

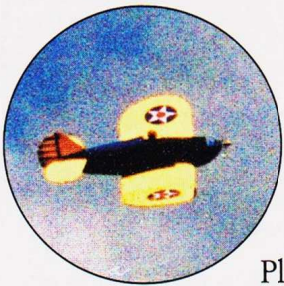
Great Planes *SlowPoke*



A different looking, fun-to-fly model airplane.

With a wingspan of 50 inches and a geared Kyosho Endoplasma motor for power, the SlowPoke makes a nice electric airplane. A relatively easy model to convert to electric power, the SlowPoke isn't for beginners, but if you have solid flying skills it should deliver a lot of fun flying.

STEFAN VORKOETTER



While in Syracuse, New York, I visited Walt's Hobby Shop. There I saw the Great Planes *SlowPoke*, a pudgy, comical looking, open cockpit, low-wing monoplane designed for a 0.10 to 0.25 glow engine. Not long after, an e-conversion review opportunity was offered for the *SlowPoke*. I gleefully accepted. A week later, a colorfully decorated, densely packed box of balsa, ply, and other interesting bits arrived from Great Planes.

Construction

The instructions are well laid out and thorough, describing and illustrating all steps of the construction. I will describe areas where I had trouble, deviated for personal preferences, or made changes for electric conversion.

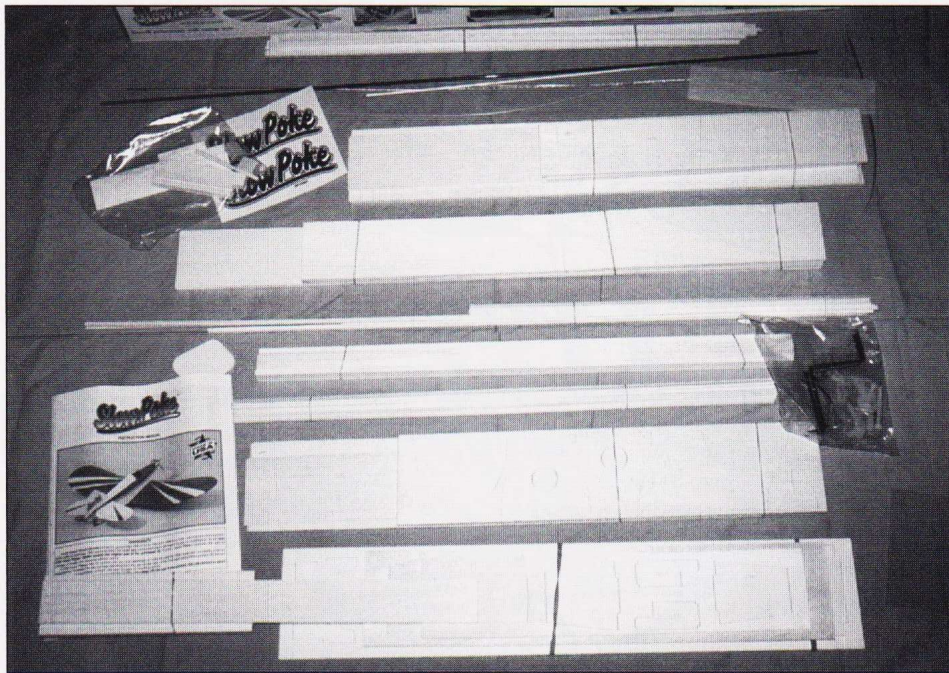
Nowhere in the plan or instructions is there a mention of electric power. This is a shame because the conversion is easy and the huge wing area, light weight, and robustness of the plane make it an ideal e-flight prospect.

Tail Feathers

Construction starts with the stabs, elevator, and rudder. All are built from sticks and die-cut pieces. The die cutting is the best I've ever seen on wood this thick. I selected the strongest pieces of 3/16 inch x 1/2 inch stock to take the most stress (stab leading and trailing edges).



Close-up of the motor and Master Airscrew 3:1 gearbox mounted in place.



Kit box and contents. Lots of die-cut balsa and ply, many sticks, and a complete hardware package.

I substituted a longer dowel for the elevator joiner — long enough to reach to the first rib on each side. I filled the area around the dowel with white glue to assure a good bond.

