SUKHOI 26

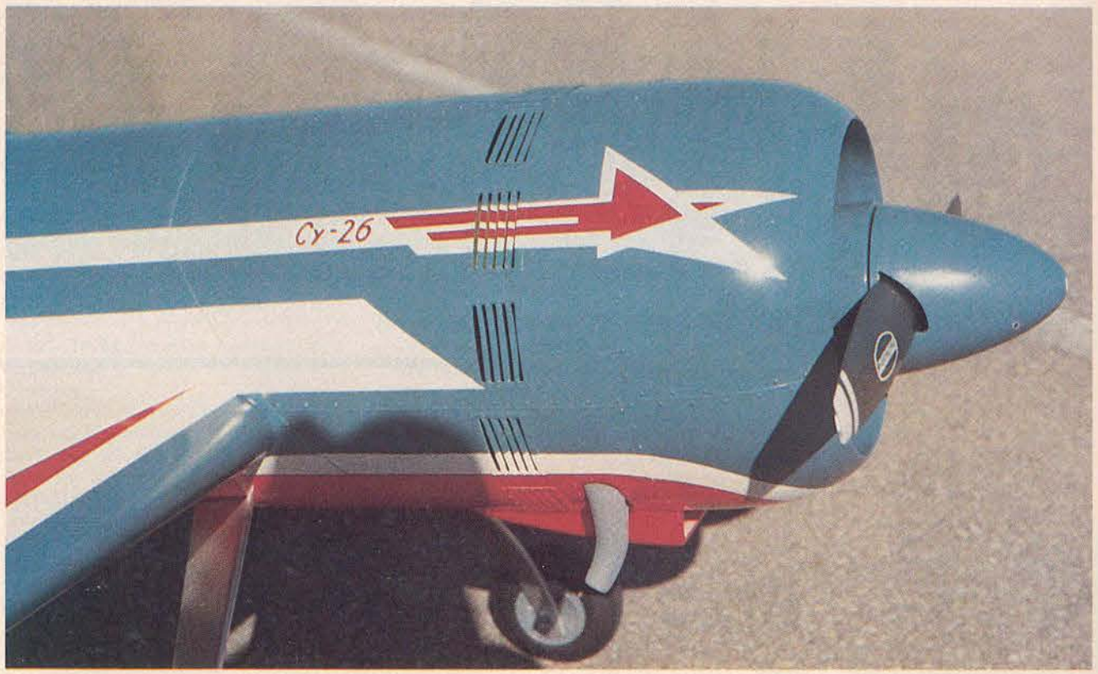
A Sport Scale model of the Russian's outstanding new aerobatic aircraft (built at 1/4 Scale)

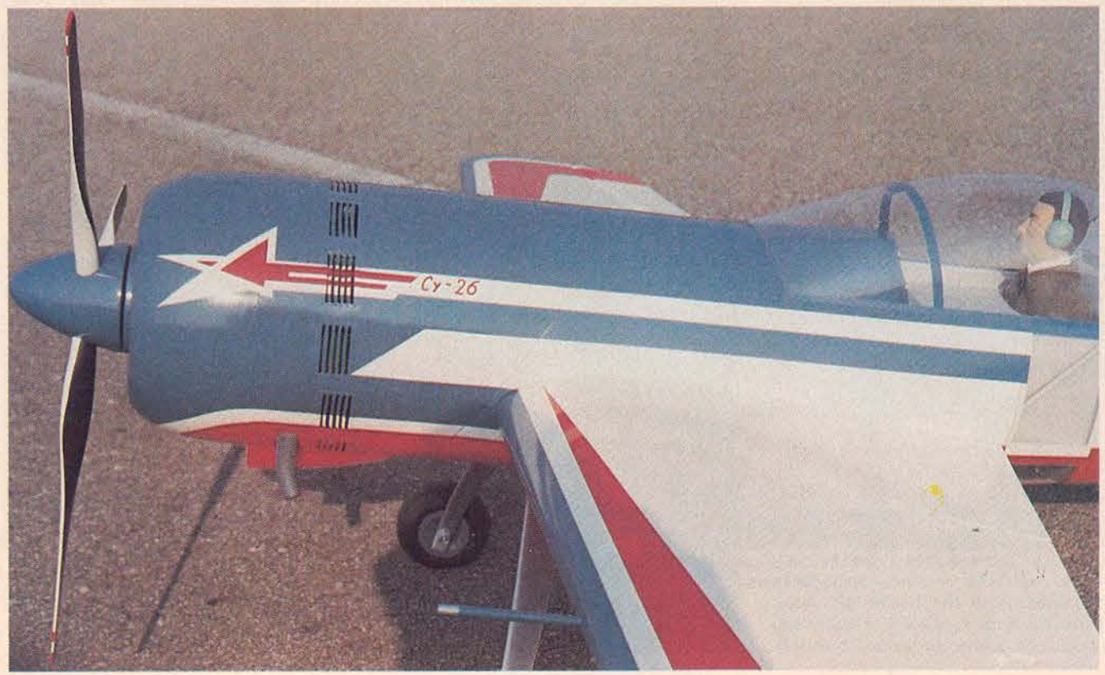
By Sepp Uiberlacher

When the Sukhoi 26 first appeared at the 1984 World Aerobatic Championship it created a lot of interest, from both spectators and competitors alike. Sitting there among all the other aerobatic machines, this new Russian aeroplane seemed to look out of place. With its short wingspan and low drag canopy, the aeroplane looked more like a racer of the 30's than a contemporary aerobatic design. As was the case with all earlier Russian aerobatic designs of the past, power came from a well-proven, powerful radial engine said to produce 350 hp. One startling fact about the Sukhoi was its design origin; the company was only known for its jet fighter design.

A closer look at the aeroplane revealed the use of composite materials on the fuselage; the wings and tailplane being ply covered foam. Nobody was very impressed with the quality of construction or craftsmanship. In this regard the Sukhoi looked worse than anything the Russians entered before (keep in mind that craftsmanship was never one of their strong points). It must be pointed out, however, that the two Sukhois' entered were really prototypes; today's aeroplanes are much better. Of course, all of this is of no consequence if the machine outperforms the competition.

