

## **QRA - Quick Reaction Alert (Dutch Defenders)**

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### **Dutch defenders**

The Quick Reaction Alert task (QRA) has been a primary task for the air base in Leeuwarden during the last decades. Being one of two Main Operating Bases (MOB) of the Koninklijke Luchtmacht or Klu (Royal Netherlands Air Force/RNLAF) and structured within NATO's Air Forces North Europe (AIRNORTH) Leeuwarden Air Base is of major importance for the air defence of the Netherlands and adjacent North Sea Territory. It is one of two regional Headquarters of Allied Command Europe (ACE) headed by the Supreme Allied Commander Europe (SACEUR) and one of three joint Sub-Regional Commands of Allied Forces Northern Europe (AFNORTH).

### **Leeuwarden**

Located in the north of the Netherlands nearby the North Sea and founded when fighters had not so much range like today the base was a logical choice to adopt the air defence task. Today however the Netherlands do have commitments abroad such as in Afghanistan and therefore a rotation system for the QRA task is introduced with Volkel Air base; the other MOB in the Klu structure. Traditionally the air defence role is associated with Leeuwarden Air Base and so some history would be justified. Today three operational squadrons with aircraft are home based at Leeuwarden. First of all to mention is the 322 Squadron which actually execute the Quick Reaction Alert role when necessary with 16 F-16AM Fighting Falcons. The 322 squadron with all its experience is also very suitable for joining in crisis management operations outside Dutch territory under NATO flag. The sister squadron on Leeuwarden Air Base operating the same amount of F-16 fighters is the 323 Squadron or TACTES-squadron (Tactical Training, Evaluation and Standardization Squadron) which could also support in QRA tasks when required. The third squadron, the 303 Squadron is a Search & Rescue squadron with three AB-412 SP helicopters painted in bright yellow and therefore they earned the name 'tweetie'. Not far from Leeuwarden located at one of the islands in the Waddenzee which is called Vlieland there is the Vliehorst shooting range. Dutch F-16's and aircraft of other NATO countries practice their tactical and air-to-air fighting skills in this area and a demand of NATO is to have stand by a SAR helicopter at exercise time. Consequently the SAR flight is stationed at Leeuwarden and besides the Vliehorst it guards the north western part of the Netherlands and the islands in the Waddenzee in particularly but can also be deployed above other areas in the Netherlands.

### **322 Squadron and QRA**

During 365 day's a year and 24 hours a day at least two F-16's are stand by to come in action when unknown aircraft are approaching or entering Dutch airspace. This will be directed by the Air Operations and Control Station at Nieuw Milligen (AOCS NM) which radar facility would first notice the unknown aircraft. When radio

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contact doesn't succeed in identification of approaching aircraft the F-16's will be scrambled within minutes. The used call sign is AJ (Alpha Juliet) with two numbers. The round the clock peace time Quick Reaction Alert in the highest state of alert involves not only aircraft and pilots but also ground and maintenance personnel.

In the decades just after World War two for the QRA the Dutch Air Force operated Gloster Meteors, Hawker Hunters and later the F-104G Starfighter. During the cold war days the F-104G was sent many times into the air to intercept Russian bombers above the Northern Atlantic heading for the Dutch North Sea area to test NATO's response capability. This was called 'Berenjacht', which is translated in English Bear Hunting. At that time the all weather interception capability was in addition to the Dutch Starfighters performed by the 32 TFS USAFE with F-15A which were under direct command of the Dutch. The 322 Squadron saw first life during World War two within the Royal Air Force first as 167 Gold Coast Squadron with experienced Dutch fighter pilots. Later in 1943 the squadron was renumbered as 322 (Dutch) Squadron equipped with spitfires and took a grey parrot as mascot and named it Polly Grey. Until today Polly Grey is at the tail symbol of the squadron and at the home base today the fifth generation parrot Polly Grey V is kept safely at the base. While during the life of this bird a 322 Squadron F-16 shot down a Serb Mig-29 the bird is nicknamed Polly the Mig killer.

## **Very capable F-16**

The F-16 changed the air power capability in the region dramatically and after mid life update (MLU) the F-16AM is recognized amongst the most potent fighters of the world today. With his Beyond Visual Range (BVR) capability and his AIM-120B Advanced Medium Range Air-to-Air Missile (AMRAAM) rockets it can attack an intruder at longer distance. The AIM-120B is a semi-active intercept missile, which can destroy incoming targets to 50 km and outrunning targets to 25 km. Even when the F-16AM would be engaged in a dog fight it would be with his arms of Sidewinder AIM-9L not a little one. Another improvement was the installing of the AN/APG-66 (V)2 radar that can track 10 objectives simultaneously and enables the MLU F-16 to fire six missiles at the same time instead of one by an older F-16 OCU. Also the advanced Identification Friend or Foe (IFF) A/N APX-113 (V) is a very important feature in the concept. Although several 'intruding' airplanes were intercepted by the squadron during the years, it never shot down another airplane above the North Sea which is different with other theatres such as the Adriatic region. The F-16 J-063 shot down the Serb Mig-29 during the Kosovo crisis in 1999 with his AMRAAM proofing its dangerousness to an opponent. Most of the times not identified and intercepted aircraft in the Dutch airspace were civil aircraft which lacked radio contact with the air traffic control tower (ATC) and were after visual contact identified and guided. The F-16AM's of 322 Squadron can work perfectly together with AWACS aircraft in the air by data link.

