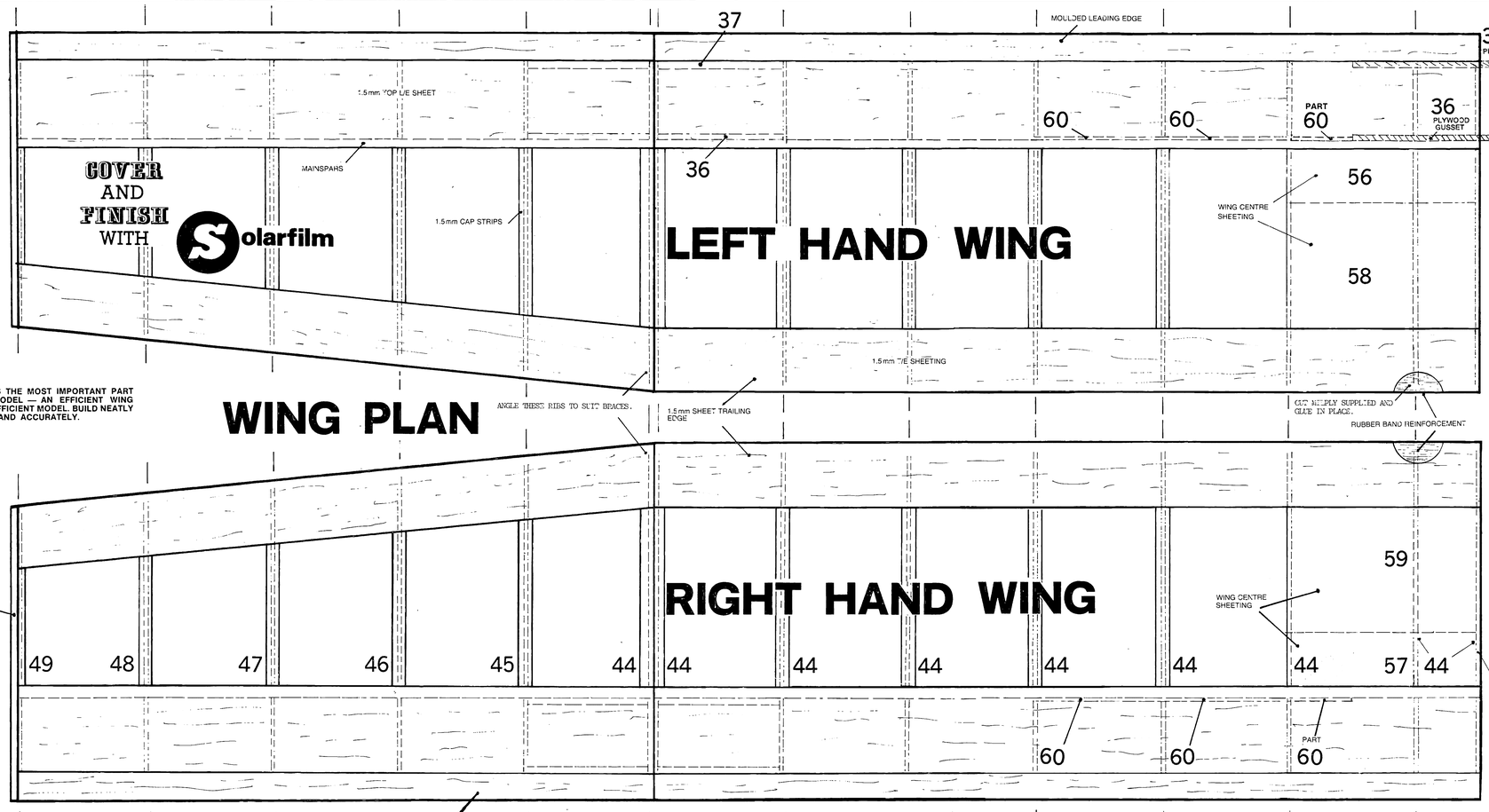
WING PLAN



RIBS NO. 50 AND PART NO. 40 NOT USED IN THIS KIT

INSTRUCTIONS

FUSELAGE

1. Build a left hand and right hand side as follows:–
   (a) Take one fuselage side and cement the sheet doublers in place on a 45° angle as shown.
   (b) Build an **opposite** side in the same manner.

