Leonardo Lynx

Outlook

- Leonardo has suspended production of the Lynx
- A new order for the Lynx Wildcat remains possible but is unlikely

Orientation

Description. Single-rotor, twin-engine, multirole military helicopter.

Sponsor. U.K. Ministry of Defence.

Status. Production suspended.

Total Produced. Through 2022, AgustaWestland produced approximately three prototypes and an estimated 72 production AW159 Lynx Wildcats. The company and its corporate predecessor, Westland Helicopters Ltd, produced approximately 455 earlier Lynx variants.

Application. Military uses include anti-submarine warfare (ASW), patrol, utility, and transport roles.

Price Range. AW159 Lynx Wildcat estimated at $33.4 million.

Leonardo Lynx

AW159 Lynx Wildcat

Source: Leonardo

Contractors

Prime

Leonardo Helicopters, Yeovil	http://www.leonardo.com, Lysander Rd, Yeovil, Somerset, United Kingdom, Tel: + 44 1935 475222, Fax: + 44 1935 702132, Prime

Subcontractor

Collins Aerospace Systems	http://www.collinsaerospace.com, Four Coliseum Centre, 2730 W Tyvola Rd, Charlotte, NC 28217-4578 United States, Tel: + 1 (704) 423-7000, Fax: + 1 (704) 423-7002 (Landing Gear)
Collins Aerospace Systems, Interiors, Lighting Systems	http://www.collinsaerospace.com, Bertramstrasse 8, Lippstadt, Germany, Tel: + 49 2941 767 60, Fax: + 49 2941 767 6 8432 (Interior & Exterior Lighting Equipment)
Collins Aerospace Systems, Power & Controls	http://www.collinsaerospace.com, One Hamilton Rd, Windsor Locks, CT 06096-1000 United States, Tel: + 1 (860) 654-6000, Fax: + 1 (860) 353-5805 (Engine-Mounted Electronic Fuel Controller)
GE Aviation Systems, Avionic	http://www.geaviation.com/systems/avionics, 3290 Patterson Ave, Grand Rapids, MI 49512-1991 United States, Tel: + 1 (616) 241-7000, Fax: + 1 (616) 241-7533 (Integrated Cockpit Display System; Health & Usage Monitoring System/Cockpit Voice and Flight Data Recorder)
GKN Aerospace	http://www.gknaerospace.com, 2nd Fl, One Central Blvd, Blythe Valley Park, Shirley, Solihull, United Kingdom, Tel: + 44 121 210 9800 (Lynx Wildcat Airframe)
L3Harris - Wescam	http://www.l3harris.com, 649 N Service Rd W, West Burlington, Ontario, Canada, Tel: + 1 (905) 633-4000, Fax: + 1 (905) 633-4100 (MX-15D Electro-Optical and Infrared Turret)
Leonardo Airborne & Space Systems	http://www.uk.leonardocompany.com, Sigma House, Christopher Martin Rd, Basildon, Essex, United Kingdom, Tel: + 44 1268 823 400, Fax: + 44 1268 883 140 (HIDAS 15 Integrated Defensive Aids System; Seaspray 7400E Radar)

Light Helicopter Turbine Engine Co (LHTEC)	450 South Meridian St, Indianapolis, IN 46221 United States, Tel: + 1 (256) 461-6009, Fax: + 1 (256) 461-6979 (CTS800 Turboshaft)
Martin-Baker Aircraft Co Ltd	http://www.martin-baker.com, Higher Denham, Buckinghamshire, United Kingdom, Tel: + 44 1895 832214, Fax: + 44 1895 832587, Email: information@martin-baker.co.uk (Passenger Seats)
Meggitt Aircraft Braking Systems	http://www.meggitt-mabs.com, Holbrook Ln, Coventry, United Kingdom, Tel: + 44 2476 66 6655, Fax: + 44 2476 66 2294 (Tire; Brake System; Electronic Anti-Icing System; Engine-Intake De-Icing System; Rotor Brake)
Northrop Grumman Italia SpA	http://www.northropgrumman.it, Via Pontina, Km 27800, Pomezia, Italy, Tel: + 39 06 911 91, Email: marketing@northropgrumman.it (AHRS)
Safran Landing Systems, Toronto facility	http://www.safran-landing-systems.com, 574 Monarch Ave, Ajax, Ontario, Canada, Tel: + 1 (905) 683-3100, Fax: + 1 (905) 686-2914 (Transmission Monitor)

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 75 Glen Road, Suite 302, Sandy Hook, CT 06482, USA; rich.pettibone@forecast1.com

Technical Data

(AW159 Lynx Wildcat)

	Metric	U.S.
External Dimensions		
Length (rotors turning)	15.24 m	50 ft
Fuselage length	12.7 m	41.7 ft
Height overall	3.73 m	12.3 ft
Main rotor diameter	12.8 m	42 ft
Internal Dimensions		
Length from back of pilots' seats	2.1 m	6.8 ft
Width	1.78 m	5.8 ft
Height	1.42 m	4.7 ft
Weight		
Maximum gross weight	6,050 kg	13,338 lb
Performance (Battlefield Lynx)		
Max cruise speed	264 kmph	143 kt
Max range (no reserves)	490 km	265 nm
Hover into ground effect ceiling	2,347 m	7,700 ft
Hover out of ground effect ceiling	1,487 m	4,880 ft
Max endurance with internal fuel	2.7 hr	2.7 hr

Propulsion

AW159 (2) LHTEC CTS800-4N advanced turboshaft engines each rated 1,014 kW (1,361 shp) takeoff power and 955 kW (1,280 shp) max continuous power.

