

WORLD



■ **EUROFIGHTER
FOR KUWAIT**

The Kuwait aircraft –
The most advanced
Eurofighter ever

■ **UK DEFENCE
MINISTER
HARRIET BALDWIN:**

Typhoon is world's most
powerful swing-role
aircraft



DUBAI AIR SHOW

SPECIAL EDITION

 **Eurofighter
Typhoon**



Title:
RSAF Typhoons in formation

Picture: Jamie Hunter

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WELCOME

The biennial Dubai Air Show is always a memorable
event. It's a magnet for the global aerospace industry
and brings a focus on the Middle East and its growing
significance in the aerospace sector.

We have established strong links
in the Gulf, with the Kingdom of
Saudi Arabia, Oman and Kuwait
as proud members of the
Eurofighter family. You might
have spotted that the cover of
this magazine features a photo
of the Royal Saudi Air Force
Typhoons. It's a fitting testa-
ment to a long-established and
highly respected customer.

Last year, we announced that
Kuwait had agreed a contract for
28 aircraft and in this edition of
EUROFIGHTER WORLD we up-
date you on the progress that's
been made since. And, of
course, earlier this year, the first
Eurofighter aircraft was formally
presented to the Royal Air Force
of Oman.

In September, we had the good news of a formal
Statement of Intent between the Governments of the UK
and Qatar signed in Doha on the potential purchase of
24 Typhoon aircraft for the future military and training
requirements of the Qatar Armed Forces.

Through its years in service, Eurofighter Typhoon has
developed a strong reputation and a track record of
delivering when needed. As a global fleet, the aircraft
have accumulated more than 440,000 flying hours with
deliveries in excess of the 500-mark.

From an operational perspective, 2017 has been
Eurofighter's busiest year yet. It's seen the active
engagement of the Royal Air Force (RAF) over Iraq and
Syria as part of the international activities against
DAESH. During this operation, the RAF has flown more than
10,000 flying hours in more than
900 different missions with an
impressive 100 percent mission
availability.

Eurofighters have also been
actively involved in several
NATO Air Policing missions,
including in the Baltic States,
Iceland, Bulgaria and Romania.
While Eurofighter Squadrons
have also taken part in major
exercises – like the Spanish Air
Force's Typhoon debut at Red
Flag.

Elsewhere in this issue, we
speak to NETMA's previous
General Manager Graham Farnell
about his life with Typhoon. I'd
like to take this opportunity to
thank him for his contribution to
the programme and to welcome his successor Gabriele
Salvestroni and wish him all the best during his tenure.

As ever, I hope you enjoy the magazine.



Volker Paltzo
CEO
Eurofighter Jagdflugzeug GmbH

EUROFIGHTER FOR KUWAIT

The Kuwait aircraft – The most advanced Eurofighter ever

Kuwait's Eurofighter Typhoons will be the most advanced of the type produced so far, with a package of capabilities on top of the previous enhancement programmes such as the Captor-E E-Scan radar and several novelties in the weapon system that will make the Kuwait Air Force at the front-line of the fighter technology when the aircraft will enter into service.

The contract is a complex one and requires such capabilities to be delivered into two subsequent releases, the first to be part of the aircraft at its entry into service and the second 24 months after.

Giancarlo Mezzanatto, Eurofighter Programme Unit Vice President of the Leonardo Aircraft

its antenna repositioner."

The Typhoon Captor-E provides significantly more power than most competing systems.

Combined with the fighter's large nose aperture and the unique ability to move the radar antenna, the Typhoon has a field of view of 200 degrees and the flight tests are confirming the discriminating advantages this will bring.

"This new radar, developed and produced by the Euroradar consortium, which is led by Leonardo, underpins the Typhoon's current and future capability evolution.

"As far as the overall package is concerned, today we are well into the development phase. The Avionic System design has been completed and we are currently designing and coding the software".

PRODUCTION OF THE EUROFIGHTER TYPHOON FOR KUWAIT

Soon after the contract signature, the production activities have begun in order to comply with the contract and the Customer



Giancarlo Mezzanatto, Eurofighter Programme Unit Vice President of the Leonardo Aircraft Division

"This new radar underpins the Typhoon's current and future capability evolution"

expectations. Long Lead Time items procurement has been immediately activated and the Supply Chain has been mobilized.

"Since the second half of 2016 the production activities started with details manufacturing – Says Mezzanatto - These activities are in line with the baseline plan and in some cases even ahead of schedule.

"The first left hand wing at Leonardo and right hand wing at Airbus Defence & Space in Spain have already completed the manufacturing of the wing skins in composite materials and are going to start the assembly phase before the end of this year. >>

"The first rear fuselage section is going to start the "Stage 2" assembly phase at Leonardo in early 2018 while the "Stage 1" assembly phase is already running in BAE Systems for the first 5 aircraft.

"The center fuselage section, produced by Airbus Defence & Space in Germany, will start the assembly in the first half of 2018 having already commenced the "pre-assy" phase according to the plan.

"The UK Eurofighter Partner Company BAE Systems has begun the assembly of the front fuselage sections and today more than 10 front fuselages are in production at different stages of progress. The first front fuselage section is now ready to start the equipping phase.

"Everything goes on towards the start of the final assembly of the first aircraft on time thanks to the expertise, the effort and the passion of all teams: EPCs, the Kuwait Integrated Programme Team in Eurofighter and Prime Contractor Organisation (PCO)".

INFRASTRUCTURES FOR KUWAIT MOB

The activities to establish infrastructures in Kuwait to operate the aircraft are also proceeding according to the plans. The detail design has already been completed with

the finalization of all data packages. The construction activities have started in August this year.

LOGISTIC SERVICES

The Eurofighter team is also working intensely on the set-up of the logistic services to be ready for the logistic support date a few months before the delivery of the first aircraft. Spares and Ground Support Equipment are being ordered according to the Eurofighter procurement route and all logistic functions are working according to the support plan which has been established. All logistic services are targeted to assure the full operational availability of the fleet during the in-service phase in Kuwait.

With the Kuwaiti contract Leonardo and Eurofighter have well initiated a long journey which will lead to the delivery of the first aircraft in 2020. "The programme is challenging for the state-of-the art capabilities – Says Mezzanatto - but on our side there are motivation and commitment of the teams through all the Supply Chain. This, together with the cooperation of the Italian Air Force and of the Kuwait customer, will be the key factor for the Eurofighter success". <<



Above: Kuwait front fuselages in assembly at BAE Systems, United Kingdom
Below: Eurofighter and Leonardo Kuwait Team



THE KUWAIT CONTRACT

On 5th of April 2016 a contract between the Ministry of Defence of the State of Kuwait and the Leonardo Aircraft Division (acting as Prime Contractor Organisation) was signed to supply 28 Eurofighter Typhoon multi-role fighter aircraft. The delivery of the aircraft will start in 2020 and will be completed in 2023 making Kuwait the aircraft's eight customer.

The agreement with the Kuwait MoD also includes services to operate the Eurofighter fleet at its best such as the design and construction of the infrastructures at the Al-Salem Air Base and the initial support services for three years (with an option for a further five).

This includes the supply of equipment and a suite of training devices to establish a pilot Operational Conversion Unit in Kuwait.

