

WORLD



**SPECIAL
EDITION**



54TH INTERNATIONAL
PARIS AIRSHOW
LE BOURGET
JUNE 19-25, 2023



- New CEO at Eurofighter
- Italian Air Force 100 Years
- Inside The Fighter Show

Exclusive:

NATO Air Policing deployment in Estonia

 Eurofighter
Typhoon



Cover Image Copyright: Giovanni Colla

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An Ever Evolving Programme



Giancarlo Mezzanatto was appointed Chief Executive Officer for Eurofighter, the management company for the Eurofighter Typhoon in May this year.

Giancarlo Mezzanatto, who has held a series of senior roles in Leonardo, most recently of Senior Vice President European Military Programmes, is no stranger to Eurofighter. Between 2019 and 2021, he held the position of Chief Operating Officer Programmes

You've been part of the Eurofighter programme before – how does it feel to be back?

I am very proud and honoured to be back in the company as CEO. I am also very excited about the challenges ahead because this is a pivotal moment for the Eurofighter Programme.

This is the most successful European defence collaboration. Not only it has delivered the best swing-role aircraft to defend Europe's skies, but it has also brought significant benefits to aid the development of European advanced technologies and contributed to the education of many highly skilled workforces.

What experience do you bring that will benefit the programme?

My background means I know the Eurofighter Programme well. I was the Eurofighter Programme Director in Leonardo after we signed the Kuwait export contract as Prime Contractor Organization. As well as my experience as Chief Operating Officer of Programmes since 2019 to 2021, I have also been a member of the Supervisory Board of Eurofighter GmbH. I know the strengths of the Eurofighter Programme and the challenges it is facing today.

How do you see the status of the Eurofighter programme?

Typhoon was designed to defend the skies of Europe with a remarkable growing capacity. Typhoon is still the backbone of the European air defence which is especially important in light of Russia's invasion of Ukraine. It continues to play a major role in NATO air policing missions in Eastern Europe and in the Middle East operations against DAESH.

In 20 years we have delivered 589 aircraft to nine customers and flown almost 800,000 hours. With an orderbook of 681 aircraft, so far, we foresee an operational life for Typhoon up to 2060 and beyond.

Initially designed as an air superiority platform, the weapon system has evolved

significantly thanks to a number of Enhancement Packages developed by the Eurofighter consortium. The integration of new missiles, weapons and sensors has made Typhoon the best swing-role platform in Europe enhancing air-to-air and air-to-surface capabilities and mission lethality.

Furthermore, the new E-Scan Radar has now entered into service with the Kuwait and the Qatar Air Force.

The need to evolve to stay operationally effective never stops, however we have significant challenges in front of us.

What are these challenges?

The main one is to keep Typhoon operationally effective at least until 2060 in a context where the geo-political scenario is rapidly changing, new technologies are emerging and our Core Nations are working on two different sixth generation programmes.

It is a fact that the new scenario in Europe has had a huge impact on the military strategies and the respective needs of our customers.

Our first priority is to provide our customers with top-class support to the fleet and foster quick embodiment of the new capabilities made available by our development projects.

It is a fact that Typhoon, at this stage of its life-cycle, needs a mid-life update. In our view this will not be a simple technological refresh, but will define the path towards a Long Term Evolution that will bridge the gap to the sixth Generation Fighters in Europe.

Eurofighter and our Partner Companies across Europe have already started initial studies and we are expecting to launch a Technology Maturation Phase with Core Nations early in 2024.

The development of FCAS and GCAP, two sixth Generation Fighter Programmes in Europe is a challenge. This is one of the factors that foster different requirements and ambitions among our Core Nations, but I believe that the legacy of Eurofighter and the operational needs of our Customers will be strong counter-factors to keep the programme common and progress Eurofighter upgrades for the benefit of all its Customers.

How confident are you that the future capability roadmap is in place and can be achieved?

The Eurofighter has a common capability roadmap that is well defined in our 10-year plan. This was recently endorsed by the

Eurofighter Ministerial Meeting in Milan.

The plan encompasses the current contracted work up to P3Ec Step 3, the further upgrades to be integrated in the 4th Enhancement Package (P4E), including the integration of Radar MK2 and the German Electronic Warfare requirement and the route to the Long Term Evolution.

This plan is an important tool for the Nations to plan their funds and for industry to plan needed assets and resources. The plan is continuously monitored and upgraded through the governance process that Eurofighter and NETMA have established with Partner Companies and Nations.

What are the prospects for the programme in terms of further orders – are you optimistic?

Yes. In fact, I am very optimistic and the Consortium needs to be ready to support significant additional orders over the next two years.

There are real opportunities for additional orders both from Core Nations and from the Export market. With the latter, we have good opportunities to broaden our customer base and to increase the Eurofighter fleet size of our current Middle East customers.

In Eurofighter we will fully support our Partner Companies acting as Prime Contractor Organizations on the Export Market and we will be ready to meet these demands, if and when, they come. This means being ready to offer the best available capabilities, being ready to sustain the necessary production rate and offer competitive support packages.

What are the key tasks facing you that are in your inbox as you take up the CEO role?

