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**No.1 For
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September 2020
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model **Boats**



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BALLASTING BASICS

A beginners' guide to
keeping your boat afloat



TORRO'S NEW 1:16 SCHWIMMWAGEN

We put this readybuilt R/C
VW Type 166 to the test



FACT OR FICTION?



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flying boat concept in small scale

The Model Dockyard



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Plastic Kits

Trumpeter HMS Hood 1:200 scale
Trumpeter HMS Nelson 1:200 scale
Trumpeter HMS Rodney 1:200 scale
Trumpeter USS Missouri 1:200 scale 1352mm
Trumpeter Bismarck 1941 1:200 scale 1265mm
Heller HMS Victory 1:100 scale
Heller Le Soleil Royal 1:100 scale
Italeri Schnellboot S-100 1:35
Italeri MTB77 1:35 scale 632mm
Italeri PT109 Torpedo Boat 1:35 scale
MTB Vesper St.Nazaire Raid MTB 74
Trumpeter HMS Repulse 1941 1:350
Trumpeter HMS Hood (1941) 1:350
Trumpeter Prinz Eugen 1945 1:350
Trumpeter Admiral Hipper 1941 1:350
Trumpeter HMS Cornwall Cruiser 548mm 1:350
Trumpeter HMS Exeter Cruiser 500mm 1:350
Trumpeter HMS York Cruiser 500mm 1:350

Plastic Kit Upgrades

HMS Cornwall fittings upgrade etch 1:350
HMS Dreadnought 1907 Railing Set 1/350
HMS Hood detail sheet pack 1:350 scale
Bismarck etched detail Tamiya Bismarck 1:350
Prince of Wales cranes & railing 1:350
S-100 Schnellboot gun detailing etch 1:35
Jeremiah O'Brien Liberty Ship etch 1:350
Prinz Eugen etched set. 1:350 scale
Vesper MTB 1:72 scale
Prince of Wales etch sheet pack 1:350
Admiral Hipper etched sheet set 1:350 scale
U-boat VIIC/41 for 1:72 scale Revell kit
Gato class submarine for 1:72 revell kit
Elco PT596 1:35 scale
Tirpitz (designed to be used with Tamiya kits)
Wooden deck & Etch set or Bismarck 1:200
DX Wooden deck & Etch for Bismarck 1:200
Wooden deck for HMS Hood 1:350 scale
DX Wooden deck and etch Nelson 1:200 scale
DX Wooden deck and etch Rodney 1:200 scale
Wooden deck Value Pack for Nelson 1:200
Wooden deck for KGS 1:350 scale
Wooden deck for Price of Wales 1:350
Wooden deck for Bismarck 1:350 scale
Wooden deck for Prinz Eugen 1:350 scale
DX Wooden deck and etch for Missouri 1:200
DX Wooden deck and etch for Hornet 1:200
DX Wooden deck and etch set for Iowa 1:200
DX Wooden deck and Railing for Warspite 1:350
DX 2Wooden deck & etch for Arizona 1:200
DX Wooden deck and etch set for Hood 1:200
Wooden deck for HMS Hood 1:200
Wooden deck for Graf Spee 1:350 scale
Wooden deck for HMS Repulse 1:350 scale
DX Wooden deck and Railing for Bismarck 1:350
Flower Class Corvette Deck & Fittings Set 1:72
Flower Class Corvette Type 'C' Bridge Set 1:72

Harold Underhill Plans

Cutty Sark Clipper Ship 698mm
Marie Sophie of Falmouth 1033mm
Lady of Avenel, Wood. 850mm
74-Gun Two-Decker (Circa 1813 1422mm
Lady Daphne Thames Sailing Barge812mm
12-Gun Brig-of-War, Lines, 1187mm
Cunard Liner Servia, 1:192 scale 850mm
40-Gun Frigate (Circa 1790 831mm
Valerian, Brotham Trawler 1069mm.
Diesel Ring Net Fishing Boat 615mm
Three Brothers, Rye Fishing Smack, 797mm
Muimeag, Scottish Zulu.- 1612mm
Clyde Puffer Sealight, 588mm
Leon, Wood Brigantine 514mm
Iron Paddle Tug 1:48 scale 863mm
This is just a selection of the range available.

R/C Boat Plans

MM1348 Miranda Steam Launch: 42in
MM1040 Enterprise: 1:12 Northumbrian Coble
MM1390 Tynse Lifeboat: 740mm 1:19 scale
MM1246 H.M.S Inflexible battle-cruiser 1:192
MM1256 H.M.S Exeter cruiser 1:192
MM1387 H.M.S Diamond destroyer 1:96
MM609 Brave Borderer: 36in Vesper P.B
MM672 H.M.S Hood: 1:192 scale
MM1367 Norfolk Wherry: 1:48 scale
MM1212 H.M.S Ark Royal : 1:192 scale
MM189 Will Everard Thames Barge: 1:48 scale
MM1290 Tank Landing Craft MkIV: 1:48 scale
MM153 Dinghy: 14 foot sailing dinghy21in
MM412 Range Safety Launch: 1:12 scale 43in
MM1292 Director: navy paddle tug 1:48 scale
MM1365 Celia Jane: Sailing Barge 1:24
MM1441 Formidable: Steam drifter 1:33
MM567 Cervia:Thames tug in 1:48 scale
MM897 H.M.S Kent : 1:96 early cruiser 58in
MM1202 H.M.S Dreadnought 33in
MM1310 Cloodlight Clyde Puffer 1:36
MM1448 Liverpool Lifeboat: 1:12 scale
MM826 St Louis Belle: stern-wheeler 33in.
MM1178 Inchcolm Clyde puffe 1:32 scale
MM1275 Revive Brotham sailing tawler 1:60
MM1368 Victoria:Thames steam launch 1:12
MM737 Eileen: motor fishing boat 1:24
MM1444 Pilot 40 police/pilot launch 27½
MM500 Cossack: 38inTribal class destroyer
MM1335 Vesper 73ft rescue launch 1:24 scale
MM1407 Smit Nederland: 1:28 scale tug.
This is just a selection of the huge range available.

Static Display Kit Plans

1004 Greek Bireme plan 560mm
1006 Vikingship, Osberg plan 1:50 440mm
1009 Santa Maria plan 1:65 scale 540mm
1013 Mayflower plan, Scale 1:60.

1016 HMS Prince plan 750mm
1019 Greek Galley plan, Length 560mm.
1021 Chinese Junk, plan 1:100 400mm
1028 HMS Victory plan , 1:100 950mm
1032 HMS Bounty plan 1:60 720mm
1040 New Bedford Whaler plans 1:16. 550mm.
1200/03 Riva Aquarama plan 1:10 scale 860mm
1200/10 Endeavour Plan 1:80 480mm
1200/82 Endeavour J Class Plan 1:35 1130mm
1200/83 Titanic Plan 1:250 1070mm
1100/08 Revenge plan 1577 1:64 scale 885mm
1100/01 Lady Nelson Cutter Plan 1:64 530mm
1100/03 HMS Fly Plan 1:64 800mm
1100/04 HMS Vanguard Plan 1:72 1171
1100/05 HMS Pegasus plan 1:64 800mm
1100/06 Mercury plan 1:64 860mm
969 HMS Victory plans, Scale 1:78.
971 Open Whaler, plans, Scale 1:16.
975 Victory Bow section, plans, Scale 1:78.
977 Armed Pinnace, plans, Scale 1:16.
979 Royal Cardline, plans, Scale 1:47
990 Victory Long Boat, plans, Scale 1:16.
This is just a selection of over 1000 plans available

R/C Equipment

RadioLink 8 channel + 2 receivers combo
Planet 2+2 4 Channel Combo
Viper Marine 40 amp speed controller
Viper Marine 25 amp speed controller
Viper Marine 20amp speed contrdler
Viper Marine 15amp speed contrdler
Viper Micro Marine 10amp speed controller
Viper Marine 15 Plug Play speed controller
Mtroniks High Power/Micro Switcher
Programmable mixing module
Waterproof mixing module (w-tail)
Full range of R/C installation equipment available

Motors

Schottel drive unit 40mm dia prop
Schottel drive unit 50mm dia prop
Schottel drive unit 70mm dia prop
Mabuchi 540
Motor mount for MFA 800/850 Motors
385 Motor 6 to 15.0 Volt with mount
540 Motor 6 to 12.0 Volt with mount
RE800 Motor 12.0 Volt with mount
RE850 Motor 12.0 Volt with mount
Motor mount for 540/500.550 and 600 Motors
MFA 540 Motor and 2.5:1 Gearbox 4.5 -15v
MFA 540 Motor and 6:1 Gearbox 4.5 -15v
MFA 385 Motor and 2.5:1 Gearbox 4.5 -15v
950 series 385 Motor and 6:1 Gearbox 4.5 -15v
951 series 951 Motor and Gearbox 298:1 6volt,
800/850 Belt Drive Reduction Unit 2:1:1

Coupling Assemblies

Single Universal Joint Coupling
Double Universal Joint Coupling
Coupling set includes one UJ, 2 inserts of your choice
and an allen key. Inserts sizes 2.0, 2.3, 3.0, 4.0, 5.0,
6.00mm plain M3, M4, M5 thread

Rudder Assemblies

MA306240mm x 27mm Rudder Assembly
RO1433 Steerable airtort nozzle with 50mm I/D
RO1487 Fixed Kort nozzle with 60mm dia prop
RO1591 Rudder assembly 30x27mm
U1 45mm x 30mm Rudder
U2 53mm x 36mm Rudder
U3 67mm x 44mm Rudder

Standard M4 Propshafts

4in long tube 4mm threaded Propshaft
5in long tube 4mm threaded Propshaft
6in long tube 4mm threaded Propshaft
7in long tube 4mm threaded Propshaft
8in long tube 4mm threaded Propshaft
9in long tube 4mm threaded Propshaft
10in long tube 4mm threaded Propshaft
11in long tube 4mm threaded Propshaft
12in long tube 4mm threaded Propshaft
13in long tube 4mm threaded Propshaft
This is just a selection from our huge range

Water Proof Propshafts

300/00 WP Propeller Shaft M4 290mm
301/02 WP Propeller Shaft M4 186mm
301/03 WP Propeller Shaft M4 211mm
301/04 WP Propeller Shaft M4 236mm
301/05 WP Propeller Shaft M4 261mm

Raboesch Brass Propellers

Brass Propeller (A Type) 20mm -3 Blade-M4
Brass Propeller (A Type) 25mm -3 Blade-M4
Brass Propeller (A Type) 25mm -3 Blade-M4
Brass Propeller (A Type) 30mm -3 Blade-M4
Brass Propeller (A Type) 35mm -3 Blade-M4
Brass Propeller (A Type) 40mm -3 Blade-M4
Brass Propeller (A Type) 45mm -3 Blade-M4
Brass Propeller (A Type) 50mm -3 Blade-M4
Brass Propeller (A Type) 55mm -3 Blade-M4
Brass Propeller (A Type) 60mm -3 Blade-M4
Brass Propeller (A Type) 60mm -3 Blade-M4
Brass Propeller (A Type) 65mm -3 Blade-M4
Brass Propeller (A Type) 65mm -3 Blade-M4
Brass Propeller (A Type) 70mm-3 Blade-M5
Brass Propeller (A Type) 75mm -3 Blade-M5
This is just a selection of a huge range of 3, 4 and 5
blades props in stock

Raboesch Bow Thrusters

Bow thruster unit with motor 14mm I/D
Bow thruster unit with motor 16mm I/D
Bow thruster unit with motor 19mm I/D
Bow thruster unit with motor 22mm I/D
Bow thruster unit with motor 25mm I/D
Mini Bow Thruster unit with motor 10mm I/D
Bow thruster unit with motor 30mm I/D

Asst CAP Maquette Fittings

CAP/R113 Modern boat fender, 48mm long
CAP/R112 Modern boat fender, 39,mm long
CAP/R114 Modern boat fender, 56mm long
CAP/A48/15 Searchlight, 21mm dia x 28mm long
CAP/A84 Danforth anchor 50mm long
CAP/R940 'D' section fender 9mm high 2 mtr
CAP/R6 Liferaft container 58mm long
CAP/A62 Enclosed round radar array 30mm dia
CAP/A83 COR Plough anchor, 60mm long
CAP/R70/20 Orange Lifebelt 30mm dia

CAP/A91/10 Motorboat/yacht winch 47mm wide
CAP/R103 Modern boat fender, 32mm dia
CAP/A112/10 Echo sounder 23mm x 19mm
CAP/R942 'D' section fender 15mm high 2 mtr
CAP/A70/15 Fire monitor kit 37mm high
CAP/A09G Chrome steering wheel 48mm dia
CAP/B60 60mm dia ship's wheel, Chrome
CAP/A110/15 Radar receiver and stand. 19mm
CAP/A68/15 GPS receiver radome 10mm high
CAP/A115/15 VHF radio base & handset 14mm
CAP/A112/10Echo sounder/ 23mm x 19mm
This is just a selection of the range available.

BECC Letter & Number sets

2A Arial Lettering 2 mm,
3A Arial Lettering 3 mm,
4A Arial Lettering 4 mm,
6A Arial Lettering 6 mm,
8A Arial Lettering 8 mm,
10A Arial Lettering 10 mm,
12A Arial Lettering 12 mm,
15A Arial Lettering 15 mm,
20A Arial Lettering 20 mm,
25A Arial Lettering 25 mm,
5A Arial Lettering 5 mm,
Available in most colours

Waterline Marking Sets

Hull Markings Imperial, Colour: White, Size: 1:24
Hull Markings Imperial, Colour: White, Size: 1:32
Hull Markings Imperial, Colour: White, Size: 1:48
Hull Markings Imperial, Colour: Black, Size: 1:48
Hull Markings Imperial, Colour: White, Size: 1:72
Hull Markings Imperial, Colour: Black, Size: 1:72
Hull Markings Imperial, Colour: White, Size: 1:96
Hull Markings Imperial, Colour: Black, Size: 1:96
Hull Markings Metric, Colour: White, Size: 1:32
Hull Markings Metric, Colour: White, Size: 1:96
Hull Markings Imperial and Metric White 1:150
This is just a selection of the range available.

BECC Flags

GB02 White Ensign, Size: AAA 10mm
GB02 White Ensign, Size: AA 15mm
GB02 White Ensign, Size: A 20mm
GB02 White Ensign, Size: B 25mm
GB02 White Ensign, Size: C 38mm
GB02 White Ensign, Size: D 50mm
GB02 White Ensign, Size: E 75mm
GB02 White Ensign, Size: F 100mm
GB02 White Ensign, Size: G 125mm
GB02 White Ensign, Size: H 150mm
Also available, Naval ensigns in Red, Blue as well and

Quaycraft Ship's Boats

QR27 1:96 Scale 27ft Whaler 85mm
QD24 1:24 Scale 14ft Clinker Dinghy
QS77 1:72 27ft Clinker whaler 115mm
QD20 1:24 Scale 10ft Clinker Dinghy
QD38 1:32 Scale 16ft Clinker Dinghy,
QR25 1:96 Scale 25ft Motor cutter
QL37 1:32 Scale 16ft Clinker Ship s Lifeboat
QL59 1:48 scale, 22ft Lifeboat, double ended
QR16 1:96 Scale 16ft Dinghy 51mm
QD34 1:32 Scale 14ft Clinker Dinghy
QR26 1:96 Scale 25ft Motor boat
QS70 1:72 Scale 16ft Clinker dinghy,
QAL37 1:48 Scale 24ft Clinker Ship s Lifeboat
QL43 1:48 Scale 18ft Clinker Lifeboat
QL53 1:48 Scale 20ft double ended lifeboat
QR32 1:96 Scale 32ft Cutter post 1920
QP27 1:48 Scale 27ft Royal Navy Whaler
QP25 1:48 Scale 25ft Motor cutter 162mm
QAP12 1:48 Scale 12ft Clinker dinghy
QS75 1:72 Motor cutter 2 cabins 109mm
QP16 1:48 Scale 16ft Royal Navy dinghy
QP14 1:48 14ft clinker dinghy 89mm
This is just a selection of over 100 boats available

Robbe Fittings

RO1485 Ships crane with 160mm reach
RO1562 Fire-fighting monitor 80mm high
RO1577 Inflatable boat with 1:25 140mm
RO1560 Control Pulley set
RO1565 Ship's boat crane 90mm reach
RO1434 Working Towing hook 77mm wide
RO1643 Nav lamp set lighting board 30mm long
RO1553Door set 5mm x 25mm (Pack of 6)
RO1404 Outboard motor 1:25 scale 60mm
RO1642 Deck illumination lamp 9mm dia 6v (2)
RO1300 Radar barred array type 80mm
RO1484 Radar barred array type 1:50 73mm
RO1518 Round deck hatch 29mm dia 2pcs

Reade Vintage Fittings

LESP14 Naval Searchlight 26mm dia
LESP15 Naval Searchlight 20mm dia
LESP16 Searchlight 13mm
LESP21 Lifebelt 25mm
LESP22 Lifebelt 19mm
LESP24 Ship's Wheel 25mm dia
LESP3 Cowl Vent 40mm high
LESP4 Cowl Vent 32mm hh
LESP5 Cowl Vent 27mm high

1:72 scale Warship Fittings

Flower Class Corvette Deck & Fittings Set 1:72
Flower Class Corvette Type 'C' Bridge Set 1:72
Flower Class Corvette Depth Charge Set
4in Gun Mark IX Breech Loading Gun 1:72"
Coastal Forces Guardrail Set
21in Torpedo and Tubes Set (2)"
Moored Mine & Sinker Set
Single 20mm Oerlikon Guns (2)
2 Pdr. Pom-Pom Gun with Bandstand 1:72
16ft Dinghy & Stowage 67mm long 1:72 scale
Oval Carley Floats 43mm x 25mm (2) 1:72
18in Torpedo and Tubes Set (2)
Rectangular Carley Floats 38x30mm (2) 1:72
2in Rocket Flare Set incl. Stowage Boxes 1:72
Hedgehog Anti-Sub. Weapon 1:72 scale
Chemical Smoke Apparatus & Smoke Float Set
Wooden Reversible Life Raft 1:72
Single Depth Charge & Chute Set
Type A Mine Set (4)
Twin .303 Vickers Gas Operated MG Set (2)
9in Porthole (Scuttle) Set 4mm O/D (60)
Twin .303 Lewis Gun Set 1:72 scale (2)
This is just a selection of the range available

Brass Portholes

K67008 Porthole, 8mm, With 6 Hole Flange, (Pack 10)
K67010 Porthole, 10mm, With 6 Hole Flange, (Pack 10)
K67012 Porthole, 12mm, With 6 Hole Flange, (Pack 10)
K67014 Porthole, 14mm, With 6 Hole Flange (Pack 10)
K67016 Porthole, 16mm, With 6 Hole Flange, (Pack 10)
K67018 Porthole, 18mm, With 6 Hole Flange (Pack 10)
K67020 Porthole, 20mm, With 6 Hole Flange,(Pack 10)

Brass Stanchions

K66206 2 Hole Stanchion, Brass 6mm (Pack of 10)
K66210 2 Hole Stanchion, Brass 10mm (Pack of 10)
K66215 2 Hole Stanchion, Brass 15mm (Pack of 10)
K66220 2 Hole Stanchion, Brass 20mm (Pack of 10)
K66225 2 Hole Stanchion, Brass 25mm (Pack of 10)
K66230 2 Hole Stanchion, Brass 30mm (Pack of 10)
K66235 2 Hole Stanchion, Brass 35mm (Pack of 10)
K66240 2 Hole Stanchion, Brass 40mm (Pack of 10)
K66011 3 Hole R.N Stanchion, 11mm 1.96 (Pack of 10)
K66015 3 Hole R.N Stanchion, 5mm 1:72 (Pack of 10)
K66022 3 Hole R.N Stanchion, 22mm 1:48 Pack of 10)
This is just a selection of our massive range.

Crew Figures

DF11 Civilian/R.N Officer wearing cap and pullover
DF12 Seated ships captain wearing cap and pullover
DF13 R.N/ Civilian wearing waterproof jacket
DF15 Seated civilian crew figure
DF21 US Marine sitting
DF3 Standing civilian captain in sheepskin jacket
DF5 Standing civilian crew member
DF6 Standing R.N/Civilian officer with binoculars
DF9 Seated civilian crew member
DF96 1:96 scale crew figure set
Ships cat, sitting 1:48 Scale
Bearded Officer, 1:32 Scale
Crew member, 1:32 Scale
Officer, clean shaven, 1:32 Scale
Bearded Officer 1:48 Scale
Crew member, leaning on rail 1:48 Scale
Young boy, 1:48 Scale
Modern crew wearing dungarees 1:30 60mm
Modern crew in smock 1:30 scale 60mm
GM72/004 RN 1:72 Officers (Working Dress) (3)
GM72/005 RN 1:72 Ratings – pullovers (3)
GM72/006 RN 1:72 Officers – overalls (3)
GM72/007 RN 1:72 Crew – duffle coats (3)
GR144/01 Royal Navy 4 inch BL Gun Crew 1:144 (4)
GR144/02 Royal Navy Gunners 1:144 (Pack of 4)
GR144/03 Royal Navy Sailors 1:144 (Pack of 4)
GR144/04 Royal Navy Officer and Sailors 1:144 (4)
CMF72131 Gun Crew for U-Boat Type VIIc 1:72 (3)
CMF72127 U-Boat Crew Figures at rest 1:72 (3)
CMF48104 EU Mechanics1:48 (2)
CMF72158 Schnellboot Bridge Crew 1:72 (Pf 3)
CMF35204 Schnellboot Crew at Rest 1:35 (2)
CMF35205 Schnellboot Crew 1:35 scale (Pack of 2)
CMF72116 Lookout Crew for U-Boat 1:72 scale (3)
CMF72118 Crew Figures at rest (3)
CMF72133 Lookout Crew U-Boat 1:72 (3)
CMF72185 U-Boat Gun crew 1:72 scale (Pack of 3)

Boat Fenders

7361/25 Fender.Tyre 25mm Dia.(Pack of 10)
7361/28 Fender.Tyre 28mm Dia.(Pack of 10)
7361/32 Fender.Tyre 32mm Dia.(Pack of 10)
7361/38 Fender.Tyre 38mm Dia.(Pack of 10)
7361/43 Fender.Tyre 43mm Dia.(Pack of 10)
CAP/R112 Modern boat fender, 39,mm long
CAP/R113 Modern boat fender, 48mm long
CAP/R114 Modern boat fender, 56mm long
CAP/R900 Modern boat fender, 24mm long
CAP/R901 Modern boat fender, 30mm long
CAP/R902 Modern boat fender, 35mm long
CAP/R903 Modern boat fender, 45mm long
CAP/R904 Modern boat fender, 55mm long

Scalelink Etched Brass

11mm 3 rail stanchions & railing 840mm 1:96
1:96 R.N 3 rail stanchions and railing 11mm
1:128 scale vertical laddering
1:72 R.N pattern 3 rail stanchions and railing
1:192 R.N pattern 3 rail stanchions
Clarendon serif Letters 2.5, 3 and 5mm high
1:200 Angled step ladders with handrail
Vertical rung ladders 4.5mm & 5.5mm wide
1:128 Angled step companionway ladders
1:128 scale vertical laddering
5mm and 6mm wide Angled step ladders
6mm & 8mm vertical rung laddering
This is just a selection from the huge range available

Belaying Pins

Belaying Pins Walnut 8mm (Pack of 10)
Belaying Pins Walnut 6mm (Pack of 10)
Belaying Pins Walnut 14mm (Pack of 10)
Belaying Pins Walnut 10mm (Pack of 10)
Belaying Pins Brass 8mm (Pack of 10)
Belaying Pins Brass 12mm (Pack of 10)
Belaying Pin Bronzed metal, 9mm,(Pack of 10)
Belaying Pin Bronzed metal, 7mm,(Pack of 10)
Belaying Pin Brass, Length 5mm,(Pack of 10)

Rigging Thread

Rigging Thread, 0.1mm Natural
Rigging Thread, 0.25mm Black
Rigging Thread, 0.25mm Natural
Rigging Thread, 0.5mm Black
Rigging Thread, 0.5mm Natural
Rigging Thread, 0.75mm Black
Rigging Thread, 0.75mm Natural
Rigging Thread, 1mm Black
Rigging Thread, 1.0mm Natural
Rigging Thread, 1.3mm Black (10mtr)
Rigging Thread, 1.3mm Natural (10 mtr)
Rigging Thread, 1.7mm Natural 5 mtr
Rigging Thread, 1.8mm Black
Rigging Thread, 2.5mm Natural (2.5mtr)
This is just a selection of the range available.

Rigging Blocks & Deadeyes

Single Block, 2mm Walnut (Pack of 10)
Single Block, 3mm Walnut (Pack of 10)
Single Block, 4mm Walnut (Pack of 10)
Single Block, 5mm Walnut (Pack of 10)
Single Block, 6mm Walnut (Pack of 10)
Single Block, 7mm Walnut (Pack of 10)
Single Block, 10mm Walnut (Pack of 10)
Double Block, 3mm Walnut (Pack of 10)

Double Block, 4mm Walnut (Pack of 10)
Double Block, 5mm Walnut (Pack of 10)
Double Block, 6mm Walnut (Pack of 10)
Double Block, 7mm Walnut (Pack of 10)
Deadeye, 9mm Walnut (Pack of 10)
Deadeye, 7mm Walnut (Pack of 10)
Deadeye, 5mm Walnut (Pack of 10)
Deadeye, 3mm Walnut (Pack of 10)
Deadeye, 2mm Walnut (Pack of 10)
Deadeye, 12mm Walnut (Pack of 10)
This is just selection from our massive range.

Display Bases and Columns

5695/30 Varnished Hardwood Base 300x100mm
5695/40 Varnished Hardwood Base 400x120mm
5695/50 Varnished Hardwood Base 500x150mm
5695/80 Varnished Hardwood Base 800x550mm
5690/26 26mm high Brass mounting column
5690/29 29mm high Brass mounting column
5690/35 35mm high Brass mounting column
5685/00 Turned Wood Mounting Column 65mm
5685/02 Turned Wood Mounting Column 28mm
5685/03 32mm Walnut mounting column
5685/04 51mm Walnut mounting column

Timber

Lime Strip 0.5mm x 2mm x 1000mm
Lime Strip 0.6 x 10mm x approx 1 metre long
Lime Strip 0.6 x 3mm x approx 1 metre long
Lime Strip 0.6 x 4mm x approx 1 metre long
Lime Strip 0.6 x 5mm x approx 1 metre long
Lime Strip 0.6 x 6mm x approx 1 metre long
Lime Strip 0.5 x 7x approx 1 metre long
Lime Strip 0.6 x 8mm x approx 1 metre long
Lime Strip 1.5 x 1.5mm x approx 1 metre long
Lime Strip 1.5 x 10mm x approx 1 metre long
Lime Strip 1.5 x 2.0mm x approx 1 metre long
Lime Strip 1.5 x 3.0mm x approx 1 metre long
Lime Strip 1.5 x 4.0mm x approx 1 metre long
Lime Strip 1.5 x 5mm x approx 1 metre long
Lime Strip 1.5 x 6mm x approx 1 metre long
Lime Strip 1.5 x 7mm x approx 1 metre long
Lime Strip 1.5 x 8mm x approx 1 metre long
Lime Strip 1 x 1mm x approx 1 metre long
Lime Strip 1 x 1.5mm x approx 1 metre long
Lime Strip 1 x 10mm x approx 1 metre long
Lime Strip 1 x 2mm x approx 1 metre long
Lime Strip 1 x 3mm x approx 1 metre long
Lime Strip 1 x 4mm x approx 1 metre long
Lime Strip 1 x 5mm x approx 1 metre long
Lime Strip 1 x 6mm x approx 1 metre long
Lime Strip 1 x 7mm x approx 1 metre long
Lime Strip 1 x 8mm x approx 1 metre long
Lime Sheet 0.5mm thick x 100mm x 1 mtr
Lime Sheet 1mm thick x 100mm x 1 mtr
Lime Sheet 1.5mm thick x 100mm x 1 mtr
Lime Sheet 10mm thick x 100mm x 1 mtr
Lime Sheet 2mm thick x 100mm x 1 mtr
Lime Sheet 20mm thick x 100mm x 1 mtr
Lime Sheet 3mm thick x 100mm x 1 mtr
Lime Sheet 4mm thick x 100mm x 1 mtr
Lime Sheet 5mm thick x 100mm x 1 mtr
Lime Sheet 6mm thick x 100mm x 1 mtr
Lime Sheet 8mm thick x 100mm x 1 mtr
0.8mm Plywood sheet x 300mm x 1200mm long
1.5mm Plywood Sheet x 300 x 1200mm long
3.0mm Plywood Sheet x 300 x 1200mm long
6.5mm Plywood Sheet x 300 x 1200mm long
4.0mm Plywood Sheet x 300 x 1200mm long
0.5mm Plywood Sheet x 300 x 1200mm long
2.0mm Plywood Sheet x 300 x 1200mm long
This is just a selection of sizes. Other woods stocks
include Walnut, Maple, Beech, Balsia, Obечи

Admiralty Paint Sets

HMS Diana Paint Set
HMS Cruiser Paint Set
HMS Snake Paint Set
HMS Agamemnon Paint Set
HM Brig Supply Paint Set
HM Bark Endeavour Paint Set
HMS Jalouse Paint Set
HMAV Bounty Paint Set
HMS Mars Paint Set
HM Cutter Sherbourne/Lady Nelson Paint Set
HM Yacht Chatham Paint Set
HM Mortar Vessel Convulsion Paint Set
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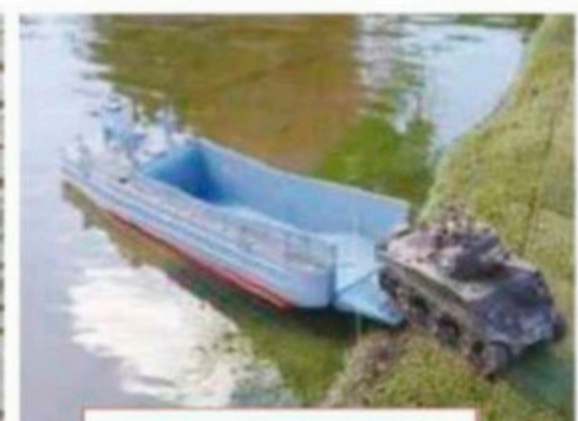
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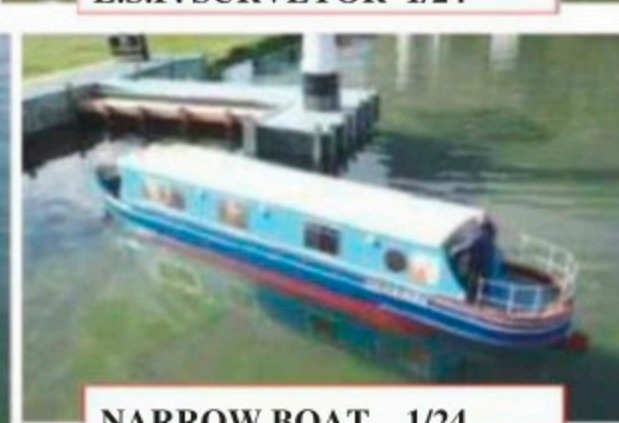
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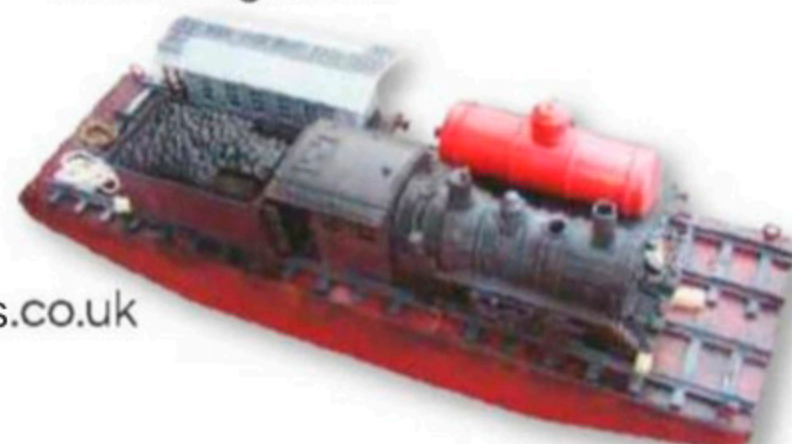


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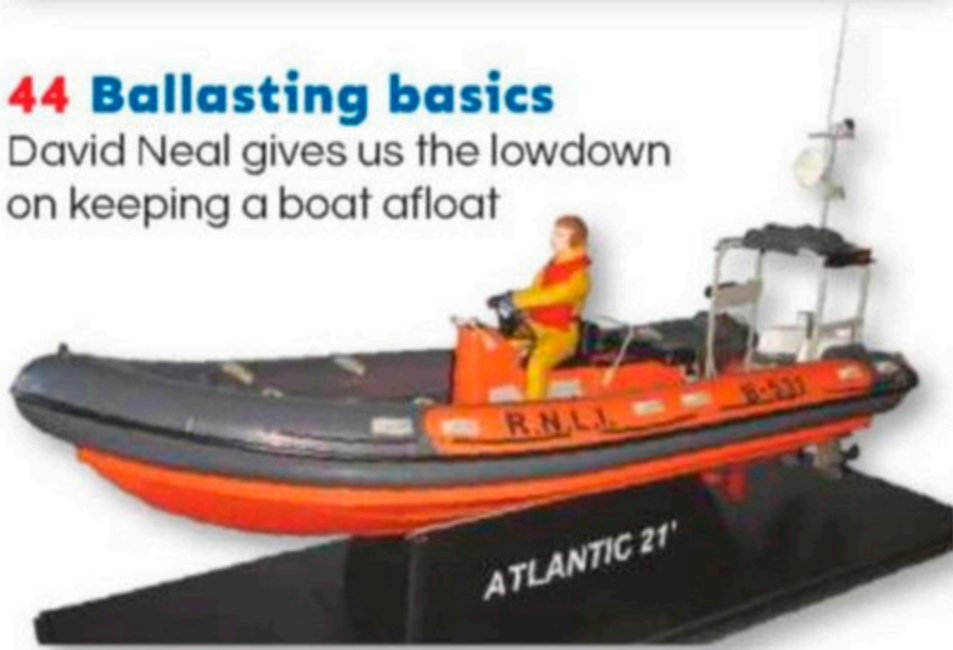
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Well, I haven't been cast adrift in a small boat yet! And after the howling error on my first *Model Boats*' front cover last month (Mountford Models should, of course, have read Mountfleet Models) I probably deserved to be. Instead, the lovely Adam Slater at Mountfleet Models accepted my embarrassed apology with genuine kindness and understanding. I've also been surprised and delighted by the sheer number of emails I've received welcoming me on board. So, thank you all! I was told this was a very friendly hobby and that's certainly proving to be the case.

On the subject of Mountfleet Models and Nick Brown's Hitting the Beach feature, we will be running Part 2 in next month's issue – so if you're relying on this step by step to guide you through the build, don't worry, we have no intention of leaving you high and dry.

Likewise, those of you who have been following Dave Wooley's highly detailed instructional *Soobrazitelnyy* series will be relieved to learn that it returns this month and that all remaining instalments will be run consecutively.

Striking the right balance when it comes to content is always going to prove a challenge. I hope, however, that you will enjoy the pages ahead as MB's marvellous contributors have provided some truly fascinating features, which are well worth reading even if they fall outside the spectrum of your own personal discipline/s and/or thematic interest/s.

Added to that, we're able to offer you, courtesy of the kind folks at Revell, the opportunity to win a nifty little airbrush set that, if you've yet to try your hand at spray painting, comes complete with everything you need to get started. Alternatively, it would make a great gift for a friend, family or club member who is new to the hobby and who could do with some support and encouragement.

We are also running the first in a new Q&A style series of informal interviews. Going forward interviewees will include not only those working within the various industries that support the hobby but also model boat builders of varying skill levels and from all walks of life.

I can already see from the fantastic letters and completed build/launch photographs shared this month what a great community this is, so please keep your input and feedback coming.

In the meantime, bon voyage!

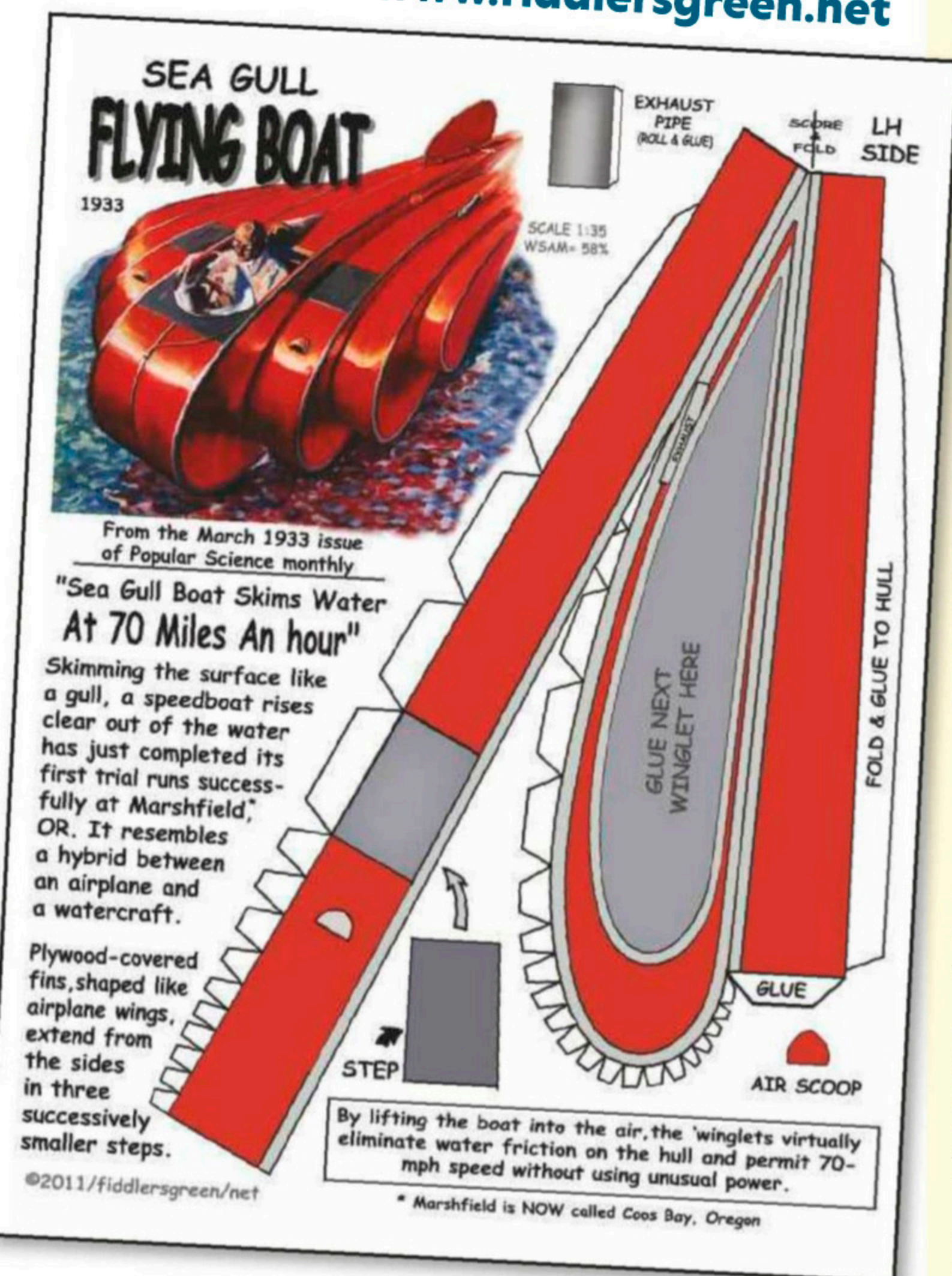
Lindsey

Compass 360

Our hobby-related news round-up

If you have a news story for these pages, please contact the Editor, Lindsey Amrani, via e-mail at editor@modelboats.co.uk or pick up the phone and call 01689 869840

www.fiddlersgreen.net



RULE BRITANNIA?

Could 2021 be the year that the America's Cup, the world's ultimate yachting trophy, comes home to dear old Blighty? Such a victory has eluded us ever since the inception of the what is now the world's oldest international sporting event.

Pre-dating both the modern Olympics and the World Cup, its origins go right back to 1851, the year in which Queen Victoria and her husband Prince Albert invited the New York Yacht Club to compete in a race against the British fleet around the Isle of Wight for the R.Y.S. [Royal Yacht Squadron] £100 Cup. This was won by the US schooner America, renamed after her and, as donated under the Deed of Gift, made available for perpetual international competition.

For the next 132 years, however, the United States enjoyed the longest winning streak in sporting history, and indeed since then only three other nations, Australia, New Zealand and Switzerland have ever had the honour of holding the Cup aloft.

All hopes, therefore, are now pinned on the INEOS (global manufacturer of petrochemicals, speciality chemicals and oil products) sponsored UK team's AC-75 75ft foiling mono-hull racing yachts designed by Nick Holroyd (the man behind the design of New Zealand's 2017 winner).

The 36th America's Cup (AC36) will take place in Auckland in 2021 and INEOS Team UK are working towards Sir Ben Ainslie skippering Britannia in a direct head to head battle against Emirates' Team New Zealand defender. To earn a place in the final, however, the team must first win the Challengers Selection Series, which will be held in January/February 2021, and lift the PRADA Cup.

Exciting times and, no doubt for readers of this magazine, projects ahead then! ●

CARD CRAFT SEA GULL

If you've admired the sensational Sea Gull modelled by Ashley Needham and featured as this month's front cover star, then you may be interested to learn that an US company called Fiddler's Green offers downloadable digital plans for an easy to build (full instructions are provided) retro card model, priced at just \$ 7.50. To place your order, visit www.fiddlersgreen.net/models/aircraft/Sea-Gull-Flying-Boat.html ●



NEW UNDER HULL WALKWAY FOR H.M.S. VICTORY

The public will be able to view Lord Nelson's flagship *H.M.S. Victory*, currently undergoing a £35m conservation project, from below for the first time in 100 years when Portsmouth's Historic Dockyard reopens on August 24, thanks to a new support structure that will exhibit her as if afloat.

By 2006 it had become apparent that *H.M.S. Victory*, the oldest surviving commissioned warship in the world, was starting to collapse under her own immense 3,600-tonne weight. It was, therefore, decided to replace the 22 steel cradle

support structure installed when she first came to dry dock in 1922 with a much higher tech new system. This incorporates 134 'smart props', which mimic the variable pressures of the sea and constantly monitor the ship's weight distribution.

In accordance with government COVID-19 guidelines, those wishing to visit must order their tickets and book their time slots online at www.historicdockyard.co.uk/tickets-and-offers to avoid overcrowding/infringement of social distance measures. ●

A COOL LITTLE AMPHIBIAN



With far less of us likely to be taking overseas holidays in the near future, a cute little amphibious caravan named the *Sealander* could not only add some real fun to further exploring our own countries but also prove an interesting build and talking point pond side in small scale.

Designed with true German ingenuity, this quirky little travel trailer can be connected to just about any car and when

fitted with its outboard engine also functions as a small boat. With its fibreglass reinforced plastic hull, it's lightweight in construction and boasts being extremely robust and stable both on dry land and in water (although probably best to think mill pond conditions rather than open ocean in a Force 9!).

The *Sealander* features wide windows, a convertible sunroof, a boarding handrail, a telescopic swim ladder and internal benches that either be used to seat up to six people (rather snugly) or converted into a large bed.

There's no doubt it would be quite a challenge as a modelling project, but it's one we'd love to see someone complete. Further details can be found at www.sealander.de/en/#c35. ●



NEW FROM REVELL

Just added to the Revell's catalogue of static plastic kits is a reboxed and upgraded version (contains new parts) of its 1:144 scale US Navy Landing Ship Medium with 40mm Bofors anti-aircraft gun (Ref. 05169), as built and used by the US Navy to land troops and vehicles on enemy beaches in the Pacific area from mid-1944. The kit (Level 4) is aimed at the more experienced modeller and has been allocated a recommended retail price of £39.99 (although it's worth shopping around as a number of online retail outlets are currently offering attractive discounts).

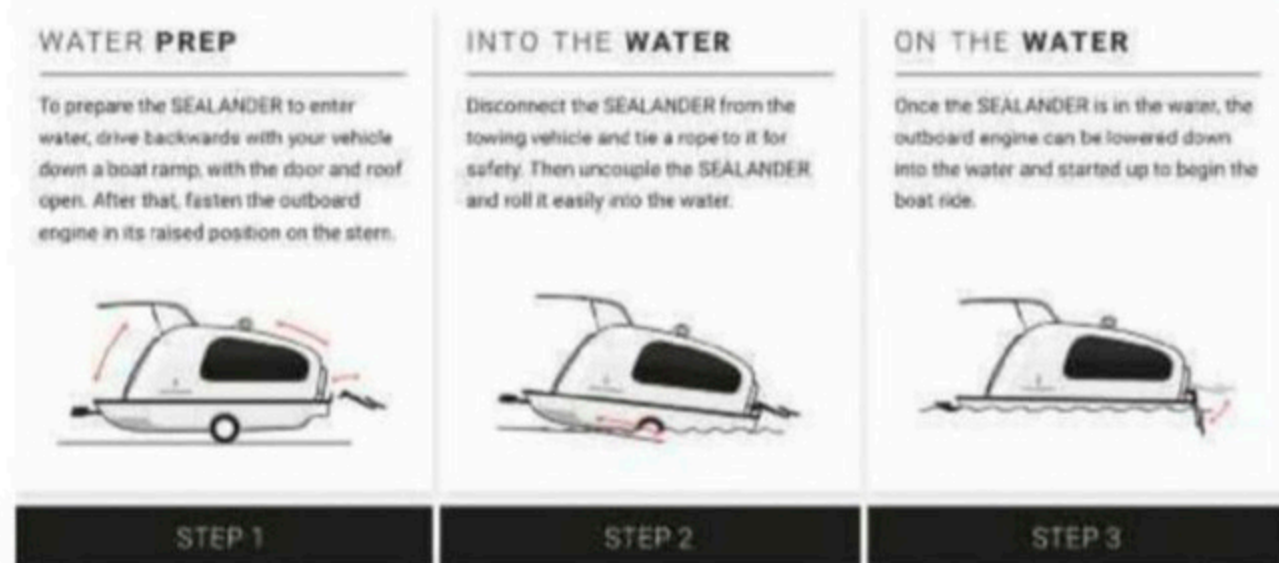
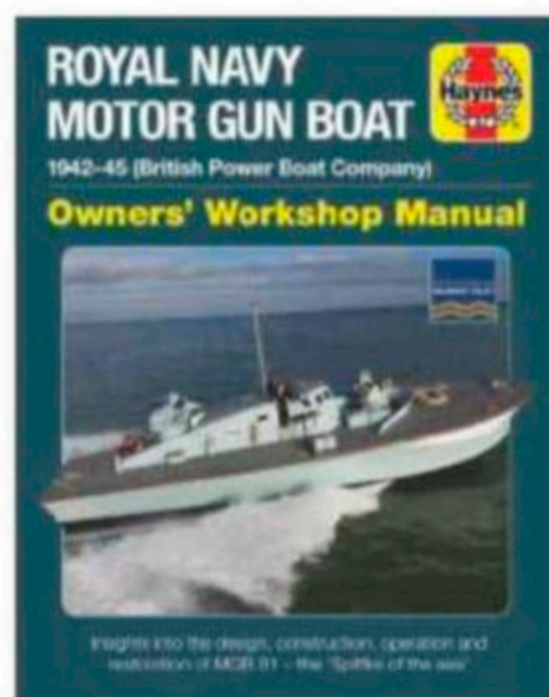
Revell's 1:83 scale *Mayflower* (also a Level 4 build) has been re-released, too, but this time in special 400th Anniversary packaging. As well as the plastic kit components, included are paints, glue and a poster of the attractive artwork featured on the box. The kit (Ref. 05684) retails at £29.99. We, however, will have an example up for grabs in next month's issue, so don't forget to pick up your copy! ●



ROYAL NAVY MOTOR GUN BOAT MANUAL COMING SOON

Haynes has revealed it will be publishing its new *Royal Navy Motor Gun Boat Manual* (ISBN 9781785211423) this September. The book, produced in association with the Portsmouth Naval Base Property Trust, has been co-written by Stephen Fisher and Diggory Rose (Director of Marine Operations at Portsmouth Naval Base

Property Trust and primary skipper of MGB 81 (one of the armed motor gun boats that saw action in the North Sea and English Channel between 1942-1945). Further details will be carried in next month's issue and we will also have a copy to give away in a prize draw. Another reason to be sure not to miss the October edition! ●



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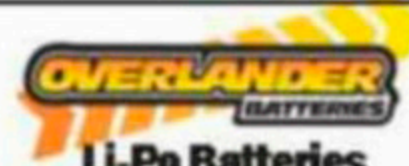
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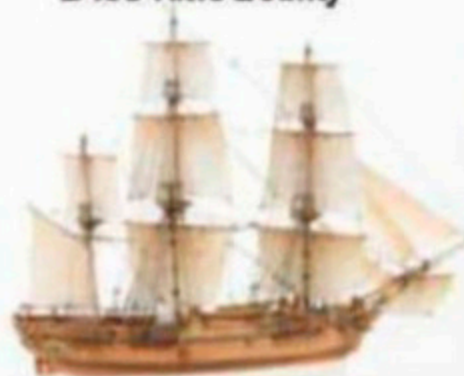


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WIN!

