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SPECIAL EDITION

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EDITORIAL

© Dr Stefan Petersen

In this edition of Eurofighter World, we speak exclusively to the CEO of Eurofighter **Giancarlo Mezzanatto**.

At the Paris Air Show 2023 you predicted that up to 200 new orders could be coming to Eurofighter. We're now seeing those start to come from the Core Nations, what do they mean for the future of the programme?

We have been positive for sometime that our Core Nations would make additional orders, and therefore it was great to hear Chancellor Scholz announce at ILA in June that Germany would purchase 20 additional Typhoons (before the end of the current legislative period).

The new German and Spanish (Halcon II) orders, as well as an anticipated Italian one, demonstrate the confidence our Governments have in the programme and the aircraft.

A term I like to use is that we are seeing the renaissance period of the Typhoon programme, which is set to continue for the next decade.

When might we expect to see new orders for Typhoon from Export Nations?

Eurofighter and our Partner Companies continue to work with our Governments to support and meet the requirements from several export nations.

We have a number of ongoing and active campaigns - in Europe and the Middle East - and we are optimistic they will be successful.

Those export nations have seen the immense value that the Typhoon can bring to their Air Forces, as well as the benefits of being part of the Eurofighter programme.

Your time as CEO is taking place during a very challenging geopolitical period. How do you think the Eurofighter Programme is making a difference in this 'new world order'?

The world order changed very quickly following the Russian invasion of Ukraine. After more than 75 years of relative peace in Europe, the threat of war is a very real one. There are also other crises worldwide, particularly in the Middle East and the Indo-Pacific regions. Considering all these issues, there is a compelling need for European countries to increase responsibility for their own security.

The increase of defence readiness and strengthening of the industrial base are now clear objectives for European countries. These must take place as — regardless of the outcome of the 2024 Presidential Elections — it is likely that the United States will need to prioritise its military resources on multiple fronts.

The Eurofighter programme is one of Europe's leading defence collaboration programme successes. It has been proven to make a significant difference operationally as well as economically for the core nations. The positive impact the programme has made on the core nations' economies is considerable, especially in the role it plays in sustaining the European defence industrial base.

What operational role does the Typhoon platform currently play?

Typhoon is and will continue to be the central pillar of Europe Air Power. More than 80 per cent of the Partner Nations' operational air missions, during the past two years, have been carried out by Eurofighter.

Thanks to its versatility and swing-role capabilities, Typhoon has been a strong and reliable asset. Whether that's in Air policing and QRA (Quick Reaction Alert) on the Eastern flank of NATO, or on combat missions in the Middle East, in Syria, Iraq and more recently in Yemen to defend Red Sea maritime security.

Eurofighter Nations are engaged in air policing operations to protect the eastern borders of NATO in the Baltic countries, in Poland and Romania. Air superiority is an essential requirement in any battlefield and in this operational scenario. Eurofighter represents a fundamental deterrence factor in Europe.

An independent study into the impact of the programme on the core nations was recently released. What do the findings show?

That's right. The report, published in April by PwC, illustrates the significant positive impact on our Core Nations' economies of the Eurofighter Programme.

The report provides a comprehensive look into the Programme — spanning the entire spectrum of development, production and support activities across the four Core Nations – and highlights the contribution of export contracts.

The economic contribution is evaluated in terms of GDP, tax revenues and employment generated by the Programme. It looks forward to what that could be over the next ten years.

The report's 'base scenario' includes the current contracts, plus an additional 25 aircraft under negotiation with Spain. It shows the programme will generate a GDP impact of € 58 billion and tax revenues of € 14 billion over the next ten years.
With the acquisition of additional orders by the Core Nations (which are currently under discussion), and other export opportunities, these figures have the potential to reach a GDP impact of € 90 billion and tax revenues of € 22 billion.

If properly supported, the Programme will sustain a supply chain of 400 companies and a highly skilled workforce of around 98,000 people across the four Core Nations. Of this, around 24,000 are in Germany.

The study shows the huge economic return for the founding countries of the Programme, but also highlights the interdependencies across the four Nations. The investment of one nation impacts the economies of the others. The investments from export benefit the economy of all four Core Nations.

You talked in the past about the need to sustain European defence readiness. How is the Programme contributing to the sustainment of the European defence industrial base?

A recent European Commission paper was clear; European defence readiness will only be achieved through a responsive and resilient European Defence Industry. During the past two years, almost 80 per cent of European defence acquisitions have been made outside Europe, with the US representing 63 per cent. Therefore, it is very much in Europe's interest to reverse this trend.

The Eurofighter Programme's sustainment of highly skilled jobs, with high labour productivity rates, represents a fundamental factor for the fighter Industries of the Core Nations. Furthermore, technology and industrial assets created by the Programme are a solid baseline of Defence Industry capability. These need to be preserved and further developed.

This is essential to prevent overreliance on US technology and to provide a bridge to the sixth generation programmes.

How do you impress upon the customer to continue to invest in Eurofighter when many are looking ahead to sixth generation solutions?

I fully appreciate the need for our nations to invest in the sixth generation systems. However, according to the current plans, these new systems will not be available before 2035-2040. Taking into account the current geopolitical scenario, there is an urgent operational need to strengthen European Defence now, and that is where Eurofighter comes out on top.

Furthermore, engineering knowledge and industrial assets must be preserved to be ready for the sixth generation programmes, and the only way to do it is to further invest on the current fighter platforms.

Typhoon also offers the opportunity to test and develop new technologies and advanced sensors, creating a natural bridge to the sixth generation platforms and systems. Typhoon's life will extend to 2060, which means there will anyway be a need to guarantee the Long Term Evolution of Eurofighter. It is not a case of Typhoon or sixth generation – the reality is that European forces will need both systems to provide a meaningful air defence.

Having completed more than one year in the CEO's office, how do you see the future of Typhoon?

Given the relevance of the Programme from an operational, economical and industrial point of view, and given the current geopolitical scenario, we are working with our customers to further enhance the capabilities of the platform and keep it operationally effective for many years to come.

Enhancement Package 4 (P4E) and the Long Term Evolution programme will provide Typhoon with powerful sensors, active and passive, enhanced electronic warfare capabilities, the integration of new weapons, more advanced data processing capacity and an evolution of the cockpit and Human Machine Interface.

The future of Typhoon is bright — not only because of the sale opportunities in the next two years by Core and Export Nations — but also because there are real operational requirements to further enhance its capabilities.

In my view, this will safeguard our Defence Industry and will seamlessly bridge our Defence technology to the sixth generation systems. ■

Eurofighter's Economic Benefit Revealed

Strategy&, part of the PwC network has published an independent report that highlights the impressive scale of the Eurofighter Typhoon Programme's contribution to economies across Europe.

The in-depth report examines the entire spectrum of development, production, and support activities, encompassing the four Eurofighter Typhoon partner nations of the United Kingdom, Germany, Italy and Spain.

It delivers compelling data showing the current economic benefits of the programme as well as anticipating future economic contributions, focusing in particular on the next 10 years.

The 'base scenario' takes into account orders for new Eurofighter Typhoons from Spain (Halcon I and II) and Germany (Quadriga). This shows that, for the next decade, the programme is set to contribute €58 billion to the GDP of the four core nations' economies; generate tax revenues of €14 billion for the respective governments; and support 62,700 jobs annually.

Those numbers increase significantly in the report's 'growth scenario' with opportunities for sales of approximately 200 Eurofighter Typhoons on the domestic and export market.

This scenario shows, for the next decade, a programme contribution of €90 billion to GDP; tax revenues of €22 billion generated; and more than 98,000 jobs each year. The benefit of future export opportunities would mean that around 30 per cent of the core nation investment would return as tax revenues.

Eurofighter CEO Giancarlo Mezzanatto said: "The vital role that the Typhoon performs to keep Europe's skies safe is widely known to all, however, people are often less aware about the incredible economic benefits that the programme also brings.

"The Eurofighter Typhoon programme directly boosts European economies and supports tens of thousands of crucial aerospace jobs – benefiting the communities where we live and work. There is also significant spill over in regions where Eurofighter production lines are located and where the programme often sustains SMEs, start-ups and educational institutions.

