

PHOTOGRAPHY: FRANK TIANO

An FM Product Review:

Master Kit's

HIPERB

This new offering is a fast, unique Scale or SOS project for R/C/**Frank Tiano**

Even though it may look like a handful to fly, the reason for this biplane being called Hiperbipe is very simple. It's a high performance biplane and thus subtracting some of the letters we wind up with Hi-Per-Bipe. The real ship was designed by Sorrell Aviation and more info about it may be gathered by writing them at Rt. 1, Box 660, Tenino, WA 98589. Even though the real thing flies well, it's still a bit odd and somewhat weird looking. With its wide fuselage and tiny wings it looks as if it will never fly at all. But fly it does, and very well indeed.

Frank Massa of Master-Kit has done a pretty good job of capturing the Hiperbipe's lines in kit form. Definitely not a beginners kit because of the type of construction used, it still should pose no problem for the semi-experienced builder. We'll get to the flight performance a little later on, but for now let's take a quick tour through the building process of this unorthodox airplane.

Fuselage

The fuselage is built up just like an old time stick model with $\frac{1}{4}$ " square members. The builder simply makes two identical fuselage sides and joins them with $\frac{1}{4}$ " sq. cross members. The top and bottom are also stringered but light weight sheet balsa could be used here for a faster, simpler fuselage. The fuselage, when completed, looks more like something from outer space than an airplane. Instead of taking lots of time and forming the cowl from the wood blocks provided in the kit I dropped a line to Frank Massa and purchased one of his fiberglass cowls thus saving about 3 hours building time. The cowl is professionally made and

fits the front of the Hiperbipe's fuselage perfectly. The hardwood landing gear block was installed as per instructions but looking back I think I should have replaced it with a wider, harder piece and used a preformed aluminum type gear because the light duty wire in the kit will not take any abuse at all. Another problem turned up when it came time to mount the firewall. For some reason the one in the kit was extremely warped and a new one had to be made. Other than these two discrepancies, the fuselage goes together pretty well with no annoyances. For the bulk of the constructions, Hot Stuff may be used. For the areas where hardwoods meet balsa, I used Quick Cure 5-minute epoxy available from Custom Model Products. Once completed, the fuselage is very light and very strong but care must still be taken while handling so that you do not break any of the side stringers. Before installing the wire for the tailwheel it's a good idea to embed a small piece of brass tubing in the rear fuselage to act as a bearing.

Tail surfaces

The tail surfaces are built up from sticks and added to the fuselage. This makes for a little difficulty when it's time to cover them but it seems the only way it can be done. The fin is built in the same fashion. The sheet elevators and rudder are added later. The tail surfaces should be covered before the stab and rudder are hinged to them. Now is also a good time to hook up the pushrods, while everything is easy to get to.

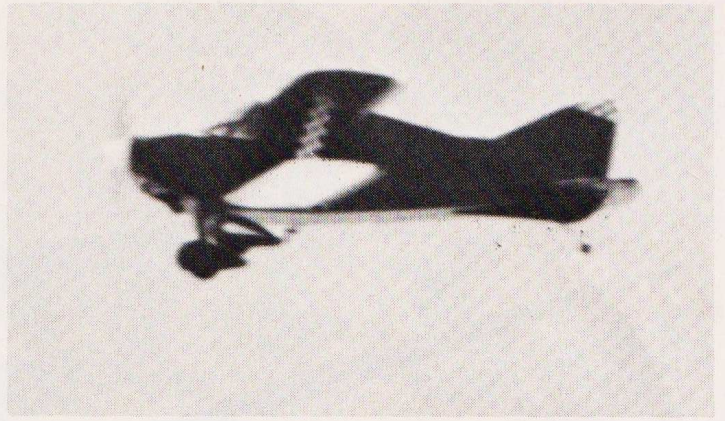
Wings

The wings on the Hiperbipe are the only conventional structures on the airplane.

They are built in typical fashion, that is ribs, leading and trailing edges and sheeting. The strut attach points are simple to fabricate. Only the bottom wing has torque rods. The top wing ailerons are driven from the bottom ailerons by pushrods. The wingtips look a bit difficult at first to construct but with a little patience they're really pretty easy. The bottom wing is keyed to the fuselage with dowels at the leading edge and wing bolts at the trailing edge. The top wing uses bolts only to stay in place. When everything is in place you'll find that the structures tie each other together to form one very strong unit.