A REVELL AIRBRUSH SET WORTH £119.99!

Whether you've been toying with the idea of investing in an airbrush but have yet to take the plunge or perhaps have a friend or family member who is new to the hobby and could do with a bit of help and encouragement, then we've got just the thing for you... Up for grabs in this month's easy to enter prize draw is this neat little 'learn for less' Basic Airbrush Set, donated by the kind folk at Revell.

An airbrush offers fast, consistent coverage and avoids those dastardly paint runs. Vital to the end result of any paint finish is to start with a smooth flawless coat of primer and you'll be amazed by how much easier an airbrush makes this. Plus, because paints are applied as a fine mist, each layer will dry much faster, too.

What's more, with experimentation, an airbrush can also be used to create numerous special effects for added authenticity, such as waterline staining, rust, traces of smoke or oil, etc.

For almost 60 years now Revell has been developing and creating true-to-the-original plastic model kits and hobby accessories for modellers of all levels, and this set (Revell Part No. 39197), marketed with an SRP of £119.99, offers the novice everything he/she needs which to get started, all packed in sturdy, easy to store and transport, plastic case. It's a really fun introduction to airbrushing for those wanting to develop their skills before shelling out on a much more expensive piece of kit.

Revell offers a large selection of both matt and gloss paints for hobbyists and two different shades from its acrylic Aqua Colour range feature within the set. For use within the airbrush these need to be diluted either with 20 to 25% water or with Aqua Color Mix. The latter is preferable, as it also serves as a retardant and prevents the paint from drying too quickly in the spray gun, and the kit includes a sample bottle of this.





Revell kits and accessories

For further information and details of the wide range of products the brand offers, please visit www.revell.com



HOW TO WIN!

To be in with a chance of winning this fabulous prize, all you have to do is complete and cut out the entry form below (photocopies will be accepted for those who do not wish to deface their copy of the magazine), pop it in an envelope addressed to:

Revell Airbrush Prize Draw,
Model Boats,
MyTimeMedia Ltd,
Suite 25,
Eden House,
Enterprise Way,
Edenbridge,
Kent TN8 6HF

and mail it straight off to us.

Please note, in order to be included in the draw, all entry forms must be received by the closing date of Friday, September 25, 2020.

Good luck everyone!

Airbrushes, of course, need to be cleaned after each and every use, and for this purpose a sample bottle of Revell's Aqua Colour Clean is also included for your convenience.

Included in Revell's Basic Airbrush Set are the following items:

- 1 x Mini Compressor
- 1 x Spray gun, (metal version, internal mix, single action)
- 1 x Air hose
- 2 x 18 ml Aqua Color
- 2 mixing glasses (25ml)
- 1 x Aqua Color Clean, 25 ml
- 1 x Aqua Color Mix, 25 ml
- 2 x Pipettes
- Full operating instructions

TERMS & CONDITIONS

Entry is open to all UK residents with a permanent UK address, with the exception of employees (and their families) of MyTimeMedia Ltd, its printers and agents, and any other companies associated with the competition. All entrants must be aged 18 or over. Only one entry per household is permissible. No responsibility can be accepted for entries lost, damaged or delayed in the post. Winners will be notified by post. Prizes are not transferable to another individual and no cash or other alternatives will be offered. The promoters reserve the right to amend or alter the terms of the competitions. The winner will be chosen from all correct entries received by the closing date specified. Please note that data will be managed in compliance with GDPR law. Our privacy policy can be found at www.mytimemedia.co.uk/privacy. The decision of the judges is final and no correspondence will be entered into.

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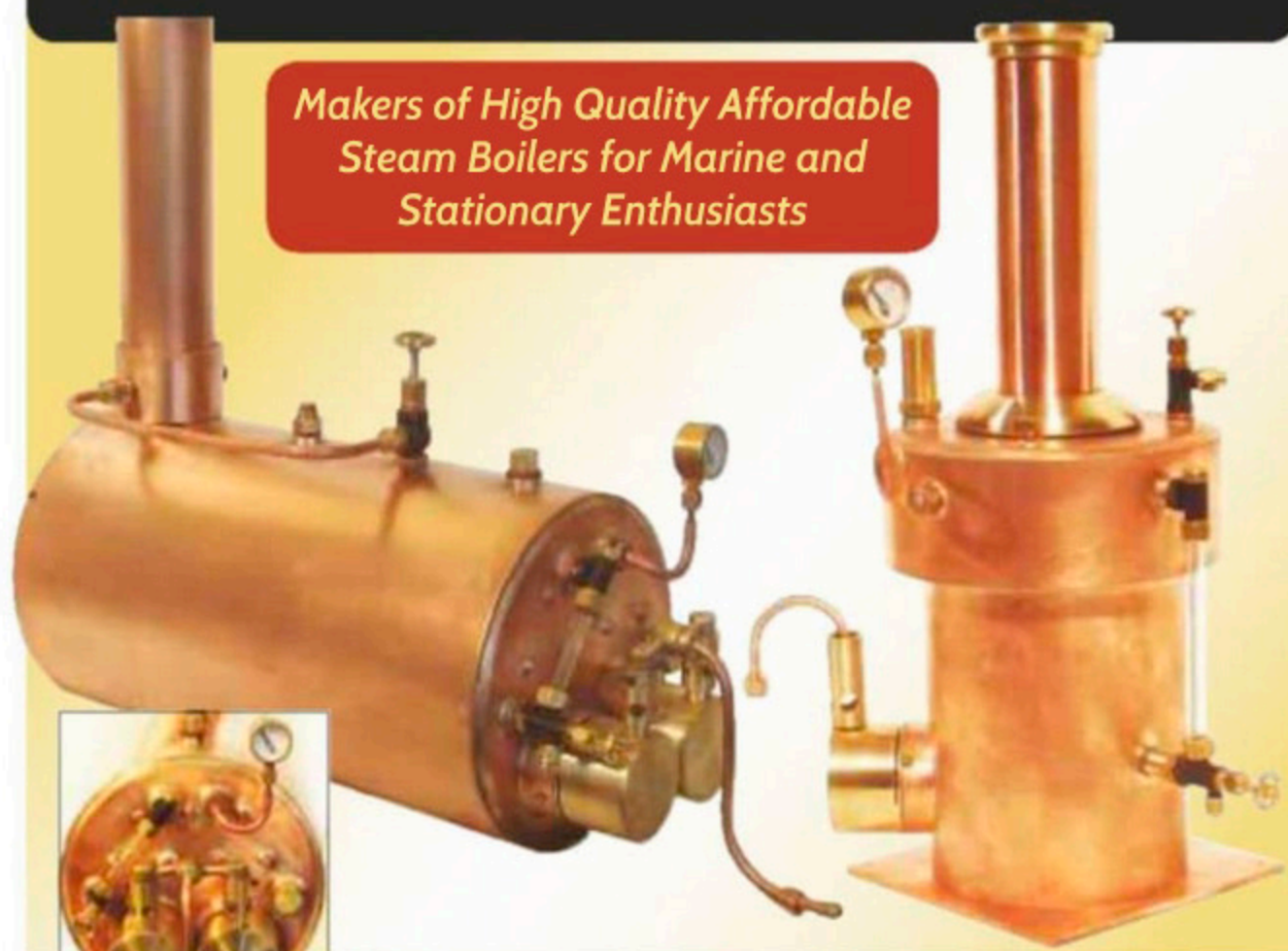
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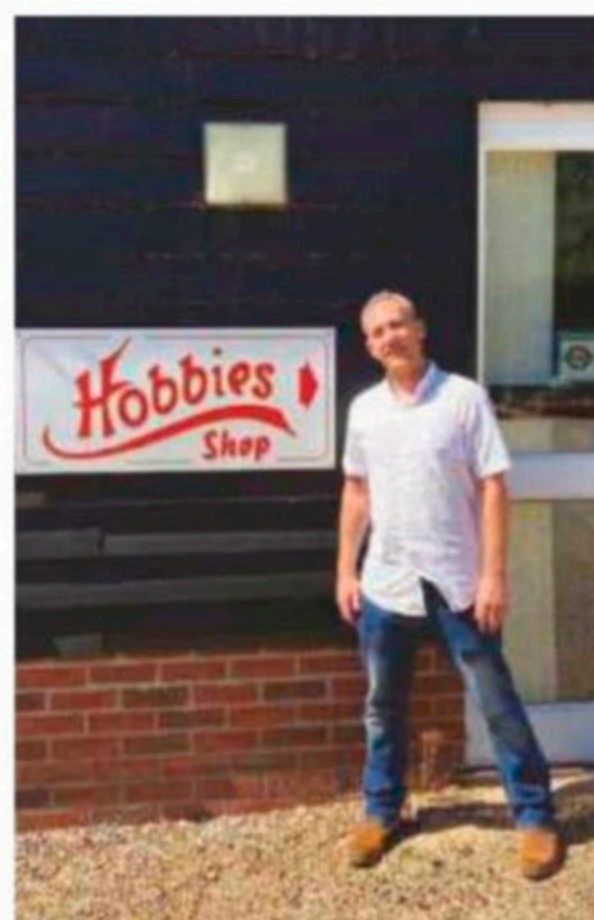


MB Q&A

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Need some advice? Help is at hand courtesy of 'Oracle' Justin Dack!



This month's interviewee Justin Dack provides us with an insight into the wonderful world of Hobbies!

Purchaser/Oracle, **Justin Dack**, chats with our Ed, **Lindsey Amrani**, about this online 'one stop shop', the hobby and effects of the current pandemic on the industry that supports it...

Q Thanks for volunteering to be the first interviewee in this new series, Justin. Can I begin by asking you to tell our readers a little bit about yourself? That is, how long you've been with the company and a little bit of information about your role and responsibilities?



"The new owners are investing heavily in lots of new and exciting products"

A I started at Hobbies in 1989, working my way through most roles in the company and learning about the products we sell. My main role now is of purchaser, though I also take phone calls from our customers and answer most of the technical queries.

Q So, are you, in the nicest sense of the word, a crafty person yourself, or simply product knowledgeable but in awe of the actual skills many of your customers have?

A I have made a few model boats over the years, although now family life means this has to take a back seat. That said, I frequently find myself in awe of how talented many of our customers are and I love the fact that I never stop learning from the hints and tips they share with me during our conversations.

Q There was a change of ownership last year. How, if at all, has that changed the way Hobbies operates?

A Hobbies still operates in much the same way as it always has, with the same friendly faces and voices our customers are used to. The biggest and most important difference is that the new owners are investing heavily in lots of new and exciting



LEFT: While the team at Hobbies is serious about providing the best possible service to its customers, a real sense of fun still prevails. Here we see Justin and one of his colleagues dressed up as superheroes for one of the fancy dress Fridays that helped them keep their spirits up through lockdown.

BELOW: While Hobbies caters for all types of modellers, readers of this magazine will find a huge selection of model boats related product stocked.



Q Many modellers who remember the pre-internet era like it was yesterday have fond memories of popping into their local hobby stores, not just to see new product and make purchases but very often to seek advice and chat with staff who were usually experienced and enthusiast modellers themselves. I am sure as a business this is something you are very aware of, so what provisions have you made to counter this sense of loss in terms of customer service online? And, can you also tell us about the Hobbies Club you have set up and the benefits this offers?

A Unfortunately, the loss of high street model shops due to high overheads and internet shopping has been a great loss for the modelling scene. We do, however, (outside of COVID restrictions) have a model shop at Raveningham, Norfolk that people can visit. We also have friendly staff on the telephone that are happy to chat with customers about their requirements and offer advice. I'm glad you've asked about our Hobbies Club, too, as it's really worth joining. Members can take

products to keep our valued customers entertained.

Q The business was established pre-internet, so can you explain, in brief, when and why the decision was made to take Hobbies down the e-commerce route? And what the initial logistical challenges faced were?

A For many decades Hobbies traded predominantly through its Hobbies Handbook, Hobbies weeklies and also had a handful of shops, later downsizing to the one shop in Dereham before we moved up the road to Raveningham. Mail order, though, has always been our primary business and it was just a natural progression to expand into e-commerce.

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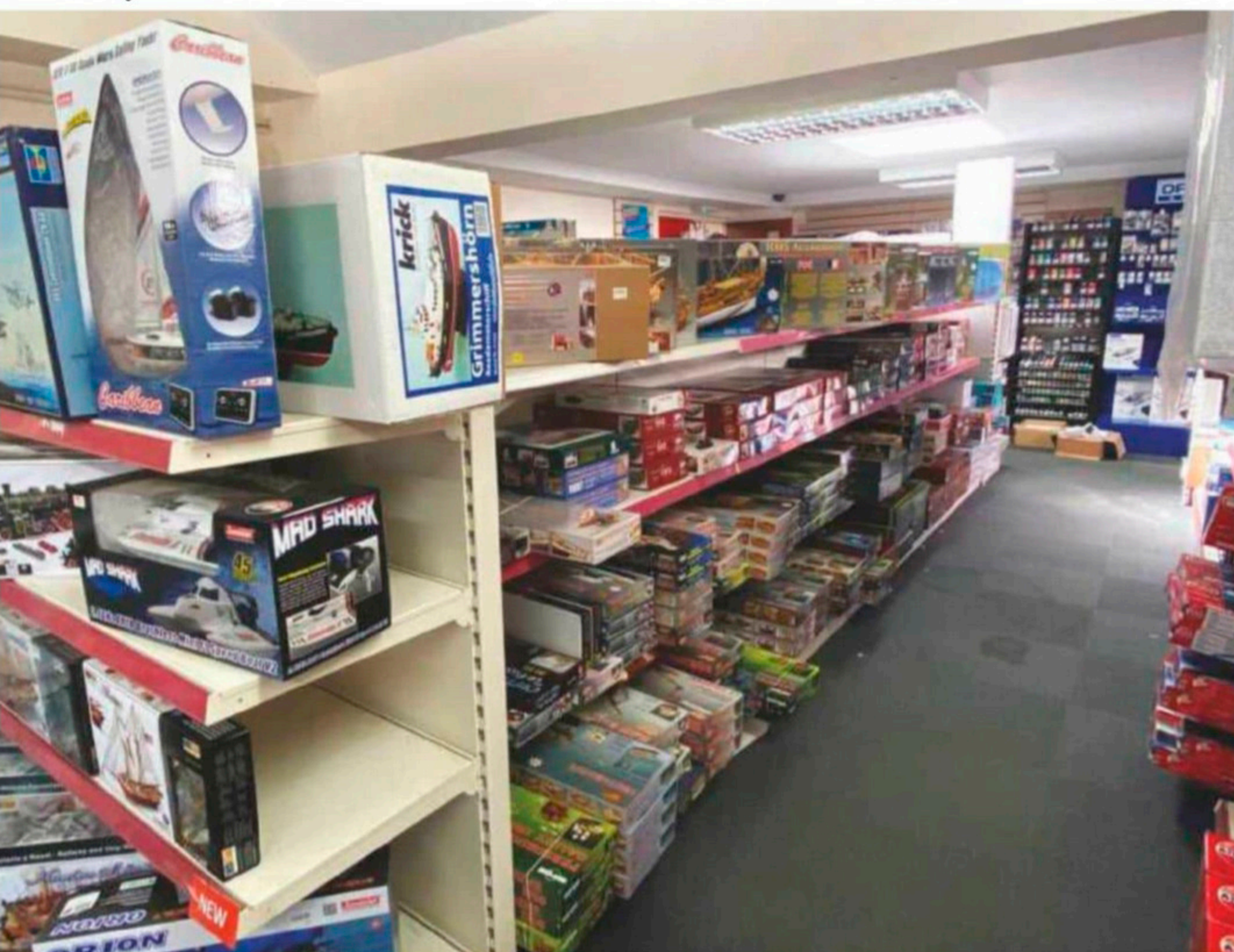


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ABOVE: One of the best things about modelling, and model boat building in particular, Justin points out, is that it encourages us to put down the digital era devices that seem to rob us of so much of our time and much needed sense of calm.



“While we appreciate the terrible effect the pandemic has had socially and economically, at Hobbies we’ve certainly seen a large upturn in orders, not just from existing customers but from many new customers as well”

advantage of an annual discount on all items, a free catalogue and priority dispatch on their orders, all for just £10 a year.

Q What are the changes to working practice you have had to implement due to the COVID-19 pandemic? And are you experiencing any delays in the supply chain due to the current situation?

A At the start of lockdown, we closed our shop but kept our mail order side going, as per government guidelines. Naturally, we’ve to implement social distancing measures in the workplace, too. With easing of restrictions starting to come into force, we’ve now been able to reopen the shop, but only currently for counter service, no browsing. During lockdown, demand for all our products increased considerably, which inevitably caused stock shortages, though things are slowly getting back to normal now.

Q Ah, that feeds into my next question... This pandemic has, of course, had terrible consequences worldwide, in terms of the tragic number of lives lost, the restrictions to our freedom of movement and the negative economic impact. While I in no way intended to make light of that, in view of the lifestyles changes we’ve all had to make, I believe it’s very likely we’ll see a resurgence of interest and increased numbers of people taking up or returning to hobbies – especially as research indicates that hobbies are good



“The beauty of model making, and boat building in particular, is that it gets you back to basics. There’s something lovely about becoming absorbed in hands-on crafts. They serve as a welcome respite from the trappings of the tech age”

for our mental health. For example, in the last quarter, Hornby Hobbies announced a 15% year on year rise in sales. What you’ve just told me seems to suggest further evidence of this...

A Yes, indeed. COVID has been, and is an ongoing, terrible situation and our hearts go out to anyone who has been affected by this dreadful virus. Yet while we appreciate the terrible effect the pandemic has had socially and economically, at Hobbies we’ve certainly seen a large upturn in orders, not just from existing customers but from many new customers as well, which can only be a good thing for the future of the modelling industry.

It’s also been very touching how, on a daily basis, our customers have thanked us for us staying open and providing them with projects to keep them sane – their words, not mine – while they’ve been either self-isolating, in lockdown or furloughed.

Q In many ways, especially when it comes to scratch building, hobbies are a great way of recycling. But in terms of the hobby-related products and materials you stock, do you see any signs that those who manufacture them are starting to give more consideration to aspects such

as the use biodegradable plastics, more environmentally friendly packaging, etc?

A Yes, I believe those in the modelling industry are starting to consider environmental issues and make more responsible choices. Only today a company we deal with that makes wooden model kits informed me on the telephone that they’ll be making the future packaging of their kits plastic free.

Q I appreciate Hobbies caters for all kinds of modellers but, for any readers of this magazine not familiar with your website, can you explain the range of products you carry which are specifically aimed at model boat enthusiasts/modellers and why you would recommend Hobbies as their first port of call?

A We stock a large range of model boat kits – from top manufacturers such as Caldercraft, Krick, Occre, Mantua, Amati and many more, as well as radio control equipment, tools, materials, accessories, plans, books and DVDs, etc. And we’re always happy to help and offer advice over the phone, via email or in our shop.

Q What do you predict will be the next big trends/innovations in modelling?

A It’s hard to say when it comes to model boat building. I think, to be honest, the beauty of model making, and boat building in particular, is that it gets you back to basics. There’s something lovely about becoming absorbed in hands-on crafts. They serve as welcome respite from the trappings of the tech age and the devices that seem to rob us of so much of our time and much needed sense of calm. That said, I think maybe we’ll start to see apps on smart phones being used to work various electronic systems like they already do with drones, etc.

Q Finally, Justin, in a rapidly changing world – and 2020 has been proof of that, if ever it were needed – what, if anything, can you reveal about plans for the business going forward?

A We’ll be continuing to expand the ranges we carry and grow the business, listening to customer feedback and bringing in new products based on our customers’ needs and demands.

QUICK FIRE QUESTIONS



Q What humorous title would you give a book based on your working life at Hobbies?

A Twenty Thousand Kits Packed in a Week.

Q If you were allowed to delegate one task that fell within your remit to a colleague, which one would it be?

A To be honest, none; I love all aspects of my job, hence why I’ve worked for Hobbies for over 30 years now.

Q Earlier riser or night owl?

A Early riser. I’m of ‘that age’ now!

Q Tidy desk or organised chaos?

A Definitely organised chaos, and I think there is a bit of poetic licence on the organised!!

Q Which three words would your colleagues use to best sum you up?

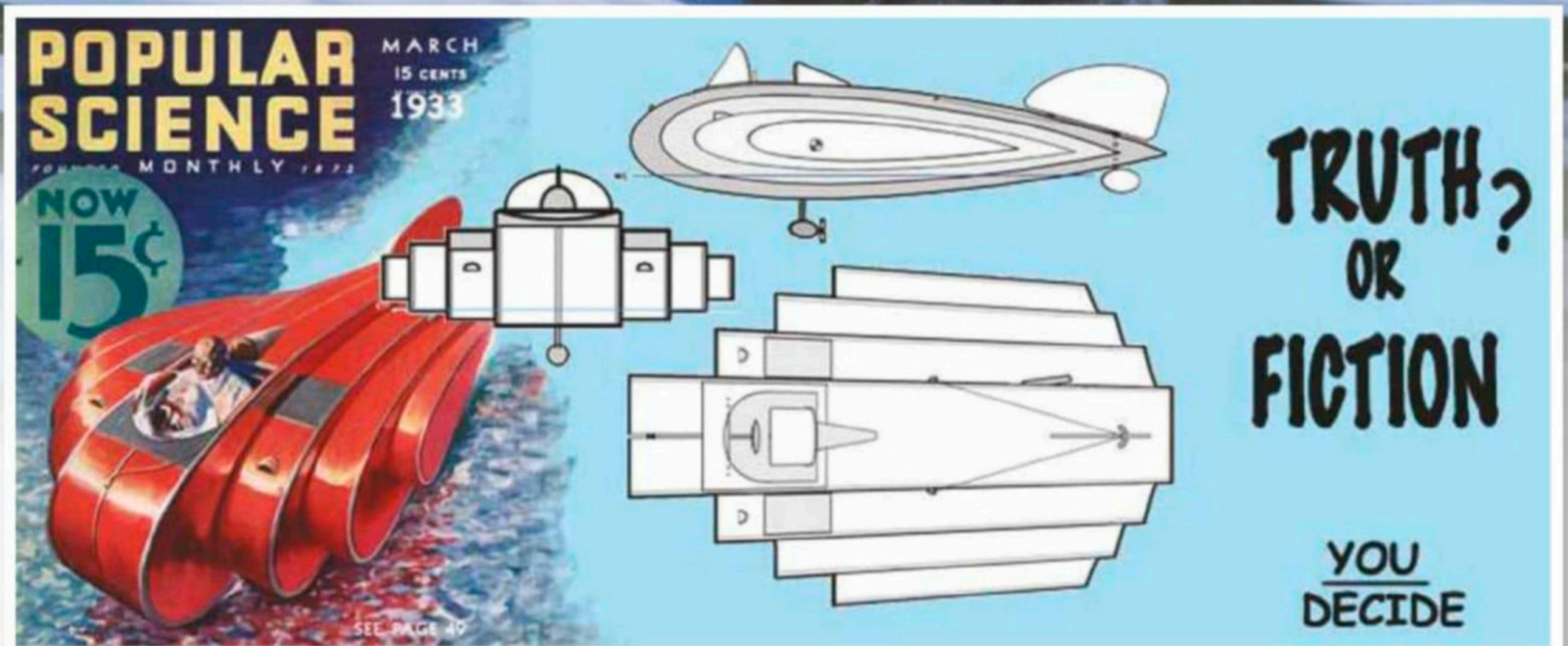
A Humorous, knowledgeable and short.

Q Sum up in a single sentence or phrase what 2020 has taught you or perhaps describes how it made you change the way you look at life...

A The little things in life can make a big difference to others: be kind.

Q Favourite inspirational quote?

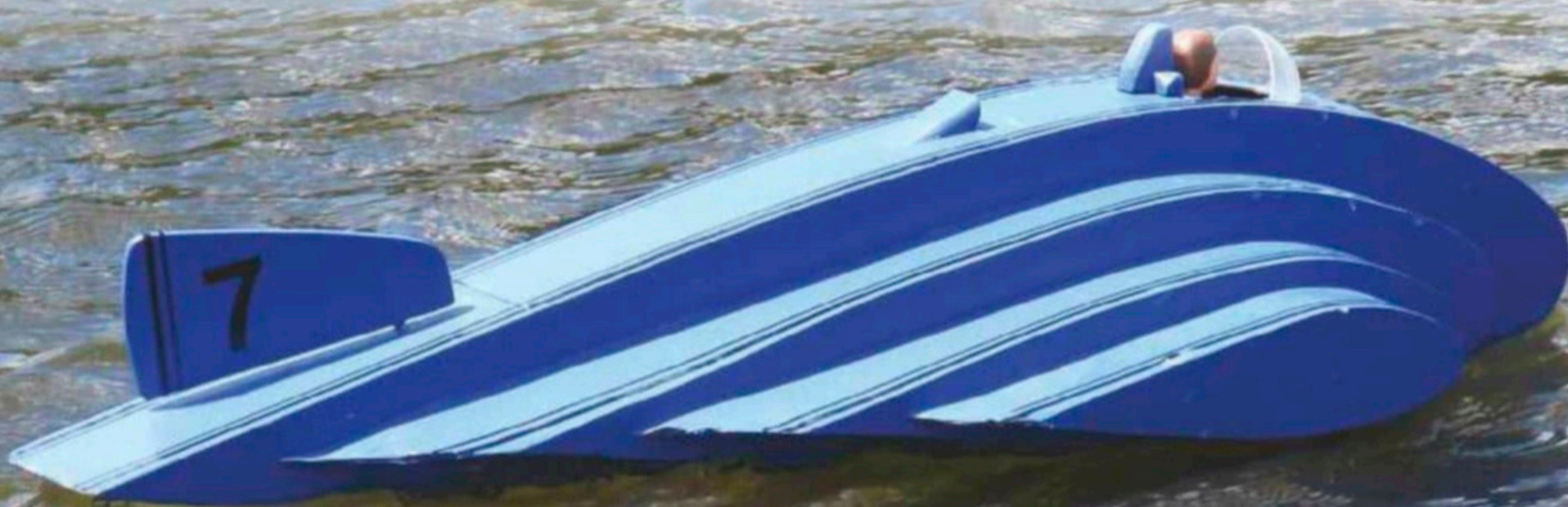
A Everyone you will ever meet will know something you don’t – Bill Nye.



The sensational Sea Gull

Ashley Needham explains why he and fellow Bushy Park boater, **Trevor Holloway**, embarked on a fascinating modelling experiment, aimed at establishing whether the concept behind a 1930s' flying boat prototype actually had wings or was merely a flight of a fancy...

When looking for something to build, personally, I think you can do no better than research the weird and wonderful inventions of the past; in particular those from 1920s-1940s, as during these decades technology was becoming (almost) sufficiently well-developed to allow inventors free rein when it came to their ideas. A quick flick back through old issues



RIGHT: Given the inconsistencies in the limited research material available, and the findings with Trevor's boat, Ashley decided to go back to the drawing board in order to build a revised version of his own, kicking the project off with this basic construction for the hull.

of Popular Science magazine reveal a whole host of intriguing subjects just begging to be modelled. I know I have a long list. It was fellow Bushy Park boater, Trevor Holloway, however, who chanced across the craft to be discussed here and who decided he'd like to have a go at making the Sea Gull as an R/C model, which is how and why I found myself also involved.

The fabulous original

The inventor of the Sea Gull, a Mr Victor. W. Strode of Portland, Oregon, USA, designed what was essentially a flying boat. The idea was his craft would become wing borne once it reached a certain point in its acceleration (yes, the stubby sides appendages are in fact wings), thereby reducing the power required to achieve high speeds. The Sea Gull apparently reached 45mph during initial testing. Unbeknown to him, he had constructed a WIG (Wing-In-Ground-effect) craft, which although not instantly recognisable is essentially an Ecranoplan. Victor's prototype used an outboard motor of some 55hp, fitted approximately 1/3 the way back from the bow, as a centre drive for motive power, and the prop would, in theory, remain in the water to drive the craft along when wing borne.

Driven to distraction

This drive is a key feature of the boat and one which Trevor decided should be replicated. After we'd mulled over the alternatives, he decided to use a thin high K/v brushless motor directly driving a small propeller on the end of a skeg.

Eventually the boat (660mm long, 310mm wide and with a hull depth 140mm) was plopped in the water for a long series of tests. These showed that the motor ran perfectly well where it was but that the craft was very tender side-side. It also leaked due to the temporary adjustment slots (which we both felt were necessary during the development process) and continued to do so no matter what we tried to seal them with (temporarily, of course). What's more, regardless of the wildly different positions the drive was altered to, when attaining a modest speed on the move it would simply sit on its tail with its nose in the air. We finally had to acknowledge that without substantially altering the look of the craft we wouldn't be able to get it to perform as hoped. Trevor, therefore, chose to put the project on the back burner for a while. I, however, decide to try an alternative approach...

Back to the drawing board

It was felt after the experimental work undertaken on Trevor's craft that the chosen motor was not providing the sort of power needed to achieve take-off. Using a bigger motor would increase drag and the larger diameter would obscure the prop, hence



Templates for the wings laid out alongside the hull.

“A lot of the artwork on magazine covers of the day was deliberately sensationalised to maximise the impact of whatever new invention was being illustrated”

the initial thin motor choice. As it happens, however, by this stage in the proceedings I'd built the Pontoon boat (see the April 2017 issue of Model Boats) and in doing so had solved the conundrum of how to provide additional power without resorting to a conventional propeller shaft; the answer being an 'outboard' style drive. There was, however, another tricky dilemma. Testing suggested that in order to keep the boat level at speed the bottom run of the hull would have to be a bit flatter than the illustrations in Popular Science. Trevor had elected to build quite a nice rounded hull to get the boat looking as close to those illustrations as possible, and let's face it, there's no point in making something that doesn't look like the prototype it's modelled on, is there?

So, given the inconsistencies with the various pictures and the findings with Trevor's boat, I decided to try again with a design of my own, following the side profile of the one single photo of Victor's original prototype craft and one of the Popular Science illustrations that provided a top view. I kept the bottom line fairly flat, with just a gentle rise toward the stern. We'd already established that the inner wing of Trevor's model was not low enough to sit properly in the water and provide the required stability, so with this in mind I put the centre wing sections low on the sides so they're in the water at rest, thus acting as sponsons. Eventually a plan was drawn up. Well, more of a sketch really!

A new build gets underway

It was, then, time to get back to my work bench. Construction of the hull mirrored that of the Pontoon boat; 4mm ply bulkheads, 1.5mm ply for the sides (cut as a pair to ensure symmetry), 0.8mm ply for the top/bottom skins and waterproof PVA glue. Only four bulkheads were fitted, and considerable thought was given to their location, taking into account battery insertion and motor/coupling access. It was noted that the craft's fuselage tapers slightly from front to back and so a jig was made to hold the sides in the correct position while fitting the bulkheads – nothing fancy, just a few pencil lines and MDF squares hot-glued to a bit of board.

Wings were made from Blue Styrofoam, 40mm wide for the inner section, 35mm centre and 32mm for the outer one. These were produced to a constant width. The Popular Science drawing appears to indicate a very small taper, but it's barely noticeable and so I didn't really have any qualms about using a little artistic licence in order to achieve a better shape. Don't forget that a lot of the artwork on magazine covers of the day was deliberately sensationalised to maximise the impact of whatever new invention was being illustrated. If the outer wing looks to be different compared to the others, this is due to development work by Victor; he must have found that two wings were just not enough!

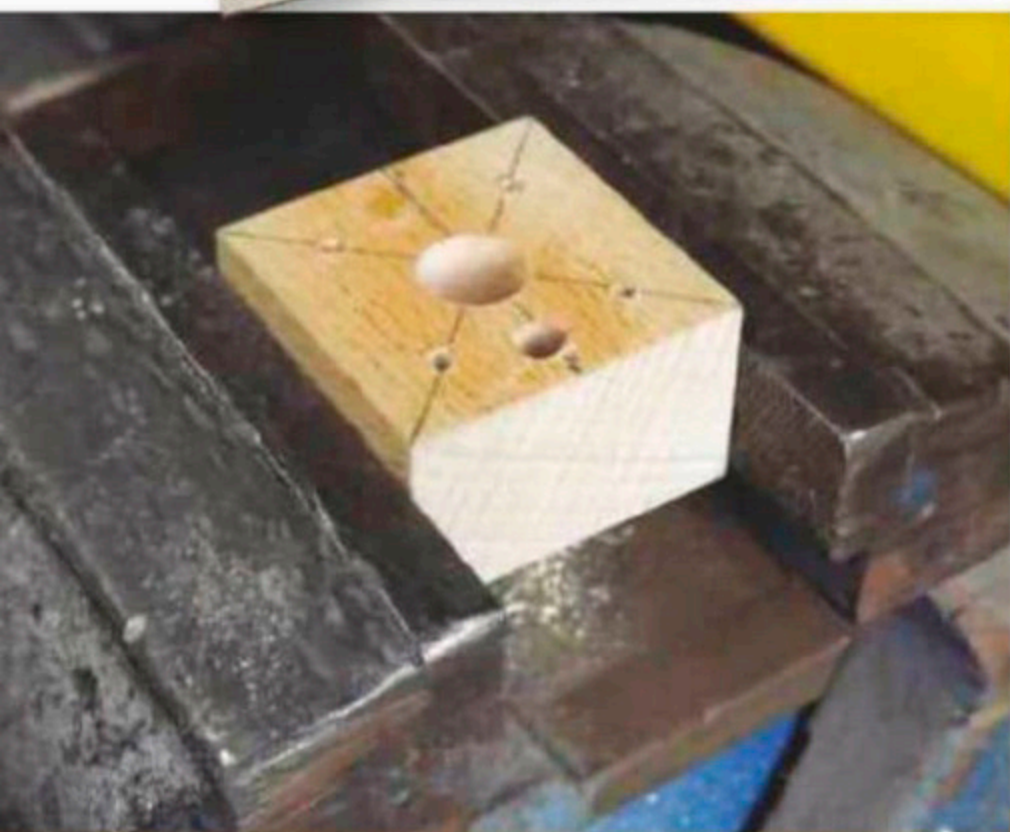
Blue Styrofoam sheet was pinned together so that one pair of wings at a time could be cut out using a small bandsaw, thus ensuring both sides matched. These were sanded and treated to several layers of Eze-Kote and glass tissue to harden them. Both sets of wings were glued together and permanently fixed in place with epoxy glue later on.

Openings were left in the hull skin for the drive underneath and the access hatch on



ABOVE: Skinning the hull (shown here upside down) begins.

LEFT: The wood block motor housing.



top. For the hatch, actually the cockpit area, a strip was cut to fit the opening. This was slotted in via a tab under the skin at the back, but at the front was held down with strong magnets. As the ply is springy and the top curved, it sits nicely flush without any other fasteners.

By and large, Trevor's boat shares this construction, other than using thicker 3.6mm ply for the sides and having two plug-in style top hatches.

Direction to perfection

Both rudders, water and air pivot on a common shaft and from the picture it's possible to see that they are operated aircraft style by external rods. This is another area where there are pictorial and illustrative differences. In the photo it clearly shows the controls exiting from the sides and staying at the side to connect to levers on the rudder. Other illustrations show the control wire going from the side to top of the hull, which would mean rubbing over the top corners.

I had a feeling that the working prototype may have been much thinner at the rear than the drawings seen thus far suggest, although a thin rear end would not be helpful in keeping the stern up at speed. A bit of compromise was called for: I would use external steering wires but have them exit on top of the hull rather than the sides. So, after carefully marking the position, a hole was drilled right through the rear end and a piece of thin-wall brass tube was epoxied in place to form the rudder tube. It was not as easy as usual to make the rudder assembly. Normally one would just solder the brass rudder blade to the rudder shaft and fit, but in this case there are effectively two rudders, one on top, one below, and I couldn't solder both on (this would have to have been done in situ) as the heat would soften the epoxy holding the rudder tube in place. The solution I came up with was soldering the top rudder and operating lever together first, and then using a grub-screwed brass axle clamp with the water rudder soldered on for the underneath. Additionally, the rudder post lower end was slotted to ensure both rudders were aligned correctly.

Positively potent propulsion

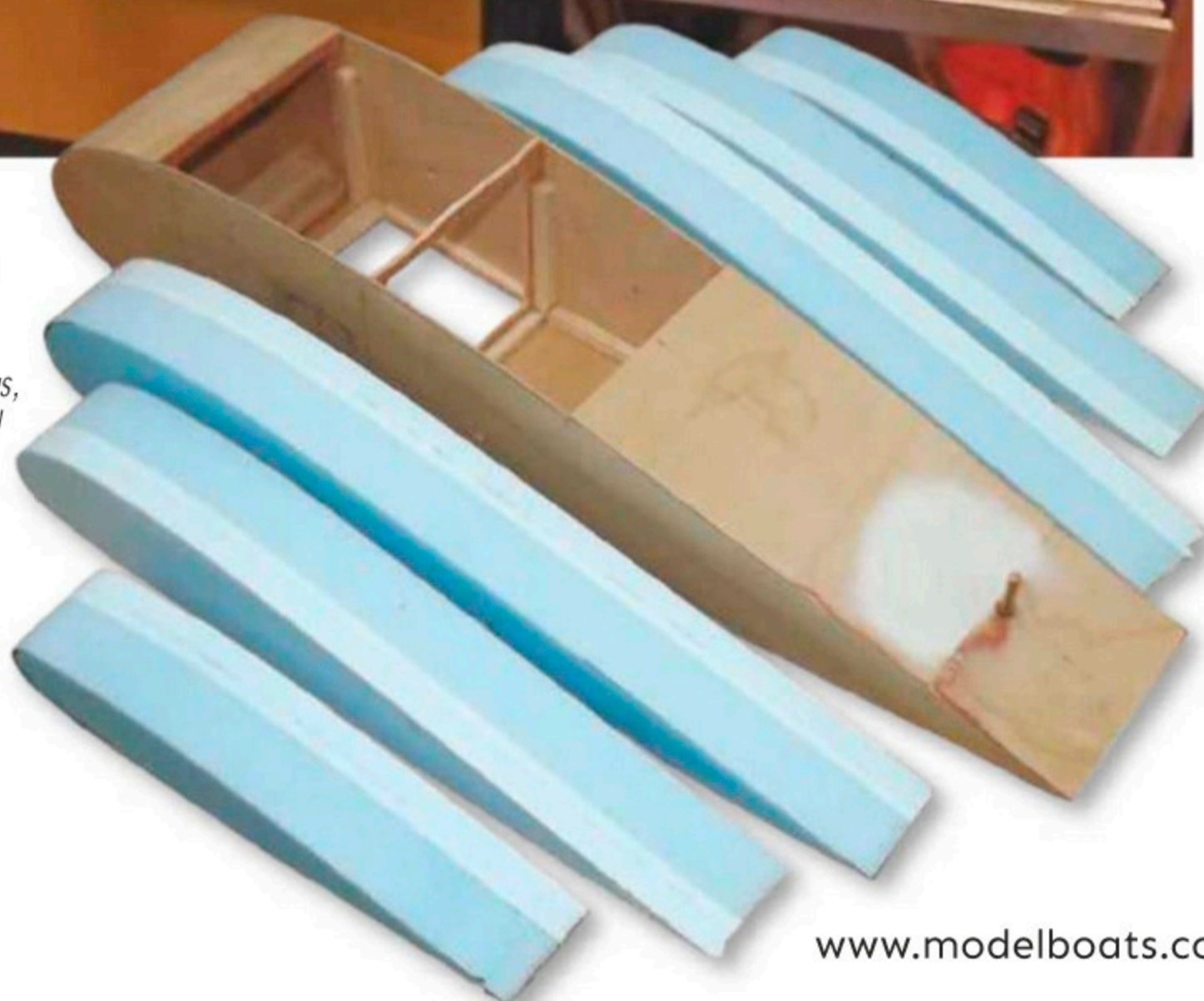
Much to our surprise, experiments with the drive on Trevor's boat, i.e. altering the angle and depth of the skeg, saw little in the way of difference. As it appeared having the drive vertical and lessening the initial length of the skeg achieved optimum results, however, that's the way I decided to go.

I made the drive more or less in the same way I did for the Pontoon boat unit. But for new readers, or for those who cannot remember the particulars, here's a quick recap... Essentially, it was constructed from a brushless motor set vertically, driving a shaft down to a bevel gear (Meccano, as this has a 4mm shaft suiting the common propeller shaft size) held in a 3mm thick bent-steel frame and driving a prop on a short 4mm stainless steel shaft. It's probably easier to look at the photos by way of explanation! A strip of steel was bent, drilled to suit the special 'top hat' plastic sleeve bearings used to support the shafts, had a 5mm steel rod welded to it (the vertical support) and was then filed to shape before being painted with red-oxide and black gloss



ABOVE: The wings ready to be cut from slabs of foam.

RIGHT: The foam wings, as yet unfinished, laid alongside the hull.



polyurethane. Flats were filed on the shafts to seat the grub screws properly and these were locked in place by Loctite 222 'small thread' threadlock. A hardwood block drilled and cut-away for access was used to hold the vertical 5mm drive rod and the motor mount was fixed on top via small screws. All this was assembled and adjusted so that the motor and gears ran freely, superglued into the block. Then the square of ply which was attached loose on the shafts was glued into the space underneath and the block was fixed in place after being aligned to the prop-shaft up on the centreline. I did consider using 4mm brass strip and brass tube for this, as it would probably have worked just as well and have been much easier to drill and shape, allowing the use of simple soldering, but I have a welding kit and am not afraid to use it!

A 28mm diameter brushless out runner (Fusion 2826/12) of 1380Kv and approximately 80 Watts was installed as the power source. I used an aircraft style ESC of 30A capacity which has no reverse and given the shape of the boat this may actually be a good thing – think about it! A two blade S-40 plastic prop was fitted and after testing seemed to be about right; the centre of the prop is approx. 55mm below the hull bottom.

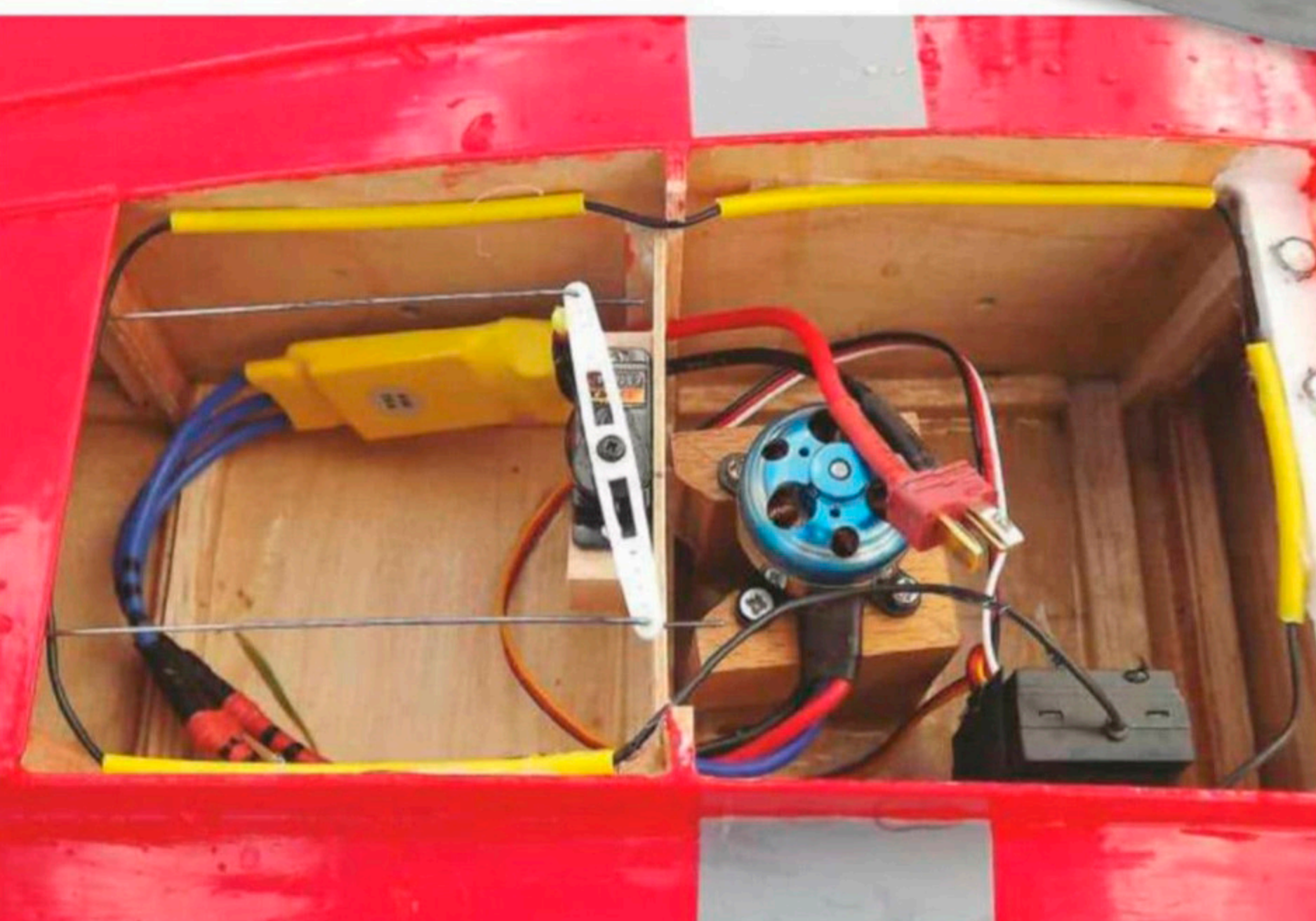
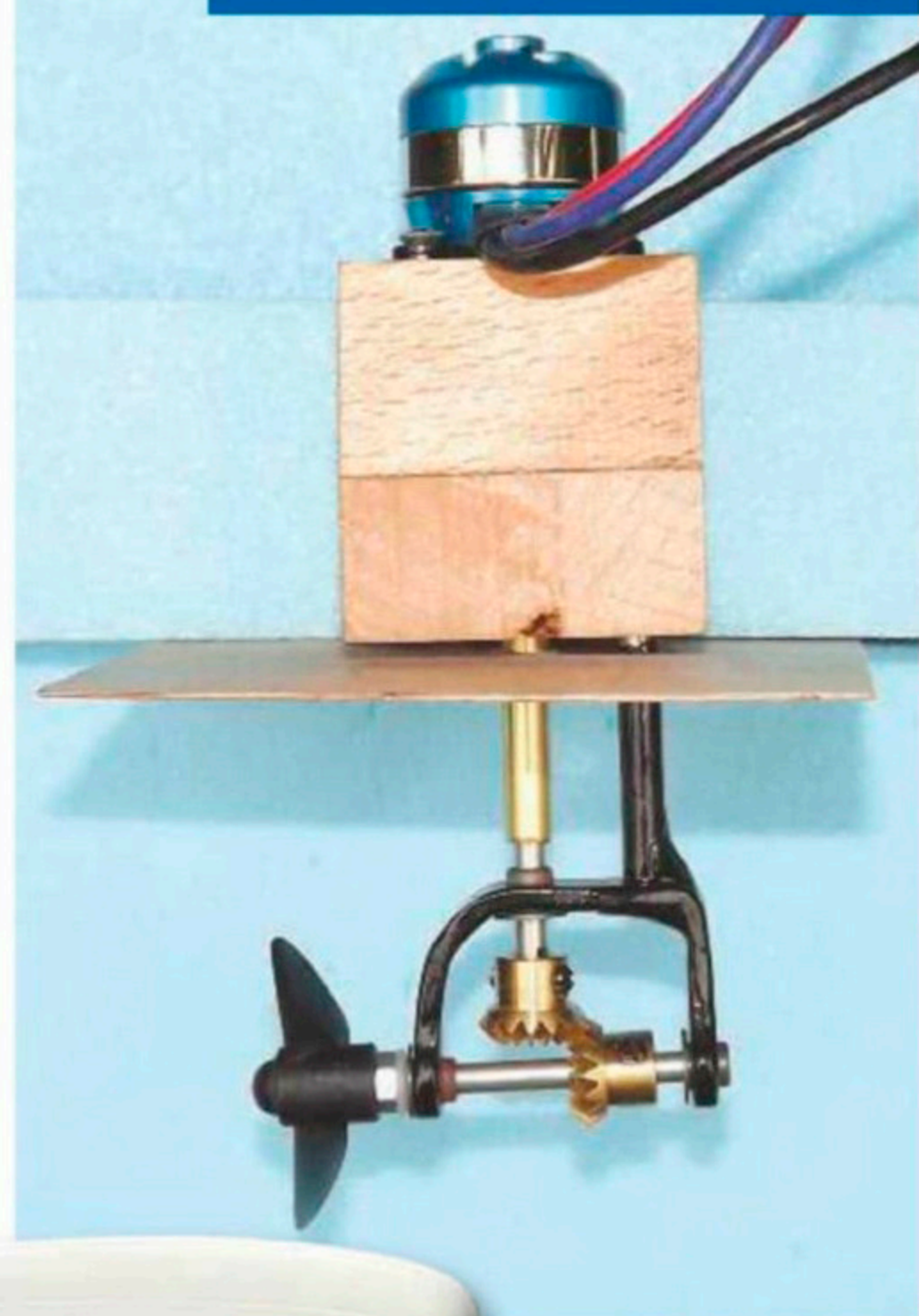
After fitting the motor, I could then see where to fit the steering servo. I cut away the top portion of the ply bulkhead behind the motor and replaced this with a ply bearer, wood blocks attached, on which to mount the servo. The micro servo was fitted with the widest of its supplied arms, and this width was used for the dimension of the top brass rudder arm. Stainless steel Mig welding wire was used for the 'push-me, pull-you' rods, with exits courtesy of two holes filed through the deck skin.



