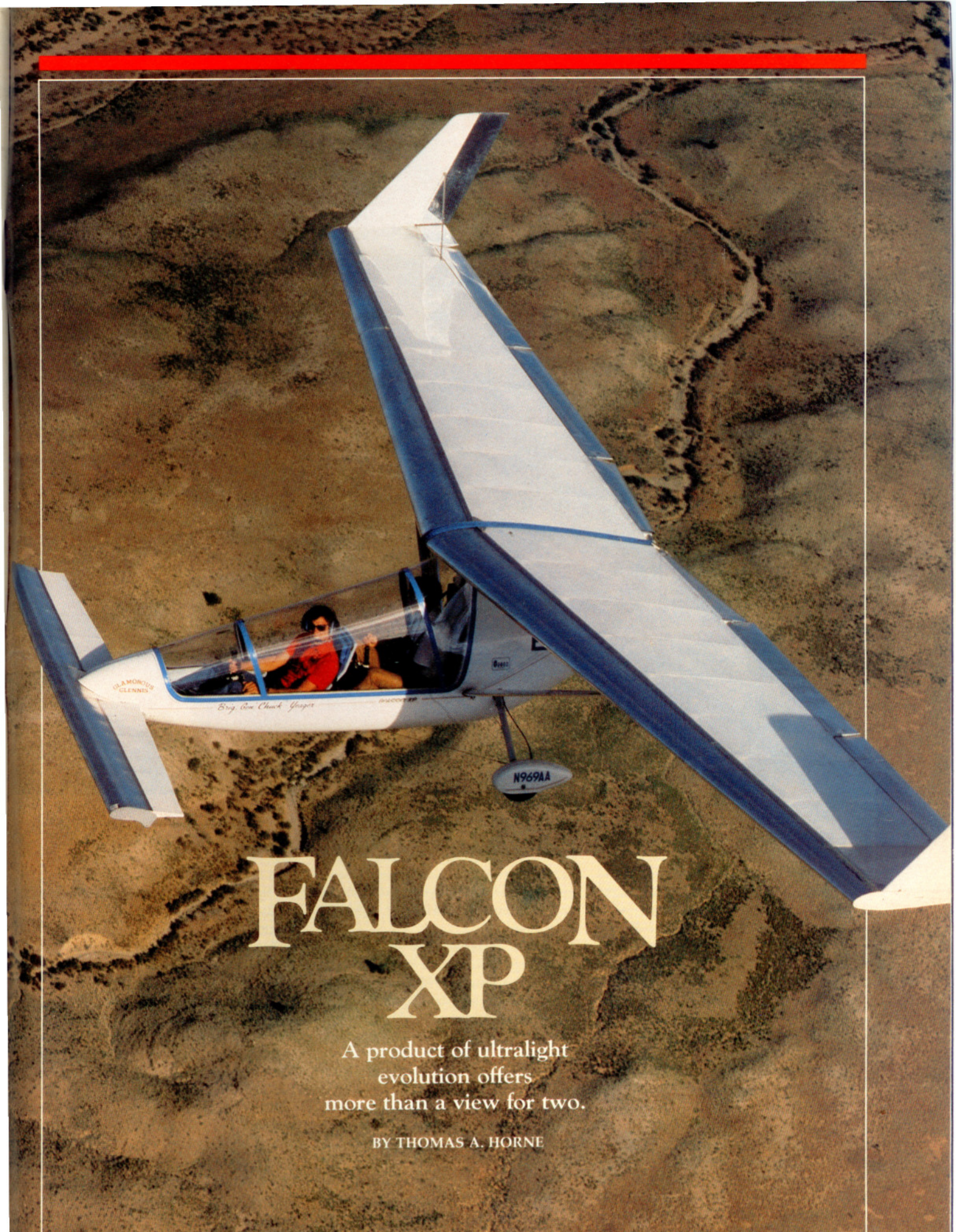
