

# CIKADA

## TOWLINE GLIDER CLASS A-1/F1H

The Cicada is an insect playing its tune in the tropical night.

This 'Cikada' is a well tried and superbly flying model and has won many contests flown by young people and adults. It is a good choice for your next model if you have built one or more simple models earlier.

It will please you too if you follow the instructions.

This kit contains all materials required except glue and dope.

The drawing consists of two parts. Cut the larger part along the dotted lines and join it with the smaller part with tape. Check that the details on the drawing are in line with each other. Now read the whole instruction carefully before starting construction work, and check against the drawing. This helps you to avoid mistakes later.

You will need a building board, which can be made from porous fibre board, size about 10" x 50" and 1/2" thick. When building the wing and the tailplane we suggest you spread cling film over the drawing to prevent the parts sticking to it after glueing.

When building the model - ALWAYS ALLOW THE GLUE TO DRY THOROUGHLY BEFORE GOING TO THE NEXT STEP.

### BUILDING INSTRUCTIONS

#### THE FUSELAGE

Bevel the fuselage stick front end to fit the slot in the nose piece. Glue the pieces together and check that they align correctly. Let dry.

If you intend to use a dethermalizer timer make the cut out for it now.

Glue the plywood nose sheets to both sides of the central nose piece, keep in place with clothespins and let dry.

Chamfer the fuselage stick tail end (bottom only) as indicated on the drawing. Sand the whole fuselage with sandpaper removing excess wood and glue. Give it one coat of dope, let dry, sand lightly and add a second coat.

Drill a 3 mm (1/8") diameter hole to take the wing retainer dowel which glue in. Add the two wing seats and the tailplane platform. Check that they are correctly aligned.

Sand the fin and dope it twice, sanding between coats. Mark out and cut off the rudder as shown on the drawing.

Cut 4 small fabric strips for rudder hinges and glue them to the fin as shown.

Cut a notch in the rudder to take the rudder bar. Drill two small holes through the latter to take the rudder line and glue it to the rudder. Now glue the rudder to the fin gauze hinge strips getting a nice attachment to the fin.

When glue is dry, glue the fin to the fuselage stick. Use clothespins and pins to keep correctly aligned. When the glue is dry, add another thin string of glue to both sides of the fin base to strengthen the joint.

Form a 'U' from 24 SWG piano wire for a rudder stop, thrust one end through the fuselage stick and glue as shown. Then drill a 1/4" hole in the fuselage stick rear end and glue in the fuse sniffer tube. If you will use a mechanical timer, however, this tube will not be required.

The fuselage should be given two more coats of dope to be finished.

## THE WING

Build the wing directly on the drawing. Remember to put on the cling film first.

Start with the centre panel. Pin the trailing edge to the drawing and mark off the wing rib positions on it with a pen. Unpin the T.E. and make notches for the ribs with two hacksaw blades taped together or with a 1/16" thick file. All notches shall be equally deep, about 3/32". Pin the T.E. to the drawing again with the notches matching the rib positions. To get the correct angle of the T.E. put a 1/16" strip of wood or packings of similar thickness under its forward edge.

Pin down the leading edge. Glue all ribs and check for alignment vertically and horizontally. The underside of the rib tail ends shall be flush with the underside of the T.E.

Now add the top spars and allow the glue to dry. When dry, unpin the centre panel from the plan and glue in the bottom spar.

Glue the balsa sheets to the middle part of the centre panel as shown.

The outer wing panels are built in the same manner but do not glue the spars and the innermost rib yet. Cut the leading and trailing edges to exact length. Unpin the sparless outer panel and join it with the centre panel this way:

Pin the centre panel to the drawing. The outer wing panels shall have the dihedral stated on the drawing. Lift the wing tip 115 mm (4 1/2") and put match boxes, pieces of wood or whatever comes handy under it to retain the dihedral. Bevel leading and trailing edges to conform with the L.E. and T.E. of the centre section. Glue the centre and outer section together at L.E. and T.E. retaining the 115 mm dihedral, then bevel the top spars and glue them. Allow to dry. Now make notches in the dihedral break rib and glue in the plywood dihedral brace. Glue the innermost rib of the outer panel, to laminate against the outermost rib of the centre panel. Add the bottom spar and the 10x15 mm wing tip balsa pieces. Add the gussets. Let dry. Repeat with the other outer panel.

Round off the wing leading edge as shown by sanding it. Sand the wing tips as well to get the shape indicated. Then sand the entire wing lightly with fine grit sandpaper to remove excess glue and burrs as required.

Give the following parts two coats of dope:

Leading and trailing edges, top and bottom,

Wing tips.

The balsa sheeting on the wing centre panel.

Four coats of dope for:

Wing ribs, bottom only

Dihedral break wing ribs, top.

Tip ribs, top.

The four coats are for the surfaces where it is more difficult to make the covering stick, hence some extra dope.

