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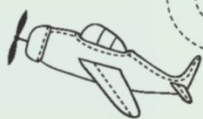
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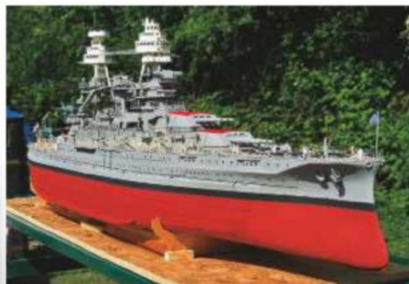
contents

Regular Features

6

COMPASS 360

General items, what's on, comment and Model Mania at Shildon



30

RANGE FINDER

Dave Wooley's Worldwide Review of Warships and Warship Modelling includes the on the water trials of Joseph Slydlowski's superb 1:72 scale USS Arizona, the Agerholm Model regarded as one of the best shipbuilder's models ever produced and we are into final completion stages of HMS Skirmisher



38

FLOTSAM & JETSAM

John Parker looks at Hobbies Ltd established in 1877

42

GALLERY RMS ST. HELENA

Fraser Gray records this soon to be retired famous ship's 2016 visit to the Thames and London



62

BOILER ROOM

Richard Simpson reviews Stuart Models

66

AROUND THE CLUBS

This features the Manannan Model Boat Festival, reported by Gareth Jones



68

READERS' MODELS

Peter Blanchard's unusual Shed on a Boat model is featured

70

TEST BENCH

New items for the modeller

73

READERS' FREE CLASSIFIED

Your free private advertisements



74

BMPRS NEWS

Craig Dickson reports from Kingsbury Water Park

10 USNS SIOUX PART ONE

Alan Owens builds a unique model of a US Navy tug



Bow piece



This 84 page issue includes Part One of a major new feature on the construction by Alan Owens of a superb and highly detailed radio control model of the USNS Sioux naval tug. Ashley Needham, a stalwart of the Model Boats Forum returns with his Thornycroft Terrapin, a comparatively unknown WW2 amphibious craft and Tony Wright has a New Plan for a radio controlled open leisure boat named Sunday Best.

At the other end of the size spectrum, we welcome Francis Macnaughton to these pages with his neat Plastic Magic conversion of the Airfix 1:72 scale ASRL to radio control, and Andy Cope has been busy once again successfully building a working model of the famous and revolutionary British SRN-6 hovercraft. There are the usual regulars of Range Finder, Boiler Room, Flotsam & Jetsam, Test Bench, Your Free Advertisements and BMPRS News, plus we have an in-depth report from the Isle of Man of the 2016 Manannan Model Boat Festival and in Readers' Models, an unusual radio controlled 'Shed on a Boat' is featured.

As always, I hope there is something here for everyone in these 84 pages.

Paul Freshney - Editor

Special Features

22 THORNYCROFT TERRAPIN

Ashley Needham builds another unusual radio controlled model



44 NEW PLAN! SUNDAY BEST

Tony Wright presents a new plan now available from MyHobbyStore for a radio controlled open leisure launch



50 PLASTIC MAGIC! AIR SEA RESCUE LAUNCH

Francis Macnaughton converts the Airfix 1:72 scale plastic kit to radio control



56 SRN-6 HOVERCRAFT

Andy Cope builds this famous 1960's British invention



Compass 360

Model Boats notice board for your news

Editorial Contact - Paul Freshney

You can reach the Editor, Paul Freshney, on 01277 849927. The editorial postal address is: Model Boats, PO Box 9890, Brentwood, CM14 9EF.

The email is editor@modelboats.co.uk

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Adrian's Marine Figures

This marine figure manufacturer and supplier has been sold to Mountfleet Models with effect from September 2016. Adrian Clutterbuck, previous owner of Adrian's Marine Figures, says that the sale is due to his wife Sue's ongoing health issues. He would like to thank all their customers, from the UK and abroad, who have made the business so enjoyable over the years and would also like to thank fellow traders for their help and support, particularly over the past 12 months.

Adam Slater of Mountfleet Models is keen to continue the figure range and has also purchased all the moulds needed, so as to continue production in the future. The figures will also be available from the Mountfleet Models show stand at all major model boat

events henceforth.

Any enquiries concerning the purchase and supply of crew figures should now be made to Mountfleet Models:

Tel: 01977 620386

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Third Party Liability Insurance

On various forums the question of insurance requirements whilst operating a model boat has frequently arisen. I have been a member for many years of the Model Power Boat Association (MPBA) which includes public liability insurance for all its members. Those who are not in a directly affiliated club are catered for by the MPBA's own Countrywide Club. The amount of public liability cover is £5 million and for Countrywide Members such as myself, being over 60

International Model Boat Show 2016

Widely regarded as one of the UK leading marine modelling exhibitions, this will take place from the **11th to 13th November 2016** at the Warwickshire Exhibition Centre, near Leamington Spa. Visitors will be treated to a packed hall with over 600 fantastic models from the 30+ club and society displays, and on the large boating pool.

Over 20 specialist suppliers will also be present offering visitors everything they could need for their projects. There are discounted prices for advance tickets.

Website: www.modelboatshow.co.uk **Tel:** 01926 614101

years old, the cost is currently just £19 per annum. In addition they send a newsletter at intervals during the year and a Year Book with a listing of all their regattas etc.

I mention this, because sometimes purchasing an individual personal policy for oneself can be quite expensive. The MPBA also represents the UK on international committees and entries for World and European Championship events, whether they be for scale r/c, powerboats, hydroplanes, static models etc. are usually funnelled through this organisation who have the necessary foreign contacts. The Model Power Boat Association can be found at:

Website: www.mpba.org.uk

Email: membershipsec@mpba.org.uk

membershipsec@mpba.org.uk

Paul Freshney - Editor

MyHobbyStore & Subscriptions

MyHobbyStore is the retail division of this publishing group. I frequently receive telephone calls regarding the absence of a direct phone line for MyHobbyStore, it only offering an online service, particularly for our huge range of plans. Regrettably, this arrangement is nothing to do with me and the editorial office cannot assist or process orders. However, I understand that ordering arrangements may change in the not too distant future, so please watch this space.

Not infrequently, readers also send their Subscription queries direct to me, usually by email. Unfortunately, I (and Colin Bishop on the MB Forum) can do little to resolve these occasional problems as the subscription arrangements for this magazine and all the others in the MyTimeMedia portfolio are handled by an outside company. The direct email, and telephone number for subscription queries is on

Page 4 of any copy of MB, but please do include your full name and address if sending an email. Subscribers to Print + Digital, or Digital alone, as part of those packages can also access the Model Boats magazine archives back to January 2007. Those who wish to avail themselves of this, do however have to join using the facility on the MB website. If the system will not accept the subscriber's reference number, then editorially there is not much we can do about it, any emails we receive being forwarded to the Subscriptions Dept. email address on Page 4, since we (Colin and I) do not have access to the database.

Paul Freshney - Editor

Southern Model Show - 2016

This was held over the weekend of **10th & 11th September 2016** at Headcorn Aerodrome in Kent, in association with the Maidstone MFC. I popped down on the Saturday and there was a decent marine trade and club presence, plus a large temporary pond that was in regular use. The event is multi-discipline covering cars, tanks, trucks planes, helicopters and of course boats, but for 2016 also included an arts and crafts village, so making it very much a family orientated event. Notably the model aircraft flying displays were quite spectacular. The only problem for me was, as always, the Dartford Crossing and the A13 on the North side of the Thames, both of which nowadays always seem to have delays, whatever time of day you travel, but we are told it will get better...

Anyway, it was a decent show with good trade and model boating support, so well worth looking out for at around the same dates in 2017.

Paul Freshney - Editor

Blackpool Model Boat Show - 2016

A final reminder that this is being held on **22nd and 23rd October 2016** at the Norbreck Castle Hotel, Queens Promenade, Blackpool, FY2 9AA, UK. This event is back again for 2016, but under new management. Following the emigration of the event's previous headline sponsor, the show is now being sponsored by iComponent Shop and this year promises to be bigger and better than ever with the inclusion of model tanks, trucks and cars. This year sees the event return to its previous home of the Norbreck Castle Hotel, but will now use two halls at the hotel, rather than just one previously. Hundreds of models on display as well as a boat pool, truck roadway and tank range. Admission £6.00 for one day, or £9.00 for the weekend. Full details at: www.blackpoolmodelboatshow.co.uk or please tel: 01248 719353 (office hours).

Model Mania at Shildon

Roker Park MBC promoting the hobby

This is an annual event at Locomotion; The National Railway Museum in Shildon, County Durham. This year (2016) the show was held on 6th and 7th August and the museum staff invite individual model makers and clubs from across the North East of the UK to showcase their hobbies on stalls set amongst the railway locomotives and rolling stock exhibits housed in their vast modern museum hall. Exhibitors include model aircraft, working model trucks, the North East Meccano Society, Film & TV Model Club, wood carvers and fretwork as well as the inevitable Model Railway

layouts of various gauges and model boats.

This year, and for the second time, Roker Park MBC were invited to represent model boating and they organised a stand of some 25 models covering all aspects of the hobby from sail to submarines, paddlers to puffers and everything in between. The Roker Park MBC stand was set beside Sir Winston's funeral boxcar and the Advanced Passenger Train (APT).

With such a wide variety on offer, visitors and exhibitors alike had plenty to discuss and ideas to exchange. Museum entry is free,

but donations are requested. There is a well stocked shop and café on site and live steam train rides on the standard gauge track as well as a 5 inch gauge railway provided by South Durham Model Engineers.

Roker Park Model Boat Club

The club meets every Sunday, Tuesday & Thursday from 9am until 11am at the model boating lake in Roker Park, Roker Park Rd, Sunderland, SR6 9NB. Further information on the club's website.

Website: www.rokerparkmbc.webeden.co.uk

Information supplied by John Wilson



ABOVE: Ernie Dawson's Emily Louise barge.



ABOVE: The Roker Park MBC stand was between Sir Winston Churchill's funeral boxcar and the APT.



BELOW: Ray Bell's Our Lass II.



BELOW: Yorkshireman is by Bob Scafton from a Model slipway kit.

**The Model Boats
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Union Castle Liner

River Queen

Next month in **model Boats**

This 100 Page Special Issue will include a range of in-depth articles including River Queen based on a Models by Design hull; a new Feature Plan from Glynn Guest for a Union-Castle Cargo Liner; HMS Poppy, a fantastic diorama built around the Revell HMCS Snowberry kit; John Parker explains everything you need to know about LED's; Richard Simpson discusses Ship Terminology; Dave Wooley examines Builder's Models; Craig Dickson looks at a D-Class Racing Boat and there are other exciting in-depth and useful marine related articles.

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

We have a great range of subscription packages that you can choose from, including **our new Print + Digital package** which give subscribers 13 issues a year with 6 free plans, 13 digital editions to download and keep PLUS access to an Online Archive dating all the way back to January 2007.

Don't forget! The Winter special issue will be published on



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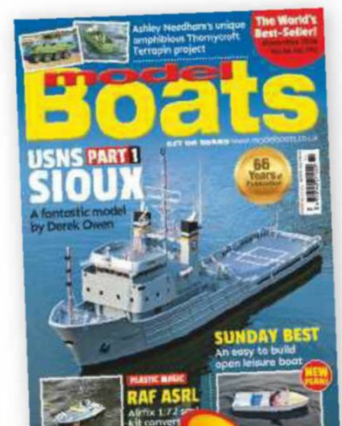
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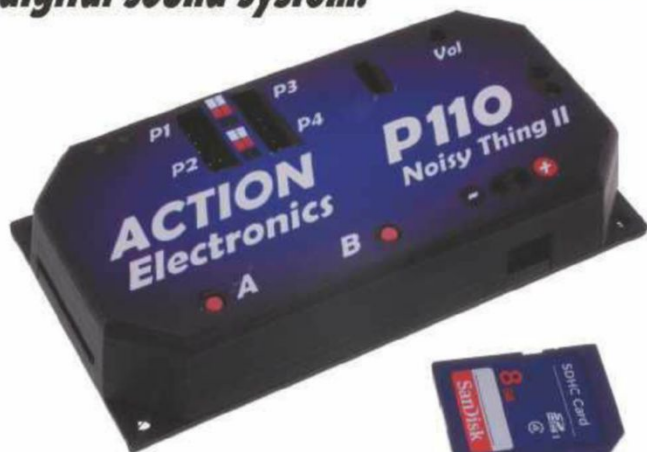
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PART 1

Sioux (T-ATF-171)

Alan Owens'
scratch built US
Navy tug to 1:48
scale

The ocean tugs of the US Navy's Powhatan class, which entered service between 1979 and 1981, remain the most recent such vessels in the American fleet. Only the first two Nimitz class aircraft carriers have been operating longer, thanks to a round of costly life-extending modernisations. Meanwhile, these tugs have been quietly working for the last four decades essentially as they left the shipyard, with only minor updates over the years.

The concept

The Powhatan Class of fleet tug was conceived in 1974 as successors to the tremendously successful Navajo Class of fleet tugs of WW2, the largest class of seagoing tugs ever built. As capable as the wartime tugs were, some of which are still in service with foreign navies after more than 70 years, in the Navy's eyes they were underpowered, labour intensive and simply past their prime. The replacement tugs were designed to come to the aid of the largest ships in the modern fleet, towing them to safety over considerable distances if necessary. They were to have a thorough complement of salvage equipment, the capacity to carry larger deck loads, and be equipped with the latest in electronic automation.

The Powhatan's were a radical departure from the traditional design of their forebears. It was understood that the general layout of commercial offshore supply vessels was better suited to the Navy's needs, so it was directed that the new tugs be arranged similarly with tall bows for good sea-

keeping, a deckhouse located high and forward for superior visibility, and a broad fantail to facilitate a wide variety of tasks. These similarities were really only skin deep however, as the new tugs were designed from the keel up with naval requirements in mind. At 226 feet in length and 2260 tons displacement they were significantly larger than their predecessors and their twin EMD-20 diesels produced double the horsepower to allow them to extract the largest ships from the battle zone. To help deliver all that pulling power, they were equipped with controllable reversible pitch props, Kort nozzles and two separate towing winches, a synthetic rope traction winch for smaller tows, and a 2.25 inch wire rope automatic towing machine capable of handling anything afloat.

The new tugs also had extensive salvage and fire-fighting capabilities. A 9000 pound Moorfast anchor was located in the bow to facilitate de-beaching operations, and this could be augmented with powerful hydraulic pullers if extra persuasion was needed. The fantail was fitted with a grid of one inch bolt receptacles, allowing practically anything to be secured to the deck for special operations and a large stern roller was incorporated into the transom to permit heavy lifting and dive support. A 10 ton electro-hydraulic crane provided the same lifting capacity as the older tugs, but in a much more compact package and a bow thruster enabled precise positioning. Two diesel driven off-ship fire pumps supplied up to 2200 gallons of water and foam each minute and redundant external manifolds and hose stations provided even more



fire-fighting versatility.

Despite all of this additional size and capability, the new ships required only a crew of 16, compared to the 70 plus persons needed to operate the older tugs. This reduction in manpower was largely as a result of automation, from an engine room that could operate unmanned, to a crane which required only one person at the controls (no more kingposts, winches and vang). The propulsion systems of the T-ATF could be controlled from three separate locations: the engine room, bridge or from the winch control station overlooking the fantail. From this last station, the engines and props could be worked in concert with signals from the towing machines and commands from the winch operator, providing just the right amount of thrust at the right time. Even the Norman pins were hydraulically actuated, and could be raised or lowered at the touch of a button.

All these advancements came at a cost however. The Navy had originally planned for ten ships, but at \$17 million each only seven were approved. Further savings were realised by transferring the completed tugs to Military Sealift Command, where they would be crewed by civil service mariners.

Construction

Marinette Marine Corporation of Marinette, Wisconsin was awarded the contract for the new vessels and the keel for the class leader was laid in September 1976. Construction of the first ship was plagued by delays, and USNS Powhatan (T-ATF-166) did not enter service until June 1979.

Three more tugs, Narragansett, Catawba and Navajo, followed in quick succession however. As this first batch of tugs was nearing completion, work commenced on the remaining T-ATF's approved for construction. Although all seven tugs appeared identical to the casual observer, the last three ships (Mohawk, Sioux and Apache) actually incorporated a host of small improvements over their earlier brethren; the most noticeable of which was an extended forward breakwater to better shelter the anchor handling machinery in heavy seas.

All have proved to be invaluable additions to the fleet and are well suited to the myriad of tasks they were designed to provide. Three of the tugs were removed from service as the fleet downsized in the late-1990's: Powhatan now serves the Turkish Navy (which, coincidentally, still operates an old Navajo-class tug (the former USS Sioux, ATF-75) and Narragansett has been leased into commercial service. Only Mohawk sits inactive, held in reserve at the Philadelphia Navy Yard.

The remaining four tugs, Catawba, Navajo, Sioux and Apache, have soldiered on with scarcely a reprieve for 37 years. Even so, the eminent retirement of these hardworking ships is looming. Plans are underway to replace the T-ATF's with a combined towing and salvage vessel called the T-ATS(X). Although the design is not yet finalised, construction is scheduled to commence in 2018. The last Powhatan class tug will be relegated to history by 2024, but if the endurance of their predecessors is any indication, they are likely to serve their future owners for some time to come.

USNS Sioux to 148 scale





ABOVE: USNS Sioux (T-ATF-171) during sea trials in Sturgeon Bay, Wisconsin, in April of 1981

Service history

USNS Sioux (T-ATF-171) is the sixth of seven T-ATF's, and entered service in May 1981. Her delivery voyage took her across the Great Lakes, down the East Coast, through the Panama Canal, and finally to her home port of San Diego in California. Since then, she has been engaged in countless operations throughout the Pacific; from routine movements of barges and naval craft, to clearing out the Suisun Bay Reserve Fleet by towing retired warships out to sea for use as missile, torpedo, or gunnery targets. Search, salvage and diving operations constitute much of her activities, whether on actual missions or conducting training exercises to keep her crew and diving detachment sharp. Aircraft recovery (both military and commercial) has been a frequent part of her repertoire, some of which have been salvaged from considerable depth.

Sioux often serves in a rescue capacity as well, coming to the aid of naval or civilian craft in distress. She recently responded to an emergency involving the Canadian oiler HMCS Protecteur, which had lost all power after experiencing a serious engine room fire in the middle of the Pacific. The venerable tug departed Pearl Harbor with all speed, rendezvoused with Protecteur in the midst of a severe storm, and hooked up the tow in 12 foot seas. She and her charge arrived safely back at Hawaii after four arduous days, an effort that earned her the

Canadian Forces Unit Commendation.

Her crew have no time to rest on their laurels however. She is at sea for more than 30% of each year, a rate of activity that most combatants struggle to attain, and though her efforts are often overshadowed by sleek new designs and the latest in naval technology, the hard-working tug continues to support the fleet in countless unsung ways, year after year.

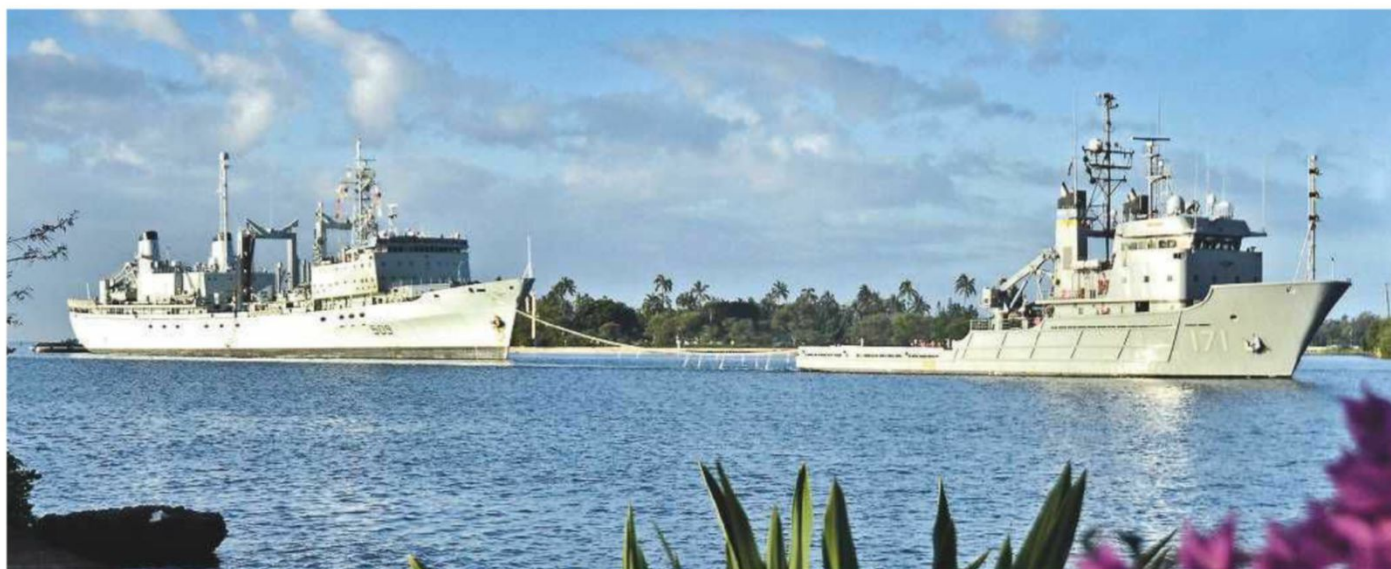
Research

My education is in marine engineering, but I was an avid model maker long before I set foot on my first ship. I was fortunate to have served aboard the Sioux several years ago, and I knew that I would someday attempt a model of her even as I walked up the gangway. So I made a point to document everything I could during my time aboard; taking roll after roll of photos (if only there were digital cameras back then!) and making photocopies of the set of plans that were aboard. I also accumulated a boxful of manuals for the various pieces of equipment, which proved to be a tremendous help later. The Chief Engineer was even kind enough to donate photos of the ship when in dry-dock.

I prefer my models to represent vessels as they left the shipyard, unmolested by time and modifications. Sioux had been in service nearly two decades by the time I was aboard, so I spent the next few years tracking down documentation from her earliest days, something which was no easy task. Eventually I turned to Marinette Marine for help, and they were able to provide a complete set of photos of the ship under construction and on sea trials. They even threw in some photos of the other T-ATF's fitting out. Military Sealift Command helped fill in the rest of the blanks, with detailed scans of structural plans, equipment drawings, and system arrangements.

All in all, I was blessed to have probably the most comprehensive documentation one could ever ask for to help create a scale model; a feat I probably won't be able to duplicate again. As it was, a full 12 years elapsed before I finally made a start on the model and another 3 years before it was actually complete.

BELOW: USNS Sioux arrives at Pearl Harbor on 6th March 2014 with HMCS Protecteur in tow which had been crippled by an engine room fire whilst en route to Vancouver.



Model construction

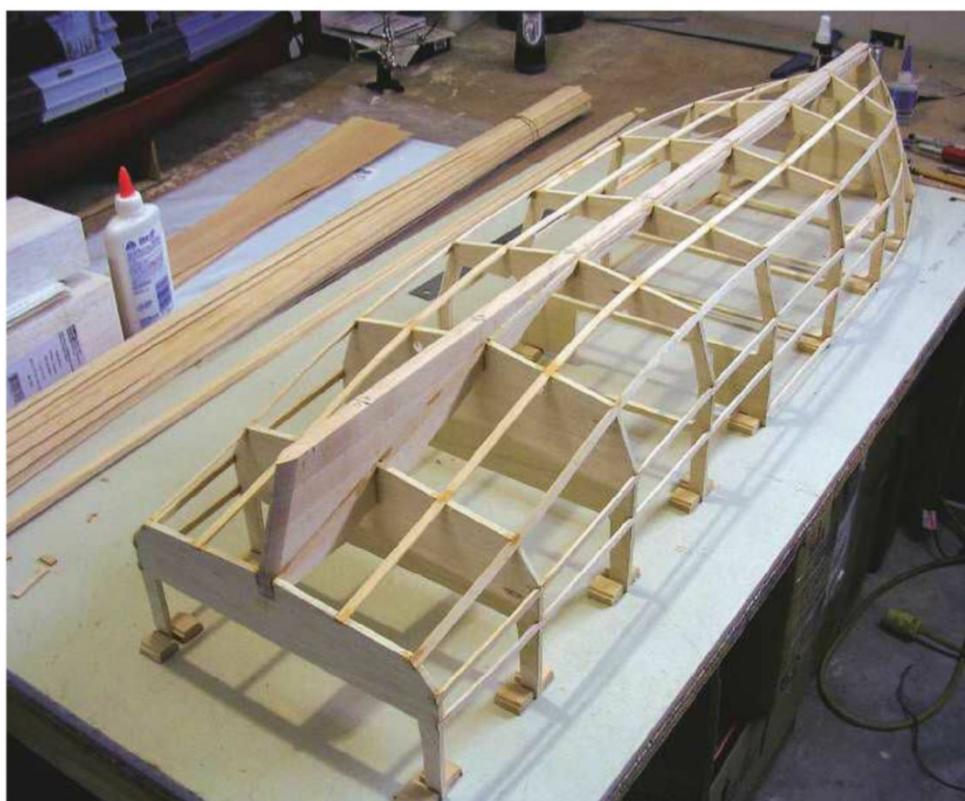
For the sake of keeping this article a reasonable length I won't be covering each and every step of construction. After all, there are any number of well-written articles out there that describe the process of traditional hull construction and outfitting for radio control, many of which have been published here in Model Boats. What follows is an overview of basic construction and a focus on those features that are unique to this project.

I decided to stick with the scale of the builder's plans, which was 1/4 inch to the foot (or 1:48 scale). This yielded a hull just under 57 inches (144cm) long, which is a good size for adding accessories and detailing. Construction is of the traditional plank-on-frame method, utilizing a 1/2 inch thick Maple keel and 1/6 inch Birch plywood frames. As with most of my hulls, I stop at a bulkhead at the extreme bow and stern and use solid blocks to finish each end. The hull of this tug is unique in that it has a double-chine, the lowest of which forms a very sharp transition at the turn of the bilge. The upper chine is less pronounced, but becomes increasingly prominent near the stern. It would have been difficult, though not impossible, to replicate the chines with standard longitudinal planking, so elected to use shorter Basswood planks in a 'radial' fashion instead. This enabled sharp chines to be created and strengthened the entire hull considerably.

Running gear consists of Raboesch ball bearing shafts and propellers, with twin direct-drive MFA Torpedo 800 motors on separate Mtroniks speed controllers. This was a straightforward set-up, but



ABOVE: The inside of the hull after planking, showing the radial planking technique to good effect.



ABOVE: The hull framed-up on the building board. Note the chines and reinforcement strips.



ABOVE: The completed hull with bow and stern blocks fitted, prior to fibreglassing.

LEFT: The fully-planked hull looking forward.

RIGHT: The motors had to be installed upside-down to keep the shafts parallel to the keel.





ABOVE: The completed hull in primer after the rubbing strakes were installed and yes, that is another tug behind!

ABOVE RIGHT: View of the exposed portion of the shafts with styrene fairings installed for extra realism.

