

# Flight *of a*



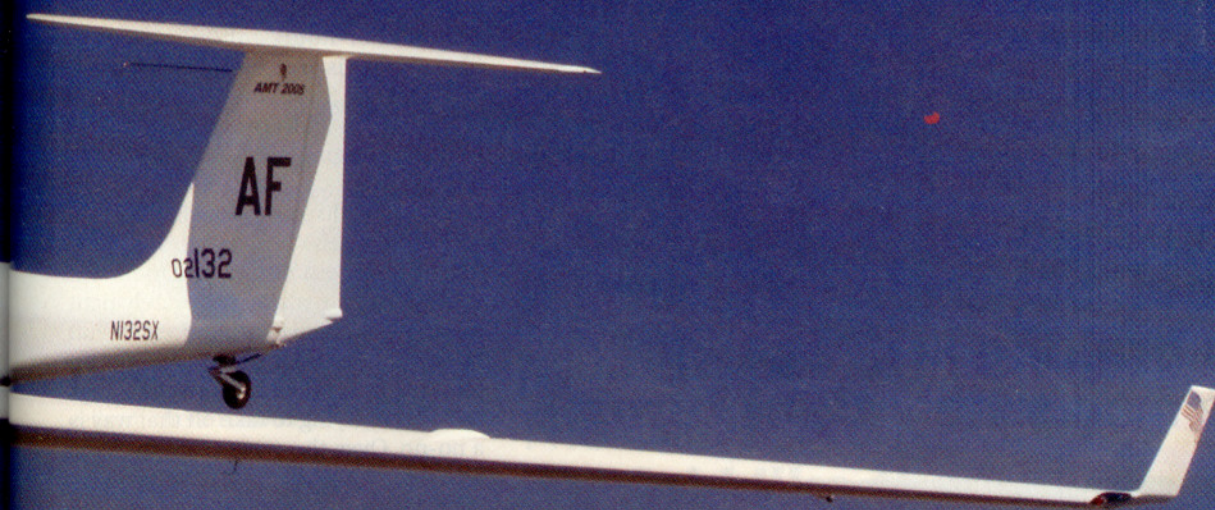
## Soaring in a Ximango

BY BARRY SCHIFF

It is not often that a pilot takes off in a single-engine airplane with the intention of shutting down the engine once under way, but that is exactly what you can do when flying an Aeromot AMT-200S Super Ximango. (*Ximango* means *falcon* in Portuguese. *Xi* is pronounced like the French pronunciation of *Gi* in *Gigi*.)



# Falcon

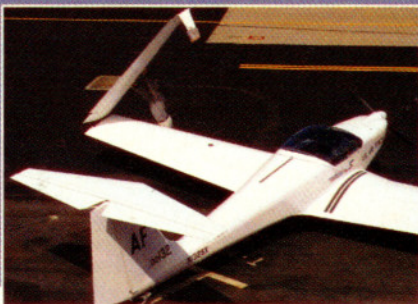


OK, so the Brazilian-made aircraft is not really an airplane, although it can be used like one. The Ximango is a self-launching sailplane, a touring glider that can take off without a towplane and fly hither and yon in search of thermals and other forms of atmospheric lift, something that power pilots typically prefer to avoid. Moreover, the motorglider pilot need not be concerned about the possibility of an off-field landing when soaring conditions diminish.

The Ximango was designed by famed French designer Rene Fournier,

whose name became familiar in this country with the introduction of his Volkswagen-powered Fournier motorgliders in the 1960s. (Mira Slovak flew one from West Germany to California.) The Brazilian Super Ximango competed against an offering from Diamond Aircraft, of Canada, to become a U.S. Air Force trainer. After evaluation tests were performed by test pilots from Edwards Air Force Base, the Ximango was chosen to replace the Air Force Academy's aging fleet of Schweizer TG-7s. The last of 14 Ximangos (TG-14As)





were delivered to the academy this past July, and 35 others have thus far been sold to civilian customers in the United States.

#### **A composite bird of prey**

The airframe is an all-composite structure made from Ciba-Geigy resins and fibers and is finished in polyurethane. This, along with the tightly cowled engine, contributes to the aircraft's sleek appearance. The spar caps are carbon fiber.

The 58-foot-long wings fold like those found on carrier-based naval aircraft. This results in a reduced span of

only 33.4 feet that allows the Ximango to fit in a small T-hangar. One person can fold or unfold the wings in about 5 minutes, but it is easier with a helper. The wings lock into place by moving a sturdy lever aft until it snaps into position. Wing fairings are then placed over the mechanisms but cannot be attached unless the wing-locking lever is properly positioned, thus ensuring that the wings are secure. The system is simple and foolproof.

