



SIERRA TRAINER

By BILL EVANS. . . This .20-powered R/C trainer will grow as your ability to fly it increases. With elevons, no elevator is needed. It can be flown with three- or four-channel equipment. Foam wings are available.

• You may wonder, after the many of the Simitar series, from the Simitar XV, the Simitar 540, the twins, the X-Wings, the anhedral Desperado, and the more recent Tracers, why now a trainer?

The Sierra Trainer is not another ho-hum trainer. It's a Twenty-first Century craft of the Simitar Series, with a heritage of more than thirty previous designs over the past fifteen years. Since it has never been my lot to reinvent the wheel, you will find that the Sierra Trainer has been designed, built, and will fly like all ships should have been.

Backing up a bit, the first part of the name was easy. It was designed, built, and first flown in the Sierras just sixty miles north of Mt. Whitney, the highest peak in the continental U.S. The trainer part includes much, much more. The high wing and the box fuse makes it look like a trainer; and it flies like a trainer, but better than any other.

The first advantage is the absolute *no* stall characteristic. There is no tip stall on a premature takeoff or when trying to stretch the glide to make the runway. Second is the natural ability of the Sierra Trainer to remain in any mode that you put it in. Touch a bit of right aileron, let off, and the ship will hold itself in a right turn without any tendency to wind down. Or, touch a little up, let off, and the craft will climb and continue to climb until it reaches max for power and then it will gently level off. The hands-off cruise is truly remarkable.

Another advantage is that the ship will

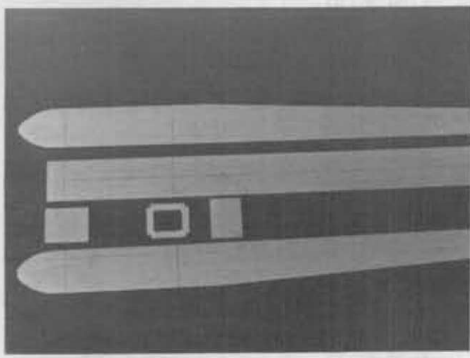
grow with you; it will teach you to fly and as your flying skill grows, it will perform with ease any maneuver you ask. So, no need to get another ship to learn to do skilled aerobatics, the Sierra Trainer will do it all.

In a way, the Sierra Trainer is the high-version of my Simitar Slow Motion. I

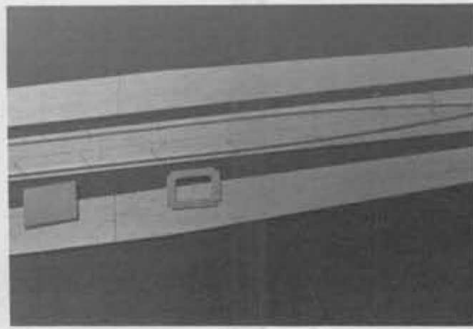
am sure that you read Bill Winter's "Just For The Fun Of It," in which Bill has described at length the advantages of the Slow Motion. When I told Winter that I had something easier to fly than the Slo Mo, the Sierra Trainer, he said, "Impossible."

Ease of construction is also on the plus

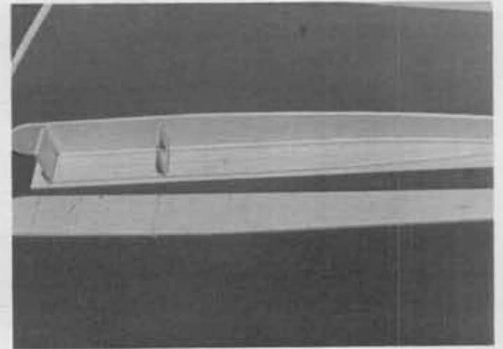




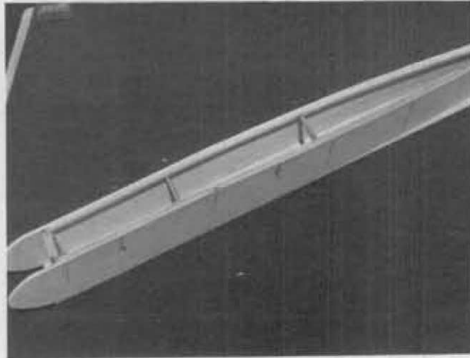
Fuselage parts cut out and ready for assembly.



