

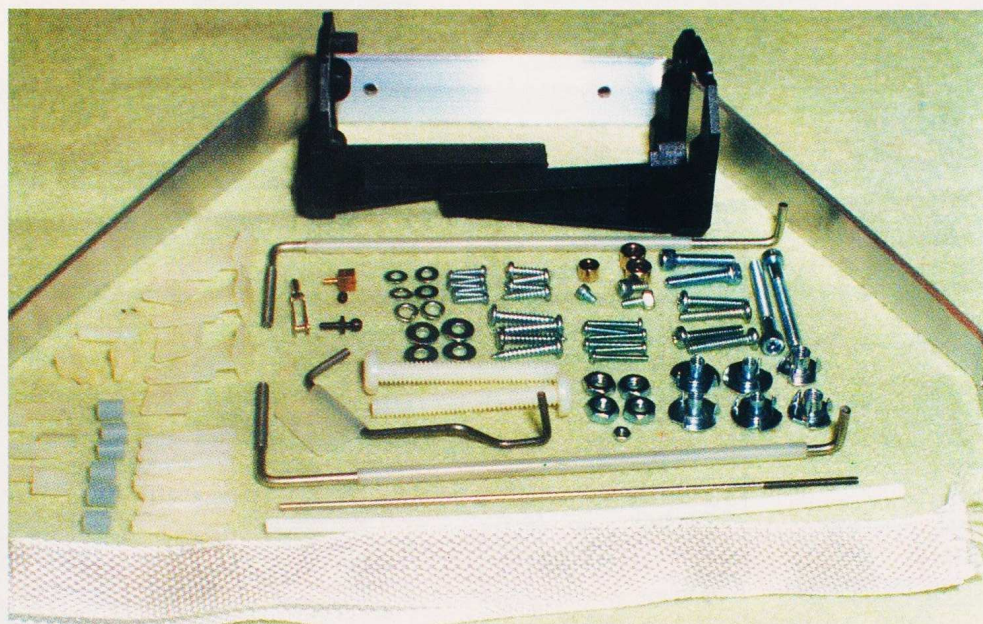
CAP 232...

a great plane!

A builders model of the famous CAP 232 from the Great Planes Model Manufacturing Co.



The bits from the box.



The impressive hardware collection supplied with the kit.

This review is the direct result of a cheeky letter sent to the editor. He phoned me the following week and offered me the 'Great Planes CAP 232', how could I refuse? I only realised what I had let myself in for after the kit had arrived and work commenced.

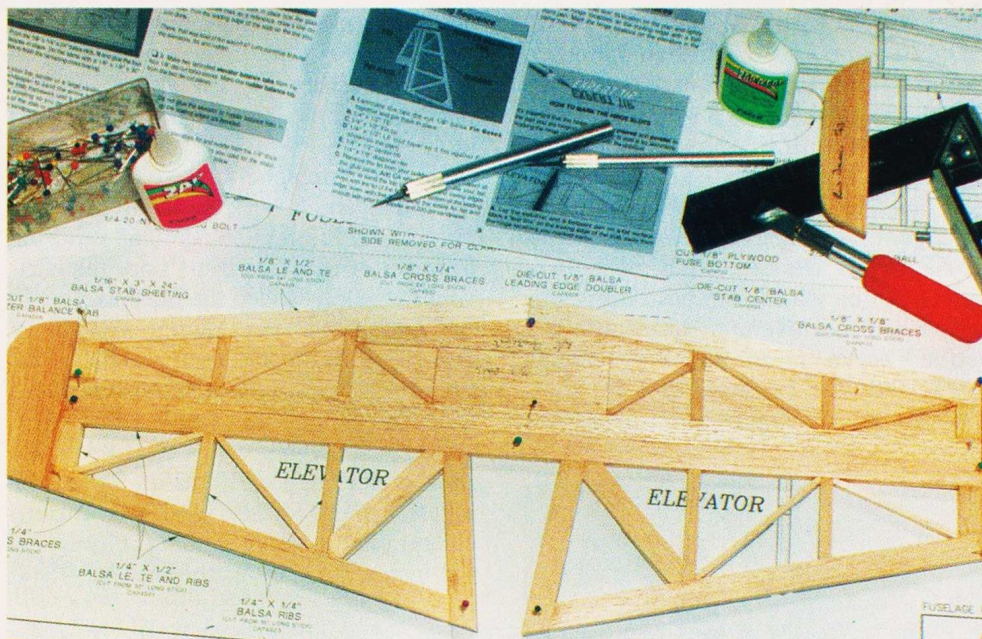
Open Sesame

This eye-catching box with a full colour lid showing the CAP in patriotic red, white and blue was sitting on the lounge floor. Not content with this, photographic and information panels adorned the sides giving more than sufficient details of model specification etc., to make a decision about purchasing the kit. If the box is this good, what will I find inside?

