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Bow piece



This issue includes an article for

Varmint designed by John Goodyear, a new easy to build wooden RG65 Class radio controlled model yacht. The comprehensive construction article starts on Page 10 and the full-size plan, together with sail diagrams is now readily available via the Plans Service. In addition, Phil Button returns to these pages with an article describing his restoration and the attendant problems, of a paddle steamer model purchased from eBay and Andy Cope gets a 40 year old Aerokits Solent Lifeboat finally on the water, it also having also been obtained inexpensively via the Internet.

Phil Scales has re-modelled in Cory Towing colours the well-known Tito Neri kit, and has enhanced its detail enormously, his Photo Feature being on Pages 42 and 43. Richard Simpson visits Tony Green Steam Models, who manufacture and retail a range of boilers and steam engines that are suitable for model boats of all sizes and Dave Wooley updates readers about the newly improved Fleet Air Arm Museum and what it now has to offer.

We also have all the usual regular columns, including Range Finder, Flotsam & Jetsam, Boiler Room and Waterline Models, so I hope there is something here for all our readers.

Paul Freshney - Editor

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Compass 360

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Balne Moor MBC

On **Sunday 17th September 2017** this club is holding its Svitzer Tug Towing Shield towing competition event. This is sponsored by Svitzer Tugs and has Single, twin and triple tug formats. £1 per boat. 1030hrs start, bacon or sausage butties are available until 1230hrs, hot and cold drinks all day and homemade cakes. Satnav location is DN14 0ER. More information from: <http://balne-moor-model-boat-club.myfreesites.net/> scale-and-tug-events or email: mikebutler1949@gmail.com

International Model Boat Show

A reminder that this being held once again over during the three days from **Friday 10th to Sunday 12th November** at the Warwickshire Exhibition Centre. The event will now include a Tamiya Truckin' display arena with some new exhibitors and interests. Address is: The Fosse, Fosse Way, Radford Semele, Leamington Spa, Warwickshire, CV31 1XN. Further information from: Tel: 01926 614101. Website: www.modelboatshow.co.uk

2017 Model Boat Convention - Fantastic Prize

Adrian Gosling of Speedline Models Ltd has generously donated a 1:16 scale kit of his

latest Shannon Class lifeboat as a prize for the Best Lifeboat entered in competition at the Model Boat Convention on the **26th and 27th August 2017**. Any modeller wishing to enter this competition should contact Mrs. Jean Barlow (Model Boat Convention Secretary) direct for an application form: Email: Jean@barlowstalyfan.co.uk Mob: 07789 348817

Please note that entries must be in the hands of the Convention Secretary by the 15th August 2017 and entries will not be accepted at the Show. The venue is the Haydock Park Exhibition Centre close to the M6, Junction 23, and the event is open from 1000hrs on both days. There is free parking, decent refreshments, proper top-notch personal facilities and it is largely carpeted! Website: www.modelboatconvention.co.uk

Southern Model Show

This is being held on **Saturday 9th and Sunday 10th September 2017**. This show will feature a stunning array of model aircraft, helicopters, ships, tanks and other vehicles. There will be the usual large temporary pond and trade area, plus a Bring and Buy stand. Venue is the Headcorn Aerodrome, Shenley Road, Headcorn, Ashford, Kent, TN27 9HX, open from 1000hrs to 1700hrs on each day. For more

information and to book advance tickets, please visit: www.headcornevents.co.uk or tel: 07769 683345

Mutual Model Boat Society

On the **24th September 2017** this club is holding a Grand Modellers Bring & Buy Sale at the Crimble Croft Community Centre, Aspinall Street, Heywood, Manchester, OL10 4HL. Please go along and enjoy this famous event, either to sell or purchase your supplies as there are always lots of unusual bargains to be had. Opening time for sales 0930hrs, opening time for traders 0830hrs.

Food available from 0900hrs and closing time 1300hrs. The entire site is wheelchair friendly, admission £1.50 including a raffle ticket. To reserve a Sellers Table of 6ft x 2ft, the cost is £10. For more information, please contact Kevan Winward, tel: 07803 975089. Information supplied by **Colin Travis**

Kirklees MBC

A reminder that this club is holding its annual Warship and Navy Day on **Sunday 10th September 2017** at Wilton Park, Bradford Road, Birstall, Batley, WF17 8JH, from 0900hrs to 1600hrs. The theme of this event is warships and military, but other types of model boat are welcome, but

sorry, no i.c. or high performance fast electric and steam powered vessels will need valid current paperwork. There will be a raffle, refreshments, toilet facilities, free car park, visiting clubs and hopefully some trade support with a large selection of warships on display. Steam powered vessels will need up to date paperwork. The RNLI will be also be on site raising funds. As a bonus there will be a classic car rally in Wilton Park on the same day. Please contact Stan Reffin for more information, tel: 01132 675790 or via the club website: www.kirkleesmodelboatclub.weebly.com

Warminster Model Boat Club

This club has an Open Day on the **10th September 2017** from 1000hrs to 1600hrs. It coincides with the local carnival fundraising event at Warminster Pleasure Gardens, Post Code: BA12 9NT. The club has wonderful facilities and all who have visited in the past have enjoyed themselves. To sail you must have Third Party insurance. Please note that parking will be restricted on that date, but there is plenty of free parking on the surrounding streets or in Morrison's opposite the park for up to 3 hours. A full map is available on the club website. Website: www.warminsternmbc.co.uk

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Model Yachting Association News

Roger Stollery reports from the M&S District Marblehead Championship and GAMES 4 event held in early June



A fantastic day's racing with 17 races was enjoyed by 16 competitors from 10 clubs at Guildford's Abbey Meads Lake, despite tricky wind conditions. Eight races were sailed in the sunny morning with variable west south-westerly winds. There were five different winners and some of the finishes were very close indeed, but Colin Goodman dominated the racing with three wins to head the lunchtime leaderboard, five points clear of Peter Stollery, who was seven points clear of Vinnie Zammit.

The wind, which was forecast to become more southerly during mid-morning changed during Race 9, which was won by Austin Guerrier sailing New Zealander's Ian Vickers V1M design. All competitors and their cars moved to the western control area, where the southerly wind was steadier and stronger, but still within the A Rig strength. There were plenty of fast planing runs down to the leeward gate in the strongest gust zones. However, it was still variable in direction requiring great skill to pick the right shifts both up and down wind. Colin, who had been starting well in every race won Races 10 and 11, but let Peter win Race 12 and then came back to win Race 13 and to stamp his authority on the event with another win in Race 16. John Shorrock sailing his QUARK won both Races 14 and 15, but left



Peter to win the final Race 17. This event win extends Colin's lead at the top of the GAMES table by 20 points, from Hugh McAdoo and John Shorrock.

The furthest travelled competitor, Vinnie Zammit from Norwich, was sailing his 'Think Pink' STARKERS very consistently and finished with a string of fourth places to take the final podium slot from Hugh McAdoo, who was six points behind. It

Above. A study in concentration at Abbey Meads Lake, Guildford.

was good to see three new competitors at this year's GAMES events, Keith Evans sailing a PRIME NUMBER, Peter Dunne sailing a STARKERS and Peter North sailing a JIVE, showing good support from club sailors for the Marblehead class at District Level. It was also good to see Les Thorn doing really well with his PARADOX, showing that you don't have to have the latest designs to be competitive in this class.

At the prize-giving Colin thanked the Guildford team running another good event. This was truly a district effort with Keith Parrott and Graham Whitehead from Frensham Pond MYG providing essential racing officer support. The GAMES interclub/open event moves to Datchet on the 24th September, as noted on the GMYC website: www.guildfordmyc.co.uk

Left. Marblehead's are the F1 racing boats of the r/c model yachting world.



Above. Roger Stollery on the right and Vinnie Zammit on the left.



Results (top ten only):

- 1: Colin Goodman
- 2: Peter Stollery
- 3: Vinnie Zammit
- 4: Hugh McAdoo
- 5: Trevor Binks
- 6: John Shorrock
- 7: Martin Crysell
- 8: Austin Guerrier
- 9: Dick Jobbins
- 10: Les' Thorn

Model Boats
October 2017
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Nixie

**FREE
PLAN**

Next month in **model Boats**

This issue includes a new Free Plan for Nixie, a functioning radio controlled submarine designed by Glynn Guest, supported by a full in-depth construction article, and for on the surface of your pond, Gordon Longworth shows how easy it is to build a radio controlled model Swan, complete with video camera.

See more about what's in Model Boats magazine month-to-month in forthcoming issues and see some of the articles you may have missed from past issues and subscription offers on our website: www.modelboats.co.uk

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Don't forget! The October 2017 issue will be published on



Swan

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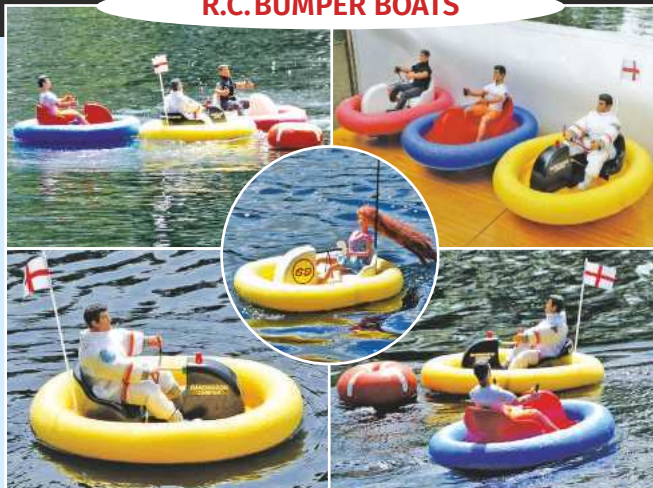
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RNLB 'The Scout'

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- Model Scale: 1" to 1ft (1:12th)
- Model Length: 44" • Model Beam: 12 3/4"
- Displacement: 18 lbs

The 44 ft Waveney class of lifeboat was a development of the US coast guard surf class of boat, the Waveney was introduced into service in the early 1960's as the RNLI first fast boat.

They had a top speed of 15 knots and cruised at 12 knots. Many were built for Canadian & European services.

Our model is based on archives builder's drawings and contemporary photo's of the Hartlepool lifeboat "RNLB THE SCOUT".

She entered service in 1977, after 20 years' service she was sold to the "ADES" the Uruguay service.

There was a class total of 22 Waveney's built for the RNLI.

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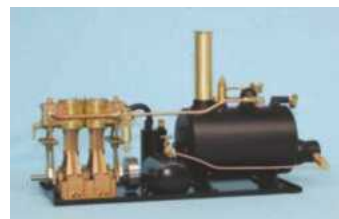
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NEW PLAN

Varmint

John Goodyear presents a competitive new RG65 design

Anyone even remotely interested in radio controlled yacht racing will be aware that the RG65 class is arguably the fastest growing branch of the hobby in the UK, Europe and quite possibly the world. There are numerous factors contributing to this success story, a very simple and easy to follow set of loose specifications perhaps being the most obvious. To expand a little on this, as long as your (RG65) yacht is no longer than 650mm, has a mast height below 1100mm and a total sail area of below 2250 sq. cm., then you can race it in this class. If only all other classes were so uncomplicated?

Expense and ease of transport are two other factors that also make this class so appealing to a great many modellers as when fully assembled, the complete yacht will fit into a small saloon or hatchback car, often without even folding down its seats. As for cost,

you can go out and buy a top-of-the-range carbon-fibre model racing yacht weighing about as much as four feathers and lighten your wallet to the tune of several hundred pounds Sterling, or build one yourself from balsawood for under £50. Varmint falls very much into the latter category, yet performs very well in much more exotic company and are you interested? I hope so, but first a little background regarding the design concept behind the RG65 Class and Varmint which is exactly 650mm long including the bow bumper.

A bit of history

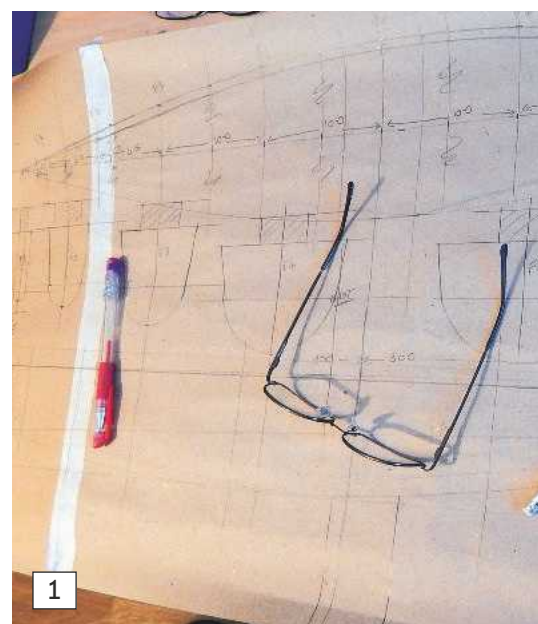
Believe it or not, the origins of current RG65 yachts can be traced back to Argentina in the 1950's, albeit to a free sailing 650mm yacht designed by Don Juan Gherzi and built on the



PROFILE

John Goodyear

John has been building models of one sort or another since he was about ten, which is quite a few years ago. Boats, trains, gliders, cars, helicopters and yachts have all featured at one time or another and several of his aircraft designs have been published in the UK and USA. He began model yachting about 10 years ago and so far has built over 20 models, many of them of the JIF65 type, similar to that featured here, several of which are now owned and raced by fellow club members. He has also designed, built and raced other classes of yacht, several of which can be viewed at: www.rofwac2.weebly.com However, now being a somewhat dedicated RG65 skipper, he's hoping to soon creep up the rankings.



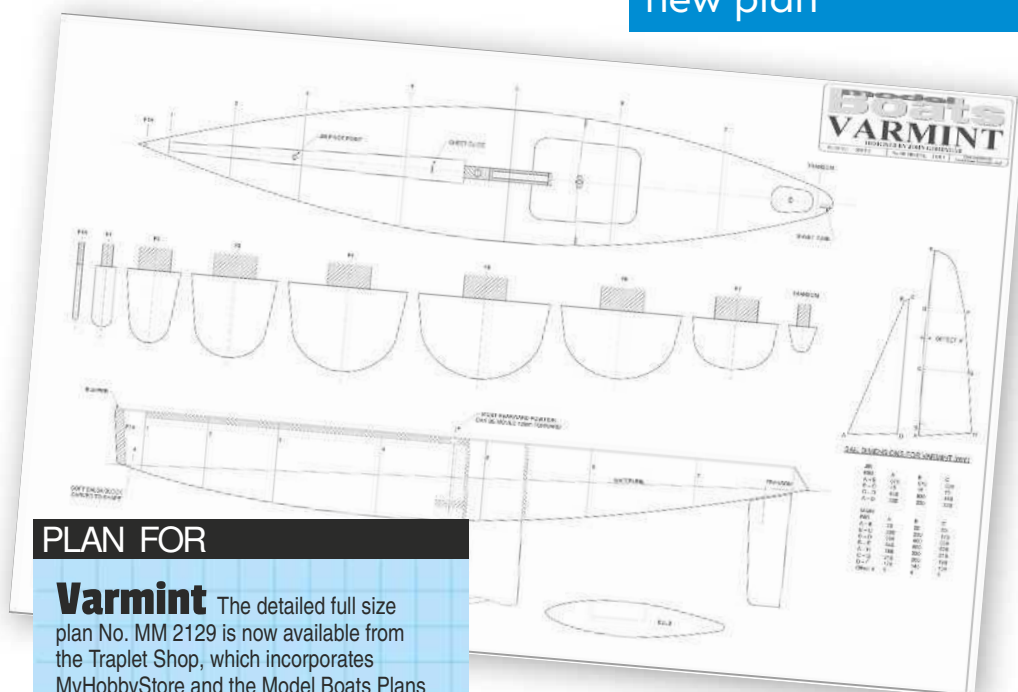
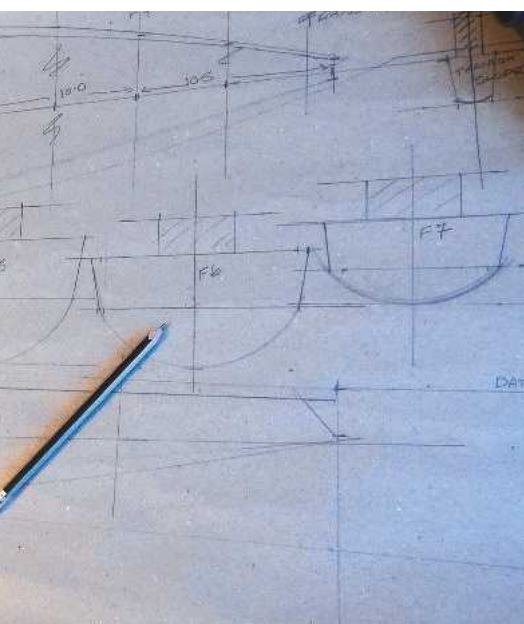
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well-known wood Bread & Butter principle, although it was probably rather heavy. In the late-1970's, someone decided to install radio control and modern racing began and spread across the globe. The class had its first set of rules written in 1999 and the rest as they say, is history. Information concerning the current rules and regulations can be found at this website: www.rg65.org.uk, but there are other good, informative sites, several of which are country specific.

A few years ago, the excellent Dragon Force yacht, which complies with the specifications allowed within the RG65 class, was launched on the retail market and this further boosted the popularity of the class which is hardly surprising, when you consider that for considerably less than £200 you get an (almost) race ready yacht, complete with radio and the relevant websites are: www.dragonforce65.com www.dfracinguk.com

At the moment you can race 'pure' RG65 designs alongside Dragon Force yachts in the same races with most event organisers offering prizes for both fleets, something to be applauded and which can't be bad for our hobby either. Having raced RG65 type yachts including the Dragon Force for some years now, albeit mostly at club level, it is clear even to a relative novice like myself that in general sailing conditions, the well designed, lightweight and slim models tend to head the fleet, providing the hands on the controls are more delicate than mine.

There are however exceptions to the rule, and in very, very light winds your average expensive racing-rocket will wallow about, whilst an old fashioned broad-beamed yacht like a JIF 65 with the correct rig for the conditions will drift along very well indeed. Varmint has been designed only for average conditions and will wallow like the rest of the



PLAN FOR

Varmint The detailed full size plan No. MM 2129 is now available from the Traplet Shop, which incorporates MyHobbyStore and the Model Boats Plans Service, and is priced at **£12.50 + p/p as of August 2017**. Plans may be purchased online at: www.trapletshop.com, which is the new home for what was the Model Boats Plans Service, or by telephone in normal working hours via: **01684 588599**

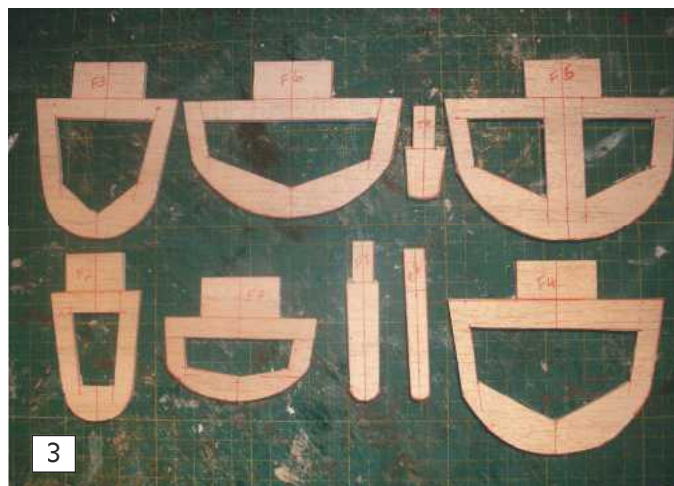
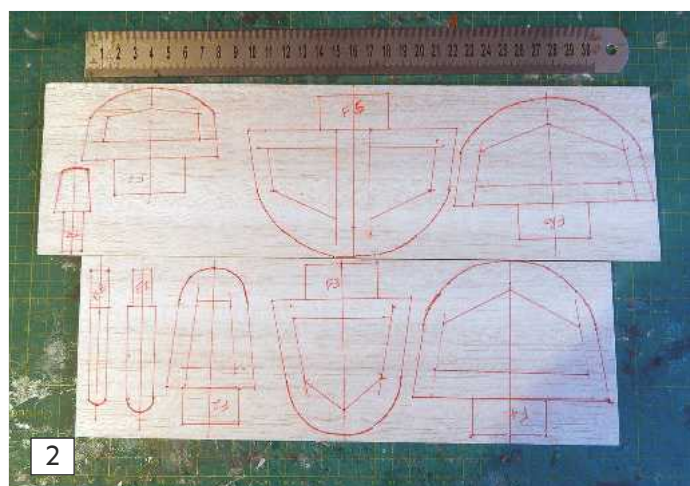
Varmint: Table of component maximum target weights

Bare Hull	220 grams
Mast and bearing assembly	57grams
Fin	35 grams
Rudder assembly	14 grams
Lead Bulb	480 to 520 grams
Rudder servo	12 grams
Sail servo (MG995 or MG996)	55 grams
6.6v LiFe 750mAh battery	55 grams
Sails	20 grams

racing breed when the wind drops, although being very light at only just over 950 grams, including a keel bulb of around 500 grams, she can manage to struggle along when other much more exotic and expensive yachts are dead in the water. Overall, Varmint is the sort of yacht you can take out and have fun with in almost any prevailing conditions, providing you fit the appropriate sail rig.

Looking at the basic hull shape, a close friend and myself had been having discussions for some considerable time on what constituted the best overall hull shape to allow smooth passage through the water. After much debate, and the making of over 14 different yachts in two classes over the last five years, we concluded, maybe incorrectly, that a canoe bodied hull should be capable of out-performing anything else in terms of being able to slide through the water quickly. We also studied the leading IOM (International One Metre) designs including the now famous Brit Pop and other RG65 plans available on the world wide web. Varmint is the net final result of our prevarications, **Photo 1**, incorporating a canoe shaped hull coupled with blended chines running for over 50% of the hull and sharpening up towards the stern. A quickly built test prototype appeared to confirm that our ideas had some merit and so the development of Varmint then took place. As for construction, Varmint was designed to be as simple, quick and inexpensive to build as possible using readily available materials. Although not recommended as a first foray into hull planking, anyone with a modicum of basic building knowledge should have no issues with completing this r/c model yacht that looks good and sails well. If you are interested, then please read on!





A weighty business?

Before starting anything, do remind yourself that if you want to finish with a model capable of holding her own in a race the one thing you must do is to **BUILD IT LIGHT** as well as **STRONG**. Your final ready-to-sail-weight should come out at around the 925 to 950 grams mark. A list of the weights of the parts of this Varmint is included in this article, so you can keep a check on things as you progress. I heartily recommend that if you make a component significantly more than its target weight, then you scrap it and make another, and here's how it all goes together.

The hull

The first thing to do is make a building jig to hold all the frames in position. I used a piece of 2 x 1 inch stripwood, only because it was in the existing stock and please remember that Varmint is only 650mm long, that is not much more than 25 inches or so. Mark off the position of each of the frames and glue on some scrap pieces of hard balsawood to position and hold the frames against it. For the frames themselves, it is best to use some carefully selected 1/8 inch thick medium or hard balsawood, **Photo 2**. Please note the use of the words, 'carefully selected' and do spend time choosing the lightest sheets. On that point, it is best to physically see and

handle the balsawood prior to purchase rather than hoping for the best with mail order, as it is really astonishing the variation in weight that you can, and will, find with sheet balsawood. The centres of the frames will need to be cut out as well as in **Photo 3**. A sharp blade in a Stanley knife or equivalent will do the job very nicely, and if the blade becomes blunted, then use a new one as balsawood tends to tear if you use a blunt blade.

The frames then need to be fixed to the building board, or a stripwood spine in this case, **Photo 4**, ensuring that they are vertical and at 90 degrees to the length of the board. Having satisfied yourself that all is well, spot glue some 'Dyneema' under mild tension down the sides to ensure that the frames all stay true as you commence planking.

A word now about Dyneema if you wonder what it is. Dyneema (sometimes spelt as Dynema), is a high-strength synthetic fibre, usually supplied as a cord or rope in different diameters, that is particularly suitable for model (and full-size) yachts. At the other end of the scale, in a special form it is capable of protecting an individual or vehicle from threats like an improvised explosive device (IED) or shots from an AK47 rifle, neither of which usually apply at the average UK model boating pond.

If you haven't got any Dyneema, then

any strong thread will suffice. As an aside, personally I detest using this man made cord for anything except rigging, as it can have a mind of its own, but fortunately it does exactly what it's supposed to do in terms of rigging quite brilliantly, and until something better comes along I guess we will all have to continue using it.

When everything is set up accurately, cut out and glue on the side panels of the hull, using 3/32 inch thick sheet balsawood, once again carefully selected. I recommend recruiting an assistant at this stage to hold the one piece sides in place at the stern and bow whilst you pin them in place, taking great care to ensure that none of the frames twist or distort, because if they can, then as sure as day follows night, they will. Leave to set completely and use the time to cut out some strips of 3/32 inch thick balsawood, 3/16 inch wide, ready for planking the remainder of the hull.

