# SCRAM X1.3

**By Dennis Tapsfield**

Lately it seems that there is an increasing spread of nostalgia through the group of the older (or should I say more mature?) modelers almost worldwide. This may be due to real nostalgia, or the fact that these vintage type models really are relaxing to fly and, consequently, are perfect trainers and confidence builders; or just that they are great models to take out on a balmy afternoon or evening. I really cannot say, but I did enjoy the hours of flying and thermalizing that I did last season with a Majestic Major (1.4 x junior 60) powered by a Merco .61 2-stroke engine.

This is very economical flying since most of the time the engine is doing little more than idle. 25-30 minutes on a 6 oz. tank is quite usual, and with the big Merco silencer, very quiet too. However, I think I got hooked on flying this vintage model as a refreshing change from scale — not as an alternative, but as an adjunct — so that I can fly and relax sometimes.

My local flying field is in Windsor Great Park, you can see Windsor Castle from the take-off area. I'm privileged to be a member of the association permitted to fly there. It really is a splendid flying site, with a very large mown grass take-off area, maintained by the park authorities. Due to the entire area being quite open to the general public and to comply with the United Kingdom C.A.A. regulations, models weighing over 11 lbs. are not permitted to be flown there. However, I like large models, so I build them light. The large Scram weighs 8 lbs. 6 oz. ready to fly, with a Merco .61 2-stroke. Of course it's a natural for a .60 4-stroke engine or even a vintage engine like a Super Cyclone or similar. It has around 10 square feet of wing area, so is a real floater.

I spent some time trying to decide what to build — I needed a model pleasing to the eye, mine at least (beauty is in the eye of the beholder) and with a good pedigree. (Scram was designed by Ray Heit and appeared in the July 1938 Flying Aces, had an 83" span, weighed only 3 lbs., and placed 8th in the 1937 U.S. Nationals' Limited Engine Run event.) It also needed to be acceptable for the U.K. SAM 35 competitions (we are allowed to scale-up for radio assist). Anyway, I liked the model, and proceeded to acquire a set of drawings from John Pond, who is the main source of vintage drawings in the U.S.A., and drew them up 1.3 × size. Inevitably some changes were made to the structure, but nothing that affects the model's image or character. For example, the trailing edge of the wing was originally solid, and I introduced some vertical struts between the diagonals of the fuselage sides, as the distance between them was too great to be unsupported. I elected to split the wing in the center, as in my view, this is the lighter and more conventional way to go. Of course, some changes were made to the tailplane and the rudder to provide movable control surfaces.

If you think you would enjoy some really relaxed calm weather flying, being able to take off, gain height, search around for a thermal or two, then bring the model in to land and taxi back to base, then this is for you! Let us begin with the fuselage.

## CONSTRUCTION

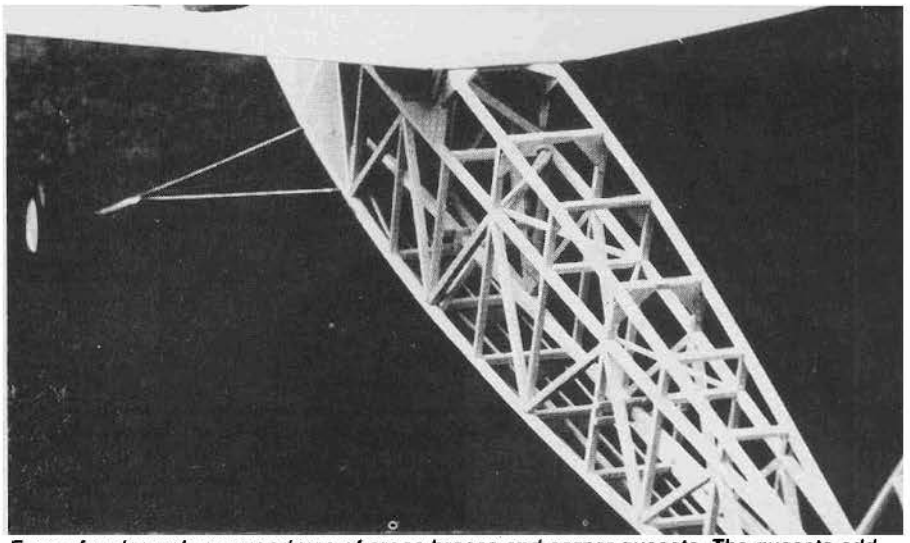
**Fuselage:**

This, in line with most vintage models, is a very conventional box structure which needs little comment. **Do not** omit the 1/16" balsa gussets at the top of the rear spacers since these add considerable rigidity to an otherwise flexible structure, as do the diagonal braces. You can refer to the photographs if you are in doubt. Do not omit the wire tension links from the front wing band dowel down to the ply former F-15, as these transfer the lift loads down to the main structure.