RIGHT: The Kort nozzles were made from 2 inch (50mm) PVC couplings, sanded to shape on a wood lathe.



the Kort nozzles were a little more problematic. I could not find any commercially-made nozzles of the correct diameter or shape and contemplated several possible building techniques before settling on 2 inch PVC pipe couplings. These had a nearly perfect inside diameter and would be unaffected by long periods in the water. These PVC couplings were inserted in a wood lathe, and shaped with heavy grit sandpaper. Slowly the correct shape appeared and then gradually switching to finer grades of sandpaper, they were finally finished. Although time-consuming, the result is better than one could have expected and best of all they were cheap.

The motors had to be mounted upside-down to get them low enough in the hull to keep the propshafts parallel with the keel. Of course service or replacement is nearly impossible in this configuration, but these are top quality motors and I've never had a problem with them and hopefully never will. A Graupner bow thruster was also fitted, which is accessible, and balsawood blocks used to make the fairings from the shell to the thruster tube. Finally, the rudders were soldered together from brass sheet and then roughed-up with heavy grit sandpaper to facilitate bonding to polyester filler

which creates their contours.

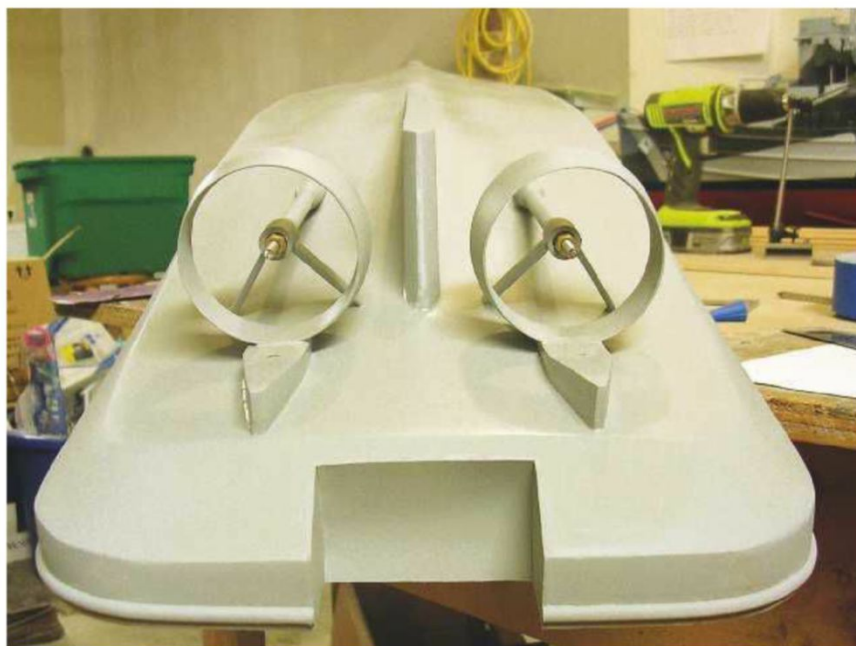
Two 12 volt, 8.5 amp hour lead acid batteries provide sufficient power for propulsion and the various accessories, as well as most of the required ballast. The advantage of the extra room in the hull means that a terminal Bus block can be installed, which cut down on the amount of wiring and provides a convenient location to pick up power for those accessories, which will be discussed later.

Main deck

With the hull, running gear and most of the wiring complete, attention turned to fitting and detailing the main deck. Working in styrene from this point upwards is the preferred method, since it's not subject to warping, reduces topside weight and is inherently waterproof. What's more, there is no grain to fill, no splintering or splitting to worry about and every shape imaginable is available for detail work. Before fitting the deck, a grid of supporting wood beams was installed to take any deck loads that the model might have. Once those were in place, the bottom side of the deck was roughed-up and glued to them with thick superglue.

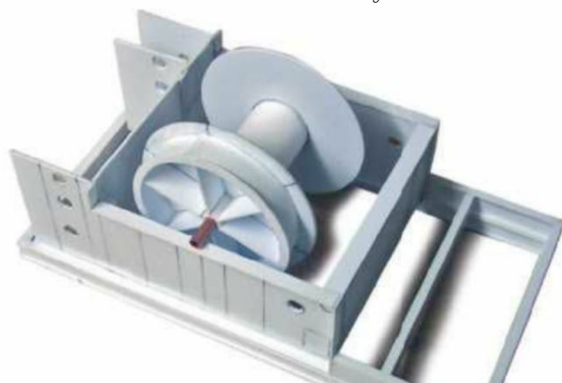
A question frequently asked about this T-ATF model is how to have access to the critical components inside the hull with the main deckhouse located so far forward. The answer is unfortunately that you can't, unless you're willing to incorporate a large, unsightly access panel on the fantail which I just wasn't willing to do. The motors are inaccessible anyway because of their mounting arrangement, but a path was left down the centre of the hull so that the batteries can be replaced by pulling them forward and out. A peculiar feature of the T-ATF not obvious in most photos is that the main deck actually extends underneath the deckhouse, restricting hull access even further. This could have been eliminated by ending the deck just aft of the traction winch, but once again going for accuracy wherever possible, I was willing to make do with a comparatively small hull access, 'Function following

BELOW: Kort nozzles, shaft struts, and rudder fairings installed and primed. Note the large notch in the transom for the stern roller.



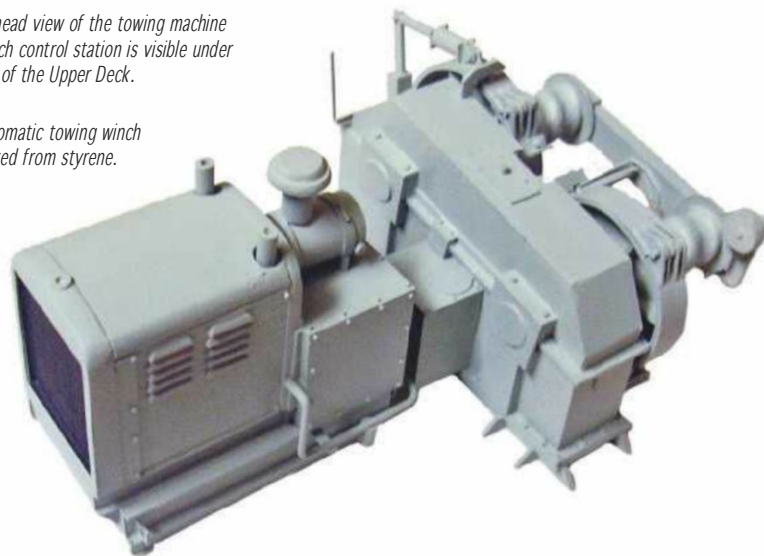


ABOVE: The main deck reinforcement beams. Note the stern block carved out to accommodate the rudder linkage.



ABOVE: Overhead view of the towing machine area. The winch control station is visible under the overhang of the Upper Deck.

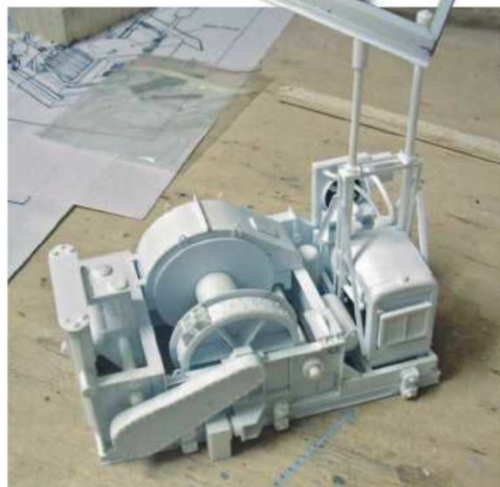
LEFT: The automatic towing winch being fabricated from styrene.



LEFT: The completed towing winch after a month's work, prior to painting.

ABOVE: The completed traction machine before installation.

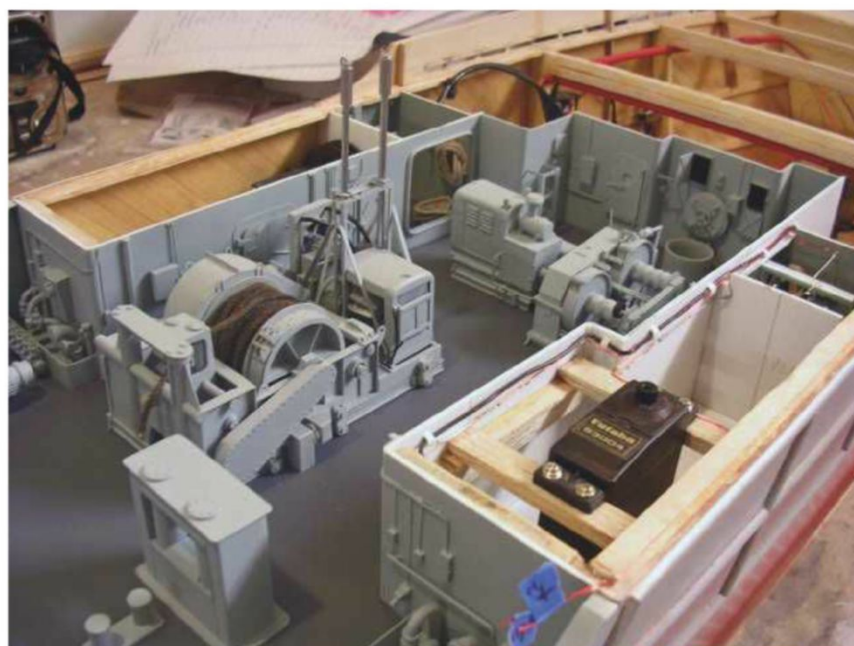
BELOW: A view of the winches as installed. The rotation servo for the crane is visible at right.

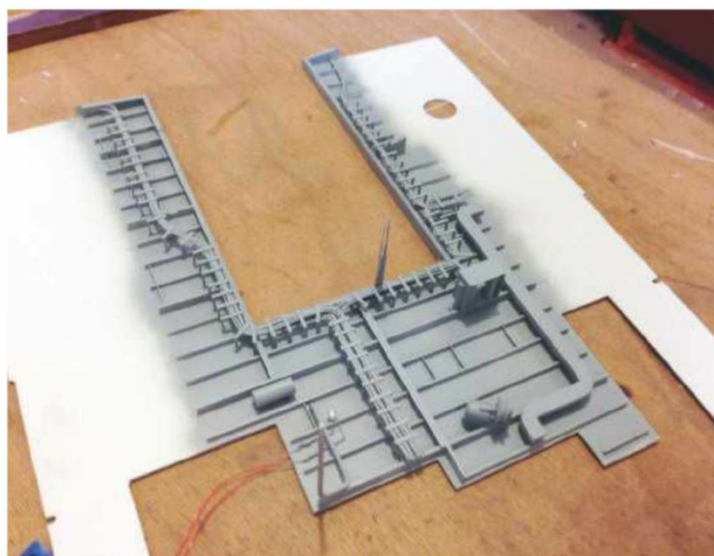


Form' I suppose?

The foc'sle deck overhangs the main deck at all points aft of the deckhouse, so the main deck had to be completely detailed and painted before more work could be done which meant that the winches and all the associated equipment had to be fitted now. As there are no kits which approximate the automatic towing machine or the traction winch unique to T-ATF's, there was no choice but to build both from scratch. Good drawings were however lacking, so I took a chance and wrote to the manufacturers for help and once again was rewarded with detailed plans from which to work. I have been constantly surprised at the enthusiasm and support given by the various firms contacted for help during this project, and their assistance has been truly invaluable.

Both winches were constructed from basic styrene shapes: sheet, angle, channel, rod, tube, and so on. It is a natural technique really, as the

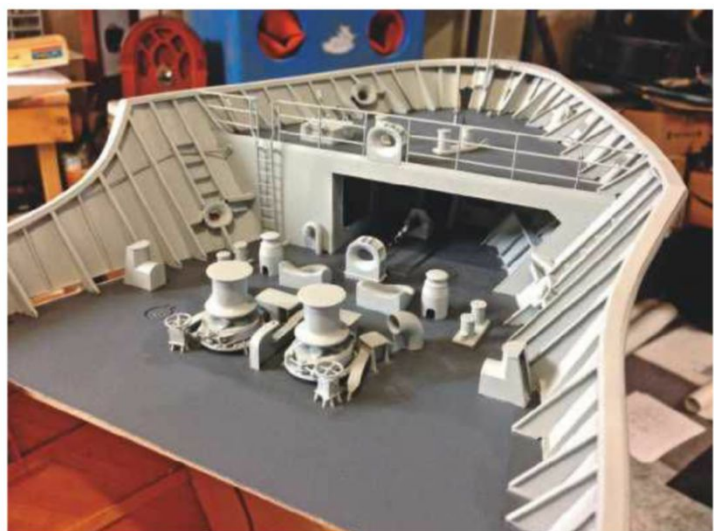




ABOVE: Detailing on the underside of the foc'sle deck overhang.



ABOVE: Foc'sle deck fixed in place, showing the final size of the access into the hull.



ABOVE: A view of the forward end of the foc'sle deck after detailing. The raised deck is referred to as the shelter deck and houses the Moorfast anchor and line stowage bin.

full-size machines were constructed from the same shapes, albeit from steel. Still it was a time-consuming endeavour, and the towing machine took another two weeks. Staying focused though and keeping in mind that model ships aren't just one model, but rather a conglomeration of many smaller ones, kept the enthusiasm 'on the boil'.

Once complete, the winches were painted and attached to the deck. Before the foc'sle deck was attached, I made sure to detail the underside of the overhang with its structural members, cable trays, and ductwork. This area is more visible than one would think, especially when lit by LED's.

Illumination and Interior detailing

Speaking of LED's, I had the rather ambitious goal of making every external light functional, including most of the navigation lights. To add to the torture, the decision was made to fit a complete interior to every internal void from the main deck upwards. Seventy five LED's were required; a colossal number for someone who had never worked with them before, and the prospect was more than a little daunting.

Since the interior detailing and illumination is such a focal point of this model, allow me to devote a couple of paragraphs to how the LED's were installed. The reader may recall that LED's are very



ABOVE: An overhead view of the anchor handling machinery.

sensitive to amperage, which must be held to tight tolerances to keep from seriously shortening their life or destroying them outright. This usually requires the addition of a resistor prior to each LED to keep the amperage constant with a varying battery voltage. Installing all these resistors would have been a challenge, so an LED driver was chosen instead.

What the LED driver does, is provide a fixed and stable amperage output at all times, regardless of battery voltage. This eliminates the need for individual resistors, allowing one to wire the LED's in the same manner as a regular incandescent bulb. There is a catch however as the LED array must be designed so that it draws the same amperage (or very close to it) that the driver supplies. For this model a 700mA driver was used to supply all the lights, which required exactly 75 LED's arranged in 25 circuits of three as the total voltage drawn by each series-wired string cannot exceed the available battery voltage. The array can be tested on a breadboard in advance, but when it comes time to install the system in the model it absolutely cannot be powered-up until all LED's are accounted for, otherwise they would be promptly blown by the excess current. While it may sound complicated, there are LED circuit calculators available online that do all the mathematics for you. Once the array



LEFT: A view inside the shelter deck overhang, showing structural steel members and the Moorfast anchor.



RIGHT: A stateroom was used to house the smoke unit. Note the white tube extending from the reservoir; this is an overflow which prevents over-filling with smoke fluid.



ABOVE: The cabins for the Captain and Chief Engineer prior to fitting out.



ABOVE: Progress continues on the upper deck; the brass uptake tubes for the smoke unit have been installed.

is designed properly, all one has to do is lay out the circuits for the model and stick to the wiring diagram as the build progresses.

The wiring itself consisted of 28 AWG magnet wire, which can be run practically anywhere, even exposed, as it approximates the look of exterior cabling when painted. The varnish coating must be scraped off with a blade or sandpaper wherever a solder connection is made, but this is a fairly simple task and it's amazing how quickly a rhythm develops once you have the circuits planned. The wiring is run through vertical chases, which are conveniently located for the same purpose on the prototype. The ends of each circuit were fed to dual-Bus terminal blocks on the underside of the deckhouse, which were in turn connected to the driver.

At this stage it was a matter of working upwards, deck by deck. It goes without saying that each level required a myriad of bulkheads, doors, stairs, fixtures and furniture, all of which had to be made from scratch. Styrene was once again the primary material. Two spaces were sacrificed for the smoke unit, a stateroom on the foc'sle deck was large enough for the unit itself and the Communications Centre directly above it was given over to the brass uptake tubes. This latter space has no exterior windows anyway and wasn't missed. Locating the smoke unit in the deckhouse eliminated the need for long runs of pipe and the annoyance of it being in the way with the deckhouse removed. Provision was made for providing air to the fan by using the starboard stack housing as an intake trunk. A short

BELOW: Looking into the LED illuminated winch working area.

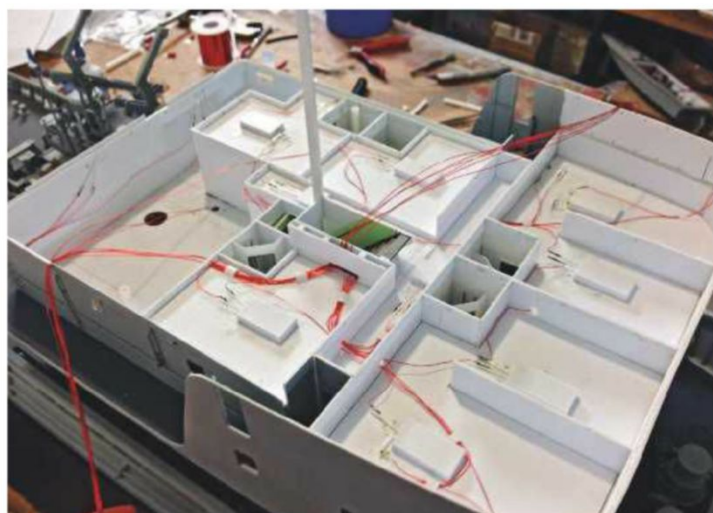




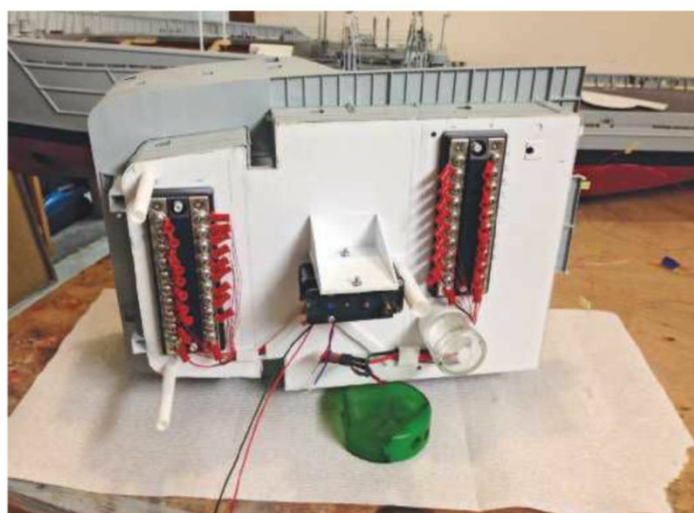
ABOVE: A typical officer's stateroom on the upper deck.



ABOVE: The completed Chief Engineer's (L) and Captain's (R) cabins, just prior to the installation of the ceilings.



ABOVE: The lighting for the upper deck being wired. The boxes on the cabin ceilings house the LED's.



ABOVE: The underside of the deckhouse, showing terminal blocks for the LED circuits, the geared motor for the working radar, and the glass overflow jar for the smoke unit.



ABOVE: Moving up to the bridge deck, the stacks and monitor platform have been installed.

length of tubing was connected to the reservoir to prevent over-filling it, thus avoiding a potential mess inside the deckhouse. Excess oil simply drains out into a small glass paint jar fixed underneath.

Although each stateroom was fitted with basic furniture like bunks, a desk, chair and bathroom fixtures, a little more time was spent on the cabins

for the Captain and Chief Engineer. These rooms had a quintessential 1970's faux-wood panelling décor, which was replicated by painting the bulkheads brown and then lightly streaking them with acetone. The Captain's cabin is equipped with a couch, recliner, coffee table and a chart table among other pieces. The Chief Engineer's cabin is furnished in the same manner, but on the table in that space is an outboard profile drawing of the ship, scaled to 1:48 the size of the original. Each cabin is also decorated with photos of the ship under construction or at sea. I should mention that the windows were fitted as each room was detailed, by sandwiching clear styrene between the outer and inner bulkheads.

I've been asked why so much effort was expended on spaces with limited visibility, but in truth most of this detail can be readily seen with the interior lights on. This is thanks to the large windows that the tug is equipped with, and the many hatches that were left open to aid viewing. It would not have made sense to go the same lengths on a vessel equipped with small portholes, nor would it be productive to execute this on a model to a smaller scale. 1:48 is the minimum scale to make it worth the effort in my opinion.

Happy modelling - Alan Owens

(To be completed in December 2016 MB - Editor)

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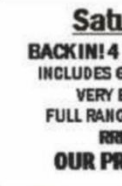
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Thornycroft Terrapin



Ashley Needham's new model and not one for the vivarium

It was a problem, as there were some 90mm Proops red plastic wheels staring at me from their packet on the bench having been left over from the Alvis Stalwart project and they were saying every time I walked past; 'Make something with me', but what to do with them? The Alvis Stalwart project was featured in September 2014 MB, and of course these wheels should be used for something and the obvious choice was a DUKW, but this is something frequently modelled and insufficiently different to the norm for my modus operandi. In a bit of a quandary, I consulted the 'Boy's Book of all the World's Amphibious Vehicles' and found an unusual entry for a WW2 British eight wheeled Amphibious Cargo Truck, namely the Terrapin.

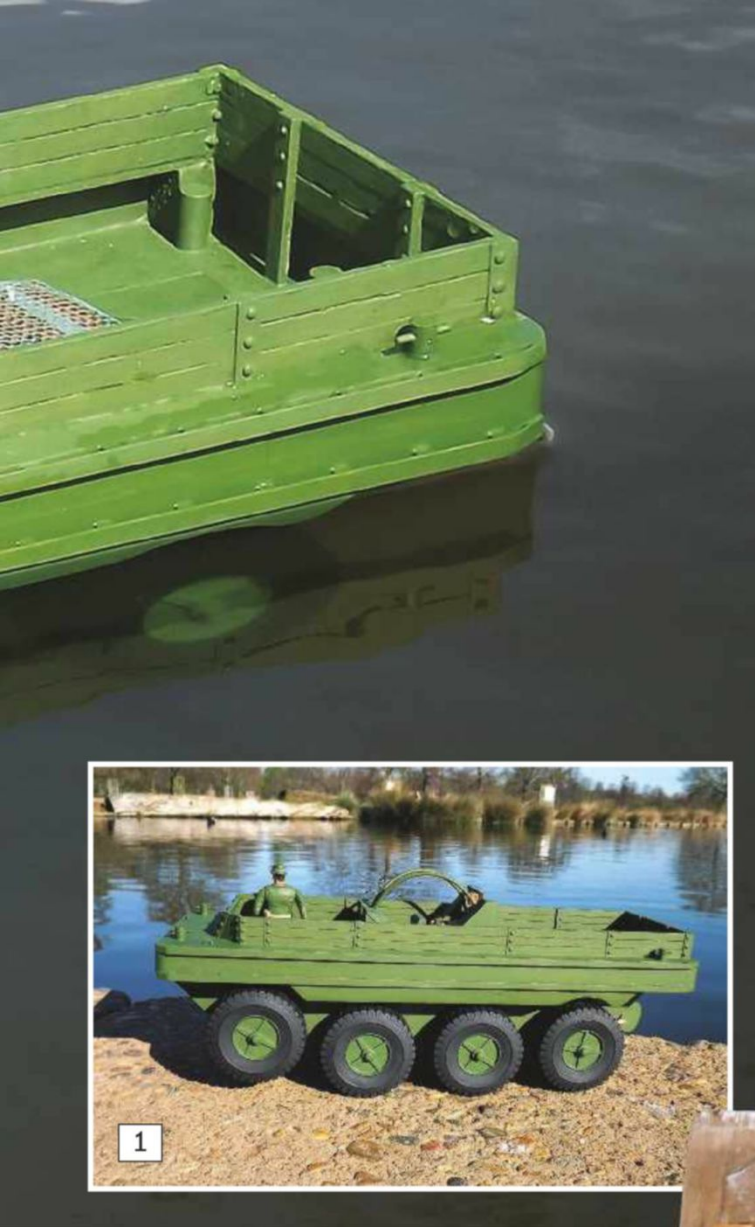
Due to a possible shortage of American DUKW's, the British Ministry of Supply commissioned Thornycroft to design an amphibious vehicle capable of fulfilling the same duties for the D-Day landings, although in the event the first use of a Terrapin was in October 1944 at Antwerp during the Battle of the Scheldt.

Approximately 500 Terrapin Mark 1 vehicles were built by Morris Commercial, it being a very large and high vehicle with eight wheels and unusually employing a skid steering system, similar to that of a tank. Water propulsion was provided by two rear mounted propellers and steering was via

a conventional rudder. As usual, I am building a representation of the original Terrapin and not a strictly 100% accurate scale model.

Design

A four view small line drawing was located and the model design process started. Using the SPAR (Sharp Pencil And Ruler!) design package, and with the surviving red wheels to hand, this drawing was scaled-up on to a large piece of paper. Looking at the drawing and pictures one could see that the vehicle had its engines in an enclosure with a driver seating area in the middle of the body and cargo spaces at either end. Given the reasonable overall size of the model, this ought to mean that room should be left under the cargo floors to fit a flat NiMH battery pack and the two motors driving the propellers could be in the central engine compartment together with a 20 amp esc and 2.4GHz receiver, mounted above. Rudder control would be via a small servo, location to be decided once I saw how much room there would be once further through the project. Differential propeller control was used for the Alvis Stalwart as that vehicle was not fitted with rudders and I thought about using this method for the Terrapin, but the propellers are quite close together, negating any advantage this might have. The Terrapin was fitted with a tiny rudder and this would have to be enlarged to the point where it would impinge on the propeller's wash either side when on full lock,



or there would be have insufficient control at low speeds.

Finally, the big one - do we power the wheels? There was in theory a lot more room available under the floor of this vehicle compared to an Alvis Stalwart and the possibility of having all the wheels linked via a belt drive and being powered by geared motors was very tempting, but I would not have gone as far as powering either side independently as this would take up much more room and the cost, but more important the equipment space, would escalate considerably over that required for simple all-wheel drive. So, this was another conundrum to be resolved once the space available could be properly assessed and the layout of the various drive items in their respective positions 'dry-tested' as construction progressed.

It will not have escaped your notice that the wheels are at different heights, **Photo 1**. This is not sloppy drilling, but a design feature of the original vehicle as having high mounted front wheels assisted traction when climbing up a beach or river bank, and since the vehicle used skid (tank) steering, the rear wheels have been raised slightly to lessen the wheel resistance on hard surfaces.

Construction

Put simply, this is a large vehicle with flat sides, so there is only one material to consider for this application and it is 4mm plywood, available from all good wood yards or perhaps just found in your

garden shed. Yes, it can be a bit watermarked in places, but don't be afraid to use any wood (or plywood) just because it looks a bit tired, as it's the material condition that counts and this stock was in otherwise perfect condition and in any event would be painted eventually anyway. Construction followed similar lines to that used for the Alvis Stalwart.

