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Piper Aircraft PiperJet Altaire

Outlook

- Development of the PiperJet Altaire was suspended in October 2011
- Service entry of the Altaire had been scheduled for 2014

Orientation

Description. Single-turboprop-powered, six/seven-seat business/personal jet aircraft.

Sponsor. The PiperJet Altaire was sponsored privately by Piper Aircraft Inc.

Status. Development of the PiperJet Altaire was indefinitely suspended in October 2011.

Total Produced. One PiperJet prototype was produced.

Application. Personal transport, business/executive aircraft; flight training.

Price Range. The base price of the PiperJet Altaire was \$2.5 million; a typically equipped aircraft was priced at \$2.6 million; both prices are in 2010 U.S. dollars.

Contractors

Prime

Piper Aircraft Inc	http://www.piper.com , 2926 Piper Dr, Vero Beach, FL 32960 United States, Tel: + 1 (772) 567-4361, Fax: + 1 (772) 978-6592, Prime
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Subcontractor

Garmin International Inc	http://www.garmin.com , 1200 E 151st St, Olathe, KS 66062 United States, Tel: + 1 (913) 397-8200, Fax: + 1 (913) 397-8282 (G3000 Avionics System)
L-3 Communications - Avionics Systems	http://www.l-3com.com/as , 5353 52nd St SE, Grand Rapids, MI 49512 United States, Tel: + 1 (800) 253-9525, Fax: + 1 (616) 949-6600 (Trilogy ESI-2000 Electronic Standby Instrument)

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Mecaer Aviation Group	http://www.mecaer.it , Via per Arona, 46, Borgomanero, 28021 Novara, Italy, Tel: + 39 0322 837173, Fax: + 39 0322 844081 (Landing Gear)
Millennium Concepts Inc	http://www.millennium.aero , 9050 W Monroe Circle, Wichita, KS 67209 United States, Tel: + 1 (316) 821-9300, Fax: + 1 (316) 821-9384, Email: info@millennium.aero (Seats)
Williams International	http://www.williams-int.com , 2280 E West Maple Rd, PO Box 200, Walled Lake, MI 48390 United States, Tel: + 1 (248) 624-5200, Fax: + 1 (248) 669-0040 (FJ44-3AP Turbofan Engine)

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Technical Data

Design Features. The all-metal PiperJet Altaire had a straight natural-laminar-flow wing that was mounted low on the aircraft fuselage. The wing spar was located below the floor of the cabin in order to maximize cabin space and passenger comfort. A 91-centimeter-wide (36-inch-wide) door was located on the port side of the fuselage, forward of the wing. Landing gear were retractable tricycle type.

A single Williams FJ44-3AP turbofan engine was mounted on the tail of the aircraft, in a style similar to the McDonnell Douglas DC-10.

The standard layout of the PiperJet Altaire had seating for six, including crew. As an option, customers could choose to add a seventh seat, a luggage stowage cabinet, or a lavatory.

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Length	11.46 m	37.60 ft
Height	4.79 m	15.70 ft
Wingspan	13.56 m	44.50 ft
Total pressurized cabin volume	7.3 cu m	260 cu ft
Weight		
Payload with maximum fuel	363 kg	800 lb
Performance		
Maximum cruise speed	667 km/h	360 kt
Service ceiling	10,668 m	35,000 ft
Range with 45-minute reserve	2,407 km	1,300 nm

Propulsion

PiperJet Altaire (1) Williams FJ44-3AP turbofan engine derated to 11.1 kN (2,500 lbst).

Seating

The PiperJet Altaire had seating for six, including the pilot. A seventh seat was optional.

Program Review

Background. At the October 2006 National Business Aviation Association (NBAA) convention in Orlando, Florida, Piper Aircraft announced an all-new, six-seat, single-engine jet aircraft dubbed the PiperJet. The firm displayed a walk-through mockup of the new aircraft at the show.

