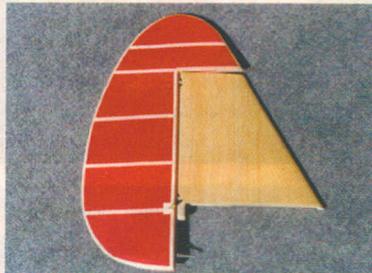


The tailplane components are completed; note elevator trim tabs



Fin and rudder assembly showing rib tapes and Robart hinges

a scale of 1 to 4.8 giving it a wingspan of 90". A most reliable Laser 1.00 4-stroke engine that just fitted within the radial cowl powered the prototype that has proved to be an exceptionally good model to fly.

### Construction

The model uses standard model aeroplane built up construction methods and materials. I like to get a kit of parts cut out before I start building but it is possible to get a professional 'kit cutter' to do this for you. The technique that I use is to trace out the parts and then prick through shapes onto the balsa or ply. I also like to make a start on something that lets me see a result early on in the construction programme. With this in mind we will start off with the construction of the tail unit.

### Tail Unit

The rudder and elevator are built on a 1/16" sheet balsa core. Cut the four 5/16" sheet spars for the elevator and glue two of them to one side of the elevator cores. Add the 1/16" ribs and tips and the 5/16" sheet pieces at the inboard end of the elevator. Sand the units to the correct section and repeat on the other side. Both elevators should be symmetrical in section. The rudder is built in exactly the same way but the ribs are from 1/8" balsa.

The stabiliser is built in two halves directly over the plan as I think that it is easier than trying to build a symmetrical unit over packing pieces. Cut the 1/4" spars and pin them over the plan. Add the ribs, tips; ply braces and the 1/8" sheet false leading edge. Sand to the section shown and cover with 1/16" light balsa. Make a second half and when both are completed join together. Add the 1/4" sheet leading edges and soft balsa capping for the tips, sand to the section shown.

The fin is constructed in a similar manner to the stabiliser, build in two halves, cover with 1/16" sheet and join together. To complete the structure, add the 1/4" sheet balsa leading edges and shape and sand to the correct section. I find that balsa cement is the best adhesive for this particular job as it sands down easily without leaving a glue ridge.

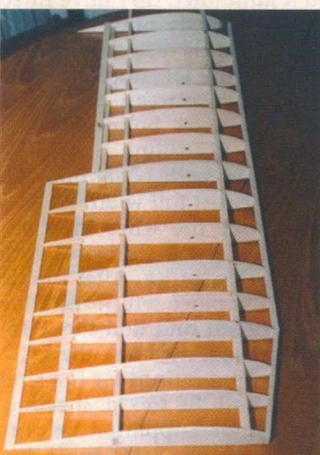
All the hinges used on the model are the Robart steel pinned type and arrangements should be made to accommodate these within the structure, note also the positions of the hinge centre lines. A 14 swg piano wire elevator joiner is used with a 1/16" brass or mild steel horn silver-soldered in place. A commercial item may be substituted, but note the angle of the horn.

### Wings

Cut a plywood template for the wing rib number 3 but without the cut out for the flaps. All the slots for the spars, allowances for the sheeting and leading edge should be incorporated into the template. Cut 24 ribs to the template from 1/8" sheet balsa. The ribs can then be cut down to make rib 3 with the flap cut out or rib 4 for the ailerons. Copy the shapes of the remaining ribs onto tracing paper and transfer the shapes onto the required size of sheet balsa by pricking through with a pin. Using a rib 3 as a template draw out the doublers onto 1/16" plywood. Cut out and bond to the ribs using epoxy. Note that the doublers fit

