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FOR LCT 7074**

**No.1 For
Sail & Scale**

May 2022
Vol.72 No.858

model Boats



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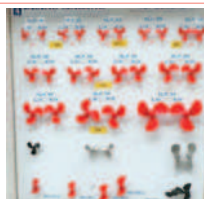
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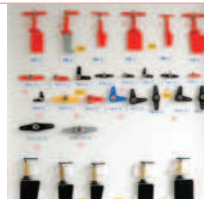
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Geoff Fairfax shares details of how you can build your very own version of this weird but wonderful working 'hybrid' sub from scratch

The big news this month is that Model Boats is under new ownership, having been acquired by Mortons Media Group Ltd. Mortons has established a reputation as a leading name in the UK media market, with nearly a century and a half of success to its name, so not only is this particular ship now in a very safe port but all of us in the little MB crew transferring over with the title are truly excited by the prospect of working with our new employers and the opportunities this offers to take the magazine from strength to strength. Just to reassure you, everything has been put into place for a seamless transition. So, for example, if you're a subscriber you will automatically continue to receive your monthly copy of the mag. Please note, however, our new contact details, which you will find on the flannel panel (see page 4).

As you will already have spotted from the cover and contents listing, there's a free pull-out plan and supporting build guide for LCT 7074 in this issue, along with plenty of fascinating full-length features. These include a photo special on Virgin Voyages' new 'adults only' luxury cruise ship *Valiant Lady* (flagged up on our front cover by the stunning mermaid artwork by Hillary D. Wilson that adorns the sides of the ship); details of how to construct a quirky little working hybrid sub in the form of a 'Steam Punk' Catfish (we're in love!); a large-scale partially Styrofoam constructed Vosper MTB that's lightweight enough to be as fast and fun as it is visually striking; and the story of how a much more traditional static model of the beautiful barque *Penang* was finally completed many decades after having been set aside by its original owner. Plus, there all your favourite regular pages and an exclusive and very generous 20% discount offer on the new kit for the *Starling* courtesy of the kind folks at JSC (see page 20).

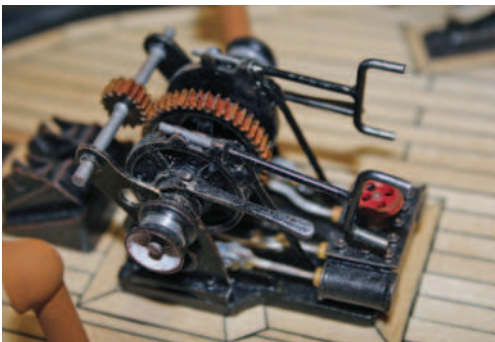
Enjoy your read!

Lindsey



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Just a little taste of what you can look forward to in the June issue

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New kit Release for April!

Saucy Jack, a Barking Well Smack, 1836

As is standard with our kits, the kit includes laser cut parts in ply, MDF and
pear wood, pre laser-engraved and laser cut deck, full colour instruction
manual and 11 plan sheets. Saucy Jack includes sails and a 14 foot cutter

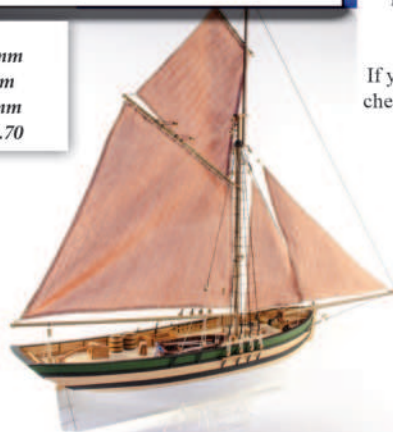
Scale - 1:64

Length overall - 426mm

Width overall - 88mm

Height overall - 360mm

Price - VM/10 - £150.70



HMS Sphinx - 20 gun 6th Rate, 1:64th Scale

Length Overall - 797mm

Hull Length - 604mm

Height Overall - 627mm

Width Overall - 332mm

Price - £710

Optional machined Pear wood
block and deadeye set - £82



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 fore-castle 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

VM/09/S - 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

VM/08/S - Sail set for Nisha (4 SAILS) £40.00



Coming later this year - 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

VM/06/PB/ Optional machined pear wood block & deadeye set £35.00

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 timewood 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 Fife 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

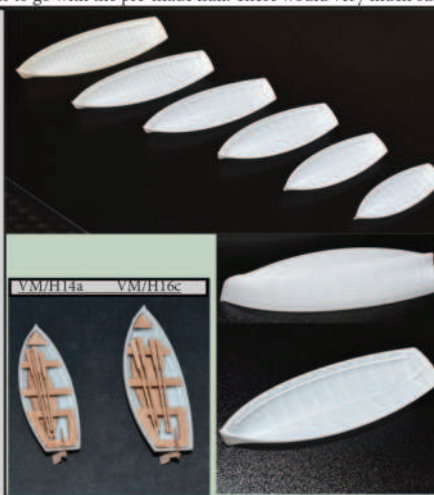
VM/H16b - 16 Foot Cutter Hull & Laser cut seats and oars for fishing boat kits (L-76xW-23.4xH-15.7mm) - £14

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



Laser cut boat mini-kits

Prices (Please add £3.50 for P&P)

VM/18F/C	18 Foot Cutter (86mm Long)	£21.50
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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
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VM/32FP	32 Foot Pinnace (151mm Long)	£33
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VM/36BP	36 Foot Admirals Barge (171mm Long)	£48

HM Brig Sloop Speedy Lord Cochrane's Command

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

Price:
VM/02 HMS Speedy - £327.80
VM/02/MS Master Shipwright Edition (Boxwood) - £480.

VM/02/PB/ Optional machined pear wood block & deadeye set (Included in Master Shipwright version) - £40.00



HM Cutter Alert (1777 (Version 3 KR))

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
VM/01/PB/ Optional machined pear wood block & deadeye set £20.00

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



We now offer a set of mixed barrels and crates in 1:64 although we are sure you would use for other scales too. These are 3D printed in high detail using photopolymer resin. Along with our resin fishermen, these will be perfect deck 'clutter' for all of our fishing boats, such as Ericson, Naba, Fife, and Zulu.
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VANGUARD MODELS
BY CHRIS WATTON

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Compass 360

Our hobby-related news round-up

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

MORTONS

MEDIA GROUP LTD

MODEL BOATS UNDER NEW OWNERSHIP

MyTimeMedia Ltd has announced the sale of four of its brands to Mortons Media Group Ltd with immediate effect. All four magazines, Model Boats, RCM&E, Model Engineer and Model Engineers' Workshop, will continue to be led by their existing editors.

Owen Davies, MyTimeMedia's Chief Executive explains: "We have owned these magazines for over 15 years but, with our business focus changing within the group, we have concluded that the titles' future plans are best served by new ownership where there is portfolio scale to benefit and add value to these titles.

"I'm very confident that Mortons Media with its long-term approach to publishing is a good home for the staff and the titles; Mortons is passionate about magazines, and already publishes other magazines which these titles will complement."

Commenting on the acquisition, Ian Fisher, Mortons' Chairman, says he is delighted to be bringing these four magazines within the company's wide-ranging portfolio of titles, and that all are a 'good fit' for Mortons Media Group, which already publishes many market leading brands, as well as

numerous bookazines and books within the special interest sector. He adds: "Our team here is very much looking forward to working with everyone on these new titles and providing quality products for our readers. Each of the new titles brings something slightly different to our group, and we are very excited at the opportunities they will provide us. ●



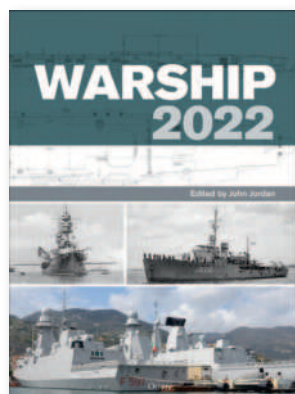
NAVARINO MODELS' NEW KAIKI KIT

A gorgeous Greek-designed 1964 Sailing Yacht (Type No. 2) is the subject of the latest wooden (with resin and metal fittings) kit from Navarino Models. Produced to a scale of 1:16, the finished build results in a stunning display model measuring 470mm in length, although considering the size of this boat there is, no doubt, the scope for the more talented amongst you to convert this into a stunning working model to sail this summer.

The kit, which comes beautifully packaged, and with a set of very comprehensive instructions, is priced at €250 and can be ordered directly from the company's website at www.navarinomodels.com ●



BUY THE BOOK



Warship 2022

This year marks the 45th anniversary of Warship, the annual publication devoted to the design, development and service history of the world's combat ships.

In brief, the varied topics in the 2022 edition, edited by John Jordan and scheduled for release on May 26, include the Imperial Japanese Navy aircraft

carriers Soryu and Hiryu, the challenges of 'Operation Tunnel', the origins of the Yokosuka naval yard, modern European frigates and more. But watch out for a review of the book written from a modeller's perspective by highly knowledgeable warship modeller Dave Wooley in a future edition of Model Boats. Likewise, we will also, courtesy of the kind folks at Osprey Publishing, be bringing you a chance to win a copy of this new title, which carries an RRP (Recommended Retail Price) of £40, in an exclusive MB prize draw.

In the meantime, however, copies can be reserved via the publisher's website at www.ospreypublishing.com or pre-ordered directly from your local bookstore by quoting ISBN 978 1472 8478 12. ●

The SS United States

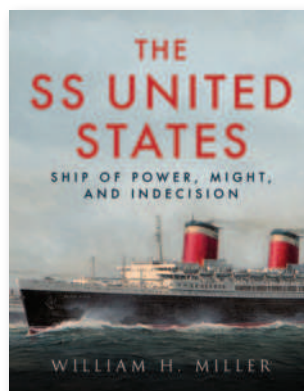
This newly released title, penned by maritime historian William H. Miller, examines the career of this innovative and record-breaking

ocean liner and is colour illustrated with many previously unpublished photographs.

The SS United States was the most important and newsworthy ocean liner of the post-World War II era. She was sheer magnificence: technologically advanced, futuristic, stylish and extremely powerful. 2022 will mark the 70th year since her record-breaking maiden voyage between New York and England, sweeping the seas in three-and-a-half days and at

extraordinary speeds of over 35 knots. Triumphant, she took the prized Blue Ribbon from Britain's Queen Mary. She sailed at 90 per cent capacity for the next decade, but her passenger numbers slowly declined in the face of an even faster rival: the trans-ocean jet. By 1969, the struggling liner was decommissioned. Over 50 years of idleness then followed, and while a few years ago there were still rumours circulating of plans to restore her as a contemporary cruise ship, nothing came to pass. The 72-year career of the SS United States is, therefore, one of striking contrasts – triumph and success, followed by struggle and indecision.

Released in paperback format, the title, priced at £24 can be ordered via Fonthill Media Ltd, either online (www.fonthillmedia.com) or by mail order (Tel. 01453 886959), or alternatively from your local bookstore by quoting ISBN 978-1-62545-115-6. ●





OUT AND ABOUT

Knightcote MBC events

Knightcote Model Boat Club will be hosting a lifeboat-themed Open Day at 17 Kimble Close, Knightcote, Southam, Warwickshire CV47 2SJ from 10am to 4pm on Sunday, May 15, to raise funds for the RNLI. The local branch of the RNLI will be in attendance, and the KMBC would like to extend an open invitation to all, include other clubs and groups. There will be free on site parking, a prize for 'Best Boat on the Water', a raffle and refreshments available in the clubhouse.

For further details contact chrismoiruk@btinternet.com or visit the club's website at www.kmbcmodelboatclub.com. ●

Southport MBC Open Day

Saturday, June 12 will see the Southport Model Boat Club host its first post-pandemic Open Day at the Jubilee Pond, Rotten Row, Southport PR8 2BZ.

This friendly, noncompetitive, club, whose members enjoy a wide variety of interests, including sail, steam and scale models, has asked us to extend an open invitation to any clubs, societies, traders, etc, who may be interested in attending and participating in the event, as well to all individuals just wishing to enjoy a great day out.

Due to lockdowns and restrictions on movement/socialising, the past couple of years have really taken their toll of local model boat clubs, so, for those of you within striking distance of Southport, why not go along to show your support. For further details visit www.southportmodelboatclub.com. ●



Cutty Sark Rig Climb Experience

Feeling adventurous? Well, for the first time since arriving in Greenwich in 1954, visitors to Cutty Sark will be able to climb the famous ship's masts.

The Royal Museums Greenwich is partnering with urban adventure company Wire & Sky to offer this unique experience. Starting with a briefing underneath the ship's beautiful hull, those of you who are brave enough to take on the challenge will step up from the Main Deck on to the ship's 'ratlines' (rope ladders). From here you can make your way up into the rigging, just as hundreds of sailors did during Cutty Sark's long and fabled career at sea. Once you reach the 'Top Platform', after catching your breath and drinking in the spectacular view, you will then make a controlled zip line decent. If you choose to book a 'Plus' experience, however, you will climb even higher up and out on to the Lower Topsail Yard prior to abseiling back down.

For those of you with a head for heights, prices start from £41 (£51 for the Plus experience) for adults, £31 for students (£41 for Plus) and £26 for children (please note children must be at least 12 years of age to participate in this experience). Bookings can be made online at <https://www.rmg.co.uk/cutty-sark>. ●



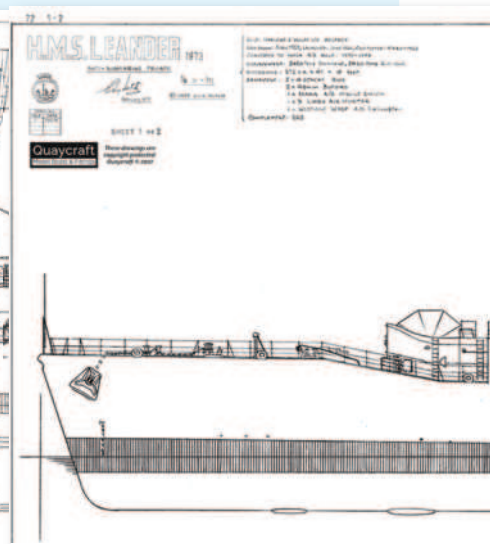
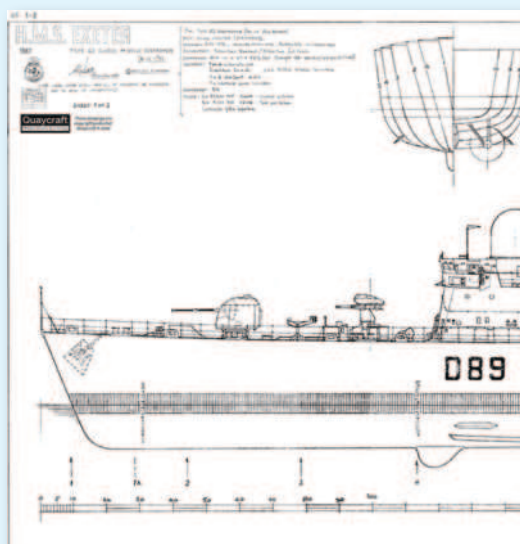
Quaycraft Model Boats & Fittings

PEEDIE MODELS GROUP ANNOUNCE EXCITING NEW PLANS

The Peedie Models Group, which purchased the Quaycraft brand back in 2020, has now also acquired the Jacobin plan collection and is currently in the process of adding all of the plans to its website at www.quaycraft.co.uk

As the Group works uses a dedicated printing company, not only can these plans now be produced and offered to customers at much more affordable price, but they can also be folded and posted directly to UK addresses within a few working days. (Please note, international customers, whose orders will be processed and despatched via the Group's office in Orkney, should allow a few extra days for delivery.)

The Group is also working closely with Fleetscale to enhance and remaster all



of the Quaycraft items, to introduce new 3D- printed parts (which will be produced using high end resin printers) and to add new photo-etch items to existing products while at the same time developing new ones. Projects currently in the pipeline include laser cut superstructures, new fittings kits for

Fleetscale hulls, and a range of new multi-media kits incorporating resin parts and photo-etch detailing.

For more details, visit www.quaycraft.co.uk, telephone 01856 252510 or email sales@quaycraft.co.uk. ●



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Paddle Tug Lulunga SETMM1465 £55.00
Pilot 40 SETMM1444 £51.00
Pilot Cutter 'Hilda 2' FG DASET003 £148.00
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Mariner US 80' Tow Boat SET3532 £71.00
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SG&K 22" Gentlemans Runabout SET3509 £65.00
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SV Sunbeam Solar Ferry SETMB2141 £69.00
Thames Lighter SET3552 £38.50
UTE Workboat SETMM2079UTE £59.00
Thames Barge Veronica SET3584 £99.00
Tid Tug (T.I.D. Class Tug) SET2447 £59.00
USS Bodega Bay SETMAGM2010 £125.00
Vosper MTB SETMM2062 £74.00
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Wild Duck SETMM2127 £89.00



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Iconic sailing boat that plied its trade in & around the River Thames & Medway.

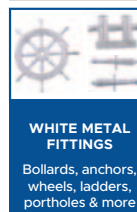
Plan MAR3584 £41.00
Building Veronica DVD DV3513 £7.50
Laser Cut Wood Pack WP3584 £52.00
Short Kit (Set) SET3584 £99.00



SG&K 22' GENTLEMANS RUNABOUT

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Your next modelling project?



Valiant Lady





Fraser Gray captures the debut of the latest boutique luxury passenger ship to join Virgin Voyages' fleet on camera...

Virgin Voyages' new cruise ship *Valiant Lady* made a spectacular debut on the River Thames as she was welcomed by a tug firing water into the air in a 'V' shaped salute, imitating the Virgin logo, before berthing at London International Cruise Terminal at Tilbury on the Thames on March 10. Her visit to the Thames was part

of a promotional tour to introduce the new cruise ship to the travel industry and press. The ship then left London on Saturday, March 12 bound for Liverpool.

Valiant Lady is the second addition to Virgin Voyages' fleet, joining *Scarlet Lady*. Like her sister ship, *Valiant Lady* is certainly pushing the envelope of maritime



architecture with her unusual appearance and contemporary 'adult-by-design' interiors. The designer's choice of superstructure and hull colour scheme is unusual for a cruise ship, combining the company's signature red with Dove and Slate greys.



Spec's appeal!

This new cruise ship has 1,330 cabins and 78 'Rock Star Quarters', plus two massive suites that come with a private hot tub. Passengers can drink in the sights as they travel the world's oceans, with 86 per cent of cabins having their own balcony, and 93 per cent featuring ocean views. The cruise ship weighs 110,000 gross tons and measures 278m long and 38m wide. In total, she has over 1,400 cabins, which can accommodate more than 2,770 passengers and a crew of 1,160.

"Valiant Lady is certainly pushing the envelope of maritime architecture"





Valiant Lady is the second 'Lady' cruise ship to enter service in Virgin Voyages' planned fleet of four luxury 'adults only' boutique cruise ships. *Resilient Lady* is currently under construction and will join her two sisters presently.

Valiant Lady is scheduled to make her maiden voyage with passengers from Portsmouth in late March, before sailing to her home port in Barcelona. She will then embark on a seven-night Mediterranean cruise from the Spanish port before joining with her sister ship, *Scarlet Lady*, for the rest of the year. ●



"Starling had a dramatic service history, with her daring exploits making her a great choice of subject for JSC's most recent naval themed release"



Printed kit preview: Sloop *Starling*

ABOVE: An example of the completed *Starling* model.

BELOW: The *Starling* kit front cover. Images courtesy of JSC.

Hands-on hobby-related product assessments

Considering shelling out for a new kit? On these pages, fellow modellers lift the lid on you what you'll get for your money.

Those in the industry that supports the hobby wishing to send in review samples for inclusion should contact the editor via email at modelboats@mortons.co.uk or post samples, together with all supporting information, to **Models Boats, Mortons Media Group, Media Centre, Morton Way, Horncastle, Lincs LN9 6JR.**

Richard Dyer assesses the latest 1:400 scale model from JSC...

Card model publisher JSC started 2022 in some style with the release of its latest kit and it's a naval subject too! JSC's new 'hatchling' is a 1:400 scale waterline model of the Royal Navy Sloop *HMS Starling*.

Starling (pennant number U66) was a modified Black Swan class sloop. She was launched on October 14, 1942 and was commissioned on April 1, 1943. *Starling* was employed in an anti-submarine role and saw extensive action during the Battle of the Atlantic; indeed, *Starling* was credited with, or had a hand in, the destruction of 14 U-boats during World War II making her the Royal Navy's most successful anti-submarine vessel.

It's an open book

As noted above *Starling* had a dramatic service history, with her daring exploits making her a great choice of subject

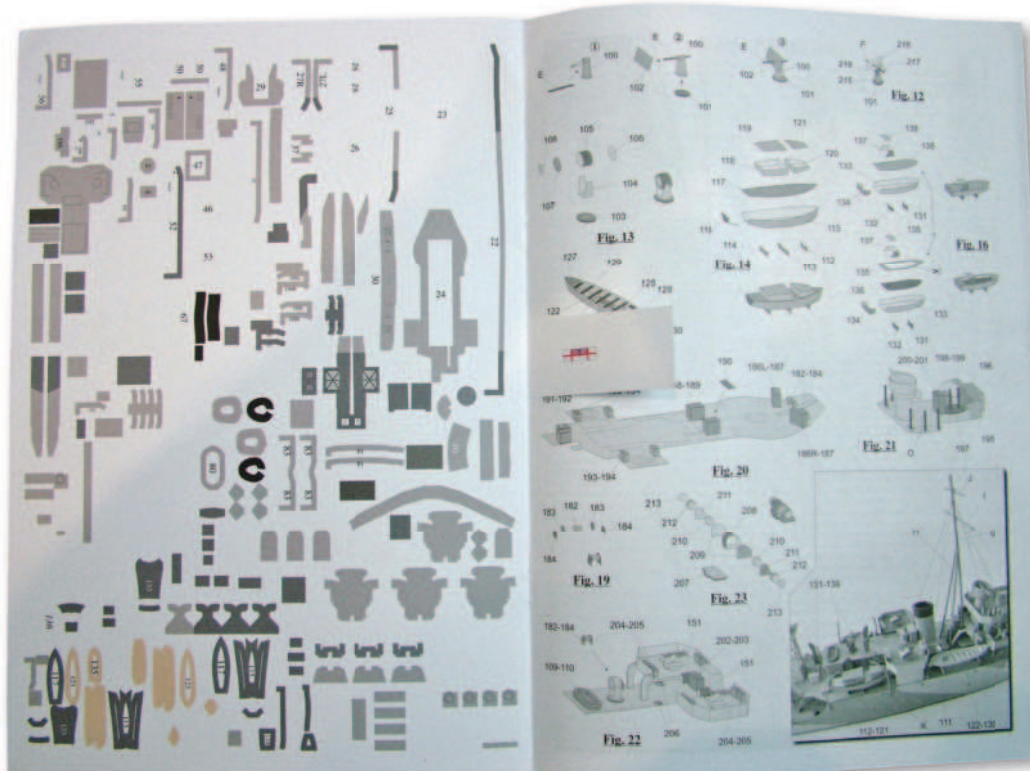
for JSC's most recent naval themed release.

The model is presented in an A4 book format of colour printed parts, instructions, diagrams, and templates. There is a short potted history of *Starling*, which includes a table of technical data of the full-sized ship. The assembly instructions follow the historical text, which are in both the Polish and English languages. The instructions start with a paragraph entitled 'Auxiliary materials and tools', which is obviously self-explanatory but very useful to read and take advice from if you're a novice to card modelling. This paragraph ends with an explanation of the symbols and abbreviations that you will encounter as you progress through the build. From then on, the rest of the text deals with the step-by-step build sequence. The written instructions are supported with clean CAD type line

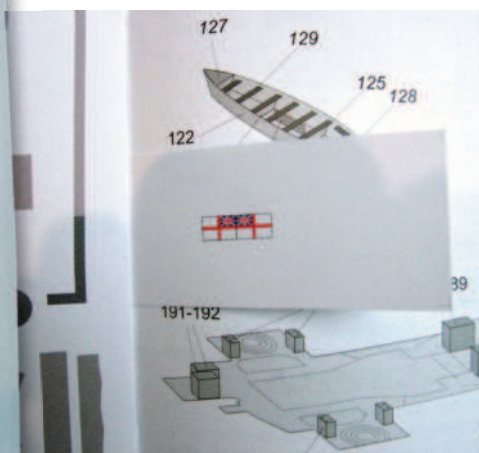


illustrations showing the internal hull structure, superstructure subassemblies, and how some of the smaller components fit together. There seem to be more of these constructional diagrams in this new kit than I am used to seeing from JSC, and indeed I'm told that going forward JSC

is to include more of the same in its future releases. As a visual learner myself I can only applaud this as a policy. I also like the way that photos of a completed kit have been reproduced alongside the CAD drawings. This additional visual reference adds further clarity and is much appreciated.



BELOW: A close-up of the White Ensign printed in colour on thin paper stock.



ABOVE: On left-hand page we see the double-sided printing of components note how part numbers are also repeated on this page, which in effect is the reverse, or underneath, of the main printed components. On the right-hand page there are the new style CAD constructional diagrams and photo of the completed model. Note, also, the White Ensign flag printed on thin paper stock. BELOW LEFT: One of the two (JSC 419 - 1) additional laser-cut sheets supplied with the kit. This particular sheet provides two components that fit together and provide a ridged frame for rectangular box formers to attach to. The use of the laser cutting technology greatly helps. BELOW RIGHT: The other additional laser cut sheet (JSC 419 - 2) supplied provides a flat surface for the printed decks to attach to.

Flicking through the pages of our review sample there was something else that jumped out at me, perhaps even more so than the extra CAD diagrams, and that was the colour pages of the kit are printed double sided. This means that on one side of the page you get the printed components of the kit, but where necessary, on the reverse you find blocks of strategically placed colour. This is a great system for JSC to have adopted, and greatly reduces the need to reach for the felt-tip pen or paint brush to disguise the stark white of the kit's card stock. The underside of certain sections of superstructure, platforms, gantries, and the inner surface of the gun shields all benefit from this printing technique. Part numbers are reproduced on both side of each sheet, too, which serves as a handy reference once parts have been cut from the page.

Good foundations

This kit of *Starling* is a waterline model and first requires an internal 'skeleton' to be constructed, which all that nice artistic colour printed stuff sticks to. This method of construction is common to most card ship models. I always think of this inner framework as like the foundations of a building: if you get the foundations wonky, then...

Often the modeller is directed to construct these inner frames by doubling up the card stock the model is printed on or is required to glue paper templates to thicker card. Well, it's at about this point during a review of a card model ship that I would be

saying something like: "Laser cut versions of the internal frame formers are available from the publisher at an addition cost", and I would be recommending that you purchase it, too. Not so for this kit, however, as JSC already provide a set of laser-

cut parts for this purpose as part of the kit. Yes, that's right, in a plastic bag tacked to the inside back cover of the kit are two sheets of thicker card stock ready to lay a good foundation for your build.