Finishing

Because the entire airframe is so ruggedly built, there is no reason why the Hiperbipe can't be covered with any iron-on type covering. I chose Permagloss Coverite for a couple of reasons. First, it's really strong and secondly, it accepts paint readily. Red Permagloss was used for the fuselage and tail feathers while the wings were done with white tops and red bottoms. The checkerboard effect on the top wing was done with red Permagloss trim sheets. The cowl was first primed and then painted with RS Perfect red paint. The wheel pants were from a Sig Mini Plane and matched the Hiperbipe's color scheme to a tee. Normally the builder would make the pants from balsa or purchase a set of fiberglass units from Master Kit. The windshield proved to be the most difficult one I've ever installed. I think that 4 different windshields were ruined before finding a proper method of attaching one. RC 56 adhesive finally came to the rescue and worked quite well if the edges of the windshield were sanded first. The adhe-



PIPE

sive takes a long time to dry but the finished results are well worth the waiting time. For those of you that are totally unfamiliar with a Hiperbipe I think I should tell you that the color scheme used is not authentic by any stretch of the imagination. The real Hiperbipe was finished in white with green trim, and the only other completed airplane is done in red, orange, yellow and white. I chose the red and white for two reasons; laziness and laziness. All up weight of the air frame alone after covering was just under 4 pounds so I knew that there was no way to achieve the 4½-5 lb. weight that the kit box quotes.

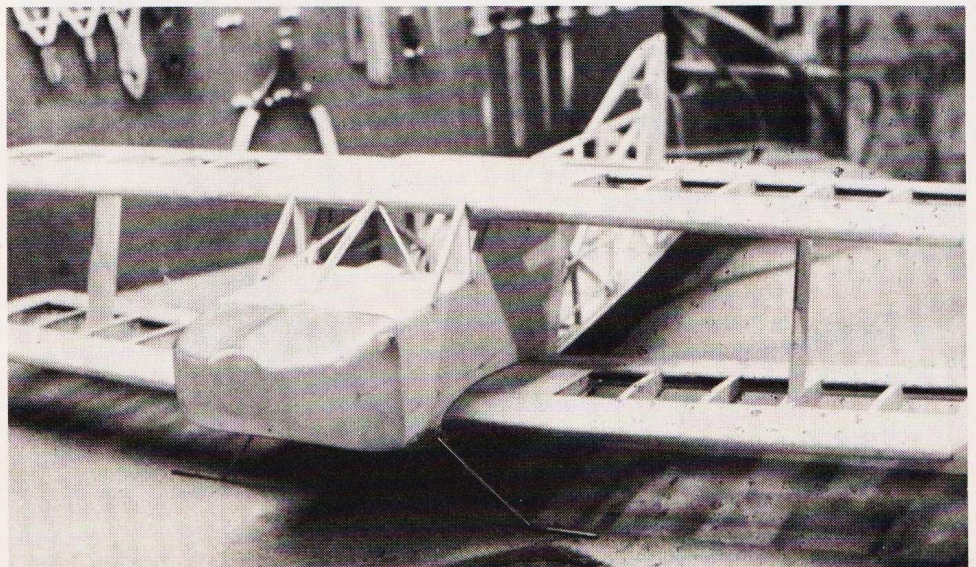
MRC's 775 radio that I've used before was installed in the Hiperbipe with room to spare. In fact, the fuselage is so wide that I think another back-up system could be installed right alongside! MRC's Webra .40 Speed was also installed but later replaced with one of their Enya .45's for some additional weight. With all components and engine in place, the ship still required about 3 oz. of weight added to the nose to balance correctly. Total weight at this point minus fuel was 5½ lbs. A bit heavy I thought, but with a wing loading of under 25 oz. it should be okay.

