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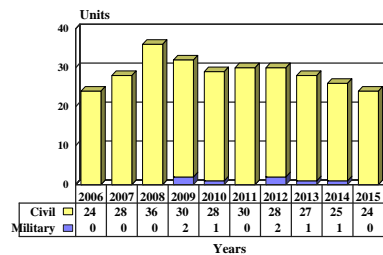
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Piaggio P180 Avanti II - Archived 9/2007

Outlook

- Avanti II deliveries began in late 2005
- The Avanti II has replaced the original Avanti in the Piaggio product line

10 Year Unit Production Forecast
2006 - 2015



Orientation

Description. Pressurized, five- to nine-passenger, twin-turboprop-powered, business/executive transport aircraft.

Sponsor. The P180 is privately sponsored by Piaggio.

Status. Production of the P180 Avanti II.

Total Produced. Two flight test prototypes, two static test articles, and approximately 100 production

Avantis were produced through 2005. One Avanti II had been produced.

Application. Short/medium-range business/executive passenger transportation. Additional applications include maritime patrol, search-and-rescue, and military transport.

Price Range. P180 Avanti II, \$6.195 million in 2006 U.S. dollars.



P180 AVANTI

Source: Piaggio Aero Industries

Piaggio P180 Avanti II

Contractors

Prime

Piaggio Aero Industries SpA	http://www.piaggioaero.com , via Cibrario 4, Genoa, 16154 Italy, Tel: + 39 010 64811, Prime
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Subcontractor

Hartzell Propeller Inc	One Propeller Place, Piqua, OH 45356-2656 United States, Tel: + 1 (937) 778-4200, Fax: + 1 (937) 778-4321 (Five-Blade Propeller)
Messier-Dowty Ltd	http://www.messier-dowty.com , Cheltenham Rd, Gloucester, GL2 9QH United Kingdom, Tel: + 44 1452 712424, Fax: + 44 1452 713821 (Landing Gear)
Pratt & Whitney Canada	http://www.pwc.ca , 1000 Marie-Victorin Blvd, Longueuil, J4G 1A1 Quebec, Canada, Tel: + 1 (450) 677-9411, Fax: + 1 (450) 647-3620, Email: marketing@pwc.ca (PT6A-66 Turboprop Engine)
Rockwell Collins Inc	http://www.rockwellcollins.com , 400 Collins Rd NE, Cedar Rapids, IA 52498-0001 United States, Tel: + 1 (319) 295-1000, Fax: + 1 (319) 295-5429, Email: collins@rockwellcollins.com (Avionics)
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Technical Data

(P180 Avanti II)

Design Features. Cantilever aft-mid-wing mono-plane with no wing sweep; constructed 95 percent of aluminum. Hydraulically actuated tricycle-type landing gear is used, with carbon brakes on each main wheel. Rockwell Collins Pro Line 21 avionics are standard.

	Metric	U.S.
Dimensions (External)		
Length overall	14.41 m	47.28 ft
Height	3.98 m	13.06 ft
Wingspan	14.03 m	46.03 ft
Dimensions (Internal)		
Cabin height	1.75 m	5.74 ft
Cabin width	1.85 m	6.07 ft
Cabin length	4.55 m	14.93 ft
Weight		
Standard equipped, empty	3,538 kg	7,800 lb
Max takeoff weight	5,466 kg	12,050 lb
Useful load	1,950 kg	4,300 lb
Max payload	907 kg	2,000 lb

Piaggio P180 Avanti II

	<u>Metric</u>	<u>U.S.</u>
Performance		
Max cruise speed at 28,000 ft	737 kmph	398 kt
Ceiling	12,500 m	41,000 ft
Max IFR range	2,791 km	1,507 nm
Propulsion		
P180 Avanti (2)	UTC Pratt & Whitney Canada PT6A-66 turboprop engines flat-rated to 634 kW (850 shp), each driving a Hartzell five-blade propeller.	
P180 Avanti II (2)	UTC Pratt & Whitney Canada PT6A-66B turboprop engines flat-rated to 634 kW (850 shp), each driving a Hartzell five-blade propeller. Initial Avanti IIs are powered by the original PT6A-66 engine.	

