

= AgustaWestland Apache =

The AgustaWestland Apache is a licence @-@ built version of the AH @-@ 64D Apache Longbow attack helicopter for the British Army 's Army Air Corps . The first eight helicopters were built by Boeing ; the remaining 59 were assembled by Westland Helicopters (now part of Leonardo @-@ Finmeccanica) at Yeovil , Somerset in England from Boeing @-@ supplied kits . Changes from the AH @-@ 64D include Rolls @-@ Royce Turbomeca engines , a new electronic defensive aids suite and a folding blade mechanism allowing the British version to operate from ships . The helicopter was initially designated WAH @-@ 64 by Westland Helicopters and was later designated Apache AH Mk 1 (often shortened to Apache AH1) by the Ministry of Defence .

The Apache was a valued form of close air support in the conflict in Afghanistan , being deployed to the region in 2006 . The Apache has been an object of controversy over the fitting of some munitions , such as cluster bombs and thermobaric weapons . Naval trials and temporary deployments at sea have proven the aircraft as an able platform to operate from the decks of ships , which is a unique application of the Apache amongst its operators . British Apaches served in the NATO 2011 military intervention in Libya operating from Royal Navy ships .

= = Development = =

The requirement for a new attack helicopter was identified by the British government in the early 1990s . In 1993 , invitations to bid were issued . Bids received included the Eurocopter Tiger , a modernised Bell AH @-@ 1 SuperCobra , the AH @-@ 64 Apache , the Boeing / Sikorsky RAH @-@ 66 Comanche , and the Agusta A129 Mangusta . Both the Tiger and Cobra variant were derided for requiring development , and thus risk , while the Apache was combat proven , however its performance in the First Gulf War was criticised by competitors . Westland and the Apache was selected in July 1995 , a contract for 67 helicopters was signed in 1996 .

In September 1998 , Westland produced the first prototype WAH @-@ 64 Apache under licence from Boeing . The first nine Apache AH1s were authorised for service by the director of British Army Aviation on 16 January 2001 . The 67th and final Apache was handed over to the British Army in July 2004 . The helicopter fleet 's cost was around £ 3 @. @ 1 billion , with a total acquisition cost of £ 4 @. @ 1 billion . Reliability had been questioned by US Apache operations , the entire fleet in the Balkans had been grounded due to serious tail rotor failures in 1999 . In 1998 , the Longbow radar 's development ran into problems regarding its weight , impact upon overall agility , and data transfer abilities . These problems with key aircraft components , and fleet 's high cost , led to calls for its cancellation in 1999 .

When the requirement for the Apache had been formalised in the early 1990s , military doctrine assumed that a large conventional armoured assault from the Eastern Bloc was Britain 's main threat . Following the collapse and break @-@ up of the Soviet Union , the concepts of flexibility and rapid response took precedence . The UK 's Strategic Defence Review called for Apaches to undertake amphibious attack missions , operating from the helicopter carrier HMS Ocean , the Invincible class aircraft carriers and their successors , the Queen Elizabeth class aircraft carriers , and possibly the amphibious assault vessels HMS Bulwark and Albion . Each squadron equipped with the Apache should have eight operational aircraft .

The Westland Apache experienced delays in entering service due to complications with the modifications made for British service . Prior entering service in 2004 , several development problems were noted , including a lack of the ability to securely communicate with other helicopters and a risk of damage to the tail rotor and airframe from firing its Hellfire missiles . The problem with using the Hellfire was debris generated by the firing of missiles , both the Hellfire and CRV7 rockets , could strike the body of the aircraft and cause damage ; resolving this issue created a delay to training programmes . These problems were corrected prior to entering service , a secure communications suite was installed and Hellfire missiles are routinely fired by Apaches . In 2002 , government sources stated that full operational capability was set to be achieved by 2010 .

