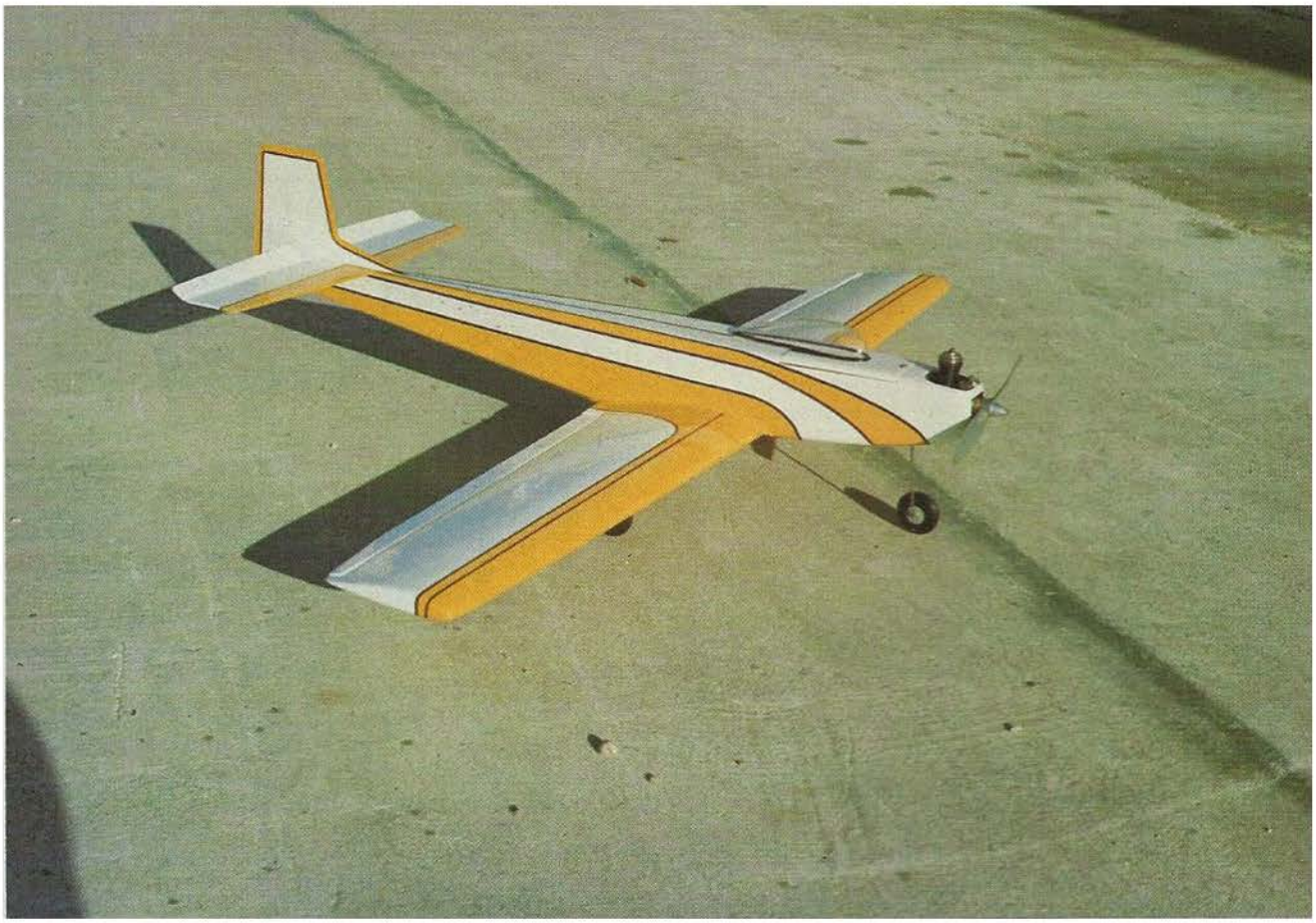
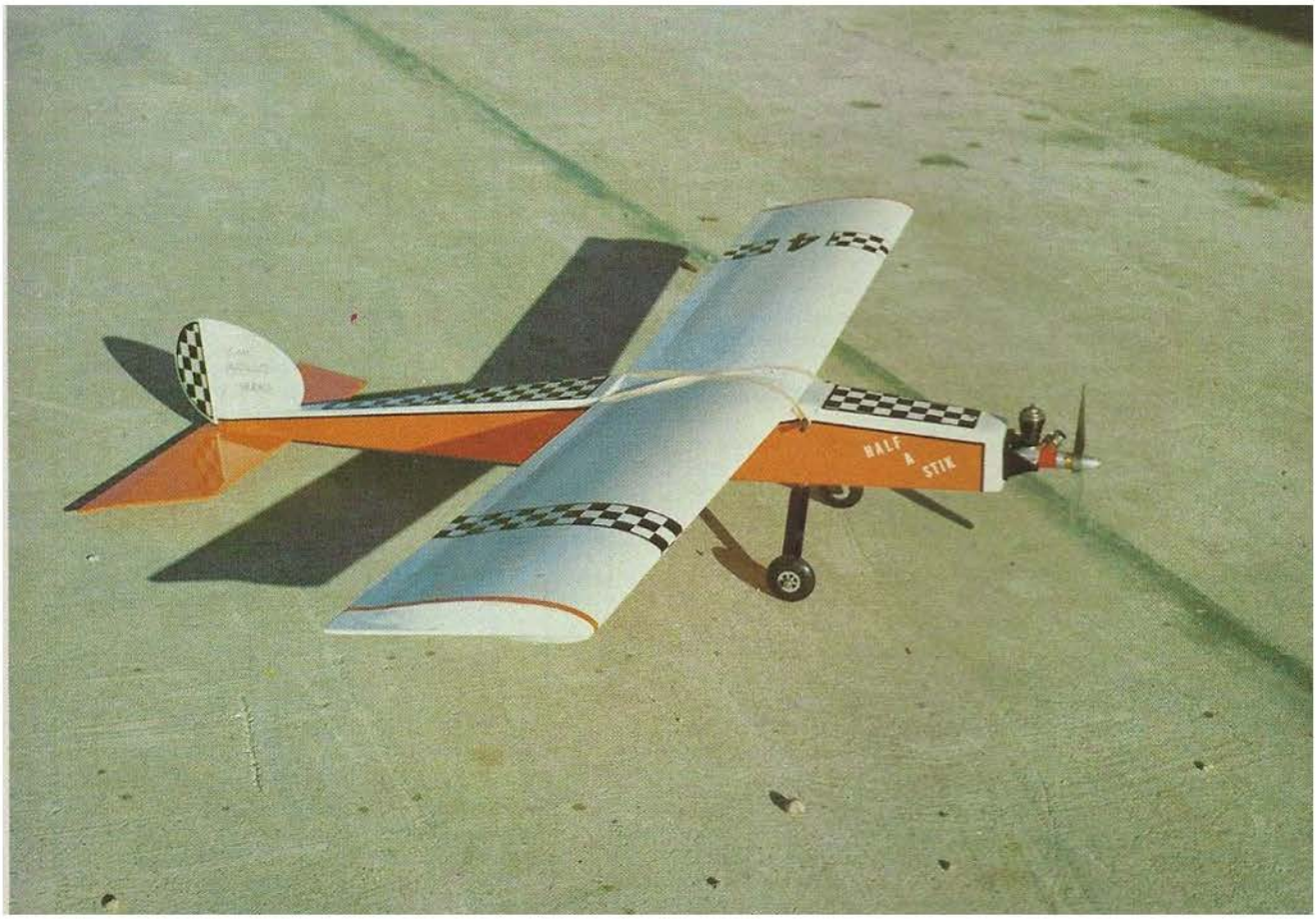



HALF A STIK

Half-A-Chaos

Two Half-A models designed with performance in mind. A hot, scaled down version of the popular Kaos and a Half-A Kwik Stik. You can build them both in less time than it takes to lay up the wing on a sixty powered job. And once you put them through their paces you'll have every guy at the field waiting for his turn at the stick. By George Chabot and Ted Bozanich.

