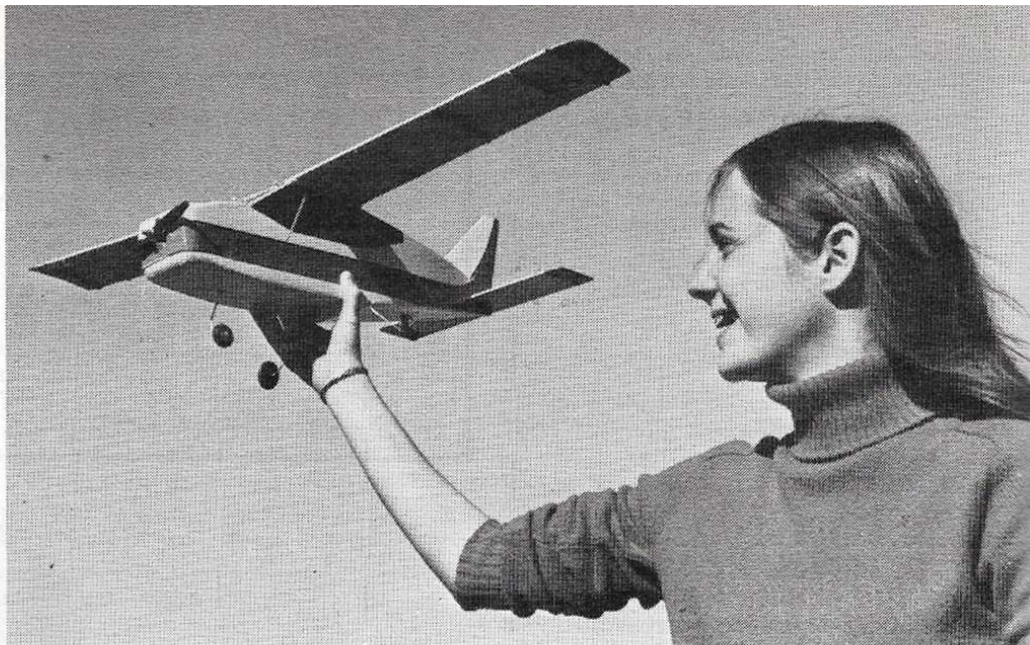


HERE'S A NEW IDEA:

A free flight scale "trainer" for learning trimming techniques.

Designed by
Doc Mathews
Text by
Larry Kruse



Michelle Mathews holds the boxy Bede aloft. If you feel you absolutely must, you could stick a single channel or small two-channel radio in, just for fun.

BEDE BD-6

BEDE BD-6

TYPE: FF Sport Scale
WINGSPAN: 36 inches
WING AREA: 143 square inches
LENGTH: 24 inches
ENGINE: .020

● The BD-6 is not only a "fun" airplane in its full scale form, but its simple design is attractive to scale model builders who lean toward reliable and easily detailed models.

An outgrowth of the engineering and construction knowledge gained with the high wing BD-4, and the performance achievements of the famous BD-5, the full scale BD-6 blends the best of both in an attractive package for the home-builder. Likewise, its straight lines, tricycle gear, and bright color trim lines make it an attractive scale project for the

beginning or advanced free flight scale builder.

The scale-proportioned model presented here was originally conceived as a study model to check construction features for a more elaborate contest version. However, the plane has proven so strong and stable that it has become an entity in itself, a model easy to trim and a pleasure to fly for fun. In fact, it can serve as a scale free flight "trainer" prior to advancing to more complex and easily damaged ships.

How many times have you seen beautifully developed scale jobs fail to fly, or worse, crash on the first flight? The two principal problems usually are the builder's incomplete understanding of flight trim principles, and the accompanying lack of experience in actually flight trimming a scale model. How much better to

build a quickie like the BD-6 to scale proportions, learn a few basic flight principles, and bounce the plane off the ground a few times in applying theory to practice.

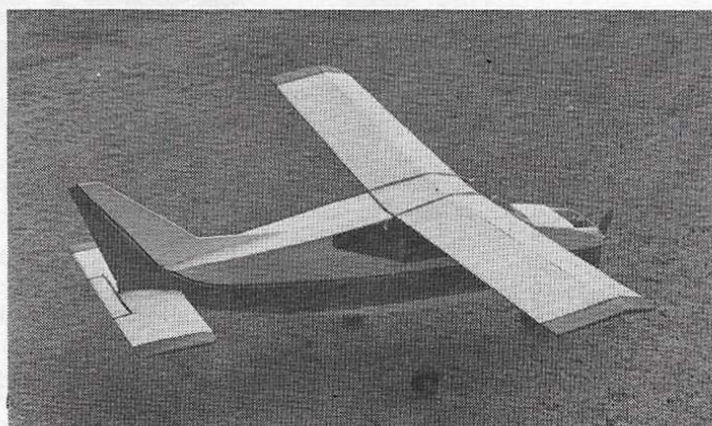
If you have an interest in free flight scale, build something like this design, go out in the weeds, and keep flying it until you gain a certain knowledge of the effect of trim changes. Then and only then will you be ready to put innumerable hours into a more elaborate project.

