



Belcher Bits BK6: Westland Lynx (Army variants)

HISTORY

An Anglo-French agreement to design and build military helicopters was signed in 1968, and Westland was given design leadership. The requirement was for an armed escort version, an Army utility and a naval helicopter capable of operating from small ships. The latter two proceeded to production; the first prototype WG.13 flew in March 1971, followed by 13 development aircraft, the first production naval Lynx HAS Mk 2 in 1976 and in 1977, the first production Army Lynx AH Mk 1.

The Lynx was an advanced design from the start and the French-designed rigid rotor system allows exceptional manoeuvrability as well as speed; in 1986, a slightly modified Army Lynx set an absolute speed record for rotary wing aircraft.

The earliest prototypes of the Army Lynx were demonstrated carrying two triple Swingfire mounts, but their original role was battlefield transport, able to carry a Milan fire team. By the time these machines entered service, the TOW missile was the anti-tank armament of choice, and 60 of the 113 Lynx AH Mk 1s were completed with the necessary equipment to use these.

In the early 80s, an improved version with uprated engine and rotor dynamics was developed. Although only a small number of AH Mk 7 were new-built, all earlier Mk 1s were eventually converted to this standard (107 in total). All have BERP blades and have provision for the Hay Box IR suppression exhaust, although not all are so fitted.

Finally, 24 AH Mk 9 (16 new, 8 converted from Mk 7) with wheeled undercarriage were brought into service in 1993. These aircraft serve as battlefield transports and are not TOW capable; all have the Hay Box IR exhaust. This kit does not include the parts for this version, but a conversion is certainly possible with some scratchbuilding required.

The Army Lynx has never attracted any overseas customers except for a small number delivered to the Qatari Police. However, it remains in front line British Army service today in its Mk 7 and Mk 9 variants, and if its anti-tank role is superseded by the newly acquired AH-64 Apache, its role in liaison and rapid troop insertion duties will continue for some time. Although the Army Lynx is more numerous, the naval Lynx has proven to be the more popular aircraft and is (or has been) operated by 15 countries. Development of the naval variant continues today and it remains in production as the Super Lynx for foreign customers.

GENERAL INSTRUCTIONS

This kit is designed to be simple in construction. However, some experience in building models with non-traditional materials would be an asset.

The instructions are designed to enable one to complete the model. However, if additional detailing is desired, it would be useful to consult some of the references listed at the end of the instruction sheet. Having a few photographs of the real thing

on hand while building a kit is always useful.

This kit is made of polyurethane resin. This sands easier than polystyrene plastic, so go easy when filing, sanding and filling seams. Breathing polyurethane dust is hazardous so wet sanding is best; the use of a mask is recommended. Effort has been taken to reduce the number of pinholes to a minimum, but if any are present they can be filled with adhesive, putty or even thickened paint.

Parts are trimmed but not finished. Some pour or vent areas will require cleanup. This is especially important where these fall on mating surfaces. There is a little flash in some areas to remove. It is best to go through the kit and clean up all the parts at once; this gets the most boring job out of the way early. The builder will be required to construct certain items which are too small or delicate to mould.

Assembly requires the use of either epoxy or cyanoacrylate (super glue) adhesives. It is always a good idea to wash the parts in lukewarm water and mild detergent before assembly and definitely before painting.

There are no register marks to positively align parts; use care in fitting the parts. A few minutes spent at this stage will prevent hours of staring at a painted model with the tail out of line with the fuselage.

