

With Valo



A 6° Stormo F-35A leads two F-2000As and a single 51° Stormo A-11B Ghibli from Istrana in a mixed formation of Italian airpower. All images Joe Campion, unless stated

to

A word from the Air Chief

Lt Gen Luca Goretti: “On March 28, 2023, the Aeronautica Militare (AM; Italian Air Force) celebrated its 100-year anniversary. This centenary is an important milestone and represents a considerable achievement, which, since its very beginning, has found voice through a balance of technology, passion, professionalism and teamwork.

“The centenary is a great opportunity for us to tell our story and, at the same time, to share our values and ideals in support of our country, institutions and fellow citizens.”



Lt Gen Luca Goretti shared with *AirForces Monthly* his current and future focuses for the Aeronautica Militare (AM). They range from developments in fourth- and fifth-generation fighter integration, increasing cyber-security efforts, enhancing operational tactics, evolving the development of pilot training, introducing a next-generation high-speed helicopter and developing the Global Combat Aircraft Programme (GCAP) with Italy’s partners, the UK and Japan. He told *AFM*: “The Lockheed Martin F-35A/B Lightning II operation is a major focus of the

AM, but we are undergoing a major transformation programme to confront what is an uncertain and unpredictable future. This requires us to have a flexible, technologically advanced approach to face the new threats. “The technological evolution of our systems, infrastructure and logistical footprint will be adapted to the future programmes we are developing. Our capabilities will have a ‘green’ approach, compatible with energy efficiency, modern environmental requirements and the extensive use of renewable sources.” “With threats now also coming from space, we must be ready



OUR

In March, the Aeronautica Militare celebrated 100 years of operations. **Joe Champion** recently visited Italy to explore the air force's current structure and its future aspirations



the stars

to defend ourselves. We have a well-defined space strategy and the expertise we have assembled at the Air and Space Operations Command at Poggio Renatico Air Base in Ferrara will support that requirement. As well as traditional missions, personnel are tracking suborbital flights, satellites and space debris. In addition, we have an officer permanently employed in Washington at the US Space Command."

Top priorities

Explaining his priorities, Goretti said: "One major future focus, although it's in the embryonic stage right now, is to work with

Embraer, maker of C-390 the Millennium aircraft, congratulates the Italian Air Force on its centenary



The C-390 reaches a maximum cruise speed of Mach 0.80, carries 26 tonnes, and operates at a ceiling of 36,000ft. The twin turbofan-power delivers outstanding tactical performance with strategic effect. Embraer

Italian Air Force fleet Wings and Air Bases



our national industries. We are doing that in projects like the so-called Next-Generation High-Speed (NGSH) helicopter, with a faster propulsion system to allow the AM to move with greater agility and flexibility in future scenarios.”

The future vertical lift asset is to represent an important operational requirement that will provide Italy with a rotorcraft almost doubling the speed of current helicopters in service and will provide leading-edge capabilities in the likes of special operations.

Goretti noted: “Our new training programmes are very important. Our operational training infrastructure (OTI) uses a combination of high-tech tools and systems such as a wide number of ranges, an advanced electronic warfare (EW) range for the replication of new-generation threats, modelling and simulation, command and control, as well as full integration of the live virtual constructive (LVC) environment.

“In December 2022, the AM partnered with Japan and the UK to develop a sixth-generation fighter. There are

many areas of mutual interest shared with the UK alone, not only regarding aircraft – such as the Tornado (PA-200), Eurofighter F-2000 or F-35 – but also the level of ambition and similar knowhow in areas of mutual interest and benefit.

“The success achieved with the development of programmes in the past has brought the two

countries together to consider a new joint-venture: a multi-role stealth fighter, based on technological innovation and international partnership. The Global Combat Air Programme (GCAP) is being developed by Italy, the UK and Japan, and is in complete synergy with the national industry.

“We are moving in one clear

direction: systems integration and connectivity, where each platform is no longer a single element but part of a unified intelligence in a distributed and connected system. We regard it as a ‘system-of-systems’, an essential opportunity to develop innovative and enabling technologies including artificial intelligence, low observability, data fusion, distributed intelligence, virtual reality, alternative propulsion, hypersonic flight, connectivity and more.

“Scheduled to be completed post-2030, it will represent the future backbone of the Italian air defence system, currently provided by Eurofighters and F-35s. The GCAP is due to provide its users with an important strategic advantage for the coming years. In fact, the GCAP will not just be a simple piloted aircraft but a highly automated ‘adjunct’ unmanned platform that can grant kinetic and non-kinetic effects.

“We will use the experience gained in the years of operating the F-35 to understand what we currently have and how we can go beyond the fifth generation.”



Above: A 36th Stormo F-2000A in full afterburner during a formation flight near home base Gioia del Colle.

Becoming an Air Force Pilot



A T-346A '61-01' and MB-339A '61-121' in formation. These two aircraft are the primary platforms on which Italian pilots learn their skills

During their attendance at the AM academy, pilots will go to Latina Air Base (AB) to fly the Leonardo SF-260EA at 70° Stormo's 207° Gruppo. There, students will be screened to see if they have what it takes to be a pilot to progress to basic flying training on the SF-260EAs for the Air Force, Navy, and Army. The academy is occupied by around 250 students per year. No 70° Stormo's 207° Gruppo has 20 SF-260s that will be flown by students covering 14 different syllabus sorties, and they face two ground exams and one solo flight.

After Phase I (initial flying training), students will complete the academic studies to achieve their degree at the Accademia Aeronautica. During the summer break, they complete additional block training on the SF-260 at Latina, where they are taught advanced aerobatics and VFR navigation. In addition, students also learn to fly gliders at a neighbouring base in Guidonia, then proceed for training at Galatina AB.