CONSTRUCTION

A "Jedelsky" wing was chosen for its quick building features, appropriate for the BD-6. Select a piece of $\frac{3}{16}$ " x 2" x 36" "C" grain balsa and a good flat piece of $\frac{3}{32}$ " x 3" x 36" "C" grain. Cut true edges with a steel straightedge and mark all rib positions on the bottom of each



No beauty prizes here, but it's simple, rugged, and easily built.



All-sheet construction, including Jedelsky-style wing. Build one!

AIRTRONICS XL SERIES RADIO CONTROL SYSTEMS

Sub-MINIATURE
RECEIVER

FEATURE OF THE MONTH



Totally new! Highly selective! Improved RF design offers better range and interference rejection. Double-tuned front end provides less than 2.0 microvolt typical sensitivity. Designed around the Signetics NE 5045 IC decoder, it is equipped with sub-miniature connectors with goldplated contacts for extra reliability. Epoxy-glass printed board has plated thru holes for aerospace quality and reliability. All components conformal coated for maximum protection from vibration. Plug-in crystal permits easy frequency change. Available in all 72, 27, and 53MHZ frequencies. *Airtronics... it's the difference between "great" and "sensational"!*

For Airtronics' products see your local hobby shop. They are well prepared to answer your questions and provide you with assistance.



FULL ONE YEAR LIMITED WARRANTY ON ALL XL SYSTEMS

AIRTRONICS®
A DIVISION OF LEISURE DYNAMICS HOBBIES, INC.

12160 WOODRUFF AVENUE
DOWNEY, CALIFORNIA 90241
TELEPHONE (213) 862-6583

BD-6

sheet with a soft pencil. Stack and cut the ribs specified on the plan and glue them to the bottom of the $\frac{3}{16}$ " sheet as it is pinned upside down to the building board. When the ribs are dry, unpin the leading edge and re-pin right side up on the building board. Glue $\frac{3}{32}$ " onto ribs. Pin the trailing edge sheet down until it is dry, then join the $\frac{3}{16}$ " and $\frac{3}{32}$ " sheets with a bead of Ambroid or similar model

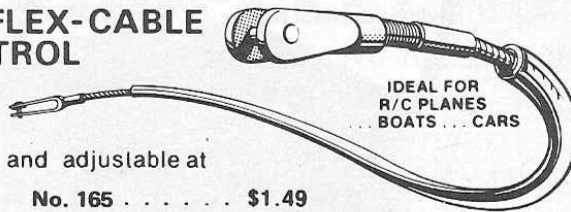
NY-STEEL KWIK-ROD ASSEMBLY.



No shrink - no stretch, free running fully adjustable at control horn. Strong, simple and easy to install. Hot, wet or cold days won't affect trim setting. Complete 31" assembly with Kwik-Links. No. 102 \$1.49

DU-BRO 20" FLEX-CABLE MOTOR CONTROL

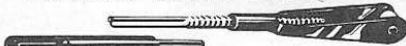
Provides the ultimate in control cable assembly. Highly flexible, free running and adjustable at control horn.



IDEAL FOR
R/C PLANES
BOATS . . . CARS

No. 165 \$1.49

THE ORIGINAL DU-BRO KWIK-LINK.



Control yoke assembly for any control linkage. Allows easy removal, for on-the-field adjustments. 4" rod and split coupling sleeve. No. 10649c
12" KWIK-LINK Rod and Kwik-Link. No. 108 49c

LARGE THREADED COUPLERS Cat. No. 212



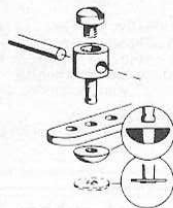
These new threaded couplers are now designed to fit perfectly on Kwik-Link rods and flex cable. 5 for only \$1.20

E-Z CONNECTORS

Still only 98c Pr.