"I believe this kit would be a challenging but not impossible build for a junior or novice modeller. The more experienced modeller will no doubt want to go to town by taking full advantage of the printed extras within the kit and adding more detail from the laser cut parts set"

Port side view of the completed *Starling* model. Image courtesy of JSC.



50 shades of grey

OK, that subhead was just to catch your attention, as there are really only three as far as I can see! The kit represents *Starling* in a camouflage scheme of circa 1943 and JSC has done a great job of reproducing how the real ship looked during this period. On first glance it's easy to dismiss the print as being a bit flat or monochrome in appearance, it is a grey-on-grey camo scheme after all but look a little closer and you will soon appreciate the print quality. The colour registration is sharp and on point; somehow the black panel lines, portholes, and other fine printed details still manage to shine through without spoiling a good scale effect, quite impressive for a 1:400 card model. The designers' at JSC have also made a clever use of *Starling's* camouflage scheme to disguise where lengths of the hull sides join each other by following the sweeping curve created by the pattern of the camouflage.

Talking of scale details, all the fittings you would associate with a warship of this type have been faithfully reproduced and are evident on superstructure and deck surfaces alike. Such details in their initial printed form are obviously two-dimensional representations of three-dimensional objects, however JSC also provides the modeller with alternative renditions of smaller details, such as watertight doors, hatches, stowage lockers, depth charges and their racks, as additional printed



The front cover of the extra laser-cut detail set specific to the *Starling* kit.

parts to cut and fold into shape. Once constructed, these can be added to the model attaching them on top of, or over, their two-dimensional counterparts, making for an even more realistic look. Yet more scale detail can be achieved with the use of parts taken from a kit specific laser cut sheet (see below) available from JSC as a separate item at an addition cost.

The devil's in the detail

As is the case with many of JSC's models, a set of laser-cut fine detail parts is available to purchase as a separate item.

Set 419-L is specifically intended for use with the new *Starling* kit. The set consists of two small sheets of laser cut parts in two thicknesses of card. The set features alternate/replacement parts such as winches, extra detail for lifeboats, rafts, ladders, anchors, and parts to better represent the two paravanes. The laser cut set offers the modeller the opportunity of further enhanced detail and contains examples of some of the smaller components that might prove more difficult to cut out by hand.

I particularly like the way the five small ship's rafts have turned out in this set. These are laser cut from thicker card stock and have a good scale depth to them. You could cut the centres out from the colour printed parts from the kit (Parts 109) and glue the resulting 'O' shapes on top of the laser cut parts adding some grey felt pen or paint to colour the raw edges of the cut card. Alternatively, the edges of the laser cut rafts could be carefully sanded to create an even more realistic profile. The edges and top surface of each raft could then be painted in an appropriate shade of grey. Where the laser has slightly scorched the card in the centre of each raft while creating the wooden duckboards, this has a pleasing natural colour to it, and I think I will be tempted to leave this unpainted.

This sheet of laser cut parts is supplied with basic instructions in seven languages, including English, and is priced at €7.09.

Before I fold

A price tag of just €6.30 makes this latest addition to JSC's 1:400 scale waterline fleet a safe bet, and one that won't break the bank, especially when you consider the flexibility the optional and extra detail parts offer the modeller. JSC gives its kit for *Starling* a difficulty level of between 2 and 3, depending on how you choose to build her, and I believe this kit would be a challenging but not impossible build for a junior or novice modeller. The more experienced modeller will no doubt want to go to town by taking full advantage of the printed extras within the kit and adding more detail from the laser cut parts set (419-L).

With clever design, clear build instruction with CAD diagrams, double-sided printing and the inclusion of laser cut card to form the inner frame as part of the basic kit, JSC has set the bar even higher with this model. Way to go JSC! ●

Stop Press! 20% off!

The kind folks at JSC have just advised us they will offer readers of *Model Boats* a discount of 20% off the price of this new *Starling* kit.

If you want to take advantage of this generous offer all you need do is head over to the JSC website (www.jsc.pl), add a copy of the *Starling* kit to your shopping basket, enter code 'MBSTARLING20' at the check out and press the 'Add' button next to the code. You will then be awarded 20% off of the final check out price.

So, if you're debating whether to take the plunge and give this model a try, then perhaps the scales have just been gently tipped!



FACTS AT YOUR FINGERTIPS

Company: JSC
Product: Card model construction kit
Catalog No: 419
Scale: 1:400
Difficulty: 2/3
Length: 228mm (9in)
Hull type: Waterline
Website: www.jsc.pl

Scale 1:48
Length 992mm
Beam 174mm
Displ. approx 4.8kg

1960s Dutch Coaster CASPAR



This attractive model is a representation of a 512ton general cargo motor vessel built in the Netherlands in the early 1960s. There have been many vessels built to this basic design so you can invent your own colour scheme.



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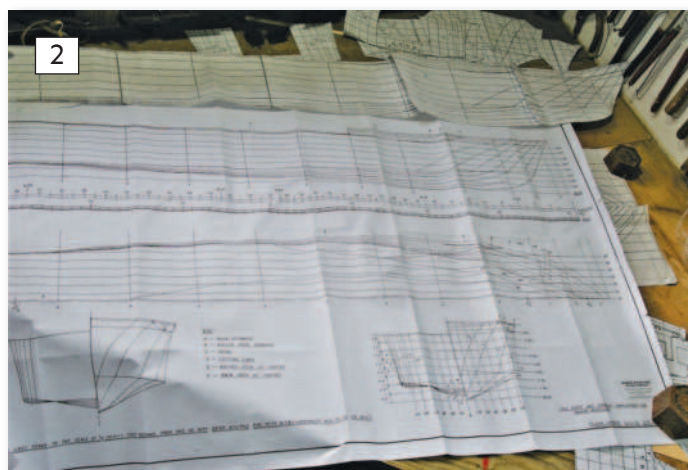
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Vosper MTB



1

ABOVE: Vosper 70 ft MTB on the plane. BELOW LEFT: John Lambert's 1:24 lines for 70 ft MTB, which Michael scaled up on a photocopier to 1:18 scale. BELOW RIGHT: In the foreground is the original heavyweight MTB (fore) and, in the background, her younger, more lightweight, foam sister. The crew were sculpted from Milliput.



2



3

Michael Lees shows and tells how he completed his mission to scratchbuild a large-scale but lightweight MTB that's fast, stable and loads of fun...

As a lad I was inspired by the dash and bravery of the crews of the Motor Torpedo Boats (MTBs) and Motor Launches so vividly displayed by paintings, photographs and narrative in Peter Scott's book of *The Battle of the Narrow Seas*. In particular, the Vosper 70ft MTBs were a magnificent sight under full power, lifting their bows as they approached the plane, with the foaming wash swirling astern in their wake (see **Photo 1**).

Over the years I had given my grandsons off the shelf R/C models of a Severn class lifeboat, a destroyer and an aircraft carrier. However, they chugged along like broads' cruisers, failed to inspire or just plain sank. I therefore undertook the challenge to build them a boat that did none of these.

John Lambert has drawn some excellent plans that give the hull lines and general

layout of the Vosper MTBs, so I scaled up these plans on my photocopier to obtain a 4 ft hull length (see **Photo 2**). The very essence of these boats is the composite curves in the hull, and it was, therefore, important to retain these.

Although I built the structure using traditional model making means with a marine ply keel and frames, I covered these with double diagonal thin card coated with wood filler so as to obtain the graceful curves. The deck and wheelhouse I constructed from ply, while the motors installed were twin Torpedo 850s.

Her displacement, at 10 kilos, however, proved too heavy. She looked very good on the water but failed to excite my grandchildren as she simply refused to lift onto the plane (see **Photo 3**)

Blue sky thinking

Another of my projects was building a model aircraft out of Depron and Styrofoam, as the foams are light and relatively easy to cut and sand into complex shapes. This, clearly, was the solution for the MTB.

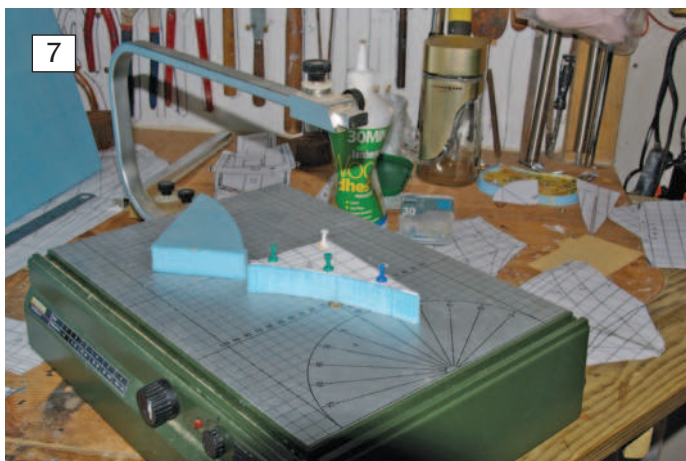
The build

The baseplate for the motors and rudders were built from 6mm marine ply and the keel and backbone 2mm ply, but, other than that, the remainder of the hull and deck were fashioned from Styrofoam and Depron. This was covered in brown paper with five coats of PVA glue. The wheelhouse was constructed from Plasticard, while the mast and stanchions were created using carbon fibre. I never throw anything out, so the remainder, for the most part, I made from bits and pieces I had to hand in my workshop, which I'd hung on to just in case they should come in handy one day!

To power this new version, I used the same motors as I had for my original boat,



ABOVE: The foam MTB lifting onto the plane under full power. BELOW LEFT: The 2mm ply backbone of the hull with the first layers of Styrofoam. BELOW RIGHT: The engine plate is 6mm marine ply. Before assembly I aligned the motors and prop shafts then drilled the tunnels for the shafts and glued on their skegs. The hull frames and the remaining horizontal foam layer can be seen cut and ready to assemble.



ABOVE LEFT: Michael's hot wire cutter showing a paper template pinned to Styrofoam. ABOVE RIGHT: The Styrofoam hull frames have been glued accurately in place on their marks with polyurethane wood glue.

with twin 80 watt Torpedo 850 brushed motors, each with their own Viper Marine 20 electronic speed controllers, and a 4300 mah Ni-MH battery, which gives up to 20 minutes running time.

The displacement, at 5 kilos, is now half that of the original boat, and I am delighted to report that she is stable, manoeuvrable and fast (see **Photo 4**).

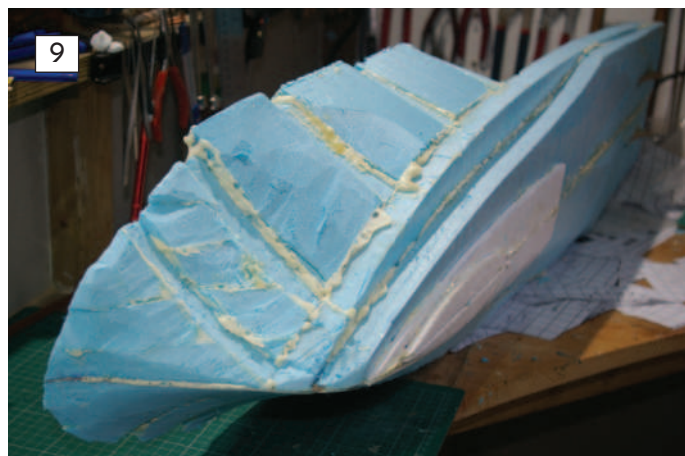
Four horizontal hull lines were taken off the plans from the keel to the hard chine.

These were then cut out of Styrofoam and Depron with a hot wire cutter (a sharp knife can, however, also be used). The four layers of foam were then glued together each side of the ply backbone (see **Photo 5**). I tried various glues that are compatible with foam and in the end found the easiest to apply and eventually sand was polyurethane wood glue; it's also the cheapest. One surface should be lightly wetted and then the glue applied to the other with a plastic spatula. As this glue

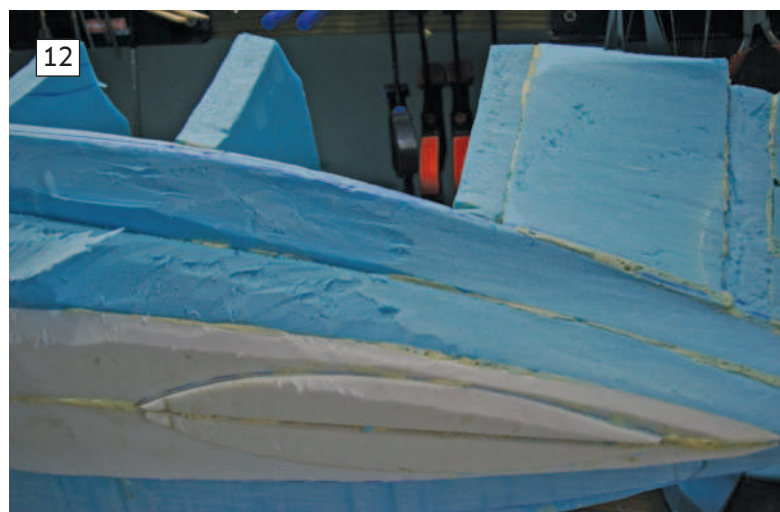
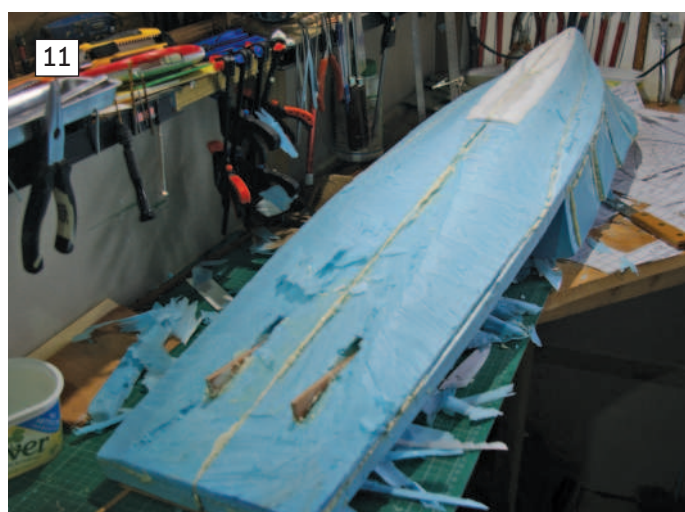
sets it will foam and expand, so clamps should be used for about half an hour to prevent everything being pushed apart.

Styrofoam has little integral strength, so, consequently, a marine ply floor was glued to the base layers for the motors, propeller shafts and rudders (see **Photo 6**).

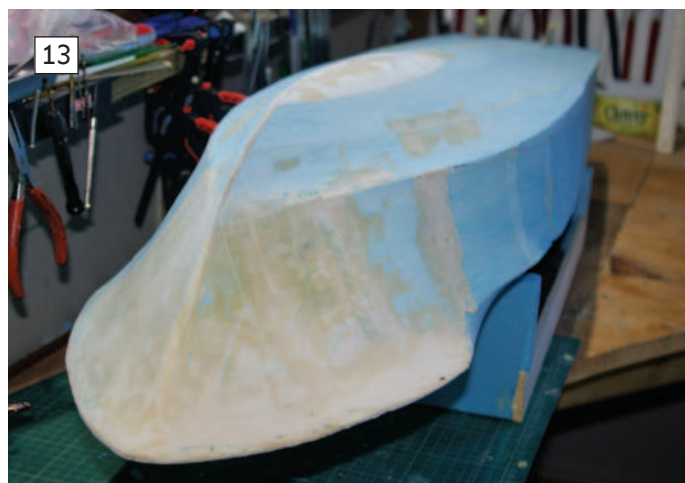
I then photocopied the hull frame cross sections and pinned them to Styrofoam, cut them out on the hot wire cutter and glued them to the backbone (see **Photo 7 and 8**).



ABOVE LEFT: The roughly cut solid foam bow section with the distinctive 'gooseneck' taking shape. The forefoot needs to be sharp where it cuts through the water and the bow then flares and expands towards the deck, which gives buoyancy when it meets an oncoming wave. ABOVE RIGHT: The fun bit! Whittling the foam to shape with Michael's curved carving knife. Note the pen line marking the chine.



ABOVE LEFT: Whittling towards the stern. ABOVE RIGHT: Whittling and sanding the bow section. Each horizontal layer was lifted from the hull plan lines, as were the vertical frames.

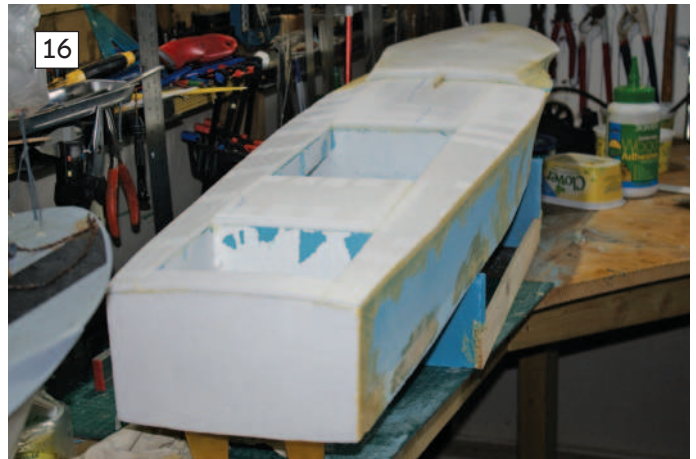
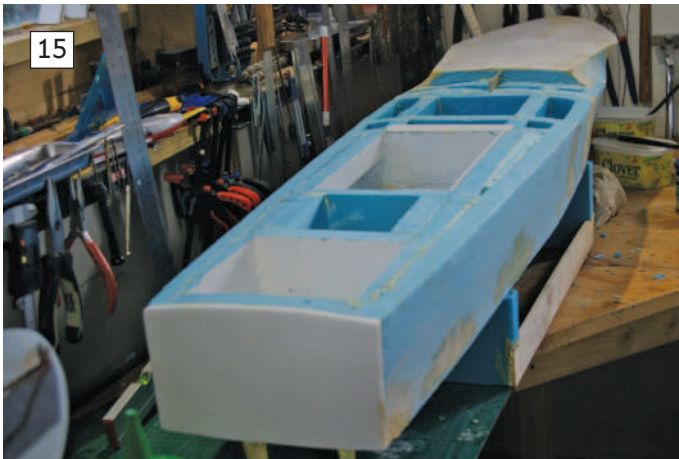


ABOVE LEFT: Inevitably a couple of skims of wood filler are needed to smooth the surface irregularities. ABOVE RIGHT: The engine mounts and prop shafts installed, with the battery tunnel visible. The hull sides aft of the bow section are almost flat so need minimal shaping.

The focs'l and bow have many complex curves, so I added more foam to form a solid mass (see **Photo 9**.) Now for the fun bit.... If any of you enjoy whittling wood, then you'll have a ball with foam! I use a curved kitchen knife, which I periodically sharpen. It's important that it's curved, for it would be tricky to carve the hollow sections with a straight blade. The hull is hard-chine and it

depends on the sharp delineation of the chine to lift it onto the plane. I therefore drew this on with a gel pen, being very careful not to cross the line (see **Photos 10, 11** and **12**.) Once the shape had been cut to the approximate size, it was periodically checked with a template of the hull cross sections. The foam was then sanded to the precise shape with decreasing grades of

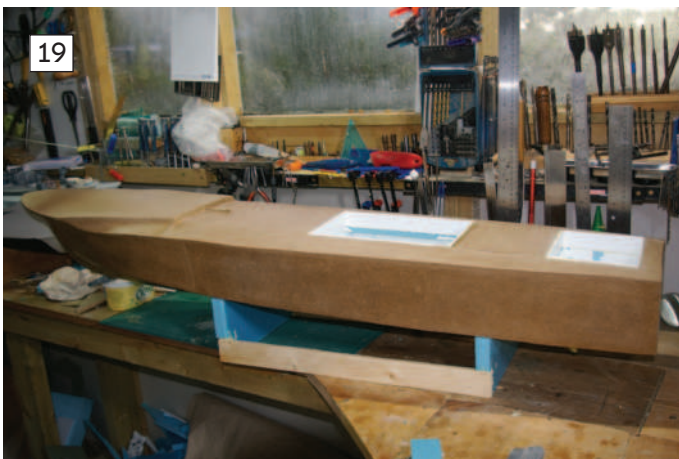
sandpaper. By the nature of the materials used, it was then necessary to fill any irregularities. A word of caution here: various fillers, glues and paints dissolve foam, so choose your products carefully. It would be tragic to witness your work of art fall foul of this chemical reaction. I found that two-part wood filler is well behaved and rapidly gives a smooth finish (see **Photo 13**).



ABOVE LEFT: The hull frames and compartments finished. The various compartments are all watertight so, in the event of a capsize, there is considerable buoyancy. Michael has added a Depron transom to give a clean finish. ABOVE RIGHT: The deck is also Depron, and is easily cut with a sharp craft knife.



ABOVE LEFT: Getting started on the brown paper wallpapering. If attempting this yourself, use waterproof PVA glue, not the non-waterproof glue I used, Michael points out! ABOVE RIGHT: Small pieces of brown paper were cut and glued at the composite curves. Once dry, any remaining wrinkles can be lightly sanded with fine sandpaper. The stand seen here was formed from a couple of Styrofoam templates originally used to check the shape of the hull.



ABOVE LEFT: Wallpapering finished. Michael added a frame around the edge of the engine and rudder bays, which are slightly proud of the deck. As the deck is cambered, this enables a snug, watertight fit for the hatches. Michael's frame was cut from an old venetian blind. If you look carefully, you can see glorious Devon sunshine through his workshop windows! ABOVE RIGHT: The gleaming hull after five, slightly thinned, coats of PVA glue. Wait for each one to dry before applying the next.

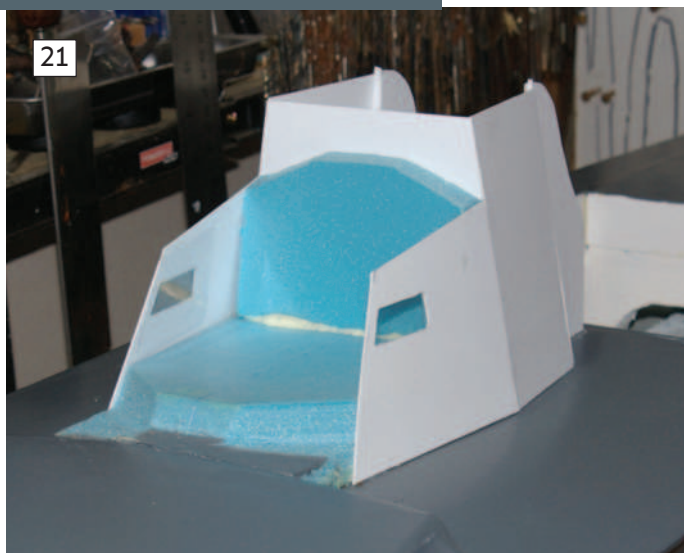
While there was unfettered access, I added the engine mounts and ensured they were aligned precisely with the prop shafts. I glued the shafts to the hull and to their skegs with marine epoxy and installed the rudder shafts just aft of each prop (see **Photo 14**). I then inserted bulkheads and beams to support the Depron decks (see **Photo 15** and **16**).

The almost forgotten skills of wallpapering then had to come to the fore. Ordinary brown wrapping paper is ideal when pasted on with PVA glue that has been slightly thinned down with water. For obvious reasons, waterproof PVA is better than non-waterproof, but I regret to say I didn't read the label! I cut each sheet of paper to shape then liberally slapped glue on

the boat. The paper was placed on a clean, flat surface and it, too, was smothered with glue to soak it. It was then applied to the hull and the wrinkles/bubbles were gently squeezed out. Once dry, five further coats of thinned PVA glue were applied (see **Photos 17, 18, 19** and **20**).

The rubbing strakes, spray rail and gunwale were made from thin strips of hardwood and

21



LEFT: The deck house was constructed with Plasticard and glued with superglue. The Styrofoam gives the construction strength.

BELOW: Detail of Michael's bridge and wheelhouse. The blue rails are split electrical flex. The handrails are toothpicks, the compass platform a biro and the throttles are mapping pins. Much against his ethics, he had to buy the cowl vents.

22



23



LEFT: Aft quarter showing the deck fittings. The Carley float and life-ring were carved from Styrofoam, the smoke generator is a fluorescent light starter, and the round hatch covers are the tops from 35mm film holders. All the fitting are glued in place, but as the deck is just brown paper, they also have the inevitable toothpick through fastening them to the structure beneath.

BELOW: The stanchions and the mast are carbon fibre, while the gun turret is brown paper wrapped around the plastic cap from a spray can. The main hatches are two layers of Depron topped with Plasticard; these are held firmly in place by a removable carbon fibre rod. The copper deck eyes were made from wire stripped from the earth of mains electric flex, bent to shape, pressed through the deck and glued.