Most power pilots need a little time to get used to the semi-supine seats and typically tend to lean forward when taxiing. Just lie back and relax, and you will

find them to be extraordinarily comfortable. Although the seats are not adjustable, the rudder pedals can be moved fore and aft, thus accommodating pilots of various heights. The Ximango's body, however, is not broad enough to comfortably accommodate a pair of wide bodies without some shoulder rubbing.

Firing up the engine is as easy as starting an automobile. Touch the starter button and the 100-horsepower Bombardier-Rotax engine springs to life. (A choke is used during cold starts.)

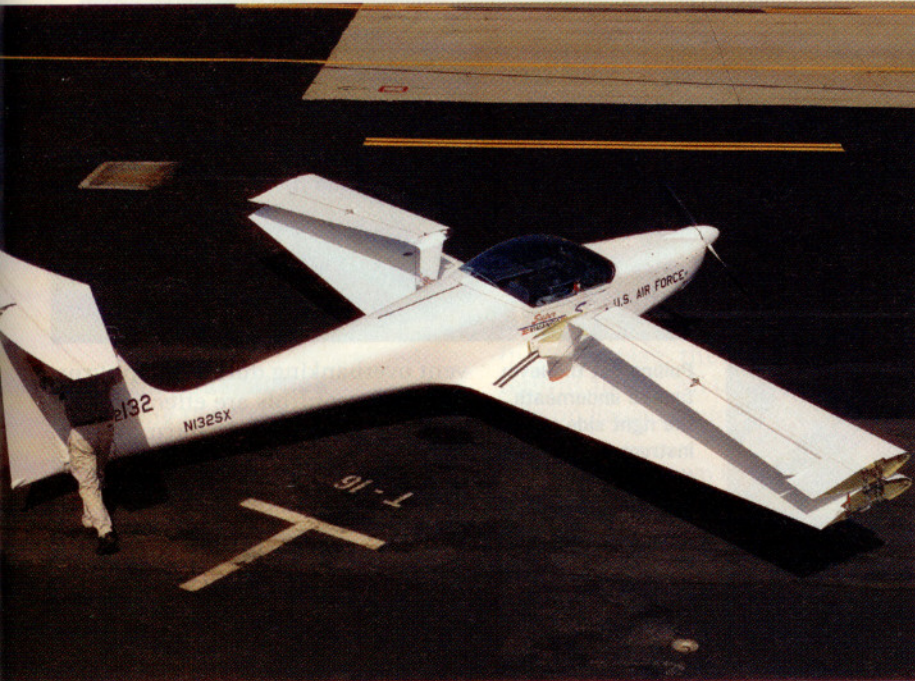
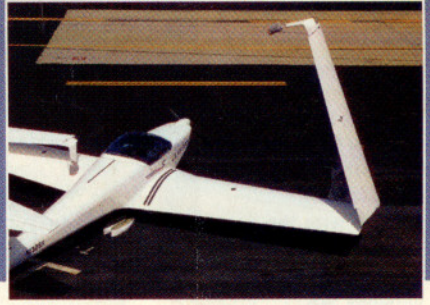
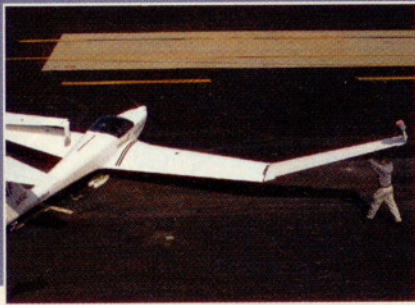
Lower the Swiss-made canopy and secure it with a lever-lock on each side rail. The company touts the canopy as optically perfect, and I could detect no distortion to disprove that claim.

The Ximango has a steerable tailwheel, but some differential toe braking is needed to make moderately tight turns. Such long wings require that you use caution when taxiing in tight quarters. Yes, you may taxi with the wings folded, but trying to take off that way is a no-no. Over-the-nose visibility is ex-

The Ximango has a **steerable tailwheel**, but some **differential toe braking** is needed to make moderately **tight turns**.







The Ximango's engine does not have a mixture control (or carburetor heat or alternate air source). Shutting down involves retarding the throttle and turning off the dual electronic ignition systems. Then turn off the alternator, turn off the fuel-selector valve, feather the propeller, and tap the starter button, if necessary, to move the propeller to a horizontal position (to minimize drag).

