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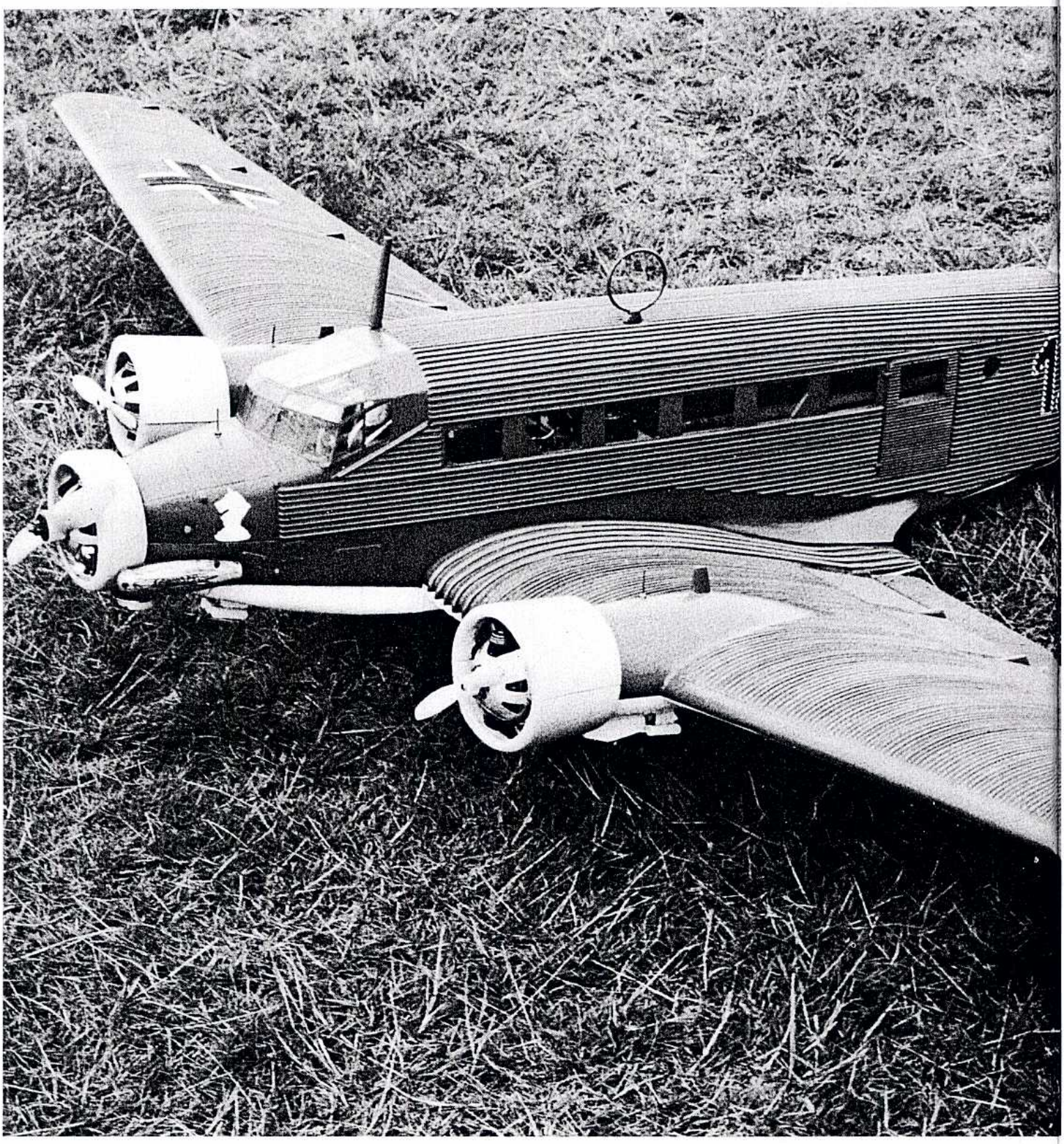
RC MODELER

THE WORLDS LEADING MAGAZINE FOR RADIO CONTROL ENTHUSIASTS



Junkers

BY JIM R. PYNER

J.U. 52

Photos by Peter Tearal

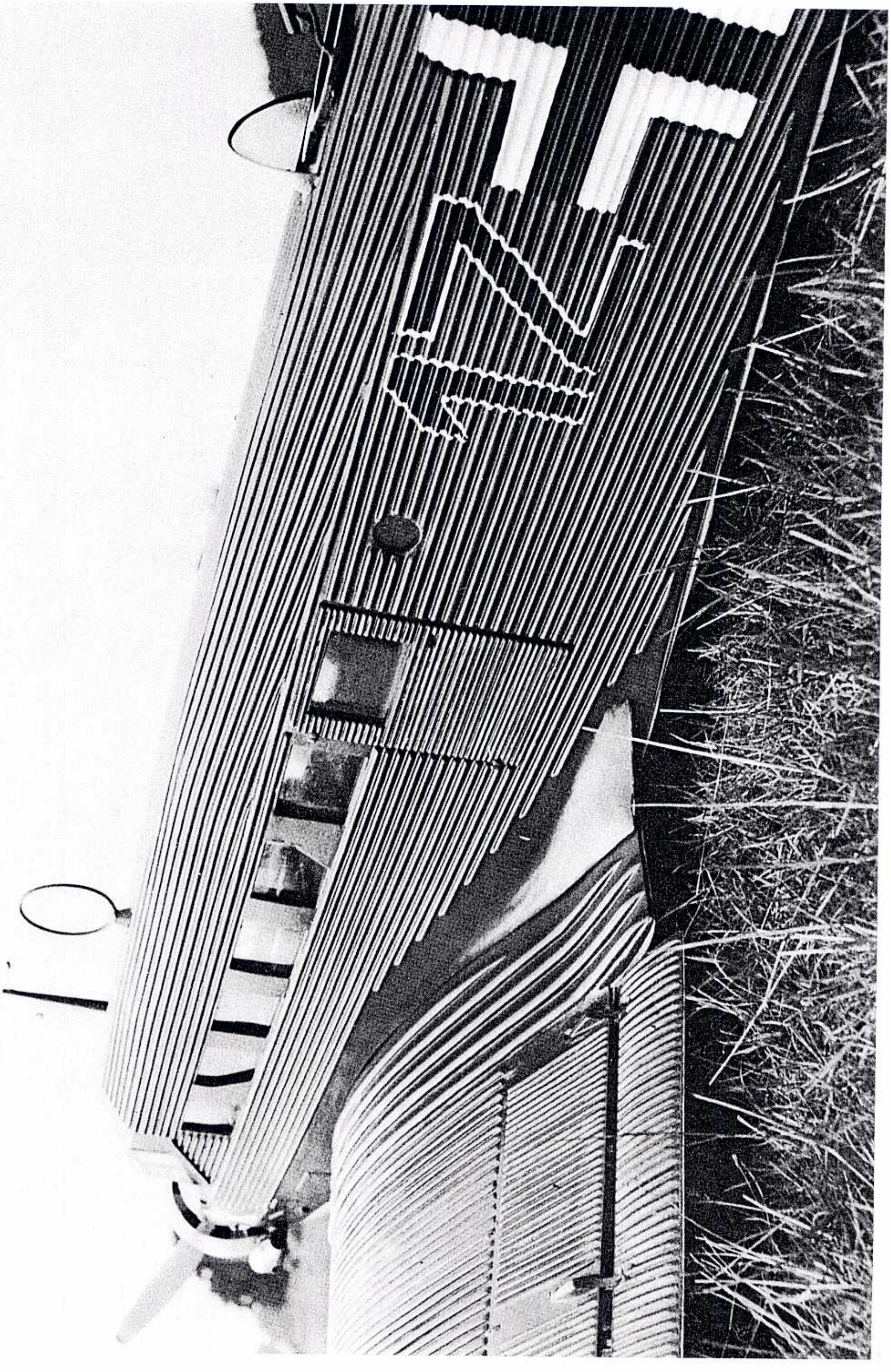
I first decided on the J.U. 52 as a modelling subject when, one evening, browsing through some old magazines in a friends house, I came across Ken McDonough's drawings in an old issue of Model Aircraft. It had enough **bits** on it to make it interesting as a model, and its ugliness lent it a bit of character.