24

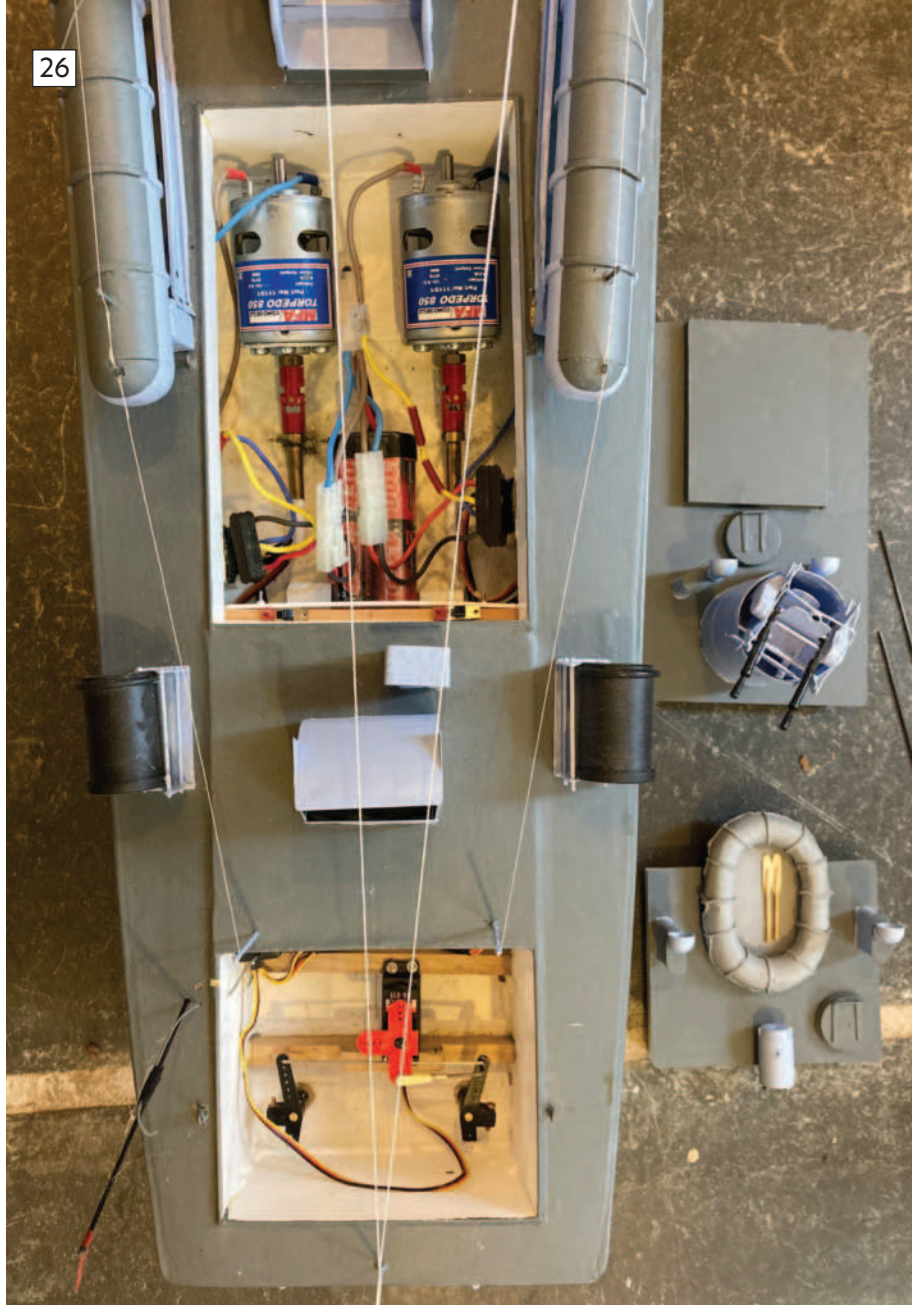


BELOW: Detail of the foredeck. The torpedo tubes were cut from plastic water pipe, with thin strips of Depron stuck on with superglue for the rings. Their mounts are Styrofoam, glued to the deck and through fastened with carbon fibre rods, which also act as stanchions. The anchor windlass should be on the starboard foredeck, but, Michael confesses, he read the plan upside down and back to front!

25



balsa. These were added after papering but before painting the hull and deck with two coats of grey primer/undercoat. Having completed the hull, I then started constructing the wheelhouse and bridge out of Plasticard, glued together with superglue. Fortunately, I was able to repurpose various bits and bobs lying around the workshop as suitable deck fittings. I tried, but failed, however, to make cowl vents, so had to go against my ethics and buy these (see **Photo 21, 22, 23, 24 and 25**).

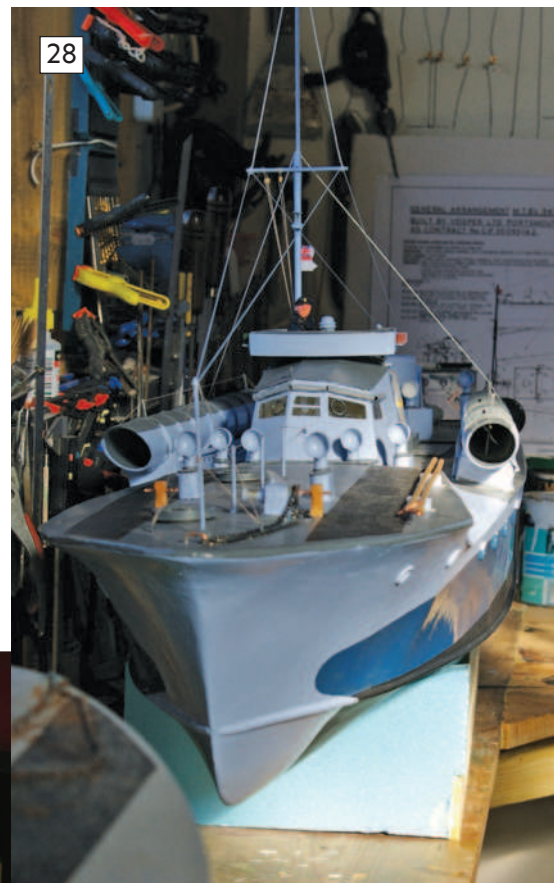


LEFT: Detail of the engine bay and rudder flat. Note: each engine has its own electronic speed controller fastened with Velcro and the battery is held snugly in place in a tunnel. A single servo controls both rudders. The R/C receiver is in the aft hold, to keep it away from any interference from the motors and the aerial is held aloft on a carbon fibre rod. The depth charges are 35mm film holders and their stands are Plasticard and toothpicks, as are the paddles and parts of the twin Vickers gun emplacement, which also incorporates carbon fibre rods, floral wire and drinking straws.

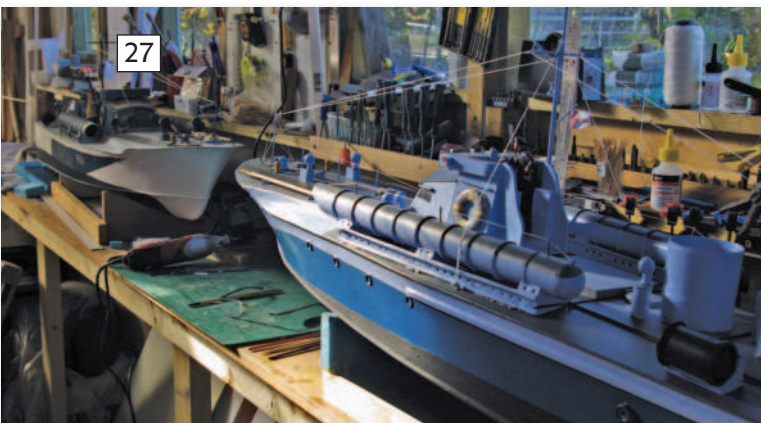
Next, I installed the motors, electronic speed controllers, rudder servo and radio receiver (see **Photo 26**).

When it came to finish, I could have left her with an overall grey paint scheme, but didn't. Why? Well, because as World War II progressed it became more common for naval craft to be painted in a variety of disruptive pattern colour schemes. The scheme I chose is typical of Royal Navy coastal forces (see **Photos 26, 27, 28 and 29**).

28



27

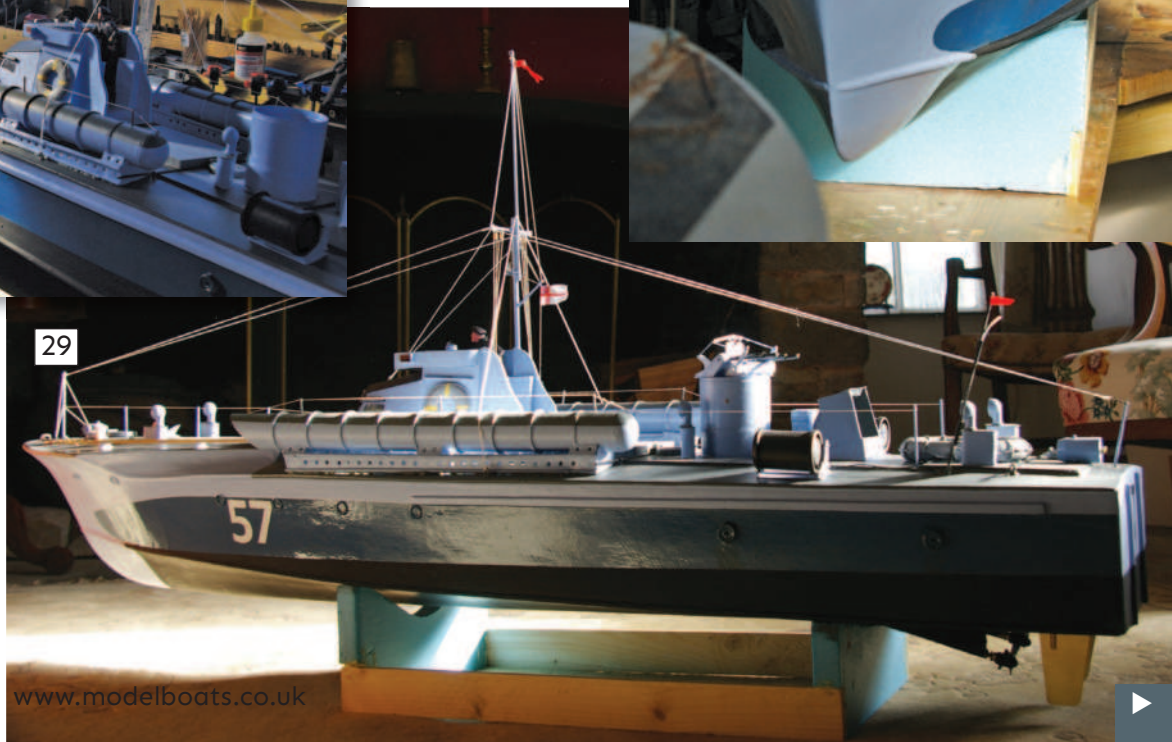


RIGHT: The boat hooks are also kebab skewers with copper earth wire bent to shape to form the hooks.

ABOVE: The torpedo tube rails are card, with holes punched in them and kebab skewers glued on. Note the different disruptive pattern camouflage schemes, typical of Royal Navy coastal forces.

RIGHT: Note the large twin rudders, these give manoeuvrability and, at speed, add to stability. The top mast, on the real boat, is a radar antenna. On the model, both this and the R/C whip aerial are flying pennants - to prevent anyone getting an eye poked out!

29



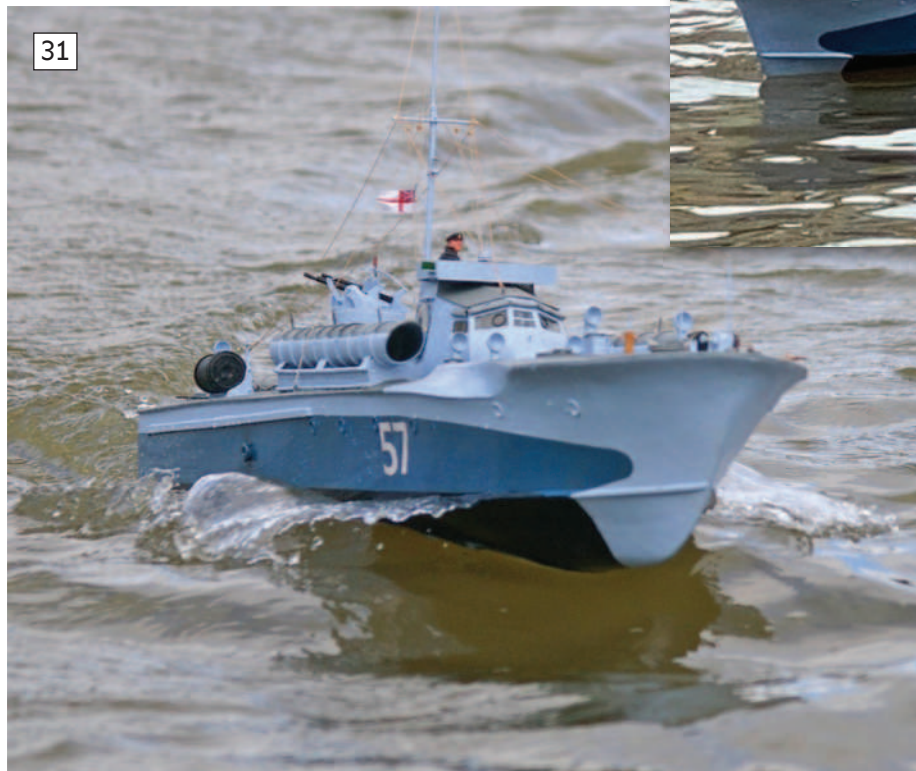
RIGHT: Michael tells us it's most unusual for his youngest grandson to helm the boat at a crawl. His middle grandson shot this photo, which, if nothing else, does show that she's trimmed correctly to sit on her marks.

BELOW: Michael's grandchildren are delighted by the fact that when the throttles are pushed to the stops, she's very fast yet at the same time reassuringly stable and easy to manoeuvre. Michael would like to thank to a lovely family who just happened to be out for a walk by Bude sea lock on this blustery day and kindly shot Photos 4 and 31-36.

30



31



“Keen to get hands on, my grandsons then took it in turns to helm the boat. As they opened the throttles she surged forward, her bow rose, and she lifted onto the plane. Of course, being boys, they slammed on full rudder; she leant into the tight turns but remained remarkably stable as one by one they performed doughnuts even Jeremy Clarkson would have been proud of!”

BELOW: Choppy sea.

32



On the water

She was now ready for her maiden voyage. For this auspicious occasion I was accompanied by my three grandsons to Bude Canal, where I was pleased to see that she floated correctly on her marks (see **Photo 30**). Keen to get

hands on, my grandsons then took it in turns to helm the boat. As they opened the throttles she surged forward, her bow rose, and she lifted onto the plane. Of course, being boys, they slammed on full rudder; she leant into the tight turns but remained remarkably stable as

one by one they performed doughnuts even Jeremy Clarkson would have been proud of! (see **Photos 2** and **31-36**). All my grandsons and granddaughters have proved to be excellent helmsmen and the grins on their faces show that they are truly inspired!



ABOVE: Accelerating. BELOW: Lifting on a wave.



Lessons learnt

This project has proved to me that a 4 ft long foam boat is not only practical but very pleasing. Relatively cheap and easy to build, my Styrofoam Vosper MTB is light yet strong, and fast, as well as being stable and manoeuvrable. If I were to build another, however, there are some further improvements I'd make: The present motors become hot and really need water-cooling. Rather than the brushed motors I installed this time around, I would try powerful brushless motors, and lipo batteries instead of the present Ni-MH one. Likewise, the propeller shafts are not suited to continuous high-speed running, so I would upgrade these, and add high speed propellers. But that all will have to wait, as my next project will be a foam Flower class corvette. ●

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* HM/MTB 31-40. General arrangement (as fitted) Vosper Portsmouth c.1940.



Marine Modelling Plans Service

* MM(L) 2343 Vosper 70ft MTB by John Lambert.

* Hull lines from DRG 9077 6/4/40 70 ft MTB by John Lambert.

* Vosper 70ft MTBs Nos. 35,36,38 and 218-221 by John Lambert.

* Hull Lines drawn to scale of 1/2 inch to 1 foot. Redrawn from No 9077 6/4/1940 by John Lambert.

* General arrangement MTBs 347-362 by John Lambert



That sinking feeling...

John Mileson regales us with the highs and lows of his first attempt at water ballasting...



ABOVE: To make the 'Katie' hull look anything like that of the Soleil D'or, great lumps of fibreglass had to be hacked off using a Dremel and cutting disc.

I can't quite believe I'm writing an article advocating the 'sinking' of boats, but bear with me, as all will be explained...

The inspiration for the project I'm about to share details of came about while watching the antics of my fellow club member, Bill. Bill's passion is modelling and operating submarines and each week he appears pondside pushing a child's 'buggy', onto which is strapped one of his incredible creations. This will be lowered into the water and, with careful operation of the transmitter, will gently be sunk to periscope level. Amazing! It's a fairly regular occurrence, however, for one of Bill's subs to disappear below the surface and for nobody, including him, to have the slightest idea of where it is. Bill's admirable response to such drama has always been: "Never mind. A cup of tea and a doughnut will resolve the issue sooner or later". When, for example, batteries have failed, the sub in question has

simply been allowed to, eventually, drift its way back the bank. More troublesome was when the outer panels of one of the subs, not being firmly attached, fell off, resulting in the vessel surfacing 'naked' and the pond then having to be dredged to locate them. But, in any event, Bill's patience, sense of humour and ability to entertain onlookers is quite remarkable.

So, I began to ponder the possibility of partially sinking my next model boat down to its waterline, thus negating the need for heavy ballasting. Less lead in the keel would mean less weight for me lug when carrying a large boat to and from the pond. While I had no previous experience of water ballasting per se, how hard could it be? After all, over the past couple of years I'd already sunk two model boats –albeit, I'll admit, not intentionally. Perhaps now I could redeem myself with the successful adoption of water ballasting? That was the idea, anyway...



ABOVE: To convert the hold into a 'water tank' plastic was used for the bulkheads and deck. Aluminium angle was used to give additional rigidity and allow the deck to be screwed to the bulkheads. BELOW: With all the bulkheads in place it was important to ensure water could pass along the length of the boat. Holes and slots were cut in the plastic bulkheads.



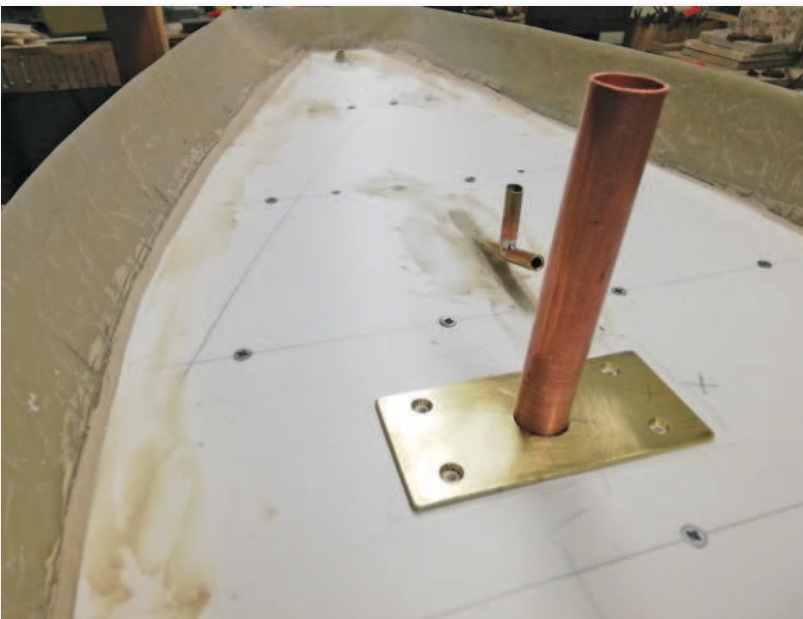
Preparing the hull

For some time, I'd been attracted to Katie, due to her perfect lines and seductive contours, and had convinced myself that the fibreglass hull for her, available from Sarik Hobbies, would be the ideal basis for a number of different boats on my 'to model' list. One of these was the Tresco Island launch Soleil D'or' for which I'd already purchased a plan (also from Sarik Hobbies). Believing the Soleil D'or to be similar in profile to the Katie, however, proved wishful thinking and I found myself having to hack great lumps of fibreglass off the hull in an attempt to achieve even a passing resemblance. But, having invested my cash and it being far too late at this point to change course, compromise claimed the day!

Being made from fibreglass, the Katie hull is exceptionally light, so a certain amount of lead was initially required to stabilise the



ABOVE LEFT: Looking into the hull, the propellor shaft was bonded in and six small lengths of 15mm central heating copper pipe located along the keel. These would allow water to enter and exit the hold. ABOVE RIGHT: The first bath test. A lot more baffles have been added, plus some lead. This was required to stabilise the hull and prevent it turning turtle.



LEFT: The plastic deck has been bonded into the hull to create the water and air-tight tank. The copper pipe/brass plate is the mock up for the exhaust valve.

BELOW: To allow the last vestiges of water to escape, a 6mm diameter short length of brass tube was fitted as low as possible along the keel line.

unladen hull and stop it from simply turning turtle when placed in the water, and there's no getting away from the fact that I over did this (more on which later).

One of my more sensible moves, however, was to consult John Cox at Howes Models, who he wisely advised me to make sure plenty of baffles were incorporated in the hold to prevent the water ballast 'swilling about' and causing the boat to roll uncontrollably.

It also dawned on me the hold would need to be waterproof, so I avoided the use of wood for the bulkheads or deck, instead opting for some 6mm plastic, usually used for sign making. This was not only inexpensive and relatively lightweight but proved very easy to cut on my bandsaw. What I hadn't bargained for, however, was the amount of plastic dust generated while doing this – all of which seemed to gravitate towards me very much in the same way iron filings would to a magnet! This was bad enough in my workshop/a.k.a. the shed, but should I venture into the house I'd be in really big trouble! The only solution, as far as I could see, was to first remove all my clothes in the garden. Bearing in mind the



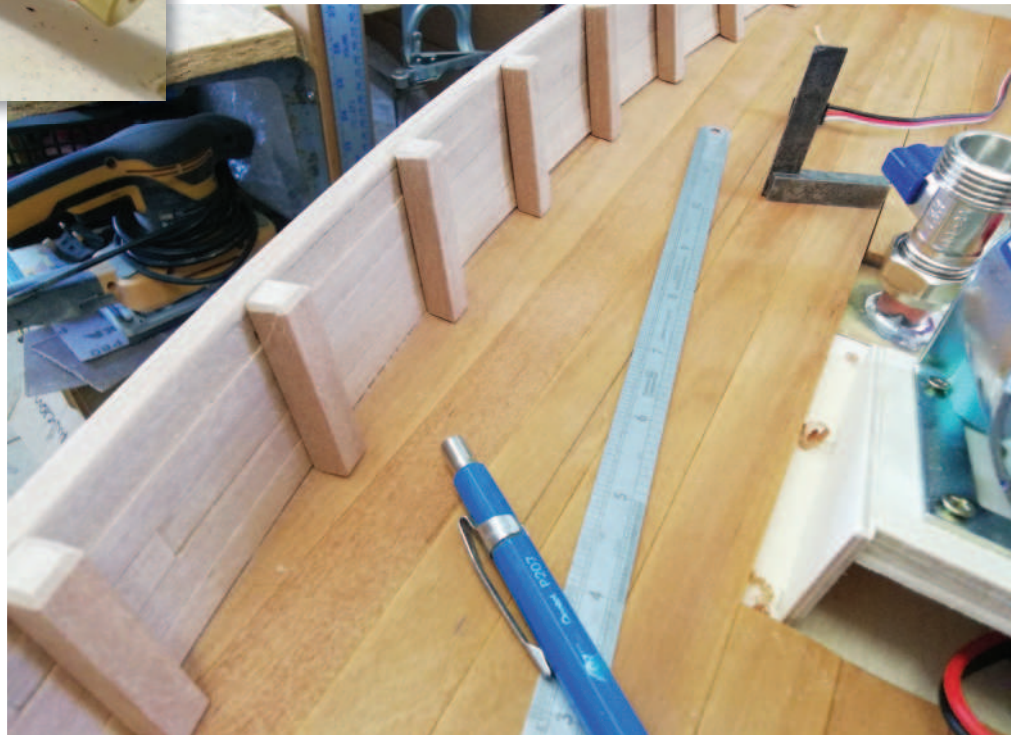


ABOVE: The electric motor set (hopefully!) at correct angle. To compensate for misalignment, a double universal joint has been used.

RIGHT: More teak furniture was cut up to provide the planking for the deck. This was stuck to the plastic using superglue.

temperature was hovering around freezing, this wasn't a decision made lightly, but undress I did. No sooner had I done so than I realised the postman was making his way up the path to our letterbox. But while I was mortified, he simply gave me a cheery wave and continued on with his business, as if my bizarre behaviour was nothing out of the norm!

Anyway, once dressed and back in the shed where I'd left all the bulkheads, baffles and deck I'd cut out, I bonded these into the hull using P38 body filler. Each bulkhead had a strip of aluminium angle screwed to it to enable the deck to be both glued and screwed to it.



BELOW LEFT: The next bath test. 'George' is indicating the starting point of the test, prior to the exhaust valve being opened. BELOW RIGHT: Here we see the amount the vessel has 'sunk', about 30 mm. This can of course be adjusted by the amount of water allowed into the hold. John's test proved the principle does work.



“That was the theory – here’s what actually happened...”

Prior to this operation, six 15 mm diameter holes had been drilled into the hull along the keel line. Into these holes I bonded short lengths of copper central heating pipe. These would allow the ingress of water into the hold.

A second deck of 3 mm plywood was screwed and bonded with resin to the plastic deck. It would, I decided, be easier to glue the wooden decking to the plywood surface than it would to the plastic deck.

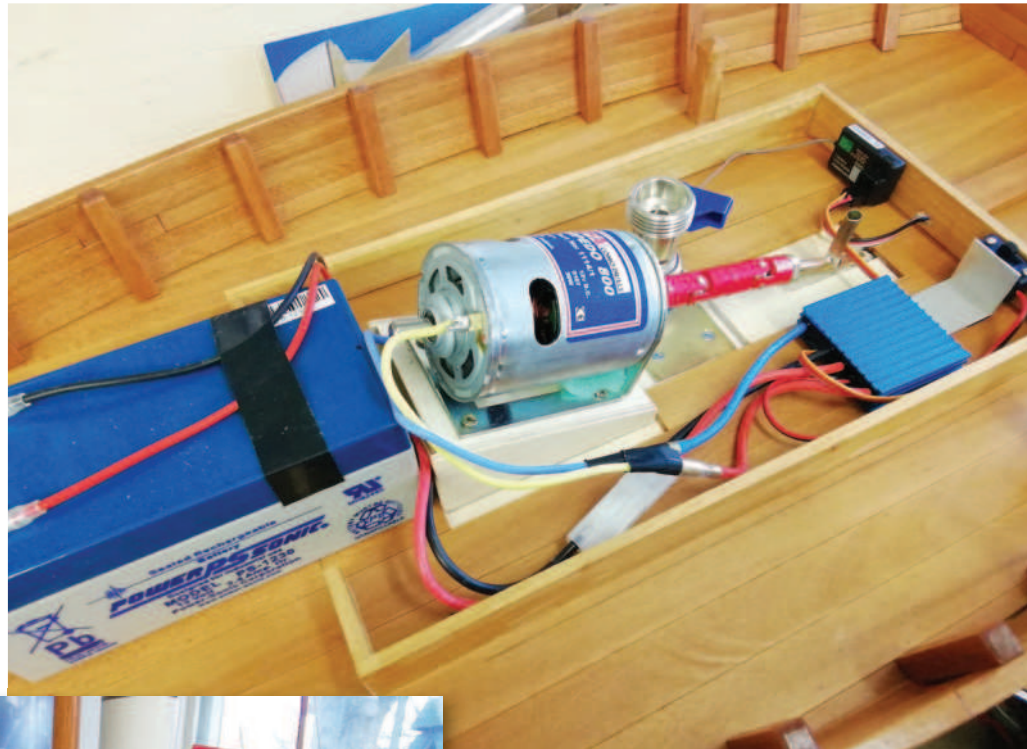
The next task was to fit the 'exhaust' valve into the deck. The valve selected was a typical cold-water tap used on washing machines. This was fitted onto a short length of 15 mm copper pipe and glued onto the deck, with the copper pipe passing through this into the hold.

With the electric motor installed, it was time for a bath test. The idea here was that the 'light' hull would be placed in the bath water with the exhaust valve closed. The hull would, in theory, float high above the intended water line and be reasonably stable, and the exhaust valve could then be gradually opened until the boat 'sank' to its correct water line. That was the theory – here's what actually happened...