ABOVE: Early work on the rudder and tail rudder assembly.

RIGHT: The propulsion unit module ready for fitting.

BELOW: Application of the ribbing; note the servo wires.



The yellow piping installed to hold the aerial wire.

For the dazzling finish

All the sensational Popular Science illustrations show an orange/red coloured boat, and as we were following the illustrations as a guide, we elected to use a simple paint finish. Before painting, ribbing (3.5mm styrene half-round strip) was applied around the edges of the hull and wings with superglue and the surfaces were undercoated, sanded and brush painted. What colour could I use for this splendid craft? Humbrol No. 238 Arrow Red Gloss seems to fit the bill, a nice bright red.

As the inventor, Victor was, of course, needed to pilot his craft and a replica (possibly) of Victor was found in the form of a World War I American pilot figure intended for model aircraft use. A clear Perspex sphere, quartered, served just nicely on the bow as a windscreen.

I kept the cabin very clean and simple; mostly because there was not much scope to indent the hatch due to the presence of the motor and steering servo underneath. An eye-cheating paint job was therefore used to suggest the rest of Victor's torso!



ABOVE: Ashley's Sea Gull, finished in Humbrol's No. 238 Arrow Red Gloss, and complete with the prototype's inventor, Victor, in the cockpit, takes to the water.

BELOW: As there was not much scope to indent the hatch due to the presence of the motor and steering servo underneath, a eye-cheating paint job had to be undertaken to suggest the rest of Victor's torso!



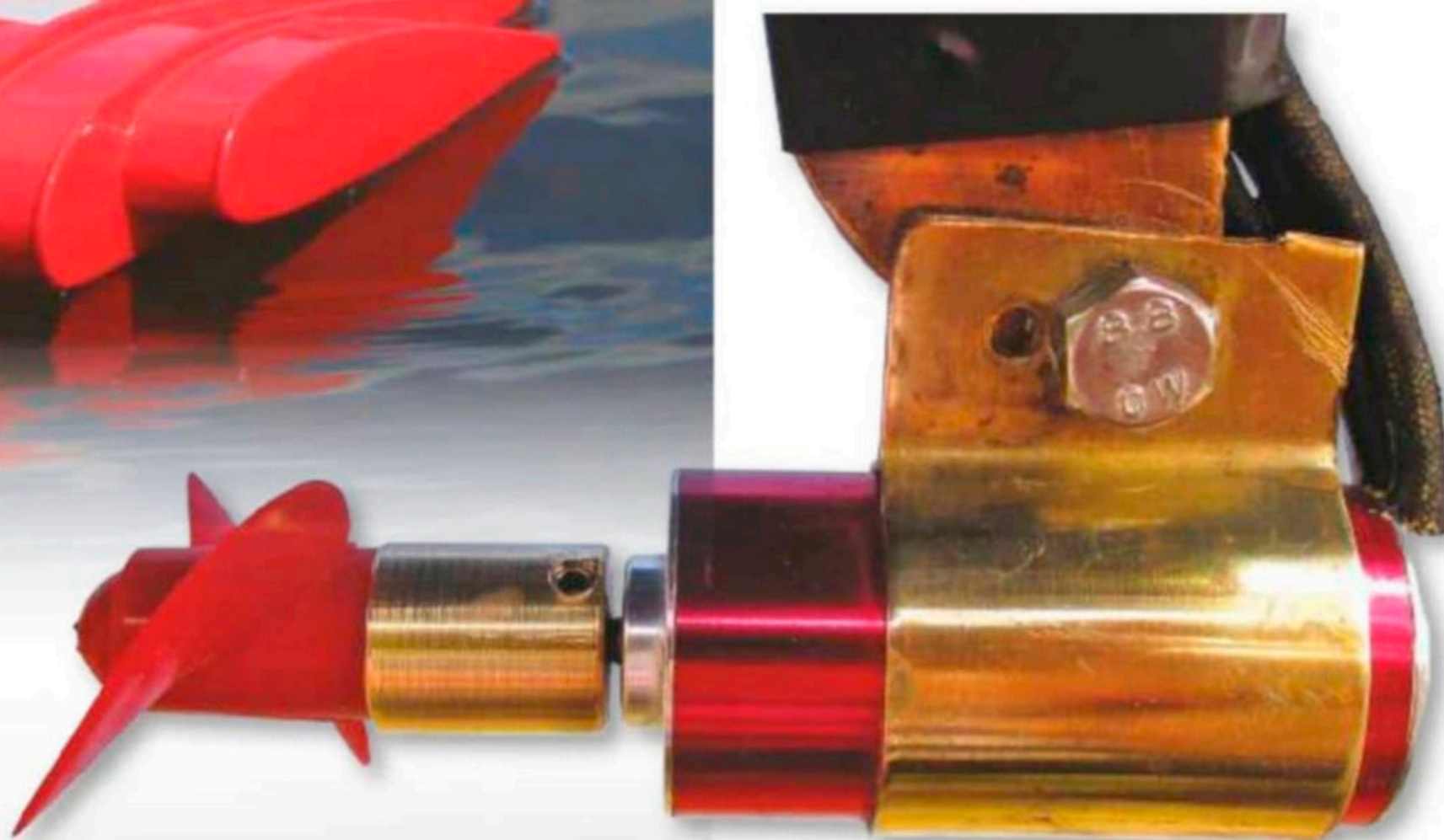
As an aside, Victor was moulded in a latex compound that defied even my best efforts to cut a perfectly flat line around the base. So, in the end, I gave up before I only had his head left!

Finally, no boat of this magnificence would be complete without a heroic exhaust outlet for its roaring gasoline motor, so a small piece of brass tube was let into the wing on the port hand side. Yes, Victor could have been a bit more ostentatious in this department.

Testing the wondrous beast

It was, of course, now time to test all these mods out on the water. I was confident the boat would not leak, not need ballasting and, as my drive unit was a proven commodity on the pontoon boat, the stage was therefore set for the ultimate trial. So, on one glorious sunny Sunday morning the boat was transported to the pond at Bushy Park, but...

BELOW: There's nothing quite like a bit of healthy competition and so spurred on by Ashley's build, Trevor resumed his own experimentation with the Sea Gull. His 20mm motor is seen here mounted and ready for testing.



Hindsight, as usual, too late!

Then Trevor found a film clip of Victor and his craft on its initial test. This footage shows the craft with only two outboard wings and, surprise, surprise, although it's on the plane its nose is up and its tail is dragging in the water. Perhaps some modest lift and 45mph was all that was achieved with two wings. But what about the (presumed) further tests with the extra wing? I guess we will never know but wording in Popular Science magazine article states: "the lesser drag will permit 70 mph speeds" and not "he achieved 70mph" – there's a huge difference.

Anyway, as suspected, the footage reveals the rear end was indeed narrow, in fact much narrower than I would have thought, and this may have been an issue for Victor in his attempts to get the craft's rear up and actually fly. So, did Victor really get his boat airborne? Could we, for that matter!

Trevor's discovery, however, had come too late for us. Having had no dimensions to refer to, we'd had to best-guess proportions. (My Sea Gull is a mere 1930s' 18 imperial inches long but 12 inches wide – 450 by 300 new-fangled millimetres – and has a hull width, tapering front to rear, of 100mm to 80mm. It weighs in at a modest 630gm, equipped but minus the battery).



A blast from the past

A very brief clip of film footage featuring Victor testing out the Sea Gull on the water for the very first time can be viewed by typing this link in to your online browser:

<http://www.britishpathe.com/video/speed-plane-boat/query/Victors>



“Here, then, is the burning question: did or did we not succeed in vindicating Victor’s design?”

Pond side drama

Where were we? Oh yes, the throttle was advanced to test the low speed handling qualities (which were good) and then the model had to be returned to the jetty. Unfortunately, the round nose initially collected water, which was then slushed over the top of the hull when more power was applied. After emptying the water, I tried again. The best starting technique appeared to be to open the throttle suddenly to $\frac{1}{4}$ or so. This lifted the nose straight away, whereupon more throttle could be applied with no flooding issues. Conversely, when slowing down, the only options were to come to a full stop or keep the minimum $\frac{1}{4}$ throttle on to prevent excessive nose-water, or worse still, diving!

I have, however, discovered that by using a 2s Lipo battery pack my boat is decently fast (the pictures do not adequately demonstrate this). The nose sits clear of the water; in fact, the nose is high and looks just like the video clip craft. Turning performance at any speed is very good indeed and my boat will take full throttle turns with confidence. On a 3s (11.1v) battery there is daylight to be seen under the boat now and then, but this very much depends on how calm the pond is. Obviously, there’s slightly more wing lift when going faster but the tail never leaves the water. And a rough surface induces cavitation and porpoising of disturbing frequency.

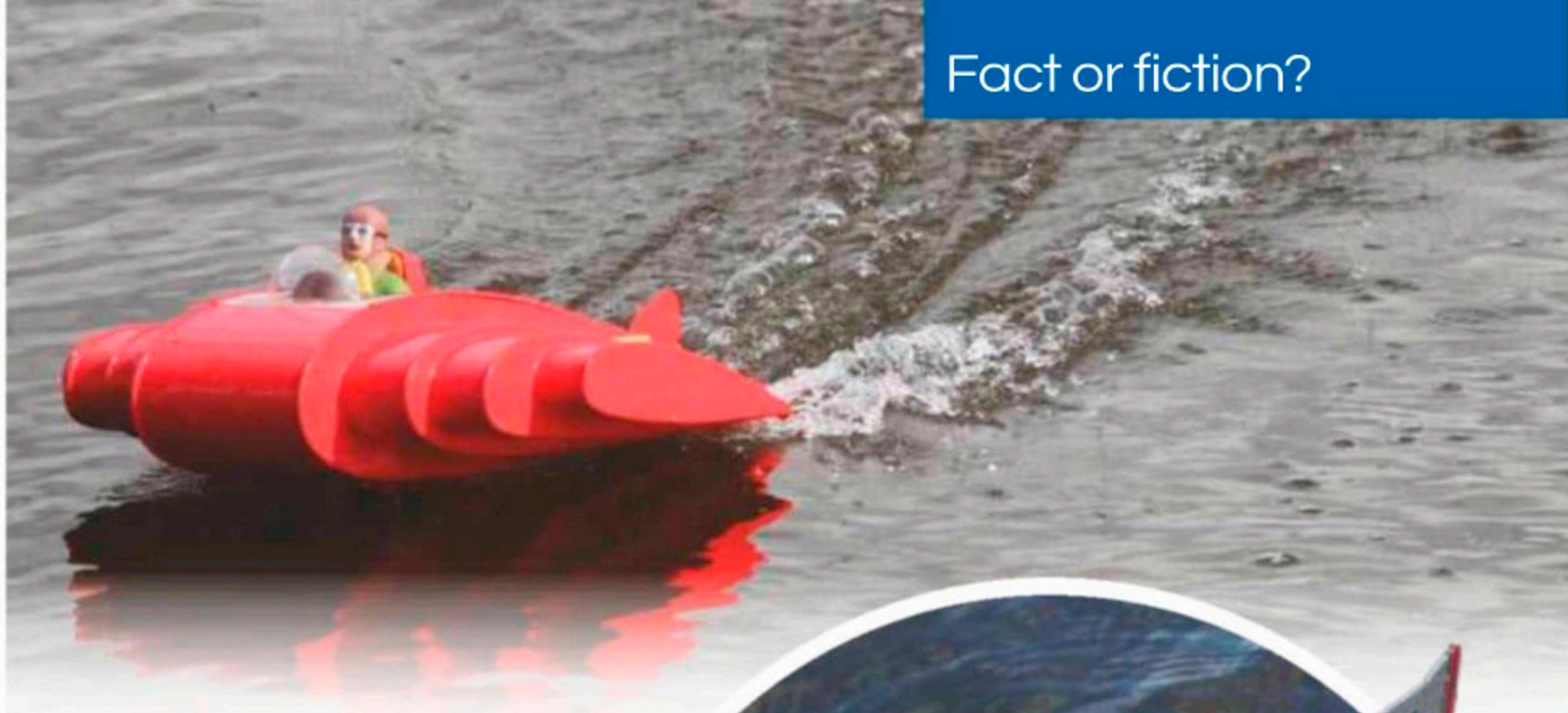
My efforts inspired a continuation of work on Trevor’s Sea Gull, and a power increase finally saw it achieve a convincingly fast, archive footage-like, performance. How did he achieve this miracle? By fitting a 2s Lipo battery! Just like the Pontoon boat, fitting a Lipo (replacing a 7.2V battery with a lighter 7.4V one) seems to have exceeded expectation. In fact, it’s totally transformed the behaviour of his craft, as has the removal of the adjustable skeg bracket and slot which stopped the water ingress and allowed a lower battery placement, thereby providing much better stability and proving that the wings were in approximately the right place after all!

A 3s (11.1V) battery was also tried, but usage was quickly dismissed as it caused rampant propeller cavitation at almost all throttle settings due to the high Kv (revs/volt) motor rating.

Dan Dare variant

Interestingly, there was another (unnamed) craft featured in magazines of the period which seemed to owe something to Victor’s boat. The wings on this variant were smoothed over and the drive had been replaced with a normal propshaft.

Just to see if it would fly any better than Victor’s boat, Trevor has constructed what he calls the Dan Dare Racer. The build method used was exactly the same as for the Seagull, other than the use of thinner plywood and the substitution of a normal propshaft drive for a small 25mm brushless motor of 1500 Kv.



ABOVE: Wahoo! There she goes...

RIGHT: Trevor then took things one stage further, by building another (unnamed) craft featured in magazines of the period (which appears to have taken a few design cues from Victor’s boat) and giving it a era-appropriate Dan Dare type finish.

Finished in silver paint, for that Dan Dare look, this boat goes very well indeed once on the plane but has the same nose up attitude as the Sea Gull. It does not fly! We think that this may have been a “What if...” magazine article only, as no pictures of a working boat have emerged – so far!

Truth or fiction?

Here, then, is the burning question: did or did we not succeed in vindicating Victor’s design? Our jury of seasoned sceptics at the pond has given this a thumbs down, inclined to believe it unlikely Victor ever actually took off as intended. They are also of the opinion that it’s a bit outrageous to expect to build a model flying boat on such scant information, and that we had little chance of success without cheating somehow or altering the design substantially. Our jury does, however, acknowledge that all three boats manage a good video clip performance and, following the last modifications (after more than a few disappointing tests) Trevor did finally receive a round of applause.

We all agree that the extra speed realised by various modifications was just not enough on its own to get the any of the craft airborne as the inventor intended and that flying controls would have been needed to stabilise the boat once it got off the water. And, in any event, keeping the prop in a uniform manner just under the water and avoiding cavitation would be a nigh on impossible task.

All the model boats, however, are fast enough to be fun and are very stable at any speed.



Lastly, no video evidence of the (presumed) second trial carried out by Victor, with the third wing attached, appears to exist. So, at the end of the day, did our attempts come close to credibly capturing these stupendous 1930s’ specials? A tiny voice in the back of my mind says that we may have used rather more artistic licence than would be usual on such projects. The unearthing of additional information, pictures and video evidence was great, but this came in dribs and drabs either during or after the builds and unfortunately just too late to influence our designs dimensionally. We can, however, truthfully say we tried. No, we weren’t able to vindicate Victor’s prototypes, but I think we can safely say we’ve successfully captured their spirit. ●

The flock!



The national treasure Kathleen & May (formerly known as the Lizzie May) seen moored on the River Torridge in Bideford, Devon in October 2008. But where is she now?



Lizzie May

Peter Simmonds tells the story behind this magnificent and historic trading schooner and his superb 1:24 scale scratch built tribute to her...

Perhaps I should have learnt my lesson with Waterwitch, my 1:24 scale three-masted barquentine. Coming out of my workshop at 64 inches in length and with a launch weight of 48 lbs, she presented me with a number of logistical challenges, not least, how best to transport and launch her. Those headaches aside, though, I felt that the 1:24 scale made her look more realistic and her sailing motion was more authentic than the 'bobbing about' characteristics of smaller models. I also found 1:24 scale a very convenient size to work to. So, when I was offered the plans of the Kathleen & May, a 136ft wooden hulled, three-masted top sail trading schooner of 136 gross tons and the last surviving British-built vessel of her type, I couldn't help imagining her built to that same scale. Somewhat against my better judgement, I decided that she was going to be my 2018/19 winter-build programme.



The frames and keel set up on building board.

Looking for the real Lizzie May...

The Lizzie May, as she was originally known, was built by Ferguson & Baird for Captain John Copack. Named for his daughters, she was launched at Connor's Quay on the River Dee, Flintshire, in April 1900. As a trader, Copack sailed all around the Irish Sea carrying cargo that included everything from coal and wheat, to china clay and farm machinery and the ensuing nine years would see the Lizzie May cover 40,000 plus nautical miles, before being sold into Irish hands. At this point she was renamed as the Kathleen and May (for the new owner's daughters) and continued to serve in much the same role for the next 30 years.

In 1938 she was acquired by the Jewel family of Bideford in North Devon and Tommy Jewel became her third owner/skipper. Captain Jewel was also a trader and in 1958, to keep pace with increasing rivalry from small motor coasters, he had an auxiliary engine fitted and the ship's topsails and topmasts removed. By 1968, however, in the face of competition from both modern motor coasters and road hauliers, the Kathleen & May was no longer deemed financially viable, so was laid up in Gloucester Dock and gradually fell into disrepair.

In 1998 she was purchased by businessman Steve Clarke who raised £1 million for her restoration. She was towed to Appledore and lifted from the water, whereupon the decay was found to be far worse than originally thought. More money was raised and restoration was started. 60 tons of English oak was donated to the project and 3,000 ft of larch purchased for planking. Her rotten stern post was removed, along with many of the planks below the waterline. In 2001 her hull was ready for launching and taken across the river to a deep water mooring for fitting out with mast



ABOVE: The first few planks glued in position.



ABOVE LEFT: The brass traveller in a curtain track under fore hatch. ABOVE RIGHT: The rotary winch below lever arm servo for the yards.



ABOVE: The pin rail on the main mast, with brass tubes for yard braces.



ABOVE: The fore cargo hatch with ship's boat. BELOW: Deck detail, with engine hatch and exhaust stack.



"I would be very interested to hear from anyone who has up to date information regarding her current state and whereabouts"

and rigging, along with the many other smaller repairs required.

In 2002 Steve Clarke sailed her back to Youghal in County Cork, her home port for many years. She received a rapturous reception led by the Mayor in the company of hundreds of townspeople, some of whom could still remember her from her trading days. Later that year she was sailed back to Bideford, where HRH the Duke of Edinburgh unveiled a plaque commemorating her restoration.

Sadly, in 2005 Steve Clarke was forced to sell the Kathleen and May due to ill-health. After this, I believe she was, for some time, moored in Liverpool Docks as a floating museum and listed as part of the National Register of Historic Vessels. Her custodians then put out a statement that she'd had some planks renewed in dry dock and was going to be returned to Bideford so that her masts could be replaced once the weather improved. Since then, despite having tried to ascertain her whereabouts, I have been unable to do so. I would, therefore, be very interested to hear from anyone who has up to date information regarding her current state and whereabouts.

The big build

My model was built in the time-honoured method of plank-on-frame. Firstly, frames were cut from 5mm ply and set up on the building board at 2in centres. Keel, stem and stern post were then fitted to enable planking. A couple of 5ft lengths of floorboard were acquired from the 'short-ends' pile at our local timber merchant's yard and then run through the circular saw to give $\frac{3}{4}$ in x $\frac{1}{8}$ in strips for planking.

A measurement around the maximum girth of the hull was taken and divided by $\frac{3}{4}$ in to give the number of planks required. Measurements were then taken at every other station over the length of the ship and divided by the number of planks; this provided the width of the planks needed for each of the individual stations so that they could be tapered to fit. Planking started from the keel to the gunnel. This method is fine in theory, but I cannot pretend that the odd corrector plank or 'stealer piece' wasn't needed to bring me back on course.

Hull planked, I then fibreglassed the hull inside and out to give extra strength and waterproofing. I used polyester resin with woven mat on the inside and finishing tissue on the outside.

With an empty hull, it was now time to work out where everything was going. It is easier to fit servo mounts, sheets, leads and other fittings before the deck goes on.

“In my experience rotary servo lines often get tangled and come off the pulleys. So, I devised a winch system that could be removed from the boat by undoing just two screws, allowing lines to be untangled on the bench”

I prefer lever arm servos as I mistrust rotary servos; in my experience rotary servo lines often get tangled and come off the pulleys. Once the deck is in place and the rigging set up, it is nearly impossible to untangle the servo lines. That said, rotary servos are more powerful and better at holding their position in a blow and so, as one winch had to control three fore and aft sails, I opted for rotary rather than lever arm. So, I devised a winch system that could be removed from the boat by undoing just two screws, allowing lines to be untangled on the bench. I mounted the servo on its side and using a length of Silent Gliss curtain track I made an approximately 2in long traveler from 'T' section brass so that under strain it would not tip and dig into the track. So far this winch system has worked faultlessly, but should my fears be realised I will only have two screws to remove and can sort the mess out on my bench with the minimum of fuss.

For the square sails I opted for a lever arm servo with a 'T' arm that pulls in on one side as it lets out on the other and controls the yards. Lines from the winch were run via two small brass tubes through the deck by the middle mast and the pin rail, above which point I divided them into pairs, with one pair on each side travelling up the mast to two sets of blocks and the other to the lower and the other middle yard on each side. The yards need to swing to as near 30° to the centre line of the boat as possible when close hauled. Finally, I mounted a small servo for the rudder under the wheelhouse.

I chose a Futaba six-channel radio as it has a rotary knob on one channel which I find useful for controlling the yards. On my barquentine *Waterwitch* the yards can be operated by lateral movement of the left stick but, maintaining position while also moving the stick up and down to control other functions, is difficult. The head sails are free running on lines that run from side to side.

Deck beams came next, with a 1/16in ply and then deck planked in the traditional fashion. To achieve the black caulk edging I glued black card to one face of each board (in this case the lid of a wine box) and then ran the board through the circular saw to create individual planks with one black edge.

Masts and spars were cut to appropriate squares from the remaining floorboard, which were then planed to octagonals and sandpapered circular. This was done by slotting one end into an electric drill, wrapping sandpaper round the mast/spar, gripping it



ABOVE: The skipper at the wheelhouse door, steering from the side, sailing ship style. BELOW: The fore deck with anchor winch.



tightly and starting the drill. This method works well as you can introduce tapers and if desired leave sections – but the sandpaper can get very hot, so be sure to wear thick gloves.

The masts were stepped through the deck onto the keel, alongside which retaining blocks were glued to hold the masts upright. The standing rigging was made of fishing trace wire, which is available in various breaking strains. I used 40lb breaking strain wire as it appears about right scale wise and also looks the part thanks to its stainless-steel core and black plastic coating. Loops were made by binding with very fine copper wire and soldering. Deadeyes were used on all lower rigging ends and shrouds were set up so that the deadeyes were level.

The running rigging was all made from 1mm rope and passed through wooden blocks by J.B. Fittings; although, sadly, this Polish company appears to have ceased production of its lovely little blocks complete with brass sheaves.

The sails were made from cambric, a densely weaved material originally used for feather pillowcases. With approximately 800 threads per inch, it's ideal for sails. My only caveat is that this fabric can shrink by up to 10% when ironed. So, as it will probably need de-creasing, make sure do this with a hot steam-iron before you mark out your sails.

Believe it or not, my finished model required 21 pounds of ballast to float at waterline. I reasoned the best place for this weight would



be at the bottom of her false keel. I cast a weight from lead and attached it to a 3/8in ply fin. I glued foam to each side of this fin, then carved and sanded it to a slim profile before skinning it with more GRP. The fin was then attached by two 6mm bolts and two drilled and tapped plates let into the bottom of the keel. The total launch weight came in at some 42lbs, so it's either a two-man operation to get it in the water or, alternatively, this can be

done single-handed by using a small, folding sack truck that can be wheeled to the edge of the lake and then lowered over the side until Lizzie May floats off. Recovery involves the same method but in reverse.

Over the years, as with many trading vessels, Lizzie May changed her appearance. My version incorporates a personal selection of her various guises. When she had her engine fitted, she lost her topmasts but gained

TOP: Peter's superb 1:24 scratch build of the Lizzie May graces the Ryde Lake on the Isle of Wight.
BELOW: Lizzie May sailing hard on the wind.



ABOVE: The rounded counter stern.

an engine hatch, an exhaust stack and fuel tanks and my model has them all. I'm not sure when she gained a wheelhouse as opposed to having an open wheel, but I've included a wheelhouse. I also preferred her original name so have stuck with the Lizzie May.

Swift, stable and lady-like

Project completed; I launched the lovely Lizzie May in early June 2019 at Ryde Lake on the Isle of Wight. She immediately sailed serenely off in the light breeze. It was only when I came to tack for the first time that I realised I'd forgotten, amidst all the excitement, to attach her rudder extension! I needn't have worried though, as she came around on her new heading like a perfect lady. She continues to be a real joy to sail, being surprisingly close-winded, and, when given a stiff breeze, she's not only fast but very stable. ●





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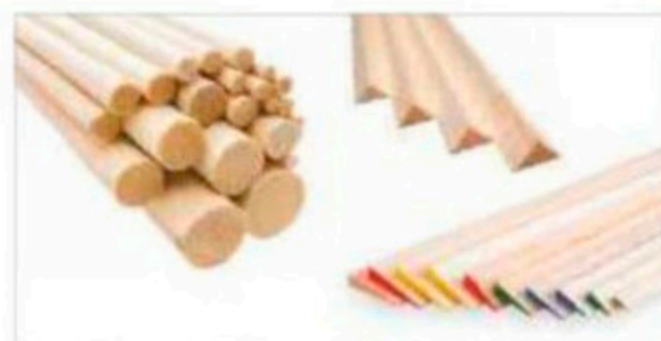
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Stuck in a rut? **Dennis H. Murphy** recommends trying out something a little bit different...

Metal Earth's Yamato

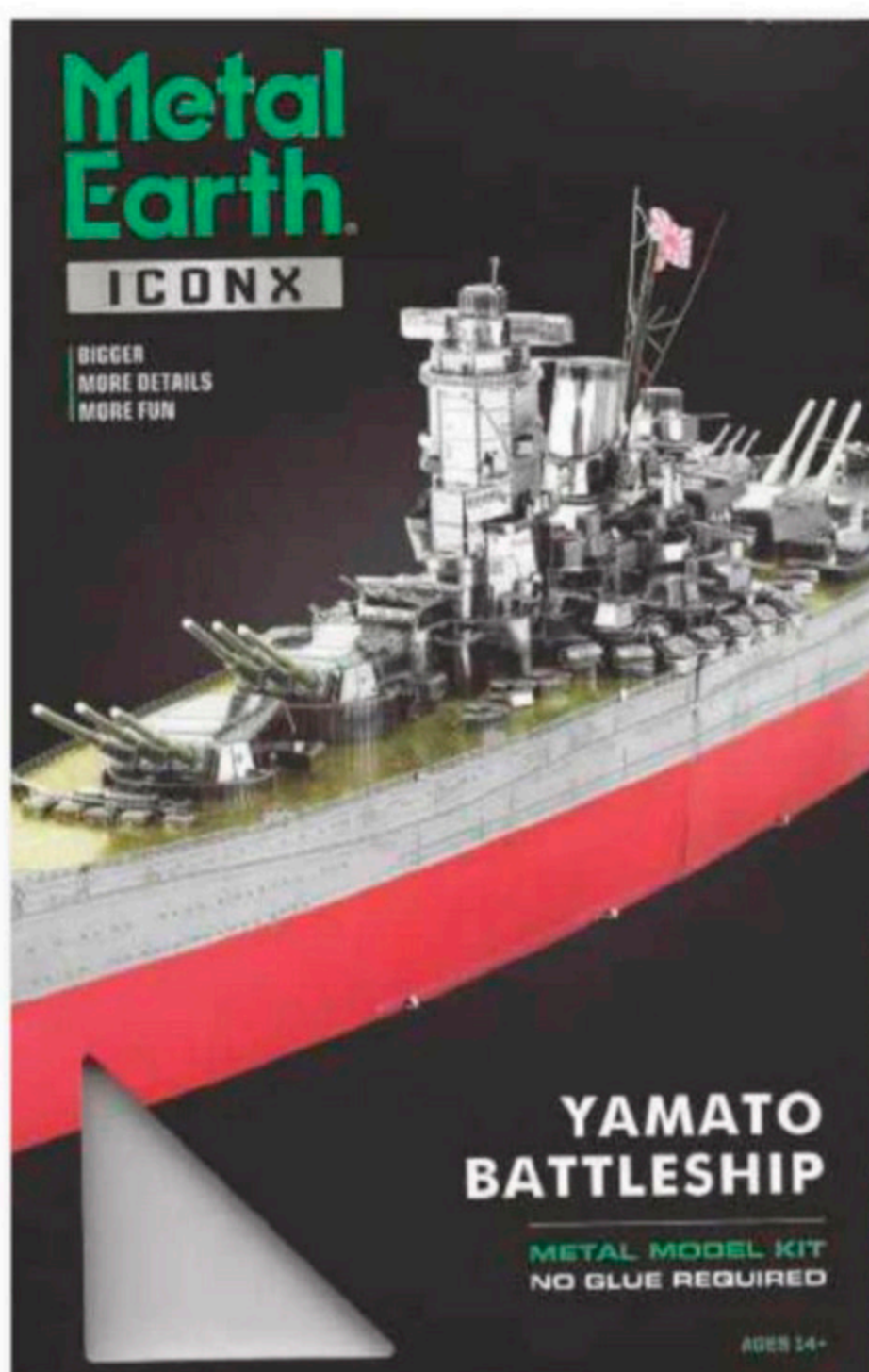
"Yamato and her sister ship were designed with grand imperial ambition"

So, you've been looking for something a bit different to build? Aren't we all! What's a guy to do? Well, go 'surfing' of course!

That's exactly what I did when, not so long ago, I found myself in the modelling doldrums. Somewhat bored with my usual ports of call, I went trawling the internet in search of something that would rekindle my enthusiasm. I had no adult supervision on this little excursion, which is always a bit of a danger, but, as luck would have it, I happened across the Metal Earth (Fascinations) website. Drawn in by the brand's all-metal kit line up, it was the Japanese Imperial Navy battleship Yamato (Ref. ICX117) in Metal Earth's Premier Series that saw immediately me reaching for my plastic [credit card].

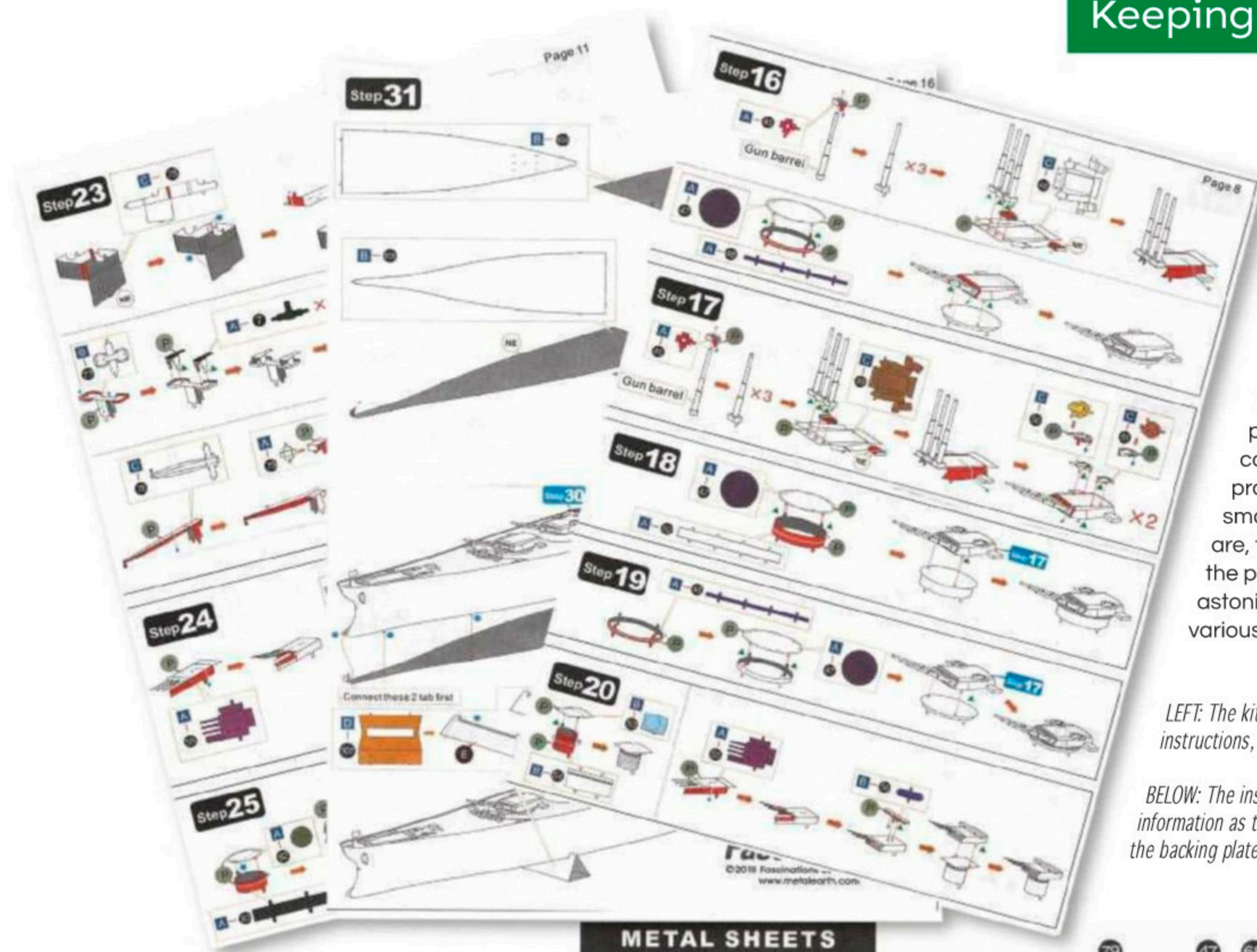
The right ship for the wrong war

I've long had an interest in the Yamato and her sister ship, Musashi. During the 1940s these two battleships were by far the largest vessels in the Japanese fleet. In fact, they were, at that time, the largest ships in the world. Back then, US battleship designs were constrained



ABOVE: Metal Earth's Yamato kit comes packaged a flat cardboard envelope.





Tools and construction advice

The Yamato and some of the other offerings from Metal Earth come exquisitely pre-painted. Indeed, considering how close in proximity to each other all the small parts on the backing sheet are, the precision with which the paint has been applied quite astonishing just how precisely the various colours have been applied

LEFT: The kit comes with lots of direction/instructions, pages and pages in fact!

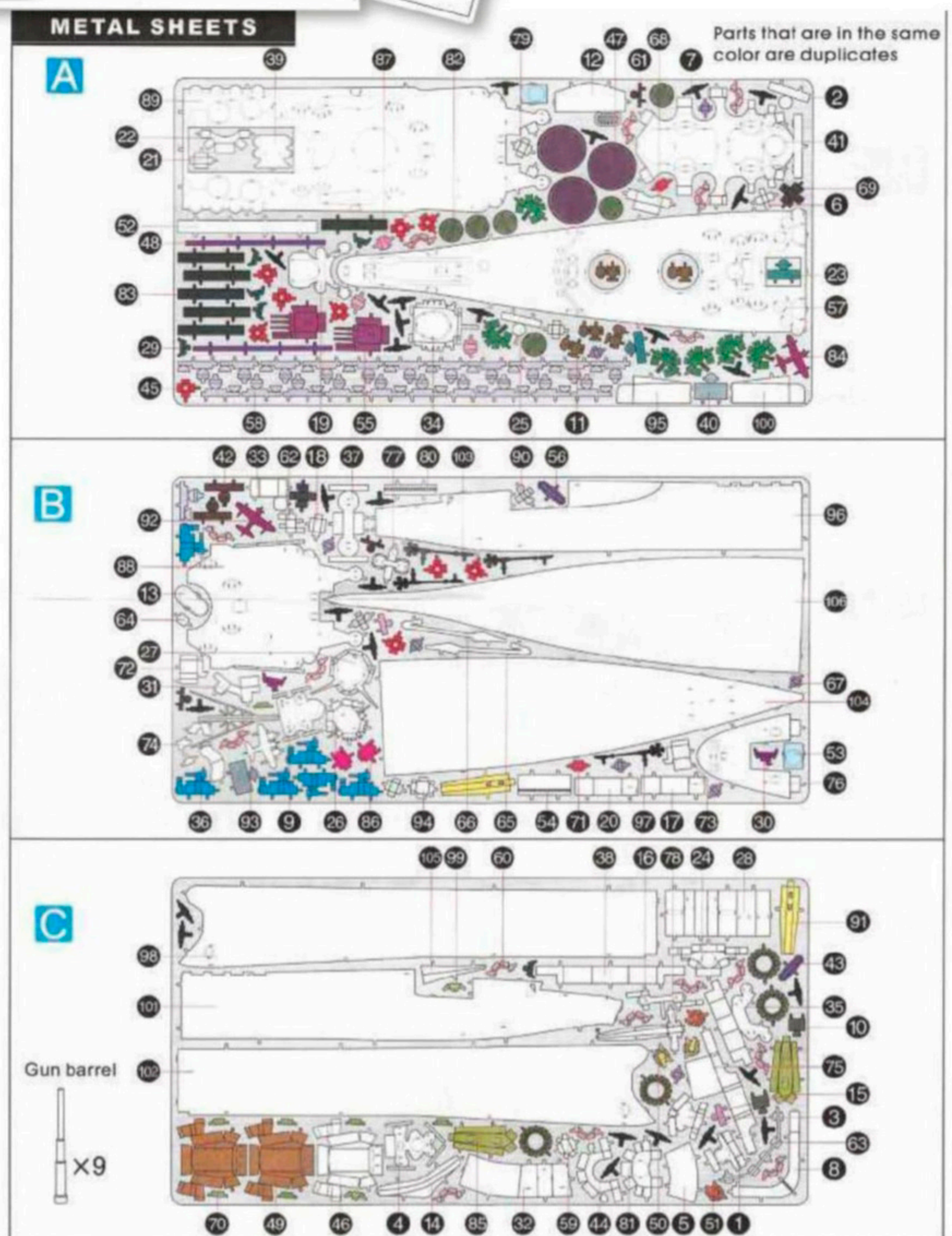
BELOW: The instructions give you very detailed information as to where each part can be found on the backing plates.

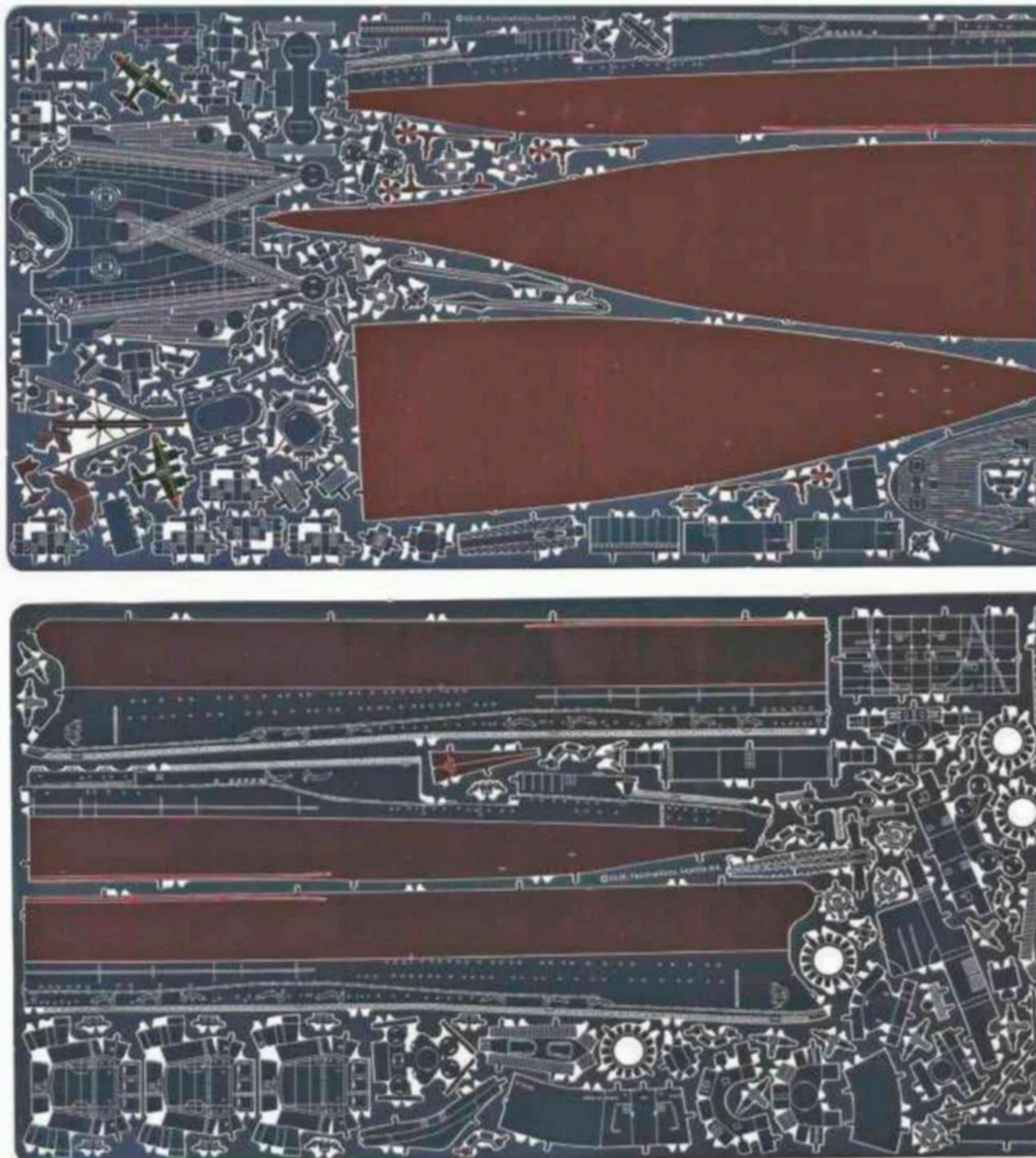
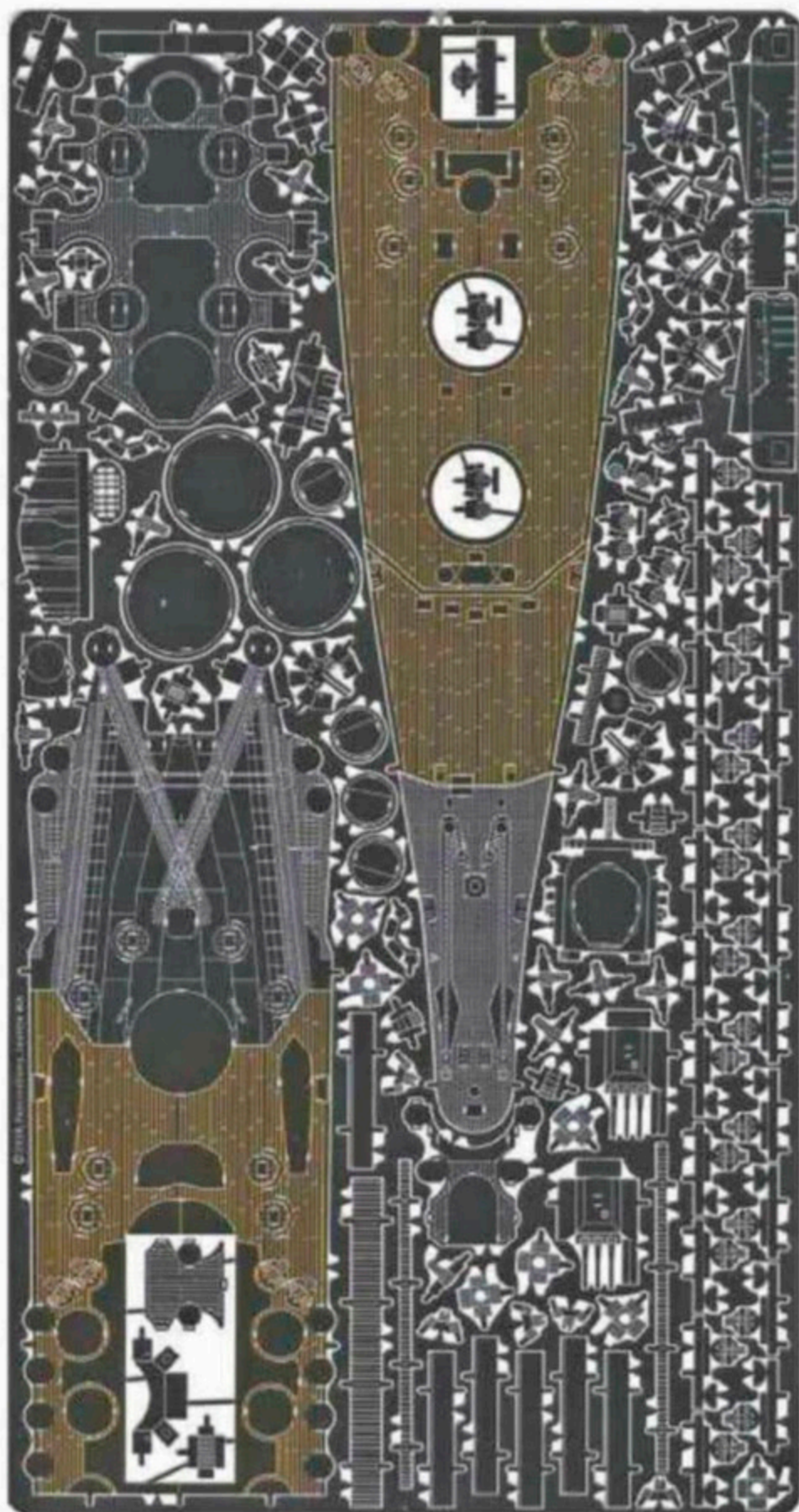
“A very interesting feature of these Metal Earth kits is that no adhesive is required for assembly”

by the fact that any ships built had to be able to fit through the narrow waterway of the Panama Canal; this was essential for faster movement between the Pacific and the Atlantic Oceans. The Japanese were not, of course, restricted by this geographical consideration, and so Yamato and her sister ship were designed with grand imperial ambition. They were also built entirely in secret so as to not give away their perceived naval advantage. As it turned out, however, the Yamato was rarely used until the very end of the war. Some have said that these two massive vessels were the right ships for the wrong war. Military tactics had changed dramatically since the end of World War I and the Japanese had not kept up with the times. Aircraft, and therefore in naval warfare the aircraft carrier, had become the game changers of World World II.

