

TIPSY NIPPER MK2

BY BRYCE PETERSEN

Education and experience gives us the ability to design creations that are new and different. Sometimes these creations go one step beyond in performance and beauty and become outstanding. If you analyze this type of creativity, you usually find the creator is in love with his work and is just doing "his thing". The rumor is the engineers that created the Topsy Nipper were short on work and were given the freedom to play with a project they themselves would like to design. Naturally, their choice was a semi-aerobatic, single seat, ultra-light sport plane --- what else! I have no doubt they envisioned themselves floating around in their own private sport plane during its creation. The Nipper MK2 was designed by the Avions Fairey S.A. in England. It flew for the first time in 1959 and was originally intended for manufacture in kit form. Nippers were sold to aero clubs and private owners in many parts of the world before the design was sold to the Cobelavia Company in Belgium. The MK2 was powered by a

45 H.P. engine and had a maximum speed of 101 mph and a service ceiling of 13,100 feet.

To me, the design is perfect for modeling. It is round in the right places for beauty and square in the right places for construction. The shoulder wing must be removed and requires a little tight fitting. It is the only factor that keeps it out of the beginner's class. The foam wing is simple to cut and is cored out in the center for lightness.

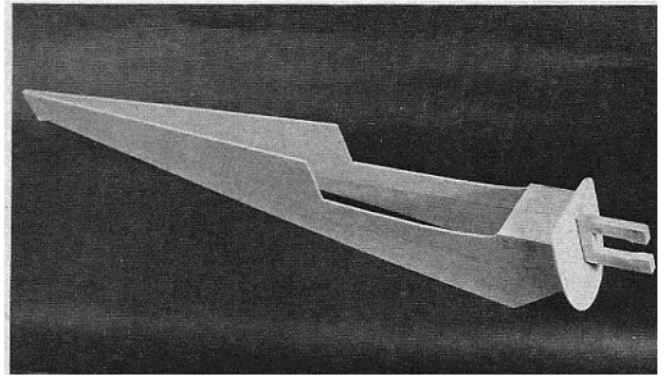
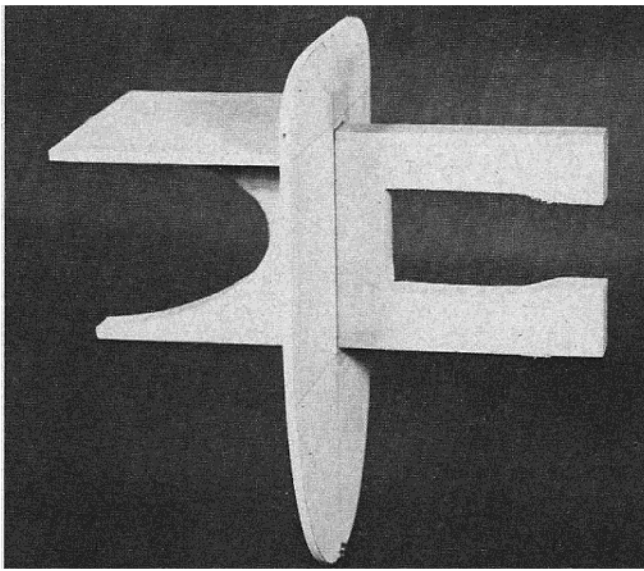
It has been disappointing to hear that foam cutting is losing popularity with home builders. Even Don Dewey gave away his foam cutter! Could it be that he has been playing with gliders too long? Seriously, I suggest you give foam another try. It will give you perfect wings every time; it is quicker to construct; and it will take more punishment on the field. Balsa is the king of construction materials and always will be. It will stand up to vibration better than just about anything else except one material: you guessed it --- foam!