Although the Sukhoi was better than the older Yak-55 it became clear after the first round of flying that the new aeroplane was no world beater. The problem was its weight — the aeroplane stalling readily when pulled too tightly. It was also sadly lacking in verticle performance. There was not much praise from anyone. Some observers went as far as to say that the whole Sukhoi program was not worth the effort of further development. Only the Russians never doubted their design and went home to



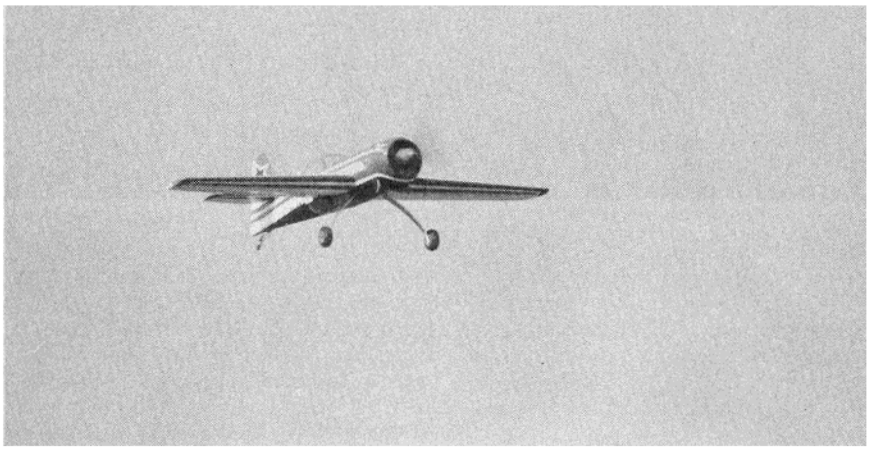


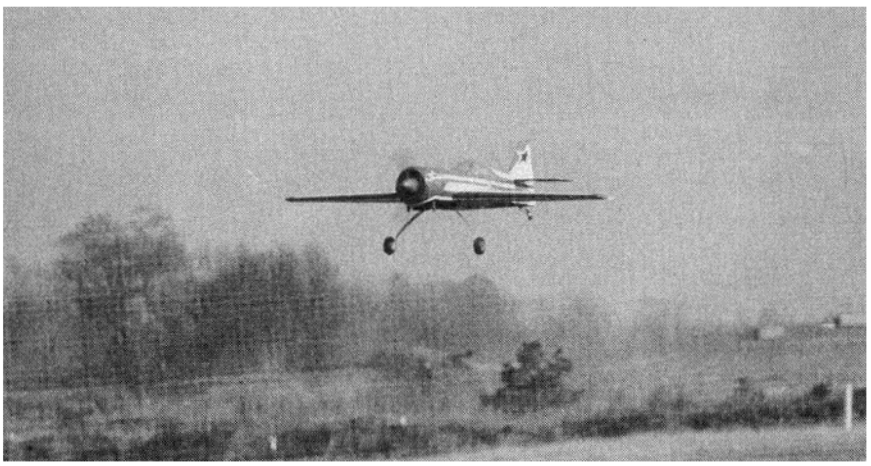
refine the aeroplane. So, when the new Sukhoi 26M appeared at the 1986 championships in England it immediately became apparent that here was the aeroplane to beat. Its performance was now simply breathtaking and spectacular; the pilot the only limiting factor. Vertical performance was the problem before, now the aeroplane would climb like

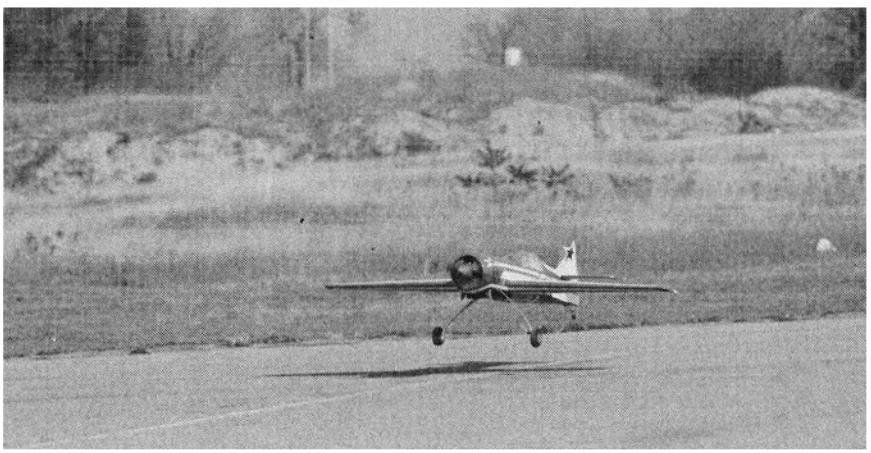
SUKHOI 26
Designed By:
Sepp Uiberlacher
TYPE AIRCRAFT
Aerobatic 1/4 Scale
WINGSPAN
76 Inches
WING CHORD
13¾ Inches (Avg.)
TOTAL WING AREA
1046 Sq. In.
WING LOCATION
Mid Wing
AIRFOIL
Symmetrical
WING PLANFORM
Double Taper
DIHEDRAL EACH TIP
1 Inch
OVERALL FUSELAGE LENGTH
65¼ Inches
RADIO COMPARTMENT SIZE
Ample
STABILIZER SPAN
27½ Inches
STABILIZER CHORD (incl. elev.)
8 Inches (Avg.)
STABILIZER AREA
213 Sq. In.
STAB AIRFOIL SECTION
Symmetrical
STABILIZER LOCATION
Top of Fuselage
VERTICAL FIN HEIGHT
9¼ Inches
VERTICAL FIN WIDTH (incl. rud.)
8½ Inches (Avg.)
REC. ENGINE SIZE
1.5-2 Cu. In.
FUEL TANK SIZE
15-20 Oz.
LANDING GEAR
Conventional
REC. NO. OF CHANNELS
4
CONTROL FUNCTIONS
Rud., Elev., Throt., Ail.
BASIC MATERIALS USED IN CONSTRUCTION

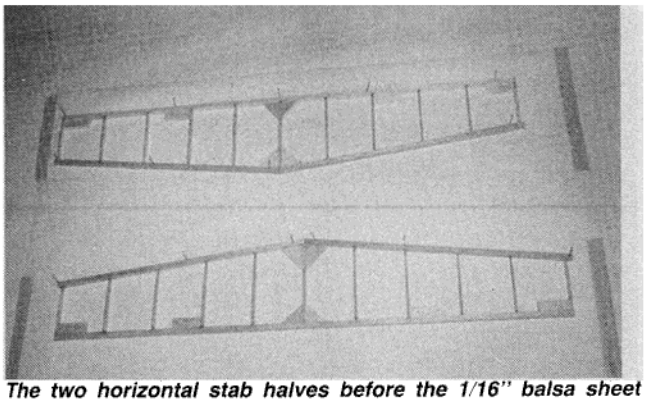
Fuselage	Balsa, Ply, Hardwood, Fiberglass Cowl
Wing	Balsa & Ply
Empennage	Balsa
Wt. Ready To Fly	240 Oz. (15 Lbs.)
Wing Loading	33 Oz./Sq. Ft.

nothing ever seen in aerobatic competition. To achieve all this, the engine was given some special attention and there were rumors of 500 plus horsepower. Of course the Russians would not release any technical data — one could only speculate. Also the heavy ply wing skinning was replaced with much lighter composite material, therefore

