

Ramstein Flag 25



NATO's Allied Air Command, in cooperation with the Royal Netherlands Air Force (RNLAF), conducted Ramstein Flag 2025 (RAFL25) from 31 March to 11 April 2025. The exercise brought together over 90 aircraft from more than 15 Allied nations, operating from 12 Allied air bases across Europe. This large scale, tactical level training exercise aimed to strengthen multi-domain operations, interoperability and rapid response capabilities among Allied forces. The Royal Netherlands Air Force has many years of experience with the high-quality Frisian Flag exercise. That was precisely the reason why NATO Air Command asked the armed forces to jointly set up Ramstein Flag.

History

In 1975, the US Air Force began holding Flag series exercises after identifying a need to provide realistic training against a realistic threat to test hardware and tactics. Exercise Red Flag was established at Nellis Air Force Base. It was a trailblazer for a completely new type of fighter jet training to help the US Air Force to “train as you fight”.

A Flag exercise involves participants from the US and allied air forces and provides them with lifelike training in a complex, contested environment. The exercise aims at offering pilots and weapon systems officers the opportunity to fly ten realistically simulated combat missions in a safe training environment with measurable results improving



survivability and skills. International examples of Flag Series exercises are Israel-led exercise Blue Flag or Canada-led exercise Maple Flag.

In 2024 NATO Allied Air Command organised the first Ramstein Flag exercise. The name Ramstein Flag refers to Ramstein Air Base in Germany, headquarters of NATO Allied Air Command. The first Ramstein Flag was hosted in Greece. It involved 130 aircraft and over 2,000 sorties were flown. NATO AIRCOM has now adopted the Flag principle for its main training event. As geopolitical tensions continue to evolve, so too must NATO exercise design. Ramstein Flag signifies the future of NATO exercises, focusing on current and future threats. Lessons



from the war in Ukraine and elsewhere in the world are taken into account, such as achieving air superiority and the use of drones in air defence and warfare in general. For this reason, units from the navy and army were also deployed.

12 Air Bases

This year's exercise involved 12 Allied air bases across the Alliance. Distributing air operations across various locations across NATO requires speed, flexibility and adaptability, which was exercised during Ramstein Flag 2025. Allied bases included in the exercise were Leeuwarden

(host) and Eindhoven in the Netherlands, Skrydstrup in Denmark, Avord and Istres–Le Tube in France, Husum and Geilenkirchen in Germany RAF Lossiemouth, RAF Marham plus the US air bases at Lakenheath, Mildenhall and Fairford in the UK.

In terms of combat aircraft, 26 fifth generation fighter aircraft (such as the F-35) and 62 fourth generation fighter aircraft participated. Also seven different tankers participated to include the Multinational Multirole Tanker Unit (MMU) out of Eindhoven in The Netherlands.

Naval involvement

Standing NATO Maritime Group 1 (SNMG1) played a complementary and dynamic role in the exercise, bringing a critical maritime dimension to NATO's integrated air and missile defence training. Composed of HNLMS Tromp (Netherlands), BNS Louise-Marie (Belgium), and FGS Rhon (Germany), SNMG1 not only contributed to the realism and complexity of the scenario but also took advantage of valuable high-end training opportunities for its crews and staff. HNLMS Tromp, an Air Defence and Command Frigate, provided essential command and control functions to support air operations. The ship's fighter controllers actively guided allied aircraft and ensured seamless coordination between the maritime and air components of the exercise.



Exercise Objectives

This year's exercise was designed to provide Allied forces with advanced training in a complex, contested operational environment. Priorities for RAFL25 included exercising:

- Improving Integrated Air and Missile Defence (IAMD) tactics, techniques and procedures (TTPs) by conducting close coordination between Defensive Counter Air (DCA) and Surface-Based Air and Missile Defence (SBAMD) missions.
- To exercise 4th and 5th Gen integrated COMAO mission planning and execution against semi-permanent IADS environment.
- To improve the understanding and application of joint and combined air operations concepts, doctrine and procedures.
- Portions of Counter Anti-Access/Area Denial (C-A2AD) tactics, procedures and techniques: secure airspace, deny the enemy access to the airspace and eliminate enemy threats to the airspace.
- Exercise interoperability for flying air defence assests and SBAMD in a Joint Engagement Zone (JEZ): in different layers of the defence the threat of destroying own troops and assets must be eliminated.
- Exercise the Agile Combat Employment (ACE) at Leeuwarden and other Air Bases: stay unpredictable for the enemy. If you move aircraft around a base and between bases the enemy is uncertain of where the actual aircraft are.
- Improve 4th, 5th generation aircraft and joint fires integration in a complex and dynamic operational environment.
- Enhance the intel and information sharing and coordinating among NATO air forces in the planning and execution of operations in a semi/non permissive environment.
- To experiment with live virtual construct in execution: weapons used by air force, army and navy can be deployed virtually in the exercise. They can be seen, but are not actually in the air.