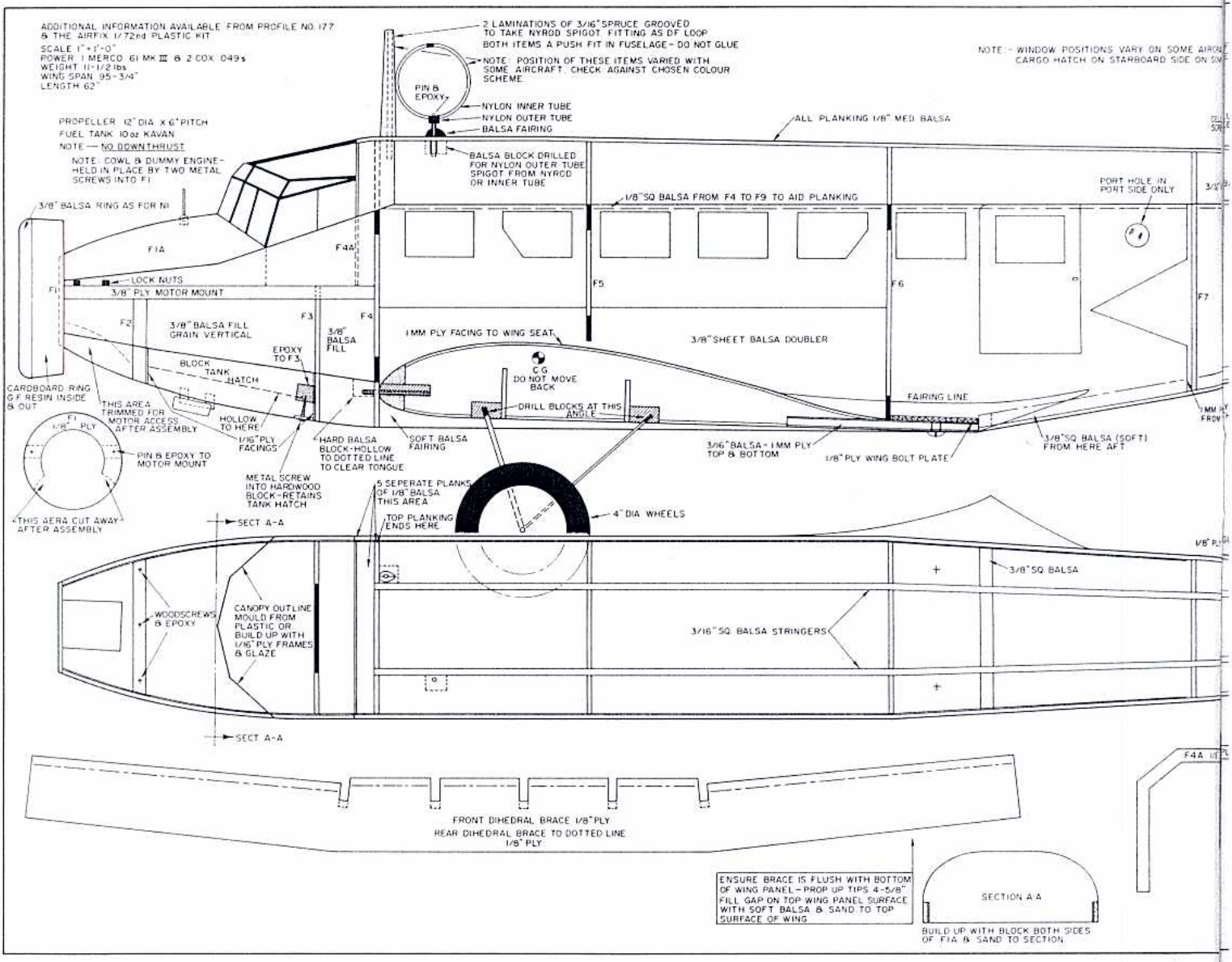
There would be complications, I felt, with aileron and elevator hinging, corrugations, and I thought, the C. of G. But as I looked at the aeroplane it became obvious that the basic construction should be quite simple.

The prophets of gloom had a field day discussing the afore mentioned complications, but I am a firm believer in getting started. This way, by the time you reach the sticky bits one has so much time and effort involved, that one has to find a way around the problems. My worries, however, were unfounded since building the Junker was a piece of cake, almost like a Super 60. *(Ed's. Note: The Super 60 has been a popular high wing R/C Trainer in Great Britain for many years).* The finish, i.e. corrugations and markings were not difficult, but it was a time consuming business.

Now to work: I decided on a scale of 1" = 1'0", giving a span of just under 8 feet. This being a simple enlargement of six times that of the drawings to hand. Power would be a Merco .61 MK 111 in the nose, and the motors in the nacelles would be simple Cox .049's, with T.R. tanks which would make a nice off beat noise. This way if either wing engine quit I would not get any of the problems associated with these conditions. Wing engines **could** be larger, there being scale offsets to the nacelles, but the simple approach, I feel is sometimes the best.

Aileron and flap hinges could have given me some headaches on a built-up wing and I pondered on foam wing panels. The sudden overnight rise in the price of balsa sheet and the amount of the stuff I should have to use decided this one for me. Paul Smith of Wanstead had just acquired an amount of Foam Block and offered me the facilities of his front-room workshop. While my better half was doing her thing in the Bingo Hall one Saturday evening, Paul and I cut both panels in one hour. This time included making a hot wire cutter and 50% of the wing was completed. This, I hasten to add, was our first attempt at foam cutting and apart from a few wrinkles which were soon sanded out, was





extremely successful. I felt, afterwards, that I should have put a little wash out in the tips owing to the lack of area – way out there, man – but this has since proved unnecessary.