"Therefore, new Eurofighter Typhoon orders are essential to sustain and retain defence industry production assets in Europe. This will guarantee national and European technological independence, and industrial know-how resilience, to the core nations over a long period." ■

© Michael Nussbaum

Turbo Charged

The RAF Typhoon display pilot is a coveted role for the elite. Flt Lt David 'Turbo' Turnbull will be in the cockpit throughout the 2024 season and we caught up with him to find out more about what makes him tick.

© Sqn Ldr Keith Watson

What inspired you to be a pilot?

I probably decided I would like to join the military around the age of 12. I was extremely interested in an outdoor and active lifestyle which life in the forces offers.

I think I became completely set on the RAF after talking to my older brother who had joined the Army and was a member of 3 Para. I managed to sit in a Tornado GR4 (obviously on the ground!) when I was 16 years old and realised that becoming a fast jet pilot was my dream. My Tornado mates will love that part of the story.

How did your early RAF career develop?

Life in the RAF has been extremely varied, and I have achieved more than I could have imagined and made friends for life.

I completed Elementary Flying Training in the Grob Tutor after graduating from Initial Officer Training and was streamed to fast jets. I was lucky enough to hold at the Battle of Britain Memorial Flight for 2 seasons and loved every minute of it. A highlight was meeting many veterans during the visit to the UK of the Canadian Lancaster, Vera.

After this, I completed Basic Fast Jet Training at RAF Linton on Ouse on the Tucano and then Advanced Fast Jet Training at RAF Valley on the Hawk T2. I was lucky enough to be streamed to the beast that is Typhoon and was posted to the mighty II(AC) Sqn at RAF Lossiemouth in Scotland.

I enjoyed a great first tour that involved two deployments on Op Shader, two detachments to the Falkland Islands and exercises in Oman and Malaysia. I have been a Qualified Flying Instructor on 29 Sqn since 2021 which has been very rewarding. It is great seeing pilots we have trained go on to have a great time on the front line. Last year I had the honour of being selected as the 2024 Display Pilot and have loved it so far. The Typhoon Display Team are made up of so many highly motivated and amazing individuals so it's an awesome place to work.

What do you think are the key attributes to being a Typhoon pilot?

A Squadron needs different types of people to get the maximum benefit, but contrary to what people think the main attributes are for pilots to be honest and humble.

We fly a single-seat aircraft and that means you need to be able to trust your wingman and if someone makes a mistake, everyone needs to be able to learn those lessons and ensure they are not hidden away.

Being calm under pressure is also important and comes with training, but I have usually found that hard work and persistence are just as important as natural ability. →

Do you have any memories of your first flight in Typhoon?

"This thing goes!" That is all I thought. I was lucky to make the 'airborne' call to Air Traffic. I am still not tired of the pure power of Typhoon's EJ200 engines.

So what do you think of the aircraft?

The aircraft is amazing. As a 'within visual range' fighter I believe there are very few aircraft that can compete and our amazing sensors courtesy of BAE Systems and Leonardo are truly world-leading.

With our new Striker II helmet and ECRS due in this decade, I believe Typhoon is the ultimate aircraft to fly.

What attracted you to this display pilot role?

It is a dream job for me. Flying this aircraft already is a massive privilege and I feel honoured to show as many people as possible the incredible performance of this aircraft and give you a taste of what the pilots on our front lines Squadrons are dealing with every day.

Why do you think Typhoon impresses so much at air shows?

It has to be the noise. To experience the display properly, you have to be there. The engines sound incredible and when combined with the tight turn circle and amazing high and low speed handling, there is nothing better. When other aircraft are trying to gain speed to fly manoeuvres, in Typhoon you are usually trying to reign it in!

What's the aspect of the job that you buzz off the most? What do you like best out of the role that you've chosen?

My favourite part is the idea that those watching may one day join the Royal Air Force and experience some of the amazing things I have. Whether in a flying or ground role.

What are you looking forward to most in the display season?

There are many amazing events this year. We are celebrating and remembering D-Day and the sacrifices made by many of the UK and its Allies 80 years ago.

I am lucky enough to be going to Canada to help celebrate the Royal Canadian Air Force's 100th anniversary and we are off to Sweden to welcome them to NATO. What I am most looking forward to though, is the dusk displays in the UK as I have seen them before from the ground and they are spectacular.

Is there a particular aspect of the display you have worked on?

My favourite new move is the barrel roll into a slow-speed pass. I go from 500kts to 110kts during a barrel roll and the aircraft appears to freeze. It is a chance to sit back and enjoy the occasion and then it feels unbelievable to accelerate away straight into a loop.

Is display flying more physically demanding or is it more of a mental challenge?

It is both. The -3 to +9G performance takes its toll on the body, but with training and experience combined with our great flying clothing, this isn't much of a problem. The key is to stay focused be present, and think ahead.
This mental side is all in the preparation and doing what we call 'armchair flying'. This involves either sitting down and thinking or walking through the display and constantly challenging yourself with those 'what if?' questions. That way nothing can come as a surprise on the day and I am free to perform physically and mentally at my best.

Is there a particular display you're most looking forward to visiting?

So many. I honestly don't have a favourite, but if I had to pick right now it would be Bournemouth. A coastal display in the evening is just the best experience with two engines roaring in reheat. ■

Fighter Show continues to climb to higher levels

Twelve months in, The Fighter Show has been meeting its mission to educate, inform and entertain by telling stories about the wider Eurofighter family.

Launched on YouTube in 2023, The Fighter Show is a unique series focused on the work of the people involved in the Eurofighter community.

It is filmed at a variety of outdoor locations including Air Bases and Air Shows, plus studio episodes with a live audience.

The show, hosted by Eurofighter's Flo Taitsch, has featured a broad range of guest interviews with pilots, engineers, technicians and industry partners. It has explored new capabilities and air force exercises and deployments.

It has taken viewers on exclusive behind-the-scenes visits to locations including German Air Force's 74 Squadron in Neuburg, Albacete Air Base, Spain, Naval Air Station Keflavik in Iceland, RAF Waddington in Lincolnshire, and Gioia del Colle Air Base in Italy.

And, with Eurofighter being the backbone of Europe's air defence, the show has gained a real following across Europe and in the Middle East. It has already clocked up well over 500,000 views.

Earlier this year Flo and the team who work on the show were honoured at the International Brilliance Awards in London to mark their achievement in attracting a new audience.

You can watch all episodes of The Fighter Show now on Eurofighter's YouTube channel: youtube.com/eurofightergmbh ■

Check it out →

Italian Air Force celebrates 20 years of Typhoon

This year, the Italian Air Force (ItAF) marked the 20th anniversary of the delivery of the **first Eurofighter Typhoon** with a special event at the Grosseto Air Base, the home of the 4th Wing.

Since that momentous occasion in 2004, the Typhoon has gained more than 200,000 flying hours with the ItAF – both home and abroad. Today, the Typhoon is the backbone of Italian air defence having flown 135,000 sorties.

Colonel Alberto Rosso, who was Wing Commander and Chief of Staff of the Air Force, received the first Typhoon which was then assigned to the IX Squadron.

Speaking at the 20th-anniversary event in March, **Gen. DA Luigi Del Bene,** Commander of the Combat Forces of the Air Force, said: "The 20th anniversary of the delivery of the first F-2000 marks an important occasion in the history of the Italian Armed Forces. It was also the start of an important evolution for the ItAF, which covers training, operational and industrial cooperation successes.

"Typhoon is an impressive multi-role aircraft which, thanks to the evolution and continuous updating of new technologies, can always adhere to today's new operational scenarios.

In an operational context, during the past last three years alone, the F-2000s of the four Wings of the ItAF have taken to the skies on more than 50 occasions to carry out real interceptions to safeguard the national skies. While conducting Air Policing duties for NATO (in Lithuania and Poland) in 2023, there were approximately 40 scrambles to defend the eastern flank of the Atlantic Alliance.

Colonel Filippo Monti, Commander of the 4th Wing of Grosseto, said: "Twenty years of Eurofighter Typhoon sits nicely within the history of the ItAF which celebrates its 101st birthday.

