

ARCHIVED REPORT

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ASI/Continental F406

Outlook

- ASI and Continental own the rights to the F406
- The two companies plan to restart F406 production

Orientation

Description. Eight- to 14-passenger, unpressurized, twin-turboprop-powered business, commuter, and utility aircraft.

Sponsor. F406 development was sponsored by Reims Aviation in cooperation with Cessna Aircraft Company. Additional financial support was provided by the French government.

Status. New program owners ASI Aviation and Continental Motors are working to restart series production.

Total Produced. One prototype and 97 production F406s were produced through November 2013, after which production was suspended.

Application. Business/corporate transportation, air charter, small package/freight carriage, and various military and parapublic missions, including target towing and maritime patrol.

Price Range. Estimated at \$4.25 million in 2018 U.S. dollars.



F406

Source: Greek Coast Guard

ASI/Continental F406**Contractors****Prime**

ASI Aviation	http://www.asi-aviation.fr , Aerodrome de Reims Prunay, Prunay, France, Tel: + 33 326484684, Prime
Continental Motors Inc	http://www.continentalmotors.aero , 2039 Broad St, Mobile, AL 36615 United States, Tel: + 1 (251) 438-3411, Fax: + 1 (251) 432-7352, Prime

Subcontractor

Honeywell Aerospace, Bendix/King	http://www.bendixking.com , One Technology Center, 23500 W 105th St, M/D #19, Olathe, KS 66061 United States, Tel: + 1 (913) 712-0400, Fax: + 1 (913) 791-1302, Email: bendix.king@honeywell.com (Silver Crown Avionics)
McCauley Propeller Systems	http://mccauley.txtav.com , 10511 East Central, Wichita, KS 67206 United States, Tel: + 1 (800) 621-7767, Fax: + 1 (316) 206-9948 (Three-Blade Propeller)
Pratt & Whitney Canada	http://www.pwc.ca , 1000 Marie-Victorin Blvd, Longueuil, Quebec, Canada, Tel: + 1 (450) 677-9411, Fax: + 1 (450) 647-3620 (PT6A-112 Turboprop Engine)

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; rich.pettibone@forecast1.com

Technical Data**(F406)**

Design Features. Cantilever low-wing monoplane with retractable tricycle type landing gear and a cruciform tail section. The aircraft uses the fuselage of the Cessna 404 Titan and the wing and engine of the Cessna Conquest I.

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Length overall	11.89 m	39.02 ft
Height overall	4.01 m	13.15 ft
Wingspan	15.09 m	49.50 ft
Wing area, gross	23.48 sq m	252.74 sq ft
Weight		
Standard empty weight	2,283 kg	5,033 lb
Maximum T-O weight	4,468 kg	9,850 lb
Capacities		
Maximum fuel (standard)	1,823 liters	481 U.S. gal
Usable fuel (standard)	1,798 liters	475 U.S. gal
Performance		
Maximum cruise speed (15,000 ft)	455 km/h	246 kt
Rate of climb	564 m/min	1,850 ft/min
Service ceiling	9,144 km	30,000 ft
Range	2,389 km	1,200 nm

ASI/Continental F406**Propulsion**

F406 (2) Pratt & Whitney Canada PT6A-112 turboprop engines flat-rated to 372 kW (500 shp), each driving a McCauley three-blade, reversible-pitch, fully feathering all-metal propeller.

Seating

Crew of one and up to 13 passengers, or crew of two and up to 12 passengers.

Variants/Upgrades

F406. Reims marketed the original F406 in two basic models that could be adapted into several specific versions. The two basic models were the Caravan II passenger and freight transport and the Vigilant surveillance version.

F406 NG. Reims announced an improved F406 variant, called the F406 New Generation (F406 NG), in February 2009. Features on the NG included a glass cockpit (with Garmin or Universal avionics), a more powerful air conditioning system, four-blade composite propellers, a more comfortable interior, new crew seats, additional fuel tanks (mounted in the aircraft's engine nacelles), and an increase in the aircraft's maximum takeoff weight to 4,700 kilograms (10,362 lb) in a

restricted category (special missions such as customs, coast guard, military, and police operations). No F406 NGs were ever produced by Reims.

F406 Mark II. Reims had been developing a new version of the F406, dubbed the F406 Mark II, that incorporated further improvements beyond those embodied in the F406 NG. The Mark II model featured 635-shp Pratt & Whitney Canada PT6A-135A engines, new avionics from Honeywell, and a new cabin interior designed by Reims and Air Esthetic.

Reims intended to proceed with the Mark II only if a significant launch customer was secured that placed an order for at least five to 10 aircraft. No such customer was secured.

Program Review

Background. In 1982, Reims Aviation SA of France announced that it was collaborating with Cessna Aircraft on development of an unpressurized light twin-turboprop-powered aircraft for transport/utility use. The development program was also supported by the French government, with funding shared equally by the three partners. The aircraft was given the designation F406 and was derived from the Cessna 404 Titan.

The F406 uses essentially the same fuselage as the Cessna 404. The wing is from the Cessna Conquest I, although with redesigned nacelles to accommodate the Pratt & Whitney Canada engines. The empennage (except for a cruciform tail) is from the Cessna Conquest II, while the nose is from the Conquest I. The landing gear are designed for use on unimproved airports, and feature the trailing-link concept used on the Conquest I and II and the Cessna Citation III.

The F406's standard avionics system is the Honeywell Silver Crown package, which includes two communication and navigation systems, a glideslope, and ADF. Reims marketed Honeywell Gold Crown avionics as an optional item for the aircraft; other options included a Honeywell autopilot and the Honeywell RDR 2000 weather radar.