2. When dry, trim off the excess doubler sheeting and epoxy formers 3 & 4 to one side, glueing the wing supports in place at the same time to give correct location. Ensure the formers are held square whilst drying.

3. When dry, fit the other wing support and the other fuselage side to the formers and epoxy in place, once again maintaining the formers and sides square.

4. Leaving the diecut skid in its parent sheet, cut the tow hook wire supplied in half and bend up two towhooks (one left bend and one right bend as shown in the detail). The marks on the ply sheet show the shape and location of the hooks. Drill the two holes for the towhook wire where shown, and drill a series of fine holes (or push pin through instead of drilling) for the binding later. When satisfied with the fit, cut the towhook area as shown in the detail and remove the skid from its sheet. Fit the hooks, bind together tightly with heavy cotton or fuse wire and epoxy both hooks in place – leave to dry.

5. Mark the centre of the formers 3 & 4, and fit the plywood skid in position, allowing 1.5mm at former 4 to match the bottom sheeting (The back two hooks are used for normal launching, the front ply hook is only used for advanced flying or high wind conditions). Sand the skid and put aside for Step 6.

6. Sit the fuselage on a flat surface, and fit the diecut front bottom half sheets in position, using a piece of scrap plywood to space the centre slot. Fit the front fuselage pieces together, and fit and epoxy in place the square ply former 1. (Masking tape around the nose of the fuselage is an ideal clamp while drying). When dry, glue the front bottom half sheets in position, but **not** the scrap ply. Glue scrap corner gussets in position at the front former.

7. When fully dry, remove the scrap ply, and epoxy the ply skid in position in the formers, and glue the bottom sheet halves to this skid.

8. Epoxy the nose block in place after roughly shaping – allow 6mm at the top for cowl block positioning.

9. Screw the servo tray to the bearers provided, and allowing enough clearance for the bottom of the servos when fitted, epoxy the bearers to the fuselage side, keeping the whole unit as far forward as possible.

10. Cut the 685mm piece of 1.5mm sheet in ½, then trim to fit either side of the skid and over the front foot fitted earlier. Cement 3mm square strips at the edges of this sheet where it mates to the skid in the servo compartment area. When dry, cement in position on the underside of the fuselage. When this has dried, trim off the excess sheeting around the fuselage bottom, fit and cement formers 5 & 6 in place, and fit and cement the bottom sheeting (cross grain) in place.

11. Shape and fit the cowl block, and put aside for later fitting.

12. Fit the pushrod inner and outer cables in position, and fit and epoxy the link ends to the servo ends only. Allow extra length of cable and outer at the rear of the fuselage for later accurate trimming – support the cables in the centre by epoxy glueing to a scrap support, and epoxy the outers in position at F4, the support, and where the cables exit from the fuselage. Cement the top sheeting (cross grain) in position, and the fin support doubler, fit the wing dowels and their gussets and cement in place.

13. Cement the cross grain strengtheners to the tailplane sheeting and when dry, shape the tailplane to the section shown. Mark the centre of this assembly. Cut 15mm lengths of mylar strips slit the tailplane and elevator where necessary and fit the hinges. When satisfied with fit (free movement and minimum gap), remove the hinges, pin pick the mylar at the areas to be glued, and then cement (balsa or epoxy) the hinges in place. If covering with Solarfilm or similar, leave the hinges until after all covering is complete. With the hinges fitted, shape the elevator to its section shown, and fit the elevator horn. Cement in the scrap tailplane support to the fuselage, and locate the tailplane centrally. If covering Solarfilm or similar, do not cement in position until after covering (then cut away the film from the areas to be glued and glue balsa to balsa).

14. If tissue covering, the tailplane can be cemented in position squarely, and the kwik link end etc., fitted to the cable permanently, allowing both cable ends to have adjustment about their centre throw positions.