"It had a weapons system that required a change in the hearts and minds of the personnel - first of the 4th Wing - and then of the entire Arma Azzurra. Since then it has been continually developed to keep up with the times and make the Typhoon as effective as it's always been." ■

EUROFIGHTER FACES:

PAUL BIDDLES

Photographer

How did you get into aviation photography?

When I was a kid, I lived in a little village in Lincolnshire that was under the flight path for RAF Waddington. We used to see Vulcans and lots of other Cold War jets overhead. That sparked an interest. We also went to a lot of air shows at the base.

In the mid-90s, I studied art and design, which took me down the photography route. But then I started full-time work and for a time forgot about aircraft. Then around 2012, I was on the way back from the coast and drove past RAF Coningsby. On the spur of the moment, I decided to stop to take some pictures. From that day I got the bug again.

Over the next couple of years, I went from iPhone photography to investing in more sophisticated DSLR equipment. Around the same time, Instagram became massive. By then I'd started working nights, which gave me a lot of free time during the day which meant I went to the base two or three times a week.

My relationship with the Typhoon Display Team started after I began posting images on social media. From there, things grew into a good working relationship.

What are the main challenges of getting a great photo?

It's about being in the right place at the right time. Then you look through the viewfinder and watch. And maybe during a ten-minute Typhoon display, it's just a case of having an instinct about the moment when the light hits the surface of the jet in the right way. You sense it's the right time to press the trigger.

Is there a particular style that you think sums up your work?

My style is focused on the way the light touches a subject — be it a person, building, or aircraft. Once upon a time, a lot of my black-and-white photography was dubbed aviation art noir. I simply say I like my photography to come packed with emotion. I want the viewer to feel what I'm trying to convey, whether it be in the edit or the original photography.

I think having been to art school helps. But it also helps to have an understanding somewhat of the laws of physics, dynamics, and nature as well. You can be skilled in terms of using a piece of equipment like a camera, but sometimes it's understanding the laws of nature that help you get those really good shots. Or to put it across in a way like an artist like Turner would have done.

Why do you think the Typhoon is such a good subject?

It's a unique subject — with incredible power and speed. The Delta wing is probably the key element; you see the sun reflecting off its surfaces. This means you can get brilliant, dynamic images. I grew up in the Cold War era amid a lot of rugged-looking machines. So when Typhoon came along, it was a very sleek design.

When did you then start getting commissions?

I was selling imagery, and then the commissions for work started. It was a small natural progression, which eventually led to working with Wings magazine. I got the front cover for that in the first edition of the magazine. Since then, I have been lucky enough to have also had images used on the Eurofighter calendar. I also produced the images used on the front cover of Mike Sutton's book, "Typhoon."

Do you have a particular favourite shot of your own?

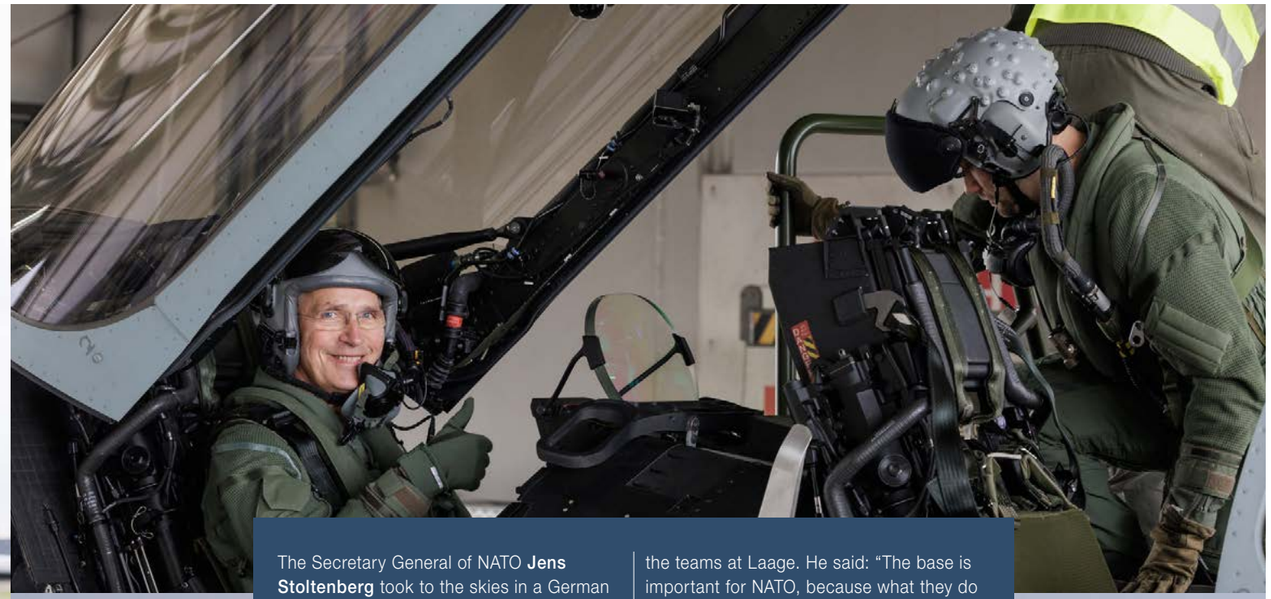
There are one or two that are special to me. The first is of a 3(F) Squadron Typhoon as it is taxiing directly towards me. I kept it black and white but left the hood in its natural colour to stand out. I used my dad's Fuji camera because I didn't have one then. After I posted that, the pilot got in touch. It meant a lot that the person in the photograph enjoyed it so much that they wanted it. I've got one on my front room wall which I took back in 2014.

Another favourite is the image selected for the front cover of Wings and the Mike Sutton book. It's the same image. That particular image helped make my name as a photographer.

Finally, I'd go for another 2014 image. I had stopped off at RAF Coningsby, and I was taking some shots on my iPhone. The sky was like marble. In the edit, I took the light levels down, and it gave some fantastic silhouette shots. I'd select one of those too. I think it's because at that period the reaction to my work was positive, and it was a real catalyst for me. ■

NATO Secretary General takes Eurofighter Flight

NATO Secretary General Jens Stoltenberg with Major Mark Härtel.



The Secretary General of NATO **Jens Stoltenberg** took to the skies in a German Eurofighter as part of his visit to the 73 Tactical Air Wing at Laage Air Base in Germany.

Mr Stoltenberg described the flight as a great experience and praised the work of the teams at Laage. He said: “The base is important for NATO, because what they do from here is to educate the best pilots in the world and also support the different air policing missions, which is important in a more challenging security environment.” ■

Eurofighter Expert

I've never had a day when I didn't want to go to work.

From being a regular at Farnborough Air Show to shaping aircraft that will be flown by future generations, **Jen Richley** has a true passion for aerospace.

"Your first flight in a fighter jet never leaves you," says Jen Richley, who joined Eurofighter in October 2023 on a three-year secondment, becoming Operational Factors Manager in front-end development. "It's exciting and fun, but a lot of training has led you to that point."

Growing up close to Farnborough in the UK, which is home to the world-famous Air Show, and with two parents in the aerospace industry, there was perhaps never much doubt about Jen's career path.

She joined the RAF in 2001, aged 19, spending 11 years flying the Tornado F3, including three frontline tours.

Passionate about sharing her love for aerospace, she now speaks to young people about pursuing similar careers, so she has often recalled that first flight.

"I vividly remember lining up on the end of the runway," she says. "The throttle went up and the brakes released and I started accelerating. It's exciting and momentous every time, and then you're airborne and straight into work because you have a job to do.

"Monday morning is just Monday morning. But I've never had a day when I didn't want to go to work."

Leaving the RAF in 2012, she gained an Open University degree in economics and mathematical sciences while working for DSTL on projects around unmanned systems and swarming. She next became electronic warfare officer at Cobham Aviation Services, flying Falcon 20 and providing operational readiness training for UK, NATO and international customers, with a focus on jamming, comms jamming and radar.

"I've been lucky to have an amazing career that's taken me all over the world," says Jen. She's had four tours to the Falkland Islands as well as work in the US, Finland, Denmark, Lithuania, Cyprus, Oman. A highlight was going to Lithuania in 2004. "It was with the NATO Baltic air policing operation," she says. "I was on my first operational tour, and it was a really terrific opportunity to go and see somewhere different and to be on the NATO frontline."