Capacity

Seating for two pilots, plus six passengers in crashworthy seats.

Leonardo Lynx

Variants/Upgrades

AH.Mk 1. Initial version ordered by the British Army to replace Westland Scouts in armed reconnaissance, tactical transport, and medevac roles. Armed with eight TOW anti-tank missiles, with eight additional rounds carried in the cabin, and either a 20mm cannon or 7.62mm Minigun. Total of 114 delivered through February 1984.

HAS.Mk 2. Shipboard variant ordered by Britain's Royal Navy primarily for anti-ship and anti-submarine duties. Fitted with the Ferranti Seaspray radar and armed with the Sea Skua air-to-surface missile. Some aircraft equipped with MAD gear. Total of 63 delivered to the Royal Navy and 26 exported to the French Navy.

HAS.Mk 3. Designation of 23 aircraft, powered by uprated GEM-41-1s, ordered by Royal Navy and delivered between 1982 and 1985. Eight more were ordered and delivered in 1987-1988.

Mk 4. The French Navy ordered a second batch of 14 naval versions with more advanced target detection systems than carried by the British model, and operated these aircraft primarily in ASW roles. These were fully IFR-equipped and, in place of Seaspray radar, fitted with an OMERA-SEGID system, plus dipping sonar supplied by CIT-Alcatel. Armed with Aerospatiale AS.12 air-to-surface missiles. Deliveries 1982-1983.

AH.Mk 5. The British Army ordered nine of these in 1983. The Mk 5 is similar to the earlier Mk 1 but features GEM-41-1 powerplants. All were delivered in 1985.

AH.Mk 7. Similar to the AH.Mk 5 but has generally improved systems and a reversed-direction tail rotor of composite blade construction. The British Army ordered five units and converted eight from the earlier AH.Mk 5 contract. Two subsequently canceled. All 11 delivered by July 1987. Upgraded to Mk 9 standard in the early 1990s.

HAS.Mk 8. Further uprated version for the Royal Navy, similar to the Super Lynx offered to export customers. New equipment results in gross weight of 4,876 kilograms (10,750 lb). Uses GEM-41-2 engines and an improved transmission with a three-pinion main gearbox. Seven units ordered by the Royal Navy in 1985, including three converted Mk 3s. First converted Mk 3 flew in 1987 and completed its test program in 1990. In February 1992, Westland received a contract for the upgrade of 65 Mk 3s to the Mk 8 standard.

AH.Mk 9. In 1987, Britain's MoD placed a 16-unit order for Mk 7s for the light battlefield mission but later changed the order to the new Mk 9 variant. It featured updated avionics and com/nav systems. Deliveries began in 1991.

Britain later converted some existing Mk 9 airframes to the Mk 9A standard, which involved installation of more powerful LHTEC CTS800-4N engines, to improve the aircraft's performance in the hot and high conditions found in Afghanistan. The program converted 22 aircraft during 2009-2011.

Mk 88. ASW aircraft for use by the German Navy. Generally similar to the HAS.Mk 2 models but fitted with upgraded GEM-41-2 engines. The Mk 88 also featured a non-folding tail section and Bendix ASQ-18 sonar. A total of 19 delivered from 1984 to 1989.

Mk 90. Improved version for the Royal Danish Navy. First flown in 1987, converted from an ex-Argentinean Mk 87.

Super Lynx. Export equivalent of the HAS.Mk 8 with higher mission and takeoff weights and all-weather operation. An initial batch of 12 was sold to the Republic of Korea Navy; these are known as Mk 99s.

Super Lynx Series 200. Announced in 1996, offered with the LHTEC CTS800 engine with dual full-channel Full Authority Digital Engine Control (FADEC) electronic power systems and a conventional cockpit.

Super Lynx Series 300. Also announced in 1996, fitted with the CTS800 engine and a full glass cockpit with six liquid crystal displays (LCDs) and digital core avionics.

AW159 Lynx Wildcat. AgustaWestland's proposal for the British Army's original Battlefield Light Utility Helicopter (BLUH) requirement, essentially a replacement for the service's current Lynxes. The BLUH has since been merged with the Royal Navy's Surface Combatant Maritime Rotorcraft requirement to form the Land and Maritime Attack requirement.

The AW159 features a new airframe, Symetrics Industries IDM-501 digital communications, CTS800-4N engines, and a new glass cockpit mated with some dynamic components of the current Lynxes to offer capabilities similar to those of the Super Lynx 300.

