

Type 21 Frigate

H.M.S. ARROW

1974-1994
1/350 Scale

The Type 21 frigate was the Royal Navy's first privately designed ship taken into service for a long time. The RN had a requirement for a general purpose vessel to replace the Leopard- and Salisbury-class frigates that were not very well suited to escort duties due to their diesel power plants. Vosper Thornycroft came up with a modern designed frigate that they claimed was comparatively cheaper than the Leander-class frigates already in service. The new ship was all gas turbine powered, and was not restricted by having to allow time for boilers to bring up steam for propulsion.

The Admiralty ordered eight ships of the new class beginning with the name ship *HMS Amazon*, with all of the remainder of the class' names beginning with A, and these were all accepted into service between July 1974 and April 1978.

The type was well-liked by all those that served in them, but because of their small size and lack of long range radar, there was no prospect of being able to modernise them as they were already close to their top weight limits.

All of the class served during the Falklands campaign of 1982, with *Amazon* being the only one to arrive late in the second group of ships after the Argentine surrender. Two of the class were lost to enemy fire. *Ardent* was strafed and bombed repeatedly by flights of aircraft on 23 May and sunk. *Antelope* received bomb hits which failed to explode, but one was set off by the disposal team attempting to defuse it. The resulting fire set off the ship's magazines which broke her back, sinking her.

HMS Arrow was built by Yarrow Shipbuilders Ltd, Glasgow and launched on 5 February 1974 by Lady Raper, wife of Vice Admiral Sir George Raper. *Arrow* was the fifth Type 21 Frigate to be built and the first to carry Exocet missiles. She was commissioned on 29th July 1976 in Sunderland, the town to which she was affiliated.

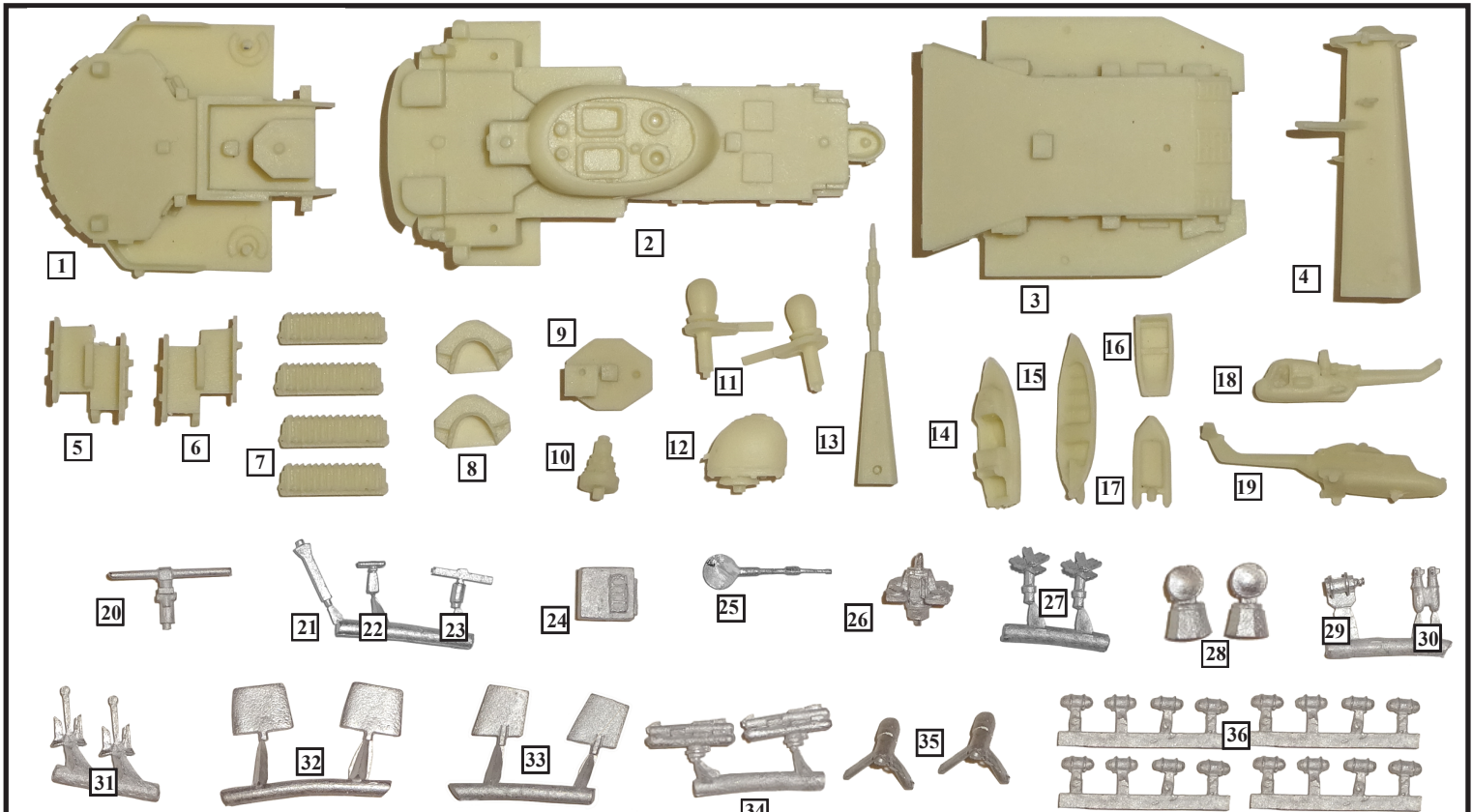
HMS Arrow served along with all her sister ships that made up the 4th Frigate Squadron during the Falklands campaign in 1982, and was in the first wave of ships deployed. She claimed the distinction of being the first ship to fire on the Argentine shore positions as well as the first ship to be hit by enemy fire after being strafed by a fighter jet.

She went alongside *HMS Sheffield* after the missile attack which disabled her, and helped to take off the survivors. She operated in and around Falkland sound with *HMS Alacrity*, keeping the seaway open and providing gunfire support to the troops ashore.

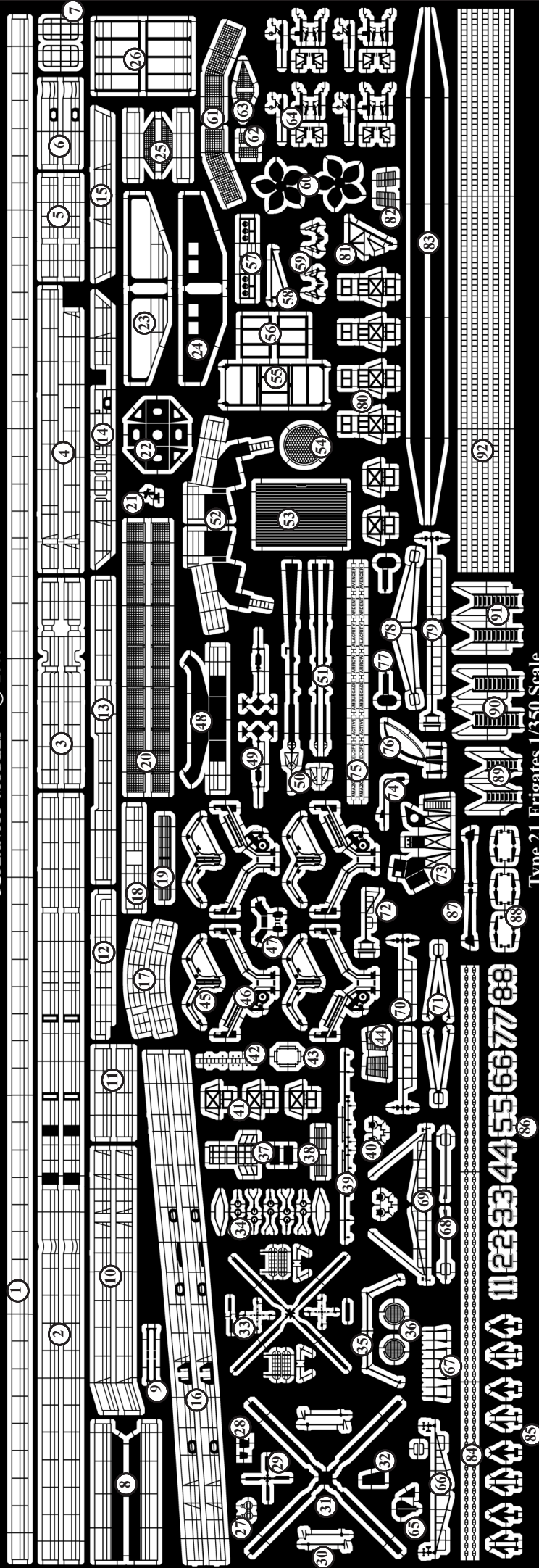
After *Arrow* returned from home she went into refit until September 1983, after which she headed back to the Falklands as guardship. She also spent time in the West Indies as guardship and carrying out anti-piracy patrols.

HMS Arrow served in the fleet until 1994 after which she was decommissioned and sold to the Pakistan Navy and renamed *PNS Khaibar*. She remains in service to this day in the Pakistan Navy where she serves alongside the other five remaining Type 21 frigates that were purchased from the United Kingdom.

RESIN & WHITE METAL PARTS



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|----------------------------------|------------------------------|------------------------------|-----------------------------|
| 1. Bridge | 10. Abbey Hill UAA-1 Sensor | 19. Lynx Helicopter | 28. 912 FC Directors |
| 2. Aft Superstructure and Funnel | 11. SCOT Radomes | 20. 992 Radar Antenna | 29. Deck Windlass |
| 3. Helicopter Hangar | 12. 4.5" Mk8 Gun Turret | 21. Exocet Telemetry Antenna | 30. Acoustic Torpedo Decoys |
| 4. Foremast | 13. Mainmast | 22. 1006 Radar Antenna | 31. Anchors |
| 5. Exocet Box Mounting (Stbd) | 14. 25' Cheverton Motor Boat | 23. IFF Interrogator Antenna | 32. Stabiliser Fins |
| 6. Exocet Box Mounting (Port) | 15. 27' Whaler | 24. SCOT Receiver Office | 33. Rudders |
| 7. Exocet Boxes | 16. Maintenance Boat | 25. 4.5" Mk8 Gun Barrel | 34. STWS Torpedo Tubes |
| 8. Chaff Launcher Enclosures | 17. Gemini Inflatable Boat | 26. Sea Cat Missile Launcher | 35. Propeller A Frames |
| 9. Foremast Top Platform | 18. Wasp Helicopter | 27. Corvus Chaff Launcher | 36. Life Raft Canisters |



