



The Minerva in flight over southern Florida.  
Photos by the author

PILOT writer flies  
220 h.p. French import  
and finds her every inch  
a lady. Four-place plane's  
assumption of STOL  
characteristics, coming in part  
from automatic opening of  
eyelash slats, is bit  
startling at first but you  
get used to it

■ ■ "I'm taking Miss Minerva out today," explained a Florida pilot. "She's French, you know."

Small wonder that the wives of pilots and mechanics in the Bartow, Fla., area were having words. Just to dispel any comment, our French Minerva is an angular, husky 220 h.p. Rallye Minerva. She's a product of the French SOCATA (Société de Construction d'Avions de Tourisme et d'Affaires) and is handled in this country by B.F.A. Aviation, Inc., with offices in New York City.

Assembly of this four-place import takes place at Bartow, where B.F.A. President Bert Blumenfeld advised The PILOT, "We have established a spares support program which means that we will have available at Bartow and other locations the necessary spares and rotatables for every aircraft flying in our territory. This would mean that we could ship spares within 24 hours after receiving a request for same."

We were introduced to Miss Minerva by a Southern gentleman with more than 10,000 hours of airborne savvy beneath his gray crewcut. Among other things, Alfred E. "Al" Holland is chief pilot for the busy, expanding Bartow Air Academy. He demonstrates Miss Minerva and a new Lake Buccaneer amphibian with a quiet proficiency that is the mark of a real professional.

For a French girl, Miss Minerva couldn't really be called a classic beauty. She's more angular than curvacious.

Her skirts (wheel fairings) looked as though they weren't on quite straight, but a quick paint job would fix that. The center line of the wheel fairings on Bartow's Miss Minerva No. 1 (F-OCPX) was parallel with the ground only on a nose-high takeoff but looked unusual when she was standing on the ground. A later recheck indicated that her shock struts were low. 'Nuf said.

When you give Miss Minerva the eye, you'll find a number of differences in this French girl. For example, her nose gear is offset six inches to the right to clear the carburetor of the U.S.-made 220 h.p. six-cylinder Franklin engine.

Her eyelashes blink unashamedly whenever you make a low pass. These "eyelashes" are, in reality, air-loaded leading-edge slats for superb STOL controllability. The slats extend 9½ inches as airspeed drops below the 78-81 m.p.h. range, and add almost 20% to the effective wing area when you need it most. In addition to added area, the slats recontour the airflow for slow flight.

When you drop the manually actuated Fowler flaps, the first 8° notch slides the big 26-square-foot flaps back six inches and adds another nine square feet to the effective wing area. Full flaps (30°) and full stick back with power off produces a "sink rate" of nearly two feet down for every foot forward, according to SOCATA's slide rule

# A Date With Minerva

by DONALD CHASE

experts. The rate of descent is about 800 f.p.m. with normal loading and the airframe is designed to take ground contact at this rate "without damage to the occupants."

While Miss *Minerva* has no bustle, she does have a built-in capability of landing power-off that approaches the performance of a parachute.

Miss *Minerva* is a true STOL aircraft with a takeoff roll, at gross weight of 2,425 pounds, that's just under 400 feet. Her landing roll is even shorter, 330 feet. Thus, you can get Miss *Minerva* into anything that you can fly her out of.

Her cabin is 6 feet 7 inches from firewall to rear bulkhead. However, there's a structural brace aft of the front seats that would provide a moderate challenge for long-legged passengers on a long trip. The range is 860 n.m. or up to seven hours at economy cruise on 58 gallons of 100 octane.

Part of *Minerva's* docility comes from a full 7° of dihedral and a rudder that reaches 9.2 feet above the ground. This amount of rudder is needed to counteract torque at STOL speeds. Like a popular cigarette ad, the wing is long (31½ feet) and thin (4.2-foot chord) to provide an aspect ratio of 7.5:1. This combination is designed for a smooth ride in almost any kind of air.

No pilot is ever going to complain about *Minerva's* visibility. You can almost see through her, but would you really want to do that to any French lady? Cabin sides are much lower than most; in fact, this décolletage gives one an initial feeling that there's no cockpit at all. We'll stop right there.

When you climb into the cockpit of any import, you expect to find a number of unusual features, and *Minerva* obliges. The controls, for example, are side-by-side sticks. A big red handle in the middle of the instrument panel isn't a "panic button." It attaches to a built-in release in the tail cone for towering gliders or banners. After all, Miss *Minerva* is equipped to work for a living.

Early production models of the Rallye *Minerva* had dual push-pull throttles on both sides of the cockpit and were similar to the Australian "Victa." A left-side throttle is still optional, but the latest production units have a conventional center-mounted throttle.

Electrical switches at the bottom left of the panel have multilingual signs that one needs no French to interpret. The fuel-pump switch has a diagram of

a rotating pump, the bank and turn switch is illustrated, pilot heat is an electrical coil diagram with the beacon and landing lights drawn out as a strobe flash.

Boost pump, carburetor heat, throttle, prop adjustment and mixture cut-off are conventional. Rudder and elevator tabs are just below the throttle. Fuel selector (left, right and off) is at the bottom of the center console. In fact, there's more cockpit standardization in this French import than in a number of U.S. production models made today.

