



# ASTRON .40

**By Bill Evans**

It was inevitable that interest in the .19 powered Astron would lead to the development of the Astron .40 which, due to the wing area, could more appropriately be called the Astron eight-eighty.

Those who have built, seen, or flown the Simitar 540 (RCM Oct. 78) will be interested in knowing that the Astron .40 can fly faster and slower than the 540. Though the Astron .40 can be flown two channel (aileron and elevator), it is recommended that it be flown with four channels — the two additional channels for engine control and nose wheel steering.

The Astron .40 is definitely new and different — always a crowd pleaser! Witness the fact that the Astron in the air, with its X-wing configuration, will not only stop cars passing the field but the drivers eventually get out, run across the field and ask "Do you guys fly these for the movies or TV?"

Obviously the development of the Astron .40, from start to flying, has been a successful and rewarding project.

For your convenience Astron .40 wing cores (\$18.00) and 1/64" plywood sheeting (\$16.00) may be ordered from

**The Astron is not only a practical design which places X-wing flight within the reach of all RC'ers, it is the first X-wing design to fly!**



Designer Bill Evans and one of his fleet of outer space vehicles.

Soaring Research, 19216 Calvert St., Reseda, CA 91335, telephone (213) 344-6391. Add \$2.00 for shipping, California residents add 6% sales tax.

## Materials

- 3 — 1/4" x 4" x 36"
- 4 — 1/4" x 3" x 36"
- 1 — 1/8" x 2" x 36"
- 1 — 3/16" x 4" x 36"
- 1/64" plywood 12 sq. ft.
- (or equivalent) 1/16" balsa sheet

## Construction

Glue and pin 1/8" balsa leading and trailing edges to foam cores. Make sure to keep wing panels free from bends or warp.

Cut out fuselage parts sides, top, bottom, formers and firewall.

Pin fuselage bottom down on a flat surface.

Glue and pin fuselage sides to fuselage bottom.

Glue and pin 1/2" triangle stock into the bottom inside corners (where the fuselage sides meet the fuselage bottom).

Glue firewall in place.

Glue 1/2" triangle stock to the top inside edge of the fuselage sides.

Glue and pin fuselage front top 1/4" sheet in place.

Glue and pin in rear former, corner triangles, and top and bottom.

Glue and pin in nose filler blocks.

Trim and sand leading and trailing edges of wing panels so that wing sheeting will fit nicely over them.

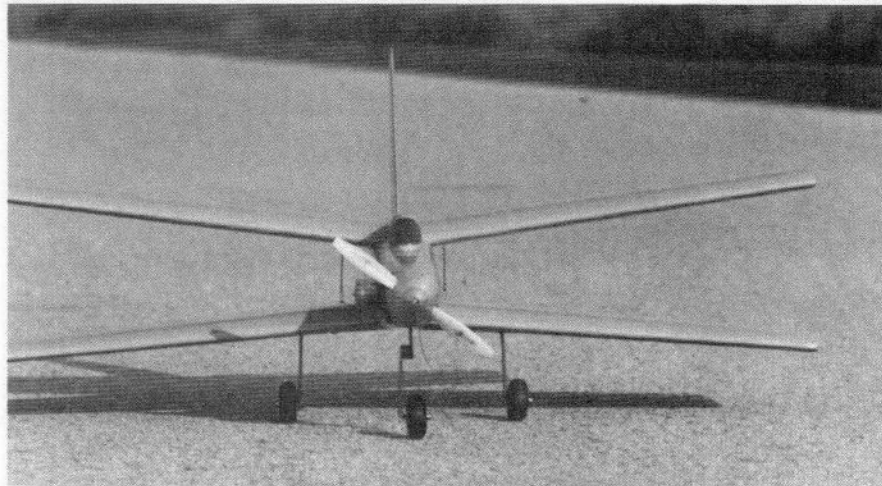
Sheet wing panels using contact cement such as Sig Corebond or the new double sided sheeting transfer tape "Corefilm" (Corefilm is a new product available from Soaring Research).

