

# HALF & HALF

**A FAST RESPONSIVE HALF-A SHIP DESIGNED FOR PATTERN AND PYLON  
BY JACK SAMMARCO AND FRANK DE CICCIO**

● At one of those "meetings after the club meeting" in a diner in Union, N.J., Pete Morris (current UMAC'er President) threw down the gauntlet for some "one design" Half-A pylon racing. Half-A pylon ships started to take shape on UMAC'er building boards and so started an epidemic of Half-A fever within the ranks of the UMAC'ers. Frank and I decided to "make a few sketches" of a ship to compete with in an Unlimited Half-A race which was starting to shape up.

Well, the few sketches mushroomed completely out of control. Over the ensuing days, we ended up in the cellar consuming great quantities of coffee (by the gallons according to my wife, Carol), paper, pencil lead, time, etc. The adrenalin was really flowing. With X-Acto blades in hand, and balsa shavings and chips all over the floor, the nights flew by, and it was on to the sandpaper and covering. Along about this time the "Half & Half" name crop-

ped up and we decided to christen the ship with it.

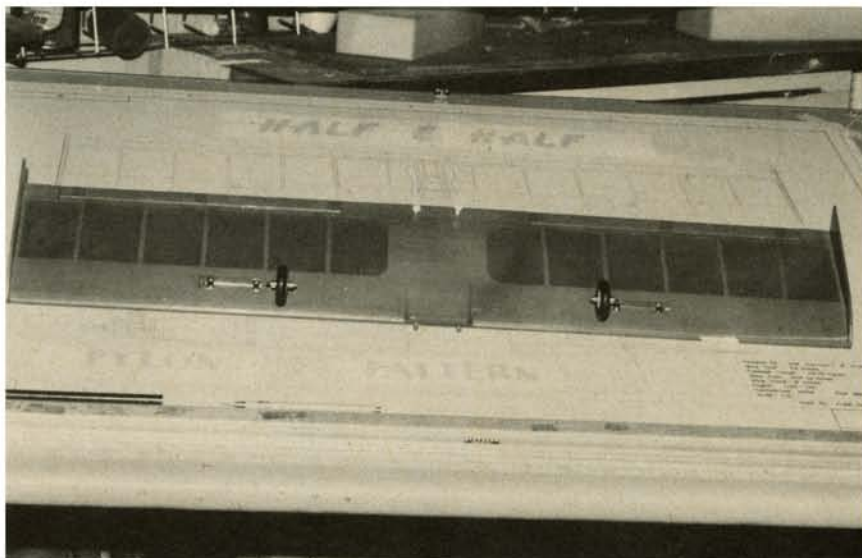
By now some of the UMAC'ers were stopping in "to see how things were going." I think every club is favored with a couple of these fellows, UMAC being no exception. We have our technical experts, too. UMAC'ers "technical branch" are the fellows who, because of their trade or inclination, can come up with parts that are not commercially available or maybe just currently "out of stock" in the local hobby shops. Roman Bittel (D & B Whirlybird — MAN, June '74) stopped in to check on the progress of "Half & Half" while Frank and I were discussing some of the small parts needed for Half-A stuff. When you have been building .60 size ships, you just don't have stuff that small laying around the shop! Without a word, out came Ro's 6" steel scale (I think he was born with it!), and 2 days later some stainless steel landing gear straps and screws; one piece blind

motor mount plates, etc., showed up. Later on Henry Orzech (H & R Products) became involved in a discussion about the strength of some hardwood stock sizes for landing gear mounts and also — how do you get those gizmos for 1/16" wire strip aileron rigs? H.O. said, "Wait a while and I'll see what I can do." (He doesn't carry a steel ruler.) A couple of days later, the prototypes for H & R Products strip aileron connectors showed up with H & R Half-A spinner and miscellaneous other goodies. Steve West decided to brew up some special "Zipp" Half-A fuel for one .051 to guzzle. This kind of cooperation and exchange of information is something a "by himself" modeler misses.

