

The Sterling Fledgling is designed for the novice RC'er to fly with little or no assistance.

For The Novice: Step-By-Step How-To For Building The

STERLING FLEDGLING

BY BERNIE MURPHY

Several months ago, Sterling Models introduced their new Fledgling kit, a model designed for the sport flyer or newcomer to R/C.

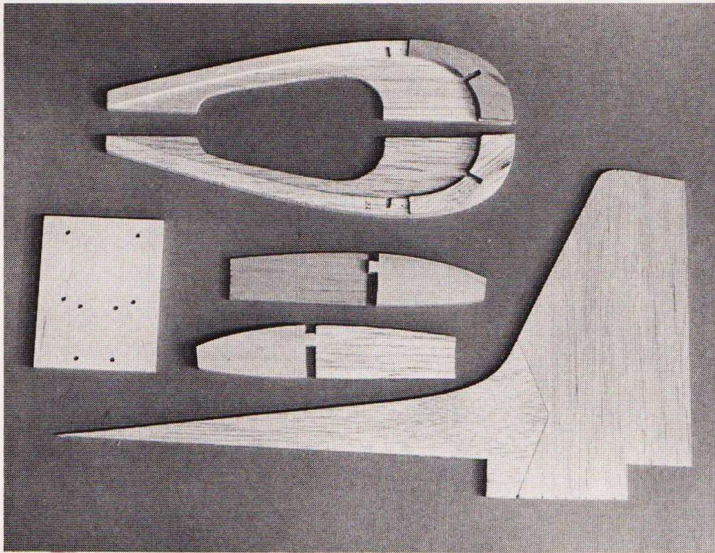
The ship is a convenient size, with a 56" span, requiring an engine size from .23 to .40 cubic inches. The price of \$24.95 also seems pretty comfortable, especially when you consider that the kit includes most of those "extras" such as horns, clevises, etc.

Our kit was stock, "off the shelf," from the local hobby shop. The wood in the kit was above average and seemed well graded for its intended purpose. The die-cut parts were a pleasant surprise, being very cleanly cut, about the best that we have seen — excellent. The hardware package included a steerable nose gear, aluminum engine mounts, blind nuts, horns and clevises, and assorted bolts, screws, and nuts. The plans appeared clear enough, and we envisioned a

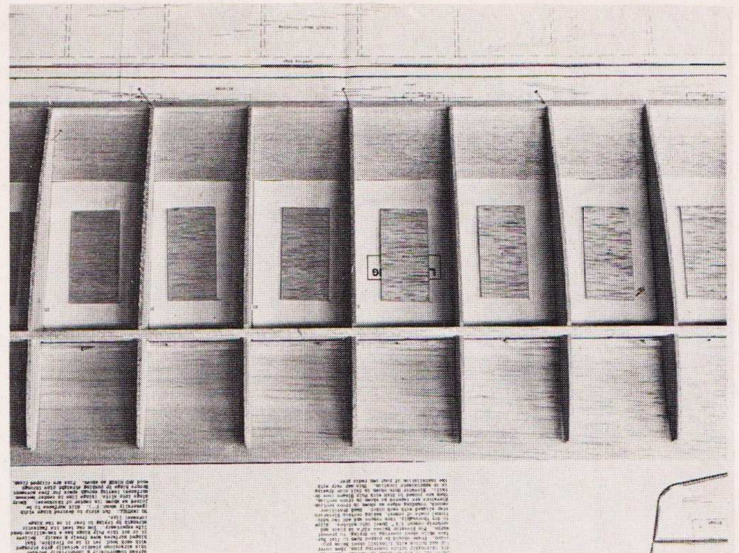
simple sport ship which could easily be built in a weekend.