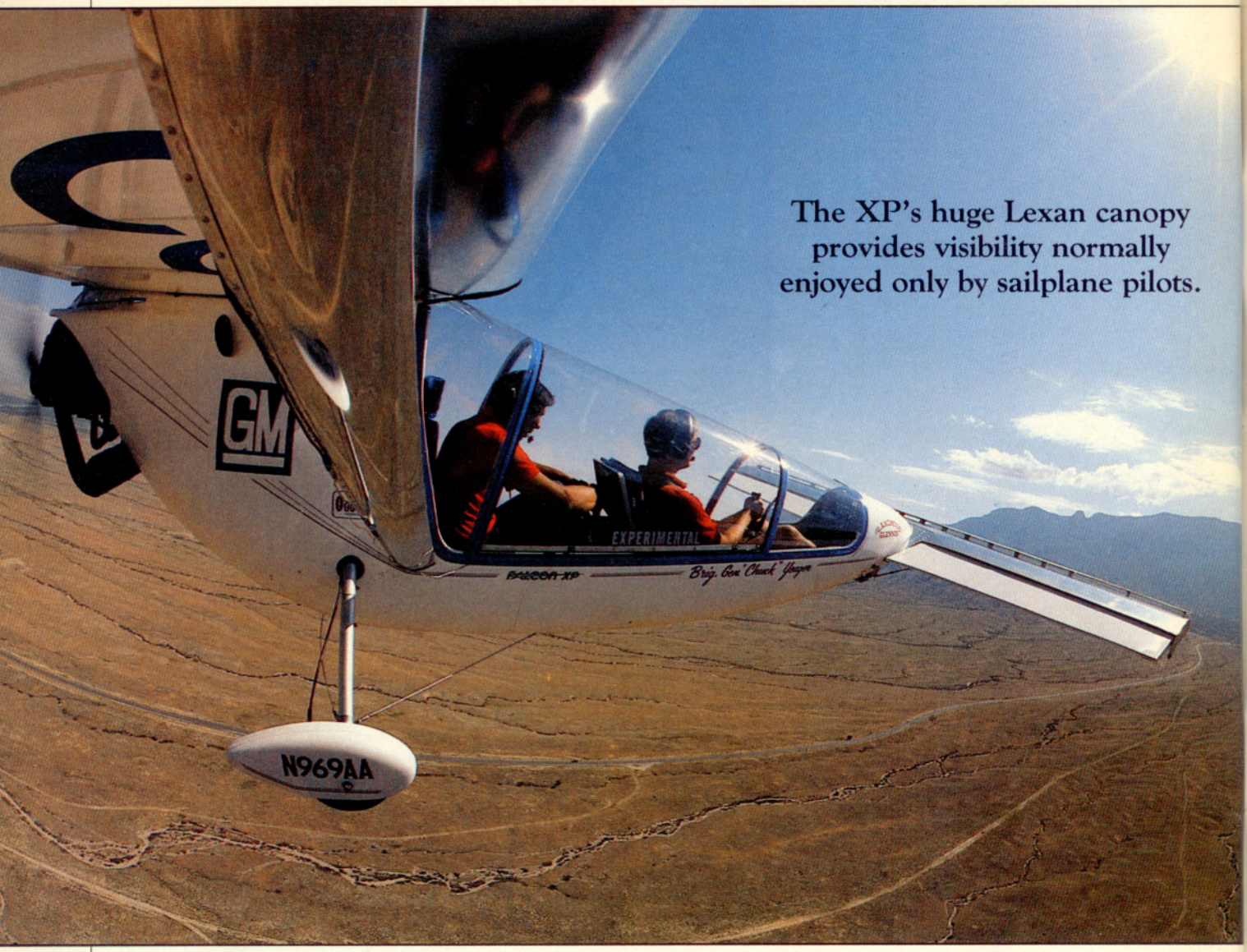


