



## The Finnish Air Force



*Hawk 66*



*Hawk 51*

## BAE Systems Hawk

The BAE Systems Hawk is a British single-engined two-seat advanced jet trainer. The Finnish Air Force's Hawks bear the military designation HW and are operated by Fighter Squadron 41 of the the Air Force Academy, primarily in advanced and tactical training roles.

In the Hawk, a cadet pursuing a fighter pilot's career gets his or her first taste of jet flying after having learnt basic flying skills at the controls of a piston-engined aircraft. The first (advanced) Hawk training phase, designated HW 1, starts during the second year of cadets' studies in the National Defence University and consists of Hawk type rating, navigation, instrument flying, aerobatics, formation flying, and night flying.

The next (lead-in) phase, known as HW 2, focuses on tactical training and consists of basic air-to-air and air-to-ground work before students progress to the more demanding Hornet multi-role fighter.

The Hawk can also carry air sampling pods that were used extensively during the volcanic ash crisis in the spring of 2010. The Hawk has limited engagement capability against attack aircraft, helicopters and other equivalent targets under favorable conditions.

The Hawk is also flown by the Air Force's official display team the Midnight Hawks, in which case the team's four aircraft are fitted with smoke generators for enhanced visual effect. Team pilots are flight instructors. During the 2017 display season six aircraft used by the team received a special blue-and-white livery in celebration of the 100<sup>th</sup> anniversary of Finland's independence.



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### History and development

The Hawk took to the air in 1974 as the response of the Hawker Siddeley company – which subsequently merged with the British Aerospace Group, which still later became the present BAE Systems – to a Royal Air Force specification for a jet trainer with a weapons-carrying capability.

The Finnish Air Force became the first export customer of the type when it placed an order for fifty Hawk 51s in 1977. The Hawk entered Finnish service in 1980 and replaced the Fouga Magister advanced jet trainer and MiG-15UTI lead-in trainer. Four British-built aircraft were followed by 46 examples assembled by Valmet in Finland.

In 1993, the Air Force ordered an additional batch of seven Hawk 51As, which contained minor differences in structure and avionics compared with the Hawk 51. The hard-flown Hawks were subjected to an extensive structural reinforcement program that was completed in Finland during the late 1990s.

Finland augmented its Hawk fleet in 2007 by sourcing 18 low-hour Hawk 66s from Switzerland. They entered service after modification and upgrade work in 2011–2013.

The former Swiss Hawks stand out from the gray legacy Hawks owing to their red-and-white paint scheme. However, from 2017 to 2020 the Mk 66 aircraft will receive a grey livery similar to older model aircraft. The Hawk 66s underwent a number of modifications to achieve compatibility with earlier aircraft and ensure adequate cockpit communality from the pilot's viewpoint.

The Hawks are scheduled to remain in service until the 2030s or beyond. From 2019 onward, the Air Force will have a fleet of 31 Hawks with upgraded cockpits. The upgrades, carried out by Patria, make the Hawk an updated and effective training platform. The cockpit upgrade program included the replacement of analog cockpit instruments with modern displays, which narrows the gap between the instrument layout of the Hawk and Hornet.

In the first phase, all 18 Hawk 66s, seven 51As and a single 51 received the cockpit modification. A further seven Hawk 51s, currently in long-term storage, are slated for modification in 2016–2018 to replace two Hawk 66s lost in an accident.

In 2018 the Hawk Mk 66 aircraft will be upgraded with the Hawk Link system designed by Patria Aviation based on the Finnish Air Force Requirements. It enables the transfer of location data between Mk 66 aircraft via an airborne radio data network. The information can be displayed on the Hawk Multi-Function Display and



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Head-Up Displays. The goal of the upgrade is simulate the situational awareness picture provided by the sensors of a state of the art multi-role fighter thus offering the Hawk students a realistic view of the modern-day air combat environment.

The Hawk is in service with the armed forces of 18 nations. The total number of airframes from the production line and on order is nearing the 1,000-aircraft mark.

### Technical data (51 and 51A / 66)

**Wing span:** 9.39 m

**Length:** 11.90 m / 11.85 m

**Height:** 3.99 m / 4.00 m

**Empty weight:** 3,810 kg / 3,635 kg

**Maximum operating weight:** 7,350 kg / 7,347 kg

**Structure:** All-metal

**Power plant:** one Rolls-Royce Turboméca Adour 851/861 bypass engine rated at 2,360 kp (23.10 kN) / 2,587 kp (25.35 kN) thrust

**Maximum speed:** 1,038 km/h / 1,013 km/h at low altitude

**Ceiling:** 14,500 m

**Armament:** 30 mm Aden gun in underfuselage pod, maximum of 2 infra-red missiles on wing pylons

**Systems and equipment:** drop tanks, air sampling pods or smoke generators on wing pylons. In upgraded aircraft, head-up display and liquid crystal displays with moving map. Digital mission planning and debriefing system.

**Number in service:** From 2019 onward, 31 upgraded aircraft (8 Hawk 51s, 7 Hawk 51As, and 16 Hawk 66s)

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