SNAPSH

Of all the models pictured in these pages, few have created more reader interest than the Snapshot Twin—for which we persuaded the author to develop this article and plan. It's ideal for advanced RC sport flying or show team work. Everybody falls in love with the sound of two .40s in sync.

■ Luther Hux

In the big picture, Snapshot Twin sits serenely as if waiting for cargo. Here, it is free of cameras or Shuttle rack, but it's ready to roam the skies. Some have suggested moving the nacelles outward to line up with the booms, but that would aggravate one-engine-out problems. Below: With the Shuttle aboard, Snapshot Twin breaks ground and begins to bank for the first turn. There is enough power to carry the Snapshot Twin and 22-oz. Shuttle straight up to 400 ft., but the author prefers more realistic flight. Takeoff photo by John Preston.

DTWO

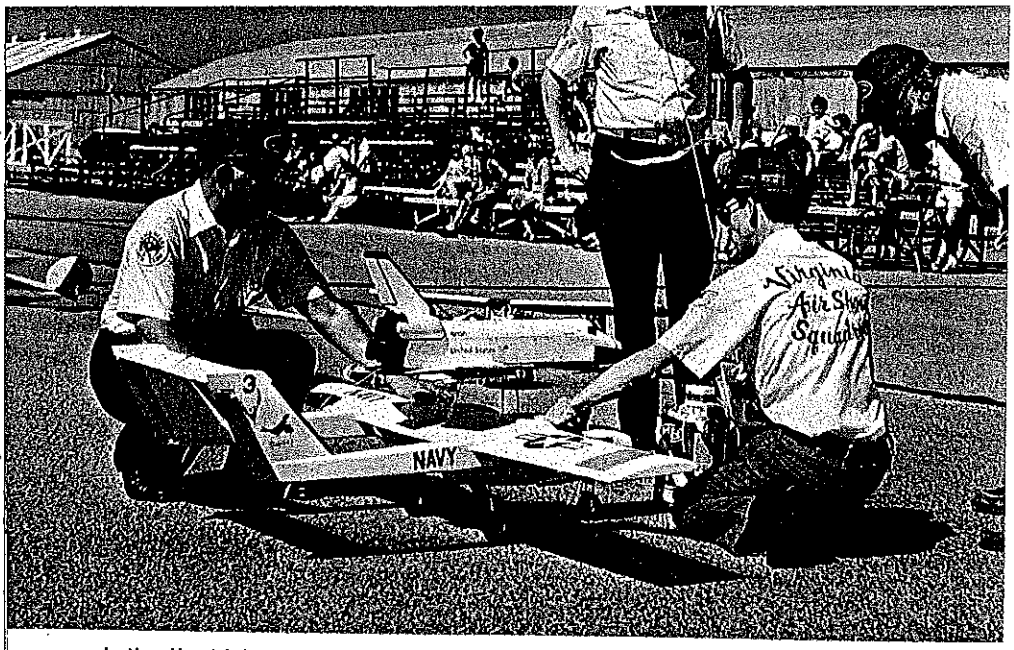
SOME OF YOU are probably curious about an unusual name like Snapshot Twin, though many who are familiar with Project Snapshot articles (MA, June 1979 and June 1980) know exactly where the twin and its name came from.

For the past four years Project Snapshot has traveled the country to capture aerials on film of international airports, space centers, aircraft carriers, and many other items of interest. At that time the "twin" was powered by a single pusher engine, and it was called Snapshot 3. It was the movie star of my Snapshot series, while Snapshot 2 was the stand-in stunt man for all the rough work.

