



CH53 Fuselage kit for 400/450 size helicopter



Please note

Many modelers have their own tricks and preferences when assembling items like these fuselages. We show here the methods used by one of our customers.

Great care must be taken on the first flight after fitting a new fuselage to your helicopter, the trim and flight characteristics will change.

Please read the instructions thoroughly before commencing with your assembly.

Other items that we recommend you have available include:

Fine point marking pen, nail scissors, 400-600 grade sandpaper, thick and thin superglue, wood adhesive, sellotape, Neodyme magnets, surgical clamps, clothes pegs, mini drill, various drills, fine tooth saw, file, measuring tape or ruler, white spirit for degreasing, undercoat spray for plastics, filler, lacquer spray for finishing.

Most motor spare shops have a range of suitable sprays, including the undercoat, it is preferable to use sprays that DO NOT contain solvents, they take a long time to dry. When spraying the ideal conditions are a room temperature of 25 degrees, and the spray can should be at the same temperature. The fuselage should be suspended horizontally to help avoid "runs" in the paint, and spraying should be done in thin coats for the same reason.

Please be sure to follow any manufacturer safety recommendations about use in confined spaces and inhalation of fumes etc..

The kit is supplied in various parts, these are listed and numbered for future reference if replacement parts are required in the future.

Complete Kit of Parts Supplied – Pet-g Items



A separate PDF file of templates is available to cut the ribs etc from balsa.



Preparation:

The fuselage parts are made of PET and can easily be cut with scissors.

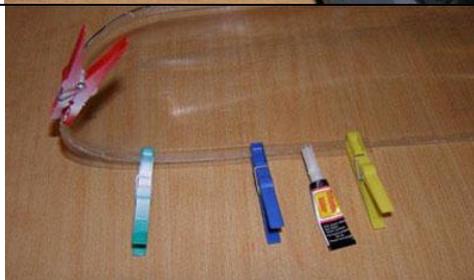
Marking out and cutting:

Draw with a fine permanent marker at the cutting point as illustrated.

Now cut along the line with your scissors. The section trimmed (5-10mm wide) will be utilized for joining pieces later.

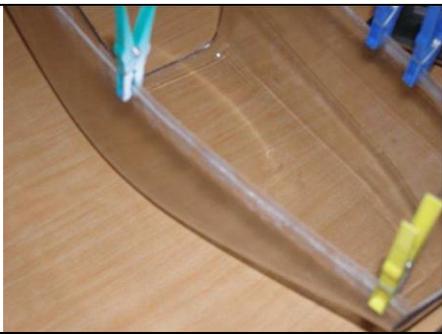


All areas to be joined should be “roughened” to give a good key for the superglue, then remove any dust and grease with alcohol



Strips approximately 10 – 12mm wide should be cut from the scrap material after you have cut out the fuselage parts. These are to be used as joining strips for the half sections to be joined.

These can be held in place using clothes pegs while the glue sets. Use short pieces around the bends.



The strips should be glued to one side of the nose, cabin, Tail section etc..



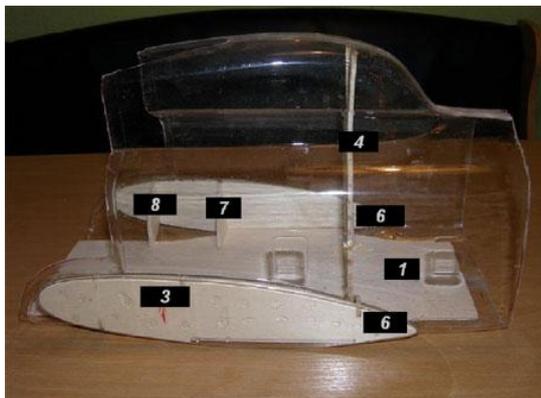
Joining sections:
 The join strips can be held in place using staples or magnets.
 Run some thin superglue along the join pieces, do not apply too much, capillary action will draw the glue into the join.
 When dry you can now place the two sections together, they should be an accurate fit.
 Do the same with the cabin parts.
 Before glueing, check that the section will fit together accurately, great care at this point will reduce the amount of time required sanding and preparing for painting.



