



Harrier: battleworthy for the next generation

The GR9 upgrade programme has nearly completed allowing the Harrier fleet to move to a single standard of software. The next phase is all set to begin. In this feature, MOD DCB finds out more.



RAF Cottesmore Harriers take off from Kandahar

The Harrier has proved its worth in combat situations from the Falklands to Afghanistan and is now undergoing extensive upgrades to keep it battleworthy into the next decade.

The final Harrier GR7 airframe entered the upgrade programme last March and the force moved to an all GR9/GR9A in-service fleet (the 'A' denotes the aircraft is fitted with the more powerful Pegasus Mk107 engine). The penultimate phase of the GR9 programme is now nearing completion, with delivery of the upgrades to Capability E(A) standard right across the Harrier fleet.

Upgrade includes revised software to allow training missions to be flown without the need to carry a captive training round, since the aircraft's own software is now able to emulate the weapon system; full control over the Digital Joint Reconnaissance Pod using the aircraft software and Hampa mission planning suite; and embodiment of Saturn secure communications into the aircraft.

Alongside the Capability E(A) release, the Sniper targeting pod was also cleared for operations aboard carriers HMS Illustrious and HMS Ark Royal. The upgrade has been well received by the front line and has allowed the Harrier fleet to move to a single standard of software.

DE&S' Harrier team is now working on future enhancements to improve the capability of the aircraft, with delivery of Capability E(B) in September 2011 as the final phase of the GR9 upgrade programme.

Capability E(B) will provide network-enabled capability through twin secure communications with Link 16 and Variable Message Format (VMF) datalink, that allow closer working with UK allies. Harrier is the first UK fast jet to fly with both these components and also integrates the Air Force Application Program Development (AFAPD) message formats. The E(B) programme also addresses obsolescence in the aircraft video recording and data entry systems.

The programme is currently undergoing trials at BAE Systems Warton, where the Harrier GR9 made its first test flight with the Tactical Information Exchange Capability (TIEC). TIEC has been integrated onto Harrier under a contract awarded to BAE Systems in 2007.

TIEC will enable Harrier GR9 pilots to join the digital battlefield, meaning they will be able to communicate in near real time with other friendly forces, getting intelligence on the position of all friendly and hostile forces and passing on their own information to other participating units.

The TIEC programme will provide the UK Joint Force Commander with an enhanced capability for Harrier GR9s and Tornado GR4s. Work is also underway to integrate Spear, a development of the dual-mode Brimstone missile and part of the next generation of air-launched smart weapons onto the Harrier for 2012. Capability E ensures the Harrier's relevance to its planned end of service and guarantees its ability to take part in national or coalition operations.

"This capability upgrade maintains the relevance of Harrier to beyond its current out-of-service-date"

Angus Currie, BAE Systems' Business Director Harrier, said: "This is a big step forward in capability for Harrier and is critical for RAF operations. In an emerging era of network-enabled capability, it is essential for the UK's frontline combat aircraft to exploit the information provided by new, resilient, high-capability information infrastructures of which Tactical Data Link networks, accessed through TIEC, form a key part."

Development flying of TIEC on Harrier will continue this year leading to design authority clearance in mid-2011 and delivery of an operational capability later next year.

Captain Paul Hammond, Leader of DE&S' Harrier team, added: "This capability upgrade maintains the relevance of Harrier to beyond its current



Harrier at sea

out-of-service-date and ensures our capacity to participate in small-scale focused intervention operations."

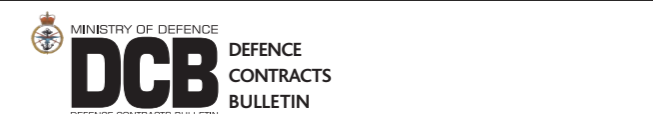
Tried... and severely tested

Ordered to Afghanistan as the only combat jet able to operate from austere landing sites, Harrier completed an uninterrupted five-year deployment in theatre, during the longest period of high-tempo sustained operations since the Second World War.

During this time, the Harrier proved itself extremely reliable and effective, with Joint Force Harrier accomplishing 8557 operational sorties, 22,772 flying hours and a technical serviceability rate of more than 99 per cent. Its current support arrangements are proving cost-effective and flexible in the face of changes to the fleet.

With these upgrades, the Harrier will retain its place as a significant, flexible and unique contribution to national power projection, being the only UK fast jet able to operate from a carrier or from a short or no runway.

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