

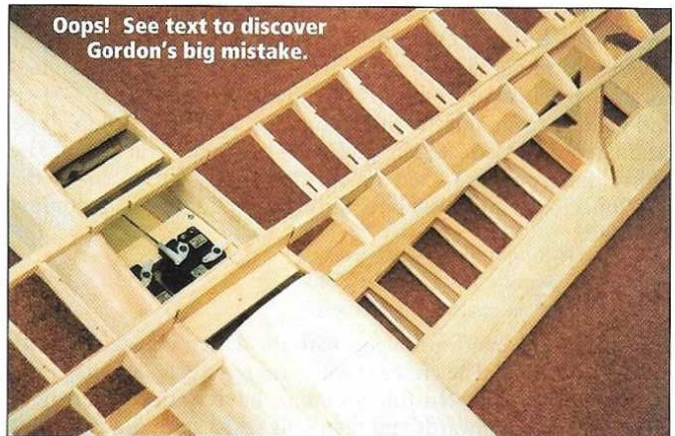
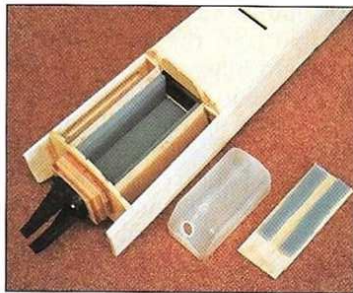


Gordon Whitehead has just finished building and flight testing one of the most exciting R/C kits on the market. So sit back and let him tell you all about it.

Great Planes produce some of the most shapely designs available, and their Super Skybolt is at the top of the tree in that respect. The box art immediately holds your attention, with a huge Technicolor photograph depicting a stunningly decorated super-sleek aerobatic biplane. Even the captions and small photos are worth studying, illustrating some of the finer design points of the machine, as well as showing how to assemble it at the field. It takes 10 minutes to digest all the info on the huge 4ft long box, by which

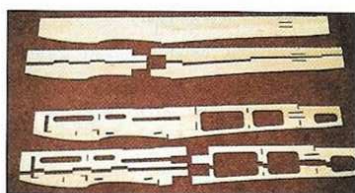
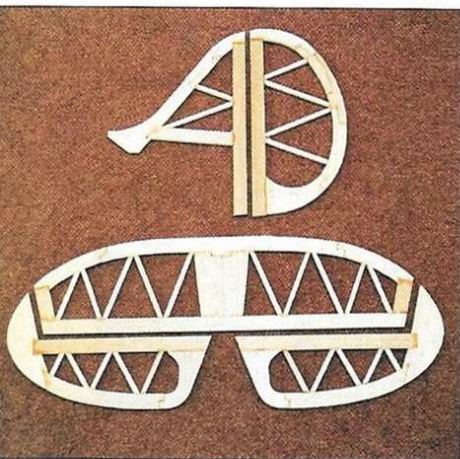
“so smooth you think it’s on a wire...so aerobatic you’ll make every flight a spectacular airshow”, and “so easy to fly almost any pilot can handle it”, dare you to resist her. A swift appraisal of the weights and measures table showed that the Skybolt should fit inside my Sierra hatch fully assembled, while the recommended engines list confirmed that my Super Tigre S-90K would soon be in productive employment.

Gordon added a foam-lined tank bay - see text.



Oops! See text to discover Gordon's big mistake.

Tail skeleton before sheeting.



Fuselage sides and doublers begin life as a 16-piece jigsaw!

time you’ll either be jaded by the hype, or hyped up enough to rip off the lid and get building.

Statements like “computer-designed interlocking parts take all the guesswork out of assembly”,

FINDING THE BITS

Opening the box revealed a mini-mountain of die-cut sheet balsa and lite-ply, with yards of balsa strip and sheet cut to many different lengths and widths. Besides a pre-bent Dural u/c, a clear and smooth vac-formed canopy, formed ABS cowl and spat halves, a 2-sheet rolled plan, a 72-page lavishly illustrated instruction manual, and the longest threaded pushrods I have ever seen, there were 3 polythene bags containing a set of small and precisely cut wood parts, a large collection of pre-bent wire parts, and a set of control hardware including a galaxy of screws, washers, clevises, horns, and even tinned copper wire for wrapping the soldered joints. There were also sundry additional bits of paper we’ll mention later. Within the manual is a list of builder-supplied items, the chief ones being spinner, wheels, hinges, and fuel tank, all of which should be readily available at most model shops in one stop.

