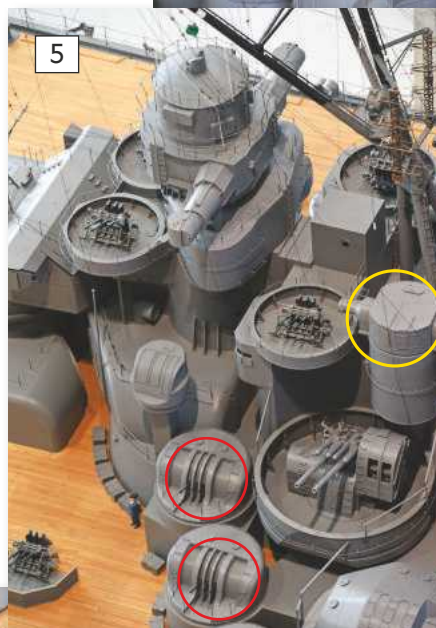
3



4



6: The total all up weight of each one of the 46cm or 18.1in gun turrets was a colossal, 2774tons. The AA round as fired from the 46cm guns on Yamato's last sortie could disperse 900 incendiary tubes which were ignited into the path of any incoming aircraft



5

5: All of the AA outfit fitted in later years, especially those close too or on the main deck, where enclosed to protect against the blast of the 18.1in guns.

Moving further aft, we arrive at the 'X' and 'Y' position, with the 'X' position being the triple 15.5cm/60 calibre secondary fit and, as can be seen here in photos, note the triple 25mm gun tubs mounted atop of the 46cm turret housing. Although it was standard on many battleships to site AA gun atop of the main armament, the blast from the 46cm guns must have made this position difficult (**Photos 6 & 7**).

The following shots provide a better perspective of both port and starboard at the location of the after 46cm. It's worth noting the number of enclosed triple 25mm arranged



6

7



7: In 'X' position is the after 15.5cm/60calibre triple secondary armament.

8: When completed in December 1941 a 15.5cm gun turret was positioned on the main deck level on either beam amidships.

in tiers and along the deck edge (**Photo 8**) and on an extended platform aft. Most of these enclosed 25mm were fitted between 1944 and 1945. This gave a blanket AA coverage and probably the best of any navy, but it made little difference to the eventual fate of the Yamato.

Aft ships boats and aviation

Moving further aft to starboard, we begin to see how the boat stowage was arranged. Here Yamato was fitted with in blast proof galleries into which 14 boats could be stowed ringed in



9: This starboard side aft shot shows the blast door for access into the boat stowage gallery.



10: Here the model shows the location of the boat stowage gallery which allows the ships boats to be tracked right aft and lifted over the side.



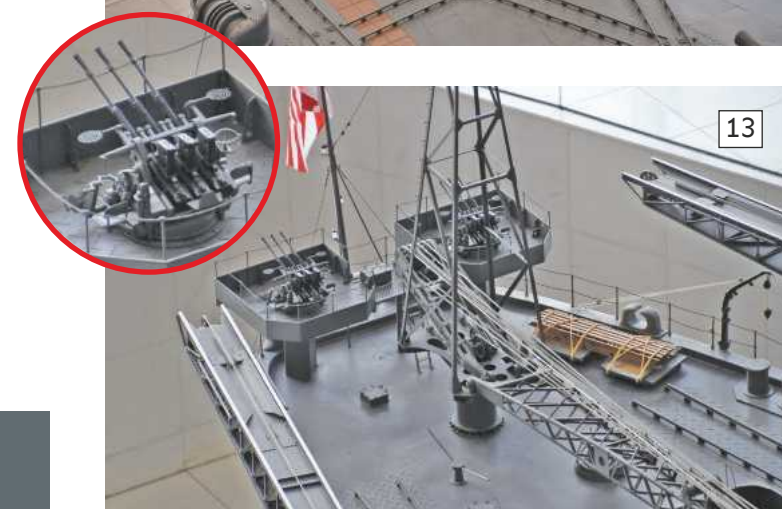
11: Hanger well, lifting crane and catapults, note the turntable at the intersection of the rails.



12: A 1/10 Mitsubishi F1M2 'Pete' float plane

13: The two after 25mm triple AA gun tubs where a later addition.

