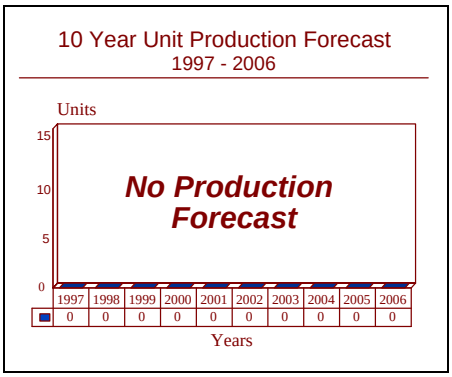
Promavia Jet Squalus - Archived 2/98

Outlook

- If testing is successful, the powerplant for the ATTA 3000 design will be a new Pratt turbofan
- No production of the Jet Squalus or its derivatives is forecast



Orientation

Description. Single and twin turbofan-powered, primary/basic/advanced military and commercial flight training and military light attack aircraft.

Sponsor. The Jet Squalus is privately sponsored. Financial backing was received in the mid-1980s from the Government of Belgium.

Contractors. Promavia SA; Gosselies-Aeroport, Belgium.

Status. Some design/development activities are proceeding.

Total Produced. Promavia has fabricated two F1300 Jet Squalus prototypes, only one of which has flown. Construction has been started of a third prototype, which is to have a pressurized cockpit.

Application. Primary, basic, and/or advanced military flight, navigation, and weapons training; commercial pilot training; maritime search and surveillance; border patrol; reconnaissance; and target towing. Twin-engine version for reconnaissance and light attack.

Price Range. F1300, $4.5 million (estimated); ATTA 3000, $3.0-$3.5 million (estimated); ARA 3600, $8.0 million (estimated); all in 1997 US dollars.

Technical Data

(F1300 Initial Prototype)[a]

Design Features. Cantilever low wing monoplane with straight wings, a single swept vertical fin, and straight horizontal stabilizers. The aircraft is configured for side-by-side seating. Primary control surfaces are actuated mechanically. The fin has a rudder while the horizontal tail unit has elevators with a single trim tab located on the port elevator. Tricycle-type landing gear is used, fitted with single wheels. Other features include a one-piece framed canopy, Collins EFIS and communications equipment, Martin-Baker ejection seats, and a Negretti oxygen generating system.

Dimensions	**Metric**	**US**

Fuselage length	9.36 m	30.71 ft
Overall height	3.60 m	11.81 ft
Wingspan	9.04 m	29.66 ft
Weights		
Empty weight	1,500 kg	3,307 lb
Max T-O weight		
Aerobatic	2,000 kg	4,409 lb
Normal	2,400 kg	5,291 lb
Max external stores	600 kg	1,323 lb
Performance[b]		
Max level speed at 4,265 m (14,000 ft)	519 km/h	280 kt
Climb rate, SL	762 m/m	2,500 ft/m
Takeoff run	366 m	1,200 ft
Landing distance	335 m	1,100 ft
Ferry range[c]	1,852 km	1,000 nm
G limits (Aerobatic)	+7/-3.5	

Propulsion

F1300	(1)	AlliedSignal (Garrett) TFE 109-1 turbofan rated 5.92 kN (1,330 lbst) or Williams/Rolls-Royce FJ44 turbofan rated 8.45 kN (1,900 lbst).
ATTA 3000	(2)	Pratt & Whitney turbofans rated 13.35 kN (3,000 lbst) each or Williams/Rolls-Royce FJ44 turbofans rated 8.45 kN (1,900 lbst) each.
ARA 3600	(2)	Williams/Rolls-Royce FJ44 turbofans rated 8.45 kN (1,900 lbst) each or AlliedSignal (Garrett) TFE 109-3 turbofans rated 7.12 kN (1,600 lbst) each.

Armament. Four underwing hardpoints for various weapons or auxiliary fuel tanks. Each hardpoint has a capacity of 150 kilograms (331 pounds).