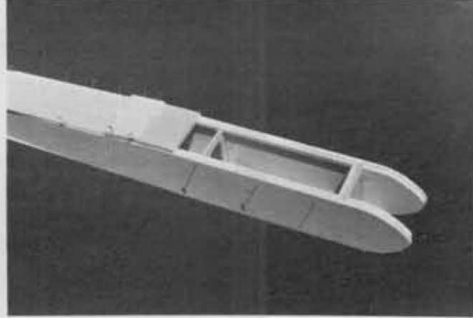
Quarter-square balsa is pinned in place on fuselage top.



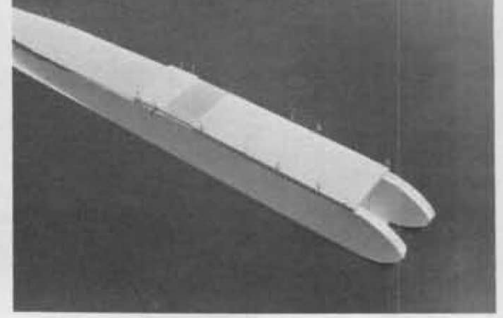
Fuselage side, former, and firewall in place.



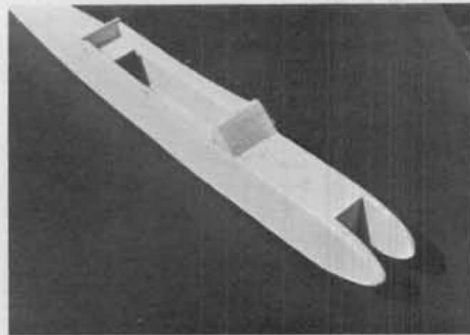
Both sides and bottom 1/4 square in place.



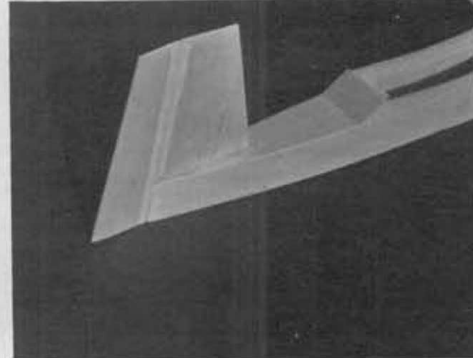
Cowl doublers, ply gear block, and aft bottom sheeting installed.



Pin sheeting to fuselage and square with sides for proper alignment when gluing in place.



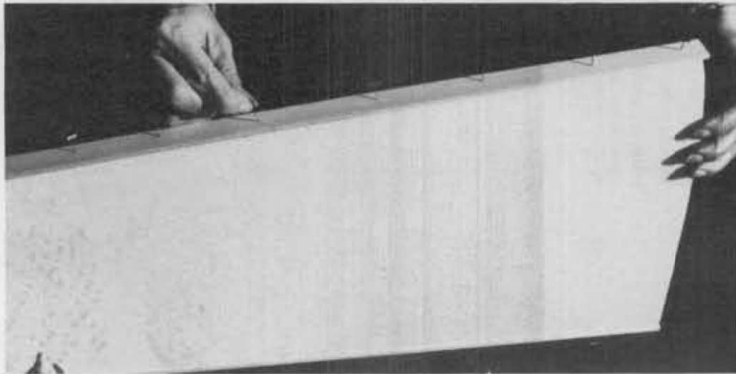
Wing saddle and cabin blocks glued to fuselage top.