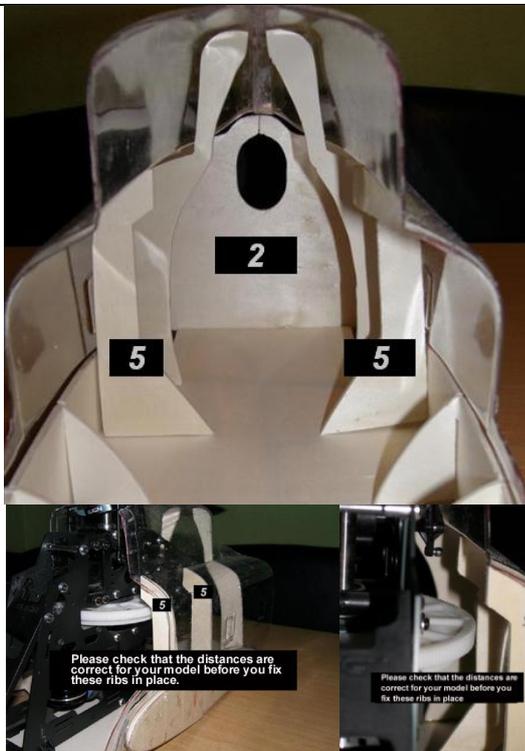
This customer has used Neodyme magnets to hold the sections together when joining the two halves. This helps reduce the amount of air gap



Assembly of frame for the cabin section.
 You will require Bulkheads 1,2,3,4,5,6,7 and 8.
 The first parts to be assembled will be 3,6,7 and 8.
 Place the items 3 in position ensure they are a good fit, rework if necessary, do the same for the other side.
 Next place the base plate item 1 in position and check it is also a good fit. It is essential that the baseplate (Item 1) be kept level at all times.



The frame for the wing stubs can now be assembled, using items 3, 6, 7 & 8, please note that item 6 will sit behind bulkhead 4 as shown in the photograph. Glue these items together as small units.
 The baseplate and two stubwing frames can now be bonded together.
 Finally the tall, number 4 bulkheads, can be installed in front of the items 6, and these bonded to the inside of the fuselage.
 Remember all the time to check that the alignment is square and level.

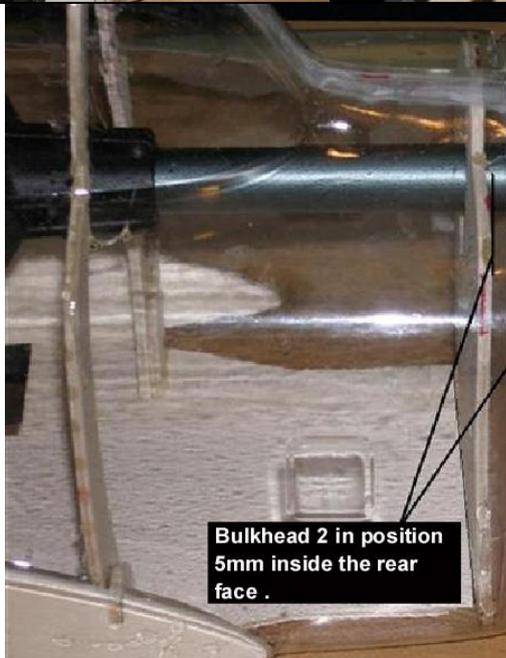


Preparation of bulkhead 2 to for mounting the tail section.

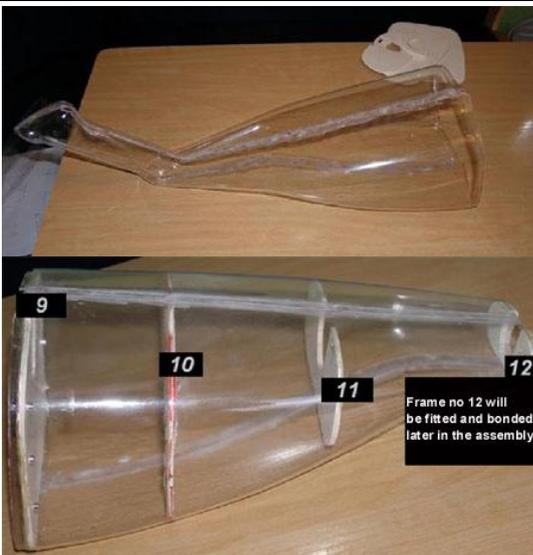
First place bulkhead 2 on top of bulkhead 9 and drill 6 3mm dia holes symmetrically on the outer contour of the bulkheads. This ensures that the holes line up when placed against each other, please mark the sides that need to face each other before glueing the bulkheads into position. These holes will be used to mount the cabin and tail sections together.