Seating

Standard cabin seating for six passengers on five fully adjustable cabin chairs and one single-place divan. High-density seating for nine passengers. Crew of one or two.

Variants/Upgrades

P-181. Possible 14-seat commuter variant that was studied by Piaggio in 1989. The P-181 would include a two-meter fuselage stretch forward of the main wing, strengthened landing gear, extra fuel tankage, and more powerful Pratt & Whitney Canada turboprop engines. No definite plans exist to produce this derivative.

Program Review

Background. Following four years of preliminary design work, Piaggio entered into an agreement with Learjet in October 1983 for the joint development of the GP-180, a pusher turboprop subsequently named the Avanti. Learjet, however, withdrew from the program in January 1986.

Avanti Design. The Avanti's aerodynamic configuration employs three lifting surfaces to reduce drag and fuel consumption. The aircraft's primary lifting surface is the main airfoil, mounted midway on the fuselage to avoid drag-inducing bulges in the circular-section fuselage. This is complemented by the horizontal T-tail and elevator, and by the foreplane. The foreplane serves as a forward wing rather than as a canard surface. It produces a positive component of lift to assist the main wing in supporting the aircraft, and permits the aircraft to be reduced in size.

At one time, Piaggio produced Avanti fuselage sections in Wichita, Kansas, that were then shipped to Genoa, Italy, for final assembly. However, in an attempt to reduce costs, Piaggio has since moved fuselage production to the Genoa facility.

In October 2000, Piaggio established Piaggio America, a new subsidiary based in Greenville, South Carolina, to sell the Avanti in North America. Piaggio America relocated to West Palm Beach, Florida, in January 2004.

Certification. The first Avanti prototype flew in September 1986, followed by a second aircraft in May 1987. These featured a four-piece windshield, but production aircraft were fitted with a redesigned, two-piece unit affording improved visibility. Initial Italian certification was achieved in March 1990. U.S. FAA basic approval was awarded in May 1990. Full FAA and Italian certification was received in October 1990.

Financial Issues. In 1993, Piaggio ownership was restructured, with the Piaggio family's majority 59 percent share dropping to 19 percent. The Italian aerospace company Alenia took a 31 percent share in the firm, while the IMI bank took 10 percent and other banks took 40 percent. This recomposition allowed a refinancing of Piaggio. Nevertheless, the company's finances remained troubled.

In mid-1994, a plan proposed by Alenia's parent company, Finmeccanica, sparked fierce union opposition. Finmeccanica proposed that Piaggio's aircraft business be transferred under lease to Aermacchi, while the engine division would be supported by Alfa Romeo Avio. The proposal was eventually rejected by the shareholders and the unions.

In late 1994, an Italian court placed Piaggio under bankruptcy protection under Italy's Prodi Law. This law provides preferential financial treatment for major

Piaggio P180 Avanti II

high-tech companies. Piaggio's \$200 million debt was frozen for up to two years, and the Italian government was to guarantee any additional credits. Three government officials acted as administrators in an attempt to restore the company to profitability. In late 1996, the Italian government extended Piaggio's bankruptcy protection until November 1998.

The Italian Ministry of Industry had authorized the Piaggio administrators to open direct negotiations to sell the company. A number of bids to purchase Piaggio were submitted in 1998. By the middle of the year, these had narrowed to two competing finalists: a group called ALA, established by Piaggio management, and a team led by the Turkish state holding company, Tushav.

The Turkish-led consortium was selected as the winner, and took over the company in late 1998. It changed the name of the company from Industrie Aeronautiche e Meccaniche Rinaldo Piaggio SpA to Piaggio Aero Industries.

Tushav initially owned 51 percent of Piaggio but, by July 1999, had reduced its share to 17.5 percent. In late 2000, it sold its remaining stake in Piaggio to an unnamed group of Italian investors.