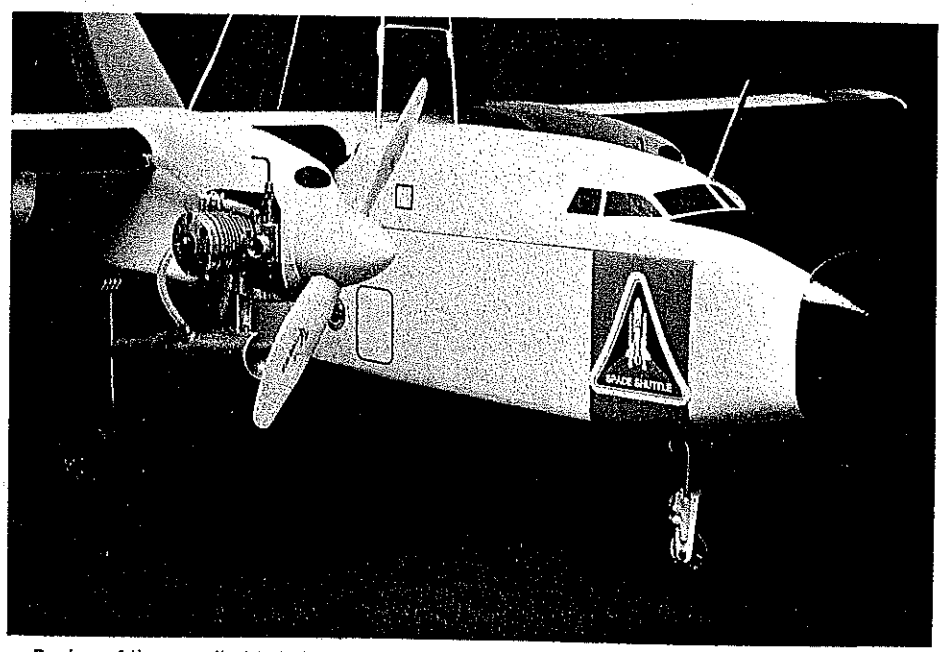
Snapshot 2 is a wide-body Senior Falcon fitted with knock-off wings, monster tires, and other durable features that made the Falcon best suited for the difficult sites. This left Snapshot 3 undinged and looking its best to impress PR managers to let us fly over their show places.

As the project was geared down, only Snapshot 2 was left capable of aerial photography, while the pusher fell victim to my next wild idea: a twin engine, of course. Dawn, my wife, frequently warned me that twin engines would be double trouble. She was quite right, but I had something going for me on this conversion. That was two well-behaved HP .40s that had run beautifully during my many years of learning to fly RC. Confident that the engines would be no trouble, I started to work on the construction problems.

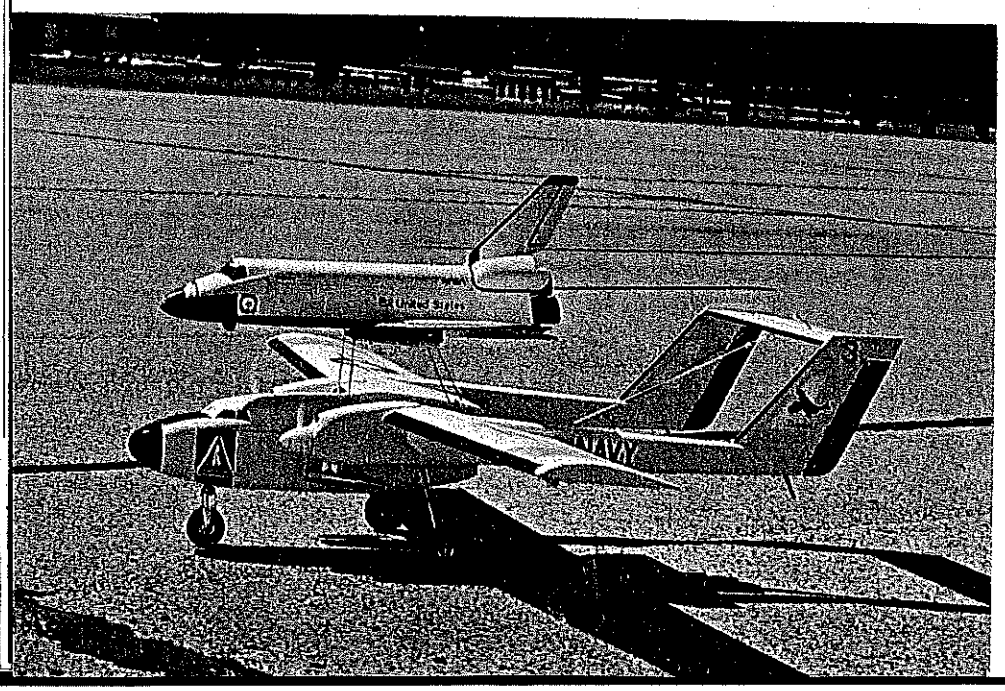
Converting a model to a twin usually requires some special plan-



Luther Hux (right) adjusts the engines while Bill Hershberger (left) anchors. Bill will fly the twin so Luther can release and fly the Space Shuttle glider. John Preston photo.