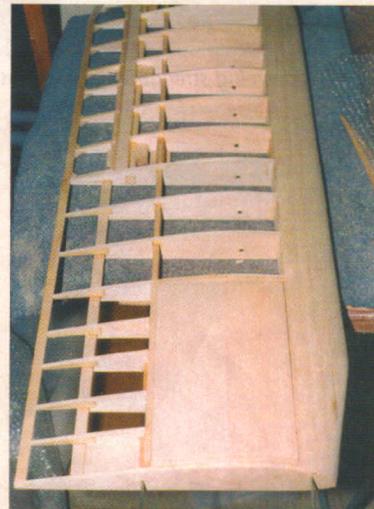


Structure of the wing viewed from underside with aileron cut out built in, plus main and rear spar assemblies

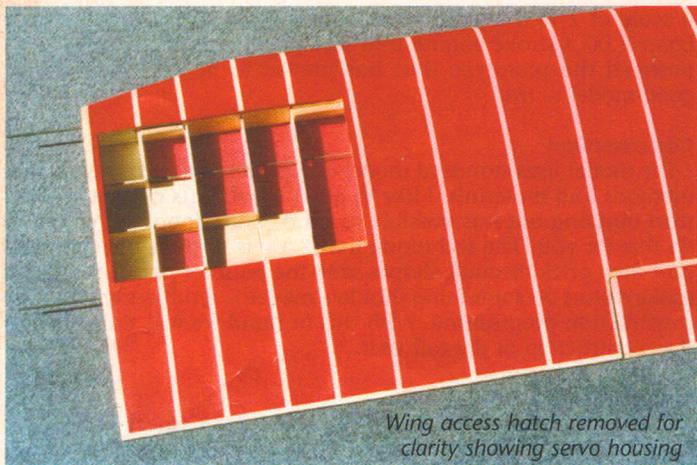


Wing structure showing tapered root; note holes in ribs for control rods

Aileron construction viewed from underside shows hinging points and neat additional scale strengthening at TE



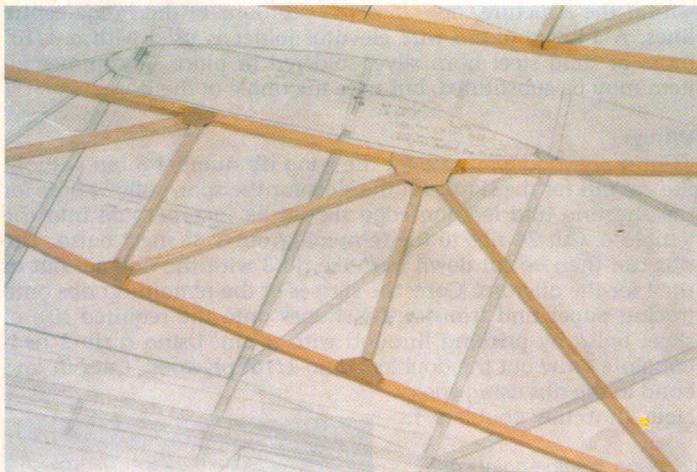
Sheeted hatch added on inboard panels



Wing access hatch removed for clarity showing servo housing

onto each side of the ribs. Note too that there is a laminated rib at the point between the aileron and flap that is the same as the template rib. On the prototype model both servos that drive the ailerons and flaps were fitted at the root of each wing with access being afforded by removing the dummy fuel tanks in each wing. The aileron servos could be mounted further outboard in line with the hinges. The choice is yours.

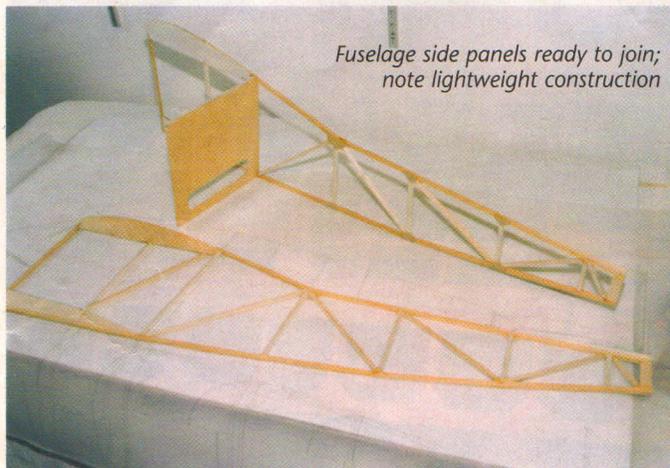
Pin the bottom spar over the wing plan, slide the ribs on to the rear spar, and glue this unit in place. Add the false LE, the ply TE, the aileron spar and top spars. Note that the aileron spar is made up of two pieces of sheet balsa. I found it easier to carve this to shape before fitting; the section at the wing rib shows the desired shape. I made the laminated wing tips by wrapping four glued strips of 1/16" x 1/4" round a former made from 1/4" plywood. Cut the strips slightly longer than required and glue them together using white PVA glue. Place the glued strips onto the former and fasten in position with a strip of masking tape at the middle point. Work round the tip pulling the glued strips down onto the former



