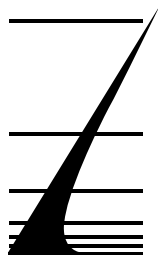


# The Market for Medium/Heavy Commercial Rotorcraft

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Product Code #F605

A Special Focused Market Segment Analysis by:



**FORECAST** INTERNATIONAL



# Analysis 4 The Market for Medium/Heavy Commercial Rotorcraft 2011-2020

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## PROGRAMS

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The following reports are included in this section: (**Note:** a single report may cover several programs.)

AgustaWestland AW101  
Bell/Agusta BA609  
Eurocopter AS 332/532/EC 225/725  
Kamov Ka-28/29/31/32  
Kamov Ka-60/62  
Mil Mi-8/17  
Mil Mi-38  
Sikorsky S-92



## Introduction

Forecast International defines the medium/heavy commercial rotorcraft market segment to include those rotorcraft with maximum takeoff weights of more than 6,804 kilograms (15,000 lb). Rotorcraft with lower MTOWs are covered in our analysis "The Market for Light Commercial Rotorcraft."

The following rotorcraft programs were reviewed in preparing this analysis:

AgustaWestland AW101  
Bell/Agusta Aerospace BA609  
Eurocopter AS 332/EC 225  
Kamov Ka-32  
Kamov Ka-62  
Mil Mi-8/17  
Sikorsky S-92

**Methodology.** Forecasting commercial rotorcraft production is an inexact science. Because rotorcraft are

used in so many varied applications, and utilization data are sometimes questionable, development of a statistically valid methodology continues to be extremely difficult. Forecast International's method is based on an analysis of current inventories together with economic projections for the world's geographic regions. Factors such as price, level of product support, differences in performance, and established customer bases are used to project outlooks for individual programs. In the preparation of this analysis, the first step was a detailed study and market projection of each of several rotorcraft families. Detailed information on each of the aircraft covered in this analysis is available in the reports in Tab A of the print version of Forecast International's *Rotorcraft Forecast* or within the same directory as this analysis in the electronic version of the *Rotorcraft Forecast*.

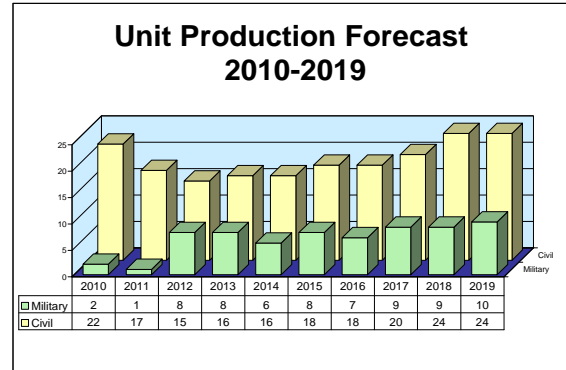
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# Sikorsky S-92

## Outlook

- The primary markets for the S-92 are the offshore energy exploration and production support, SAR, and VIP transport markets
- The S-92 competes primarily against Eurocopter's EC 225/EC 725
- Initial deliveries of H-92 variant to Canada scheduled for late 2010



## Orientation

**Description.** Twin-engine, single-main-rotor, medium-lift commercial and military helicopter.

**Sponsor.** United Technologies Sikorsky Aircraft; Stratford, Connecticut, USA.

**Status.** In production.

**Total Produced.** Four prototypes and approximately 118 production aircraft produced through 2009.

**Application.** Utility, offshore transport, search-and-rescue, and overnight cargo roles; military version to seat 18 to 22 troops.

**Price Range.** S-92, \$22 million in 2010 dollars.



S-92

Source: Sikorsky

## Sikorsky S-92

## Contractors

## Prime

<b>Sikorsky Aircraft Corp</b>	<a href="http://www.sikorsky.com">http://www.sikorsky.com</a> , 6900 Main St, Stratford, CT 06614 United States, Tel: + 1 (203) 386-4000, Fax: + 1 (203) 386-7300, Prime
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## Subcontractor