Design of the nacelle lends itself to a cowled-in upright engine, but the author chose the side mount for easy access and downward position of the exhaust. Photo by Mi Seitelman.



ning in wing construction to support the vibrating power plants. It was suggested that converting an already-completed foam core wing was unwise, but I also had something going for me on this.

Since the wing had to handle the stress of the tail booms and tail surfaces, there seemed to be adequate spars for also handling the engine nacelles. The method used for installing the nacelle bulkheads creates very little interruption in the bottom wing skin, so there is little loss in surface strength.

The design of the nacelles aligns the tank with the carb so the engines will run as dependably as in a trainer—without a pump. After the installation was completed, I put the model under a great deal of stress to see if my "add-ons" would be safe. They were safe, indeed, and ready for the real test.

Before taking the twin to the field, I set up the engine sync in my driveway. After a half-hour of adjusting servo throws and needle valve settings, the .40s were singing their hearts out in chorus. The pull of the props was surprising, and the model taxied so fast that I decided to add a brake on the nose gear.

Finally, I shut down the twins and began adjusting to the sound of silence. Only then did I notice that the neighbors were standing around watching. I was really in my own little world while concentrating on the engines, but the neighbors were smiling—I guess they didn't mind the noise. I took the the twin inside and announced to my wife, "I'm in love." "Yes," she said without any surprise, "I heard it; everyone probably heard it."

It seemed strange to be nervous about the first flight, as the model at the end of the runway had such a familiar face, but the sound of the twin engines reminded me that there was a difference. As long as both engines were running, there would be little difference in flying it as compared with the pusher, except for greater speed. Since the engines were practically jammed against the fuselage, and there were twin rudders, my fears of one-engine-out were probably unfounded. Even a novice who had never seen the twin before could not have enjoyed that first flight more that I did.

