

MFTS in trouble?



'Legacy' F/A-18s



AIRFORCES MONTHLY

Officially the world's number one authority on military aviation

MONTHLY

Ukrainian Flankers

Su-27s on the front line

Air war over Kashmir

AFM ANALYSIS



South African Hercules
Waterkloof's weightlifters



www.airforcesmonthly.com April 2019 Issue 373 £4.99



'Warhawks' on the road
Spangdahlem 'Vipers' in Portugal



Buckeye survivors
Hellenic Air Force training at Kalamata



French air wing workups
Charles de Gaulle back at sea



Cover: Povityrnyi Syly (PS, Ukrainian Air Force) Su-27UB '69 Blue' of the 39 okrema aviatsiynna eskadrylya taktichnoyi aviatsiyni (oaeTA, independent tactical aviation squadron) departs Bel'bek air base during a live firing exercise in late September 2012. It is armed with a pair of R-27ET infrared-guided air-to-air missiles below the wings

and a pair of radar-guided R-27R missiles below the engine nacelles. Chris Lofting **Above:** The Ghana Air Force is the subject of this month's Force Report. Spearheading a small but relatively modern and capable fleet are the four K-8s ordered from China in March 2006, together with a simulator. The Karakorums have since superseded the pair of ex-

Libyan L-39ZO Albatros and MB-339As. The four MB-339s were reportedly declared non-airworthy by early 2007. The Chinese-designed intermediate jet trainer and light attack aircraft has attracted significant interest in Africa, where other customers comprise Angola, Egypt, Namibia, Sudan, Tanzania, Zambia and Zimbabwe. Paul Morley



SUBSCRIBE & SAVE!

Subscribe to *AFM* and make great savings on cover price! See pages 22-23 for details.

Features

3 Comment

AFM's opinion on the hot topics in military aviation.

26 NEWS SPECIAL: Warhawks in the sun

The US Air Force's 480th Fighter Squadron sent 18 aircraft and 320 airmen from Spangdahlem Air Base in Germany to sunny Portugal for three weeks this winter. Paulo Mata joined the 'Warhawks' at Monte Real.

36 Flankers on the front line

At one time, Ukraine operated the second-largest Su-27 fleet in the world; today it numbers 55 aircraft organised within two brigades. Vladimir Trendafilovski looks at the career of the super-maneuvrable fighter that remains the backbone of the country's air defences.

50 Keeping the 'legacy' alive – Part one: US operators

Though a number of air arms are in the process of phasing out their first-generation (F/A-18A through to D) Hornets, others are aiming to keep these ageing multi-role fighters in service for some years to come. In the first of a two-part feature, Jon Lake looks at the US Navy and Marine Corps side of the 'legacy' story.

56 Waterkloof's weightlifters

Last June, 28 Squadron of the South African Air Force celebrated its 75th anniversary. For 55 of those years, the unit has operated just one aircraft type – the C-130 Hercules. Traditionally a transport unit, today the squadron has a much more varied mission set, as Paul Dunn explains.



60 TORNADO TALES: From the back seat

In the latest of *AFM's* series of features celebrating the career of the Tornado GR as it nears the end of its RAF service, Thomas Newdick speaks to two of the final navigators to fly the 'Tonka' – Flt Lts Phil McGlone and Sam Baker.

66 Peloponnese pilot school

The town of Kalamata is home to the Hellenic Air Force's Air Training Wing, employing T-2 Buckeyes and T-6 Texan IIs. Dino van Doorn, Bas Stubert and Hans van der Wilt witnessed operations at the airfield.

74 Flying into trouble?

When reports emerged earlier this year that the RAF was sending 100 pilots to be trained at a private flying academy, questions

began to be asked about whether the service was getting value for money from its current aircrew training pipeline. Tim Ripley assesses the status of the UK's Military Flying Training System project.

86 Defending the Balearics

During the summer period – and the height of the firefighting campaign in Spain's Balearic Islands – a single CL-215T of the air force's 43 Grupo is deployed to Mallorca. Carlo Kuit and Paul Kievit caught up with a unit that's increasingly in demand for firefighting tasks across the country.

94 Back at sea

After an 18-month break, the French carrier air wing was reunited with the aircraft carrier *Charles de Gaulle* which came out of refit last September. Henri-Pierre Grolleau joined them.

News

All the world's military aviation news, by region

- 6-7Headlines
- 8-9United Kingdom
- 10-13Continental Europe
- 14-16North America
- 18Russia & CIS
- 19Latin America
- 20Middle East
- 21Africa
- 24-25Asia Pacific
- 29Australasia

Regular features

30 INTEL REPORT: ITAR – Preserving America's edge

A succession of treaties, including ITAR, have attempted to restrict the export of US-built military hardware. But as Alan Warnes explains, there are many other options, and these can have a significant effect on the US military aerospace business.

