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model Boats

September 2022
Vol.72 No.862

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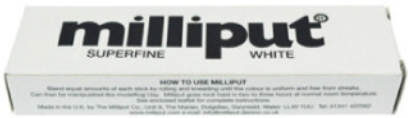

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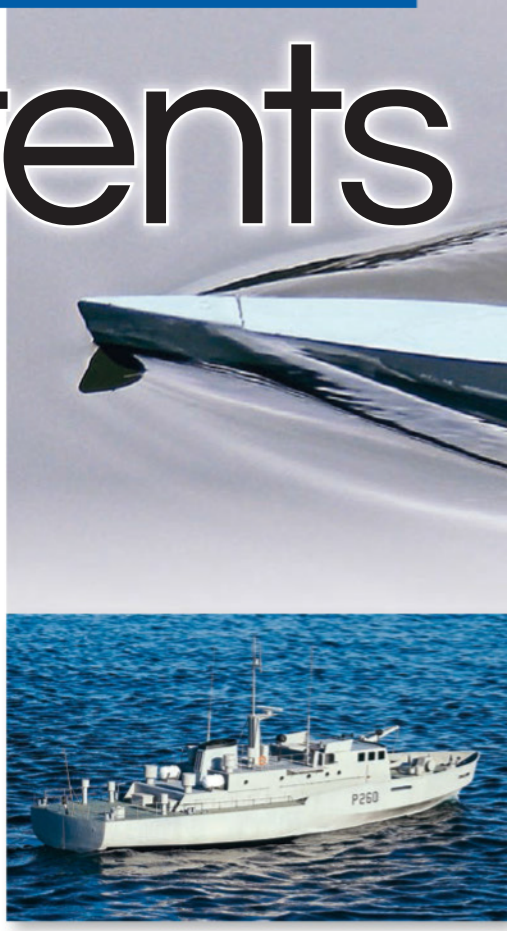

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WELCOME TO THE SEPT 2022 ISSUE OF MODEL BOATS....

There's plenty of fascinating content to submerge yourself in this month, not least the supporting build guide for the free dynamic diving submarine pull-out plan. If you've always fancied tackling a sub but have hesitated just in case you find yourself hopelessly out of your depth, then Glynn Guest's easy to follow instructions may be just the incentive you need to finally take the plunge.

In fact, if you're looking to step outside your comfort zone and try something completely different, then that's very much a theme running throughout this issue. John Bristow's article Sizing up the *Sea Hornet* focuses on a 'no nuts and bolts', *i.e.*, glue only, method of construction, while in the latest instalment of his Flotsam & Jetsam series John Parker puts the spotlight on solar power, how it can be incorporated into our models and its operational pros and cons.

Elsewhere, in Part 1 of legendary scratchbuilder Dave Woolley's Seagull sea change article, he shares tips and tricks learnt while sailing into previously uncharted (for him) territory with an ambitious rebuild/conversion project designed to be brought in on a very tight budget.

Plus, Ashley Cooper relays the story of how *Virgin Atlantic Challenger 1* inspired a smaller-scale but still demanding venture of his own.

We also have a very exciting 'put your skills to the test' prize draw for you, courtesy of the kind folks at Billing Boats. The magnificent 1:100 scale kit for *HMS Warrior* (Britain's first ever iron-hulled, armoured battleship) up for grabs is aimed at the 'expert' modeller, so it's going to keep its lucky winner very busy!

Before closing, I must just say a huge thank you to the lovely volunteers who stepped forward with offers of help in regards the SOSs put out via last month's Letters pages, and also to all the clubs who've heeded our call and have sent in details of forthcoming events we can now share with you in our Compass 360 news section.

Enjoy your read!

Lindsey

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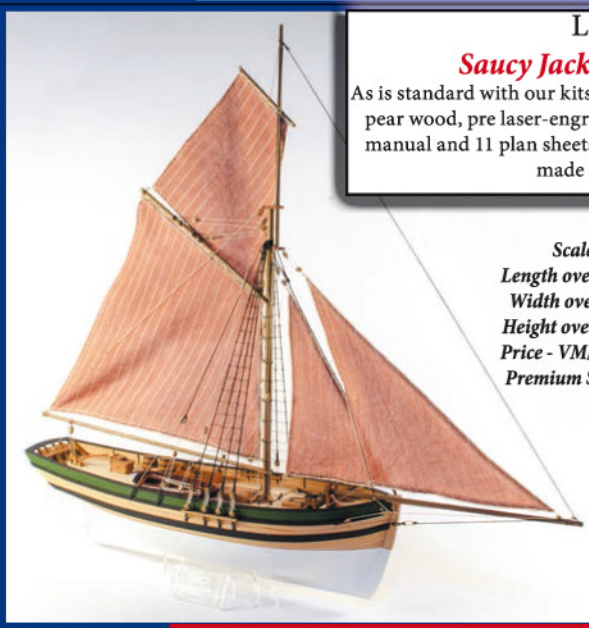

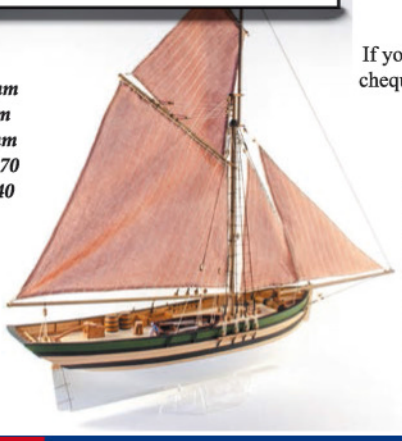

Scale - 1:64
Length overall - 426mm
Width overall - 88mm
Height overall - 360mm
Price - VM/10 – £150.70
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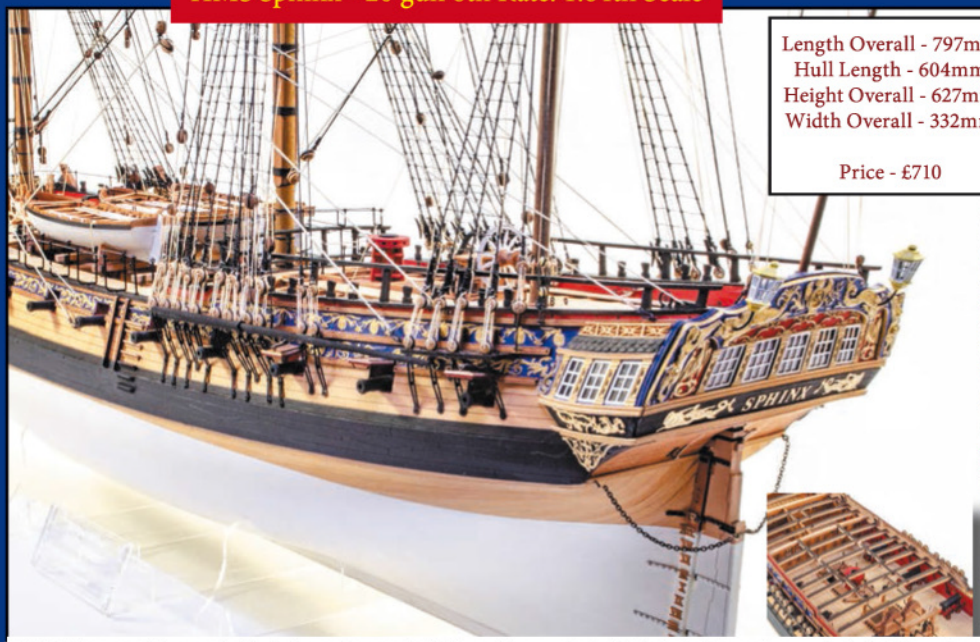
HMS Sphinx - 20 gun 6th Rate. 1:64th Scale



Length Overall - 797mm
Hull Length - 604mm
Height Overall - 627mm
Width Overall - 332mm

Price - £710

Designed, developed and produced in the UK

This kit is one of the most detailed wooden period kits on the market, which includes main gun deck detail, scale quarterdeck and forecastle beams, pre cut top sides, so the only standard planking required will be below main wale level. No less than 32 laser cut sheets and 5 sheets of photo etched parts are included, as well as cast and 3-d printed detail such as cannon barrels, figurehead, lanterns and stern decoration. Laser cut wood is pear, as is the second planking, with the gun deck and upper decks pre cut and laser etched with all planking and treenail detail. The three ships boats are included, and are just as detailed as the main kit.
The kit includes a full colour 154 page building manual, taking you through every step of the build, and this is supplemented by 23 full size plan sheets.
The manual can be downloaded on the Sphinx page on our website.
This is unlike any commercial kit most have been used to, it has been designed to make the assembly as painless as possible. Each kit takes 8 hours to produce!

Erycina - Plymouth Ketch
Scale – 1:64
Length Overall – 524mm
Height Overall – 380mm
Width Overall – 90mm
Price - VM/09 Erycina – £185.35
Sail set for Erycina (5 SAILS) £50.00

Nisha - Brixham Mumble-Bee
Scale – 1:64
Length Overall – 387mm
Height Overall – 311mm
Width Overall – 74mm
Price - VM/08 Nisha– £150.70
Sail set for Nisha (4 SAILS) £40.00

Coming in September/ October
The Barking Fish Carrier
RANGER - 1864

Scale – 1:64
Length Overall – 525mm
Height Overall – 486mm
Width Overall – 94mm
Price - VM/11 Ranger– £179.00
Sail set for Ranger (4 SAILS) £45.00

Coming this Winter - The 44 Gun Super Frigate HMS Indefatigable in 1:64th Scale

The royal yacht built for The Duchess of Kingston (1778)

This very popular kit has been developed using the original plans, and developed to be as easy to build as it can be, while keeping every detail possible. To achieve this, there are almost 20 separate laser cut sheets, 9 of which are in solid pear wood (Second planking is also pear wood), and 5 photo etched brass sheets.

Scale - 1:64
Length overall - 576mm
Width overall - 208mm
Height overall - 480mm

Price - VM/06 Duchess of Kingston – £413.60

UK Postage - £6.50

The 80Foot Zulu Lady Isabella

Scale - 1:64
Length overall - 600mm
Width overall - 100mm
Height overall - 387mm
Price - VM/03 Lady Isabella – £184.50
VM/03/Sail set for Lady Isabella (3 SAILS) £36.00

These two Scottish fishing vessels are the perfect introduction to scale wooden modelling. They include very easy to follow instructions, complete with pictures for every step of the way.
Unlike many 'Beginner' kits, the materials used are the same as the most expensive kits in the range, with limewood for first planking and pear wood for second planking, plus pear wood laser cut parts, photo etched brass sheet and high quality colour manual and plan set. Also as with the rest of the range, each kit has two stands, one for building, and an acetate version for displaying your completed model.

The 70 Foot Fifie Lady Eleanor

Scale - 1:64
Length overall - 380mm
Width overall - 105mm
Height overall - 327mm
Price - VM/04 Lady Eleanor– £162.80
VM/04/Sail set for Lady Eleanor (2 SAILS) £28.00

Now available - We now have a selection of detailed boat kits (All 64th Scale) which have laser cut parts including pear wood and photo etched brass for some mini kits .(The 20, 22, 24 and 25 foot cutters have no photo etch, but laser cut floors and gratings). 13 sizes and types are available now, with more kits arriving very soon.
We also now offer a selection of 3D Printed clinker planked cutter hulls from 12 to 24 Foot. The hulls are very detailed showing the clinker planking, internal ribs and seat support rail, meaning all the hard work is already done.

We also offer three cutters with laser cut pear parts to go with the pre-made hull. These would very much suit the fishing boats or any smaller vessel.

3-D Printed Resin Boat Hulls-Clinker and rib detail

Prices (Please add £3.50 for P&P)

VM/H12 12 Foot Cutter Hull (L-57.15xW-20xH-12.2mm) - £7
VM/H14 14 Foot Cutter Hull (L-66.7xW-24xH-14.2mm) - £9
VM/H16a 16 Foot Cutter Hull (L-76.2xW-27xH-16.3) - £11
VM/H18 18 Foot Cutter Hull (L-85.75xW-30.5xH-18.5mm) - £13
VM/H20 20 Foot Cutter Hull (L-95.25xW-31xH-19.5mm) - £15
VM/H22 22 Foot Cutter Hull (L-104.8xW-32xH-20mm) - £18
VM/H24 24 Foot Cutter Hull (L-114.3xW-32.5xH-22mm) - £21

3-D Printed Resin Boat Hulls with Laser Cut parts

VM/H16b - 16 Foot Cutter Hull &Laser cut seats and oars for fishing boat kits (L-76xW-23.4xH-15.7mm) - £14
VM/H14a - 14 Foot Cutter Hull (L-66.7xW-24xH-14.2mm) Including laser cut pear floor, seats, oars and rudder - £15
VM/H16c - 16 Foot Cutter Hull (L-76.2xW-27xH-16.3) Including laser cut pear floor, seats, oars and rudder - £17

1:64th Scal Brodie Stove
Complete with photo etched detail
£36
Each mini kit contains 4 x 3-D Printed parts plus 2 small sheets of photo etched brass.
72nd and 96th scale stoves are available but without the photo etch.

Laser cut boat mini-kits

Prices (Please add £3.50 for P&P)

VM/18F/C 18 Foot Cutter (86mm Long) £21.50
VM/20F/C 20 Foot Cutter (95.25mm Long) £22.50
VM/22F/C 22 Foot Cutter (104.8mm Long) £24.00
VM/24F/C 24 Foot Cutter (114.3mm Long) £25.50
VM/25F/C 25 Foot Cutter (119mm Long) £27.00
VM/22FY 22 Foot Yawl (107mm Long) £26
VM/24FL 24 Foot Launch (114mm Long) £27.50
VM.26FL 26 Foot Launch (125mm Long) £29
VM/28FP 28 Foot Pinnace (134mm Long) £31.50
VM/32FB 32 Foot Barge (151mm Long) £33
VM/32FP 32 Foot Pinnace (151mm Long) £33
VM/34FL 34 Foot Launch (162mm Long) £37
VM/36BP 36 Foot Admirals Barge (171mm Long) £48

HM Brig Sloop Speedy
Lord Cochran's Command

Scale - 1:64
Length overall - 700mm
Width overall - 230mm
Height overall - 492mm

Price:
VM/02 HMS Speedy– £327.80

HM Cutter Alert 1777 (Version 3 Kit)

Version 3 of our popular Alert kit is now available.
This new version includes reworked cannon carriages, laser cut pear wood gratings, black resin anchors, replacing the white metal versions, laser engrave and cut deck, and a full pre made sail set as standard.

Scale - 1:64
Length overall - 637mm
Width overall - 256mm
Height overall - 517mm
Price - VM/01V3 HM Cutter Alert– £275

Scale Figures (Unpainted)

VM/40a - Thomas Cochrane (1:64th) - £10.00
VM/41a - Lord Nelson (1:96th) £8.50
VM/41b - Lord Nelson (1:72nd) £12.00
VM/41c - Lord Nelson (1:64th) £12.50
VM/41d - Lord Nelson (1:48th) £17.50
VM/50 - Set of Four Fishermen for Fishing Boats (1:64th) £20.00
VM/42a - Captain Pellew (1:48th) £17.50
VM/42b - Captain Pellew (1:64th) £12.50
VM/42c - Captain Pellew (1:72nd) £12.00
VM/43a - Lieutenant Hornblower (1:48th) £17.50
VM/43b - Lieutenant Hornblower (1:64th) £12.50
VM/43c - Lieutenant Hornblower (1:72nd) £12.00


Hornblower


Pellew


36 Foot Admirals Barge

VANGUARD MODELS
BY CHRIS WATTON

Compass 360

If you have a news story for these pages, please contact the Editor, Lindsey Amrani, via e-mail at editor@modelboats.co.uk

IN MEMORY OF ROY WHITTON, SEPTEMBER 25, 1936 – JUNE 14, 2022

Tess Butler, Membership Secretary of the Balne Moor MBC has advised us that sadly, on June 14, 2022, the club sadly lost longstanding member Roy Whitton.

Tess tells us: *"Roy was always an active member and, despite his increasing years, could be relied upon whether it was a sailing day or a working party. He was also very knowledgeable and willing to help other members.*

"Roy began modelling with Wakefield Model Aircraft Society and the Huddersfield and Dewsbury Societies of Model Engineers. He became a regular competitor at MPBA regattas and won a number of events in both scale sailing and tug towing.

"A model maker of some considerable skill, Roy produced many exquisite model boats, which graced the club's displays at several model boat shows.

"Roy will be greatly missed by all who knew him: his family, his friends, club members and the wider fellowship of the model boating fraternity." ●

MAN YOUR BOATS WITH MODELU

Modelu has announced four new sets of highly realistic 3D-printed civilian crew figures. All are printable in scales from 1:10 scale down to 1:200, with prices determined by scale selected, and on arrival all you need to do is paint them up. Watch out for a feature dedicated to this coming soon.

In the meantime, though, for further details, or to view entire range (which was initially aimed at the model railway enthusiast but is now expanding to also cater for model boat builders), visit www.modelu3d.co.uk. Alternatively, telephone enquiries can be made by calling 07887 803737. ●

OUT AND ABOUT

SOUTHERN MODEL AIR SHOW

It may be known as the Southern Model Air Show, but at this year's event, scheduled for the weekend of September 3-4 at Headcorn Aerodrome in Kent, there will be everything from model paddle steamers to battleships, and lifeboats to submarines, in operational exhibit on the venue's enormous water tank.

The show, held in association with the Maidstone Model Flying Club and in partnership with our sister title, RCM&E, will, of course, also feature a stunning array of model aircraft, helicopters, tanks and other vehicles. Plus, there'll be a full range of other family-oriented activities and a vast array of trade stands to browse. Tickets are priced at £7 for a single day or £10 for admission on both days (camping sites can also be booked), but there's also a raft of concessions and family package deals to be had. For more details, visit https://www.headcornevents.co.uk.

BLACK PARK MBC OPEN DAY

From 10am until late afternoon on Sunday, September 4, the Black Park Model Boat club will be holding an informal open day, and everyone is invited. Visitors will be able to bring along a boat to sail on the lake at Black Park Road, Slough, SL 6DS, and, likewise, local charities will be welcome to use the event to fund raise. The venue is well signposted from the A412 between Slough and Iver Heath and there's a large pay and display car park, as well as cafes and toilets in the park.

KIRKLEES MBC OPEN DAY

The Kirklees Model Boat Club will be holding an Open Day Sunday, September 11, 2022, from 9am until 4pm, at Wilton Park, Bradford Road, Batley, WF17 8JH. Attendees will be able to enjoy a day of free sailing (although please note, steam powered models will need an up-to-date certificate and, regretfully, the club cannot accommodate any IC or high-performance fast electric boats). There will also be plenty of static displays, military vehicles, a raffle, refreshments and free car parking. For more information, please contact the Club's Events Planner, Stan Reffin, on 0113 2675790.

CWMBRAN MODELLING SOCIETY OPEN DAY

The Cwmbran Modelling Society will be celebrating its 50th anniversary this year by holding an Open Day from 10am to 4pm on September 4 at the Cwmbran Boating Lake, Llanyrafon Way, Cwmbran NP44 8JE. Those attending are invited to bring along their own boats to sail, although we should point out no IC marine craft can be sailed on club waters.

LEIGH VALLEY FESTIVAL

The North West Scale Model Boat will be in attendance at the Leigh Festival of Model Railways & Transport Modelling scheduled for the weekend of September 10/11, 2022. The event at the Leigh Sports Village, Leigh Leisure Centre, WN7 4JY, will open its doors from 10am to 5pm on both days and admission will be charged at £5 (accompanied children under the age of 15 will be admitted free of charge). Facilities include free parking, disabled access and an onsite café.

THE BIG ST ALBANS MODEL SHOW

After a two-year absence, the Big St Albans Model Show is set to return over the weekend of September 24/25, 2022 at Townsend School in St Albans, AL3 6DR.

Attendees will be able to get hands on with the radio-controlled boats, take a steam train ride, see big Tamiya radio-controlled trucks in action, drive an electric ride-on train, try piloting an aircraft in a simulator or drive a large-scale radio-controlled Tiger tank. There will also be drones, hot air balloons, model steam lorries, Meccano models, model railways, etc.

Light refreshments will be available including tea, coffee, squash, crisps, sandwiches, etc, and parking will be free of charge. For further details visit **https://stalbansmes.com/**

A SHORT BREAK FOR METCALF BOAT MODELS

Dave Metcalf of Dave Metcalf Boat Models has asked us to point out that will be taking a break from manufacturing his Liverpool lifeboat, *Ann Letitia Russell* and *Moonbeam* kits for the next few months. He expects to start re-manufacturing in early 2023. ●

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2022 MPBA Fast Electric Nationals

Ian Williams reports back from this year's event

The 2022 FE Nationals were held, as ever, at the Bridlington Model Boat Society water at Carnaby over the weekend of July 2/3, with Friday, July 1 being a practice day. Initially, due to financial pressures, we weren't expecting a huge turnout, but registration had been encouraging and although one or two people didn't turn up, we still ended up with 61 entries plus the two teams in Team Mono 1.

The weather was fairly kind to us, with only one short downpour and a few drizzly episodes, none of which caused any problems with the racing, which went smoothly the whole weekend.

ABOVE: New boats from the Heath team. RIGHT: Lee Heath's Mono1.

MPBA AGM

Before getting into the racing, I want to briefly cover the MPBA (Model Power Boat Association) AGM (Annual General Meeting), which was held on the Friday evening. The meeting was fairly brief as most of the officers of the section agreed to serve for the next year. Only two position needed filling, the SAWS (Straight A Way - i.e., straight line speed racing) officer and, most importantly, the treasurer. Without a treasurer there can be no section, so it was vital that this position be filled. Luckily, pressure was brought to bear on one of the newer members and we had our new treasurer. I agreed to step in to cover as SAWs officer for this year only, as well as my position as PRO (Public Relations Officer) for the section. There was very little discussion on any of the class rules, especially the battery rules, and we voted unanimously to keep things the way they were.

Battery rules recap

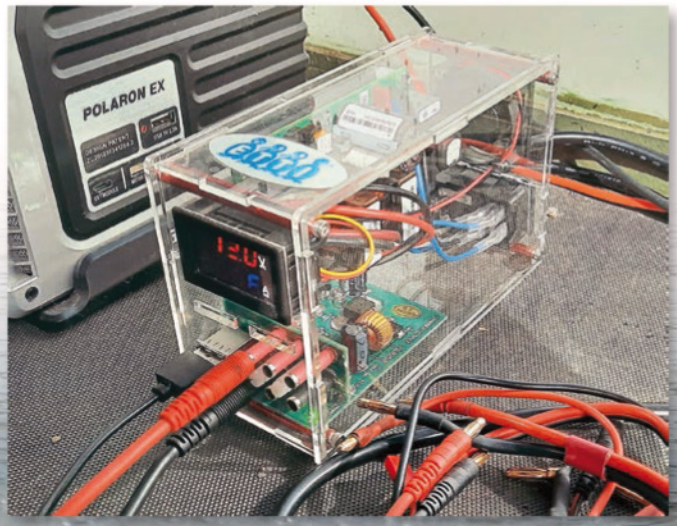
Now, when I reported on the Nationals last year I included a short piece on the battery rules and the reasons for them. While I have no wish to repeat myself, as there may be new readers who are interested in Fast Electric racing, and, also, as I've recently also been asked various questions about classes, *etc*, here, again, is the potted history behind the need for Current Limiters.

A few years ago, all the NAVIGA (a worldwide organisation dealing with ship model building and sports) classes had the battery usage restricted only by weight. As racers were always after more power, battery manufacturers were, therefore, trying to get more energy from the cells without adding any weight. This had the unfortunate result of making the batteries increasingly more fragile, meaning they often failed very quickly. Constantly buying new batteries meant racing became pretty costly, so NAVIGA decided to do something about it. After several years of proposals, experimentation and more proposals/disagreements, it was decided that energy limiters would be mandatory in all classes except the mini classes, although these may also be made compulsory soon. To find out what you need to know about limiters, I suggest you go to the MPBA Fast Electric Section website www.mpba-fes.org.uk .

ABOVE: Close racing in a Hydro1 heat.

LEFT: A nice collection of posh Futaba Transmitters (standardisation rules!)

LEFT: Pete Barrow's fancy (and expensive) charger is, Ian points out, impressively powerful.



LEFT: An interesting little power supply from Etti. This one is powering a Graupner Polaron charger.

BELOW: Peter Barrow's Hydro1.

As the MPBA is affiliated to NAVIGA and the nationals are by way of being a qualifier for the World and European Championships, we in the UK had to comply with NAVIGA rules. It soon became apparent, however, that this was causing some unrest in the FE fraternity, as many didn't want to pay for the limiters seeing as they were unlikely to be attending major events, which could anywhere in Europe. (I went to the 1999 Worlds, and it was in the Czech Republic!) Consequently, after a lot of thought and more than a few arguments, the current battery rules were brought in (UK only), the three choices available being: -

1) Original NAVIGA weight cells, no capacity limits)

2) Overweight cells (i.e., increased C rating) limited to 6600mAh (2- or 4-cells, depending on class, and 4500mAh for 3S or 6S, again, depending on class.

3) Energy Limiters pre-set for the limit for each class.

Back to the racing...

First off, I have to admit to being a little disappointed with the Cat class this year as there was only three entries, which is the minimum allowed in order for a class to be run. My dismay grew when we found out that

ABOVE: As always, there were plenty of thrills and spills at this year's Nationals.

ABOVE LEFT: Ashley Wilson took 2nd in Mini Mono on his return to racing. ABOVE RIGHT: The co-designers of the wining Hydro 1 boat: Peter Barrow and Martin Marriot.

one of entrants wouldn't be coming due to having tested positive for Covid. Fortunately, however, Rob Physick and I were still allowed to race as it was deemed that as three boats had registered to compete, technically the three entrant rule had been covered. And despite there only being the two of us, we had some very good close races and a whole lot of fun. While my boat was faster than Rob's; his was much more predictable in the turns and was able to turn more tightly, leaving me having to try and overtake on the outside! In the end, Rob beat me by just one lap, so I wasn't too disappointed with my boat's performance. My other class, Mini Mono, however, proved a total disaster, and for various reasons I didn't finish a single heat.

Anyway, enough about me. In general, the racing was good and the whole weekend ran really smoothly. There were several minor bumps, which is pretty usual. A few boats investigated the bottom of the lake; one of which popped back up on its own after about 10 minutes, while the other two or three were rescued by resident salvage expert Andrew Fuller. Just as well he doesn't charge for the service.

One of our newer members, Chris Pheasey, won the Mono 1 Championship at his first attempt and also volunteered to become the MPBA-FES Treasurer! I also had the pleasure of catching up with Paul Wilson and his son Ashley. Many moons ago, we used to race together in the NFERC (Northern Fast Electric Racing Championships??) before this was, over 20 years ago new, renamed NADS (Northern Amp Draggers).

If you remember, last year's event was dominated by father and son team Paul and Lee Heath, who scooped most of the trophies. Once again, they travelled up from the deepest South, bringing some new boats with them. Unfortunately, they didn't win anything this time around but came very close in most of their classes.

One boat definitely worth drawing your attention to is the Hydro 1 belonging to Peter Barrow. This is a new design, a collaboration between Peter and Martin Marriot, designer and manufacturer of the eLim energy limiter. Peter won the Hydro 1 championship with a total of 70 laps, which was 16 laps more than the boat placed second. 70 laps is only one lap less than the Hydro 2 winner managed. I don't know whether Peter's boat has a name yet, or whether this design is going to be made commercially available, but keep your eyes peeled because it's definitely a winner!

Once again, I would like to thank all at Bridlington MBS for their help and support, especially the ladies in the kitchen who fed us well all weekend, and not forgetting the aforementioned Andrew Fuller for his sterling work in waders!

Looking forward to SAWs

The final bit of information I have to share is that it looks like this year's SAWS event will take place on October 2 at the Lancashire Power Boat Racing Club's water at Carr Mill Dam St. Helens. This will, of course, depend on sufficient entrants registering, so watch out for updates on both the MPBA-FES and NADS forums and websites.

RESULTS
Top 3 in each class

Mini mono
1) Rob Physick
2) Ashley Wilson.
3) John Croydon

Mini Hydro
1) David Harvey
2) Robert Foss
3) Martin Marriott.

Mono 1
1) Chris Pheasey
2) Lee Heath
3) George McDonald

Mono 2
1) Paul Heaton.
2) Lee Heath
3) Peter Barrow

Hydro 1
1) Peter Barrow
2) David Harvey
3) Robert Foss

Hydro 2
1) George McDonald
2) Paul Heaton
3) Lee Heath

Cat
1) Rob Physick
2) Ian Williams
3) Barry Fatt (DNS)

Team Mono 1
1) Team Rob Lee Paul
2) No Expectations

Since 1958 - 65 Modelkits

512 HMS Warrior - Wooden hull
1:100 L. 147 W 39 H 67 cm

510 RMS Titanic Complete - Wooden hull 1:144
L. 188 W. 20 H. 50 cm

720 Oseberg Special - Wooden hull 1:50
L. 86 W. 21 H. 45 cm

478 Smit Rotterdam - Wooden hull 1:75
L. 90 W. 20 H. 50 cm

506 Fairmount Alpine - Wooden hull 1:75
L. 100 W. 24 H. 45 cm

476 Nordkap - Wooden hull 1:50
L. 81 W. 19 H. 43 cm

700 St. Canute - Wooden hull 1:50
L. 56 W. 16 H. 42cm (sep.2022)

588 African Queen - Plastic hull 1:12
L. 74 W. 21 H. 43 cm

560 Calypso - Plastic hull 1:45
L. 94 W. 17 H. 33 cm (autumn 2022)

No retail sale
facebook.com/billingboats
See all 65 models at BillingBoats.com
Contact us at service@BillingBoats.com
Dealer list here: BillingBoats.com/distributors

Billing Boats®

Billing Boats®

The story of this long established and much-loved brand brought bang up to date – and the scoop on some of the exciting kits just over the horizon…

This month, thanks to the incredible generosity of the kind folks at Billing Boats, we're able to offer you the chance to the superb 1:100 scale kit for *HMS Warrior* (see p.16-17). This particular kit is aimed at the more experienced modeller, but the Billing Boats' range (which can be viewed in its entirety at www.billingboats.com) does, in fact, cater for absolutely everyone, from the complete novice or the seasoned vet.

If you fall into the newcomer category, then consider this as an introduction to Billing Boats. Regular readers and those of you who've been involved in the hobby for many years will, no doubt, already be aware of/familiar with the long established and highly respected Danish brand. Considering, however, the relatively recent change of guard and all the ways in which traditional craftsmanship is now being married with the cutting-edge technology, we feel it's high time for an update not only on all that's been happening at Billing Boats over the last few years but what the company has planned next...

"Designed to be constructed in the same way a real ship would be, the 'plank-on-frame' method of assembly central to the concept of his kit has since been adopted by model boat manufacturers worldwide"

ABOVE: Jens-Henrik Thrane, Captain (CEO) of Billing Boats and a wreck diver himself, presents a prototype build of the newly updated and improved Calypso. The original (and out of production for a few years) kit has recently undergone a complete overhaul to bring it up to 21st century modelling standards (quite an undertaking considering it consists of over 200 individual parts and components). It will now be reintroduced to the range this coming autumn.
BELOW: Box top from Billing Boats 1:100 scale kit of HMS Warrior.