In 2005 , an out @-@ of @-@ service date for the Apache was forecast at 2030 , but the Army is

looking at a capability sustainment programme (CSP) that will extend their life to 2040 . It was thought that updates would be necessary by 2017 because the US Army is to withdraw support for the AH @-@ 64D Block I on which the British Apaches are based , but US budget problems pushed this back to 2019 or 2020 . A decision will be taken in 2014 on the extent to which Britain will adopt the Block III upgrades of the AH @-@ 64E - the options range from abandoning the capability altogether to buying brand new Block III helicopters but Boeing believe it is most likely that Britain will remanufacture , putting the existing engines and avionics into new airframes .

In August 2015 , the UK requested through a Foreign Military Sale , the upgrade of 50 of its Apaches to AH @-@ 64E standard . In July 2016 , the UK placed an order for 50 AH @-@ 64Es through the US Foreign Military Sales (FMS) programme instead of upgrading their AgustaWestland @-@ built AH @-@ 64s . Leonardo Helicopters (formerly AgustaWestland) will continue to lead the support the existing Apache AH1s until they are retired from service in 2023 ? 24 .

= = Design = =

Several deviations were made to the standard Apache design used by the US and those exported to other countries . One major difference is the use of a pair of Rolls @-@ Royce Turbomeca RTM322 01 / 12 engines , replacing the original General Electric T700 @-@ GE @-@ 701C engines . The Rolls @-@ Royce engine produces 1 @,@ 565 kW (2 @,@ 100 hp) vs. 1 @,@ 410 kW (1 @,@ 890 hp) for the GE T700C engine . Compared to many helicopters used by coalition forces in Afghanistan , the Apache required less modification to serve in the region due to special filters incorporated into the design . Another change is the folding blade mechanism to stow the helicopters in confined spaces ; the rotor blades also have anti @-@ ice protection to allow operations in Arctic environments .

There were changes made to the sensor and avionics outfitting the craft as well ; connectivity with the BOWMAN secure communications system to interact with other British military units being a significant one . The Selex ES (formerly BAE Systems Avionics) Helicopter Integrated Defensive Aids System (HIDAS) was also fitted . The HIDAS system was retrofitted onto the aircraft in mid @-@ 2004 just prior to entering service , along with several redesigned composite bodywork components . An eye @-@ safe training laser to allow the Apache to function as a target designator was also installed .

Instead of the American Hydra 70 rocket pods , the Westland Apache can carry up to 76 CRV7 rockets . The CRV7 uses a modular warhead : " a high explosive , semi @-@ armour piercing warhead for attacks on unarmoured targets and a kinetic energy penetrator , which contains no explosive , for attacks on armoured targets " . There used to be a third type of warhead : the Multi @-@ Purpose Sub Munition (MPSM) , which was a controversial weapon as it has been classified as a cluster bomb ; each rocket contained nine M73 submunitions . In May 2008 , several senior officers , such as General David Ramsbotham spoke out against British plans to keep the weapon . In the same month , Britain , as one of the 111 participating nations , agreed to ban cluster bombs on humanitarian grounds . Britain destroyed the last of its CRV7 MPSMs in July 2009 .

Like the US AH @-@ 64D Apache Longbow , the Apache AH1 carries a fire @-@ control radar (FCR) and Radar Frequency Interferometer (RFI) , providing an integrated surveillance and attack system . The ' Longbow ? radar is the bulbous unit over the rotor hub assembly ; radar placement above the rotors allows the Apache to hover behind cover scanning for targets , with only the radar unit exposed . Additionally , the Longbow radar can monitor traffic in the Apache 's airspace . The radar can also be used for surveillance and terrain profiling . A modem is interfaced into the Longbow radar and other sensor systems to relay information to other aircraft , this allows other Apaches to fire on targets identified by only a single helicopter .

AgustaWestland have since made several upgrades to Britain 's Apache fleet . In May 2005 , a \$ 212 million contract was awarded to equip all 67 Mk1 helicopters with the Apache Arrowhead sensor system upgrade , to be completed by 2010 . In 2009 , it was announced that AgustaWestland was also integrating new external fuel tanks with ballistic protection . Some of the internal fuel tanks can

be removed , Apaches in Afghanistan may have these removed to allow for extra ammunition for the cannon to be fitted . It has been suggested that advanced rotor blades and additional controls to improve the agility of the aircraft may be fitted in a mid @-@ life update of the fleet . There is also a proposal to upgrade WAH @-@ 64s to the AH @-@ 64E Guardian standard .