15. Cement the fin parts together on a flat surface, and shape and fit the rudder, hinges and rudder horn in the same manner as the tailplane elevator assembly (same instructions apply for covering). When satisfied with finrudder assembly, slot the top rear fuselage sheeting and doubler and cement this assembly squarely in place. Ensure from a front view, the fin is square to the wing mount and tailplane – this is most important for accurate flying trims to be made. Fit and complete the rudder horn cable links as shown, once again with the servo, rudder and link ends all in neutral position with adjustment available.

16. Mark the centre of the former 3, and drill a 3mm hole 6mm below the 'V' part of the former. Fit the cowl block in place, and mark through this hole. Remove block and drill a 3mm hole about 12 to 15mm deep. Cement the 3mm dowel supplied into this hole and round off the end of the dowel exposed. Epoxy the two hold down hooks in position at the front of the block as shown, and the one hook on the floor in the centre front. When dry, stretch suitable rubber bands through the hooks and locate the cowel in the former 3 hole. The rubber bands should pull the cabin block down tightly. Sand the block smooth to the fuselage.

WING ASSEMBLY LEFT WING.

1. The detailing wing sketches one and two show the basic wing construction.– Working on the plan, pin down the bottom leading edge sheeting, bottom trailing edge sheeting, bottom cap strips (cut from 1.5mm strip supplied) and formed leading edge. Cement and allow to dry. (main panel only). Taper the top section leading edge off on the top only to suit the ribs 45, 46, 47, 48 & 49, then build the top section as above (on flat surface) adding in the braces 36 & 37. When dry, cement the bottom mainspar, centre braces 36 & 37 with white glue, and all ribs in position on both panels, trimming off the ribs where necessary to clear the wing braces. Use the dihedral template A to obtain the angle of the centre rib. (Cut out template, glue to cardboard and trim to exact shape for use).

2. Cement the top mainspars, balsa rib webs (60), top trailing edge and leading edge sheeting, top cap strips and wing tip in place. At this point build in the washout on the tips as noted on the plan. Leave the balsa wedges in place until the left wing is fully dry.

RIGHT WING

Pin down the parts for step one over the plan as before and cement all joints. When wing is at the same stage as the completed left hand wing, (right hand wing has no centre braces), leave on the building board, and join the two wing halves by trimming the joining edges to the correct angle, cutting the ribs for the braces, and sliding the braces into the Right Hand Wing. (Block up the left wing whilst this joint dries fully, while glue the brace joints). When dry, remove from the board and fit and cement the top and bottom centre sheeting 56, 57, 58 & 59. Sand the wing all over, check for balance and adjust and cover with either tissue or silk, or preferably Solarfilm plastic covering. When the wing is covered, check for any warps or twists (other than the washout on the tips) and remove these if present. (Twist the wing back to shape, and heat the Solarfilm gently where the wrinkles occur). If tissue or silk used, steaming may be necessary. When satisfied that you have a true, balanced wing, move onto covering the fuselage etc.

FINISHING

The method of finishing is the builder's choice, either dope, tissue and paint, or Solarfilm may be used as described earlier. When covering is complete, cement and fit all hinges and horns, and radio equipment. Check the servos for correct movement and centering, and connect the pushrods at each end. Adjust for centre neutral and equal movement either side of neutral for both rudder and elevator (about 8° movement up and 8° down is sufficient for the elevator whilst about 15 to 20° is required for rudder throw. When satisfied with all the links and movements (note: right stick on transmitter should give right rudder when the model is heading away from you, and pulling the elevator stick back towards you should give up elevator), fit the wings with rubber bands (at least three or four bands (AF 328 or 330 Accessories or similar) are sufficient). With the batteries and receiver foam mounted in their compartment check the balance of the model in both axis. The fore and aft balance point must be within 4 mm of the centre of gravity (balance point) and the axial balance must be through the centre line of the fuselage. Adjust by adding weights if necessary.

FLYING

Your Capella is an excellent sports R/C Sailplane, ideal for two channel mini radio systems such as the Sanwa Mini or the Futaba mini sets. The model has been designed to either slope soar (off cliffs, hills etc.) or thermal soar. Launching can be either by hand launch off cliffs, hills etc. or towline or bungee launch. In either case, the model, if built squarely and without warps etc. will perform admirably.