Everyone has their own ideas about how to go about planking, but my preference is to initially lay one plank down the centre line of the hull to prevent any twisting of the frames. After this, the planks are laid one at each side working both up and down the hull and shaping the ends of each plank as necessary. Total accuracy is not needed as you are going to rub the complete hull down with



glassfibre cloth and apply another piece. Better still, if this is your first time playing with this cloth and resin and you fear it will all go horribly wrong, practice on something simple first, perhaps the separate keel unit?

Once you have got the glassfibre cloth laid down well over the wood hull, leave everything to set for at least 24 hours and contemplate building some other bits for Varmint starting perhaps with the mast and booms?

Mast and booms

You can make up your own totally from scratch, but I prefer to cheat and use readily available trade items that from experience work well. Buy a piece of 7mm o.d. high tensile rigid carbon fibre tube for the mast and a piece of 5mm o.d. for the booms. You will also need to acquire the mast-foot kit of parts for a Dragon Force 65 yacht, **Photo 6**. This is a beautiful little bit of technology containing everything you need to construct the entire sailing rig and as an added bonus you can go online and see how it all fits together and works. My only recommendation would be to anoint the bearings before assembly in this kit with WD40 oil or similar, as it helps prevent water ingress and possible subsequent corrosion. One other thing perhaps worth mentioning is the method of attaching the sheeting lines to the booms. Bowsies just

sandpaper and then 'glass' it for strength. My recommendation would be to exercise patience and try to develop the smoothest shape you can, but don't go trying to obtain a micron-perfect finish at this stage as life's too short and it needs to be reserved for sailing. If you want to read up about planking and subsequent 'glassing' then a copy of Bryn Heveldt's super little book covering the building of his Racing Sparrow design will explain everything:

Website: www.racingsparrow.co.nz

Copies are offered very cheaply in some book 'bucket' shops and on eBay as well from time to time.

Leave the bare planked hull overnight to allow the glue to set completely and then it's out with the sanding block to rub it down and hopefully finish with a hull shape that looks something like that on the plan. If there are any depressions on the hull, then they are easily filled with standard DIY decorator's filler, sanded smooth once dry, **Photo 5** being of the planked and filled hull. Take time over this because trying to 'glass' over a hull with an irregular surface is never going to work and the finished article will never look or perform well either. When you are satisfied with it all, it's time to lay a thin layer of glassfibre cloth and epoxy or polyester resin over the entire hull which will impart a huge amount of strength to it. On the prototype, some 24 grams weight cloth, together with Zap Z-Poxy were used. If you haven't 'glassed' a model before then I recommend seeking guidance from someone who has, as it is quite easy to get into something of a mess if you are not careful. The Z-Poxy package includes some good instructions printed on its box which are well worth a read. This resin does remain workable for at least 20 minutes, so if you make a hash of things, whip off the

don't permit the fine adjustments necessary and on a freezing cold sailing day, one's fingers will freeze before an adjustment can be properly made and a simple but very effective method used nowadays is shown in this last photo. Here, the sheeting line passes through a piece of tight-fitting silicone fuel tubing on the boom and is tied off using a tiny bead. A small thin tie-wrap is then placed between the tubing and the bead to prevent the Dyneema cord cutting its way through the fuel tubing. In this photo, contrasting brightly coloured yellow tie-wraps have been fitted to make things clear, but black ones will be more discreet. Quite a few skippers have commented favourably on this method and some have even started using it, so it can't be that bad. Fine adjustments can be made extremely quickly, saving time and frustration especially on winter days, and your fingers can stay warm as an added bonus.

Underwater parts

Time now to make up the bits that spend their lives under water and these are very important, so let's make a start on the keel, otherwise known as the fin. To gain the necessary strength coupled with light weight, it is crucial to laminate the component parts using epoxy glue. Don't forget, this 5 to 6mm thick keel (fin) is going to be carrying some 500 grams of lead at its bottom end on a hull surging through the water at a rate of knots whilst upstairs 2250 sq. cm. of canvas is doing its best to transfer all the power it can generate sideways to the hull.

The only thing that transfers all these forces into forward motion is the keel and one side of the hull so both had better be good. Three examples were made, **Photo 7**, and all are from a sandwich of two pieces of thin carbon fibre laminate joined with Araldite with 1/16 inch thick balsawood sheet either side. These were then shaped to an aerofoil section and covered in two layers of the fine glassfibre cloth impregnated with Z-Poxy resin. For the rudder, just one piece of carbon fibre





with balsawood each side was made and shaped in the same way, before finishing likewise. **Photo 8** is of one keel (the longest), the rudder and internal mast box with its two alternative position tubes in their raw unfinished states. They look a bit 'rough' here, but the Z-Poxy and cloth make a huge positive difference and why three keels?

Well, having experimented quite extensively with another of my designs for our club's restricted 31 inch class of r/c yacht, a middle length keel proved to be the one that worked best under all conditions. I have no idea why, but it's probably something Machiavellian and designed to puzzle modellers, so when designing Varmint, three different length keels were made and all were tried and tested, so that the keel length can be whatever you desire for your RG65 Class yacht. Practice followed theory and the longer keel shown on the plan proved to be best under almost all conditions, but then again, when the winds are very, very light, Varmint ghosts along best on the shortest keel due to the reduction in drag and therefore there is a choice of three, at least for the prototype.

Finishing the hull

The epoxied (glassed) completed hull can be removed from the jig before or after you make the keels, but it's a good idea to gently sand it with progressively smoother pieces of wet & dry paper used wet with a bit of liquid soap in the mix whilst still on the jig. You may get lucky and finish up with a lovely smooth flowing hull but others, like me, will need to dig out the car body filler and rectify any imperfections. Spend as much time as necessary on this task as not only will the hull look better when painted, but it will help Varmint 'cream' through the water that little bit better when racing and that is really what it's all about. To remove the hull from the jig, use a sharp blade to cut away the false part of the frames attaching the hull to it. When the hull is finally liberated you can trim everything to the deck line and it is a good idea to reinforce the hull's top edge by gluing a strip of 3/32 inch thick balsawood around the inside of it. This will provide something for the deck and various fittings to bond to, when it comes time to install them. **Photo 9** is of the completed hull, with the keel (fin) box and prototype dual



mast base unit plus deck support beam all in place. The main deck beam needs to be robust as it will be carrying the fittings for the jib assembly. I would suggest laminating two pieces of very hard 3/32 inch thick balsawood to achieve the necessary strength, coupled with lightness.

If you have elected to use the 'off the shelf' Dragon Force kit mast foot kit that fits above the deck, and believe me it is worth it, you will still need to devise and construct something to locate and hold the mast's lower end in place within the hull.

Mast Base Unit

This sits in the bottom of the hull immediately forward of the keel box. In the last picture (Photo 9) it has two tubes to enable the optimum on-the-water position for the mast foot and was also shown in its constituent parts earlier, together with keel and rudder. However, at the end of the day it's what actually works in practice that counts, and having two trial positions on the prototype seemed a good idea. The simpler single mast base support shown on the plan is in the position that has been proven to work well, but there is no reason why you cannot go down the 'dual' route if you wish. There is nothing remarkable about this unit, other than that it has to be set perfectly upright in the hull and using a dummy mast and set squares will make everything just that bit easier.

Keel (Fin) box

By now you should also have a beautifully shaped and semi-finished keel which you can use to construct the hull's internal box that will fit snugly round it, but here is a word

of warning. It is a fact, that if a yacht with interchangeable keels is going to leak, it is this box that will cause problems, particularly if it is made of wood. The reason is obvious and is due to water entering the box (which is unavoidable and is usually under pressure) when in use, and then slowly but inexorably seeping through the timber into the hull. This may happen very slowly at first, but then become a flood and radio gear and electricity do not like water. The solution is to make the box from balsawood (to save weight), but laminate it on the inside with thin styrene sheet, attached with epoxy adhesive. This should simultaneously achieve water-tightness and strength, but with minimum additional weight. If you don't have any styrene in your scrap box, you can use any form of thin plastic including the sort you find on some boxes of Christmas cards and chocolates. To fit the box into the hull, and after cutting the slot in the hull for the keel to enter it, place the hull on a firm stand, checking with a spirit level to ensure that it is sitting perfectly square. Fit a temporary weight to the bottom of the keel, push it up through the hull and into its box and check to make sure that when the keel is perfectly vertical, the keel box sits flush with the inside bottom of the hull. You will have to do a bit of trimming, but the effort is well worth it, before tack-gluing in place, wait for it to set and then check again before gluing in place permanently with epoxy adhesive. If you get this right, then everything else should align perfectly and your hull will run true in the water.



Bow fender

This is as good time as any to cut and shape the bow bumper, which should be made from a medium to hard grade rubber. You can usually find suitable material as part of the packaging of electronic equipment, but if all else fails, a piece cut from an old Flip-Flop sandal serves the purpose very well and several of my yachts are currently in service using this material. However, this sort of rubber simply does not like being sanded to shape manually, but a high speed bench sander does the job very nicely. **Photo 10** is the finished item fixed to the hull after painting using double-sided waterproof tape. The mascot is optional.....

Rudder post

This also needs to be fitted, ensuring of course that the rudder is also correctly aligned. Reinforce the rudder post towards the top as there will be quite a lot of force being applied when turning at speed. Alignment is as critical as the keel box and mast support units, so take time to all of these

100% perfect.

Once these key elements of construction are completed, you can treat yourself to a huge sigh of relief because the truly critical parts of the build are now behind you and you are ready to move forward to completion with very little extra effort, apart from acquiring a keel bulb which can be tricky.

Lead bulb keel weight

Mercifully, I have had lots of practical experience with melting and moulding lead as part of my working life, but it is **NOT** something that you can play at, but providing you adopt a 'Safety First' approach and proceed with all due caution, then you can cast a lead bulb relatively simply yourself.

Safety first

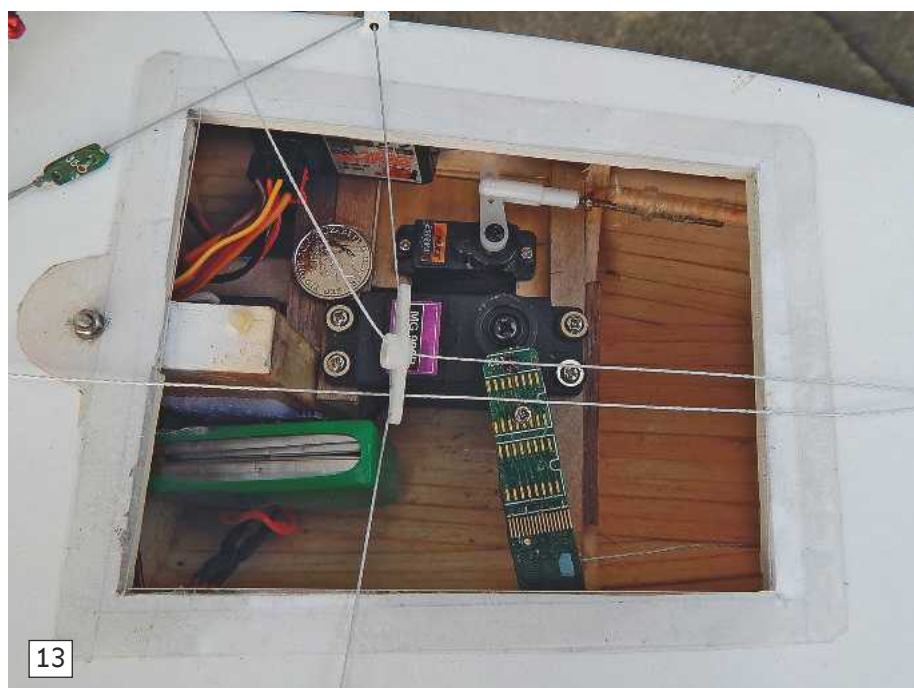
Remember inhaling lead dust and fumes is not good for your health so wear a mask. Second, if any lead splashes onto you it will do a bit more than just hurt, so wear suitable protective clothing, safety glasses and gloves

as an absolute minimum. Finally, remember that if molten lead comes into contact with water it can spit quite explosively in all directions, including yours, so be aware of this.

Casting process

The method used was as follows:

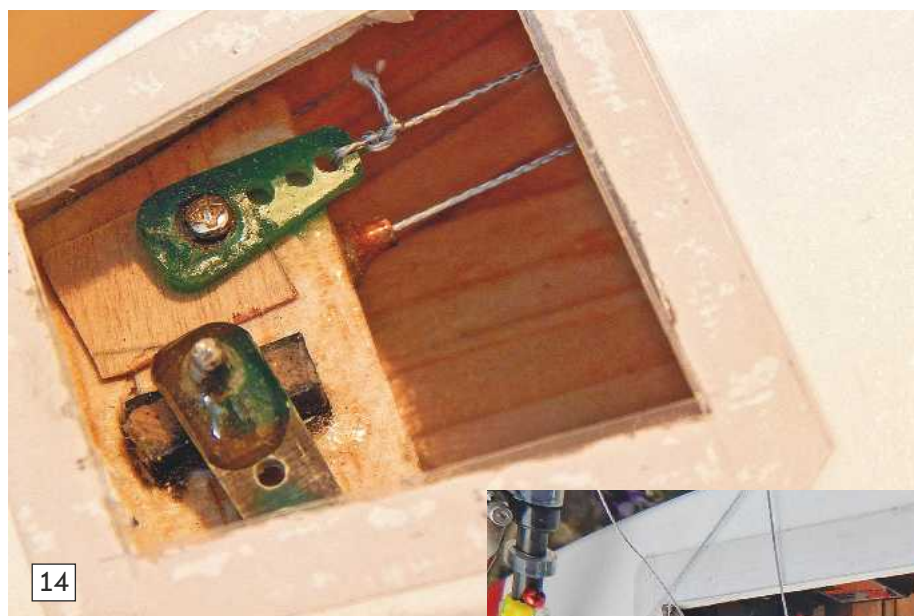
For casting the lead, I prefer to make a mould split along its longitudinal axis for reasons which will become clearer later. In simple terms this means making a half-plug (master) out of balsa wood to a suitable shape and then gluing it to a robust piece of oversized plywood as shown in **Photo 11**. Once this is made, fill a suitably sized kitchen container (also in Photo 11) with **DAMP** sand right to the top, smooth off and then press the plug (master) down into it and right up to the plywood backing as in **Photo 12**. Carefully remove the plug and then cover it with tin-foil using firm finger pressure to remove as many of the creases as possible. Replace the plug and foil into the depression already made and then carefully remove the plug, but leave



and allow to cool. Once set, remove and set up again to make another identical weight. You may have to remove all the sand and make another mix as the heat from the first casting will have dried the sand/water mix to the point where the top layer of sand is bone dry and now quite friable which is useless for supporting the desired shape. Anyway, by now you should have two identical pieces of keel bulb ready to be joined together. Before you do this though, you will need to mill a slot in one piece to accommodate the keel. If, like me, you don't have a mill, then drill holes and file everything to size still wearing a mask and gloves as you will be generating a lot of fine lead powder and dust - better safe than sorry. When happy, glue the two pieces together and smooth to shape before filling the surface inconsistencies with car body filler prior to final sanding. The dimensions of the bulb shown on the plan should ensure that you finish with a keel weight of around 500 grams.

Radio control

It is time now to consider where all the r/c control bits are going to go. For an r/c yacht of this size I have never found it necessary to use a bespoke off the shelf sail winch to operate the sheets. A high power servo such as an MG995 or MG996 will pull over 6kg on 6 volts and costs less than a quarter of the price of a standard sail winch. These are generic servos, readily found online if you do an Internet Google search with those numbers. **Photo 13** is a view of the interior through the main access opening, showing the small metal-gear rudder servo, the lever-arm sail winch in the middle, lightweight battery to the left and the receiver is fixed to the side of the hull. When setting up the rudder linkages, aim to have around 30 degrees of throw either way which has proved adequate in practice. For the sail lever-arm, extend the supplied



the tin foil in place. You should now have a tin-foil shape suitably supported by the sand into which to cast the lead. I suppose at this point it is in order to explain what constitutes 'damp' in reference to the sand. Frankly, I don't know how to measure this and all I can say is to experiment until you find the correct consistency that takes and holds the shape of the plug. One or two trials should be all that is necessary.

For heating the lead, I use an old aluminium saucepan following a kitchen clear-out. This is mounted on an old camping stove and then extra heat applied from a blowtorch that in another life serves to supply heat to a steam tug boiler. Once the lead is molten (and you are wearing all the necessary protective gear, aren't you?), pour carefully into the mould





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servo arm to the dimensions shown on the plan and effectively double the throw available by running a return loop in the control cord as in **Photo 14**. Note the use of redundant printed circuit board pieces for this and other sail related components. The sail control line (sheet) runs through a bent piece of annealed thin wall copper pipe which exits the transom. This is an inexpensive and problem free solution that eliminates the need for pulleys and other complexities, but feel free to install things according to your personal preferences. There's little to go wrong, apart from the On/Off switch which can often be the Achilles Heel of a radio outfit. From bitter experience, I now ensure that all switches in my yachts are very 'gettable

at' so that if and when it fails, then it can be easily replaced and the design of mounting is shown on the plan. In other words, think ahead as to what might need replacing and how, if necessary, it can be reached and the problem resolved.

The deck

Once you are entirely satisfied with the radio installation you can turn your attention to this, if you have not already. The quick and easy option is to cut and fit a deck of 1/32 inch thick plywood sheet. If you want to be a bit more exotic, you could use 1/16 inch thick balsawood sheet, but over-laminated with lightweight cloth and epoxy resin. This can

be time consuming and messy, but will add strength and overall hull stiffness for very little weight gain and assuming you already have the necessary resin and cloth in stock from the hull construction, then why not?

Hatches?

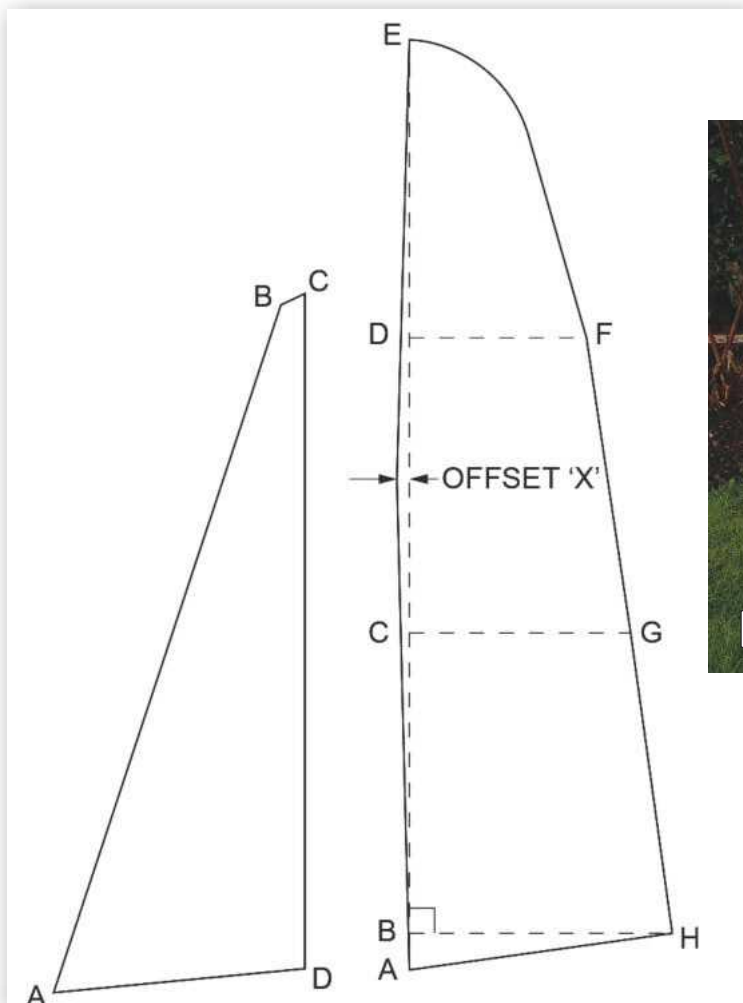
Long ago I discarded the idea of manufactured deck hatches and now use self-adhesive deck patches which can be easily removed, discarded, and new ones fitted each time you want to access the r/c gear inside the hull. Commercial items are of course available, but clear sticky-backed-plastic also does the job very nicely. This is basically a type of clear Fablon, the stuff you use to cover work surfaces etc. It's tough and hard wearing, completely waterproof and a 10 metre roll costs something like £2 and with that you can make more hatch patches than you will ever need.

One tip well worth bearing in mind is to fit the deck with hard, clear plastic surrounds around any access hole after painting, **Photo 15**. These allow the paintwork to show through, but also enable the single use self-adhesive hatch patches to adhere firmly to the plastic and not your beautifully painted deck. If you stick the surrounds to the deck with a durable double-sided tape, you will find that you can subsequently peel off the hatch patches time after time without marking or destroying the underlying paint finish of the deck.

For deck furniture, small pieces of printed circuit board (pcb) cut and shaped to the required sections have been glued into holes drilled through the deck. These will be under a fair amount of load when in use, so do make sure they fit well and are adequately glued.

Painting

To paint the hull, the choice is yours. You can't beat several coats of slightly thinned enamel to get that deep, lustrous gloss finish, but this will add weight. Acrylic car touch-up 'rattle' spray cans are the other main contender and they provide a quick and acceptable alternative. If you know anyone with access to a cellulose spray booth and the necessary skills to use one, you will arrive at something with a simply stunning finish. As for final trimming, cheat(!) to get nice clean edges on the trim by cutting shapes from Solartrim (trade brand name) and carefully apply them. They are delicate and many are the shapes that have been thrown away as they have dropped to bits during application, but they do look good though when you get it right. The bottom line is to go for a colour scheme that others don't use, as it will help when identifying your yacht when on the water amongst all the others at the start line or rounding a buoy. The prototype Varmint's paint scheme and decoration can be clearly seen in **Photo 16**. The final thing to be said about sails, is that unless you can actually see



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Sails

A great deal has been written about this very important aspect of model yachting by people far better qualified than myself. There is a wealth of information out there for the DIY devotee

as well as numerous suppliers who can, and will, make you some excellent sails on request. Have a look at the sail making section by Larry Robinson on the website: www.onemetre.net

on the world wide web, as it's a complex business that would consume 1000's of words here in Model Boats. All I will say is that making sails with camber takes practice and unless you are extremely lucky or proficient you will not get it right every time. I've been making sails for ten years now and still discard more than a quarter of those made as they just don't set properly and therefore can't be expected to perform well. One thing you will need is a split building board shaped to an aerofoil section as described on the website previously noted.

If it's any help, the sails on Varmint were made to an Eppler 302 Section and the point of maximum camber is set at about 35% from the leading edge. Other sections are available though, so it's a case of making your own selection. If anyone comes up with a combination that works superbly under any conditions, then please let the rest of us know as we've all been searching for this Holy Grail for many years. The three rigs made are shown on the plans and they seem to provide a good performance in winds of up to 25mph. For the record, the A-rig (for light winds) calculates out at 2160 sq.cm. which is about 5% less than the 2250 sq.cm. allowed in the RG65 class rules, so if you want to go a bit bigger to extract every bit of power in light winds then go for it. Fitting the sails to the mast and booms is another skill that frankly needs to be learned, and the best way to do so is to apprentice yourself to a skipper who knows what he or she is doing. **Photo 17** is a side view and shows the booms and mast configuration, and please remember Varmint is just 650mm (25 inches long).

On the water

Suffice to say that unless you rig it properly, your yacht will never sail correctly, if at all. The golden rule that you must follow when setting it all up, is to have the jib set about 5 to 7 degrees further out than the main sail when fully sheeted-in, as failure to do this will result in disappointment, and I write from

Sail Dimensions for Varmint in millimetres

JIB

RIG	A	B	C
A – B	675	570	500
B – C	15	15	15
C – D	640	530	460
A – D	230	230	230

MAIN

RIG	A	B	C
A – B	20	20	20
B – C	280	230	175
B – D	560	460	350
B – E	840	690	525
A – H	255	220	210
C – G	215	200	180
D – F	170	145	130
Offset X	5	4	3

which is your yacht in any form of race, then your chances of winning are minimal. After a couple of races with up to 20 or more other yachts all with white sails, colouring mine at least gave me a fighting chance of controlling my yacht and not someone else's. Waterproof felt tip pens from Poundland do the job successfully and the colour adds no weight worth mentioning and these are the sails you see here.

It is perhaps best if I limit myself to briefly explaining from my acquired limited knowledge the do's and don'ts of materials nailed to masts on model yachts. Over the years, a variety of different materials have been used ranging from florist's wrapping film (which is surprisingly good and cheap), Rip-stop nylon, Mylar sheet, shower-curtain plastic and polyester film.

All these work and some are better than others, but for a yacht the size of Varmint I would recommend 35 and/or 50 micron Mylar sheet film. This is available off the roll from model yacht suppliers and is inexpensive, but the postage costs can make small quantities a bit pricey. The best bet if you are within a club environment, is together with fellow skippers to order enough to make several sets of sails for a number of r/c yachts. The plans provide you with the shapes of the sails to make and the only major decision is whether to make them from a plain cut-out piece of film, or to construct them from sections joined together to introduce a shape and camber into them. Someone once said that a badly made sail with almost any degree of camber will perform better than a well-made sail with no camber, and this does seem to be the case. As for introducing the correct degree of camber, I refer you to information available



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considerable personal experience. As for the more experienced skippers, when their yacht zooms away leading the pack, it is a thing to behold.