Reims marketed the F406 with a variety of optional interiors, including commuter, executive, cargo, and combi configurations. The standard cargo and combi configurations had a large cargo door that measured 1.2 meters x 1.2 meters. The cargo door was an option on other F406 configurations.

Initially, Cessna supplied wings and fuselages for the F406. However, Reims later took over production of the entire structure of the aircraft.

Another option on the F406 was a 1.3-cubic-meter belly-mounted cargo pod. The pod could carry up to 320 kilograms (705 lb) of general freight or passenger bags in three compartments.

Seating options on the F406 ranged from six- to seven-seat VIP arrangements to nine- to 12-seat commuter configurations.

The F406 prototype was first displayed at the June 1983 Paris Air Show. It was granted basic certification in France in December 1984, by which time the aircraft had accumulated 410 flight hours and 339 flights. After its appearance at the 1985 NBAA show in New Orleans, the aircraft underwent final U.S. Federal Aviation Administration (FAA) certification proceedings.

ASI/Continental F406

Reims Split into Two

In January 2003, a French commercial court lifted a bankruptcy protection order under which Reims Aviation had been operating since October 2002. (Reims had entered bankruptcy protection following cash-flow difficulties.) The court decided, though, that Reims was to be divided into two parts, with each part sold to a separate buyer. The Austrian investment firm Ventana Group bought Reims' aerostructures manufacturing arm, which was renamed Reims Aerospace SAS. Meanwhile, the French financial group Green Recovery and various private investors purchased Reims' F406 marketing and production business, which was renamed Reims Aviation Industries.

In July 2008, the French engineering company GECI International signed a Memorandum of Understanding (MoU) to acquire a majority stake in Reims. At the time, GECI held a 6.9 percent stake in Reims. The deal (which involved a capital injection by GECI) was finalized in September 2008, leaving GECI with 59.1 percent of the shares of Reims and majority ownership of the firm.

In June 2009, GECI established a subsidiary called GECI Aviation, and placed Reims under the new division's organizational umbrella along with the GECI unit Sky Aircraft. In a complicated series of subsequent transactions, Reims itself assumed the GECI Aviation name in March 2010, and gathered under its banner all of GECI's aircraft development, production, and marketing activities. Later that same month, all activities regarding the F406 were spun off into a new GECI Aviation subsidiary; this new subsidiary was given the legacy name Reims Aviation Industries.

New Ownership

Besides the new Reims unit, GECI Aviation had another aircraft manufacturing subsidiary, called Sky Aircraft. However, Sky was liquidated in April 2013 by a French commercial court. It had been in receivership since October 2012 after financing failed to materialize for development of a new, 19-passenger turboprop called the Skylander SK-105.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1982	F406 development announced
Jun	1983	Prototype displayed at Paris Air Show
Sep	1983	Prototype first flight
Dec	1984	French certification
Apr	1985	Initial flight of first production model
Jun	1986	Certificated by FAA to SFAR 41
Mar	2014	ASI and Continental acquire rights to F406 program

Meanwhile, GECI Aviation was looking to sell Reims outright or, alternatively, find an industrial and financial partner to help sustain manufacturing activity at the unit. In September 2013, Reims was placed into receivership. In February 2014, GECI Aviation itself entered receivership.

In March 2014, working in partnership, the French company ASI Innovation and the U.S. engine manufacturer Continental Motors acquired the F406 type certificate, as well as inventory and manufacturing rights to the aircraft, from Reims. The acquisition included all production tooling and equipment for the F406.

ASI is a provider of various aircraft design, manufacturing, and installation services. It also performs cabin interior completions. The company has offices in Reims and Toulouse. Based in Mobile, Alabama, Continental Motors manufactures aviation piston engines and provides a range of general aviation support services. It is a subsidiary of the Chinese firm AVIC International Holding Company.

In April 2014, ASI acquired all of Reims' aircraft maintenance, cabin management, and systems integration and installation activities. Subsequently, both Reims and GECI Aviation were liquidated.

Reims produced 98 F406s before the rights to the program were sold. The 98th aircraft was delivered in November 2013 to a British customer.

ASI and Continental are working to restart series production of the F406. ASI is responsible for all business related to government applications of the F406. The French firm is also a preferred source for the development of STCs and product customization requested by F406 customers. It has established a subsidiary, dubbed ASI Aviation, in Reims to handle F406 work and other activities.

Continental is responsible for commercial applications of the F406, and for resuming series production. Continental and ASI Aviation are jointly supporting the existing worldwide F406 fleet.

ASI/Continental F406**Worldwide Distribution/Inventories****Military/Government Operators**

French Customs Service	13
Greek Coast Guard	3
Island Development (Seychelles)	1
Marine Scotland Compliance	2
Namibian Fisheries	1
South Korean Navy	5
Tunisian Office of Tourism and Cartography	1

Forecast Rationale

Since acquiring the rights to the F406 program from Reims, ASI Aviation and Continental have supported the existing worldwide F406 fleet. The two firms also intend to restart new production of the F406 with an upgraded version of the aircraft. The new model would feature new engines, enhanced avionics, improved electrical and hydraulic systems, and a new autopilot.

The new F406 would be available with a choice of either turboprop or piston engines. The turboprop option would be the Pratt & Whitney Canada PT6A-135. The piston option would be an as-yet-unspecified Continental model, with the GTSIO-520 gasoline engine and the CD-300 diesel engine under

consideration. Ultimately, both piston models might be offered as choices for customers.

Initially, production of the upgraded F406 would occur at ASI's facilities in Reims, France. However, plans call for production of the aircraft to eventually be moved to another location, probably Continental's facilities in Mobile, Alabama.

Pending further information, we are not currently issuing a production forecast for the F406. Should production resume, the F406 would probably be able to carve out a small niche in the aviation market, mostly finding customers in the special missions and charter markets.

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