An estimated 100 students progress to 61° Stormo at Galatina. Alternatively, AM pilots can cross the Atlantic to Texas and undergo Phase II training on the T-6A Texan II at a USAF unit or as part of the Euro-NATO Joint Jet Pilot Training Program (ENJJPT) at Sheppard AFB, Wichita County. The other location can be closer to home in Greece, flying the Texan II at Kalamata AB. Pilots that do not go overseas to take on Phase II training will attend 214° Gruppo

on the T-339A (also known as the MB-339A) for around 90 flying hours. Those who pass this hurdle and progress to Phase III, and if they are selected for the fighter track, move to 213° Gruppo on the FT-339C (MB-339CD). The ground school consists of 145 flight hours with exams, and live flying is roughly 95 hours. It includes an introduction into basic fighter tactics and manoeuvres, with another check ride at the end of the block. If successful, the student pilots become official military pilots of the AM.

Phase IV is the link between basic training with the MB-339 and the advanced training at operational conversion units (OCUs) and operational squadrons. This is done on the Leonardo T-346. After a month of ground school, the course is divided into two sections: qualification and specific modules. The first consists of learning the basic functions of the T-346 and 30 hours of flying. If they pass, pilots are selected for the lead-in fighter training (LIFT) course, which comprises 100 hours of tactical flying such as NVGs and air-to-air refuelling.

The AM is gradually moving its Phase IV training operation to Decimomannu AB, Sardinia, with the 212° International Flight Training School (IFTS) Squadron, which will remain part of the 61° Stormo, deployed in Decimomannu. Italy also trains pilots for Austria, Canada, Germany, Japan, Qatar, Singapore and Saudi Arabia.



Phase IV student 'Nicola' gets ready for a training flight in the 212 Gruppo crew dressing room at Galatina AB

A student's opinion

Speaking to *AFM*, current Phase IV student 'Nicola' gave his opinion on the airframes used for AM fighter pilot training: "The MB-339 has been used as trainer for the last 40 years. In my opinion, to learn how to fly on it helps to develop the skills and multi-tasking required to be a military pilot. It's easy to fly and it forgives some mistakes that are normal for students at the beginning of their flying career.

"The transition from the T-339A to the C is smooth. The aircraft is the same with some small differences, the pilots only need to adapt to the presence of three MFDs and the HUD. The transition on the T-346A is little more complicated because it introduces a lot of new concepts and the variety of flying configurations that the aircraft can simulate.

"Since the 346 is so advanced, to learn on it is very fulfilling. The trainees can practice forms of flight and missions that in the past could only be practiced at the OCU squadrons. The simulated radar and datalink work very well and they are very similar to the ones that you can find in the

most advanced fighter jets.

"What stands out with the T-346 are the similarities to a 'real' fighter in terms of flight envelope. But the real game-changer is the tactical datalink system. This interacts with any aircraft similarly fitted and the live-virtual-constructive (LVC) link allows a real-time datalink communication between ground and aircraft, including students in the simulator at the IFTS building and aircraft performing an actual flying mission. Threats generated by the instructor on the real-time monitoring station can be discovered by the 'simulated' sensors of the aircraft, like the fire control radar, radar warning receiver or targeting pod.

"For example, I could be flying along during the advanced tactical air-to-ground module and my IP could make red-air aircraft pop up out of nowhere and perform some harsh tactics. It is then my job to engage them in accordance to our previously learnt tactics.

"They can also move the location of SAMs while en-route to the previously planned location."

The first F-35A Lightning II destined for 6° Stormo completed its maiden flight from Cameri on April 7, 2022



Lockheed Martin F-35 Lig

A 32° Stormo F-35A powers up before departing on a night mission from Amendola AB



A 32° Stormo F-35A pilot following a night training flight at Amendola AB

Lockheed Martin F-35A/B Lightning II operations for the AM are now a standard practice, with Italy being the first European country to operate the F-35A in 2016, achieving Initial Operational Capability (IOC) in 2018 and looking to reach FOC in December 2023. Out of 90 F-35s ordered, 23 have been delivered, comprising 17 F-35A models and six F-35Bs. Italy has 62 pilots currently trained for the type, along with more than 530 maintainers.

As such, the AM has an enviable expertise in F-35 operations and remains a reference point for other users. However, Lt Gen Goretti said: "We are constantly evolving and moving forward to ensure our ability to meet the challenges ahead and to provide all the tools to best train the AM in the operation of the most advanced fighter in the world."

The fifth-generation fighter is now operated by two Stormos. Most F-35 operations are with 32° Stormo at Amendola AB. The next to receive the F-35A will be 6° Stormo at Ghedi AB in northern Italy, presently home to the soon-to-be-retired Panavia Tornado. It is also a plan for the AM to host the F-35 at a third base, which is likely to be Decimomannu in Sardinia.

A and B ops

As the only nation apart from



13° Gruppo

No 13° Gruppo reactivated in April 2016 and was the first unit in Europe to acquire the F-35A after the first was delivered on December 16, 2016. On November 13, 2018, the unit declared IOC and, on October 5, 2019, it reached FOC as part of the NATO Air Policing operation in Iceland.

AFM spoke to one of the first Italian operational F-35 pilots, Maj 'G' of 13° Gruppo, a previous Eurofighter pilot with 900 hours of experience on the F-35A. Maj 'G' converted to the F-35 in 2017 when he left XII Gruppo at Gioia del Colle AB. His transition to the F-35 occurred at the 62nd Fighter Squadron at Luke AFB in Arizona. He told *AFM*: "The transition course at Luke AFB is made to fit the trainee's needs, whether they're a brand-new fighter pilot or one with vast combat-experience. The programme had me as a trainee, flying all types of missions that the F-35A can perform, starting from

basic manoeuvring (BFM, ACM) to more complicated air-to-air defence scenarios.