Per the instructions included on the plans, several sub-assemblies should be completed first; these include the firewall, wing tips, fin and wing rib sockets for the wing attachment dowels. The wing on the Fledgling is attached to the fuselage by means of two dowels in the leading edge, and a single nylon screw in the trailing edge (no rubber bands). Since the dowels seat into sockets built into the wing panels, and must mate with a pre-notched block in the fuselage, it is advisable to build the wing first. In this way, the fuselage block is available to be used as a spacing jig when installing the sockets in the wing panels, and again when joining the wing halves, assuring an accurate fit between the wing and fuselage. Besides, we like to get the wing out of the way first!

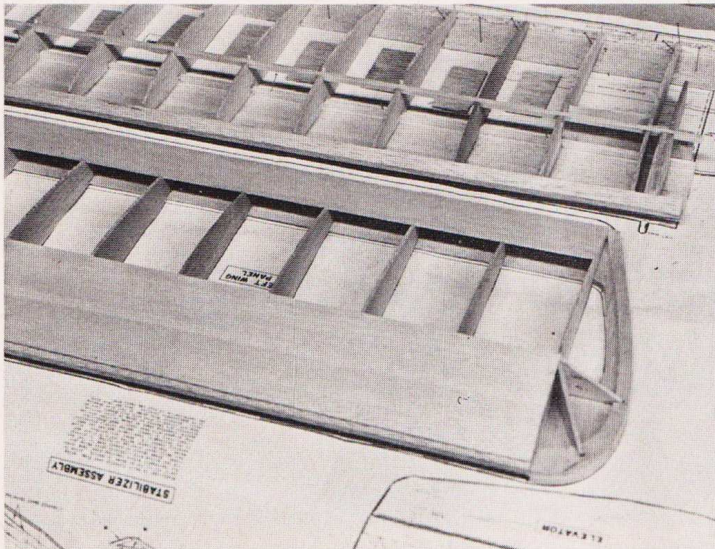
Construction of the wing has been well thought out, allowing each panel to be completed without removing it from the building board, thus assuring a true wing (assuming a flat building surface). The lower trailing edge and leading edge sheeting are first pinned down over the plans. The layout of the plans is such that both panels can be built simultaneously, a feature we appreciated. The lower spar is then glued to the sheeting, followed by the ribs. The die-cut webbing, which fits between upper and lower spars, should be temporarily set into place when positioning the ribs, thereby accurately positioning the ribs and holding them square. Once all ribs have been glued into place, the top spar, leading edge, trailing edge and webbing are added. The trailing edge top sheet is glued to the trailing edge and the ribs. After removing any pins from the leading edge lower sheeting, this is



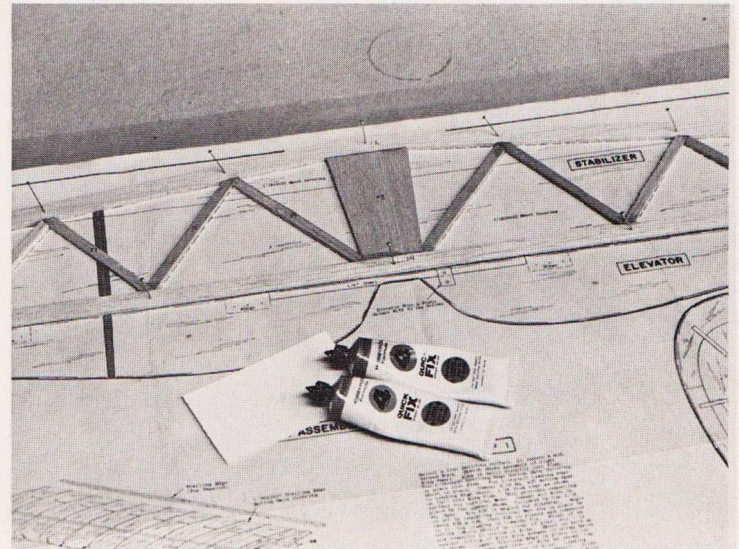
Sub-assemblies are glued together first. This way they will be ready when needed.