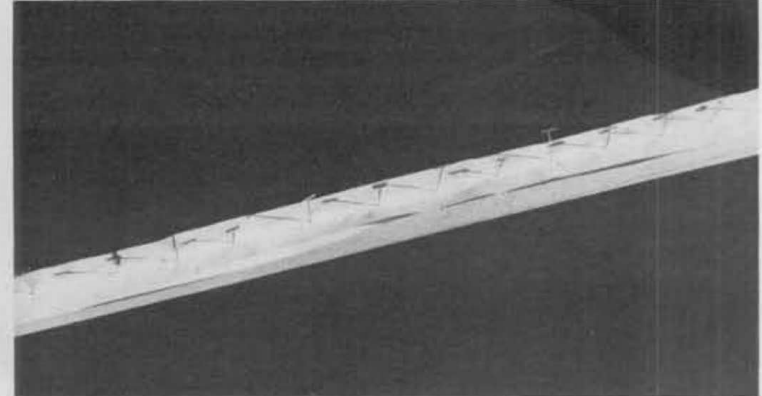
Fin in place, with rudder attached and glued.



K&B Sportster .20 installation. Note muffler with adjustable exit port to push exhaust gases in any direction.



Pin 1/8-inch leading edge to core, and do the same for 1/4-inch trailing edge. Foam wing cores area available, see text.



Method for pinning hinge to leading edge of elevon.

side. In my time I've built many kits, so I know what makes for easy, no fuss building. I have taken three fellows who had never built or flown before. They built the ship, ready to cover, in three two-hour sessions. An additional day was taken to cover and another day was spent installing the engine, radio, and miscellaneous.

It was fitting that we had a new radio for the new ship, the Futaba Conquest. You can set it up for three-channel (rudder, elevon, and engine) operation, or it can be flown using four channels, elevons, rudder, and engine. If you don't have a radio that mixes and don't want to build a sliding tray for elevons, you can use the Ace Mixer and put the elevon servos in the wing. The Con-

quest with S-28 servos really did the trick.

Also new is the Sierra Trainer engine, the K & B Sportster 20. It fits perfectly and makes the ideal power combination. The radial mount that comes with the Sportster includes holes for the nose gear which makes engine and gear installation a breeze.

Built according to the plan, your Sierra Trainer will be a unique, enjoyable, and rewarding project.

CONSTRUCTION

For your convenience, foam cores for the Sierra Trainer can be ordered from Soaring Research, 454 Wildrose Lane, Bishop, California 93514. Cores are \$14.00 plus \$4.50 shipping. Their phone is (619)873-

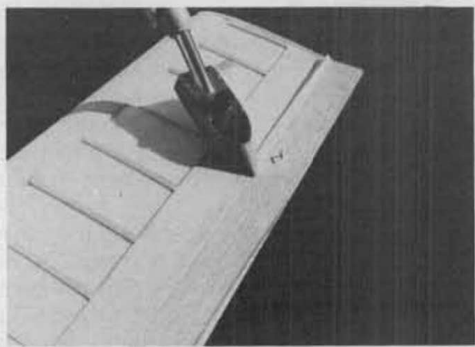
4932.

Glue (alphatic does nicely) and pin 1/8-inch leading edge and 1/4-inch trailing edge balsa to cores. Careful not to bend or warp the cores, then set aside to dry.

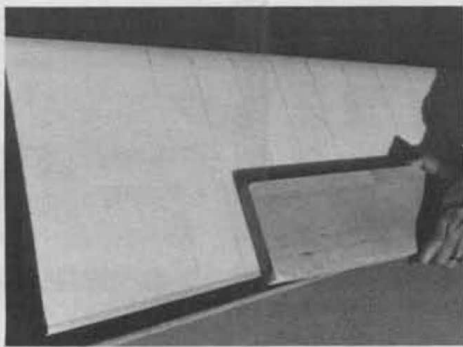
Cut fuselage parts, sides, firewall, former, top, bottom, etc. to shape.

Mark centerline and location of firewall and former on 1/8-inch balsa fuselage top.