HALF-A-CHAOS
Designed By: Ted Bozanich & George Chabot

TYPE AIRCRAFT
1/2A Sport/Pylon
WINGSPAN
36¾ Inches
WING CHORD
6¼ at Center
TOTAL WING AREA
206¾ Square Inches
WING LOCATION
Low Wing
AIRFOIL
Semi-Symmetrical
WING PLANFORM
Double Taper
DIHEDRAL, Each Tip
1/2 Inches
O.A. FUSELAGE LENGTH
27⅝ Inches
RADIO COMPARTMENT AREA
(L) 6¼" X (W) 2⅜" X (H) 2"
STABILIZER SPAN
14 Inches
STABILIZER CHORD (incl. elev.)
3½" Average
STABILIZER AREA
49 Square Inches
STAB AIRFOIL SECTION
Flat
STABILIZER LOCATION
Top of Fuselage
VERTICAL FIN HEIGHT
4 Inches
VERTICAL FIN WIDTH (incl. rudder)
4¾ Inches (Average)
REC. ENGINE SIZE
.049-.051 Cu. In.
FUEL TANK SIZE
2 Ounces
LANDING GEAR
Tricycle
REC. NO. OF CHANNELS
2-3 Channels
CONTROL FUNCTIONS
Ailerons/Elevator or
Ailerons/Elevator/Rudder
BASIC MATERIALS USED IN CONSTRUCTION
Fuselage ..... Balsa and Ply
Wing ..... Foam and Balsa
Empennage ..... Balsa
Weight Ready-To-Fly ..... 20-24 Oz.
Wing Loading ..... 13.9-16.7 Oz./Sq. Ft.

● This is really a two-in-one article — featuring two Half-A aircraft with an ease of construction and a performance potential that will please the Sunday Flier or the guy who wants a quick building small aircraft that flies exactly like its .60 powered cousins — but at a far less expenditure of time and materials cost.

The first of the two is the Half-A-Chaos. Actually, what's more normal than a model of a model? The Kaos, designed by Joe Bridi, is one of the finest pattern ships ever built. We decided to scale this superb machine down to Half-A size in order to enable anyone to build and fly this ship from even the smallest of fields. We took into consideration all of the lengths and moments, wingspan, etc., and tried to combine all this into a small fun-type aircraft that would fly the pattern like the big one.

With a little assistance from Jim "Banzai" Barnes, who loaned us the butchers wrapping paper on which to draw the plans, the Half-A-Chaos was born.

All of the construction notes regarding the modifications to the Ace tapered foam wing is called out on the plans. Follow those instructions to the letter in order to achieve maximum performance from this little pattern machine. Insofar as an engine is concerned, we would recommend a Kirn Kraft modified Cox TD .049 or .051 engine with oversized venturi, Kirn Kraft Needle valve assembly, and crankcase pressure. If you don't mind a slight sacrifice in power and speed, a standard Cox TD .049 or .051 without pressure can be used.

So, without further ado, order the full size plans from RCM and let's get on with construction.

Half-A-Chaos Construction

(1) Cut out all the parts shown on the plan.

(2) Glue the balsa sides to F2 and F3.

(3) Glue the sides to bulkhead F1.

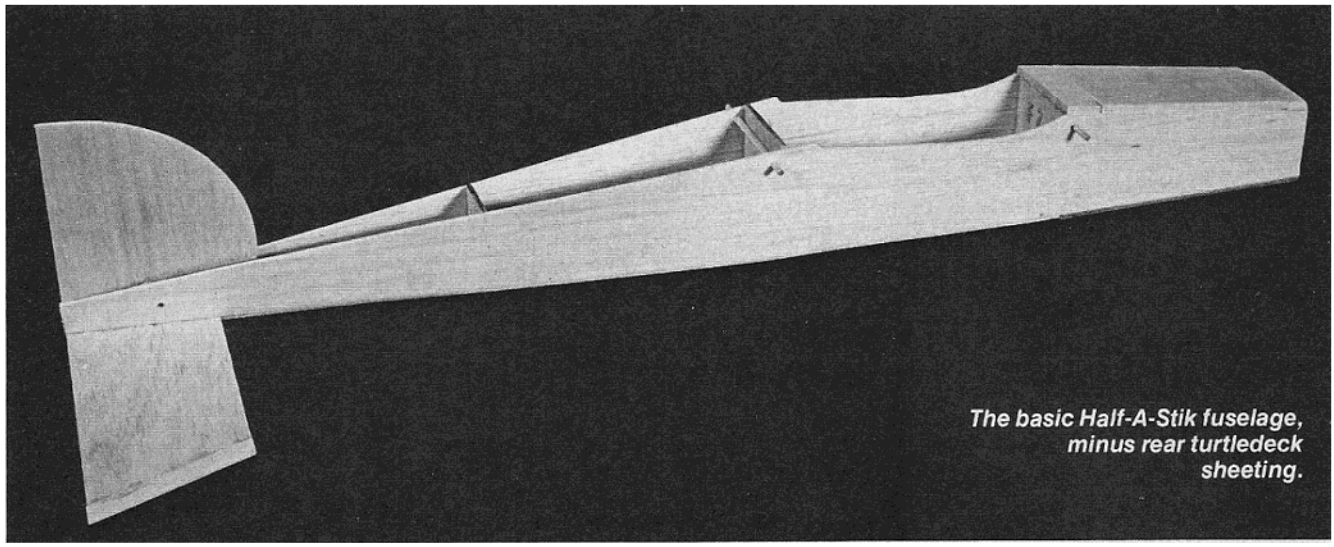
(4) Cut out the horizontal stabilizer, install it on the fuselage and glue the rear of the fuselage sides together.

(5) Glue on the top and bottom 3/32" crossgrain sheeting.