First out were two quality rolled plans full of information, including the installation of both the OS 46FX and OS 70FS engines used in the prototypes followed by an epic 43 page manual brimming with photographs, step by step instructions and professional tips; what more could you want? A large, three section cowl and wheel spats vac formed in thick ABS, and a crystal clear canopy individually packed and retained within the box - neat touch. A pre-formed aluminium undercarriage, adjustable engine mount and a very complete hardware pack (see photo) were followed by a fine selection of quality balsa packs, die-cut sheets of 1/8" liteply and 3/32" balsa that fell apart with little pressure. Lastly came a set of superb self-adhesive decals to provide that final touch. The CAP is clearly a builders model, no foam here, and although of simple construction may not be for the faint hearted when it comes to flying - we will see.

Tail end bits

These assemblies are simplicity itself, built up over the plan from 1/4 x 1/2, 1/8 x 1/4, 1/4 x 1/4 and 1/8 x 1/8 balsa strip into an open framework. The tailplane is covered with 1/16" sheet to add rigidity whilst the fin, enormous rudder and elevator are left open for lightness.



A clear plan and excellent instructions make building the CAP a pleasure.

Load bearing surfaces

The symmetrical section wings are built upside down over the plan. They are of standard box 'D' construction and slot together over 5/16" square hardwood spars, the 3/32" die-cut ribs having accurate location slots and jiggling tabs to assist alignment. A root rib dihedral gauge is provided and is used to set ALL ribs and the position of the bottom spar guaranteeing a perfect join of the two sections later.

The dimensions given in the instructions for cutting the leading edge sheeting left only a small contact area on the spars,

The bit in the middle

To quote 'Great Planes', "the CAP is a rather 'square' aeroplane with well defined lines", for a semi-scale sport model and therefore fuselage construction is simplicity itself, the whole assembly being interlocking die-cut 1/8" liteply. Square it all up and run thin cyano along the joints, Bob's your uncle, or should be. The cyano did not bond that well and a second application never works so a bead of PVA was run along all joints internally.

I concluded that the release agent on the ply combined with the lack of sanding

'The CAP is clearly a builders model, no foam here'

something to look out for. At this stage of construction those who have mixing facilities on their transmitter could fit a standard servo in each wing, instead of the single servo and torque rod system, to give flaperons.

Removing the jiggling tabs requires care and a sharp blade, it is very easy to cut too deep and split the rib (I learnt the hard way). A set of alignment jigs are provided and fit under the leading and trailing edges at the tip and under the trailing edge at the root. Short dihedral braces are clamped either side of the main spars, after applying epoxy. Weights are applied to hold the whole assembly firmly on the jigs until the glue has set. Once this has dried the centre TE section complete with torque rods is installed, the die-cut servo tray fitted, the centre section sheeted and the strip ailerons installed. The completed wing balanced with just a small block of balsa inserted at the port tip.



The beautifully die cut fuselage parts interlock to produce a strong, straight and accurate structure.

GENERAL INFO

Name:

CAP 232

Manufacturer:

GREAT PLANES MODEL MANUFACTURING CO.

Distributor:

RIPMAX PLC

Price:

£139.99

MODEL INFO

Model Type:

SPORTS SCALE

Engine/Motor:

.40 - .46 2 ST., .52 - 70 4 ST.