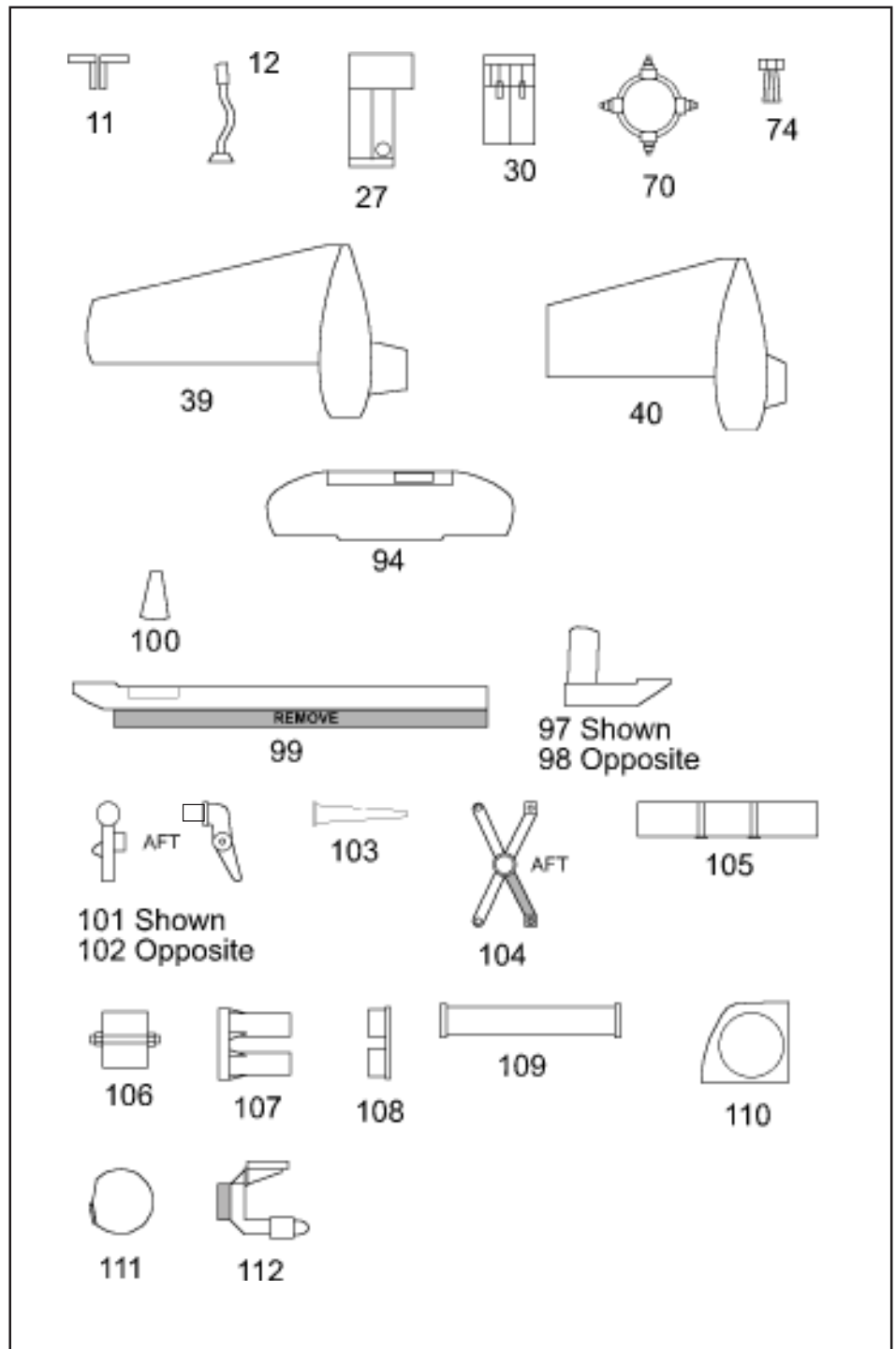
It is important to prime the model before painting. Most polyurethane resins accept model paints well, but a lacquer based primer will have a better 'tooth' to adhere to the material.

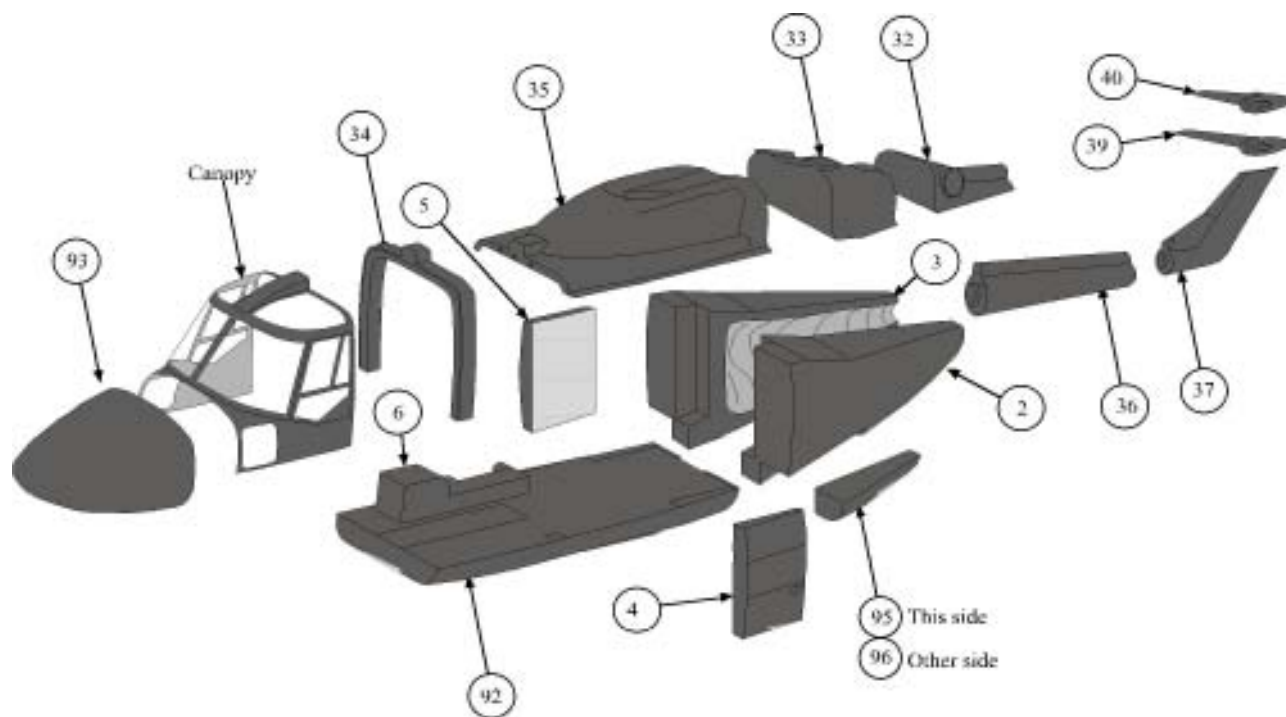
Common Parts List

2. Left fuselage
3. Right fuselage
4. Left side
5. Right side
6. Console
11. Rudder pedals (2)
12. Control column (2)
13. Aircrew seat (2)
15. 6 place sling seat
16. 3 place sling seat
27. Centre console panel
30. Overhead panel
32. Exhaust section
33. Engine section
34. Cockpit ring
35. Cabin roof
36. Tailboom
37. Non-folding tail
39. Early stabilizer
40. Late Stabilizer
70. Pitch control spider
71. Rotor head
72. Rotor blade (4)
73. BERP blade tips (4)
74. Tail rotor hub
75. Tail Pitch control
76. Early tail blade (4)
77. Late tail blade (4)
78. Left cabin door
80. Right cabin door
90. Collective lever