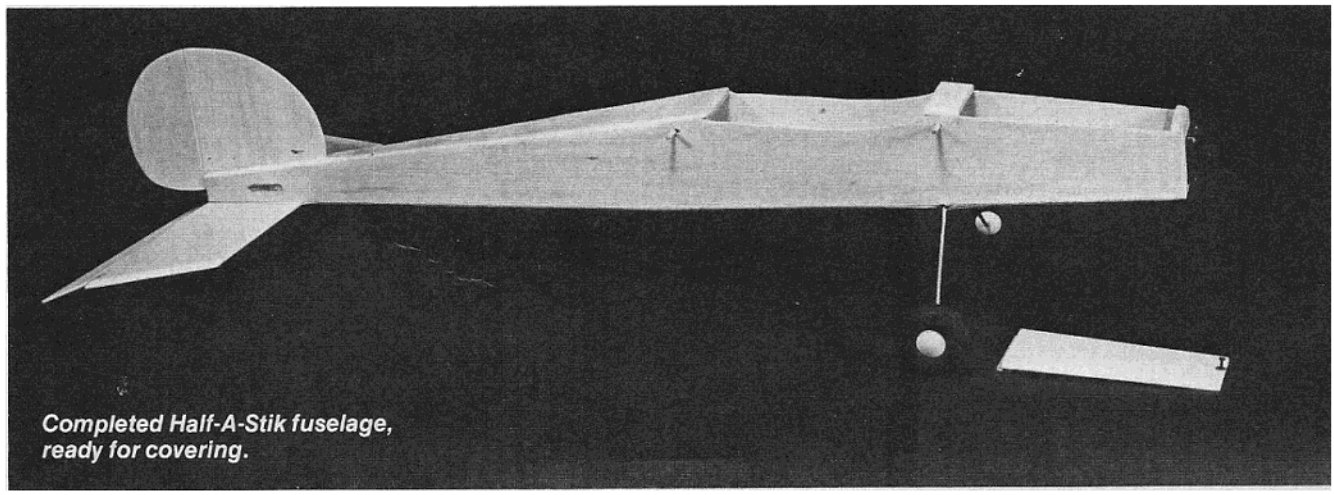
HALF-A-STICK

TYPE AIRCRAFT
1/2A Sport Pylon
WINGSPAN
35 Inches
WING CHORD
5½" Rudder Only
5⅞" W/Ailerons
TOTAL WING AREA
201.5 Sq. In. (R/O)
222 Sq. In. W/Ailerons
WING LOCATION
High Wing
AIRFOIL
Semi-Symmetrical
WING PLANFORM
Constant Chord
DIHEDRAL, EACH TIP
W/Ailerons 1" — W/Rudder 2"
O.A. FUSELAGE LENGTH
26½ Inches
RADIO COMPARTMENT AREA
(L) 6¼" X (W) 2" X (H) 2"
STABILIZER SPAN
12½ Inches (Average)
STABILIZER CHORD (incl. elev.)
3¾ Inches
STABILIZER AREA
46⅞ Square Inches
STAB AIRFOIL SECTION
Flat
STABILIZER LOCATION
Bottom of Fuselage
VERTICAL FIN HEIGHT
3¾ Inches
VERTICAL FIN WIDTH (incl. rudder)
5⅞ Inches
REC. ENGINE SIZE
.049-.051 Cubic Inch
FUEL TANK SIZE
2 Ounces
LANDING GEAR
Conventional
REC. NO. OF CHANNELS
Two Channel for Elev./Ail.
Single (Pulse) R/O
CONTROL FUNCTIONS
Rudder Only or Ail. & Elev.
BASIC MATERIALS USED IN CONSTRUCTION
Fuselage ..... Balsa, and Ply
Wing ..... Foam/Balsa Ail. & Tip
Empennage ..... Balsa
Weight Ready-To-Fly ..... 20-24 Oz.
Wing Loading ..... 14.3-17 Oz./Sq. Ft. (R/O)
13-15.6 Oz./Sq. Ft. (W/Ail.)

