



TURKISH TRAINING REVOLUTION

As one of NATO's largest air arms, the Turkish Air Force has a large demand for new pilots. Dirk Jan de Ridder finds out how they are trained at Izmir-Çigli.

FIRST DUTCH F-35

Dutch military history was written on the 23rd of May, when the first two RNLAF F-35 arrived in Holland.

THRACIAN THUNDER 2016

Thracian Thunder was held in the beginning of '16, with Graf Ignatievo as main operating Air Base.

"IZMIR COUGARS"

Carlo Kuit & Paul Kievit reports from the Turkish Army Aviation out of Izmir.

A warm welcome to the 2nd issue of FLYMAG Magasinet in 2016, and the first in English. In this issue you'll be able to read the third article in the pilot school series, this time from Turkey, as well as reports from Thracian Thunder 2016 and EART 2016.

We hope you enjoy the magazine - Happy reading.

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“IZMIR COUGARS”

TEXT & PHOTOS - CARLO KUIT & PAUL KIEVIT

Carlo Kuit & Paul Kievit looks at the Turkish Army Aviation out of Izmir, flying a vast variety of helicopters, including UH-1, AH-1, and AS532, as well as fixed winged aircraft.



A AS532 Cougar taxis towards the next mission
Photo by the authors

“Izmir Cougars”- Turkish Army Aviation

“Our primary mission is to provide aviation support to our Land Forces at specific places and at specific times, as an Army Aviation Regiment under the control of Army Aviation Command focusing on the west part and especially middle of the west and southwest of Turkey” as Lt. Col. Baysan starts to explain the tasks of the 3rd regiment (3ncü Kara Havacılık Alayı) based at Izmir-Gazimir.

Lt. Col Baysan graduated as an Army pilot in 1998 and is currently one of the instructors for the AS532 “Cougar” helicopter fleet. The Army Airbase of Gazimir is located just northwest of the International Airport of Izmir, Adnan Menderes. The history of the 3rd regiment (3ncü Kara Havacılık Alayı) dates back to 1975 when the Aegean Army Command was established in Izmir.

After the end of the Cold War and the disintegration of the Warsaw Pact in 1990 led many countries to reduce their Armed Forces. During this period the Turkish Army went through a major change switching their focus on future combat environments, high mobility, firepower, night operations, optimize their mobilization system and adapt the army structure to Battalions, Brigades, Corps and Armies. The Turkish Army Aviation Command was established on the 15th of August, 2003 under the Land Forces Command in order to establish a Central Command and Control System.

The 3rd regiment (3ncü Kara Havacılık Alayı) at Gazimir has currently two battalions (Helicopter Taburu) on strength; the AS532UL's are part of the Medium Helicopter Battalion and the UH-1's and AB205's are part of the Light Helicopter Battalion and are in use for training and liaison duties. The S-70's are not any longer part of the inventory of the 3rd regiment.

“A decision has been made back in 2008 to relocate the S-70 fleet in the Southern part of Turkey to execute missions in the mountains in which the S-70 performs best” according to Lt. Col. Baysan. Relatively new to the unit is an Attack Detachment equipped with two AH-1Ps ‘Cobra’ helicopters. This in order to allow Attack Helicopter crews to train in a different environment than the area near Güvercinlik, 40 kilometers North of Ankara, where the unit is stationed.

The cobras

To supplement the AH-1W fleet, a number of AH-1P/S was offered by the United States. In total the Turkish Army received 36 ex US Army Cobras in five separate batches; twenty AH-1Ps in 1993; twelve AH-1S on March 5, 1995 and four TAH-1P on March 29, 1995. The TAH-1Ps were necessary as no simulators had been purchased.

The capability of the AH-1s was restricted so an upgrade program was required. The upgrade program started during July 1995. Subsequently all the AH-1P/S ‘Cobras’ have been upgraded, the upgrade was executed in association with IAI (Israel Aerospace Industries).

The improvements are the addition of a 20mm Cannon, Tactical Navigation System (TNS), ALQ-144 1R Suppressor, improved Internal Wiring and AN/APR-39V (3) and ARC-182 Self-Defense systems to counteract the SA-7 missiles.



All three pictures

Rather new to the 3rd regiment is a detachment of two AH-1Ps normally based at Güvercinlik (Attack Helicopter Squadron).

Pilots and crew on the AH-1P have the ability at Gazimir to train in a different environment.

Photos by the authors



Phenix

Lt Col. Baysan continues “Lastly we have the Cessna-T-182 for Fixed Wing basic training, the aircraft have been replacing the U-17 training aircraft since 2010”. The initial batch of twenty AS532 Cougars were ordered in 1992 with deliveries as of 1997 as part of “Phenix 1”. During 1997, the Turkish Government signed a new contract for an additional thirty AS532UL’s.

The contract consisted of an agreement for this batch of helicopters to be built in Turkey, and for this purpose a consortium between Eurocopter and TAI (Tusas Aerospace Industries Inc.), called EUROTAL was established. The contract named “Phenix 2” contained the supply of ten AS532ULs for the Turkish Army and twenty AS532s for the Turkish Air Force of which all were delivered by 2003.

The UH-1H Iroquois helicopter has been the standard utility helicopter of the Turkish Army from 1970 until the first deliveries of the S-70 in 1993. Between 1970 and 1974 the United States Army delivered 58 UH-1Hs of which 42 were diverted to the Army. After two AB205A-1’s had been bought in 1968 an order for a further 44 AB205s was awarded to Agusta for delivery from 1974 onwards, twenty being intended for the Jandarma (Military Police).

In 1983 forty-six examples of the type were ordered for delivery in 1983-85 (including four for the Jandarma). An agreement was signed in September 1982 with Bell Helicopters for the assembly and part manufacturing of 70 UH-1Hs, 25 being delivered by Bell Helicopters from May 1984 to February 1986 (of which ten were for the Turkish Air Force).

Four sets of fifteen helicopters each were assembled by the “901.Uçak Ana Depo ve Fabrika” between 1984 and 1992. Since 2003 a modernization and engine replacement has been performed on 52 UH-1Hs to UH-1HT and 23 AB.205 to AB.205T standard.

Top

The 3rd regiment is supporting all Turkish Army activities on regular basis Combat Search and Rescue (CSAR) exercises are held for which is trained with Army Commandos.

Bottom left

The UH-1 doesn’t have wheel, but has skids, so when it’s taxiing, it’s hovering above the taxiways.

Bottom right

A Cougar lineup!
Photos by the authors



Search and Rescue

“Currently the whole fleet of Army “Cougars” have been equipped with a glass cockpit which has been modified and installed locally by TAI (project Yarasa)” according to Lt Col. Baysan.

He continues “In our Regiment’s inventory we have four SAR Cougars (local name AS532USAR) for Immediate Response in case of an accident or a natural disaster. In addition to the flight crew there are some extra personnel on board: one extra SAR Technician, one Doctor or a Medic and 2 SAR Experts completing the crew of seven.

For any possible mission the helicopter and all of its crew are organized according to the 24-hour concept during day and night. This type of mission is rather unique to the Turkish Army; reason to be involved in SAR duties is the vicinity of the Aegean Sea. We cooperate as well with the Coast Guard in case this is required.

The SAR Cougars are modified locally (TAI) with approval of the Airbus Company. We have additional functionality compared to the standard AS532UL: Search Light, Forward Looking Infra-Red (FLIR), loudspeakers and auto-hovering capabilities. Two of the USAR type are located at Gaziemir. We also have a detachment at the Turkish part of Cyprus.

In order to be certified for SAR duties an additional 20hrs of training is required by the crews”. Lt. Col. Baysan concludes.



Right

The maintenance unit of the 3rd regiment at Gaziemir is self-supporting and performs maintenance in regular intervals of 10, 25, 50, 100-200 hours. Basically all maintenance up to 1000 hours is performed at Gaziemir. After 3000 hours or 15 years each airframe is being overhauled in Ankara by the 5th Main Maintenance Centre Command.

Left

The pilot and her helicopter. This AS532USAR has been modified to have the Light, Forward Looking Infra-Red (FLIR) mounted in front. Photos by the authors



*A Cougar sits in the hangar and waits for the next mission
Photos by the authors*



Rotary Wing Pilot Basic Training

The Army Aviation School located in Güvercinlik is essential to expand and maintain quality within the pilot community. Besides for the Turkish Army the Navy, Gendarmerie, Coast Guard and Police Aviation are being trained at Güvercinlik.

Pilot Training is split in two phases: Basic Training and Advanced Training. Rotary Wing Pilot Basic Training is conducted with the AB206 and UH-1H/AB-205. Advanced training is provided either with S-70s or AS-532s for an additional 14 weeks and 35 hours of flight which is finalized with a check ride before operational duties can be executed by the young pilots.

Lt. Col. Baysan adds *“In our regiment, training exercises are arranged and organized according to our Combat Tasks and Missions. Within this context, all training exercises for Air Combat Operation, Transportation of personnel, Combat Search and Rescue (CSAR) operations and medical evacuations are planned and executed both during night and day.*

We are especially proud of our night operations capabilities. In addition to that, Search and Rescue operations and medical evacuation tasks we carry out in natural disasters constitutes a great proportion of our duties”.

He continues *“Just after taking the Basic Flight Training and graduating from the Army Aviation School based in Ankara, the pilots will be assigned to a unit and receive their Combat Preparation Flight Training according to the tasks they are going to perform. The pilots who accomplished and finished the Combat Preparation Flight Training Program become active pilots.*

Standardization

All the training process we follow is continuous and has a repeating pattern. The training exercises are carried out by the instructor pilots we have in our Regiment. At the end of the training period, the Instructor Pilots assesses all new pilots. According to the instructor’s assessment, the pilots who are not sufficient have to undergo additional flight training in order to be an active pilot within our unit.

In every Army Aviation Regiment there are standardization and control units that encompasses experienced pilots. These check all the active pilot’s knowledge and standardization level in repeating intervals and determine the need of an additional training for the pilots who are insufficient about the knowledge and skill.

Each pilot takes Instrument Flight Rating, Standardization Exam and their flight checks once a year. The other flight crews also take verbal and written practical exams during the year in order to maintain their knowledge about maintenance and flight missions. Insufficient flight crew was also subjected to the additional training” according to the Lt. Colonel.