I would summarize them in four main tasks: coordinate the effort to catch additional orders and be prepared to meet the consequential demand, deliver the 10-year plan for Capability development and fleet embodiment, be focussed on through-life support to enable mission readiness in operational scenarios and finally, maintain attention on the enterprise performance.

These are the commitments industry took at the last Ministerial Meeting. But I would like to add another one: promote the strengths of the Eurofighter model and in particular the spirit of collaboration that characterizes this consortium. This is the most important legacy of this programme. ■

Born to Fly

"The amount of thrust and acceleration down the runway and once in the air, the manoeuvrability and the power were incredible."



"I grew up around aircraft and spent a lot of time at different RAF bases," says Matt Brighty. "My interest in being a pilot was fostered even more by grandparents and uncles taking me to air shows and to watch planes at Gatwick."

"I first got my hands on controls when I was 13, when I had the chance to fly a motor glider with the air cadets. After that I was hooked. Then it was a case of honing the skills needed to fly and I was determined to join the RAF and pursue a military career."

Now he has been selected as the Typhoon display pilot for the 2023 season. It's an opportunity he relishes, with many hours spent at 29 Squadron at RAF Coningsby designing his routine to thrill air show crowds in the UK and overseas.

He says: "You start with a blank sheet of paper. I began with manoeuvres I'd seen over years of flying and personally enjoyed. I then went back through YouTube and watched videos of displays from 2012 onwards."

"I'm looking to try and keep things nice and tight, right in the front of the crowd and produce a combination of high speed and noise, with the visual impact that comes with the use of reheat."

Diagrams followed and then it was into the flight simulator to test out the different moves to see how they flowed into each other – adjusting and then re-testing.

His supervisors' seal of approval will lead to formal simulator sorties to work up the display. All this carried out to strict rules and regulations, with assessments throughout as he is allowed to gradually reduce the height at which he operates.

He says: "Putting on displays is challenging. You have to be able to adapt the routine for different venues and be able to cope with varying or deteriorating weather conditions. It is physically and mentally demanding. The work we are doing means we will be best prepared."

Matt is in no doubt the star of the show is the Eurofighter Typhoon. He says: "People love its manoeuvrability and its agility. They love the acceleration and speed as well as the thunderous noise it makes. There's also the visual impact of the afterburners. It is a big fans' favourite."

He remembers the first time flying it. "The amount of thrust and acceleration down the runway and once in the air, the manoeuvrability and the power were incredible."

"No matter how many times you fly the Typhoon you never get bored of its characteristics. Sometimes you have to pinch yourself that you are lucky enough to get to fly this aircraft. It's pretty fantastic!"

He adds: "We want the crowd to be entertained but it's also important we get across how capable the aircraft is, and what in turn that enables the Royal Air Force to do."

"I feel very proud to have been chosen to do this. You feel the pressure a little bit, but I knew that coming into the job, it is something you learn to deal with."

"The main satisfaction for me will be putting a smile on people's faces and bringing that sense of enjoyment and pleasure and excitement from watching a display that I got as a youngster. If I can do that, I'll count it a successful year." ■

KEEP UP TO DATE:

Follow Matt and the team on Twitter @RAFTyphoonTeam

It feels like the 2023 RAF Typhoon display pilot Flight Lieutenant **Matt Brighty** was always destined for a high-flying career in the cockpit.

His father was in the air force, he loved air shows as a boy and he was even born with a ready-made RAF nickname, 'Brighty'!



Eurofighter Secures 26,000 Jobs in Spain

HALCON



The Eurofighter programme will secure 26,000 jobs in Spain until 2060, according to a recent study by PricewaterhouseCoopers (PWC) on the economic impact of the 'Halcon' and 'Quadriga' contracts for the country.



It estimates that, during its life cycle, the manufacturing phase (2020-2030) and maintenance phase (2023-2060) of the Halcon and Quadriga programmes will create on average 657 jobs - direct, indirect and induced - per year.

This reaches a total of 26,000 positions by 2060, equating to 2.7% direct jobs in the Spanish aerospace sector.

Signed in June 2022, the Halcon contract consists of the acquisition of 20 latest-generation Eurofighter jets to replace the ageing F-18 fleet operated by the Spanish Air Force on the Canary Islands. Signed in 2020, the Quadriga contract, delivers 38 new Eurofighter aircraft to the German Air Force (Luftwaffe).

The contracts are expected to contribute nearly €1.7 billion to Spanish GDP. The manufacturing and maintenance of Halcon will generate approximately €1.5 billion and the production of Quadriga making up the remaining €200 million.

The Spanish Eurofighter fleet will grow to 90 aircraft, with the first delivery due in 2026, securing industrial production activity through to 2030. Quadriga secures production of the new Tranche 4 Eurofighter - currently the most modern European-built combat aircraft - until 2030, with a service-life well beyond 2060. Both programmes are decisive to guarantee national and European strategic autonomy in defence, when it matters most.

In total, the Eurofighter programme secures more than 100,000 jobs in Europe, which will be boosted through latest-generation aircraft, such as the Tranche 4, as well as in the future, through technological advances within the Eurofighter development.

