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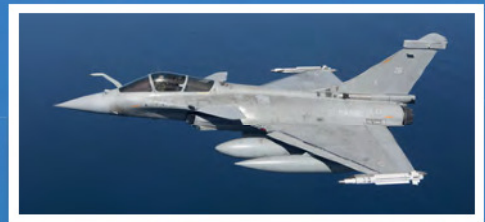
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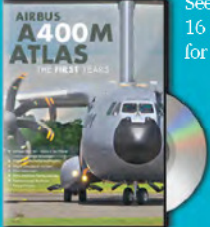
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USMC F/A-18D Hornet

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Cover: The Su-30SM multi-role fighter is operated by the 1st Squadron of the Saki-based 43rd Independent Naval Attack Regiment of the Russian Naval Aviation, tasked with the maritime attack role. Vladislav Perminov





Beyond the Bravado

Patrick Roegies and Jurgen van Toor continue their analysis of the Korean People's Army Air Force following September's Wonsan Air Festival.

THE DEMOCRATIC People's Republic of Korea (DPRK) or North Korea, is among the world's most politically isolated nations, and very little is known of the Korean People's Army Air Force (KPAAF). Until recently the DPRK held no air shows and its leaders and officials could only attend military exercises by invitation from the government. But in September the country mounted its first ever air show, the Wonsan Air Festival, at Kalma International airport in the Wonsan Kumgangsang region – a unique opportunity to assess the KPAAF inventory.

Kalma airport has been facelifted in recent years and was completed as an international facility in 2015 with a modernised airfield infrastructure. The city of Wonsan now includes a brand new youth hostel, an open-air theatre and a town square, all aiming to promote tourism in the region.

The Air Festival was billed as promoting the spirit of international peace and friendship

through a joint passion for aviation.

The Air Force

Established on August 20, 1947, the KPAAF assumed separate status from the Army in 1948, taking a modest number of Soviet-built aircraft from the World War Two era. It also adopted mainly Soviet tactics and doctrine.

But after the outbreak of the Korean War in June 1950, the KPAAF was no match for opposing UN airpower and was forced to operate from Chinese airfields, and mostly at night, until it received the latest Soviet fighters.

When the conflict ended, the service began building a new, modern air force and over the past four decades has taken most of its aircraft deliveries from its erstwhile Russian and Chinese allies.

North Korean airfields severely damaged during the Korean War were abandoned and new facilities constructed, including underground hangars, repair facilities



North Korea's pride in its armed forces was demonstrated to large crowds at the air festival with this patriotic flag-waving parachute drop.



'The aircraft presented at the Wonsan Air Festival all wore new colour schemes and appeared to have recently emerged from modernisation programmes'

Above: Su-25K 'Red 49' opened the flying display each day at the Wonsan Air Festival. The aircraft was manufactured by Sukhoi OKB with construction number 10149. All images Dr Séan Wilson unless stated
Right: One of the MD500 helicopters delivered in 1985, circumventing the United Nations weapons embargo, was 'Red 255'. The helicopters were sold through a third party as civilian aircraft, but evidence suggests they have a front-line role within the KPAAF.

along with ammunition and fuel stores.

Air defence missile sites were built underground in hardened shelters and sometimes in mountains. With several weapon embargos in place, the delivery of new aircraft ceased during the early 1990s.


Current Situation

Russian and Chinese aircraft, the oldest dating back to the early 1960s, form the operational backbone of the KPAAF. During the early 1980s it took on a number of second-hand Mikoyan-Gurevich MiG-21MF fighters and new Sukhoi Su-25K attack aircraft and by the end of the decade the helicopter fleet had been improved and expanded to around 275 aircraft, mostly Mil Mi-2s, Mi-4s and Mi-8s plus a handful of Mi-26s.

The limited supply of spares for the KPAAF's aircraft probably consists of domestically manufactured components and items supplied by friendly states, including Cuba and Iran. ▶



The MiG-29 Fulcrum fleet is operated by the 55th Kumsong Guard Air Regiment at Sunchon Air Base, 27 miles (43km) north of Pyongyang. Patrick Roegies/Jurgen van Toor



MiG-29 Fulcrum C 'Red 555' was one of ten 'fatback' MiGs that arrived as self-assembly kits in North Korea. The nation was the first export customer for the Fulcrum C although just six are believed to be operational.