Do not forget to move the three-position master switch to the Soaring position. This turns off all unnecessary electrical loads, such as engine gauges, electric gyros, and so forth. Forgetting this can result in a low battery and a difficult engine restart. If the transponder and transceiver are not required, turn the master switch completely off.

Finally, close the cowl flap to further minimize drag and reduce air-

cellent; there is no need to S-turn this taildragger.

There is nothing unusual about the preflight runup except for checking the Hoffman three-position propeller. It is changed from minimum pitch for takeoff to climb/cruise pitch to feather by pulling a spring-loaded lever from under the instrument panel and then allowing it to return to the stowed position after implementing the desired pitch change. Also, be certain that the Schempp-Hirth spoilers are stowed.

The takeoff roll is routine for a taildragger, but keep the tailwheel on the ground during the early part of the takeoff roll to facilitate directional control and prevent those long wings from developing a yawing mind of their own.

Do not be alarmed by the 5,800-rpm indication on the tachometer. This is engine rpm, not propeller rpm. With a gear ratio of 2.43-to-1, the 67-inch propeller is spinning at less than 2,400 rpm, which results in a relatively low noise signature.

After liftoff and when climbing comfortably at  $V_X$  (52 KIAS) or  $V_Y$  (59 KIAS),

## The 58-foot-long wings fold like those found on carrier-based naval aircraft.

reach for the handle in the center console between the seats, lift it from its stowed position, and push it forward to raise the main landing gear. Pulling aft lowers and locks the wheels into position. The Ximango does not have flaps.

Climb at 5,500 rpm, cruise at 5,000, and do not be surprised when overtaking Cessna 152s and 172s.

### Flying quiet

When the mood strikes and conditions are conducive to soaring, you can shut down the engine and dramatically increase specific range (miles per gallon). I had the feeling that I could have made a summertime flight from Los Angeles across the Mojave Desert to Las Vegas using little more than the few cupfuls of avgas required to take off and climb to altitude.

speed to a best-glide speed of 58 KIAS or a minimum-sink (189 fpm) speed of 52 KIAS.

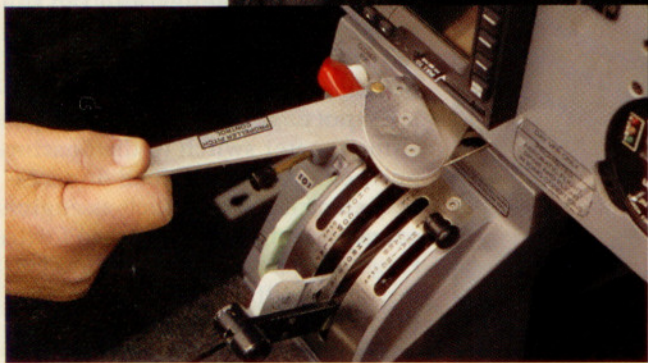
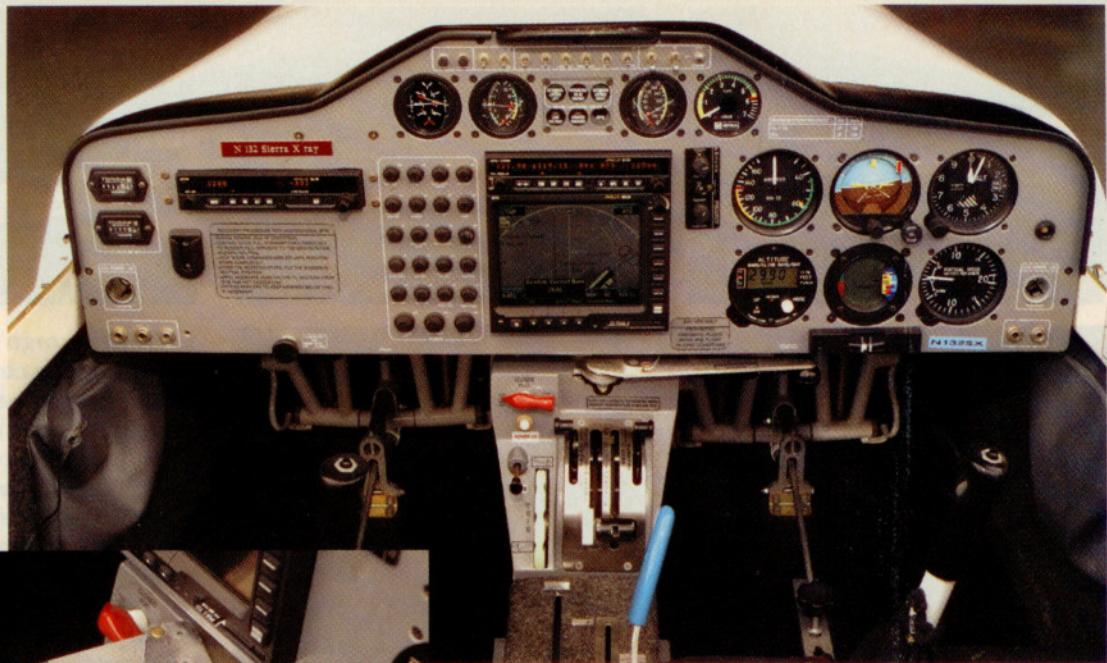
Then just settle back, enjoy hearing only a whisper of air passing by the canopy, and employ your soaring skills to maintain or gain altitude.