"The sensor fusion is what brings the F-35 its superb capability. We, as pilots, do not have to worry about which sensor to use to retrieve information about a target of interest. The fusion does it for you, offering unique and fused details on the target. This information is automatically shared among all F-35s in the flight via datalink, fusing each other's situational awareness and offering the highest quality information of the battlefield, reducing workload and threat exposure, and ensuring the best option for the tactical action. Flying the F-35 is like being in the darkest room ever, stuffed with blind people, and you are the only one wearing FAR IR NVGs and with a precision weapon in the other hand."

Maj 'G' has experience dropping GBU-12 Paveway II precision-guided

bombs from the F-35A in a close air support training scenario and has taken part in most

F-35A exercises involving Italy. He told *AFM*: "Fifth-gen training opportunities around Europe are finally growing. Initially, we were the only partner nation other than the UK to fly the F-35 in Europe. The community is increasing rapidly, and training together is more important than ever."

"Since Iniochos 2019 [the first international exercise of the AM F-35], we have been training abroad – twice at Blue Flag in Israel with their F-35Is, as well as Astral Knight in 2019 with USAF F-35s in Europe and Red Flag 2020 in the US, plus other exercises while deployed in Estonia in 2021 and, last but not least, Falcon Strike 2021 and 2022, the only training exercises designed for fifth-gen fighters."



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the US to operate two variants of the F-35, Italy has 60 CTOL F-35As and 30 STOVL F-35Bs on order. The F-35 assets are fully integrated into the national air defence system, along with the Eurofighter.

The integration of the F-35Bs for the Navy and the Air Force began in 2020 through several joint exercises. This has allowed the development of the 'air expeditionary' capabilities of the entire defence system, making Italy the only country to guarantee this contribution within the European Union. Joint activities have taken place with the Royal Navy's HMS *Queen Elizabeth* (R08), as well as air bases or airports without logistical facilities.

In this case, refuelling operations have led to a C-130J from the 46th Air Brigade at Pisa being deployed to the facility. With their engines running and a dedicated refuelling system, known as an Air Landed Aircraft Refuelling Point (ALARP), being operated by personnel from 3° Stormo at Villafranca, a unit that specialises in combat service support, so the F-35s can be refuelled and retasked.

Fourth- and fifth-generation

The national integration of fourth- and fifth-generation multilateral NATO and coalition collaboration is critical. This aims

to increase the development and standardisation of tactics, techniques and procedures. The AM is a leader in integrating not only fourth- and fifth-generation assets, but also increased

interoperability between F-35 nations, such as cross-servicing of ground staff and operations while airborne. Exercises hosted by Italy, such as Falcon Strike received the highest endorsement in the

international F-35 community, and the last two editions of the exercise have shown just how the AM is one of the most forward-thinking forces in fifth-generation operations and training.

6° Stormo

The AM started a process in 2016 to prepare 6° Stormo to operate the F-35 from 2022 and the base went through major reconstruction to operate the fifth-generation platform. More specifically, a new part of the wing has been created to host a segregated area named Cittadella for F-35 activity. This area will be state-of-the-art in

terms of connectivity, maintenance and operational capabilities.

Col Giacomo Lacaita, commander of 6° Stormo, told *AFM*: "The AM is using the F-35A pilot expertise that grew up in Amendola's 32° Stormo wisely, with the intention of speeding up the training of new pilots assigned to 6° Stormo. Currently, 102° Gruppo has one pilot

– the squadron commander – coming from 32° Stormo and the others coming from Ghedi's Tornado squadrons."

When *AFM* asked Col Lacaita what difference the F-35 will bring to Ghedi, he replied: "The F-35 will take over all the Tornado's operational capabilities and will bring new ones such as air defence and NTIS, to name but a few."



A 6° Stormo F-35A leads its predecessor in a formation flight. The Tornado ECR/IDS is expected to be fully phased out in 2025



The AM currently has four F-2000As and 74 personnel deployed in Kuwait for ISR missions over Iraq



Two AM F-2000As, one from 51° Stormo and the other from 4° fly in formation as part of Blue Air side



In Italian service, the Eurofighter F-2000A provides the backbone of its air-to-air fighting force. The European-built type is operated by four separate wings at four different locations throughout mainland Italy and the island of Sicily, as well as serving with the Reparto Sperimentale Volo (RSV). The Italian (T)F-2000s were built at the Leonardo (previously Alenia Aermacchi) facility at Turin-Caselle, with the final Italian F-2000 being delivered on October 23, 2020.

A total of 95 aircraft have been delivered, consisting of 81 single-seat F-2000As and 14 twin-seat TF-2000As. Two single-seat aircraft have been lost in accidents, one in an aerial demonstration off the coast of Lazio (serial MM7278) in 2017 and the most recent off the coast of Trapani in December 2022; both accidents were fatal.

Italy received its first Eurofighter on February 19, 2004, and was delivered to 4° Stormo at Grosseto

AB. The AM quickly achieved IOC on December 16, 2005, and was the first air arm to employ its Eurofighters in the QRA mission, the first to get NATO Quick Response Force certification, and the first to commit the Eurofighter F-2000A to provide Air Policing for nations lacking such capability themselves.