= = Operational history = =

= = = Overview = = =

In May 2005 , the first Apache @-@ equipped regiment achieved operational status . The Westland Apache has replaced the Westland Lynx AH7 as the British Army 's tactical attack helicopter . The Apache is currently operated by two regiments of the Army Air Corps (3 Regt AAC and 4 Regt AAC) as part of 16 (Air Assault) Brigade . The Apache is intended to operate in the armed reconnaissance and attack roles , similar to the US usage of Apaches during the 1991 Gulf War . Unlike US versions , the Westland Apache has been partially navalised and now serves aboard Royal Navy ships in addition to its land @-@ based role . It achieved maritime certification in December 2005 aboard HMS Ocean . On 17 November 2006 , HMS Ark Royal became the first aircraft carrier to land an Apache AH1 .

They first appeared in combat as part of Operation Herrick in Afghanistan in May 2006 . In August 2006 , the intense usage of Apaches in Afghanistan led to British commanders admitting that weapons and spare parts were being used at a far greater rate , and subsequently a greater cost , than anticipated . On 11 November 2007 , it was reported that half of the Apache gunships in British service had been grounded as they had fallen below the level considered " fit for purpose " , along with several other British Helicopters such as the Chinook and Merlin HC3 . By November 2008 , the situation had further declined , out of 67 aircraft only 20 were available for combat operations . In 2009 , AgustaWestland was awarded a contract for support services for the Apache and many components such as the Longbow radar ; in the following months senior officers noted that the support change had resulted in higher availability . In June 2011 , civilian maintainers of the Apache at Wattisham Airfield threatened industrial action over a pay dispute .

In October 2008 it was announced that Prince Harry had begun the process of qualifying to become an Apache pilot . In May 2010 , the terrorist organisation Al Qaeda threatened to abduct the prince if he piloted an Apache in Afghanistan . In April 2011 , Prince Harry was promoted to captain following his completion of Apache conversion training . In June 2011 , sections of the media reported that Prince Harry was to deploy to Afghanistan as an Apache pilot in 2012 . He subsequently deployed to Afghanistan as part of 662 Squadron in September 2012 .

= = = Afghanistan = = =

The Apache 's first operational tour was as part of 16 Air Assault Brigade in Afghanistan ; there were eight Apache AH1s deployed in Afghanistan in February 2007 . These were drawn from No. 656 Squadron and No. 664 Squadron of 9 Regiment AAC , based at Dishforth Airfield . Unlike their American counterparts in Afghanistan , the Apache AH1 is deployed with its Longbow Fire Control Radar to enable the pilot to better manage traffic in their airspace . Initially pilots had to often fly for 16 ? 18 hours at a time due to the low number of Apaches in the theatre ; typically each Apache would be stationed in Afghanistan for eight weeks before returning to Britain for roughly eight weeks of maintenance . On 22 May 2006 , a UK Apache operating in Afghanistan 's Helmand province used a Hellfire missile to destroy an abandoned French vehicle to protect sensitive equipment .

The Apache quickly became a highly valued tool against insurgents , able to escort ground and air forces and rapidly respond to Taliban forces on the ground . Major Huw Williams , second in command of 3rd Battalion , The Parachute Regiment , stated that : " We 're really impressed [with the Apache] . It 's a very effective beast . " It has been noted that Taliban forces refer to the aircraft as the " Mosquito " .