But first, a little history…

In the 1950s, Ejnar (Ed) Billing, who had formerly served as an RAF pilot during World War II, was working as an architect in the town of Esbjerg, Denmark. His wife was running a local hobby shop, named Vestjydsk Hobby, and it was here the Danish fishing boat model (later to become known as the *Mary Ann 472*) that he'd built in his spare time was first proudly put on public display. At that time there were no actual kits from which to build model boats on the market, so when a member of staff working for a Danish magazine happened to spot his beautifully crafted model in the shop window, enquiries were made about whether 50 identical vessels could be supplied for a competition. While very flattered by the proposition, Ed knew that scratch-building 50 of these models simply wouldn't be possible, so instead he came up with the idea of producing the model as kit. Designed to be constructed in the same way a real ship would be, the 'plank-on-frame' method of assembly central to the concept of his kit has since been adopted by model boat manufacturers worldwide.

Inspired by the resounding success of the project, Ed quickly got to work on more designs. Up until 1958 the resulting kits were produced under the name VHT (Vestjydsk Hobby Teknik). As word spread beyond the confines of Denmark and overseas orders began to roll in, however, his kits were, in August 1959, rebranded as Billing Boats. The 1960s, '70s and '80s saw continuous product improvement, with

frames becoming pre-cut or die-cut. Also, from as early on as the 1960s, ABS-hulls were introduced for those keen to get involved in the rapidly evolving hobby of R/C sailing. 1989/90 saw the first laser-cut machine brought into use, something that not only made production quicker and easier but also simplified things for the modeller.

After Ed passed away, his wife and son continued to run the family business for around 25 years, until, due to illness and other bad luck, the ship started to founder...

So large she currently in storage in the attic of the Vestegaard Group's premises is Oseberg 720 – a spectacular Viking ship build by Ed Billing himself. This unique piece historic treasure is in need of a new sail and a little brush up, but it's planned she will eventually either grace the reception area of the company's premises or possibly be publicly exhibited alongside other Billings Boats.

The Vestergaard Group to the rescue…

On a winter's day in January 2016, the company finally went into administration. The Vestergaard Group, which had been distributing Billing Boats kits since the brand's early beginnings in the 1960s, was naturally saddened by this news. Jens-Henrik Thrane – a long-time employee at the Vestergaard Group, with a huge personal maritime interest, being both a sailor and a wreck diver – therefore suggested that management should put in a bid to salvage the iconic brand.

Consequently, after much negotiation, the Vestergaard Group A/S of Denmark became the proud new owner of Billing Boats. (The Group also serves as distributor for several other world-famous brands in the hobby sector).

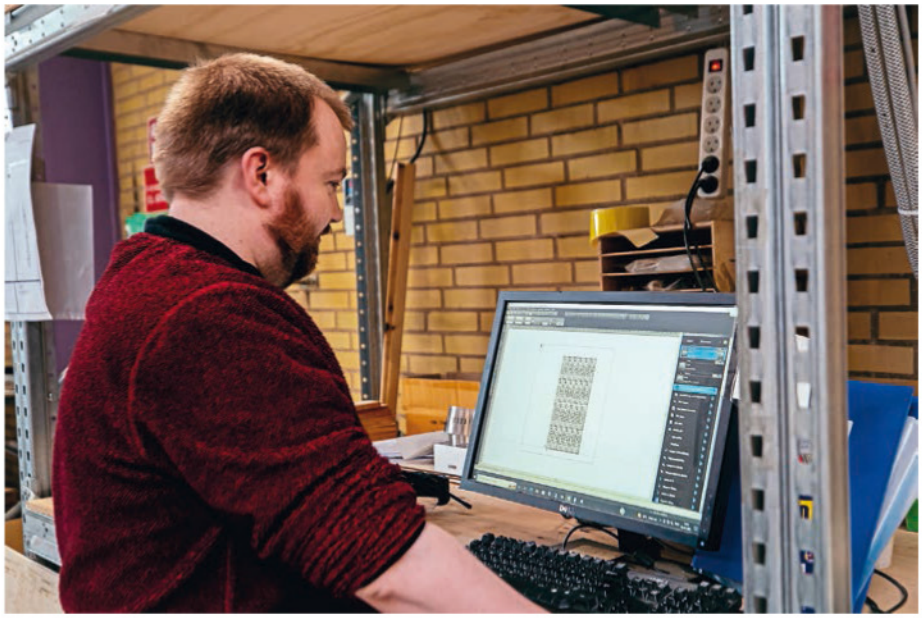
The first objective was to stop the ailing ship from sinking by maintaining the supply chain, thereby ensuring the brand didn't lose its market presence. Production, therefore, immediately resumed. Behind the scenes, though, the heat was really on, as almost every aspect of the business needing updating and improving, which would require an awful lot of hard work, commitment and financial investment.

"On a winter's day in January 2016, the company finally went into administration. Jens-Henrik Thrane – a long-time employee at the Vestergaard Group, with a huge personal maritime interest, being both a sailor and a wreck diver – therefore suggested that management should put in a bid to salvage the iconic brand"

ABOVE: CEO Jens-Henrik Thrane with a pallet full for strips for one of the next models. All strips are sized and cut in the company's own workshop. For more complex models, the kits sometimes include extra strips, thereby making allowance for a margin of error on the modeller's part. It is, however, highly recommended by the team at Billing Boats that, before starting work on any kit, all all wooden parts and other components are counted, as not only will this give you a better understanding of how to build the kit but, in the unlikely event that anything is missing, customer services will be able to get a replacement/s to you before you reach the stage of the build where that specific item is needed.

RIGHT: Product specialist Jacob Silverstone with slabs of veneer. These will be cut down using a state-of-the-art strip cutting machine.

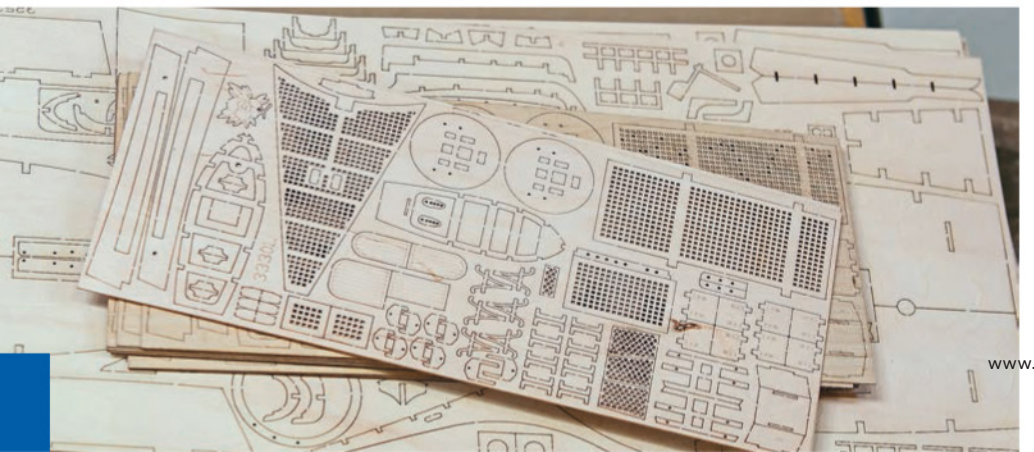
Jens and Jacob demonstrate the new 1 mm Nordic plywood the company is now using in the production of its kits. It's of much higher quality, and twice as expensive as the previous plywood used, but, while none of that cost is passed on to the consumer, the team believe it will pay for itself in terms of less production wastage and keeping any replacement claims to an absolute minimum. It's beautifully flexible and can be bent in multiple directions, so it will make working on designs such as the Oseberg, far easier, plus it won't delaminate like some of the cheaper products on the market sometimes do.



ABOVE: Jacob Silverstone, one of Billings Boats product specialist is seen here programming the laser for the night shift. The factory has several laser cuttings machines, and these make up a complex 'matrix' which allows work on different models to be in progress at the same time, thereby optimising production efficiency.

The much-improved efficiency of Billing Boats' factory means faster product turnaround and supply to distributors, and helps keep costs down and its kits, therefore, more competitively priced. Thanks to Jacob Silverstone, laser production is now 30% more efficient than it was three years ago. This optimization of laser beam power combined with the adoption of working with superior plywood, means the laser sheets included in Billings Boats kits are now of far higher quality.

BELOW: The small grates that can be seen on these laser cut sheets are the most time-consuming task undertaken by the machine operator. It costs a small fortune to cut these parts, and the modeller still needs to punch out the middle part with a needle, but its little details like these that make the finished model look so much more realistic.



Pandemic pressure

Before getting to grips with the challenges ahead, and once sufficient stock had been built up to supply demand, the plan was the factory would be moved to the Vestergaard Group's main facility in central Denmark. In the midst of all this, however, came something no one could have predicted: the Covid-19 pandemic struck. The resulting lockdowns saw the demand for model boat kits increase tenfold and, not surprisingly therefore, the stock set that had been set aside quickly began to run dangerously low. Fortunately, the Vestergaard Group managed to pull out all the stops and get the new factory up running, with the original machines sharpened, upgraded with new blades, etc, and completely refurbished by production manager, and technical genius, Steen Graversen.

Traditional craftsmanship meets 21st century tech

Thanks to skillful maintenance, the new factory still retains much of Billing' original machinery, thus keeping many of the traditional production methods, so important to the soul of the brand, alive. However, by combining old-style craftsmanship with the very latest high-tech equipment, the results are a product that can meet today's exacting standards, even amongst the most discerning of modellers.

Taking a systematic approach

Prior to the acquisition of Billing Boats by the Vestergaard Group, all kits had been packed according to old paper lists. With this no longer being seen as an accurate or efficient way of doing things, the Vestergaard Group brought in Jacob Silverstone, an engineer with strong skills in data management, to bring the process into the 21st century. Jacob had the responsibility of getting all the computer systems updated and the data uploaded.

Jens-Henrik Thrane explains: "*Jacob improved and streamlined everything, and he did an outstanding job. During the transition process he meticulously went through all our records checking for any errors and then created a huge network of spreadsheets, with more than 2.3 million calculations. The system he's designed is both flexible and user friendly, so, for example, if a value needs to be changed in one cell, it takes just 10 minutes before all cells in the spreadsheet are updated. We are now able to instantly ascertain not only the quantity of stock held for each individual component required but also exactly how much a kit will cost us to produce. Likewise, we know how much time it will take us to pack that kit – right down to the minute; the same goes for all the work undertaken during its production, such as use of the laser cutter, etc. Thanks to Jacob, our computer processes now run like a swiss clock.*

"Of course, no-one can ever completely eliminate the possibility of human error, but

RIGHT: The final packaging stage of the production process. Note how the bunches of strips are colour coded bunches to avoid errors.

BELOW: Saffaa is Billing Boats' most experienced senior packing supervisor and keeps an eagle-eye on quality control.

we've very proud of our customer service and should the need arise, provided a claim is valid and covered by warranty, we send can send out replacement parts out to customers within 24 hours".

How to get your hands on Billing Boats

The Vestergaard Group does not sell directly to end users (modellers). All kits, fittings and paints are sold through national distributors (in the UK and Nordic countries Billing Boats are directly distributed by the Vestergaard Group) and dealers. For a full listing, visit www.billingboats.com/distributors

Social media presence

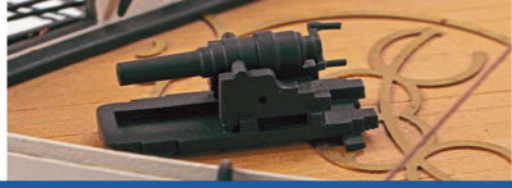
Billing Boats not only has a Facebook company page but also an official builders group page where kit builders can seek support and advice from other more experienced modellers.

Coming next from Billing Boats

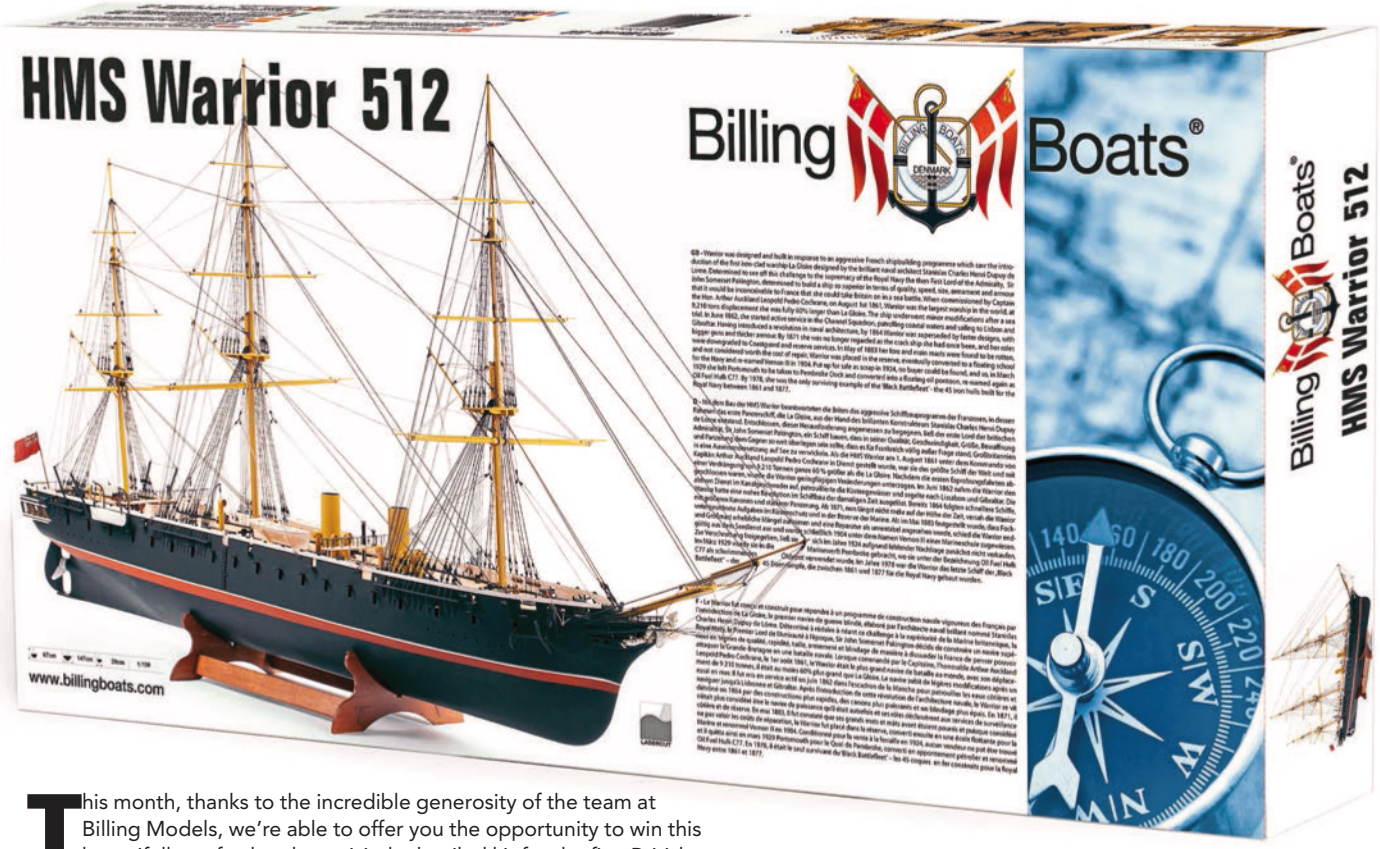
There are currently 62 different vessels in the Billing Boat range. There are also at least 10 more kits the company hope to reintroduce in the very near future due to customer demand (such as the *Emile Robin*, *Goteborg*, *Mercantic*, *Bent* and *Zeeland*). With some of the old tools and moulds for these kits having been lost, replacements will first have to be recreated, and, for example, in order to bring the quality and precision of the original kits up to today's standards, all the wooden sheets will need to be digitally copied and refined to create new laser-cuts ones. These kits are currently in various stages of development, but we will, of course, keep you posted. Watch this space! ●

Jens gives us a sneak peek at the prototype for the soon to rereleased (having also been improved and updated) St. Canute, which is now in the final stages of production. Jens tells us he particularly loves the 'vintage' models in the range because they remind him of the wrecks he dives.

Product specialist Jacob shows off a magnificent example of the long out of production Mercantic (borrowed from Billings Boats' Facebook moderator Steffen Haustrup). There has been huge customer demand for the reintroduction of this old kit but with original tooling and moulds having been lost, the team at the Vestergaard Group are going to have to start from scratch, so it's a project that's going to take some time.



WIN! Billing Models' superb 1:100 scale *HMS Warrior* kit!



This month, thanks to the incredible generosity of the team at Billing Models, we're able to offer you the opportunity to win this beautifully crafted and exquisitely detailed kit for the first British iron-clad battleship, *HMS Warrior*.

When you lift the lid of this splendidly presented kit, you'll find that the wooden frames and many of the major parts have been laser-cut, and that fittings include brass canons, wooden blocks, brass etching and a charmingly cast figurehead, and that there's a full set of build instructions, provided in English, French, German, Danish, Dutch, Spanish, Italian and Portuguese!

On completion, this 'expert level' double planked, plank-on-frame build results in a huge 1:100 scale replica of the actual ship, a unique survivor of the once formidable Victorian Black Battlefleet.

The *Warrior*'s tale

HMS Warrior, launched in 1860, was the Royal Navy's response to an aggressive French shipbuilding programme, which saw the introduction of the first iron-clad warship *La Gloire*. 60% larger than *La Glorie*, *HMS Warrior* was designed to be superior in terms of quality, speed, size, armament and armour. After a sea trial and some minor modifications, in June 1862 she entered active service in the Channel Squadron, patrolling coastal waters and sailing to Lisbon and Gibraltar. She was, however, very quickly superseded by faster ships, with bigger guns and thicker armour and by 1871 she was no longer regarded as the crack ship she'd once been. Consequently, she was consigned to Coastguard and reserve duties, until, in May 1883, her fore and main masts were found to be rotten. No longer deemed worth the cost of repair, she was then placed in the reserve, before eventually being converted to a floating school for the Navy and re-named the *Vernon III* in 1904. As no buyer could be found when she was finally put up for sale as scrap in 1924, she left Portsmouth and was taken to Pembroke Dock for conversion into a floating oil pontoon, where, once again, she was re-named – this time simply as *Oil Fuel Hulk C77*.

Fortunately, in 1978, as only example of the Black Battlefleet (the 45 iron hulls built for the Royal Navy between 1861 and 1877) left in existence, *HMS Warrior* was painstakingly restored in Hartlepool (thanks to a £3.2 million grant from the National Lottery fund), before eventually, in 1987, being returned home to Portsmouth. There she remains, now serving as a floating museum and private hire venue (for more details, visit www.hmswarrior.org).

KIT SPECIFICATIONS

Scale
1:100

Finished build dimensions
*** Length: 147 cm (including bowsprit)**
*** Width: 38.8 cm**
*** Height: 67.3 cm**

Construction method
Plank-on-frame

Difficulty level
'Expert'

HOW TO WIN

To be included in the draw, all you need to do is complete the entry form included on this page, cut it out (photocopies of the form will be acceptable for those of you who do not wish to deface your magazine) and mail it back to us at:

***HMS Warrior* Prize Draw**
Model Boats,
Mortons Media Group,
Media Centre,
Morton Way,
Horncastle,
Lincs LN9 6JR

Please note, the closing date for entry submissions will be September 16, 2022.

Good luck, everyone!

TERMS & CONDITIONS

Competition closes September 16, 2022. There are no cash alternatives available. Terms and conditions apply. To view the privacy policy of MMG Ltd (publisher of Model Boats) please visit www.mortons.co.uk/privacy

HMS Warrior Prize Draw

Name: _____

Address: _____

_____

_____

_____ Postcode: _____

Tel No: _____

Email: _____

Sizing up the *Sea Hornet*

John Bristow shares details of how he scratch-built an up-scaled version Aerokits' motor launch

My story begins way back in 1959, when *Model Maker* magazine, which preceded Model Boats, could still be picked up in the newsagents. At that time, I was just 14 years old and at Dartford Technical High School, enjoying being taught woodwork and metal work. So, with my dad being a practical man, together we embarked on our first fibreglass model boat. The fibreglass came from Strand Glass in London, one of first companies in the UK to sell polyester resin and fibreglass. Frustratingly, however, the hull didn't exactly go to plan as it turned out to be too heavy.

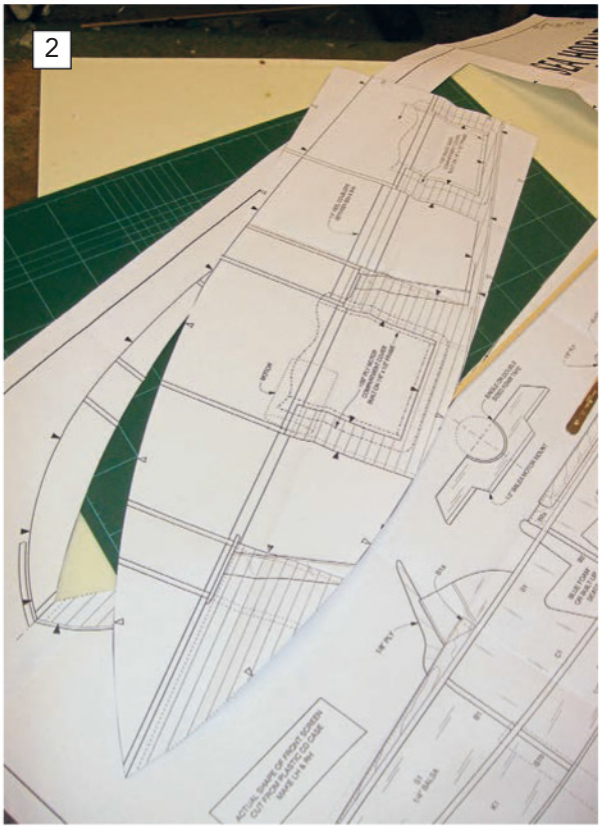
Then, fortunately, along came Aerokits, around about the same time as the beginnings of radio-control. McGregor Superhet radios had just appeared, which allowed two boats to run simultaneously using frequencies at each end of the 27-meg band (Germanium transistor technology, if I remember correctly). The frequencies were colour coded, one being green and the other red, and, importantly, you had to check none of the other boats on the lake were also using the same frequency; if so, you'd have to wait patiently at the lakeside, and ask: "*OK to switch on now, Mister?*"

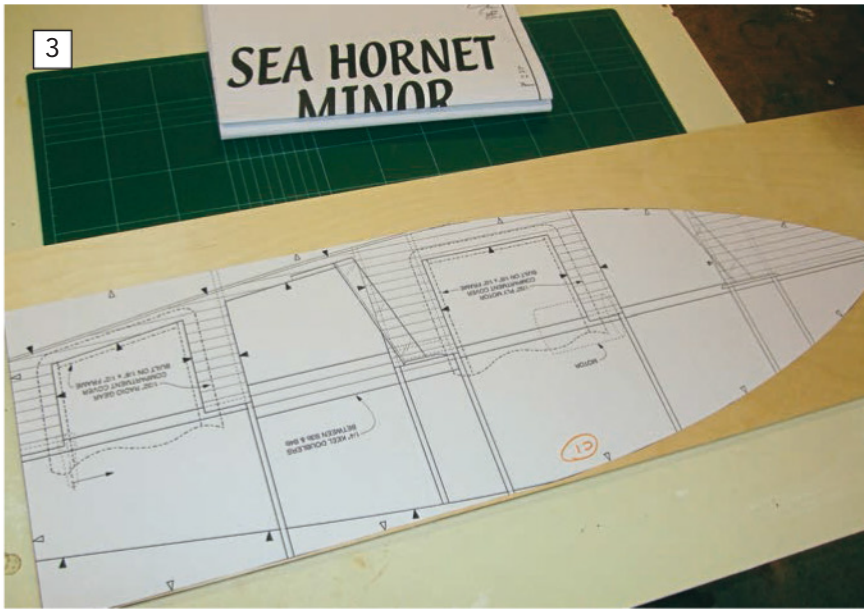
I'd frequently badger my father to take me to Blackheath Pond – the model boating mecca on Blackheath Common – about a 20-mile drive from our home in Crayford, where on a Saturday afternoon you could see such wonders as hydroplanes and flash steam-powered model boats. It was here I first saw Aerokit's *Sea Hornet* perform on water (having already longingly eyed up a beautifully built example on display in the front window of Dartford Models, in those days my local hobby shop). Watching her buzz around out on the lake, courtesy of an ED Super Bee, it appeared she could run all day on just half a tin of Ed Super Zip diesel fuel, and, more importantly, she was faster than my *Sea Commander*!

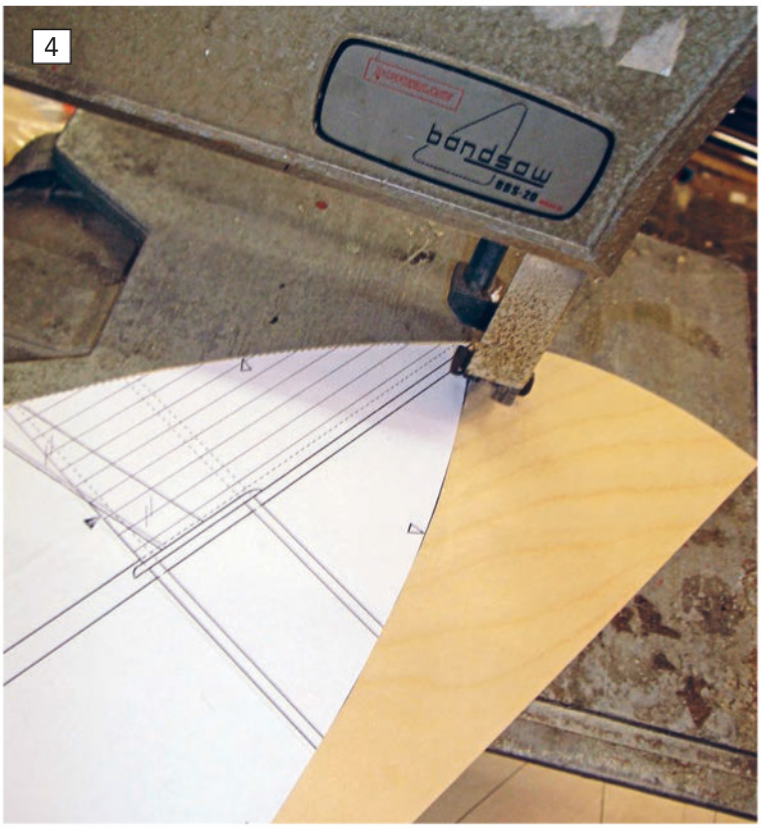
I eventually acquired and built Aerokits' *Sea Hornet*, and fortunately was savvy enough to hold on to the original box and plans; the latter enabling the build of the upscaled version. Sizing up, however, was not my main objective here: I wanted to demonstrate that a good-looking, reliable working model could be achieved without the need for any of the brass pins, etc, that I'd used when assembling the original *Sea Hornet* model. Everything would be held together simply with glue.

Sizing the project up

My first task was to get the original plan (see **Photo 1**) enlarged. I consulted with the architect who'd be scaling the draughtsman's drawing up for me, and factoring in the restrictions imposed by paper size, a model measuring 31 inches in length was decided upon. The original commercially produced kit resulting in a model of 25¼-inches in length; my finished build would be 25% bigger.







Getting stuck in

Working from the new and enlarged plan (see **Photo 2**), various elements were carefully cut out and transferred onto marine plywood (sourced from SLEC) so that I could use these as to create the parts using my famous Burgess Bandsaw (see **Photos 3** and **4**) – a surprise gift from my wife on our wedding day (now, that's love!).

Once the bulkheads, keel and hull sides all cut to size, the build got underway, and I was excited to see how quickly things began to take shape.

At this point, I must refer you to the Product Guide table (see overleaf), which gives a summary of the materials and products used for each of the tasks in the construction of this all-wood *Sea Hornet* big brother.

I've always admired the beautiful plank decking that graces many of the model boats that are sailed at my local lake, so to achieve this, I cheated! The illusion of a plank deck on my model came courtesy of some dolls' house parquet flooring, which already had a real planked veneer and was available in sheet form on paper backing. I bonded this using Super'Phatic! Glue (see **Photo 5**) onto some 1/32-inch ply.

The formers were cut from the plan in the same way the deck had been, and the sides and the bottom ply skins were glued onto the main backbone of the model quickly and easily with Roket glue. I prepared the surfaces of the bulkheads with Roket Blaster and applied Roket Rapid glue to the side skins, bringing the two pieces carefully together for an instant bond. The size of the

PRODUCTION GUIDE

Task	Material being worked with	Product used	Characteristics/qualities/comments
Bonding wood bulkheads to keel	Aliphatic Resin	Marine Ply	It's waterproof and has a long open time. It also sands nicely.
Creating a deck planking effect	Veneer	Super'Phatic!	This glue spreads and penetrates easily, and once dry it's waterproof
Deck varnishing	Veneer	Aerokote 2-Pack	This dries fast and hard and is easily burnished. It's also both glow and diesel fuel proof.
Exterior finishing	Plywood	EzeKote and 1.0z glass cloth	EzeKote will dry fast and bond well. It sands nicely and can be both primed and painted easily
Spray rails and strakes	Hardwood strip	Roket Ca and Roket Blaster, followed by Super'Phatic!	On this project, the strip for the spray rails was first tacked in place using Roket Rapid ca, with Roket Blaster applied to one of the surfaces to activate an instant bond. Once in position at 6-inch intervals, the serious (and extremely durable) gluing was achieved with Super'Phatic!, which will wick into even the smallest of cracks, crevices and gaps between the tacking points.
Reinforcing tiny corners	Plywood	Super'Phatic!	Once again, Super'Phatic! is perfect for within the interior this task, as it will find and seal any small gaps and seriously strength what may otherwise be vulnerable joints.
Filling larger corners and other gaps and affixing engine mounts, propshafts and rudder posts	Wood and metal	Aeropoxy or Speed Epoxy mixed with Microballoons	Used to make a lightweight but very strong putty Smooth with alcohol.
Fuel proofing brushable epoxy	Plywood	Aeropoxy mixed with Microballoons	This is a very thin, resin and will add integrity to the construction.

model and its contours could now really be appreciated (see **Photo 6**)

Before mounting the deck, I decided to increase the structural integrity of the model by using the glass cloth and Eze Kote technique so commonly and successful used for skinning the wings of model aeroplanes. This involved brushing EzeKote water-based resin onto pre-cut 0.6-ounce glass cloth (see **Photo 7**). The EzeKote dried very rapidly, in less than 40 minutes, in my workshop

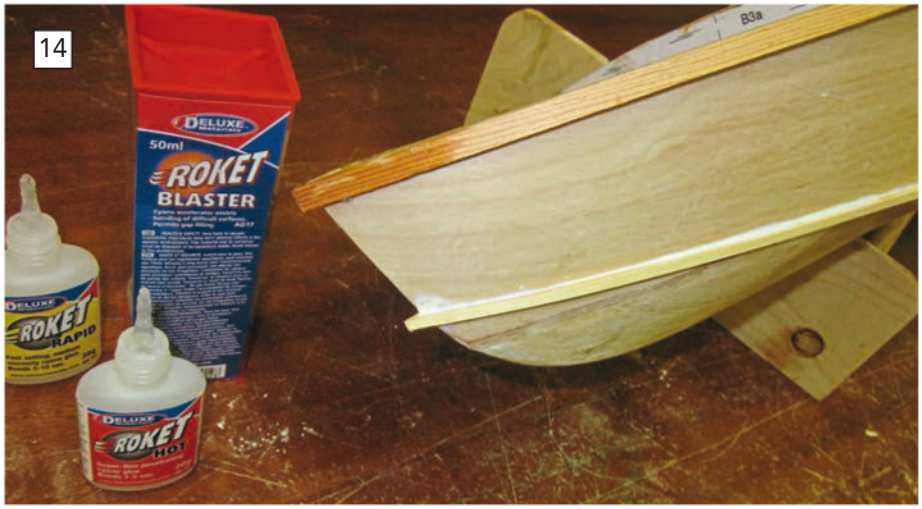
"How, you may ask, do you get rubbing strakes to go round the contours of the top edge of the hull without the use of pins? Well, it's simple, actually…"

and I was able to sand off the edges of the waste glass fibre (see **Photo 8**). One of the many attributes of EzeKote is that it sands effortlessly (see **Photo 9**).

