F-4 PHANTOM II

50 Years in service of the Hellenic Air Force (Πολεμική Αεροπορία)

When the first McDonnell Douglas F-4E PHANTOM II in the colours of the Greek Air Force (Polemiki Aeroporia) landed at the newly expanded base at Andravida on Friday 5 April 1974, no one would have believed that half a century later these fighters would still be in active service! In the meantime, the number of airworthy aircraft has been drastically reduced, but the men and women of the last active unit, the 338 MIRA 'ARES', still fly the flag and are an important part of the air component of the Greek Armed Forces. The PHANTOM era will come to an end with the introduction of the Lockheed Martin F-35 LIGHTING II. Although an exact date has not yet been set, we take the opportunity to take a closer look at this piece of aviation history in service with the Hellenic Air Force before the last aircraft goes into a more than well-deserved retirement!

Story & images: Robert Kysela

McDonnell Douglas F-4E AUP PHANTOM II / image by: Robert Kysela



Geschichtlicher Hintergrund

Greece was in a difficult economic situation after the Second World War. Although the country itself did not suffer as much (external) war damage as many other countries, the economy recovered very slowly. There was also a civil war (1946-1949) triggered by a communist insurgency supported by neighbouring Albania and Yugoslavia. This attempted coup was only averted with the help of the British, and especially the Americans. Tourism, one of the main sources of income, was slow to pick up in the early 1960s. Shipbuilding and fishing were the only industries that quickly recovered and helped the country through this difficult period. The onset of the Cold War and Greece's geostrategic position were to its advantage. The West's fear of losing this important country to communism was the main reason why the Americans, in particular, offered the prospect of immense military aid. Although the Soviet leader Joseph Stalin expressed his apparent disinterest in Greece in a supplementary agreement at the Yalta Conference (1945), little faith was placed in his statements. The creation of strong armed forces and their alignment with Western defence policy was therefore a prerequisite for the stabilisation of the country. This was one of the reasons why Greece (together with Turkey) was accepted into the Western military alliance, NATO, on 18 February 1952.

Another reason (from a Greek perspective) for developing a strong air force was the country's relationship with its north-eastern neighbour, Turkey. Most of the Greek-speaking area had been part of the Ottoman Empire for 400 years, and after the proclamation of independence on 15 December 1821, there were repeated wars and border disputes between the two nations, which essentially continue to this day. In particular, the air forces of both countries have played an increasingly important role.



McDonnell Douglas F-4E PHANTOM II / Foto: Robert Kysela

Military aid resulted mainly in the air force being equipped with aircraft and equipment from US stocks. While at the end of the war the Greek Air Force was still mainly equipped with British material such as the Supermarine SPITFIRE Mk. IX and Mk. XVI, the very first jet the Greeks had was of US production. The country's first fighters were the Republic F-84G THUNDERJET and later the F-84F THUNDERSTREAK and the RF-84F THUNDERFLASH reconnaissance version. Many NATO members used these first-generation fighters as a sort of entry into the jet age, but quickly realised that they were of little use in a conflict and were only a stop-gap measure. The Greeks were aware of this too, but the F-84F/RF-84 F nevertheless formed the backbone of the Greek Air Force for many years. In fact, the Hellenic Air Force (HAF) was the last operator of the F-84F. Although they were officially decommissioned in 1978, some aircraft continued to fly with 348 Mira (Squadron) at Larissa AB until 1983.



Since Turkey also had Republic F-84Fs and RF-84Fs (with an impressive number of over 300 aircraft in their inventory), the Hellenic Air Force Command found itself in a stalemate, at least from a technical point of view. When procuring new types of aircraft, the Greeks always kept a close eye on the Turkish military's equipment. This was particularly evident in the case of the Lockheed F-104 STARFIGHTER. After Turkey received its first 32 F-104Gs in 1963, the Greeks quickly followed suit and in 1964 the (then) Royal Hellenic Air Force received the first 35 aircraft of this type from Canadian production. The same scenario played out for the next aircraft type in the inventory of the two air forces. Following Turkey's decision to purchase used and refurbished Convair F-102A and TF-102A DELTA DAGGERs from the US Air Force, Greece also ordered 24 of the same type (including 19 single-seat F-102As and five twin-seat TF-102A trainers). It was significant at the time that it was usually the Turks who first chose a particular type of aircraft, with the Greeks subsequently ordering the same type. It remains to be seen whether this 'same aircraft' policy made sense. The US companies were particularly pleased.