Please note:

The positioning of the no 5 ribs will depend upon the mechanics of the model helicopter.



Now, the bulkhead no 2 can be placed in position and glued to the fuselage 5mm from the rear edge of the join.



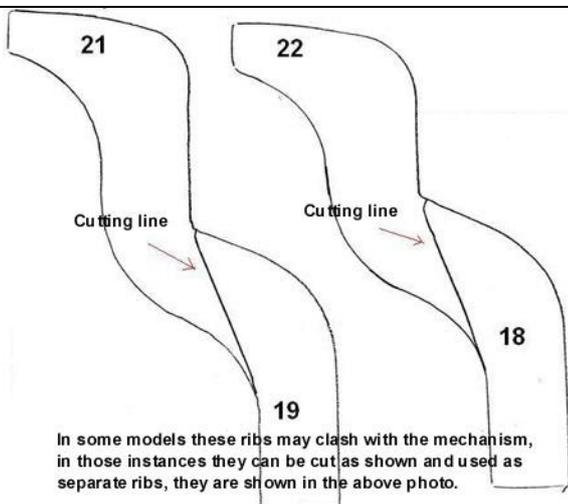
The tail section should not be completely bonded, as the tail fin will be removed later and assembled as a separate part.

The tail section should be glued to a length of 340mm. along the top edge.

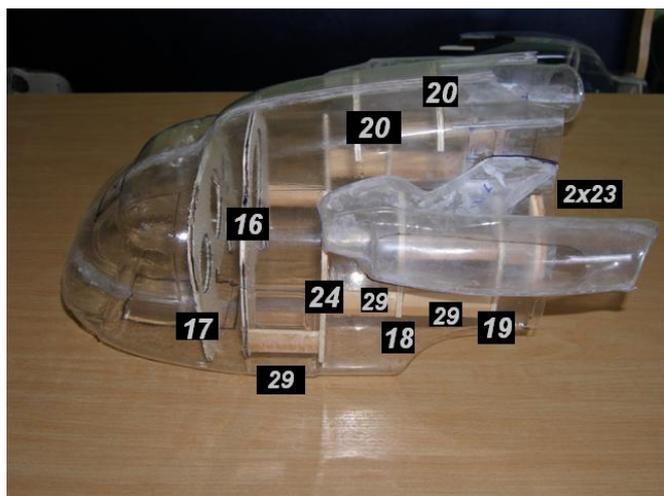
(Note the cutting position for the mounting of the tail link in the general arrangement diagram) Measured from the nose it is about 1000mm, depending on the type of helicopter.

Please note:

You should take great care when cutting for the installation of the tail link if you intend to fit one. The cut should be as accurate as possible, the better the cut, the better the joint will be when the tail unit is mounted. A Dremel mini drill with fine grinding disc may be utilized.



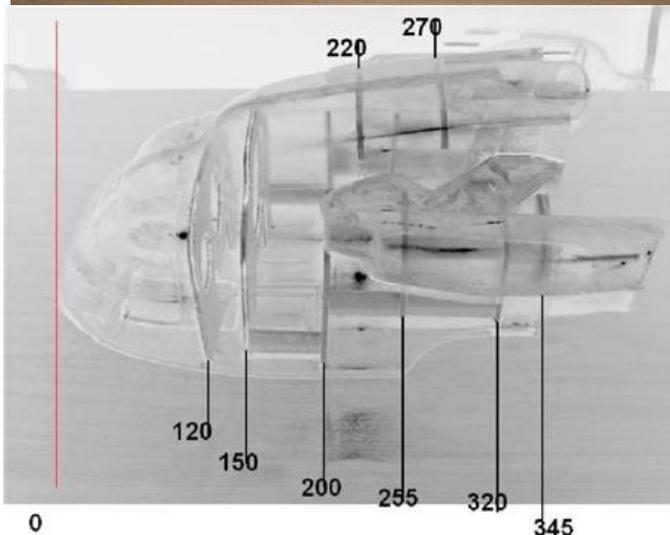
In some models these ribs may clash with the mechanism, in those instances they can be cut as shown and used as separate ribs, they are shown in the above photo.