14: Boat stowage gallery and hanger well.





15

15: The stern flag staff and roller fairleads.

16: An interesting perspective on the size of the model, also it's worth noting that Yamato is fitted with an auxiliary rudder 15m forward of the main and just visible behind the propeller blade.

red. Akin to most warships of the period these boats varied in size from the larger 17m picket boats, 1x15m, 1x11m, 4x12m, 1x8m, 4x9m and one 6m unpowered cutter. As can be seen in **Photo 10** the boats were moved via rails in the deck from their protective gallery and into position and could be lowered over the side by the after mounted crane.

Aft catapults and handling crane

On the centre line right, aft, Yamato was fitted with a 6ton crane which had a span of 20m in length and either side, two 19.5m catapults. The hangar space, situated directly below the quarterdeck, could accommodate up to seven float planes but only four where ever embarked, with each aircraft guided onto the catapult via rails and a small wheeled dolly (**Photo 11**).

Shown here in **Photo 12** is the F1M2 'Pete' float plane mounted on the dolly and its dedicated cradle. Also embarked was the E13A1 'Jake' which unlike the 'Pete' was a monoplane fitted with two floats. Right aft and abaft of the crane are two-gun tubs each mounting the Type 96 triple 25mm. In early 1945 Yamato received 50 triple AA mounts, perhaps confirming the fact that USN air power was the decisive force in the Pacific War. In fact, the AA fit on Yamato eventually totalled no less than 150 guns (**Photo 13**). Remaining in the same location, but shifting around to focus on the starboard boat gallery entrance and in the centre of the quarterdeck the hanger well, note the



16



17

17: The final picture of this series on the battleship Yamato provides a good perspective viewing forward on the starboard side giving a full view of the rudder and shaft arrangement.

huge blast doors over the entrance within the well (**Photo 14**). Moving right aft we can see the roller fairlead onto which is attached and the flag staff supporting the IJN rising sun ensign (**Photo 15**).

Our last two pictures of the Yamato go outboard and into the basin into which this massive model is placed giving an amazing impression of just how big this model is (**Photo 16**) and the final picture of this series a view of the underside to starboard showing in detail the 'A' frames, propellers, shafts and the shape of the rudder (**Photo 17**).

Conclusion

Although Yamato had exceptionally thick armour, it was found that the armour plate was not carbonised, better known as cemented and was as much as 10% less resistant than the equivalent British and US armour. Also, there was a weakness in the belt armour to the anti-torpedo bulkhead.

None-the-less Yamato was able to withstand considerable punishment until being overwhelmed by over 250 high level and torpedo bombers at a point 175miles south of Kyushu. In all, Yamato was hit by eight torpedoes on the port side and two on the starboard.

Acknowledgements

I would like to offer my sincere thanks to Mike Astle and his son Tracy for providing these superb pictures of the Yamato model. ●

18: Whilst this magnificent scale model of the Yamato has pride of place within the Kure Maritime Museum there is a wide range of other exhibits which include warship models and numerous full-size artefacts.

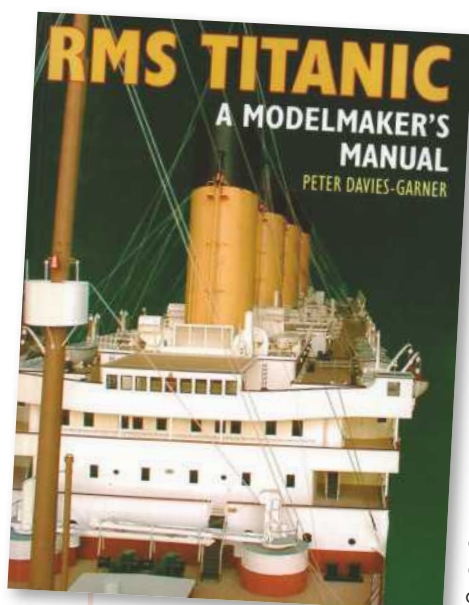


18

Test Bench

A round-up of all the latest kits, books and blingy bits

Test Bench is a service that we provide free of charge to manufacturers, distributors and retailers of model boat-related product. Covering all disciplines, anything from books to balsa is accepted for these pages. To submit material, e-mail the editor via editor@modelboats.co.uk with the relevant information or send samples direct to the editorial address in the front of the magazine.