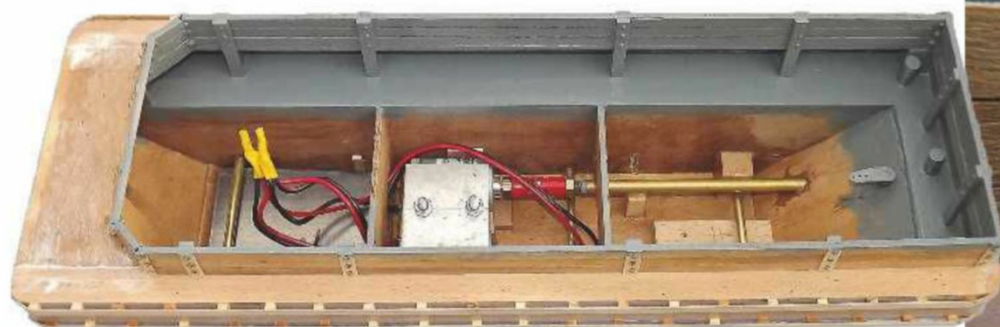
A box for the belly of the vehicle was constructed first, and I shall call this the 'boat' section, **Photo 2**. It's sides were cut as a pair, and drilled as a pair for the wheel axles tubes, and then glued to the bottom piece making sure everything was square by temporarily inserting an uncut axle tube (so it stuck out the sides) and a set-square to ensure the body sides matched, **Photo 3**. Finally, the top deck piece was cut out using a small bandsaw, PVA glue applied and this was placed on a flat surface upside down, whereupon the boat (hull) section was put on top and held down with a large weight until the glue had dried. Axle tubes of 5.5mm thin walled brass were trial fitted when the box section had dried. **Photo 4** is of the hull upside down with some Styrofoam for buoyancy along the upper sides of the lower hull, but then the first problem duly



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presented itself.

With the axles temporarily inserted for inspection and the drive motors in place, there was insufficient depth under the load area floor to put a standard 6-cell NiMH battery pack. Additionally, although the central cab/control cockpit section looked to be of a decent size, there was a need to have some footwell space for the driver. This meant the motors would have to be kept low and also made having driven wheels very tricky (still in the back of my mind), as getting loads of belts, cogs and another geared motor in place together with the cross axles and propshafts, all whilst considering the 40mm vertical space available and that the wheels are a bit fatter than scale and so making the lower hull narrower than it should be, meant that this was a big problem.

Mulling over this conundrum with a cup of tea, the solution quickly became obvious. A compact 7.2v NiMH battery could be hidden in the rear cargo section in a box disguised as a load, but unfortunately the all-wheel-drive (AWD) would have to be definitely abandoned on this model. Strips to support the floor were fitted either side of the inside of the hull, creating a 40mm clear space below them for all the driveline items and having sorted that out, the axle tubes were now permanently fixed in place with epoxy adhesive.

Thoughts on a higher level?

Thought was then given to the upperworks, load area and the central control cockpit. For maintenance purposes, the only parts which



8

needed regular access are the motors and couplings, and these would sit nicely under the footprint of the central cockpit/control section. Connection from the electronic speed controller to the battery would be via a cable running through a hole in the cargo box floor, this box being sealed to the deck using silicone, so that any water on the deck lapping around the box could be kept at bay. Mounts were fitted at this stage and the short deck-sides and tops fitted. On top of these sides are wooden bulwarks, made from planks secured by steel strips and **Photo 5** shows the hull so far with these bulwarks being added, and you can see the central cockpit being created and the axle tubes in place.

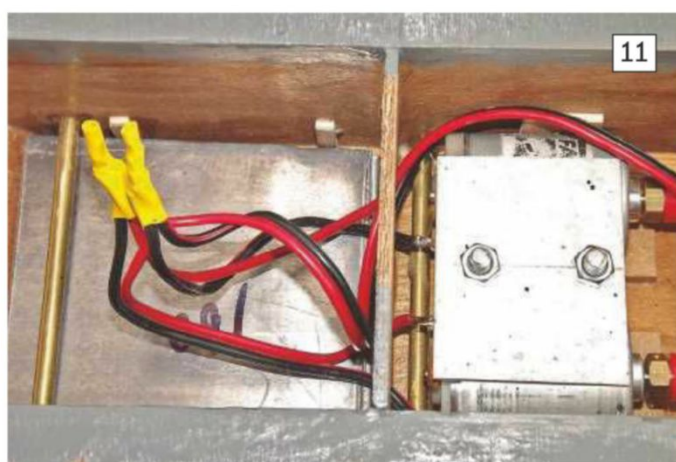
The squares of plywood that were used to rest the top deck on, had been strategically placed at the points where there are the bulwark strips, so they could support them. Sealing of the inner faces of the sides (and other future inaccessible areas) was undertaken before proceeding further using Eze-Kote Finishing Resin from Deluxe Materials, as some of the crevasses would be difficult to get to with all the other components in place.

The bulwarks were made from plywood cut into 8mm strips and the edges sanded very lightly so that when glued together to form the boards you can still see the joints, imitating the original's planked construction. **Photo 6** gives you an idea of progress so far.

The planked bulwarks were, on the full-size vehicle, held in place by iron brackets with large coach bolts, these being simulated by using 0.8mm plywood strips and drilling through these for cut-

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down 15mm escutcheon nails which have a nice round head, **Photo 7** showing them completed. Some more of the hull's internal work was done at the same time, but more on that later. The nails simulating the bolts, **Photo 8**, have been allowed to protrude behind the boards to suggest the nuts that would undoubtedly have been there

Cargo floors were cut to fit, but not fixed in place until final testing, as ballast might need to be hidden beneath them. The bulkheads for the centre engine area were cut, although only the front one was glued in place as what to do with the rudder servo was still being considered. Driver seating and the rest of the central cockpit section simply sits across the two bulkheads, and so is easily removable for the motor(s) access. The cargo areas are sealed from the cabin and so water that might slop into them (from enthusiastic on the water sailing perhaps?) should remain there and not flood the motor space.

There is nothing in this centre part other than the driver's position and four vents, presumably two of which were radiators, **Photo 9**. These vents are handy, as they are hollow on this model so as to actually perform a ventilation function for the electric motors.

Motors?

Power to the propellers is provided by brushed MFA 540/1 low-drain drive motors with 40mm two-bladed brass propellers, and the dual motor mount is of a normal saddle-clamp style, **Photo 10**. Wooden blocks of a thickness required to raise the

motor centres to match the propshafts were glued on the hull's bottom piece, and a centre divider incorporating threaded 6mm steel studs to bolt down the cross-piece holding the motors steady was fixed along the centreline. Spacers of plywood, of a suitable thickness, were placed either side of the motors to stop them rolling outwards and the cross-piece was fabricated from aluminium to act as the clamp.

Holes were drilled for the propshaft tubes to exit the stern with wood blocks supporting the tubes and then everything was dry-fitted in place, aligned carefully, and test run with a 1.5v battery to ensure all was well before being secured with epoxy glue. A square hole was cut through the front engine compartment bulkhead below the cargo floor level as an afterthought once it had been glued in place, and this is so the motor wires can be tucked in there out of the way and not clutter the hull's central void, **Photo 11**.

At this time a hole for the rudder post was drilled, and a position for the servo to operate the tiller was finally decided, as now one could see exactly what space remained. A mini-servo was mounted adjacent to the tiller, underneath the triangular grill. Its box mount was glued to the cargo floor and a hole made underneath to run the servo lead under the cargo deck. Pictures show that the Terrapin's rudder was set at an angle, but this is a bit tricky to arrange in the tiller compartment with space being so minimal, so it was pivoted vertically and a support for the lower end of its post made from aluminium strip and screwed to the underside of the hull, **Photo 12**.



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This can be easily removed if required and provides protection against anything underwater snagging the rudder. It looks like the rudder is a bit too far towards the stern and some time was spent agonising over its location. However, the rudder and propellers are quite close together and there is a need for the rudder to impinge on the propwash either side when being traversed to steer Terrapin.

Having the rudder further forward would seriously reduce its range of movement, and another benefit is that the rudder is more in the slipstream and thus will have a bit more effect on the steering, or at least that was the theory. It is the same general shape as seen on the real Terrapin, but perhaps twice as big for added effect, but even now looks woefully small..

Wheels and crew

The all important wheels, **Photo 13**, the inspiration for this project without which nothing would have been started, were treated exactly the same as for the Alvis Stalwart, being scrubbed with a scouring pad and soap to provide a key for the paint and removing any trace of release agent. They were drilled right through their centres, with the central moulded bulges removed by using a flat wood-bit, to allow the spring hub-caps to sit close to the wheel, **Photo 14**, sprayed with a grey plastic primer and then painted with household gloss black paint and finally a matt black. The wheel hubs, unlike those

of the Alvis Stalwart, have been painted green this time. Again, the wheels are a bit too wide (35mm) for true scale, and this forced a compromise on the lower hull width, but this was unavoidable and **Photo 15** is of the preparation and painting sequence for the wheels, of which there are eight in total.

For the crew, a set of figures were still available on a well known online auction site and at 135mm high are exactly the right height for the Terrapin being approx. 1:14 scale, but they are a bit muscly and festooned with armaments and other ephemera, **Photo 16**, which had to be carved away and the resulting butchered bodies then filled and fettled, but once painted green they look quite the part, at least from a distance.

It's all in the detail

This is my sort of model as there is hardly any external detail at all. A few small mooring bollards and tie-downs, what appears to be a pair of thin bumpers and grab rails running along the sides, some ribbing on the bow, plus head and tail lights, and that's it. The bumper rails caused a bit of head-scratching as to which method would be easy and best to use, but at the end of the day what felt like one million 4mm beech-wood cubes were cut (actually about 80) and duly stuck on the hull sides with PVA glue and 6mm wide strips of 0.8mm plywood were also cut and glued along the length of the run of cubes, their ends being bent around and superglued to the main hull body, front and rear. These look quite effective and also hide the plywood joints at the sides of the vehicle and can be seen in **Photo 17** on the hull sides of the rear of the Terrapin.

Just above the wheels on each side there is some trunking on the original (probably of a hollow box section to provide additional buoyancy) and Styrofoam lengths were cut, shaped to fit, and fixed in place with epoxy glue (please see Photo 4 again).

Several coats of Eze-Kote Finishing Resin were then applied to waterproof the entire bodywork, followed by grey primer, some more sanding and then two coats of Humbrol No.105 Army Green matt paint. Once the body was dry, the previously painted wheels were fixed to their axles, which had been slipped into place, and held on by the spring-clip axle caps which were varnished inside to help prevent rust forming on the spring, before being also painted green externally to match. **Photo 18** is of the completed driver and his cockpit all painted, but is easily removable for access to the driveline etc.



16



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Testing time

A trip to the bathroom floatation tank now occurred and once cleared of yellow plastic ducks, Terry (AKA Terrapin) was fitted with a battery and test floated. I have not seen a picture of a real Terrapin actually on the water so guessed that, like the Alvis Stalwart, the waterline would look about right if it was at the level of the lower edge of the bodywork above the wheels. Contemporary reports have it that there was very little freeboard when loaded, so I suppose you can pick your own waterline, but I was not keen on it taking too much water over the bulwarks, so that level would do just fine. Ballast in the form of lead sheet was positioned on the hull's bottom underneath the cargo decks, and to my amazement (bearing in mind the Alvis Stalwart is of a similar size and needs no ballast), some 750gm in the front and 250gm in the rear was required to reach the aforementioned waterline.

Extra ballast can of course be hidden in more 'cargo' items and it is therefore easily adjustable depending on what the Terrapin looks like on the pond and in point of fact the (Beech) Jerry cans in the front compartment themselves weigh 190gm. Finally, the matt green paint was touched up as required and some fictitious lettering applied and my little joke?

The only markings seen on the available pictures are '4A', so this version was labelled 4B, **Photo 19**. The Terrapin, does look a bit stark, but it would not have been painted in camouflage being a second-line vehicle, and how rusty would it have been after having been in service for barely a few months? The jerry cans are painted a contrasting shade of green and there is a darker green camouflage net over the rear load just to add some colour to it all, **Photo 20**.

Will it fit my boatyard?

I should think so, as it is a nice and compact vehicle and the box to store the Terrapin in is barely larger than itself, and overall it is 515mm long x 180mm wide and 160mm tall. The centre 'boat' section is 100mm wide and the wheels are 90mm diameter and 35mm wide. Fully equipped, Terry, AKA Terrapin, weighs in at fairly hefty 3.75kg..



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On the water

Terry the Terrapin it has to be said, is a box that a pair of boots would be proud to be stored in. It has eight wheels creating turbulence at the side of this box and is quite heavy, with the two propellers close together in a blanked off position at the rear, and has only one rudder. So, how does it go?

Quite amazing and astonishing, given all the possible negatives. Of course it is not fast, but it is speedy enough, nippy even, for what it is and to everyone's amazement the steering of the Terrapin has to be seen to be believed with a full circle in only two boat lengths if judicious use of full lock on the obviously now adequately sized rudder is applied.

Water heaps up behind Terry in a good fashion, **Photo 21**, partly due to the propellers rotating

upwards at the centre rather than downwards. This Terrapin will never win a steering competition as its straight line stability is not great and constant adjusting of the rudder whilst using a fair amount of throw is needed, but it does reverse, just about, and this is useful for stopping, but not much else. There is 50mm of freeboard which is a reasonable height, and about 70gm of ballast has been removed from either end after the on the water testing, so now the waterline is barely up to the hull sides above the wheels, **Photo 22**, giving a decent margin in windy and/or rough water conditions.

Unfortunately with the flat front section, waves tend to 'slap' on the bow and some water gets thrown into the cargo deck, but this is minimal and the wells are all sealed anyway. Under moderate power there is a slight bow-high running trim and this is beneficial and also helps the Terrapin ride over waves. It is quite a good-looker at the pond in a dull green sort of way, and its apparent full-size is made clear when one of the soldiers is dismounted and made to stand next to the vehicle, **Photo 23**.

At the end of the day.....

The use of the old watermarked plywood may raise a few eyebrows, but it was fine and the boxy nature of the vehicle meant that everything has been held nice and straight, square or flat, as required. The smallest scrap of filler here and there combined with a couple of layers of undercoat and a bit of sanding has resulted in as reasonable a finish as you would hope for, if using pristine new material. At the sides, the bulwark strips were deliberately left under-sanded to emphasise that they were planks and this has worked a treat. No exotic materials have been used, just 4mm and 0.8mm plywood, some wood offcuts, aluminium mesh for the vents and brass for the axles, besides of course the wheels and the crew, all of which were inexpensive. Cardboard could even have been substituted for the thinner plywood. Undoubtedly the most expensive item is the radio and running gear which any model will need. Compromise and alterations for operational reasons have been made as usual, but we have ended up with a fair representation of the original Terrapin and a nice simple, very clean model.

Photo 24 is for comparison purposes with the Stalwart from September 2014 MB. Yes, neither 'drive' on land, but they swim well!

At the end of the day, did we use sufficient artistic licence to produce a goods (carrier) once again? I think so, but now have a memo on the notice board reminding me to power the wheels on the next amphibious model.



24

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ABOVE: The fantastically detailed 1:72 scale model of USS Arizona being made ready for its on the water trials.

Range Finder

Dave Wooley with his Worldwide Review of Warships and Warship Modelling



Welcome once again to our regular sortie into the world of fighting ships and this month sees the on the water trials of Joseph Slydlowski's superb 1:72 scale USS Arizona. Bill Clarke from the USA has very kindly sent a number of pictures of what is considered to be one of the best shipbuilder's models ever produced, known as the Agerholm Model, and we are nearly finished now with HMS Skirmisher and have the usual Mystery Picture.

USS Arizona - on the water

Photos 1 to 8.

In the MB September 2016 issue, I included some detailed pictures of Joseph Slydlowski's scratch built 1:72 USS Arizona and now we have the on the water trials conducted on Westport Lake at Stoke on Trent, the home of the Potteries MBC. This USS Arizona model has a number of working features



Photo 1. After some ballasting adjustments the USS Arizona is launched by its builder, Joseph Slydlowski.



Photo 2. The model has been built to show how it is believed USS Arizona appeared on 7th December 1941, the day of the Japanese attack on Pearl Harbour and the sinking of this battleship.



Photo 3. A view aft looking towards the starboard quarter. The advantage of having figures onboard is clearly evident, providing a real sense of realism.



Photo 4. Looking towards the port side forward and the model is performing well.



Photo 5. Effective use of a smoke generator unit.

Photo 6. A picture showing the port quarter aft. Once again, the successful use of figures to enhance the model and give it an authentic appeal can not be overstated.



Photo 8. All models and especially warships, require careful handling when requiring access into the hull. It is here that a model becomes prone to accidental damage, so a well thought - out sequence for dismantling is essential.

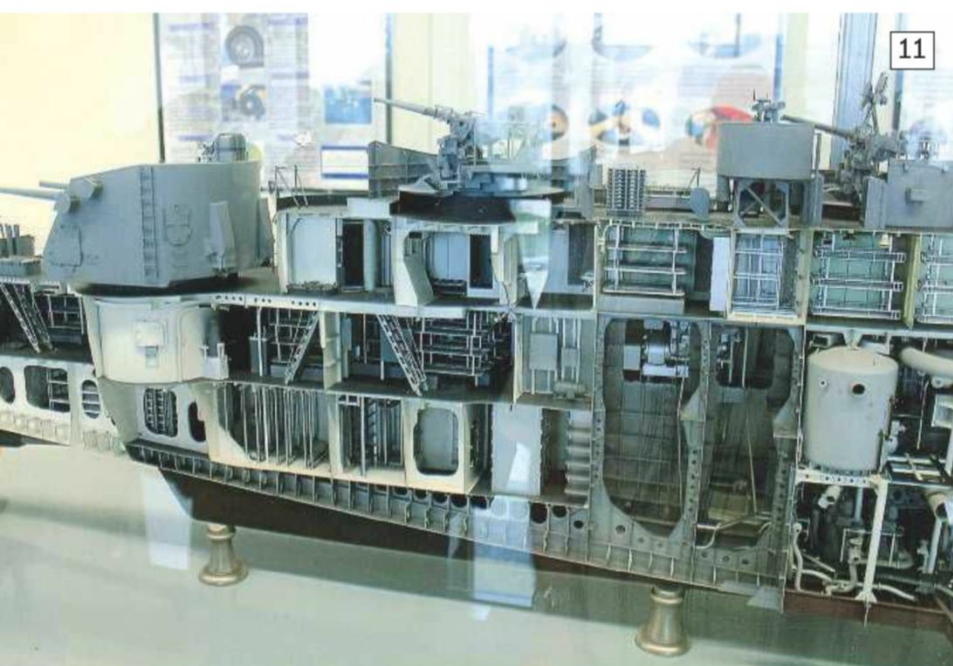
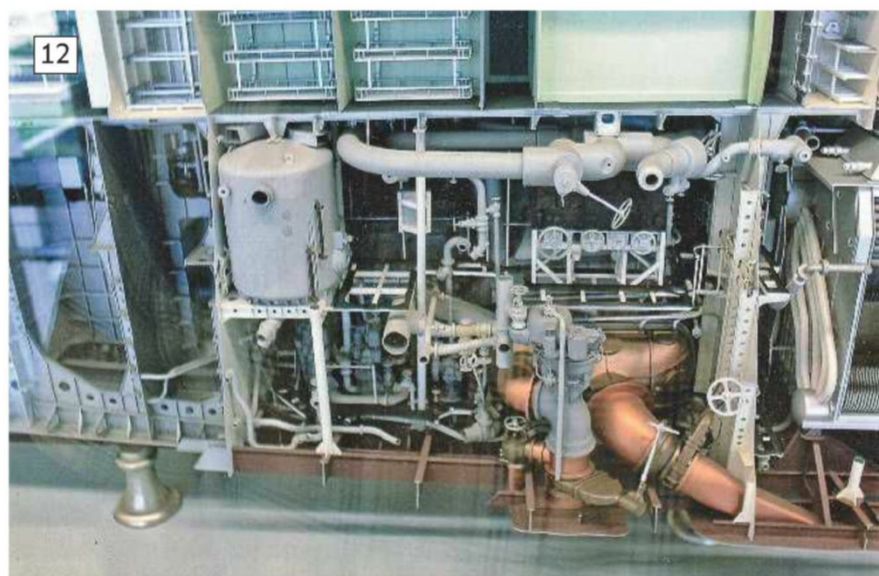
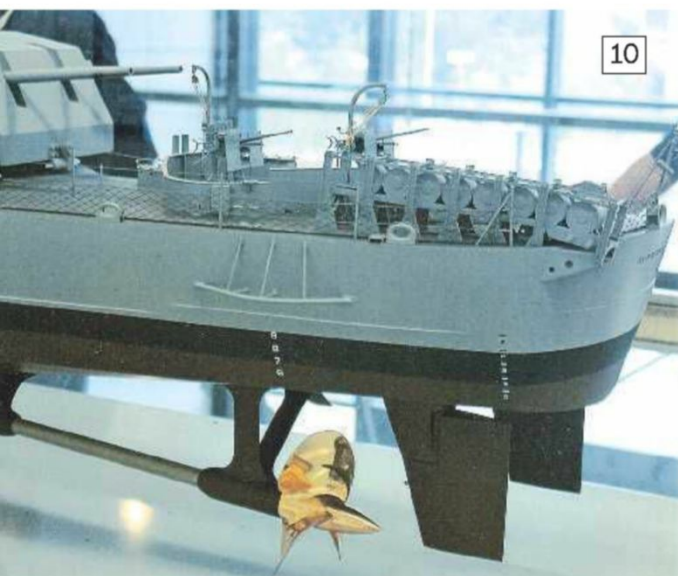
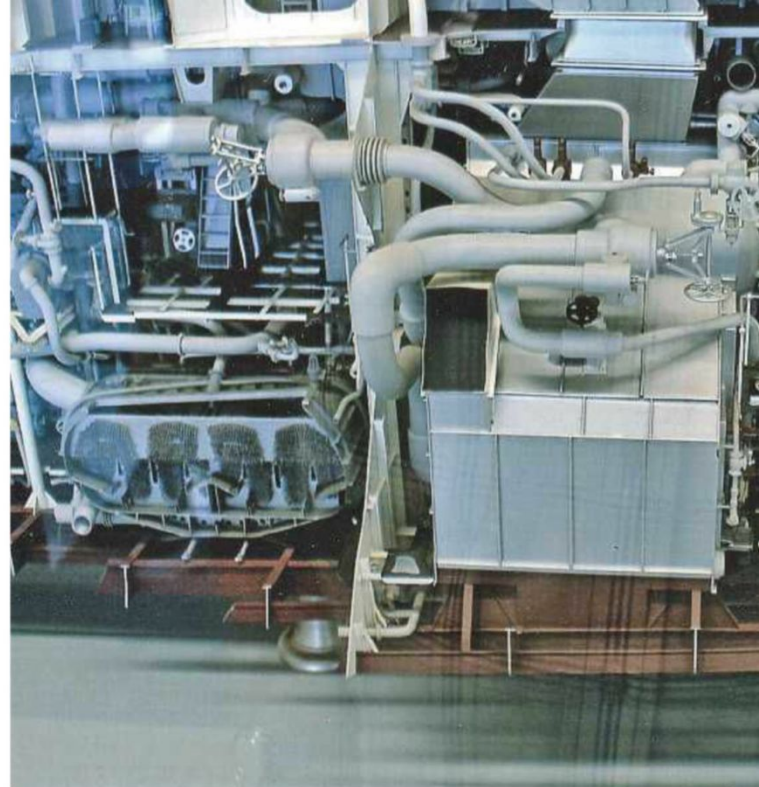
Photo 7. Our final on the water picture of this amazing model. Like Colin Vass' HMS Warspite, large models such as USS Arizona perform differently and more realistically than the same subject at a smaller scale. An HMS Warspite or USS Arizona at the even larger scale of 1:48 would probably respond on the water even more like the full-size warships, but getting one into the average hatchback or estate is not practical, nor launching and ballasting such a creation.



Photo 9. Gibbs and Cox Naval Architects were responsible for building this model of the USS Agerholm which is considered by many to be one of the finest models ever produced.

Photo 10. The Agerholm Model was designed and built first and foremost as an engineering aid to assist in the design and construction of the full-size warship and not as a display model.

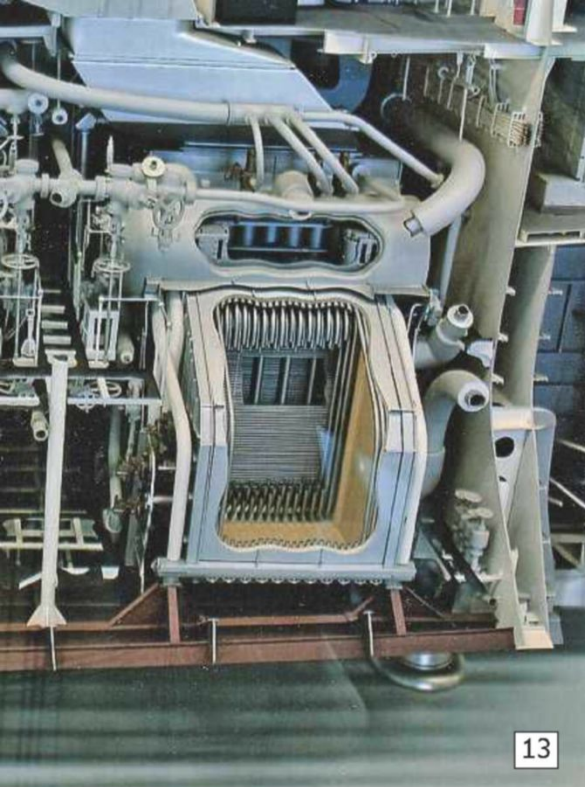
Photo 11. Although not unique, The Agerholm Model was built primarily to show the warship's internal engineering in total detail and as such is the ultimate 'Builder's Model'.



including revolving turrets, elevating gun barrels, sound effects and smoke which gives the model a truly authentic appearance. As details of this model have already been covered in previous issues, I am letting these captioned pictures tell the story.

Builder's models

This will hopefully be a new regular part of Range Finder where we look at some of them. These models, often built by apprentices or dedicated departments in the once great shipyards of the world, grace museums and institutions across the globe and have for many years been regarded as the closest representation available of a real ship, but in a model form. I'll endeavour to regularly show a builder's model of a naval vessel or at least with a military connection. The builder's model is a genuine source of reference and they have often provided inspiration to us model makers. Prior to the introduction of CAD systems in ship design, the builder's model was sometimes used as a tool for identifying and positioning the various internal and external fittings and also to demonstrate in 3D how the vessel would appear even before its keel was



13

Photo 12. The word 'accurate' to describe a model is one that is often misplaced, as it can only be described in varying degrees of representation, but with this one that distinction could be open to question as this model is a perfect, albeit a smaller replica, inside and out.

Photo 13. Every part of the boiler rooms were designed so that measurements and location of fittings could be taken from the model, knowing that they would reduce the time and effort in the construction of the full-size warship.

laid. This last feature remains an integral part of the shipbuilding industry today and 'concept' models are frequently placed on display at worldwide military exhibitions.

