Hawker Beechcraft Hawker 400XP/450XP Archived JUL

Outlook

- Hawker Beechcraft delivered only 12 Hawker 400XPs in 2010, an almost 65 percent drop from the 35 aircraft it delivered in 2008
- Hawker Beechcraft announced in November 2010 that it was suspending sales and production of the 400XP for 2011 and 2012
- Hawker Beechcraft plans to offer its Hawker 400XPR upgrade package to customers who need improved performance, efficiency, and avionics

Orientation

Description. Twin-turbofan-powered, short/medium-range, executive jet transport aircraft.

Sponsor. Beechjet 400 was originally sponsored, designed, and developed by Mitsubishi Heavy Industries Ltd. Beech Aircraft Corp purchased the aircraft program from Mitsubishi in 1985. Raytheon subsequently acquired Beech Aircraft. Development of the 400T/T-1A Jayhawk tanker/transport training aircraft was sponsored by the U.S. Air Force Aeronautical Systems Division, Wright-Patterson AFB, Ohio, USA.

Status. Production of Hawker 400XP suspended.

Total Produced. Through 2010, a total of 639 Beechjets/Hawker 400XPs had been produced, along with 181 T-1As for the U.S. military. Mitsubishi also produced and delivered 90 Diamond jets.

Application. Short/medium-range executive transportation. Military applications include aircrew training, maritime patrol, search and rescue, drug interdiction, flight inspection, and utility/liaison.

Price Range. Hawker 400XP, $7.6 million in 2010 dollars.

Contractors

Prime

Hawker Beechcraft Corp	http://www.hawkerbeechcraft.com, 10511 E Central Ave, Wichita, KS 67026 United States, Tel: + 1 (316) 676-7111, Prime

Subcontractor

Meggitt Sensing Systems	http://www.endevco.com, 30700 Rancho Viejo Rd, San Juan Capistrano, CA 92675 United States, Tel: + 1 (888) 363-3826 (Inflight Engine Vibration Monitoring System)
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 (JT15D-5)

Hawker Beechcraft Hawker 400XP/450XP Archived JUL

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 (Flight Control System; Pro Line 4 Avionics System)
Sunair Electronics Inc	3101 SW Third Ave, Fort Lauderdale, FL 33315-3389 United States, Tel: + 1 (954) 525-1505, Fax: + 1 (954) 765-1322 (ASB-850 HF - Optional)

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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

(400XP)

Design Features. Low-swept-wing design, T-tail section with swept vertical and horizontal stabilizers, and retractable tricycle landing gear. Built primarily of light alloys, and equipped with Collins Pro Line 4 EFIS.

	Metric	U.S.
Dimensions (External)		
Length overall	14.76 m	48.4 ft
Height	4.24 m	13.9 ft
Wingspan	13.26 m	43.5 ft
Dimensions (Internal)		
Cabin length, less flight deck	4.72 m	15.5 ft
Cabin max width	1.50 m	4.9 ft
Cabin max height	1.45 m	4.75 ft
Cabin volume, less flight deck	8.6 cu m	305 cu ft
Weight		
Basic operating weight	4,983 kg	10,985 lb
Maximum takeoff weight	7,393 kg	16,300 lb
Maximum payload	914 kg	2,015 lb
Performance		
Max cruise speed	861 kmph	465 kt
Long-range cruise speed	766 kmph	414 kt
Certificated altitude	13,716 km	45,000 ft
Range, NBAA IFR, maximum payload	1,622 km	876 nm
Range, NBA IFR, four passengers	2,713 km	1,465 nm
Takeoff field length at MTOW	1,191 m	3,906 ft

Propulsion

400XP (2) Pratt & Whitney Canada JT15D-5R axial-centrifugal-flow medium-bypass-ratio turbofan engines rated 13.2 kN (2,965 lbst) each.

Seating

400XP - Standard double-club configuration for seven to nine passengers, with two crew.

Hawker Beechcraft Hawker 400XP/450XP Archived JUL

Variants/Upgrades

Diamond I. Mitsubishi's first business jet, it flew in 1978; FAA-certificated in 1979. Powered by two P&WC JT15D-4 turbofans of 2,500 lbst, with max range of 1,270 nautical miles with four passengers.

