

Bell 427

Outlook

- Model 427 replaced in Bell's lineup by new Model 429
- Bell is no longer taking orders for the 427

Orientation

Description. Twin-engine, eight-seat, single-main-rotor multipurpose commercial helicopter.

Sponsor. Privately sponsored.

Status. Out of production.

Total Produced. Two prototypes, 75 production 427s through Dec. 2009.

Application. Corporate transport, EMS, aerial surveillance, police/paramilitary operations, media reporting, flight training.

Price Range. 427 equipped, \$3.8 million in 2008 dollars.



Bell 427

Source: Forecast International, Inc

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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Bell 427**Subcontractor**

Bell Helicopter Textron Inc	http://www.bellhelicopter.com , 13901 Aviator Way, PO Box 482, Fort Worth, TX 76101-0482 United States, Tel: + 1 (817) 280-2011, Fax: + 1 (817) 280-2321 (BasiX-Pro Avionics Suite)
Korea Aerospace Industries Ltd (KAI)	http://www.koreaaero.com , 802, Yucheon-ri, Sanam-myeon, Sacheon, 664-943 Gyeongsangnam-do, Korea, South, Tel: + 82 55 851 1381, Fax: + 82 55 851 1004 (Fuselage Component)
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 (PW207-D)
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)
Thales Aerospace	http://www.thalesgroup.com/aerospace/ , 45, Rue de Villiers, Neuilly-sur-Seine, 92526 France, Tel: + 33 1 57 77 80 00, Fax: + 33 1 57 77 87 70 (Automatic Flight Control System)

Comprehensive information on Contractors can be found in Forecast International's "International Contractors" series. For a detailed description, go to www.forecastinternational.com (see Products & Samples/Governments & Industries) or call + 1 (203) 426-0800.

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

Design Features. The Model 427 features a lengthened 407 cabin/fuselage, dynamics from the OH-58D Kiowa Warrior, and a scaled-up version of the 407's twin-bladed tail rotor. Main rotor features a soft-

in-plane hub with a composite flex-beam yoke and elastomeric joints, eliminating the need for lubrication and reducing routine maintenance. Four-bladed main rotor.

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Length overall	13.07 m	42.85 ft
Main rotor diameter	11.28 m/N/A	37 ft/N/A
Weight		
Empty weight	1,631 kg	3,590 lb
Payload with standard fuel	560	1,232
Maximum takeoff weight	2,977 kg	6,550 lb
Performance		
Range	536 km	290 nm
Maximum cruise speed	259 kmph	140 kt
Hover IGE	2,745 m	9,000 ft
Hover OGE	533 m	1,750 ft

Propulsion

427 (2) Pratt & Whitney Canada PW207D turboshaft engines rated approximately 529 kW (710 shp) each at max continuous operation.

Seating

427: Pilot and seven passengers configured in club-style seating or in two rows of three forward-facing seats. EMS version accommodates two litter patients.

N/A = Not Available.

Program Review

Background. Bell announced the all-new Model 427 light twin in early 1996, with the new type to replace a previously proposed, less ambitious twin version of the firm's 407 single. Samsung Aerospace of the Republic of Korea, a risk-sharing partner, produces the aircraft's tail booms and cabins, and assembles all 427s going to customers in the ROK and the People's Republic of China. Bell is responsible for the remainder, and also handles final assembly.

Engine selection was announced in June 1996. The P&WC PW206D was chosen over the competing Allison 250-C22+ and the Turbomeca Arrius 2. Bell subsequently switched to the more powerful PW207D.

A prototype flew in December 1997 and, six months later, the first production-standard machine took to the air. By mid-1998, the two 427s had logged about 325 flight hours and had reached speeds of 154 knots at sea level. Certification was rescheduled several times; the aircraft received its Canadian ticket in November 1999 and its FAA certification in January 2000.

427i Leads to 429

Bell certificated the 427 only for Visual Flight Rules (VFR), and potential customers considered the lack of the ability to fly under Instrument Flight Rules (IFR) a major weakness in the design. To address this weakness, Bell launched the IFR-capable 427i in July 2004, only to replace it on its drawing boards with the more ambitious Model 429 in early 2005 after deciding that the planned improvements in the 427i would not meet market demands.

The design of the 429 incorporated 10 of 13 technologies in development at Bell as part of its planned Modular Affordable Product Line (MAPL) family of civil helicopters. These include a two-piece composite driveshaft, a new four-blade tail rotor, a 1,250-psi dual hydraulic system, new wheeled landing gear and skids, and a main rotor built using advanced fabrication techniques. The aircraft is also designed to be quiet enough to meet even the stringent noise limits placed on aircraft operating on sightseeing flights over U.S. national parks.

By the time the new design was unveiled, Bell had already logged 90 orders for the new model, most of which were converted orders for the 427i.

Aside from the promise of IFR capability, Bell promised that the new model would offer customers a higher level of performance and lower operating costs than the 427. Also key to the new design was its larger cabin and cockpit, a major selling point for the emergency medical services (EMS) market. The cabin of the 429 has a higher volume than that of the 427 – 220 cubic feet versus 160, for a 70 percent increase. It also has huge sliding doors on both sides of the aircraft, a flat floor, seats that run on tracks, and clamshell doors that allow access to the cabin at the rear.

With Bell's focus now on the 429, the company's need for the 427 evaporated. Current plans call for production of the 427 to end in 2009.

Funding

According to Bell, 427 development costs were less than \$100 million.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Late Feb	1996	Model 427 announced
Dec	1997	Prototype first flight
Jun	1998	First production machine flies
Nov	1999	Canadian certification
Jan	2000	U.S. certification, initial deliveries
Late	2003	Development of IFR version announced
Jul	2004	427i launched

Bell 427**Forecast Rationale**

Bell delivered four Model 427s in 2009, after delivering only seven in 2008 and 10 in 2007. Market demand for the 427, which can fly only under Visual Flight Rules (VFR), has always been weak.

The Model 427 has been replaced on Bell's production line by the new model 429 GlobalRanger. Nearly all of the initial rush of orders Bell received for the newly

announced 429 in 2005 were conversions of 427i orders, indicating that the operators saw the 429 as the superior product even if it will be significantly more expensive than the 427. Production of the 427 is assumed to have ended in 2009, though it is possible that the company will produce a few more units in 2010 as it works through the remaining orders in its backlog.

Ten-Year Outlook

No production forecast.

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