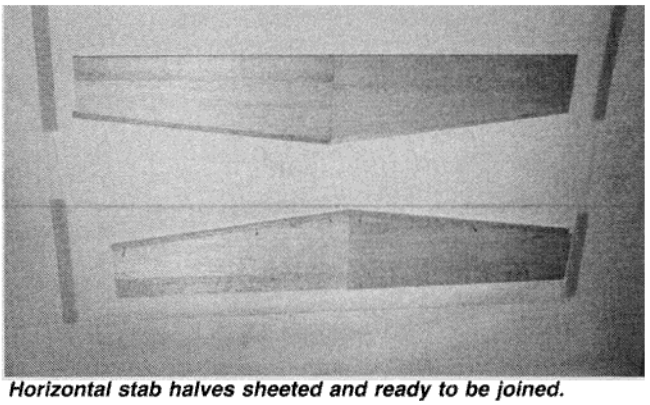




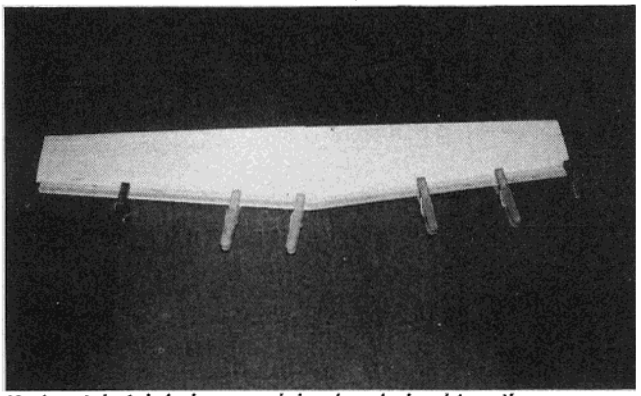




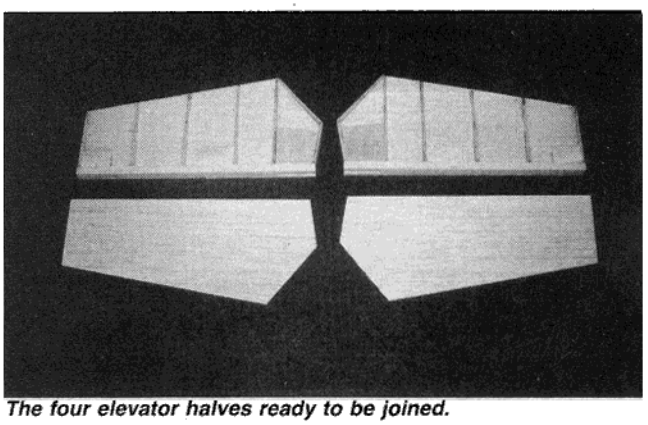
The two horizontal stab halves before the 1/16" balsa sheet covering is added. Note the hinge supports and the center gussets from scrap balsa.



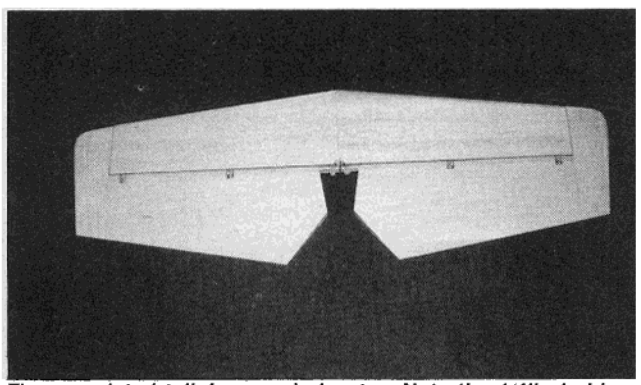
Horizontal stab halves sheeted and ready to be joined.



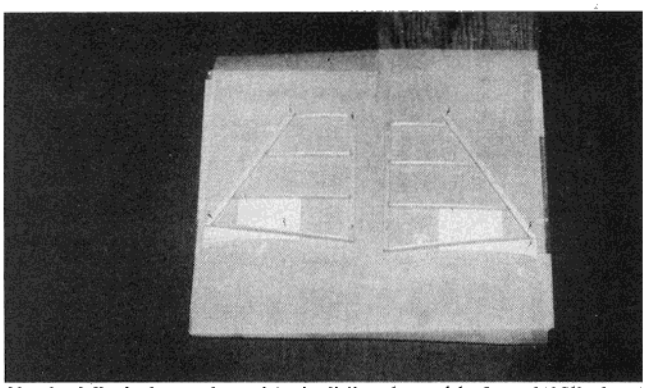
Horizontal stab halves are joined and glued together.



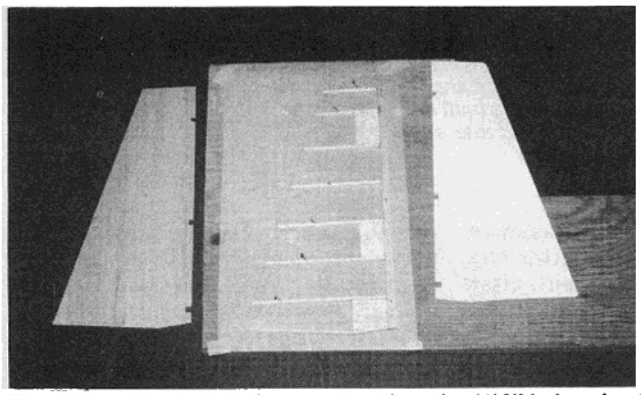
The four elevator halves ready to be joined.



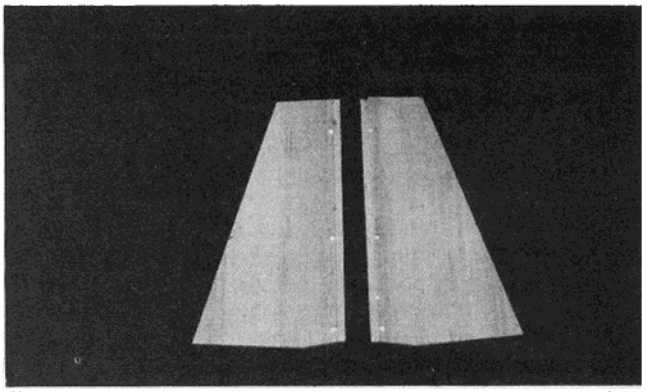
The completed tailplane and elevator. Note the 1/4" ply hinge supports for the joiner wire at the center.



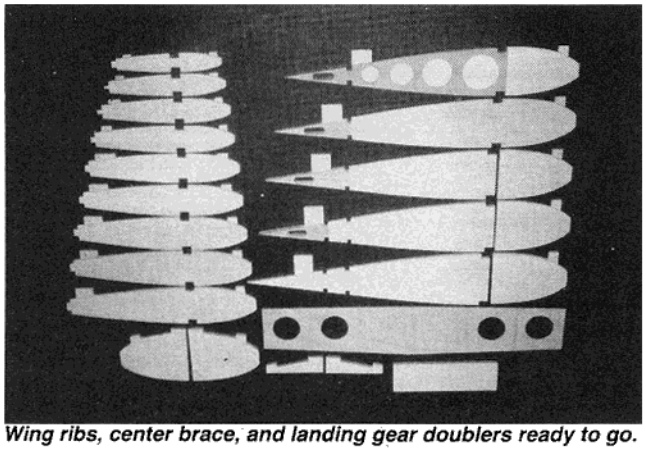
Vertical fin halves pinned to building board before 1/16" sheet covering is added. Note the 1/8" balsa fin seat.