Army Specific Parts List

92. Army floor
93. Army nose
94. Instrument panel
95. Left pylon fill piece
96. Right pylon fill piece
97. Left rear skid
98. Right rear skid
99. Skid front (2)
100. Forward skid arm (2)
101. Left TOW pylon
102. Right TOW pylon
103. TOW Pylon brace (2)
104. TOW spider (2)
105. TOW beam (4)
106. TOW beam mount (4)
107. TOW front (4)
108. TOW debris director (4)
109. TOW missile tubes (8)
110. TOW roof mounted sight base
111. TOW roof mounted sight
112. TOW aiming sight base
113. TOW aiming sight eyepiece





Basic Construction

Initial Construction

1. The fuselage floor (part 92) has a pouring sprue at the front ; note that when this is removed the front is **not** perpendicular to the top.
2. On a flat piece of sandpaper, **LIGHTLY** sand the mating surfaces of left and right fuselage halves (parts 2&3), just enough to ensure they are flat. Hold together and glue.
3. The floor piece is glued to the fuselage halves, the notch on the aft end positioning it. **IMPORTANT!** Use a small square to ensure the floor is at right angles to the rear bulkhead. Everything will fit well together if you start out square here!
4. For the left and right sides (parts 4 & 5), mark the side with a soft pencil and remove from their casting bases, filing the cut surface smooth. Glue these in the appropriate corner; there is a recess in the floor panel, and the sides fit flush to the rear fuselage.

5. Glue the centre console base (part 6) in the recess shown in Figure 1.
6. Time to hang the nose (part 93) on the front of the console. The slot in the back of the nose should sit on the centre console and butt up to the front of the floor piece.
7. Glue the rudder pedals (part 11) and control column (part 12) in the spaces

indicated. The sub-assembly can now be painted the interior colour, medium grey.

Basic Interior

8. The pilots and copilot seat (part 13) can be painted. The basic colour is medium grey, with a yellow survival pack, green seat cushion and buff sheepskin cover. The back support cover (which

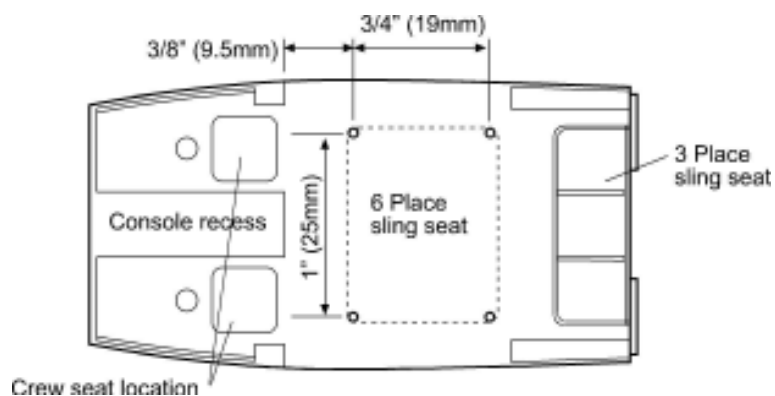


Figure 1

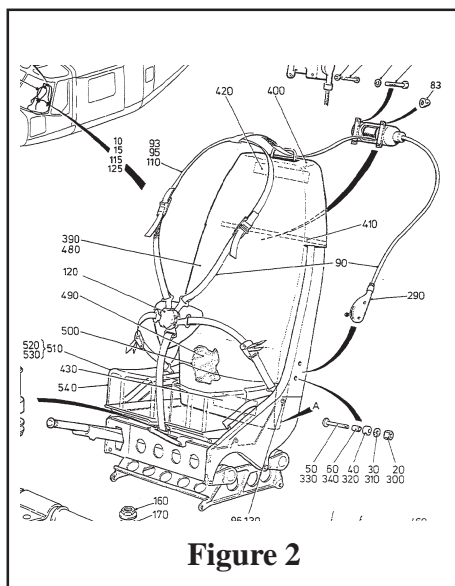


Figure 2

covers the top of the seat and stretches over the back at the top is generally red. Seat belts are dark green or black. The two seat positions are marked on the floor.

9. Some machines are fitted out as utility machines and have no rear seating ... easy option.

10. Most use a sling-type rear troop seat (part 15). You will need to build the seat supports from 0.030" (0.75mm) rod or brass wire. I would suggest making a jig from sheet plastic, drilling a hole pattern as shown in Figure 1, fit the uprights into the jig, attach the seat and additional braces and then remove the whole assembly from the jig. The after sling seat (part 16) also requires you to build the seat supports per Figure 3.

However, when completed it will be attached to after bulkhead, so no predrilling of the floor is required. Support tubing is light grey, fabric slings are dark green, seatbelts are dark green.