**SCRAM X1.3**
**Designed By:**
Dennis Tapsfield
**TYPE AIRCRAFT**
Power Vintage Radio Assist
**WINGSPAN**
107 Inches
**WING CHORD**
15½ Inches
**TOTAL WING AREA**
1490 Sq. In.
**WING LOCATION**
High Wing
**AIRFOIL**
Gottingen 549
**WING PLANFORM**
Constant Chord
**DIHEDRAL (each tip)**
8½ Inches
**OVERALL FUSELAGE LENGTH**
68 Inches
**RADIO COMPARTMENT SIZE**
(L) 12" x (W) 4" x (H) 6"
**STABILIZER SPAN**
40 Inches
**STABILIZER CHORD (incl. elev.)**
12 Inches (Max.)
**STABILIZER AREA**
380 Sq. In. (Approx.)
**STAB AIRFOIL SECTION**
Flat
**STABILIZER LOCATION**
Top of Fuselage
**VERTICAL FIN HEIGHT**
9 Inches
**VERTICAL FIN WIDTH (incl. rud.)**
14 Inches (Max.)
**REC. ENGINE SIZE**
.61 Cu. In. (2 or 4-stroke)
**FUEL TANK SIZE**
10 Oz.
**LANDING GEAR**
Conventional
**REC. NO. OF CHANNELS**
3
**CONTROL FUNCTIONS**
Rud., Elev., Throt.
**BASIC MATERIALS USED IN CONSTRUCTION**

| | |
|---|---|
| Fuselage | Balsa & Ply |
| Wing | Balsa & Ply |
| Empennage | Balsa |
| **Wt. Ready To Fly** | **134 Oz. (8 Lbs. 6 oz.)** |
| **Wing Loading** | **13 Oz./Sq. Ft.** |

**Designer Dennis Tapsfield has enlarged the Scram to almost a nine foot span. For relaxed flying on a well used .61 2-stroke, this big one can be flown with the engine on a fast idle. Most likely, a .40 would do the job.**



*Frame fuselage shows good use of cross braces and corner gussets. The gussets add much additional strength.*

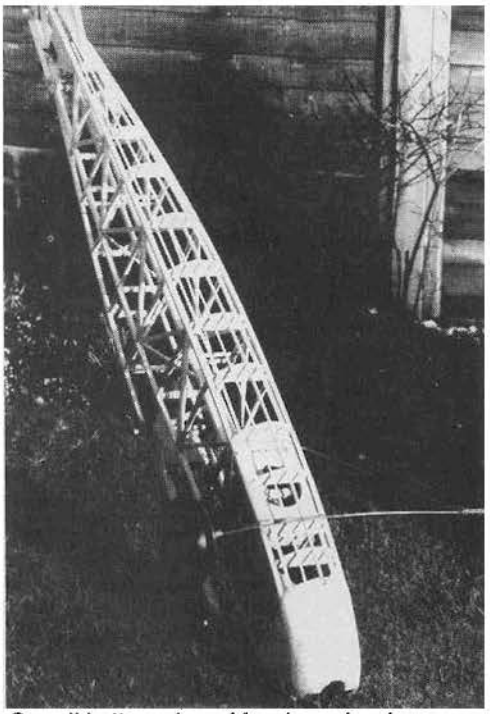
The undercarriage is best fitted before the fuselage bottom stringers are added and is retained by four nylon clamps as shown. It's a good idea to fit the servos at this time so that the elevator pushrod can be egg-boxed in, the S.L.E.C. pushrod transfer linkage (SL46) fitted, together with the rudder closed loop system, so that the whole unit can be checked for correct function prior to covering.

My Rx antenna runs through a 1/8" o.d. nylon tube inside for neatness.

Carry out a trial fitting of the engine; allow about 2° of downthrust as a starting point. Drill the necessary holes for the fuel lines, throttle control, etc., and fabricate the cowl from a 1/2" balsa block, or whatever is convenient.