The study was funded by Airbus, together with the technical support of ITP Aero, and performed independently by PWC over a period of six months until March 2023. ■



Photos: Sven van Roij (www.svenvanroij.nl)

UK and German Forces Make Important Interceptions

On March 14, 2023, NATO Air Command scrambled two fighter jets from Ämari Air Base in Estonia. Their mission: intercept a Russian Ilyushin Il-78 Midas refuelling tanker which was flying close to Estonian airspace.

The scenario has become routine in recent years. But this particular alert was unique — it was undertaken by a German Air Force Eurofighter flying alongside a UK Royal Air Force Eurofighter Typhoon. It was the first UK-German combined NATO Air Policing interception.

The job wasn't over even after the tanker had been intercepted, because the pilots were then tasked to intercept a Russian Antonov 148.

It marked a busy start of the first UK-German combined NATO Air Policing effort.

And for RAF pilot Flt Lt Charlie Tagg (IX (B) Sqn) those early scrambles were proof that the concept is working well. He says: "Within days we had conducted several successful intercepts which ran exactly as if both aircraft were from the same nation. That's a testament to the two Air Forces' ability to interoperate."

"As with every new partnership, there are differences, and the occasional frustration, but those are being ironed out. The more we operate together the more we are able to embrace our differences. Now each nation is using them to learn and broaden their operational outlook."

Typically, one individual nation will take on an air policing task in rotation — bringing the jets and ground crew it needs for a four-month stint. In this instance, the shared working has allowed each nation to slim down their needs.

Flt Lt Tagg says: "The most visible benefits are from the engineering perspective. Excluding a few software differences, the RAF and German Eurofighters are essentially the same, meaning each nation can deploy with a smaller engineering footprint — both personnel and equipment."

"From the pilots' point of view the biggest challenge lies in the differing security levels we adhere to. For example, the flight planning and debriefing software is different between the two nations. →

"There are also subtle differences in the operational and tactical way of doing things. This is something that we will work on for the future and will form part of improving the interoperability between our two nations.

His 'new' colleague German Air Force pilot Lt Col Hachmeister (DEU DetCo) agrees: "This combined mission is a good opportunity to enhance our capabilities and interoperability.

"The German Eurofighter and the British Typhoon look pretty much the same but they are not identical systems. We are still making both systems comparable, especially for the first and second line of maintenance. That said, working on general parts of the aircraft is not a big challenge.

"As for flying in a multinational environment, well that's normal for the aircrews. After one or two familiarisation flights the small differences were addressed. Pilots train to operate in a multinational environment pretty much from the beginning of our careers. But when it gets to national secret systems and data, the interoperability stops.

"Our goal is to reduce the personnel and equipment needed to deploy an effective fighting unit, freeing up resources for other tasks."

So how does it work? Who calls the shots? It's simple, one nation has the lead as the single point of contact in the NATO command structure. Germany was in charge in March, then at the beginning of April, the UK detachment took over.

Flt Lt Tagg explains: "The lead nation pilot is responsible for the day-to-day tactical operation of QRA, for example making the 'go / no-go' decisions based on the weather and, once airborne, the overall running of the sortie."

Given the state of the world right now there is now greater awareness of the need for the NATO Air Policing missions. It's also meant that this has been a busy deployment.

Flt Lt Tagg says: "Given the proximity of Russia to Āmari Air Base, the number of scrambles has been higher than what we encounter back in the UK. However, so far, all the flights we've conducted have been benign, with aircraft transiting close to, but not within, NATO airspace.

"The main reason for us getting airborne to make an intercept is that the target hasn't identified itself to civil or military air traffic control. By getting alongside them as quickly as possible, we can accurately identify and pass details on. This gives NATO an idea of the aircraft's likely intentions and destination so that they can coordinate airspace accordingly. If the target manoeuvres too close to NATO airspace, then the controlling agency will coordinate our response.



Photos: Sven van Roij (www.svenvanroij.nl)

From a German perspective it's been a busy rotation too: "In Germany our air wing handles protecting the NATO airspace next to the Baltic Sea. But here in Āmari the number of A-Scrambles is definitely higher.

"If called to intercept Russian aircraft, our first task is to identify it. A ground controller will give us the initial information, where to fly, until we detect it with our onboard radar. As we close in, we visually identify the aircraft and pass all relevant information on to the Control and Reporting Center. A follow-up task could be to escort the plane through international airspace until it reaches the Russian border. Or we might break off while another Quick Reaction Alert team from the Baltic region takes over."

For the crews from Germany and the UK this two month rotation didn't happen overnight — it was the result of months of planning.

Lt Col Hachmeister explains: "We started this project together in 2018. After the first exchanges in 2019 and 2020, we had our first mission together for two weeks in Constanta Romania."

There, the forces worked alongside one another but weren't combined like they are in Estonia. Since then, RAF engineers have visited Laage Airbase in Northern Germany, while German Air Forces engineers have been to RAF Lossiemouth in Scotland. German pilots also flew to RAF Lossiemouth to align their Standard Operating Procedures.

"The combined air policing in Āmari was the next step. Looking to the future similar projects between Germany and Spain, and Germany and Italy, are in development."