B.F.A. advises that the latest aircraft is completely conventional, but F-OCPX had a tachometer that turned counter-clockwise and a manifold gauge at the top right of the panel. The gauge was considerably smaller than the "tach" and located so that it was difficult to read. Avionics switches were buried under the glare shield on the instrument panel so that one must either remember their order (a "no-no") or duck his head to see what's going on. This little detail is cleaned up merely by placing the decal markings under the switches.

A series of annunciator (warning) lights are part of the center instrument panel so that a light blinks as long as you have the fuel pump on, low

fuel or oil pressure, pitot heat on, a generator malfunction or the strobe light on. This simple, multilingual companion for the on-off switches serves as an instant reminder in case of any key malfunction, and is, in this reporter's opinion, a definite asset to any instrument panel. The fuse panel, complete with similar markings, is at the bottom right of the instrument panel.

Unless you've been brought up with an American *Yankee*, a *Lake Amphibian* or one of the other aircraft with a castoring nose gear, the first few minutes coming off the ramp can be frustrating. However, the broad taxi ramps at Bartow's ex-WW-II AFB give plenty of room to practice. Actually, the castoring nose gear gives a wonderful assist for close-in parking and is a real necessity for much bush operation, but it does take some "getting used to."

I was not able to detect any unusual ground-handling caused by the off-center nose gear during our introduction to the *Minerva*. Undoubtedly, she'll turn more easily to the left at high speeds, but this would be such a subtle difference that it'd take hours of practice to notice.

Al Holland sat quietly in the right seat, letting us fumble through our own

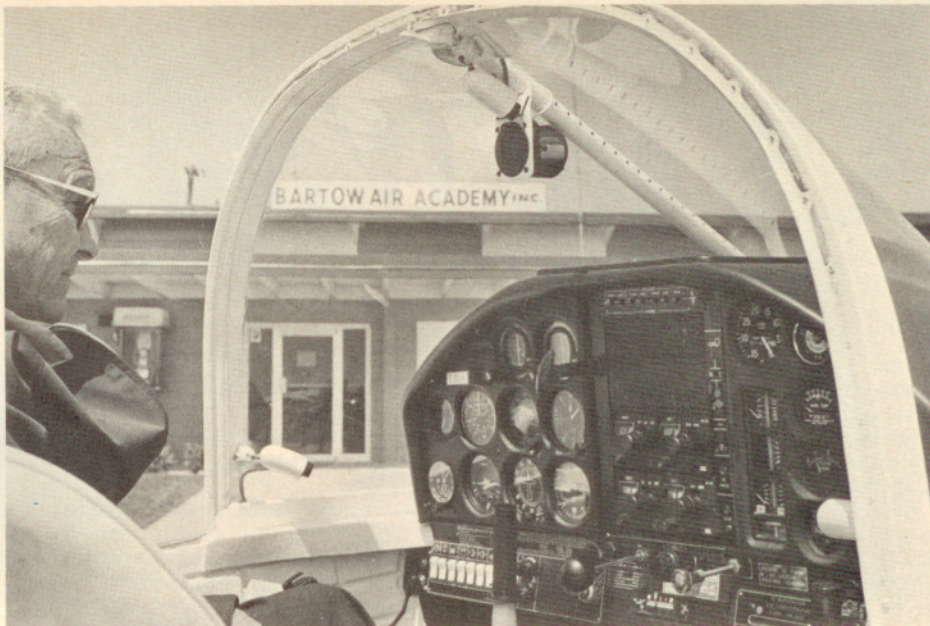
Rallye *Minerva* on the ramp at Bartow Air Academy, Bartow, Fla.



mistakes. With a passenger, full fuel and a couple of cameras, we were approaching gross weight of 2,425 pounds. (A Cessna *Cardinal*, for example, grosses at 2,500 pounds.) Service ceiling on the Rallye is listed as a healthy 16,400 feet.

Runup is completely straightforward once you discover that the tachometer on F-OCPX turns counterclockwise. The mag drop on Franklin engines is somewhat higher than others, but as long as that drop is within 50 r.p.m. of the same, the engine is ready to go. We dropped a predictable 200 r.p.m. on each mag at full static power.

In a cautious effort to get acquainted with Miss *Minerva*, we made a conventional takeoff with flaps retracted, reserving the max-performance exercises for later. Visibility is excellent on rotation and the nose must come up and up to keep the airspeed between 80 and 90 m.p.h. Rate of climb at our weight was a solid 1,000 f.p.m.



Al Holland in the *Minerva* cockpit at Bartow Air Academy.



The French plane with 8° of flaps extended as Al Holland prepares to enter cockpit. Note how Fowler flaps increase wing area by nine square feet as they roll back six inches.

We broke out of Bartow's traffic pattern and climbed easily toward the weekend water-ski show at nearby Cypress Gardens. The low side rails of the cockpit made you feel just a little as though you were flying a no-cockpit *Breezy*. However, the big canopy has a tinted top for glare and the noise level was quite acceptable. Miss *Minerva* would be a delightful girl with which to give instruction. Visibility is absolutely wonderful except under those rare extreme STOL configurations where her "pug" nose tilts so high that straight-ahead visibility is restricted.