Crew/Accommodation. Side-by-side seating for student pilot and instructor with twin Martin-Baker ejection seats.

[a] Fitted with TFE 109-1 engine.

[b] At maximum takeoff weight.

[c] At 6,100 meters (20,000 feet) with full internal fuel.

Variants/Upgrades

F1300. Original Jet Squalus version. The initial prototype is powered by the Garrett TFE 109-1 but is due to be refitted with the Williams/Rolls-Royce FJ44. The original plan (now canceled) was to refit the aircraft with the Garrett TFE 109-3.

The F1300 is offered with a choice of either the TFE 109-1 or the FJ44.

ATTA 3000. Tandem-seat Advanced Tactical Training Aircraft version called ATTA 3000. It was originally to be powered by the Garrett TFE 109 powerplant. Both single- and twin-engine models were proposed. It was designed specifically to meet US Air Force/US Navy JPATS requirements. The original design was subsequently replaced by the new ATTA 4000, which has apparently since been given the earlier ATTA 3000 designation.

The new design is a twin-engine variant of the original ATTA 3000. It was to be powered by the Williams/Rolls-Royce FJ44 turbofan. However, plans now call for the aircraft to be powered by a 13.35-kN (3,000-lbst) Pratt & Whitney turbofan that is currently under development. If testing is successful, the ATTA 3000 would be powered by the new Pratt engine.

For the tactical training role, the ATTA 3000 would carry 7.62 mm, 12.7 mm, or 20 mm gun pods, rocket launchers, IR air-to-air missiles, or bombs. The ATTA 3000 was being jointly developed by Promavia and the Russian firm Mikoyan (later merged into MAPO-MiG), and was also known as the MiG-ATTA. However, it is unclear whether the Russian company is still involved in the program.

ARA 3600. Single-seat, light attack/reconnaissance aircraft powered by twin 1,600-lbst TFE 109-3 or 1,900-lbst FJ44 engines. Announced in 1989. This program has been placed on indefinite hold. The aircraft can be equipped with twin 20 mm gun pods, four 7.62 mm or 12.7 mm gun pods, 70 mm rocket launchers, or bombs.

Air Ward System (AWS). Military/paramilitary configurations of the basic single-engine trainer. These include AWS-MS/SAR providing maritime surveillance/search-and-rescue; AWS-R for reconnaissance; AWS-W for ordnance and gunnery training and law enforcement; and AWS-TT for target towing missions.

Civil Jet Squalus. The second Jet Squalus prototype was to be modified to an airline pilot training configuration.

Program Review

Background. Jet Squalus is a family of proposed cost-effective, turbofan-powered aircraft for a variety of military and commercial flight training and military light ground attack requirements. Designed by Stelio Frati, the aircraft was initially envisioned as a replacement for the SF.260 trainer, with the Belgian air force in particular seen as a likely customer.

The first aircraft to be developed and flown, the F1300 Jet Squalus, was the direct result of market research completed in 1983 by a consortium of Belgian industry and financial community members. These research efforts revealed a worldwide need for an "all-through" trainer which could take pilots from ab initio to advanced status in one simple aircraft. Promavia SA was formed by Aspair, SONACA, Sonegal, Prominvest, the Societe Generale and BBL banks, and two well-known Belgian industrialists.

Promavia signed noted Italian designer Stelio Frati to design the Jet Squalus, and the company received Belgian government funding in 1985.

Program Goals. The F1300, first flown with the TFE 109-1 rated at 1,330 lbst, was offered as an alternative to the ill-fated Fairchild T-46 for the US Air Force New Generation Trainer (NGT). Under a now-lapsed agreement, Rockwell was to build the aircraft if sold in the US. The USAF trainer program since became the USAF/USN Joint Primary Aircraft Training System (JPATS) program. Promavia has also explored the aircraft's commercial market potential and an agreement with Sabena, the Belgian carrier, was announced in 1989 for the airline to acquire an undisclosed number of the aircraft. Sabena was to act as prime contractor in the production of these aircraft.