The contract came a few months after the signature of a Memorandum of Understanding between the Kuwait MoD and the Italian MoD. This memorandum between the two governments not only defines the scope of the cooperation between the two countries on the Typhoon project, including training of pilots and ground crew of the Kuwait Air Force, but also establishes the G2G framework of the contract.

As part of this agreement a Joint International Program Office (JIPO) has been established in Rome where Italian and Kuwaiti officers are working together to manage the contract from the customer perspective.

Immediately after the contract signature, teams were mobilised in Leonardo, as Prime Contractor Organization, in Eurofighter and in the other Partner Companies and all the supply chain has been activated.

In particular a multi-national Integrated Product Team has been established at the Eurofighter GmbH facilities with all disciplines co-located and working together to manage and carry out the development and production activities of the contract involving all the Eurofighter Partner Companies. This integrated approach and the passion and commitment of the team is crucial for the success of the programme.



TYPHOONS HIT THE TARGET

When the Spanish Air Force made their Eurofighter debut at Red Flag this year they went with a clear aim in mind – putting their Typhoons' new air-to-ground capabilities to the test. >>

Last year the 11th Fighter Wing (FW) at Morón Air Base, near Seville, became the first Spanish Air Force unit to integrate new capabilities offered by the P1Eb software enhancement and Litening III Laser Designator Pod. P1Eb is predominantly an air-to-ground capability upgrade and provides enhancements to the Litening Pod with integration to the pilot's Helmet Equipment Assembly.

Hence the Spanish Air Force's focus for the intense two-week multi-force exercise at Nellis Air Force Base in the United States was clear from the outset. Give the aircraft, pilots, ground crew, P1Eb and Litening III, a

thorough workout in some of the most testing, congested air space there is, where the workload and intensity never eases off.

"One of the principle objectives at Red Flag was to show our capabilities."

111 SQN Leader Major Victor Manuel Barranco Ferrer puts it in very clear terms: "One of the principle objectives at Red Flag (RF 17-2 which ran between Feb 27 and March 11) was to show our capabilities following the integration of P1Eb and Litening III. It wasn't really about air superiority – we have already demonstrated that during our Baltic Air Policing role – but we wanted to demonstrate our multi-role capability."

The 11th Fighter Wing led and formed the core of a Spanish Air Expeditionary Unit, which was composed of six Typhoons and 119 people from 11th Fighter Wing out of Morón Air Base. A further two Typhoons were drawn from 14th Fighter Wing in Albacete, along with two C-130 from 31st Airlift/AAR WING and staff from Spanish Air Combat Command. The unit – pilots,

maintenance crew and aircraft from 11th FW and 14th FW – were under the command of Group Commander Lieutenant Colonel (OF-4) Enrique Fernández Ambel from the 11th FW.

In pure number terms the Spanish Unit's efforts were impressive – it dropped the most live ordnance of any of the participants of this particular Red Flag and did so under real pressure. Maj Barranco says: "We dropped a total of 48 GBU-16s, which was a decent number for two weeks of flying. In fact, we were the only unit dropping live weapons (others were using inert weapons).

"It was a very congested environment where we were constantly facing a lot of air-to-air and surface-to-air threats. In the sorties you were in a sort of 'funnel' and by the time you dropped your bomb there were aggressor aircraft coming toward you. But, despite that, most of the sorties we flew were right over the bullseye."

Captain (OF-2) Joaquín Ducay, who helped plan the Unit's tactical approach to Red Flag, says: "The overall picture was impressive. Our standard was a little bit higher than conventional aircraft, we survived through most of the bombing sorties and we had a high air-to-air kill ratio. I can't say the exact numbers but, for example, I know that on one of my missions there were a total of 32 kills and my wingman and I had 12 of them between us.

"But the main objective was not about scoring a high kill ratio – it was to carry out multi-role missions. Of course, we were involved in air-to-air activity too – but that's what we do, day in, day out.

"It was good to see that on missions when we were flying with bombs we were still capable of reacting to air-to-ground



111 SQN Leader Major Victor Manuel Barranco Ferrer

threats, and make air-to-air kills at the same time. That's not something everyone is able to do. But that's really thanks to our training and the aircraft. The Eurofighter allows you to multi-task like crazy."

Maj Barranco says the Unit achieved everything they'd set out to during the US Air Force-hosted event: "In every single respect it was a very successful deployment because we were able to accomplish nearly all the scheduled tactical sorties (119) as well as 26 FAM flights. In terms of reliability the Typhoon's rate of operation was very high, just like it was during our Baltic Air Policing mission in 2015, and that's thanks to the efforts made by the Maintenance team during the exercise and in the preparation of the fleet pre-deployment."

The Verdict on P1Eb. Given the mission focus, the two weeks of day and night missions represented a vigorous test for the P1Eb software and Litening Pod. How well did it perform?

"There's no doubt it marks a significant uplift in capability for us. While we could have deployed

overseas for a real bombing mission even before P1Eb we would have

had limited capacity – now there are no limitations," says Maj Barranco.

"Red Flag was the best possible test for P1Eb. We knew what the aircraft was capable of before we went because all the pilots who went to Red Flag had trained on the new software ahead of the deployment. But this was the ideal test – a high threat scenario, with air and ground aggressors. Of course, it was very demanding for both pilots and the technicians to get ready for combat, reaching a high degree of preparation, but the effort was worthwhile. We are proud of the results we achieved and happy with new capabilities."

Capt Ducay says the P1Eb enhancement is transformative. "It's like flying a whole different aircraft. Air-to-air-wise there are a number of small improvements that allow you to find information quicker. This in turn gives you more reaction time and that means you can move on to another task quickly.

"But it's in air-to-ground operations that it enters a whole new level of sophistication. There is a great deal of logic behind it and it's now much more intuitive for the pilot. In previous software configurations air-to-ground took quite a while to get used to. Once you pick up the P1Eb software for air-to-ground work you can't go back."

The Link 16 was another piece of the jigsaw that contributed to the Spanish Typhoon's success in Nevada.

Capt Ducay says: "With the data exchange Link 16 we were able to see

"Red Flag was the best possible test for P1Eb."

>> TYPHOONS HIT THE TARGET



everyone all of the time. There is a huge difference between looking down into the screen and seeing the track of your Number 2 then figuring out where he is, compared to having a circle on your Helmet Mounted



Display which tells you exactly where he is. That's what the new Link 16 was able to bring.

"It was consistently good. Every day the tracks worked, we got our messages, everything was perfectly correlated, as it should be at all levels. It all worked perfectly."

UNsung HEROES

Fast jet exercises don't come much bigger than Red Flag. The setting, the Nevada Test and Training Range is, as the natives might put it, 'awesome'. The base boasts more squadrons than any other in the US. It covers over 11,000 acres, and pilots have a training range with around 15,000 square miles of airspace to get to grips with. Red Flag features up to 80 aircraft taking to the skies in wave after wave.

For their first visit to Nellis with their Typhoon aircraft the Spanish Air Force left absolutely nothing to chance. Maj Barranco says: "From a flying, logistics and maintenance perspective, the whole deployment was epic. At Nellis we sometimes had all eight of our aircraft flying at the same time. Being able to recover the aircraft and have them all available to fly in the next wave (just a few hours later) without a break that was, well ... pretty interesting. In fact, on some days with our eight aircraft we were able to complete our planned missions and carry out extra flights."