As the US began winning the war in the Pacific and pushing its way across the island chains, the Japanese Naval High Command attempted a last-ditch effort to stop this advance. This involved the use of suicide attacks by its aircraft. These ‘Kamikaze’ attacks, however, were, by their very nature, a limited solution to the Island Nations problem, and so the Naval High Command decided to send the Yamato out on her own ‘Kamikaze’ mission. The rest, as they say, is history.

If you’re not already familiar with the Yamato and her role during the conflict, then it’s a subject well worth delving deeper into but, for sake of brevity, let’s get back to Metal Earth’s marvellous kit...





ABOVE: The part sheets. BELOW: This is how you attach the parts without the need for any glue.

NO GLUE

insert tab

insert hole

fold line

1

2

Parts can be removed from the metal sheets by hand, however, using a pair of wire cutters is recommended. As shown above, tweezers make an ideal tool for bending or twisting connection tabs.

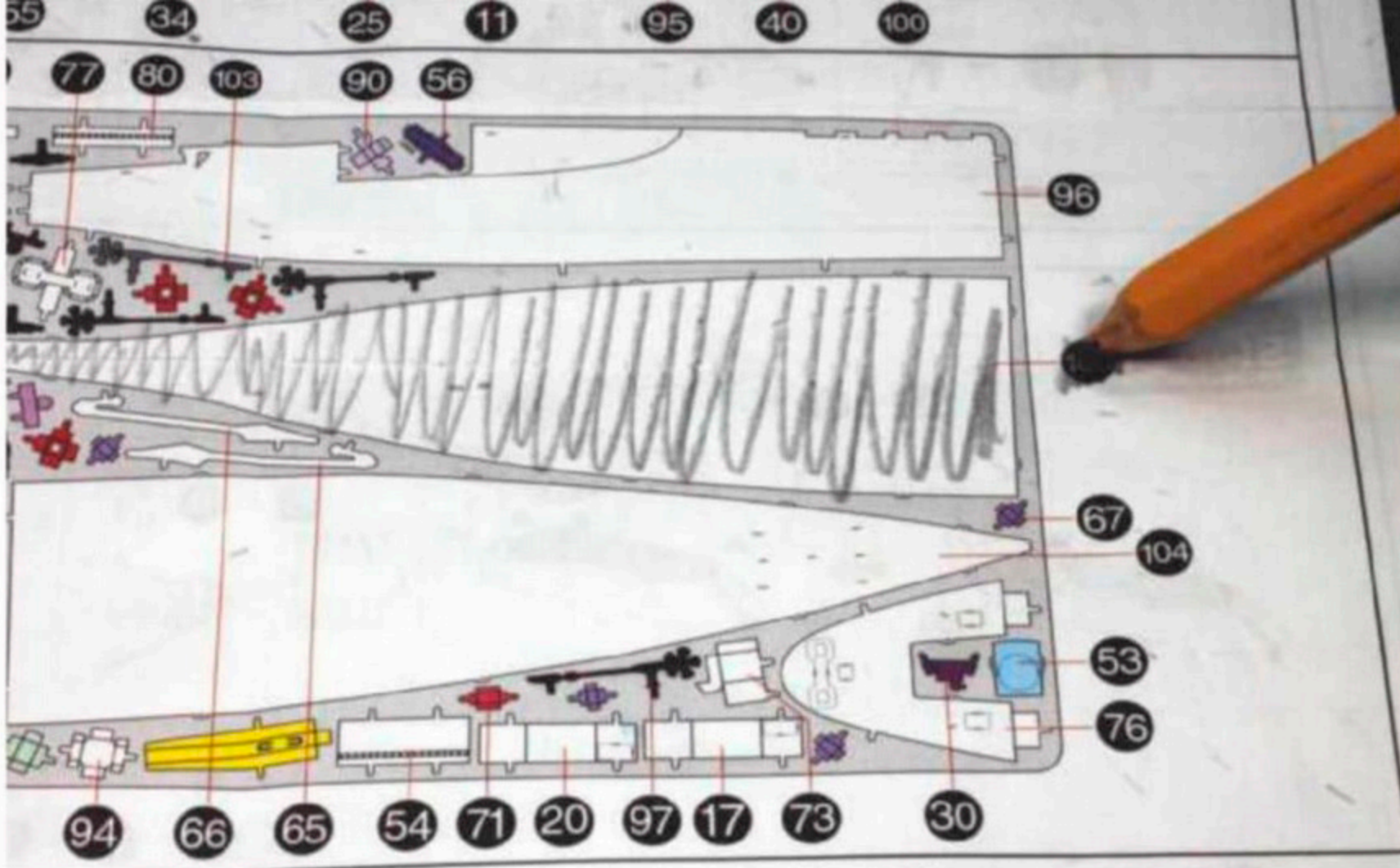


LEFT & ABOVE: You will need some tools to complete this kit well.

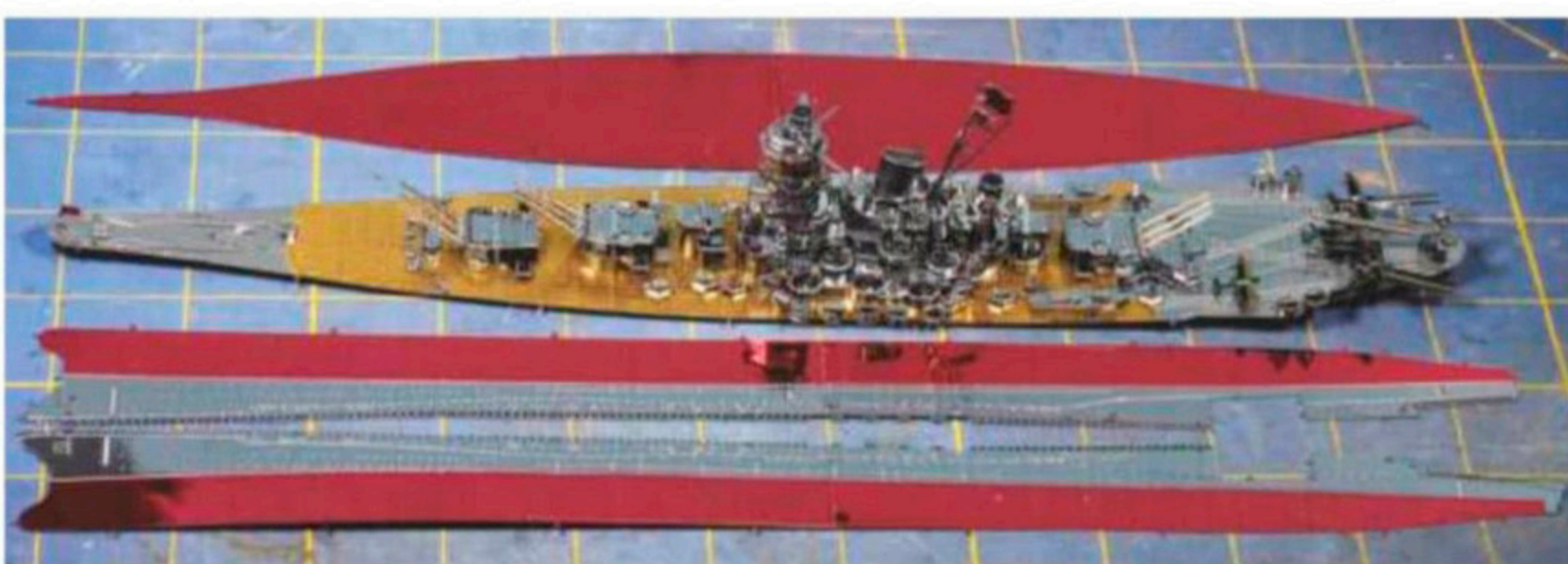
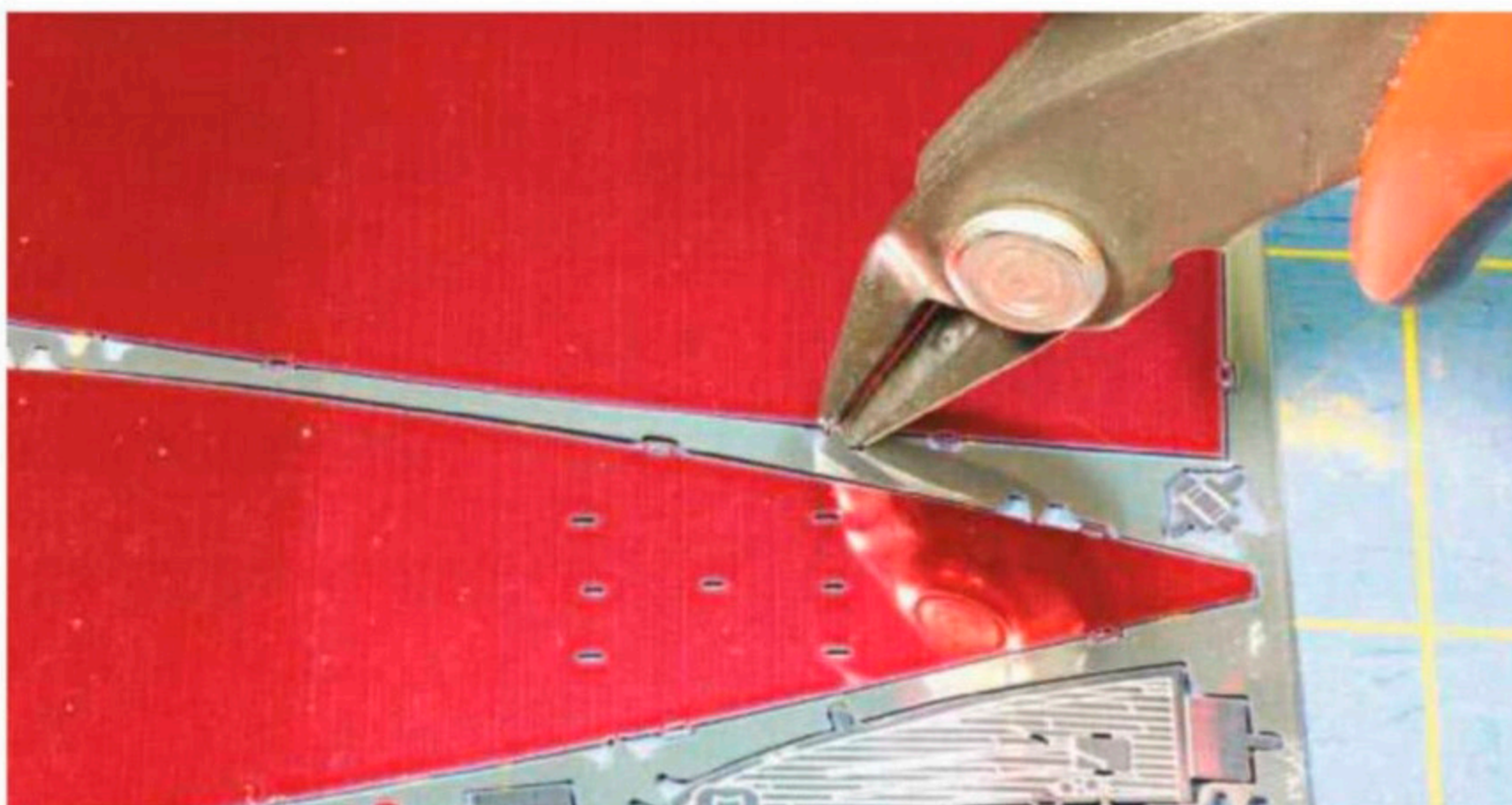
to all the small parts incorporated on the backing sheet without any 'slop over'. I guess that's just another of life's little mysteries.

Take note, though, not all of the kits in this range are pre-painted. I've built a number of the painted kits now and have been overjoyed with the end result every time. I've also built one of the non-painted kits and, well, let's just say I had some fun with that. At the end of the day, I guess it all boils down to personal preference.

A very interesting feature of these Metal Earth kits is that no adhesive is required for assembly (I actually did use a little CA glue, but more on that later). Instead, there's an



ABOVE: You need to keep track of which part has gone where, as some of them are very small and many of them look (mostly) the same.
BELOW: Always use a sharp micro-nipper to remove the parts. Never, ever break the parts off the backing as it will damage or destroy them.



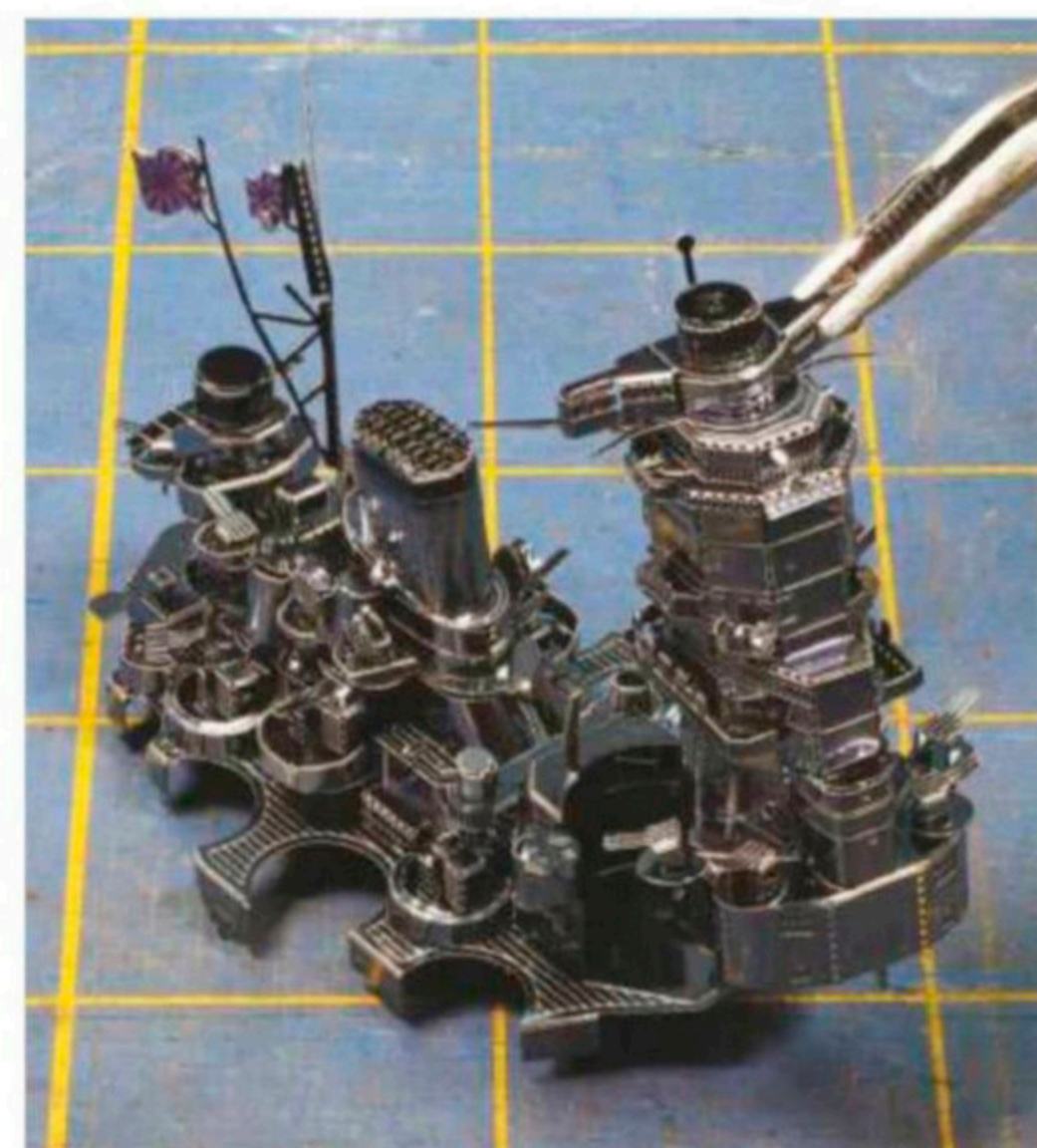
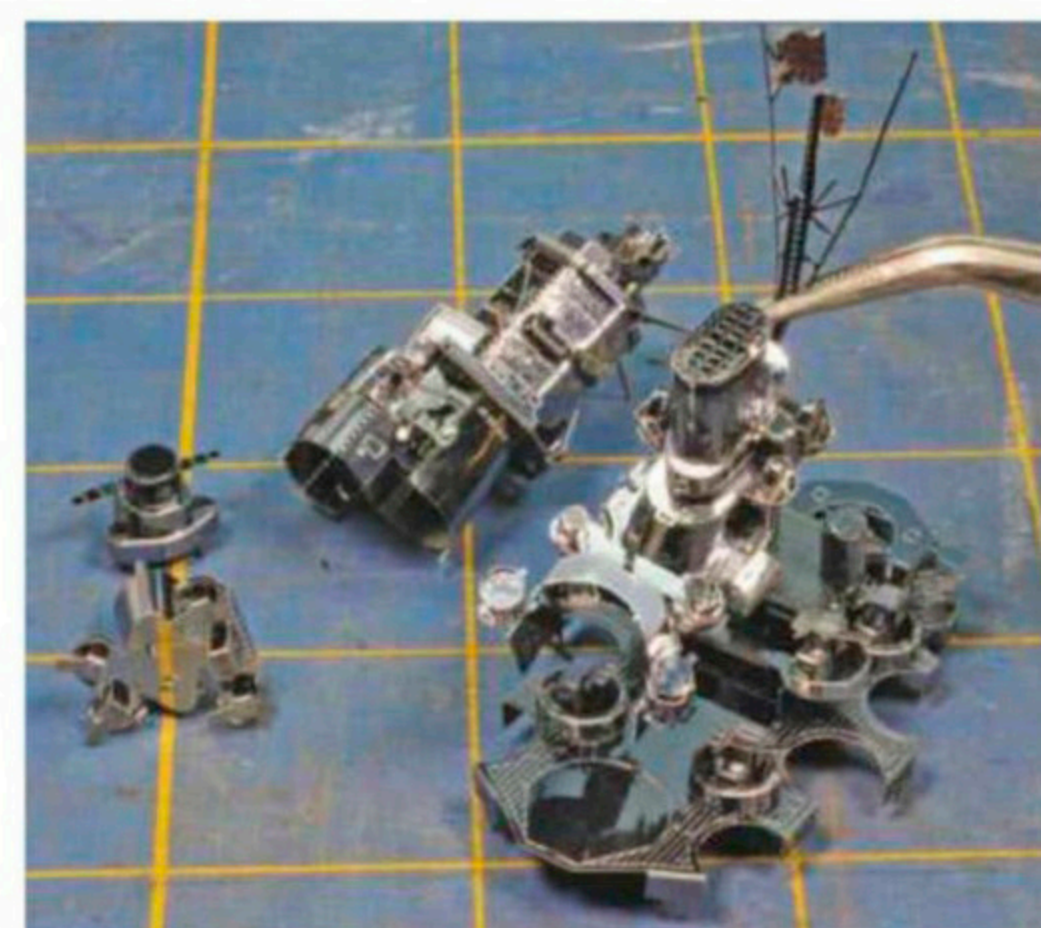
ABOVE: Yamato almost finished: the only thing left to do is assemble the hull.

ingenious system of 'tabs and slots' that holds all the parts together nicely. You simply slip the tab into the slot and then either push the tab over or give it a 90-degree turn.

You will, however, need some basic tools. Never-ever simply break the parts off the backing, as this will damage or destroy them. I found a sharp set of micro-nippers did the job nicely. Alternatively, you can use a sturdy hobby knife, but this will not remove the parts from the backing quite as well or easily.

You will also need an assortment of 'jewellers' pliers or tweezers, as I've found that one style of pliers will work here, while another style work there. And, finally, you will need a rather extensive array of different diameter round 'things' to shape the parts. Remember that you are transforming 'flat' parts into all kinds of 3-D shapes.

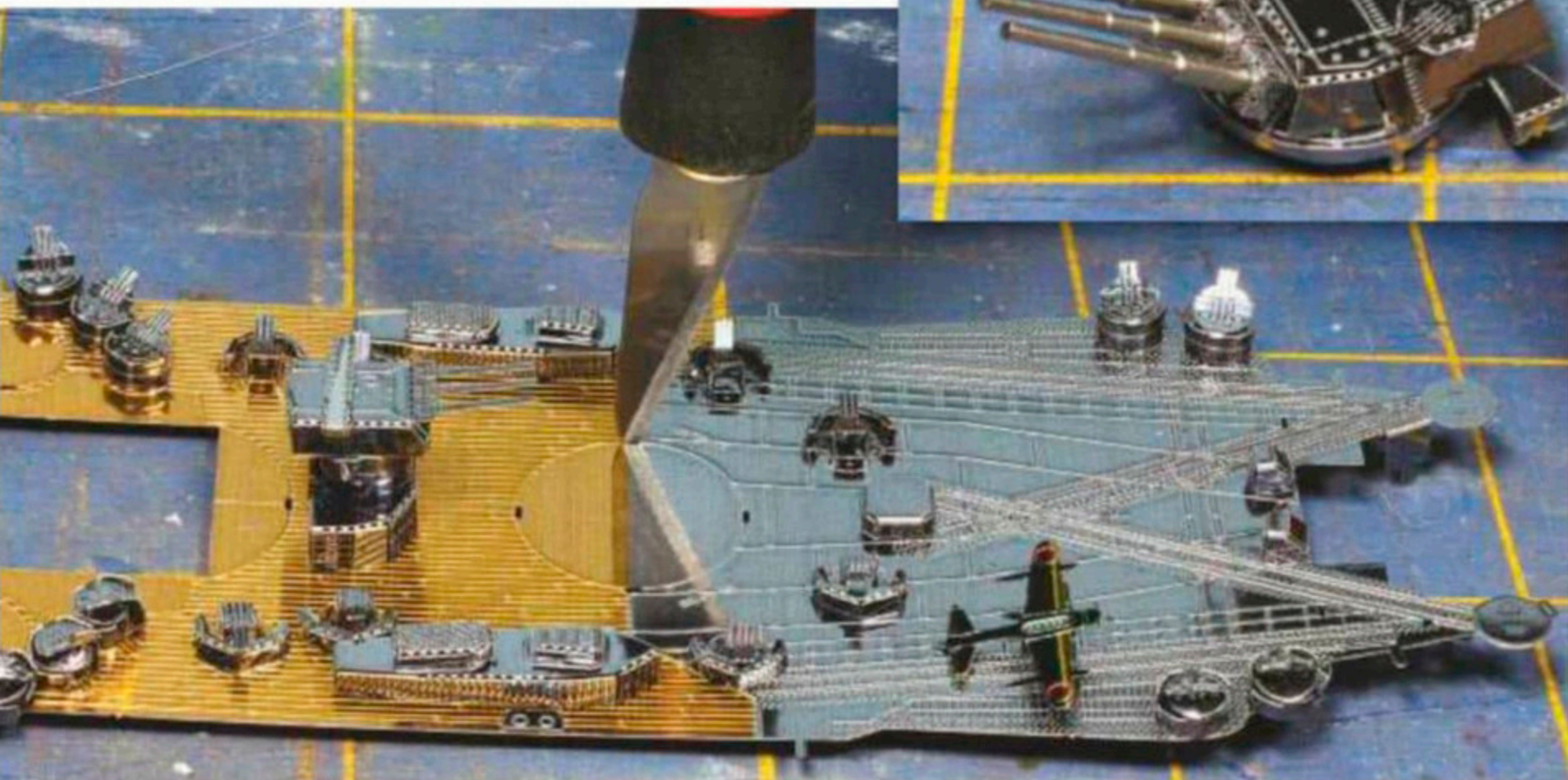
I do have a couple of cautions at this point. Firstly, you absolutely must make sure the tab is in the correct slot. If you mix them up it's a real bugger to remove a tab and then get it to fit into the correct slot. Yup, there it is again: the old 'voice of experience' rearing its ugly



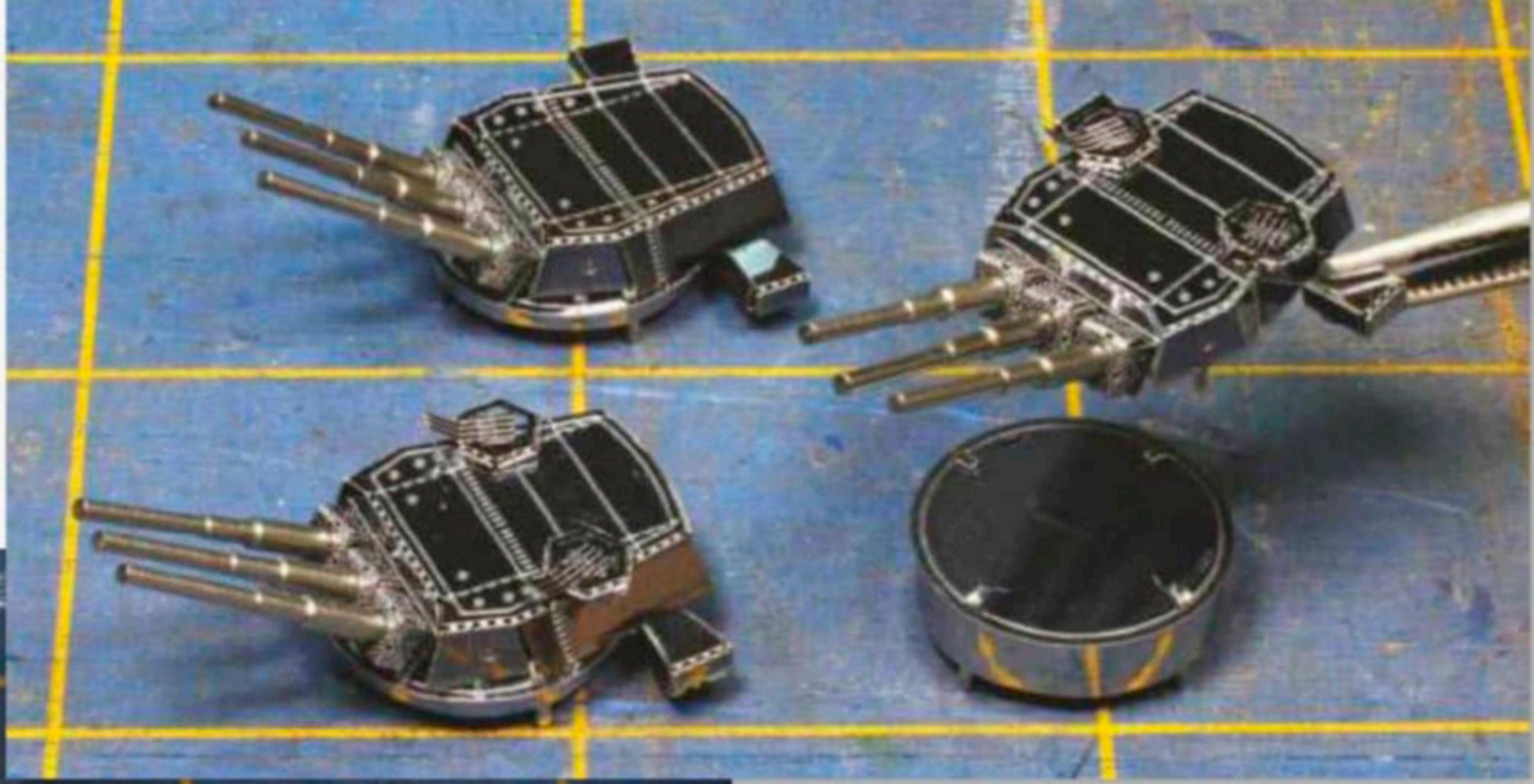
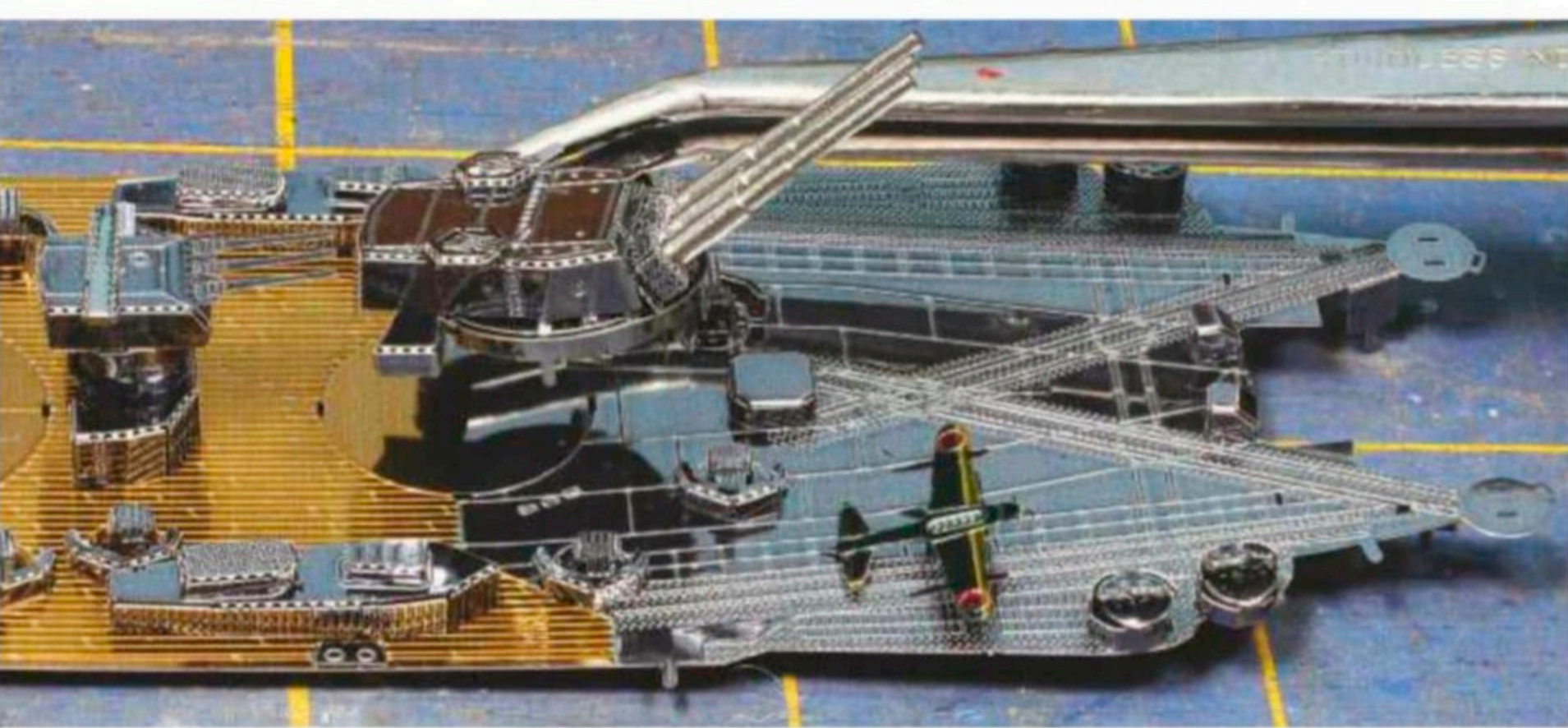
ABOVE: The construction method is rather like completing a series of mini-kits, as you will need to assemble a number of small sub-sections to make each of the larger sub-section, before bringing these larger sub-sections together to complete the build.

LEFT: The only non-flat parts that come with this kit are the main gun barrels.

"The project resulted in one of the coolest model ships I've ever built"



ABOVE: It can be difficult to install parts that have multiple tabs; the best advice here is to use a sharp hobby knife to open up the holes a little bit. BELOW: Installation of the aft main gun sub-assembly.



ABOVE: Some of the gun turret sub-assemblies for the kit: with the solid gun barrels these units look really nice.

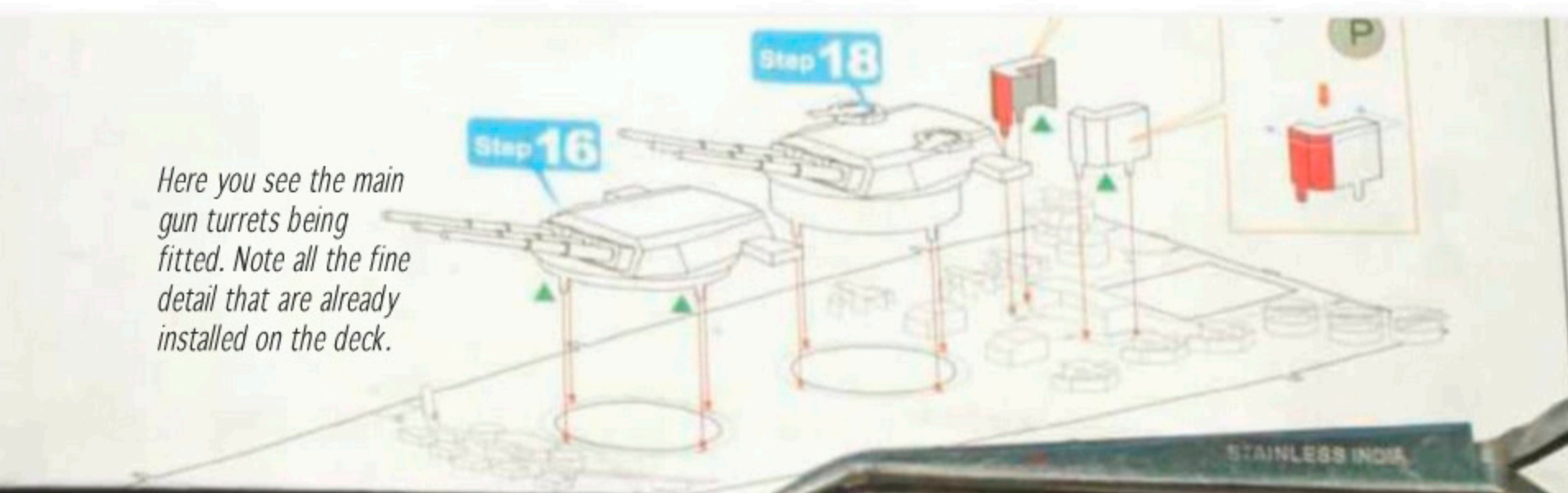
head. So, when you find you have multiple slots that are close together, double check with the directions before you get carried away with the pliers.

The next piece of advice I want to share is make sure the parts are butted tightly together before you give the tabs a twist. As confessed earlier, I did use a little CA glue on a couple of 'wobbly' bits because I hadn't been as attentive I should about their installation. After some practice, though, I was confident enough to put the glue away.

I think it's fair to say the Metal Earth kits should be considered an 'Adults-Only' affair. I base this opinion on two factors... Firstly, you really need to keep track of which tab goes in which slot. Secondly, the parts and backings aren't quite as sharp as razor blades, but almost! Little kit builders could cut their fingers clean off – ouch! Indeed, the company itself has a hard-and-fast rule: "Kits are intended for, and sold to, the 14+ year old crowd". So, while your kid may be a whizz with Lego, it's probably best you shouldn't let him/her get hands-on here.

If I were to rate the difficulty of constructing this kit, I would place it at the high end of intermediate level. It took me about ten hours from start to finish to complete the construction of this little jewel. The project was rather like constructing a series of 'mini-kits', which once combined resulted in one of the coolest model ships (or any other model for that matter) I've ever built. Granted, some of the wooden ship kits I've built are of finer display quality, but even so, wow, this was good fun! Yes, you can see (if you look closely) some of the tabs, but it just amazes me how you can take a bunch of flat metal plates and turn them into an awesome 3-D model.

Here you see the main gun turrets being fitted. Note all the fine detail that are already installed on the deck.



RIGHT: When it comes to the installation of the main house sub-assembly, real care needs to be taken to ensure its correctly lined up.





ABOVE: If you want to take the project a stage further, you can add a little fun by creating your own diorama against which to display the finished model.

RIGHT: Take your time when assembling the hull as this needs to be perfectly aligned. And be careful you don't damage any of the deck-side detail as you work these sections together.

BELOW: Ta'dah! Yamato in all her finished splendour.



Price point

Now, let's take a moment to talk about cost. For the fun you get out of the build and the great model you'll (hopefully) end up with, I reckon the price of around \$27 US (which includes tax and shipping) represents remarkable value for money. There are plenty of other ship kits that are way more expensive than this one but not necessarily any more gratifying.

RIGHT: So how big is this model? As you can see it's almost 12 inches long. Note the 'maritime' ruler!



A smart choice

In summing up, all I can say is the folks at Metal Earth must be really smart to have come up with such innovative and well-designed products. I got a real kick out of building the Yamato and I reckon you will, too. Alternatively, if battleships aren't your thing, then check out the rest of the range on the company's website, as there's bound to be something that will appeal. To date I've also ordered three of Metal Earth's railroad and two of its aircraft models and I must admit I am totally hooked!



WATCH AND LEARN

If you want to learn more about the Yamato, there are some excellent and highly informative documentaries to be viewed on YouTube: (https://www.youtube.com/results?search_query=+Japanese+battleship+yamato)



Car-Float

With lockdown looking set to drag on for a while, **Glynn Guest** decided to make best use of his time by creating something a little different for his RC model tug to tow...

While the pandemic we are facing is a very serious situation, I imagine most modellers, when initially confronted with the prospect of self-isolation or lockdown, will have thought: "Well, at least I've got the time to start a new project now". I know I did. Then, of course, it dawned on me that whatever was going to be built would have to be made from what was laying around the house, as nipping out for wood, glue, paints and such like was not going to be an option.

A spot of indoor foraging

To be honest, I had a fair amount of modelling materials to hand – but not enough to start building anything highly detailed or involved. It was, therefore, a case of rummaging around in my garage cum workshop in the hope inspiration would strike.

I've always been reluctant to discard any items leftover from domestic projects and as a result a pile of wood had accumulated in one corner of the garage. After ploughing through much dust and cobwebs, I came across a couple of potentially useful finds: a length of PSE (Plain Square Edged) pine (71 x 12 mm section) and some sheets of plywood. Not too inspiring but, a little later, a long forgotten idea suddenly resurfaced...

"After ploughing through much dust and cobwebs, I came across a couple of potentially useful finds. Not too inspiring but, a little later, a long forgotten idea suddenly resurfaced..."

Train of thought

Searching the internet for information on a specific subject often (or in my case, inevitably) leads to unexpected discoveries. I may start with a definite goal in mind but before long numerous other ideas present themselves. Some of these are simply too good to overlook and therefore get added to my ever growing

1





Sizing the job up

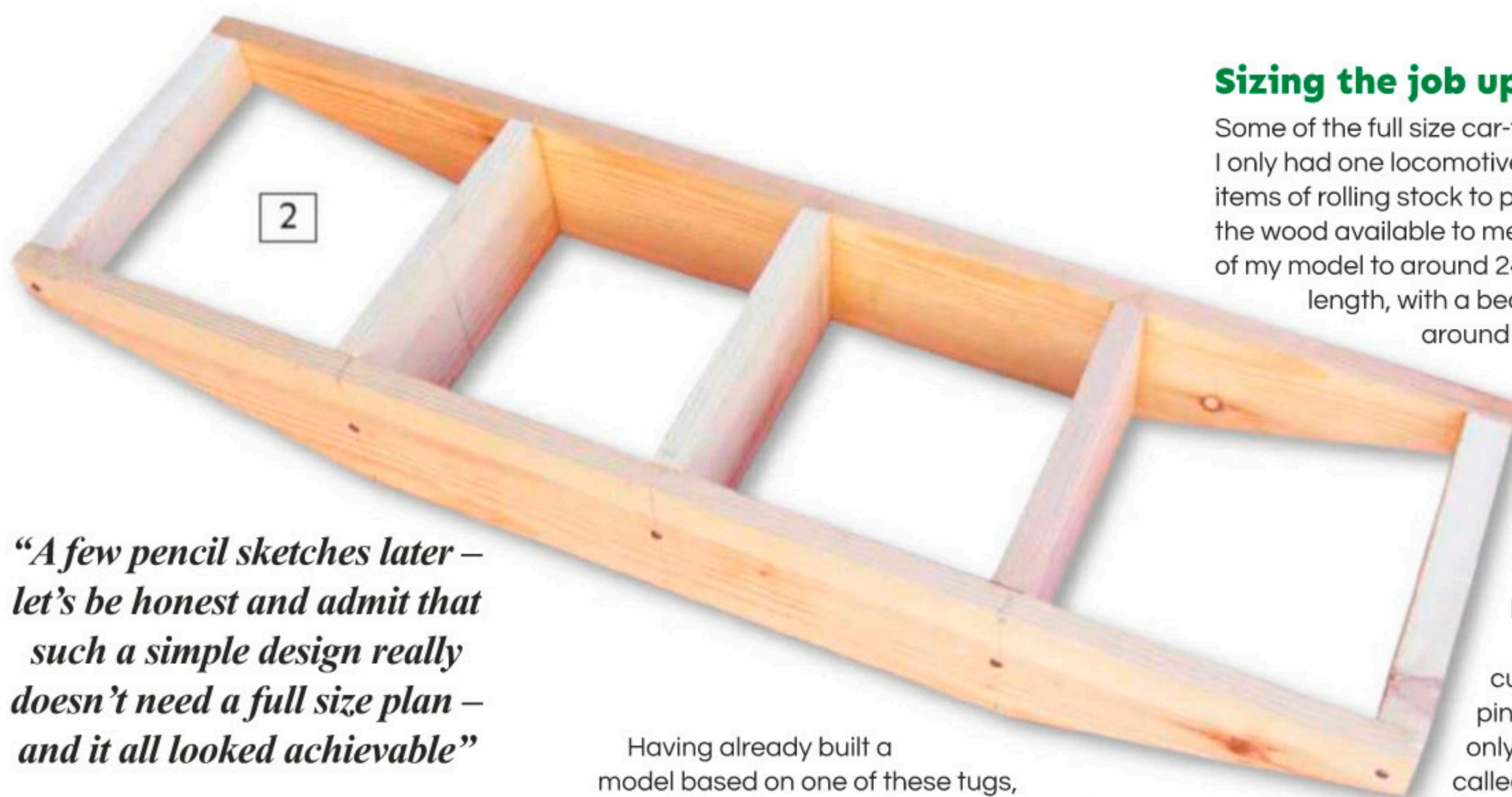
Some of the full size car-floats were big but I only had one locomotive, tender and two items of rolling stock to play with. This, and the wood available to me, limited the size of my model to around 24 inches (60 cm) in length, with a beam measurement of around 7 inches (17 cm). A

few pencil sketches later – let's be honest and admit that such a simple design really doesn't need a full size plan – and it all looked achievable.

The hull parts were cut from the length of pine; a simple job since only straight cuts were called for (see **Photo 1**).

The ends of the hull were given some token streamlining by angling the bottom pieces upwards – although I doubt if this mattered much since it isn't likely to be towed at any great speed.

The sides and bulkheads were glued together, taking care to keep things square (see **Photo 2**). Here comes a confession... Some nails were driven through the sides to hold parts together while the glue set. There is something I find disturbingly satisfying when hitting a model with a hammer!



“A few pencil sketches later – let's be honest and admit that such a simple design really doesn't need a full size plan – and it all looked achievable”

'New Ideas' file. This is where the concept for simple model based on the car-floats used by US railroad companies came from.

With extensive facilities in many harbours and docks, US railroad companies would often need to move rolling stock and even locomotives across stretches of water. Simple unpowered barges, fitted with rail tracks and towed by the railroad companies own tugs, were a common sight, as evidenced by many historic photographs that can be viewed online.

Having already built a model based on one of these tugs, Arcady (see the November 1999 issue of Model Boats), many moons ago, I had, at the time, been more than a little tempted to make a matching car-float. I even went so far as to buy a toy train set of about the same scale as this tug. Alas, other things diverted my attention and the plan was put on hold. The unexpected period of enforced relaxation this year, however, suddenly found me with more enough time on my hands. Luckily, the train set had also been tucked into the corner of the garage and was recovered undamaged.

“It worked much like cellulose dope but without the smell and for about half the cost”

The three plywood bottom sheets were added after first sanding the edges of the hull frame to ensure a good fit (see **Photo 3**). And yes, I used some panel pins around the edges of these plywood panels for a little extra security and to slake my need to use the hammer again!

Trial float

A rough and ready calculation suggested that the model would need to weigh in around 6 pounds (2.7 kg) to float at a reasonable waterline. The plan was to have a fixed deck with no internal access and, as the plastic train-set wasn't going to add much weight, some internal ballast would be called for. A trial float on the garden pond to determine how much and where to place the ballast was therefore required before adding the deck.

This called for the partially built hull to be made at least water resistant but, as luck would have it, there was no wood primer to hand. There was, however, a half used tin of 'Rustins' Quick Dry Varnish languishing on a shelf. This had been bought when renovating some internal doors last year but it looked like it would seal a model boat hull. And it did. It worked much like cellulose dope but without the smell and for about half the cost. A couple of coats and the model was soon afloat in my garden pond.

Some used auto wheel balancing weights I'd obtained when a car needed some new tyres got the model down to its desired level. The first layer of weights was stuck into the hull with one of those tubes of 'sticks everything' stuff. Realising, however, that the model would still be subjected to quite a bit of handling before it was complete, relying on just adhesive to hold the weights in place (remember no internal access with the deck fitted) seemed a tad too optimistic. A few long screws were therefore placed across the first layer of weights and screwed into the bulkheads. An additional coat of adhesive was applied and another layer of weights were stuck over both the first layer and the screws (see **Photo 4**). The plywood deck was then glued (and nailed!) into place, followed by a couple more coats of varnish (see **Photo 5**).

Finishing off

Looking at the photographs of the real things, they clearly had a tough life. Some sort of protection around the top edges of the hull seemed likely and so I stuck a strip of textured card to the hull sides. This, too, was sealed with the varnish.

The external surfaces were painted in a dirty shade of red and weathered with (mainly black) paint washes, as, due to its coal fired steam train cargo, I felt 'grubby' was the order of the day. The tracks had been moulded in black plastic, so these were 'dirtied up' with light patchy sprays of paint before being screwed to the deck.

The train set was far too toy like to use as it came out of the box and it was clearly

3

4

5



“Boy, did those rubbing strips prove their worth!”

intended to have a ‘Wild West’ appearance, which would be noticeably out of character for my 20th century craft. So, the self-adhesive stickers that adorned the loco and rolling stock were peeled off, the cow-catcher on the front of the engine was snapped away and the funnel, a massive conical item, was cut off and replaced by one with a more appropriate shape. Fortunately, spray painting the locomotive covered the worst offending items, i.e. the gilt finished parts. Having carefully dismantled these, I used weathering techniques to achieve a far more credible appearance before firmly reattaching them to the model with a few long but discrete screws.

In the historic photographs I viewed it wasn’t clear just how the rolling stock would have been secured while travelling on these car-floats. I guess when conditions were calm then the wagons brakes would have been enough. In some photos, however, it looks like baulks of timber have been laid across the rail tracks for extra security. These, and a few other bits and pieces, were therefore added to my model.

Being unsure of how exactly my car float would be towed by a tug, I’d fixed some screw eyes around the edge of the deck. Some photos showed full-sized floats lashed to the sides of the tugs. I guess that this would have been more convenient in some situations than an astern tow. It looked a suitable idea to try, so a couple of hawsers were made up, with hooks to attach to the tugs towing bits. I used lengths of a braided rope for the hawsers, which afforded a small amount of elastic ‘give’ before it stiffened up. This proved ideal for holding the float firmly next to the tug while not being too rigid.

Canal capability

Launching the combination was the next conundrum. The idea of placing both models in the water separately and then trying to fasten them together looked too much like a recipe for me joining them in the water. Luckily, I found that by using two rope slings the joined tug/float combination could be safely lifted into and out of the water.

With the tugs thrust line well offset to one side, I expected the steering response to be poor, if not weird. In fact, while the model would clearly turn much better one way (with the tug on the outside of the turn), turning the



other way still proved OK. After a surprisingly short time, I was completely at home with handling, and even astern steering was possible. This allowed me to practice docking the float alongside the canal walls, and, boy, did those the rubbing strips prove their worth!

More constructive ideas...

Like a lot of ideas born out of a desperate situation, the Car-Float proved a success.

It’s added to the pleasure of sailing a tug (surprisingly, handling is not significantly impaired when it attached) and is a little different from the usually seen tows.

There’s scope plenty of using the idea of a simple barge to transport things other than locos and rolling stock, too. I’ll admit I’ve cast my eyes along the toy shelves and begun thinking about building another one to carry some of the surprisingly realistic looking, but quite cheap, construction vehicles now on the market. ●



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“So just how do you estimate the quantity of ballast is needed? Fortunately, Archimedes solved this conundrum a long time ago...”

slide towards the lowest point as your boat/ships gently rocks from side to side, its movement will seriously increase listing.