“The most challenging for new pilots fresh from the Army Aviation School is to adapt to the AS532. The usage of the foot paddles is opposite to that of the UH-1 and AB205. In those helicopters you will have to give left foot paddle as the main rotor is turning anti-clockwise. The AS532 has a clockwise rotor thus usage of right foot paddle is a must”. Furthermore the position in the cockpit of the AS532 is much more elevated compared to the UH-1 which provides less visibility” as the Lt. Col details.



Top
Night flying operations are a large part of operations and training by the crews at Gaziemir.

Bottom left
The UH-1 doesn’t have wheel, but has skids, so when it’s taxiing, it’s hovering above the taxiways.

Bottom right
Since 2010 the aging U-17 fixed wing aircraft have been gradually replaced by the Cessna182T ‘Skylane’ of which over forty are in use across the army basis. Photos by the authors



Pilots of the 3rd regiments pose in front of one of the AS532ULs.
In the middle Lt. Col. Baysan one of the experienced AS532 instructor pilots.
Photo by the authors

Helicopters and Cessnas

The initial pilot training at the Army Aviation School takes about 51 weeks in which flying starts with the AB206 with around 100 hours of flying. The next phase will be transition to the UH-1/AB205 with an additional 80 hours of flight.

Based on the demand by the Turkish Army graduate Army pilots continue with their advanced training on the S-70 or AS532UL; this process will take about 35 flying hours which is being conducted within the various regiments. Not all pilots will start with the advanced training as there is also demand from the regiments to have pilots flying on the UH-1/AB205.

Lt. Col. Baysan explains *“When a new pilot is added to the unit a 25 hours familiarization program is followed with an official check ride before we have the pilot added to active duties on the AS532”*. Currently about thirty-eight pilots are on active duty with the 3rd regiment.

“On average we have a demand of about 8-15 new pilots per year” according to Lt. Col. Baysan. The third regiment has currently one female pilot on active duty since two years’ operating on the UH-1. In total there are 21 female pilots within the Turkish Army Aviation operating various types of helicopters and fixed wing aircraft except for the S-70 and AH-1s.

Six months ago, a simulator became available for students to train on. This simulator was built with support of Havelsan. This company was established by Turkish Air Force Foundation in 1982 as a Turkish-American Company named Havelsan located in Ankara.

“The helicopters and Cessna’s are subject to the different levels of maintenance according to the flight hours and time intervals. All the maintenance is done exactly according to the technical documents that have been published by the supplier and is conducted by our experienced branch technicians.

We are self-supporting and perform maintenance in intervals of 10, 25, 50, 100-200 hours. Basically all maintenance up to 1000 hours is performed at Gaziemir. After 3000 hours or 15 years each airframe is being overhauled in Ankara by the 5th Main Maintenance Centre Command” according to the Chief Technician.

“The maintenance in our authorization level is done as quickly as possible in order to be ready for any kind of mission. However the 5th Main Maintenance Centre Command based in Ankara does some of the detailed maintenance, checks and repairs beyond our authorization level of maintenance.”

Currently the 3rd regiment is involved in continues deployments to Cyprus for which a number of AB205s and AS532s are being deployed. Furthermore the pilots and crew are part of a regular rotation schedule to East Turkey to support the fight against terrorism and security of its borders which has full focus. Each of the regiments (Gaziemir, Malatya, Ankara and Istanbul) are part of the rotation schedule providing round the clock security of the Turkish borders.



Top
A UH-1 comes in to land, with the other UH-1s in the hangars behind.

Bottom left
The maintenance crew works on this AH-1.

Bottom right
Pilots onboard one of the AS532s on strength. Clearly seen is the upgraded cockpit which the whole fleet of AS532s underwent. Seen also is the sole female co-pilot on strength with the 3rd regiment.

Photos by the authors



FIT FOR THE FIGHT

TEXT & PHOTOS - MARCO DIJKSHOORN AND PATRICK ROEGIES

Jordan, the country land-locked between Iraq in the north-east, Saudi Arabia in the east, Israel in the west and Syria in the north is due to its geological location under threat of ISIS. Marco Dijkshoorn and Patrick Roegies reports from Jordan.



The original delivered AH-1's have been replaced by ex US Army and ex Israeli Air Force AH-1's. Although the AH-1's were delivered in different subtypes they were all upgraded to AH-1F standard. Photo by the authors

Fit for fight

Jordan, the country land-locked between Iraq in the north-east, Saudi Arabia in the east, Israel in the west and Syria in the north is due to its geological location under threat from ISIS who is wreaking havoc in parts of Iraq and Syria. A very good reason for the Royal Jordanian Air Force (RJAF) to invest in both troops and equipment, investments that lead to an air force that is in a state of rapid development.

High time to catch up with them, which is what Marco Dijkshoorn and Patrick Roegiers did. In an exclusive interview with RJAF Commander Major General Mansour S. Aljobour, the developments of the RJAF and the fight against ISIS were the main topics to discuss.

“We will fight them to the last bullet”

On December 24, 2014 the RJAF entered the headlines when Captain Maaz al-Kassasbeh was shot down during an anti-ISIS strike operation near Raqqa, Syria.

His mission was part of a coalition effort against Da'esh (the name now commonly used for ISIS) that was baptized Operation Inherent Resolve (OIR) on October 15, 2014. Some days after the crash, ISIS posted a propaganda movie online, showing the brutal execution of Captain al-Kassabeh. What followed would drastically change the way that Jordan would fight the war against Da'esh.

“When we decided to revenge the barbarian execution of our pilot, we flew twenty aircraft for three consecutive days, starting on the 4th of February 2015. At that time we were firing General Purpose Bombs and Laser Guided Bombs. The Battle Damage Assessment showed that we had hit every single target” says a clearly emotional Aljobour.

“The largest success actually was the morale of the pilots. When our pilot was captured, I went down to the base [Azraq] and they were actually begging to fly and they were ready to fly anytime to fight those guys [Da'esh]. Not a single pilot, regardless of his experience or his rank didn't want to do his job.”



Top / bottom right

The F-5 does not perform operational flights anymore and is used for pilots that want to keep their flying skills current. The remaining F-5's were kept in a flyable condition since the remaining ones are to be sold to TacAir in the United States which will use the aircraft in an adversary role.

Bottom left

Although the EC635T1 helicopters were delivered around 2004 the helicopters are due for replacement. The EC-635's are appointed to 14 squadron based at ing Abdullah Air Base also referred to as Marka located in Amman. Photos by the authors





Operations over Syria

“They are all pushing me on a daily bases to go out and fly. The main focus is over Iraq and Syria and we strongly believe the threat is there. To us and to the region and the International community. We are going to focus, those guys [Da’esh] are not going to be forgotten until they are defeated. Our crosshair is going to be at them for as long as it takes, we will fight them till the last drop of fuel and the last bullet we have”.

Until now more than 1.100 hours were flown against Da’esh and currently one two-ship mission is flown on a daily basis. The area of operations for the RJAF is both Syria and Iraq and it is the only Arab country that is allowed to perform kinetic missions over Iraq.

There are no restrictions over Iraq although the US has drawn a line to divide the Area of Operations (AOP). Air Tasking Orders (ATO) are provided by the Combined Air and Space Operations Center (COAC) in Al Udeid, Qatar where a RJAF liaison officer is stationed to relay between the CAOC and the Air Operations Center in Jordan.

The RJAF is mainly performing operation over Raqqah in central Syria and Deir-ez-Zzor in eastern Syria. Those are the strong-points of Da’esh and that is where the focus is. *“This is one of the most restrictive air campaigns ever”*, says Aljobour *“Due to the long distances that need to be crossed and the heavy restrictions that are imposed to avoid collateral damage we fly loiter over the target for a long time before engaging”*.

Top

Although the Casa 101CC approaches the end of its operational lifetime within the Royal Jordanian Air Force the aircraft is still used intensively to train new pilots. This class however might just be the last class to be trained in the Casa 100, since according to expectations the first class that will be trained on its successor the PC-9 will graduate early 2017.

Bottom

The F-16’s within the inventory of the Royal Jordanian Air Force are divided over three squadrons and are 1st, 2nd and 6rd squadron. Photos by the authors

Frontline Aircraft

In the current inventory there are 43 F-16AM/BM and the RJAF will receive fifteen additional F-16s from The Royal Netherlands Air Force (RNLAf). Before they will be delivered to Jordan, they will be upgraded to Mid-Life Update (MLU) Operational Flight Program (OFP) 6.5 code, the latest software-upgrade available in Europe. Under the initial contract OFP version 5.0 was ordered and approved by the U.S. Congress.

Due to technical difficulties to adapt the OFP 5.0 code to the hardware installed in the Dutch F-16s, a new congressional approval for the release of OFP 6.5 is now pursued. Delivery is scheduled for late 2016, early 2017 and when delivered, the RJAF will sell some of the F-16s in the current inventory.

Pakistan, one European and some other country have shown interest in these surplus aircraft and if transferred, it will most probably involve the ex-U.S. Air National Guard Peace Falcon II aircraft that were delivered to Jordan from 2003 onwards. In the meantime an upgrade program that will improve the existing fleet of former Belgian Air Component and RNLAf F-16AM/BM’s in the current inventory to the MLU 6.5 standard will be initiated. *“We also signed a Letter of Acceptance (LOA) for the procurement of JDAM’s and 15 sniper pods that will enhance the fighter’s capability have been purchased”*, says General Aljobour.

Special Forces

Although the Prince Hashem Bin Abdullah II Royal Aviation Brigade at King Abdullah II Air Base is part of the Royal Jordanian Army, it has very close ties with the RJAF. The aircraft are maintained by ex-Air Force personnel and the pilots are all trained by the RJAF King Hussein Air College.

The MD530f “Little Bird” and UH-60L Black Hawk helicopters, as well as the AC235 gunships are operated by three squadrons that occupy a separate platform adjacent to the tower that is also overlooking the RJAF aircraft stationed at KA2.



The Casa 101CC are due for replacement by the PC-9. The first ones are expected to be delivered to the Royal Jordanian Air Force in 2016.

Photos by the authors

New kid on the block: The Air Tractor

To support Jordan in the fight against Da'esh, the United Arab Emirates (UAE) government supplied six IOMAX light attack AT802 turboprop aircraft to Jordan under a U.S.-backed plan that was executed in 2013. They are operated by 25sq which is dispersed across Amman-Marka and King Abdullah II. Once there is sufficient space for them at King Abdullah II Air Base, all the Air Tractors will move there.

