



Advanced UAV extends Royal Navy's air defence training capabilities

Success of carrier demonstration paves the way for complex and realistic training exercises during deployment

Executive summary

The Royal Navy has capitalised on the versatility and payload carrying capabilities of QinetiQ's uncrewed Banshee Jet 80+ to deliver effective threat representation for complex training and evaluation exercises, including multiple UAVs operating simultaneously.

The successful trial from the deck of the Prince of Wales aircraft carrier was part of the Royal Navy's Future Maritime Aviation Force demonstrator, and has proven the feasibility of advanced air defence training exercises for both F-35 Lightning aircraft and ships within a deployed task group anywhere in the world. To accelerate the programme, the operational advantages of the MOD Hebrides range, through QinetiQ's Long

Term Partnering Agreement (LTPA) with the MOD, enabled the programme to be delivered within a very challenging timeframe with minimum disruption to the carrier's operational commitments.

The brief

QinetiQ was chosen because of the company's specialist expertise in ship-air integration and the high level of versatility, resilience and proven performance of its Banshee range of UAVs. The Royal Navy was keen to deliver a 'proof of concept' trial for delivering a complex and high speed fixed-wing UAV from a Royal Navy platform to increase the scope for advanced training exercises while on deployment. The use of such advanced drones is essential for helping the Carrier strike Group to improve their defensive

capabilities as the size of the Banshee is representative of an incoming missile or attacking aircraft on radar systems.

There were two main objectives. Firstly, to use the Banshee Jet 80+ to provide representative and realistic threat profiles and, secondly, to demonstrate the teaming capability for dual flight UAV operations. Key to the success for such a trial was compliance with all the safety and operational requirements for using high speed uncrewed aircraft and to ensure cost-efficiencies for the trial itself as well as fitting in the commitments of the Prince of Wales carrier.



Our solution

The Banshee has evolved to become a highly versatile payload carrying drone with a proven legacy of resilience and high speed capabilities. With twin 45kg thrust gas turbine engines giving a total of 90kg of static thrust, the Banshee Jet 80+ provides the opportunity to run drills by emulating cruise missiles and enemy fast jets which may be faced on any mission. It can operate at 25,000ft, or just above the waterline, and fly at speeds of up to 200 metres/second with endurance exceeding 40 minutes. Target performance and enhancement is easily varied using a range of plug-in modules.

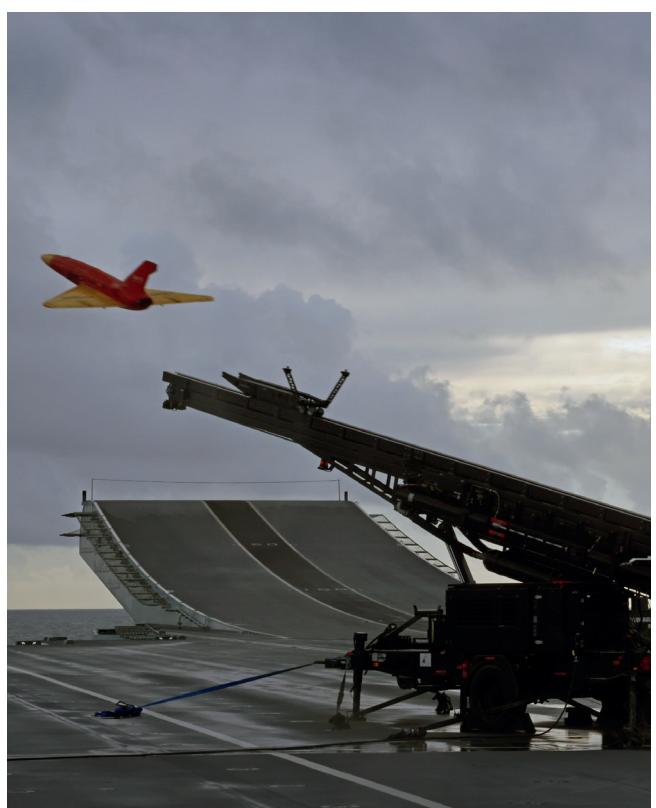
In view of the challenging timeframe for delivering the trial, QinetiQ opted to make use of the MOD Hebrides range through the Long Term Partnering Agreement (LTPA). This enabled the trial programme to be accelerated without any compromise to operational objectives or safety compliance, as the Banshee was already cleared for use in the area. It also took advantage of the proximity of the Prince of Wales carrier during its involvement on the UK-led multinational Joint Warrior exercise. The QinetiQ team completed all preparations within the tight schedule, including all specific UK airspace clearances for drone flights from the carrier.

A two-day window was agreed for the trial to allow for potential disruption from inclement weather and the QinetiQ team joined the carrier 2 days prior to the exercise to finalise the preparations. Once the pneumatic launcher had been set up and tested on the carrier's huge flight deck, two sorties were conducted with the Banshee Jet 80+. Following the success of the first sortie, the second featured a dual flight with two drones flying in tandem to demonstrate and prove teaming capability from the carrier.

As a result of the exhaustive planning and preparations – and obliging weather conditions - the trial was completed successfully on the first of the allocated two days, enabling the Prince of Wales and its crew to return to the Joint Warrior exercise, with minimal disruption to the platform's operational commitments.

Outcomes and benefits

HMS Prince of Wales is the first Royal Navy Aircraft Carrier to deploy high performance uncrewed aircraft for demonstration purposes, as she moves towards becoming fully operational. The trial using QinetiQ's Banshee Jet 80+ forms part of a series of demonstrations that will help to define Royal Navy aviation in the years ahead through the Future Maritime Aviation Force. It took full advantage of QinetiQ's specialist expertise in crewless technologies, the versatility of the Banshee and the resources available through the LTPA with the MOD.



Providing a realistic adversary for personnel to train against is not new. However, having such capabilities while on deployment is quite another matter. The exercise showed how the Banshee Jet 80+ and its support equipment and sub-systems can be operated within a busy ship, the procedures for moving and setting up the drone and launcher on the carrier's flight deck and the training required for such uncrewed capabilities.

The trial provided an effective demonstration of the feasibility and potential for using such advanced drone technology for a wide range of on-demand air defence training exercises and for testing future sensors, weaponry and communication systems of a carrier task force while on deployment around the globe. It also demonstrated compliance with stringent cost-efficiency and interoperability requirements.

The QinetiQ team fulfilled all objectives of the exercise, and the smooth delivery of the trial and the results achieved have attracted widespread praise.



“ This demonstration marked a crucial step in the Royal Navy’s future maritime aviation roadmap and its ability to train anywhere in the world with uncrewed assets. The partnership with QinetiQ has proven invaluable in our ability to support our training needs. ”

Phil Kelly, Senior Responsible Owner for the RN’s Future Maritime Aviation Force.

“ There is a real need for a low-cost drone such as the Banshee that can replicate a range of the threats in the skies and provide a test bed for future payloads. The key to this is that a warship can carry, launch and use this drone while on operations to keep personnel razor-sharp in countering threats from above. The ability to adapt the payload for differing tasks is also crucial to provide value for money and interoperability across the fleet. ”

Commander Rob Taylor, Lead for Royal Navy Air Test and Evaluation.

The success of the trial has prompted the Royal Navy to consider further training exercises with autonomous air vehicles featuring an increase in the amount and complexity of flying operations.

QinetiQ is always on your side, protecting, improving and advancing your vital interests

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