#### THE TAILPLANE

The tailplane is built exactly as the wing except for the dihedral breaks. Cut a narrow strip from the model box and put it under the forward edge of the trailing edge to give the tailplane the correct airfoil.

Sand the entire tailplane lightly, then apply two and four coats of dope as specified above for the wing.

#### COVERING

The wing covering material is the heavier tissue supplied. Start with the mid panel bottom. Cut a piece of tissue slightly larger than this panel. Put it on, making sure it covers the entire panel and spread some acetone on one corner with a small brush.

Press down the tissue with your finger and you will note that the covering sticks to the wing frame when the acetone dries. Now go to the opposite corner, stretch the tissue slightly and repeat the procedure. Then the other two corners, and then the entire leading and trailing edges.

Now the rib undersides. Spread a narrow acetone streak onto the tissue directly over one rib. Then press the tissue down with **three** fingers and move the fingers along the length of the rib. The movement prevents the fingers from sticking to the tissue and speeds up the drying procedure.

Repeat with all ribs. Then cut away excess tissue with a thin sharp razor blade or knife.

If the tissue refuses to stick to the wing frame you must add some balsa cement to the dope and add one more coat. (If you do it from the start two or three coats will do nicely).

Repeat the procedure with the bottom of the outer panels. Just cut the paper so it produces a nice joint at the dihedral breaks.

The top of the wing panels are covered in the same way but most of the ribs are not doped here. This is not required. The tissue is fastened at the edges only. When the top panels are covered, cut away excess tissue but do not cut away it all save a narrow strip to fold around the edges and fasten on the underside.

The tailplane shall be treated the same way, but the lighter grade tissue shall be used.

Check that no loose tissue strips or burrs are left on the surfaces. Moisten the tissue by spraying water mist with an atomizer or by holding the wing/tailplane over a kettle with boiling water. Let dry and check for wrinkles. If they are there, try the steam method again at that point. Remaining wrinkles, if deep, should give cause for recovering of that wing part.

Dope the wing three times and the tailplane twice, all around.

Pin down the centre section when drying to keep it flat.

When the last coat of dope is dry, give the outer wing panels a slight wash-in, i.e. twist each one just a bit 'forward' while holding the panels over boiling water. Move the panel to the side, retaining the twist. The wing will dry in a matter of seconds and the twist will stay. Look at the drawing to find the correct angle of the twist.

This wash-in is for a purpose. It reduces the air resistance and increases the stability, both effects contributing to better performance.

## OTHER DETAILS

Make a towhook by bending a piece of 1.5 mm (17 S.W.G.) piano wire and solder it to the brass screw supplied with the kit. Find the correct place to screw in it in the fuselage boom.

Bend dethermalizer hooks for the tailplane and fuselage rear. Use 1 mm (24 S.W.G.) piano wire.

Use soft pins or wire to make small eyes for the rudder wire and glue them to the fuselage stick. Cut a suitable length of rudder wire and tie it to the rudder bar. Mount a small rubber band between rudder and fuselage stick on the right side to make the rudder swing out about 4 mm (3/16") when the rudder wire is released from the tow hook. See drawing.

Write your name, address and telephone number on a small paper slip and glue it onto the wing T.E., just in case. Always use a timer or fuse to prevent flyaways when airing the 'Cikada'.

## TRIMMING

The balance point for the 'Cikada' is 60 mm from the wing L.E. Balance with lead shot in the nose cavity. When the correct balance has been found cover the nose cavity hole with a wooden plug or with tape.

Choose a calm day for the first glide tests and grassy or snow-covered ground. Aim the nose of the model towards a point about 10-15 metres in front of you and launch it. Not too hard not too slow. Correctly built and balanced it shall now glide for about 20 metres before landing. If it dives you might have launched too slow. Try a slightly harder throw. If it still dives you must add a thin packing under the tailplane T.E. If it still dives, add one more packing etc.

If the model loops, however, you might have launched too hard. Try a slightly slower launch. If it still loops, pack 1 mm balsa packings under the L.E. of the stabilizer. Continue until the glide is flat and steady.

If it is difficult to achieve this, check the balance point again!

When the nice flat glide is there, find a 50 metres long towline and tie a thin ring to one end. A small flag tied to the line about 30 cm below the ring will help you to observe the towline release. Ask a friend to hold the model, roll out the towline directly into wind. Now launch the model like a kit. If it goes straight up to the full length of the line, O.K. If it zig-zags the towhook must be relocated slightly further back on the fuselage.

On the other hand, if it slices steadily towards one side, the hook must be moved slightly forward.

If the model starts zig-zagging or slicing badly, break off the attempt immediately and release the towline. Attempts to straighten it up will almost always end in disaster.

When properly trimmed the 'Cikada' will be able of flights of about two minutes duration. Thermals will of course extend the flights considerably, so use the fuse or D.T. timer.

When you are satisfied with the model's flight characteristics, glue all loose packings to keep the trim for next time.

Joining a nearby model flying club can often be awarding as you can get help to adjust the model if you run into trouble. It will also steepen your proficiency curve.