W30. Medium helicopter developed from the Lynx design, mating a Lynx powertrain with a new, considerably larger fuselage. The W30 prototype flew in 1979, and production machines were directed at both civil and military markets. The civil version seated 17 in airline configuration, and the military transport carried 14 fully equipped troops. Westland built a total of only 41 W30s, including all variants.

Program Review

Background. The Lynx was originally designed by Westland and Aerospatiale to carry 10 combat-equipped troops and a crew of two, and it was the first British-built aircraft designed entirely on a metric basis. The first of 13 prototypes flew in March 1971, but the first production-standard unit did not fly until February 1977.

Design Features. The Lynx uses semi-rigid, four-blade main and tail rotors. Both the naval and utility variants feature folding main rotor blades, and the tail rotor pylon of the naval version can also be manually folded and spread to facilitate shipboard storage. The naval version is capable of main rotor negative pitch for negative thrust, providing an extra measure of stability on a ship's deck after touchdown.

Export Market. The majority of Lynx export sales have been of naval variants. Customers include Algeria, Brazil, Denmark, France, Germany, Malaysia, the Netherlands, Nigeria, Norway, Oman, Pakistan, the Philippines, Portugal, South Africa, South Korea, and Thailand.

Finmeccanica (now Leonardo) reported in a corporate filing in 2012 that "a key customer in the southern Mediterranean area" had placed a new order for six Super Lynx 300s. Media reports indicated that the customer was the Algerian Navy, an existing user of the Lynx. Deliveries are thought to have begun in 2015.

AW159. AgustaWestland, now known as Leonardo Helicopters, developed the AW159 Lynx Wildcat (formerly known as the Future Lynx) for a joint British Army/Royal Navy requirement. The aircraft mates some of the current dynamic system components of the Super Lynx with a new airframe and engines (see **Variants/Upgrades** for additional details).

Three flight prototypes were built under an initial development contract – two configured in the Army's Battlefield Reconnaissance Helicopter (BRH) standard and one configured as a Navy Surface Combat Maritime Reconnaissance (SCMR) helicopter. The three prototypes will not see active service.

The U.K. Ministry of Defence initially ordered 70 AW159s in June 2006 for $1.75 billion, including 40 BRHs for the British Army and 30 maritime variants for the Royal Navy. A subsequent wave of cost cutting in autumn 2008 saw the order reduced to 62 units, 34 for the Army and 28 for the Navy.

The MoD later, in November 2011, announced a plan to create a Light Assault Helicopter variant. Under the plan, the MoD would order eight LAH variants by increasing the Army requirement by four aircraft and converting four existing orders for BRH aircraft to the LAH model, giving the service a total of 38 Wildcats. There has been no further word on the plan, which presumably has been shelved.

In February 2018, Leonardo revealed a new stub wing capable of carrying weapons on the Royal Navy's AW159s. The wings will be able to carry Venom missiles, Stingray lightweight torpedoes, and the Mk 11 depth charge, among other weapons.

AW159 Export Orders

South Korea ordered eight AW159s in January 2013. Leonardo completed delivery of the last of these aircraft in November 2016.

In March 2016, the Philippines ordered two AW159s. Leonardo delivered the aircraft in May 2019.

Leonardo Lynx

Worldwide Distribution/Inventories

Military (as of March 2022)

Operator	Designation	Quantity
Algeria Navy	Super Lynx Series 300	9
Brazil Navy	Lynx HAS.Mk 21A	13
Germany Navy	Sea Lynx	22
Malaysia Navy	Super Lynx Series 300	6
Norway Air Force	Lynx Mk 86	6
Oman Air Force	Super Lynx Series 300	16
Philippines Navy	AW159 Lynx Wildcat	2
Portugal Navy	Super Lynx Mk 95/95A	5
South Africa Navy	Super Lynx Series 300	4
South Korea Navy	AW159 Lynx Wildcat	8
South Korea Navy	Super Lynx Mk 99	24
Thailand Navy	Super Lynx Series 300	2
United Kingdom Army	AW159 Lynx Wildcat	34
United Kingdom Navy	AW159 Lynx Wildcat HMA Mk 2	28

Forecast Rationale

Leonardo delivered two AW159s to the Philippines in May 2019, leaving the manufacturer without any orders in the backlog. Production of new aircraft has been suspended, and the company will focus on upgrades and maintenance of the existing worldwide fleet of Lynx family helicopters as it looks for new orders.

South Korea, which has already taken delivery of eight AW159s, will acquire 12 anti-submarine warfare helicopters in the near term. The AW159 competed against the Sikorsky MH-60R Seahawk and NH Industries NH90 for the contract, but the order went to Sikorsky.

The Malaysian Navy is also interested in purchasing new ASW helicopters, to operate with its new corvettes designed by French maritime firm Naval Group (formerly known as DCNS). Leonardo signed a teaming agreement in April 2016 with Malaysia's Weststar Defence Industries to promote the AW159 in the country, but a deal failed to materialize in later years.

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