With this done, I was now ready was to fit the deck, the spray rails and the rubbing strakes around the top edge of the deck.

How, you may ask, do you get rubbing strakes to go round the contours of the top edge of the hull without the use of pins? Well, it's simple, actually. By using Roket Blaster and Roket Rapid, it's possible to pin the front edge of the strake at the bow. The wood is then bent around the hull (see **Photo 10**), using steam, if necessary, before the wood strake is tacked with Roket Rapid every 4-inches or so down the side of the hull. Roket Blaster is needed because hardwood is naturally acidic and this inhibits the curing of superglue; Roket Blaster, on the other hand, neutralises the acidity and thus allows the Roket Rapid to work as it should.

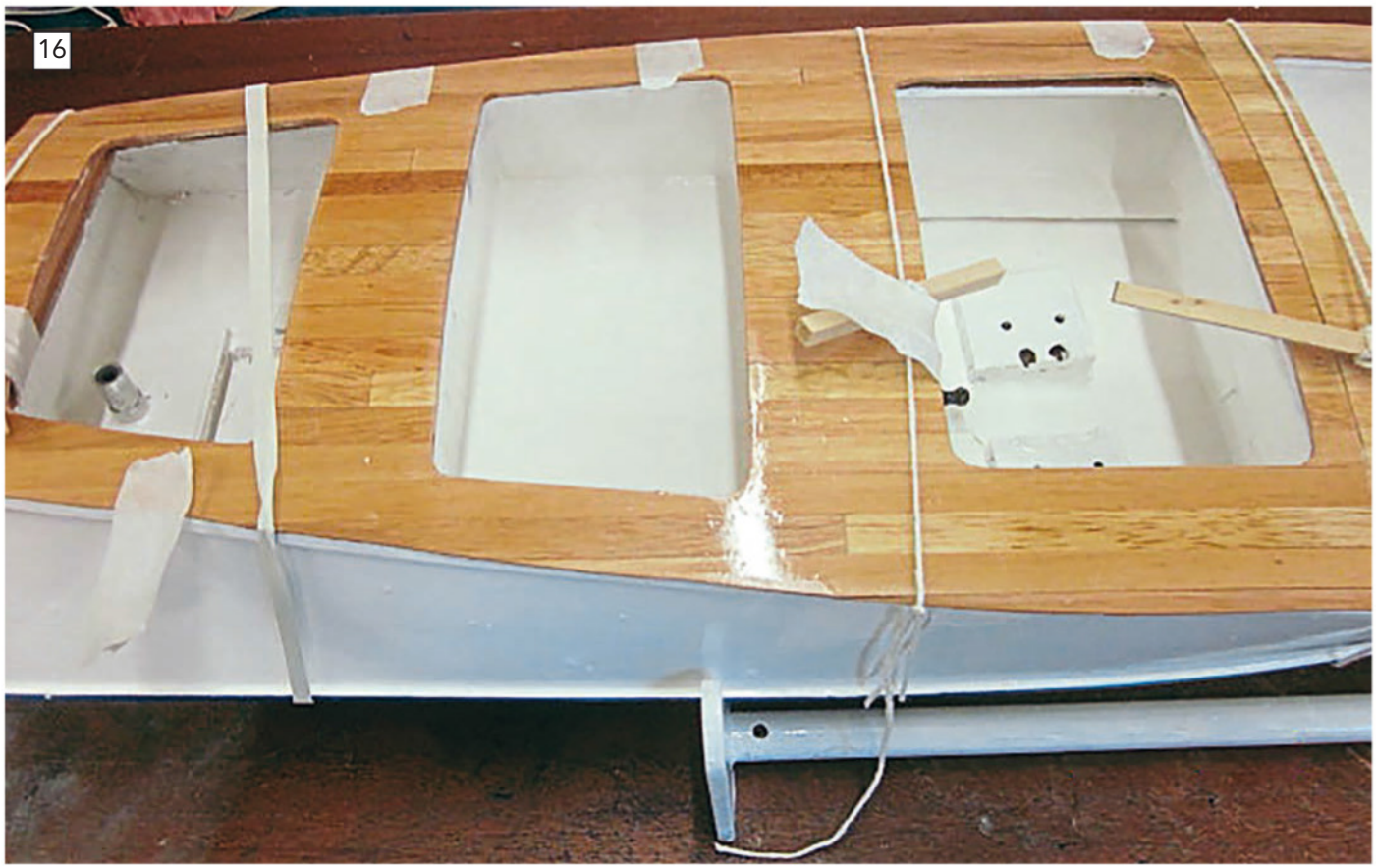
The wooden strip spray rail (see **Photo 11**) was similarly bonded around the front bow area and down to the transom. Super'Phatic! glue was then run in the gap between the hull and the spray rail (see **Photo 12**). This consistency of this glue is very thin so automatically penetrated the gaps where superglue had not been used. Similarly, the rubbing strakes were also reinforced with Aliphatic Resin (see **Photo 13**). The finished bow with both the rubbing strakes and

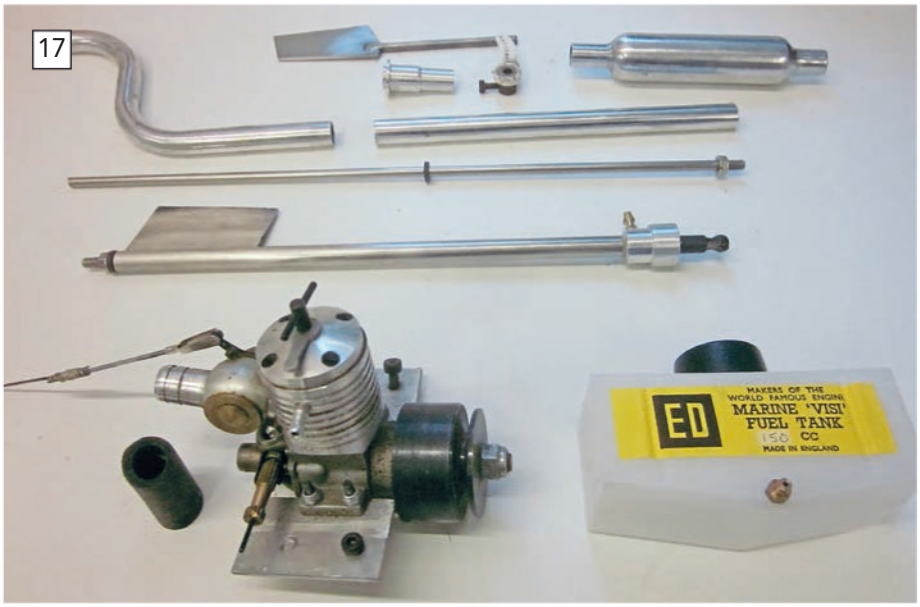


spray rails was now in place (see **Photo 14**) and it was time to return to the deck (see **Photo 15**). This was treated with Aerokote, a two-pack fast-curing lacquer (which dries in minutes) and was then burnished back. This gave a lovely finish to the deck prior to it being bonded onto the hull with Aliphatic Resin and held down with elastic bands until this set (see **Photo 16**). As you will see, prior to fitting the engine, I decided to paint the still bare hull with Aeropoxy that I'd added some white pigment to

Fitting the R/C gear

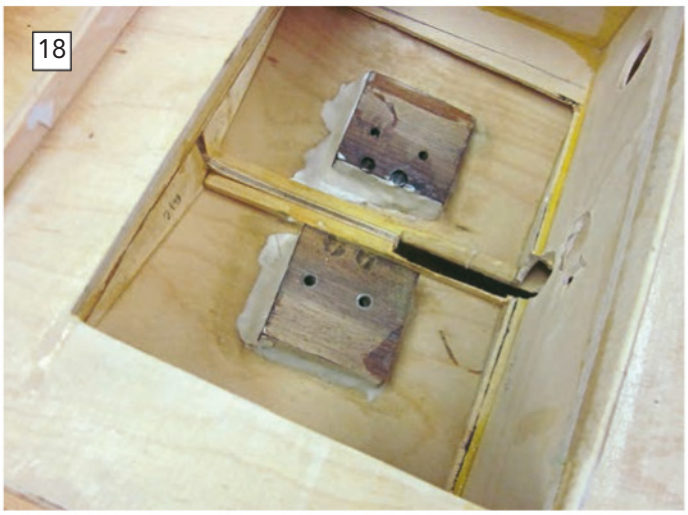
I selected an ED Super Sea Otter as my power plant, along with an original ED fuel tank and prop shaft, all of which were made of steel, from the supplier Weston Models (see **Photo 17**). The engine mounts were bonded into the hull using my favourite method, with aluminium plates on the engine bolted to female fastenings epoxy-glued into hardwood engine blocks (see **Photo 18**), and the engine can be seen in my illustrations being aligned with the prop shaft (see Photo **19**). A putty mix of Speed Epoxy 1-hour and Microballoons was used to sit the motor mounts at the right angle before being allowed to set. The interior of the engine compartment was coated with Aeropoxy, which gave superb gloss and, more importantly, a waterproof, fuel-proof, interior finish; this also strengthened the engine

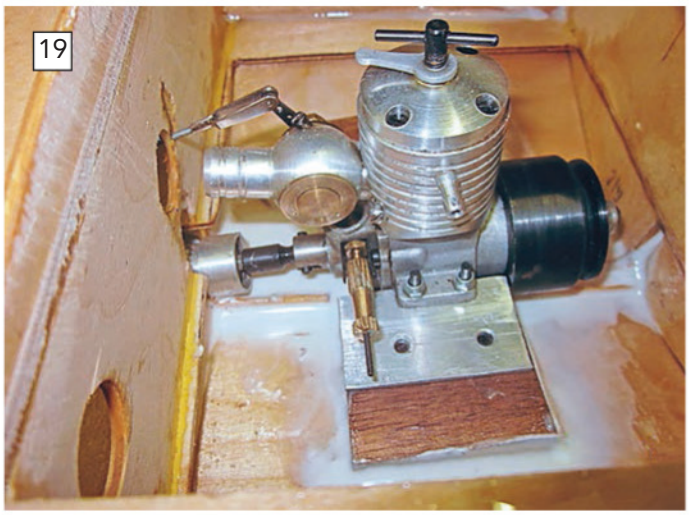


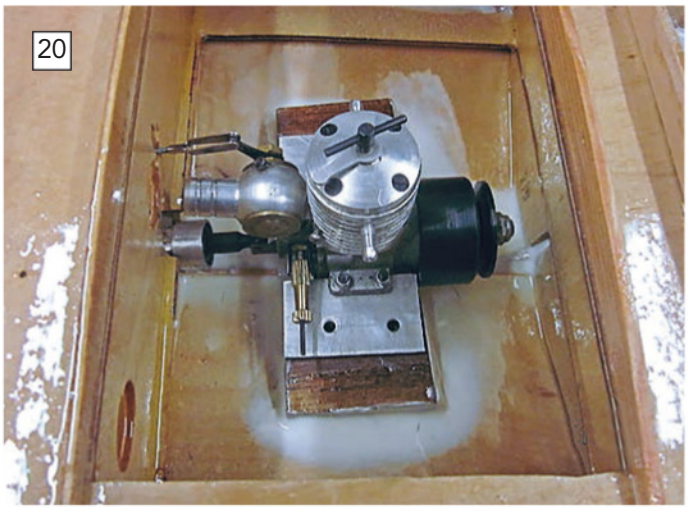


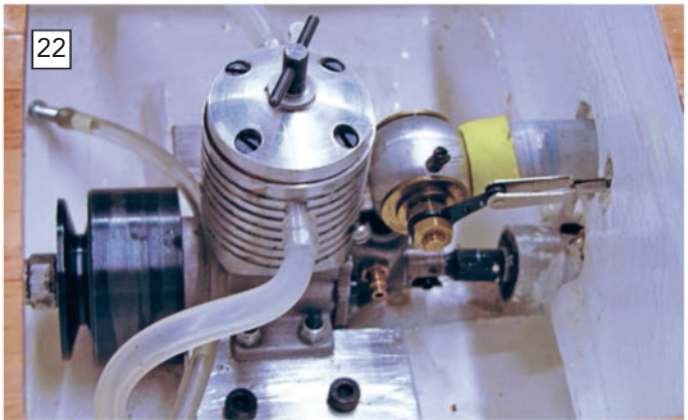
compartment (see **Photo 20**). I decided to make holding container for the fuel tank (see **Photo 21**), which would sit behind the engine compartment, using lightweight ply. Again, I skinned this construction with EzeKote resin and 0.6oz glass cloth to give it strength.

In the close-up shot of the engine installation illustrated here (see **Photo 22**) you can see how its connected and its silicone exhaust. Note, also, the exhaust throttle. The rear radio compartment and the carefully bent exhaust system fitted nicely through the rear compartments and out through the transom (see **Photo 23**).









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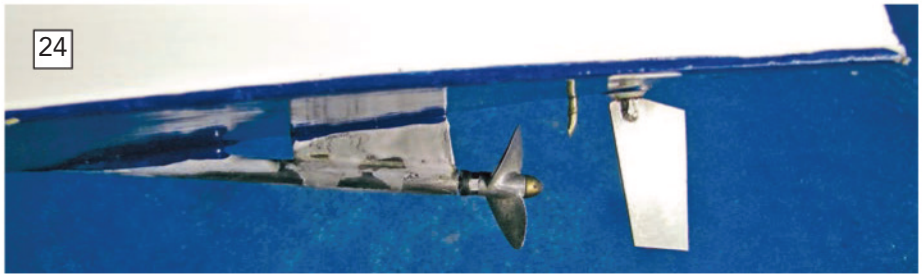
WHAT IS AVAXHOME?



Underneath, the drive gear prop shaft can be seen (**Photo 24**).

To the lake...

Having completed my build, I couldn't wait to get this model onto the water and see how she performed so, on a wintery day, down to the lake we went (see **Photos 25**, **26** and **27**), and she disappoint, showing off a fair turn of speed.

Both model and memories hold fast

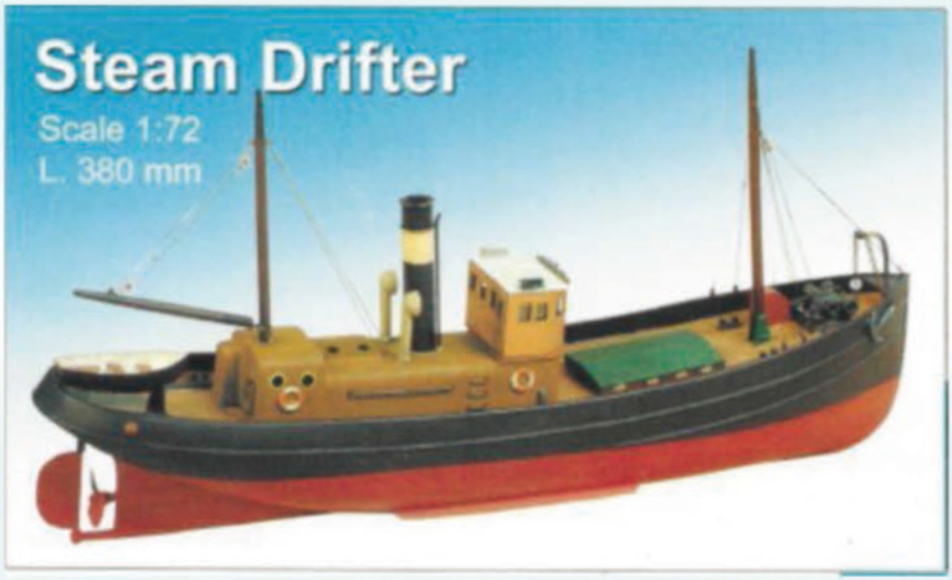
That was over 10 years now and she still not only delights me but always attracts lots of attention and the interest of fellow model boat enthusiasts, mainly because while she evokes memories of a familiar old favourite, being custom-made, she's one of a kind.

I can honestly say I really enjoyed this build; perhaps because I had the money and the skills that, at the tender age 14, when I first fell in love with the original Sea Hornet, I could – although I'd happily trade these in to go back there and start all over again.

Back in those days at Blackheath Lake, ED Super Zip was the fuel to use if you wanted your model to go faster. These days, unfortunately, any sort of noisy internal combustion engine seems to be frowned upon, but I found sound music to my ears, and the wonderful smell of diethyl ether only added to the experience. So, if anyone out there still has an original can of ED Super Zip fuel knocking around and would be will to part with it, please get in touch!

I would like to thank the designer, L.J. Rowell, for his detailed plans and wonderfully drawn illustrations, which provide key constructional detail for any novice coming into this great hobby of model boat building. It's a long shot, I know, but it would be fantastic to hear from anyone who worked at the original Aerokits company, whose products have given me so much pleasure over the years. ●

Steam Drifter / 1920s Puffer



Steam Drifter a representation of the 1920s drifter which went up and down the East coast.

Kit contains:

Two piece thermo formed hull, boiler casing and ship's boat. Printed plastic parts for the deck, wheelhouse

Etched brass and metal fittings, anchor windlass, prop and shaft, motor and rubber coupling

Full size drawing & instruction book

1920s Coastal Puffer.

Kit contains:

Two piece thermo formed hull, printed plastic parts for the deck, wheelhouse

Etched brass and metal fittings, anchor windlass, prop and shaft, motor and rubber coupling

Main plan & instruction book

1

The approx. 1:35 'stand-off' scale model of the Bird class vessel.

Seagull sea change

Part 1

Scratch-builder **Dave Woolley** rings the changes with an imaginative conversion designed to be brought in on a very tight budget…

A few years ago, I was given an old but unused stand-off scale (approximately 1:35) model of one the Bird class vessels used by the Royal Navy back in the 1970s. Originally (almost 50 years ago) produced by JB Mouldings and marketed for the princely sum of £17.82, after many decades in storage some TLC was clearly going to be required. Because as a modeller I generally tend to focus on scratch-built larger type warship models built in smaller scales, though, and at that time I had other projects on the go, so I decide to simply set this project aside for a rainy day.

Fast forward to 2021, however, and, after completing one major build and starting to consider another, I realised what I really wanted was a workhorse model I could simply enjoying sailing on my local lake. This light bulb moment, partially inspired by the Covid restrictions, jogged my memory and saw me ferreting about in the attic to retrieve the old, and by this stage very dusty, model I'd acquired some two years earlier.

> *"I decided I wanted to convert this model to what was originally the RAF long-range recovery vessel Seagull"*

Before I made any decisions as regards the future of this model, I decided to install R/C equipment (rudder and ESC) to test her performance, as her hull was fitted with a single 800 type motor to a single shaft and a 50mm three-bladed brass propellor, with power provided by a 12v 7.2AH gel cell. To my delight she behaved impeccably. I was hooked; here I had a simple but great fun patrol boat model I could get out on the water and play with (see **Photo 1**).

Of course, I could have just left well alone, but for once I wanted a model that was, in so many ways, different in shape and form from the models I usually scratch-build but which, at the same time, I could also put my own stamp on. What particularly piqued my interest in this regard was a picture I came across online showing the same vessel only with its upperworks painted buff and its hull in black. After some basic research, I decided I wanted to convert this model to what was originally the RAF long range recovery vessel *Seagull*, of the Seal class, (see **Photo 2**), which bore a notable resemblance to the Royal Navy Bird class *HMS Cygnet* (see **Photo 3**). The information I uncovered indicated that *Seagull* left RAF service in 1995, being re-fitted and transferred to the Directorate of Marine Services (Navy), under whose service she conducted long-range recovery and support

2

3

ABOVE LEFT: Seagull, an RAF Seal class recovery and support vessel. ABOVE RIGHT: The Bird class patrol vessel HMS Cygnet; note the similarities with Seagull.

LEFT: Seagull flying the RMAS flag but under the direction of the Directorate Marine Services (Navy).

BELOW: Removing the old fittings – all of which are to be replaced.

for the Royal Navy manned by a civilian crew (see **Photo 4**).

Refitting and conversion

It was this project that inspired the basic concept for the two-part feature I am beginning this month, in which we will be looking at how an old model can not only be restored but at the same time converted into something completely new and different. I don't intend to provide an in-depth, blow by blow, account of all the work that went into this particular conversion but instead to share a generalised overview and some adaptable tips and tricks.

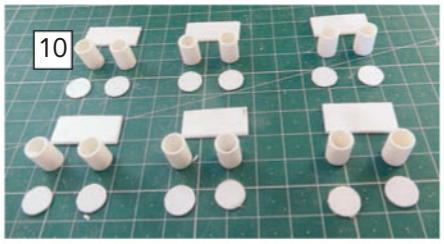
My first task was to strip off and collect up all the existing fittings. As some of these had been pinned as well as adhesive-applied to the original styrene deck, much

ABOVE: Removing the original fittings from the styrene deck required a level of care. BELOW: The exterior of the original hull completely striped in preparation for the re-build.

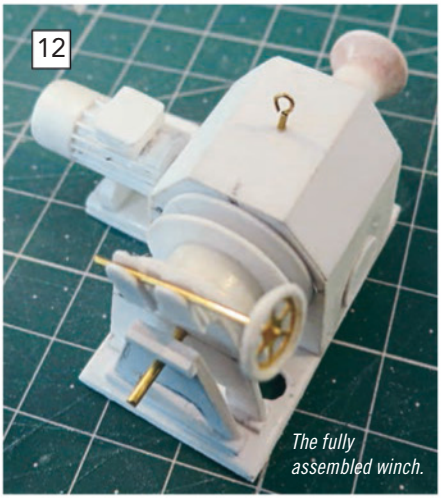
care had to be taken to try and avoid areas of the deck's surface being removed along with them (see **Photo 5**). This done, I repaired (where necessary) and sanded down the deck where the fittings had been located. I also installed the inner bulwark (which on the original model had been exposed GRP (Glass Reinforced Plastic), which I covered in .50 styrene sheet, and added each of the supports added (see **Photo 6)**. The hull surface was then sanded with 250 wet and dry in preparation for a coat of grey primer (see **Photo 7**).

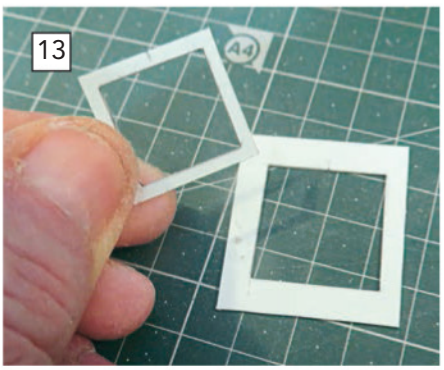
As the internal arrangements worked just as they were, I decided to leave them well alone. While I installed the R/C and ESC myself, a general inspection of the motor and drive train was in order (see

ABOVE LEFT: A forward extension to the original deck housing. ABOVE RIGHT: Adding a new roof and upper bridge area.

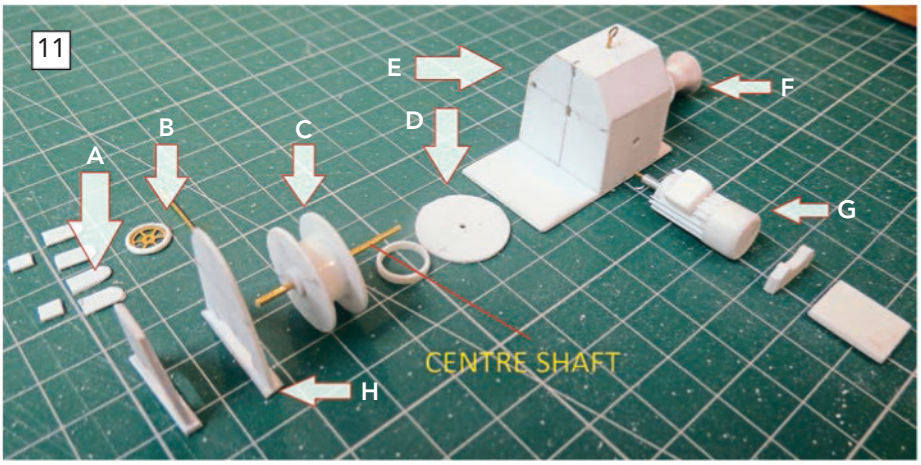


ABOVE: A simple system for producing bollards from materials left over from other projects.





Preparing, cutting and removing each bridge housing window frame from discarded lengths of .50 styrene.



ABOVE: Identifying the component parts of the anchor winch for ease of construction.

Photo 8). Likewise, although the main structure of the wheelhouse was to remain, various alterations and additions would be required. The first of these was a section forward of the wheelhouse, followed by a new roof and upper bridge area, which involved the fitting a new windscreen.

"Having never attempted a restoration/re-build of this nature before, my strategy was to retain as much of the original as possible, thereby avoiding any unnecessary work, while at the same time transforming the superstructure as convincingly as possible into what would be the model's new incarnation"

Having never attempted a restoration/re-build of this nature before, my strategy was to retain as much of the original as possible, thereby avoiding any unnecessary work, while at the same time transforming the superstructure as convincingly as possible into what would be the model's new incarnation, *i.e.*, the *Seagull* (see **Photos 8-9**).

Bollards

Creating your own bollards is easy, as each one requires just five simple parts: the base, two upright posts and two cappings (see **Photo 10**). Here, I used Evergreen tube 2mm styrene strip and .50 styrene strip.

Construction of the winch

Information on the *Seagull*'s anchor winch was a little scant but, having trawled through online images, I managed to draw not a mirror image of the original but certainly a credible enough representation to work from.

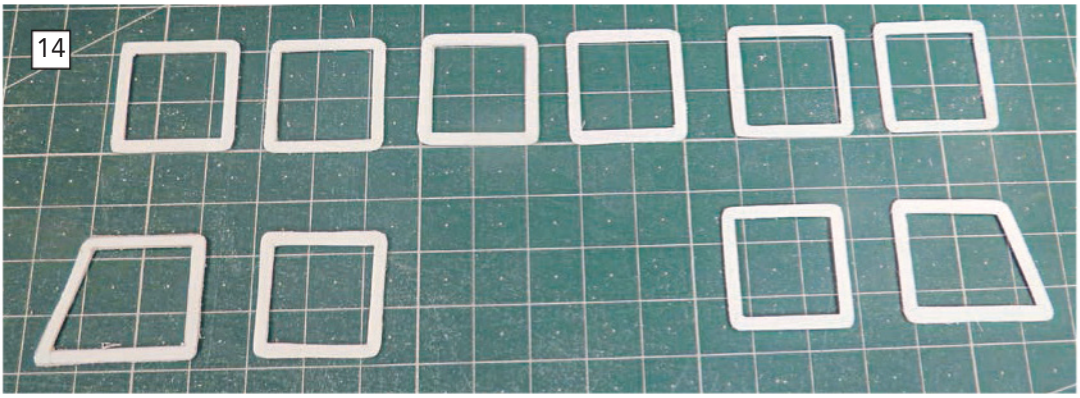
Following a now well-trodden methodology, my winch was reduced to its component parts, which made preparation and assembly a straightforward task (see **Photo 11: A**. Brake guides; **B**. Brake wheel and shaft; **C**. Cable drum; **D**. Separator and face plate; **E**. Winch gear; housing; **F**. Warping drum; **G**. Drive motor and mounting; and **H**. Shaft mounting)

The winch gear housing was assembled first, followed by the centre shaft, onto which was added, in order priority, the separator and face plate, cable drum, warping drum, shaft mounting, brake guides. brake wheel and shaft. Finally, the drive motor and shaft were fitted into the winch gear housing (see **Photo 12**).

Wheelhouse window openings and frames

The original windows had been represented simply as part of the model's finish, but I decided to create actual apertures and fit these with exterior frames. An internal framework was also constructed to allow the 1mm acetate windows to be conveniently slotted into place once the paintwork had been completed.

As there is a variation in the size and shape of these frames I couldn't resort to my usual jig, so each frame was measured and marked out on a strip of .50 mm styrene. The inner section was removed first, followed by cutting around the outer edge (see **Photo 13**). This method was applied to each individual frame, and all ten were cut to



LEFT: All ten frames ready to be fitted to each of the new bridge window openings.

LEFT: Locating each of the fittings thus far discussed.

BELOW: The new openings created in the port side amidships.

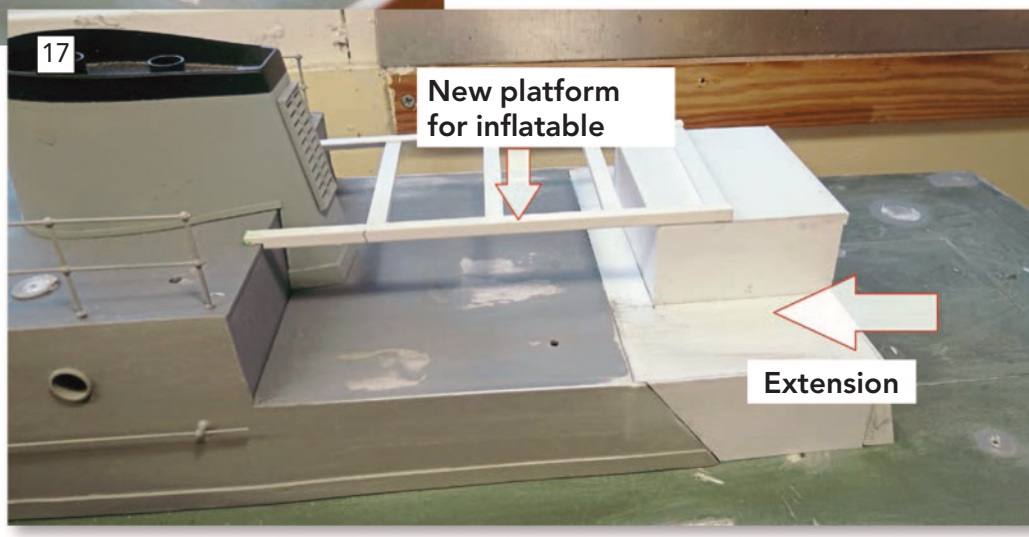
size in approximately 20 minutes, with each corner carefully rounded off (see **Photo 14**). They were then positioned to match their appropriate location but not at this stage permanently fixed (see **Photo 15**).

If you look again at Photo 4, you will see there is a tapered opening portside amidships, with a ladder recess close by. So, to provide for both, the rebuild involved cutting into the existing structure, taking care to consider adjustments to the original deck access and internal hatchway combing (see **Photo 16**).

Deck housing extension and platform

The original *Seagull*, unlike the Royal Navy Bird class (see Photos 2 and 3) was fitted with a covered winch housing aft and a raised platform, onto which was secured a Gemini inflatable. On my model the extension and winch housing were constructed as one and added to the existing lower level of the deck housing. Having noted from viewing images of the *Seagull* online that the width of the platform mirrors that of the winch housing, I built mine using Evergreen angled section (see **Photo 17**).