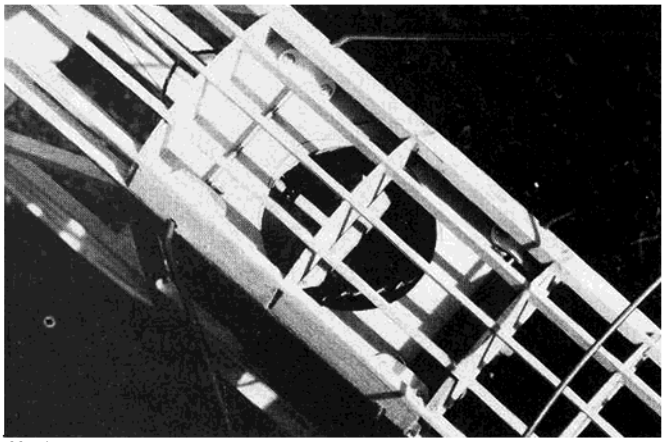
**Wing:**

This is fairly straightforward, but care must be taken to ensure there are no warps built in. It is made in two halves for ease of transport (few of us can lift a 9 foot wing in the car). Each half is built separately over the plan,

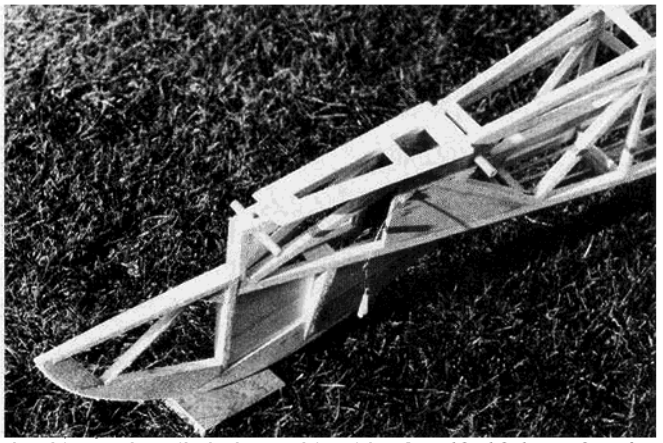


*Overall bottom view of fuselage showing the pleasing lines from cowl to tail.*

*Brian and Gail Bertorelli pose with Scram to show the size of this beauty.*



*Underside of fuselage showing landing gear nylon clips.*



*Looking at the tail platform with rubber band hold-down dowels. Note clevis and cable for rudder.*

omitting the end ply ribs W-1. These are added later. It is important to drill all the ply ribs together, in order to ensure accuracy for the wing dowel tubes.

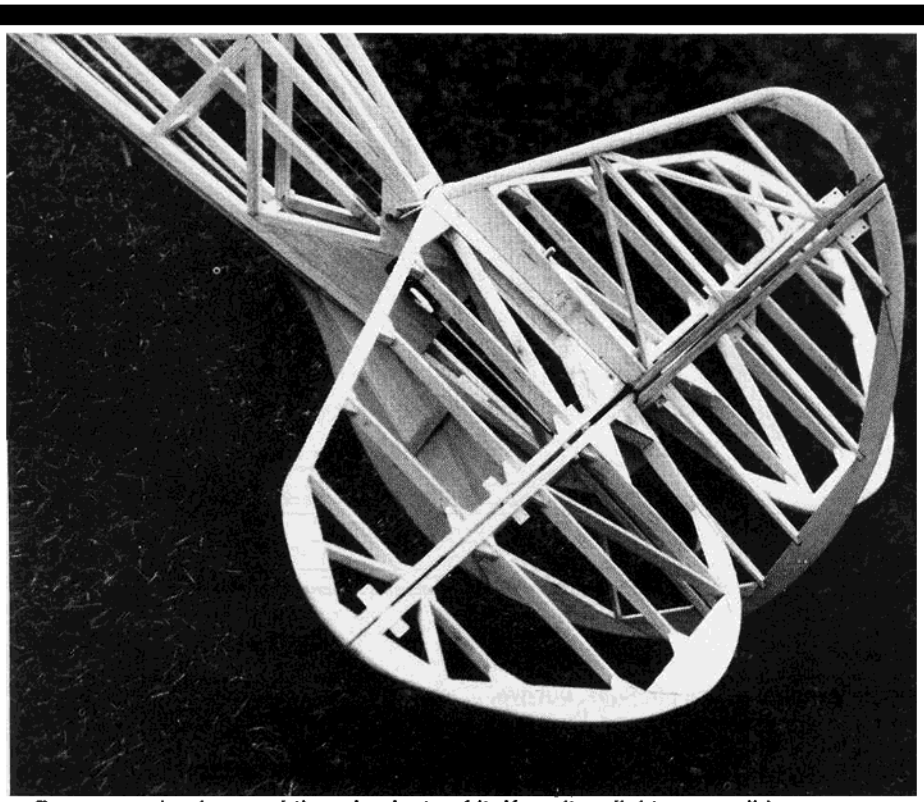
Pin the lower trailing edge on the plan, together with the main spar, and put the rear spar in place using appropriate shims to bring it to the right height. Add the ribs (note the angle of W-1 second from center) and then the leading edge and the top of the trailing edge. At this point, the tip should be fitted (you may find this easier off the plan), and the ribs W-4, W-5 and W-6 adjusted and glued in place.