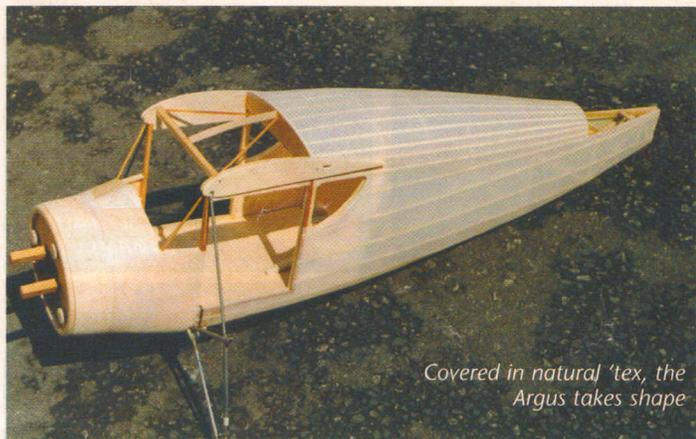
Fuselage framing strengthening at joins as full size



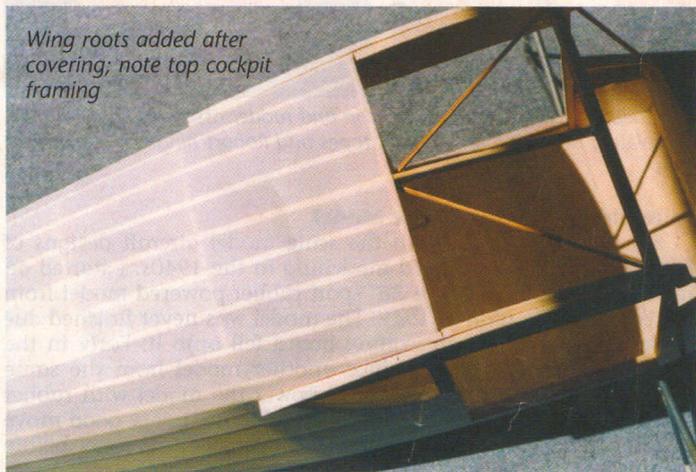
The cabin area framework



Fuselage side panels ready to join; note lightweight construction



Covered in natural 'tex', the Argus takes shape



Wing roots added after covering; note top cockpit framing

with pieces further pieces of masking tape. When this task is completed leave overnight to set before removing the formed tip from the pattern.

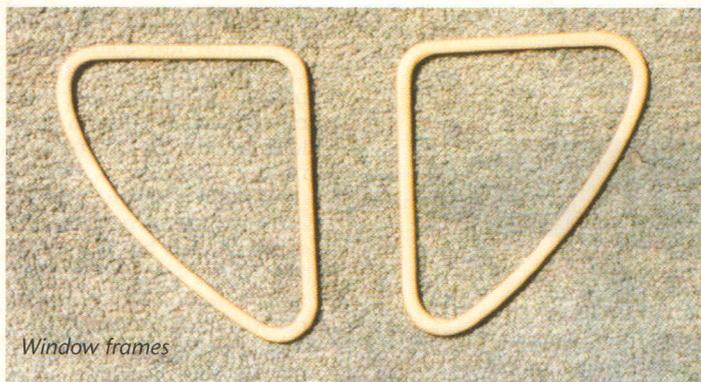
Fit the laminated tip in place and fill between ribs and spars with 3/32" sheet balsa. Note the shape of the wing tip when viewed from the front when positioning the lamination.