EUROFIGHTER: THE PERFECT POLICEMAN

With no air defence fighters of their own, Latvia, Estonia and Lithuania are covered by NATO Assurance Measures, which ensures the region's airspace is secure.

This is Baltic Air Policing. Several nations play their part in an ongoing policing mission. Typically, squadrons work on a four-month rotation.

Lt Col Hachmeister says that the Eurofighter Typhoon is made for the Air Policing role.

"The flight control system and all the flying related functions make the flying very easy, so the pilot can concentrate on the mission. The engine performance gives the pilot the capability to intercept at any height and at any speed.

"The cockpit design is pilot-friendly. The autocue display shows all the relevant switch positions during the start up phase. That's especially helpful when you have to scramble at one o'clock in the morning.

"Eurofighter is one of the most capable weapon systems in the world. Apart from the Air Policing role, the system has proven itself in its air to ground role."

Flt Lt Tagg, agrees. "The key factor is that Typhoon is fast in a straight line and can gain altitude quickly. We can make intercepts within a short period and react to any dynamic and changing scenario at speed.

"One major difference here compared to QRA back in the UK, is that we have the Litening 3 Recce pod fitted to the jet. Primarily, this is a sensor we use for Air-to-Ground missions, linked to the radar it has an Air-to-Air capability. That enables us to visually identify an aircraft from long distance — long before we would with the human eye."

Both pilots believe that the future for Typhoon is exciting. Says Lt Col Hachmeister: "I made my first flight in the Eurofighter in 2014

and the development since is impressive. Over the years, the software changes have made the pilot's life easier. The integration of new weapons, like the Meteor, is changing the system's capabilities drastically. And this will not be the end by a long shot. I'm confident Eurofighter, with its future developments, will be a very important fighter jet for all user nations for decades.

Flt Lt Charlie Tagg has been flying the Typhoon for over seven years. He too has seen at first hand massive advances in both the hardware and software.

"It has developed massively, especially in the Air-to-Surface environment. Brimstone and Storm Shadow now compliment the Paveway4 weaponry. There is also enhanced software which runs alongside these capabilities, all aided by the new Litening 5 Recce pod.

"The Meteor long-range missile has enhanced our relevance in the Beyond Visual Range Air-to-Air arena. The next game changer will be the new E-Scan radar, the ECRS MK2.

"As our capabilities evolve so will our tactics. This will keep us relevant as both a stand-alone asset and when we are working closely with fighters, such as the F-35." ■



Leonardo Aircraft Division Chief Test Pilot

COMMANDER MARIO MUTTI

Where Experience Counts

As you might expect from someone who has clocked up more than 10,000 flying hours on 50 different aircraft types, Commander **Mario Mutti** has quite a story to tell.

Leonardo Aircraft Division Chief Test Pilot Mario Mutti has spent two decades working alongside the Eurofighter Typhoon programme's other test pilots, helping develop its capability.

His passion for the "breath-taking job" remains undiminished. He says: "Being a test pilot is so much more than a role or a full-time job. It's a way of life.

"Sitting in the jet or interacting with the flight test community becomes part of your daily thoughts, part of your life. It is something that grows with you, with every passing flight hour or fresh experience."

Mario joined the Italian Air Force Academy in 1985. He went on to the NATO jet pilot training programme in Texas, achieved his wings and gained operational experience on the Tornado.

He says: "When I was offered the opportunity to train to become a test pilot I jumped at the chance. I went to the Empire Test Pilot School at Boscombe Down (UK) and I graduated in 1995. Even today I can still remember every single flight and all my tutors."

Assigned to the Italian OTC 'Reparto Sperimentale Volo' he was project pilot on a number of different aircraft, experiencing many of the western world's fighter jets. He joined Leonardo, at the time named Alenia, in 2004.

He says: "It felt like a natural continuation of the journey I'd started several years before. I was able to continue to follow my passion. I have spent 20 years helping to develop the Eurofighter, including our latest challenge — the integration of the E-Scan radar. It's all been focused on turning Eurofighter into the most capable multirole aircraft available on the market.

"I still fly full time — it is a key part of the job. I now have more than 2,000 flying hours over 20 years on flight test on Eurofighter. I fly between 90 and 120 flight test hours per year. Being inside the cockpit of Eurofighter is a real privilege."

Experience counts in his role. Mario says: "A test pilot has to be aware of what is on the market and what is to come, as well as operational needs. That is something that takes time and exposure to absorb. There are no shortcuts."

"The real challenge is coping with the complexity and the time pressure during flight operations for long periods of time, while at the same time remaining safe and maintaining a balanced judgement.

"To meet quality, safety under time pressure takes experience. You have to know the system and yourself, this allows you to perform effectively, while maintaining acceptable levels of safety."

"It helps that the flight test community is quite a tight-knit group, and we are in constant communication. We regularly share experiences and knowledge with our colleagues at other partner companies."

He describes being part of the Eurofighter programme as "an amazing experience". He adds: "When I joined it was love at first sight and after two decades it still seems a dream to me."