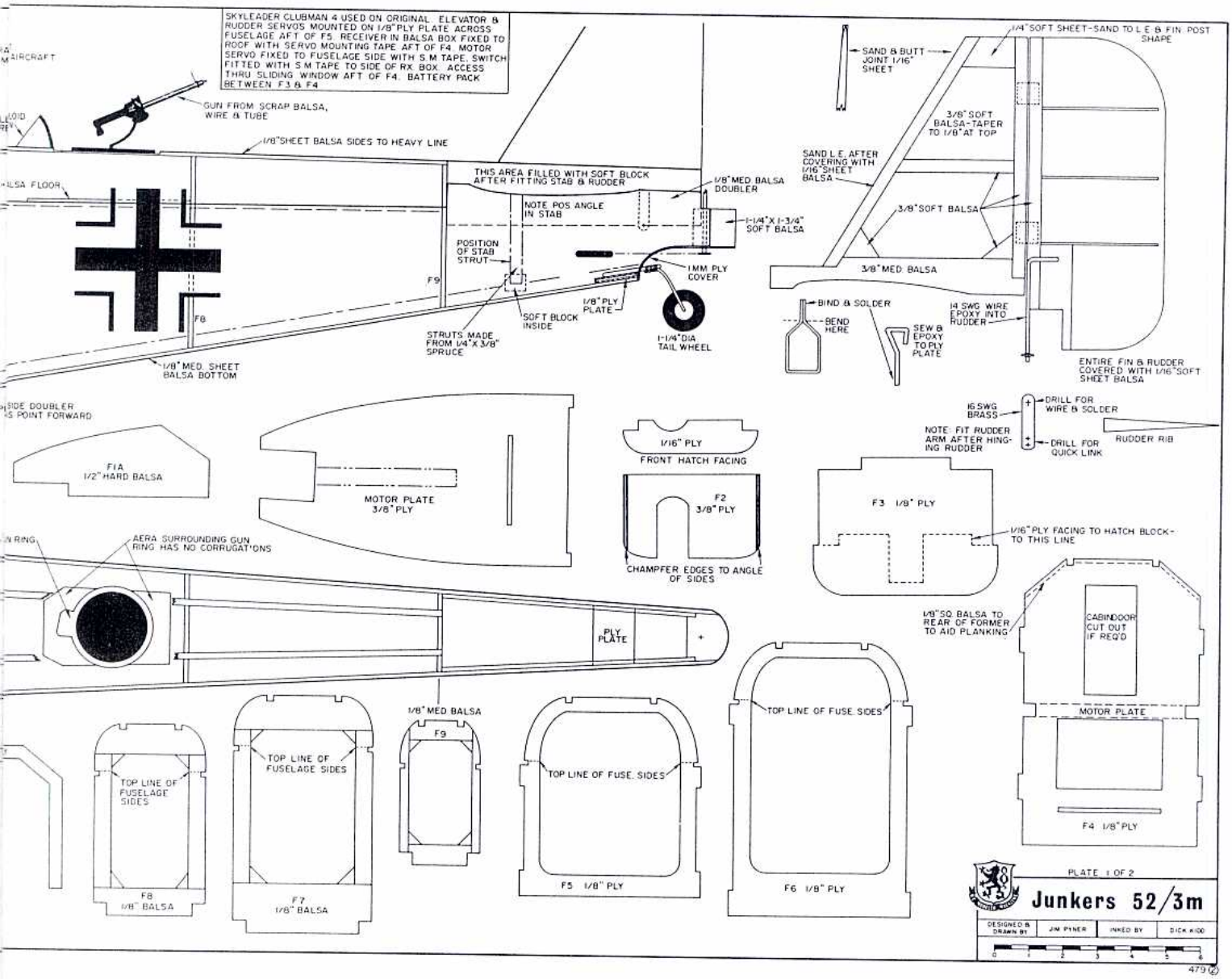
Steve Rose, of West Essex, who conducted the initial flight, reported that it would drop a wing if you shut down the power and applied too much up-elevation, but if you want stall turns and spins, you would not make a J.U. 52, so no worry there. A point worth making with the foam wing is that the hinge brackets are very simply epoxied into the T.E. and should one make a mistake in lining them up (I do it every time) one simply moves them around and packs out any hole existing around the area with scrap. None of this fiddling around one gets with lining things up to the T.E. of ribs. It doesn't happen to you, mate? It does to me! Every time!

The T.E. had a simple length of shaped T.E. sanded to confirm with the panels and the entire wing was covered with obechi veneer, but could be covered in one-sixteenth balsa if one feels like spending money. The centre section was conventional with ribs of 1/4" balsa plus 1/8" ply dihedral braces, covered with 3/32" sheet. Flaps are soft balsa sheet with ply dummy hinges epoxied into the L.E. and lined up with the flat bottom surface of the wing and stepped down 1/4" **below** the wing. Aileron hinges are made up of 16 SWG saddles, a pair of MM 16 SWG nylon retainers, threaded through 1/8" paxolin sheet and the lot is epoxied into the T.E. to line up with the flaps, control being with what appears to be never ending cables.

Elevator hinging is identical with the elevator stepped **above** the T/P T.E. The fuselage is constructed with medium 3/8" balsa sides with 1/32" ply doublers and simple rectangular formers with a curved top deck planked with 1/8" sheet. The nose area is block and helps bring the C of G where it should be and accepts a 10 oz. Kavan tank with ease.

Wing nacelles were made by the simple method of cutting the side elevation from 1/2" sheet with a cut-out to slide over the wing. This, in turn, is glued to the offset centre line of the nacelle to form a backbone, and soft block is added to both sides and carved to shape. A 1/8" ply front former was added, and to this a spacing block to accept the Cox .049. The reasoning here being that should the power be insufficient, one could remove the spacing blocks and still have enough room inside the cowlings for a larger engine using a radial engine mount. This, however, has proved unnecessary.

Now to the finishing. First of all, I acquired the Airfix plastic kit of the J.U. 52 as this gives one a good guide to the way the corrugated metal runs,



where it ends, etc., and how various grades were used in the construction. For example, the T.P. with Fin and Rudder appeared to be covered with a lighter grade of aluminum which means that the corrugations have to be smaller and closer to give the right effect. The same thing applied to the ailerons and flaps. That used on the wings seemed to be a little stouter, and on the fuselage it appears to be the heaviest, with the exception of the door which was more in keeping with the material used on the rudder. These are the conclusions I have come to after studying various photographs, profiles, and the Airfix kit. I may be wrong, but it looks right. Markings may be a problem to anyone contemplating one of these aeroplanes as it seems to me, in my ignorance, rather difficult to settle on one particular aircraft.

Where one would find an aeroplane which had been operating, for example, in North Africa and happily settle for this – one would find a picture of the same aircraft taken some days later in a different area where the fitters had been to work, fitting shutters to some of the side windows, or cheerfully hacking a cargo hatch in the starboard side, which puts the modeller back at square one. Unit markings and call signs seemed to change overnight, also. A friend of mine who makes the Luftwaffe a full time hobby tells me that our own intelligence service found it almost impossible to keep a close check on the Luftwaffe Transport System, and if they were wondering, "Brother, I am lost," one must remember that this aircraft was assembled in plants all over occupied Europe and I feel sure some differences must have been made, much as one finds with some of the W.W. I aircraft which went to different contractors.

I went through the usual ideas for reproducing the corrugated effect on the aircraft, corrugated cardboard, gouging tools, plastic, etc. No dice – cardboard was O.K. on a flat surface but not very successful on a curve, the fuselage top deck, for example. A tool to gouge out the grooves might have done the job, running with the grain, but would have made a sorry mess if one had to go cross grain. So I settled for the old standby, for which there is no substitute, balsa! The entire model was covered with lightweight tissue and received one coat of sanding sealer. I took a soft sheet of 1/8" balsa and gave it a coat of sanding sealer to one face. This I then stripped down into 1/8" strips with a straightedge and balsa knife. A balsa stripper would have been handy here. Come to think of it, any kind of stripper would be handy here. WHOOPEE!!!