The Agerholm Model

Photos 9 to 13

In the world of builder's models, there are few that can be credited with the words; 'A Work of Art', but the one shown here is in that category and is known simply as 'The Agerholm Model'. USS Agerholm was a Gearing class destroyer with its 1:24 scale model designed at the close of WW2 by the US naval architects Gibbs and Cox.

The requirement was for a sectional model that would translate directly to the full-size warship, the purpose being to show all the exterior detail on one side (Port) whilst also showing in perfect clarity the internal spaces such as the engine and boiler rooms, magazines and accommodation etc. on the other (Starboard) side. The model was used during the construction of the full-size USS Agerholm to assist in the preparation of the detailed drawings and as an example of its value, it was much easier for the Pipe Shop to lay out the piping using the model, than to construct it all by laying templates inside the actual vessel. In some respects this engineering crossover from model to full-size warship had similarities to the Navy Board models of the 17th Century. Thanks to the camera of Bill Clarke, we can see here in colour some pictures of this amazing 1:24 scale model, currently on display at the US Navy Academy in Annapolis, USA.

HMS Skirmisher

PART TWENTY FIVE

This month we are discussing securing the ship's boats, the canvas wind dodgers and awning lines. As mentioned previously, building a model either from a kit or totally from scratch, still requires it to be built in an orderly sequence. This ensures that parts which are permanently fitted do not hinder subsequent additions. Securing the ship's boats as part of a rigging sequence is a task that is best performed prior to the actual main rigging, at least in the case of HMS Skirmisher.

The decision was made to include the Robinson Disengaging Gear which on full-size cutters and whalers has the purpose of allowing the boat falls to be released simultaneously as the boat is just above (or on) the water. It is released by pulling on a tackle, or screw slip, above the centre of the boat which in turn releases the tumbler hooks and thereby releasing each block. The other practical reason for its use on this model is that the tumbler assemblies are made so as they can be adjusted to suit the angle of the davits.

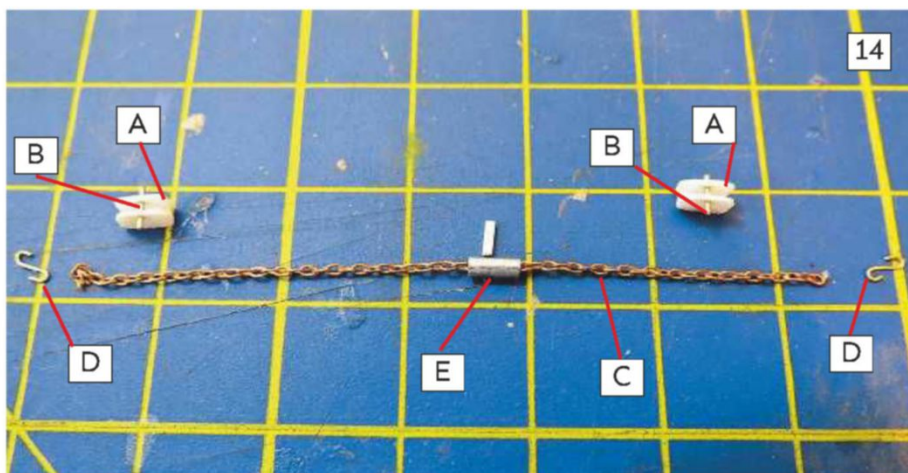
Disengaging gear

Some 'modeller's licence' was used here, as the lines linking the tumbler hooks on the model are of a fine chain. Chain was sometimes used on full-size boats, but not always for linking the two tumbler hooks as this was usually of a wire rope. **Photo 14** shows each of the parts as applied to each cutter and whaler model:

- A.** Tumbler assembly, 1mm styrene strip, 4 x 2 x 2.5mm.
- B.** Block securing pin, 31mm brass wire, 3mm long.
- C.** Linking pendant, 24 links per inch, adjusted to suit.
- D.** Connector hooks, 31mm fine brass wire.
- E.** Disengaging lever. 1mm o.d. aluminium tube, 3mm long.

First, the chain is inserted into one of the tumbler hooks and aluminium tube for housing the disengaging lever. This is followed by inserting the chain through the second tumbler hook. Next,

Photo 14. The boat falls disengaging gear that was used on ship's rowing and sailing boats of the period, ensures that they did indeed, disengage simultaneously.



14



Photo 15. How the disengaging gear for the cutters and whalers has been assembled.

the securing hooks are added to each end of the chain. Before doing so, it is a good idea to ensure that there is free movement along the chain for the tumbler assembly to locate with the boat falls, **Photo 15**. Please note the marked squares on the cutting mat are 1 x 1 cm.

Prior to rigging the boat falls to the davits, the hook on the block is engaged with the brass securing pin running across the top of the tumbler assembly. With the block in place it is once again necessary to ensure that the entire assembly retains free movement along the chain and **Photo 16** is of it lying across the thwarts of the boat. Please note that on full-size boats, the tumbler assembly is fixed in the one position and secured by chain.

Photo 17 shows the 32ft cutter with the boat falls now in place. Each end of the chain is secured to ring bolts formed from 0.31mm brass wire, fore and aft within the hull. The tumbler assembly can be adjusted to match the davits, as the forward ones, unlike the others, cannot be adjusted. Not visible is the gripping spar behind the boat, against which the cutter normally rests with two securing straps around the boat to it.

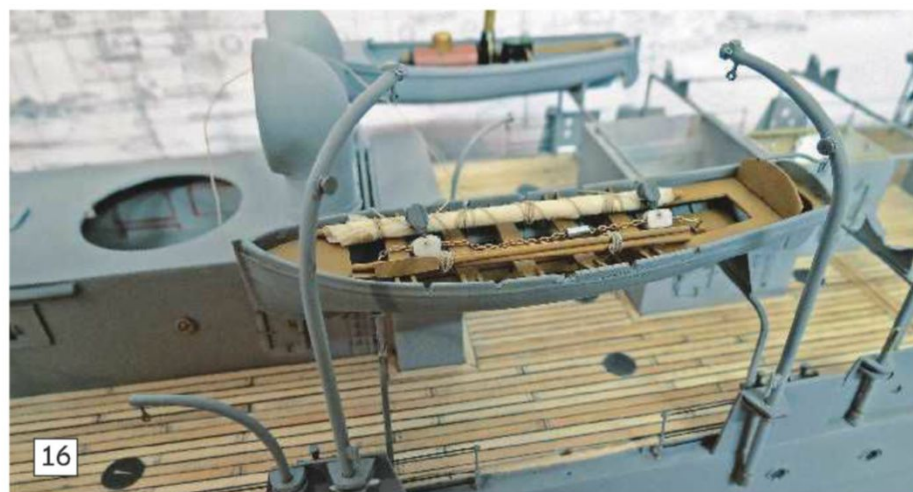


Photo 16. Prior to rigging the boat falls, the blocks are hooked to the securing pin across the tumbler assembly.

Photo 17. The tumbler assembly is adjusted to suit the davit arm by moving it along the chain linking pendant.

Photo 18. Fine 0.1mm rigging thread was used to form the davit guys shown here ringed in red and further discussed in the text.

Photo 19. On the forward 32ft cutter the aft davit guy is secured to the top edge of the deck housing.



Rigging the davits

At the head of a davit are eye plates for the davit guy and spreader jackstay. As these are part of the rigging, a decision was made to use fine 0.10mm rigging line supplied by JoTiKa. This cord is easy to fit and adapts well when securing to the bottle screw as part of the davit guy. Here the davit guy and spreader jackstay are looped around the eye plate and through a 3mm length of 1mm o.d. aluminium tube with the tube pushed right up to the eye plates as ringed in red, **Photo 18**. Any excess material can be carefully trimmed off. Interestingly, not all the davit guys are secured to the deck edge and here the after guys are fixed to the top edge of the deck housing, **Photo 19**.

With the davit guys and spreader jack stay in place, attention now shifts to the lifelines hung between each davit. These can be either coiled in a stowed position, **Photo 20**, or uncoiled ready for

use and are usually passed outboard when the boat is being lowered, **Photo 21**.

Aft, four of the ships boats are stowed on chocks, one of which is a 27ft whaler. Also the boat falls are reeved through the sheave to the side of the davit arm and secured to the Staghorn bollard (discussed in September 2016 MB). It's worth noting, and I was reminded of this by a fellow model maker, of the need to display a coil of rope accompanying the cordage secured around the Staghorn bollard, ringed in red, **Photo 22**.

Finally, following the same method as outlined earlier, the davit guys are secured to the davits for the 32ft steam cutter, seen here in **Photo 23**. These guys are secured via bottle screws from the eye plate to a point adjacent to the after cowl vent, shown here ringed in red, **Photo 24**. Our final picture for rigging the davits shows the 32ft steam cutter with one of the guys secured to the deck edge using a bottle screw ringed in red, **Photo 25**.

Photo 20. On this the 32ft cutter the lifelines are in the coiled position on the davit guy spreader.

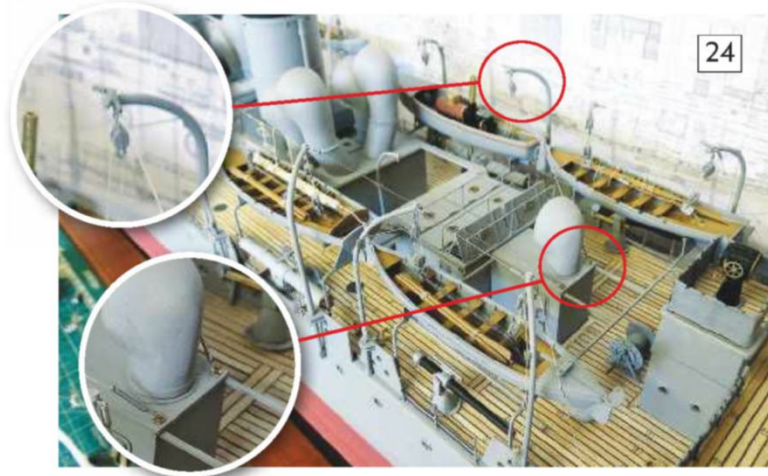
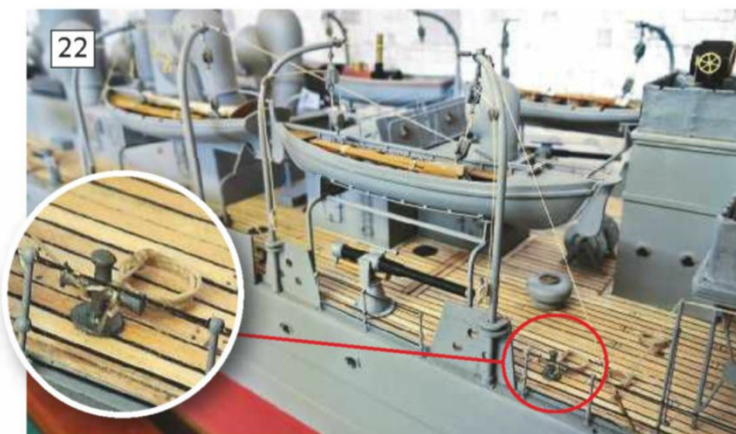
Photo 21. On the portside 32ft cutter the lifelines are deployed.

Photo 22. Here on the 27ft whaler is shown belaying the boat fall to the Staghorn bollard with a sufficient coil of cordage, ringed in red.

Photo 23. Securing the after davit guy rope for the steam cutter.

Photo 24. Ringed in red, the aft davit guy can be seen secured by a bottle screw to edge of the cowl vent housing.

Photo 25. The forward davit guy for the steam cutter is secured to the deck edge via a bottle screw, ringed in red.



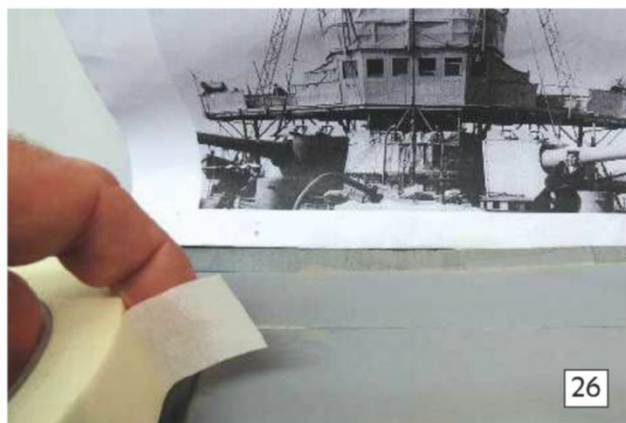


Photo 26. Masking tape is the material of choice for the canvas dodgers.

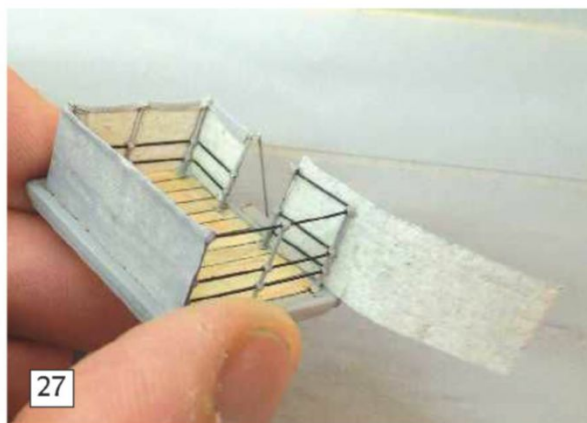


Photo 27. The outer surface of the tape is airbrushed the same Grey No. 507 as the model, cut to length and carefully spread around the rail.

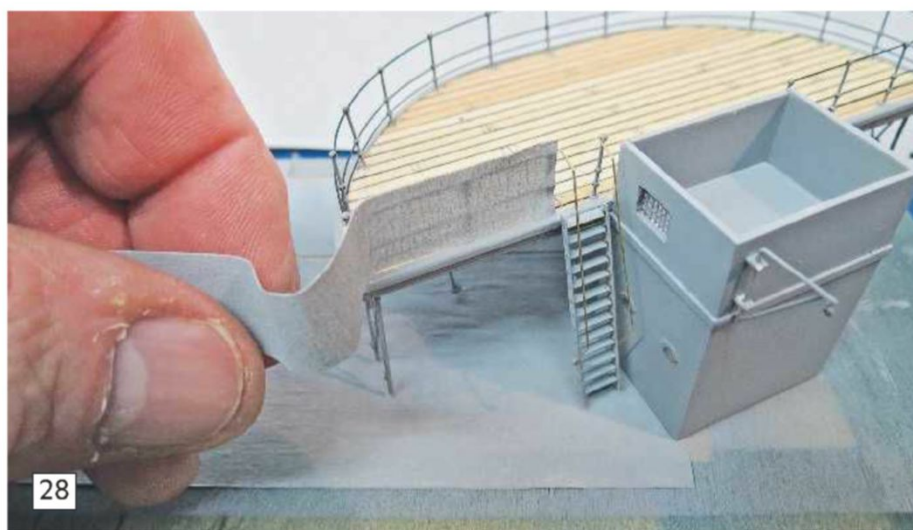


Photo 28. The same procedure is repeated for each platform.

Canvas dodgers

Canvas dodgers, or screens, were introduced to provide some human protection on the various exposed platforms. HMS Skirmisher was fitted with canvas dodgers attached to the handrails around the sides of the bridge, searchlight platforms and the aft 3pdr gun platform. There are a number of methods that can be used to simulate the effects of canvas and that outlined here has been chosen more from experience than being necessarily

Photo 29. Here are the results of using masking tape on the aft searchlight and 3pdr platforms.



the best. The material of choice was 25mm wide standard masking tape.

The first task was to cut a number of lengths to suit the height of the railings including a small fold over the top bar. This was laid out on a length of discarded timber and airbrushed in No. 507, the official grey livery for HMS Skirmisher as of 1905. This official colour has been matched by mixing Tamiya acrylic black and white in a large volume earlier and why? Well, when mixing paints yourself, it is almost impossible to match the colour if you need more paint later, so it is best to make sufficient quantity in one go and preserve it in sealed jars or tins for use later as needed, or even for touch-up jobs. Once dry, **Photo 26**, this was protected with a very light spray application of Humbrol clear varnish.

Commencing from the stairwell on the searchlight platform, a length of tape was carefully folded around the platform railings as in **Photo 27**. The same sequence was applied to the lower 3pdr gun platform, **Photo 28**, and progressing around the rail, gently 'thumbing' in the tape against the rails and stanchions. This gives the effect as shown in the picture of the full-size warship (at the top of Photo 26).

With the dodger fitted, its inside can then be carefully brush painted the same grey. The paint will dry over the slightly sticky tape. Once dry, a coat of Humbrol clear varnish was again applied, having the effect of stabilising the painted surface as masking tape over a period of time can become brittle when painted. However, the overall effect is worth the effort and it does resemble a canvas screen as you can see in **Photos 29 and 30**.

Awning lines

In an earlier part of this HMS Skirmisher series I showed how to create the awning stanchions. These are usually sited along the main deck edge with a line running through a caliper eye at the top of each awning stanchion and, together with a centre ridge line, are used for the purpose of supporting an awning. On HMS Skirmisher, the awning stanchions and their associated awning lines are included, Photo 31. Next month we will discuss the forecabin awning, halyards, the mast and funnel stays, boat boom supports and ratlines.



Photo 30. Canvas dodgers on the forward searchlight and compass platform, and around each side of the open bridge.

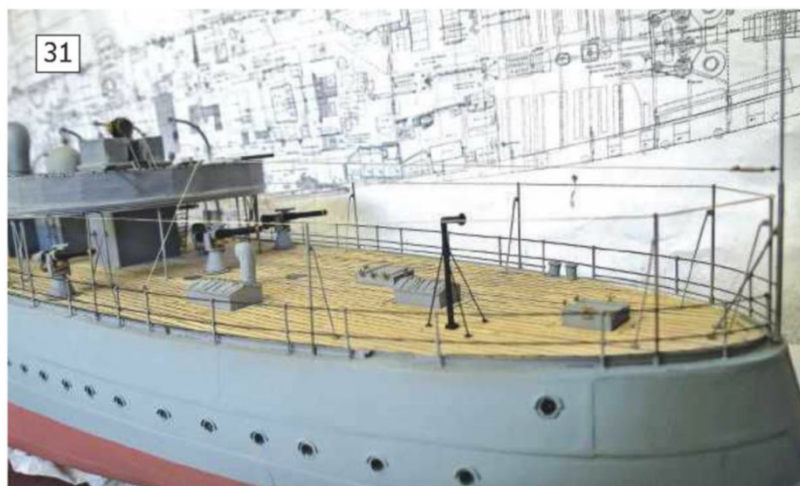


Photo 31. Rigging the awning stanchions and fixing the centre ridge line.

References and acknowledgements

Agerholm Model ref:

Warships and Warship Modelling by David Wooley and William Clarke pages 49, 51 & 56.

Rigging davits on RN warships for the period

1905 ref: Manual of Seamanship 1909 Vol. One, pages 205 to 207.

Mystery picture HMS

Monmouth ref: Coronel and the Falklands Geoffrey Bennett. All the World Fighting Ships 1860 to 1905, pages 70 & 71. British Cruisers of the Victorian Era by Norman Friedman, pages 248 to 252.

My thanks to **Bill Clarke** for The Agerholm Model pictures and the month's Mystery Picture. My thanks also to **Joseph Slydlowski** for arranging the USS Arizona on the water photo opportunity and the **Potteries MBC** for their help and assistance.

Answer to the October 2016 Mystery Picture

The clue was: The 1st of November.

For those of you still unsure of the meaning of this clue, the date is a reference to the beginning of the gun duel between the German East Asiatic Squadron under the resourceful Vice Admiral Graf Von Spee and the British squadron under the command of Rear Admiral Sir Christopher Cradock. The October picture showed the County Class cruiser HMS Monmouth which was of course part of that ill-fated British squadron.

HMS Monmouth was the lead ship of what was to become the County Class of First Class armoured cruisers and was originally seen as a viable match for the large French and Russian cruisers of the late-Victorian era. Displacing 9800 tons in a hull 463ft 6ins in length by 66ft beam, these ships were seen as an alternative to building more of the preceding Drake Class with the prospect of the Monmouth Class being built in a shorter time frame and at reduced cost.

Unlike the Drake's which had a gun armament of two 9.2 inch, 16 x 6 inch and 14 x 12pdrs, the Monmouth Class were fitted with just a 14 x 6 inch main armament, 10 x 12pdrs and three x 3pdrs. This trade-off in firepower also translated into a reduction in armour, and having less boilers, 31 to the 43 for the Drake Class, reduced the power to 22000shp compared to the Drake Class having more than 30000shp. However, the Monmouth Class could still maintain around 23 knots average top speed, which

compared well with the more powerful Drake's.

By the start of WW1, even though some ships were only 10 years old, the entire class were considered pretty much over the hill in terms of viability in terms of fighting ships. Off the coast of Chile at 1630hrs on the 1st November 1914, SMS Leipzig and HMS Glasgow sighted each other and so began the Battle of Coronel in which HMS Monmouth was to be out-gunned and unable to reply effectively to the rapid and accurate fire from the 8 inch gunned German armoured cruiser SMS Gneisenau. She, being part of the German East Asiatic

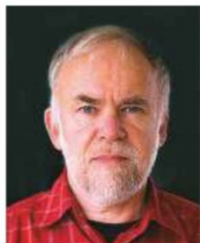
Squadron, had the distinction of possessing the best trained gun crews in the Kaiserliche Marine, whereas HMS Monmouth had an ad-hoc crew, plus a strong southerly wind and high seas reduced the effectiveness of her waist (casemate) guns. During the course of the engagement HMS Monmouth was methodically reduced to a smouldering wreck, but Captain F. Brandt in keeping with RN tradition, refused to strike his colours and as a consequence the cruiser was eventually sunk with all hands by the guns of the German light cruiser SMS Nurnberg at 2120hrs on the 1st November 1914 and hence the clue.

This Month's Mystery Picture

Clue is: Havana 1898, catalyst to war.



Flotsam & Jetsam



John Parker delves into the archives

44: Hobbies Ltd

Hobbies Ltd is one of the oldest names in the business; well over a hundred years of trading has seen them survive a major fire, nearby Zeppelin raids, two world wars, a liquidation and resurgence to continue to trade today. Along the way they have been closely associated with two of the most famous makers of steam toys, Bowman Models and Mamod, and launched a weekly magazine which was selling to the tune of 68000 copies by 1901.

Established by John Skinner in 1877, the basis for the company's success was founded in the supply of specialist machines, tools, materials and plans for the hobby of fretwork. This involved the cutting of intricate patterns of scrollwork and decoration in wood, achieved by means of a hand fretsaw, bench mounted scroll saw, or treadle-operated cast iron fret machine. Skinner's innovation lay in his experiments with plywood manufacture and the realisation that this formed the ideal material for fretworking. The resulting pipe racks, serving trays, decorative screens and other household items were all of very elaborate filigree appearance which suited Victorian tastes, but began to fall out of favour as the Century wore on. Diversification was the answer, a policy pursued with varying degrees of success that saw products such as cameras, sports equipment, doll houses and toys added to the range, available by mail order or from a string of retail shops.

Hobbies Weekly

Fretworking required a ready supply of suitable new patterns to stimulate the hobby and so to provide these, Skinner decided to publish a weekly magazine at the suggestion of his younger brother Frank. Known initially as just Hobbies, and later Hobbies Weekly, it had 24 pages and sold for 1d (a penny), first appearing on 19th October 1895. It was soon a big success, boosting sales of the fretworking tools and materials through the inclusion of a free lift-out design with each issue. These were not necessarily limited to fretwork designs; much the same skills and equipment could be used to make models of buildings, ships and vehicles which were all popular subjects. Articles were published on a wide range of hobby and general interest subjects, and regular competitions held, the magazine supporting the operation of the Hobbies business much the same way as the later Meccano Magazine was to support Meccano products.

Steam engines

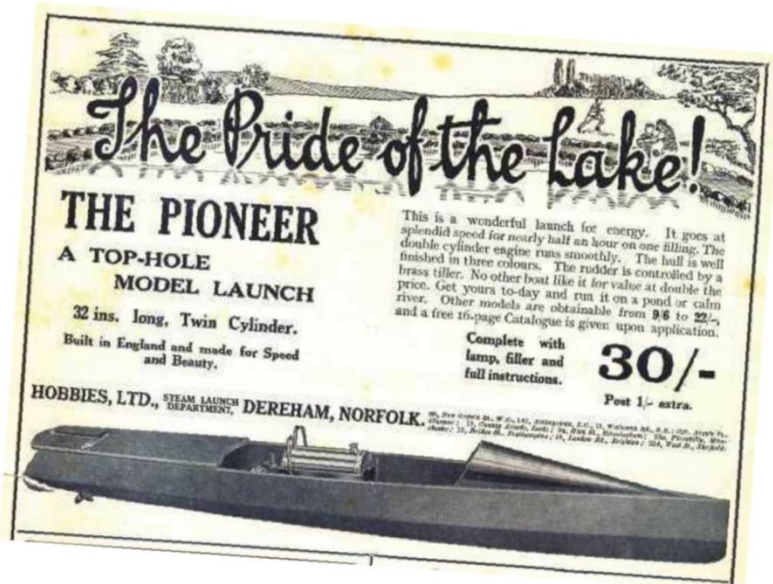
Geoffrey Bowman Jenkins, a toymaker, was enlisted by Hobbies in 1922 to supply British made steam toys in the wake of World War One and the anti-German sentiment that was being directed toward toys that had been imported from that country. A range of steamboats was produced from 1923, making use of part of Hobbies' engineering

works and marketed through the usual Hobbies channels. They were an instant success, Jenkins' engineering design and patented improvements earning them a fine reputation. They were followed by clockwork, rubber and compressed air powered boats; stationery steam engines, locomotives, trains sets and a dynamo, sold variously as Bowman, Hobbies or Bowman-Hobbies products. Depicted is the Pioneer, the top of the range, from a 1924 advertisement in the Boy's Own Paper; this engine had twin cylinders geared to the propshaft.

Hobbies had to find another manufacturer of steam engines after Jenkins ended his association with them in 1935. They made contact with an engineer, Geoffrey Malin of the G M Patent Company, and contracted him to produce a range of four stationery engines followed by a marine engine. This was to give rise to perhaps the most famous name in toy steam engines when the company was renamed Mamod, from Malin Models and it continues in existence to this day.

BELOW: 1935 Hobbies Handbook and fret-working outfits.