44 EXERCISE REPORT: Merlin Storm

Ian Harding and Kevin Wills report from Exercise Merlin Storm, the final test for new pilots and aircrew assigned to the UK's Commando Helicopter Force.



64 Feedback

AFM's letters page.

70 COMMANDER'S UPDATE BRIEFING: Aircraft carriers

As the UK announces plans for HMS *Queen Elizabeth's* first deployment, Air Power Association President, Air Marshal (ret'd) Greg Bagwell CB CBE, looks at one of the most enduring symbols of air and maritime strength – the aircraft carrier.

80 FORCE REPORT: Ghana Air Force

The Ghana Armed Forces possess a small but capable air force. The key to its success is training, as Patrick Dirksen and Frank Mink found out during a recent visit to the country.

90 Attrition

Dave Allport details the world's most recent military accidents.

98 Coming up

See what's featuring in your *AFM* next month.

An air arm o

The Ghana Air Force (GHF) was established in Accra, the nation's capital, on July 24, 1959 under the supervision of Indian and Israeli flying instructors and technicians. Today, the GHF is composed of around 2,000 personnel. Although by no means a large air arm, the GHF is relatively well equipped. The country's abundance of natural resources has helped to establish a reasonably buoyant economy. This has allowed some degree of investment in defence budgets over recent years, the GHF notably adding new helicopters from Russia and China, and Chinese-made Hongdu K-8s to replace Aermacchi MB-339As in the fighter/ground attack role.

Air Vice Marshal Maxwell Mantsebi-Tei Nagai was the chief of air staff of the GHF from 2016 until January this year. In an interview with *AFM*, the outgoing chief provided an assessment of the

Ghana Air Force order of battle

Squadron	Type	Location
HQ MoD		Burma Camp, Accra
No 2 (Communication) Squadron	C295M, Falcon 900EX	AFB Accra/Kotoka International Airport
No 3 Squadron	A109A, AB412, Mi-17V-5, Mi-171Sh, Z-9EH*	AFB Accra/Kotoka International Airport
No 4 (Strike & Recce) Squadron	K-8G	AFB Accra/Kotoka International Airport
No 1 Squadron	DA42 MPP Guardian, DA42 NG Twin Star, Cessna 172 (non-operational)	AFB Takoradi
No 2 Squadron (detachment)	C295M	AFB Tamale

* One or two Z-9s detached to AFB Takoradi.

force's tasks: "Our primary role is in support of the army and the navy, and then governmental issues, such as disaster management." The air arm also backs up the police and the state-owned Ghana Gas company. "But our main role is support of the army with troop transport, airborne force, paratropping, fighter/ground attack and close air support with helicopters."

Accra

The GHF's main base is at the capital city's main airport, Accra-Kotoka International. The air force's No 2 Squadron (motto: 'No burden too heavy') operates two of the three Airbus C295M transports out of Air Force Base Accra and its main tasks are troop transport and governmental support. The third C295M also serves with No 2 Squadron

but is stationed at AFB Tamale, to transport the army airborne forces that share the base. At the time of writing the first C295M was undergoing initial heavy maintenance with Airbus after six years in service.

The initial order for two C295Ms was officially announced in August 2011. The first example was undertaking test flights in Spain as of early October that year. It was delivered by November 18, 2011 and officially inducted in Accra on December 19. The second



n the rise

The Ghana Armed Forces possess a small but capable air force. The key to its success is training, as **Patrick Dirksen** and **Frank Mink** found out during a recent visit.

aircraft followed suit in April 2012. In August 2013 the Ghanaian president announced that the country had been selected by the UN to provide air services in Mali on behalf of the Multidimensional Integrated Stabilization Mission in Mali (MINUSMA). The third C295M was delivered in January 2016 under a lease-purchase agreement, with funding coming from the UN. In its role as Communication Squadron, No 2 Squadron employs one Dassault Falcon 900EX, registration 9G-EXE, for VIP services. Nagai explained: "The aircraft is civil licensed, so the maintenance regime is strictly conducted under civil aviation regulations." The Falcon entered service in 2010 and replaced a Fokker F28-3000 that was decommissioned in 2014. The F28 is currently stored at Accra where it undergoes periodic maintenance

awaiting a possible sale. All helicopters are operated by No 3 Squadron, also based at Accra, where four Chinese-made Harbin Z-9EH helicopters arrived on September 23, 2015. The main roles of the Z-9s are patrols of gas pipes, powerlines and coastal fishery areas, and ambulance flights. "We have one or two Z-9s detached to Takoradi at any one time to support the Ghana Gas company," Nagai added. "The Z-9 has space for two stretchers as an ambulance. If patient numbers are greater, then we switch to the Mi-17 that can carry six stretchers. "Now we have the Mi-17 and Mi-171 that have replaced the Bell 412 in the troop lift role," Nagai continued. "They have Nightsun searchlights and have all the equipment to deploy troops, including rappelling, sling and hoist. We can also mount [5.45mm calibre] AKS-74 guns on board." ▣