FLYING

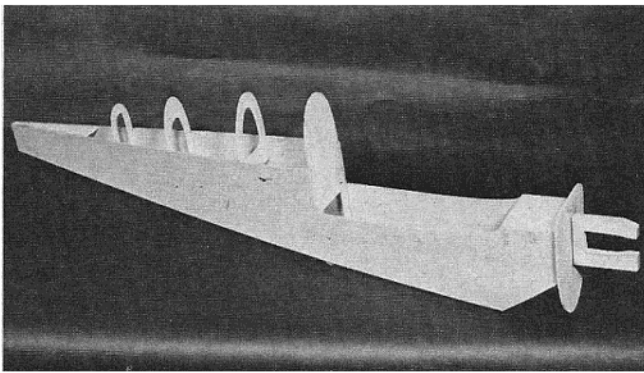
My Nipper tracked down the runway and lifted off with a little up elevator. The Super Tigre .29 seemed to be plenty of power for round loops and vigorous aerobatics associated with Sunday afternoon flying. The real fun with the Nipper is landings. It was designed for landings and has no equal in this maneuver. Slow flight is exceptional with very little wing drop-off after full stalls. The rudder was less sensitive than I expected and requires more than average travel to be effective.

The roll rate is brisk and axial with extra air speed. The elevator's reaction seems normal for a short coupled airplane and normal movement is recommended. The nose gear should be geared down for shallow turns on the ground because of the short distance between the nose gear and main gear. Actually, there are no bad flight characteristics that I can find after thirty flights, and I feel the Nipper would make an excellent trainer.

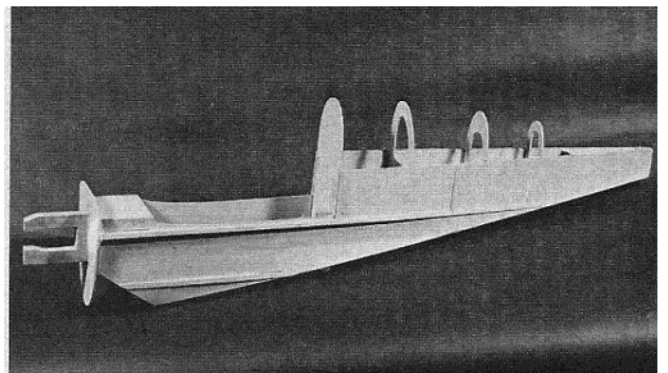




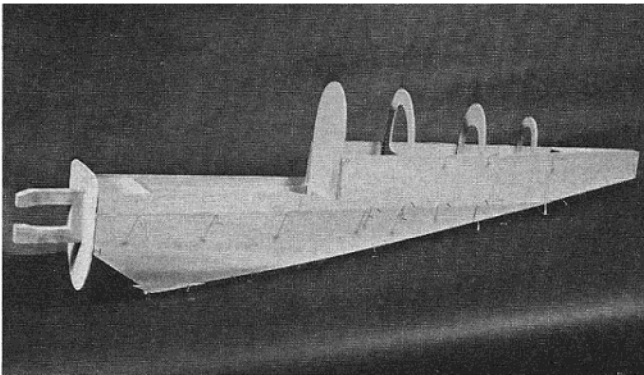
These series of photos by the author illustrate the construction sequence of the Topsy Nipper. At left, the engine mount and firewall building block, step #1. ABOVE: The 1/8" sheet sides in place.



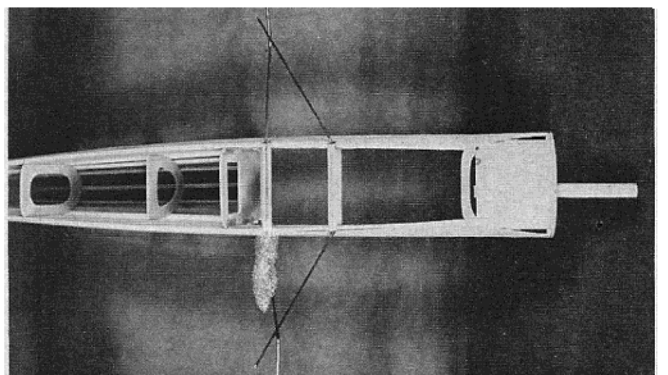
The basic fuselage framework.