The best opinion I can give, after researching the basics, perhaps courtesy of the world wide web, is to watch what others do and seek their advice. To arrive at the sort of superb trimming that experts achieve may take a very long time, but with a bit of help you should have things set pretty quickly to the point where you will be able to sail successfully. After that it's time to climb the experience ladder if you wish to compete at the top level.

Finally, for test sailing do yourself a favour and pick a day and a location ideally offering consistent winds of between 5 and 10 mph and **Photo 18** is of Varmint doing what she does best. With the main boom set at about 5 degrees away from the centre of the hull when fully sheeted-in, and the jib sheeted out at around 10 to 12 degrees will allow the yacht to sail well, but only very fine trimming later will enable you to find the optimum positions for both booms. As for the amount of camber in the sails, this is again an art form as mentioned earlier, but measured at the boom, the point of maximum deflection in the sail should be about 20mm on the jib and 15mm on the mainsail. These measurements aren't the best, but they will get you going.

Having got your Varmint moving and coming back to you(!), spend at least 30 minutes sailing and discovering why and how Varmint responds to changes in the wind strength and its direction, and the control inputs you make. In due course, make any changes to the settings that you feel are appropriate to gain an increase in performance, but only change and test one thing at a time as altering two or more things simultaneously will tell you nothing and is a road to frustration and disaster. Thereafter, watch the experts, seek advice, make small changes one at a time and practice, practice, practice, and **Photo 19** is of Varmint once again, but now running before the wind.

Conclusion

That's just about all there is to say about building and sailing Varmint. If you build light and in accordance with the plans you will finish with an attractive looking little r/c yacht that is quite capable of holding its own performance-wise with some of the very expensive carbon-fibre hulled model yachts. Referring back to the very first header picture of me kneeling with Varmint, you can see that it is not a huge model yacht, but big enough to sail in most winds that we would want to sail in, and why the name? Well, during the building process our new puppy insisted on

Suppliers of components

Mast Foot Fittings Kit

Mike Weston website: www.radiosailing.co.uk

Tim Long website:

www.abersochboatyardservices.co.uk

Mylar for sails

Graham Bantock website: www.sailsetc2.com

Balsawood/glue/paint/trim

Any good model shop

Mast & booms

Model Shop Leeds, website:

www.modelshopleeds.co.uk

Lead for keel bulb (as flashing)

B&Q - a large DIY chain of warehouses

Dyneema (Dyneema) 40lb breaking strain cord

Fishing tackle suppliers or eBay

Hatch cover material

Wilko (UK) stores, website: www.wilko.com

picking up any dropped components that had arrived courtesy of gravity on the floor and 'ragging' them if he could get his teeth anywhere near them. My wife got fed up of hearing me shout, 'Get off you Varmint' and so the name just stuck.

Build one and have fun –

John Goodyear, 2017

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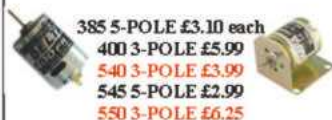
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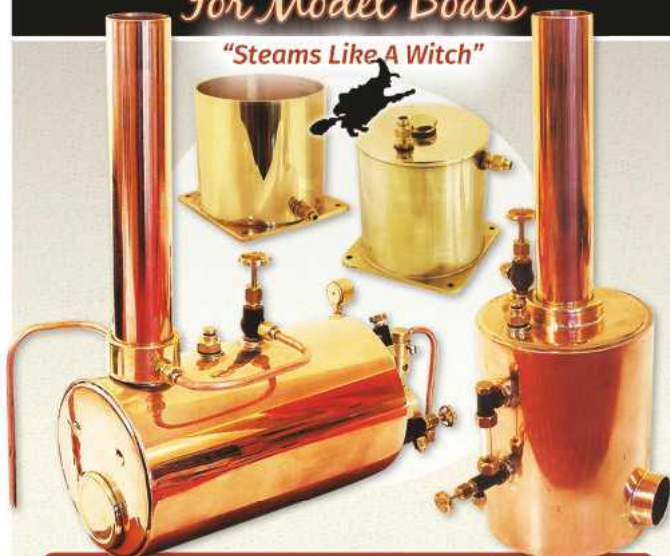
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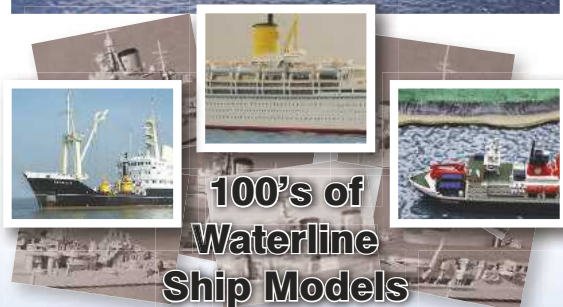
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Range Finder



Dave Wooley with his Worldwide Review of Warships and Warship Modelling

Welcome once again to our regular sortie into the world of fighting ships and this month we have a close look at a warship that was once a minelayer in the Danish Navy and is now of the Estonian Navy and on NATO duty as of 2017. We also continue with the mast and radar detail parts of our OSA 2 project.

Estonian Navy EML Wambola A433

This warship is part of the Standing NATO Mine Countermeasures Group One. At the close of April 2017, vessels of this squadron visited Liverpool and I was fortunate to be given an invitation to attend the official reception onboard EML Wambola. These receptions rarely involve a physical tour of the vessel, but a chat with the commanding officer regarding my interest in having a closer look at his command meant that before the light faded an impromptu tour was rapidly arranged.

EML Wambola was originally part of the

Danish Navy and this 570 ton warship entered service on 30th January 1978 as Lossen N44, a minelayer and submarine depot ship built at Svenborg as part of the two ship Lindholmen Class, both having reinforced bows for coping with the Baltic winter and ice. Both are 45 metres in length and 8 metres beam, powered by Wichmann diesels to two shafts developing 4200bhp and a service speed of

Above. EML Wambola arriving at the Liverpool Cruise Terminal.

14 knots. They were originally armed with two 20mm guns and had a capacity of 60 mines. As of now though on EML Wambola, the armament has changed to four 20mm guns and her role from minelayer to diving support vessel, although the area onboard and the facilities to accommodate the mines remains unchanged.

Ship's tour

The official reception was accommodated



Photo 1. The front of the forecastle deck and unusually, the windlass is right forward.



in what was the mine dispersal bay, and therefore no pictures from there on this day. However, thanks to the commanding officer, the rest of the upper decks were available to photograph and we will commence with the forecastle.

A noticeable feature is the raised bulwark with the windlass in the centre right forward, in **Photo 1**. Moving further aft, but still looking at the forecastle as a whole, more of the fittings come into view, **Photo 2**, and it is worth noting how the mooring ropes are stowed either side of the crane, which has a capacity of one ton. The bridge unit is spacious, **Photo 3**, and then we have a good close view of the starboard bridge wing in **Photo 4**. EML Wambola is relatively small, being just 45 metres long, and in **Photo 5** we are looking (externally) at the part of the ship which once could accommodate 60 mines.



Photo 2. Further back on the forecastle there is a one ton capacity crane and it's worth noting the types of deck hatches.

Photo 3. The bridge wing and the door leading into the wheelhouse. The bridge is surprisingly spacious given the overall dimensions of this warship.

Photo 4. The fittings within the starboard bridge wing.

Photo 5. A general view of the starboard side. The minelaying deck is below the main deck. There used to be openings in the transom for the release of mines.





Photo 6. The tripod foremast is a bit of a throwback to an earlier era of warship construction.



Photo 7. There are two different types of liferaft container stowed just forward of the ship's boats.

The tripod type mast has changed very little since when in Danish naval service, save for the addition of a second navigation radar directly beneath the original array, and you can see all this in **Photo 6**. Moving further aft on the upper (bridge) deck, immediately to the rear of the uptakes are the launch racks for some liferaft canisters **Photo 7**, these not being identical, one being similar to that of UK warships and the other of a different design.

Mounted on either beam on are two rigid inflatable boats, used mainly for diving operations and powered by twin outboard motors, **Photos 8 and 9**. There is no specialised davit or anti-swing crane as such for deploying these boats in rough seas, but just a hydraulic lifting crane sited between each of them, **Photo 10**.

Aft area

Nowadays, all NATO warships, even when in a friendly ports, have light guns positioned around the deck (and usually manned) as in **Photo 11**. Our final picture for this short Ship's Tour is focused right aft at the winch in **Photo 12**. The transom, which I was unable to photograph short of going for a swim(!), had a large door and an opening in the side, both now over-plated, but which at one time were the discharge ports for the mines. Rails also extended along the length of the accommodation bay, the mines being mounted on a small dolly and pushed one at a time towards a ramp and these doors aft.

Conclusion

This was an unexpected and brief impromptu tour, but hopefully these few pictures do



Photo 8. The rigid inflatable boats look almost oversize for this 45m long warship.

OSA 2 Type 205U Fast Missile Boat Model **PART 7**

The OSA 1 & 2's both had a mast supporting a number of radar arrays.

Two of these resembled mattresses, with **Photo 13** highlighting one of them. These were known by NATO as 'Square Head' and were IFF (Identification Friend or Foe) interrogator arrays. Making these might seem daunting, but with a little thought such a task is actually quite easy and this is how it was done as we discuss making one of them.

Square Head

The choice of material for its outer frame was 0.5mm brass wire from Albion Alloys and the first step was to trace the shape required and transfer this to a strip of timber. A former can

be easily created from timber following the shape of the 'mattress' and the wire folded around it. Bending wire and guessing the bend point invariably means you make that 'bend' in the wrong place, so using a block of wood for this fine wire means that if the wood is rectangular, then so should be the outer frame. The folded wire can then be placed in position on the marked timber jig and the horizontal cross pieces added. All of this was then taped in place with each joint given a small dab of solder paste, setting the soldering iron's digital temperature to 285 degrees C before soldering could actually begin as in **Photo 14**.

The next step was to add nine 0.35mm brass vertical wire rods, with the centre one





9

give an insight into one of the current NATO warships, a vessel that was formally a minelayer. I have to say I have never visited such an unusual vessel and from a modelling viewpoint, EML Wambola would be an interesting model project. Perhaps someone in Estonia (or Denmark) has already made a model of this warship?

Photo 9. Each rigid inflatable boat is fitted with two outboard motors.

Photo 10. Down the centreline on 01 deck between the boats, is a basic hydraulic crane for lowering and retrieving them.

Photo 11. One of the small guns mounted aft.

Photo 12. A warping winch is mounted on the centreline right aft.



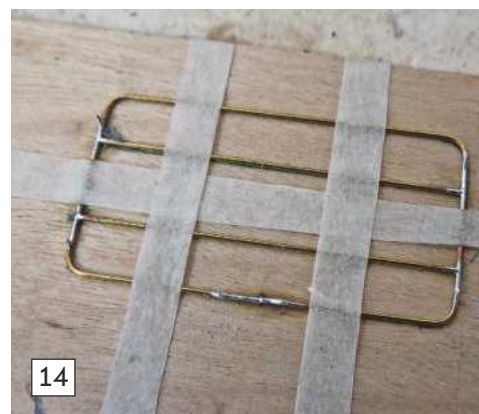
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12



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Photo 13. The mast and its radar arrays on the OSA boats was far from simple, at least on first inspection.

Photo 14. The application of masking tape is sufficient to hold the job in place whilst soldering.

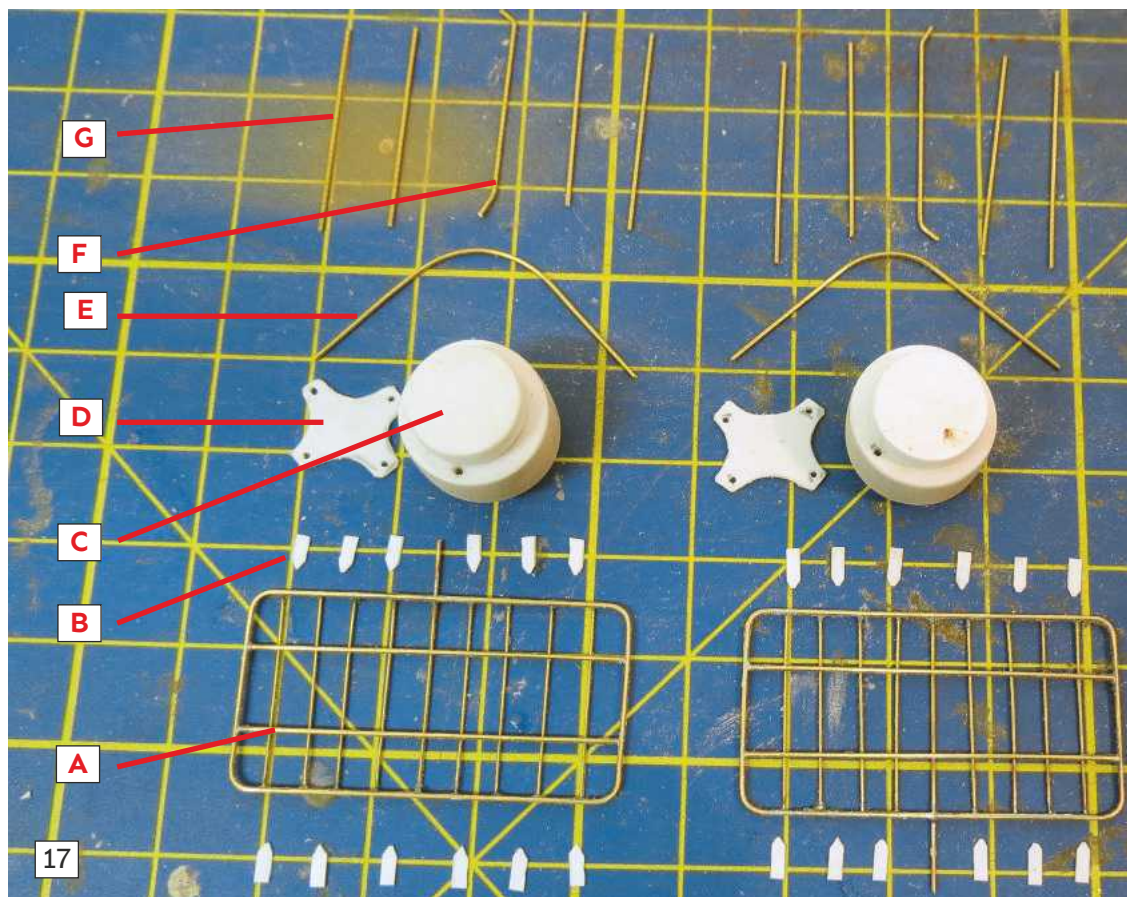
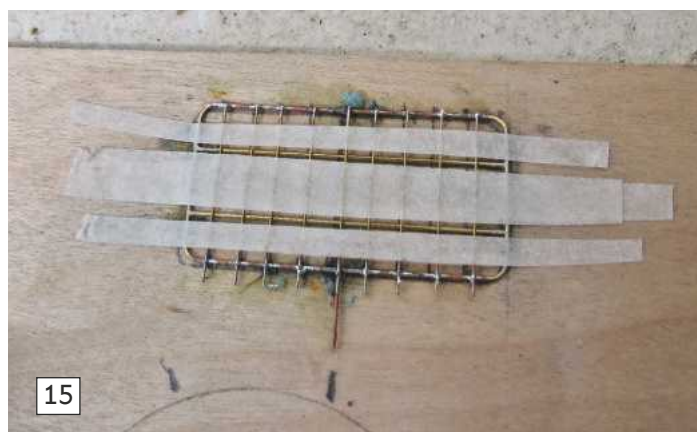


Photo 15. The process of using masking tape and a digital temperature controlled soldering iron enables the vertical bars to be soldered in place with ease.

Photo 16. After soldering, one IFF mattress was ready to be cleaned of residue.

Photo 17. All the parts that make up the completed IFF arrays were prepared and then assembled in sequence.

Part	Item	Material
A	IFF mattress	0.5 & 0.35mm brass wire
B	Arrow Heads	0.5mm styrene strip
C	Mounting	Styrene tube and filler
D	Side plate	1mm styrene
E	Lower bracing band	0.5mm brass wire
F	Centre back support	0.5mm brass wire
G	Back supports	0.5mm brass wire

slightly longer to provide an anchor point into the circular base, **Photo 15**. Once removed from the jig, this was the basic mattress. It is essential that the joints then be thoroughly cleaned of soldering residue, otherwise paint will not stick to them. Personally, I prefer to wash the soldered surfaces with soapy water, removing the flux residue and also double-checking that each joint is 100% sound and clean, **Photo 16** being of a mattress before

that cleaning process.

Each part of the complete IFF array is laid out in **Photo 17** and for ease of assembly each part is identified by a letter and here I have prepared two of them, as yes, there are more than one on the OSA boat.

Using superglue, each of the Arrow Head fittings could be fixed to the mattress frame as in **Photo 18**. The next stage was to fit a completed mattress frame to its circular

mounting. Here a length of fine bore 0.4mm i.d. brass tube from Albion Alloys was inserted close to the edge of the top of the mounting as in **Photo 19**. The exposed centre length of brass wire on the mattress could be fixed into the tube as in **Photo 20**, and so far, so good.

With the mattress in place, the bracing band Part E could be fixed into place using superglue. When set, the centre back support Part F was the first of the supports to be fixed, followed by each of the four remaining back supports Parts G, **Photo 21**. With these in place, the side panels were fitted and that completed the assembly of the Square Head IFF arrays, **Photo 22**, the second one being made at the same time as the first.

Square Tie

This was the general purpose surface search and fire control radar as referred to by NATO. As with all small, but nevertheless significant

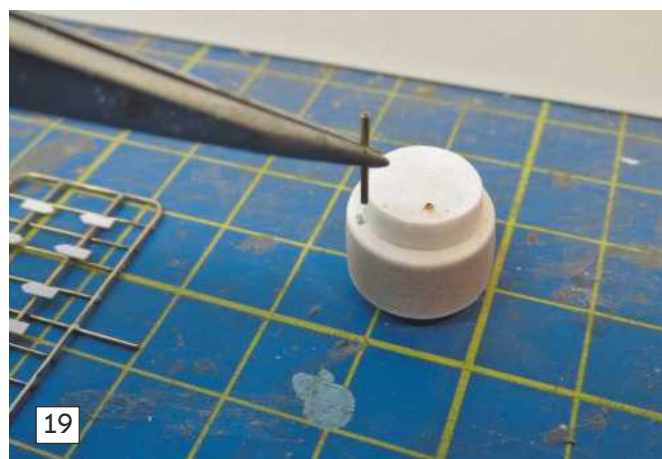


Photo 18. Each of the arrow head fittings was added to the front face of the IFF mattress.

Photo 19. A fine piece of brass tube is used to enable the IFF mattress to fit securely to its base piece.

Photo 20. The IFF mattress now secured to its base.

Photo 21. Each of the supports fitted to the rear of the mattress.

Photo 22. Both of the completed IFF arrays ready for transfer to the mast.

Photo 23. The parts that make up the support and base for the Square Tie radar device.

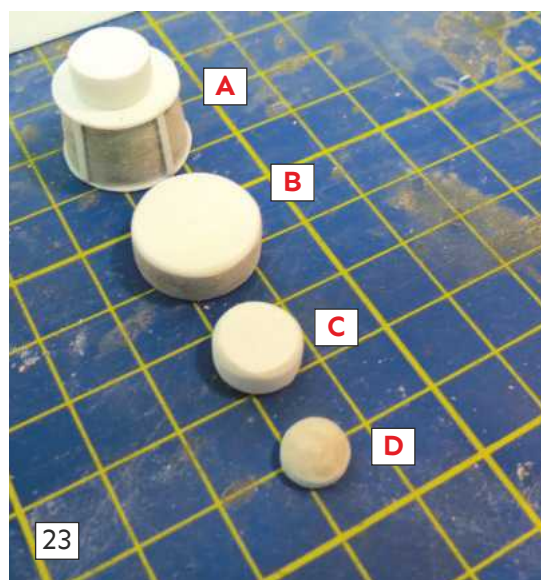
Photo 24. Sequence of assembly for the Square Tie surface search radar.



mini-projects, it is best to treat each and every one as a stand-alone task, thus ensuring an equal amount of attention. This OSA 2 fast missile boat then becomes a series of mini-models. In **Photo 23** we have reduced this fitting, on the face of it a complicated device, down to manageable parts. For example, the base Part A which sits on top of the mast was formed with the aid of a compass cutter from 1mm styrene and completed with P38 car body filler, on to which all the other parts would rest in the order of B, C and D as shown in **Photo 24**.

Creating the Square Tie radar framework

The framework which supports the radar panels of the elliptical parabolic reflector was made from 0.45mm brass wire and a method had to be devised that could produce a curved surface to allow for its soldering. The



result was a section of timber cut and marked to the curve of the radar frame as in **Photo 25**, my human fingers revealing the scale of the part. The two main curved lengths of brass wire were gently 'teased' into a curve and following the well-tried method of using standard masking tape, the remainder of the brass wire struts were held in place ready for soldering, **Photo 26**. As an alternative to applying the solder paste direct from the nozzle of the applicator tube (please see the August issue for more about this device), it is easier to use small dabs of paste on the end of a short length of wire and applying them to the joints, **Photo 27**.

Setting the temperature of the soldering iron to 285 degrees C, its tip was placed close to the prepared joint and repeated for each of the others, **Photo 28**. With the soldering process now complete, all that was required was to remove the framework from the former, with the net result as in **Photo 29**. Following the same method, the side frames were prepared, these connecting later with each end of this curved radar frame. All the relevant parts of this Square Tie device can

now be seen in **Photo 30** and for ease of identification a letter has been added. For example, Parts E are the side frames.

In order that there would be a good fit to the mounting, a length of 0.45mm brass wire was fitted in the centre rear of the frame and cut to a length corresponding to a tube inserted into the mounting, **Photo 31**. This can be clearly seen in **Photo 32**, together with the stabilising sail fitted to the rear of its mounting.

Fixing the side frames

At the sail end of the side frames, a short length of 0.5mm bore brass tube was inserted over the end of the 0.45mm brass wire of the frame and then stamped flat, ensuring a good fit for the stabilising sail as in **Photos 33 and 34**. As you can hopefully now appreciate, what initially looked to be fiendishly complicated is not that difficult when broken down to its constituent parts.

Here now is it all so far, **Photo 35**, with the remainder of its parts ready for final assembly when we continue this project in the October 2017 issue of MB.

References and acknowledgements

EML Wambola ref: Conway's All the Worlds Fighting ships, pages 80 & 81.

OSA 2 IFF Square Head ref: International Countermeasures Handbook, Eighth Edition, page 276.

Square Tie Surface Search & Fire Control radar ref: Guide to the Soviet Navy Second Edition, page 102.

My thanks to the Estonian Navy for their hospitality and assistance on my visit to EML Wambola. My thanks to the **Royal Navy's Northern Regional Office**. My thanks to **Albion Alloys** for their help, assistance & advice.

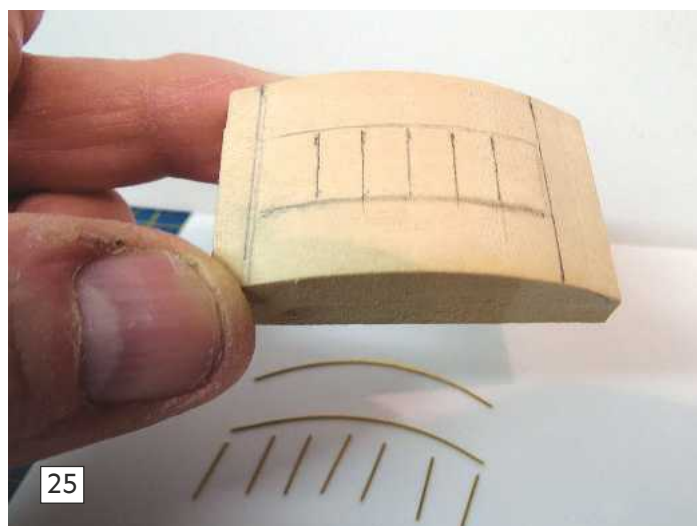


Photo 25. The timber jig for forming and then soldering the curved Square Tie backing frame.

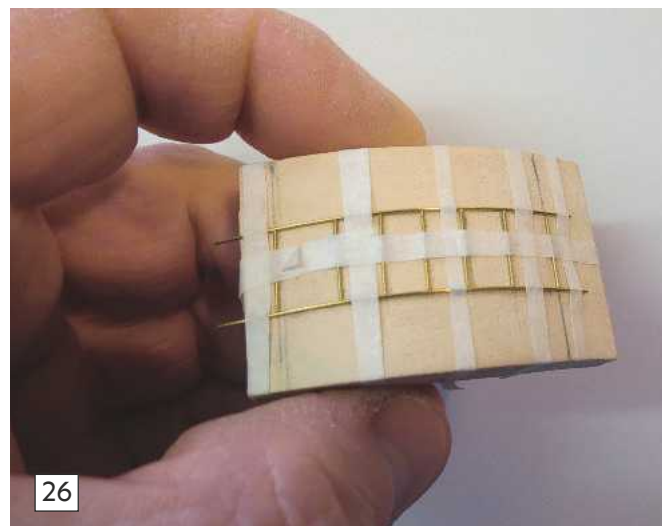


Photo 26. 0.45mm brass wire has been used for the radar backing framework.