<b>Aerazur</b>	58 Blvd Gallieni, Issy-Les-Moulineaux, 92130 France, Tel: + 33 145 54 9280 (Fuel Cells)
<b>Aerospace Industrial Development Corp (AIDC)</b>	<a href="http://www.aidc.com.tw">http://www.aidc.com.tw</a> , No 111-X60, Lane 68, Fu-Hsing N Rd, Taichung, 40722 Taiwan, Tel: + 886 4 270 70001, Fax: + 886 4 228 42849 (Discs)
<b>CPI Aerostructures Inc</b>	<a href="http://www.cpiaero.com">http://www.cpiaero.com</a> , 60 Heartland Blvd, Edgewood, NY 11717 United States, Tel: + 1 (631) 586-5200, Fax: + 1 (631) 586-5840 (Search-and-Rescue (SAR) Door Provision and Completion Kits; Seat Fitting Kits)
<b>Curtiss-Wright Corp</b>	<a href="http://www.curtisswright.com">http://www.curtisswright.com</a> , 10 Waterview Blvd, 2nd Fl, Parsippany, NJ 07054 United States, Tel: + 1 (973) 541-3700, Fax: + 1 (973) 541-3699 (Recovery Assist Secure and Traverse (RAST) Probes)
<b>Eaton Corp</b>	<a href="http://www.eaton.com">http://www.eaton.com</a> , 1111 Superior Ave, Cleveland, OH 44144 United States, Tel: + 1 (216) 523-5000, Fax: + 1 (216) 523-4787, Email: garyklasen@eaton.com (Emergency Flotation Bag)
<b>GE - Aviation</b>	<a href="http://www.geae.com">http://www.geae.com</a> , 1000 Western Ave, Lynn, MA 01905-2655 United States, Tel: + 1 (617) 594-0100, Fax: + 1 (617) 594-4729 (CT7 Turboshift)
<b>Goodrich Corp</b>	<a href="http://www.goodrich.com">http://www.goodrich.com</a> , Four Coliseum Centre, 2730 W Tyvola Rd, Charlotte, NC 28217-4578 United States, Tel: + 1 (704) 423-7000, Fax: + 1 (704) 423-7002, Email: corporate.communications@goodrich.com (Health and Usage Monitoring System; Rescue Hoist)
<b>Hamilton Sundstrand</b>	<a href="http://www.hamiltonsundstrand.com">http://www.hamiltonsundstrand.com</a> , One Hamilton Rd, Windsor Locks, CT 06096-1010 United States, Tel: + 1 (860) 654-6000, Fax: + 1 (860) 654-2621, Email: hs.general@hsd.utc.com (Active Vibration Computers; Automatic Flight Control System)
<b>Heads Up Technologies</b>	Suite 100, 2033 Chennault Dr, Carrollton, TX 75006 United States, Tel: + 1 (972) 407-1131, Fax: + 1 (972) 407-1758, Email: rharshaw@heads-up.com (Aural Warning Generator (for H-92))
<b>Honeywell Aerospace, Engines, Systems &amp; Services</b>	<a href="http://www.honeywell.com">http://www.honeywell.com</a> , 111 S 34th St, Phoenix, AZ 85034-2892 United States, Tel: + 1 (602) 231-1000, Fax: + 1 (602) 231-5713 (Radar; APU)
<b>Martin-Baker Aircraft Co Ltd</b>	<a href="http://www.martin-baker.com">http://www.martin-baker.com</a> , Higher Denham, UB9 5AJ Buckinghamshire, United Kingdom, Tel: + 44 1895 832214, Fax: + 44 1895 832587, Email: information@martin-baker.co.uk (Crew Seats)
<b>Meggitt Sensing Systems</b>	<a href="http://www.endevco.com">http://www.endevco.com</a> , 30700 Rancho Viejo Rd, San Juan Capistrano, CA 92675 United States, Tel: + 1 (888) 363-3826 (Accelerometer)
<b>Messier-Bugatti</b>	<a href="http://www.messier-bugatti.com">http://www.messier-bugatti.com</a> , Zone Aéronautique Louis Breguet, BP40, Velizy-Villacoublay, 78140 France, Tel: + 33 1 4629 8100, Fax: + 33 1 4629 8700 (Wheels; Brakes)
<b>Rockwell Collins Aerospace &amp; Electronics</b>	<a href="http://www.rockwellcollins.com">http://www.rockwellcollins.com</a> , 2701 Orchard Pkwy, San Jose, CA 95134 United States, Tel: + 1 (408) 432-3000, Fax: + 1 (408) 433-0553 (Multifunction Display)
<b>Tata Advanced Systems Ltd</b>	<a href="http://www.tataadvancedsystems.com">http://www.tataadvancedsystems.com</a> , Western Wing, Thapar House, 124 Janpath, New Delhi, 110 001 India, Tel: + 91 11 6622 2666, Fax: + 91 11 2334 1585, Email: skapur@tataadvancedsystems.com (Cabin)

