



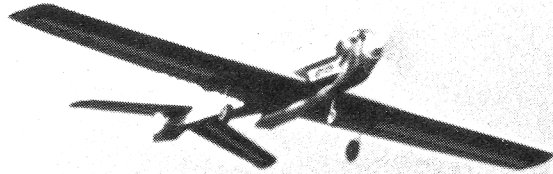
A patented Hanno Prettner low inverted pass with Minare at the champ's flying field.



Smiling, bearded Hanno and the Li'l Curare.



Somewhat larger than most 40-powered re-designs, Minare will also handle a 60.



Minare is actually designed for Austria's Category RC-III that limits power to a 40-size engine. Gerhard Fritz became the category champion flying the Prettner design.

Minare

Scanning by Hlsat

by Hanno Prettner

One of the most requested designs in *Model Airplane News* history, the 40-powered Mini-Curare—Minare; a design for sport, demonstrations, and even all-out competition.

MINARE

TYPE: R/C Pattern
WINGSPAN: 56 inches
WING AREA: 599 square inches
LENGTH: 49½ inches
ENGINE: 40-60
RADIO: 4- or 5-channel

• Hanno Prettner's Minare made its debut in America at the 1977 Tournament of Champions in Las Vegas when, during a flight demonstration, Hanno broke from his traditionally smooth flying style to put on the wildest yet most skillful free-style performance we've ever seen. The act was complete with Austrian traditional costumes, a plot and various props, not the least of which were a wheelbarrow and a cowbell. We leave it to

the reader to imagine what all this was for, particularly the wheelbarrow! Hanno's flight really turned the crowd on and proved that 40-powered pattern airplanes can indeed equal the performance of more usual 60-size birds. Since that time, *Model Airplane News* has had many requests for plans for the little Curare, so it is with pride that we present the Austrian maestro's Minare. Should the "scratch-building" route not be to your liking, you can obtain Minare in a fine kit by Hobby Barn (see the Field & Bench in *M.A.N.*, December 1980). The major difference is the inclusion of an epoxy glass fuselage rather than a built-up fuselage in Hobby Barn's offering.—Art Schroeder

My aerobatic model, Curare, is probably known by most readers interested in pat-

tern flying. Curare has proven to be a very popular model with fliers all over the world and it achieved world championship level with my win in the pattern championships at Springfield, Ohio. Curare was also instrumental in my early Las Vegas TOC victories, so it was fitting that I showed its little brother in demonstrations at the 1977 TOC. This smaller, 40-powered Curare is called "Minare" or "Mini-Curare" and it can match the big one maneuver for maneuver.

In this concept I attempted to reach performance levels of the 60-powered design while still using an engine 30% smaller. Minare is specially designed for category RC-III (Masters), which in Austria is

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limited to 40-size engines and a less difficult series of FAI maneuvers. However, Minare will also handle the complete FAI pattern, depending on the pilot's skill and experience. It is worth noting that Gerhard Fritz used a Minare to become Austria's category RC-III champion. Certainly Minare is competitive for all the AMA pattern classes in America right through Expert. And it could, in the right hands, give you a run for the money in Masters.

In my opinion, it is a good idea to start practice for FAI competition with 40-size models and then, as experience increases, switch to the 60-size airplanes. This procedure will cut costs since fuel consumption is much lower, as are airframe costs. However, one must use similar types of airplanes if the procedure is to be effective; i.e., Minare to Curare won't cause timing and feel problems since their flight characteristics are similar.

Minare can be flown without retracts, though I personally prefer retracts on my airplane because they give higher performance levels. Grass runways won't cause problems for a retract-equipped Minare since regular size mechanisms are used and the overall weight and landing speed of the small model are so low—particularly with flaps—that it is nearly impossible to damage the retracts.

Another big advantage is the smaller size of Minare. This permits transport in the small trunks found on today's compact and sub-compact vehicles.

I personally use Minare mainly for demonstration flights using a 45 engine with pipe and pump. If you want the ultimate in performance, install a sixty and you'll be able to perform knife-edge loops as I did during the demonstrations in Las Vegas. Minare is the only model that can perform the "Hanno Screw," a kind of knife-edge spin that is spectacular to view. This maneuver was shown for the first time at the Tournament of Champions.

The following hints are very similar to the construction article for Curare, and I refer you to that presentation if you have any questions (see *M.A.N.*, December 1976—plans and back issues are available).

FUSELAGE. It is very important that the angle between rudder and fuselage bottom is exactly 90°. In fact, basic alignment of the sides and all formers (note 3° down and side thrust on the firewall) to insure equal curvature of the sheet balsa sides is critical. So too, the cutting of the wing mount must result in equal alignment of the wing to the stabilizer angles as well as provide the +1° incidence. When you slip the stabilizer into place, spend some time

checking to insure that the stabilizer angles are symmetrical to the fuselage sides and that its incidence is zero to the datum line. Construction is simple and very durable. I advise that you make a removable canopy to ease fuel tank installation, checking and servicing. An aluminum firewall engine mount would be best to install in Minare. When shaping the fin, taper its leading edge to a sharp point.

WING. I prefer styrofoam wing construction since I feel that you can achieve as light a weight as you would with built-up construction and they absorb noise and vibration. Construction is typical and requires no elaboration here. Sheeting on the wings is stipulated at $\frac{3}{32}$ ", which gives a bit more sanding latitude than $\frac{1}{16}$ ". You might try the new double-stick sheeting tapes for minimum weight, though any of the contact cements commonly used work well if directions are followed. Note that a butt leading edge and trailing edge are used, and these are applied after the basic sheeting has been put into place. Be careful to sand a uniform shape to the leading edge. These wings lend themselves to conventional built-up construction and the rib patterns on the plan could be used to make a set of ribs by the sandwich method. Whatever construction style you use, be sure you end up with straight wings; without that, Minare will just not fly as it should.

FLAPS. The illustrated flaps are excellent for reducing landing speeds and should be built as shown. Only point of importance, be certain both flaps throw the same amount.

I prefer to build all my models with Hot Stuff because such use insures lightweight structures with minimal weight. For the same reason I also use Super MonoKote on the wings and stabilizer. The fuselage is painted after appropriate preparation and priming. One point, however: do not use Hot Stuff for the wing sheeting; this would destroy the cores.

With a normal radio installation and a 40-45 engine, Minare should balance at the location shown on the plan. If you install a 60, approximately 75 grams (2.6 ounces) will be needed at the rear of the fuselage to bring things into balance.

Make certain that there are no binds or play in your control system and that all surfaces are in neutral before you fly. If you do so and if your balance and thrust are as called for, Minare will give you outstanding performance in return. ■