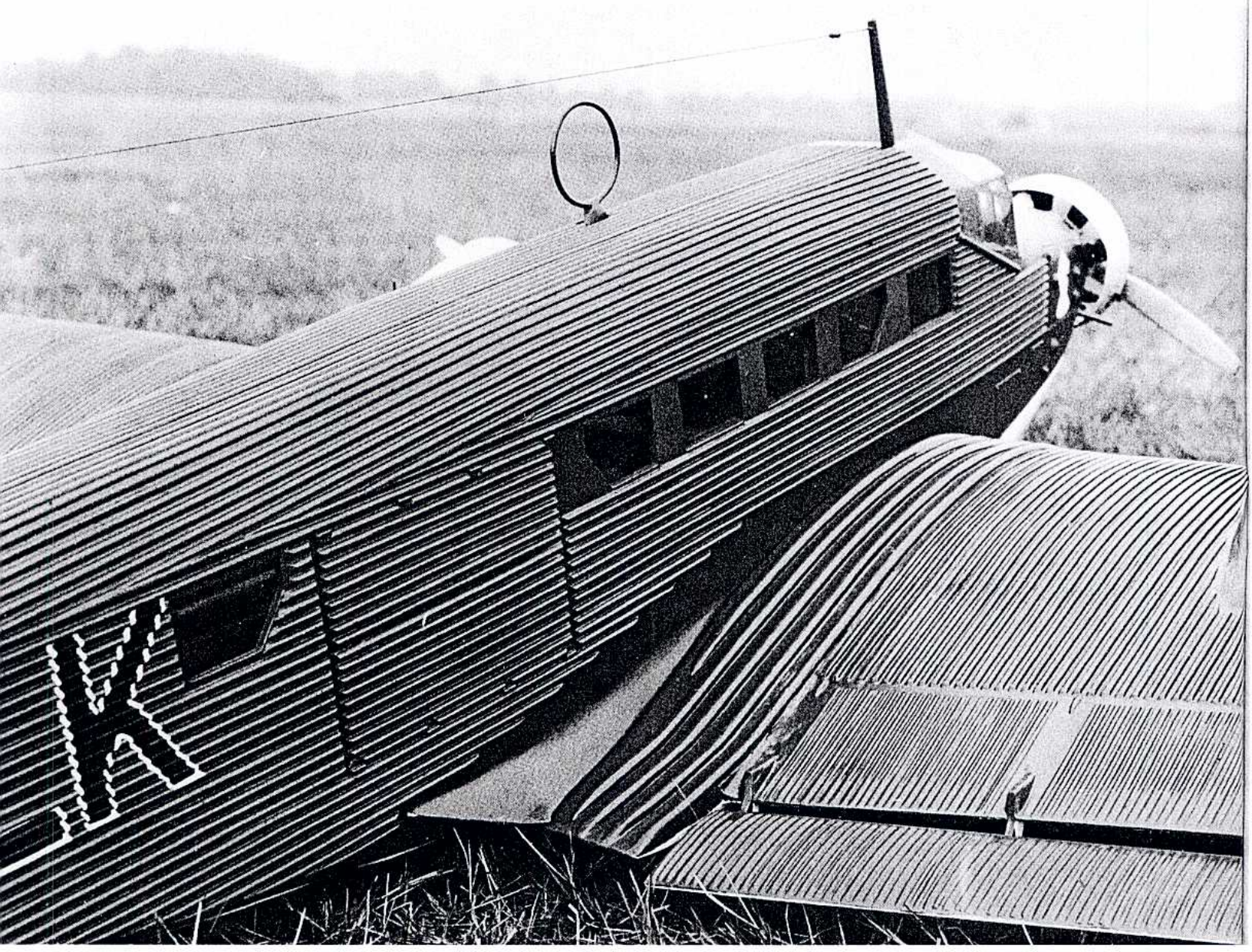
Having marked a centre line down the top of the fuselage, I then applied a coat of sealer to the fuselage approx-

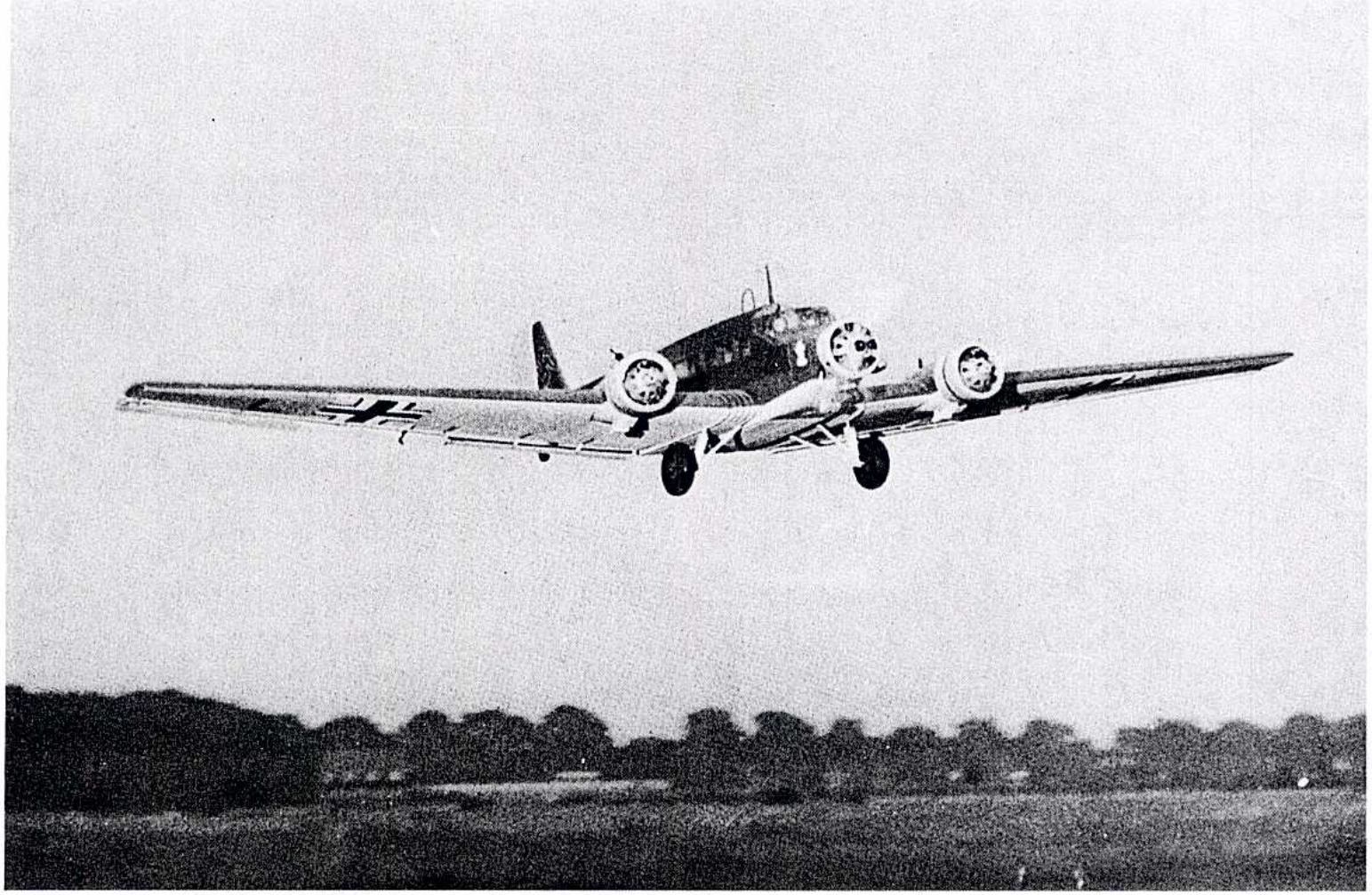
imately 1" wide and just laid the strips on it, using a piece of 1/8" sheet as a distance gauge, but this was not strictly necessary. The combination of two sealed surfaces, livened up with a fresh coat of sealer resulted in the strips welding into position with the occasional pin being used only on a few curves. Wings, the same procedure, using 3/32" sheet and the tail unit and control surfaces, using 1/16" sheet.

The sharp edges of the strips were rounded off by using a piece of 3/8" balsa strip with garnet paper fixed with evostick, *(Ed. note: Pliobond Contact Cement or equivalent)* to form a sanding block, cut into 6" lengths. The wings and tail unit, again, used smaller grades of wood for the sandings block. Then, this that had appeared to be a never ending job was finished, and the entire model was given two coats of sanding sealer followed by two coats of Kingston Diamond Eggshell thinned with celulose thinners. All insignia was hand painted as it was found virtually impossible to mask off any area over the corrugated strips. The scheme I have employed came from an old aviation magazine and depicts a J.U. 52 of the 2nd Staffel of I/KGZ bV.1, which was in Southern Greece in May 1941. This employed the green upper surfaces and blue undersurface with yellow cowlings and rudder. The cowlings were made from a mixture of balsa, cardboard, and glass fibre with the centres moulded in lightweight ulat and resin *(Ed. note: Fibreglass and resin)* inside half of an old plastic ball. The dummy engines could be improved upon, but they look okay when viewed from a distance of 3½ miles.