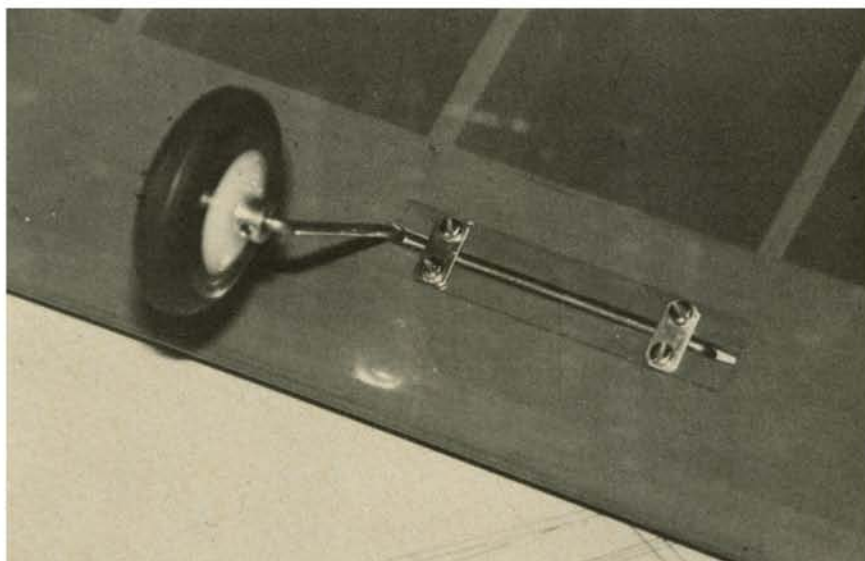
Finally, after the dust all settled and one of our 10:30 rounds of coffee was finished off, "Half & Half" was completed and ready for testing. Well, any of you who are familiar with March in

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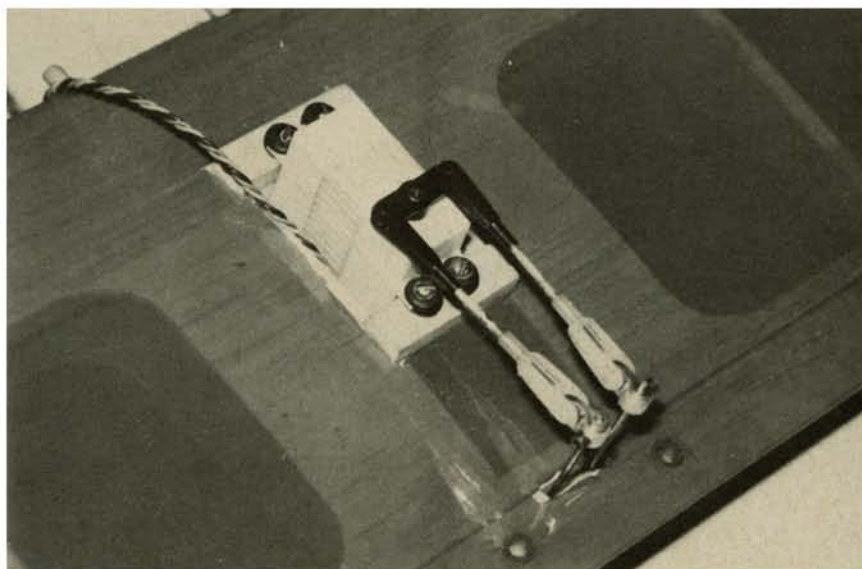




**ABOVE:** The completed Half & Half wing with landing gear installed. **BELOW:** A close-up of the gear mount.



**View of aileron linkage below. Heathkit servo installed.**



*A Half-A ship does not have to be erratic, nor does it have to be an underpowered ship that barely staggers through the air. The Half & Half is designed to groove like its big brothers in the pattern circles, yet round the pylons with the best of the Half-A racers.*

### HALF & HALF

Designed By: Jack Sammarco  
& Frank DeCicco

#### TYPE AIRCRAFT

1/2A Pylon & Pattern

#### WINGSPAN

34 Inches

#### WING CHORD

6 Inches

#### TOTAL WING AREA

204 Square Inches

#### WING LOCATION

Low Wing

#### AIRFOIL

Symmetrical

#### WING PLANFORM

Constant Chord

#### DIHEDRAL, EACH TIP

None

#### O.A. FUSELAGE LENGTH

28 3/4 Inches

#### RADIO COMPARTMENT AREA

(L) 6" X (W) 2 1/8" X (H) 2 1/2"

#### STABILIZER SPAN

11 1/8 Inches

#### STABILIZER CHORD (incl. elev.)

4 1/2 Inches (Avg.)

#### STABILIZER AREA

50 Square Inches

#### STAB AIRFOIL SECTION

Flat

#### STABILIZER LOCATION

Mid-Fuselage

#### VERTICAL FIN HEIGHT

3 3/4 Inches

#### VERTICAL FIN WIDTH (incl. rudder)

4" (Avg.)