"The Eurofighter consortium is probably the best place in the world to be a test pilot because you get to work with top professionals in every discipline. The more involved I've become, the more I have discovered the capability and potential of a superb organisation.

"As a pilot you are right at the cutting edge, but you are not on your own. You are part of a community, a family almost." ■







GIOVANNI COLLA

Photographer



Giovanni Colla is one of the most respected military aircraft photographers of his generation. His work has led to commissions around the world, but Eurofighter Typhoon has always had a special place in his heart.

He started to take aviation pictures around the time Typhoon joined the Italian Air Force and says Giovanni: "With Typhoon it was love at first sight. I saw it from the beginning and have followed its development ever since. I have built up a good relationship with the 18 Squadron in Trapani, so much so that the base has become a second home to me."

Building relationships has been key he says to getting the right images. He says: "When you have a picture in mind, you need people who trust in your ideas and who both allow and support you. I can have thousands of ideas but if you don't have people helping you it won't work."

There is a lot of teamwork involved. You need the authorization, you need help from the crew chief, and you need the pilots. I don't think I'll ever be able to say enough thanks to the people behind a shot! Taking the picture is the easy part.

"You need everyone and everything coming together at the perfect moment." And that does happen by chance. Giovanni emphasises the importance of planning is the key. He is meticulous: studying the airbase, talking to flight operations people to know which runways are being used,

Typhoon Through Gio's Lens

working out where the sun will be when.

"Of course, luck is part of the game too. You can plan everything but there are still so many things that are out of your hands. The weather may go against you, the runways may change or there may be a mechanical issue. So, you must have a plan B."

Over the years his work has gained a huge following among fans and magazine editors alike, it was a passion that was nurtured as a young boy. He said he was inspired by his dad's interest in military aircraft.

"One day, when I was about nine or ten I remember going with him to deliver some-

thing to a customer at the old Piacenza air base. I saw some Tornado jets landing and it flicked a switch in me. I was hooked on taking aviation pictures from that day," recalls Giovanni.

"I started going to air shows with my dad, armed with one of his old cameras. Then later, as soon as I got my driver's licence, I drove everywhere to see aircraft. I was a typical spotter at the fence but, like everyone else, I wanted to be inside bases to see the action."

Around that time several aviation websites started springing up and Giovanni decided to create his own. It started to get his work noticed to a wider audience and helped him gain the 'golden ticket' — media accreditation for military air exercises and access to air bases for work. Then the commissions for pictures and articles from editors in Italy and abroad started.

Today he combines his main job — he has a graphic design and (following in the footsteps of his father and grandfather) a print business. Working for himself means he can afford to devote about 80 to 90 days a year travelling and taking pictures.

It has taken him to about 40 countries — across Europe, Ukraine and Russia. I've been to Japan, Kazakhstan, Brazil and North Africa. He's been on board a US aircraft carrier in the Persian Gulf and even went to Afghanistan twice with the Italian armed forces.



And of course, Typhoon has often been involved. In fact, he has twice had the rare opportunity of a flight.

"The first time out of Trapani I was very nervous but everything went pretty well and I was very happy with the final result. During the second flight from Grosseto I was far more comfortable."

"It's incredible. You are flying at 800 kph, but you don't feel the speed, especially when you are at 20,000ft. You only sense it when you're doing manoeuvres with other

jets — then you realise everything is happening so fast."

Most people who know their military pictures can recognise Giovanni's work instantly. He has a real style: "I believe an image should be very powerful and I always try to include many elements. For example, everyone can do a simple taxi shot, but I try to find a different angle for it. I often taken them lying down because I think the image is more dynamic and powerful. I'm also happy to include people like the ground crew chief.

I love the aeroplane, but it only flies because of the work of the whole force."

So, what's his advice for getting a great shot?

Three things: know your camera, experiment a lot, and try to learn from the best photographers out there. I have been inspired by lots of them and to try to imagine how they do things. My suggestion is try to learn from others then also bring your ideas. Then you develop a style that becomes your calling card." ■





THE FIGHTER SHOW

HITS THE AIRWAVES



Coningsby: Flo (left), chats with RAF Typhoon display pilot Flight Lieutenant Matt Brighty.

THE FIGHTER SHOW - EUROFIGHTER'S NEW YOUTUBE SERIES - HAS TAKEN SOCIAL MEDIA BY STORM

Hosted by Flo Taitsch, Eurofighter's VP Strategy and Marketing, The Fighter Show was launched in March 2023. It has three simple aims relating to the world of military jets: to inform, educate, and entertain. Researched, developed and produced by the Eurofighter Communications team episodes are broadcast every fortnight on the programme's YouTube channel.

Flo says: "Once again Eurofighter is breaking new ground — this is a world-first aviation industry internet TV show connecting with a younger audience - providing viewers with unique access to Typhoon Air Forces and

the different industrial partners. Our plan is to speak to anyone with a good story to tell and to bring the excitement and importance of our world to a whole new audience. The style is fresh, dynamic and deliberately fast-paced, reflecting our audience's taste."