FIRST FLIGHT

When satisfied with the balances of the model, switch on the radio equipment (Tx and Rx) and launch the model from shoulder height gently into the wind. If the model glides flat, give a small amount of up elevator to "get the feel". Release the elevator and "feel" the rudder in the same way. Remember to give a small amount of up elevator with each rudder turn (to prevent model diving on turns). If with all controls at neutral, the model turns left or right or stalls or dives, move the trim controls on the transmitter to compensate, or if this is insufficient, adjust the linkages on the model to suit.

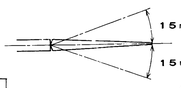
When the model glides smoothly with no stick movement needed, attempt your first launch directly into the wind (we suggest a low line launch off your second hook). Resist the temptation to pull up elevator or too much rudder correction whilst the model is being towed up – if the model was trimmed correctly, it will low straight up without correction.

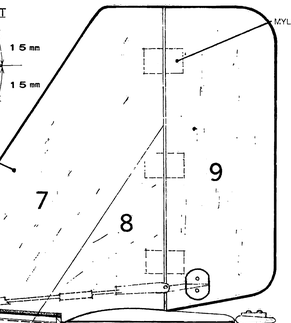
When model has reached the peak of the towline (speed of climb is controlled by the towline helper (in light winds running is necessary – in high winds, a slow walk is all that may be needed). Touch the down elevator to release the line, then let the model glide. Gentle corrections with rudder and elevator will give you your start to the exciting world of Radio Control Flying. Remember – always land into the wind.

The help of an experienced flyer may be to your advantage to obtain the best performance from your Capella.

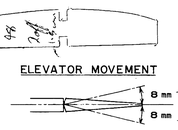
FOR FAST DRYING AND MAXIMUM STRENGTH USE AERO-FLYTE BALSA CEMENTS, C17 FOR NORMAL USE AND C23 FOR JOINTS WHERE THAT LITTLE EXTRA GRIP IS NEEDED.

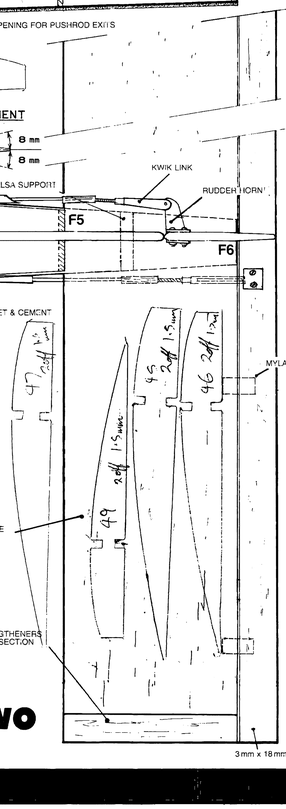
RUDDER MOVEMENT



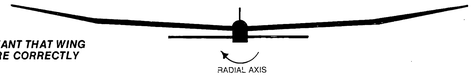


ELEVATOR MOVEMENT

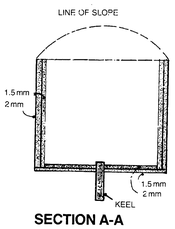




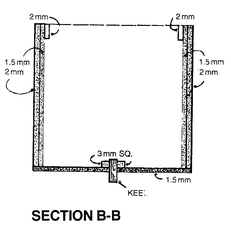
DIHEDRAL DIAGRAM "A"



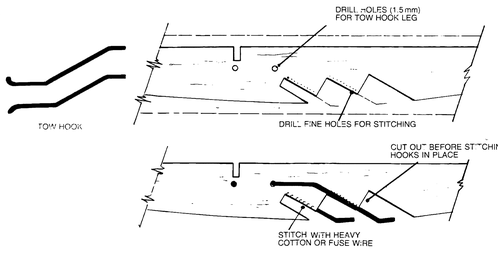
NOTE: IT IS IMPORTANT THAT WING AND TAILPLANE ARE CORRECTLY ALIGNED.