The detailed planning for the operation commenced three months before the trans-Atlantic trip.

"First, we had to select the right aircraft from our fleet – taking those that did not have any major planned maintenance scheduled because we wanted to minimise the risk of maintenance events during the deployment," explains Lieutenant (OF-1) Jesús Jiménez Ruiz who heads up the maintenance. "We had almost 100 percent reliability throughout the entire exercise. All the aircraft were full mission capable each day and we were the only group in Red Flag that operated as either full mission capable or partial mission capable. That was only achieved because we prepared for the deployment. We had the right aircraft and the right equipment."

Indeed it was planning and preparation on a heroic scale. The unit took 90 tonnes of

equipment, 51 containers and more than 150 people. "We had 131 maintenance people – engineers, people working at workshops and people working on the flight line. It was a huge deployment for us – the biggest for the Spanish Air Force – and it worked."

SITUATIONAL AWARENESS

"Red Flag is a high workload environment but fortunately this aircraft is really easy to fly," says Capt Ducay. "But what the pilot needs to do is learn how to process all the information that comes at you. It's really about learning to exploit all the potential the aircraft has and when you become proficient you make far better, more tactical decisions."

"When every single system of the aircraft is working – the Litening pod, the MIDS, the radar, and flare – the Eurofighter gives you so much situational awareness. It shows you everything that's going on in the battle space and that means you can make way better decisions. Of course it requires a lot of training before you can master all that."

"Seeing exactly what is going on, and taking decisions based on what is actually happening, is especially useful if you have to execute something that's not planned. The aircraft allows you to be flexible and that's all because of the systems and the technology."

"At Red Flag there's a degree of information saturation initially because of the high density airspace compared to what we are used to but that's part of the point of going there. You very quickly get used to it." <<

EUROFIGHTER TYPHOON: READY FOR POLAND



Members of the 11th Fighter Wing who participated in the 2017 Red Flag deployment



The Eurofighter consortium believes that Poland should consider the Eurofighter Typhoon as it looks at its future combat aircraft requirements.

"Eurofighter Typhoon augments existing capabilities and further complements a powerful deterrence against any potential threat to Poland's borders," Raffael Klaschka, Head of Marketing at Eurofighter GmbH said at MSPO defence exhibition in Poland.

"Joining the Eurofighter programme would bring new and additional opportunities

to Poland – both from a military and economic perspective, with a number of possible options in scope, from assembly and manufacturing to support and maintenance. And, of course, Poland would play a role in the definition of any future development of the aircraft, which will continue to be in service well beyond 2050."

The Eurofighter consortium is made up of Europe's three main defence and aerospace companies: Airbus Defence & Space, Leonardo and BAE Systems, head-

"Industrial collaboration is an inherent part of the Typhoon programme."

quartered in Germany, Italy and the UK respectively. The consortium already supports thousands of jobs around Europe, including 4,000 direct jobs in Poland.

Raffael Klaschka added: "Industrial collaboration is an inherent part of the Typhoon programme. We believe we can deliver an attractive and cost-effective solution for Poland." <<

TYPHOON PROVES ITSELF IN FIGHT AGAINST DAESH



RAPID DEPLOYMENT

Within 24 hours of the decision to deploy Typhoon, aircraft were striking targets in Syria.

DAILY SUPPORT

The aircraft has flown in excess of 900 missions over Iraq and Syria since December 2015, providing daily support to international coalition forces on the RAF's Operation SHADER.

FULLY ACTIVE

Each mission consists of a pair of Typhoons. The operational activity equates to over 10,000 flying hours, during which the aircraft has delivered more than 850 Paveway IV weapons.

Eurofighter Typhoon has proved itself at the heart of the international coalition **fighting against DAESH**. It has been very active in Syria, in particular in the ISIS heartland of Raqqa, where its use of the **Paveway IV** GPS precision-guided munition together with its advanced sensors have enabled Typhoon to be considered almost the platform of choice for operations against the targets around Raqqa.

RELIABLE

The aircraft has managed 100% mission support rate proving its reliability and utility. Not one mission missed for technical reasons.

FLEXIBLE

Eurofighter's flexibility with Paveway IV, when combined with the weapon effects, has led to an increased demand from across the Operation SHADER Area of Operations with Coalition Joint Terminal Attack Controllers specifically asking for Typhoon support.

FULLY LOADED

The Typhoon's weapons load has made it invaluable. The aircraft can operate with four Paveway IVs without any detrimental impact on its Air to Air capability – other aircraft in the Coalition forces usually carry just two. It's able to strike four targets simultaneously, providing greater flexibility and opportunity for the controller on the ground.

VERSATILE

A post-Operational report showed that Typhoon had employed Paveway IV effectively in all of its modes, including GPS, Laser, Desired impact angle or azimuth.



SUNDAY SERVICE:

AN AIR VICE-MARSHAL'S LIFE WITH TYPHOON

NETMA's outgoing General Manager, Air Vice-Marshal **Graham Farnell**, retired in July 2017 after a long and distinguished career that has helped shape the trajectory of the Eurofighter Typhoon programme. Here he recalls some of the key moments in the aircraft's development >>



On a fine Sunday morning about 12 years ago, Graham Farnell was propped up in bed with a laptop in one hand and cup of tea in the other. His wife had given up asking him when he was getting up – by now he was on his fifth cup and he was utterly absorbed on the task in hand, devising the Typhoon 30-Hour Challenge, an initiative designed to improve the availability of the Royal Air Force's then fledgling fleet.

"At that time there were 19 aircraft at RAF Coningsby but aircraft availability was poor due to a paucity of spares and test equipment, as well as technicians and pilots learning how to operate the weapons system. All of which meant the average flying hours for an aircraft were in the region of 12 per month and that's not a good return.

The rule of thumb for a combat aircraft is you need about 25 hours per month."

He was wrestling with the problem when he hit upon the idea of the 30-Hour Challenge – 30 hours being a stretch target. That Sunday morning Graham came up with a graph highlighting a series of initiatives that would improve availability levels.

"There was a variety of about 30 or so different initiatives and each was allocated half an hour or an hour in terms of what would it give the programme.

"One of the very first was using motorcycle couriers to transport the data bus analysers from the production line of BAE Systems at Warton down the motorway, so we could fix the aeroplanes.

"These would then be transported back again to the production line for the next

day. It was expensive, but not as expensive as having the assets just sat there with pilots unable to fly them.

"It was an excellent collaborative partnership with BAE Systems."

At the time, Air Vice-Marshal Farnell was a Group Captain and his role was UK Project Engineer and Procurement Systems Manager within the Defence Procurement Agency.

"That job was the most difficult one I have ever done. It consumed every hour of my life," he recalls in deadly earnest, hence the Sunday shift. "I had 275 people reporting to me and everybody was constantly queueing for my time. Finding any spare time was almost impossible which is why >>

"It was an excellent collaborative partnership with BAE Systems."





The first Eurofighter Typhoon of the Royal Air Force of Oman. © RAFO

>> SUNDAY SERVICE

we ended up most evenings working on the whiteboards because the day was just absolutely manic."

Within a few months, the Challenge was paying dividends. Aircraft were flying on average 27 hours per jet. And after 18 months some were even returning 30-40 hours. "At that point, we had to cut back because we hadn't budgeted for that number of hours!"