After what seemed to be quite a long time, the beast was ready to fly, although still waiting for dummy exhausts to be fitted, since I had an invitation to the U.S.A.F. base at Lakenheath and the use of the runway. The servicemen there have their own model club and we had invited various clubs in the locality for a fly-for-fun meeting. Their hospitality and organization were first class and their efforts made it a superb day for us all. A great bunch of boys, not forgetting the girls who looked after the hot dogs and beer and the kids who cleared the entire flying area of any trash in a very short time.

Conditions were good for the first flight of the Junkers and, with the use of a runway, how can you lose? I had more confidence in the model and the Skyleader Clubman than I had in myself so I gave the TX to Steve Rose who, I feel, is a superb flyer. All three motors running, slightly offbeat, and away went Iron Annie. Down the runway, tail up and she flew! Steve reported that she needed a little down trim and slight right aileron trim, otherwise she flew herself. The view of the underside as she passed overhead was quite realistic and banked turns with the windows against a bright sky were beautiful. After awhile, Steve settled into an approach on the runway and she floated in like a bird and rolled to a stop in front of the crowd. A moment of silence, and then the applause. Steve and I were de-





lighted. On the second flight the tank hatch detached itself from the fuselage and descended to land on the grass and the tank was seen to be hanging below the aircraft, supported with the fuel tubing with the engine still running. Steve decided to land her, and once again all was O.K. apart from a ruptured tank which had swung onto the propellor area.

A kindly soul lent me another tank and a third flight was made and on this occasion, Steve got quite carried away and had to make a dead stick approach and landing . . . once again all was O.K. That ended our flying on that occasion and we departed the base very happy men. Since that occasion the Junkers has completed some three hours flying and the TX has been passed around to all and sundry in the West Essex Club. My ten year old daughter, Janet, flies it better than myself, would you believe? Incidentally, if you are there, Dave Platt, it has even flown on Wanstead Flats!

Anyway, for you fellows who are looking for a steady flying model that looks like an aeroplane, this is the one. There is a lot of it – but the basic construction is simple. Do not be put off by a foam wing. Take a look at the taper and imagine a built up wing a'twisting and a'warping. The amount of effort you put into the finish depends on the builder – one could use corrugated cardboard and save time and perhaps a little weight. Speaking of weight, the beast weighed in at 11½ lbs., but as she flies I feel sure that it would carry another pound with ease.

Paratroops, airborne supplies? . . . please yourself. And now, go thou and do likewise. The crowd will love you.

AUF WEIDERSEHN!!!!!

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BUILDING SEQUENCE

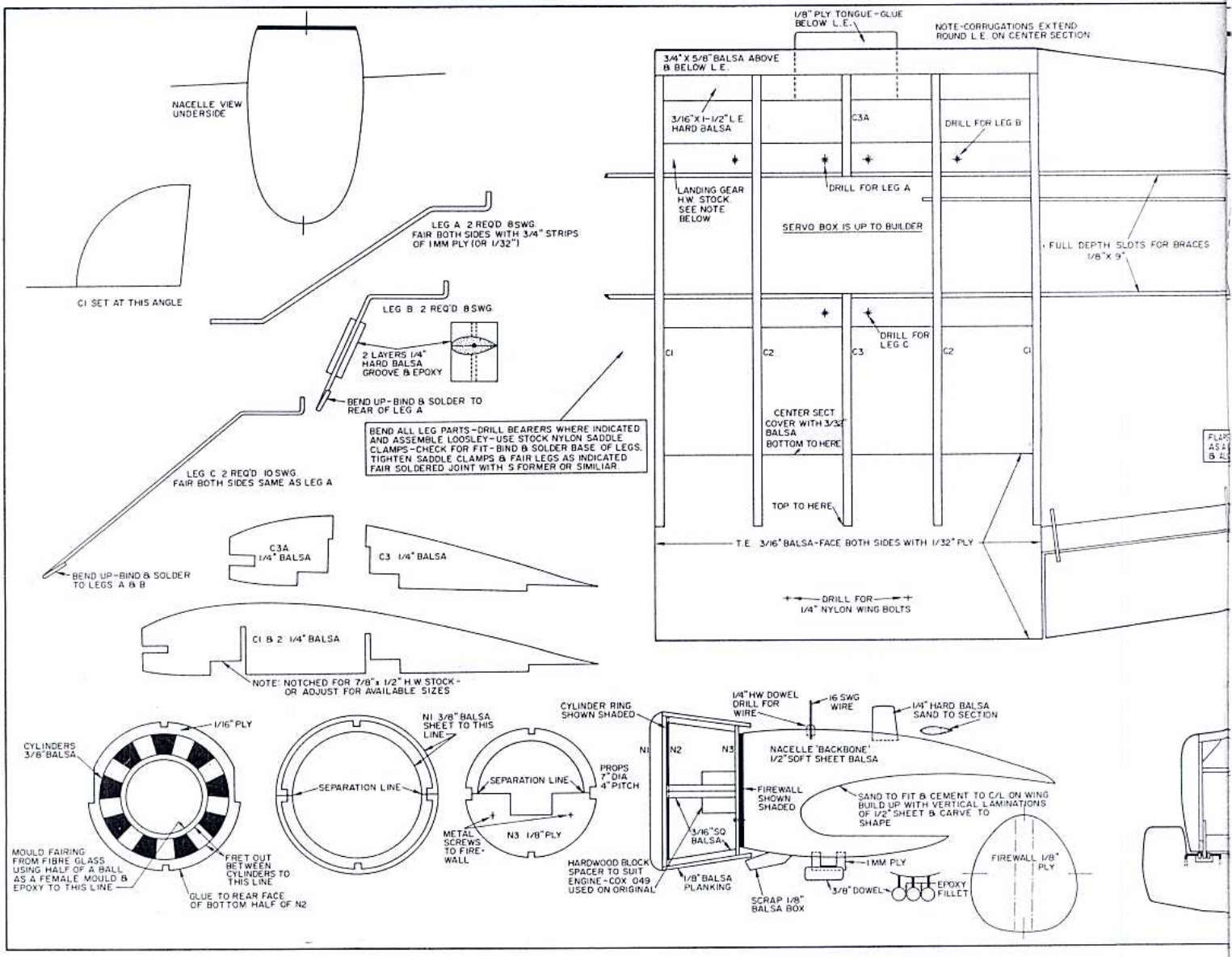
First study your Profile No. 177, plastic kit, or additional reference material to determine which particular aircraft you intend to model, paying particular interest to the glazing on the starboard side. Are you building a model of an aircraft which had loading doors AFT of the T.E. of the wing? If so, you will have to delete the windows in this area. Having decided this we can commence.

Cut two fuselage 1mm (1/32") ply doublers and, using a new blade in your knife, cut out all windows and former notches. The porthole on the port side is best cut with a fine blade in the fretsaw.

Join 1/8" medium weight balsa sheet to form a large enough sheet for cutting the basic fuselage sides. Now cut basic fuselage sides to shape, noting that this includes the tailplane seat – but do not remove windows and former notches yet. Now glue the ply doublers inside the fuselage sides – these will be handed, i.e. left and right. Use contact adhesive here if you think you can get them together – in line – the first time. It is an awful waste of good wood, if you 'drop a clanger', as we say here in England. Using a pointed blade in your knife, you can now remove the windows and former notches from the inside face, using the edge of the ply cutouts as a guide for a good, clean cut.