Potential Portuguese Program. At the Paris Air Show in June 1989, Promavia announced a production agreement with Oficinas Gerais de Material Aeronautico (OGMA) for the Jet Squalus trainer. OGMA is a division of the Portuguese Air Force responsible for general maintenance and repair of all aircraft, avionics, engines, structures, ground communications, and radar equipment of the Air Force. Under the agreement, OGMA would produce under license a total of 100 Jet Squalus aircraft, of which 30 would be for the Portuguese air force. In mid-1991, Promavia and OGMA signed a contract for production of 100 Jet Squalus aircraft. However, the Portuguese Air Force has not placed an order for the aircraft, and has yet to even evaluate it.

Canadian Training Program. In August 1991, Promavia and the government of the Canadian province of Saskatchewan came to an agreement concerning final assembly of the Jet Squalus in Saskatoon. The agreement also included the establishment of a pilot training academy. Promavia established Promavia International Corp to handle aircraft development and production activities. However, negotiations to attract provincial funding for the effort were subsequently abandoned, although discussions with private interests continued.

In February 1992, Promavia signed a memorandum of understanding with the Garrett Engine division of AlliedSignal Inc for the initial supply of 100 TFE 109 engines. Garrett is now known as AlliedSignal Engines.

Promavia has since abandoned the creation of Promavia International Corp. All activities have been moved back to Belgium.

Joint Venture with Mikoyan. In July 1992, Promavia signed an agreement with the Russian firm Mikoyan (since merged into MAPO-MiG) covering the design, development, construction, and flight testing of two prototype ATTA 3000 aircraft. The first prototype was to be assembled in Russia, and the second in Canada. A third airframe, also to be assembled in Russia, would be used for fatigue tests.

By June 1993, the two firms had decided to pursue a new design, the ATTA 4000 (also called the MiG-ATTA), rather than the earlier ATTA 3000. The new aircraft was to be powered by Williams/Rolls Royce FJ44 engines rather than the Garrett engines of the ATTA 3000. The new design is now apparently referred to as the ATTA 3000. Two prototypes were to be constructed. However, it is not clear whether the Russian company is still involved in the program.

Provided that testing results are satisfactory, current plans call for the ATTA 3000 to be powered by a new Pratt & Whitney engine that is under development.

Funding

Approximately $2.0 million was invested by the Belgian government in the mid-1980s.

Recent Contracts

None.

Timetable

	1983	Promavia SA formed in Belgium
		Market research of trainer market completed
	1984	Stelio Frati contracted to design Jet Squalus
	1985	Promavia received Belgian government support to develop prototypes
Sep	1986	Jet Squalus debut at Farnborough
Apr	1987	First flight
Jun	1989	Production agreement with OGMA announced
Aug	1991	Canadian agreement announced
Jul	1992	Agreement signed with Mikoyan

Worldwide Distribution

Not applicable.

Forecast Rationale

The various agreements (with Rockwell, OGMA, Sabena, the Saskatchewan government, and Mikoyan) that have been announced concerning the Jet Squalus have yet to lead to the manufacture of production aircraft. As a Belgian company, Promavia SA is in the unenviable position of trying to market a new military aircraft that its own government has not purchased. In mid-1988, the Belgian air force did evaluate a Jet Squalus prototype, but the service appears to have decided against purchasing the aircraft in the near future.

Despite the contract with OGMA for production of 100 Jet Squalus aircraft, the Portuguese air force may never acquire the Jet Squalus. The service has not actually placed an order for the aircraft, and has yet to even evaluate it. Meanwhile, the ATTA 3000 program is continuing at a slow pace.

The Jet Squalus may conceptually have been a good aircraft back in the mid-1980s when the US NGT program was heading for trouble. However, the Belgian aircraft has still not entered production, and no firm orders for either it or the ATTA 3000 version have been announced.

Ten-Year Outlook

No production Jet Squalus or Jet Squalus derivative aircraft are forecast.

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