Locations

On Italy's West coast, 4° Stormo at Grosseto AB was the first base

to receive the Eurofighter. The F-2000A OCU is located there with 20° Gruppo, as well as 9° Gruppo. The next unit to convert to Eurofighters was 36° Stormo, with 10° and 12° Gruppo, located at Gioia del Colle on the 'heel' of Italy. Then came 37° Stormo, made up of just 18° Gruppo, at Trapani-Birgi on the West coast of Sicily. The final frontline wing to receive the F-2000 was 51° Stormo at Istrana. Currently, both the F-2000A and the AMX

Eurofighter F-2000A



(A-11B Ghibli) are operated by 132° Gruppo. However, the F-2000A will eventually replace the venerable AMX in service at the base, located in the northeast of the mainland.

Mission

Since it was delivered, the F-2000A has been employed to protect the sovereign airspace over Italy. For many years it was thought that the AM F-2000As would only be used in air-to-air roles, performing defensive counter-air, offensive counter-air and QRA missions. Air interdiction, night-vision equipment operations and slow mover interception, intelligence surveillance and reconnaissance (ISR) missions were added later, with an upgrade that allowed the Italian F-2000As to become true swing-role aircraft.

Weapons

With the AM F-2000As now being completely swing-role, they can employ a full arsenal of weapons, including laser- and GPS-guided bombs. In the air-to-air role, they use two of the short-to-medium-range IRIS-T IR-guided missile, can load six medium-range radar-guided AIM-120 AMRAAMs and the 27mm Mauser BK-27 cannon with 150 rounds. Shortly, the AM will integrate the Meteor beyond-visual-range radar-guided missile. In the air-to-ground role, it has various versions of the laser/GPS-guided Paveway bomb, including GBU-48 and GBU-16, and a Litening III targeting pod.

Kuwait

The AM currently has four F-2000As stationed in Kuwait, initially arriving in 2019 as Task Force Typhoon at Ali Al Jaber AB as part of Operation Inherent Resolve. Since May 2020, the deployment switched to Ali Al Salem AB to consolidate its Eurofighters alongside the recently delivered Kuwaiti examples. As well as the aircraft, 74 personnel are stationed in Kuwait. To keep all pilots current in required mission sets, they are rotated back to Italy every two months, whereas the ground crew rotate every three months and the aircraft every four months to be able to carry out all scheduled maintenance.

The AM F-2000As perform ISR missions in pairs over Iraq inside the combined joint operations area using the RECCELITE pod. The missions average four to five hours in length and refuel from a permanently deployed Italian KC-767A. However, the AM has recently gained the authorisation to support the Iraqi Air Force in the DCA role, no live weapons have been employed over Iraq by the F-2000s, but they do operate on the ranges firing the BK-27 gun.

Above left: A 37° Stormo F-2000A takes fuel from an AM KC-767A during Exercise Cobra Warrior 2022

Left: A 37° Stormo F-2000A

Below: The F-2000A is operated by four Stormos, with 51° Stormo located at Istrana AB

Below left: 'Mau' in his F-2000A with a BFM mission ahead of him



Pilot's experience

AFM spoke to 'Mau', a Eurofighter pilot at 36° Stormo, who gave an example of one of his missions while in Afghanistan: "During the ISAF operation, we flew a CAS mission to support a US Army team on the ground, who were patrolling the town of Shindand. They were looking to find any explosive vehicles (VB-IED) along

a main road where, a few hours later, a US convoy had to pass by. From the aircraft, we saw a big SUV parked in an isolated area. After having passed the information to the Army, we were authorised to destroy the SUV that was full of explosives. We were happy to help them out and preserve the soldiers' lives."



KC-390 MILLENNIUM

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*Panavia Tornado IDS MM7064
'6-24' carrying three inert
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Panavia Tornado

The Tornado has served Italy since 1981 and is set to bow out in 2025. Deliveries reached a total of 87 airframes in the IDS variant, 12 of these being the IDS(T) (Trainer). The AM now operates both the Interdiction and Strike (IDS) and Electronic Combat and Reconnaissance (ECR) variant, after 16 of the IDS aircraft were converted to the ECR variant from 1998. In addition to these deliveries, the AM leased 24 Tornado F3s from the RAF for ten years to augment its air defence role when its F-104ASA Starfighters were leaving service.

Operated by 6° Stormo at Ghedi AB, the Panavia Tornado serves two operational units, 154° Gruppo and 155° Gruppo. The OCU throughout the Tornado's service life was 102° Gruppo, which is set to become a F-35A Lightning II unit. No 6° Stormo is tasked with several mission sets that include offensive counter-air, strategic attack, close air support, air interdiction, anti-surface warfare, electronic warfare

and tactical recce. On top of that, the wing ensures the operational conversion of flying crews employed on the Italian Tornado fleet. In 2014-16 and 2020-21, it participated in Operation Inherent Resolve in Iraq, operating from Ahmad al-Jaber AB in Kuwait.

The last major fleet upgrade was the RET8 update, which introduced many pilots to

numerous machine interface improvements, such as a completely new digital map and new multifunctional displays in the cockpit, replacing obsolete systems, such as the IFF, the inertial navigation system, the radar altimeter and more. Finally, the RET8 upgrade introduced a full load of updated effectors, such as new weapon systems, a new

laser pod, and a new recce pod.

In recent years, the Tornado has been operating with the Litening III laser pod, RECCELITE II (a high definition and coloured image recce pod) and new smart weapons, such as the GBU-39 Small Diameter Bomb. Meanwhile, the ECR version has been equipped with the new AGM-88 AARGM missiles.



