

A v i a t 1 1 0 S p e c i a l

Fast Eddie and the Deuce Coupe

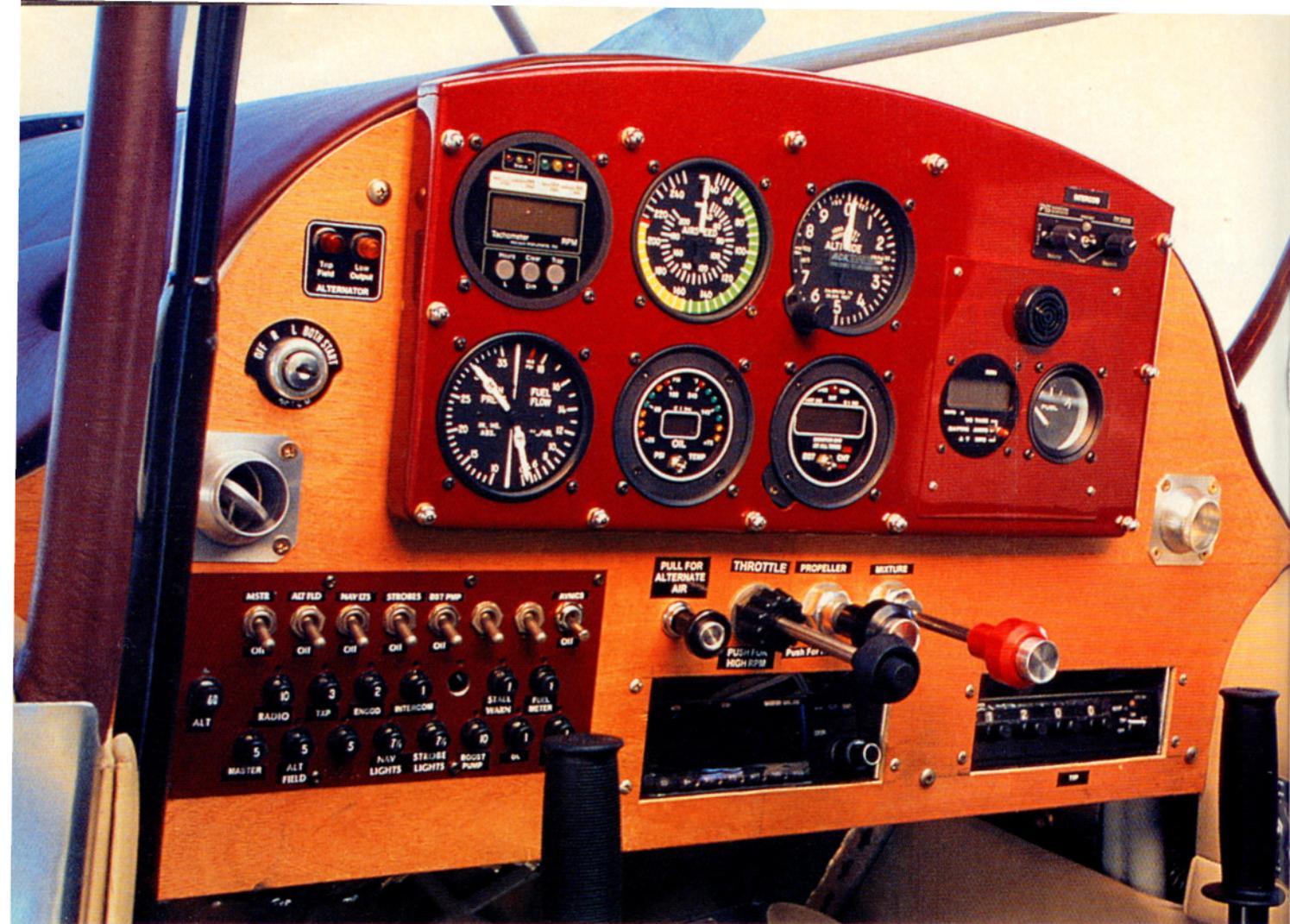


A pylon polisher returns to production

BY ALTON K. MARSH

When you buy the 200-horsepower Aviat 110 Special, you're buying history. Aviat Aircraft based it on the 145-hp radial-engine Monocoupe 110, the clipped-wing version of the Monocoupe line, which included 60- and 90-hp models. Counting all models, more than 800 were built by the Mono Aircraft Corporation. It later became the Monocoupe Corporation, and was headed by Don Luscombe, who later went on to build the famous Luscombe line of aircraft. ■ This speedster from the 1930s stirred the imagination of all who saw it flying in airshows or, more likely, winning yet another air race. One example won the first international aerobatic contest, which took place in Miami in 1948. That aircraft is now owned by the Smithsonian's National Air and Space Museum. ■ Aviat engineer Eddie Saurenman saw his first Monocoupe 110 Special when he was 14. "Don't go down there [to the Monocoupe's parking place]," an FBO operator told the young Saurenman. "It'll change you forever." It changed aviation in the 1930s and 1940s, and inspired a lot of young Eddie Saurenmans along the way. ■ Saurenman compares it to another famous machine of the 1930s—the Model A Ford with its famous rumble seat. Both seat two (thus, the term *Deuce Coupe*), and both are bad, in the good sense. The title for this article comes from a thought Saurenman had a year ago while he was screaming back and forth above the plant in Afton,

PHOTOGRAPHY BY MIKE FIZER



Wyoming, in the Aviat 110 Special prototype he had just completed. To meet FAA regulations, he had to put some hours on it prior to ferrying it to EAA AirVenture in Oshkosh. As he darted back and forth above Afton, he imagined folks on the ground saying, "There goes Fast Eddie in his Deuce Coupe."

Aviation magazine reporters got to fly the flight-test aircraft in January, but it is different in many ways from the production aircraft that was scheduled to emerge in April. Actual performance numbers had yet to be determined.

