

## HELLENIC AIR FORCE

### **Hellenic Air Force relies on own strength and professionalism**

The Hellenic Air Force (HAF) is a truly force of fighter aircraft. No one would argue about the air power presented by this fighter force. Within NATO, Greece plays a major role in numbers of aircraft situated on NATO's southern area, but however agrees have been made about NATO assignment the tasks of the main part of the Hellenic air force is specified in the region. Being in many ways opponent to its neighbour Turkey who strongly expose itself with many fighter aircraft, Greece feels the need to balance this with an own strong force to create at any time the possibility to respond on whatever regional threat.

### **Substantial numbers of fighters forming the backbone**

The mix of fighter aircraft consists of the F-16, the Mirage 2000, the F-4 phantom and the A-7 Corsair. The Mirage F-1 and Northrop F-5/ NF-5 aircraft were withdrawn from service some years ago and this fate will be the case for the A-7 Corsair also, being nominated to leave in near future. The HAF was rapidly modernising their fighter fleet in recent years with the necessary upgrades and the Ministry of defence announced that new fighters will be introduced in the HAF showing major interest in the Eurofighter Typhoon. There was even a number announced (between 60-80) but major costs for the Olympics hosted by Greece in 2004 stumbled the cash flow and cost able adventures like the acquisition of high tech aircraft asked suddenly for a much longer period to decide and establish. The decision was moved into future time and even now it is not sure if the Typhoon will ever enter HAF service. Part of the command is showing interest in the JSF but generally speaking no one considers much benefit in the development process when you enter a project half its way. The decision on which horse to bet has still to be taken, but in the meanwhile so many advanced F-16's have been ordered that this opens the question if there will be ever a Typhoon or JSF for the HAF while others say that only cancellations made the way free to purchase more F-16's

### **F-16 in different 'blocks'**

The Hellenic Air Force has ordered some 180 F-16's, including F-16CD, block 30, 50 and 52+ versions. Being initially for Greece a convenient fighter and while this type saw during its life every time more advanced versions the Hellenic Air Force saw a suitable decision to supplement the existing examples by new batches. A most important aspect was the increasing weapons load combined with increasing performances and better avionics and in the latest version the conformal fuel tanks (CFTS) enabling the aircraft to go as far as the Cyprus region. The weapons are state-of-the-art and includes JDAM and JSOW munitions, AIM-120C AMRAAM rockets, LANTIRN navigation and targeting pods, ASPIS electronic warfare suite and NVG and JHMCS for the pilot. The acquiring processes of the batches were named Peace Xenia I-IV. The batches includes 34/6 F-16C/D block 30 (Xenia I), 32/8 F-16C/D block 50 (Xenia II), 34/16 F-16C/D block 52+ (Xenia III) and 30/10 F-16C/D block 52+ (Xenia IV). The Block 52+ are all fitted with the conformal fuel tanks and more powerful Pratt & Whitney F-100-PW-229 engines while the earlier models had the General Electric F110-GE-100 and 129 engines. The Litton Advanced Self-Protection Integrated Suite (ASPIS) comprising an ALQ-187 I-DIAS jamming system, an ALR-66VH (I) RWR, an ALE-47 Chaff & Flare Dispenser with APX-113 advanced IFF systems, improved APG-68 (V)9 radar combined with the introduction of the Joint Helmet-Mounted Cueing System (JHMCS) jointly developed by Boeing and Vision systems in combination with the use of fire- and forget weapons improves the self protection and awareness in combat highly. The Greek Air Force ordered and even participated in the European developed IRIS-T air-to-air missiles designed

with capability for highly manoeuvrable actions in combination with the helmet cue sight system. Older Block 30 examples went through the mid-life Falcon up program at Hellenic Aerospace Industry (HAI) located next to Tanagra Air base north of Athens. Improvements will prolong the aircraft lifetime from 4000 to 8000 hrs. There has been some switching with the F-16 squadrons but today 110 Combat Wing at Larissa on the main land is equipped with the block 52+ (337 mira "ghost") and Block 30 (346 mira "jason") while the 111 Combat Wing at Nea Anghialos uses the block 30 (330 mira "thunderbolt") and block 50 (341 mira "arrow" and 347 mira "perseus"). An important part of the HAF F-16's is concentrated on the Isle of Crete with 115 Combat Wing at Souda bay using the block 52 + only serving with 340 mira "fox" and 343 mira "star". Most of the F-16's have multi role tasks in both air defence and tactical operations while the F-16D Block 52+ with pilot and navigator and CFTS are specific suitable for the SEAD role.