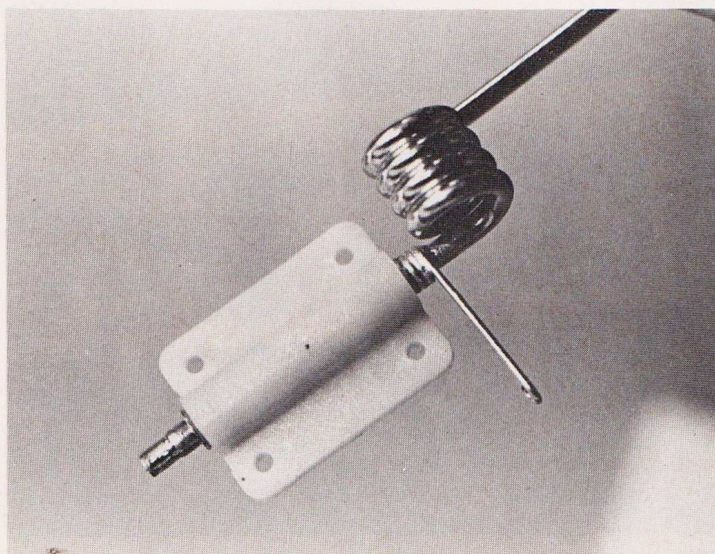
Basic wing structure. Die-cut webbing used to position wing ribs then later installed in bay where originally fitted.



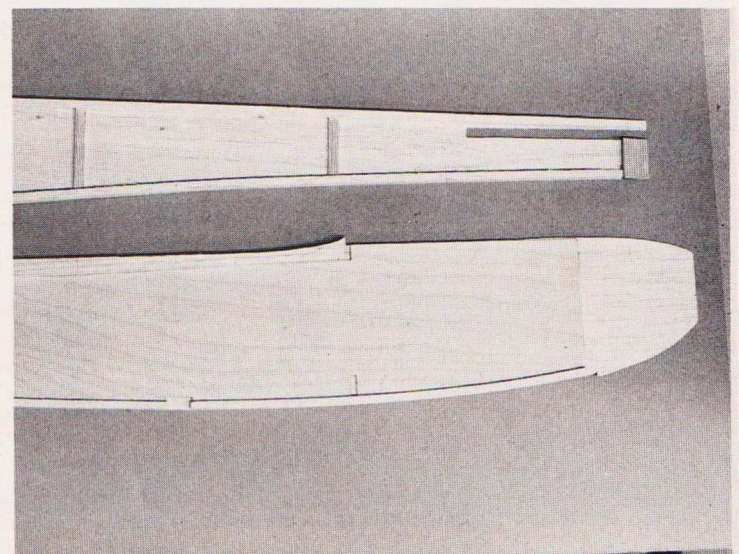
First panel completed, second panel ready for top sheeting. Plan layout allows both panels to be built simultaneously, saving time.



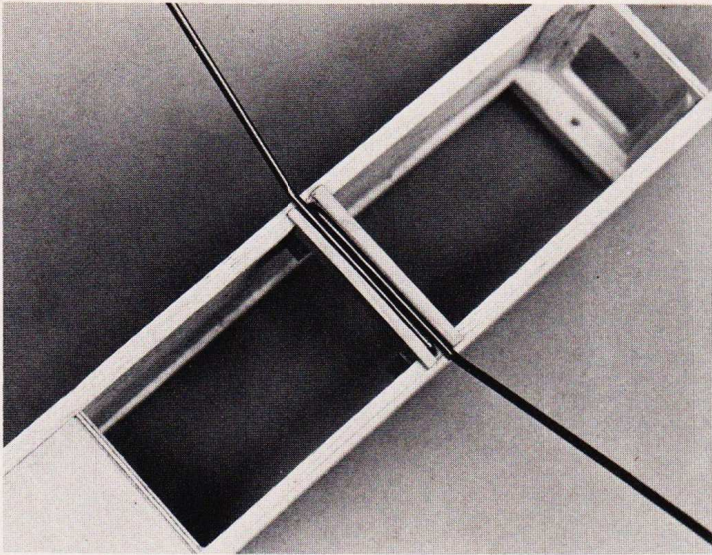
Stabilizer framework glued up over plans then sandwiched between 1/16" sheeting. Hobbyproxy Quick Fix speeds this assembly.