Next mount the ribs for the cabin section. It may be necessary to divide the ribs 18 & 19 because of variations in the mechanism of the different model helicopters, the pieces then become 18, 19, 21 & 22 as shown.

The 1st photo shows the positioning of the various ribs, and the second, the distances in millimeters from the nose.

The spacers 29 shown are not included in the kit and should be cut from scrap plywood.

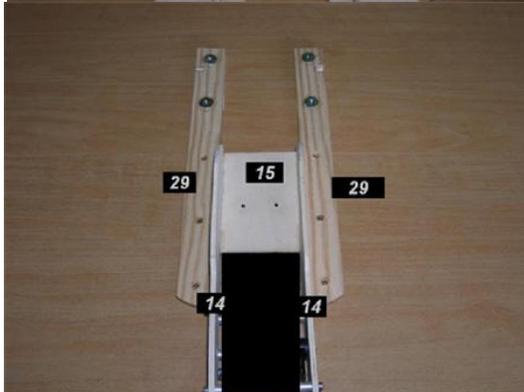
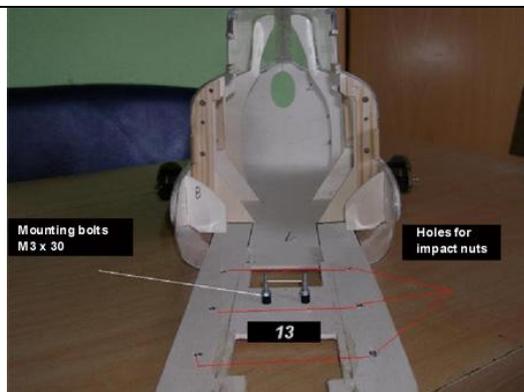


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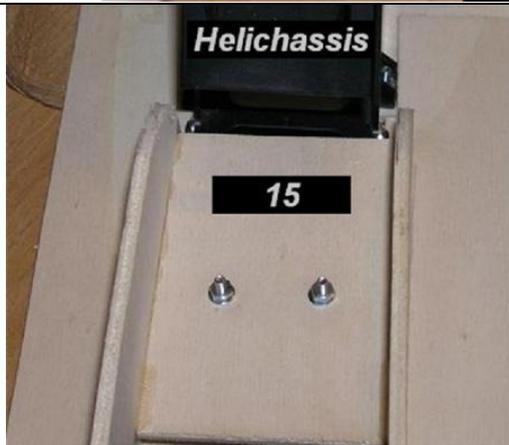


To assist in the location and to act as guides when removing and refitting the nose section for maintenance guides were made from scrap plywood.



To make the frame for the nose wheel you will require items 13,14,15 & 29

Assembly is as shown.

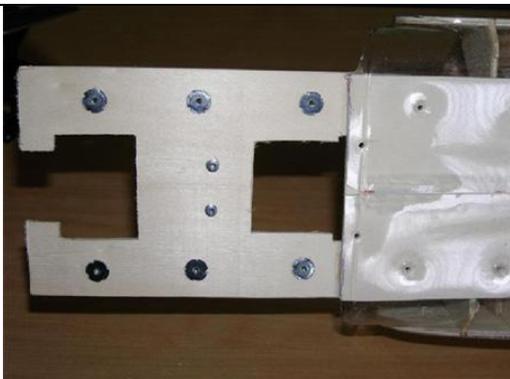


With the helicopter chassis mounted in the centre section of the fuselage attach the nose wheel frame as shown. Item 15 serves as to add strength and help absorb any excess force applied at the nose wheel.



The pair of items 14 are then glued at right angles to item 15, and then these in turn glued to the pine struts items 29.

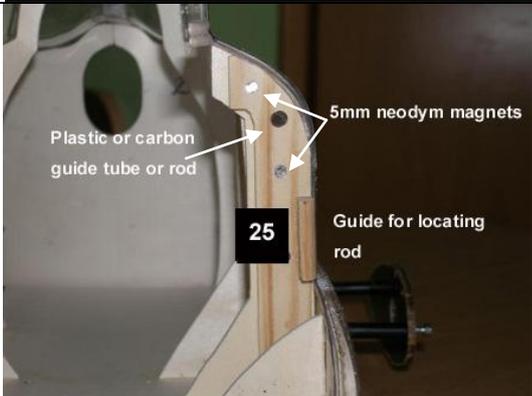
The assembly is shown here with undercarriage fitted, the undercarriage is not supplied with the basic kit.