"We have six Air Tractor Block 1 aircraft and we will receive four additional ones. The aircraft will get the Block 3 upgrade, similar to the IOMAX Archangel [based on the Thrush S2R-660 airframe] aircraft. The four to-be delivered aircraft are still in the U.S. but they are expected to arrive in Jordan by June 2016".

These last four aircraft were initially earmarked for delivery to Yemen as a gift from the UAE but because of the turbulent situation in Yemen, they will be delivered to Jordan instead. Two were recently noted at Waco (TX) with white Spraylat over the fuselage carrying Yemen Air Force roundels.

After one year of service in Jordan, the last four aircraft will also go through the Block 3 modification. The six AT-802 that are currently in the inventory have both the ISR and strike capability. The L3 Wescam MX15Di sensor turret system is being installed and once upgraded, they can carry and fire Hellfire, GBU-58 Paveway and GBU-12 Paveway II laser-guided bombs.

Unmanned Capabilities

In the current inventory, the RJAF has ten Schiebel Camcopter S-100 on strength (twelve delivered, two were lost) and four Finmeccanica Falco UAV while the new Falco, the Falco EVO is being evaluated for future use. There is a bilateral project running with the Italian Air Force in which the Falco EVO UAV is being developed as an armed UAV and if the evaluation proves to be successful, the RJAF is interested to acquire a number of them.

Battle Damage Assessments of strikes by RJAF forces are now provided by Intelligence, Surveillance and Reconnaissance (ISR) platforms of the coalition forces.

UAV capabilities

"Jordan is seeking the ISR capability of its own but than in a dual role, both a sensor and a shooter. Any UAV that has both capabilities, we are interested in. In fact, we did ask for the predator but I do not think the US are willing to export this technology to Jordan.

They have shown willingness to export the Predator XP as a sensor but we want a dual-role platform". Recently, the RJAF purchased some CASC Rainbow (Cai Hong, abbreviated as CH) CH4B armed UAVs which are expected to enter service in January 2016.

They have a satellite link so they can be operated from thousands of miles away. In August, Israeli news outlets reported that Israel will provide Jordan with twelve advanced Heron TP and Skylark Unmanned Aerial Vehicles. If the Israeli drone order will really materialize needs to be seen, however.



Top
One of the latest additions in the inventory of the Royal Jordanian Air Force is the H-60. This UH-60A was recently delivered to the Royal Jordanian Air Force and is appointed to 8 squadron located at King Abdullah Air Base in Amman.

Bottom left
The F-5's were painted in two different ways. One in bare metal colored, and other in a two tone brown and green.

Bottom right
The Air Tractors were received from the UAE Air Force and a total of 5 aircraft have been noted so far. Photos by the authors







Quick Reaction Force

The current main role of the rotary wing based at Amman-Marka is tactical and VIP personal transportation. This will be changed in the future and the goal is to create a Quick Reaction Force. To enable this capability, up to 24 Black Hawk helicopters will be purchased. The initial sixteen were ordered and the first deliveries have taken place recently.

“The Black Hawks are already in the inventory and we have good experience with them. They will also be used for border patrol and our Special Operations Forces are involved in setting up the QRF”.

The newly delivered Black Hawk helicopters will most likely get the sensor systems that are also fitted on the current UH-60L fleet operating in Special Operations Command (SOCOM) and are operated by the Airlift Wing at Amman-Marka. They will be replacing the few remaining UH-1H and EC635's of 8sq and 14sq respectively, which will be disbanded. The performance of the EC635 is not deemed well enough by the RJAF and they will be sold off, if a buyer will be found.

Attack helicopter

Jordan received a considerable number of Cobra's over the years. The first 24 Cobras were AH-1S Stage 3 (modernized) aircraft, built for the US Army with Fiscal Year 1982 serials. This standard of AH-1 was later re-designated AH-1F and the first examples were transferred to Jordan from 1985 onwards.

These were augmented by eighteen (two batches of nine) aircraft under Military Assistance Program deliveries from 2001 and approximately sixteen ex-Israeli Air Force AH-1E/F Cobras that were refurbished and handed over to Jordan in 2014 in a U.S. approved deal. At least eight AH-1F helicopters were transferred to Pakistan in 2013.

“We now have 36 aircraft on strength, we have a contract with a subcontractor in the U.S. Science and Engineering Services (SES) from Huntsville, Alabama, to upgrade them. The helicopters are fitted with a glass cockpit and the avionics will receive an upgrade to enable them to fire Hellfire missiles and other guided missiles. We are expecting the first two by June/July 2016. Currently six aircraft are in the U.S. undergoing upgrades”.

The current version of the Cobra helicopters can already fire the BGM-71A TOW air-to-surface missiles as well as unguided 70mm rockets. In the nose, a M197 20 mm Gatling gun is fitted.



Top
The Royal Jordanian Air Force operates two squadrons of AH-1 Cobra's.

Bottom left
The Royal Jordanian Air Force operates a total of 11 AS332M1 helicopters and are all appointed to 7th squadron. Some of these helicopters carry both a military and a civilian registration number.

Right middle
The F-16's within the inventory of the Royal Jordanian Air Force are divided over three squadrons and are 1st, 2nd and 6th squadron. Number 2 squadron serves as an OCU squadron and has the main purpose to train the aspirant pilots which just arrived from Prince Hassan Air Base also referred to as H5 Air Base.

Bottom right
The F-5 does not perform operational flights anymore and is used for pilots that want to keep their flying skills current.
Photos by the authors



Top / Middle

The first class of new students is currently being trained using the R44 Robinson. Previously the pilots were trained on the H500 helicopters, which have been withdrawn from use.

RJAF still operates a wide range of helicopters, here a MD-530, AS350 and R44.

Bottom

Although the Casa 101CC approaches the end of its operational lifetime within the Royal Jordanian Air Force the aircraft is still used intensively to train new pilots.

Photos by the authors

Command and Control

Constituting one of the most potent border protection capabilities in the entire Middle East is the combination of the six Cessna C208B-ISR Grand Caravan C3ISR (Command, Control, Communications, Intelligence, Surveillance, and Reconnaissance) platform with other types.

Together with the AT-802, the Cobra helicopters, two Airbus AC235 gunships and two S-100 Camcopters, the Caravans perform round-the-clock surveillance of the borders. There is a permanent detachment of one Ce208B-ISR and six AH-1F Cobra helicopters to the airbase closest to Iraq, Rweished AB (H4), conducting border protection duties.

“Regarding Command and Control, we used to be C2 but now we are C3I (Command, Control, Communications & Intelligence) so the situational awareness is very high now.” Says General Aljobour. The C3ISR system is integrated with the Hawk air defence systems and the AC235 gunship and the F-16s also have Link 16 capabilities that supply the RJAF with a fully integrated defence system.

Two CASA 295’s were acquired and there is a competition between Airbus and another company to perform the upgrade to the AC295 gunship variant. At least one AC235 gunship is forward deployed in Saudi Arabia now, performing operations over Yemen and it has proven very successful so far. “It has been a very successful project and we encourage other countries to either join us or follow us”.

In support of the operations over Yemen, the RJAF also deployed four F-16s while the AC235 provides Close-Air Support (CAS). “Despite the support to the forces fighting in Yemen, this is a secondary target for the RJAF. The primary target remains Syria, where the RJAF is fighting ISIS.” Says Aljobour.

Transport fleet

In March 2016, the RJAF wants to enter a bidding for the transfer of a number of ex-Royal Air Force C-130J’s. However, the recently released National Security Strategy and Strategic Defence and Security Review 2015 proposed to keep the current fleet of Hercules C4 and Hercules C5 in service.

Transport alternative

Alternatively, the RJAF will upgrade the current fleet of C-130H and C-130E or if that is not viable, they will buy new C-130J transporters. In the strategic transport role, the RJAF operates two Ilyushin Il-76MF which can carry up to 60 tons each.

University-accredited aviation training

On December 1st, the status of the King Hussein Air College (KHAC) located at Mafrag, was changed to “Air University”. The KHAC was recently accredited as such and this will allow it to give a degree in aviation-majors to the students like Air Traffic Control, Navigation and Meteorology.

Three training squadrons and the Instructor Pilot School are located here. When asked how the next ten years look like for the RJAF, the General states “It all starts with the Human Resources, our troops should be ready for whatever is coming in the future. The first thing that I changed, is the training. We will get nine Pilatus PC-9M, the contract is signed and the Swiss-made aircraft will replace the CASA 101.” Since 1987, 11sq is operating the CASA 101CC in the advanced training role.

The basic trainer role is currently fulfilled by the Slingsby T-67M-260 Firefly, of which sixteen were delivered from 2002 onwards. These were augmented this year by eight former RAF/Defence Elementary Flying Training School (DEFTS) T-67M-260.

The Fireflies are still sporting the former British civilian G-registration and are solely operated by the Instructor Pilots School and appear to be a stop-gap solution until a new basic trainer is introduced. “We are in the process of buying a newer plane for the Basic Training Role.” says General Aljobour.

The Grob 109TP was one of the planes that was evaluated but it is too early for a decision yet, more contenders will get the chance to demonstrate the capabilities of their aircraft.

“We phased out the Hughes helicopters because both the H500D and H500E were old and we replaced them with the Robinson R44 Raven II”.

Helicopters

5sq operates eight R44 II light helicopters in the basic training role. The R44 gained its full operational capability in April 2015 and they replaced the H500 in late 2014. Until then, both the AS350B3 Squirrels and the H500 were operated by 5sq but since the R44 Operational Capability, the six AS350B3 are solely operated by the Instructor Pilot School. The H500's are for sale and are awaiting a buyer in a hangar at Mafraq.

Bye, bye F-5; hello Hawk

In the Lead-in Fighter Trainer (LIFT) role, the F-5 aircraft were phased out last year and a batch of the remaining aircraft will be sold off to Tactical Air Support "TacAir", Inc. from Reno, Nevada. It is expected that they will be handed over before the end of 2015. "We do keep two F-5s flying as part of the legacy. They are not involved in official missions anymore" states Aljobour.

As a replacement for the venerable F-5 in the LIFT-role, the RJAF acquired thirteen former United Arab Emirates Air Force & Defence Command BAE Hawk Mk.63. The RJAF would like to acquire additional BAE Hawks in the future, enabling more than one squadron to prepare pilots for F-16 operations. The plan is to upgrade the Hawk fleet with a more suitable avionics suite, making them more capable as a LIFT for aspirant F-16 pilots.