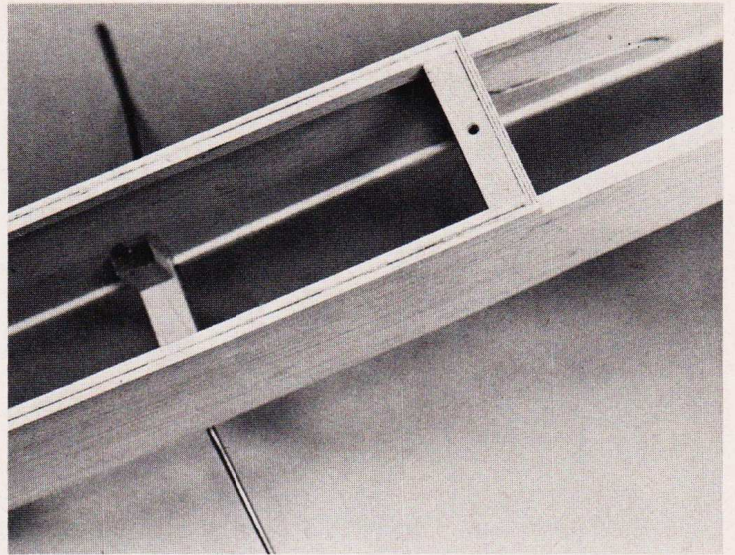
Nose gear eyelet requires quick soldering to prevent melting nylon block. Gear must be bolted to firewall before installing latter in fuselage.



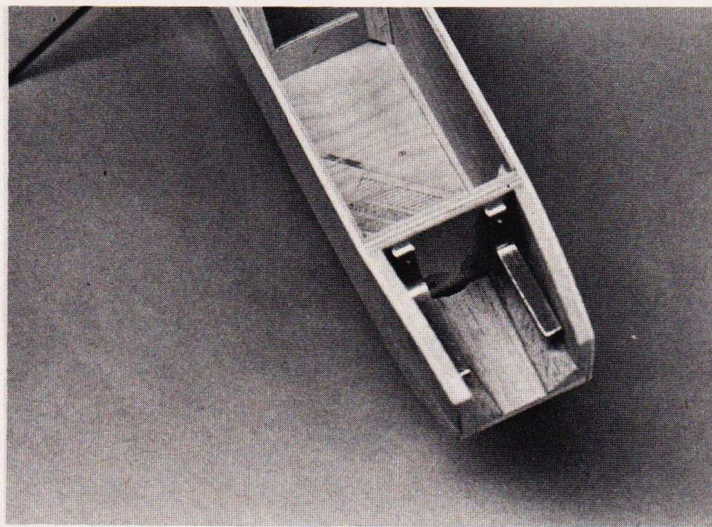
Plywood doublers added to forward fuselage sides, stringers and tail block at rear. Remember, one left side, one right!



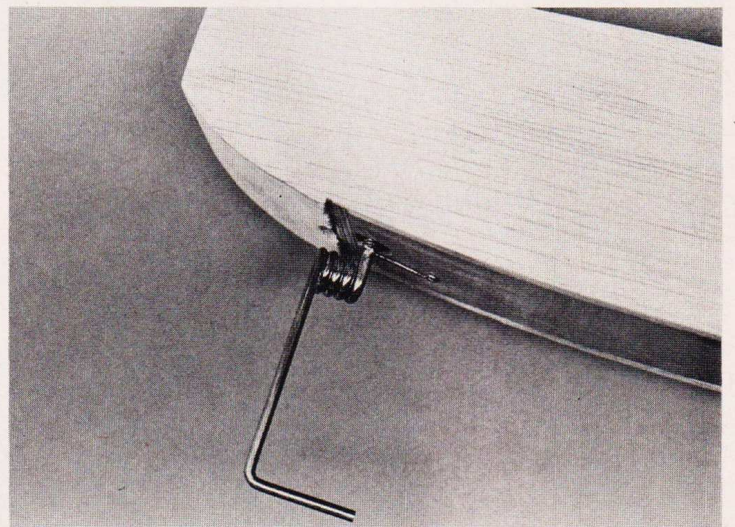
Torsion landing gear block mounted between sides and securely glued.