The Fighter Show guest list includes Air Force pilots, engineers, technicians, authors, and producers from the Eurofighter world. The episodes are filmed at a variety of locations, from Air Bases to Air Shows, as well as from the purpose-built TV studio in Eurofighter's offices near Munich – and every guest receives a special Fighter Show patch.

Make sure you subscribe to the Eurofighter YouTube channel, so you don't miss out...

Check it out →





Exercise Director Group Captain Jim 'JJ' Calvert speaks to Flo Taitsch in the Fighter Show

Typhoons Excel in Cobra Warrior

Eurofighter Typhoon aircraft from the UK and Saudi Arabia excelled when they took part in this year's **Cobra Warrior** exercise.

Run biannually, Cobra Warrior is the largest air exercise run by the Royal Air Force and multiple air bases across the UK take part.



Exercise Director Group Captain Jim 'JJ' Calvert described it as one of the UK's key tactical training events and one that represents a valuable and demanding

three weeks for the pilots and crews. He said: "Cobra Warrior provided us with live collective training for our partner nations – this year it was the UK, US, France, Belgium, Finland, Saudi Arabia and India. It was all about learning from each other, on collective training, where we were all on the same team.

"What Cobra Warrior provided us with is proof that we can work together and that we can fight together. We were able to learn about other's strengths and maximize our ability to work together."

Group Captain Calvert, himself a former Typhoon pilot, says the Eurofighters performed incredibly well no matter what their task. He said: "It is a very capable platform. It took part in the whole exercise and, to be honest, it crushed it. Whether that was control of the air, defensive or offensive, surface attack, dynamic targeting, air interdiction or supporting personnel recovery. Basically, Typhoon carried the whole thing." ■



Typhoon Brought to Book

Pilot **Mike Sutton** led the RAF's premier Typhoon squadron into battle over Syria and Iraq — a mission he brings vividly to life in his book 'TYPHOON'. Here Mike talks about his experiences, his pilot view of Typhoon and his reasons for writing the book. John Nichol calls it 'an adrenaline-fuelled, gripping account that puts you right in the cockpit of one of the RAF's most modern combat aircraft.'



You've got a great story to tell — a career that comes of age as a new aircraft does — but what inspired you to write the book? Why did you feel it was important to tell this story?

The situation was so extreme, so unique, that I found it cathartic to write a few notes in a diary at the end of each day. During the COVID lockdown I found the time to start turning the pencil scribbles into something more permanent and the book grew from there.

My aim was to capture the lived experience of life as a modern combat pilot; to give an insight into a hidden world. I wanted the reader to feel the emotions of being strapped into the ejection seat of a fully armed fighter over the battlefield. But more than that: to explore the feelings and realities of that life, not just for the individuals participating, but the huge impact it places on the people closest to them.

Who are your military flying heroes or the people who inspired you?

The entire history of aviation spans a period only a little greater than a lifetime. It is already littered with pioneers and inspirational role models, and it is very difficult to pick from such an illustrious cast. Perhaps it's the shadows cast from a degree in Philosophy, but I admire thinkers. From a leadership angle, two names that stand out are the all-American fighter pilot Robin Olds and the Battle of Britain genius Keith Park. They were superb tactical pilots, both aces, but also possessed a rare blend of emotional intelligence and an ability to think strategically. These qualities marked them out as highly revered military leaders who always did the best for their people. Military flying is fundamentally a competitive environment: it is about warfare, and it is about winning. John Boyd, another American and veteran of the Korean and Vietnam wars, epitomised the critical thinking skills required for success in air warfare with his development of energy-maneuvrability theory and later the OODA loop. The latter being a military theory often translated to the world of business.

I also see a clear read-across from the sporting world to fast jet squadrons, in that they both involve a small team of committed individuals operating in a competitive environment with a common aim. So, I've always been interested in what makes a sports team successful, particularly with



the culture of innovation and marginal gains driven by individuals such as Clive Woodward, the World Cup-winning rugby coach.

In the book you describe Typhoon as the best multi-role fighter in the world. From a military pilot perspective what do you believe are its key qualities and why are they important?

A fighter jet must excel at its primary role. The Typhoon hangs a heap of impressive weapons from a 9g airframe that is blessed with enormous thrust. This is a great starting point. As a combat platform it can therefore be used for any mission set — from overwatch and reconnaissance through to contested operations integrating with fifth Generation platforms.

The helmet mounted sight and care-free handling make it potent in a visual fight. The mission data that drives the electronic support and countermeasures is excellent, so the fighter is survivable. It has also got to be deployable, and able to integrate with allies so that it can operate as part of a coalition.

As a fighter pilot you always want more: greater thrust, more alpha for dynamic manoeuvring, seamless systems management, more fuel, more weapons...we're a demanding bunch. So every modern aircraft is a compromise of sorts. But adversary technology evolves at a relentless pace, so the key is that the Typhoon can continue to meet emerging threats as well as the current ones, and this means having the ability to develop and adapt the aircraft throughout its lifetime.

Back in its early days the media were sometimes critical of Typhoon — you recall they dubbed it an 'air show jet'. Why do you think that was? Why is the media reception so different for a new F1 car do you think?