Tornado IDS MM7036 '6-06' powers up under one of Ghedi's soft shelters with a night training mission ahead



responsible for carrying out offensive counter-air missions and is specialised in the SEAD and DEAD roles. The Gruppo has been operating since 1998 with the ECR variant of the Tornado, using the Raytheon AGM-88 anti-radiation missiles of which there are various versions (from A to the recently introduced E). With the mid-life update performed across the fleet in the early 2010s, crews have the option to use precision weaponry, such as GBU-32 JDAMs.

Furthermore, using its onboard sensors, especially the ELS, the aircraft can detect, measure, recognise and locate emissions in the electromagnetic band typically used by radars of land and naval air defence systems.

The IDS

The Tornado IDS – initially locally designated as the A-200A, later the A-200C after the mid-life upgrade – is operated by 154° Gruppo ‘Diavoli Rossi/ Red Devils’ to perform strategic attack, close air support, air interdiction, anti-surface warfare and tactical recce missions. During specific SEAD missions, Tornado IDSs can fly along with Tornado ECRs to improve mutual self-defence and to carry more missiles as a whole formation.

There are now less than the last reporting total of 37 Tornado IDS remaining in operational service, with seven being the IDS(T) (TA-200B) variant. A mid-life upgrade took place between 2008 to 2013. The IDS can carry up to 9,000kg of external load. The maximum number of HARM missiles that can be fitted on to the Tornado is four, with two CFD pods on the outer rails and two AIM-9L Sidewinders, without external tanks. However, the

configuration more often used is two HARMs under the fuselage, two external tanks under the wings, two AIM-9Ls and two CFD pods on the outer pylons.

102° Gruppo

Currently and for the next few years, 6° Stormo will continue to ensure the operational conversion and standardisation of the flying crews assigned to the Tornado fleet.

Having now arrived at 6° Stormo, the F-35A Lightning IIs will work alongside the Tornado in both national and international skies. No 102° Gruppo received its first new F-35A at the end of 2022. It operates with a small detachment of personnel at Amendola AB under the supervision of 32° Stormo.

Tornado pilots are still being trained at Ghedi AB, but now at 154°, which delivers roughly four to six pilots per year. Students must complete ground school and basic simulator training. This is followed by initial transition and instrument flying.

After this, the unit teaches students to fly low- and medium-level missions, day and night, in all weather conditions, as a single ship or in formation. They are also introduced to the use of night vision goggles. Students also learn to fly with precision weapons in complex scenarios so by the end of the OCU course, crews are qualified as ‘limited combat ready’ in the fighter-bomber role.

The OCU uses the same aircraft as the operational units at Ghedi AB, both IDS and ECR versions. It uses a IDS(T) variant, with duplicate flight and engine controls for the instructor in the back seat, that is also used for one-off training missions.

ECR variant

The Tornado ECR variant, locally designated as the EA-200B and later the EA-200D after a mid-life upgrade, is the evolution of the Tornado specially developed to carry out electronic warfare tasks which will soon be handed over to the F-35A. The ECR variant does not have a gun but is equipped with emitter location systems (ELS) to find and locate enemy radars. Though without the innovations of fifth-gen aircraft, the ECR represents a safe and effective weapon system, capable of performing in operational contexts in a fully integrated manner.

The Tornado ECR is operated by 155° Gruppo ‘Pantere Nere/Black Panthers’, which started its transition to a suppression/destruction of enemy air defence (SEAD/DEAD) squadron in the 1990s. Initially, the unit flew the IDS variant with HARM missiles prior to receiving the ECR variant.

The ‘Black Panthers’ are

Pilot's story

“In 2015, an Italian Tornado Task Force Group (TFG) was deployed in Kuwait to fight ISIL in Operation Prima Parthica. Our mission was to perform recce missions over sensitive targets in northern Iraq and more specifically in the Mosul area. It was a critical time and ISIS was very active in the territory that we were patrolling. Some weeks prior an allied F-16 was shot down and the pilot was killed.

“During an operational mission in Mosul, while performing a mid-AAR with an American KC-135, we suffered a failure on the AAR system. This was a very critical situation because apparently, we didn't have the fuel to make it back to our base in Kuwait and we were over a hostile territory with a probable engine problem caused by the debris of the AAR probe.

“We tried to fix the problem and use all the fuel available in our Tornado making some actions that were not described in any pilot checklist procedure. The procedure worked and we had a safe transit back to our home base and returned our Tornado to maintenance to have the jet operational two days later.

“Our operational experience with the AAR system was captured in a pilot checklist change and this information was then available to the Tornado community.”

Below: Callsigns ‘Aldo’ and ‘Alvaro’, a crew belonging to 155° Gruppo, walk away from their Tornado ECR MM7053 ‘6-101’, after a low-level navigation training flight



C-27J Spartan MM62225 '46-90' of 88° Gruppo flies over Tuscany on a formation training flight. Note this aircraft is one of the three that has been converted to the EC-27J JEDI – an EW variant of the Spartan



Mobility & Transport

311° Gruppo Volo

Responsible for all tests and developments in the air and on the ground for any asset the AM currently has or is looking to acquire is the experimental unit, 311° Gruppo Volo, at Pratica di Mare.

Twenty test pilots and two test navigators fly all AM's current aircraft and test the latest upgrades and

developments to that platform. These include weapon developments and software as well as new fighter pilot equipment, such as masks and helmets. For example, the personnel from 311° are working in conjunction with the UK on the ECRS Mk 2 radar for the Eurofighter, and 311° are evaluating if the radar will work for the AM's fleet.