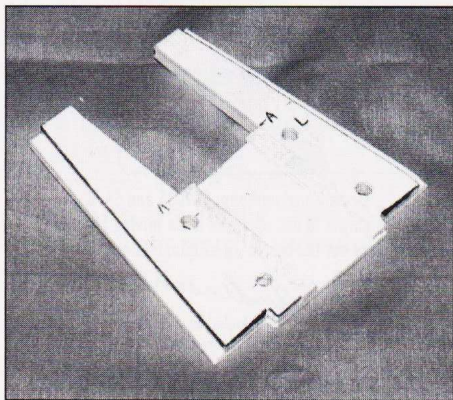
When cutting the fin leading edge, note it extends into former F6.

The Wing

The wing went together easily. All of the parts fit well, except for one W3 rib which had slightly misplaced and misshapen slots, resulting in gaps I filled with balsa scraps.

When drilling the holes in the W2 and W3 ribs, stack them up, align them with scraps of spar material in the spar slots, and drill all the ribs at once to ensure they all line up.

The instructions for the sub-leading-edges tell you to cut two pieces, but there's no reason not to make one long piece. Otherwise, you end up with a



Bottom view of upper and lower motor mount assembly.

gap in front of the thick, W1 rib.

The supplied shear web material didn't reach from rib to rib, so I cut webs out of some wider material. Shear webbing is stronger when it completely fills the space between ribs. The center section sheeting pieces should be cut to 6-7/8 inches as shown on the plan, not 7-1/4 inches as in the instructions.

Before installing the sub-leading-edge, pin it against the ribs, flush with the bottoms, and mark where it meets

the top of each rib. Unpin it, connect the dots, and cut the excess off. It's easier than trimming it after it's installed.

The instructions and plans disagree on the wing panel joining dowels. The instructions show the dowels extending through two ribs in each panel, but on the plans, the dowels extend only past the tip section's first rib. As such, these are only alignment dowels, providing little strength. The tips are effectively just butt-glued to the center section. This worried me, but once glued together, the wing is quite stiff, so I didn't reinforce this area. It's important to get the mating surfaces flat for the largest possible gluing surface with the least amount of glue.

As with the sub-leading-edge, I used a single piece of material for the center section leading edge, notched to fit around the wing hold-down peg.

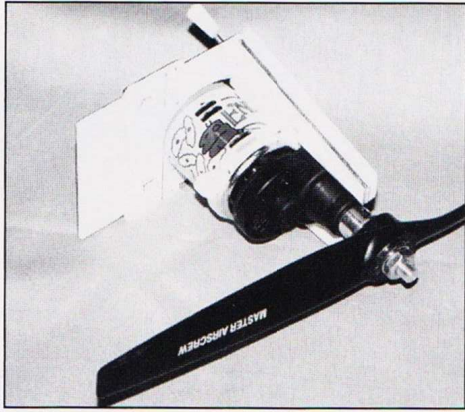
Lower Fuselage

The fuselage is a combination of die-cut sheet and stick construction. The bottom front half is a box. A stick-framed empennage is built onto the back of this, with a stringer and former superstructure on top. Construction is a matter of adding pieces until everything is finished. The parts fit well and the fuselage goes together quickly.

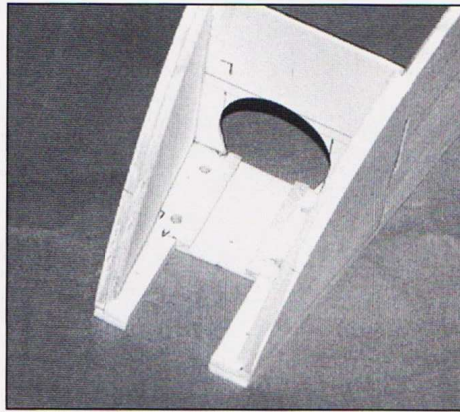
I left the servo tray cutout for the throttle servo in place (and glued it) to provide a place to attach the receiver