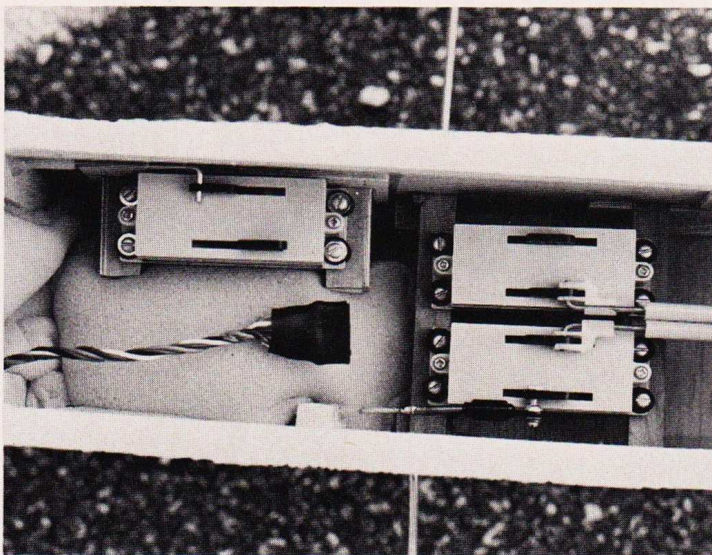
Hardwood screw block used to attach rear of wing with single #10 nylon screw. Note block glued to sides support vertical leg of landing gear.



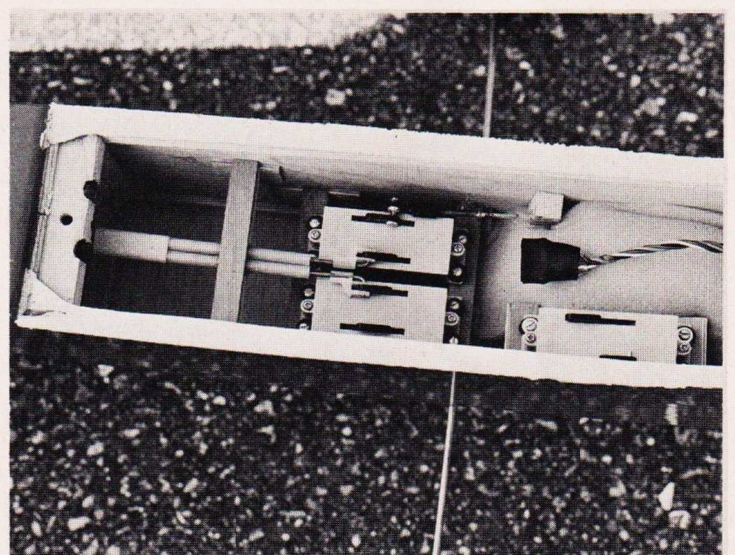
Extruded aluminum engine bearers must be drilled and tapped to suit engine used.