There was a critical article in 2003 touting the headline 'But the Russians aren't coming.' That was typical of the commentary

at the time, and it hasn't aged well. I paid little attention to the 'air show jet' comments, which lingered for years. I'd still hear them banded around after the Force had returned from long operational deployments in the Middle East.

The most telling analysis was always from a pilot who had previously flown a different aircraft, and then converted to the Typhoon or had a passenger flight. Immediately their opinion changed: 'Wow, that was insane. I had no idea the jet could do that.' Banter is always good, as it keeps you grounded, but the aircraft did the talking. When people learned something about the Typhoon, they became very positive.

When you look back over the past couple of decades how well do you think Typhoon has performed?

When it's really mattered, the Typhoon has delivered. As an interceptor on QRA and as a strike and air defence fighter on operations, I have always been truly impressed. It has taken part in numerous operations and is currently a key part of Russian deterrence activity across the Baltics, so it has come of age as a world class multi-role jet. If I was to make a broader observation, it would be about the complexity of the multi-nation programme, particularly during peacetime. System developments can take time to deliver and going forward it would be good for the nations to have the best possible relationships and systems in place to enable the rapid development of capabilities.

In its early days you played a critical part in writing the air-to-ground rule book for the front line Typhoon — you were effectively shaping the future of the jet for the RAF. Can you explain your role a little and tell me how challenging it was.

I tumbled from a weapons instructor role as part of an established, mature Jaguar Force into a Typhoon cockpit and a brand-new →

fleet that hadn't defined itself at all. We were flying Tranche 1, Block 5 jets that had just five hours on the airframes. They were straight out of the showroom and there was practically no corporate experience to draw upon. Previously RAF squadrons had specialised in either air-to-air or air-to-ground roles, and even the idea of 'multi-role' was frequently viewed with suspicion from other corners of the RAF.

This analysis was flawed of course, as other nations had been flying multi-role aircraft such as the F16 and F18 for decades. The switch needed a change of mindset, and the aircraft was a blank canvas and offered huge possibilities right from the very start. I was part of a small team that developed the tactics, and we could draw on the experiences of those who had flown other types – including F15, F16, F18 and Mirage 2000. We tried to use that blend of expertise but

I parcelled myself into a g-suit and walked out to a jet I had a sense of being extremely lucky and somehow having slipped through the net. This feeling never left me.

Even though I became very comfortable flying the aircraft, and the cockpit felt like a second home of sorts, every now and again a feeling of 'is this really happening?' would wash over me. Walking out to a flightline of glowing jets at Nellis before a Red Flag mission, to the haunting sound of dozens of engines starting up. Leading a four-ship over the Grand Canyon. Flying down the Mall for the Queen's Birthday flypast. Checking the missiles on a loaded Typhoon poised on Quick Reaction Alert on Christmas Day. And operational missions over Iraq on an inky-black night trying to find a tanker. The whole experience was extreme, at times almost unworldly.

engineers were re-arming the aircraft for the next sortie. I felt full of admiration about the diligence and professionalism of the whole team.

The book describes in fabulous detail how you and your squadron were deployed at short notice to Op Shader. How did it feel in the moments before that very first sortie from RAF Akrotiri?

It felt like the culmination of everything. In those charged moments before the first mission I had a sense of being involved in something much bigger than myself, something difficult to define.

We had prepared in secret, and deployed in the pinky-grey dawn at RAF Lossiemouth, just eight hours after the UK Parliament had debated whether to launch operations. Within a single day we had started round-the-clock close air support missions. I was incredibly nervous taxiing out on that first night, as the gusty wind buffeted the airframe and rain spattered onto the canopy. There had been a forced delay to our take-off, so we launched with minimum fuel to make the tanker which was orbiting in Iraqi airspace about 80 minutes flying time away. Using the night vision goggles to weave through the thunderstorms, the sparkling lights of the eastern Mediterranean coastline slowly faded away to the gloomy desert of occupied territory.

The first strikes were against an oil pipeline that was buried deeply underground. We launched Paveway 4 precision bombs which both struck the target precisely. Thereafter we were rolled into several reconnaissance missions to the north and west of the country, on each occasion using the night vision of the Litening camera to observe and report activity back to the HQ. That first mission lasted over six hours. We landed back into Akrotiri in the early hours, exhausted but with the glow of a successful mission under our belts.

Typhoon is destined to be in service for many years to come. Are you excited to see its potential grow?

It is great to see the Typhoon firmly established as the backbone of the RAF's combat air capability. The Russian aggression that has flared up in Europe has surprised even the most insightful Defence experts, and the global security environment is now as fragile as it has been in decades.

This all underlines the requirement for a balanced military that is capable of delivering hard power in order to deter and resist aggression. The Typhoon is critical to that strategy. As hostile countries develop and proliferate novel threat systems, it is vital that the Typhoon capability continues to evolve and improve to maintain an enduring battle-winning capability. ■

retain an open mind about the best way to use the Typhoon itself, as it had capabilities and limitations that were different to the F jets. There were teething troubles of course, and it was a time of creative tension. But multi-role developed quickly, and just a few years after rolling off the production lines the aircraft was successfully conducting strike missions as part of Operation ELLAMY over Libya.