Test Engine/Motor:

SC 65 FS ABC

Construction:

TRADITIONAL Balsa/PLY

R/C FUNCTION

AILERON

ELEVATOR

RUDDER

THROTTLE

SPEC

Wing Span:

1473 MM (58")

Wing Chord:

325 MM (12.75")

Wing Chord Tip:

195 MM (7.625")

Wing Section:

SYMMETRICAL

Length:

1321 MM (52")

Weight:

6 LB

Construction:

simple / average / difficult

Flying:

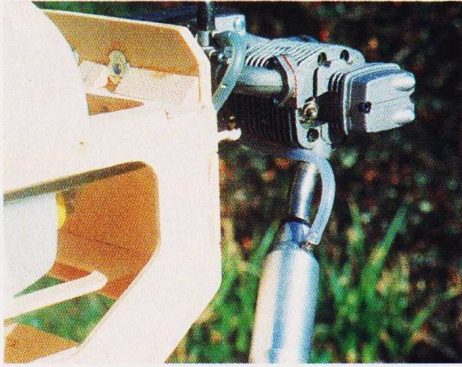
beginner / intermediate / experienced

Test Quality:

poor / adequate / great

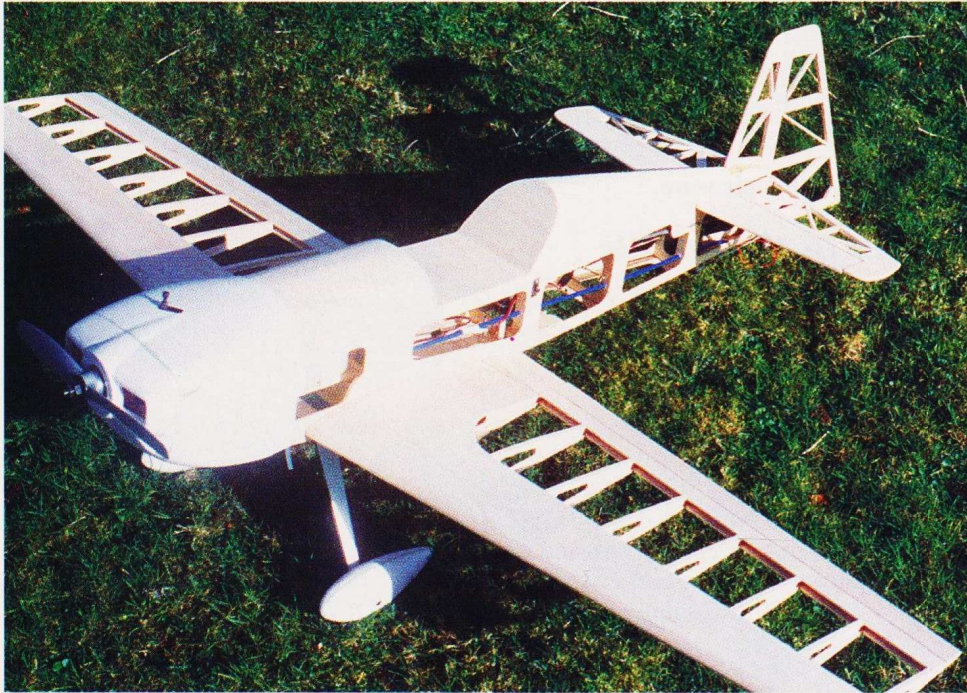
Flight Quality:

dangerous / standard / fabulous



The one area that gave me cause for concern was the position of the tank relative to the carburettor.

Elevator control is via two 16swg pushrods, one 2" shorter than the other, joined in front of the servo with two wheel collets, the longer wire is attached to the servo with a swing keeper. Both pass through plastic snake outers exiting the fuselage side under the tailplane where connection to the elevator horns is via nylon clevises. Physical adjustments can be made with ease using this system and positive control results. The rudder servo is mounted externally under the rear fuselage, not the best location when flying from a rough grass strip!



The completed airframe ready for the covering.

required on the edges, due to the high quality die-cutting, prevented the cyano from penetrating properly.

After fitting the tailplane the turtle decks, 3/32" sheeting over liteply formers, are next. Again care needs to be taken when cutting these sheets to obtain a good fit, taking ones own measurements before cutting is advisable. One idea that I will utilise in the future is that of dry fitting a spare piece of 1/4" sheet into the fin location and constructing the fairing around it, this avoids damage to the fin and makes for a tidy finish when removed.

A liteply tray carrying the 12 oz. SLEC fuel tank and Rx battery slots into the firewall and is held in place by a retaining bar fitted to F3. The fuel tank location gives me cause for concern, it's base being 2" below the engine centreline. If fitting four-stroke engines the battery is located aft of the wing. My Futaba R138DF receiver was installed next to the elevator and throttle servos, Futaba S148's were used throughout.

