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As I sit writing this column it's a cold, wet, windy morning, and the news on in the background is equally as gloomy. So, I hope by the time you're reading this things are starting to look brighter or if not then the pages that follow will provide a welcome distraction – as they indeed they have for me while working on them. The fantastic response to my recent appeals for more of your input has certainly kept me upbeat and I am delighted to say that as well as being to include yet another very busy Your Models/Your Letters section (see pages 66-70) there's been some really interesting features submitted, a couple of which I've managed to slot into this month's mix, with more planned into future editions.

Trying to achieve a balance of content for an audience with a very broad spectrum of thematic interests, chosen modelling mediums and differing levels of know-how and skills is always a bit of a juggling act. So, while the magazine is blessed with a terrific little crew of regular writers, new ones, especially those able to tackle topics where there may currently be a lack of coverage (even if only as a one-off), will always be very welcome indeed. And remember, this is a hobby magazine, not a reference manual, so you don't necessarily have to be an authority on a subject to write an engaging article; it can, for example, be just as informative (and entertaining) to read about the things that went wrong during a project and how they were rectified. OK, so you may not have come up with the perfect solution, but even so, knowing what a lovely, supportive bunch of readers we have, I am confident that a wry smile and some sage advice in the form of feedback will be the response you'll get from those with decades of hands-on experience. For me, the most important thing is that, like the fine example being set by so many model boat clubs out there, we keep the magazine friendly, inclusive, encouraging, and a safe port for all.

Meanwhile, it's time to embrace something old, something new, something borrowed (make that recycled!) and, yes, even something blue!

Enjoy your read!
Lindsey

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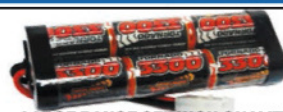
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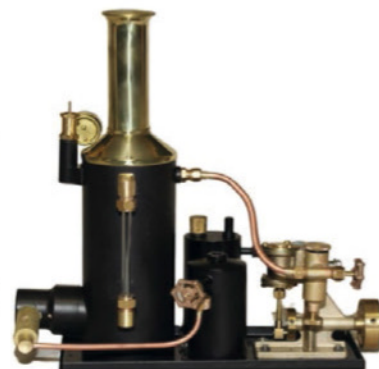
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CWB2000D	2000x650x880	£339.00	£406.80

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MMA200A	20A-200A	1.6-3.2	£139.98	£167.98
AT165	10A-160A	2.5/3.2/4.0	£219.98	£263.98

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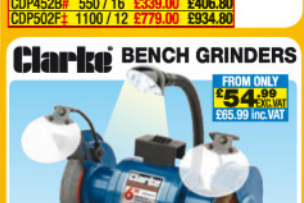
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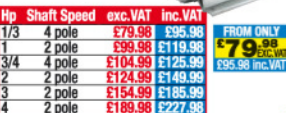
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DEVIL 7003	230V	3kW	£69.99	£83.98
DEVIL 7005	400V	5kW	£97.99	£118.79
DEVIL 7009	400V	9kW	£149.98	£179.98
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If you have a news story for these pages, please contact the Editor, Lindsey Amrani, via e-mail at editor@modelboats.co.uk

OUT AND ABOUT

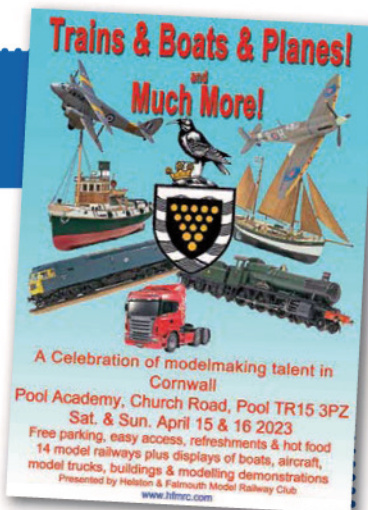
Helston & Falmouth MRC Spring Exhibition

Heston & Falmouth Model Railway Club's annual spring exhibition, this year scheduled for the weekend of April 15-16 at the Pool Academy in Church Road, Redruth, Cornwall TR15 3PZ, has been expanded to embrace a wider spectrum of modelling interests, including model boats, model aircraft (both R/C and static), R/C trucks, military models and model architecture. From 10am to 5pm on the Saturday and 10am to 4pm on the Sunday, there will be three halls of exhibits and trade stands to browse, as well as outdoor demonstrations (weather permitting).

Black Park MBC Open Day

From 10am to 4pm on Sunday, June 11, the Black Park Model Boat Club will be holding an Open Day.

Admission to this family-friendly, informal event at the Black Park Country Park, Black Park Road, Slough, SL3 6DS (signposted from the A412 between Slough and Iwer Heath) will be FREE of charge. Visitors will be more than welcome to bring along their own models (the only restrictions being no fast electrics or IC engines) to sail on the club's magnificent lake. Equally, however, thanks to a grant from the Wexham and Iwers Community Board, the club has recently been able to refurbish



Admission will be charged at £6 for adults, £3 for the under 16s, or £14 for a family ticket (covering two adults and two children). Free onsite parking will be available and hot and cold refreshment will be available to purchase throughout the day.



and install modern electronics in its 30-year-old 'Have a Go' boats, so children and adults with little or no previous experience will still be able to join in the fun.

Facilities at the park include cafes, toilets and a pay and display car park. For further details call 07749 080982 or email Club Chairman Jeff Carter at ctrjeff@yahoo.co.uk.



Knightcote MBC Open Days

Continuing its 20th anniversary celebrations, the Knightcote Model Boat Club in South Warwickshire (CV47 2EQ) will be holding a General Open Day on Sunday, June 11. This will be followed by a Navy-themed Open Day (similar to the Surface Warships Association-organised events of previous years) on Sunday, July 9, at which both the SWA and RNLI will be represented.

These events will, from 10am to 4pm, be open to all (including any clubs/groups/etc wishing to attend), and, as well as being able to enjoy the sailing, there will be raffle and prizes awarded for 'Best Boat on the Water' and 'Best Static Boat'. Facilities at the venue will include free parking, refreshments served in the club house and onsite toilets.

For more details, contact chrismoiruk@btinternet.com or visit the club's website at www.kmbcmmodelboatclub.com.



EXCLUSIVE PRIZE DRAW

WIN! ONE OF TWO
HUMBROL
GOODY BAGS!


This month, in celebration of the 50th anniversary of Humbrol, we're able to offer you a chance to try out some of the new and improved products in the Humbrol range free of charge, as we've got two fantastic goody bags to give away. Please note, the images shown here feature a representative selection only rather than the exact contents of each goody bag, which will both include:

- Sanding pads
- Spray primer
- A selection of acrylic paints
- Masking tape
- A set of paint brushes
- A tub of texturing 'Smart Mud'
- Washes and weathering (sand, dust and aging (rust, primer and soot) powders)
- A bottle of clipping and scratching agent

So, whatever projects you have planned for the year ahead, here's your opportunity to start



www.modelboats.co.uk February 2023 • Model Boats

Humbrol goodies bagged!

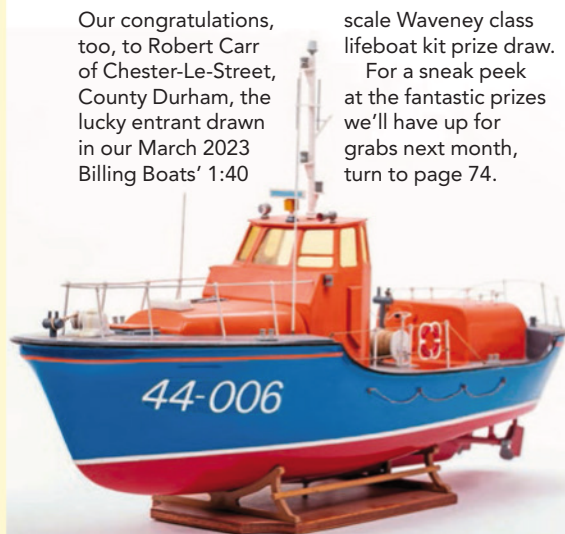
The exclusive prize draw in our February 2023 issue offered the chance to win one of two fantastic Humbrol goody bags. We are now delighted to announce the winning entrants as: Mrs Janet Fothergill of Sheffield, South Yorkshire and Mr B. Pugh of Evesham, Worcestershire.

Waveney winner!

Our congratulations, too, to Robert Carr of Chester-Le-Street, County Durham, the lucky entrant drawn in our March 2023 Billing Boats' 1:40

scale Waveney class lifeboat kit prize draw.

For a sneak peek at the fantastic prizes we'll have up for grabs next month, turn to page 74.



Victory underway

John Aliprantis's work on a very special and unique 1:75 scale version of HMS Victory, based on the Billing Boats kit (Ref. BB 490), is now well underway, with videos documenting the construction being regularly posted on the YouTube channel (<https://www.youtube.com/channel/UCvNxDG6MgbFikbTM89Hod2g>). You can also access the playlist by keying the following link <https://www.youtube.com/watch?v=Ttw-DUH0Cao&list=PLmoS1cmOlmgjyV1liE25qaCr09XPD7yfJ> into your browser, which will not only feature all videos as they are posted but also a small preview of upcoming videos. Alternatively, you can simply click on the link that will appear on Billing Boats' own website, <https://www.billingboats.com/index.php/modelboats-footer/77/120/boats/the-expert/P-bb498-hms-victory>.

A useful step-by-step photographic reference gallery to complement the YouTube footage can be also accessed via the following link: https://docs.google.com/document/d/e/2PACX-1vRcld8VsnNeKBvpXypHn0ovTtlejeLjm53ammNblfC_Nn6LBkQYMGfXnK6NzhUMtQK5jsR6fEmE9I3/pub

You can follow John Aliprantis's work via a series of illuminating YouTube videos and step-by-step photo reference galleries.

PAUL FRESHNEY'S MODEL BOATS

Colin Bishop provides the backstory to some very special models now up for sale/sail



Elsewhere in this issue you will find an advertisement placed by former Editor Paul Freshney's family for the sale of his boats.

They are keen that the models Paul left behind should find a good home where they will be valued and used by his fellow boat modellers.

Long before taking over the editorial chair in 2007, Paul was well known for his superb skills, which produced a series of award-winning models at the Model Engineer Exhibition (MEX), MPBA Scale Championships and many national shows and club events. Most of these were subsequently sold on to make room for the next project.

After his appointment as Editor, Paul concentrated on building a range of subjects which appealed to him without the need to meet the stringent rule requirements of competitive events. Of the models now offered for sale, only Monitor HMS M15, built in 2005 and which was awarded a silver medal at the MEX, is typical of his earlier work; the remainder are his 'fun' projects and are typically based on commercial hulls,

which enabled him to increase his building rate. What they do share with his previous work are the meticulous construction standards and the exceptional quality of his airbrush painting techniques which originally established his reputation.

Attention to detail wasn't confined to the outside either! All Paul's boats were beautifully fitted out internally, using the highest quality kit. In his later years he embraced the possibilities offered by brushless motors with their high power to size ratio and frequently coupled them with lightweight LiPo batteries.

Paul was very much a 'hands on' editor and regularly sailed his boats at local clubs, latterly Fisher's Green in the Lea Valley Country Park near Waltham Abbey.

The photos are a reminder of Paul's modelling skills, and his next project was to be a return to his favourite subject of Royal Navy harbour defence craft of World War II, in this case a Fairmile B Motor Launch at 1:35 scale giving an impressive 1-metre-long model using the MTB Models (Gibraltar) GRP hull.



Above: Paul's award-winning monitor HMS M15 was entirely scratch built.



Left: Fine detail on M15.

More detailed information on the individual models is available from the link given in the advertisement. As a long-standing admirer of Paul's skills, I echo the wishes of his family that his boats will find the safe harbour they deserve.



Left: Paul was always a keen supporter of the RNLI and he and Rose stayed at Lifeboat HQ on a number of occasions. He really enjoyed making this Mersey class kit, which allowed him to display his painting skills.



This German police boat Habicht kit is in keeping with Paul's love of small craft as modelling subjects.



Converting the Trumpeter HMS Astute kit to a static diving model was the sort of challenge Paul enjoyed as a technical exercise.



The Cygnus 33 1:16 scale inshore trawler semi kit offered something different to Paul's usual choice of subject and looks great on the pond.



Left: This packed with detail 1:35 scale HDML 1384 is one of two models Paul made of the vessel; the other, also for sale, is to 1:24 scale.



The impressive minehunter HMS Aveley incorporates many 3D-printed fittings to Paul's design.

Right: HMS Aveley, a small ship with a huge amount of detail!



Left: Paul's models were always impeccably fitted out.

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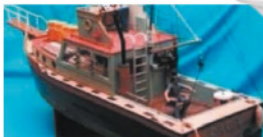
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SAVE: Plan & Hull Set SETMM1409 £49.00



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"We're gonna need a bigger boat!"
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SAVE: Short Kit SETMAGM2010 £135.00



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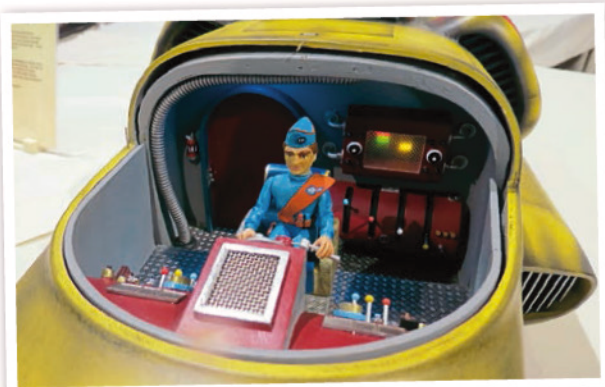
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- Brave Borderer FG SETMM609 £81.00
- Breeze (Pilot Cutter) FG DASET006 £138.50
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- Celia May Steam Launch SETMM1429 £51.00
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Can you read what this says? Let us know on Facebook!



The Harrogate Model Engineering Exhibition 2023

Dave Wooley reports back from this year's show



Above & Left: Capturing everyone's attention at this year's Harrogate show was Thunderbird 4, scratch built by Dave Howard. Originally made for the 1960s' TV series, this working model has since been given a bit of added weathering.

Harrogate has long been synonymous with model engineering shows. Due to the rebuilding of the exhibition centre there in 2016 though, shows were moved to the Doncaster Racecourse, until, in 2020, with the intervention of Covid in 2020, they were completed halted. Fast forward to 2023 and under new organisation/management the Harrogate Model Engineering Exhibition was once again up and running. As the name would



Built to original plans at 1:48 scale, John Hollis's scratch built live steam-powered replica of the circular Imperial Russian Royal Yacht Lavadia.



imply, the focus of this year's event was model engineering, with a strong emphasis on model railway displays. Yet, true to the event's previous format, there was strong alternative model content, including trucks, tanks, heavy plant, aircraft and, of course, model boats. The exhibition was held over two days, taking in the Friday and Saturday, not Sunday as in previous years. This was a very clever move as Sundays had always been the quieter of the two days, and this simple change saw day two prove as busy as day one.

The venue

The re-development of the venue included building an extension on the adjacent car park, thereby almost doubling the available floor space in Hall 1 and making it even larger than previously more spacious Hall 2.

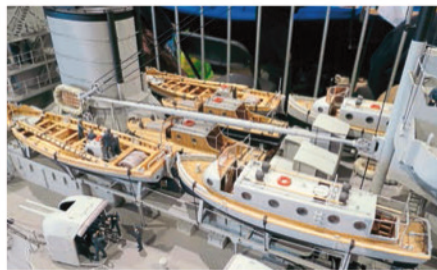
This year the transformed Hall 1 was largely given over to model railway displays (one of which dominated almost a third of the square footage), although there was still sufficient space to accommodate some of the model engineering displays and most of the vendors in the periphery and in some of the central areas.



This scratch built open steam-powered work boat, with a Kriegsmarine naval officer at the helm operating the power valve handle was displayed by Model Boats' columnist Richard Simpson. The model is packed with lovely little touches, such as a full set of tools at the ready.



Colin Vass displayed his magnificent 1:72 scale Italian heavy cruiser Zara, and the detail packed into this impressive cruiser made it a real showstopper!



The lion's share of the model engineering exhibits and displays focused on other aspects of the hobby, though, were housed in Hall 2, which was divided from Hall 1 by a fully revamped café area.

The model boat displays

The time of year (with early March being the tail end of winter) was always likely to present climatic challenges in terms of road/rail conditions and attendance. Yes, we had

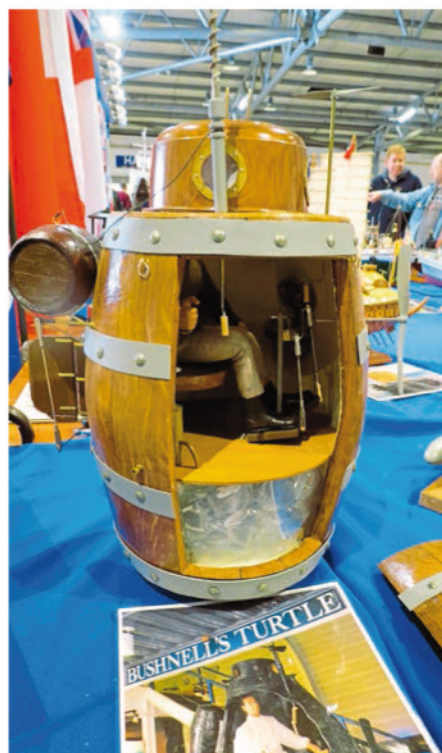
snow, but thankfully this didn't prove to be a deterrent, either to those displaying or visiting. Thursday was set up day, while Friday and Saturday were show days, and, amazingly, while Friday was busy, Saturday saw even more footfall. Plus, for the first time in many years, there was a large number of younger visitors.

The boat clubs in attendance consisted of Kirklees, Rowdon, Claro Marine Modellers, Huddersfield and the Ship Modelling Society, with the level of interest shown by the visiting public/modellers being non-stop on both days. All of these clubs and societies had to cope with lots of vigorous questioning, often while queues of people wanting to get a better look the exhibits formed.

As is customary I'll let the pictures do the talking but, let me say just say, it hasn't been easy choosing pictures to include the limited space allocated to this review! If, however, you were to ask what most sparked the imagination of both those of a certain age and those much younger, I'd have to say it was the large-scale working model *Thunderbird 4*, as this generated a plethora of mobile phone cameras coming into play! Equally, though, there was an astonishingly detailed 17th century man-of-



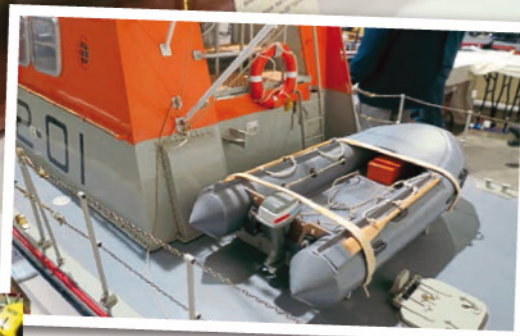
Members of Rowdon MBC – Paul Crawshaw, Ian Mallett and Paul Pilkington – examining the interior of an elegant power boat.



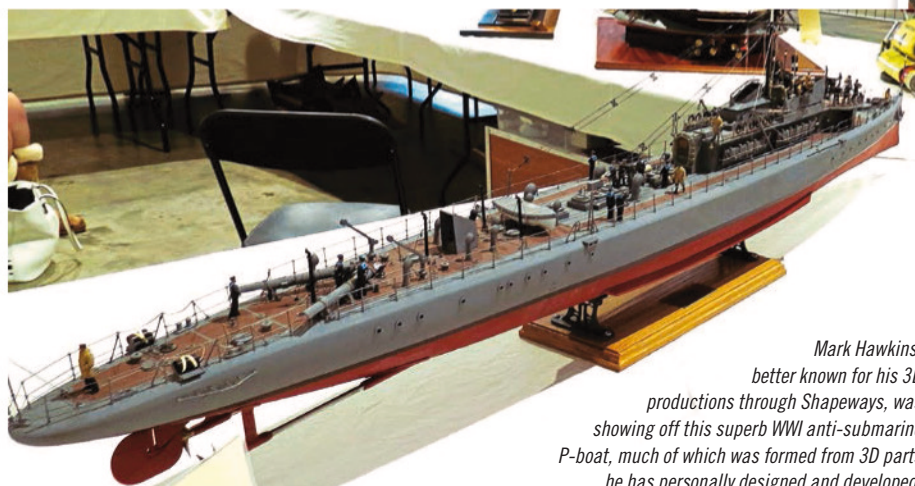
Lionel Broadbent's 1:12 scale model of Bushnell's historically fascinating covert attack submarine *Turtle* (as featured in the February 2023 issue of *Model Boats*), complete with hand cranked propeller. If you look closely, you'll note the hand cranked auger for drilling holes in wooden hulls.



This award winning 1:12 scale model of the Mersey class RNLI lifeboat RNLB Andy Pearce is almost an exact copy of the full-size vessel and could be considered the benchmark for model lifeboat construction.



The Y-boat as fitted to Arun 1, modelled by Arthur Barlow,



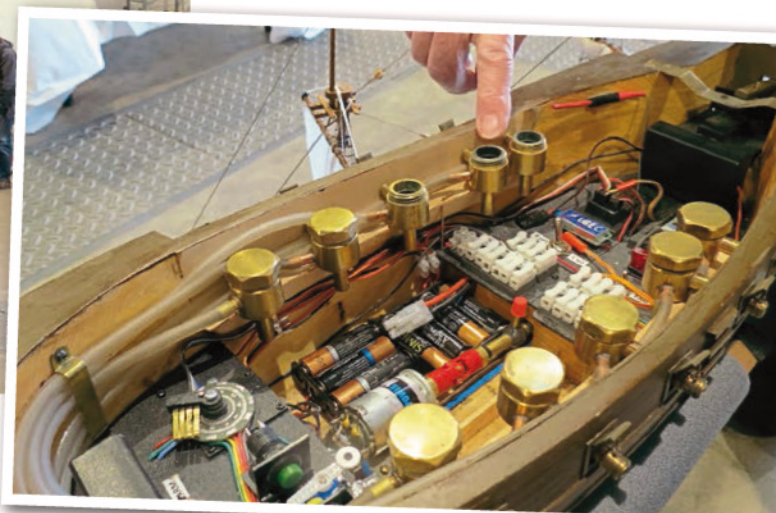
Mark Hawkins, better known for his 3D productions through Shapeways, was showing off this superb WWI anti-submarine P-boat, much of which was formed from 3D parts he has personally designed and developed.

war with working cannons by David Moss, and Colin Vass's completed Italian heavy cruiser Zara and Warspite models also both proved to be showstoppers at 1:72 scale.

Of course, this doesn't even scratch the surface of what was on offer for the visitor. Other models that gained a notable amount of attention included the live steam-powered circular Imperial Russian royal yacht Livadia, in its day a floating palace for Czar Alexandra III, and the Czarina. There was also a fascinating large-scale cut-away model of the Bushnell submarine employed during the American War of Independence. For the lifeboat enthusiast there were two truly impressive 1:12 scale models of a Mersey class and an Arun 1, lavishly detailed to an



The fully working model of a 17th century man-of-war developed and built from scratch by David Moss. Each one of the brass cylinders fitted contain a smoke charge for each of the cannons, which on the model can be operated as a single shot or as a rolling broadside.



Kirklees MBC has plenty of experience in how to display and incorporate many different types and scales of models effectively.



Model makers' ingenuity never fails to impress, as demonstrated by this intriguing model of Admiral Yi Sun-Sin's 1592 Korean Turtle warship.

exacting standard by Arthur Barlow. And, added to all that, small fishing boats featured every conceivable realism, save for the smell of fish you'd encounter when up close to the real vessels!

Rounding up and looking forward

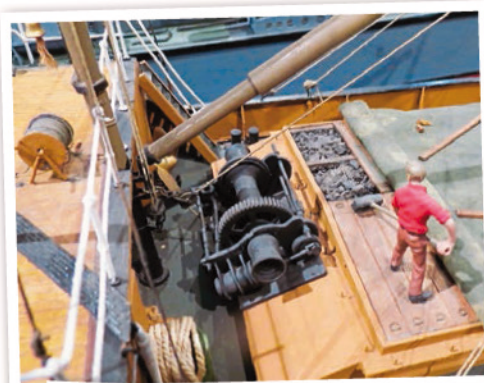
For a first show at what could be termed a new venue, the organisers hit the ground running and, despite seriously difficult weather conditions, pulled off a hit! One very minor niggle would be that pre-show communication and set up requirements, along with visitor navigation, were a little

confusing, given the lack of a floor plan; so, perhaps for the future the organisers can give some consideration to providing a basic show guide. On the plus side, this new venue boasts plenty of free parking, easy access (although, organisers please take note, for those less able to stand for prolonged periods, seating was on this occasion rather limited unless you were in the café area) and the building itself is well lit and comfortably heated.

I would certainly recommend next year's show to all those who missed out this time around. Dates have yet to be announced, so watch out for details in a future edition of this magazine!

Left: Within the display by the Huddersfield Society of Model Engineers were a number of fine ship models, including this characterful coaster.

Right: John Hollis is no stranger to Harrogate, having over the years gained numerous awards for his work. This exceptional and convincingly fitted out model of the steam yacht Gondola is his latest offering.



Hovercrafts also formed part of the displays, such as this 1:16 side wall HM2 built from balsa and light ply and using a single brushless motor for lift and two for thrust.



How do you make an R/C duck more convincing? Simply add eggs!



Paul Crawshaw's large-scale Swift river gun boat.



The Finnish Navy missile boat Torino sporting its unusual camouflage scheme.



Of course, not all models are based on real ships, and that's OK, especially if, like this one – named Still Running, they exude a charm all of their own.



All of the model boat stands at Harrogate were very well stocked, yet at the same time visitors were able to examine each individual model quite comfortably.



Left: With a long tradition of boat modelling, the Huddersfield Society of Model Engineers was keen to show off that it has its very own stretch of water.

Above: It's useful to get a glimpse of a model's interior, something Colin Vass is clearly aware of, providing visitors with an informative peek inside his Thornycroft

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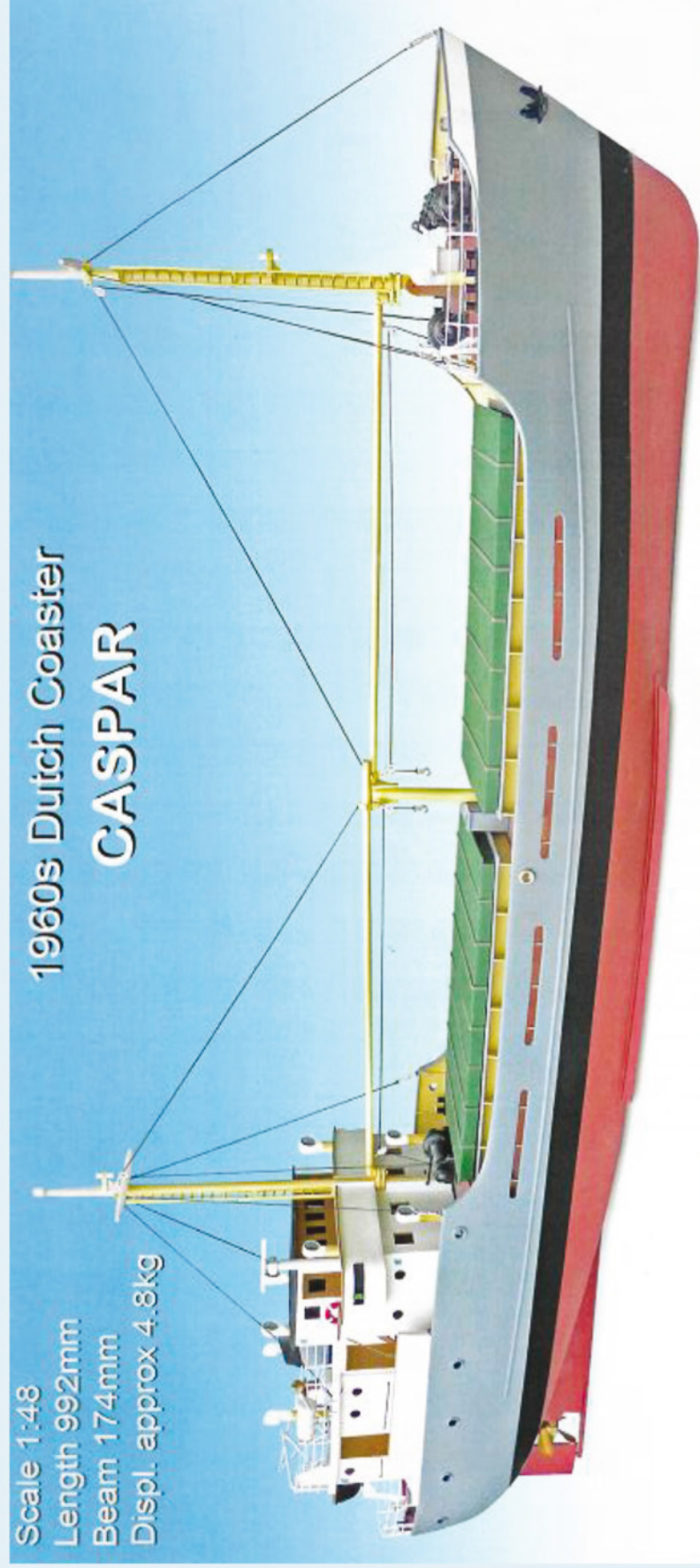
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1960s Dutch Coaster CASPAR



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.