Photo 27. Using a short length of fine brass wire, solder paste is being applied to each joint.

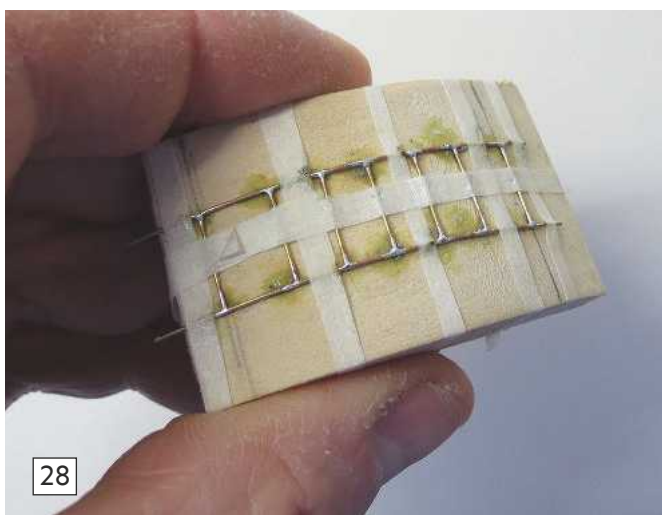
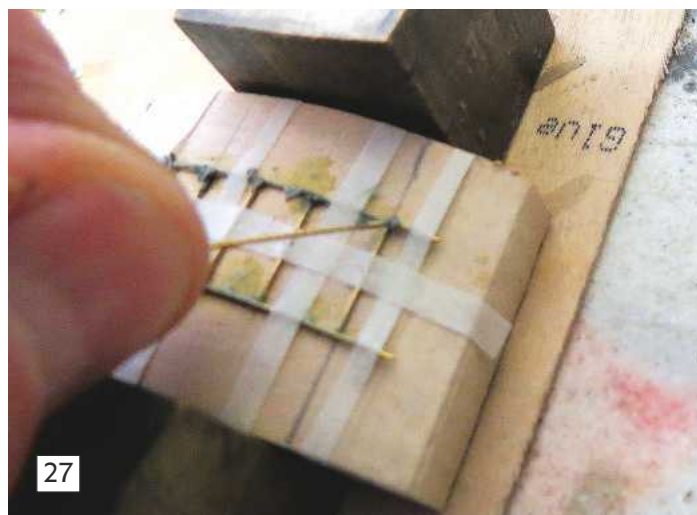
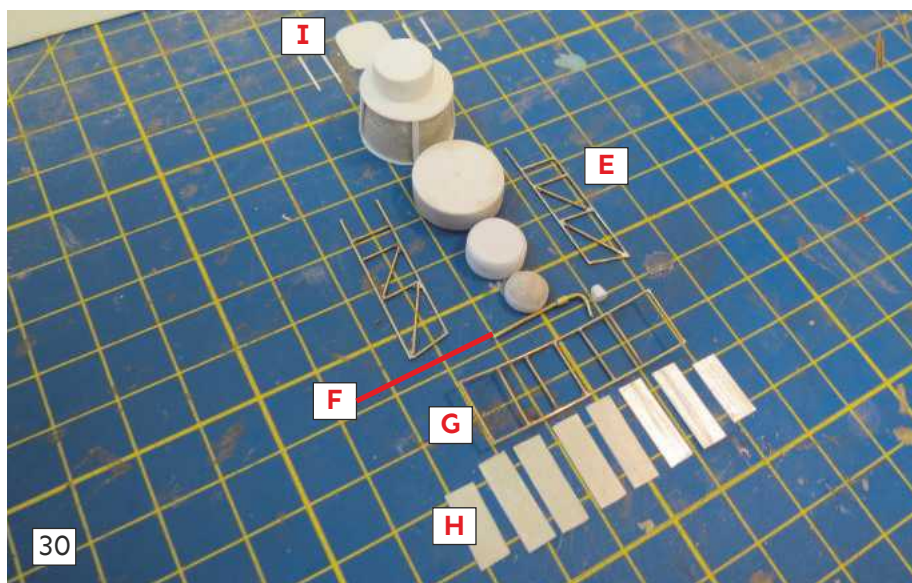
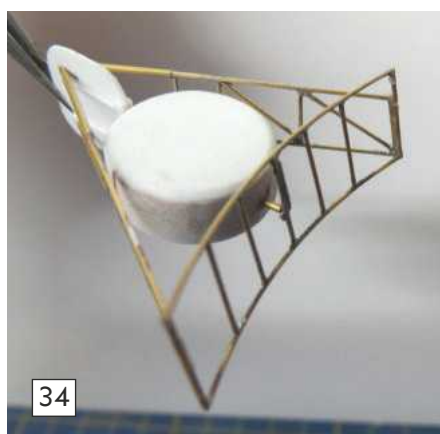
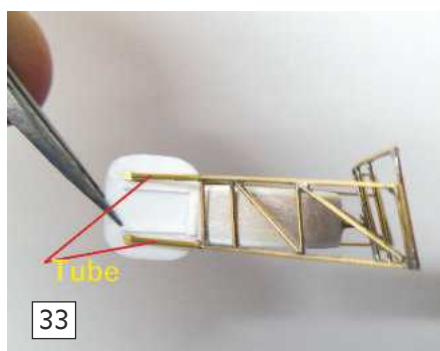
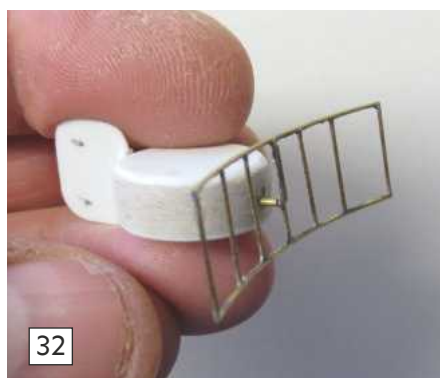
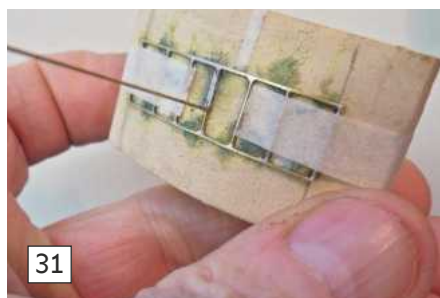
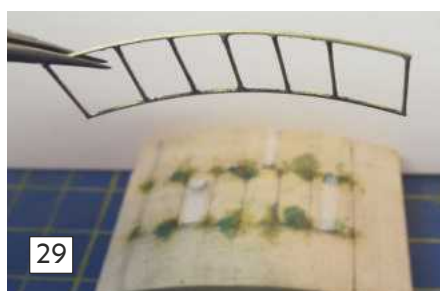


Photo 28. The freshly soldered joints are ready to be cleaned.



Ref.	Part	Material
E	Side frames	0.45mm brass wire
F	Feed horn assembly	1mm brass wire
G	Radar frame	0.45mm brass wire
H	Radar reflector panels	0.5mm litho plate strips
I	Stabilising sail	Evergreen styrene

Photo 29. The curved backing frame for the Square Tie radar array is removed from the timber jig.

Photo 30. Ready for assembly, all the parts that will form the Square Tie radar array.

Photo 31. Soldering the fixing rod that will secure the radar framework to the base unit.

Photo 32. The backing frame for the Square Tie radar is secured to the base unit via the fine-bore brass tube insert.

Photo 33. The left and right side frames secured to the ends of the back frame and to the stabilising sail unit.

Photo 34. The entire basic radar framework now all fixed and is quite firm for handling and painting.

Photo 35. The radar panels and feed horn are all ready for final fixing in place.

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Solent Class 48ft 6ins Lifeboat



Andy Cope renovates an Aerokits 1:12 scale kit - for the second time!



I seem to have developed a bit of a reputation for dabbling with novelty model boats, but like to work on what some might describe as a 'real' model boat now and again. The most recent chance to do this was when Paul Brassington, a well-known figure in the model boating community for his fabulous submarines, offered a part completed Solent Class lifeboat to Buxton Model Boat Club as a renovation project, **Photo 1**.

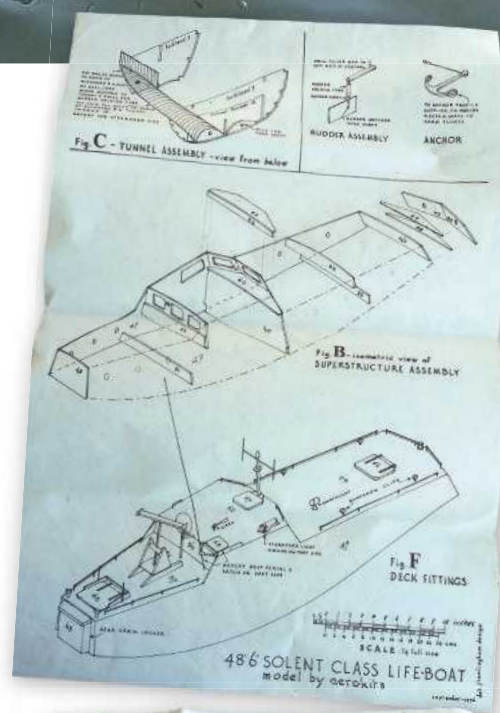
Now, I can't stand to see a part-completed project not reach its full potential, so jumped at the chance to finish off a model that, as it turned out, had been started some 40 years previously. Yes, this Aerokits model had been started by an acquaintance of Paul's, but work had stalled during 1977, with the basic

hull and cabin structure part-completed, but very little else, **Photo 2**.

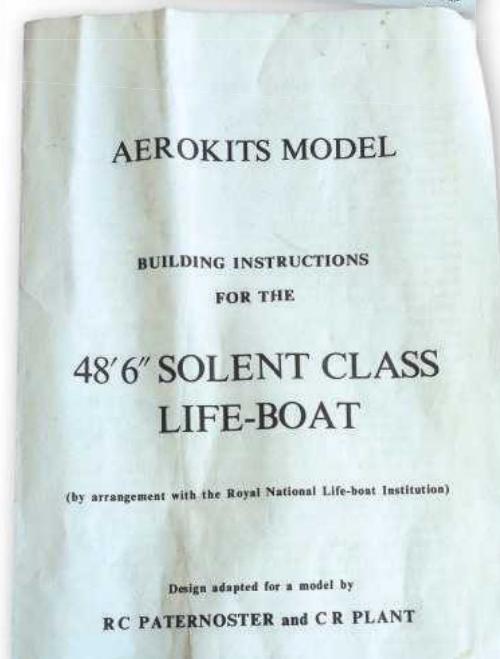
One of the reasons I was enthusiastic to complete this particular kit, was that a couple of years ago I had renovated another identical kit purchased online, but ended up by selling it before it reached the expensive stage, namely the purchase of the motors and electronics. I subsequently regretted not seeing that model take to the water, but the sheer size of a 1:12 scale Solent Class lifeboat boat being 48 1/2 inches long and 14 inches

Right: One of the pages from the original Aerokits instruction book.

Below right: The front page of the building instructions.



1





in width, made it impractical to store around our house at the time. So this was a second chance to get a Solent Class lifeboat on the water and this opportunity was not going to be missed again.

The great advantage of having already renovated one of these kits, was that one knew exactly where to get all the appropriate 1:12 scale fittings. The main components, such as the white metal fittings were ordered from The Model Slipway of Barnsley for the portholes and anchor etc., and Macs Mouldings provided the hatches and bollards. The rest of the bits and bobs were ordered online or built from scratch using reference photos, plus a healthy dose of human imagination. It must be admitted that I didn't spend any time researching a specific lifeboat to copy, hence the cabin boat number of 48-17 is made to fit the model and is not for historical accuracy – sorry if that upsets dedicated lifeboat enthusiasts..

Getting started

The starting point of the renovation was to assess the hull and cabin for strength, as after 40 years the wood and ageing adhesives can easily fail, leaving you with a pile of firewood



rather than a viable renovation project. However, I was lucky as the hull had been varnished back in 1977 and built to good standard. The cabin was not so robust, as it had not been sealed or completed in 1977, but it did become 'sound' after the application of two-part epoxy resin to its inside to seal and stabilise it all.

After completing the cabin roof, **Photo 3**, and giving the whole model a thorough sanding, it was soon time to start painting. White Japlac enamel paint was used for the hull initially, **Photo 4**, and after several applications of well-sanded undercoat to minimise some of the more pronounced cracking of the cabin unit, **Photo 5**, this was finished in Humbrol

No.18 Gloss Orange, **Photo 6.**

The model had been supplied with its original kit box, but that contained very little in the way of fittings, save the propeller shafts which were glued into place, **Photo 7**, before the hull's upper parts were completed with a few coats of Humbrol No.15 Gloss Midnight Blue enamel and some red trim-line tape.

Running gear

For the drive train, left and right handed 45mm brass propellers were selected and a pair of MFA Torpedo 850 brushed motors. These were married to an Electronize FR15 Speed Controller wired to a 12v lead acid battery, **Photo 8**. Please note the addition of

the thick dowel between the motors and the fore and aft engine room bulkheads, as this was added to create a carrying handle for the hull, always useful on a model of this size. Fortunately, my wife has not yet noticed that the yard broom is now 6 inches shorter than it used to be.....

The twin rudder arrangement on the Solent Class lifeboat is slightly unusual in that it straddles the keel, with a cut-out allowing deflected water to pass through. Standard extra-large off-the-shelf pre-fabricated brass rudders were installed, **Photo 9**, the blades later being cut shorter, but then extended in width and they do perfectly direct water thorough the opening, **Photo 10**. Standard steering linkages were connected to a single

metal geared servo for radio control as in **Photo 11**.

Fittings

There were no deck railings included with this 40 years old model, so 30 stanchions were made from 3mm brass tube, with small picture framing screw eyes soldered to hold the safety ropes. **Photo 12** shows the test installation and **Photo 13** shows the stanchions all sprayed and ready for fitting, as painting them by hand once on the model would have been unnecessarily onerous.

Two-part epoxy putty was used to secure the stanchions in place from beneath the deck, a bit fiddly, but enabling them to be



adjusted to be all in-line and nicely vertical whilst the adhesive cured, **Photo 14**.

The radar support tower, **Photo 15**, is from scrap 2mm plywood and the radar scanner itself is a commercial item. This revolving scanner is attached to a length of 2mm brass rod connected directly to a small d.c. motor inside the cabin. A 'working' radar always helps the on the water look of a model boat, and a receiver switch controlled motor with variable rotation speeds is perfect for this task and these are readily available in the marketplace. The rest of the deck and cabin fittings were all fashioned from scrap brass rod and plasticard, all painted off the model for convenience, **Photo 16**, and **Photo 17** is of the completed model.



On the water

With this Solent Class lifeboat now completed, it was into the bath, **Photo 18**, for a ballast and potential water leak check and yes, that is our full-size bath. It's just the size of the model that makes our bath look like a glorified wash basin.

On the water, RNLB 48-17 looks very stately when simply floating at rest, **Photo 19**, but there was some concern that the size of the model and the slightly odd rudder arrangement would hamper its sailing performance, but there were actually no problems at the end of the day. The power of the twin 850 motors directly driving the pair of 45mm propellers gives the hull plenty of forward thrust and a pleasingly realistic wake, **Photo 20**.

Turning was also better than expected, as the almost banana-shaped hull allows it to pivot easily about its centre. So no bow thruster is needed (which would not be true scale anyway) as long as the rudders have plenty of lateral throw. The only upgrade now needed was to add more batteries, as the somewhat weedy single 12v 2.2Ah SLA battery installed initially lasted barely an hour. Two larger capacity 3.3Ah batteries wired in parallel made a huge difference and easily fitted inside the large hull.

In conclusion therefore, a lovely model and well worth the time and effort to complete after 40 years in the waiting, so thanks again to Mr. Brassington.

Enjoy your hobby - Andy Cope.





Richard Simpson profiles this well-known model steam manufacturer and trader



Above: Tony Green Steam Models support many related events in the UK.

Tony Green Steam Models

It still surprises me to think that although I made the move from West Yorkshire to South Lincolnshire four years ago, I am still finding my way around the area and locating the modelling traders and suppliers. I was aware that Tony Green Steam Models was not too far away a couple of years ago, but it wasn't until I had a chat with them at a show recently that I made the effort to go and see them. As seems to be the case with a number of such engineering traders, their history goes back a long way. The company was started by Eian Green's father Tony, a time served machinist by trade after he retired from his main business of 'A. Green Engineering' and he wanted to expand his hobby of steam powered models. The company started by making spare parts for manufacturers such as Mamod, Wileco and Marklin, but over the years he developed his own range of products, mostly aimed at smaller models of a similar size. A. Green Engineering was passed

Photo 1. Their Unit Steam Engine (USE) can be purchased as a set of castings, a ready machined kit or as a pre-built engine and as many cylinders as you want can be bolted together to increase power and flexibility.



on to Eian, also a time-served engineer, around 10 years ago when his father passed away, so now he runs both companies with A. Green Engineering, employing 19 full time staff, supplying specialised machining services to large engineering based companies such as Siemens. Tony Green Steam Models is run just by Eian with his business partner Sandy Green, and now you can see why it is called what it is.

Products

They now offer a range of engines, boilers and accessories, such as separators and burners, aimed at the smaller end of the model boat and locomotive market, as well as static display and educational models. Their innovative approach to design has helped to create their Unit Steam Engine (USE), which is a single cylinder single acting engine, available as either a set of castings, a pre-machined kit or ready built and designed to be bolted together in whatever number or configuration the modeller may desire, **Photo 1.** This can create a self-starting and therefore reversible configuration, with four or more units with even an eight cylinder version has been assembled. All models are manufactured, assembled and tested in house, using traditional workshop machinery which is still working well as it has done for many decades, **Photo 2.** The creativity of their designs can also be seen in



Photo 3. A pivoted boiler allows you to lift it up to place solid fuel tablets in the burner and easily ignite them. This is so much safer than trying to insert ready lit trays of methylated spirits into a model boat's interior.

Photo 2. Compared to today's CNC controlled milling machines, multiple drilling head machines such as this look quite antiquated. However, when used in conjunction with well-designed jigs and operated by a skilled machinist they are every bit as accurate and as fast as today's latest tools.

the boilers, where the copper shell is hinged at one end and lifts up to enable solid fuel tablets to be placed and ignited in the burner, **Photo 3.** This is an infinitely safer arrangement than with a fuel that is required to be inserted pre-ignited and



5



8



4

uses far less space in a model. A twin boiler arrangement is also available to increase the available capacity and drive larger engine arrangements. The readymade boilers are all silver soldered, so can be converted to gas burner operation if desired and all come complete with a safety valve preset to the working pressure, and a pressure test certificate. They can be purchased individually or complete with a couple of possible engine configurations, **Photo 4**. In use, these boilers can power a small model boat of around two to three feet long for around 10 to 15 minutes and with due attention to practical considerations such as filling with hot water, **Photo 5**, they can be easy and convenient to use. For the Krick Anna model, **Photo 6**, an engine displacement lubricator has been used,

however Eian assured me that a couple of drops of oil can be placed into the boiler to lubricate the engine easily and conveniently. My own marine engineering background would probably prevent me from performing such a sacrilegious act and so I am happy to spend the £12 on a lubricator, but it is an option for those of you looking for the simplest of set-ups.

The range of available products also include a kit, **Photo 7**, which can be built by the modeller into a boiler from pre-cut and machined parts. This is designed to be built with soft solder, thereby restricting it to solid fuel use for its working life, however as can be seen with models fitted with standard



7



Photo 4. A number of combinations of boilers and engines ready built on a steel base are available to suit your requirements.

Photo 5. Not having a gauge glass is easily resolved by filling through the safety valve bush until water comes from the filling plug. The water will far outlast two solid fuel tablets, so a safe level should always be maintained.

Photo 8. This new range of twin cylinder double acting engines are machined by A. Green Engineering, and then assembled and sold through Tony Green Steam Models. Their quality is first class and the marine engine (centre) would comfortably power a model boat of around three to four feet long. The locomotive engines (left and right) could also be used in a paddle steamer.

Photo 7. There is a lot of satisfaction to be had from making your own boiler and this kit of parts eliminates the need for machining. It requires the use of only soft soldering techniques, but this limits it to only using fuel tablet burners.

readymade boilers, this size can competently run a model boat of an acceptable length. This has the potential to give the modeller a great deal of satisfaction and introduce him, or her, to the world of model steam without having to make a significant investment, as well as offering the opportunity to learn and develop new skills during the project.

New small oscillating engines

Eian has recently developed a completely new range of small oscillating engines, two of which are aimed at the model locomotive market and one for marine modellers. These engines are machined from modern materials to give the best standards of wear resistance and are all twin cylinder and double acting, so are self-starting and reversible. The cylinders



12

Photo 12. A number of secondhand boilers, engines and accessories are also available.



6

Photo 6. A Tony Green boiler fits the Krick Anna perfectly and with the polished brass cover makes for a very smart and attractive little model.

Photo 11. All the white metal parts and fittings are cast in-house. These items are also available separately.

are sealed by silicone O-rings and come with pre-drilled base plates and fitted stubs for the inlet and outlet steam pipes. They also incorporate a speed and direction control valve so can be controlled from a single servo and transmitter channel making them easy to operate, **Photo 8**. These engines demonstrate the strength and depth of this company, as the component parts of the engines are manufactured by A. Green Engineering for Tony Green Steam Models. The engines are then assembled and tested by Eian in his workshop, so there is complete control of the manufacturing process from design through to delivery, **Photo 9**.

Model boat kits

Tony Green Steam Models purchased the range of Metcalf Mouldings kits during the last year or so and now supply these in partnership with Bill Owens under the name

of Lincoln Model Boats. Part of the stock of GRP hulls can be seen here in **Photo 10**, all of which are manufactured locally and the white metal fittings and components are all made within Eian's workshops, **Photo 11**, this being the stock area with a casting machine in the foreground. This keeps everything in-house, or at the very least under close scrutiny, and ensures that high quality standards are maintained.

Availability?

The company does not have a retail outlet, but Eian attends most model boat and engineering related shows throughout the year and sells his products via the website. It is reassuring to see that not only is the company thriving, but is also developing and producing new products as well as having expanded into producing model boat kits. Their products incorporate innovative



9



10

Photo 9. With all products built and assembled in-house, quality control can be closely maintained throughout the entire production process.

Photo 10. The range of Metcalf Mouldings kits are now sold under the name of Lincoln Model Boats, with hulls being made by a specialist firm in Lincolnshire. Their quality is very high with consistent thickness and a neat internal surface.

Photo 11. All the white metal parts and fittings are cast in-house. These items are also available separately.



11

design features not found anywhere else, are built to a high standard and quality and are supported by Eian, who is more than happy to provide help and assistance wherever required to ensure the modeller enjoys a trouble free and convenient 'steam' experience. In addition, they are still able to provide a comprehensive spares service for manufacturers such as Mamod, Wileco and Marklin, and offer a number of secondhand boilers and engines at particularly competitive prices at model shows as in **Photo 12**.

Tony Green Steam Models

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Lincoln, LN6 9BS
Website: www.tonygreensteammodels.co.uk
Tel: 01522 681989

model Boats GALLERY

Phil' Scales converts the Graupner kit



RIGHT: Tito Neri afloat and showing its Cory colours to good effect.



Tito Neri in William

The reason for building this UK Cory version of the Graupner Tito Neri kit has as usual a story attached to it. I went to Milford Haven during the Sea Empress grounding in 1987, mainly to watch the tug action. One of the dozen or so tugs involved was the Tito Neri then on charter to Cory Towing and I was able to go aboard immediately after the salvage operation and have a good look around her whilst she was still covered in the crude oil residue, all very slippery and smelling badly of it. Somewhat later, I discovered that Graupner produced a kit and so resolved to build this tug. A good series of close-up photos obtained from the then skipper taken when it was dry docked were extremely helpful.

The Graupner kit & conversion

The hull moulding and kit was generally excellent, but like all German kits if built to the instructions, they tend to turn out rather toy-like and lack much of the detail we nowadays take for granted. The main alteration was of course to paint her in the Cory Fleet colours as at the time of the Sea Empress salvage in 1987, and the set of colour photos helped no end.

One major alteration was to discard all the provided vac-formed fenders and substitute proper rubber for them, the bow and stern segmented units being cut from a rubber insulation mat. The side D-shaped fenders were of a suitable rubber section cut to appropriate lengths and glued into channels.

Graupner also had the strange notion that there was nothing at all between the excellent kit supplied anchors and ship handling winch! This was rectified with proper stud link chains, cable stoppers and hawse pipe closures, plus a mesh grid working platform behind the winch.