At this stage I began to wonder how a finished weight within the quoted range of 8.1/2 to 9.1/2lb would be achieved once I had added all these extra parts, plus engine, radio and covering materials, as the balsa content seemed not only to be on the firm side, but quite generous in cross-section.

Great Planes Super Skybolt

Kit Review

These worries took a back seat as I flipped through the manual and developed the irresistible urge to start. And just look at those plans! The amount of info contained within the instructions and plans is massive, reinforcing the claim that all the guesswork has been removed from assembly. However, and it might seem obvious, you have to read every word to make that claim come true! This includes reading a loose-leaf addendum entitled "Last Minute Additions" which details amendments to the manual, and I recommend that you transcribe the revisions into the instructions so that you don't miss out when the appropriate stage is reached; I didn't do this, and tripped up a couple of times as a result. Long experience doesn't necessarily replace the instructions in this kit!

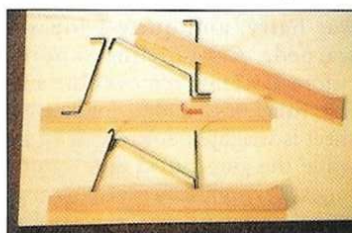
GETTING HER TOGETHER

The first step is to read and update the manual, and correlate this with the drawings. Then one identifies all the pre-cut and labelled parts against a page diagram, and creates separate piles of the pre-cut sheets containing the wing parts, fuselage parts and tail parts, and another pile of the sheet balsa and strip. Reviewing the contents, one finds that the adjectives "exact" and "precise" describe 99.9% of this kit.

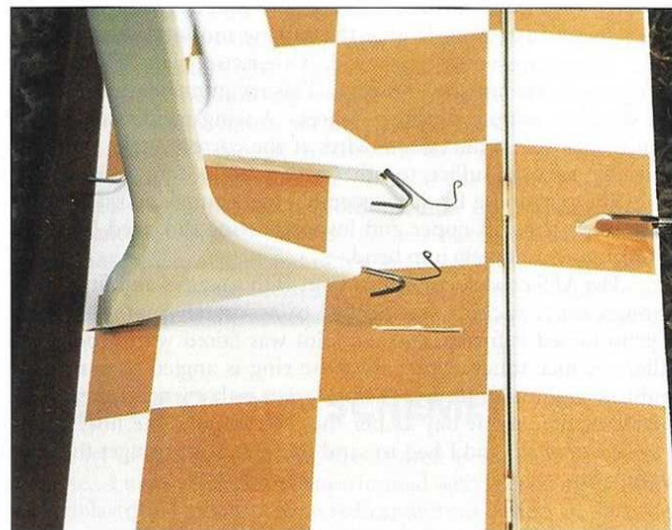
Clever I-strut system. Struts click into wing slots. Makes assembly quick with just 4 minutes claimed. Gordon's Skybolt travels assembled in his Sierra hatchback.



Above: Cabane-wing fix; wire prongs engage in tubes within the centre section.



Clever cabane wire assembly.



Below: Skybolt looks super-sleek even at this stage.



Cabane mounted on the fuselage. Clamp is holding spruce reinforcing strip while glue sets. Gusseting between cabane mount and cockpit floor is still to be added.





with books overnight. Impressed by how the sides came out a perfect match, I eased out the liteply fuselage formers to find they fitted their locations in the fuselage sides exactly. The jig-lock system aligns the fuselage perfectly. The rear fuselage formers are fitted first, using masking tape to bind the assembly while the PVA set. This was a

new technique for me, which I will always use in future instead of elastic bands.