Members of the 311° RSV fly over the runway at Pratica di Mare AB, which is home to the unit and also to 14° Stormo. Note that a KC-767 is backtracking the runway with an AAR mission ahead

14° Stormo, with its HQ located at Pratica di Mare AB, is organised into two combat squadrons: 8° Gruppo flies the KC-767A and 71° Gruppo has the G550 CAEW, the Piaggio P-180 and the Beechcraft EM-350 ER Spyrdr ISR aircraft.

KC-767A

Four Boeing KC-767As entered service in 2011-2012. The wing has one KC-767A permanently based in Kuwait supporting Operation Inherent Resolve and three at Pratica di Mare AB for national, NATO and EATC taskings with 8° Gruppo.

Italy has been AAR-capable since 1992, initially with the Boeing 707T/T, a modified version of the Boeing 707, which the KC-767A replaced. Today the capability now boasts characteristics such as a Rigid Rod 'boom' refuelling system with a transfer capacity of up to 900 gals/min, a centre point tube and basket with the ability to offload up to 600 gals/min, wingtip points with tubes and baskets

that can transfer 400 gals/min and a universal receptacle that can receive up to 900 gals/min of fuel from other tankers.

The aircraft can be set up in three different configurations (COMBI, CARGO and FULL PAX) according to operational needs, with a useful payload of up to 25,000kg.

'Deep' a current KC-767A pilot, told *AFM*: "Flying the KC-767A is very exciting and fulfilling; you never know what to expect. One day you may take off and transport cargo to the other side of the world, and the next you may airlift sick people and bring them to where they can be cured. Other times you may cross the Atlantic Ocean with receivers in trail and refuel them to their destination. It is a very versatile aircraft and even though it may seem like a big heavy plane, once you turn the autopilot off it is very manoeuvrable, nimble and agile."

"One of [my] most memorable missions was during the evacuation of Afghanistan. We landed in Kuwait and



G550 CAEW MM62303 '14-12' provides C2 during the UK-led Ex Cobra Warrior mission in 2022. The type deployed to RAF Waddington and took part alongside AM F-2000As

waited for two C-130J to bring refugees from Kabul. When they landed and started to transfer the passengers, it was extremely touching to see the gratitude and relief in the tired eyes of the people.”

The Remote Vision System (RVS) onboard the KC-767, produced by GECO Inc, allows the aircrew to record the images coming from the Situation Awareness Camera System (SACS) and from the Boom Air Refuelling Camera Systems (BARCS).

Both systems provide a RVS to the boom operator, who will be located just aft of the cockpit wearing a VR-like headset. This gives the boomer high-definition stereoscopic imagery during air-to-air refuelling.

The KC-767A has not undergone radical upgrades since 2011. The Italian MOD is keen to proceed with modernisation of the KC-767 tanker fleet, which will ultimately see it re-designated the KC-767B. The Italian MOD Multi-Year Defence Planning Document 2021-2022 has requested the acquisition of two additional tankers of the same KC-767

class of the last production standard and the upgrade of the existing four KC-767A to the same configuration. This will see the Italian tanker fleet grow to six aircraft.

CAEW

Since 2016, the AM has operated two G550 Conformal Airborne Early Warning (CAEW) aircraft (MM62293 '14-11' and MM62303 '14-12'), which are based at Pratica di Mare AB. The two aircraft were purchased from Israel Aerospace Industries in 2012 as part of a \$1bn swap deal for 30 M-346 trainers for the Israeli Air Force. No 71° Gruppo 'Perseo' provides pilots for the flight deck and the Crew Mission Centre provides the air defence controllers filling the mission crew.

The CAEW operates as an airborne early warning, battle management, command and communication aircraft. Its main task is to control the airspace with a sophisticated latest-generation radar and antennas. This means searching for every unidentified aircraft or adversaries while in operational mode. All

the information picked up by the sensors is merged to generate a Recognised Air Surface Picture (RASP), which is then shared with all units (airborne or ground based) that are linked via a data link system. The situational awareness this provides helps fighters and high commands to evaluate the threat in advance.

Task Group 'Argo'

Italy's presence of F-2000As on Task Force Air 'Gladiator' on the NATO's Eastern Flank for Air Policing, has been augmented by MM62293 '14-11', a single CAEW reported to have deployed to Mihail Kogalniceanu AB, Constanta, in Romania since February 17, 2023. The CAEW has flown multiple missions along the flank, adding to the current range of ISR aircraft performing missions in the area.

More sneaky Gulfstreams

In December 2020, the Italian MOD published plans to purchase up to eight more Command, Control, Communications, Computer, Information/Intelligence, Surveillance and Targeting (C4ISTAR) platforms based on the Gulfstream G550. This is part of Italy's Joint Airborne Multi-Mission Multi-Sensor System (MMMS) aircraft programme.

The AM told *AFM*: "Plans to enlarge the CAEW fleet including specific ISR capabilities are in place. Once upgraded with new systems, all the G550 assets will operate as MMMS aircrafts."

The first airframe delivered part of the MMMS programme was one of two future signals intelligence (SIGINT) variants ordered via a \$500m deal with the US in 2020, MM62329 '14-13', which arrived



One of AM's four-strong KC-767A fleet, MM6227 '14-02', takes off for a routine AAR training flight at 14° Stormo's home base of Pratica di Mare Simon Pearson Cougill



An AM KC-130J Hercules from the 46th Air Brigade refuels two F-2000As during an air-to-air refuelling mission AM

in Italy on March 7, 2022. It will be equipped with a Leonardo Osprey 50 AESA surveillance radar and fitted with the ISR Spydr suite developed by L3Harris and titled an Airborne Intelligence, Surveillance, Reconnaissance, Target Acquisition, Electronic Warfare (AISREW) aircraft.