Currently, the primary shareholders in Piaggio are the Ferrari and di Mase families. They hold 55 percent of the share capital of the company. Mubadala Development, an investment firm owned by the government of Abu Dhabi, owns 35 percent. The remaining 10 percent is held by a mix of banks and other shareholders.

P180 Program "Relaunched"

The P180 program was "relaunched" by Piaggio in October 1999. In February 2000, the company

delivered a P180 to a U.S. businessman. This aircraft was the first P180 actually produced since 1994, as the few Avantis that had been delivered in the intervening years were completed aircraft that Piaggio had in stock.

Avanti II Introduced

In October 2004, Piaggio introduced a new, improved version of the Avanti dubbed the Avanti II. The new model features improved avionics, better performance (including greater payload/range capability), and enhanced cabin comfort.

The Avanti II is equipped with the Rockwell Collins Pro Line 21 avionics suite, which includes three eight-inch by 10-inch liquid crystal adaptive flight displays, the FMS 3000 flight management system, and the AHS 3000 attitude heading reference system.

The Avanti II also features upgraded cabin amenities. These include a remodeled lavatory vanity and an optional in-flight entertainment system; both are from Stevens Aviation.

Beginning in early 2007, the Avanti II will be powered by the Pratt & Whitney Canada PT6A-66B engine, an upgraded version of the PT6A-66 found on the original Avanti.

Maximum cruise speed of the Avanti II is 398 knots at 8,538 meters (28,000 feet). Compared to the current Avanti, the Avanti II has increased maximum takeoff weight (12,050 pounds), maximum landing weight (11,453 pounds), and useful load (4,300 pounds).

Significant News

Owner of First Production Avanti Orders Avanti II – In May 2006, Piaggio announced that Robert J. Pond, the owner of the first production P180 Avanti, had ordered a new Avanti II to replace his original model. Pond said that the older Avanti will be added to his public collection of more than 25 aircraft. (Piaggio, 5/06)

Mubadala Development Takes Stake in Piaggio – In April 2006, Mubadala Development, an investment company wholly owned by the government of Abu Dhabi, acquired 35 percent of the equity of Piaggio. Mubadala's investment involves the purchase of existing shares and new shares. As part of the transaction, Mubadala will receive three board seats of Piaggio (out of a total of seven), including the post of vice-chairman. Mubadala will also receive one of the three seats on the company's Executive Management Committee. Financial terms of the transaction were not disclosed. (Piaggio, 4/06)

First Avanti II Delivered – In December 2005, Piaggio delivered its first Avanti II to a private Swiss customer. The aircraft (serial number 105) is configured for seven passengers and will provide corporate and private flights from Lugano Agno Airport, located in southeast Switzerland. The Avanti II's operating characteristics enable the

Piaggio P180 Avanti II

customer to provide flexible services from the airport, which has a 3,800-foot-long runway at an elevation of 915 feet that requires a steep approach procedure. (Piaggio, 1/06)

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Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1979	Preliminary design initiated
Oct	1983	Gates Learjet/Piaggio team formed
May	1985	GP-180 renamed Avanti
Early	1986	First prototype assembled in Italy
Sep	1986	Prototype first flight
May	1987	Second prototype flown
Mar	1990	Initial Italian certification granted
May	1990	U.S. FAA basic type certification awarded
Sep	1990	Initial delivery
Oct	1990	Full FAA and Italian certification awarded
Oct	1991	German and Spanish certification granted
Mar	1993	French certification awarded
Oct	2005	EASA certification of Avanti II
Dec	2005	Initial Avanti II delivery
Mar	2006	FAA certification of Avanti II

Forecast Rationale

The Avanti II received type certification from the European Aviation Safety Agency (EASA) in October 2005. Deliveries of the new model began in December 2005. Initial delivery of an Avanti II was to an unidentified customer in Switzerland.