Historically, cargo ships used sand, stones, millstones, tiles, etc, when they were not carrying cargo. Medieval Spanish treasure ships used their bullion as ballast, securing it with canvas that was criss-crossed with ropes to hold it in place. Today's ships and submarines use sea water. That may sound strange, but anything heavier than air and low down in the ship will work. This water is contained in ballast tanks and can be pumped around to maintain trim and correct listing. When a ship takes on cargo or passengers, less ballast is needed, and the water is pumped back into the sea. This is a problem for the environment, as water discharged at one port would contain different microorganisms from another part of the world. In 2004, an international agreement was signed to prevent this.

Almost all model ships built to be sailed will need ballast added. Assessing how much will be needed and where to place it can be done after the build is finished, on a trial and error basis. It's very important, though, to make provision for its fitting, as trying to position your ballast in the hull and fix it in place after the deck has been put on can be very fiddly. I found out the hard way!

Ballasting basics

David Neal provides the lowdown on keeping your boat afloat...

Earlier this year I completed the first model I'd ever kit built to be sailed on water: the Deans Marine 1:96 scale 'Tintagel Castle', an 80cm long World War II corvette. So, more than a little proud of how splendid she looked, I cautiously lowered her into our little garden pond for her first trial. I was in for a nasty shock. She immediately tried to flop onto her starboard side. Something was very wrong. Even when supported upright she floated much too high in the water and seem very unstable every which way.

Disappointed and frustrated in equal measures, the 'B' word then sprang to mind. I had, of course, seen mention made of ballasting both in this magazine and elsewhere but I'd never given the subject much thought and it certainly wasn't something I'd factored into my build. Its importance was now well and truly evident, however, and, in order for it to work its magic I clearly needed to learn how much to use, what to use and where to locate it within the Tintagel Castle.

A rookie mistake, for sure, but, as they say, it's an ill wind that blows nobody any good, so I decided to turn the findings of my research into this beginner's guide...

Definition and purpose

Without wanting to assume any knowledge whatsoever, then, let's start with a brief explanation of what ballasting is and why it is used. Essentially, it's a way of adding enough weight to your build to ensure both propeller and rudder are immersed and to provide enough stability to prevent your beloved model from capsizing.

Calculating how much you're going to need is essential: too much and your model will sit too low in the water, increasing drag and making it more likely to be swamped by ripples/waves travelling across the surface of the pond or lake you're sailing it on.

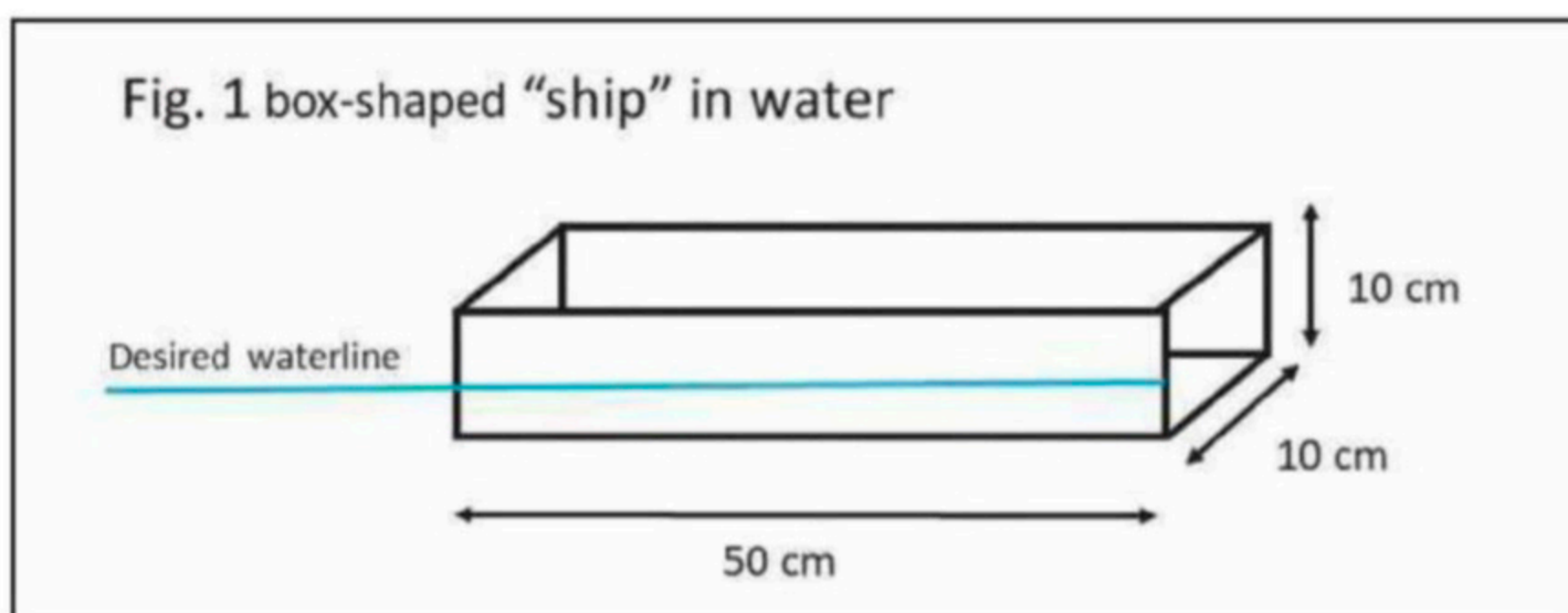
This additional weight needs to be carried in the right place, too: low in the hull and distributed so that the ship is balanced fore to aft, and port to starboard.

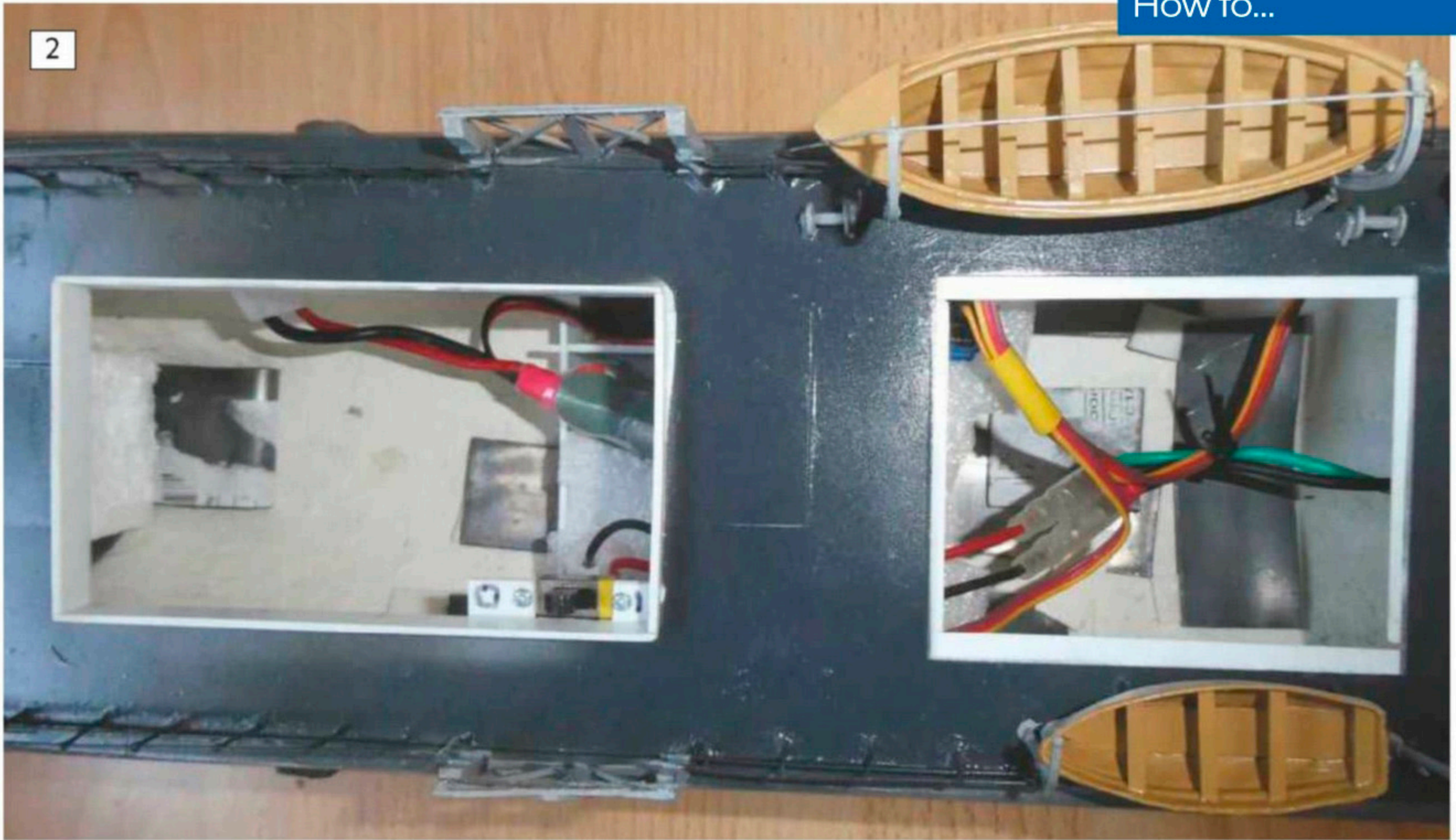
Also, always make sure your ballast is firmly fixed down; if it's allowed to move about it could damage the hull and, as it will naturally

How much?

So just how do you estimate the quantity of ballast is needed? Fortunately, Archimedes solved this conundrum a long time ago when he discovered that an object placed into water will sink until it displaces the amount of water equal to its weight.

By way of illustration, **Figure 1** illustrates the desired waterline of a very box-shaped structure (which for the purposes of this article we will view as a ship). Imagine this weighs 500g when put into water. It will sink until it displaces 500cc of water (as 1cc of water weighs 1gm), at which point it will float. At 50cm long and 10cm wide, it will, therefore, float with 1cm of it under water. This isn't far enough into the water for a propeller or rudder to work, and the slightest hint of wind will send it off course, so in this instance you'll want





“The ideal material would be dense, inexpensive, available, easy to cut and shape and not affected by immersion;—none of the materials I’ve suggested tick all of those boxes, so let’s weigh up the individual pros and cons...”

to get it another 3cm lower to achieve your desired waterline. In order to do this, you must, therefore, work on the premise of displacing 1500cc water by adding 1,500g of ballast.

Of course, most model ships are not box-shaped. They have shaped hulls and superstructure, and they incorporate motors, servos, batteries, steam engines, etc. So, in view of all this, how on earth do you estimate how much ballast will actually be required? An easy way to do this if your model has a watertight hull and a known waterline is to put the hull on a flat surface and pour water in until it reaches said waterline. You can then tip that water back into a container of some sort in order to measure its volume/weight; a measuring jug would be the easiest thing to work with but failing that you can simply pop that container on kitchen scales. This will give you the weight your model, including ballast, will need to be to float at the desired waterline. You can then either weigh all the components you are going to incorporate into the build or the model in its entirety on completion in order to factor these into the equation.

Alternatively, you could calculate the volume below the waterline of the model from the plans, or by measuring it at different points and muttering to yourself as you tap numbers into a calculator. I used the latter method, estimating that the volume underwater at the waterline was 1,800cc, meaning my model would need to displace 1,800g of water. The unballasted weight of my model was 1,280g so I decided to add approximately 520g of ballast to it. In the event, I, in fact, had to add 680g, so there was obviously a flaw in my estimates.

What to use

Once you’ve estimated the weight of ballast required, the next stage is to decide what to use to ballast your model. The table I’ve drawn up shows the density of various materials. I’ve added the heaviest element, Osmium, to this table for interest only, as you probably won’t use it!

The ideal material would be dense, inexpensive, available, easy to cut and shape and not affected by immersion, but none of the materials I’ve suggested tick all of those boxes, so let’s weigh up the individual pros and cons... Stones are relatively light and need to be well secured. Iron is not expensive and is quite dense but it’s not easy to cut and shape and will rust, although I know some modellers do use it. Copper is quite heavy (15mm copper plumbing pipe weighs 270g per metre), malleable and widely available. Brass is also worth considering if you have any scrap material available. Lead is easy to cut and shape, and even to melt and mould. It’s also available as lead shot. However, it’s poisonous not only when ingested but even when simply inhaled, e.g. by breathing in the dust from sawing or filing it, or from the fumes if you melt it. So, if you opt to work with lead, make sure you read up on how to do so safely beforehand.

I used lead. I managed to find just a very small quantity of by touring local salvage and scrap yards. It was, however, not enough, so I also ran an online search, hoping to fulfil my requirements via other sources, e.g. outlets that offered lead shot for fishing, shooting or scuba diving, leaded window trim, curtain/sash window weights and lead shot sold specifically for model boats. Lead shot for scuba diving weights seemed the best value for money, but I didn’t see how I could get this into my hull and secure it in the right places. Lead flashing used for roofing, however, has the advantage of being easy to cut with tin snips and then bend to fit and secure in the hull. I managed to pick this up from a local builders’ merchant, the only downside being that 7kg was the minimum quantity I could buy.

For purposes of illustration, **Photo 1** shows my roll of lead flashing, the tin snips used to cut it and also two curtain weights of 12g each, which I found really useful for making delicate adjustments.

Where to position it

The next step is to work out where to site the ballast in the hull. I initially thought putting it all in the centre of the hull’s bottom would be the

Densities of potential Ballast Materials

Material	Density in gm per cc
Stone	Approx. 2.0 to 3.0 depending on type
Iron	7.9
Brass	Approx. 8.5 depending on mix of metals
Copper	8.9
Lead	11
Osmium	22.6



3

way to go, but before doing so decided first do some research online. Just as well I did, as I discovered it's better to place 50% in the centre, 25% in the bow and 25% in the stern. If it's all positioned in the centre the model will pitch more, i.e. the bow and stern will rise and fall too easily if the water becomes a little choppy. Similarly, I learnt that it's better to place ballast across the bottom of the hull rather than positioning it all on the centre line as this improves stability.

Unfortunately, I'd already wedged some scrap foam blocks into the hull of Tintagel Castle to aid continued flotation should she starting sinking – in hindsight, not one of my smarter moves as now it wouldn't be easy to get the lead strips into the correct positions, especially into the bow and stern. The limited access via hatches didn't help either. From a glass half full perspective, however, at least the lead strips could be sliced up and curved to help get them in and it proved easy than envisaged to press them straight afterwards, too. These were secured with double-sided sticky pads. **Photo 2** shows these grey lead strips fitted into the hull – albeit not as tidily

as I would have liked due to the restricted access. If only I'd left a gap under the battery box and not put the flotation foam in the bow and stern!

Balance and stability

In order to be certain your boat/ship will float straight rather than pitch down at the bow or stern, you will almost certainly need to make some adjustments to the trim.

To get a sense of my model's balance while still on dry land, I marked the centre

“When a ship is floating upright, its weight is forced downwards through the centre of gravity but this is balanced by the upward force acting at the centre of its buoyancy”

of the waterline with masking tape, put a piece of pipe on a table and sat my model atop of it (See **Photo 3**). By turning the pipe, I could make the model move forward and backward and therefore see its point of balance. But while this little experiment established the model's centre of gravity, I was all too aware it wouldn't necessarily be an accurate guide to the trim when in the water. This is because the centre of buoyancy will always be at the geometric centre of the part of the hull that is underwater, and, depending on the shape of the hull, this can therefore be a little forward or aft of the centre of a vessel's waterline. As it happened, however, the test did in fact prove satisfactory as my ship seemed to balance at just around the right point, meaning it was less likely to plunge into the murky depths!

Next on the check list is stability, i.e. ensuring your model will sit upright in the water and not capsize if blown by wind or hit by waves side on. If the weight of your superstructure, radio gear, etc, is symmetrical, this is unlikely to be an issue.

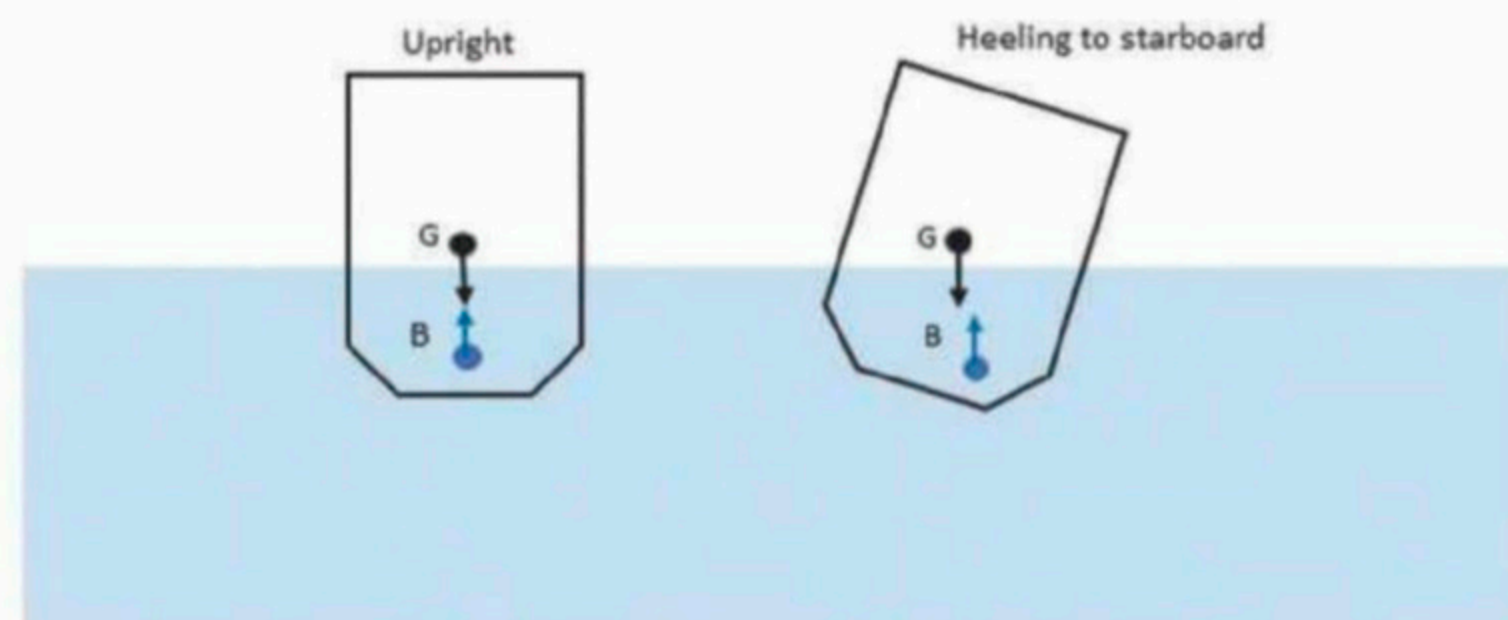
I tested my model while supporting it upright on the worktable, initially placing curtain weights and coins on deck to indicate where any adjustments to for the sake of stability would be needed. I confess this wasn't easy, as my model proved very sensitive to tipping and the results were far from conclusive. It may, then, be more helpful to take a look at the theory behind the principle.

Understanding the physics

Here's a rather simplified version of the stability theory...

Fig 2. illustrates the interaction between the centre of gravity and the centre of buoyancy. When a ship is floating upright,

Fig. 2 Cross-section of a ship with a low centre of gravity



G is the centre of gravity, B is the centre of buoyancy.



its weight is forced downwards through the centre of gravity (G) but this is balanced by the upward force acting at the centre of its buoyancy (B). So, when, as a result of a being hit by a wave, or turning sharply, the ship heels a little to starboard, the centre of gravity remains virtually in the centre of the hull but the centre of buoyancy moves to starboard. This is due to the fact that the part of the hull that's underwater takes on a different shape to the one formed when the ship is completely

upright. As a result, the downward force of the ship's weight and the upward force of its buoyancy are no longer in line, resulting in an anticlockwise twisting force that tilts the ship back into an upright position.

Fig 3. shows a ship with a higher centre of gravity. In this situation when the ship heels to starboard the downward force of the ship's weight and the upward force of the buoyancy are again no longer in line but the centre of gravity has moved further starboard than the

centre of buoyancy. This results in a clockwise twisting force, making the ship heel further, leading to eventual capsizing.

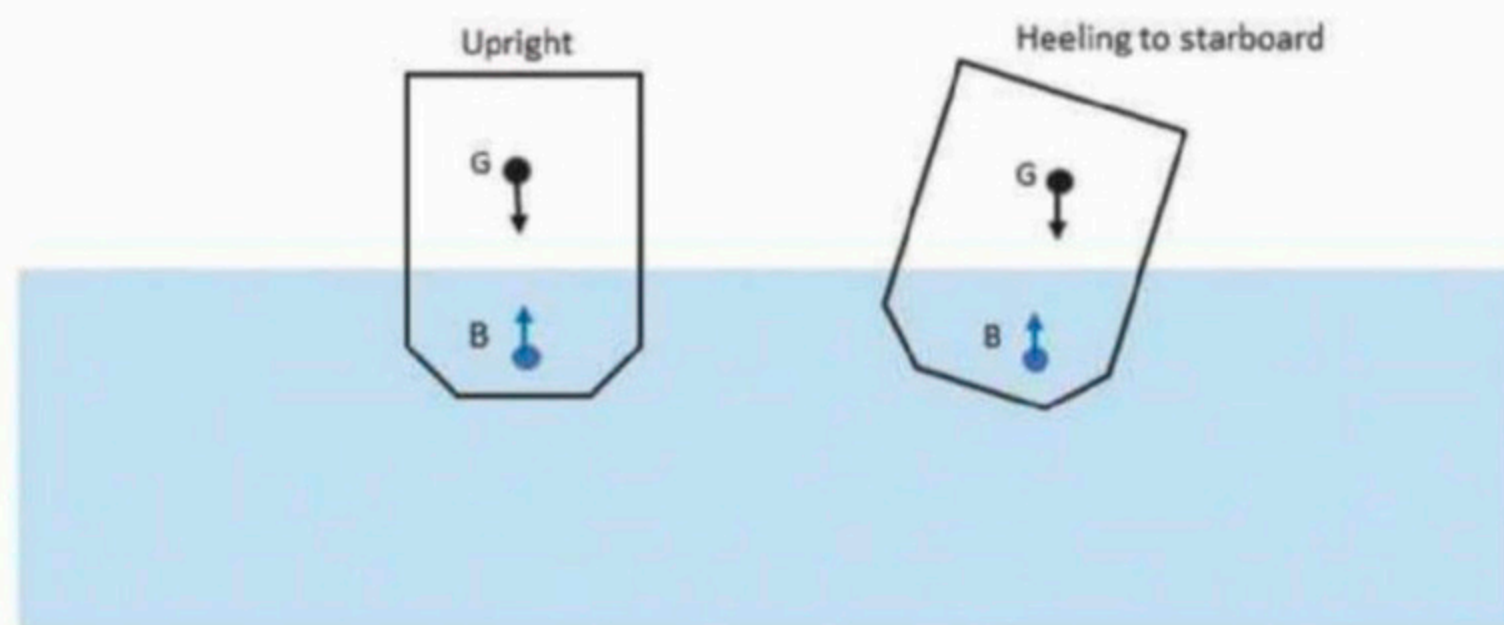
Model yachts and sailing ships

Sailing boats need their centre of gravity to be particularly low down. This is to counteract the additional sideways force of the wind acting on the sails, which makes them heel more and could knock them over. Accordingly, they have deep weighted keels, or a lead bulb on a fin extending well below the hull, thereby making their centre of gravity below the centre of buoyancy. The deep keel or fin's resistance to sideways motion also assists their ability to fight back against being pushed downwind.

Resumed trials of my model

So, did everything I gleaned during the course of my research help me get Tintagel Castle afloat? Well, her second pond trial with 520g of ballast added showed definite improvement, although she still sat too high in the water, was down a little at the bow and listed slightly to starboard. Ballast was therefore gradually increased and adjusted until eventually the trim seemed correct (see **Photo 4** – the scraps of masking tape visible were used to mark her waterline and make it easier to see in the dark, reflective water).

Fig. 3 Cross-section of a ship with a high centre of gravity



G is the centre of gravity, B is the centre of buoyancy.

5



Photo 5 shows a stern view taken while she was being tested for any evidence of listing. Unfortunately, the small spirit level I'd used on her hull during the build proved too big and heavy to place across the deck while on the water, and so had to be gauged by eye.

Other examples

To illustrate the wide range of ballast needed depending on the shape of the hull and the materials used in its construction, I am going to use two further models...

The February 2020 edition of this magazine featured an elegant 107cm long steam launch by Peter Fulcher. Peter used lead shotgun pellets for ballast, built into neat compartments along the bottom of the hull and fixed in place with epoxy resin. He also used plastic film canisters to adjust the final balance to the waterline. His unballasted model weighed 5.1kg and he needed to add 5.9kg of ballast, giving a total displacement weight of 11kg. (Note, Peter gave his dimensions in imperial units, but I've converted them to metric to keep consistency within this article).

Photo 6 shows a ship that will not need any ballast. It is a huge 1:100 scale model of the USS Missouri made from Meccano by Steve Briancourt. This was on show at the London Model Engineering Exhibition in January 2020. Stopping to admire it, I jokingly said to Steve that he could sail it, if he could find a lake of mercury. To my surprise he told me that he did plan to get the model afloat! Working propellers and rudders were already in situ, but he pointed out, he'd obviously need to wrap the hull in plastic to block the holes in its Meccano components. He explained that he'd already done the necessary calculations and was confident it would float. The displacement of the full-sized ship was 58,000 tons, so the model at 1:100 scale would displace one millionth of that, i.e. 58kg. Although the model weighs more, 68kg, it will float only slightly lower in the water than the actual ship. He showed me where the waterline would be, confirmed he had checked the position of the model's centre of gravity and talked very knowledgeably about the centre of buoyancy and various other aspects of naval architecture. So, if you're reading, Steve, we'd be fascinated to some pictures taken at the launch!

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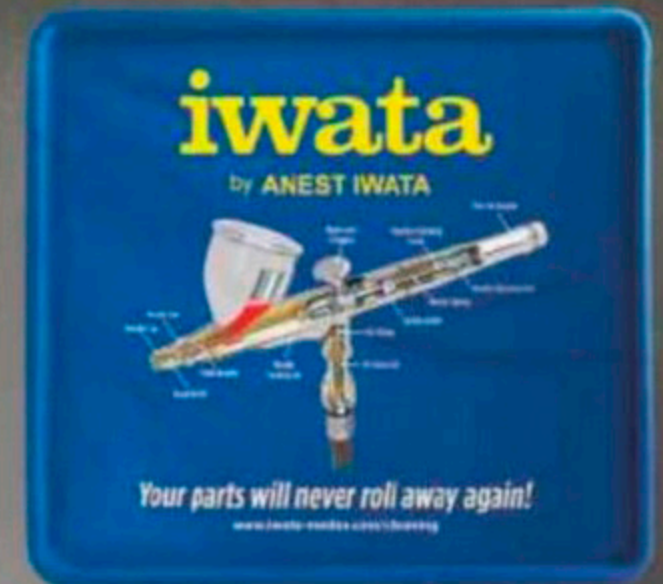


More to add?

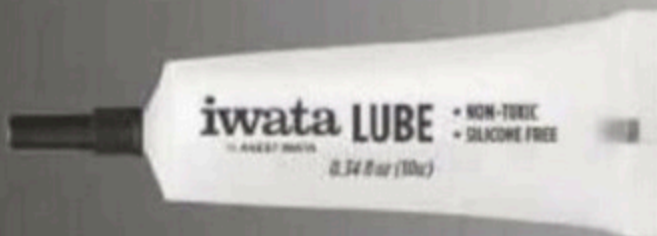
In closing, if you're a seasoned vet who has read this feature simply out of amusement, any additional tips and tricks you can offer up for inclusion on the Letters pages will be most welcome. I certainly don't profess to be any kind of expert, but I am hoping that sharing my mistakes and the lessons learnt from them without getting too heavy will not only help but encourage others who are either new to the hobby or considering making the transition from static to waterborne model kit builds. ●

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"One day my wife spotted a model boat kit she thought might interest me. Unbeknown to her, she had found the Holy Grail!"



1

Atlantic 21

Ashley Cooper tells a tale of abandoned hope, a lucky break and how he was finally able to breathe new life into an old Lesro/Duplex lifeboat kit

Upon returning to this hobby after many years' absence, I started by upgrading all of my old electric boats with modern running gear and converting I.C. powered boats to electric. Hence the following were retrieved from the loft, refurbished and returned to the water:

- Graunpner Nautic
- Norstar Waverider
- Veron RTTL (2749)
- XQQME (built from the plan in June 1976 issue of Model Boats)



2

All of which can be viewed on the excellent new Potteries Model Boat Club website (www.potteriesmbc.co.uk).

I'd always fancied, however, building the Lesro Atlantic 21 inshore lifeboat. In fact, I still have my copy of the June 1981 edition of Model Boats featuring its review on release. Unfortunately, the production life of this kit turned out to be short and once obsolete examples offered for sale on the secondary market quickly became scarce. With only a few incomplete/half-finished kits occasionally turning up on internet auction sites for silly money, I had, therefore, more or less resigned myself to the fact I'd missed the boat. But, as luck would have it, one day my wife, who enjoys trawling through the lots listed on local auctioneers' websites, spotted a model boat kit she thought might interest me. Unbeknown to her, she had found the Holy Grail!

The premises of the auctioneer in question are only three miles from my home and so I duly turned up on the viewing day fully expecting to find a poorly started kit

with lots of parts missing. Instead, to my delight, the kit was complete and absolutely untouched (with none of the original bags containing the parts having ever even been opened). What's more, remarkably, the lot had been allocated the meagre guide price of £15-£20.

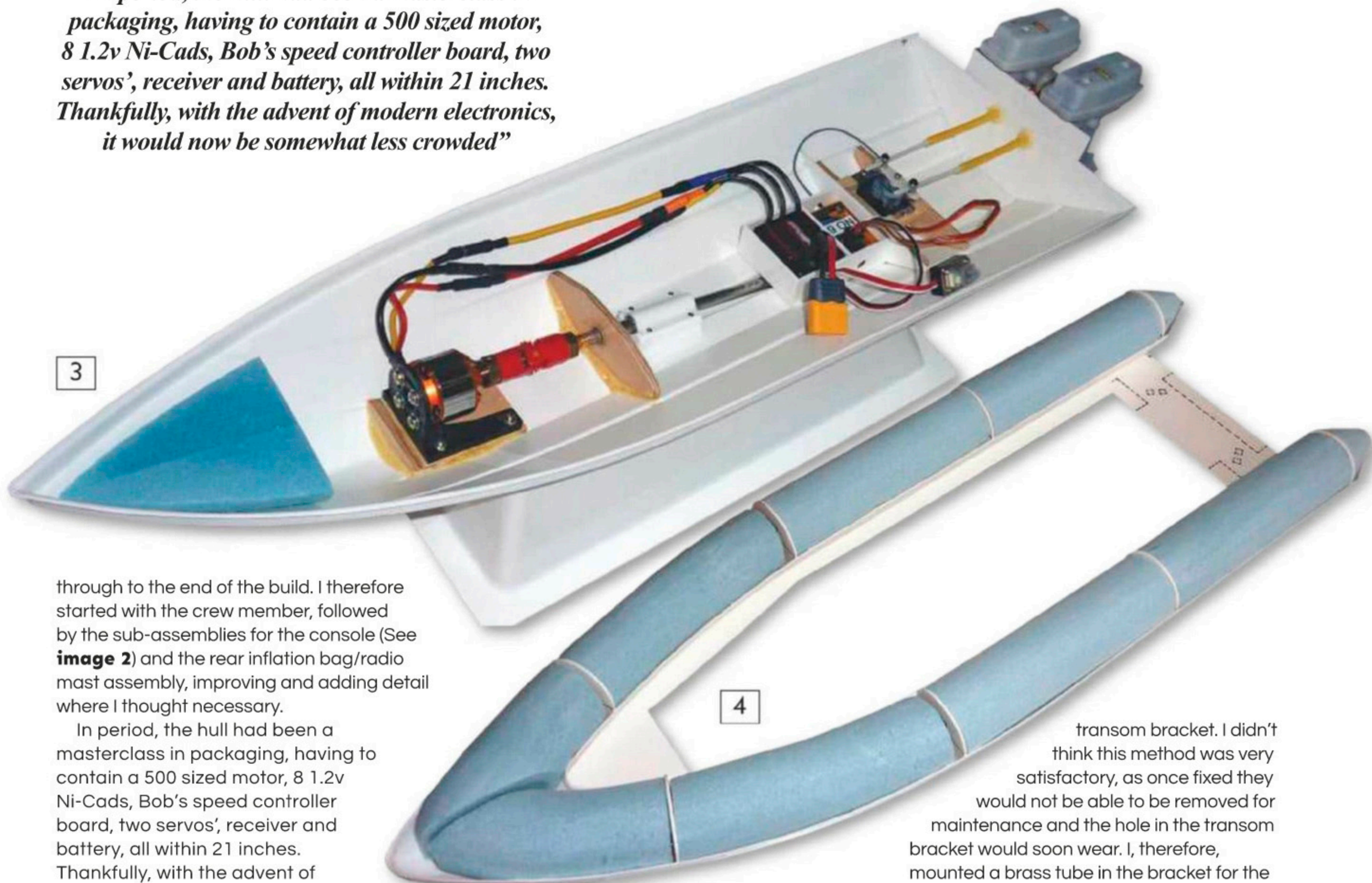
On the day of the auction itself I had to anxiously sit through 236 lots before what, for me, was the main event began. Bidding opened at £30, and to my surprise, it quickly became apparent that there was no interest in the room – my only competition coming from an internet bidder. I had set myself a limit of £50, determined not fall victim to 'auction fever' but I did have to go slightly above that figure to seal the deal. So, when the gavel finally fell at £70, I suffered a brief moment of anxiety. Had I paid over the odds? A deep breath later, calm was restored as I realised I'd actually just bagged myself a bargain!

Converting the original kit

My next concern, however, was did I still have the skills to do justice to this classic kit? On re-reading the kit review featured in Model Boats, one of the main criticisms had been the quality of the plastic mouldings (see **image 1**). I decided, however, to take the stance that forewarned is forearmed. After all, how difficult could the construction be? This was just a large plastic kit and in the past I'd taken on many such projects.

I've never really followed the recommended sequence of construction, preferring to start with as many sub-assemblies as possible. By tackling things this way, if the larger assemblies become troublesome then at least you have a lot of kit already completed and thus, hopefully, the impetus to persevere

"In period, the hull had been a masterclass in packaging, having to contain a 500 sized motor, 8 1.2v Ni-Cads, Bob's speed controller board, two servos', receiver and battery, all within 21 inches. Thankfully, with the advent of modern electronics, it would now be somewhat less crowded"



through to the end of the build. I therefore started with the crew member, followed by the sub-assemblies for the console (See **image 2**) and the rear inflation bag/radio mast assembly, improving and adding detail where I thought necessary.

In period, the hull had been a masterclass in packaging, having to contain a 500 sized motor, 8 1.2v Ni-Cads, Bob's speed controller board, two servos', receiver and battery, all within 21 inches. Thankfully, with the advent of modern electronics, it would now be somewhat less crowded. The replacement parts, all of which fitted in the hull (see **image 3**) required were as follows:

- Motor: Turnigy Brushless D2826-6 2200kv
- Battery pack: 2S 2200mAh 2S Lipo (fitted under the console)
- ESC: Hobbyking Brushless Car 30A
- Receiver: Orange RFA04C*
- Rudder Servo: Etronix 9G Micro Servo

When building a kit with an ABS hull there is always, of course, the consideration of which adhesive to work with in order to best bonding wood and metal to it. After some trials with few different types I found Gorilla glue achieved the best results.

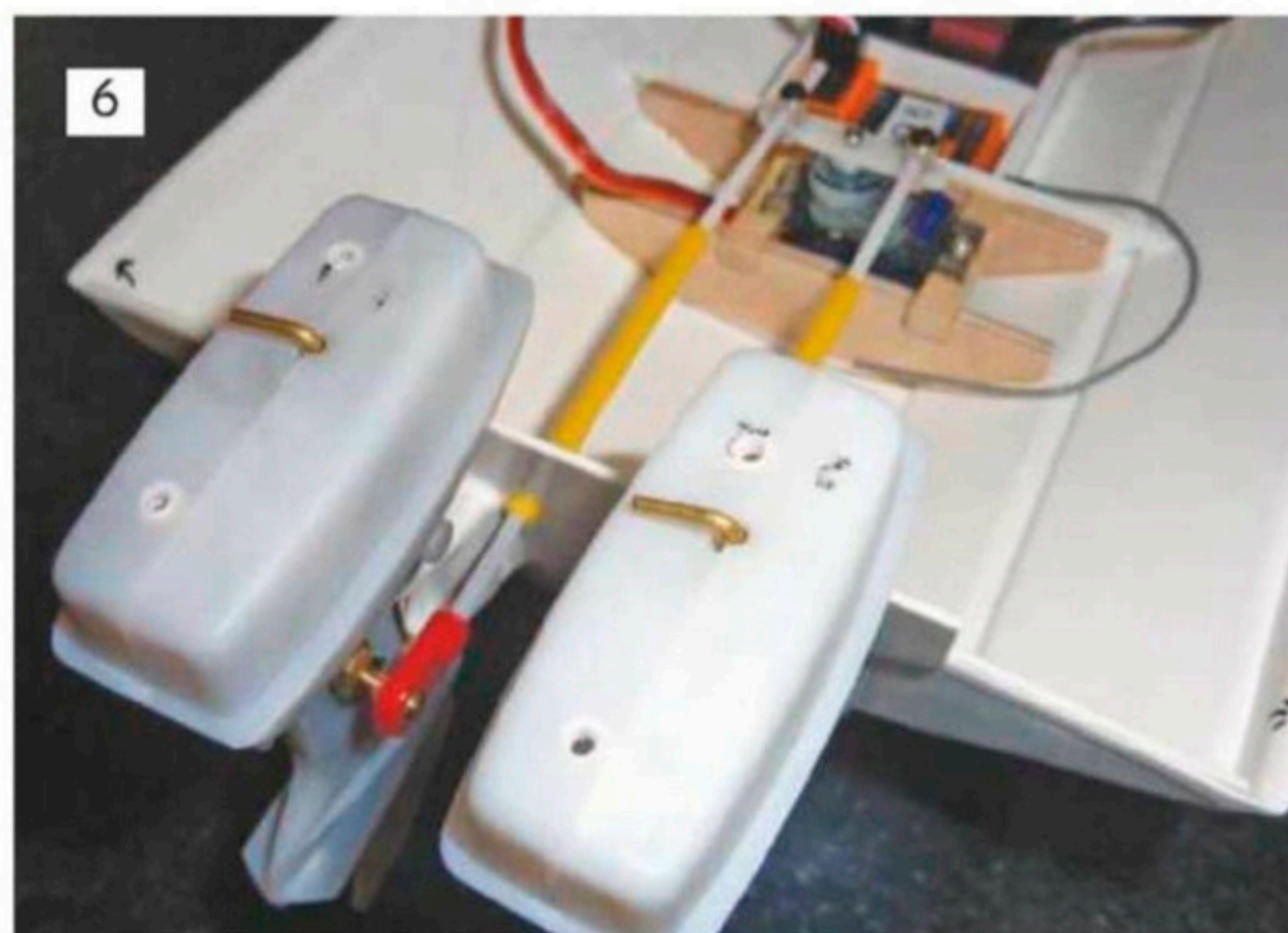
The next job, and definitely the most daunting, was the construction of the inflatable part of the hull. This consisted of two ill-fitting halves, which then needed to be glued to the deck, before the whole assembly could be glued to the hull. I decided, in order to provide more rigidity, to glue plastic discs to several places in the bottom half. In addition to this, to add some strength and buoyancy, I infilled with blue styrene (See **image 4**).

The boat is steered ingeniously by using the dummy twin outboard motors as rudders. Originally these were designed to be fixed by a brass rod, mounted inside the two halves of the outboard; the rod simply running through a hole drilled in the outboard motor

transom bracket. I didn't think this method was very satisfactory, as once fixed they would not be able to be removed for maintenance and the hole in the transom bracket would soon wear. I, therefore, mounted a brass tube in the bracket for the rod to run in, so that the rod would slide in from the top of the outboard and could be removed if necessary (See **image 5**).

The outboards had been operated courtesy of a full size servo, using short 'snake' linkages running across the top of the deck, which seemed a rather untidy way of doing things to me. Fortunately, the advent of micro 9G servos meant the whole assembly could be hidden under the deck. With a lot of careful measuring, the servo was mounted and holes drilled in the transom so that the snake linkage ran straight and level from the servo arm to the outboard (See **image 6**). I then cut a (non-scale) hatch into the deck to provide access to the servo beneath.

With the majority of the build now complete, it was time to paint the hull (See



7



8



image 7). For the rigid part of this, I chose to work with an orange from Humbrol's range of enamels. For the inflatable part, however, because I don't spray paint and knew I would require a considerable quantity of suitable matt grey paint, I opted for a dark grey shade from Rust-oleum's range. The decals were sourced via the Cornwall Model Boats website. The whole hull was then coated with several layers of Ronseal Outdoor matt varnish in order to ensure a durable waterproof finish (See **images 8 and 9**).

Ready for launch

I must admit I've yet to launch my lifeboat in its completed state. I did, however, carry out some trials while it was still 'in white' and from what I remember its performance was adequate. I look forward, therefore, to getting it on the water in its new and improved form and putting it through its paces.

To the rescue...

In the meantime, thanks must go to my wife, Janet, for finding this kit in the first place, and to my good friend Russ Booth, who kindly donated his spare RC gear in order to kick start my re-entry into model boat building. I hope, in due course, I will be able to pay their kindness forward and encourage someone else either starting out or returning to this great hobby.

9





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LEFT: The steam yacht Giralda of 1894. The fisherman type anchors were stowed on chocks on deck and lifted by davits. The multi-function windlass was of an intriguing design, with its geared capstan mounted on a pole.

Anchor Points

Colin Bishop salutes some visually glorious steam-age anchoring gear arrangement reference sources

Some years ago, while constructing a classic steam yacht kit, it was apparent the information provided in regard to the anchoring arrangements was sketchy, to say the least. A bit of research on the full size vessel showed that over its life the method of

stowing the anchor had changed from having it lashed down on deck to being stowed in the hawsepipe. I wanted my model to reflect the ship's early days but the detailed anchor handling arrangements were not clear from the available illustrations.

In an effort to get a better understanding I visited the London Science Museum Shipping Gallery (now unfortunately closed) for a close look at the dozens of exhibits, including many builders' models on display.

Anchoring gear for both modern era warships and merchant vessels is pretty standardised. The chain is stowed in the anchor locker situated behind and below the windlass. It runs over the windlass chain sprockets, along the deck and down the hawsepipe, where it is shackled to the shank of the anchor. To lower the anchor a brake is released to allow the chain to run out under the weight of the anchor. To raise the anchor the windlass is used to pull in the chain until the anchor self-stows in the hawsepipe and the brake is reapplied.

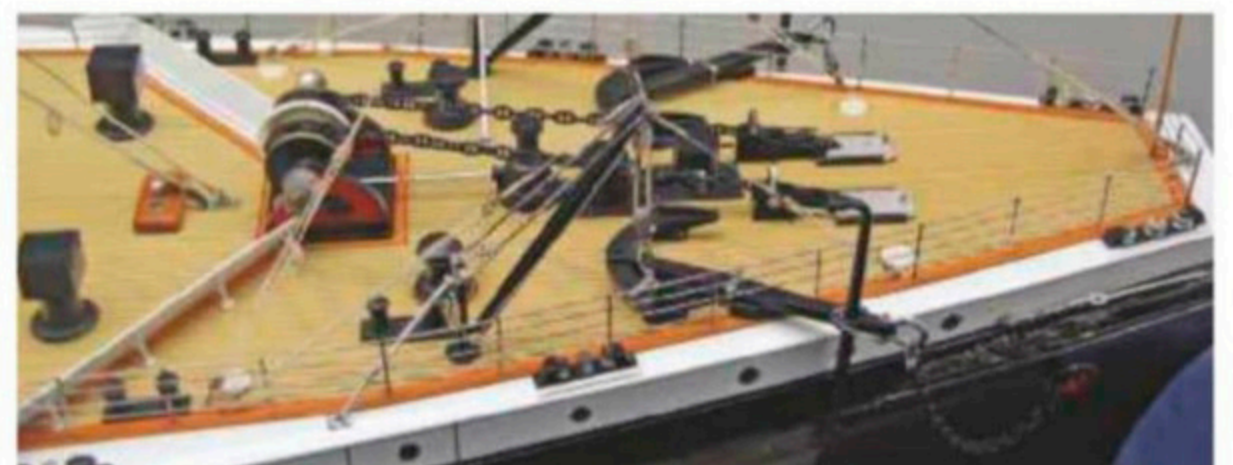
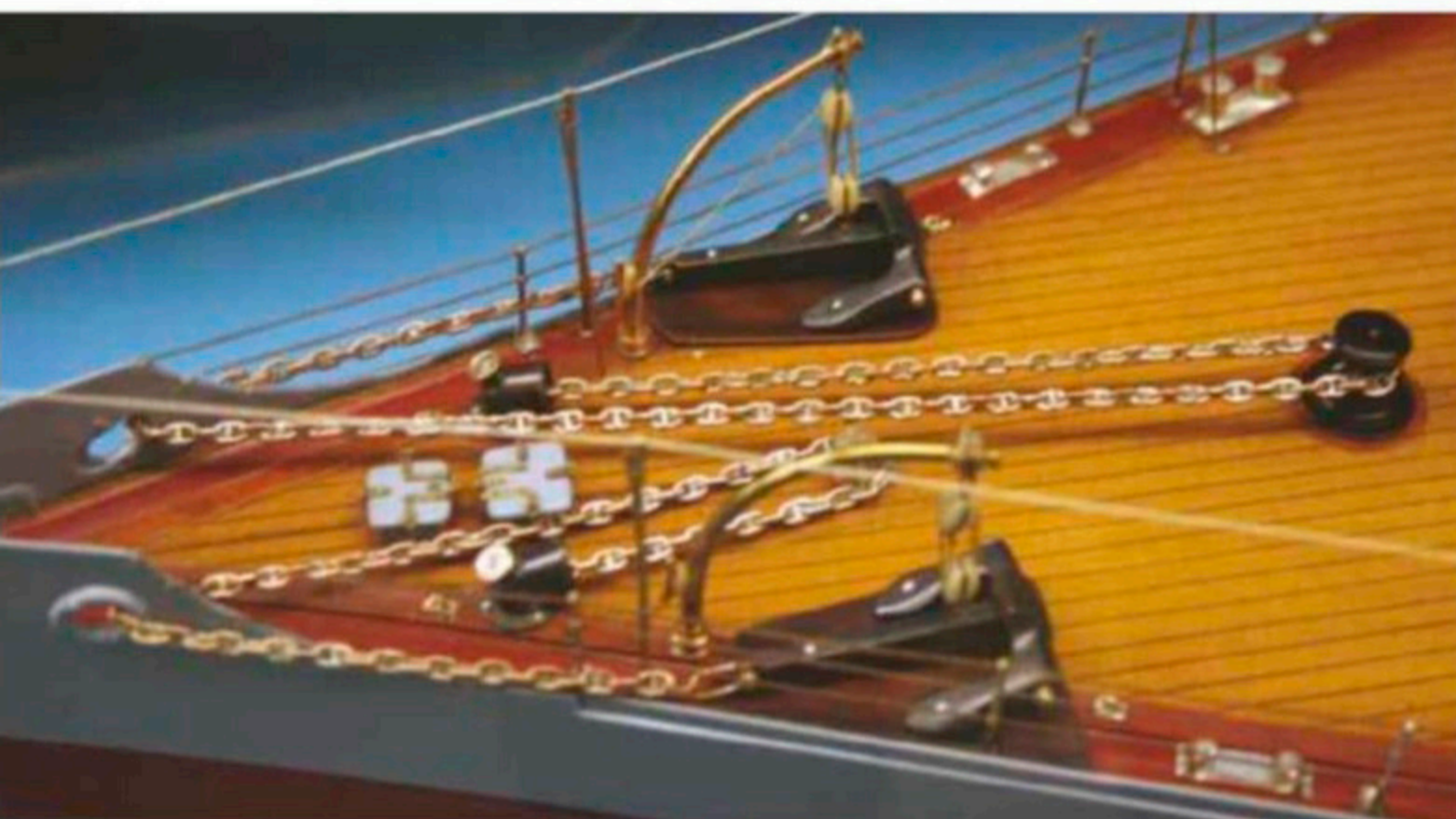
On studying the models from the earlier period after sail gave way to steam, I was struck by the sheer variety of anchoring methods. While almost no two are the same, what they do have in common is the basic method (inherited from sailing ships) of carrying the anchor, in various ways, well aft of the hawsepipe and using separate lifting gear to lower it and to stow it once it had been raised above water.