Diamond IA. Improved Diamond I, replacing the Diamond I in 1984. Featured minor airframe changes for improved takeoff and landing performance, range, and hot-high operations. Powered by JT15D-4D engines that provide 5 percent more cruise thrust than the Dash 4.

Diamond II. Last of the Mitsubishi line bought by Beech in 1985. Powered by 2,900-lbst JT15D-5, with additional fuel capacity to add 270 nautical miles to its max range. Flew in 1984; deliveries began in 1985.

Beechjet 400/400A. A name change for the Diamond II; incorporates standard equipment previously offered as options. Mitsubishi shipped kits to Beech for assembly in Wichita. First deliveries of 400 in 1986. By mid-1989, all components previously supplied by Mitsubishi were being built in the United States. The 400A, announced in 1988, differs from the 400 primarily in higher payload, greater altitude, and a reconfigured cabin. An underfloor fuel system allows more usable cabin volume. Certificated in 1989; full avionics certification received in October 1990.

400T/T-1A. Modified 400A for U.S. Air Force Tanker, Transport, Training System (TTTS); selected in 1990. It retains the basic structure, systems, and propulsion of the 400A, but was strengthened to meet the TTTS' low-altitude, high-speed sortie life needs and demand for many more landings. Features high-strength landing gear and brakes, a new aft-cabin fuel tank that carries more fuel than earlier variants, a new windscreen certificated for bird strikes when cruising at 330 knots at 10,000 feet, a new lavatory and cabin avionics, a Freon A/C unit to augment the air cycle machine, and an electrical heating system to augment the pneumatic unit. It has individual student consoles in addition to the dual flight controls and instruments for the pilot/copilot/instructor seats. It also features as standard equipment Collins Pro Line 4 avionics, including the five-tube electronic flight information system (EFIS), a windshear radar, a digital autopilot, a central diagnostics and maintenance system, and a tactical air navigation system (TACAN) with air-to-air capability. USAF designation is T-1A Jayhawk. Selected in 1991 as transport/tanker trainer for the Japan Air Self-Defense Force. Nine aircraft were acquired.

Hawker 400XP. Redesignation of 400A in May 2003. Features 200-pound-gross-weight increase, thrust reversers, TCAS 4000, and an emergency locator transmitter.

Hawker 450XP. An improved variant of the Hawker 400XP launched in October 2008. The new model was designed around new Pratt & Whitney Canada PW535D engines that Hawker Beechcraft claimed would improve fuel efficiency by 10 percent. The engines are equipped with Full Authority Digital Engine Control (FADEC) and feature a 5,000-hour time between overhauls. The aircraft's design MTOW also increased, from 16,300 pounds (7,400 kg) to 16,650 pounds (7,570 kg), allowing more fuel to be carried and extending the aircraft's range. New Pro Line 21 integrated avionics and cabin upgrades were also part of the planned improvements.

Program Review

Background. Beech entered the business jet market in 1985 by acquiring the Mitsubishi MU-300 Diamond II line. It assembled the aircraft, now designated Beechjet, from kits shipped from Japan. All production tooling was subsequently transferred to Beech in 1988.

Mitsubishi's original Diamond I flew in 1978, powered by P&WC JT15D-4 turbofans. The Diamond IA, an improved variant, replaced this in 1984. The IA is distinguished from the Diamond I by a performance enhancement package boosting takeoff capabilities and associated payload and range performance, especially in hot temperatures and high-altitude conditions.

The upgraded Diamond II flew in 1984, using the uprated P&WC JT15D-5 engine, and with an optional fuel tank offering a range increase of 270 nautical miles. First deliveries occurred in May 1985.

Beech Buys Into the Jet Market

Under terms of the 1985 Diamond II acquisition, Mitsubishi shipped aircraft to Beech in kit form for assembly in the United States. Marketed as the Beechjet 400, these featured an extended-range fuel tank and tailcone baggage compartment, both previously offered as options. The first Beech-assembled aircraft was delivered in 1986. In 1988, Beech announced that Beechjet manufacture was transitioning to Wichita over the next 18 months.

The 400A was redesignated the 400XP in May 2003. Product upgrades included a 200-pound-gross-weight

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increase, thrust reversers, TCAS 4000, and an emergency locator transmitter.