Air Vice-Marshal Farnell's links with Typhoon actually date back to the turn of the century when he was a Wing Commander working for the then Air Commodore Steve Dalton (who went on to become Chief of the Air Staff) in the Royal Air Force Headquarters. The Royal Air Force was just starting to formulate how it was going to get Typhoon into service.

"You could say I was there at Typhoon's entry into the Royal Air Force, both from a planning point of view and then preparing the first base as well. I was involved in the shaping and organising – how we were going to train pilots and engineers, when would we get the aircraft, what would we

get with the aircraft, how long would it take and whether the organisation at RAF Coningsby would be fit for purpose."

His next tour was as the Chief Engineer at Coningsby. So, by the time he became Systems Manager and Project Engineer, he knew the aircraft and the implications for all aspects of military planning very well. That role meant he held the power of the pen to clear the aircraft for flight and all of the variations to it. It was a job that required someone with attention to detail and who had a good collaborative network.

"Those qualities allowed us to ensure the 30-Hour Challenge was a success and helped us create capacity in the programme to develop and implement the Drops Programme. Drops came about because the UK is a very impatient nation, the Ministry of Defence is more impatient than the nation itself and the Royal Air Force is even more impatient

than the Ministry of Defence, we had all of these people wanting everything yesterday. The Drops Programme represented small focused capability changes" says Air Vice-Marshal Farnell.

"I was the guy everyone was turning to and saying, 'Now we want the aircraft to do this or that.' So I decided to team up with BAE Systems in a more collaborative fashion. First port of call was to see Bob Smith, the then BAE Systems Chief Engineer at Warton, to see how we could advance the progress of the weapons system."

"Bob brought his whole team together, though at first they were all wondering what we were going to do. Then we started white-boarding and people were getting excited. Everyone was at the board and you couldn't get the pens off people."

"Everyone was eager because there's nothing better than getting on with the

things that brought the capability of this aircraft forward. Four hours later, at the end of that first meeting, all the whiteboards in the room were full and that became the Drops Programme. That was in 2006 and it's still going today.

"The beauty of the Drops Programme is that the joint operator and BAE Systems team would develop the art of the possible, the Operational Evaluation Unit would fly a software patch in its immaturity, provide feedback, then the next patch was developed by the joint team and so on until we had an outcome that was fit for the warfighter – it's what's called spiral development."

"All the engineers in the room that day were on cloud nine because it's what they love doing. The important thing

is that it was all about a collaborative and trusted relationship which meant we could work together. Bob Smith could have told me that he had enough on his plate, because he had, but it was something people wanted to get involved in because it felt very fast, progressive and it gives that human reward return that you need from the work."

"I have always worked well in rooms with whiteboards with gangs of people creating what I call a 'coalition of the willing' – people who want to achieve something that's fun and creative and that will make a difference. When you get a good idea underway you feed off each other."

A couple of years later, AVM Farnell was promoted and left the Typhoon programme, but not long after that he was appointed Director General Typhoon where he negotiated the outcome for the latest advanced Tranche 3 aircraft. Then, following a stint as F-35 Team Leader he was further promoted and became Director of Combat Air, which once again brought Typhoon into his remit and he carried out that role for two years. He was then appointed Chairman of the Joint Steering Committee, where he had

oversight for the international programme.

In February 2014 he was appointed as General Manager of NETMA – a role that has allowed him to draw on his wealth of Typhoon experience.

However, despite an air force career that had been so heavily involved in the aircraft, he had never actually flown the jet. Until now...

Group Captain Mike Baulkwill, the current Station Commander at Royal Air Force Coningsby, had previously invited him to fly with him and so, with retirement looming on the horizon, he took up the offer.

"During my career, I have flown the

Hawk and Tornado but never got the opportunity to fly in a Typhoon so I was delighted to get the chance. In

fact, my flight took place the day before my celebratory retirement lunch. We took off around 5.30 pm on what was a really claggy day with low cloud that almost felt like fog, and we decided to operate over the Wash, just off East Anglia. The first thing we did was a performance take-off. When a very experienced pilot does a performance take-off in a Typhoon, they end up with the biggest smile in the world every time."

"I knew how that felt for the newcomer because I once spoke to the Kuwaiti test pilot who flew out of Warton. I'll never forget what he said to me: 'It's the best combat aircraft in the world. The performance take-off... you feel as though you would go to heaven.' Those words came back to me that evening. The aircraft doesn't stop, you don't feel any type of resistance, it just keeps pushing."

"After that we carried out a series of loops, then we stalled it on purpose to see the full and free movement and recovery as the aeroplane takes control. Then we did some supersonic runs and then barrel rolls. We hit two air-to-air targets, and a further nine on the ground. Finally, we descended and did some ocean work. It was incredibly impressive. The precision of the aircraft in responding to all the environmental inputs is truly amazing."

"It was nice for me to see some of the ideas that were developed during those earlier whiteboard discussions in Warton are now actually in place in the cockpit. For example, the way the air-to-ground package and the DASS display presents itself was very much devised in those early days. Seeing those changes operating in the real environment was very satisfying. Today, I feel really privileged and passionate about

how operationally capable the aircraft is."

From chocks to chocks, the flight lasted about 1 hour and 40 minutes. Back down to earth Air Vice-Marshal Farnell can't stop purring about the experience – it managed to top all his expectations. "I loved it...it's just an unbelievable aircraft. The thing that was so amazing to me was that I knew all about its capabilities, but I'd saved myself to enjoy them until the end of my military career. It's an amazing aircraft, absolutely amazing."

"The engines are incredibly powerful. They are now returning 1,100 hours on average on the wing – the average in the combat air world is 250 hours. From a war-fighting point of view, having such reliable



and incredibly powerful engines is crucial. The speed with which you approach the enemy is a key factor in who has advantage, so the Typhoon's engines give you an incredible competitive edge."

"That raw power combined with the precision of the flight control system is a pilot's dream. The difference from flying hundreds of miles an hour to an unbelievable acceleration was just incredible. You feel the power and this gives you such confidence that you can move around the sky. It's absolute freedom and when I landed I had that Typhoon smile."

Back in Germany, Air Vice-Marshal Farnell highlights that the success of the weapon system has only been possible as a result of the collaboration between the Partner Nations, with particular fond memories of the very heart of the collaborative endeavour at NETMA. He and his fellow Directors have together led a dedicated team that focuses on delivering what is described in NETMA's mission statement: "enhancing and sustaining an affordable Eurofighter and Tornado capability."

As he looks back on his career with the aircraft, Air Vice-Marshal Farnell can do so with a certain amount of pride and that smile is certain to return. No doubt, Air Vice-Marshal Farnell has certainly played his part. <<



COMPREHENSIVE EUROFIGHTER TYPHOON PROPOSAL FOR BELGIUM: THE EUROPEAN SOLUTION



The UK MOD, on behalf of the Governments of UK, Spain, Italy and Germany, with BAE Systems on behalf of the Eurofighter consortium, has responded to the Belgian Request for Government Proposal to replace its 54 F-16 multi-role fighters. >>

The offer represents the most comprehensive international equipment partnership ever offered by a Eurofighter Typhoon partner nation. It will support Belgium's aspirations for a strong European defence and technology industrial base in which Belgian industry plays a part.