Handbooks and the new annuals

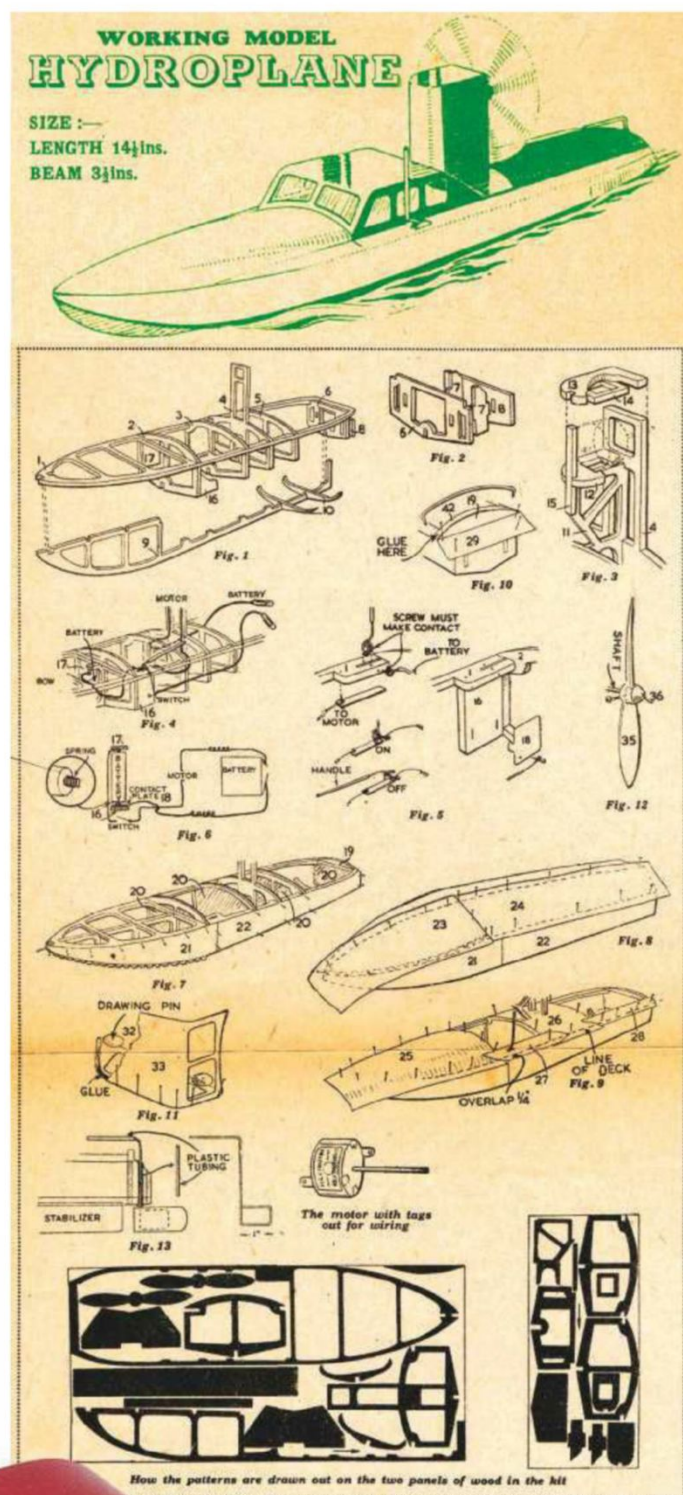
Another publication of the Hobbies company was their Annual Catalogue or Handbook as it was generally known, which by 1935 had grown to a sizable 268 pages. Apart from fretworking patterns and machines, this carried details of model aeroplanes, yachts, steam launches, sporting goods, woodwork tools and cabinet fittings; advertising for the like of Practical Mechanics, the Boys Own Paper, Trix and Bassett-Lowke; and helping to justify its Handbook title, supporting articles on model and furniture making and free toy designs.

Mention of Practical Mechanics reminds me that its editor, F J Camm, (reference Flotsam and Jetsam No 20, MB November 2014 issue) became the anonymous editor of Hobbies Weekly around 1932 and the editor of the Hobbies New Annual. I have collected seven of the latter hardbound books, for the years 1932 through 1937 and 1939 (they are undated, but yield various clues such as the registration of the model aircraft depicted on one of the covers). Apart from the missing 1938 volume, I believe these were all that were published. They contain instructions for building, 'All Kinds of Working Models - Aeroplanes, Railways, Roundabouts, Flapping Wing Models, Guns, Robots, Fountains, Dynamos, Turbines, Pterodactyls, Yachts Etc'; to quote from the cover of the 1935 edition. It is

ABOVE: Pioneer steam launch by Bowman.

RIGHT: Hobbies plan for an airboat hydroplane.

BELOW: Pre-war Trix motor.



amusing to note that the Pterodactyl is given equal billing with model aircraft and railways, without further explanation!

Each of these volumes is a marvellous compendium of the sorts of things that boys once used to make, and given the provenance of the editor, they were tried and tested designs. In the nature of their time they boldly went where no modern day occupational health and safety consultant would dare to go: Fireworks, electroplating, chemical tricks, casting lead, models powered from the 240 volt mains, yes it's all here! The boys shown gathered round the apparatus on the cover of the



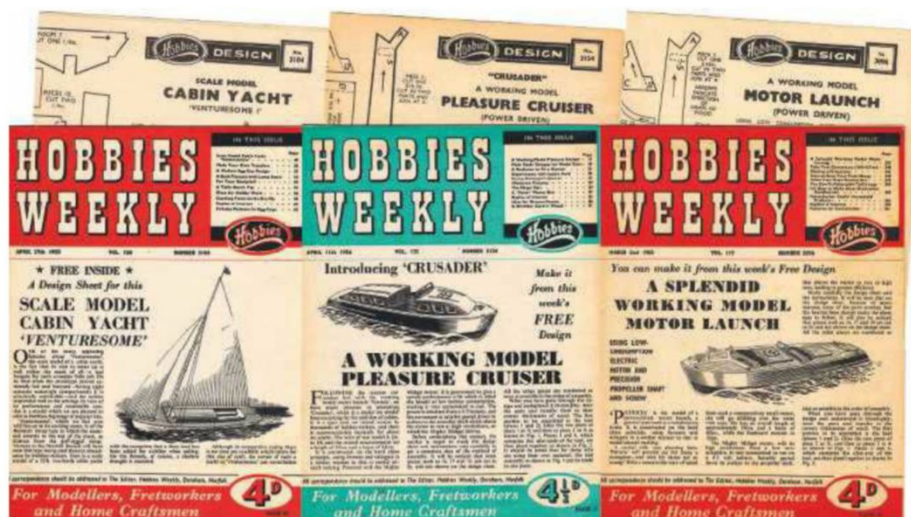
ABOVE: Hobbies Handbooks & Annual.

1936 edition (centre bottom of the photo, above right) are watching a mechanical television set they have built. Don't bother to try and make it though as the signals were turned off eighty years ago.

Hobbies plans

Many plans for marine models were published as free lift-outs in Hobbies Weekly over the years. All were quite simple and toy-like, and many were purely for static display, but there is still an interest

BELOW: Hobbies Weekly magazines with plans for model boats.



in these old designs, whether for purely nostalgic reasons or for those wanting a simple model to build for the grandchildren. I have therefore referenced most of the issues and provided a list of such plans. Well, somebody had to(!) and I don't claim it to be exhaustive, but it's a good start. The plans are generally single sided and rely on the magazine for instructions, occasionally over two issues, but some of the early ones have the instructions on the back.

The plans for the Hydroplane airboat look astonishingly complex for such a simple model, although presumably fretworkers, used to cutting out intricate designs, would have had little trouble making the frames. These early plans are printed with green ink on a paper that is now quite brown, giving them a quaint antique look. The inexpensive Trix motor was favoured for powering models in the pre-war days; later plans call for the Electrotor (Flotsam and Jetsam No. 40, MB July 2016 issue)



LEFT: Construction detail for the Crusader.

ABOVE: Hobbies New Annuals.

or the Mighty Midget motor. Old issues of Hobbies Weekly may be found in secondhand bookshops or on Internet auction sites, but just be sure they still have the free plan if that is what you are interested in and I was lucky enough to purchase a collection of the ship plans alone.

Hobbies themselves reprised some of these designs some year's ago, notably the Patricia motor launch that was originally presented with Hobbies Weekly on the 2nd May 1955. It is quite an attractive design of toy/model boat, originally intended for powering by the Mighty Midget motor, but any small motor would nowadays be suitable. The current Hobbies listing is for an enlarged version suitable for radio control, with a materials pack available. Other original working designs that may be of interest are the Venturesome Cabin Yacht, Crusader Pleasure Cruiser (a cabin version of Patricia with the same hull), Plucky the Tug or Activity, a Steam Coaster.

Fall and rise again

Deteriorating labour relations, lack of investment in new machinery and falling sales led to Hobbies being taken over in July 1964. A re-organisation took place which saw the selling off of the engineering works and the addition of much new merchandise. My Hobbies Marine Modelling and Accessories catalogue stems from this period, very similar to the Keil-Kraft catalogue and handbooks of the time, and showing a full range of model boat kits and accessories.

All this did nothing to stem the tide and Hobbies Weekly, down to 20000 sales and posting a loss, ceased publication by the end of 1965, and the decision to wind up the company followed in December 1968. Happily it was resurrected by an ex-employee, who gained the rights to the old Hobbies trade mark in 1978 and Hobbies Ltd continues trading today. Their range is detailed in a catalogue in printed form or online at: www.alwaysobbies.com

I'm pleased to see model boats continue to be an integral part of this business in the 21st Century.

List of Hobbies Marine Model Plans

Design	Date	Title	Type	Size	Notes
2095	Undated	Elizabethan Galleon	Display		Elizabeth Jonas*
2111	04-Apr36	RMS Queen Mary Liner	Waterline	30ins	Special fretwork design No198
2129	08-Aug36	Model Tug	Working	15.5ins	Trix motor
2226	25-Mar39	Mauretania	Display		White Star Liner
2228	02-Jul38	Old English Warship	Display		
2240	24-Sep38	Novelty Model Queen Elizabeth	Waterline		From the book Treasure Island
2249	26-Nov38	Hispaniola	Display		
2262	25-Feb39	The Great Harry Galleon	Display		
2268	08-Apr39	Naval Waterline Ship Models	Waterline		
2289	02-Sep38	HMS Bounty	Display		
2318	23-Mar-40	A Model Galleon	Display		
2327	25-May-40	Admiralty Trawler	Display		
2340	24-Aug-40	Model Paddle Steamer	Working		
2346	05-Oct-40	Revenge, RAF Rescue Boat	Display		
2351	09-Nov-40	HMS Ark Royal	Waterline	28ins	Aircraft carrier, Sheet 1
2352	16-Nov-40	HMS Ark Royal	Waterline	28ins	Aircraft carrier, Sheet 2
2398	01-Oct-41	Lifeboat	Waterline	19.5ins	Special fretwork design no.224
2432	27-May-42	Corvette	Waterline	15ins	Special fretwork design no. 226
2496	18-Aug-43	Model Destroyer	Waterline	19ins	Tribal Class destroyer *
2566	20-Dec-44	Full-rigged Clipper Ship	Display	13.5ins	Based on "Circe"
2662	23-Oct-46	The Galleon Mathew	Display	15ins	
2674	15-Jan-47	Royal Eagle Paddle Steamer	Display	14.25ins	
2722	31-Dec-47	Clan Cumming Cargo Steamer	Waterline	16.5ins	
2728	11-Feb-48	Model Motor Cruiser	Display	14ins	Norfolk Broads cruiser
2764	20-Oct-48	Hydroplane	Working	14.5ins	Airboat, Electrotor motor
2812	21-Sep-49	HMS Bounty	Display	11.5ins	
2824	14-Dec-49	HMS Amethyst	Display	14ins	The Yangste Incident ship *
2852	28-Jun50	Hispaniola	Display	13.25ins	From the book Treasure Island
2914	05-Sep51	Mary Fortune	Display	7ins	Miniature galleon *
2932	09-Jan52	Discovery Research Ship	Display	12.75ins	Sea Scout training ship
2951	21-May52	Jet-propelled Hydroplane	Working		Jetex propelled
2955	18-Jun52	Semi-scale cabin cruiser	Working		Clockwork, electric or diesel
2966	03-Sep52	Model trawler	Waterline		
2988	04-Feb53	HMS Eagle	Display		Aircraft carrier
3004	13-May53	Mississippi Steam Boat	Working		Elastic driven toy
3005	03-Jun53	Twin-Float Racing Hydroplane	Working		
3014	05-Aug53	Elizabeth Bonaventure	Display	7.5ins	Miniature galleon *
3015	12-Aug53	Racing Model Catamaran	Working		
3039	27-Jan54	Turbo-jet Speed Boat	Working		by Ron Warring
3052	28-Apr54	HMS Britannia	Waterline	16ins	Royal Yacht *
3058	09-Jun54	Nathan Ross	Display		19th Century whaler *
3064	21-Jul54	Regent	Display	7.25ins	Miniature galleon *
3096	02-May55	Patricia Motor Launch	Working	19ins	Mighty Midget motor *
3104	27-Apr55	Venturesome Cabin Yacht	Working	15.25ins	Bermuda rigged scale yacht *
3108	25-May55	The King's Ship	Display	6.5ins	Miniature galleon *
3126	28-Sep55	Saxonia Cunard Liner	Waterline	19ins	Cunard liner
3146	15-Feb56	The Cruiser Superb	Waterline	12.75ins	Warship
3154	11-Apr56	Crusader Pleasure Cruiser	Working	19ins	Cabin version of Patricia *
3158	09-May56	A Model Barge	Working	16.5ins	Barge for use with tug Climax
3164	20-Jun56	A Miniature Galleon	Display	6.5ins	"Warwick"
3198	13-Feb57	HMS Victory	Display	22ins	
3206	10-Apr57	Empress of Britain liner	Working	22ins	Mighty Midget motor *
3310	08-Apr59	Squib Balsawood Cabin Launch	Working	12ins	
3402	22-Feb-61	Model Car Ferry	Working		Caribrook Castle
3517	08-May-63	'Activity' Steam Coaster	Working	36ins	Live steam model
215	1940 Handbook	HMS Hood?	Display	24ins	
251	1955 Handbook	Climax Tug	Working	16ins	Mighty Midget motor
253	1957 Handbook	Anglican Trawler	Working	18ins	Mighty Midget motor
?	1965 Handbook	Plucky Tug	Working	24ins	

* (asterisk) denotes continued in next issue

By Fraser Gray



RMS St. Helena

The last active Royal Mail Ship

RMS St. Helena was in the news in June 2016 when she visited the Port of London for a last visit pending withdrawal from service on her UK to South Africa and Saint Helena regular voyages. A new airport was built and completed in late-2015 on the South Atlantic island with a planned opening in Spring 2016, but wind sheer problems for large aircraft have delayed the start of regular commercial flights to (and from) the island from South Africa by a subsidiary of British Airways. The intention of the airport is to open up the island to tourists and make it economically more self-sufficient.

St. Helena island is part of the British Overseas Territory and also encompasses Ascension and

Tristan da Cunha islands, it being a remote volcanic outpost in the South Atlantic Ocean. It's famous as the place of Napoleon Bonaparte's exile and death, as commemorated by a now-empty tomb. Area is 121.7 sq. kilometres and population is approx. 4300.

This vessel is the last of the Royal Mail ships and her future is now uncertain, but she has provided a vital service to the island for 26 years, carrying cargo and passengers, the latter for whom it has always been a truly unique experience on a unique ship. Civilian passengers could even fly with the RAF to Ascension Island from Brize Norton before joining the ship for the voyage.

All information from the public domain





Principal particulars

Owner:	St Helena Line Ltd
Operator:	Andrew Weir Shipping Ltd
Port of registry:	London
Builder:	A P Appledore (Aberdeen) Ltd
In service:	1990
Identification:	IMO number: 8716306
Tonnage:	6767 GT
Length:	105m (344ft)
Beam:	19.2m (63ft)
Draft:	6m (20ft)
Installed power:	6532 kW
Speed:	14.5 knots
Capacity:	128 passengers, 1800 tonnes cargo
Crew:	56 officers and crew



NEW PLAN

Sunday Best

Tony Wright's new open boat design



Plan for Sunday Best

The detailed full size plan No. **MM2120** is available from MyHobbyStore Ltd and is priced at **£12.50 + p/p** as of October 2016. MyHobbyStore plans may be purchased online at: www.Myhobbystore.com.

Many years ago when I was a boy, my dad used to take my younger sister and myself for walks along the banks of the river at Hull. At that time you could get yourself an old boat (full-size that is) tie it to the river bank and then restore it with no bother from the authorities. My dream was to own something and a rowing boat would do. Anyway, one day during such a walk dad got talking to one of the boat owners who had an old rowing boat that he said we could have. During the next few weeks dad rebuilt it and I painted it bright orange. My sister and I spent hours rowing up and down the local streams and small tributaries without life jackets, this being long before 'Elf and Safety' became the norm'. We really had fun, but at the back of my mind I wanted an outboard motor which had to be a Seagull, and why? Well, just because I thought they looked good. That ambition was never achieved, but now being well into adult life and having the necessary skills, a model of my childhood dream boat complete with a model outboard became a distinct possibility.

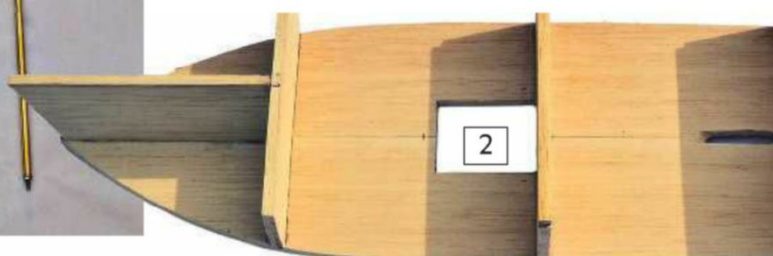
To simplify the model, it was decided to fit a standard propshaft assembly and use a dummy outboard as the rudder. Okay, not an original idea maybe, but it was the first time I had thought of it, and this is the result - a simple mostly open top hard chine

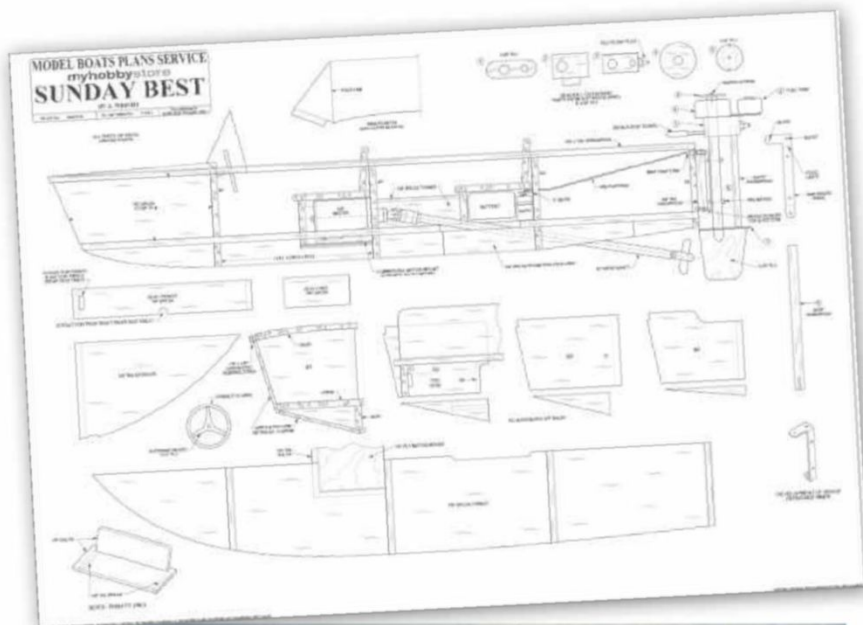
craft, 24.5 x 8.5 inches in size with seating for four and complete with a nice windshield for that 1960's look. Construction could not be more simple, with balsawood being the principal material used. The basic hull has a flat base formed from two shaped pieces of balsawood, butt-jointed and which are the shape of the chine of the hull. Vertical bulkheads go on top with stringers around the top outer edges and a part deck covering over some of it. For the 'below chine' part of the hull, smaller triangular bulkheads and a keel create the framework for the bottom skin pieces.

Let's start.....

I suggest you first cut out what effectively becomes a kit of the parts, **Photo 1**, this picture showing all the bulkheads, deck parts, stringers and the propshaft. You will need a set of suitable tools, but the basic requirements are few. An offcut of kitchen work top makes an ideal building board as this is usually flat and straight. A cutting mat is essential as they don't cost much and make accurate cutting a lot easier. Regarding cutting, a large craft knife of the Stanley type, with a supply of decent quality replacement blades is essential, because when balsawood is being cut, as soon as it starts to tear or crush, the blade must be changed. A nice 2ft (60cm) steel rule is handy and if you are likely to abuse it, the 'Pound Shops' often have them for not unsurprisingly, only £1. A set square will be needed to ensure the bulkheads are positioned properly and some pins to hold the parts together whilst the glue sets. A junior hacksaw might be useful for cutting the thicker pieces of wood.

Be accurate when cutting as it will make the task of construction a lot easier and neater. For adhesive,





I would recommend a water resistant PVA type as it is an open top boat and you must expect some water to be shipped. Good old fashioned balsa cement could be an alternative, but superglue will also do the job if you are building in a hurry, but it is not waterproof and is inflexible, although for speed of construction there is nothing to beat it.

Starting with the 1/4 inch (6mm) balsawood chine pieces, glue the two halves together using the tape-hinge method. This means using a length of Sellotape to join the two halves at their edges, creating a hinge. Fold the two parts back on themselves, apply a bead of adhesive along the joint then fold out flat and pin or weight it all down, preferably over the plan (this completed part can be seen at the top of Photo 1).

Next glue the bulkheads and the stem piece into position, **Photo 2**, together with the forward deck, and the 1/4 x 1/8 inch (6 x 3mm) side stringers,

Photo 3. It is best to choose a couple of lengths of harder balsawood for these parts, but care is needed when bending them.

Photo 4 show progress so far and you can now see the concept of 'Sunday Best'. For simplicity of construction, there has been no attempt to have a sheer to the chine. Remove the hull frame made thus far from over the plan and turn it over. As you can see in **Photo 5**, which has the hull upside down, the motor will sit in the 'well' created in the main bottom piece of the hull, to keep it as low as possible and ensure it is hidden under the front bench seat.

If you haven't already done it, now cut the hole for the propshaft tube. Give the tube a through abrading to provide a key for the glue where it passes into the hull and **Photo 6** is a bottom view of the hull's framework so far. To be honest, you



could do virtually all of the foregoing in an evening in the workshop if you were ultra-keen.

Temporarily fit the motor, and this prototype has an inexpensive 540 type fitted to an equally cheap plastic motor mount that fits into the recess seen in the last two pictures from beneath, but now from above, **Photo 7**. Aligning the running gear is always easier if the hull's framework is still open, at least from a side viewpoint. Connect the motor to the propshaft with a universal coupling of the type with slot-in brass ends and a red centre plastic universal joint unit. I have however noticed the increasing use of rubber couplings, which tend to be quieter.



Hints & Tips

For adhesive, I would recommend a water resistant PVA type as it is an open top boat and you must expect some water to be shipped. Good old fashioned balsa cement could be an alternative



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A small angle between the motor shaft and the propshaft won't be a problem, but still do make sure you align the propshaft and motor output shaft as accurately as possible. The propshaft tube is best glued in place with epoxy adhesive and the five minute curing type should be 100% fine. This last picture shows all the the keel pieces installed and doublers either side of the propshaft tube cutout. Having the keel in place will help align the propshaft. With a square-cornered wood sanding block, say 12 inches long and 3 inches wide (the thickness is not critical as long as it is not flexible) from scrap wood, attach a piece of medium grit glass sandpaper with drawing pins to it. Use this to bevel the chine and deck edges where the hull's skins will butt up to one another.

Cover the bottom of the hull first with 1/8 inch (3mm) thick sheet pieces, the grain running port to starboard. Do the same for the side skin pieces, but with the grain vertical and there we are, a basic open hull and **Photo 8** is of the bow section and its bottom and sides, covered with balsawood sheet pieces, the picture confirming the best way for the grain to run. Gaps in the balsawood covering can be filled with slivers of it, pushed into the gap and secured with any of the glues already mentioned. Noticeable dents and blemishes can be filled with nothing more exotic than fine domestic filler.

More work....

It might be a good idea to now make a boat stand and any wood will do, but just make a good job of it. The stand can be as decorative or functional as you desire, but a nice stand does make a model look so much better when it's on display.

Continuing with Sunday Best now, the next major job is to pre-install the r/c gear and motor etc., but first the dummy outboard motor needs to be made.

This was made out of scrap softwood, plywood and hardwood dowel, with the flywheel made from soft plywood, turned in a lathe, but a firmly secured electric drill can provide the means to do that job equally well. **Photo 9** has the parts for the dummy outboard, which functions as the rudder. The outboard mount is a length of 3/8 inch hardwood and the brass left/right hinge is homemade with pivots from screws and **Photo 10** shows the completed imitation Seagull unit in place. Yes, not 100% true scale, but an effective way of steering and above the water it looks like an outboard. As an addendum to this, to cut and file brass when making the left/right hinge or indeed anything else, you will need tools that have not been used on steel, because inevitably they will have then been blunted if one is not careful. For this model, I guess that a commercial outboard motor model could be sourced, but this dummy arrangement ticks most of the boxes. The electronics of Sunday Best are hidden in various compartments within the hull, the NiMH battery and the rudder servo being under the rear seat, with the receiver and the electronic speed controller (esc) either side of the motor, secured with self-adhesive Velcro tape and directly under the front seat, **Photo 11**. Note the micro rudder servo which is more than adequate for this model boat and the cover in the footwell over the propshaft. The rudder, masquerading as the outboard motor, is operated by a wire push rod with a Z-bend at one end and a snap link at the other, **Photo 12** being of it after final model painting. The seats are from scrap balsawood - you could upholster them if desired and they are located with lengths of 1/4 inch (6mm) balsawood strip, **Photo 13** being of the front seat, the cheap doll pretending to be the lady driver (Pound Shop again if you are lucky), who is secured to it with cable ties.

Hints & Tips

It might be a good idea to now make a boat stand and any wood will do, but just make a good job of it. The stand can be as decorative or functional as you desire, but a nice stand does make a model look so much better when it's on display.

15

Painting

A false planked front deck was drawn with an HB pencil, **Photo 14**, prior to final varnishing. Before this, the whole hull had a coat of thinned model aircraft dope to protect it. Next, the bottom and sides of the hull were covered with model aircraft lightweight tissue attached with full strength dope well-stippled into place, a method favoured by Glynn Guest. It is up to you to decide how many coats of thinned dope to apply before adding the final colour coats. Usually though, about three coats of 50/50 dope and thinners with a gentle sanding between each application, results in nice smooth finish. Domestic household filler is as good as any when smoothing minor dents etc.,

As for the final paint scheme, you cannot go wrong with aerosol acrylic car sprays for this sort of simple model, but conventional enamels will also be okay.

Photo 15 is of the complete and painted 'Sunday Best', proving that it is possible to hide the r/c and batteries in an open boat. Once you have the desired final finish you want, it is time to reinstall the motor and the electrical bits and pieces. If you are using 27 or 40MHz r/c, then a vertical plastic aerial tube will be required, but if using 2.4GHz, which is becoming very common nowadays for surface running models, then nothing of the sort is needed. The windscreen, added after all the painting was complete, is from clear plastic sheet and making a cardboard template before using the knife is a good idea. A crew of at least one person will make it all look much better and don't forget a steering wheel and some dashboard dials, **Photo 16**. A 'get you out of jail' solution for the steering wheel is to use a rubber O-ring, which is quite realistic for the rim, and a scrap of 1/16 plywood cut for the spokes as in this last picture (and it is also shown on the drawing). Other accessories as you think best will bring the model to life.