S P E C I F I C A T I O N S

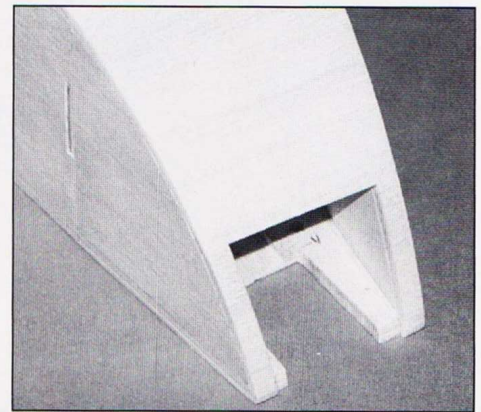
PRODUCT:	Slow Poke
MANUFACTURER:	Great Planes Model Manufacturing
MODEL TYPE:	0.10 to 0.25 sport plane
PILOT SKILLS:	Intermediate
WING SPAN:	50 in. (1.27 meter)
LENGTH:	36.5 in. (0.93 meter)
WING AREA:	657 in. ² (42.4 dm ²)
WEIGHT:	4 lb (1.8 kg)
WING LOADING:	14 oz/ft ² (43 g/dm ²)
AIRFOIL:	Flat bottomed Clark Y-type
FUNCTIONS:	Throttle, rudder, elevator
CONSTRUCTION:	Built-up balsa and plywood
PRICE:	\$55.00-\$60.00 (US), \$95.00 (Canada)
HARDWARE:	Preformed landing gear wire, hinges, control horns, pushrods, clevises, tail wheel assembly, hinge material
HARDWARE NEEDED:	3 in. lightweight wheels, 5/32 in. wheel collars, 1-1/4 in. tail wheel, 3/16 in. wheel collars, 1/5-scale pilot, spinner or 1/4-20 "heavy" prop nut as needed to balance
AVAILABILITY:	Local hobby shop or by mail order



Firewall, motor mount, and power system temporarily assembled.



Bottom view of motor mount, installed on the fuselage.



The chin sheeting stops short to allow the motor to slide in.

with Velcro®.

The bevel of the tail post didn't match the angle at which the fuselage sides met, so I carved a new one.

I drilled and tapped the wing hold-down plate, but the provided bolts were a very loose fit. I tried a different set of 10-32 bolts I had on hand, and they fit quite snugly, so I used them instead.

Firewall and Motor Mount

The firewall and motor mount are the first place I deviated significantly from the instructions, since I was installing an electric motor. After placing the motor (a 16-turn car motor) and gearbox (Master Airscrew) on the plan in several orientations, I came up with a mounting method I liked.

My *SlowPoke* kit came with an addendum, describing an error in the Upper Engine Mount part. The punch marks used to set right-thrust were punched to give left thrust instead. The fix is to drill through the punch marks, turn the panel over and work from the other side. Temporarily clamp the Lower Engine Mount centered on the upper one, and drill through both at once to provide alignment holes.

Mark the bottom of the Lower Engine Mount as shown in Figure 1. The two long lines are parallel to the two alignment holes. Line A-A is at right angles to these. Cut along the parallel lines from the rear of the mount up to A-A. Align and glue the lower mount to the bottom of the upper, but do not apply glue to the area between the two cuts. When dry, cut along the parallel lines again, this time from the front to A-A, and then cut along A-A. Glue some 1/8-inch x 3/16-inch (3 mm x 5 mm) balsa rails to the bottom of the upper mount against the cut edges of the lower mount. Finally, drill some holes on either side large enough to pass nylon cables ties through. Your "engine mount" is now a "motor mount." See the photos for clarification.

The firewall, F1, needs a hole in it to let the motor (and cooling air) pass through, as illustrated in Figure 2. Again, please see the photos.

When you sheet the lower cowling, stop short of the motor mount so you can slide the motor in from the front. This also leaves an opening for cooling air to enter. Apply a narrow strip of sheeting on either side so no gap is visi-

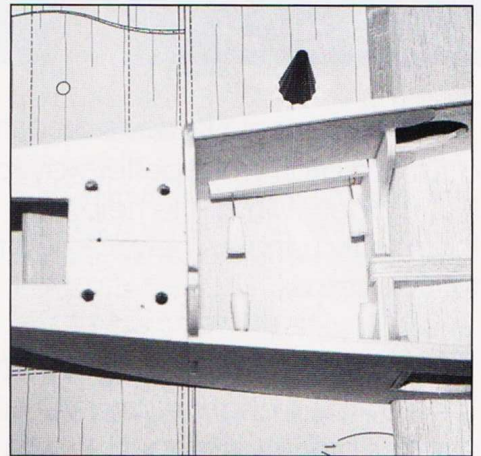
ble from the sides.