Type 21 Frigates 1/350 Scale

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|--------------------------------------|---|--|--------------------------------------|
| 1. Stock 3-Bar Railings | 24. STWS Deck Support (Late) | 47. Helicopter GPI Mounting | 70. Yardarms (Mainmast) |
| 2. Railings (Main Deck) | 25. Exocet Main Deck Extensions | 48. Auxiliary Conning Platform | 71. Yardarm Stays (Mainmast) |
| 3. Railings (Air Intake Platform) | 26. Intake Platform Supports | 49. Dan Buoy | 72. Yardarm (Foremast Front) |
| 4. Railings (Chaff Launcher Deck) | 27. Lynx Helicopter Tail Fold Joint | 50. Mainmast DF Antenna | 73. Wire Antenna Collector Box |
| 5. Railings (Intake Box, Top) | 28. Lynx Helicopter Tail Antennas | 51. Mainmast Pole Sides | 74. Foremast Top Platform Antenna |
| 6. Railings (Flight Deck Forward) | 29. Lynx Helicopter Tail Rotor | 52. Exocet Launcher Access Platforms | 75. Ships' Name Plates |
| 7. Funnel Uptake Grilles | 30. Lynx Helicopter Blade Fold Supports | 53. Hangar Roller Door | 76. Small Boat Davit |
| 8. Railings (Boat Deck Overhang) | 31. Lynx Helicopter Main Rotor | 54. Flight Deck Harpoon Grid | 77. Foremast Spade Antennas (Side) |
| 9. Torpedo Decoy Rack | 32. Lynx Helicopter Tail Plane (Spare) | 55. Small Boat Cradle | 78. Yardarm Stays (Foremast Side) |
| 10. Railings (Hangar Roof Sides) | 33. Wasp Helicopter Parts | 56. Small Boat Cradle Inner Frames | 79. Yardarms (Foremast Side) |
| 11. Railings (Exocet Deck) | 34. Wasp Helicopter Undercarriage Parts | 57. Flight Deck Floodlight Frames | 80. Life Raft Racks (Double) |
| 12. Railings (1006 Radar Platform) | 35. Yardarm Tie Frame | 58. Aux Con Bulwark Davit | 81. Forward RAS Post |
| 13. Railings (Foremast Top Platform) | 36. 912 FC Radar Antenna Face | 59. Chaff Launcher Flare Tubes | 82. Funnel Vent Grilles (Small) |
| 14. Railings (Stem) | 37. Fuel Can Stowage | 60. Propellers | 83. Hull Side Stiffener Plates |
| 15. Railings (Overlikon Deck) | 38. Aft 912 Vent Box Grilles | 61. Flight Deck Safety Nets Aft Quarters | 84. Anchor Chain |
| 16. Railings (Foc'sle Deck) | 39. Hangar Roof Light Bar | 62. Flight Deck Safety Nets Joiners | 85. Sea Cat Missiles |
| 17. Railings (SCOT Platforms) | 40. Signal Lamps | 63. Flight Deck Safety Nets Corners | 86. Funnel Squadron Numbers |
| 18. Railings (Hangar Roof Aft) | 41. Life Raft Rack (Single) | 64. 20mm Overlikon Single Mounts | 87. Torpedo Decoy Crane Jib |
| 19. Aft Superstructure Vent Grille | 42. Mk 8 Gun Rear Ladder | 65. Foremast Spade Antenna (Forward) | 88. Foremast Side Sensors |
| 20. Flight Deck Safety Nets (Sides) | 43. Mk 8 Gun Top Rail | 66. Yardarms Fore Mast (Forward) | 89. Inclined Ladders (GDP) |
| 21. GDP Rangefinder | 44. Funnel Vent Grilles (Large) | 67. Sea Cat Launcher Rails | 90. Inclined Ladders (Aft Deck) |
| 22. Mast Top Platform Plating (Aft) | 45. Boat Davits (Upper) | 68. Yardarms (Foremast Rear Top) | 91. Inclined Ladders (Main Deck Mid) |
| 23. STWS Deck Support (Early) | 46. Boat Davits (Lower) | 69. Yardarms (Foremast Rear) | 92. Vertical Ladders (Stock) |

General Precautions

When assembling a resin/photoetched metal kit, certain precautions must first be taken:

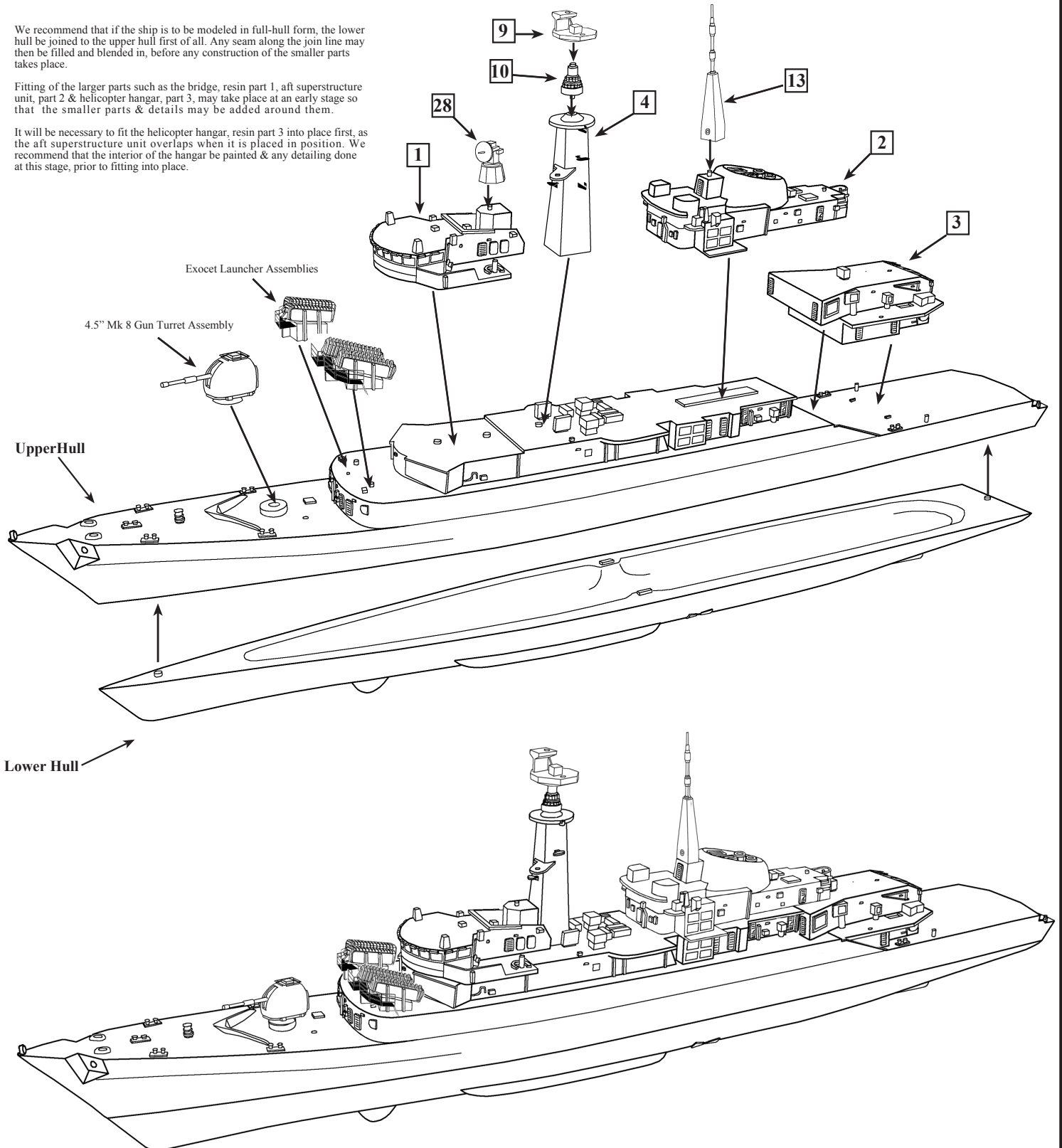
1. Resin dust can be an irritant if inhaled. We recommend that you wear a suitable dust mask when drilling or sanding resin parts.
2. Cyano adhesives (super glues) are generally used to assemble this type of kit. Care must be taken when using this type of adhesive as it will bond in seconds. Follow the advice on the container.
3. Wash resin parts in a solution of warm soapy water before assembly. This will remove any residual mold release agents and ensure a good key for painting.
4. Soak photoetch parts in a suitable solvent, such as white spirit, to degrease the surfaces prior to painting.

MAIN STRUCTURAL PARTS

We recommend that if the ship is to be modeled in full-hull form, the lower hull be joined to the upper hull first of all. Any seam along the join line may then be filled and blended in, before any construction of the smaller parts takes place.

Fitting of the larger parts such as the bridge, resin part 1, aft superstructure unit, part 2 & helicopter hangar, part 3, may take place at an early stage so that the smaller parts & details may be added around them.

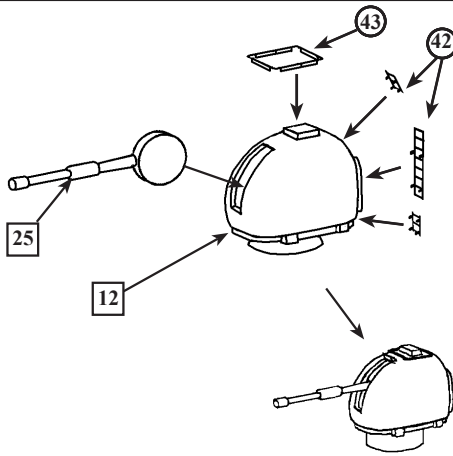
It will be necessary to fit the helicopter hangar, resin part 3 into place first, as the aft superstructure unit overlaps when it is placed in position. We recommend that the interior of the hangar be painted & any detailing done at this stage, prior to fitting into place.



When the model has been constructed to the stage of fitting the masts into place, assemble the masts according to the diagrams in subsequent sections. Fit the assembled foremast down to the deck over a locating peg in the centre of the signal deck enclosure as shown.

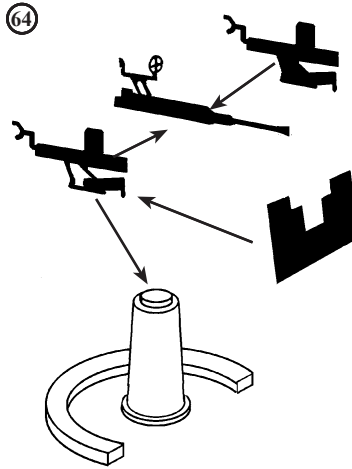
The mainmast locates on the housing in front of the funnel uptake over a single locating peg. We recommend that if the mainmast is to be cut down to its early fit height, that it be done before fitting into place. The assembly of the mainmast is covered in more detail in a subsequent section of these instructions.