Towards the end of the 1960s, those responsible at RHAF Headquarters in Athens realised that it made little sense to respond to an aircraft type already ordered by the Turks by procuring the same type, and that they could not compensate for the numerical superiority of the Turkish Air Force by equipping their own air force with the same technology but in smaller numbers. For this reason, the procurement of a third-generation fighter was put out to tender, with the clear aim of obtaining the best technology available on the Western market at the time. This was the starting point for what was probably the most important procurement project of the Hellenic Air Force in the last century.

After a short selection process, two aircraft were shortlisted: the Avions Marcel Dassault (AMD) MIRAGE F1CG, a French-built multi-role fighter, and the McDonnell Douglas F-4 PHANTOM II. The latter was the ultimate fighter of the early 1970s and had proved its worth in the Vietnam War. It was therefore not surprising that the Greek Air Force leadership was in favour of procuring the F-4 from McDonnell Douglas. In 1972, the Greek government signed a contract for the procurement of 36 McDonnell Douglas F-4E's at a total cost of just under $150 million. The deal was largely financed by so-called FMS (Foreign Military Sales) loans. The official name of the procurement programme is PEACE ICARUS I.
In order to circumvent US legislation on the sale of military technology by defence contractors to foreign states, and to speed up the process, the aircraft were not sold directly by the manufacturer to the Greeks, but were officially delivered to the US Air Force, which in turn sold them to the Royal Hellenic Air Force. This procedure is still widely used today!



McDonnell Douglas F-4U APU PHANTOM II / image by: R. Kysela



McDonnell Douglas F-4U APU PHANTOM II / image by: R. Kysela



McDonnell Douglas F-4U APU PHANTOM II / image by: R. Kysela

Peace Icarus I

Shortly after the contract was signed, it was decided that the 36 aircraft would be split into two squadrons, both assigned to 117 CW (Combat Wing) at Andravida AB. This base was chosen because it is relatively far to the west of the Peloponnese and therefore out of reach of the Turkish Air Force. The conversion of the base to accommodate the new aircraft took a full year and was completed shortly before the arrival of the first aircraft in March 1974. The purchase of the F-4 also included an intensive training programme for the crews and technical personnel. The 20-week training programme for the first crews began in August 1973. All future F-4 pilots were hand-picked and had to have at least 1500 hours flying time (on F-84Fs).

Crew training and retraining took place at Homestead AFB in Florida. The Greeks benefited enormously from the vast experience their instructors brought back from the Vietnam War. But it was also a big change for the pilots. On the one hand, they were now flying a sophisticated weapon system that represented a quantum leap over the F-84F in terms of technology and flying skills, and on the other, a so-called Weapon System Officer (WSO) shared the workload with the pilot and coordinated the use of the weapons. From the outset, F-4 units were tasked with tactical fighter-bomber missions in addition to interception.

The first two units to be converted to the F-4E were 338 Fighter Bomber Squadron (Mira) 'ARES' and 339 Fighter Bomber Squadron (Mira) 'AJAX'. 339 Mira was formed in July 1952, at that time still with Republic F-84G THUNDERJETs. In March 1961 it was transferred to the newly built Andravida AB (ICAO code: LGAD). It bore the emblem of the archer AJAX from Greek mythology on its shield (as well as the Spooky in the background). The 339 Mira was effectively the parent unit of the 117 CW, but was decommissioned on 31 October 2017 after more than 65 years of service with HAL. Its main task was all-weather interception.



official crest: 339 Mira



McDonnell Douglas F-4U AUP PHANTOM II / image by: Robert Kysela

338 Mira "ARES"

While 339 Mira was already based at Andravida when it was converted to the F-4E PHANTOM II, 338 Mira was part of the 115 CW at Souda Bay AB and only transferred to Andravida in the course of 1974. Originally based at Elefsis AB, the 338 Mira was briefly transferred to Larissa and later to Souda Bay. While the 339 Mira provided the interceptor component, the 338 Mira is mainly responsible for the fighter-bomber role. In order to best fulfil this role, twenty AN/AAQ-28 LITENING II pods were procured in 2003, giving the F-4E an additional capability that no other aircraft in the Hellenic Air Force inventory can match. This means that the F-4E can not only deliver its own precision weapons, such as various versions of the PAVEWAY guided missile family or the AGM-65G MAVERICK, with pinpoint accuracy, but can also mark targets for other aircraft. These capabilities are also one of the reasons why the HAF still maintains its F-4E fleet.