RMS Titanic - A Modelmaker's Manual by Peter Davies-Garner

As you can imagine, over the last seven years, I've reviewed quite a few books on RMS Titanic, however, this book by full-time modelmaker, Peter Davies-Garner, is the first ship modeller's manual for the world's most famous liner, containing all the information needed to build a highly accurate model, right down to the tiniest details of the ship's rivets. There are over 400 photographs and detailed line drawings – the later deemed the most exact ever drafted –

depict the author's 18ft model, built to 1/48 scale, that he was commissioned to build, in 2001, for 'Titanic – The Exhibition' in Orlando, Florida*, USA and is regarded as one of the finest ever produced. This new softback edition of the book, which was first published in 2005, also includes archive photographs of the ship herself, taken just before her fateful maiden voyage.

The text offers a mass of information on how to construct every part of the great liner, which is equally applicable to small scale models as well as to larger versions.

With its mix of practical advice, rare photographs, and highly detailed drawings, this step-by-step guide is an indispensable addition to the bookshelves of all Titanic modelmaker's and enthusiasts.

Thanks to Charlie Simpson at Seaforth Publishing for supplying the review copy which is available at www.seaforthpublishing.com.
John Deamer

*Peter Davies-Garner's model of RMS Titanic can now be seen on display at the 'Titanic Experience' in Branson, Missouri, USA.

ISBN: 978-1-5267-3733-5

Pages: 152

Price: £16.99 (RRP)

Format: Softback – 247mm x 189mm

Publisher: Seaforth Publishing Ltd.

Website: www.seaforthpublishing.com



HMS Victory

HMS Victory is arguably one of the most kitted of period ships and certainly one of the most famous. So it's perhaps not too surprising that Italian manufacture Corel have chosen to include HMS Victory as part of their new range of small scale period ship kits aimed at the beginner.

Packaged inside a sturdy rectangular cardboard box, the components of this multi-media kit are contained in plastic bags which are in turn rolled up with the build plans and a colour catalogue showcasing other historical ship models available from Corel.

As noted this is a multi-media kit containing cast white metal parts for fittings, brass pins, various wood sock and dowel, a sheet of paper with a colour representation of the detail found at the stern of the ship. A pennant and Union Jack printed on a silk-like material, and two spools of thread for the rigging. Last but not least are the solid wood hull, and the kits instructions. The modeller will have to provide the necessary

glues and paints to complete the model. The

instructions are in the form of seven A3 sheets of 1/1 scale drawings of the model with supporting annotations in Italian, plus three sheets showing English, German, and French translations of the Italian assembly notes.

Sure the constraints of budget, a small scale, 1/310 in this case, and the simplification of components to ease construction don't lend themselves to produce an exact fine scale reproduction of the original ship. What you do get however, is an inexpensive introduction to the hobby of period ship modelling, and a chance to practice the skills and techniques needed for more ambitious projects in the future. The completed model has an overall length of 329mm, 227mm high x 52mm wide. Corel recommend this model for people over the age of 14.

The review sample was purchased from Premier Ship Models Ltd (www.premiershipmodels.com) who ship worldwide.
Richard Dyer

Product: Construction kit

Ref: SM 101

Scale: 1/310

Parts: Multiple

Price: £40.52 from Premier Ship Models

Manufacturer: Corel

Website: www.corel-srl.it



Revell 1/144 HMS Buttercup (05158)

The Flower-Class Corvettes (aka Gladiolus class), were one of the most successful warships of the Second World War in the anti-submarine role, serving predominantly with the Royal Navy and Royal Canadian Navy during the conflict. Between July 1, 1940 and January 21, 1945 Flower-Class Corvettes sunk 52 enemy submarines, many of these specifically during the long and arduous Battle of the Atlantic.

When I first saw this kit, I thought it was another version of an old kit, but this is, in fact, based upon the HMCS Snowberry kit which only came out in 2016 as new tool making this rebox. Compared to its much older sibling in 1/72 scale, this is a much more

manageable 47.8cm long when completed, but this is still a nice size for a 'Plastic Magic' conversion and I think there is every chance that this kit may feature in such a way in the future within these pages.

