

Why call a glider "Coleen?" Well, if you have a special friend by that name, and she's willing to share her time with a model airplane, why not?

COLEEN-12

● First let me clear up one thing. Coleen is definitely not twelve years old. Nobody is that blind. This is merely the twelfth sailplane I have built since I've known her. Let's see, that makes for an average of one prang every month and a half. I think I'd better finish this article while there's still an airplane to write about.

The C-12 was originally built with the flat standard wing and it performs quite well as both a thermal and slope soarer.

My longest thermal flight with that wing was fifty minutes, from the SLO Flyers field in San Luis Obispo. This occurred when a shear line developed directly over the field and I disappeared several times into a cloud cover reported by the Army to be at 3500 feet. I would like to take this opportunity to thank the three or four fliers with binoculars who enabled me to fly the C-12 back for a smooth landing.

The higher performance polyhedral

wing was constructed in preparation for the Western Soaring Championships that were held in what has to be the meadow muffin capital of the free world; Hemet, California. Hemet is the only place where I've had to scrape the runway off the fuselage after each landing. The wing did its job and got me my first real live trophy, for fifth place. I think Mark Smith got a complementary spatula for finishing first.

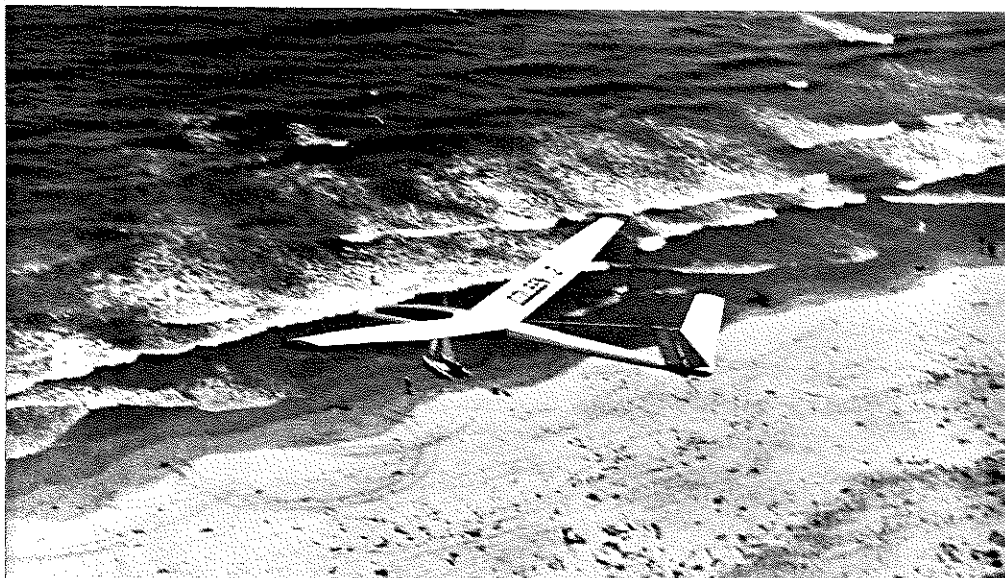
So much for the literary hilarity, let's build.

The C-12 uses mostly standard construction techniques so I'm just going to touch on some of the difficult points. I think the plans are pretty much self explanatory.

FUSELAGE

The only thing you have to watch on the fuselage is the radio installation cabin construction. V-tails can and do present a few minor problems.

First, the canopy portion of the sides is outlined with a felt tipped pen before construction is started so you will have a point of reference when it comes time to cut the canopy away from the rest of the fuselage. Add the 3/8 triangular longerons. When these are dry, add the 1/8



At one of the most popular and scenic model and full size slope soaring sites in this country, the bluffs overlooking the Pacific Ocean at Torrey Pines, just north of San Diego, California.

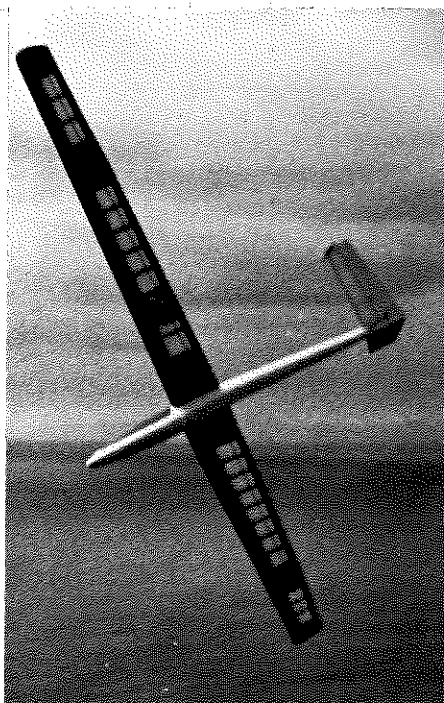
x 3/8 balsa fuselage braces. Epoxy F-2, F-3, and F-4 to one of the sides and taper the longerons near the tail. Add the other fuselage side and pull the nose and tail together. Tack glue the two halves of F-1 together and glue in place. Add the bottom sheeting, skid, skid guard, and tow hook. Glue on the top sheeting and the nose block and let the whole mess dry completely.