Jen joined BAE Systems in 2019, teaching in the Typhoon simulator at RAF Coningsby and latterly as an aircrew advisor specialising in fast jet mission planning.

It's a career that has neatly come full circle, returning to one of the people who has been her inspiration. "My dad is a private pilot and aeronautical engineer," Jen says. "He worked on Typhoon in the early days of wind tunnel models in the 1980s, so he sparked my love of aviation. He's always been an excellent sounding board, full of clever, considered opinions so I have always enjoyed being able to discuss my work with him. My mum works in defence and aerospace, too, on air weapons – it's great to have your parents as an inspiration."

Her latest role as one of two operational factors managers (the other being her husband), is described broadly by Jen as being "the voice of the operator across the business". She works on the development of the aircraft and future requirements that will map out how Typhoon is developed all the way to 2060.

She is equally as enthusiastic about the impact she can have on the aircraft, providing that end-user focus, as she is about the role enabling her to give her three children the travel opportunities she had.

"Eurofighter is the company that makes Typhoon happen so it's great to be a part of the organisation that oversees everything, rather than small parts of it," she says. "This is where you see everything and that's interesting to me. This week I've been involved in discussions with pilots from Germany, Italy, Spain and the UK, but sometimes I spend time with the marketing team, and I've also been doing some workshops as part of the mentoring scheme at Eurofighter."

It's a fantastic journey that perhaps took flight as a regular visitor to Farnborough Air Show as a child, and Jen is inspired by the chance to impact future generations.

"The world has changed massively in 20 years, so to think how the world of air operations might change next year and over the next 20 years, makes this a really exciting space to work in," she says. ■

The Growing Importance of Electronic Warfare

With the battlespace becoming increasingly contested and congested, the importance of Electronic Warfare (EW) grows. But what do we mean when we talk about EW and why does it matter?
We speak to former fast jet pilot **Jen Richley** who today works as Eurofighter's Operational Factors Manager to find out more.

What do we mean by Electronic Warfare?

Electronic Warfare is a term perhaps not as easily understood outside specialist communities, but it's becoming increasingly important.

The world is more connected than ever before – and that can make us vulnerable. Think about how the smartphone in your pocket talks to the watch on your wrist or how your smart home device communicates with the lights in your living room. The same applies to the military space.

There are sensors and connections in everything we do, giving us a shared operational picture that expands beyond an aircraft to the troops on the ground, the ships and submarines. While it gives us fantastic insight and strengthens our abilities, it also creates a large target for hostile operators to exploit what we're doing.

Is EW a new thing?

No. Communicating via the electromagnetic (EM) spectrum has always been an integral part of how any aircraft is used. The spectrum is made up of all types of EM radiation, from visible light and radio waves to infrared light, ultraviolet light, X-rays and gamma rays.

Electronic Warfare is everything that can be done to ensure friendly use of the electromagnetic spectrum while stopping the enemy from using it themselves. A simple example is you want to use your radio, but your enemy wants to use the radiowaves as well. Electronic Warfare is used to stop them from using your radiowaves, but also to stop them from stopping you from using your radio.

So in simple terms what does EW look like?

There are three types of EW – Electronic Attack, Electronic Protection and Electronic Support.

1. Electronic Attack.

This is what we do to reduce the effectiveness of how the enemy is trying to use the spectrum. Are there hostile radio frequencies I need to jam, are hostile weapons being employed – it's all about the things we use that seek to stop hostile use of the spectrum.

2. Electronic Protection.

This is how we protect ourselves against what an opposition force might do to us. That might be how we design our radars so they are not susceptible to jamming or using decoys to present a more seductive target.

3. Electronic Support.

This enables the other two. This involves getting information about the hostile signals using radio or certain radars that allow the operator to make decisions about how they will continue.

Am I going to shoot at them, are they going to shoot at me? It's time-critical and technical and provides information about what they're doing, which then leads on to the other two.

Have we reached the ultimate in EW?

It's an ever-evolving landscape and there's a constant need to be innovative. In effect, we are in an EW arms race as technologies progress.

Radar technology is advancing all the time and, of course, the physical methods we can use on an aircraft are determined by the size of the aircraft itself – you can't fit something the size of a tank onto an aircraft.

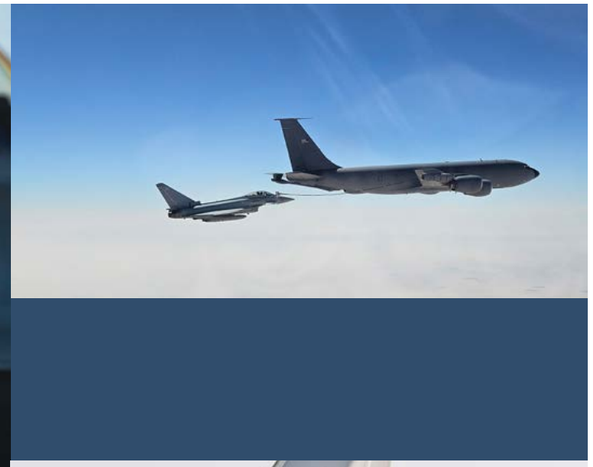
Does Eurofighter have good EW credentials?

The Typhoon has excellent EW credentials in self-protection, with a suite of detection, identification and classification systems, and a broad range of countermeasures across the spectrum. German Parliamentary budgetary approval has also recently been granted to develop a version of Typhoon specifically for Electronic Combat (the EF EK).

This is a really exciting development for Eurofighter, including a new transmitter location and self-protection system, and integrating the AARGM anti-radiation missile.

These developments include cutting-edge technology, such as AI analysis of signals to determine appropriate self-protection measures, to provide a first-class capability that strengthens and augments Typhoon's strong operational base. ■

A Tale of VICTORY



Eurofighter Typhoon from RAF's (Fighter) Squadron took part in **Spears of Victory** — a multi-national air training exercise organised by the Royal Saudi Air Force in the Kingdom of Saudi Arabia.

During the exercise — which is smaller in scale but similar in complexity to the US-led Red Flag exercise — the RAF Typhoons flew daily sorties.

In total over 60 aircraft took part, including Eurofighter Typhoons, Tornados and F-15s from the host Royal Saudi Air Force. The Royal Air Force of Oman was also represented flying their Typhoon.

In addition, there were squadrons from Pakistan, Greece, the UAE and France, while the US supported the action by providing Air to Air Refuelling capability.

During the sorties, the pilots conducted air operations against a simulated adversary. They carried out a wide range of training missions including, defensive counter-air and offensive counter-air operations, as well as air interdiction training against both live and simulated threats.

The exercise required a large training area and the King Abdulaziz Air Base, Dhahran, located near the Gulf coast in Saudi's east was ideal, providing a training area covering around 300 sq km.

RAF Squadron Leader Hodgkinson, the UK Detachment Commander, said: "This was an extremely important training opportunity for everyone who deployed. Both for the force enablers who had the opportunity to work alongside strategic partners in the region as well as the fighter pilots who were carrying out the missions. The pilots and aircrew on this multinational exercise were able to build relationships through shared experiences." ■

Fighting Fit at 50

The Unique World of Multi-Unit Albacete Air Base.


Colonel Ignacio Zulueta

"We strongly believe that its capabilities will help us maintain national security for many years to come."

THE UNIQUE WORLD OF MULTI-UNIT ALBACETE AIR BASE

Spanish Air and Space Force Colonel Ignacio Zulueta's office at Albacete Air Base is normal in every respect but for two things. The first is the doorway that leads up to the air traffic control tower directly above his office. The second is the view from his balcony. It's incredible — every aircraft enthusiast's dream.

From there Colonel Zulueta can look out across the base's extensive runway – the balcony is at the midpoint. It's perfect for viewing the work of the ALA 14 Wing in their Eurofighter Typhoon jets. It's a window into a distinctive world.

"This is a unique base because of the three different units that we have here," says Colonel Zulueta, who still flies each week.

"We have ALA 14 Wing, which celebrates its 50th anniversary this year, the Eurofighter air defence wing. Then, we have the Maestranza, which is responsible for the overhaul and deep maintenance of all our fighter jets, including Eurofighter and F-18, as well as various training and logistics aircraft.