Cockpit detailing

11. Paint the centre console instrument panel (part 27) very dark grey with black and aluminum details. Glue it in place on the base.

12. Paint the instrument panel. Generally, the panel itself is interior colour with black bezels and details. The anti-glare screen around the panel is black. When finished, glue the panel to the centre console base as shown in Figure 4.

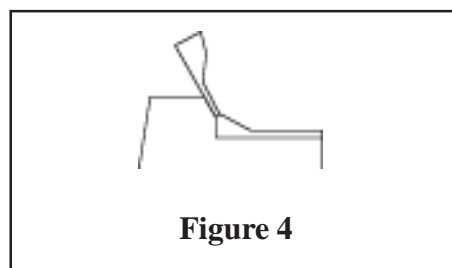


Figure 4

13. Paint the overhead console (part 30) very dark grey with black details. Set aside ... this will be glued into the clear canopy prior to installation.

14. (Decision required) For Army machines fitted with the TOW missile sight on the roof, paint the overhead sight (part 112) dark grey. Set this aside as well for later installation.

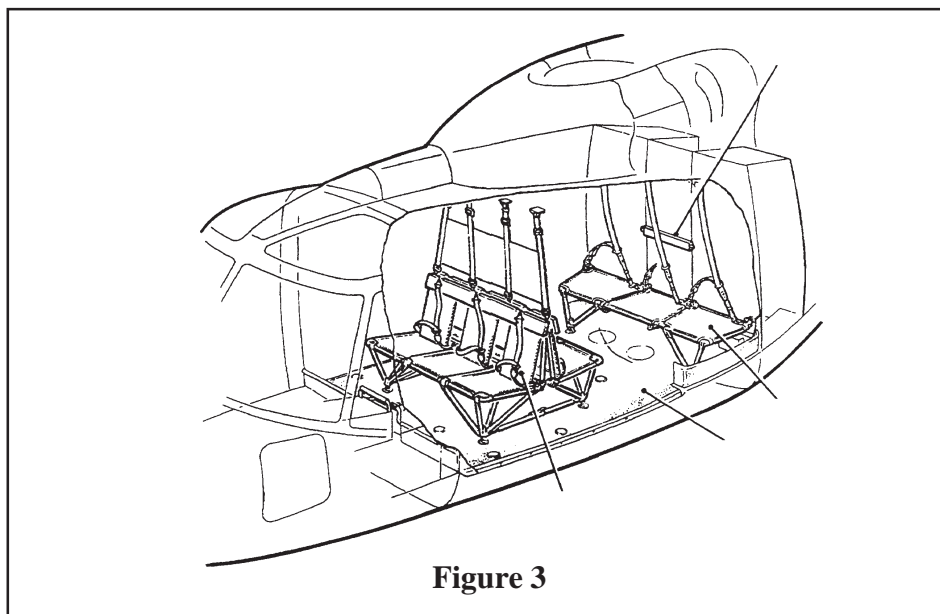


Figure 3

Fuselage construction

15. Glue the exhaust section (part 32) on top of the rear fuselage, aligning the after ends.

16. Glue the engine compartment (part 33) directly ahead of the exhaust section.

17. The cockpit ring (part 34) has its interior flashed over for support. Remove this flash, trim the ring interior and paint interior colour.

18. Paint the underside of the cabin roof (part 35) interior colour. It is installed directly ahead of the engine compartment; test fit and if necessary, file the after end a bit to achieve a good fit. Tape the cockpit ring to the front of this part, using the three mounting studs to position it.

19. Place the taped assembly in position. The after end of the roof should be taped to the engine compartment and the bottom of the ring arms should fit in the recesses in the floor. When everything is lined up properly, tack into position, remove the tape and finish gluing the joints.

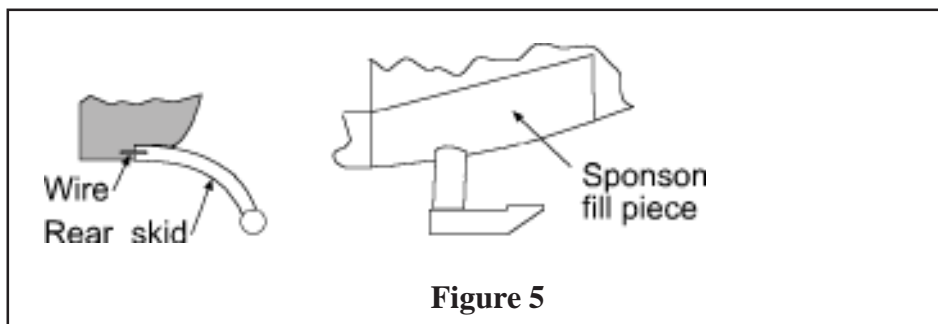
20. A note about the screened inlet cover which is fitted to nearly all machines. This kit does not include these covers because there is no good way to make a representation. Solid resin would make the kit look toy-like, and photo-etched screen would be impossible to form to the complex three-dimensional shape. I recommend one of two options; either leave the inlets open, or build up the shape with an epoxy putty and cover with tissue to represent a protective covering, often seen on parked machines. I recognize this may not be an ideal solution, and if anyone has any constructive ideas on how to represent these items, I would welcome hearing from you.