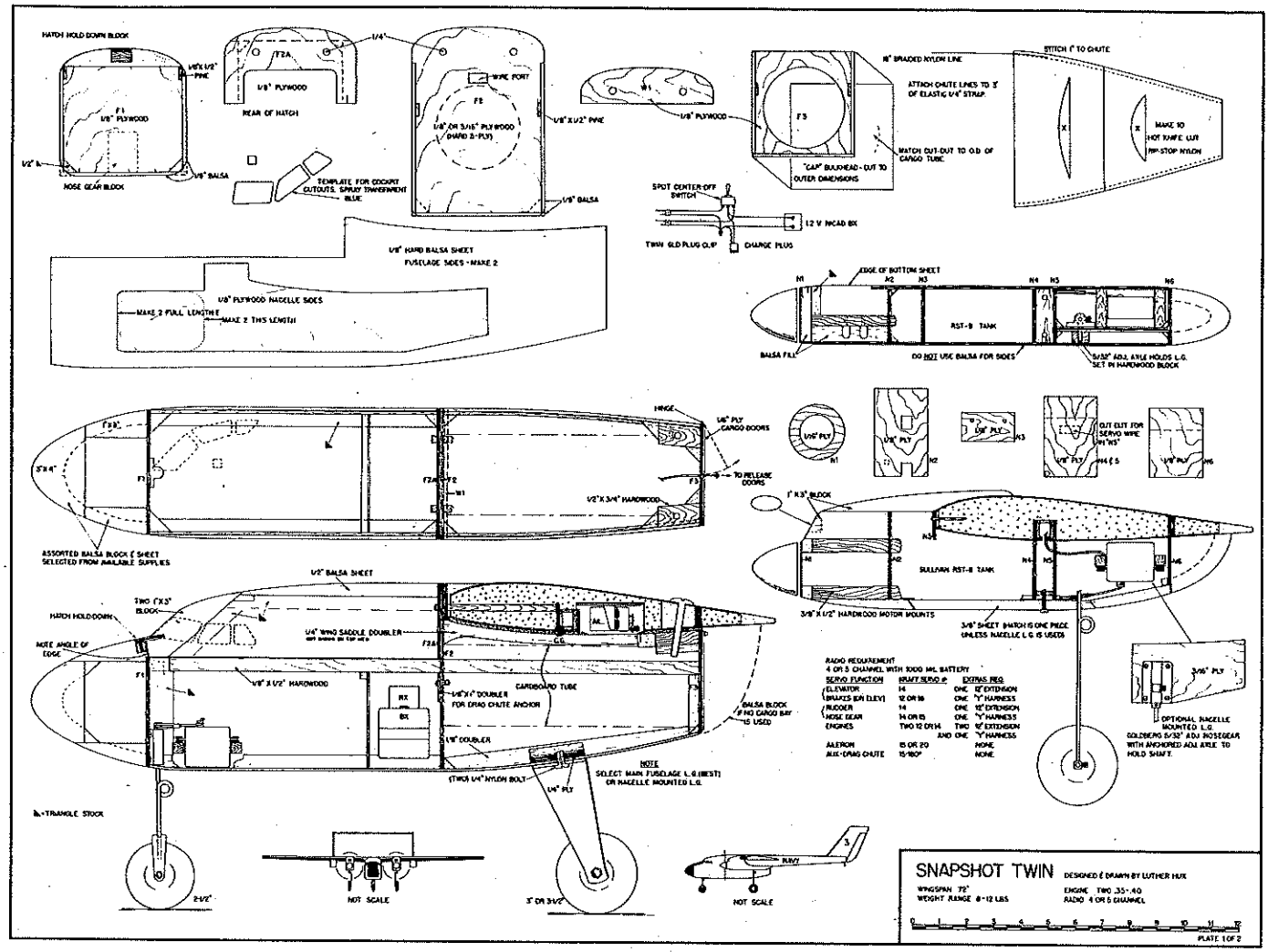
Once I felt comfortable with the model, it was time for the surprise—a 500-foot bright yellow streamer. On release a small drag chute seemed to anchor itself to a point in the sky and was letting the model pull away while drawing a bright yellow line behind. The streamer traced the twin's spirals and turns like artwork. Later, the twin connected with the end of the streamer to visibly make a large loop. The size of the streamer was really impressive when it was dropped along the runway.

The next couple of landings showed a need to replace the streamer with a drag chute. With the tight landing areas at some places I planned to fly it, the chute would be an honest necessity. Also, the chute takes a lot less time to pack than a 500-foot streamer. Besides, it's fun to come in like your're just kidding, and then pull the twin to a stop to everyone's disbelief.

Snapshot 3 was already a part of the model air show presentd by the Virginia Air Show Squadron, and it was welcomed back with its new look

Combination of the twin-engine sound and the Space Shuttle is a real crowd pleaser in model air shows. Care must be taken to prevent the receivers from interfering with one another—different RC bands worked the best. The cord attached to the stab is elastic to pull out the drag chute (upon release). Plans for the Space Shuttle (small version) were in the September 1981 MA—Space Shuttle II (larger) in the May 1982 issue. John Preston photo.