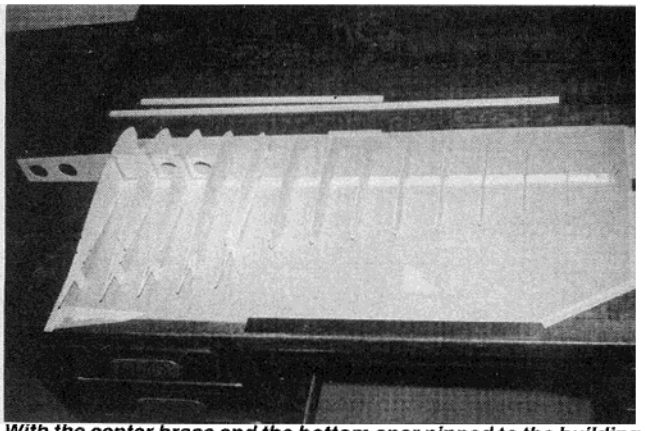
The right rudder half during construction, the 1/16" balsa sheet covering is ready to be added. Note the cut-outs for the hinges in the sheet covering.



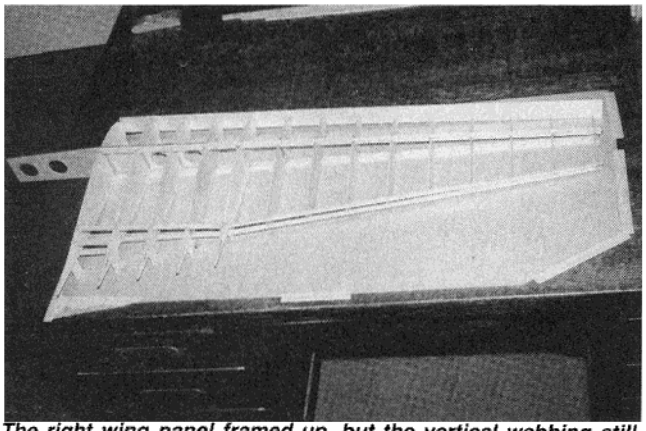
The two rudder halves complete with 1/16" balsa sheet covering. Next step is to join them together.



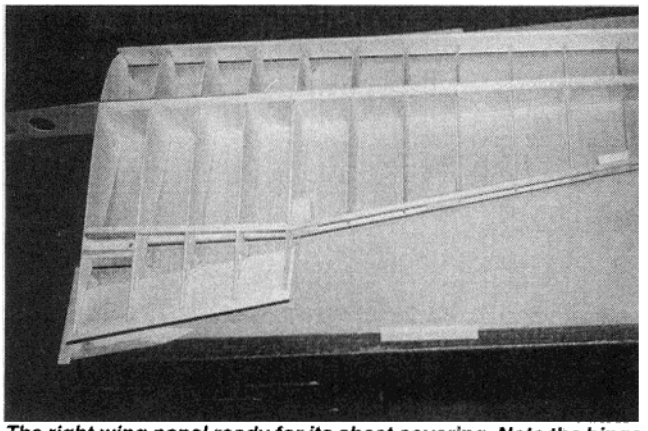
Wing ribs, center brace, and landing gear doublers ready to go.



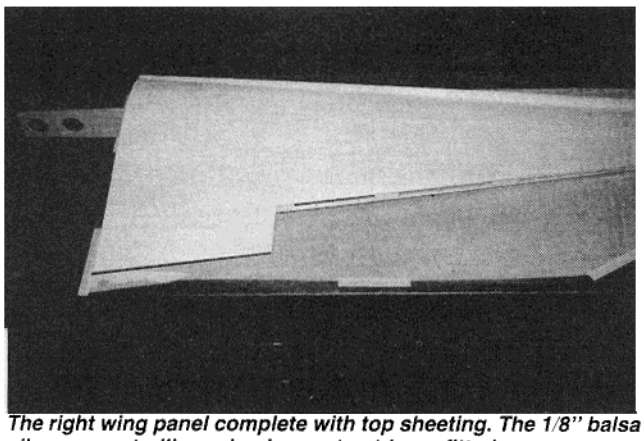
With the center brace and the bottom spar pinned to the building board, all the ribs are added.



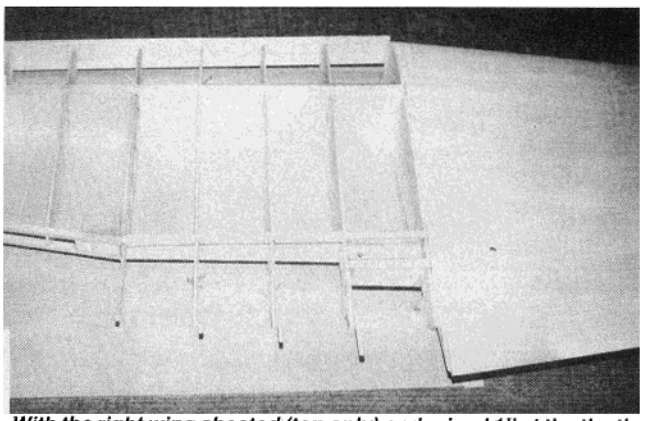
The right wing panel framed up, but the vertical webbing still needs to be added.



The right wing panel ready for its sheet covering. Note the hinge supports (from balsa scrap) and the 3/32" balsa bottom trailing edge sheeting at ribs 1-5. Also cut-outs to allow aileron torque rods to be installed.



The right wing panel complete with top sheeting. The 1/8" balsa aileron area trailing edge has not yet been fitted.

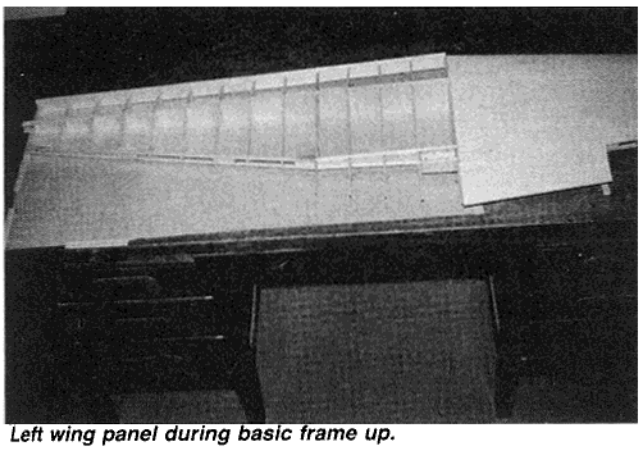


With the right wing sheeted (top only) and raised 1" at the tip, the left wing panel is built onto it. Note the webbing between the ribs at the front and rear spars.

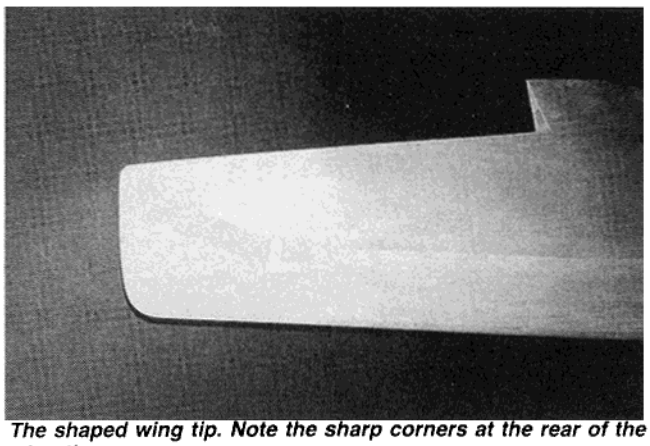
reducing the overall weight by about 250 lbs. There were small changes in the aeroplane's appearance — the rudder shape and the addition of wing fillets quite apparent. Also, the canopy was a little shorter and now less streamlined. Since then, the aeroplane has changed very little and, to everyone's suprise, the Sukhoi is offered for sale to the West (for a hefty pricetag, to be sure). As it stands now it will take time and a lot of money to develop an aeroplane to better the performance of the Sukhoi, but, after all, this is what competition is all about.