#### REC. ENGINE SIZE

.049-.051 Cu. In.

#### FUEL TANK SIZE

1 Ounce

#### LANDING GEAR

Conventional

#### REC. NO. OF CHANNELS

2

#### CONTROL FUNCTIONS

Aileron & Elevator

#### BASIC MATERIALS USED IN CONSTRUCTION

Fuselage ..... Balsa and Ply  
Wing ..... Balsa, Spruce & Ply  
Empennage ..... Balsa  
Weight Ready-To-Fly ..... 20-25 Oz.  
Wing Loading ..... 14.1-17.7 Oz./Sq. Ft.



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the Garden State (New Jersey for you Californians), know how rainy and/or windy it gets. It seemed that March '76 weekends had 100% more than their share of both, so it was wait and wait, etc. Well, any red blooded modeler has only so much "wait" in his system when there is a new ship ready for the air. Luckily, by some quirk of high and low pressure, one Sunday morning presented itself complete with quiet air and tolerable temperatures (in spite of a sour prediction by the weatherman). A telephone call and a "let's do it now before Ms. Nature realizes what happened," we were at the UMAC's Watchung flying site. We started the Tee Dee and "pointed it at the weeds" and "Half & Half" took to the air. Well, somebody must have squealed on us because Ms. Nature corrected and we suspended operations, but not before a lot of grinning and back slapping took place. The next weekend it was back to 15 to 25 mph and higher gusts. It was a plot! Again the internal pressure was too high and, under the guise of, "lets see what it will do in the wind," some more flying and grinning took place.

Our ship, ready to fly weighed 23 ounces without any real special effort. A wingspan of 34" with a symmetrically airfoiled chord of 6" gave 204 square inches. The radio was an 8 channel Heathkit with two sub-miniature servos, receiver, and 500 MAH battery pack with a Ralvin Industries "Early Warning Detector" watching over the milliamps. The engine was a Cox Tee Dee .051 turning a 6/3 prop.

We have put "Half & Half" through its paces and the design has proven to be a worthy one. Flying it is loads of fun, whether hacking around on a Sunday afternoon or turning pylons. It is capable of doing all maneuvers that an aileron/elevator ship can perform. Pylon turns are very tight and smooth with the aircraft exiting only to eat up space before the next turn. All who have witnessed this aircraft in flight are amazed at its speed and agility. It is very fast and, for this reason, we do not recommend it for beginners. Take-offs have been mainly the normal hand launch type, although R.O.G.'s have taken place with no difficulty. (The construction of a new flying field dictates the hand launch approach at this time.) Landings are no problem at all as, once the engine cuts, this ship has a very respectable glide (not like the common Crow-Bar effect many Half-A's exhibit). Construction is relatively simple and builds quite quickly.

At the end of it all, it seems to us that if you like Half-A aircraft you should enjoy "Half & Half". It fits RCM's 1976 specifications for Half-A pylon racing and does those pattern maneuvers not requiring throttle with surprising smoothness and responsiveness. If you give a little concern to light construction techniques, the result will be a ship that is very competitive, highly maneuverable, yet stable. It's a real pleasure to fly.

Again we really can't recommend this model for a beginner, so if you are a novice, try something milder and more understanding so you'll enjoy the fruits of your labor more and longer.

*So down to the nitty gritty and let's build!*

### "HALF & HALF" MATERIAL LIST

#### Balsa Sheet

- (2) 1/16 x 2 x 36
- (1) 1/16 x 3 x 36
- (1) 1/8 x 3 x 36
- (1) 1/4 x 3 x 36
- (2) 3/32 x 4 x 36 & scrap

#### Balsa

- (1) 1/2 x 1/2 x 36
- (1) 1/4 x 1/8 x 38

#### Spruce

- (2) 1/8 x 1/4 x 36

#### T.E. Stock

- (1) 5/16 x 3/4 x 36

#### Hardwood

- (1) 3/8 x 1/2 x 13"
- (1) 3/8 x 1/4 x 4"

#### Dowel

- (1) 1/8 5"
- (1) 3/16 3"
- (1) 1/4 1"

#### Plywood

- (1) 1/32" 4" x 15"
- (1) 1/16" 1 1/4" x 2 1/4"
- (1) 3/32" 1 1/2" x 2 1/2"
- (1) 1/8" 2 1/4" x 3 1/4"
- (1) 3/16" 2 1/2" x 2 1/2"

### WING ASSEMBLY

(1) Stack the following sizes of balsa rib blanks (10) 1/16" and (6) 1/8" between templates (cut from your choice of material) and sand to the contours of the templates.