## Sikorsky S-92

Universal Avionics Systems Corp

http://www.uasc.com/home/index.asp, 3260 E Universal Way, Tucson, AZ 85706 United States, Tel: + 1 (520) 295-2300, Fax: + 1 (520) 295-2395 (Flight Management System)

Comprehensive information on Contractors can be found in Forecast International's "International Contractors" series. For a detailed description, go to [www.forecastinternational.com](http://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](mailto:rich.pettibone@forecast1.com)

## Technical Data

(S-92)

**Design Features.** Single-main-rotor helicopter with integral tailboom and rotor system. Twin turboshafts drive from the cold end directly into the main rotor gearbox. Retractable tricycle landing gear.

	<u>Metric</u>	<u>U.S.</u>
<b>Dimensions</b>		
Length overall(a)	20.88 m	68.5 ft
Fuselage length	17.12 m	56.1 ft
Main rotor diameter	17.71 m	56.25 ft
Height overall	5.46 m	17.95 ft
Cabin length	6.1 m	20 ft
Cabin width	2.0 m	6.6 ft
Cabin height	1.8 m	6.0 ft
Cabin volume	19.8 cu m	700 cu ft
<b>Weight</b>		
Empty weight (offshore oil)	7,654 kg	16,875 lb
Max takeoff weight (internal load)	12,020 kg	26,500 lb
<b>Capacities</b>		
Standard fuel	1,136 liters	300 gal
<b>Performance</b>		
Max cruise speed	280 kmph	151 kt
Hover IGE ceiling	2,743 m	9,000 ft
Hover OGE ceiling	1,981 m	6,500 ft
Range, std internal fuel, 19 pax, 30-min reserves plus 10%	740 km	400 nm
SAR radius of action, max internal fuel, plus 10% reserve	618 km	334 nm
<b>Propulsion</b>		
S-92	(2)	GE Aircraft Engines CT7-8A axial-centrifugal-flow turboshaft engines rated 1,879 Kw (2,520 shp) for takeoff and 1,881 kW (2,523 shp) max continuous.
H-92	(2)	GE CT7-8C turboshaft engines rated approximately 2,289 kW (3,070 shp) each.

### Seating

S-92 to seat 19 passengers. H-92 to seat 22 troops in military configuration.

(a) Rotors turning.

## Sikorsky S-92

## Variants/Upgrades

**S-92.** The commercial version, intended primarily for the offshore oil/gas market segment. Cabin seats 19 passengers at 30-inch pitch, and is fitted with seven windows per side. Features 168-cubic-foot aft baggage compartment, an emergency flotation system with two floats on either side of the fuselage, a low-noise, 85-dB cabin environment, and a stand-up (72-in-height) cabin. In a typical mission, the aircraft cruises at 3,000 feet for three hours with two pilots, 19 passengers and luggage, and 3,800 pounds of fuel, or flies a 400-nautical-mile mission at 149 knots and lands with 10 percent fuel reserves. Sikorsky has also studied a bulk cargo version accommodating three LD-3-sized containers, and a search-and-rescue variant fitted with internal auxiliary fuel tanks to extend the aircraft's range to a minimum of 700 nautical miles.

**H-92.** Sikorsky originally proposed the military variant as a low-cost, low-risk alternative to the Bell/Boeing V-22 as a replacement for the U.S. Navy and Marine

Corps CH-46 medium-lift helos. As the latter program has since moved forward, Sikorsky has shifted its marketing emphasis to the international market. The H-92 configured for the land assault mission offers a 200-nautical-mile radius of action while carrying 22 troops at 3,000 feet on a 91.5°F day (compared with 140 nm for the CH-46E). In the amphibious assault role, the Sikorsky aircraft has a dual sortie radius of action of 65 nautical miles with 22 troops under 103°F conditions (versus 45 nm for the CH-46E). The aircraft's main rotor and tailboom can be folded; thus, it requires only 90 percent of the deck space occupied by the CH-46E. The H-92 features twin uprated CT7-8C turboshafts, which offer a 25 percent power increase over the CT7-8A engines used by its civilian stablemate. It is equipped with a fully digital, fly-by-wire system designed to improve the S-92's maneuverability and safety.