FALCON XP

A product of ultralight evolution offers more than a view for two.

BY THOMAS A. HORNE

PHOTOGRAPHY BY THE AUTHOR



The XP's huge Lexan canopy provides visibility normally enjoyed only by sailplane pilots.

Ultralight manufacturers that have survived the precipitous decline in ultralight sales are now concentrating on light, two-seat kits in the Experimental Amateur-built category. Most of the designs in this category are near-replicas of antique aircraft.

American Aircraft—manufacturer of the Falcon ultralight—has expanded into the experimental market, too. Its offering, the Falcon XP—a swept-wing, canard-configured design with a pusher propeller—is a derivative of its ultralight predecessor, the Falcon. American Aircraft uses composites in the construction of the Falcon XP. The fuselage is principally made of Kevlar (a Du Pont composite material with high tensile strength and great resistance to damage and vibration) and fiberglass. A carbon-fiber/epoxy composite is used for additional strength at the landing-gear and wing attach points. Carbon fiber composites have very high strength-to-weight ratios and are stronger in compression, tension and modulus (a measure of stiffness) than aluminum.

Modern materials also are used in the wings, which are covered with Tedlar, a strong, transparent alloy of Teflon and Mylar. Main spars are comprised of reinforced aluminum D-tubes; ribs are styrofoam with aluminum capstrips.

Pilots who are new to the Falcon XP will discover that its controls are very responsive—and also unconventional. Pitch authority is impressive, thanks to the canard and the XP's short-coupled fuselage.

The canard also can provide an intrinsic safety feature. Since it is set at a higher angle of incidence than the main wing, it stalls first. Theoretically, this prevents the main wing from stalling. The result is a stall- and spin-resistant design. The XP's canard has a leading-edge slat, a feature designed to delay airflow separation at high angles of attack.

Becoming accustomed to the operation of the wing-tip rudders may require the most effort. The rudders' placement at the wing tips produces greater drag, and, therefore, movements of a greater magnitude than those in aircraft with rudders aligned with the fuselage centerline. Pushing on both rudder pedals simultaneously deploys both tip rudders, creating a spoiler/speed-brake effect.

The airplane is powered by a 497-cc, two cylinder, two-stroke, 45-hp engine manufactured by Bombardier-Rotax of Gunskirchen, Austria. The Rotax 503 is more reliable than two-stroke engines

Dual carburetors are optional on the Rotax 503 (above). Engine provides cabin heat and 12-volt electrical power.

of five years ago. In the early days of ultralight aviation, two-stroke engines were poorly designed and built. Modern two-stroke engines are built to closer tolerances and typically operate for about 500 hours before needing any major maintenance. The three-blade propeller is made of a Kevlar/fiberglass composite and is driven by a belt-reduction drive.

Other standard features compare favorably with the new generation of Experimental-category tube-and-fabric designs: cabin heat, retractable nose gear, shoulder harnesses, comfortable seats and excellent visibility.

I flew the Falcon XP at Coronado Airport in Albuquerque, New Mexico. Coronado's elevation is 5,280 feet. The temperature was 95 degrees. The combination of these variables produced a density altitude of about 9,000 feet.

Small pedals inboard of the rudder pedals steer the nosewheel. After lining up on the runway centerline and applying full power, I rotated the XP at 30.4 knots. Climbout speed was 48 knots. With two aboard, the XP climbed in the neighborhood of 300 fpm—not bad for 50 hp under those conditions.

To retract the nose gear, the front-seat pilot must pull on a floor-mounted cable. The cable end is then secured in a fitting on the end control column. To extend the nose gear, the retraction cable (labeled with a red cable end) is removed from the control column, and the pilot pulls up on another cable (labeled with a green cable end), securing it in place on the control column.

The view provided from the XP's cockpit is truly spectacular. Circling over the desert west of the Sandia Mountains, the XP afforded an unobstructed view. Soaring in the strong desert thermals resulted in a 500-fpm climb. Approaches and landings at Coronado were made with a power-off glide. Like the Falcon ultralight—and many other canard designs—the Falcon XP floats a considerable distance before touchdown. Canards generate positive lift (unlike the negative lift of conventional stabilizers, which acts as

American Aircraft Falcon XP

Base price: $9,995
Construction time: at least 100 hr
Setup time: approx. 15 min

Specifications

Powerplant	45-hp, two-cylinder, 497-cc Rotax 503
Propeller	Three-blade, Kevlar/fiberglass composite, 60-in dia
Length	17 ft
Height	5 ft 7 in
Wingspan	36 ft
Wing area	175 sq ft
Wing loading	5.7 lb/sq ft
Power loading	22.2 lb/hp
Empty weight	500 lb
Max gross weight	1,000 lb
Useful load	500 lb
Pilot weight, front seat	130-200 lb
Pilot weight, rear seat	up to 210 lb
Fuel capacity	15 gal
Fuel:oil ratio	50:1