The kit is to the usual high standards and includes building manual, GRP hull, lifeboat, other materials; CNC cut styrene decks and superstructure, full size plan, resin and white metal fittings.

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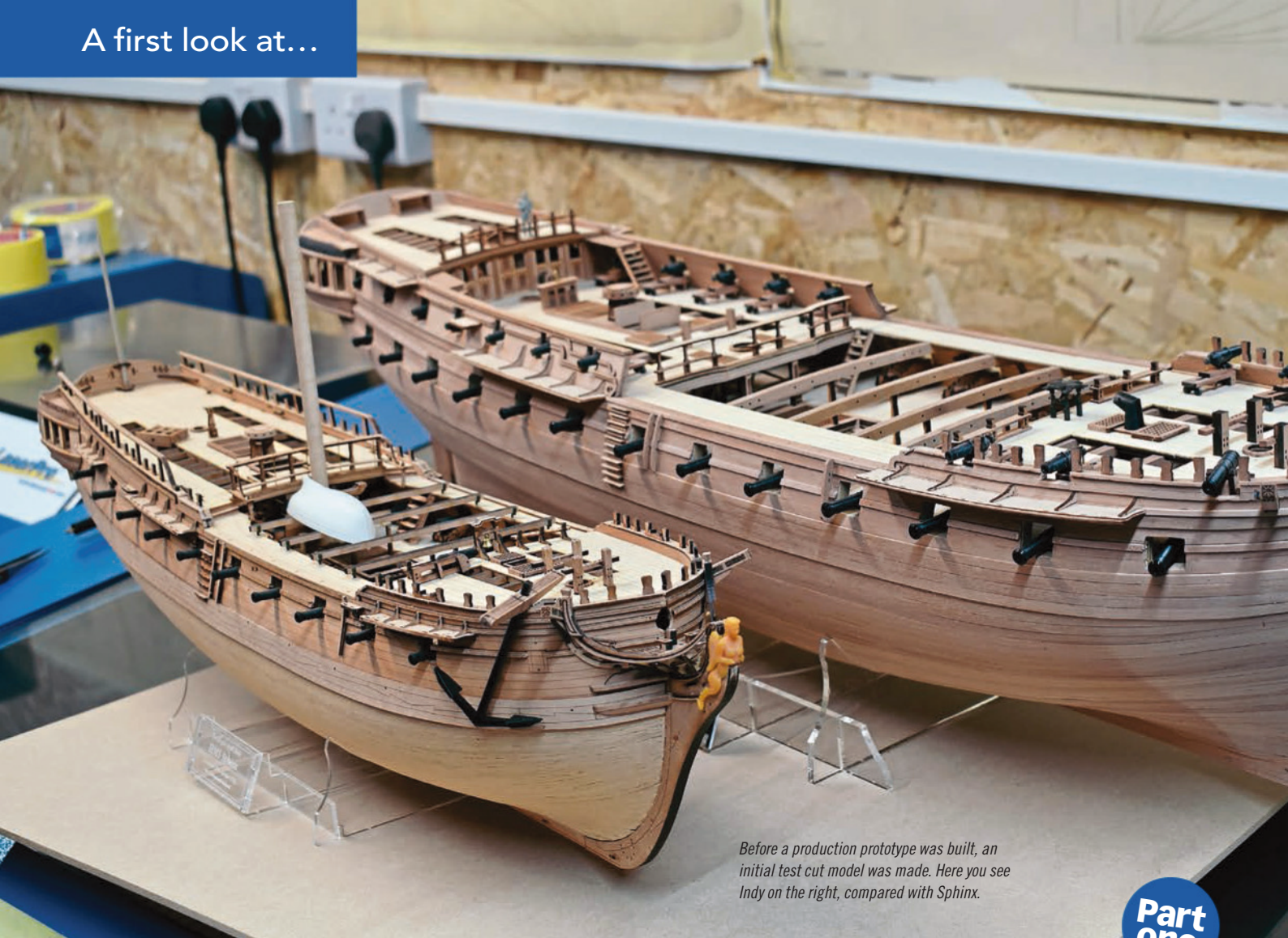
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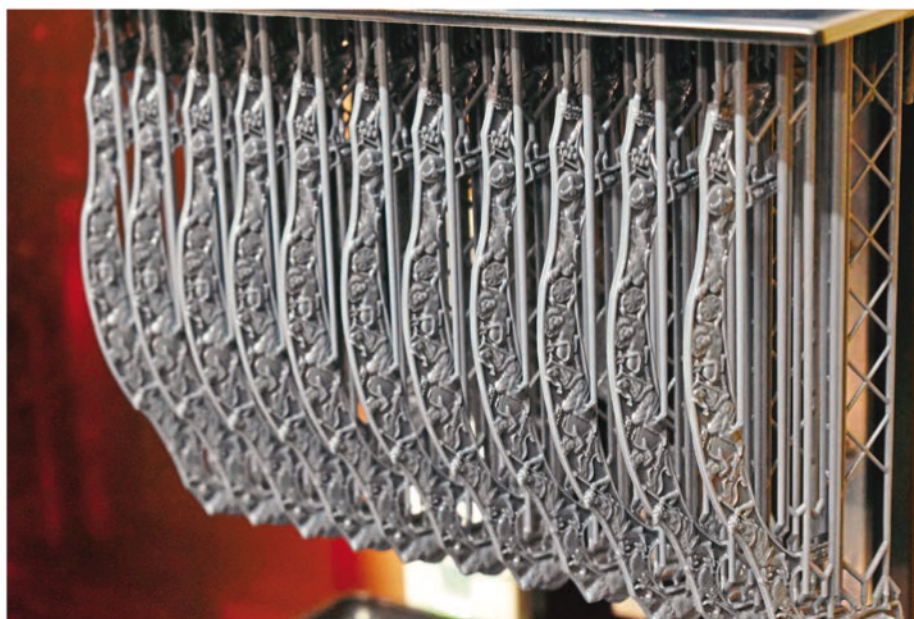


Before a production prototype was built, an initial test cut model was made. Here you see Indy on the right, compared with Sphinx.

Part
one

HMS *Indefatigable* (1794)

Prototype test builder James Hatch gives us the full SP on Vanguard Models' magnificent new 1:64 scale kit



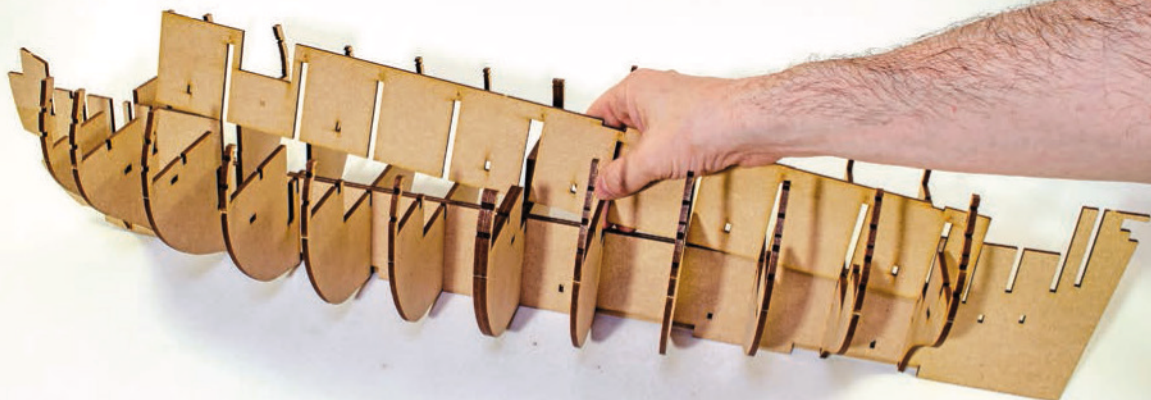
New kits from Vanguard Models are now typically using in-house items which traditionally would've been made abroad.

HMS *Indefatigable* was one of the Ardent-class 64-gun third-rate ships-of-the-line designed by Sir Thomas Slade in 1761 for the Royal Navy and built in Henry Adams' shipyard at Bucklers Hard. She was also the first to carry that name in the Royal Navy. She was built as a ship-of-the-line, but all her active service took place after her conversion to a 44-gun razee frigate. She had a long career under several distinguished commanders, serving throughout the French Revolutionary Wars and the Napoleonic Wars. She took some 27 prizes, alone or in company, and the Admiralty authorised the issue of four clasps to the Naval General Service Medal in 1847 to any surviving members of her crews from the respective actions. She was broken up in 1816.

Prototypical

I've been building prototype kits for Vanguard Models for around three years. These have included everything from fishing boats through to Royal yachts, right up to

The hull carcass is made from laser-quality MDF. This material is perfect for complex assemblies due to high tolerance levels. Like many contemporary models, Indy begins with a series of bulkheads that are slotted over the keel. No glue is used here. Keel doublers hold down the many bulkheads into place.

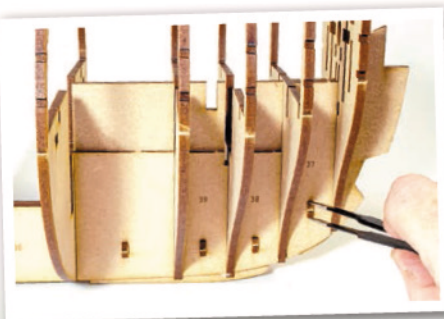


the last VM kit release, the 20-gun Sixth Rate, HMS *Sphinx*. Chris Watton of Vanguard Models will typically design and produce numerous cut tests, and then, once happy, will send me a large box of parts. While I'm creating the content for a manual by building the prototype, I will exchange notes with him on any parts that need amending or changing slightly to make things easier for the customer. This time around, with HMS *Indefatigable* being VM's largest and most ambitious project to date and my own workshop being quite small, I knew my bench space would be tested to the max!

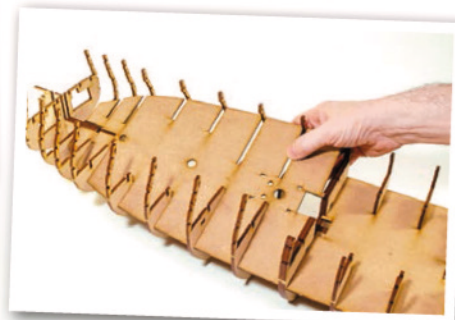
Work begins

When Chris sends me a prototype kit to build, what I get is usually a couple of sets of parts, the fittings such as carronades, cannon and lanterns, and any components cast in resin, e.g., the figurehead, stern carving details, etc. Many of the parts, e.g., guns, figureheads, rudder hinges, etc, once manufactured overseas, are now made in-house using an 8K resolution printer, and, for the first time, stern decoration and some of the bow carvings for *Indefatigable* have been produced on laser board and PolyBak.

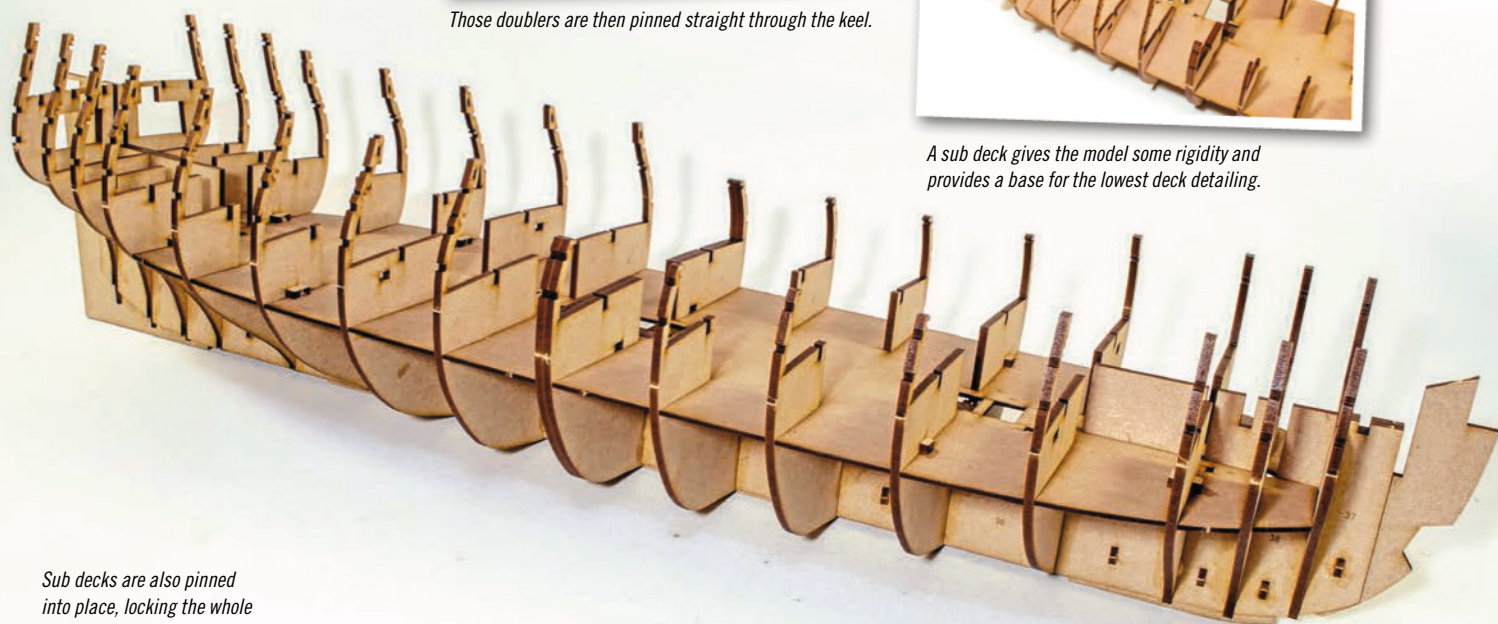
I don't get sent any instructions. After all, that's my job! What I do get is a pen drive of the photos taken by Chris at each stage of the initial test kit build. It's then up to me to determine if the construction sequence is correct and, if necessary, to make any changes when compiling the manual.



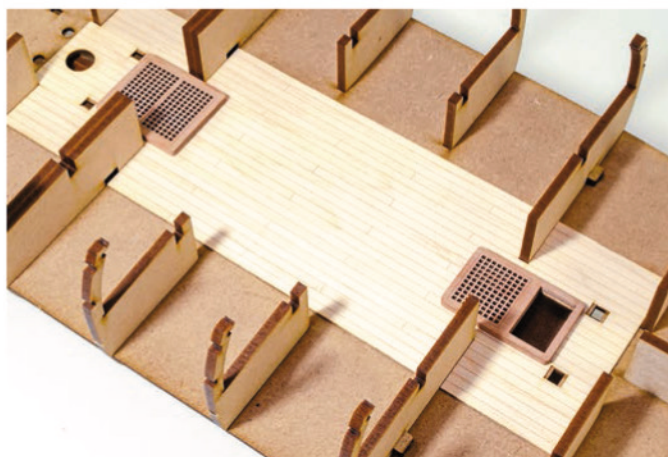
Those doublers are then pinned straight through the keel.



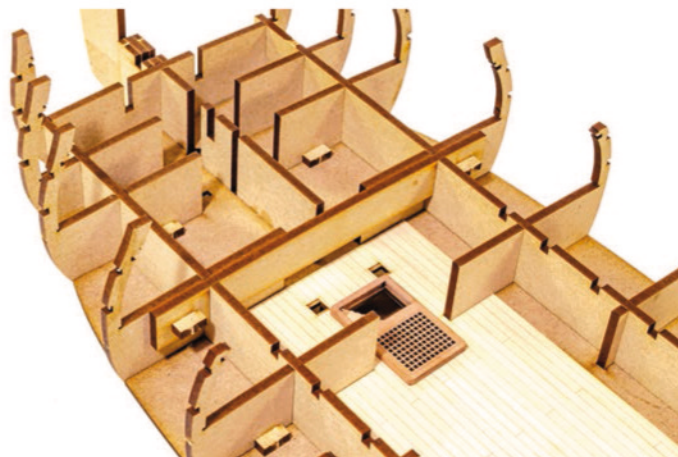
A sub deck gives the model some rigidity and provides a base for the lowest deck detailing.



Sub decks are also pinned into place, locking the whole framework thus far.



A small section of lower deck is assembled. This will barely be seen.



More pegs! Deck camber beams are installed across key bulkheads.

"I don't get sent any instructions. After all, that's my job!"



To aid the ease of fairing the hull, the bow and stern bulkheads are glued and assembled before fitting to the hull.

Unlike any other kit I've built, the large, single piece keel is fitted out with a number of bulkheads which (apart from the first and last) simply slot, as opposed to having to be glued, into the keel. These, along with the parts for the entire frame, are made from laser-grade MDF, and are cleanly cut and numbered. The bulkheads then have keel doublers slotted over them, which are pegged through the initial keel. This, in effect, locks each bulkhead into place but still allows a little movement to joggle the next part into position before again pegging. Fitting two large MDF sub deck sections and pegging the bulkheads creates a hull that can be spun around without fear of any bits falling off. With the sheer number of slots in a kit such as this, I find brushing slightly diluted wood glue into these areas is more than enough to completely secure everything. I quite like Titebond III for this purpose.

The rest of the hull framing is then built up with further slotted beams, and the bow/stern bulkheads are fitted out with profile parts, which I then pre-bevel with a sanding block and my trusty Dremel Pro.

If you like detail, then part of the MDF sub deck is disguised as an almost invisible lower deck area, which is fitted out with grates and a ladder taking you further down into the bowels of the hull to a mock orlop deck section. Unless you have an endoscope, you'll really struggle to see these later, but you'll know they're there!

Traditional values and innovative design

With *Indy*, there was always going to be more than just an element of traditional modelling. Encasing the hull in pre-cut sections would just have been too problematic and expensive, and, after being faired, every hull produced would be slightly different. A good old-fashioned approach was therefore decided upon: everything, save for the upper rear bulwarks and upper bow, would be Lime planked. This planking extends from waist height right down to the keel, encompassing the pre-framed gun ports of the main deck.

Before any hull fairing and planking is carried out though, the inner bulwarks need to be faired and four pre-cut sections installed in place to align with the gun ports. I opted to soak the forward two which head towards the bow and then clamp them in place until totally dry, thereby moulding them into shape ready for gluing. From here, a series of MDF jigs/clamps need to be pegged into place to maintain the hull width while the hull is being planked.

With the planking and sanding (which creates an awful lot of dust at this size!) out of the way, the Pearwood keel, prow and rudder post parts can be affixed. The engraved facings should now be added to each side, forming rabbets into which the second layer of planks can be glued.



The pre-faired bow and stern are now fitted to the hull.

Whereas models like this usually have their gun port positions dictated by a ply overlay, the gun ports on this and other VM kits are built into the frame.



Here you can see all of the main gun deck gun port frames completed.

I must admit planking isn't my favourite task (it's always the stern tuck that seems to test my patience and skills), but here the hull shape lends itself to making things relatively easy. Also, reassuringly, the fact is on completion *Indefatigable's* hull will be entirely painted/coppered, meaning any blemishes resulting from a less than faultless performance can easily be hidden.

One of the things that initially attracted me to this hobby was the amazing amount of detail that can be incorporated on the decks of model ships, and the main gun

deck on *Indy* is a superb example of this. During the design phase, this caused a bit of a conundrum, as the main gun deck is almost entirely hidden once the model is built. Standard practice on other kits would be to plug dummy barrels into the hull after painting. With this kit, however, that presented a problem. On the gun deck, instead of a wooden strip with holes for dummy barrels there would be a full suite of detailed carriages, which if dislodged and damaged while trying to site a barrel later would be a disaster. Consequently, we

decided there would be a tab at the very front of each carriage that would plug into the deck, meaning the carriages would be totally immovable. Cap squares have been omitted from these carts so that the barrels can be inserted through the gun port once the hull is finished, with the trunnions simply sitting in the forward carts.

Another design evolution is that the traditional ship stove on *Indy* is different. Instead of the timber and PE [Photo Etched]-sheathed creations that many of us are used to, a dedicated and non-generic stove has

“The fact on completion *Indefatigable's* hull will be entirely painted/coppered means any blemishes resulting from a less than faultless performance here can easily be hidden”



Any areas that won't support the first planking are now fitted with filler parts.



Where some of the basic frame interfered with gun port positions, those frames were removed and adjusted to fit.



Here you see the inner Pearwood bulwarks being fitted to the main gun deck.



Before planking, a series of jigs are bolted across the hull, helping to maintain the correct width through construction.

been designed and 3D-printed in a small number of parts. PE is, however, employed for details such as handles, chains, etc.

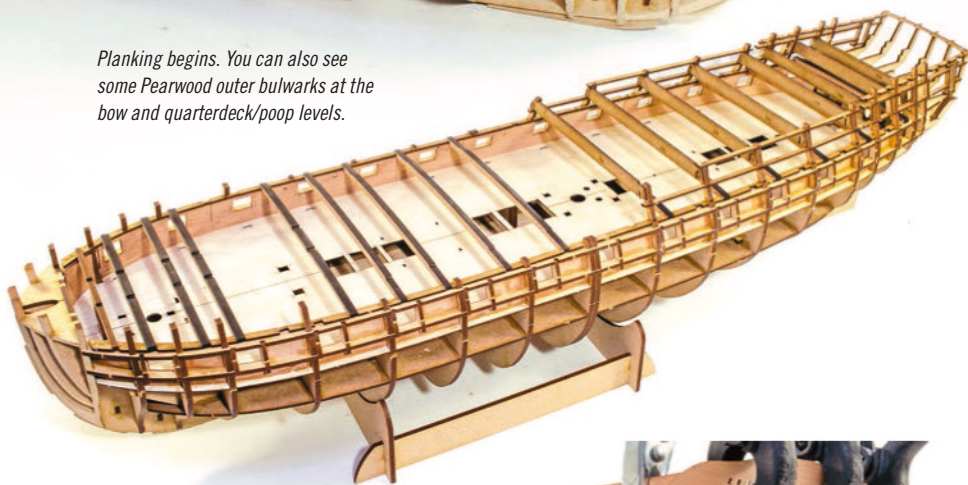
Beams, upper deck and cabin

There are numerous kits which incorporate deck beams, although generally they aren't designed to take scale spacings into account, as the compromise of placing them to simply fit in with the construction of the model is a far easier engineering option. Here, the problem was solved by means of the initial framework design, which allowed these spacings to be cut into lodging frames. This meant that all the frames under the forecabin and quarterdeck were accurately distributed, as indeed are the ones later fitted for the poop. The boat beams are also accurately positioned. All of these are supplied in Pearwood as cut-outs in the decks, allowing a glimpse into the underworld.

All beams (which I painted red on the sides, apart from boar beams) are glued into place. The two-part deck is then laid down in ply. My model was then fitted with an engraved Maple deck, but the kit supplies Red Alder to plank traditionally.

I don't think I've seen a non-PoF [Plank on Frame] kit that supplies a full captain's cabin before. *Sphinx* had a cabin that could be fitted out, but *Indy* will come with a cabin that includes some new 3D-printed furniture. I opted to make this area as realistic as possible by painting the main cabin walls and bulkhead screen in a colour similar to that

Planking begins. You can also see some Pearwood outer bulwarks at the bow and quarterdeck/poop levels.



of *Victory's* cabin. This was furnished with a bureau, desk, table and chairs. Some printed maps were also strewn across the table and desk. Note to self: a couple of paintings on the wall would be a nice touch, too. The cabin and the anterooms also needed some carronades. So that these don't protrude while the hull is being painted, they've been designed to retract into the hull on a sliding carriage. They can then be pulled into position once the hull is complete.

The next task to be tackled is the installation of the poop deck beams, along with the poop itself.



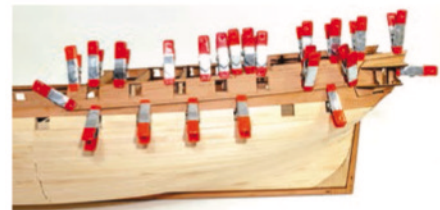
Getting the stern parts properly aligned can be tricky. The secret is to start at the top and work downwards so no gaps appear later.



The quarter galleries start out as simple skeletal assemblies, including the hole for the 'seat of ease'.



It's always satisfying to have a fully planked and sanded hull, ready for another layer of planks!



Second planking starts with a small section of pre-cut upper bulwark being glued. The quarter gallery is temporary to help with alignment.

Pearwood is used for the entire second planking. The fine grain lends itself to a lovely finish when sanded.

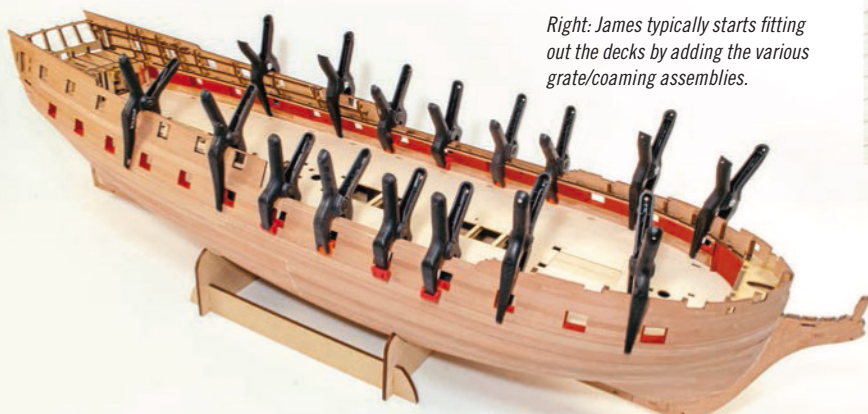
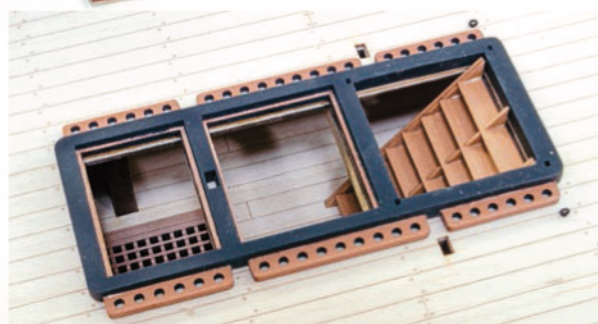


Part 2

More, then, next month, when I'll be covering how I coppered, painted and fitted out Indi, with a few handy tips and tricks shared along the way.

