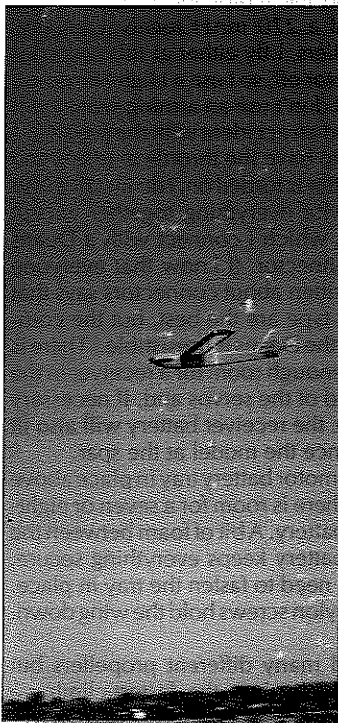


BY WELDON SMITH

QUIETUS

A quiet, clean and efficient electric powered R/C aircraft for model builders.

(Right) Clean, simple lines of the Quietus are revealed in this underside view. Don't be tempted to omit the opening just below the spinner, as this is the inlet for the all-important cooling air for the motor, speed control (if used) and motor batteries. The warm air then departs via an opening on the top of the fuselage, just aft of the wing. (Below) The Quietus making a power-off pass across the author's local flying site. The ship was not designed solely with motorgliding in mind, but if built light, has a flat enough glide and low enough sink rate that it can soar in moderate lift.



Electric flight is taking off, judging by the number of models being offered in magazine ads. This is not surprising, since electric power now offers a variety of flying styles, depending on the type of airplane chosen. One can have aerobatics or soaring flight without the support equipment normally needed for either. The only thing required at the field is a charger with which to "refuel." The most obvious advantage to this choice of power is the complete lack of noise. But there is still another plus, which may be the biggest. A flying session can be enjoyed in street clothing without fear of splashed fuel. And later you won't reek of castor oil.

Having tried a couple of the kits and motors available in the early Eighties, I wanted a bit more in performance and convenience. I reasoned that a removable battery pack was essential so that it could be replaced while charging. I have found that three packs are quite sufficient to keep a plane in the air as often as I wish: one pack flies while one cools and the other one charges.

Another point that I considered desirable was ease of installing the motor, hence a large hatch in the nose would be required.

The final thought was to make the plane simple to build and yet somewhat pleasing to look at. All

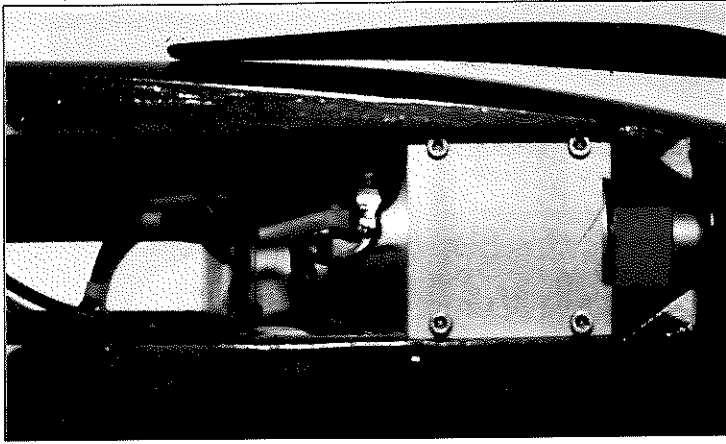
of these desires were in my mind when I first saw the then-new Astro Cobalt motors at a trade show. I quickly obtained an 05 geared system and a ship was designed around it. What developed was the Quietus—a compromise between glider and airplane. The climb is impressive, but the fast, flat glide makes it capable of soaring too.

CONSTRUCTION

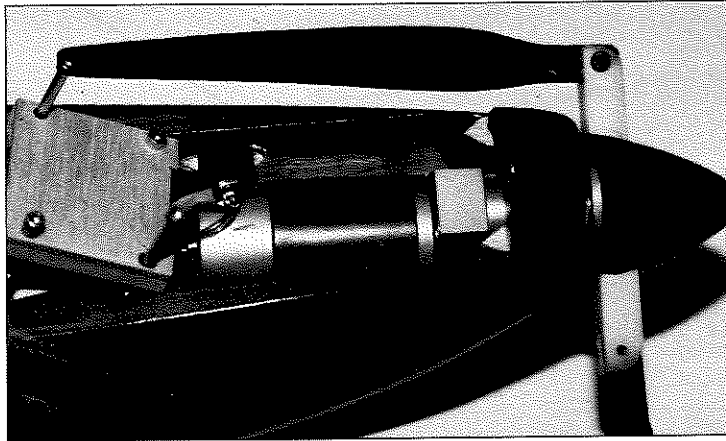
Building the Quietus is not difficult for the average modeler, so no attempt will be made to give step-by-step instructions. Instead, a few hints are offered. The wings are very simply made by laying out all of the bottom sheeting and working up. Leave a half-inch or so out of the bottom center section sheeting, right behind the spar, so that you can install a spar joiner later. Don't notch the top of the ribs deeply for the doubled portion of the top spar until the ribs are glued in place. Before installing the center basswood ribs, make a groove in each one where the 1/8 dowel will go. After the panels are joined your drill will follow the grooves without drifting away from the glue joint. The dowel need only be a friction fit in the hole—it does not have to be glued in, simplifying replacement. When applying the sheeting to the top of the wing be sure the panel is on a flat surface—you won't be able to twist it after the