"The third unit is the Tactical Leadership Programme (TLP). Normally a small unit, they conduct huge flying courses four times a year when the base receives around 40 visiting fighter jets and around 1,000 people."

Centrally located on the Iberian Peninsula, Albacete benefits from being both close to the capital, Madrid, but also from having an airspace that offers pilots a huge training area.

"There are no civilian airways above us so this is the main training area," says Colonel Zulueta. "We just have to take off and start the training mission. You don't lose any power or fuel travelling to the training areas. That's also why the TLP is here.

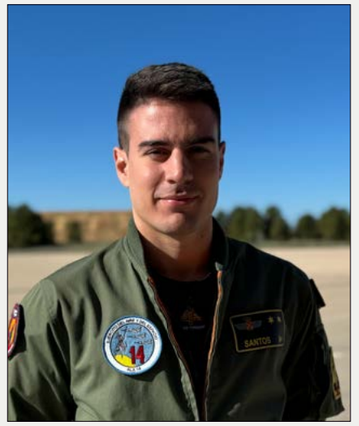
"We are in the middle of the peninsula, so it's very easy for us to reach any point of the airspace that Spain is responsible for — we can go anywhere we need to very fast.

"Eurofighter is the backbone of the Spanish Air and Space Force and it is the backbone of the NATO alliance here in Europe. It's an exceptional aircraft that allows us to do our job. It's capable of intervening in any kind of mission or operation and it can operate alongside other nations."

ALWAYS ON ALERT

ALA 14 is always busy. For example, during our visit five aircraft were in Romania on deployment, but their primary focus is Quick Reaction Alert (QRA). Pilots and crews are on 24/7 duty, 365 days a year, primed and ready to respond to any request from NATO.

Eurofighter pilot Lieutenant Alejandro Fernández Santos says: "Our main goal is to protect the Spanish airspace, so we dedicate a lot of resources to the QRA missions. We have a building next to the runway, with two planes always ready to take off."



Eurofighter pilot Lieutenant Alejandro Fernández Santos

He agrees that the aircraft is ideal for this work. "Eurofighter's thrust-to-weight ratio and its facility to gain energy is just awesome. It can reach speeds of up to Mach 2, which is great for a fighter. It can also carry a large payload. That all means we can carry out a wide range of missions — both air-to-air and air-to-ground. It's easy to change from one to the other in the same aircraft."

Lieutenant Santos says that flying is relatively straightforward because of Eurofighter's carefree handling system. This allows the pilot to concentrate on the mission — managing all the different sensors and making sense of the information that comes their way.

He's also excited about the future direction of the aircraft. He says: "Eurofighter is a relatively new aircraft and still in development. We strongly believe that its capabilities will help us maintain national security for many years to come. Even now projects are being carried out by industry to improve capability further — like, for example, the new radar. We are very excited about the future."

After completing his five-year military training at the national academy, Lieutenant Santos selected Albacete and has no regrets: "I wanted to fly the Eurofighter and here at Albacete we have the most up-to-date version of the aircraft. The best part of living here for me is the work. I think we have amazing personnel in general, and the aircraft is great."

And with the 50th-anniversary celebrations being in 2024 for ALA 14 it is going to be a year to remember for Lieutenant Santos and his colleagues. →

TEAM SUPPORT

Of course, while the pilots and their aircraft always attract a lot of attention, there is a whole team of people behind the scenes working hard to ensure they can carry out their missions and training flights.

In the maintenance hangar, Lieutenant Pablo Eusa López de Murillas explains that after each flight the aircraft are checked over and any issues are addressed.

"In addition to these checks, there are planned period inspections for each aircraft depending on flying hours or time. Some things are checked every few months and we have inspections after 200, 400, 500, 600, 800 flying hours. Each inspection requires several tasks to be performed on the aircraft.

"Eurofighter has a lot of advantages because of the design concept. Almost every part of the aircraft can be removed easily and exchanged for another part, which is a good way to work because it's very fast and very easy to fix certain things."

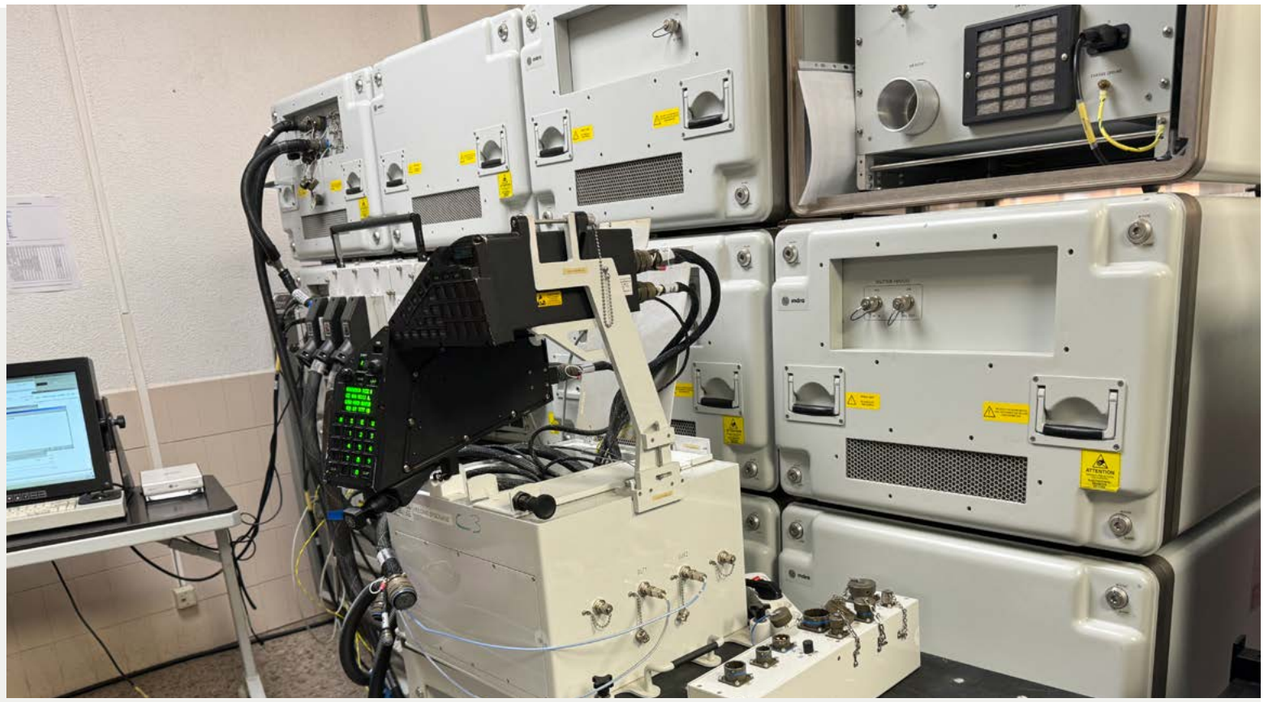
Lieutenant Pablo Eusa López de Murillas

Pablo says that even a large component like an engine can be removed relatively easily in a matter of hours.

Pablo, who studied for a degree in aeronautical engineering, says the team often talk with other engineers at Moron and the wider Eurofighter community. "We exchange information between nations and discuss common problems. You may have a question and someone else already had the solution before so it is good to have forums like the European Air Group. Working together like this, with the Germans, Italians and UK engineers, maximises your knowledge."

The unique mix of units makes Albacete a special base – it also makes for a unique blend of military and industry people. It's a common model across the Spanish Air and Space Force.

Colonel Zulueta says: "We have a lot of engineers from the industry here and many work side by side with our military people. That's beneficial because it is easier to solve issues when they arise if you can talk directly to the people who design the systems."



INDUSTRY PARTNERS STANDING BY

A perfect illustration of this approach is the team from Indra, which provides support for the team at an electronic workshop.

Indra, a Spanish company with a global footprint, is the second-largest supplier of avionics systems for the Eurofighter Typhoon. At Albacete, it has had a team directly involved in helping the maintenance teams improve availability levels with a unique support model for more than a decade.

Jose Vicente Ruiperez Angulo, who was Indra's Head of the Eurofighter Support Programme for over 10 years, says: "We have created a support model with our customer (the Spanish Air and Space Force) that was designed to reduce the number of pieces of equipment that were being sent for repair.