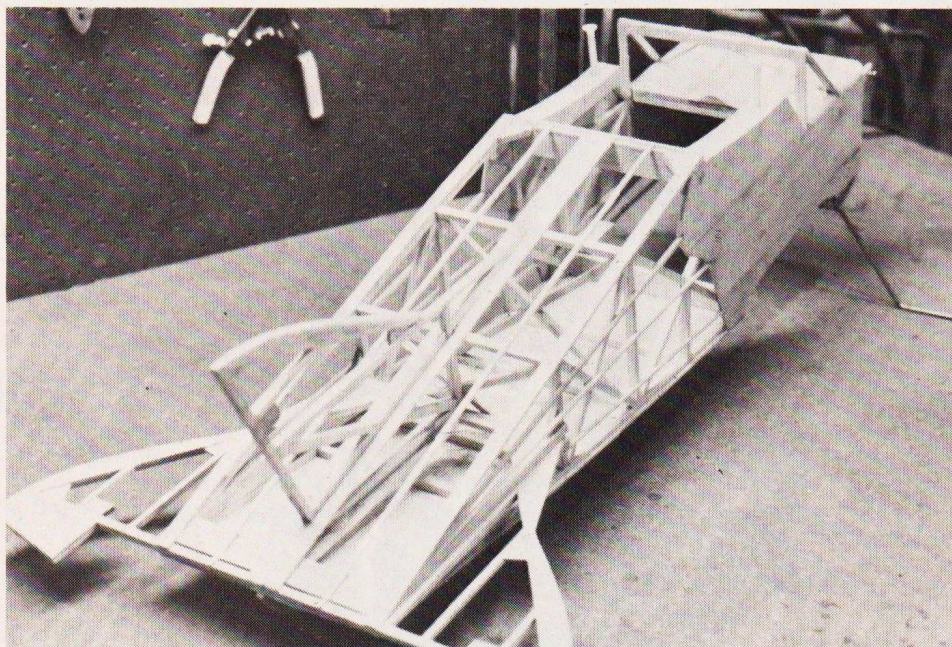
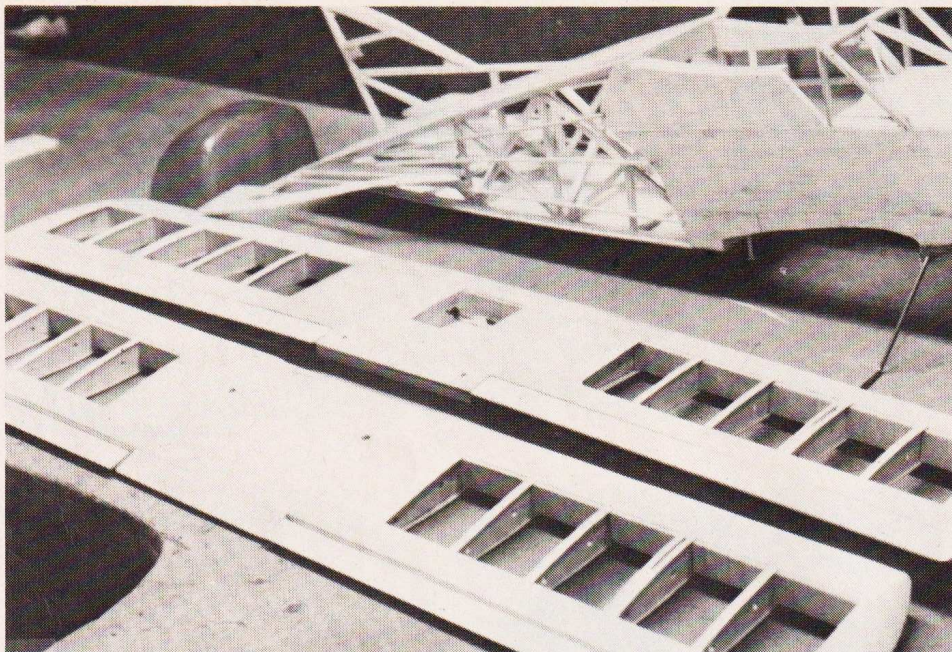
Flying

The day we picked for test flying proved to be a semi-cold day in February. The sun was shining brightly for part of the day but the wind was kicking up pretty good. The flying site was a pond that a friend, Wayne Bonesteel, plowed off with his 4-wheel drive to provide a long, wide runway. With the Enya turning up about 11,000 we felt that everything was set for the first flight.