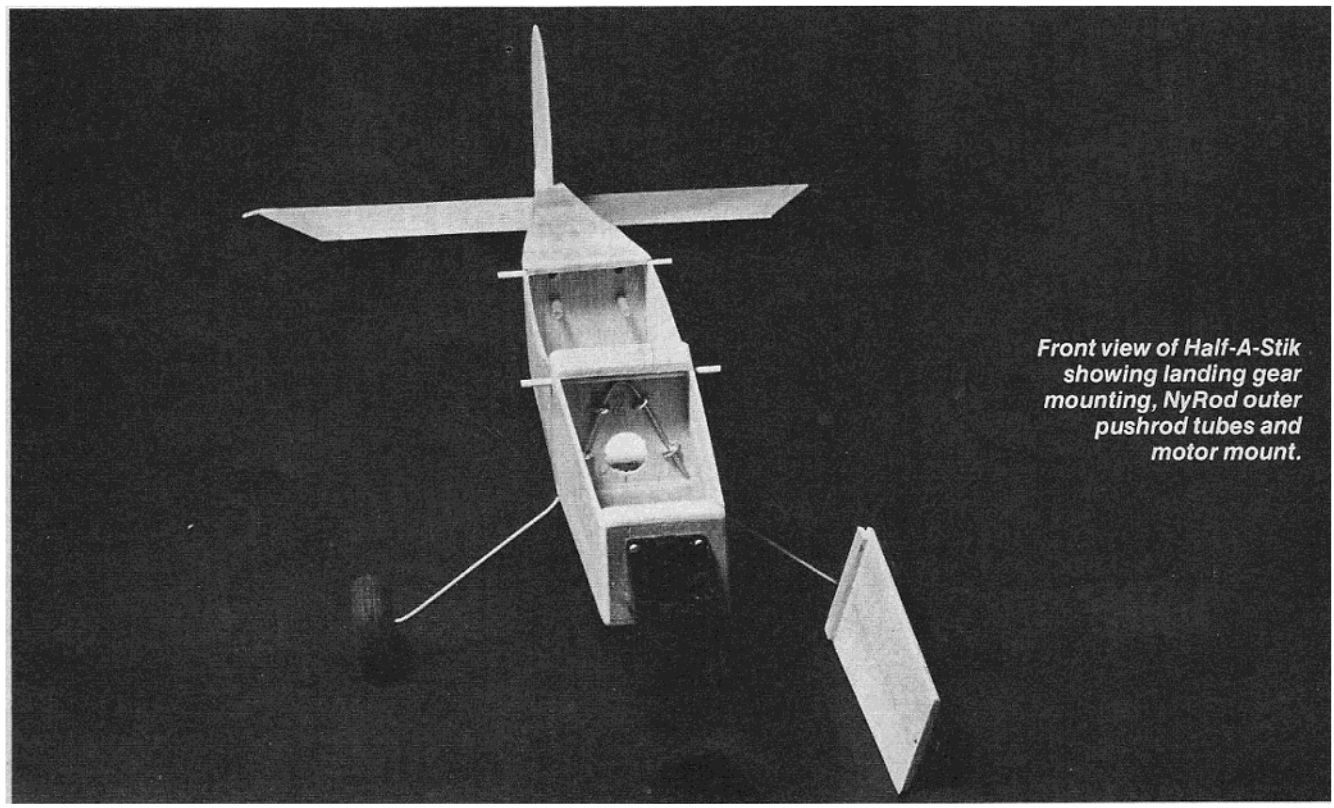
Half-A-Stik



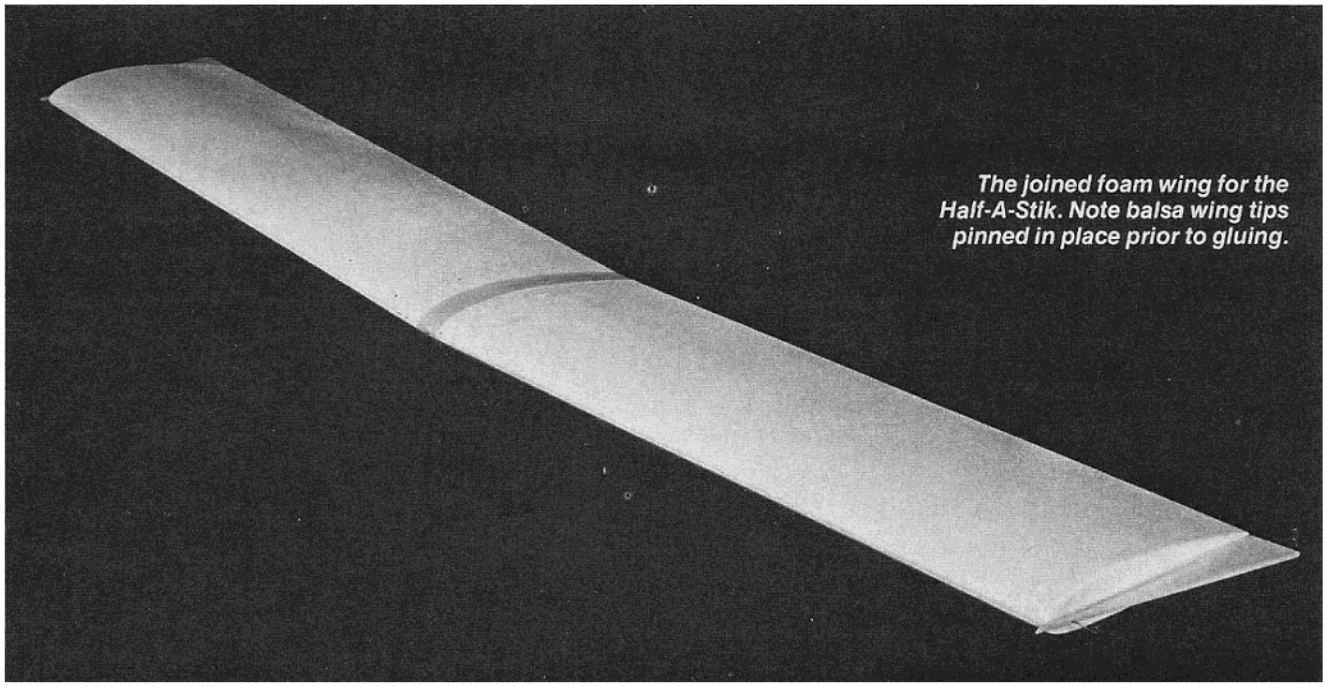
The basic Half-A-Stik fuselage, minus rear turtledeck sheeting.



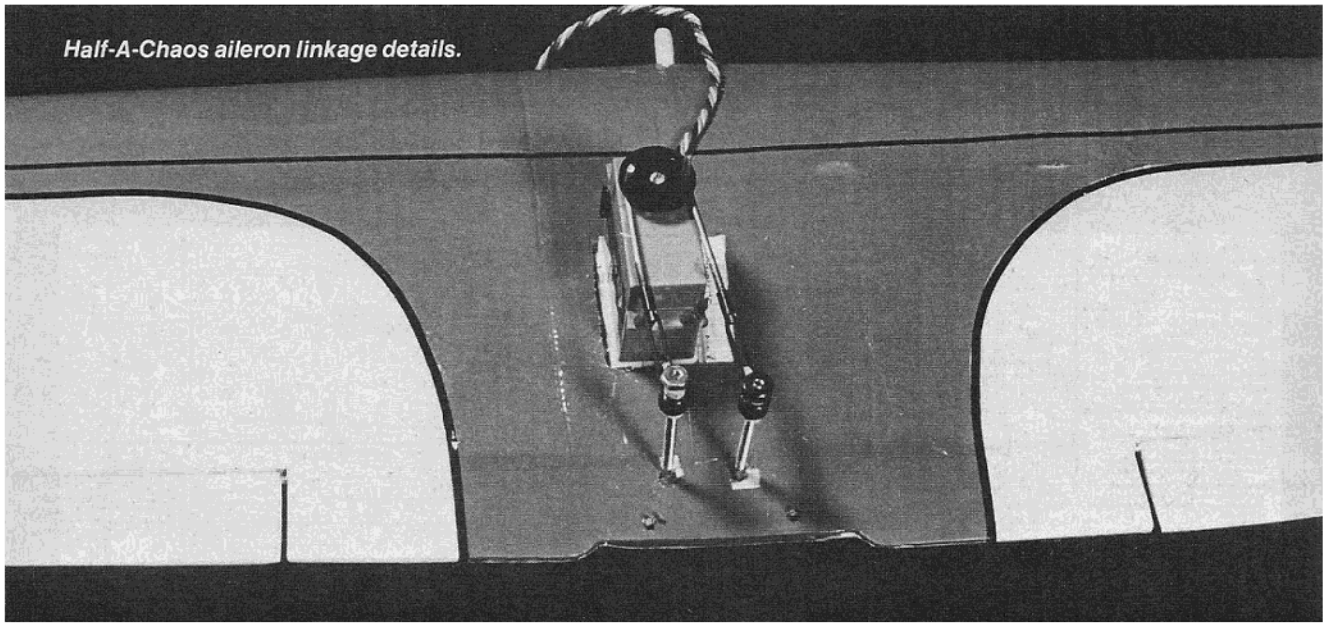
Completed Half-A-Stik fuselage, ready for covering.