Next, armed with a razor plane and a good supply of sandpaper, sand the fuselage until your arm falls off. Remember, you've got big longerons in the corners so you can make the fuselage appear to be quite round. After sanding, cut the canopy away and glue in the spruce cabin braces, using clothes pins to hold them to the fuselage sides. Make sure these are parallel because they determine the alignment of the sliding servo rails.

WINGS

The standard wing is the easiest to build so I'll start with that. First lay out the bottom sheeting and capstrips. Add the bottom spar and all ribs. Epoxy in the 3/16 brass wing tubes and add the top spar. Add balsa leading edge and shear webs on both sides of the spar. Glue on the top sheeting and let dry well. Flip the plans over and repeat for the left wing. (Rub ordinary 3-in-1 oil on the plans, particularly at glue joints, so they will show through on the reverse side). Shape the leading edge, give the whole wing a good general sanding and cover.

The polyhedral wing uses construction similar to the standard wing, but the undercamber provides the proverbial fly in the ointment. First, pin down the leading edge. Next, add all the ribs, pinning the trailing edges in each directly to the plans. Jack up the leading edge of each edge of each rib 1/2 inch to allow for the bottom leading edge sheeting. Add the top spar and top trailing edge sheeting. When dry, flip the wing over and add the bottom spars and trailing edge sheeting. Epoxy in the wing tubes and add all shear webs. Next, add top and bottom leading edge sheeting and capstrips. Repeat this procedure for the left wing and both tip panels. When all is dry, bevel the ribs on the tip panels to the correct angle and glue the panels to-



gether. Epoxy a strip of nylon cloth around the dihedral junction to serve as a dihedral brace. Add tip blocks and finish similar to the standard wing.

TAIL

The tail is simply made from 1/8 x 3/8 balsa strips and 1/8 sheet. When dry, bevel the panels, block up the tips to the proper height, epoxy together and cover.

FINAL ASSEMBLY

Cut out the section of the fuselage necessary to mount the tail. Bevel fuselage structure as required in order to provide a flat surface for the tail to sit on. Remove the covering from the center section of the tail and glue the tail in place. Replace the top section of the fuselage and hinge the ruddervators to the tail.

Now comes one of the most important parts; aligning the wings. First, bend the wing rods to the six degree dihedral angle. Slide these through the fuselage holes and slide the wing root plates over rods. Do not glue to the fuselage yet! Slide the wings about half way on to the rods. Now apply glue to the fuselage side of the root plates and slide the wings all the way on, sandwiching the plates between the wings and the fuselage. When dry, apply large fillets to the root plates and to the fuselage-tail junction, using your favorite epoxy-putty. Sand well.

FINISHING

Using a razor saw, X-acto knife, and whatever else you have handy, cut the canopy loose from the fuselage. Give everything a final sanding and paint. I used Hobby epoxy because it gives a beautiful, hard finish that can stand up fairly well to repeated landings at Torrey Pines.

RADIO INSTALLATION

Now comes the fun part. As you may have noticed, there isn't much frontal area on the C-12 fuselage. This is reflected in a very small radio compartment. Your radio installation must be well planned to make sure everything will fit. A 225 mAh battery pack is advised but I managed to make a 500 mAh pack fit. It isn't pretty but it works.

First, glue the spruce rail mounts to the cabin braces. Epoxy small brass channel stock to the phenolic servo tray. Hold the larger brass channel stock to the tray with your fingers and use five minute epoxy to attach these to the rail mounts, making sure they are lined up as squarely as possible. When cured, slide the tray out from the stationary rails and use steel wool on the tray rails until the tray slides smoothly with no drag. A few shots of powdered graphite are helpful here.

Mount the rudder servo to the tray and make push rods to attach to the ruddervator horns. If you have a small airborne pack, the pack, receiver, and elevator servo will mount very nicely in line in the fuselage. With my large pack I found it necessary to tape the elevator servo to the top of the receiver on its side. Make a short pushrod to go from the elevator servo to the sliding tray. This completes the radio installation.

FLYING

If the C-12 is built according to the plans it should fly right off the board, with little or no ballast necessary. The original C-12 weighs exactly two pounds ready to fly. You should set up the servos to give as much rudder as possible and as little elevator as possible. When set up like this, the C-12 is a fast, responsive aircraft.

Well, that's it. If you build one, have fun and fly safely. But please don't beat me with it. I need all the help I can get.●

9721