I built a 1/8-inch-thick balsa shelf behind the firewall to hold the speed control. The shelf sits on balsa bearers attached to the fuselage sides, and I attached the speed control to it with Velcro.

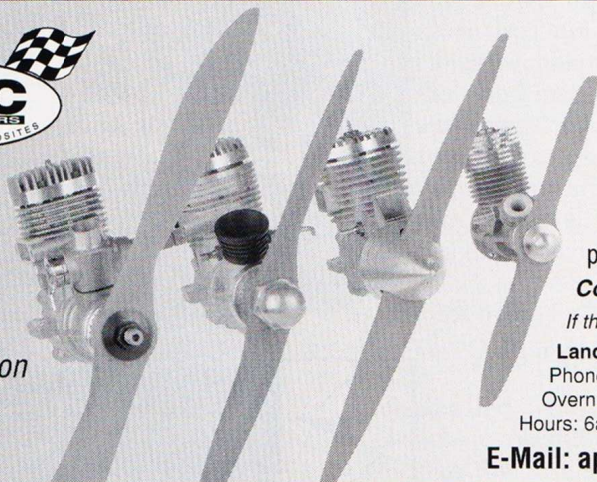
Upper Fuselage

The upper fuselage is built on top of the lower fuselage, and provides the pleasing "Golden Age" look of this plane. The upper fuselage structure is built around the tail feathers, so they must be installed first. When installing

Bearers for a shelf to hold the speed control.



The
No. 1
Choice
of Competition
Modelers
Worldwide!



Competition propellers for the intermediate and advanced sport flyer as well as the competition community. Advanced designs using modern computational methods and materials. Over 300 pitch / diameters available ranging from slow-flyer electric to High performance Giant Scale Unlimited Racers.

Visit the **APC Prop Website** for detailed information on product design and current product availability

Contact your local hobby dealer first.

If they don't have what you need, order direct from:

Landing Products 1222 Harter Ave., Woodland, CA 95776

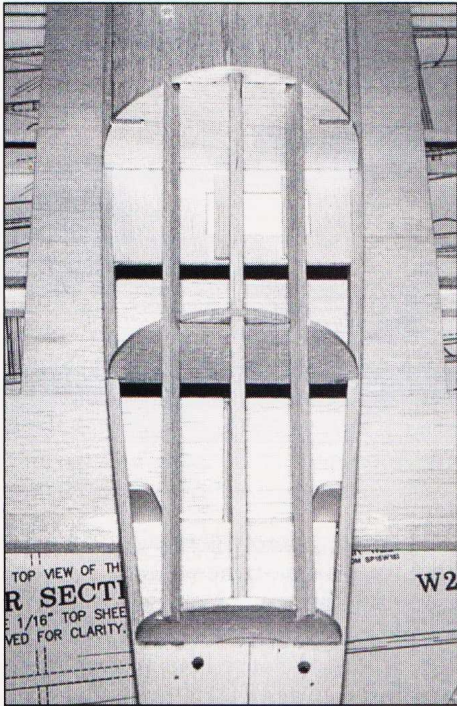
Phone (530) 661-0399 or visit our convenient web site.

Overnight delivery is available and all props are in stock.

Hours: 6am - 2pm PST



E-Mail: apcprop@aol.com • Home Page: www.apcprop.com/



Modified forward fuselage superstructure.