(2) Notch (4) 1/8" ribs to mount hardwood landing gear blocks.

(3) Cut and notch (2) 1/16" balsa false ribs for landing gear mounts.

(4) Cut (2) 1/8" balsa tiptlets and (2) 1/32" ply tiptlets.

(5) Pin plans (covered with mylar or wax paper) to your building surface.

(6) Cut 1/8" x 1/4" spruce spars to length and pin lower spar over plans.

(7) Slide ribs into place on lower spar.

(8) Place upper spar into rib notches and align ribs properly.

(9) Pin 1/2" square balsa leading edge into place and check rib alignment (vertical and horizontal).

(10) Pin 1/4" x 3/8" balsa spar to ribs and glue wing assembly as constructed to this point.

(11) Sheet and cap strip (1/16" balsa) top and bottom of wing (cut out for L.G. blocks and servo rails).

(12) Cut 5/16" x 3/4" T.E. stock to length and cut out ailerons.

(13) Groove and notch T.E. for "inner NyRod" aileron wire bearings.

(14) Holes for nylon wing bolt dowels should be drilled and support dowels drilled and installed during final assembly and trammeling (before covering).

(15) Cut to size, install in NyRod bearings and bend 1/16" aileron.

(16) Epoxy T.E. and aileron control wire assemblies to 1/4" x 3/8" balsa spar.

(17) Shape aileron leading edge to allow for 1/4" total aileron throw.

(18) Install 1/8" balsa and 1/32" ply tiptlets.

(19) Install 3/16" wing dowels.

(20) Shape L.E. to contour of tiptlets.

(21) Install aileron servo (mount to suit) original design used Heathkit sub-mins.

(22) Roughly shape fuse-wing fairing and glue in place. This is finish sanded with fuselage.

(23) Bend L.G. from 3/32" wire and install after wing is covered.

(24) Install ailerons after wing has been completed and covered (original used MonoKote covering and hinges).

### FUSELAGE AND EMPENNAGE

(1) Make required templates from plans for fuselage sides, top, bottom, hatches, formers, etc., and cut parts from sheet balsa, sizes called for on plans.

(2) Select some *light* "C" grain balsa for the top of the fuselage, cut to shape. Mark former stations and centerline on fuselage top. Mark center lines on all formers.

(3) Mount F-1 through 4 on fuselage top using centerlines and a right triangle for horizontal and vertical alignment.

(4) Glue on *matched* fuselage sides (butt joint on fuselage top) taking care to align properly with fuselage centerline.

(5) Install bottom of battery compartment.

(6) If plans and templates were followed properly, the firewall should drop into place. Epoxy should be used to secure the firewall.

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(7) Glue battery hatch hold-down dowels and 1/8" balsa shims to hatch.

(8) Drill, top and install hardwood block for 8-32 nylon hatch hold-down screw.

(9) Battery compartment hatch is tack glued in place for shaping.

(10) Slide plywood motor mount into firewall notch and check alignment. Drill holes for mounting engine and install blind nuts or other mounting hardware. Any fuel proofing should be applied to the back of the plywood motor mount since access to this area will be difficult after further assembly. Drill hole in firewall for fuel tubing.

(11) Epoxy motor mount in place.

(12) Fuel proof firewall and motor compartment side, top, bottom. When dry, glue compartment side, top and bottom in place. Blind mount a Kraft (side mount) servo mount to 1/16" ply platform and install in fuselage.

(13) Install outer NyRod (to elevator) and sand flush to side of fuselage.

(14) Install 1/16" balsa fuselage bottom and plywood tail wheel mount.

(15) Sand fuselage to shape, contour fairings and hatches.

(16) Cut and install vertical stabilizer from 3/32" balsa.

(17) Join two halves of elevator with birch dowel.

(18) Cut and shape horizontal stabilizer from 3/32" balsa.

(19) Cut and install 1/32" plywood doublers in fuel tank compartment.

(20) Cut and install 3/32" balsa wing saddle doublers.

(21) Install hardwood blocks for 8-32 nylon wing hold-down bolts (to be drilled and tapped after wing is tramed).

(22) Install elevator and horizontal stabilizer (slide elevator in first, Mono-Kote hinges were used on original); if nylon hinges are used, modify fuselage slots to suit.

(23) Bend tailwheel wire, install wheel and epoxy assembly in place.□