Saurenman sees a lot of similarities between the clipped-wing Monocoupe 110 Special and the Ford Deuce Coupe. Both are rumbling, hot-rod muscle machines. True to that image, Saurenman met reporters at the Long Beach, California, airport wearing a greaser's leather jacket. With him, but dressed as the New York businessman he is, was Aviat President Stu Horn. Long Beach was chosen for the flights because it was one of the few places in the country that wasn't covered with 10 feet of snow. And it wasn't really such a long trip from Afton, considering the 200-hp Aviat 110's speed of 160-plus KIAS. (The air-

craft will be powered by the Lycoming AEIO-360 engine.)

That's not all the speed it will do. There was a lot of drag yet to be removed from the flight-test article, thanks to in-progress modifications. Saurenman had just lowered the cowling three inches to improve forward visibility, but that left a temporary drag-inducing gap between the new windscreen and the old molding. He also had not installed aileron seals as yet, because the ailerons were still in development and he needed frequent access to the hinges. The composite propeller seen at EAA AirVenture had been replaced, for testing purposes, with a heavy metal one that slowed the airplane by nearly seven knots. And the airplane wore nearly 100 pounds of paint guaranteed to draw a crowd when displayed at airshows. The paint is designed to sparkle and appears to change colors in bright sunlight, but its weight reduces its top speed. There was also 110 pounds of equipment and fittings aboard that were needed only during testing. The prototype shown to the press had the capability of becoming a much faster production airplane once drag and weight were reduced.



Further development was to include several other improvements. There would be changes to the controls from those in the original type design, and tinkering with different rigging methods that would make the controls easier to move.

Additionally, the panel instruments were to be changed. The aircraft was displayed with electronic flight instruments at Oshkosh, but to meet testing regulations those had to be replaced during testing with certified steam-gauge instruments. And speed-inducing fairings were to be added, like those planned for the brake calipers and other areas.

Some of the improvements were completed before the airplane came to Long Beach, such as the DeLorean-like doors that are hinged at the top. "Because it is going to be in the Aerobatic category," Saurenman said, "the FARs mandate an emergency egress. So we went to a jump door. We have had them open in flight up to 140 kt."