Above: Two of the GHF's female DA42 pilots from No 1 Squadron at Takoradi. The service's first female pilots were recruited as long ago as 1963. *via GHF*
Below: The Ghana Air Force's primary strike aircraft is the K-8G, flown by No 4 Squadron at Accra. This is G911, one of four delivered between February 2007 and March 2008. A further order, for two examples, was announced in September 2008, with delivery envisaged for 2010, but this acquisition was subsequently cancelled. *via GHF*



AVM Maxwell Mantsebi-Tei Nagai



Above: AVM Maxwell Mantsebi-Tei Nagai during his tenure as chief of air staff. via GHF

Air Vice Marshal Maxwell Mantsebi-Tei Nagai was chief of air staff of the Ghana Air Force from January 2016 to January 2018. He graduated from the Military Academy at Whistler Barracks, Accra in April 1980. Since receiving his wings in 1990 he has accumulated around 6,400 flying hours.

Most of these were on helicopters, including most rotary types that have served the Ghana Air Force in recent years, including the Alouette III, Agusta A109, Bell 412, Mi-17/171 and Harbin Z-9. He has also flown the Diamond DA42.

Before becoming chief of air staff, Nagai's positions included commander of the helicopter squadron at AFB Accra, commanding officer of the flying wing at the same base, and base commander at AFB Takoradi and later at Accra. He also served as chief air operations officer during the United Nations Iraq-Kuwait Observation Mission (UNIKOM) in Kuwait and was commander of the Ghana Aviation Unit during two periods of peacekeeping under the United Nations Operation in Côte d'Ivoire (UNOCI).



Although Ghana is among the least violent places in West Africa, the country experienced an upswing in political disturbance in recent years with sporadic riots throughout the country. The outgoing air chief confirmed that the force had previously studied acquisition of the Mi-35 *Hind* helicopter gunship. "A few years ago, we assessed the threat level,

and we thought we could add the Mi-35 gunship to augment our fleet. As such we advised the government, and so they started negotiations with [Russian state arms company] Rosoboronexport." The proposed deal was initially for six Mi-35s, but this was soon reduced to three as the threat level reduced. Eventually, these three *Hinds* were traded for Mi-171s.

The GHF's batch of four Mi-17V-5 *Hips* was acquired new, via a UK-based broker, in December 2004. An attrition loss occurred on January 12, 2007 and a second loss occurred on October 28, 2008.

In November 2011 the Ghanaian parliament received an initial request to approve funds for four Mi-171Sh *Hips*. Loan arrangements for all four had been reached by July 2012



Above: A group of K-8 pilots return for debriefing. This aircraft's roles encompass reconnaissance, border patrol and fighter/ground attack and the jets practise weapons employment at the Bundase gunnery range. via GHF **Below:** Fokker F28-3000 G530 is up for sale and is kept in flyable storage on the main ramp at Accra. The Fellowship was acquired in 1978, primarily for VIP and presidential transport. It remained operational until 2014. All photos Patrick Dirksen and Frank Mink unless stated





Above: Photographed at Takoradi, serial GHF122 is one of the two surveillance-configured DA42 MPP Guardians, both of which are outfitted with the FLIR Star SAFIRE sensor suite. Note the data-link fairing on the rear fuselage of this variant. **Left:** The single DA42 NG Twin Star, serial GHF120, used for pilot training. The twin-engined Diamond is seen in one of the hangars at Takoradi.

and the first pair arrived in Accra on December 4, 2012, followed by the second pair a week or so later. All four were officially accepted into service during an official ceremony on January 5, 2013.

The K-8Gs that represent the Ghana Air Force's most potent combat asset are also based at AFB Accra. The first pair of four K-8s, ordered along with a simulator in March 2006, arrived in February 2007 and the second pair the following March. "The home base of No 4 Squadron was supposed to be Tamale," Nagai observed. "But at the time they were delivered, Tamale was not equipped to receive them." K-8 pilots are selected from the fixed-wing training classes and are sent to China for type conversion. Nagai explained: "The K-8's main tasks are fast reconnaissance, mostly border patrols, and they can be armed for fighter/ground attack. We have a live firing range at Bundase near Accra and we co-ordinate air power training here with the army."



