Delivering European Defence Capability

Delivering 638 aircraft to five European Air Forces. Delivering the largest co-operative military programme through industrial partnerships. Delivering technology transfer and world-class engineering skills across the four Partner Nations. Delivering real value to customers and shareholders. Eurofighter Typhoon, the world’s best-selling new generation swing role combat aircraft.

Flight Control Software (FCS), designated for carefree handling and air-to-surface stores carriage and release, is ongoing, and builds on the success of the earlier achievements with the Paveway II and GBU-16 weapon.

In the air superiority role, all air-to-air missiles have flown, including the METEOR Beyond-Visual-Range missile, while testing of the Phase 4 FCS for maximum agility and carefree handling has been concluded.

Negotiations with NETMA, aimed at delivering in steps the Future Capabilities Programme (FCP), are in progress to strengthen Eurofighter Typhoon’s combat advantage over the competition. Full laser designation ability, plus the integration of advanced stand-off weapons, Taurus and Storm Shadow, will ensure that Eurofighter Typhoon keeps on delivering.

Professor Keith Hartley, from the Centre of Defence Economics at the University of York, has compiled a comprehensive study into “The Industrial and Economic advantages that the Eurofighter Partner Nations deliver in support of the European aerospace and defence technology base.

The full report can be downloaded from our website.

www.eurofighter.com

Delivering on Export promises, the first four Eurofighter Typhoons for the Austrian Air Force are in final assembly at EADS Military Air Systems’ Manching...
The CAPTOR third generation coherent multi-mode radar, the primary sensor of Eurofighter Typhoon, is one of the most technically advanced airborne radar systems in the world.

The radar detects, identifies, prioritises and engages targets beyond the effective range of enemy weapon systems, whilst remaining resistant to severe electronic jamming. Clarity and integration with other avionics sensors through the Sensor Fusion system, CAPTOR provides long range detection and tracking for Beyond Visual Range (BVR) weapons, a simultaneous multiple target engagement capability, rapid assessment, Non Cooperative Target Identification (NCTI), increased pilot workload through intelligent automation.

Designed specifically for the Eurofighter Typhoon, the compact modular nature of the CAPTOR radar offers flexibility of installation, has built-in capacity for growth, and is adaptable to changes in technology and emerging tactical threats.

All Tranche 1 CAPTOR radar deliveries are now complete. The Eurofighter Consortium, lead by Selex Sensors & Airborne Systems Limited, and including EADS-Defence Electronics, Galileo Avionica and Indra, will jointly commence deliveries of equipment into the Tranche 2 programme. The primary enhancements involve the introduction of a redesigned Processor Line Replaceable Item (LRRI) which will also support the future introduction of an Active Electronic Scanned Array (AESA), together with hardware within the Receiver to support high resolution Synthetic Aperture Radar (SAR).

In service, CAPTOR is providing a high level of availability with resultant low cost of ownership. Sophisticated Built In Test (BIT) minimises the requirement for test equipment and eases deployment logistics. On aircraft BFF identifies all threats which affect radar operation and the falling Line Replicable Item (LRRI) is reported to the On Aircraft Maintenance Data Panel which is accessed by the ground maintenance staff. CAPTOR is a self-calibrating radar system which requires no subsequent adjustments following replacement of LRRI.

Working with the System Authority as part of the integrated Eurofighter team, Euroradar has achieved an effective alignment between Operational Requirements and affordability, while anticipating future hardware and software growth requirements. Together, these features will deliver a major contribution towards the cost effective air dominion that the Eurofighter Partner Nations will enjoy well into the 21st Century.

In every scenario, CAPTOR covers all the angles

Main Air-to-Air Features:
- Search Modes - Range While Search (RWS), Velocity Search (VS) and multiple target Track While Scan (TWS) and Priority Tracking
- Lock-Follow Modes - tailored for long-range and short-range tracking for use in visual identification or gun attacks
- Air Combat Acquisition Modes - allowing a choice of boresight, vertical scan BUFD field of view or slaved acquisition

Main Air-to-Surface Features:
- Search Modes - Ground Map, High Resolution Map, Ground Moving Target Identification and Sea Surface Search and Track While Scan
- Track Modes - Fixed Target Track and Moving Target Track
- Air-to-Surface Ranging

The Data Link in Eurofighter Typhoon includes the MIDS (Multifunction Information Distribution System) LVT (Low Volume Terminal) and the MIDS Interface Unit (MIU), plus related processing distributed all across the aircraft.