"It is a blend of the classic and modern," Horn said. The paint scheme for the production aircraft was still in development, but the scheme on the flight-test aircraft, with the Monocoupe's trademark of three teal in flight,

was to be among those offered.

"It is not long-legged, but [the range] is decent," Horn said. Aviat officials expect the aircraft to have a range of 636 nautical miles with a five-gallon reserve. "We expect to exceed 185 mph TAS [160 kt] in cruise when we get this to its final state. Numbers will be strong, particularly for a four-cylinder engine," Horn said. Aviat specifications suggest the aircraft will reach 173 KTAS.

Speed is what the Monocoupe is all about. To keep the aircraft fast, Aviat designers have borrowed a new cowling design from Formula One air racers. It is unofficially known as a *pylon polisher*, meaning it is designed to be an air racer. While the Aviat 110 is a modified, modernized, and repowered version of the old Monocoupe, it remains a rendition of a famous racer. According to a September 1996 article in *Aviation History* magazine, the original Monocoupe design won a dozen Cleveland air races in the early 1930s and held a world speed record in its class. Some of the Monocoupe 110 specials were clocked during air races at 180 kt.

Even handicapped with drag, Saurenman's coupe was nearing the pattern at

Long Beach out of a slight descent at 180 kt. Chances are good that he will meet his speed goals.

Speed was such an important part of the Monocoupe 110's personality that it was intentionally designed as a "rudder" airplane. Today's Maule airplanes are slightly that way, in that you lead with the rudder into a turn and follow with the ailerons. But with the Monocoupe and the Aviat 110, you leave the ailerons the heck alone.

"Originally this was a 1930s pylon polisher," Saurenman said. "It [the Aviat 110] flies like a pylon racer. Anytime you deflect the controls of an airplane, it creates drag. The design of this airplane allows you to avoid losing speed in a turn by just freezing the stick, applying a little left rudder pressure, and it will roll into a turn. When you want to roll out, apply opposite rudder and you roll out on heading. Basically, pilots tend to skid around until they realize you fly this airplane with your feet."

That was evident during *Pilot's* test flight. Efforts to enter turns using ailerons first resulted in a classic demonstration of adverse yaw. As is the case with any tailwheel aircraft, the pilot

The Aviat 110 Special is undergoing a weight-and-drag-reduction program in order to squeeze every knot out of the little two-seater. This example's stunning paint job adds 100 pounds to the weight. To increase visibility, the cowling was lowered three inches.





work load is higher during taxi, takeoff, and landing than with tricycle-gear aircraft. While the cowling has been lowered three inches, forward visibility remains greatly reduced during taxi. A takeoff run of only a few seconds was required before the tail could be raised to provide a view of the runway ahead.

Since the first landing was to be made at Catalina Island, I elected to let Saurenman demonstrate. As the once-popular song says, Catalina is "26 miles across the sea," and no place to go shopping for airplane parts should a neophyte botch a landing. Along the way I did stalls, slow flight, and steep turns. As promised, the stick could be frozen in place while the turn was entered and ended with rudder only. As might be expected of a high-performance aircraft, a full power-off stall was followed by a sharp drop of the nose. Saurenman used a final approach speed of 87 kt, and landed in a gentle two-bounce, three-point landing.

When it comes to speed, the airplane literally knows no limits and is certified to terminal velocity. That means you can point it straight down, open the throttle, clinch the chin strap of your leather helmet in your teeth for cinematic effect (if theatrically inclined), and the airplane won't come apart. But to adhere to modern regulations, Aviat engineers plan to pick an airspeed



Even with the lowered cowling, the view out of the front is limited on the ground. Four-point harnesses hint at the 110's aerobatic capabilities (above).

number—perhaps 220 mph—and declare it to be V_{NE} .