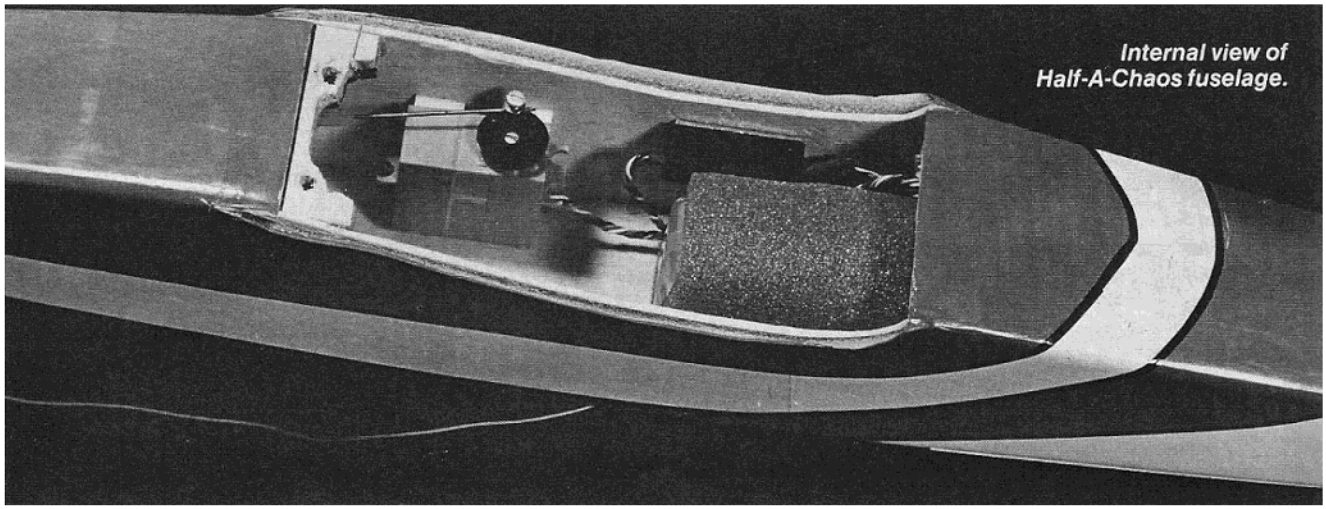
Front view of Half-A-Stik showing landing gear mounting, NyRod outer pushrod tubes and motor mount.



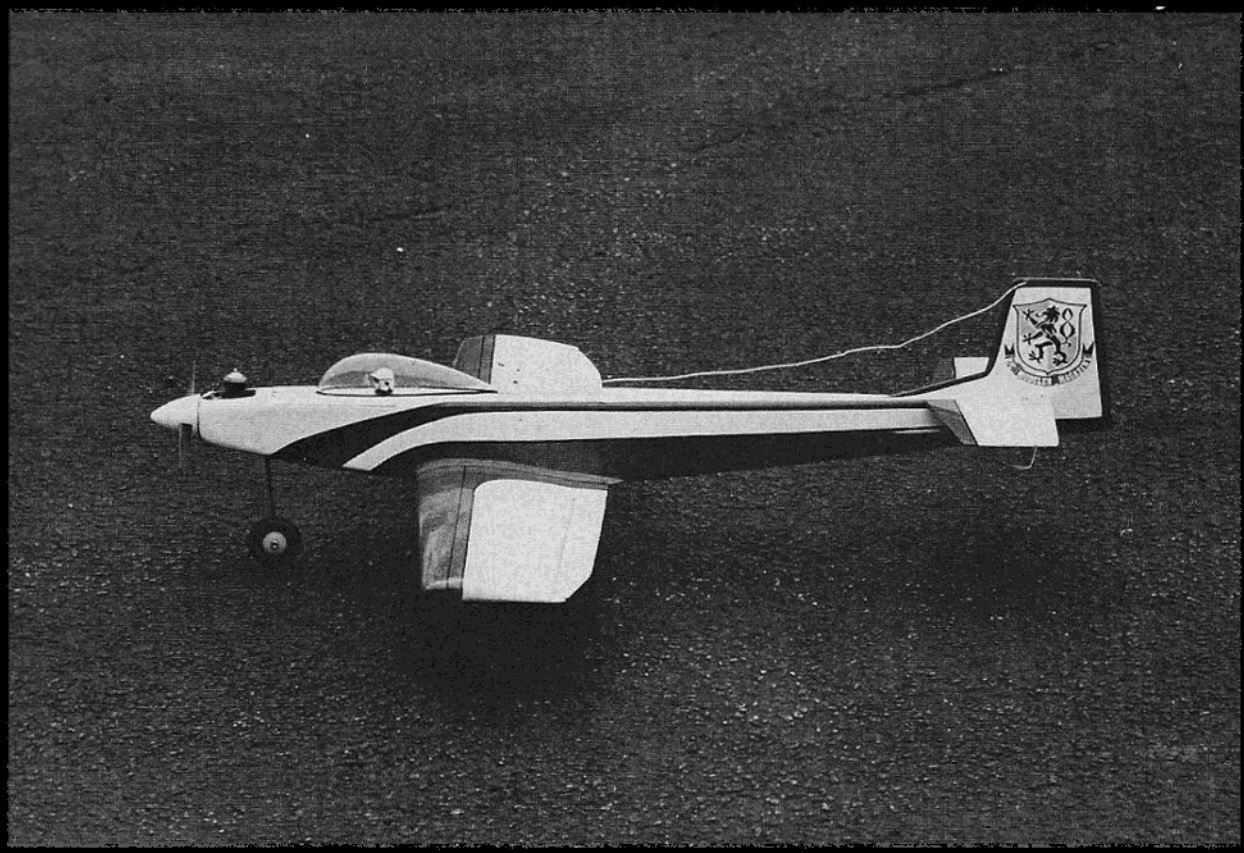
The joined foam wing for the Half-A-Stik. Note balsa wing tips pinned in place prior to gluing.



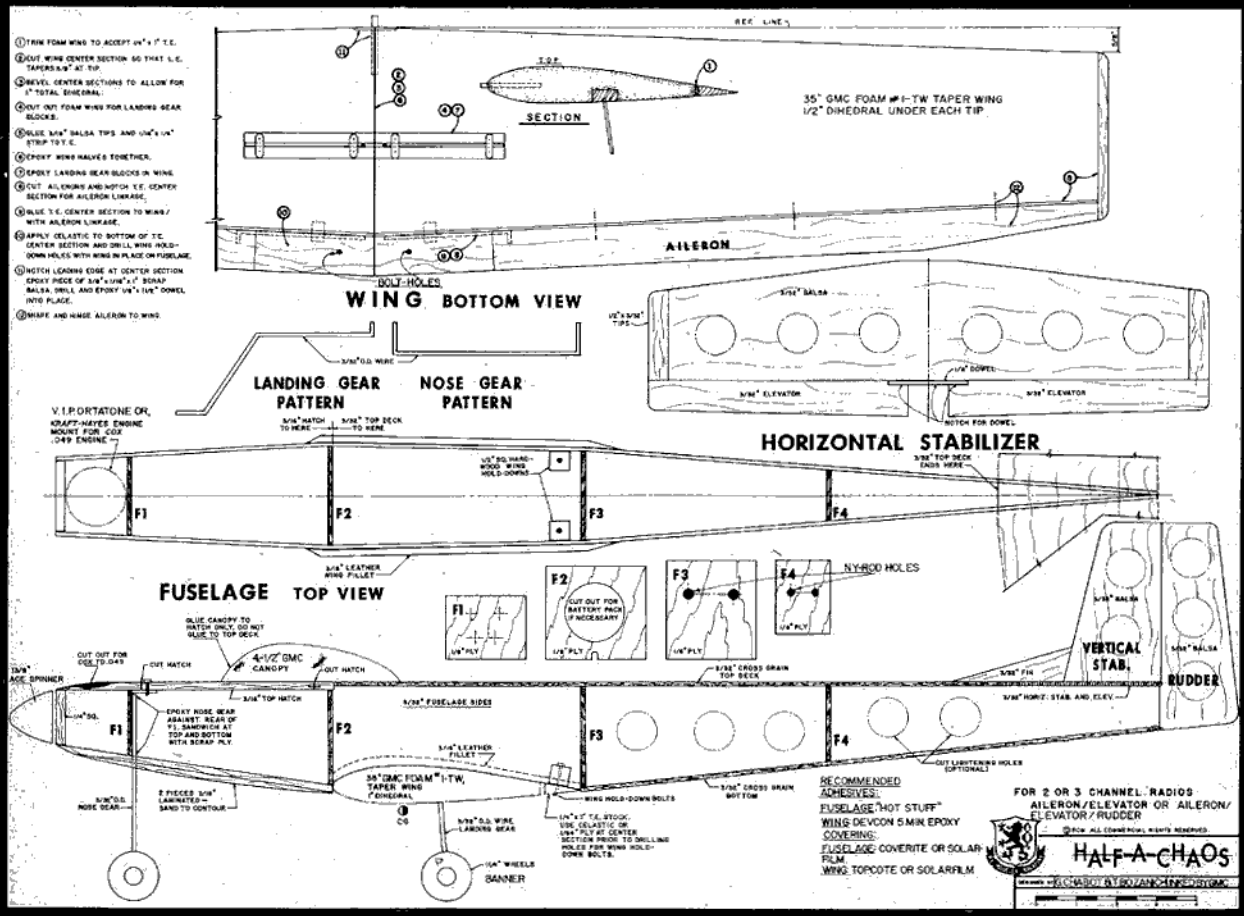
Half-A-Chaos aileron linkage details.