The Ximango has a glide (lift-to-drag) ratio of 31-to-1, which is outstanding for a motorglider and is possible because of the laminar-flow wing, clean design, retractable landing gear, and full-feathering propeller. Optional winglets provide increased glide performance.

Aircraft with long wings typically exhibit low roll rates because of roll damping. This seems largely overcome in the Ximango, which rolls into and out of turns crisply. Nor is top aileron pressure required to pre-



Military versions (right) are configured for the student to sit on the right so that he can use the control stick with the right hand and the throttle with the left (as in jet fighters). Civilian versions are configured conventionally.

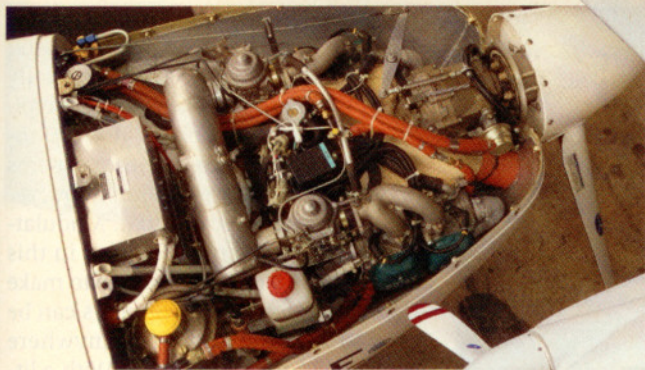


**Pulling out the lever tucked underneath the right side of the instrument panel (left) manually changes propeller pitch.**

vent overbanking during steep turns. The flight controls are effective, well balanced, and nicely harmonized. There is an abundance of adverse yaw effect, however, which is typical of sailplanes.

When operating in the silent world of soaring flight, it is easy to become a vic-





The 100-horsepower Bombardier-Rotax engine (above) is liquid cooled and can be shut down and restarted in the air without concern about shock cooling. The propeller is feathered (right) to reduce drag for soaring flight.

tim of complacency and allow the sailplane to descend unobtrusively below some minimum safe altitude. Always have a restart altitude in mind and abide by it.

### **Powerful possibilities**

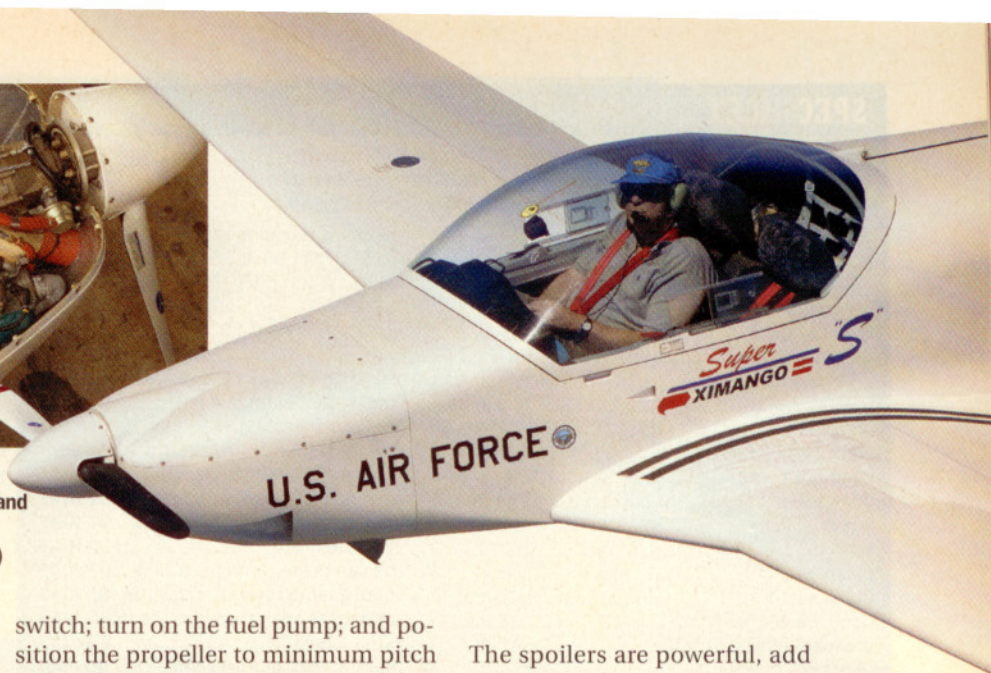
Relighting the fire and making the metamorphosis from sailplane to "airplane" is quick and easy: Select one of two wing tanks with the fuel selector; pull out the choke if the engine is cold; open the throttle; turn on the master