Fuselage assembly proceeded as per the instructions, but I changed a couple of things. The front u/c bulkhead LG1 is only 1/8in liteply, and I envisaged this breaking too easily if the u/c snagged an obstacle, even at low speed, on the ground. So I substituted 1/4in birch ply. As regards the tank installation, the instructions have the tank held to a baseplate with elastic bands, and it is inaccessible once the top fuselage sheeting is in place. So I made liteply sides and a lid, lined them with thin foam plastic, and the tank can be slid out backwards through the hole in F2 for servicing.

Before adding the top and bottom fuselage sheeting, sundry installation jobs are done. The 2-part engine mount supplied is described as satisfactory for up to .75 size 2-strokes. Since it looked as beefy to me as any other large plastic mount, I used it on the review model, CA-ing it together when in position. A couple of sheets of guidance notes on the engine mount are enclosed, one concerned with safety, the other with fitting. I positioned the servo plate well forward, screwing it to hardwood rails glued on the fuselage sides. The plate removes for tank access, and I left a space in front of it for battery and RX.

Then the tail pushrods went in, the elevator one being forked. The pushrods are 16swg wire running the full length of the rear fuselage in nylon outers, the movement being silky smooth and slop-free. However, I recommend making the elevator pushrod outer tube 2in longer than specified, to ease the installation of its front support.

It was impossible to apply the bottom nose sheet because 3/16in sheet is too thick to bend round the required two-way curvature. Cutting the sheet into strips and planking would have worked, but I re-configured this region using 1/2in thick sheet carved to shape. The bottom nose corner sheets fitted OK after I wetted them well with ammonia to make them flexible, strapped them in place with masking tape, and left them overnight for the PVA and ammonia to dry.

The cabane assemblies went together easily, but required care in their location on the fuselage. To ensure accurate positioning, I measured the distance between the rear cabane wire and F2 on the plan, and then positioned the cabane assemblies on the model to match these measurements, trimming the ends as required. At this stage, one must securely glue the cabane mount to the cockpit base, filling gaps with scrap wood. Otherwise, high "g" manoeuvring might liberate the top wing. This recommendation is noted on the "last minute additions" sheet. A wing incidence gauge is handy here to set the cabane wires at the correct angle, though a spirit level should suffice, together with a spot of thin packing.

The remaining fuselage assembly was completed satisfactorily, though the stiff upper and lower sheeting did need brushing with ammonia to help it to bend.

The ABS cowl parts were cut out with a scalpel and fitted well, though some packing was needed to accurately mate the parts. Cyano joined it firmly, and the joint was faired with Model-Lite filler. A nice touch is that the nose-ring is angled to match the built-in engine side thrust. A small point is that when I glassed the inside of the engine bay as per the instructions, the nose of the fuselage swelled, and I had to sand down this area to get the cowl to fit again.

Accessible avionics installation.
See text.

TAIL FIRST!

Assembly begins with the tail group. A small problem arose in that my kit was short of one sheet of fin/rudder parts, but had an extra sheet of tailplane parts. I CA'd the spare tail sheet back into one seamless whole, and then traced the required rudder parts from the plan onto the wood and cut them out. This was quickly done, followed by making up the internal tail frameworks; the mating edges of the pre-cut parts just needed a wipe with medium sandpaper to dress them square, before gluing.

Throughout the instructions, cyano is recommended for assembly. However, since cyano fumes make my eyes water, I used mainly PVA with complete success. There is ample sheet available for skinning the fuselage and flying surfaces, but there was a down side in that the surface finish of much of it was hairy, and quite a lot was warped. Careful fine sanding before assembly removes the surface roughness, and as long as the sheet is weighted down with books while the glue cures, the tail surfaces will emerge warp-free. Another small chore was that before joining the sheets, I had to true up their edges with a straight-edge and scalpel; a minor point which was easily overcome with a sharp blade and metal ruler.

GREAT BODY!

The first step here was to press out 16 pieces of die-cut balsa from which one assembles two fuselage sides. After dressing up the adjoining edges with a sanding block and then holding the parts together, running cyano along the join lines produced identical sets of sides and doublers which I then PVA'd together to form left and right sides, and weighted them



Neat rear end. Note split elevator pushrod.



I-strut and aileron link installed. All linkage hardware supplied. Only hinges remain to buy.



Wheel spat installation.

GREAT MAIN PLANES!