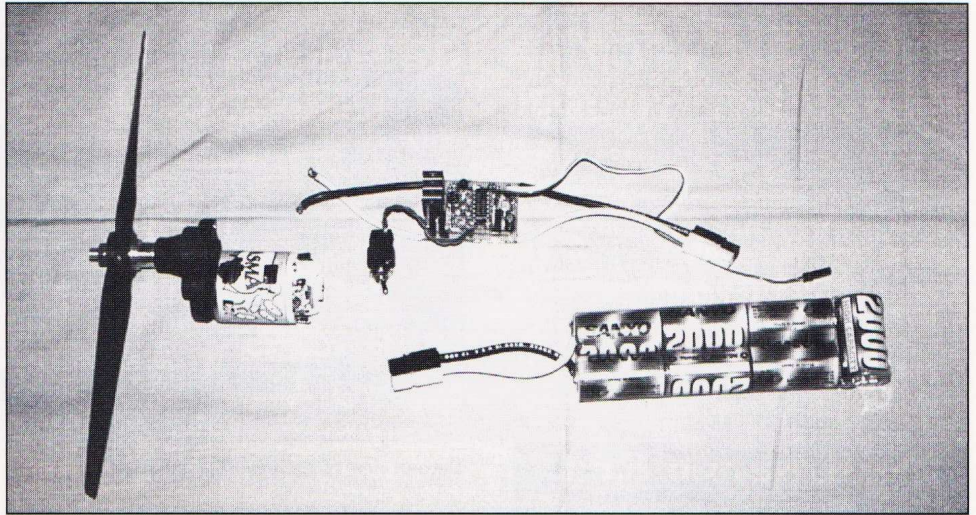
F4 and F5A, install F5A first so that you can use a square to ensure that it is perpendicular to the lower fuselage.

I wasn't thrilled with the turtle deck top, a piece of 1/4-inch balsa sheet that must be cut, carved, and sanded to shape. This is heavy. And, it's a shame to cap such a nice structure with a block of wood. I installed a 3/16-inch (5mm) hard balsa stringer on top instead, glued to the back of F4 (which I built up to have a rounded top), the top of F5 and the front of the fin. I installed softer 3/16-inch strips on either side of the fin to provide a surface to attach the covering.

The forward superstructure consists of three formers and two stringers, sheeted up to the stringers and capped with yet another block of carved balsa. Formers F1A, F2A, and F3A have flat tops, which I built up to be rounded. I installed an extra stringer between each pair of formers and sheeted the entire front structure. To keep the cockpit walls from bulging, I glued 3/16-inch square balsa inside the edges.

The complete airframe, without landing gear, came to 19.7 oz (558g).

The box mentions the *SlowPoke* can be framed-up in a weekend. Mine took 22 hours, which is a big chunk of a weekend to spend building an airplane, so I'd suggest spreading it out over several weeks. I spent another 34 hours covering and completing the model and devising a battery holder.



Power system components. A 10x6 propeller, Master Airscrew 3:1 gearbox, Kyosho EndoPlasma motor, home-made speed control, and 7xRC2000 cells.

Equipment Installation

The orientation of the servos shown on the plan is incorrect. The servos must be installed as shown in the instructions, with their output shafts towards the rear, or the supplied 0.072 inch (1.8mm) music wire pushrods won't be long enough (they were still just barely long enough; an extra 1/2 inch on each rod would have helped).

When I cut the slot in the tail post for the tail wheel assembly, the tail post split. After gluing it back together, I glued a 1/32-inch (0.8mm) plywood gusset under the base of the tail to prevent this from happening again. I also filed a groove into the tail and a corresponding one into the rudder so the tail wheel hinge line would line up with the rudder hinge line. The result was a freely moving rudder and tail wheel.

Covering and Detailing

I've always liked the between-the-wars blue and yellow trainer scheme used by the U.S. Army. The *SlowPoke* reminded me of a similarly colored, control line, PT-19 my father flew when I was little. I used Cub Yellow and Royal Blue Monokote, but I think Lemon Yellow and Insignia Blue might be more authentic. I painted the anti-glare coating in front of the cockpit with flat black enamel after scuffing the covering with fine steel wool. I put 6-1/2-inch Sig Army Star decals on the wings.

At the controls is a Williams Bros. Standard 2-5/8-inch, 1/5 Scale Pilot (#17700).

The supplied windshield is very thick, and I worried that it wouldn't stay stuck to the fuselage (especially

since I painted that area), so I pre-shaped it by curving it around a coffee can and heating it with a heat gun. I glued it on with RC-Z-56.

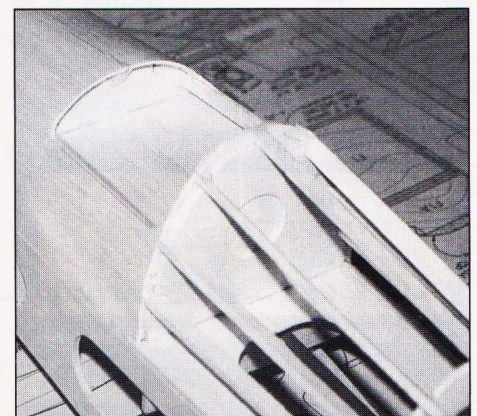
Power System

I used a Kyosho *EndoPlasma* 16-turn motor, Master Airscrew 3:1 gearbox and 10x6 propeller. On seven RC2000 cells, this draws 26A, turns the propeller at 8400 rpm and produces about 34 ounces (960g or 9.4N) of static thrust.