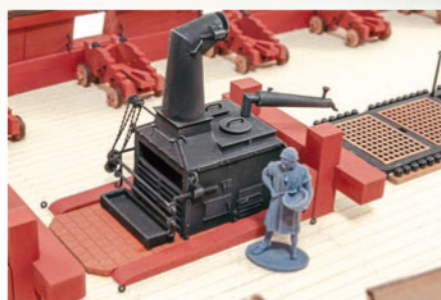
Below: With the first splash of colour now having been applied to the main deck's inner bulwarks, they are now fitted with spirketting, as per the real ship.

Right: James typically starts fitting out the decks by adding the various grate/coaming assemblies.



There are a lot of guns for this deck. The carriages are tabbed at the front and glue into slots in the deck. This prevents them from coming loose later in construction.

The main gun deck features one of Indy's two capstans.



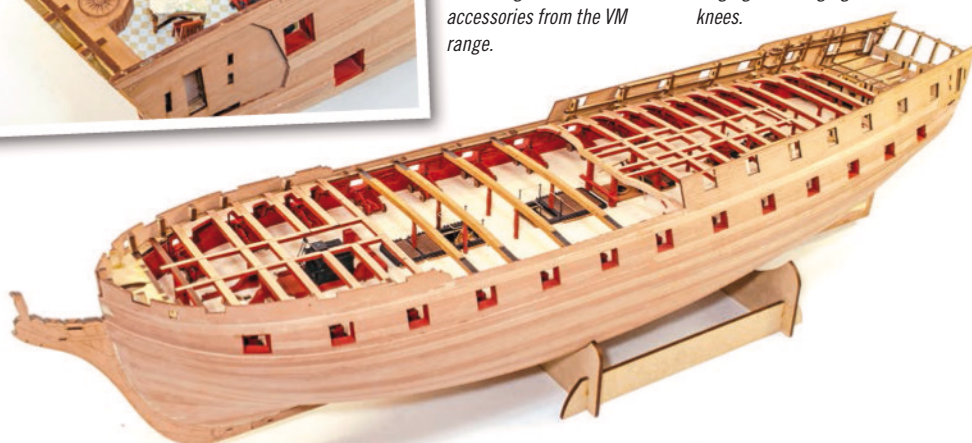
Indy is the first VM kit to feature a custom Brodie stove in both 3D-print and photo etch. The stove simply needs to be primed, painted in flat black and then weathered using metal pigments. It can then be fitted to a brick base. The separate cook figure James has added to his build is available to purchase separately



Left: As well as including the furniture and cut-out maps and charts included with the kit, James went the extra mile when fitting out the rear cabin, also furnishing it some other accessories from the VM range.

Below: Scale-spaced deck beams are now fitted from bow to stern. An unusual feature for a kit like this is the inclusion of lodging and hanging knees.

Right: Indy carries a lot of carronades. The ones made for the rear cabin areas are able to retract into the hull while the model is being painted.



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I.C. POWERBOATING: THE BASICS

Whether you're simply looking for a bit of casual fun or have a burning desire to indulge your competitive streak, **Derek Owen** provides a beginner's guide...

Well, a warm welcome to this my first article for Model Boats magazine. For those who don't know me, I've been involved with model boating since the early 1990s, although I did take a break for around 13 years, returning to the hobby in 2015. My main interest is circuit racing (hydro-style outriggers and some smaller offshore style boats).

By the time you get to see this article we will be heading into the summer months here in the UK (meaning warmer weather, I hope!), so it seems the perfect time to start drawing more attention to I.C. powerboats by providing links to club events and providing some general information for anyone wishing to try out I.C. powerboating themselves. I should point out that I don't profit or gain anything from any of the links I will be sharing here or the ones I'll be mentioning going forward. This article, and the ones that follow, are intended purely to promote the hobby and make sourcing that little bit easier for those who are new to, or just starting out in, this exciting sector of model boating.



A typical outrigger style hydro circuit racing boat in action.

What is I.C. power?

Basically, we're talking about the use of internal combustion power from a motor fuelled by a methanol or petrol-based fuel (the most common being a 2-stroke motor, but 4-stroke motors are also used). I'm not going to go into the finer detail of these motors here as this really is a subject that can get quite technical, and the truth is we don't need to delve that deeply into things in order for you to start having fun with I.C. power boats.

There are various size motors, and various grades too. Sport or full-on race engines are generally readily available, depending on the type of craft you will be running. Engine sizes vary too, the most common being around 3.5cc, 7.5cc, 10cc, 11cc, 15cc, and up to around 35cc.

If you're just starting out, I'd recommend beginning with a sport motor and a sport style hull, which will be less expensive outlay wise and which you'll find easier to control. The choice, however, is yours.



Sport class boats like the one shown here are a way to get started, whether you're simply looking for some casual fun or hoping to indulge your competitive streak with a bit of racing

Left: A lovely looking offshore style hull running well.



A circuit hydro, with petrol 2-stroke motor.



A circuit racing offshore boat ready to go



A brightly coloured endurance boat will get you noticed!

“Most clubs are likely to have some good used boats for sale, which can be a very cost-effective way in, and as an added bonus there’ll be plenty of help and advice at hand”

How to get started

Here in the UK there’s a governing body – the Model Power Boat Association (MPBA) – that carries lots of details on its website (<https://www.mpba.org.uk/>). The site’s easy to navigate home page will help you find clubs local to you, information of the different types of power boating, useful contacts and upcoming events, along with some past history so you can get an overall understanding how the hobby the hobby has progressed.

I am a member of Elmbridge Model Club based in Surrey (close to Thorpe Park, just off the M25), which owns its own on-site lake (a tremendous bonus), club house and facilities. The lake is open to members all year round, with lakeside car parking is available. We tend to gather on Wednesdays, Fridays and Sundays for fun runs, but we also hold various racing events throughout the summer season on pre-arranged dates (which you’ll find listed on the MPBA website). These race days are great fun as we invite clubs nationwide to attend.

But there are plenty of clubs up and down the country, so if you’re looking for one in your neck of the woods check out the listing on the MPBA website. Clubs are always keen to welcome potential new members, so why not pay your local club a visit so you can have a chat and get answers to any questions you may have? Most clubs are likely to have some good used boats for sale, which can be a very cost-effective way in, and as an added bonus there’ll be plenty of help and advice at hand.

Different aspects and classes of boats

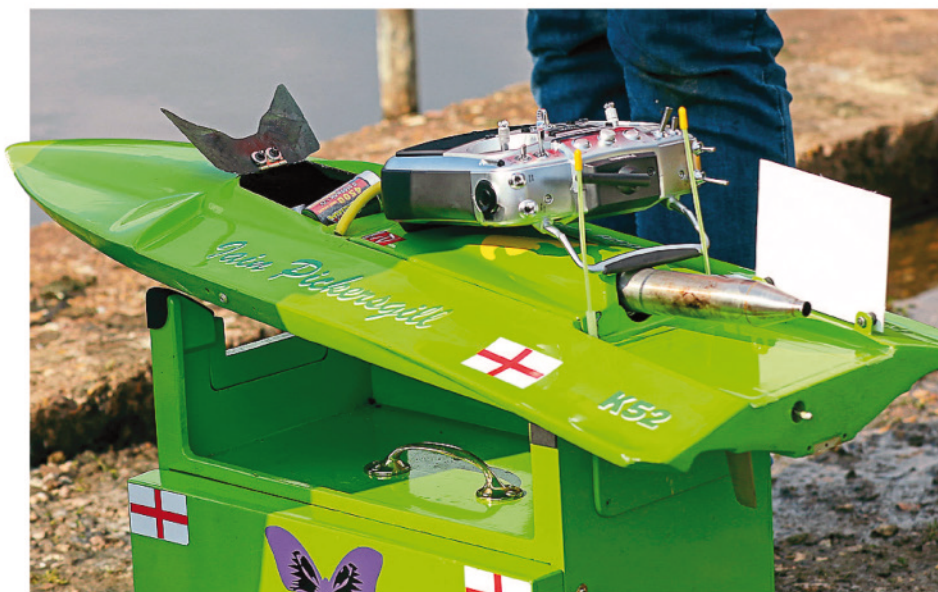
In my opening paragraphs I mentioned that I’m involved in circuit racing, which primarily involves boats racing a clockwise oval circuit around a set course, laid out with buoys for the turns. Hydro and offshore boats are used for this purpose, of course, but other types of I.C. boats are also run by various clubs.

Endurance involves a different course layout and runs anti-clockwise on a M style course (you will see in some of the pictures

included in this article how the boats vary in style to suit the race format).

Possibly I.C. boating in its fastest form, tethered is another discipline – which, as the name suggests, sees a hydro style boat rotate around a fixed centre pole.

Then we have the offshore boats, which run not only on lakes but also in the sea! These model boats tend to look highly realistic, as they’re usually built as scaled down replicas of their full-sized counterparts.



An endurance style boat, used for anti-clockwise racing.



Buying used items can be an economic way to test the water/get started, and local clubs nearly always have a few bargains to offer the beginner.

But remember, you can get as much of a kick out of simply running boats as you can racing them. For many club members the pleasure is in building boats, talking boats and, from time to time, repairing boats

Materials

Boats can be made from a choice, or mix, of materials. Strong light carbon fibre and resins are used for the construction of serious racers, and even for some of the fun runners, but usually only at the higher end of the market cost wise, which may not be a

practical option for the novice or for those on a tight budget. Don't worry, though, as you really don't need to spend a fortune to start having some fun. For example, pre-formed plastic moulded boats are readily available. These tend to be aimed at younger and/or newer enthusiasts; although, having said that, there are some larger and more costly pre-formed boats available on the market too. Wood remains a good old favourite, not least because it will naturally float, so it's still high on the list for those who enjoy building their own boats.

Sourcing boats and parts

One of the market leaders here in the UK is Dave Marles of Prestwich Models (<https://www.prestwich.ndirect.co.uk/>), who also has a presence on Facebook.

Another established supplier, Tony Ellis of Model Marine Supplies (<https://www.modelmarinesupplies.co.uk/index.php>) is a good source of propellers for all aspects of model boating, second-hand boats, etc.

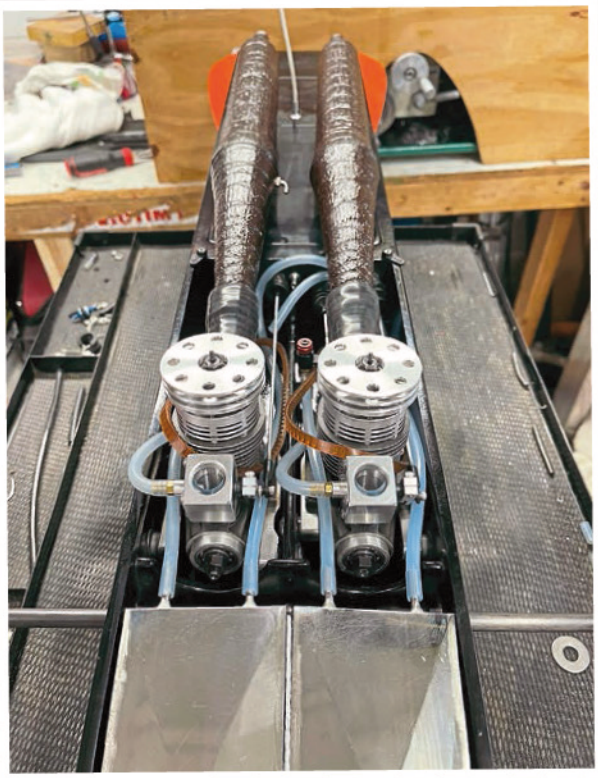
Mark at M-Cop Racing (<https://www.mcopracing.co.uk/>) makes and markets sea going offshore boats and hardware.



Although not a racing boat, how classy does this well-built I.C. semi scale model look!



If it's serious speed you're after, while they may look strange, tethered boats can be insanely fast!



Mean machine: a twin powered 100 mph air-cooled set up.



Work in progress on the sea-going offshore petrol build I.C. powerboat enthusiast Robert Wake currently has on the go.

“You can get as much of a kick out of simply running boats as you can racing them. For many club members the pleasure is in building boats, talking boats and, from time to time, repairing boats”

Weston UK (<https://www.westonuk.co.uk/Engines-And-Engine-Accessories-/>) offers sport engines and various hobby equipment

Noahs RC Arc (<https://www.noahsarc.co.uk/>) can help with general supplies for boat building.

Also, worth checking out are Model Shop Leeds (<https://www.modelshopleeds.co.uk/catalog/index.php>), a general hobby and model store, and the Kings Lynn Model Shop (<https://www.kingslynnmodelshop.co.uk/>), general hobby and craft shop). The above list includes just a small selection of suppliers

and hobby/model stores, but a quick browse of the ads in this magazine or a search via our friend Google may also help point you in the right direction. There are also various online auction sites that offer endurance boats, offshore boats and hydro boats.

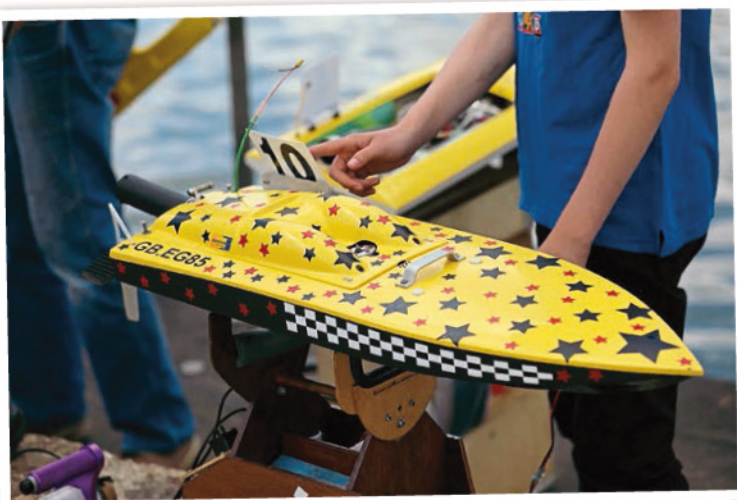
Social media

Facebook has some superb groups, where you'll find loads of useful information on I.C. boating posted, not just by the UK enthusiasts but by those involved in the hobby worldwide.

Fast forward...

Over the next few months, I will be expanding on hardware and boating goodies, sharing news from the forthcoming UK racing season and, as I.C. boating is very popular all around the globe, providing a window on some of the overseas I.C. action and suppliers.

In the meantime, I highly recommend watching the YouTube footage (https://www.youtube.com/watch?v=8H_dRPf6p7Y) of a twin-engine outrigger being tested by Danny King, a very well-established circuit racer from across the pond in the USA. ●



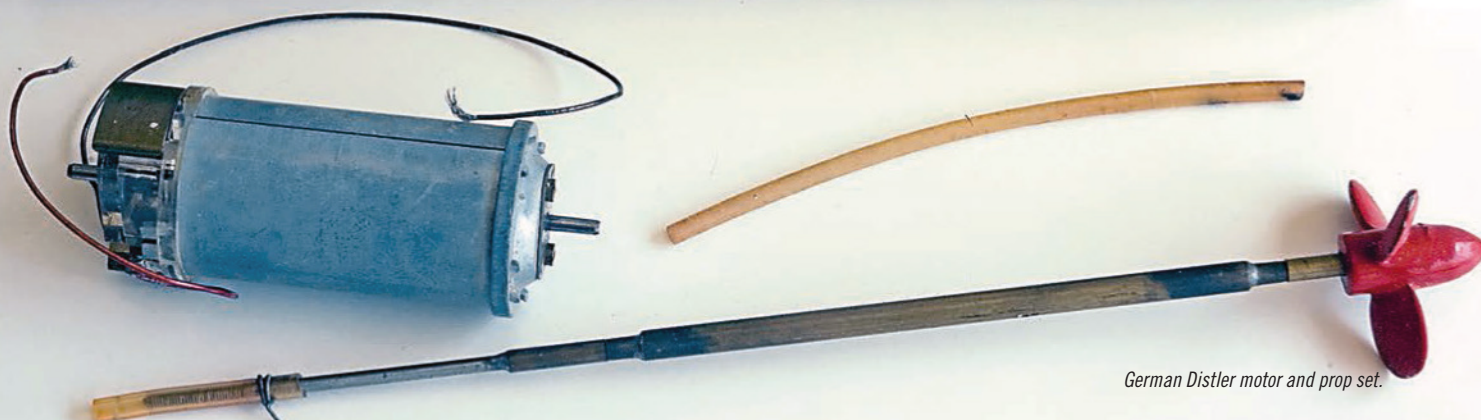
Striking colours and schemes like the one sported here often adorn offshore style boats for circuit racing.

Image acknowledgements

Many thanks to Robert Wake, Danny King, Andy Coburn and Elmbridge Club members for their photographic contributions to this feature.



Offshore 7.5cc nitro boats in action



German Distler motor and prop set.

DRIVE LINES

John Parker reflects back on how manufacturers tried to master, and market, the art of simplicity

Over the years many attempts have been made by manufacturers to simplify the installation of an electric motor into a model boat, particularly the important task of aligning it with the stern tube. The essential elements of motor, battery, stern tube, coupling and gearing (if any) can be pre-assembled in different combinations and offered as a product that attempts to either achieve the goal of easier installation or provide propulsion which more closely represents that of a particular full-size prototype. One example is the model outboard, covered recently in these pages, but a look back at the modelling past reveals many others.

Distler

The first example from my own collection is the 1950s' 'Elektromotor für Schiffsmodelle' Standard, featuring the German Distler motor packaged with a stern tube, propeller and coupling rubber tube. The idea here was to match the unique qualities of the Distler motor – extraordinary high efficiency for the

time due to its "inside out construction" – with a carefully chosen low-pitch propeller that would ensure the motor gave its best. Someone has scribbled on the box "4.5 to 6 volt" and "Dead shorted (i.e., stalled) at 3v draws 100mA", which provides some indication of how this low-powered motor could perform on the feeble batteries of the day.

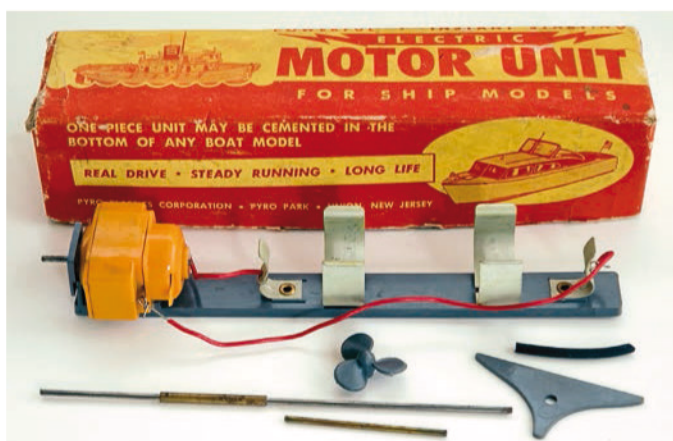
Pyro

The American Pyro Plastics Corporation was producing a sizeable range of model ship kits by the late 1950s, and the continued popularity of the contemporary vessels in the larger scales was an inducement for it to offer an easy means of motorising. The resultant Electric Motor Unit consisted of a sled-type base that could be glued into the bottom of the hull. Mounted on it were clips for two 'C' size cells and a German Uniperm motor with on-off-reverse switch, a surprising quality inclusion on what was intended as an inexpensive item. Included were a rudimentary propeller, stern tube, coupling

rubber and bulkhead adaptor. "Wired and ready to install" proclaimed the box, but the connections were never soldered, consisting of solid-strand wire twisted through holes in the wiring tabs, and one wonders how reliable the connections were. I have seen later versions of this unit with a Japanese Kako motor and no switch.

Frog

Frog, part of the Lines Brothers grouping, entered the fray in December 1958 with its Power Packs. These consisted of a plastic base unit which held two No.1839 batteries and had either a geared Tornado or an ungeared Revmaster motor (both also Frog products) mounted at the end. This, along with the push-button on/off switch on a flying lead, eased the electrical installation, but still left the purchaser with the need to align the whole works with his stern tube and provide a coupling. The 1839 battery, by the way, consisted of two 'C' size cells packaged end to end to provide 3 volts, and is now an obsolete type. The Frog motors



Pyro Motor Unit.



Frog Power Packs.

"This arrangement ensured correct alignment at all times"

were going out of production by 1961, so final production of the Power Packs featured a Japanese motor but still retained their original packaging and name.

Elmic

The Elmic Thrust-Pak demonstrated a different approach when it first appeared in the second half of 1960. It had a motor permanently fixed to one end of the stern tube, with a propeller, removable to allow installation, fitted to other. This arrangement ensured correct alignment at all times; the propeller being driven by an extension of the motor shaft. With the unit slipped into the keel and the propeller screwed back on, it was only necessary to fit a couple of screws to the bendable bracket fitted to the motor before wiring it up and you were ready to go.

This initial concept led to many variations by Graupner, Robbe and others, usually featuring a solid coupling and removable motor. Yet another variation on the theme has the motor mount fitted with spur gearing, into which the stern tube is fitted via a bush fitting, again ensuring correct alignment.

Marx

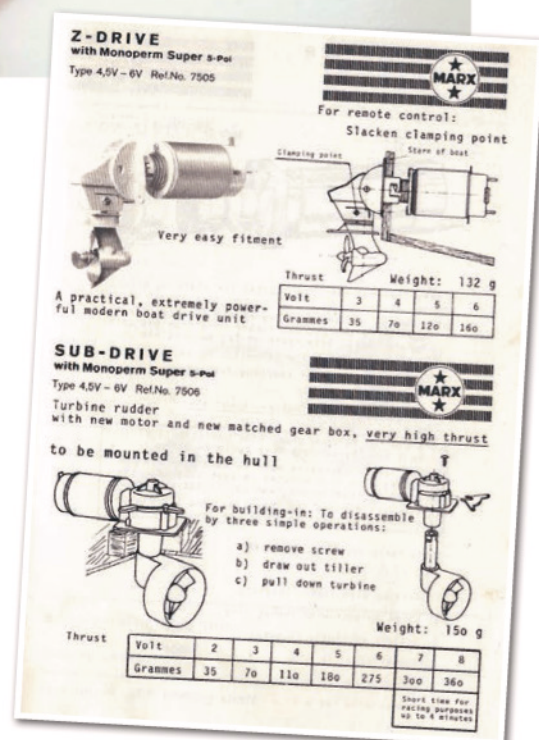
It was the German Marx-Luder company that displayed the greatest innovation in this area. Its Bongo inboard/outboard drive unit, for example, was available by 1962 powered by a Monperm (Bongo I) or Monperm Super motor (Bongo II). This featured two sets of right-angle gearing that enabled the propeller to swivel through 360 degrees, doing away with the need for a rudder, and also enabling the driving angle to be adjusted. All the modeller needed to provide was a suitable hole (about 17mm) in the transom of his boat, fix the drive unit to the outside with three small screws, and refit the motor to the inside via its spring-loaded quick release fitting. In later years of production, the Bongo name was dropped, and it became the Z-drive unit, as shown on the catalogue page circa 1977.

Elmic Thrust-Pak (foreground) with a Russian-made copy.



An allied unit was the Marx Sub Drive or Turbine Rudder powered by the Monperm Super motor. This again featured two sets of right-angle gearing; the difference this time was that the unit was mounted in the bottom of the hull and drove a shrouded swivelling propeller. By removing a single small screw, the R/C steering link could be disengaged, and the lower 'turbine' leg withdrawn, enabling the motor unit to be installed in the hull through a 17mm hole. Again, this is shown on the catalogue page, along with the expected thrust at different voltages.

The success of these units led to a larger unit being offered by Graupner, but made, I believe, by Marx. This was the Schottel Drive, which had provision for mounting an R/C servo for steering with step-up gearing to provide a greater degree of steering angle. Like the full-size units it was modelled after, the Schottel drive was very suitable for tugs because of the manoeuvrability provided. A separate set of gears drove the propeller via an input shaft intended for coupling to



Marx catalogue page with Z-Drive and Sub-Drive units.

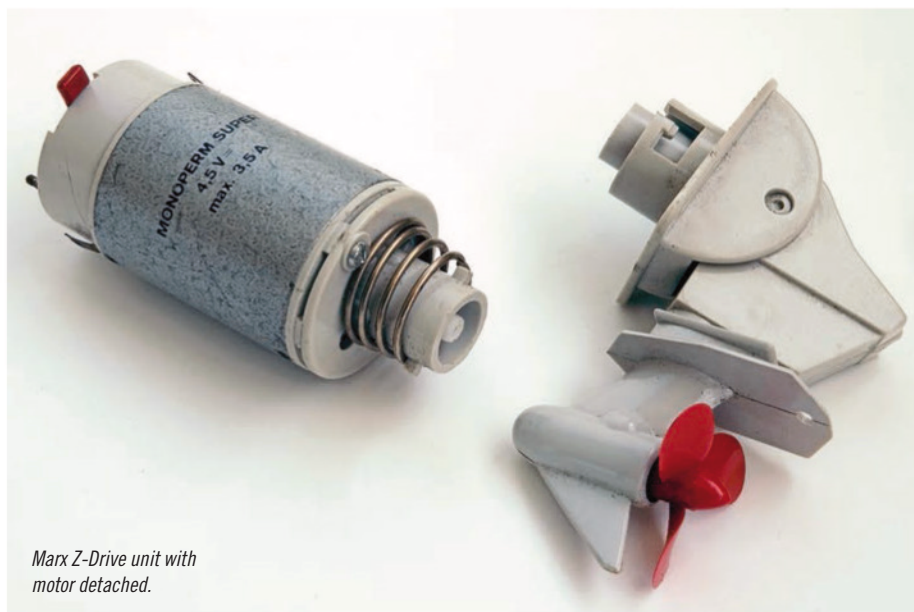
the drive motor. The demise of the Marx company has long deprived modellers of these innovative drive products, but other companies are stepping in to fill the gap. Ocean Works, for example, produces its own version of the Schottel drive, which looks to be a nicely engineered unit in metal.

Mabuchi

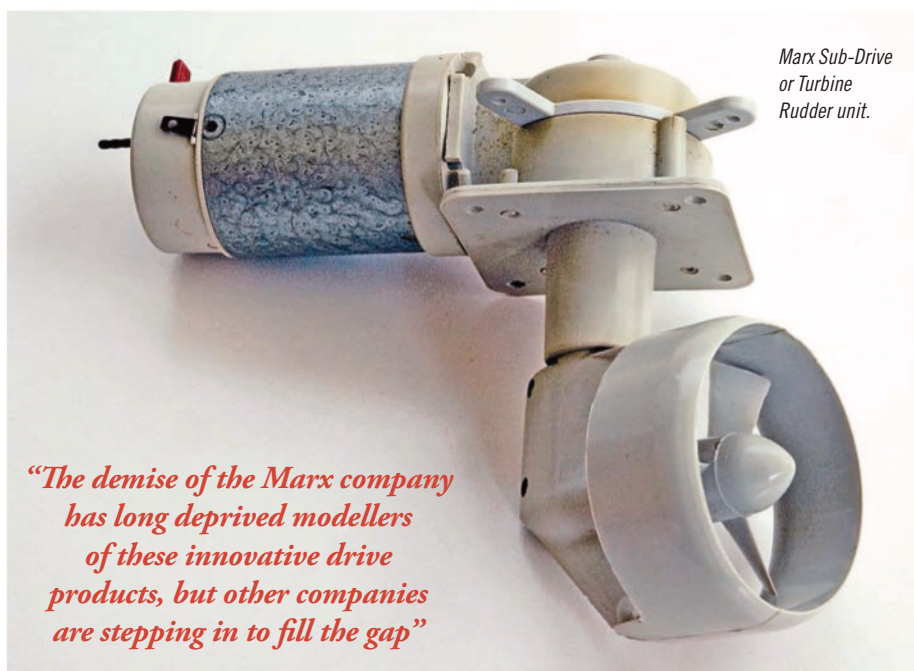
Was this the easiest ever way of powering a model boat? The Mabuchi S1 submarine power unit simply attached to the bottom of any hull via a suction cap to provide an instant means of powering it. It caused quite a stir when it first appeared around 1967. I had one at the time and can vouch for it never leaking or failing to run despite the full immersion, and it ran for ages on a single AA battery.