The near 500 parts are supplied on ten main sprues, plus the main hull in two halves and ample thread for the rigging not to mention a full colour A4-sized 28-page instruction booklet and a very nice decal sheet. The instructions are clear and concise and the build is carried over 102 stages, which

means that this is no weekend exercise. Part quality and moulding is good and crisp and the only flash you will see is on the edge of the sprues. A nice touch is the option to install an acoustic hammer on the bow of HMS Buttercup.

For those of you out there with limited space who fancy a crack at a classic Flower-Class Corvette this is an ideal alternative to the 1/72 version and considerably cheaper. Revell model kits are available from all good toy and model retailers. For details visit www.revell.de/en. MC

Product: Construction kit

Ref: 05158

Scale: 1/144

Parts: 492

Price: Between £22 & £30 (various outlets)

Manufacturer: Revell

Website: www.revell.de/en



Zvezda 1/350 'Yury Dolgorukiy'

The first in the Borei-class of Russian ballistic missile submarines, the Yury Dolgorukiy (K-535) has endured a protracted and costly journey to becoming operational. 557ft 9in long and weighing in at 14,720 tons on the surface, this formidable boat can carry up to 16 Bulava SLBMs and half a dozen SS-N-15 cruise missiles.

A new tool in 2017, this 2018 version of the Yury Dolgorukiy has new parts and new box art. The kit is made up of four main sprues, an A3-sized black and white instruction leaflet and a smart decal sheet with 30 items. I'm not sure where or what the new parts are, as all the sprues are stamped 2017, but they are all nicely moulded, although some are little to securely attached to the sprue so be

careful not to snick some lumps out of them. As you would expect with a submarine, the build is not too challenging, although the choice of Version 1 (submerged)

and Version 2 (on the surface with missile doors open) options make the construction a little more interesting.

At just under 50cm in length once complete, the kit also comes with a nice display stand, on which the name of the boat, in pleasing gold letters, can be applied.

This is perfect for big submarine fans in a manageable scale.

Thanks to the Hobby Company who are the UK distributor for this kit.

David H. Smith

Product: Construction kit

Ref: 09061

Scale: 1/350

Parts: 98

Price: Approx £22+ (various outlets)

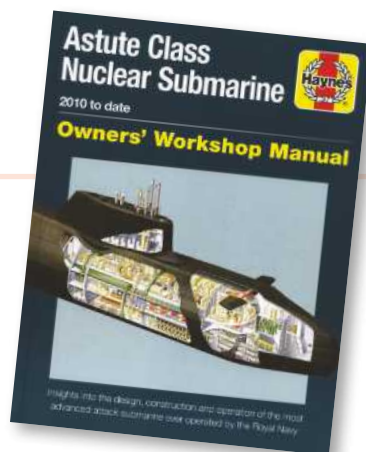
Manufacturer: Zvezda

Website: www.zvezda.org.ru

Astute Class Nuclear Submarine 2010 to date

The latest in the Haynes 'Owner's Workshop Manual' will especially appeal to owners' of a nuclear submarine, but more likely to those interested in these colossal underwater boats! When HMS Astute was commissioned on August 27, 2010, she was the first of seven planned boats in the class, not to mention being one of the world's most advanced nuclear submarines.

Considering how new all of the technology is, author Jonathan Gates has given the



reader a remarkable insight into the UK's main nuclear deterrent backed up by 300 colour photographs and an incredible range of informative diagrams and plans. Broken down into six main chapters plus great appendices and a comprehensive index, headings include:- Background and

history of the Astute project, Building and testing the submarine, Anatomy of the hull and boat systems, Anatomy of the nuclear propulsion system, Anatomy of the combat system and Into the deep: operation of Astute-class submarines.

I must admit, considering how new and advanced the technology is within this powerful boat, how much of it has been exposed within this

manual. That said, not every stone, for obvious reasons, can be turned. A superb, high-quality piece of work on one of Britain's great engineering achievements – highly recommended!

Thanks to Anna Vitsentzatou at McCann PR for the review copy which is available from Haynes own website and multiple outlets.