Tamale

Back in 2014 a request was made for acquisition of A-29 Super Tucanos. In June the following year, Embraer Defense & Security announced the signature of a contract with Ghana's defence ministry including logistic support and establishment of a training system for pilots and mechanics in Ghana. Nagai told *AFM*: "[The request] is for four aircraft and one simulator. We plan to send them to Tamale to establish a Flying Training School [FTS], attached to the Air Force Leadership Academy that we already have there. The FTS used to be at Takoradi but because of the heavy traffic of the oil companies' helicopters we decided to relocate it to Tamale. And there we will start with the Super Tucano."

Apart from the flying instruction that will be conducted at Tamale, former Ghana Air Force Fokker F27-400M serial G521 is used for ground training by the locally based Army Airborne Forces training school. The ferry flight from Accra



Above: One of the Cessna 172s of the Flying Training School, now stored at Takoradi. All three Cessnas were noted recently at the base: 9G-GAF (military serial G114), 9G-GAG (G115) and 9G-GAH (G116).

Ghana Air Force

to Tamale in 2013 was actually the type's last flight in Ghanaian service. As well as paratroopers, the airframe is used for training ground engineers and even cabin crew. The recently established Air Force Leadership Academy began its first classes at Tamale last December.

Takoradi

AFB Takoradi lies on the coast in the country's Western Region. The operational wing is responsible for No 1 Squadron that operates three Diamond DA42 aircraft. The single DA42 NG Twin Star, serial GHF120, fulfils the training role while the other two are dedicated surveillance aircraft. The trainer provides student pilots with an initial ten hours of flying experience before they are sent to FlightSafety Academy based in the US state of Florida. Thereafter the students that will transition to the fixed-wing squadrons will return to the DA42 for follow-on training. A DA42 simulator has been procured to perform instrument flying tuition and in-flight failure training.

The air force's intelligence, surveillance and reconnaissance (ISR) capability is provided by the



Above: Maintenance on one of the C295M transports in the main hangar at Accra. Two of the transports are home-based in the capital, with the third forward deployed at Takoradi. Despite an option, there are currently no plans to procure a fourth C295M.

two appropriately equipped DA42 MPP Guardians, both outfitted with the FLIR Star SAFIRE sensor suite. Their main roles are maritime surveillance, reconnaissance and internal security operations in support of the police force. A regular crew consists of one pilot and one crewmember who operates the sensors. A typical maritime surveillance mission can last up to 12 hours and can be flown both day and night under visual flight rules and instrument

flight rules (VFR and IFR) conditions. The Hawkeye system allows real-time transmission of sensor data. DO Systems Ltd of the UK was responsible for modifying these aircraft and also supplied a specialised DA42 crewmember trainer.

Besides these operational aircraft, AFB Takoradi also includes a newly built training school. Tuition of the first recruits started in July last year and the school can handle up to 70 students at one time.

All personnel that are sent out in support of Ghana's United Nations missions are also trained here.

The Takoradi-based Flying Training School currently has no active aircraft as the instruction programme is being redesigned. The three Cessna 172s are still formally on the air force's inventory but are stored at Takoradi awaiting their fate.

Future prospects

Based on the current threat level the air force sees no need for additional helicopters. An option for a fourth C295 exists but there are no plans to exercise this. The Super Tucano remains the key new acquisition and will fulfil a need for a strike, reconnaissance and training aircraft.

Apart from new aircraft, Nagai told *AFM* about a proposal to establish an air force base in the centre of the country, near the town of Atebubu: "The plan is to establish a helicopter squadron there, and from there we can reach the north and the south. Furthermore, there are plans to have a joint FOB [forward operating base] with the navy somewhere in the west, because of recent oil finds in the region. All of these are still on the drawing board, but we are currently working towards them." **AFM**

Acknowledgements:

The authors would like to thank AVM Maxwell Mantsebi-Tei Nagai for the warm welcome and the time he took for the interview, and Sqn Ldr Francisca Aholo, for facilitating this article.



Above: Serial GHF632 (c/n Z9-0692), a Chinese-built Z-9EH. This example is stationed at Takoradi, where one or two examples are permanently detached from the Accra-based No 3 Squadron. **Below:** Among the GHF's latest acquisitions are the four Mi-171Sh helicopters that entered service with No 3 Squadron from January 2013. This example, GHF694, is parked on the apron after an afternoon mission from Accra. The overall white colour scheme was applied for UN missions.