Fit and glue the 1/16" sheeting in place on the top of the leading edges (do not sheet the area at the center section yet), and the tips, web the trailing edge as shown. Set the wings up with the correct dihedral and the ribs W-1 in place with the wing dowel tubes and dowels in position. The extreme ends of the tubes should be pinched slightly so that the dowels will not pass through. When the whole set-up is true, epoxy everything in place, and block around the tubes for strength. When the epoxy is cured, finish the 1/16" sheet balsa covering outboard of W-2, chamfer the 1/16" balsa covering at W-2 as shown, chamfer the 1/16" ply covering for the top of the center section to match, and glue in place. Complete the wing by sheeting between ribs W-1 and W-2 on the underside with 1/8" balsa sheet. Add the 5/16" x 1/16" capstrips on the top of the ribs only, and sand the entire wing, making it ready for covering.

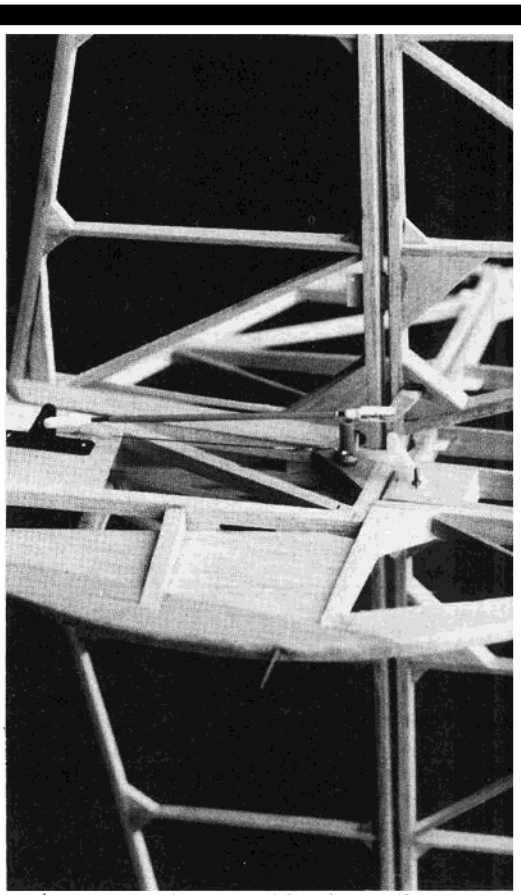
**Tail Group:**

This really does not require very much explaining. Just keep it as light





*Empennage in place and there is plenty of it. Keep it as light as possible.*



*Looking from bottom, this shows the rudder cable control (one on each side) and elevator transfer linkage (SL46).*

as possible. As with most vintage models, Scram is rather short in the nose, and remember that 1/2 ounce at the tail probably needs 3 or 4 ounces at the nose to counteract it! **Keep it light.** I was very lucky with mine, the balance point came out exactly right with the radio positioned as shown on

the plan. You could be lucky too --- if you work at it.

Well, I'll bet you've had the whole thing together now to see what it looks like. Big, ain't it? --- bigger models fly better though.

**Covering:**

I expect you all have your own ideas as to the appropriate covering for a model of this type. I always used bamboo paper in the old days, but we can't get that anymore; and I'm sure we've come a long way since then. I used Solartex on my model. It is incredibly easy to use; I have tried all the others, but in my view, any critics of Solartex haven't used it yet! I covered the entire model in a couple of evenings. The engine bay was given a coat of resin to fuelproof it, and the entire model had one brush coat of "Clear Coat" made by the Solartex people. The colour was "Solarlac" from the same source.

**Flying:**

Check the balance point as shown on the plan, and add weight to correct if necessary. View the model from the tail end to see that there are no warps. The engine you use (and the all-up weight of the model) will dictate the amount of power you need to take off. Some right rudder will probably be needed to keep it straight, but once airborne will no longer be required. When some height has been gained you can throttle back to just maintain height. On a good day you can thermal with the engine just idling for 10 or 15 minutes at a time. Landing is no problem, just cut the power; you may have to stop the engine completely to get it down! Remember if it's breezy, keep the model into the eye of the wind; being very light, it can get blown over in a cross wind situation. To encourage the model to steer while taxiing in calm conditions, I find that some down elevator takes some of the weight off the tail skid. Holding the appropriate rudder, a quick burst of power will swing the tail around in the right direction. There is little danger of the model nosing over.

Good luck with the large Scram, I hope it gives you many hours of relaxed, enjoyable flying during those sunny, calm afternoons and evenings.

Have fun --- happy landings!

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