THE MODEL

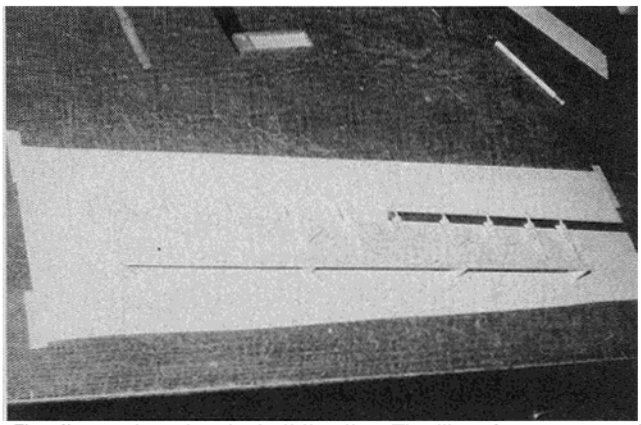
Most modelers build a model simply because they like the way the prototype looks; this was the main reason behind my Sukhoi design. On top of that I was sure to have a lot of flight performance. This is something to consider when flying in a contest or simply for fun. There are other advantages — the cowl is large and therefore, it is easy to hide the engine and exhaust systems. Also, its distinctive Russian flavor should not go unnoticed by the judges in a contest, besides there are lots of color schemes available. My model is based on the Repla-Tech 3-view drawings of the



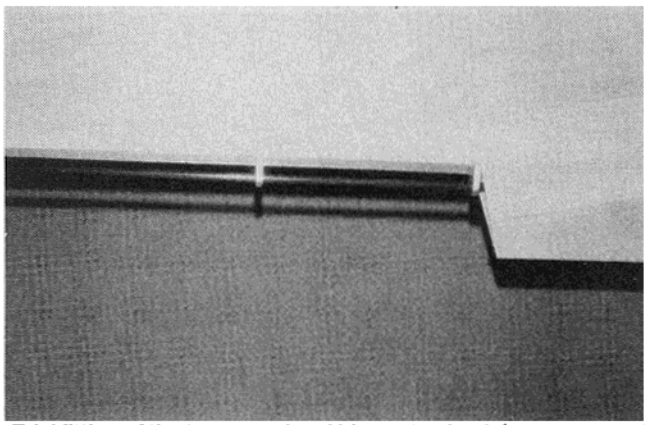
Left wing panel during basic frame up.



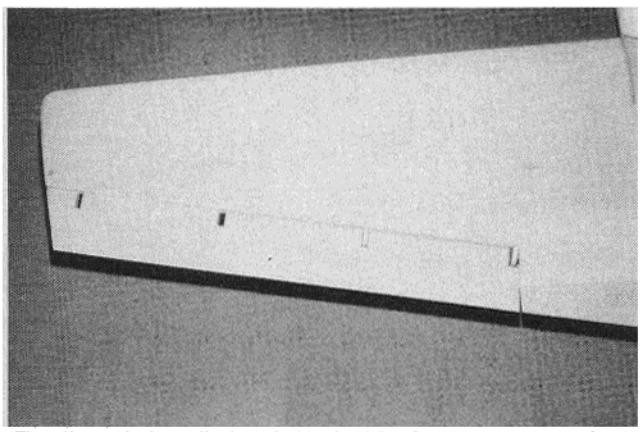
The shaped wing tip. Note the sharp corners at the rear of the wing tip.



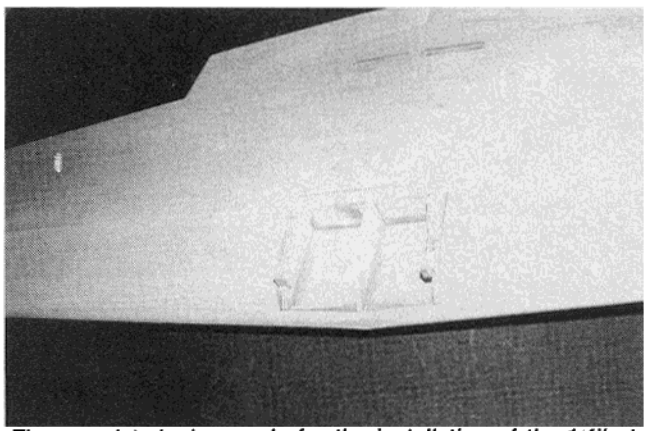
The aileron pinned to the building jigs. The fiberglass torque rod is epoxied in as shown.



Trial fitting of the torque rod and hinges to check free movement of aileron.



The aileron is installed and checked for free movement prior to the addition of the two outer Robart Hinge Points.

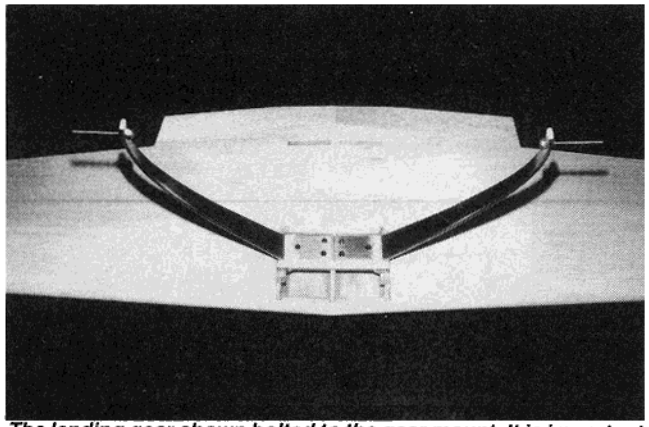


The completed wing ready for the installation of the 1/4" ply landing gear mounts. Note the 1/4" ply rib doublers.

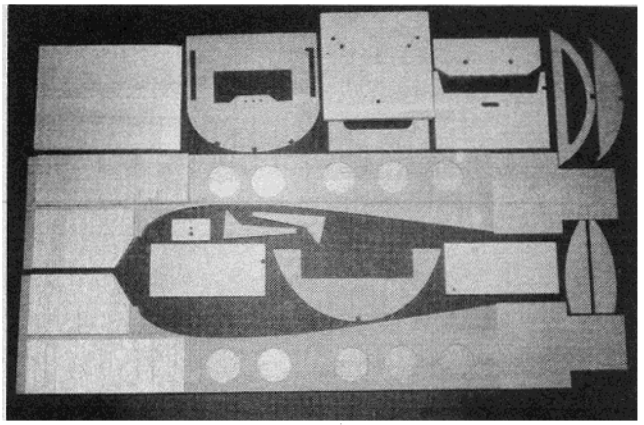
Sukhoi 26. This great company, located at 48500 McKenzie Hwy., Vida, Oregon 97488, (503) 822-3280, also sells a set of photos of the two aircraft entered at the 1984 World Championship. The aircraft has since been modified and is now called Sukhoi 26M. The differences, however, are small so the average modeler can easily convert the model to the 26M. Since Repla-Tech sells 3-views and photo packs for many different Sukhois', to properly document your model should pose no problems.