Piper targeted the PiperJet at the Very Light Jet (VLJ) segment of the business jet market. For some time, the company had been looking at the VLJ market, and had been considering introduction of its own VLJ. In July 2006, it established a business alliance with the Japanese firm Honda to collaborate on sales and service efforts and to explore opportunities in engineering and

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other areas within the general and business aviation fields. Honda had been developing a VLJ model, the HondaJet.

Industry speculation that the alliance with Honda would be the extent of Piper's attempt to enter the jet market proved to be wrong. In September 2006, at a meeting of Meridian and Malibu owners, Piper began taking refundable \$10,000 deposits on a new jet aircraft that, as mentioned above, was unveiled as the PiperJet at the NBAA show the following month.

In November 2006, Piper announced selection of the Williams FJ44-3AP turbofan engine to power the single-engine PiperJet. The FJ44-3AP has a TBO of 4,000 hours, and is equipped with Full Authority Digital Engine Control (FADEC).

Piper constructed a one-fifth scale model of the PiperJet, equipped with remotely controlled flight surfaces, for use in wind tunnel tests. This testing was conducted in the summer of 2007 at the Kirsten Wind Tunnel at the University of Washington Aeronautical Laboratory in Seattle. The tests focused on 973 individual data runs that provided Piper engineers with essential data for further aerodynamic analysis and product development. During the testing, Piper made several aerodynamic modifications to the model.

These tests resulted in a number of revisions to the PiperJet design. The changes included sweeping the horizontal tail 30 degrees, reducing the engine nacelle diameter, adding a dorsal fairing at the top of the nacelle, adding leading edge extensions at the wing roots, and redesigning the aircraft's winglets. First flight of the PiperJet occurred in July 2008.

In October 2009, Piper announced that the PiperJet would be equipped with the new Garmin G3000 glass avionics system. The company had previously intended to fit the aircraft with Garmin's G1000 avionics suite.

In October 2010, Piper announced that it had redesigned the PiperJet into a new model dubbed the PiperJet Altaire. The new aircraft featured a larger, rounded fuselage mounted on top of an expanded-chord wing. A shorter vertical empennage was located slightly aft, on top of an elongated engine nacelle.

The new configuration provided a cabin that was nine inches taller and four inches wider than the earlier PiperJet design. In addition, the Altaire had a three-foot-wide cabin door.

The maximum range of the Altaire was targeted at 1,300 nautical miles, with maximum cruise speed targeted at 360 knots. Range was 1,200 nautical miles with a 363-kilogram (800-lb) payload.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Sep	2006	Piper began taking sales deposits for PiperJet
Oct	2006	PiperJet publicly announced
Nov	2006	FJ44-3AP engine selected
Jul	2008	First flight of PiperJet
Oct	2010	Redesigned PiperJet Altaire announced
Oct	2011	Development indefinitely suspended

Forecast Rationale

In October 2011, Piper indefinitely suspended development of the PiperJet Altaire, following an internal review of the program. Company CEO Simon Caldecott said that planned development costs for the aircraft had risen above the point that was recoverable under foreseeable light jet market projections. Piper did not disclose the planned budget for the Altaire development effort, nor the expenditures on the program to date.

At the time of the program's suspension, first flight of the Altaire had been scheduled for 2012, with certification and initial customer deliveries to follow in 2014.

In suspending the program, Piper said that it would refund the deposits of Altaire position holders. The deposits were of varying amounts up to \$100,000. Customers could also choose to apply their deposits toward other Piper aircraft models. The company declined to reveal the number of orders that it had for the Altaire. However, as of February 2011, Piper had orders for 157 Altaires. These were from a mix of dealers and retail customers.

Piper is preserving the Altaire intellectual property as well as the progress made on the program. This would ease a future restart of the program, should Piper decide to revive the project. The firm has no plans to sell the

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Altaire program, but a company spokesperson noted that Piper would entertain a credible offer.

The PiperJet Altaire competed for sales at the lower end of the Very Light Jet (VLJ) class of the business

aviation market. Other single-engine VLJs such as the Cirrus Vision SF50 and the Diamond D-JET constituted the Altaire's direct competition.

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