Hawker Beechcraft Buys Raytheon Aircraft Line

Raytheon announced in December 2006 that it was selling its aircraft unit to Hawker Beechcraft Inc. Hawker Beechcraft was a new corporate entity that had been formed by GS Capital Partners (an affiliate of Goldman Sachs) and Onyx Partners. The sale was completed in March 2007.

New 450XP Launched

Hawker Beechcraft launched the 450XP in October 2008. According to preliminary information released by the company at the time of launch, the new model (see **Variants/Upgrades**, above) was designed to have a longer range, a faster climb rate, lower operating costs, improved hot and high field performance, and new integrated avionics and cabin management systems made by Rockwell Collins (the Pro Line 21 and Venue systems, respectively). At the time of launch, the schedule projected the first flight of the new model in the second quarter of 2009 and FAA certification in the second quarter of 2010. A major slowdown in the world economy and a resulting huge cut in production at Hawker Beechcraft (and other business jet makers) led the company to put plans for the 450XP on hold in 2009.

Timetable

Month	Year	Major Development
Jun	1979	Diamond I program go-ahead announced
Dec	1981	FAA certification
Aug	1982	Initial deliveries
Aug	1983	Diamond IA announced
Jan	1984	First deliveries of Diamond IA
Apr	1985	U.S. FAA grants certification for Diamond II
Dec	1985	Beech acquires Diamond II program
Jun	1986	First all-Beech-assembled Beechjet delivery
Oct	1988	Beech announces new Model 400A
Feb	1990	Beech 400T selected for the USAF TTTS
Aug	1991	Beech 400 selected for Japanese TC-X mission
Dec	1993	Initial TC-X deliveries to Japan Air Self-Defense Force
	1997	Completion of TTTS deliveries
	2003	Upgraded 400XP enters service
Oct	2008	Launch of Hawker 450XP
Nov	2010	Suspension of production announced

Forecast Rationale

Hawker Beechcraft delivered only 12 400XPs in 2010, a slight increase over the 11 aircraft it delivered in 2009. This level of production represents a huge decline from the company's pre-recession production rate, when the company was building 3.5-4 aircraft per month.

In November 2010, Bill Boisture, the company's chairman and CEO, announced that sales and production of the 400XP had been suspended pending an improvement in the bizjet market. Boisture said that the company was suspending production in 2011 and 2012 and noted that the production line could be restarted once market conditions improved.

It is possible that Hawker Beechcraft could restart production of the 400XP in 2013, but the odds are against this happening. The 400XP is a model that is long in the tooth and in desperate need of an upgrade. It has long been outclassed by the competing Cessna CJ3, and new competitors are entering the market. In fact, the light jet segment is among the most competitive segments we cover. Embraer's all-new Phenom 300 is as fast as the 400XP but features a longer range. Cessna's new CJ4 model is a larger and more expensive aircraft than the 400XP, but there is likely to be at least some overlap in the pool of potential customers.

In response to the threat posed by new competition, Hawker Beechcraft launched a program to replace the 400XP with the new, upgraded 450XP in October 2008. The 450XP was to have longer range, a faster climb rate, lower operating costs, improved hot and high field performance, and new integrated avionics and cabin

Hawker Beechcraft Hawker 400XP/450XP Archived JUL

management systems made by Rockwell Collins, but Hawker Beechcraft suspended development of the new model in 2009 as part of cost-cutting measures announced during the recent recession.

Since then, Hawker Beechcraft has never announced a formal cancellation of the 450XP program. It is possible that when it moves to re-enter the segment, it will complete development of the 450XP instead of simply restarting production of the 400XP.

In the meantime, Hawker Beechcraft is moving ahead with its Hawker 400XPR upgrade program, which adds composite winglets, replaces the current P&WC JT15D-5R engines with new Williams FJ44-4A-32s, and offers optional Pro Line 21 avionics. The $2.24 million upgrade package will be available through Hawker Beechcraft Services, which will compete for upgrade customers with Nextant Aerospace, which is offering its own upgrade package for the 400XP.

The forecast for the 400XP assumes that the aircraft will not re-enter production. The forecast for production of the upgraded 450XP model has also been eliminated pending some announcement by the company that it plans to revive the program.

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