I didn't make any provisions for the battery until I knew where it needed to be to balance the plane. As it turned out, the battery has to be as far forward as possible. I assembled a battery box from 1/16-inch (1.6mm) plywood, and installed it in front of the wing, extending rearwards and downwards from F1A. This holds the battery securely, but I have to remove the wing to change the battery.

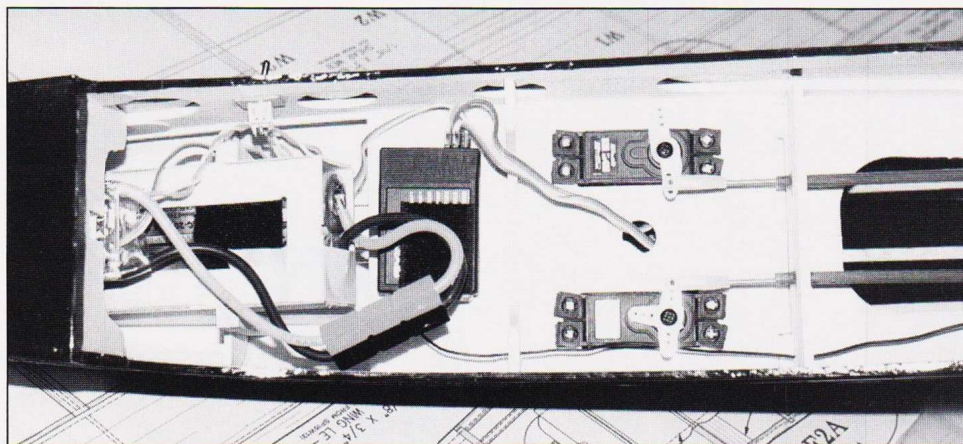
I used the speed control described in my July 1999 construction article in *S&E Modeler*. I soldered the ESC leads

Fully sheeted front superstructure.



to the motor and slid the whole assembly in through the front of the plane. Two 10-inch-long cable ties hold the motor to the firewall, and a third cable tie in front of the gearbox keeps it from shifting forward.

With the battery all the way forward, the *SlowPoke* was still tail-heavy. I needed an extra 3 ounces (85g) at the very front to balance in the recommended location. I purchased a 2.5-ounce brass prop-nut and an APC 10x6 propeller, which is heavier than a



Bottom view of equipment installation.

Master Airscrew.

The ready-to-fly weight came to exactly 4 pounds (1.8kg), which is 8 ounces (227g) over the top of the suggested range. The wing loading is only 14 oz/ft² (43 g/dm²), and the power loading is 43 W/lb (95 W/kg), which is adequate for this aircraft.

Flying

This is my first wheeled aircraft. I've hand launched my models, flown them off snow and water (with skies and floats), but never the ground, so I was apprehensive. The first flight was early the morning of the annual *Electric Model Flyers of Southern Ontario George Ball Memorial Fun-Fly*. My E-flight buddies were present and words of encouragement flowed freely, so off we went into the wide blue yonder. Alex Nicolaou was the official photog-

rapher.

I applied power gradually and matters took care of themselves. The tail came off the ground quickly and little rudder correction was needed. With the forward, wide-stance landing gear, there was no tendency to nose-over or ground loop. After about 100 feet, I pulled back gradually on the stick and the *SlowPoke* took to the air. I made it turn in a slow climb. Although the elevator was quite sensitive, I quickly got used to it, but had to hold some up-elevator. I flew circuits with it for a few minutes and decided to land before the BEC cut off the motor power. The approach was uneventful and I flew it to a nice two-wheeled landing. The *SlowPoke* came to a stop in about 50 feet (15m) or so. Phew!

