

MORLEY HELICOPTERS

Westland LYNX (Army)

Conversion kit for MXA Sport

The plastic body panels make a very strong and light body. With the correct technique and practise they are easier to work than glass fibre. Please follow the instructions carefully.

The material should not be cut when very cold. Strong scissors or snips work well but the advised method is to score the surface with the point of a heavy duty sharp knife and bending to crack. It is a good idea to practise on scrap material, also to rough cut to within say 10mm from the final cut line first. The score-and-bend method is quick and easy, especially if using pliers to concentrate the bend at the scoreline.

- Cutting is made easier if areas to be cut away are marked out with a pencil.
- A 4mm flange should be left along the top of the tail boom. This will be covered with a capping strip. At other joins the edges are butted together with a re-inforcing strip on the inside.

The adhesive in the kit has very good impact and vibration resistance. It may be used as a glue (clamping parts together with a thin coat of fresh adhesive in between - but too much in a trapped area will cause the solvent to spoil the outer surface) or better as a contact adhesive by applying to both surfaces, allowing to dry for a few minutes and then pressing the two pieces together.

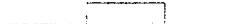
Careful positioning is essential, especially with the recommended contact method. Both techniques should be used in the construction of the model and other adhesives such as cyano or super glue may be used but try a compatibility test first. Some cyano adhesives tend to be brittle.

The instructions build the sub-assemblies together so that each operation has a setting time before re-handling. So you are advised to follow the given sequence.

CONSTRUCTION:-

- 1) Begin by cutting the long angle brackets away from the flat sheet, use the score-and-bend method to gain experience. Then cut away the nose cone and main body halves. There are places where heavy scissors or snips will help. Refer to the photograph (1) and cut away the following:
 - front and rear half end caps of the mouldings,
 - the exhaust outlets and trims,
 - the hole for the mainmast,
 - cabin, (do not throw away)
 - underbelly clearance for the undercarriage.

Then also referring to the photo cut the fuselage halves down the access joint line. Note that the intention is for the front fuselage section to overlap the rear section.

- 2) Working on the rear body, select the long plastic angle brackets for, each side, and carefully position and glue in place. (Photo 2.) Join the halves onto the diecut plywood 'U' former, with the former sides parallel to the internal lines on the mould. Use the strip 'top-hat' section  20cm long to join the halves at the top (scale engine bay). Note that the gap must be cut to accommodate this. The raised knob at the end of the 'top-hat' section goes to the swashplate end of the bay. Glue in the plywood side wings with the small overlap as shown in the diagram (make a good job here) and a 2 x 8 cm strip at floor level behind the 'U'. The overlap is for the ply to act as a guide to the door rail when the front section is installed. The inside edge of the two ply wings must be parallel and the correct distance apart (75mm) to accommodate the MXA chassis.

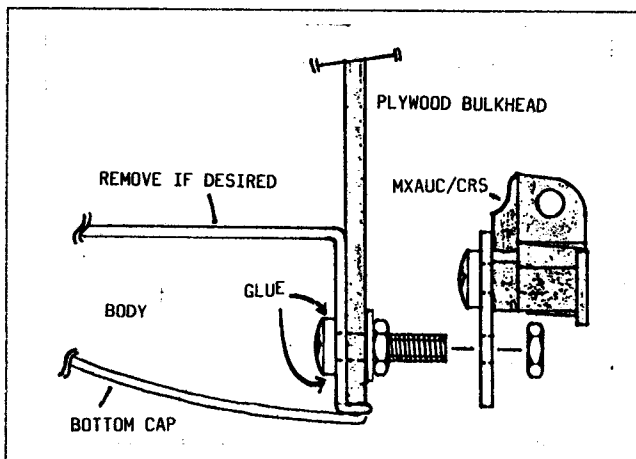
- 3) Now turn your attention to the front section of the body. Join the halves together with a 2cm x 11cm strip inside the top, ahead of the opening for the swashplate, and a 5cm wide strip inside the front bottom section. Glue the joining strips to one side first, allow to dry, then bring the fuselage halves together and glue. Two strips of ply approx 100mm x 15mm should be glued across the floor of the front section to stiffen it.

Also join at the instrument panel cowl, and the cabin top using a piece 1cm x 3cm across the join. Also cut the starter belt access hole in the cabin roof.