Continuous Improvement

"There are skills you only get from such an exercise, we were invited and we went" says Aljobour. The RJAF participated in Red Flag 15-4 with four F-16AM's and one F-16BM. On the way to Nellis AFB, Nevada the Jordanian F-16s received aerial refuelling from the Israelis that were participating with a number of F-15s.

"When the pilots came back, they were extremely happy with the experience they got from the RF exercise. The skills they learned will stay with them for a long time". The participants of the Red Flag exercise, experienced that the scenarios that were played out were perfectly matched for the current threat Jordan faces.

"Red Flag is high on the Agenda of our High Command and the RJAF would like to participate again in 2016 but if that is not possible, definitely in 2017", says Aljobour enthusiastically.



All pictures
The latest addition to the inventory of the Royal Jordanian Air Force is the Hawk Mk 66. They were acquired in order to replace the F-5 as their lead advanced fighter trainer.

With the introduction of the Hawk the curtain fell for the F-5 in service with the Air Force since the early seventies. The syllabus however did not have to be adjusted since the flight capabilities of both aircraft are kind of similar.

Photos by the authors



Exchange programs

The RJAF pilots are constantly honing their skills and the RJAF has permanent exchange programs with a number of close allies, being the U.S., Pakistan, Turkey and the UK under which on a bilateral level, pilots are exchanged.

The RJAF proves to be a relatively small but very efficient air force that is showing agility and perseverance. With an excellent training facility in the form of the Aviation University, recruits are trained to a high level, creating a good bases for a well-operating air force. Despite the potential morale-killer of having a pilot publically executed by the enemy, the troops have done the opposite: they became even more motivated to fight the enemy.

When looking at the agility, the RJAF has proven over the last couple of years to be able to introduce and adapt to new aircraft types. Aircraft that are not performing well enough are replaced with better ones. As long as the fight with ISIS is not over, Jordan will, due to its geographical location, be at the front lines. Supported by befriended Arab and non-Arab nations in the region, it will also remain a very potent coalition partner with unique capabilities to support the multi-national efforts to repel Da'esh.

The authors would like to thank the RJAF Public Affairs Office, all the officers we have so openly spoken to and especially Major General Mansour S. Aljobour for the generous reception, openness and hospitality shown during our visit.

Top

One of the latest additions in the inventory of the Royal Jordanian Air Force is the H-60.

Bottom left

One of the types in use of 3 squadron is the Casa C295

Bottom mid

Royal Jordanian Air Force has acquired an additional three ex US Air Force C-130E.

Bottom right

Only two M28 Bryza's were delivered to RJAF. Photos by the authors



TURKISH COAST GUARD AVIATION

TEXT & PHOTOS - CARLO KUIT & PAUL KIEVIT

Carlo Kuit & Paul Kievit reports about the Turkish Coast Guard's aviation assets out of Izmir, which is one of four Mission Coordination Centers for the Turkish Coast Guard.



A Turkish Coast Guard AB-412EP taxis out for it's next mission.

Photo by the authors

Turkish Coast Guard Aviation

Adnan Menderes International Airport at Izmir is the main hub for the Turkish Coast Guard (TCG/ Sahil Güvenlik Komutanlığı/ SGK) aviation operations. Opened in 2001, its functions are training, maintenance facility and being one of the four Mission Coordination Centers of the Coast Guard besides Ankara, Antalya and Samsun

The TCG is a part of the Turkish Armed Forces and are responsible for controlling the maritime jurisdiction areas and coasts of Turkey and fighting all kind of illegal actions. The TCG is also the main Search and Rescue Coordination Authority in the Turkish Search and Rescue (SAR) Zone.

During peace time, the TCG is under the command of the Turkish Interior Ministry. However, during emergency and war time it will be part of the Turkish Navy. The TCG is organized into four area commands: Black Sea, the Sea of Marmara and Adjacent Straits, the Aegean Sea, and the Mediterranean Sea and consists in total of around 5,500 personnel.

Until 1956 the General Command of Customs Guard was responsible for duties concerning the security of the maritime borders of Turkey. With Law No. 6815 the duties of prevention and pursuit of smuggling, protection and security of the borders, coasts and territorial waters were delegated to the General Command of the Turkish Gendarmerie under the Ministry of Internal Affairs.

During that time the Gendarmerie Regional Sea Commands were founded in Samsun, İzmir and Mersin. In addition, the Maritime Branch was formed within the General Command of the Gendarmerie headquarters. Between 1957 and 1971 the Aegean Sea Region Command, Black Sea Region Command and lastly the Mediterranean Sea Region Command were formed.

As a consequence of the changes observed in the international security environment in 1960s, the geo-strategic location of Turkey, the length of its coasts, and the prerequisites of being a maritime nation, it soon became clear that the Turkey needed a new and more professional Coast Guard Command.

The establishment

Efforts on the establishment of the Coast Guard Command gained pace as of 1967 due to the absence of necessary law enforcement forces that could impose various bans set out by laws under the services of Ministries having duties over territorial waters.

As a result of the efforts within this framework, the Coast Guard Command Law was adopted on July 9, 1982 and the Turkish Coast Guard Command was established. The Turkish Coast Guard Command started to operate effectively as of September 1, 1982.

The Turkish Coast Guard Command, which functioned as part of the Gendarmerie General Command until January 1, 1985, continued its activities as an armed law enforcement unit under the Ministry of Internal Affairs.

“In 1993, the main sub-commands of Coast Guard Command were re-named as regional commands: Marmara and Straits Region Command, Black Sea Region Command, Mediterranean Region Command and the Aegean Sea Region Command.

The Maritime Search and Rescue Coordination Center is located in Ankara and is responsible for coordination of operations and tasking the various regional commands” as Cdr. Murat Oglakci explains. He is responsible for the operations with the AB-412EP/SAR helicopters located at Izmir-Adnan Menderes International airport at the Aegean Coastline.

“The Coast Guard control areas range from Hopa to Igneada, Marmara Denizi and the area from Enez to Cevlik. This is basically the whole part of the Turkish Search and Rescue region” as Cdr. Oglakci explains.

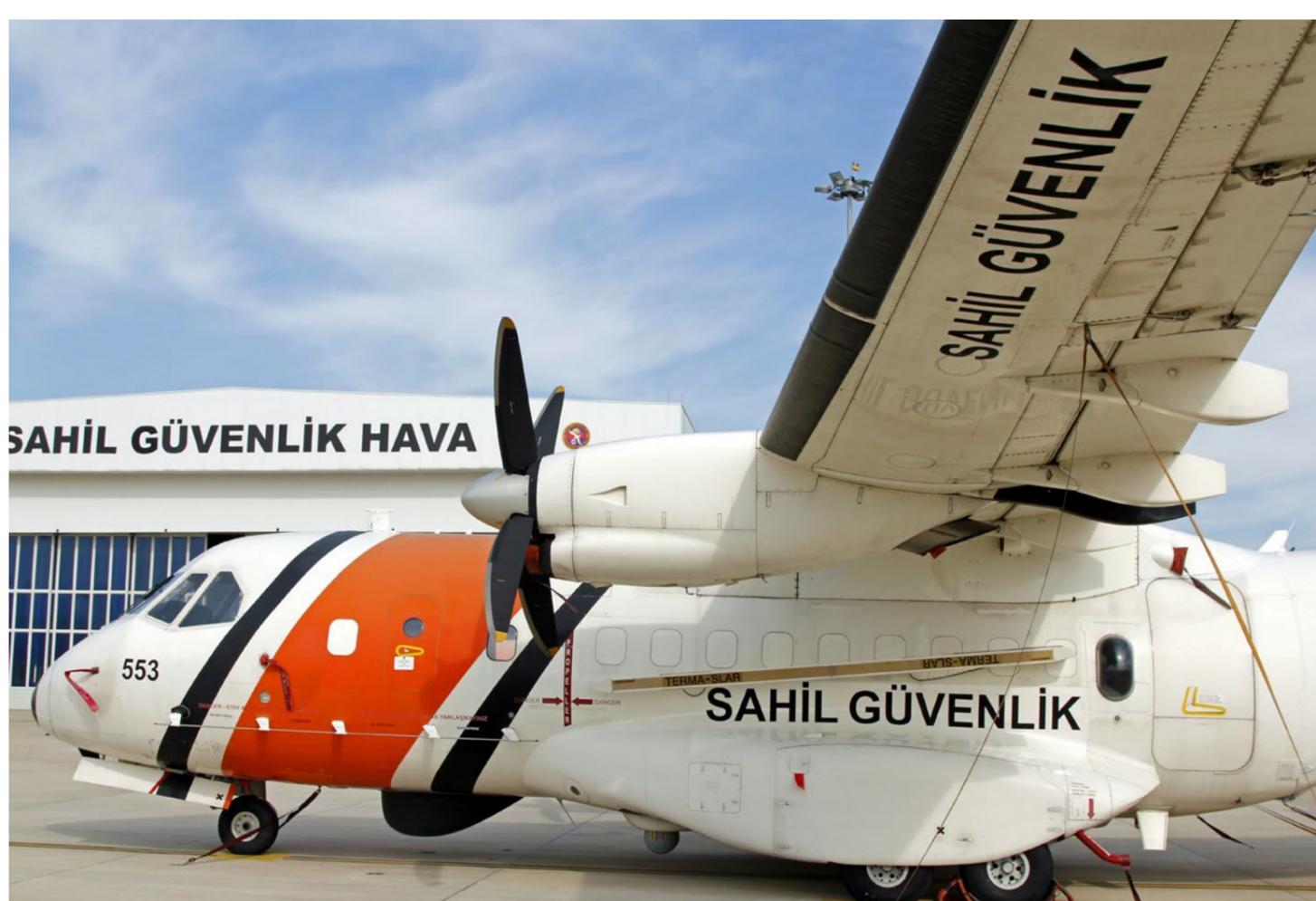
Top

A Casa CN235MSA sits on the ramp in front of the big coast guard hangar.

Bottom

A pilot poses in front of his AB-412EP

Photos by the authors





The history

The history of the Turkish Coast Guard Air Command dates back to November 1992 when the Command was established at Topel Naval Air Station, 100km east of Istanbul. Shortly after the first aircraft were added to the inventory of which three AB206s and one Moulin MX-7.

