

Bell 430

Outlook

- Bell delivered only six Model 430s in 2008, and none in 2009
- Bell announced in January 2008 that production of the 430 would be terminated to concentrate the company's resources on more popular models

Orientation

Description. Eight- to 10-seat, twin-engine, single-main-rotor, commercial, utility, and corporate helicopter.

Sponsor. Bell Helicopter Textron, Mitsui Corporation, and the government of Canada.

Status. Out of production.

Total Produced. In addition to model prototypes, Bell produced 38 Model 230s and 128 Model 430s through 2008.

Application. Corporate passenger transportation, scheduled and non-scheduled passenger operations, resource development, EMS, law enforcement, and paramilitary duties.

Price Range. Model 430, typically equipped, \$6.5 million in 2008 dollars.



Bell 430

Source: Forecast International, Inc

Bell 430**Contractors****Prime**

Bell Helicopter Textron Canada Ltd	http://www.bellhelicopter.com , 12 800 rue de l'Avenir, Mirabel, J7J 1R4 Quebec, Canada, Tel: + 1 (450) 437-3400, Fax: + 1 (450) 437-6010, Prime
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Subcontractor

Honeywell Aerospace, Air Transport & Regional	http://www.honeywell.com , 21111 N 19th Ave, Phoenix, AZ 85027 United States, Tel: + 1 (602) 436-2311 (AFCS)
Rogerson Kratos	http://www.rogersonkratos.com , 403 S Raymond Ave, Pasadena, CA 91109 United States, Tel: + 1 (626) 449-3090, Fax: + 1 (626) 449-4805, Email: mathewsc@rogerson.com (Display)
Rolls-Royce Corp	http://www.rolls-royce.com/northamerica , PO Box 420, 2001 S Tibbs Ave, Indianapolis, IN 46206-0420 United States, Tel: + 1 (317) 230-2000, Fax: + 1 (317) 230-4020 (250-C40)

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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**(Model 430)**

Design Features. Conventional single-main-rotor helicopter with retractable tricycle landing gear or skids. Cold-drive engines are mounted aft of the main rotor transmission. Single tail rotor is mounted on the port side of the boom. Boom carries twin horizontal stabilizers with winglets, and a large vertical fin with smaller ventral fin. Shortened-span sponsons on each side of the fuselage house mainwheel gear and fuel tanks.

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Length, airframe	15.39 m	44.1 ft
Max width	3.44 m	11.3 ft
Height overall	3.41 m	11.2 ft
Cabin		
Length	2.62 m	8.59 ft
Max width	1.47 m	4.9 ft
Max height	1.45 m	4.75 ft
Baggage compartment volume	1.05 cu m	37.2 cu ft
Weight		
Max takeoff weight	4,218 kg	9,300 lb
Empty operating weight (wheeled version)	2,487 kg	5,482 lb
Payload, max standard fuel	1,026 kg	2,262 lb
Performance		
High-speed cruise	260 kmph	140 kt
Economical cruise speed	245 kmph	132 kt
Range	510 km	275 nm

Bell 430**Propulsion**

430 (2) Rolls-Royce Model 250-C40 turboshaft engines rated 779 kW (1,045 shp) at takeoff, 737 kW (989 shp) each max continuous power.

Seating

Model 430: Standard seating for one pilot and eight passengers.

Variants/Upgrades

Model 230. Bell unveiled plans to reintroduce this version of the Model 222 at the 1989 NBAA Conference and Exhibition in Atlanta. The derivative helicopter is greatly improved by virtue of twin Allison (now Rolls-Royce) Model 250-C30G turboshafts. Additional improvements include new and advanced high-inertia rotor blades; simplified electronic systems; all-glass windscreens with dual wipers; dual hydraulic, electrical, and fuel systems; standard skid or optional retractable wheel gear; easy-access engine cowls; optional engine particle separators; and Bell's patented Liquid Inertia Vibration Elimination (LIVE) system. The latter replaced Bell's well-known but troublesome Nodal-Beam damper system. Aircraft roll-out took place on September 1, 1991, with first flight following soon after. Certification was granted in 1992, and production ended in August 1996.