The plywood 'D' is glued inside the recess at the windscreen base. (Photo 3.)

- 4) To prepare the MXA:
- Remove the tail boom, cabin, and engine muffler.
 - Mount the battery at the side of the chassis at the very front.
 - Move the tail rotor pushrod from inside the chassis to the outside. Reposition T/R servo if necessary.
 - Reposition the fuel tank between the chassis sides so that the filling vents face forwards. Relocate the tank retaining band holders to each side of the chassis. below the tank (drill 3mm holes).
 - Fix the handed alloy brackets on the rear two engine plate fixing screws. It may be necessary to remove the swashplate pushrods to gain access. Note that the brackets extend rearward and downward. If they don't, swap sides.

Next place the alloy rear plate against the ply 'U' in the rear fuselage (see photo) with the bottom edges in line and mark the ply through the wider spaced holes. Drill and fit two M4 x



16 screws in the plywood 'U' facing forward and tighten a lock nut onto a washer.

These screws must be secured against turning with glue, as the body comes on and off using two nuts without being able to get to the screw head. (See Diagram 1.) Alternatively, before inserting the screws cut slots across the top with a hacksaw, and solder wire through the slots to prevent rotation.

- 5) Fit the alloy rear plate to the U/C cross piece (MXAUC/CRS) with the existing two plastite screws (with the two wider spaced holes low down.) Now try the rear fuselage over the MXA. The ply wings go over the handed side brackets. Tighten a nut onto each of the screws projecting through the rear plate. (Photo 2)

Use clamps or clothes pegs to hold the ply wings to the alloy brackets. Strengthen the ply by rubbing PVA or cyano into it.

- 6) Try fitting the front portion to the model, lining up to keep the fuselage straight, and drill through at the four marked points on the overlap. Fit the 4 sheet metal 'J' nuts for the panel screws, and secure front in place.
- 7) Feed the nose-locating ply rectangle into position over the front servo mount of the MXA, trim if needed, and glue to the white floor plastic and the ply 'D' piece. Reinforce with small right angle formed pieces of plastic from the cabin inside. Mark through the holes in the side brackets onto the ply wings from underneath. (See Photo 2 & 3).
- 8) Cut the nose cone and fit. Mark and cut the canopy and fit, though you may prefer to paint the model before finally gluing this. Glue in the door rail location clips, making sure they are only glued to the front fuselage section. (See photo 5).

- 9) Prepare the tail boom parts, observe the photo (4). Fix the brass tube to the centre of the black end cap and the alloy tube to the other socket. Insert the end cap into the plastic tail gearbox mounting tube (see Photo 4). Align the cap and alloy tube with the tail rotor control bellcrank.

Preform the drive and control tubes to a gentle curve and glue the assembly into the LEFT half tailboom, together with a 1 cm wide piece from the moulded curved strip, along the bottom ready for the join. Also the tail heel reinforcement moulding which fits inside the trailing

edge of the fin. Bind the two tubes together at the centre.