4.5" Gun Turret Assembly



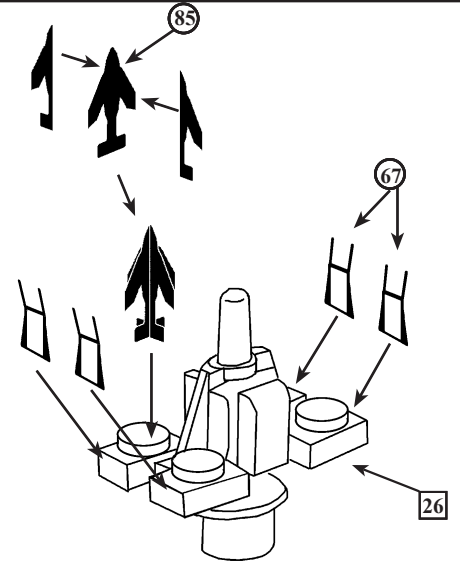
The early Mk 8 gun turret can be assembled so that the gun barrel, metal part 25, can be fitted into the slot and elevated to any position desired. When fitted secure into place with super glue. Fold the top rail, etched part 43, so that the feet are downward to 90°, then fit to the top of the turret around the raised part. Fold the attachment brackets on the access ladders to 90° so that they are parallel, then fit the ladders to the rear of the turret as shown with the long section fitting over the oval access door.

20mm Oerlikon Mount



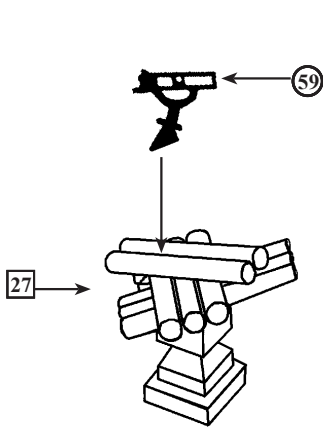
Fit the two side sections of the gun body to each side of barrel section. Bend the shoulder rests outwards slightly, then twist the gun sight to 90°. Fit the 20mm gun mount to the tops of the pintles that are situated on each side of the forward superstructure top deck abreast of the bridge. Fit the gun shield centrally to the locating lug just below the mid point on the gun. A pair of 20mm mounts were later fitted to the flight deck edges each side of the hangar door.

Sea Cat Missile Launcher



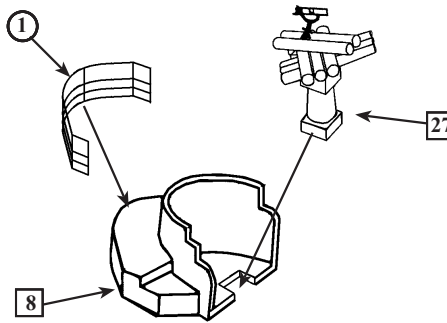
Assemble the Sea Cat missiles using etched parts 85 as shown above. These can be fitted to the launcher as desired. Fit the side rails, etched parts 67, to the short sides of the launcher.

Corvus Chaff Launcher Assembly



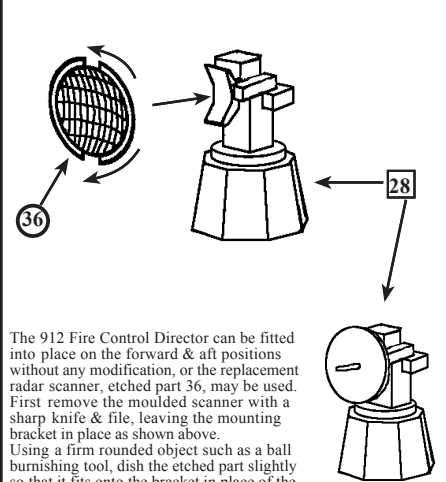
Fold the flare tubes, etched parts 59, in half to make them double-thickness with the relief-etched detail outermost. Fit to the top of the chaff launchers, metal parts 27, so that the foot locates between the top two tubes. Make two of these.

Chaff Launcher Enclosure Assembly



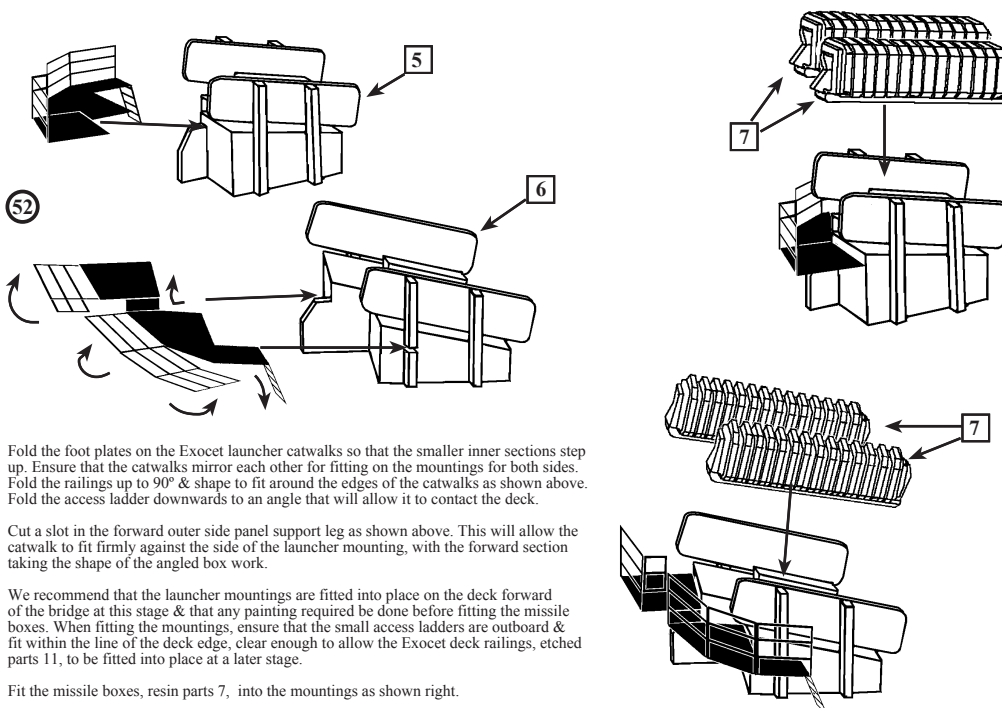
We recommend that the Corvus Chaff Launcher enclosures be fitted to the deck extensions on the middle superstructure before fitting the parts. Cut out a rectangular notch in the bottom of the enclosure to receive the base of the launcher. Fit the launcher into place, then cut & fit a railing section of etched part 1 to the rear platform on the chaff launcher enclosure.

912 Fire Control Director Assembly



The 912 Fire Control Director can be fitted into place on the forward & aft positions without any modification, or the replacement radar scanner, etched part 36, may be used. First remove the moulded scanner with a sharp knife & file, leaving the mounting bracket in place as shown above. Using a firm rounded object such as a ball burnishing tool, dish the etched part slightly so that it fits onto the bracket in place of the original metal part. Make two of these.

Exocet Missile Box Launcher Assembly



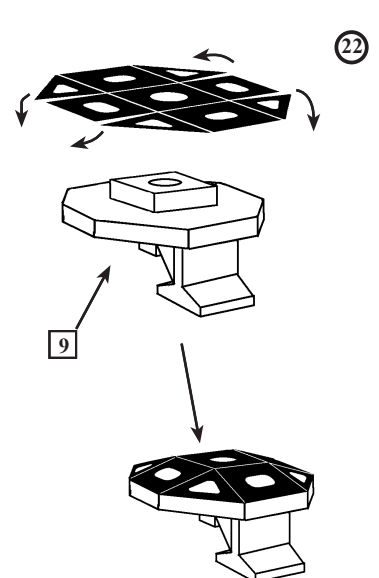
Fold the foot plates on the Exocet launcher catwalks so that the smaller inner sections step up. Ensure that the catwalks mirror each other for fitting on the mountings. Fold the railings up to 90° & shape to fit around the edges of the catwalks as shown above. Fold the access ladder downwards to an angle that will allow it to contact the deck.

Cut a slot in the forward outer side panel support leg as shown above. This will allow the catwalk to fit firmly against the side of the launcher mounting, with the forward section taking the shape of the angled box work.

We recommend that the launcher mountings are fitted into place on the deck forward of the bridge at this stage & that any painting required be done before fitting the missile boxes. When fitting the mountings, ensure that the small access ladders are outboard & fit within the line of the deck edge, clear enough to allow the Exocet deck railings, etched parts 11, to be fitted into place at a later stage.

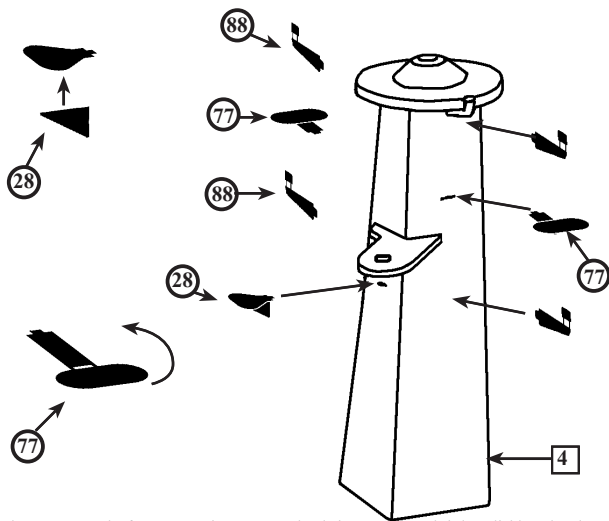
Fit the missile boxes, resin parts 7, into the mountings as shown right.

Radar Platform Under Panels



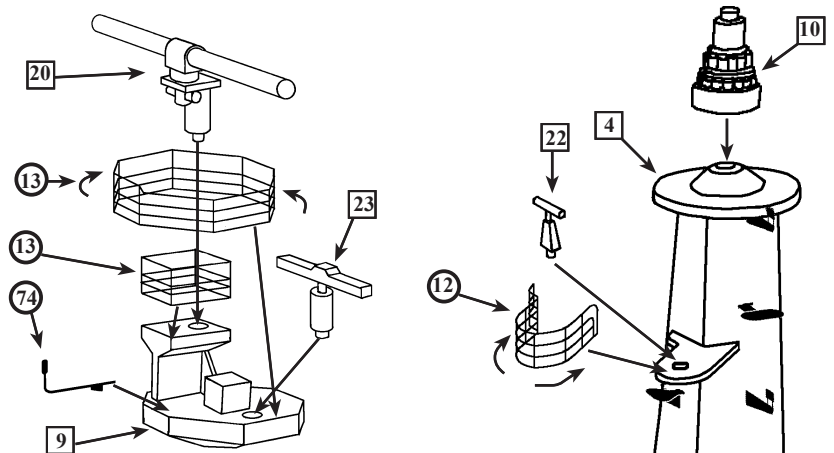
Etched part 22 has been provided for those who wish to add even more detail to the foremost radar platform, resin part 9. First remove the moulded angled outer sections of the under side of the platform, but leave the central square in place. Fit etched part 22 over the square centre, ensuring alignment with the locating hole. Fold down the angled side sections to form a new underside with lightening holes as seen on the real ship.

Foremast Sensor Assembly



The sensors on the foremast, resin part 4 are, by their nature, very brittle & liable to break away from the mast. To this end, etched alternative parts have been supplied to replace these. Fit the forward spade antenna, etched part 28, together as shown above left & use to replace the item on the front of the mast.
 Fold the oval plates on etched parts 77 right over so that they join onto the flat stem. Fit these in place of the items on the side of the mast as shown above.
 Fold the sensors, etched parts 88, in half so that they are double-thickness. Use these to replace the moulded parts on the sides of the mast as necessary.