It includes a comprehensive Typhoon proposal underpinned by a long-term defence and security partnership between the United Kingdom and Belgium. The Typhoon is being offered in full partnership with the Royal Air Force, including integration with the UK's proven, world-leading availability and support service.

The UK Minister for Defence Procurement Harriett Baldwin said: "I commend Belgium for what is a comprehensive and well-executed competitive process. The UK, supported by Spain, Italy and Germany, has offered Belgium a Government Strategic Partnership, including a long-term relationship with the Royal Air Force."

A core element of the proposal is the offer of a unique and comprehensive partnership between the Belgian Air

extend to 2058 would deliver both the lowest total cost of ownership and guaranteed capability.

Industrially, BAE Systems and the Eurofighter Partner Companies would look to offer Belgium long-term and sustainable opportunities, building on the country's existing defence and aerospace capabilities.

This partnership which would extend to 2058 would deliver both the lowest total cost of ownership and guaranteed capability

indeed particularly on air defence, for more than 70 years. Along with Germany, Spain and Italy we hope to welcome Belgium to be our next European partner. That would mean Belgium joining Europe's largest collaborative defence programme, further strengthening the security of Europe and our NATO allies," said the UK Ambassador to Belgium, Alison Rose.

"To put it simply, we believe our security and defence proposal to Belgium, through Eurofighter Typhoon, is the most complete solution to meet Belgium's ACCaP requirement. Our offer is a combination of outstanding, proven aircraft capability, through-life cost, with the lowest operating cost per hour of planes in its class, and industrial opportunities, all underpinned by the strengthening of political, security and industrial relationships with the UK, but also other European partners – Germany, Italy and Spain."

Air Commodore Ian Duguid, the UK Typhoon Force Commander, says the proposed partnership between the RAF and BAC, will include joint exercises, squadron exchange, shared airspace, working "side by side" on pilot and ground crew training and bringing Belgium into the UK's TyTAN support construct.

Eurofighter represents a truly European solution; with Typhoon forming backbone of European NATO air power with more than 500 aircraft across Europe

Industrially, the offer would seek to establish two national development centres – one in the Wallonia region and one in Flanders – and provide the infrastructure, technology and training to accommodate a Belgian National Network Cyber Centre. <<

The Eurofighter consortium currently contributes around €600M annually to the Belgian economy supporting more than 200 Belgian companies.

"Belgium is a country with which the UK has collaborated closely on defence, and

LIVE FIRING OF BRIMSTONE MISSILE IS SUCCESS

The first live firing of MBDA's Brimstone air-to-surface missile from a Eurofighter

Typhoon was successfully completed earlier this year as part of ongoing development work to significantly upgrade the capability of the aircraft.

The trial was part of work to integrate the Phase 3 Enhancement (P3E) package for Typhoon, which will also deliver further sensor and mission system upgrades.

The UK's IPA (Instrumented Production Aircraft) 6 Typhoon conducted the firing. It



was designed to test the separation of the low-collateral, high-precision Brimstone weapon when it is released. In total, nine firings have taken place to expand the launch and range capabilities. The initial firing followed completion of a



series of around 40 flight trials earlier this year, some of them conducted alongside pilots from the Royal Air Force's 41(R) Squadron - the Test and Evaluation

Squadron - in a Combined Test Team approach.

The successful trial follows completion earlier this year of the flight trials programme for the MBDA Storm Shadow deep strike air-to-surface weapon and the MBDA Meteor 'beyond visual range' air-to-air missile. Operational testing and evaluation of those capabilities is currently ongoing with the Royal Air Force ahead of entry into service in 2018. <<

SION AIR SHOW 2017 EUROFIGHTER WOWS IN SWITZERLAND

The Breitling Sion Air Show is the largest airshow in Switzerland. Set against the impressive mountainous backdrop of the Wallis Alps, the flying displays were an extraordinary experience for all visitors and aviation enthusiasts.

Eurofighter Partner Company, Airbus Defence & Space presented the aircraft

to more than 50,000 spectators both in the Flying Display as well as with the Full Scale Replica on the ground. Switzerland has decided to replace its current fleet of F/A-18 and F-5 aircraft. The country will now consider a single-type fleet of up to 70 new combat aircraft. A call for tender is assumed to start in 2018 by defining the selection process.

The Sion Air Show 2017 therefore was an excellent opportunity to showcase

Eurofighter Typhoon in the most impressive way and to underline Airbus' interest to participate in the Suisse tender.

Eurofighter Chief Test pilot Geri Krähenbühl from Airbus proved to be a favourite of the visitors, not just because of his Swiss background but mainly because of the breathtaking flying display he performed in the Eurofighter.

"It was fantastic to see the huge interest of the visitors", said Alexander Long-Vinh, Airbus Campaign Director for Switzerland. "We made ideal use of the biggest event of its kind in Switzerland and had a great opportunity to showcase our aircraft." <<

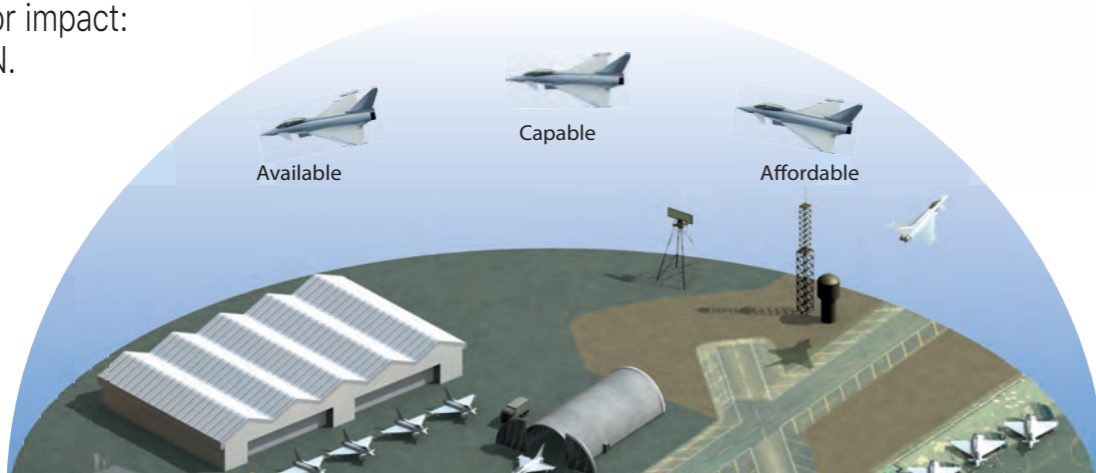


Photo by: HG Schröder

LIFE SUPPORT

Support for the Eurofighter fleet covers a range of activity which is all designed to ensure the Typhoon continues to meet its operational requirements. Support looks at ensuring engineering capability remains world beating and also covers things like repairs and the provision of spares.

Like the aircraft itself, the way the fleet is supported continues to evolve. Here we look at a support initiative between the UK Royal Air Force and UK industry that will have a major impact: TyTAN.