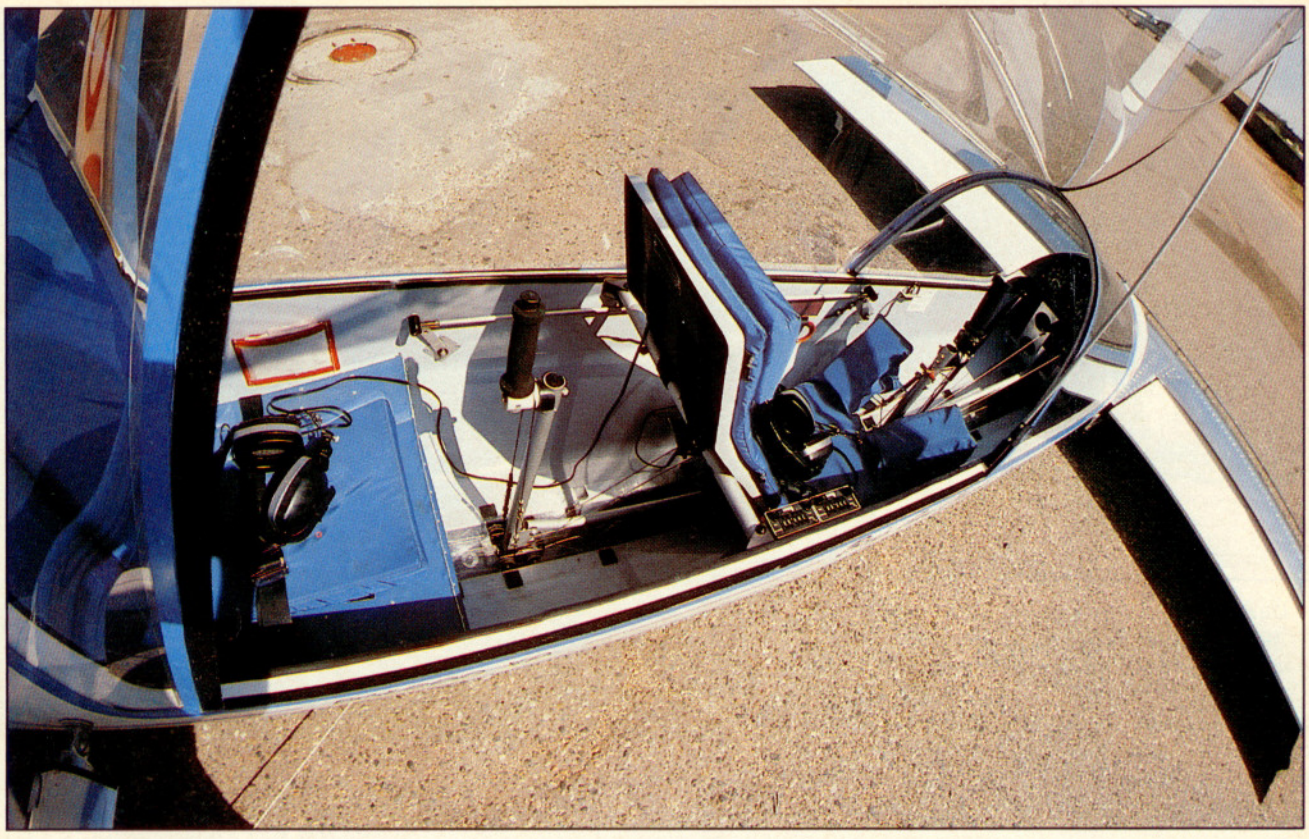
Performance

Takeoff distance, one occupant	200 ft
Takeoff distance, two occupants	300 ft
Rate of climb, one occupant	800 fpm
Rate of climb, two occupants	500 fpm
Cruise speed (fuel consumption) @ 75-percent power	61-70 kt (4.0 gph)
Max endurance/max range @ 75 percent power	
one occupant	250 sm
two occupants	200 sm
Service ceiling, one occupant	14,000 ft
Service ceiling, two occupants	10,500 ft
Power-off glide ratio	14:1
Sink rate at 39 kt	375 fpm (two occupants)
Max recommended crosswind component	20 kt
Landing distance, one occupant	250 ft
Landing distance, two occupants	400 ft