## Program Review

**Background.** In March 1992, Sikorsky unveiled a full-scale mockup of its proposed S-92 medium civil helicopter, derived from the manufacturer's UH-60 military helicopter technology. The new model will feature a redesigned transmission; the H-60's three-stage gearbox has been upgraded with a fourth stage. The S-92 was originally to have been fitted with a spindle-type main rotor head, but this has been replaced with a yoke-type unit, which permits both fewer and faster inspections. According to Sikorsky, the rotor head will be the industry's first to offer an infinite life. The aircraft will also feature new rotor blades, scaled-up versions of wide-chord units that have already been test-flown aboard the Black Hawk. The new blades are 16 inches longer than those fitted to the UH-60, and permit the latter to lift an additional 500-pound payload. The S-92 also features a new tail rotor, as well as an intermediate tail gearbox and a supercritical tail driveshaft system.

The S-92 fuselage (less probes) is 98 inches longer than that of the Black Hawk, and features a cabin interior 79 inches wide, 72 inches high, and 20 feet long. A rear ramp, based on that of the Sikorsky CH-53, will accommodate palletized loads; in a bulk cargo version, the S-92 could carry three LD-3-sized containers.

**Avionics.** The aircraft's avionics feature an open architecture to accommodate MIL-STD 1553 and Arinc 429 interfaces. Four liquid crystal displays (LCDs), provided by Lockheed Sanders and derived

from units developed for the C-130J transport, are installed in the cockpit, with room for an optional fifth. All avionics equipment is accommodated in a removable rack behind the pilot. In a new design departure, the systems' wire bundles pass through conduits attached to aircraft frames, instead of being passed through frame holes.

*International Partnership*

Sikorsky's S-92 partners are Mitsubishi of Japan, which has a 7.5 percent program share and supplies the cabin structure; the Taiwan Industries consortium, which has a 6.5 percent share and is responsible for the two-crew cockpit; China's Jingdezhen Helicopter Group, which has a 2 percent stake and covers the horizontal stabilizer and vertical tail pylon; Gamesa of Spain, which has a 7 percent share and is responsible for the cabin interior, aft transmission section, and main rotor pylon; and Brazil's Embraer, which has a 4 percent share and provides the fuel system.

Aside from developing the dynamic systems, Sikorsky handles assembly, flight-test, and certification chores. The team has signed aboard the following suppliers and subcontractors: Lucas Aerospace (flexible drive couplings); Endevco (HUMS accelerometers); Dunlop Aviation (engine intake assembly); BAE Systems (SCR500-120 cockpit voice recorder); Martin-Baker (crashworthy crew/passenger seats); and Messier-Bugatti (wheels, steel brakes).

## Sikorsky S-92

***H-92 Engine Upgrade***

In June 2003, Sikorsky entered an agreement with GE whereby the latter will supply uprated CT7-8C engines for the H-92. The -8C offers about 25 percent more power than the baseline CT7.

***Canadian Award***

In July 2004, the H-92 won the \$2.4 billion competition to provide 28 maritime helicopters for the Canadian armed forces. The U.S. manufacturer defeated a bid from AgustaWestland, which had proposed a version of its three-engine EH101. That aircraft won the original competition in 1993 but the contract was canceled following a change in government in Ottawa.

Sikorsky was to have delivered the first of the S-92 variants in 2008, with all 28 to be handed over by 2011. The program has been delayed since then with little explanation by either Sikorsky or the Canadian government. In May 2009, the Canadian government released a new schedule under which the Canadian military would get 5-19 "interim aircraft" that do not meet full contract specifications, starting in November 2010, to allow the Canadians to begin operational testing and training. Aircraft that meet full contract specifications will not arrive under the new plan until the summer of 2012. The interim aircraft will then be upgraded to contract standard. The first Canadian H-92, designated the "CH-148 Cyclone" in Canadian service, made its maiden flight in November 2008.

***Sikorsky/Boeing Link***

Sikorsky and Boeing Air Force Systems announced at the 2005 Paris Air Show that they had reached a preliminary agreement to team up on the former's H-92 proposal for the U.S. Air Force's 146-unit CSAR-X requirement. Boeing will handle the mission systems integration portion of the work. The pair competed against rival bids based on AgustaWestland's AW101 and Boeing's H-47 Chinook helicopter. The U.S. Air Force selected the H-47-based bid initially, but a subsequent protest by the losing bidders was later upheld by the U.S. Government Accountability Office (GAO). The competition has since been reopened.