Despite there being acres of glazing to the wheelhouse, Graupner's intention was to leave it bare and install a loudspeaker in its internal floor. This would never do and from photos a fully fitted and detailed bridge interior was installed, with one door properly detailed and left open so as to see inside.

Despite having two Torpedo 800 motors, the thrust from the Graupner steerable drive units was poor, and custom made (and expensive) substitute brass

propellers did not improve matters one iota. The answer was to sleeve the nozzles on their insides with 1mm styrene (plastic) sheet formed into a tube so as to reduce the tip clearance of the kit provided plastic propellers and this immediately increased the thrust by almost 100%. In the end, brass four bladed propellers were fitted, because we do like brass, don't we? This tip for reducing the inside diameter is probably helpful to anyone else using these otherwise excellent Graupner units.

Other work included extra detailing and deck clutter by way of oil drums, window wipers and self-drenching water-spray pipes etc. The dinghy was super-detailed and likewise the liferaft canisters. Two strongpoints were bolted into the deck below the winches to allow proper towing operations as a model, as after all that is what it is, namely a tug. The extensive and complicated mast was rebuilt using mainly plastic tubing and is removable on a spigot for storage, as the completed model otherwise is quite tall for transportation.

Conclusion

The resulting Tito Neri converted to represent itself when in Cory Towing hands is a very good performer on the water and has won prizes and plaudits at shows. More to the point, viewers look at it and wonder; 'Where have I seen that profile before and in what colour scheme'?



ABOVE: A port side view showing the Cory colour scheme and some of the modifications and additions.

Left: A complete and exact copy of the bridge interior with a helmsman and fully detailed open door with its rubber seals. Also shown are the self-drenching water-spray pipes together with a properly detailed lifebelt.



Left: Bridge area showing added detail such as the windscreen wipers, mushroom ventilators and improved RIB and liferafts.

Below: Fore deck detail with the correct style anchor chains and their stoppers, hawse pipes, metal operator's platform and hydraulic hoses. The deck eyebolt is a non-standard model strong point for bow towing.



Cory Colours



Above: Rear port quarter view showing the rubber side and stern fenders in their channels, and also the inner sleeve added to the Kort nozzle of the port drive unit which significantly improves the thrust by closing the gap between the propeller blade tips and the inside of it.



Left: Front of the superstructure showing some added details to the basic kit supplied RIB, the detailed liferafts and self-drenching pipework. Just visible is the bridge interior.

Right: The towing winch area showing the excellent kit supplied winch with some added detail including hydraulic hoses, a beefed-up HIAB work crane and deck clutter including oil drums, gas welding set (behind the winch) and a tool kit.





Lady Janette



Phil Button rebuilds an eBay sourced paddle steamer model

So how did it all start? Many moons ago, I spotted a somewhat battered model described as 'an Edwardian paddle steamer' on eBay. There were a number of these models around in the 'sixties and seventies', one of which was a Hobbies kit, so I thought it might be worth bidding for. I duly 'won' the model for a price that I have forgotten, but was probably not more than £35, and it duly arrived in a cardboard box in a

partially disassembled state.

One of the models of this type that was available at one time was called 'Lady Jane' and that was actually the name on the stern of this model, but, since my wife's name is Janette, I thought that it would be politic to call this new acquisition 'Lady Janette' and hence the title for this article.

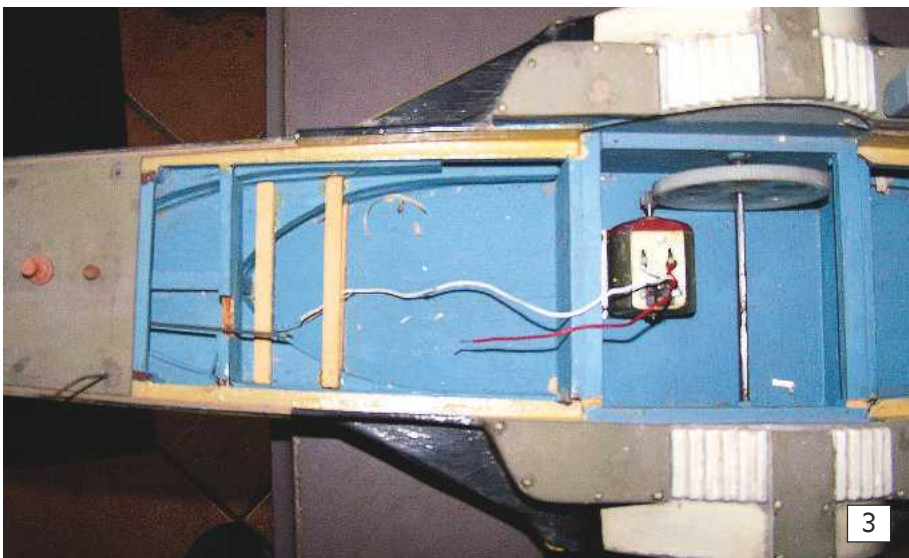
The model was (and is) 34 inches (864mm) long by 7.5 inches (190mm) wide across the

paddle boxes and it came fitted with a pair of plastic paddle wheels, a small brushed electric motor and a set of plastic gears to drive the paddle shaft. Overall, it had definitely seen better days and badly needed a bit (but make that a lot) of tender loving care.

Photos 1, 2 and 3 give a flavour of this model as purchased'.

The paddle steamer was in a fairly sorry state with missing fore and aft bulwarks and no handrails around the superstructure. It came fitted with an odd assortment of plastic fittings, some of which looked to have come from other models, and with paintwork that





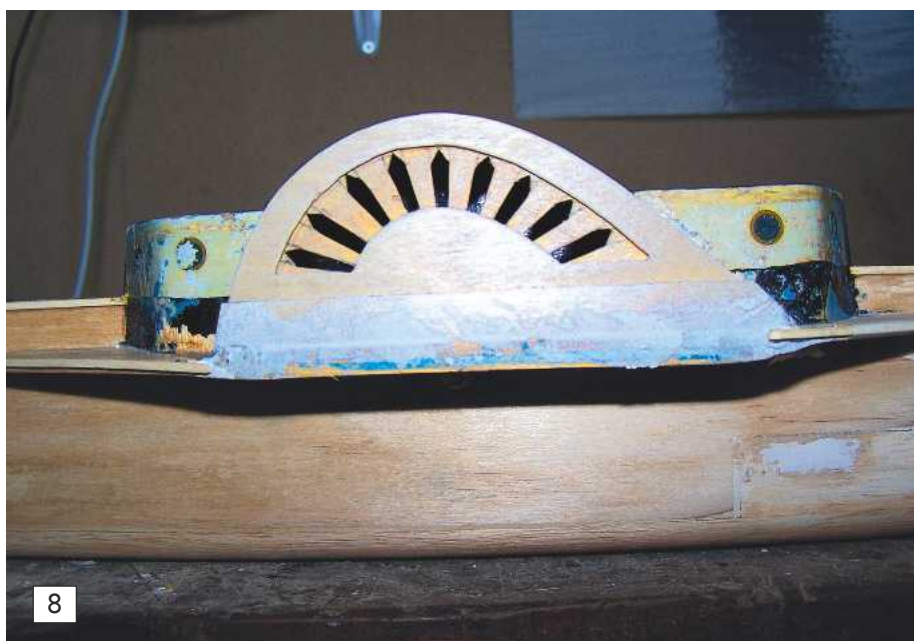
looked like it had been applied with a yard broom. However, the basic structure proved to be sound so that most repairs were, in the end, of a cosmetic nature. As you will see from the following narrative, this was not a straightforward rebuild and restoration project, major changes having to be made after the first floating trial, when it didn't.....

Re-building the hull

The superstructure assembly was removed and the hull fitted with new fore and aft bulwarks of 1.5mm ply, fixed in place with gel cyanoacrylate glue and **Photos 4 and 5** show the stages of fitting the new bulwarks before the hull was completely stripped of all its old exterior paint.

Strips of 1.5mm square hardwood were fixed at the top of the bulwarks and across the joint between the new bulwarks and





the original hull. The purpose of the strips at the joint was two-fold: First, to give some additional strength to the join and second, to hide it. **Photos 6 and 7** show the stripped and rubbed down hull and these square strips. The hull actually looked better in this naked form rather than when painted. After applying a coat of sanding sealer over the entire hull and sanding smooth again, another coat of this sealer was duly applied to seal it all.

At this point, I decided that the paddle boxes as fitted to the model could do with improvement. The original boxes were not ventilated, which could give problems with water build-up inside them when running, so I removed the sides of each box and made up, and fitted, new sides as two layers of 0.8mm plywood glued together with one layer having holes in it. This is hard to describe, but **Photo 8** hopefully shows what I mean. To further improve the appearance of the paddle boxes, 1.5mm ply extensions (called sponsons) were made and fitted to

go forward and aft of the original and rather 'block-like' boxes, **Photo 9**.

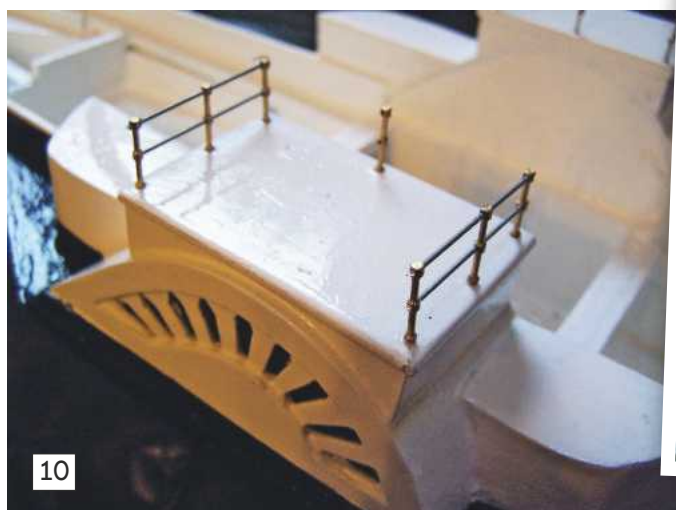
With the provision of a simple platform of 3mm plywood on top of each paddle box and adding handrails using brass stanchions from the 'odds and ends' box, together with steel wire as the rails, the paddle box construction was completed as in **Photo 10**, and now looking somewhat better than before. On full-size paddle steamers, the area on top of the paddle box was generally used for the gangway so that passengers boarded across it, but it also doubled as an access hatch to the paddle wheel below.

The whole hull was then given a coat of grey primer paint and checked for any blemishes as it is amazing what does not show until you apply a coat of paint. After filling any bad spots and lightly sanding it all again, it was painted all-over externally below the bulwarks in the dark green colour chosen for beneath the waterline with gloss white on the paddle boxes and inside the hull.

Superstructure

Attention could now turn to this as the superstructure that came with the model was somewhat the worse for wear and did not really resemble any vessel in particular. So some Internet research was performed looking for paddle steamers of around the relevant period and up came 'Madge Wildfire', **Photo 11**, built in 1888 by A. & J. Inglis on the Clyde. She was operated by the Caledonian Steam Packet Company and attracted my attention particularly for her livery, as at one point in her career she had a dark blue hull with a white band at the waterline and green below it. In addition, her single funnel was pale yellow and her saloons were painted pink and I liked the sound of that for some reason.

First step in construction was to make up two pieces of 1.5mm plywood deck to fit inside the hull forward and aft of the paddle boxes and of the right size to carry the proposed superstructure. These deck pieces were cut away so as to allow as much space



as possible amidships for installation of the electrical bits and pieces at a later stage. A number of spacers of 3mm plywood were cut to fit on to the deck pieces to hold the 1.5mm plywood sides apart and to make up a saloon to carry the upper deck. The front end of the superstructure box was fitted with two curved pieces of 3mm plywood, ready to support the front of the forward saloon. **Photos 12 and 13** show the forward and after ends of the superstructure box, held by clamps whilst the glue dried.

Once the glue had dried completely, the superstructure box was carefully lifted off the hull, placed upside down on the pre-cut upper deck of 1.5mm plywood and glued in position, taking care that the box did not become warped in the process as otherwise it would no longer fit the hull. **Photo 14** shows this assembly, held with many clamps to allow the glue to dry as in my experience you can never have too many clamps. Following the construction of the bridge and the small saloon and companionway aft of the





funnel (both simple box structures in 3mm balsawood), the upper deck, bridge and companionway were covered in teak veneer, fixed in place using a contact adhesive.

Two pieces of 1.5mm plywood were cut to shape; one to fit between the bows and the front of the forward saloon deck and the second to fit between the back end of the after saloon and the stern. Both of these pieces were also veneered in teak, rubbed down and given several coats of clear varnish. **Photo 15** shows the saloon and upper deck assembly, together with the bridge, companionway and fore and aft decks, after painting and varnishing. The deck areas were lined-out using a fine ballpoint pen prior to varnishing to represent the planking and to show the locations for the bridge, funnel and companionway.

Detail work

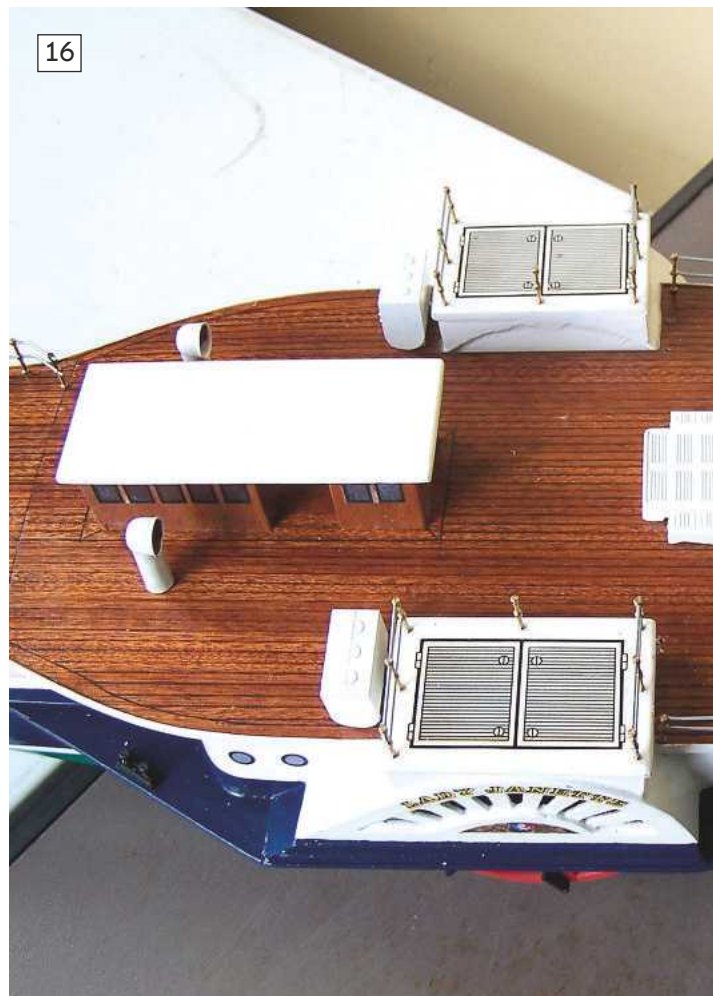
Next came the fitting of handrails around all of the deck areas. These were made from brass stanchions already 'in stock', fitted with steel wire rails (using steel wire armouring salvaged from electrical cables). With some final detail touches using the original plastic funnel, some odds and ends of fittings from the scrap box and using waterslide transfers for nameplates and to represent windows and

portholes, the majority of the superstructure was now complete as in **Photo 16**.

Waterslide transfers were designed on the PC and printed using an inkjet printer on to a product called 'Lazertran'. After cutting the transfers to finished size, they were soaked in water to free them from the backing paper and slid into place on the model. After carefully smoothing into place with kitchen towel to remove any air bubbles they were left to dry. Once dry, these transfers turn white, but this can easily be fixed by giving them a coat of oil based varnish and they need to be varnished anyway to stop them coming off if they get wet. After adding a simple pole mast of varnished dowel with thread rigging, the completed model ended up as in **Photo 17**.

Electrical equipment

An old brushed electric motor came with the model, complete with a pair of reduction gears to drive the paddle shaft and initially it was decided to re-use all this. Once again, the odds an' ends store was raided for anything that might serve in this model and that turned up an old cheap and cheerful Chinese electronic speed controller (esc) of a more than adequate rating, a micro-servo for the rudder and a 27MHz two channel receiver to complete the electrical installation. A 27MHz



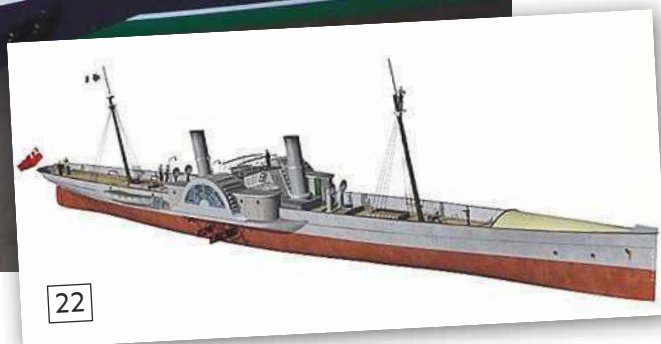
transmitter was to hand, so it was all looking good. The rudder servo was installed aft and connected to the rudder using the usual bent wire link and the servo duly connected to the receiver. After adding interference suppressor capacitors to the motor, it was screwed in place in the hull with shims of thin card under it to obtain the correct meshing of the gears and then that was wired to the esc.

After adding a 4.8v NiMH battery pack connected to the esc (to provide power to both the receiver and the esc with its in-built battery eliminator circuit), it was all ready to go for the maiden voyage and **Photo 18** is a photo-mosaic made up from several pictures to show the whole of that internal installation.

Initial trials

Before going to the boating lake, which is a minimum 20 minute's drive away, floating and ballast tests were performed in the 'domestic test tank' (aka the bath). Actually, with this model, floating and ballasting tests is a bit of a misnomer, as when the model was placed gently into the water, it promptly rolled on to its beam ends.

Returning it to an even keel and letting go gave the same result, but this time the other way. Since it was floating a little higher than the projected waterline, a little lead sheet



ballast was added to lower it further into the water and it was once again let go, but with pretty much the same result. I guess that the plywood superstructure and metal handrails were a step too far, so what to do to resolve this mega-problem?

It was reasoned that the hull would perhaps have to be made deeper so that it could all sit lower in the water and have the additional ballast as low as possible, all of which would require major hull surgery. You must remember that with a paddle steamer model, you can't simply just keep adding ballast because if the paddle wheels are too deep in the water, then they will not work very well at all.

Anyway, with most of the bottom sheet of balsawood removed from the hull, an internal keel was fitted along the full length of the model and the hull sides extended downwards as in **Photo 19**, before filling in the open areas with 1.5mm plywood and smoothing off the joins using car body filler, **Photo 20**. After this, it was all waterproofed with sanding sealer, primed, filled and sanded as required before again being painted green as it had been to start with. The revised hull was no longer flat bottomed and so unable

to sit upright on its own, so a simple wooden stand was made to carry it, with some green soft fabric felt to protect the paintwork, **Photo 21**.

A repeat of the trials in the bath showed that even with the much deeper hull with some additional ballast low down, this model was still horribly unstable due to the weight of the superstructure. Obviously, one would have to 'bite the bullet' and undertake a further unexpected rebuild if it were ever to be a usable r/c model, not something I had foreseen.

Superstructure and Hull Mark Two

Now that a decision had been taken to scrap the beautiful, albeit heavy, superstructure, what should now be used as a prototype? A paddle steamer was needed with very little in the way of superstructure to keep the centre of gravity low and the only vessels that seemed to fit the bill were the Confederate blockade runners of the American Civil War. All of these were lean, mean, low and fast-running cargo ships, that tried to get into ports blockaded by the Yankee Navy under cover of darkness using their low silhouette

Now that a decision had been taken to scrap the beautiful, albeit heavy, superstructure, what should now be used as a prototype?

and high speed to break through.

I remembered seeing a piece about such ships many years ago in Model Maker magazine, so I went through my collection of old publications in an attempt to find the article among the dust, but failed dismally. All was not lost though, as after trawling the Internet for 'American Civil War blockade runners', up came a ship called 'Will o' the Wisp' that looked the part. She was built by William Simons & Co. Ltd at Renfrew on the Clyde in 1863 and finished up being run aground at full speed in 1865 when trying to outrun a Yankee warship and an artist's impression of that ship is shown in **Photo 22**.

The necessary changes needed to the hull and superstructure comprised:



23



24

Photo 23: A removable full length one-piece deck over almost the entire hull and removal of the box structures from the top of the paddle boxes.

Photo 24: Making two funnels from plastic tubing with moulded plastic bases.

Photo 25: Fitting of a 'whaleback' style deck over the forecastle.

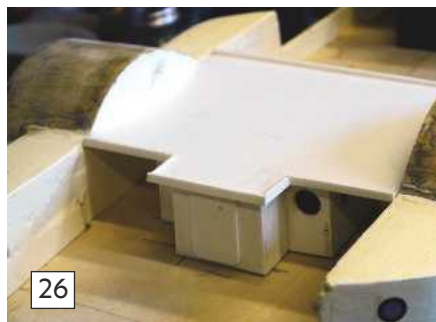
Photo 26: Construction of a small deckhouse amidships above the engine room with a platform over it between the paddle boxes.

Photo 27: Fitting a small deckhouse on the after deck (The weight is only there to hold it all whilst the glue dried).

Other jobs were veneering the whole deck area in teak and lining it to represent the planking. Painting the whole hull, paddle boxes and cabins in light grey, but keeping the original dark green below the waterline, and the whaleback deck and after cabin roof were painted cream. An aft main mast was added and some additional plastic fittings from the odds and ends box embellished it all. Bent wire created



25



26



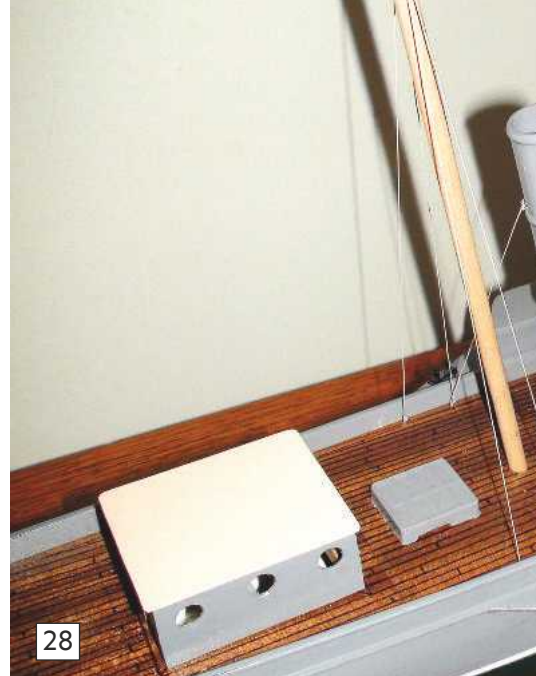
27

the davits for the two lifeboats mounted aft. Please note that these ships usually ran with their lifeboats swung outboard, I guess for a quick getaway in case they were spotted perhaps?

The finished result came out as shown in **Photos 28, 29 and 30** (taken prior to the addition of the lifeboats) with a much lower centre of gravity than the earlier passenger steamer incarnation. This revised model was not renamed, as still being Lady Janette would keep the peace at home.

Revised electrics

I was not entirely happy with the open-gear electric motor installation in the first design as it was incredibly noisy, so whilst the rebuild to a blockade runner was in progress, a different means of propulsion was considered, using the Internet as a research tool. Some small geared motors were discovered that had been designed for robotic vehicles giving around 250rpm output at 6 volts which would be ideal to drive the paddle wheels. Two of these were purchased and fitted, each one to a sheet aluminium mounting bracket such that the motor output shaft was at the same height as the paddle wheel centres



28



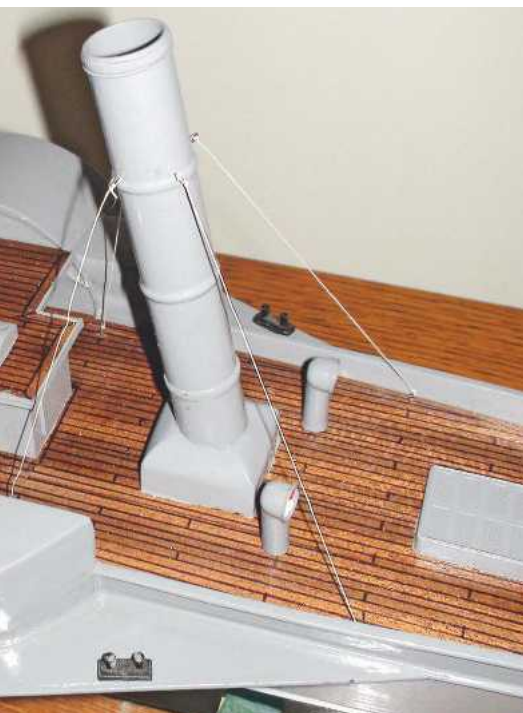
29

and **Photo 31** shows the two motors on their mountings.