With the hull gently bobbing about on the water, I opened the exhaust tap. Realistically, I needed the hull to settle in the water by about 25-30 mm. Much to my surprise, the hull sank to the anticipated water line in about two seconds. Excellent! It soon became apparent, however, that the boat was stern heavy. Placing a 1lb weight onto the foredeck remedied this, but no longer having access to the hold I was unable to add this extra weight within the bow. I wasn't too worried at this stage, though, as I knew there'd be some further adjustments required when I'd added the superstructure, etc. Frustratingly, though, some of the lead ballasting could have been removed before sealing the deck had I



ABOVE: The deck houses under construction. Made from 2 and 3 mm plywood, these will lift off to gain access to the motor and electronics, etc.



ABOVE: The engine room showing the location of motor, electronics and battery. LEFT: The final inspection.



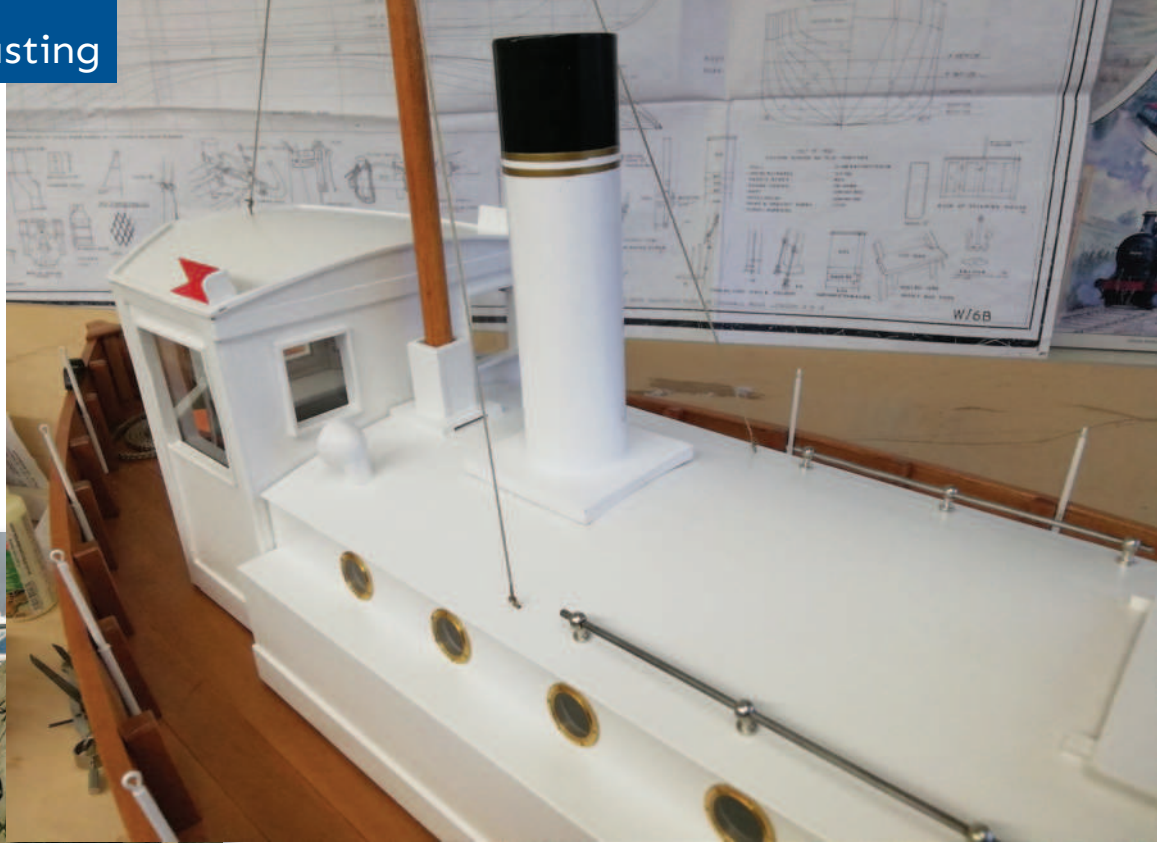
factored in the weight of the motor and large battery would add, and so as a result is that the boat is a bit heavier than I had planned.

In hindsight, it was also a big mistake not splitting the hold water tank in two. A forward tank and a separate stern one, each with their own separate exhaust valves, would have made my launch far easier to trim.

The superstructure

The prototype launch has a fairly basic wheelhouse and engine room. These were constructed from 3 mm plywood and are

Water ballasting



ABOVE: The masts and funnel in place. The funnel was cut from a length of plastic waste water pipe. A lot more detail still needs to be added. Working in this scale (1inch to the foot) there is not the range of accessories that are readily available in smaller scales.

LEFT & BELOW: Views of the finished launch.

quite large; I tended to forget I was modelling this launch at a scale of 1-inch to the foot. If you look carefully at the photos, you can see that the quality of the woodwork is pretty crummy. This surprised even me, for having spent eleven years in education, the only qualification I left school with was 'O' Level woodwork. Mind you, on reflection, the sample joints made during the exam did fall apart as they were being collected in by the examiner!





Midas touch

The launch was now almost finished, save for a lick of paint and some additional detailing. I'm not a fan of spray painting on large scale boats, so with this one being about 40-inches long, I brush painted her using Phoenix enamels. Being traditional enamel paints, application with a brush is simple at

"This relatively easy build may well be one for any novice modellers reading to consider, as the submersible aspect could easily be ignored"

any reasonable temperature and the finish exceptionally good.

Finally, she was given a name: *Midas*. Rather than being any sort of nod to the *Soleil D'or* (Golden Sun), this was chosen simply because it was all I could make up from the unused characters on a sheet of stick-on lettering I had left over from one of my old model railway projects.

Man hours, costs & considerations

I put about 60 hours into this build, and, including the cost of transmitter/receiver, etc, spent somewhere in the region of £250 on the project overall.

Would I consider building another 'submersible' model boat? Yes, I would. Mind you, I think the concept is probably only viable when using a fibreglass hull and working in one of the larger modelling scales (*Midas* measures in at 42-inches LOA, with a 13-inch beam, at a scale of 1-inch to 1-foot).

Despite having noted the whys and wherefores of my own blunders, this relatively easy build may well be one for any novice modellers reading to consider, as the submersible aspect could easily be ignored.

The critical part is ensuring a good seal between the plastic deck and the fibreglass hull is achieved but, fear not, as P38 filler will serve you more than adequately with this.

Pushing the boat out...

A further water trial has now proved successful, within the limitations of the bath. All that remains is for me to take *Midas* to our club lake and trust she doesn't go down in the same way my fellow club member and avid submariner Bill's models do. That said, come what may, I will be joining him for a nice cup of tea and a doughnut or two! ●

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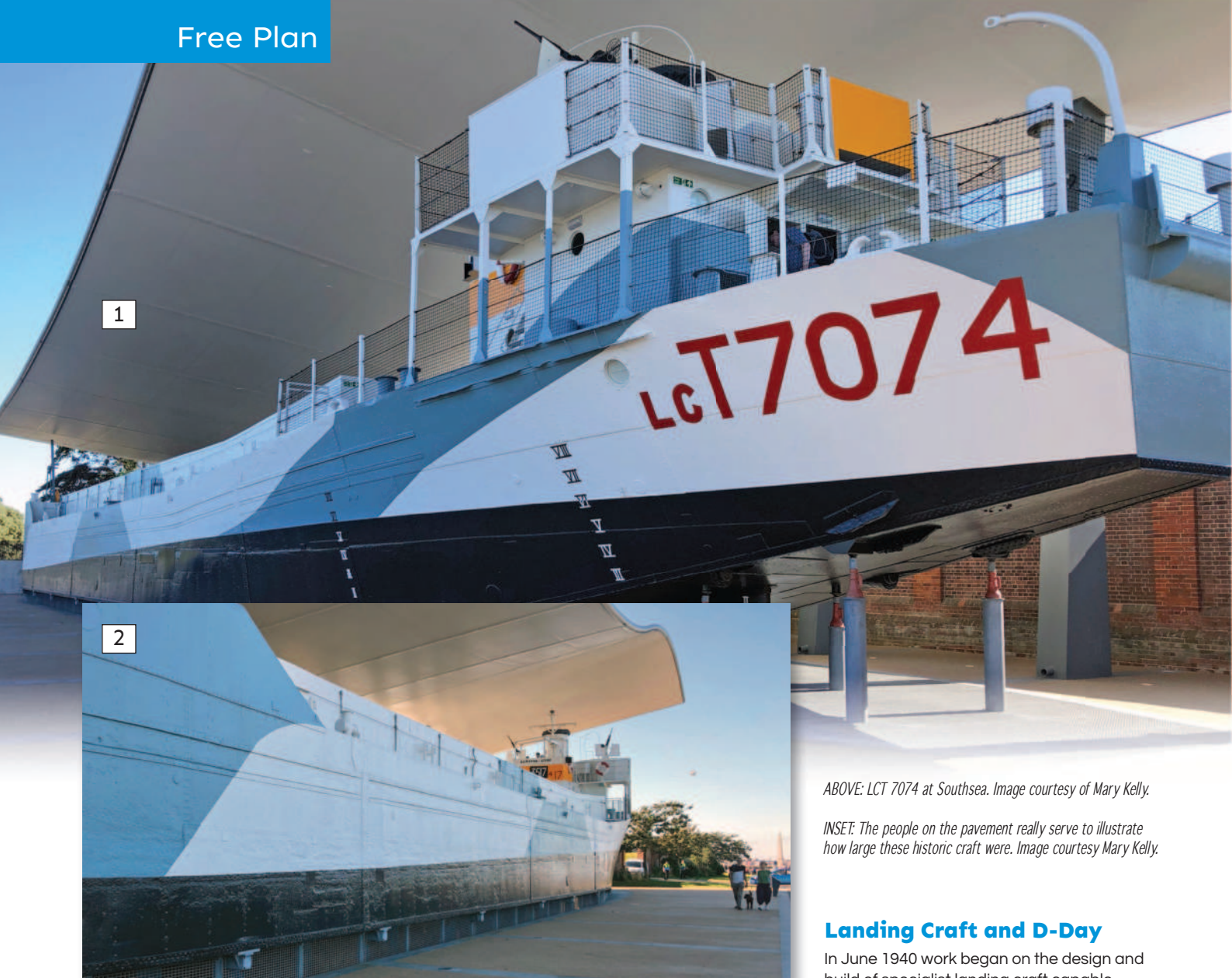
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ABOVE: LCT 7074 at Southsea. Image courtesy of Mary Kelly.

INSET: The people on the pavement really serve to illustrate how large these historic craft were. Image courtesy Mary Kelly.

LCT 7074

Part 1

Francis Macnaughton begins a step-by-step guide to accompany the free landing craft model pull-out plan included with this issue...

I've been modelling the World War II landing craft used in the Normandy landings in 1944 for over 20 years now. Initially, sources of information were very limited, but gradually this situation improved. Nowadays there are even plastic kits of the smaller types, which

can be converted to accommodate radio control; indeed, I have several different working examples in my own fleet. Throughout all this, I'd always assumed I was unlikely to ever come across a real example of the larger Landing Craft Tank type. These LCTs, which headed the initial assault, were between 100 and 200 feet long and are my particular favourites. So, in August 2020 I was delighted to see the TV coverage of LCT 7074, freshly painted in blue and white camouflage, moving slowly along Southsea waterfront, on her way to being put on public display. Inspired by this unexpected survivor, I had no hesitation in deciding what I would be modelling next, the results of which I will be sharing with you here.

Due to this being quite a complex project, the instructions have been split into two parts. This month I will be covering the basic model hull, built in three sections, and the R/C gear required. But first, a little history...

Landing Craft and D-Day

In June 1940 work began on the design and build of specialist landing craft capable of off-loading heavy tanks on hostile beaches – something that would be vital to the success of any plans for the eventual liberation of the European mainland. With necessity being the mother of invention, by November 1940 a prototype for the 152ft long LCT Mk 1 was ready for trials. This had four prefabricated sections, allowing for easy shipping to its theatre of operations, where it would then be re-assembled. This was followed by the slightly larger Mk 2 version that improved carrying capacity and other arrangements. Adding an extra section then produced the 192 ft long Mk 3, which proved its effectiveness during the amphibious landings in Italy in 1943. It was the Mk3, therefore, that was ordered in bulk as part of the preparations for D-Day, because it was large enough to take a sizeable load but not so big as to risk putting too many eggs in one basket; LCTs were frequently tasked with carrying equipment and troops vital to the initial assault, such as the DD swimming tanks and the specialist teams and vehicles for beach obstruction and mine clearance, putting them squarely in the sights of the opposition. About 900 Allied LCTs took part in the Normandy landings and LCT 7074 is the only known survivor, so naturally it's an important addition to the UK's National Historic Ships collection.

“About 900 Allied LCTs took part in the Normandy landings and LCT 7074 is the only known survivor”

Two LCT Mk3s after the June 19, 1944, storm in the Channel. Image courtesy US NHHC photo archive.

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LCT 7074

This vessel was one of a batch of six ordered from R&W. Hawthorn Leslie's shipbuilders at South Tyneside in late 1943 specifically for Operation Overlord (D-Day). Taking three months to build, LCT 7074 was handed over to a 12-man Royal Navy crew on April 7, 1944, joining the 17th LCT Flotilla training off Great Yarmouth until it was time for her to be loaded up at Felixstowe, ready for the launch of the greatest amphibious operation in history.

7074 carried a mixed load of 10 tanks, which were to land on the evening of June 6 as part of the follow-on force intended to expand the initial lodgement area out to Bayeux before German forces could attack in strength. Setting sail for Normandy in convoy on June 5, 7074 carried 45 army personnel onboard and only some very spartan facilities for the existing ship's company. Things aboard must have been very cramped and trying – especially given the lively weather conditions in the Channel, which had already delayed D-Day by one day. Contemporary narratives, however, make it clear that this discomfort served only to further motivate the troops in their mission to get ashore as soon as possible.

Although the convoy arrived off the landing beaches as scheduled, it was not possible to land until the following morning. Conditions on the beach slowed offload of the tanks and, consequently, 7074 was stuck there until the next high tide. While waiting, 200 prisoners of war were briefly held onboard before a larger

and more suitable vessel could be tasked to transport them back to Southampton.

LCT 7074 then made many more voyages carrying personnel, vehicles and stores from Southampton, initially to the Normandy beaches, and then, as the Allies progressed through France and into Belgium, further east to other Channel ports closer to the fighting, until March 1945 when a final trip to Antwerp supplied equipment needed for crossing the river Rhine. 7074 was then sent to Liverpool for conversion into an emergency repair facility for the Far East campaign. This involved building a large central covered space for workshop facilities but left most of the tank deck and deckhouse unchanged. Before Naval Service Craft NSC(L) 19, as she was now called, could be deployed to the Far East, however, the war ended, so she became surplus to requirements.

In 1947 the Merseyside Master Mariners Club bought the vessel for use as a floating clubhouse, known as Landfall, which also doubled as a nightclub. She would continue to fulfil this civilian role right up until the 1990s, when the commercial decline of the docks finally rendered her unprofitable. Following this, the Warship Preservation Trust took on responsibility for the vessel and began refurbishments aimed at returning her to her 1944 guise, but work sadly ceased when the WPT, too, went under. Subsequently, lack of maintenance led to the hull leaking so badly the vessel eventually sank to the bottom of the dock in 2010. In 2014, however, the National Museum for the

Royal Navy raised the funds to re-float the hull and transport it to Portsmouth dockyard for restoration, and I am delighted to say that now finished she's currently on display at Southsea.

Reconnaissance mission

The plans were drawn to represent LCT 7074's Normandy, June 7, 1944, configuration, taking into account everything I managed to glean during my research. A very useful source of information was the work done by the Project Heritage Officer, Stephen Fisher, who literally recorded almost every weld mark and rivet to establish, as far as historically possible, what was fitted where and when.

I've included a list of accessible historical references but the primary sources I used were the General Arrangement (GA) plans of the initial and final batches of LCT Mk3, supplemented by a number of photos mainly found on the Imperial War Museum's website, including two shots of 7074 herself, taken while the PoWs were briefly held onboard on June 7, 1944. These show useful detail of the tank deck area, although it would have been even better if the PoWs hadn't been quite so numerous! There is also a dedicated LCT 7074 thread on the Model Boats website forum, where other useful photos have been posted.

For this project, photographs of LCT 7074 as she's displayed at Southsea need to be referenced with some caution, as several areas, particularly the side bulwarks to the

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tank deck and the bow ramp area that were extensively rebuilt during the 1945 conversion have not been returned to 1944 configuration. However, the lower part of the deckhouse and quarterdeck remain largely unchanged (see **Photos 4** and **5**, courtesy Andrew Egan). There have also been a few changes made to comply with modern access and health and safety regulations. For example, the bridge area is only partially equipped to leave enough room for visitors to circulate, while the guardrail arrangements are considerably more substantial than they would have been in 1944.

R/C equipment required

Full load displacement equates to 1.4 kg in 1:72 scale, so there are no concerns about weight, and the low profile will ensure stability. There's enough internal space available to use standard R/C gear. The propellers used for my model are Deans Marine 3-blade plastic M2 shaft 18mm diameter ones, with a left- and right-handed pair for better manoeuvring. The prop tubes were home made from brass and plastic tube. I opted for RE 260 motors, connected to the shafts by suitable silicone flexible tubing. Any small low-power brushed ESC should be fine – mine are the electronics from a FS90R continuous rotation servo. The steering servo is a KA-04 micro type, while the steering linkage uses 2 mm thick plastic card arms epoxied to each rudder shaft. The receiver is an Orange R610 type, which I mounted as high as possible in the space under the deck house using a stand made from plastic card. The 4.8v 950 mAh battery pack, using AAA sized NiMH cells, is stowed under the aft end of the tank deck; this is available from Component Shop, as are the FS-90R and KA-04 servos. **Photos 6** and **7** show all these components in place.

Hull construction

The main hull is built from standard plasticard and follows the original craft, being in separate sections – in this case: bow, centre and stern.

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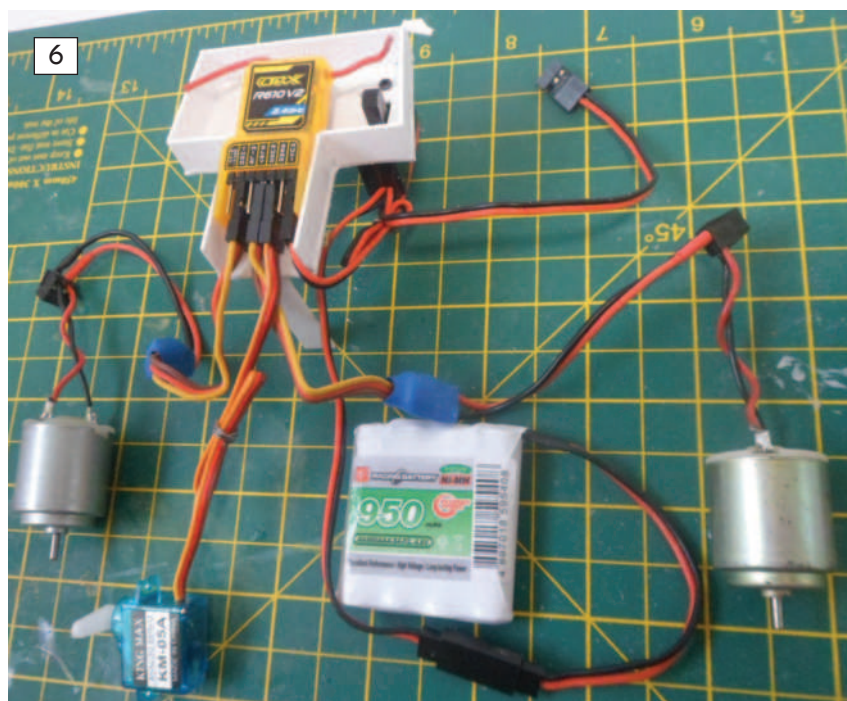


A4 size card can be used if that is the largest available. The required number of each part and the advised thickness is given on the plans.

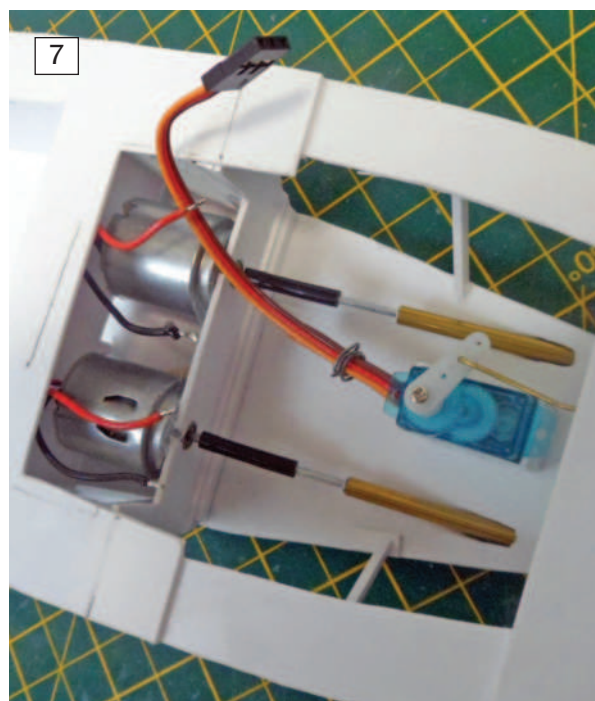
Starting with the stern section, Part A, the main deck, is cut into three pieces, with the removable central part providing internal access, while the remaining two sections are joined by two Part Bs which run underneath and support the removable section. The B

parts need to be stuck to the underside of the deck carefully so that the original outline of A is maintained. Once set, this assembly is laid flat on the worktable upside down and part C, the tank deck end screen, can be glued in place as shown, with two Part Ds also glued to C and A, so that C is at the correct angle to the deck. Each Part D should have four 1 mm by 1mm cuts evenly spaced along its top

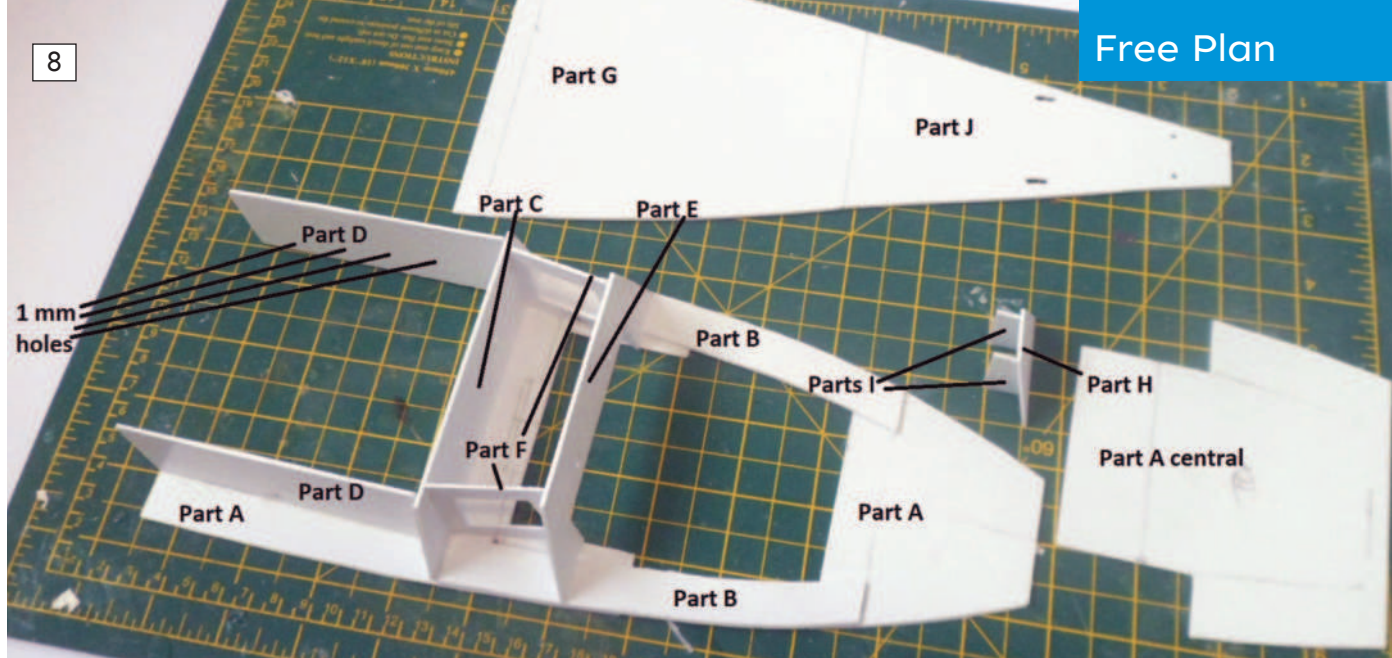
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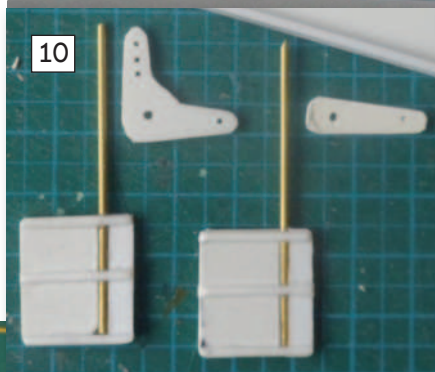
edge. Part E, the motor support bulkhead, is in turn positioned by two Part Fs, which hold E perpendicular to the prop shafts. Two Part Is need to be glued to the transom, Part H, so that it will be correctly angled relative to Part A, and this assembly is then stuck to the underside of A. **Photo 8** shows things at this stage, and note how strip has been added on the aft facing surface of E to help strengthen the join with the aftermost hull bottom, Part J. Two Part Ks should be glued as shown to A and D, noting that the hole marked at the centre of K is to allow lengths of 2 mm metal rod be used to hold the main hull sections in alignment at final assembly. Part G can now be glued in place.