The hard work comes next. Cut out all fuselage ply formers. Note that although F. 4 is specified as 1/8" ply it could be 3/16" or 1/4" ply if you prefer a little beef in this area. Any extra weight forward of the C. of G. may pay a bonus later on. Mark the position of the 3/8" ply motor plate on the inside face of the ply doublers. Glue a strip of 1/8" x 1/8" balsa along the top inside edge of the fuselage side, grooving slightly to sit flush on the doubler. Also the 3/8" x 3/8" balsa where indicated inside the rear fuselage sides.

Now join the fuselage sides with F.



4, F.5, and F. 6, ensuring that everything is square. While this is drying, make up all rear formers from medium weight sheet. Next, add the 3/8" sheet balsa doublers inside the fuselage, forming a good wing seat, and draw the rear end of the fuselage sides together with the tail block, drilled out for the rudder fixing. Care is needed here to ensure that no twist creeps into the fuselage. Now, glue in all balsa formers – F.7, F.8, F.9, and the two 3/16" x 3/16" medium weight balsa stringers.

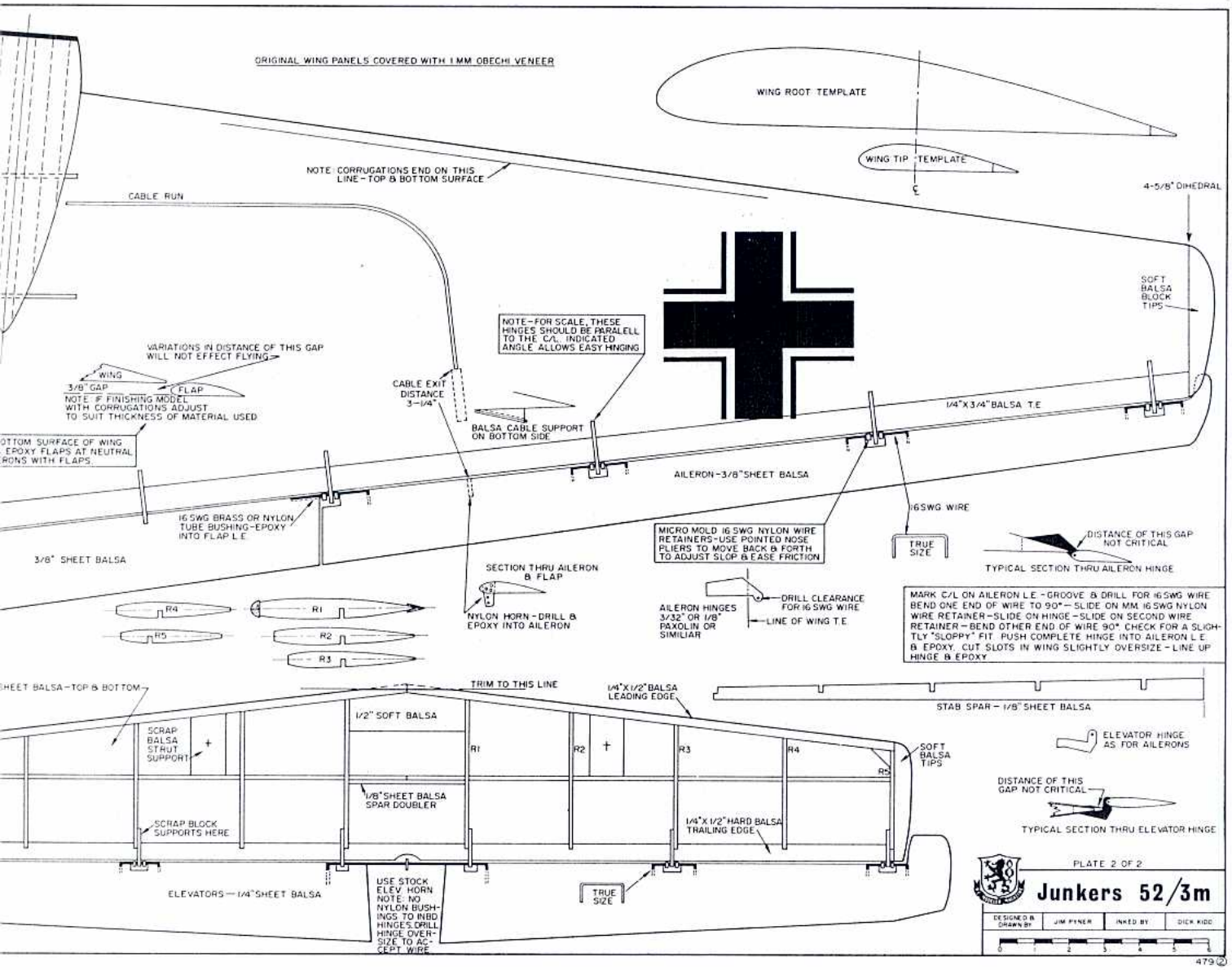
Chamfer the edges of F.2 and fit the motor mounting plate to the fuselage sides. Note the 3° – 4° right thrust. When satisfied that all will fit, drill the engine bolt holes and mount the engine using lock nuts on top. Epoxy around the nuts. They will be lost from the sight of man from here on out!!!

Decide on the motor servo cable run position and drill holes in F.2 and F.3. The cable will pass through the cutout in F.4. Now for the hard part. Using a slow drying epoxy, coat the edges of the motor mount and draw the nose together around it using suitable clamps at the front end. I used pieces of 1/8" ply with a cutout of the correct width, and place them top and bottom. Epoxy F.3 in position, keeping the motor plate level. Follow up with F.2 and back away, leaving this assembly to dry overnight. When dry, drill and screw through the motor plate into F.2 as an extra reinforcement and add F.1; pin and epoxy to the motor mount. The 3/8" balsa doublers below the motor mount are fitted next with the grain vertical. These will need to be grooved with the razor saw doubler to follow the contours of the fuselage sides. The area inside the tank bay will receive a coat of fibreglass resin when completed, so there will be no loss of strength.

No doubler is fitted below the motor mount between F.1 and F.2. Most of this area will be trimmed away on completion to clear the motor and will receive fibreglass cloth and resin to the inside. F.1A is now glued to the centre line of the motor plate and balsa sheet or block built up either side. Now, add hard block to the bottom between F.4 and F.3, hollowing out to clear the wing tongue. Follow up with the tank hatch block spot cement with 1/16" ply facings and go to work on the nose section with razor plane and sanding block. This will be the hardest part of the job out of the way. A change of scenery does everyone good, so switch your attention to the tail end.

A fixed tail wheel is shown on the plan – I used a castering tail wheel but, as the tail comes up so quickly, it is not strictly necessary. However, fit a steerable wheel if you cannot live without it.

Build the tailplane next. Nothing



particular here. Just standard multi practice. The elevators are cut from 1/4" firm sheet, joined with a stock elevator rod and horn. Study the hinge detail on the plan. Cut the hinges from paxolin or similar plastic and drill for 16 SWG wire. Drill two oversize to accept the thicker wire of the elevator joiner. Mark a centre line on the L.E. of the elevator, drill and groove for the hinges.

Make up and assemble the hinges as shown on the plan. The nylon retainers are a tight fit on the wire and are to stop any sideway movement, the surfaces hinging only on the wire passing through the plastic "hinge."

Epoxy the wire hinge pins into the L.E. of the elevator – lining up the two elevator halves and allow to dry. Cut slots in the tailplane T.E. and sheeting and epoxy the plastic parts into position. Eyeball the assembly to ensure that the elevator is horizontal with the T.E. and approximately 3/16" **above** the T.E. and approximately 1/16" – 1/8" **behind** the T.E. These measurements are not critical . . . if it looks right – it is right!! Now, add the tail doubler to the rear fuselage and mount the tailplane, noting that this is set at a positive angle.