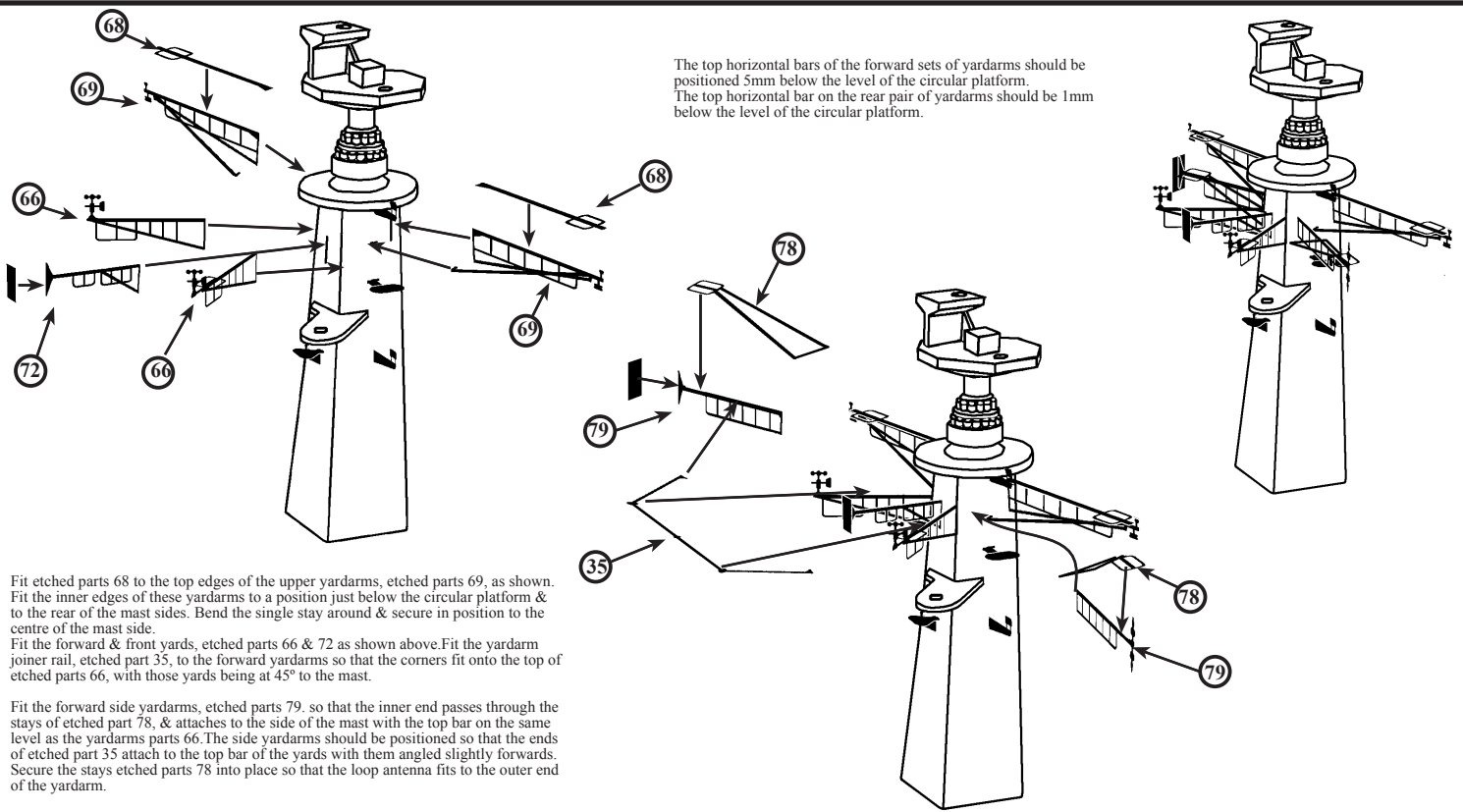
Foremast Radar Platform Assembly



Shape & fit the railings, etched parts 13, to the edges of the radar platform as shown above left. Fit the small forward antenna, etched part 74, centrally through the bottom railing so that it fits onto the deck edge.
 Fit the IFF interrogator antenna, metal part 23 to the lower position on the platform.
 Fit the 992 radar antenna, metal part 20, into position on the higher small platform.

Shape & fit the railing section, etched part 12, around the edge of the 1006 radar platform as shown above right. The small section of railing on one end protrudes out from the platform & forms a wraparound at the top of a vertical ladder on the front of the mast.
 Fit the 1006 radar antenna, metal part 22, to the platform. Fit the UAA-1 Abbey Hill array, resin part 10, to the top of the foremast

Foremast Yardarm Location & Assembly

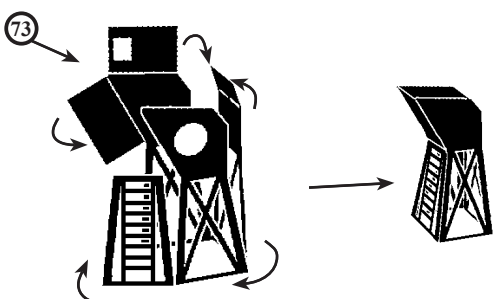


The top horizontal bars of the forward sets of yardarms should be positioned 5mm below the level of the circular platform.
 The top horizontal bar on the rear pair of yardarms should be 1mm below the level of the circular platform.

Fit etched parts 68 to the top edges of the upper yardarms, etched parts 69, as shown. Fit the inner edges of these yardarms to a position just below the circular platform & to the rear of the mast sides. Bend the single stay around & secure in position to the centre of the mast side.
 Fit the forward & front yards, etched parts 66 & 72 as shown above. Fit the yardarm joiner rail, etched part 35, to the forward yardarms so that the corners fit onto the top of etched parts 66, with those yards being at 45° to the mast.

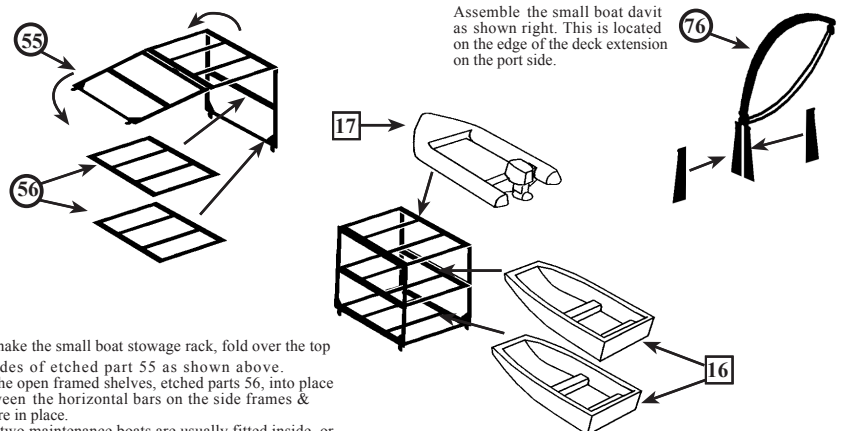
Fit the forward side yardarms, etched parts 79, so that the inner end passes through the stays of etched part 78, & attaches to the side of the mast with the top bar on the same level as the yardarms parts 66. The side yardarms should be positioned so that the ends of etched part 35 attach to the top bar of the yards with them angled slightly forwards. Secure the stays etched parts 78 into place so that the loop antenna fits to the outer end of the yardarm.

Wire Antenna Collector Assembly



Fold the sides of the wire antenna collector, etched part 73, around so that they are parallel. Angle the cross-braced lower sections inwards so that the edges come together at the corners. Secure into place.
 Fold the top panel & front & rear panels inwards to form an angular box as shown right.
 This assembly fits on the deck centrally behind the foremast, & is used to gather the lower ends of the wire antennas trailing down from those strung between the two masts. See the colour guide profile for exact position.

Small Boat Stowage Assembly

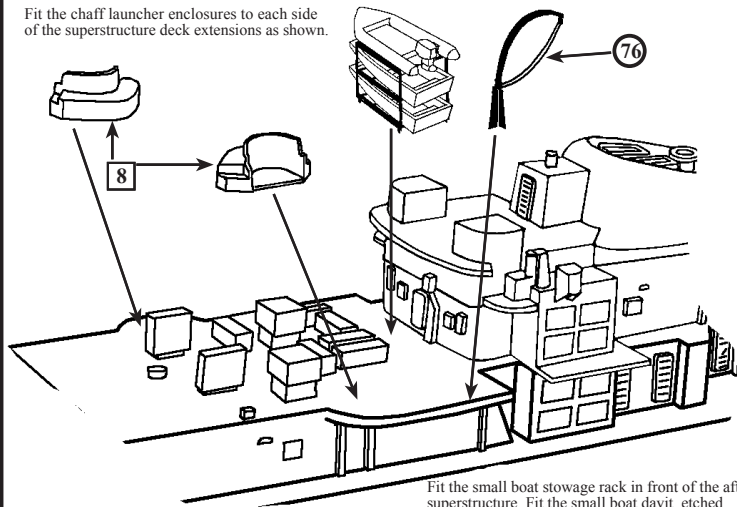


Assemble the small boat davit as shown right. This is located on the edge of the deck extension on the port side.

To make the small boat stowage rack, fold over the top & sides of etched part 55 as shown above.
 Fit the open framed shelves, etched parts 56, into place between the horizontal bars on the side frames & secure in place.
 The two maintenance boats are usually fitted inside, or alternatively one of these can be substituted for a dinghy.
 The Gemini inflatable is stowed on the top of the rack.

Small Boats & Chaff Enclosure Location

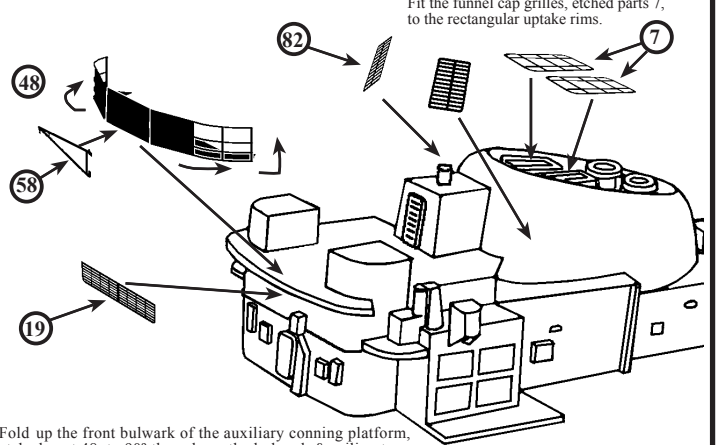
Fit the chaff launcher enclosures to each side of the superstructure deck extensions as shown.



Fit the small boat stowage rack in front of the aft superstructure. Fit the small boat davit, etched part 76, to the edge of the port deck extension aft of the chaff launcher enclosure.