Part J features holes for the prop tubes, rudder shafts and A bracket supports, and I found it best to progress these as much as possible before J is glued into place. For the rudders, I glued a small block of balsa wood to the inside surface of J over the rudder tube holes, and then carefully drilled through at the correct angle to take 28 mm lengths of 2.1 mm brass tube so that the rudders will be correctly aligned with the rest of the hull, before the tubes were then glued in place. If part J is now temporarily taped into position, the jig provided in the plans (which needs two short bits of 1.5 mm brass rod glued in the slots) fits in the rudder shaft holes and holds the outer end of each 2mm prop shaft (see **Photo 9**), while the inboard end is held

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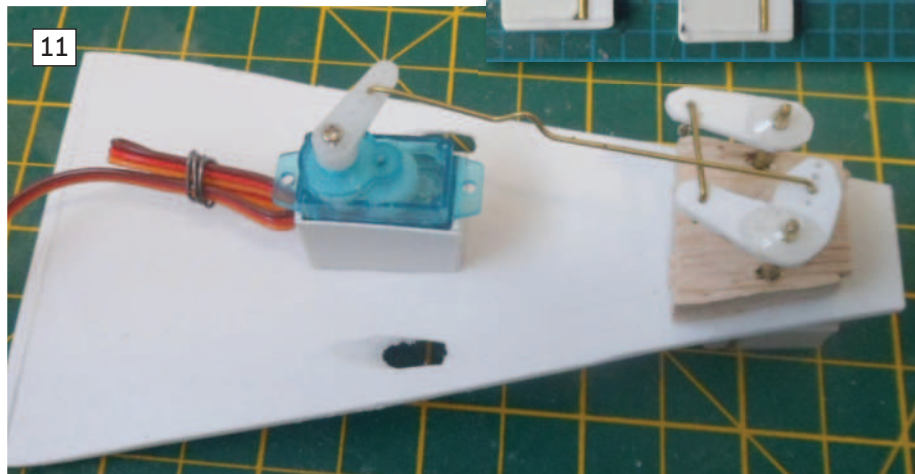
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by the appropriate hole in the motor mount bulkhead, Part E, providing an accurate reference to ensure that the holes in J for the prop tubes and the lower supports for the A brackets are in the right place. The rudders are made from 1 mm plastic with 1.5 mm half round plastic sections, all glued to a 50 mm length of 1.5 mm brass rod; I over-sized (20 mm by 18 mm) mine to ensure adequate steering. The servo is held in position by a rectangular plastic card enclosure. This is designed to be a close fit around the servo and angled to hold it square to the rudder shafts; a smear of silicone sealant will prevent the servo slipping out. **Photo 10** shows the main parts and **Photo 11** all of this assembled and linked up before Part J is finally glued in place.

The stern tubes are made from 40mm lengths of 4mm brass tubing, with bushes at each end made from short lengths of 3.2 mm Plastruct tubing, the existing hole being drilled out to a give a good fit for the prop shafts, made from approximately 85 mm lengths of 2mm servo rod. For the brackets I used 12 mm length of brass strip, soldered to a 5 mm length

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of brass tube for the inner supports, adding the outer supports once the hull sides had been glued in place. For extra strength and also to help secure the hull sides, I added two 2mm square section plastic strips on each side as props between the deck and the hull bottom, equally spaced along the stern section aft of E (see **Photo 12**), then glued obeche 3mm strip along the upper edge of J, with a small overlap at the outside edge so that it could be trimmed back to match the slope of the hull side to provide a good basis for the join between J and the hull side. The Part A outside edge needs to be trimmed in the same way. Two Part Xs need to be cut from 0.75 mm plastic sheet – the template allows a small margin of excess material all round to cater for minor variations in the stern shape. These hull sides should be checked for fit and carefully bent to adapt to the curvature along the length of Part A before being glued in place.

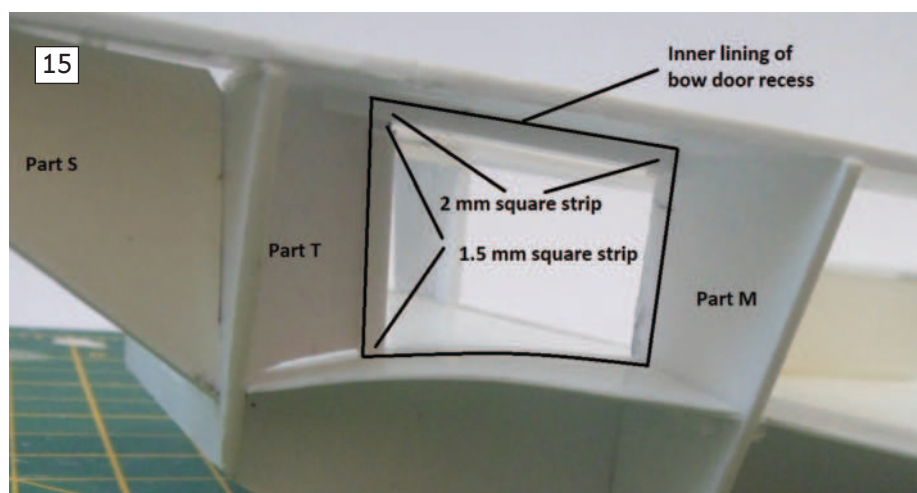
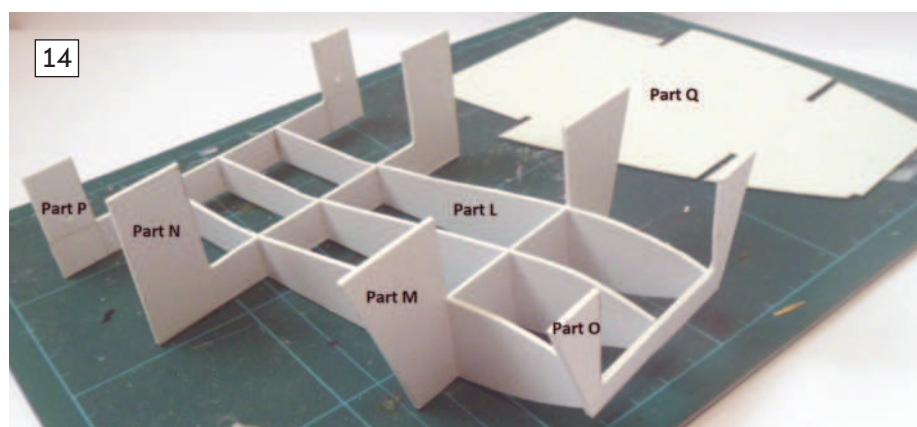
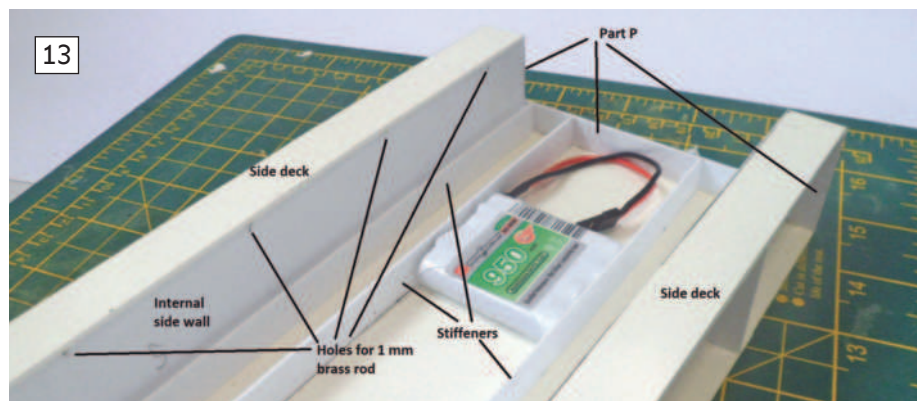
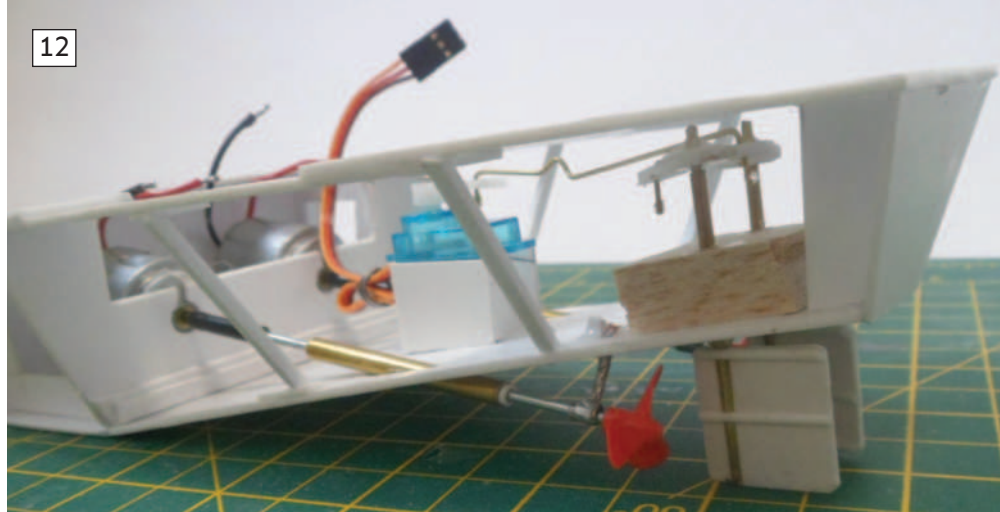
The central section is much simpler and quicker to construct, as it's essentially a plastic card box, with all parts being rectangular, so dimensions only are given on the plans. One Part P is glued to each end of the hull bottom. Each of the two internal sides need a 1mm by 11 mm area trimmed from each end to fit between the Part Ps, and also about six 1 mm by 1 mm deep cuts made along the top edge, evenly distributed along

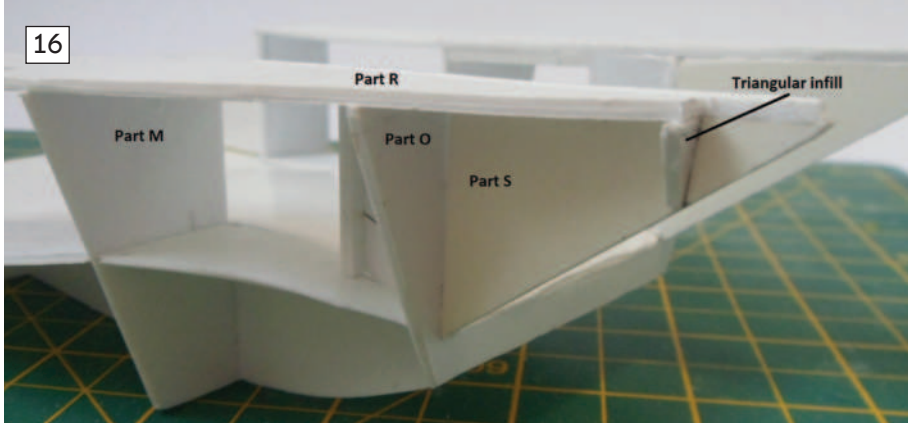
its length to take 1 mm brass rod supports that will secure the side bulwarks. The internal sides can then be glued in place. Four Part Ks should be added, again evenly spread along the length of each side of the section and glued to the hull bottom and the internal wall, so that they're ready to support the side deck on each side. Once the glue has set, the side decks and the internal tank deck stiffeners can be added; the latter should be positioned with two close to the internal walls and the other two 45 mm apart, acting as the sides of a central compartment for the main battery pack (see **Photo 13**). The central section is completed by gluing the two external hull sides in place.

For the bow section, after cutting out the listed number of Parts L to W (note the six small slots for the ramp hinges at the bottom of Part O), assembly starts with three whale-back profile Part Ls being slotted into bulkheads M and N, and then glued. The remaining two bulkheads, O and P, can then also be glued in place, taking care to align these correctly so that the two foredeck Part Rs will keep a flat profile when they're fixed over the top of the first three bulkheads (see **Photo 14**). The whale-back deck, Part Q, can then be tested for fit and trimmed as necessary. If you don't intend to use the PE, then Q should be doubled up, with a second layer of the same 0.5 mm thickness. The foredecks, R, can now be glued to M, N and O, checking that they are correctly aligned. The ramp sides, Part S, can now be glued to the underside of each foredeck and the front of Part O. The in-fills for the bow door recesses, Part T, should be glued to the other side of O and the underside of R and a strip of 2 mm square plastic used to fill in the remaining gap between O and M. Plastic strip and sheet is then used to line the inside of the bow door recess (see **Photo 15**). Once set, all the joins and seams along the bow ramp sides should be cleaned up to get a smooth continuous surface.

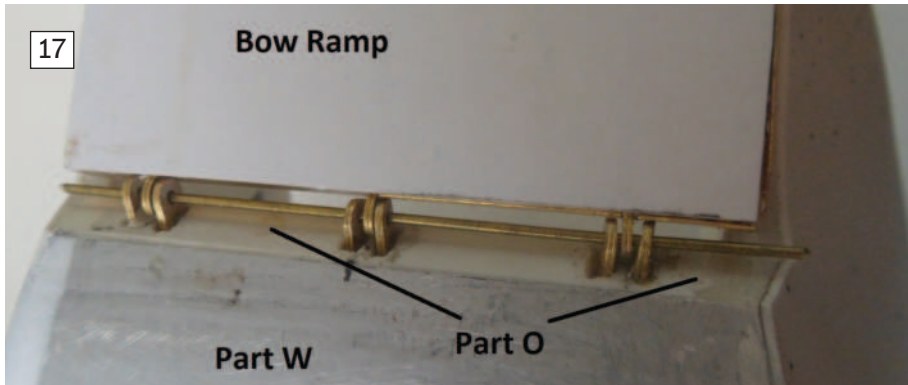
The underside of O and its join to the three Part L profiles should also be trimmed and filed as necessary to achieve a nice, smooth overall curve. Two Part Ks are glued to the aft face of N, then Parts U and V are glued to N, K and P to provide the internal sides and deck of the wing compartments.

The next stage is to cover the underside of the bow section. Part W provides the optimum shape. I used lithoplate alloy sheet of about 0.35 mm thickness for this, as it can be bent into a smooth curve and offers more





“Once the remaining parts of the R/C system have been fitted an initial float test should be carried out to check for leaks and correct operation.”



rigidity than plastic card when preparing it for the join with the hull side. Alternatives would be two layers of 0.5 mm plastic card or two to three layers of 0.4mm ply. Whichever material you choose, once the whole bottom has been shaped and glued in place it will need a strip of wood or plastic glued along the inside of the bottom outer edge; this needs to protrude enough to be trimmed back to offer a good attachment surface for the hull sides. The outside edge of Part S also needs some trimming back before the hull side can be attached. Small triangular infills also need to be added to fill the area under Part R at the step down in width (see **Photo 16**), and then filed as needed to give a good smooth basis all the way round for the bow sides to be added. Two bow section sides, Part Y, need to be cut from 0.75 mm plastic sheet and checked for fit. Part Q, in particular, must not protrude, or it will prevent Y taking a smooth curve once in place. The sides can now be glued in place. Once the glue is fully

set, the excess will need to be trimmed and sanded all the way round.

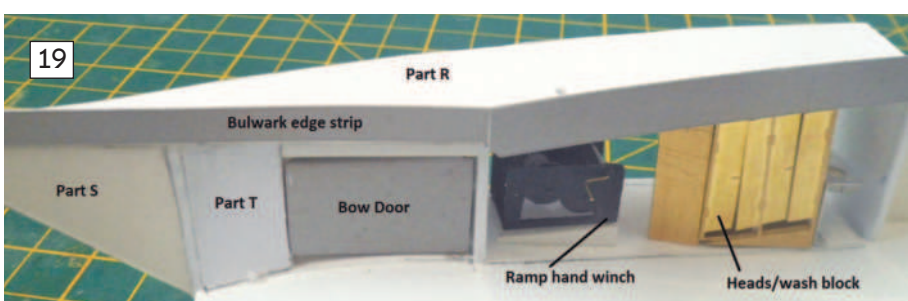
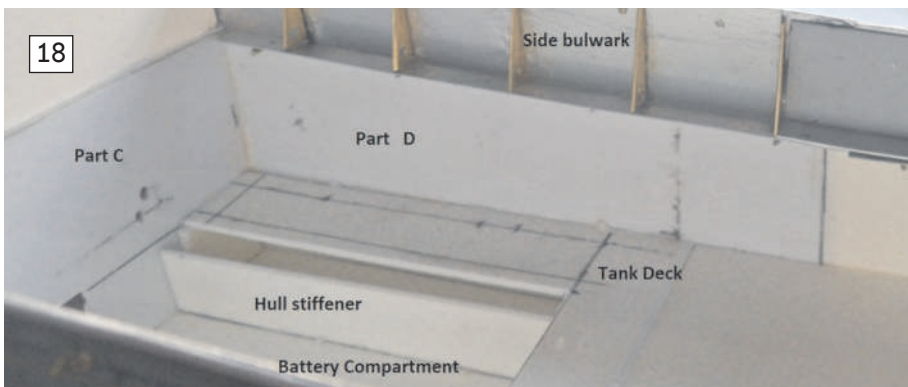
The bow ramp is assembled next, either using the photo-etch version or the equivalent template on the plan. In the case of the latter, the basic shape can best be produced from a single piece of thin lithoplate, with sides and ends folded down after scoring the metal along each join line. Three of the internal formers then need to be epoxied in place, taking care that the hinge holes are correctly aligned. I'd advise also gluing balsa blocks to fill the remaining internal space and clamping this piece to a flat surface while it sets to ensure it doesn't warp. The excess wood can then be trimmed and sanded down to give a good support for a further piece of lithoplate or plastic to finish off the underside. The ramp hinges are completed using the photo-etch items or equivalent parts cut from 0.75 mm plastic to fill the six small slots at the bottom of Part O. If using the photo-etch, each part of the hinge requires two layers of etch glued

together. The whole hinge assembly should be held in alignment with a 0.5 mm rod passed through all the individual holes before the six hull brackets are glued in place (see **Photo 17**).

The three hull sections can now be glued together, and the joints smoothed back. Once the remaining parts of the R/C system, such as battery/charging harness, have been fitted, an initial float test should be carried out to check for leaks and correct operation.

Following this, the tank deck can be cut from 1.0 mm plastic card and glued on to the stiffening strips, apart from where it is intended to provide an access hatch to the batteries. When deciding how big an access hatch can be used, bear in mind the side bulwarks will overhang the tank deck. Ideally, the bulwarks themselves are best made from a 22 mm wide strip of 0.35 mm light alloy/lithoplate scored and folded at 6 mm from the edge to achieve the correct profile and ready to take the triangular strengtheners shown on the plan. 0.75 mm plastic card is the alternative but is more likely to warp over time. The bulwarks will need to be in at least two sections on each side to accommodate the joint at the point where stern and central sections meet. Holes also need to be drilled at the appropriate spacing to take the cover railing supports. Each bulwark is supported underneath along its length by 20 mm pieces of 1 mm brass rod, which inserts into the small cuts previously made at the top of the internal walls and glued to the underside of the side deck. Each bulwark can then be glued in place and then the gap at the aft end filled in with 0.75 mm plastic card (see **Photo 18**).

At the bow section, the top line of the bulwark continues along the inside edge of each Part R foredeck as a strip of card or lithoplate all the way to the bows, noting how this strip is deeper along the open area on each side where the lockers, winches and heads/washing facilities are located (see **Photo 19**). It is, therefore, advisable to delay fitting this strip until after these details have been put in place. The hull sides are completed by adding 2 mm by 3 mm rubbing strips and also the stern anchor ramp – templates for the main parts are on the plan – noting that the ramp underside is rounded off with a 28 mm length of 10 mm diameter quarter round plastic strip.



Part 2

This completes the basic hull and R/C installation. Next month, will address the rest of the main structure and the addition of all of the fittings and fine detail appropriate to the construction of this working model. ●



'Steam Punk' Catfish

Having dreamed up this weird but wonderful working 'hybrid' submarine as a project to keep him busy during the global pandemic and resulting lockdowns, **Geoff Fairfax** now shares details of how you can build your very own version from scratch...

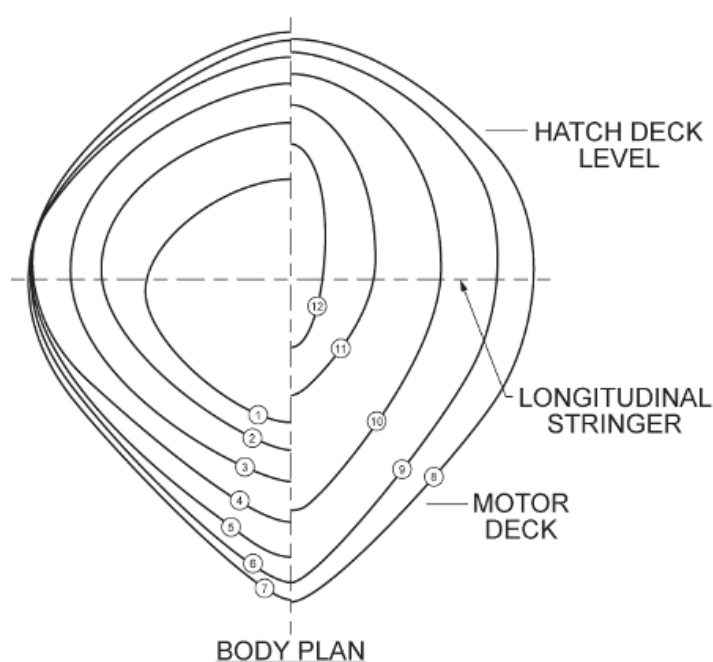
In 2020 I started on a scratch design and build 'steam punk' catfish 'hybrid' submarine. As all of the construction took place during the global pandemic, I decided to name her *HMCS* (Her Majesty's Canadian Ship) *Omicron*. She is roughly scaled to 1:32 and measures approximately 860 mm in length, 280 mm across her beam and 530 mm in height.

I based my design on a picture of a real catfish and photos of 'steam punk' sculptures available on the internet. I determined her overall size and shape keeping in mind that I wanted a boat that would weight no more the 25 pounds when fully ballasted. I didn't want to use the conventional plank on frame construction method due to the complex contouring of the hull, so I decided on using a frame and rigid Styrofoam method.

The following is a brief outline of the build sequence using this method. The wall thickness was designed to be a minimum 12 mm thick to give the transverse bulkheads more rigidity during construction.

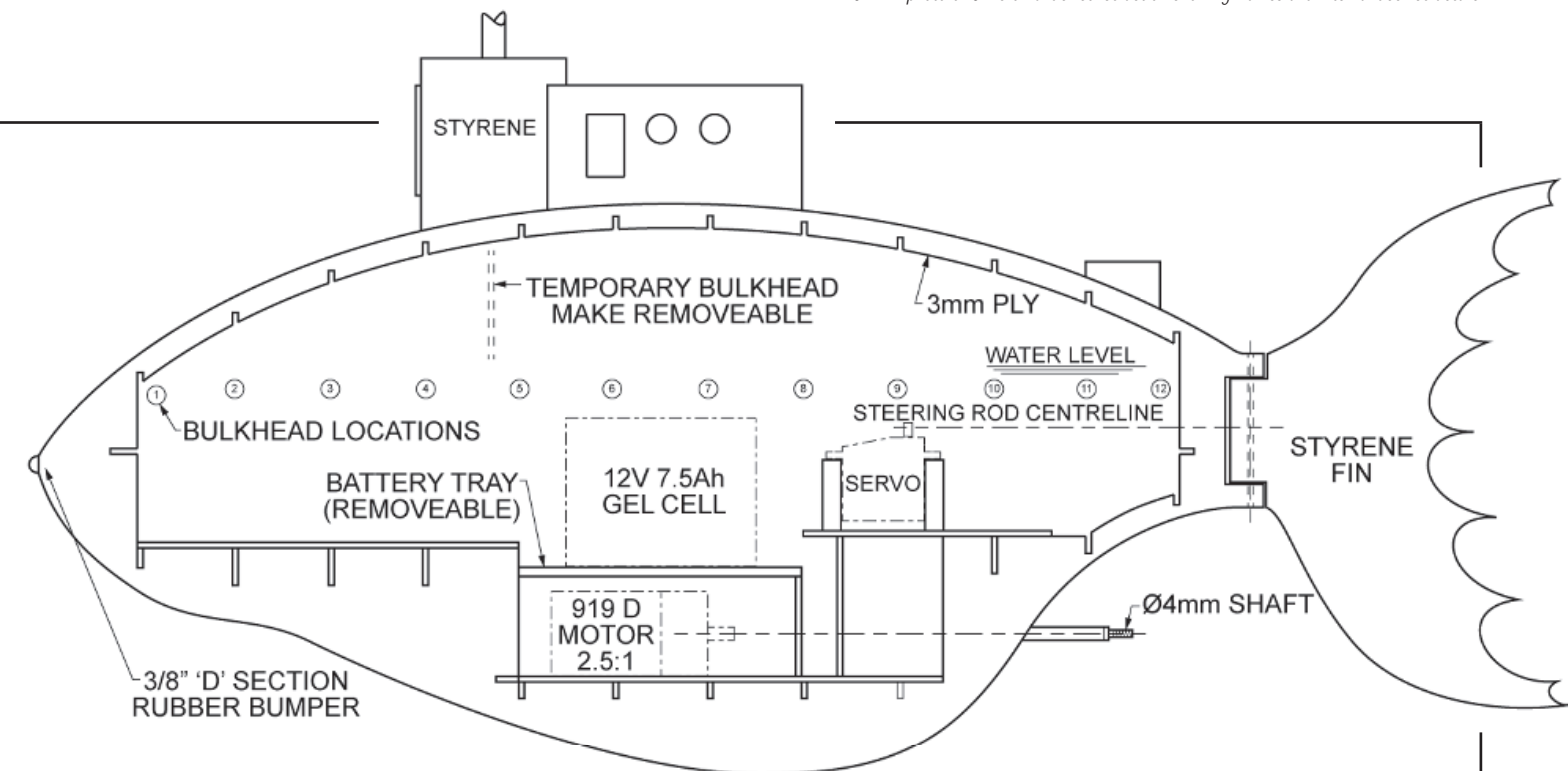
Design

The model's frame was constructed using 3 mm thick Baltic plywood for all framing members. Bulkheads were spaced to provide slight pressure on the ridged foam when fitted





ABOVE: A photo of Omicron under construction showing frames and internal deck structure.



The author's cross section drawing of Omicron showing the location of bulkheads, motor, steering servo, and battery: a great reference tool for working out what goes where.



and glued in place. Placement of the motor, steering servo, battery and interior cabin were incorporated in the cross section to work out interior spaces and mounting surfaces. Once these had been established and sketched out, the drawing of the transverse bulkheads could proceed. I used my own creativity for determining contours and final shape and tried to keep the change in size between any two bulkheads to no more than 3 mm.

A removable bulkhead behind the interior cabin allows for access for any future repairs, etc.

The superstructure and fin were made from styrene sheet, while wood planking was used on the deck.

Much of the interior components were 3D-printed from my own designs or outsourced from the usual model boat hobby stores and craft shops.

How to create your own Catfish

For those of you who'd like to build your version, the materials/products required and the construction process, along with the necessary equipment for propulsion, are as follows...