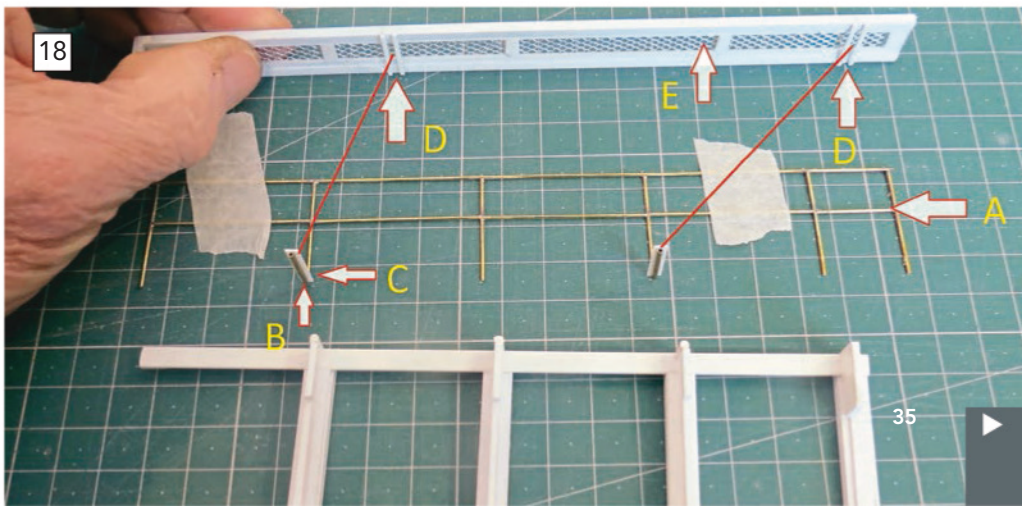
The access walkway with handrails around the edge of the Gemini platform to starboard and aft proved somewhat trickier to model than just forming the handrail. The rails needed to be made removable for painting, and also an open mesh needed to be inserted into the walkway. To enable each set of rails to be slotted into place, the lower vertical section of just two rails was folded inward and fed into a length of brass tube the width of the walkway;

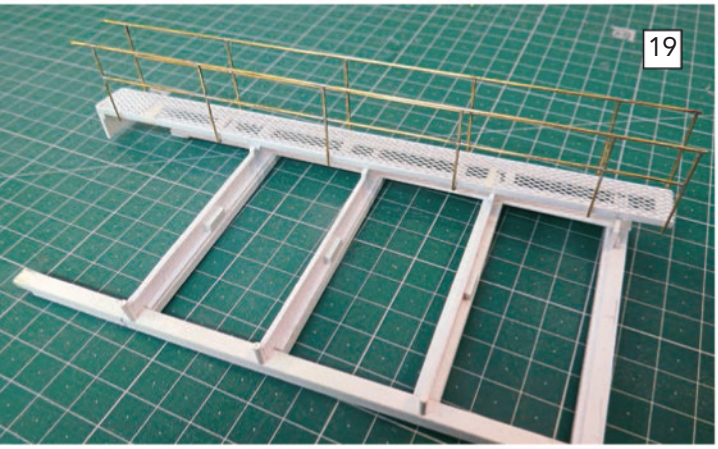


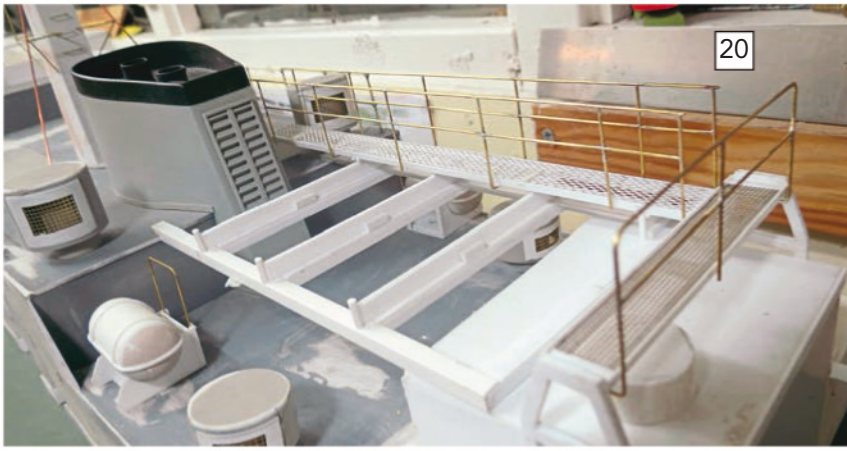
ABOVE: Fitting the new extension, after winch housing, and the platform supporting the inflatable. BELOW: Preparing the rails to slot into each side of the new walkway.

corresponding to this, a slot was created on the underside of the walkway into which the tube was be fixed (see **Photo 18**:

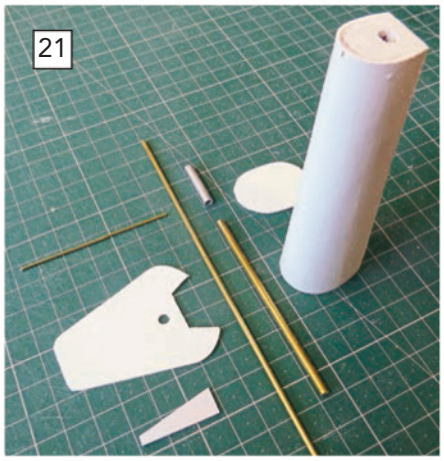
A. Handrails; **B**. Handrail support tube; **C**. Under side seating; **D**. Seating slot; and **E**. Walkway mesh).



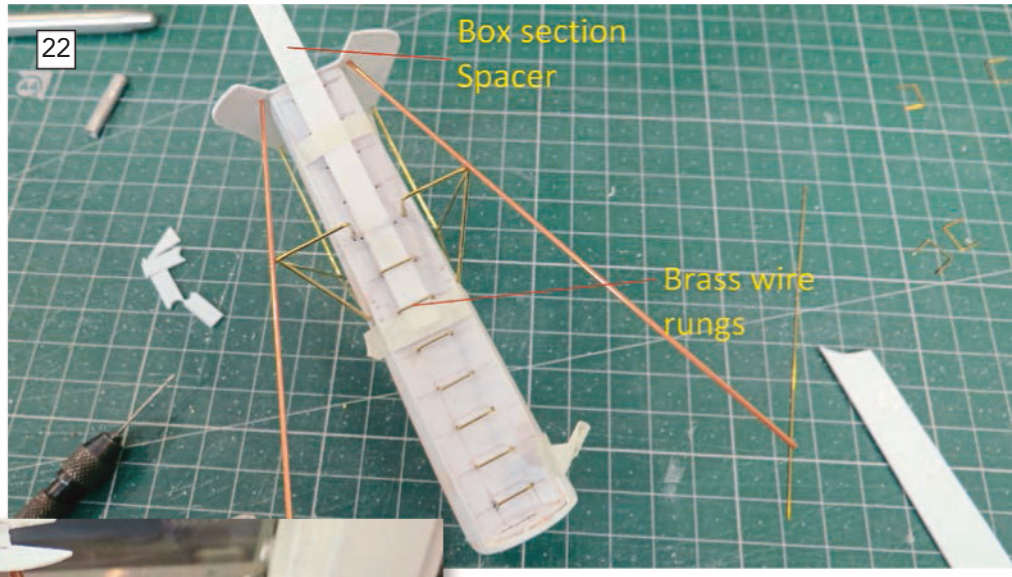




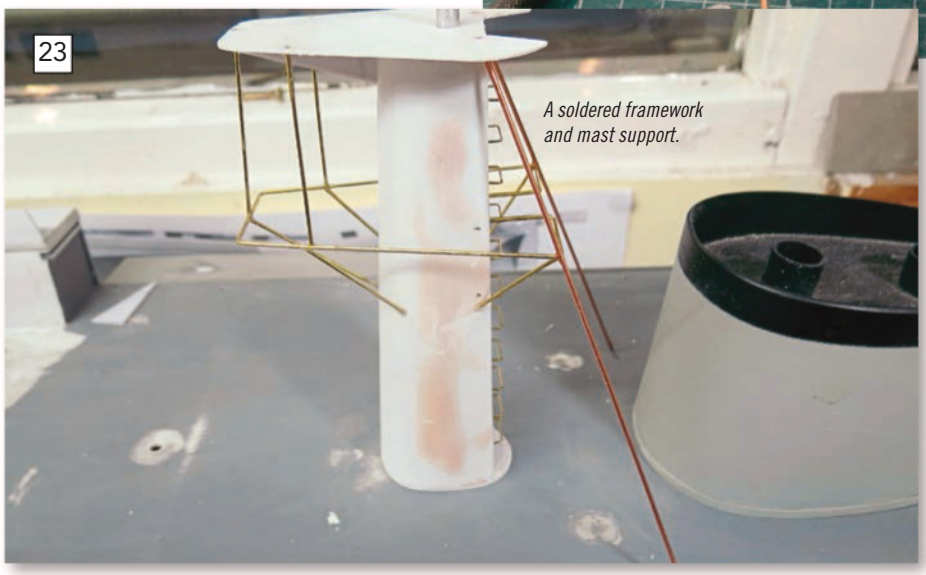
ABOVE LEFT: The starboard side walkway slotted onto the platform. ABOVE RIGHT: Both starboard side and after walkway in place.



ABOVE: The basic components with the new main mast.



ABOVE: Fixing the ladder rungs to the main mast using a length of Evergreen box section.



The net result can be seen with the two walkways in place but yet not fixed in **Photos 19** and **20**.

Main mast

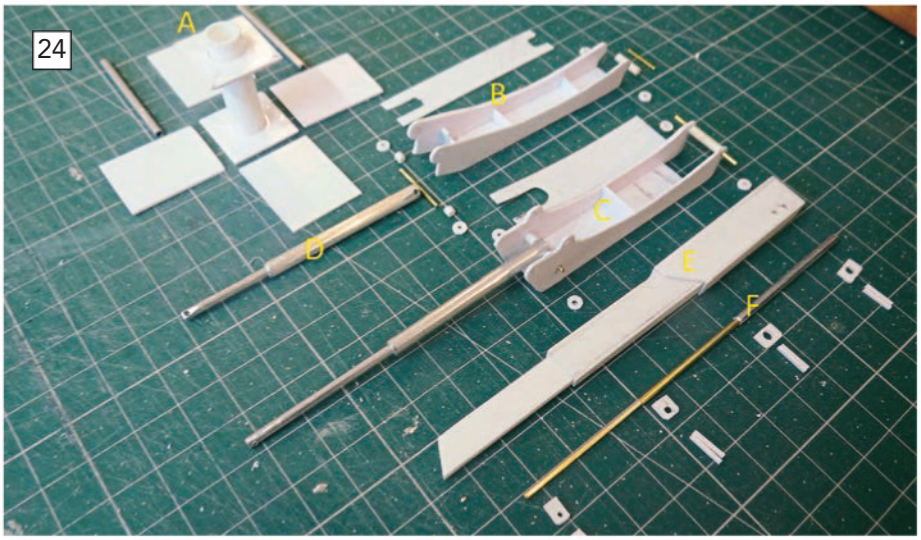
In the absence of a working drawing, I had to rely exclusively on two images of *RMAS Seagull* and a number of photos of her while in RAF service. As the main mast had all its support work beneath the upper platform, from a modelling perspective this looked daunting, but using solder paste made a significant difference to the ease of assembly.

To begin with I reduced all the main parts into workable sections (see **Photo 21**). With the framework in place, attention shifted to fixing the ladder rungs fitted to the rear of the mast. For this I used a simple spacer, formed from a length of Evergreen box section. With the rungs prepared and the location holes drilled, all that was then required was to slot the individual rungs into place (making sure you achieve identical depth for each) and insert the box section (see Photos **22** and **23**).

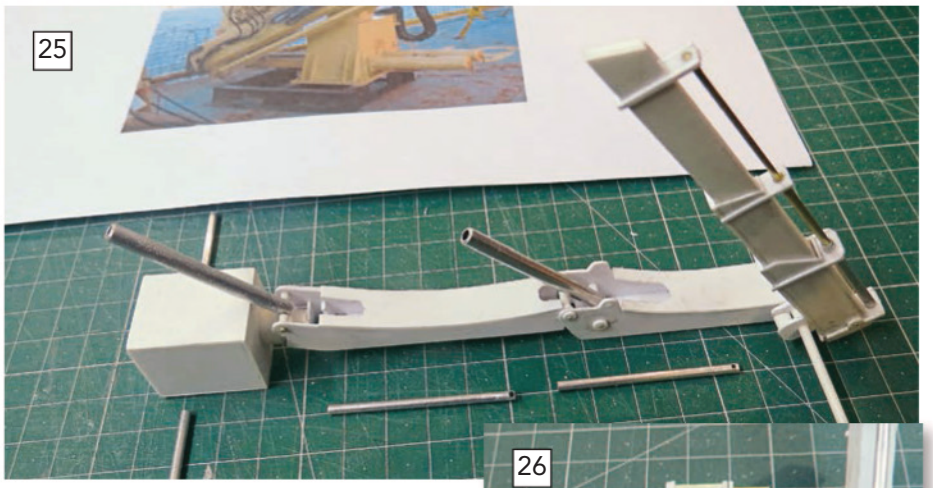
> ***"As the main mast had all its support work beneath the upper platform, from a modelling perspective this looked daunting, but..."***

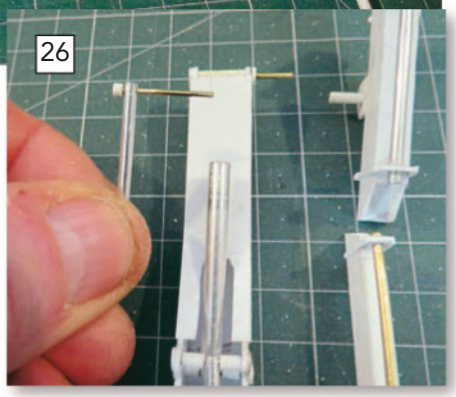
Hiab crane

When it came to the HIAB crane fitted to *Seagull*, once again, due to lack of reference images, a more generic approach was taken. A basic drawing had to be compiled from photos of cranes that shared close



ABOVE: Each of the parts for the construction of the HIAB crane. BELOW: Installing the adjustable boom into each arm assembly.





ABOVE: Installing the boom arm connecting pin into the arm assembly.

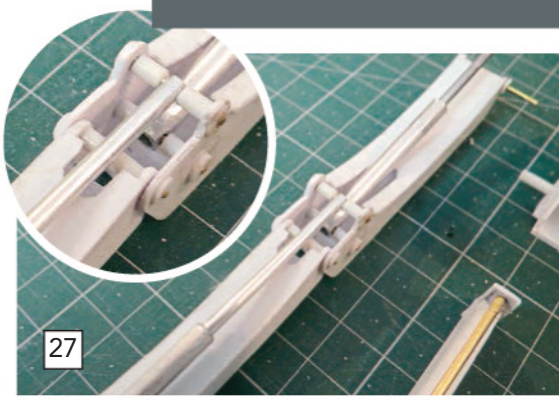
similarities, and using relative scale, and from this all the parts were cut (see **Photo 24**: **A.** Base assembly; **B.** Lower arm assembly; **C.** Upper arm assembly; **D.** Adjustable boom arm; **E.** Adjustable telescopic arm; and **F.** Telescopic arm adjusting boom.

With the construction of the lower and upper arm assemblies, each of the pins for connecting the adjustable boom arms were fitted along with the adjusting booms for the telescopic arm (see **Photos 25** and **26**). The inner tube of the boom was linked via the pins to each of the arms (see **Photo 27**). As the telescopic arm was offset to the left of the upper arm assembly, the adjustable boom remains in the centre (see **Photo 28**).

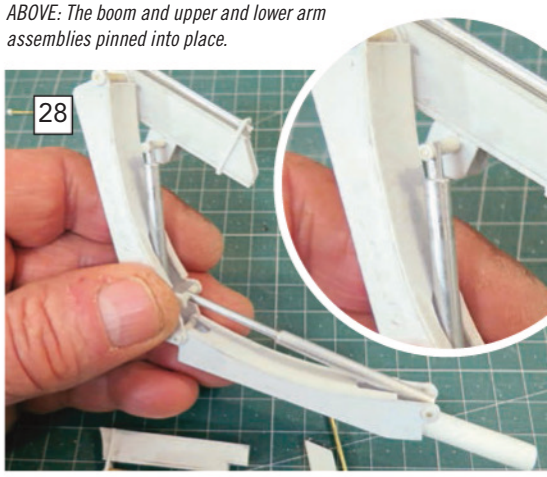
Once the various arms and booms were secured, the Hiab became fully articulated, including the telescopic arm (see **Photos 29** and **30**). The rational for this was that the HIAB can be either folded as stowed or extended for use with the inflatable or for recovery work.

Part 2

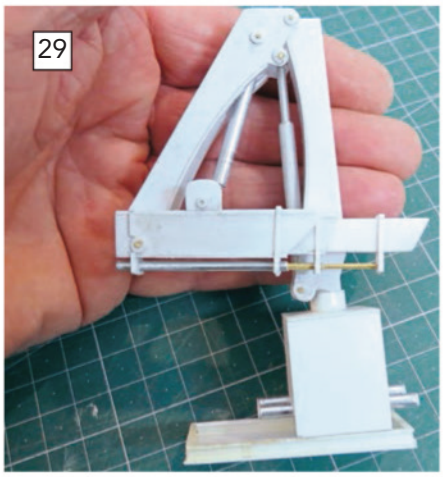
With this project, the aim was to spend no more than £50, as I was determined to put as much existing material left over from earlier projects to good use as possible. So far, I'd spent no more than £10, but there was still the cost of the painting, crew figures and a mystery addition (all will be revealed in Part 2) to factor in. Could I actually manage to bring things in on budget? Well, you can find out next month… ●

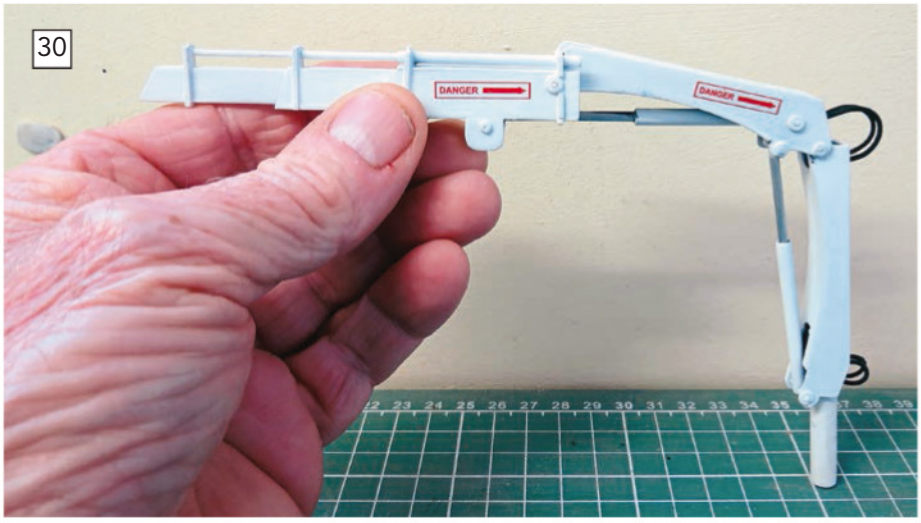


ABOVE: The boom and upper and lower arm assemblies pinned into place.



ABOVE: Connecting the boom to the telescopic lifting arm. BELOW: All of the parts for the HIAB connected.





We now have a fully articulated HIAB crane made from discarded styrene and left-over aluminium tubes.

U-Bootee

Glynn Guest provides a helpful guide to building a simple dynamic diving R/C submarine model from this month's free plan

On many of the ponds and lakes on which we sail out model boats, radio-controlled submarines are still something. It's not too difficult to see why this is; after all, it's not unknown for some modellers to struggle to keep their creations afloat without the extra risk of deliberately making them dive underwater! Plus, if you want to do it properly, all the fancy stuff, such as depth controllers, levellers and ballast tanks, will cost you the preverbal 'arm and leg' in terms of time, effort or expenditure – perhaps even all three at the same time. However, if we set our sights on something a little less demanding then things don't look so bad. This is where the 'dynamic diving' submarine model comes into its own, as it has the potential to offer a lot of fun for only a fraction of the cost and work involved.

Diving dynamically

This type of model needs three R/C functions from your radio outfit. The first two are the basic model boat requirements of rudder and motor control; the third is for the hydroplanes that control the model's horizontal pitch attitude as it sails underwater. Water flowing over the hydroplanes creates a vertical force on model, which acts to push the bows under the water and cause the submarine to dive. The model is usually trimmed so that when at rest, the hull is almost awash. This might sound a little risky but should the motor stop then the model ought to promptly resurface.

Experience with a few R/C submarines has led me away from the usual full-size practice of having a pair of hydroplanes in both the bow and stern of the model. I've found it's perfectly satisfactory to just have hydroplanes at the stern. To operate in dynamic diving mode, the model has to move sufficiently fast and needs to be inherently stable. Should the model suddenly pitch up or, worse, down when traveling underwater, then bow hydroplanes would reinforce that movement, and you'd have to be damn quick on the transmitter sticks to correct that disturbance.

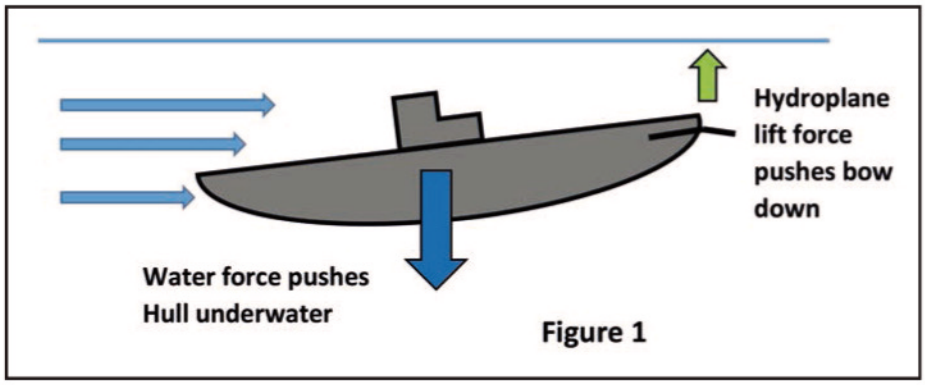


Figure 1

One possible solution would be to make the rear hydroplanes much larger than the front ones so they can automatically generate a larger force to correct any disturbance. However, it seems simpler to just use hydroplanes at the stern where, like the fins on arrows or darts, they act to create stability without needing any input from you. In addition, having control surfaces at the stern makes things less vulnerable in the event of, not unknown, accidents.

So, what we have is shown in **Figure 1**. I've ignored the thrust from the propeller, since when cruising at a steady speed it is exactly countered by the drag forces acting on the model. The downwards angle of the hydroplanes lifts the stern and the model travels through the water with a bows down attitude. The water flowing around the hull creates a downwards force on it, and this overcomes the residual buoyancy of the hull and keeps it submerged.

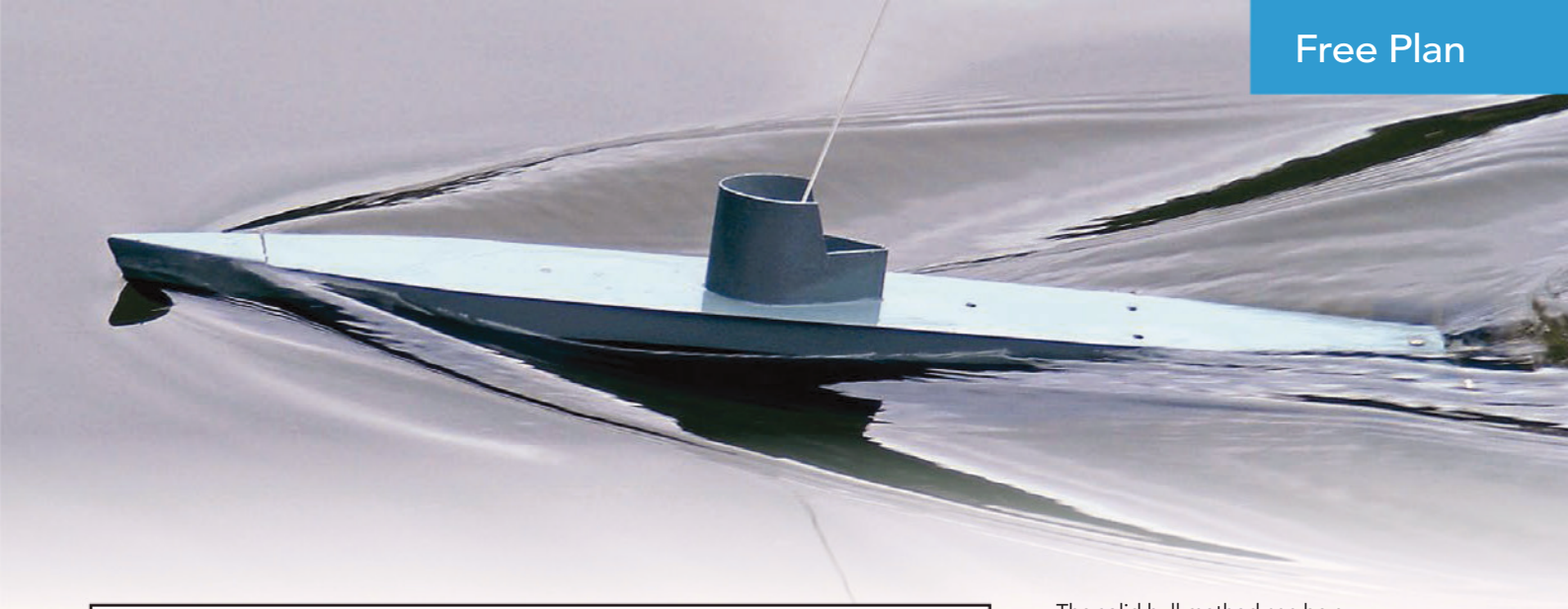
Maintaining depth

It's possible that some of you have tried a dynamic diving submarine and have found it impossible to keep submerged, with the model either diving out of control or running in a series of diving and resurfacing actions, usually termed 'porpoising'. The latter may be deemed acceptable to some, especially to those who would panic should their model disappear from sight for more than a second or two, but it's hardly what you expect a submarine, model or full size, to do all the time.

Luckily, I came up with a solution quite by chance, which has now worked its way into all my R/C submarine designs. I started with 27 MHz R/C gear in my first model and wanted to ensure good radio reception. There was insufficient space to run a long straight aerial wire inside the model and since coiling the wire up would have drastically reduced the radio range, a wire whip aerial (about 12 inches/30 cm long) was soldered to the end of the flexible receiver aerial wire. This whip aerial was mounted vertically in the model and radio range was never a problem.

The serendipitous discovery was that when the model submerged the water flowing around the aerial created a rearwards force, which tried to rotate the bows upwards (see **Figure 2**). Left to its own devices the model would have started the unwanted porpoising action, so a touch of extra down angle on the hydroplane was applied. To my joy, this resulted in the model cruising fully submerged in a stable 'hands off' fashion.

The reason for this didn't take long to figure out. If model tried to go deeper then more of the vertical aerial entered the water,



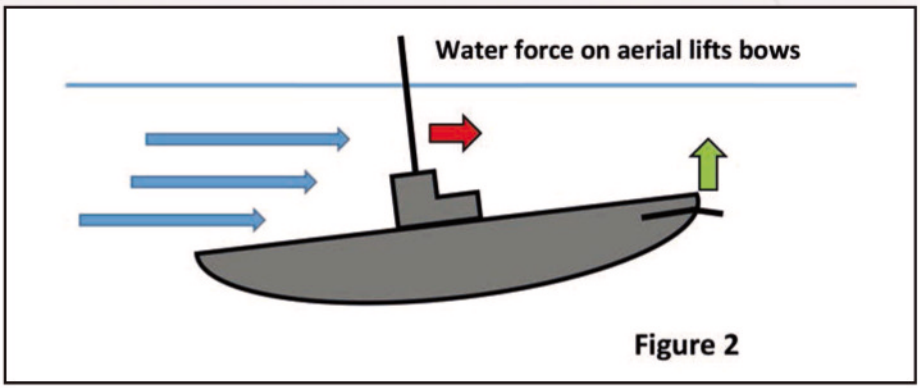


Figure 2

which increased the bows up force; whereas if the model were to rise, then less of the aerial was in the water and the bows up force was reduced, thereby allowing the hydroplane to push the model deeper. Once you've found the right combination of buoyancy, speed and hydroplane angle, this set up can be amazingly stable. It's quite a sight to see just the top few inches of the aerial above the water as it zips past!

Important bits

This model resulting from this plan was designed to be about as simple as you could make a working R/C submarine. While that doesn't mean you can build it in a casual or indifferent fashion and still expect success, all it really demands is the ability to cut out the parts accurately, make sound glued joints, seal the wood surfaces and finally install the R/C gear correctly. If, however, you've never advanced beyond assembling the parts in a highly prefabricated kit or usually buy RTR (Ready To Run) models, this may not be the project for you (unless, of course, you are looking to really challenge yourself).

In addition, if you only have a 2.4 GHz radio outfit, then forget this model. These high frequency sets may save you the tiresome chore of having to check the radio frequencies of others before you switch on, but they don't penetrate water very well. It is possible to extend the short aerial on one of these receivers so it will sit above the water's surface, but this seems more like an act of desperation, with a significant risk of doing irreparable damage. Moreover, should the top of the aerial ever dip below the water, an almost certainty, then you risk the loss of control and possibly the model itself.

"Once you've found the right combination of buoyancy, speed and hydroplane angle, this set up can be amazingly stable"

If, however, you didn't discard your 27 or 40 MHz RC outfits (or other low frequencies for those in foreign parts) when they became 'old fashioned', then that's the stuff to fit into a submarine model. Bear in mind, though, that there's still the requirement that your R/C gear works with total reliability. The minor 'glitches' that some may accept in the expectation that others will be able to recover their stranded or wayward model doesn't work too well with submarine models.

Finally, you must be thorough when preparing the model for a sailing session. A casual attitude, like believing the battery pack will be OK since you haven't used it since sailing a month ago, will be taken advantage of by any nearby malicious spirits. Working model submarines need 100% commitment when building, outfitting and operating, but, then again, shouldn't this apply to all our models?

Design decisions

Basically, there are two ways to build an R/C submarine. One is a solid hull with an internal cavity into which motors, batteries and RC gear can be installed, which is then sealed to become watertight. The other is to have a hollow shell type hull, which floods with water and contains all the R/C gear inside a separate internal watertight container. I have successfully used both methods and appreciate their pros and cons.

The solid hull method can be a straightforward woodworking task, whereas the hollow shell usually involves moulding with GRP and using something like a large plastic tube for the watertight container. In addition, a solid hull model will inevitably demand more ballast than the hollow shell type, something to seriously consider if you plan a large model submarine!

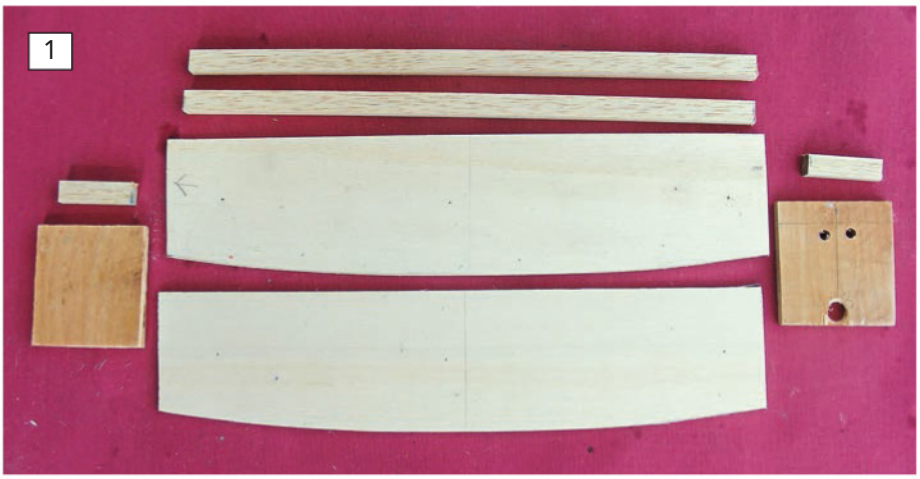
This model is more the hollow shell type. Being at best a semi-scale type (having been inspired by the German Type 2 U Boats of World War II vintage) I made my example from wood. Looking at the completed model, however, it occurs to me you also could build it from plastic sheets, but some alterations may be needed to ensure sufficient strength and stiffness.