***Cougar S-92 Crash***

An S-92 operated by Cougar Helicopters crashed off the coast of Newfoundland on March 12, 2009, killing 15 of the 16 people aboard. Although the cause of the crash is still under investigation, investigators at Canada's Transportation Safety Board (TSB) focused on the main gearbox after finding that at least one of the aircraft's titanium oil-bowl filter assembly mounting studs had broken before the crash. Just before the aircraft went down, one pilot reported "zero" oil pressure in the main gearbox. The FAA quickly issued an emergency air worthiness directive that the titanium mounting studs be replaced with steel studs. The TSB had not yet issued a final report on the accident at time of writing.

## Related News

**'Team Germany' Offering Cyclone Helicopter for German Navy and Air Force** – Sikorsky recently announced its German Multi-Role Helicopter Team (GMRHT) that will bid the H-92 for the requirements of the German Navy and Air Force. In June 2010, Sikorsky finalized partnership agreements with the European defense companies Rheinmetall Defence Group, RUAG, MTU Aero Engines (MTU), and ZFL. (Sikorsky, 7/10)

**Sikorsky Announces New Upgrades for S-92** – Sikorsky announced new upgrades to the S-92 in February 2010 that include improvements to the rotor deicing system, an enhanced active vibration control system, cockpit noise reduction, a lower-maintenance two-piece oil filter bowl assembly, metal-chip detectors, and an improved air stair door with weight increase. Newly available capability enhancements include a search-and-rescue automatic flight control system that allows pre-programmed coupled approach, a load-sensing cargo hook that automatically updates weight and balance readings, and an Automatic Dependent Surveillance-Broadcast (ADS-B) capability for Gulf of Mexico region operators. Sikorsky also announced plans to introduce a strengthened main transmission housing that has been developed for the H-92. The new housing is designed to reduce unscheduled maintenance by eliminating such possibilities as the foot-mount cracks recently experienced by some operators. (Sikorsky, 6/09)

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## Sikorsky S-92

## Funding

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Estimated S-92 development cost is \$600 million, including \$100 million for General Electric to develop T700 growth engines.

## Contracts/Orders & Options

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(As of August 2010)

Operator	Designation	Quantity	Phase
Canada CS	H-92	28	On Order
Ireland Government	S-92	5	On Order
Saudi Arabia Government	S-92	14	On Order
Thailand Air Force	S-92	3	On Order

## Timetable

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<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Late	1990	S-92 design initiated
Mar	1992	Full-scale civil mockup displayed
Apr	1992	Full-scale military mockup displayed
Dec	1992	Marketing studies completed
Late	1994	Risk-reduction studies completed
Jun	1995	S-92 formally launched
Dec	1998	Prototype first flight
	2000	Redesign (including larger cargo door, stretched fuselage)
Dec	2002	S-92 FAA VFR certification
Mar	2004	Initial S-92 deliveries
Jul	2004	H-92 wins Canada's Maritime Helicopter competition
Late	2010	Scheduled first delivery of H-92 to Canada

## Worldwide Distribution/Inventories

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(As of August 2010)

Operator	Designation	Quantity
Bahrain Royal Flight	S-92	1
Korea Republic of (South) Air Force	S-92	3
Kuwait Air Force	S-92	3
Saudi Arabia Government	S-92	2
Turkey Government	S-92	1
Turkmenistan Government	S-92	2

## Forecast Rationale

Demand for the Sikorsky Global Helicopters S-92 comes primarily from the offshore oil and gas support market and from search-and-rescue (SAR) operators. The aircraft also competes well in the market for high-end VIP transports. The oil and gas market is the most critical segment for the S-92. Around 65 percent of S-92 operators are working to support offshore energy activities, meaning that annual production levels of the large, twin-engine helicopter are dependent on the price of energy. As long as energy prices remain at their current level, demand from operators should remain firm even in the current period of anemic economic growth in North America and Europe.

Over the long term, the limited size of the offshore oil and gas support market will limit sales of helicopters in the S-92's class. There has been a growing need for helicopters capable of carrying passengers and equipment farther offshore, and fleet size has grown from around 140-150 aircraft in the 1990s to just over 200 in 2009. If the fleet stabilizes at 210-220 aircraft, the average annual production level to replace the oldest models in the fleet will likely total around 15-25 machines, a market that the S-92 will have to split with its primary rival, the Eurocopter EC 225. In addition, the AgustaWestland AW139 has made major inroads into the market as a smaller competitor able to tackle some of the missions that were once largely the responsibility of larger helicopters.