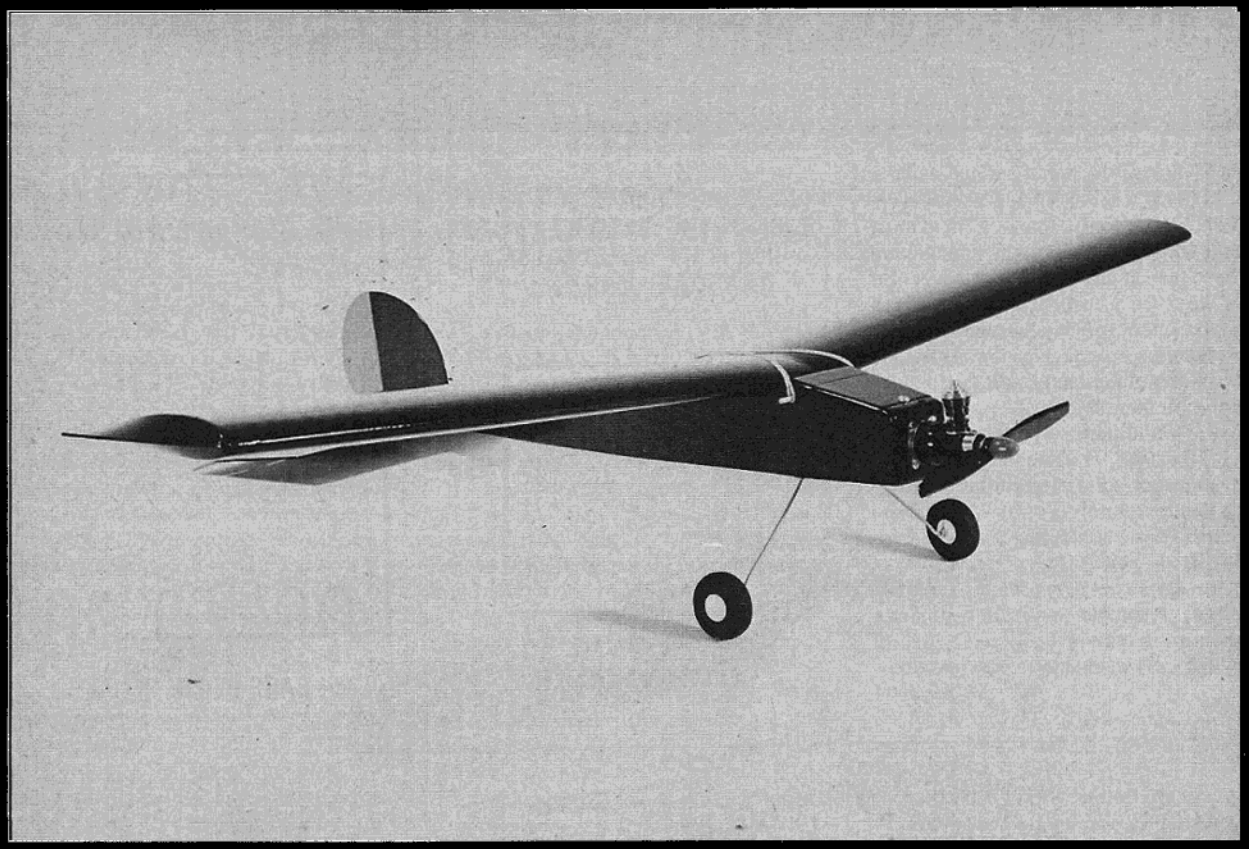


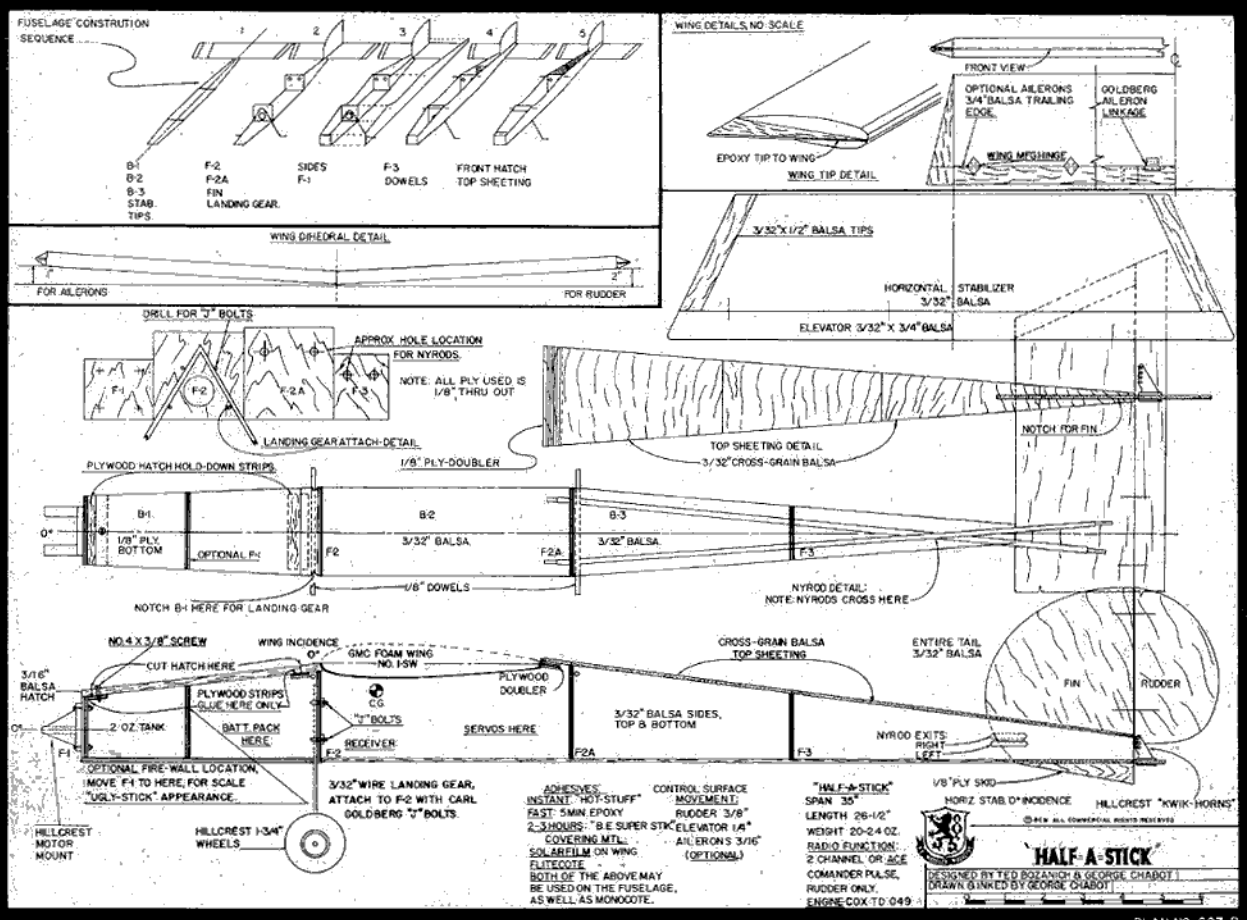
Internal view of Half-A-Chaos fuselage.



1. TRIM FOAM WING TO ACCEPT 1/4" x 1" T.E.
2. CUT WING CENTER SECTION SO THAT L.E. TAPERS 3/8" AT TIP.
3. BEVEL CENTER SECTIONS TO ALLOW FOR 1" TOTAL DIHEDRAL.
4. CUT OUT FOAM WING FOR LANDING GEAR BLOCKS.
5. GLUE 3/16" BALSA TIPS AND 1/4" x 1/4" STRIP TO T.E.
6. EPOXY WING HALVES TOGETHER.
7. EPOXY LANDING GEAR BLOCKS IN WING.
8. CUT AILERONS AND NOTCH T.E. CENTER SECTION FOR AILERON LINKAGE.
9. GLUE T.E. CENTER SECTION TO WING / WITH AILERON LINKAGE.
10. APPLY CELASTIC TO BOTTOM OF T.E. CENTER SECTION AND DRILL WING HOLD-DOWN HOLES WITH WING IN PLACE ON FUSELAGE.
11. NOTCH LEADING EDGE AT CENTER SECTION EPOXY PIECE OF 3/8" x 1/16" x 1" SCRAP BALSA. DRILL AND EPOXY 1/8" x 1 1/2" DOWEL INTO PLACE.
12. SHAPE AND HINGE AILERON TO WING.






FUSELAGE CONSTRUTION SEQUENCE
B-1 B-2 B-3 STAB. TIPS.
F-2 F-2A FIN LANDING GEAR.
SIDES F-1
F-3 DOWELS
FRONT HATCH TOP SHEETING
WING DIHEDRAL DETAIL
FOR AILERONS
FOR RUDDER
WING DETAILS, NO SCALE
FRONT VIEW
OPTIONAL AILERONS 3/4" BALSA TRAILING EDGE
GOLDBERG AILERON LINKAGE
WING MTG HINGE
EPOXY TIP TO WING
WING TIP DETAIL
3/32"X1/2" BALSA TIPS
HORIZONTAL STABILIZER 3/32" BALSA
ELEVATOR 3/32" X 3/4" BALSA
DRILL FOR "J" BOLTS
APPROX HOLE LOCATION FOR NYRODS.
NOTE: ALL PLY USED IS 1/8" THRU OUT
LANDING GEAR ATTACH-DETAIL
1/8" PLY-DOUBLER
TOP SHEETING DETAIL
3/32" CROSS-GRAIN BALSA
NOTCH FOR FIN