McDonnell Douglas F-4U AUP PHANTOM II / image by: Robert Kysela



official crest: 338 Mira



McDonnell Douglas RF-4E PHANTOM II / image by: R. Kysela

Peace Icarus II

Just three years after the first McDonnell Douglas F-4E PHANTOM II was delivered to Greece, the Greek government ordered a further 26 of the same type, including eight RF-4E reconnaissance versions. The F-4Es were all second-hand Indiana Air National Guard aircraft, although they were more modern than the 36 Peace Icarus I aircraft. They were equipped with a Northrop AN/ASX-1 TISEO (target identification system, electro-optical). This was mounted on the left wing and included a high-resolution camera with two different zoom ranges. This enabled the crew to clearly identify a potential target at a greater distance. It is extremely dangerous to shoot down the wrong target, especially in an imminent conflict. There is also the danger of shooting at one's own aircraft. Visual identification by the pilot/crew is therefore very important. However, this means that the pilot loses the advantage of his long-range weapons and (especially in the case of the F-4) runs the risk of getting into a dogfight with a superior opponent. This is why the target recognition system was developed for the F-4 and the Grumman F-14 TOMCAT. The eighteen new aircraft were used to equip another Phantom unit - the 337 Mira 'FANTASMA' at Larissa AB. The 337 Mira was part of the 111 CW and flew the Northrop F-5A/B FREEDOM FIGHTER until 1978. It officially entered service on 7 September 1978 as the third Phantom unit.

The eight RF-4E reconnaissance aircraft formed the 348 MTA (Mira Taktikis Anagnorises; Tactical Reconnaissance Squadron) at Larissa AB as part of the 110 Combat Wing. Due to the fact that only eight aircraft were initially available, part of the 348 MTA continued to fly with the obsolete Republic RF-84F THUNDERFLASH until 1991 (!). When these were withdrawn from service, there was a gap in the country's reconnaissance capability that had to be filled as quickly as possible. The Greeks benefited from the fall of the Berlin Wall and the end of the Cold War. The Luftwaffe reduced its stock of military equipment and aircraft. Many air bases were closed, including Leck Air Base in Schleswig-Holstein, home of the AG 52 (Aufklärungsgeschwader 52; reconnaissance squadron 52). Its aircraft were given to Turkey and Greece. The Greeks thus received 27 aircraft of this type at the right time (seven aircraft were used for spare parts, the rest were handed over to the squadron). However, the German aircraft were not identical, although they had the same designation (RF-4E). The German version could also be flown from the rear seat, i.e. it had dual controls, whereas the RF-4E procured from the USA had only one control unit in the pilot's cockpit.

The RF-4E could be fitted with a variety of camera systems. It had two lateral camera ports pointing obliquely downwards and a central port pointing straight downwards. The main camera system was a KS-127A LOROP (Long Range Oblique Photography). This camera, specially designed for the RF-4, had an optical focal length of 66 inches (equivalent



McDonnell Douglas RF-4E PHANTOM II / image by: R. Kysela

to 1676 mm) and a fixed aperture of f8. This allowed PHANTOM crews to take detailed images at altitudes of up to 40,000 feet (+12,000 metres). The RF-4E was also equipped with a Honeywell AN/AAD-5 IR line scanner. Some of the German RF-4Es were retrofitted with a side-looking radar, but it is not known whether this was also installed or used on the Greek aircraft.

For self-defence, each RF-4E could carry four AIM-9 SIDEWINDER air-to-air missiles. For early warning, a Litton AN/ALR-91 radar warning receiver was installed. In contrast to older units, it was capable of the full band range from 0.5 to 18 GHz. This enabled the ALR-91 to detect, analyse and identify all known (at the time) radar signals in less than two seconds.

Time has not stood still, especially in the field of reconnaissance. Digitalisation was a major step forward in this area. Attempts to upgrade the venerable RF-4E with digital systems failed for various reasons. The end was in sight. On 5 May 2017, the last of three operational aircraft (s/n: 77-1765) landed in Larissa, marking the end of tactical air reconnaissance with purpose-built aircraft in Greece. The role of the 348 MTA was taken over by the 335 Mira at Araxos with its Lockheed Martin F-16C equipped with Goodrich DB-110 recce pods.