Pittman

For the task of powering twin shafts with a single motor, having twin motors power a single shaft, or numerous other possible combinations, gearing was obviously going to be necessary, and the company that produced probably the most flexible modular gearing system for model boats was the American Pittman company. Its Adapt-a-Drive gearing provided a mounting beam on which the required number of gears could be mounted to provide for any number of motor and shaft combinations, with all parts available separately. The system is still available through Dumas Products.



Marx Z-Drive unit with motor detached.



Marx Sub-Drive or Turbine Rudder unit.

"The demise of the Marx company has long deprived modellers of these innovative drive products, but other companies are stepping in to fill the gap"

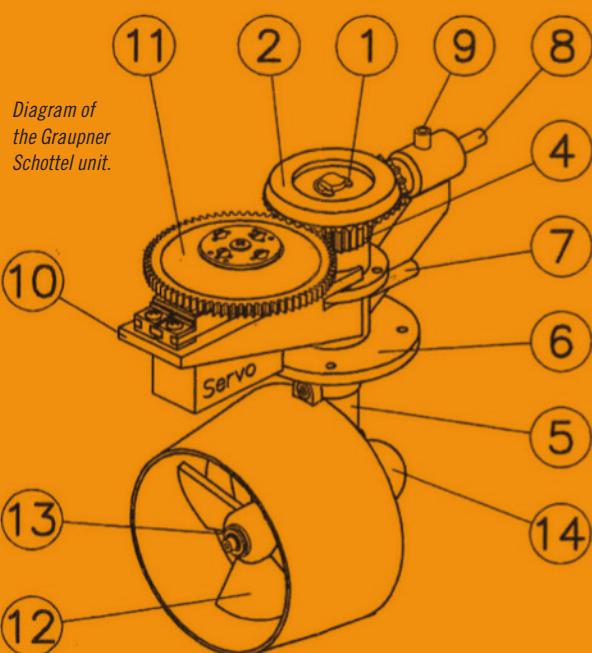
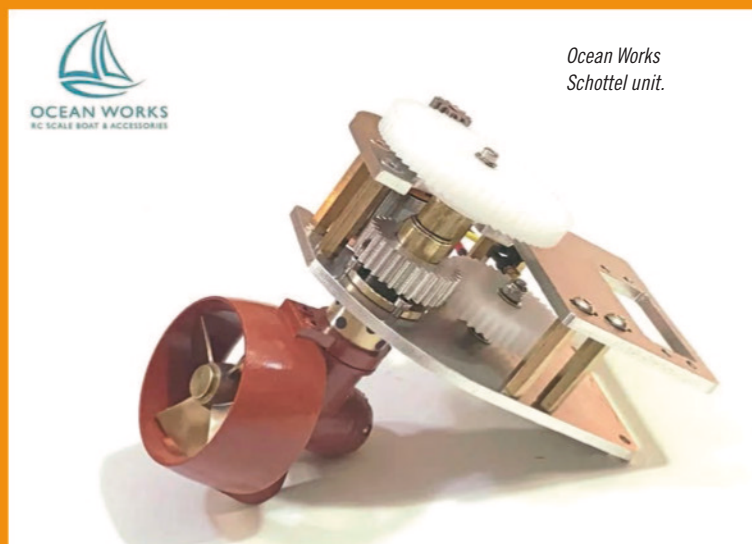


Diagram of the Graupner Schottel unit.



Ocean Works Schottel unit.



Mabuchi S-1 clip-on motor unit.

Taycol

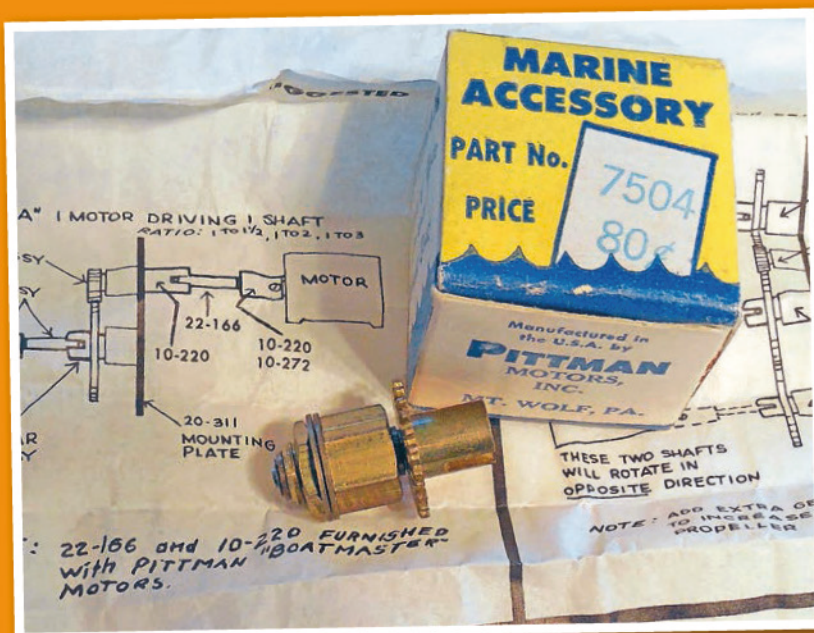
Another way of powering twin shafts with a single motor was to combine the motor and gearbox in a single unit. The Taycol Comet motor of the 1950s in its twin-gearred form is an example of this rare breed. It made for

quite a neat installation in a small model suited to its modest power output, but there weren't many model boat plans published that could take advantage of it and so take up was limited.

"Was this the easiest ever way of powering a model boat?"

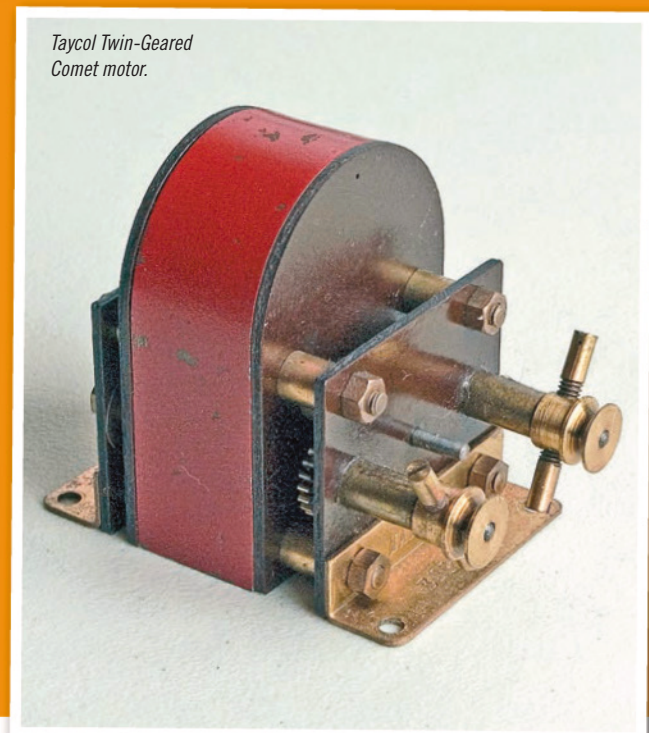
Going brushless

Finally, to bring this brief historical survey to a close, it's perhaps worth mentioning that modern brushless motors have largely eliminated the need for a gearbox and their relative cheapness (compared to the motors of old) means that one is inclined to go with one motor for each shaft. Provided a brushless motor of a low 350-500 KV rating is used (admittedly sometimes hard to find), it's amazing how large a propeller can be quietly and efficiently spun. ●



Single gear component of the Pittman Adapt-a-Drive system.

Taycol Twin-Gearred Comet motor.





SUPER SKIMMER

Glynn Guest explains how to build a simple electric powered airboat model from this month's free plan

This month's free plan and build guide is for the latest of three airboats I've designed. The first was a small one, using spare stuff accumulated while relearning to fly R/C aircraft using Speed 400 motors, and was published in the Sept 2007 issue of Model Boats. The second, built a few years later, was a shade larger for the more powerful 500-600 motors, and was included in the Oct 2014 issue. Both are of simple balsa/plywood construction and are fast and stable, albeit with the 'different' handling quirks that seem to be characteristic of such models. Steered with air rudders, on the water they must be slid into turns and it's quite novel to see a pronounced yaw when they travel in a slightly wider turn. Too much rudder and the sides can 'dig into the water' and immediately bring the model to rest in a shower of spray. No harm has ever been done to the models, though, as I just cut the motor as soon as this happens and

then reapply the power to start skimming again. Incidentally, airboat models can also work on smooth ice and snow – even damp grass is possible. They can even, as I discovered when testing this latest design indoors, shoot off smooth work surfaces and try to escape across the carpet!

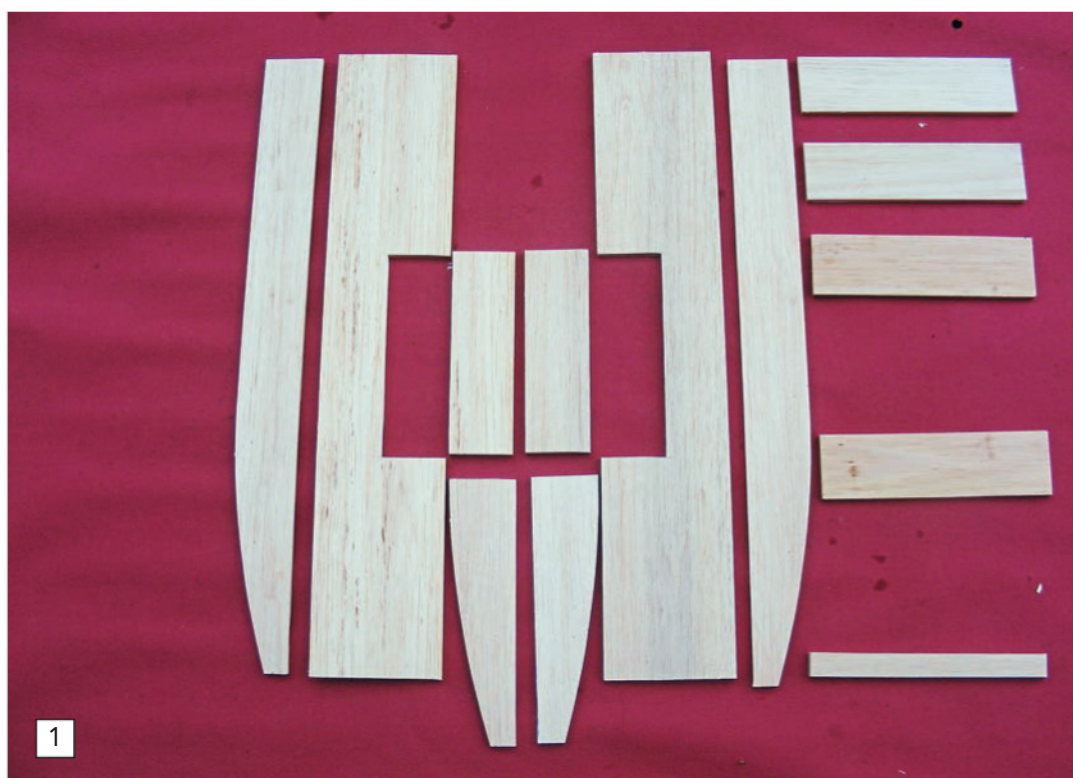
The latest model came about when, sorting through my bits of R/C stuff looking for inspiration for another model aircraft, I came across a brushless motor that I'd used for a while in a hovercraft model some years ago and had then simply set aside and forgotten about. While musing about which model this could drag around the sky, I looked out of the window and thought that maybe an airboat might be a better bet? It was December and the local flying field resembled nothing more than a rice paddy; if you stopped while walking across it, you slowly sank downwards.



Evolutionary design

This brushless motor (2212/6-2200kV) was much more powerful than the motors used for the previous two airboats, so a bigger model would be required. I began, therefore, to play around with sizes. When skimming over water, the area of the hull bottom is the critical factor: too small and model might struggle to plane safely, but too large and it could prevent the airboat achieving high speeds. This became a good example of the 'square/cube law' challenge when changing the linear size of a design. Small increases will produce larger percentage augmentation in area and even more in volume. The result was that only a modest enlargement of the second design seemed to make a big enough model to accommodate the extra power.

The actual structure was modified a little from the previous designs but maintained the



“When skimming over water, the area of the hull bottom is the critical factor: too small and model might struggle to plane safely, but too large and it could prevent the airboat achieving high speeds”

same external form, the hull bottom being square to the sides. This was deliberate to make the water break away cleanly from the model when at speed, thus reducing drag. Some airboat designs have softer corners between the hull bottom and sides, and the hull sides angled outwards. This may reduce the tendency to ‘dig in’ when turning but I’ve never found this to be dangerous and, to be honest, I like to go as fast as possible.

The other models adopted a semi-scale manned airboat style. I must have watched too many programmes featuring airboats in places like Florida. This one was to be no different, so a suitable driver figure would be added. A couple of points must be mentioned. To keep the CoG [Centre of Gravity] as low as possible and avoid stability issues, your driver figure must be light. I made mine simply from pieces of expanded polystyrene, which I glued in situ and carved to shape. In addition, any airscrew driven

model operated at zero altitude (i.e., running across water, ice or the ground) must have a prop guard installed. On my models these are nothing more than simple wire frames based on those full-size airboats might feature. Virtue has been made of this necessity and the prop guard makes a convenient upper support for the air rudder.

Hull construction

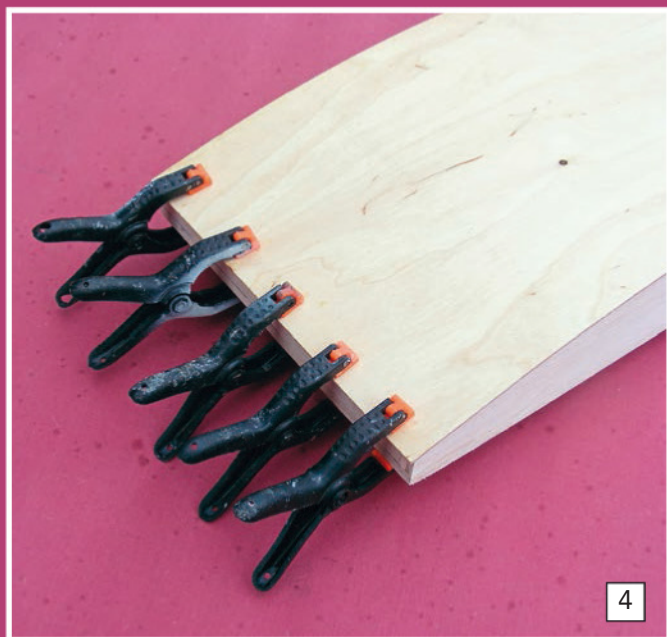
Balsa, 1/4-inch (6 mm) thick, forms most of the model’s structure (see Photo 1); much of my balsa came from bits left over from other models that were just too big to discard. Simple shapes with straight edges abound, apart from the curved bow sections. To ensure these curves are identical you could make one of these pieces and then use it as a template for the other three parts.

Construction starts by gluing the two deck pieces together, making sure they stay flat. Do remember to glue the two cut out pieces

together to make the removable deck hatch. The remaining balsa parts then need to be glued to the underside of the deck, ensuring they remain square to the deck, using sound glued joints between each (see Photo 2). Note the hardwood strip glued at the internal junction between the deck and transom.

A sanding block, large enough to span between the hull sides, should be run across the hull parts to make a good flat surface for the plywood bottom piece. I used 1/16-inch (1.5 mm) thick plywood for this, which has proven more than tough enough for the odd ‘accidents’. It’s easier to glue the bottom in two stages: first, the flat section from the transom to the first bulkhead (see Photo 3), and then, after the glue has set, the curved bow part should be glued down and clamped (see Photo 4).

Next, the bows need to be built up (I used laminations of balsa sheet, after raiding the



scrap box again) and then sanded to blend into the hull shape. My experience with the previous models has shown this method of construction provides a handy way to absorb energy without major damage when coming to an unexpected halt against something immovable.

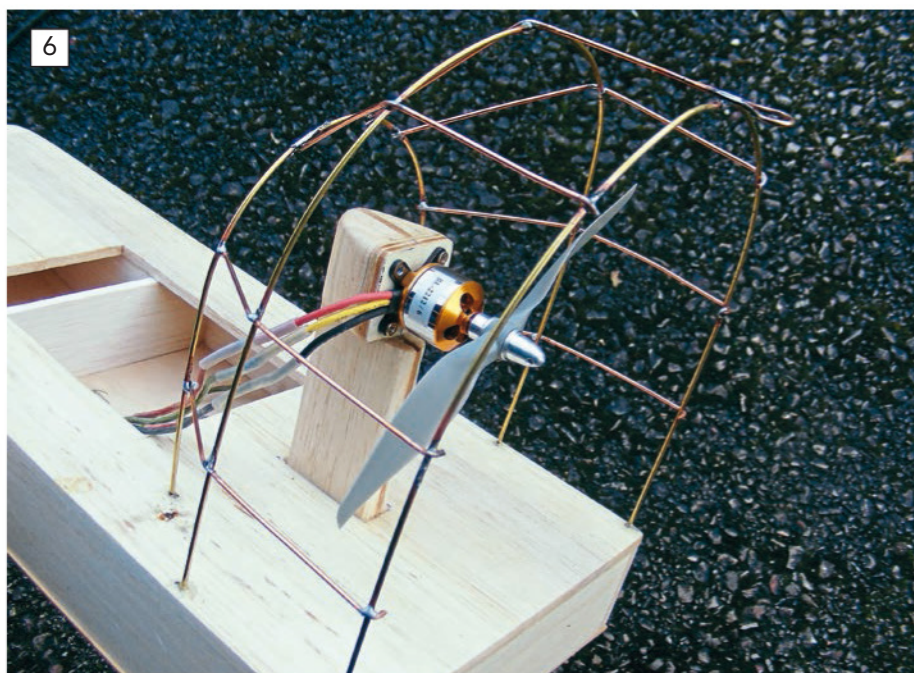
The hatch

The hatch is secured into the deck opening by gluing a balsa 'tongue' under the leading edge, which can then slip under the deck when placing the hatch into the opening. This tongue also acts to stiffen the hatch. A second balsa strip should be glued across the rear of the hatch for the same purpose but taking care it will clear the 'hatch support strip' previously glued inside the hull.

The aim with the hatch is to make a neat fit when pressed into the opening and sitting on the top of the first bulkhead and hatch support strip. The model ought to stay reasonably dry when running across water, so there should be no need to make the hatch to submarine standards!

Motor pylon

The motor pylon can be made from balsa sheet laminated to a central 1/8-inch (3 mm) plywood core. The cut-out at the top of the pylon and the ply mounting plate needs to be sized to match the motor used. Some scrap balsa block laminations can be used to provide support between the mounting plate and pylon. With a generous application of glue inside the hull and to the pylon, the pylon is fitted into the slot in the deck; the aim here is to ensure a firm bond to the deck, bulkheads, hull bottom and, of course, that it's upright. The motor's thrust line, when fitted, should be parallel to the deck and no side thrust be needed (see Photo 5).



Surface sealing

It's simpler and, to be honest, a lot easier, to start the sealing of the bare hull surfaces at this stage, since there'll be no awkward things to work around. The completed hull should be given the usual sanding and inspection for any defects. It's important to ensure that the corners where the hull bottom sheet meets the hull sides and transom are kept as sharp as possible. This will encourage the water to break away cleanly when the model is traveling at speed.

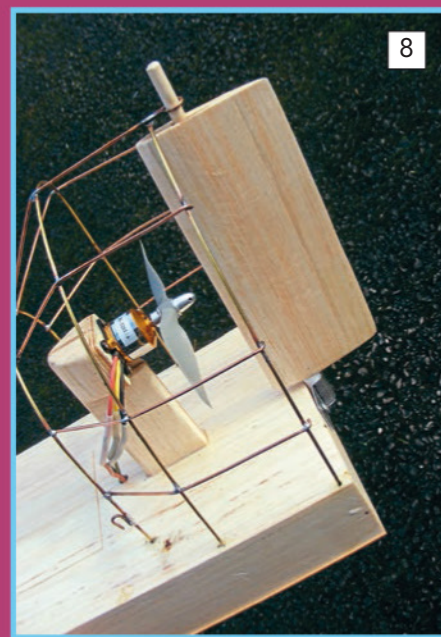
The simple method of cellulose dope/sanding sealer was used on the prototype. This has proven to be more than adequate, but other methods may be preferred. The

only thing to watch is that you avoid adding too much weight. An armour-plated model that you can stand on, maybe even jump on, is unnecessary and any extra weight will only impair performance.

A spray guard needs to be added ahead of the hatch opening. This acts to deflect any water coming over the bows. Mine was made from some stiff card glued to the deck, then sealed with a couple of coats of dope.

Propeller guard

As stated earlier, any airscrew driven model that is to run around at water/ground level **must** feature a propeller guard. Some people use structures so elaborate the airflow into



“It’s important to ensure that the corners where the hull bottom sheet meets the hull sides and transom are kept as sharp as possible. This will encourage the water to break away cleanly when the model is traveling at speed”

the propeller must be affected. Others place a simple ring around the path of the prop tips, which I’ve learnt from personal, and painful, experience doesn’t guarantee the safety of your hand. The method I’ve successfully used on my three models allows air to flow easily into the propeller yet would require a deliberate action to push your hand inside the wire guard.

Three arches can be formed using some brass tubing about 1/16-inch (1.5 mm) OD. Two of these must be large enough to span from one side of the model to the other, while the third arch is smaller. Bending your arches to shape is best not done free hand; I used suitable tins of paint and such to bend mine around to achieve a smooth curve.

The two large arches must allow the guard to be well clear of the propeller tips, so a trial mounting of the motor with its propeller is sensible before epoxying them into the hull. The ends of the large arches are then glued in holes through the deck and into the hull sidepieces. The smaller arch ends go through the deck and into the second bulkhead.

The longitudinal pieces of the guard can be made from some solid copper wire striped from domestic electrical cable. These need to be soldered to the brass arches as shown on the plans. Unless you are an ‘ace’ at soldering, removing the motor is sensible. Note that the top wire has a ring formed where it extends beyond the rear of the guard; this is to secure the upper end of the dowel upon which rudder rotates. Also, don’t forget to fit the two wire hooks at the bottom

of the front arch; they hold the elastic band that keeps the driver figure and hence hatch in place (see Photo 6).

Alternative materials could be used for the prop guard, but avoid excessive weight and, equally, avoid making it too flimsy! A good way of testing whether you’ve got this just right is to see if you can pick the model in its ready to run state up simply by lifting with your fingers under the top of the small arch without any flexing or movement of the guard. Don’t try picking it up with your fingers around the other arches, for obvious reasons....

Rudder

I’ve always used a single all moving rudder in my airboat models, made from balsa (scrap box again) laminated around a length of dowel. The dowel, extending beyond the top and bottom of the rudder, is used to secure it to the model. The lower end fits into a tube, which is held on the transom by a strap, with screws through the transom into the reinforcement piece previously glued inside the hull (see Photo 7). The top of the dowel fits into the ring in the guard wire at the top of the rear arch (see Photo 8).

Making the rudder using balsa laminations allows it to be carved and sanded into a more streamlined section. I am never sure if this

improves performance or handling, but it is less offensive to the eye. The rudder can also be sealed with a few coats of dope.

Driver figure

The driver figure adds a little visual appeal to what would otherwise be a stark functional appearance. As stated before, weight is important in these models, and I’ve always made my own figures out of expanded polystyrene. They may not be very anatomically correct (my family often hurt my feelings by saying that they look like escapees from Dr Frankenstein’s lab!) but they weigh little and cost even less.

As the figure needs to fit on a seat, it’s best to make this first. This simple item can be created from balsa sheet, with the copper wire legs fitted through the hatch and epoxied in place.

The figure is not carved to shape but built up from blocks of EP. Just gluing them together, with PVA adhesive, wouldn’t make for a robust item and limbs could be easily snapped off when handling and running the model; this can be avoided by strengthening the figure with something like cocktail sticks. I pushed glue coated sticks into the EP across joints and along the inside of limbs. The head for my figure came from a bag of EP balls bought in craft store some years ago,

“Any airscrew driven model that is to run around at water/ground level must feature a propeller guard”

WHAT IS AVAXHOME?

AVAXHOME-

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although a table tennis ball would do. Finally, the figure can be adjusted until it sits on the seat and both feet touch the deck.

Painting

Many of the airboats I've seen appear to be made of aluminium and left in the bare metal state. I would, therefore, recommend spraying the model with silver paint. Having done so myself, I felt the model looked a little bare, so some colour was added by painting the rudder orange. This is also a handy visual clue as to which way the model is pointing when at any great distance from you. Some

red self-adhesive tape was applied to the sides and deck, too, for the final touch of colour.

The surfaces of your figure need to be sealed. For this purpose, I used some pink emulsion paint left over from when a daughter was into such 'girly' colours. A very light sanding will remove any bits from the surfaces, before a second coat will serve as a base for whatever attire you wish to paint onto your figure.

After 'clothing' with enamel paint, the driver's body can be stuck to the seat and his feet to the deck. To further prevent him

abandoning the model, an elastic band running from one hook, around his waist and down to the second hook, will ensure both he and the hatch will remain firmly in place.

R/C installation

The hull is deep enough for a standard size of servo, which is secured to two balsa blocks glued to the hull bottom and sides. A plastic tube can be glued through the deck and the two rear bulkheads for a wire link between the servo and rudder arms (**see Photo 9**).

The battery and ESC are fitted into hull between the first and second bulkheads and secured in some more expanded polystyrene blocks. This makes for a neat and safe installation, which adds little weight and yet will afford that extra bit of buoyancy should you need it when running on water. The receiver is also fitted into a block of EP, just ahead of the first bulkhead.

Wires from the ESC to the motor thread through a hole in the deck just ahead of the second bulkhead. This hole needs to be made watertight with an application of some domestic silicone sealant.

You might have noticed from my photos that I used an old 40 MHz receiver for this model. Previous airboats have used the flexible aerial wire, run forward under the deck and up through a hole, then back and fixed to the prop guard, taking care, of course, that the prop could not catch the end of the aerial! This time a wire whip aerial was used, the only precaution being to keep the total length of the new aerial the same as the receiver's original aerial. If using a 2.4 GHz radio, then just try to keep the aerial(s) at, or slightly above, deck level. This higher frequency can have problems if you ask it to penetrate through any water, which is why some R/C submariners are desperately searching for 'old fashioned' 40 and even 27 MHz gear.





“To keep the CoG [Centre of Gravity] as low as possible and avoid stability issues, your driver figure must be light”

Skimming along

Caution dictated that I ought to start powered trials with something modest like a six cell Nimh battery pack. This battery was also a handy lump of extra mass to keep the CoG low. Ready to run, the model weighed in at 36 oz (about 1 kg). A 7- x 5-inch propeller (designed for electric motors) proved to be a good match for this model.

Forget about a few mm each way, the rudder here needs move around 35 degrees

each way. This is way too much for high speeds but at slower motor speeds full rudder can make the model almost spin on the spot, which very handy when you find yourself in a tight spot and your ESC has no reverse – not that airboat models like to move backwards anyway!

Ideal conditions for your first run on the water would be flat calm. The weather gods are unlikely to cooperate, but just avoid a day when wind creates choppy water. As with all powered models, start at a modest pace and build up to full speed gradually. Luckily, unlike an aircraft model, airboats can be stopped safely should you ever need a moment to reorient yourself.

When the model is planning it should be stable, with the bows raised a little and only the rear half of the hull bottom in contact with the water, thereby creating little disturbance as it skims along. If the bows noticeably oscillate up and down, then the CoG is too far aft. Move some internal weight forward, but only by small amounts, before retesting. The plans show the position I found for a safe CoG.