I chose aircraft #02. According to Russian records, this was the first production aircraft, number 01 being the prototype. My reason for this choice was that I liked the paint scheme on the 02 aircraft, but for anybody building the Sukhoi, there are many attractive, tempting color variations to choose from. The model is Stand-Off Scale, however, the outlines are exact to Scale. The only changes are in the wing airfoil, although the percentages were kept as per the prototype. Where there was a conflict between the 3-view and the photos, the photographic evidence was given preference.

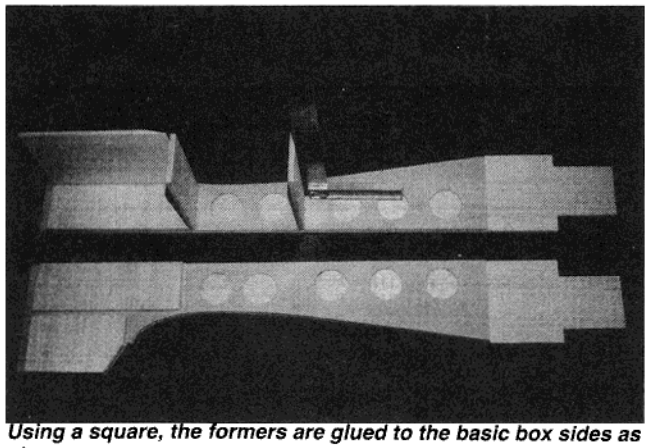
The model is not difficult to build or



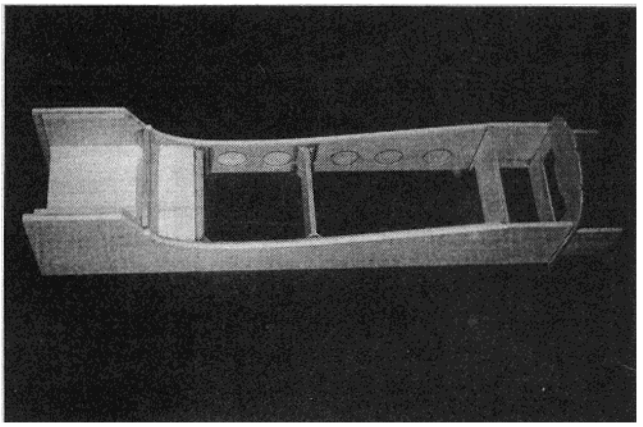
The landing gear shown bolted to the gear mount. It is important to tighten all the bolts and secure them with Loc-Tite, as once the fuselage section covering is added, all access to it is lost.



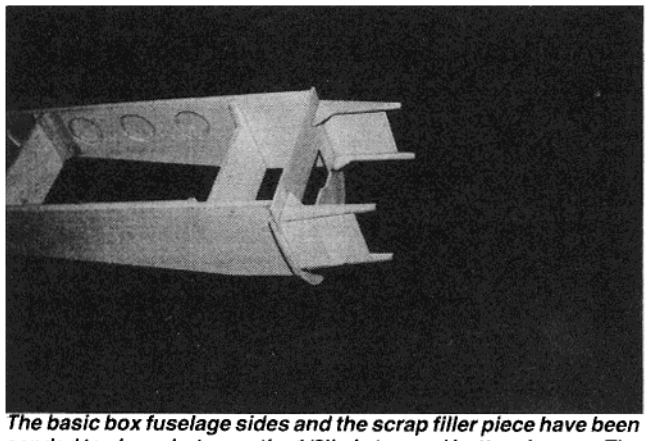
All the basic fuselage front parts ready for assembly.



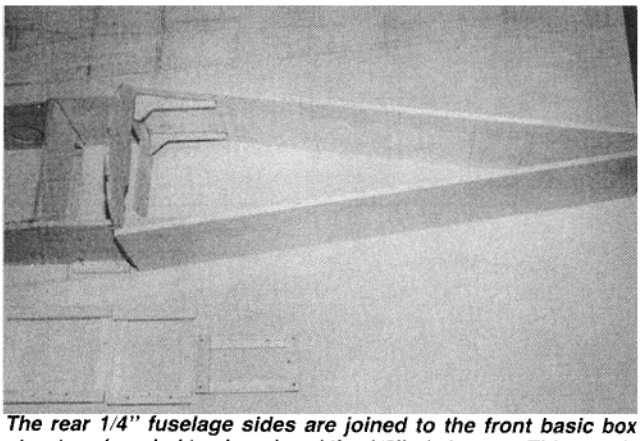
Using a square, the formers are glued to the basic box sides as shown.



The basic fuselage box with formers F5, 7B — 10C and F11 glued in, also shown is the 1/4" ply wing mount brace.



The basic box fuselage sides and the scrap filler piece have been sanded to shape between the 1/8" ply top and bottom braces. The rear fuselage sides can now be mounted to it.



The rear 1/4" fuselage sides are joined to the front basic box structure (sanded to shape) and the 1/8" ply braces. This step is done right over the plan, and the built-up formers are then added.

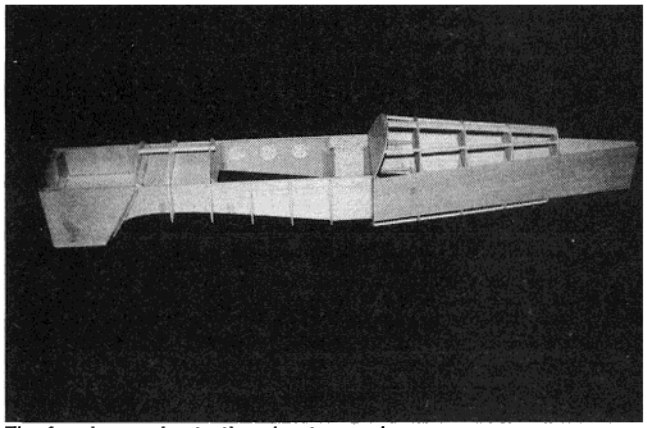
to fly, but, of course, it is not intended for the beginner into R/C. The items most modelers find hard to make, such as the fiberglass cowl, canopy and the specially made landing gear, are available through me, as well as the aileron hinge nylon bushings and torque rods if the demand exists. Most of the other hardware are standard commercially available articles, so you should not have any problems there. I used a Super Tigre 2500 engine, but of course different powerplants could be used. Anyway, enough for now — let's go on with the construction of the Sukhoi.