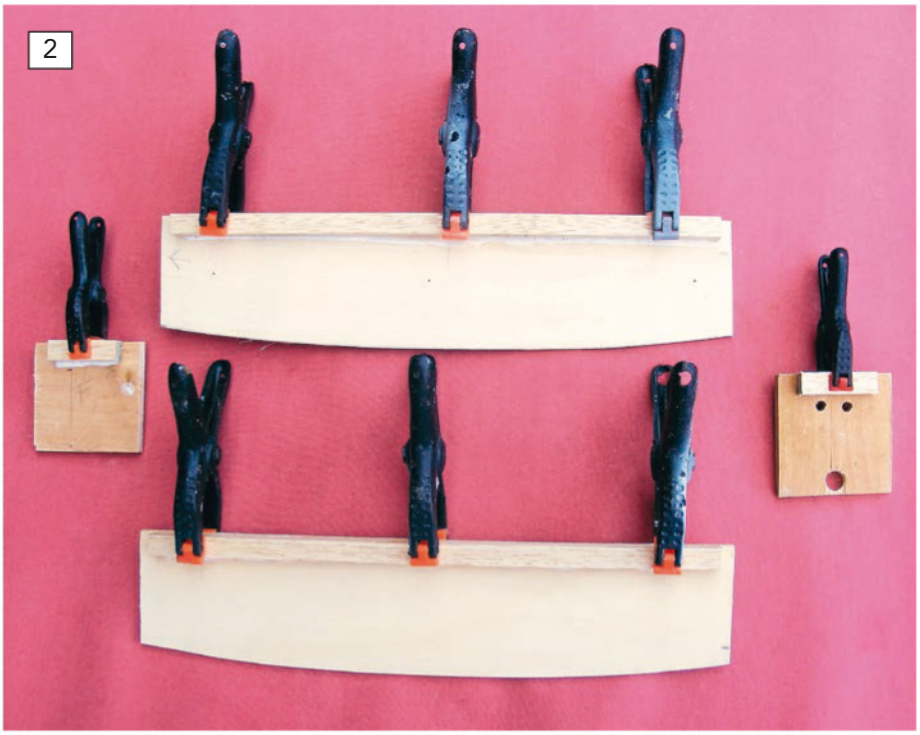
Making a compartment to accommodate your R/C gear and being confident of it not leaking might be the most 'off-putting' feature of this model. So, to make things easier, and less daunting, this compartment is built first, making the desired level of accuracy straightforward to achieve. The hull is then built around it. Please note, though, that while I say, "straightforward to achieve", this will still require effort on your part to cut and glue correctly.

Materials

Plywood of 1/16- and 1/8-inch (1.5 and 3 mm) thickness form the bulk of the model's structure. I used some ¼-inch (6 mm) plywood was for the ends of the watertight compartment and 3/8-inch (9 mm) square hardwood strips. The plywood sheets need to be completely flat, as any noticeable twists or bends will hinder accurate building. Likewise, the hardwood strips must be straight and true.

I made the lid to the watertight compartment from transparent plastic sheet, which was about 1/16- inch (1.5 mm) thick. Opaque plastic sheet or plywood could also be used, but it's nice to be able to see the insides are dry and everything is working as it should be without having to remove this lid. The removable section of the deck and conning tower were originally to be made from plywood of the same thickness, but fortunately I found some plastic sheet which had been lurking in a corner for Lord knows how many years. This was rather more flexible and, as this part wasn't structural, using plastic saved me the trouble of having to seal wood before painting.





All the wood/wood joints were bonded together with a weather resistant wood glue. You only need to use totally waterproof glues if you're unable or unwilling to properly seal the wooden surfaces of a model boat and don't intend to check and properly maintain it. Epoxy was used for the metal/wood joints when adding the propeller tube into hull.

Making the 'box'

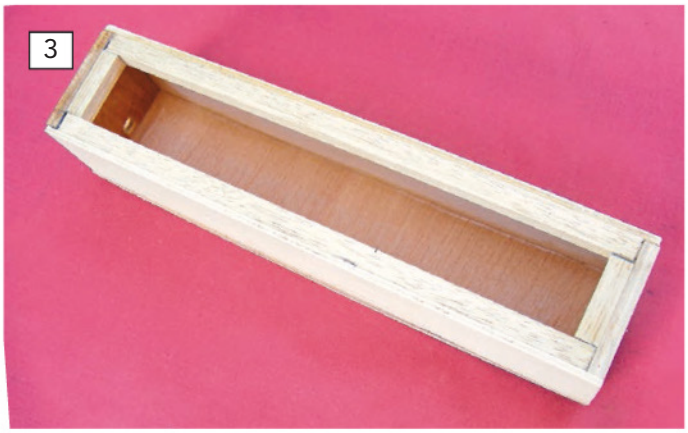
The plan shows the R/C layout used on the prototype. This consisted of a six-cell Nimh battery pack, which powered the ESC (an Mtroniks microViper) to control an MFA RE 385 motor. The radio was a three function 40 MHz Hitec Ranger outfit, with two HS 101 servos. All these items fitted into my box with enough space to make a neat and secure installation while still guaranteeing comfortable access. I'm not suggesting that you can only build this model with the items mentioned, but you do need to check that what you do have will fit. If things look tight then it will be easier to increase the box size sooner rather than later. You may also have to alter the positions of the control rod tubes to match your servos and connectors.

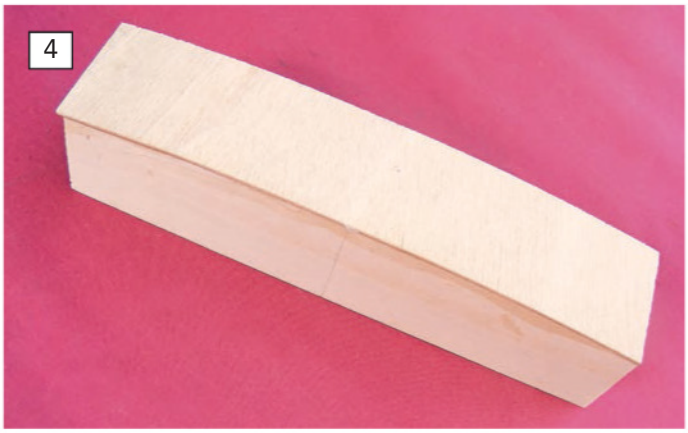
As the box has to fit between the hull sidepieces, I cut the sides out first from 1/16-inch (1.5 mm) plywood, and then used them as a template for the box sides, which were cut from 1/8-inch (3 mm) plywood. The two end pieces were made from ¼-inch (6 mm) plywood. I then drilled the holes in the rear piece for the propeller shaft tube and control rod tubes – something, I feel I should point out, that's far simpler to do at this stage than it will be later in the build. The 3/8-inch (9 mm) square strips, which are glued around the top inside edges of the box and make the surface against which the access lid seals, were cut to lengths that match their positions; this means that the ones on the end pieces have to accommodate those on the sides (see **Photo 1**).

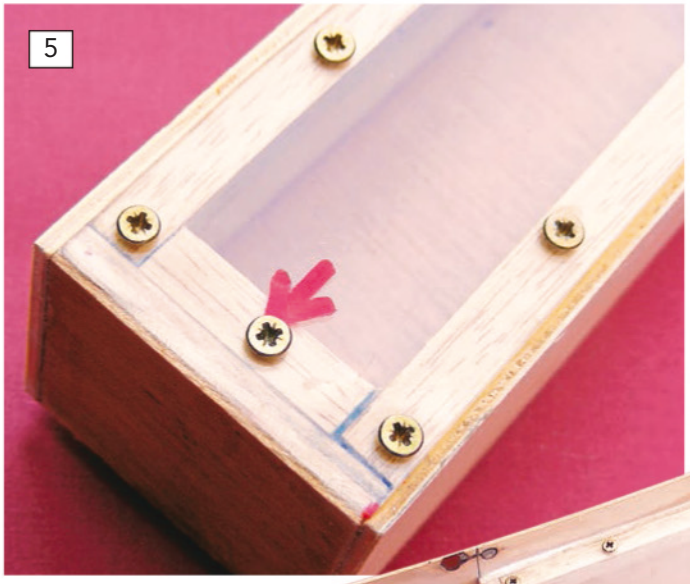
The edging strips were glued around the top edges of the box sides and end pieces (see **Photo 2**). These strips must also be flush with the top edges, and make sure you produce right and left-handed sides! Once my glue had set, these were assembled to make the box, care being taken to ensure square joints (see **Photo 3**). I did this upside down, with the edging strips resting on a flat surface (to ensure a flat surface for the access lid) and held in place with some suitable weights.

Only once the glue had hardened was the box completed by adding the bottom. This was a piece of 1/16-inch (1.5 mm) plywood cut to be slightly oversize and held in place by weights while the glue set. The excess could then be trimmed away from the sides (see **Photo 4**).

The lid was next and, as said before, this was a piece of transparent plastic, about 1/16-inch (1.5 mm) thick. As an alternative, you could use opaque plastic or





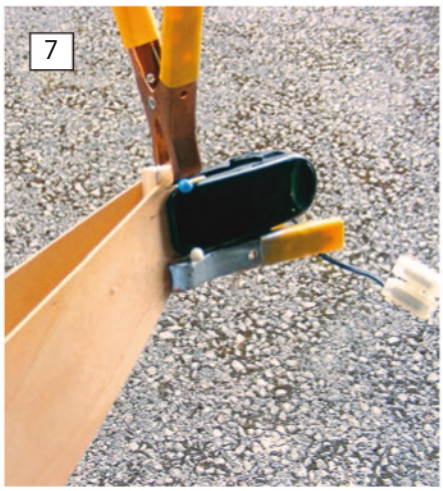


plywood. You don't need to go into serious engineering mode here; we're only going to be dipping below the water's surface not plumbing the depths of the Marianas Trench! The lid was cut to match the length of the box but be slightly narrower, by about 1/8-inch (3 mm). This was to ensure that the edges of the lid would never foul the hull sides and prevent a good fit onto the edging strips. A series of holes had to be drilled around the edges of the lid so that screws could be driven into the edging strips. These holes were used to locate smaller pilot holes for the screws in strips (see **Photo 5**). It's not a bad idea to add identifying markings to the top surface and front edge of the lid so that you won't find yourself trying to fit it the wrong way round!

Building the hull

The radio box was glued between the two hull sides, taking care to correctly position it flush with the bottom edges of the hull sides (see **Photo 6**). This avoids having a gap between it and the hull bottom sheet.

Only when the glue was fully hardened could the sides be pulled together to create the bow and stern shapes. The leading edges of the bows were glued together with an internal triangular section of balsa installed. This was to strengthen the joint and maintain the desired shape while suitable clamps held things together (see **Photo 7**). A Transom piece was glued between hull sides at the stern. This is angled from the vertical and so ought to be slightly longer than it needs to be so that the correct shape can be cut/sanded to match the hull sides. Also, to make life easier, the slot in the transom for the fixed hydroplane can be cut after the transom has



been fixed (see **Photo 8**). The hydroplane could be glued in place at this stage, but I found it easier to add it later.

Before gluing the bottom sheet to the hull, again an oversized piece of 1/16-inch

(1.5 mm) plywood to be trimmed to shape afterwards, the simple glued joint between sides and bottom looked a little weak. So, some balsa strips, cut from 1/8-inch (3 mm) sheet were glued along the inside faces of the hull sides from the bows to the Radio Box (see **Photo 9**), and the same in the stern section to the transom; this modest corner reinforcement has been inadvertently tested more time than I care to remember in both my model boats and aircraft!

The hull bottom sheet was glued to hull sides and radio box with the hull inverted. This allowed a few weights (old, sealed lead-acid,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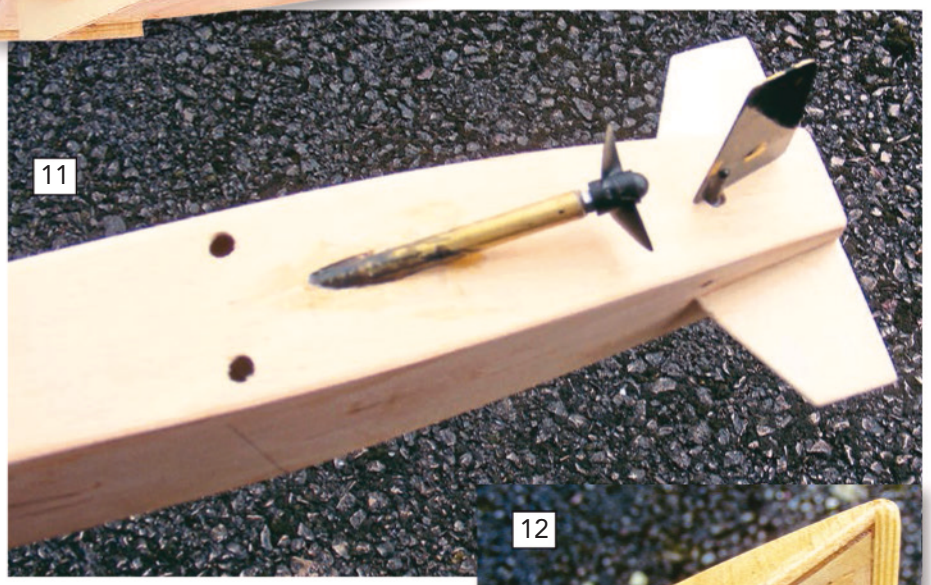
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batteries that cannot hold any charge but still have useful mass) to keep them in the desired curved shape to match the hull (see **Photo 10**). The bulk of the excess plywood at the edges was trimmed off carefully with a knife and then sanded to produce a modest rounded edge without weakening the glued joints.

The four free-flooding holes could be drilled through the bottom sheet just ahead and behind the radio box. If you have not already done so by this point, the fixed hydroplane can be slotted into the hull, glued into place and its edges rounded. I had to glue a strip of wood across the hull and to the top of the transom for the screw that secures the rear of the removable deck piece.

The tube for the propeller shaft needed an oval hole making in the bottom sheet. It's wise to start small and slowly open this hole to the desired shape. The tube can be 5- to 6-inches (125-150 mm) in length, dependant on the size of the coupling you plan to use. The aim should be to produce a suitable clearance between the propeller blades and the hull bottom. The propeller used on the prototype was a 35mm diameter two-bladed plastic type, sometimes called a 'S35'. With a pitch/diameter ratio of 0.85, it's a good match for the 385 motor and this size of model. The tube for the rudder shaft needs a hole in both the hull bottom and the fixed hydroplane; again, start small and open up, always checking that the rudder can move freely. I found that angling the rudder tube slightly forwards, as shown on the plans, gave the best movement when connected to the rudder servo (see **Photo 11**). Epoxy was used to fix both tubes into the model.

Structurally, the hull was finished by adding a piece of hardwood strip to the bows, this time for external reinforcement. In addition, a piece of plywood was used to make a small section of fixed deck at the bows (see **Photo 12**). After the glue had set, these pieces were carved/sanded to blend into the hull lines.

Removable deck section

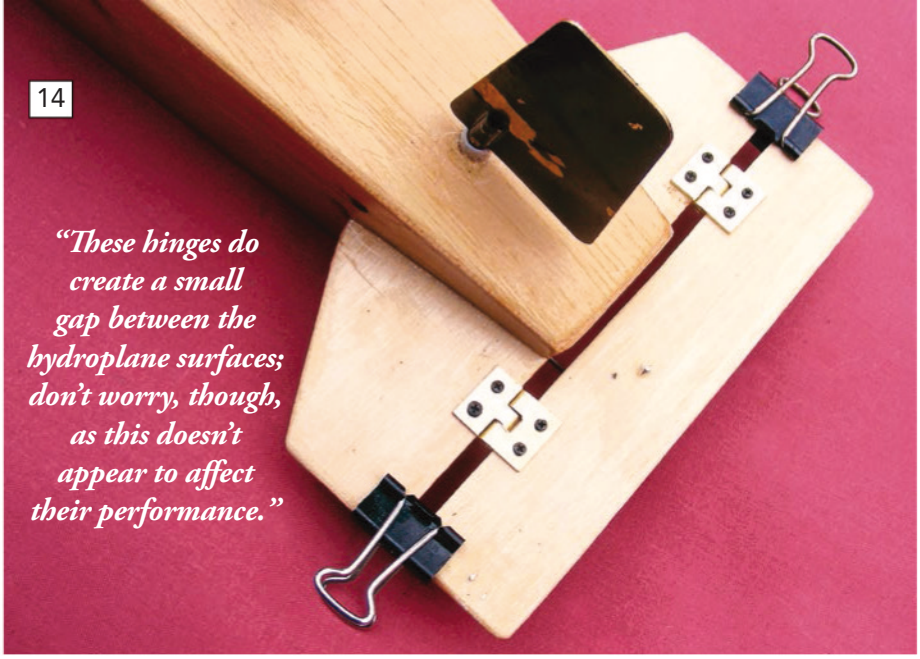
As mentioned earlier, this was made on the prototype model from some plastic sheet rather than plywood, which saved having to seal it before painting. However, as an alternative, 1/16-inch (1.5 mm) plywood would be perfectly fine. The deck piece was cut out slightly oversize before a 'tongue' was glued to the front edge. This tongue was shaped to fit snuggly under the fixed part of the deck at the bows (see Plan). The rear of the deck was secured to the model with a single screw, which went into the block at the transom.

The conning tower was made from a piece of sheet bent into a streamlined shape and glued to the deck where a hole had been made for the radio aerial (see **Photo 13**). I found the plastic deck was very flexible – too flexible, in fact – and so I added some stiffening strips of 'L' section plastic to the underside. I later discovered that these strips could trap air under the deck and hinder smooth diving and so subsequently have added some extra vent holes in the deck.

Surface sealing

Normally I only seal the outer surfaces of my wooden R/C boats, preferring to avoid getting water inside by good design, construction and operation; even then, I leave them 'opened up' for a few days after a sailing session. This seems to have worked, as even the oldest wooden models I have – which are now four decades old, would you believe – are still sound and operational. However, the 'free-flooding' zones inside this submarine model demanded sealing.

You could attempt to do this with a brush, but quite how you could guarantee to cover all the surfaces is beyond me. My method is to pour a suitable wood sealant into these compartments – basically, you need to 'flood' the compartments. You can then swill the sealant around and ensure that every surface is coated before finally pouring out the excess. The most important thing is to remember to seal the free flooding holes in the hull bottom with adhesive tape and plug the two holes for the servo pushrods in the rear of the radio box; if you forget to do this, things get messy very quickly – very, very messy!



I used clear domestic varnish for this job since a half-used can was to hand. It's rather viscous and so took quite a while for the excess to drain out through the free flooding holes. My solution was to drain as much as I could back into varnish can, using a brush to encourage the last slow-moving dregs, then leave the model positioned over a suitable container for the final draining and drying to take place, which can take up to a couple of days. It also makes sense to seal the bow and stern sections separately.

The outside surfaces of the hull can be sealed more easily, and you can use any favourite method that you know will work. The removable deck section, if made from plywood, and the moveable hydroplane also need sealing after rounding the edges.

Installing the R/C gear

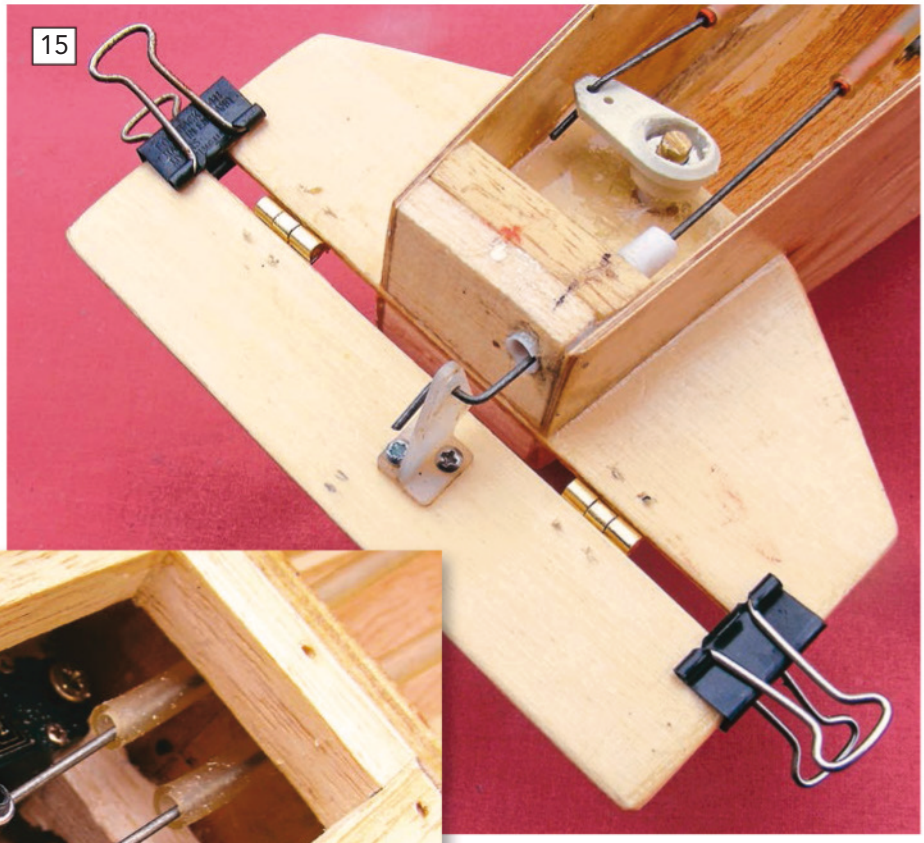
The first thing to do here is refit the rudder and add the tiller arm. Due to the limited space, the tiller arm will either have to be a cut down commercial item or homemade one, and it must be able to rotate freely with the deck in place.

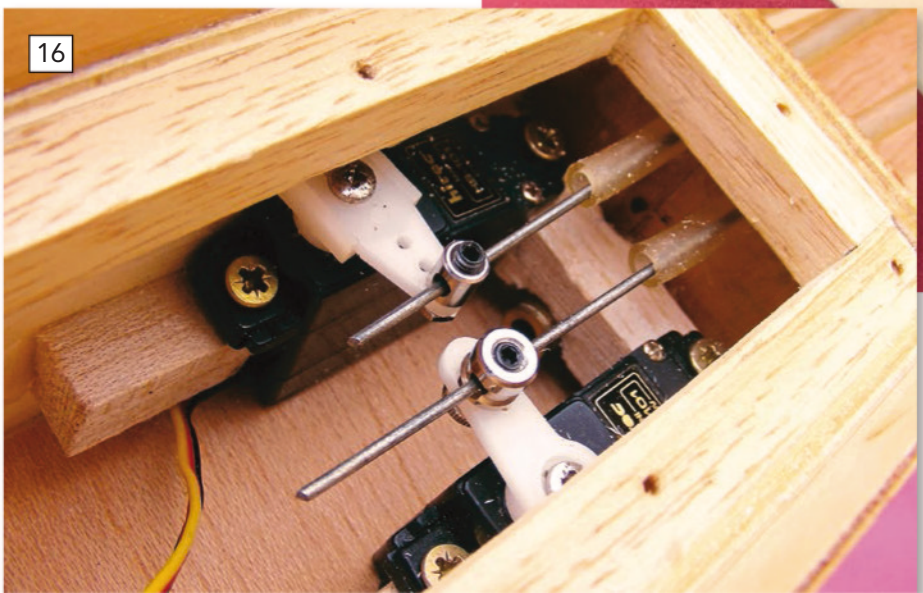
The movable hydroplane must be securely attached to the fixed one. I considered the hinges used on model aircraft for this purpose, but they can be weak in the event of 'sailing accidents'. So, the best solution I could come up with was to use small metal hinges; I found mine in a local DIY superstore. These were secured to the undersides of my hydroplanes with small screws and epoxy. To keep things aligned, a couple of 'foldback clips' were employed to hold the hydroplanes in place (see **Photo 14**). These hinges do create a small gap between the hydroplane surfaces; don't worry, though, as this doesn't appear to affect their performance.

While the propeller shaft and tube ought to be good enough to prevent water entering the radio box, the servo linkages to the rudder and hydroplane were another thing. Commercial items are available but it's not hard to make your own watertight linkages. I decided to use wire pushrods to connect servos to the control surfaces; 1/16-inch (1.5 mm) diameter steel rods work well enough on my R/C aircraft, so that was good enough for me. These would run inside grease filled silicone rubber tubing (the type used as water or fuel tubing). The tubes had a diameter much greater than the pushrods, so short lengths of close-fitting (a snug fit on the rods and inside the silicone tubes) plastic tubes were installed at both ends of the silicone tubes. The servo ends of these were pushed through the holes in the rear end of the radio box.

The pushrod for the hydroplane requires a hole through the transom to connect with a control horn fixed to the hydroplane. I made this hole a generous size to allow for the inevitable adjustments and lined it with a short length of plastic tube (drinking straw!). The rods connected to the tiller and horn via simple, but reliable, 'Z bends' (see **Photo 15**).

The other ends of the pushrods were connected to the servo arms using those adjustable connections, which proved invaluable when getting things aligned. The servos were eventually secured between a strip of balsa glued to the end of the box above the propeller tubes and two pieces of balsa glued to the sides (see **Photo 16**). Up until this stage, the silicone tubes had only been pushed through the holes into the box. To make a watertight seal, some adhesive,





"Commercial items are available but it's not hard to make your own watertight linkages"

which would stick to both the tubes and varnished surface, was generously smeared around the joints.

The motor and the coupling between it and the propeller shaft were next. It's important here that the two shafts are in line and the coupling is 100% reliable. I achieved this by packing and testing, something repeated until I was totally satisfied, and then sticking the motor/packing securely into the model with a latex adhesive. Other glues can be used but experience has taught me that latex will keep things secure but still allow for safe removal if later required. To minimise any water entering the propeller tube, it's essential that when driving the model forwards the washer ahead of the lock (or jam) nut on the shaft is pressing on to the bottom tube bearing.

The rest of this R/C gear was installed as shown on the plans, although you don't have to follow this layout if you find a better way to do it. It is important, though, that you ensure nothing is able to move about while sailing, thereby affecting the model's trim or indeed jamming the operation of the motor or servos (see **Photo 17**). How you set up the transmitter controls will be a personal choice. I quickly found with my first R/C submarine that once the model had been trimmed to cruise around in a stable submerged condition, the motor could be left alone, so the ESC was controlled by an auxiliary knob/lever on the transmitter. The hydroplane was controlled by the vertical movement of the spring centred left-hand transmitter stick and the rudder on the right-handed one.

Receiver aerial

The receiver aerial has three important functions in this model. Firstly, it receives the radio signal from the transmitter; secondly, it controls the model's depth while cruising submerged; and, finally, it helps you know where the model is when submerged. The latter will be appreciated when sailing in murky water and/or at any distance away from yourself.

To achieve the first, the aerial must be metal and insulated from the water. I use a plastic-coated steel wire, as favoured by the plastic kit building fraternity and widely available from hobby shops and online retailers. If you can't get your hands on this, then some wire like that used for the servo pushrods could be used, provided it's placed in a close-fitting plastic tube. Painting it alone probably won't produce reliable insulation.

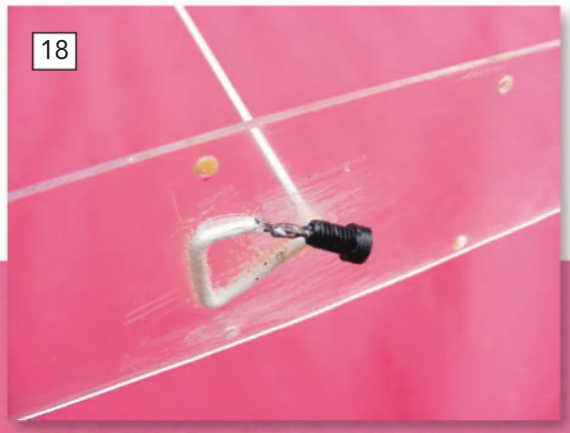
A wire length of around 12-inches (30 cm) has always worked for me. Be aware, though, that you can't just attach this to the end of the flexible aerial fitted to your receiver. The receiver is set up for an aerial of this length and so you'll have to shorten it by the length of the wire aerial you plan to use. This could be done by soldering the shortened receiver aerial to the steel wire; however, as the vertical wire aerial will be attached to the lid covering the radio box, you'd then be making it rather too permanent. My preferred method is to use a small plug and socket to fix the two together.

To ensure there was little chance of my aerial becoming pulled out of the lid, the bottom end was bent into a triangular shape that could be glued onto the inner surface of the lid – the glue also sealing the aerial hole in the lid (see **Photo 18**). To complete my aerial's insulation from water, the top end was sealed with glue and a short plastic tube.

Painting

During wartime, many warships carry some form of painted camouflage. This isn't, however, such a good idea for a working submarine model, where disappearing totally from view might pose a problem for you, let alone anyone else sailing at the same time. I, therefore, simply opted for a medium grey colour for the decks, conning tower and upper part of the hull, with the hydroplanes and the hull below their level painted black. As a finishing touch, I'm rather pleased with the net effect, too, even if I say so myself.

I kept my sub as simple as possible and avoided the inclusion of any features that had the potential to easily sustain damage or be likely to pick up, or get snagged on, rubbish while sailing submerged. If, however,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"These simple actions ought to ensure that the number of surfacings will always equal the number of dives!"

the overall appearance is just too plain for your liking, there are various customisations to consider. Freeing ports and vents could be added to the decks and sides of the hull. Numbers could be placed on the sides of the conning tower. Or how about a deck gun? The choice really is yours!

Pre-sailing checks and securing the lid

It's a good idea to… No, let me rephrase that! It's essential that you check everything is working reliably before even thinking about putting your model in the water. If it's OK, then the lid needs screwing down over the radio box. If you've made a perfect job of things, then that's all you'll need to do, but no one is that good, and water will get through the inevitable gaps between the lid and the boxes edging strips. This disaster is prevented by applying a bead of grease to the edging strips before screwing the lid down. I use a syringe filled with automotive type grease to make a bead along the line of the screw holes in strips. The lid is lowered in place and the screws inserted in the holes in the lid. I only partially drive the screws into the edging strips at first. When all the screws are in place, I start tightening them down working from the centre, alternating sides and forwards and backwards. One advantage of using a clear plastic lid is you can see the grease being squeezed down to seal the radio box. It also pays to learn when the screws have done their job and any further twisting will risk damage.

Ballasting trials

These must be carried out before you can even think about sailing the model. With all the radio gear installed and the lid firmly sealed and screwed down, the model will settle down as the free-flooding hull fills with water. To submerge under power some ballast needs adding to the bow and stern compartments until the deck is almost awash – the ideal trim being such that when the model is pushed fully underwater and released it will resurface with the model level and water just running off the deck but rising no higher. Care must be taken to ensure no air is trapped under the deck, as this would invalidate these test results.