Materials required

- * 3mm Baltic plywood
- * Exterior grade clear satin polyurethane
- * 1-inch thick FORMULAR XPS moisture resistant rigid foam board
- * Lepages PL300 foam board adhesive
- * Aqua-Set epoxy resin
- * 2 oz plain weave fibreglass cloth
- * Dap Platinum Patch exterior grade filler
- * Ever-Glaze & Spot Putty
- * Black primer
- * Rust-Oleum Metallic 'Flat Soft Iron' paint and primer
- * Lepages Marine epoxy
- * Cyanoacrylate adhesive
- * Styrene sheet, plastic .080 rivets and strip
- * Brass tubing, wire, stanchions
- * Two clear acrylic security camera lenses
- * Rubber bumper (see Section D of diagram on page 45)



LEFT: Detail of Omicron's Interior. ABOVE: Omicron Bow View.

The build

* Using your design drawings, trace and cut out longitudinal and transverse bulkheads from 3 mm Baltic plywood.

* Glue up the complete frame assembly using waterproof exterior grade glue.

* Coat the entire frame with exterior grade polyurethane.

* Mount the propeller shaft tube and epoxy in place. Temporarily mount the motor and steering servo for ease of placement after completing the hull and then remove.

* Fit and glue rigid foam board and sand, using 80grit sandpaper, to final contour.

* Fill any imperfections with exterior grade filler and sand to final shape.

* Glue in 3D-printed abs porthole mounting rings using marine epoxy.

* Apply fibreglass cloth in overlapping 2-inch-wide strips and apply two coats of epoxy resin.

* Apply fibreglass auto-body filler for blending porthole mounting rings to hull contours.



* Sand and fill minor imperfections with auto-body glazing filler.

* Fit and glue portholes and 3D-printed retaining rings with marine epoxy and mask for protection.

* Drill styrene strips and glue in plastic rivets, trim to size, and glue strips to the hull.

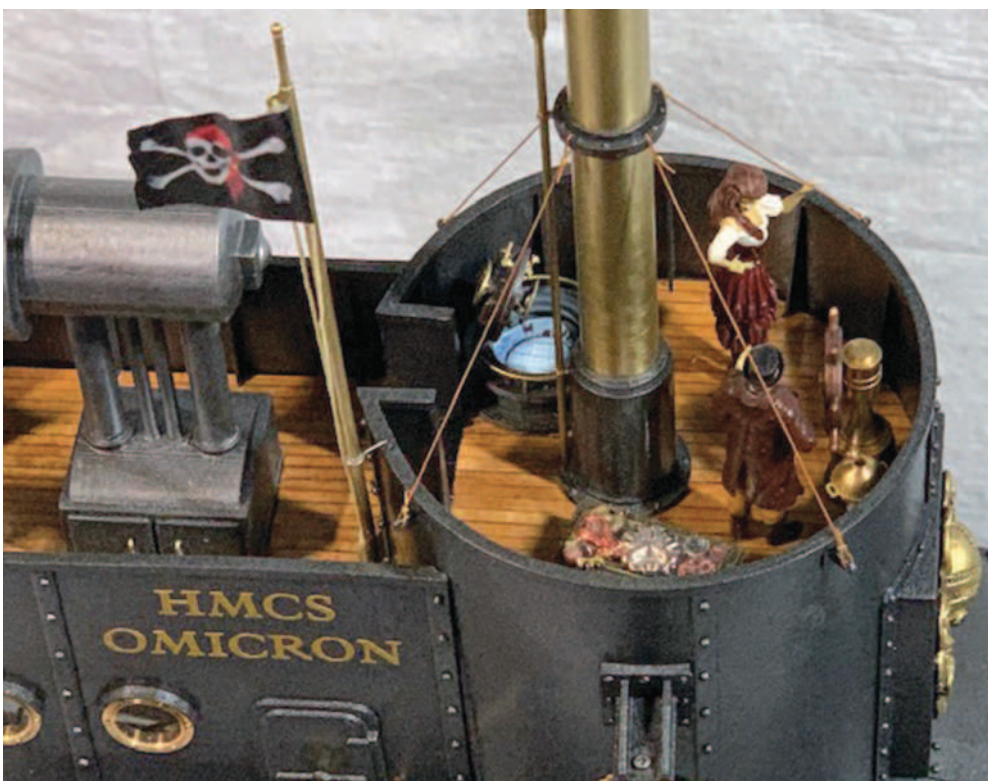
* Thoroughly clean to remove and any remaining dust, mask and paint with two

coats of black primer and two coats of Flat Soft Iron topcoat.

* Glue on the rubber bumper.

* Install wiring, motor, coupling, greased shaft, propeller and steering servo.

* Install battery and add lead shot ballast to achieve the desired waterline. ●



Equipment required for propulsion

Motor: MFA 919D, geared 2.5:1

Propeller: 65 mm, 4-blade D style bronze

Shaft: 4 mm, Raboesch, maintenance free

Coupling: Raboesch universal, 4 mm hub, 6 mm hub

Steering servo: Hitec D646wp heavy duty

ESC: Viper Marine 25

16-gauge silicone coated wire

LED light, 12-volt



Perfecting Penang

David Bray shares details of how he rose to the challenge of completing a long-abandoned project and achieved a truly magnificent end result!

“The build had been started several decades ago... in about 1935.”

In 2020 I was approached by Simon Adams of Southampton, who was in possession of a part-built scale model of the barque Penang. The build had been started several decades ago by his father, in about 1935. Like myself, Simon is an ex-seafarer, who served as an engineer aboard the Royal Mail line during the 1960s, around the same time as I served as a cadet for the Ellerman line. So, when he asked me if I would be interested in taking on the task of finishing the model for him, I agreed.

Prototype history

Built in 1905 by the shipbuilder Rickmers in Bremerhaven (Germany) to its own specifications, Penang was originally known as the *Albert Rickmers*. She was steel-hulled, was 2,039 tons gross, 3,250 dwt, and measured 266 ft in length. Representative of the final generation of ocean-going sailing cargo carriers, she was barque-rigged, with masts and spars of steel construction and a donkey-boiler driving steam winches. Designed around capacity for the transportation of bulk cargoes, her bluff lines showed no pretence to speed.

In 1910 she was bought by F. Laeisz for its ‘P Line’, under whose ownership she was renamed as the *Penang* and used to carry cargoes of phosphates from South America to Europe. Following World War I, she changed hands again twice before being sold to ship owner Gustav Erikson of Mariehamn (Finland). Eriksson maintained a considerable fleet of sailing ships during the inter-war years and as a trader employed them very successfully at a time when deep-water sail was fast becoming a thing of the past. While serving in this capacity, *Penang* participated in the famous ‘Grain Races’, bringing Australian wheat to the UK from the Spencer Gulf. These so-called races started in 1928 and saw up to 20 or more large sailing vessels, all owned by Erikson or Lundquist, making an annual voyage from Australia to London, or a western European port. Although these were not ‘races’ in the accepted meaning of the word, there was nevertheless a great rivalry between the ships’ masters as they competed to see who could make the fastest passage. Sadly, this swan song of sail ended was to end with the outbreak of World War II.



The bare hull with bulwark stanchions and chainplates fitted.





ABOVE & BELOW: Progress on the deck outfit, with winches, hatches, deckhouses and other fittings now in place.



The challenge as presented

Handed over to me was a very substantial hull of bread-and-butter construction, measuring about 33-inches in length. No deck fitment or rigging was in place, although many of the spars and other fittings had been retained and were supplied boxed.

Particularly fascinating was the accompanying correspondence between Simon's father and Harold A. Underhill, dating from 1935, regarding details of the ship. Harold A. Underhill, as many of you will be aware, was an author and draughtsman, with an over arching interest in sailing vessels. He wrote a number of authoritative volumes on this subject, covering various historic aspects. He also produced numerous sets of highly accurate drawings of a great variety of sailing vessels. This treasure trove of information has proved a godsend to marine students and model makers for many years.

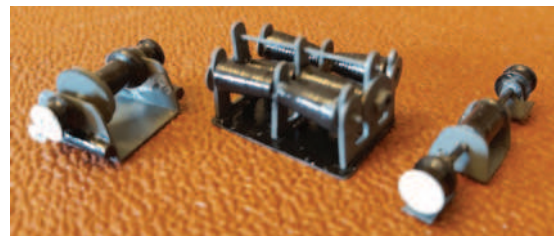
Drawings of Penang from the Underhill collection have been published by Brown, Son and Ferguson, so copies were acquired, and my venerable copy of *Masting and Rigging*

the *Clipper Ship and Ocean Carrier*, also by Underhill, was unearthed. The magnitude of the task was beginning to dawn on me. Where to begin?

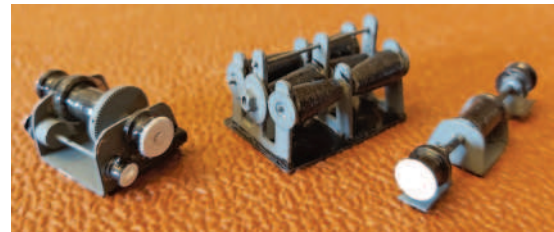
BELOW: The kitchen shipyard in full swing! With the hull complete, the rigging can now begin.



A barque with bite!



The deck winches, including the Jarvis brace winch, showing the tapered barrels.



Getting the project underway

I decided to make a start on the main deck. The deck itself and the bulwarks were already in place, but no bulwark fitments. Bulwark stanchions and pin rails were therefore fitted, together with chain plates, carefully located relative to the mast positions. It is important that chain plates are installed securely in such a model, for they carry the cumulative load of all the shrouds and back stays, and the last thing the modeller needs is one of the chain plates coming adrift at a late stage of the rigging.

The interior of the hull was accessed by three hatchways, the original vessel's cargo hatches. I made three hatch covers, designed to be a snug fit in the deck apertures but simulating the canvas covers secured by battens and wedges of vessels of this era.

I would be modelling the vessel as she would have appeared when the 15-year-old Lloyd Adams (Simon's father) visited her. By then she was owned by Erikson and had been fitted with a mechanical bilge pump by the foremast, while on the poop a charthouse had been added; the latter having been salvaged from the 4-mast barque *Hougomont* in 1933.

Well-deck fittings included two Jarvis brace winches. These ingenious devices had been invented by Captain Jarvis, of the barque *Lawhill*, to simplify the business of handling the yards when going about from one tack to



ABOVE: A close up of the fo'c'sle head and figurehead.



Name and port of registry. The model has been completed to represent her time under the ownership of Gustav Erikson, of Mariehamn, Finland.

the other. The braces are led downwards from aloft to the winch which carries three sets of double-tapered drums, all geared together. The whole unit is operated by crewmen turning crank handles, allowing three yards of the mast to be trimmed together. The tapered drums allow for the fact that when trimming a yard, the amount paid out on one brace is not always the same as the amount hauled in on the other. Jarvis winches were fitted in many vessels during this era, and represented an improvement in safety for the crew, as they could stay close to the centre line, instead of having to work close to the rails, where, in bad weather green sea could come aboard, sometimes washing away the hapless crewmen struggling to trim the yards. My Myford lathe came in useful in turning the tapered drums for these winches. The winch for the foremast yards is located just abaft the mainmast, in full view, while the mainmast winch is located under the poop deck, accessed from above by an open well, railed off. This winch could be simpler in construction, as it is barely visible on the model.

The fo'c'sle was fitted out with the normal arrangement of anchors and mooring gear. This vessel carried a donkey boiler providing steam for several cargo winches and the anchor windlass, located under the foc's'le. One anchor was shown stowed, the other 'catted' and ready to drop. A tiny brass bell was turned on the lathe and fitted in the correct location on the after foc's'le handrails.

Four boats were carried. Here I tend to 'cheat' and buy in scale boats of the appropriate type from Quaycraft, whose resin cast boats are superb. Never in a million years would I be able to build a clinker lifeboat 3-inches long and have it looking 'right'. Two boats were located on the midships

deckhouse, the others were hung in radial davits on the poop. One was portrayed in the stowed position, with a carefully made 'cover' made from paper. The other was shown turned out on its davits, bowsed into a bearing spar. Three of the boats were open, and oars were made from brass wire, hammer-flattened for a short length at the ends to make the blades, then painted.

Belaying-pin rails were fitted in the correct locations, with an accurate number of pins provided for the securing of running rigging. These rails are another example of an item which must be very securely fitted; it would be a bit of a disaster if, at a late stage during the rigging, one of the pin rails comes adrift from the deck, especially if there are eight fully rigged pins on it! A very useful diagram is contained in Underhill's *Masting and Rigging* showing the belaying plan for a vessel of this type. Many years ago, I sailed in the Norwegian full-rigger *Sørlandet*, and remember having to learn the locations of every rope belayed. None were labelled, and there were dozens and dozens of them. It was essential that if the order came to "let go the starboard main t'gallant sheet" that the correct rope was cast off. This might very well be in the dark.

Masts and rigging

Having completed the fitting-out of the hull, it was time to address the masting and rigging. When I received the hull, I also was given a box of roughly shaped spars. Some were labelled (not all correctly) and some not. It was a bit of a marathon



LEFT & ABOVE: A close up of the poop, steering gear, charthouse and rudder.

BELOW: The hull complete: note starboard anchor 'catted'.





ABOVE: Fore end detail: the donkey boiler is located in the deckhouse. BELOW: The masts, spars and boats ready for finishing.



"I have learned from past experience that it is better to increase the rake slightly, fore to aft, so that the foremast might rake 3-degrees, the main by 4° and the mizzen by 5°. This ensures that the masts don't give the illusion of converging upwards, which ruins the appearance"

to identify which was which, but these were eventually sorted. Masts were built with all the fittings, eyes, chocks, etc, and masts were stepped. It is vitally important that masts are absolutely vertical athwartships, and rake correctly. On the sail plan, all masts rake at the same angle, but I have learned from past experience that it is better to increase the rake slightly, fore to aft, so that the foremast might rake 3-degrees, the main by 4° and the mizzen by 5°. This ensures that the masts don't give the illusion of converging upwards, which ruins the appearance.

Bowsprit made and fitted, all standing rigging was then installed. Penang was rigged with steel masts and spars, and steel wire stays set up with bottle screws; a total of 49 stays, with ratlines on the shrouds. I always have a pot handy with a weak solution of PVA glue and water, which is 'painted' on all rigging knots and hitches to prevent them unravelling.

BELOW: David's breakfast bar has never seen a cornflake or a boiled egg!



“When rigging a model, I tend to work the opposite way to how it is done in full-size practice...”

Then came the construction of the yards. Sounds simple? Well, each yard comprises about 36 separate parts, including the truss fittings (where the yard pivots onto the mast), the jackstays on top of the yard, the foot ropes and stirrups suspended beneath the yard, several blocks hung from the yard quarters, and the end fittings. Each yard took several days to complete.

Starting with the lower yards on the fore and main, each yard was rigged with clew lines and sheets, then carefully fitted onto the mast. Once in place, the rigging of the yard was completed with lifts, down hauls,



ABOVE: Standing rigging complete on Penang's foremast. Note the fishing smack also under construction in the background.



LEFT: The main and mizzen masts complete for standing rigging.

halyards (called 'Tyes' in square-riggers), braces and other lines. When rigging a model, I tend to work the opposite way to how it is done in full-size practice. On a ship, a piece of rigging is secured at its standing end aloft, rigged through all the blocks, then led to the deck where it is secured figure-eight fashion on its belaying-pin. On a model I work the other way. I remove the belaying-pin and smear some glue on the end of the line. Poking the end of the line in the hole in the pin rail, I jam the belaying-pin in the hole with

BELOW: All lower mast standing rigging complete.



A barque with bite!



LEFT: Bowsprit stays and netting.

BELOW: The foremast with standing rigging.



the line, securing both solidly. I then lead the line aloft and rig it as needed. A small coil of the same line is made separately and hung on the belaying-pin to represent the excess of rope coiled up. I have found out the hard way that securing a rope at this scale using figure-eight belay then coiling up the excess and trying to hang it on the pin is almost impossible.

Yard by yard the barque began to come alive. The running rigging was oh so tedious, and I began to look forward to the day when it was complete. I was portraying the barque without sails, and much of the minor rigging sent down. I never show sails set on my models. I follow the convention that, if the model is shown full-hull, then sails should not be set. If sails are to be set, then the vessel should be a waterline model, in a life-like sea, heeling to the breeze. It always makes me

RIGHT: The main and mizzen standing rigging.



All standing rigging complete - 49 stays!

nervous to see a full-hull model on a stand, with full canvas set, as this suggests the vessel would blow over in a gust!

Eventually, after weeks of work, the two forward masts were fully rigged. Rigging the mizzen with gaff, boom and associated sheets, vang, topping lifts and spans was a comparative doddle, and only took an afternoon.

Another day was spent clipping off any 'Irish pennants' or loose ends of cordage, and finally securing the rigging with my PVA solution.

RIGHT: Penang in company with Torrens - displaying 30 years of sailing ship development.

Running up the flags

The final job was to make and fit the flags: a Finnish national flag at the gaff peak (the white/blue St Georges cross) and a house flag at the mainmast head (white/blue 'GE'). The vessel's call sign (or 'numbers') was also required. I eventually found reference to this on a website detailing U-boat attacks. Penang was sunk by torpedo from U 140 on December 8, 1940. There were no survivors. The information revealed that the Penang call sign was QJBD, so flags were made showing this to hoist from the mizzen masthead.

Handing back a family heirloom

Seven months after taking receipt, Penang was finally finished and returned to her owner, Simon Adams. ●



BELOW & INSET: The completed vessel.





1 ABOVE: Metallic paints achieve a realistic worn effect when dry brushed over a painted item. This is particularly effective on features such as handles and pedals, where on real vessels paint is frequently worn away, as this ship's winch illustrates.

RIGHT & INSET: When modelling soft surfaces with hard materials, such as this canvas cover made out of heavy foil, you'll need to paint carefully to achieve a convincing result. After priming and applying a base acrylic colour, the highlights here have been picked out with a lighter colour enamel dry brushing effect.



Wash and Brush Up Part 2

Richard Simpson completes this beginner's guide to achieving a more credible finish...

Last month we took a brief look at washes: what they're used for, how they're applied and what they can do for us, particularly in terms of accentuating areas of shadow to achieve a much more realistic-looking finish. This month I thought we'd look in a similar way at how we can accentuate highlights with the use of dry brushing. There are other methods that more experienced modellers may favour but, in terms of simplicity, you'll find that with the minimum amount of effort the application of washes and dry brushing will make a huge difference to the appearance of anything you've chosen to model. A lot of modellers may see this as 'weathering' and therefore not something they want to do, but these techniques can also be used as a simple way of bringing a model to life with very light, careful, applications performed in a controlled manner. So, let's have a look at dry brushing...

What is dry brushing?

Usually when we apply paint with a brush, the intention is for the brush to carry enough paint for the coverage we want to achieve when we apply it to a surface. Once that paint has been transferred from brush to surface, we reload the brush by dipping it into the paint pot again. If we didn't do that, then the paint would soon dry up and we'd be applying very little to the surface.

"The brush will usually need to be passed over the surface many times in order to transfer a noticeable amount of paint, but the whole point of the effect is to be very subtle rather than glaringly obvious"

If we were then to take that to an extreme and actually wipe the paint off the brush, leaving only a little residue, then there would be very little transfer and the paint deposited would be hardly noticeable. This is what we do when dry brushing. The brush is very lightly loaded before the majority of the paint is wiped off again on a rag or piece of kitchen roll, leaving the brush almost dry. The brush is then lightly passed over the subject so that only the faintest traces of paint are deposited on the highest spots of the surface. These are, of course, the spots we would consider as the highlights, so the paint used is generally of a lighter shade than the base colour to accentuate the raised parts of the surface. The brush will usually need to be passed over the surface many times in order to transfer a noticeable amount of paint, but the whole point of the effect is to be very subtle rather than glaringly obvious.

How is dry brushing of use to us?

As mentioned, dry brushing does a superb job of accentuating subtle highlights on an object we are finishing. It is also very useful for achieving the effect of wear and tear in certain areas; this is done by dry brushing metallic paints over the base colour on, say, machinery, to represent areas of worn paint or even on metallic base colours to show worn metallic areas which in reality would be tarnished as a result of frequent use, such as handles, handrails and pedals. The trick is to think about the base colour and the finish you wish to achieve with dry brushing, and then consider what type of paint and colour/shade would be the most effective if applied over that base colour.

The two basic types of dry brushing

Very basically, there are two different types of dry brushing: one where you are accentuating worn edges on metallics (see **Photo 1**) and one where you are accentuating highlights on soft surfaces, such as clothing, canvas covers, rucksacks, etc (see **Photo 2**). Each requires slightly different approaches and actions, although the fundamental technique remains pretty much the same.



ABOVE LEFT: Enamels are well worth using when you want more control, as the longer drying times prove an advantage. Matt surfaces take dry brushing far better and allow more control but, as usual, there are no hard and fast rules. ABOVE RIGHT: The much shorter drying times of acrylics makes them very handy if you are painting many colours over the top of each other; for example, when you are working on figures. Enamel paint then dry brushed over the top gives you the control you need to achieve soft edges. BELOW: Dry brushing is definitely best done with a soft flat brush. There are actually sets of varying width flat brushes, which are well worth looking for. Be warned, though, dry brushing is hard on brushes, so you'll need to carefully clean and properly dry them to keep them going as long as possible.

Using dry brushing

General notes

The first thing to consider is the paint system you will be using. This should be planned from the outset, i.e., when you first select the type of paint you'll be using for the base colour, as this then leads to what type of paint you might want to use as a wash and then, finally, what type of paint you want to use for the dry brushing. There are two very general rules, frequently broken but well worth considering... Dry brushing is a lot easier when done with enamel paint (see **Photo 3**), and you'll find this is a lot easier and more controllable when applied to a matt surface for the following reasons... Firstly, enamel paint takes a lot longer to dry than acrylic paint does, so it remains usable for longer. Acrylics (see **Photo 4**) dry relatively quickly so, when dry brushing, soon start to dry on the brush. This leads to the brush getting clogged up with dried paint, and a stiff brush does not apply a nice soft-edged finish. Secondly, matt paint has a more abrasive surface, so it removes the paint from the brush that bit more easily. If you're trying to dry brush a gloss surface there is a tendency for the paint to slide over the surface and not deposit as required.

It's incredibly important to be patient; take your time and apply very dry coats, building these up slowly. If you get impatient and put too much paint on your brush because you're not seeing an immediate result you will almost certainly apply too much and spoil the effect. I usually use a soft flat brush (see **Photo 5**), as this picks out surface detail better and slowly but pleasingly builds up the effect over a number of applications.



Dry brushing soft surfaces such as clothing and fabrics

With soft finishes I tend to prefer to use acrylics as a base colour. This is invariably because I'm painting something like figures or bags with straps and I need to apply other colours relatively quickly. The short drying time of acrylics is very useful here. This means I usually opt for an enamel-based wash to prevent softening the base colour, so if

enamel dry brushing is to be used over that, the wash must be completely hardened. If not, the dry brushing could well disturb the wash and you'll end up with a bit of a mess. You could also try acrylic dry brushing, particularly on small objects when this can be done relatively quickly. The dry brushing will usually be of a lighter colour than the base or should at least look like a lighter version of the same colour (see **Photos 6 and 7**).

BELOW LEFT: Another soft cover enhanced with dry brushed effects. Not only does the dry brushing enhance the highlights but it also provides a contrast with the shadow around the stitching. BELOW RIGHT: The highlights on this figure were accentuated with dry brushing. Different colours were used for the jacket, the trousers and the flesh tones to make the effect work.



8



"The single most important aspect of the entire process is to allow your paint to dry thoroughly before applying anything else"

ABOVE: This diecast model was supplied finished with an extremely high gloss paint. It was first given a wash, then sprayed with a matt clear varnish before being dry brushed with some metallic paint to accentuate worn areas and highlights. This has made a huge difference for relatively little effort.

9



ABOVE: A combination of washes and hand painted highlights show what can be achieved by a very competent and experienced figure painter. A reasonably close match finish wise should, however, be possible using simply washes and dry brushing. Image courtesy of Mr. Elliott Ashcroft of Ceredigion, Wales.

Dry brushing hard surfaces

When it comes to hard surfaces, I frequently use an enamel paint for the base as it's easier to achieve a good gloss finish with an acrylic wash over it. Your options, then, are to go ahead with a metallic paint to pick out details and raised areas of the surface (see **Photo 8**) or to spray a clear matt coat over the wash before applying an enamel dry brushed coat followed by a clear gloss coat. In the case of the latter, however, you then have to be aware you will not get back the high gloss enamel finish you started with. Personally, I prefer to dry brush onto the gloss paint and deal with the challenges this presents rather than build up too many clear coatings.

10



A paint practice 'hack' is a great tool to play around in order to try out ideas and gain some confidence. This simple Airfix Hurricane was glued together in ten minutes and sprayed with primer so it could be used to demonstrate the technique of dry brushing.