On 13 January 2007 , a 200 @-@ strong British force , led by Royal Marines , launched an operation to attack Jugroom Fort , a major Taliban base in southern Helmand Province . After several hours of intense fighting , the Marines regrouped and it was discovered that Lance Corporal Mathew Ford of 45 Commando Royal Marines was missing . A rescue mission was launched using four volunteers , Royal Marines and a Royal Engineer , strapped to the stub @-@ wings of two Apaches . The helicopters could not travel above 50 mph to ensure the safety of the extra passengers from rotor downwash . The Apaches landed under fire inside the compound , after which the rescuers dismounted and recovered the body of LCpl Ford . Ford 's body was flown out in the same manner that the soldiers arrived . Other Apaches hovered above , providing suppressive fire throughout . None of the rescuers were injured in the recovery mission and they were later hailed for their bravery .

In May and June 2008 , British and Afghan National Army forces conducted Operation Eagle 's Eye , aimed at disrupting Taliban activities to the south of Musa Qaleh ; a key portion of which was a major night @-@ time helicopter raid , rapidly deploying members of 2nd Battalion , Parachute Regiment into the town . In June 2008 , a British Apache fired a thermobaric Hellfire missile ; the controversial usage of such weapons was approved after extensive legal and ethical evaluations within the MoD . In June 2008 , a Taliban leader and several cell members were killed in Helmand Province by a Hellfire missile launched by an Apache of the 664 Army Air Corps . There was a friendly fire incident in July 2008 , in which an Apache fired upon a position thought to be held by enemy forces , but instead hit members of a British patrol . This was the first time that a British aircraft had been involved in a blue @-@ on @-@ blue incident in Afghanistan . Although the Apaches have become targets for insurgents , as of November 2008 no British Apaches have been lost to enemy fire . In September 2008 , an Apache was seriously damaged by a crash shortly after takeoff in Helmand province , no loss of life occurred but the airframe was written off .

In early to mid @-@ 2009 , several narcotics and bomb @-@ making facilities were raided by British forces , supported by Apaches . In April 2009 , it was reported that an Apache had been used to intercept a suicide bombing attack in Helmand province . During the Summer of 2009 , British Apaches were an integral component of Operation Panther 's Claw , which was aimed at pushing insurgents out of civilian areas in the runup to the 2009 Afghan Elections . During this major offensive , Apaches from the UK routinely flew alongside US Cobra helicopters to provide air support to soldiers of 3rd Battalion Black Watch and the Royal Marines conducting ground operations . During the Summer 2009 operations , a senior Taliban leader , Mullah Mansur , and several accomplices were killed in a precision strike launched by an Apache .

On 13 October 2010 , newspapers reported that Army Air Corps maintenance workers had accidentally sent a live CRV7 missile in regular mail from Camp Bastion to the UK , a mistake which inspections had missed four times ; when the missile was discovered it sparked an evacuation , the MoD later changed procedure in regards to the incident . On 25 July 2011 , the MoD announced that during a combat operation in the Nahr @-@ e @-@ Saraj district of Helmand province , several Afghan children had been injured from crossfire by an Apache ; they were flown to Camp Bastion for medical treatment .

From 2006 to April 2014 , British Apache helicopters flew 50 @,@ 000 hours in Afghanistan , representing one @-@ third of all UK Apache flying .

= = = Naval operations and Libya = = =

In May 2011 , the MoD announced that the Apache fleet had reached 100 @,@ 000 hours flying time , and describing it as a " vital battlefield tool in Afghanistan " . The Apache was also recognised as having established a " limited maritime strike capability " and were deploying on vessels such as HMS Ocean . On 17 May 2011 , the Apache tested its Hellfire missiles against sea targets for the first time , 9 missiles were fired with a 100 % success rate . Media speculation suggested that the speed on trialling and establishing an Apache maritime presence is due to the withdrawal of the British Aerospace Harrier II , as a stopgap replacement .

On 27 May 2011 , military officials announced that Apaches would be deployed as part of Operation

Elamy , the ongoing military intervention in Libya . The helicopters operated from the flight deck of HMS Ocean in conjunction with French Eurocopter Tiger helicopters over Misrata . The Apaches were also to assist in Operation Unified Protector , the enforcement of an embargo and no-fly zone upon Libya . On 14 June 2011 , reports of British preparation to evacuate Yemen emerged , involving Apache and Merlin helicopters operating from Royal Fleet Auxiliary vessels off the coast .