MC

ISBN: 978-1-7852-1071-6

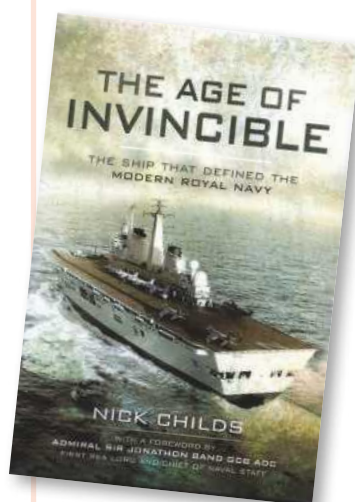
Pages: 188

Price: £25 (RRP)

Format: Hardback - 279 x 216mm

Publisher: Haynes Publishing UK

Website: www.haynes.com



The Age of Invincible – The Ship that Defined the Modern Royal Navy

The Age of Invincible tells the story of a ship that defined a difficult era of change for the Royal Navy. It is also the story of many key people who played parts in that. The aircraft carrier, HMS Invincible, (Pennant R05) emerged from a period of national upheaval in the 1960s that forced a painful alteration of course for the Navy. Her early career, including her crucial role in the Falklands War, was eventful to say the least, and certainly put her in the public eye.

She evolved too as the Cold War ended, the world changed, and the Royal Navy began to redefine itself again for a new age in a way that would not been possible without HMS Invincible.

In this book, which was first published in 2009 and has been reprinted this year, the author and BBC political correspondent, Nick Childs,

gives us an excellent and very readable account of the life of one of the Royal Navy's most significant modern warships, from her launch in May 1977, at Vickers Shipyard in Barrow-in-Furness, her commissioning in July 1980 at Portsmouth, to her final decommissioning in August 2005, prior to being scrapped.

John Deamer

ISBN: 978-1-5267-4382-5

Pages: 189

Price: £12.99 (RRP)

Format: Softback - 235 x 156mm

Publisher: Seaforth Publishing

Website: www.seaforthpublishing.com

The Forgotten War of the Royal Navy – Baltic Sea 1918 – 1920

This book, by Michał Głock covers the little known period of naval warfare in the Gulf of Finland. The British campaign in the Baltic in 1918-1919 was part of the allied intervention in the Russian Civil War. The codename of the Royal Navy campaign was 'Operation Red Trek' which played a key role in enabling the establishment of the independent states of Estonia and Latvia but failed to secure the control of Petrograd by White Russian forces,



which was one of the main goals of the campaign.

The Peace treaty signed in 1920 in Tartu effectively

ended hostilities in the area. This document sanctioned and confirmed the independence of Finland and Estonia for the next nineteen years.

All the ships involved are described and illustrated with photographs, full specifications and scale profile line drawings. All of which helps to give the reader a

clearer understanding of this rarely documented aspect of World War I and post-war naval history.

I'm sure this very well written and illustrated book, recently released in Mushroom Model Publications 'Maritime Series', would appeal to both warship modellers and naval historians alike.

John Deamer

ISBN: 978-83-65281-77-7

Pages: 144

Price: £25 (RRP)

Format: Softback - 279 x 216mm

Publisher: Mushroom Model Publications

Website: <https://www.facebook.com/mushroomModelPublications/>



Dumas 1/48 Lackawanna (1251)

The Lackawanna was built in 1900/1901 and the 950 horsepower engine was fed by two boilers burning anthracite. The vessel was painted white so her owners could demonstrate how clean burning the anthracite was.

The model is to a scale of 1/48 equating to a length of 33ins and a beam of 6ins. The hull is formed in two parts of vac formed plastic and joined down the centre line. The kit contains other vac formed parts as well as those fabricated from plastic and laser cut wood. There is a

fittings kit included containing parts such as stanchions, blocks, mast lights, anchor, etc. An optional running gear

pack is also available which includes the prop shaft and tube, coupling and propeller.

A separate drive motor is also available.

As far as building information is concerned, the quantity provided is impressive.

Contained with the kit is a 48 page book which identifies the wooden laser cut parts as well as the plastic bits and pieces. The building notes contained cross refer to a set of A3 sheets with numerous construction diagrams.