Operating as One Enterprise

Increasing Capability

Mission Success

Mission Success

Transforming the Enterprise

Improve Data Integrity

Improving the quality and reliability of approved a/c data

Smarter Engineering

Improving training and support, fixing capability and advancing diagnostics

Fly the Plan

Balancing the fleet plan to focus on achievement of the flying task

Supply Solution

Optimising the Supply Solution to a more robust and effective service

Increase Local Decision-making

Empowering industry through delegation of privileges

Manage for TyTAN

Optimising our organisations for efficient management of the programme

Reduced cost per Flying Hour

TyTAN Service

© BAE Systems

TyTAN:

- TyTAN stands for **Typhoon Total Availability eNterprise** (TyTAN) and it's a partnership between BAE Systems and the Royal Air Force to provide support to the UK Typhoon fleet.
- Launched in August 2016, it's a unique 10-year agreement.
- TyTAN looks at new ways of working to further reduce the costs of operating the fleet at RAF Coningsby and RAF Lossiemouth by more than a third.
- An estimated £500m of savings will be reinvested to develop new capability enhancements for the aircraft.
- TyTAN includes a joint avionics solution with Eurofighter Partner Company Leonardo.

ITALIAN TYPHOONS IN ICELAND

Words and photos by Giovanni Colla and Remo Guidi

In March this year the Italian Air Force deployed six Eurofighter Typhoon combat aircraft to Iceland in support of NATO's air policing and training mission. >>

NATO POLICING IN ICELAND

As Iceland does not maintain an Air Force, the country was left without means to patrol its airspace when the United States Air Force (USAF) ceased deploying fighter units to Keflavik Air Base in September 2006, and the US Iceland Defense Force was withdrawn.



After the American withdrawal from Iceland the airspace was not manned and several incursions were observed in the following years.

Icelandic Air Policing is a NATO operation conducted to patrol Iceland's airspace.

During the Riga Summit in November 2006 Prime Minister Geir Haarde in 2006 requested that its NATO allies periodically deploy fighter aircraft to Keflavik Air Base to provide protection of its airspace. The North Atlantic Council agreed to this request at its July 2007 meeting. The other NATO member states who lack the ability to patrol their own airspace have similar arrangements in place. The first deployment of aircraft took place in May 2008.

As of January 2013, NATO had re-designated the deployments to Iceland as being the "Airborne Surveillance and Interception Capabilities to meet Iceland's Peacetime Preparedness Needs" mission. The emphasis was on training rather than air policing.

Since 2014 the aircraft deployed to Iceland have been placed on Quick Reaction Alert status and flown armed patrols.

In contrast with the Baltic Air Policing mission, which involves the continuous rotation of fighter aircraft from NATO Countries at Šiauliai International Airport in Lithuania and Ämari Air Base in Estonia, the Icelandic Government requested three deployments, with each lasting from two to three weeks.

TASK FORCE ICE

The Italian Air Force was in charge of the first NATO rotation of 2017, under the name of TASK FORCE AIR NORTHERN ICE.

Between March 17th and April 14th Italy deployed six of its Eurofighter Typhoon fighter aircraft – two Typhoon from each wing (4th, 36th and 37th) and a detachment of approximately 140 personnel to Iceland.

This was the second time since 2013 that the Italian Air Force executed this mission in Iceland. The deployment underlines NATO's resolve, commitment and solidarity as well as Allied interoperability and cohesion.

"Preparation for the mission started some months prior to the deployment," explained Col. Emanuele Spigolon – ITAF TFA 'Northern Ice' Detachment Commander.

"As soon as our presence at the high military strategic level was confirmed, we started thinking about a tactical survey, and in February we took a team of 15 to Iceland, each one for their own area of expertise to analyze what the host nation could provide us and what we would have to bring with us from Italy."

This was a fundamental piece of the preparation explained Col. Spigolon.

"The Tactical Survey helped us understand the size of our logistic needs to support our activity here in Iceland."

"The Tactical Survey helped us understand the size of our logistic needs to support our activity here in Iceland."

"All the training and real operations are highly standardized and we have a lot of experience, therefore we know how many spares we would need per flying hour; so everything was well-defined and well studied long before we left Italy."

The six Typhoons arrived in Keflavik on Thursday March 17th after a six-hour flight from Grosseto Air Base that involved three air-to-air refuellings. The Typhoons were supported by two KC-767 and a C-130, the last one acting as a 'sweeper' just in case for technical reasons one of the aircraft had to land at an alternative airport.

One week before the aircraft arrived in Keflavik an advance team of about 50 people arrived in Iceland in order to prepare everything for the arrival of the jets. At the same time the Advanced Team prepared the communications systems and set up a Force Protection team – Italian Air Force 16th Force Protection Wing – who guarantee protection of Italian Air Force installations and operations in Italy and abroad.

With the Typhoons, pilots, officers, specialists, logistics and operational personnel

>> ITALIAN TYPHOONS IN ICELAND

from 4th, 36th and 37th Wings, as well as a Air defence Controller team from Poggio Renatico Air Command Operations and 22nd Radar Group Licola (Napoli) ready to operate from Keflavik, the TF 'Northern Ice' underwent a mini TacEval – Tactical



Evaluation by the NATO – supervised by Colonel Thomas Leibinger, head of the NATO evaluation team from Combined Air Operations Centre at Uedem, Germany.

During this certification process, the unit had to implement standard operating procedures in real-world Air Policing situations. The performance of the whole team was monitored and assessed, with specific focus on the response of the pilots in these realistic scenarios.

"On Monday we had a massive CAOC-Combined Air Operation Center briefing. Then on Tuesday two Tango-Scramble. Wednesday one Tango-Scramble and one CPX Scramble and by Wednesday night we were declared FOC-Full operational capability," explained us Col. Spigolon.

"So, within five days of arrival, we carried out a mini NATO TacEval, they gave us a certificate that we were approved and a day later we started our main task here in Iceland, protecting their sky," which was great.

"The responsiveness of the people was outstanding. This was only possible thanks to the high standardization between the wings and squadrons in Italy, you can see the people are perfectly trained to work together – it's not the first time it has happened.

"This really was exceptional because usually when an air force goes to another base, for example, to Lithuania for Baltic Air Policing, they are replacing someone, so the procedures are already in place. But here we arrived when there had not been a NATO detachment for months. So we had to set up all the procedures from scratch

because NATO needs to test it. I am very proud of the Task Force Air I lead because they did all this in just five days."

QRA DUTIES

"The aircraft on QRA are equipped with the standard conventional load for Air Defence duty," said Col. Spigolon.

In case of a real scramble the Typhoon pilot receives the task from CAOC in Uedem Germany, who are responsible for NATO Air Policing in the north. (The CAOC Torrejon in Spain is responsible for the south area).

"They have control of this area and they decide when and where to give the order of scramble," explained for us Col. Spigolon. "When they think it's appropriate they send a classified message to our CRC at Keflavik Air Base. (CRC 'Loki' and its four subordinate radar sites ensure Iceland's air surveillance), and the team there is made up of Icelanders and NATO personnel.

"The activation of the scramble through our radar operators is done in collaboration with the Icelanders. The messages are transmitted on secure lines, at the same time the alarm siren in the SOR room inside

"At the same time the CRC coordinates with the ATC in order to clear the airspace from the civilian traffic so we can safely take off."

the pilot building starts to ring and the pilots who are here get into their flight gear quickly, they don't dress in the hangar due to climatic conditions."

The pilots first put on their IPG suit, a thermal sea survival suit, the next layer is the Anti-G suit, then the jacket, the helmet in order not to leave stuff inside the shelter. A waiting car takes them to the QRA shelters.