Wing assembly came next, and once again, the accuracy of all the parts was breathtaking. The ribs have jiggling tabs which aid initial assembly. The spindle-moulded LE and TE strips were bowed, however, as were the main spars. Because of this it was necessary to place a length of 1/4in sq strip under the LE, through which the LE was pinned to the building board. The spars and most of the tabs were also pinned down. By this precaution, the wing panels emerged warp-free. Naturally, when one has glued the top sheeting in place, and then inverted the wing to add the lower sheeting, one has to employ packing strips again to keep the wing straight. The pre-cut spar webs fitted exactly.

All proceeded well until I came to join the lower wings. In theory, one first makes up the interplane I-struts, using the accurately pre-bent wire parts, and pre-cut ply I-strut cores. Then, one fits the I-struts to the top wing, attaches the wing to the cabane, and inverts the lot on the building board. After inserting the I-struts into the lower wing sockets, you let the bottom wing roots rest on the fuselage wing saddle, at which point the spars and LE/TE strips should all meet up nicely in the middle. The aim here



Instrument panel decal is supplied in the kit.

is to guarantee the correct dihedral angle. The photo shows what happened in my case. To mate the spars and TE strips and fit the dihedral braces, I had to remove part of the LE. Oops! Seemingly, the lower wing was not going to fit without a struggle!

After measuring everything concerning wing attachment, and confirming the accuracy of my construction against the plan, I discovered where I had boobed. The secret is one must assemble the wire prongs into the struts over the plan! The plan is exactly right. Regrettably, when I had glued the wires in place, they did not project sufficiently, and I still don't know why; lack of care is my only explanation. Fortunately, the wire was malleable enough to allow me to re-bend all the ends to match the plan precisely, and the situation was saved. Phew!!

Just about all else went according to the instructions. I chose to fit 4 ailerons, as these provide far better control than two, and all the links are provided and of top quality. One servo per aileron is used. When fitting the spats, it was necessary to slot the axle hole right down to the wheel aperture, otherwise it was impossible to fit the wheel.

GREAT COLOUR SCHEME!

Part of the attraction of the Skybolt is the box-top colour scheme. I used white Solarspan trimmed with metallflake blue and gold Solartrim; the metallflake red came from a sheet of Solarfilm



Above: Neat engine installation. Gordon will fit a finned head for better cooling.

I'd had for 20 years! This was my first try with Solarspan, and things did not go well at first; my film iron snagged continually on the material, which was reluctant to shrink. After covering both wings and suffering a sense of humour failure in the process, I borrowed a nearly new film iron, and re-discovered peace and harmony. So my 20-year-old iron went in the bin.

I enjoy producing Solarfilm sunbursts and checkerboards, so was in my element for a few evenings. The model consumed two 6ft rolls of white Solarspan

Below: Swish ship; happy chappy!



plus part of a sheet of white Solarfilm I had in stock and used on the tail, one roll of blue Solartrim, two rolls of gold, and a 52in sheet of metallflake red Solarfilm. Since one cannot get paints to match the metallics, I ironed Solarspan onto the cowl, spats, and aluminium gear legs, trimming them up with the red and gold.

GREAT SCOTT!

How was I to fit a silencer in that close-fitting cowl? I decided not to try. Instead I made a 1/8in sheet aluminium spacer to go between the exhaust stub and silencer extension, and let it all hang out.

My ST 91 is the heli version, and the smooth head is intended to carry a heat sink, which would need half the cowl cutting away. So I decided to go without the heat sink. The throttle push-rod is routed as per the instructions, and I chose a 14x8 APC prop, with an Irvine turned aluminium spinner. The tank is a 14oz Sullivan slant type.

The TX is my JR PCM-10 controlling an 8-channel PPM RX and 5 standard NES 517 ballraced servos, with 1300mAh battery pack. I routed the aerial inside the fuselage. The RX and battery are wrapped in plastic foam, and fit nicely in front of the servo plate, which is removed first.

When complete, she balanced exactly as per the plan, and weighed 8lb 12oz. Actually, I was impressed with this figure, as the large quantity of and firmness of the materials used in construction had led me to anticipate a much higher final weight. With a wing loading of 21 1/2 oz/sq ft, and power loading around 4lb per horsepower, the box-top comments on flying performance looked likely to be fulfilled!