PLYWOOD HATCH HOLD-DOWN STRIPS
B-1
1/8" PLY BOTTOM
OPTIONAL F-1
B-2
3/32" BALSA
B-3
3/32" BALSA
1/8" DOWELS
NOTCH B-1 HERE FOR LANDING GEAR
NYROD DETAIL: NOTE: NYRODS CROSS HERE
NO.4 X 3/8" SCREW
CUT HATCH HERE
3/16" BALSA HATCH
WING INCIDENCE 0°
GMC FOAM WING NO. FSW
PLYWOOD DOUBLER
CROSS-GRAIN BALSA TOP SHEETING
ENTIRE TAIL 3/32" BALSA
PLYWOOD STRIPS GLUE HERE ONLY
CG
"J" BOLTS
2 OZ. TANK
BATT PACK HERE
RECEIVER
SERVOS HERE
3/32" BALSA SIDES, TOP & BOTTOM
NYROD EXITS: RIGHT LEFT
FIN
RUDDER
F-1
F-2
F-2A
F-3
OPTIONAL FIRE-WALL LOCATION, MOVE F-1 TO HERE, FOR SCALE "UGLY-STICK" APPEARANCE.
3/32" WIRE LANDING GEAR, ATTACH TO F-2 WITH CARL GOLDBERG "J" BOLTS.
1/8" PLY SKID
HORIZ STAB. 0° INCIDENCE
HILLCREST "KWIK-HORNS"
HILLCREST MOTOR MOUNT
HILLCREST 1-3/4" WHEELS
ADHESIVES:
INSTANT: "HOT-STUFF"
FAST: 5 MIN. EPOXY
2-3 HOURS: "B.E SUPER STICK"
COVERING MTL:
SOLARFILM ON WING
FLITECOTE
BOTH OF THE ABOVE MAY BE USED ON THE FUSELAGE, AS WELL AS MONOCOTE.
CONTROL SURFACE MOVEMENT:
RUDDER 3/8"
ELEVATOR 1/4"
AILERONS 3/16" (OPTIONAL)
"HALF-A-STICK"
SPAN 35"
LENGTH 26-1/2"
WEIGHT 20-24 OZ.
RADIO FUNCTION:
2 CHANNEL OR ACE COMMANDER PULSE, RUDDER ONLY.
ENGINE: COX TD 049
"HALF-A-STICK"
DESIGNED BY TED BOZANICH & GEORGE CHABOT
DRAWN & INKED BY GEORGE CHABOT
PLAN NO. 607-B

(6) Glue on the 3/16'' nose bottom and the 3/16'' balsa hatch.

(7) Cut out and install the vertical fin, and sand the elevators to shape.

(8) Sand the entire fuselage as smoothly as possible and cover with Solarfilm.