Once confident your model has fully dried out again, the ballast can be stuck in place. For this I used a mastic sealant, chosen because, as well as being waterproof, I knew it to be capable of holding the steel rods I was using nice and firmly while still allowing for their removal/adjustments if later required. Just in case things had changed, another test float was carried out, but all was still well, and the model weighed in at around 44 ounces (1.25 kg).

Sailing at last!

Battery packs, model and transmitter fully charged, radio operation checked, lid screwed down and sealed, plus a spot of oil on the hinges and lower propeller shaft bearing, and the model can be placed in the water. It is, to be honest, a little unnerving to see the model slowly sink as the hull fills with water, but you should be relieved when it stops with its deck level with the water surface. It's a good idea to push the hull under the water and tilt it bows downwards a little, as this will release any air trapped under the deck. It also will convince you that the model will resurface!

One simply safety measure I always take when testing a new submarine model is to add a small, approximately 2-inches (50mm), block of expanded polystyrene cube to the top of the aerial. Should the model dive too deeply, it acts to pull the bows upwards; it also serves as a useful visual aid, making it easier to keeping tabs on your model's location; and, should the worst occur, it would slow the model's sinking. This block is fitted to the aerial wire using a slit cut halfway through it.

As stated before, my ESC was controlled by an auxiliary knob/lever on the transmitter and the hydroplane by the vertical movement of the left-hand spring centred stick. This stick was set up so that pushing it up would cause the model to dive, while pulling back would bring it back to the surface. At first, I just sailed my sub around on the surface, with the hydroplane horizontal, to get an impression of its handling. It was quite nippy but, with the rudder only turning through 25 degrees either way, its turning circle was maybe a shade wider than usually preferred for a model boat of this size. This was no problem, as I knew that submarines seem to turn tighter when submerged.

With no issues apparent, the model was lined up so that it could be submerged while running parallel and reasonably close to the landing stage I was stood on. Full speed and some 'down' hydroplane immediately dipped the bows under the water. At this point previous subs would slide underwater but this one seemed to struggle getting the conning tower to submerge. Looking at it, it was clear that the conning tower was creating a lot of disturbance in the water, previous subs having had smaller or more streamlined towers. When the model did fully submerge, it started to dive too deeply, but fortunately the block of polystyrene on the top of the aerial earned its keep by slowing the model down and pulling it back to the surface.

It took a couple of sailing sessions before the stable submerged sailing technique and trim was achieved. This involves having the hydroplane set so that, with the transmitter stick in the centre position, it is at about a 10-degrees down angle when compared to the fixed hydroplane. The motor is run at full power until the conning tower is submerged, after which I can ease back a fraction on the power. If my coordination is correct, the model will then settle down to cruise around, with only the top half of its aerial above the water. If I'm a bit 'off', then I just need to make a little tap of down on the hydroplane stick if the model is rising or a tap of up if it's too deep. I say 'tap' as that's all that's needed, too much and the model can enter a series of uncontrollable oscillations. If this happens then just cut the power, let the model resurface and try again.

Astern power to the motor is handy for bringing it to a stop in an emergency, usually another modeller who fails to notice anyone else on the water. However, trying to sail with the model moving astern can result in the stern diving and the bows waving in the air. If you have to move the model astern on the surface, do so at low speed with the hydroplane set to fully up.

Après sailing

After mastering how to operate this model, you can be pleased with yourself but, please, never to the point of smugness – remember the malevolent sprits are just waiting their chance! Thorough after sailing checks are essential and any suggestion of a leak into the radio box must be sorted before sailing again. It's probably a good idea to give the metal hydroplane hinges a light squirt of some water-repelling lubricant. These simple actions ought to ensure that the number of surfacings will always equal the number of dives! ●

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Virgin Atlantic Challenger 1

"At first glance the construction seemed quite straightforward…"

Ashley Cooper explains how one brave and ambitious venture inspired another…

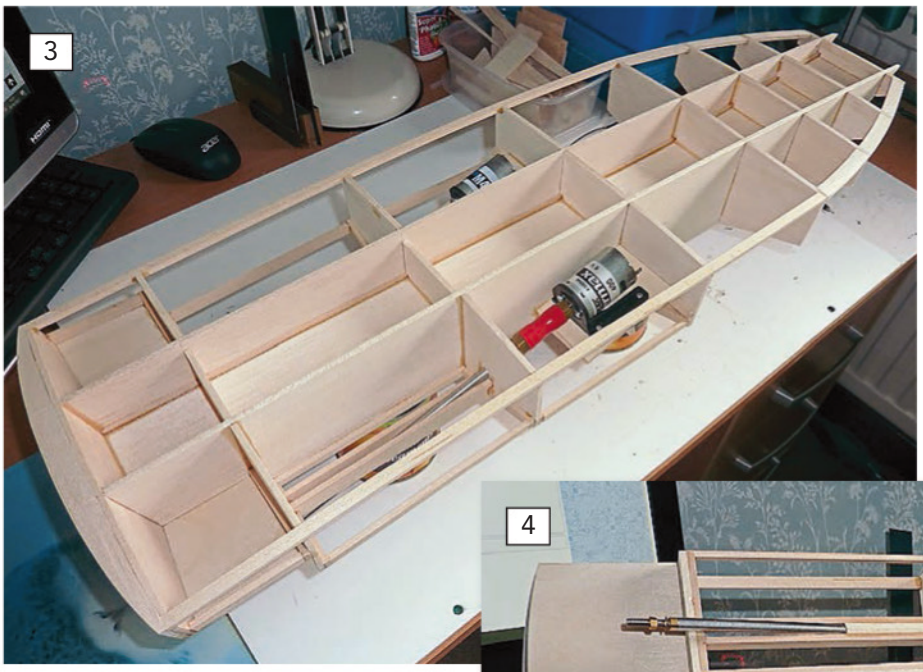
Devised as an attempt to win the Blue Riband for the fastest crossing of the Atlantic Ocean, and thus also to provide publicity for Richard Branson's fledging transatlantic airline, the *Virgin Atlantic Challenger* was a 65ft twin hull catamaran powered by two 2,000 hp engines. After departing New York in June 1985, skippered by European powerboat champion and F1 team sponsor Ted Toleman, she endured rough weather before hitting a submerged object 100 miles off the unofficial finishing line of the Bishops Rock lighthouse and sank. Thankfully, all of the nine crew onboard were rescued.

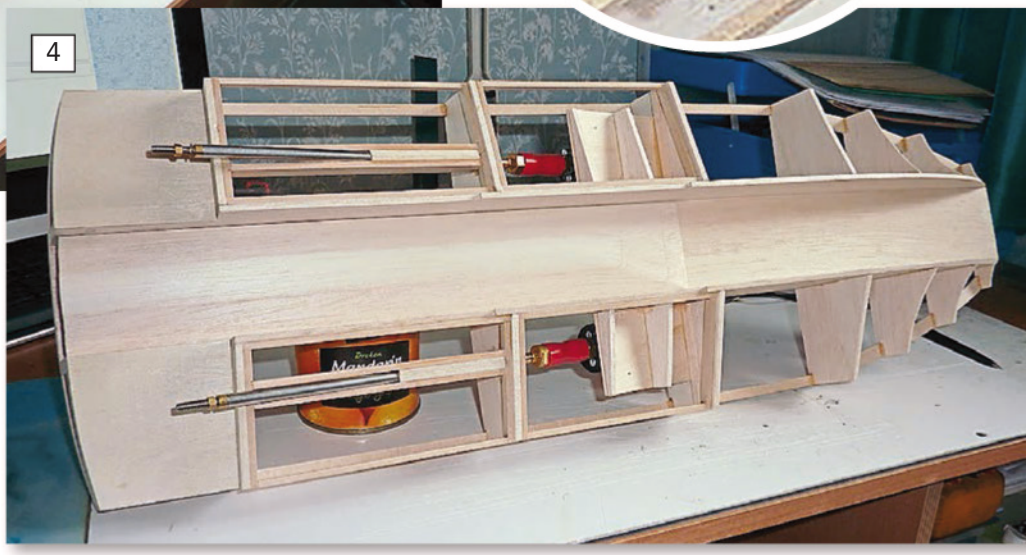
Undaunted, the following year a second and more successful attempt was made with the more conventional *Virgin Atlantic Challenger II*, a 72ft mono hull, which completed the crossing in three days, eight hours, 31 minutes, at an average speed of just under 36 knots. The American Merchant Marine Museum, however, refused to recognise the record and surrender the Hales Trophy to Britain, stating that *Challenger* was not a passenger ship.

But it was the unusual design of what became known as *Virgin Atlantic Challenger 1* and the dramatic footage of it ploughing through heavy seas that really captured my imagination and, although I was not actively modelling in 1986, I succumbed to temptation and bought the Jan/Feb issue of Radio Control Boat Modeller which included a plan by West German modeller Ernst-Bernd Bahn for a 1:32 scale model of Richard Branson's boat (see **Photos 1** & **2**).

Who dares…

At first glance the construction seemed quite straightforward, being mainly from 3mm balsa formers with 0.8mm plywood skins. As instructed, therefore I cut out and





assembled the two inner walls, central hull bottom, transom and two sets of the seven formers which make up the main structure. So far so good. It then became apparent, however, with no disrespect to Ernst, that the plan was barely more of a drawing, with little constructional detail shown. Thankfully, not long beforehand I had completed an Halvorsen Seaplane Tender from the excellent plan by John Parker, so I was able to draw on the experience I'd gleaned from that build.

Chine rails and gun whales were then added from 3.2 x 6.5mm basswood to which to the hull skins and deck were attached (see **Photo 3**).

The chosen motors were two Graupner Speed 400s as, although twin brushless would have been preferable, the limited space necessitated a single ESC to control both motors.

While there was easy access, *i.e.*, before the skins and deck were applied, the motor mounts were installed. These were made using 4mm ply, with the twin prop shafts being sandwiched in-between pieces of 3.2 x 12.5mm basswood (see **Photo 4**).

Appling the bottom skins now began, with the three rear most sections being flat pieces of 0.8mm ply and the foremost section envisaged to be 1.5mm balsa to follow the curvature of the bow. However, the three foremost formers have a concave shape, which made it difficult to the apply the balsa skin; a task akin to trying to bend a cardboard tube. So, additional formers with a convex curve were hastily added, which allowed the balsa to more easily follow the curve to the bow. The bottom skins were now complete (see **Photo 5**).

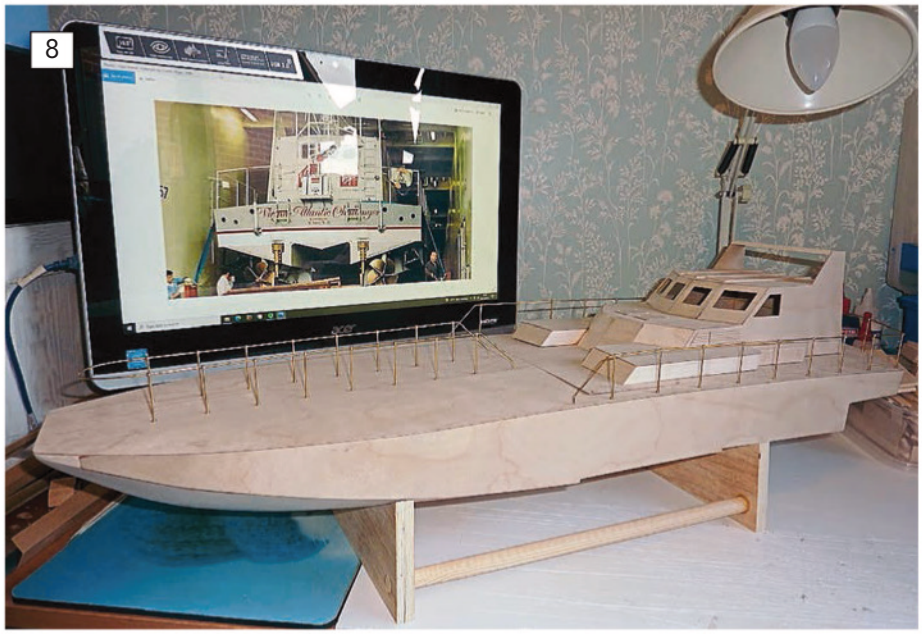
By comparison, the hull sides, transom and deck were straightforward to apply – after, that is, all the front box sections had been filled with blue styrene. This would add some buoyancy should *Challenger* ever come into

"This just goes to show that it's worth reading articles even if they don't seemingly relate to your particular area of interest, as they can often provide some very useful and transferrable ideas, hints and tips"

contact with any objects submerged in the water (**Photo 6**).

Ernst chose a single piece removable deck/superstructure but, as the boat sits quite low in the water, I decided on a more watertight solution. The portion of the deck covering the motors was made semi-permanent, being attached by screws to produce a watertight seal, while the cabin under which the single 2S Lipo battery is situated mounts around a combing – the cabin being attached by magnets to allow for easy removal.

After studying a couple of the few photographs that exist of the real boat, the cabin was constructed using 1.5mm ply and block balsa. The complicated rear mast arrangement was made from 3.2mm diameter plastic tube; this was then screwed to the rear of the cabin (see **Photo 7**).



With all construction complete, the entire boat inside and out was treated to several coats of Eze-Kote and the foremost bottom sections of the hulls were covered with glass cloth to provide some added strength to the balsa skin (see **Photo 8**).

No man is an island

I prefer to brush paint as opposed to using aerosol cans but at this stage was finding it increasingly difficult to find a quality enamel paint suitable for model use. Help here, however, was to come from an unexpected source. After reading an instalment in Richard Simpson's excellent Boiler Room series, I noted he had used and recommended Craftmaster Coach Enamel paints, so several tins were duly purchased and applied, with very satisfactory results. This just goes to show that it's worth reading articles even if they don't seemingly relate to your particular area of interest, as they can often provide some very useful and transferrable ideas, hints and tips.

"These logos presented yet another challenge, as most of the ones featured were bespoke to the Challenger and therefore not commercially available"

Likewise, a striking feature of the *Atlantic Challenger* is its prominent Virgin logos, along, of course, with the logos of the many other sponsors; these logos presented yet another challenge, as most of the ones featured were bespoke to the *Challenger* and therefore not commercially available. So, a big thanks must go to Dave Hemmings of Potteries Model Boat Club, who researched and then made all of the decals you see applied to the model. These really added the finishing touch (**Photo 9**).

Putting *Challenger* to the test

As I would be using only 2 x 400 brushed motors, powered from a 2S Lipo battery pack, and 30mm 3-blades propellers, I really had no idea how the boat would perform. When her inaugural sailing was carried out at the Wallasey model boating pool its initial performance rather disappointing, as at slow speeds she sailed with a very bow up attitude. As my confidence grew and the speed was increased, however, the bow suddenly dropped to achieve a quite level attitude in the water. She even turns well for a boat designed to go 3,000 miles in a straight line (see **Photo's 10** & **11**)!

Blue Riband build

This was a very satisfying, if not straightforward, project and now complete I don't think I will see another model like her at the lake side. Hopefully, Ernst is still modelling and can enjoy reading about my version of his *Virgin Atlantic Challenger*, even though she did take me 36 years to bring to fruition! ●

Empress of Canada

Part 4

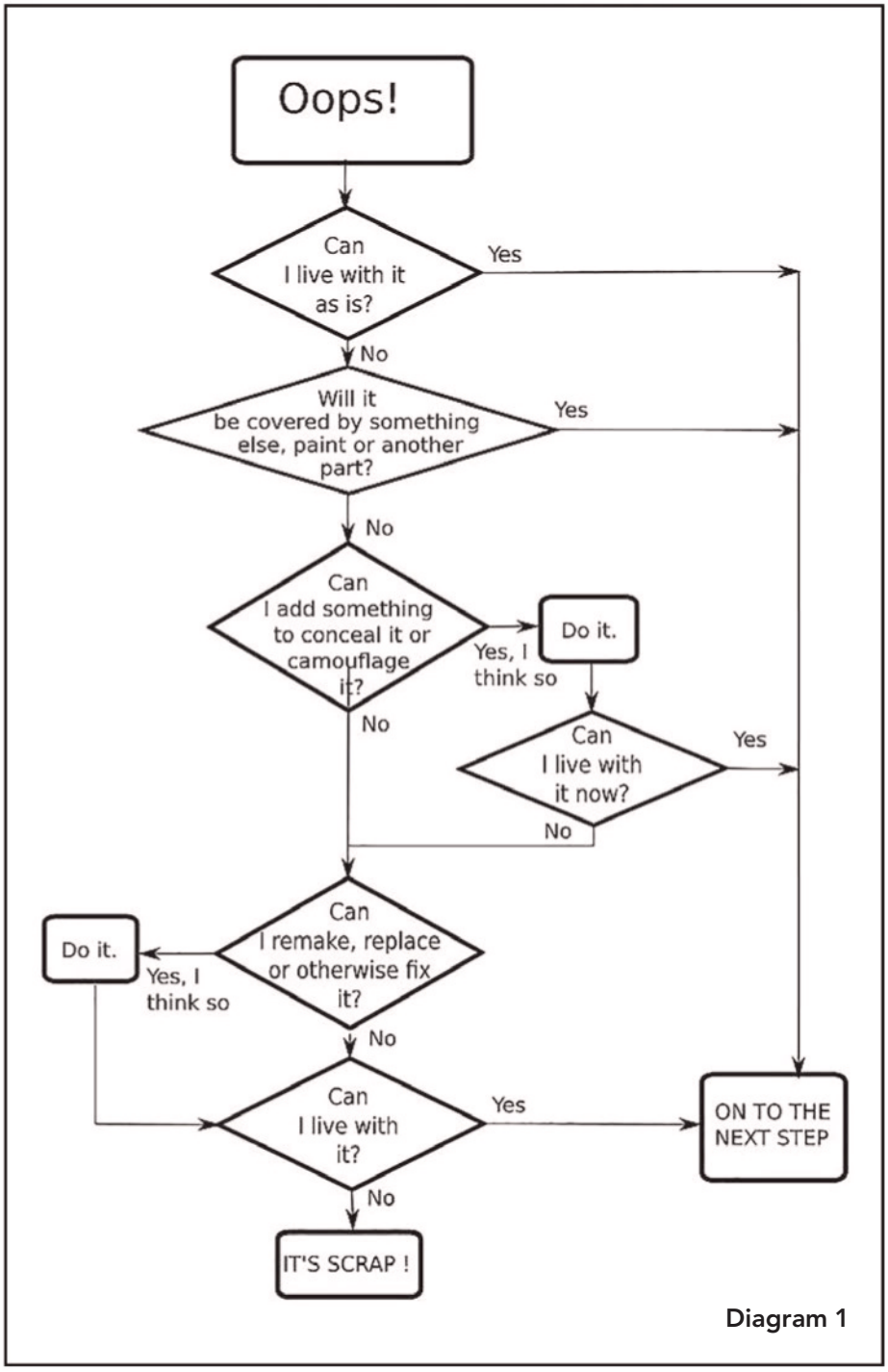


Diagram 1

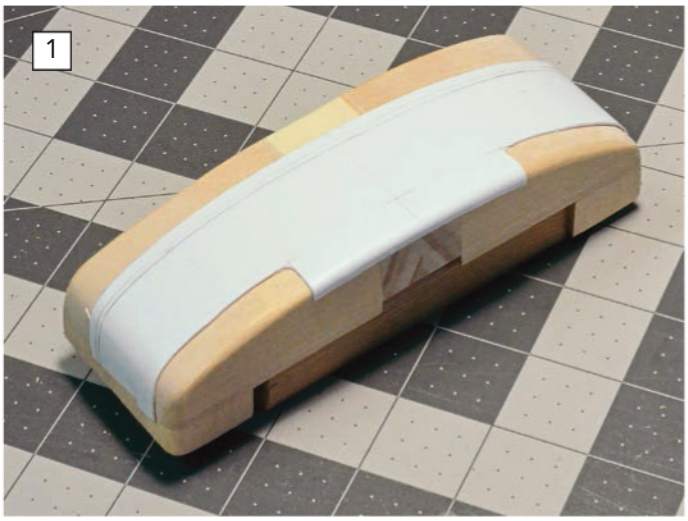
Roy Cheers concludes the story of this magnificent build by reminding that however impressive the end result may be, few projects, even those undertaken by highly experienced modellers, are all plain sailing….

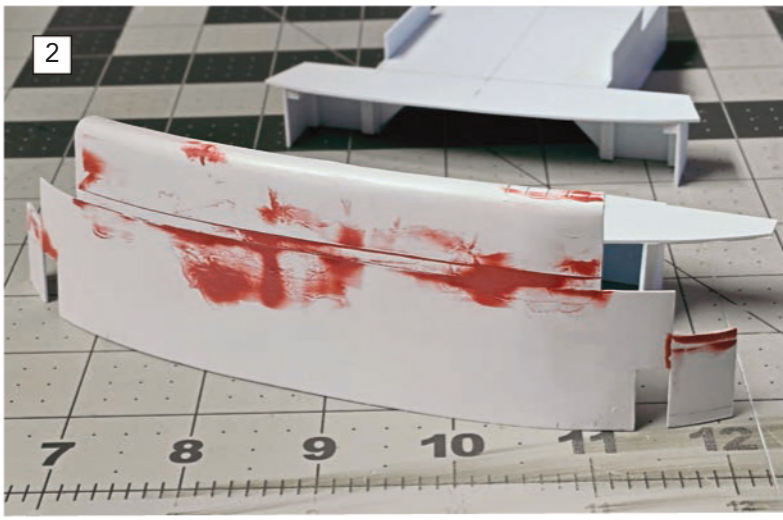
"While unforeseen problems, and even mistakes, are inevitable, however, correcting them doesn't always mean you have to 'scrap and start again"

While unforeseen problems, and even mistakes, are inevitable, correcting them doesn't always mean having to 'scrap and start again'. When something doesn't work out for me, I follow the process shown in **Diagram 1**. So, shared below are a few of my 'fixes' while building the *Empress*…

Bridge front

As mentioned, I used some surplus basswood to vacuum form the various curved superstructure fronts; **Photo 1** being typical. I estimated that when I came to make the bridge front using the block, the front height would be 2mm less than scale. At the time, I felt that amount would not be noticeable. Not exactly a mistake, more a case of poor judgment. Once it was shaped, cut and tried in position I decided it would stand out like a sore thumb. The solution was to cut the bridge front into two and insert a 2mm strip,





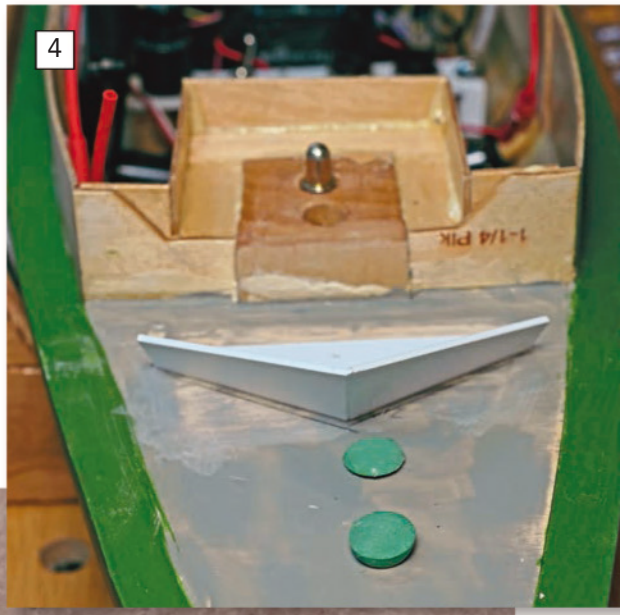
supported by a wider strip glued along the inside. **Photo 2** shows it after fitting and filling, and before painting.-The finished item can be seen in **Photo 3**.

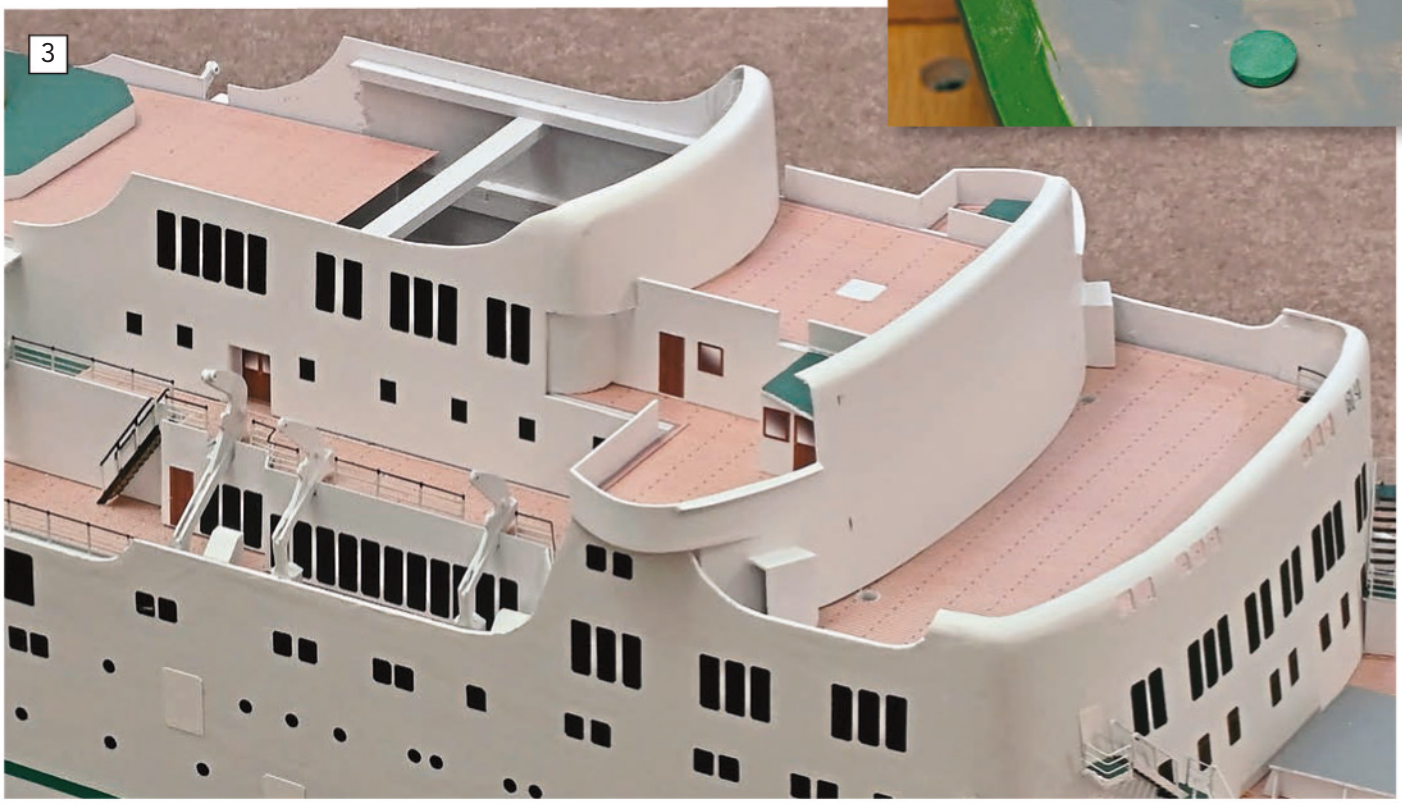
Foredeck planking

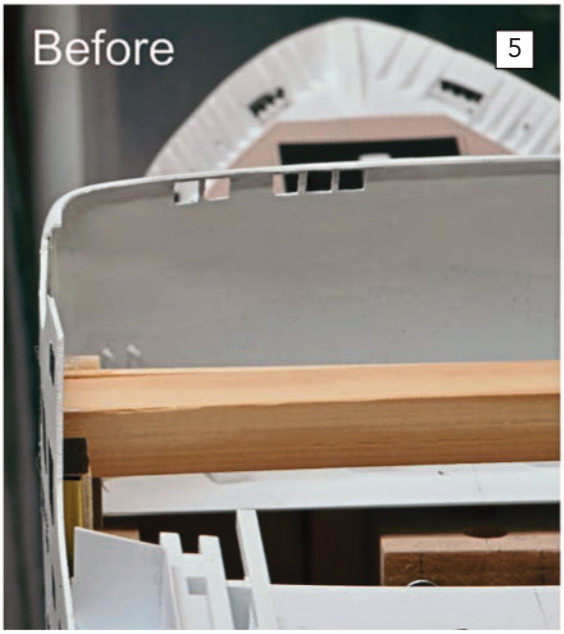
Shortly after the foc'sle and aft mooring decks were painted and glued in I obtained information that the waterways around the edges were painted light grey, and also that all decks were planked. It was beyond my skill to repaint the waterway grey around the foc'sle bulwark supports so they are left unprototypical white. A planking overlay was made for the foc'sle and stuck in place over the paint. By that time, it was impractical to change the aft mooring deck, so it remains painted.

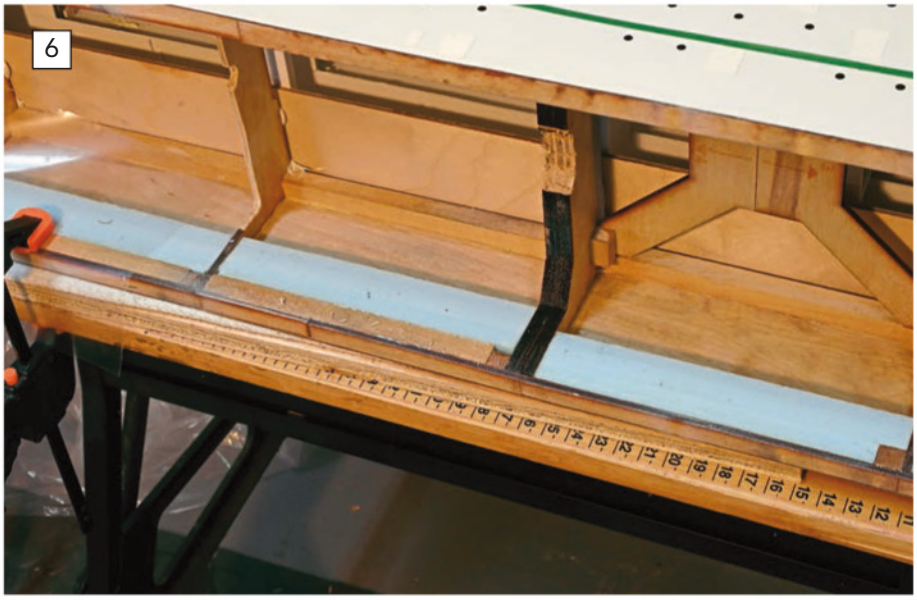
Forward coaming

The coaming right ahead of the forward alignment block on the lower hull had been cut down in the centre. As built, the coaming was glued right on to the alignment block, and I felt that left at full height its tight fit was likely to make it awkward to put the hulls together. It was therefore cut down in the hope – forlorn as it turned out – that the coaming would still keep the water out, despite the forward motion of the model. To prevent the leakage that occurred, the coaming was extended around the alignment block. Even this proved to be insufficient, and a breakwater was added ahead of the coaming (see **Photo 4**).