16

Conclusion

After the usual range checks, just go out and enjoy yourself, **Photo 17**. Sunday Best handles just fine and also surprisingly well when going astern. The model is so light in weight it can be launched by installing a simple wire hoop on Bulkhead 2 and with a length of bamboo (or similar) rod with a hook on one end can be lowered or lifted over the water without one having to bend over. I do hope you will build this model speedboat and if you have any problems please email me at: thepufango@gmail.com

Enjoy your hobby - Tony Wright

17



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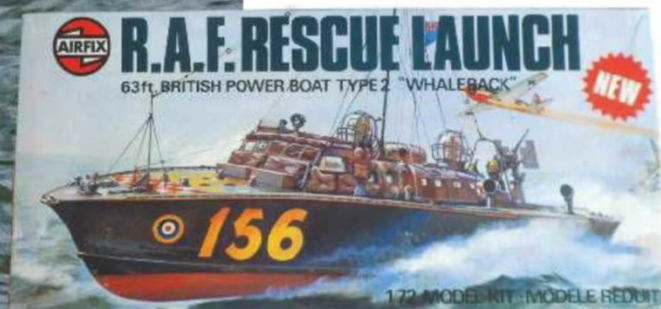


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Air Sea Rescue Launch



Francis Macnaughton converts the Airfix 1:72 scale plastic kit to radio contro

There has been a huge improvement in the performance of radio control gear over recent decades, not only in its reliability and secure channel availability, but also in the ability to get the same number of functions into ever smaller and lighter packages. This was brought home to me in 2012 when Dean's Marine first advertised their Mini Radio [DM-C-Mini RC] System which offers a 2.4GHz Tx and Rx with two servo channels and a built in speed controller driving a high performance geared motor (forwards only), plus propshaft, propeller and rudder set. Their YouTube video shows a converted 1:72 scale Airfix Vosper MTB kit performing impressively with a convincing turn of speed and manoeuvrability, all on a single small 3.7v LiPo stick type of battery. The r/c set is derived from the lightweight gear made by 'eRC' for the micro end of the ready to fly model aircraft range and particularly for their MiroStik and Boomerang models. These are imported by J. Perkins and one thought is that you could buy one of the model aeroplanes and have fun flying it until you have one crash too many, as their airframes are so fragile, and then use the surviving r/c gear in a model boat of your choice, but you would still have to source the running gear.

That was enough for me to get on with ordering a set from Deans Marine, which came with some brief instructions and a CD of pictures of a typical installation in a selection of kits. Although many of these options were interesting, the craft I was interested in motorising was the Airfix 1:72 scale Air Sea Rescue Launch which had been purchased in 1979 when it first appeared in the marketplace, but had never got round to building. It is the smallest in their range of service craft being only 270mm long, but looked like it would be able to take the additional weight of around 20 grams that the conversion would involve. The kit is still available in the retail

marketplace, at varying prices, £19.99 being the current recommended retail price (mid-2016).

The kit, **Photo 1**, represents the British Power Boat Company Type Two 63 ft High Speed Rescue Launch, also popularly known as a 'Whaleback' because of its curved sheer line. With a top speed of 36 knots, this craft was considered to be the Spitfire of the different rescue launches in service at the start of WW2. Originally the whole main deck and cabin were painted a bright yellow for easy recognition from the air, but after several attacks by Luftwaffe aircraft when in the English Channel, a more muted colour scheme was adopted and the armament for self-defence was increased and lightweight armour protection added. The kit includes a lot of detail, including four crew and different options such as a 20mm Oerlikon, splinter padding and Lewis guns to cover the progressive improvements, as well as markings for three different boats.

Conversion to radio control

The r/c gear to be installed consists of a combined receiver, rudder servo and electronic speed controller (esc) all on one board, a geared motor, 3.7v 150mAh LiPo stick battery, propshaft, propeller and rudder. There are actually two servos, one of which is not required in this model boat. The servos are designed for operating the control surfaces of small model aircraft, have a limited range of movement and don't have a lot of power, so one should not expect too much from them. To best fit in the limited space available in the rescue launch and still give some access for operation and adjustment, it seemed best to have the electronics board nearly central, but offset to one side so that the rudder linkage could be adjusted. The kit's main deck (Part 21) needs the flat areas of plastic that are under the cabin opened out back to the edge line to maximise the size of the opening. **Photo 2** shows the radio receiver with its skeleton servos and esc, plus

Data Box - RAF Air Sea Rescue Launch

Airfix 1:72 RAF Air Sea Rescue Launch, Pt. No. A05281, £19.99

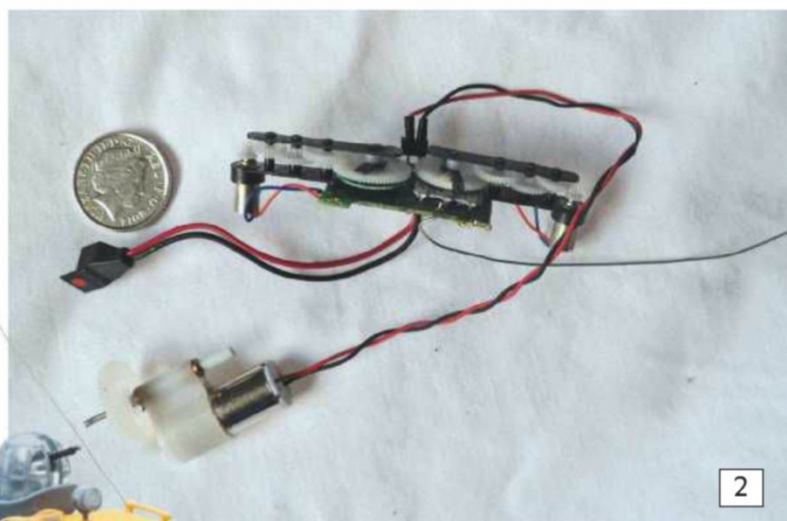
Deans Marine

(www.deansmarine.co.uk)

Minigear Micro R/C System 2.4GHz current (2016) price £83.

This comprises:

- eRC Micro series 3 Channel 2.4GHz transmitter, Pt. No. 4499530
- eRC Micro Stik Motor and gearbox, Pt. No. 4499525
- eRC Micro Stik Receiver and servo board, Pt. No. 4499533
- eRC Micro Stik 150 mAH LiPo, Pt. No. 4499524
- and also:
- Own brand rudder set
- Propshaft and tube, M2 thread
- Plastic propeller 22-L
- Silicone tube coupling



battery connector and geared motor, the 5p coin showing the overall size. The eRC 2.4GHz transmitter is also quite small, but does the job. You do of course only need one servo for rudder operation and the esc for motor control.

Construction

It was best to mark out and trim the central slot for the propshaft, half in each of the two main hull sections, port and starboard (Parts 1 & 2 - there's a surprise), before gluing them together. This hole is 2.5mm deep and 25mm long starting approx. 65mm from the rear transom edge. Masking tape was used to hold the hull halves together for marking out and the separate transom piece left off until after the radio gear had been fitted to enable easier access. The propshaft slot was carefully filed to an oval shape, frequently testing against the propshaft tube, until large enough and bevelled at each end so it had the correct angle to give enough clearance for the Deans Marine 23mm diameter three bladed RH plastic propeller, while keeping the motor as close as possible to the bottom of the hull. A hole was also

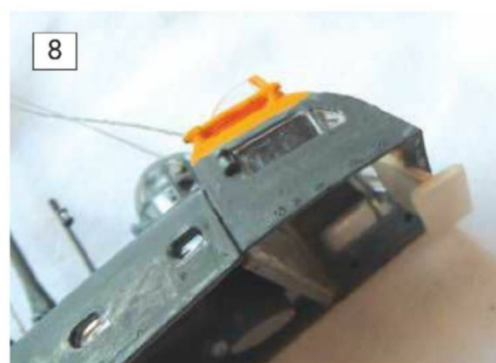
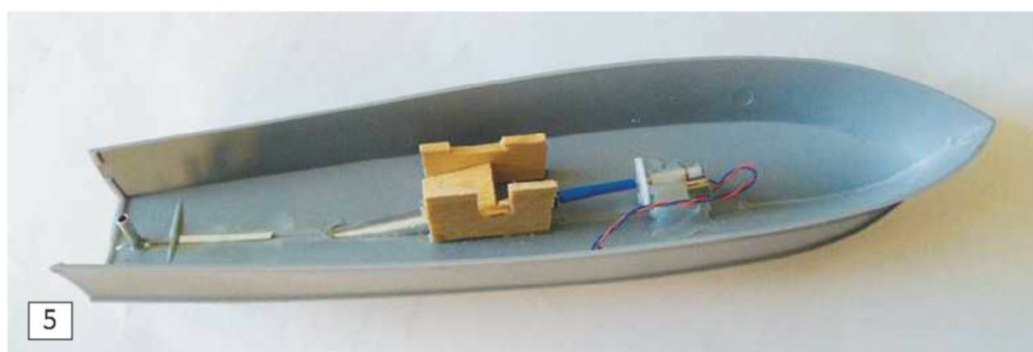
drilled 10mm from the transom end on the centre line to take the rudder tube. **Photo 3** shows the slot for the propshaft tube after careful trimming and filing for the correct fit and angle.

The supplied propshaft tube had to be cut down to 90mm (approx. 3.5ins) length and its M2 shaft to 120mm (4.75ins) before the tube itself was glued into position with quick setting epoxy adhesive taking care to make sure the propeller still cleared the hull bottom. The propshaft tube is of course somewhat over-scale as you can see in **Photo 4**, with it and the rudder post tube in place before the now unwanted external hull indentations for the kit's propshaft skegs, were filled and sanded smooth.

Once the glue had set, the motor was connected to the propshaft by a 25mm piece of PVC insulation

“With a top speed of 36 knots, this craft was considered to be the Spitfire of the different rescue launches in service at the start of WW2.”





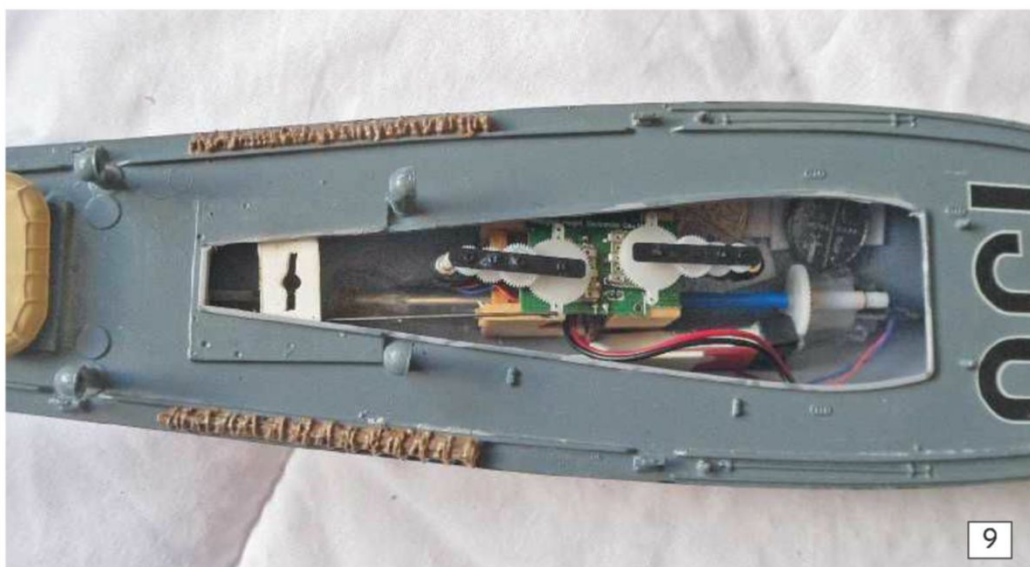
stripped from electrical wire. This needs to be of quite a small diameter to have an adequate grip on the motor and propeller shafts. The motor, which should be no closer to the bow than 85mm, is supported by a small wedge of scrap balsawood to hold it at the right angle, secured by generous blobs of flexible silicone sealant between it and the hull bottom, Loctite 595 Superflex Clear being a good choice. The alignment was regularly checked to ensure smooth turning of the propshaft before putting it all aside to cure. This method is convenient, giving a lightweight mounting together with some noise and shock absorbing properties. A support framework for the main electronics board was made from two pieces of 3mm balsawood and fixed slightly offset to port to keep the moving parts of the rudder linkage roughly central. A balsawood cross

piece was added for extra strength. The cut-outs are intended to make sure that the servo's output movement is unimpeded. Some balsawood strip was also glued to the hull to starboard of the mount to hold the LiPo battery in place. **Photo 5** shows the motor and propshaft in place, plus the rudder tube and electronics mounting. Please note the separate transom piece has not yet been glued in place.

The rudder was made from three layers of thin styrene (Plasticard), 15mm by 20mm, all laminated together with a piece of brass rod as the stock in the centre of it all, rather than use the Deans Marine version as that seemed to be quite heavy, and keeping weight to a minimum is a mantra with this type of model. The newly installed rudder tube is of aluminium, again to keep weight to a minimum. The tiller arm has been made from shaped styrene card epoxied to the top of the rudder shaft. Okay, there is now no going back without breaking it all, but bearing in mind the space available this was the best option. The tiller arm has plenty of closely spaced holes for the linkage to allow future adjustments for the most ideal amount of lateral movement.

After plugging the motor lead into the appropriate pins on the Rx board (double-checking it was negative to negative on the plug and pins), the board was positioned on its supports and adjusted so there would be as much access as possible through the opening in the deck. This board was secured by just using small pins pushed into the





balsawood. The rudder linkage uses 0.5mm steel wire and with this micro-system, the direction of operation has to be correct as the transmitter does not have a servo reversing facility.

Photo 6 shows the layout of the electronics and motor before adding the deck piece. A domestic kitchen sink or washroom basin test of the bare hull (now with transom piece fitted) made sure the r/c controls worked correctly when afloat. Once happy, the deck was fitted, but before that, a method of securing the cabin unit needed to be determined. Having a lug formed from styrene at the forward end and a rotating catch arrangement near its aft end was the best option, but perhaps a small high power magnet could be an alternative?

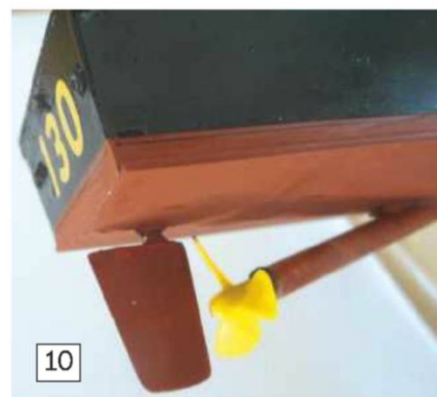
Anyway, to make the catch work, a hole had to be drilled through the hatch on the cabin unit (Part 51) to take a 20mm length of 3mm o.d. aluminium tube pushed through a matching hole in a 10mm wide strip of styrene mounted under the opening in the deck and about 10mm from the aft end of the opening. By cutting slots in the strip to give a double keyhole shape and having a short length of 0.5mm brass rod through the aluminium tube, this provides a means of positively securing the cabin, **Photo 7**. A small wheel and a leftover lifebelt from another

kit provides the means to keep this catch in place and to turn it for locking or unlocking. Some strips of styrene were glued at the front of the cabin to create the lug, **Photo 8**.

The deck was attached to the hull, and rather than using polystyrene glue, the same silicone sealant used for the motor created a good watertight seal with the added advantage that it is then possible to carefully peel the deck off for electronics rectification in the future, should that ever be needed. **Photo 9** shows just how everything fits inside and **Photo 10** is of the all-important rudder and the brightly coloured propeller.

Finishing-off

Completing the Airfix kit is straightforward enough, the instructions and part numbering being clear throughout the instructions. Trials of the model on the water were very encouraging as it showed an impressive turn of speed for such a small model, perhaps as much as 6 feet per second, but good control through turns to starboard was required as this ASRL model heeled over much more than when turning to port, **Photo 11** showing this feature rather dramatically.



“Trials of the model on the water were very encouraging as it showed an impressive turn of speed for such a small model,”





This effect has been reduced to a relatively manageable extent by adding a small amount of ballast on the port side of just two 5p coins, held down with double-sided tape. A smaller propeller will probably help, providing it doesn't reduce the top speed unduly. The 150mA LiPo stick battery gives a reasonable operating duration of around 15 minutes at near full motor power before the speed starts to drop off.

With this sort of model and it being so small and somewhat over-powered even now, from previous experience with similar motorised kits it is best to minimise the number of fragile bits that could be broken when putting the cabin on and off, and connecting and disconnecting the battery plug. So this ASRL represents a fairly early-WW2 version without any extra guns and armour. The stanchions were also not installed, nor the flag and ensign staffs.

Painting

The model was painted in standard gloss black for the hull and Humbrol No. 27 Sea Grey for the deck and superstructure, with just the top of the wheelhouse painted yellow. The supplied decals

were applied and sealed with varnish. The paper RAF ensign provided in the kit seemed far too large for the size that would normally be flown at sea, so a free image from an Internet search was resized to print out at 18 x 9mm, and then positioned on a Word document page and experimented with until a double-sided printable version evolved. The best example of these was cut from the carrier sheet, sealed with matt varnish and then glued (with superglue) to a thread representing a halyard.

And finally?

The finished model fully, ready to run, weighs 106 grams compared to the 60 grams that the scale displacement from the 21.5 tonnes of the prototype would suggest. This might seem to be problem, but in fact the ASRL floats about 2 to 3mm 'deep' when at rest, but doesn't look unduly low in the water, particularly as it spends most of its time on the plane at speed. The 150mAh battery gives about 15 minutes running at full speed before performance starts to decline. **Photo 12** gives an idea of its floating waterline and **Photo 13** shows the ASRL at speed and well out of the water.

Conclusion

The Airfix ASRL floats near to its scale waterline, runs at something that looks to be at least the scale speed of the original and is fun to operate, apart from care being needed on tight starboard turns. It does not have a 'going astern' capability, which is a disadvantage, but is manageable. The ASRL's small size is also very handy for portability as the photo on Page 52 shows, with it in a 29cm long x 17cm high x 10cm deep transport and storage box. I have since converted an Airfix Vosper 73 foot MTB using even smaller r/c equipment and this may be the subject of a future article. Finally, my particular thanks go to Nigel Allen of the City of Plymouth MBC for the on the water pictures as it is not easy to 'capture' a small model photographically at speed, particularly if you are attempting to do it with just one hand.

Enjoy your hobby - Francis Macnaughton



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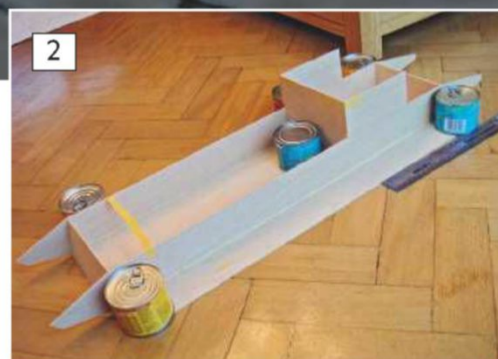
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SRN-6 Hovercraft



Andy Cope builds this famous British invention



It's weird how a childhood memory can flash back into life from a simple image. When I was about four years old, my parents had taken me on holiday to the Isle of Wight on a hovercraft from the mainland and bought me a small matchbox toy of it which I now know to have been an SRN-6 Hovercraft, **Photo 1**. That journey and the much loved toy had been very much lost to long term memory until a fellow model boat club member unfurled a paper plan of this hovercraft at a recent model boat exhibition. The lines on the plan formed the unmistakable shape of my matchbox toy hovercraft and instantly rekindled the memories of that very exciting, albeit noisy, skim across the Solent in a huge cloud of spray. Having seen the plan and recently completed my first hovercraft model featured in the Model Boats 2015 Winter Special, I knew I would have to build one. The unfurled plan was from Traplet and is No. MAR2437, a freelance hovercraft based on the SRN-5 and SRN-6 craft and is to an approximate scale of 1:18.

It is simple enough to follow if you also take some time to look at plenty of pictures via the internet of completed models of the SRN-5 and 6 hovercraft and where would we be without this research tool nowadays? Mind you, one must bear in mind that although pictures will usually be what they say they

are, the words should always be double-checked, preferably against authoritative books to confirm their accuracy.

Basic hull

Construction of the basic SRN-6 hull and cabin framework was from Lite Ply of 3.0mm thickness, this being used where possible, although 0.4mm normal plywood was used for the cabin roof and deck skins.

The following photo sequence show how the basic construction was really quite straightforward.

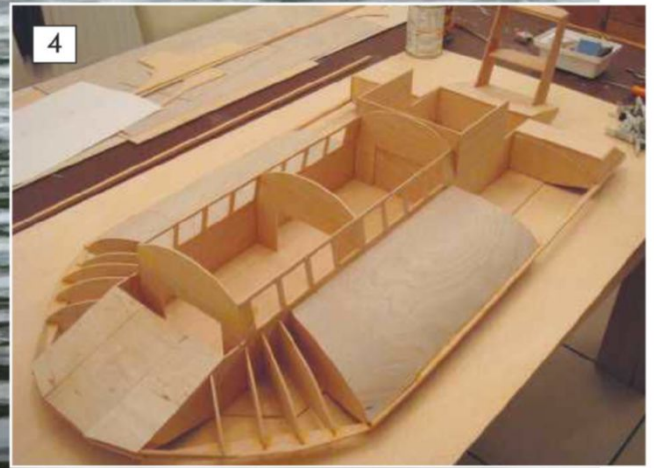
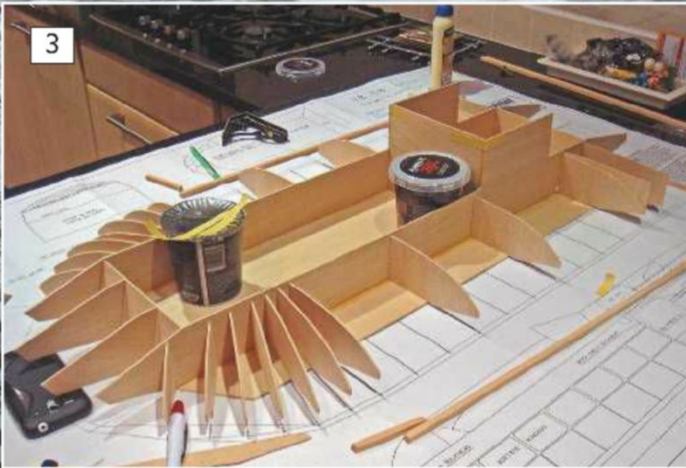
Photo 2: This is of the inner box section unit from Lite Ply, the raised area aft being for the lift motor and its duct.

Photo 3: Here the ribs for the outer sponsors are being fitted. The basic hull was built over the plan.

Photo 4: The 0.4mm plywood skins are being added. This is the thinnest plywood that could be readily obtained.

Photo 5: Skinning now almost complete.

Photo 6: Remaining cockpit windows have been added and skinning is complete.



Lite Ply is very easy to cut and stick together with a conventional wood glue and was used where possible to minimise weight. The model is about 95cm long and 45cm wide (about 1/18 scale), and so is quite large and minimising its weight is an important consideration. I guess styrene (plastic) card might have also made a good construction material, albeit being heavier than Lite Ply, but I wouldn't try using standard plywood throughout, or your hovercraft may well not hover.

Power units

The plan suggests the use of two 540 type brushed motors fitted with five inch propellers for lift and thrust and I guess that when the plan was drafted in 1994 that was probably the only option available. The original full-size hovercraft had just one engine that did both jobs. With this model, so as to

guarantee lift success and now being in 2016, the installation of a huge 120mm ducted fan powered by a 1250Kv brushless outrunner motor seemed to be the best 21st Century option, **Photo 7**. With hindsight this was a bit over the top, but I didn't fancy spending time making a model for it not to perform properly. Forward thrust would be provided by a conventional brushed 480 brushed motor with a three-bladed 5 inch propeller, **Photo 8**. Lithium Polymer (LiPo) batteries weren't an option in the mid-1990's, so further weight could be saved in 2016 by using these modern lightweight batteries. I'll admit at this point that I'm not famous for following plans if I think I can get away with a



shortcut and this project was no different. The plan shows the hovercraft's forward thrust motor installed above the main cabin approximately where the real craft would have had its single Rolls Royce Gnome jet turbine engine, but that would have meant a complicated motor shaft extension across the lift fan in order to drive the thrust propeller at the rear of the craft. So the thrust motor was simply positioned at the rear of the hovercraft attaching the thrust propeller directly to it, and I hoped no one would notice, **Photo 9**.

The fan unit casing used for lift had to be modified before mounting into the hovercraft by cutting side vents into its duct. These side vents allow air to inflate the bag skirt while the rest of the air is forced under the hovercraft and plenty of two-part epoxy adhesive secured the duct in place, **Photo 10**, where the port side outlet vent is clearly visible. With the hovercraft now upside down, as in **Photo 11**, the lift duct outlet as from beneath can now be clearly seen. The bag-type of skirt is attached around the outer deck and inner flat hull piece forming a donut (doughnut) sort of shape, inflated from the side duct vents.

Skirt

The hovercraft's bag skirt has been made from rip-stop nylon fabric. It is best to get the waterproof stuff if you can, but nylon kite fabric with a waterproofing solution applied will achieve the same

result. The fabric sections must be cut exactly as per the plan and carefully sewn together. A fabric cutting mat and wheel type cutter were used which are much quicker than scissors, **Photos 12 and 13**. This SRN-6 model really deserves a proper finger skirt for a true-scale look, but that will have to wait until time allows for locating or creating a suitable template. The skirt was fixed to the hull using self-adhesive rip stop nylon tape, which is much the same as spinnaker repair tape, **Photo 14**.

Electronics

With the ducted fan providing the lift and the rear mounted motor and propeller providing the forward thrust, a standard size waterproof servo was inserted into the rear deck for steering and was connected by simple model aircraft linkages to the rear fins (rudders) and **Photo 15** is of the electronic components. The lift motor could be safely controlled by a forwards-only brushless esc, but some reverse thrust and/or braking capability is necessary for a hovercraft model, it not having the variable blade pitch capability of the real thing, so an r/c buggy type of forward and reverse brushed esc was fitted to the thrust motor.

Both esc's use LiPo batteries, with 7.4v (2 cell) for thrust and 11.1v (3 cell) for lift, the latter giving a decent rpm (multiplying 11.1 x 1250 motor rating) of about 14000rpm, **Photo 16**. Why the larger capacity battery for the thrust motor? Well, to be



honest these batteries were to hand and at zero additional investment seemed to be a good option.

When connecting two esc's to one receiver and using the BEC (Battery Elimination Circuit) facility it is important to remove one of the positive power connections from one of the speed controllers, or you just might fry (burn-out) the internal circuit of one of them. I opted to use three channels on the radio transmitter, the left un-sprung vertical axis stick for the lift motor and the right stick's vertical axis for forward and reverse thrust and the horizontal axis for left and right steering.