The Data Link integrated in Eurofighter Typhoon provides:
- Full Pilot awareness, receiving a 360 degrees coverage of all targets and their identification.
- Force Multiplier, improving allocation of resources, so that the fighters can be directed to the area they are most needed.
- Improved kill ratio, by being capable of working with another cooperating Eurofighter Typhoon’s Radar, and firing a missile without previous warning.
- Diminished blue on blue engagements, thanks to positive identification of every unit equipped with MIDS.
- Reduced sensor to shooter engagement time. Within seconds that an ISR platform has detected a missile launcher, the Eurofighter Typhoon can shoot a weapon.

Future improvements will include the transmission and reception of images that would allow Eurofighter Typhoon Pilots to see the images detected by ISR platforms.

In operating Eurofighter Typhoon, the Air Forces of Germany, Italy, Spain and the United Kingdom, are fully integrated with their respective Link 16 Networks, and capable of cooperating with many platforms, including allied fighter aircraft, AEW&C (Airborne Early Warning and Control) and ISR (Intelligence Surveillance Reconnaissance) Platforms and many others.

The Data Link in Eurofighter Typhoon provides:
- Datalink MIDS (Link 16) allows employment of new air-to-air & air-to-surface tactics. The Eurofighter Typhoon will link with AWACS via Datalink (or SATCOM) and will rely on passive sensor information (MIDS, FLIR/IRST, ESM).
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In the age of NATO Network Enabled Capabilities (NNEC) and combined operations, it is essential for participating forces to be fully "plugged-in" in terms of shared knowledge.

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The MIDS Interoperability from the outset...
The Farnborough International airshow this year witnessed the signature between Eurofighter GmbH and NETMA of the so-called "Austere Capability” contract for the Royal Air Force. This document autorises the development programme to begin the integration of a Laser Designator Pod (LDP) and the Enhanced Paveway II laser-guided bomb on Royal Air Force Tranche One Typhoon aircraft.

The "Austere capability” will be available to the RAF for Entry into Service in the first half of 2008. This method of in-step insertion of new hardware and software is following the pre-planned route for Eurofighter Typhoon to achieve Full Multi-Role Capability. In terms of operating with an air-to-ground configuration, it is in general a three-step approach.

The first step is well underway following successful weapons carriage and release trials involving aircraft from across the Eurofighter community. Instrumented Production Aircraft Three (IPA3) began the heavy loads campaign in February at EADS Military Air Systems’ Manching facility, which was soon to be followed by the BAE Systems-operated IPA4 at Warton, UK. These initial carriage trials were aimed at establishing the aircraft’s handling with such heavy war loads. In May, IPA4 took off from Morón Air Base, Spain, and performed the first GBU-16 release. A second test was conducted the following day, with both jets fully verifying the safe separation of the stores, while also providing valuable Flight Test data on overall aircraft behaviour throughout the release sequence.

The second step has been initiated by the “Austere Capability” contract signature. Industry will deliver the software to allow integration of both the Laser Designator Pod, on the centre fuselage station leaving the four under fuselage missile stations free for air-to-air weapons, and the Enhanced Paveway II bomb. For the RAF, this means that their first Tranche of aircraft will have a truly awesome multi-role capability. All four Nations have requested the integration of the LDP on the Tranche Two aircraft.

The final step, as part of the Future Capabilities Programme (FCP), calls for the addition of stand-off weapons. All four Partner Nations have requested this capability, with the German and Spanish Air Forces having already placed orders for the Taurus KEPD 350 missile system, while the United Kingdom and Italy would opt for the Storm Shadow weapon. Discussions have also been opened regarding the possibilities for the inclusion of other advanced systems, e.g. Brimstone (UK).

The proposals for the FCP have been submitted, and negotiations are underway between Industry and the Customer Nations to establish the route forward.

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Delivering Air-to-Ground Firepower