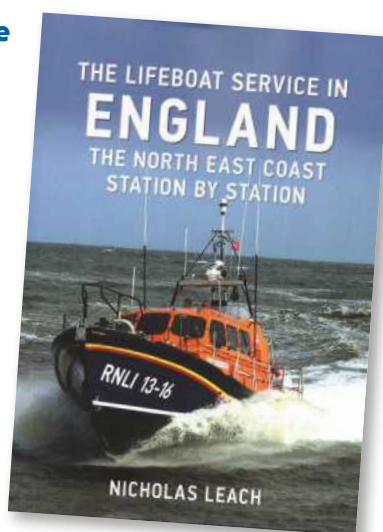
A set of decals is provided to complete the kit. A full build review will take place in due course. With thanks to J Perkins (www.jperkins.com) for supplying this kit to Model Boats.

Dave Brumstead

Product: Construction kit
Ref: 5501794 (SKU Dumas)
Scale: 1/48
Price: £307.99 (SRP)
Manufacturer: Dumas
Website: www.dumasproducts.com

The Lifeboat Service in England - The North East Coast - Station by Station by Nicholas Leach

Some of the oldest and most famous lifeboat stations can be found in the North East of England and down the country's east coast. The Royal National Lifeboat Institution was established in 1824, and has a long and proud tradition of saving life at sea. Today, the volunteer lifeboat crews on the coasts of Northumberland, County Durham, Yorkshire and Lincolnshire, operate high-tech state-of-the-art lifeboats for the purpose of saving lives in around some of the busiest sea lanes in the world.



The RNLI currently operates sixteen lifeboat stations between Berwick-on-Tweed near the Scottish Border and Skegness in

Lincolnshire. This comprehensive book has details of every one, and covers their histories and current operations. It also includes photographs of historic old stations that have been closed, lifeboat memorials and describes some of the dramatic, courageous and daring rescues undertaken by lifeboat crews from the region.

The author, Nicholas Leach, editor of Ships Monthly magazine and acknowledged expert on the lifeboat service, has amassed a wealth of information about the lifeboats

and lifeboat stations of the North East Coast and his new work is a welcome addition to an ongoing series of books, by him, that look at the lifeboat service, past and present, around the coast of the UK and the Republic of Ireland

This is an extremely interesting book that would appeal to both lifeboat modellers and enthusiasts alike. Thanks to Philip Dean at Amberley Books for the review copy which is available at www.amberley-books.com.
John Deamer

ISBN: 978-1-4456-6832-1
Pages: 160
Price: £17.99 (RRP)
Format: Softback - 235 x 165mm
Publisher: Amberley Books
Website: www.amberley-books.com

Revell 1/72 Flower-Class Corvette 'Technik' (00451)

Following in the footsteps of the impressive Junkers Ju 88 'Technik', Revell has given this classic old kit the electronics treatment. First brought out by Matchbox in 1986, this impressive 1/72 Corvette was one of many moulds which were purchased by Revell during the early 1990s and wasting no time, was re-released with new decals in 1992 and 2000 and new parts in 2012. This is an impressive kit even before you have opened the box which to give you some idea of the finished article is over three feet long and when you see the part count on the outside, you know you are in for some fun with this project.

Inside this huge box is plenty to look at; there are nine large main sprues, four hull sections, two deck sections, a length of chain, a large decal sheet, a comprehensive sheet of ensigns and signal flags, a spool of string and a bulky 44-page, A4, full colour instruction booklet. On top of that you have an unassuming brown cardboard box with the words 'REVELL Technik Electronic Kit 6980' is written on it. Inside you will find 13 bundles of electronic goodies beginning with the Power Supply (84001); IT Circuit Board (84007); Cable Extension (84019); Radar 15rpm Engine (84021); Mast Head (Flashing NaNoLeds – 84032); Signals (Flash Morse MaNoLeds – 84033); Bow Navigation Lights



(84034); Mast Steam/Anchor Light (Electric or Oil – 84035); Radar Light (84036); Search Spots (84037); Stern Overtaking Lamp (84038); Anti-Submarine Post (84039) and Mail Hull Strip (84040) – comprehensive to say the least. The instruction booklet is thicker than the normal kit thanks to the number of extra stages and jobs to do regarding the electronics and I have scanned all of the pages/stages affected below. A 178 stage build, at least 40 of these stages feature electronic work and these sections have been produced in colour (well the wiring is anyway) to make them stand out. From page seven onwards, you are given guidance to the different wiring packages and their roles and it's well worth spending as much time as you can going through those 13 bags and matching them up with the stages when they are incorporated into the build. It is worth noting that if you are planning to make this model a 'floater' then you have to rethink the location of the power supply