Sikorsky reported that 2009 was a good year at the company, but it did not announce many new orders for the S-92. PHI Inc, a major operator in the offshore oil and gas support market, took delivery of five new S-92s during the year, adding to the 11 aircraft in its fleet. It reported in corporate filings with the Securities and Exchange Commission that it had seen a mild drop in medium helicopter activity on the U.S. continental shelf. This indicates that while the offshore oil and gas support market remained relatively strong during the recession and compared to the light helicopter segment, it is not booming as it was several years ago. We expect to see lower demand in the near term for the S-92 as a result. Our forecast calls for lowered deliveries as the existing backlog shrinks without being replenished.

The SAR market provides other opportunities, but competitions for SAR aircraft in this class have often been few and far between. The first of four S-92s to be dedicated to the SAR mission was delivered to CHC in 2007 for use under a five-year contract, signed in July 2007, between CHC and the U.K.'s Maritime and Coastguard Agency (MCGA). The U.K. Defense Ministry and the MCGA are planning to continue with this privatization of services with a new program, the

SAR-H program. It has selected the Soteria consortium as its preferred bidder. Soteria is led by CHC Helicopter Corp and includes Thales UK and the Royal Bank of Scotland. Soteria is expected to order 24-36 helicopters for the SAR-H program when a deal is signed.

The Japanese National Police Agency has also selected the S-92 for the SAR mission, but it will also use its aircraft for special police operations.

The SAR market is likely to be an important component of future S-92 orders, but, as with the offshore support market, one that the S-92 will have to share with the EC 225/EC 725. Taiwan, for example, selected the EC 725 for the SAR mission in early 2010.

The VIP market has also accounted for a significant number of S-92 deliveries over the years. The biggest prize in this market is the Pentagon's reconstituted VXX presidential helicopter program. Sikorsky has teamed up with Lockheed Martin to offer the S-92 for the program. Boeing is expected to also compete with a bid based on the AgustaWestland AW101, which won the first competition the last time the Navy tried to supply the White House with a new helicopter transport.

Other recent military/government orders include one by the Saudi Arabian Ministry of the Interior for 16 S-92s announced in November 2007. Sikorsky delivered the first of these aircraft in 2008. Also, the Royal Thai Air Force ordered three S-92s for the VIP role in December 2007. The Kuwaiti Air Force has also ordered three S-92s for use as VIP transports. Meanwhile, the Indian Air Force considered the S-92 to fill a requirement for 12 VIP and transport helicopters, but it later selected the competing AW101 because the IAF preferred a three-engine helicopter to add a margin of safety when the helicopters are used in mountainous regions of the country.

Sikorsky announced new upgrades to the S-92 in February 2010 that include a search-and-rescue automatic flight control system that allows pre-programmed coupled approach, a load-sensing cargo hook that automatically updates weight and balance readings, an Automatic Dependent Surveillance-Broadcast (ADS-B) capability for Gulf of Mexico region operators, and a strengthened main transmission housing designed to eliminate foot-mount cracks experienced by some operators. None of these enhancements is a game changer, but an ongoing process of upgrading the S-92 indicates the importance Sikorsky places on the program and the level of competition the company senses from the EC 225 in its core markets.

## Sikorsky S-92

Besides the civil-oriented S-92, Sikorsky also offers a military version with more powerful engines designated the H-92. The launch customer for the H-92 is the Canadian government, which signed a contract in 2004 for 28 aircraft to fill its Maritime Helicopter Project requirement. Sikorsky teamed up with General Dynamics Canada and L-3 MAS Canada to develop, certify and field the Canadians' "Cyclone." General Dynamics Canada is handling systems integration, while L-3 MAS is responsible for long-term in-service support of the Cyclone for the Canadian Forces.

The effort to deliver the Cyclone helicopters to the Canadian military has been delayed repeatedly. Delivery of the aircraft was once scheduled to take place in early 2009, but it now looks as though the first aircraft will not arrive until late 2010. A new deal announced in July 2010 will allow Sikorsky to deliver the first six machines in an interim configuration using a preliminary version of the aircraft's mission software. In return, the parties have readjusted the commercial terms of the deal to compensate Canada for the delay. Delivering these first six aircraft, which do not meet contract specifications, will allow the Canadian Forces to begin operational testing and training with the H-92. Delivery of the first aircraft that fully meet contract requirements is scheduled for 2012.