The latter was the first fixed wing aircraft for the Turkish Coast Guard. During July 1996 this MX-7 aircraft was withdrawn from use. In 1999 an Augusta A109 was added to the inventory and saw service till 2005 and is now preserved at the Izmir Coast Guard Air station. The AB206s were removed from service in December 1998.

As of December 1999 a major relocation and modernization process was started for the aviation component of the Turkish Coast Guard. During 2001 new facilities were opened at the international airport of Izmir Adnan Menderes.

This relocation process included the procurement of new Augusta AB412EPs of which fourteen are in use currently. As of 2013 three new CN235 MSA maritime patrol aircraft have been delivered as part of the 'MELTEM II' which has been till date the most prestigious programme for the TCG.

A replacement program (Multi mission Helicopter Project) has started for the selection of a new helicopter type to improve of Coast Guard Air missions. A decision is pending with no fixed timelines set.

The work horses

Currently the backbone of the SGK Air Command is the AB-412EP of which fourteen are in use divided across Coast Guard stations Izmir, Antalya, Samsun and Istanbul. Furthermore there are heliports available on demand at Mersin and Amasra. *"It is expected within 2-3 years a dedicated location will be built for the Coast Guard in the Istanbul area"* according to Cdr. Oglakci.

The First two contracts (MARTI 1&2) for the initial delivery of the AB-412EP were signed during March 1998 and in the same year one additional contract was signed with Turkish companies Aselsan and Netas for the domestic production of the ASEFLIR 200, IFF, monitor, radio equipment and video and digital cameras.

The other contracts (MARTI 3& 4) were signed on December 2004. *"A new Multi mission Helicopter Project has been started to procure helicopters which have longer endurance and capacity than the AB412EP helicopters, we need a heavier type of helicopter to conduct our missions more effective."* according to Cdr. Oglakci.

"The AB412EPs (locally designated AB412SAR) are equipped with a number of modifications to allow for over sea operations. A glass cockpit with four displays , auto hovering function, more powerful engines, Full Authority Digital Engine Control (FADEC) system, night vision capabilities, cameras in both the hoist and cabin which allows crew and pilots to oversee the rescue operations have been installed.

Furthermore a so-called ADELTA (Automatically Deployable Emergency Locator Transmitter) has been installed recently to identify the potential crash area of an AB412" according to Lt. Junior Grade Electronic Engineer Baris DüNDAR at Izmir Coast Guard station.



Top

The MELTEM II program started in September 2002 in which Thales has modified the three CN235-MSAs for Exclusive Economic Zone surveillance missions by the Turkish Coast Guard and six CN235s in anti-surface and Anti-Submarine Warfare (ASW) configuration for the Turkish Navy. It is the most complex and prestigious project for the TCG till date.

Bottom

The ground crew has prepared this AB412EP, and handed it to the pilots, for their next mission.

Photos by the authors

Train for 51 weeks

The first two AB412EPs were delivered during June 2002. AB412EP TCSG-502 was used for initial pilot training; three Turkish Coast Guard instructors received their training in Vergiate, Italy by late 2002. Nowadays new Coast Guard pilots receive their initial pilot training at the Army Aviation training school located at Army Air Base Güvercinlik near Ankara.

“We have been following the same training path as the Army students” according to one of the new junior Coast Guard pilots, Hakan Kuru, who transferred just six months before. *“We train for 51 weeks with 100 hours of flying on the AB206 and about 80 hours on the UH-1H”*. After graduation the new junior pilots will be added to the training squadron at Izmir.

Cdr. Oglakci adds *“The transfer to operate with the AB412EP will take around six months”* Cdr. Oglakci continues *“And the first phase of the transfer is Visual Flight Recover (VFR) flying which is concluded with a formal check ride. The next phase will be Instrument Flying (IFR) and operating with night vision goggles (NVG). In total the students fly around 50 hours to complete the conversion”* concludes the Commander.

After the conversion the new pilots will operate as co-pilot for a period of 2-3 years. When they pass a formal check ride the pilot can be graduated to 3rd grade pilot. To become a 1st grade pilot it will take minimum 1000 flying hours. *“The basic flying compared with the UH-1H does not differ a lot, but the new pilots will have to learn to utilize the glass cockpits and learn all equipment, especially mission equipments, which we utilizing on our daily operations and learn laws”*.

Each year around three to seven new pilots are being added to the Coast Guard. *“Besides a helicopter squadron and fixed wing aircraft squadron a dedicated standardization training squadron is available for training our new pilots. They will not be involved in real-life rescue operations till they have completed their transition period”* concludes Cdr. Oglakci.



SAHİL GÜVENLİK HAVA



Night vision and FLIR

An important skill for all Coast Guard aviators is the ability to perform night flying operations. For this purpose an infrared camera system, developed by Aselsan, is available which records all images in flight. The camera can turn 360 degrees.

The FLIR operator and cabin crew can follow on screens the imagery from the pilots screens to get full situational awareness. Each Coast Guard pilots has his own personal night vision goggle set. The effective range for rescue operations for the AB412EP is about 90 nautical miles with a wind limit of 35 nautical miles per hour which concludes 15-20 minutes on scene.

In case of emergency the response time is 30-90 minutes for both day and night operations across Turkey. The Coast Guard Command Center in Ankara is responsible for dispatching assets to perform a search and rescue operations.

Currently the Turkish Coast Guard is heavily involved in the rescue and tracking of illegal immigrants who are trying to get out of Turkey, especially the Aegean Sea and the Mediterranean Sea is an often used route by immigrants.

Other tasks performed by the Coast Guard are Search and Rescue, anti-terrorist operations, pollution control, border control and homeland security.

Maritime Surveillance Aircraft

Besides the helicopter operations the Turkish Coast Guard has started to operate the CN235-MSA (Maritime Surveillance Aircraft) fixed wing aircraft as of 2013. The procurement and development of this MSA aircraft dates back to 1998 when the initial contracts were signed. The first two aircraft (TCSG-551 and TCSG-552) were delivered in 2001, while the third (TCSG-553) was delivered in January 2003 as part of 'MELTEM I'.

The Turkish Navy (Türk Deniz Kuvvetleri) ordered six CN-235s as part of the same order. 'MELTEM' is till date the most ambitious maritime surveillance and patrol programme conducted in Europe over the last decade. For 'MELTEM II' which started in September 2002, Thales has modified the three CN235-MSAs for Exclusive Economic Zone surveillance missions by the Turkish Coast Guard and six CN235s in anti-surface and Anti-Submarine Warfare (ASW) configuration for the Turkish Navy.

Aselsan, as subcontractor, was awarded the contract to develop a Tactical Command System (TCS), Tactical Command and Control Information System (TCCIS), Ground Control Station (including an education system), System Integration Test Bench and Mission Systems. The MSA version is now equipped with radar, Aselfir 200, Ocean Master 400 radar, Side Looking Airborne Radar (SLAR) including the integration of the AMASCOS (Airborne Maritime Situation & Control System) developed by Thales. Furthermore Video and Digital Cameras were added.

To support SAR tasks smoke markers (Mk.25 mod2) and Aerolite 6 Life Rafts have been installed. "The CN235-MSA is able to deploy life rafts for about 100 persons in one drop" according to one of the CN235 pilots. The crew of the MSA consists of two pilots, two observers, two operators and one flight technician.

The radar has a range of 200NM and is able to track 200 contacts simultaneously. The Aselfir 200 has a capacity of 20NM (nautical miles). The SLAR installed is capable of detecting sea pollution up to 20NM when operating at 15.000 feet. The new installed UV-IR scanner can detect sea pollution through infrared and ultraviolet radiation.



SAHİL GÜVENLİK HAVA





Coast Guard CN235-MSA

Current pilots have been trained to operate the CN235-MSA. The pilots have to fly about 15 missions to adapt to the MSA version according to one of the former Turkish navy pilots. He continues *"We had representatives from Thales for two years at Izmir which are former French Navy pilots to teach us how to operate the MSA. We are very satisfied with the new aircraft, we are now able to detect much more pollution incidents"*.

On average pilots have been flying around 175 hours a year mainly focusing on training. *"The amount of flying hours increases each year due to the demand"* according to a crew member.

"Currently we are focusing on training our Senso's (Sensor Operators). As we had to start from almost scratch with the new MSA aircraft we are also developing documentation and building our unit. We have 75% of our pilots operational with focus on operators now" the MSA crew member continues.

"We are highly interested to cooperate with other countries as we feel there is much to learn for us, however we are still in training modus".

The first Coast Guard CN235-MSA was test flown in December 2012 followed by a formal acceptance ceremony held at Turkish Aerospace Industries (TAI) facilities on January 28, 2013. The CN235 gives the Coast Guard aircraft additional capabilities and a wider reach of operations area and allows for new missions to support the Turkish Coast Guard.



THRACIAN THUNDER 2016

TEXT & PHOTOS - CHAVDAR GARCHEV, RON KELLENAERS & ROBIN COENDERS

Thracian Thunder was held from 06 January until 25 March 2016, with Graf Ignatievo as main operating Air Base.



Very rare formation A-10 and Su-25 during a low level flight near to city of Pazardjik.

Photo by Chavdar Garchev

Thracian Thunder 2016

Thracian Thunder was held from 06 January until 25 March 2016, with Graf Ignatievo as main operating Air Base. Graf Ignatievo is located near the second-largest city in Bulgaria, called Plovdiv. It's home for the 3 Iztrebitelna Aviacionna Basa (3.IAB), operating the Russian build MiG-29 Fulcrum.

Next to these impressive aircraft also some Su-25 "Frogfoots" from 22 Shturmova Aviacionna Basa (22.ShtAB) were based in Graf Ignatievo due to upgrades and repairs at their home base of Bezmer. Other Bulgarian aircraft types involved were Mi-17's, Mi-24's and AS532 "Cougars" from 24 Vertoletna Aviacionna Basa (24.VAB), Krumovo Air Base.

The exercise were part of the Plan for Bulgarian-American preparation and exercises in 2016 and the European Theatre Security Package in support of Operation Atlantic Resolve to bolster air power capabilities while assuring the U.S. commitment to European security and stability.