In conclusion

While, up to this point, we've considered the use of different paints, the single most important aspect of the entire process is to allow your paint to dry thoroughly before

applying anything else. There is, however, another method of enhancing surfaces, and that is to use the same paint you have for your base colour but darkened for your wash, before using the same paint, again, but this

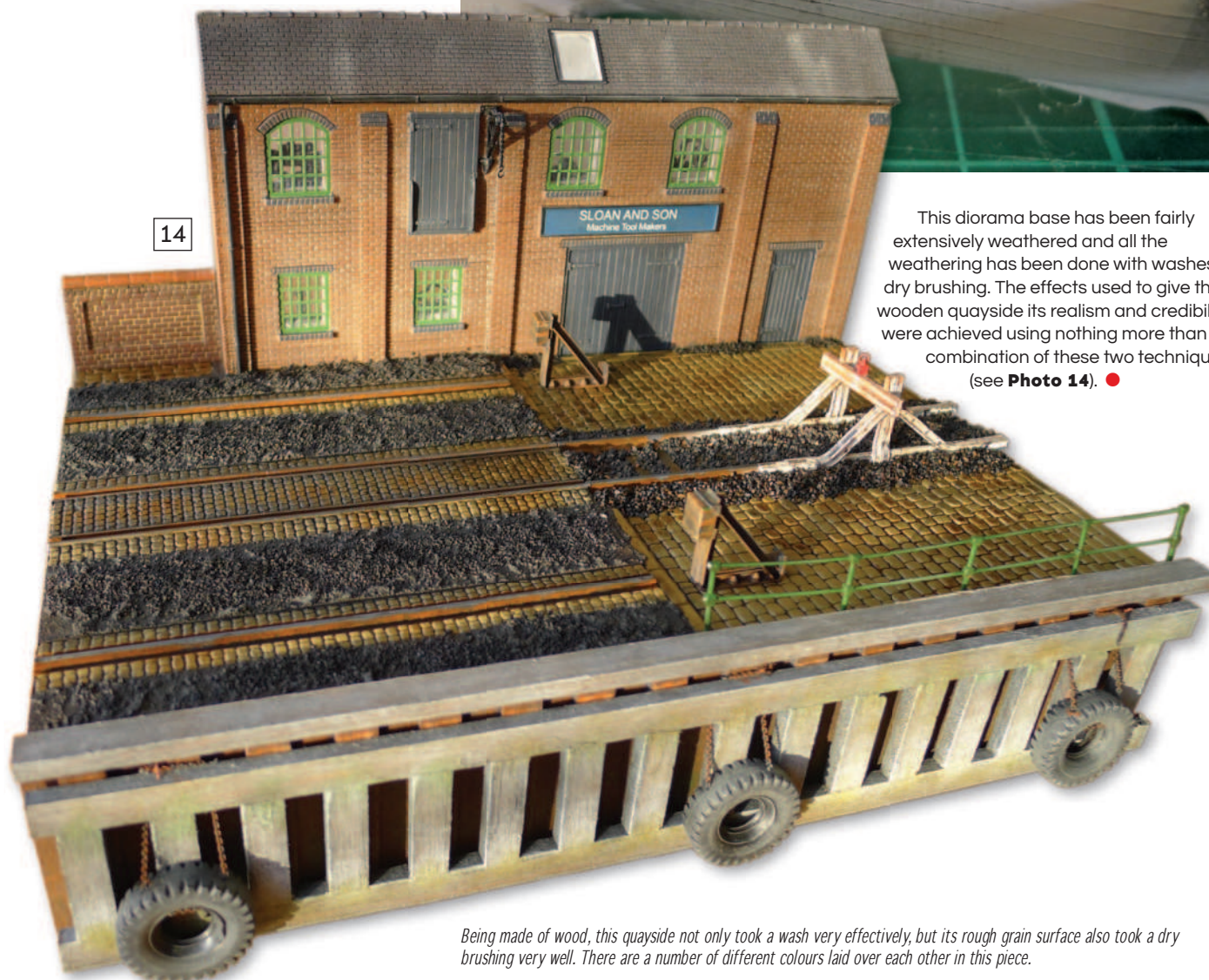
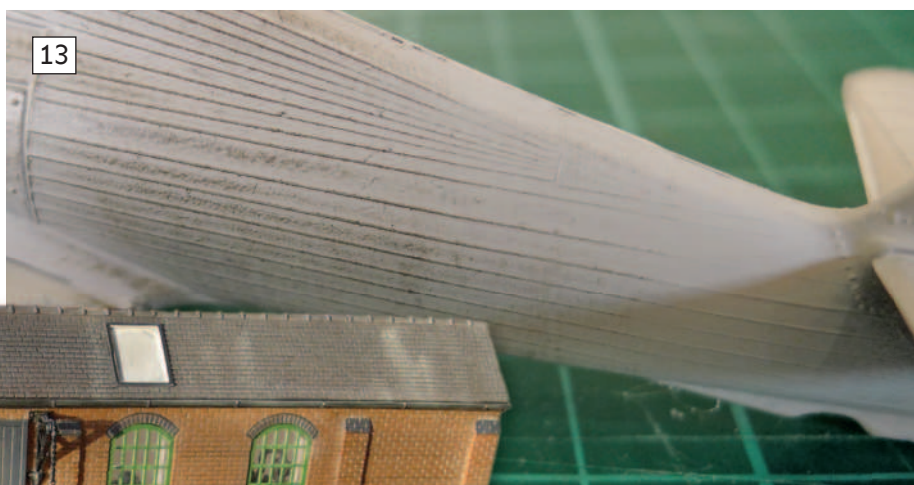
time lightened, with which to dry brush. This ensures you simply have lighter and darker versions of your base colour emphasising shadows and highlights. This is a technique frequently used by figure painters, who may well actually paint rather than dry brush the highlights on (see **Photo 9**). There are no rules, just have a go and see what happens!

Again, as mentioned last month, I would strongly recommend getting a cheap plastic kit, gluing it together in ten minutes, spraying it with primer and practising some of the techniques we have looked at (see **Photo 10**). There is always a danger of overdoing some of these processes, so experimenting on a scrap kit is a great way to learn what works and what doesn't before you commit to slapping paint all over your pride and joy. Practice to get an idea of how much paint you actually need on the brush (see **Photo 11**), how much needs to be removed (see **Photo 12**), and then how to get the dry brushing effect you want on the surface (see **Photo 13**). Despite all the other processes that can be employed to bring our models to life, none are as straightforward and easy to apply as a wash and brush up.



ABOVE LEFT: You typically start with very little paint on the brush; after all, you are going to remove most of it. Richard tends to put his paint in a saucer, as he finds this gives him more control and that it's easier to get a small amount on the brush.

ABOVE RIGHT: The next step is to simply wipe most of the paint off again on something like a kitchen towel. You want the brush to be dry enough to only leave a smudge when you finally wipe it. BELOW: Here a test piece is being used to try out a paint combination. Usually on soft surfaces the dry brushing would be a lighter colour, whereas on hard surfaces it might be metallic, but here Richard has used a dark grey to simply show the effect. Notice how this picks out the ribbing detail and the plate edges.



This diorama base has been fairly extensively weathered and all the weathering has been done with washes and dry brushing. The effects used to give the wooden quayside its realism and credibility were achieved using nothing more than a combination of these two techniques (see **Photo 14**). ●

Being made of wood, this quayside not only took a wash very effectively, but its rough grain surface also took a dry brushing very well. There are a number of different colours laid over each other in this piece.

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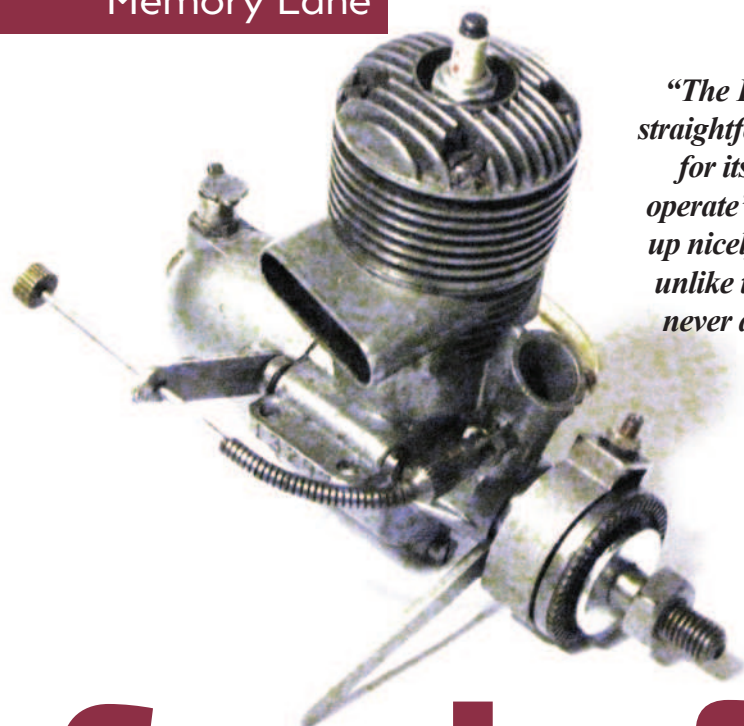
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"The Frog '500' was a straightforward 5cc engine for its time; 'easy to operate' probably sums it up nicely, as it really was, unlike the 5cc ETA '29', never a racing engine"

The Frog 500 5cc petrol 2-stroke of 1952 and its contact breaker in close-up.



Sparks fly!

Dave Wiggins reflects on the spark and glow ignition engines marketed by Frog and ETA

There can be few vintage power boaters (or, indeed, flyers), who are not interested in engines. All of the first model 2-strokes were spark ignition units running on petrol/oil, and these units are much collected today. Famous American makes include the Brown 'Junior', Bunch, Super Cyclone and the almost legendary Dooling and McCoy racing engine marques, some of these still being in vintage class usage. Any of these engines will cost you serious money today and are not for those of us collecting on any sort of a budget.

Twin sisters: the Frog 500 glow and spark duo

Once the 1930s had passed and on our side of the Atlantic spark ignition engine use for model aircraft or boats had declined, 'popular' enthusiasm shifted to the much smaller 'diesel' (or more accurately, compression ignition), engine type of 2-stroke invented in Europe just before World War II. Indeed, by the 1950s there were hardly any 'sparkies' being made in the UK and this month's 5cc Frog 500 was one of the few such engines still being offered for sale back then.

A version of the Frog 500 'Red Glow' (some of the glow-plug Frogs had red cylinder heads, though mine does not), there is some uncertainty in collecting circles as to whether the Frog company adapted a spark version from the glow (for easier radio control of throttle revs, it is suggested) or vice versa. But it doesn't matter which came along first; the main thing is that one had – and still has – a choice.

So, which to choose?

The general consensus at the time appeared to be that the ignition version would be better suited to early radio-controlled models, owing to the fact that the advance/retard lever

enabled a limited degree of speed control (there were few R/C carburettors in use back then) when used with the first multi-channel sets made by E.D. and others. I think that's a touch misleading, as even by 1952 the number of R/C fans was minimal, whether here or in the USA, and those who were building the first practical radio systems were almost all limiting themselves to rudder only escapement control.

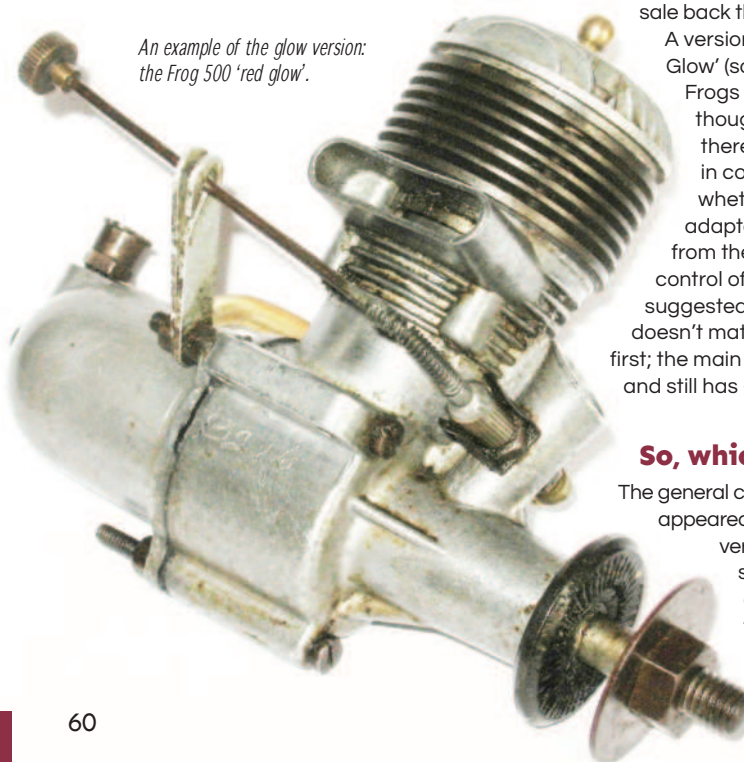
The *Aeromodeller* magazine and its reviewer L.H. Sparey tested this engine in February 1952, reporting that (and I quote) "With identical porting it is not surprising that both the glow and spark 500s reach peak bhp at approximately the same rpm, this being 13,200", and adding that "At a working figure of 10,000rpm the petrol engine is superior by 0.06bhp. No wonder there should be such demand for an easy to operate and economical power unit".

I'm including a contact breaker (make and break) close-up, plus a picture of all the kit necessary to operate one of these 5cc ignition Frogs, this being a points set, a coil, capacitor and spark plug. It almost escaped me that the 'Pacy' plug shown is still model shop priced (pre-decimal) at five shillings. This strikes me as a lot of money just for a spare plug and is indicative of just how expensive the powered model hobby really was prior to the early 1960s.

In truth, the Frog '500' was a straightforward 5cc engine for its time; "easy to operate" probably sums it up nicely, as it really was, unlike the 5cc ETA '29', reviewed below, never a racing engine. It was a nice piece of British engineering, yes, but not in the same class as the ETA. Frog, by the way, also manufactured a half size Frog-250 model – as far as I know, in Glow only. I don't have one of these – yet!

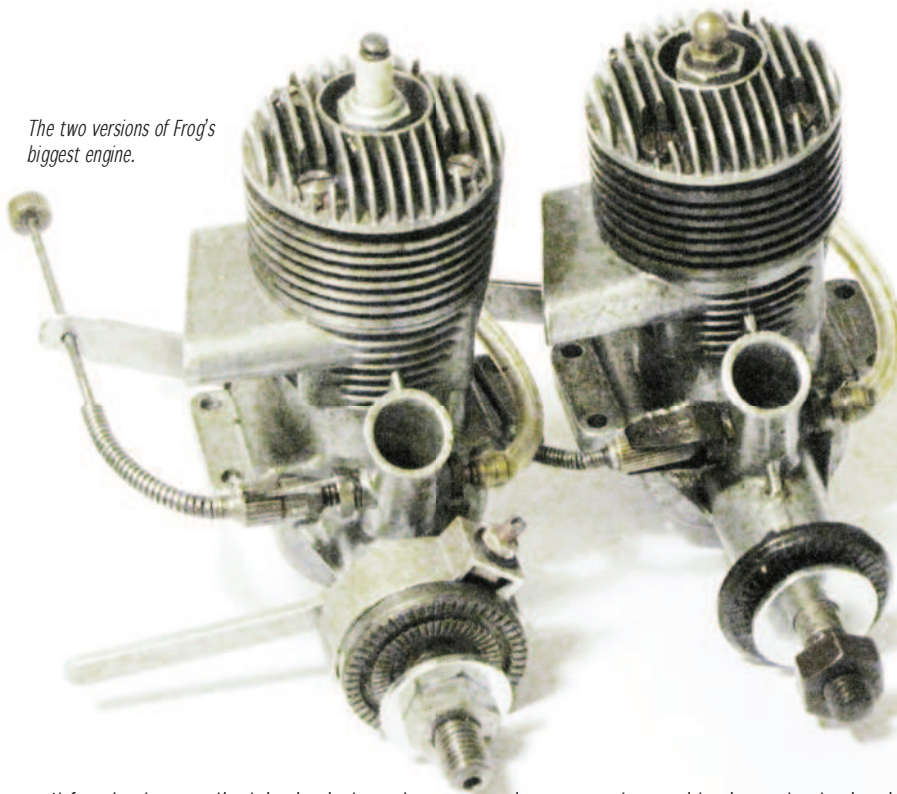
The racer's choice: the ETA '29' Glow

If the attractive Frog was 'no racer', whether it was spark or glow ignited and running on petrol or methanol, the ETA Instruments '29' Glow most certainly was, even though it was in serial production some three years earlier than the Frog.



An example of the glow version: the Frog 500 'red glow'.

The two versions of Frog's biggest engine.



It fascinates me that, looked at again all these years on, the old model engine tests display similar power Vs rev' curves for these two, utterly different, 5cc British engines that seem to suggest they are of similar performance when they certainly were not, such was the inaccuracy of

dynamometer and tachometer technology back then.

Fully ball raced and with rear rotary disc induction, the ETA looks every bit 'the part' as a prospectively high revving hot-rod product – "Hot stuff" as Mr Sparey himself put it, adding that "This engine is noteworthy by reason of

"This was a truly great British engine and one that would not be a bad choice even today"

its extremely high power to weight ratio" – and I reproduce here a lovely 'cutaway' drawing of this famous British racing engine.

The ETA was thus well set to become 'the' engine for British 5cc (D class) tethered hydroplane racing or control line speed flying, for some years being outclassed only by the extremely expensive imported Dooling and McCoy, especially when these exotic American imports were 'race tuned' by skilled toolmaker / experts like Fred Carter (the Carter-Dooling). If the ETA was not quite unbeatable in the 5cc hydroplane world, it most certainly was when used in the first wave of fast R/C marine craft when fitted with one of the first, homemade, throttle valves. The ETA-29 stayed in production long after the Frog had left the marketplace and was developed, step by step, through many 'marks', performance increasing little by little each time. This was a truly great British engine and one that would not be a bad choice even today.

Final reflections

My last picture demonstrates, very adequately I think, just why the spark ignition engine was overtaken by glow ignition types, this being all of the electrical 'gubbins' that one needed to operate a 'sparkie'. A miniature high-voltage ignition coil, a capacitor and sparking plug set, plus on board and 'booster' accumulators with a charger for same, were needed for the high voltage system, whereas all one required to 'Go glow' was a single cell 2-volt accumulator, a glow clip and charger. Job done!

Weight reduction in model aircraft was undoubtedly the biggest factor in the petrol genres demise. At the time, there were few who were sad to see the petrol engine go, although we R/C men kept big 4-stroke sparkies, like the Channel-Island and the popular, if niche, GANnet OHV, going well into the late '60s.

Of course, with the modern enthusiasm for all things vintage and 'retro', it's a different story, and a nice spark version of one of the 5cc Frogs will now command a premium over the glow version, while any version of an ETA-29 in decent nick will never be cheap to buy – I waited a long time to afford mine. ●

LEFT: The Frog 500 'sparkie' on test in the old copy of the 'Aeromodeller'.

BELOW: The essential electrical kit needed for ignition engine operation: coil, capacitor and spark plugs.



February, 1952

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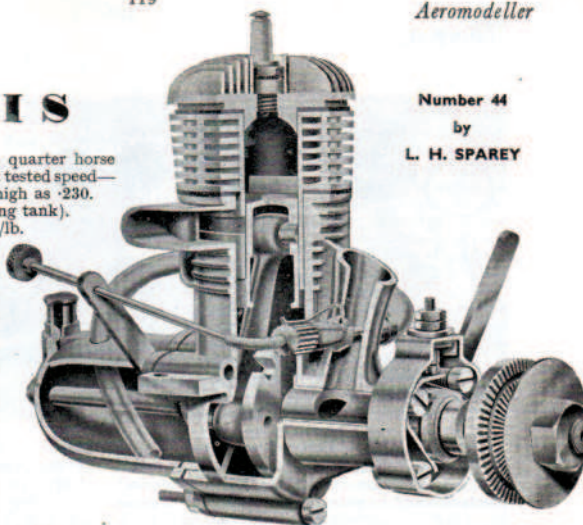
Aeromodeller

ANALYSIS

graph shows a recording of over a quarter horse power at 5,000 r.p.m. At the lowest tested speed—about 4,000 r.p.m.—b.h.p. was as high as .230. Checked Weight: 7.8 ozs. (including tank). Power/Weight Ratio: .86 b.h.p./lb. Remarks: The flexibility, good power output, and excellent control which this engine shows reminded me that the petrol engine has features which are sadly absent in most diesel and glowplug motors. In particular, the control given by the spark advance and retard was a delight now seldom experienced. The fuel used was composed of 3 parts Pool Petrol and 1 part Castrol XXL.

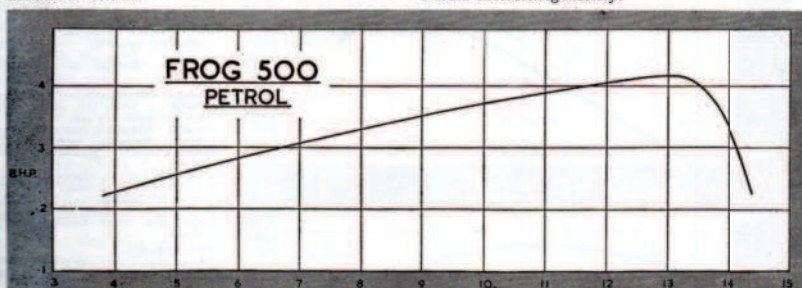
CONSTRUCTION DATA

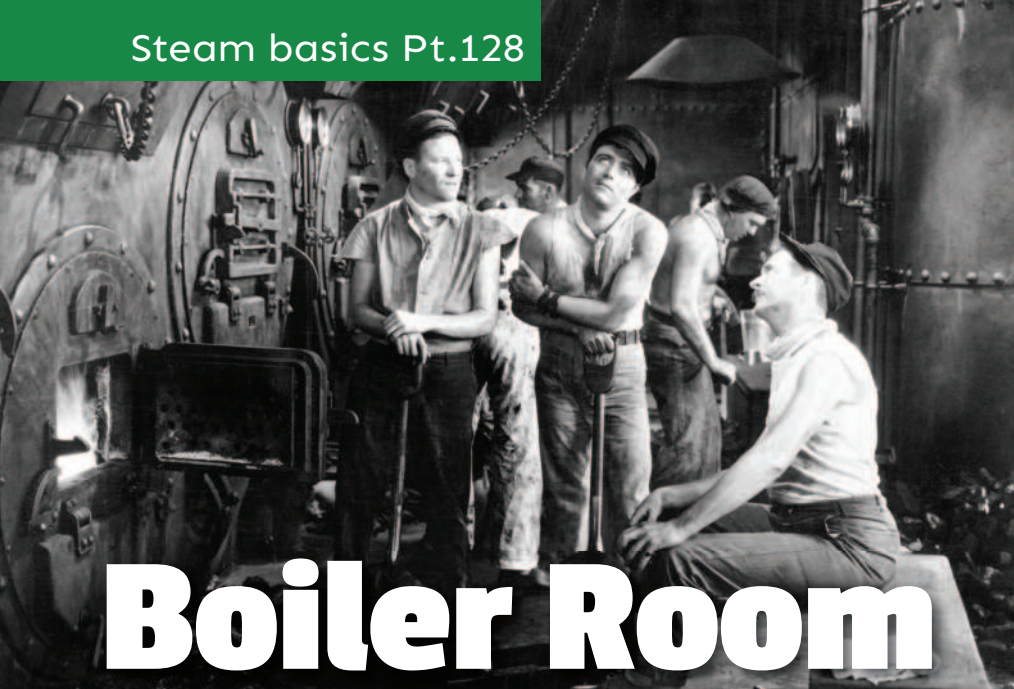
Manufacturers: International Model Aircraft Ltd., Morden Road, Merton, London, S.W.19.
Retail Price: 85s., including Purchase Tax.
Delivery: Ex stock.
Spares: Ex stock.
Type: Spark-ignition.
Specified Fuel: 3 parts Petrol : 1 part Castrol XXL.
Capacity: 4.92 c.c., .30 cu. in.
Weight: 7.75 ozs. including tank.
Compression Ratio: 8:1.
Mounting: Beam or radial, upright or inverted.
Recommended Airscrews: Free Flight: 10 x 6 ins., 11 x 5 ins., 11 x 6 ins. Control line: 9 x 6 ins., 10 x 6 ins.
Flywheel: 2 x 7/8 ins. 5 ozs. weight.
Tank: Detachable, universal mounting.
Bore: .750 in.
Stroke: .680 in.



Number 44
by
L. H. SPAREY

Cylinder: Hardened steel, retained by 4 6-B.A. screws deep spigoted to crankcase. 1 transfer port, 1 exhaust port.
Cylinder Head: Diecast aluminium, retained by 4 screws to cylinder.
Crankcase: Diecast aluminium.
Piston: Meehanite. Deflector type. No rings.
Connecting Rod: Forged hiduminium, R.R.56.
Crankpin Bearing: Plain. Drilled for connecting rod retaining pin.
Crankshaft: Hardened steel, ground and honed.
Main Bearing: Phosphor bronze honed.
Little End Bearing: Plain.
Plug: 1/4-in. K.L.G., "Mini 2".
Special Features: Flexibility, with high power output. All parts machined to fine limits to ensure interchangeability.





Boiler Room

Richard Simpson points out why it's worth clueing up on combustion

I was having a chat recently with a fellow steam modeller and the subject eventually came around to combustion. He believed that it was mainly related to internal combustion engines and had nothing to do with a gas fired model boiler. I can see where he is coming from, as most of us have grown up with playing around with carburettors on motorcycles and petrol-engined lawn mowers, etc, and the lovely clean gas that we use in our model boilers can only be lit and enjoyed, so what has combustion got to do with us? Well, actually, quite a lot.

Without looking up the precise dictionary definition of combustion, which invariably might only confuse the issue, my own understanding of combustion is the burning of a fuel in conjunction with oxygen. In our boilers this fuel could be solid – for example,

wood, coal, paper, etc, liquid – such as petrol, methylated spirit, diesel oil, etc, or it could be gas – i.e. Propane, butane, hydrogen, etc (see **Photo 1**); but, in all cases, the mixing of these fuels in conjunction with oxygen is what combustion is all about.

The theory

All the fuels mentioned above, and many more besides, will burn when combined with oxygen and heat is applied. All those who have done basic fire-fighting courses will know that for a flame to exist it requires fuel, oxygen, and heat. When we start to get down to the chemical processes involved, however, we find that, for combustion to be at its most efficient, there is always an ideal ratio of oxygen to fuel to achieve this.

It's worth mentioning here that when I say fuel I am referring to the elements of a substance that are a part of the burning process. With wood, for example, there are all sorts of constituents that are not a part of the process, and which are left as ash when

“The ideal scenario ensures that every molecule of the actual fuel is burned to release its heat energy and so every molecule of the fuel must be combined with oxygen to achieve this. This, however, is easier said than done”

the burning is completed. The ideal scenario ensures that every molecule of the actual fuel is burned to release its heat energy and so every molecule of the fuel must be combined with oxygen to achieve this. This, however, is easier said than done. If there is too much oxygen the flame becomes too hot as the oxygen starts to become the fuel and burns way too fiercely. Getting back to the old carburettors, this was considered as the fuel being too ‘lean’ and could lead to holes in pistons and burned-out valves. On the other hand, if there’s too much fuel for the available oxygen, not enough of the fuel gets burned and therefore gets carried over into the exhaust gas. This was always referred to as being too ‘rich’ and would lead to poor performance, as the temperature of the burnt gas was low and there would be a lot of carry-over of soot into the exhaust gas. Whenever you see a vehicle engine putting out black smoke that engine is not supplying enough oxygen for the fuel that is going into it and the blackness in the smoke is unburnt fuel. We even see this when a steam locomotive is sat at rest for a long time and there is little oxygen being supplied to the boiler; the exhaust starts to get noticeably dirtier, as there is more unburnt fuel being expelled (see **Photo 2**).

We even get to see this happening in our wood burning stoves when we shut down the damper to admit less air, and therefore oxygen, and the fire dies down to a slower burn. If we open up the damper fully to increase the air, and therefore oxygen supply, the fire increases significantly, and we find the room gets very hot very quickly and the fuel also disappears rapidly. The same things are happening here; so, if we run a wood burner damped down all the time, we’ll get much more soot in the flue. It is, therefore, worth opening the damper just occasionally to clear some of this soot and prevent too much of a buildup.