ABOVE LEFT: This interesting image shows a fisherman type anchor suspended from a small cathead and a davit. Close examination shows a plate on the hull, just in front of the davit, and a socket next to the cathead, indicating that the anchor would have been triced up against the ship's side, possibly with the stock folded. The multiple tackle would have assisted manual handling.



ABOVE RIGHT: The massive anchors on a Victorian era ironclad required heavy fittings to support them in their stowed position against the side of the ship. They needed to be very strongly secured to avoid being washed away in heavy seas. However, the protrusions from the hull and the anchors themselves would have caused a lot of spray, making the foredeck very wet.



ABOVE: The foredeck of the SS Philadelphia of 1888, the first twin screw Atlantic liner. Sections of the handrails must have been removed when handling the anchors.

LEFT: Simple arrangement on the small shallow draught monitor HMS Humber of 1914 (purchased from Brazil). The chains were led out through reinforced ring in the bulwark. It is not clear how the two capstans were powered though, unless by steam or manually below deck.

“They are perhaps now, in many cases, the only remaining records of such equipment and show a huge amount of detail rarely included on the plans and drawings used by scale modellers”

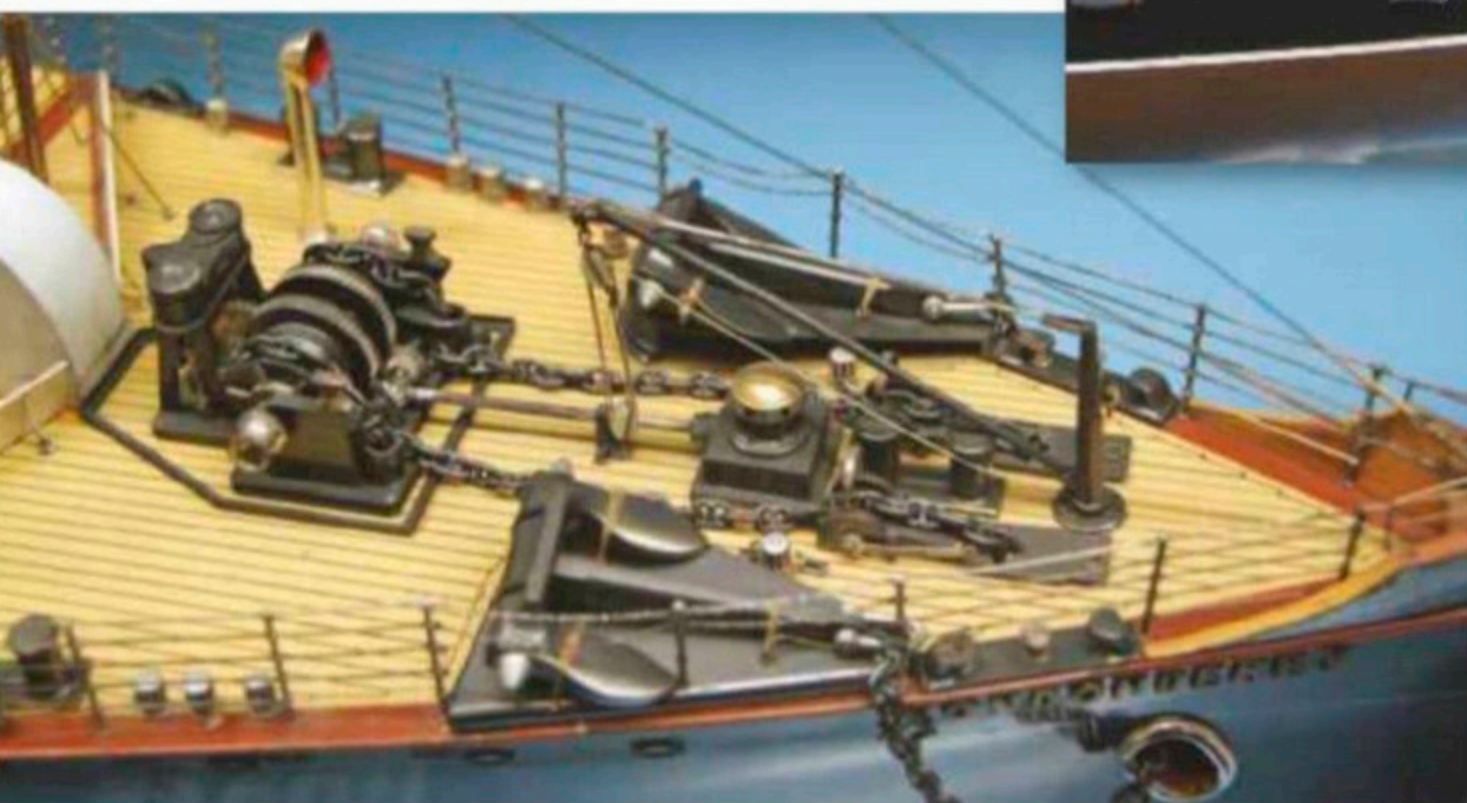
As can be seen from the photos included in this article, actually stowing the anchor would have been very manpower intensive; not so much of a problem for warships with their large crews, but a rather different matter for less generously manned merchant craft.

A look at the various fittings and gear depicted on the London Science Museum Shipping Gallery models gives an understanding of how it all would have worked in a way that 2D drawings and illustrations simply cannot match – as although the brass plating of fittings was standard practice on builders’ models, they were usually captured in scaled down form very accurately indeed. They are perhaps now, in many cases, the only remaining records of such equipment and show a huge amount of detail rarely included on the plans and drawings used by scale modellers, as the original draughtsmen would have considered much of the gear and fittings to be ‘stock’ items and only necessary to show in outline for positioning purposes.



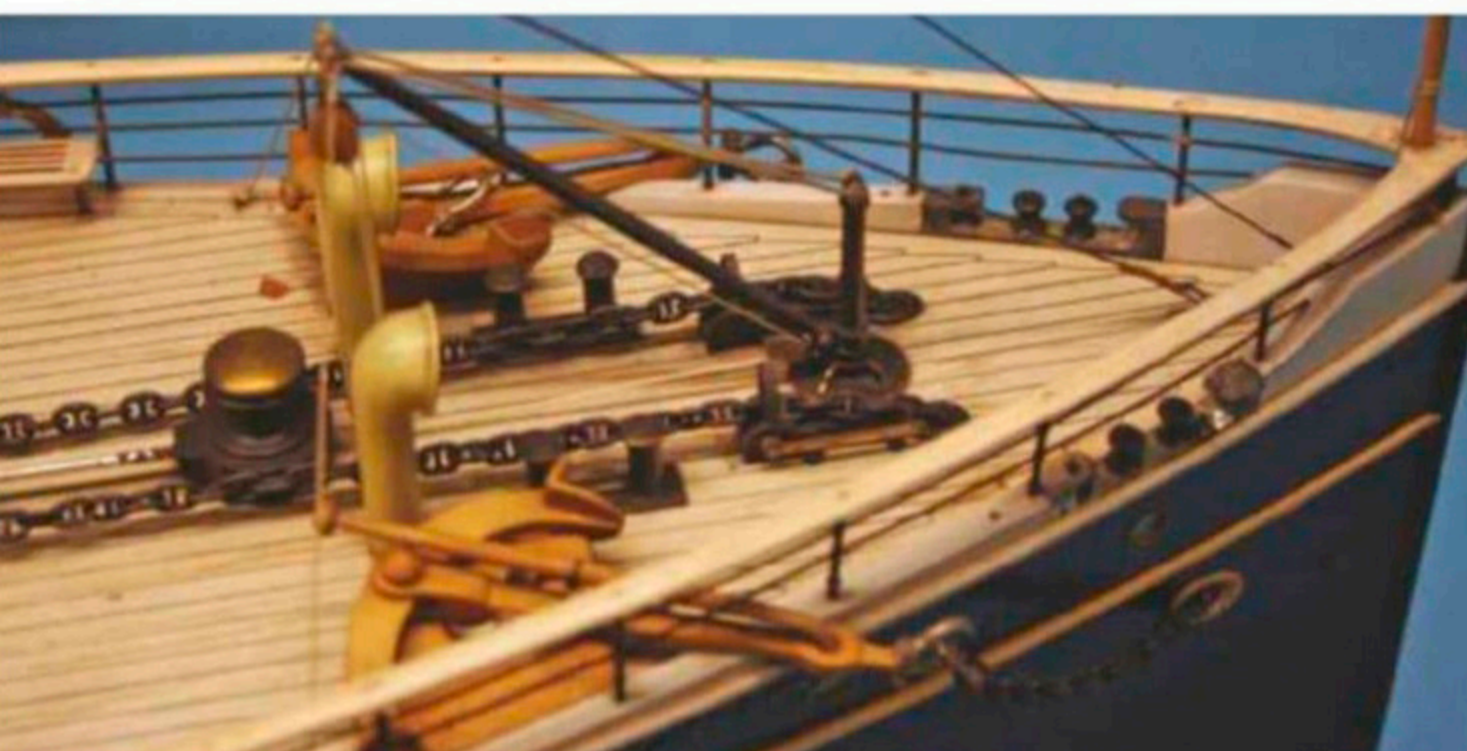
ABOVE: The anchors on the cargo vessel Iberia of 1881 were handled by two sets of double davits. The windlass, or maybe a capstan, was presumably housed under the raised foredeck.

BELOW: This very early ironclad had fisherman type anchors stowed along the bulwarks and overlapping the deck and a small davit at the bottom of the shank. Note what appears to be the starboard navigation light just in front of the anchor!



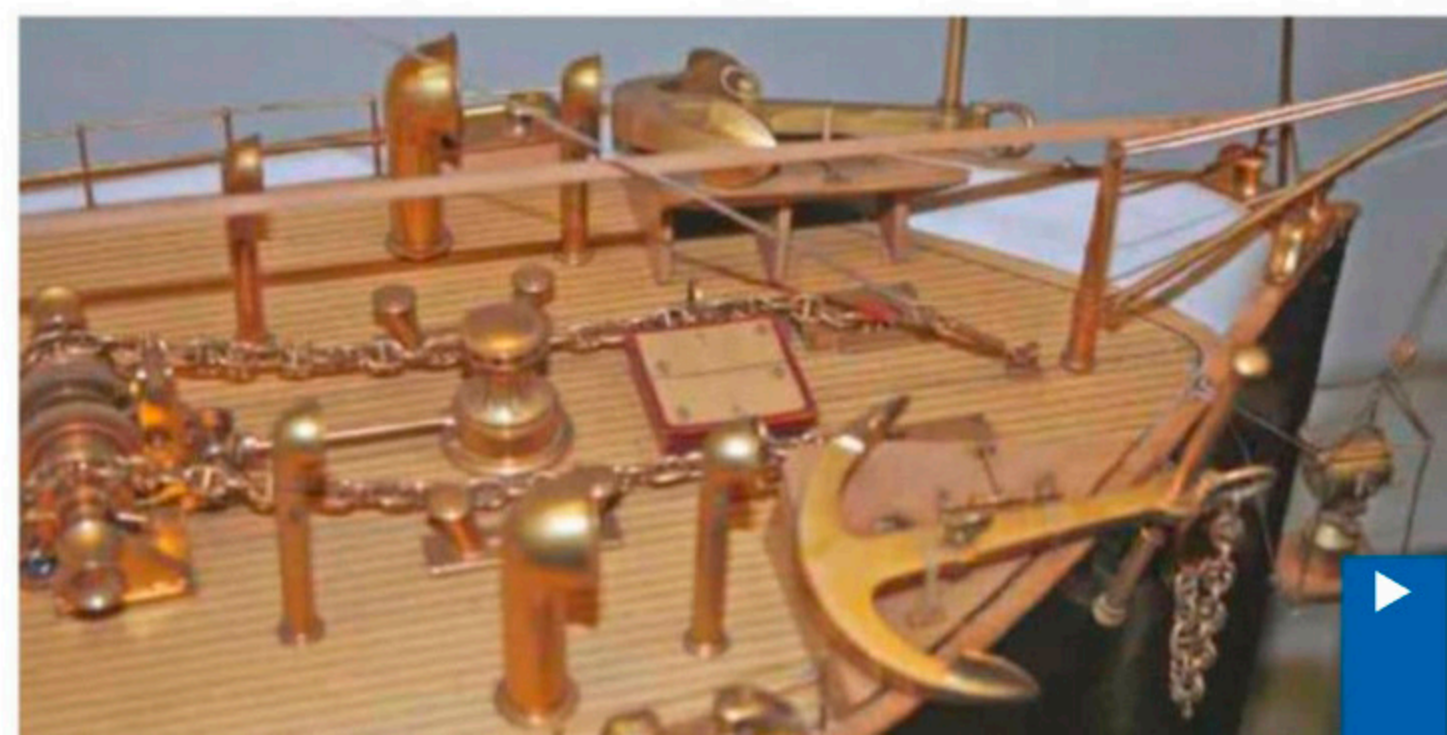
ABOVE: Excellent detailing on the Irish Sea ferry Londonderry of 1904. In this case, the stockless anchors were stowed on steel bedplates, with one centrally placed davit to handle them.

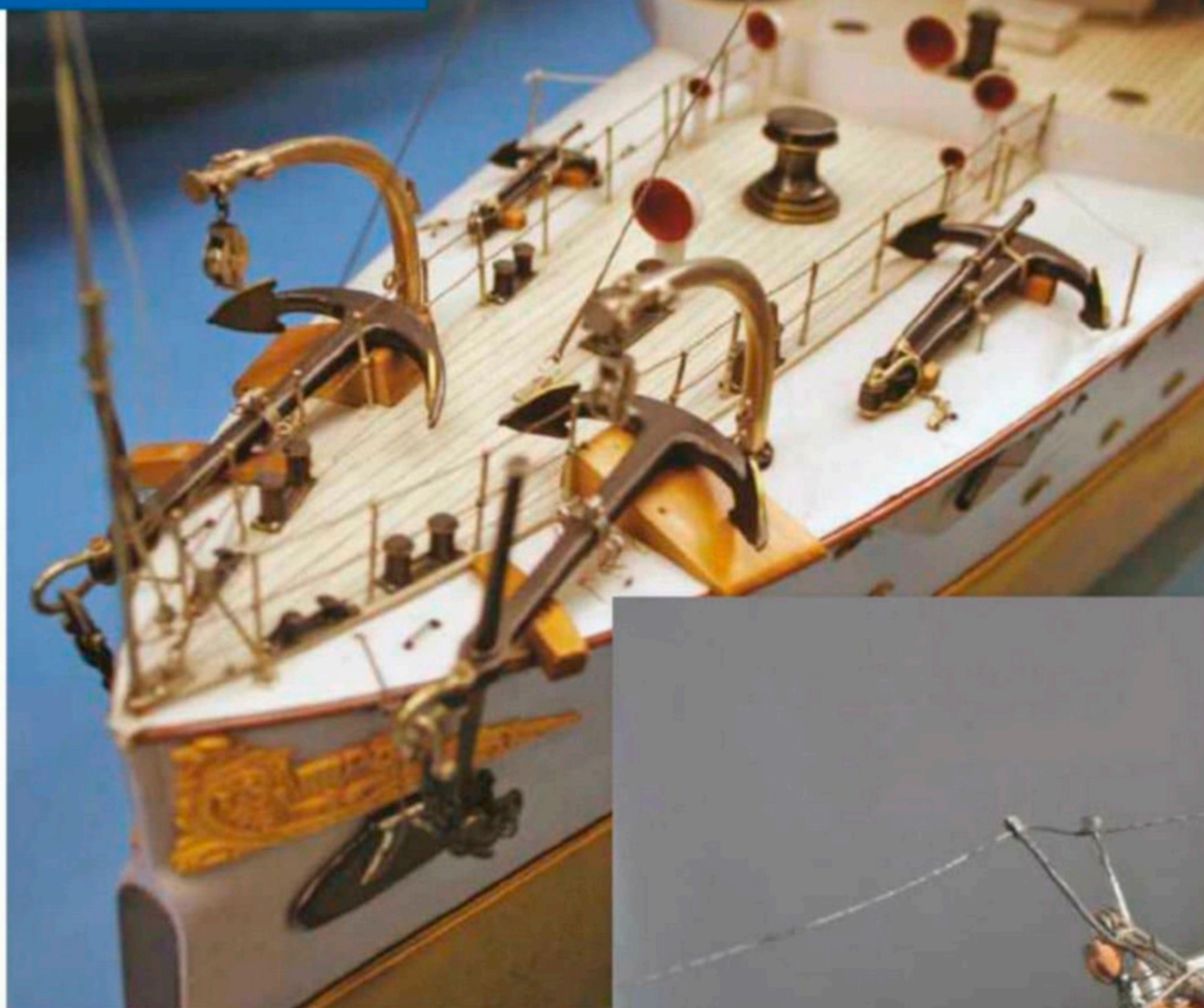
BELOW: On this vessel, the fisherman type anchors had swivelling flukes and the stocks were folded in the stowed position. A central davit served both.



ABOVE: Cunard's famous liner Servia of 1881 featured fisherman type anchors with swivelled flukes handled by two sets of double davits. The hawseholes were right forward by the stem and presumably the windlass or capstan was under the foredeck.

BELOW: This early steam warship carried her anchors well forward, apparently on wooden bedplates. The central davit would appear to have done double duty between the anchors and the searchlight mounted under the bow but doesn't look up to the job of lifting those heavy anchors. The capstan featured a shaft drive from the windlass.

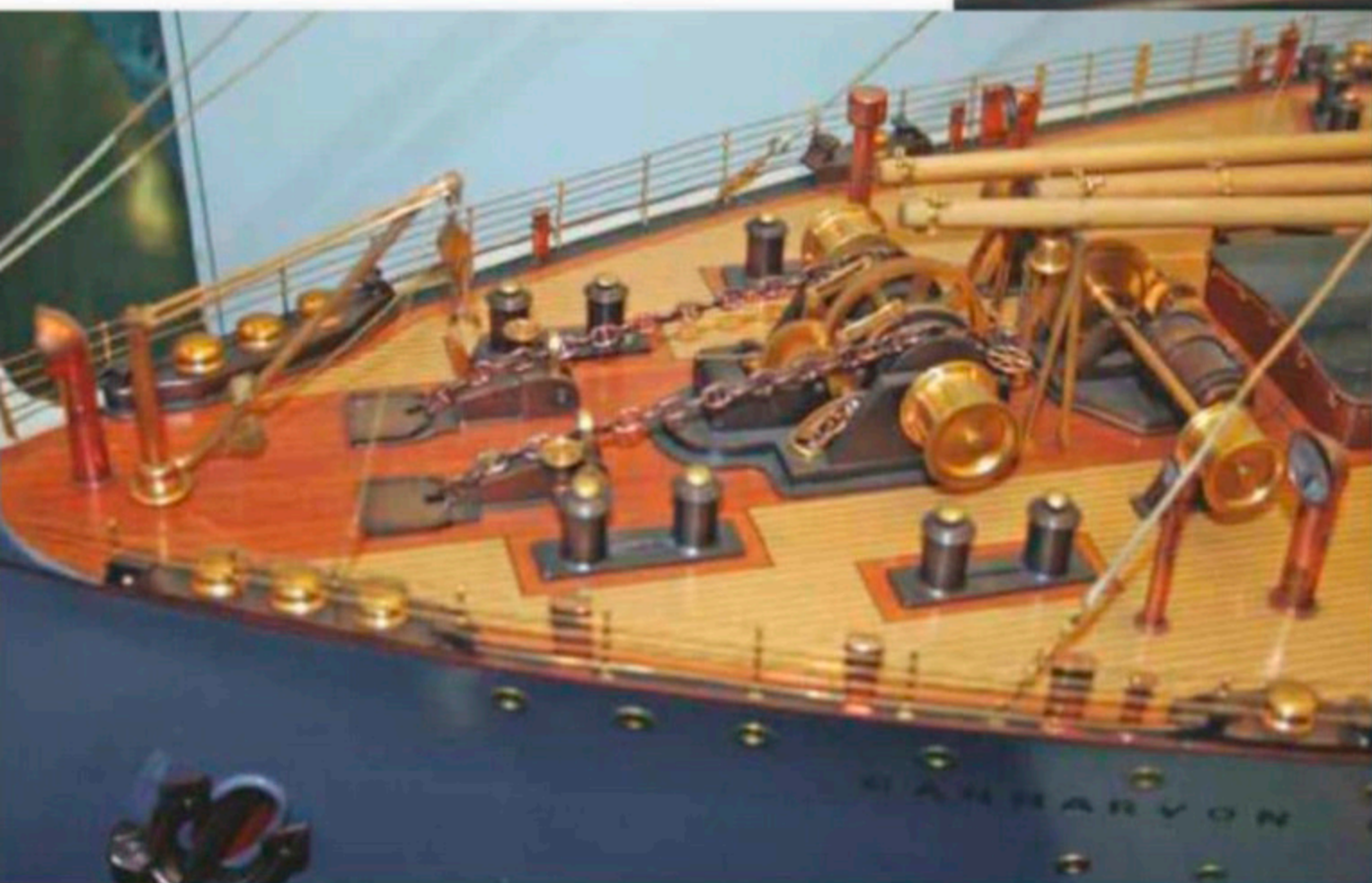




LEFT: Another early steam warship: this one carried its anchors on the whaleback. Note the aperture for the bow torpedo tube.

BELOW: On this steam yacht the fisherman type anchors were stowed on the bulwarks and handled by individual davits. The anchor chains emerged from holes in the side through the bow decoration after passing under the raised foc'sle.

While I believe the wealth of information visible within these photos will prove particularly useful to anyone modelling vessels from this era, I'm sure all model boat enthusiasts will enjoy seeing and admiring the workmanship put into these lovely model fittings – no wonder they brass plated them!



LEFT: Modern practice in the interwar years is exemplified by the Union Castle liner Carnarvon Castle of 1926, with its comprehensive set of deck gear, all beautifully modelled.

BELOW: This simple model of the cross channel paddle steamer Brighton of 1878 shows how two davits were used to manage the anchor.



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Soobrazitelnyy- Russian Corvette

In the frame is the new Russian Corvette Stoikiy viewed from the SSM [Surface to Surface Missile] well on a vessel of the same class.

Dave Wooley continues his 1:72 scale build of the new Russian multi-purpose Soobrazitelnyy corvette...

Following Part 17 of this series (see the May 2020 issue), attention can now shift to fitting out the SSM well. The construction of the SSM launch tubes were discussed in depth in Part 11, so references here will be to the method used for locating and fixing the launcher into position. As can be seen in the header picture, the purpose of the well is for housing the SSM [Surface to Surface Missile] launchers, while maintaining

the overall degree of low radar cross section associated with this design. Here the tubes are placed amidships and masked behind raised sides, with the missile exhaust gasses deflected on to the surface of the water via raised flaps in the side of the sloping superstructure, further reducing the IR signature. The well is quite a busy area for fittings but, as the general construction has been covered in earlier issues, the focus here



Photo 1: The SSM well on the Russian Corvette Stoikiy, which is the focus of our attention this month.



Photo 2: Provision for the SSM well during the initial construction of the superstructure.

will be the location of each of these fittings within the well and, by direct association, the internal vents and exterior SSM exhaust flaps. As a refresher (see **Photo 1**), the SSM well is shown in the early stage of its construction, while it was still very much a vacant space. Even at this point, consideration had to be given to how fittings could be applied within the well and where best to accommodate them for easy removal when painting (see **Photo 2**).

Moving on, I've assembled most of the fittings ready for installation, each having been individually identified and their intended location within the well noted (see **Photo 3**).

Internal access ladder

It is worth noting that for ease of painting the access ladder within the starboard passageway is fixed only to the underside of the panel, which is removable. The ladder is made up of 0.5mm brass wire and soldered on a jig (see **Photo 4**). Once prepared, the section of 01 deck can be returned to its location (see **Photo 5**).

Platform deck

The centre raised platform deck is the next to be fitted. It's worth noting that none of these fittings are at this stage fixed into position. As this platform deck has to be an exact fit, the end of deck house WT door is for the present omitted. This will be fixed once the deck is permanently in place (see **Photo 6**).

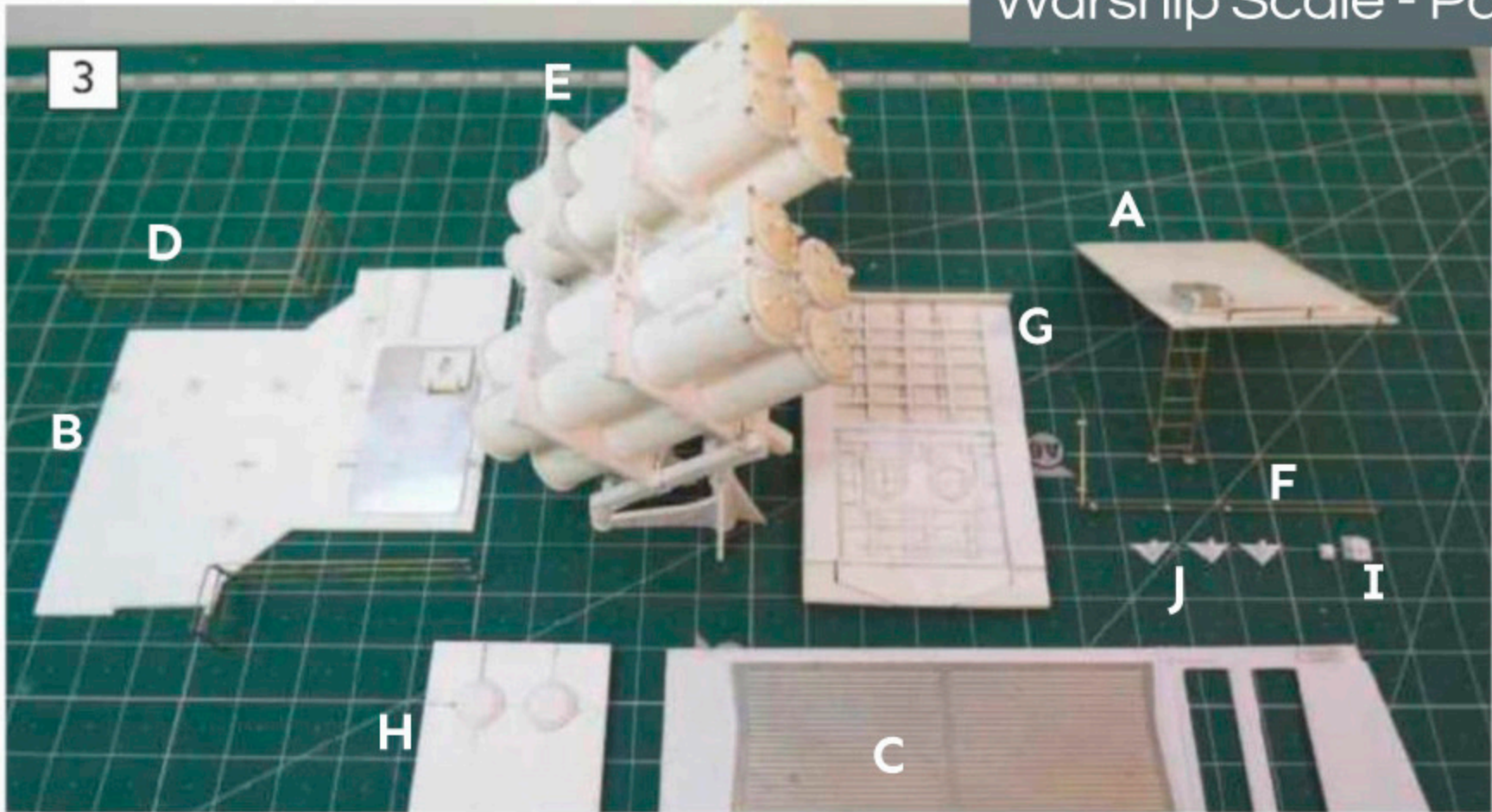


Photo 3: Most of the prepared fittings that will go into the SSM well.

Fitting	Type & Location
A	Access ladder from starboard passageway
B	Centre raised platform deck
C	Louver vent housing below funnel
D	Handrails for platform deck.
E	SSM launch tubes and mounting frames, both port & starboard.
F	Pipework for sprinklers and fixing brackets
G	Internal detailing for the SSM exhaust flaps, port and starboard.
H	The external SSM exhaust flaps, port and starboard
I	Brown storage container fixing catches, port and starboard
J	Supports for the pully system that opens and closes the missile exhaust flaps.

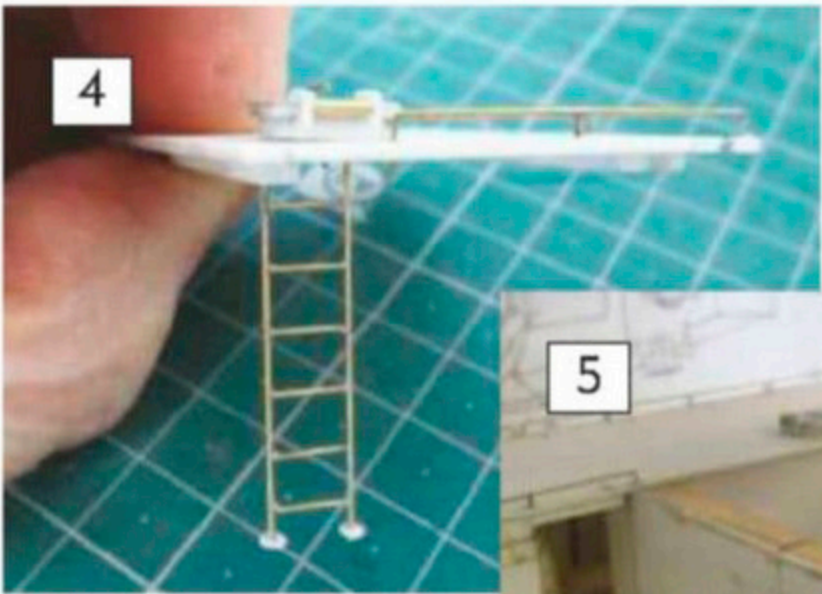


Photo 4: A fabricated ladder formed from 0.45mm brass wire.



Well louver vent

The louver vent housing, with its two openings, is carefully slotted into place across the well. This can only be done with

the complete SSM exhaust panel removed (see **Photo 7**). Note the additional little details to the roof space opposite (i.e. hand grip and panels).

Handrails

The well deck handrails are formed from 0.5mm for the stanchion and 0.4mm for the bars; these are laid out on a simple jig and soldered with solder paste, using the same method explained in previous issues (see **Photo 8**). When lifted from the jig and cleaned, these two rails can be located into the platform deck. At the base of the stanchion is a 2mm disk into which the stanchion will locate (see **Photo 9**).

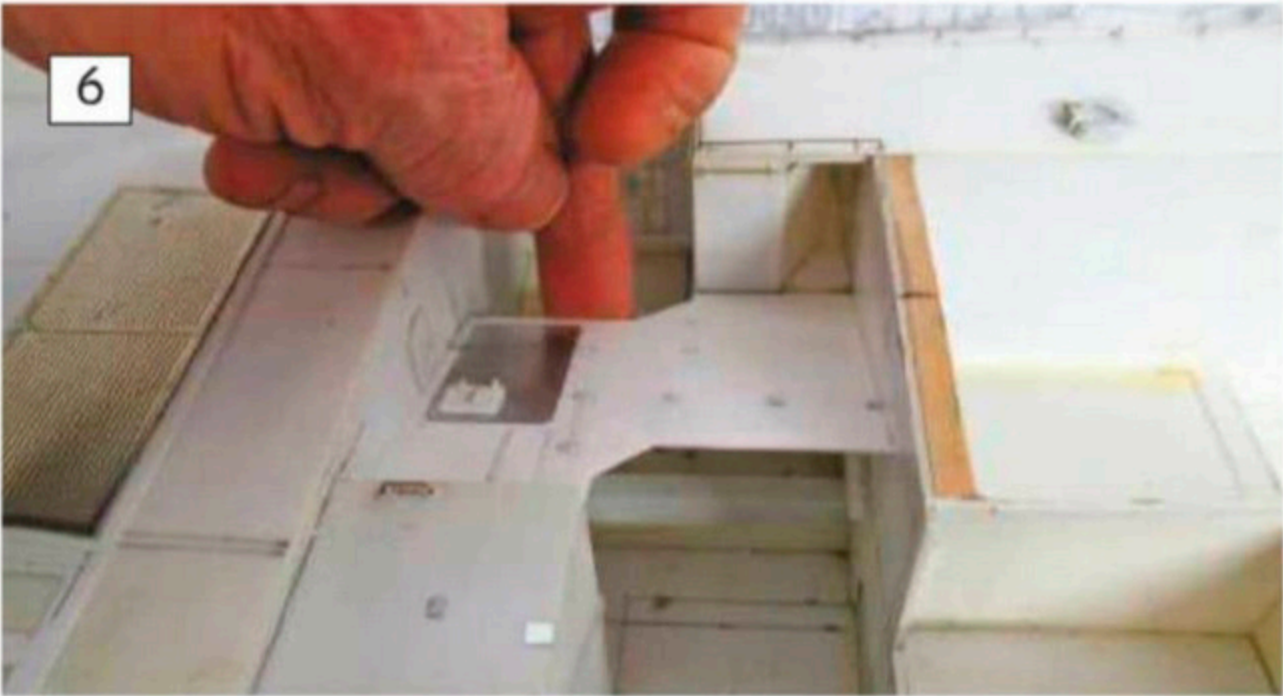
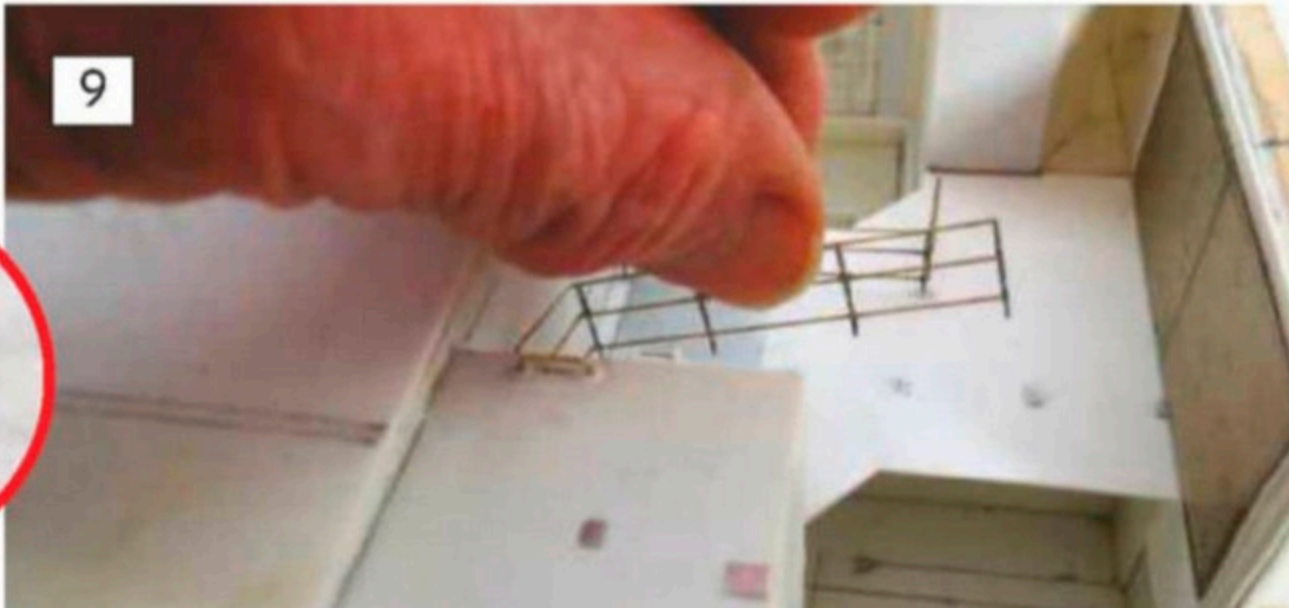
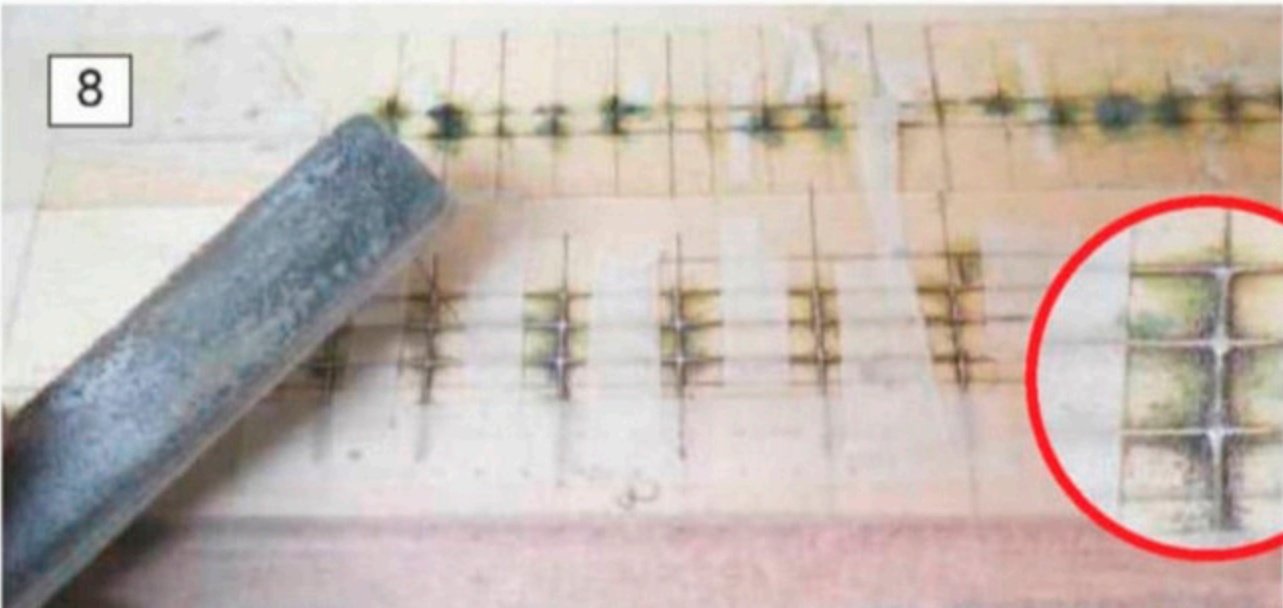


Photo 6: Here the platform deck over the well is eased into place. Photo 7: Louvre vent housing eased into its location, but not fixed. Photo 8: Cleaning up the joints of the well deck railings. Photo 9: Locating the strip of rail into the platform deck.



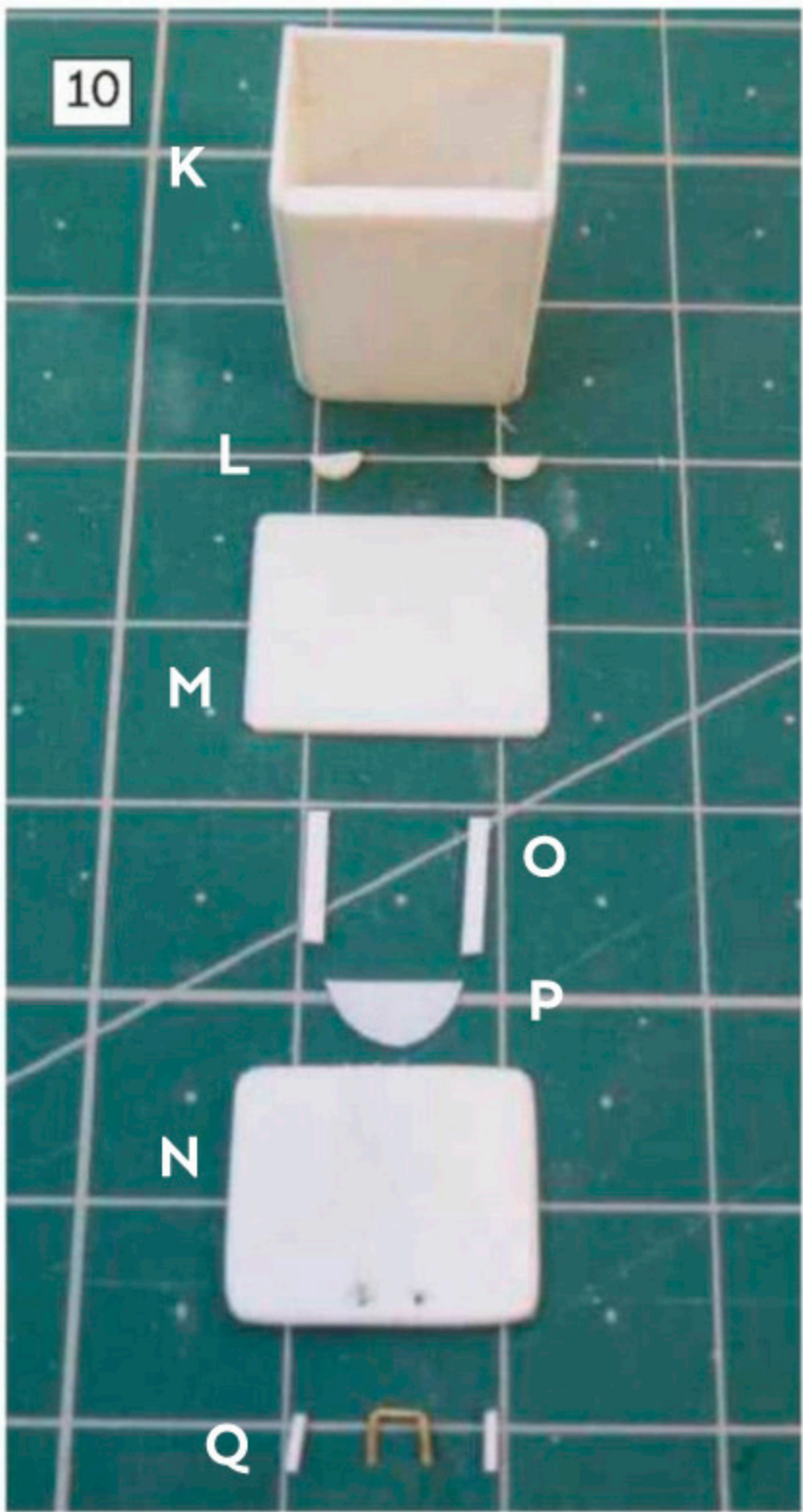


Photo 10: The prepared parts that will form one of two well deck storage containers.



Photo 11: The fully assembled storage container, which for some odd reason resembles a domestic wheelie bin.

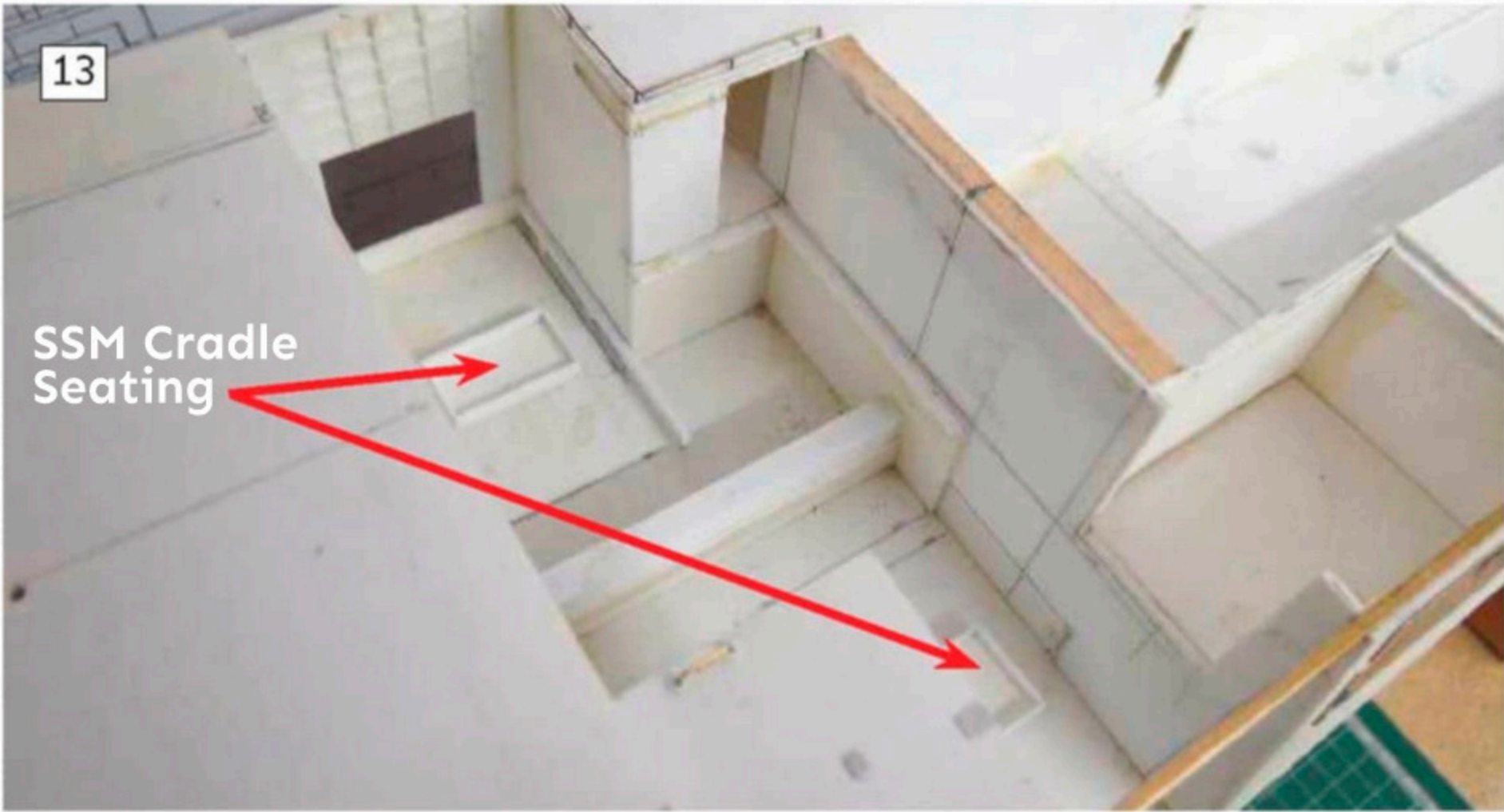
Deck storage container

Fitted either side of the platform deck and attached to the deck housing are two storage containers (which look remarkably like domestic wheelie bins). As they are part of the fittings within the well, they need to be included. Shown in **Photo 10** is one of these containers reduced to its basic parts.

Part	Material
K. container	1mm + 1.5mm styrene sheet
L. lifting lugs	0.25mm
M. lower lid	1mm
N. Upper lid	1mm
O. Hinges	0.25mm styrene
P. Hatch into lid	0.25mm
Q. Handle	0.35mm brass wire Albion Alloys



Photo 12: One of two brown storage containers within the SSM well; their purpose is unknown (an answer will be very welcome).
Photo 13: A small tray provides a firm and accurate seating for the SSM launch cradle.



I can only guess the purpose of these containers (shown assembled in model form in **Photo 11**), as there I've been unable to find any information pertaining to them but simply a visual of their existence on the real ship (see **Photo 12**). This same image also provided other more obscure detail for reference purposes, such as the pipework adjacent to the launch tubes, which could, I believe, be associated with a sprinkler system.

Launch cradle seating

While constructing the SSM well I became aware that there may be problems with getting the launch cradle and tubes precisely located and securely fixed within it while at the same time making sure the cradle was removable. To achieve this, some form of seating would be

required. The solution proved to be the creation of a simple tray, which could be inserted into the underside of the cradle but, when bonded in place the cradle, could be lifted clear. Liquid poly was applied to the underside of the tray, then both tray and launcher cradle were lowered into the missile well. Once satisfied that the cradle and tubes were in alignment with the exhaust flap, the launcher could be lifted clear (see **Photo 13**).

A little advanced planning always pays dividends, especially when access is likely to be an issue and you know you will have to remove and reinstall fittings after air brushing. Shown here, then, is the culmination of the fittings within a busy SSM well thus far discussed but as can be made out in **Photo 12**, the platform deck is the key fitting. This needs to remain removable until the internal area of the well is airbrushed,



the brown /red surface finish of the platform deck is applied and all fittings associated with the platform are in place (see **Photo 14**).

Hull fittings

As numbered here in the detailed port side image of Soobrazitelnyy, the superstructure sides amidships contain: missile exhaust flap (**1**); air intake vent (**2**); a series of small vents (**3**); torpedo hatch (**4**) and Panama bows (**5**). The arrow indicates a structural expansion joint (see **Photo 15**).