Under the bridge

When I reached the point of making the forward end of the Sports (5) and Sun (6) decks under the bridge I faced a construction challenge. The port side wall, part of the 1/32-inch plywood side panel under the bridge wing, curved inwards at the top aft corner. The solution chosen to correct this was to glue a piece of square brass tube vertically on the inside wall. This was a deviation from the scale plan, but less obvious than leaving it bent (see **Photo 5**)

"The smoke unit I made for this model worked as intended. But there was one flaw that I should have foreseen…"

Smoke unit

The smoke unit I made for this model worked as intended, and I sailed her happily several times. But there was one flaw that I should have foreseen: the free surface effect. The centreline divider was not watertight and was intended to keep the water from surging to one side but at the same time allow it to trickle back and forth and remain balanced. This might have worked if the model had been very stable but, as it turned out, in a turn too much water flowed to one side and did not re-balance when out of the turn. Simply filling the unit with less water would have reduced the weight but done nothing to eliminate the free surface effect. This original unit would probably be fine in a heavier model.

The solution chosen was to make a new smoke unit with a smaller surface area, 65 sq.cm vs. 137 sq.cm, so eliminating a volume equal to the water depth: 6 x (137 – 65) = 432 ml, 432 gms. This has the same components, same basic layout, but importantly was narrower in the beam.

Where's the waterline?

To get closer to my ideal of a perfect model (indistinguishable in a photo from the real thing) I needed the waterline to float higher so that some of the green boot topping would be visible. A very rough calculation indicated that removing ¾ lbs or 340 gms would raise the waterline $^{1}/_{8}$-inch. As the weight would have to come out of the lower hull, this would raise the CoG (Centre of Gravity) and worsen the stability, but how much? Or could I raise the waterline by adding $^{1}/_{8}$-inch to the top of the lower hull, with a negligible change in the weight but a raising of the upper hull and the CoG? Would $^{1}/_{8}$-inch be enough, or would ¼-inch be required?

To try to get answers to these questions I had to delve into the physics of stability, not something that would normally be required for a model. But in case another modeller wants to try this split hull construction, I think it's appropriate to get into some details. So, and simplifying a little, as long as a vertical

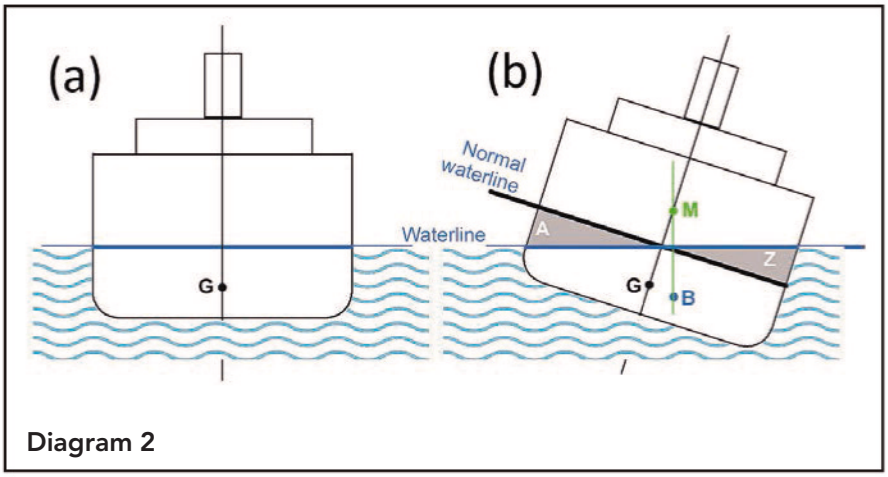


Diagram 2

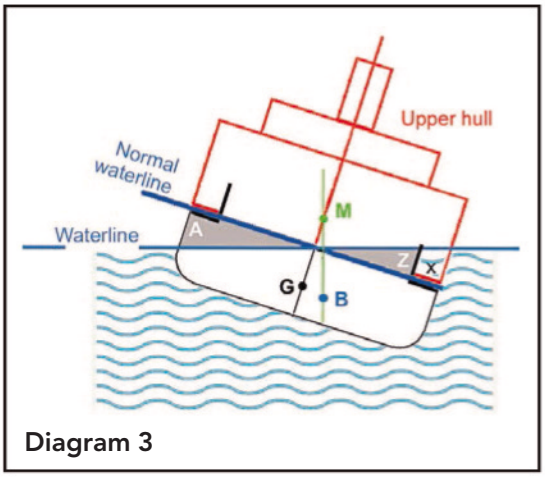


Diagram 3

line through the underwater hull's centre of buoyancy intersects the model's centreline above the whole hull's centre of gravity, the model will be stable. (The CoG will be on the vertical centreline if the model sits upright on calm water,). This mouthful is best explained by **Diagrams 2** and **3**. **Diagram 2** (a) shows a model floating upright and the centre of buoyancy (b) located somewhere on the vertical centreline. If the model lists to one side, the buoyancy in the wedge marked 'A' is lost but the buoyancy in the right wedge 'Z' is gained (see 3b). These changes move B to the right, off the centreline, and a vertical line through B intersects the centreline at M. The result is that a torque is created, acting to rotate the model upright again. The distance between G and M is a measure of the model's stability. If this distance is too short the model may list dangerously due to wind gusts, or waves. If M is below G the model will list until the centre of buoyancy moves to where the G-M distance is zero – which was the situation when I first floated the completed model.

What I gleaned from this understanding is that because of the Empress's two-hull construction, water will enter the cavity marked 'x' in **Diagram 3** (formed by the gap between the shell of the upper hull and the coaming of the lower hull). This then results in a loss of stability and buoyancy because it reduces both the buoyant force and the distance that B moves to the side, thereby reducing the righting torque. Most of this loss was easily recovered by filling the cavity with blue building insulation (see **Photo 6**).

I doubted this change, or the revised smoke unit, would be sufficient to lift the waterline. If not, my next step would be to move the lead ballast underneath the keel, using the existing bolts to secure it.

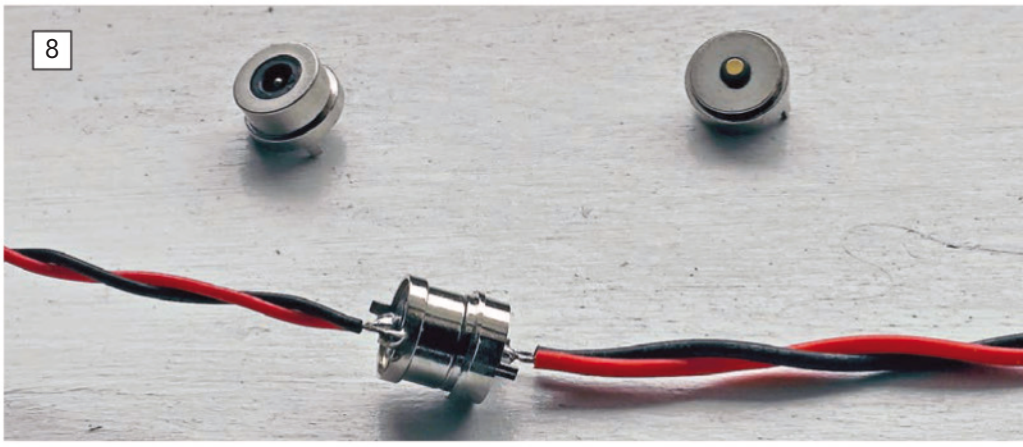
Flexible hull

Photo 7 clearly illustrated how long and shallow the lower hull is, something which caused concern when the model was finally complete and first lowered into the lake. Nothing worked. Her props, which up until this point had been turning as expected, stopped immediately she was on the water. The root cause was a negative wire which had not been tightened in a terminal block. While the model had been supported at two points on my lifter, the flexing of her hull once in the full-length support of the water was enough to move and disconnect that negative wire. The fix was easy but clearly demonstrated the flexibility of the lower hull.

Power supply to radar motor

Having an operating radar scanner that was removable meant incorporating connectors in the supply wiring. I blithely wired JST 2-pole connectors, without thinking about how I was actually going to get several fingers through a 2-inch x 1½-inch hole to manipulate the two connectors. A pair of magnetic connectors proved the answer (see **Photo 8**). On lowering one of these connectors through the opening, it automatically found its mate fixed below. This simple solution negates having to line them up as, once they get close, magnetic attraction will simply pull them together.

I'm glad to say that the changes listed above to improve the ballasting without worsening the stability have been successful. She sits evenly on the water, with a little of the green boot topping visible, and is quite stable.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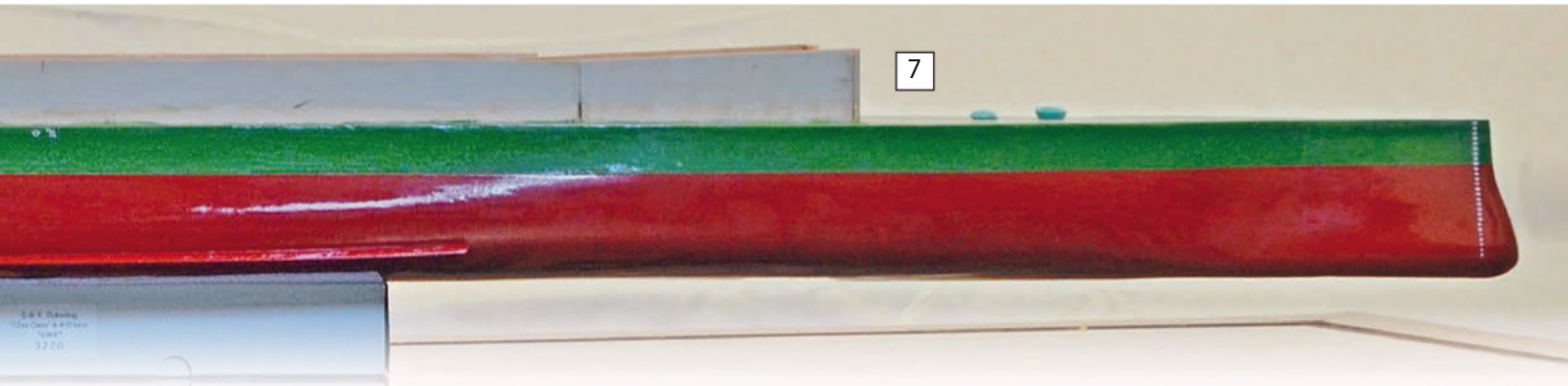
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"The real satisfaction of building and sailing a model like this, of course, comes from recreating a unique vessel that can only now be seen in model form"

If a picture paints a thousand words...

Now complete, well, almost, as the one remaining task I have set myself is to embark some passengers and crew.

For the service speed of 21 knots, the model now runs at 2.9 km/hr or 0.8m/s, or put another way, takes 12 seconds to travel 10 metres.

Of course, the real satisfaction of in a project like this comes from recreating a unique vessel that can only now be seen in model form – and it's only when viewing her in all her glory out on the lake that you fully appreciate just how much better than a picture a three-dimensional model is. Now, if only we could recreate the white water!

While a picture may paint a thousand words, there is nothing quite like seeing a three-dimensional model on the water when it comes to truly appreciating the magnificence of a vessel such as the Empress of Canada.

Solar boats

John Parker reflects on renewable energy usage and how as model boat builders we can also draw on the advances being made.

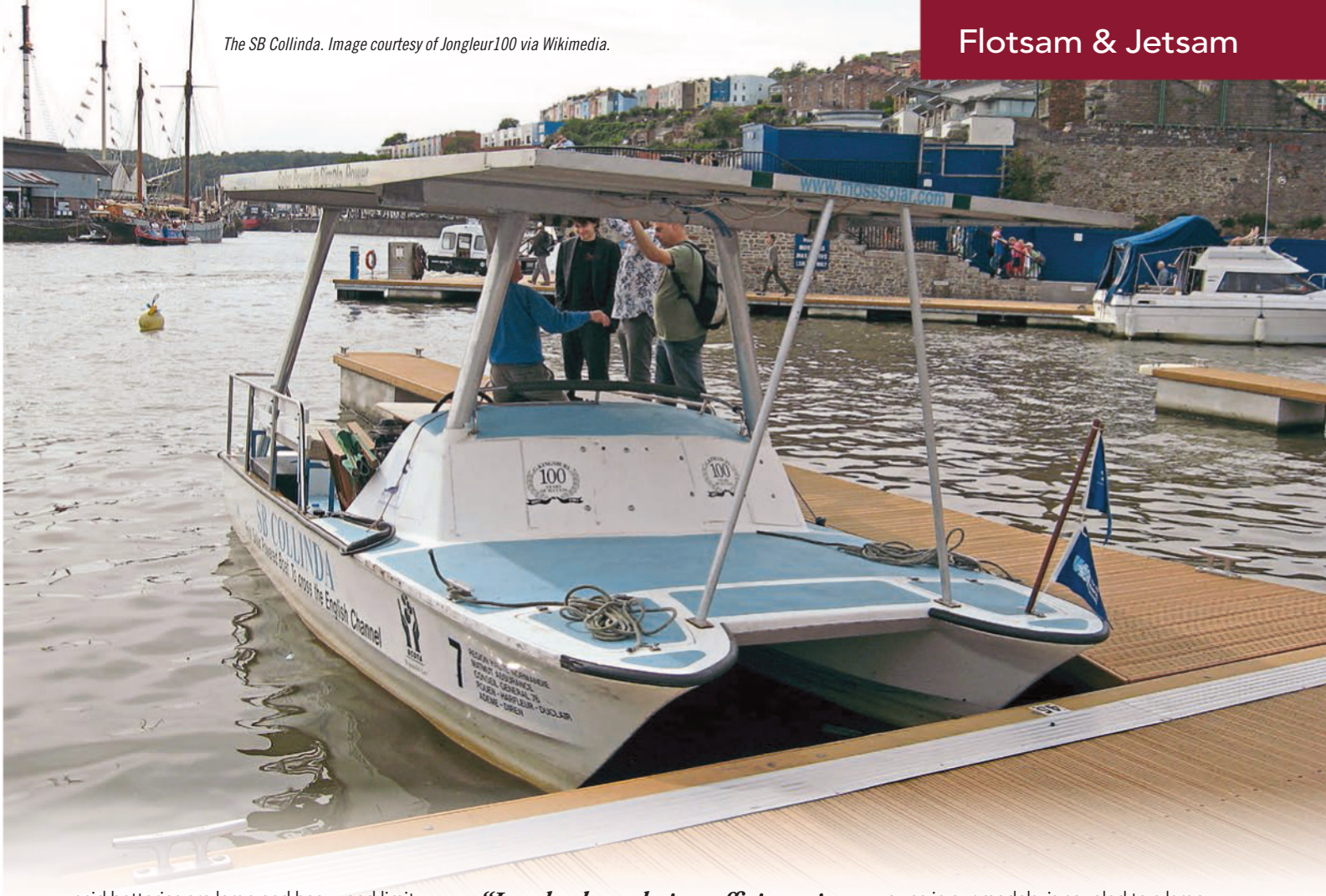
TOP: The MS Turanor PlanetSolar. Image courtesy of Rama via Wikipedia. ABOVE & RIGHT: Two further views of the PlanetSolar. Image courtesy of Rama via Wikipedia.

As the world learns to wean itself off fossil fuels, solar energy is seen as an essential part of the renewable energy mix. The transition to renewables is well underway for static power generation but application to the field of transport presents greater challenges since a moving object has strict limitations on the amount of space and weight that can be dedicated to the capture or storage of energy for its own use. Sailing ships have of course made use of renewable energy for centuries, but here we will be looking at the application of solar energy to smaller vessels, including the miniature ones that take shape on our hobby workbenches.

Basics

Solar panels are made up of photovoltaic cells that convert some of the sunlight falling upon them into direct current. This is then fed to a power management system that apportions the power to the electric drive motor(s) or a storage battery as appropriate. This will likely involve conversion to alternating current via an inverter for running synchronous drive motors, as well as providing suitable power for lighting and other accessories.

Electric propulsion itself is nothing new. Submarines have been using it since the 19th century since it doesn't require air and therefore makes possible underwater travel. Early electric motors became available from the mid 1800s and could be powered by Plante's lead-acid battery, the first type of rechargeable battery, from 1859. But lead-



The SB Collinda. Image courtesy of Jongleur100 via Wikimedia.

acid batteries are large and heavy and limit the performance of a vessel. Even today, a conventional submarine travelling at high underwater speed of 20 knots may only manage 20 nautical miles, or just one hour's travel, before its battery needs recharging.

While there are other means of applying the power of the sun to propel a boat, the solar powered electric motor (with battery back-up) turning a propeller remains the most promising method. What's changed in recent years has been the cost of solar cells and development of new battery technologies, such as lithium, which have narrowed the still formidable gap in energy storage capacity between liquid fuels and battery storage. In 1976, when *Concorde* entered service and *M*A*S*H* started its run on television, solar panels provided power at a cost of about US $100 per watt; by 2020 that price had fallen to under 40 cents per watt, and practical battery-electric cars are now a reality.

Considerations

Solar energy alone cannot provide speeds competitive with fossil-fuelled vessels but do enjoy other advantages. Early applications that have capitalised on these strengths include leisure boats, luxury yachts, ferries and autonomous unmanned vessels. Compared to a diesel powered boat, a solar boat is far kinder to the environment, producing little or no air or water pollution; its electric motors and solar panels require far less maintenance; it is virtually silent and free of vibration and smells; it can operate in remote areas where the fuel is expensive or unobtainable; it may have a virtually unlimited range; when moored it can act as a mobile power station; and it has a lower operating cost to trade off against its higher initial cost.

"In solar boat design, efficiency is all important to make the best use of the limited power available"

In solar boat design, efficiency is all important to make the best use of the limited power available. A catamaran configuration is commonly chosen, for it provides the least resistance for a given displacement as well as a broad beam for a good area of solar panels. A highly efficient permanent magnet brushless motor, basically similar to the miniature ones we use in our models, is coupled to a large diameter propeller that has been optimised for the operating speed and load, while a computer-controlled power system is usually used to integrate the solar panels, motor and back-up battery. A brief description of some current solar boats follows.

MS Turanor PlanetSolar

This, the largest solar-powered boat in the world, was launched in 2010 and soon became the first solar-powered boat to circumnavigate the world, taking 584 days in 2010-2012. She also holds the record for the fastest Atlantic crossing by a solar boat, at 22 days. 31 metres long and with 93kW of solar panels covering most of her 15m wide deck,

The Aditya solar ferry. Image courtesy of Samarjitbharat via Wikimedia.

The Solar Sailor. Image courtesy of Nicolás Boullosa via Wikimedia.

"My own attempt at designing a solar-powered boat came in the form of the SV Sunbeam ferry model… She has similar speed and manoeuvrability to the other model boats yet outlasts them all in endurance when the sun is shining"

she has a large lithium back-up battery and permanent magnet electric motors in each of her twin sponson hulls.

The modest speeds achieved by the *Planetsolar* (10 knots maximum, 5 knots cruise) tend to obscure the fact that she can offer "infinite range" in good conditions. That is, with the speed kept down, there may be sufficient electric power generated during the day to both power the boat and recharge her back-up battery, enabling continuous cruising day and night.

Underway on solar power!

Aditya

Another catamaran design, the *Aditya* has been in service as a solar ferry in Kerala, India, since 2017. 140 square metres of solar panels on the roof provide 20kW of power for the two 20kW propulsion motors, while a 50kWhr lithium battery installation makes up for the shortfall. The battery is charged from the grid overnight and the boat makes about 22 15-minute trips during the day carrying up to 75 passengers at a 5.5 knot cruising speed. She typically completes the day's service with 60% charge remaining in the lithium battery.

Each year, the *Aditya* travels around 20,000 kilometres, saving tens of thousands of litres of diesel fuel and hundreds of tons of carbon dioxide emissions. Other benefits are the near absence of noise, vibration and smell, no water pollution, and big savings in maintenance costs. While her initial cost is considerably higher than that of a conventional diesel ferry, her much lower running costs promise rapid pay-back, and more of these award-winning ferries are set to enter service.

Solar Sailor

The *Solar Sailor* is a unique hybrid ferry that for ten years operated on Sydney Harbour using energy from both the sun and the wind for propulsion. Designed by the Australian company Ocius Technology, this catamaran has a portion of her solar panels wrapped around aerofoil panels that act as sails, deployed and adjusted by computer to make best use of any wind that may be blowing. Four boats have been built for use in Hong Kong harbour and one for Shanghai, while the company concentrates mainly on hybrid solar/wind powered unmanned vessels for defence, research and exploration.

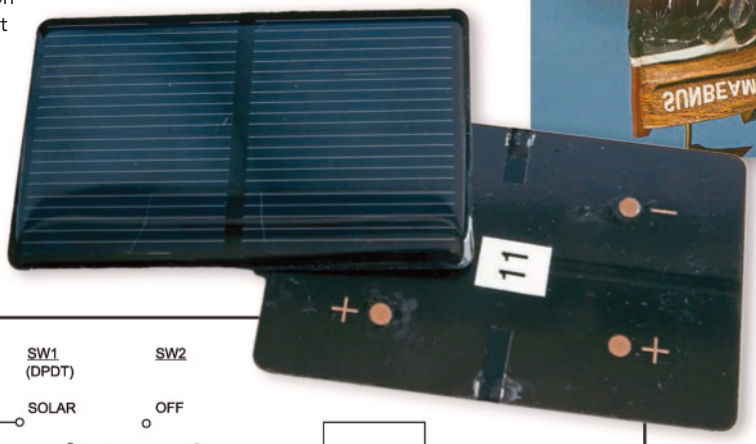
ABOVE: SV Sunbeam solar ferry model.

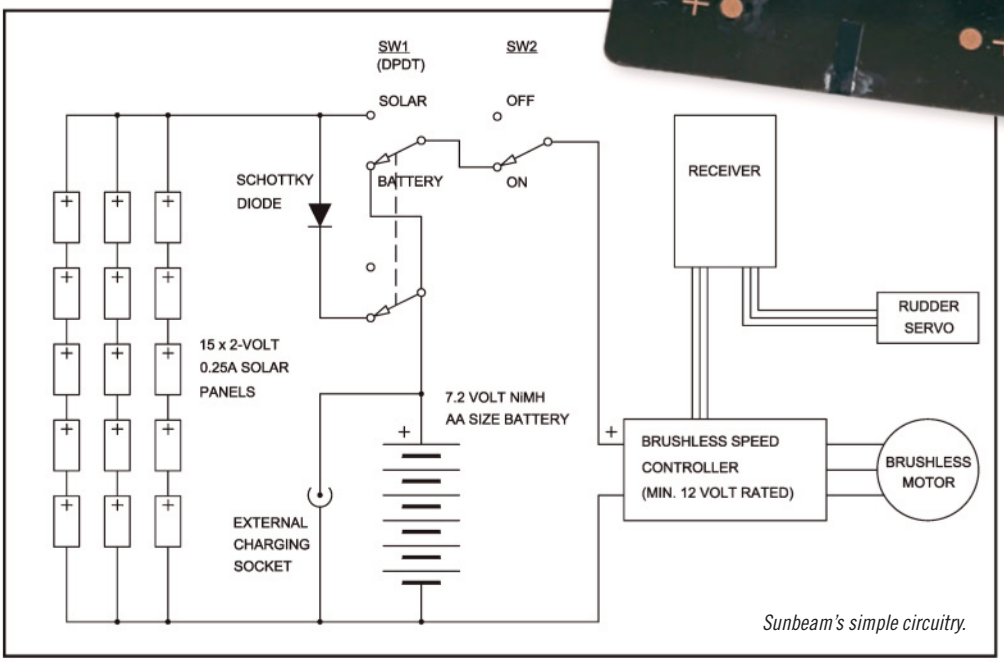
RIGHT: The bow wave indicates that Sunbeam is no slouch.

BELOW: The 0.5-watt solar panels used on the Sunbeam.

SB Collinda

This was the first solar-powered vessel to cross the English Channel, in 1997. A standard small 20ft by 8ft catamaran, she is fitted with a flat roof on which is mounted 20 70-watt solar panels feeding a 4kW outboard electric motor via four 78-amp-hour batteries. A vessel like this is within the bounds of amateur construction or conversion from an existing boat, and many such examples may be found online.



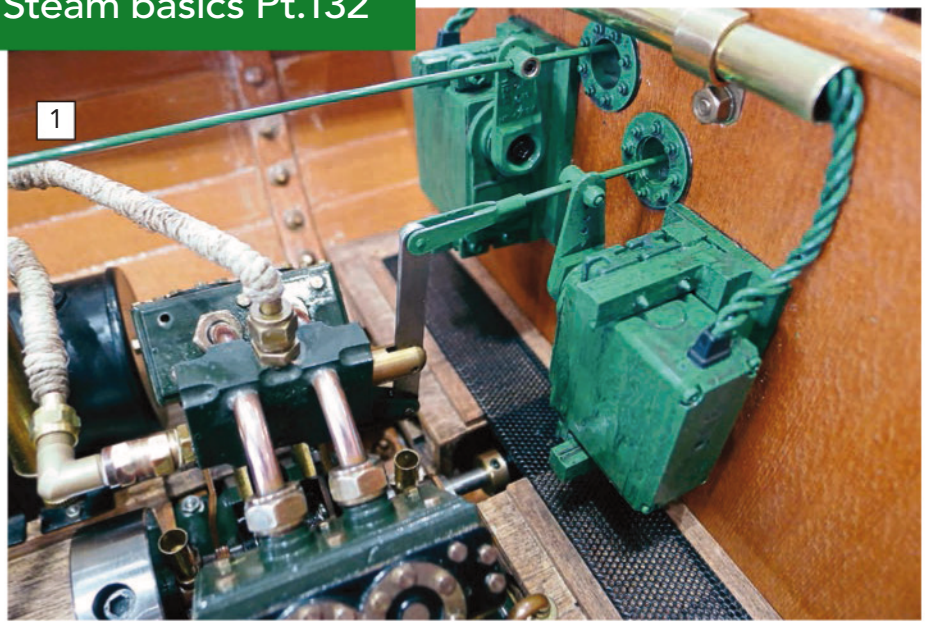


Sunbeam's simple circuitry.

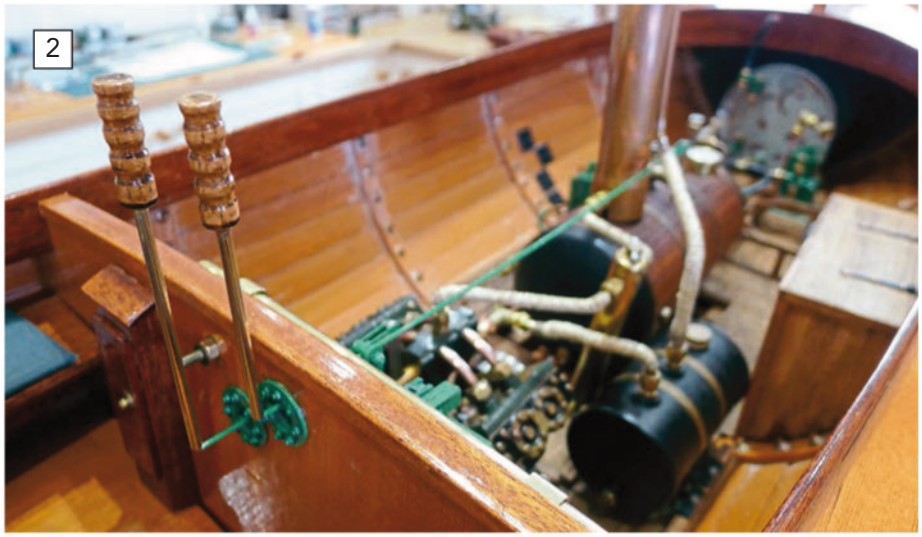
SV Sunbeam model

My own attempt at designing a solar-powered boat came in the form of the *SV Sunbeam* ferry model, described in the January 2019 issue of Model Boats and available as plan MB214 from Sarik Hobbies. She has 15 0.5-watt solar panels on the roof providing a nominal 10 volts at 0.75-amps to a 300KV brushless motor, with a 7.2-volt, 2.5-ampere-hour back-up battery. Aspects of the design, such as the hull and large propeller, are optimised for efficiency but the model retains the traditional appearance of an old wooden ferry.

On the lake, no allowance needs be made for her being solar-powered: she could pass for any of the other electric-powered displacement models and in fact often is by the uninitiated, though they must wonder about the strange roof pattern. She has similar speed and manoeuvrability to the other model boats yet outlasts them all in endurance when the sun is shining. Operating her serves to demonstrate the advantages and disadvantages of solar power and serves as a starting point for much lake-side discussion. ●



ABOVE: The position of the two engine control valves lent themselves perfectly to allowing an extension of the levers into the cockpit area. The operating rods were simply passed through bulkhead penetrations and located on the servo arms by swivel pins. BELOW: A 90-degree bend and the extension by brass tubes gave a credible look to the cockpit side, particularly when finished off with a couple of turned wooden handles at an appropriate height for the figure.



The figure had to be dismantled to remove the ratchet mechanism for the arms; this enabled them to swing smoothly so that when they were attached to the handles, they looked like they really were moving the levers and operating the engine.

Richard Simpson concludes the story of how he transformed plans for the *Wide-a-Wake* into his uniquely finished build of *Hereward*

Last month we finished off the main structural items of this build and ended up with the deck and cockpit in place, the two electronics packages complete and mounted, the steering gear hatch done, and the main plant items installed and manually tested. As with most projects of this type however, there was still a fair bit of work to do in terms of the final items of detailing and finishing before I could consider the project complete.

Engine

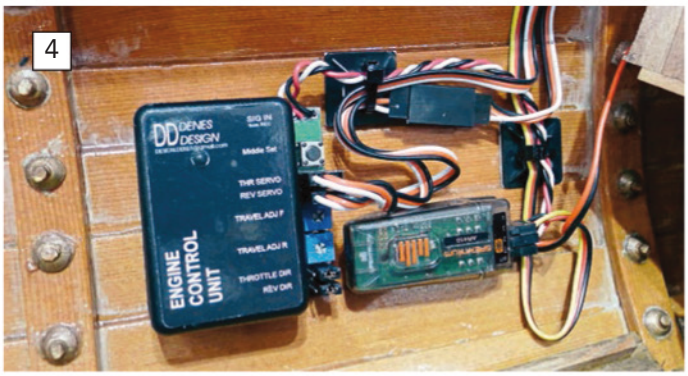
Some of you may remember in Boiler Room Pt. 127, featured the April 2022 edition of Model Boats Magazine, we looked at a new product from Denes Designs, namely an Electronic Engine Control Unit. The purpose of this unit is to combine the two functions of operating a valve type steam engine, *i.e.*, the reversing and the speed control, into a single channel. This is a very similar process to 'mixing' in model aircraft control and sometimes in boats combining rudder function with throttle control to increase maneuverability.

Right from the start, one thing I wanted to achieve with this model was to have the figure in the cockpit looking like he's controlling the engine. To achieve this, my figure would have to be holding onto two levers that would be attached to the same servos that were controlling the engine function. The steam plant actually lends itself perfectly to this, as it can be operated by the valve on top of the engine being used to control direction and the valve on top of the boiler being used to control speed. The two valve levers were found to be displaced by 20mm transversely, which allowed for two control levers to be mounted side by side in the cockpit 20mm apart.