This part of the construction might be easier with the wing removed from the building board. On more recent models using a laminated tip I have fitted the individual strips of the laminations directly onto the sheet

wing tip. This is also a good time to fit the wire locating dowels in place. Fill between the front spars with 1/4" balsa and add the 1/16" ply filling pieces. Set the wing up with 1-7/8" dihedral under the last full width rib and then epoxy the wires in place. Block in around the wires with bass, ply or spruce. After the tip is glued in place return the wing to the board and add the 1/16" sheet vertical webbing, the 1/16" plywood mountings for the strut fittings and the top LE sheeting. Finally fit the capping strips onto the ribs and the 1/16" sheet that is on the aileron spar, note the direction of the grain here. With the wing, for the last time,



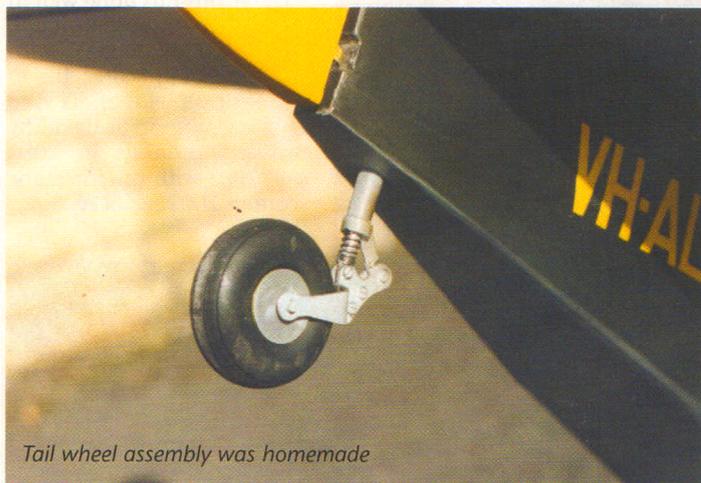
Functional door hinging detail and strut/undercarriage construction



Window frames



Completed model shows cowling and strut/undercarriage detail



Tail wheel assembly was homemade



Fin fairing is from soft balsa or moulded, but can also be litho-pate



Radial cowl as on type 24R

removed from the board repeat the sequence on the underside. The ailerons are built separately directly over the plan. Do not omit the thin ply gussets at the TE. Note how the hinges for the ailerons are extended with aluminium tube and where the centre lines of the hinges are. It is most important that these centres are in the correct place for the operation of the ailerons.

The flaps are made from 1/16" plywood with a bass or spruce spar and ribs. I gave the completed units a full coating of laminating epoxy to stop any warping, it seemed to work as I have had no trouble in this respect. Again I have used Robart hinges but set outside the flap. The wing section drawing gives the details. The original model used some vac-formed covers for the hinges but these can be made from balsa.

### Fuselage

The fuselage is a box structure filled out with formers and stringers. Build two fuselage sides directly over the plan. Use spruce or bass for the longerons and balsa for the uprights and cross members. Note that the fuselage section forward of the wing is built separately and fitted, complete with engine bearers, after the rear box is assembled. Make up and fit the undercarriage mounting pieces and the wing fixing tubes to the basic box structure. When

this work is complete fit the remaining formers and stringers. Check the position of the stringers by eye before notching out the formers. The doors are built on a bass or spruce frame and covered in 0.4 mm plywood. The hinges are the Robart type similar to the ones used on the flaps. The tail wheel is a steerable unit and this should be fitted before the model is covered. Fit all the bell cranks and pushrods for the elevators, rudder and tail wheel at this point.