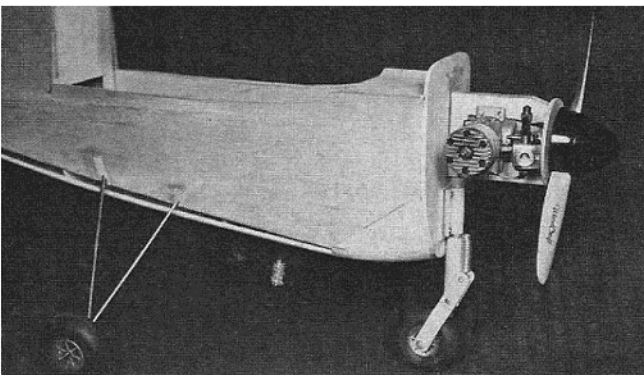
Side stringers added to fuselage.



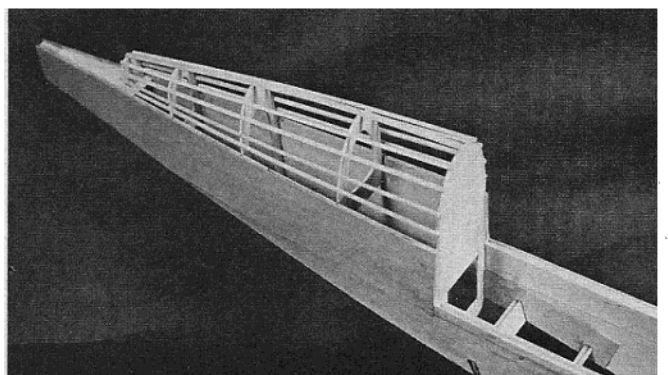
1/16" balsa side sheeting added over stringers.



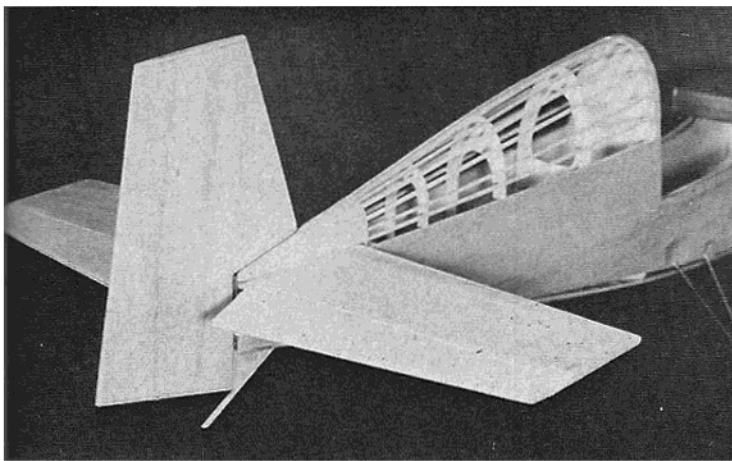
Next, the landing gear is added in place.



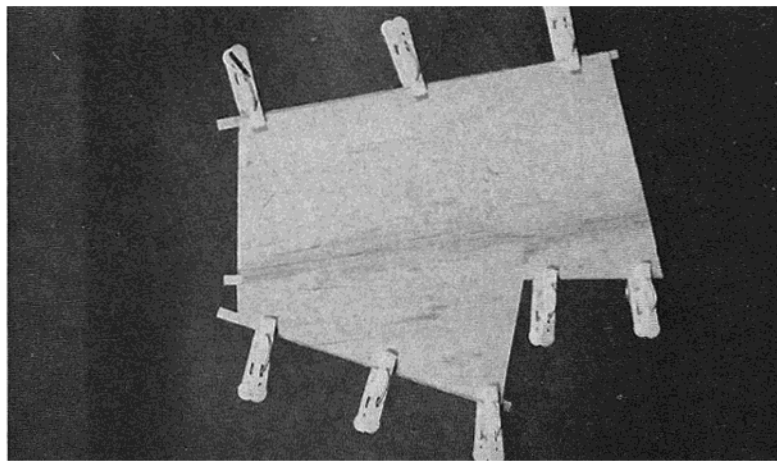
Nosewheel and engine mounted.