Fighters and Attack Aircraft

Between the late 1980s and early 1990s some Mikoyan MiG-29 fighters were delivered but the MiG-21 remains the KPAAF's most important fast jet type.

As aircraft acquisition ceased, so did purchases of spare parts, leading to serviceability issues throughout the inventory of Russian Su-25, MiG-21, MiG-29 and Chinese Shenyang F-6 and F-7 aircraft. To save fuel, and engine and airframe hours, MiG-29 *Fulcrum* flying is minimal.

Some 50 Harbin H-5 aircraft, the Chinese licence-built version of the Ilyushin Il-28, are believed to be operational with two active regiments, probably flying non-operational missions including target-towing, but perhaps also with a limited offensive capability.

Training Regiments

The oldest airworthy training aircraft date from the 1960s. Primary fighter pilot training is mainly on the Nanchang CJ-6 before students move on to the two-seat MiG-15UTI, surviving examples of which are supplemented by small numbers of Aero L-39C Albatros. Helicopter training is conducted on the Mi-2.

As with much of the KPAAF's capability, the effectiveness of the training syllabus is debatable. Limitations in spares and fuel may also impose significant restrictions on qualified pilots' annual flying hours.

Transport Fleet

The KPAAF's primary transports are the Soviet-designed Antonov An-2 and Chinese licence-built Y-5, believed to total 270. Around ten Antonov An-24 transports and a modest fleet of quasi-military Ilyushin Il-76 aircraft are also available, while a small number of Soviet-era airliners, including the Tu-134 and Tu-154, wear Air Koryo livery for overseas VIP flights.

Helicopter Fleet

Mi-8 helicopters supplement the KPAAF's Mi-2 and Mi-4 fleets, while MD 500s are reportedly employed on special operations tasks (see later). Four Mi-26s have also been noted. There have been reports of the Mi-24 *Hind* being included within the KPAAF's operational inventory, but no evidence has emerged and it remains unclear how many of the estimated total of 275 helicopters acquired remain in active service.

Order of Battle

North Korea operates some 70 air bases, comprising jet- and non-jet-capable airfields and emergency landing strips. All are maintained for operations but some do not house active regiments.

Most of its tactical aircraft are concentrated at bases around Pyongyang and in the southern provinces. The KPAAF also has several highway strips at its disposal, for use in case of emergency during a conflict.

The order of battle is complicated, given that a unit might have multiple designations: centralised command appoints a peacetime unit identifier, another for alert and yet another for war status. In all three conditions a unit may have full designations describing its function, its regiment/battalion and adopted name, given after a heroic character.

North Korea is divided into three major districts, each assigned its own Air Combat Command structure and apparently with primary responsibility for integrated air defence. They are organised through semi-automated warning and interception systems to control SAMs, interceptors and anti-aircraft artillery units.

The First Air Combat Command, situated in the northwest and probably headquartered at Kaechon, is responsible for the west coast as far as the border with China, including Pyongyang.

The Second Air Combat Command, headquartered at Toksan, is responsible for the northeast, extending up the east coast to the Russian border.

The headquarters of the Third Air Combat Command is at Hwangju in the south. It is responsible for the border with South Korea and the southernmost areas along the east and west coasts.

Since 1996 the KPAAF has had six air divisions at its disposal, under the direct control of National Air Command. Three operate fighters, two transports and one is dedicated to fighter training.

Modernisation

The aircraft presented at the Wonsan Air Festival all wore new colour schemes and appeared to have recently emerged from modernisation programmes. Details of the upgrades are few, but unconfirmed reports suggest they may have been refurbished using Belarusian or Cuban resources. Whether the work took place in North Korea or abroad is unknown.

Aircraft acquisition

MiG-21s were acquired from 1961 in several subtypes, including the Chinese Chengdu F-7. The last legitimate *Fishbed* delivery, a batch of 30 MiG-21MFs, was bought second-hand from the Soviet Air Force in 1985.