The floor below the dorsal gun position is now fitted and the fuselage turtledeck planked with 1/8" medium balsa to stiffen the whole shebang.

The fin and rudder are made next. Use soft wood here to keep weight down and hinge with mylar strip. Pass the wire which carries the rudder horn through the tail block – line up and glue the fin to the centre line of the tailplane and add soft block around the fin base to follow the contour of the fuselage.

CENTRE SECTION

Points to note: Dihedral braces are full depth with the bottom 3/32" sheet butting to the brace as opposed to lapping on. The wide 3/16" balsa T.E. is faced with 1mm Ply and has proved quite strong enough for normal use. End ribs are set at the angle shown to allow the wing panels 4-5/8" dihedral at the point shown. Note that the **top** of the brace is **below** the top surface of the wing panel – this eliminates the embarrassment of sanding hard ply to conform with the top surface of a soft foam wing should one make a bad cut. Any gap can be filled with soft sheet and sanded. Otherwise standard building practice is followed.

WING

Cut from foam using the wing templates after marking a centre line on the block and lining up the centre line as shown on the ribs, the flat bottom of the templates going to the flat lower surface of the block. Cut a 3/4" wide strip from the T.E. and white glue the 3/4" x 1/4" balsa T.E. in place. Cut slots for the braces. On the original model, I joined the panels

to the c/s at this stage – grooved for the aileron run – and covered the panels with 1mm Obechi Veneer. The only problem I encountered was that my work shed is 8' – 3" long and 6' – 6" high – so I was a little crowded for movement. However, no problem should arise if your wife lets you use the house. The centre section joint was covered by one layer of surface mat cloth and fibreglass resin, this being hidden later by the corrugation. At this stage a centre line for the nacelles should be marked on the wing using the wing/center section joint as a 'straightedge'. Soft tip blocks complete the basic wing.

FLAPS

Non working? No need to, Mate! This aeroplane takes off with a short run and floats on the landing approach. The flap 'hinges' can be cut from ply and epoxied into position after planing and sanding to the flaps section.

AILERONS

Cut from firm 3/8.. sheet balsa, mark a centre line along the L.E. Plane and sand to section. Cut notches for the hinge clearance. Cut plastic hinge parts with a fretsaw and drill for 16 SWG wire, **slightly** 'sloppy.' Follow instructions on the plan and make up your hinges. Drill and groove the L.E. on the marked centre line and epoxy the hinges in place, taking care to keep the epoxy glue off the wire hinge as it passes through the plastic part.

Cut slots in the T.E. and foam of the wing. Note here that in scale, these slots should be parallel to the wing joint at right angles to the wing centre line. The angle shown allows a nice easy hinge movement and was used on the original. Now comes the beauty of a foam wing. Should you have anything out of line, the slots can be widened and filled with scrap on completion. Now, epoxy the flaps in position, using scrap balsa as a temporary distance gauge, under the bottom of the wing to step the flap down as shown on the plan. Slide the ailerons in position, eyeball to line up with the flap and epoxy well. Epoxy a tube in the L.E. of the flap to take the inboard aileron hinge pin. Fit a tapered piece of balsa under the wing to support the cable outlet, then line up the aileron horn and epoxy into the aileron.

NACELLES

Decide on your choice of engine and tank. The original uses .049 Cox Babe Bees with a 30cc control line metal tank feeding through a hole drilled in the Babe Bee tank. If using a separate tank, mark positions of feed and vents on the firewall and drill. Cut a nacelle backbone from 1/2" sheet balsa and glue to the ready marked centre line on the wing. No need here for a 'micrometer' fit, just get the thing level. Feed the tank pipes through the firewall, check for fit (it may be necessary to scoop out the L.E. a little to line up the tank) and glue the firewall to the face of the backbone, again, keeping square. Now build up on both sides of the 'backbone' with balsa sheet, gluing well to the rear of the firewall and around the tanks. Use a sharp knife and sandpaper to shape. Note that the underside is a

different contour.

COWLS

Build up with balsa as shown on the plan. Fix the lower half to the firewall with two metal screws (mind that tank). If you use a dummy engine, build up with 1/16" ply scrap balsa, and a moulded fibreglass fairing as described on the plan. Note that this fairing has holes fretted out and also allows access to the metal fixing screws. The clever Joes can go one better and fabricate the entire cowl from fibreglass and it would probably make a better job. Check against your engine and, if necessary, epoxy distance blocks to the firewall to bring the engine forward to allow the prop to clear. If using the wooden cowls, use fibreglass resin inside to give a little beef and fuel protection. The fuselage cowl is a simple balsa ring cut from 3/8" sheet as for N.I. with a simple card wrapping at the rear, coated with resin. Make up a dummy engine and epoxy two spacing blocks to the rear. Drill and screw the latter to F.1.

LANDING GEAR

Form the wire parts, then drill angled holes in the landing gear blocks and assemble loosely, using stock saddle clamps for fixing. Check sweep back and angles and, when satisfied, bind and solder the base joint. Fair with balsa and ply after adding the fuselage fairing block. Fair the soldered joint with S. Former (it looks prettier – my soldered joints are lousy) and retain the wheels with collets.

Finally, (if you haven't already done it), add the 1 mm ply facings to the wing seat – line up the centre section and drill for wing bolts. Make up the elevator and rudder pushrods with an adjustable Q-Link at the elevator servo end. Sheet the bottom of the fuselage, rounding off the corners slightly. Add the 1 mm ply cover to the bottom of the rear fuselage, slotted for the tailwheel and drilled for the rudder arm. OOPS!! Have you remembered the small block supports for the tail plane struts? Wing fairings are from soft block and will just about complete the basic structure.

FINISHING

Sand everything!! and apply one coat of sanding sealer. Sand again and fill any dents with your favourite filler. I use Alabastine or Pollyfilla. Sand the filler and touch in with sealer. Cover the entire model with lightweight tissue and apply another coat of sealer. Now, the easy way out is corrugated paper doped on. The original model was done the hard way, but if I made another I think I would do it the easy way. But for those among you who want it – here's the hard way.