Once they are in the cockpit explains Col. Spigolon they get in contact with the SOR asking for the scramble data, start the engines and start taxiing to the closest runway to take off.

"At the same time the CRC coordinates with the ATC in order to clear the airspace from the civilian traffic so we can safely take off."

ATC Air Traffic Control manages the first part of the flight, then they are passed on CRC at Keflavik.

"Our guys working at the CRC with the Icelanders handle the entire interception

phase, once we arrive at the back of the intercept aircraft we begin to identify it, what type of aircraft is, and then follow all the instructions sent by the CAOC of Uedem."

During the interception the pilots can receive the following orders: escorting out, identifying the aircraft, or take it to landing.

A 4th Wing pilot said: "In practice the two interceptors always cooperate, for example one goes to VID - Visual Identification to report about the type of aircraft, the country and then all the classic information that must be reported; like if it is armed, if it is not armed, just in case we try to identify the type of armament and other things.

"After the mission, we land and complete a report that is then sent to Uedem CAOC and then to the NATO Command and Control Center where the various checks and assessments are made."

The Italian Air Force brought 11 pilots to Iceland, including the Detachment Commander, Col. Spigolon. He explained the

selection process: "Because the deployment is not particularly long, we decided to focus on the selected guys who came here on the training. On their return to their home base they were tasked with making a detailed briefing about what happened here and they will have the opportunity to pass on their experience to the rest of the squadron."

TRAINING MISSION

In addition to QRA duties, the Italian Air Force Typhoons fleet also took part in daily training missions over Iceland.

"We carried out the same training missions that we do at home exclusively in the Air to Air role. In Iceland we developed a training regime that increased in difficulty with more and more

complex scenarios day by day," said Col. Spigolon.

"As Iceland is the crossroads of planes that go to the United States there were some areas of air space reserved for us to operate but each time we asked for permission to fly higher it was granted.

"The air space we were granted was great. There were some limitations regarding the lowest altitude we could fly because usually in Iceland the minimum low speed is 250 knots. We had a special permission that allowed us to fly at 450 knots at low

altitude and below 10,000 feet.

"There were large areas over the sea that were supersonic, and over the ground too but we use common sense – like we do in Italy – and tried to avoid going supersonic where it's not necessary and therefore minimizing the impact on the local population.

"In Iceland they're not use to seeing military airplanes every day, so if people hear the engines or a sonic-boom they begin to call asking what's going on. By keeping within the rules, we were able to get the most out of the training simply by restricting supersonic flight to area above the sea."

Throughout deployment Typhoon's availability was at high level, thanks to the work of the maintenance team formed by men and women coming from 4th Wing of Grosseto, 36th Wing of Gioia del Colle, 37th Wing of Trapani plus an attachment from the RMV of Cameri.

The Maintenance Team Commander said: "We worked in a small team – just like the maintenance teams in Italy – and provided a first full level of maintenance and in case of need also a second level of maintenance. We carried the spare parts that statistically we knew we might need but also we carried out preventive maintenance before travelling to Iceland."

Climatic conditions never interfered with maintenance and the team, who were staffed by a mix of the three wings, worked well together.

WEATHER WINDOW

While the climate didn't interfere with the maintenance the weather conditions were a factor on the training flight activity.

"We knew what to expect. Obviously there were missions that were cancelled because of the weather, or the sea conditions, but in most cases we had alternate internal areas where we could fly. So when the sea conditions were very bad we rescheduled the mission to fly inland," explained Col. Spigolon.

"What really helped us was the fact that the weather predictions were very punctual and accurate. The job was to find the right window at the right time and to be ready to fly, so we needed to be flexible and ready to go when the weather permitted. Sometimes the weather forced us to have alternate open airport up to the north."

Obviously the weather only had an impact on the training missions; with real scrambles, the situation is reported to the CAOC in Uedem, Command and Control system who handle them depending on the severity of the tactical situation.

A WINNING FORMULA

Task Force Ice proved once again what great capability the Italian Air Force possesses. The aircraft and crew had no difficulties setting up and operating – even in the most extreme conditions away from home base. In fact, the aircraft even outperformed expectations.

"At the beginning of the detachment we expected some delay in the start-up of the aircraft since the shelters are not heated and the temperature at night drops quite a bit but the Typhoon didn't suffer any type of problems," said Col. Spigolon. <<

"The aircraft and crew had no difficulties setting up and operating"



HARRIET BALDWIN:

TYPHOON IS WORLD'S MOST POWERFUL AND RELIABLE SWING-ROLE COMBAT



Harriet Baldwin the UK Defence

Equipment Minister has described Eurofighter Typhoon as the world's most powerful and reliable swing-role combat aircraft and praised its reliability, versatility, capability and operational track record.



"We know this fabulous fighter will strengthen the UK's prosperity. In an increasingly competitive and demanding international market it's the only fighter jet on the market able to offer such wide-ranging capabilities. That's why five European nations, alongside three Gulf States, have already chosen this aircraft," she said during the Royal International Air Tattoo at RAF Fairford in Gloucestershire this July.

"That's why the UK government and the governments of our European partners are fully focused on working with industry to maximise Typhoon's export potential in the worldwide combat air jet market.

"The Ministry of Defence in particular is pleased now to be supporting and leading some of those campaigns, whether it's in Europe, the Middle East, or South East Asia, where we believe Typhoon meets the requirements of our international partners.

"When I was last at Warton I was privileged to see the first Typhoon for the Royal Air Force of Oman and welcome them into the Typhoon family."

She added: "Typhoon strengthens UK defence and the first quality I would highlight is its reliability; it has an engine that goes over 1,000 flying hours without needing unscheduled maintenance. It's versatile, simultaneously supporting air-to-air and air-to-surface missions. It gives Britain global coverage because, today, we know that our Typhoons are all over the world.

"They've been heavily involved in striking at the heart of DAESH in the Middle East, warding off the Russian threat in Eastern Europe, safeguarding the Falkland Islands 35 years after the invasion, and, of course, 24 hours a day, 365 days a year providing our quick reaction alert to defend British skies."

"Typhoon will form the spear point of the UK's future combat air defence capability alongside the F-35 Lightning. But what makes it truly special is that, supported by the ground-breaking support contract, TyTAN, it has the capacity to evolve.