WE HAVE INCLUDED IN EVERY PACKAGE OF E-Z CONNECTORS 2 OF OUR NEW NYLON SNAP-ONS, ESPECIALLY MADE TO HOLD TIGHT ON ANY SIZE CONTROL ARM. THESE NEW SNAP-ONS CAN SAFELY BE USED OVER AND OVER AGAIN. FOR THOSE OF YOU WHO STILL PREFER A PERMANENT INSTALLATION, JUST PEEN ON THE WASHER AS BEFORE. YOUR CHOICE.

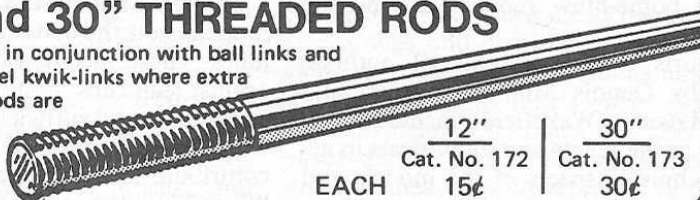
SNAP ON
-Or-
PEEN ON



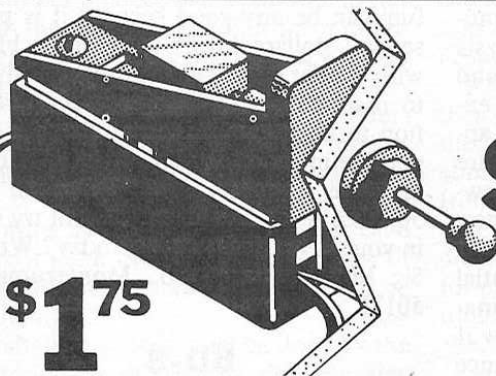
Cat. No. 121

12" and 30" THREADED RODS

Can be used in conjunction with ball links and nylon or steel kwik-links where extra long push rods are needed. Bendable and strong



| | | |
|--------------|--------------|-----|
| | 12" | 30" |
| Cat. No. 172 | Cat. No. 173 | |
| EACH 15¢ | 30¢ | |



\$1.75

KWIK-SWITCH MOUNT

The simplest, fastest and easiest way to mount your battery switch! This complete switch mounting set enables you to install your battery switch in minutes, anywhere in the fuselage, by drilling one, 3/16" hole!!! Excellent for use in planes, helicopters, boats and cars. Designed to fit any wall thickness up to 3/8"

Cat. No. 203



DU-BRO PRODUCTS INCORPORATED

480 Bonner Road Wauconda, Illinois 60084 U.S.A.

cement across the top surface, smoothing it down with a finger.

After all glue is dry, sand the 3/16" sheet to the contour shown on the plan. Cut the wing at the center, block up each tip 1 1/4" (one of the few deviations from scale outline), and sand the dihedral angles in prior to epoxying the panels together. Fill in the bottom center with 3/32" sheet when the epoxy has cured.

The rudder, sub-rudder, dorsal fin, and stabilator are all cut from 3/32" sheet, rounded or airfoiled (whichever is appropriate), and set aside until latter stages of construction.

Begin fuselage construction by joining two pieces of 3/32" x 3" x 36" along two straight edges. Cut out both fuselage sides, doublers, and all other miscellaneous parts made of 3/32" balsa. Note that the right and left side doublers are different—this will provide the necessary right thrust. Other fuselage parts of plywood and 3/16" sheet balsa can be cut out and prepared for assembly by drilling holes for engine mounting bolts and landing gear fasteners.

Position and glue bulkheads A, B, and F in place along fuselage sides, aligning everything with a triangle or square and holding everything in place with masking tape. Allow the assembly to dry overnight.

Leaving the fuselage on the board, strike the mid-lines of A, B, and F and run a straight edge from them to the tailpost. Cement the tailpost, holding the tail together until dry with clothespins, and then bolt in the landing gear assembly. Cover the top and bottom with 3/32" sheet, running the grain across the fuselage. After the top and bottom covering is dry, add the remaining nose blocks, wing dowels, rudder, stabilator, sub-fin, etc.

Once all parts are assembled, sand the whole plane with 320 to 400 grit sandpaper and give it three coats of sanding sealer, sanded between coats. First test flights should be attempted in this semi-finished state in case major adjustment changes need to be made. Leave the white and orange trim and MonoKote windows for later, after the first rudimentary flights have been completed.