Auxiliary Conning Position Assembly

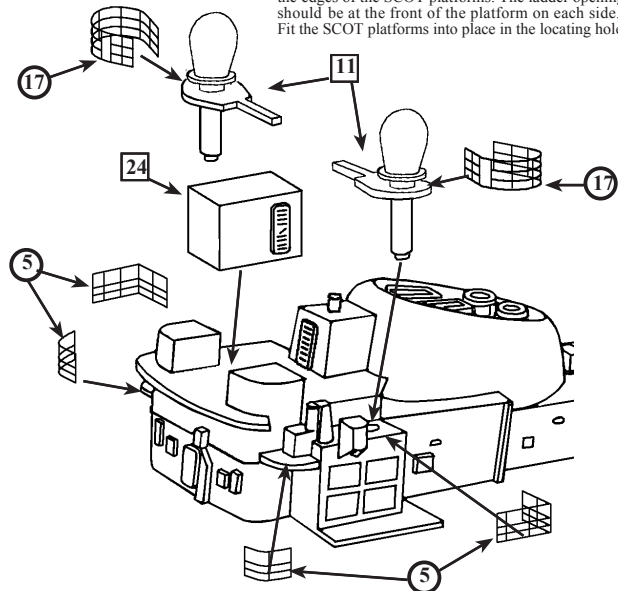
Fit the funnel cap grilles, etched parts 7, to the rectangular uptake rims.



Fold up the front bulwark of the auxiliary conning platform, etched part 48, to 90° then shape the bulwark & railing to fit around the edge of the platform. Fit in place on the moulded deck extension as shown above.
Fit the large air intake grille, etched part 19, centrally just below the auxiliary conning platform.
Fit the smaller angled vent grilles, etched parts 82, onto the funnel.

SCOT Platform Location & Assembly

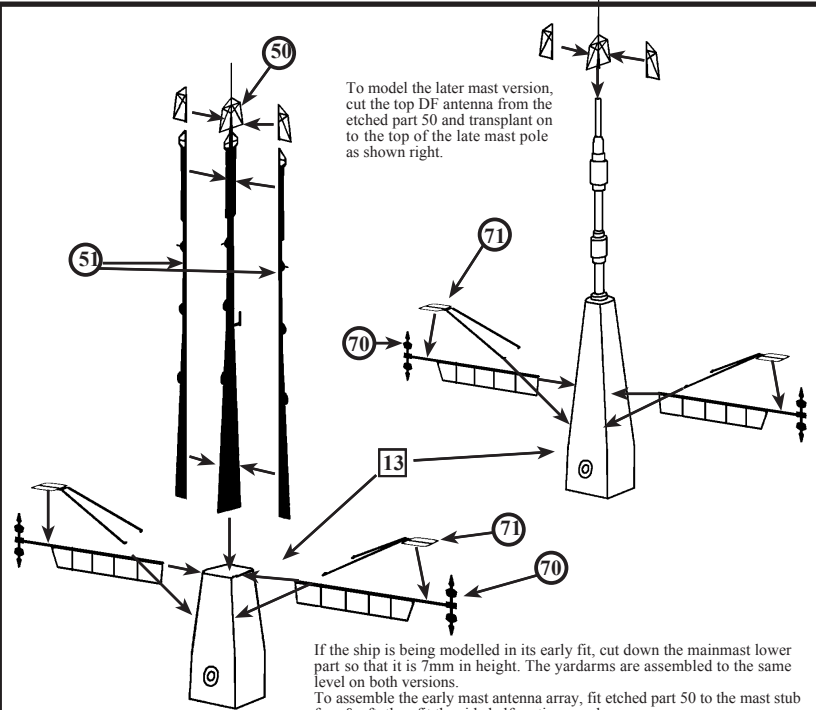
Shape the railings sections, etched parts 17, to fit onto the edges of the SCOT platforms. The ladder openings should be at the front of the platform on each side. Fit the SCOT platforms into place in the locating holes.



Fit the SCOT transmitter house, metal part 24, to the deck in between the two raised housings on the auxiliary conning platform. Ensure the doors are positioned to the rear & port side. Shape & fit the railings, etched parts 17, to the small curved antenna platforms and the top of the main air intake grille boxes on both sides of the aft superstructure. Inclined ladders, etched parts 89, fit to the outer ends of the auxiliary conning platform & down to the small curved platforms in front of the whip antenna bases.

Mainmast Assembly

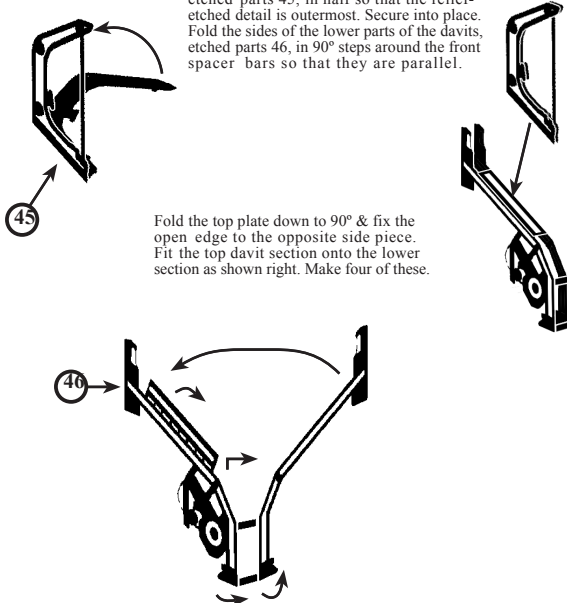
To model the later mast version, cut the top DF antenna from the etched part 50 and transplant on to the top of the late mast pole as shown right.



If the ship is being modelled in its early fit, cut down the mainmast lower part so that it is 7mm in height. The yardarms are assembled to the same level on both versions.
To assemble the early mast antenna array, fit etched part 50 to the mast stub fore & aft, then fit the side half sections as shown.

Boat Davit Assembly

Fold the top sections of the boat davits etched parts 45, in half so that the relief-etched detail is outermost. Secure into place. Fold the sides of the lower parts of the davits, etched parts 46, in 90° steps around the front spacer bars so that they are parallel.

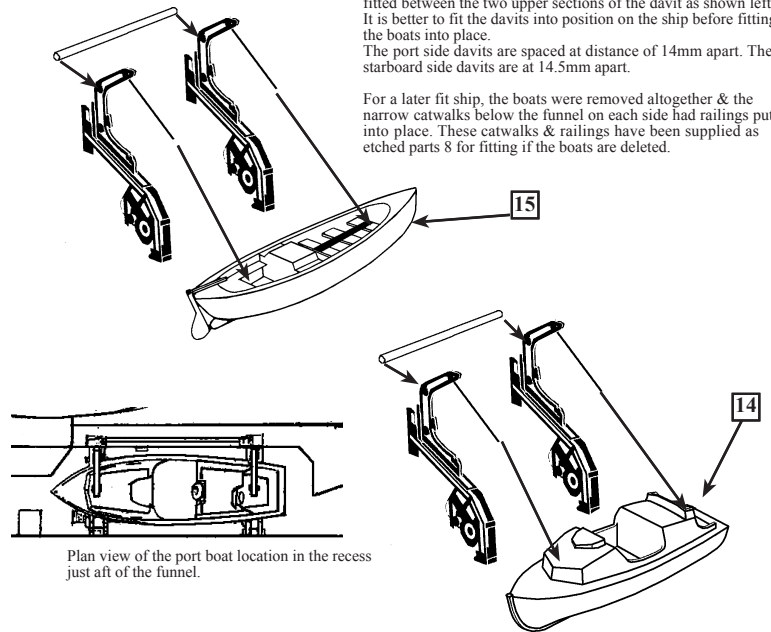


Fold the top plate down to 90° & fix the open edge to the opposite side piece. Fit the top davit section onto the lower section as shown right. Make four of these.

Ship's Boats Fitting

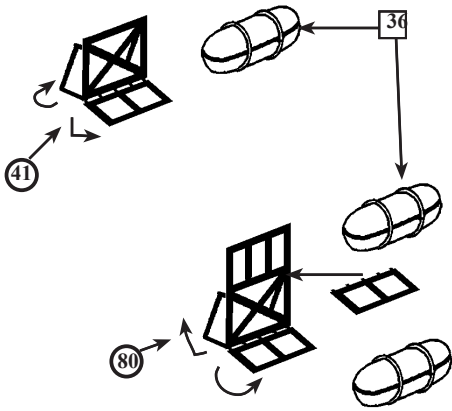
When fitting the davits to the ship's superstructure, a joiner bar is fitted between the two upper sections of the davit as shown left. It is better to fit the davits into position on the ship before fitting the boats into place. The port side davits are spaced at distance of 14mm apart. The starboard side davits are at 14.5mm apart.

For a later fit ship, the boats were removed altogether & the narrow catwalks below the funnel on each side had railings put into place. These catwalks & railings have been supplied as etched parts 8 for fitting if the boats are deleted.



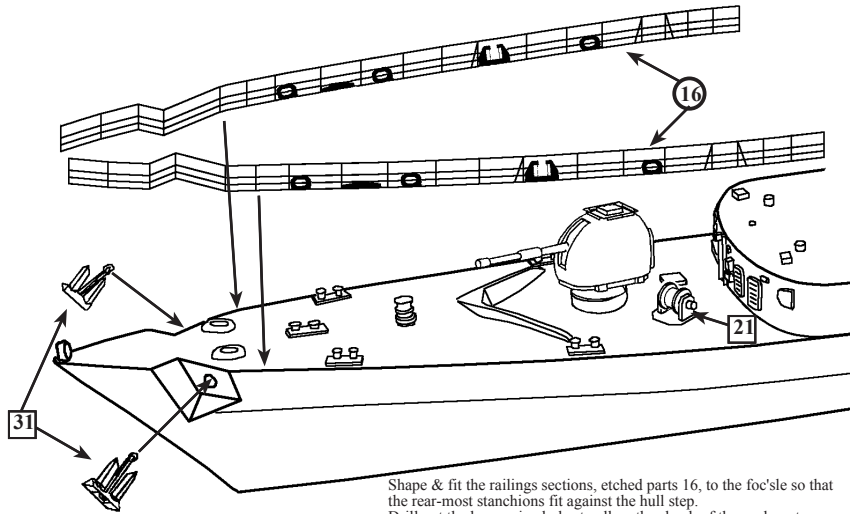
Plan view of the port boat location in the recess just aft of the funnel.

Life Raft Rack Assembly



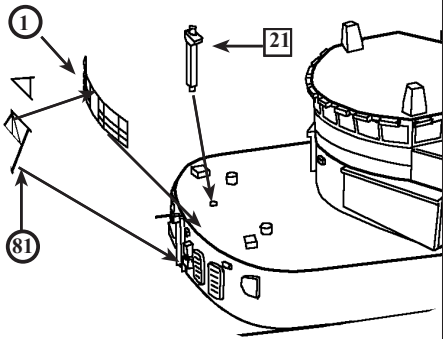
Shape the life raft canister racks as shown above in a similar manner to each other. Fit the double rack shelf onto the horizontal bar as shown, then fit the canisters into place.