If the model runs with its bows down, then it may call for moving the CoG a little rearward. One thing to avoid is confusing this with a

model that is ‘wallowing’ rather than planning – that is, pushing its way through the water rather than skimming across the top. In this case, the problem is likely to be an overweight model and/or insufficient power.

When running at full speed, the model might tend to drift off a straight course, but very minor rudder commands are enough to correct this. When a deliberate turn is needed, the rudder can be applied, and the model will yaw with the hull at an angle to the path it is traveling. A common mistake is to think it isn't turning and apply more rudder, which might cause the hull sides to ‘dig in’ to the water and bring the model to rest in a shower of spray. This has never caused any damage or rolled my model over; I just stop the motor as soon as this happens, let the spray fall back into the water and then reapply the power to continue sailing. One way to avoid this is to back off the throttle a little before applying the rudder. Practice should give you the coordination to achieve reliable turn.

Operating on snow and ice is much the same, but you need a smooth surface with no ‘lumps’ to run into. This is likewise the case with grass; a bowling green or cricket pitch would be ideal, although I doubt many clubs would welcome you! ●





PART
TWO

BLUE DEVIL

Dermot Curnyn continues his dazzling transformation of Lindberg's 1:125 scale kit

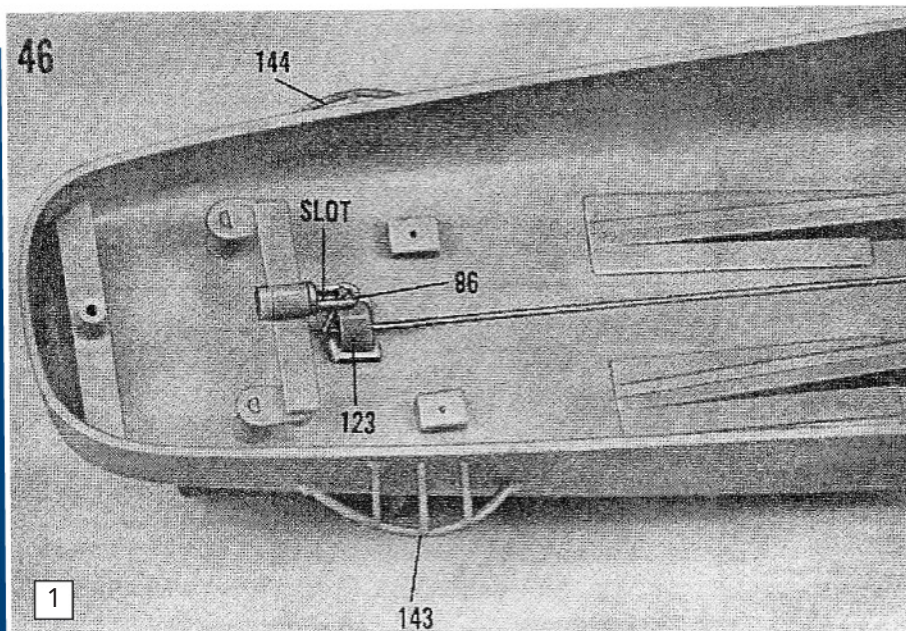


Having outlined the hull and running gear modifications made last month, this month we come to the rotating guns, radar, mainmast, etc, and, of course, how the finished model performs...

First painting attempts

The original ships in this class were endearingly nick-named 'Blue Devil' due to the standard paint scheme adopted for the class at the time, which included blue decks. But while I'd already decided I wanted to give the finished model a *dazzle* pattern in

various shades of grey and black, I wasn't at all sure about how to establish the correct blue for the deck, as while internet searches called up lots of images of the real thing, they were all black and white. Frustratingly, a number of different websites carry conflicting information, so I ended up giving the deck areas a coat of blue paint which I now think is far too bright to be accurate. I'll fix this later. Below the waterline proved a far less troublesome area, requiring a couple of coats of a red/brown, with a black line applied between the upper and lower hull.



“The first of the Fletcher class, USS Melvin, on which the Lindberg kit is based, had a single rudder, but the kit has two. I did, therefore, consider modifying the hull to take a single rudder, but eventually decided converting the kit to R/C with the existing twin rudder arrangement would be more straightforward”

Rudders

According to internet sources, the first of the Fletcher class, USS Melvin, on which the Lindberg kit is based, had a single rudder, but the kit has two (which would be correct for any of the last four ships built in this class). I did, therefore, considered modifying the hull to take a single rudder, but eventually decided converting the kit to R/C with the existing twin rudder arrangement would be more straightforward – and, anyway, I like the two-rudder look!

The kit rudder arrangement shown in the instructions has a simple yolk and lever set-up, driven by a copper rod pivoting to left or right of vertical. While this doesn't give a great deal of throw, it does appear to have been sufficient to keep the boat in some tight left or right turns with its original zigzag steering mechanism (see Photo 1).

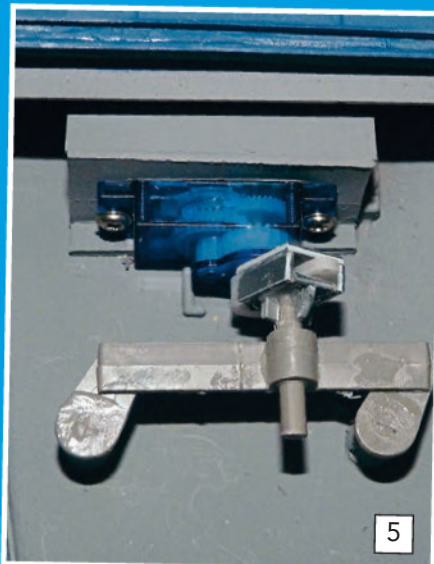
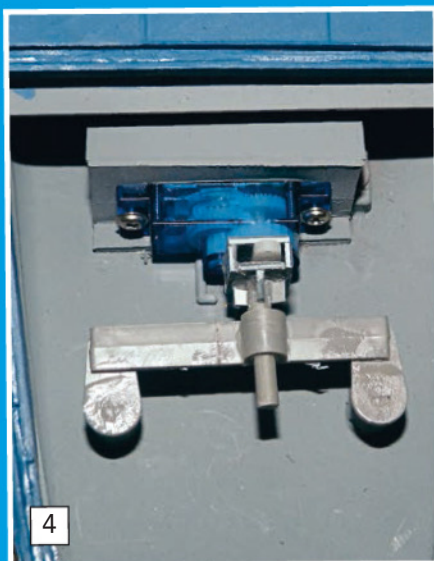
I modified the slot on the tiller arm with some additional 2mm styrene sheet to accept the horn of a micro-servo and used the standard kit rudders (see Photos 2, 3, 4 and 5).

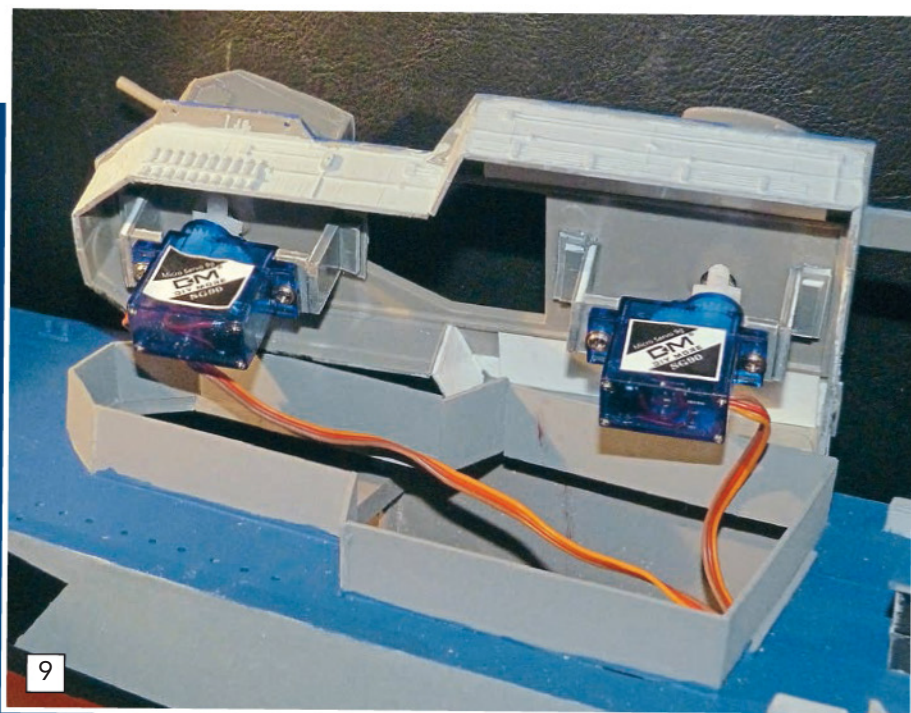
With the tail section of the deck fitted and screwed down, I felt pretty confident no water would get in – not too much anyway.

In Photo 6 you will see that I used two skegs which came with the kit to support the shafts where they exit the hull; these are very sturdy and not to scale, but they won't been seen anyway when underway.

Rotating guns

As well as the zigzag steering, the kit offers a system of rods and bell cranks to rotate the main guns while underway. Using the main motor to drive all these systems must have drained the batteries very quickly. It's not surprising that it had an original battery tray





to take six 'D' cell 1.5v batteries in the days before even alkaline batteries were available.

To try and replicate this unique Lindberg feature I made use of a few of the unused components from the gun rotating system and attached the two rear guns directly to individual servos which fitted neatly under the rear superstructure. These little servos only have around 120 degrees of throw but the movement, although limited, does add a bit more realism (see Photos 7, 8 and 9).

In due course, when I acquire a few more micro-servos, I'll make the other guns active too.

Addressing some inaccuracies

Now that the focus was on the upper works, I made the new raised bulwarks for port and starboard mid-ships. I cut them from 1mm styrene sheet, using the original as a template.

I added some tiny rectangles of plastic strip to the lower edges before giving all a coat of grey primer prior to gluing in place and painting (see Photos 10, 11 and 12).

A different approach was taken with the 'splinter shields' below the mid-ship 40mm guns.

Like the raised bulwarks, these also sat

too far in from the deck edge, so I laminated a couple of pieces of 1mm styrene sheet to fill out the gap. The additional thickness was hidden by the overhang of the 40mm gun mountings. Once painted these blended in well (see Photos 13 and 14). Pictures of other models of the Fletcher class that I've viewed online show this feature to be much larger and squarer than Lindberg's portrayal, so my interpretation may not be entirely accurate. The smaller 20mm guns just aft of the 40mm gun placements present a similar problem, which I may rectify in due course.

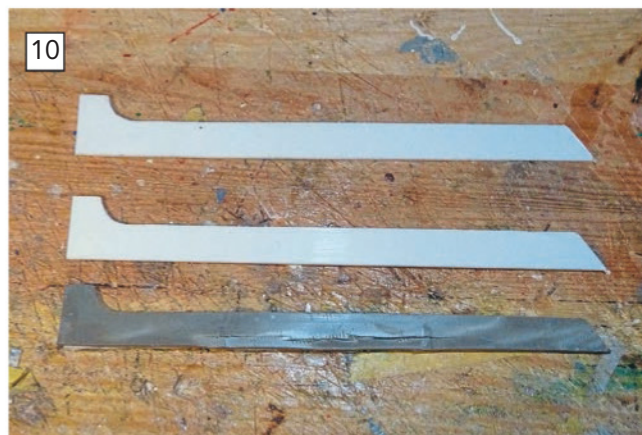
"These parts were missing and don't appear on the instruction sheet – an oversight on the part of the kit designers perhaps – all part of the Lindberg charm"

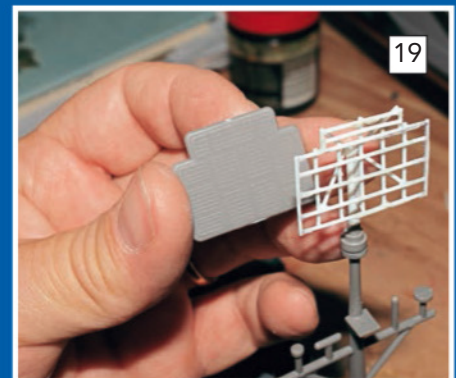
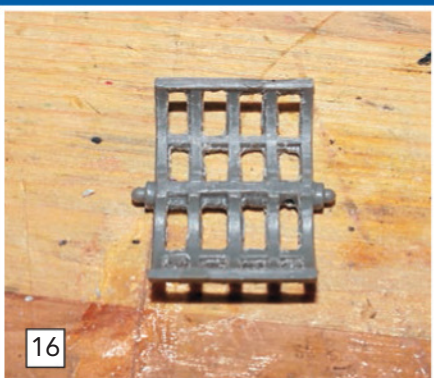
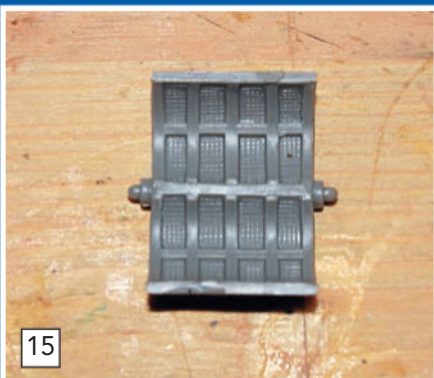
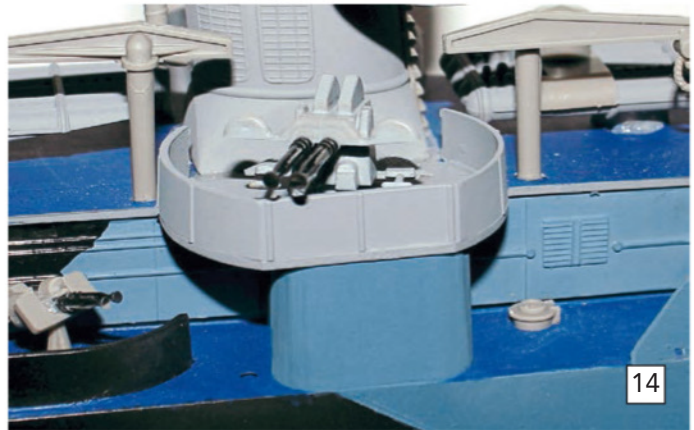
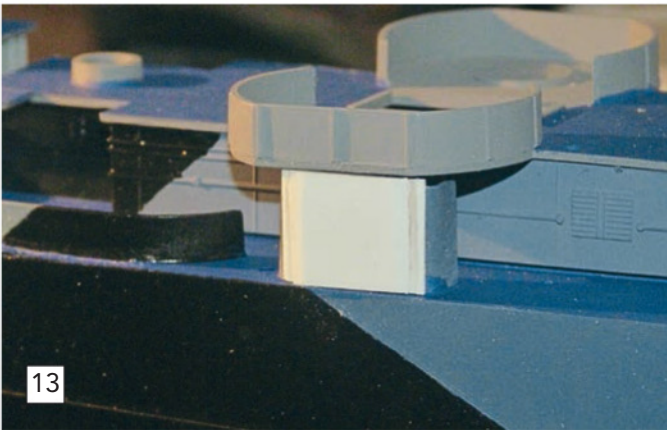
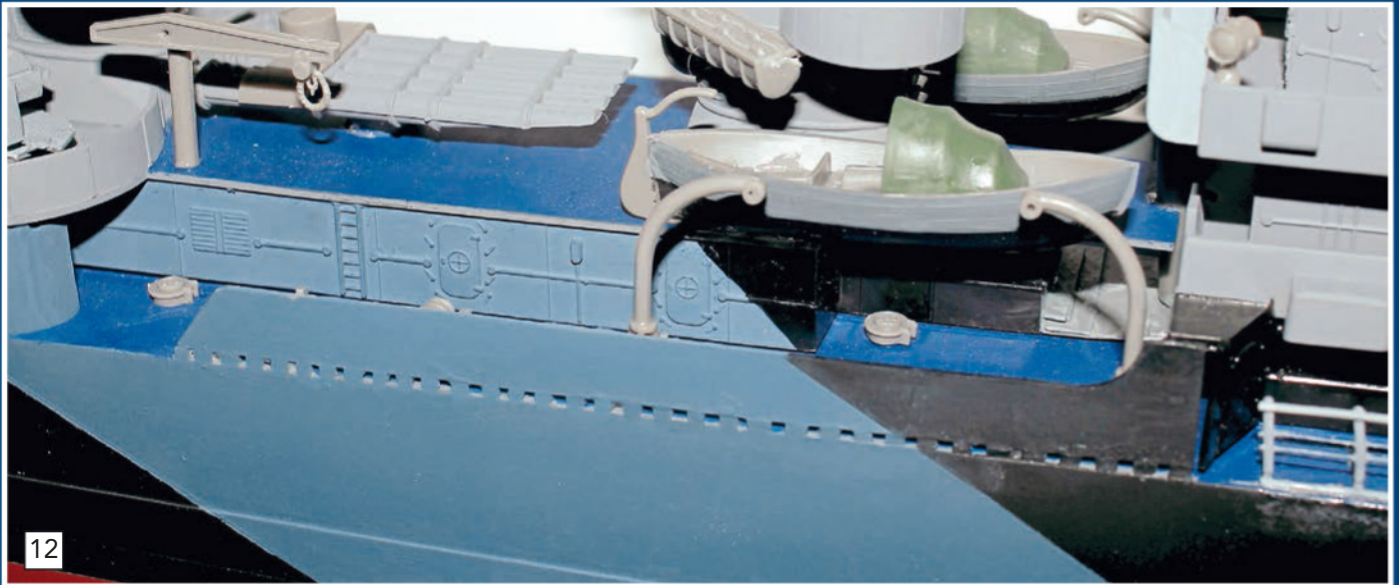
Radar

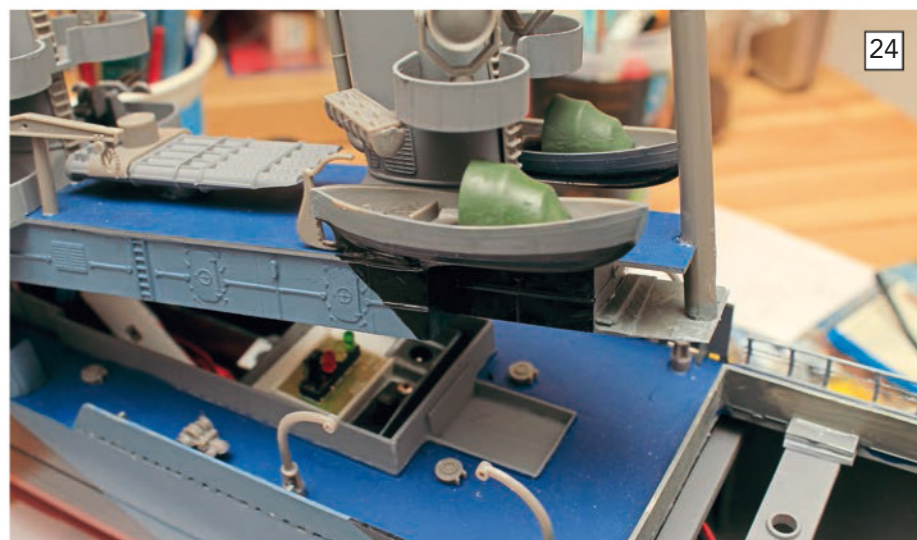
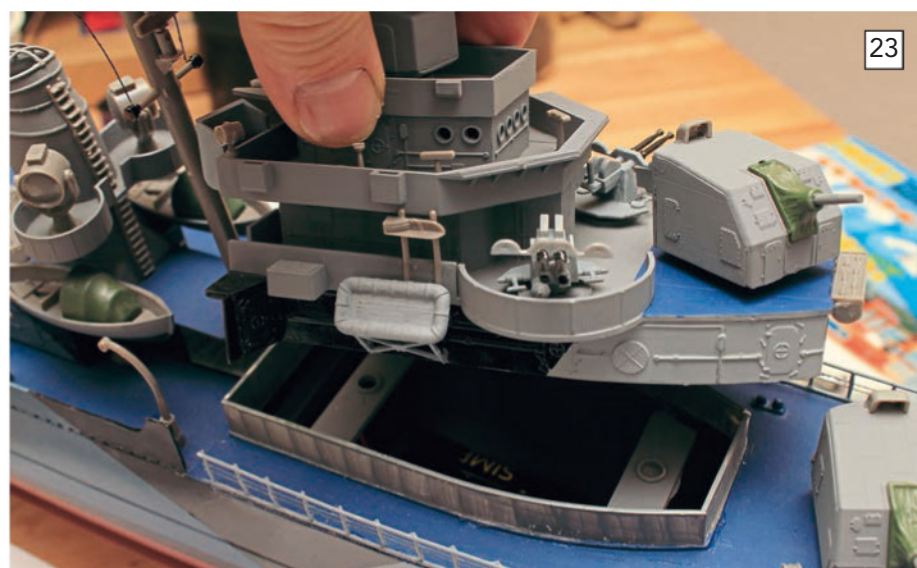
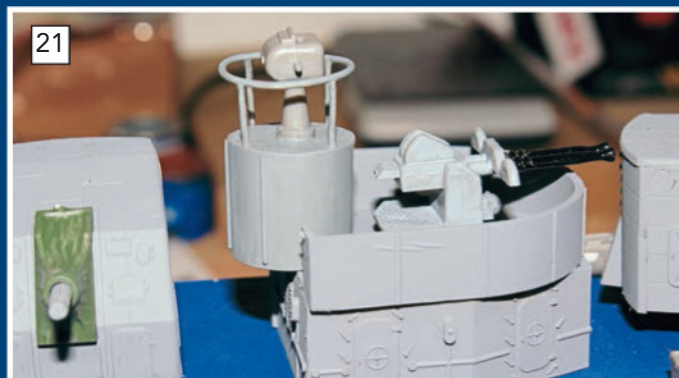
The radar array above the bridge is quite a crude moulding, with barely any representation of the mesh detail. I drilled out the areas between the main spars with a 1mm drill and used a fine file to finish off the job (see Photos 15 and 16). I added some extra spars to complete the detailing based on images I'd found of the real thing. I'm much happier with the look now; the finished piece is more refined than the kit original (see Photo 17).

Mainmast

I retained the mainmast from the kit. This is probably the most vulnerable part of the model and the original as supplied is pretty rugged. The moulding of the big radar antenna on top of the mast is just a simple slab, with very little attempt to represent the mesh. I replaced this with one made from 1mm styrene strip that better simulates the original (see Photos 18 and 19).







Missing rangefinder

Just forward of the rear 5-inch gun there's a platform which should have a rail surround with a rangefinder fitted for the rear 40mm gun. These parts were missing and don't appear on the instruction sheet – an oversight on the part of the kit designers perhaps – all part of the Lindberg charm.

I fashioned a rail from copper wire bent to shape around a marker pen, and soldered copper uprights into place. A rangefinder part which should have been on the bridge was relocated to the platform to complete the look (see **Photos 20 and 21**).

Photo 22 shows the search lights that came with my kit and, as you can see, they look really out of scale – far too big. The cage over the funnels was my addition and was fashioned from 1mm styrene strip.

In **Photos 23 and 24** you'll see that I glued the life rafts and 'whaling boats' directly to the removable superstructures rather than gluing them to the deck.

The main building work completed, with the three removable deck houses, can be seen **Photo 25**.

Railings

I made a manufacturing jig for the railings to speed up production. A strip of 1mm diameter styrene was laid out along a length of lime strip which I'd marked out with even divisions so I could space out the stanchions regularly. The styrene strip was held in place with masking tape at each end. I glued the stanchions supplied with the kit to this strip with a small blob of styrene cement, using my craft knife to hold them straight and in position until dry. Another length of styrene strip was glued along the bottom edge, joining all the stanchions at their bases.

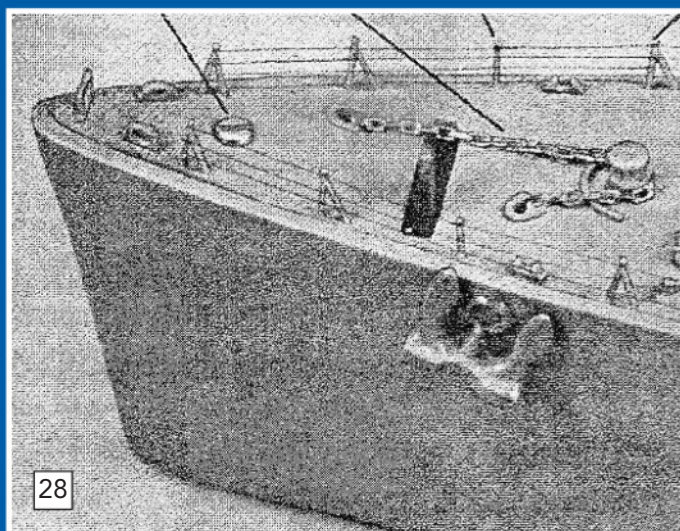




Once these had firmed up, thread was laid across the stanchions, pulled taught and taped down, then a small blob of styrene cement was administered at each node. This process was repeated for a second length of railing, then left to set rigid for quite a while before painting (see Photos 26). There were just enough stanchions to make railings for the forward deck area (see Photo 27) and small sections towards the rear.

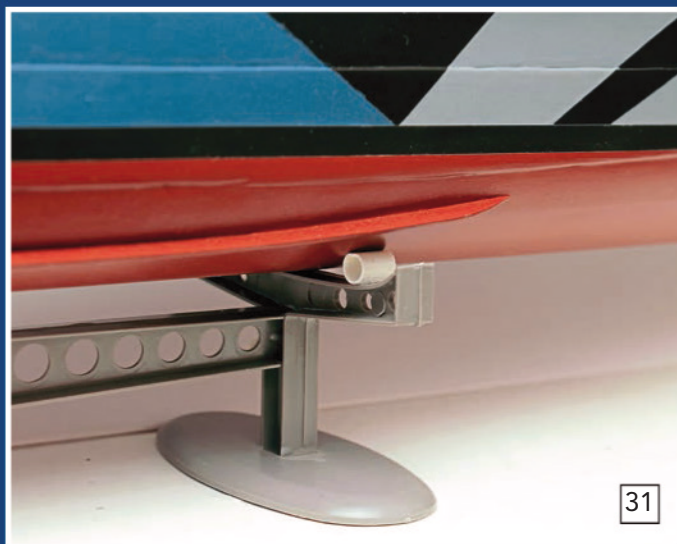
Anchor

The anchor position on the original kit version is well out of place – too far back on the hull. This was done to accommodate the 'on-off' switch at the bow. I had already plated over this original deck switch position with 0.5mm styrene sheet, so it was a simple job to re-locate the anchor haws-pipe and glue the anchor and chain provided in their new positions. The original kit version also shows openings for two anchors on the foredeck, but the kit only provides one. Early versions of the actual Fletcher ships had anchors on each side of the bow. I believe the later versions had a single anchor to save weight (see Photos 28 and 29).





30



31

Propeller guards, stands and hull numbers

The kit does include two propeller guards for the stern, but I fashioned new ones from copper wire to provide something a little tougher (see Photo 30).

I rejigged the display stand with four short lengths of styrene tube to accommodate the more rounded bilges of the modified hull (see Photo 31), while a general carrying stand was made from lengths of standard 22mm plumbing pipe and joints from our local DIY shop, cushioning the sides of the model with short lengths of foam insulation (see Photo 32).

The hull numbers provided as transfers with the kit are quite small and don't match up with images of the real thing as seen on the internet. I drew out new larger ones on the computer in 'Inkscape' and printed these on white inkjet decal paper (see Photos 33).

Bath test revelation

I was quite surprised that the initial bath flotation trials showed that the model needed more ballasting. Some additional lead weight glued in place with silicon sealer brought the total displacement to just under 4lb (see Photo 34).



