

ARCHIVED REPORT

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Kawasaki OH-1

Outlook

- The Japanese Ministry of Defense procured the last OH-1 in FY10
- Export of the OH-1 is prohibited by Japanese law forbidding export of military hardware

Orientation

Description. Advanced, tandem-seat, twin-engine armed scout helicopter.

Total Produced. Four prototypes and approximately 34 production aircraft built through 2012.

Sponsor. Japan Ministry of Defense (formerly Japan Defense Agency); Japan Ground Self-Defense Force.

Application. Armed scout, light observation, armed escort.

Status. Production terminated.

Price Range. Estimated at \$24.3 million.

Contractors

Prime

Kawasaki Heavy Industries Ltd (KHI)	http://www.khi.co.jp , 1-14-5 Kaigan, Minato-ku, Tokyo, 105-8315 Japan, Tel: + 81 3 3435 2111, Fax: + 81 3 3436 3037, Prime
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Subcontractor

Mitsubishi Heavy Industries Ltd (MHI)	http://www.mhi.co.jp/en/ , 16-5 Konan 2-chome, Minato-ku, Tokyo, 108-8215 Japan, Tel: + 81 3 6716 3111, Fax: + 81 3 6716 5800 (TS1-10 Turboshaft Engine)
NEC Corp	http://www.nec.co.jp , 7-1, Shiba 5-chome, Minato-Ku, Tokyo, 108-8001 Japan, Tel: + 81 03 3454 1111, Email: webmaster@nec.co.jp (Laser Rangefinder)
Shimadzu Precision Instruments Inc	3111 Lomita Blvd, Torrance, CA 90505 United States, Tel: + 1 (310) 517-9910, Fax: + 1 (310) 517-9848 (Head-Up Display)

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Kawasaki OH-1

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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

Design Features. A narrow (1-m-wide) fuselage fitted with mini stub wings and non-retractable tailwheel-type undercarriage. Seats two in tandem. Composite, hingeless, rigid rotor hub; ducted or shrouded tail rotor with eight asymmetrically spaced blades for reduced noise and vibration resonance.

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Length	12.0 m	39.3 ft
Height	3.8 m	12.5 ft
Main rotor diameter	11.6 m	38 ft
Weight		
Max TOW	4,000 kg	8,818 lb
Empty weight	2,450 kg	5,401 lb
Performance		
Max level speed	277 kmph	150 kt
Combat radius	200 km	108 nm

Propulsion

OH-1 (2) Mitsubishi Heavy Industries-designed TS1-M-10 turboshaft engines rated at approximately 629 kW (844 shp) each and equipped with FADEC. Kawasaki and Ishikawajima-Harima are subcontractors.

Variants/Upgrades

AH-2. Proposed attack helicopter derivative that would have featured updated engines and unspecified armament capabilities. Rejected in favor of Boeing AH-64 Apache acquisition.

Program Review

Background. In 1989, the Japan Defense Agency (JDA) proposed launching development of an advanced, twin-turbine-powered armed scout helicopter to replace that nation's fleet of McDonnell Douglas Helicopter / Kawasaki OH-6D Cayuse rotorcraft operated by the Japan Ground Self-Defense Force (JGSDF). Development formally began in 1992 with funding of \$29.3 million.

Mitsubishi. Japanese industry has the capability to produce an entire aircraft with all components, including hydraulics, actuators, engines, gearboxes, pneumatics, electronics, and undercarriage.

National Capability

Japan has been producing Western-designed helicopters for over 20 years. These include the McDonnell Douglas Helicopter OH-6 by Kawasaki; the AH-1 and Model 204/205 (HU-1H) by Fuji Heavy Industries; the BK 117, a joint venture of Kawasaki and Eurocopter; the Boeing Helicopter CH-47J by Kawasaki; and Sikorsky S-61/H-3 and SH-60 helicopters by

Kawasaki OH-1

OH-1 Design

The JGSDF originally planned to order as many as 250 OH-X helicopters. These helicopters, later redesignated OH-1, are tandem-seat, twin-engine aircraft. The OH-1 features laser rangefinding, a forward-looking infrared (FLIR) system, and target sighting by television. It is armed with lightweight air-to-air missiles.

In 1991, Kawasaki was chosen by the JDA's Technical Research and Development Institute (TRDI) as prime contractor for OH-X development. A formal contract was awarded in 1992. Kawasaki is responsible for 50 percent of the airframe, and it also coordinates

development of the rotor system. Mitsubishi and Fuji manufacture the remaining airframe parts. The first prototype was rolled out in early 1996 and flew in August of that year. Three additional flying prototypes took to the air by early 1997. The prototype aircraft were later converted to production standards and delivered to the Japanese military under new serial numbers.

Mitsubishi was the prime contractor for the OH-1's engine, Kawasaki was responsible for the engine's combustion chamber and electronic control system, and Ishikawajima-Harima developed the power turbine.

Funding

The JDA received approximately \$965 million for OH-X development over the period FY92-FY96.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Jun	1989	JDA announces intention to develop OH-X
Oct	1992	OH-X development launched
Aug	1996	First prototype flight
Spring	1997	First prototype delivered to Japan Defense Agency
Jan	2000	First production-standard aircraft delivered

Worldwide Distribution/Inventories

(as of June 2013)

Operator	Designation	Quantity
Japan Army	OH-1	34

Forecast Rationale

Japan's Ground Self-Defense Force once planned to buy enough Kawasaki OH-1s to replace the over 140 OH-6 Cayuse scout helicopters in its inventory, but in recent years, the Japanese government has provided only enough funds to buy a couple of airframes annually. At that rate of procurement, replacing the OH-6 with new OH-1s would have taken decades.

The Japanese Ministry of Defense funded procurement of four OH-1s in its FY10 budget, but did not procure

any OH-1s in FY11-FY13. While it is possible that the Japanese government will change course and order more OH-1s, the forecast assumes termination of the program.

Japanese law prevents the OH-1 from being exported, so there is no chance of additional production for the international market.

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