Limiting and recommended airspeeds

Vs (Minimum steady flight speed), one occupant	35 kt
Vs (Minimum stead flight speed), two occupants	39 kt
Vy (Best rate of climb)	52 kt
Vx (Best angle of climb)	39 kt
Max lift/drag speed (Best soaring performance, engine off), one occupant	38 kt
Max lift/drag speed (Best soaring performance, engine off), two occupants	42.5 kt
Va (Design maneuvering)	56.5 kt
Vne (Never exceed)	87 kt

All specifications are based on manufacturer's calculations. Data calculated on a 170-lb pilot and standard atmospheric conditions. For more information, contact: American Aircraft, Incorporated, 4310 Rankin Lane, N.E., Albuquerque, New Mexico 87107; 505/345-8100.



a downward force), and, in ground effect, this lift helps prolong touchdown, especially at higher approach speeds. During the landing rollout, the pilot must steer gently, using the nosewheel steering pedals, and apply pressure to the main gear's disc brakes. The brake lever, which resembles a motorcycle hand brake, is mounted at the control column handgrip.

This particular airplane is a demonstration model and is adorned like a flying billboard. American Aircraft, like several other manufacturers, employs Brigadier General Charles E. (Chuck) Yeager (USAF-ret.) for promotional purposes. Ergo, "Glamorous Glennis" on the nose and Yeager's name on the fuselage. He has used the airplane to give demonstration rides on the airshow circuit, and it also has appeared in an AC-Delco televison commercial.

The price of the Falcon XP is $9,995. It has several options. Dual Bing carburetors ($150) raise the stock engine's power by five horsepower. An electric starter ($225) provides push-button starting instead of the usual two-stroke procedure of pulling on a starter cord. There also is a wing and strut fairing kit ($100) that reduces drag, a trailer ($1,400), a Terra TX 720-channel transceiver, pre-wired for the XP, ($1,045) and an intercom system ($400).

Cockpit has dual controls and basic pitot-static instruments. Optional radios are powered by a 12-volt electrical system.

The most important safety option is the $600 emergency parachute system. This is a ballistically deployed parachute designed to lower the airplane and pilots safely, should the airframe fail. In static load tests, the airframe yielded at +7.4Gs and -4.6Gs; G-loadings for airframe failure have not been recorded. A red lanyard is on the left cockpit sidewall, next to the front pilot seat. Pull it, and an explosive charge blows an internally mounted parachute through a breakaway panel in the aft fuselage. This is a beneficial carryover from ultralight aviation, where parachutes are becoming standard equipment.

Since the Falcon XP is in the Experimental Amateur-built category, owners must perform 51 percent of the construction tasks. American Aircraft President Larry Newman says his employees can build one in approximately 100 hours. Average builders, he says, take 150 hours. Videotapes explaining the construction steps are included with the Falcon XP kit. Field setups of a completed airplane should take approximately 15 minutes.

The airplane could be certified in the proposed Primary Aircraft category. The Primary category would allow lightplanes such as the Falcon XP to be sold as production aircraft and permit them to be used legally for flight instruction. AOPA initiated the Primary Aircraft proposal, but the initiative remains on hold in the FAA bureaucracy.

This summer, XPs have been selling at eight units per month. Most customers range from 60 to 80 years old, Newman says, and most have pilot certificates. That is a far cry from the hundreds-a-month frenzy of ultralight manufacturing, but Newman does not seem concerned. Recalling the circus-like atmosphere of the early 1980s he said, "I don't need the ego trip any more." He has hired an operations specialist and is distancing himself from the company's day-to-day activities. He has just signed to fly Boeing 737s for America West, a regional airline out of Phoenix, Arizona.

The Falcon XP's reception is representative of the latest trends in light aviation—a time marked by a low, but steady, volume of sales to a limited number of enthusiasts. □