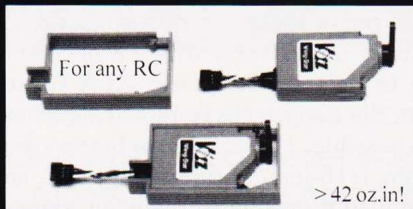
I had two more flights that day with the *SlowPoke* and in both cases "landed"

New Servo Era

Can you imagine a RC Jet model faster than 250 mph - worth even more than \$ 10,000 - every function controlled by servos only 3/4 oz. light and 3/8" thin?



Steve Volker became Jet Vice World Champ '99 with our Volz Wing-Maxx and Micro-Maxx Servos. A new Era of Servo Technology has just begun!



Our German Made Servos are used for setting new Speed World Records and for winning F3B & F3J Sailplane- and F5B Electroflight Championships.



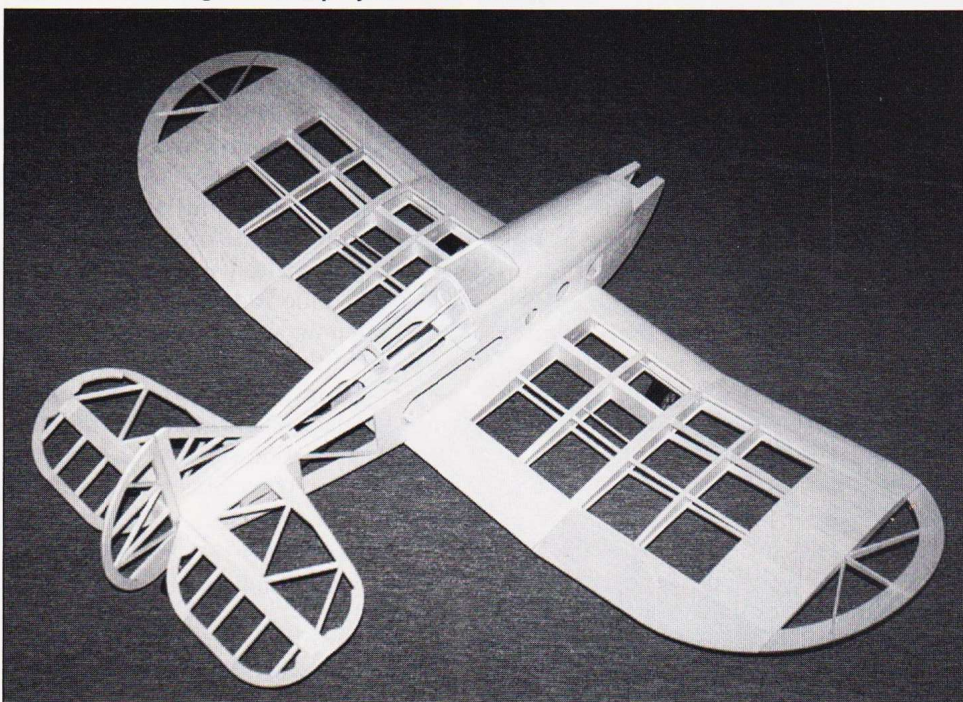
Tested for > 500,000 cycles Volz Servos offer a proven long precision service!

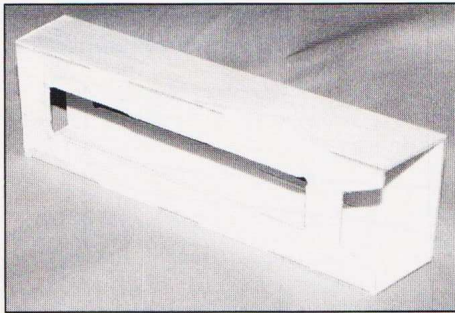
Volz Servos are made for YOU, use what the world's best choseVolz!



Visit & Win on: www.volz-servos.com
e-mail: mail@volz-servos.com
Fax + 49-69 -887635 Phone -887070

Stand back ... take a good look ... pat yourself on the back.





Battery box from 1/16-inch (1.6mm) ply. The beveled end goes up against F1A. The notch is to clear the motor.

it in the rough (pilot error) and bent the landing gear, which absorbed the impact and prevented any other damage.

I decided I had been over-zealous in getting its center of gravity (CG) to the suggested location and that the plane was nose-heavy. I replaced the APC prop with the lighter Master Airscrew and flew it again the next day from a paved runway. The *SlowPoke* required less up-elevator now. I flew it in circuits and did a few loops from a slight dive, then turned off the motor and set up for a dead-stick approach. The *SlowPoke* glides well with the prop stopped. It came in a bit fast, bounced back into the air and came down rather hard, bending the landing gear once again.