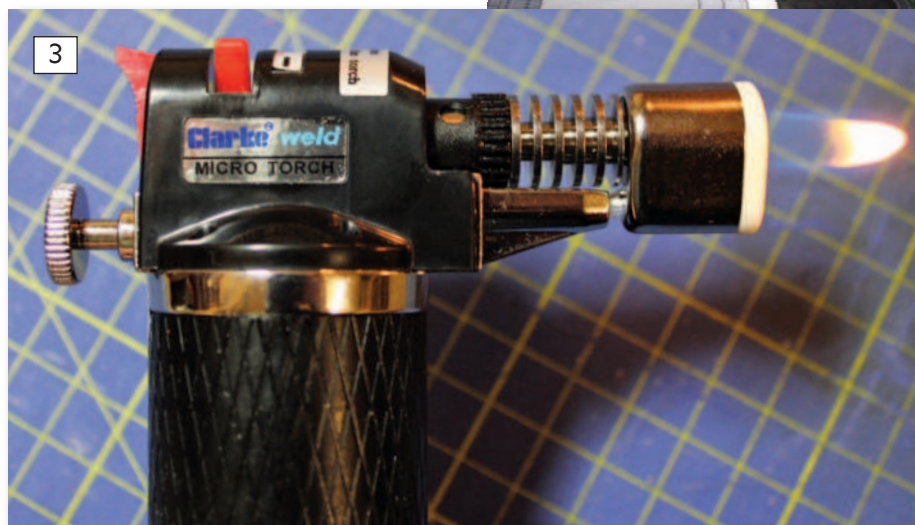
An interesting effect of this happened to me when I was sailing on a large container ship as an engineer many years ago during a very long passage along a river at reduced speed. Because the engine was not operating at anywhere near its best efficiency for a prolonged period, soot started to build up in the exhaust manifold and the uptakes. When we cleared the river and put to sea, the bridge increased speed too quickly and the sudden rise in the exhaust temperature ignited the unburnt fuel in the exhaust; as a consequence, we experienced a substantial explosion, luckily, however, contained within the manifold.



Common model boiler fuels include solids, liquids, and gasses. The solids contain a lot more incombustibles, which end up as ash, but they all simply contain chemical elements that burn in the presence of oxygen.

The reality

Relating the theory into reality, what does efficient combustion mean for us? Well, considering the 'rich' and 'lean' approach as it applies to petrol engines, we can expand this into all combustion processes, whatever the fuel may be. The bottom line will always be the same for all types of burners, fuels, engines, boilers, etc: i.e., that too much fuel or not enough oxygen will always lead to unburnt fuel in the exhaust, so we are basically wasting fuel and, therefore, money. Why would you want to pay good money for any fuel and then throw a percentage of it out with the exhaust gas? As an example, we all remember the simple Bunsen burner in our chemistry labs at school, which works in exactly the same way as this small torch does. Shut off the available air supply and the flame goes very rich and yellow (see **Photo 3**), while opening the air supply makes the combustion much cleaner and more efficient (see **Photo 4**). Going the other way, not enough fuel or too much oxygen will always lead to too high a combustion temperature, which can cause damage to various components in whatever



ABOVE: Just like the old Bunsen burner at school, shut off the air by rotating the black plastic ring and you get a poor quality, low temperature yellow flame. If you put a piece of metal close to the flame it soon shows a black sooty deposit.

BELOW: Rotate the ring to admit air, however, and the flame changes characteristic immediately into a bright blue, cleaner and much hotter flame. Hold the same piece of metal over the flame now and it will remain a lot cleaner.



ABOVE: A steam train on full load is surprisingly efficient at combustion and the exhaust can be quite clean; do not be misled by the large quantities of steam in the exhaust. Sat in the station, however, the poor combustion soon starts to create dirty smoke.

machine we are dealing with, which can lead to higher maintenance costs at more frequent intervals and even the potential for component failure. It seems to come down to the economics of the situation either way then, as well as environmental issues and even potential safety issues.

Consequently, every combustion process we deal with, whether in our gas cookers, domestic boilers, and vehicle engines, or those used commercially in transport systems and even power stations, relies on efficient combustion. It's not surprising, then, that our model boilers also deserve consideration.

Relating this to our model boilers

Now that we have a good idea of what we are talking about, the next step is to consider how this affects our model boilers. While the same thinking applies to solid or liquid fuelled boilers, with around 90% of steam powered model boats using gas as a fuel we will think about this from a gas perspective.

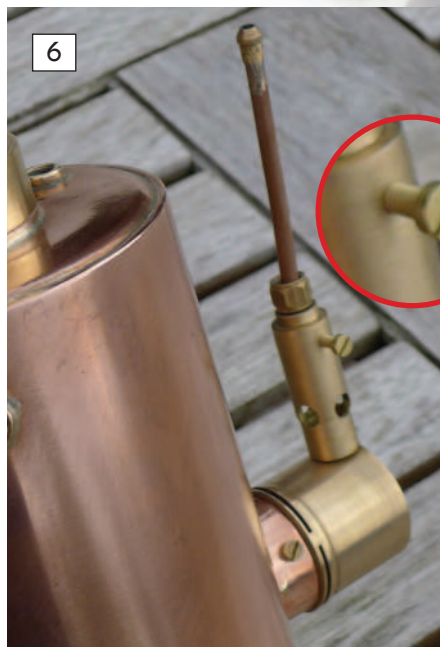
In our boiler burner we are supplying the fuel as a gas from our disposable or refillable gas tank. As we have seen, though, this gas has to be mixed with oxygen in exactly

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A twin poker burner that's not adjustable but relies on the original design to set the nozzles at the optimum position. The rear nozzle tip can be seen in the air hole, which is pretty much where we would use as a starting position with an adjustable version.

6



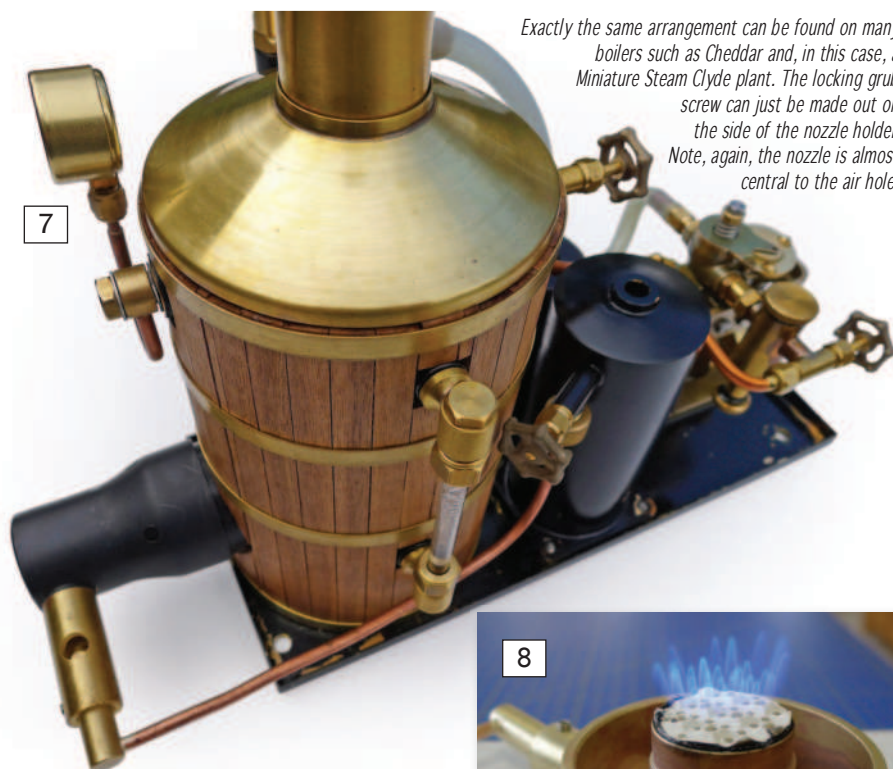
ABOVE: The nozzle in this Pendle boiler can be adjusted by slackening off the screw, moving the nozzle in and out to obtain the best flame and then locking the screw again.

“If we do not pay any attention to the quality of the combustion in our boilers there are one or two effects that may become a concern”

the correct proportions to give us the most efficient combustion. Most burners do this by expanding the gas through a nozzle, which increases its velocity, creating an area of lower pressure, which then sucks in air from outside. Usually this is in the form of holes drilled into the gas supply somewhere close to the nozzle or jet (see **Photo 5**). Not all boiler manufacturers include an adjustment and rely on the original design to give the best combustion; many, however, do include

an adjustment in the form of being able to slacken the nozzle, move it backwards and forwards to obtain the best flame and then lock it in position again – such as this Pendle arrangement (see **Photo 6**) and this Miniature steam arrangement (see **Photo 7**). What this is effectively doing is moving the area of low pressure caused by the nozzle to move across the air inlet holes and thereby varying the amount of air that is sucked in. To set up most nozzles it is worth starting with the tip of the nozzle in the centre of the air hole. Notice with the pre-set nozzle at the rear in **Photo 5** the nozzle tip is pretty much in the centre of the first air holes. In adjustable burners the flame can then be adjusted with the burner outside the boiler so you can study the flame or insert a suitable scale thermometer into the exhaust gas. What you're looking for with this is the best quality flame you can achieve, which should give you the hottest temperature. You will not get into the realms of excess oxygen causing extreme temperatures with the relatively crude air supplies we are dealing with. With the burner outside the boiler you're looking for a clean blue flame, with the base of the flame cones just above the diffuser (see **Photo 8**), be it ceramic or brass, and with the temperature in the flue method you're simply looking for the highest temperature. When there's insufficient oxygen being supplied, as with the same burner but the nozzle positioned completely incorrectly, a poor quality, sooty and low temperature flame is created (see **Photo 9**). With this method, of course, the boiler must have water in it, which will generate steam, so removing the burner is a lot more convenient.

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Exactly the same arrangement can be found on many boilers such as Cheddar and, in this case, a Miniature Steam Clyde plant. The locking grub screw can just be made out on the side of the nozzle holder. Note, again, the nozzle is almost central to the air hole.

So why bother in our models?

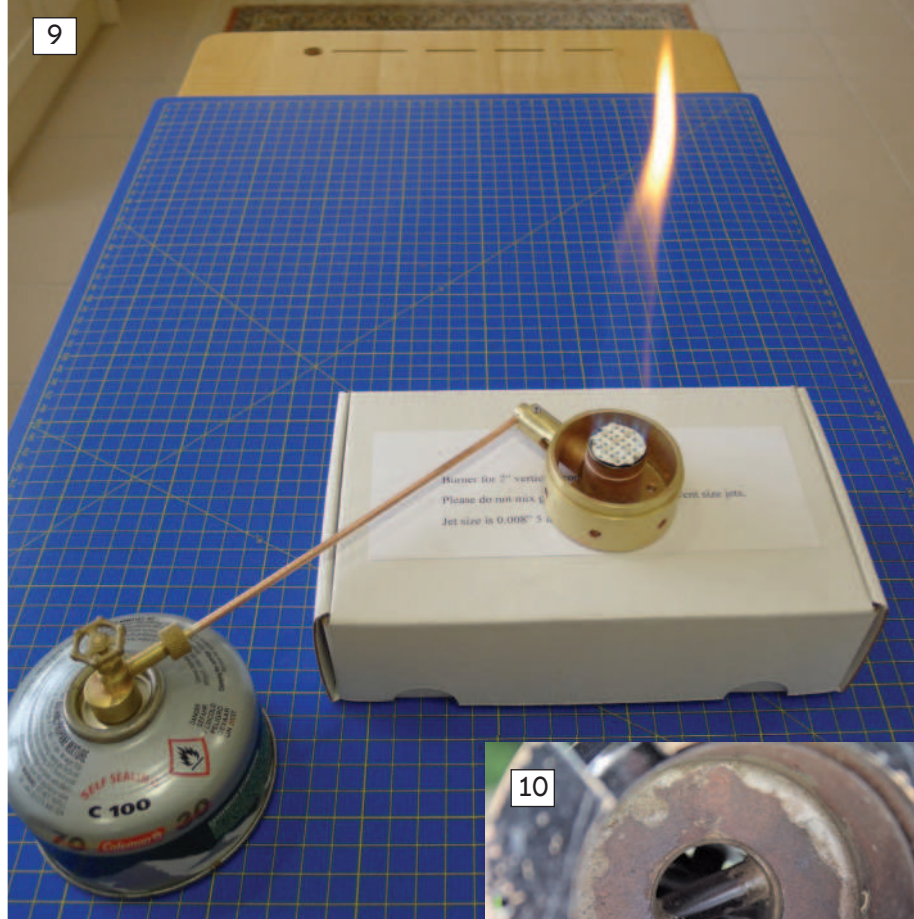
If we do not pay any attention to the quality of the combustion in our boilers there are one or two effects that may become a concern. The vast majority of the time we will be dealing with insufficient air supply to the burner, because either the nozzle is not best positioned to give the maximum level of low pressure or because the nozzle is partially blocked, causing insufficient pressure drop and, again, not enough air being drawn in. Not enough oxygen will give us a lower flame temperature, so less water is converted to steam for a given amount of fuel. The only way to overcome this is to use more fuel, so we are effectively wasting gas. This has the effect of reducing your model's operational duration on the water, costing more in fuel for a given amount of sailing and even enhancing the challenges we face with the gas cooling effect as we are using more gas.

On top of this, because we are looking at the mixture being too rich, we will have unburned fuel being carried over into the exhaust pipe. While it is easy to forget this because the gas is so clean when we actually see it, we will still get more oily, sooty deposits collecting in our exhaust as well as on the internal tube surfaces (see **Photo 10**). This,

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RIGHT: Setting the nozzle position outside the boiler is a lot more convenient and should allow you to obtain the best quality flame. This will be the hottest and cleanest flame that you can achieve with this particular set up.



LEFT: With the nozzle set in completely the wrong position the air supply is insufficient and a poor-quality cool flame is created.

should take a little time to set our burners up to give the best flame that can be achieved. Soot deposits are equally undesirable, necessitating frequent dismantling and cleaning, so everything points to trying to achieve the best possible combustion. If you look after the combustion process it's surprising the difference you'll notice in duration and the amount of gas you are using, so it is well worth considering. Also, while setting up a pump to circulate cleaning fluid to remove deposits on the water side by conveniently connecting into existing valves is relatively straightforward (see **Photo 11**), it's much more of a challenge to isolate the burner spaces to carry out a similar process to clean the soot deposits off.

One thing not mentioned so far is the nozzle size. Do not fall into the trap here of thinking bigger is better if you want to get more out of your boiler. Invariably, the limiting factor is the amount of air that can be admitted to the boiler and then passed through it, so increasing the nozzle size can frequently have the effect of upsetting the combustion and having exactly the opposite effect of what you were trying to achieve. ●



INSET ABOVE: Cleaning oily soot deposits from the inside of a furnace is a bit of a pain but it must be done to maintain boiler efficiency. This boiler has only ever been used with gas, yet the dirty surfaces have still been created due to poor combustion.

BELOW: Pickling the water spaces is relatively easy with a battery-operated pump and using existing fittings on the boiler shell. Cleaning the furnace out is much more of a chore.

then, has the effect of reducing the heat transfer through the copper and into the water, as the soot acts as a partial insulator, so yet again we need more fuel to give us the same amount of steam.

What it all boils down to...

With the cost of gas now being a very large part of the cost of running a steam plant, especially if you are using 100g disposable gas tanks, then it stands to reason that we



Charles' Flower Class Corvette is modelled on HMS Burdock in her South Atlantic 'Dazzle' scheme and was built from a 1:72 scale Revell kit.

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 modelboats@mortons.co.uk

FANTASTIC FIVE

I am sending you photographs of some of my recently completed builds.

My MiniFolkboats represent the full-size version, at 1:8 scale being approximately

1 meter long and weighing 5kg each. They are well balanced and have friendly sailing characteristics, while also having plenty of pace.

HMS Burdock, a Flower Class Corvette, built from a Revell 1:72 kit, was one of my

BELOW: The MFV Ocean Class vessels served as World War II Fleet tenders and were built on Scottish fishing boat hulls, with a view to returning them to the fishing fleets post-war. Charles' model was built from a Caldercraft kit.

'lockdown' projects. Her striking 'Dazzle' scheme was used in the South Atlantic, where amongst the icebergs and the low light she was well hidden.

Another 'lockdown' project was the MFV Ocean Crest, built from an obsolete kit found on eBay. The MFV Ocean Class of 65ft purpose-built vessels were used as fleet tenders during World War II and later sold off into the familiar fishing fleets that grew post-war, some remain today as house boats or private yachts.

And, finally, I present my Genoa rigged Nottingham 'J'.

I trust that some of these models may be of interest and find their way into your magazine?

**CHARLES CHAMBERS
EMAIL**

Fabulous work and beautifully shot photographs, Charles! Ed





Charles has two 'Minifolkboats'. These were built to 1/8 scale and moulded in fibreglass, giving an overall length of 1 meter.



BELOW: The Nottingham 'J' is a representation of Endeavour, as built in 1934. She measures 48 inches in overall length and features twin sail winches for the Genoa and the main sails.



TAMAR PLYMOUTH

I am sending you a photo of a coaster I've built, the kit of which was produced by Mountfleet Models.

She is fully radio-controlled, with working lights, and is powered by a car windscreen motor from a 12-volt 7.2 sealed lead acid battery, which, with care, gives me a whole day's sailing.

The kit has been customised to my own liking, in that I have changed the lead stanchions supplied with the kit to brass ones instead.

The model performs well on the water and is a joy to sail on the large lake close to my home in Cornwall.

BARRY FAITHFULL
EMAIL

*She looks absolutely splendid and simply packed with detail, Barry. I imagine others enjoy seeing her out on the lake almost as much as you enjoy sailing her. **Ed***



Robin's Searle's magnificent 1:48 model of the 1778 sixth rate frigate HMS Hinchinbrook.



HMS Hinchinbrook

I was given this 1:48 scale model of the 1778 sixth rate frigate HMS Hinchinbrook once the previous owner had proved his intended point, of being able to control the various sails, etc, by means of an Arduino processor. Although the hull had been made correctly, he hadn't been particularly interested in adding a great deal of scale detailing to the model, so I decided to add a little more.

Up until this point, square riggers had never really been my 'thing', but I became more and more interested as the project progressed, and finally reached a standard that I was satisfied with.

The forward mast operates with the other two but may be overridden when turning

across the wind. I've added cannon, ship's boats, bowsprit and all standing rigging, which I made from carbon fibre material. Because the masts themselves rotate, the rigging is all free standing, i.e., the masts rotate relative to the rigging, which is fixed although may be readily removed; a little unusual but this retains the original idea of the model.

The model is built with her gun ports open, signifying 'intent'. The sails are Dacron 3.5gms per sq. yd. material. To keep water out, I bonded in clear PVC screens to the hull sides and a seal fitted over the cannon barrels. This works successfully and gives the model a purposeful appearance. The decks are stained light pine to reflect scrubbing and bleaching in the tropical sun (the real ship served in the Caribbean), and I used period black and yellow to finish the hull. I also made all the finery for the rear cabin and bow.

I became increasingly enthralled in the ship's history as the build progressed and found paintings of some of the characters involved, Admirals Horatio Nelson and Cuthbert Collingwood to name just two. She was named Hinchinbrook for the country

house of the Montagu family at the time, as a courtesy to Viscount Hinchinbrook, First Lord of the Admiralty, when she was taken into the Royal Navy following her capture from the French as a prize vessel. Following a number of commands, she finally sank off St Anne's Bay, Jamaica in 1782. I have made a DVD describing the ship's history and the rebuild and eventual resailing of the model.

The current Viscount Hinchinbrook lives not far from me, and we have made contact. I hope one day to have a photograph of the model and the Viscount to close the historical loop as it were. Hinchinbrook is a working model and I sail her regularly at events with my club, The Weymouth and Portland Model Boat Club and I think she gives a good account of herself on the water. She has also been put on static display at various events we've attended and has been well received.

ROBIN SEALE
EMAIL

*She's absolutely gorgeous and looks so serene on the water. Thanks so much for sharing these magnificent photographs of her, Robin. **Ed***

Artwork depicting HMS Indefatigable joining other ships of the squadron offshore, signed and dated 'JT. Serres, 1800'

FORTHCOMING MODELS INSIGHT

As a staunch follower of Chris Watton-designed kits, there is going to be a problem for me, and I suspect others, later this year... Which will be on sale first Amati's Victory or Vanguard's Indefatigable?

Have you any inside information that you could share with your readers?

RON HOSKINS
EMAIL

*I've spoken with Chris and while he cannot comment on the time frame for the release of the Victory model he designed for Amati, he can reveal he is currently working on his own 1:12 scale Vanguard's kit for HMS Indefatigable and hopes to have this ready for launch at some point this year. We will, of course, keep you updated as and when a release date is announced. **Ed***

Your Letters

Got views to air or information to share?
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BLUEBIRD K7

The article by Ashley Needham about his model of Bluebird K7 in the April issue rekindled memories from some years ago of a Bluebird model I believe was made from a kit by Speedline Models. Power was provided by an EDF unit, details of which the owner could not recall, but it sounded fantastic and was too fast to open up fully on our lake.

On another shakedown run a member produced a hand-held anemometer to check output. The model was held down, the meter held 12 to 18-inches from the jet outlet and the throttle opened up fully. The reading attained was in excess of 45mph. From this we decided our lake was much too small to operate this Bluebird at much above fast tick over. Being unable to operate fully on our lake, the owner disposed of the model, so where it is now, I have no idea.

NIGEL MARRIOTT
LAKE MANAGER, WPMBC

*It's always lovely when features prompt memories and generate letters like yours, Nigel. I am not holding my breath, but how fantastic would it be if someone reading has this model in their possession and would be willing to send in some photos and perhaps details of where he/she found to operate her. **Ed***



Bismarck, 1940.

MODEL SHIP BUILDER SOUGHT

The Yamato model featured in your April 2022 issue is brilliant. I am, therefore, wondering if you know of a model maker who might be prepared to build up a fibre glass hull for a 1:100 scale model of the Bismarck I bought 20 years ago from the Scale Shipyard. I already have motors, shafts, propellers and the big guns. I would have a go myself, but the reality is I don't have enough time or talent. Are there perhaps people out there that take on jobs like this, or am I just dreaming?

DOUGLAS SMITH
GLASGOW

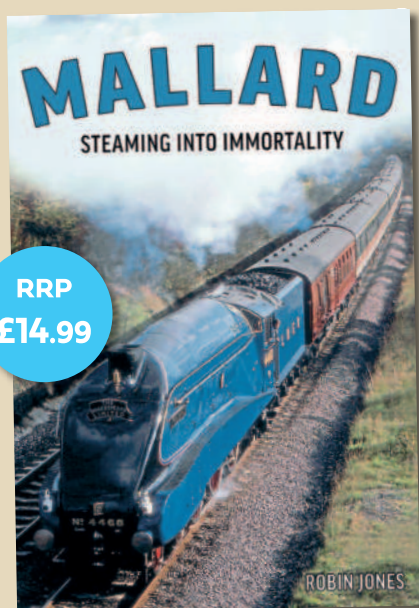
I am sure there are model boat builders out who would be prepared to take on such project, Doug. However, if you are looking for something built to a similar standard as Yamato, you may need deep pockets, as that level of detail would necessitate the input of many, many hours work.

*Over to you, chaps! **Ed***

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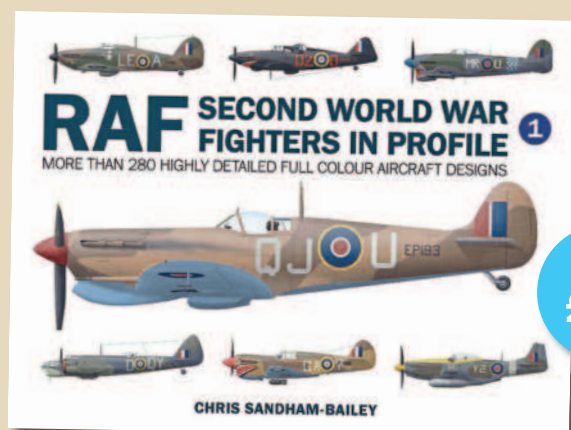
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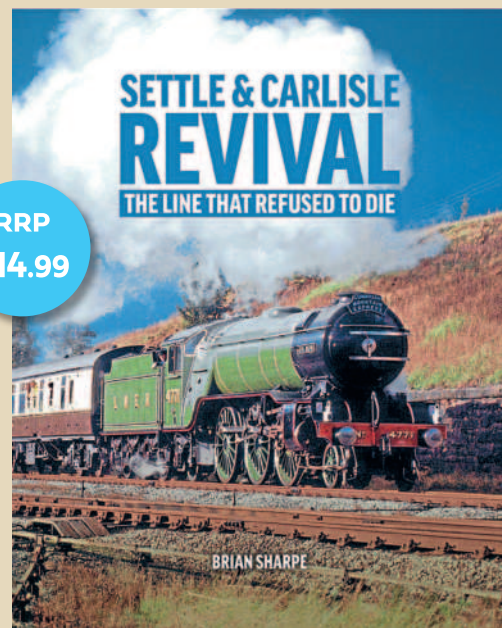
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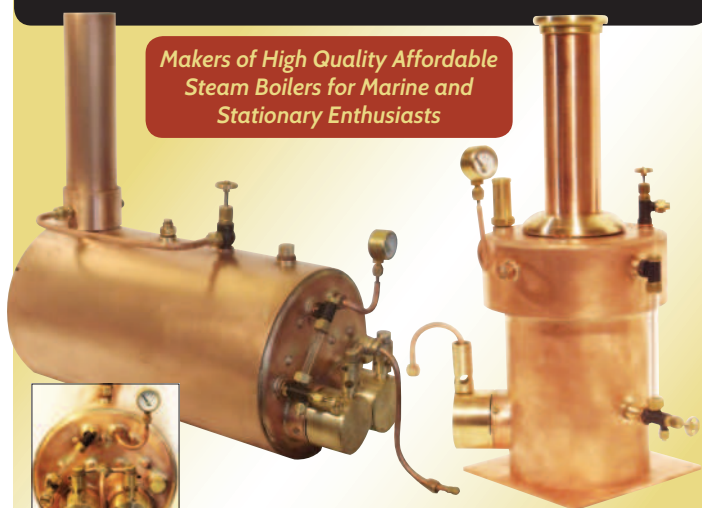
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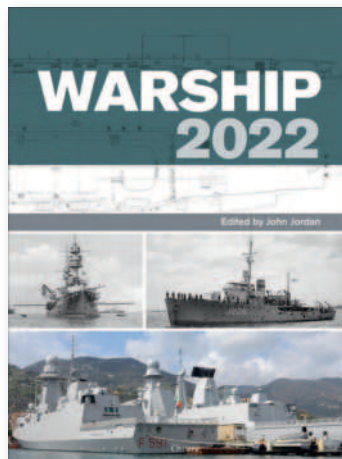
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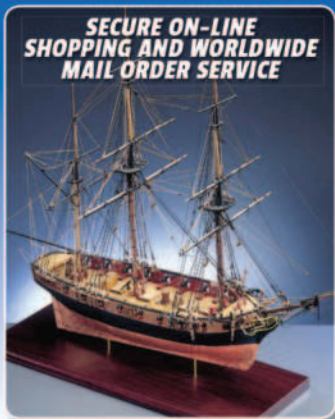
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