You talk about sometimes feeling like you've got imposter syndrome – sometimes at incredibly key moments – even though you've got such a great track record. Did this fade as you progressed up the chain of command? How common do you think it is among your peers and how did you get through it?

The most heartening feedback I get from other pilots who have read TYPHOON, is that they feel an emotional alignment with the experience. They say that it's their story too. I love this, because I wanted to write something that captures the lived experience of being a fighter pilot. The tremendous highs and plunging lows. Every time

You detail some amazing moments – QRA, royal fly pasts and operational missions – all with great clarity. What stands out for you?

I was very fortunate to have some amazing opportunities. When I reflect back though, it's always about the team. My abiding memories are about the incredible people that I worked with. A fighter squadron is the ultimate manifestation of this.

The aircraft is nothing without the pilots, engineers, admin, logistics, IT and support staff that have to pull together, often in the most extreme circumstances. On one occasion I recall two young pilots, barely out of training, debriefing a junior intelligence officer about an intensive night sortie over Iraq. They had been involved in the most complex close air support scenarios imaginable. Airborne for over seven hours, they had dodged thunderstorms, air-to-air refuelled four times and supported ground troops who were in extreme danger with eight separate precision attacks. All were direct hits on their targets. The group were sitting together around a computer quietly and professionally, while outside the



Roman Centurions

The Italian Air Force, or Aeronautica Militare Italiana, is marking its 100th anniversary throughout 2023 with a series of celebrations across Italy.

The special events started with an exhibition in Rome's central Piazza del Popolo in March. This included a full-scale replica of the Typhoon which attracted thousands of visitors. The celebrations were brought to life by a spectacular flypast by the Freccie Tricolori over Rome.

An exhibition charting the history of the Aeronautica Militare is set to travel to more than 20 cities across Italy through 2023.

Did You Know:

The Italian Air Force was founded on 28 March 1923 by King Vittorio Emanuele III.

1923
2023

CENTO ANNI
DELL'AERONAUTICA
MILITARE
ITALIAN AIR FORCE'S
100th ANNIVERSARY



IN VOLO VERSO
IL FUTURO
FLYING
TO THE FUTURE

Sotto l'Alto Patronato
del Presidente della Repubblica



Thousands of fans visited the Eurofighter Typhoon Full Scale Replica (FSR) in Rome's Piazza del Popolo in March.

'MEET THE EXPERT'

Sam S

Earlier this year, Leonardo delivered a prototype ECRS Mk2 (European Common Radar System Mk2) to BAE Systems, marking the latest milestone in the ongoing development programme for the UK Typhoon fleet. Hear how **Sam S**, Chief Systems Engineer on ECRS Mk2 radar at Eurofighter's industry partner Leonardo, has forged a fascinating career in radars.



What are the fundamentals of the job?

It comes with a lot of different responsibilities, a primary one being my role as a technical point of contact between the team in Edinburgh and our customers, both in terms of purchasers of the system and the UK Ministry of Defence.

As Chief Systems Engineer, there are of course engineering fundamentals to the job, but my role is mainly about communication – establishing what the system requirements are and then helping Leonardo's technical specialists to understand what that means for them.

Our customers are very keen to know how we are progressing and that we are going to meet the milestones and technical performance that they want to achieve.

Despite the pressure, what attracted you to the job?

With radar, one of the things I like is that I always feel like I'm learning. Radar systems are complicated, but each individual element is understandable – so there's always something new to get to grips with. Radar science and acoustic science share some concepts so my background in music helped me in the early days. Radar projects are interesting. The programmes are years long and you're constantly hopping from one topic to the next, trying to keep everything moving.

What are the non-negotiable skills required to succeed in your field?

When you bring it back to the basics it is an engineering job, so it is all the fundamentals of engineering: logical thinking, an ability to abstract problems between systems, the ability to think on your feet and pick up new things quickly.

Being able to pivot between topics with the relevant experts is vital, supported by good

communication skills, the ability to extract key bits of information, and explain problems. A really underrated skill for engineering is knowing whose expertise to seek.

Are there any particular challenges that are unique to your field?

The main challenge is the complexity of the task. With the ECRS Mk II radar, we are building an advanced radar system within an ambitious time frame – it is a real technical challenge.

Pressure comes from all sides, which adds to the challenge. The project is important for a huge number of people, both within Leonardo and externally, that earn their livelihoods from the project. Ultimately, however, we know that there's a pilot in a Typhoon with a Mark II on the front that they will rely on it – the pressure of that makes it all feel very real.

How does it feel to be a part of the wider Eurofighter family?

It's quite exciting, especially for a science 'geek'. We're all working on real cutting-edge technology and doing large scale engineering, so it is really interesting. I also like the multi-national aspect of it – nations working together is an important thing we facilitate and finally, for me, personally, military aviation is fascinating.

It ticks a lot of boxes for me in terms of personal and social interest, but it is a different environment that a lot of people don't get to experience.

What advice would you give to your younger self?

That it is okay to not know the answer. It is better to go and find the answer than bluster through something. It comes with my job of corralling experts so I can find the answer if I don't know it, I just have to decide. ■



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