

Eurofighter update



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Le Bourget

June 18-24, 2007

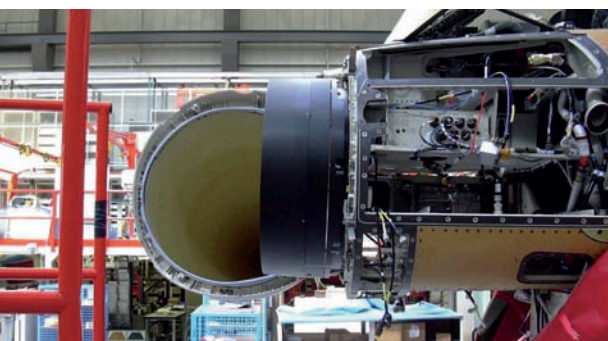


CAESAR Trials on Eurofighter Typhoon

Future E-Scan Capability

As deliveries of the multi-role capable Eurofighter Typhoon get underway, a major emphasis has been placed on the next generation of capabilities that are to go under consideration for integration onto the aircraft. The signature of the "First Phase Enhancements" contract has been achieved, but industry has already initiated work on the capability-enhancing features that will further boost the operational performance

The CAESAR demonstrator was fitted into DA5 for the purpose of the trials



of Eurofighter Typhoon. Most notably, the first important steps towards the introduction of an electronically-scanning antenna onto the weapon system have been taken by the Euroradar team. In May, the CAESAR completed its first flight on Eurofighter Typhoon.

The CAESAR (Captor Active Electronically Scanned Array Radar) system is an e-scan radar demonstrator developed and funded by the Euroradar consortium, consisting of Selex Sensors and Airborne Systems (UK), Galileo Avionica (Italy), EADS Defence Electronics (Germany) and Indra (Spain). While maintaining the excellent operational standards of the Captor radar, CAESAR promises significant performance improvements as well as a reduction in operating costs. The new e-scan antenna also has a relatively simple installation due to the electrical interface matching exactly with that of the Captor. The CAESAR test programme will be used to support confirmation of the technologies in the Eurofighter Typhoon environment and as a risk reduction measure, in terms of air vehicle aspects, for future integration.

The first flight was conducted at EADS Military Air Systems' Manching facility, Germany, using Development Aircraft Five (DA5) which, only recently, had completed

all of its scheduled tasks under the Main Development Contract. DA5 had also been one of the principle test platforms for the Captor radar. Four flights in total were performed and the initial results were very promising. The antenna successfully performed Track While Scan (TWS) functions against dedicated targets while the air-to-surface radar mapping ability was comprehensively demonstrated over the course of the trials.

The Euroradar team had previously proven the potential of the CAESAR antenna on specialised ground rigs as well as conducting seven flights on a modified BAC 1-11 aircraft, but this was the first opportunity for trials on Eurofighter Typhoon.

Industry and the NATO Eurofighter Tornado Management Agency (NETMA) had agreed on the use of DA5 for these tests following funding approval from the German Procurement Agency (BWB).

The successful flights on Eurofighter Typhoon prove the high level of technology readiness of the e-scan upgrade to Captor. The accumulated data from the trials will now be assessed and evaluated by the Euroradar consortium and will be used as inputs to customer considerations on the future development and operation of their Eurofighter Typhoon fleets.

The Euroradar Team
with DA5 and the
CAESAR antenna at
Manching

 Eurofighter
Typhoon

Industrial Participation in Eurofighter Typhoon

Partnership Strength

The Eurofighter Typhoon programme is a pan-European success story. Supporting more than 100,000 jobs in over 400 companies across nine European Nations, the supplier infrastructure behind the best-selling next-generation weapon system is powering the aerospace industrial base.

From the major international organisations to the local medium-sized companies, creating a synergy effect of technology standardisation and knowledge sharing is central to the consortium ethic. Highly-accomplished engineers in skill-intensive jobs are required in the areas of development, production and support of the aircraft.

A study by Professor Keith Hartley, from the University of York's Centre for

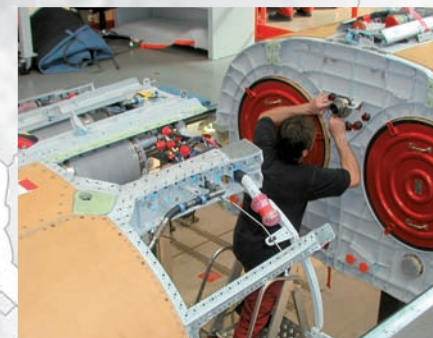
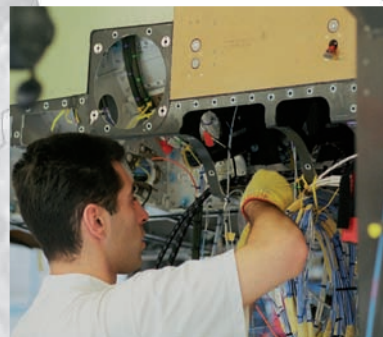
Defence Economics, on the Industrial and Economic Benefits of Eurofighter Typhoon, confirmed this factor of a higher skill requirement. Significantly, a major percentage of these engineering skills are transferable, meaning that European competitiveness can be achieved and sustained right across the industrial region.