Foc'sle Railings Location



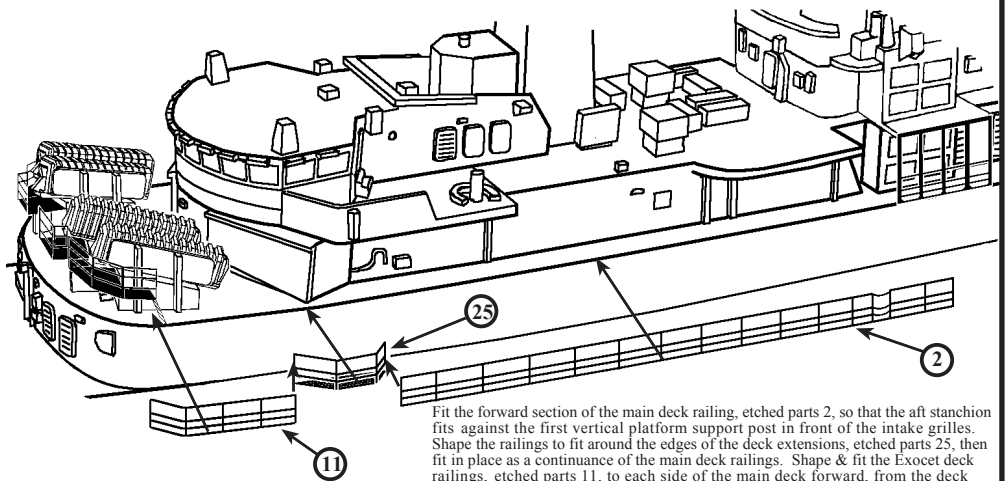
Shape & fit the railings sections, etched parts 16, to the foc'sle so that the rear-most stanchions fit against the hull step. Drill out the hawsepipes holes to allow the shank of the anchors to pass up into when fitting into place.

Forward RAS Post Location



Cut a section of stock railing from etched part 1 & fit into place across the edge of the deck at the hull step, between the Exocet launcher mountings. Fit the RAS gantry post, etched part 81, centrally onto the moulded post on the front of the hull step. Fit the missile telemetry antenna post, metal part 21, into the locating hole on the deck.

Forward Main Deck Railings Location

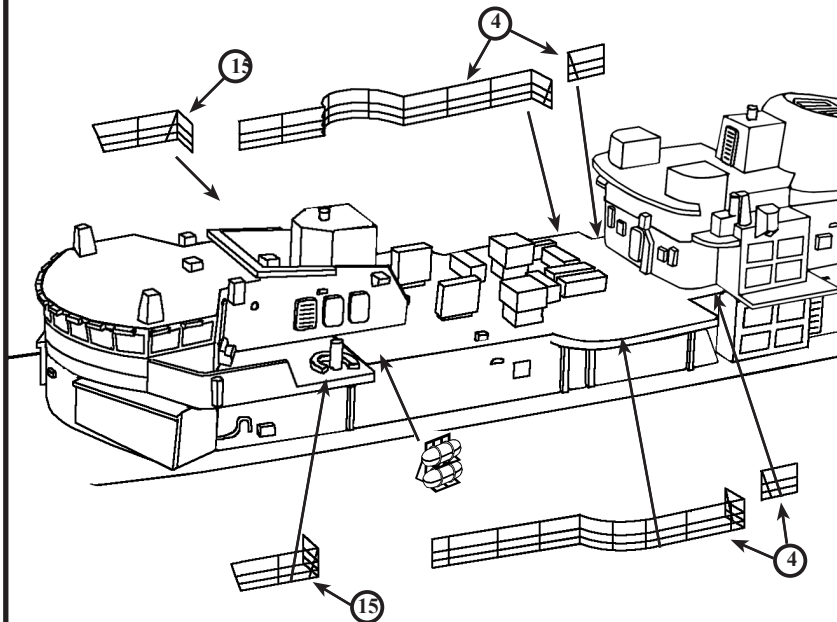


Fit the forward section of the main deck railing, etched parts 2, so that the aft stanchion fits against the first vertical platform support post in front of the intake grilles. Shape the railings to fit around the edges of the deck extensions, etched parts 25, then fit in place as a continuance of the main deck railings. Shape & fit the Exocet deck railings, etched parts 11, to each side of the main deck forward, from the deck extensions. The front end of these railings should turn inwards to the Exocet mounting.

Forward Superstructure Railings Location

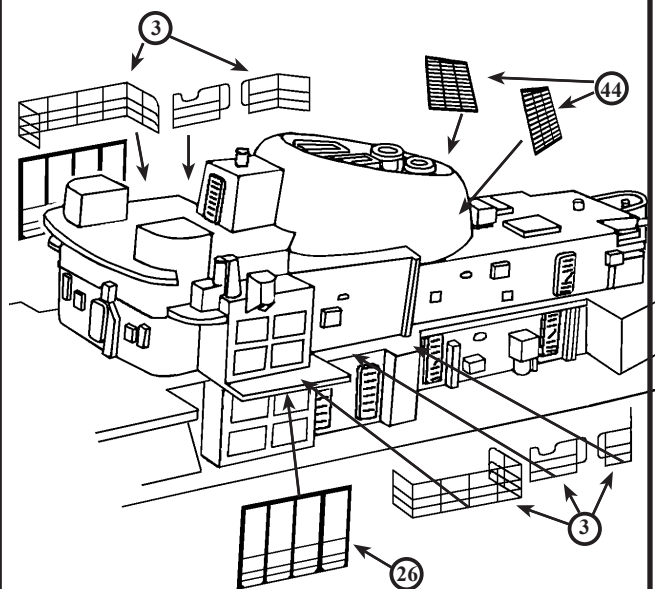
Shape the two small railings section, etched parts 15, to fit the edges of the 20mm Oerlikon deck.

Fit the two small sections of railing to the inboard edge of the deck at the ladder access. Inclined ladders, etched parts 91, are fitted to these positions.



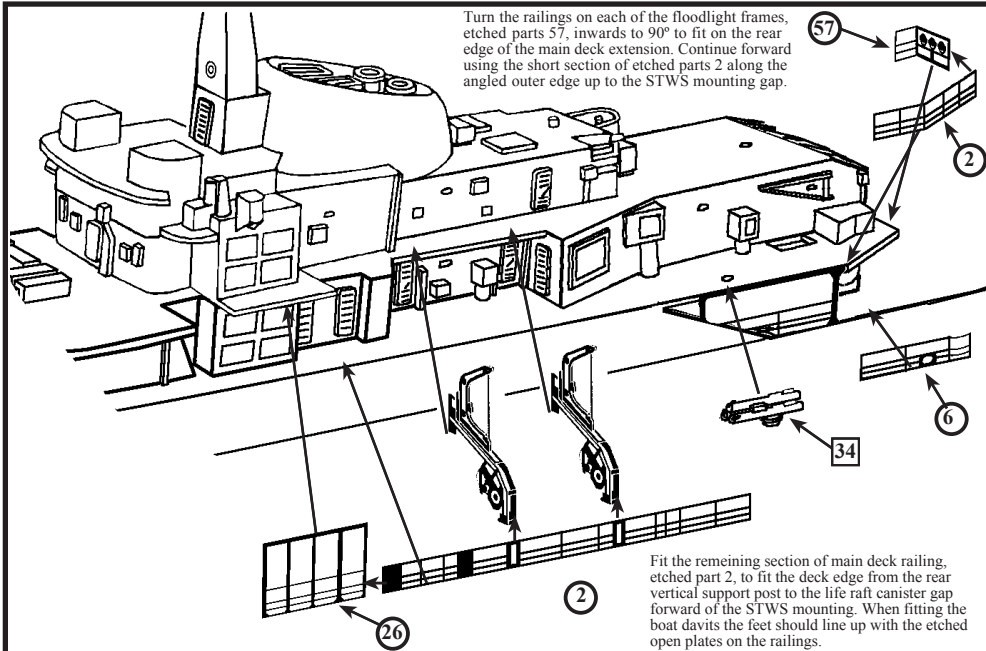
Shape & fit the two railing sections, etched parts 4, to fit the edges of the amidships superstructure deck. Note that the port side railing is slightly longer than the starboard side railing. There should be a gap at the forward end to allow the fitting of a double liferaft rack aft of the 20mm Oerlikon deck on each side.

Amidships Superstructure Railings Location



Fit the large air intake box platform supports, etched parts 26, between the edge of the main deck & the edge of the platform. Shape & fit the railings sections 3, to the edges of the intake platform and continuing aft along the narrow catwalk as shown above. The two forward sections of railing should join together but they are stepped at different levels. The railing is shaped at the join to compensate. Fit the large angled vent grilles, etched parts 44, to the rear quarters of the funnel.

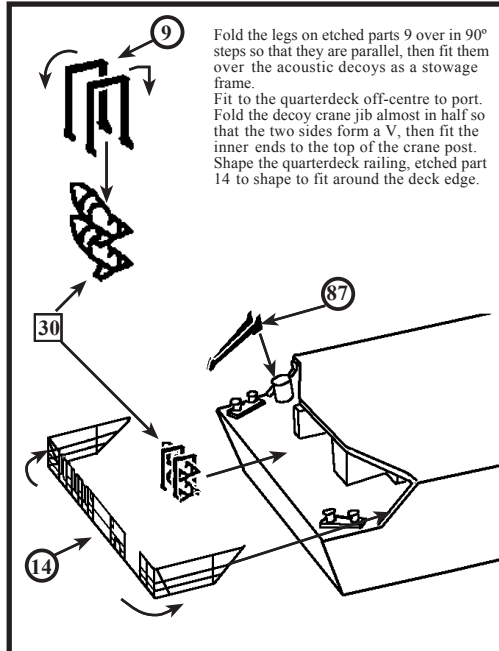
Aft Main Deck Railings Location



Turn the railings on each of the floodlight frames, etched parts 57, inwards to 90° to fit on the rear edge of the main deck extension. Continue forward using the short section of etched parts 2 along the angled outer edge up to the STWS mounting gap.

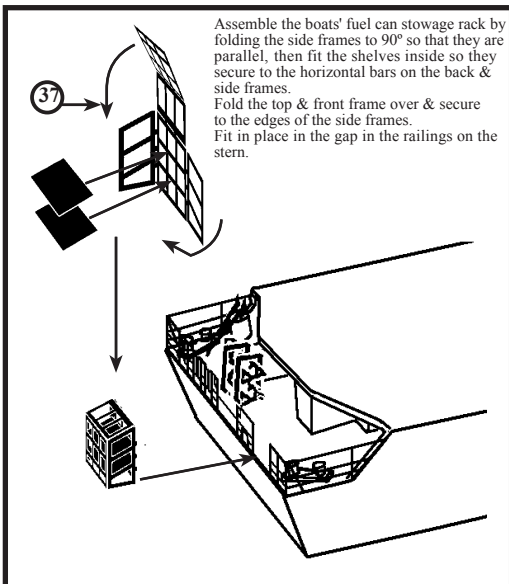
Fit the remaining section of main deck railing, etched part 2, to fit the deck edge from the rear vertical support post to the life raft canister gap forward of the STWS mounting. When fitting the boat davits the feet should line up with the etched open plates on the railings.