The nose wheel frame can then be mounted onto frame number 13.



The impact nuts should be glued in place to avoid them falling out..



Having completed the assembly of the nose and cabin sections of the fuselage some method of locating and retaining the nose has to be devised.

In this instance neodym magnets and plastic tubes were positioned to locate and retain them together.



The holes in struts 23 and 25 should be drilled together in order that they line up when the assembly is made.

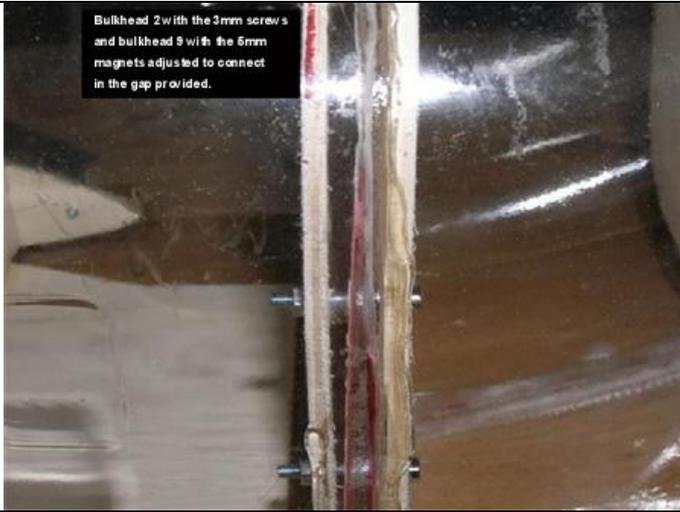


A similar arrangement has to be made to connect the cabin and tail sections.

In this instance 6 x 16mm screws have been placed onto bulkhead 2, they have also been glued in position to prevent movement, and 5mm magnets in corresponding positions glued in place in bulkhead 9.

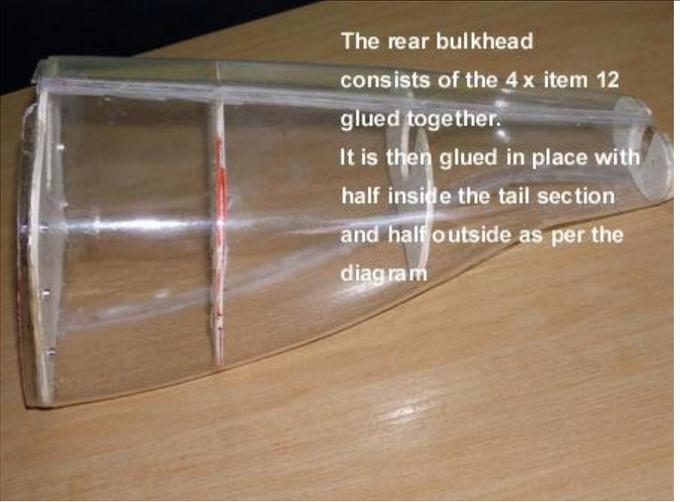
The screws can be adjusted to connect with the magnets, and then glued in place.

Bulkhead 2 with the 3mm screws and bulkhead 9 with the 6mm magnets adjusted to connect in the gap provided.



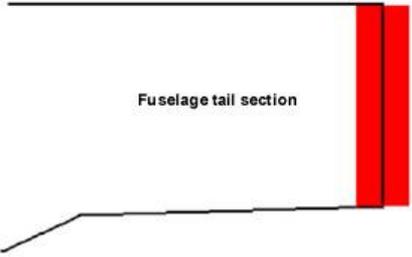
Cabin and tail section between bulkheads 2 and 9. Easy to separate and reposition

The rear bulkhead consists of the 4 x item 12 glued together. It is then glued in place with half inside the tail section and half outside as per the diagram



The tail section can now be prepared to accept the tail fin and tail link.

The 4 x items 12 should be glued together and glued in place inside the rear of the tail section as shown here.