The programme has been successful in analysing failures and reducing the number of equipment repairs required off base.

"We have learned over time and increased the numbers of engineers involved. We now have around 30 people at both Albacete and Moron Air Bases and we are constantly innovating the solutions. It's important to be working side by side with the customer because it allows you to have all the information you need to provide the right solution."

Lieutenant Pablo agrees: "Sometimes our reality means we have to do things differently. That's why it is important to have people right here on the ground to see how things work day to day."

Getting to the right solution for Indra includes developing specific tools and systems like Orion, which can load software on aircraft without the maintainers having to power up the aircraft. The team are also using AI and machine learning to analyse over 6,000 hours of flying to learn more about how the different pieces of equipment wear over time and develop a predictive approach.

This team approach is a theme echoed by the Base Commander. Colonel Zulueta says: "Eurofighter is a European project. It is good for us in Spain and good for Europe too.

"We have to stick together, we have to collaborate and we have to follow this road.

"Eurofighter is the base of the defence industry, not only in Spain but in Germany and the UK too."

That's a good base to build on. ■

"Eurofighter is the backbone of the Spanish Air and Space Force and it is the backbone of the NATO alliance here in Europe. It's an exceptional aircraft that allows us to do our job. It's capable of intervening in any kind of mission or operation and it can operate alongside other nations."

The Life Savers

Inside the world of Martin-Baker

It was 75 years ago — 30th May 1949 to be precise — when **Jo Lancaster** flying an Armstrong Whitworth AW52 aircraft over Southam, Warwickshire in the UK encountered trouble. With his options running out, Lancaster decided to eject. In doing so, he became the first in-service pilot to eject from his aircraft using a Martin-Baker-designed seat. He not only survived but not long after Jo returned to flying.

From that day, Martin-Baker has saved the lives of more than 7,700 aircrew members. The company name has become synonymous with one product — the brand stands for engineering excellence and safety.

In the Western world, this family-run business is one of only two manufacturers supplying the armed forces of countless nations. Headquartered in Denham, Buckinghamshire, the company works with 106 operators in 81 countries on more than 70 aircraft types. Today there are 16,000+ Martin-Baker seats in active service.

So, what has made Martin-Baker so successful?

"It's because we are, in essence, a test-based company, constantly investing in solving the next problem," says Steve Roberts, Head of Business Development for Martin-Baker.

Jo Lancaster

"Our team of 1,400 employees, predominantly engineers, is always eager to develop the next solution, constantly developing and refining our products. From the Mark One seat of 1945, we have advanced to testing the Mark 18 seat for new aircraft and the GCAP next-generation weapons system. We're competing with a US rival, so we continually innovate, enhancing our seat's features. Our motto is 'Evolutionary, not Revolutionary.'"

With a turnover of £400 million, most of which comes from export contracts, Martin-Baker has regularly received the Queen's Award for Export.

There's also a strong sense of purpose — Martin-Baker is in the life-saving business.

"There's a ticker on our website that shows how many people we've saved," says Steve. It stands at 7,723 at the time of going to press. "We often invite the ejectees back to Denham and introduce them to the men and women who have made the seats. Our colleagues love to meet them and hear their stories.

"We recently met a former chief, who told us 'You didn't just save my life, you saved my son's life, my grandchildren's life too' — because if he had not survived, they would never have been born.

"Our team at Martin-Baker knows how important the job is. We build 50 seats a month and we know that one seat in 11 that goes out of the door gets used."

That's a sobering thought.

It means that at Denham the Martin-Baker production team takes great care with each seat they make. There is an incredibly high level of scrutiny in every part of the process.

"We say 'This is the equipment that has to work when the airplane isn't'", says Steve. "There is an independent inspection for every task. For each seat we have developed an inspection process that we can replicate. Every component has 100% inspection. That's quite unusual on a production line but that's our standard because this is safety-critical equipment."

MARTIN-BAKER AND EUROFIGHTER

The Martin-Baker has been the seat of choice for the Eurofighter Typhoon since the birth of the programme in 1988.

"The European Fighter Programme wanted a super lightweight seat, but high performance super lightweight, super cheap, but still with the highest ejection performance — there were a lot of competing requirements. There often are!" says Steve.

The company was developing a new prototype seat to meet the latest physiological requirements and, as work on the original Typhoon got underway, so too did work on the seat. As ever at Martin-Baker, a new product, meant lots of testing.

Typhoon presented the company with several new challenges, some because of its new capabilities and wide operating envelope. The spec also stated that the seat had to accommodate a wider range of pilots, in terms of height and weight. In addition, it had to be compatible with new equipment like the Helmet Mounted Display, Chemical and Biological protection units, and general aircrew equipment.

In 1990, Martin-Baker decided on a radical departure from all their previous seats — moving from a single ejection gun to a twin ejection gun. This helped reduce the seat weight and meant they could meet new physiological requirements designed to reduce the risk of injury.

The twin ejection gun also allowed designers to package more equipment onto the seat and ensure that it was better integrated into the Typhoon cockpit.

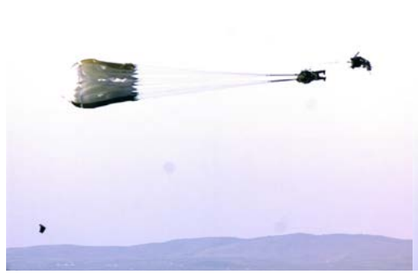
The flight of Eurofighter DA1 occurred at DASA (now Airbus) in Manching on 27 March 1994. Peter Weger, the company's chief test pilot, made the historic flight in the prototype aircraft in the new Mk 16A flight development seat.

Between 1992 and 2008, the company conducted a total of 69 ejection tests. It updated the development seat to the production configuration for the test Typhoon IPA1 in 2008, and the seat has remained the same ever since.

Over the time it has been in service, there have been four successful ejections from Typhoon. Says Steve: "That's an incredibly low number when you consider how many thousands of flight hours Typhoons have clocked up. It's partly a result of the highly reliable engines."

At the ILA Airshow in Berlin, the company displayed its newest seat — the Mk16 NXG. This is designed for the next-generation Eurofighter, with particular changes in the cockpit, most notably the arrival of the a new Helmet Mounted Display for Typhoon.

"We've now integrated airbags and different electronics into the seat. The airbags we've had to develop inflate much more quickly than the airbags we've grown used to in cars. And you need all of that to protect the pilot because you're now ejecting with a new helmet." →



BORN OF TRAGEDY

Martin-Baker started life in 1934 as an aircraft manufacturer. It was the brainchild of Northern Ireland engineer James Martin and famous World War One pilot Valentine Baker, who produced their first tourer the MB1 in 1934.

Sadly, Captain Baker died in a crash while testing the MB3 prototype in 1942. Forced to make an emergency landing, his wing tip hit a tree stump, and the aircraft cartwheeled.

Steve Roberts says: “His friend and partner’s death had a lasting effect on Sir James. From that day and the Ministry request to study ejection seats, he dedicated his life to pilot safety.”

The history of ejection seat development dates back to this period. Post D-Day in 1944, papers discovered by the Allies revealed that both the Germans and Swedes (independent of one another) had been dedicating research and development on ejection seats to help their pilots. Documents revealed that they had carried out 60 live ejections in combat. The design papers were then shared by 24 US aviation companies and just two in the UK. Martin-Baker was one of those two. The company still has some of this German research in its offices.

Within months, Martin-Baker was embarking on a test programme. Special mention here goes to employee, Bernard Lynch.

Lynch carried out the first static ejection up a specially built tower on 24th January 1945. The first rig was made up of a 4.8m-high metal tripod and had a pair of seat guide rails fitted to one of the legs. The seat was driven by telescopic tubes "energised by an explosive cartridge. On the first test, Bernard was shot 4ft 8in into the air.

On 24th July 1946 he volunteered for the first mid-flight test ejection. He ejected from the rear cockpit of a specially modified Meteor 3 at 320 mph and 8000 ft in the air. Lynch made a perfect landing. The intrepid pioneer subsequently made 16 further test ejections!

TIME OF THE ESSENCE

Bernard Lynch would know better than most that if you have to eject, then time is crucial. The ejection handle is now located between the pilot’s knees. Pulling it triggers a complex sequence.