Join wing panels with 5-minute epoxy. The top wing has 3" of dihedral under each tip; bottom wing has 2" of anhedral. (The bottom wing joint is best made by setting the panels upside down on a flat

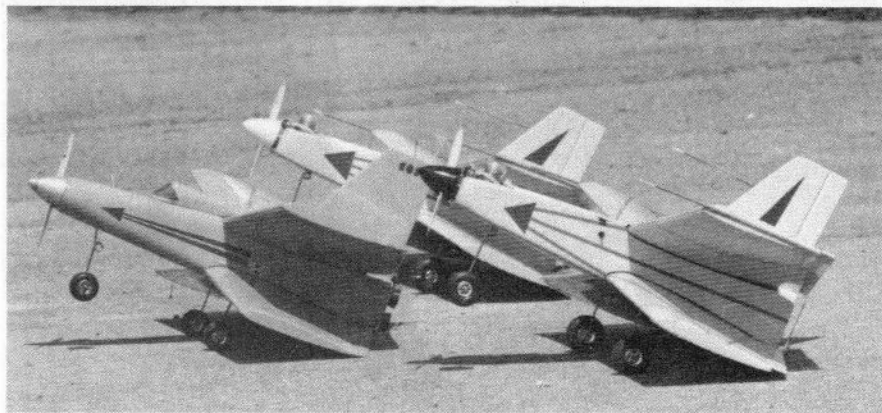
surface and blocking each tip up 2".) Sand front of fuselage square, and glue 1/16" ply nose ring. Trim and sand wing leading edges and glue on 1/4" balsa leading edge. Cut and sand elevons, vertical stabs, and wing tip plates to shape. Trim and final sand wings. Trim and sand fuselage to shape. Cover all parts with your favorite covering material (for the original we used orange Solarfilm). Hinge elevons to the wings (to provide for free movement and to eliminate hinge line gap; Solarfilm or MonoKote hinges should be used).



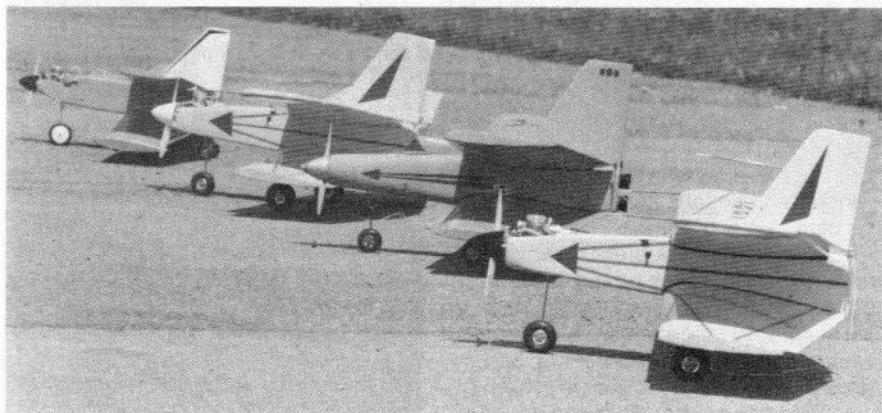
Above is David Herbert of Kraft Systems with his Astron 40 which he flew to 4th Place in the Unlimited Class in the 7th Annual Multiwing Championships at Omaha, Nebraska. Dave's trophy was separated from the First Place trophy by only 8 points. This certainly proves that the Astron has more than sufficient pattern capability.



Looking at the business end of the Astron which shows off the X-wings.



Cluster of Astron .40's poised for launch.



At left Astron (K & B .21 powered). Right three are the larger K & B .40 powered version. Successful formation flying with these look-a-likes is an accomplishment.

## ASTRON .40

Designed By : Bill Evans

### TYPE AIRCRAFT

X-Wing

### WINGSPAN

40 Inches

### WING CHORD

13 1/4" Root — 9 1/2" Tip

### TOTAL WING AREA

920 Square Inches

### WING LOCATION

Top & Bottom of  
Fuselage Pod

### AIRFOIL

Semi-Symmetrical  
Reflexed

### WING PLANFORM

Swept T.E.