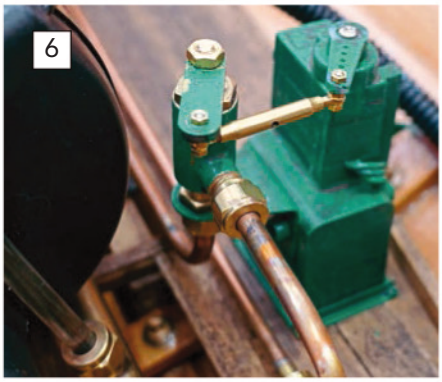
As described in the second part of this short build series, the two high torque servos had been mounted onto the front face of the cockpit bulkhead. These were now connected up to the valves on the boiler and the engine with horizontal 2mm operating rods, using rotating fittings on the servo horns (see **Photo 1**) and extending them back into the cockpit, where a vertical bend allowed the fitting of a brass vertical tube

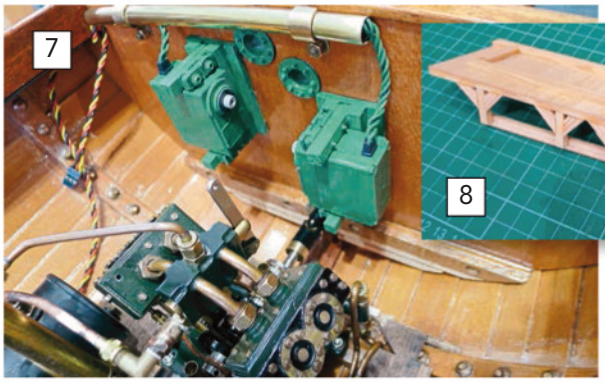
The tops of the two tubes were cut to a height to suit the figure, and wooden handles were turned up on the lathe (see **Photo 2**). With the adjustment offered by the stainless-steel clevis fittings and the adjustments available on the Engine Control Unit, the operation of the two levers could be set up to perfectly simulate the control operation by the figure. The figure was then simply held in place with Black Tac under the boots and on the hands (see **Photo 3**).

Trials conducted with the radio showed that the figure very nicely appeared to operate the engine by either pushing or pulling the



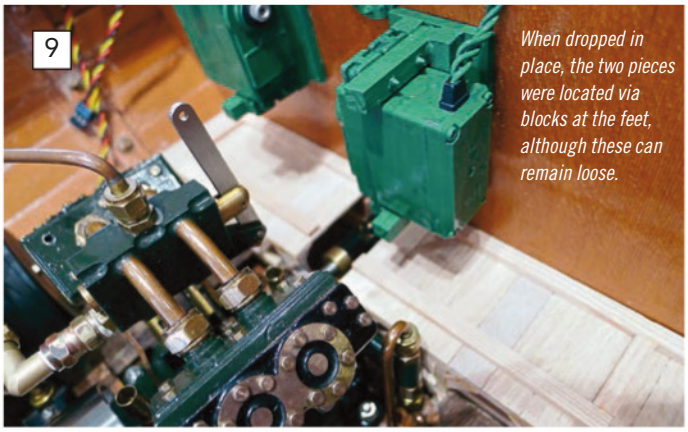
ABOVE LEFT: The starboard side electronics package consists of the Engine Control Unit and the receiver, complete with their own dedicated battery. The battery is mounted inside the wooden box to enable easy charging. ABOVE RIGHT: The Automatic Boiler Control unit sits in the port side locker to give the most convenient access to the two control valves and the two boiler sensors.



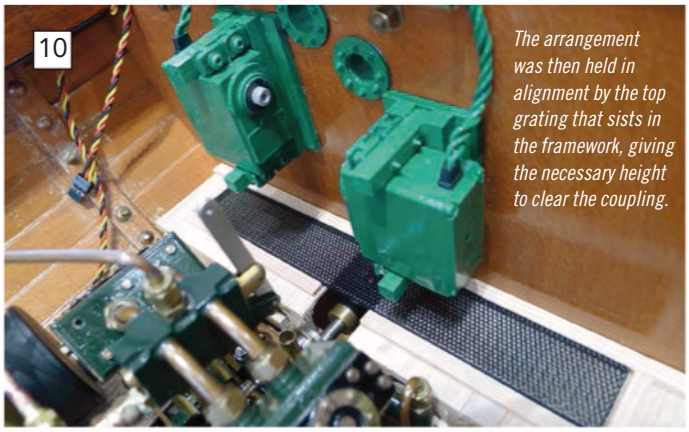


INSET: Constructed in situ as a single piece, with a locating frame for the grating, stepped decking was cut to clear the coupling.

ABOVE LEFT: One of the two control valves, this being the water control valve. Being mounted on a common wooden block with its micro servo makes this a neat and compact unit. Richard has painted his to represent a typical piece of hydraulic machinery. ABOVE RIGHT: A gap was left at the rear end of the main deck to allow the stepped arrangement to be built in situ. Should it become necessary to remove the engine at any point, access to the coupling would be required, so an easy to dismantle arrangement was a must.



When dropped in place, the two pieces were located via blocks at the feet, although these can remain loose.



The arrangement was then held in alignment by the top grating that sists in the framework, giving the necessary height to clear the coupling.

reversing lever while controlling the speed via the throttle lever. The electronics were all housed in the starboard side locker, conveniently allowing the servo cables, as well as the rudder servo, to be run to the receiver (see **Photo 4**).

Boiler

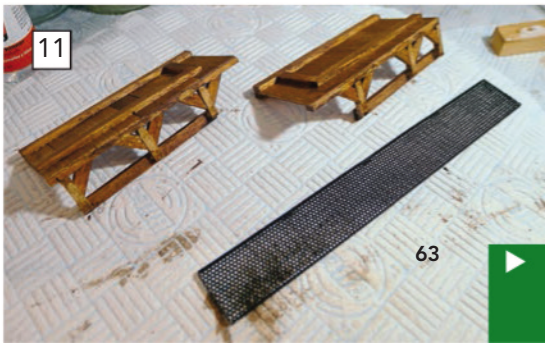
This time, as described in Boiler Room Pt. 118 (see Model Boat July 2021), the Denes Designs' Automatic Boiler Control Unit was used to control both water level and boiler pressure. The electronics package for this was mounted in the port side locker, with its own battery to put it in close proximity to the two control valves. As these were only operating very small valves, the servos used were micro servos, and the servos and valves were mounted onto wooden plinths that were then glued to the wooden deck in appropriate positions, as described in more detail in Part 2 of this build. The electronics unit was mounted onto the hull with double sided foam tape (see **Photo 5**), all pipe connections checked, operation of both the control valves verified, electrical wiring completed, and the boiler run up a number of times to set up the operation of the gas valve and the water valve (see **Photo 6**).

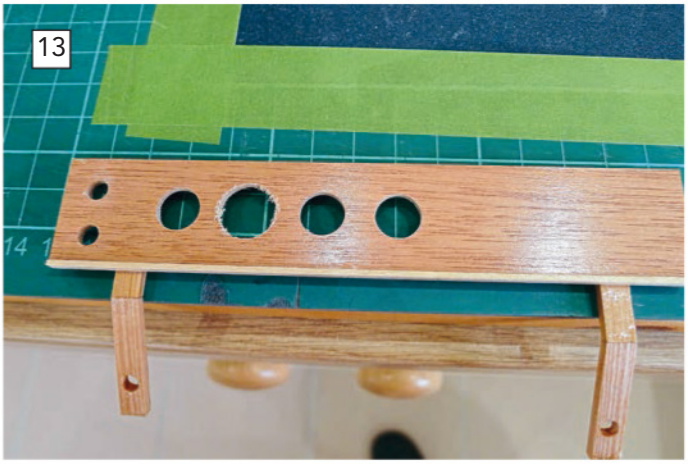
Main deck

When the main deck was built a gap was deliberately left at the rear of it as I wanted to have access to the coupling, while also being aware that the coupling was slightly higher than deck level, so a step was going to be required (see **Photo 7).** I decided that this would be best built once the main deck, engine and coupling had been installed to ensure that everything would fit.

The structure was crafted as a single piece to ensure perfect alignment. I started off with a softwood frame that sat on the deck and against the bulkhead, held in place by a couple of blocks of wood to secure the feet. The top was covered with the same wooden planking as had been used on the main deck, with another softwood frame glued to the top surface to locate a metal grating centrally on the top. The wooden structure was then marked out and cut either side of the coupling to afford suitable clearance on either side (see **Photos 8** and **9).** The metal grating then simply sits over the top of the stepped deck to cover the coupling and all three pieces can be easily removed to access the coupling should the engine need to be extracted in the future (see **Photo 10).** The wooden parts were given an enamel wash to match the main deck and protected with a coat of matt varnish (see **Photo 11**).

The enamel wash and a coat of matt varnish applied ensures that the stepped deck fits in with the overall look of rest of the model and by remaining loose ensures that the coupling can be accessed as and when required.

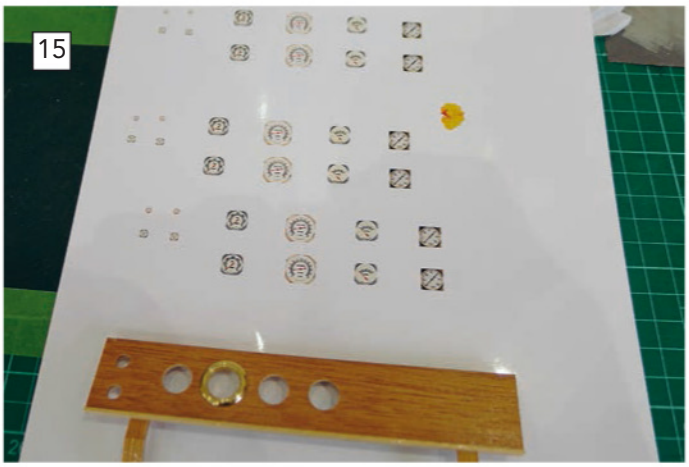




ABOVE LEFT: A softwood frame and a piece of a wooden kitchen venetian blind provided the base for Richard's gauge panel. ABOVE RIGHT: Holes were first drilled between two blocks of wood, then carefully reamed out to the right size for the the port holes.

ABOVE: When it came to the brass port holes, three different sizes gave a credible instrument panel layout, incorporating engine rev, pressure and temperature gauges.

RIGHT: A lucky find of an American vendor of period marine gauges enabled the sales literature to be downloaded, resized and printed off onto glossy paper with a home inkjet printer.



ABOVE LEFT: By gluing the gauge faces to the rear of the porthole, rather than gluing them directly to the back of the glass, a proper depth to the front view and a much more realistic look can be achieved. ABOVE RIGHT: As the rear face of the panel is just as visible as the front face, this also required detailing. Note how neat and realistic the dummy painted copper pipes led down the legs look.

Gauge panel

As I knew that as attention was always going to be drawn to the figure operating the engine, I felt the cockpit area around him should at least look credible. I therefore decided to make a gauge panel that would suggest he was keeping his eye on all the operating gauges. This ended up having to be scratch-built from various bits and pieces I could lay my hands on. The frames were attached to the heads of the two screws that came though the bulkhead and which held the brass cable conduit on the forward side. Across this I glued a short section of what used to be a venetian blind, plundered for this task because it was perfectly sized and constructed of nicely finished and varnished wood (see **Photo 12).**

The gauges themselves were sourced from model boat suppliers and are actually turned brass portholes with a clear plastic face already fitted. They had a suitable depth of spigot on the back, so three different sizes were purchased, and a suitable arrangement put together. The holes in the panel were very carefully reamed to minimise the risk of splitting the wood (see **Photo 13**), and the port holes glued in place (see **Photo 14**). The gauge faces were found on the internet on the web page of an American supplier of period marine gauges (see **Photo 15**). These were simply downloaded as images, cropped and resized to suit my requirements, cut out with a hole punch and glued onto the rear spigot of the porthole (see **Photo 16**).

The panel was then finished off by detailing the rear face to simulate painted copper pipework in a typical arrangement. The pipes were made from sections of servo ribbon cables, split to direct to each gauge and simply glued to the rear face; these were then painted up to match the other engineering components. The backs of the gauges painted with a black satin enamel (see **Photo 17**). To further accessorise, a chart of the

ABOVE LEFT: A period chart of the Thames, varnished and glued to the clipboard, and a packet of cigarettes downloaded and folded around a small piece of plastic add further realism. ABOVE RIGHT: Doll's house suppliers can often be a valuable resource of fittings, especially in 1:12 scale, but such things as name plates can also be a useful find.

ABOVE: Careful painting and an overcoat of gloss varnish smartly finish off Richard's name board, plus a couple of fine brass screws also help to set it off very nicely.

The metal cast fittings were sourced from a marine model supplier, which Richard painted with etching primer and enamel. The fenders are bespoke items from a supplier who was happy to create them to Richard's own design and dimensions, while the step was fashioned from a piece of aluminium chequer plate, which Richard painted and then 'scuffed' with some fine wet and dry.

Thames and a packet of cigarettes were both downloaded, printed off and added to the cockpit area (see **Photo 18**).

The hull

With the majority of the building work inside the hull just about done and only a bit of detailing work remaining, it was time to put some thought into the exterior of the hull. I had been trying to think of a name for my boat throughout most of the build but hadn't really come up with anything that was either a) suitable or b) wasn't just another, totally predictable, female name. It then occurred to me that a male name might make an interesting change, but somehow none of the traditional male names I mulled over seemed appropriate. Fortunately, at that time I happened to be reading a book about a character who resisted the take-over of the country by William the Conqueror after his success at the Battle of Hastings in 1066. As this character was known as Hereward the Wake and because the original plans for the hull were for the *Wide-a-Wake*, I really liked the idea of calling my boat *Hereward*. The nameplates were sourced from a doll's house supplier who actually manufactures bespoke etched plywood road signs in 1:12 scale (see **Photo 19**). This gives a height of around 14mm, but he was able and willing to do me a set of name boards at 16mm in height with suitable blank spaces at either end for a couple of brass screws. These were then carefully hand painted, varnished and fitted to the hull with a couple of very small brass screws and a couple of spots of epoxy (see **Photo 20**).

The edge of the hull was then decorated with the painted cleats and fairleads to enable some fenders to be hung down the sides, and a bow fender was attached to a pair of brass handrail mounts with two shackles fitted to them. I also cut up a couple of pieces of aluminum chequer plate, which I painted with the same ivory enamel, as cockpit steps (see **Photo 21**). The bow was decorated with an anchor, suitably weathered

ABOVE: The anchor was a purchased item. After suitably 'weathering' this, Richard located it in a rack made from a piece of beech run through the milling machine. The clamps were made up from Evergreen angle strip, while the nuts came from plastic armour detailing sets. The chain and shackles all came from Richard's 'bits box', which he finished to good effect with some rust-coloured paint. BELOW: This uncoupling tool from the garden railway world served perfectly, both size and appearance, as a boat hook.

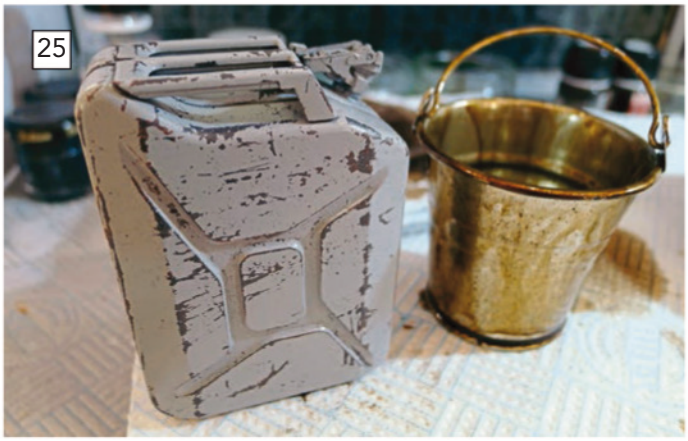
and located in a wooden stand, secured by a couple of bolted angle iron clamps. This was fitted with a length of rusted chain and rope to loosely hang around the forward bollard (see **Photo 22**).

The addition of two boat hooks proved another neat touch (even if I say to myself). These started life as garden railway uncoupling tools but just happened to be the appropriate length. These were mounted (glued) onto a couple of rests, made from 10mm square beech strip wood drilled and cut in half, and, thanks to their lovely brass end hooks really look the part (see **Photo 23**).

Internal detailing

There's no doubt about it: a workboat needs clutter to look realistic, and figures to really bring it to life. The clutter, however, needs to be appropriate for the period and usage of the boat being modelled and, most of all, be made to look convincing. The crew in my cockpit, being action figures, were relatively easy to kit out with appropriate clothing, although some pieces did take a lot of searching for. I also felt positioning a crew member in the main space of the hull would add to the busy appearance, so again bought a few separate bits and pieces to put a suitable figure together. I wanted his clothing to be period appropriate and after a lengthy search I eventually found the perfect clothing, a boiler suit. It was of course a little too white when I got it (see **Photo 24**), so it was given a weathering treatment. I find with very absorbent surfaces such as cloth and even wood that the application of a wash can be quite unrealistic, especially if you want a nicely graduated transition. What I do is to paint the entire surface with enamel thinner then apply the wash to the edge. The thinner will soak the wash into the material and disperse it, creating a much more gradual demarcation when it dries. For yet more realism, he was also given a cigarette!

Another item I wanted to add was a row of hooks to hang bits and pieces on, mainly ropes and lamps. In this case, however, the wooden batten also serves an additional purpose, and that is to hold the bulkhead against the stops behind it. The operation of the high torque servos should not be able to dislodge the bulkhead with these in place. Hooks (some being commandeered doll's house fittings, while others were made from cocktail sticks) and an assortment of rope shanks and lamps were hung from these. Also strategically placed were items such as a galvanised bucket, which I liberally coated with a mixture of satin varnish mixed



ABOVE LEFT: With a cigarette in his mouth and a suitable grubby boiler suit, Richard's mechanic now looks totally at home. Not much for him to do during the run, so he may as well sit down and enjoy the ride while also hiding the on/off switch for the starboard locker! ABOVE RIGHT: One of Richard's main reasons for deciding on 1:6 scale was to take advantage of the abundance of accessories available. All the bucket required was the addition of some dirty oil, but the jerry can went through a full paint chipping process to give it its now well-used appearance.

ABOVE: Richard has achieved a very credible contrast between what's obviously a very well maintained and constantly cleaned engine and the grubbier and more workboat like surrounding detail. The weathered boiler flue is clearly visible, as are the soot deposits on the top surfaces of the boiler. BELOW: This overall shot taken from above affords a good view of the internal detail. A few tools, some ropes and a couple of lanterns add credible clutter, while a couple of bags in the cockpit area provide suitable visual interest there, too.

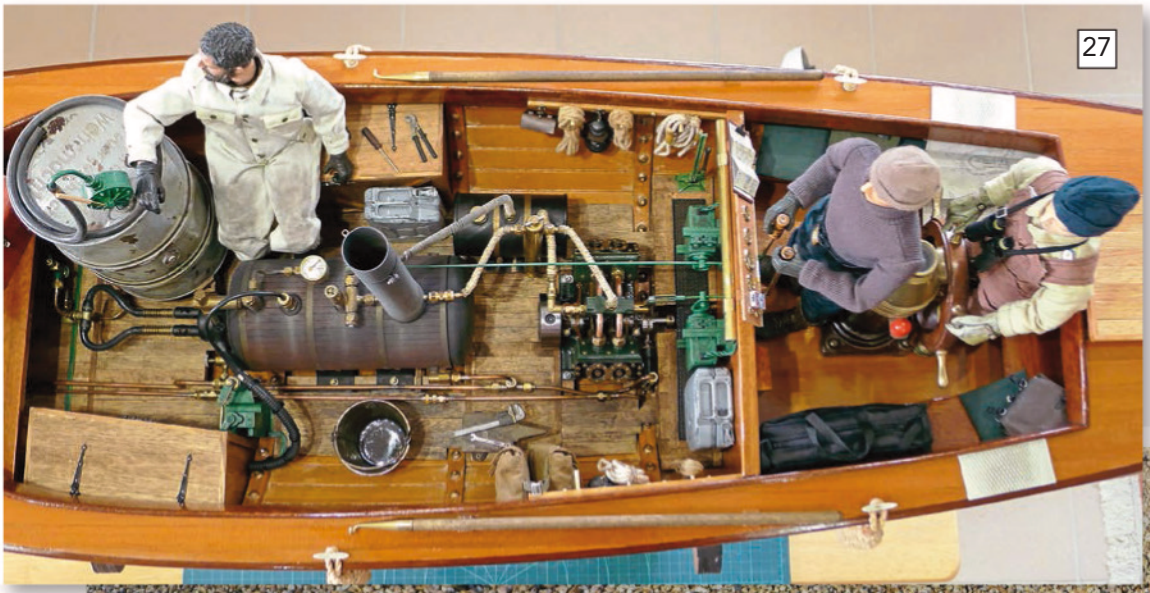
with various enamels to represent oil, and a couple of Jerry cans, weathered with a paint chipping effect (see **Photo 25**). I then attached one to the front face of the bulkhead and screwed the other to the starboard locker.

I also happened to have a small metal anvil in my spares stash, which sat perfectly on the main deck, enhanced with some dummy bolt heads on the feet. Also, a few tools and a toolbox were weathered up and scattered around the deck.

Overall, I think I've managed to achieve quite a believable little scenario, whereby the boat is clearly in good order but typical signs of life aboard are very much evident (see **Photo 26** and **27**).

Ready to launch

Well, again another long-term project has finally been completed, and a substantial pile of bits and pieces have been put to good use. Everything has been proven on the workbench but, of course, the real proof will only be determined once I get *Hereward* out on the water, and, of course, some pictures will follow when this does eventually happen (see **Photo 28**). ●



A nice piece of finished oak with just some simple wedge-shaped pieces at suitable heights form Richard's simple but stylish stand.

Your Models

Whether you're highly skilled and experienced or completely new to the hobby, you're definitely invited to this launch party! So please keep the contributions coming by emailing your stories and photos to **editor@modelboats.co.uk**

ANNIEBEL

At 75 years young, I've now been making model boats from decades, starting with card models in the mid-1950s and progressing to simple balsa boats powered by small electric motors in the late '50s, and on from there. Some time ago, a friend of mine, who is in his late 60s, asked if I would help him build a model of an early Chris Craft style cabin cruiser. It was an idea he had been toying with for a long while, but, he explained, he didn't have the skills or the confidence to construct one using the traditional plank on frame method. So, after some thought, I, came up with a very simple method. As weight was not of serious concern, we used some 12mm thick pine lining boards I had laying around the garage for the deck, chine lines, keel shape, stem and transom. The basic frame was then clad in 2mm balsa, with the grain running vertically on the sides and across the bottom. Cedar planking was used to line both the deck and the sides of the hull, and a top layer of fibre glass cloth was added to the bottom of the hull. The cabin sides and tops were made up from thin ply. The whole thing was then painted and varnished, and accessories added. A simple brushed motor (from a drill) and a 7.2-volt battery pack was installed to provide plenty of power, affording good performance and creating a realistic wash the water.

This was a very low-cost exercise. Accessories and crew were made up from bits and bobs in my spares box and by repurposing random household items: bits of wire for the railings, coke cans for the cut water and rear fenders, etc. The end result was a very respectable working model and another modeller introduced into our hobby, who has since gone on to build several more model boats.

JOHN GRABYN
VICTORIA, AUSTRALIA

What a lovely job you've done between you, John. Bravo for being such a good friend and for swelling the ranks of the model boating community! ***Ed.***

WREN RAF TWIN SCREW CRASH TENDER

Seeing the proliferation of models of yesteryear appearing in the magazine has prompted me to take some photos of this oldie…

At 16.5 inches in length, it featured working twin screws and twin rudders just like the original vessel. It had a reasonable turn of speed in the water and produced a realistic bow wave.

There is an interesting story behind my particular model; I first saw it in Wally Kilminsters model shop on the Wembley triangle when I was a boy, in around 1958 or thereabouts. I recall it took a lot of pocket money saving to buy it' I think it cost me maybe 23d 6d in old money. Unfortunately, while sailing it on the local pond one day, yobbos from the council estate turned up with air rifles and decided to use it for target practice. One pellet hit the rudder and it turned helplessly in circles, allowing them to fire at will. It then sank. Tear stricken, I rushed home to find, amazingly, my father had arrived home early. Rushing back to the pond, we saw the boys still there. My father strode up, seized the air rifles, and told them, *"When you can pay my son for his boat, you can have them back"*. He was a hero to me. They did, too, but I didn't replace the boat for some reason, instead moving on to a larger Aerokits Air Sea Rescue Launch, in which I installed my ED 1.5 diesel engine. It went like a bomb!

Fast forward more than 50 years and, while attending a collectables market, my wife and daughter spotted and purchased a model they knew I'd like it, having no idea of the history behind it. I couldn't believe my eyes when I opened this present at Christmas and proceeded to amaze and amuse them with my tale.

PETER L. BRIGGS
QUEENSLAND, AUSTRALIA

What a fabulous story, and present, Peter, especially as I imagine every time you look at it, it brings back memories of growing up with an absolute legend of a dad! Plus, when choosing a gift, you always hope the recipient will be pleased with it, and your wife and daughter must be thrilled to know they got this spot on! ***Ed.***

Your Letters

Got views to air or information to share? Then we want to hear from you!

Letters can either be forwarded via email to **editor@modelboats.co.uk** or via post to **Readers' Letters, Mortons Media Group, Media Centre, Morton Way, Horncastle, Lincs LN9 6JR**

BOGNOR BOATING LAKE NEEDS YOUR SUPPORT

Hotham Park in Bognor Regis is a well-tended public park, with mature trees, wilding spaces, and grassy areas for picnics. There's a miniature railway giving rides through the park and there's a really good children's area, too.

In the middle of this park is the boating lake, which is much underused and is crying out for the attendance of model boat enthusiasts.

Currently the lake is used by pedalos at weekends during school term time and every day during school holidays. However, the pedalos are lifted out at 5pm.

Almost adjacent to the lake is a thriving café, which stays open until 8pm during the summer and has toilets which the owner says boaters would be able to use. There are also two other public toilets in the park.

There are two pay and display car parks (£1 for two hours), one at each end of Hotham Park and the lake is within easy walking distance of these.

At the moment, there is no formal model boat club, but the pedalo operator is very keen to get model boats back on the lake, so, if enough modellers turn up regularly a club could be a possibility.

Over recent years I have seen the demise of boating lake as they have been repurposed as gardens or just simply filled in, especially here in the south of England. So, please, if you are interested do get in touch with me at:
peacheynj@gmail.com.
Very many thanks in anticipation
NIGEL PEACHEY
EMAIL

I'm delighted you're championing this charming little boating pond, in what looks to be such a pretty setting, Nigel. Let's hope your letter will drum up some enthusiasm from locals and those who perhaps may not even be aware of its existence. Please keep us posted. ***Ed.***

SOUTHPORT MBC OPEN INVITATION

On Sunday, June 12, Southport Model Boat Club held its first Open Day for over two years (due to the everything having to be put on hold during the pandemic). We were unsure what the turnout would be, but, on the day, we were very pleased to see just how many model boat clubs and enthusiasts from all over the northwest came along to enjoy this event with us.

We're very lucky at Southport to have an excellent sailing pond and club facilities and we'd like to extend an open invitation to anyone interested in becoming a member; we can assure you you'll be made very welcome. The club meets on a Wednesday and Sunday mornings at the Jubilee Pond on Rotten Row in Southport. More details can be found at **www.southportmodelboatclub.com**

JOHN WALTHO
SOUTHPORT MBC

I'm so glad your first post-Covid event went well, John. Thanks, too, for the photos of your idyllic model boating pond. I would imagine anyone reading who's within easy striking distance will be tempted to take up your invitation. ***Ed.***

BRASS STANCHIONS ADVICE

I am following the articles by Roy Cheers on building the Empress of Canada. I noticed that he was used brass etched stanchions of exactly the type that I require. Would it be possible to ask Roy where he bought these, and if there is a catalogue part number?
R. THOMPSON
ANGLESEY

Your letter arrived just after I received an email from Roy explaining that he'll be incommunicado for a short while as he's off on a cruise, so, don't think I've forgotten you, Mr Thompson. As soon as I'm able to pose this question to him and get an answer for you, I'll be in touch. ***Ed.***

BASTILLE DAY MODEL BOATING

All across France, July 14 sees the celebration of Fete Nationale Francaise, better known as Bastille Day. A popular event, this national holiday marks the anniversary of the storming of the Bastille on July 14, 1789, in Paris. At the time, the Bastille and its imprisoned inmates were seen as a symbol of the absolute monarchy's abuse of power by the French populous; the storming and eventual fall of the Bastille marking the flashpoint for the French Revolution. This ultimately led to the establishment of the First French Republic in 1792 and the execution of King Louis XVI in 1793. It's from these foundations that modern day France has evolved.

Today, Fete Nationale Francaise is celebrated throughout the country, not least so in relatively small rural communities. One such community is that of Chateau Garnier, situated in the heart of France. Typically, these events are treated as a social occasion, where attendees tend to sit down together in a large marquee to either a wine-based picnic or cooked meal provided by caterers. At Chateau Garnier, the event was staged at a public park adjacent to a golf course, which boasts a large freshwater lake. Facilities at this venue are excellent, as the site is level, and therefore wheelchair friendly, plus there are toilets and ample car parking space available in an adjacent field. For Bastille Day, in addition to the inflatable bouncy castle shaped like a giant giraffe, the crazy golf course and fairground hoop-la stand, the organisers had arranged for a water mist shower spray area to cool visitors in the soaring summer temperatures, which reached a sweltering 104 degrees. There was also a bar serving alcoholic refreshments and various concessions offering delicious food.

Down at the adjacent lakeside, a cool breeze off the water provided a welcomed relief from the heat and proved the ideal venue for the visiting La Flottile de Morthemer Model Boat Club. The club erected its own marquee, where various radio-controlled model boats could be inspected by the public. The day also served as a good opportunity for members to sail their craft and demonstrate the joys of the hobby. Some half dozen sailing yachts gave spectacular displays as they battled with the sometimes seemingly strong winds that lay them over so alarmingly in the breeze. The yacht displays were alternated with those of powered motor craft, including pleasure boats, fishing boats and flamboyant speed boats which took full advantage of the large lake. Throughout the day, there was only one unfortunate incident, when a fine example of a coastguard cutter ran under the concrete jetty which was being used as an operations point by club members. As a result of the momentary distraction of its the operator, the cutter careered and wedged under the jetty. With its railings and radar rigging carried away above the wheelhouse in the collision; the damage would, to the layman, appear to have been severe. Fortunately, however, it was described as merely superficial by the owner.

The day concluded with a fine fireworks display, which began at 11pm, staged from the opposite shore of the lake, thereby affording a good and safe viewing point.

ADRIAN BLAKE
EMAIL

What stunning photos, Adrian. This looks like it was a wonderful day out. Very envious! ***Ed.***

KIRKLEES MBC SUMMER RAFFLE

On behalf of the Kirklees MBC committee, I would like to thank everyone who kindly donated items for the raffle we held at our July 10 Open Day at Wilton Park, Bradford Road, Batley, WF17 8JH. The raffle, which included, courtesy of Mortons Media Group, an annual subscription to Model Boat magazine (won by a Mr M. Allsop of Grantham, Lincs), raised £324.56 for the RNLI.

STAN REFFIN
KIRKLEES MBC

Congratulations to you and all involved in the organisation of your July event, Stan. Here's hoping attendance at your forthcoming September open day (see Compass 360 for further details) will be even better. Keep up the good work. ***Ed.***

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You will find more about the exciting content coming next, features of particular interest you may have missed in past editions and details of the very latest subscription offers on our website at www.modelboats.co.uk

You can, of course, order you copy of the October 2022 issue, which goes on sale at all good newsagents from September 23, now, but why not treat yourself to an annual subscription, as monthly copies will then be delivered directly to your door.

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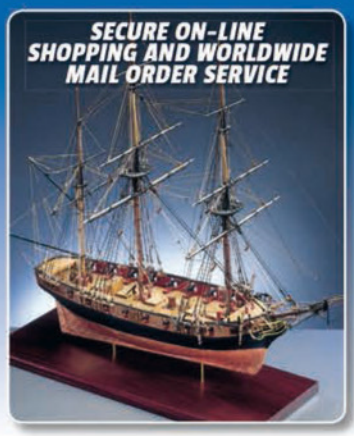

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