Says Steve: “From pulling the handle, it takes something like 0.3 seconds to jettison the canopy. The rear seat is out of the cockpit 0.15 seconds later, the parachute is deployed 0.5 later, and 1.5 seconds after that, it's fully inflated.

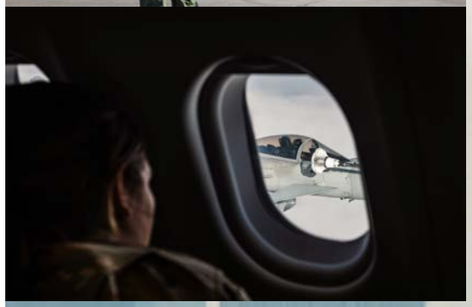
“From being stationary the ground, the whole sequence from pulling the handle to coming down on the parachute might be eight seconds — altitude makes a difference.”

Of course, the holy grail is to reduce injury down to a minimum and save as many lives as possible.

“The appetite for accepting ejection injury risk has come down appreciably since 1945. Initially, managing to save somebody’s life was viewed as a good result. Now the target is 5% injury risk per ejection.”

And all the while the size of pilots that Martin-Baker is protecting are changing too. Since 1944 we've grown taller, wider, both lighter and heavier. The company has had to accommodate this and expand the range of the ejection seat’s effectiveness. The seats are now gender neutral as the range has been expanded to ensure it was suitable for a 47.6-kilo female at one end of the scale and a 111Kilo male at the other.

It’s a perfect example of the Martin-Baker ethos: evolution, not revolution. A spirit that keeps them at the top of their game and ensures that pilots are as safe as humanely possible. ■



The ACE in the Pack

Red Flag is tough. A gruelling two-week combat air exercise that's one of the largest and most intense in the world. But in 2024 it got even tougher for the Typhoon crews from the UK RAF's 3(F) Squadron from RAF Coningsby. Not only did they face two weeks of demanding daily sorties at the Nellis Air Force Base, but when they'd completed that phase it was straight to California for round two.

This wasn't just to extend the trip for the sake of it. It is part of the RAF's Agile Combat Employment (ACE) thinking. Almost every exercise it now conducts has an element of ACE in it – all of which is designed to give the force greater flexibility on how, when and where it deploys from.

That's why straight after Red Flag instead of returning to their home base the UK detachment relocated from Nellis to March Air Reserve Base in California, about a 30-minute flight or four-hour drive away.

"You can't expect to operate your high-end aircraft from a home base because they're going to be a target for long-range weapons," explains Tom Raeburn, a 6 Squadron pilot, who was part of the deployment from RAF Lossiemouth.

The 'hop' from Nellis to March represented another iteration of ACE. But it wasn't just a switch of airfield — the whole exercise took on a different complexion. Red Flag consisted of long planning days followed by short but intense sorties. This was the opposite.

Says Tom, "We operated a complex long-distance scenario flying 500 miles out into the Pacific and then had to fight our way back towards the coast. All the US squadrons we were exercising with dispersed as well, so were operating from six different airfields along the West Coast. From the command and control to the airspace battle managers, everyone had to coordinate a very complex plan from a distance.

"At March we only had a couple of hours to plan and then we were airborne for several hours. That's probably more realistic of a high-end war-fighting scenario.

"As an exercise the second phase was massive and we were a tiny component. Not only did you have 50 to 60 aircraft airborne every day and every night, but you also had the US Carrier Strike Group, submarines, and surface ships involved. As an individual operator on Typhoon, you get less from that, but the whole picture fits together in more of a realistic war-fighting scenario."

Adds Tom, "The reporting that comes out from this is the first major iteration of it will be interesting. It will inform what we do down the line for our Agile Combat Employment in the UK."

At BAE Systems, the Typhoon Training Facility at RAF Coningsby also plays its part in getting the pilots prepared for their exercises, including the ACE elements, thanks to the work they do in the flight simulation.

"In the month before 3(F) Squadron went to Red Flag, we facilitated a lot of training," explains David Hake, BAE Systems' Aircrew Simulation Instructor. "For example, we were able to develop a comms guide and replicate what the Nellis Air Traffic Control would sound like. The simulators have also got a geographical database which meant we were able to put the guys in and out of the base." ■

How Eurofighter Tackles Drone Attacks

Former RAF Pilot **Mike Sutton** led 1(Fighter) Squadron during combat operations over Syria and Iraq. He's also the author of the best-selling book 'TYPHOON'. Here Mike explains how the aircraft is used in drone attacks.

What do we mean by drone warfare?

RAF Typhoons generated headlines around the world this year with their critical role in countering the unprecedented Iranian mass drone attack on Israel. The swing role pedigree of the jet was plain to see: switching mission sets from air policing and reconnaissance to blasting Iranian drones out of the sky. Albeit, this mission was on a larger scale, it echoed a previous task in Syria where Typhoons were re-roled from close air support to shoot down a drone posing a threat to friendly troops.

Drone warfare invariably captures the public imagination, its automation embodying one of the more chilling aspects of modern military technology. Yet the term 'drone' captures a huge spectrum of capabilities — from tiny systems equipped with miniature cameras, to highly automated missiles with limited human interaction. In seeking a definition, the lines are blurred.

The Iranian Shahed drones are comparatively cheap to make, requiring components that can escape sanction and can be produced and fired en-masse. Together with faster cruise missiles, they are all essentially airborne targets that can be destroyed with sufficient combat firepower.

What are the demands on the pilot?

In theory, the air interception process is something with which fighter pilots will be very familiar. Long-range radar controllers provide information about the air tracks to the pilots, who can then conduct an intercept, acquire them on their radars and helmet-mounted sighting systems and blast them out of the sky.

In practice ,it can be more challenging. Drones can fly low, and have small radar cross-sections, making them difficult to acquire with radars.

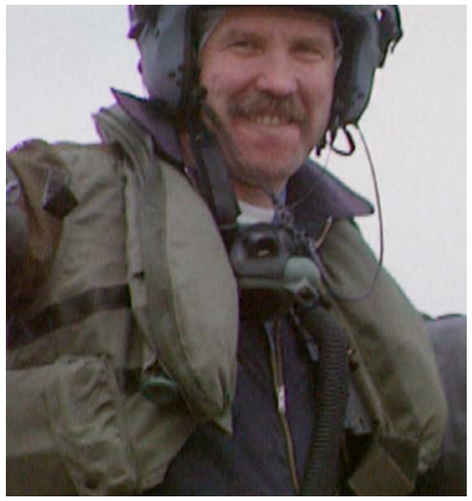
What are the main challenges?

Fighters are limited in number, and mass drone attacks can provide problems of scale and saturation; notwithstanding issues of associated cost. It is expensive to use a high-performance missile to knock out a cheap drone. Should we develop a low-cost anti-drone option in the form of high explosive cannon rounds, cheaper multi-launch missile pods or directed energy weapons? To financiers, the cost per kill is important. To add to the complexity, some high-tech systems also pose greater challenges: they fly too fast and high to counter with traditional air-to-air missiles. Flying into space and hurtling towards earth at supersonic speeds then, as now, is a threat that requires a seriously capable air defence system. ■

30 YEARS YOUNG

The 30th anniversary of the maiden flight of the first Eurofighter development aircraft, DA1, was celebrated earlier this year.

DA1 flying over Bavaria, Germany on a test flight with test pilot C Worning in the cockpit



Peter Weger emerging from the cockpit after his maiden flight

The 30th anniversary of the maiden flight of the first Eurofighter development aircraft, DA1 was celebrated earlier this year.

The flight took place at DASA (now Airbus) in Manching on 27 March, 1994. **Peter Weger**, the company's chief test pilot, made the historic flight in the prototype aircraft which had Rolls Royce Spey engines, rather than the EJ200 engines which were adopted later in the development.

Crowds gathered at DASA's site in Manching to witness aviation history being made as DA1 took off. The aircraft — with the 98+29 serial number — was flown in a restricted envelope with limits on the speed and the angle of turn.