RUDDER CONNECTING CABLE
1/4" X 2" ELEVATOR
SCREW DISMANTLES STABILIZER - INTO BLOCK OF HARDWOOD (OPTIONAL)
PUSHROD CASING TO ELEVATOR
NACELLE BLOCK AFT OF N6
ROUT STABILIZER HALVES 3/32" DEEP
1/8" PLYWOOD DIHEDRAL BRACES FRONT AND BACK BOX SPAR
1/8" DOWELS STIFFEN JOINT
1/4" X 1 1/2" BALSA FIN AND RUDDERS
BALSA BLOCK - OR DOORS TO CARGO BAY
TUBE GUIDES CABLE ON 90° BEND
1/4" DOWEL HOLD DOWN FOR WING (2)
1/8" PLYWOOD REAR SPAR BRACE
NYLON SCREW INTO HARDWOOD
1/4" DOWELS MOUNT REMOVABLE BOOMS (OPTIONAL)
1/8" PLYWOOD NACELLE SIDES
N 3 1/8" PLYWOOD BULKHEAD WITH 1/8" DOWEL BRACES INTO WING L.E.
AIL. LINK
1/8" HARDWOOD REAR SPAR
1/8" BALSA SIDES
1/4" SQ. LONGERON
1" X 3" BALSA BLOCK
F3
N-6
1/4" BALSA TOP
1/16" BALSA BOTTOM
.35 TO .40 ENGINES - (2)
'X'
B3
TRIANGLE CORNER STOCK
N5
1/8" PLYWOOD SADDLE TO WING
1" X 3" BLOCKS FORM CABIN
N4
F2A
SERVO RODS TO AILERONS
F2
N3
BOOM ATTACH SCREW TO HARDWOOD BLOCK
3/8" X 1/2" AILERON SPAR
PLYWOOD TAB FOR REMOVAL OF CABIN TOP
N2
1/16" SHEET OVER FOAM WING
1/2" X 2" AILERON
1/4" BALSA HATCH
N1
BALSA BLOCK WITH BOOM MOUNT DOWELS
B1 & B2 BLK'D'S
NOSE BLOCKS FORM AND HOLLOW
CORNER STOCK
3/8" X 1/2" HARD WOOD ENGINE MOUNTS
1/8" PLYWOOD ACESS DOOR
1/8" X 3/4" PLYWD SPAR BOX ENDS BEYOND BOOMS
1/2" BALSA TIP BLOCK
F 1 1/8" PLYWOOD
1/4" NYLON BOLTS (2)
1/8" X 1/2" HARDWOOD BRACE F1 TO F3
'X' 1/4" PLYWOOD MOUNTS IN NACELLE IF L.G. IS PUT THERE
3/8" X 1" BALSA L. EDGE
1/8" X 3/4" HARDWOOD SPAR THRU TO C/S
2 1/2" WHEEL ON CHOICE OF L.G. YOKE AND STEERING BELLCRANK
1/8" BALSA SIDES AND BOTTOM
1/8" ALUMINUM GEAR MOUNTS TO 1/4" PLY UNDER FUSELAGE
3" MAIN WHEELS



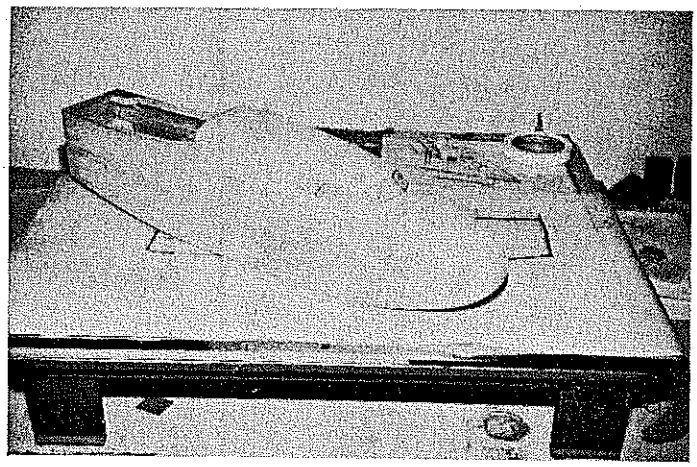
as the team's first twin. With the completion of the Space Shuttle models, the twin became the mother ship to tow the Columbia to release altitude. Bill Hershberger co-pilots on the twin while I land the Columbia.

When traveling I locate the local RC clubs and turn the twin over to other qualified pilots so I can demonstrate the space shuttle. Quite often the co-pilot will suggest many space shuttle flights—virtually at the arrival of every new spectator or club member. The co-pilot doesn't get to watch the shuttle that much (at least he'd better not be watching the shuttle very much), so I can usually pin him down to confessing that he really wants to get his hands on the twin's controls again.