Tail

21. File the after end of the fuselage slightly to get a flat surface. Use a drill or grinder and clean up the rear hole; the tailboom will fit better if the hole is slightly enlarged upwards. Fit the tailboom (part 36) into the hole, lining up the tail rotor shaft housing. Sighting down the fuselage to keep the tailboom straight, glue when satisfied.

22. Fit the non-folding tail (part 37) in position, again aligning the driveshaft cover. Ensure the tail is vertical and glue into position. Fill the seam.

23. (Decision required) Early ma-



chines use the longer stabilizer (part 39). Later machines (AH Mk 7 and 9) use the later style gearbox and shorter stabilizer (part 40). Place the gearbox / stabilizer in position with the forward end of the gearbox housing protruding 0.08" (2mm) forward of the leading edge of the fin. Admittedly, the fit is not great, so it would help to put a pin in the top of the tail and match it up with the gearbox. Note that the stab has a slight nose down angle of attack. Ensure the stabilizer is horizontal (viewed from the rear) glue into position, and fill the seam.

Canopy

24. Carefully cut out the vacuform canopy and fit it to the fuselage. Remember the old tailor's adage: measure twice, cut once. The canopy is designed to fit over the lips moulded into the floor, ring and nose. Use some relatively coarse wet and dry sandpaper on a small block to sand the edges of the part to achieve a good fit. The canopy is made from PETG which can be polished (carefully) to improve the clarity but be careful; the deep draw of the canopy means the top section is fairly thin.

25. Glue the overhead console in place using white glue.

26. Glue the TOW missile sight base (part 110) in place on the left clear section of the upper canopy. On the inside, glue the overhead sight (part 112)

in place directly under the missile sight.

27. (Assuming all interior painting is now done!) glue the canopy in place. I find taping and tacking with white glue works best, followed by finishing all edges with more white glue, which dries clear and can be smoothed with a water dipped pad or Q-tip. Some people swear by cyanoacrylates, but run the risk of fogging the interior.

Landing Gear

28. Glue the sponson fill pieces in place (part 95 left, and 96 right) in the recesses in the rear fuselage, and fill seams.

29. Drill a small hole in the end of each rear strut, and make a matching hole in the recess in the rear fuselage where the slot in the sponson fill piece allows. This will let you reinforce the joint with steel wire. Because the entire weight of the model will rest on these two joints, stronger is better. However, don't glue the struts in place until after the next steps.

30. Remove the pour sprue from the bottom of the skid front pieces (part 99), and the side of the forward skid arms (part 100).

31. Glue the skid fronts to the rear skids; use a short piece of wire to reinforce the butt joint.

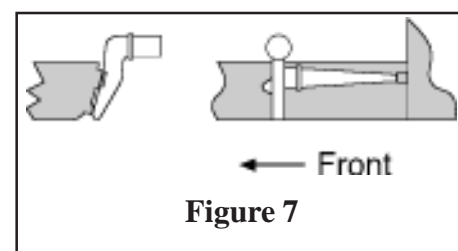
32. It is a good idea to tape the skids to a base plate, to ensure they remain parallel. Fit the forward skid arms be-

tween the skids and the fuselage mounting points as per Figure 6. You may wish to use small wires to reinforce these joints as well. Once all the parts are tacked in place, finish gluing the rear skids and remove the taped skids from the base plate

TOW Missile Assembly

33. (Decision required) The fitting of the TOW missile assembly adds some pizzazz to an otherwise plain aircraft, but it is quite common to see Army Lynxes without external armament. It is also common to see the machines flying with the TOW missile launcher attached, but no missile tubes loaded. This kit allows either option.

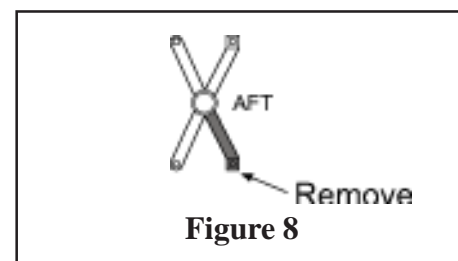
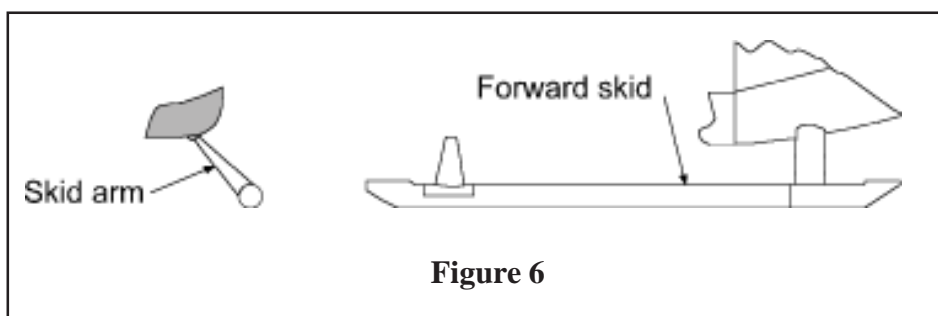
34. The TOW missile pylons (parts 101 port, 102 starboard) are installed as shown in Figure 8. Note that the triangular tab goes on the forward side, and sits on the matching pad on the floor piece. It



would be best to reinforce this joint with a piece of wire.

35. The pylon brace (part 103) fits between the cylindrical stub on the rear of the pylon, and the small tab at the rear of the floor piece.