### DIHEDRAL (TOP WING)

3 Inches Each Tip

### ANHEDRAL (BOTTOM WING)

2 Inches Each Tip

### OVERALL FUSELAGE LENGTH

28 1/2 Inches

### RADIO COMPARTMENT AREA

(L) 12" x (W) 2 1/2" x (H) 2 1/2"

### VERTICAL FIN HEIGHT

8 1/2 Inches

### VERTICAL FIN WIDTH (incl. rud.)

6 1/2" Average

### REC. ENGINE SIZE

.40 Cu. In.

### FUEL TANK SIZE

6-12 Ounces

### LANDING GEAR

Tricycle

### REC. NO. OF CHANNELS

4

### CONTROL FUNCTIONS

Elevons (2), Throt. (1), Nosewheel (1)

### BASIC MATERIALS USED IN CONSTRUCTION

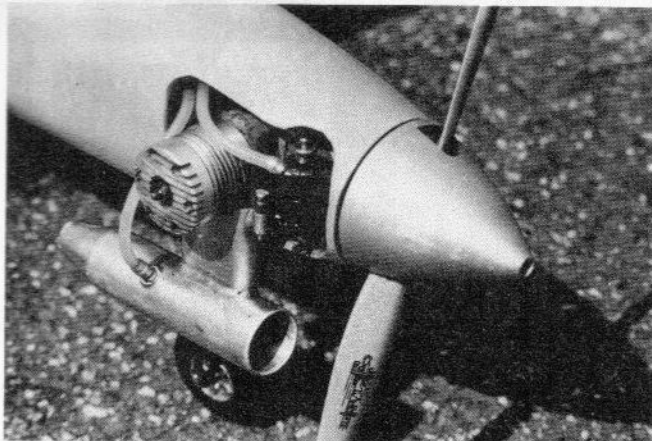
Fuselage ..... Balsa, Ply

Wing ..... Foam and Ply

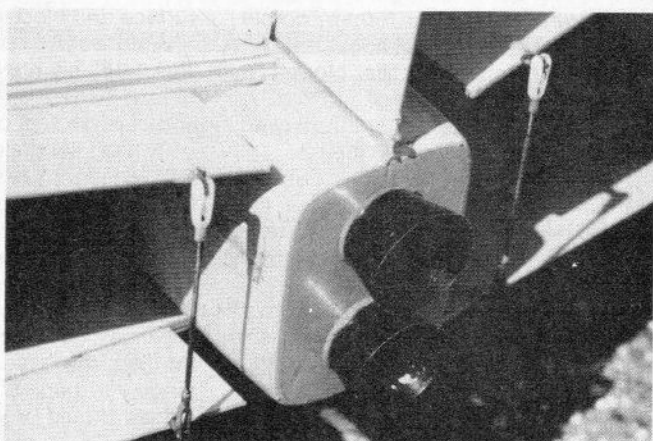
Empennage ..... Balsa

Wt. Ready-To-Fly ..... 80 Ounces

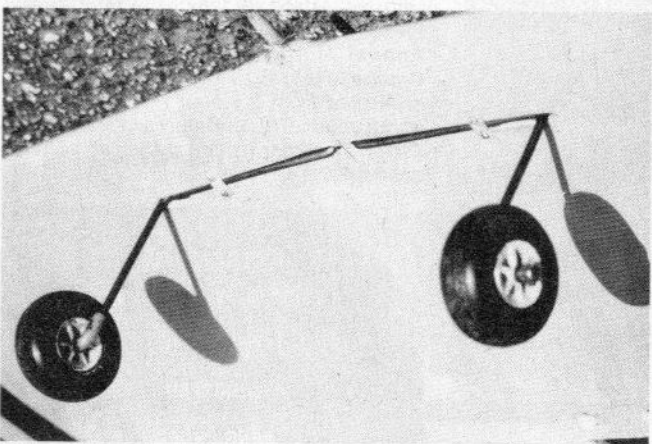
Wing Loading ..... 12.5 Oz./Sq. Ft.