9901

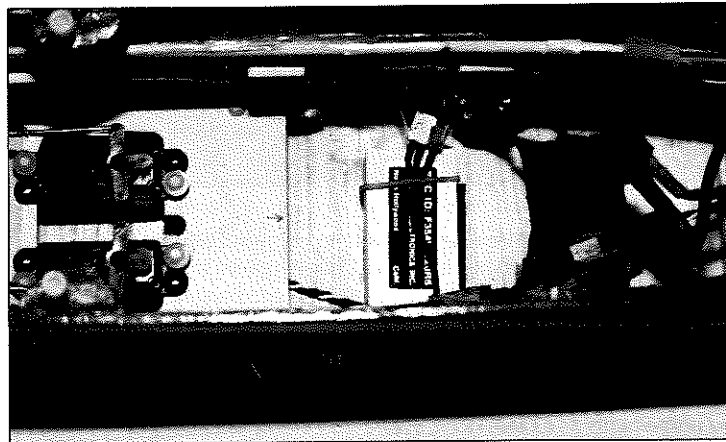
1 of 2



Close-up of the motor installation; the plywood plate and four screws secure the Astro 05 Cobalt motor in place. Directly behind the motor is a High Sky electronic on-off motor controller.



With the plywood plate removed, the motor can easily be lifted out. Access to this and all other pieces of equipment in the fuselage is quick and easy, thanks to the removable wing and the extra-long forward fuselage hatch.



Normally with the wing removed you'd see only the motor battery (seven 1200 mAH cells in a side-by-side arrangement), but here the pack has been removed to reveal the radio gear mounted underneath.

sheeting is in place. When both panels are complete, sand the 4° dihedral angle into each root rib and join the panels. Install a 1/8 hard balsa wing joiner and apply the rest of the center section sheeting.

Make the basic fuselage sides of 1/8 balsa. Using 4x36-inch sheets, lay them out from the tail forward. The sheets will be a bit short at the nose, but you can make up for the shortage by placing the doublers properly. After all doublers, stringers, servo rails, etc. are in place on each side, join the sides around the two 1/4x1 cross members. If you cut these accurately and install one on each side squarely, the sides will join easily, inverted on a flat board. Add the bulkheads and motor mount, and sheet the top and bottom from the wing back. Install the motor

temporarily and add blocks to the inside of the nose as necessary so that you can shape the nose to the 1-1/2 inch spinner. Line the space above the motor compartment with waxed paper and build the hatch framework in place. Install the 1/16 aluminum tubing, being sure that the tube in the hatch is aligned with the tube in the fuselage. Remove the frame and cover it with 3/32 balsa. A sharpened piece of .032 piano wire through the tube and into the nose block holds the hatch in place.

Tail surfaces are easily built on a flat board. After covering and hinging, glue the tail surfaces to the covered fuselage.

The servos are mounted on a piece of Lite-Ply which is held to balsa rails with 4-40

nylon machine screws. Harden the threads in the rails with CA glue. Mini servos will fit, but micros are better. Connect them to the tail with 3/16 square balsa pushrods. Parts from the Du-Bro mini pushrod assembly are handy to complete the ends of the pushrods, and are much lighter than standard 2-56 rods and clevises.

There is more than adequate room in the nose behind the motor for a motor speed control and a 270 mAH receiver battery. Like most fliers, I fly either at full power or with the motor off, so I use a High Sky on-off controller. I don't use an arming switch and have not had an accident with the propeller, being sure to have the throttle at idle when my transmitter is turned on. I do install a fuse and hard-wire everything together except the battery, which I connect with a Deans four-pin connector. (I know that everyone who has written about connectors says that the Sermos type are the best, but the compactness of the Deans is irresistible.) There is more than enough room for a receiver in the space ahead of the servos and, if necessary for balance, the receiver battery will also fit there. Balance the model at the spar.

With the motor battery tray in place above the servos there is room for a seven or eight-cell sub-C battery. A bit of foam between the wing and battery keeps everything secure. There is no need to fasten the tray in place. Two 4-40 nylon screws hold the wing down.

FLYING

I've used many different propellers but the one which gives the fastest climb is a Master Airscrew 12x8 folder which is stretched to 13 inches with a longer hub. The longer hub makes it possible for the blades to fold flush against the fuselage. There is a loss in duration, however, since the pitch increases as well as the diameter, with attendant increase in current draw.

Flying without a landing gear is not as inconvenient as it might seem. Quietus abhors the ground when the power is on, so hand launches while holding the transmitter in one hand are no problem. It would be wise to have someone toss the model for you until it's trimmed out and you are familiar with its characteristics. After that it becomes a one-man show.

Lack of landing gear does not preclude touch-and-go landings. I regularly do several near the end of a flight, sometimes sliding ten feet (on grass!) before pulling off and opening the throttle. The rocker bottom of the fuselage profile makes this possible.

Though the plane has no ailerons, its four degrees of dihedral and high center of gravity make it very responsive to rudder. Horizontal (not axial) rolls are done with the same inputs you would use with ailerons. It does well in gusty conditions and has been flown on days that were too windy for many.

If you've been toying with the idea of an electric plane, try the Quietus. It will give you an appreciation of the practicality and possibilities of electric power. With battery technology improving, there is no doubt that a large segment of our hobby will use this source of power in the years to come. **MB**