Lest you think the Monocoupe 110 is all guts and no brains, you should know that this street punk proved, back in the 1940s, that it could dance; that is, it had a reputation as an aerobatic performer. The late Woody Edmondson saw to that. The *Aviation History* article notes that the Virginia-born pilot won the 1948 world aerobatic championship in Miami, where he performed 32 maneuvers in six minutes in a Monocoupe 110

he named *Lil Butch*. That aircraft is on display at the Virginia Aviation Museum in Richmond, Virginia. Saurenman said Edmondson specialized in "projectile" aerobatics: That is, he became a bullet. "He would come smoking into the [aerobatic airspace] box," Saurenman said. True to that reputation, the Aviat 110 Special will have inverted fuel and oil systems to sustain inverted flight.

"The aircraft will be good—in terms of aerobatics competition—for Basic, Sportsman, and Intermediate routines,"



The early Monocoupe model had a 32-foot wingspan. This clipped-wing version spans just 23 feet.

Horn said. "If you are really good, you can get by in Advanced." There are plans to improve its aerobatic capability.

"The roll rate is 190 degrees per second," Saurenman said. "We anticipate that going up. Due to the air-racing design of the ailerons, they don't move very much. We are planning to give them more throw." In the aerobatic world, 190 degrees per second is not a fast roll. The Pitts, also made by Aviat, will roll at 360 degrees per second. Pilots attempting to roll it with ailerons only will discover that the aircraft slows

down when passing through the inverted position and requires massive application of rudder to continue the roll. Once the pilot is accustomed to the control method, faster rolls with no hesitation are possible.

Deliveries are expected to begin this summer, with 20 aircraft now on order. The introductory price will be \$159,000, but after that it will increase to the same price as a new Pitts aerobatic aircraft also made by Aviat: \$179,000.

The original Monocoupe 110 Special set many a teenager's heart aflutter dur-

ing its time, and Saurenman's was no exception.

"This has been a childhood dream since I saw one as a teenager," Saurenman said. "I have the type certificate for it and have a business arrangement with Stu [for production]. A friend wanted a clipwing 110, but had a stock 110. He wanted his airplane converted, so we started going through the FAA process. I got a little resistance there, and the FAA guy said it would be easier if I had the type certificate. I got John Underwood's book, *Of Monocoupes and Men*, and found the family of the type certificate owner. I called the family and bought the certificate." Conversions were done by chopping the original Monocoupe's 32-foot wingspan down to 23 feet.

Saurenman is not alone in his admiration of the airplane. There are legions of fanatical supporters who recall the excitement and thrills the airplane provided over the years.

"It's got all the romance," Saurenman said. "If you like driving a Ford Deuce Coupe to the airport, this is your airplane. It's way cool to fly." □

i For more information on the Monocoupe 110 Special, visit additional Web site links listed at AOPA Online (www.aopa.org/pilot/links.shtml). E-mail the author at alton.marsh@aopa.org

Aviat 110 Special

Introductory price: \$159,000

Full base price: \$179,000

Testing was still in progress at the time of Pilot's flight. These specifications are incomplete and subject to change.

Specifications

Powerplant	200-hp Lycoming AEIO-360
Recommended TBO	1,400 hr
Propeller	Hartzell composite 2-blade, 76-in dia
Length	19 ft 10 in
Wingspan	23 ft 1 in
Wing area	99 sq ft
Wing loading	16.4 lb/sq ft
Power loading	8.5 lb/hp
Seats	2
Maximum gross weight (standard, nonaerobatic)	1,725 lb
Useful load	575 lb
Payload w/full fuel	408 lb
Fuel capacity, std	42 gal
	252 lb

Fuel capacity, w/opt tanks	54 gal
	324 lb
Baggage capacity	20 lb

Performance

Rate of climb, sea level	1,700 fpm
Cruise speed	(approx) 160 kt TAS

Limiting and Recommended Airspeeds

V_{NE} (never exceed)	(approx) 191 KIAS
V_{S1} (stall)	55 KIAS

For more information, contact Aviat Aircraft, Post Office Box 1240, 672 South Washington Street, Afton, Wyoming 83110; telephone 307/885-3151; or visit the Web site (www.aviataircraft.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.