The fuel tank box should be fitted before the nose area is covered with 1/8" balsa sheeting. The tank is accessible from the front but the engine will have to be removed. The cowl uses a plywood former, front and rear with 1/32" plywood laminations for the straight part. The front part is from 3/8" and 1/2" balsa sheet formed to the shape on the drawing.

The undercarriage should be made from the materials suggested on the drawing. Some skill will be needed with silver-soldering techniques. If a prototype aircraft with the rear strut fitted can be found I would suggest that you base your model on this aircraft as the undercarriage in this form is a much stronger unit for a model. The fairings were added using balsa and litho-plate but always check as some aircraft flew without them.

The window glazing is added after the model has been covered. Cut paper patterns for the parts before using the clear plastic material. Small screws were used to fix the panels in place with a bead of epoxy and micro balloons faired in with a finger dipped in acetone where the windscreen is attached to the nose area. This fairing should be masked off before the 5-minute epoxy and micro balloon mixture is run in.

The detailing on the model will depend on the prototype modelled and just what the builder wants. Simple features like the navigation lights and aerial add a great deal to the realism, it's up to you, the builder.

The original model was covered in an iron on heat shrink fabric. This was given a coat of shrinking dope before the rib tapes and stitching were added, again using dope as an adhesive. The model was primed with a cellulose primer and painted with auto cellulose sprayed on. The lettering can be from trim film or painted on, again use whatever you are happy with. A two-pack fuel proofer completes the finishing process.

A remarkably stable model due to the high wing configuration



**Flying**

Make sure that the centre of gravity (see plan) is in the correct position before attempting to fly the model. There was no problem getting this in the right place on the original model. Make sure that all the struts are attached and bolted in place and that the controls are connected up the correct way round before you attempt to fly. I somehow omitted the small screws that hold the struts in place at the undercarriage/strut joint on the model's first flight. The model took off and the dihedral on the port wing began to increase at an alarming rate. I realised what was wrong and made a heavy landing that resulted in some damage to the undercarriage and cowl but it could have been much worse. There were no problems on the second flight with the model flying without any great alteration to the trims. Subsequent flights have been a delight; the model goes where you want it to go and is as steady as a rock. The model is not intended for aerobatics and I would not suggest that they are tried. This model is at its best flying accurate course manoeuvres, doing the odd touch and go and nice slow low fly-pasts. The flaps also add interest to the flying

Optional scheme



programme. You will probably find that some down elevator will need to be mixed in with the flap movement. It is also a good idea to mix the aileron and rudder controls (CAR) to give more realistic turns. I have not tried a gyro on any of my models but it is a fact that one on the rudder might be a help on paved runways. Remember that gyros are illegal on competition models though.

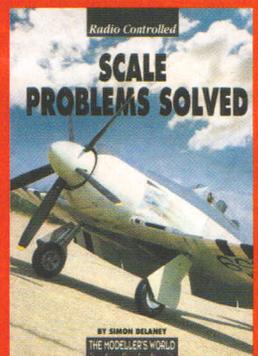
The Argus has done well in the competitions entered, 3rd at Woodvale 2002 with the top flying score, 4th at the Scottish Nationals and 2nd in Clubman Scale at the British Nationals in 2002 and 2003 with the top static score in 2002. **RCMW**

**Plan Details**

Build category: Advanced  
 Plan number: MW3287  
 Plan price: £25.00 (Plus Post & Packing UK £5.00)  
 Available from Traplet Publications Limited (Plans Service), Traplet House, Pendragon Close, Malvern, Worcestershire WR14 1GA. Or phone the hotline on +44 (0) 1684 588599. Fax: +44 (0) 1684 578558. Email: orders@traplet.co.uk

**'Scale Problems Solved'**

This popular Traplet softback book in The Modeller's World Series has to be the most comprehensive and concise reference guide for the ultimate challenge in modelling R/C scale aircraft and includes step-by-step guides to applying glass-cloth and epoxy finishes, installing retracting U/C, and finishing and painting scale trim schemes.



Phillip

Phillip S. Kent

Fairchild 24R Argus.