Previously a privately owned G550, MM62332 '14-14' was seen arriving in AM colours at Pratica di Mare AB on October 30, 2022, and will join '14-13' as an AIRSEW aircraft.

Six more G550s are also apparently on order. They have not officially been given a role, but Italy has recently shown interest in modifying a number of them into the EC-37B Compass Call electronic attack variant, with the aim of making some CAEW and some Compass Call versions.

46 Air Brigade

Located at Pisa AB, the 46th Air Brigade operates all over the world in many activities with its three operational flying units, 2°, 50° and 98° Gruppis flying various platforms.

C-130 Hercules

The AM currently operates multiple variants of the Lockheed

Martin C-130J. Of the 12 C-130Js delivered between May 2000 and late 2002, seven currently remain in service with two apparently stored and two KC-130J tanker variants. From the summer of 2002 to February 2005, the AM took delivery of ten 'stretched' C-130J-30s and nine remain in service today.

Two units, 2° Gruppo and 50° Gruppo, are responsible for all C-130J operations. They have seen operational activities with the Hercules since 1992 all the way to the current day. In 2022, Sweden were to purchase multiple C-130Js from the AM but that deal has now been put on hold indefinitely.

Recent ops: Afghanistan

In August 2021, the C-130J fleet took part in the rapid evacuation of Afghanistan, with 4,890 out of 5,011 people evacuated on Operation Aquila Omnia being Afghan citizens. Eight aircraft took part: three KC-767s from 14° Stormo and five C-130Js. The latter were deployed to Kuwait, the departure point for the airlift to Kabul. A total of 87 flights took place over 15 days in the second half of August 2021.

Recent ops: Turkey

After the recent disastrous earthquakes in Turkey, Two C-130J flights on February 6 and 7 flew humanitarian aid, as well as an urban search and rescue team with equipment and dogs, to the affected areas. Another four flights to Syria via Beirut took place on February 11 and 12 to transport humanitarian aid as well as four ambulances.

C-27J Spartan

Operated by 98° Gruppo, the Leonardo C-27J aircraft performs a similar tactical mission list as the C-130J. The unit reached operational capability with the aircraft in May 2008. Six are currently operational in the standard C-27J variant and six have been converted into other derivatives. Three airframes, MM62221 '46-85' and MM62224 '46-89' and temporary reg CSX62225 '46-90' have been converted to an electronic warfare variant, the EC-27J Jamming and Electronic Defense Instrumentation (JEDI), which reached 5,000 total mission flying hours over Iraq between 2016 and 2021 fighting ISIS. Three are currently being converted to MC-27J Praetorian gunships and are expected

to be in service by 2030.

On March 7, 2023, it was announced Leonardo and Armaereo had signed a contract to upgrade the C-27J fleet. This upgrade includes the development, integration and certification of a new avionics suite for the C-27J, including general systems aboard the aircraft, the self-protection system and updates to the flight simulator. Upgrading the avionics will include the integration of new mission computers, a new flight management system, head-up and head-down displays and new radio and satcom systems.

Main 46th Air Brigade operations

Location	Dates
Bosnia	1992-97
Kosovo	1999-tbd
Afghanistan	
Niger	2018-tbd
Iraq	
Iraq-Kuwait	2014-tbd
Gabon	2007
Congo (DRC)	1960-62
Somalia-Ethiopia	
Libya	2011
Lebanon	1994, 2007-tbd
Somalia-Djibouti	Unconfirmed

Rotary Wing



15° Stormo is the home of search-and-rescue (SAR) for the AM. Its HQ is located at Cervia AB, with detached units located at 81° Centro Addestramento Equipaggi (CAE; Crew Training Center), the 83° SAR. The squadron's units can be seen at four other AM bases: the 80° SAR at Decimomannu AB, the 82° SAR at Trapani AB, the 84° SAR at Gioia del Colle AB and the 85° SAR at Pratica di Mare AB.

In 2022, 15° Stormo carried out more than 80 rescue missions, involving 200 flying hours and saving the lives of 55 people. On top of SAR, 30 missions lasting 70 flying hours were spent on firefighting missions in the same year.

HH-139A/B

On January 2012, the first Leonardo HH-139A (MM81796 '15-40') entered service with 15° Stormo. The initial fleet, made up of 13 helicopters, became operational in March 2013.

In 2021, the fleet was increased with the arrival of the HH-139B – this saw the number of helicopters in service reach 30. Compared to the HH-139A, the HH-139B is equipped with a double winch and a mission console that allows better management of the onboard equipment during SAR missions. Finally, the HH-139B has been updated with the latest generation avionics and onboard sensors, such as an automatic identification system. Each helicopter can be quickly

reconfigured from search-and-rescue/MEDEVAC duties to firefighting missions. In 2023, the AM expects to convert the older HH-139A helicopters with the same advanced capabilities as the newer HH-139B.

HH-101A Caesar

The Leonardo HH-101A Caesar was first delivered to 15° Stormo at Cervia AB in 2015 and declared operational in 2016 to replace the ageing HH-212. The aircraft was then welcomed by 9° Stormo at Grazzanise AB in August 2020. Thirteen are currently in active service with 21° Gruppo located at Grazzanise. The process of reaching FOC with the HH-101A is expected during 2023.

The primary missions of

Lt Col Francesco, CO of 21° Gruppo, flies his HH-101 during an anti-terror training flight with multiple SF troops on board





Two HH-139s of 15° Stormo perform a routine training formation flight

Reaching the big choppers

Prior to being able to fly the much larger the HH-101A or HH-139A/B, trainee helicopter pilots attend special training sessions for the type at 72° Stormo at Frosinone AB. The students are instructed by 208° Gruppo and fly multiple courses aboard a combination of the Brea-Nardi-Hughes TH-500B, introduced in 1990, and the Stormo's two AgustaWestland UH-139s, which were delivered in 2012 for more complex training such as IFR and NVG flying.