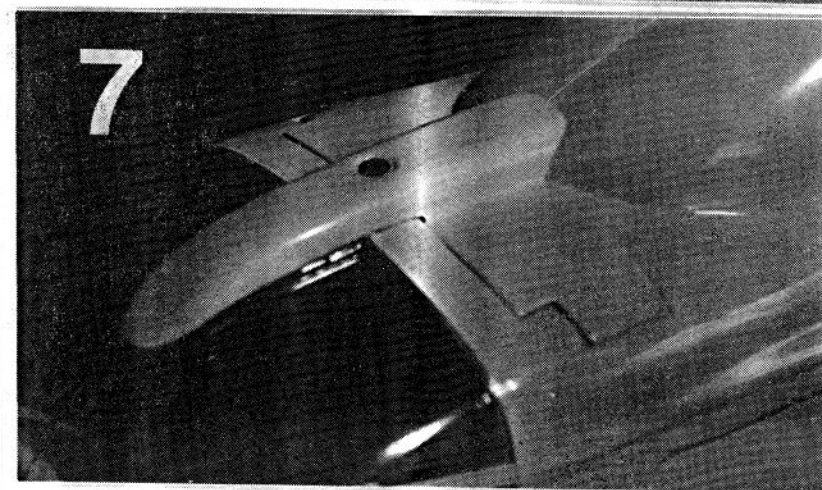
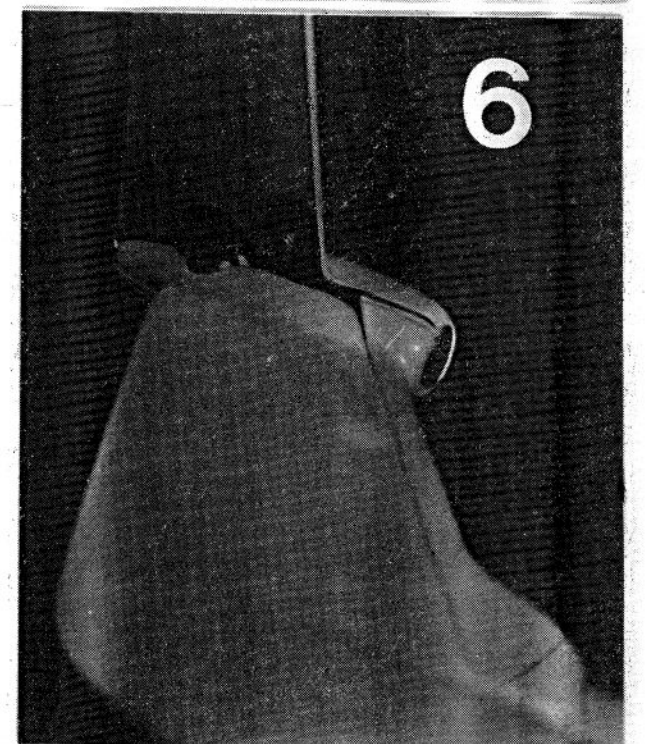
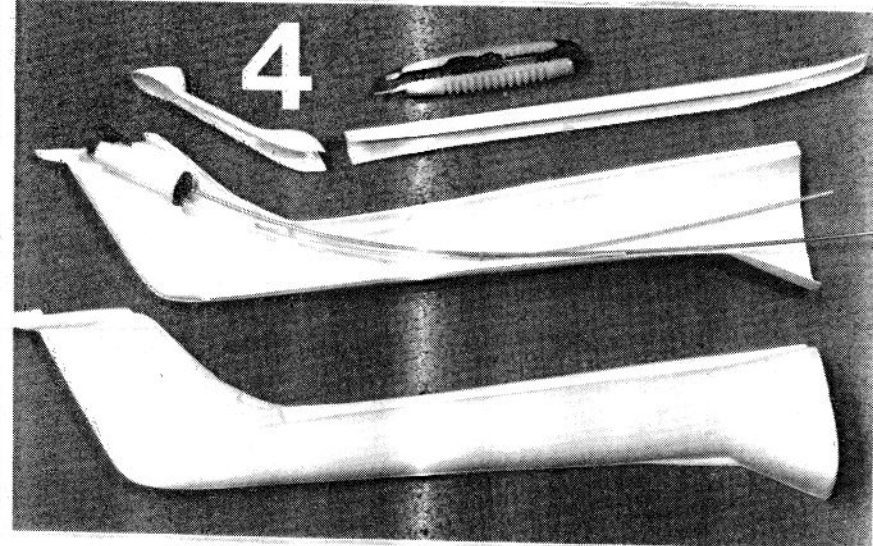
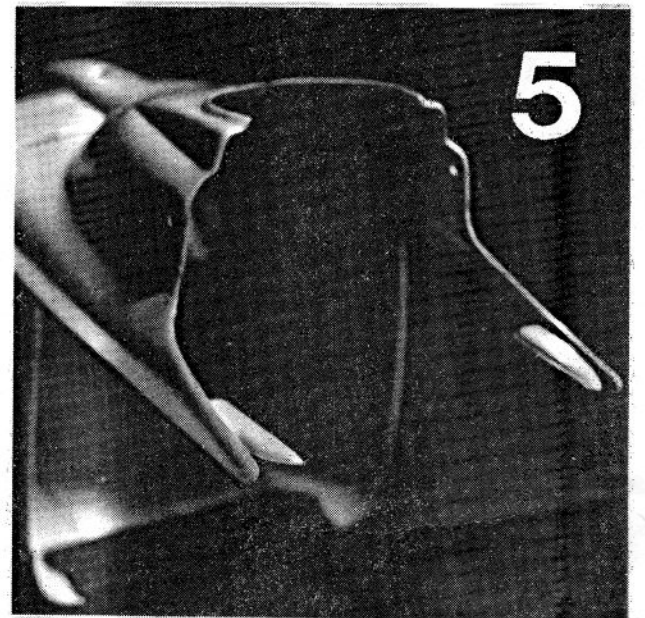
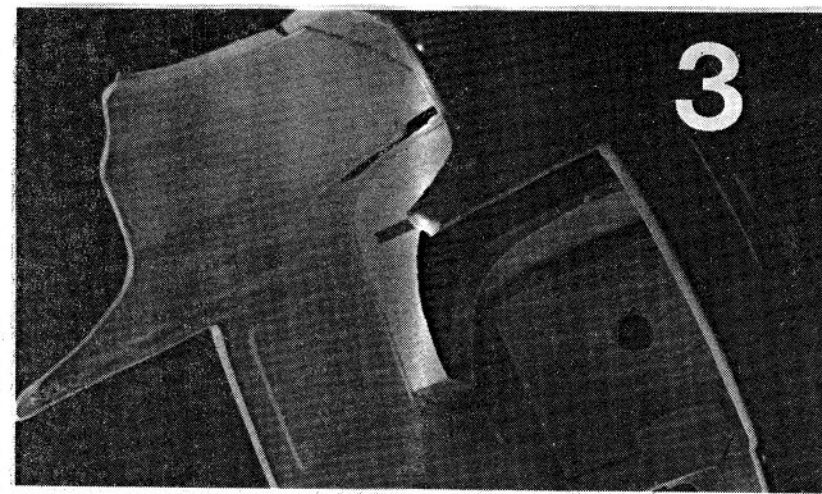
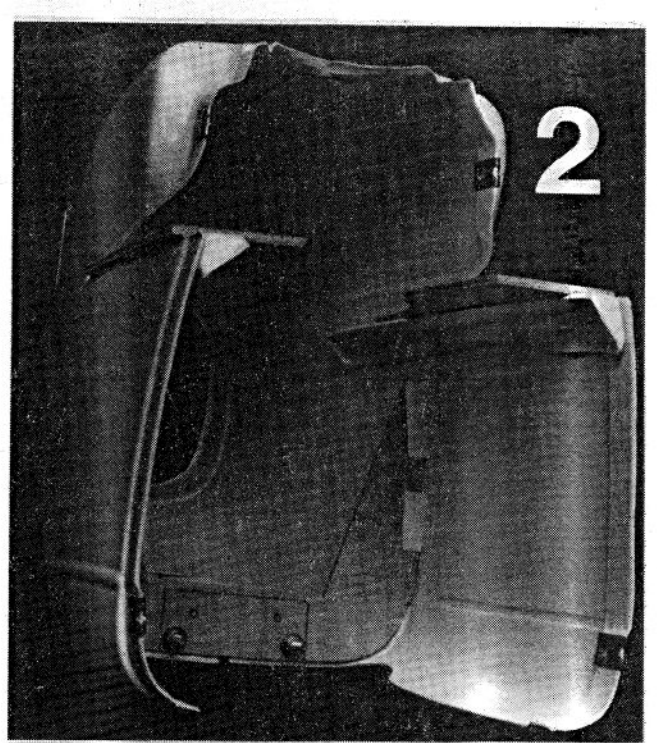
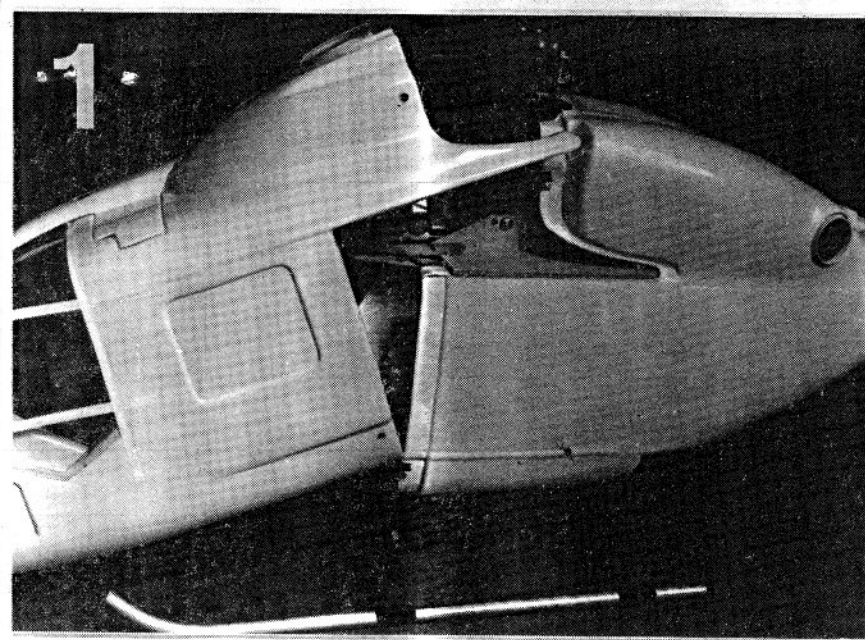
- 10) Join the tail boom halves together along the bottom and heel, pressing the join through the top. Then join the top, clamping with clothes pegs if necessary. Watch for any distortion or twisting of the boom caused by the weight of the metal tubes in the left hand side.
- 11) Remove front and rear fuselage from MXA, and drill the ply wings where previously marked. Then glue the tail boom onto the rear fuselage, making sure the top spine is aligned. Leave this assembly standing on end overnight to dry thoroughly.
- 12) Cut the tail boom spine cover, fin leading edge cap and tailplane mouldings as marked. Cut out the rear fuselage underfairing.
- 13) When satisfied that the tail boom is secure, glue on the fin leading edge cap and spine cover.
- 14) Glue in position the ply support for the tail drive and control tubes in the rear of the fuselage. Trim to ensure the brass tube lines up with the main gearbox.
- 15) Place a hex ball drive plug over one end of the 16g (1.5mm) drive wire. Bend over the end of the wire and pull down into the slot in the plug. Secure with two M4 x 6 socket set screws.