A-10's from the famous 23rd FW, 74th FS "Flying Tigers" based in Moody AFB, Georgia, participated in the exercise to train with the Bulgarian Armed Force. Just like the Russian build Su-25 "Frogfoot", the A-10 was designed solely for close air support (CAS), including attacking tanks, armoured vehicles, and other ground targets.

This was the third A-10 visit in Bulgaria. First one was in 2001 during the exercise Cooperative Key 2001 (first ever multinational aviation exercise in Bulgaria), and the second in 2008 which is took place in Bezmer Air Base.

Tanker killers

The major goals are: the improvement of operational compatibility of Bulgaria's air forces for participation in operations under NATO command, the improvement of flight technique of the personnel, as well as the improvement of logistic activities and maintenance of guest units. Other objectives included:

- Practice dissimilar Tactical Intercepts (TI), Basic Fighter Manoeuvres (BFM), Air Combat
- Manoeuvring (ACM), Air Policing (AP) and Offensive and Defensive Counter Air (OCA/DCA).
- Practice Escort, Sweep, and Combat Search and Rescue (CSAR) missions.
- Conduct Close Air Support (CAS) missions incorporating Ground Base Air Defense (GBAD) threat systems.
- Integrate Bulgarian FACs with U.S./NATO JTACs to familiarize and practice TTPs during Platinum Lion 16-2
- Familiarize each country's airmen with respective TTPs.

The European assignment for 74th EFS began at the end of August 2015 when 12 A-10s arrived at Amari Air Base in Estonia. At the end of December the 74th EFS began moving to Graf Ignatievo in Bulgaria. During the Estonia visit the USAF squadron visit Papa Air Force base in Hungary where some of the planes performing live fire exercise.

Unlike in Estonia in Bulgaria the Warthogs meet some Russian-built hardware such as the Su-25, MiG-29 and Mi24. Perhaps the most interesting thing about the exercise was that the two anti-tank aircraft, the A-10 and the Su-25, operated from the same air base Graf Ignatievo and began to work together.



Top
The crewchief and Pilot discuss the aftermath a two-hour mission.
Photo by Ron Kellenaers

Bottom left
A local MiG-29 "Fulcrum" keeps it low after take-off.
Photo by Robin Coenders

Bottom right
This single-seat SU-25 "Frogfoot" taxis back with a deployed drag chute.
Photo by Robin Coenders



CSAR operations

Bulgarian Sukhoi's operated from Graf Ignatievo due to upgrades undertaken at their home base at Bezmer. This is the only base that is left, after the military budget cuts, which is still operating ground attack aircraft.

In the period 1986-88 year the base received 36 Su-25K and four two seated – Su-25UBK, which were divided into two squadrons. And gradually over the years a large number of Su-25 were retired and then sold to other countries.

Now only one squadron of Su-25 remains. Due to the lack of funds, only a dozen of them are currently flying. So the future of Su-25 in Bulgaria is uncertain. This is a very interesting fact, as Bulgaria is the only NATO member, who has a specialized aircraft for close air support. So the meeting between Su-25 and A-10 were expected with great interest.

Part of the exercise called for an A-10 pilot to “eject” over hostile territory. Once the pilot has landed he transmits his position by radio. Once the message is received, the search and rescue operation is started. A-10s arrived first in the area where the pilot is located, and they start performing close air support. Shortly thereafter they escorted the AS-532AL helicopters to the pickup point where the pilot is.

In fact in two CSAR operations were conducted simultaneously. American pilots, traveling there by car, selected the zones where the operations were carried out. At the last moment they decided which zones to use, and submit their coordinates. The second location was the shooting range Elena near the town Haskovo, where the A-10, Su-25 and Mi-24 performing close air support while using live fire from on board weapons.

One of the A-10 was Joint terminal attack controller (JTAC), the term used for a qualified service member who directs the action of combat aircraft engaged in close air support and other offensive air operations from a forward position. After the mission was completed on the shooting range they flew to the area where the “downed” pilot were located. In some of these tasks where involved the Bulgarian MiG-29 Fulcrums, against which A-10 engaged in Dissimilar Air Combat Training (DACT).



Top
Su-25 during a low level flight near to city of Pazardjik.

Bottom left
Bulgarian AS-532AL was the “work horse” during the SAR operation.

Bottom right
An A-10 pulling off after going low in a CSAR mission.

Photos by Chavdar Garchev



*The Su25 will probably be the last pure strike plane in service of the Bulgarian Air Force that will continue to fly until 2017 or maybe 2020.
Photo by Chavdar Garchev*

CSAR operations

During their deployment, 74th EFS pilots used the opportunity to practice landings on an unprepared surface on an austere runway at Chesnegirovo, to simulate conditions of a deployed environment. The former Chesnegirovo airbase was until 2002 the home of two squadron bombers MiG-23BN. For more than 10 years the base were abandoned, but now it is used for these types of flights.

This kind of training provides commanders the ability to project combat capability to areas otherwise denied by traditional airpower methods. The A-10 is a fighter aircraft that specializes in close air support, this type of training will prepare the pilots to land in a variety of surface conditions allowing to bring the fight even further.

Alongside the Hogs an MC-130J Commando II aircraft, assigned to the 67th SOS (Special Operations Squadron), also practiced landing on the unimproved surface, bringing with it a key capability. In fact, being a tactical airlifter designed to operate in austere environments, the MC-130 can carry huge quantities of cargo while simultaneously having the ability to land in such difficult conditions.

Thanks to this unique ability the aircraft is able to provide supplies to troops on the ground or in this case, a forward area refuelling point to extend the range of our aircraft assets.

So the Warthogs enjoyed three months at Graf Ignatievo, honing their CSAR and CAS skills together with Bulgarian AF.



Top left

Hard turn by a Bulgarian Su-26 during a Thracian Thunder 2016 exercise.
Photo by Chavdar Garchev

Bottom left

Bulgarian Mig29 is taxiing for take off for another DACT mission against USAF A-10.
Photo by Chavdar Garchev

Bottom right

A welcome sight during Thracian Thunder 2016, twelve of these impressive, highly capable, powerfull machines.
Photo by Robin Coenders

Top right

A pair of A-10C on the way to shooting range for another real fire exercise.
Photo by Chavdar Garchev

Right middle

The Su26 will probably be the last pure strike plane in service of the Bulgarian Air Force that will continue to fly until 2017 or maybe 2020.
Photo by Chavdar Garchev

F-35'S INTERNATIONAL DEBUT

TEXT & PHOTOS - JEROEN VAN VEENENDAAL

The Netherlands' first two F-35 Lightning II's landed at Leeuwarden Air Base on Monday May the 23rd, a date that will live forever in Dutch military history. It marked the fifth-generation jet's first eastbound transatlantic crossing.



The first Royal Netherlands Air Force F-35, making its debut to Europe.

Photo by Jeroen van Veenendaal

Crossing

The pilots flew from Edwards Air Force Base in California to Naval Air Station Patuxent River in Maryland in four hours. From there, it was an 8 hour flight over the Atlantic Ocean to Leeuwarden Air Base in The Netherlands. Pilot Col. Bert "Vidal" de Smit explains: *"It was the first time we've made a flight this long. We've flown five hours as part of a test mission before, but eight hours is a long time."*

The speed of the F-35s crossing the Atlantic was reduced because of the 2 RNLAF KDC-10 tanker aircraft that provided fuel every 2000 kilometers.

The hi-tech planes were welcomed and escorted by a RNLAF Gulfstream with Dutch Defence Minister Jeanine Hennis-Plasschaert on board. She welcomed the pilots over the radio calling the crossing *"a historic moment, a historic day"* and told them it was *"an amazing sight to greet you in the air"*.

The aircraft landed later than was planned. Col. De Smit clarifies: *"Air traffic control has to give us clearance, it's not easy to arrange that to fly in airspaces of the USA, Canada, Greenland and Iceland as a package, with two tanker aircraft and two F-35's, so we had a delay of 45 minutes."*

Landing

The aircraft touched down Monday evening after conducting a fly-by for dozens of journalists from home and abroad and over a thousand plane spotters. Minister Jeanine Hennis and Air Force Commander Alexander Schnitger greeted the pilots, Col. Bert "Vidal" de Smit and Maj. Pascal "Smiley" Smaal, when they landed.

The two F-35s arrived in difficult weather conditions, with a low cloud base, and a fading visibility.

Once the canopy folds forward, the pilots receive applause from the audience. *"I am very pleased that we have succeeded to get the F-35 to the Netherlands,"* said Air Force Commander Schnitger, while the engines are powering down in the background.



Top right

Before landing at Leeuwarden AB, the 2 F-35s made a flypast together with the Gulfstream with the Minister of Defence on board.

Rest

The old and the new, F-16 has been a workhorse for many air forces around the world. Soon will the RNLAF F-16s be replaced by the new F-35.

Photos by Jeroen van Veenendaal



The old, and its replacement. A RNLAf F-16 together with the F-35.
Photo by Jeroen van Veenendaal



Perception Flights

These aircraft are flown to the Netherlands at the request of Minister Hennis-Plasschaert to make so-called “perception flights”. These flights are intended for residents that live near the future home bases Leeuwarden and Volkel. During meetings held in February 2015 with residents living in the surrounding area of the two air force bases, she promised to bring the F-35 over to the Netherlands.

The tests should give an idea of the engine noise during takeoff and landing. Residents can fill in questionnaires about how they perceive the new jets noise, and compare the noise with the F-16. People in the area benefit from employment by the presence of the military bases, but they also suffer from the noise.

Besides the perception flights, several other tests will be carried out. The jets will perform flights over the North Sea range.

Air Force Days

The aircraft will remain in the Netherlands for three weeks and will make their international airshow debut at the Air Force Days in June. Commander Schnitger: *“Now we can show this airplane to the Netherlands, to the population, the politicians. I’m incredibly proud of that.”*

Weapon Instructor Course

There’s more happening around the F-35. Norway and the Netherlands decided to jointly develop a weapons instructor course for the F-35. This was stipulated in a contract earlier in May. *“We select the best fighter pilots for this course,”* said Air Force Commander Lieutenant General Schnitger.

In the fighter world, weapons instructor schools are common. Quality knowledge and instructional skills in tactics, weapons deployment and aircraft technology are part of the course material. Pilots get the training to become the best. As an instructor they will then transfer their knowledge and skills to colleagues.

A Norwegian-Dutch F-35 weapons instructor course is not very surprising. Indeed, both countries have over 30 years combined experience with similar training with the F-16.