switch; turn on the fuel pump; and position the propeller to minimum pitch (takeoff position). You then can either tap the starter button or enter a gentle dive to get the propeller windmilling. In either case, the engine abruptly returns to life. All that remains is to turn on the alternator and turn off the fuel pump.

Need to go down in a hurry? Deploy the spoilers by pulling back on the blue handle in the center console. Pull back a little or a lot, but be careful with a lot.

The spoilers are powerful, add substantial drag, and necessitate a significant nose-down attitude to maintain a given airspeed.

When in the traffic pattern, use some spoiler deployment for descent to the runway. Otherwise, you'll need to fly a substantially extended traffic pattern, something that those flying in trail will not appreciate. (With a glide ratio of 31-to-1, losing 1,000 feet requires more than 5 nm.)





## SPECSHEET

### Aeromot AMT-200S Ximango

Price as new: \$135,000 (faf Brazil)

Average equipped price: \$147,500

#### Specifications

Powerplant.....	Bombardier-Rotax 912-S4A, liquid cooled, 100 hp @ 5,800 rpm
Recommended TBO .....	1,500 hr
Propeller .....	Hoffman HO-V62R-1/170FA, 3-position, full feathering
Length.....	26 ft 6 in
Height (3-pt attitude).....	6 ft 4 in
Wingspan .....	58 ft
Wingspan (wings folded) .....	33 ft 4 in
Wing area .....	201 sq ft
Wing loading .....	9.3 lb/sq ft
Power loading .....	18.7 lb/hp
Seats.....	2
Cabin length .....	55 in
Cabin width .....	43 in
Cabin height .....	38 in
Standard empty weight .....	1,345 lb
Max takeoff weight.....	1,874 lb
Max useful load .....	529 lb
Max payload w/full fuel .....	386 lb
Fuel capacity, std .....	23.8 gal (23.2 usable)
Oil capacity .....	3.2 qt
Baggage capacity .....	22 lb

#### Performance

Takeoff distance, ground roll.....	738 ft
Takeoff distance over 50-ft obstacle .....	1,060 ft
Max demonstrated crosswind component.....	.15 kt
Rate of climb, sea level .....	557 fpm

Cruise speed/endurance w/45-min rsv, std @ 5,100 rpm, sea level (fuel consumption) .....	.97 kt/428 nm (4.5 gph)
Service ceiling .....	16,000
Max L/D (glide ratio).....	31:1 @ 58 KIAS
Min sink .....	189 fpm @ 52 KIAS
Landing distance over 50-ft obstacle.....	820 ft
Landing distance, ground roll .....	426 ft

#### Limiting and Recommended Airspeeds

$V_X$ (best angle of climb).....	52 KIAS
$V_Y$ (best rate of climb) .....	59 KIAS
$V_{NO}$ (max structural cruising).....	97 KIAS
$V_{NE}$ (never exceed).....	132 KIAS
$V_A$ (design maneuvering).....	97 KIAS
$V_{LE}$ (max gear extended) .....	81 KIAS
$V_{LO}$ (max gear operating) .....	81 KIAS
$V_{S1}$ (stall, clean) .....	43 KIAS
$V_{SO}$ (stall, in landing configuration) .....	42 KIAS

For more information, contact Ximango USA,  
222 Cessna Boulevard, Daytona Beach,  
Florida 32128; telephone 386/760-4072;  
e-mail [ximangousa@aol.com](mailto:ximangousa@aol.com); or visit the  
Web site ([www.ximangousa.com](http://www.ximangousa.com)).