32



33



34



“The additional height above the waves at bow and stern, combined with a greater draught than the standard kit, makes the model very stable on slightly choppy seas”

On the water

The model sits well on the water. The additional height above the waves at bow and stern, combined with a greater draught than the standard kit, makes the model very stable on slightly choppy seas, as my photos show.

My reservations about the amount of rudder throw afforded by the original tiller set-up were unfounded; the model turned well, with very little healing over, and the thrust from the two tiny brushless motors is quite impressive. It's not a fast model but gives a good sense of scale speed, with a convincing bow wave and good manoeuvrability.

Duration is very good, with no signs of slowing down until after around 30 minutes. I have an inverter for the car, so a quick charge is all it takes to get back on the water again.

The ESCs that I used are designed for model aircraft, so no reverse function. This is fine on a large body of water but could be a limitation on a smaller pond. Brushless ESCs with reverse function tend to be larger and weightier, as well as more expensive. I was worried that this might be an issue prior to the build but having found that the model needed quite a bit of extra ballast to set it down to the waterline I am reconsidering the set-up and may replace the current ESCs in due course.

Devil of a job

This wasn't a simple build, or a quick one. I find working at this scale quite challenging; it's quite fiddly. Nevertheless, it has been a very satisfying experience and I now have a model which performs well on the water and looks impressive on the shelf too.







Yet more Smoke on the Water

Roy Cheers shares another inexpensive but surprisingly effective hack...



I was very impressed, almost excited, by Richard Norman's article (see Feb 2021 issue) describing his modifications to a medical nebulizer to turn it into a model boat smoke generator. My previous smoke generators had involved big-ish tanks, a fan, and a voltage increaser to provide 24V for a heavy nebulizer device. The tanks could only use about half of the water required. Here was Richard describing a simple, compact device powered by only 5V, the same voltage used by our radios.

My excitement was somewhat diminished when I checked his Amazon link only to find it listed the device as "out of stock". Of course, a simple search quickly displayed similar devices, but the search also revealed

a different type, even more compact and able to produce a stream of vapour while set in a glass of water. I had my doubts about whether it would work as effectively as the eBay listing promised, but for \$10 I decided to take the risk.

Surprisingly, it operated extremely well, producing a steady stream of vapour while consuming only 200 milliamps on 5V (see **Photo 1**), although when I placed a tube on top of it, representing a funnel, the stream stopped. However, on trying it out, a fellow modeller discovered, as Richard had, that leaving an air gap between the humidifier head and the funnel restored the flow.

If you have enough space in your model you can use a form of the humidifier that



"I had my doubts about whether it would work as effectively as the eBay listing promised, but for \$10 I decided to take the risk"

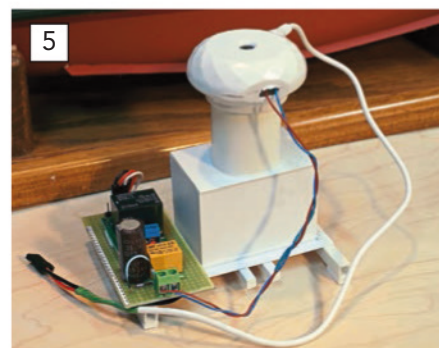
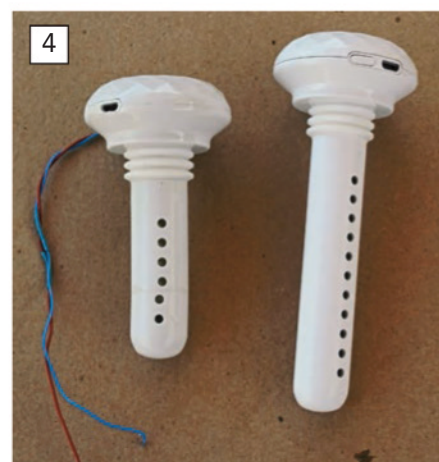
comes complete with its own tank. A search on eBay or AliExpress will show various models, one of which measures 14cm tall and 7cm diameter. **Photo 2**, extracted from an AliExpress listing, shows one example. If you can use this, you need read no further.

For my model of the New Zealand car/passenger ferry *Wahine* I had, in 2013, purchased a Steammaster unit. Out of the box it had proved too big and heavy for the model, and was still too weighty even with a smaller, homemade tank. This new 'smoke generator in a glass' seemed to be the ideal device to restore some smoke in this model, and so it proved (see **Photo 3**). If the type with the integral tank will not fit your model, you may be able to fit one of the models shown in **Photo 1**, with a few modifications. I will describe here what I have learnt.

You can find one of these devices with an internet search for 'personal humidifier'.

There is a cotton stick inside the tube which supplies the water to the nebulizer disc, where the vapour is created, inside the head. You can shorten the immersion tube to fit your boat.

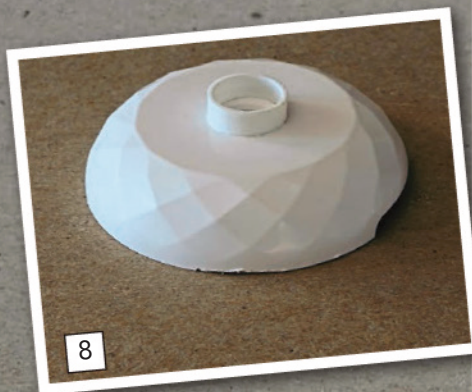
Separate the tube from the head but take care when doing this not to lose the spring inside the bottom of the tube. Allow for approx ¼-inch air gap between the humidifier head and the bottom of the smoke tube in your funnel. To grip the humidifier head, the top end of the tube contains nubs inside, which you want to retain. Cut the immersion tube and remove a mid-section to shorten it. It's a good idea to make the first cut no more than 1-inch from the bottom, thus leaving the maximum length near the top to grip when removing and reconnecting the tube to the humidifier head. Liquid cement suitable for ABS plastic works well. Remove the same length from the cotton stick. **Photo 4** shows



both the 'as purchased' and reduced length for my model.

You'll need a container to hold the water. I made a tank from styrene sheet and a piece of scrap plastic tube. My experimentation showed that (a) water is consumed at the rate of 30ml/hour, and that (b) the vapour will be produced until the water level drops below the end of the cotton stick. Use that information to decide the dimensions of your tank. The tank I made for my *Wahine* is 40mm wide by 60mm long and 43mm high (see **Photo 5** please ignore the experimental switching setup attached to it). The lowest hole in the humidifier tube is about 12mm from the bottom end, so this gave a usable amount of water of 74ml – more than enough.

If you don't have enough room to fit the diameter of the head in your model – it's approx 55 mm – you can cut most of it



"If, like me, you don't want to remove parts of your boat at the pond to get at the smoke unit to turn it on and off, you have a few options..."

away. You can then, after making suitable notches in the rim, hold the nebulizer disc in place using an elastic band (see **Photos 6 and 7**). You will, of course, have to find a way to mount the circuit board; wrapping it in a suitably sized piece of shrink wrap is a good idea. In operation some of the water vapour clings to the inside of the smoke tube carrying the vapour up inside your funnel. This drips down, and if it falls onto the nebulizer disc it stops production of vapour, but after a brief pause of maybe a second or two it will resume again. If this bothers you, it is possible to minimise this by:

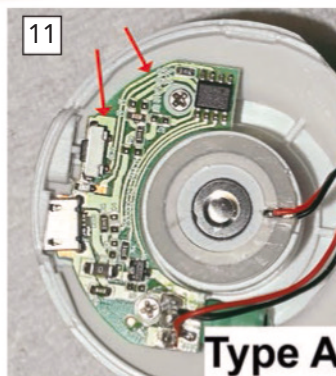
(a) Fitting a rim on the head of the humidifier around the opening; a short length of styrene tube works well. The devices have an opening for the nebulizer of 1/4-inch (7mm). **Photo 8** shows a rim of 1/2-inch tube added to one. Some devices have a rim of 18mm outside diameter moulded into the head.

(b) Making some axial cuts in the end of your model's smoke tube and bending the material outwards into a conical shape. The bottom end should be of larger diameter than the rim on the nebulizer head, and not touching the rim.

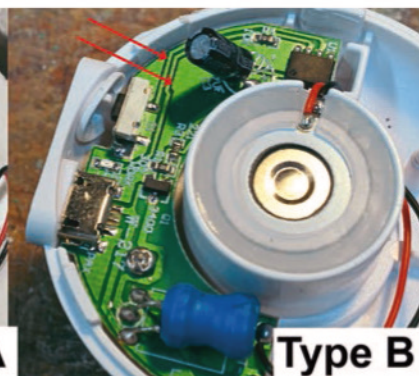
This does two things: it provides openings to allow air to enter and causes the dripping water to fall outside the rim (see **Photo 9**). **Picture 10** shows the water accumulating on the head with this setup. I'll leave it to your creative instincts to decide how to deal with this; although don't worry, it won't be enough to sink your model!

Simply powering it

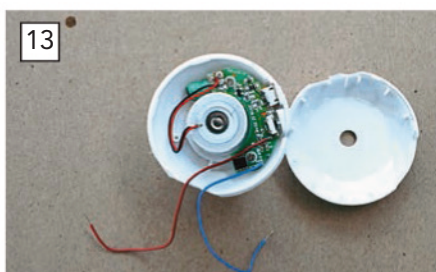
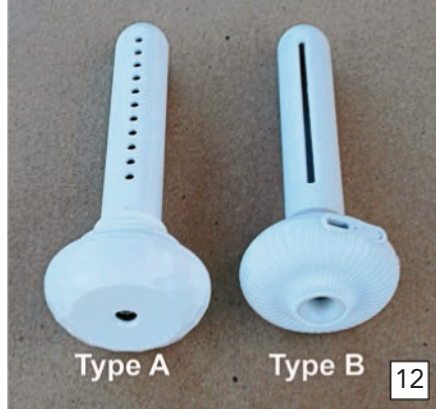
Power is fed into the device via a USB cable and controlled by a push button. Push once to turn on, push once or twice to turn off. Cut the USB cable which is supplied and check the polarity of the wires. The ones that I received had two wires; the pink one was positive and the white negative. If you have to use a standard USB cable, which contains data wires, there should be a red positive and a black negative for power. Connect a radio plug to the wires, as in **Photo 5**. Insert the plug into a spare channel on your radio receiver, or a 'Y' splitter cable into any radio channel. Alternatively, you can connect the wires to a BEC.



Type A



Type B

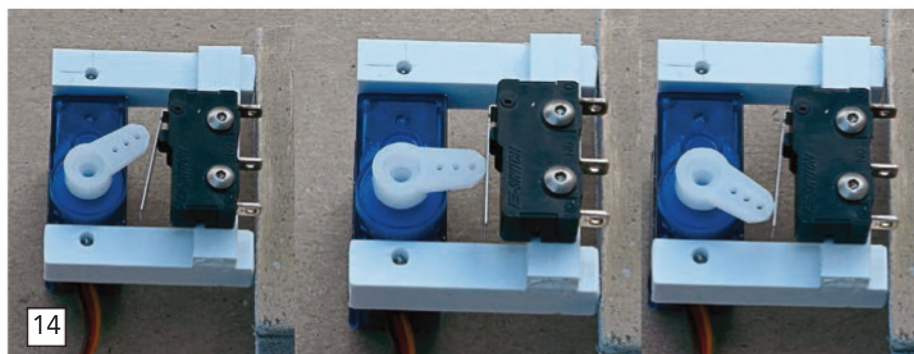
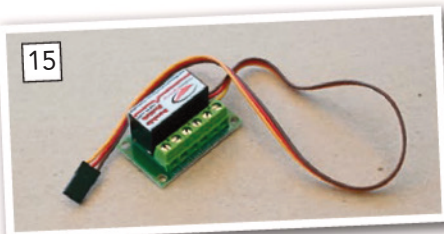


External control

If, like me, you don't want to remove parts of your boat at the pond to get at the smoke unit to turn it on and off, you have a few options. The first step is the trickiest, you have to solder two fine wires to the circuit board. You'll need a soldering iron with a fine tip. A small battery-powered iron is ideal for this task.

- 1) Split the humidifier head to reveal the nebulizer disc and circuit board. I used a small triangular section file to make a groove along the split line between base and cover. Twist a screwdriver blade in the resulting groove to separate them.
- 2) Loosen the circuit board by removing the screw, or screws, and take out the board and nebulizer disc.
- 3) Scrape some of the coating off two tracks where marked in **Photo 11**. As you will see, I have come across two styles of humidifier head, as shown in **Photo 12**. (For the purpose of this article, I have labelled them **Type A and B**). Their circuit boards are slightly different, and the wires need to be soldered to slightly different locations.
- 4) With the soldering iron, tin the exposed copper tracks; do the same with the exposed ends of some fine wire, 30AWG or similar.
- 5) Solder the two wires to the tinned tracks.
- 6) Coat the soldered areas with epoxy.
- 7) Make a slot in the rim of the top or bottom piece for the wires to exit (see **Photo 13**).
- 8) Reassemble the board and disc and snap the top and bottom together.

You can then connect the two wires to a push button located somewhere conveniently accessible on your model. For invisible control, connect the wires to a reed switch located against the inside of the hull; touch a magnet in that location to turn on or off.



Radio control

It has been known, in our club anyway, for a modeller to occasionally forget to turn on his boat's radio or power before putting it into the water. While not quite as nerve-wracking, the same can happen with the smoke unit (you cannot easily arrange for the smoke unit to turn on automatically when you turn the model's power on.) To prevent such a lapse, or just because you like the idea, you can use radio-control to operate it.

Radio control requires a switch that separates the radio input circuit from the humidifier circuit it switches and provides a momentary on-off contact.

The simplest option is electro-mechanical, the tried and tested method of a micro-switch operated by a servo. The full sweep of a servo arm causes one on/off action (see **Photo 14**). If you operate it with a toggle switch on your radio rather than a slider you may find the on/off action is too fast to turn the humidifier on.

An alternative is a radio-controlled relay. Throwing the transmitter switch on then off gives the momentary connection. **Photo 15** is an example of a radio-controlled relay.

Another type of R/C switch is all-electronic, but this type has the disadvantage that input

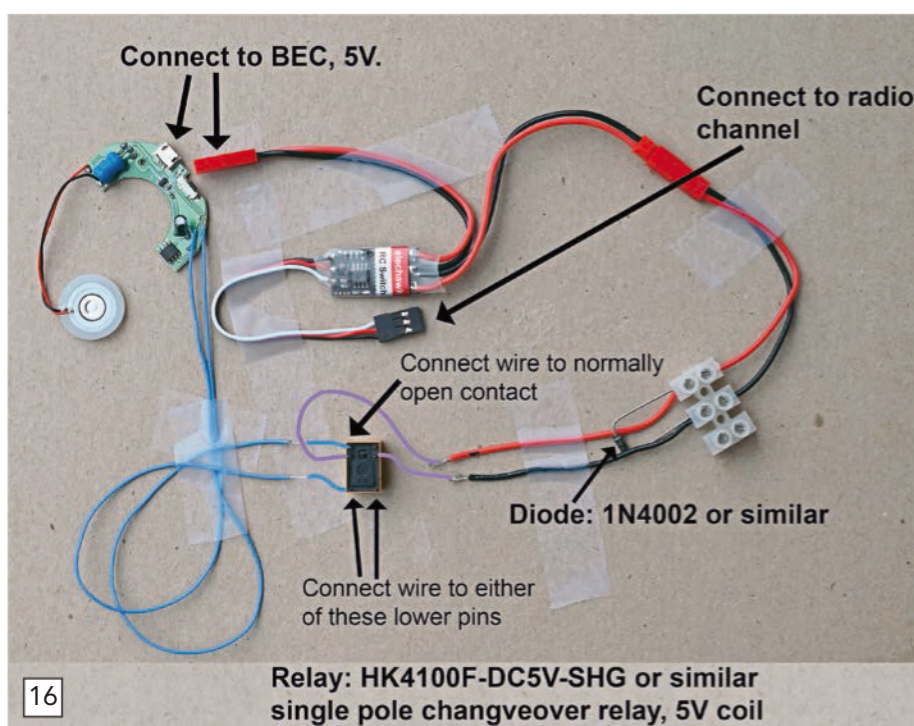
and output circuits share a common negative connection. This is less simple than the above methods but can be done by adding a small relay (see **Photo 16**).

Maintenance

The instructions supplied with the humidifiers suggest you replace the cotton stick periodically. I have two of these units in models now, with a third planned. I've not found it possible to predict when the sticks need to be replaced; it's simply a matter of when they no longer produce the smoke.

Output

The original style of water smoke units, and also oil units, included a fan, the speed of which could be varied to make the smoke output vary with model speed. When I tried operating this device on 3V it wouldn't work, which suggests that smoke output cannot be controlled by varying the voltage. Because no vapour comes out of the funnel if there's no air gap above the humidifier, this suggests that maybe controlling that air flow will regulate vapour flow. Hopefully you'll find that no special modifications to your model are necessary to allow the required air flow to get to the humidifier.



BOILER ROOM

Need a beginner's workshop? Then you're in luck, as **Richard Simpson** is about to take us right back to basics



Running a dehumidifier (these are not expensive to buy and don't use a great deal of energy when used continuously) may be worth considering to prevent tools developing a film of rust.



Fan heaters nowadays, such as this ceramic type, are very cheap to purchase and are extremely effective in a small space. They can be expensive to run though if used at full power for any length of time.

A couple of recent conversations have highlighted the need to revisit the set up and use of the home workshop for those potentially interested but daunted by the old challenges of cost and complexity. We are all constrained by our own personal budgets, hence what can happen when someone starts looking into the cost of lathes, milling machines, silver soldering equipment, etc, is that they simply throw their arms up in the air and decide "This really isn't for me!". So, in the next couple of instalments of Boiler Room we will be looking at how costs can be kept down, how it's possible to progress without getting bogged down by the incredible levels of detail we encounter when we start looking into drilling holes, tapping

threads and even filing flat surfaces, and what can realistically be achieved. We're not all Fred Dibnahs! Some simply want to enjoy making something, without having to live and breathe the difference in design between, say, a Whitworth and a BA thread. But, by starting off with simple items to enhance, modify or improve model boats, using nothing more than adapted bits and pieces of scrap metal, it soon becomes apparent how invaluable a metalwork bench really is.

With this in mind, I'm going to take you through the process that I've been through over the years, starting with the very basics and progressing from there. But, first, let's look at how your journey is going to require some initial thought and planning...

Allocate some space

While plastic and wooden based modelling can be accomplished in temporary locations, metalwork really needs its own space. This can, of course, be anything from a shed, a cellar, a spare room, an attic or even a part of a garage, but a dedicated space really is essential, and there are some important considerations to factor in in terms of its suitability.

Humidity

Cellars and outbuildings can frequently be damp, so, to protect your tools and equipment, spaces such as these will need heating, and possibly dehumidifying, which can, of course, prove costly. Sheds can be fine if insulated and sealed from draughts, but you may have to consider the use of a portable de-humidifier (see Photo 1) in order to prevent the formation of rust on bare metal surfaces.

"You may have to consider the use of a portable de-humidifier in order to prevent the formation of rust on bare metal surfaces"

Temperature

A big deciding factor nowadays is maintaining a comfortable temperature in a workshop and the subsequent cost of this. Electric fan heaters can be very effective in smaller spaces but are, of course, expensive to run. Your fan should also be "Intrinsically Safe", i.e., safe for use in an environment where solvents, such as in paints and glues, are being worked with. Most domestic fan heaters, while small, compact and pretty cheap to buy (see Photo 2), are not of an appropriate standard – in which case great care should be exercised when using solvents.

Noise

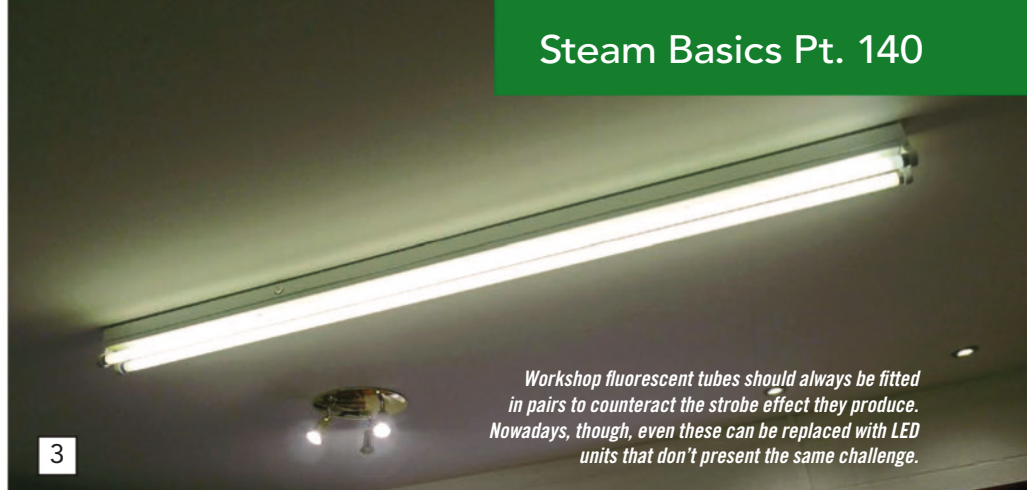
The best type of space from a humidity and temperature perspective is invariably within the house, but this in turn brings forth its own challenges. Metal workshops can generate a level of noise, which can be pretty intrusive indoors – particularly for instance, if located in a cellar directly beneath the TV in the lounge!

Lighting

Another prime consideration will be ensuring you have the right type of lighting. Fluorescent tubes flicker at the same frequency as the supply power (in the case of our domestic supply this is 50 hz, or 50 times per second), which can have the effect of making machinery such as lathes or drills appear to be stationary when rotating at certain speeds – and you don't want to be fooled into thinking it's safe to grab hold of something when it's really not. This is precisely why, in a workshop, fluorescent tubes should *always* be installed and used in pairs (see Photo 3), as this counteracts the effect. Nowadays, of course, the option of LED lighting does away with this concern.

Ventilation

Whether using glues with a volatile base, paints and thinners containing strong solvents, or indeed undertaking hot work (hot fluxes can give off significant vapours), all hazardous airborne substances need to be removed from your work area quickly and



Workshop fluorescent tubes should always be fitted in pairs to counteract the strobe effect they produce. Nowadays, though, even these can be replaced with LED units that don't present the same challenge.

"In a workshop, fluorescent tubes should always be installed and used in pairs"

safely. While all workspaces need proper ventilation, this can present particular challenges in, say, a cellar, or an outbuilding with tiny or no windows. The installation of trunking will expel any contaminated air out into the open. Do, however, be mindful here; it's no good having a lovely big extraction fan that's discharging over the fence into next door's garden just where the kid's trampoline happens to be. A DIY extraction/ventilation system is not something you can risk bodging; cobbling together an old vacuum cleaner motor with a bit of cardboard ducting simply isn't going to cut it, and while you will find numerous extraction fans available to purchase online, many are unsuitable for workshop use. Again, check whatever you purchase is intrinsically safe for the extraction of potential hazardous solvents and paints.

A sink

While maybe not the first thing you think of when planning a workshop, a sink is incredibly handy – in fact, I'd almost go as far as saying essential. For cooling hot work, cleaning up parts and surfaces, flushing through boilers, and even for just washing your hands, a sink is worth its weight. Hot water would be the icing on the cake!

Basic requirements

OK, let's assume that you now have a little bit of real estate mapped out exclusively for your own use, what are you going to do with it? Well, the first and most important thing will be installing a workbench. At one extreme, you can purchase a steel framed workbench with a 25mm beech ply top that will set you back anywhere in the region of £400-£500 upwards. Add some built in drawers and cupboards and you will soon be parting company with a sum in excess of £1,000 – and you even might want two! But, at the opposite end of the scale, I once purchased, for the princely sum of £30, a huge workbench from a local carpentry shop that was closing down – so it's definitely worth exploring what the secondhand market has to offer. If, on the other hand, space is tight, you could consider building something bespoke from a softwood frame and sitting a thick ply top on it. Either way, you're going to need a strong and sturdy workbench. This needs to be robust enough to take everything you're going to throw at it over the next few years, as well as serving as a location for other tools and machinery. Old drop leaf dining tables won't stand up to having a 4-inch Record vice bolted to them, so make sure your chosen workbench is good and solid.

"Starting with the basics, I would suggest that a pedestal drill and a vice are both essential"



A pretty standard cast iron Record vice can be surprisingly reasonably priced. Secondhand ones can also be picked up from such sources as industrial unit clearances.



Always go for the best quality machine tools that you can afford, bearing in mind your intended use. It will be worth it in the end, as a good quality machine tool should last for many years.



With so many workshop items, there is no ceiling to cost. Tool chests such as this can cost £200-£300, but, again, when looked after should last you a lifetime.

What you add to that workbench is really up to you and will very much depend on what sort of things you intend to make. Some might consider a lathe, a milling machine or a grinding machine but, starting with the basics, I would suggest that a pedestal drill and a vice are both essential. Cast iron 4-inch vices are surprisingly reasonable to buy new, but just about everything you do will be centered around that vice, so make it a good one (see **Photo 4**). Magnetic vice jaw protectors will prevent damage to your work and be a worthwhile investment, but don't buy rubber ones and then do hot work in them. As for the pedestal drill, buy the best you can afford, bearing in mind the type of work you want to do with it (see **Photo 5**). Cheap machine tools invariably have a short life and, for various reasons, don't work very well anyway, so go for the best quality you can afford. Also, don't fall into the trap of thinking that a pedestal drill will enable you to do milling work. Usually pedestal drills are only designed to withstand the vertical forces involved in drilling, so frequently only have a single bearing on the spindle head. A milling machine should be designed to withstand lateral forces so should be fitted with two bearings on the spindle head. Using a pedestal drill for milling operations will usually lead to a short life for the machine.

So, with a good strong workbench, a pedestal drill and a vice fitted, what else should you be considering? The most important next step for me would be some storage. Hand tools and materials need a home, while also being kept easily accessible.

A set of steel drawers are very handy for spanners, hammers, screwdrivers etc, and come in a huge range of sizes, but cost may be a limiting factor. The larger chests on wheels can be even more expensive (see **Photo 6**). However, once again, it's worth scouting the secondhand market. I did this



Shadow boards, Richard explains, are a throwback to his seagoing days and he's put them to good use in his own workshop. They allow everything to be immediately accessible; the only discipline required, in order to keep things ship shape, is that you remember to put anything used back on the board at the end of the day.

many years ago and picked up a good and very reasonably priced set of steel drawers that still sit on my workbench today.

Personally, I have always been a huge fan of the good old shadow board. I don't think I have ever worked on a ship where there wasn't a tool shadow board in the workshop. Making one up is as easy as getting a piece of stout ply or laminated softwood board, laying it on the floor, creating the shadows where you want your tools positioned and then affixing wood screws for them. The board can then be mounted on the wall above your workbench (see **Photo 7**). You can also add hooks and shelves. The beauty of a shadow board is that it can serve as a home for all kinds of tools, while still keeping them visible and immediately to hand.

It was with these basics in mind that I put together my first dedicated home metalwork shop in a corner of the garage (see **Photo 8**). This accommodated the secondhand

carpenter's table I mentioned earlier, a pedestal drill, secondhand vice, grinding wheel, secondhand reconditioned set of steel drawers and some shelving, and it served me well for a good number of years. Note the single fluorescent tube; I hadn't realised the need for two at this point.

Specifics

With these basic requirements in place, it may be time to have a think about the specific projects you plan to undertake. If you want to build a boiler, then you'll need silver solder rods (either coated or with separate flux), a heat source (such as a blow torch) and the materials to put together a hearth. I have a few different pieces of vermiculite fire brick with which I can make a hearth to suit any job, but these readily absorb moisture and are quite easily damaged so need to be kept somewhere safe in polythene wrappings.

For pipework jobs, again, a hearth, heat source and silver solder will be required, and you'll also need to have bending and cutting tools to hand and access to cold water for quenching between annealing. We'll be looking in more detail at processes such as drilling and tapping in future articles.

