Aircraft RN11 nears completion. Deliveries by GKN Westland are ramping up to one a month

In its other primary role, the Merlin will offer a major anti-surface warfare (ASuW) capability through its surface surveillance and over-the-horizon targeting capabilities. Prime above-water sensors are the Marconi Avionics Blue Kestrel 5000 multi-mode radar and the Racal Orange reaper electronic support measures outfit.

Because the Merlin will not be equipped (initially, at least) with an anti-ship weapon, co-operation with the Lynx HMA Mk8 will be particularly important in ASuW tasks. Operating the two aircraft together will allow full advantage to be taken of the Lynx's Sea Owl passive identification device and Sea Skua anti-ship missiles. The Merlin will also be the first RN helicopter to have a datalink, enabling it to transmit and receive ASW and ASuW tactical picture information while operating in a hostile RF environment and under a restrictive communications policy. Ultra Electronics is supplying the Link 11 datalink processor and data terminal set.

Development and qualification of the Merlin is continuing in parallel with airframe production. RN01, the first of the 10 HM Mk1 aircraft so far delivered from GKN Westland's Yeovil production line, is assigned to the IDP for flight performance testing set to run until late 1999.

RN02 and RN03 are being used by Lockheed Martin ASIC for operational performance acceptance procedure (OPAP) trials to test the aircraft against performance and mission specifications. The first phase was completed at Aberporth late last year, and next month the programme will undertake a first phase of proving trials at the fully instrumented Atlantic Underwater Test and Evaluation Centre (AUTEC) in the Bahamas.

Later OPAP tests will be conducted in the Hebrides and back at AUTEC. A final OPAP report is expected in the third quarter of 2000.

The results of the trials will decide final corrections and revisions to the Merlin's mission computer software. The latest point release, Tactical Management Function (TMF) 4.5, is close to full functionality, but Lockheed Martin ASIC intends a final TMF iteration to be issued in late 1999. This top-off release will correct deficiencies identified during OPAP, plus any other software revisions that may arise following engineering changes during development.

> ***"We have two-and-a-half years to get the aircraft and trained people ready for the first front-line squadron."***

RN09 is being used by Lockheed Martin ASIC and the DTEO for EMC and Tempest testing. RN10 is undertaking a six-week programme of production equivalency qualification to verify the capture of all pre-production features in the production-standard aircraft

It falls to the IFTU to pave the way for the Merlin's introduction to front-line service, says 700M NAS commanding officer Lt Cdr Phil Shaw. "The purpose of the IFTU is to bring together all items to produce a fighting machine and build a training system. This will involve introducing procedures and developing tactics for the full range of aircraft roles. We have two-and-a-half years to get the aircraft and trained people ready for the first front-line squadron."

The IFTU has received two aircraft (RN05 and RN06) out of its planned complement of four. It will reach full strength in early 1999 with the arrival of RN07 and RN08, previously used for pilot training at Yeovil.

IFTU activities will include flying operations from all RN ships slated to receive the Merlin, including *Invincible*-class carriers and Type 23 frigates. Another important task will be to validate assumptions on the RN's requirement for single-pilot operation.

Behind all these activities, the Defence Test & Evaluation Organisation (DTEO) at Boscombe Down is carrying out a phased programme of military aircraft release (MAR). Airworthiness trials to support MAR began in April 1998 using RN04.

RN10 is planned to join the MAR flight programme towards the end of the first quarter of the year. It is provisionally intended to instrument RN12 to undertake ship/helicopter operating limit trials in support of MAR.

Initial MAR was issued in November 1998, clearing the way for IFTU flying to start. Five phased MAR iterations will follow at roughly six-monthly intervals, each reflecting the progressive expansion of the aircraft envelope and a new standard of mission system functionality. This process will culminate in a final MAR release in 2001 prior to the Merlin's first front-line deployment.

RETROFIT PROGRAMME

As the qualification and system optimisation process continues, a programme of retrofits will ensure that all aircraft meet the build standard. The backfitting schedule will be determined on an aircraft-by-aircraft basis, according to programming and maintenance slots, with work being done at Yeovil and Culdrose.

Work is continuing to hone the new Merlin Training System (MTS), with Lockheed Martin ASIC now conducting curriculum walk-through at the so-called Merlin University at the Culdrose base. The programme involves trainers, simulators, training facilities and curriculum for all flying crew (pilots, observers and aircrew), ground crew and maintainers.

Some problems have been encountered in the MTS, specifically the integration of new aircrew simulators supplied by CAE Electronics. This has meant providing aircrew training at Yeovil in advance of the simulator suite becoming operational at Culdrose in late 1999.

The RN's next major goal is the commissioning of the first front-line Merlin squadron – 814 NAS – in early 2001. This ties in with the return to operational service in late 2001 of HMS *Ark Royal* after a major two-year refit. It will be the first carrier fully fitted to support and operate the Merlin. Squadron 814 will be followed by two other front-line Merlin squadrons: 829 NAS will be parent to small ships' flights assigned to Type 23 frigates, and 820 NAS will form a second carrier squadron. ❑