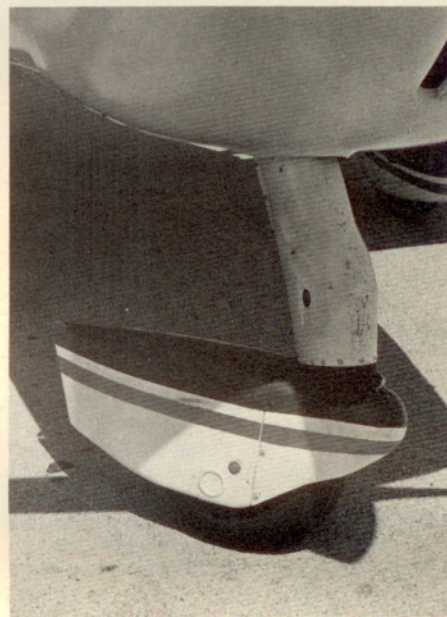
Turns and slow flight are predictably stable. However, it comes as a bit of a shock the first time the big eyelash slats pop open of their own accord. Yet, you soon become accustomed to this seeming disassembly of the wing in flight and relax to enjoy the superb slow-speed characteristics.

Drop one notch of flaps and the

wing area increases from 7% to 8%. The nose tends to dip very slightly and handling characteristics change from quick to leisurely. Slow-speed turns require application of power to retain altitude and Miss *Minerva* will make a tight 180° at 60 m.p.h. in four seconds. This maneuverability is built-in life insurance for the pilot probing a box canyon or marginal weather.

With power off, full flaps and full back stick, Miss *Minerva* will drop 700 to 800 f.p.m., but the rate of sink is markedly less in a normal glide. For the occasional situations requiring full STOL performance, you should have full flaps and enough reserve power available to stop the rate of sink just before touchdown. In this configuration the

(Below) *Minerva's* nose gear is offset six inches to right in order to clear the carburetor.



nose tends to come way up with the slats full open. While visibility is somewhat restricted over the nose, the cowling is narrow enough so around-the-corner viewing is completely satisfactory.

Our first landing was on the fascinating grass strip at Chalet Suzanne (The *PILOT*, July 1970) where a call on the Unicom will close off traffic on the road that bisects the runway and roll back electric gates so that the 1,800-foot runway stretches to 2,600 feet.

We circled while Al Holland talked with Carl Hinshaw (AOPA 198190) and the airport's "walls of Jericho" rolled open. I turned in on what would normally have been a high base leg with 8° of flaps. With full flaps on final approach, I would have undershot by several hundred feet without application

of plenty of power.

The center of the green turf disappeared behind the high nose and Al Holland cautioned, "Watch out for those runway lights off to your left." They flicked by a full wingspan away and we flared out for landing. With the stick all the way back, I was sure that we'd drag the tail tiedown bracket, but we didn't. Once the off-center nose gear touched the grass under its own weight, we were practically stopped and had to taxi a thousand feet to park near the Chalet Suzanne's combination Bellanca sales room and gourmet soup factory.

While it's human nature for a pilot to want to keep his grubby hands on the controls, it's always more informative to follow through and let the "demo" pilot show you how to get the most out of any new plane. Al Holland locked the brakes, dropped 8° of flaps and applied full power. A couple of grassy ripples later the nose came up and we were airborne, well below the factory "specs" of 395 feet. Full flaps can be applied just before takeoff to shorten the roll even more under certain wind conditions.

In a max-performance rotation, visibility ahead was nil, but soon the nose came down to a fairly respectable angle and we had 1,000 feet over the little lake at the north end of the runway. The French-accented "ops manual" states that the maximum climb "configuration must be used exceptionally since engine cooling is less effective." However, since the ship is designed for both glider and banner towing, cooling can't be much of a problem.

"Extreme STOL capabilities should be limited to actually getting into the air, over an obstacle, and making a short landing, for a pilot with average experience," explained Holland as we loafed along downwind, indicating 75 m.p.h. He slowed, turned base and made a final approach that looked high enough to put us in the lake. When the big flaps came all the way out and the power was cut, we settled rapidly. We were on and stopped in half the distance I had just used.

I tried a max-performance takeoff on our return trip and the STOL import made it look easy. However, plan to have a heavy right foot to take care of the torque. Back at Bartow field, we used the big Number 9 for a target and made it easily on the first try. Given a few hours of familiarization with Miss *Minerva*, even an inexperienced pilot should be able to put her just about where he wants to.

Mechanics like Miss *Minerva* because her Fiberglas cowling comes off with just four fasteners and the cowling top is removable to reach the back of the instrument panel.

B.F.A. reports that Miss *Minerva* will sell for \$24,000 plus avionics. Add the price of a STOL modification to comparable U.S. designs and you have a completely competitive package. The latest Rallye brochure lists these French aircraft as "love at first sight." More accurately, it could be "love at first flight." □