The weapons instructor course for the F-35 is building a new generation of ‘Top Gun’ pilots for the 5th generation fighter aircraft.

Future

The Netherlands currently has four pilots and 27 maintainers, but during the next three years that number will grow as the Netherlands prepares for a total of 37 aircraft, starting with Leeuwarden in 2019 and then Volkel Air Base in 2021.

Meanwhile, the international development of the aircraft in California continues. There’s still a lot of testing and development to be done.



Top
Flying above the North Sea, showing off the new F-35 for the media.

Mid
A close look at the new office for the pilots of the Royal Netherlands Air Force, the F-35.

Bottom
Approaches were made with both head- and tailwinds.

Photos by Jeroen van Veenendaal

TURKISH TRAINING REVOLUTION

TEXT & PHOTOS - DIRK JAN DE RIDDER

As one of NATO's largest air arms, the Turkish Air Force has a large demand for new pilots. Dirk Jan de Ridder finds out how they are trained at Izmir-Çigli with brand new KT-1T turboprop aircraft and recently modernized T-38M jets.



The new kid on the block, the Korean Aerospace Industries KT-1T turboprop trainer. Photo by Dirk Jan de Ridder

Turkish Training Revolution

A couple of years into the 21st century, the Turkish Air Force faced a challenge. Its pilots were trained using aircraft over 30 years old with analogue instruments while converting to modern fourth-generation platforms like the F-16 Block 40 and Block 50.

Something had to change, especially with the Turkish intention to buy the F-35 Lighting II in the near future in mind. The solution was to replace the T-37 Tweet with the Korean Aerospace Industries KT-1T turboprop trainer and to modernize the T-38 Talon. Turkish Aerospace Industries was heavily involved in both projects.

Turkish Air Force pilots are trained at the 2nd Main Jet Base, just north of the country's third biggest city Izmir. The 2nd Main Jet Base actually comprises two airbases, each with a single runway only separated by the small village of Kakliç. To the west of Kakliç is Izmir-Kakliç airbase, which is home to an SF260 Marchetti squadron offering ab-initio training along with a squadron providing training to future helicopter and transport pilots.

Izmir-Çiğli airbase, to the east of Kakliç, is a lot bigger operating the KT-1 and T-38 from a number of ramps and shelter camps, while also providing all the facilities needed by the students.

Currently 141 instructor pilots train around 300 students at the 2nd Main Jet Base, using 174 aircraft of five types and generating over 30.000 flying hours per year. A regular flying day at Çiğli is divided into four 2-hour blocks, each normally containing up to 30 sorties, during which either the KT-1s or T-38s are flying.

The only moment the two different aircraft types meet each other is when the first aircraft of the next block await clearance to taxi onto the runway as the final aircraft from the previous block are touching down. Aircraft continuously taxi out, take off, fly overhead and make touch and go's before landing. This is without any doubt the Turkish Air Force's busiest airbase.

Future pilots

Base commander major general Kubilay Selçuk, a pilot with many hundreds of hours of experience of flying the F-100 Super Sabre, F-104 Starfighter and F-16 Fighting Falcon: "Many things have changed in the past few years. We resurfaced the runways and taxiways, built new ramps with sunsheds and other facilities such as a simulator center. Our new KT-1Ts, modernized T-38Ms and new simulators enable us to train fifth generation fighter pilots well into the future.

Future fighter pilots will not be assets of a command center, they will be a vital part of that command center, collecting more and more information themselves and acting accordingly. We prepare them for that. One of our priorities right now is to reduce the stress level on the students in order to provide them the best learning environment."

The demand for new fighter pilots is large and this is reflected in the number of instructors being assigned. Instructor pilots are accepted as first assignment instructor pilots (FAIP) and they are taken from operational units. The author talked to a young instructor who received one year of training on the F-4, then flew the F-4 in an operational squadron for one more year and suddenly he was notified of his new job position as a KT-1T instructor.

Only a week later he arrived in Izmir, which he described as 'a shock'. Between 2000 and 2014, 485 instructor pilots were trained at the 2nd Main Jet Base. A peak was reached in 2011 when 52 new instructors arrived, but currently around 30 new instructor pilots arrive each year.

Top

The ground crew secures these two Korean Aerospace Industries KT-1T turboprop trainer, before the next training flight.

Bottom

The modernized T-38 Talon, T-38M with the city of Izmir making a nice backdrop.

Photos by Dirk Jan de Ridder





Ground training

Before starting their flying courses, future pilots complete four years of education at the Turkish Air Force Academy in Istanbul. Upon graduating, they are physically tested and psychologically trained. If they pass this phase, they will start pilot training. If they don't, they will get another job position in the Turkish Air Force or any of the other armed services.

Students who drop out of pilot training, may still be selected to become a weapon systems operator on the F-4E Phantom which will serve until 2020. Students who do get their wings, will spend a total of three months flying the SF260D, six months flying the KT-1T and another six months flying the AS532, CN235 or T-38M. Apart from the flying training, a lot of other types of training are provided to the students, including academic, simulator and technical courses, water survival training as well as squadron and centrifuge training, for a total of 600 classroom hours.

A unique method links each student with the instructor pilot. Students all have different types of intelligence and methods in which they best absorb information. This could be visual intelligence, listening intelligence or emotional intelligence, for example. A survey before entering flight training links their specific learning style to an instructor with a similar teaching style.

A new simulator training center was opened in February 2014. It has six KT-1T and four T-38M simulators. The KT-1T simulators comprise two Instrument Flight Trainers and four Full Mission Simulators, two each with 210° x 60° and a 270° x 110° visibility. For the T-38M there are four Full Mission Simulators in the same configuration as the ones for the KT-1T.

The simulators with the wider view are single seater simulators which enable the students to look upwards, thus making it ideal for aerobatic training. The other simulators are double seaters used to train for emergencies and instrument flying.

Each flight is generally instructed in the classroom, then practiced in the simulator and finally flown for real. The simulators are an enormous improvement over the ones previously used.

Multinational Flight Crew Training

The T-37 simulator did not even have a screen, just instruments. The current simulator system can even be used to train formation flying with pilots flying in two different simulators. The adjustments to teaching methods and the commissioning of the new simulator center has led the students to acquire more information in a shorter time frame. For example, T-38 students now fly 69 real sorties instead of the 81 sorties their predecessors used to fly.

While Turkish Navy and Coast Guard pilots are already trained by the Turkish Air Force, Çigli airbase inaugurated its Multinational Military Flight Crew Training flight school in June 2015. This opened up the opportunity for foreign armed forces to train their pilots in Turkey.

Due to paperwork issues no country has yet sent a large amount of students to Çigli yet though. A small handful of students from countries like Azerbaijan, Pakistan and South Korea currently fly the KT-1T and/or T-38M in Turkey. A few pilots from South Africa, South Korea and the United States form part of the instructor pilots. English is already the language spoken by all students in-cockpit.

On the ground the main language is Turkish, but every once in a while briefings and debriefings are done in English. Quality of pilot training is on a very similar level to that provided by the United States Air Force. Students and instructors are occasionally trained in the United States. The main difference with training in the United States is the fact that students in Turkey stay for a shorter period and they need fewer flying hours to become proficient, thus making it a cheaper alternative to training at Sheppard AFB.

In principal, elementary flight training on the SF260 will not be available to foreign students, but exceptions may be made for smaller countries. All other training aircraft, including the AS532 Cougar and the CN235 will be available for foreign students. Foreign instructor pilots are also more than welcome. Should any country come up with a need to base their training aircraft abroad, this will even be considered.



Top / right middle
Korean Aerospace Industries KT-1T turboprop trainer, is the new trainer in Turkey.

Bottom / Left middle
The modernized T-38 Talon is the backbone of the fastjet trainers of the Turkish Air Force.

Photos by Dirk Jan de Ridder





Two jettrainers, T-38M, and a turboprop trainer, the Korean Aerospace Industries KT-11.

Photo by Dirk Jan de Ridder

Basic flying training

Students fly 22 sorties on the SF260 during Phase I of their pilot training, one of which is a solo flight, before they start flying the KT-1T. The KT-1T was selected by the Turkish Air Force in 2007 as the new basic training aircraft and a \$350 million contract was signed for 40 aircraft with an option on another 15.

The aircraft is jointly manufactured by Korea Aerospace Industries (KAI) and Turkish Aerospace Industries (TAI). The KT-1T was designed to have a jet-like feeling and the squadron flying it, 122 'Akrep' (Scorpions) Filo, is therefore still designated as a Basic Jet Squadron. Its speed and limitations are not too much different from the T-37 Tweet jet it replaced in 2012. The cockpit is up to standard with modern turbo-prop trainers like the PC-21 and T-6 Texan II.

It is completely digital, with a compass being the only analogue instrument. Whenever necessary problems can be solved in-flight with instructions appearing on the screen, guiding the pilots step-by-step. If a problem cannot be solved, the system will advise the pilots to land and send the aircraft to maintenance. All flight characteristics are logged on a data recorder enabling students to review any issues they had and providing crucial information for maintenance.

The squadron consists of two flights, both of which offer exactly the same kind of training, both Phase IIA for all students and Phase IIB for future fighter pilots. All students first fly 37 sorties in the KT-1T (Phase IIA), two of which solo, before it is decided whether they will become a fighter, helicopter or transport pilot. Both helicopter and transport pilots then go back to Kalkiç to log between 50 and 60 hours on the AS532 (Phase IIIR) or CN-235 (Phase IIIT). Most students will become a fighter pilot and they continue to fly 32 sorties in the KT-1T, mostly consisting of low level navigation and formation flights with up to 4 aircraft, during Phase IIB.

The option to purchase a further 15 aircraft is still under consideration. One of the factors having an influence on this is the new Hurkus trainer that is being designed and built in Turkey. The Turkish Air Force's idea is to purchase it and train students on either KT-1T or Hurkus.

Advanced jet training

If the Multinational Military Flight Crew Training project becomes a success, a practical solution would be to provide English classes on one aircraft type and Turkish classes on the other.

Originally donated by the United States Air Force in the 1970s, a total of 68 T-38 Talon supersonic jet trainers remain in service today. TAI delivered the first modernized T-38M to the Turkish Air Force in June 2012.