What's Next

My next step will be removing more weight from the nose and making a set of landing gear with coil springs to take more abuse without staying bent. A set

MULTI-MOTOR MODELS

TRIPLE TRISLANDER AND THE TWIN ISLANDER

Trislander \$250

Islander \$230



Satisfying to build and great fun to fly!

62" span
3.5 lb weight
18 oz/sq ft loading

Airfreight & packing \$25

Neat Special Features!! Landing light (v. visible) and flaps for slow, steep approaches (need 5 or 6 channels). Super complete kits include all wood, 3 (or 2) x "400" motors+props+adapters+spinners, 5 wheels, 2 rolls Easycoat (choose 2 of red, wh, blu, sil, yel, grn - also give 2nd choice), fittings, etc.

Interesting and unusual CNC cut balsa models for the new millennium

Essential Extras!!! 3 x 9gm servos \$20 ea; 35 amp BEC sp/Cntrlr + choice of 4 mm or Sermos cnctrs \$65; 8.4v 3000 mAh NiMH pak \$65 - same weight as old 2000s.

INTRO SPECIAL! Free freight on whole package

MULTI-MOTOR MODELS TEL/FAX: 44 29 2086 1111
Unit 15, Gweithdai Greenway, Caerphilly, CF83 8DW, U.K.

of skis (*SnowPoke?*) and floats are also in my plans. I'm also going to make the battery easier to replace, and create a snap-on cowl/battery hatch to cover the empty space where a glow motor would go.

Conclusion

I was very impressed by this kit. It went together easily, required few modifications to convert to electric and it flies well. Further, it's kind of cute. This is my first "traditional" plane and I really like it.

There were only minor construction problems. I'd highly recommend this

kit to anyone who wants a different looking, fun, sport airplane. Although the *SlowPoke* has a low wing loading, it isn't really suitable as a trainer (nor does it claim to be), but it would make a great second plane. ■

Happy landings!

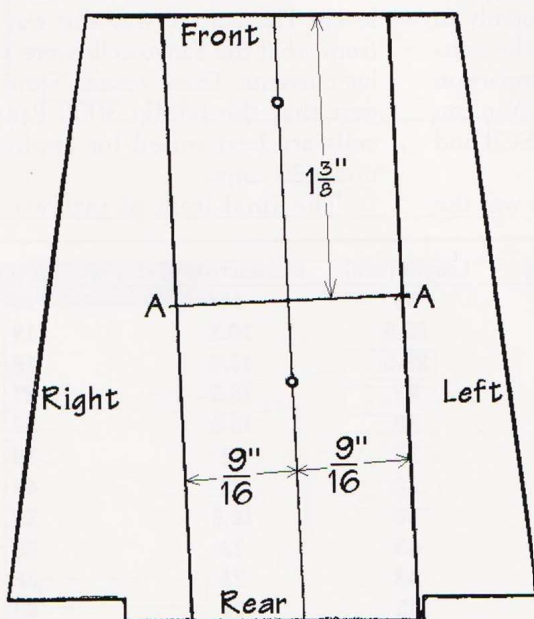


Figure 1. Lower engine mount cutting template (bottom view).

SlowPoke Electric Motor Mount Templates

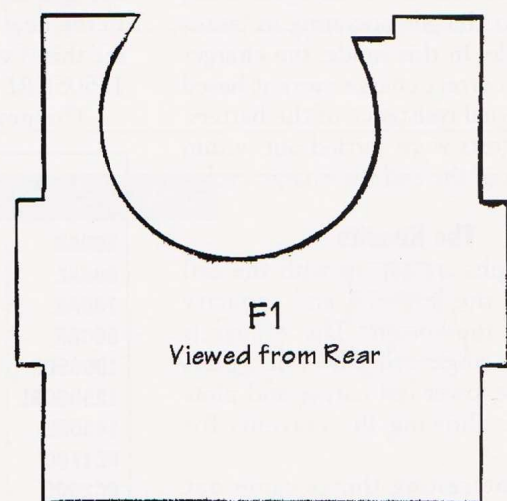


Figure 2. Former F1 cut to allow motor to pass through.