You'll also need to consider the hand tools specifically related to jobs you intend to carry out on your workbench. A set of BA open ended spanners and box spanners, for example, would be very handy, as would clamps, a range of pliers, various screwdrivers, and even tweezers for dismantling and maintaining engines and other pieces of equipment. If you're going to be involved in engine work then possibly a selection of gasket materials, a punch and a neoprene anvil for making gaskets would be worth having available, along with sharp scissors and craft knives (see **Photo 9**).

Good preparation is key to being able to relax and enjoy a project. Imagine the (preventable) frustration, for example, of



Richard's first real metalworking bench: nothing more than a pedestal drill, a grinding wheel, a vice, shadow board and suitable tool storage. This work bench was where he learnt the basic workshop skills, using mostly hand tools. That huge bench cost him just £30 from a carpenter's shop clearance.



Right: Richard's first real investment, many years ago, when a house move permitted him more space, in the corner of a larger garage, was a Unimat Lathe. Steel workbenches replaced the old carpenter's table fitted in his previous garage and have followed him around ever since.

Above: Tools for specific jobs, such as steam engine gasket making, need to be kept safely stored and protected. Rattling around in the bottom of a drawer with files, spanners and hammers will almost certainly guarantee they get ruined.

simply needing to undo a nut but having to spend the next ten minutes raking through a drawer of assorted bits and pieces in the hope of laying your hand on the right spanner for the job.

Developing your work area

I would always recommend starting off with the basics and working upwards from there. There's a surprising amount to learn even in terms of the simple hand processes, so using and practising with these will reap enormous benefits before you move on to working with more sophisticated equipment and machine tools as you gain confidence and skill.

I started off with a basic set up but, as funds and experience grew, I was able to add more to the workbench in later years. My first real machine tool, after a pedestal drill, was a Unimat Lathe (see Photo 10), fitted to a later incarnation of my metal work bench. This served its purpose well until I eventually found myself wanting to carry out more sophisticated processes and occasionally work on larger pieces, at which point I realised I needed a slightly larger lathe. I've had my Chester lathe for well over ten years now and use it frequently for simple bushes, to even polishing and spray painting. I now cannot imagine living without it. I also invested in a milling machine and replaced the pedestal drill with it as, basically, while a pedestal drill is not really up to the task of milling, a milling machine is perfectly suited to drilling tasks (see Photo 11).

The long game

A home metal workshop is frequently a lifelong investment, so think things through right from the start. Begin with the basics and let things develop over the years. Don't fall into the trap of assuming that throwing a huge amount of money at it initially will automatically guarantee results. It's taken me a lifetime to get my workshop to where it is today, but despite now being lucky enough to have a large, well-lit, dedicated space and the luxury of hot water in the sink, I am still using the same workbenches



Finally getting his hands on a fully functioning lathe and a good size milling machine gave Richard the ability to tackle just about any task. Looking after, thoroughly cleaning, and oiling his tools keeps them in perfect condition.



Richard's work bench today, with machine tools and workbenches that have followed him around for many years. A thick ply board protects the workbench top, and a cutting mat protects that.

and machine tools that I bought in 20 years or more ago (see Photo 12).

As a newcomer, it may be worth considering following book-based courses or attending night classes if you don't have the benefit of a job that allows access to workshop facilities. However you decide to do it, though, getting the basic manual skills

in place first will stand you in good stead for the rest of your life. For that to happen, you will need your workplace to be set out correctly.

Next month we will start to have a look at some of the basic processes and how you can begin to make use of your workbench. ●

"The beauty of a shadow board is that it can serve as a home for all kinds of tools, while still keeping them visible and immediately to hand"

Joan in Alasdair's workshop prior to restoration.



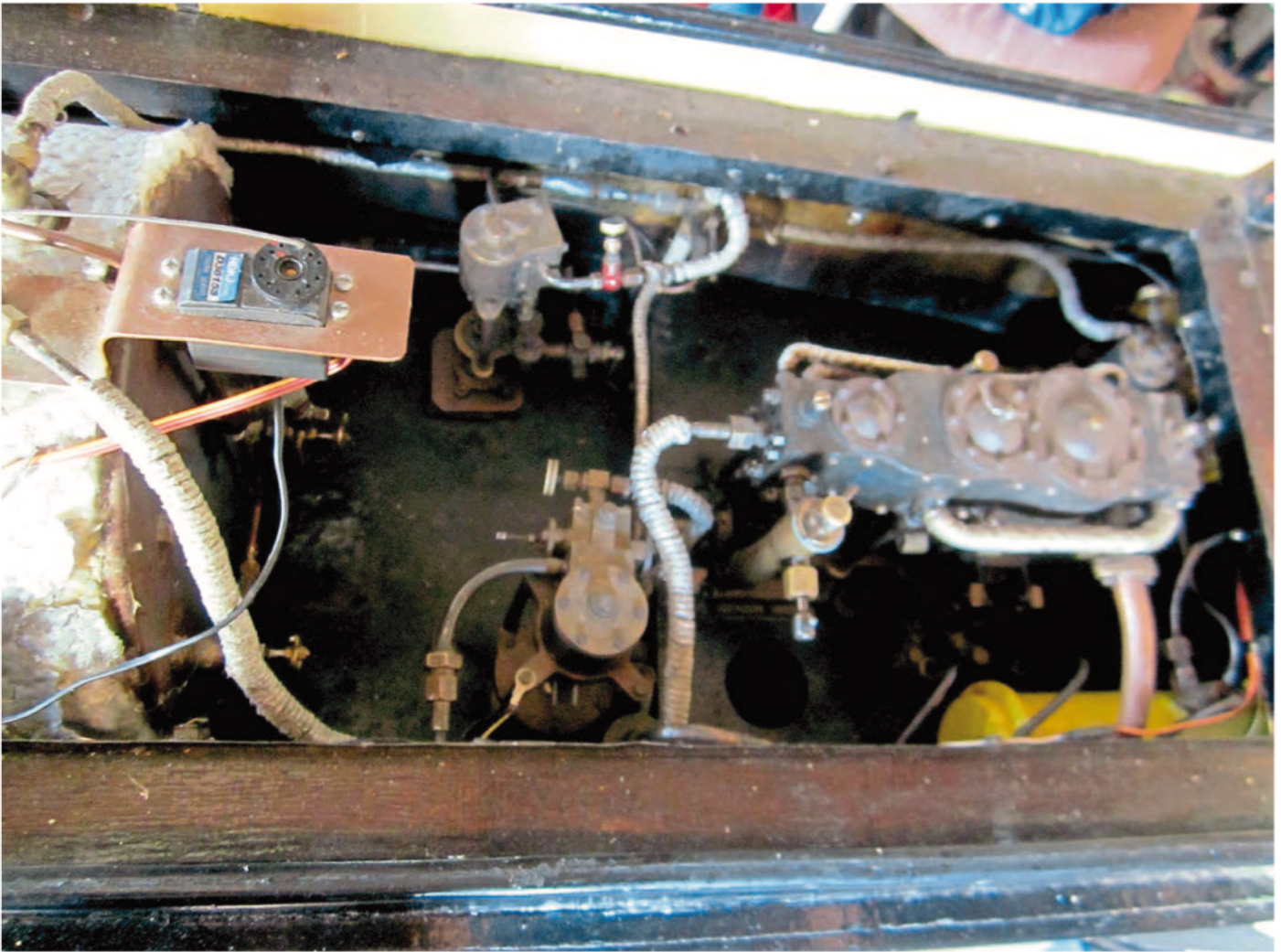
MV Joan

Alasdair Miller sets to work on getting a unique 1920s' model steam tug up and running again

Joan was, according to a plate at the front of her deck saloon, built in 1926 by Messrs Herbert & Wild, who at that time were, I believe, members of the West Hartlepool Model Power Boat Club. My friend, Charles Camera, and I acquired her when she was listed on a well-known web-based auction site about 15 years ago. The club selling her pointed out that she'd been kept on static display in a wall case for many years. It's likely she hadn't been sailed since the 1930s, and at over 74-inches in length, 17-inches in the beam and weighing in excess off one and half hundred weight, perhaps that not so surprising.

"It's likely she hadn't been sailed since the 1930s, and at over 74-inches in length, 17-inches in the beam and weighing in excess off one and half hundred weight, perhaps that not so surprising"





The engine room of Joan, showing triple expansion engine, vacuum pump, waste water return pump and radio-controlled throttle.

One of a kind

What immediately drew me to Joan, and what makes her so special, is the number of steam engines in her engine room. The main one, which drives the propellor, is a triple expansion engine made by Stuart Turner; this features two auxiliary pumps, one being a bilge pump and the other a waste steam return pump. In addition, there's a vacuum pump powering the steam condenser, a rotary sea water pump to cool the condenser and a condensate steam return pump feeding back into the boiler. As far as I am aware, Joan is the only model with all of the systems normally found in a ship's engine room.

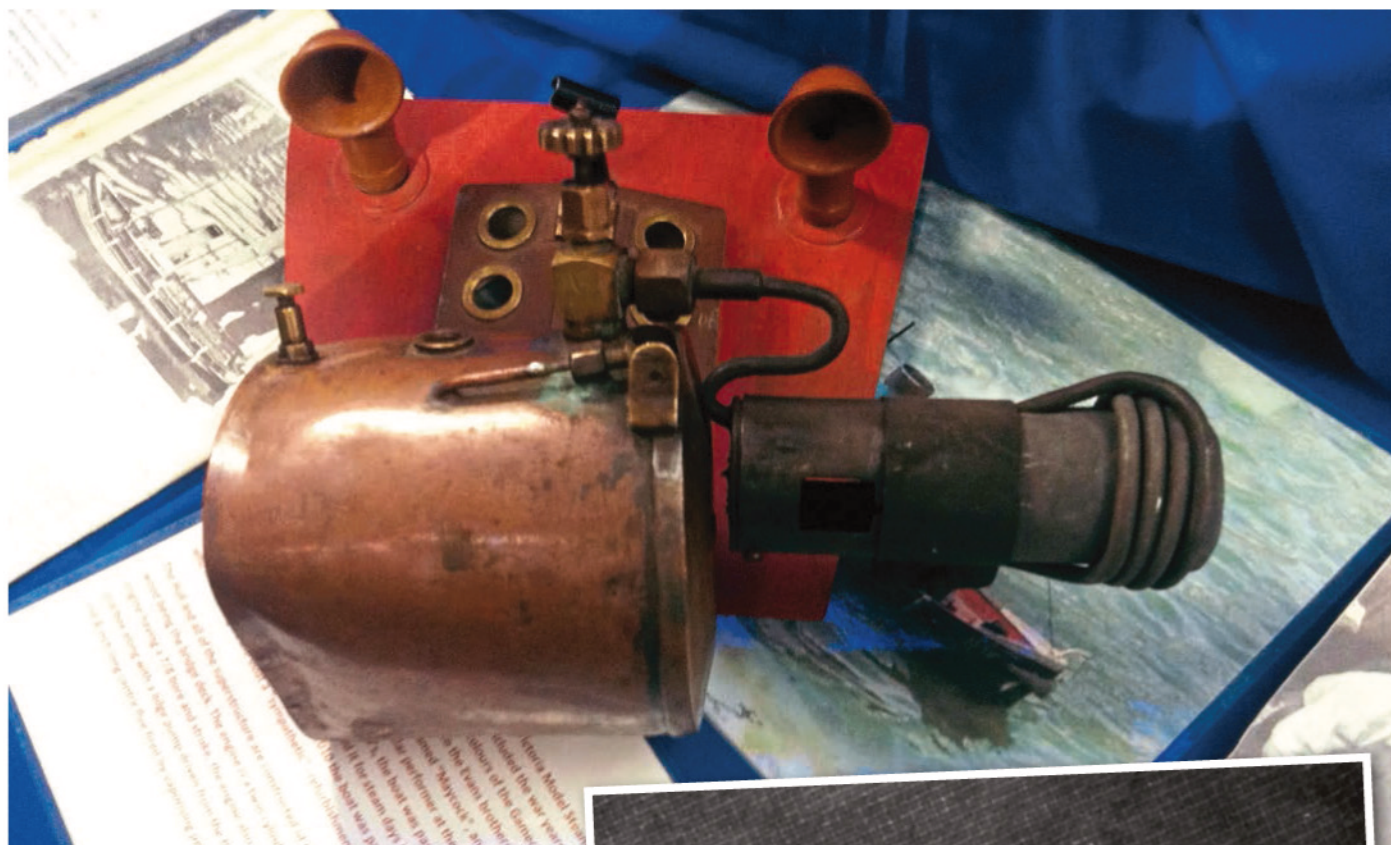
Restoration challenges

The first phase of restoration would be the boiler. The original, still in situ, was a rivetted copper boiler with brass valve fittings. Appreciating that a pressure test would need to be carried out, I took the boiler to Western Steam in Burnham-on-Sea. Unfortunately, but understandably, it was decided the original boiler was too old to be safely tested, so a new boiler was commissioned, which was certified for 160psi with a maximum operating pressure of 90psi. On completion, this was fitted into the cradle, clad with ceramic lagging and a new valve gear fitted.



Hartlepool Borough Council ©

“What immediately drew me to Joan, and what makes her so special is the number of steam engines in her engine room”



A petrol burner for a boiler, similar to the type Joan originally had.

Following this, each engine was stripped out of the engine room, cleaned, lubricated and bench tested with compressed air. All the pumps worked. Where the original gaskets had failed, new ones were cut from the appropriate thickness of card. Once the engines were all refitted, the boiler was then fired up.

It proved a challenge to find appropriate propane burners to get her up to pressure and maintain this while running all the



Hartlepool Borough Council ©

engines. Joan had been lacking a burner when I purchased her. Research at model engineering shows revealed a petrol burner would originally have been used, but these are now deemed dangerous and not easy to control. Sometimes you have to think outside the box, and eventually I solved this problem by adapting the head of a propane-powered garden flame thrower (used to kill weeds). This required minimal machining to fit into the fire hole on the boiler.

Once the burner issue had been resolved, the next conundrum was how to feed the sea water condenser pump, as it's an open circuit. This was overcome on the workbench by making a manifold that fitted over the square intake filter on the hull and affixing it with mastic. The outflow was then fed away from the hull at its exit point.

These challenges overcome, the engines were fired up and all worked. I did note that the condenser when operating improved the running speed of the triple expansion engine by about ten percent. For anyone interested, I've uploaded a video on YouTube, which can be found by typing 'Vintage model steam tug Joan' into the search engine.

These tests completed, it was time to turn to the steel hull, where a couple of the steel planks had sprung. I therefore stripped the

hull of paint in order to properly inspect it and address any issues, after which the planks were refixed with epoxy resin and the hull repainted.

Modern remote-control systems were fitted to control the engine steam regulator, steering and navigation lights using Graupner transmitters and servos. These systems were installed in such a way as to minimise any alterations to the original structure of Joan.

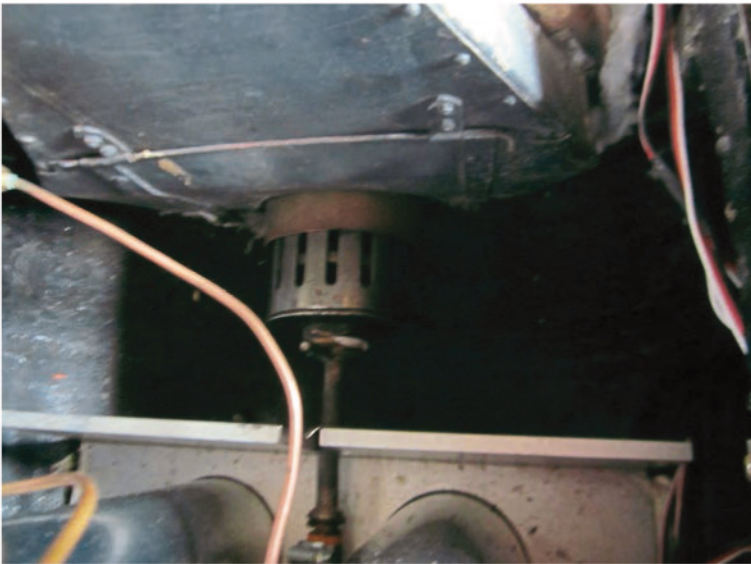
I also had to come up with a fuel supply that had safety features built in and would provide enough propane to get the boiler up to pressure on land before then switching to the onboard propane cylinders that would feed the burner via a Bix pressure switch coupled to the boiler. This was achieved by fitting push-fit quick-release Prestolok 2 couplings with an integral shut-off valve for when the external propane feed was disconnected.

Back on the water

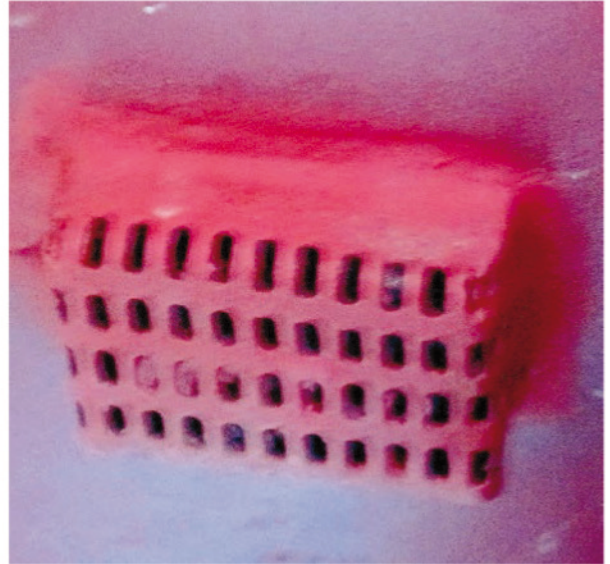
After addressing some very minor damage to her superstructure, in the autumn of 2022 Joan was finally ready for a 'sea trial' on our local pond in order to check the integrity of her hull. This, I am delighted to report, proved very successful and raised no concerns.



Alasdaair's new boiler with its end plate removed, showing fire tubes and firebox cross bracing.



The propane burner fitted to Alasdair's new boiler.

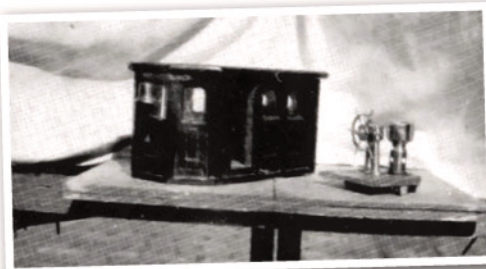


The condenser water intake filter on the outside of the hull.

"Sometimes you have to think outside the box, and eventually I solved this problem by adapting the head of a propane-powered garden flame thrower"

A little imagination goes a long way

Charles (Joan's co-owner and engineer) and I had, however, yet to identify the vessel this model represented. Based on the scale of the wheelhouse door, it would appear the full-size vessel would have been about 140ft long. Searches of the index of ships built in Hartlepool revealed that no tugboats were built there in Victorian or Edwardian times. A trawl through the Lloyd's Register at the National Maritime Museum in Falmouth failed to find any tug named Joan either. Also, examining her superstructure, interestingly she has an open staircase down into the main cabin, with no cowl against the weather (normally one would expect to see an external staircase down the outside of the main cabin). We can, therefore, only conclude that, rather than having been modelled on an



actual vessel, Joan was probably her original creators' own interpretation of a tugboat.

What is in absolutely no doubt is that Messrs Herbert & Wild deserve to be recognised and saluted for having achieved such a superb and mechanically detailed model, which nearly 100 years on still floats and runs.

For the record

More photos of Joan taken in the 1920s can be viewed online at Hartlepool History Then & Now (hhtandn.org) From these pictures it would appear Messrs. Herbert & Wild were members of the West Hartlepool Model Power Boat Club.

A photo of Joan pulling four adults and two children in a dinghy at Tynemouth is also included in Percival Marshall's book *Model Steamers and Motor Boats: How to build and run them* (updated and reprinted by Read Books Ltd in 2013).



Joan undergoing sea trials on a pond local to Alasdair, with her superstructure removed.

Your Models

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

Plans and achievements

Thank you for the free James Pottinger plan in the November 2022 issue; I have now already started work on my own 1:96 model of LT *Woodleigh*.

I have been a subscriber to *Model Boats* since 1994, as well as to the *Model Shipwright*, so I've had access to many of Mr. Pottinger's plans. I enjoy how these feature a wide variety of vessels from an era when ships really looked like ships, and that they provide enough detail to build a satisfying and accurate model. He also has me spending many pleasurable hours of further research to sort out all the fiddly bits!

When building from scratch you become very personally involved in the model, from your interpretation of the drawings,



Built from Jim Pottinger's plans for *Scarab*, David has renamed his model *Annabel Bea* for his granddaughters.

choice of materials and construction sequence. I feel that I am therefore entitled to sometimes add my own little touches, such as an extra ladder or porthole where I think there should be one, or usually changing the colour scheme. This seems to make my model unique to me; my friend calls this 'modeller's leeway'.

You've mentioned in previous issues how both you and Mr. Pottinger like to see pictures of the models built from his plans, so I would be most pleased if you'd pass on the attached photographs of seven models I've built over the years. Most have been built at 1:96 or 1:192 scale.

* *Sandpiper*, I feel, looks just as a ship should, functional and beautiful. I exhibited this model at a local show, where a visitor, who'd actually sailed on this ship (after she'd been renamed the *Ile de Saint Pierre*) congratulated me on how accurately I'd managed to capture her.

* *Ocean Unity* is based on a type of fishing boat I'd often see while on holiday as a kid. I plan to try weathering her, and some of my other models, one day, but it's currently an art form I yet to master.

* *Scarab* was built as an R/C model, and I've had lots of fun sailing her on the local pond. I've now renamed her after my granddaughters.

* *Sea Lady* presented lots of challenges

with her bulbous bow, kort nozzle and trawl booms and superstructure, but was a build that proved highly rewarding.

* I initially set out to build *Yanawai* at 1:192 but quickly decided I just couldn't incorporate all the detail I wanted to work in at this scale, so began again, this time modelling her to 1:96. I also changed her colour scheme to that of the Ellerman Line, which I really like.

* Living in St. John's Newfoundland, my model of the *Norman McCloud Rogers* represents a type of colourful Canadian Coast Guard ship seen in the harbour all the time. Finding Mr. Pottinger's plan was brilliant, and I built her with lots of upgrades, detailing her as she would have appeared before her sale to Chile. Fortunately, the CCG was really helpful and accommodating and I was shown around several ships. This is a waterline model, and I am still trying to work out how to create a sea with ice flows setting for her.

* I started work on *Kakariki* shortly after the drawings were first published but for a long time didn't get beyond the basic hull. The build resumed about 12 months ago and she is now finally finished. I've made some little changes to the proposed colour scheme and renamed her as the *Viking Way*, registered in Bosham.

* And last, but not least, work on the basic



David initially set out to build *Yanawai* at 1:192 but eventually decided to model her to 1:96 to allow the inclusion of more detail. He also changed her colour scheme to represent that of the Ellerman Line.





Built from JP's Kakariki plan but having since undergone a colour scheme change and a rename: David's striking Viking Way,



Work in progress on David's build of Woodleigh.

Ocean Unity



Sea Lady



hull and superstructure for Woodleigh is currently underway – with lots of challenges ahead!

I am now 86 years old, with 20 plus models completed during the last 40 years. My days of opting to build historic sailing ships with lots of complicated rigging have long drawn to a close, so please carry on with your super plans, Mr Pottinger! You have provided me with many, many pleasurable hours of work. I am still sailing an International One Meter around my local pond in St John's Newfoundland Canada (built from the free plan for Tony Able's Swallow, as featured in a past issue of Model Boats).

DAVID BATES
CANADA

What phenomenal work, David. I am sure Jim is going to be absolutely thrilled to see all these brilliant builds. Thank you so much for sharing them with us! Ed.



ST 74 tug

Your mini pull-out plan of the World War II US Army ST Tug (December 2022) inspired me to send photos of my first R/C build, the Dumas ST 74 tug.

The tug is a 1:48 scale model of the 74 ft small tugs built for the US Army during the war. In total, more than 700 ocean going tugs were built for service in the Pacific and European theatres. Those that served in the Pacific were painted to blend into an island environment, while those in Europe were typical Navy grey. Their mission was to move ships and supplies around port areas in support of the land-based troops.

The ST 74 was one of 88 built under Design No. 257, all of which participated in the European theatre. ST 74 was launched in Texas, November 1942, but sank at Le Havre, France in 1949.

My boat is 18-inches in length, with 5-inch beam, and is powered by four 1.5v alkaline batteries driving a 4.8V



electric motor. I added crew members and additional details based on my research and a photo of the actual boat. This was an enjoyable first build and she made her successful sailing debut in 2022.

FRANK B. COOK
MASSACHUSETTS, USA

I'm totally astonished at what a remarkable job you made of your first ever R/C build, Frank; she's absolutely superb! Ed.

Remarkably, this impressive by anyone's standards 1:48 scale ST 74 tug was Frank Cook's first ever foray into building an R/C model.



Your Letters

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

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

Pilot boats point

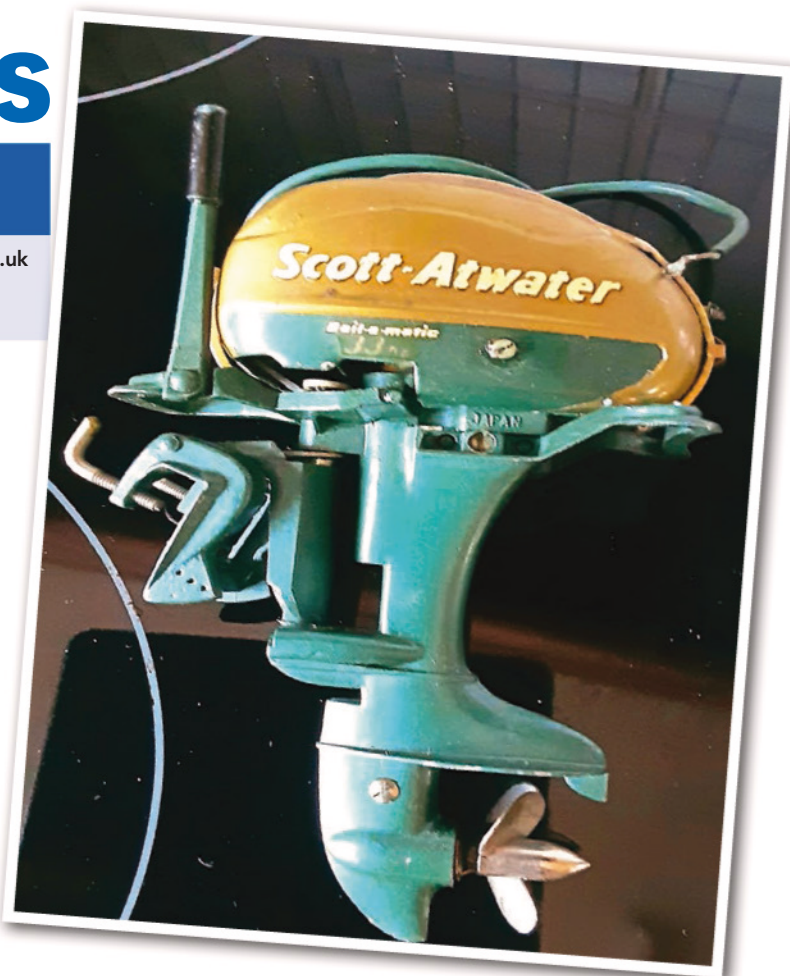
I have subscribed to Model Boats for many years now and always look forward to it dropping through my letter box.