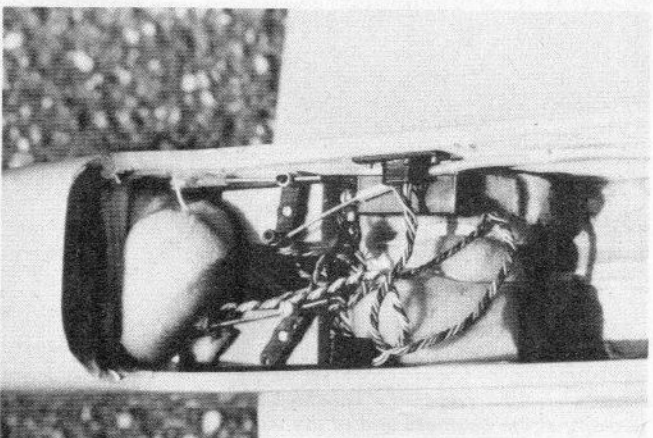
Side mounted K & B .40 with Zinger 10/6 prop and CB spinner. Tank is pressurized for maximum output.



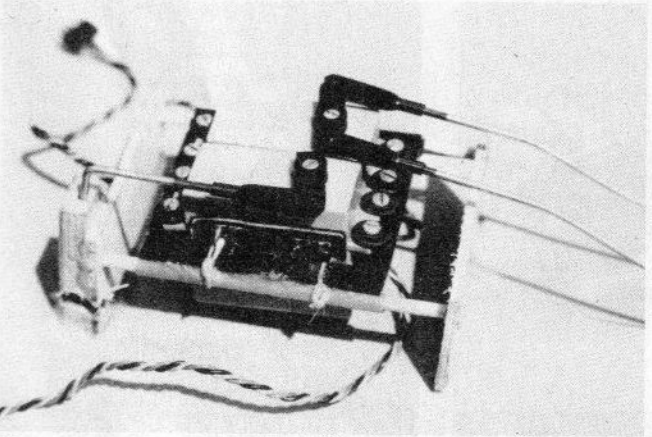
Aft view showing elevon linkage to top wing. Servos located in lower wing. Tailpipes add to looks.



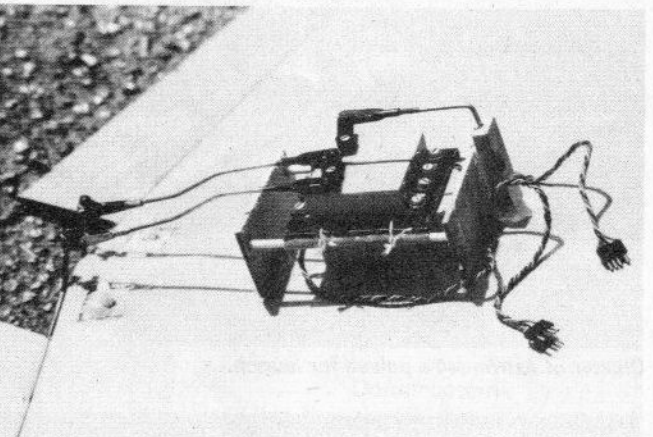
Conventional mounting on fixed main gear. A set of retracts would be fantastic.



Inside fuselage showing nose wheel and throttle servo. Note linkage going to rudder which was tried on one or two prototypes.



Elevon servo installation showing sliding tray. Simple and quick to make.



Another view of elevon servos from right side.

Build and install sliding tray as shown on plans.

5-minute epoxy the top wing to the fuselage (a bit of baking soda mixed with the 5-minute epoxy to thicken it helps prevent running).

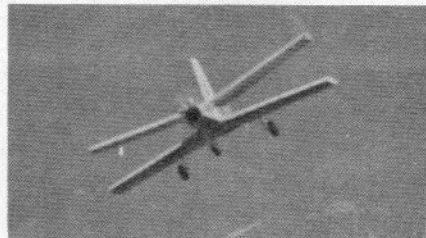
Install wing wood pegs and 1/4-20 nylon bolts for fastening lower wing to fuselage.

Use 5-minute epoxy to attach the vertical fins and lower wing tip plates.