official crest: 348 M.T.A



McDonnell Douglas RF-4E PHANTOM II / *image by: Robert Kysela*

Techn. Specs: McDonnell Douglas RF-4E Phantom II

Length:	63 ft (19,2 m)
Height:	16 ft 5 in (5 m)
Wingspan:	38 ft 3 in (11,7 m)
Take-off weight:	61 795 lbs (28 030 kg)
Vmax.:	1470 mph (2 370 km/h)
Rate of climb:	41 300 ft/min (210 m/s)
Range:	1 457 nm (2 699 km)
Powerplant:	2 x General Electric J-79-GE-17
Performance:	79,83 kN (17 845 lbf)
Armament:	4 x AIM-9 Sidewinder KS-127A LOROP (camera) KS-72/KS-87 (cameras)





McDonnell Douglas F-4E AUP PHANTOM II mit AN/AAQ-28 LITENING II / Image by: Robert Kysela

Avionics Upgrade Program (AUP)

As the first F-4E's entered service in Greece, a generational change was taking place in military aviation. So-called air superiority fighters such as the General Dynamics F-16 or the McDonnell Douglas F-15 replaced the third generation of fighters. This did not necessarily mean the end of the F-4E PHANTOM II, but it was clear that the days of the F-4's dominance of the skies with its sheer power were coming to an end. This was also clear to those responsible in Athens, and in the mid-1990s they began to think about how to increase the combat value of the F-4 so that it could be used for some time to come. The German Air Force faced the same situation. In the early 1980s, however, a programme called Improved Combat Efficiency (ICE) was launched, a three-stage modernisation programme that focused on improving the avionics and weapons systems of the German F-4E. In December 1998, a contract was signed between the Greek government and the German company DASA and the Hellenic Aerospace Industry (HAL) for the modernisation of 36 aircraft. At the heart of the upgrade was the advanced AN/APG-65GY pulse/Doppler radar, which is also used on the McDonnell Douglas F/A-18C HORNET. Together with a GEC Avionics CPU-143/A central flight data computer and an Elbit multi-mode radar command system, the upgraded F-4E is not only capable of carrying long-range weapons such as the AIM-120B AMRAAM, but is also technically equivalent to a modern fourth-generation fighter aircraft. Not only have the radar and weapon computer been upgraded, but the entire communications suite has been brought up to date. A Magnavox AN/ARC-164 Have Quick II radio communication system has been installed, as well as a new Hazeltine AN/APX-113/V friend or foe identification system.) The latter is also the distinguishing feature of the AUP version. The AUP version is easily identified by the four distinctive antennas on the top of the nose, just behind the radar dome

All remaining 338 Mira F-4E's are AUP versions and can also carry the AN/AAQ-28 LITENING II pod. As a result, the F-4E AUPs cover a wide range of missions that no other aircraft in HAL's inventory could perform. Of particular importance is the ability of the AN/APG-65 radar to operate in surface search mode. This allows it to detect and engage targets at sea. This means that the F-4E's of the 338 Mira are not only responsible for tactical bombing or close air support, but also have a component for engaging targets at sea. For this reason, the F-4E will remain in service until the introduction of the Lockheed Martin F-35 LIGHTNING II.



McDonnell Douglas F-4E AUP PHANTOM II / Image by: Robert Kysela

AUP Features:

- Hughes-DASA AN/APG-65GY Multi-Funktions Radar
- NAVCOM AN/APN-232 CARA Radar-Altimeter
- Elbit Multi Mode Radar Command Computer
- GEC Avionics CPU-143/A Computer
- Data Link Informations System (DTS)
- Magnavox AN/ARC-164 Have Quick Com-System
- Collins AN/APN-153Y TACAN
- Hazeltine AN/APX-113(V) IFF-System
- HOTAS (Hands on Throttle and Stick)
- EL-Op Heads Up Display



Cockpit F-4E AUP / image by: Robert Kysela



McDonnell Douglas F-4E AUP PHANTOM II / *Foto: Robert Kysela*



official patch: Phantom - 50 Years



When the first F-4E entered Greek airspace on 4 April, few could have imagined that this type of aircraft would still be in active service after 50 years. The fact that this is possible is partly due to the indestructibility of the F-4's design, but above all to the fantastic work carried out by HAF's technical staff over the years. When you consider that all the engines are still running perfectly well beyond their maximum service life, it shows the level of expertise that must be behind them. At the end of this year, the Greek F-4E's will be transferred to the neighbouring base at Araxos, as the construction work will begin at Andravida to accomodate the F-35. No one knows yet whether the F-4s will return to Andravida. But for all friends of the F-4, it is at least reassuring that the McDonnell Douglas F-4E PHANTOM II of 338 Mira will be seen in the blue skies of Greece for at least two more, maybe even three years! In this spirit - Happy Birthday Phantom!

Robert Kysela