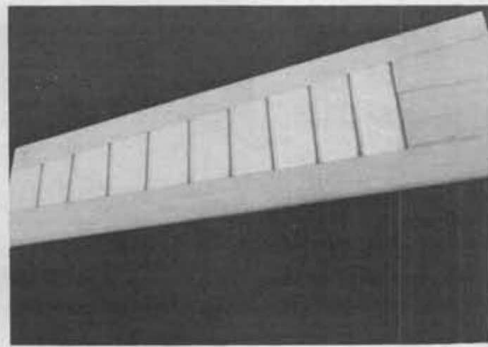
Pin fuselage top down on flat surface and pin 1/4 square balsa top longerons in place on fuselage top. Start longeron at aft edge of firewall and run to end of fuselage. Use a piece of 1/4 square as a gauge to set longeron 1/4 inch in from left and right edge of fuselage top.



Iron hinge to wing. Note pin to hold elevon in place until hinge is ironed on.



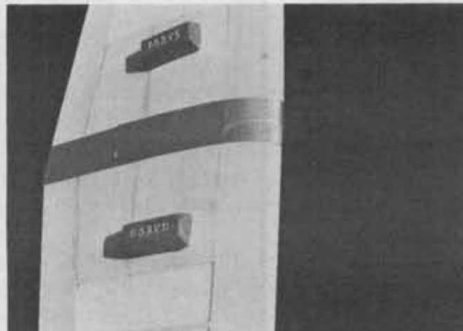
Sanding balsa leading and trailing edges flush, prior to sheeting.



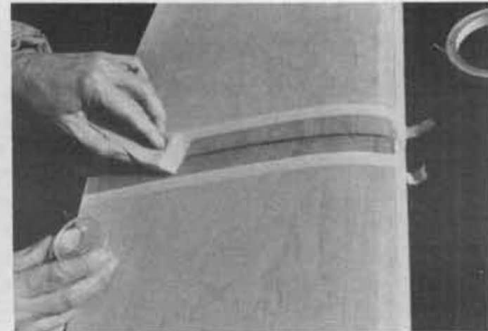
Wing sheeting complete; Corefilm used to bond 1/16-inch balsa to foam.



Use pencil to make holes in foam to improve bonding of wing halves. Note leading edge contour.



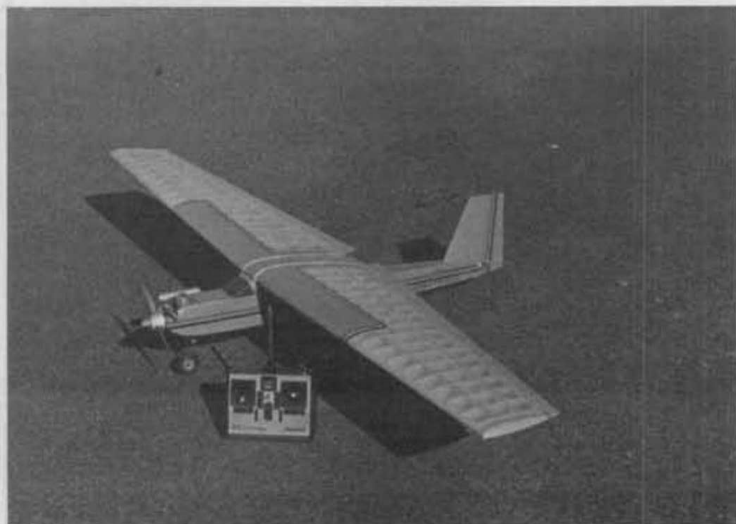
Wings are joined with 5-minute epoxy. Tape is wrapped around joint to prevent running.



Filling wing joint. Masking tape on either side of joint makes nice line. Scrap foam makes a good throw-away brush for applying epoxy.



Author with test ship at Eastern Sierra Fliers' newly paved flying site.



The Trainer, with Futaba Conquest radio, and K&B Sportster .20.

Now pin a fuselage side in place against the longeron and fuselage top, also pin in the firewall and former. Now run a bead of cyanoacrylate along the fuselage side and around the firewall and former.

Do the same for the second side of the fuselage. You may use a clamp to hold the two sides together at the rear, and use a square to make certain they join at a right angle to the top.