The same year, the DPRK also received

Right: The KPAAF is believed to have more than 300 An-2s and Chinese-built Y-5s for light transport tasks. The aircraft regularly operate at low-altitude, conducting special operations missions close to the border with South Korea.

Below: MiG-21bis Fishbed 'Red 53' was manufactured by MiG OKB and allocated the construction number 75012513. It was one of a batch of 30 MiGs acquired illegally from Kazakhstan in 1999 for \$8m.



an unconfirmed number of MD 500 helicopters, circumventing the US export control and weapons embargo. It is believed the helicopters were sold to a German businessman who was covertly acting as an interim client for the DPRK.

Soviet pilots ferried a first batch of 12 Sukhoi Su-25K *Frogfoot* and two Su-25UB trainers to North Korea in 1987. Forming the first squadron of a regiment based at Suncheon, about 80km (50 miles) from Pyongyang, they were from early in the tenth production series, with construction numbers in the '10xxx' range.

A second batch of Su-25K and 'UBK aircraft arrived in spring 1988 for assignment to the regiment's second squadron; a third squadron received Su-25Ks in two batches during the summer and autumn of 1988. The KPAAF is estimated to have taken on around 36 Su-25Ks and four Su-25UBs.

Beginning in 1988, the Mikoyan OKB is known to have delivered 13 Izdeliye 9.12B MiG-29 *Fulcrum-A* and one Izdeliye 9.51 MiG-29UB *Fulcrum-B*, the last arriving in 1992. The jets were built in Russia, possibly in the 36th production batch, with construction numbers in the '257xx' range.

The second Asian country to acquire the MiG-29, North Korea was the only nation to purchase a manufacturing licence for the type and the only customer to receive the Izdeliye 9.13B MiG-29 *Fulcrum-C*.

A follow-up contract in the early 1990s called for ten *Fulcrum-Cs* for assembly at the Seventh Machine Industry Bureau at Panghyon, in a bid to start a domestic aircraft industry. The endeavour proved too ambitious, however, and progress remained far behind schedule.



The KPAAF operates a modest number of Mi-8 helicopters. 'Red 312' was one of three Mi-8s at the air festival, which were used for pleasure flights as well as a platform for parachute drops.

Faced with delays in assembly and complications in payment terms for the aircraft, which were exchanged for goods, the Russian Government abandoned the programme with only three aircraft complete.

Component supply halted and plans for a 40-strong DPRK MiG-29 fleet were dropped. The remaining *Fulcrum-C* sub-assemblies were probably cannibalised as spares for the operational jets.

At the end of the 1990s the DPRK made a new formal request to Russia for spare parts, deliveries of which eventually enabled the KPAAF to maintain its operational *Fulcrum* inventory into the new century.

The MiG-29 is assigned to the 55th Kumsong Guards Air Regiment, subordinated to the

1st Combat Division at Suncheon Air Base and comprising two squadrons. The Regiment's current operational strength is estimated at 15 aircraft, of which at least five are airworthy and operate on a rotational basis.

In all, North Korea has taken around 400 MiG-21 series aircraft, with between 100 and 150 operational. Its last known fast jet delivery was in the 1990s when 40 second-hand MiG-21bis aircraft were acquired from Kazakhstan.

In 1996 the DPRK had intended to buy 133 surplus MiG-21s from the Kazakhstan Air Defense Force and Kazvoventekhimpeks, a company operating under the auspices of the Kazakh Ministry of Defense, drafted a \$28m contract for the deal.

When the US State Department discovered the plan, it contacted the Kazakh Government and the contract was rescinded. But a second attempt was made to acquire surplus Kazakh MiG-21bis jets, and only after a shipment of six was intercepted at Baku, Azerbaijan, in 1999 did an investigation begin.

The Kazakhstan Government admitted MiGs had been sold to the DPRK and that five previous shipments, totalling 30 MiG-21bis, had been successfully delivered before the interception.

The KPAAF is still subject to a UN arms embargo and its most recent attempt to purchase a new aircraft, the Xian JH-7, failed when China refused to co-operate.



Above: An Air Koryo-operated An-24 Coke – the state-owned national flag carrier is rumoured to serve as a secondary military transport and government VIP carrier when required.