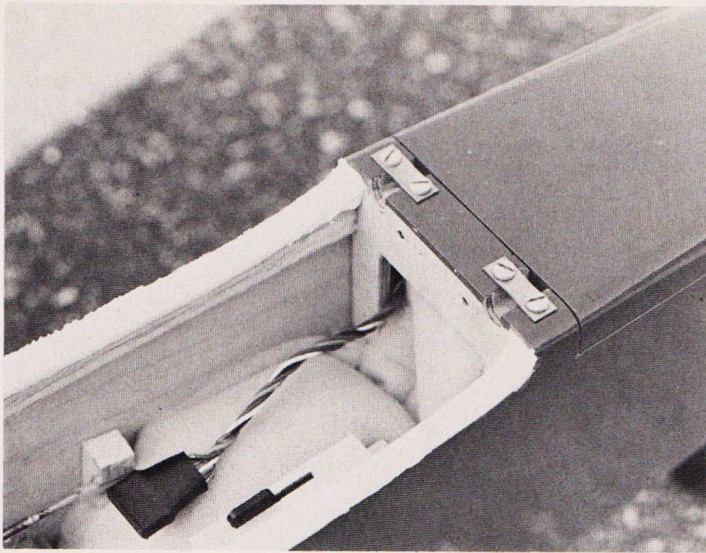
Note close clearance between steering arm and fuselage bottom. Arm should be bent down to clear or moved to top in battery compartment.



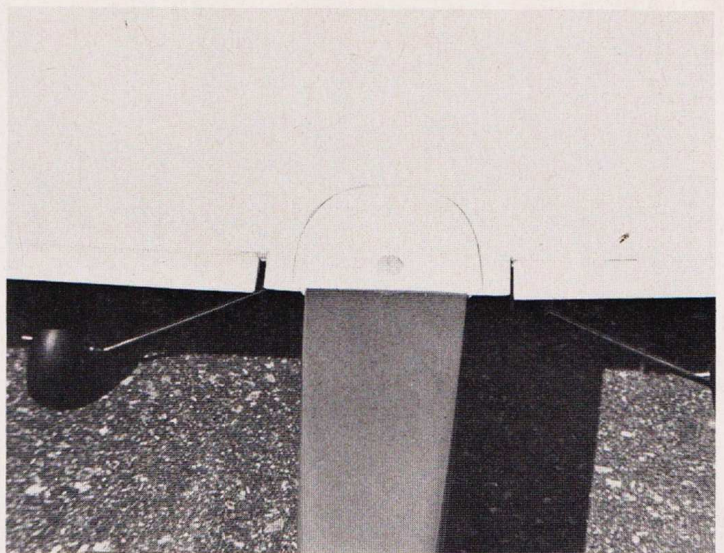
Servo installation on 3/8" square balsa rails capped with 3/8" x 1/8" spruce. Throttle servo mount fabricated from hardwood and balsa. Loose connector for aileron servo.



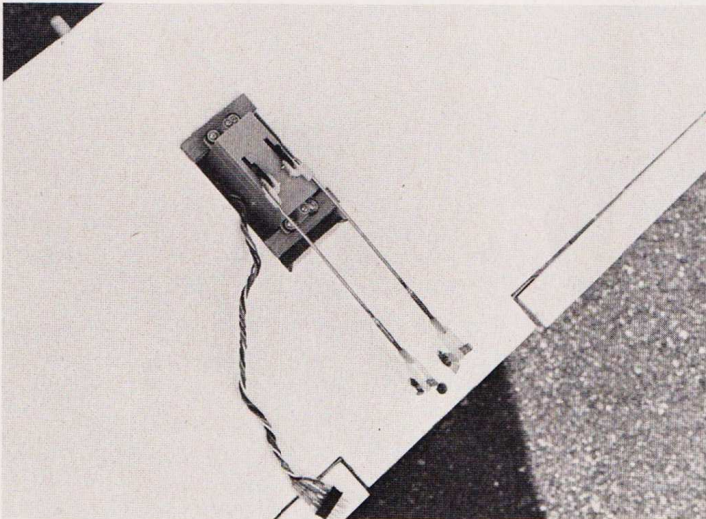
Note cutouts in rear nut block. These must be added in order for aileron horns to swing. Cutter on Dremel Moto-Tool makes smooth cutout.