CONSTRUCTION

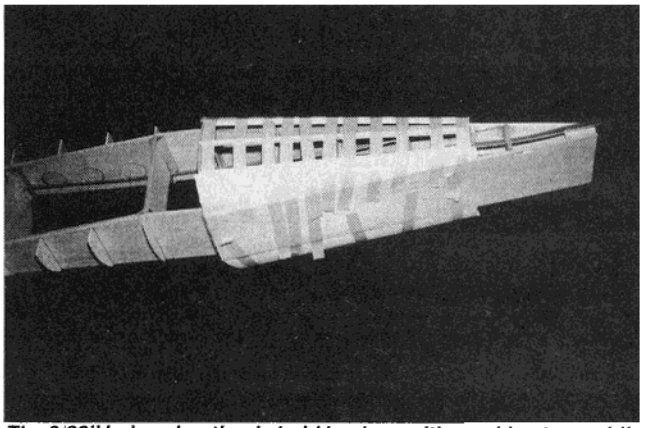
The complete step by step construction article comes with the full size plans (see page 267 for ordering information).

FLYING

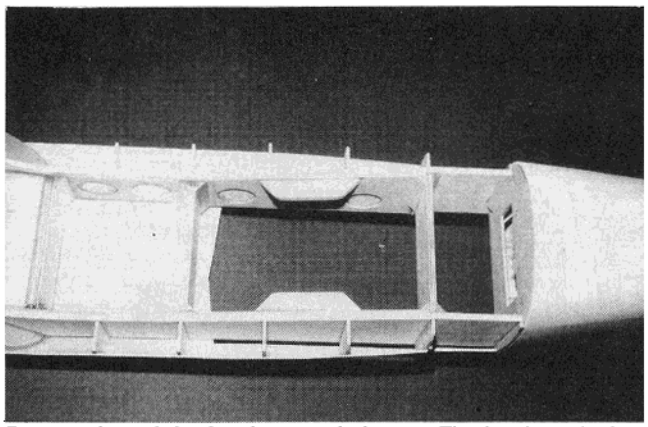
This is the best part of it all. I used a Super Tigre 2500 with an 18 x 8 prop turning about 7800 rpm. This was with a new engine set slightly rich. On takeoff very little right rudder is needed and on a hard surface the model will break ground in less than 200'. This model is very easy to take off and will fly itself virtually off the runway with little pilot input.



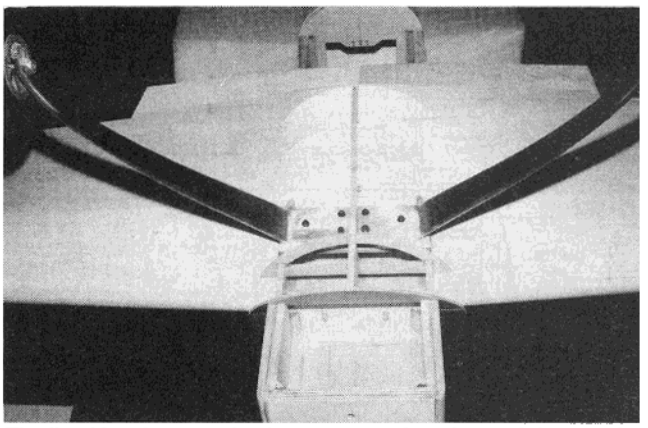
The fuselage prior to the sheet covering.



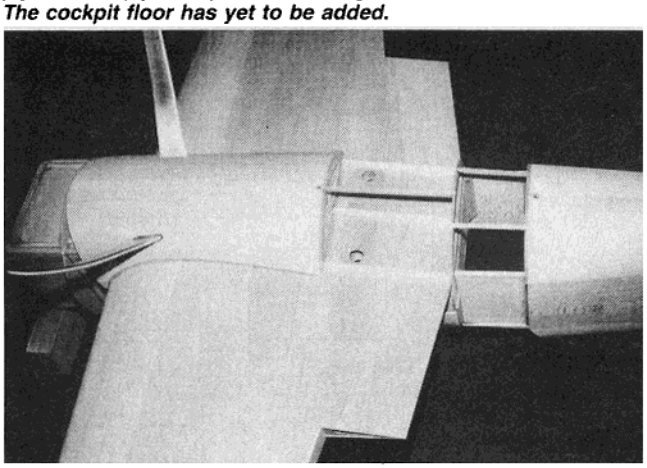
The 3/32" balsa sheeting is held in place with masking tape while the glue sets.



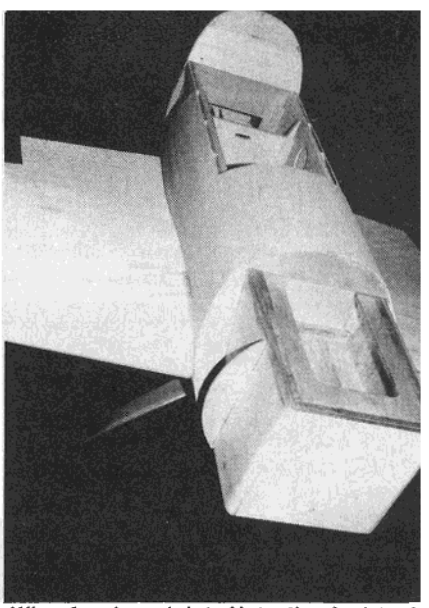
Bottom view of the fuselage cockpit area. The hardwood wing mount blocks are in place but have not yet received their tapped hole for the wing bolts. Also note the lightening holes in the 1/8" ply doubler (optional) and the triangle stock on all the formers. The cockpit floor has yet to be added.



The fixed fuselage section is constructed as shown right onto the wing and then sheeted with 3/32" balsa. Note the two 14" hardwood dowel wing front mounts.



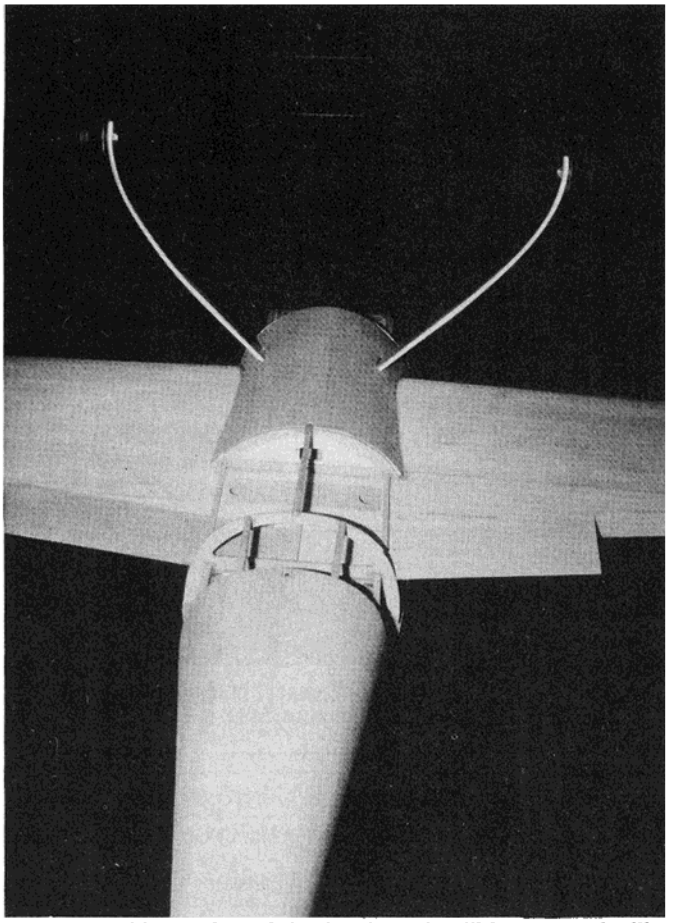
The fixed sheet covered fuselage section and the removable glassed in portion are shown here. Note the front and rear mounting of the removable portion.