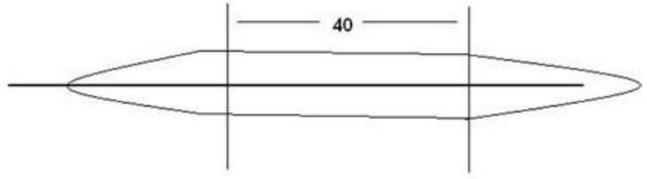


Fuselage tail section

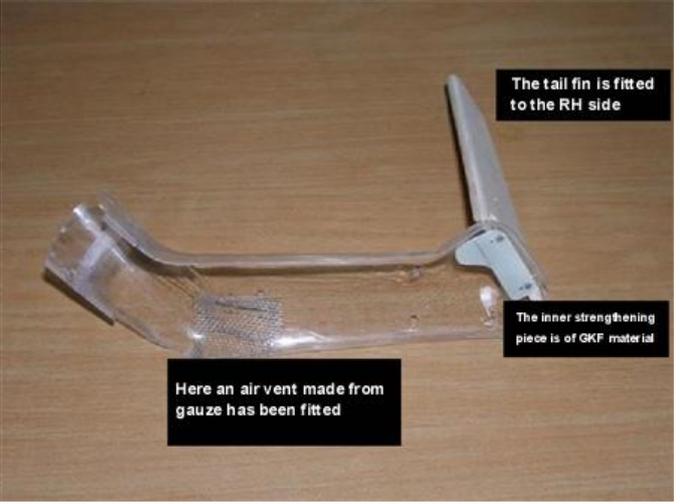
The red portion shows the position of the 4 x items 12 that have been glued together

Making and mounting the tail fin:

The two items 30 glued together back to back, with two pilot holes 40mm apart either 2 or 2.5mm dia



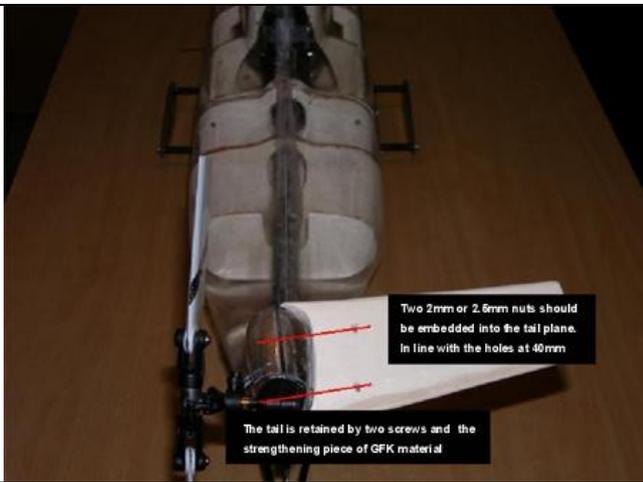
Two nuts are embedded into the tail plane in line with the pilot holes, and the fin is retained by the corresponding screws set in from the tail fin.



The tail fin is fitted to the RH side

The inner strengthening piece is of GKF material

Here an air vent made from gauze has been fitted



The two tail fin halves can now be glued together using the same technique as on the other parts of the fuselage



This photo shows the complete tail assembly in position with both tail plane and tail link fitted.

The tail fin is retained by two screws in the rear bulkhead



Prepare the stub wing protrusion by placing the frame number 27 in position on contour of the stub.



Drill 5mm holes through bulkhead 27 and the previously fitted inner bulkhead number 2, as shown, one for the locating tube, and one for the retaining magnet or impact nut.



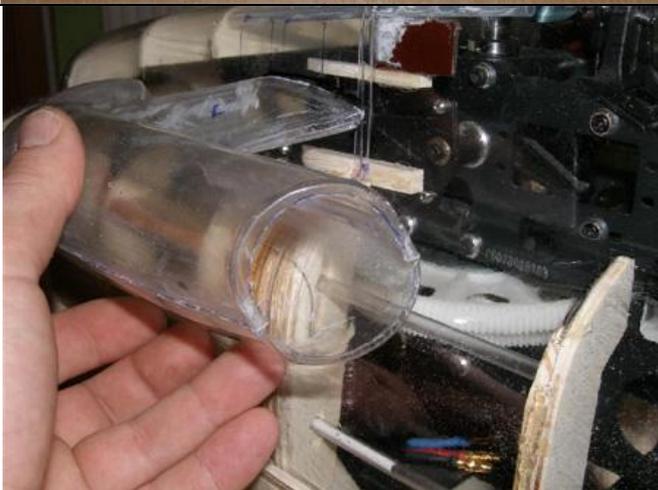
Now prepare the stub wings. Mark them for trimming as shown previously 55mm from the high point, and smooth the edge by rubbing the wing on a flat piece of sandpaper.