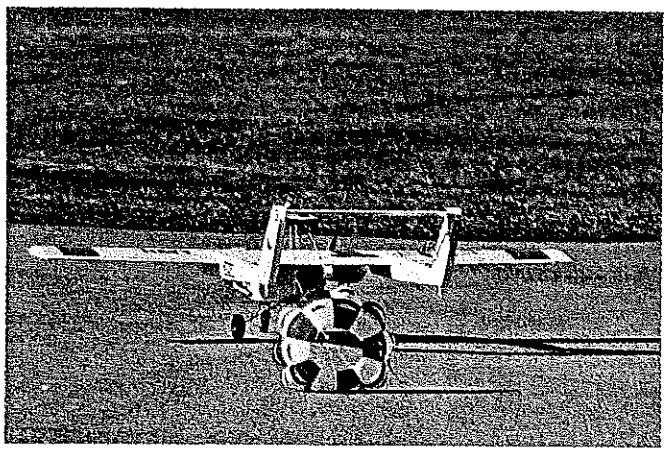
Since the twin is a conversion from a pusher-powered camera plane, there are things in the design that aren't necessary on the model today. However, the plans match the present model, with very few of the outdated details being eliminated. I did not include the swing-out nose section, since you do not have to install the nose gear servo there in order to make room for a camera. I have offered an optional nacelle-mounted landing gear, which I would plan to use in any future building.

One of the most frequently suggested changes is to move the engine nacelles out to align with the booms. That would look great, but keep in mind that a one-engine-out flight with the engines about 24 inches apart could be a challenge. There is also the problem of getting all the gear together in one unit. Think any changes through very carefully.

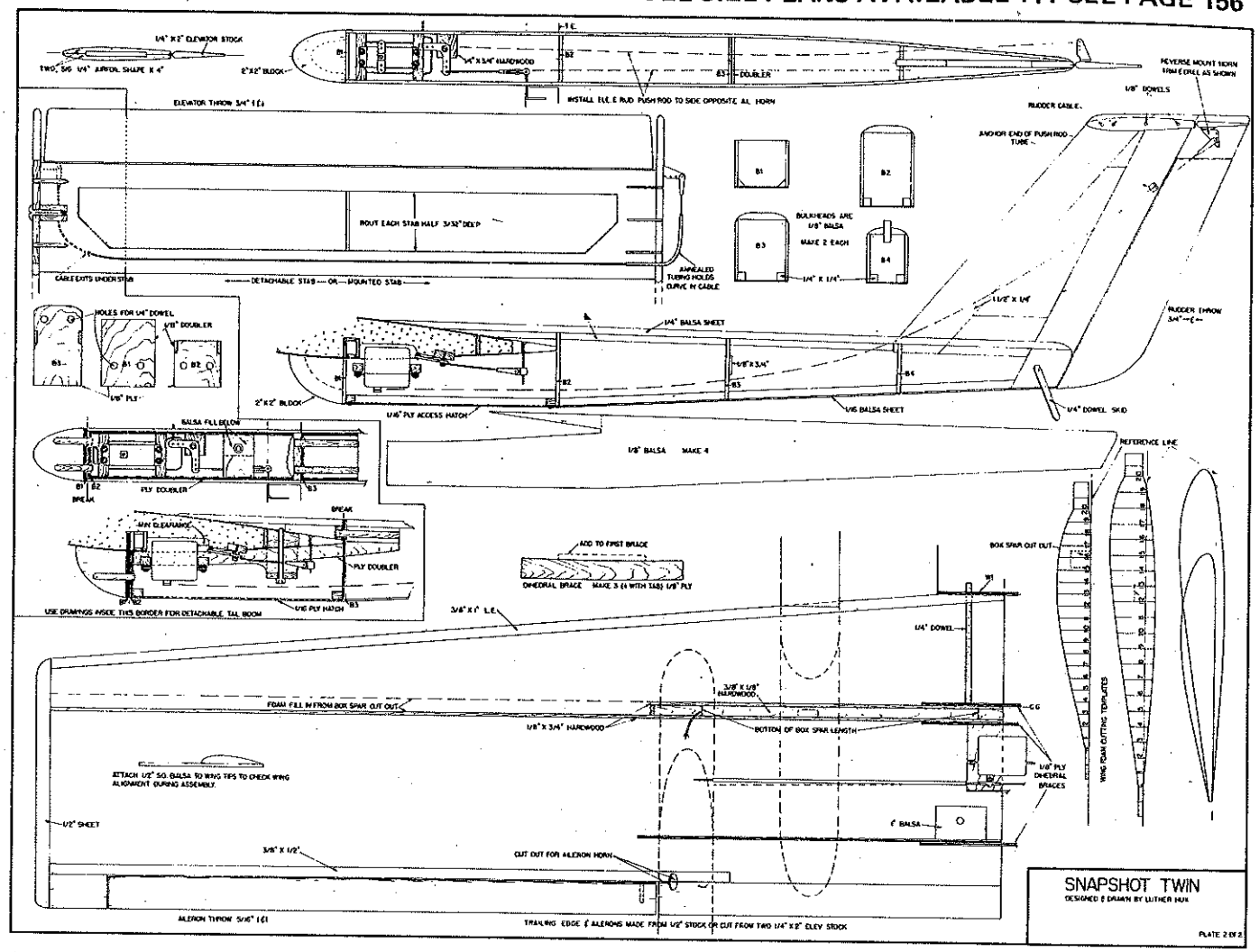
I was asked to offer a detachable boom system for those who must fit the model in a small car. My twin has a one-piece wing and tail, so to this extent the design is not tested. However, the design is similar to a very successful model of this type. The Snapshot models were designed around the specifications for the Sparrow Teleplane Project, and the detachable booms design worked well for them. I must thank the Sparrow's design team for sharing the plans in an earlier