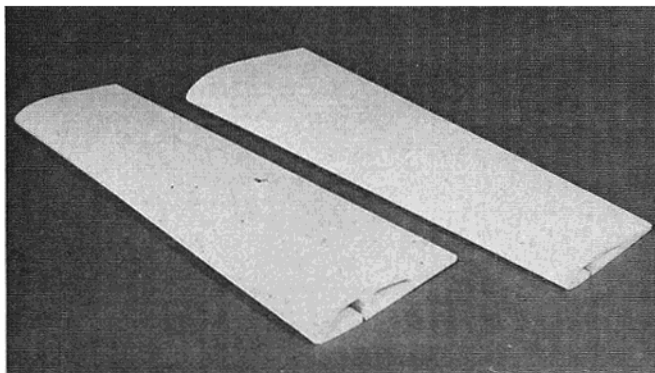
The addition of all spruce stringers.



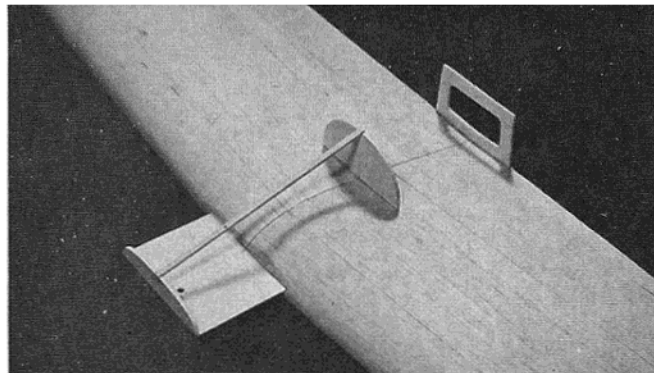
Close-up of empennage.



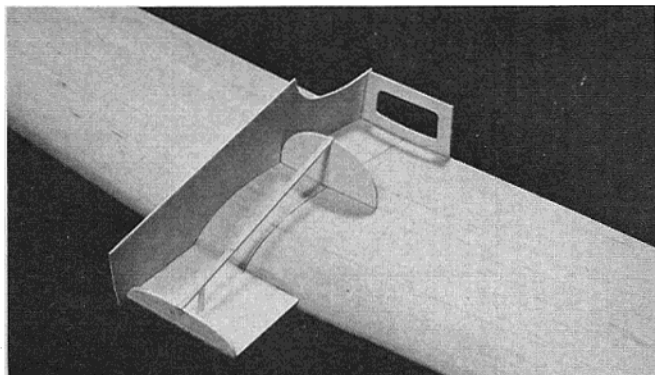
Rudder construction with spruce spar and 1/16" balsa.



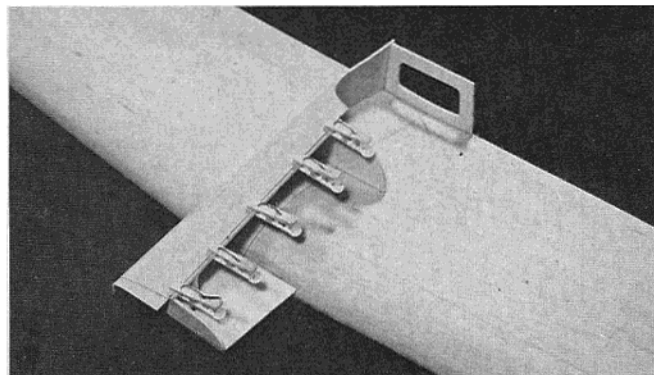
Foam wing cores with centers cored out.