The stub wing should now be assembled using bulkheads 27 and 28, the pieces shown as item 26 are made from scrap material cut to 15 x 44mm.



Turbines & Fuel Tanks

Trim the turbine pieces and join them using the same techniques as previously with inner connecting strips cut from scrap material.

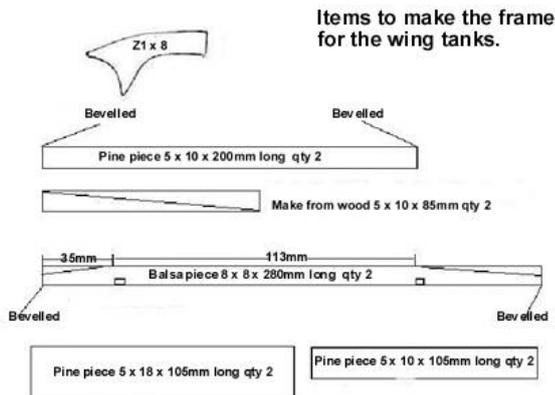


Sand the mounting arms until they are a good fit on the nose section of the fuselage.

Remember that these items are handed left and right, that the mounting arms are in the uppermost position, and that you mount them with the mounting arm towards the front of the helicopter.



If the wing tanks are to be fitted to create the CH53-GS version. The tank halves have to be joined in the same way as the turbines, and a frame constructed on each stub wing to mount the tanks.



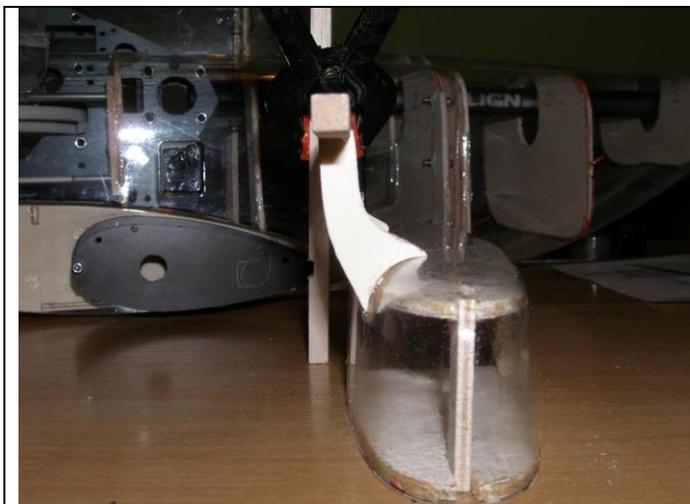
The frames to mount the wing tanks will be made from the parts shown here.



The frames Z1 are glued together in pairs. Making 4 frames in all.



Now each tank and mounting frame is ready to assemble. The next series of photos show the assembly of the frame and mounting the tanks.



Finally the tail link can be fitted (this is not part of the basic kit)

The assembly is as follows:

1. Disassembly of the rear rotor housing
2. Disassembly of the original timing belt
3. Special assembly of the timing belt
4. Mounting the chassis in the fuselage
5. Insert tail section
6. Assembly of the tail rotor conversion kit
7. Test Run
8. Assembly of the fin



For points 1 to 3, please refer to the instructions in your helicopter manual



Tips for spray painting your fuselage

If there are any holes or gaps these can be filled with polyester putty and smoothed to give a good finish. The area to be painted should be roughened with very fine sandpaper

Spray painting is best done with an Acrylic lacquer that does not contain solvents, these take a long time to dry. All motor accessory shops sell these sprays in a wide variety of colours including a “Plastic primer” that will give a good key for the spray paint. For the best results and quick drying, the room should ideally be at 25deg C, and the spray can also heated to 25deg C. For best results a number of thin coats should be sprayed.

Do not hang the fuselage vertically when painting, if possible place it on a rod, this reduces the chances of the paint running.

As with all retrofit items, these instructions only show the method used by one modeler. Most experienced modelers have their own ways of doing things and we are always open to suggestions and tips about how to improve our instructions.

If you have any suggestions please email us at

hightorquemail@aol.com

We hope that you have many happy hours flying your CH53 !!!

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