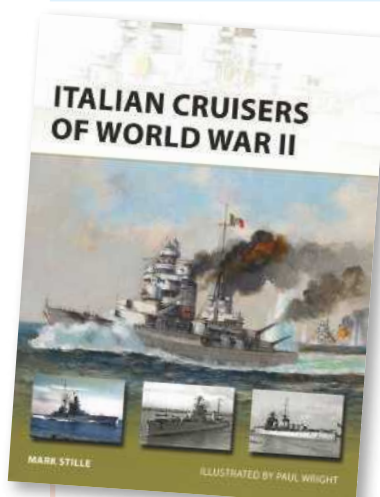
which is located on the outside of the ship for a static display model and involves making a hole in the very centre of the keel. Alternatively if you are interested in making your Corvette into something capable of gracing the local pond you would most likely only be attracted to a standard kit which can be picked up from multiple outlets both online and in the real world!

The build as you would expect begins with the hull, which as mentioned earlier, is made up of four sections and it is crucial that you take your time getting it line upped correctly with every means available before committing to the glue, as your life will be made a lot easier further on in the build. By Stage 3 you will already start fitting the electronics, namely the IT circuit followed by the bulk of the remainder which will be concealed below the deck. By Stage 10, you should have a hull, with the deck glued snugly in place and you also should have a large number of wires rising to the surface through every available orifice. This will continue as the superstructure is built

up, the bridge being in place by Stage 50 and completed a dozen stages later. Nearly every stage involves the inclusion of some kind of wire and this will delight those modellers who enjoy an engineering aspect to their hobby and electronics counts towards that discipline. Sitting proudly on its display stand which has to be built at Stage 8 to make working on the ship easier, the addition of the electronic functions makes this one of the most impressive ship models I have seen in this retail bracket. There are of course many more options out there but this is a great revamp of this excellent kit into something a bit special and a real head turner when the living room lights are dimmed and you have friends around; a genuine talking point.

Revell model kits are available from all good toy and model retailers. For details visit www.revell.de/en.
MC

Product: Construction kit
Ref: 000451
Scale: 1/72
Parts: 1003
Price: £179.00
Manufacturer: Revell
Website: www.revell.de/en



Italian Cruisers of World War II

The Italian Royal Navy (Regina Marina) operated one of the largest cruiser forces of

World War II. After the 1922 Washington Naval Treaty limited its Battleship force, the Regina Marina immediately attempted to reinforce by building seven large 10,000-ton heavy cruisers. These heavy cruisers, along with the twelve, increasing well designed, light cruisers built before the war, were involved in every major fleet engagement in the Mediterranean, as well as several smaller encounters with British naval units.

This new volume by naval historian, Mark Stille, with illustrations by Paul Wright, examines the history of the Regina Marina's cruisers during the Second World War. It discusses their struggles with fire control and gunnery

technologies, antiaircraft capabilities, and radar, and looks at their successes in keeping Axis forces in North Africa supplied and in blocking the Sicily Strait to British merchant traffic. The Regina Marina lost 14 of its total 24 cruisers but still existed as a coherent fighting force by the end of the war. The same cannot be said of other Axis navies.

This is another, reasonably priced, extremely informative book from Osprey in the New

Vanguard Series (258), that details the cruisers design and development, weapons, fire control systems and radar, together with the specifications and operational history of each of vessel, using photographs, full colour illustrations, including cut-away artwork, and ship profiles which show camouflage patterns at various stages in their careers. All of which will certainly appeal to both warship modellers and naval historians alike.