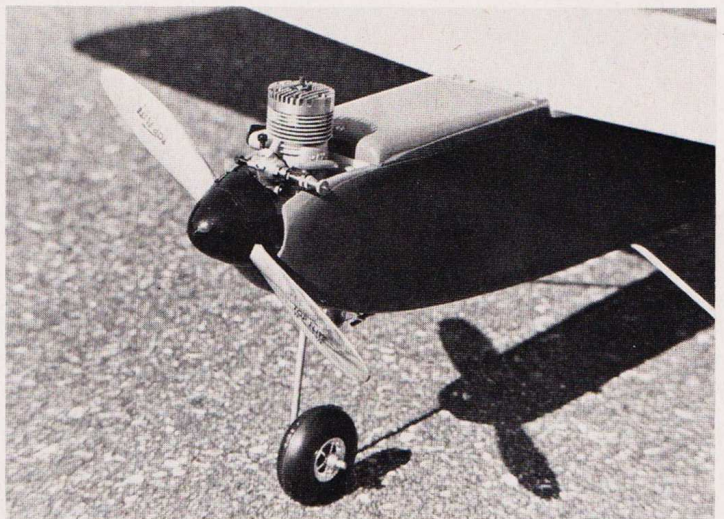
View of wing hold-down straps and dowel sockets. Pair of wing dowels seat into notches in fuselage, securely attaching leading edge.



Single #10 nylon screw holds the trailing edge in place — quick, simple assembly at the field.



Underside of wing showing servo installation --- balsa rails added, then capped with 3/8" x 1/8" spruce to firmly hold mounting screws.



O.S. Max .30 supplies ample power for the Fledgling.

glued to the ribs and leading edge, using scrap shims to hold up into place (be sure to securely weight the panel so that only the sheeting is pulled up). When dry, the top leading edge sheet is added, and the pre-assembled wing tip is added, completing the panel with the exception of the center section planking. The attachment dowel holes can be drilled through the leading edge, but the dowels should not be permanently installed until **after** the wing has been completed and covered.

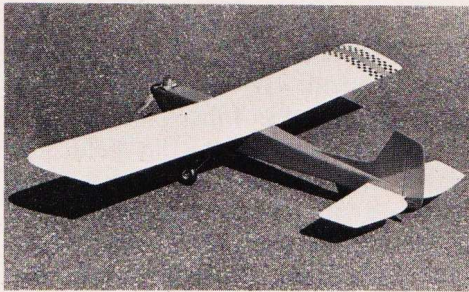
Once the panels have thoroughly dried, the sheeting is carefully trimmed at the center and the panels fitted, using the block from the fuselage to maintain and position the dowel spacing. Planking of the center section and the addition of aileron horns and trailing edge sections completes the basic wing structure. After sanding smooth, the center seam

should be reinforced with cloth tape and resin (Hobbypoxy Kwik Prep works well here), then the plywood plate for the hold-down screw glued or epoxied over the trailing edge. The strip ailerons are hinged to the trailing edge with the hinge material provided. The plywood plate supplied to be installed in the aileron servo opening could, in our opinion, be omitted (unless the servo is installed with double faced tape, which is not recommended). This will allow setting the aileron servo deeper into the wing. Overall, the wing is simple to build and is quite strong, both features being especially valuable for the novice RC'er.

Assembly of the fuselage is again quite easy. Plywood doublers must be attached to the fuselage sides. For this we would recommend either a good contact cement or epoxy glue. Both

are quick, strong, and cause no warping of the sides. The nosegear must be bolted to the firewall before the latter is installed. Be sure that, in assembling the nosegear, the steering arm is positioned on the strut so as to allow the spring coil of the gear to clear the fuselage bottom. The steering arm will most likely have to be bent to clear the fuselage bottom. We feel that it might be better to put the steering arm on top of the mounting block (in the tank compartment). This would make the linkage from the servo simpler.

The fuselage sides are joined at the rear, then spaced with two bulkheads and the firewall. The top and bottom are added and presto — one fuselage! A slot must be cut in the rear top block for the installation of the vertical fin. This slot **must** be positioned accurately to prevent a "built-in" turn.



STERLING FLEDGLING

Run a line from the center rear to the center of the firewall. Position the fin slot to this line.