The preliminary version of the mission software allows most of the H-92's sensors and weapons to be used, but the integration of all the pieces needs to be completed. Other restrictions on the interim aircraft include a flight endurance limit of 21 minutes, the inability to exchange tactical data, and the inability to operate on one engine at high-density altitudes.

Elsewhere, Sikorsky announced plans in July 2010 to offer the H-92 to fill German Air Force and Navy requirements for CSAR and maritime helicopters,

respectively. Sikorsky is partnering with European defense companies Rheinmetall Defence Group, RUAG, MTU Aero Engines (MTU), and ZFL in pursuit of the German contracts. The German Air Force requirement is for up to 19 aircraft. The German Navy needs 30. The Luftwaffe needs helicopters with a high level of self-protection capability and that are capable of in-flight refueling and all-weather performance. They also must be capable of networked avionics and have the ability to handle satellite communications. The Luftwaffe issued a Request for Proposals in July 2010 covering eight helicopters and 11 options. The proposed schedule calls for the first four helicopters to be delivered in 2014.

The Indian government, meanwhile, issued a tender in September 2008 for a new program to acquire 16 multirole naval helicopters. The program could eventually lead to procurement of 60 machines.

Poland is another potential customer. Senior government officials announced in July 2010 that the government had a requirement for 26 new medium helicopters for use by the country's special forces, the Army, and the Navy. Competitors for the contract will likely include the S-92 and S-70i Black Hawk from Sikorsky and the NHIndustries NH90.

The H-92 was also a contender in the U.S. Air Force's Combat Search and Rescue (CSAR-X) competition, in which the service intended to acquire 141 new platforms to replace its HH-60 Pave Hawks from about 2008. The Air Force selected a variant of Boeing's CH-47 Chinook for the role over both the S-92 and the AW101, but protests by the losing bidders were later upheld by the Government Accountability Office (GAO). Since then, the USAF has decided to recapitalize the CSAR fleet with new HH-60s instead of moving to a larger helicopter like the S-92 and its competitors.

## Ten-Year Outlook

ESTIMATED CALENDAR YEAR CIVIL UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			
	Thru 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
<b>Sikorsky Aircraft Corp</b>												
<b>S-92 &lt;-&gt; CT7 -8 A</b>												
	122	22	17	15	16	16	18	18	20	24	24	190
<b>Total</b>	122	22	17	15	16	16	18	18	20	24	24	190
ESTIMATED CALENDAR YEAR MILITARY UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			
	Thru 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
<b>H-92 &lt;-&gt; CT7 -8 C</b>												
	3	2	1	8	8	6	8	7	9	9	10	68
<b>Subtotal</b>	3	2	1	8	8	6	8	7	9	9	10	68
<b>Total</b>	3	2	1	8	8	6	8	7	9	9	10	68



# FORECAST INTERNATIONAL

## ORDER FORM FOR PROPER SHIPPING, PLEASE PROVIDE ALL OF THE FOLLOWING INFORMATION.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Street Address \_\_\_\_\_

City \_\_\_\_\_ State/Prov. \_\_\_\_\_ Country \_\_\_\_\_ Zip \_\_\_\_\_




Phone \_\_\_\_\_ Fax \_\_\_\_\_

E-Mail \_\_\_\_\_

Cardholder Name \_\_\_\_\_

Card# \_\_\_\_\_ Exp. \_\_\_\_\_ csc# \_\_\_\_\_

Billing Address (if different from above) \_\_\_\_\_

- Check Enclosed
- Bill Company  
(Purchase Order # and Signature Required)
- Quotation Requested
- VISA   MasterCard 
- American Express 

Name of Product/Service	Code	E-Mail Address	Qty.	Price

Please include your e-mail address to receive twice-weekly E-Market Alert Newsletters.



Subtotal \_\_\_\_\_  
 Shipping \_\_\_\_\_  
 In Connecticut add 6% sales tax \_\_\_\_\_  
 Grand Total \_\_\_\_\_