Cowls and Spats

The ABS cowl and spats should not have presented me with any problems but the trim lines on the spats were non-existent, yours truly cut them a tad on the small side leaving a tight fit on the wheels after assembly. Although they enhance the looks of the CAP the spats will have to be removed when flying off grass strips, those flying from metallised surfaces need not worry.

No mistakes with the three cowl sections, the trim lines were clearly defined. Positions for the rocker cover, exhaust, main needle and choke lever were marked and cut prior to final fitting. Imperfections in the joints were filled with car body filler and sanded with fine wet and dry prior to painting.

Finishing touches

My SC 65FS ABC with a 'Graupner' 12 x 6 prop fell within the recommended engine range, fitting snugly into the

adjustable mount. The mount location is pre marked on the firewall and offset to compensate for the 2° side thrust, another indication of the forethought put into this kit.

The ABS components were flatted back with wet and dry, sprayed with epoxy primer and finish coat. 'Profilm' covering trimmed with 'Solartrim' and the self-adhesive decals added the finishing touch. An 'Action Man' cut down to size (about time someone did it!), fitted into the office, not to scale perhaps but he fills the space well. The canopy was screwed into place with 1/4" self-tappers, a method that I now prefer to use. It makes for easier access if the pilot gets airsick or tries to escape after a heavy landing, however - full instructions are in the manual if you must use glue.

Initially weighing in at 5 lb. 10 oz the CAP needed the RX battery re-located in front of the tank plus 6 oz. of lead strapped to the hatch before balancing at the C of G, a total weight of 6 lb. With a wing area of 594 sq. ins. this gives a wing loading of 23 oz./sq. ft.

A wing and a prayer

I have the wing, and pray that this terrible weather will break on at least one day to test fly the CAP. A week later the wind dropped to a gentle breeze and the sun shone. An evening phone call from Chris Cross, close friend and test pilot saw me hastily checking everything before setting out.

A local beach was used for the test flight, two miles of firm damp sand being a great alternative to the club strip, which needed filling and rolling due to the cattle hoofs. Another club member, Brian Grimstone, was on hand to help with the starting etc. The SC was fired up, control surfaces checked for orientation on full power and a range check completed then Brian carried the CAP out to the strip for her maiden flight.

Chris opened the throttle and down the beach she sped. Lift off was as smooth as a baby's proverbial with a steady climb out into a circuit. Two clicks of down elevator and two of left aileron trim saw her straight and level into wind.



Even Action Man needs some light reading from time to time!

"What's she like Chris "? I asked, "Beautiful " was the reply, that one word said it all. A little more height was gained before testing the stall, what stall? The CAP just nodded its head, dipped into a shallow dive and returned to level flight, no sign of a tip stall either. Chris put her through her paces starting with a perfect loop, stall turns, rolling circuits, flick rolls etc., all performed with ease aided by that enormous rudder, although the engine did run rich when inverted, due to the tank position. The landing approach had to be fast to maintain control, there being no wind by now, but she was placed gently back on terra-firma. A loose exhaust and the tide rushing in forced us to call it a day.

We were back two days later, this time Chris had the camera and I had the shakes. A fresh breeze greeted us and having observed the usual checks I taxied the CAP out. After a short run, she leapt up, almost into a stall, my fault, 'Great Planes' and Chris had warned me that the elevator was effective, even on low rates. With nerves settled a few circuits were done to 'get the feel' before undertaking some basic aerobatics, no sweat she is a pussy-cat if treated gently. By now the light was fading so a gentle landing, much assisted by the breeze, was made and a

very happy reviewer cleaned his model and headed homewards.

Lasting impressions

The CAP is not for the faint-hearted and requires a degree of skill to fly but is stable enough for those who desire to move on from a low wing trainer. In expert hands it will do the proverbial book!

More pros than cons about this kit - 'Great Planes Model Manufacturing Co' have produced a great plane (pun intended). I would have preferred the inclusion of fibreglass cowl and spats for ease of repair when necessary; a spinner, wheels and tank would have completed the perfect kit.

With an RRP of £139.99 this kit may be a bit more than others of this type, but the quality stands out. Tremendous effort has

been put into its development making it simplicity itself to build an accurate model. I will definitely purchase another 'Great Planes' kit.

Many thanks to Chris Cross for his invaluable input and of course Brian for his help on the day.

RCMW

Mike Jeenes



The grin says it all, he enjoyed that!

Mike getting to grips with the CAP.