GREAT FLYING PERFORMANCE!

After setting up the control throws exactly as per the instructions, the Skybolt's first flights took place at the Woodspring Wings Field in mid-May, on the day after summer ended. There was a cool

blustery 20kt wind blowing, and after waiting while a Piper Cub smashed into the ground and another machine bulls-eyed into one of the streams bordering the field, I had the sky to myself. I had four flights in all, every one ending with an engine cut of which more later.

With the controls set on low rate, and the ST 90 sounding very smooth on straight juice, I firewalled the throttle. Only a small amount of right rudder bias was required for her to track straight, and shrugging off the gusty wind, she rose smoothly into the air with no drama. Once aloft, it was the work of an instant to pull in a click of up trim, and that was the Skybolt trimmed. "Hmmm," I thought. "Must find something else to do. I wonder what she's good at?"

Flying around the circuit, I wiggled ailerons and elevator to check responses, finding the ailerons rather slow. On full throw at high rate they were still more ponderous than one would expect considering the amount of movement available, indicating that the hinge gaps needed shrouding with strips of film. Rolls were smooth, though the aforementioned shrouding would improve the precision of hesitation rolls. The elevators were just right for general flying on low rate, the rudder similarly.

I always take time to make the throttle response linear with the stick, and the Skybolt responds beautifully, accelerating and slowing down very nicely as required, with little or no trim change between full and low revs. I also tend to operate a well-powered model such as this at mid range in normal flight, spending as much time at idle as at full throttle during manoeuvres. The well-balance trim of the machine made handling at all throttle settings very enjoyable.

In the looping plane, the Skybolt is agile enough for really tight loops with no tip-stall, while the ST has plenty of urge for large loops, which track really straight with little adjustment. Even in the strong wind, the Skybolt made easy work of superimposing consecutive loops - within my rusty limitations of accuracy! Stall turns, top hats, Cuban eights, Immelmans; even if you're out of practice, this machine is on your side. She is so obliging, and smiles with you all the way.

When I experimented with spins, flick rolls and avalanches, I found them achievable on low control throws, the model then reminding me of some of the best aerobatic bipes I have known. It is nice not to have to change rates, and yet still achieve the entire manoeuvring envelope.

All four landings were dead-stick, and even in the wind it was easy to pick a spot and drop her in satisfyingly near it. I blame poor cooling for the engine cuts, as when I touched the engine after the second and subsequent landings, the head was much hotter than the silencer. There is no cooling air outlet from the cowl, the only exits being round the head, and round the exhaust stub. However, most engines used by readers will have deeply-finned heads. So my next step will be to fit a finned cylinder head to get some metal out in the breeze. If the engine continues to overheat, the cure will be to cut an air exit hole at the base of the cowl.

GREAT PLANE?

The things I really like about the kit are the high quality and accuracy of the parts, the level of completeness, the excellent plans and instructions, the ease of assembly, the pushrod installation, the superb flying characteristics, and the admiration she draws from bystanders. Things I really didn't like were the method of setting the bottom wing dihedral, the possible weakness in the u/c bulkhead, and the apparent lack of engine ventilation.

On balance, no feature of this kit makes it other than completely desirable, even essential, to own, and the Skybolt fully deserves the descriptions of "Super", and "Great Plane". Regarding value, the success of the effort which has obviously been expended in making her enjoyable to build and operate makes her well worth the £175.99 tag. The Great Planes Super Skybolt is available from all Ripmax serviced model shops.

"...In the looping plane, the Skybolt is agile enough for really tight loops with no tip-stall, while the ST has plenty of urge for large loops, which track really straight with little adjustment..."

SPECIFICATIONS

Span	57"
Wing area	930sq.ins
Length	52"
Weight	8.5-9.5lbs
Power	.60-.91 2-stroke
	1.20 4-stroke
Radio	4 channel
Construction	All wood

REVIEW MODEL

Weight	8.75lbs
Power	ST S-90K
Propeller	APC 14x8
Fuel	80/20 straight