



SUPER GOOSE

This is the final development in the Goose series of designs. The Super Goose is a larger and better-looking machine than my previous design. This aircraft has more room for your radio and has improved flight performance.

The Super Goose was a third place design winner at Toledo in 1968. This design was not flown until a year after the Toledo show because the old Goose was flying quite well. The old Goose would go with us to every meet and put in a flight or two. I did not have enough time nor radios to go around for the Super Goose, so consequently the delay in flight testing. This year I decided to get rid of the old Goose and give the new aircraft a try. (The old one is still in flying condition, but I just got tired of it.) Test flights of the Super Goose went alright and no adjustments were needed. It flew faster and in a superior manner to the old Goose. Landings and takeoffs are easy and the Super Goose has displayed no tricky characteristics or vices. While I would not recommend this model to the rank beginner, anyone who has put in a season of successful proportional flying will have no trouble with this design. If you are ripe for something different, something that really flies, try the Super Goose.

This model is quite at home either inverted or upright—the thrust line is directly through the wing centerline.

Ripe for something different that really flies? Forward wing sweep has many advantages in construction and flight.

BRENT REUSCH

The airfoil is symmetrical and there is no dihedral. The odd wing shape and the lack of dihedral can lead to some difficulty in orienting yourself to the Super Goose the first few times the model is flown. The fin and rudder is conspicuous enough so you can tell if the model is right side up or not.

The elevator and aileron control as shown on the plans to actuate the elevons has worked very satisfactorily on the two designs over the past 3½ years, and has never given one moment of trouble. I know there are other systems for actuating the elevons, but this one has been proven. With this system of elevon control, the elevator servo moves the whole aileron servo; the aileron servo is on a sliding tray.

The original Super Goose has a foam wing covered with three-ply cardboard or bristol board obtained from an art

supply store. For those who must build balsa wings, construction details are shown on the plan. If you go the foam and bristol board route, use only a water-base contact cement brushed onto the foam and cardboard as an adhesive. The spray-on types are satisfactory for balsa-covered foam wings, but will not hold the bristol board on in damp or wet weather. Also, the regular spray-on contact cements allow penetration of solvents from the first coat of paint or dope to damage the foam wing and also weaken the bond. Water-base contact cements are immune from this action and seal the penetration of the first coat of dope from the foam. The brand of water-base cement that I use is called "Safe Bond." Other brands of water-base contact cement are also available and work satisfactorily. Allow a full 45 min. for curing of the cement before joining the cardboard to the foam. The only disadvantage with the water-base contact adhesive is that it weighs slightly more than the spray-on solvent type. When using bristol board as a wing covering, leading and trailing edge spars should be used. I make these from 1/4" sheet balsa and glue them to the foam with white glue or Titebond. Also 1/4 x 1/4" spars are set into the wing, top and bottom at the airfoil high point. If you cover the foam wing with 1/16" sheet balsa, no spars or leading edge piece

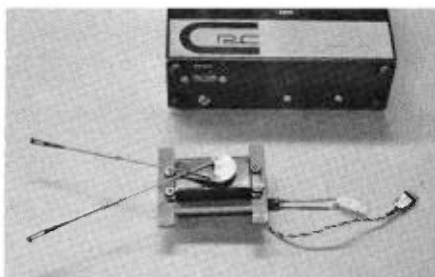
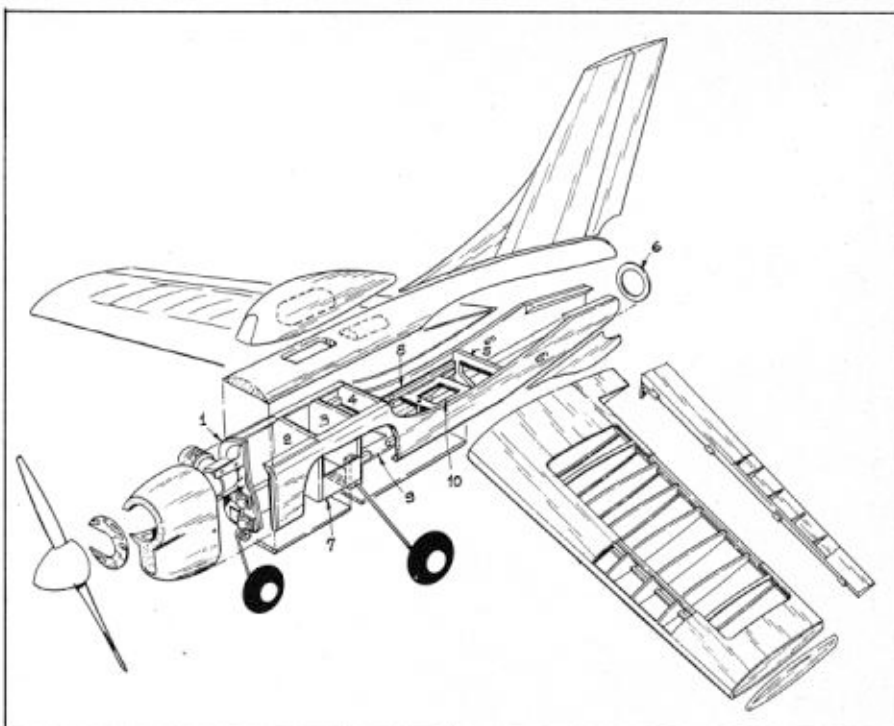
would be required. Butt join the two wing halves together with epoxy glue. Block up one wing tip about 3/8", this will give the desired zero degree of dihedral. No wing joiners are required. Cover the center section with two layers of celastic as detailed on the plans. The wing center section could also be reinforced with a layer of glass cloth and resin in place of the celastic.