The Stormo told *AFM* its fleet of roughly 40 airframes helps to qualify approximately 50 students per year. As with the IFTS, 72° Stormo also accepts international students for training, including pilots from Saudi Arabia, Afghanistan, Albania, Argentina, Djibouti, Kuwait, Lebanon, Malta and Zambia.

the HH-101A are CSAR and providing support in special air and personnel recovery operations, both in Italy and abroad. No 21° Gruppo works in close collaboration with 17° Stormo, the AM's special forces (SF) unit.

The contract for the HH-101 programme had an estimated value of \$1bn, covering the acquisition of 15 AW101 helicopters from Leonardo. These rotorcraft are currently maintained by both the AM and Leonardo. As part of the contract for the programme, Leonardo provides a 15-year logistics support package for the helicopters, which includes maintenance, repair and overhaul (MRO) services.

Since the introduction of the HH-101, more than 40 pilots have been qualified to operate the aircraft. However, the commanding officer of

21° Gruppo, Lt Col Francesco, was not able to disclose the current number of combat-ready crew for security reasons.

All aircrews are required to complete a basic special operator course, necessary for the delicate integration with special ops units. In addition, two simulators are currently available, one in Norway and another at Grazzanise AB.

One of the key features of the HH-101 operated by AM is its ability to perform helicopter air-to-air refuelling (HAAR), a critical capability that makes the HH-101 a valuable asset to Italy's special operations.

The AM has expressed interest in upgrading the HH-101's defensive systems to enhance its survivability in a hostile environment. This could include the addition of new sensors, a suite of defensive countermeasures and improved armour protection.

A 21° Gruppo HH-101 supports a training exercise for members of 17° Stormo



Air policing, also known as Quick Reaction Alert (QRA), is a huge undertaking for the AM, involving two different aircraft types operating from five separate bases. Breaking this down, 4° Stormo at Grosseto and 51° Stormo at Istrana cover the northern portion of Italy with the F-2000A, while in the south, 36° Stormo at Gioia del Colle and 37° Stormo at Trapani in Sicily also operate the F-2000A and 32° Stormo at Amendola utilises the F-35.

QRA missions are overseen by two separate control centres. The first is the 11th Integrated Air and Missile Defence Squadron (GrDAMI), located at Poggio Renatico, north of Bologna, while the second is the 22nd GrDAMI at Licola, to the west of Naples. These two bases are responsible for the detection, tracking and interception of any potential threats to Italian national security. The information gathered is then passed to the relevant wing to prosecute the QRA mission 24/7/365.



QRA: Italy on Alert



Defending the alliance

Like most other capable NATO members, Italy commits its air forces to participating in several Air Policing missions overseas. Italy is the only NATO member that has covered the complete spectrum of Air Policing missions: Baltic Air Policing (BAP) in Lithuania in 2015 and 2020, enhanced Air Policing (eAP) in Romania in 2019, 2022 and 2023, Bulgaria in 2017, Estonia in 2018 and 2021, and Poland in 2022. In addition, airborne surveillance and interception capabilities to meet Iceland's peacetime preparedness needs (ASIC IPPN) was carried out in 2013, 2017, 2018, 2019, 2020 and 2022.

Further to these multinational NATO operations, the AM has also participated in Interim Air Policing (IAP) in Slovenia since 2004 (which it shares with Hungary), as well as Albania

since 2009 and Montenegro since 2018 (which is shared with Greece rotationally). These IAP missions are carried out from the wing's home bases without the need to deploy abroad. **afm**

Fifth-gen Interception

32° Stormo at Amendola, located in south-eastern Italy, is home to Europe's first active fifth-generation fighter squadron. The wing operates both the standard F-35A as well as the STOVL-capable F-35B. In 2019, it became the first unit to provide fifth-gen assets to a NATO Air Policing mission. At that time, the wing participated in ASIC IPPN at Keflavik in Iceland, and since then it has also participated in NATO's Baltic Air Policing mission at Ämari AB in Estonia in 2021.

Italy on Alert				
Nation/ Mission/Dates	Alpha Scrambles	Alpha Hours Flown	Tango Scrambles	Tango Hours Flown
Italy Jan-Dec 22	25	60	164	500
Iceland (ASIC IPPN) Jun-Jul 22	0	0	14	40
Poland (eAP) Aug-Nov 22	23	60	92	315
Romania (eAP) Dec 21 – Jul 22	27	90	16	45

Above: A single F-2000A pulls away with its afterburner engaged after performing an interception of an AM-operated HH-139B near Gioia De Colle
Below: Italy has provided the entire spectrum of Air Policing missions with the F-2000A and F-35A. The F-35A gained its wings in QRA in 2019 and has since been deployed in Iceland and Estonia



Thanks to

As fifth- and sixth-generation capabilities are a major focus for the majority of global air arms, it is obvious that Italy is not only following suit, but has become a major part of the spearhead guiding new developments in both technology and practice. WE would like to thank the AM for hosting us to create this feature and offer our congratulations on the AM's centenary.

It is also an honour to be providing 2,000 copies of *AFM* to the International

AeroSpace Power Conference in Rome on May 12-13. The event seeks to address all of the current concerns of international air arms and fill the gaps in governance, knowledge, materiel and personnel in order to adapt and remain a viable force for the next 100 years. Moreover, the conference will also be hosting an Air and Space Exposition designed to provide exhibitors and visitors with unprecedented learning and sharing opportunities.