The model.

I was very impressed with the scale model aircraft designs of Eddie Riding when I started modelling in the 1940's. I started on my first Fairchild Argus, a 36" span rubber powered model from the Eddie Riding plan in 1949. The model was never finished due to an accident when an ironing board fell onto it. Early in the 1960's I did manage to produce another model from the same Eddie Riding plan but rather than power the model with rubber chose a small diesel engine. This proved to be a very good move and the model was flown successfully for over twenty years before being sold. I had always wanted to build a radio-controlled version of the Fairchild 24 but it wasn't until 1998 that I finally got a model into the air. For some reason the model was designed to a scale of 1 to 4.8 giving it a wingspan of 90". A most reliable Laser 100 four-stroke engine that just fitted within the radial cowl powered the prototype that has proved to be an exceptionally good model to fly.

Construction

The model uses standard model aeroplane built up construction methods and materials. I like to get a kit of parts cut out before I start building but it is possible to get a professional "kit cutter" to do this for you. The technique that I use is to trace out the parts and then prick through shapes onto the balsa or ply. I also like to make a start on something that lets me see a result early on in the construction programme. With this in mind we will start off with the construction of the tail unit.

Tail Unit

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The stabilizer is built in two halves directly over the plan as I think that it is easier than trying to build a symmetrical unit over packing pieces. Cut the 1/4" spars and pin them over the plan. Add the ribs, tips; ply braces and the 1/8" sheet false leading edge. Sand to the section shown and cover with 1/16" light balsa. Make a second half and when both are completed join together. Add the 1/4" sheet leading edges and soft balsa capping for the tips, sand to the section shown.

The fin is constructed in a similar manner to the stabilizer, build in two halves, cover with 1/16" sheet and join together. To complete the structure, add the 1/4" sheet balsa leading edges and shape and sand to the correct section. I find that balsa cement is the best adhesive for this particular job as it sands down easily without leaving a glue ridge

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①

the hinge centre lines. A 14swg piano wire elevator joiner is used with a 1/16" brass or mild steel horn silver soldered in place. A commercial item may be substituted, but note the angle of the horn.

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Pin the bottom spar over the wing plan, slide the ribs on to the rear spar, and glue this unit in place. Add the false leading edge, the ply trailing edge, the aileron spar and top spars. Note that the aileron spar is made up of two pieces of sheet balsa. I found it easier to carve this to shape before fitting; the section at the wing rib shows the desired shape. I made the laminated wing tips by wrapping four glued strips of 1/16"x 1/4" round a former made from 1/4" plywood. Cut the strips slightly longer than required and glue them together using white PVA glue. Place the glued strips onto the former and fasten in position with a strip of masking tape at the middle point. Work round the tip pulling the glued strips down onto the former with pieces further pieces of masking tape. When this task is completed leave overnight to set before removing the formed tip from the pattern. Fit the laminated tip in place and fill between ribs and spars with 3/32" sheet balsa. Note the shape of the wing tip when viewed from the front when positioning the lamination. This part of the construction might be easier with the wing removed from the building board. On more recent models using a laminated tip I have fitted the individual strips of the laminations directly onto the sheet wing tip. This is also a good time to fit the wire locating dowels in place. Fill between the front spars with 1/4" balsa and add the 1/16" ply filling pieces. Set the wing up with 1 7/8" dihedral under the last full width rib and then epoxy the wires in place. Block in around the wires with bass, ply or spruce. After the tip is glued in place return the wing to the board and add the 1/16" sheet vertical webbing, the 1/16" plywood mountings for the strut fittings and the top leading edge sheeting. Finally fit the capping strips onto the ribs and the 1/16" sheet that is on the aileron spar, note the direction of the grain here. With the wing, for the last time, removed from the board repeat the sequence on the underside. The ailerons are built separately directly over the plan. Do not omit the thin ply gussets at the trailing edge. Note how the hinges for the ailerons are extended with aluminium tube

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Phillip S. Kent □