### **Prestigious French aircraft for air defence**

Another aircraft of the latest generation is the Mirage 2000. Ordered in 1988 and combat ready in 1990 the aircraft, designated as Mirage 2000BG and EG are in service with 331 mira "aegeas" and 332 mira "geraki (Hawk)" on Tanagra Air Base. They are tasked with the air defence of airspace above Athens and in the secondary role strike missions against ships when the exocet ASM came in service in 1998. The aircraft is pilot-friendly, very agile with an excellent fly-by-wire system resulting in very few limitations and has an amazing control ability. It took three years to harmonize the initial pilot group (to much different experiences from different airplanes) and creating a kind of mirage 2000 culture. The aircraft are assigned to NATO and combat ready no whatever the Air Tasking Order may be. In may 2007 the Mirages cashed over 45.000 flying hours. Initially Greece was not completely satisfied about the performances of the Thomson CSF RDM-3 look down radar. This matter was concerning Dassaults designers and today Greece is awaiting the delivery of a new up-to-date version with optimized avionics, the Mirage 2000 DASH-5. Fifteen new build DASH-5 versions are in delivery process and flight activities are scheduled for June 2007. Next to this ten Mirage 2000 BG/EG will be converted tot DASH-5 standard by HAI. Eventually 331 mira will be equipped with 25 highly advanced DASH-5's for the Interception role.

The older versions will go to 332 mira and this squadron will adopt the former 331 anti-shiping role next to air defence. The DASH-5 version is the latest version being more capable then the French one has an advanced RDY multifunction phased Array radar with enhanced tracking capability and the aircraft are capable in carrying the latest weapons including Matra Mica AAM's and the European built MBDA SCALP EG cruise missiles. The SCALP is making the DASH-5 to an ultimate BVR carrier. Pilots coming from the Kalamata training base can start directly to fly this because of the friendly flying character and spending some time flying with the SMET (OCU) combined with simulator hours will be sufficient.

### **The phantom is no ghost but very real**

The HAF acquired large numbers of Phantoms in the past. To keep these aircraft capable in modern air warfare it was necessary to fit upgrades. EADS was contracted by HAF because of its experience with the upgrades of the German Phantoms to modernize 35 F-4E's (initially 39 but four were lost) in the Peace Icarus 2000 programme. Upgrades include a new Hughes AN/APG-65Y radar with enhanced power output and improved modulation correlation. This is a very modern radar compared with those on the F-18 Super Hornet with the ability of 70 degrees looking capability. The cockpit houses a new HUD, two Multifunctional Colour Displays (in both cockpits), state-of-the-art HOTAS, EI-Ops systems and new fire control. Other features are improved IFF and RWR. As the commander of Andravida Air Base, Anastasios Katsibras said; 'the years of dogfight doctrine are lying behind us, today you

need a weapons platform for BVR attacks and more important is who is friend and who is foe?' Both Air Defence with interception all over Greece and tactical operations are in the concept of the phantoms of Andravida. The phantom received software integration for the latest smart weapons and will be fully AIM-120 AMRAAM, IRIS-T and AFDS (a fire and forget bomb container) capable while the upgrade will lengthen the operational service until 2015. There was a delay of two years and this caused irritation between the HAF and the subcontractor but these problems have now been overcome. HAI is involved in the programme. In parallel HAI is completing a SLEP (Structural Life Extension Program) for 70 phantoms and an upgrade for the rest of the aircraft with support from EADS.