The four Eurofighter Partner Companies, Alenia Aeronautica, BAE Systems, EADS CASA and EADS Germany, provide the Eurofighter Typhoon programme with world-class 'centres of excellence'. Financed by the customer Nations, these research and development centres have delivered "free gifts" of engineering expertise in the form of carbon fibre technology and super plastic bonding, as well as the leading edge capability found on Eurofighter Typhoon and in its EJ200 engines.

The collaborative nature of this international venture requires the creation of modern business practices and new ways of thinking in order to manage the technological complexity. These business models are incorporated right across the supplier community helping to develop a management infrastructure as well as skill sets.

Eurofighter Typhoon, as Europe's largest defence programme, delivers on all levels as an industrial partnership. It is an open partnership, with new members granted access to the expertise afforded to the existing Partner Companies. Eurofighter Typhoon is security for Europe's aerospace industry.

Images show Eurofighter Typhoon assembly across the four Partner Nations



The industrial network behind the Eurofighter Typhoon programme features close to 100 top-tier equipment manufacturers (shown below and on map) supported by more than 300 additional product suppliers across Europe.



- Austin Semiconductor Europe Ltd
01 Alton (Hampshire)
- SELEX Sensors and Airborne Systems
02 Basildon
- Rosemount Aerospace Ltd
03 Bognor Regis
- Claverham Ltd
04 Bristol
- Chelton Electrostatics Ltd
GOODRICH POWER SYSTEMS
05 Buckinghamshire
- Smiths Aerospace Electronic Systems
Ultra Electronics-Electrics Ltd
06 Cheltenham
- Dunlop Aerospace Braking Syst. Ltd
07 Coventry
- SELEX Sensors and Airborne Syst. (Ed)
08 Edinburgh
- EATON Aerospace (Titchfield) Ltd
MICROTURBO Ltd
09 Fareham
- Messier-Dowty Ltd
10 Gloucester
- Raytheon Syst. Ltd
11 Harlow
- Druck Limited
12 Leicester
- GKN Aerospace Transparency Systems
SELEX Sensors and Airborne Syst. (Lu)
13 Luton
- Cogent Defence Security Networks
14 Newport
- Ferranti Technologies
15 Oldham
- Bookham Technology Plc
16 Paignton
- BAES (Plymouth)
17 Plymouth
- Pall Aerospace
18 Portsmouth
- EATON LTD Aerospace Fluid Systems
Honeywell Hymatic
19 Redditch
- BAES Avionics (Rochester)
20 Rochester
- Meggitt Avionics UK
21 Segensworth West
- Kidde-Graviner Ltd
22 Slough
- General Dynamics UK Ltd
23 St. Leonards-On-Sea
- Thales Optronics Ltd
24 Staines
- Cobham Chelton Radomes
25 Stevenage
- AMETEK Aircontrol Technologies
Airscrew Ltd
Page Aerospace Ltd
26 Surbury-on-Thames
- Martin Baker Aircraft Co Ltd
27 Uxbridge
- Cobham Air Refuelling AME
EATON Aerospace Ltd
28 Wimborne
- Goodrich Actuation Systems Ltd
HS Marston Aerospace Ltd
Smiths Aerospace Mechanical Systems
29 Wolverhampton
- Honeywell Aerospace Yeovil
30 Yeovil
- BAES
31 Weybridge



- LEACH International Europe S.A.
01 Deinigen
- Diehl Aerospace GmbH
02 Frankfurt
- LITEF GmbH
03 Freiburg
- EADS D (Friedrichshafen)
04 Friedrichshafen
- AOA Apparätebau Gauting GmbH
05 Gauting
- Eaton Fluid Power GmbH
06 Gilching
- Hawker GmbH
07 Hagen
- Rockwell Collins Deutschland GmbH
08 Heidelberg
- EME Elektro Metall Export GmbH
09 Ingolstadt
- Liebherr-Aerospace Lindenberg GmbH
10 Lindenberg
- Goodrich Lighting Systems GmbH
11 Lippstadt
- Dräger Aerospace GmbH
12 Lübeck
- EADS D (München)
Rohde Schwarz GmbH Co KG
13 München
- Heckler and Koch GmbH
Rheinmetall Waffe Munition GmbH
14 Oberndorf/Neckar
- Honeywell Aerospace GmbH
15 Raunheim
- Autoflug Gruppe GmbH
16 Rellingau
- ACMA GmbH
17 Riemering
- Behr Industrie GmbH Co
18 Stuttgart
- Diehl Aerospace GmbH
19 Überlingen
- EADS D (Ulm)
20 Ulm
- LFK Lenkflugkörpersysteme GmbH
21 Unterschleißheim
- SITEC Aerospace GmbH
22 Waakirchen
- ESW Extel Systems-Wedel
23 Wedel