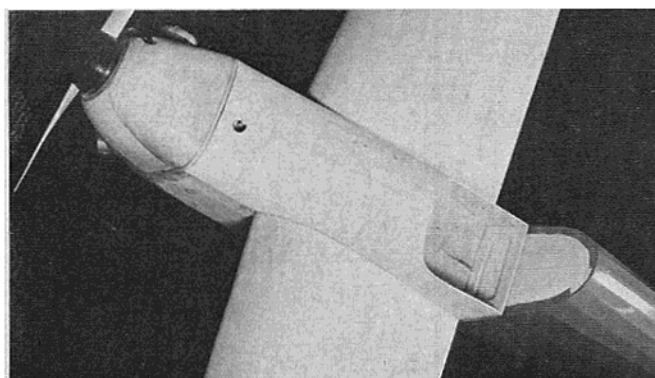
Wing mount to fuselage, step #1.



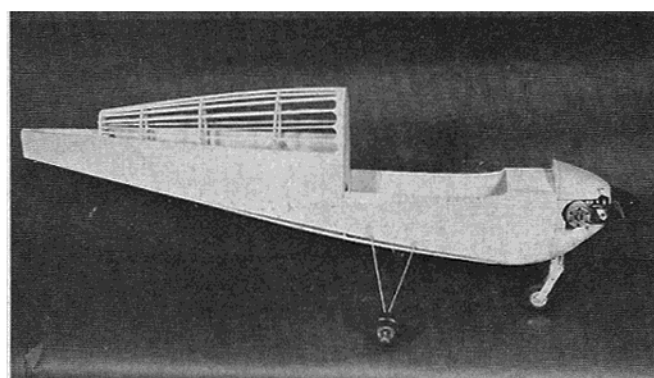
Wing construction detail, step #2.



Wing construction detail, step #3.



Wing construction completed.



Completed fuselage with engine mounted.

The model should weigh around 4-3/4 pounds with Kraft KPS-14 servos. Keep in mind that the nose is short, so build light in the tail and heavy in the nose, using generous amounts of epoxy around the engine. The wing is held down with a steel bolt. The covering is Solarfilm except for the nose block where dope is more durable. The dummy engine should match the cylinder of your engine and can be made from a stack of 1/32" balsa rings, one slightly smaller than the other to form fins. The landing gear is simply epoxied between plywood without bolts or wrapping.

The one tedious part of this model is the removable wing and associated parts. Remember that, once completed, there is no shimming of the wing or stab for trim, so it must be right the first time. You have probably noticed that I am using 1.25 degrees positive incidence on the wing as compared to the stab. This is because I like small engines, and most of my flying is at reduced throttle. If you are a power bug and plan on using a .45 or larger, I suggest you reduce the angle of attack to zero.

BEFORE COVERING

Set the wing on the fuselage and check your angles. Place a flat sheet of sandpaper under the wing with the rough part against the fuselage. Moving the wing back and forth will sand your wing saddle to a perfect fit. With the wing in place, add F-17 and check that there is exactly 1/16" undercut to the outside dimensions of the fuselage. Fit F17A, F18, and F19 at this time. Because the wing must be lifted up in front slightly for removal, F17A is grooved out. Drill and mount the 1/4" hold down dowel in the trailing edge of the wing. Fit this dowel to F6 by filing a little at a time until it slips in.

Fit and secure the windshield with the wing slightly raised in front. The trick is to find the point where the wing will slide forward slightly and relieve the rear hold down dowel.

Snug fit your windshield at this point. Remember that the windshield is not fastened in the rear. After the wing is bolted down, there will be 1/16" clearance which is a very attractive arrangement. This is the only part of construction that requires finesse and the rest of the ship is straightforward and simple.

One interesting aspect about the Nipper was the fact that people either

loved it or ignored it. There was no in-between feelings about the design. One thing everyone agrees on was its advanced capabilities in the air, so I am guessing what we have here is the sport pilots versus the fighter pilots.

With me, I guess the war is over because the Nipper sure is fun to fly.

Fly safely. □

From RCModeler Dec. 1973