Photo 16 shows the missile exhaust flap inboard structural detailing, using Evergreen strip 112 0.38mm x 1.0 mm, plus Evergreen tube 229 7.1 mm od, while **Photo 17** illustrates the combined side panel and exhaust flap. This side panel combination is fitted into place but, like most of the fittings, will remain removable (see **Photo 18**). All the other fittings, as highlighted in **Photo 15**, are in place. Be aware that series of small vents over to starboard are arranged differently.

Photo 15: Fitted to each side of the superstructure are various flaps, vents and doors.

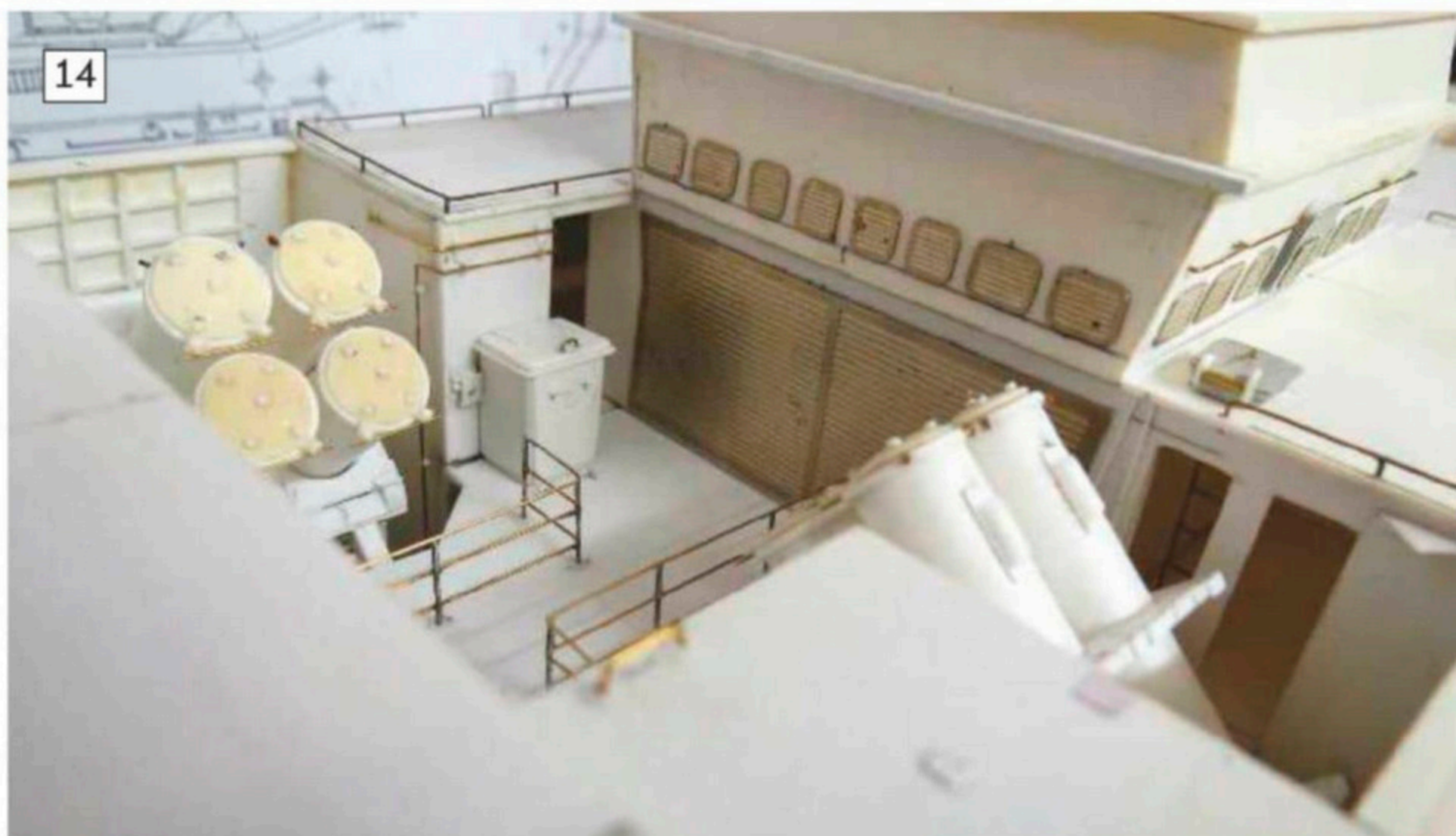


Photo 14: Most of the fittings that populate the missile well are now in place, but not fixed.

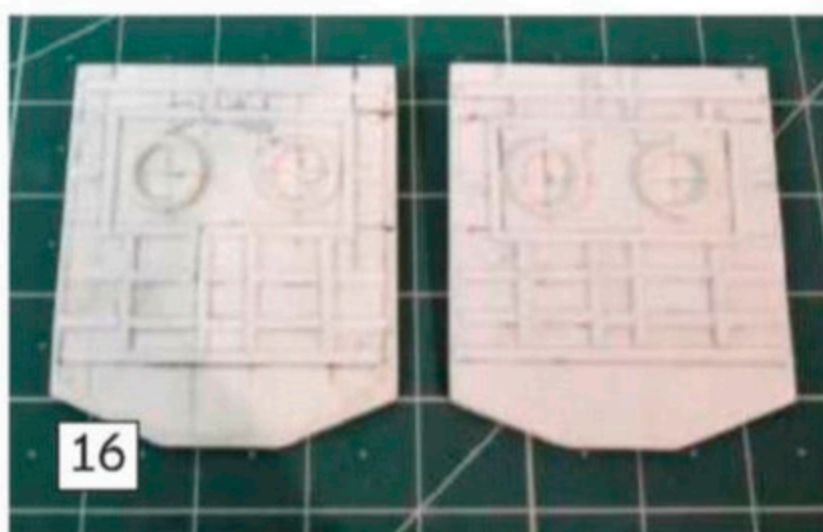


Photo 16: Cross bracing in board of the missile exhaust flap.



Photo 17: Inboard bracing for the side panel into which the missile exhaust flap fits. Photo 18: On the portside are the various openings and vents fitted into place but, once again, not fixed.





Photo 19: Fitted to the sloping face of the bridge are four tubular access platforms and a series of rungs in the centre.

19

Bridge frontage access platform

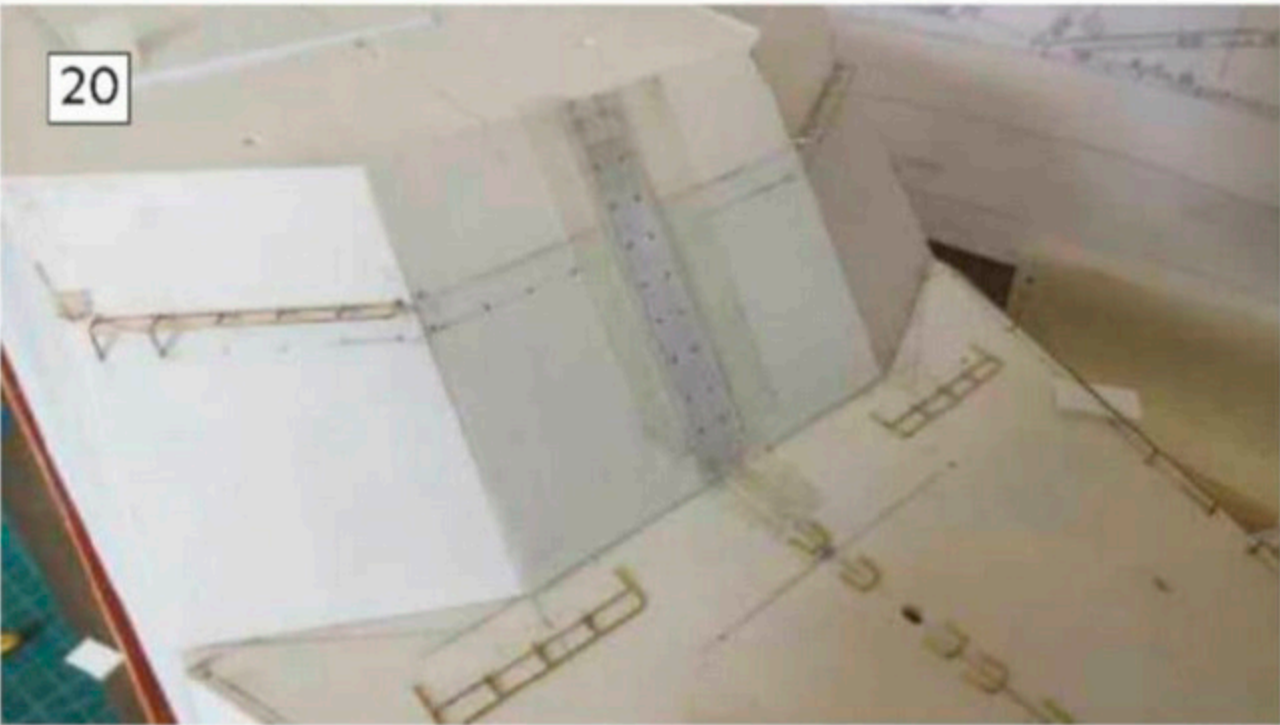
Soobrazitelnyy, akin to all of her class, has a tubular platform fixed to the front sloping face of the bridge, with a series of rungs in the centre (which can be clearly seen in **Photo 19**). The purpose of this is very simple: to provide access up to the front row of windscreens in order to periodically wash

down salt deposits and replace worn or broken wiper blades.

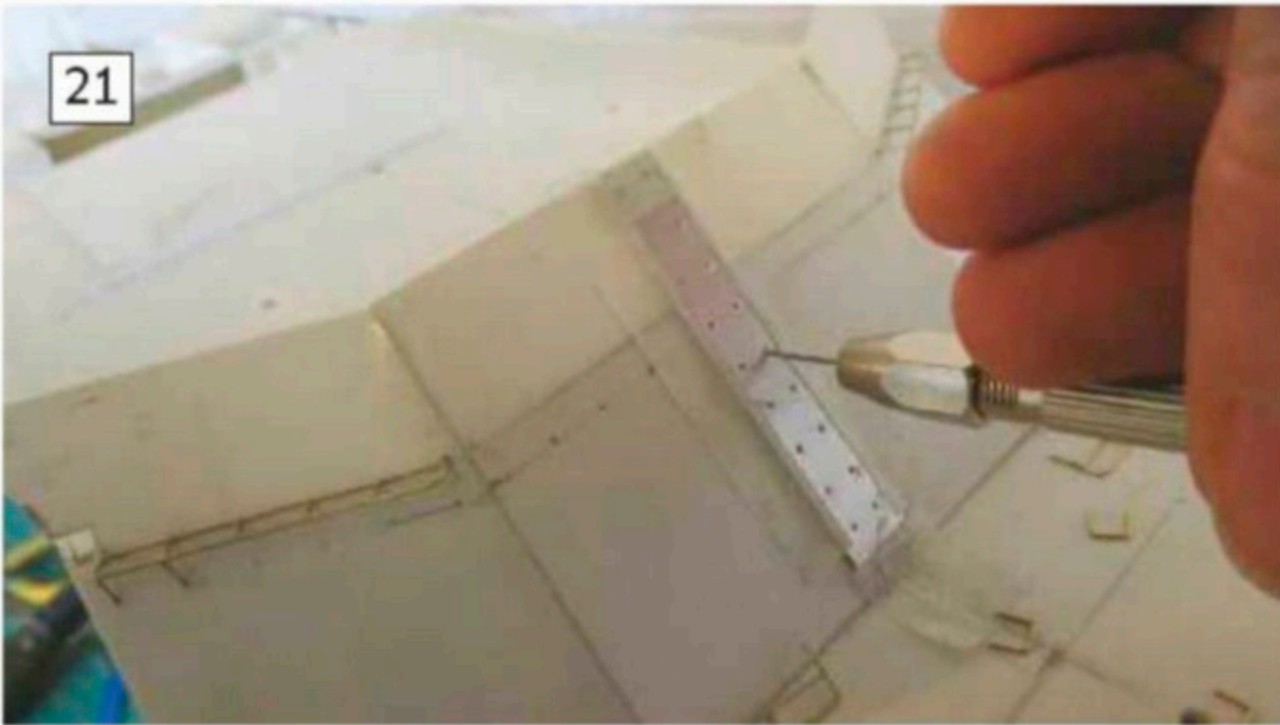
Four of these tubular platforms are required and so, like much of the soldering preparations during the build, out comes the jig. In the centre of the sloping bridge section are a series of rungs. To maintain uniformity a simple former is used, with all the holes for each rung pre-drilled and temporarily fixed to

the frontage (see **Photo 20**). A pin vice with a 0.4mm drill bit is employed to carefully drill out each hole (see **Photo 21**).

Take a length of Evergreen 156 box section, 1.5 mm x 3.2mm, as a former; this is ideal to keep each of the rungs at the appropriate angle and level (see **Photo 22**). With each of the rungs firmly in place, the former can then easily be lifted clear (see

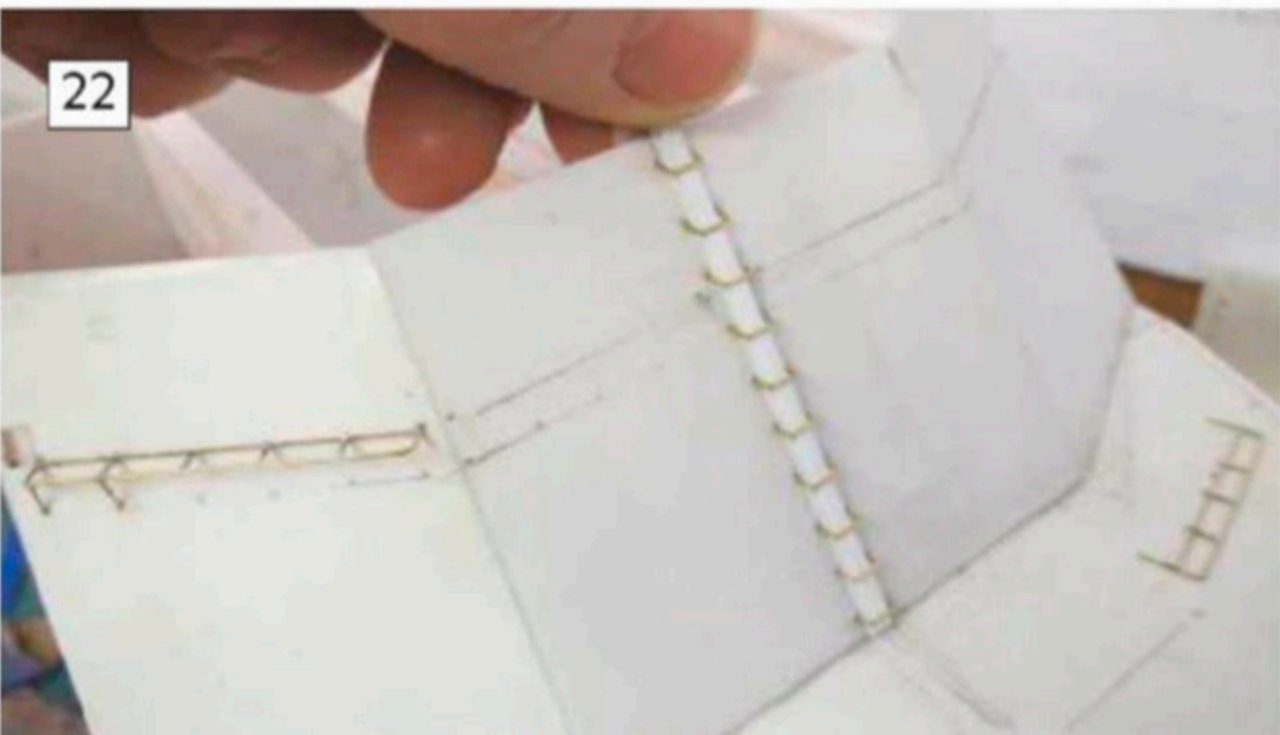


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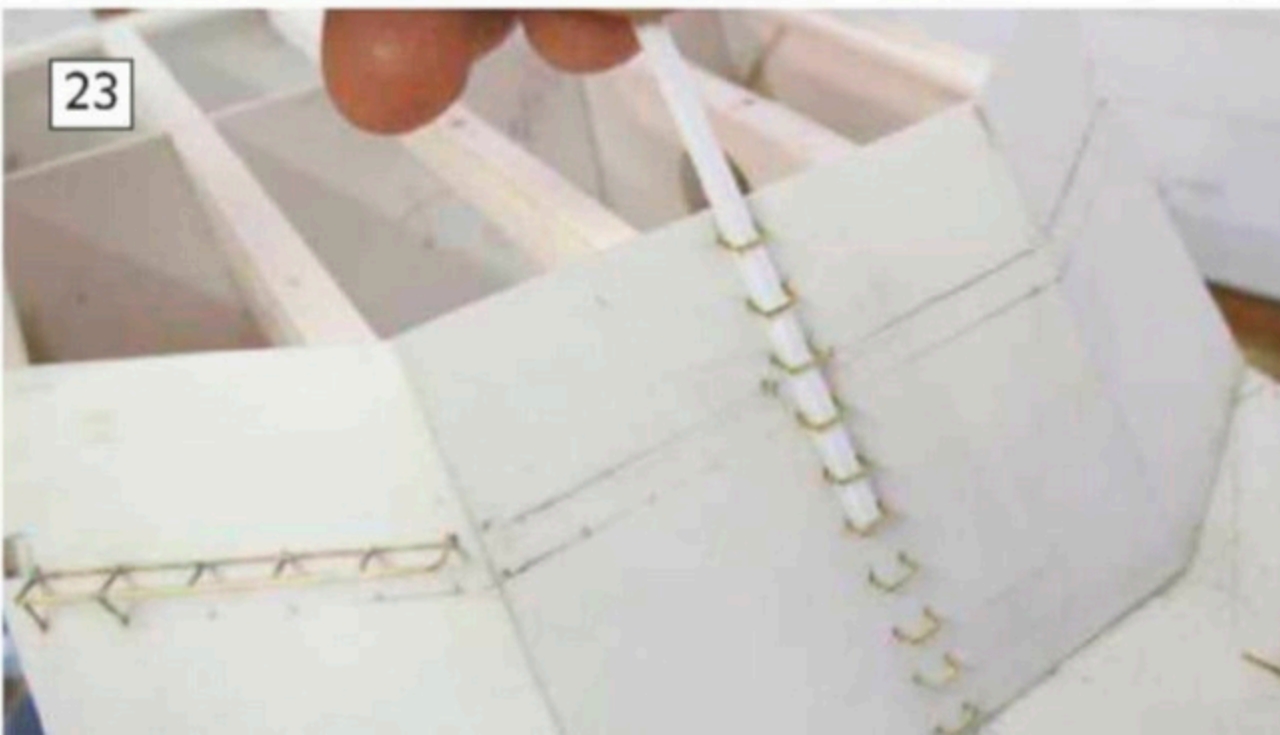


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Photo 20: A simple former is used to maintain continuity when modelling the access rungs. Photo 21: Use of the former and a pin vice to drill out the location of each of the rungs. Photo 22: A length of Evergreen box section provides continuity when positioning each of the rungs. Photo 23: With the rungs in place, the styrene section is lifted clear.



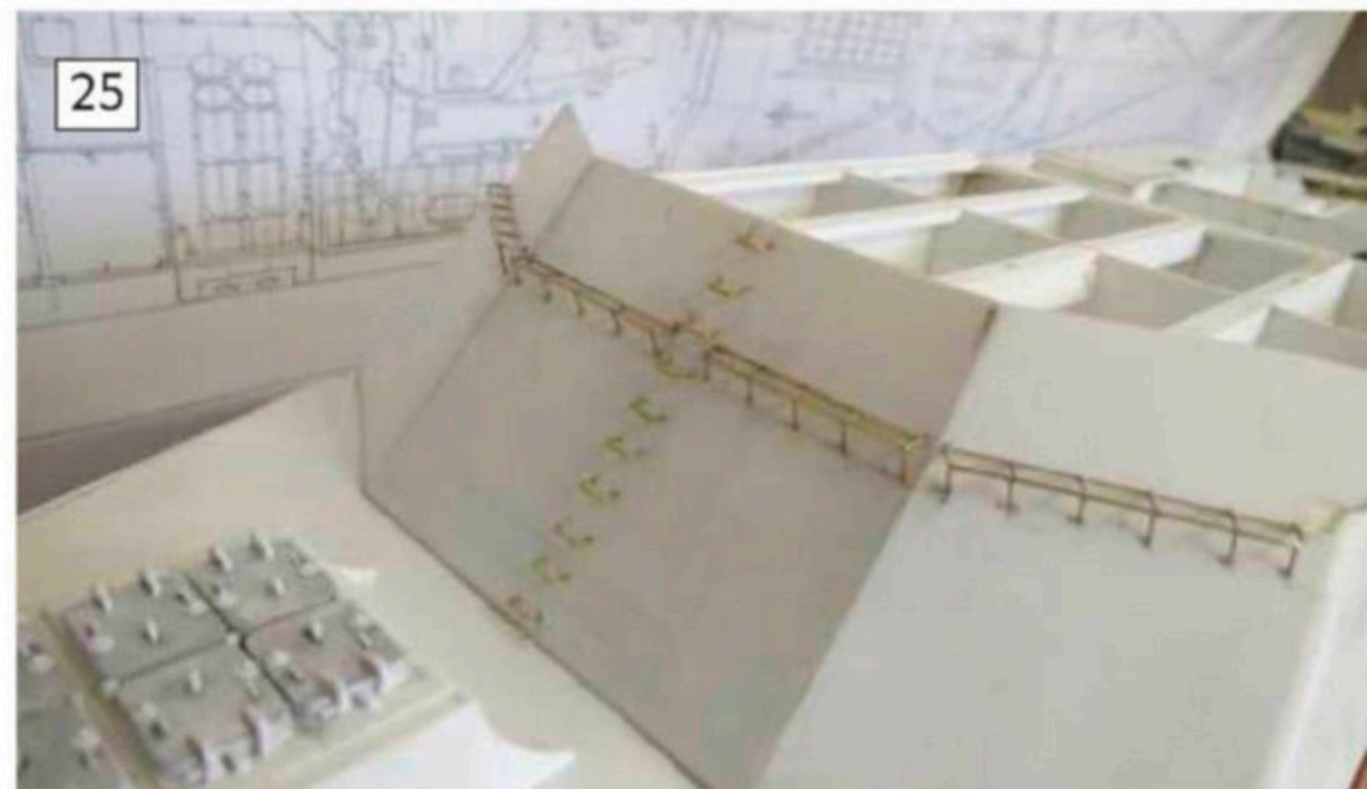
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23



Photo 24: The remainder of the platforms can also be fitted now the rungs are. Photo 25: Platforms and rungs fixed into place. Photo 26: A reminder of the progress thus far.



Photos 23-24). With the rungs fixed, the remainder of the platforms can be fitted. I should point out that as the strength is in the platform, the underside supports are fixed using cyanoacrylate metal (see photo

25). It's also worth noting that much of the superstructure can still be dismantled; this gives more flexibility when doing what I would call a dry assembly, as it's at this point in the build cycle where problems can be more

easily identified and, if need be, corrected. Once parts have been painted or airbrushed, any slight alteration can become a problem.

With the bridge and several fittings added, the progress thus far becomes evident.

Points of reference for research purposes:

- * Severnnaya Verf, St Petersburg, Russia;
- * Missile well deck official images Project 80382 Tiger class;
- * Photo Etch detail as shown provided by 4D modelshop.co.uk/Static/Workshop/

Acknowledgements and thanks to:

- * Anthony Horabin for preparation of the etched fret;
- * Mark Findler for the use of his images of the Soobrazitelnyy;
- * Kurt Grainer Warships Underway, USA;
- * Peter Brown, former naval architect at Vosper Thornycroft for his help and assistance.

Sourcing of parts and materials:

- * GRP hulls: Fleetscale, www.fleetscale.com;
- * Litho plate, tubes rods, wire: Albion Hobbies, www.albionhobbies.com/

Any questions?

If you have any queries regarding the build methods, tools and techniques, materials, etc, mentioned in this series so far, or indeed any questions about the full-size vessel this particular model is based on, please do write to/email me care of the editor and I will do my level best to either address these in person or tackle the subjects in individually themed future articles.

Next month...

That wraps things up for this month. Next month I will be finishing the detailing in and around the foremast and beginning the construction of the ship's RHIB [power boat].



Model Sail Setting Simplified

Steve Whitelock provides a brief guide to setting model racing yacht sails, and throws in few helpful troubleshooting tips along the way...

Now, it is true to say that I'm no expert when it comes to model yacht sails. I have, however, learnt a fair bit while building and racing RG65s and a Wee Nip on the Boston Model Boat Club pond over the last three years.

The yachts I've sailed, all of which have been Bermuda rigged, are as follows:

- The home built Wee Nip (which sails really well in all but the roughest conditions)
- The Joysway' Dragon Force (an ideal starter

yacht and excellent value for money, too)

● Two John Goodyear designed RG65s previously featured as build articles in Model Boats magazine: the Alpha and Omega (both of which sail splendidly in light winds).

All but the Dragon Force feature homebuilt sails.

It's said that if you can sail well at Boston you can sail well anywhere; this is largely due to Boston's pond having banks on three of its four sides and also because, being located

alongside the river Haven, the incoming and outgoing tides affect conditions on the water. The flag at the top of the nearby church bears no indication of what the wind is doing on the pond a hundred feet below and, just to make things even more unpredictable, there are few bushes to serve as windbreaks. It's true provision of a windsock makes it easier to gauge wind speed and direction on one side of the pond, but on the other three sides and the middle, well, that's a different matter. Talk about the ever moving goalpost, or perhaps I should say ever moving buoys – as that's been known, too!

This article, therefore, is a correlation of what I have learnt, both from personal experience and from my model yacht sailing mates at Boston Model Boat Club (BMBC).



3

How sails work

Most of us will remember that as children we'd hold our coat tails open while riding our bicycles when the wind was behind us, knowing it would help blow us forward and make us go faster. Well, yacht sails work in almost the same way...

When travelling downwind (*i.e.* in the direction in which the wind is blowing), the sails will fully open. Travelling upwind (*i.e.* against the wind) or across wind, however, proves somewhat trickier.

When headed across wind, we are reliant on the air pushing against the sail at an angle, thereby driving the sail and pushing the yacht forward; this involves some juggling with the yacht's direction and the angle in which the sail needs to set against the wind to achieve the best forward motion.

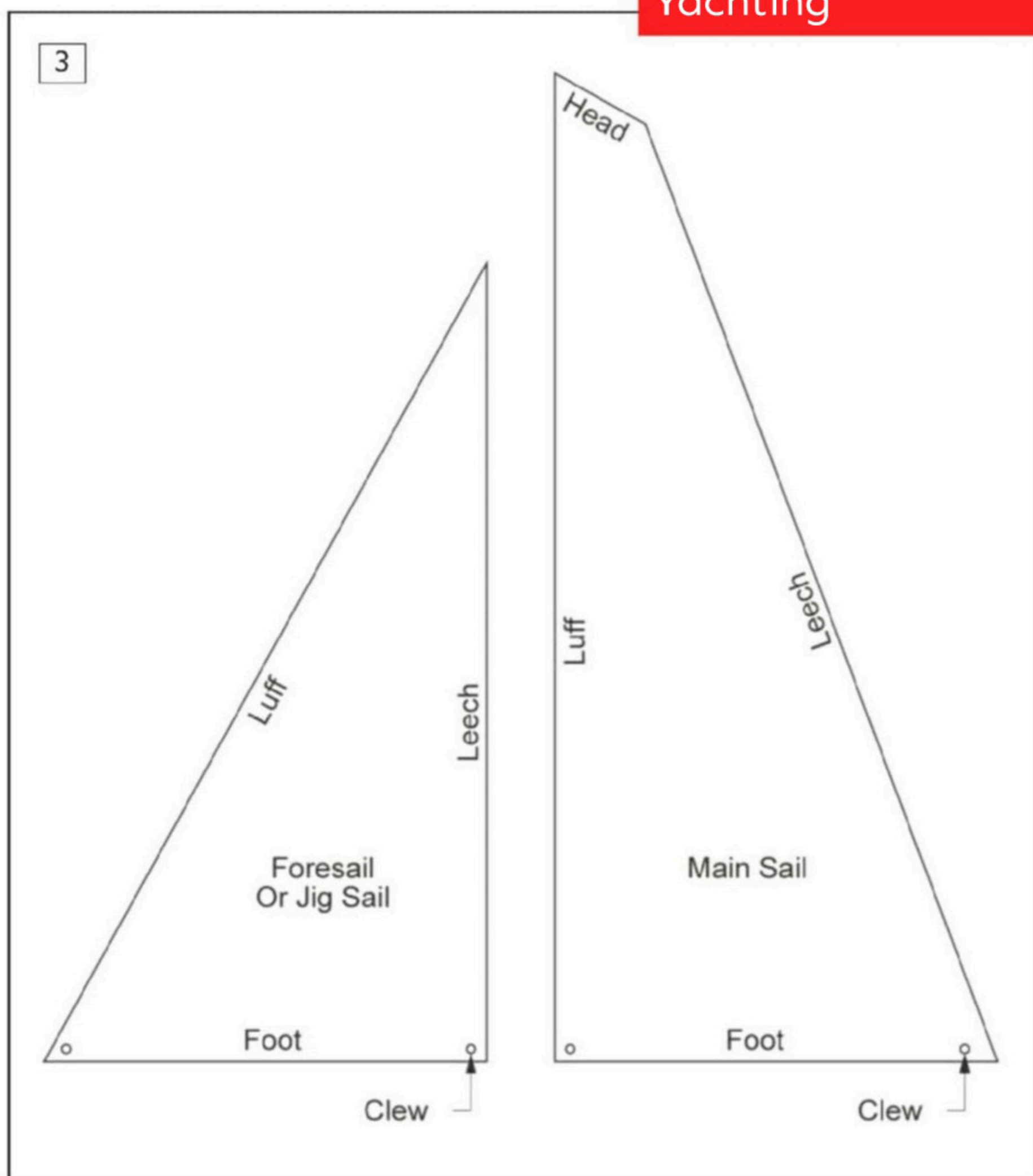
It's altogether harder still to make progress when trying to sail upwind. Here, tacking off the wind direction in a zig zag pattern will allow forward progress but, of course, this means having to cover more distance and requires more time.

There is, however, a way of setting sails that allows forward movement almost directly into the wind. It's achieved by setting the foresail back edge (leech) slightly further out than that of the back edge (leech) of the mainsail, **Image 1**, (see **Image 3** for sail terminology). This creates a gap between the foresail and the mainsail when the sails are hauled in, which in turn creates a low-pressure area, thereby partially sucking the yacht along. I should point out that the luff of the foresail needs to be bowstring tight to cut the air smoothly. When setting the sails look from the rear along the sail foot. The aft end of the foot spar needs, when hauled in, to be at the rear corner of the transom, **Image 2**, while the aft end of the foresail spar needs to be between three and five degrees further out.

Progress can be made by sailing just off the wind; that is, with sails fully in and with small adjustments made to the yacht's direction. This can be done with some minimal tweaks of the rudder, and by minimal I do mean minimal. Remember, the rudder will work as a brake if you overdo things. If the sails begin to flap, turn slightly more off wind.

Other settings that need looking at concern the foresail foot. You're going to need around 10mm-12mm about halfway along the deflection, sideways of the sheet, and around 15mm-20mm around the mainsail; this can be achieved by adjusting the position of the clew fixing points, **Image 3**. The line from the leech end of the foresail foot to the mast top should be tightened slightly to make a curved 'bag' shape in the sail.

On the mainsail, the gooseneck adjuster should be adjusted to lift the foot spar upwards, thus creating a twist in the sail. In addition to all this, it's good to have a backward curve in the mast, as this will form a 'bag' effect in the main sail. In order to do this, tighten the back stay slightly; this will no doubt affect the luff tension on the foresail, so slight adjustment will be required.



Further adjustments

The above, of course, is all OK until the wind strengthens, forces the bow under water and spins the yacht around in circles. The way around this is to tighten the sails and reduce the 'bag' effect, thus lessening the effect of the wind on the sails. In other words, take the 10-12mm depression out of the foresail foot and the 15-20mm depression out of the mainsail foot. You will also need to lower the gooseneck to remove the twist in the sail. If this doesn't rectify the problem, then I am afraid it's down to reducing the sail size.

When you have set the sails to what you think will be right for the prevailing conditions, hold the yacht by the keel and look at the transom. 'Swish' the yacht from side to side; this movement will reveal if the sails are in fact moving from side to side freely. It will also show the setting of the sails. If you do encounter restricted movement, this will need sorting immediately. Restriction of movement in the foresail could be due to the leech line hitting the mast, the foot pivot point being stiff or the bowies at the mast head fowling. Restrictions of movement in the mainsail could indicate that the gooseneck is too stiff, or overly taught, or that the sail luff fixings to the mast are too tight. Any one of these problems will have an adverse effect on your yacht's performance.

If the wind is light, slacken your sails at the foot of the foresail and mainsail. Try not to use

the rudder too much as it is a brilliant brake, and only try to turn while moving. If the wind is strong, tighten up the sails to lessen the effect of the wind on them. If your yacht will not turn into the wind then do a gybe (a 270° turn) in the opposite direction. Should the bow dip under the water, let the wind through the sails.

Remember, setting sails is rather like working on a racing car. Make one adjustment at a time and if what you've tried doesn't work then simply go back and try something else. And always check your adjustments before sailing; I know modern lines shouldn't shrink when wet but they sometimes do and small amounts of shrinkage can affect sail adjustment.

Tomorrow is another day

Smaller yachts will not perform well in really rough conditions unless you change to a smaller sail set. And even then, bear in mind that the extra tension on the sail servo could potentially cause damage, so you'd probably be better to try on a calmer day.

Go set sail!

I hope these few simple suggestions will make what is a tricky skill to master a little easier to understand and, when put into practice, sailing your pride and joy will become even more of a pleasure.



Boiler Room



Copper washers, rubber washers, 'O' rings and fibre washers can all be purchased in sets of frequently used sizes and are very handy to have available for all sorts of uses.

Richard Simpson discusses the pros and cons of the various thread sealing methods and offers some helpful hints and tips on application and technique...

While putting together last month's instalment of Boiler Room (which provided a very basic overview of the possible threads you might come across in boiler), I was reminded of a lengthy discussion on the subject of thread sealing I'd had with a fellow enthusiast at the pond side a couple of years ago. So, in view of the numerous thread sealing methods, that is what I'll be tackling this month, as this will, perhaps, help you decide on the best methods and applications for your own projects.

A thread sealant is, of course, nothing more than some form of filler, designed to occupy the gaps between the male and female threads in a fitting. It therefore stands to reason that the better the quality of the thread, and the better the fit achieved, the less of a gap will exist between the male and female thread. Consequently, the better quality the thread, the less the requirement is for a sealant. The most important aspect of this is, of course, that thread sealant should not be used as a means of compensating for a poor-quality thread. Almost certainly heat related stress reversals will lead to excessive

“There is one significant challenge when it comes to using a compressible washer...”

thread sealant failing and you will be left with a leak and the lengthy process of removing and cleaning up the thread to be able to start again. The thread must be a good quality fit in the first place.

I have split the sealants into four main categories so we can have a look at each and, specifically, their strengths and weaknesses.

1. Copper, rubber or fibre washers and 'O' rings

The first thing to consider is arguably the simplest and that is to fit either a copper, rubber or a fibre washer to the thread before screwing it into the boiler, or even an 'O' ring. These washers are, for a reasonable price, available in sets containing frequently used sizes (see **Photo 1**). Use of such washers is obviously dependant on there being two flat surfaces to compress the washer, so while this does lend itself well to some boiler fittings, conversely there are some fittings that simply cannot be sealed with a washer (see **Photo 2**). The biggest challenge with a rubber washer is that it is very compressible, so it's difficult to tighten a fitting against it. The rubber will also perish with age, thereby losing its ability to seal, and can ultimately crack and fail. For use on a boiler you must use a high temperature material, frequently nitrile, as found on gauge glass 'O' rings (see **Photo 3**). In most cases, however, it is best to play safe



The two valves on the left both have a suitable flat surface on the mounting thread, so could be sealed with a sealing washer. The two on the right have only parallel threads so cannot be sealed with a sealing washer.

and avoid rubber sealing devices except for sealing of the gauge glass.

While I have seen fibre washers used to seal fittings on a boiler, I am not the greatest fan of this material. Far too often the fibre is either too soft and therefore easily breaks down either with over tightening or age, or too hard, and therefore difficult to compress to form a seal.

Copper is a better option as it is more consistent in its softness and, with annealing, it can be reused again and again.

There is one significant challenge when it comes to using a compressible washer and that is you have no control over the final attitude of the fitting once you've tightened it down to the required amount of compression. Having a selection of washers (varying in their degree of thickness) available is about the only control you have. This is still, invariably, a crude method of achieving the correct attitude for your fitting and can so easily lead to you over tightening the fitting for the sake of aligning it; this is the main reason why I

BELOW: 'O' rings are used to seal either end of the gauge glass, but they must be of a suitable high temperature specification. Normal 'O' rings will soon fail and could generate a bad leak in your model. Never be tempted to buy cheap 'O' rings that are not specified as high temperature.

3





The Loctite range of products is huge, so great care has to be taken to buy the correct item. Shown here are: a hard setting retaining compound, mainly used for bearing and gear location; a thread locker, which is again a hard setting locking compound; and a hard setting thread sealant.

“These do the job just as well but have the significant advantage of being less problematic should you need to dismantle”

Firstly, let's look at hard setting liquid sealants... One of the most popular products of this type has long been Stag Paste but there are also a number of Loctite products for locking and sealing threads which also set hard. The Stag Paste is red and has a very distinctive smell; this is painted onto the thread before screwing together. Loctite products usually come in a small red bottle (see **Photo 4**) with a fine applicator on the nozzle, are much more liquid in consistency and cover a huge range of application types. As you do not need to tighten the thread, this type of sealant is useful for gauge glass fittings as you can first achieve perfect alignment before waiting for the sealant to set.

While these form a very good seal, you cannot disturb the fitting while it's setting and, once it was set, it goes very hard. So hard, in fact that, at the very least, the fitting can be very difficult to remove at a later stage and, at the worst, could even break while you're attempting to do so. Heating the fitting might help with a particularly tenacious bond, but this is invariably a tense procedure.

You may instead, therefore, want to consider a soft setting type of sealant. In my motorcycle building days this might be a product such as Blue Hylomar (see **Photo 5**), which looks more like a gel and comes in a tube. Again, there are soft setting Loctite products and many other pastes and gels but the important thing is to read the label before you buy so you know whether the sealant sets hard or soft. The soft setting sealants are a little bit more forgiving when it comes to alignment adjustments while setting, or even once finally set. These do the job just as well as a hard setting sealant but have the significant advantage of being less problematic should you need to dismantle in the future. Some are so soft they are more like a silicone sealant and can easily be peeled off when set. You can even buy a high temperature version of silicone sealant, used to attach the door seals on wood burning stoves, which works well on model boilers (see **Photo 6**). As with the hard setting types, the sealant is applied to a pre-cleaned thread and the parts assembled. Again, the thread does not have to be tightened, but for a fitting that is subjected to frequent force, such as a whistle, you may find the soft sealant starts to loosen up with time.



Hylomar has been used for many years and again can be bought in hard setting or soft setting compounds. The Blue Hylomar is a soft setting sealant and is excellent for thread and surface sealing.

would not recommend the use of washers to seal a thread on a gauge glass fitting, as getting the alignment right is critical to avoid breaking the glass. Obviously, when compared to other means of thread sealing, washers are very convenient to use and copper washers can be refitted to a thread over and over again, ensuring consistent alignment of the fitting.

Returning again to the quality of the thread, if the flat faces that compress the washer are not perfectly parallel, which may not even be noticeable, the washer will be compressed by a different force on one side than it will the

other. This can lead to premature failures and, again, stresses the importance of the quality of the fittings being used.

2. Liquid Thread Sealants

Liquid sealants basically fall into two categories, which are the type that set hard and the type that set to a flexible consistency. I have even come across a type that does not set at all, but only in a commercial environment, not the model steam world.



Be very wary of normal silicone sealants as, while they may seal well to start with, they may not be temperature resistant so of limited use around the boiler. High temperature silicone, however, as sold for wood burning stove glass fitting, is a very useful product.

“There is a knack to getting it right, so it is worth considering how to fit thread tape correctly to give you the best possible chance of success”

3. Polytetrafluoroethylene (PTFE) Thread Tape

Ever since I first went to sea, I have always preferred to use thread tape for sealing threads and fittings. This is frequently referred to as Plumber's Tape, but I'm not sure why they should have all the fun! It's quick, clean, easy to use, not difficult to remove at a later stage, provides a good flexible seal and a roll will last you many years (see **Photo 7**). Interestingly, nowadays thread tape is noticeably thinner than it used to be, which allows it to conform to finer threads with even more ease than the thicker older types. My particular roll has been with me all my working life and will almost certainly outlast me, despite sealing many dozens of model boiler fittings and one or two domestic plumbing ones along the way.

There is a knack to getting it right, though, so it's worth considering how to fit thread tape correctly to give you the best possible chance of success. Firstly, I cut a piece of tape to an appropriate width to match the thread (see **Photo 8**). If it is too wide there's a danger it can pull over the open end and restrict the bore of the fitting; too narrow and you will not get the best seal. I usually cut a length a little in excess of what I need so I have something to get hold of while I am wrapping the tape. The tape should be wrapped around the thread in the direction the thread turns. The best way to think about this is to consider the free end of the tape. As you tighten up the thread you want to be dragging the thread tape to tighten it up, not to be pushing



Using a sharp knife Richard trims off a suitable length, then cuts it to a width suited to the thread. You should not need more than two turns with enough of a tail to get hold of. When you pull the end off, this action should tighten the tape deep into the thread.

at the end, which may cause it to unwrap. I always hold the thread in my left hand, pointing towards the right. I lay the tape on top of this with my right hand, with the tape leading away from me, and wind it on away from me in a clockwise direction. I can then hold the end of the tape with my left thumb so I can apply pressure as I wrap, thereby ensuring the tape is pulled tightly into the thread. When I have a full revolution, I hold the tape with my left thumb and pull it until it parts. A final roll through my fingers in the direction of rotation forces the tape deep into the thread and ready for assembly (see **Photo 9**).

The main disadvantage with PTFE tape is that, while it is compressible, it does not expand again, so, once you have fitted your item if you want to adjust its position by undoing it you might be best dismantling and reapplying some fresh tape.

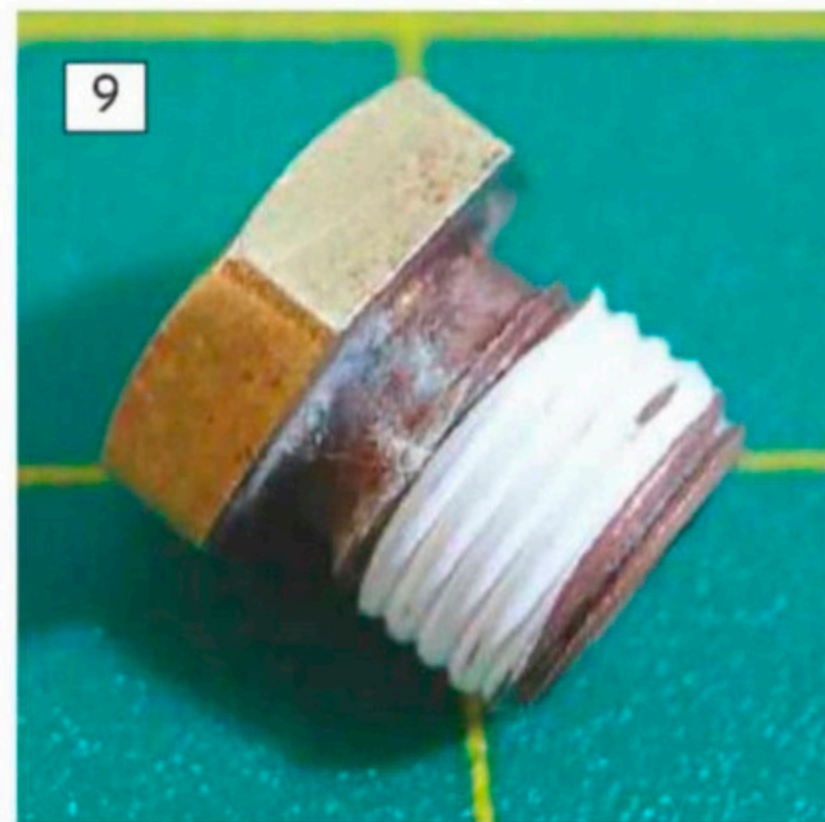
“I would recommend having a roll of PTFE tape handy in your pondside toolbox... This could well save you a wasted morning”

Conclusion

Sealing threads is a very important aspect of model boiler construction and assembly and is critical to the reliable and safe operation of the plant. Get it wrong and you will end up with leaks, which could even put your model out of operation, so it's well worth having at least a basic understanding of which types are best suited to particular applications.

Certainly, I would recommend having a roll of PTFE tape handy in your pondside toolbox, just in case you need to dismantle something. This could well save you a wasted morning. Just be sure you fit it correctly. I would always suggest having a practice with a very fine small thread and some PTFE tape just to become familiar with it, as then dealing any other thread will seem easy.

BELOW: Richard has had this roll of Fluolion since the mid-1970s and still uses it frequently. Interestingly, modern rolls are noticeably thinner and conform to fine threads much more easily.



ABOVE: Two turns wound clockwise looking from the free end of the thread with no excess hanging over the end to restrict flow; this will seal very effectively and remain reliable until removed.



LEFT: The RS20 'brick' receiving system.
Image courtesy of Peter Waters, USA.

Real Small

David J. Wiggins completes his appraisal of a 1970s' American beauty – the 2-channel RS20...

In the August issue I introduced the American RS ('Real Small') brand and its least expensive 2-channel radio – the model RS20 – and rather ran out of space dealing with the smart and (by 1970s' standards) tiny transmitter. This month, therefore, I will be briefly covering the matching 'brick' style receiving arrangement.

The RS20 receiving system

For a while during this period 'brick' radios became a very popular cost cutting/reliability improving idea in 2- and 3-channel American sets and, as you can see, this month's RS radio was one such, although a separate receiver + two servo arrangement was also offered. Using the 'brick concept', a manufacturer could design and build an entire receiving unit (a receiver and two servos) for a 2-channel (and sometimes 3- or even more channels, as we will see) glider/

boat targeted radio all in one case. The advantages were: there was just one item to assemble and test on a factory production line, instead of three or four; a unit was easy to waterproof for boat use; and the modeller was presented with an ultra-fast installation job requiring just four screws. It was actually a very good idea and various makers approached the task in diverse ways.

The Kraft unit that began the 'brick' idea

Discounting very early British attempts (George Honnest-Redlichs 1950s' 'Reptone' and 'Mini Reptone' probably representing the first single unit concept offerings), the originators of the modern 'brick' were, as was so often the case with R/C innovation back then, Kraft Systems Inc of Vista California and the company's well-regarded designer Mr Doug' Spreng; the first Kraft 'brick' (the dry cell KP2 designed by Spreng and offered at just \$99) being a true single unit. Both Kraft and its biggest rival – E/K (Elliot & Krause), with its 'Logictrol LRB' (for Little Red Brick) range for example – built and sold a great many inexpensive brick sets in both dry cell and Ni-Cad versions. RS's take on the idea, however, was slightly different in that it used a combined outer casing just for the servos while retaining a separate radio receiver/decoder. I don't see the logic in this myself and prefer the all-in-one idea, but both approaches are equally valid I suppose and there is an unexpected advantage with using an RS nowadays that I'll discuss later.