Pin and cement the cowl cheeks in, and the same for the bottom 1/4-inch square longerons.

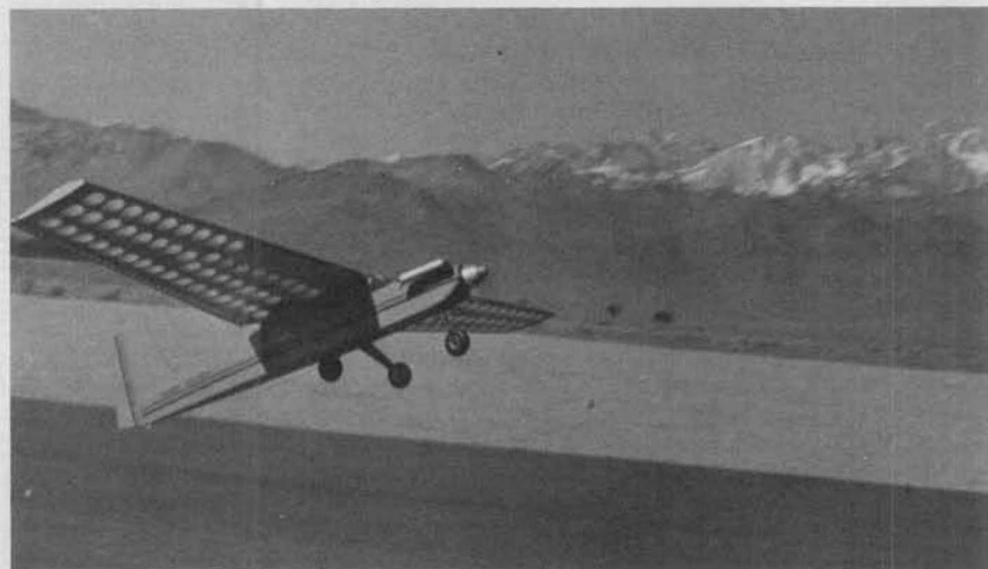
Now sand bottom flush, and cement front bottom 1/4-inch sheet, 1/4-inch ply gear block, and 1/8-inch rear bottom sheet in place. Let glue set.

Trim and sand 1/8-inch leading edge and 1/4-inch trailing edge balsa so that the sheeting will fit nicely over them. Be careful not to sand away the core.

Lay out cores for 1/16-inch leading and trailing edge sheeting, cap strips, and center section sheeting.

Use vacuum to remove dust from sheeting material and loose particles on foam core. I used Corefilm (a sheeting tape) to

bond the wing sheeting to the wing.



The Sierra Trainer easily lifts off on another flight.



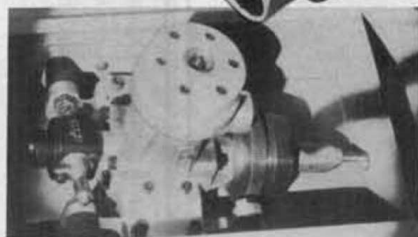
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reflex required for flight.

The Sierra Trainer has no bad habits and will fly itself; just help it once in a while by nudging it around a bit. Once you master the takeoff and landing, go for any aerobatic maneuver you wish. The Sierra Trainer will respond to your every command and quickly become a permanent foundation of your flying.

Sierra Trainer.

After sheeting wing panels, sand the leading edge, flush and cement the 1/4-inch balsa leading edge cap in place, then do the same for the 1/4-inch tip plates.

Cut and sand fin and rudder to shape, sand fuselage to shape, and epoxy fin to fuselage, then hinge rudder to fin (I used X-Hinge).

Trim and sand leading edge to shape, then do the same for the tips.

Use five-minute epoxy to join wings. Block tips to proper dihedral, and join using masking tape on the bottom to prevent epoxy from running out.

Final sand wing and trim and fit elevons to wing, then hinge elevons to wing (I used X-Hinge).

Use your favorite covering material to complete the job and install the engine and radio gear.

Remember to trim the elevator function of the elevon with 1/8-inch of up, with trim at neutral. This is to provide the necessary