### SHIPPING AND HANDLING RATES

	U.S.	World		U.S.	World		U.S.	World
<b>Market Intelligence Services</b>			<b>Market Intelligence Libraries</b>			<b>Governments &amp; Industries</b>		
Binder	\$45	\$85	<b>Complete Library</b>			Binder	\$540	\$1,020
DVD	\$50	\$95	(Civil/Commercial & Military)			DVD	\$50	\$95
Binder & DVD	\$95	\$180	Binder	\$1,575	\$2,975	<b>International Military Markets</b>		
Binder & RT	\$45	\$85	DVD	\$50	\$95	(A Subset of G&I above)		
<b>Worldwide Inventories</b>			<b>Military Market Library</b>			Binder	\$270	\$510
<b>Aerospace Systems</b>			Binder	\$1,440	\$2,720	DVD	\$50	\$95
CD	\$50	\$95	DVD	\$50	\$95	<b>Naval</b>		
<b>Weapons Systems</b>			<b>Civil/Commercial Library</b>			Binder	\$90	\$170
Hard Copy	\$45	\$85	Binder	\$360	\$680	DVD	\$50	\$95
CD	\$50	\$95	DVD	\$50	\$95	<b>Power</b>		
<b>Power Systems</b>			<b>Market Intelligence Group Libraries</b>			Binder	\$90	\$170
Hard Copy	\$45	\$85	<b>Aerospace</b>			DVD	\$50	\$95
<b>Focused Market Segment Analyses</b>			Binder	\$360	\$680	<b>Weapons</b>		
Hard Copy	\$25	\$45	DVD	\$50	\$95	Binder	\$180	\$340
			<b>Electronics</b>			DVD	\$50	\$95
			Binder	\$360	\$680	NOTE: No charge for Real-Time format.		
			DVD	\$50	\$95	<b>2011 Historic Art Calendar</b>		
						\$5.95	\$12.95	

NOTE: ORDERS CAN TAKE UP TO 5 BUSINESS DAYS TO SHIP.

# WORLDWIDE SALES OFFICES

## HEADQUARTERS USA

### FORECAST INTERNATIONAL INC.

22 Commerce Road, Newtown, CT 06470 USA  
Phone: 203.426.0800 Fax: 203.426.1964

### SALES/CUSTOMER SERVICE/MARKETING

Phone: 203.270.0633 Worldwide  
Toll-Free: 800.451.4975 U.S. & Canada  
Fax: 203.426.0223

E-Mail: sales@forecast1.com

E-Mail: info@forecast1.com

E-Mail: customerservice@forecast1.com

### PROPRIETARY RESEARCH & CONSULTING

Phone: 203.426.0299 Fax: 203.426.1964  
E-Mail: consulting@forecast1.com

### EDITORIAL

Phone: 203.270.0111 Fax: 203.426.4262  
E-Mail: queries@forecast1.com

### TECHNICAL SUPPORT

Phone: 203.270.0629 Fax: 203.426.0223  
E-Mail: support@forecast1.com

### WEBSITE ADDRESSES

www.forecastinternational.com  
www.fiplatinum.com

## HEADQUARTERS EUROPE

### (INCLUDING RUSSIA)

### HAWK ASSOCIATES LTD.

#### UNITED KINGDOM

Templehurst House  
New Street, Chipping Norton  
Oxon, OX7 5LJ, U.K.  
Phone: (44) 1608 643281  
Fax: (44) 1608 641159  
E-Mail: support@hawkinformation.com  
Website: www.hawkinformation.com  
Contact: Mr. Michael Hobbs

### HAWK ASSOCIATES LTD.

#### FRANCE

6 Rue de Levis, Paris 75017 FRANCE  
Phone: (33) 1 4294 0693 Fax: (33) 1 4294 0433  
E-Mail: france@hawkinformation.com  
Contact: Mr. Edward Hobbs

## CHINA AND SOUTHEAST ASIA

### CHINA NATIONAL PUBLICATIONS

#### I & E GROUP CORPORATION

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Chaoyang Beijing 100020 CHINA  
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Fax: (86) 10 6586 6970  
E-Mail: xiaoxiao0640@hotmail.com  
Contact: Mr. Xiaoxiao Zhang

## JAPAN

### AVIATION RESEARCH INSTITUTE

1-427-2 Takano  
Misato City Saitama Pref  
Tokyo 341-0035 JAPAN  
Phone: (81) 489 71 5040  
Fax: (81) 489 55 7151  
E-Mail: max@arijapan.com  
Website: www.arijapan.com/forecast  
Contact: Mr. Kenichi Oyama

## REPUBLIC OF KOREA

### PAMANONG TRADING COMPANY

275-2 Yangjae Dong  
Seocho-Gu Seoul 137-722 KOREA  
Phone: (82) 2 572 4349 or (82) 2 572 4371  
Fax: (82) 2 572 4370  
E-Mail: nhk@forecast1.com  
Website: www.forecast1.co.kr  
Contact: Ms. Nam Hee Kim

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