The fuselage is a conventional balsa and plywood structure. Cut out all formers and glue the two 1/8" plywood firewall pieces together with epoxy cement. If you have 1/4" ply, cut the firewall directly from that. Cut out sides and doublers from 3/16" sheet balsa. After the sides have been cut out, mark the location of all formers and servo rails on the inside of both fuselage sides with a ball-point pen. Glue former 7 to the fuselage sides. Glue landing gear blocks to former 7. Glue in 1/2" triangular stock and then add all formers except firewall to one side of fuselage. Glue the 5/16" square hardwood servo guide pieces to former 8 and then glue former 8 to the fuselage sides. When gluing the 5/16" square servo rails to former 8, use the servo board former 10. Add motor servo rails to fuselage sides and also elevator and rudder servo rails to take servo tray former 9. If you use other than PS 2 servos, modify the servo trays and mountings as required. This should be easy, as most servos are much smaller these days. Join fuselage sides. When dry, epoxy glue firewall to fuselage. You may have to score the 1/2" triangular stock at former 2 to get the sides of fuselage to bend in to match the width of the firewall. Add tail former 6, score the fuselage sides at former 5 to get the sides to bend in. At this point glue on the wing and then add top and bottom fuselage sheeting; carve and sandpaper to shape. Fill any holes or surface flaws in the balsa fuselage with instant Polyfilla, let the Polyfilla dry and sand. The two bottom hatches on the fuselage are made from hard 1/4" sheet balsa. The hatches are held on to the fuselage with rubber bands stretched between screws on the fuselage sides.

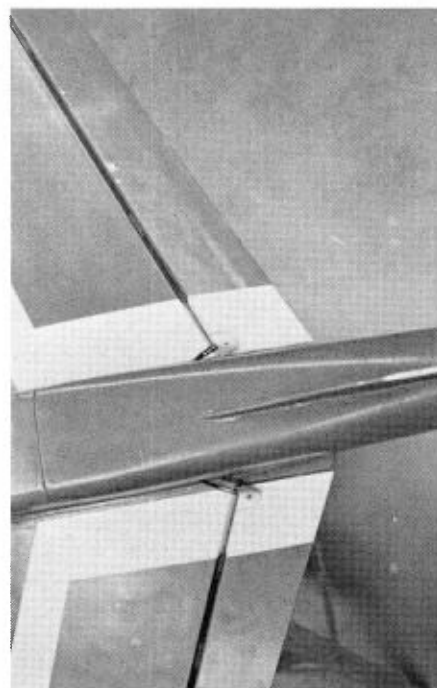
Build the cowl with the motor bolted in its proper position on the firewall. Have a 2 1/4" dia. spinner installed on the motor, this will help to locate the 1/8" plywood nose ring. The cowl is constructed from 3/8" or 1/2" sheet balsa. Carve and sand to shape. Use instant Polyfilla from the tube to fill any large holes in the cowl. The cowl is held to the fuselage with several 4/40 machine screws that pass through the cowl into hardwood key blocks glued to the firewall.