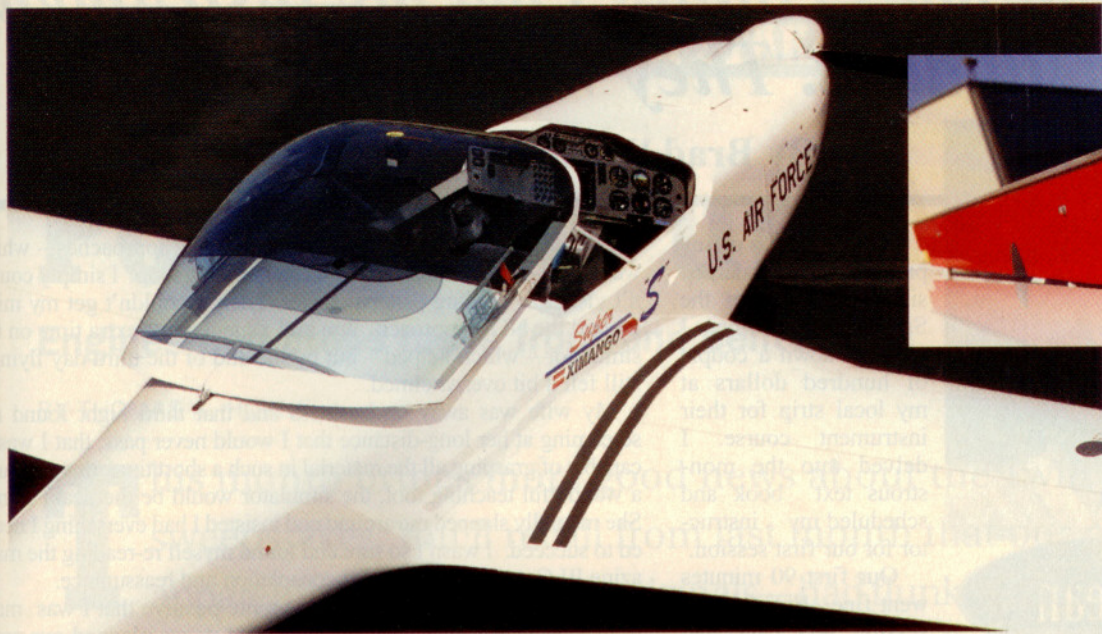
All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, gross weight conditions unless otherwise noted.

A typical approach is made with the engine throttled back (or shut down!) and the spoilers deployed partially to approximate the glide ratio of a typical single-engine airplane (about 9-to-1). If at any time the Ximango seems high, add a bit more spoiler; if low, retract the spoilers somewhat. Modulating the spoilers and glidepath in this manner is like using an engine to make glidepath adjustments. Spoilers can be used to vary the glidepath anywhere between 31-to-1 and 5-to-1. With a little practice, you will find it easier to make a spot landing in a glider than in a powered airplane. It is nice to know, however, that this is one sailplane in which you have the option of executing a go-around.

A horn and a flashing red light are not-so-subtle reminders to lower the landing gear. These warnings are tied to spoiler activation and not throttle position because landings can be made safely with the engine shut down.

Wheel landings are not difficult in the Ximango and high-speed directional control after touchdown is enhanced by the very effective rudder and wide-stance landing gear (the mains are 9 feet apart).





Visibility from the cockpit is an outstanding 360 degrees, and the company claims the canopy is distortion-free. Powerful speed brakes (above) help manage descents.

The Super Ximango has been certified under the European JAR-22 airworthiness standards and by the FAA in the Utility category, but intentional spins are not allowed.

Don't have a medical certificate? No problem. Pilots exercising the privileges of a glider rating are not required to have one (even when carrying a pas-

senger) even though a motorglider can be operated like an airplane. The Ximango is certified only for day-VFR operations.

Because it is a glider and not an airplane, the minimum age for soloing a Ximango is only 14 (compared to 16 for airplanes), even when flown with power. A teenager can obtain a private

pilot certificate with a glider rating at 16 (compared to 17 for an airplane rating).

This is a fun machine for the sportsman-pilot in search of an aircraft that can be flown as high and as far as conditions allow. The sky is the limit, literally. **ACPA**

Visit the author's Web site ([www.barryschiff.com](http://www.barryschiff.com)).