36. The TOW spider (part 104) needs to be slightly modified for use. Orient the spider so that it is shown as in the parts diagram on page 3, and note that on one side, the two arms end in simple radiused, while the other two arms have rectangular blocks. When installed, the radiused arms are forward on both sides, and the lower block arm needs to be removed. Its actually more complicated to describe



than do, but if you are careful to remove **one** block arm on one spider and the **other** block arm on the other spider, it will work out. Refer to Figure 7). Drill 0.020" (0.5mm) holes through the ends of all arms, and insert a 0.25" (6mm) length of wire in each hole. These will be the attachment points for the TOW missile assemblies. Drill a small hole in the back of the hub, and a corresponding hole in the stub of the pylon mount. This will be used for wire reinforcement of the joint, but I recommend you complete the entire TOW assembly and glue it onto the pylon only once all painting and decalling are completed.

37. Glue the TOW missile front (part 108) and the debris director (part 107) to the TOW beam (part 105). The flat part of the beam is actually the top; when the

39. (Decision required) If you want to show the missile tubes loaded, these can be installed, lined up with the missile fronts and debris director. Note the missile tubes are likely a slightly different colour, being a medium Olive Drab. It is easier to paint these separately, and then install.

40. Loaded or empty, there are straps running from the blocks on the outside of the beam mount to a cross member below. I would recommend these be constructed from 0.010" x 0.04" (0.25 x 1mm) strip, and the cross member from 0.04" (1mm) square strip.

41. Attach the whole assembly to the appropriate spider (remember, block arm is at top rear) ... the wire pins should just fit on either end of the upper beam mount. The entire TOW missile system can be installed on the pylon mount at final assembly.

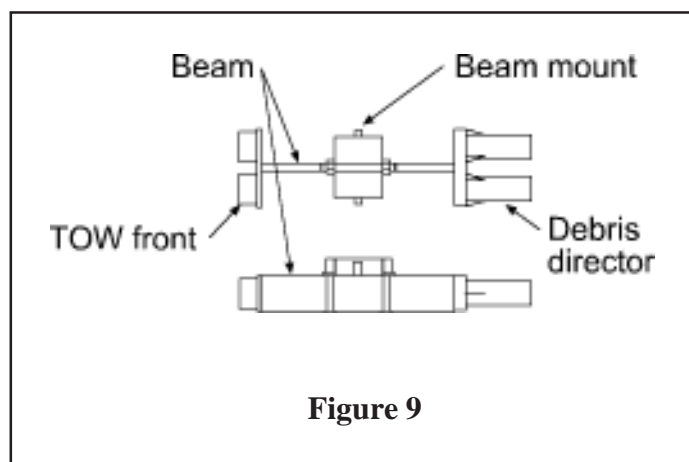


Figure 9

ends are in place, glue the beam mount (part 106) where indicated in Figure 9. Make four sub-assemblies.

38. Glue one TOW beam assembly directly on top of the other. The pads on front and back of the lower beam mount line up with the tabs on the bottom of the upper beam. Make two assemblies as per Figure 10. These can be painted Dark Green.

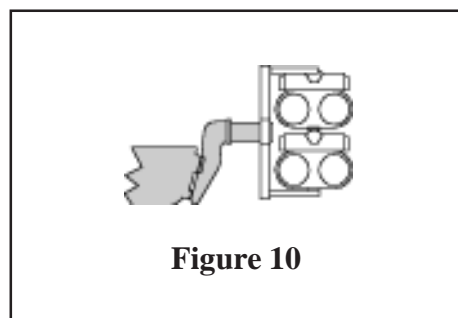


Figure 10

these links to the ends of the spider arms.

43. Carefully remove the rotor blades (part 72) from the base and clean up.

44. (Decision required) If you are building an later machine with the new BERP blades, you will need to cut 1.0" (25.4mm) off the end of each blade and glue on a BERP tip (part 73). For strength purposes, it may be a good idea to reinforce each joint with a drilled hole and a short length of wire. Fill the seams.

45. Attach the blades to the hub. Note that the wing turns counter-clockwise viewed from the top.

46. Paint the blades dark green top and bottom. The rotor hub and spider are lighter grey, with dark grey boots on the spider arms.

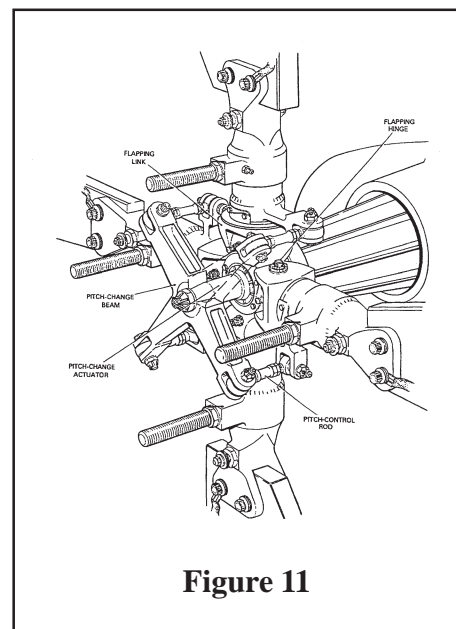


Figure 11

Early Tail Rotor

47. Trim 0.1" (3mm) off the base of the tail rotor shaft/hub (part 74)...this is because the fairing on the gearbox housing is longer and covers more of the shaft.