## **323 Squadron in tactical warfare**

This squadron has a tactical role, but can support 322 Squadron in QRA. In the

Netherlands the doctrine of the 'swing role' was adopted for the first time during long term deployments in Italy hereby showing the true multi role capability of the F-16. Involved in operations Deny flight, Deliberate Force and Allied Force from Villafranca and Amendola the Klu could not put all responsibility at one squadron. Aircraft were deployed from all Dutch F-16 Squadrons in rotation. Therefore it was necessary for pilots to learn both tactical and air defence tactics and even reconnaissance while the airplanes could quickly (within hours) changed in configuration. Swing role means at least two roles (dual capable). While above Yugoslavian air space F-16's were armed with a mix of air-to-air and air-to-ground weapons performing so called Swing Combat Air Patrols. Today, when deployed in Afghanistan this heritage is of vital importance to Dutch fighter pilots and of course the ground personnel too. Squadrons with air defence tasks like 322 or combined tasks like 323 can act both in aerial fight as in the tactical role such as Close Air Support (CAS) when deployed. The 323 TACTES Squadron provides shooting practice exercise and bombing tactics to pilots and function as the fighter weapons school. This is symbolised in the emblem on the tail which is Diana, the goddess of the hunt. Missions can include bombing raids at the Vliehorst with MK82 ( 500 pounds) bombs. Also the squadron is in charge both national and international in standardization aspects for the operational use of F-16's and is involved in experimental work. The F-16BM J-066 nicknamed Orange Jumper is a flying test bed for the Klu. A small Operational Test & Evaluation unit within 323 TACTES Squadron provides with test pilots, a flight engineer and an avionics expert test procedures in hard and software improvements for F-16's. Being the only European unit of this kind the results are shared with other F-16 using countries (EPAF) within NATO.

## Busy in exercises

Every year the 323 Squadron organizes the Fighter Weapons Instructor Training (FWIT) which exercise is joined by several other NATO allies. The FWIT provides realistic settings for experienced F-16's pilots to achieve the position of weapon instructor. The participant takes his own aircraft with him and exercises in a group of approximately 15 pilots for a few months and to accept much knowledge in short time the pilots have been selected among the best to succeed in the course. To achieve different settings in different theatres FWIT takes the participants sometimes outside the country such as for example Norway and using greater facilities for low level flying. To set up, organize and conduct FWIT exercises is a continuous process for 323 Squadron during the year. To optimise skills for Klu pilots is highly valuable and necessary in order to expose pilots in area of threat with a maximum of advantage. Sharing experience, not only in settings far outside the country but especially in the own surrounding area of the Netherlands and to control and maintain the practice in this the 323 Squadron also organizes the Frysian Flag exercises. This is a typical 'flag' exercise like we know from the Red- and Mapple Flag exercises from the United States and Canada. Frysian Flag is normally every two years a fact and the exercise comprises complex international missions reflecting different aspects of air combat. This can be simply air-to-air or air-to-ground missions or more complex COMAO exercises. The theme could also be integrating a subject like the training with Link 16 data link systems and data link management including the use of a Link-16 simulator

for inexperienced pilots. Also joint missions with Link 16 equipped Dutch Naval ships or Forward Air Controllers of the Dutch Army were on the program in the past. Integrated in the exercise scenarios are ECM aircraft, Tankers and AWACS units. The exercise area is above the North Sea, the shooting range Vliehorst and a pointed low level exercise area above the Marnewaard. Lessons learned are implemented in procedures and reflected in a syllabus written by 323 personnel which is updated frequently. The 323 Squadron comprise four flights. Flight 1 arranges Dissimilar Air Combat Training (DACT) partners and keeps up currencies for pilots, Flight 2 organizes the Frysian Flag exercises, Flight 3 is responsible for FWIT and standardization and evaluation (StanEval) of all Klu F-16's and Flight 4 organizes symposia and delivers pilots to the OT&E flight.

## **Future developments**

The European Participating Air Forces (EPAF) which are working together in the mid life update (MLU) process are closely connected to the OT&E flight of the Klu. Developments are a dynamical process since the F-16 is still an aircraft permitting modernisation to reach more effort. Modification processes are designated by a number with the M4 modification being a software modification the latest implemented while M5 is planned in near future. Within M4 the multi-function information distribution system (MIDS) panel and software is used to integrate the Link-16 system. The Link-16 system existed already in the M3 configuration but is in M4 improved with enhanced capability. M4 also simply improves the tactical awareness to the pilot with additional data in a targeting pod display and in the HUD such as the dynamic launch zone which is recognized by the computer after calculating wind conditions speed and altitude data. The expected time on target is also visible in the HUD giving the pilot the idea how much time he is away from impact of the weapon. The Joint Helmet Mounted Cueing System (JHMCS) which is introduced during M4 implement phase described as a HUD on the head and connected to data-link it enables the pilot to use High Off Bore (HOB) missiles in combination with M4 software. With HMCS it is practical possible to send a rocket to an aircraft flying alongside the own airplane by 'looking' it to the target. There are still many items to sort out. A new generation targeting pod such as the Litening AT with high resolution mid-wave third generation FLIR and CCD-TV a laser spot tracker, a laser marker and fully operational remotely operated video enhanced receiver (ROVER) and a possible acquisition of new rockets to use the full spectrum of possibilities with the JHMCS are updates in a continuous process of improvement. The F-16 is and stays a fully potent highly advanced weapons platform until it will be replaced by a new generation fighter, probably the JSF.