John Deamer

SBN: 978-1-4728-2535-2
Pages: 48
Price: £10.99 (RRP)
Format: Softback – 248mm x 185mm
Publisher: Osprey Publishing Ltd.
Website: www.ospreypublishing.com

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Nev Wade shares some tips on how to square-rig



● NR-1

The final part of Roger Suitters' NR-1 as promised in the previous issue

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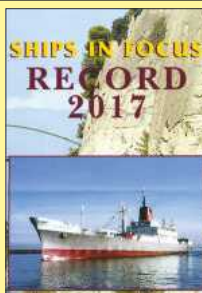


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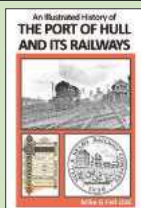
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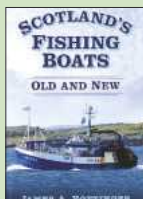


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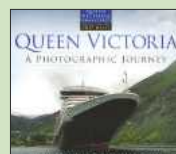


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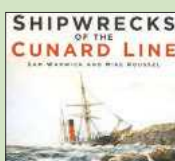
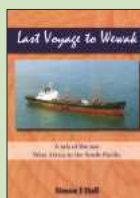
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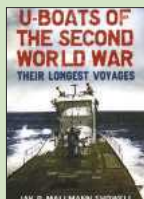
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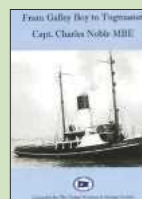
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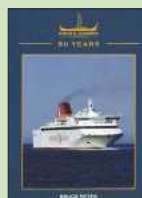
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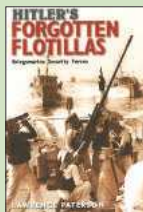
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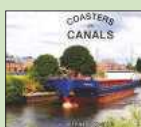
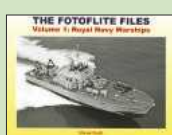
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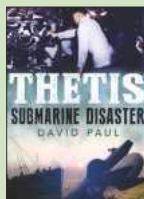
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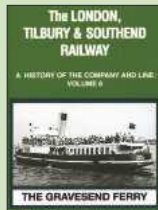


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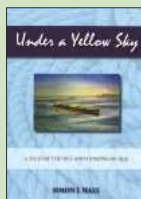
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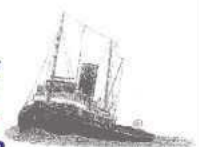
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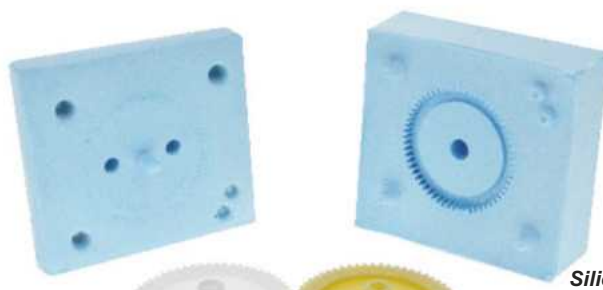
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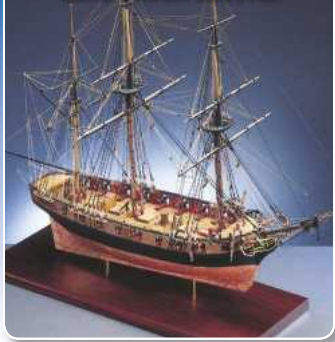
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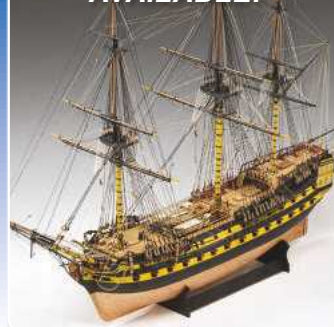
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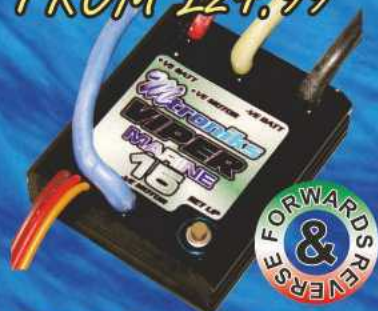
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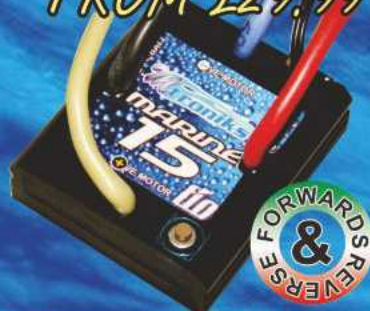
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