- OTO Melara - Unita Breda Meccanica
01 Brescia
- OMA
02 Foligno PG
- SELEX Communications S.p.A. (Genova)
03 Genova Cornigliano
- Sicamb S.p.A.
04 Latina
- AEREA S.p.A.
Electronica Aster S.p.A.
FIMAC S.p.A.
Galileo Avionica S.p.A. (Nerviano)
Galileo Avionica/Selex S.p.A.
LOGIC S.p.A.
Microtecnica Srl Divisione Magnaghi
Secondo Mona S.p.A.
05 Milano
- Sirio Panel S.p.A.
06 Mantovara/Archi Arezzo
- Ejetronica S.p.A.
Galileo Avionica S.p.A. (Pomezia)
Lital S.p.A.
SELEX Communications S.p.A.
07 Roma
- ASE S.p.A.
08 San Giorgio Su Legnano
- Alenia Aeronautica
AVIO S.p.A.
Galileo Avionica S.p.A.
Galileo Avionica S.p.A. (Caselle)
Microtecnica Srl
09 Turin
- Kongsberg Gruppen ASA
01 Kongsberg
- EPM Technology
Ericsson
Thales
Triad
02 Oslo
- SINTEF
03 Trondheim
- Systematic
Terma
01 Aarhus



- INDRA DTD S.A.
01 Alcobendas
- EADS CASA
AVOX Hispania S.L.
CESA
General Dynamics E.N. Santa Barbara
INDRA Sistemas S.A.
Page Iberica S.A.
02 Madrid
- CONSUR S.A.
03 Sevilla
- INTA
04 Torrejon De Ardoz
- Tecnobit S.A.
05 Valdepenas
- BERU Microelectronica S.A.
Fibertecnic
06 Victoria
- Austria Metall AG, AMAG
01 Ranshofen
- Böhler
02 Kapfenberg
- Datawarehouse
Testfuchs
03 Wien
- MCE - Maschinen und Apparatebau
04 Linz
- Peters GmbH
05 Stainz
- Wild GmbH
06 Völkermark



- ASE S.p.A.
08 San Giorgio Su Legnano
- Alenia Aeronautica
AVIO S.p.A.
Galileo Avionica S.p.A.
Galileo Avionica S.p.A. (Caselle)
Microtecnica Srl
09 Turin
- Kongsberg Gruppen ASA
01 Kongsberg
- EPM Technology
Ericsson
Thales
Triad
02 Oslo
- SINTEF
03 Trondheim
- Systematic
Terma
01 Aarhus



- Michelin
01 Clermont Ferrand
- THALES Avionics
02 Le Haillan



- Saab Tch AB
01 Stockholm

Flight testing with METEOR on IPA2 over Decimomannu, Italy



Eurofighter Typhoon flies METEOR

Beyond Visual Range Lethality

The integration of advanced weaponry is set to become a major task in the future development of Eurofighter Typhoon. The recently-contracted "First Phase Enhancements" will look to match the Tranche 2 hardware changes in the avionics suite with the rewritten and upgraded software. As a result, the 2012 timeframe will see multi-role leading edge capabilities delivered to the Partner Air Forces through the availability of new air-to-air and air-to-surface weapons. The state-of-the-art Meteor Beyond Visual Range missile is set to be one such addition.

A Royal Air Force Eurofighter Typhoon achieved first flight with Meteor in December 2005 in the United Kingdom. Following the release of funding from the customer, the data gathering trials with the weapon have continued throughout 2007 in Spain and Italy. In March, Instrumented Production Aircraft Four (IPA4), operated by EADS CASA out of Morón, undertook a series of five flights in order to assess how the missile responded in vibration and load environments on both the front and rear fuselage stations.

In May, the focus of the testing shifted to Decimomannu, Italy, as IPA2 began a ten-flight campaign with Meteor. Continuing the data gathering, the missile was flown for the first time on the underwing, out-board pylons on the aircraft, exploring the weapon's reactions to flutter and vibration. The result of the two 2007 campaigns is that Meteor has now flown successfully on all operationally-applicable weapon stations on Eurofighter Typhoon.

The Meteor test campaign is set to continue with a further ten flights scheduled for later in the year at Morón, Spain. These trials are part of a package of risk reduction activities undertaken by the Eurofighter consortium which will support the projected integration of Meteor onto Eurofighter Typhoon.



The first test campaign of 2007 with Eurofighter Typhoon carrying METEOR was conducted by EADS CASA, in Spain



Eurofighter Typhoon first flew with METEOR during an RAF flight in December 2005, in the UK

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