As always, the April issue was a very good read, and I found the article about the pilot boat particularly interesting. However, during the 40 years I served as a marine pilot I spent three of them in Jeddah in Saudi Arabia and used pilot boats all the time and I've never seen or heard of a pilot boat with railings. I know it's a small technical point but when going alongside a ship and having to step from the launch onto a pilot ladder, especially in any kind of a sea, running railings would get in the way. The launch could be going up and down by three or four feet and you would have to time the moment to step onto the ladder to coincide with the launch being on top of a swell. I would also get the launch skipper to move away as soon as I was on the ladder so that if, in the worse scenario, I fell I would land in the sea and not on the launch. The sea does not break bones like a hard wooden deck might, and I had a life jacket on that would keep me afloat

until I was picked up. Fortunately, this never happened to me. The other 37 years I spent on the Manchester Ship Canal where the waters were always "flat calm" and a lot of the time the ships were at lower level in the locks, and it was possible to step on board from the lock side. Perhaps many model makers, even those who have been at sea, may not realise this.

Once again, thanks for a great magazine.
MALCOLM WATTS
EMAIL

Thank you so much for this fascinating insight, Malcolm. When I first entered the magazine world, many moons ago, the editor I was then working under tasked me with putting together the Letters pages and I will always be eternally grateful to him for that. To this day, they remain the pages I still look forward to working on most every month as, in my humble opinion, not only do they embody the heart and soul of the community a magazine serves but there is just so much to be learnt from the incredible pool of knowledge and personal experience out there. Ed.



K & O Models Inc Scott-Atwater outboard motor

Having enjoyed John Parker's 'Outboards outlined' feature in the March issue of Model Boats, I thought you might be interested in seeing mine.

My father brought it back from the USA in the late 1950s/early 1960s (definitely prior to 1963). As you can see, it's a very good scale model, much better than the examples in the article. I

even still have the original packing box it came in.

TONY CAMPLIN
EMAIL

Very cool, and, as I'm sure you're aware, highly collectable. Thanks so much for sharing these pictures with us, Tony. Ed.



Flag faux pas

I hate to be pedantic, but flag etiquette was very important at one time. As one who has been around boats and the sea all of my life it irritates me to see the misuse of flags.

In the March issue of MB there were two beautiful craft that have been marred, to my mind, by incorrect use or terminology of the flags shown.

On that beautiful slipper launch much was made of finding a Union Jack for the ensign staff at the stern of the boat. A British vessel should NEVER fly a Union Jack! Dependent on the type of vessel they should fly an ensign: a white ensign for the Royal Navy or the Royal Yacht Squadron; a blue ensign for Fleet Auxiliary and certain Royal Yacht Clubs and a red ensign for all the rest. Naval warships fly a Jack at the bow when in port only, which is a Union flag with a white border.

In the article on the up grading of *HMS Bluebell* by Richard Simpson he builds the most beautiful 'Signal' flag locker – not 'Semaphore' as stated in the article. Semaphore flags are the flags used to pass messages, a letter at a time, by arm positions of the signal man and were usually red and yellow.

Before radio voice communications the only way ships could communicate was by flag signals, so the correct use of flags was very important and there are a number of chapters in the Admiralty Manual of Seamanship devoted to the correct use of flags.

The monthly arrival of my 'comic', as my wife calls it, is always met with great anticipation and I must congratulate you and your team on a great balance that you manage between the wide range of subjects you are able to cover.

PETER SIMMONDS
EMAIL

Thanks for this helpful explanation. I'd call you passionate not pedantic, Peter. 'Mini the Minx'.

THE 103 FOOT DESIGN

Vosper's 103 ft patrol craft design was accepted by the Royal Malaysian Navy in 1967 and the first order for an outfit of the 'Kedah' class was followed in 1965, by a second order for another two and in 1966, by a further order for 14. Two similar outfits are in service with the Trinidad and Tobago Coast Guard and three with the Guyana Coast Guard and three with the Belize Coast Guard.

The craft are 103 ft overall with a beam of 18 ft. They are built of welded mild steel, with some parts of the hull and superstructure constructed of aluminium alloy. The hull is divided for sea water-tight compartments. Forward machinery, office, officers' mess, after mess, and aft deck. The hull is cathodic protection.

The length of 103 ft was selected as the smallest that would carry an 80 mm anti-aircraft gun. The hull is divided for sea water-tight compartments. Forward machinery, office, officers' mess, after mess, and aft deck. The hull is cathodic protection.

In the Malaysian Patrol Craft, the main propulsion machinery consists of two 12 cylinder MCO 655-18 Maybach diesels. These drive the shaft of a 1000 hp gearbox which is connected to a 120 knots and a maximum speed of 27 knots. The cruising range is some 1800 nautical miles at 17 knots.



Turkey 103 ft Patrol Craft



Malaysia 103 ft Patrol Craft



Malaysia 103 ft Patrol Craft



Malaysia 103 ft Patrol Craft



40 mm Bofors gun on the 103 ft Patrol Craft



40 mm Bofors gun on the 103 ft Patrol Craft

The 103 ft Patrol Craft is a fast patrol craft. It is built of welded mild steel, with some parts of the hull and superstructure constructed of aluminium alloy. The hull is divided for sea water-tight compartments. Forward machinery, office, officers' mess, after mess, and aft deck. The hull is cathodic protection.

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More info on Mike Newell's 'mystery' model

Further to Mike Newell's letter and last month's responses, I thought I would add my thoughts.

Judging from the photos, I agree with other correspondents that the superstructure shape and general characteristics suggest Mike's 'mystery' model is very likely to be based on a Vosper Thornycroft 103 ft Patrol Craft. Of the very many that were built between 1963 and 1977, only two were fitted with a single Bofors gun resembling the one shown in one in the photos – a Bofors 40/L60 naval mounting – and these were for the HMTS *Trinity* and *Courland Bay*, commissioned in 1965 to serve the Trinidad and Tobago Coastguard.

Missiles were never fitted to any of the Vosper 103 ft craft, so I suspect that a previous modeller has taken a bit of creative license here, or that Mr Newell has mistaken the single arm boat davit fitted aft as some sort of launcher. Likewise, when it comes to Pennant No. P 103, no Vosper 103 ft craft ever carried this marking, so again, perhaps a previous modeller has come up with this fictitious number. For the record, *Trinity* and *Courland Bay* wore the Pennant Nos. CG 1 and GG 2 respectively.

Veron produced a model kit of *Trinity*/*Courland Bay* in the late 1960s/early 1970s, which was 52 inches long with a single screw and rudder, and this fits Mr Newell's description

of his model (see also <https://srcmbc.org.uk/2016/01/26/hmts-courland-bay/>). Phil Smith Plans (www.vintagemodelworks.co.uk) has an archive of over 250 vintage Veron plans, and so may be able to provide accurate copies of the plans for this kit, which were titled, 'Vosper Thornycroft Fast Patrol Boat'. Fleetscale also has 1:24 scale plans (the same scale as the Veron kit) of *Trinity*, Ref. F/24/0/VFP; these are not specifically for the Veron kit but would serve admirably to assist in the completion of the model.

I am sending you four pages from a Vosper Thornycroft sales brochure. The General Arrangement drawing is of a typical 103 ft craft but for *Trinity* and *Courland Bay* only one gun is fitted (forward), which is of a different shape to that shown. Also, plenty of open-source photos of the actual craft can be found online.

I hope that this helps Mr Newell along and inspires him to complete what could be a very nice model indeed.

PETER BROWN
EMAIL

Thank you (and indeed everyone else who has offered up help and advice here) so much, Peter. I agree; it would indeed be lovely if Mr Newell now feels armed with enough information to complete a partial rebuild/restoration. Ed.

Typical 103 Foot Design Leading Particulars



103 ft Patrol Craft. The main engine



103 ft Patrol Craft. The main engine



103 ft Patrol Craft. The main engine



103 ft Patrol Craft. The main engine

Accommodation

- Captain's cabin
- Officers' mess (2)
- Steward's (2) two spare berths
- Chief Petty Officer's (2) berths
- Forward mess (2)
- After mess (2)

Fresh Water

- Types
- An evaporator can be fitted

Ventilation

- Forward and aft exhaust exhaust in galley and heads which have forced exhaust
- An evaporator can be fitted

Domestic Equipment

- Dishes, coffee, water heater, refrigerator and deep-freeze chest

Damage Control and Fire Fighting

- Complies in British Admiralty standards of watertight subdivision, bulkheads, fire doors, fire fighting equipment and damage control stores

Navigational Aids

- Day and night compasses, two electronic Radar Log, Echo Sounder

Boats and Life Rafts

- One 60 ft lifeboat with outboard engine
- Two 15 ft inflatable lifeboats
- Life preservers

Radio Equipment

- Modern ship-to-ship, ship-to-land and ship-to-air
- Voice radio and VHF communication

Main Machinery

- Two Maybach or Pielstick main engines, or as necessary to obtain the required performance

Electrical Generating Plant

- Two 400 kVA diesel generator sets
- One 200 kVA diesel generator transformer rectifier
- One 400 ampere hour lead acid battery

Steering Gear

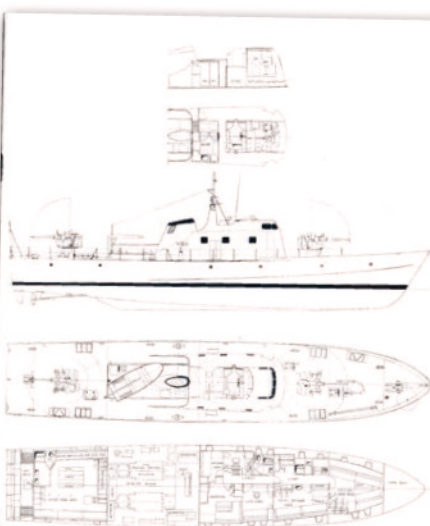
- Two 400 kVA diesel engines are fitted, connected to torque shafts to steering wheels on the open and closed bridges

Armament

- Two 40 mm Bofors guns, with 1000 rounds of ammunition
- Two 40 mm Bofors guns, with 1000 rounds of ammunition
- Small arms, machine guns, if required

Fire Protection Equipment

- Two non-retardable, gas-ventilated extinguishing fire (ship equipment)



TWIN-SCREW FAST PATROL CRAFT

PRINCIPAL DIMENSIONS

LENGTH OVERALL	103 ft 0 in	31.30 m
LENGTH WATERLINE	95 ft 0 in	29.00 m
BEAM MOULDED	18 ft 0 in	5.49 m
DEPTH MOULDED	10 ft 0 in	3.05 m
DRAFT OVER PROPELLERS	5 ft 6 in	1.68 m

CAN YOU HELP?

1970s' back issue

I wonder if you can help me track down a back issue of Model Boats in which my letter about motorising plastic kit ships models with a Mabuchi submarine electric motor was published sometime back in the early 1970s? I have scoured all the old copies from that era held by my local boat club at Saltwell Park, Gateshead in Tyne & Wear but unfortunately cannot find the edition I am looking for.

ALAN CROW
EMAIL

As much as I'd love to help, Alan, I work from home and so, without being able to trawl through the archives personally, I'd be expected (understandably, due to time constraints) to supply an issue cover date (month and year) for any historic material I put a request in for. I am, therefore, publishing your letter rather than responding in writing on the off chance that a fellow reader may recall the letter, pinpoint it to a back issue he/she still has and scan the relevant page/s for you. Here's hoping! Ed.

RMS Windsor Castle plan

I have for some time been looking for a plan of the RMS Windsor Castle, without success. I did find a picture of a model in South Africa but by the time I tried to contact the builder he had sadly passed away. Maybe someone out there in model boat land can assist? You would have thought that the one-time flagship of the Union Castle Line would merit some recognition – others do, Edinburgh Castle and Southampton Castle, for example.

My wife and I are approaching the 50th anniversary of our trip from South Africa to UK, so I want to build a model of RMS Windsor Castle in celebration of our forthcoming return visit.

Keep up the good work and we will keep subscribing. Thank you.

PAUL HARMER
SOUTH AFRICA

RNLI Tamar class lifeboat plans

I'm looking for plans from which I can build a hull for the RNLI Tamar class lifeboat. Can anyone point me in the right direction, please?

HERMAN KOCKX
EMAIL



LED testers save so much time when installing LED lighting.



Servo testers allow you to easily assess performance ahead of rigging up your radio system.

Trading tips and tricks

Like most modellers, I have, over the years, accumulated a stash of all sorts of small items, some of which have an obvious use, while others are bits and bobs that would usually only be deemed candidates for the rubbish bin but that I've discovered can be very usefully repurposed. I would, therefore, like to share just a few examples of some of my inexpensive 'must-have' pieces of kit, plus a couple of typical no cost recycling ideas.

I'll start with a couple of pieces of kit which, considering how little they cost, I wouldn't be without. LED testers save so much time when installing LED lighting. Likewise, servo testers are a Godsend when evaluating speed controllers and servos, as they save you having to first rig up the radio system first in order to do so.

Another cheap as chips item that as a modeller I've found invaluable is my small/mini tube cutter, which is so easy to use and makes light work of cutting metal tubes to size.

Equally, there are so many easy to 'borrow' or 'waste not, want not' household items that can be put to good use. Small clothes peg really come in handy for minor clamping jobs. And instead of relegating glass jars to the recycling bin, once

empty of their original contents and thoroughly washed up or put through the dishwasher, they can be used for mixing paints/varnish (with coffee stirrers, readily available in many cafes and pubs) or for cleaning your brushes. With the latter, I always line up three of these jars, each filled with water, on my workbench. I then dip the brush I want to clean into the first jar to remove the main bulk of paint before wiping it on some kitchen roll and plunging it into the second to rinse off any remaining residue; the third jar serves to test the brush is completely clean, as obviously the water will stay lovely and clear if all is good.

No doubt most of the suggestions above will already be common practice for the majority of modellers, but I am hoping that by flagging the subject up it might prompt other readers to share some of their own innovative tips, tricks and time/money saving 'hacks'.

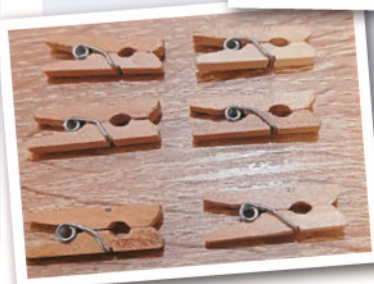
STAN REFIN
EMAIL

Thanks so much for getting the ball rolling here, Stan. Ed.

Right: A simple 'cheap as chips' mini tube cutter makes light work of cutting metal tubes to size.



Left: For minor clamping jobs, a set of small clothes pegs really come in handy.



Above: When you've finished the contents of a glass jar, don't relegate it to the recycling bin, as once thoroughly washed out it can serve as a useful receptacle in which, for example, you can mix paints, glues, etc, and/or clean your brushes.



A wide-angle photograph of a large body of water, likely a lake or reservoir, with a forested shoreline in the background. In the foreground, a small red boat with a black smokestack is visible. To its right, a yellow and black striped boat is moving across the water. Further back, a white boat and a small motorboat are visible. The water is calm with gentle ripples, and the shoreline is lined with trees and some structures.

[illegible]

CODE

Paul Freshney's Model Boats

The family of former Editor Paul Freshney have decided to sell 10 of his models. They feel they it would only be right to find owners who would be able enjoy them, as indeed Paul would have appreciated. Regular readers will know that Paul built to very high standards indeed and most of the boats are fitted out internally in almost ready to run condition with top quality components, requiring only a suitable transmitter (which may be available separately). Some of the models include 'maintenance' packs with spare parts and touch up paints.



HMS M15

Royal Navy WW1 Small Monitor.
1:48 scale

Award winning museum quality scratchbuilt model which gained a Silver Medal at the 2005 Model Engineer Exhibition together with the H V Evans Trophy for research. Fitted out with brushed motors, Spectrum compatible RX and ESC and RX battery but needs main battery. Model length 1128mm (44.4 inches)
Price £1,000



HMS Aveley

Ley Class Minehunter 1:35 scale

This superb model is based on a MTB Models 1:35 Ham/Ley GRP hull. National Maritime Museum plans were used together with photographs from a number of sources. Aveley is mostly scratchbuilt but incorporates some very high quality 3D printed fittings. Fitted with brushless motors, LiPo battery, ESCs and Spektrum compatible RX with telemetry. (TX not included but may be available separately)

Model length: 915mm (36 inches) **Price £800**



HDML 1384 (Small)

A Harbour Defence Motor Launch at 1:35 scale.

This highly detailed model is based on a 1:35 scale GRP hull obtained from MTB Hulls (Gibraltar) using John Lambert plans and his definitive book enabling an accurate example of this class to be built. Upperworks mostly scratchbuilt with fittings 3D printed to Paul's designs and some commercial components. Fitted with brushed motors, LiPo battery and ESC plus Spektrum compatible RX.

Model length 610mm (25 inches) **Price £500**



RNLB Lifetime Care

Mersey Class Lifeboat 1:20 Scale

A beautifully made full kit from Manfred Sievers of Germany which demonstrates Paul's expert painting skills. Fitted with brushless motors, LiPo battery, ESCs and Spektrum compatible RX. Model length is 581mm (23 inches)

Price £500



HDML 1384 (Large)

A Harbour Defence Motor Launch at 1:24 scale.

This larger version of HDML 1384 uses a hull from PBM mouldings but is otherwise entirely scratch built with the exception of a few fittings. Like its smaller counterpart, it was built from John Lambert plans and book and has a very impressive presence on the pond.

Fitted with two Buehler motors, NiMH battery, ESC and Spektrum compatible RX.

Model length is 915mm (36 inches)

Price £450



HMS Astute

Static diving submarine 1:144 scale.

Ready to run

This is a beautifully constructed and conveniently sized static diving conversion of the Trumpeter kit using a dedicated dive system from Maximus Modellbau (Germany). The model is supplied together with a Graupner MC12 40Mhz transmitter and R700 receiver. Model length: 670mm (28 inches)

Price £400



Habicht

2012 German Police Launch - 1:20 Scale

Attractive, well finished and fitted out example of the twin screw Manfred Sievers kit. Includes brushless motors and ESCs plus Spektrum compatible RX but requires a LiPo battery.

Model Length 600mm (24 inches)

Price £300



Rosemarie

Cygnus 33 Inshore Trawler 1:16 scale

Colourful atmospheric model based on the Models by Design semi kit but with numerous enhancements and extra detail. A brushless motor is fitted with LiPo battery, ESC and Spektrum compatible RX.

Model length: 635mm (25 inches)

Price £250



Vosper MTB 77

R/C Conversion of the 1:35 Scale

Italeri 72 Foot MTB Plastic Kit

Paul has made a very neat job of converting this popular kit which is fitted with motor, ESC and Spektrum compatible RX but requires a 25 or 35 LiPo battery.

Model length 624mm (26 inches)

Price £250



LCM 6

1:24 scale Landing Craft Mechanised
from Deans Marine kit

An extensively modified and improved version of the Deans Marine kit of the US Navy landing craft. A very popular model boating subject. Two vehicles are included.

This model is NOT fitted out internally as sold but has been sailed and is suitable for R/C

Model length 710mm (28 inches)

Price £125

More detailed information and illustrations covering all the models can be obtained by emailing pfreshneyboats@gmail.com for a pdf file.

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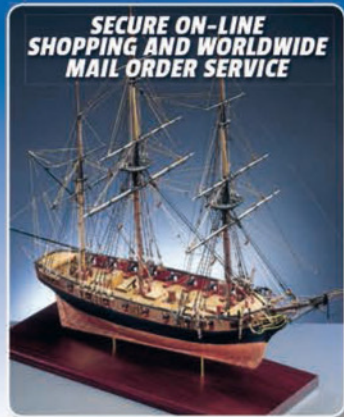
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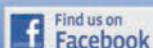
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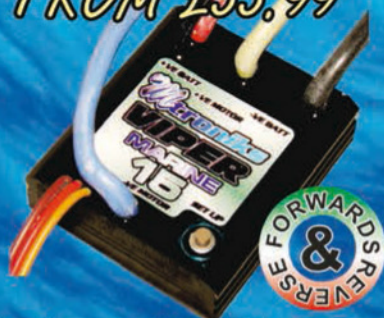
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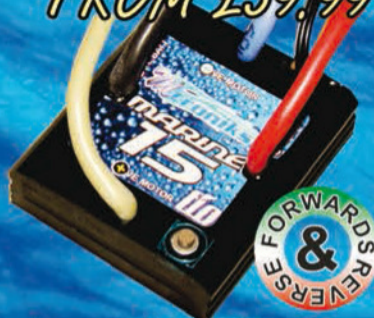
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Boats

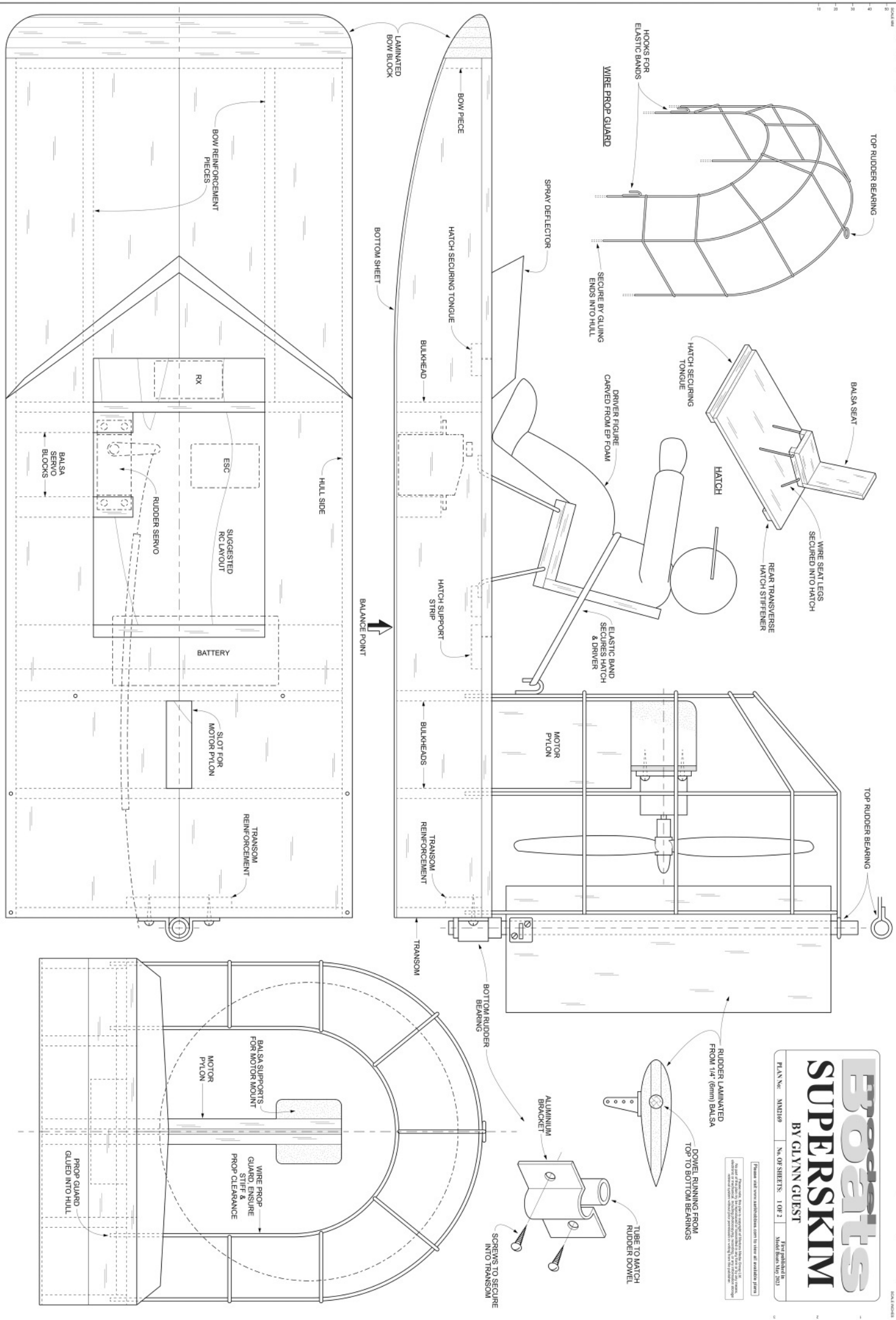
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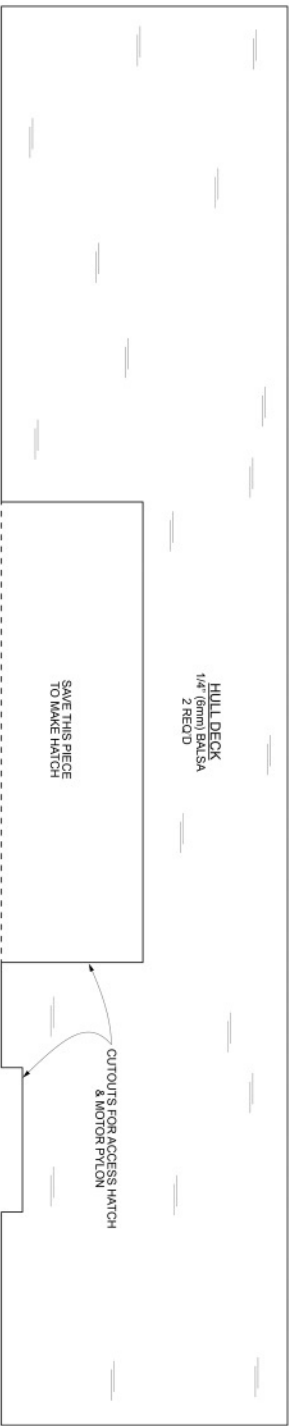
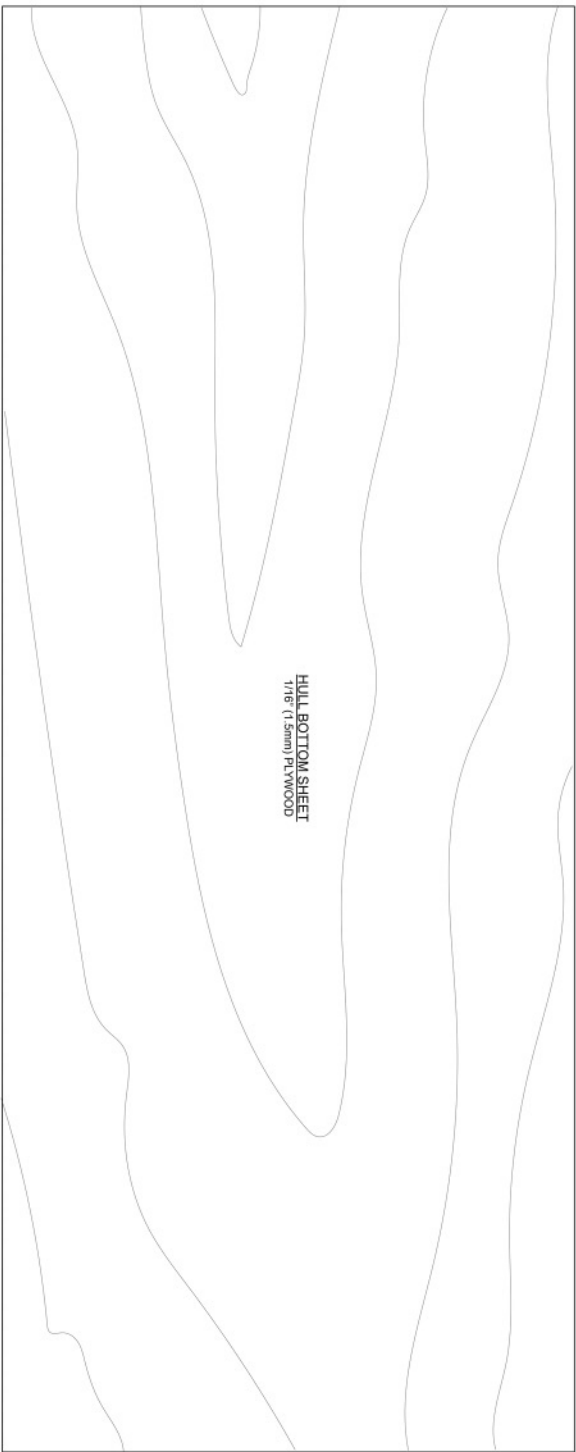
BY GLYNN GUEST

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