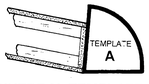


SECTION A-A

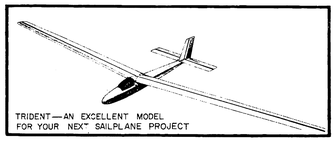


SECTION B-B





DIHEDRAL TEMPLATE A



AEROFLYTE

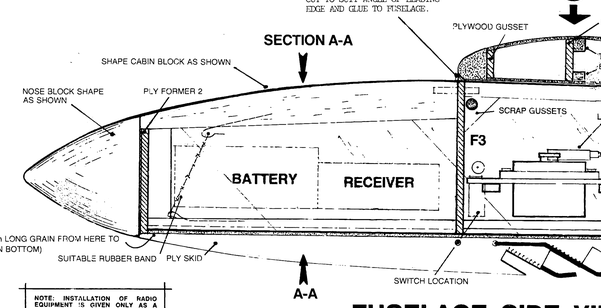
Capella

KIT NO. 167

SPECIFICATIONS

WING SPAN	1460mm.	**TAILPLANE AREA**	42sq.m.
WING CHORD	180mm.	**FUSELAGE LENGTH**	790mm.
WING AREA	260sq.m.	**WEIGHT** (WITHOUT R/C EQUIPMENT)	44 K.g.

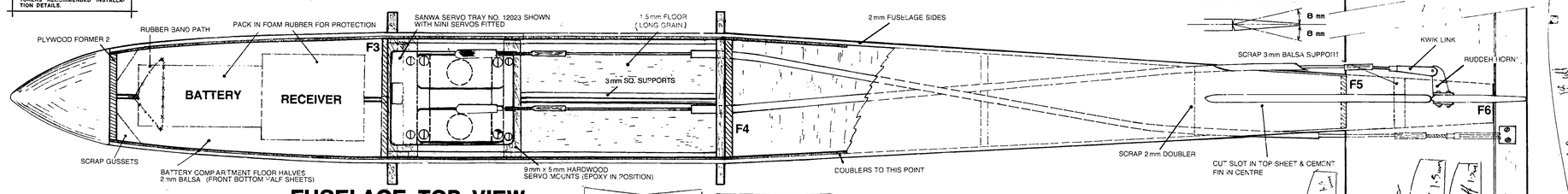
SECTION A-A



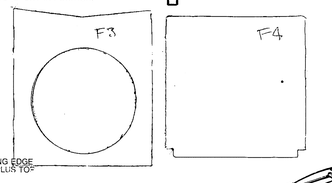
SECTION B-B

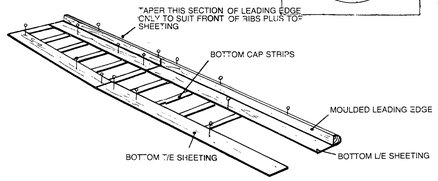
FUSELAGE SIDE VIEW

NOTE: INSTALLATION OF RADIO EQUIPMENT IS GIVEN ONLY AS A GUIDE AS DIFFERENT BRANDS REQUIRE DIFFERENT MOUNTING METHODS. FOLLOW THE MANUFACTURERS RECOMMENDED INSTALLATION DETAILS.

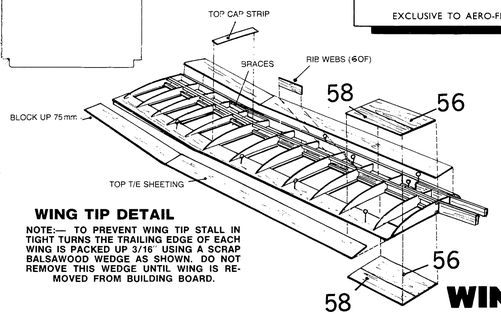


FUSELAGE TOP VIEW





WING STEP ONE



WING TIP DETAIL

NOTE:— TO PREVENT WING TIP STALL IN TIGHT TURNS THE TRAILING EDGE OF EACH WING IS PACKED UP 3/16" USING A SCRAP BALSAWOOD WEDGE AS SHOWN. DO NOT REMOVE THIS WEDGE UNTIL WING IS REMOVED FROM BUILDING BOARD.

WING STEP TWO

THIS KIT CONTAINS **GRADE AAA BALSAWOOD**

EXCLUSIVE TO AERO-FLYTE