The original paddle wheel shaft needed to be cut and shortened at each side to allow the fitting of a solid coupling between each geared motor and its paddle wheel, **Photo 32**. Each coupling was fixed by grub screws to the gearbox output shaft and the paddle wheel and the motor mounting brackets were screwed to the original ply motor mounting plate using thin card shims to ensure good alignment.

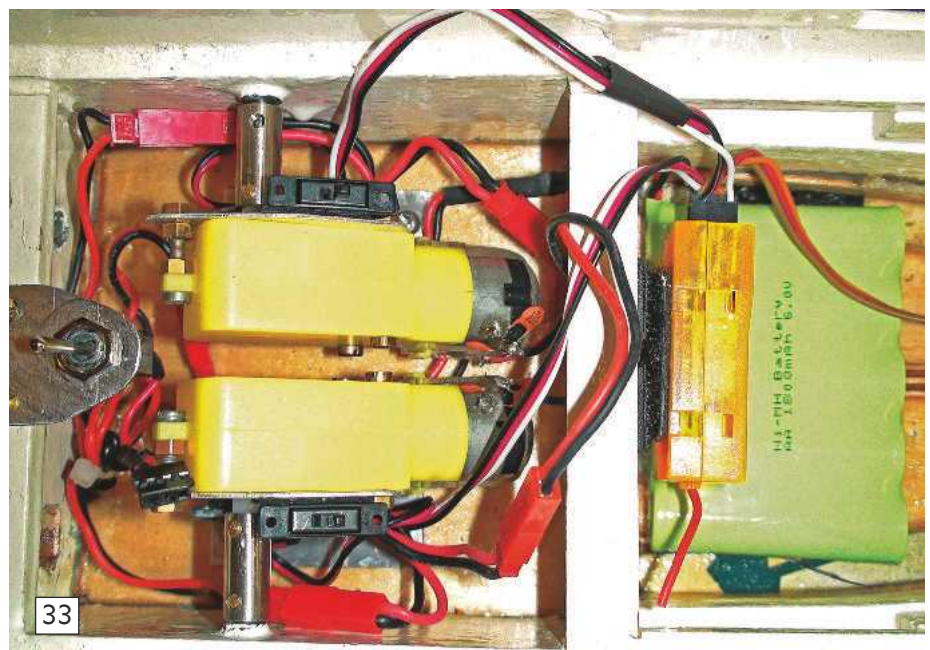
Electronic speed controllers for each motor were fixed with double-sided tape to the motor mounting plates, together with the esc On/Off switches as in **Photo 33**, which was taken before testing and the wiring had been tidied. The postage stamp sized 10 Amp brushed esc's are fitted below the esc switches, so are not visible in the picture.

One of the speed controllers was connected to the 'throttle' output and the other to the 'elevator' output on the Orange 2.4GHz receiver and matching transmitter which was now adopted in place of the



original 27MHz system. Since the speed controllers both had a BEC (Battery Eliminator Circuit) function to power the receiver, the red lead from one of them was disconnected to avoid trying to power the receiver from both of them at once. A new 6v main supply battery was wired through another On/Off switch to power both of the speed controllers.

The reason for use of two outputs from the receiver to the speed controllers was to allow for each paddle wheel to be controlled independently for ahead, astern and speed control, so as to give 'tank style' steering to the model. A six channel transmitter is used with most of my models (not necessary with most it's true to say, but it's usually used with steam ship models which need more r/c channels), where the right hand stick controls the elevator channel on r/c aeroplanes and the left hand stick controls the throttle channel. With both sticks forward, both paddle wheels should go full ahead and the model move forwards. Similarly, with both control sticks fully back, both paddle wheels would go full astern and the model should



move backwards. With one stick fully forward and one fully back, one paddle wheel would go full ahead and the other full astern which should result in the model turning on the spot. Similar results should occur with intermediate positions of both sticks - at least, that was the theory.....

On the water

Following testing in the bath for ballasting and stability, which was now very much improved, and for the very limited testing of the radio control functions as there was not enough room in the bath, it was off to the boating lake for proper sea trials.

Initial trials of the revised model were carried out on the Woodbridge Boating Lake in Suffolk, home of the Woodbridge MBC, on a cold and completely calm day in November. On completion of radio control function checks, the model was placed in the water and it very, very slowly motored across the lake, with a negligible response to attempts to steer it using the two control sticks.

There appeared to be very little response to one paddle wheel going ahead with the other going astern and the only way to get any steering at all was to have both paddle wheels going full ahead and to use the rudder for steering via the receiver's aileron output (right hand stick horizontal axis). I forgot to



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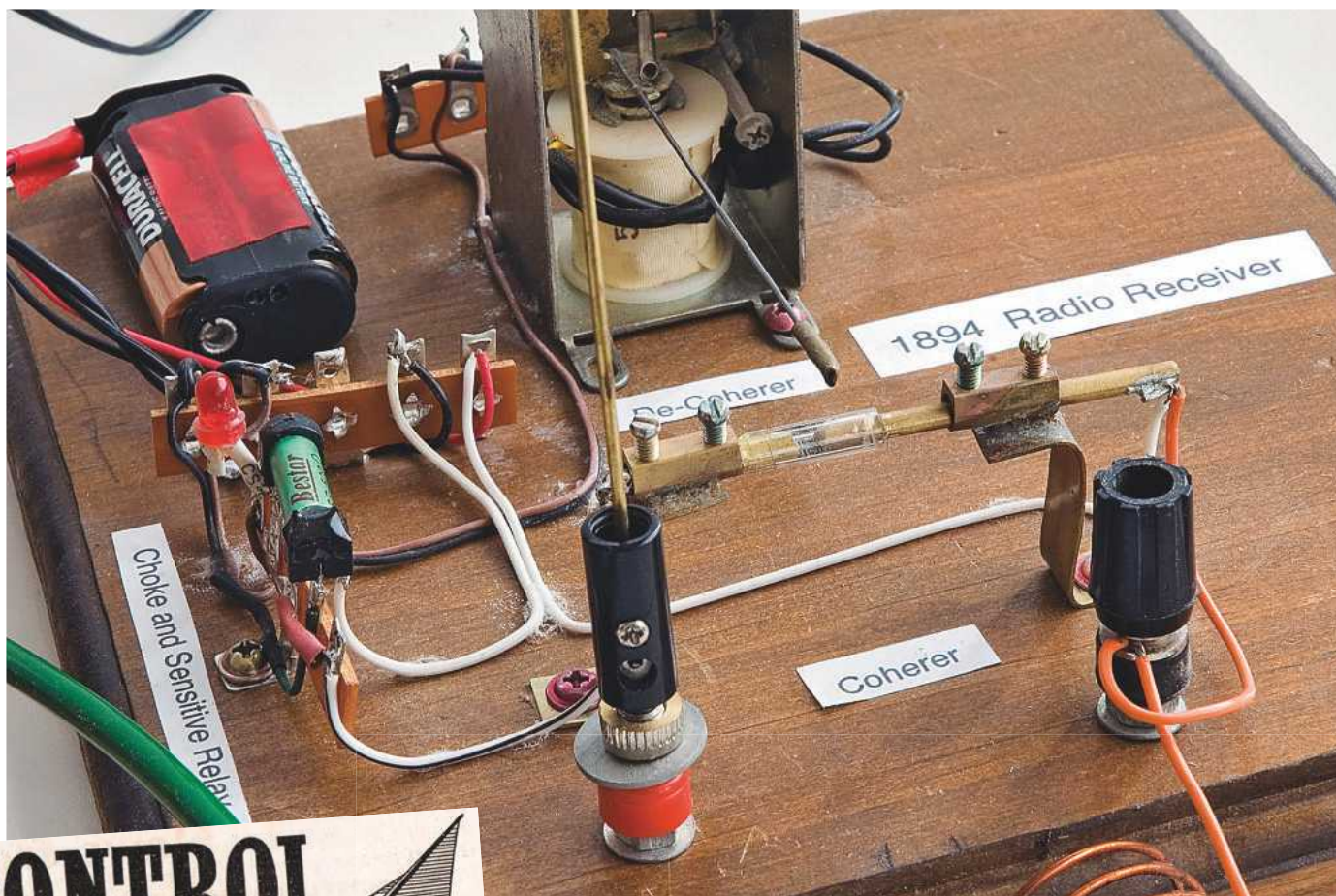
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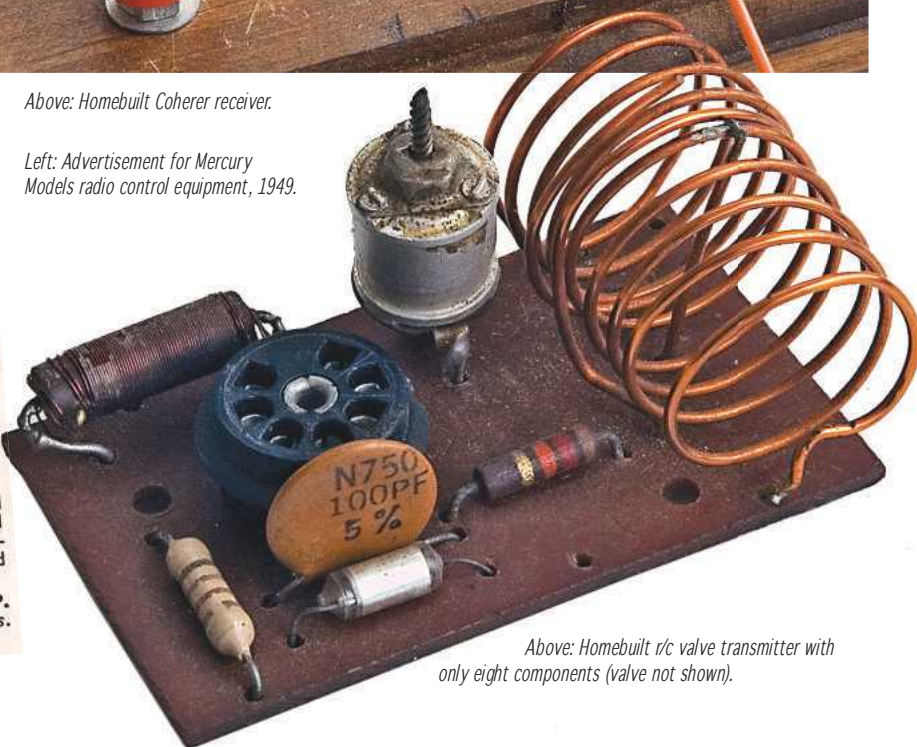
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Above: Homebuilt Coherer receiver.

Left: Advertisement for Mercury Models radio control equipment, 1949.



Above: Homebuilt r/c valve transmitter with only eight components (valve not shown).

of 12.5 guineas (which was £13. 2s. 6d) was by my reckoning three to four week's take-home pay for most people and the batteries would have taken the best part of another week's pay. It is possible to show that since 1949, the real price of such equipment has fallen by a factor of a hundred, whilst its capability and reliability has risen by a similar amount.

Valve circuitry did have the advantage of generally being simple, with practical circuits conforming closely to theoretical ones.

Building it was straightforward if you could manage the sheet metal 'chassis bashing'. The real ingenuity came with attempts to overcome the limitations of single-channel sequential control. One approach, at least for marine models, was to use a rotary telephone dial to generate the pulses needed to command a particular function. For example, Dial 3 for full ahead, rudder amidships; Dial 5 for slow, rudder left and so on. I have a plan for a model submarine that used this method

and the consequences of dialling a wrong number never carried such a dire risk of catastrophe as with this craft!

Multi-channel operation became possible with the adoption of the mechanically tuned reed bank, a type of multiple electromechanical relay could be tuned to respond to the required signal frequency, and later the 'galloping ghost' system used a variable pulse to achieve an early form of proportional control. In the hands of a

Below: The RCS 27MHz single channel outfit, 1969.



Below: The single channel O.S. Pixie r/c outfit, 1965. (Photo courtesy of Tom Prior)



skilled operator by the 1960's, radio control had developed to the point of allowing a good degree of control of a model, enough to allow a model aircraft to perform a pattern of aerobatic manoeuvres with a measure of repeatability and reliability. However, it was still all dependent on the skill of the user in mastering the limitations of the system, which still relied on power-hungry valves with their high battery demands, and it was all still very expensive.

Transistors

It was the transistor, invented in 1947, that eventually enabled radio control to free itself of these limitations, but it took a quite a while because early transistors had difficulty operating at radio control frequencies. At first, hybrid valve-transistor circuits appeared, putting their transistors in the less demanding role of tone generators or relay drivers, but by



Above: This transistor r/c receiver was featured in this February 1960 Practical Mechanics magazine.

the 1960's, fully transistorised sets started to become available. One such was the German Graupner outfit of 1959 with a Bellaphon transmitter which utilised three OC170 and a single OC76 transistor, and could run for 40 hours on its rechargeable 12v battery. The case had come down in size to that of a book, with a joystick that used two of the available three channels for foolproof rudder operation (non-proportional) and the third for the throttle. The matching Polyton 3 receiver had a complement of seven transistors and three diodes, enabling it to separate the three tone frequencies electronically (doing away with the troublesome reed bank) and ran off a 6 volt DEAC nickel cadmium battery.

An alternative approach was displayed by the once very popular Japanese O.S. Pixie single channel outfit, which owed much to contemporary pocket radio set design, down to the small plastic handheld case the size of a packet of cigarettes and the 9 volt radio battery to power it. In Australia, a single-channel Pixie outfit cost £22. 10s. 0d in 1964, less than a week's pay and was economical to run, requiring just two 9 volt

batteries. Contributing to its popularity was the effort the manufacturer put into making it simple to connect and install, with combined receiver/actuator units. The first commercial r/c set I owned was a single-channel British RCS Guidance System in the late 1960's, sent to me in Australia by a contact in the UK. The British radio gear didn't impress me very much I'm sorry to say, always seeming somewhat outdated, but the RCS set was at least fully transistorised and came in a neat steel hammer-tone case and made use of a printed circuit. By the time I was scouting around for an actuator for it though, Australia was moving rapidly toward multi-channel proportional control and I had to make my own clockwork escapement and so the set didn't receive much use.

Multi-channel proportional

When I was able to buy a two channel proportional r/c outfit in 1975, I felt the radio control industry had finally come of age. It did cost over a week's worth of my shop assistant wages, but the set by Micro of Japan worked perfectly and reliably, and still does, for that matter. It uses integrated circuits to provide digital proportional control of the two servos, a little larger than today's standard sized types. I used it to plumb the depths with a model submarine, danced the skies on silver-tissued wings on a glider and rumbled through thick mud with it in the turret of a tank, without it ever missing a beat, enjoying the fine degree of control possible

Below: The Micro two-channel digital proportional r/c outfit of 1975.

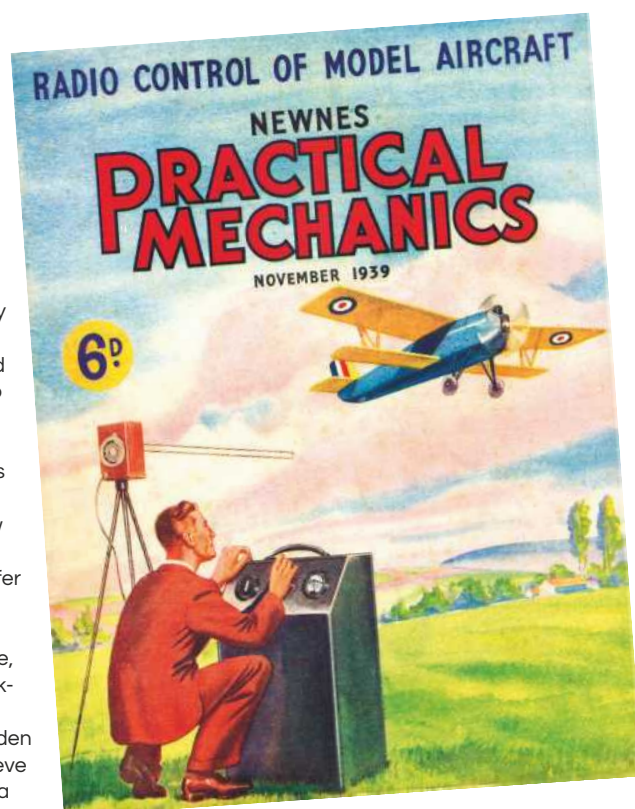


Right: Developments in radio control were featured in this November 1939 Practical Mechanics magazine, and remember this was just after the outbreak of WW2.

with the two independent proportional channels working simultaneously, once a seemingly impossible goal. Its transmitter case was formed from two folded pieces of aluminium, with the two control sticks on the front panel where they fell to hand easily when the unit was picked up. This has remained a preferred 'form factor', though the cases are now generally moulded plastic, and drivers of r/c vehicles tend to prefer a steering wheel arrangement.

The improvements that have come since have been impressive, but I think none represent a breakthrough the way the first digital proportional sets did. All of a sudden though, it was all so easy to achieve that seamless smooth control of a model and gone were the endless hours of experimentation and tuning that the pioneers had to contend with. Now we have freedom from interference as well and the need for crystals, with 2.4GHz channel hopping technology, an almost infinite degree of programmability and bandwidth aplenty for things such as telemetry to report back on the model's operating parameters, GPS position and for all I know, the general health and state of intoxication of the operator. Yet some can still be hard to impress, as at a local regatta one young observer

watched unmoved as the various models put on a convincing demonstration of their manoeuvrability. Suddenly her eyes lit up as a free-running model joined the fray, and she said; 'Look mummy, that one knows how to go all by itself'!



Above: Graupner Bellaphon 3 and Polyton 3 instruction book, 1959. The transmitter has a styling somewhat similar to a handbag.



Above: The main entrance to the FAA Museum, which is actually within RNAS Yeovilton.

Fleet Air Arm Museum



Dave Wooley
visits the new
Falklands
exhibition

This museum is constantly evolving and improving its themes and displays and my latest visit enabled a glimpse of the new Falklands Gallery as well as aviation's first missile equipped seaplane which was not

as you might imagine from the jet age, but from a somewhat earlier era.

The Falklands - The Conflict and the People Gallery

The liberation of the Falkland Islands in 1982 has been discussed and analysed by a plethora of military historians, the media and within numerous publications, but there is still much to be discovered and lessons to be learned from that conflict. The FAA museum have opened a new gallery and exhibition dealing with some aspects and

those events which have, thus far, remained less well known to the general public and perhaps even those familiar with the military campaign. The exhibition is centred in Hall One around an RN Harrier about to take-off from a Ski Jump. One unusual example of military hardware on display is part of the airframe of an Argentine Skyhawk fighter bomber flown by Lieutenant Mariano A. Valasco who on the 25th May, together with another Skyhawk, attacked and sunk HMS Coventry. Two days later, whilst on a bombing run off the North Shore in San Carlos Bay, his Skyhawk was engaged and shot down by



Above: A superb model of HMS Invincible.



Above: The Royal Navy's new Wildcat helicopter.

Below: During the campaign to retake the Falklands, HMS Hermes with its air group of Harriers, Sea King ASW helicopters and Westland Wessex HUS's was a vital part of the British fleet and the number one target for the Argentinian Exocet equipped Super Étendard fighter bombers.

Below: Detail of the island superstructure on the model of HMS Hermes.



the 40mm guns of HMS Intrepid. At the time it was thought the ship responsible was HMS Fearless, but records later confirmed it was the former.

In the centre of the exhibition is a telephone box sized display exhibiting various memorabilia from the campaign in the South Atlantic including fragments of the AS12 missile that hit the Argentinian submarine Santa Fe off the island of South Georgia and an inflatable lifejacket worn by David Buey when abandoning Atlantic Conveyor after it was hit by an MM38 Exocet missile. At the time, Atlantic Conveyor was ferrying much needed helicopters and supplies to the San Carlos beachhead. It is these personal memorabilia and recollections of the events that is very much part of this new exhibition which also includes some 4.5 inch shell cases from HMS Plymouth that were fired at the Argentine positions on South Georgia, and similar by HMS Glasgow and HMS Antrim.

The models

Apart from the informative displays, the addition of models brings to the exhibition the advantage of 3D imagery of some of the warships involved. All of the models were commissioned from well-known professional model makers, John and Julian Glossop. On display are HMS Invincible, albeit fitted out at a later period of her career, and HMS Hermes. HMS Illustrious was later deployed to the South Atlantic in September 1982 and

remained on station until October pending land-based aircraft taking over the air defence of the Falkland Islands.

There is also a superb model of the Leander Class frigate HMS Argonaut. She was hit twice, with one bomb lodged in the forward magazine and another in the boiler room, but fortunately both failed to explode. HMS Argonaut also suffered a serious fire and was attacked no less than 15 times, yet managed to shoot down one of the attacking planes.

Also on display is a model of the Antarctic patrol ship HMS Endurance which in April 1982 was on station in the South Atlantic as guard ship for the Falklands and its Dependencies as well as supporting the UK Antarctic Survey teams. HMS Endurance was affectionately known as the Red Plum because of the colour of her hull, intended to make her visible amongst the ice.

Other exhibits

One new exhibit that I was made aware of was a Sopwith Baby float plane which during WW1 was used by the RNAS, the forerunner of the Fleet Air Arm, for reconnaissance and anti-airship duties.

For the latter, this Sopwith Baby N2078, known as Jabberwock and piloted by Sub Lt. Gordon Hyams, was fitted with rockets at the end of the wings. At the time, this was a glimpse into the future when rockets (missiles) for engaging other aircraft would be

a standard weapons fit, but for the Sopwith Baby it was a simple method of hopefully shooting down a hydrogen filled airship, albeit from a safe distance!

The future of naval aviation is also clearly visible from a viewing area within the museum giving unimpeded views across the current operational RN airfield. Here you can see preparations and flying operations for a Westland Lynx Mk. 8 replacement, the brand new Wildcat.

An inflatable liferaft and a personal recollection

This is one exhibit which I've not seen before at the museum and it is one that you can try for yourself and it is a one person enclosed liferaft. This reminded me of the time when I was young man of 18 of having the experience of being 'ditched' from an RAF launch based at RAF Bridlington into the somewhat unwelcoming North Sea. I was equipped with a Mae West inflatable lifejacket and a pendent attached to a similar one person inflatable liferaft, the sole aim being to endure this 'survival at sea' exercise. At the time it was unlike any exercise previously experienced and I was left to inflate the liferaft, deploy the drogue chute, climb in and try to button myself into the body cover all in North Sea conditions and then left to endure this for 2 hours. As you will have gathered, I did survive.....



Left: Shell cases, lifejacket and a section of twisted saltwater piping from HMS Glasgow when hit by a 1000 pound Argentine bomb, which failed to detonate.



Right: This Sopwith Baby float plane was armed with rockets.



Left: A 1:96 scale model of the (scrapped) 3600 ton HMS Endurance A171.



Right: A one person liferaft - designed to keep the occupant alive and definitely not for comfort.



Richard Simpson's
series on model
steam plants

Boiler Room

PART Eighty one: Affordable Steam **PART 5**

After fitting the deck and hatch covers last month on Anna, it is time to turn our attention towards some more woodwork within the hull, concentrating mainly on the aft seating area. This seating basically consists of a completely removable unit that also incorporates a platform that fits beneath the aft hatch. The idea of this is that it can be used to mount the rudder servo, so the entire assembly has to be easy to take out and replace, but also be secure when fitted.

The seat

The first job is to assemble the kit parts for this platform, seat and rear bulkhead and see how it all looks in the model. The seat section rests on bearers at the lower edge of the coaming with the rear bulkhead sat against the rear edge of the deck opening. The kit calls for a small tab to be glued to the rear of the vertical bulkhead, which would hold a single screw that threads into it via the leading edge of the rear deck. I have never been a great fan of using small wood screws in this way, as invariably they chew the hole and you rapidly end up with a sloppy, or non-existent, fit. Also, in this case there is only the single small wood screw to hold this quite large unit in place which is not very

satisfactory as it also carries the rudder servo and its load. Consequently, it was decided to improve the arrangement to make it more secure.

If you need a fastening that is going to be frequently removed, it is far better to have two parts that are resistant to wear and tear, so a nut and bolt is always going to be a huge improvement over just a screw set into wood. All we have to do is arrange for a captive nut to be secured in place into which a machine screw can be threaded. The simplest method, and well-used in the past, is to bond a nut into a hole in a piece of wood, then glue that against another piece of wood with a prepared hole drilled in it. I was not too happy with only having the single fastening in the centre, so set about making two for this unit. A piece of scrap wood was drilled, **Photo 1**, then separated into two backing pieces and the kit parts (of which there actually two supplied) were glued to the rear of the vertical bulkhead, **Photo 2**. The captive nut holders, **Photo 3**, were then glued in place, protecting

Photo 1. To make a captive nut arrangement we need to be sure that the nut will remain in place for its working life, so it is best to make a wooden holder for the nut. First of all, we need a piece of scrap wood with a clearance hole drilled into it.