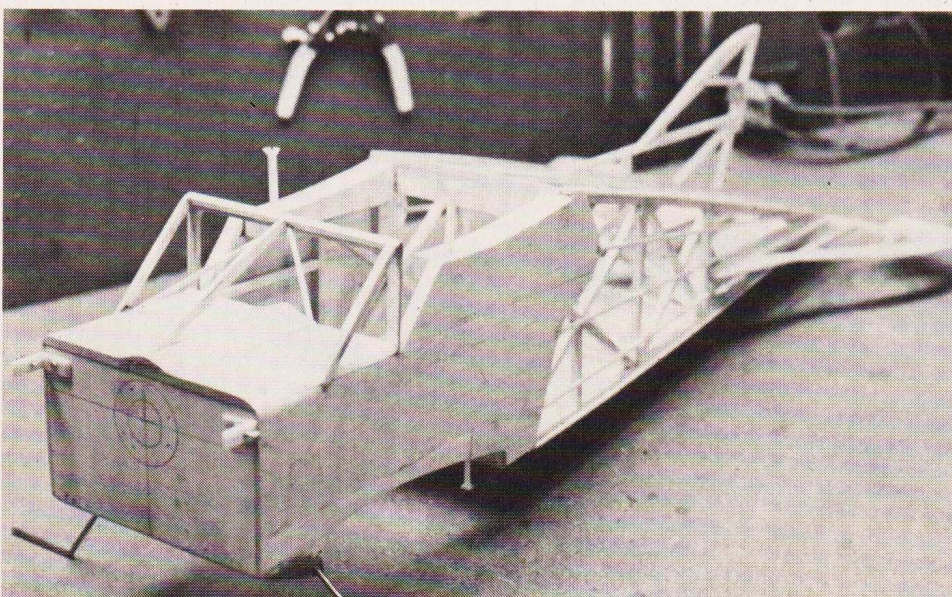


The series of flight shots at top shows off this fast ship's capabilities. The author (**above**) with the Hiperbipe during our long winter. The framework shot shows the windshield braces and light landing gear wire. Notice the very well-done glass cowl available from Master Kit.





The fuselage cowl and wings **above**, notice the large aileron servo cutout. The rear of the fuse shows the stringer construction. Forward fuse shot (**below**) shows the cowl mounting brackets, engine mount location and the wing hold-down bolts. An interesting ship.



Advancing the throttle slowly proved to be the wrong way to get the Hiperbipe airborne. The dragging type tail wheel just provides too much steering control on the ground and it would be only a matter of time before the thing would ground loop. As a remedy, we straightened the tailwheel wire a bit so that it pointed almost straight down and found the ship to be much easier to control at all speeds. Once this was taken care of, the Hiperbipe rolled very straight with only a bit of right rudder needed. Acceleration was fantastic to say the least and the ship was airborne in under 50 feet. Climbout was straight ahead and except for a bit of down trim the model handled perfectly the first flight.

After getting used to the Hiperbipe I tried some of the more popular maneuvers to see just how well the ship would handle. A tight loop produced a snap at the top while lesser inputs of elevator gave a smooth, gentle, large loop with good tracking. Limiting the elevator throw solved that problem in a hurry. The roll rate is pretty quick and snap maneuvers, although quick also, are very difficult to execute and bring out on the proper heading. Vertical maneuvers are easy and so is knife edge flight. With that big fat fuselage, even I could hold the plane on its side for a long time. The Hiperbipe is a pretty fast ship and requires most of its speed to perform properly. After gaining some altitude and then throttling back, the ship would violently pitch down and then to the left in a stall. Adding a bit more weight to the nose stopped the one wing down business but the plane would still stall straight ahead very quickly. In a brisk wind and with a dead stick situation, there is no way to turn around and bring the ship back to the field. It is best to take your chances and land straight ahead. If there is no wind to stop the forward motion, the Hiperbipe will glide a lot better as long as the nose is held down to maintain a warm flying speed. During the landing approaches be sure to keep a little speed up right until about 3 feet off the runway. Landings are then greased in and look very professional. If too much speed is bled off, a stall can develop.

Summary

This one's a toughie to really give one opinion on. The kit is engineered very well, the wood and hardware are some of the best I've seen. The plans are clear and the instructions straight forward. The parts fit well in most cases for a true structure with a lot of strength. The fuselage and tail group are a little tough to cover but maybe that's just me and my methods. I can see where the ship could be very competitive in Stand-Off Scale or in the biplane events but only in the hands of a very experienced pilot. The ship is maneuverable enough to complete any AMA or FAI pattern maneuver and then some. The one thing that sticks in my mind however is that the ship can't be slowed down for landings or touch and go's. At altitude the stall can be corrected after about a 40 foot loss of altitude, but it's close to the ground that concerns me somewhat. I understand that Frank Massa at Master-Kit is doing something to correct this unusual behavior and then I'm sure that the Hiperbipe will be outstanding in its field. For now, though, I rate it as a high performance model intended for only the experienced pilot flying off of a paved runway with long approaches.