On 4 June 2011 , Apaches struck targets within Libya for the first time , destroying a radar site and an armed checkpoint near the town of Brega . Further precision strikes were launched by Apaches , typical targets were mobile air defenses , and were occasionally engaged by AK-47 fire from ground troops . In early June , Apaches conducted attacks on Gaddafi loyalists assaulting the town of Misrata . On 13 June , British Apaches destroyed several inflatable boats with 30 mm cannon fire , believed to be Libyan Special Forces , before engaging and destroying multiple vehicles along the coastline , including an anti-aircraft system . On 25 June , in coordination with RAF Panavia Tornado strikes , Apaches attacked loyalist infantry and vehicles around Brega and its airfield . On 1 July , British Apaches were reportedly involved in a ' fierce ' battle at the town of Khoms . On 2 July , Apaches destroyed several tanks and a bunker at a military camp near Zawiya . On 5 August , Apaches participated in the rebel push for the town of Zliten was reported .

By 21 June 2011 , the Libyan government had dubiously claimed to have successfully shot down dozens of aircraft , including five Apaches ; NATO denied these claims and no Apache losses have been acknowledged to date . On 8 July 2011 , the MoD released information on the first month of Apache combat operations over Libya ; noting that Apaches had engaged targets within Libya on 39 occasions . Apache operations over Libya have been heavily influenced and supported by NATO reconnaissance flights and intelligence missions ; information is continually relayed to update target information , assess the threat of Surface to Air missiles (SAM) , and the presence of civilians , enabling real time changes to mission profiles . On 6 August , Apaches struck a military communications facility and troops at Al Watiyah . Both the Apache and the Eurofighter Typhoon were withdrawn from Libyan operations in September 2011 as operational demands decreased .

= = Operators = =

United Kingdom

British Army Air Corps

No. 653 Squadron AAC

No. 662 Squadron AAC

No. 663 Squadron AAC - to be operational Conversion Squadron from 2015

No. 654 Squadron AAC (former operator)

No. 656 Squadron AAC

No. 664 Squadron AAC

No. 668 Squadron AAC - Training Squadron

No. 673 Squadron AAC- Training Squadron

= = Specifications (Apache AH1) = =

Data from AgustaWestland page Jane 's Air Forces , British Army

General characteristics

Crew : 2

Length : 17 @ 7 m (58 ft 4 in with rotors turning)

Rotor diameter : 14 @ 6 m (48 ft)

Height : 3 @ 87 m (12 ft 8 in)

Disc area : 168 @ 11 m² (1 @ 809 @ 5 ft²)

Empty weight : 5 @ 165 kg (11 @ 387 lb)

Loaded weight : 8 @ 006 kg (17 @ 650 lb)

Max takeoff weight : 9 @ 525 kg (21 @ 000 lb)

Powerplant : 2 × Rolls @-@ Royce / Turbomeca RTM322 turboshaft , 1 @ 693 kW (2 @ 270

hp) each

Performance

Never exceed speed : 365 km / h (197 knots , 227 mph)

Maximum speed : 293 km / h (158 knots , 182 mph)

Cruise speed : 259 km / h (140 knots , 161 mph)

Range : 537 km (290 nmi , 334 mi)

Ferry range : 1 @, @ 700 km (974 nmi , 1 @, @ 121 mi)

Service ceiling : 6 @, @ 400 m (21 @, @ 000 ft)

Rate of climb : 12 @. @ 7 m / s (2 @, @ 500 ft / min)

Armament

Guns : M230 Chain Gun , 1200 rounds

Missiles : Hellfire (and Stinger , Starstreak , Sidewinder / Sidearm , Brimstone proposed)

Rockets : CRV7 with Flechette (Tungsten dart) or High @-@ Explosive Incendiary Semi @-@

Armour Piercing (HEISAP) warheads . Until 2008 also MPSM with nine M @-@ 73 bomblets .