48. Clean up the early rotor blades (part 76: without the little plate at the root) and glue to the hub. This rotor turns counter-clockwise when viewed from the left side of the aircraft.

49. Cut a 1/16" (1.5mm) long piece of small diameter sprue to the centre of the hub and sand the end square.

50. Clean up the small pitch control arm (part 75) and glue it to the sprue, rotating it slightly forward of the blades. Glue short lengths of sprue representing the pitch control links, from the arm ends to a point on the leading edge of the blade root arm.

51. Blades are black, with 6" red/white/red stripes at ends. Rotor hub is medium grey.

Late Tail Rotor (Mk 7 and Mk 9)

52. Clean up the late rotor blades (part 77: with the little plate at the root) and glue to the hub. This rotor turns clockwise when viewed from the left side of the aircraft.

53. Cut a 1/16" (1.5mm) long piece of small diameter sprue to the centre of the hub and sand the end square.

54. Clean up the small pitch control arm (part 75) and glue it to the sprue,

rotating it slightly forward of the blades. Glue short lengths of sprue representing the pitch control links, from the arm ends to a point on the leading edge of the blade root arm.

55. Blades are black, with 6" red/white/red stripes at ends. A 6" section on the hub end of the blade is also red. There is a thin metal strip on the outer 24" of the leading edge. Rotor hub is medium grey.

Cabin Doors

56. Cabin doors can be painted and installed after the fuselage is painted, if desired. They can be attached in a closed or open position; they fit between the underside edges of the cabin roof and the rail on the edge of the floor. If installing them in a closed position, the leading edge is flush with the ring, but the after edge extends out from the cabin sides the thickness of the door.

57. The left side door (part 78) and right side door (part 80) can be fitted. The interior is interior colour. Use the small piece of clear plastic supplied and cut a window to fit the lipped hole in the inside of the door.

Painting

58. This kit includes a set of EZ Mask pre-cut vinyl canopy masks. They stick well so the procedure to apply them is to peel them from the backing, dip in water with a bit of detergent added, and manoeuvre them into position using the soapy water as a lubricant. When satisfied they are in position, gently blot them into position. Because the adhesive is tacky and the mask can stretch, it doesn't work well to stick them in place dry and try to peel them off and reposition; the mask will likely stretch and not fit the second time around. Once the model is completely painted, the masks can be removed by lifting a corner with a sharp knife and gently peeling off.

Final Touches

59. Other antennas are often seen on the tailbooms, and the configurations vary, including loop type and wire.

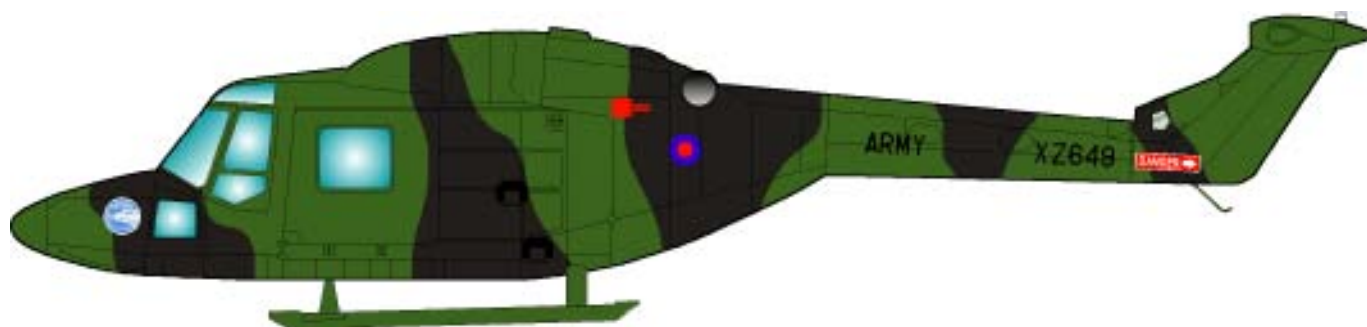
60. Make up a pair of windshield wipers from stretched sprue and strip, paint black and install.

References

1. World Airpower Journal Volume 39
2. World Airpower Journal Volume 40
3. Military Helicopters of the World by N. Polmar and F. Kennedy, Naval Institute Press, 1981
4. British Military helicopters by J. Everett-Heath, Arms and Armour Press, 1986
5. Fly Navy by R. Williams, Airlife, 1989
6. The World's Great Military Helicopters, gallery Books, 1990
7. Scale Aircraft Modelling, Vol 6 No.10
8. Scale Aircraft Modelling, Vol 5 No.3
9. Modelaid International, Nov 1987
10. Airfan No.29
11. Manual extracts and drawings courtesy of GKN Westland Helicopters
12. Photos from Tim Maunder, Ian McGonagle and Rui Ferreira

Thanks

Thanks to Geoff Russell of GKN Westland and the folks at the Helicopter Museum at Weston-super-mare ... well worth a visit if you in that corner of England.