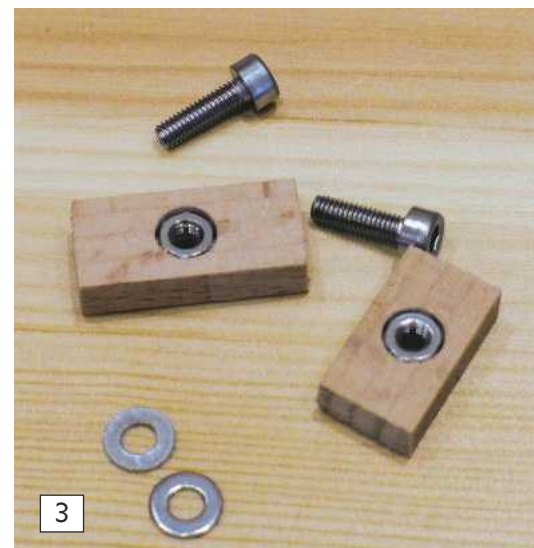


Photo 3. The captive nuts ready to be glued in place. The nuts are epoxied into the holders, which will then be glued to the underside of the deck section, ensuring it will never come adrift and hopefully never rotate.

the non-glued surfaces with polythene to ensure that stray adhesive did not end up in the wrong place. Finally, the screws could be removed and the seat, bulkhead and platform assembly came out neatly and ready for a long service life. Other modifications were then added to this unit to 'personalise' it a little, such as adding some dummy planking to the vertical seating area forward of the bulkhead and a capping rail to neaten its top.

Rudder servo

Having sorted out the seat unit forward of the bulkhead, the arrangements for the steering servo could be resolved. The idea in the kit is to use the platform behind the bulkhead for the servo mounting. This enables the servo to be disconnected when the whole seat, bulkhead and platform unit is removed from the model as a complete assembly. It was located in place and the space available for the servo examined. Whereas I would normally go for a bigger than required servo for steering, there is not a huge amount of headroom in Anna and it was not desirable to lay the servo on its side as one wouldn't be able to remove the servo arm to dismantle it



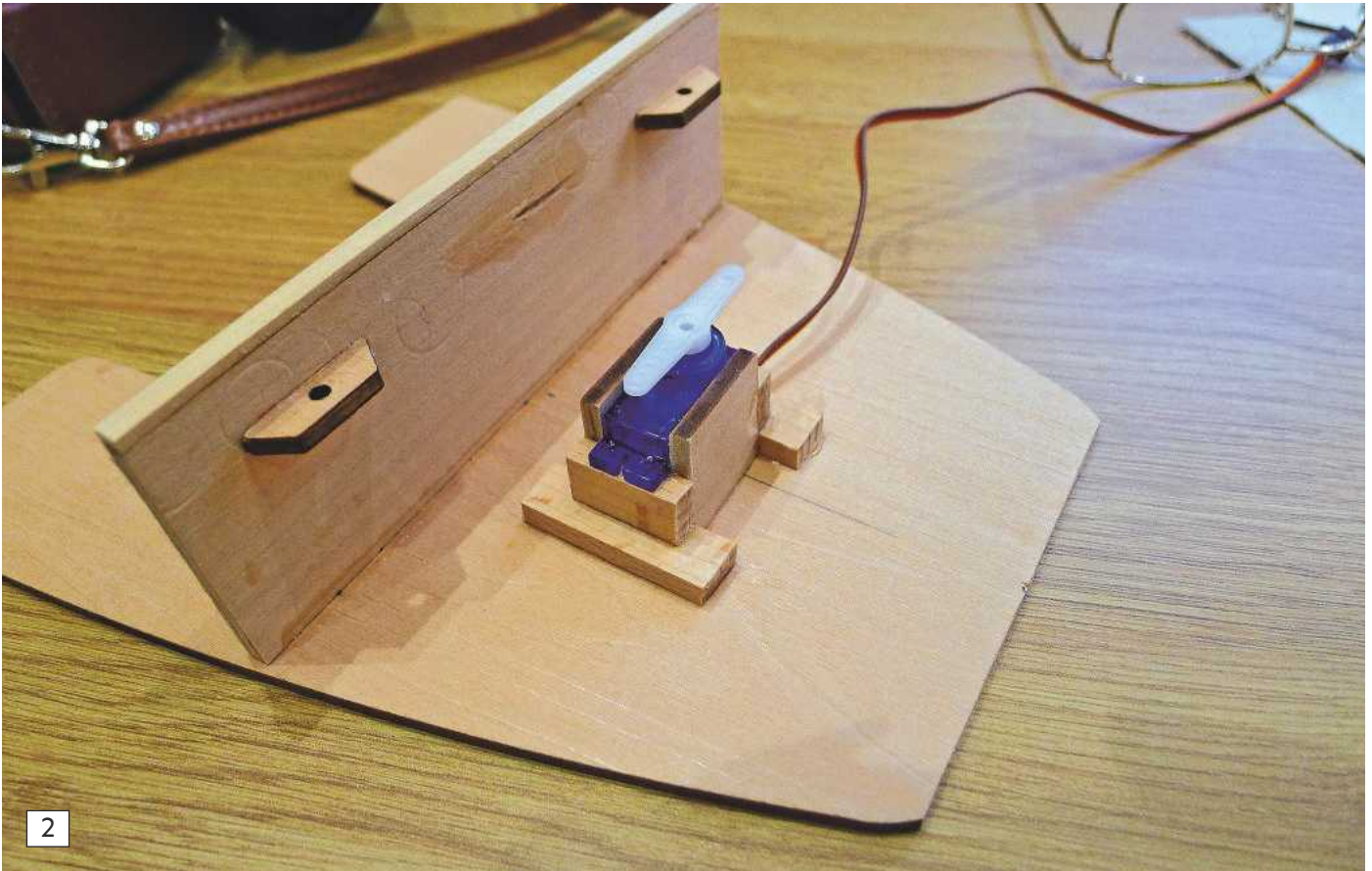


Photo 2. fastening tabs were glued in place on the rear of the aft bulkhead. Luckily two are supplied and they were drilled with a clearance hole for the 3mm thread of the Allen screws. Note the servo mounting arrangement with its output arm arranged to be accessible from inside the hatch.

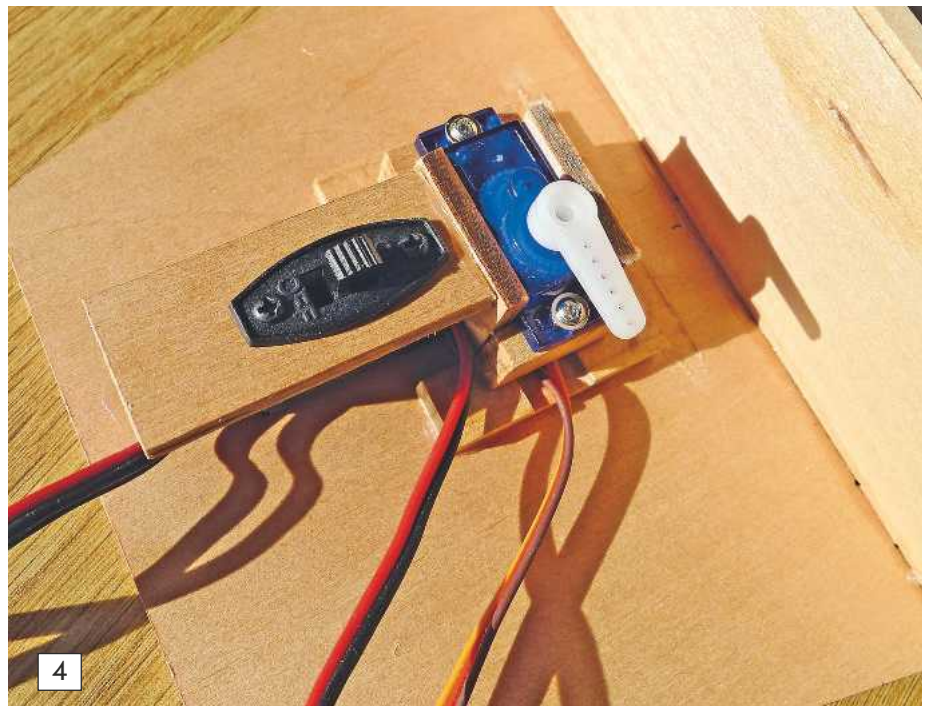
Photo 4. Using the servo mounting to carry the switch makes for a neat and tidy installation, all accessible via the aft hatch.

all. Consequently, a mini servo was chosen as the steering loads with this small model will be very light and it would fit vertically within the void.

The centre of the servo drive shaft was marked and the servo mounted on the platform using some wooden bearers and stiffeners (please see Photo 2 again). Normally it is best to make sure that the servo can be easily removed, but experience has taught me that if it needs replacing, there is a very real chance that the new unit will be of a slightly different size anyway, and a new fastening arrangement will be required. Consequently, having the servo arrangement easily to hand when this unit is removed was good enough for me. At this point I had not made the decision as to where the battery pack and its switch and the receiver would be fitted, but at the back of my mind the idea was developing that the receiver might be fitted on the same platform together with the battery pack.

Electronics

With the servo in place it was time to sort out where the remaining electronics should be placed. A rechargeable battery pack for the



radio gear would be the simplest to operate as a charging connection could be made available inside the hatch with the On/Off switch used to connect it all. A suitable switch was found in my pile of old electrical bits and pieces which was actually a changeover switch between two cables, enabling a charging connection to be used when the supply was isolated. Anyway, now the receiver battery pack, receiver and switch were all to hand. The neatest arrangement has to be to try to get everything on the same platform,

so I set about adapting the servo mounts to incorporate the switch, which would then be easily accessible inside the rear hatch, **Photo 4.** The battery pack could then be neatly tucked against the Starboard side of the servo and switch assembly, and the receiver would tuck neatly on the Port side. After a few test fittings the wood was all varnished and the electronic parts then attached to the tray. The Allen screws hold the entire unit in place and everything can be removed in one go for maintenance. The wiring

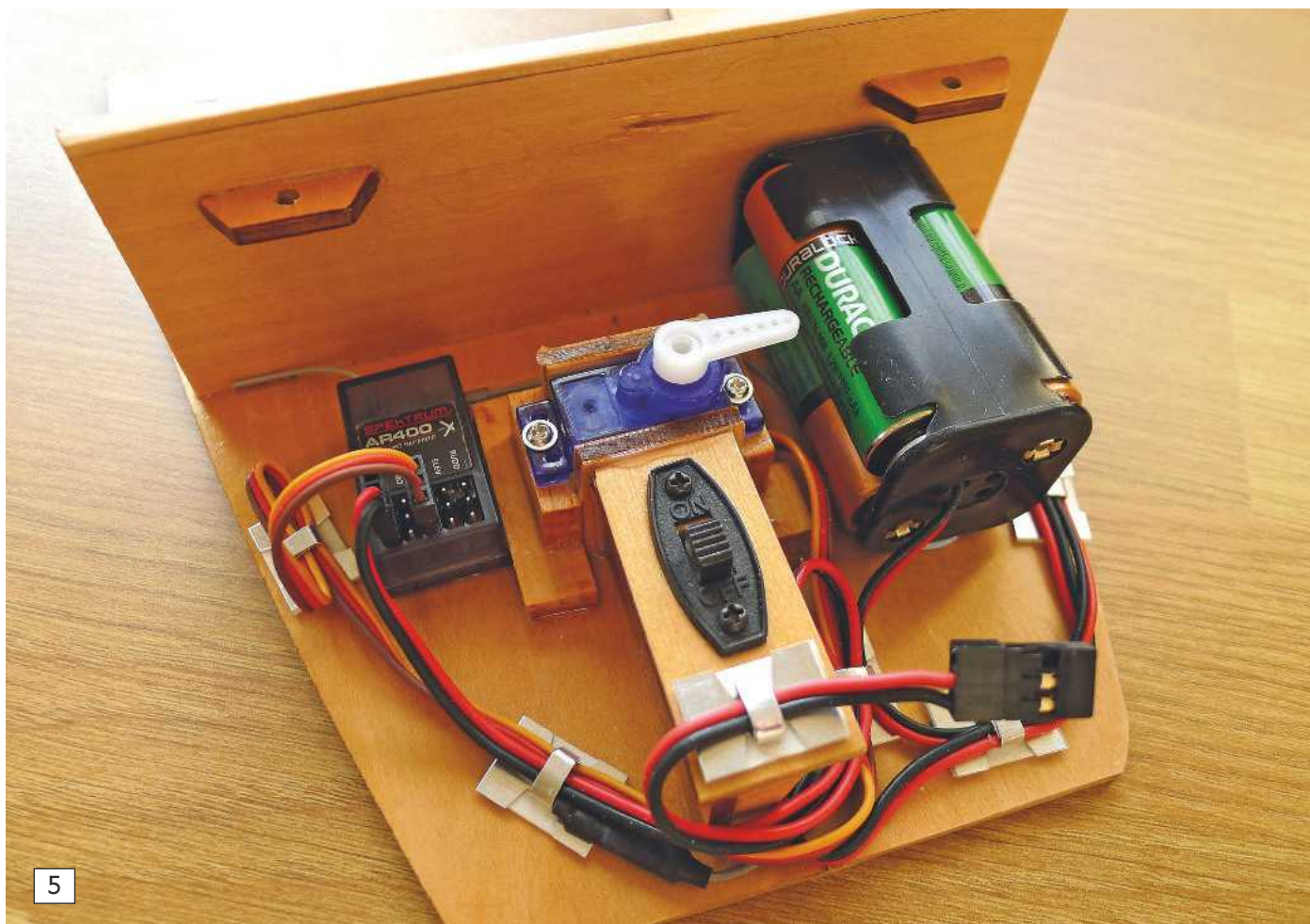


Photo 5. The electronics installation with the servo and switch in the middle, the battery holder on the Starboard side and the receiver on the Port side. I am fussy about tidy cables and am a great believer in ensuring that they are all secured and cannot get out of place. The charging point is arranged to be in the centre of the access hatch.

Photo 6. The deck cleats need a bit of support to ensure that they will never be pulled off the deck and terminally lost! A piece of household copper single core 2.5 mm cable makes for an excellent and secure mounting.



was tidied, secured, and the servo arm drilled to suit the servo linkage clevis, **Photo 5.**

After a few dry-runs of fitting the boiler, engine and electronics platform I have to admit to feeling quite pleased that everything had gone in and out of the hull easily and should make for an easy to operate and maintain model. In all fairness, the electronic parts should also be added to the total cost, so the switch unit used from the spares box may be around £10 maximum and a battery holder should be no more than £5. As regards the radio gear, an existing Spektrum system is being used. However, if you are buying completely from scratch, then you can purchase simple inexpensive two channel 2.4GHz radio sets for around £30. The branded Spektrum receiver on its own costs

around £25, but if are using a multi-model transmitter of the same type and brand, then there is no need to buy another complete system. The rudder servo worked out at a princely £2!

Deck fittings

The few remaining deck items were then attended to, before final varnishing of the remaining woodwork. First were the deck cleats, which are supplied in the form of pre-cut plywood pieces. I would usually

be tempted to replace such items with something that looks a bit more credible, but in the interest of maintaining as much of an 'out of the box' build as possible they were retained. To give them a degree of strength, should they ever actually be used for securing anything, a hole was drilled in their bases with a matching one in the deck before gluing in place with epoxy and a piece of copper single core wire to ensure a strong permanent joint, **Photo 6.**

Next was the tiller arm, again supplied as pre-cut plywood parts. The idea with this

The running total for the materials cost of Anna now looks like this:

Krick Anna kit:	£99
'Tiny' engine:	£45
USE boiler:	£105
Separator:	£16
Lubricator:	£12
Battery holder:	£5
4 x AA rechargeable cells:	£8
Switch:	£10
Radio set:	£30
Rudder servo:	£2
Total:	£332

I think this shows how steam need not be expensive.

is that you laminate the three pieces of the arm and bend them into a dog-leg while the glue sets to introduce the appropriate shape. It was immediately obvious that the boss part should be firmly glued to prevent this shifting out of alignment while the arm was laminated, so the first step was to assemble and glue the boss together on to a tight fitting bamboo skewer, **Photo 7**. When the glue was completely cured, the tiller arm was set up in a clamp with offset pieces of ply to produce the dog leg effect. This was all clamped in a jig and left overnight to completely set before removing, **Photo 8**. Once removed, it had the desired typical dog-leg tiller arm shape, so the bamboo skewer was drilled out before fitting a stainless nut and bolt, again sourced

Photo 7. Trying to mould the tiller arm into a laminated dog-leg will almost certainly end in tears if its boss is not first firmly attached. The three pieces were glued to a tight fitting bamboo skewer before progressing.



Photo 8. Once the boss was firmly attached, the arm was set-up in a jig with two pieces of plywood used to generate the offset while the glue between the laminations set. Perhaps not easy to see in this picture, but an offset of around 3mm was successfully generated.

from the spares box, a matching hole drilled into the deck to accept it all and the screw fitted with a Nyloc nut to enable the tiller to be moveable and also allow easy removal of the

rear hatch.

Next month we will discuss the hull finishing, painting, other woodwork varnishing and the final assembly.

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SWA News

From the July 2017 issue of Quarter Deck Ramblings



This is the regular newsletter of the Surface Warship Association which arrived recently in the Editorial Office. This association is a national organisation, its members all having an interest in warships and as a group they support many model boating and general interest events in the UK and Europe. One such recent event where they were promoting warship model making and the hobby was at Knightcote MBC.

Navy Day hosted by Knightcote MBC

On Sunday 3rd July, this club hosted its first Navy Day, organised by the Surface Warship Association. So how did it go? Gazebos built,

tables laid out, club kitchen stocked and manned (or to be correct – under the control of the ladies) and the sun shining all day was a good start. The club shares facilities and buildings with a model railway club, one of the members, Phil Parker, being well known in both the model boating and railway worlds.

The dedicated SWA display on the day was 'manned' by Steve Bullock, Hillary Breeze, Jake Goode and Adrian & Sue Clutterbuck. Other SWA members, namely Jeff Carter, John Elliott and new recruit John Matterson and his family, manned some of the other stands. On the SWA stand there were ten warships including MTB's, a torpedo boat, destroyers, minesweepers, cruisers, an amphibious assault ship and Peter Berrill

came along with his excellent 1:600 Royal Navy waterline display.

Elsewhere at the show there were 58 other naval vessels displayed by four clubs including Knightcote MBC, Hinckley & Bosworth MBC, Northampton & District MBC and Droitwich Spa MBC. There was also a lone visitor from Exeter MBC and a total of 66 modellers plus other visitors attended, so a good turnout.

On the water

There was some drama on the water, the first being when HMS Caesar, a Majestic Class pre- Dreadnought took to the water. A spectator commented; 'That is a very good smoke unit you have on board' and the builder's reply was; 'I don't have a smoke unit on board, it's on fire!' The model was safely recovered, whence the strong smell of burning and smoke revealed several melted cables and electronics inside. The second incident was an accidental collision on the water, resulting in an HMS Cossack destroyer capsizing and then sinking, totally disappearing from sight. The SWA was not involved in either of these incidents and the following week the HMS Cossack hull was recovered, but the superstructure was sadly lost, something that was upsetting for all involved and in the case of this sinking, something that should not happen.

Meanwhile, over at the large model railway club building on the same site, Chris



Left. Phil Parker's interesting, scratch built & designed crashed aircraft recovery crane barge on the water.



Right. Droitwich Spa MBC member Graham Povey recovers his HMS Caesar that was fortunately 100% intact after the unexpected smoke and smell of burning!

Left. Knightcote MBC – just part of their beautiful sailing water.

Below. Best model at the Show was this 1:96 scale Leander Class frigate HMS Danae F47, owned by John Matterson.



Mead was exhibiting his huge WW2 D Day dockyard display, albeit at 25ft long, this was actually only half of the complete display. It has working dockyard trains, sections of the Mulberry Harbour, landing ships, launches and MTB's at a quayside and barrage balloons floating overhead. This is a fantastic display which Chris had brought from West Yorkshire. Amongst his own model warships on display were a WW2 Liberty ship and HMS Amethyst of the 1949 Yangtze Incident fame. This day was so successful and with such positive support from other clubs and individuals, that the SWA intend to organise a similar event in 2018, together with the hosting Knightcote MBC.

*Knightcote MBC report by
Adrian Clutterbuck*



Above. Just part of Chris Mead's fantastic D-Day display.

Left. SWA Chairman Steve Bullock presenting the prize for Best Model to Steve Matterson.



Left. The Surface Warship Association was joined by four other clubs at this successful event hosted by Knightcote MBC.

Contact information

The SWA is an organisation devoted to model warships and positively participating in a number of public events in the UK and overseas. It also has a new website and discounts from some trade suppliers are available to the SWA members. The Membership Secretary is Mr. Hilary Breeze, 38 Birch Crescent, Holtwood, Aylesford, Kent, ME20 7QE. Email: hbreeze@ecgroup.co.uk. Tel: 01622 710528
Surface Warship Association website: www.surfacewarships.co.uk



Above: Some of the large collection of models present. The launching area is on the inlet which can be seen in the background.

Below: Editor Paul Freshney's beautifully built trawler from the Models by Design 1:16 scale Cygnus SF33 semi-kit.



Below: Andrew Pardoe's partially completed paddle tug on sea trials.



Fishers Green Sailing Club Model Boat Section



Colin Bishop
reports
from their
May 2017
Open Day

Fishers Green Sailing Club (FGSC) have their sailing water in the Lea Valley Country Park near Waltham Abbey, just off Junction 26 of the M25 London Orbital Motorway. Model boats are a full section of the sailing club and have access to the main clubhouse and all its facilities. An inlet of the lake is used to launch models and as a base

for the modellers, and there is an adjacent larger area of water for the larger and faster boats. The launching area has recently been upgraded and incorporates a lower section close to the water which is useful for those of us whose knees are not quite what they used to be.

This year's Open Day saw a healthy turnout of boats, mostly scale with both motor and sailing vessels. Many came from the host and nearby Brentwood MBC, with other clubs in the area also well represented. The weather was kind and it was nice to have a relaxing sail and chat with fellow modellers with the well run BBQ, organised by Colin Graham, providing a day long refuelling stop for the skippers.

I took the opportunity to give my recently completed Fishery Cruiser Brenda its maiden

voyage and was relieved to find that she performed well with no problems and the accompanying photos give an idea of the number and wide variety of models present on this day.

The club welcomes new members and visitors, but if travelling to the venue do be sure to check the detailed directions on the website:
www.fishersgreensc.org.uk/
(Model Boat Section).

This is because the sailing club is on private land and there is no general public access though the security gates, and therefore it may be a good idea to contact Ivor Warne the Section Secretary by email or telephone, prior to visiting:

Email: ivorwarne@aol.com

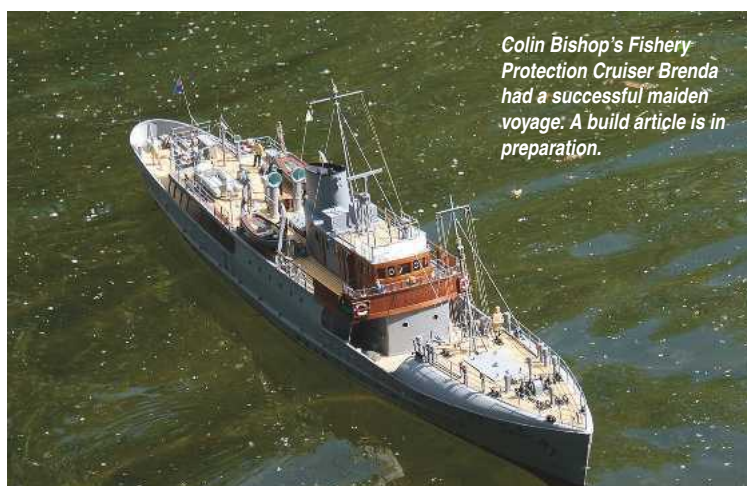
Tel: 01920 484315 or 07535 990538



Left: The adjacent larger area of water allows the bigger boats to be put through their paces. Fast electric, steam, r/c yachts, submarines and scale are all welcome, but as is often the case nowadays, no i.c. boats.

Above: Andy Zurawicz's oil spill recovery boat was recently acquired from John Elliott.

Below: John Elliott's 25ft HMS Bulwark motorboat from the Deans Marine kit makes for a practical and compact model.



Colin Bishop's Fishery Protection Cruiser Brenda had a successful maiden voyage. A build article is in preparation.



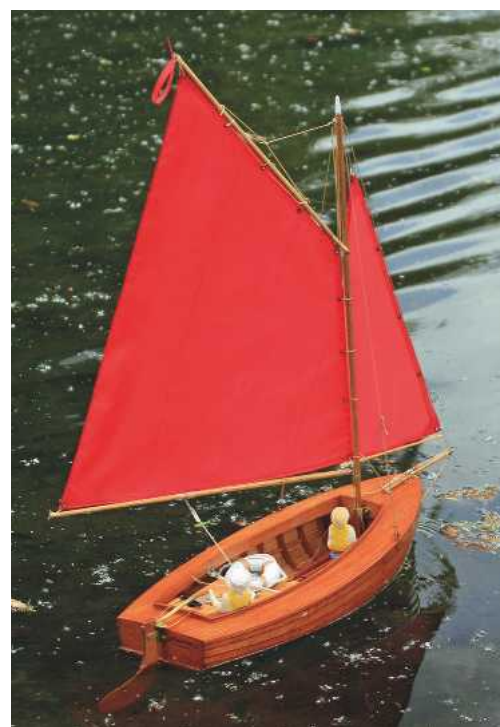
Large scale sail models always make an impressive sight.