The 348 'mata' (eyes) at Larisa flies the RF-4E consisting of original ex US delivered examples and 18 ex Luftwaffe examples and acting in the day-and-night all weather reconnaissance tasks. The ex Luftwaffe variants are slightly more advanced in aerodynamic point of view. The older ex-USAF have conventional slats-flaps and the ex-luftwaffe RF-4E has a Boundary Layer Control system (BLC) which enables air from the engine to give lift on top of the wing. Other differences are the abilities in the second cockpit. The USAF was committed to the principle of Weapon System Officers (WSO) in the back but the ex-German examples can be flown by a pilot from the back with the exception that normally at low altitudes this will not occur because of bat vision. If necessary this RF-4E can land with the controls from the back seat and this can be useful in conversion situations. Normally the pilot in the back is busy with navigation and photo-recce. The ex-USAF examples have sandy green colours (South East Asia camouflage) and the ex German examples have the lizard camouflage pattern. One example has special bright colours to mark the 50 years anniversary of 348 squadron. At Andravida are the 338 'maris' (mars) and 339 'ajax' equipped with the RF-4E in grey with a shade of blue colours with 338 in the attack role and 339 in the interception role. The Phantom is especially suitable in the low level interdiction role with the ability of low level night flight attack while interception as mentioned is a question of Beyond Visible Range (BVR) fighting with rockets like AMRAAM. Commander Katsibras will retire after 34 years including 33 years with the phantom but on his shoulder he is wearing the batch; 'phantom forever'. He has an anecdote for us. During an Air Combat Manoeuvre flight there was an explosion of the engine behind the stabilo. There was no warning light indicator in the back seat and there was a young pilot in the front not recognizing what was happening. Both had to jump and while he was on his parachute he thought 'it is a pity the aircraft was lost but what about sharks in the sea?'. Fortunately, they were saved and everyone would underline that an experienced pilot is much more valuable than an old aircraft. Andravida houses a Phantom SMET and the weapons school for all fighter types.

### **A-7 Corsair concentrated at Araxos**

Finally, Araxos is the last Corsair base in Greece. Many examples came from other bases where the corsair was replaced by the F-16 like on Souda Bay on Crete. The prospective is that in the end the corsair will be replaced by the F-16 too in the coming years. Araxos is fielding some 45 surviving Vought A/TA-7H out of the original batch of 65 (59 single seaters and 6 twin-seaters) acquired in the 1970's and the ex-US Navy A-7E/TA-7C (54 single seat and 8 trainers delivered in 1991). The A-7H/TA-7H are flying with 336 'olympus' and the A-7E/TA-7C are serving with 335 'tigris' (tigers). Some of the oldest examples are gradually going out of service. The Corsairs were optimized for the AIM-9L/P Sidewinder both for self defence as secondary air defence role, although they operate mainly in interdiction strike (IDS), close air support (CAS) and tactical support maritime operations (TASMO). The range of the fighter can be extended, thanks to the in-flight refuelling capacity. This is most welcome with a large quantity of Greece air space above the sea. The A-7 can conduct in-flight refuelling operations both as receiver and tanker. Until 2001, Greece participated in NATO nuclear weapons sharing using the A-7 to deploy U.S. tactical B.61

nuclear bombs. However in the twilight of its serving days the Corsair is capable of carrying smart weapons and pilots are positive about the weapons delivery characteristics of the Corsair. Thanks to the FLIR the night attack accuracy is equivalent to the day attack accuracy. The AFDS, containing 16 BLU-108B bomblets has been certified for the Corsair too.

### **Professional exercising for combat readiness**

With so many fighters and pilots you need a steady program to exercise and to maintain a specific level of operational combat readiness and knowledge of air warfare techniques. Thanks to the inventory of different combat aircraft types Greece has an unique capability to organise its own mixed fighter exercises. There are four training area's near Tanagra some 30-40 kilometres from the base. Initially pilots will train Basic Fighter Manoeuvres (BFM) in visual contact and Air Combat Tactics (ACT) including interceptions with BVR weapons. Training of tactical operations includes low flight training in Combat Profile Missions (CPM). More complicated are training exercises with 3-4 aircraft and this will start with three aircraft of the same type in Air Combat Manoeuvres (ACM). When a pilot is experienced enough he can explore his qualities and his aircraft in Dissimilar Air Combat Training (DACT), for example between the F-16 and Mirage 2000. Training missions with more image are Mixed Fighter Force Operations (MFFO) and Command Air Operations (COMAO) mixed with ground units and real delivery of weapons. Much is learned about the capabilities of the aircraft, the benefits and the weaknesses. The F-16 being a classical dogfighter is superior in agility in visual engagements but the Mirage 2000 with its outstanding fly-by-wire performs better in low speeds. Both types have exercised in Tactical Leader Programme exercises (TLP) in Florennes, Belgium and pilots experienced this as a very welcome possibility to see the progress of their air force units in a dynamic state. In Greece, secondary bases are involved in more extensive trainings programmes. Mirage pilots considers themselves as elite pilots and have their slogan; one way to respect the mirage 2000 is to fly with it, but another way to respect it is to fly against it.

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***END OF PART ONE – PART TWO IN NEXT MONTHS EDITION***

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