Acoustic Decoy Stowage



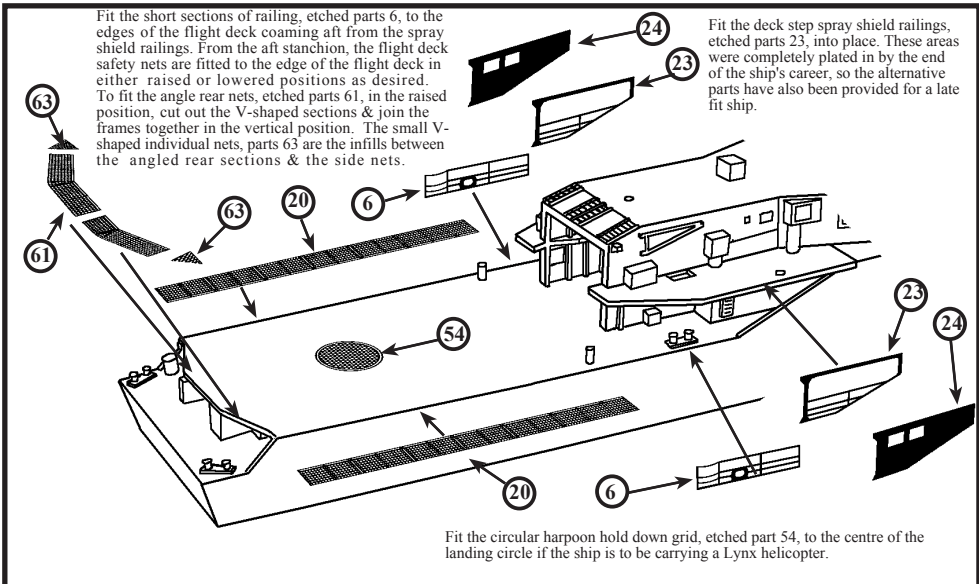
Fold the legs on etched parts 9 over in 90° steps so that they are parallel, then fit them over the acoustic decoys as a stowage frame. Fit to the quarterdeck off-centre to port. Fold the decoy crane jib almost in half so that the two sides form a V, then fit the inner ends to the top of the crane post. Shape the quarterdeck railing, etched part 14 to shape to fit around the deck edge.

Fuel Can Stowage Rack



Assemble the boats' fuel can stowage rack by folding the side frames to 90° so that they are parallel, then fit the shelves inside so they secure to the horizontal bars on the back & side frames. Fold the top & front frame over & secure to the edges of the side frames. Fit in place in the gap in the railings on the stern.

Flight Deck Nets & Railings

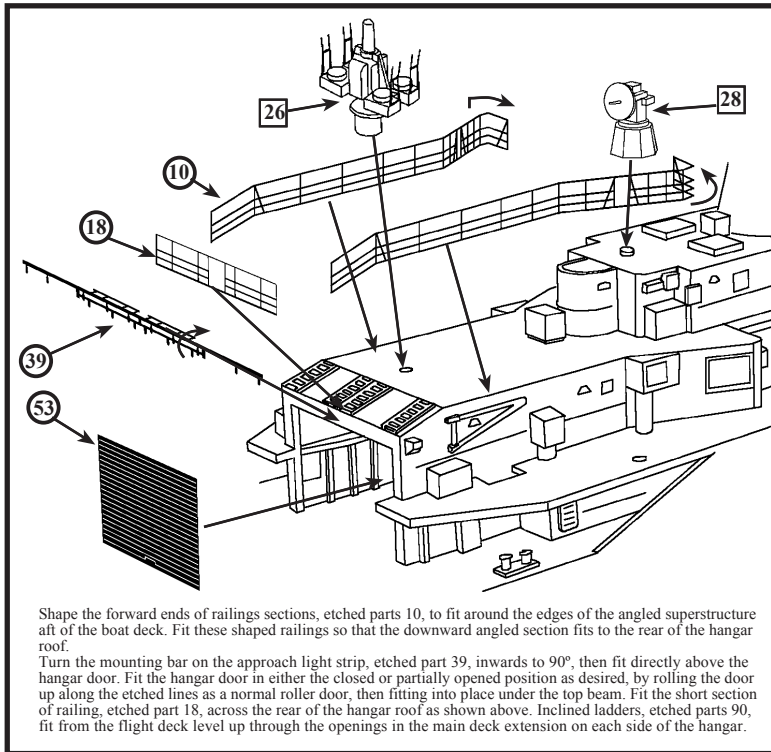


Fit the short sections of railing, etched parts 6, to the edges of the flight deck coaming aft from the spray shield railings. From the aft stanchion, the flight deck safety nets are fitted to the edge of the flight deck in either raised or lowered positions as desired. To fit the angle rear nets, etched parts 61, in the raised position, cut out the V-shaped sections & join the frames together in the vertical position. The small V-shaped individual nets, parts 63 are the infills between the angled rear sections & the side nets.

Fit the deck step spray shield railings, etched parts 23, into place. These areas were completely plated in by the end of the ship's career, so the alternative parts have also been provided for a late fit ship.

Fit the circular harpoon hold down grid, etched part 54, to the centre of the landing circle if the ship is to be carrying a Lynx helicopter.

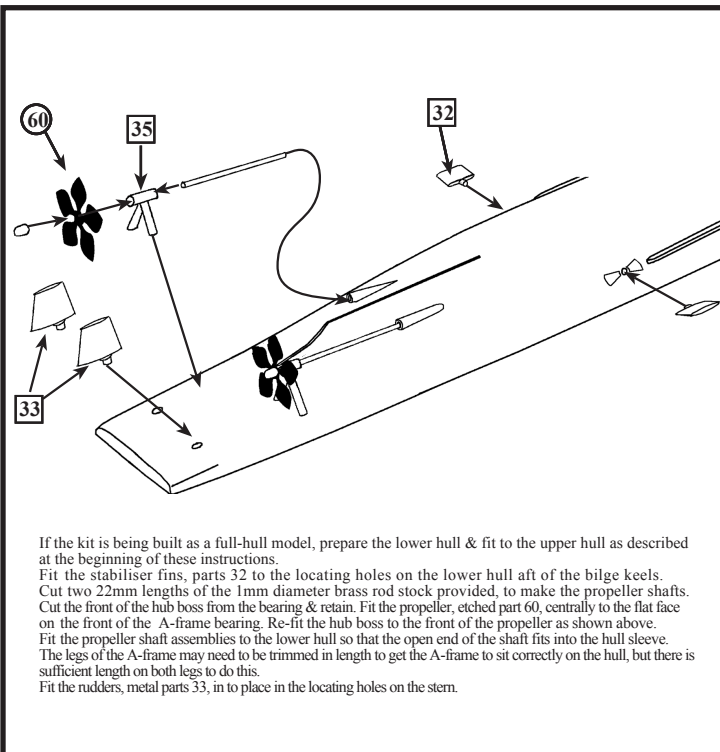
Helicopter Hangar Fittings



Shape the forward ends of railings sections, etched parts 10, to fit around the edges of the angled superstructure aft of the boat deck. Fit these shaped railings so that the downward angled section fits to the rear of the hangar roof.

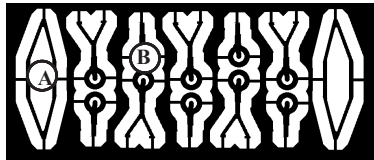
Turn the mounting bar on the approach light strip, etched part 39, inwards to 90°, then fit directly above the hangar door. Fit the hangar door in either the closed or partially opened position as desired, by rolling the door up along the etched lines as a normal roller door, then fitting into place under the top beam. Fit the short section of railing, etched part 18, across the rear of the hangar roof as shown above. Inclined ladders, etched parts 90, fit from the flight deck level up through the openings in the main deck extension on each side of the hangar.

Propeller & Rudder Assembly

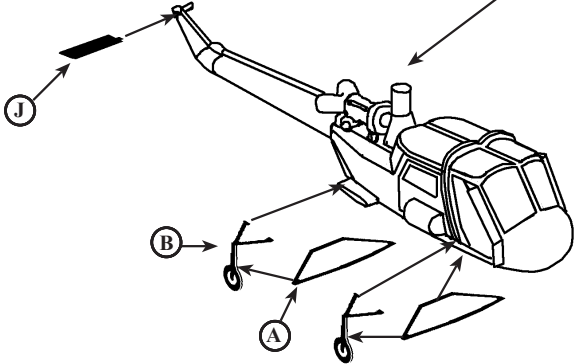


If the kit is being built as a full-hull model, prepare the lower hull & fit to the upper hull as described at the beginning of these instructions. Fit the stabiliser fins, parts 32 to the locating holes on the lower hull aft of the bilge keels. Cut two 22mm lengths of the 1mm diameter brass rod stock provided, to make the propeller shafts. Cut the front of the hub boss from the bearing & retain. Fit the propeller, etched part 60, centrally to the flat face on the front of the A-frame bearing. Re-fit the hub boss to the front of the propeller as shown above. Fit the propeller shaft assemblies to the lower hull so that the open end of the shaft fits into the hull sleeve. The legs of the A-frame may need to be trimmed in length to get the A-frame to sit correctly on the hull, but there is sufficient length on both legs to do this. Fit the rudders, metal parts 33, in to place in the locating holes on the stern.

Wasp HAS1 Helicopter Assembly

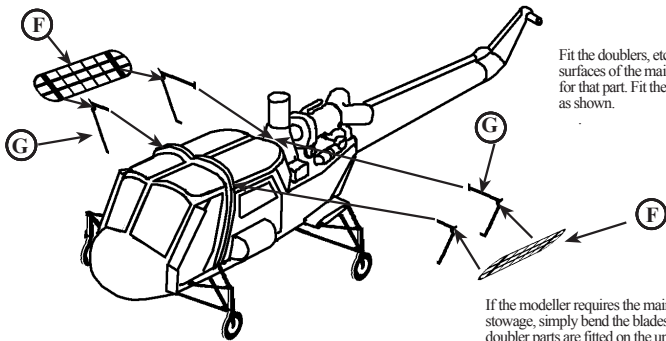


Cut a groove in the top of the tail opposite to the tail rotor attachment & fit the stabiliser wing, etched part 33J, into place.



Assemble the starboard side undercarriage legs in the same way as described for the port side.

Fold the flotation bag shells, etched parts 33F, in half so that the relief-etched detail is outermost. Fit the flotation gear attachment frames, etched parts 33G, so that the forward frames fit onto the outside of the yoke frame between the front & rear doors. The rear frame fits with the top foot on the front of the main rotor gearbox & the lower foot on the engine deck. The flotation bag shells then fit with the lower edges slotting into the point of the attachment frames at the thick relief-etched lines.