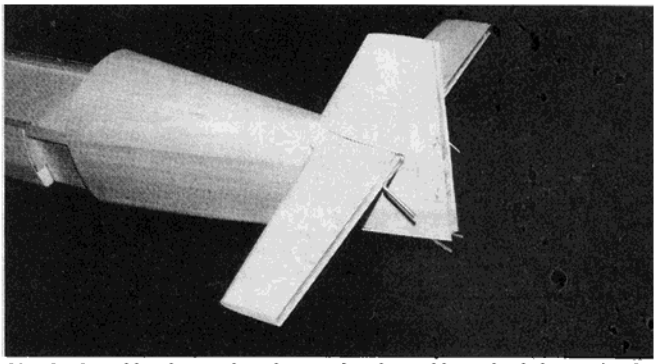
Wing-fuselage joint. Note the fuel tank compartment.

If your model is built straight and balanced as indicated, little or no trim should be required. Take it to a good altitude and get the feel of your model. Try a stall, you will be surprised how slow you can go before the stall occurs and then the stall is gentle without any tendency to drop a wing. On the other hand, if you apply rudder when the stall is reached, the model will enter a spin beautifully and, to stop it, all you have to do is bring back your controls to zero and your spin rotation will stop instantly. Where the Sukhoi really shines is in the rolling mode — consecutive rolls, point rolls, slow rolls are all easy to do. The model has beautiful rudder control and holds the knife edge extremely well. Loop tracking is excellent and inverted flight needs little down elevator.

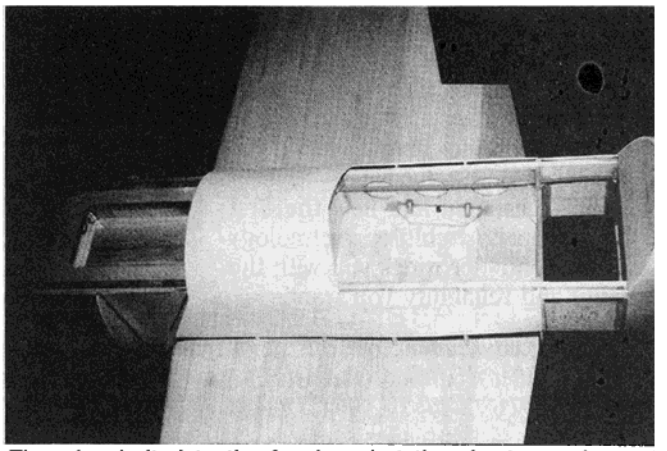
Landings are easy. Bring the model in on the final approach with a little power on and cut the throttle only when you are nearly down. Landing speeds are slow and the model can be



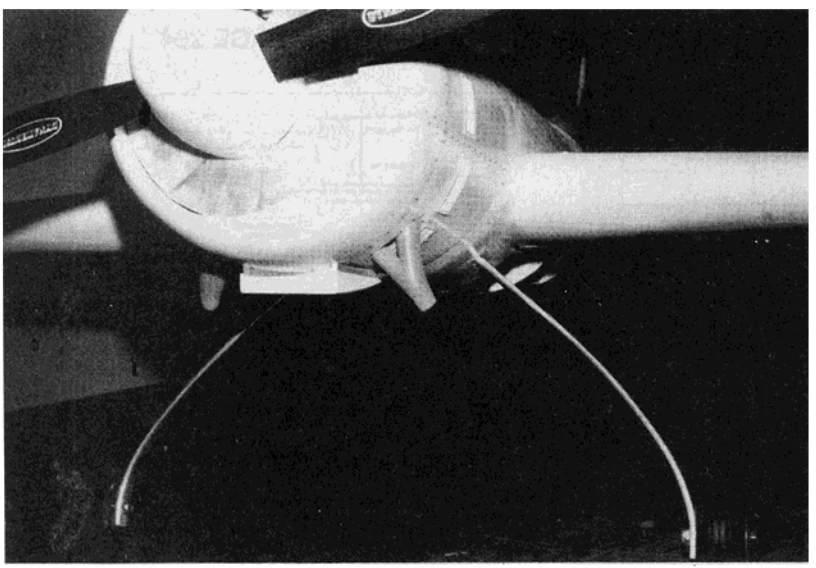
The removable section of the fuselage. It will be covered with clear plexiglass after painting.



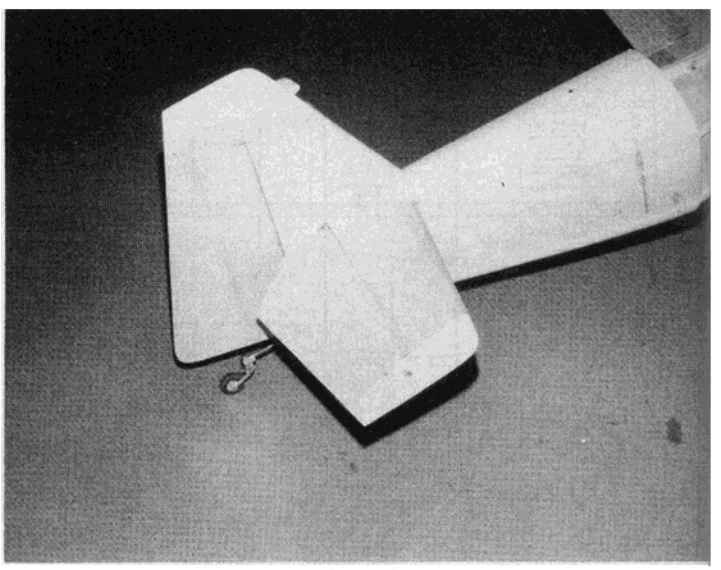
Vertical and horizontal stabs are in place. Note the joiner wire fo the two elevator halves.



The wing bolted to the fuselage but the sheet covering no complete. The fuselage sheet covering must be completed with the wing in place in order to obtain a good tight fit. The NyRo tube visible at the right side of the radio compartment is for the internally mounted Rx antenna.



Completed cowl ready for painting. All detail like rivets and the cooling air outlet grills have been added.



The completed tail end of the Sukhoi.

landed at a fairly high angle of attack, perfect for three point landings. After flying mostly WW II fighter models, this aircraft is a nice and relaxing change for me and makes a perfect weekend flier or, if you like, an exciting contest machine.

To sum it up, the Sukhoi not only looks different than most aerobatic aeroplanes, but its flight performance is first class. This, combined with its gentle flight characteristics, makes it fun and certainly is giving me lots of great enjoyment, as I am sure it will for you. So why not give it a try, I am certain you will not be disappointed.

Items Available From:

Sepp Uiberlacher, 7 Lakewood Drive, R.R. 1 Richmond Ontario, Canada KOA-2Z0. Write for price quotation: Fiberglass cowl, canopy, aluminum landing gear, nylon aileron bushings for aileron hinges, aileron torque rods, complete with aluminum, machined horns at servo connection.

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