This project was initiated in 2007 with a contract for the upgrade of 55 aircraft. An option on a further 13 aircraft was later taken. Apart from an overhaul, extending the aircraft's service life to beyond 2020, TAI included a new control computer, multi-function cockpit displays, a head-up display in the front and hands on throttle and stick controls.

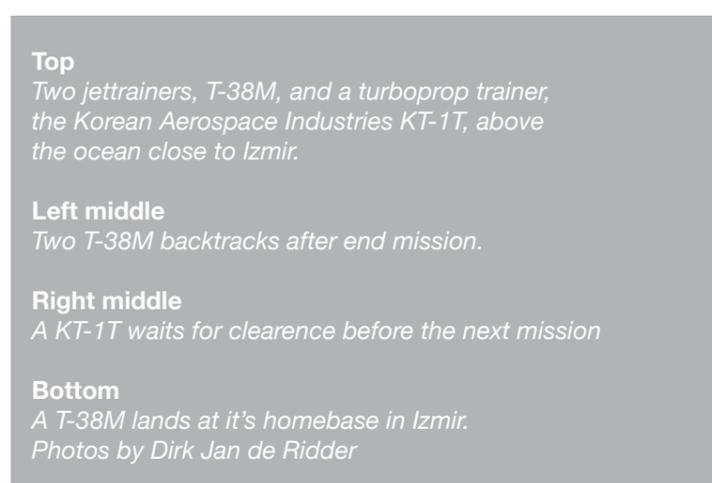
The first five aircraft, including two prototypes and three production examples, were delivered by TAI after which the Turkish Air Force maintenance center at Eskisehir continued with the remaining airframes. The final T-38M was delivered back to the Turkish Air Force about half a year ago.

Advanced jet training consists of 57 dual and twelve solo flights, including instrument flying, formations of up to four aircraft, low level navigation and night flying. The T-38's landing speed is about double that of the KT-1T, so landings are among the first things practiced.

Every flight is planned on the computer and mission data are then downloaded into the aircraft. After the flight mission data are uploaded back to the computer enabling very detailed debriefs.

On their thirteenth sortie students go solo. Unlike their American counterparts flying the T-38C, Turkish students don't fly supersonic in the Talon. This is reserved for experienced instructors performing check rides. In terms of organization, 121 Filo is divided into two flights carrying out advanced jet training and a third flight for Introduction to Fighter Fundamentals (IFF).

Only future F-16 pilots go through this IFF phase, future Phantom pilots directly convert to the F-4. IFF is a relatively new role to the 2nd Air Base and to the T-38.



Top
Two jettrainers, T-38M, and a turboprop trainer, the Korean Aerospace Industries KT-1T, above the ocean close to Izmir.

Left middle
Two T-38M backtracks after end mission.

Right middle
A KT-1T waits for clearance before the next mission

Bottom
A T-38M lands at its homebase in Izmir.
Photos by Dirk Jan de Ridder



*A student and a teacher poses in front of the T-38M jet trainer.
Photo by Dirk Jan de Ridder*

The conversion

It was taken over from 133 flying the F-5 at Konya, when the type was withdrawn from active service in 2013. The change was a very small one since both types are virtually identical. The main difference is the fact that the T-38 cannot carry any armament or drop tanks, nor does it have wingtip tanks, so all weapon deliveries are therefore simulated.

The IFF phase consists of a single air intercept sortie, six basic fighter manoeuvre sorties and eight air-to-ground sorties over a nearby reserve airbase, none of which are flown solo, along with 10 simulator rides. The aim of this phase is for students to learn how to employ their aircraft as a weapons systems, rather than 'simply' flying it. Completing this phase smoothens their conversion to the F-16.

Only one squadron at Çiğli is not directly involved in training. Pilots from 124 Filo perform check flights, provide instructor pilot training and carry out research and develop, using T-38 Talons on loan from 121 Filo. Following their overhaul and upgrade, the T-38s still have many years of service left.

The squadron expects to be able to fly the T-38 until around two years after the United States Air Force stops operating the type, meaning the aircraft could stay in service until at least 2030. Preparations for the selection of a new training aircraft that must replace the T-38 have recently started. It should probably enter service in the second part of the next decade.

The Turkish Air Force has strong ties within NATO, the Middle East and Asia due to the country's geostrategic location and foreign policy. In short time they have managed to turn their own version of Red Flag, Anatolian Eagle, into an exercise providing the highest level of training value possible. It is frequently attended by air forces from Pakistan to the United States and from Saudi Arabia to the United Kingdom.

It leaves no doubt that the Turks know what they are doing when it comes to air warfare and providing the right amount of training value. Those air forces attending Anatolian Eagle will know their future fighter jocks will be in great hands as a student pilot in Turkey and it will take short time before the rest of the world knows it as well.



Top

It's not only daylight missions that is flown. The student of this KT-1T, is checking that everything is at it should, before this dark mission.

Bottom left

The ground crew gives the pilots of this T-38M, the all clear, and they can now go on the next mission.

Bottom right

Three T-38M taxis back after end mission. Photos by Dirk Jan de Ridder



Søren Augustesen reports from Eindhoven, where European Air Refuelling Training 2016 - EART, was held earlier this year.



A RNLAf McDonnell Douglas KDC-10 sits on the ramp at Eindhoven Airport waiting for its next mission during EART 2016.

Photo by Søren Augustesen

AAR – A European shortfall

During large-scale military operations in recent years, European air forces have relied heavily on US tanker support in order to operate effectively. This was realised during the operations over Kosovo and confirmed during the operations over Libya.

The European nations have a very small number of tanker aircraft when compared to the United States. Europe has a total of forty-two tanker aircraft of ten different types, whereas the US has over 550 tanker aircraft of three different types as of 2016.

To make the best use of the limited number of European tanker aircraft, the European Defence Agency (EDA) created the European Air Refuelling Initiative in 2012. This resulted in the creation in 2014 of a dedicated air-to-air refuelling cell under the European Air Transport Command (EATC).

The EATC itself was established on 1 September 2010 at Eindhoven Air Base in The Netherlands with the goal of optimizing the use of the air transport assets of the membership countries. The EATC currently has seven members - Belgium, France, Germany, Italy, Luxembourg, the Netherlands and Spain.

As of 2016, the EATC commands a total of nineteen air-to-air refuelling aircraft:

- 2 x A310 MRTT from Germany
- 4 x KC-767A from Italy
- 2 x KDC-10 from The Netherlands
- 3 x C-160NG from France
- 3 x C-130J from Italy
- 5 x KC-130 from Spain

These nineteen aircraft make up 45% of the European air tanker fleet.



Top left
Although not under the command of the EATC, this French KC-135FR also participated in EART 2016.

Top right
A different configuration set of fuel tanks, top a Polish F-16 with CFT and centerline, bottom a Belgium AF F-16 with two wing drop tanks.

Bottom left / right
As each member of a formation is done refuelling, they gather on the tankers right wing.

Photos by Soren Augustesen



EATC increases in numbers

With the increase in deliveries of the Airbus A400M and the Airbus A330 MRTT, the EATC will increase the number of tanker aircraft available. The plan is that by 2025 they will have control of up to 69 tanker aircraft, made up of:

France:

- 10 x A400M with kits wing pods
- 5 x A400M with Hose Drogue Unit

Germany:

- 10 x A400M with kits wing pods
- 6 x A400M with kits Hose Drogue Unit

Spain:

- 10 x A400M with kits wing pods
- 3 x A400M with kits Hose Drogue Unit

Italy:

- Up to 3 x C-130J

Various countries:

- Up to 23 x A330 MRTT from various other member countries

If these numbers are achieved, 82% of all European tanker assets will be under EATC control. The goal is to be able to support an operation the size of Operation Unified Protector flown over Libya in 2011 without US tanker support.



Top

This German Airbus A310 MRTT operated from its home base in Cologne-Wahn during EART 2016, making a brief stopover in Eindhoven between the two sorties flown ever day.

Bottom

Carrying shoulder tanks, as well as a center line tank, rather than under wing drop tank means that this Polish Air Force F-16 can free up pylons for more weapons if needed.

Photos by Søren Augustesen

European Air Refuelling Training 2016

Because of the many different tanker aircraft under EATC control, an annual tanker training exercise was setup. The first exercise, named European Air Refuelling Training (EART) was held at Eindhoven Air Base in The Netherlands in 2014.

EART takes place during the same two weeks as the large fighter exercise Frisian Flag at Leeuwarden Air Base. The large number of fighter aircraft, flying increasingly complex missions, is the perfect match for the tanker aircraft participating in the EART exercise.

This allows the tanker crews to start with a simple single ship mission at the start of the training and end up flying as part of a complex Composite Air Operations (COMAO) mission.

The exercise focuses on several areas, namely:

- Academic and mentoring for flight crews with their air refuelling operators (ARO), ground crews, planners, taskers and engineers
- Harmonizing and improving procedures for tactical air refuelling, search and rescue missions, etc.
- Building up interoperability amongst the European AAR community
- Combined planning and briefing processes

As the EART concept is only three years old, the format of the exercise is still evolving and each year has seen more and more complex tanker scenarios developing and a more structured academic side too.

The 2016 EART had four tankers participating:

- 1 x KDC-10 from the Royal Netherland Air Force
- 1 x C-135FR Stratotanker from the French Air Force
- 1 x A310 MRTT from the German Air Force
- 1 x KC-767A from the Italian Air Force

The German A310 MRTT and the Italian KC-767A operated from their home bases whilst the KDC-10 and the C-135FR Stratotanker operated out of Eindhoven Air Base.

THE NEXT ISSUE OF FLYMAG MAGAZINE

The next issue of FLYMAG will be published in September.

We will amongst others cover the NATO Tiger Meet '16 held at Zaragoza in Spain, as well as the airshow season is kicking off, and we'll try to cover some of the greater ones out there.



THEME PICTURES FROM THE READERS

Theme pictures is you, the reader, who sent in your best picture that matches the given theme. The editorial of FLYMAG then selects a number of theme pictures, that will be published in the next issue. Your name will be credited in the magazine, and if you're one of the three lucky readers, you might get your picture posted on our Facebook page as well.

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You must have taken the picture your self. It should be at least 1400 px, and must be in 3:2 or 2:3 ratio.

And remember - no watermarks. Send your picture be the end of August to info@flymag.dk - mark it "Theme picture".

The theme for the next issue will be: "European build fighters". Interpret it as you like, as long as it's aviation related - if you're lucky, then it might be published in the magazine!

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