Painting

The completed model was initially given a coat of varnish all over to seal and strengthen the wood, but you could use sanding sealer, and then Humbrol enamels provided the colour coats, **Photo 17**, masking as necessary and it was ready for testing as in **Photo 18**, but would it work?

Testing

This always provides a bit of excitement both for the builder and his fellow club members who all miraculously appear when a new model of any type first takes to the water. This is probably a morbid curiosity to see if anything goes wrong on

19



the maiden voyage or flight, but if a model boat doesn't perform first time, tweaks are relatively easy to administer. However, if you have scratch built a hovercraft using your own choice of materials AND built into it an untested power system, the scope for adjustment is going to be limited. You can therefore imagine my apprehension when pushing the lift fan throttle stick forward for the first time given the not inconsiderable investment of time and effort to get the SRN-6 model this far. Thankfully, I and the assembled throng needn't have worried, as being from the original plan, but with the use of modern lightweight and powerful electrical components, this all more than compensated for any heavy handed construction methods employed as it rose a full

60mm (2.375 inches) from stationary to the hover. On solid flat surfaces, the model effortlessly glided over lumps and bumps of about 20mm height and could even tackle modest gradients. On the water though, it could really shift and in calm conditions the hovercraft will rise over its bow wave and skip across the surface very nicely indeed,

Photo 19. The only significant adjustment to be made though is to angle the rear elevators down a touch to prevent the rear end of the craft being driven into the water, but **Photo 20** is a stern view and that effect is not that apparent in this picture. However, unfortunately I had ignored the plan's instructions which suggested the rear elevators be left adjustable for future trimming and had just stuck them rigidly into a position, so perhaps a short-cut too far.

Conclusion

Hovercraft models are not as tricky or scary as they may first appear and modern batteries and motors make them easier and cheaper to construct than ever before. I didn't bother with Plenum Chamber pressure measurements or thrust calculations as some model makers might do and have perhaps been lucky with the choice of lift fan, but there again all of us as we become more experienced in our chosen hobby often manage to make the right 'call' when changing something allegedly for the better.

To see a short video of the hovercraft in action, please search YouTube for: 'Buxton Model Boat Club 58 & 61', this club having previously been the Pavilion Gardens Model Boat Club Buxton.

Enjoy your hobby - Andy Cope

20



SRN-6 Winchester Class Hovercraft

Builder	British Hovercraft Corporation
Displacement:	10.9 tons
Length:	17.78m (58ft 4ins)
Beam:	7.97m (26ft 2ins)
Height on cushion:	6.32m (20ft 9ins)
Propulsion:	One Rolls-Royce Gnome turbine engine 1050hp (780kW) for lift and forward propulsion
Speed:	50 knots (93km/h)
Range:	170 miles at 30 knots
Capacity:	58 seated passengers
Crew:	3
Entry into service:	June 1965

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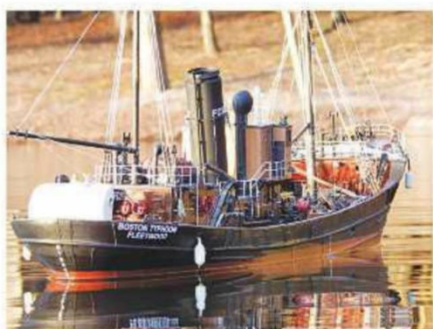


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Boiler Room

PART Seventy One: Stuart Models



Photo 1. The reintroduction of the old Henley launch shows clearly Stuart's commitment to their heritage. The Henley first appeared in the 1930's and I'm sure a model such as this one will bring back a flood of memories for anyone who owned one the first time around.

I think it is pretty fair to say that in this day and age we rarely get to discuss a thriving company that has been in existence for around 118 years and is still producing the same products that started the business all those years ago. Such a company is Stuart Models and while the name has changed slightly during that time, it is basically still producing a range of casting sets, machined kits and finished model steam plant and equipment, some of which are almost the same products that founded the company in 1898. Not surprisingly, being a producer of steam related models the company is

very close to my heart, a place it shares with many thousands of other steam enthusiasts worldwide. I can remember walking past a model shop every morning on my way to college in Liverpool and stopping every day to look at the range of Stuart Turner steam engines on display in the window. I remember thinking how out of my financial reach they were in those days, but how one day I would dearly love to have my own model steam engine of such quality and I'm sure I wasn't on my own with such dreams. As the company has now undergone another significant restructuring, I thought it might be worth using Boiler Room this month to give a an update and let everyone know just what we might be able to expect from Stuart Models in the future.



Photo 2. The little oscillators have changed very little since they were first introduced many years ago and are still very capable and robust engines capable of competently powering a model boat.

How it all started

I'm sure it doesn't come as a surprise to know that Stuart Models are the oldest company in the world who still produce a range of model steam engines, boilers and auxiliaries for the model engineering enthusiast. Throughout their history they have built an enviable reputation for quality, innovative design and service, that remains to this day and ensures them a loyal following. The founder of the company, Mr. Stuart Turner, was born in 1868 and was actually a full-size steam engineer who became responsible for the steam powered electricity generating plant at Shiplake Court, near Henley-On-Thames. During this time he designed, created the patterns and cast the components for his first No. 1 Model Steam Engine, which he then machined, built and displayed at a local engineering exhibition. He also approached Percival Marshall, the editor of Model Engineer magazine to review his engine, which



Photo 3. The D10 engine has been produced for many years and has even had model boat plans produced specifically for it. The engine remains a very competent engine for a significantly-sized model boat and when fitted with reversing gear, it will be just as manoeuvrable as any model on the pond.

generated significant interest and the first orders for the sets of castings.

More designs soon followed to the point when in 1906 there were nine models in the range and by 1907 the company was established at Market Place, Henley-On-Thames, where they remained for many years. Believe it or not, little changed until the late-1980's when Stuart Turner Ltd. split into two separate companies with the larger pump manufacturer remaining in Henley-On-Thames and the steam engine side of the business moving to Cheddar in Somerset. Then in 1991 Stuart Models moved to Guernsey, where under new ownership the company remained until June 2012.

Where we are now

In June 2012 the then owner decided to retire and sold the Stuart Models company to the current owners, Bridport Foundry, already the owner of the Plastow Traction Engine range, who moved the entire company back to the UK mainland in Bridport, Dorset, where four days and nine container loads later saw the company up and running again. The company reports a strong positive response from steam model enthusiasts seeing the company based back on the mainland and a healthy continuation of sales. Encouragingly they have invested heavily in new manufacturing and production equipment which has included the purchase of new CNC lathes and milling machines and even a new dividing head machining centre for the production of machined kits and completed models. This will enable them to remain competitively priced in both these areas of business and compete internationally.

Committed enthusiasts will be very interested to hear that they have already re-introduced some old favourites into their product listings such as the Williamson and Progress engines and I really can't help but smile when I see that in December 2012 the Stuart No. 1 casting set was re-introduced, the very same engine that started the company in 1898. It is therefore reassuring to see Stuart Models are not only back on the UK mainland, but in British ownership and developing and expanding

their range of products to take on international competition.

What is next?

Back in the 1930's Stuart Turner produced a couple of complete model boats, the Isis and Henley, both of which included a fully functioning steam plant and were ready to sail. The old plans have been dusted off and Stuart Models are now in the process of developing the Henley model again, **Photo 1**, albeit priced at £1850. So far, the hulls, engines and boilers have been built ready for final assembly and I can't help but think they will all sell very quickly as soon as they are ready. The intention of Stuart Models at this point is to capitalise on their heritage and history and re-introduce various items from back catalogues as well as continue to produce established favourites such as the Puffin Plants in both vertical and horizontal configurations as well as individual twin and single cylinder oscillating engines, **Photo 2**. The D10 twin engine, **Photo 3**, and the triple, **Photo 4**, remain in the listings and are as popular as ever, but I suspect that it will be



Photo 4. Possibly the ultimate model steam engine to most in the hobby would be the Stuart Triple Expansion engine. Possibly more as a display item rather than to be placed in a model, as the engineering required to complete it deserves to be enjoyed as much as possible.



Photo 5. The model machine shop tools have been popular for many years and build into beautiful models that can then complement and enhance any steam plant set up.

Photo 6. For those of us who may be attracted to the idea of a steam model, but feel they do not have the skills or the available machine tools, complete finished steam plants can be purchased.



the re-introduction of some of the older and slightly more unusual engines that enthusiasts are keen to see.

The range of casting kits is as extensive as ever and they continue to produce the popular range of machined kits as well as completed engines and boilers and the always popular model machine shop tools, **Photo 5**, not to mention a comprehensive catalogue of spare parts and accessories for all their products and even ready built complete steam plant units, **Photo 6**. The company remains as committed as ever to the philosophy of quality products backed by the highest standards of service and are taking every opportunity to demonstrate this by attending various shows and exhibitions around the country. I'm sure everyone wishes them all the success they deserve for keeping such a tradition of quality and excellence alive and helping future generations to eventually realise their own dreams of one day owning a beautiful model live steam engine.

May 2016

In the short time Stuart models has been under new management the company is already demonstrating a forward looking and dynamic attitude and a determination to take on all challenges. The display they had at the 23rd National Model Engineering and Modelling Exhibition at Doncaster Racecourse in May 2016, **Photo 7**, where most of these pictures were taken, was extremely impressive and shows just what a comprehensive range of products they are now producing. I would recommend getting a copy of the current catalogue or simply have a look through their website where the range can be really appreciated and for the marine enthusiasts there are some superb marine steam complete power plants at surprisingly competitive prices.



Photo 7. The Stuart Models range is extensive and now some engines which have not been available for some time are being re-introduced. To see such beautiful engines once again cannot help but put a smile on the faces of those who appreciate the best that model engineering has to offer.

Stuart Models

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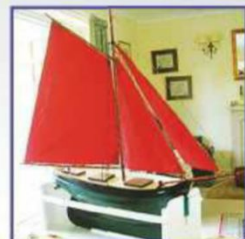
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ABOVE: Jason Quayle's Yessir tug.



ABOVE: Brian King attempts to dock Wilbea Toad, whilst under the scrutiny of Kim Holland who is judging.



ABOVE: Jason Fleming's Ramborator towing Wilbea Toad.



LEFT: Kim Holland's diminutive Amy tug.

RIGHT: Jason Quayle's Glasgow paddle tug won On the Water and Best Kit in the scale competition.



BELOW: Kath Iddon about to challenge for possession.

The Manannan Model Boat



A visitor's view by Gareth Jones

The Manx Model Boat Club operates from three main locations on the Isle of Man. These are Mooragh Park in Ramsey in the north of the island, which has a

large salt water lake mainly used for yachting events; Onchan Park Boating Lake, which is just north of Douglas is in the centre of the island and Silverdale Lake, a sheltered mill pond in Silverdale Glen, just outside Ballasalla in the south of the island.

The club's main annual event is the Manannan Model Boat Festival which is usually held towards the end of June (25th/26th in 2016) and in the past it took place over three days, one at each centre. However in recent years it has

been consolidated into a two day event at Silverdale to minimise the work involved in setting-up and taking-down all the associated event paraphernalia. The event is very popular with visitors and attracts a number of model boating enthusiasts from the UK mainland each year, some now being regular annual visitors.

The weekend

Saturday morning is mainly dedicated to a steering competition with several categories, depending on the length of the course. In the under 400mm class, two competitors achieved clear rounds and Kim Holland and Jason Fleming agreed to race around the course to decide the winners, Kim's diminutive tug Amy emerging as the victor.

Saturday afternoon is devoted to tug

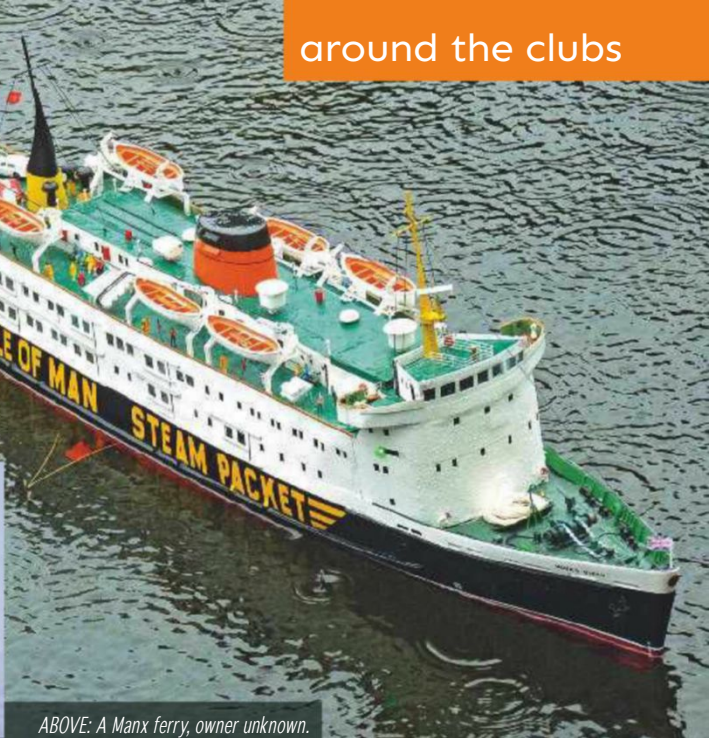
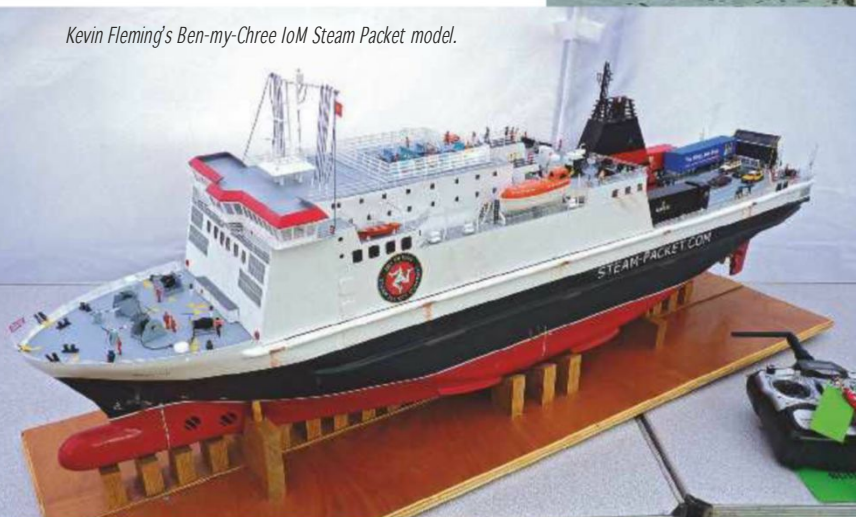
towing, again with several classes and a large and small casualty to be towed, depending on the size of the model. The course laid out was challenging with a number of buoys and a harbour section to be negotiated.

Sunday morning starts with the On The Water Scale Competition with boats required to sail around a course as realistically as possible and demonstrate any working features of the model. Concurrently, the main scale competition takes place, judged broadly in accordance with MPBA scale section criteria for three classes of kit, semi-kit and scratch built models. All the models on display were built to a very high standard and covered a wide range of subjects. Not surprisingly and given the location, Isle of Man steam packet ferries past and present are very popular subjects. Winner of the best scratch built model and best in show was Jason Quayle with a superb scratch built working model of a Mk. 1 British Chariot.

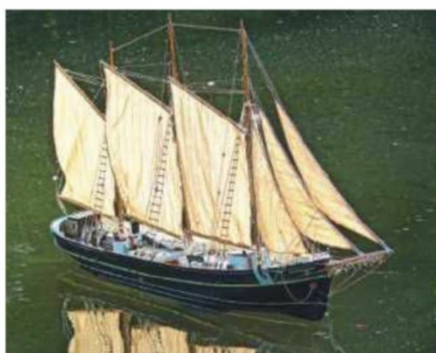


ABOVE: Elizabeth Jones' Hippo won a Commodore's Award for scaring the ducks.

Kevin Fleming's Ben-my-Chree IoM Steam Packet model.



ABOVE: A Manx ferry, owner unknown.



LEFT: John Hancox's schooner Kathleen and May



LEFT: Paul Brassington's diving duck retrieves its only float.

ABOVE: Jason Quayle's Mk. 1 British Chariot was Best in Show.

Festival - 2016

By Sunday afternoon the weather had further deteriorated and the rain had set in. However this did not deter those at the pond and the Commodore's Challenge took place during the wet weather. Each year, Bob Bagshaw sets the club's members a new challenge and this year's target was to build a boat powered by a single 2 litre drinks bottle. These rules were loosely interpreted by several competitors to produce a number of interesting craft, Jason Quayle emerging the winner and as always building an efficient, well engineered model. Bob Bagshaw's entry provided great entertainment when it carried out an elegant vertical loop on initial release and Paul Brassington's three bottle contender was described as a flatulent Catherine Wheel!

The final event of the weekend was a Fun Competition in which entrants had to retrieve a number of square, numbered, polystyrene floats from the far side of the lake. There were prizes for first float, last float, most floats and

most points. The programme for the event contains the helpful advice that sinking's, ramming's, conflagration's and every other form of nautical mayhem be given free reign. Physical violence between competitors would result in disqualification, but verbal abuse and heckling was encouraged. The past star of this event has been Paul Brassington from Southport whose 'Float Catcher' equipped Blue Peter won last year and it also triumphed this year when sailed by Kath Iddon. Paul competed less successfully this year with his diving duck model. Jason Fleming took the prizes for first float and most floats, and unusually did not experience an on board fire in 2016, despite some spectacular high speed sailing.

Finale

To complete the event, an informal dinner and prize-giving was held on the following Monday

evening at Bradda Glen near Port Erin with an excellent buffet meal, an entertaining speech and the Commodore's awards from Bob Bagshaw to round off the night. Overall this event is very well organised, great fun to attend and with very friendly people who make all visitors welcome. It is well worth the effort and expense of the ferry to make the trip over from the UK mainland. We, Elizabeth and myself, usually combine the weekend with a week's holiday on the island which we have still not fully explored even after three visits.

Silverdale Glen itself is very picturesque with pleasant walks alongside the river in both directions. There is a children's playground, café and toilets adjacent to the lake, but do try and arrive early as parking is somewhat restricted, unless you are prepared for a longer walk down from the higher level car park further up the glen.

If you are tempted to take part in next year's show or just want to go along as a spectator, please see the Manx Model Boat Club's website for details of Manannan and all their other events:

www.manxmodelboatclub.org



Shed on a Boat

Peter Blanchard's unusual model



ABOVE: Peter and his unique model.

My wife suggested I should build a model of this, so the challenge was accepted and this is a 1:12 scale version of the full-size one seen in 2015 on Channel 4's Britain's Greatest Sheds and in one episode they featured 'Shed on a Boat'. This was made of empty oil drums welded together with a timber framework above and deck onto which the shed was attached. Power was by an outboard engine mounted behind the shed.

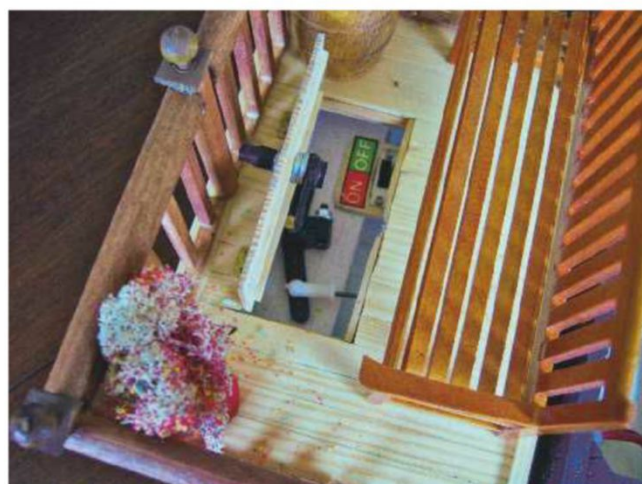
Construction

The model was very much made-up as it progressed, but the basic hull is of Lite-Ply with the batteries serving as ballast. The hull is flat bottomed like a barge and has to carry two 7.4v 2S LiPo batteries.

The 'shed' and upperworks are all made out of balsawood and Lite-Ply. The roof of the shed lifts



ABOVE: This shows the driveline. There is nothing remarkable in this as the hull is not dissimilar to a powered barge or that of a Springer model tug.



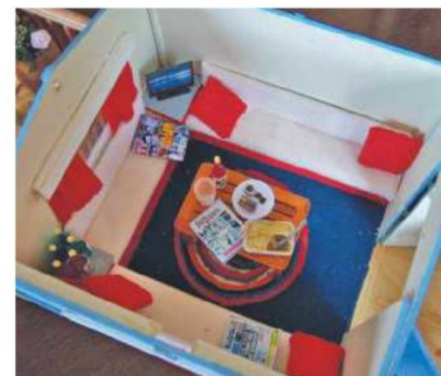
ABOVE: The ON/OFF switch is beneath a hatch on the stern deck.



LEFT: Another view of the rear deck.



ABOVE: After a hard day's work in the allotment, it's time for refreshment!



BELOW: The magazines and newspapers were all scanned, reduced and printed to scale. Soft furnishings are courtesy of Mrs. Blanchard.

LEFT: Nothing aerodynamic about this hull, but it does the job.

BELOW: Another view of the rear deck.

off and is held in place with two pegs. The whole shed can be removed, it being secured with a small peg on each side. The interior of the shed is fully furnished with a TV etc. The man, garden chair, dog, food bowl and ball, flowers, bottles food etc. are all from a doll's house retailer and the TV is 100% scratch built with the newspapers and magazines scanned, then reduced, and computer generated. The hand rails around the decks are from doll's house trims and the deck of course is 'Maids of Decking'. On this deck are plants, a table with beer cans, the captain's dog and dummy controls. Mrs. Blanchard kindly contributed the curtains, cushions, rug and seating.

Conclusion

Since this is unique and based on a brief television appearance, it has been very much made-up as work progressed. Surprisingly it sails really well, but not on a windy day.

At our Cleethorpes Boating Lake Model Boat Association's Display Day in August 2015, somewhat to my surprise it was awarded 'Best Boat in Show', or should that be the Best Shed?

Peter Blanchard - Summer 2016

Cleethorpes Boating Lake Model Boat Association

This club, formed in 2009, has nearly 40 members and sail at the Cleethorpes Boating Lake on Sunday afternoons, 1300hrs to 1500hrs; Tuesday evenings from 1800hrs (light permitting); Wednesday afternoons, 1300hrs to 1500hrs and Thursday evenings from 1800hrs (light permitting). The Chairman is Graham Waters, who may be contacted by email: graham.waters7@ntlworld.com
Club website: www.cleethorpesmba.co.uk



Test Bench

Model Boats looks at new products

Attention-Manufacturers & Distributors

● These pages are open to you - your shop window to bring to the attention of our thousands of readers, new products - kits, books, videos, engines, R/C gear, motors, anything that could be of interest to model boat builders. Send your information initially to **Model Boats Test Bench, PO Box 9890, Brentwood, CM14 9EF** - or ring the Editor on **01277 849927** for more details.
You cannot afford to miss this opportunity!

Dremel's 2016 Christmas Kits

For late-2016, Dremel are introducing three exclusive kits in 3, 4 and 5 Star packages. All include the popular Dremel 3000 Multi-Tool plus a selection of versatile attachments and accessories which are ideal and practicable for model makers.

The 3000 Multi-Tool itself features an innovative EZ Twist Nose Cap, making it a most user-friendly option. With a simple twist action, the functionality of the tool can be changed within seconds, without the need for a wrench. It also has a comfortable

soft grip giving the user improved control and handling of the tool. Each kit includes a different selection of add-ons and every package comes with a unique EZ wrap storage solution, allowing users to quickly and safely tidy away their tools and accessories.

3 Star Multi-Tool Christmas Kit

The kit includes the 3000 Multi-tool a mandrel screw, 13mm sanding band & mandrel, 9.5mm aluminium oxide grinding stone and 32mm cut-off drills, making it a great starter package.

Priced from £39.99.

4 Star Multi-Tool Christmas Kit

As for the 3 Star kit, but this also includes three Dremel attachments, a range of 55 high

quality accessories, including EZ SpeedClic, which allows the user to tackle a wide range of applications quickly and effectively. The package is also contained within a unique lightweight plastic tool box, enabling users to store and transport their kit easily.

Priced from £79.99.

5 Star kit Multi-Tool Christmas Kit

This includes five versatile attachments and 75 high quality accessories to accompany the 3000 Multi-Tool, all presented in a robust, aluminium tool box.

Priced from £99.99.

This kits are available online or from a variety of UK household name retail outlets. For further information and where to buy them, plus videos on how to use the tools and project inspiration, please visit: www.dremel.co.uk.



ABOVE: The 5 Star kit Multi-Tool Christmas kit - £99.99



LEFT: The 4 Star Multi-Tool Christmas kit - £79.99

Speedline Models - Shannon Class Lifeboat

At the recent Model Boat Convention held at Haydock Park, Adrian Gosling of Speedline Models was showing the prototypes of his new 1:16 and 1:12 scale kits of this RNLI lifeboat.

The picture is of the 1:12 version, but both versions will be constructed in a similar way with some novel features and inclusions. The kits will include bespoke in-house designed water-jet drive propulsion units and the entire deck with its cabin lifts off, but is still watertight when secured in position. The moulded fenders are all included as will be the

cabin's fully detailed interior. The GRP hulls include all the moulded detail one would expect and even the special patches to protect the bottom when the lifeboat is being beached.

Prices are unconfirmed at the present time, but Adrian is aiming to produce what will be the most detailed and highest quality scale model kits for this new RNLI lifeboat. Speedline Models Ltd. are at:

Windsor End Cottage, Windsor Street, Burbage, Leicestershire, LE10 2EE.

Tel: 00 44 (0)1455 637658

Website:

www.speedlinemodels.com



Royal Navy C-Class Submarine

New 1:48 scale semi-kit from
Chylds Hall Model Shipyard

The British C-class submarines were the last class of petrol engined boats for the Royal Navy and marked the end of the development of the Holland class in the Royal Navy. Thirty-eight were constructed between 1905 and 1910 and they served throughout WWI.

Although it has taken longer to get into the marketplace than expected, this new submarine semi-kit model by Steve Pickering is now on sale. His company specialises in late-19th and early-20th Century warships and Steve sold his first three kits on the first day

RIGHT: The prototype Cclass submarine as seen at the August 2016 Model Boat Convention held at Haydock Park.

of the Model Boat Convention at Haydock Park in August 2016.

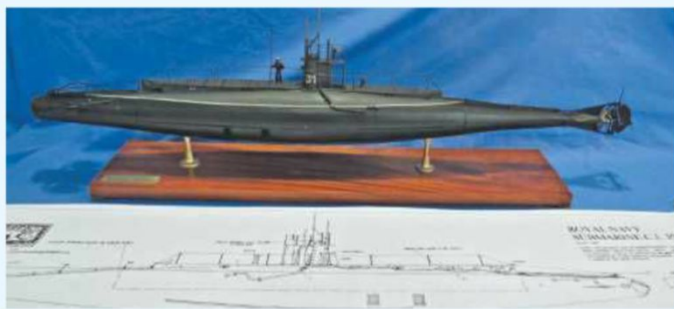
It is an extensive semi-kit, including the two main GRP hull mouldings, resin cast fittings, stanchions (from James Lane), brass rod, sheet and other building materials, quality propshaft, propeller, a CD of the construction of the prototype model and a full-size plan.