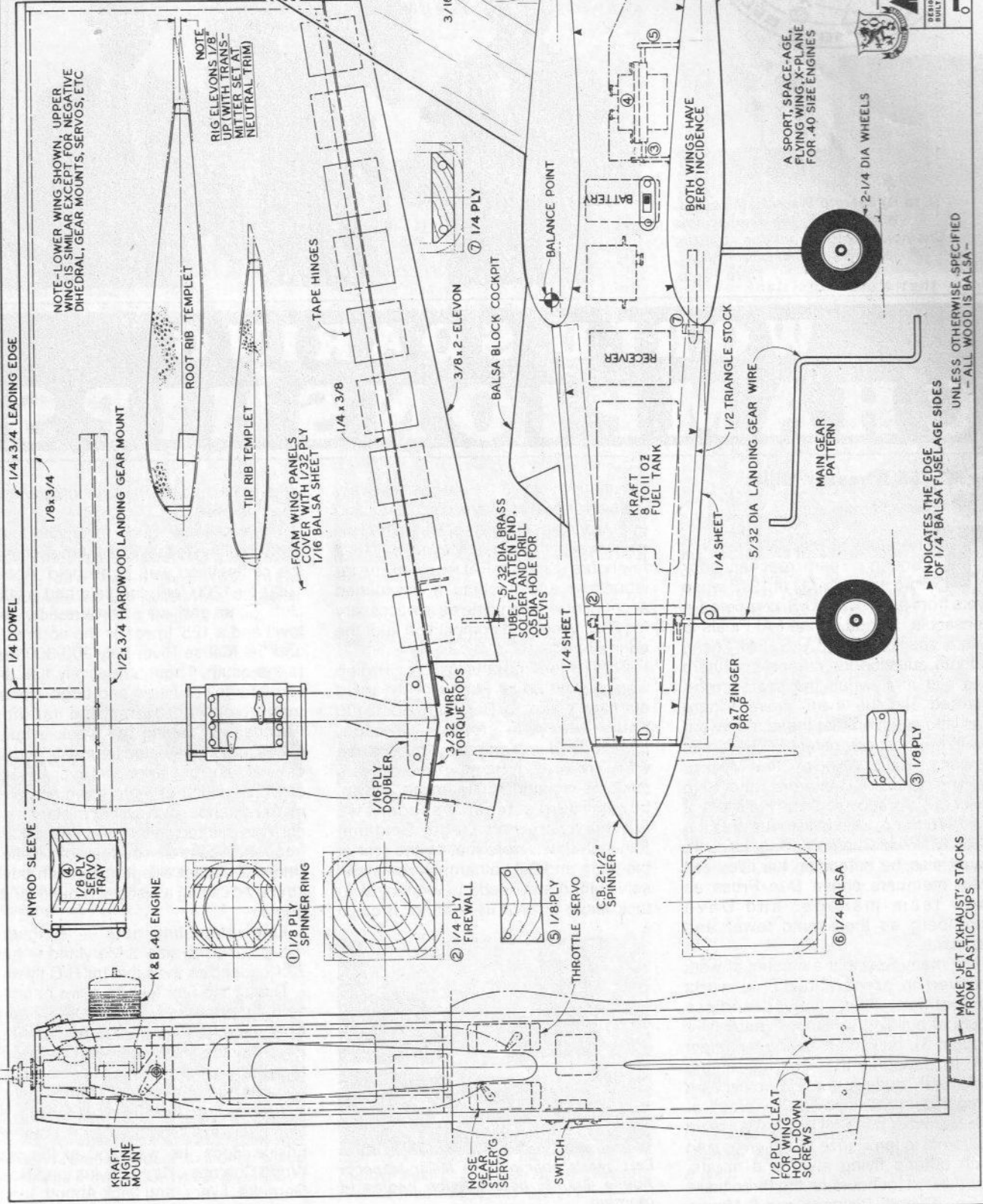
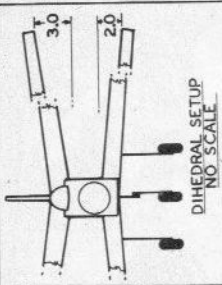
Install engine tank and radio; balance per plan.

Install elevon couplers, per plan, using 1/4" O.D. brass tubing, threaded rod, and snap links as shown on plans.

Be sure to align all four elevons. Neutral position should be set 3/32" above what would normally be considered as neutral. This is to provide the necessary reflex which is required on flying wings. □



Correcting for crosswind on straight in approach from Saddleback Mountain.



**ASTRON.40**  
DESIGNED BY BILL EVANS  
BUILT BY GUY THORNTON