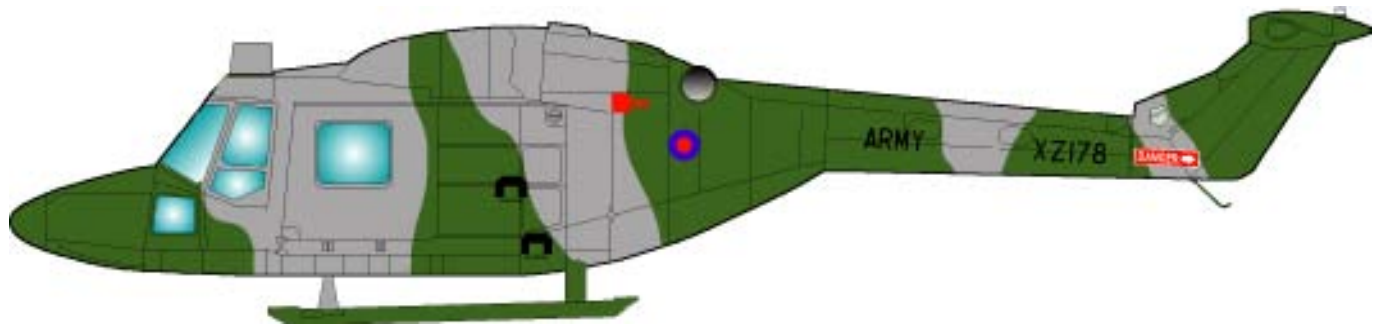


British Army Lynx AH Mk.1, s/n XZ649, Silver Eagles team ca. 1982.

This aircraft is representative of the delivery scheme of the AH Mk 1. It also carries the markings of the Army Air Corps flight demonstration team Silver Eagles, formed at Middle Wallop in 1982 (other a/c of the 1982 team were XZ171, 203, 210, 640 and 648 ... only two a/c carried the roof mounted TOW sights).

Basic scheme is Black over Olive Drab (FS34098). Red/blue roundel is 300 mm diameter, and the a/c serial number is in 200 mm black letters on the tail boom. Red/white rotor warning placard. Tail rotor has 150mm red/white/red tip stripes. The Blue Eagles crest on either side of the nose, eagle facing forward ... use the supplemental aluminum sheet to cover the dark blue eagle head.

Ref: Markings drawings from Westland, World Airpower Journal Volume 40.

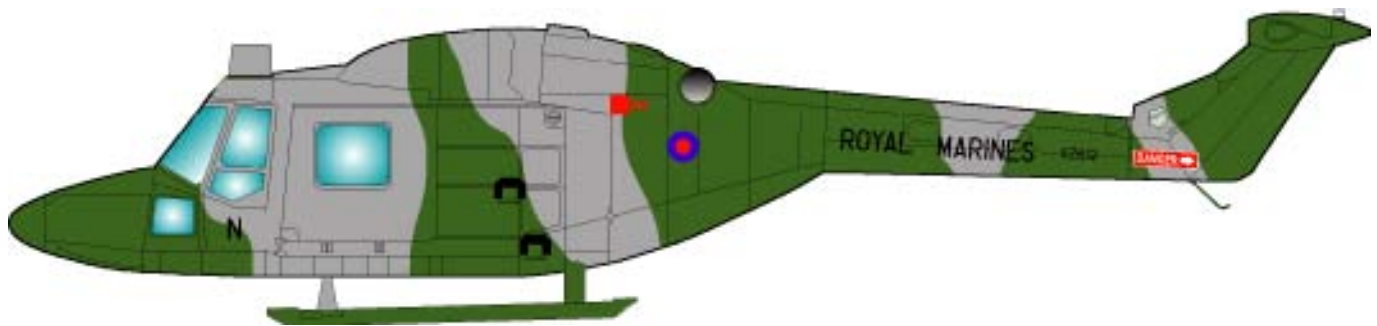


British Army Lynx AH Mk.7, s/n XZ178, ca. 1990.

Representative of the later operational scheme of the AH Mk 1, this aircraft also is shown with the roof mounted TOW sight.

Basic scheme is Olive Green (FS34079) over Medium Sea Gray (FS36270). Red/blue roundel is 300 mm diameter, and ARMY and a/c serial number is in 200 mm black letters on the tail boom. Red/white rotor warning placard. Tail rotor has 150mm red/white/red tip stripes.

Ref: Markings drawings from Westland, World Airpower Journal Volume 40.



Royal Marines Lynx AH Mk.7, 847 Squadron, s/n XZ168, a. 1992.

The Royal Marines operates a small number of Army Lynxes, providing support to Royal Marines during assault operations.

Basic scheme is Olive Green (FS34079) over Medium Sea Gray (FS36270). Red/blue roundel is 300 mm diameter, MARINES and the a/c serial number is in 200 mm black letters on the tail boom. Red/white rotor warning placard. Tail rotor has 150mm red/white/red tip stripes.

Ref: Markings drawings from Westland, World Airpower Journal Volume 40.



British Army Lynx AH Mk.5, s/n ZD560, Empire Test Pilots School, Farnborough

One of only three of the interim AH Mk 5 (the other two built were upgraded to AH Mk 7), this machine is attached to the Empire Test Pilots School as part of the Rotary Wing training fleet. Like other aircraft of the school, this machine is painted in the famous Rasperry Ripple scheme.

Basic scheme is White over Oxford Blue (FS15050) with Red (FS11350) stripe and tail. Red/White/Blue roundel is 600 mm diameter with a narrow white border, and the a/c serial number is in 100 mm black letters on the tail boom. Red/white rotor warning placard. Tail rotor has 150mm red/white/red tip stripes.

Ref: Markings drawings from Westland, World Airpower Journal Volume 40.