The Kraft system I've illustrated for comparison purposes is what was then a 'top of the line' brick radio: the higher priced Kraft

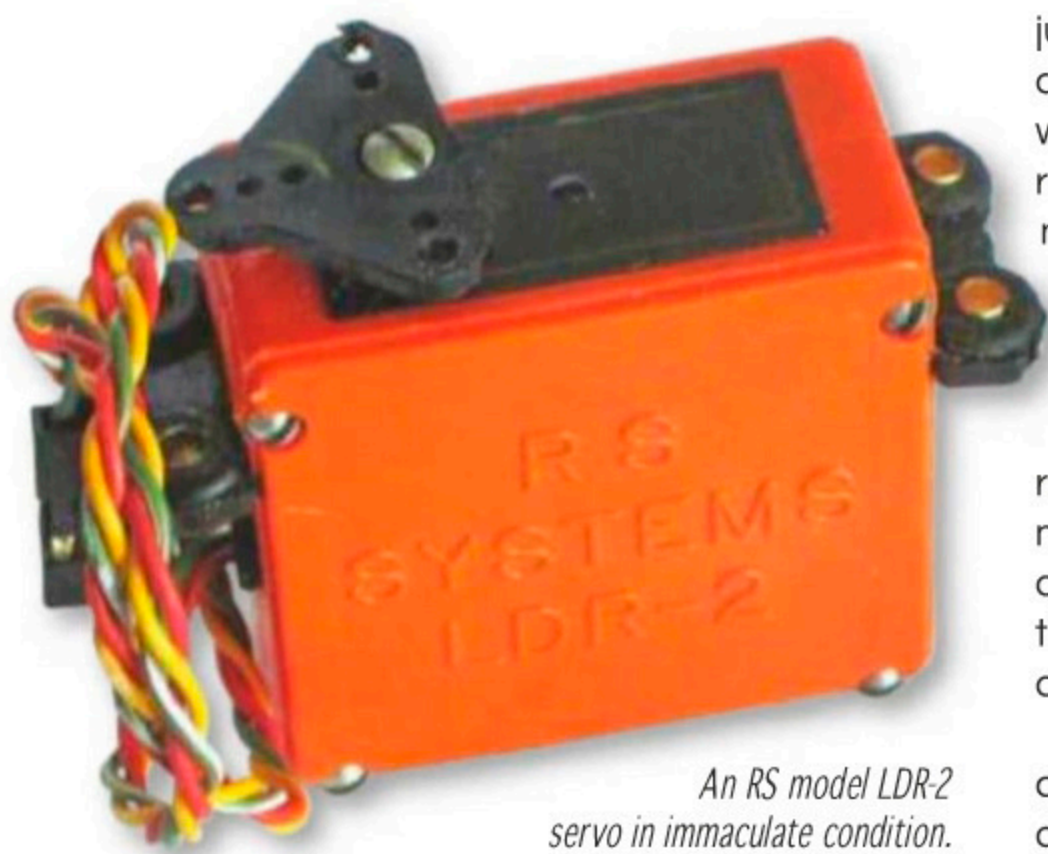
model KP3B in the two stick/NiCad equipped version, often chosen by marine modellers like myself. The Kraft brick contains two servo mechanisms (using Kraft KPS-12 mechanical parts), plus their amplifiers and a 3-channel receiver/decoder with a pigtail coming out for a separate third servo. Another cable receives switched 4.8 Volt power from a standard centre tapped 4- cell Kraft NiCad battery pack. The KP3 was Kraft's nicer model brick set (by which I mean it was sold with an extra channel and a receiver Ni-Cad and charger rather than dry batteries). It sold for more money than the low cost KP2 and is therefore a fairer comparison with the Nickel Cadmium equipped RS20 featured this time and in August's issue.

The RS20 'brick' in detail

As you will see (I'm sorry for the poor quality of this scanned image), the orange RS 'brick' (more accurately, a servo block) is a very simple object, being merely two sets of servo mechanics (along with amplifiers), set side by side in an outer casing. About the only advantage of such a unit over two separate servos is easier installation, in that only four screws are required for mounting instead of eight. I think that this little item was engineered for RS by D&R mouldings Inc, but it could just as easily (as I also noted when commenting on the transmitter stick pictured in August) be by Bob Dunham – it's hard to say, though I favour D&R. Two cables emerge from the block and these plug into the 2-channel RS receiver, picking up 4.8V power from the servo outlets.

An alternative, back then, to buying a twin servo block would have been to purchase a pair of separate micro servos and I illustrate one of those lovely items here: a tiny LDR-2 servo. In its attractive orange case and with a top quality crimped gold connector, all in the most wonderful condition, this is, like August's matching mini transmitter – a very pretty little device built to the highest of standards. In fact, nowadays, this one would be my choice over the 2-channel block if I'm honest.

The equally small RS receiver was typical of those of its era and, like the transmitter, the electronics were beautifully assembled onto a single flow soldered PCB. When this system was being manufactured in 1975 I was only recently out of an airborne radar research lab' and I can honestly say that there is little difference in the PCB assembly standard achieved by RS Systems and that for a military radar; the work is that fine and it speaks volumes for 1970s' American built radio control equipment. The fixed frequency Superhet' receiver is all discrete but the decoder uses an integrated circuit. The radio, being on an AM frequency of 72.40MHz, is of course, like August's transmitter, illegal to use in the UK and now a museum piece only. With hindsight, and in a way, this makes the designer's decision to go for a separate receiver a rather fortunate one, in that one



An RS model LDR-2 servo in immaculate condition.

Meet Our New Arrival

The new RS20 is exactly what you want a two channel radio to be. It comes in a very compact case featuring a unique open gimbal that is completely sealed from the internal electronics. Rechargeable batteries are provided for both the transmitter and receiver at no additional cost. Utilizing the RS4 servos with heavy duty gears in an all new configuration, the RS20 delivers the same high performance that other RS units are so well known for – small size, light weight, equipped the right way, and performance. Four sound reasons why, when you check the price, it becomes the outstanding value for 1975.

\$179.95

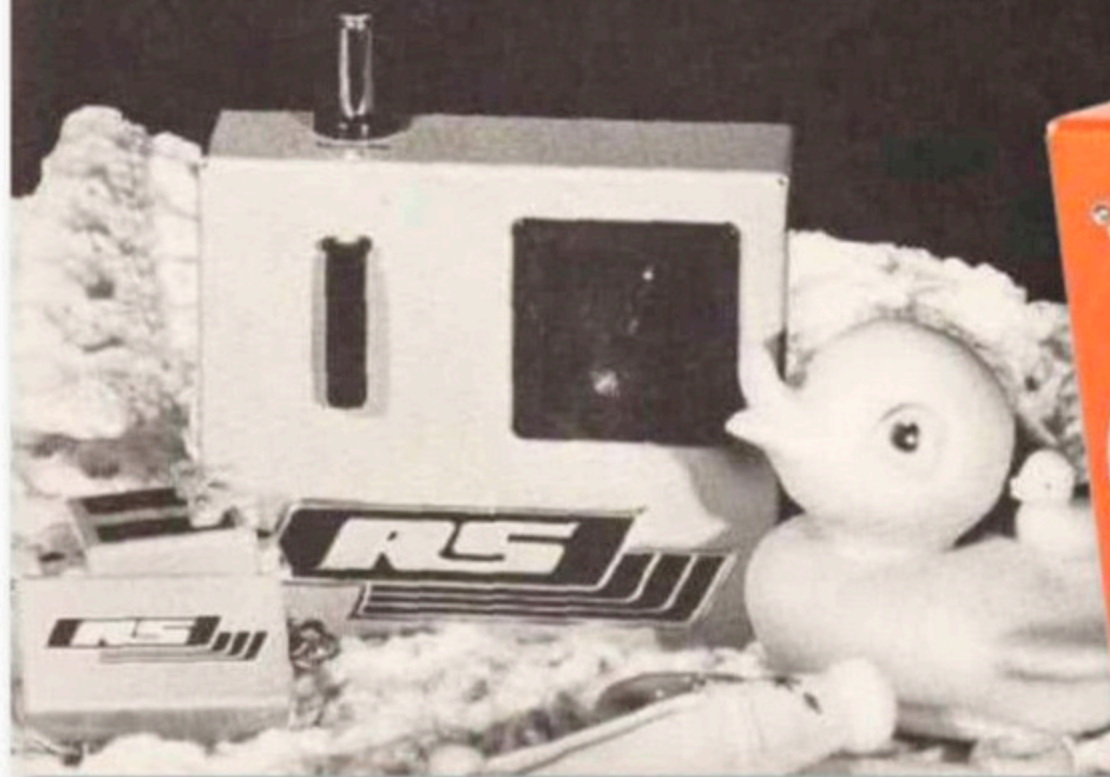
RS Systems
850 West Barkley
Orange, California 92667
(714) 639-7261

LEFT: RS20 advertising (American RC Modeller magazine, July 1975 issue).

years of searching the internet. Possibly it's because these attractive radios were not on the American market for very long; nowhere near as long as Kraft Systems, Orbit, World Engines or E/K 'Logictrol', for example.

Returning to the British scene...

In a future issue I'll be sharing details of what, in my opinion, was one of the most attractive radio outfits ever brought to market here in the UK – 'Made in England' gear indeed, and analogue too!



can now easily dump the vintage receiver and go straight to 2.4GHz once the transmitter has been adapted and the servo block (or separate servo), serviced, but I won't be bothering, seeing no point in modernising a 2-channel set. In all probability this unit together with the transmitter will end up back in California, as I have a friend there, Jay Mendoza, who would like to have the latter for 2.4GHz conversion.

On examining and writing up this smart little radio for you over two issues, I've begun to wonder if this set might have been

contracted by, and designed especially for, the popular Hobie 'Hawk' sailplane; although, as you will see, it was indeed advertised as a standalone system. It certainly is a possibility I feel, but we'll never know. One last point: anything built by RS Systems seems now to be almost impossible to pick up; certainly, I've found it exceptionally difficult over several

ABOVE: A Kraft KP3 'brick' system with 2-channel 'brick' unit and third servo.

LEFT: RS Systems' 'full house' companion to our little set was its 6-channel. Image courtesy of Bob Bucher, USA.

BELOW: An example of the RS20 transmitter converted to 2.4GHz by Jay Mendoza, based out in California, USA.



Test Bench

Hands-on hobby-related product reviews

Our Test Bench pages are devoted to providing honest, unbiased evaluations of workshop tools, fittings, materials, kits, *etc* – all of which have having been tried and tested by one of our team of highly-experienced model boat builders.

Those in the industry that supports the hobby wishing to send in review samples for inclusion should contact the editor via email at editor@modelboats.co.uk or post samples, together with all supporting information, to **Models Boats, MyTimeMedia Ltd, Suite 25, Eden Hse, Enterprise Way, Edenbridge, Kent TN8 6HR..**



ABOVE: The packaging for the Torro Schwimmwagen.



ABOVE: The fully assembled vehicle with the two MG 42 machine guns in place.



The Schwimmwagen and 2.4GHz Controller.



Torro 1:16 scale Type 166 Volkswagen Schwimmwagen reviewed by Gary Radford

Just to give you some background before I get my review underway, the VW Type 166 Schwimmwagen (Swimming Car) was an amphibious four-wheel drive, off-road vehicle used extensively by German ground forces during the World War II, seeing action in all theatres of operation.

The Type 166 is the most numerous mass-produced amphibious car in history. It utilised the engine and mechanics from the VW Type 86 four-wheel drive Kübelwagen

and the Type 87 four-wheel drive 'Kübel/Beetle' Command Car, which in turn were both based on the design of the civilian Volkswagen Beetle.

The Type 166 was produced by the Volkswagen factory at Fallersleben on the outskirts of Wolfsburg and Porsche's facilities in Stuttgart, with the bodies, or rather hulls, being produced by the Ambi Budd Company in Berlin. Production of the Schwimmwagen commenced in 1941 and ceased in 1944, during which time 14,276 units were built at Fallersleben and a further 1,308 by Porsche.

One drawback with the Schwimmwagen was its slow speed on the water (6mph max) and its inability to travel in reverse, relying on the rotation of the wheels in the water to gradually move it backwards or by using the paddle attached to the side of the vehicle.

Torro's 1:16 scale Schwimmwagen comes fully assembled and has a plastic and metal body with rubber tyres and features 4WD. It is available in three colour schemes: the Panzer Grey in which our sample is finished; Desert Yellow and the yellow, red/brown and

green colour scheme applied to German vehicles after 1943.

Included is a 2.4GHz transmitter/controller, a rechargeable battery pack for the vehicle which is charged via a USB cable, 4 x AA batteries for the controller, a set of decals offering three livery options and an instruction manual in both English and German.

The only items you have to connect to the vehicle are the two MG 42 machine guns (which can be seen in the pictures here).

My first impressions having unpacked our Panzer Grey review sample was that some of the plastic mouldings are basic, to say the least. The shovel attached to the side had quite a bit of flash (excess plastic that has escaped the mold on seams/edges) present that needed sanding off. The paintwork was rudimentary, too. For example, the straps that fit around the rolled canvas tilt looked like they have been coloured in with a felt tip marker. Nonetheless, you do get a very good representation of one of the most iconic amphibious vehicles produced.

I connected the small rechargeable battery, accessed by lifting the rolled canvas tilt under which it is tucked away, and placed it behind the rear seats; then I clicked the canvas tilt back into position. Following the instruction manual, I first flicked the switch on the controller and then the model itself, and after a couple of minutes of running the vehicle around on the floor I'd pretty much mastered how to perform the various controller-operated actions.

On our sample, however, I was disappointed to discover that making changes to the speed

settings (Low, Medium or High) made no discernable difference to the velocity whatsoever. That said, the Schwimmwagen was not in reality a fast vehicle and I'd say Torro's model performs at around scale speed. Just don't expect it to whizz around doing stunts, etc!

Having tried it out indoors on a flat surface, I decided to test it out in the great outdoors. Results on the lawn were very good; in fact, it handled grass incredibly well. Interested to see how it would cope with more 'rugged' terrain, be the areas of the garden which had been dug over. Impressively the Schwimmwagen kept going, handling this change in topography with ease (no doubt due to the low gearing ratio and it weighing approximately 5lbs/2.6Kg).

Time, then, to assess its amphibious capabilities. Before risking a boating pond/lake, however, I decided to run a test in the bath first...

The model sits quite low in the water, just like the real vehicle, but seems very stable even after creating a few waves of my own.

The propeller mechanism is lowered into the water by pressing the auxiliary button (marked AUX3) behind the on/off slide switch. The propeller unit drops then down into position and engages into a drive shaft fitted in the rear of the vehicle. On our review sample, however, it took several attempts before the propeller engaged properly. When it did, though, the Schwimmwagen started to move at a slow pace, just as the original vehicle would.

All-drive power to the wheels is disengaged, with only the front wheels being able to turn left and right to act as a rudder. Like the original, there is no reverse to the propeller shaft. In order to make it travel in reverse, the propeller mechanism has to be raised so that power is restored to the wheels, which in turn provide very limited reverse travel. As a safety feature, the propeller will not operate while the vehicle is out of the water.

There are two brass looking terminals on the bottom of the hull that need to be in water for the propeller to function. However, this can be overridden by wetting your finger and placing it over the terminals in order to check the propeller has engaged with the shaft, etc.

Overall, I applaud Torro's choice of subject (as I am sure many others will, because the Type 166 remains the most mass-produced amphibious car in history). I also like the model's authenticity, the way it can go from water to land and vice versa at the push of a button, and the ease with which it handles rough terrain – aspects that ticked all the right boxes for me.

Nevertheless, considering its priced, €193.98 (approximately £176 at time of writing), I would have expected this model to feature a far higher level of detailing.

That said, if you're prepared to put a bit of time and effort into adding your own extra detail touches, and perhaps some weathering, too, it will make a very interesting talking point pondside, and I'm sure will impress spectators and/or your fellow model boat club members.

RIGHT: The various controls on the side of the transmitter.

BELOW: The AUX3 button used to raise and lower the propeller.



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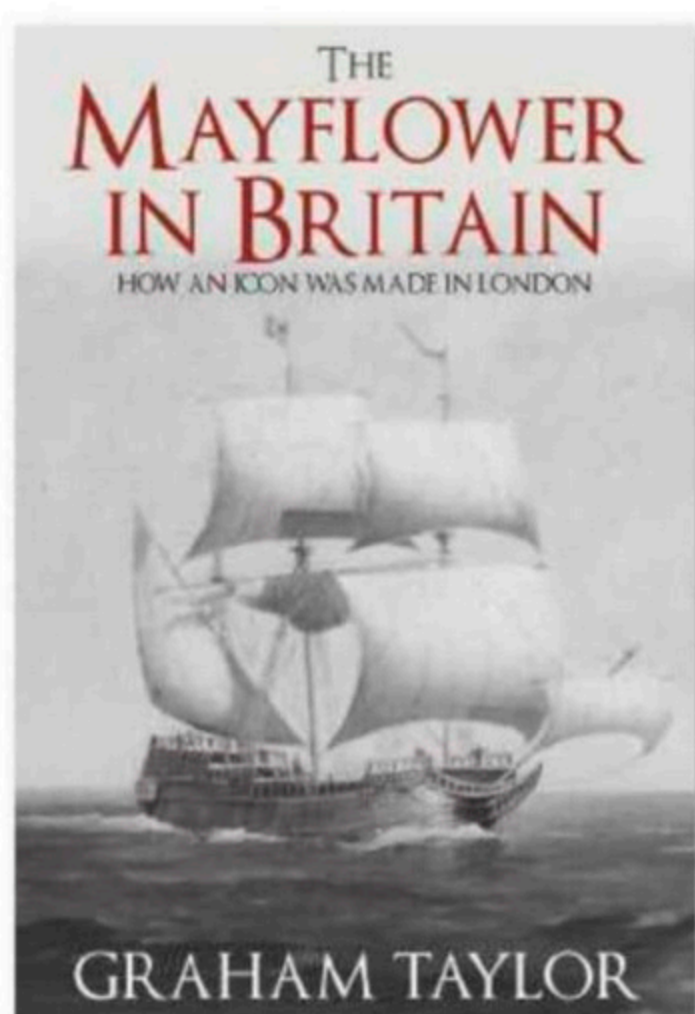
Our Buy the Book pages feature newly launched titles that will be of interest to, and serve as useful reference points for, both historians and modellers alike.

Publishers wishing to send in review samples for inclusion should contact the editor via email at editor@modelboats.co.uk or post samples, together with all supporting information, to **Models Boats, MyTimeMedia Ltd, Suite 25, Eden House, Enterprise Way, Edenbridge, Kent TN8 6HR..**

The Mayflower in Britain – How an icon was made in London by Graham Taylor reviewed by John Deamer

Published on the quarter centenary of the Mayflower's historic voyage, the author, Graham Taylor, offers a unique perspective by placing the story in a British context. His fresh analysis explores the economic, as well as the religious, reasons for the journey and offers an illuminating insight into how it became a reality.

After grim and protracted negotiations, the voyage was financed and organised



by random investors in the City of London. Its religious element was supplied by an underground church in Southwark, while its officers came from nearby Rotherhithe. Indeed, although the story goes that the Mayflower departed from Plymouth, Devon, it probably originally set sail for America from Blackwall in East London, only to be forced to put into Plymouth for repairs.

Far from romantic, the trip to 'The Promised Land' proved a catalogue of delays, mistakes and mishaps. On arrival, there was some indecision about where to land, and when the shores of Cape Cod (in present day Massachusetts) were decided upon there was apparently almost a mutiny.

It was November and little provision for the harsh conditions had been made. Had it not been for the local indigenous people who came to their aid, far more of them would have perished that first winter than the 50% who were lost.

Fortunately, the Pilgrims had taken on board a very special cargo, a democratic spirit from London mellowed by the tolerance that they'd learnt in Holland; qualities that didn't just go on to inspire American democracy but also acted as a shining example to those they'd left behind in Britain. The same communities in London that planned the voyage of the Mayflower were instrumental in waging and winning the English Civil War and, consequently, some of the liberties we enjoy today.

Publisher: Seaforth Publishing Ltd
(www.seaforthpublishing.com)

Pages: 288

Format: Hardback – 234 x 156mm

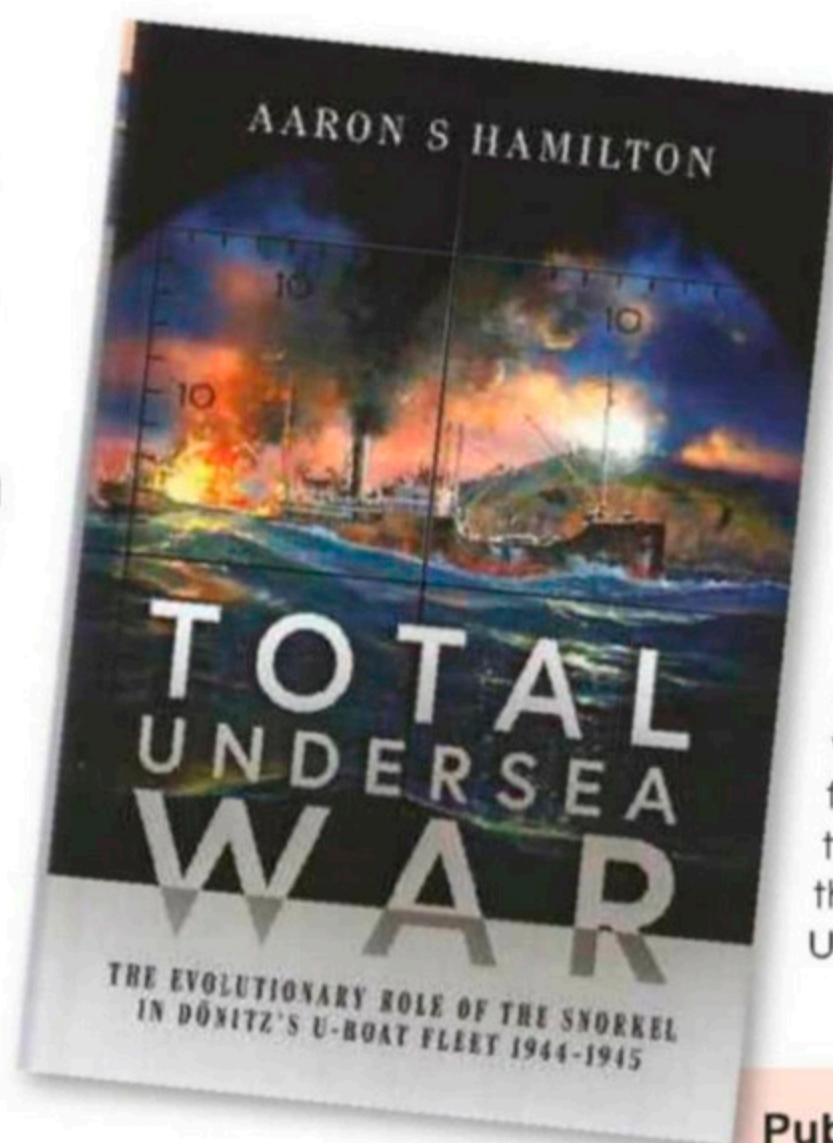
Price: £20 (RRP)

ISBN: 978-1-4456-9229-6

Total Undersea War – The Evolutionary Role of the Snorkel in Donitz's U-Boat Fleet 1944-1945, by Aaron S. Hamilton reviewed by John Deamer

During the last year of World War II, the once surface-bound diesel-electric U-boat ushered in the age of 'total undersea war' with the introduction of an air mast, or 'snorkel' as it became known. U-boats no longer needed to surface to charge batteries or refresh air; they rarely communicated with their command, operating silently and alone in the shallow waters off the United Kingdom and across to Atlantic to North America.

The introduction of the snorkel was of great concern to the Allies, who strove to frustrate the impact of the



device before the war ended. Every subsequent wartime U-boat innovation was subordinated to the

snorkel, including the new Type XXI Electro-boat 'wonder weapon'; and the snorkel's introduction foreshadowed the almost untrackable weapon and instrument of intelligence the submarine became in the post-war world.

This exhaustive study draws upon wartime documents from archives around the world to re-evaluate the last year of the U-boats deployment and

provides answers to many long standing questions. How and why did U-boats patrol so close inshore? How effective was the acoustic camouflage? Why was U-boat wireless communication so problematic? How did U-boats navigate so effectively submerged? What were the health implications of staying submerged for a month or more? What does an accurate snorkel configuration look like? This new work by Aaron Hamilton is destined to become the authoritative reference for all these issues and more.

Publisher: Seaforth Publishing Ltd
(www.seaforthpublishing.com)

Pages: 416

Format: Hardback – 240 x 165mm

Price: £35.00 (RRP)

ISBN: 978-1-5267-7880-2

The Ketch-rigged Sloop *Speedwell* of 1752

VOLUME II

By Greg Herbert and David Antscherl

Introducing volume II of *SPEEDWELL*, a ketch rigged sloop of 1752. Her rig was designed to be able to sail close to the wind to be able to go after her main prey, privateers and smugglers. She had light scantlings and was armed with 8 three pounders and 10 swivels.

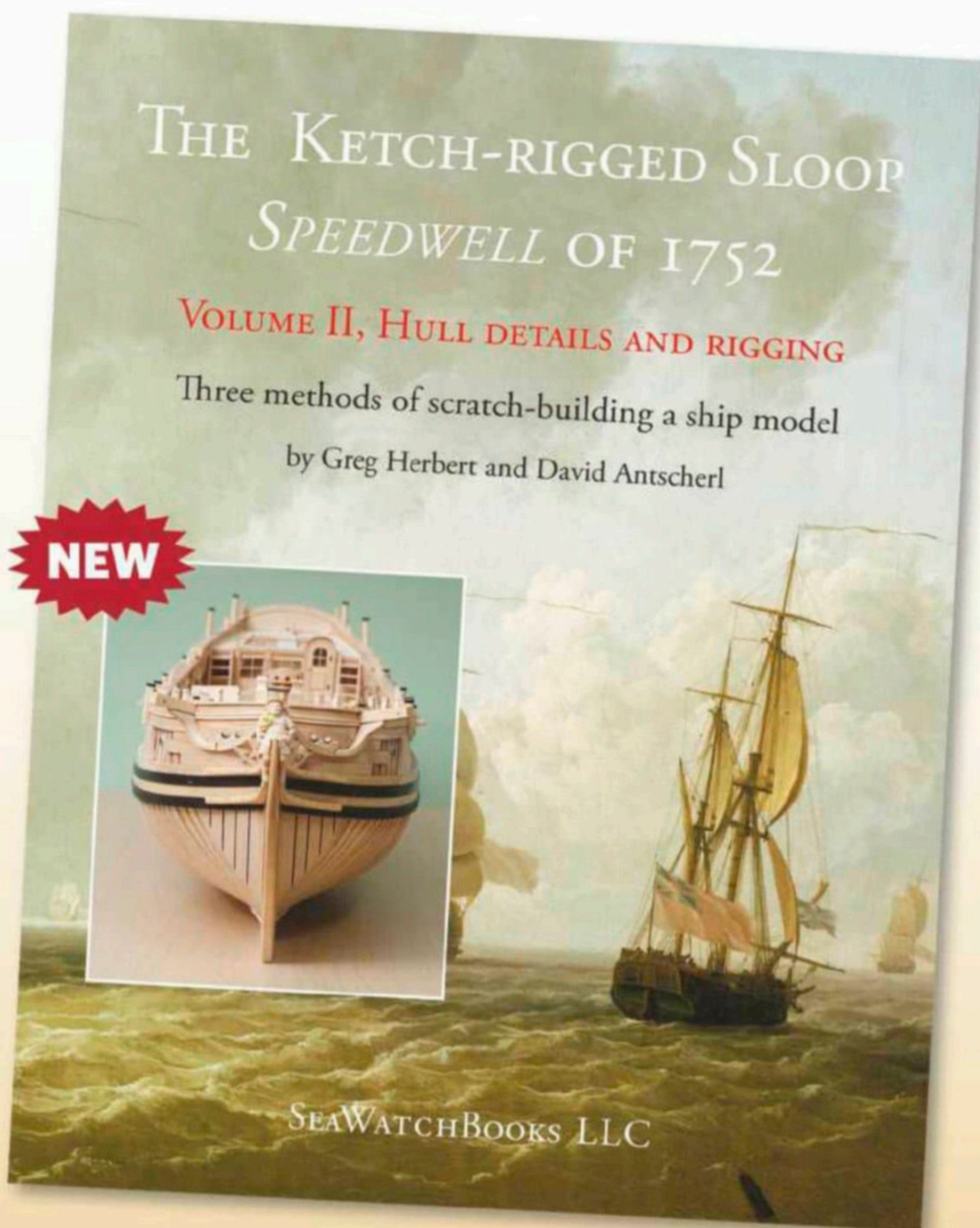
She was a member of the Cruizer class and had a long life, being converted into a fire ship in 1779.

Greg Herbert and David Antscherl have teamed up again after their efforts in the very successful Swan series to produce a new series on *SPEEDWELL*. In volume I the authors covered building the hull using three methods: plank on frame, plank on bulkhead and solid hull using the lift method. In this volume, the masting and rigging are covered.

The book is 8 1/2" x 11" format with 184 pages, bound in hard cover with a dust jacket. An eight page color section is included along with 4 sheets of detailed plans and hundreds of drawings and photos.

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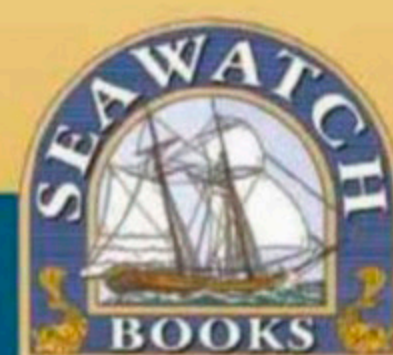
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Keith Henley's painstakingly researched and exquisitely scratch built Trinity House Multi-Function Tender, Patricia, on the water at The Charity Model Show held at Care Ashore in Alfold, Surrey.

PATRICIA AND H.M.S. BULLDOG

I am sharing some photos of my 1:50 scale scratch-built Trinity House Multi-Function Tender, Patricia, on the water at

The Charity Model Show held at Care Ashore in Alfold Surrey.

Patricia was built over a period of 20 years and finally finished in 2015. I was able to visit the ship in April 1996 to take photos

to complement the builder's drawings obtained from the Scottish Records Office. Patricia was built by Henry Robb Ltd in Leith in 1985.

Also shown at Alfold is my

1:48 scale H.M.S. Bulldog, which is semi scratch-built using the Metcalf Mouldings (now by Models By Design) hull and plans.

KEITH HENLEY
EMAIL

Your Models

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

CRUSADER

I'm good friends with Ernie Lazenby and I featured in his article entitled 'The right engine for Campbell and Cobb', which appeared in the January 2020 issue. Since then, I've taken over of the construction of his Crusader K6 jet

powered WSR boat. I've got a lovely picture of me and Ernie with the completed model and was wondering if you'd be interested in publishing this in the magazine?

RICH MARSH
EMAIL

The finished model looks fabulous and those smiles just say it all! Your photo has perfectly captured not just your remarkable joint achievement but what a wonderfully friendly hobby this is. Ed

Captured for the record, Ernie Lazenby (left) and Rich Marsh (right) show off the remarkable end result of their collaboration on this Crusader K6 jet-powered WSR boat build.





LEFT: Keith's equally as impressive H.M.S. Bulldog (A317).

*I love the fact that you actually went and visited Patricia to take photos and obtained the builder's drawings to ensure authenticity. She's a true testament to the virtues of patience and dedication. Having done a bit of online research myself, I see that it's possible to book UK coastal passengers' voyages on her and they look fab! H.M.S. Bulldog is equally as impressive. You must be so proud of both builds, and yourself. **Ed***

What do you do if you have to shield from COVID-19? Get building, of course! Using photos and drawings supplied by the Saltash Heritage Museum and Local History Centre, James Thompson managed to complete this marvellous 1:72 model of H.M.S. Saltash twin screw minesweeper.



H.M.S. SALTASH

Having been told to shield from COVID-19, I quickly became bored and decided to follow on from my Princess 65 model by venturing into warships. As a result, I am sending you a photo of my scratch-built model of H.M.S. Saltash. She was a twin-screw minesweeper A class designed in early 1916 and of the improved second group from builders Murdoch & Murray, Port Glasgow. Launched in 1918, she survived the war and was then sold to Belgium for commercial use in 1947.

My model was built plank on frame to 1:72 scale from 95% wood, plus brass fittings (with just 5% purchased, e.g. the stanchions and bandstand).

All the photographs and drawings used as reference points during the build were very kindly given to me by Saltash Heritage Museum and Local History Centre and I would like to extend my sincere thanks to Bruce Hunt for this.

JAMES THOMPSON
EMAIL

*You really have kept yourself busy, James. She's museum quality standard, as I'm sure Bruce Hunt himself would agree. **Ed***



AEROKIT FEATURE A REAL HIT

A friend who knows of my hobby rescued a very old and not very well built model from a skip, and it is clearly the same Aerokits Motor Torpedo Boat. What I found fascinating about it was the electric motor it contains (see the photo I have sent).

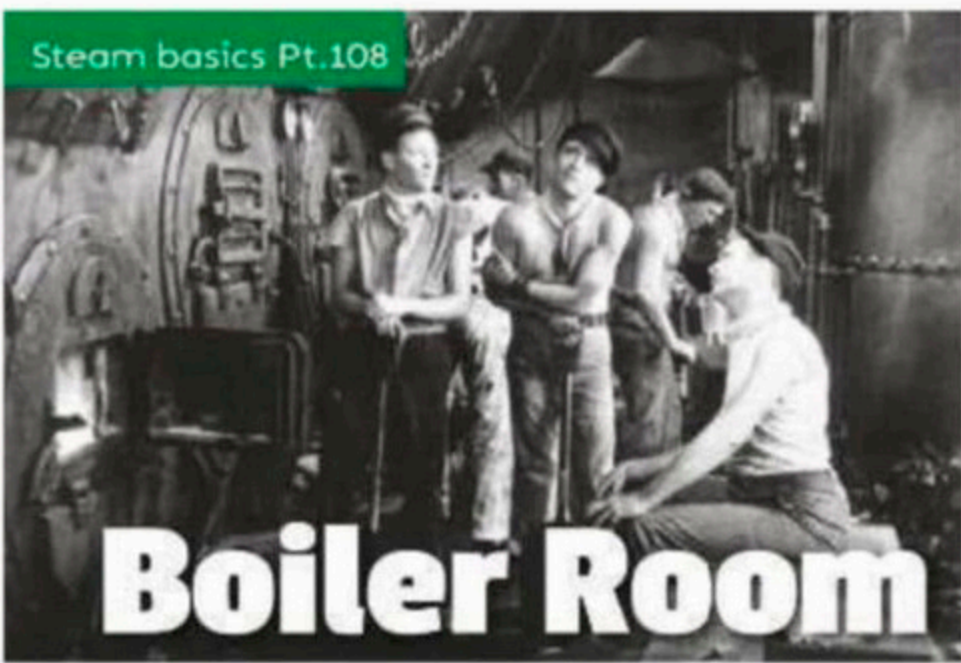
*Thank you so much for your lovely letter, Roger. As I am very aware of all the time and effort contributors put into their features, it's always great to be able to publish appreciative feedback. In the previous title I edited, readers' letters, packed with thought provoking views aired and fascinating information shared, were always my favourite pages of the magazine to work on. There was never a month that went by that I didn't learn something new and/or draw ideas and inspiration for future content from them. I am, therefore, hoping that more readers will put pen to paper or fingers to keyboard. This is your magazine and the letters pages are your platform. Over to you, then. chaps! **Ed***



I am currently researching the history of the Sudbrook Shipyard, which operated between 1887 and 1922 on the banks of the Severn Estuary. It was opened by T.A. Walker, the contractor for the Severn Railway Tunnel, and was subsequently run by his executors and then by his nephew, C.H. Walker. The yard specialised in harbour craft such as steam mudhoppers, coasters, tugs and the occasional schooner. I am keen to locate photographs and plans of any of the vessels built there.

RICHARD CLAMMER
EMAIL





Richard Simpson continues his informative model steam plant series, this month attempting to unravel the tricky topic of thread systems....



The last couple of instalments of the Boiler Room series covered both real examples of working plant and model arrangements, but it's now time to get back into the workshop....

A question that seems to crop up regularly concerns model steam plant thread systems. The complexity and uncertainty of the subject has ensured that it remained on my back burner for a number of years. For starters, the number of fittings required for the purposes of trying to accommodate every thread likely to be found in a model boiler is quite considerable (see Photo 1), the largest number being the boiler plugs (see Photo 2). I have, however, finally decided to bite the bullet and try to make at least some sort of sense of the whole issue.

A little background

When I first started my life as a sea-going engineer in 1977, a fairly typical cargo ship workshop would have tool or shadow boards

up on the bulkheads for the commonly used tools. There would almost certainly be a full set of Metric ring spanners and a full set of Whitworth ring spanners, as these were very commonly required. Usually in a drawer would be the less frequently used spanners, such as those that would be common sizes for UNC and UNF threaded fasteners. On top of these, the electrical lads would have their own spanners for the fasteners found in electrical switchgear and installations, which were usually BA, and you might even have one or two rarer sizes still, to suit perhaps more specific American sizes. Then there were the pipe threads with their own spanners and tapered or parallel threads. It is, therefore, easy to see how complex things could get.

Over the years the number of tools required has reduced dramatically. Most have been consolidated into a metric range, starting with the smallest spanners and progressing upwards in size to those that can accommodate the largest nuts and bolts found on main machinery. Reduced-sized heads are designed to match the size of the next spanner down, thereby ensuring the minimum number of spanners is required to meet every need. I consider myself to be lucky in that my career spanned this transitional period and that I've come through it with a reasonable understanding of both Imperial and metric unit systems. Oddly enough, I use centigrade for temperature and litres for liquids, but I still find boiler testing easier in pounds per square inch for pressure. When it comes to length, I can use feet or metres, depending on which looks to be more convenient on the steel rule. As we used to say on the later British built ships, "Every inch of this ship is metric".

This consolidation of thread systems, of course, has not happened in every area we may come across. One area in particular that steadfastly remains embedded in Imperial sized fastenings is model engineering.

ABOVE: You never quite know what you are going to come across when testing a boiler, so having a good range of thread sizes to hand will serve you well. Sometimes the connections are not too pretty, but as long as they seal a good result can be achieved. BELOW: I have built up a large collection of plugs over the years - a selection of which are shown here. Even so, I still often come across a boiler bush that has a thread I simply don't have a plug for.



QUESTIONS ANSWERED

The August edition was a breath of fresh air, the layout the same as before, which I liked, but the articles really came alive and I cannot put a finger on why. I know Richard Simpson is an old faithful contributor, but his thread guide article answered a lot of questions I had, and the one on Ron Dean and Deans Marine was excellent. Perhaps a similar article on other major suppliers would help us get to know them better? Thanks for a great mag!

BRUCE MUMFORD
EMAIL

Bless your heart for such supportive comments, Bruce! Although I have been an editor for many years, being entrusted with such a long established and much-loved title, especially one where the subject matter presents me with a very steep learning curve, was always going to feel a bit daunting. I, therefore, want to thank all of you who have been so incredibly friendly and welcoming.

I am so glad you found Richard Simpson's thread guide feature helpful and hope you will enjoy the equally as informative and useful follow up on thread sealants in this issue.

A similarly styled profile on another supplier is currently a work in progress, but I will also be introducing, starting in this issue, a series of interviews (with both those in the modelling community and the industry that supports the hobby) in Q&A format. It's a formula I personally like very much, as I feel that by allowing the interviewee to address matters in his/her own words it therefore provides the reader with a more intimate insight.

I have no desire to radically change the content/layout of Model Boats, but every editor has his/her own way of doing things and so over the coming issues I will be making a few little tweaks here and there. But I am still learning how to sail this ship, so if they don't work for you, let me know. All feedback, whether positive or negative, will be really welcome. **Ed**

MAKE THE RIGHT CALL

I have been a reader of model boats for some time and am a scratch build modeller. Being a shipwright, I would love to see the magazine adopt the correct terminology in its articles. So, let's have decks not floors (they are for houses); prows are not needed, stem is correct. Rabbits, they live on Watership Down! Please let's get it right now you are in the chair.

TONY SAUNDERS
EMAIL

I really appreciate your forthrightness, Tony. As mentioned in my response to Roger, one of the lessons I've learnt over the years is that the letters section of a magazine is THE best place for any incoming editor new to a title's subject matter to learn the ropes. The decks thing I was aware of, but the prow/stem advice I wasn't (now Googled and the difference noted). I will do my level best to ensure the correct terminology is used going forward. Please, however, feel free, to pick me up on any errors

spotted so that I can then set the record straight. I am a great believer in holding up my hands rather than using them to cover my backside! **Ed**

SENDING OUT AN SOS

I've had an unmade kit of a 1:12 scale Rother Class lifeboat for too many years. I'm running out of time: 70, and they're taking me out of retirement, again!

I think I have everything necessary, including the motors and RC, though a new battery will probably be needed. Can you suggest anyone who has the skills to do the job for me, and would be prepared to quote? Ideally, it should be someone within reasonable travelling distance of Surrey. I could probably carry on from a partial build - that is, add the (many) fittings and details.

MARTIN HEARNE
EMAIL

OK, the flare's been sent up! If anyone within striking distance of Martin can come to the rescue, please get in touch and I will pass your contact details on to him. **Ed**



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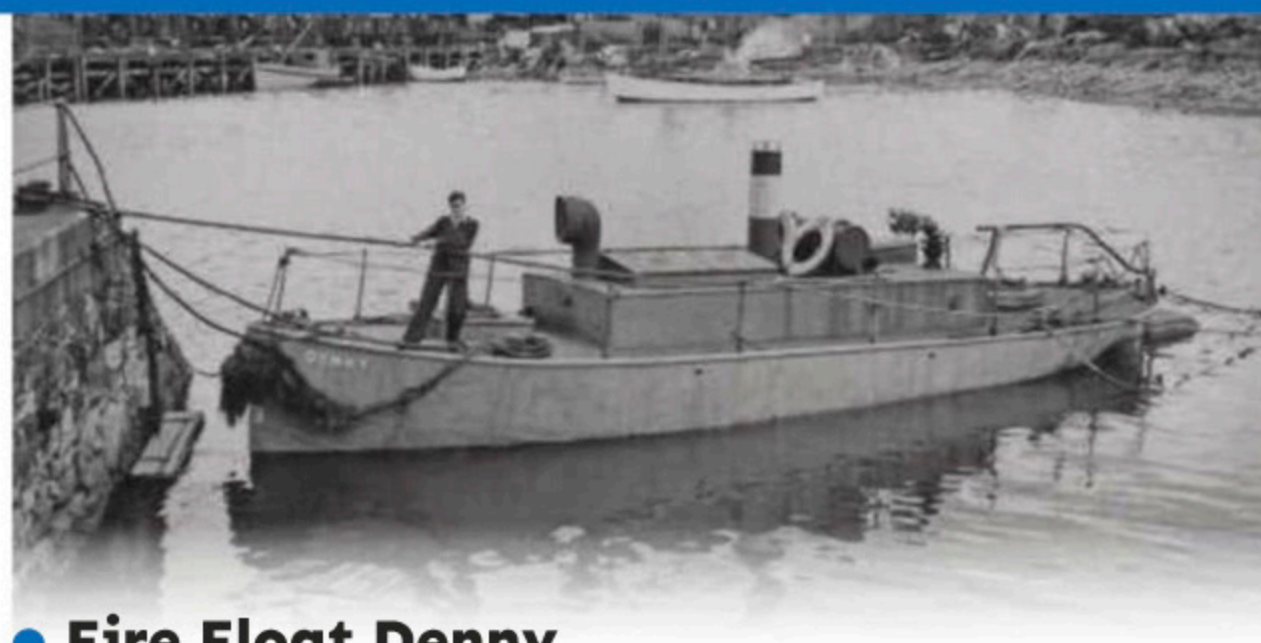
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● Fire Float Denny

Richard Norman, model boat scratchbuilder and Chief Engineer at Dennis from 1986-2010, shows off his skilful 1:24 scale representation of what's believed to be the only venture by the company into the supply of marine fire fighting installations



● Get setup!

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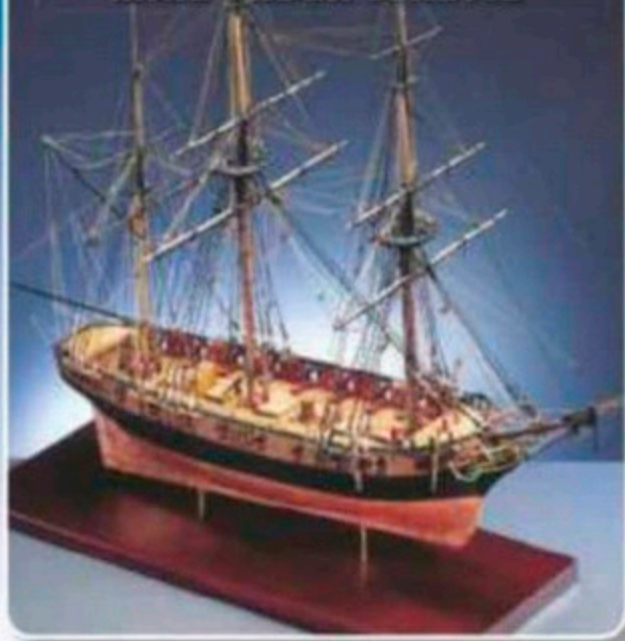
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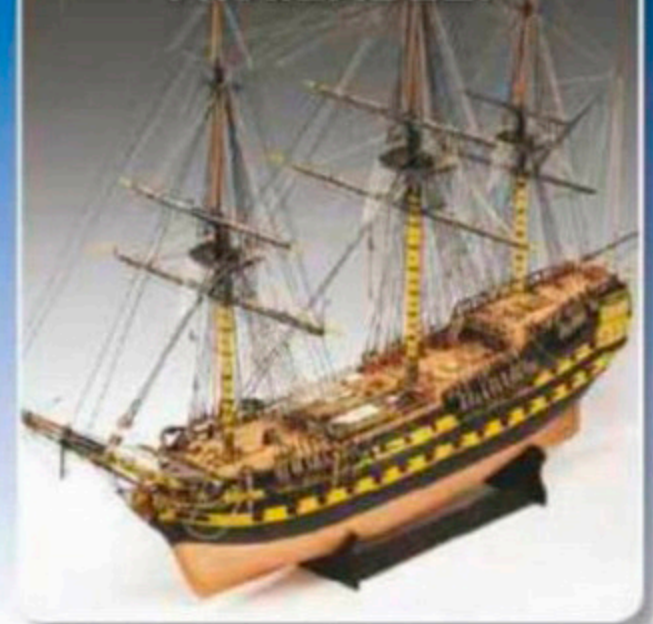
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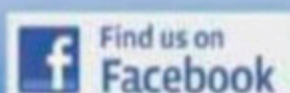
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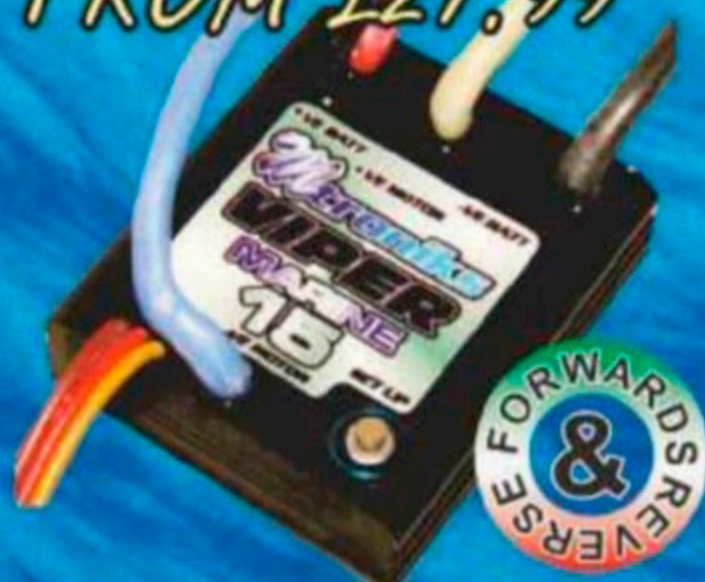
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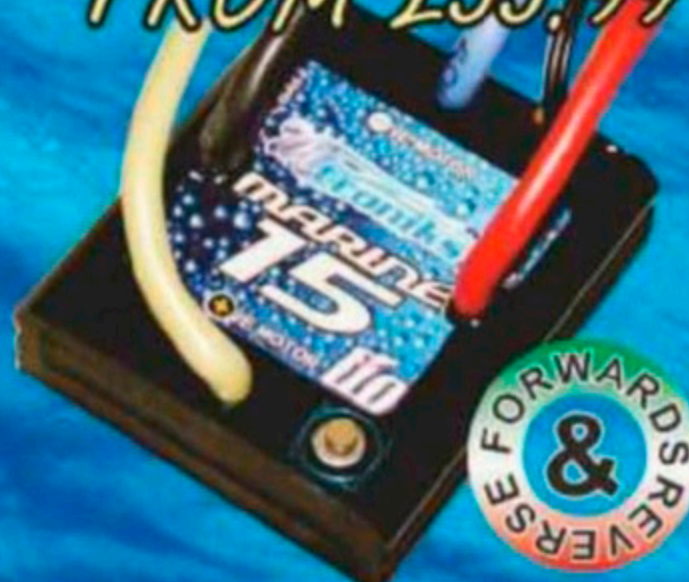


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