(9) Build the foam wing according to the step-by-step instructions shown on the RCM plans.

(10) Install the engine, radio, and hinge the control surfaces. Be sure to locate the C.G. exactly as shown on the plans. It can be slightly forward of that shown but under no conditions any further back.

HALF-A-STIK

The creation of the Half-A-Stik is the result of at least several minutes of deep thought. Having built several of the current Half-A designs, we wanted an airplane that would meet certain specifications. It must be a simple design, stable for a beginner, manueverable for the more experienced flier; a Sunday flyer; a pylon racer; and, above all, an airplane that Baron Von Thumbs could fly.

The big light flashed on — Ugly Stik! And so, after clearing the table of empty beer cans, glue bottles, balsa shavings, and over-flowing ashtrays, the Half-A-Stik emerged. Like all of its counterparts it fills all the requirements and then some. It requires less money, less radio, less engine, less gas, and less space to fly in. At this time in history it all adds up to beating the inflation game and still getting some stick time.

Unlike some of the other Half-A designs this airplane was built with ample room in the fuselage for the gas tank and radio. You can use a Cox .049 Medallion with the tank mount and an Ace pulse system for a minimum investment and enjoy hours of pleasure flying. If you've got the ''Bread,'' or already have the equipment, you can use a ''brick'' or mini-servos, a Cox TD .049, and put on an airshow that will keep the flying field talking for a few days!

We built two prototypes with the Kraft brick and TD .049 engine. The first one used rudder and elevator, had lightening holes, spring steel landing gear, lightweight Williams Bros. wheels, and flew right off the drawing board at 21½ ounces. The second plane used aileron and elevator, Hallco landing gear, heavier wheels, a brass torque rod to the ailerons, and it flew off the board at 26 ounces. Both aircraft were very stable. The aileron version is capable of consecutive rolls for as long as you care to impress the spectators. The rudder and elevator version will do snaps, rudder rolls, spins, and ROG.

Some options if you are a doodler: cut lightening holes in the wings (but be careful how many G's you pull), scallop the trailing edge and elevator, try tricycle gear, steerable nose wheel, etc., etc. For maximum performance I recommend the Kirn Kraft Cox TD .049 engine, pressure fuel system, Kirn Kraft needle valve, and a balanced 6/3 grey Cox prop. By the way, we used Hot Stuff for all construction except on the foam wing

Half-A-Stik Construction

(1) Transfer all the parts from the full-size RCM plans to your balsa and plywood and then notch 1/8'' plywood, as shown on the plans, for the landing gear. If you don't, the landing gear will not fit later.

(2) Lay B-1, B-2, and B-3 down on a flat surface, shimming up under B-2 and B-3 in order to make B-1, B-2, and B-3 even (flush) on the top side. This is important to make the fuselage sides fit properly. (Use a thin piece of cardboard under B-2 and B-3 for this).

(3) Glue B-1, B-2, and B-3 together, then draw a centerline through B-1, B-2 and B-3 and through the center of the horizontal stabilizer. Now line up the stabilizer with the centerline on the fuselage bottom and glue it on. Now glue the stabilizer. Refer to the construction sequence on the plans.

(4) Drill F-2 for the 'J' bolts that hold on the landing gear. Do not bolt the landing gear on yet, it will go in later.

(5) Glue F-2 on to the bottom 6'' back from the front of B-1. Glue F-2-A on, 6⅜'' back from F-2.

(6) Glue the vertical fin on the horizontal stabilizer, exactly on the centerline, with the rear of the fin flush with the rear of the horizontal stabilizer. Use a couple of blocks to keep the fin perfectly straight. (90° to the stabilizer.)

(7) Glue on the sides and install F-1 using 5 minute epoxy. Pull the rear of the sides together and glue to the vertical fin and horizontal stabilizer. Glue in F-3.

(8) Glue down the 3/16'' front hatch, only gluing at the front and rear of the hatch. Cut the hatch as it's shown on the plans, then take a 3/8'' x 1/8'' x 6½'' plywood strip and cut the hatch hold-down strips. Glue one of these on the rear of the bottom of the hatch, the other under the hatch nose piece. Use a small screw through the hatch and into this strip to hold the hatch on.

(9) Install the NyRods now. (See the detail on the plans.)

(10) At this point, glue on the cross grain rear sheeting and cut and sand flush with the fuselage sides.

(11) Sand the whole thing to shape until it resembles an airplane.

(12) Install the landing gear and 1/8'' plywood tail skid.

(13) Glue in the 1/8'' plywood doubler at the rear of the wing saddle.

(14) Hinge the control surfaces, using MonoKote or Solarfilm for hinging, or your favorite method.

(15) Install the 1/8'' wing hold-down dowels.

(16) Assemble the wing. (See plans for wing tip details.) **Do not leave off the wing tips.** These are important, as they help prevent tip stall.

(17) Drill the motor mount holes and cut the hatch so it is now removable (Good thinking, eh?).

(18) Fuel proof the tank compartment with resin.

(19) The wing is an Ace constant chord foam wing available from Ace R/C, Box 511, 116 W. 19th, Higginsville, Missouri 64037, your local hobby shop, or a wing kit plus motor mount is available from GMC Models, 28062 Glasser Street, Canyon Country, California 91351, for $4.95 plus 50¢ postage. (Either Half-A-Stik or Chaos — Specify which.)

(20) Epoxy the trailing edge and tips onto the foam wing panels.

(21) Sand the dihedral angle into the foam panels. Use 2'' of dihedral if you are not utilizing ailerons. That's **total** dihedral — 1'' under each wing tip, or 2'' under one tip with the other pinned down flat to your workbench. Use 1/2'' under each tip, or 1'' total dihedral, if you are using ailerons instead of rudder. Epoxy the two wing panels together, using the dihedral angle you have selected.

(22) Run a 1'' wide length of fiberglass strapping tape across the bottom of the wing, from tip to tip.

(23) Finish the model with your favorite far-out covering material.

(24) Attach the motor, install the tank, radio, and balance carefully.

Now you can go out and tear up the sky. Or, if you are like Baron Von Thumbs, go out and tear up the earth.

By the way, if you want an almost perfect 1/2 scale Ugly stick, shorten the nose 2½'' and use a Cox Black Widow or Golden Bee with the built-in tank. Still another note: For rudder only use, such as the Ace Commander pulse radios, raise the leading edge of the wing 1/8'' (positive incidence), then put two washers behind the top tank mount/motor mount screws to give you approximately 3 to 5 degrees downthrust. Don't forget to glue the elevator on to the stabilizer, making it perfectly flat.

Have a ball! Either the Half-A-Chaos or Half-A-Stik will give you more flying pleasure per hour and dollar invested in construction than you ever imagined possible. And their performance will have every guy at the field waiting for a turn at the stick! As a matter of fact, even Dewey can fly them — even though he kept disappearing into his van after each flight and reappearing wearing a different set of pants.

We never did figure that out — when he's ''flying,'' it's the rest of us who are nervous! □

From RCModeler July 1975