Eurofighter CEO **Giancarlo Mezzanatto** said: "The 30th anniversary is a special landmark and while, we rightly celebrate the people who dedicated their careers to creating an incredible aircraft we can also look forward with excitement. The aircraft they helped develop continues to go from strength to strength. That is their legacy.

"Eurofighter Typhoon has established itself as the backbone of European defence and a fundamental asset for our air forces. At the same time, the Eurofighter programme has played a pivotal role in fostering the fighter industry in the UK, Germany, Italy and Spain and will continue to do so for many years. The product vision is to keep Typhoon operationally effective for another 30 to 40 years."

DA1 aircraft remained in service, aiding the early development programme, until 2005 — a full 11 years on from its first flight. It is now on display at the Flugwerft Schleißheim in Munich. ■

A FINE BALANCE

When the RAF's IX (Bomber) Squadron deployed from RAF Lossiemouth to Mihail Kogalniceanu Air Base in Romania earlier this year, Squadron Leader Declan Monaghan stood up to brief them with one clear point to make: Maintain a defensive posture without escalating tensions.

On paper, the role — flying alongside the Romanian Air Force as part of NATO's enhanced Air Policing mission — is standard. But, with the conflict over the border in Ukraine still ongoing, the significance of the RAF's job are difficult to overstate.

"When I briefed the entire deployment, I wanted to put into clear focus where we are geographically in the world and underscore how important providing that deterrence for NATO is," he says.

"As life becomes routine here, it might sometimes be easy to forget where we are, and why we're here. But you've always got to be aware of how close we are to a full-scale conflict. 100 miles is not very far when you're in a Typhoon, it's a matter of minutes."

Naturally, Sqn Ldr Monaghan and the team receive daily intelligence briefs to ensure they are aware of the latest situation.

"It's really important that NATO sets a defensive posture," he says. "We're very aware that we don't want to escalate the conflict, but at the same time, we need to provide a presence that offers a deterrence. We maintain a de-escalatory mindset but, at the same time, by doing all our daily training activity and exercises with NATO partners, we are providing a deterrence. We are showing we are a credible force, should we be called upon.

"It is a very fine balance."

AGILE AND READY

For the RAF, the deployment to Romania is not simply about providing air policing, it also represents a first-class opportunity for the squadron to take part in training exercises alongside its NATO partners.

"We get far many more opportunities out here purely thanks to the geography," says Sqn Ldr Monaghan. As well as working with the Romanian Air Force's F-16s and alongside a detachment from Finnish Air Force, IX (B) Squadron has been taking part in other exercises and larger-scale missions.

In recent years, there's been a shift within the Royal Air Force for its forces to be more agile.

"In the past, we would have come out with a much smaller team and concentrated on the air policing mission. Now we do that, plus a lot more work with our NATO partners. For example, we went to Finland for a week with a small footprint of aircraft and ground crew. We also spent a week in Poland operating alongside US and Polish allies. It's all part of our wider focus to ensure we can operate as one unit rather than individual air forces.

"The object is to ensure that if NATO or Europe is attacked, we're well drilled and capable of operating together, not as separate units. We aim to make the total greater than the sum of the parts. If we ever have to operate as NATO together, those will be the things that we fall back on. We will be operating off similar tactics and speaking the same language."

The Typhoon's inherent DNA adds to this sense of readiness. "What sets Typhoon apart is the fact that it was designed to be a QRA platform," says Sqn Ldr Monaghan. "It is like a coiled spring, ready to launch in minutes. Then, when you're in the air the sheer power of the Typhoon allows us to respond swiftly and decisively.

"If you need to get somewhere quickly you can. Typhoon can be at 30,000ft in less than a minute. Compared to other jets it has an abundance of pure power."

Sqn Ldr Monaghan's previous operational experience has prepared him well for this latest assignment. His first deployment was on Op Shader, defending Iraqi airspace and combating ISIS. He has also patrolled the skies over the Falkland Islands and last year carried out NATO air policing over the Baltic Sea from Estonia, working closely with German Air Force Typhoons.

Of course, behind every successful deployment, there is a dedicated team. Says Declan: "The aircrew is just the tip of the iceberg — you're talking ten times as many engineers to maintain the jets, to service them and keep them going so that we can do what we do.

"Then you've got all the other support staff. Intelligence is key — we need the best information to make our decisions as aircrew. Then the jets wouldn't get airborne if we didn't have a flight plan. You need ops assistance to book your airspace so we can do the training activity."

Beyond the squadron, more than 200 personnel from the 140 Expeditionary Air Wing provide a range of vital services: from logistics and admin staff to comms. There's even a doctor, nurse, physio and personal trainer.

"It's not just about having the aircraft, the kit and the fuel in place. It's also important to ensure the people who enable and operate it are fit and healthy. Four or five years ago, you wouldn't have seen a physio on a deployment, whereas now it's standard procedure.

"Typhoon operates at such high G forces that you often need that intervention to keep fit. That is not just pilots – everyone gets niggles. We need the support to keep people fit and healthy so that they can operate and keep going." →

BORDER CONTRAST

As the sun sets over the nearby Black Sea resort town of Constanta in Romania, the contrast couldn't be starker for Squadron Leader Bernard Nissenbaum, IX(B) Squadron Senior Engineering Officer. Just 30 minutes away from a vibrant beach scene, his team operates on high alert keeping jets in a state of permanent readiness for action. In Typhoon terms, it is a matter of minutes from the borders of war-torn Ukraine.

"There's a dichotomy in being here," Sqn Ldr Nissenbaum reflects. "The sun is shining, the weather is beautiful, and we're near this amazing holiday destination. The resort is like the Ibiza of the Black Sea – with great restaurants, a really cool vibe and a rich history to explore. Yet, a few miles away, there's a war."

The reality is clear for Sqn Ldr Nissenbaum, he says: “None of us wants to return to full-scale war in Europe. It would be disastrous not just for the continent, but for the whole world. So, you get a powerful sense of how important our deterrence work is, from a NATO point of view.”

The team from the RAF is working alongside a detachment from the Finnish Air Force — one of their first since Finland joined NATO last year. Says Sqn Ldr Nissenbaum: “This gives you a sense of the reality of the times we live in and the fragility of the peace that we've enjoyed for the last eight decades.”

Central to this mission's success is the reliability of the RAF's Typhoon jets. Sqn Ldr Nissenbaum speaks highly of their performance: "We have aircraft that we keep ‘cocked on’— they are always on standby to scramble. They are ready with pilots on alert, and we've demonstrated our ability to NATO officials."

The team passed a recent NATO evaluation with flying colours, impressing with their ability to get airborne quickly at a moment’s notice.

The Typhoons are also meeting the tough demands of air policing and the heavy drumbeat of additional activity, with relatively stress-free maintenance and high operational efficiency.

“Despite operating out of semi-permanent aircraft shelters, we are seeing remarkable serviceability and minimal maintenance issues. The reliability has been excellent," Sqn Ldr Nissenbaum says.

The harsh operating surfaces at the airfield, which some feared might have worn down tyres and stressed the airframe, have not proved to be significant problems either. A lot of the credit here is down to the meticulous planning that takes place before a deployment like this.

“The preparation goes on for months. It’s not just about getting the aircraft ready but the people too. For me, the whole game is about people — the quality of people and the preparedness of people.”

This ethos is central to the operation, with each team member — from pilots to engineers, admin staff to logistics personnel — playing a vital role.

“It means quickly adapting to new missions and environments. In the last two months, we've moved aircraft and personnel to Op Shader to bolster our presence in the Mediterranean, responding to immediate threats during the escalation of tension in the Middle East. In addition, we have supported other exercises – a detachment went to Finland as part of Exercise Swift Response and another to Poland as part of Exercise Astral Knight.

"The Op Shader work was very dynamic, relatively unplanned, and very short notice. We literally got people out of bed at four in the morning, saying, ‘We've got to go,’ and people were able to respond, have their bags partially packed, so were quickly able to get themselves out to the aircraft."

“It was a remarkable effort by the squadron. There was a real sense of, this is what we've come to do. It was amazing.”

Meanwhile, a taxi ride down the coast, the party goes on. Holidaymakers, raise a glass and enjoy their freedom. Oblivious to the work of the men and women of the 140 Expeditionary Air Wing and IX (Bomber) Squadron who keep them safe. ■

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