Model 430. A four-blade rotor system version of the Model 230, featuring a 460mm (18-in) fuselage stretch. This helicopter was launched in February 1993 and was followed by a prototype in October 1994. Full certification was achieved in August 1996. Using a Bell Model 680 rotor, the 430 offers greater lift and maneuverability, better hot/high performance, and a larger cabin than the 230. It also generates less noise and vibration. The aircraft is powered by Rolls-Royce 250-C40 engines, which incorporate compressor and turbine upgrades developed for the T703 under the U.S. Army's reliability and maintainability enhancement program. The C40 features a Chandler Evans single-channel Full-Authority Digital Engine Control (FADEC) system.

Program Review

Background. Bell's Model 222 was the first dedicated commercial light twin-turbine helicopter to be developed and produced by an American manufacturer. As such, the 222 was not subject to the many compromises in design that marked earlier civilian models derived from military helicopters. The first of five prototypes flew in August 1976. The aircraft received VFR certification in December 1979, and deliveries commenced in January 1980. Single-pilot IFR certification was obtained in May 1980.

Because of the market's increasingly negative view of the Lycoming engine, Bell began to explore several engine upgrade options in the late 1980s. Then, during 1988 and 1989, the market for light twin helicopters improved measurably. Bell officials did not want to give up the entire market to MBB and Aerospatiale (now Eurocopter) or to the upcoming McDonnell Douglas MD900 Explorer. Thus, at the beginning of 1993, the manufacturer launched the 230 with the 250-C30G/2 engines.

With Mitsui of Japan ordering 20, orders for the 230 came quickly.

The first 230, modified from a Model 222A, flew in August 1991. Bell produced the 38th and final 230 in August 1995, and then elected to concentrate its efforts on the upcoming Model 430 replacement.

Bell estimated total 430 development cost at \$18 million in 1994 dollars.

Component Outsourcing

In September 2003, Bell announced it was transferring production of major 430 components from Canada to Hafei Aviation Industry in China. The move was intended to lower manufacturing costs and to stimulate sales in that country. Bell has continued to build the 430 in Canada, and worldwide distribution of Hafei-produced parts began in 2005.

Homeland Security Order

In late 2004, the Department of Homeland Security awarded Bell a \$163.9 million contract for 25 Model 430s for use as medium utility helicopters by the U.S. Border Patrol.

Bell 430**Timetable**

Month	Year	Major Development
Early	1974	Model 222 program announced
Aug	1976	Prototype first flight
Dec	1979	VFR certification
Jan	1980	Initial deliveries
May	1980	Single-pilot IFR certification
	1982	Introduction of 222B
Sep	1983	Introduction of 222UT
Nov	1988	Heli-Air flies first 222 with Allison engines
Oct	1989	Bell announces Model 230
Sep	1990	Bell announces 230 production in Canada
Sep	1991	Rollout
	1991	First flight of 230
Late	1992	230 certification and initial deliveries
Feb	1993	Model 430 launched
Oct	1994	First flight of 430
Aug	1995	Model 230 production ends
Aug	1996	430 certification
	2004	Component production begins in China by Hafei Aviation Industry
Late	2005	Hafei cleared to build 430 fuselages

Forecast Rationale

Bell delivered only three Model 430s in 2008 and none in 2009. In January 2008, the company announced a new plan to terminate production of several models, including the 430, in favor of focusing on more popular models. At the time, the company was working on an order for 25 Model 430s for the U.S. Border Patrol. In light of the lack of deliveries in 2009, it seems that this order was completed prior to the 2010 deadline given at the time the order was announced in late 2004. Production of the Model 430 is now assumed to have ended in 2008.

The Model 430 never achieved wide popularity in the market. It has done reasonably well in the corporate sector, where it competes largely with Eurocopter's AS 365N and Sikorsky's S-76. Bell has also sold a small number of 430s to the EMS market. However, the competition is getting stronger. Eurocopter replaced the BK 117 with the stretched EC 145 derivative, while new ownership at MD Helicopters has brought new life to the MD 902 Explorer, a smaller, lighter-weight helicopter than the 430.

Ten-Year Outlook

No production forecast.

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