Sketched-in cockpit outline shows that the author was anxious to see what the completed model might look like. Turned out nice.



Drag chute at work. Excellent landing results can be had with it, and it wows audiences in model air show situations. Mi Seitelman pic.



American Aircraft Modeler article.

Construction

Wing. These instructions assume that the builder has a general background in building and foam-cutting techniques.

The wing is produced first. In this way you can test the wing cutouts of the five body pieces against the actual airfoil shapes of the completed wing for a good fit.

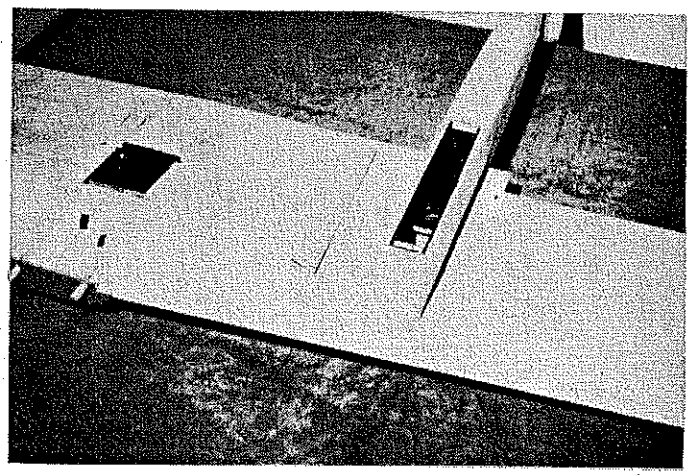
Begin by producing the foam-cutting templates from plywood or Formica. Mark the call-out lines on the template. Cut from a foam block about 36 x 12 x 4 in. Mark a reference line around the block—both along the span and chord. Mount the templates to the foam, carefully noting the relationship between the reference line on the template and block.

The "caller" should cut along the root (larger) template, and move as fast as possible without causing drag lines. The tip template will be cutting very hot, but the template has been drawn oversize to allow for the overcut. Be sure that both you and your helper start together on the top of the wing.

When cutting is completed, cradle the wing upside down, and attach templates for the box spar cutout. Save the foam cutout for fill-in later after spars are installed. Trim the L.E. and T.E., and remember the T.E. jogs in for the aileron hinge strip. Use a soldering gun or pencil to cut the rear spar groove.

Install box spar assembly and rear spar. Do not put epoxy where the dihedral brace slots will be cut later. Fill in the channel that runs from the box spar and to the wing tip with the foam cutout piece. Sand spars flush with the airfoil. Install tube for aileron pushrods. Cut out for wing hold-down blocks, and install. Use a soldering gun to cut grooves for the three dihedral braces; test fit, but do not glue in.

Attach wing sheeting while the wing is resting in the foam cutouts. The cutout blocks should be on a flat surface. The wing is a constantly chang-



The wing (before installing engine nacelles) with access hatch removed for servos installed in booms. Kraft antenna mounted to wing L.E.

The nose compartment at first carried a camera but now carries radio to make room for chute compartment under the wing. Seitelman pic.