The Boeing AH-64 Apache is an American twin-turboshaft attack helicopter with a tailwheel-type landing gear arrangement and a tandem cockpit for a crew of two. It features a nose-mounted sensor suite for target acquisition and night vision systems. It is armed with a 30 mm (1.18 in) M230 chain gun carried between the main landing gear, under the aircraft's forward fuselage, and four hardpoints mounted on stub-wing pylons for carrying armament and stores, typically a mixture of AGM-114 Hellfire missiles and Hydra 70 rocket pods. The AH-64 has a large amount of systems redundancy to improve combat survivability. The Apache originally started as the Model 77 developed by Hughes Helicopters for the United States Army's Advanced Attack Helicopter program to replace the AH-1 Cobra. The prototype YAH-64 was first flown on 30 September 1975. The U.S. Army selected the YAH-64 over the Bell YAH-63 in 1976, and later approved full production in 1982. After purchasing Hughes Helicopters in 1984, McDonnell Douglas continued AH-64 production and development. The helicopter was introduced to U.S. Army service in April 1986. The first production AH-64D Apache Longbow, an upgraded Apache variant, was delivered to the Army in March 1997. Production has been continued by Boeing Defense, Space & Security, with over 2,000 AH-64s being produced by 2013.[3]The U.S. Army is the primary operator of the AH-64; it has also become the primary attack helicopter of multiple nations, including Greece, Japan, Israel, the Netherlands, Singapore, and the United Arab Emirates; as well as being produced under license in the United Kingdom as the AgustaWestland Apache. American AH-64s have served in conflicts in Panama, the Persian Gulf, Kosovo, Afghanistan, and Iraq. Israel used the Apache in its military conflicts in Lebanon and the Gaza Strip; British and Dutch Apaches have seen deployments in wars in Afghanistan and Iraq.



The AH-64 Apache has a four-blade main rotor and a four-blade tail rotor.[42] The crew sits in tandem, with the pilot sitting behind and above the co-pilot/gunner.[43] Both crew members are capable of flying the aircraft and performing methods of weapon engagements independently.[44] The AH-64 is powered by two General Electric T700 turboshaft engines with high-mounted exhausts on either side of the fuselage.[45][46] Various models of engines have been used on the Apache; those in British service use engines from Rolls-Royce. In 2004, General Electric Aviation began producing more powerful T700-GE-701D engines, rated at 2,000 shp (1,500 kW) for AH-64Ds.[47] The crew compartment has shielding between the cockpits, such that at least one crew member can survive hits. The compartment and the rotor blades are designed to sustain a hit from 23 mm (0.91 in) rounds. The airframe includes some 2,500 lb (1,100 kg) of protection and has a self-sealing fuel system to protect against ballistic projectiles.[48] The aircraft was designed to meet the crashworthiness requirements of MIL-STD-1290,[49] which specifies minimum requirement for crash impact energy attenuation to minimize crew injuries and fatalities. This was achieved through incorporation of increased structural strength, crashworthy landing gear, seats and fuel system. On a standard day where temperatures are 59 °F (15 °C), the AH-64 has a vertical rate of climb of 1,775 feet per minute (541 m/min), and a service ceiling of 21,000 feet (6,400 m).[50]