Take a sheet of 1/8" soft balsa and apply a coat of sanding sealer to one

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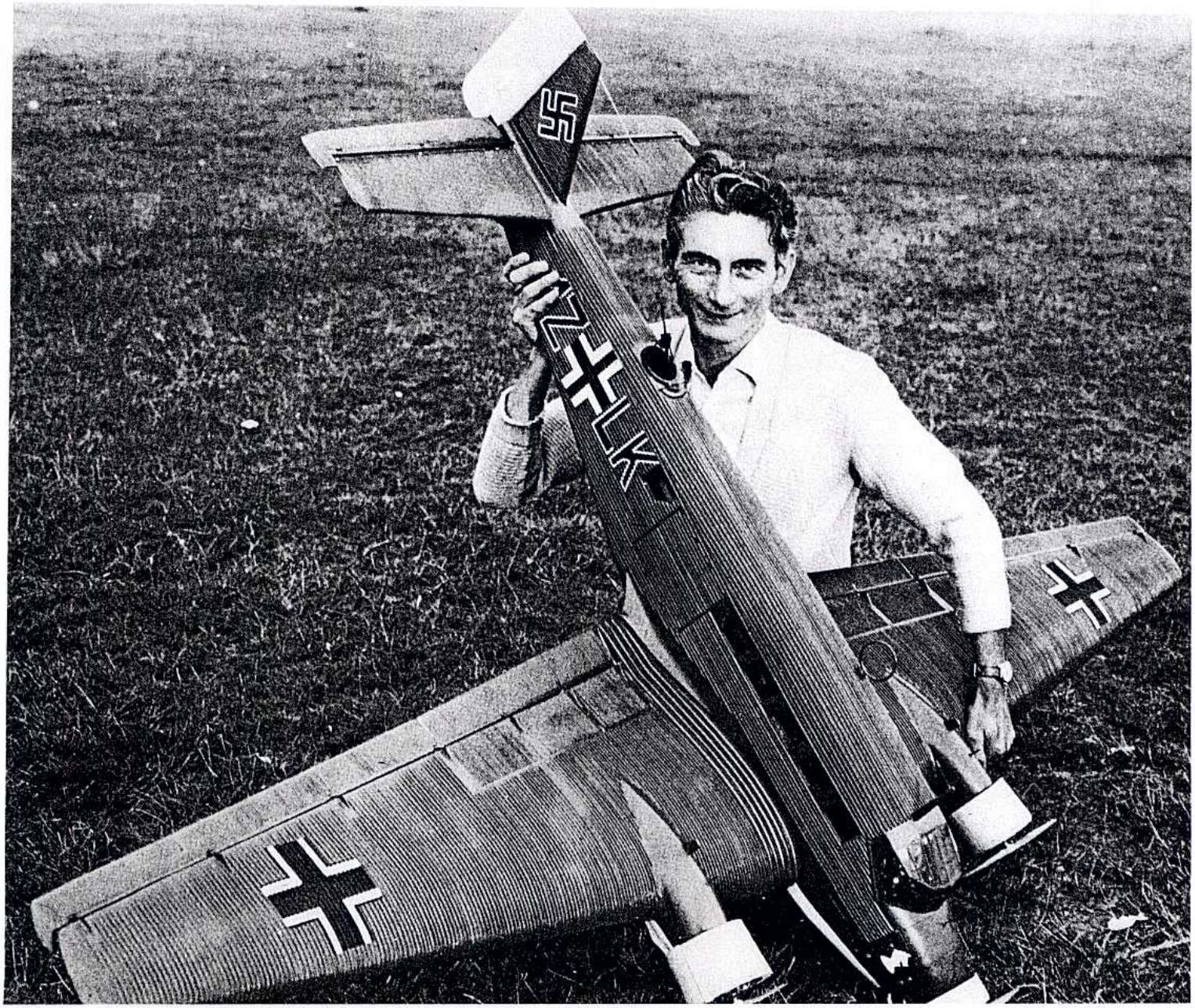


EDITORS NOTE: A complete set of 3 foam wings are available for the Sopwith Triplane from all Ace dealers or direct from Ace R/C, 203 W. 19th Street, Higginsville, Mo. 64037. Price is $6.95 for set of 3 wings. Specify catalog #13L205.

Once the airplane is a couple of hundred feet high you can begin to adjust the trim levers for straight and level flight. Do not let go of the sticks for anything until you are **at least** that high. Then you can relax and find out how much fun slow flying can be. □

JUNKERS J.U. 52

From Page 29

face. Check with the photographs in your Profile Book, and Plastic Kit and determine how the corrugated metal was used and in which areas. When all is O.K., mark a centre line on the fuselage top and the basic side – planked joint above the windows. Now, strip the sheet down into 1/8" strips. Coat an area about 1" wide with sanding sealer on the fuselage and, using the guideline, lay the strips in place using a scrap piece of 1/8" sheet as a distance gauge between strips. The pre-sealed surfaces will weld together with the action of the wet sealer you have applied to the surface. Just keep going – checking that you are not applying strip wood in places where there was flat metal. When the fuselage top is covered, give yourself a boost by rubbing down to shape. This is a piece of cake. Take a soft length of 3/8" x 3/8" balsa and using contact adhesive, glue fine sandpaper to it. Cut into usable lengths of 5" – 6". Now wedge it down between the strips and push back and forth. This will very quickly form a section approaching a triangle. When complete, take a flat sanding block and rub gently across the top surfaces, taking off about 1/32". Dust off, and apply a good coat of sealer. Stand back and look at it. Ain't it pretty? Now that you have convinced yourself that you **can** do it, just keep going. It will look 100% better with the first coat of colour. The wings can be covered with 3/32" or 1/8" soft strip and all the tail surfaces with 1/16" (also flaps and ailerons or, again, corrugated paper). When all is finished it receives a total of two coats of sealer on the corrugations. The main cockpit canopy can be moulded from plastic over a carved balsa form or built up on ply frames and glazed with celluloid. The interior of the cockpit can be fitted out and crewed, but this is a matter of the individuals need or ability. My own model has two crew members in the cockpit with expressions of frozen alarm. They really had no need to worry! Aerial, D.F. Loop, oil coolers, gun, etc., can be fitted prior to painting, but here again, the amount of detail depends on the individual. Panels around the nose area are simple pieces of thin card with short pins pushed into the corners. Doors are cut from card – corrugations are applied – and the doors fixed with sanding sealer.

I should say that nothing was spared on the original, apart from keeping a careful eye on the wood selection used behind the C of G., and the beast came out at 11½ lbs. At this weight the model floats like a sailplane and to date seven different members of the West Essex Club have 'had a go on the box,' including such stalwarts as Ken Marsh and Syd Sutherland, and all have been delighted with its handling. We feel that the weight could easily go to an illegal 13 lbs. without affecting performance. In fact, we feel

that in its present weight a Merco .49 would fly it. However, I digress – the aircraft now receives two coats of colour to the chosen scheme. I used Kingston Diamond Eggshell Polyurethane, thinned with cellulose thinners. Individual markings will have to be handpainted unless you are a genius with decals.

FLYING

No problem! C of G, as shown, was on the original, and the model needed only slight down trim and slight right aileron trim. This was on its first flight at USAF Lakenheath in early August this year, where we were on invitation of the servicemen there in the base model club. On landing, adjustment was made to the elevator Q-Link and nothing has been touched since, the model really notching up the flights.

So, to sum up, play it safe! Do not allow the C of G to creep back. A little forward would do no harm. Wind on a little down elevator, fire up the motors and let her go. The drill is to climb on full motor, maintain height, then cruise at 2/3rd throttle, and land on idle. And when you do land it, be ready for the applause – this bird really drives the crowd wild!

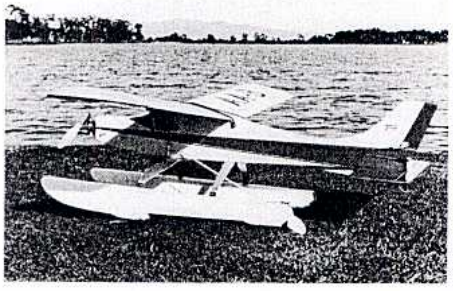
And the best of British luck! (Or should it be German?) □

SUNDAY FLIER

From Page 14

Length 22½"; width 3½"; depth 2¼" at step (on C.G.). The top of the floats have zero incidence. Small underfin below elevator which also carries the tail skid.

Thanks for a great design, Ken.
Yours Faithfully,
Tom Charlesworth
162 Old Farm Road
Hamilton, New Zealand



The two photos Tom sent show you what an attractive modification he did. You can see the forward portion of the "underfin" as he calls it. (Also known as a ventral fin, or sub-fin). It's a very important part of almost all conversions of landplane designs into floatplanes. The reason is simple – you add a lot of side area to the profile of the plane – most of it forward of the C.G. Unless you have a very generously sized fin to begin with, you must compensate for the increased side area forward of the C.G., otherwise your directional stability will become marginal. I've actually seen cases where a modeler added floats without increasing fin area, and the first time he applied rudder the model did a 'Dutch Roll' completely through inverted flight and around to right side up. It all happened so fast he didn't have time to think about correcting the maneuver with opposite rudder. Then, on a delayed reflex, he did just that, only to have the model roll violently in the opposite direction, this time winding up in the drink.

"I don't understand it," he said wonderingly, "it never did that as a landplane – and the floats weigh just about the same as the wheels, maybe an ounce or two more, that's all."

After the model dried out, and the