Feed the wire into the drive tube from the front of the tail boom. The drive and control tubes pass through the appropriate slot and hole in the support former.

- 16) Refit the rear fuselage to the MXA. Ensure the front hex ball is in the socket on the main gearbox. Mark the wire at a level with the tail gearbox mount tube, pull the wire rearwards out of the tube, push on the rear hex ball. Bend the wire for the second hex ball at a point 45mm below the marked point, pull the ball over the bend and lock with set screws.
- 17) Fit the tail rotor gearbox assembly in the white plastic fin tube and secure with two M2 x 3/8" self tap screws through the tailplane mount moulding. Use a 1.5mm drill. The edge of this moulding is at the very top of the tube, a touch of cyano to hold it in place when the screws are removed is a useful tip here.
- 18) Hold the ply tailplane shape inside the tailplane moulding, position it over the tail gearbox to locate the streamline 'bullet' at its best position, then mark through the hole in the moulding

onto the ply (photo 6).

- 19) Drill the ply and bolt it onto the moulding, lock the screw head securely to the ply with adhesive, then glue on the tailplane. The assembly may then be removed and replaced using the nut underneath.
- 20) Trim the starter hatch and fit 'J' nut to cabin top to secure it in place (photo 7).
- 21) Reinforce inside the top and bottom of the tailboom/fuselage join with doubler strips cut from scrap, also reinforce the wood/plastic joins with angle brackets cut from angle pieces (the cabin centre was saved for this purpose). Also join odd places as required, and fit the bottom rear fuselage fairing.
- 22) Final assembly should be tried, and remote glow plug connection, lengthened fuel filler and breather tubes, and the exhaust manifold modified to suit, or a cut out made to clear. Marine engine manifolds and mufflers can be used, or the special Irvine Super Muffler from Morley Helicopters can be modified slightly to suit (part No ACC/SUPER). Check connection and operation of the tail rotor control rod. Trim the two jet exhaust flanges to fit.
- 23) The fuselage may be painted at this stage. Wipe lightly with thinners to be sure of a good key of the paint but be careful not to destroy the surface finish with too much thinners.
- 24) While the paint is drying, the windows and air inlet covers may be trimmed and painted. Note that a hole in the inlet covers is necessary to get at the top fixing screw.
- 25) Flying will be just as with your MXA except for the added weight. Longer blades as used on the Morley Helicopters Agusta 109 will help if your model has marginal power, or use our symmetrical section blades.
- 26) Flight safety can be improved by use of our '3 ON 1' Beacon to indicate safe fuel and battery levels.



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