Left: Alan Russell's impressively detailed MTB.

Right: A small but colourful sailing dinghy.

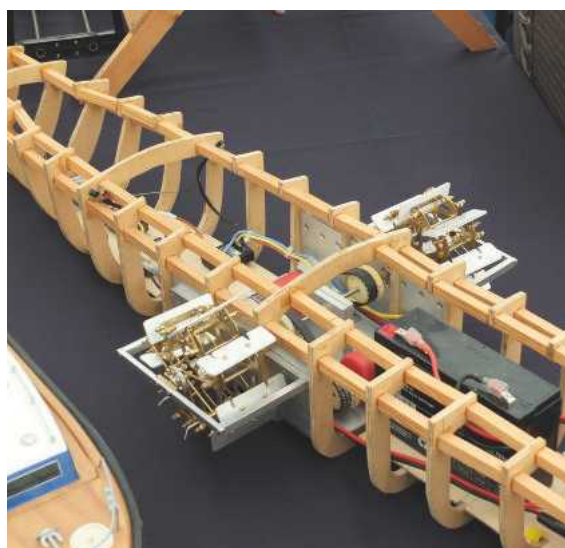
Below: The schooner America, another delightful scale sail model.





Above: Lake Bank Model Boat Club is based in Milton Keynes, many of its members being from a club that used to be based in Bletchley Park.

Below: Fishers Green MBC operate from the sailing club of the same name in the nearby Lea Valley Complex.



Above: Work in progress is always a positive talking point.



Above: Nautical Nostalgia had some fabulous models for sale.

Below: Yes, this strikes fear into anyone who ventures out on the water at the same time!



Wings and Wheels

Our Roving Reporter reports from Essex!

Our Roving Reporter – reports from Essex!

This event was held on 24th and 25th June at the historic North Weald WW2 airfield near Harlow in Essex, and celebrated its 31st anniversary at this venue. This show is primarily for model aircraft enthusiasts, but always has a strong marine presence, there being a decent sized temporary pond and a large marquee with a wooden floor for the club displays and some marine traders, perhaps the best known to us being Mountfleet Models with Adam and Sharon Slater in attendance. This marquee was very large and half of it was devoted to a model truck roadway layout with r/c Tamiya lorries, diggers and cranes all on the move during the day. The outside temporary pond is just

about deep enough for submarines, and Mountfleet Models were able to successfully demonstrate effectively their new two man chariot. There was also a 'Have a Go' pond for youngsters, and the not so young, to try their hands on an r/c transmitter.

Trade

The traders dedicated to model boating were primarily Mountfleet Models and Nautical Nostalgia, but as always there were numerous other vendors selling all manner of things for the model making enthusiast, whatever their preferred discipline. These included radio gear, batteries, motors, wood,

adhesives, fixings etc. with Component Shop, Al's Hobbies, Rapid Models, SLEC, The Balsa Cabin and Inwood Models all prominent.

Nautical Nostalgia had a fantastic model, that you could purchase, of the Black Pearl from the Pirates of the Caribbean films series. There were bargains to be had on the trade stands, but the number of 'punters' now using their mobile phones to check the online prices for expensive radios etc. was quite noticeable when having a cup of tea in the refreshment areas.

Model Boats

The model boat side of things was looked after by the former Leighton Buzzard MBC, now renamed Lake Bank MBC following its

TERMS & CONDITIONS: Offer ends 30th September 2016. *UK Print Subscription offer only. Subscriptions will begin with the next available issue when order is placed. You can cancel your subscription before the third issue and pay no more money than the £1 already debited. Otherwise your subscription will automatically continue at the low rate selected above. For full terms & conditions visit www.mytimemedia.co.uk/terms. From time to time, your chosen magazine & MyTimeMedia Ltd may contact you regarding your subscription, or with details of its products and services. Your details will be processed in full accordance with all relevant UK and EU data protection legislation. If you DO NOT wish to be contacted by MyTimeMedia Ltd & your magazine please tick here: ☐ Email ☐ Post ☐ Phone If you DO NOT wish to be contacted by carefully chosen 3rd parties, please tick here: ☐ Post ☐ Phone If you DO wish to be contacted by carefully chosen 3rd parties, please tick here: ☐ Email



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Test Bench

Model Boats looks
at new products

Attention-Manufacturers & Distributors

● These pages are open to you - your shop window to bring to the attention of our thousands of readers, new products - kits, books, videos, engines, R/C gear, motors, anything that could be of interest to model boat builders. Send your information initially to

Model Boats Test Bench, PO Box 9890, Brentwood, CM14 9EF - or ring the Editor on **01277 849927** for more details.

You cannot afford to miss this opportunity!

News from The Airbrush Company

New Sparmax airbrushes and Lifecolor paints

This progressive company continues to add to its range of tools and paints for the hobbyist and the latest additions are noted here.

Sparmax Airbrushes

There are three new airbrushes recently added to this range.

These new Sparmax GP pistol trigger airbrushes offer simple ergonomic operation featuring a pre-set handle. They enable

the beginner to spray consistent coverage and/or lines and prevent the user accidentally pulling back too far on the trigger to flood the surface that is being sprayed. The GP-35 has a 0.35mm nozzle and the GP-50

has a 0.5mm nozzle.

The Sparmax GP-850 features both a fan pattern and round pattern air cap. Based on preference you can switch between caps, which has some advantages as the fan pattern delivers with minimum of overspray giving it a unique advantage over mini touch-up guns. It is particularly suitable for airbrushing the larger scale model.

Personally, I have found the

'trigger style' easier to use than the conventional type of forefinger operated airbrush and being gravity fed, it is possible to use the tool(s) with minimum air pressure.

Lifecolor Paints

This range continues to expand with new packs of specific acrylic colours and individual pots of paint. Notably the new packs include a 'Leaking and Stains Set' Ref: LC-CS39 and a 'White Wood Set' Ref: LC-CS38, and these packs of five weathering colours are priced at £17.99 inc. VAT. Individual pots are priced at £2.99, although there are special offers on many of these products.

They may all be obtained from selected retailers and online (or by telephone) from The Airbrush Company Ltd, 79 Marlborough Road (East), Lancing Business Park, Lancing, West Sussex, BN15 8UF, tel: +44 (0)1903 767800.

The website includes more detailed information about these products and their proper use: www.airbrushes.com

Review by **Paul Freshney**

Code	Description	RRP (inc. VAT)
SP-GP-35	Sparmax GP-35 pistol trigger airbrush	£90
SP-GP-50	Sparmax GP-50 pistol trigger airbrush	£90
SP-GP-850	Sparmax GP-850 with fan/round air caps	£115

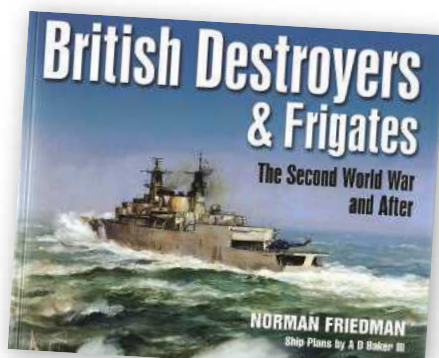


British Destroyers & Frigates – The Second World War and After

Written by Norman Friedman, with ship plans by A. D. Baker III and additional drawings by Alan Raven. Softback, 352 pages, 290 x 247mm, over 300 b & w photographs, line drawings, diagrams and plans. ISBN: 9781526702821, price (rrp) £25.00 Published by Seaforth Publishing, an imprint of Pen & Sword Books Limited, 47 Church Street, Barnsley, South Yorkshire, S70 2AS. Tel: 01226 734222, website: www.seaforthpublishing.com. Available direct from the publisher or through the usual

retail outlets.

This major study of Royal Navy destroyers, frigates and smaller escorts was a landmark contribution to the history of British warships when it was first published in 2006. Beginning with



the radically new Tribal Class of 1936, it traces the development of destroyers, sloops, frigates, and corvettes from the run-up to the Second World War, through the war years, 1939 to 1945 and the post-war era, when these traditional categories began to blur and merge, culminating in the Daring Class, Type 45 of the present day, the largest destroyer ever built for the Royal Navy.

In this new softback edition the author, Norman Friedman, one of America's best-known naval analysts and historians, has included much new information, some only recently released, together

with over 200 photographs, specially commissioned ship plans by A. D. Baker III, appearance detail drawings by Alan Raven, as well as detailed tables of specifications and building data. He also explains the policy and strategy changes that drive decisions, and describes the design rationale and development of each class in full technical detail to draw an entirely new and convincing picture of British naval policy in the difficult economic and political environment of the last 75 years. This makes this book the most comprehensive design history of modern British surface escorts ever written.

Book Review by John Deamer

Wooden Warship Construction A History in Ship Models

Illustrated from the Collections of the National Maritime Museum

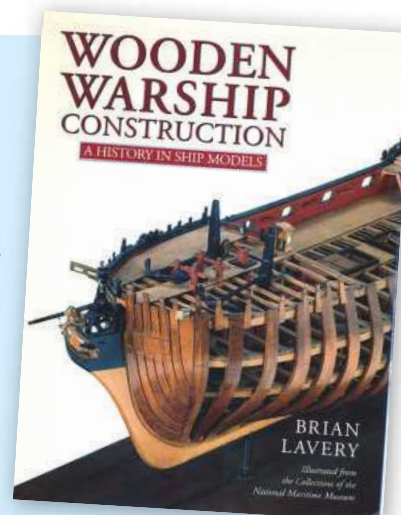
Written by Brian Lavery. Hardback, 128 pages, 254 x 195mm, over 140 photographs of ship models, in colour with some black & white drawings and diagrams. ISBN: 9781473894808. Price (rrp) £25. Published by Seaforth Publishing, an imprint of Pen & Sword Books Ltd, 47 Church Street, Barnsley, South Yorkshire, S70 2AS. Tel: 01226 734222, website: www.seaforthpublishing.com and available direct from the publisher or through the usual retail outlets

The National Maritime

Museum in Greenwich houses the largest collection of scale ship models in the world, many of which are official contemporary artefacts made by the craftsmen of the navy or the shipbuilders themselves, and range from the mid-17th Century to the present day. As such they represent a three-dimensional archive of unique importance and authority. Treated as historical evidence, they offer more detail than even the best plans, and demonstrate exactly what the ships looked like and how they were constructed.

In this beautifully illustrated book from the 'A History in Ship Models' series, the author Brian Lavery, one the country's leading

maritime historians, employs a selection of the best models of ships and dockyard dioramas to describe and demonstrate the development of warship construction in all its complexity from the beginning of the 18th Century to the end of wooden shipbuilding. The superb full colour photographs, including many close-up and detailed views, are captioned in depth, and many are annotated to focus attention on significant and interesting aspects of shipbuilding. Although pictorial in emphasis, the book weaves the pictures into an authoritative text, producing an attractive and unique form of technical history.



Thoroughly recommended reading for period warship modellers and enthusiasts.

Book Review by John Deamer

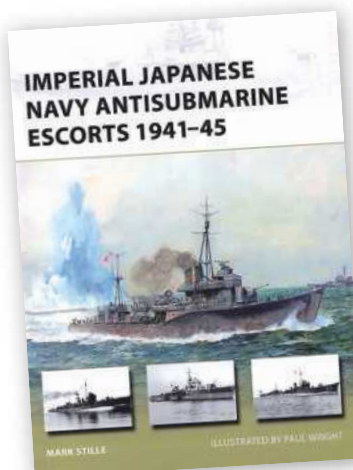
Imperial Japanese Navy Antisubmarine Escorts 1941 – 45

Written by Mark Stille and illustrated by Paul Wright. Softback, 48 pages, 248 x 185mm, 56 photographs and illustrations in b & w, and colour. ISBN: 9781472818164, price £10.99. Published by Osprey Publishing Ltd, Kemp House, Chawley Park, Cumnor Hill, Oxford, OX2 9PH, UK, 44+ 1865 727022, website: www.ospreypublishing.com. Available direct from the publisher or through the usual retail outlets.

During the Pacific War, the Imperial Japanese Navy (IJN) went into the conflict with a

marginal antisubmarine warfare (ASW) capability. This was a lamentable state of affairs for a nation dependent upon imports to sustain its war economy. The IJN possessed only a few purpose-built ASW escorts at the start of the war and these were augmented by a handful of second-class destroyers and torpedo boats assigned to perform escort duties. Once the magnitude of the threat to Japan's shipping became fully apparent in 1943, the IJN made plans for the mass production of ASW escorts. These arrived in 1944 but could not stop the massacre of Japanese shipping by the increasingly bold and effective US Navy submarines.

This new volume by naval historian Mark Stille, with illustrations by Paul Wright, details the war history, weapons,



and tactics of the IJN's escorts. These include the Momi and Wakatake classes of second-class destroyers, the Tomozuru and Otori classes of torpedo boats and several types of ASW escorts, the Shimushu, Etorofu, Mikura, and Ukuru classes together with the Number 1 and Number 2 Escort classes all of which the IJN called Kaibokan (coastal defence vessels) built from 1937 through to the end of the war.

Another, reasonably priced, extremely informative book from Osprey in the New Vanguard Series (248), that should certainly appeal to both warship modellers and naval historians alike.

Book Review by John Deamer

Coastal Shipping



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Left. HMCS Haida G63 is currently preserved in Canada and once again the white foam is probably overdone on this diorama.

Below. HMCS Huron G24 from an Ultra Cast kit.



by today's multimedia kits. Clearly they were a compromise between the needs of the modeller and those of the wargamer. To convert and alter these kits you do need a good modeller's electric drill with burrs and slitting discs, plus have a selection of etched-brass detailing parts and frets to hand. If you are a novice or are more interested in studies of camouflage, then Skytrex kits offer an excellent place to start. At the time, Skytrex were developing their range of 1:700 waterline ship models very quickly, and as some were subjects that no one else seemed interested in using in dioramas, these seemed to be a good choice for the projects in hand. I think you will agree that you would never guess that HMS Diadem is actually from a white metal wargaming model.

Having managed to get rough seascapes reasonably successfully modelled (Part Five, August MB), the 'medium' effect seemed to be worth a go now. Neither smooth nor rough, but what seamen call a lumpy sea with small troughs, but no white horses. What was still needed though was to get right a vessel's wake. Obviously, the amount of white water depends on the ship's speed and the sea conditions, but this was another positive

reason for choosing a slightly smoother seascape.

The tried and trusted method of creating an underlying base for the sea has already been widely discussed in Parts One to Five of this series earlier this year. It was desirable to depict these warships moving at speed, so a 'busy' wake would be needed. Artist's acrylic modelling gels in both medium and light viscosities are excellent for creating the rough parts of the wakes and bow waves are

straightforward enough, but you will notice from photos and video film that other waves emanate outwards from a moving hull, having been formed from the original bow wave. Looking now at the end result of this diorama, plainly the effect has been overdone. In other words, I had ignored my own advice of: 'Less is often better'. So determined to get this right, for the next diorama in this section, the option of less 'speed' and a slightly more 'lumpy' sea was chosen.

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HMS Dido and USS Swanson, Sicily 1943

In this diorama, HMS Dido is bombarding the Sicilian coast whilst two US destroyers (only one shown on the diorama) provide AA cover. HMS Dido bombarded the Sicilian mainland in 1943 after the troop landings when she was providing naval artillery for the advancing allied troops. She has been depicted her with her 5.25 inch dual purpose guns elevated and is sporting an overall mid-grey scheme, noting that she was never camouflaged as such throughout WW2. HMS Dido is a White Ensign Models kit, whilst the destroyer is a Skywave Benson Class kit. In this scenario the diorama depicts USS Swanson (DD 443) as one of two escorting Benson (Gleaves) Class destroyers circling Dido on anti-aircraft watch during this operation and USS Swanson wears US Navy Measure 22 camouflage. The Benson and Gleaves Classes were virtually identical American destroyers and numerous examples found themselves in the Western Mediterranean following the Torch landings in North Africa. However, in USS Swanson's case only until shortly after this action, as she

Below. A close-up of the forward starboard side of HMS Dido from a White Ensign Models kit which are becoming available again now in 2017. The moderate sea is now quite well depicted.

Below right. USS Swanson is a rather less well detailed Skywave kit than HMS Dido, but this picture also shows the moderate sea with a degree of 'depth' to it.



Above. HMS Dido with her 5.25 inch dual-purpose guns elevated for both shore bombardment and anti-aircraft use. The seascape is much more realistic than in the Channel Sweep diorama.

rammed another US destroyer and had to then retire across the Atlantic to the Brooklyn (New York) Naval Dockyard for repairs.

Once again, the basic seascape was commenced as described previously, but did use more crumpled baking foil over the base of Polyfilla on the MDF baseboard, this giving an impression of a choppy sea. As with all my dioramas, the spaces for the ships were carefully cut out and checked so that each would comfortably accommodate the hull prior to building each kit. Not having to do any extensive modifications to the warship models was quite a relief in this instance and all that had to be done was check their colour schemes. Great pains were taken not to overdo the 'white' water this time as the ships are not supposed to be moving too quickly. A new technique was also discovered for creating spume, the frothy bubbly structure in the water, and this was to use a tiny dab of toothpaste and add water to tease it out and to 'weaken' it, such that a reasonably good patch of spume resulted. This could be enhanced by over painting with a coat of gloss varnish with a tiny amount of blue and green paint added. The net result was the translucent appearance of the spume being just under the surface, a subtle and realistic effect. The end result is a much more pleasing seascape, which emphasises the movement



References

Dido Class cruiser kit

Alternative kit (for modification) is the 1:700 Flyhawk Model of HMS Naiad.

Skywave Benson kit

Readily available online from a number of retailers.

Scalemates

Website: www.scalemates.com
Toms Modelworks, Ref No. 780 USS Benson/Gleaves Class of destroyer, detailing set of two photo-etched sheets.

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Alternative to Ultracast kit is the Trumpeter 1:700 HMCS Huron (G24) Tribal Class destroyer (1944), Ref: TR05759.

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The varnish is Tamiya Gloss Varnish.

Enamel Paints

Humbrol and WEM Colour Coat.

of the ships but does not allow the wakes or the sea itself to overwhelm the models.

Conclusion

Each and every diorama presents a new step on the learning curve, and that is much the same whatever your branch of model making. Challenging yourself to try new and more complex effects is how you grow as a modeller and in this sphere, putting a waterline model on a realistic sea is where it really belongs. The results may sometimes be painful and unsatisfactory, but also sometimes acceptable and sometimes so good that you get a real sense of pride and satisfaction when it all comes together, and is just right. Admittedly, so far in this series that satisfaction might seem to be slow coming, but it is believe me, and we will shortly attempt some really interesting dioramas.

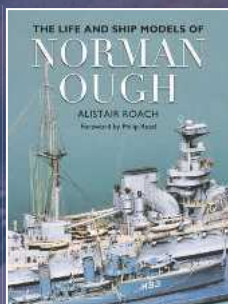


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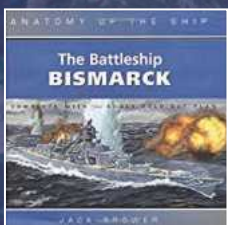
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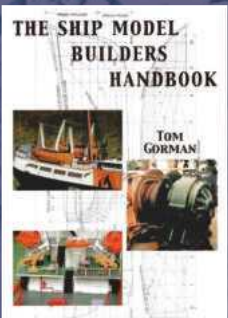
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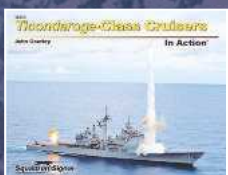
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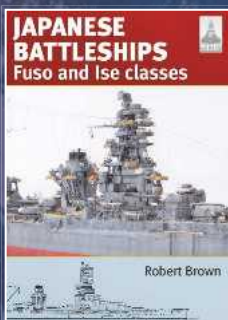
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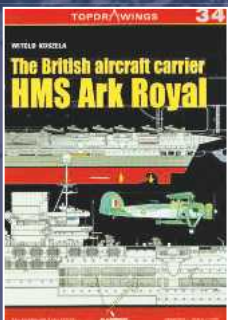
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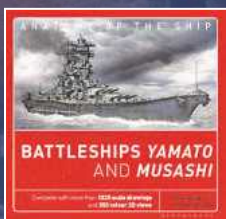


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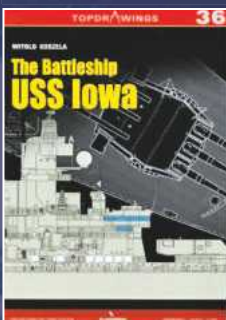
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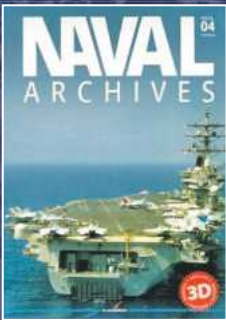
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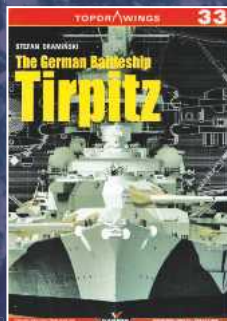
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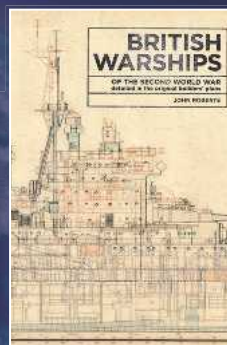
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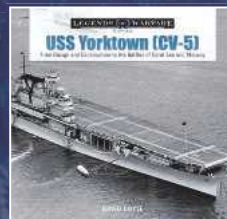


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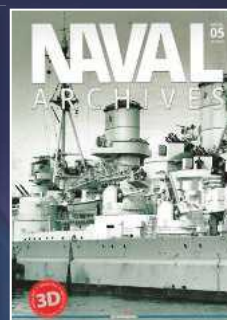
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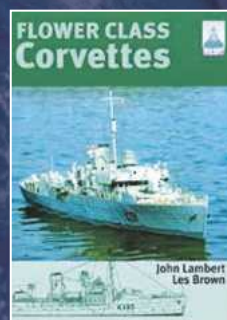


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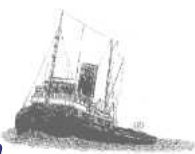
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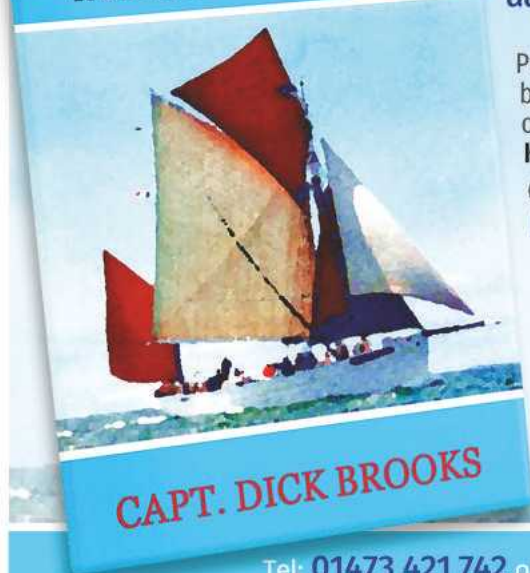
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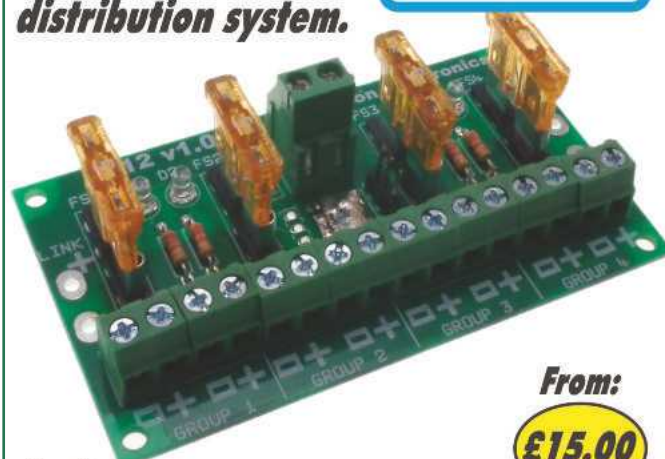
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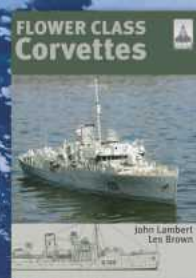
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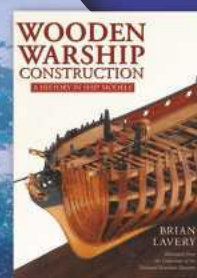
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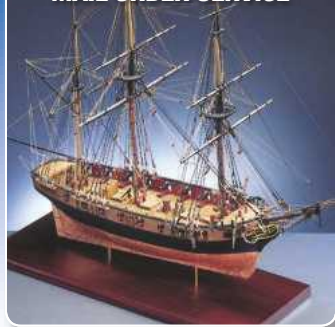
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