The main landing gear is built from 1/8" dia. music wire and has proven strong enough for the 5 1/4 lb. weight of the Goose. If you don't have 1/8" wire, use 5/32" wire. The nose gear utilizes a standard TopFlite strut that is shortened. I broke my first nose gear trying to bend it. The Top-Flite gear appears to be hardened after it is formed and will not take a 90 degree bend without first heating the metal. Use a propane torch on the strut at the desired bending

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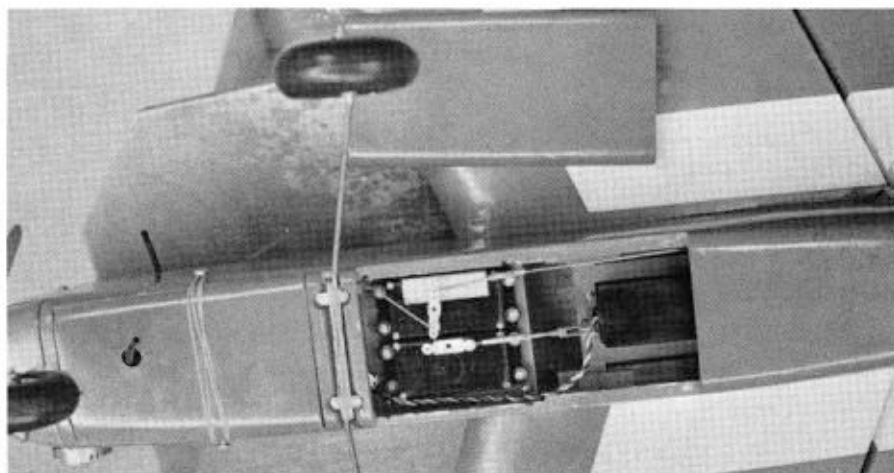


Above: Control of elevons is via sliding tray for aileron-function servo. Crossed wires give no-differential movement.



Right: Again, drive to elevons gives no differential and is nearly perpendicular to hinge line.

Below: Equipment and tank access from two hatches. Note drive from elevator servo to the aileron tray.



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point, heat until red hot, then bend. You will note from the plans that the nylon nose gear bearings are on 1/8" ply stand-off pieces, this is to allow the nose gear steering arm more clearance.

"Easy-Does-It" finish is used on the fuselage of the original aircraft with Ditzler acrylic lacquer sprayed over all the fuselage and bristol board wing. The bristol board should first be given a very light sanding with 320 paper to give it a tooth for the paint to hang on. Bristol board is almost too smooth for paint to adhere properly. You can get away without sanding the cardboard, as long as you do not intend to mask off any designs on the wing. The best policy is to sand the cardboard lightly.

O.S. Max 40 proved to be an ideal amount of power for the Goose, but any 35 to 50 should do a good job. In the prop department, a 10 - 6 seems okay with the 40. I haven't tried it yet, but a 9 - 7 or 9 - 8 prop could prove to be an even better choice.

Stick with the center of gravity location shown on the plans. The original Super Goose center of gravity came out at this spot as built. No ballast was required either front or rear.

The aileron servo tray must slide free and easy on the 5/16" sq. servo rails so as not to overload the elevator servo. Any binding of the aileron servo tray will run the receiver NiCads down at a higher than normal rate. Note that the

aileron servo output wheel has been re-drilled with a 1/16" dia. drill so that the power takeoff from the aileron servo to the elevon horns are at 90 degrees. This will help to eliminate any elevon differential that would otherwise be in the system. Differential movement in the elevon is not desirable as the aircraft is designed to be at home either upright or inverted. As you can see, a wheel output servo is a must for the aileron control. When all the controls are installed, check the system by applying full down elevator and simultaneously apply full left and then right aileron; do the same with up elevator. There should be no jamming or binding of the elevons at the extreme control positions. Use the end hole in the Midwest elevon horns. (The plans show the second hole from the end in use and this is not correct.)

Flying

Now that you are done, take it out to the field. Remarks from the gallery at the field will run something like this. "Hey, you got the airfoil on backwards." "Are you sure you know what direction to fly it?" "Is that a pusher or a tractor?" "Biggest tail-wheel I ever saw." Most people there will not believe that it will fly, so crank up the motor and show 'em. Have all flight controls set at neutral, with the elevators set at an almost undetectable amount of up trim, hit the throttle and go!

Author with 40 power foam wing version.