"In the past few years we've been upgrading Typhoon with leading edge

weapons, Brimstone, Meteor and Storm Shadow, and most recently the Defence Secretary revealed we're enhancing its Defence Aids Subsystem (DASS), which provides missile warners, chaff, and flare dispensers to adapt to the changing threats." <<

TYPHOONS ON BLACK SEA POLICING ROLE



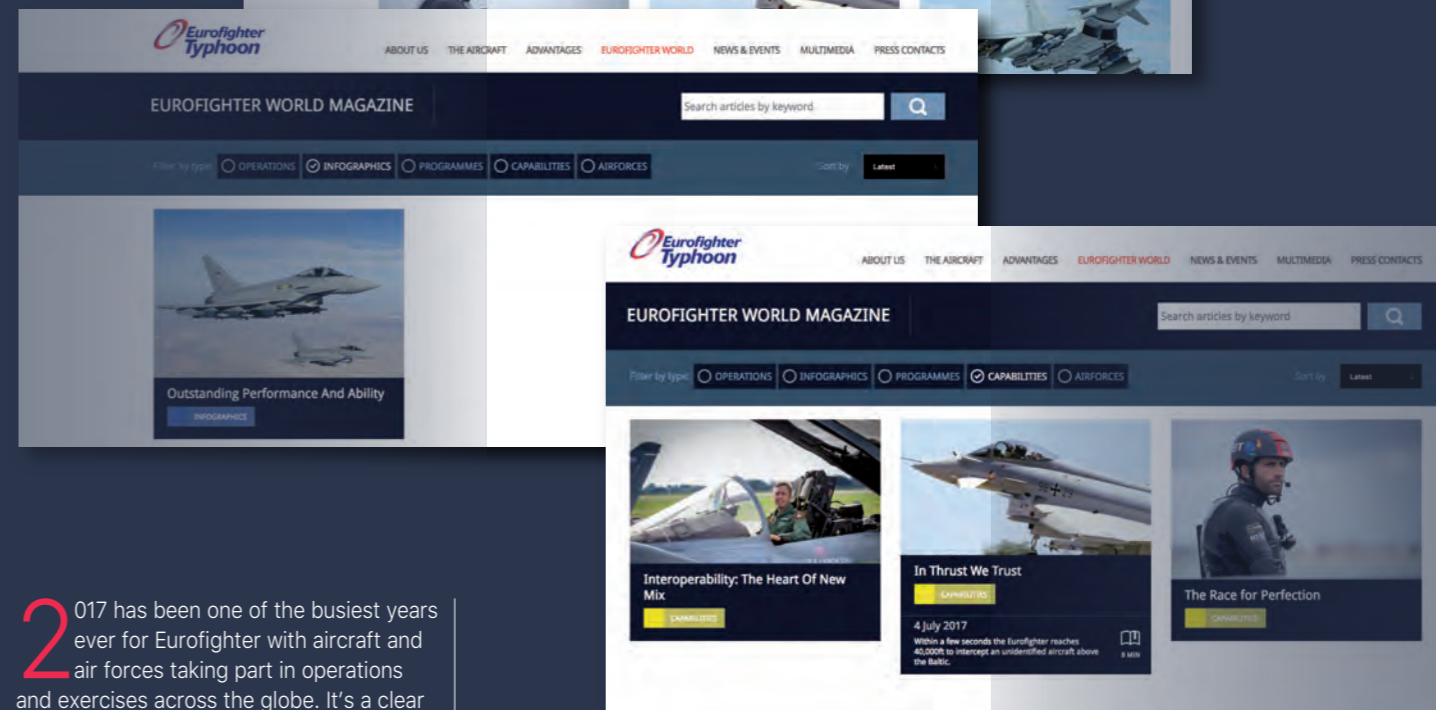
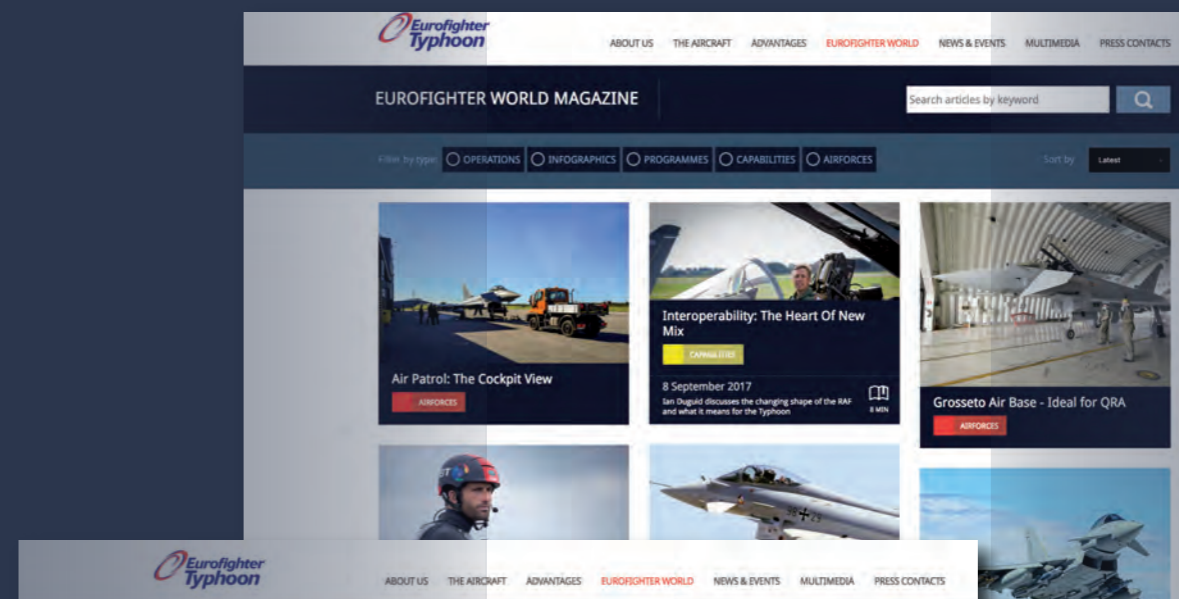
Eurofighter Typhoons from the UK and Italy have taken lead roles policing the skies over the Black Sea region under the auspices of NATO's Southern Air Policing mission.

A detachment of four Typhoon fighter jets from the UK RAF's 3 Fighter Squadron was deployed earlier this year to work alongside the Romanian Air Force to police the skies over the Black Sea.

Deployed for four months, the aircraft were based in Mihail Kogalniceanu Airbase in south east Romania.

Meanwhile, Italian Air Force Typhoons from the 4th Stormo (Wing) in Grosseto were based in Bulgaria at Graf Ignatievo Airbase, close to the town of Plovdiv, for a three-months deployment fulfilling a similar NATO Air Policing role. <<

LAUNCHING THE EUROFIGHTER WORLD HUB



2017 has been one of the busiest years ever for Eurofighter with aircraft and air forces taking part in operations and exercises across the globe. It's a clear indication that Eurofighter remains a world class combat aircraft – the aircraft of choice for many of the world's leading air forces.

At the same time, significant progress continues to be made on the capability front, with work to integrate Storm Shadow, Meteor and Brimstone. In short, this has been a memorable 12 months for Eurofighter.

And so, in order to reflect this progress, the Eurofighter World team is going to change how we do things.

We're delighted to say that in recent weeks we have launched a new Eurofighter World Hub on our www.eurofighter.com site.

The Hub will be the central home for all our articles, pilot interviews, profiles of key

people, background stories on operations and exercises, as well as images, videos and infographics. It will be regularly updated, with its content shared through our social media channels – Facebook, Twitter and Instagram.

Rest assured we will continue to bring you all the latest on capability updates, behind the scenes stories at bases, shedding light on life within the squadrons and insights into the working lives of Eurofighter pilots. But we will do so in a timely manner and in a way that reflects the pace of change within the Eurofighter community – where the operational tempo has been growing in recent months.

For fans of the printed magazine don't worry. Eurofighter World will still exist but in the future we intend to introduce more exciting changes along the way to ensure it remains a vital read for anyone interested in Eurofighter Typhoon.

But for now, make sure you head to our website and bookmark the Eurofighter World Hub – that way you'll never miss a thing that happens in the Eurofighter World. <<

Please follow us on:



 Eurofighter
Typhoon