As regards the internals, it does not include the watertight compartment (WTC - a machined Perspex tube with seals and



resin cast ends) or the motor, but they are available as extras. The individual builder is responsible for the functioning internal static diving equipment if required, maybe choosing to equip the submarine with the running gear for a specific diving system. This gives the option of building this C-class submarine as a static or dynamic diving model, or perhaps just for surface use, and

some modellers may choose to build it purely for static display. At just over 36 inches long, it will make into a super and unique model and yes, your editor does have one which will be an r/c functioning model - eventually!



LEFT: The Cclass submarine box contents. The hull mouldings are very highly detailed. The WTC is an add-on for £40, but its ends are machined for an r/c and battery shelf, plus the recommended £3.50 brushed miniature motor.

Chylds Hall Model Shipyard are

at: Old Dairy Cottage, Upper Stepford, Dumfries, DG2 0JP, Scotland. Website: www.chyldshallmodelshipyard.com, tel: (+44) 01387 820558

C-class submarine prices:

Semi-kit as described	£320.00
Watertight compartment	£40.00
Brushed motor	£3.50

Review by **Paul Freshney**

Neo for Iwata Gravity-Feed Airbrushing Kit

Supplied by the Airbrush Company

This supplier seems to have an unending range of new airbrushes and associated tools coming through their doors nowadays. This new kit is designed for the first-time or occasional airbrush painting enthusiast and comes with some free online practice exercises.

- A fine to medium spray performance, for small to medium sized projects.
- Three bottles of Medea Com-Art colours airbrush-ready, non-toxic, water-based acrylic paint and airbrush cleaner.

Online practice exercises (URL included inside package)

RRP is £190.

The kit may be obtained from The Airbrush Company Ltd, 79 Marlborough Road (East), Lancing Business Park, Lancing, West Sussex, BN15 8UF, tel: +44 (0)1903 767800. Website: www.airbrushes.com

Review by **Paul Freshney**

The kit includes:

- A Neo Air for Iwata air compressor with international plugs and air hose.
- The compressor has three speeds (1 to 15psi) for small, general airbrush applications.
- A Neo for Iwata CN Gravity-Feed, Dual-Action Airbrush with two cup sizes.



MARTIN BAYLIS ENGINEERING

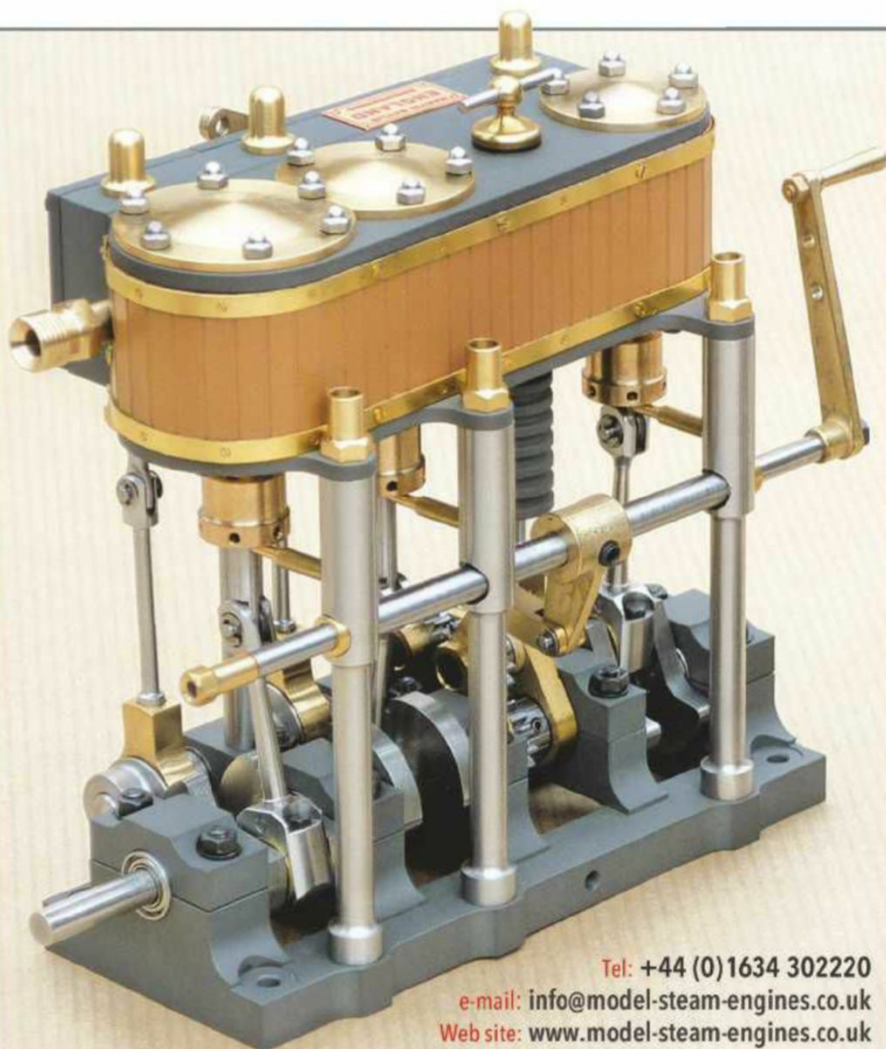
Martin Baylis Engineering produces a high quality range of miniature marine steam engines, boilers and accessories for the model boat enthusiast.



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MODEL PRODUCTION

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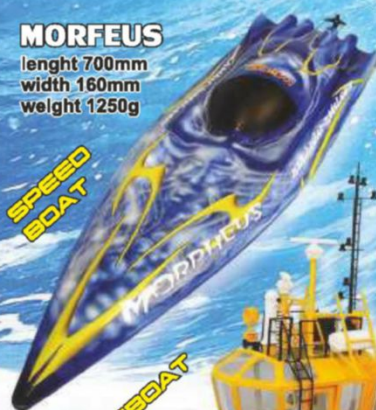
2015
1990



CZECH REPUBLIC



MORFEUS
length 700mm
width 160mm
weight 1250g



SPEED BOAT

ATA

FEUERLÖSCHBOOT
length 500mm
width 140mm
height 230mm
weight 1kg



FIREBOAT

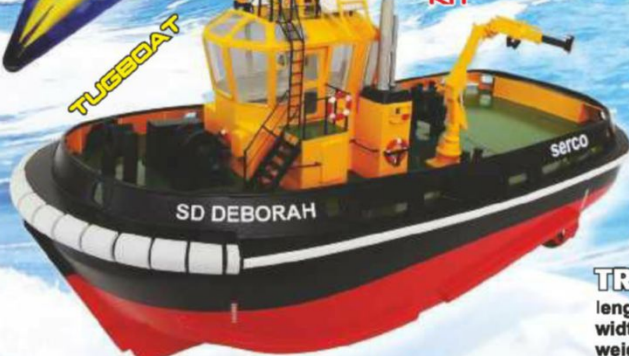
KIT

GRIMMERSHÖRN
SCALE 1:25
length 830mm
width 216mm
height 475mm
weight 5kg



WORKBOAT

KIT



TUGBOAT

SD DEBORAH
SCALE 1:25
length 830mm
width 390mm
height 593mm
weight 14kg

KIT

TRINITY
length 700mm
width 160mm
weight 1250g



ATA

SPEED BOAT

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Sales

MMM ARRAN mail coaster, rusty hull & drawing . Offers please & buyer collects.
L. M. Gregory, tel: 01329 665933 (Fareham, Hampshire).

HMS LION. Kingston Mouldings hull with fittings, motors & props to complete,. Not started, £500 ono. Also; Imara tug with included & fitted steam plant, not run. All main parts included, but some smaller parts perhaps required, £750 ono. Buyer collects, Derek Spilman, tel: 07929 968735 (Rugby, Warwickshire).

SPEEDLINE 1/16 SCALE

LCM3. This is the review model in Model Boats 2012 Winter Special. Complete with all running gear, including a sail winch and Morph unit for operating the bow door, battery, storage box and stand, three figures and a working r/c halftrack. No Tx

or Rx. £500, Buyer collects.
John Elliott, tel: 01277 656783 (Billericay, Essex).

MODEL SLIPWAY SENTINEL customs vessel. Twin screw, quality build, highly detailed, remote lighting, radar, operating stabilisers, complete with batteries, carry case, ready to go, but no r/c included. Photos on request. £500, Brian Knight, tel: 01935 873309 or 07943 291759 (Dorset).

TRUMPETER BISMARCK 1:200 scale kit, still in box, £200. Buyer collects. Mr. W. A. Barratclough, tel: 01915 147173 (Sunderland, Tyne & Wear).

SIR LANCELOT 1:32 SCALE, 58 inches long with lightweight superstructure, plus motor. No r/c, £750. John Taylor, tel: 07928 244132 (Stevenage, Hertfordshire).

GRAF SPEE HULL BY FLEETSCALE. Deck fitted, includes book, plan etc., 1:128 scale & will make into others of class. £100 ono or will swap for alternative hull. Mr. Frank Lively, tel: 01706 813056 (Todmorden, Lanc's).

Wants

COMPLETED MILFORD STAR (static) and HMS Agamemnon, HMS Diana, HMS Bellona (exhibition standard please) and other 3rd rate ships considered. Also, Anatomy of the Ship Yamato and/or part completed 1:200 or 1:350 model of same. If you have these items, please call Phillip Hughes (will travel), tel: 01278 661446 (Taunton, Somerset).

Z-CRAFT Royal Navy & British Army 1943 to 1960 photos, details etc. Ex-crewman RCT wishing to build working

model. Any help appreciated please & will pay costs.
Nicholas Leaper, tel: 02380 813772 (Southampton).

TRIANG PRETORIA CASTLE Union Castle Line plastic model, any condition.
Alan Baker, tel: 07864 017556 (Gt. Yarmouth, Norfolk).

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BMPRS News

Website: www.bmprs.co.uk



Craig Dickson reports from Kingsbury Water Park

Event No. 5 of this season took us to the halfway point of this year's race calendar with ten races scheduled for the whole year, and it was a delight to be back at the fabulous Kingsbury Water Park. With 600 acres of Country Park, accommodating 15 inland lakes and areas of outstanding natural beauty, it is ideally suited for model power boat racing. The lake allocated for our use has two separate lakeside areas, one which we use for preparing our boats and the other for the pit and launch area. This park has great onsite facilities such as nearby parking, a cafeteria and toilet facilities.

Unlike our first event here in 2016 when we got drenched by the rain, this time the weather was hot and ideal for a great day out. Local Kingsbury MBC member Malcolm Pratt, kindly volunteered in advance to act as OOD and run the race together

with some assistance from Robin Butler to enable him to also enjoy some racing. It was great to see again Robin and his wife Sue (who did the lap counting), as they had not been able to attend the previous events this year. It was also great to see Bernard Holder again as he too had not raced so far this season.

Malcolm was very eager to get the event underway and as soon as everyone had arrived and off-loaded their boats, the driver's meeting was called. With this particular course being rather compact, Malcolm decided to split the big D Class mono hulled boats into two heats, and also the big T2 Catamaran Class, mainly for safety and to avoid carnage on the water. Although crashes might be exciting to watch, we prefer it that members take their boats home in one piece!

Malcolm ran through key safety points including the need to throttle back and give good clearance when in the vicinity of the rescue boat. Also, this particular venue has a little track at the rear

BELOW: Boats on Kingsbury MBC's tables, ready for being fuelled. You can see how large some of the boats are.

BELOW RIGHT: B86: Bernard Holder's Magnum winner of the B Class.





ABOVE: The rescue crew doing a splendid job, with one boat already on board and another to be picked up.



ABOVE: Mike Barnes' Challenger going wide to overtake Robin Butler's Crusader.

LEFT: Only one lap separated these two catamarans. Graham Stanley's is in the foreground and Malcolm Pratt's is at the back. (Photo courtesy of Judith Beesley)



LEFT: Andy Cameron's first ever race and his Lucky Dragon on the way to second place in its class.

of the pit area which sometimes sees horses and their riders on it as they pass by. Malcolm instructed all drivers that upon warning of any horses approaching, drivers had to throttle right back and maintain position (with no overtaking) until the horses and their riders had safely passed, undisturbed by the noise of our boats. With the formalities concluded, the first race was underway nice and early, before 1000hrs as I recall, which was the earliest start this season. So, what were the highlights of the racing?

AA Class

Seven boats were entered in this class featuring the smallest nitro (glow fuel) engine powered mono hulls. Four of the seven hulls were 'Magnets' which are proving to be a very capable and popular hull. Bernard Holder raced his newly built Magnet for the first time and enjoyed great success achieving 76 laps in total for the joint first place. I say joint first

place, because Garry Dickson's Magnet achieved the same total number of laps with some really close racing, making it a dead heat tie for first place. As a consequence, both drivers received the maximum 15 championship points.

Robin Butler's Magnet powered by a geared Hyper 21 engine also ran really well, but in the first heat the boat capsized when going over the wake of another boat, which cost him quite a few laps, but he still ended up with 68 laps and third place.

Graham Stanley's CMB 21 powered Cavalier had a fantastic first heat leaving him six laps ahead of Bernard and Garry at the halfway point. However his boat seemed to go off form in the afternoon heat and he ended up with 60 laps and fourth place. What about those who fared less well in the bottom three places?

The Picco engine of Kian Searle's Manta initially failed to start, the problem being solved with a new glow plug. However once into the race, a recurring problem with a slipping rudder arm resulted in



BOTTOM LEFT: Mike Barnes' Challenger on the way to winning the A Class.

BELOW: D Class boats going head to head on the front straight.



several stops to reset the rudder position and he ended up in fifth place.

My Magnet once again had issues with the engine stalling for no obvious reason. Though I strongly suspect a fuel supply issue, in test conditions the boat behaves perfectly, but it was retired early and slightly out of frustration, for sixth place. Mark Beesley's Cavalier again suffered apparent radio interference problems, so he wisely retired the boat without even getting a single lap on the scoreboard.

A Class

Powered by nitro engines of up to 7.5cc capacity, this mono hulled class had six boats entered. Mike Barnes' ASP powered Challenger 43 had a superb race, its speed, stability and his excellent driving skills ensuring a comfortable win with 99 laps in total.

Bernard Holder's CMB 45 powered Crusader had a great first heat, being only one lap behind Mike at the halfway point. However well into Heat Two, the boat suddenly stopped on the pit straight and the bearings of the engine then felt rough, an indication of their impending failure. Bernard mentioned to me that this engine was installed over a decade ago and had not been touched since, so perhaps time for a 10 year service? Regardless of this, Bernard still ended up with 87 laps in total and second place.

Robin Butler raced an SC 40 powered Crusader 1, which Bernard had kindly brought along to enable him to race. Robin enjoyed some really good racing and gained a respectable 82 laps for third place. He lost a few laps when the boat overturned running across the prop wash (wake) of another boat.

Luke Bramwell's ASP 46 powered Challenger got off to a good start, but the engine seemed to go off form in the second heat leaving him with 52 laps and fourth place.

Kian Searle's ASP 46 powered Crusader had a really frustrating first heat. Initially the engine did not want to start, and when it did fire up, it stopped as soon as the glow plug lead was disconnected. This is indicative of a glow plug on its way out, and with help from his dad Ian, a new glow plug got the engine running and the boat underway. However, disaster then struck, because the boat hit Buoy 3 hard and full on before even completing a lap. The impact ripped the rudder off and destroyed the propeller, leaving Luke to potentially having to retire from the race as no spare rudder was to hand. Thankfully, Robin Butler had a spare and kindly lent it to Kian so that he could resume racing in Heat Two. Even that wasn't without problems though, as the boat appeared to be taking on water causing the engine to stall several times and so the 24 laps scored left Kian in fifth place.

Mark Beesley's Manta Ray only managed two laps and was then retired as he suspected that the bearings of this engine were also showing signs of starting to break-up.

B Class

Only two boats entered this class, but it started off with some good head to head racing. That was until the flexi-shaft of Malcolm Pratt's Apache suddenly snapped causing the boat to stop dead and forcing him to retire. As a result of this, they didn't need to run the second heat because Bernard Holder's Magnum, had already had clocked up 35 laps in



ABOVE: Luke Bramwell's X-Cat 38 going really well in the morning heat. (Photo courtesy of Judith Beesley)



RIGHT: Graham Stanley's CMB 21 powered Cavalier in the AA Class. (Photo courtesy of Judith Beesley)



ABOVE: The Kingsbury winners with their certificates.

the morning heat, versus the 31 that Malcolm had scored. First place was therefore duly awarded to Bernard, with Malcolm settling for second place on this occasion.

C Class

This class features the largest nitro powered mono hulls, but sadly also had only two entries. Disaster struck for Bernard Holder as his Magnum, quick to be launched, suddenly went out of control and ran straight up the bank of the middle island, making it quite tricky to recover. The rudder and propeller damage left him with no option but to retire the boat with not even a single lap on the score sheet. He suspected that the On/Off switch on the boat's radio had failed, cutting off power to the receiver and servos.

Meanwhile, Ian Searle struggled to get his CMB 90 engine started taking considerable time whilst making adjustments to the carburettor. When it did get it going, he just completed just five laps to secure first place. It is not often a race win is achieved with so few laps.

BELOW: All that was left of the rudder and prop of Kian's Crusader after his first heat mishap in the A Class.





ABOVE: D8: Mike Durrant's D Class Phantom going flat out in its first heat. (Photo courtesy of Judith Beesley)

BELOW: It was great to see Bernard Holder racing again with us in all of the nitro mono-hulled classes and his A Class Crusader 2 is pictured here. (Photo courtesy of Judith Beesley)



D Class

This very popular Spark Ignition (S.I.) class had the most entries of the day with 10 boats and a decision was taken to split them into two heats of five for the sake of safety. As it so happened, several boats were retired after the morning heat, so those remaining were then raced together in a single afternoon heat.

Garry Dickson's MPM 31 powered Saturn ran superbly with no stops and incidents. He kept well out of everyone's way and powered to first place with an impressive 111 laps in total, more than 40 laps ahead of anyone else.

New member Andy Cameron thoroughly enjoyed his first race with us. His Lucky Dragon was powered by an out of the box standard (non-tuned) Zenoah 26 engine, leaving the boat with a significant power disadvantage over several of the other boats. However he achieved 68 laps in total for second place which was a really impressive result and well done Andy. This was an excellent example of how a well put together, and relatively inexpensive boat,

can achieve top results when driven well.

ABOVE LEFT: The engine of Andy Uttley's new Conquest partially melted as a result of severe overheating.

ABOVE RIGHT: Tony Bollard's Blast Cat, gave an impressive performance in the T2 Catamaran Class. (Photo courtesy of Judith Beesley)

can achieve top results when driven well.

Mike Barnes drove his Patriot with precision as usual keeping very tight to the buoys. The engine though did not seem to pack its usual punch as it didn't seem to want to throttle-up. It also stalled when the boat took on water due to a blocked auto-bailer, easy enough to resolve though, but 62 laps was good enough for third place on this occasion.

What about some of those outside of the top three places?

Mark Beesley's Waverider got off to a great start, but caught a wave (showing the hull's name was meaningless!) and did a spectacular somersault requiring rescue. Upon recovery, it was discovered that the nearly fully laden fuel tank had been ripped from its mountings, as one of the securing cable ties had snapped during the incident. Although Mark managed to sort a temporary fix for Heat Two, the engine kept stopping and he suspected that water had got into the fuel tank when the boat flipped, and so his 31 lap total meant a seventh place. Malcolm Pratt's Tiger King powered Patriot only scored 16 laps in total from just the first heat leaving him in tenth place. The throttle linkage of the engine was repeatedly coming disconnected and causing it to stall, so Malcolm decided to retire the boat early as repairs in the domestic workshop were the best option.

T1 Catamaran Class

This class featured the two regulars who enjoy competing with each other, namely Luke Bramwell and Mike Barnes.

The first heat was closely fought with both X-Cat boats going neck and neck at times with hardly anything separating them speed-wise. When boats are of such similar speed, the winner is usually the person who drives the best. At the halfway point, Luke had a 7 lap advantage because Mike's had stopped, having taken on water. Mike's X-Cat was not fitted with any mechanism (or autobailer) for clearing water from inside, and in following close behind Luke's boat, it got sprayed with copious amounts of prop wash, eventually causing the



ABOVE: Malcolm Pratt's D Class Patriot looking very imposing at full speed. (Photo courtesy of Judith Beesley)

BELOW: The start of the big T2 Catamaran morning heat. Launching these boats requires quite a lot of skill to avoid dunking them or flooding them with water. (Photo courtesy of Judith Beesley)





engine to stall.

However, in the second heat, disaster struck for Luke as the boat's engine simply refused to start. He soon realised that the carburettor was totally blocked, not allowing any fuel to flow, and so he had to retire leaving Mike the winner and Luke in second place with 50 and 47 laps in total respectively. Sometimes the unexpected can be very frustrating.....

ABOVE LEFT: Two very different boats in the B Class. The submerged drive winning Magnum (B86) of Bernard Holder, and the surface drive Apache (B9) of Malcolm Pratt.
(Photo courtesy of Judith Beesley)

ABOVE RIGHT: Two of the A Class Crusader boats head to head. Very little separated them speed-wise and the total laps scored.
(Photo courtesy of Judith Beesley)

T2 Catamaran Class

The 'Big Cat's enjoyed the second highest class entry level of the day, with seven boats entered. Mike Barnes' Zenoah powered Thunderbolt had a fantastic race scoring a massive 111 laps comfortably securing victory in this class, his total lap score only matched in the D Class by Garry.

Garry Dickson had a good first heat, but in Heat Two suffered a momentary loss of concentration when following with the Mercury catamaran going flat out and went wide and off the course, clouting the partially submerged stump of a tree. Needless to say, the cat' needed rescuing for inspection and a restart. Astonishingly, it had suffered no damage, not even to the outrigger hardware such as the propeller and rudder, so was back on the water soon after recovery, the 90 laps scored in total leaving Garry in second place.

Tony Bollard raced his impressively presented Blast Cat and gained a total of 84 laps giving him third place. Tony's boat was very fast and stable, but the engine stopped when some distance from the rescue boat. The delay in getting it back on to the water cost a lot of laps, otherwise he may well have been placed one or two notches further up the rankings.

Lower down in the placing's, Malcolm Pratt, Graham Stanley and Kevin Alcock all suffered from stoppages for one reason or another, including collisions which dented their total laps scores, mainly in the second afternoon heat.

Andy Uttley only scored six laps in total, all in the first heat. He had entered a Cyclone which had been newly purchased and we all had high expectations of a good result for him. However early into his race, the engine's cooling jacket (unbeknown to him) came off the engine. The consequence was quite dramatic in terms of the overheating damage caused to the engine, as the cylinder head had partially melted by the time the engine actually stopped. So as you can guess, it was 'race over' for Andy.

Conclusion

This event marked the mid-way point of the 2016 race calendar and it proved to be yet again another thoroughly enjoyable and eventful day for all those participating, including those just watching as spectators. After the racing was completed, we all helped in clearing up before presenting the winners certificates and expressing special thanks to those who went the extra mile in running this excellent event.

Until our next race - cheers from Craig

BMPRS Kingsbury Results - 24th July 2016

Position	Name	Hull	Engine	Heat 1	Heat 2	Total
AA Class						
1	Bernard Holder	Magnet	MDS 28 RED	37	39	76
1	Garry Dickson	Magnet	West 28	37	39	76
3	Robin Butler	Magnet	Hyper 21	29	39	68
4	Graham Stanley	Cavalier	CMB 21	43	17	60
5	Kian Searle	Manta	Picco	24	34	58
6	Craig Dickson	Magnet	West 28	19	4	23
7	Mark Beesley	Cavalier	OS21 o/b	0	0	0
A Class						
1	Mike Barnes	Challenger 43	ASP 46	49	50	99
2	Bernard Holder	Crusader	CMB 45	48	39	87
3	Robin Butler	Crusader	SC 40	45	37	82
4	Luke Bramwell	Challenger	ASP 46	35	17	52
5	Kian Searle	Crusader	ASP 46	0	24	24
6	Mark Beesley	Manta Ray	ASP 46	2	0	2
B Class (Morning heat only)						
1	Bernard Holder	Magnum	CMB 67	35	NIL	35
2	Malcolm Pratt	Apache	CMB 67	31	NIL	31
C Class (Morning heat only)						
1	Ian Searle	Makara	CMB 90	5	NIL	5
2	Bernard Holder	Magnum	CMB 90	0	NIL	0
D Class (Split into 2 heats morning; 1 heat afternoon)						
1	Garry Dickson	Saturn	MPM 31	60	51	111
2	Andy Cameron	Lucky Dragon	Zen 26	22	46	68
3	Mike Barnes	Patriot	MPM 30	40	22	62
4	Graham Stanley	Phantom	Zen 30	30	27	57
5	Terry Lucas	Sigma 51	Gizmo 29.5	32	15	47
6	Andy Uttley	Arrow	CMB	27	33	033
7	Mark Beesley	Waverider	Zen 26	31	0	31
8	Ian Searle	Phantom	Tiger King	3	21	24
9	Mike Durrant	Phantom	Zen 30	22	0	22
10	Malcolm Pratt	Patriot	Tiger King	16	0	16
Catamaran T1 Class						
1	Mike Barnes	X-Cat 38	ASP 46	40	10	50
2	Luke Bramwell	X-Cat 38	ASP 46	47	0	47
Catamaran T2 Class (Split into 2 heats morning; 1 heat afternoon)						
1	Mike Barnes	Thunderbolt	Zen 26	62	49	111
2	Garry Dickson	PMC Mercury	MPM 31	58	32	90
3	Tony Bollard	Blast Cat	Zen 7	49	35	84
4	Malcolm Pratt	Aeromarine	CMB 91RS	62	20	82
5	Graham Stanley	F1 1320 GP	RCMK K30	55	26	81
6	Kevin Alcock	Conquest	Not known	51	26	77
7	Andy Uttley	Cyclone	Not known	6	0	6

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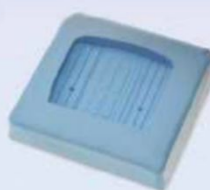
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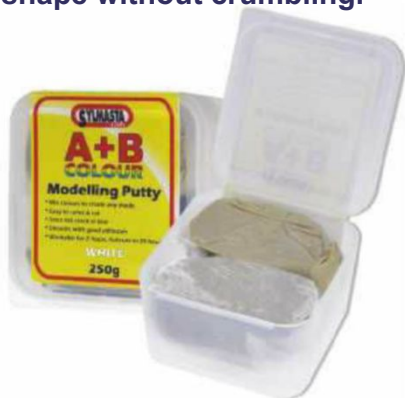
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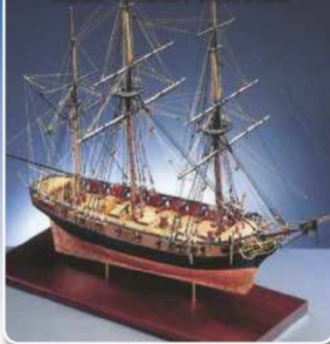
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