FLIGHT ADJUSTMENTS

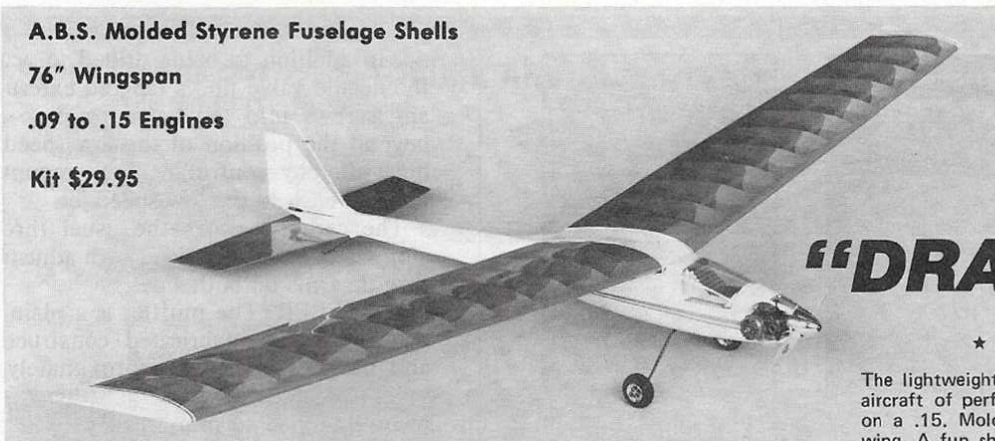
Cox engines have tanks that are entirely too large for free flight scale, so before even thinking of flying the BD-6, find some method of measuring the fuel accurately. One of the best methods is to obtain a 2cc disposable syringe from your dentist, physician or local hospital. By name, you can ask for a Sherwood 503 E.D. and use the blunt needle that comes with it as a handy fill spout. Ordinarily, unless you have an ancient engine with a

A.B.S. Molded Styrene Fuselage Shells

76" Wingspan

.09 to .15 Engines

Kit \$29.95



has Hatched "DRAGONFLY"

★ A Removable Formed Wire Gear is Included

The lightweight, clean design and lean lines mark this as an aircraft of performance. Handles well with an .09, spirited on a .15, Molded A.B.S. fuselage shells and quick-to-build wing. A fun ship, superb Trainer, fuel saver! 2-3 Channels.

Dealers & Distributors Invited
(516) 842-7726

Send Stamped/Addressed Envelope for "Dragonfly" brochure.

Executive Design Corp., 167-B New Highway, North Amityville, N.Y. 11701

sloppy fit, 1.0cc will run a TD .020 for a long time. Be sure you run the tank out after every flight or you'll be in for a surprise "residual" flight that may cost you the model and the engine.

Fundamentally, if the balance is right your Bede should glide fairly steeply (remember it's not a duration ship) with no stall and only a moderate turn. If it glides in such a fashion, you're ready for powered flights. Here are a few symptoms of scale ships and some suggested corrections:

1. Model climbs straight ahead at an increasingly steep angle, then falls off on a wing—*add downthrust.*

2. Model turns tightly to the left with little or no climb—*add right thrust and reduce downthrust.*

3. Model won't climb—*add shim under leading edge of wing or reduce downthrust.*

4. Model turns right, drops right wing—*speed up engine or reduce downthrust.*

5. Model turns left in climb, but as speed increases tightens turn and drops nose—*warp wing so that LE of right wing is down slightly (will affect glide).*

When flights seem consistent, i.e., a climbing left-hand turn, go back to the list and fool around with one change at a time. When you understand the effect of each change, reset the plane until it flies normally, and change it again. In effect, prove to yourself that rpm, engine offset, warp adjustments, etc., are all interrelated—sometimes more critically in a scale plane of marginal stability than any other type of model.

Hopefully, this little ship will excite the scale builder instincts within you, and at the same time provide a test bed for scale flight adjustments.

Those who might be interested in a more detailed discussion of the trimming and adjusting techniques used in this article are directed to "Forces at Work on the Free Flight Scale Model," which appeared in *Model Airplane News*, May and June 1977; and to "Flying and Improving Scale Model Airplanes," a book published by *Model Airplane News*. ■

CHANGE OF ADDRESS

| | | | |
|------------|---------------|-------------|-----------|
| NEW | Name _____ | | |
| | Address _____ | | |
| | City _____ | State _____ | Zip _____ |
| OLD | Name _____ | | |
| | Address _____ | | |
| | City _____ | State _____ | Zip _____ |

Send to MODEL AIRPLANE NEWS, Subscription Department, 837 Post Road, Darien, CT 06820, at least six weeks before you move. Please include the address label from a recent issue, or print the information exactly as shown on the label. The Post Office will not forward copies unless you provide extra postage. Duplicate issues cannot be sent.