The stabilizer consists of a 1/16" top and 1/16" bottom sheet, with a truss structure sandwiched in between. Using 5-Minute epoxy, the entire stab can be completed, ready for sanding, in 20 minutes. That's easy!

Construction-wise, this leaves only the hinging of the rudder and elevator. Total time — less than one weekend.

The installation of the radio control equipment is not detailed on the plans, although a general equipment position is indicated. This is probably due to the wide variations in equipment, both in size and configuration. The photos clearly show how we installed our MRC 710 radio in the Fledgling. If one of the sub-miniature systems had been used, it would be possible to install the servos three abreast on a plywood plate, or servo mount, on rails either along the fuselage sides or across the fuselage. With the larger servos, the forward (throttle) servo could be mounted in an "aileron mount" to the fuselage side or, alternately, the entire servo installation could be shifted back far enough to pack the receiver forward of a tray holding all three, though this would probably require added weight in the nose.

We chose to install Pylon Brand Gold-'N-Rods rather than the pushrods supplied. This decision was largely a matter of simplicity, although the use of Gold-'N-Rod does eliminate the need for a double 90 degree bend in the pushrods where they would exit the fuselage. This type bend can cause flexing of the pushrod, and we try to avoid using it whenever possible. We found it necessary to relieve the wing nut block in the fuselage, in the area where the aileron horns pivot, otherwise aileron travel is very limited.

The entire ship was covered with Solarfilm and MonoKote (how's that for non-committal?). The aluminum engine mounts were drilled and tapped

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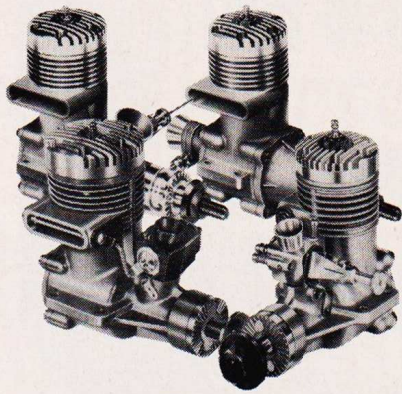


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to accept our O.S. Max .30, and a 6 oz. pylon tank was fitted into the tank compartment. The total weight, ready to fly came out as 4 lbs., 1 oz.

Before heading to the field, the entire ship and installation should be given a thorough check out. The balance point **must** be as indicated on the plans. Controls **must** move in the proper direction (ailerons are easy to hook up in reverse). The wheels should turn freely, and the batteries fully charged.

On the field, the ship flies well and handles easily. The novice should begin with all linkages set in the outer-most hole in all control horns (farthest from hinge line). This is particularly true of the elevator. As experience is gained, they can be moved in closer, one hole at a time.

Our ship required no trim whatsoever, and was quite docile with control throws at a minimum. By moving the clevises into the second hole, the Fledgling becomes very active and loads of fun. By utilizing a small engine (.30 or under) with a muffler, it is capable of flying from small fields.

During flight evaluation tests, our ship was flown by several novice flyers, with excellent results. One minor mishap did point out an area which could be improved. On a less than perfect landing, the ship hit on a wheel, nosewheel, and a wingtip. (*Ed note: Bernie's standard 3-point landing*). As a result, the ship flipped around striking the rudder and tailskid sideways. Both obligingly broke. The addition of a piece of 1/32" or 1/16" plywood across the lower end of the rudder (under horn to trailing edge) on each side will prevent breakage. The tailskid should be moved back so that the rear edge is even with the rear of the fuselage. In this position, it is attached directly below the tailpost, consequently being able to withstand considerably more abuse. Of course, if you're a pro, these mods are unnecessary.

The Sterling Fledgling is a fine kit, which will produce an equally fine flying machine, with a minimum expenditure of time and capital. The novice would do well to study our photos and/or enlist the aid of an accomplished builder for an assist on equipment installation. The reward is a tough, easy handling aircraft, which you can fly with little or no help.

The Fledgling is, in our opinion, Sterling's best. Tested, Approved and Recommended by RCM.