

Ultra Light Jets

The Ultra Light section of the VLJ category is the most controversial – and the most sensational. The two competing aircraft, the Adam A700 and the Eclipse 500 are bringing a low-cost new-generation aircraft that is aimed at both the owner-operator and the air taxi markets. Honeywell expects orders for 5000 aircraft over the next 10 years in this segment – the manufacturers argue this figure is well short of their plans.

- The Eclipse 500 will be the first of the new-generation low cost Very Light Jets to deliver to customers. The aircraft - and its champion - have been likened to doing for business aviation what Henry Ford and the T-model did for automobiles.

Artist Tim Hall.

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IN
DEVELOPMENT

ADAM AIRCRAFT A700



SPECIFICATION

Length	40' 9"	12.42m
Wingspan	44'	13.41m
Height	9' 6"	2.92m
Cabin length*	16'	4.88m
Cabin width	4' 6"	1.37m
Cabin Height	4' 3.6"	1.31m
Max range	1,100nm	2,037km
Max seating	2 + 6	
Typical seating	1 + 7	
Powerplant	2x Williams FJ-33	1,350lbs/6.0kN each
Avionics:	Avidyne FlightMax Entegra	
Max Cruise speed	340 KTAS	630km
Max ceiling	41,000ft	12,497m
Rate of climb	2,550fpm	777mpm
Take off Distance	2,950ft	899m
Landing Distance	2,520ft	768m
MTOW	8,510lbs	3,856kg
Max Landing	18,300lbs	3,765kg
Useful load	2,950lbs	1,338kg
Payload with full fuel	725bs	329kg
Price:	\$2.25m	€1.76m

*includes cockpit

Ultra Light Jets

THE Adam A700 was announced on 21 October 2002. At the time of the programme announcement, Adam anticipated the first flight of the A700 in the second half of 2003 with first customer deliveries in late 2004.

However, setbacks to the company's A500 programme have contributed to a further slow-down of progress on its stretched jet-powered derivative.

The Williams International FJ33-powered conforming aircraft is nonetheless progressing with certification.

The design configuration is based on the

A500 push-pull twin with some 80 per cent parts commonality, including the re-use of the wing and twin-boom tail as well as parts of the fuselage, which is lengthened 30 inches to accommodate a toilet.

The proof-of-concept aircraft flew in July 2003 and in April 2006 aircraft S/N002 flew to 41,000ft and achieved an airspeed of 340ktas. Static tests were complete in June 2006.

The company had more than 340 orders in June 2006 and were reporting significant interest from operators for the seven seater.



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The A700 shares the same outline as the Adam A500 featuring straight low wings with a slight dihedral on the outboard panels. The push-pull engines of the A500 are replaced with the Williams FJ-33 engines aft beneath the distinctive twin boom tail with swept fins connected by a high-set tailplane.

HERITAGE

The A700 is a jet-powered version of the A500 (see Piston Aircraft) it is the first jet from the Colorado based company.

NEW**ECLIPSE 500****HERITAGE**

The first test Eclipse 500 aircraft made its maiden flight in August 2002 with Williams EJ22 engines. In November 2002, Eclipse Aviation decided to replace the engines and aircraft are now fitted with Pratt & Whitney Canada engines. First flight with the new engines was in December 2004. The aircraft received provisional type certification from the FAA on July 27, 2006, shortly before the aircraft's PW610F engine was certified by the Canadian authorities. Full type certification and production certification was imminent as this book went to press. Eclipse is testing an improved wingtip fuel tank made from aluminium rather than composite to meet FAA lightning strike criteria and larger wingtip tanks are planned to add range. However it is being flown using IFR (instrument flight rules) with a single pilot throughout its operating envelope. Deliveries to customers will begin following full certification.

SPECIFICATION

Length	33' 8"	10.3m
Wingspan	37' 11"	11.6m
Height	11'	3.4m
Cabin Length**	12' 4"	3.76m
Cabin Width	4' 8"	1.42m
Cabin Height	4' 2"	1.27m
Max Range (4)	1,125nm	2,084km
Max Seating	1 + 5	
Typical Seating	1 + 4	
Powerplant	2x P&WC PW610F	900lbs / 4.0kN each
Avionics	Avio	
Max Cruise Speed	370ktas	685km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb	3,314ft	1010mpm
Take off Distance	2,297ft	700m
Landing Distance	2,155ft	657m
MTOW	5,920lbs	2,685kg
Max Landing Weight	5,520lbs	2,504kg
Useful load	2,400lbs	1,089kg
Payload with full fuel	714lbs	324kg
Price	\$1.52m	€1.16m

*typical landing weight **includes cockpit

Ultra Light Jets**REVOLUTION** not evolution!

The Eclipse 500, brainchild of 6,500-hour private pilot and former Microsoft high-flyer Vern Raburn who, in the late 1990s, persuaded investors to back his vision of a twin-engine, glass-cockpit, single-pilot corporate jet – selling at the price of a piston – to the tune of almost half a billion dollars.

The innovation that gave birth to the Eclipse 500, and sparked today's wave of VLJs, was the idea of designing a jet aircraft with operating costs so low it would compete directly with the car. Raburn predicted the breakthrough would regenerate general aviation, make it a viable alternative to road transport and therefore enable massive business opportunities to be tapped in ways that were impossible or impractical before. And now it is here.

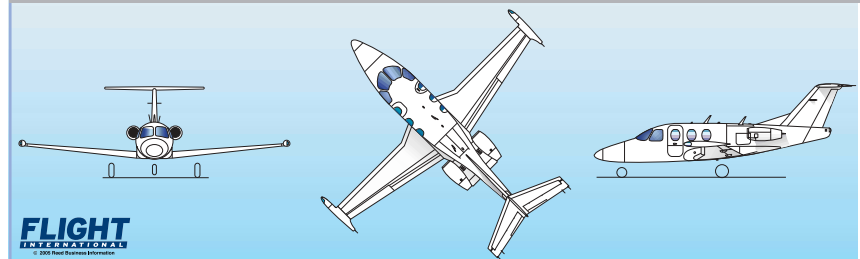
The four-seat cabin itself has the look and feel of a luxury car interior and was developed for maximum crash survivability. The 0.45 cubic metre baggage area is pressurised, heated, and accessible in flight.

The twin Pratt & Whitney Canada PW610F turbofan jet engines provide maximum altitude of 41,000ft (12,497m) which avoids most

severe weather systems and provides a cruise speed of 370 knots (685 km/h) for a 1,125nm (2,084km) range with four occupants.

The Eclipse 500 is fitted with an all-glass cockpit with two primary flight displays and one multifunction display, which provide system control and clearly show the flight parameters, engine and system performance data.

The potentially massive air taxi market led by biggest customer Dayjet of Florida, is queuing up to prove the concept and are rejoicing in the aircraft's ability to operate from paved, grass or dirt runways. The take-off run is a mere 2,297ft (700m).

**SPOTTER'S GUIDE**

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The all-metal airframe features straight wings with distinctive wingtip fuel tanks. It has a T-tail with dorsal fin and highly swept tailplane. There are three windows on each side – one on the door.