FAA certification of the Avanti II was obtained in March 2006, later than Piaggio had hoped. The company had expected the U.S. agency to approve the Avanti II just a couple of weeks after EASA certification had been awarded. According to Piaggio director Alberto Galassi, the FAA inexplicably delayed certifying the new aircraft, costing Piaggio five or six deliveries to U.S. customers that otherwise could have been made in January 2006.

As of May 2006, Piaggio had a backlog of slightly more than 100 Avanti IIs; two had been delivered (one in December 2005, and one in early 2006.) Seventy percent of the Avanti IIs on order are for U.S. customers.

In November 2005, fractional ownership provider Avantair placed an order for 36 Avanti IIs. The deal was valued at more than \$230 million. The aircraft are to be delivered to Avantair in 2008-2010. The order is the largest in the history of the Avanti program.

Prior to the start of deliveries of these newly ordered aircraft, Avantair is to take delivery of a number of previously ordered Avanti IIs. The fractional provider currently has some 33 original Avantis in its fleet.

The Avanti II has replaced the original Avanti model in the Piaggio product line. Production of the original Avanti version ended in the fall of 2005. Piaggio intends to build 24 Avanti IIs in 2006 and 30 in 2007. In an attempt to boost production capacity, the company plans to open a new subassembly and component manufacturing facility in 2008 in Villanova d'Albenga, near Genoa.

All Avanti IIs delivered in 2006 will be powered by the PT6A-66 engine that powered the original Avanti model. Starting sometime in early 2007, Avanti IIs are to be delivered with Pratt & Whitney Canada PT6A-66B engines. The -66B is an upgraded version of the PT6A-66. The new engine will be available as a retrofit item for all Avanti IIs delivered prior to its availability.

A number of the enhancements in the Avanti II, including the PT6A-66B engine, will be available for retrofit to original Avantis.

Piaggio P180 Avanti II

The Avanti II faces competition for sales from single-engine turboprops such as the EADS Socata TBM 700 and TBM 850 and the Pilatus PC-12, as well as light business jets like the Cessna CJ series and the Raytheon Premier IA. The Raytheon King Air twin turboprop also provides some competition. New Very Light Jets (VLJ) such as the Cessna Mustang, the Embraer Phenom 100, and the Eclipse 500 are also competitive threats.

Avantair, fractional provider Avia Aviation of Calgary, Alberta, also utilizes Avantis in its program. Meanwhile, Piaggio has been seeing increasing interest in the Avanti II from corporate flight departments. The aircraft tends to appeal to mid-size companies, such as large automobile dealerships or regional banks. Owner/operators also constitute a market for the Avanti II.

Fractionals Are Key to Avanti Market

Fractional ownership programs have been an important market for the Avanti and the Avanti II. Besides

Ten-Year Outlook

Civil

ESTIMATED CALENDAR YEAR PRODUCTION

Aircraft	(Engine)	High Confidence Level				Good Confidence Level				Speculative			Total 06-15
		thru 05	06	07	08	09	10	11	12	13	14	15	
PIAGGIO AERO INDUSTRIES													
P180 AVANTI (CIVIL)(a)	PT6A-66	87	0	0	0	0	0	0	0	0	0	0	0
P180 AVANTI II (CIVIL)	PT6A-66	1	24	0	0	0	0	0	0	0	0	0	24
P180 AVANTI II (CIVIL)	PT6A-66B	0	0	28	36	30	28	30	28	27	25	24	256
Total Production		88	24	28	36	30	28	30	28	27	25	24	280

(a)Does not include static test airframes.

Military

ESTIMATED CALENDAR YEAR PRODUCTION

Aircraft	(Engine)	High Confidence Level				Good Confidence Level				Speculative			Total 06-15
		thru 05	06	07	08	09	10	11	12	13	14	15	
PIAGGIO AERO INDUSTRIES													
P180 AVANTI (MIL.)	PT6A-66	15	0	0	0	0	0	0	0	0	0	0	0
P180 AVANTI II (MIL.)	PT6A-66B	0	0	0	0	2	1	0	2	1	1	0	7
Total Production		15	0	0	0	2	1	0	2	1	1	0	7