Scenarios

The objectives reflect AIRCOM's focus on ensuring the air component's readiness to respond rapidly in Article 5 scenarios, where NATO's collective defence commitments are invoked. Additionally, RAFL25 exercised the NATO air component's agile and immediate ability to execute the first five days of an Air Tasking Order (ATO) during such a scenario.

During Ramstein Flag a large scenario was executed. This scenario was divided in 3 parts, in which Blue Forces battle with Red Forces. Participating aircrews switched sides between Red and Blue forces regularly during the exercise.



Scenario day 1, 2 and 3: Integrated Air and Missile Defence (IAMD) in a semi permissive (i.e. potentially hostile) environment.

Scenario day 4, 5, 6 and 7: Counter Anti-Access/Area Denial (C-A2AD) in a non-permissive environment, where non-permissive stand for under effective enemy fire/threat.

Scenario day 8 and 9: Air Power Contribution to Counter-Land Operations (APCLO) in a semi permissive environment.

Missions

During the exercise days two missions were flown. One mission in daylight, starting at 4.30 am local time and ending at 7.30 pm. The night mission started at 8.30 pm and lasted until 11.30 pm. Planning for a mission takes no less than eight hours. The flight lead (the leader of a group of four aircraft) attends the initial planning. He is responsible for briefing the other pilots in the flight. The pilots are at the aircraft 45 minutes before take-off. After take-off the fighters rendezvous with a tanker to take fuel, after which the actual exercise starts. Pilots only flew one mission per day, as the debriefing of the first mission took well past the start of the second mission. The actual end time of the second mission, including debriefing, lasted up to 04.00 am of the next day.





The exercise took place mainly above the North Sea, from the Dutch Wadden Islands to Denmark. In addition, above Friesland and Groningen. The size of the training area was approximately 300x200 kilometers. Most of the flying exercise took place above an altitude of 1.7 kilometers. Above the sea, flights were also flown lower, down to sea level.

An important aspect of the exercise was also interoperability. Examples of this interoperability were: Danish 5th generation F-35s met up with a Turkish KC-135 at 18000 feet above the North Sea. The Turkish Air Force's ability to seamlessly integrate with fifth-generation platforms like the F-35 reflects the Alliance's commitment to continuous adaptation and collaboration. Another example is during the training, two F-35s assigned to the 495th Fighter Squadron at Royal Air Force Lakenheath, England, and two RNLAf Air Combat Command F-35s were launched by crew chiefs from the opposite nations to fly counter anti-access/area denial, or C-A2AD, training missions. After landing, logistics and maintenance crews from both Allied nations reciprocally recovered, refuelled and inspected the other nation's aircraft. The successful cross-servicing at Ramstein Flag is an example of the importance of integrated logistics and maintenance training.

Keystone

During the exercise, Dutch F-35As, for the first time in Europe, used the Keystone system to transmit targeting coordinates in real time to a ground artillery unit equipped with the PULS system. This integration enabled rapid and precise strike, demonstrating the effectiveness of combined arms coordination and the growing importance of advanced communications systems in modern military operations. The integration of the F-35, the Keystone system and the PULS represents a significant step forward in joint coordination. It enables rapid and precise response to threats, combining the advanced detection capabilities of the F-35 with the firepower of the PULS. This capacity is



particularly relevant in the current context of geopolitical tensions, particularly in Eastern Europe. It provides armed forces with increased flexibility and long range strike capability, which is essential to deter potential aggression and respond effectively to threats.

Future

As NATO AIRCOM works to improve Ramstein Flag each year, 2026 will be in combination with US exercise Astral Knight, and the exercise will span across all three joint operations areas: north, center and south. Ramstein Flag planners are also currently discussing how to make the live-fly environment more realistic. ➡



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