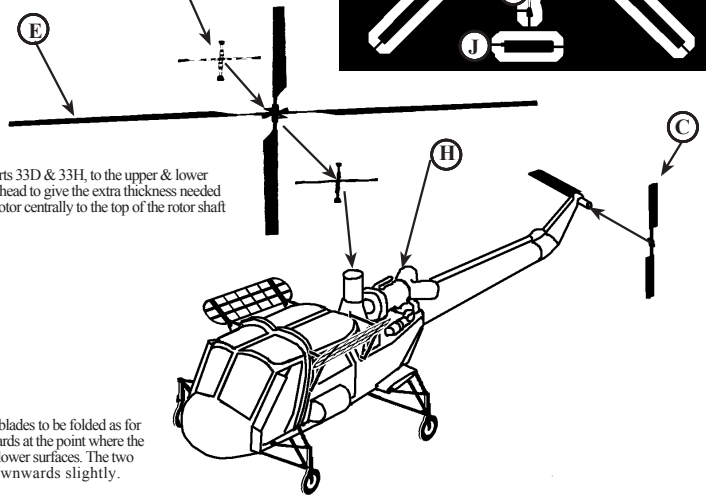
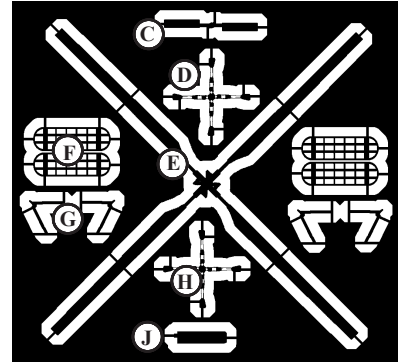


If the modeller requires the main rotor blades to be folded as for storage, simply bend the blades rearwards at the point where the doubler parts are fitted on the upper & lower surfaces. The two front blades would be angled downwards slightly.

Fold the undercarriage legs 34B in half so that they are double-thickness with the relief-etched detail outermost. Secure into place. Fold the 'V' frame on top of the undercarriage legs to 90°. Make 4 of these.

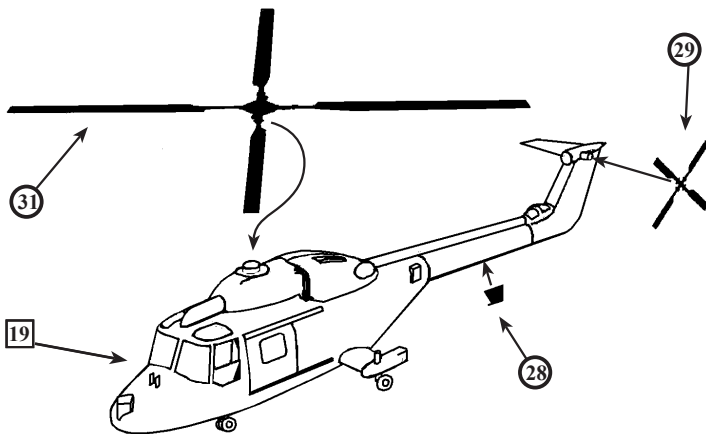
Fit the lower undercarriage attachment frames to the underside of the fuselage, so that the rear of the front frame is in line with the main door pillar, & the rear frame is in alignment with the small stub wings. The two parallel sections of each frame fit onto the underside of the fuselage centrally.

Fit the front undercarriage to the fuselage so that the ends of the top 'V' frame fit on to the fuselage forward with the rear foot in line with the door pillar. The point of the lower frame should attach to the inside of the leg just above the wheel. The rear leg top 'V' frame feet fit onto the outside edge of the stub wing, & again the point of the lower frame should attach to the inside of the leg just above the wheel.

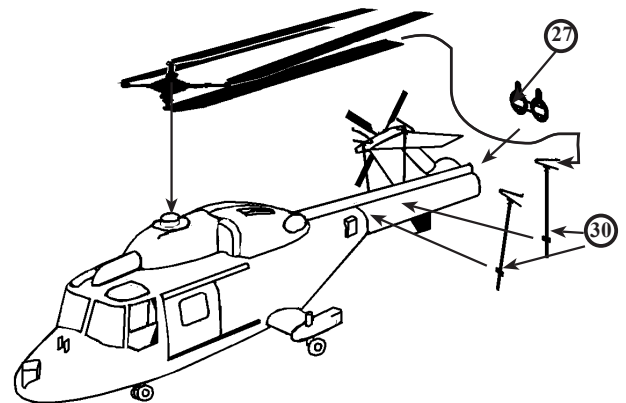


Fit the doublers, etched parts 33D & 33H, to the upper & lower surfaces of the main rotor head to give the extra thickness needed for that part. Fit the main rotor centrally to the top of the rotor shaft as shown.

Westland Lynx HAS3 Helicopter Assembly



Fit the main & tail rotor blades, etched parts 31 and 29, as shown above. Fit the blade aerial 28 to the underside of the tail cone.



If the helicopter is to be displayed folded, make a small cut at the root of each rotor blade on the forward edge. This will make it easier to bend the blade rearwards & keep it flat. Cut the tail pylon off completely at the fold joint as shown, & fit the fold joint, etched part 27, to allow the tail to be reattached in the folded position with ease. Fit the folded main rotor blades so that they are positioned over the tail, then fit the blade support poles in pairs to each side of the tail cone. The blades then fit into the slot on top of the pole.

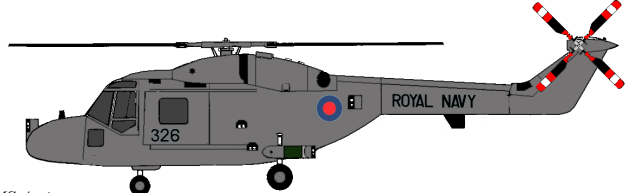
Wasp Helicopter Colour Guide



Humbrol 96
RAF Blue Grey



Humbrol 164
Dark Sea Grey



Ships Flights Codex Numbers

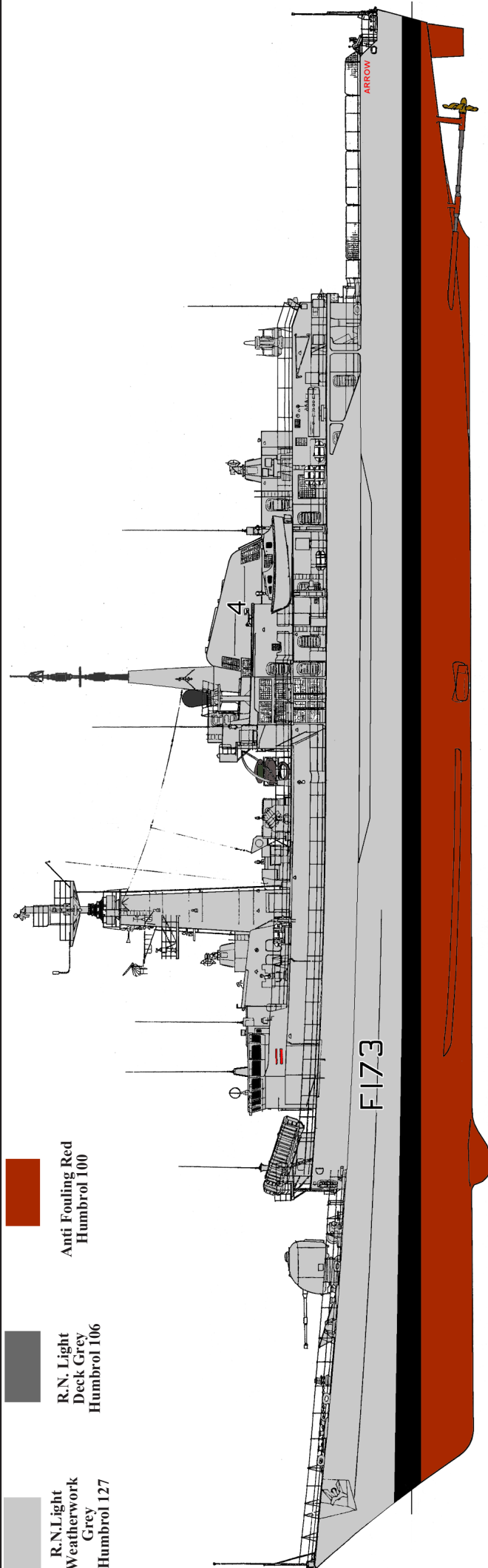
320/HMS Amazon 321/HMS Antelope 322/HMS Active
323/HMS Ambuscade 326/HMS Arrow
327/HMS Alacrity 340/HMS Ardent 341/HMS Avenger

Other Colours Used

Matt Black: Wheel Tyres, Undersides of Rotor Blades.
Light Grey: Top Surfaces of Rotor Blades, Cockpit Interior
Red & White: Tail Rotor Blade Tips
Gloss Black: Tail Rotor Blades

Note, The first few Type 21s were originally equipped with Wasp helicopters until the Lynx entered service. These were in the standard RAF Blue Grey scheme with white numerals. When the first Lynx came into service in the late '70s they were in the Oxford Blue scheme with white numerals. During & post-Falklands era the Lynx were repainted in the Dark Sea Grey scheme with black numerals as shown right.

Main Colour Chart and Painting Guide



Anti Fouling Red
Humbrol 100

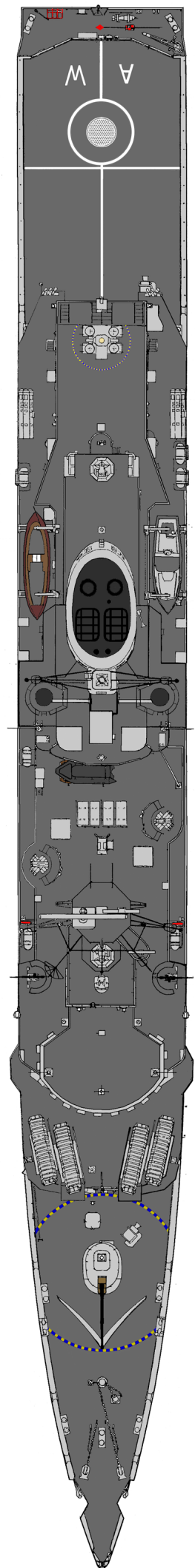


R.N. Light
Deck Grey
Humbrol 106



R.N. Light
Weatherwork
Grey
Humbrol 127

HMS ARROW 1985



Pennant Numbers Flight Deck Code Letters for all Ships of the Class

F169 HMS Amazon/AZ F170 HMS Antelope/AO F171 HMS Active/AV F172 HMS Ambuscade/AB
F173 HMS Arrow/AW F174 HMS Alacrity/AL F184 HMS Ardent/AD F185 HMS Avenger/AG

The colour guide above shows the main scheme and the areas covered. There are smaller less obvious areas that are listed below.

Matt Black: Upper parts of masts & exhaust stacks; gun barrels; waterline boot topping

Bronze: Propellers; elevation discs on 4.5" gun.

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